

GENERAL DESCRIPTION

BODY STRUCTURE

1. General Description

A: PREPARATION TOOL

TOOL NAME	REMARKS
Tram tracking gauge	Used for measuring dimension.
Tape measure	Used for measuring dimension.

BS-2

Vehicle-id:
SIE-id::A:Preparation Tool

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DATUM POINTS

BODY STRUCTURE

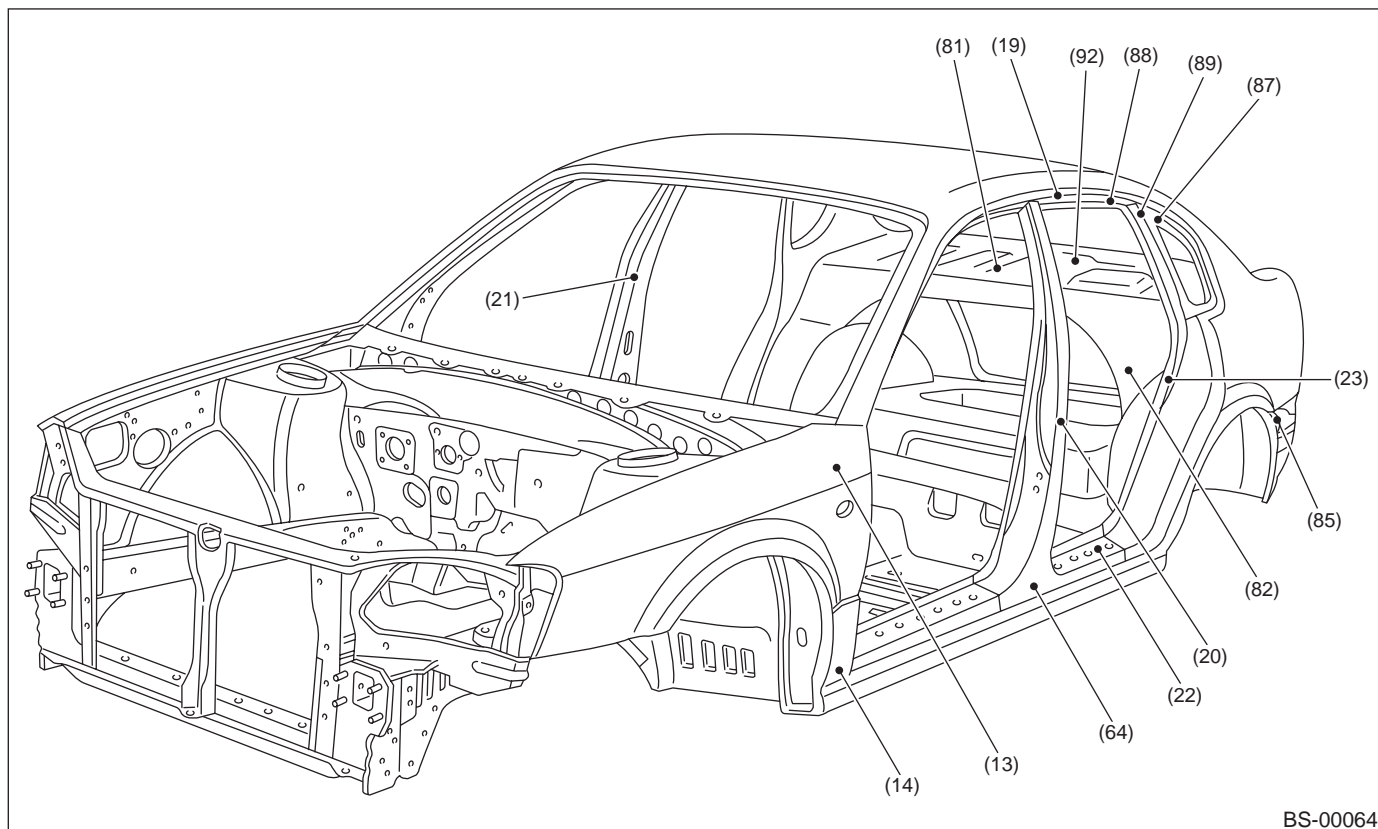
2. Datum Points

A: LOCATION

NOTE:

- Datum points are specified for body repair.
- Guide holes, locators, and indents are provided to facilitate panel replacement and to increase alignment accuracy.
- Both right and left reference points are symmetrical.

1. ROOM SECTION

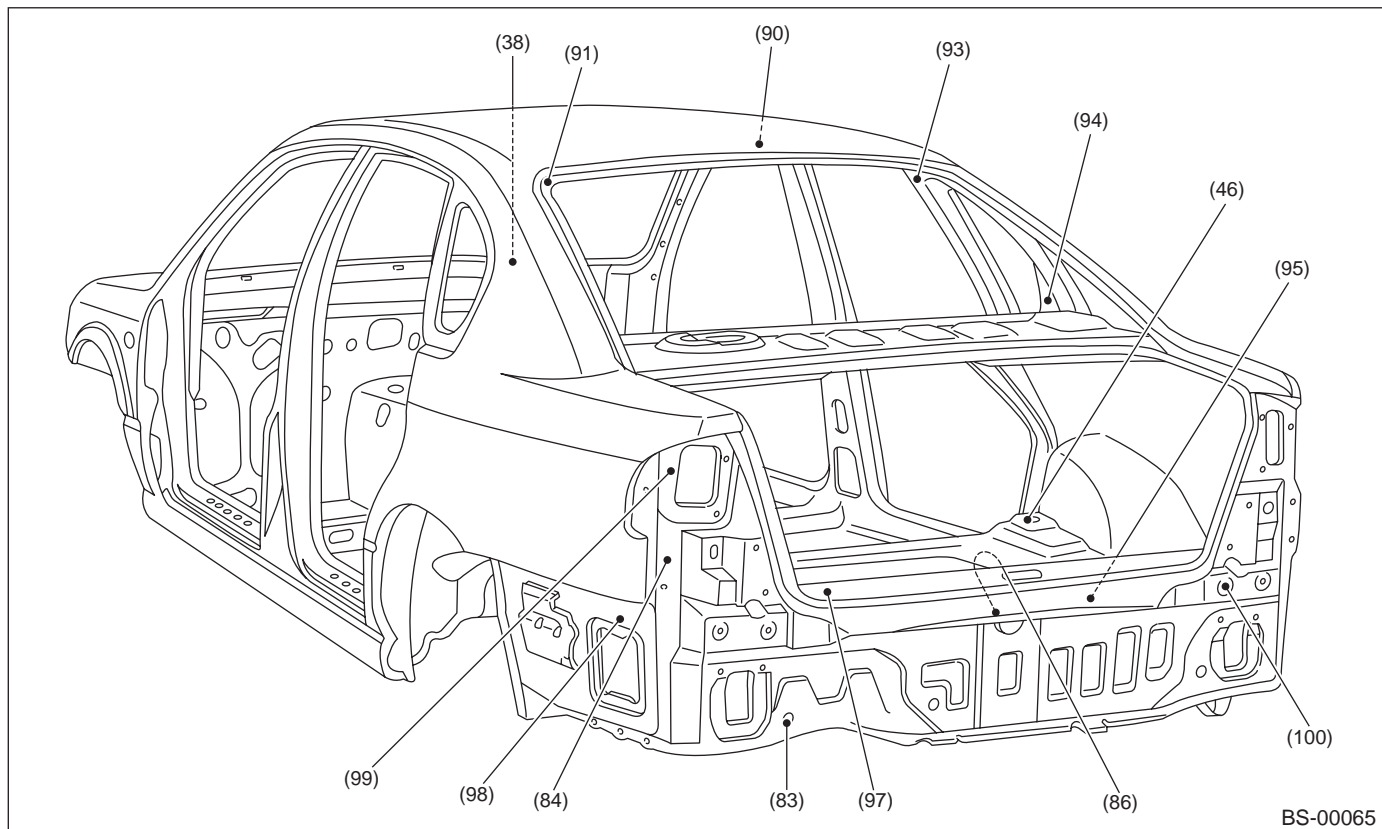


- | | | |
|--|---|---|
| (13) Front fender attaching hole at front pillar center portion M6 | (23) Rear quarter outer door switch attaching hole 20 mm (0.79 in) dia. | (87) Six light glass attaching hole 6.2 mm (0.244 in) dia. |
| (14) Front fender attaching hole at front pillar lower portion M6 | (64) Center pillar (LWR) gauge hole 16 mm (0.63 in) dia. | (88) Retainer attaching square hole at side rail outer 8 × 8 mm (0.31 × 0.31 in) |
| (19) Retainer attaching hole at side rail outer 3.2 mm (0.126 in) dia. | (81) Panel rear center (UPR) gauge hole 8 mm (0.31 in) dia. | (89) Retainer attaching square hole at rear quarter outer 8 × 8 mm (0.31 × 0.31 in) |
| (20) Center pillar outer hole 14 mm (0.55 in) dia. | (82) Bulk head rear trim clip hole 7 mm (0.28 in) dia. | (92) Rear panel center hole (UPR) 6 mm (0.24 in) dia. |
| (21) Front seat belt adjust plate attaching hole M10 | (85) Rear quarter outer gauge hole 20 mm (0.79 in) dia. | |
| (22) Side sill outer hole 20 mm (0.79 in) dia. | | |

DATUM POINTS

BODY STRUCTURE

2. REAR SECTION



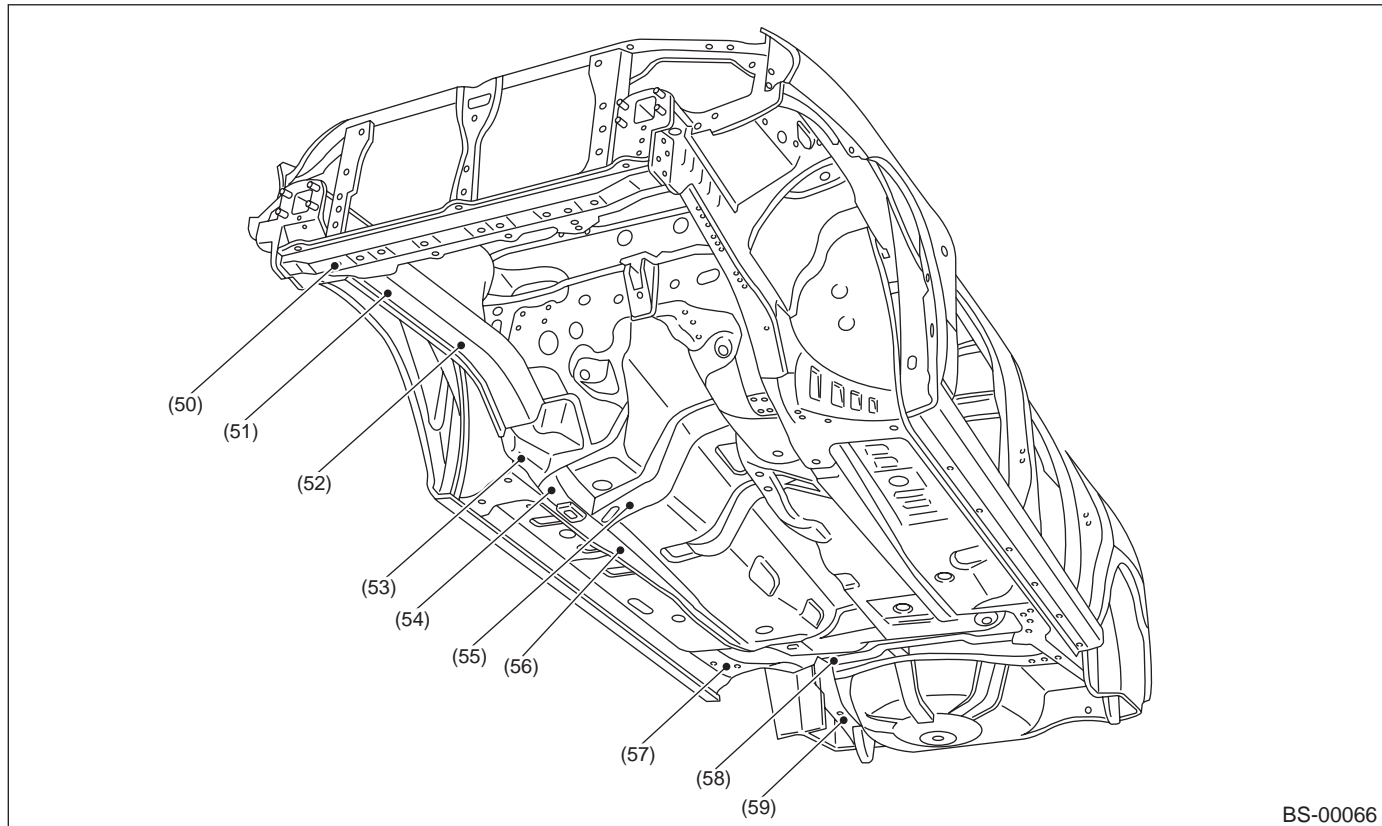
BS-00065

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|---|--|--|
| (38) Front panel instrument panel attaching hole 18 × 36 mm (0.71 × 1.42 in) dia. oblong hole | (90) Rear rear roof trim attaching hole 8 mm (0.31 in) dia. | (97) Trunk trim attaching hole at rear skirt 7 mm (0.28 in) dia. |
| (46) Rear/front shock absorber floor side attaching hole 13 mm (0.51 in) dia. | (91) Rear glass attaching hole
RH: 6.5 mm (0.256 in) dia.
LH: (6.5 × 10 mm (0.256 × 0.394 in) oval | (98) Rear bumper slider attaching hole 6.2 mm (0.244 in) dia. |
| (83) Rear skirt outer burring hole 20 mm (0.79 in) dia. | (93) Rear panel inner trim attaching hole (UPR) 8 mm (0.31 in) dia. | (99) Rear combination light mounting hole 8 mm (0.31 in) dia. |
| (84) Rear extension attaching hole 6.2 mm (0.244 in) dia. | (94) Rear panel inner trim attaching hole (LWR) 8 mm (0.31 in) dia. | (100) Rear bumper beam attaching hole 8.2 mm (0.323 in) dia.
RH: 8.2 mm (0.323 in)
LH: 8.2 × 12 mm (0.323 × 0.472 in) oval |
| (86) Reinforce striker trim attaching hole 7 mm (0.28 in) dia. | (95) Rear bumper attaching hole 12.5 × 17 mm (0.492 × 0.669 in) dia. oblong hole | |

DATUM POINTS

BODY STRUCTURE

3. UNDERBODY SECTION

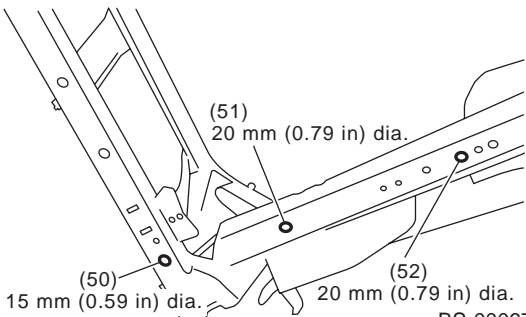
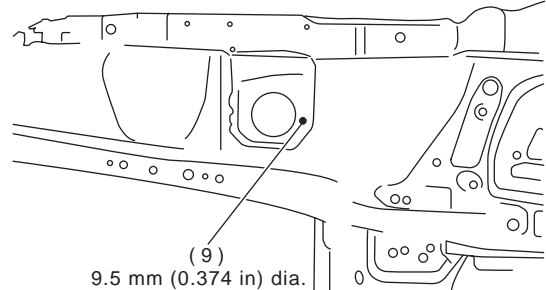
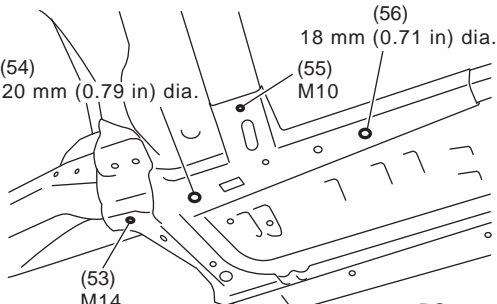
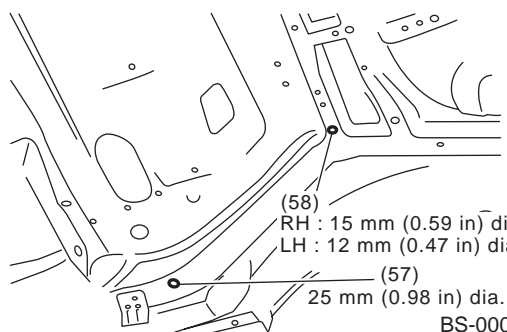
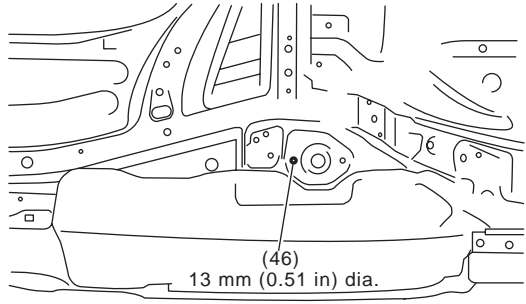
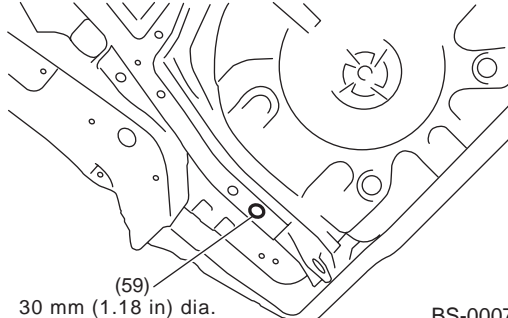
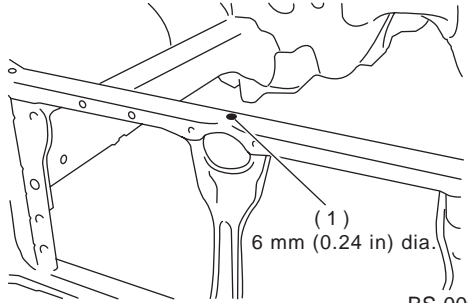
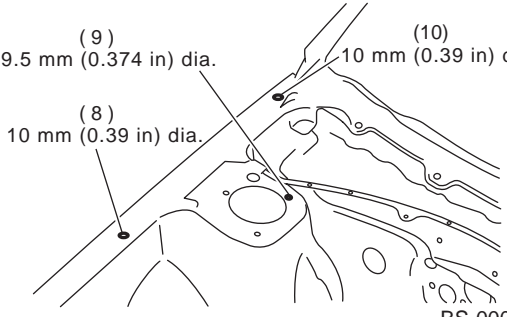


BS-00066

- | | | |
|---|--|--|
| (50) Radiator panel (LWR) frame gauge hole 15 mm (0.59 in) dia. | (54) Front side frame (Rr) gauge hole 20 mm (0.79 in) dia. | (58) Reinforcement crossmember B hole RH: 15 mm (0.59 in) dia., LH: 12 mm (0.47 in) dia. |
| (51) Front side frame (Ft) gauge hole 20 mm (0.79 in) dia. | (55) Crossmember front floor gauge hole M10 | (59) Frame rear floor side gauge hole 30 mm (1.18 in) dia. |
| (52) Front side frame (Ft) gauge hole 20 mm (0.79 in) dia. | (56) Front side frame (Rr) gauge hole 18 mm (0.71 in) dia. | |
| (53) Front suspension bracket COMPL securing nut (M14) | (57) Frame rear floor side gauge hole 25 mm (0.98 in) dia. | |

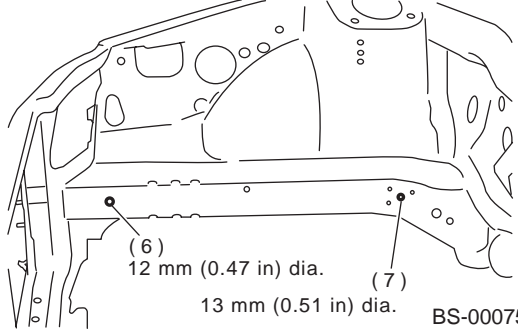
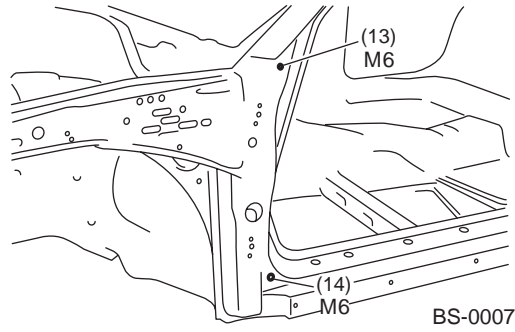
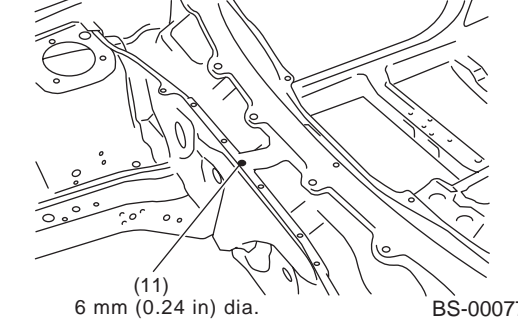
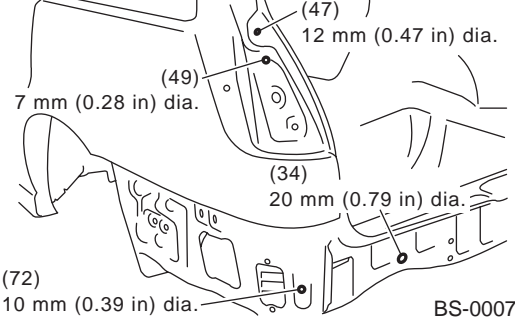
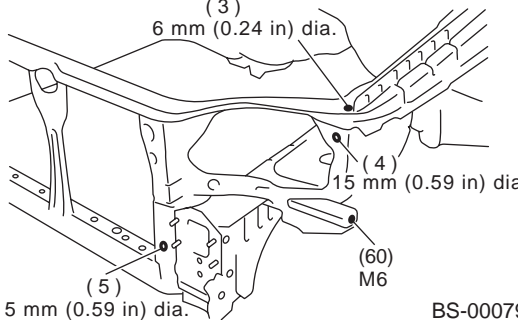
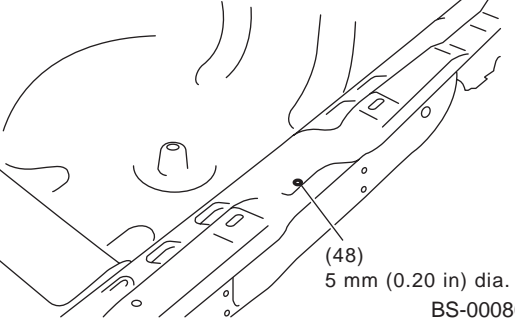
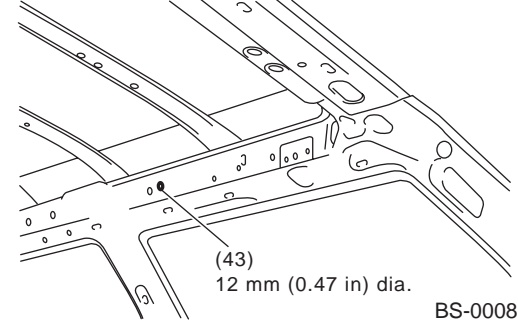
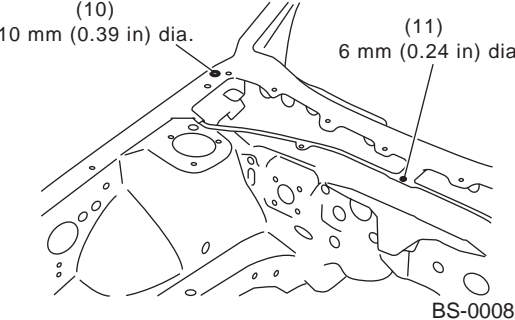
DATUM POINTS

BODY STRUCTURE

 <p>(51) 20 mm (0.79 in) dia.</p> <p>(50) 15 mm (0.59 in) dia.</p> <p>(52) 20 mm (0.79 in) dia.</p> <p>BS-00067</p>	 <p>(9) 9.5 mm (0.374 in) dia.</p> <p>BS-00068</p>
 <p>(54) 20 mm (0.79 in) dia.</p> <p>(53) M14</p> <p>(55) M10</p> <p>(56) 18 mm (0.71 in) dia.</p> <p>BS-00069</p>	 <p>(58) RH : 15 mm (0.59 in) dia. LH : 12 mm (0.47 in) dia.</p> <p>(57) 25 mm (0.98 in) dia.</p> <p>BS-00070</p>
 <p>(46) 13 mm (0.51 in) dia.</p> <p>BS-00071</p>	 <p>(59) 30 mm (1.18 in) dia.</p> <p>BS-00072</p>
 <p>(1) 6 mm (0.24 in) dia.</p> <p>BS-00073</p>	 <p>(9) 9.5 mm (0.374 in) dia.</p> <p>(10) 10 mm (0.39 in) dia.</p> <p>(8) 10 mm (0.39 in) dia.</p> <p>BS-00074</p>

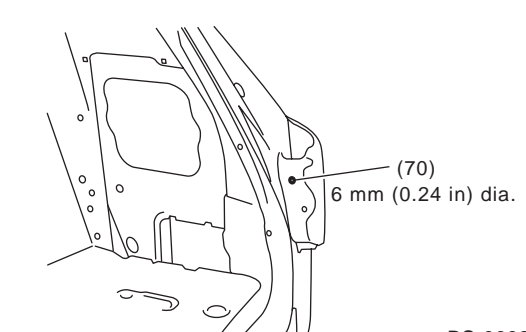
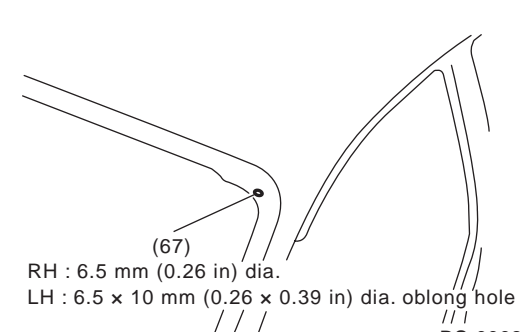
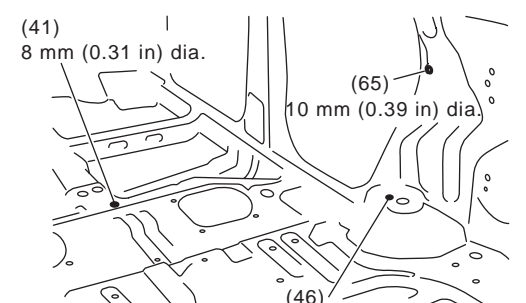
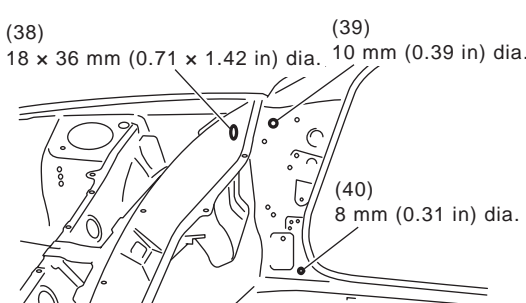
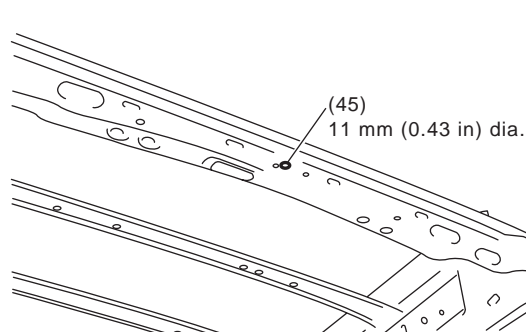
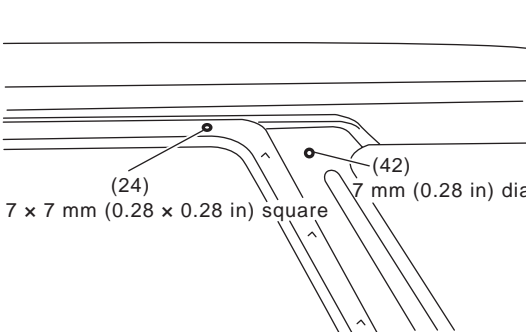
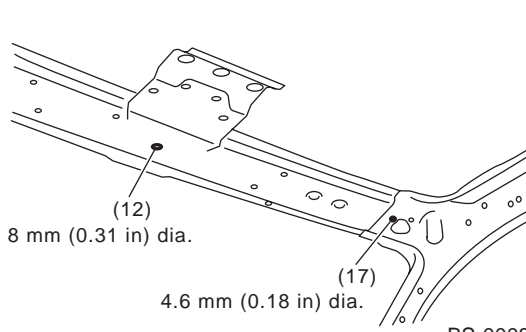
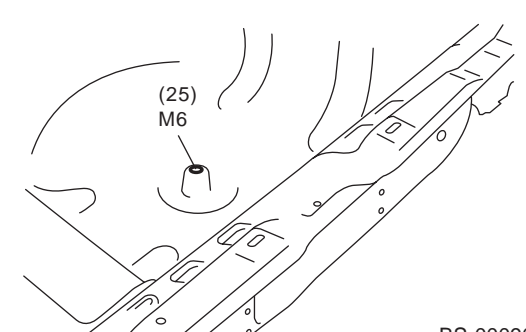
DATUM POINTS

BODY STRUCTURE

 <p>(6) 12 mm (0.47 in) dia.</p> <p>(7) 13 mm (0.51 in) dia.</p> <p>BS-00075</p>	 <p>(13) M6</p> <p>(14) M6</p> <p>BS-00076</p>
 <p>(11) 6 mm (0.24 in) dia.</p> <p>BS-00077</p>	 <p>(47) 12 mm (0.47 in) dia.</p> <p>(49) 7 mm (0.28 in) dia.</p> <p>(34) 20 mm (0.79 in) dia.</p> <p>(72) 10 mm (0.39 in) dia.</p> <p>BS-00078</p>
 <p>(3) 6 mm (0.24 in) dia.</p> <p>(4) 15 mm (0.59 in) dia.</p> <p>(5) 15 mm (0.59 in) dia.</p> <p>(60) M6</p> <p>BS-00079</p>	 <p>(48) 5 mm (0.20 in) dia.</p> <p>BS-00080</p>
 <p>(43) 12 mm (0.47 in) dia.</p> <p>BS-00081</p>	 <p>(10) 10 mm (0.39 in) dia.</p> <p>(11) 6 mm (0.24 in) dia.</p> <p>BS-00082</p>

DATUM POINTS

BODY STRUCTURE

 <p>(70) 6 mm (0.24 in) dia.</p> <p style="text-align: right;">BS-00083</p>	 <p>(67) RH : 6.5 mm (0.26 in) dia. LH : 6.5 x 10 mm (0.26 x 0.39 in) dia. oblong hole</p> <p style="text-align: right;">BS-00084</p>
 <p>(41) 8 mm (0.31 in) dia.</p> <p>(65) 10 mm (0.39 in) dia.</p> <p>(46) 13 mm (0.51 in) dia.</p> <p style="text-align: right;">BS-00085</p>	 <p>(38) 18 x 36 mm (0.71 x 1.42 in) dia.</p> <p>(39) 10 mm (0.39 in) dia.</p> <p>(40) 8 mm (0.31 in) dia.</p> <p style="text-align: right;">BS-00086</p>
 <p>(45) 11 mm (0.43 in) dia.</p> <p style="text-align: right;">BS-00087</p>	 <p>(24) 7 x 7 mm (0.28 x 0.28 in) square</p> <p>(42) 7 mm (0.28 in) dia.</p> <p style="text-align: right;">BS-00088</p>
 <p>(12) 8 mm (0.31 in) dia.</p> <p>(17) 4.6 mm (0.18 in) dia.</p> <p style="text-align: right;">BS-00089</p>	 <p>(25) M6</p> <p style="text-align: right;">BS-00090</p>

DATUM POINTS

BODY STRUCTURE

<p>(18) 3.2 mm (0.126 in) dia.</p> <p>(16) 8 mm (0.31 in) dia.</p> <p>(19) 3.2 mm (0.126 in) dia.</p> <p>BS-00091</p>	<p>(41) 8 mm (0.31 in) dia.</p> <p>BS-00092</p>
<p>(20) 14 mm (0.55 in) dia.</p> <p>(64) 16 mm (0.63 in) dia.</p> <p>(22) 20 mm (0.79 in) dia.</p> <p>(15) 20 mm (0.79 in) dia.</p> <p>BS-00093</p>	<p>(70) M6</p> <p>(26) 20 mm (0.79 in) dia.</p> <p>BS-00094</p>
<p>(44) 8 x 11 mm (0.31 x 0.43 in) dia. oblong hole</p> <p>(36) 20 mm (0.79 in) dia.</p> <p>(23) 20 mm (0.79 in) dia.</p> <p>BS-00095</p>	<p>(21) M10</p> <p>BS-00096</p>

DATUM DIMENSIONS

BODY STRUCTURE

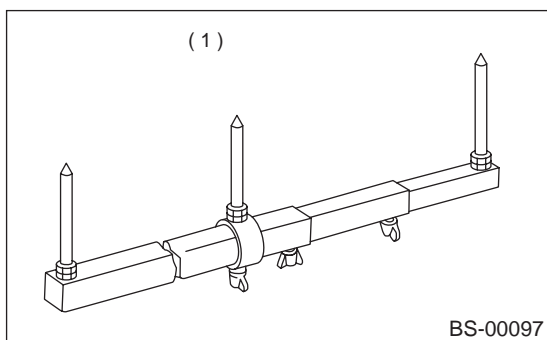
3. Datum Dimensions

A: MEASUREMENT

Refer to LOCATION for details on measurement points. <Ref. to BS-3, LOCATION, Datum Points.>

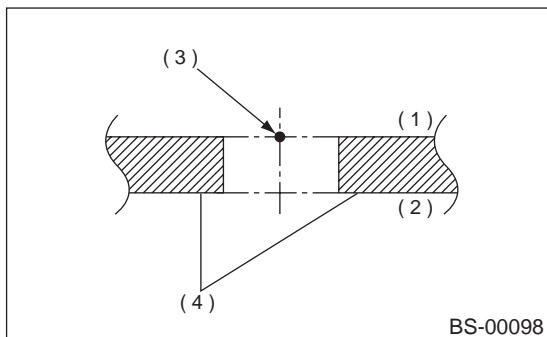
NOTE:

- Using a tram tracking gauge, measure all the dimensions.
- When using a tape measure, carefully measure dimensions without letting the tape measure sag or twist.
- Measure the linear dimensions between cores of holes.
- Suffixes "RH" and "LH" indicate right-hand and left-hand.



(1) Tram tracking gauge

- Measure at the center of the circle around the outside of the body panel.

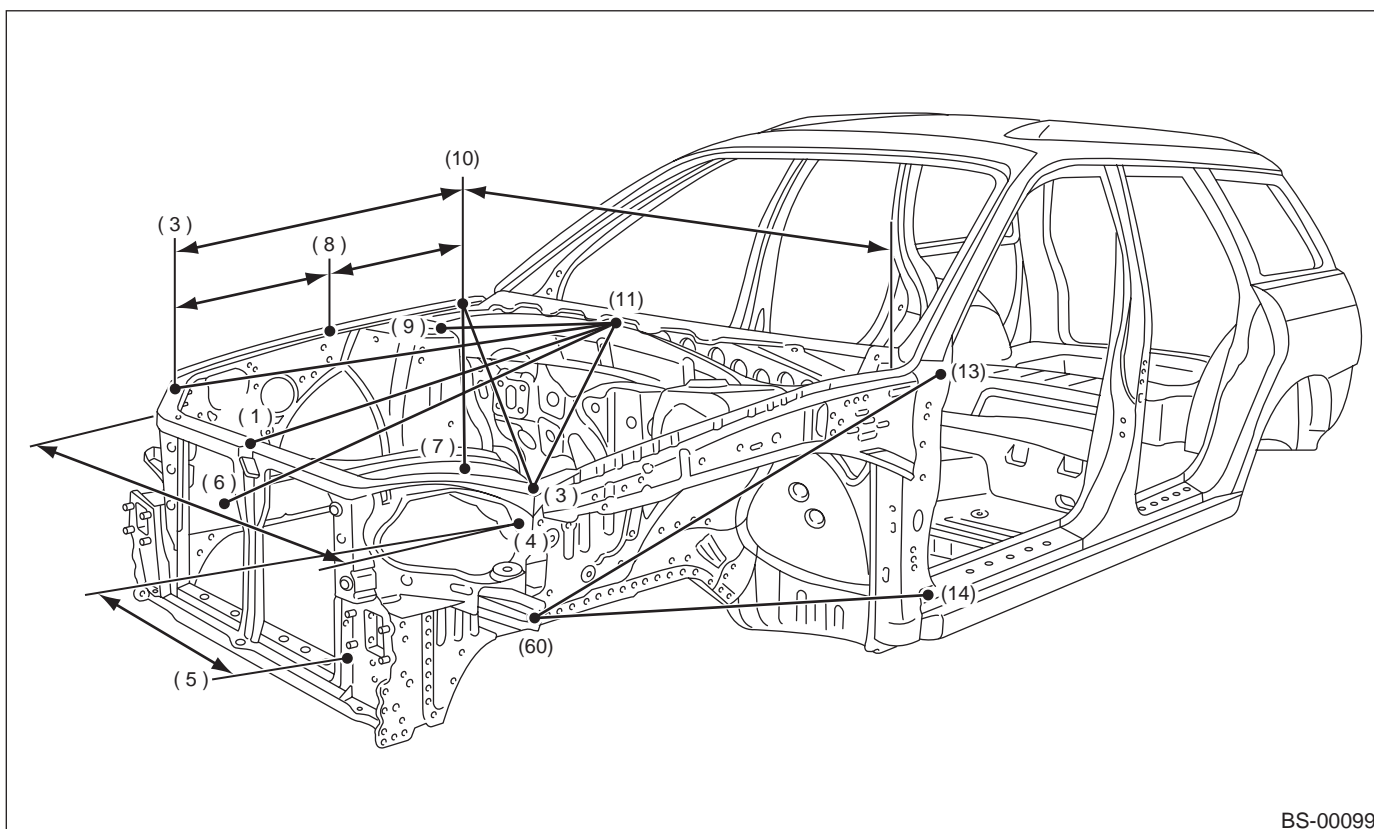


- (1) Outside
- (2) Inside
- (3) Datum point
- (4) Body panel

DATUM DIMENSIONS

BODY STRUCTURE

1. FRONT STRUCTURE



BS-00099

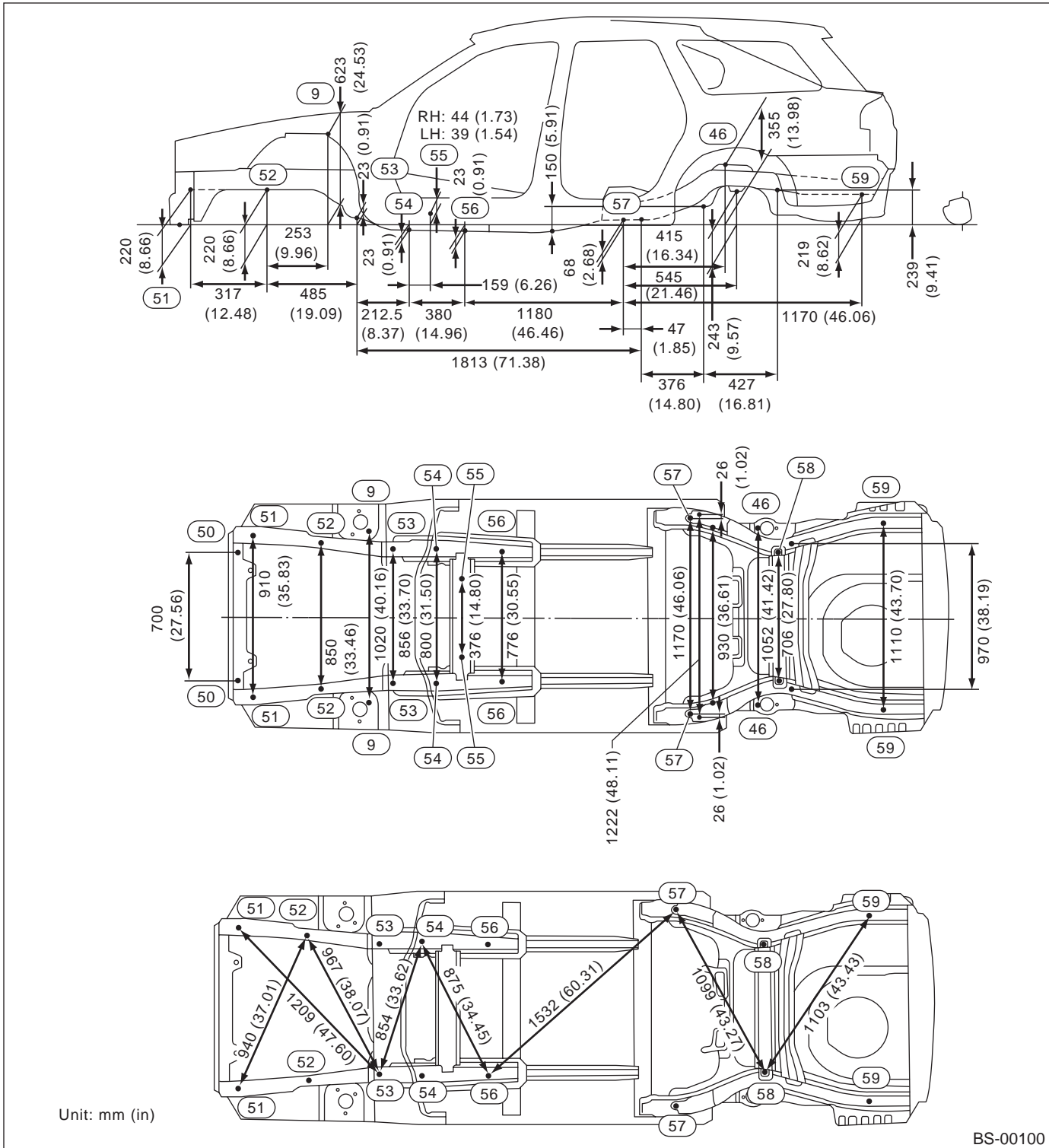
Point to point	Dimension	Point to point	Dimension
(11) to (1)	888 (34.96)	(4) RH to (4) LH	1,320 (51.97)
(11) to (9) RH	519 (20.43)	(5) RH to (4) LH	1,073 (42.24)
(11) to (9) LH	519 (20.43)	(5) LH to (4) RH	1,073 (42.24)
(11) to (6) RH	950 (37.40)	(60) RH to (13) RH	1,179 (46.42)
(11) to (6) LH	950 (37.40)	(60) LH to (13) LH	1,179 (46.42)
(11) to (3) RH	1,008 (39.68)	(60) RH to (14) RH	1,135 (44.68)
(11) to (3) LH	1,008 (39.68)	(60) LH to (14) LH	1,135 (44.68)
(10) RH to (3) RH	897 (35.31)	(10) RH to (3) LH	1,679 (66.10)
(10) RH to (8) RH	504 (19.84)	(10) LH to (3) RH	1,679 (66.10)
(10) LH to (8) LH	504 (19.84)	(8) RH to (8) LH	1,398 (55.04)
(9) RH to (9) LH	1,020 (40.16)	(8) RH to (10) LH	1,519 (59.80)
(6) RH to (6) LH	740 (29.13)	(8) LH to (10) RH	1,519 (59.80)
(6) RH to (10) LH	1,522 (59.92)	(3) RH to (8) LH	1,439 (56.65)
(6) LH to (10) RH	1,522 (59.92)	(3) LH to (8) RH	1,439 (56.65)
(8) RH to (3) RH	395 (15.55)	(7) RH to (7) LH	870 (34.25)
(8) LH to (3) LH	395 (15.55)	(7) RH to (6) LH	943 (37.13)
(10) RH to (10) LH	1,470 (57.87)	(7) LH to (6) RH	943 (37.13)
(3) RH to (3) LH	1,370 (53.94)	(7) RH to (10) LH	1,322 (52.05)
(5) RH to (5) LH	720 (28.35)	(7) LH to (10) RH	1,322 (52.05)

Unit: mm (in)

DATUM DIMENSIONS

BODY STRUCTURE

2. CENTER STRUCTURE



DATUM DIMENSIONS

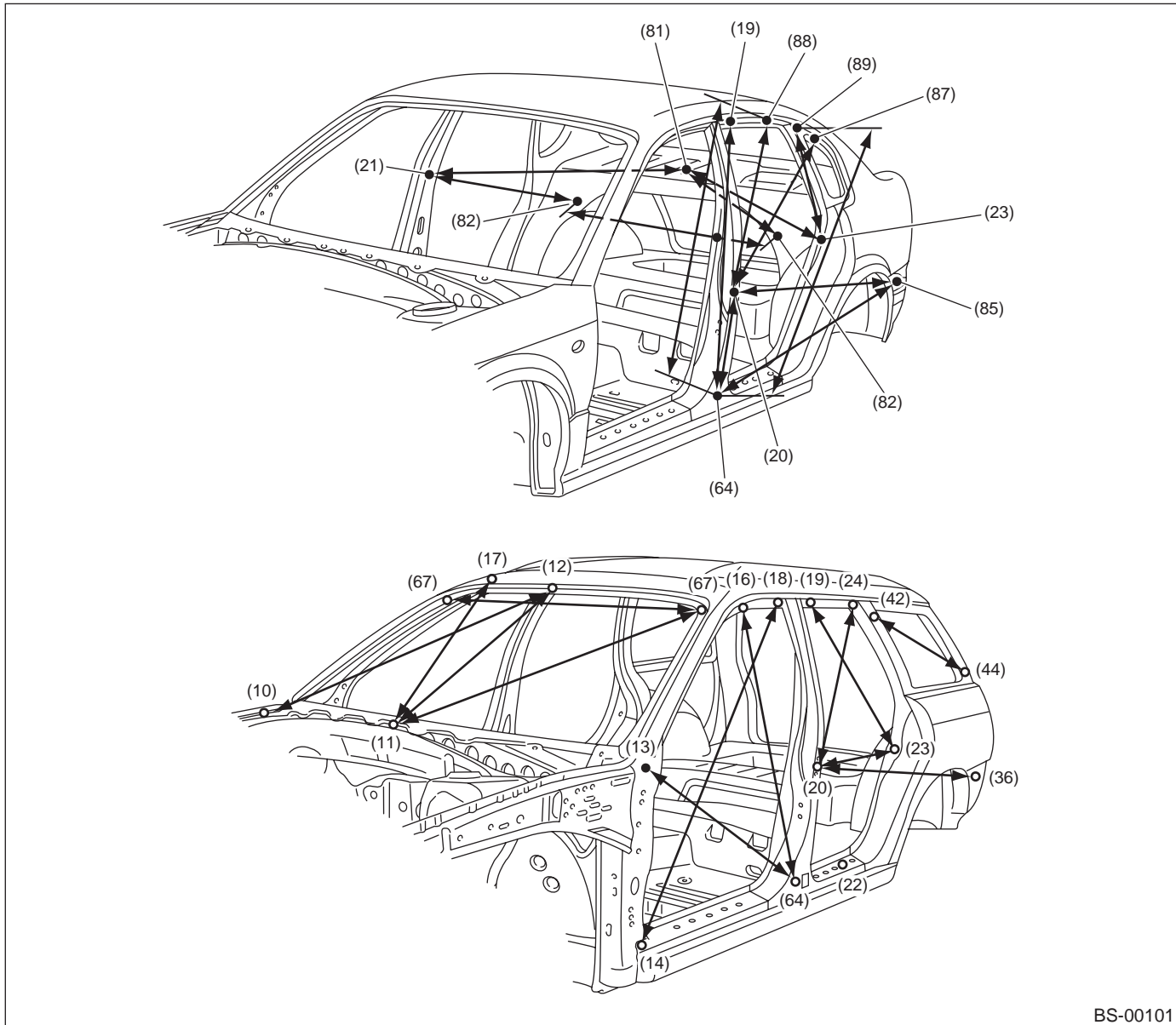
BODY STRUCTURE

MEMO:

DATUM DIMENSIONS

BODY STRUCTURE

3. WINDSHIELD AND DOORS



BS-00101

DATUM DIMENSIONS

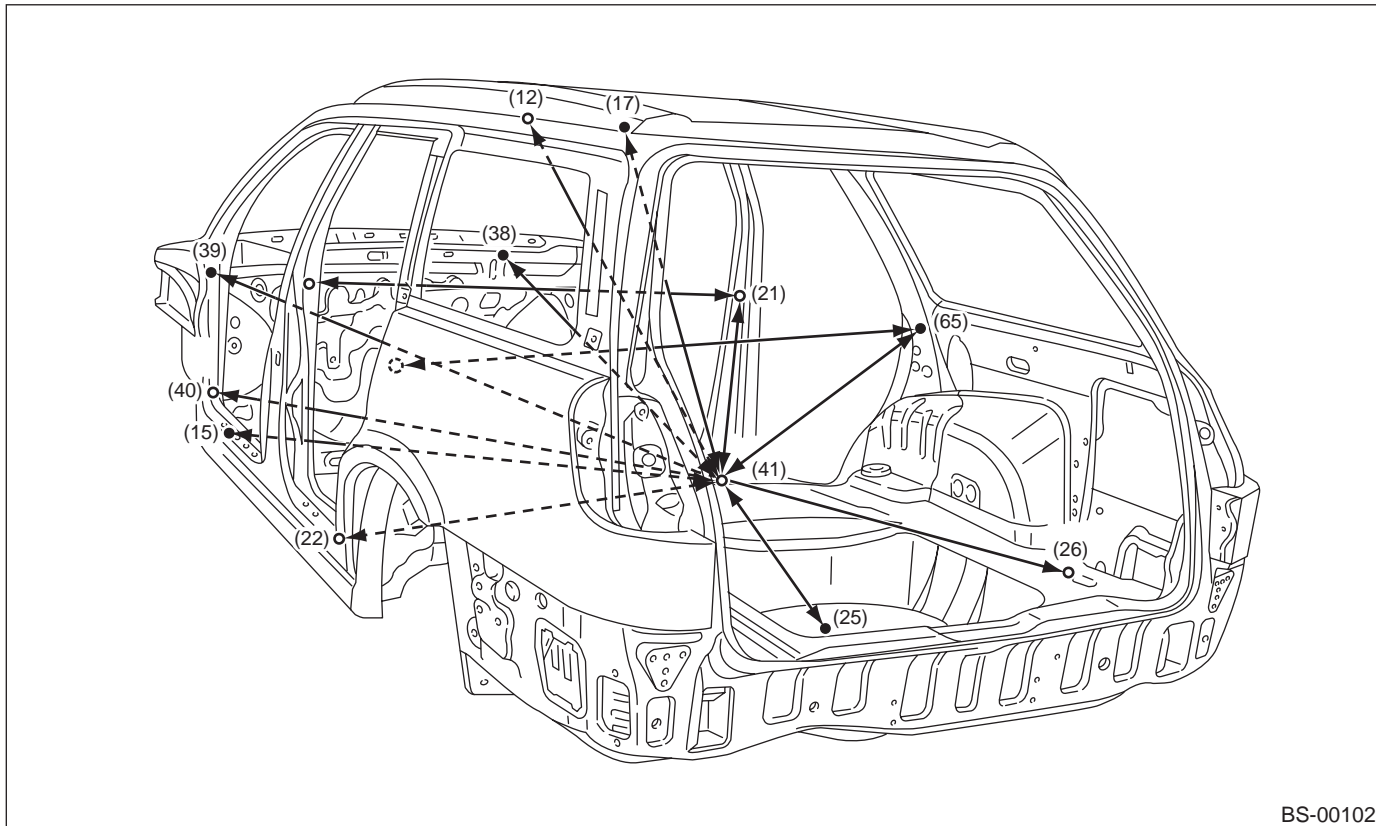
BODY STRUCTURE

Point to point	Dimension	Point to point	Dimension
(14) RH to (18) RH	1,425 (56.10)	(12) to (10) RH	1,136 (44.72)
(14) LH to (18) LH	1,425 (56.10)	(12) to (10) LH	1,136 (44.72)
(13) RH to (64) RH	1,030 (40.55)	(11) to (17) RH	1,130 (44.49)
(13) LH to (64) LH	1,030 (40.55)	(11) to (17) LH	1,130 (44.49)
(16) RH to (64) RH	966 (38.03)	(81) to (82) RH	611 (24.06)
(16) LH to (64) LH	966 (38.03)	(81) to (82) LH	611 (24.06)
(20) RH to (23) RH	864 (34.02)	(81) to (21) RH	1,309 (51.54)
(20) LH to (23) LH	864 (34.02)	(81) to (21) LH	1,309 (51.54)
(20) RH to (24) RH	860 (33.86)	(81) to (23) RH	812 (31.97)
(20) LH to (24) LH	860 (33.86)	(81) to (23) LH	812 (31.97)
(19) RH to (23) RH	899 (35.39)	(82) LH to (21) LH	1,019 (40.12)
(19) LH to (23) LH	899 (35.39)	(82) RH to (21) LH	1,606 (63.23)
(20) RH to (36) RH	1,548 (60.94)	(82) RH to (82) LH	1,140 (44.88)
(20) LH to (36) LH	1,548 (60.94)	(85) LH to (20) LH	1,548 (60.94)
(42) RH to (44) RH	1,037 (40.83)	(85) LH to (64) LH	1,650 (64.96)
(42) LH to (44) LH	1,037 (40.83)	(19) LH to (64) LH	1,029 (40.51)
(11) to (12)	989 (38.94)	(20) LH to (87) LH	911 (35.87)
(67) RH to (67) LH	1,100 (43.31)	(20) LH to (88) LH	842 (33.15)
(11) to (67) RH	1,119 (44.06)	(20) LH to (64) LH	399 (15.71)
(11) to (67) LH	1,119 (44.06)	(23) LH to (89) LH	552 (21.73)
(12) to (67) RH	551 (21.69)	(88) LH to (64) LH	1,192 (46.93)
(12) to (67) LH	551 (21.69)	(89) LH to (64) LH	1,204 (47.40)
Unit: mm (in)			

DATUM DIMENSIONS

BODY STRUCTURE

4. COMPARTMENT



BS-00102

Point to point	Dimension	Point to point	Dimension
(21) RH to (21) LH	1,351 (53.19)	(41) to (22) LH	738 (29.06)
(15) RH to (15) LH	1,455 (57.28)	(41) to (26) RH	1,459 (57.44)
(22) RH to (22) LH	1,455 (57.28)	(41) to (26) LH	1,459 (57.44)
(39) RH to (39) LH	1,385 (54.53)	(41) to (25)	1,290 (50.79)
(40) RH to (40) LH	1,392 (54.80)	(41) to (12)	1,228 (48.35)
(41) to (38)	1,639 (64.53)	(41) to (21) RH	940 (37.01)
(41) to (39) RH	1,642 (64.65)	(41) to (21) LH	940 (37.01)
(41) to (39) LH	1,642 (64.65)	(41) to (17) RH	1,261 (49.65)
(41) to (40) RH	1,531 (60.28)	(41) to (17) LH	1,261 (49.65)
(41) to (40) LH	1,531 (60.28)	(65) RH to (65) LH	1,307 (51.46)
(41) to (15) RH	1,342 (52.83)	(41) to (65) RH	969 (38.15)
(41) to (15) LH	1,342 (52.83)	(41) to (65) LH	969 (38.15)
(41) to (22) RH	738 (29.06)		Unit: mm (in)

DATUM DIMENSIONS

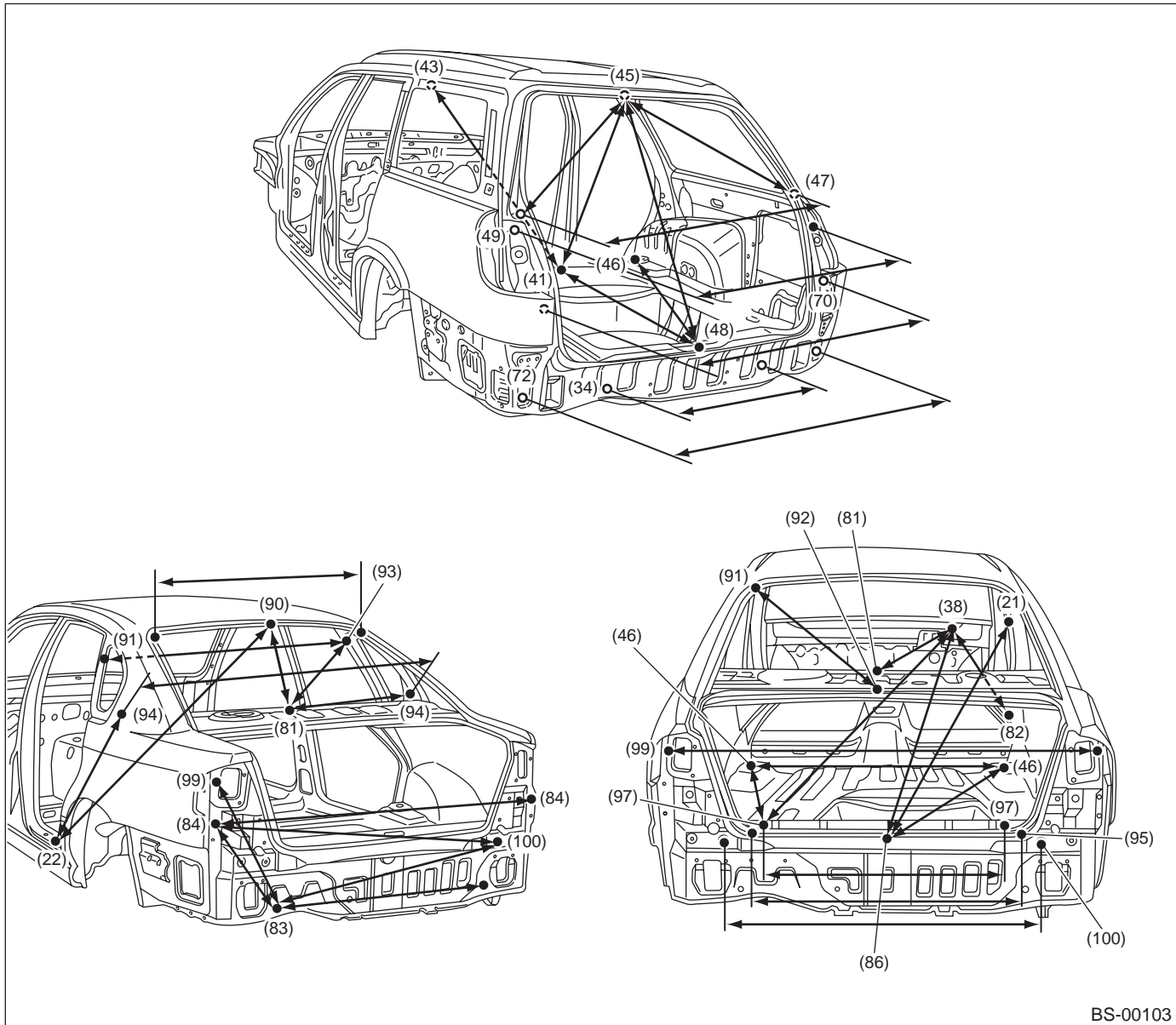
BODY STRUCTURE

MEMO:

DATUM DIMENSIONS

BODY STRUCTURE

5. TRUNK LID AND REAR GATE



DATUM DIMENSIONS

BODY STRUCTURE

Point to point	Dimension	Point to point	Dimension
(45) to (48)	974 (38.35)	(84) RH to (84) LH	1,410 (55.51)
(45) to (47) RH	797 (31.38)	(100) RH to (84) LH	1,226 (48.27)
(45) to (47) LH	797 (31.38)	(86) to (21) RH	2,073 (81.61)
(47) RH to (47) LH	1,289 (50.75)	(86) to (21) LH	2,086 (82.13)
(49) RH to (49) LH	1,313 (51.69)	(86) to (38)	3,143 (123.74)
(34) RH to (34) LH	700 (27.56)	(86) to (46) RH	1,121 (44.13)
(41) to (45)	1,482 (58.35)	(86) to (46) LH	1,140 (44.88)
(41) to (43) RH	1,206 (47.48)	(86) to (96)	558 (21.97)
(41) to (43) LH	1,199 (47.20)	(90) to (22) RH	1,319 (51.93)
(41) to (48)	1,663 (65.47)	(90) to (22) LH	1,319 (51.93)
(48) to (46) RH	1,191 (46.89)	(22) RH to (94) LH	1,710 (67.32)
(48) to (46) LH	1,191 (46.89)	(22) LH to (94) RH	1,710 (67.32)
(70) RH to (70) LH	1,215 (47.83)	(38) to (97) RH	3,100 (122.05)
(72) RH to (72) LH	1,320 (51.97)	(38) to (97) LH	3,227 (127.05)
(81) to (38)	2,351 (92.56)	(92) to (91) RH	776 (30.55)
(81) to (90)	444 (17.48)	(92) to (91) LH	776 (30.55)
(81) to (93) RH	719 (28.31)	(91) RH to (91) LH	976 (38.43)
(81) to (93) LH	719 (28.31)	(46) LH to (97) LH	1,008 (39.68)
(81) to (94) RH	632 (24.88)	(46) LH to (97) RH	1,374 (54.09)
(81) to (94) LH	632 (24.88)	(46) LH to (46) RH	1,052 (41.42)
(38) to (82) RH	2,178 (85.75)	(93) RH to (93) LH	1,099 (43.27)
(38) to (82) LH	2,419 (95.24)	(94) RH to (94) LH	1,257 (49.49)
(83) RH to (83) LH	930 (36.61)	(95) RH to (95) LH	1,115 (43.90)
(84) RH to (83) LH	1,216 (47.87)	(97) RH to (97) LH	830 (32.68)
(99) RH to (83) LH	1,246 (49.06)	(99) RH to (99) LH	1,370 (53.94)
(100) RH to (83) LH	991 (39.02)	(100) RH to (100) LH	1,020 (40.16)
Unit: mm (in)			

DATUM DIMENSIONS

BODY STRUCTURE

MEMO:

GENERAL DESCRIPTION

COMMUNICATION SYSTEM

1. General Description

A: PREPARATION TOOL

1. GENERAL TOOLS

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

COM-2

Vehicle-id:
SIE-id::A:Preparation Tool

HORN SYSTEM

COMMUNICATION SYSTEM

2. Horn System

A: SCHEMATIC

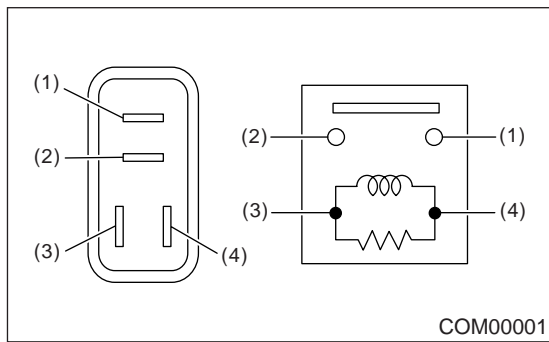
1. HORN

<Ref. to WI-136, SCHEMATIC, Horn System.>

B: INSPECTION

1. HORN RELAY

Measure horn relay resistance between terminals (indicated in table below) while connecting terminal No. 4 to battery positive terminal and terminal No. 3 to battery ground terminal.



Current	Terminal No.	Standard
Flow	1 and 2	Less than 1 Ω
No flow		More than 1 MΩ

COM-3

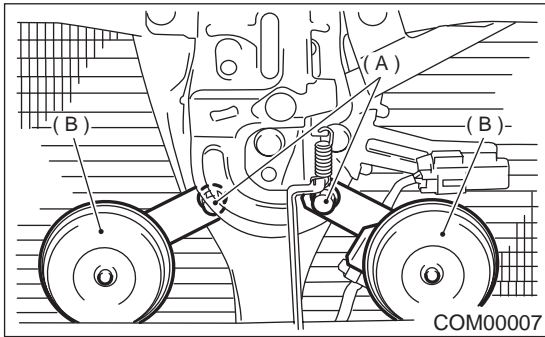
HORN

COMMUNICATION SYSTEM

3. Horn

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove horn bracket mounting bolt (A).
- 3) Disconnect harness connector and remove horn assembly (B).

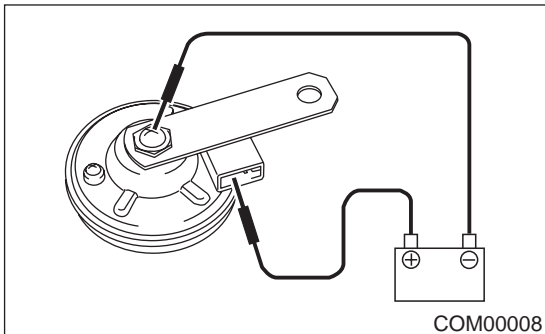


B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

With 12 V direct current supply between horn terminal and case ground, check that the horn sounds properly.



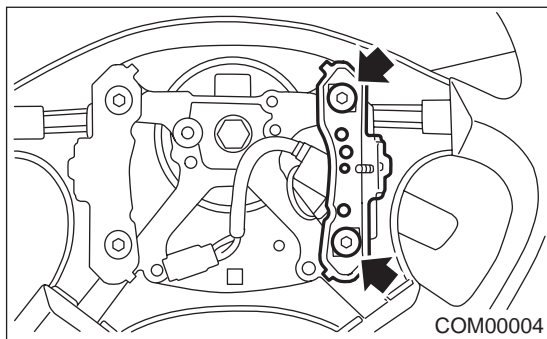
4. Horn Switch

A: REMOVAL

WARNING:

Before servicing, be sure to read the notes in the AB section for proper handling of the driver airbag module. <Ref. to AB-3, CAUTION, General Description.>

- 1) Disconnect ground cable from battery.
- 2) Remove the driver's airbag module. <Ref. to AB-13, Driver's Airbag Module.>
- 3) Remove horn switch from steering wheel as shown.

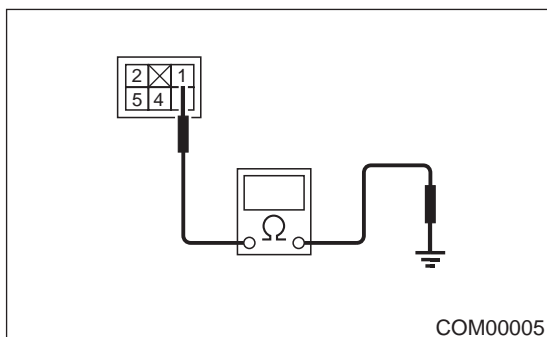


B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Measure horn switch resistance.



Switch position	Terminal No.	Standard
When horn switch is pushed.	1 and Body ground	Less than 1 Ω
When horn switch is not pushed.		More than 1 MΩ

HORN SWITCH

COMMUNICATION SYSTEM

MEMO:

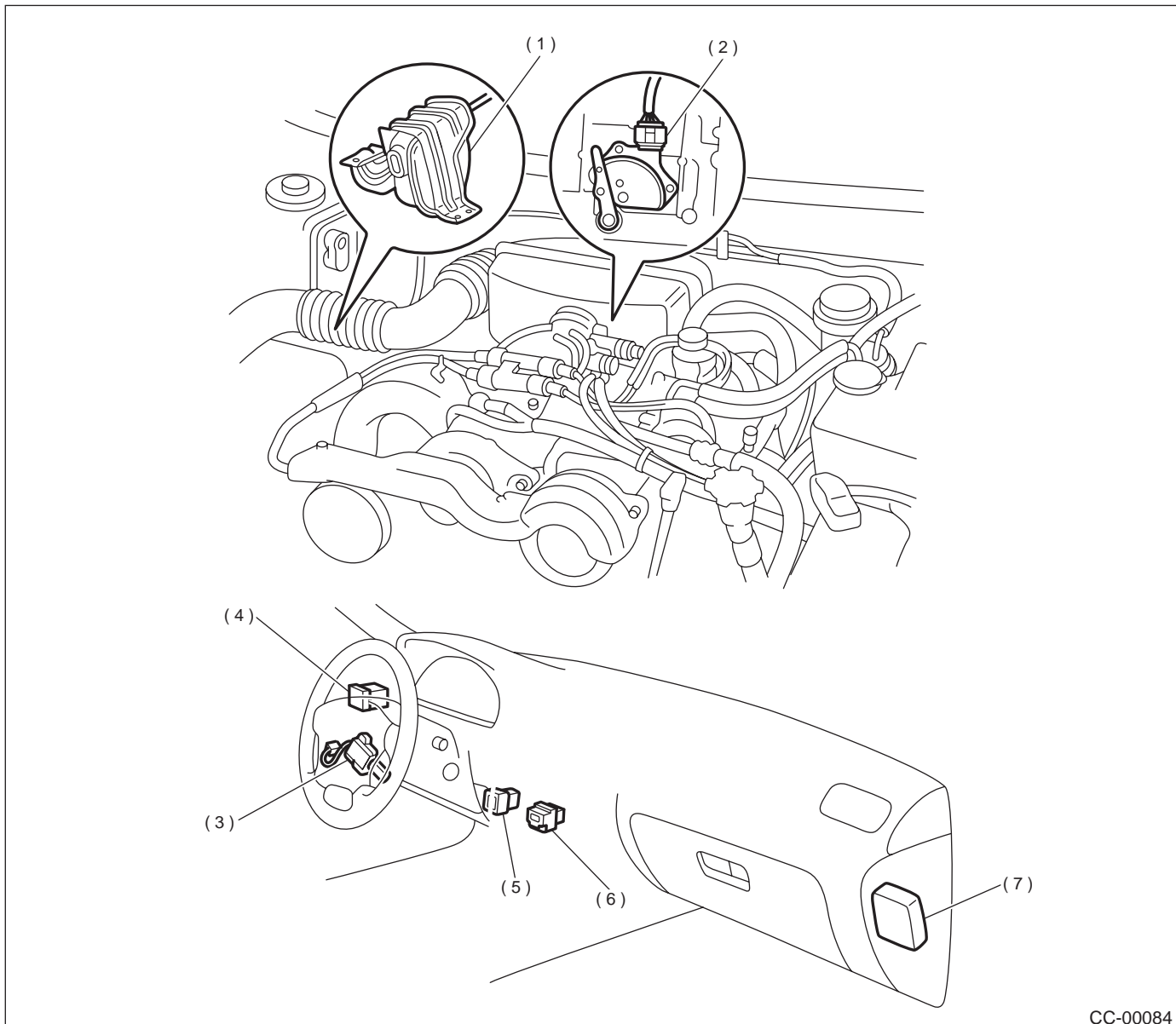
COM-6

GENERAL DESCRIPTION

CRUISE CONTROL SYSTEM

1. General Description

A: COMPONENT



CC-00084

- | | | |
|-----------------------------------|--------------------------------|---------------------------|
| (1) Actuator | (4) Cruise control main switch | (7) Cruise control module |
| (2) Inhibitor switch (AT) | (5) Clutch switch (MT) | |
| (3) Cruise control command switch | (6) Stop and brake switch | |

GENERAL DESCRIPTION

CRUISE CONTROL SYSTEM

B: CAUTION

- Before disassembling or reassembling parts, always disconnect the battery ground cable. When repairing the radio, control module and other parts with memory functions, make note of the memory before disconnecting the battery ground cable. All memory will be erased.
- Reassemble parts in the reverse order of disassembly unless otherwise indicated.
- Adjust parts to specifications specified in this manual.
- Connect connectors and hoses securely during reassembly.
- After reassembly, ensure functional parts operate properly.

C: PREPARATION TOOL

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

ACTUATOR

CRUISE CONTROL SYSTEM

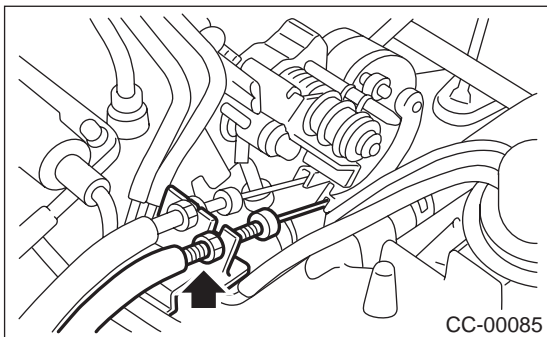
2. Actuator

A: REMOVAL

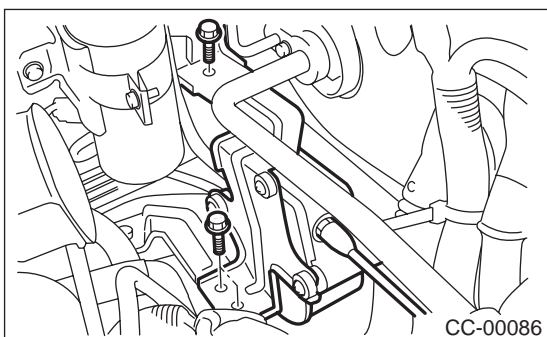
CAUTION:

- Be careful not to apply excessive load to the wire cable when adjusting and/or installing; otherwise, the actuator may be deformed or damaged.
- Do not bend cable sharply with a radius less than 100 mm (3.94 in); otherwise, cable may bend permanently, resulting in poor performance.
- When installing cable, be careful not to sharply bend or pinch the inner cable; otherwise, the cable may break.

- 1) Disconnect ground cable from battery.
- 2) Remove clip bands from cruise control cable.
- 3) Loosen nut which secures cruise control cable end to throttle cam and then remove cable from throttle cam.



- 4) Remove actuator attaching bolts.
- 5) Remove actuator while disconnecting connector.



B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

Actuator

7.4 N·m (0.75 kgf-m, 5.4 ft-lb)

Cable end nut

12 N·m (1.2 kgf-m, 8.7 ft-lb)

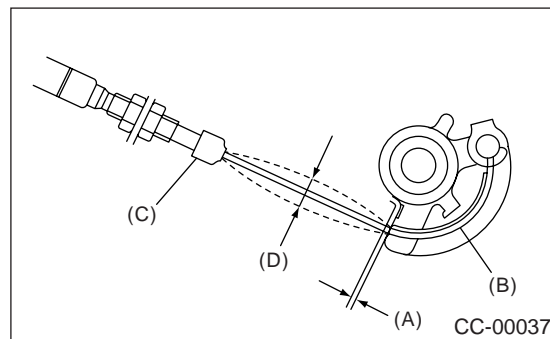
NOTE:

(A): Must be adjusted when cable end outer is fixed in place, so that gap between throttle cam and lever is 0 — 1 mm (0 — 0.04 in), or inner cable deflection (D) is 1 — 8 mm (0.039 — 0.315 in) with specified range of throttle cable play.

(Must be attached while throttle cam is being pulled by wire cable.)

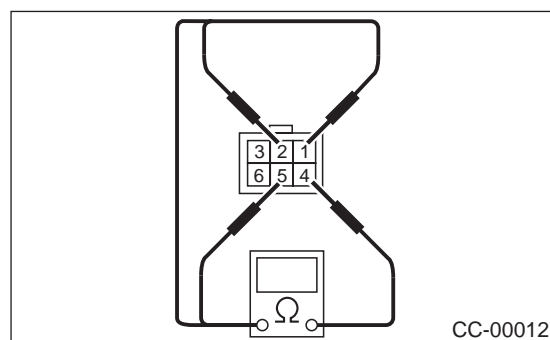
(B): Must be coated evenly on cam end inner connection.

(C): Cover must be inserted securely, until tip of cable touches cover stopper.



C: INSPECTION

Measure cruise control actuator resistance.



Terminal No.	Standard
4 and 1	Approx. 5Ω
4 and 2	Approx. 5Ω
4 and 5	Approx. 5Ω
3 and 6	Approx. 39Ω

If NG, replace cruise control actuator.

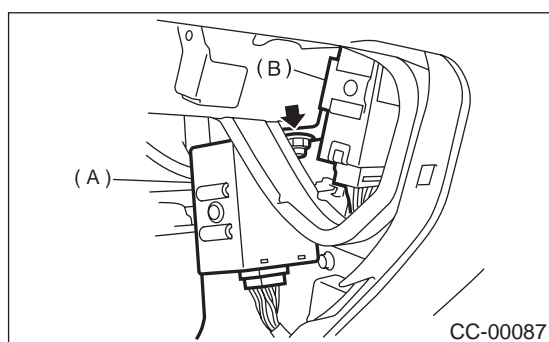
CRUISE CONTROL MODULE

CRUISE CONTROL SYSTEM

3. Cruise Control Module

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove glove box. <Ref. to EI-34, REMOVAL, Glove Box.>
- 3) Remove nut, then remove cruise control module (A) and the other electrical control module (B) while disconnecting connector.



- 4) Disconnect cruise control module and the other electrical control module.

B: INSTALLATION

Install is in the reverse order of removal.

CC-5

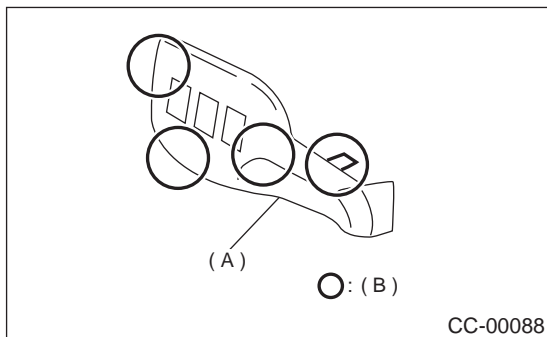
CRUISE CONTROL MAIN SWITCH

CRUISE CONTROL SYSTEM

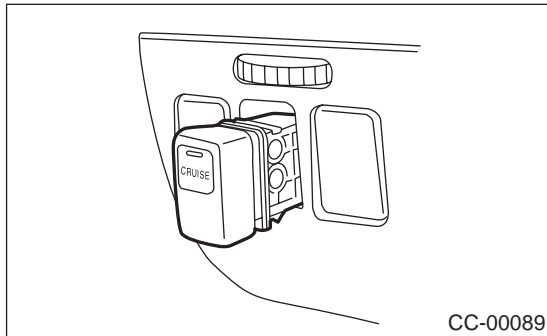
4. Cruise Control Main Switch

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove hook (B) and then remove switch panel (A) while disconnecting connector.



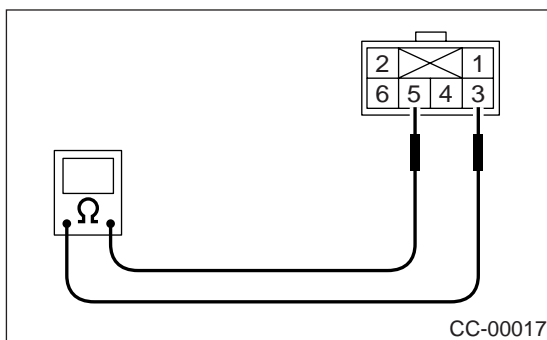
- 3) Remove main switch by pushing it outward.



B: INSTALLATION

Install is in the reverse order of removal.

C: INSPECTION



Switch position	Terminal No.	Standard
OFF (Released)	3 and 5	More than 1 MΩ
ON (Pushed)	3 and 5	Less than 1 Ω

If NG, replace cruise control main switch.

CC-6

CRUISE CONTROL COMMAND SWITCH

CRUISE CONTROL SYSTEM

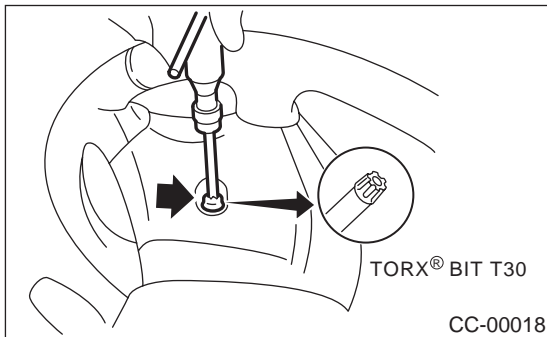
5. Cruise Control Command Switch

A: REMOVAL

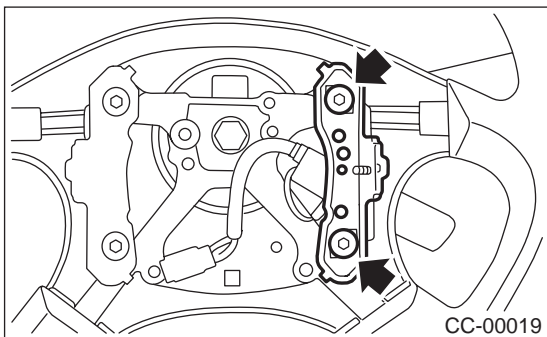
WARNING:

Before servicing, be sure to read the notes in the AB section for proper handling of the driver's airbag module. <Ref. to AB-3, CAUTION, GENERAL DESCRIPTION.>

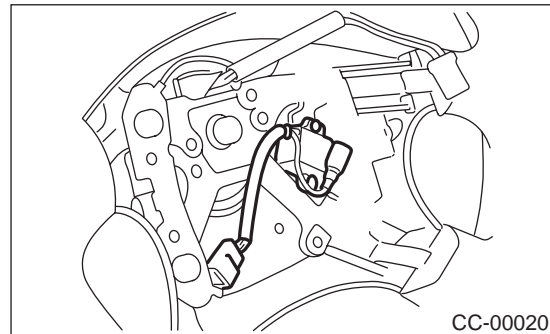
- 1) Set front wheels in straight ahead position.
- 2) Turn ignition switch OFF.
- 3) Disconnect ground cable from battery and wait for at least 20 seconds before starting work.
- 4) Using TORX® BIT T30 (Tamper resistant type), loosen two TORX® bolts which secure driver's airbag module.



- 5) Disconnect airbag module connector on back of airbag module.
- 6) Remove horn switch from steering wheel as shown.



- 7) Disconnect horn and cruise control command switch connector, then remove cruise control command switch.

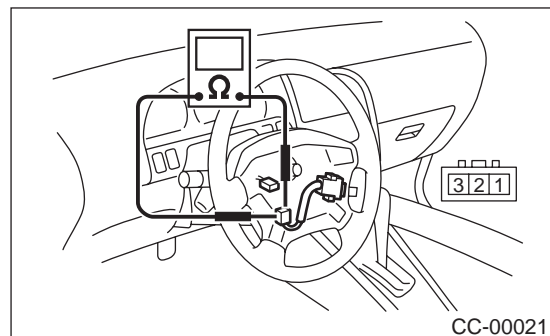


B: INSTALLATION

Install is in the reverse order of removal.

C: INSPECTION

Measure cruise control command switch resistance.



Check continuity between cruise control command switch terminals.

Switch	Position	Terminal No.	Standard
CANCEL	ON	1 (+) and 2 (-)	Less than 1 Ω
	ON	1 (+) and 3 (-)	Less than 1 Ω
SET/ COAST	OFF	1 and 2	More than 1 MΩ
	ON	1 and 2	Less than 1 Ω
RESUME/ ACCEL	OFF	1 and 3	More than 1 MΩ
	ON	1 and 3	Less than 1 Ω

If NG, replace cruise control command switch.

STOP AND BRAKE SWITCH

CRUISE CONTROL SYSTEM

6. Stop and Brake Switch

A: REMOVAL

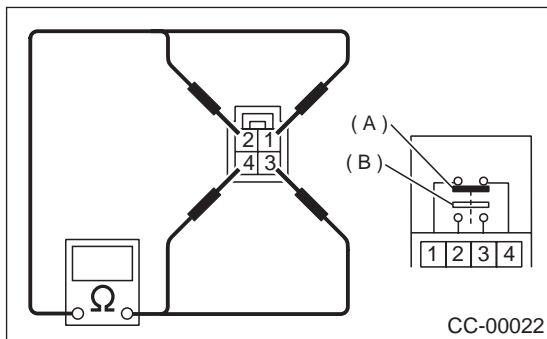
- 1) Disconnect ground cable from battery.
- 2) Disconnect connector from stop and brake switch, and then remove the switch. <Ref. to BR-42, REMOVAL, Stop Light Switch.>

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Measure the brake switch (A) and stop light switch (B) resistance.



Switch	Pedal	Terminal No.	Standard
Brake	Released	1 and 4	Less than 1 Ω
	Depressed	1 and 4	More than 1 MΩ
Stop light	Released	2 and 3	More than 1 MΩ
	Depressed	2 and 3	Less than 1 Ω

If NG, replace stop and brake switch.

CC-8

CLUTCH SWITCH

CRUISE CONTROL SYSTEM

7. Clutch Switch

A: REMOVAL

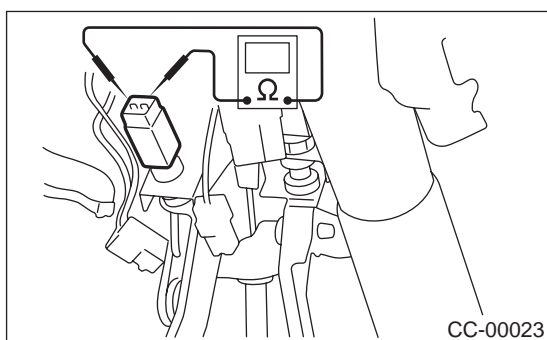
- 1) Disconnect ground cable from battery.
- 2) Disconnect the connector from the clutch switch, and then remove the switch. <Ref. to CL-21, REMOVAL, Clutch Pedal.>

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Measure clutch switch resistance.



Switch	Pedal	Terminal No.	Standard
Clutch	Released	1 and 2	Less than 1 Ω
	Depressed	1 and 2	More than 1 M Ω

If NG, replace the clutch switch.

CC-9

INHIBITOR SWITCH

CRUISE CONTROL SYSTEM

8. Inhibitor Switch

A: REMOVAL

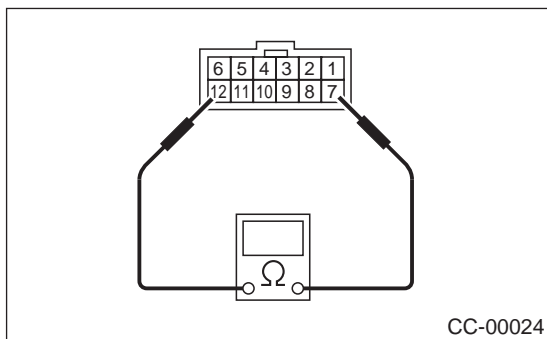
- 1) Disconnect ground cable from battery.
- 2) Disconnect connector from inhibitor switch, and then remove the switch. <Ref. to AT-50, REMOVAL, Inhibitor Switch.>

B: INSTALLATION

Installation is in the reverse order of removal.

C: INSPECTION

Measure inhibitor switch resistance.



Selector lever position	Terminal No.	Standard
P	7 and 12	Less than 1 Ω
N		Less than 1 Ω
Except P and N		More than 1 MΩ

If NG, replace inhibitor switch.

CC-10

BASIC DIAGNOSTIC PROCEDURE

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

1. Basic Diagnostic Procedure

A: PROCEDURE

Step	Value	Yes	No
1 START DIAGNOSIS. 1) Perform pre-inspection. <Ref. to CC-5, INSPECTION, General Description.> 2) Check cruise control main switch operation. Is cruise control main switch turned ON?	Cruise main switch is turned ON.	Go to step 2.	Go to symptom 1. <Ref. to CC-12, SYMPTOM CHART, Diagnostics Chart with Symptom.>
2 PREPARE SUBARU SELECT MONITOR. Is the Subaru select monitor available?	Subaru select monitor is available.	Go to step 3.	Go to step 4.
3 PERFORM CRUISE CANCEL CONDITIONS DIAGNOSIS. Perform cruise cancel conditions diagnosis. <Ref. to CC-10, Subaru Select Monitor.> Is trouble code indicated?	Trouble code is not indicated.	Go to step 4.	Go to "List of Diagnostic Trouble Code (DTC)". <Ref. to CC-26, List of Diagnostic Trouble Code (DTC).>
4 CHECK CRUISE CONTROL SET OPERATION. Check cruise control set operation. Can cruise control be set while driving at 40 km/h (25 MPH)?	Cruise control can be set.	Go to step 5.	Go to symptom 2. <Ref. to CC-12, SYMPTOM CHART, Diagnostics Chart with Symptom.>
5 CHECK VEHICLE SPEED IS HELD WITHIN SET SPEED. Make sure vehicle speed is held within set speed. Is vehicle speed held within set speed ± 3 km/h (± 2 MPH) ?	Vehicle speed is held within set speed.	Go to step 6.	Go to symptom 3. <Ref. to CC-12, SYMPTOM CHART, Diagnostics Chart with Symptom.>
6 CHECK RESUME/ACCEL OPERATION. Check RESUME/ACCEL operation. Does vehicle speed increase or return to set speed after RESUME/ACCEL switch has been pressed?	Vehicle speed increases or returns to set speed.	Go to step 7.	Go to symptom 4. <Ref. to CC-12, SYMPTOM CHART, Diagnostics Chart with Symptom.>
7 CHECK SET/COAST OPERATION. Check SET/COAST operation. Does vehicle speed decrease after SET/COAST switch has been pressed?	Vehicle speed decreases.	Go to step 8.	Go to symptom 5. <Ref. to CC-12, SYMPTOM CHART, Diagnostics Chart with Symptom.>
8 CHECK CANCEL OPERATION. Check CANCEL operation. Is cruise control released after CANCEL switch has been pressed?	Cruise control is released.	Go to step 9.	Go to symptom 6. <Ref. to CC-12, SYMPTOM CHART, Diagnostics Chart with Symptom.>
9 CHECK CRUISE CONTROL RELEASE OPERATION. Check cruise control release operation. Is cruise control released after brake pedal has been depressed?	Cruise control is released.	Go to step 10.	Go to symptom 7. <Ref. to CC-12, SYMPTOM CHART, Diagnostics Chart with Symptom.>

BASIC DIAGNOSTIC PROCEDURE

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
10 CHECK CRUISE CONTROL RELEASE OPERATION. Check cruise control release operation. Is cruise control released after clutch pedal has been depressed? (MT)	Cruise control is released.	Finish the diagnostics.	Go to symptom 8. <Ref. to CC-12, SYMPTOM CHART, Diagnostics Chart with Symptom.>

GENERAL DESCRIPTION

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

2. General Description

A: CAUTION

1. SUPPLEMENTAL RESTRAINT SYSTEM "AIRBAG"

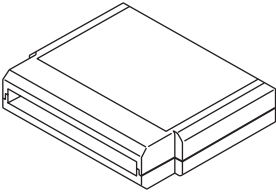

Airbag system wiring harness is routed near the cruise control module and cruise control command switch.

CAUTION:

- All airbag system wiring harness and connectors are colored yellow. Do not use electrical test equipment on these circuits.
- Be careful not to damage airbag system wiring harness when servicing the cruise control module and cruise control command switch.

B: PREPARATION TOOL

1. SPECIAL TOOLS

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST24082AA210	24082AA210 (Newly adopted tool)	CARTRIDGE	Troubleshooting for electrical systems.
 ST22771AA030	22771AA030	SUBARU SELECT MONITOR KIT	Troubleshooting for electrical systems. • English: 22771AA030 (Without printer)

2. GENERAL TOOLS

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

GENERAL DESCRIPTION

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

C: INSPECTION

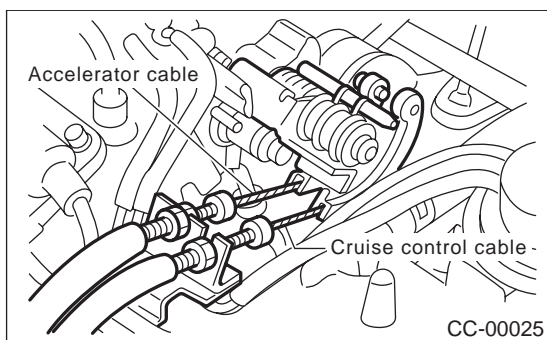
1. BATTERY

Measure battery voltage and specific gravity of electrolyte.

Standard voltage:
12 V, or more

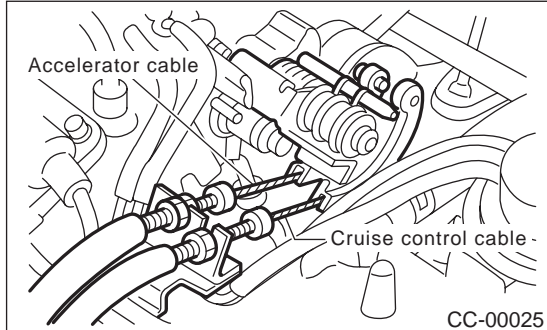
Specific gravity:
Above 1.260

2. CRUISE CONTROL CABLE



Check the cruise control cable installation.
If NG, install the cable securely.

3. ACCELERATOR CABLE

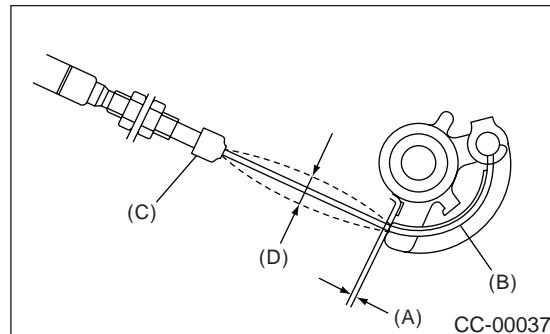


Check movement of the accelerator cable when the cruise control throttle is moved by hand.
If NG, check throttle cam.

4. THROTTLE CAM

Check that the throttle cam moves smoothly.
If NG, repair throttle cam.

5. CABLE FREE PLAY



Check that the clearance (A) between throttle cam (B) and lever or cable deflection (D) is within specifications.

Throttle cam-to-lever clearance:
0 — 1 mm (0 — 0.04 in)

Inner cable deflection:
1 — 8 mm (0.04 — 0.31 in)

If NG, adjust the clearance or the deflection with the adjust nut.

NOTE:

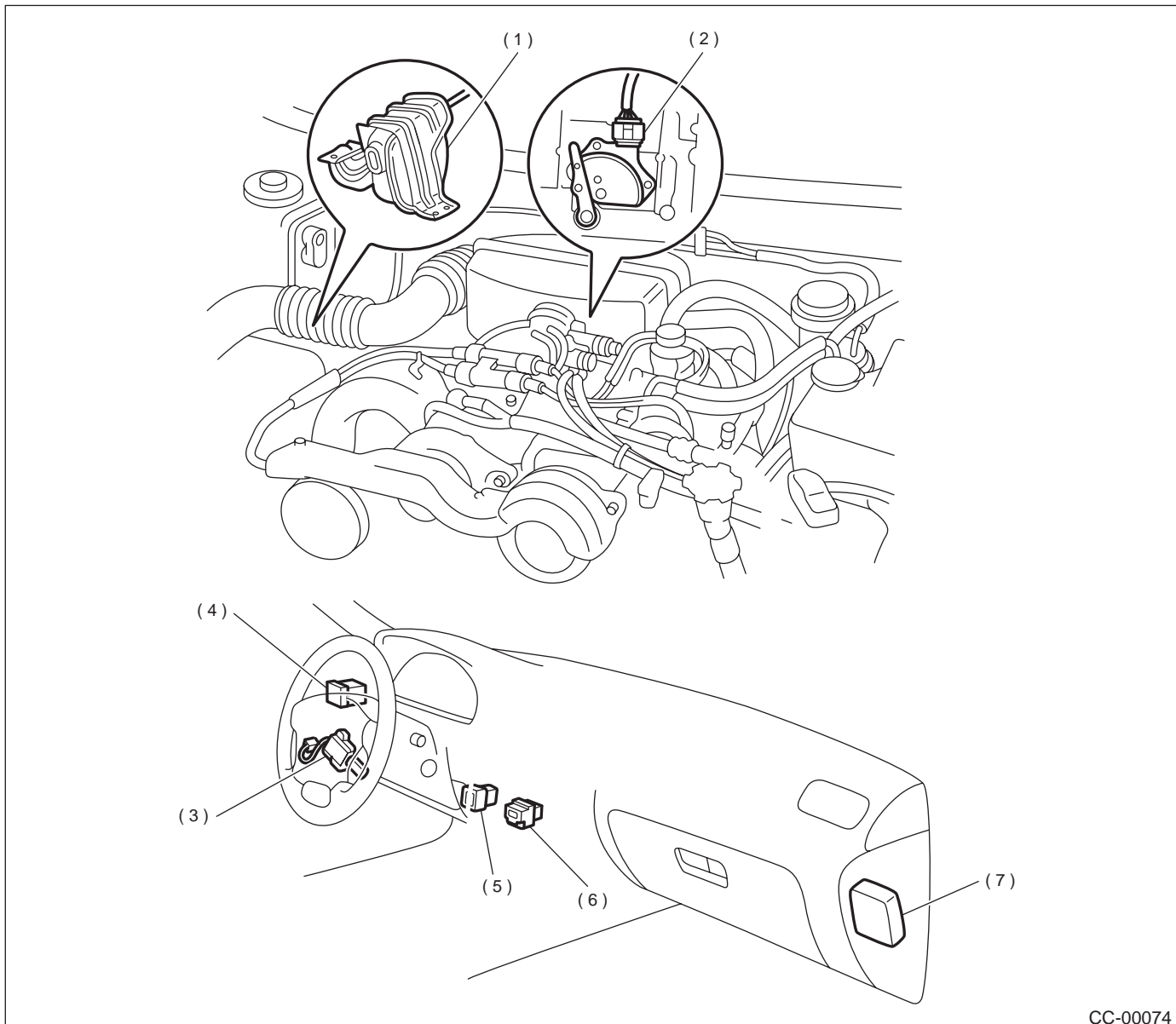
Check that the cap (C) is positioned in the groove.

ELECTRICAL COMPONENTS LOCATION

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

3. Electrical Components Location

A: LOCATION



CC-00074

- | | | |
|-----------------------------------|--------------------------------|---------------------------|
| (1) Actuator | (4) Cruise control main switch | (7) Cruise control module |
| (2) Inhibitor switch (AT) | (5) Clutch switch (MT) | |
| (3) Cruise control command switch | (6) Stop and brake switch | |

ELECTRICAL COMPONENTS LOCATION

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

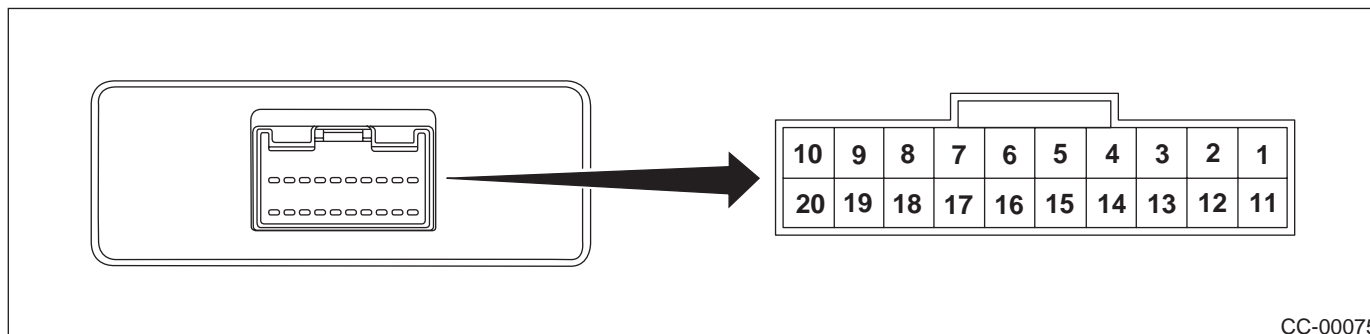
MEMO:

CRUISE CONTROL MODULE I/O SIGNAL

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

4. Cruise Control Module I/O Signal

A: ELECTRICAL SPECIFICATION



CC-00075

Content	Terminal No.	Measuring conditions and I/O signals (ignition switch ON and engine idling)
Main light	1	<ul style="list-style-type: none"> Battery voltage is present when main switch is turned OFF. "0" volt is present when main switch is turned ON.
Inhibitor switch (AT)	4	<ul style="list-style-type: none"> Battery voltage is present when selector lever is other than "P" or "N" position. "0" volt is present when selector lever is set to "P" or "N" position.
Motor B	5	<ul style="list-style-type: none"> ON-and-OFF ("0"-and-battery voltage) operation is alternately repeated while cruise control is operating. "0" volt is present when main switch is turned OFF.
Ground	6	—
Motor A	7	<ul style="list-style-type: none"> ON-and-OFF ("0"-and-battery voltage) operation is alternately repeated while cruise control is operating. "0" volt is present when main switch is turned OFF.
RESUME/ACCEL switch	9	<ul style="list-style-type: none"> Battery voltage is present when command switch is turned to RESUME/ACCEL position. "0" volt is present when command switch is released.
SET/COAST switch	10	<ul style="list-style-type: none"> Battery voltage is present when command switch is turned to SET/COAST position. "0" volt is present when command switch is released.
Main power supply	11	<ul style="list-style-type: none"> Battery voltage is present when main switch is turned ON. "0" volt is present when main switch is turned OFF.
Ignition switch	12	<ul style="list-style-type: none"> Battery voltage is present when ignition switch is turned ON. "0" volt is present when ignition switch is turned OFF.
Motor C	13	<ul style="list-style-type: none"> ON-and-OFF ("0"-and-battery voltage) operation is alternately repeated while cruise control is operating. "0" volt is present when main switch is turned OFF.
Motor clutch	14	<ul style="list-style-type: none"> ON-and-OFF ("0"-and-battery voltage) operation is alternately repeated while cruise control is operating. "0" volt is present when vehicle is stopped.
Cruise control main switch	15	<ul style="list-style-type: none"> Battery voltage is present during pressing the main switch. "0" volt is present when main switch is released.
Brake switch	16	<p>Leave clutch pedal released (MT), while cruise control main switch is turned ON. Then check that;</p> <ul style="list-style-type: none"> Battery voltage is present when brake pedal is released. "0" volt is present when brake pedal is depressed. <p>Additionally only in MT vehicle, keep the cruise control main switch to ON and leave brake pedal released. Then check that;</p> <ul style="list-style-type: none"> Battery voltage is present when clutch pedal is released. "0" volt is present when clutch pedal is depressed.
Data link connector	17	—
Data link connector	18	—

CRUISE CONTROL MODULE I/O SIGNAL

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Content	Terminal No.	Measuring conditions and I/O signals (ignition switch ON and engine idling)
Vehicle speed sensor (MT) TCM (AT)	19	Lift-up the vehicle until all four wheels are raised off ground, and then rotate any wheel manually. Approx. "5" and "0" volt pulse signals are alternately input to cruise control module.
Stop light switch	20	Turn ignition switch to OFF. Then check that; <ul style="list-style-type: none">• Battery voltage is present when brake pedal is depressed.• "0" volt is present when brake pedal is released.
NOTE: Voltage at terminals 5, 7, 13 and 14 cannot be checked unless vehicle is driving by cruise control operation.		

B: SCHEMATIC

<Ref. to WI-96, SCHEMATIC, Cruise Control System.>

SUBARU SELECT MONITOR

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

5. Subaru Select Monitor

A: OPERATION

1. GENERAL

The on-board diagnosis function of the cruise control system uses an external Subaru Select Monitor.

The on-board diagnosis function operates in two categories, which are used depending on the type of problems;

1) Cruise cancel conditions diagnosis

(1) This category of diagnosis requires actual vehicle driving in order to determine the cause, (as when cruise speed is cancelled during driving although cruise cancel condition is not entered).

(2) Cruise control module memory stores the cancel condition (Code No.) which occurred during driving. When there are plural cancel conditions (Code No.), they are shown on the Subaru Select Monitor.

CAUTION:

- The cruise control memory stores not only the cruise "cancel" which occurred (although "cancel" operation is not entered by the driver), but also the "cancel" condition input by the driver.
- The content of memory is cleared when ignition switch or cruise main switch is turned OFF.

2) Real-time diagnosis

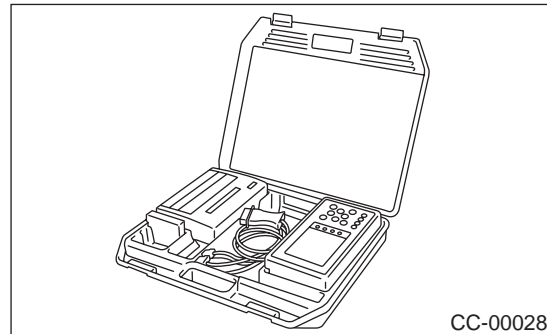
The real-time diagnosis function is used to determine whether or not the input signal system is in good order, according to signal emitted from switches, sensors, etc.

(1) Vehicle cannot be driven at cruise speed because problem occurs in the cruise control system or its associated circuits.

(2) Monitor the signal conditions from switches and sensors.

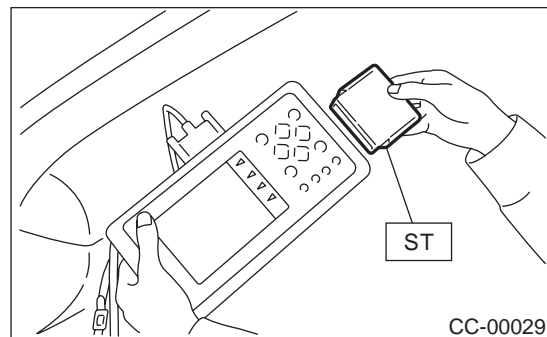
2. CRUISE CANCEL CONDITIONS DIAGNOSIS

1) Prepare Subaru Select Monitor kit.



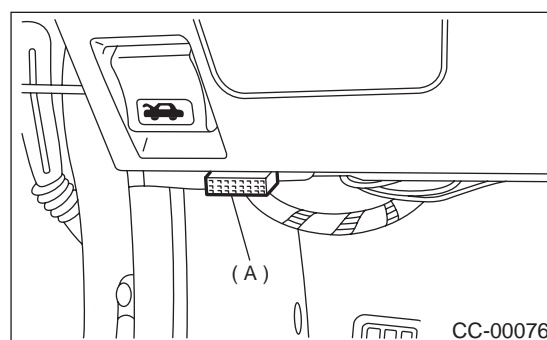
2) Connect diagnosis cable to Subaru Select Monitor.

3) Insert cartridge into Subaru Select Monitor. <Ref. to CC-4, SPECIAL TOOLS, PREPARATION TOOL, General Description.>



4) Connect Subaru Select Monitor to data link connector.

(1) Data link connector (A) is located in the lower portion of the instrument panel (on the driver's side).



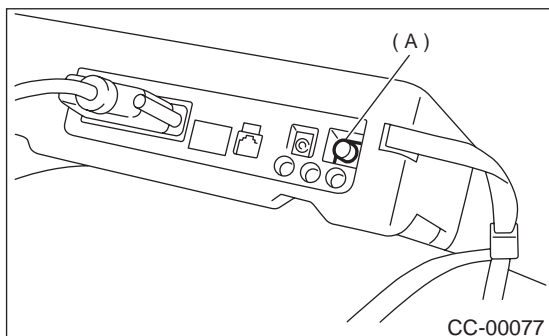
(2) Connect diagnosis cable to data link connector.

5) Start engine and turn cruise control main switch to ON.

SUBARU SELECT MONITOR

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

6) Turn Subaru Select Monitor switch (A) to ON.



7) On the «Main Menu» display screen, select the {All System Diagnosis} and press the [YES] key.

NOTE:

The diagnostic trouble code (DTC) is also shown in the {Each System Check} mode. This mode is called up on the «Cruise Control Diagnosis» display screen by selecting the item {Cancel Code(s) Display}.

8) Drive vehicle at least 30 km/h (19 MPH) with cruise speed set.

9) If cruise speed is canceled itself (without doing any cancel operations), a diagnostic trouble code (DTC) will appear on select monitor display.

CAUTION:

- A diagnostic trouble code (DTC) will also appear when cruise cancel is effected by driver. Do not confuse.
- Have a co-worker ride in vehicle to assist in diagnosis during driving.

NOTE:

Diagnostic trouble code (DTC) will be cleared by turning ignition switch or cruise control main switch to OFF.

3. REAL-TIME DIAGNOSIS

- 1) Connect select monitor.
- 2) Turn ignition switch and cruise control main switch to ON.
- 3) Turn Subaru Select Monitor switch to ON.
- 4) On the «Main Menu» display screen, select the {Each System Check} and press the [YES] key.
- 5) On the «System Selection Menu» display screen, select the {Cruise Control} and press the [YES] key.
- 6) Press the [YES] key after displayed the information of engine type.
- 7) On the «Cruise Control Diagnosis» display screen, select the {Current Data Display & Save} and press the [YES] key.
- 8) Make sure that normal indication is displayed when controls are operated as indicated below:
 - Depress/release the brake pedal. (Stop light switch and brake switch turn ON or OFF.)
 - Turn ON/OFF the “SET/COAST” switch.
 - Turn ON/OFF the “RESUME/ACCEL” switch.
 - Depress/release the clutch pedal. (MT)
 - Set the selector lever to P or N. (AT)

NOTE:

- For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.
- For detailed concerning diagnostic trouble codes (DTCs), refer to the List of Diagnostic Trouble Code (DTC).
<Ref. to CC-26, List of Diagnostic Trouble Code (DTC).>

DIAGNOSTICS CHART WITH SYMPTOM

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

6. Diagnostics Chart with Symptom

A: SYMPTOM CHART

	Symptom	Repair area	Reference
1	Cruise control main switch is not turned ON.	(1) Check power supply.	<Ref. to CC-14, CHECK POWER SUPPLY, Diagnostics Chart with Symptom.>
		(2) Check cruise control main switch.	<Ref. to CC-16, CHECK CRUISE CONTROL MAIN SWITCH, Diagnostics Chart with Symptom.>
2	Cruise control cannot be set.	(1) Check SET/COAST switch.	<Ref. to CC-18, CHECK CRUISE CONTROL COMMAND SWITCH, Diagnostics Chart with Symptom.>
		(2) Check stop light switch and brake switch.	<Ref. to CC-20, CHECK STOP LIGHT SWITCH AND BRAKE SWITCH, Diagnostics Chart with Symptom.>
		(3) Check clutch switch (MT).	<Ref. to CC-22, CHECK CLUTCH SWITCH (MT), Diagnostics Chart with Symptom.>
		(4) Check inhibitor switch (AT).	<Ref. to CC-24, CHECK INHIBITOR SWITCH (AT), Diagnostics Chart with Symptom.>
		(5) Check vehicle speed sensor.	<Ref. to CC-28, DTC 22 VEHICLE SPEED SENSOR, Diagnostics Chart with Trouble Code.>
		(6) Check motor drive system.	<Ref. to CC-32, DTC 35 AND 36 ACTUATOR MOTOR, Diagnostics Chart with Trouble Code.>
		(7) Check motor clutch drive system.	<Ref. to CC-34, DTC 37 ACTUATOR MOTOR CLUTCH, Diagnostics Chart with Trouble Code.>
3	Vehicle speed is not held within set speed ± 3 km/h (± 2 MPH).	(1) Check vehicle speed sensor.	<Ref. to CC-28, DTC 22 VEHICLE SPEED SENSOR, Diagnostics Chart with Trouble Code.>
		(2) Check motor drive system.	<Ref. to CC-32, DTC 35 AND 36 ACTUATOR MOTOR, Diagnostics Chart with Trouble Code.>
		(3) Check motor clutch drive system.	<Ref. to CC-34, DTC 37 ACTUATOR MOTOR CLUTCH, Diagnostics Chart with Trouble Code.>
4	Vehicle speed does not increase or does not return to set speed after RESUME/ACCEL switch has been pressed.	(1) Check RESUME/ACCEL switch.	<Ref. to CC-18, CHECK CRUISE CONTROL COMMAND SWITCH, Diagnostics Chart with Symptom.>
		(2) Check motor drive system.	<Ref. to CC-32, DTC 35 AND 36 ACTUATOR MOTOR, Diagnostics Chart with Trouble Code.>
		(3) Check motor clutch drive system.	<Ref. to CC-34, DTC 37 ACTUATOR MOTOR CLUTCH, Diagnostics Chart with Trouble Code.>
5	Vehicle speed does not decrease after SET/COAST switch has been pressed.	(1) Check SET/COAST switch.	<Ref. to CC-18, CHECK CRUISE CONTROL COMMAND SWITCH, Diagnostics Chart with Symptom.>
		(2) Check motor drive system.	<Ref. to CC-32, DTC 35 AND 36 ACTUATOR MOTOR, Diagnostics Chart with Trouble Code.>
		(3) Check motor clutch drive system.	<Ref. to CC-34, DTC 37 ACTUATOR MOTOR CLUTCH, Diagnostics Chart with Trouble Code.>
6	Cruise control is not released after CANCEL switch has been pressed.	(1) Check CANCEL switch.	<Ref. to CC-18, CHECK CRUISE CONTROL COMMAND SWITCH, Diagnostics Chart with Symptom.>
		(2) Check motor drive system.	<Ref. to CC-32, DTC 35 AND 36 ACTUATOR MOTOR, Diagnostics Chart with Trouble Code.>
		(3) Check motor clutch drive system.	<Ref. to CC-34, DTC 37 ACTUATOR MOTOR CLUTCH, Diagnostics Chart with Trouble Code.>
7	Cruise control is not released after brake pedal has been depressed.	(1) Check stop light switch and brake switch.	<Ref. to CC-20, CHECK STOP LIGHT SWITCH AND BRAKE SWITCH, Diagnostics Chart with Symptom.>
		(2) Check motor drive system.	<Ref. to CC-32, DTC 35 AND 36 ACTUATOR MOTOR, Diagnostics Chart with Trouble Code.>
		(3) Check motor clutch drive system.	<Ref. to CC-34, DTC 37 ACTUATOR MOTOR CLUTCH, Diagnostics Chart with Trouble Code.>

DIAGNOSTICS CHART WITH SYMPTOM

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Symptom		Repair area	Reference
8	Cruise control is not released after clutch pedal has been depressed (MT).	(1) Check clutch switch.	<Ref. to CC-22, CHECK CLUTCH SWITCH (MT), Diagnostics Chart with Symptom.>
		(2) Check motor drive system.	<Ref. to CC-32, DTC 35 AND 36 ACTUATOR MOTOR, Diagnostics Chart with Trouble Code.>
		(3) Check motor clutch drive system.	<Ref. to CC-34, DTC 37 ACTUATOR MOTOR CLUTCH, Diagnostics Chart with Trouble Code.>

DIAGNOSTICS CHART WITH SYMPTOM

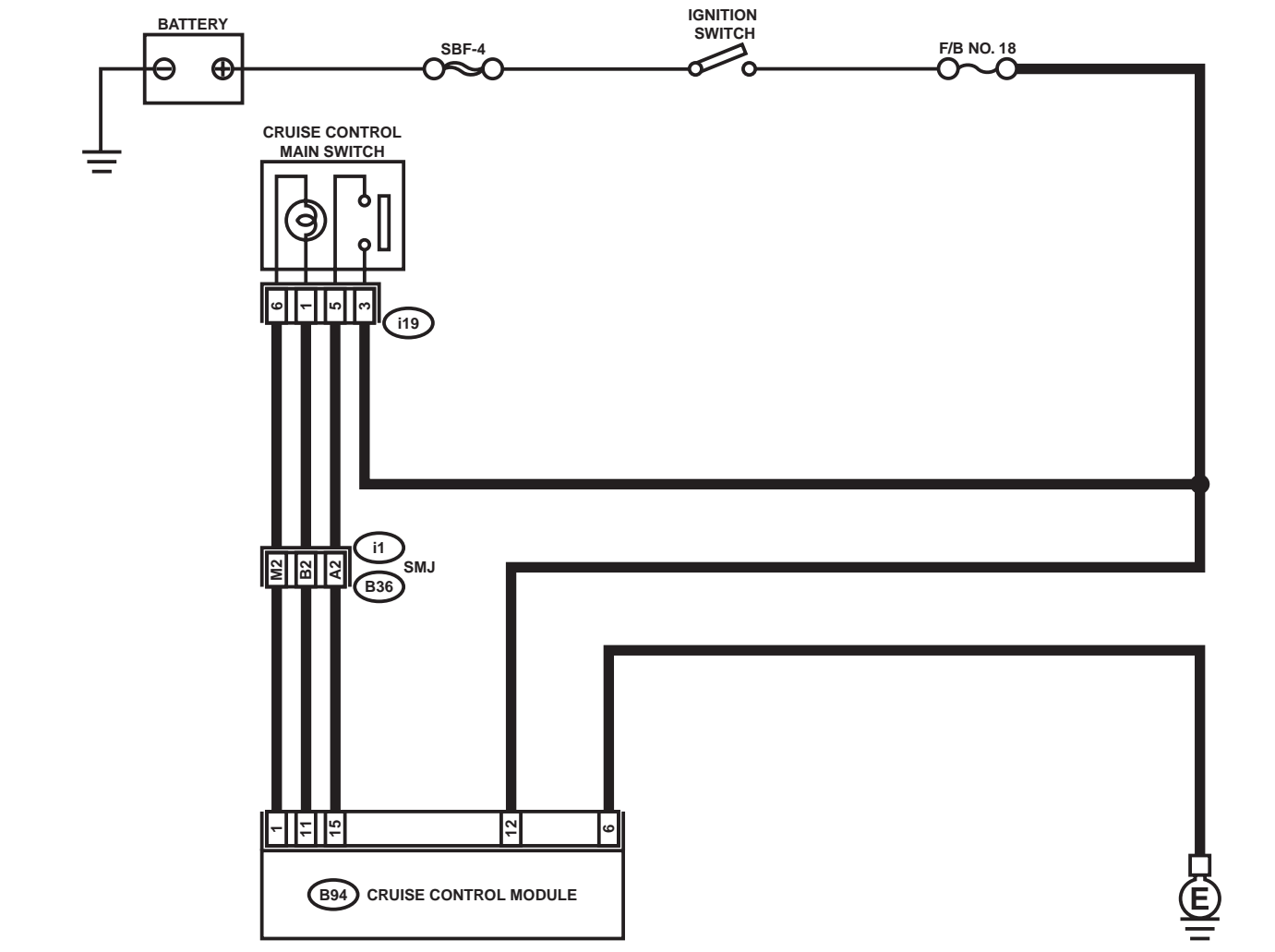
CRUISE CONTROL SYSTEM (DIAGNOSTICS)

B: CHECK POWER SUPPLY

TROUBLE SYMPTOM:

Cruise control cannot be set, and indicator does not come on. (When main switch is pressed.)

WIRING DIAGRAM:



i19

1	2
3	6

B94

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

B36

A1	A2	A3	A4	A5	A6
B1	B2	B3	B4	B5	B6
C1	C2	C3	C4	C5	C6
D1	D2	D3	D4	D5	D6
E1	E2	E3	E4	E5	E6
F1	F2	F3	F4	F5	F6
G1	G2	G3	G4	G5	G6
H1	H2	H3	H4	H5	H6
I1	I2	I3	I4	I5	I6
J1	J2	J3	J4	J5	J6
K1	K2	K3	K4	K5	K6
L1	L2	L3	L4	L5	L6
M1	M2	M3	M4	M5	M6
N1	N2	N3	N4	N5	N6
O1	O2	O3	O4	O5	O6
P1	P2	P3	P4	P5	P6

CC-00078

DIAGNOSTICS CHART WITH SYMPTOM

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK POWER SUPPLY. 1) Turn ignition switch OFF. 2) Disconnect cruise control module harness connector. 3) Turn ignition switch ON. 4) Measure voltage between harness connector terminal and chassis ground. Connector & terminal (B94) No. 12 (+) — Chassis ground (-): Does the measured value exceed the specified value?	10 V	Go to step 2.	<ul style="list-style-type: none"> • Check fuse No. 18 (in fuse & relay box). • Check harness for open or short between cruise control module and fuse & relay box.
2 CHECK GROUND CIRCUIT. 1) Turn ignition switch OFF. 2) Measure resistance between harness connector terminal and chassis ground. Connector & terminal (B94) No. 6 — Chassis ground: Is the measured value less than the specified value?	10 Ω	Power supply and ground circuit are OK.	Repair harness.

DIAGNOSTICS CHART WITH SYMPTOM

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

C: CHECK CRUISE CONTROL MAIN SWITCH

TROUBLE SYMPTOM:

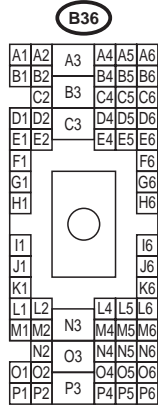
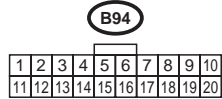
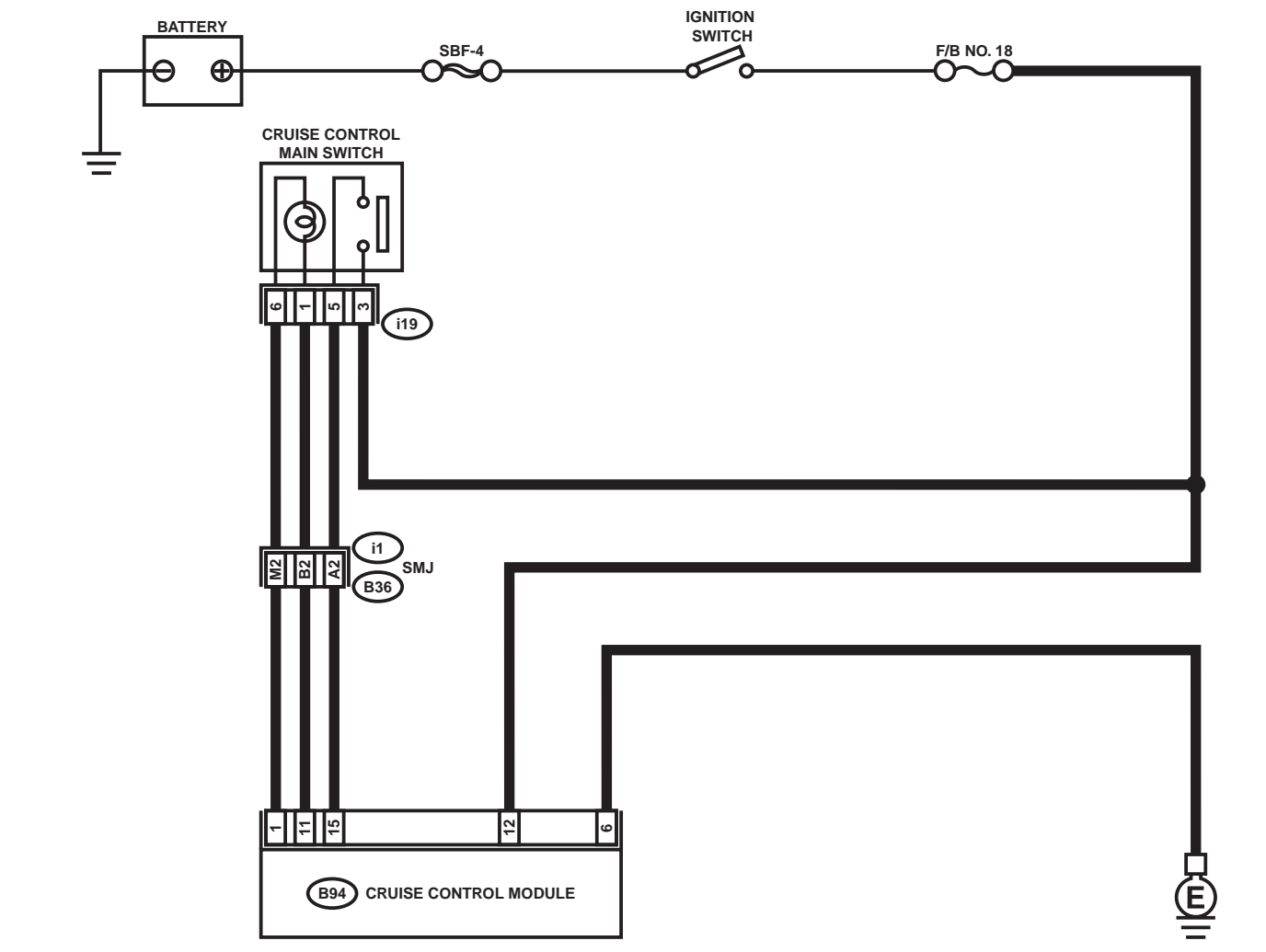
Cruse control main switch is not turned ON and cruse control cannot be set.

NOTE:

When the main relay (built-in cruse control module) operates, the main switch circuit is in normal condition. The main relay operation can be checked by hearing the operation sounds.

This operation sounds will be heard when ignition switch and cruse control main switch is turned to ON.

WIRING DIAGRAM:



CC-00078

DIAGNOSTICS CHART WITH SYMPTOM

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK CRUISE CONTROL MAIN SWITCH CIRCUIT. 1) Turn ignition switch OFF. 2) Disconnect cruise control main switch harness connector. 3) Turn ignition switch ON. 4) Measure voltage between harness connector terminal and chassis ground. Connector & terminal <i>(i19) No. 3 (+) — Chassis ground (-):</i> Does the measured value exceed the specified value?	10 V	Go to step 2.	<ul style="list-style-type: none"> • Check fuse No. 18 (in fuse & relay box). • Check harness for open or short between cruise control main switch and fuse & relay box.
2 CHECK CRUISE CONTROL MAIN SWITCH CIRCUIT. 1) Turn ignition switch OFF. 2) Disconnect cruise control module harness connector. 3) Measure resistance between cruise control module harness connector terminal and cruise control main switch harness connector terminal. Connector & terminal <i>(B94) No. 15 — (i19) No. 5:</i> <i>(B94) No. 1 — (i19) No. 6:</i> <i>(B94) No. 11 — (i19) No. 1:</i> Is the measured value less than the specified value?	10 Ω	Go to step 3.	Repair harness.
3 CHECK CRUISE CONTROL MAIN SWITCH. Remove and check cruise control main switch. <Ref. to CC-6, Cruise Control Main Switch.> Is cruise control main switch OK?	Cruise control main switch is OK.	Replace cruise control module.	Replace cruise control main switch.

DIAGNOSTICS CHART WITH SYMPTOM

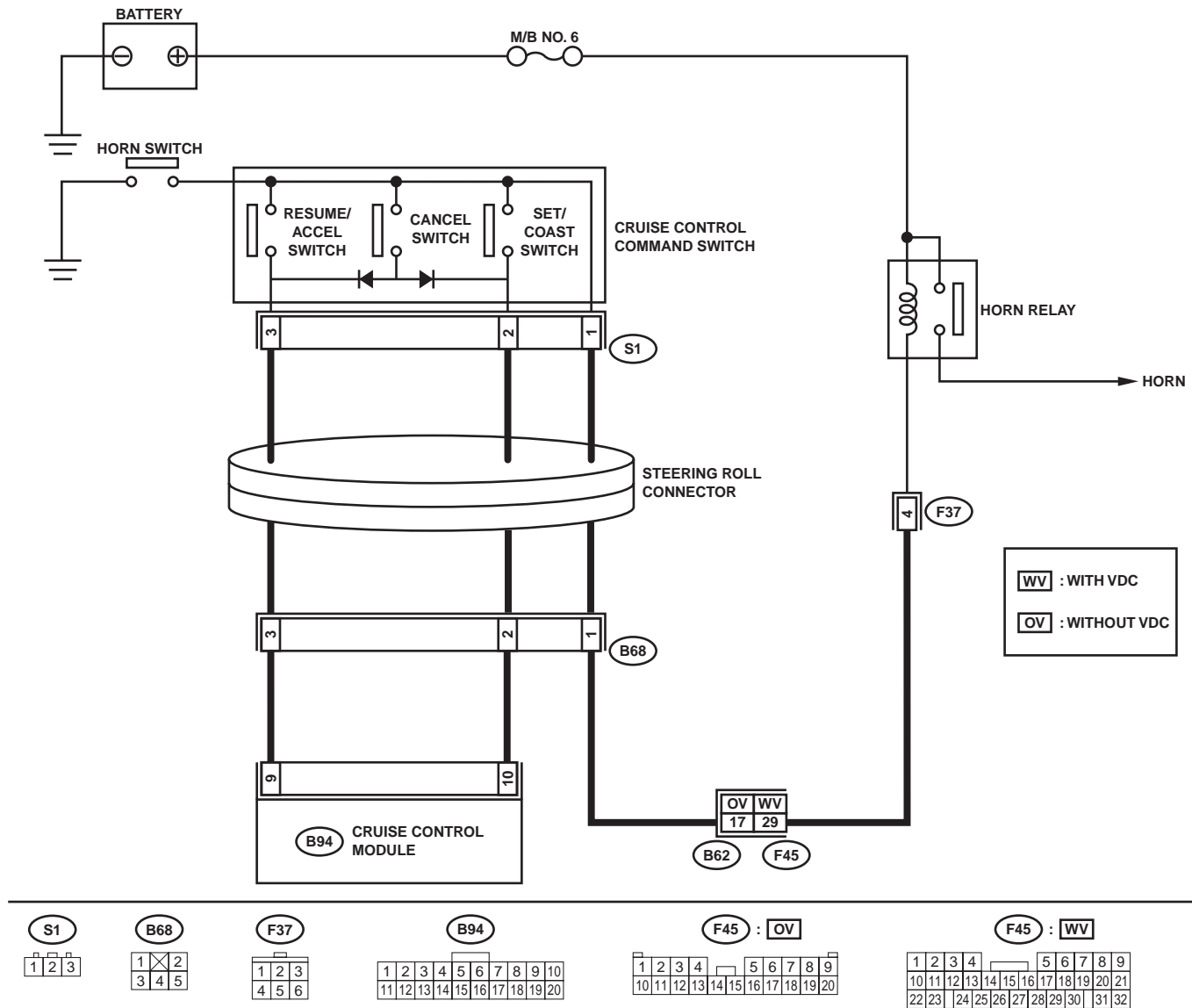
CRUISE CONTROL SYSTEM (DIAGNOSTICS)

D: CHECK CRUISE CONTROL COMMAND SWITCH

TROUBLE SYMPTOM:

Cruise control cannot be set. (Cancelled immediately.)

WIRING DIAGRAM:



CC-00079

DIAGNOSTICS CHART WITH SYMPTOM

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK SET/COAST SWITCH CIRCUIT. 1) Turn ignition switch OFF. 2) Disconnect cruise control module harness connector. 3) Measure voltage between harness connector terminal and chassis ground when SET/COAST switch is pressed and not pressed. Connector & terminal (B94) No. 10 (+) — Chassis ground (-): Is the measured value less than the specified value, when SET/COAST switch is not pressed? Does the measured value exceed the specified value, when SET/COAST switch is pressed?	When SET/COAST switch is not pressed: 0 V, and when SET/COAST switch is pressed: 10 V	Go to step 2.	Go to step 4.
2 CHECK RESUME/ACCEL SWITCH CIRCUIT. Measure voltage between harness connector terminal and chassis ground when RESUME/ACCEL switch is pressed and not pressed. Connector & terminal (B94) No. 9 (+) — Chassis ground (-): Is the measured value less than the specified value, when RESUME/ACCEL switch is not pressed? Does the measured value exceed the specified value, when RESUME/ACCEL switch is pressed?	When RESUME/ACCEL switch is not pressed: 0 V, and when RESUME/ACCEL switch is pressed: 10 V	Go to step 3.	Go to step 4.
3 CHECK CANCEL SWITCH CIRCUIT. Measure voltage between harness connector terminal and chassis ground when CANCEL switch is pressed and not pressed. Connector & terminal (B94) No. 9 (+) — Chassis ground (-): (B94) No. 10 (+) — Chassis ground (-): Is the measured value less than the specified value, when CANCEL switch is not pressed? Does the measured value exceed the specified value, when CANCEL switch is pressed?	When CANCEL switch is not pressed: 0 V, and when CANCEL switch is pressed: 10 V	Cruise control command switch circuit is OK.	Go to step 4.
4 CHECK POWER SUPPLY FOR COMMAND SWITCH. Check horn operation. Does horn sound?	Horn sounds.	Go to step 5.	<ul style="list-style-type: none"> • Check fuse No. 6 (in main fuse box). • Check horn relay. <Ref. to COM-3, HORN RELAY, INSPECTION, Horn System.> • Check harness for open or short between cruise control command switch and fuse & relay box.
5 CHECK CRUISE CONTROL COMMAND SWITCH. Remove and check cruise control command switch. <Ref. to CC-7, Cruise Control Command Switch.> Is cruise control command switch OK?	Cruise control command switch is OK.	Check harness between cruise control command switch and cruise control module.	Replace cruise control command switch.

DIAGNOSTICS CHART WITH SYMPTOM

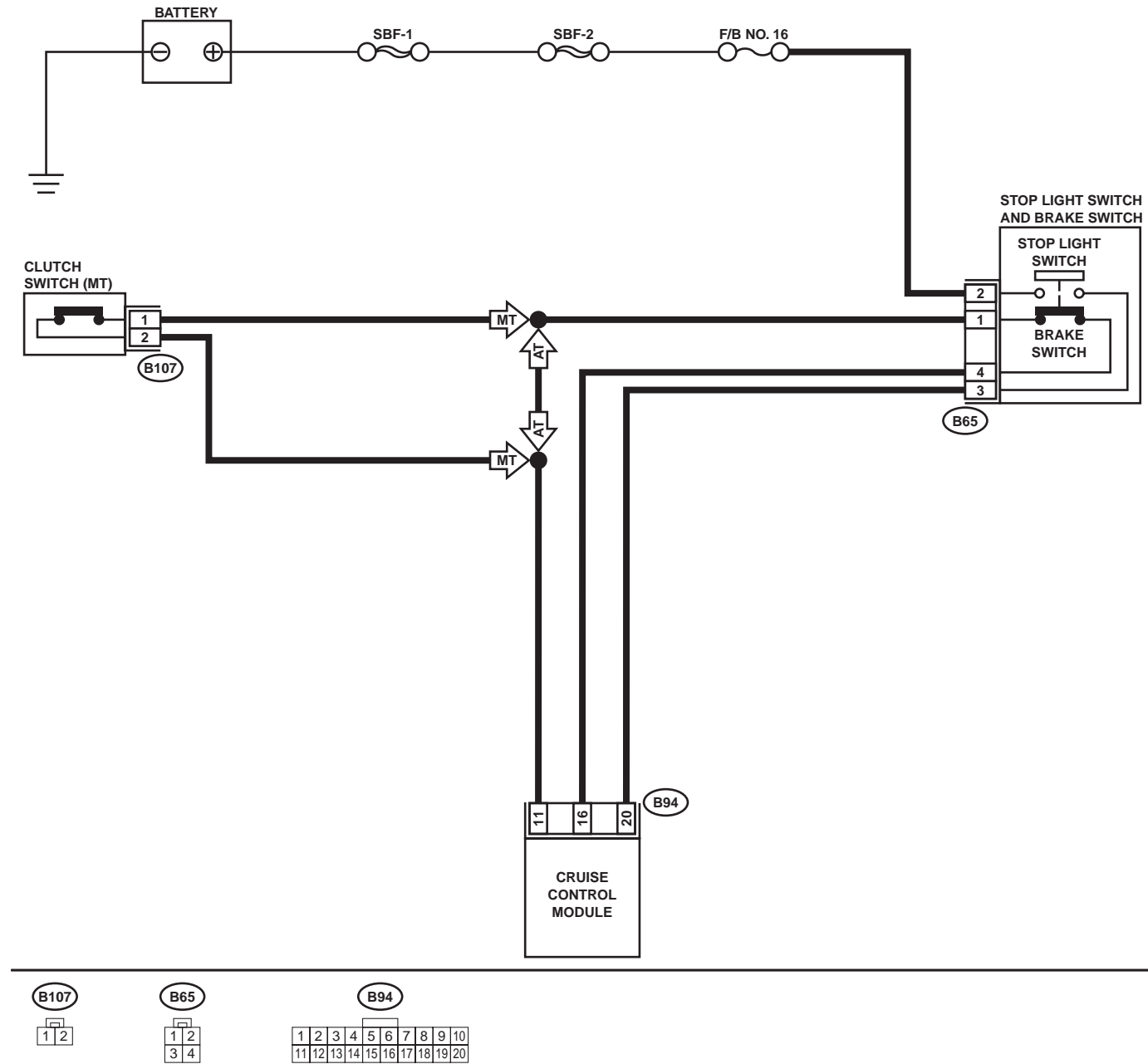
CRUISE CONTROL SYSTEM (DIAGNOSTICS)

E: CHECK STOP LIGHT SWITCH AND BRAKE SWITCH

TROUBLE SYMPTOM:

Cruise control cannot be set.

WIRING DIAGRAM:



CC-00080

DIAGNOSTICS CHART WITH SYMPTOM

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK STOP LIGHT SWITCH AND BRAKE SWITCH CIRCUIT. 1) Turn ignition switch OFF. 2) Disconnect stop light switch and brake switch harness connector. 3) Turn ignition switch ON. 4) Turn cruise control main switch ON. 5) Measure voltage between harness connector terminal and chassis ground. Connector & terminal (B65) No. 2 (+) — Chassis ground (-): Does the measured value exceed the specified value?	10 V	Go to step 2.	<ul style="list-style-type: none"> • Check fuse No. 16 (in fuse & relay box). • Check harness for open or short between stop light/brake switch and fuse & relay box.
2 CHECK STOP LIGHT SWITCH AND BRAKE SWITCH CIRCUIT. Measure voltage between harness connector terminal and chassis ground. Connector & terminal (B65) No. 1 (+) — Chassis ground (-): Does the measured value exceed the specified value?	10 V	Go to step 3.	<ul style="list-style-type: none"> • Check harness for open or short between stop light/brake switch and cruise control module (AT). • Check clutch switch and the circuit (MT).
3 CHECK STOP LIGHT SWITCH AND BRAKE SWITCH CIRCUIT. 1) Turn cruise control main switch and ignition switch OFF. 2) Disconnect cruise control module harness connector. 3) Measure resistance between cruise control module harness connector terminal and stop light switch and brake switch harness connector terminal. Connector & terminal (B94) No. 20 — (B65) No. 3: (B94) No. 16 — (B65) No. 4: Is the measured value less than the specified value?	10 Ω	Go to step 4.	Repair harness.
4 CHECK STOP LIGHT SWITCH AND BRAKE SWITCH. Remove and check stop light switch and brake switch. <Ref. to CC-8, Stop and Brake Switch.> Are stop light switch and brake switch OK?	Stop light switch and brake switch are OK.	Stop light switch and brake switch circuit are OK.	Replace stop light switch and brake switch.

DIAGNOSTICS CHART WITH SYMPTOM

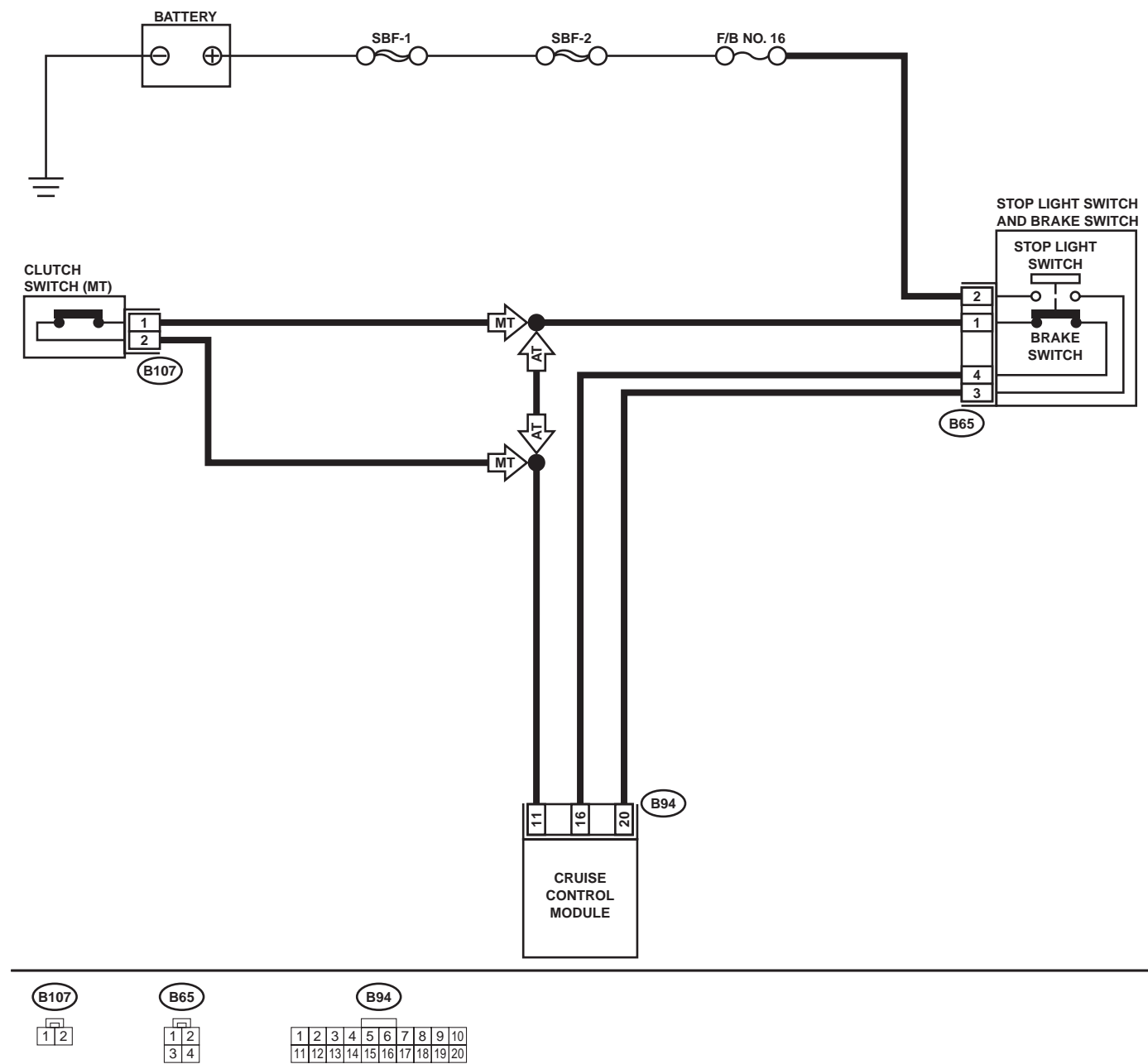
CRUISE CONTROL SYSTEM (DIAGNOSTICS)

F: CHECK CLUTCH SWITCH (MT)

TROUBLE SYMPTOM:

Cruise control cannot be set.

WIRING DIAGRAM:



CC-00080

DIAGNOSTICS CHART WITH SYMPTOM

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK CLUTCH SWITCH CIRCUIT. 1) Turn ignition switch OFF. 2) Disconnect clutch switch harness connector. 3) Turn ignition switch ON. 4) Turn cruise control main switch ON. 5) Measure voltage between harness connector terminal and chassis ground. Connector & terminal (B107) No. 2 (+) — Chassis ground (-): Does the measured value exceed the specified value?	10 V	Go to step 2.	Check harness for open or short between clutch switch and cruise control module.
2 CHECK CLUTCH SWITCH CIRCUIT. 1) Turn cruise control main switch and ignition switch OFF. 2) Disconnect stop light switch and brake switch harness connector. 3) Measure resistance between clutch switch harness connector terminal and stop light switch and brake switch harness connector terminal. Connector & terminal (B107) No. 1 — (B65) No. 1: Is the measured value less than the specified value?	10 Ω	Go to step 3.	Repair harness.
3 CHECK CLUTCH SWITCH. Remove and check clutch switch. <Ref. to CC-9, Clutch Switch.> Is clutch switch OK?	Clutch switch is OK.	Clutch switch circuit is OK.	Replace clutch switch.

DIAGNOSTICS CHART WITH SYMPTOM

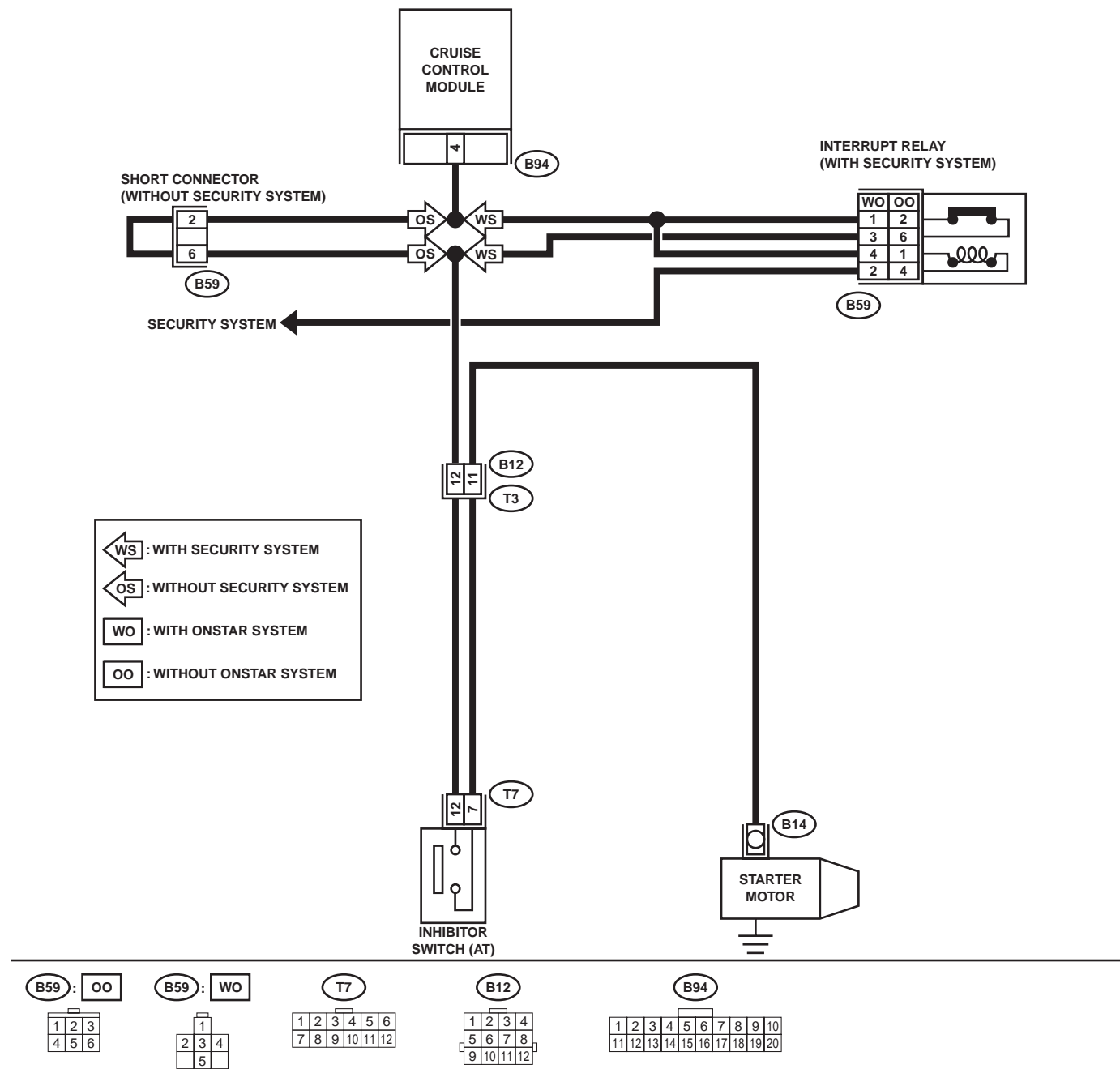
CRUISE CONTROL SYSTEM (DIAGNOSTICS)

G: CHECK INHIBITOR SWITCH (AT)

TROUBLE SYMPTOM:

Cruise control cannot be set.

WIRING DIAGRAM:



CC-00081

DIAGNOSTICS CHART WITH SYMPTOM

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK INHIBITOR SWITCH CIRCUIT. 1) Turn ignition switch OFF. 2) Disconnect inhibitor switch harness connector. 3) Turn ignition switch ON. 4) Turn cruise control main switch ON. 5) Measure voltage between harness connector terminal and chassis ground. Connector & terminal (T7) No. 12 (+) — Chassis ground (-): Does the measured value exceed the specified value?	10 V	Go to step 2.	Check harness for open or short between inhibitor switch and cruise control module.
2 CHECK INHIBITOR SWITCH CIRCUIT. 1) Turn cruise control main switch and ignition switch OFF. 2) Disconnect starter motor harness connector. 3) Measure resistance between inhibitor switch harness connector terminal and chassis ground. Connector & terminal (T7) No. 7 — (B14) No. 1: Is the measured value less than the specified value?	10 Ω	Go to step 3.	Repair harness.
3 CHECK INHIBITOR SWITCH. Remove and check inhibitor switch. <Ref. to CC-10, Inhibitor Switch.> Is inhibitor switch OK?	Inhibitor switch is OK.	Inhibitor switch circuit is OK.	Replace inhibitor switch.

LIST OF DIAGNOSTIC TROUBLE CODE (DTC)

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

7. List of Diagnostic Trouble Code (DTC)

A: LIST

DTC	Item	Contents of diagnosis	Reference
21	Inner relay is seized.	Cruise control module inner relay is seized when main switch is OFF.	<Ref. to CC-27, DTC 21, 24, 25 AND 2A CRUISE CONTROL MODULE BUILT-IN RELAY, CPU RAM, Diagnostics Chart with Trouble Code.>
22	Vehicle speed sensor	Vehicle speed signal changes more than 10 km/h (6 MPH) within 350 ms.	<Ref. to CC-28, DTC 22 VEHICLE SPEED SENSOR, Diagnostics Chart with Trouble Code.>
24	Cruise control module is abnormal.	Two vehicle speed values stored in cruise control module memory are not the same.	<Ref. to CC-27, DTC 21, 24, 25 AND 2A CRUISE CONTROL MODULE BUILT-IN RELAY, CPU RAM, Diagnostics Chart with Trouble Code.>
25	Cruise control module is abnormal.	Two output values stored in cruise control module memory are not the same.	<Ref. to CC-27, DTC 21, 24, 25 AND 2A CRUISE CONTROL MODULE BUILT-IN RELAY, CPU RAM, Diagnostics Chart with Trouble Code.>
28	Wiring harness opened.	Open wiring harness circuit is detected via control module relay when main switch is ON.	<Ref. to CC-31, DTC 28 WIRING HARNESS OPENED., Diagnostics Chart with Trouble Code.>
35	Motor drive system is abnormal.	<ul style="list-style-type: none"> • Motor output circuit is open or shorted. • Motor drive circuit is open or shorted. 	<Ref. to CC-32, DTC 35 AND 36 ACTUATOR MOTOR, Diagnostics Chart with Trouble Code.>
36	Trouble of motor turning speed	Motor turning speed is low.	<Ref. to CC-32, DTC 35 AND 36 ACTUATOR MOTOR, Diagnostics Chart with Trouble Code.>
37	Motor clutch drive system is abnormal.	<ul style="list-style-type: none"> • Motor clutch output circuit is open or shorted. • Motor clutch drive circuit is open or shorted. 	<Ref. to CC-34, DTC 37 ACTUATOR MOTOR CLUTCH, Diagnostics Chart with Trouble Code.>
38	Motor drive shaft does not engage properly.	Motor drive gear engagement is not properly adjusted.	<Ref. to CC-36, DTC 38 MOTOR DRIVE SHAFT DOES NOT ENGAGE PROPERLY., Diagnostics Chart with Trouble Code.>
39	Motor is overloaded.	Current flows through motor more frequently than under normal conditions.	<Ref. to CC-36, DTC 39 MOTOR IS OVERLOADED., Diagnostics Chart with Trouble Code.>
2A	Cruise control module is abnormal.	Cruise control module self-diagnosis function senses abnormality.	<Ref. to CC-27, DTC 21, 24, 25 AND 2A CRUISE CONTROL MODULE BUILT-IN RELAY, CPU RAM, Diagnostics Chart with Trouble Code.>

CC-26

DIAGNOSTICS CHART WITH TROUBLE CODE

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

8. Diagnostics Chart with Trouble Code

A: DTC 21, 24, 25 AND 2A CRUISE CONTROL MODULE BUILT-IN RELAY, CPU RAM

DIAGNOSIS:

- Poor welding of built-in relay of cruise control module.
- Failure of built-in CPU RAM of cruise control module.

TROUBLE SYMPTOM:

- Cruise control is canceled and memorized cruise speed is also canceled.
- Once cruise control is canceled, cruise control cannot be set until the ignition switch and cruise control main switch turns OFF, and then turns ON again.

NOTE:

Check input/output signal and vehicle speed signal with select monitor. When signals are in good condition, failure is in cruise control module. (Check power supply and ground conditions of cruise control module.)

DIAGNOSTICS CHART WITH TROUBLE CODE

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

B: DTC 22 VEHICLE SPEED SENSOR

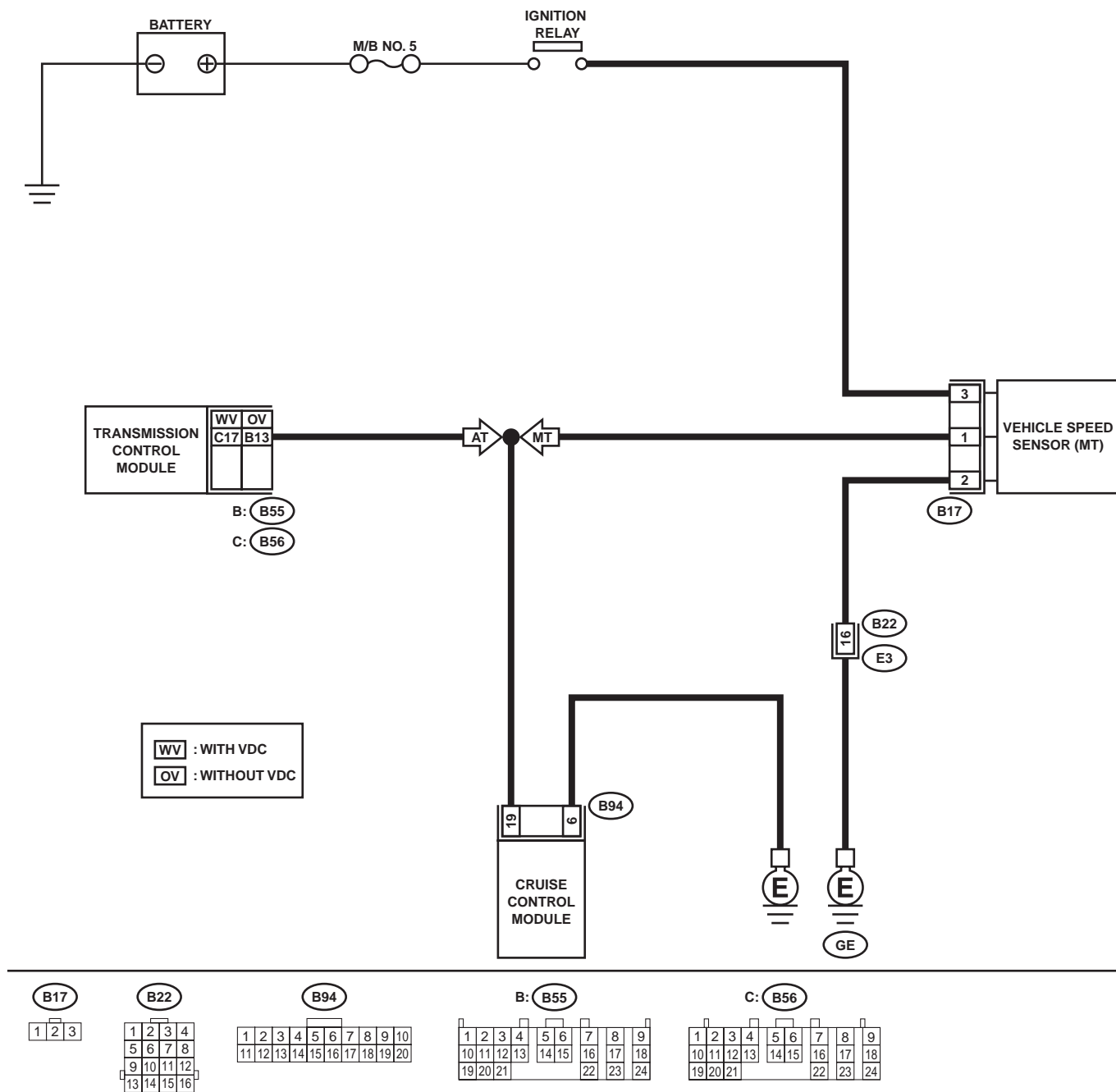
DIAGNOSIS:

Disconnection or short circuit of vehicle speed sensor system.

TROUBLE SYMPTOM:

Cruise control cannot be set. (Cancelled immediately.)

WIRING DIAGRAM:



CC-00082

DIAGNOSTICS CHART WITH TROUBLE CODE

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK TRANSMISSION TYPE. Is the transmission type MT?	Transmission type is MT.	Go to step 2.	Go to step 6.
2 CHECK HARNESS BETWEEN BATTERY AND VEHICLE SPEED SENSOR. 1) Turn ignition switch to OFF. 2) Disconnect harness connector from vehicle speed sensor. 3) Turn ignition switch to ON. 4) Measure voltage between vehicle speed sensor harness connector terminal and chassis ground. Connector & terminal (B17) No. 3 (+) — Chassis ground (-): Does the measured value exceed the specified value?	10 V	Go to step 3.	Check harness for open or short between ignition relay and vehicle speed sensor.
3 CHECK HARNESS BETWEEN CRUISE CONTROL MODULE AND VEHICLE SPEED SENSOR. 1) Turn ignition switch to OFF. 2) Disconnect harness connector from cruise control module. 3) Measure resistance between vehicle speed sensor harness connector terminal and cruise control module harness connector terminal. Connector & terminal (B17) No. 1 — (B94) No. 19: Is the measured value less than the specified value?	10 Ω	Go to step 4.	Repair harness.
4 CHECK HARNESS BETWEEN VEHICLE SPEED SENSOR AND ENGINE GROUND. Measure resistance between vehicle speed sensor harness connector terminal and engine ground. Connector & terminal (B17) No. 2 (+) — Engine ground (-): Is the measured value less than the specified value?	10 Ω	Go to step 5.	Repair harness.
5 CHECK VEHICLE SPEED SENSOR. 1) Connect harness connector to vehicle speed sensor. 2) Lift-up the vehicle and support with safety stands. 3) Drive the vehicle at speed greater than 20 km/h (12 MPH). Warning: Be careful not to be caught up by the running wheels. 4) Measure voltage between cruise control module harness connector terminal and chassis ground. Connector & terminal (B94) No. 19 (+) — Chassis ground (-): Is the measured value same as the specified value?	0 ↔ 5 V	Replace cruise control module. <Ref. to CC-5, Cruise Control Module.>	Replace vehicle speed sensor.

DIAGNOSTICS CHART WITH TROUBLE CODE

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
<p>6</p> <p>CHECK HARNESS BETWEEN CRUISE CONTROL MODULE AND TRANSMISSION CONTROL MODULE.</p> <ol style="list-style-type: none"> 1) Turn ignition switch to OFF. 2) Disconnect harness connector from transmission control module and cruise control module. 3) Measure resistance between cruise control module harness connector terminal and transmission control module harness connector terminal. <p>Connector & terminal Without VDC: (B94) No. 19 — (B55) No. 13: With VDC: (B94) No. 19 — (B56) No. 17:</p> <p>Is the measured value less than the specified value?</p>	<p>10 Ω?</p>	<p>Go to step 7.</p>	<p>Repair harness.</p>
<p>7</p> <p>CHECK TRANSMISSION CONTROL MODULE.</p> <ol style="list-style-type: none"> 1) Connect harness connector to transmission control module. 2) Lift-up the vehicle and support with safety stands. 3) Drive the vehicle faster than 10 km/h (6 MPH). <p>Warning: Be careful not to be caught by the running wheels.</p> <ol style="list-style-type: none"> 4) Measure voltage between transmission control module harness connector terminal and chassis ground. <p>Connector & terminal Without VDC: (B55) No. 13 (+) — Chassis ground (-): With VDC: (B56) No. 17 (+) — Chassis ground (-):</p> <p>Is the measured value same as the specified value?</p>	<p>0 ↔ 5 V</p>	<p>Replace cruise control module. <Ref. to CC-5, Cruise Control Module.></p>	<p>Replace transmission control module. <Ref. to AT-75, Transmission Control Module (TCM).></p>

DIAGNOSTICS CHART WITH TROUBLE CODE

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

C: DTC 28 WIRING HARNESS OPENED.

	Step	Value	Yes	No
1	CHECK BATTERY. Measure battery specific gravity of electrolyte. Does the measured value exceed the specified value?	1.250	Go to step 2.	Charge or replace battery. Go to step 2.
2	CHECK FUSES, CONNECTORS AND HARNESSSES. Check the condition of the main and other fuses, and harnesses and connectors. Also check for proper grounding. Is there anything unusual about the appearance of main fuse, fuse, harness, connector and grounding?	Fuse, harness, connector and grounding are OK.	End of inspection.	Repair or replace faulty parts.

DIAGNOSTICS CHART WITH TROUBLE CODE

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

D: DTC 35 AND 36 ACTUATOR MOTOR

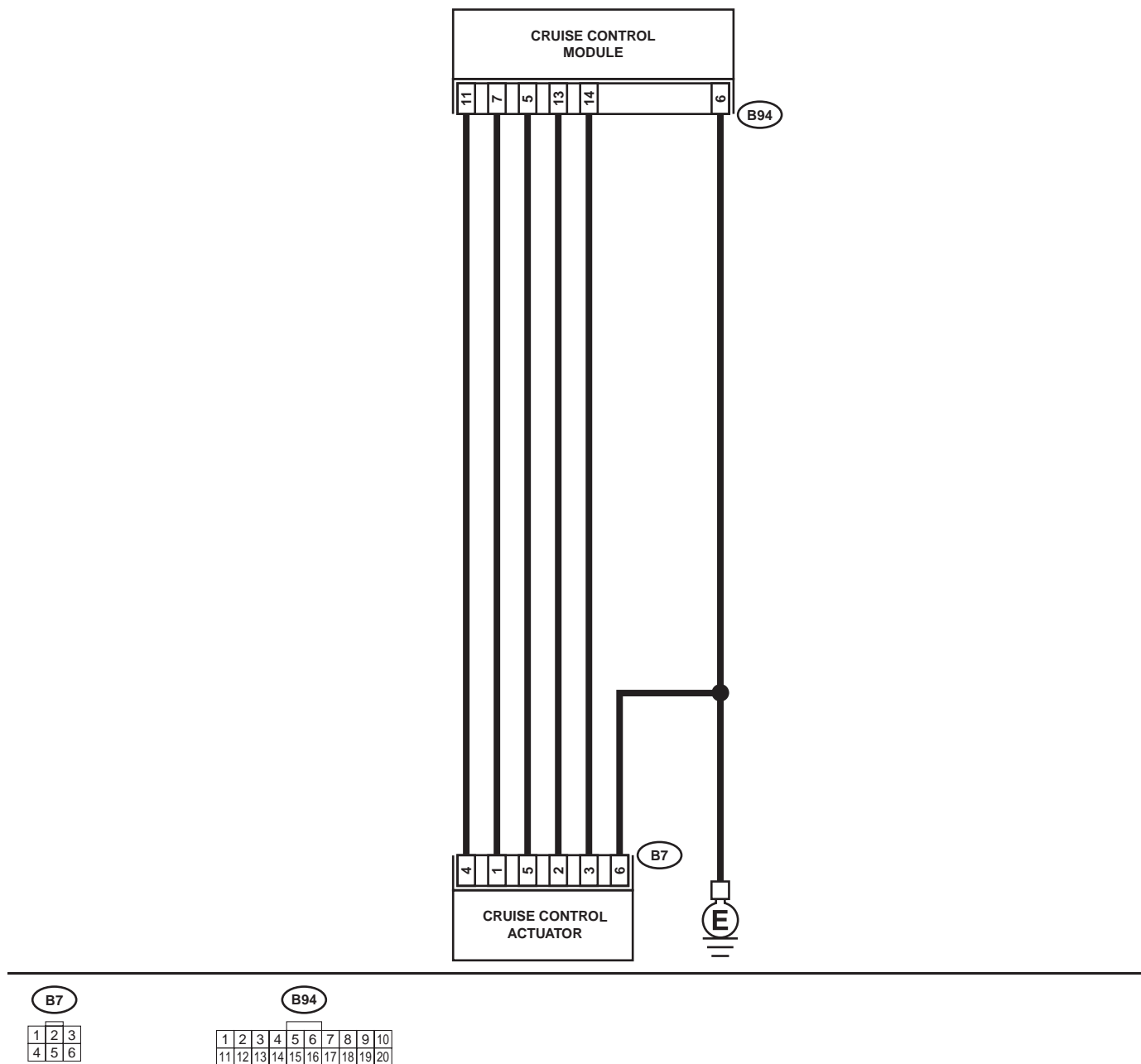
DIAGNOSIS:

Open or poor contact of cruise control actuator motor.

TROUBLE SYMPTOM:

Cruise control cannot be set. (Cancelled immediately.)

WIRING DIAGRAM:



CC-00083

DIAGNOSTICS CHART WITH TROUBLE CODE

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK POWER SUPPLY. 1) Turn ignition switch OFF. 2) Disconnect harness connector from cruise control actuator. 3) Turn ignition switch ON. 4) Turn cruise control main switch ON. 5) Measure voltage between cruise control actuator harness connector terminal and chassis ground. Terminals (B7) No. 4 (+) — Chassis ground (-): Does the measured value exceed the specified value?	10 V	Go to step 2.	Check harness for open or short between cruise control module and cruise control actuator.
2 CHECK GROUND CIRCUIT OF ACTUATOR. 1) Turn ignition switch and cruise control main switch OFF. 2) Measure resistance between cruise control actuator harness connector terminal and chassis ground. Terminals (B7) No. 6 — Chassis ground: Is the measured value less than the specified value?	10 Ω	Go to step 3.	Repair harness.
3 MEASURE RESISTANCE OF ACTUATOR. Measure resistance of cruise control actuator motor. Terminals No. 4 — No. 1: No. 4 — No. 2: No. 4 — No. 5: Is the measured value same as the specified value?	Approximately 5 Ω	Go to step 4.	Replace cruise control actuator. <Ref. to CC-4, Actuator.>
4 CHECK HARNESS BETWEEN ACTUATOR AND CRUISE CONTROL MODULE. 1) Disconnect harness connector from cruise control module. 2) Measure resistance between cruise control module harness connector terminal and cruise control actuator harness connector terminal. Connector & terminal (B7) No. 1 — (B94) No. 7: Is the measured value less than the specified value?	10 Ω	Go to step 5.	Repair harness.
5 CHECK HARNESS BETWEEN ACTUATOR AND CRUISE CONTROL MODULE. Measure resistance between cruise control module harness connector terminal and cruise control actuator harness connector terminal. Connector & terminal (B7) No. 5 — (B94) No. 5: Is the measured value less than the specified value?	10 Ω	Replace cruise control module. <Ref. to CC-5, Cruise Control Module.>	Repair harness.

DIAGNOSTICS CHART WITH TROUBLE CODE

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

E: DTC 37 ACTUATOR MOTOR CLUTCH

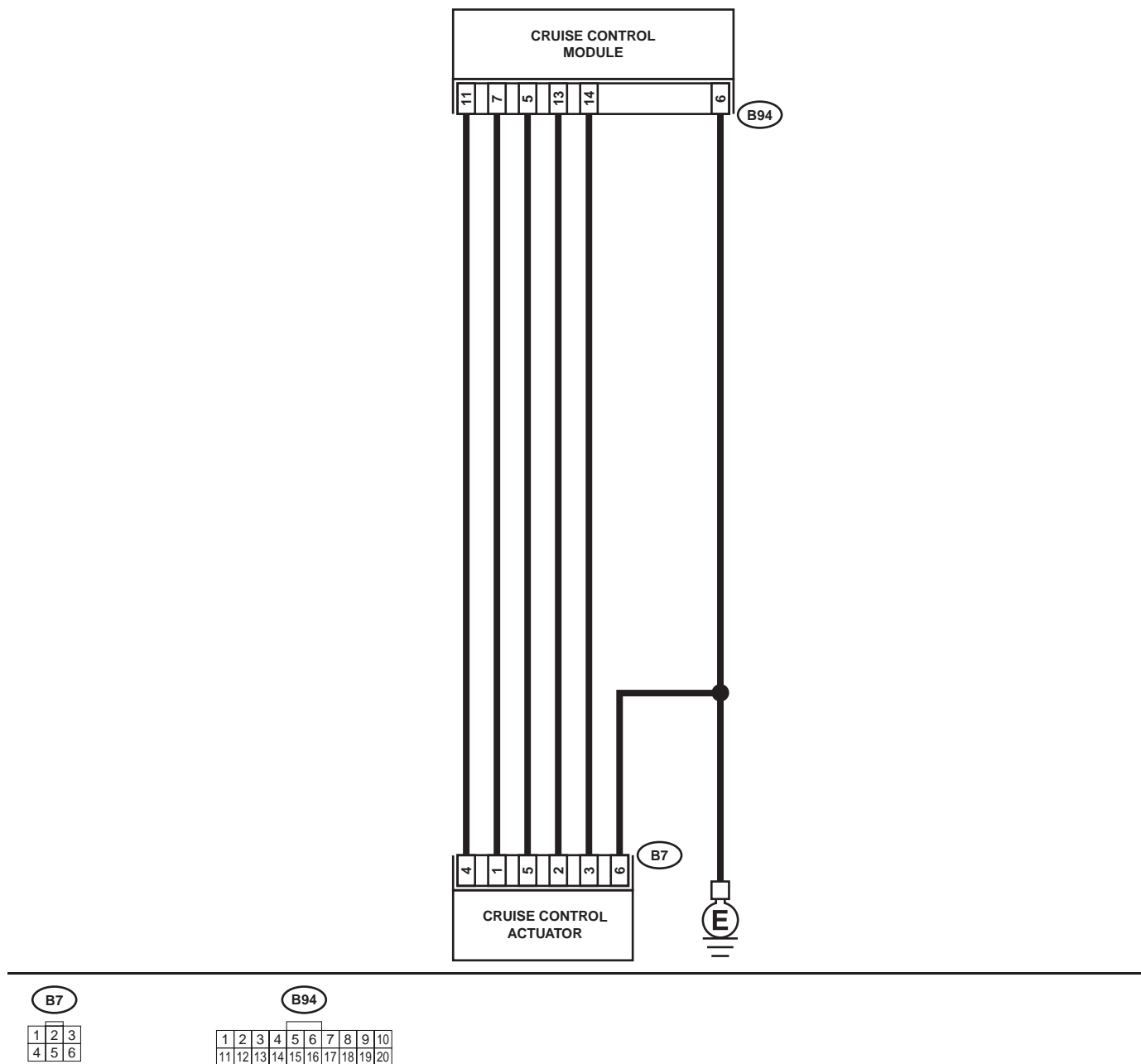
DIAGNOSIS:

Open or poor contact of cruise control actuator motor clutch.

TROUBLE SYMPTOM:

Cruise control cannot be set. (Cancelled immediately.)

WIRING DIAGRAM:



CC-00083

DIAGNOSTICS CHART WITH TROUBLE CODE

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK POWER SUPPLY. 1) Turn ignition switch OFF. 2) Disconnect harness connector from cruise control actuator. 3) Turn ignition switch ON. 4) Turn cruise control main switch ON. 5) Measure voltage between cruise control actuator harness connector terminal and chassis ground. Terminals (B7) No. 4 (+) — Chassis ground (-): Does the measured value exceed the specified value?	10 V	Go to step 2.	Check harness for open or short between cruise control module and cruise control actuator.
2 CHECK GROUND CIRCUIT OF ACTUATOR. 1) Turn ignition switch and cruise control main switch OFF. 2) Measure resistance between cruise control actuator harness connector terminal and chassis ground. Terminals (B7) No. 6 — Chassis ground: Is the measured value less than the specified value?	10 Ω	Go to step 3.	Repair harness.
3 MEASURE RESISTANCE OF ACTUATOR CLUTCH. Measure resistance of cruise control actuator clutch. Terminals No. 3 — No. 6: Is the measured value same as the specified value?	Approximately 39 Ω	Go to step 4.	Replace cruise control actuator. <Ref. to CC-4, Actuator.>
4 CHECK HARNESS BETWEEN ACTUATOR AND CRUISE CONTROL MODULE. 1) Disconnect harness connector from cruise control module. 2) Measure resistance between cruise control module harness connector terminal and cruise control actuator harness connector terminal. Connector & terminal (B7) No. 2 — (B94) No. 13: Is the measured value less than the specified value?	10 Ω	Go to step 5.	Repair harness.
5 CHECK HARNESS BETWEEN ACTUATOR AND CRUISE CONTROL MODULE. Measure resistance between cruise control module harness connector terminal and cruise control actuator harness connector terminal. Connector & terminal (B7) No. 3 — (B94) No. 14: Is the measured value less than the specified value?	10 Ω	Replace cruise control module. <Ref. to CC-5, Cruise Control Module.>	Repair harness.

DIAGNOSTICS CHART WITH TROUBLE CODE

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

F: DTC 38 MOTOR DRIVE SHAFT DOES NOT ENGAGE PROPERLY.

Step	Value	Yes	No
1 CHECK ACTUATOR MOTOR. 1) Turn ignition switch to OFF. 2) Disconnect harness connector from cruise control actuator. 3) Remove cruise control actuator from mounting bracket. 4) Pull cable by hand to check for looseness or status of inner gear engagement. Are foreign particles caught in inner gear or does inner gear engage and disengage improperly?	Cable and inner gear are OK.	Replace cruise control actuator. <Ref. to CC-4, Actuator.>	Check the cruise control cable adjustment. <Ref. to CC-5, CABLE FREE PLAY, INSPECTION, General Description.>

G: DTC 39 MOTOR IS OVERLOADED.

Step	Value	Yes	No
1 CHECK THE OPERATING CURRENT TO ACTUATOR MOTOR. 1) Connect Subaru Select Monitor to data link connector. 2) Try to drive the vehicle while operating the cruise control system. 3) Measure the operation current to the cruise control actuator motor. Is the measured value less than the specified value?	10 A	Replace cruise control module. <Ref. to CC-5, Cruise Control Module.>	Check the power supply circuit. <Ref. to CC-14, CHECK POWER SUPPLY, Diagnostics Chart with Symptom.>

GENERAL DESCRIPTION

ENTERTAINMENT

1. General Description

A: 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.

B: PREPARATION TOOL

1. GENERAL TOOLS

TOOL NAME	REMARKS
Circuit Tester	Used for measuring resistance and voltage.
Conductive Silver Composition (DUPONT NO. 4817 or equivalent)	Used for repairing antenna wire.

ET-2

RADIO SYSTEM

ENTERTAINMENT

2. Radio System**A: SCHEMATIC****1. AUDIO SYSTEM**

<Ref. to WI-78, SCHEMATIC, Audio System.>

B: INSPECTION

Symptom	Repair order
No power coming in (No display and no sound from speakers)	(1) Check fuse and power supply for radio. (2) Check radio ground. (3) Remove radio for repair.
A specific speaker does not operate.	(1) Check speaker. (2) Check output circuit between radio and speaker.
Radio generates noise with engine running.	(1) Check radio ground. (2) Check generator. (3) Check ignition coil. (4) Remove radio for repair.
AM and FM modes are weak or noisy.	(1) Check antenna. (2) Check antenna amplifier. (3) Check radio ground. (4) Remove radio for repair.

ET-3

CIGARETTE LIGHTER SYSTEM

ENTERTAINMENT

3. Cigarette Lighter System

A: SCHEMATIC

1. CIGARETTE LIGHTER

<Ref. to WI-134, SCHEMATIC, Front Accessory
Power Supply System.>

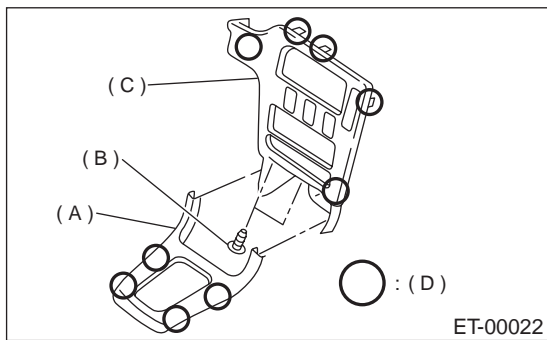
ET-4

Vehicle-id:
SIE-id::A:Schematic

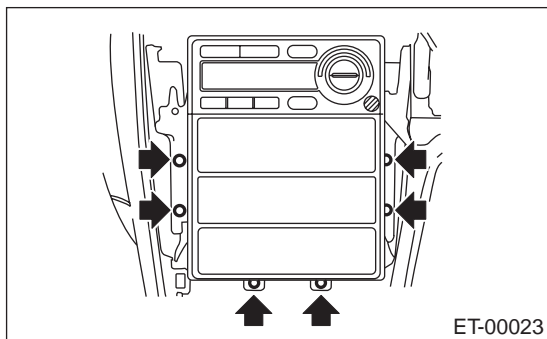
4. Radio Body

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove hook (D) and then remove front cover (A).
- 3) Remove two screws (B) and hook (D), then remove center panel (C) while disconnecting connector.



- 4) Remove fitting screws, and slightly pull radio out from center console.



- 5) Disconnect electric connectors and antenna feeder cord and then disconnect heater control unit.

B: INSTALLATION

Install in the reverse order of removal.

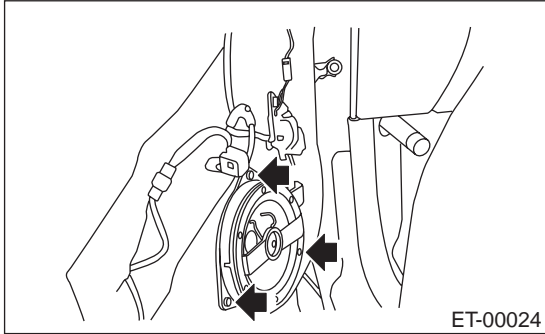
FRONT SPEAKER

ENTERTAINMENT

5. Front Speaker

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove front door trim. <Ref. to EI-32, REMOVAL, Front Door Trim.>
- 3) Remove front speaker mounting screws.



- 4) Disconnect harness connector and remove front speaker.

B: INSTALLATION

Install in the reverse order of removal.

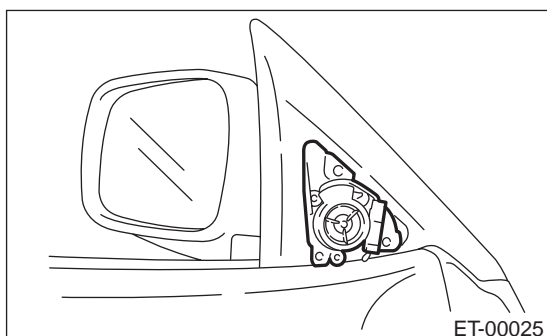
FRONT TWEETER

ENTERTAINMENT

6. Front Tweeter

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove gusset cover.



- 3) Disconnect harness connector and remove tweeter.

B: INSTALLATION

Install in the reverse order of removal.

ET-7

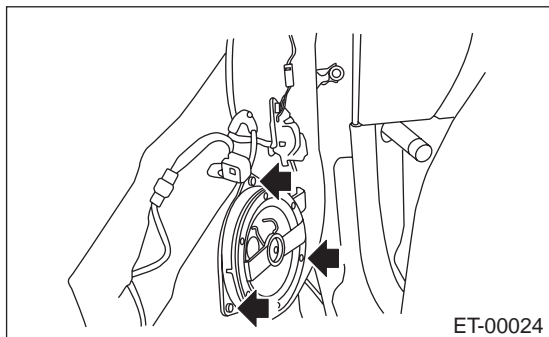
REAR SPEAKER

ENTERTAINMENT

7. Rear Speaker

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove rear door trim. <Ref. to EI-33, REMOVAL, Rear Door Trim.>
- 3) Remove rear speaker mounting screws.



- 4) Disconnect harness connector and remove rear speaker.

B: INSTALLATION

Install in the reverse order of removal.

ET-8

REAR TWEETER

ENTERTAINMENT

8. Rear Tweeter

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove rear door trim. <Ref. to EI-33, REMOVAL, Rear Door Trim.>
- 3) Remove tweeter mounting screws.
- 4) Disconnect harness connector and remove tweeter.

B: INSTALLATION

Install in the reverse order of removal.

ET-9

Vehicle-id:
SIE-id::A:Removal
~

WOOFER

ENTERTAINMENT

9. Woofer

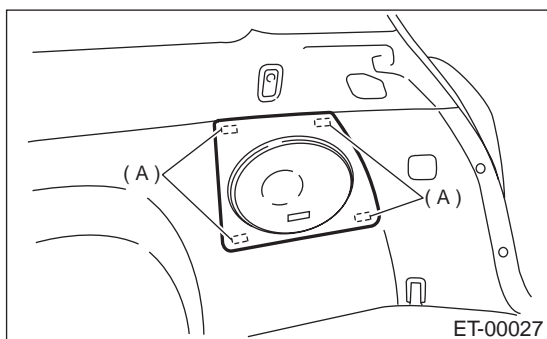
A: REMOVAL

1. SEDAN

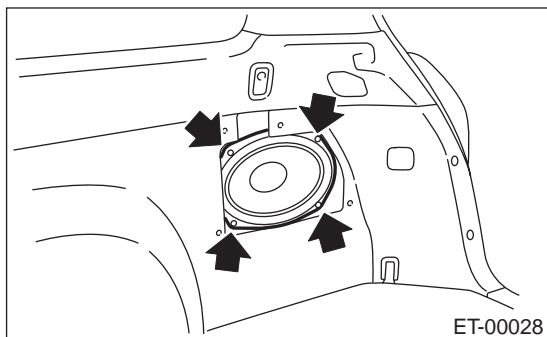
- 1) Disconnect ground cable from battery.
- 2) Remove rear shelf trim. <Ref. to EI-48, Removal, Rear Shelf Trim.>
- 3) Remove woofer mounting screws.
- 4) Disconnect harness connector, and then remove woofer.

2. WAGON

- 1) Disconnect ground cable from battery.
- 2) Remove hook (A) and then remove trim of woofer.



- 3) Remove woofer mounting screws.



- 4) Disconnect harness connector, and then remove woofer.

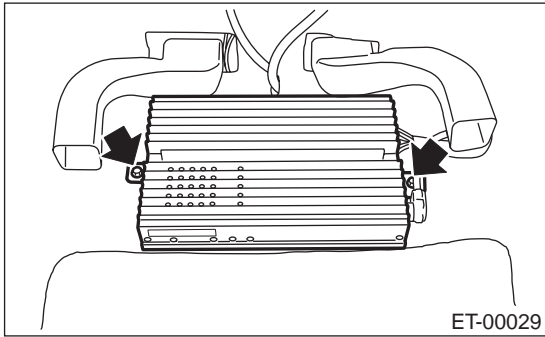
B: INSTALLATION

Install in the reverse order of removal.

10. Speaker Amplifier

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove passenger's seat. <Ref. to SE-7, REMOVAL, Front Seat.>
- 3) Disconnect harness connector.
- 4) Remove mounting nuts, and then detach speaker amplifier.



B: INSTALLATION

Install in the reverse order of removal.

ANTENNA

ENTERTAINMENT

11. Antenna

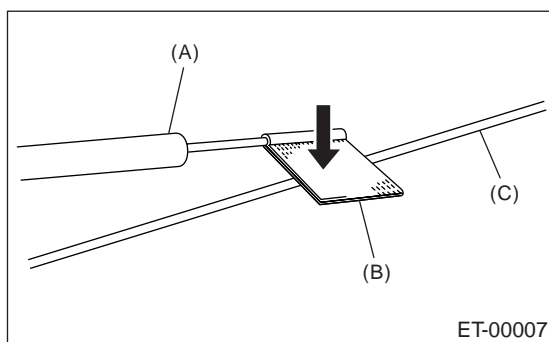
A: INSPECTION

Measure resistance between antenna terminal and each antenna wire.

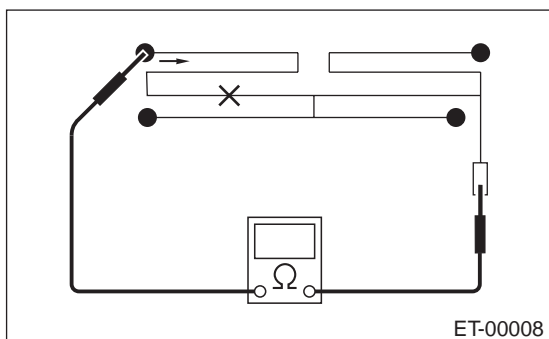
If an antenna wire is OK, resistance will be less than $1\ \Omega$. If an antenna wire is broken, resistance will be more than $1\ M\Omega$.

NOTE:

When checking continuity, wind a piece of tin foil around the tip of the tester probe (A) and press the foil (B) against the wire (C) with your finger.

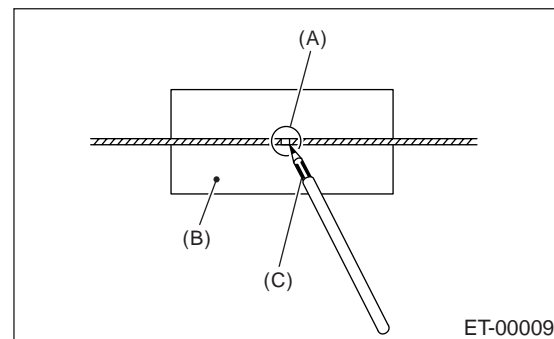


To locate the broken point, move the probe along the antenna wire.



B: REPAIR

- 1) Clean antenna wire and the surrounding area with a cloth dampened by alcohol.
- 2) Paste a thin masking film (B) on glass along the broken wire.
- 3) Deposit conductive silver composition (C) (DU-PONT NO. 4817) on the broken portion (A) with a drawing pen.



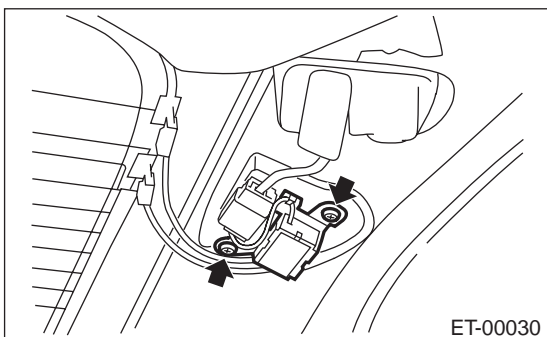
- 4) Dry out the deposited portion.
- 5) After repair has been completed, measure resistance in the repaired wire.

12. Antenna Amplifier

A: REMOVAL

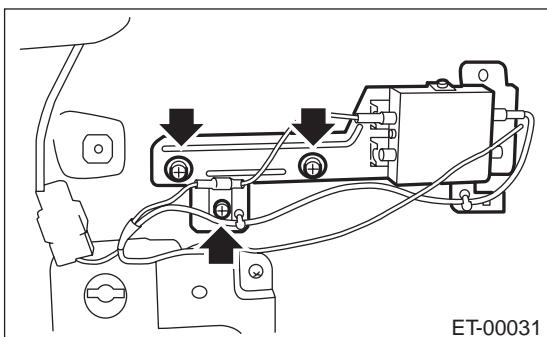
1. SEDAN

- 1) Disconnect ground cable from battery.
- 2) Remove rear pillar upper trim. <Ref. to EI-43, SEDAN, REMOVAL, Rear Quarter Trim.>
- 3) Disconnect harness connector and terminal.
- 4) Remove mounting screw and detach antenna amplifier.



2. WAGON

- 1) Disconnect ground cable from battery.
- 2) Remove rear quarter lower trim. <Ref. to EI-43, WAGON, REMOVAL, Rear Quarter Trim.>
- 3) Disconnect harness connector and terminal.
- 4) Remove mounting screw and detach antenna amplifier.



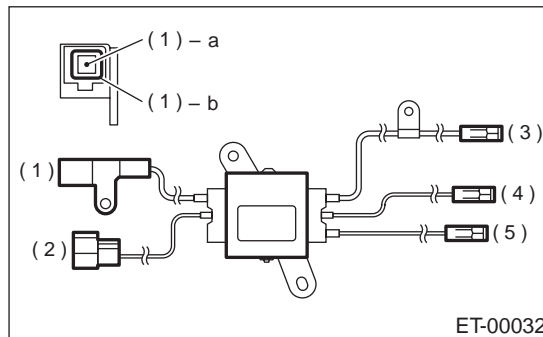
B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

1. SEDAN

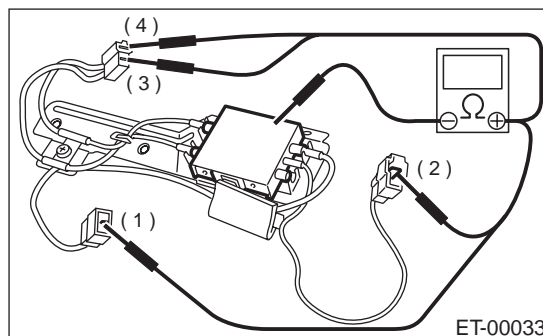
Measure antenna amplifier resistance.



Terminal No.	Standard
1-a and Amplifier body	More than 100 kΩ
1-b and Amplifier body	Less than 1 Ω
2 and Amplifier body	More than 100 kΩ
3 and Amplifier body	More than 100 kΩ
4 and Amplifier body	More than 100 kΩ
5 and Amplifier body	More than 100 kΩ
1 and 3	Less than 1 Ω

2. WAGON

Measure antenna amplifier resistance.



Terminal No.	Standard
1 and Amplifier body	More than 100 kΩ
2 and Amplifier body	More than 100 kΩ
3 and Amplifier body	More than 100 kΩ
4 and Amplifier body	More than 100 kΩ

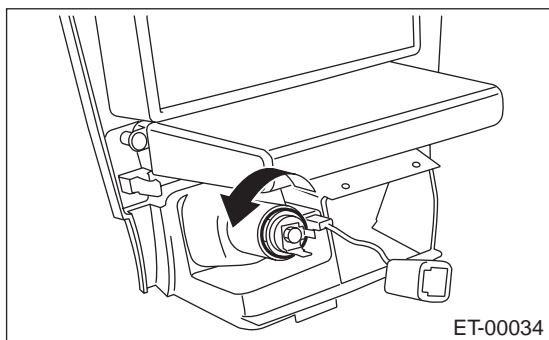
CIGARETTE LIGHTER

ENTERTAINMENT

13.Cigarette Lighter

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove center panel. <Ref. to ET-5, REMOVAL, Radio Body.>
- 3) Disconnect harness connectors and remove cigarette lighter.



B: INSTALLATION

Install in the reverse order of removal.

ET-14

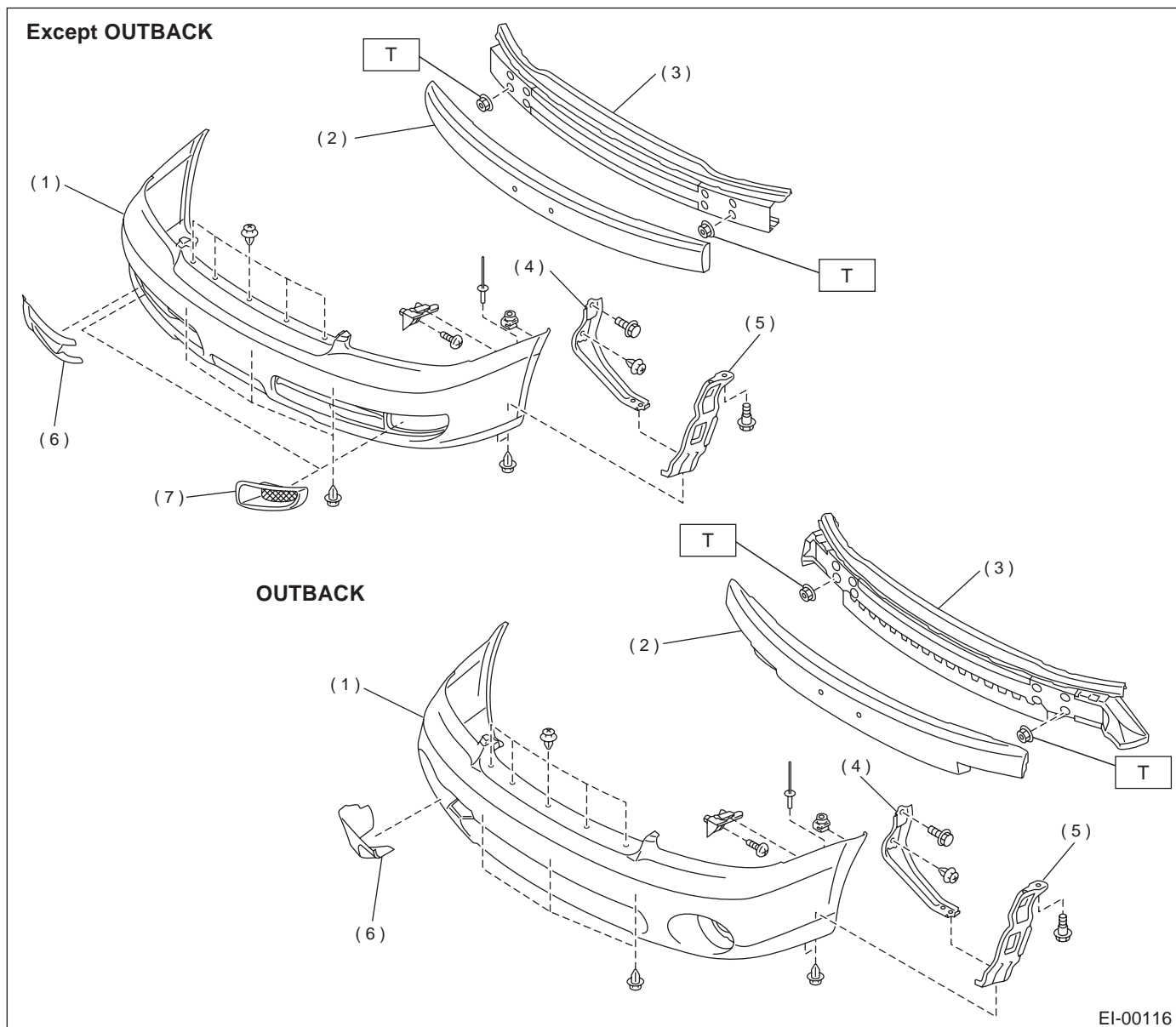
GENERAL DESCRIPTION

EXTERIOR/INTERIOR TRIM

1. General Description

A: COMPONENT

1. FRONT BUMPER



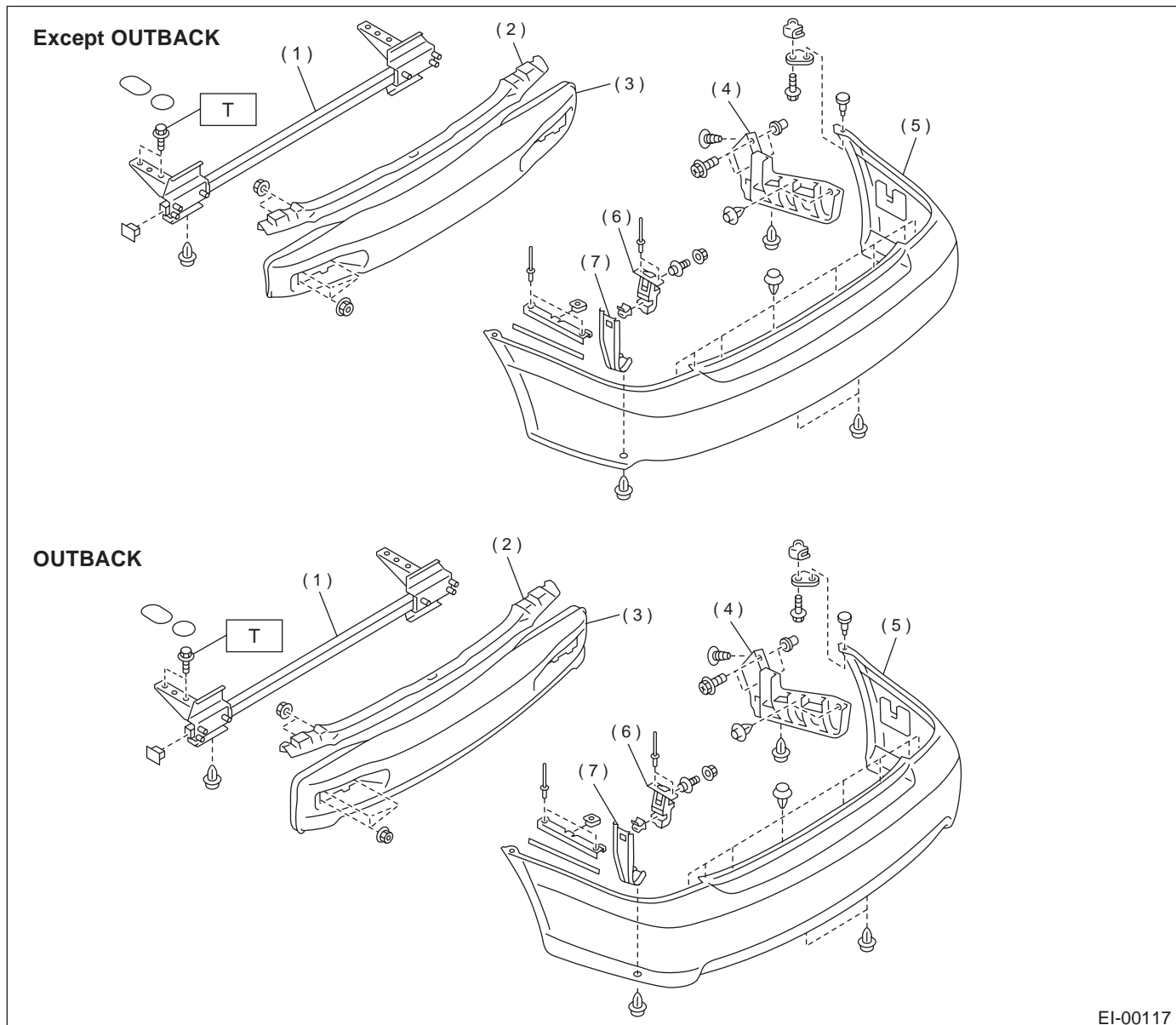
- | | |
|-----------------|---------------------------|
| (1) Bumper face | (5) Side bracket |
| (2) E/A form | (6) Cover (Tie down hook) |
| (3) Bumper beam | (7) Cover |
| (4) Side stay | |

Tightening torque: N·m (kgf·m, ft·lb)
T: 33 (3.4, 25)

GENERAL DESCRIPTION

EXTERIOR/INTERIOR TRIM

2. REAR BUMPER (SEDAN)



- (1) Bumper beam
- (2) Upper beam
- (3) Resin beam
- (4) Side bracket

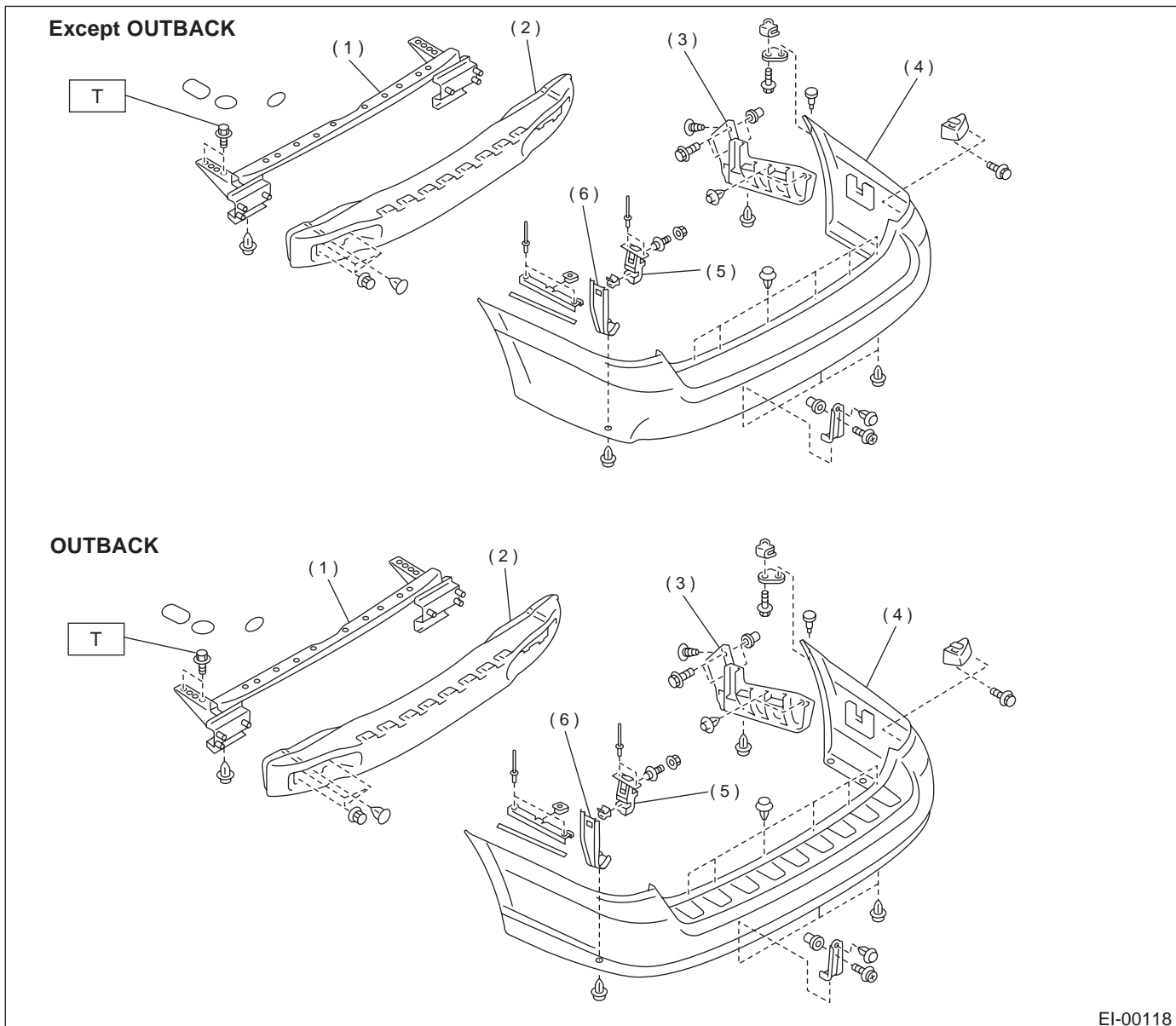
- (5) Bumper face
- (6) Hook
- (7) Side stay

Tightening torque: N·m (kgf·m, ft·lb)
T: 95 (9.7, 70)

GENERAL DESCRIPTION

EXTERIOR/INTERIOR TRIM

3. REAR BUMPER (WAGON)



- (1) Bumper beam
- (2) Resin beam
- (3) Side bracket

- (4) Bumper face
- (5) Hook
- (6) Side stay

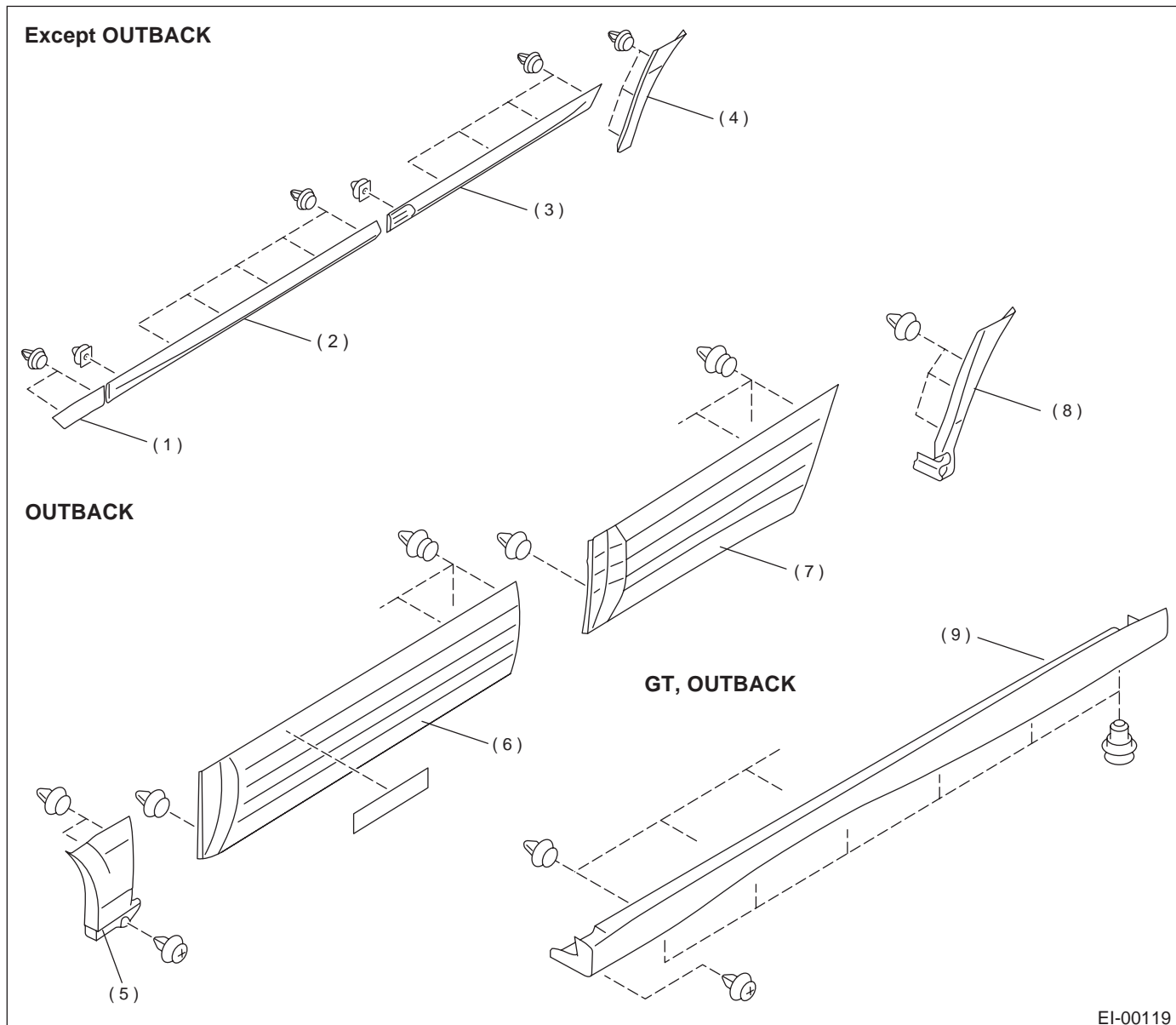
Tightening torque: N·m (kgf·m, ft·lb)

T: 95 (9.7, 70)

GENERAL DESCRIPTION

EXTERIOR/INTERIOR TRIM

4. SIDE PROTECTOR



EI-00119

- (1) Side protector (Front fender)
- (2) Side protector (Front door)
- (3) Side protector (Rear door)

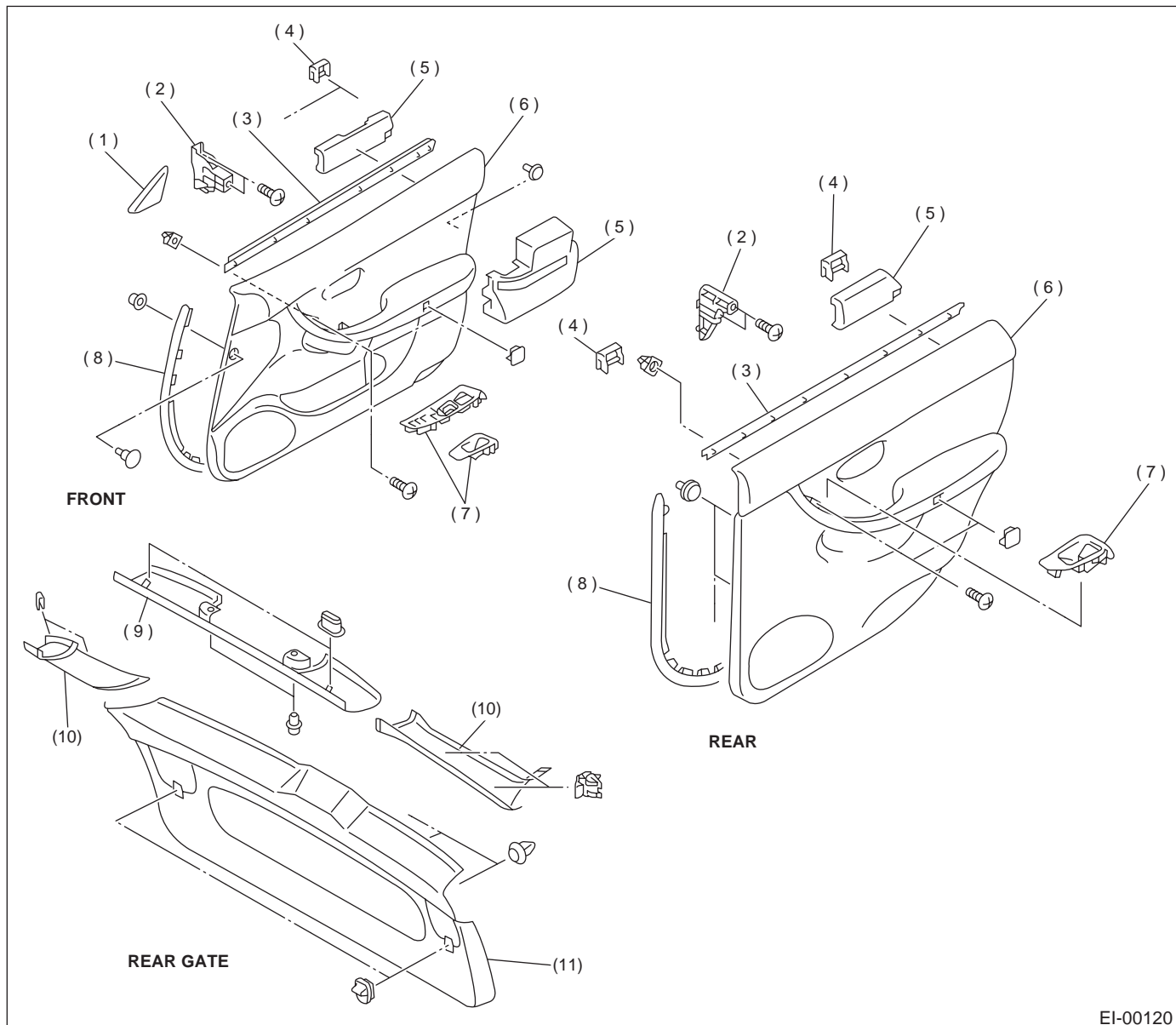
- (4) Side protector (Rear quarter)
- (5) Side garnish (Front fender)
- (6) Side garnish (Front door)

- (7) Side garnish (Rear door)
- (8) Side garnish (Rear quarter)
- (8) Side garnish (Side sill)

GENERAL DESCRIPTION

EXTERIOR/INTERIOR TRIM

5. DOOR TRIM



(1) Gusset cover

(2) Bracket

(3) Weatherstrip upper

(4) Clip

(5) Pad

(6) Trim panel

(7) Power window switch cover

(8) Weatherstrip lower

(9) Upper trim

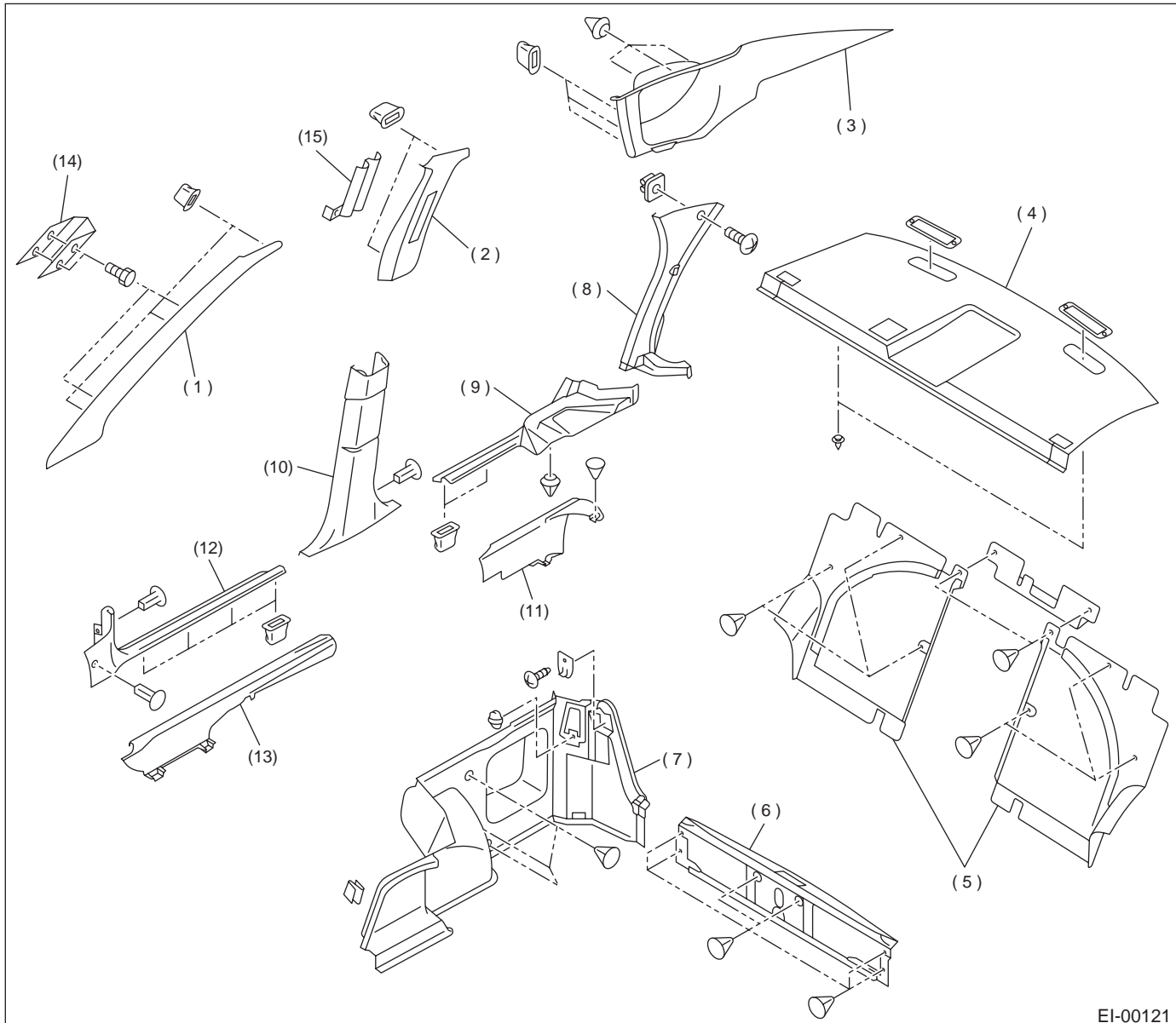
(10) Side trim

(11) Lower trim

GENERAL DESCRIPTION

EXTERIOR/INTERIOR TRIM

6. INNER TRIM (SEDAN)



EI-00121

- (1) Front pillar upper trim
- (2) Center pillar upper trim
- (3) Rear pillar upper trim
- (4) Rear shelf trim
- (5) Rear bulk trim

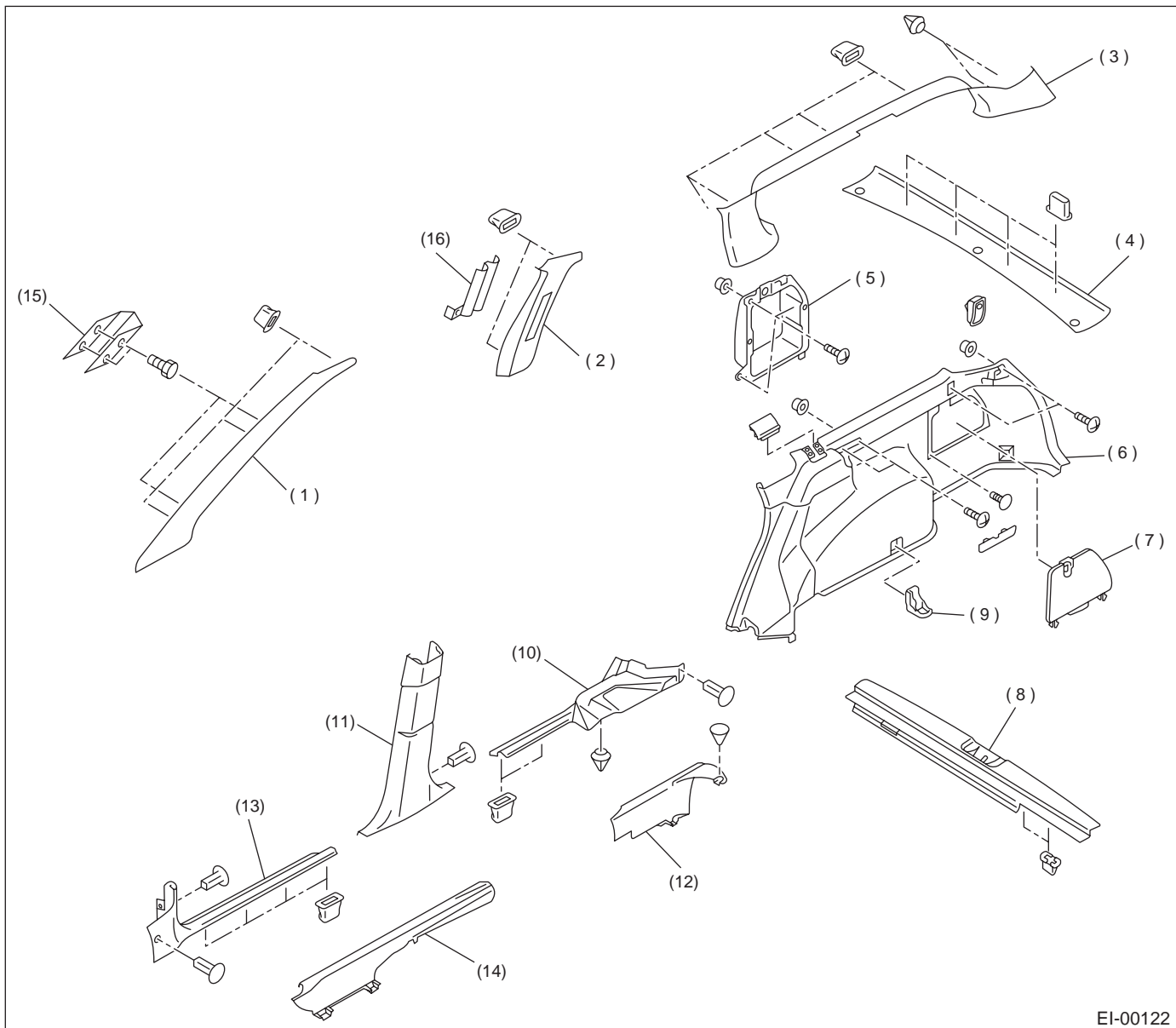
- (6) Trunk rear trim
- (7) Trunk side trim
- (8) Rear pillar lower trim
- (9) Side sill rear upper cover
- (10) Center pillar lower trim

- (11) Side sill rear lower cover
- (12) Front pillar lower trim
- (13) Side sill front lower cover
- (14) Pad stopper A pillar
- (15) Pad B pillar upper

GENERAL DESCRIPTION

EXTERIOR/INTERIOR TRIM

7. INNER TRIM (WAGON)



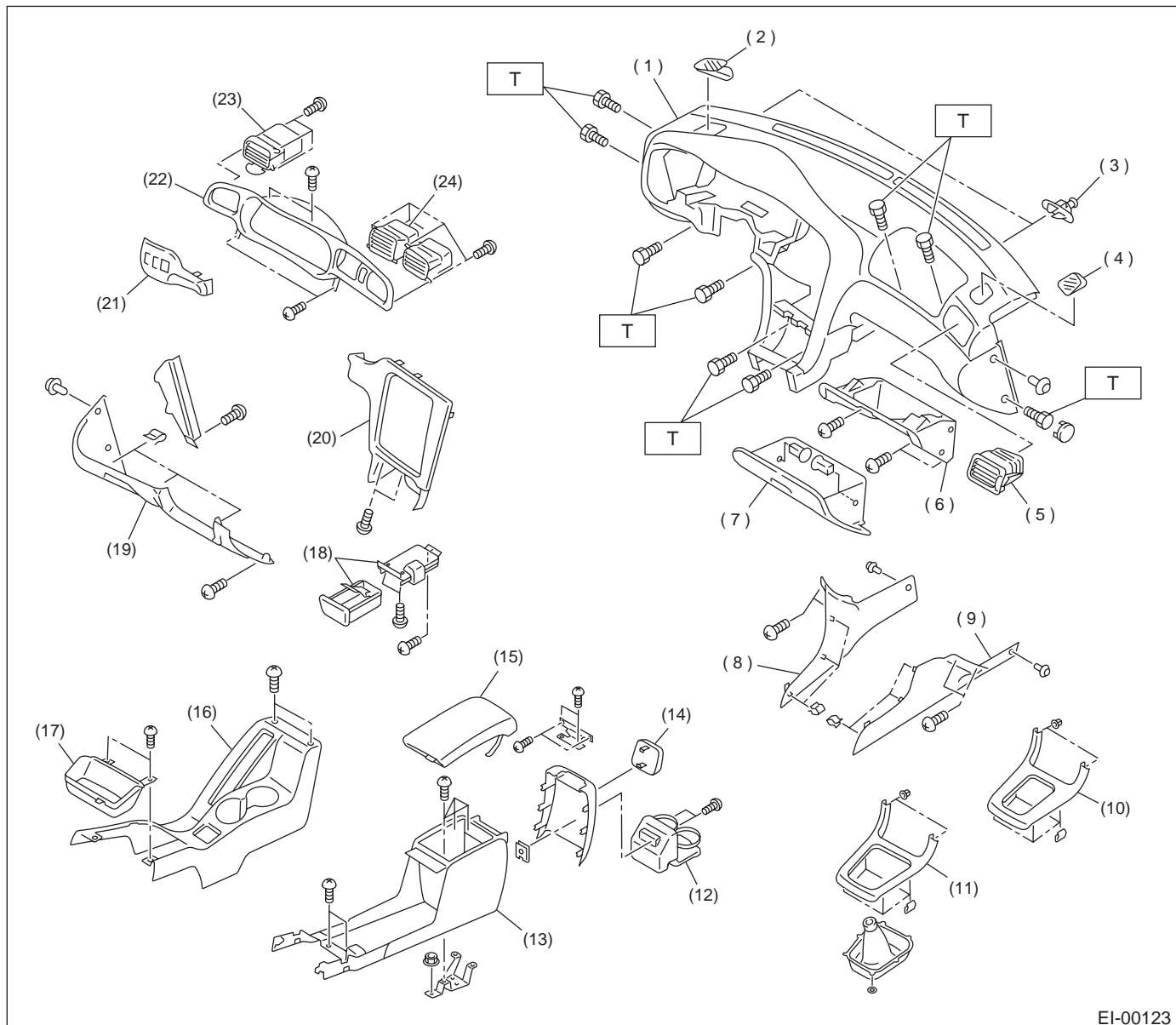
EI-00122

- | | | |
|------------------------------|---------------------------------|----------------------------------|
| (1) Front pillar upper trim | (7) Lid | (13) Front pillar lower trim |
| (2) Center pillar upper trim | (8) Rear skirt trim | (14) Side sill front lower cover |
| (3) Rear pillar upper trim | (9) Hook | (15) Pad stopper A pillar |
| (4) Rear rail trim | (10) Side sill rear upper cover | (16) Pad B pillar upper |
| (5) Pocket | (11) Center pillar lower trim | |
| (6) Rear quarter lower trim | (12) Side sill rear lower cover | |

GENERAL DESCRIPTION

EXTERIOR/INTERIOR TRIM

8. INSTRUMENT PANEL



EI-00123

- | | | |
|---------------------------|-----------------------|----------------------|
| (1) Pad & frame | (11) Front cover (MT) | (21) Switch panel |
| (2) Grille side (D) | (12) Rear cup holder | (22) Meter visor |
| (3) Hook | (13) Console box | (23) Grille vent (D) |
| (4) Grille side (P) | (14) Cap | (24) Grille center |
| (5) Grille vent (P) | (15) Console lid | |
| (6) Glove box panel | (16) Console cover | |
| (7) Glove box lid | (17) Tray | |
| (8) Center panel side (D) | (18) Ash tray | |
| (9) Center panel side (P) | (19) Lower cover | |
| (10) Front cover (AT) | (20) Center panel | |

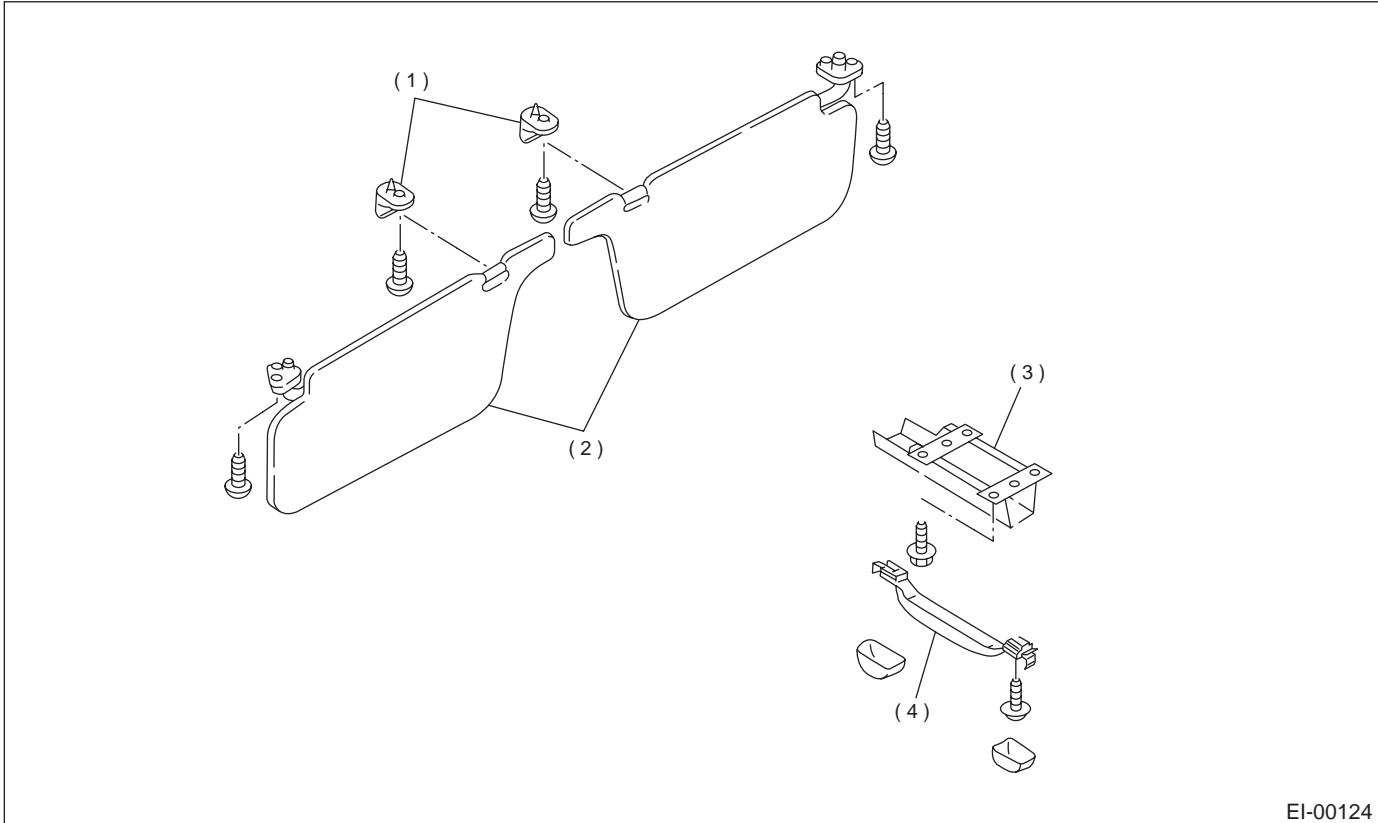
Tightening torque: N·m (kgf-m, ft-lb)

T: 7 (0.7, 5.1)

GENERAL DESCRIPTION

EXTERIOR/INTERIOR TRIM

9. INNER ACCESSORIES



- (1) Hook
- (2) Sun visor

- (3) Pad side rail
- (4) Assist grip

EI-00124

GENERAL DESCRIPTION

EXTERIOR/INTERIOR TRIM

B: PREPARATION TOOL

TOOL NAME	REMARKS
Clip remover	Used for removal of trim.
Adhesive remover	Used for removal of side protector.
Primer	Used for installation of side protector.
Infrared lamp	Used for disassembly/assembly of side protector.
Tow-sided tape	Used for installation of side protector.
TORX® T30	Used for disassembly/assembly of crossbar.

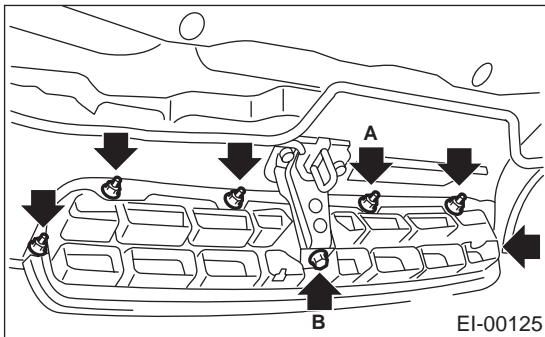
FRONT GRILLE

EXTERIOR/INTERIOR TRIM

2. Front Grille

A: REMOVAL

- 1) Open hood.
- 2) Loosen bolts and nuts to remove front grill.



B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

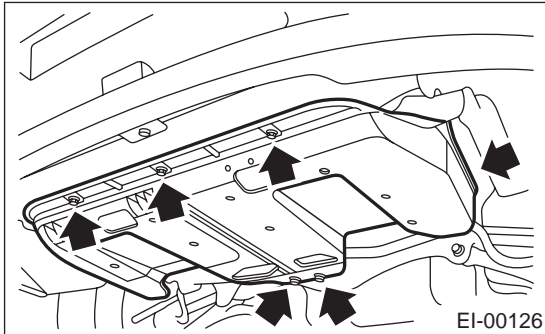
A: $4.4 \pm 1.5 \text{ N}\cdot\text{m}$ ($0.4 \pm 0.1 \text{ kgf}\cdot\text{m}$, $3.2 \pm 1.0 \text{ ft}\cdot\text{lb}$)

B: $7.0 \pm 2.0 \text{ N}\cdot\text{m}$ ($0.7 \pm 0.2 \text{ kgf}\cdot\text{m}$, $5.1 \pm 1.4 \text{ ft}\cdot\text{lb}$)

3. Front Under Cover

A: REMOVAL

- 1) Lift-up the vehicle.
- 2) Loosen bolts and clips to remove under cover.



B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

18.4 N·m (1.88 kgf·m, 13.6 ft·lb)

FRONT BUMPER

EXTERIOR/INTERIOR TRIM

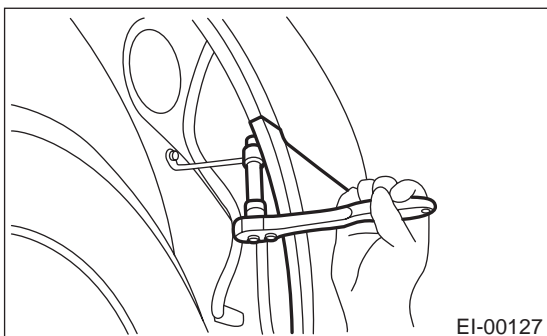
4. Front Bumper

A: REMOVAL

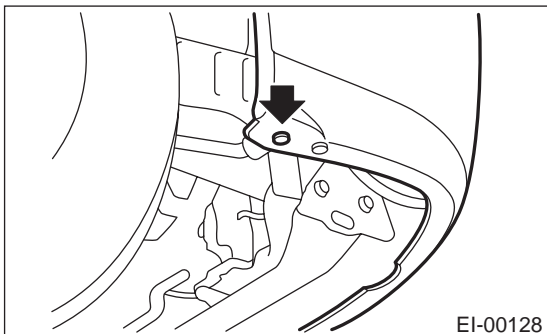
CAUTION:

- Handle bumper carefully to avoid damage to bumper face.
- Do not damage body during removal or installation of bumper.
- To avoid damage to bumper, lay removed bumper on sheet spread on the floor. Do not lay it directly on the floor.

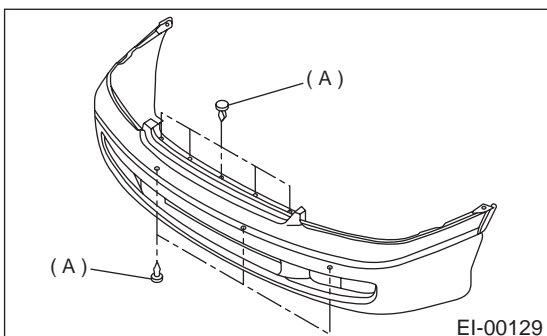
- 1) Open hood.
- 2) Disconnect ground cable from battery.
- 3) Pull off front side of front mat guard to remove bolts.



- 4) Remove clip at bottom of bumper.



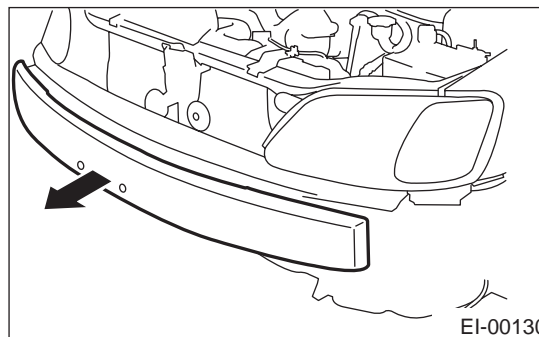
- 5) Remove clip (A), and pull out bumper slightly.
- 6) Disconnect electrical connector of fog light to remove bumper.



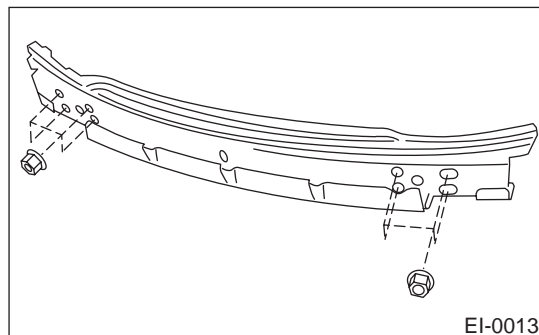
- 7) Remove E/A FOAM from bumper beam.

CAUTION:

E/A FOAM is easy to brak. Do not apply excessive force to it during removal.



- 8) Remove bumper beam.



B: INSTALLATION

Install in the reverse order of removal.

CAUTION:

- Handle bumper carefully to avoid damage to bumper face.
- Do not damage body during removal or installation of bumper.

Tightening torque:

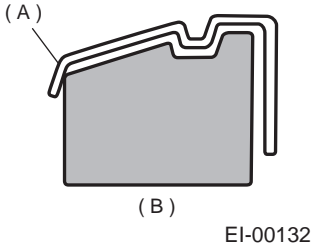
Refer to **COMPONENT** in *General Description*. <Ref. to EI-2, **FRONT BUMPER, COMPONENT**, *General Description*.>

FRONT BUMPER

EXTERIOR/INTERIOR TRIM

C: REPAIR

1. COATING METHOD FOR PP BUMPER

Process No.	Process name	Job contents	
1	Bumper mounting	Set bumper (A) on paint worktable if required. Use paint worktable conforming to inner shape of bumper when possible (B).	 <p style="text-align: right;">EI-00132</p>
2	Masking	Mask specified part (black base) with masking tape. Use masking tape for PP (example, Nichiban No. 533, etc.).	
3	Degreasing, cleaning	Clean all parts to be painted with white gasoline, normal alcohol, etc. to remove dirt, oil, fat, etc.	
4	Primer paint	Apply primer one to all parts to be painted, using air gun. Use primer (clear).	
5	Drying	Dry at normal temperature [10 to 15 min. at 20°C (68°F)]. In half-dried condition, PP primer paint is dissolved by solvent, e.g. thinner, etc. Therefore, if dust or dirt must be removed, use ordinary alcohol, etc.	
6	Top coat paint (I)	Solid color	Metallic color
		Use section (block) paint for top coat. • Paint in use (for each color): Solid paint Hardener PB Thinner T-301 • Mixing ratio: Main agent vs. hardener = 4:1 • Viscosity: 10 — 13 sec/20°C (68°F) • Film thickness: 35 — 45μ • Spraying pressure: 245 — 343 kPa (2.5 — 3.5 kg/cm ² , 36 — 50 psi)	Use section (block) paint for top coat. • Paint in use (for each color): Metallic paint Hardener PB Thinner T-306 • Mixing ratio: Main agent vs. hardener = 10 : 1 • Viscosity: 10 — 13 sec/20°C (68°F) • Film thickness: 15 — 20μ • Spraying pressure: 245 — 343 kPa (2.5 — 3.5 kg/cm ² , 36 — 50 psi)
7	Drying	Not required.	Dry at normal temperature [10 min. or more at 20°C (68°F)]. In half-dried condition, avoid dust, dirt.
8	Top coat paint (II)	Not required.	Apply a clear coat to parts with top coat paint (I), three times, at 5 — 7 minutes intervals. • Paint in use: Metallic paint Hardener PB Thinner T-301 • Mixing ratio: Clear vs. hardener = 6 : 1 • Viscosity: 14 — 16 sec/20°C (68°F) • Film thickness: 25 — 30μ • Spraying pressure: 245 — 343 kPa (2.5 — 3.5 kg/cm ² , 36 — 50 psi)
9	Drying	60°C (140°F), 60 min. or 80°C (176°F), 30 min. If higher than 80°C (176°F), PP may be deformed. Keep maximum temperature of 80°C (176°F).	
10	Inspection	Paint check.	
11	Masking removal	Remove masking in process No. 2.	

FRONT BUMPER

EXTERIOR/INTERIOR TRIM

2. REPAIR INSTRUCTIONS FOR COLORED PP BUMPER

NOTE:

All PP bumpers are provided with a grained surface, and if the surface is damaged, it cannot normally be restored to its former condition. Damage limited to shallow scratches that cause only a change in the lustre of the base material or coating, can be almost fully restored. Before repairing a damaged area, explain this point to the customer and get an understanding about the matter. Repair methods are outlined below, based on a classification of the extent of damage.

• **Minor damage causing only a change in the lustre of the bumper due to a light touch**

Almost restorable.

Process No.	Process name	Job contents	
1	Cleaning	Clean the area to be repaired using water.	
2	Sanding	Grind the repairing area with #500 sand paper in a "feathering" motion.	
3	Finish	Resin section	Coated section
		Repeatedly apply wax to the affected area using a soft cloth (such as flannel). Recommended wax: NITTO KASEI Soft 99 TIRE WAX BLACK, or equivalent.	
		Polish the waxed area with a clean cloth after 5 to 10 minutes.	Perform either the same operation as for the resin section or process No. 18 and subsequent operations in the "(3)" section, depending on the degree and nature of damage.

• **Deep damage caused by scratching fences, etc.**

A dent cannot be repaired but a whitened or swelled part can be removed.

Process No.	Process name	Job contents	
1	Cleaning	Clean damaged area with water.	
2	Removal of damaged area	Cut off protruding area, if any, due to collision, using a putty knife.	
3	Sanding	Grind the affected area with #100 to #500 sand paper.	
4	Finish	Resin section	Coated section
		Same as Process No. 3 in the "(1)" section.	Perform Process No. 12 and subsequent operations in the "(3)" section.

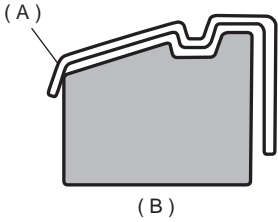
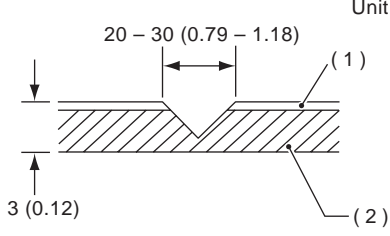
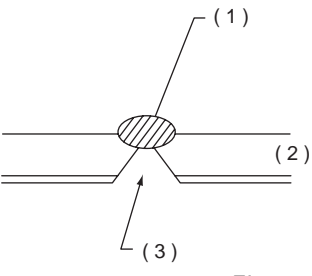
FRONT BUMPER

EXTERIOR/INTERIOR TRIM

• **Deep damage such as a break or hole that requires filling**

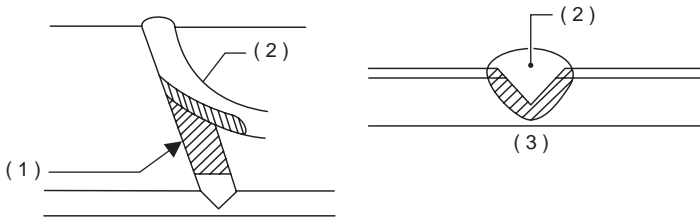

Much of the peripheral grained surface must be sacrificed for repair, and the degree of restoration is not really worth the expense. (The surface, however, will become almost flush with adjacent areas.)

Recommended repair kit: PP Part Repair Kit (NRM)

Process No.	Process name	Job contents	
1	Bumper removal	Remove bumper as required.	
2	Part removal	Remove parts built into bumper as required.	
3	Bumper placement	Place bumper (A) on a paint worktable as required. It is recommended that contour of worktable accommodate internal shape of bumper (B).	 <p style="text-align: right;">EI-00132</p>
4	Surface preparation	Remove dust, oil, etc. from areas to be repaired and surrounding areas, using a suitable solvent (NRM No. 900 Precleno, white gasoline, or alcohol).	
5	Cutting	If nature of damage are cracks or holes, cut a guide slit of 20 to 30 mm (0.79 to 1.18 in) in length along the crack or hole up to the bumper's base surface. Then, bevel or "vee-out" the affected area using a knife or grinder.	<p style="text-align: right;">Unit: mm (in)</p>  <p style="text-align: right;">EI-00134</p> <p>(1) Paint surface (2) PP base surface</p>
6	Sanding (I)	Grind beveled surface with sand paper (#40 to #60) to smooth finish.	
7	Cleaning	Clean the sanded surface with the same solvent as used in Process No. 4.	
8	Temporary welding	Grind the side just opposite the beveled area with sand paper (#40 to #60) and clean using a solvent. Temporarily spot-weld the side, using a PP welding rod and heater gun.	 <p style="text-align: right;">EI-00135</p> <p>(1) Welded spot (Use heater gun and PP welding rod) (2) PP base surface (3) Beveled section</p> <p>NOTE:</p> <ul style="list-style-type: none"> • Do not melt welding rod until it flows out. This results in reduced strength. • Leave the welded spot unattended until it cools completely.

FRONT BUMPER

EXTERIOR/INTERIOR TRIM

Process No.	Process name	Job contents
9	Welding	<p>Using a heater gun and PP welding rod, weld the beveled spot while melting the rod and damaged area.</p>  <p style="text-align: right;">EI-00136</p> <p>(1) Melt hatched area (2) Welding rod (3) Section</p> <p>NOTE:</p> <ul style="list-style-type: none"> • Melt the sections indicated by hatched area. • Do not melt welding rod until it flows out, in order to provide strength. • Always keep the heater gun 1 to 2 cm (0.4 to 0.8 in) away from the welding spot. • Leave the welded spot unattended until it cools completely.
10	Sanding (II)	<p>Remove excess part of weld with a putty knife. If a drill or disc wheel is used instead of the knife, operate it at a rate lower than 1,500 rpm and grind the excess part little by little. A higher rpm will cause the PP substrate to melt from the heat.</p>  <p style="text-align: right;">EI-00042</p> <p>Sand the welded spot smooth with #240 sand paper.</p>
11	Masking	<p>Mask the black substrate section using masking tape. Recommended masking tape: Nichiban No. 533 or equivalent</p>
12	Cleaning/ degreasing	<p>Completely clean the entire coated area, using solvent similar to that used in Process No. 4.</p>
13	Primer coating	<p>Apply a coat of primer to the repaired surface and its surrounding areas. Mask these areas, if necessary. Recommended primer: Mp/ 364 PP Primer</p> <p>NOTE: Be sure to apply one coat of primer at a spraying pressure of 245 to 343 kPa (2.5 to 3.5 kg/cm², 36 to 50 psi) with a spray gun.</p>
14	Leave unattended.	<p>Leave the repaired area unattended at 20°C (68°F) for 10 to 15 minutes until primer is half-dry.</p> <p>NOTE: If dirt or dust comes in contact with the coated area, wipe it off with a cloth dampened with alcohol. (Do not use thinner since the coated area tends to melt.)</p>
15	Primer surfacer coating	<p>Apply a coat of primer surfacer to the repaired area two or three times at an interval of 3 to 5 minutes.</p> <p>Recommended surfacer:</p> <ul style="list-style-type: none"> • UPS 300 Flex Primer • No. 303 UPS 300 Exclusive hardener • NPS 725 Exclusive Reducer (thinner) • Mixing ratio: 2 : 1 (UPS 300: No. 303) • Viscosity: 12 — 14 sec/20°C (68°F) • Coated film thickness: 40 — 50μ
16	Drying	<p>Allow the coated surface to dry for 60 minutes at 20°C (68°F) [or 30 minutes at 60°C (140°F)].</p>
17	Sanding (III)	<p>Sand the coated surface and its surrounding areas using #400 sand paper and water.</p>

FRONT BUMPER

EXTERIOR/INTERIOR TRIM

Process No.	Process name	Job contents	
18	Cleaning/ degreasing	Same as Process No. 12.	
19	Top coat (I)	Solid color	Metallic color
		Use a "block" coating method. <ul style="list-style-type: none"> • Recommended paint: Suncryl (SC) No. 307 Flex Hardener SC Reducer (thinner) • Mixing ratio: 3 : 1 Suncryl (SC) vs. No. 307 Flex Hardener • Viscosity: 11 — 13 sec/20°C (68°F) • Coated film thickness: 40 — 50μ • Spraying thickness: 245 — 343 kPa (2.5 — 3.5 kg/cm², 36 — 50 psi) 	Use a "block" coating method. <ul style="list-style-type: none"> • Recommended paint: Suncryl (SC) No. 307 Flex Hardener SC Reducer (thinner) • Mixing ratio: 3 : 1 Suncryl (SC) vs. No. 307 Flex Hardener • Viscosity: 11 — 13 sec/20°C (68°F) • Coated film thickness: 20 — 30μ • Spraying thickness: 245 — 343 kPa (2.5 — 3.5 kg/cm², 36 — 50 psi)
20	Leave unat- tended.	Not required.	Leave unattended at 20°C (68°F) for at least 10 minutes until the topcoated area is half-dry. NOTE: Be careful to keep dust or dirt from coming in contact with the affected area.
21	Top coat (II)	Not required.	Apply a clear coat three times at an interval of 3 to 5 minutes. <ul style="list-style-type: none"> • Recommended paint: SC710 Overlay Clear No. 307 Flex Hardener SC Reducer (thinner) • Mixing ratio: 3 : 1 Suncryl (SC) vs. No. 307 Flex Hardener • Viscosity: 10 — 13 sec/20°C (68°F) • Coated film thickness: 20 — 30μ • Spraying pressure: 245 — 343 kPa (2.5 — 3.5 kg/cm², 36 — 50 psi)
22	Drying	Allow the coated surface to dry at 20°C (68°F) for two hours or 60°C (140°F) for 30 minutes. NOTE: Do not allow the temperature to exceed 80°C (176°F) since this will deform the PP substrate.	
23	Inspection	Carefully check the condition of the repaired area.	
24	Masking removal	Remove masking tape applied in Process No. 11 and 13.	
25	Parts installation	Install parts on bumper in reverse order of removal.	
26	Bumper installa- tion	Install bumper.	

REAR BUMPER

EXTERIOR/INTERIOR TRIM

5. Rear Bumper

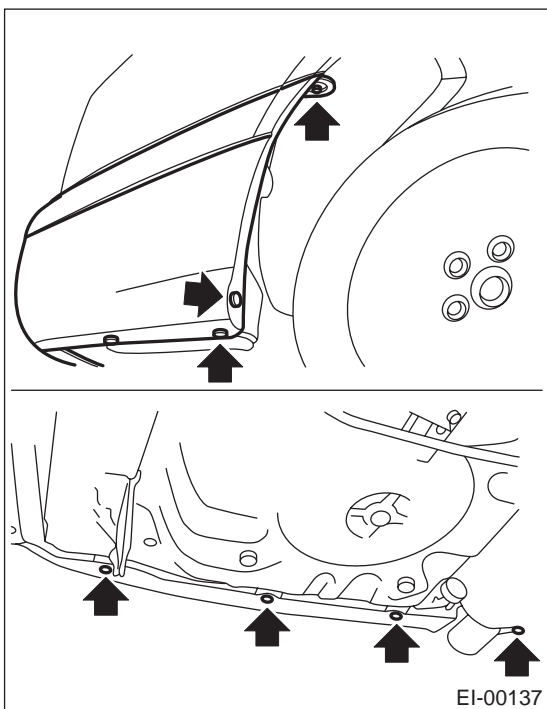
A: REMOVAL

1. SEDAN

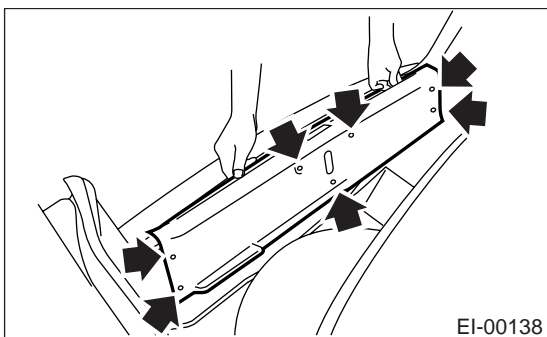
CAUTION:

- Handle bumper carefully to avoid damage to bumper face.
- Do not damage body during removal or installation of bumper.
- To avoid damage to bumper, lay removed bumper on sheet spread on the floor. Do not lay it directly on the floor.

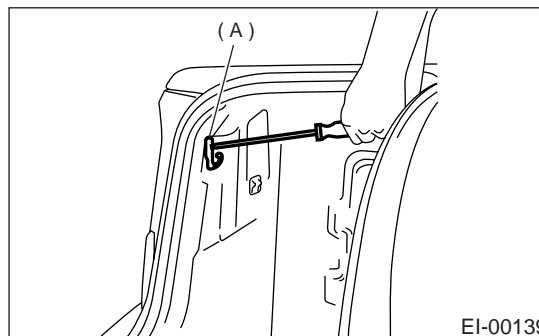
- 1) Lift-up the vehicle.
- 2) Remove bolts and clips.



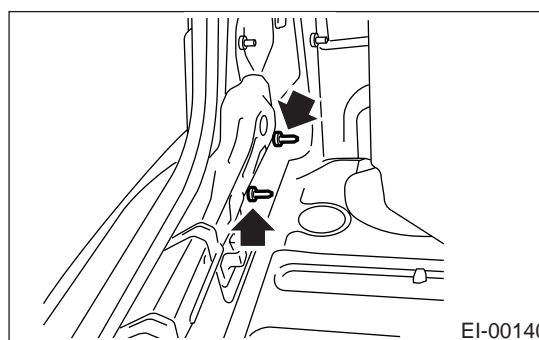
- 3) Loosen clips to remove trunk rear trim.



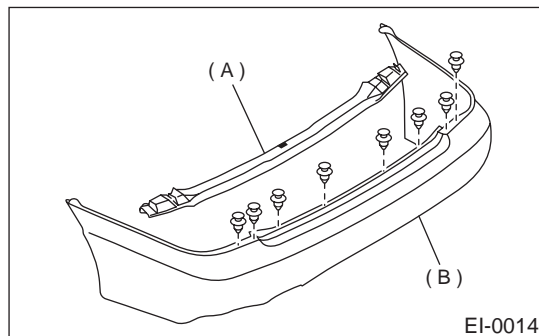
- 4) Remove hook (A) to pull off rear side of trunk side trim.



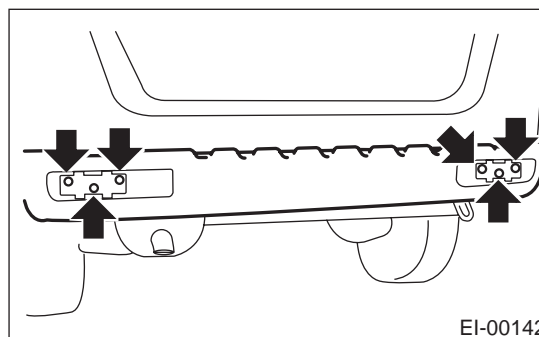
- 5) Remove two nuts from each side to remove rear bumper.



- 6) Loosen clips to remove upper beam (A) from bumper face.



- 7) Remove resin beam.



REAR BUMPER

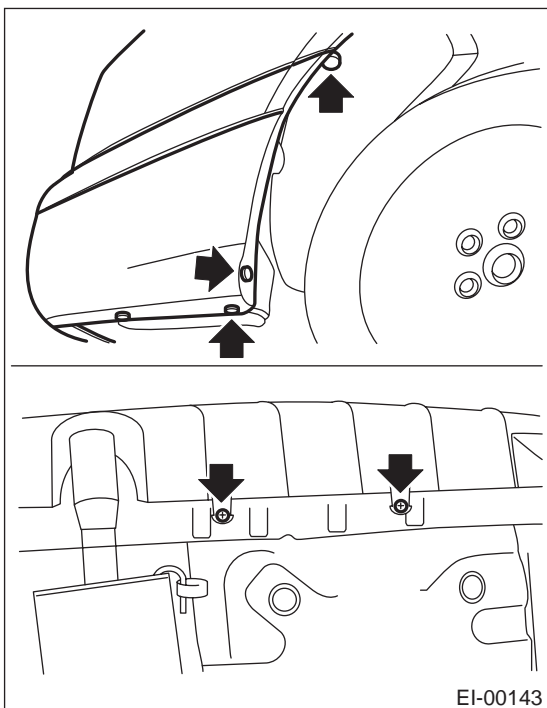
EXTERIOR/INTERIOR TRIM

2. WAGON

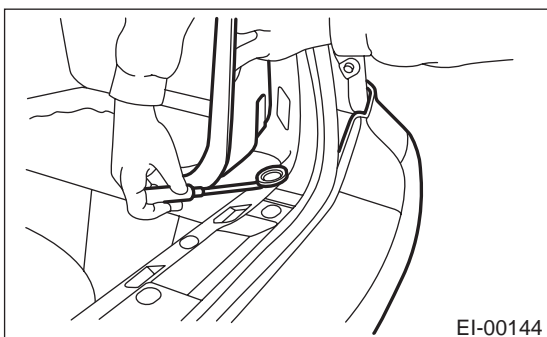
CAUTION:

- Handle bumper carefully to avoid damage to bumper face.
- Do not damage body during removal or installation of bumper.
- To avoid damage to bumper, lay removed bumper on sheet spread on the floor. Do not lay it directly on the floor.

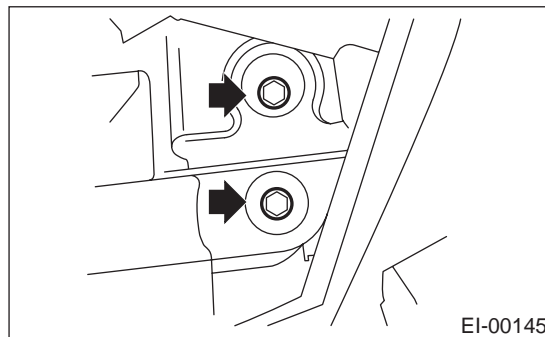
- 1) Lift-up the vehicle.
- 2) Remove trailer hitch. <Ref. to EI-31, REMOVAL, Trailer Hitch.>
- 3) Remove bolts and clips.



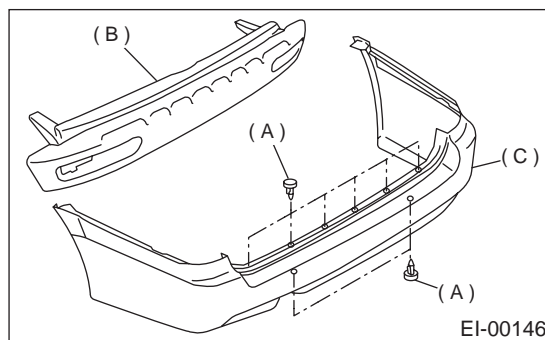
- 4) Remove rear floor box. <Ref. to EI-43, REMOVAL, Rear Quarter Trim.>
- 5) Pull off rear end of rear quarter lower trim to remove cap.



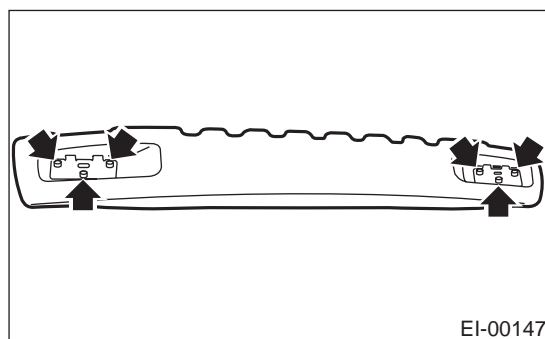
- 6) Loosen bolts to remove rear bumper.



- 7) Loosen clip (A) to remove bumper beam (B) from rear bumper face (C).



- 8) Remove resin beam from bumper beam.



REAR BUMPER

EXTERIOR/INTERIOR TRIM

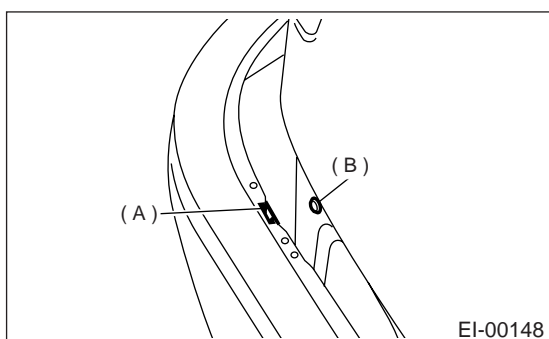
B: INSTALLATION

1. SEDAN

CAUTION:

- Handle bumper carefully to avoid damage to bumper face.
- Do not damage body during removal or installation of bumper.

- 1) Install in the reverse order of removal.
- 2) Fit slider (A) to guide pin (B) securely.



Tightening torque:

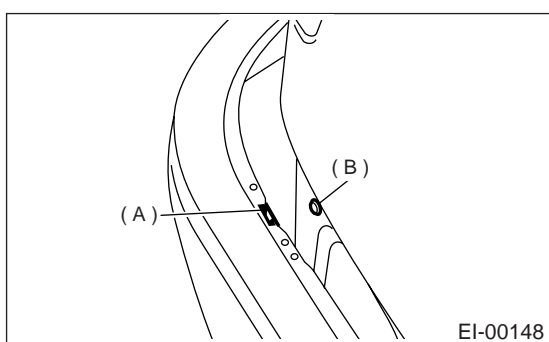
Refer to **COMPONENT** in *General Description*. <Ref. to EI-3, **REAR BUMPER (SEDAN)**, **COMPONENT**, *General Description*.>

2. WAGON

CAUTION:

- Handle bumper carefully to avoid damage to bumper face.
- Do not damage body during removal or installation of bumper.

- 1) Install in the reverse order of removal.
- 2) Fit slider (A) to guide pin (B) securely.



Tightening torque:

Refer to **COMPONENT** in *General Description*. <Ref. to EI-4, **REAR BUMPER (WAGON)**, **COMPONENT**, *General Description*.>

C: REPAIR

Refer to front bumper repair. <Ref. to EI-14, **REMOVAL**, Front Bumper.>

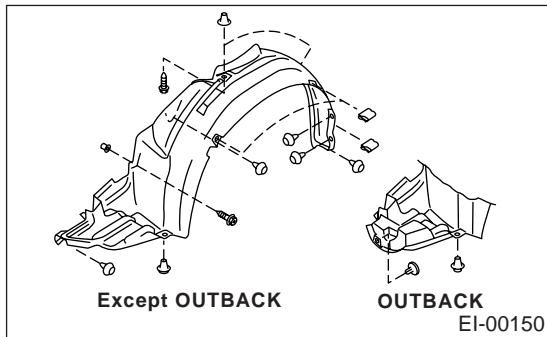
MUD GUARD

EXTERIOR/INTERIOR TRIM

6. Mud Guard

A: REMOVAL

- 1) Jack-up the vehicle.
- 2) Loosen screws and clips to remove mud guard.



B: INSTALLATION

Insert hook into body, and tighten it with screw and clip.

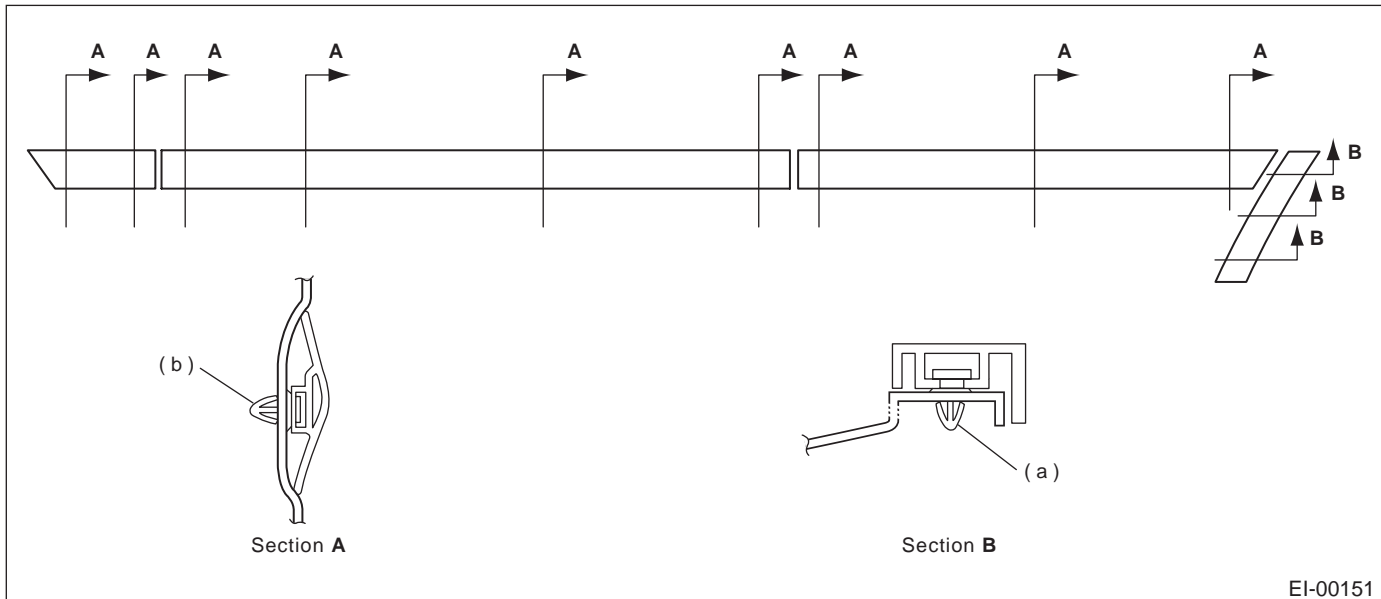
PROTECTOR

EXTERIOR/INTERIOR TRIM

7. Protector

A: REMOVAL

1) Except OUTBACK:

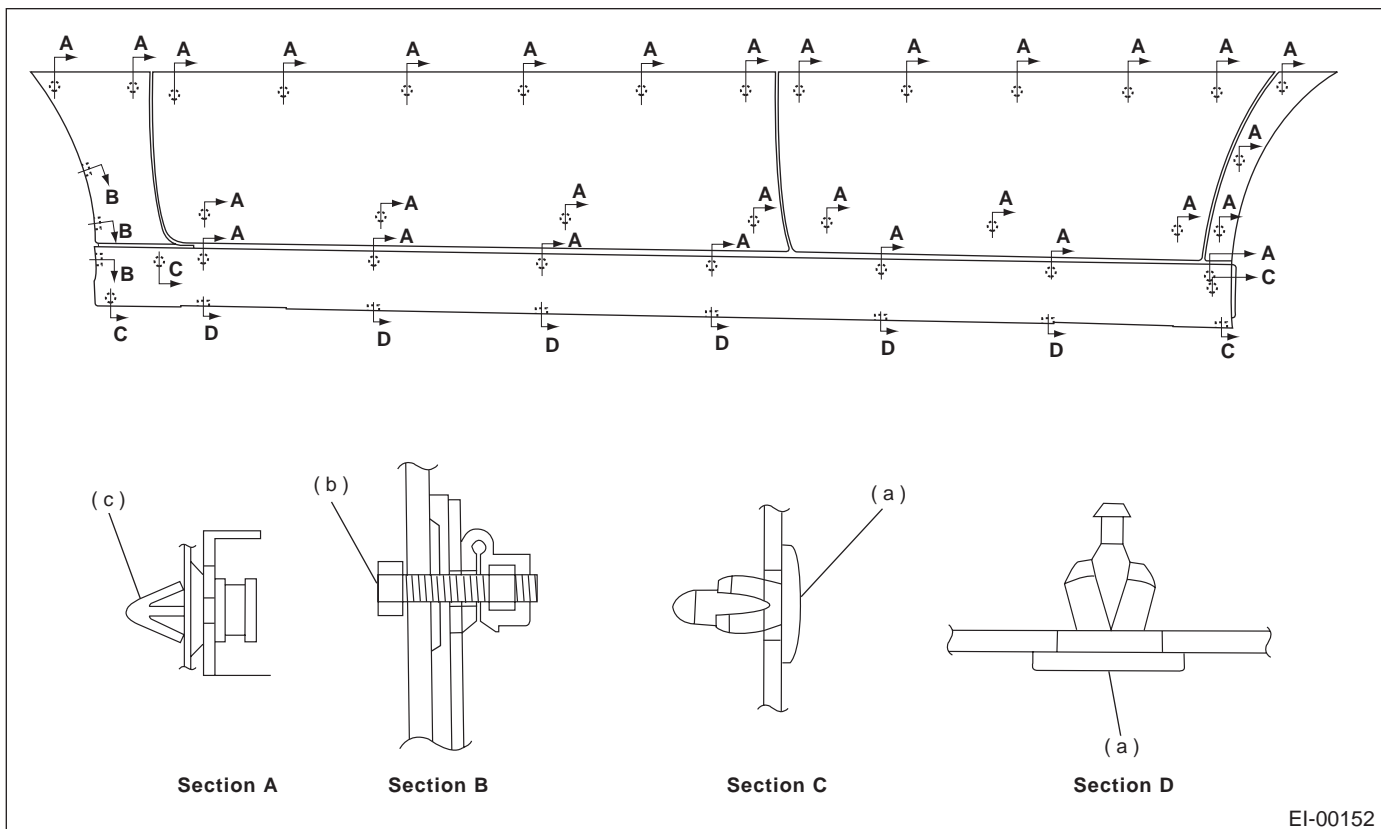


NOTE:

Paying attention to the position of clip (b).

OUTBACK:

Remove clip (a) and bolt (b).



NOTE:

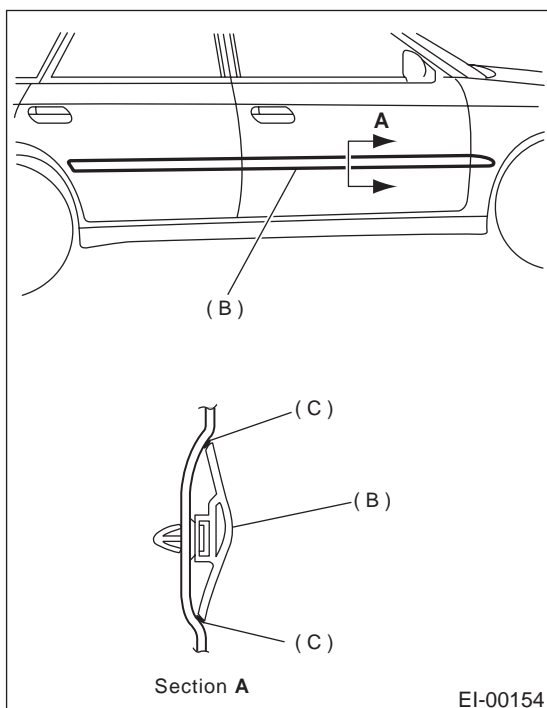
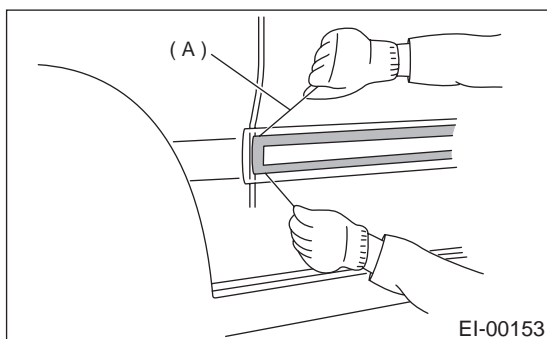
Paying attention to the position of clip (c).

PROTECTOR

EXTERIOR/INTERIOR TRIM

2) Attach masking tape to outer perimeter of side protector. (If original side protector is re-installed, tape the entire protector.)

3) Insert fishing line [0.8 mm (0.031 in) dia.] (A) between side protector (B) and vehicle body. Cut (pull the line) through two-sided tape (C) along side protector on the body. Using a puller, remove clips from vehicle body while pulling side protector towards yourself as required.



NOTE:

- To increase adhesive remover strength, leave two-sided tape on body and side protector.
- If two-sided tape is too thick, use a putty knife to cut it thin so that adhesive remover is ready for use.
- If two-sided tape is hard to remove, heat to approximately 40°C (104°F).

4) Apply an even coat of adhesive remover to the two-sided tape.

Recommended adhesive remover:
SUMITOMO 3M4000 or equivalent

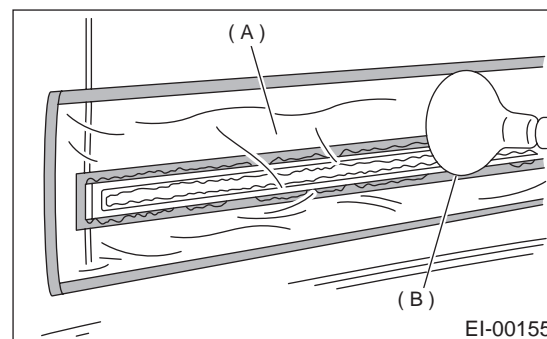
CAUTION:

Do not apply adhesive remover to lacquer base coated body panels.

5) Attach plastic wrap (A) to adhesive remover coated areas and heat to 40 to 60°C (104 to 140°F) for 5 to 10 minutes using an infrared lamp (B).

CAUTION:

Do not overheat until plastic wrap is somewhat white.



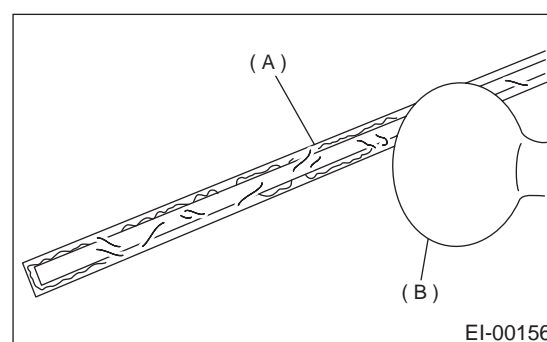
6) Using a plastic spatula, remove traces of two-sided tape from body panel.

7) Remove masking tape and clean traces of two-sided tape using a cloth dampened with white gasoline.

8) Similarly, clean traces of adhesive from two-sided tape on side protector.

CAUTION:

Make sure side protector is clean and free of adhesive remover. Clean if necessary.



PROTECTOR

EXTERIOR/INTERIOR TRIM

B: INSTALLATION

1) Apply primer to original side protector (if used), and attach two-sided tape to side protectors as shown.

Two-sided tape:

Thickness; 1.2 mm (0.047 in)

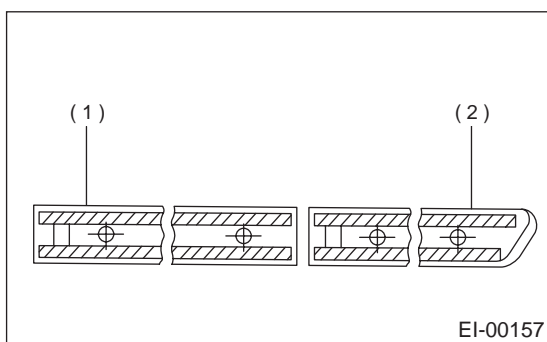
Width; 5 mm (0.20 in)

Recommended primer:

SUMITOMO 3MK-500 or equivalent

Recommended two-sided tape:

SUMITOMO 3M4210 or equivalent



(1) Front door part

(2) Rear door part

2) Using an infrared lamp, heat body panel to 40 to 60°C (104 to 140°F) and rear surface of side protector to 20 to 30°C (68 to 86°F).

3) Remove tack paper from two-sided paper. While aligning clips with holes in body panel, attach two-sided tape to side protector and body panel with a force of more than 49 N (5 kgf, 11 lb) with roller. Do not allow air to enter mating surface of the two.

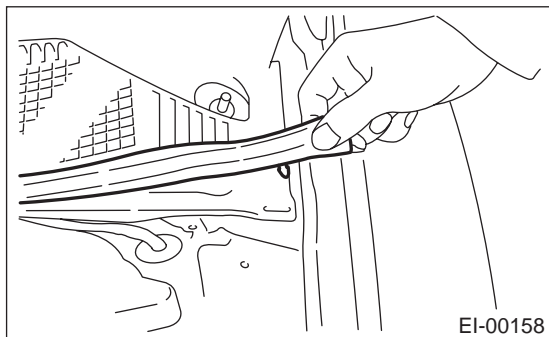
CAUTION:

- To maintain adhesive power, do not wash the vehicle for 24 hours after tape application.
- Push clip in securely using hands.
(To prevent deformation, do not use excessive force.)

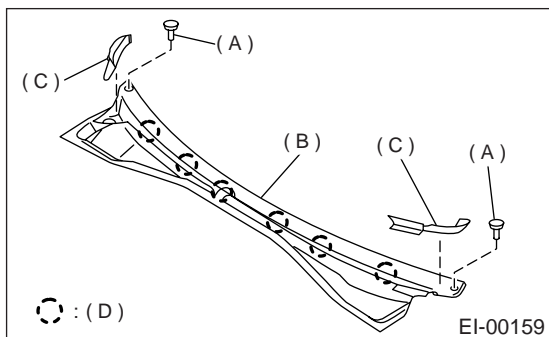
8. Cowl Panel

A: REMOVAL

- 1) Open hood.
- 2) Remove wiper arm. <Ref. to WW-11, REMOVAL, Front Wiper Arm.>
- 3) Remove front panel seal.



- 4) Remove clips (A) and cowl side panel (C). Loosen clips (D) on six positions, and remove cowl side panel (B).



B: INSTALLATION

Install in the reverse order of removal.

SPOILER

EXTERIOR/INTERIOR TRIM

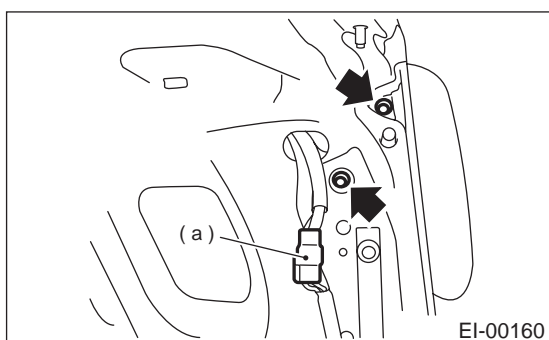
9. Spoiler

A: REMOVAL

- 1) Open trunk lid.
- 2) Remove electrical connector (a) of high-mounted stop light.
- 3) Remove mounting nut of rear spoiler to remove rear spoiler.

CAUTION:

- When removing nut, do not drop it into trunk lid.
- Pay attention to avoid damage during removal or installation.



B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) Clean mounting surfaces of trunk lid and spoiler before installation.

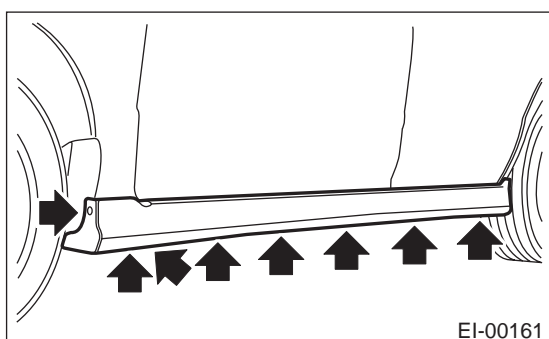
SIDE SILL SPOILER

EXTERIOR/INTERIOR TRIM

10.Side Sill Spoiler

A: REMOVAL

Remove clips (1 on front, 6 on lower, 1 on side), remove side spoiler.



B: INSTALLATION

Install in the reverse order of removal.

EI-29

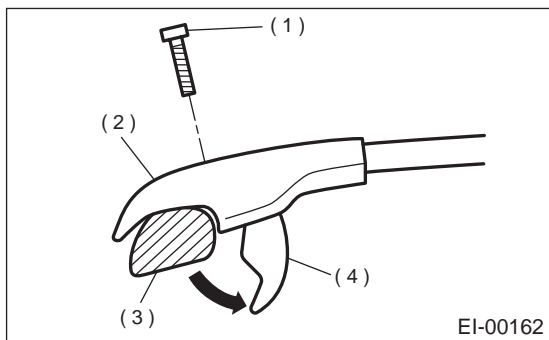
CROSSBAR

EXTERIOR/INTERIOR TRIM

11. Crossbar

A: REMOVAL

- 1) Remove TORX® bolt T30 from each cross end support.
- 2) Rotate lower clamp of each end support about 90 degrees downward to remove crossbar.



- (1) TORX® bolt T30
- (2) End support
- (3) Roof rail
- (4) Lower clamp

CAUTION:

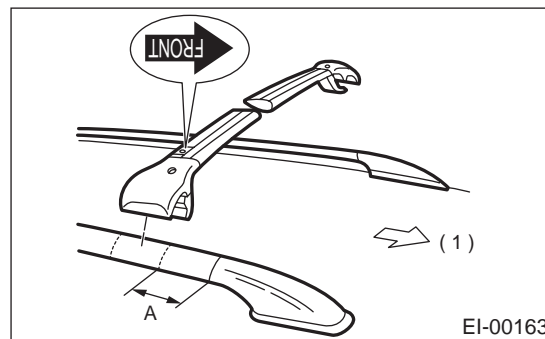
Do not damage roof panel during removal or installation.

B: INSTALLATION

- 1) Rotate lower clamp of each end support about 90 degrees downward.
- 2) Set crossbar so that front direction arrow on the right top face of crossbar points in the direction of vehicle front, and place crossbar end support at position 152.4 mm (6.00 in) back from joint of front roof rail support and roof rail.

Length A:

152.4 mm (6.00 in)

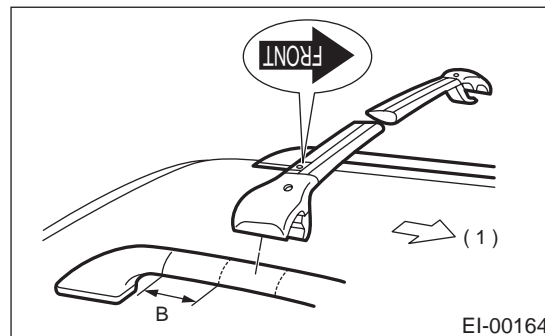


- (1) Front of vehicle

- 3) Set crossbar so that front direction arrow on the right top face of crossbar points in the direction of vehicle front, and place crossbar end support at position 152.4 mm (6.00 in) back from joint of rear roof rail support and roof rail.

Length B:

152.4 mm (6.00 in)



- (1) Front of vehicle

- 4) Tighten end support and lower clamp using TORX® bolt T30.

12.Trailer Hitch

A: REMOVAL

CAUTION:

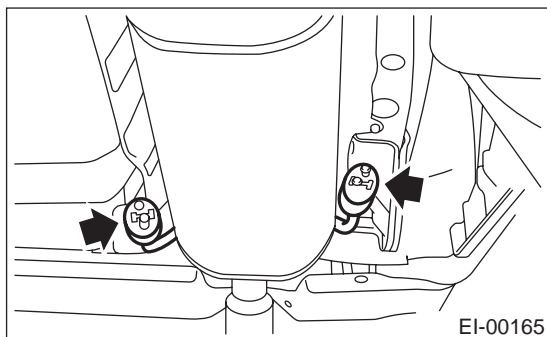
Because trailer hitch is heavy, two people are required to remove it.

- 1) Lift-up the vehicle.
- 2) Remove rubber cushion from body.

NOTE:

If rubber cushion is hard to remove, apply SUBARU CRC.

SUBARU CRC (Part No. 004301003)



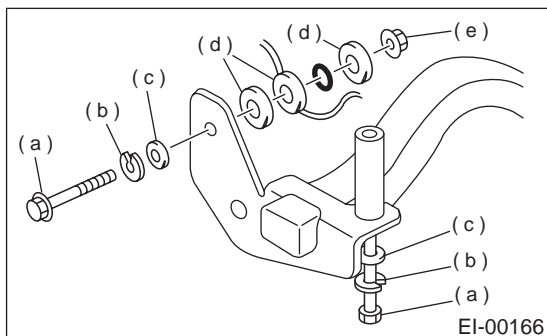
- 3) Remove strap (a).
- 4) Remove bolts. Remove trailer hitch while lowering muffler.

B: INSTALLATION

CAUTION:

Because trailer hitch is heavy, two people are required to remove it.

- 1) Install in the reverse order of removal.
- 2) For installation method of bolt, see the figure.



- (a) Bolt
- (b) Spring washer
- (c) Flat washer
- (d) Plate
- (e) Nut

FRONT DOOR TRIM

EXTERIOR/INTERIOR TRIM

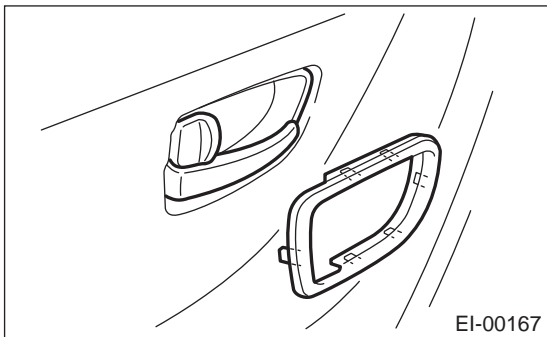
13. Front Door Trim

A: REMOVAL

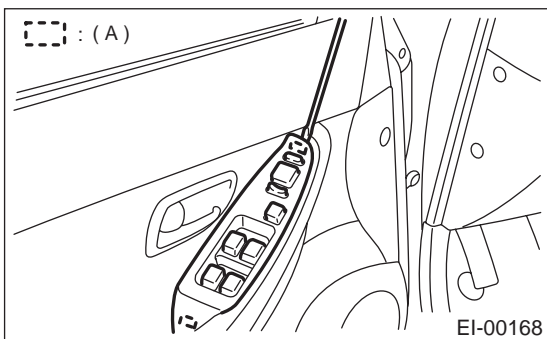
CAUTION:

Do not apply excessive force to clip. Otherwise the clip may be broken.

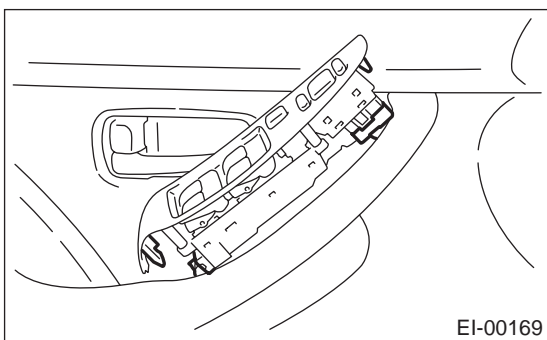
1) Pull up inner remote cover toward you to remove upper hook. Pull down it to remove lower claw. Remove inner remote cover.



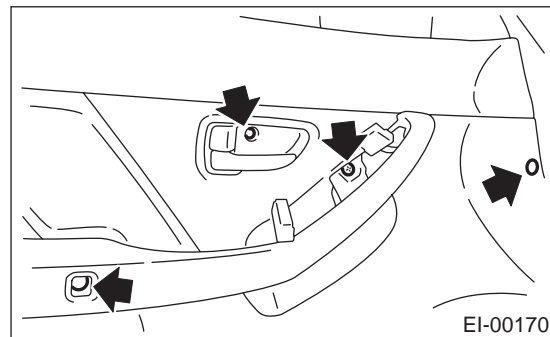
2) Remove two hook (A) of switch panel to remove power window main switch.



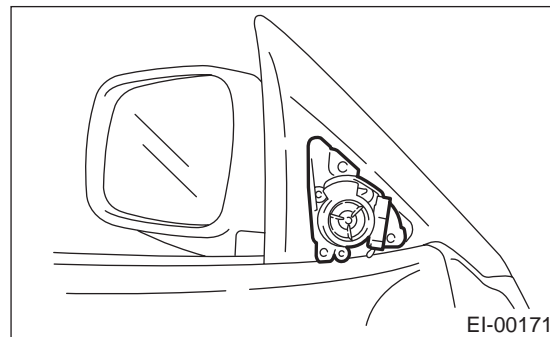
3) Disconnect electrical connectors from power window main switch and mirror switch.



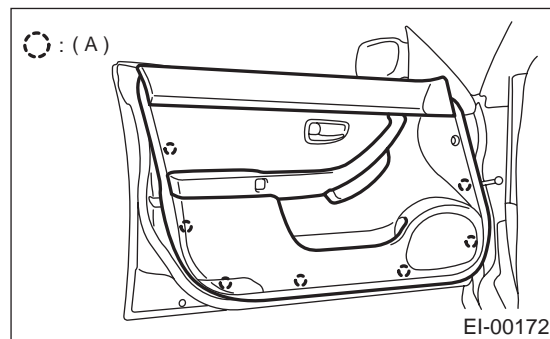
4) Remove three screws and clips.



5) Remove gusset cover. Disconnect electrical connectors to remove speaker.



6) Remove seven clips (A) of trim panel using clip remover to remove trim panel.



B: INSTALLATION

Install in the reverse order of removal.

REAR DOOR TRIM

EXTERIOR/INTERIOR TRIM

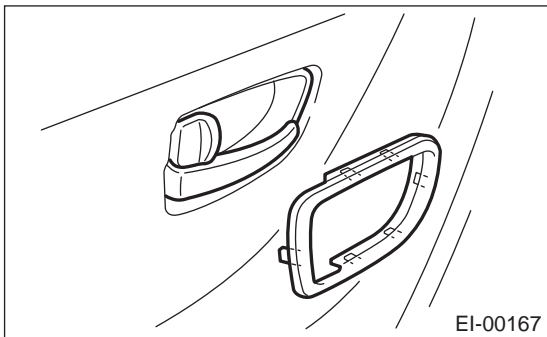
14.Rear Door Trim

A: REMOVAL

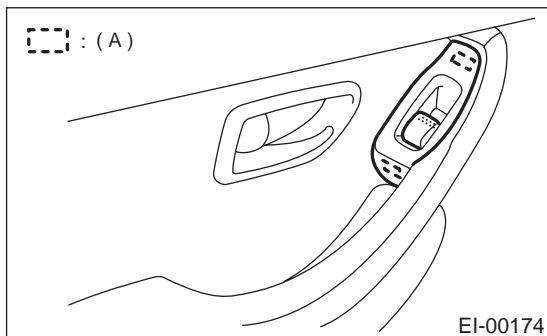
CAUTION:

Do not apply excessive force to clip. Otherwise the clip may be broken.

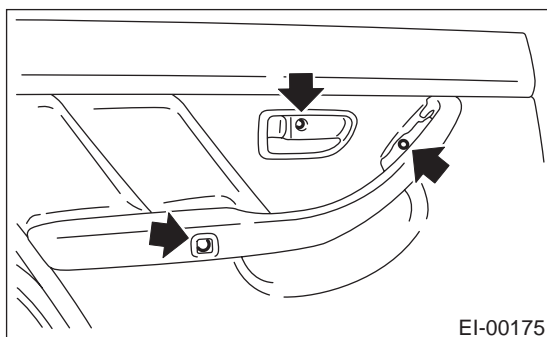
1) Pull up inner remote cover toward you to remove upper hook. Pull down it to remove lower claw. Remove inner remote cover.



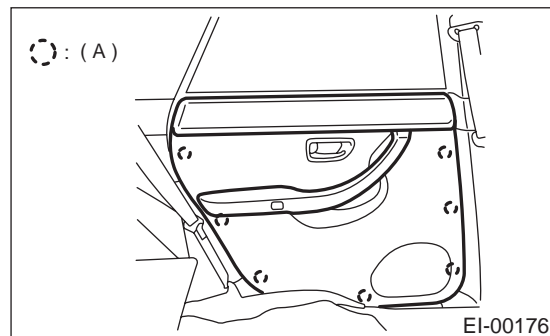
2) Remove two hook (A) of switch panel to remove power window sub switch and disconnect electrical connector.



3) Remove three screws and clips.



4) Remove seven clips (A) of trim panel using clip remover to remove trim panel.



B: INSTALLATION

Install in the reverse order of removal.

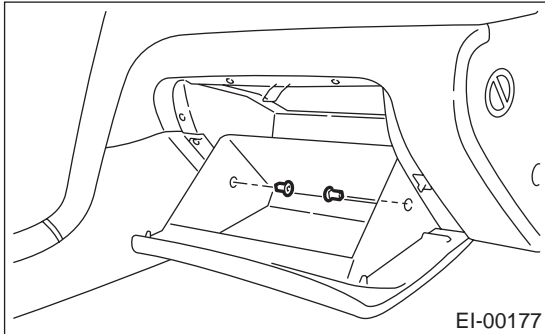
GLOVE BOX

EXTERIOR/INTERIOR TRIM

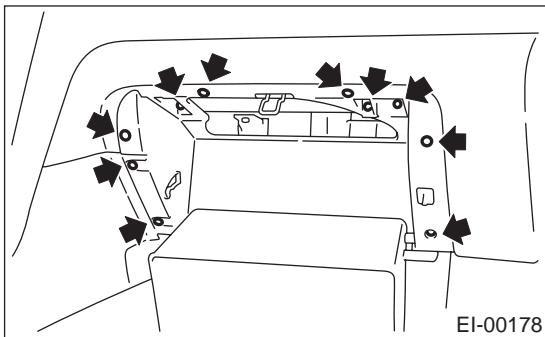
15. Glove Box

A: REMOVAL

1) Remove stoppers.



2) Loosen screws to remove glove box.



B: INSTALLATION

Install in the reverse order of removal.

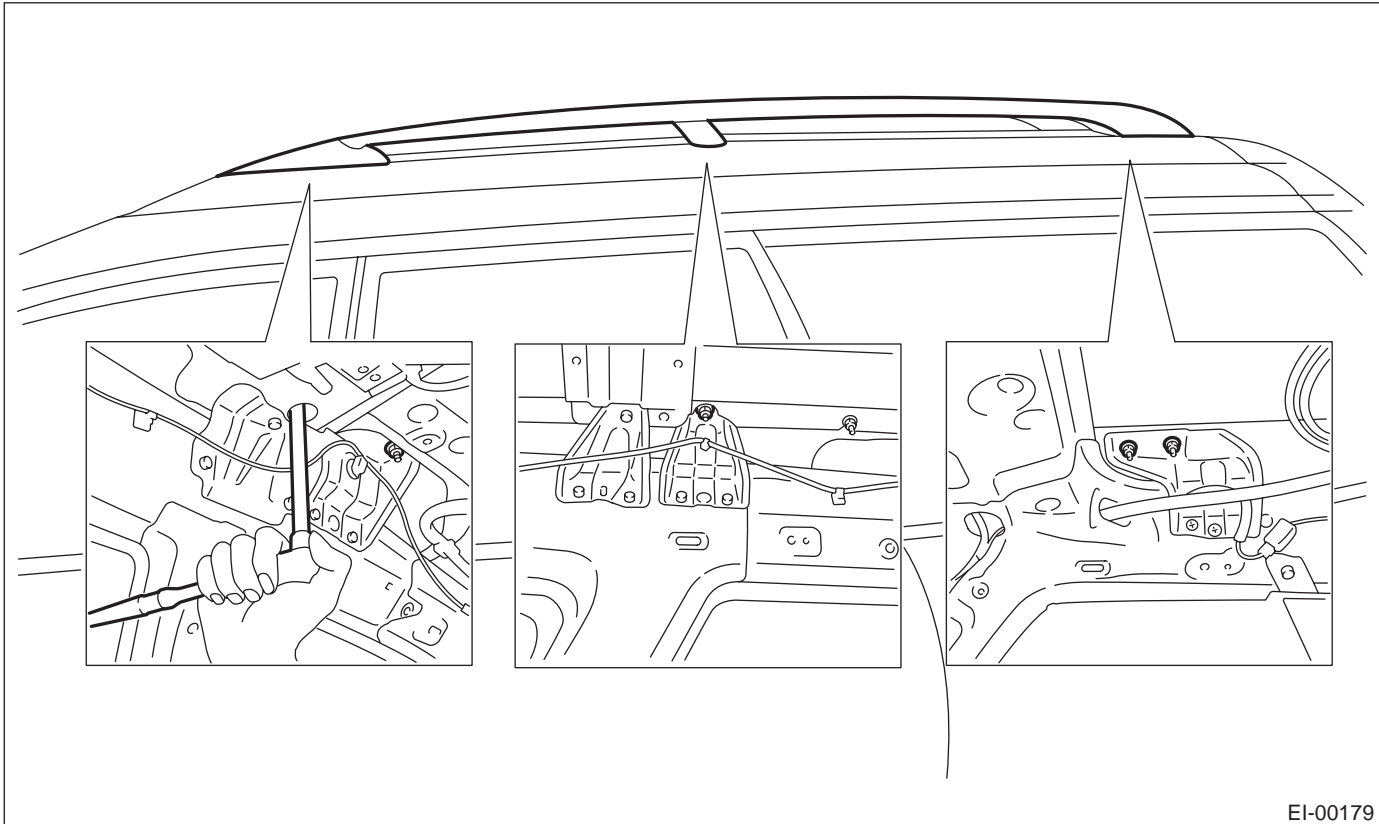
ROOF RAIL

EXTERIOR/INTERIOR TRIM

16. Roof Rail

A: REMOVAL

- 1) Remove roof trim. <Ref. to EI-45, REMOVAL, Roof Trim.>
- 2) Remove five mounting nuts and then detach roof rail carefully.



B: INSTALLATION

Install in the reverse order of removal.

CAUTION:

Be careful not to scratch body panels with roof rail stud bolts when removing and installing them.

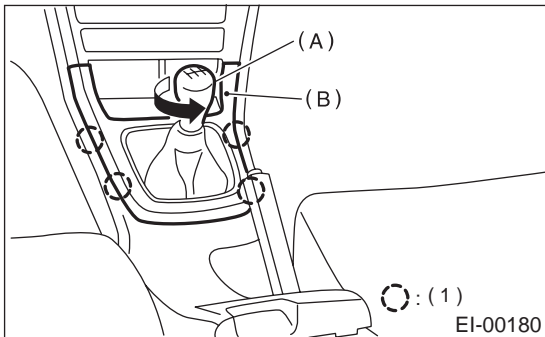
CONSOLE BOX

EXTERIOR/INTERIOR TRIM

17. Console Box

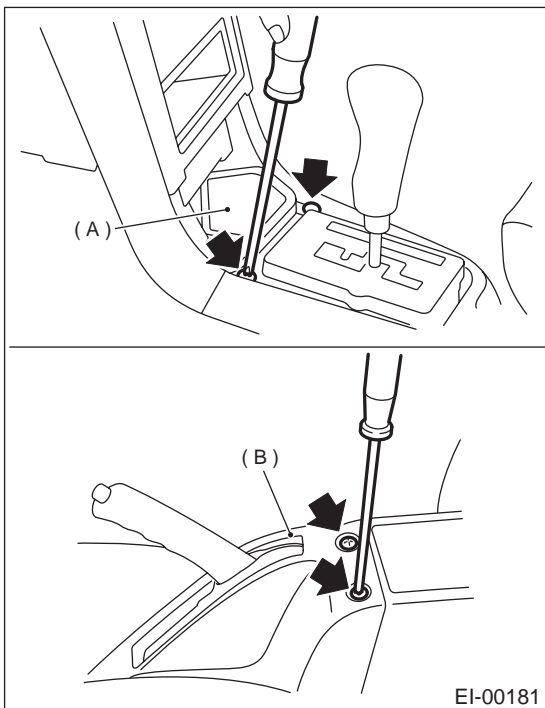
A: REMOVAL

1) Remove shift knob (A) (MT model) and front cover (B).

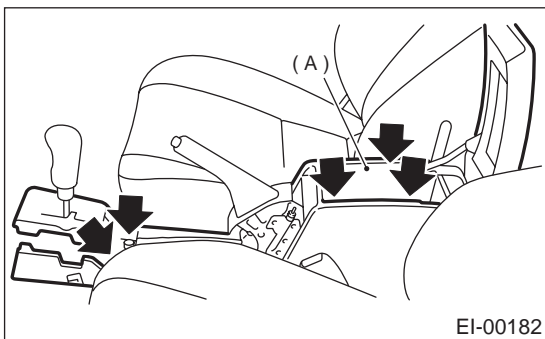


(1) Hook pawl

2) Remove tray (A) and console cover (B).



3) Remove console box (A).



B: INSTALLATION

Install in the reverse order of removal.

INSTRUMENT PANEL ASSEMBLY

EXTERIOR/INTERIOR TRIM

18. Instrument Panel Assembly

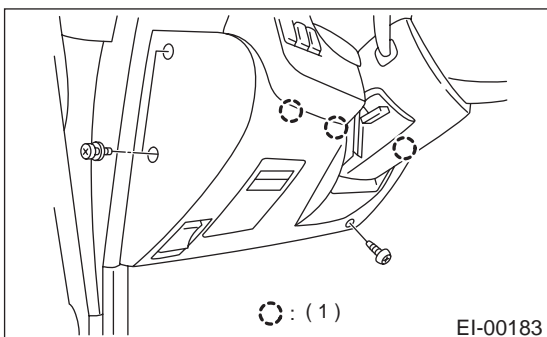
A: REMOVAL

Airbag system wiring harness is routed near the combination meter.

WARNING:

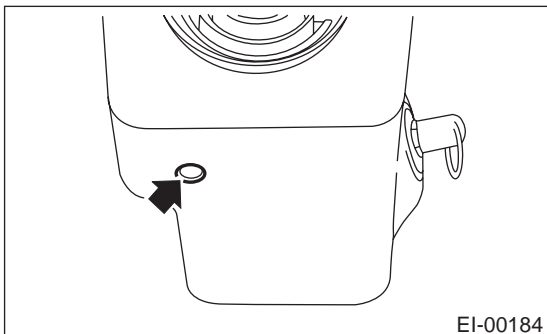
- All airbag system wiring harness and connectors are colored yellow. Do not use electrical test equipment on these circuits.
- Be careful not to damage airbag system harness when servicing the instrument panel.

- 1) Disconnect ground cable from battery.
- 2) Remove lower cover.



(1) Hook pawl

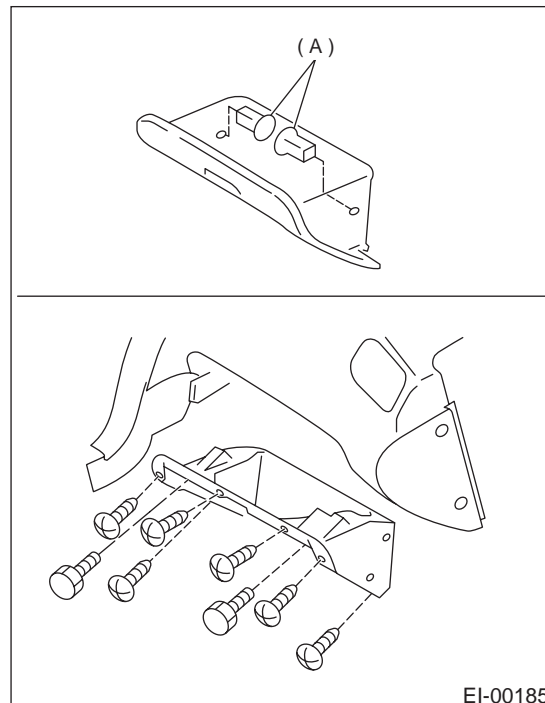
- 3) Remove lower column cover and disconnect harness connectors to steering column.



EI-00184

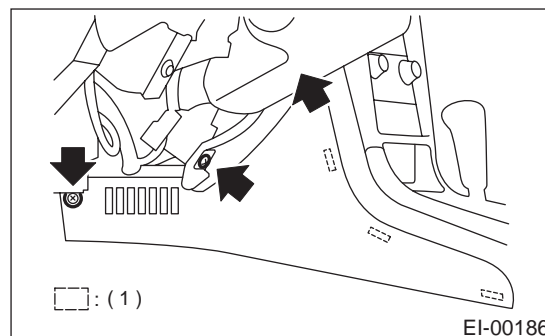
- 4) Remove steering column assembly (with steering wheel). <Ref. to PS-21, REMOVAL, Tilt Steering Column.>

- 5) Remove stopper (A) then remove glove box.



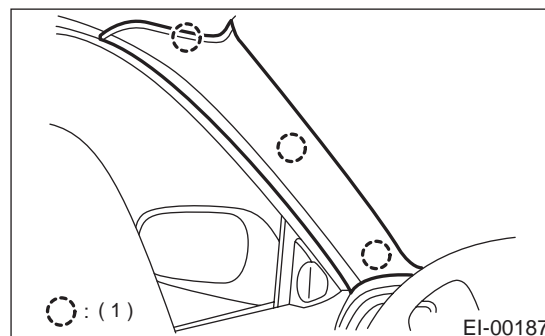
EI-00185

- 6) Remove side panel of both sides.



(1) Hook pawl

- 7) Remove passenger's airbag module. <Ref. to AB-14, REMOVAL, Passenger's Airbag Module.>
- 8) Remove console box. <Ref. to EI-36, REMOVAL, Console Box.>
- 9) Remove front pillar upper trim of both sides.

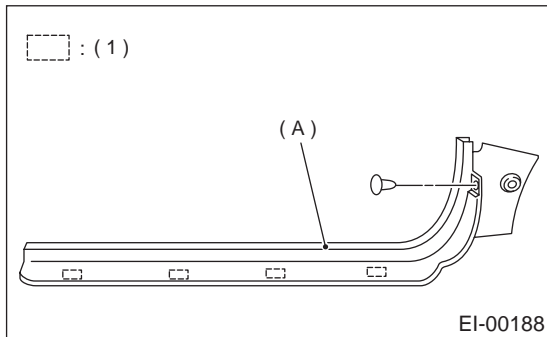


(1) Hook pawl

INSTRUMENT PANEL ASSEMBLY

EXTERIOR/INTERIOR TRIM

10) Remove front pillar lower trim (A) of passenger side.

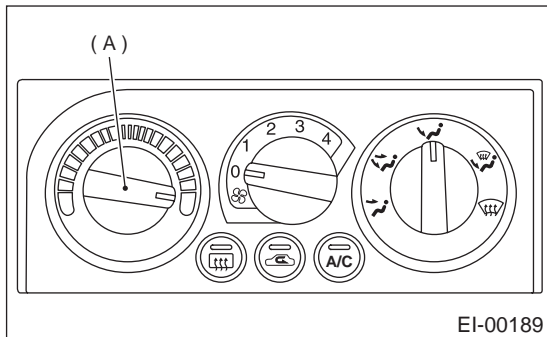


(1) Hook pawl

11) Set temperature control switch (A) to "FULL HOT" and then disconnect temperature control cable from bottom of heater unit. (Manual A/C equipped model)

NOTE:

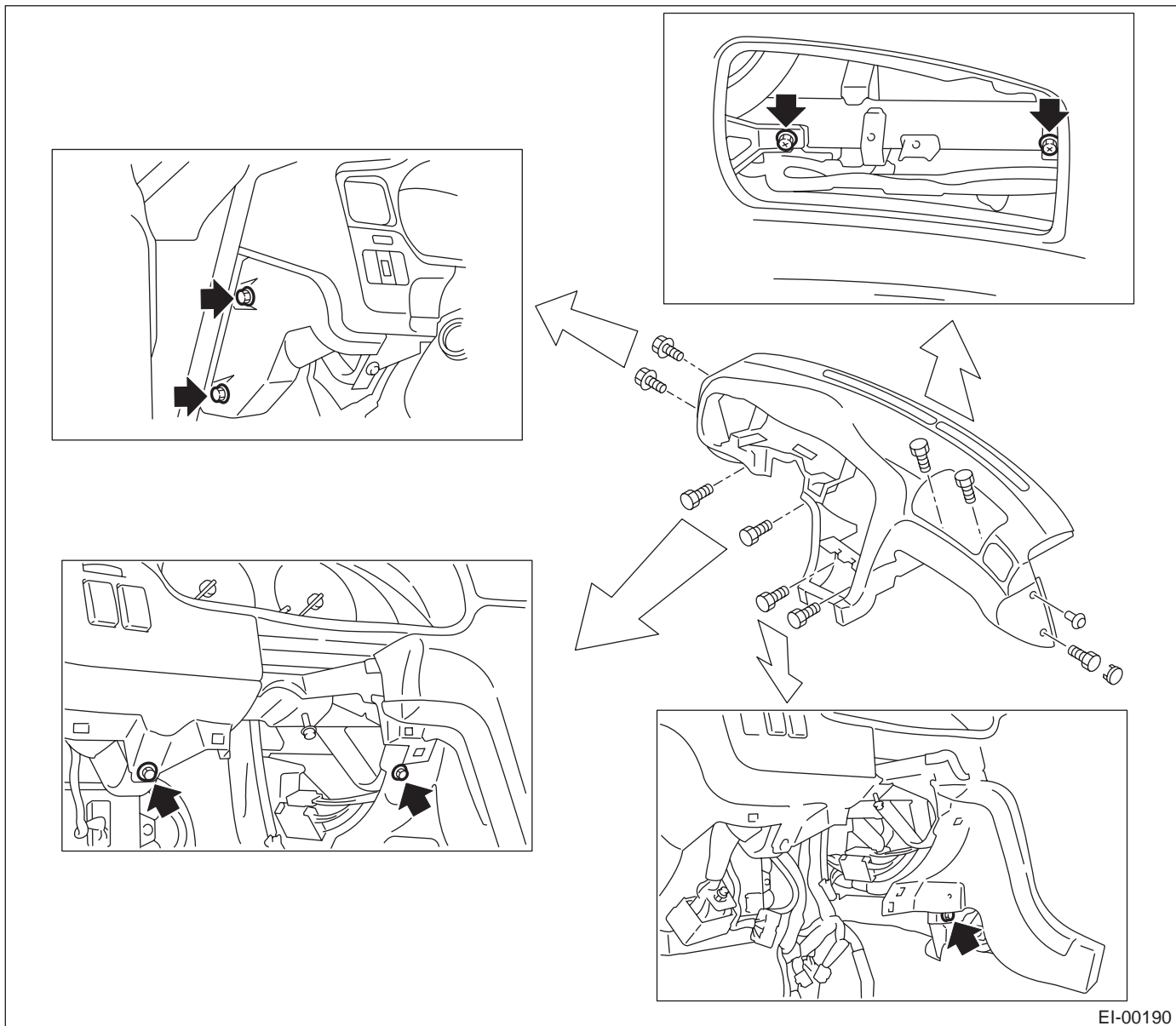
Do not move the switch and link when installing.



INSTRUMENT PANEL ASSEMBLY

EXTERIOR/INTERIOR TRIM

12) Remove instrument panel mounting bolts.



INSTRUMENT PANEL ASSEMBLY

EXTERIOR/INTERIOR TRIM

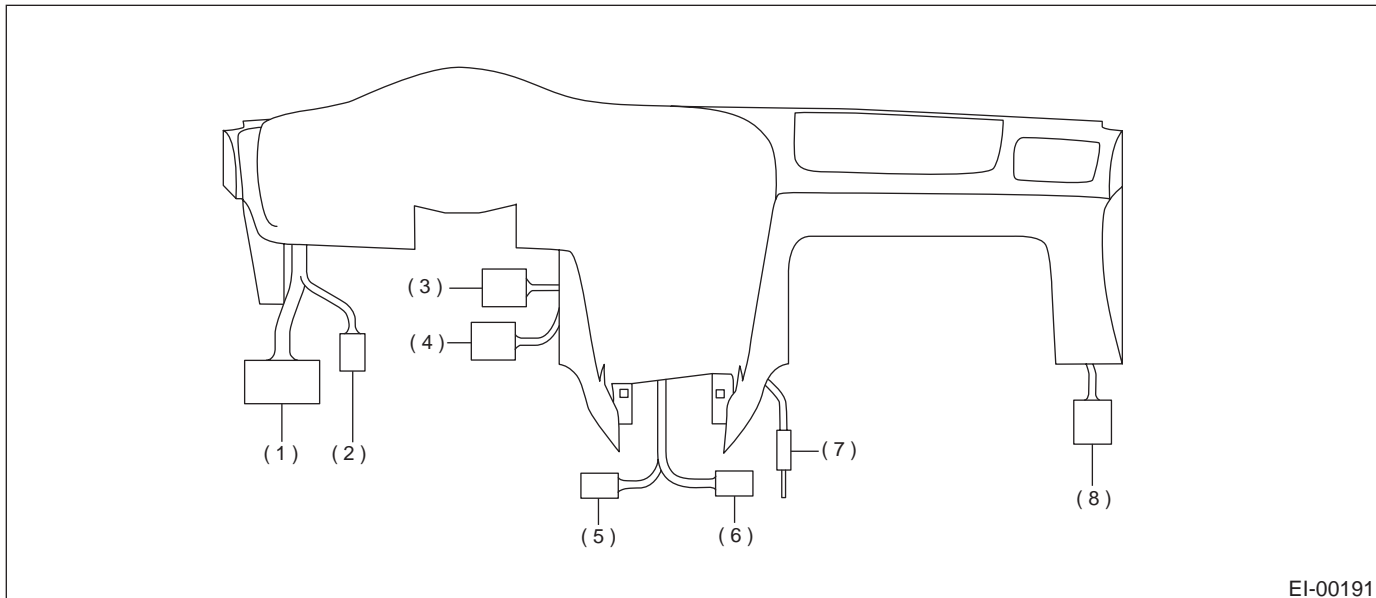
13) Disconnect harness connectors and remove instrument panel carefully.

CAUTION:

Do not pull the harness when disconnecting the connector.

NOTE:

If necessary, make matching marks for easy reassembly.



EI-00191

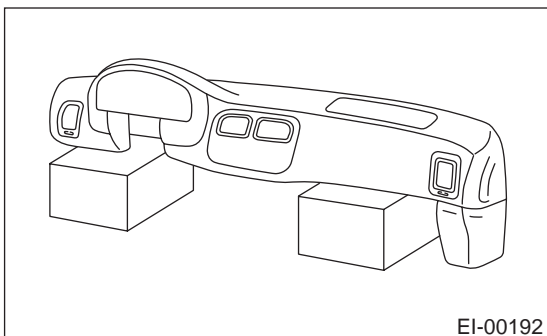
- (1) SMJ/White
- (2) 2P/Blue
- (3) 10P/White

- (4) 8P/White
- (5) 1P/Black
- (6) 1P/Black

- (7) Antenna feeder
- (8) 16P/Blue

CAUTION:

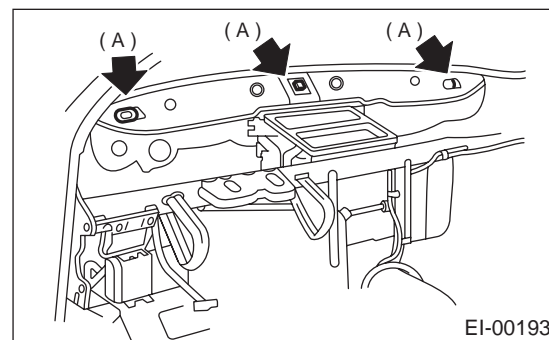
- Take care not to scratch the instrument panel and related parts.
- When storing the removed instrument panel, place it standing up on the floor.



EI-00192

NOTE:

When setting the instrument panel into position, push the three hooks into grommet (A) on the body panel.



EI-00193

B: INSTALLATION

Install in the reverse order of removal.

CAUTION:

- Be careful not to snag the harness.
- Make sure to connect harness connector.
- Take care not to scratch the instrument panel and related parts.

Tightening torque:

Refer to **COMPONENT** in *General Description*. <Ref. to EI-9, **INSTRUMENT PANEL, COMPONENT, General Description.**>

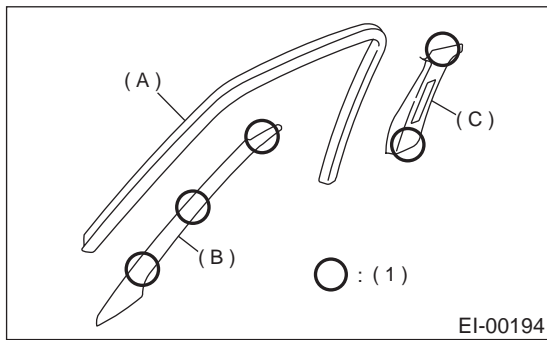
UPPER INNER TRIM

EXTERIOR/INTERIOR TRIM

19.Upper Inner Trim

A: REMOVAL

- 1) Remove front mole (A).
- 2) Remove front pillar upper trim (B).
- 3) Detach front seat belt shoulder anchor, then remove center pillar upper trim (C).



(1) Hook pawl

B: INSTALLATION

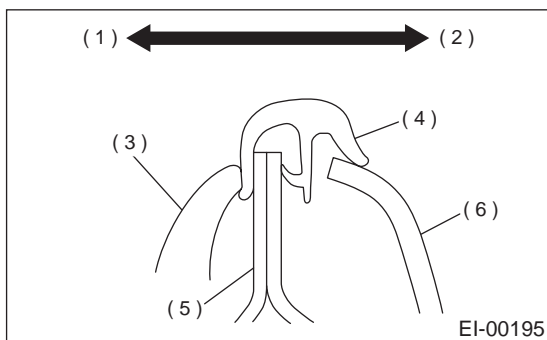
Install in the reverse order of removal.

CAUTION:

Be sure to securely hook pawls of inner trim panel to body flange.

NOTE:

When installing center pillar upper trim and front pillar upper trim, be sure to set front mole as shown in figure.



- (1) Outside
- (2) Inside
- (3) Weatherstrip
- (4) Mole
- (5) Body
- (6) Trim

EI-41

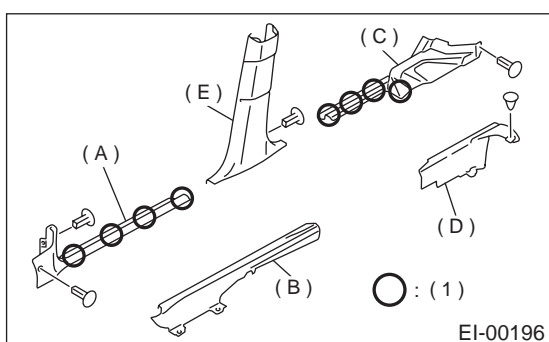
LOWER INNER TRIM

EXTERIOR/INTERIOR TRIM

20.Lower Inner Trim

A: REMOVAL

- 1) Remove front pillar lower trim (A).
- 2) Remove side sill front lower cover (B).
- 3) For sedan: Remove rear seat cushion <Ref. to SE-17, SEDAN, REMOVAL, Rear Seat.>, then remove side sill rear upper cover (C).
For wagon: Rise rear seat cushion, then remove side sill rear upper cover (C).
- 4) Remove side sill rear lower cover (D).
- 5) Remove center pillar lower trim (E).



(1) Hook pawl

B: INSTALLATION

Install in the reverse order of removal.

CAUTION:

Be sure to securely hook pawls of inner trim panel to body flange.

EI-42

REAR QUARTER TRIM

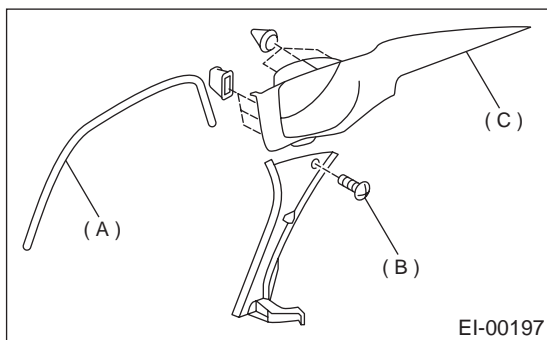
EXTERIOR/INTERIOR TRIM

21. Rear Quarter Trim

A: REMOVAL

1. SEDAN

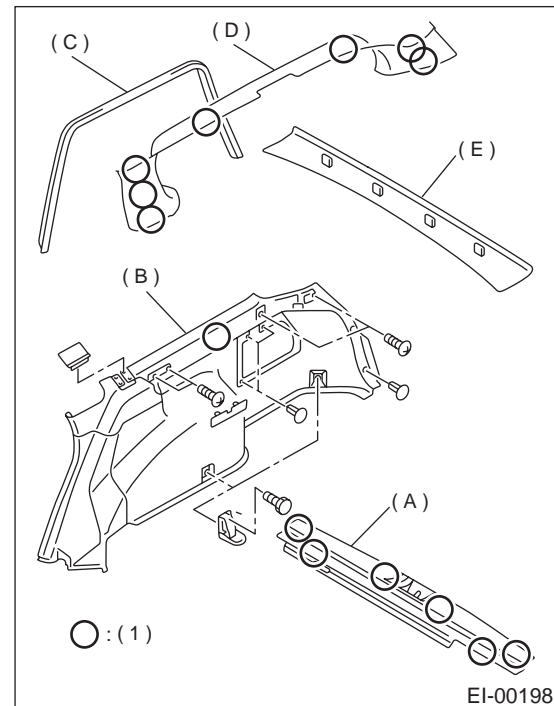
- 1) Remove rear mole (A).
- 2) Remove rear shelf trim. <Ref. to EI-48, REMOVAL, Rear Shelf Trim.>
- 3) Remove side sill rear upper cover. <Ref. to EI-42, REMOVAL, Lower Inner Trim.>
- 4) Remove rear pillar lower trim (B).
- 5) Remove rear pillar upper trim (C).



2. WAGON

- 1) Remove side sill rear upper cover. <Ref. to EI-42, REMOVAL, Lower Inner Trim.>
- 2) Remove luggage floor mat. <Ref. to EI-51, REMOVAL, Luggage Floor Mat.>
- 3) Remove rear skirt trim (A).
- 4) Remove rear quarter lower trim mounting bolts, screws and clips, then remove the trim (B).
- 5) Remove rear mole (C).
- 6) Remove rear quarter upper trim mounting screw, then remove the trim (D).

- 7) Remove rear rail trim (E).



- (1) Hook pawl

B: INSTALLATION

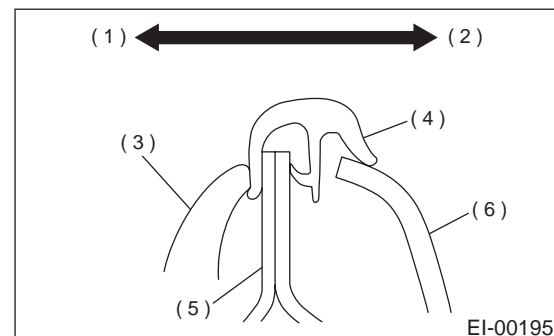
Install in the reverse order of removal.

CAUTION:

Be sure to securely hook pawls of inner trim panel to body flange.

NOTE:

When installing rear quarter upper trim, be sure to set rear mole as shown in the figure.



- (1) Outside
- (2) Inside
- (3) Weatherstrip
- (4) Mole
- (5) Body
- (6) Trim

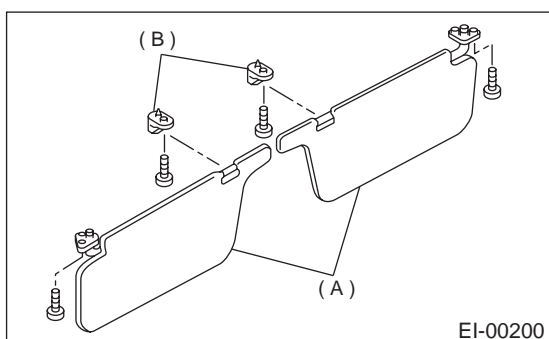
SUN VISOR

EXTERIOR/INTERIOR TRIM

22.Sun Visor

A: REMOVAL

Remove mounting screws then detach sun visor (A) and hook (B).



B: INSTALLATION

Install in the reverse order of removal.

EI-44

ROOF TRIM

EXTERIOR/INTERIOR TRIM

23. Roof Trim

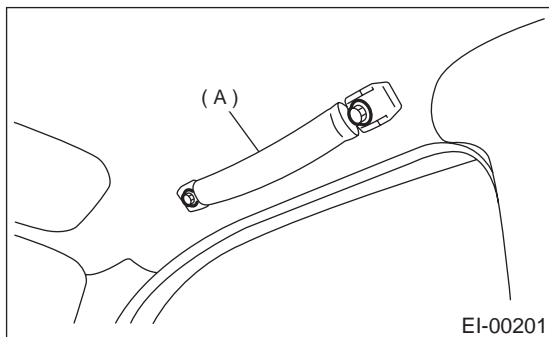
A: REMOVAL

CAUTION:

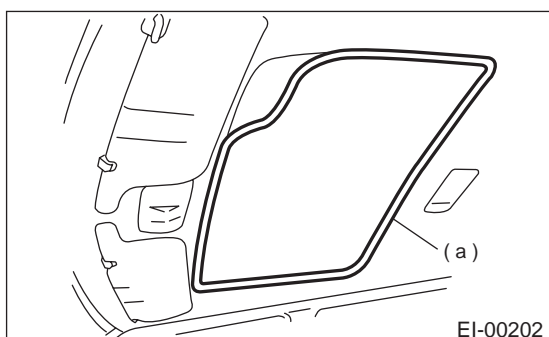
When removing clip, use great care not to damage the roof trim.

1. SEDAN

- 1) Disconnect ground cable from battery.
- 2) Remove sunroof switch. (Sunroof equipped model) <Ref. to SR-14, REMOVAL, Sunroof Switch.>
- 3) Remove room light. <Ref. to LI-27, REMOVAL, Room Light.>
- 4) Remove sun visor and hook of both sides. <Ref. to EI-44, REMOVAL, Sun Visor.>
- 5) Remove assist grips (A).

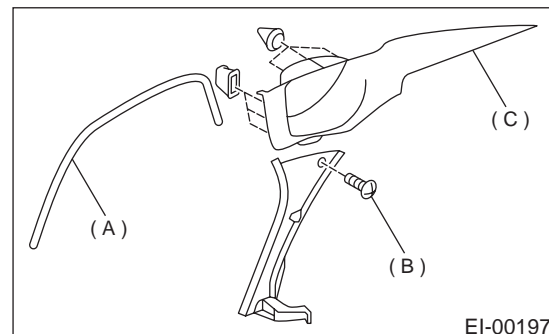


- 6) Remove sunroof garnish (A).

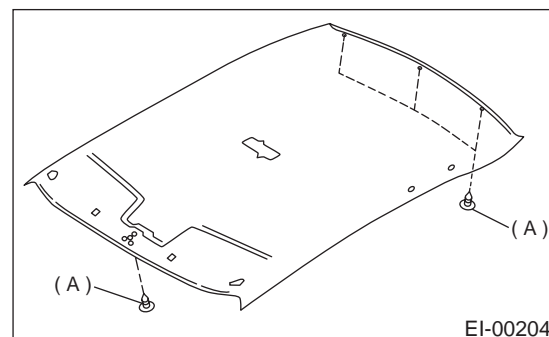


- 7) Remove upper inner trim. <Ref. to EI-41, REMOVAL, Upper Inner Trim.>
- 8) Remove rear window mole (A) of both sides.
- 9) Remove screw (B) of rear quarter lower trim shown in the figure.

- 10) Remove rear quarter upper trim (C) of both sides.

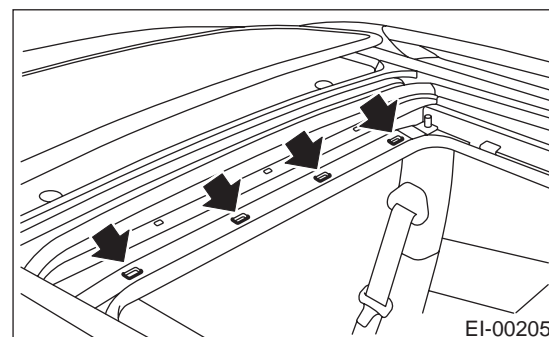


- 11) Remove clips, and then remove roof trim.



2. WAGON

- 1) Open the rear sunroof, and then remove four clips. (Sunroof equipped model)

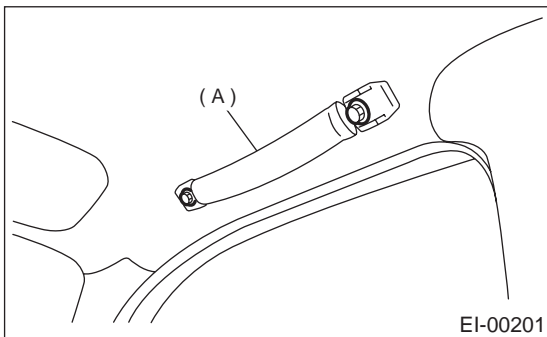


- 2) Disconnect ground cable from battery.
- 3) Remove sunroof switch. (Sunroof equipped model) <Ref. to SR-14, REMOVAL, Sunroof Switch.>
- 4) Remove room light and luggage room light. <Ref. to LI-27, REMOVAL, Room Light.> and <Ref. to LI-28, REMOVAL, Luggage Room Light.>
- 5) Remove sun visor and hook of both sides. <Ref. to EI-44, REMOVAL, Sun Visor.>

ROOF TRIM

EXTERIOR/INTERIOR TRIM

6) Remove assist grips (A).



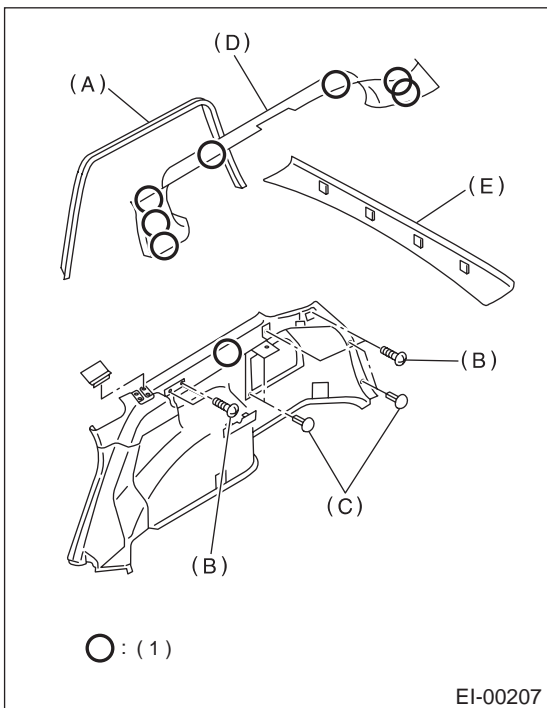
7) Remove upper inner trim. <Ref. to EI-41, REMOVAL, Upper Inner Trim.>

8) Remove rear window mole of both sides (A).

9) Remove screws (B) and clips (C) of rear quarter lower trim shown in the figure.

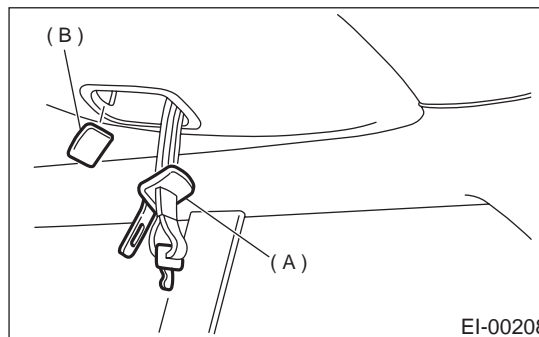
10) Remove rear quarter upper trim (D) of both sides.

11) Remove rear rail trim (E).

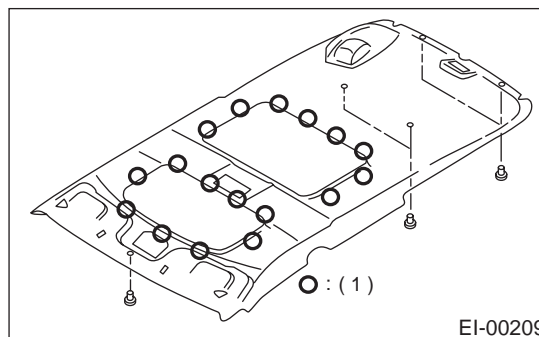


(1) Hook pawl

12) Remove cover (B) while detaching snap lock carefully. Put the rear center seat belt tongue (A) out to the other side of the trim through the hole.



13) Remove clips and then remove roof trim.



(1) Snap lock

B: INSTALLATION

Install in the reverse order of removal.

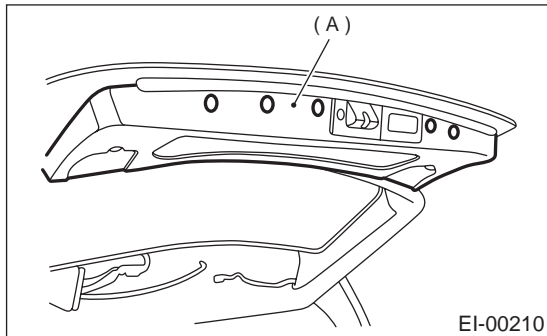
24.Rear Gate Trim

A: REMOVAL

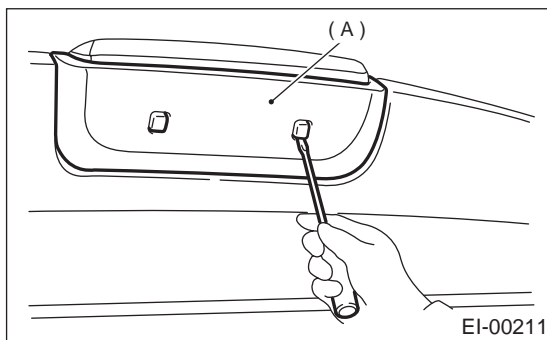
CAUTION:

Be careful not to damage clips or their holes.

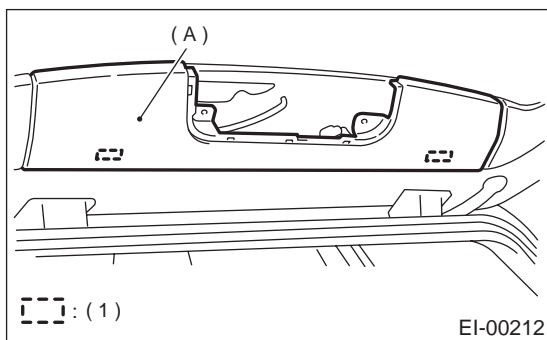
- 1) Remove clips and detach rear gate lower trim (A).



- 2) Remove caps and screws, and then detach high-mounted stop light cover (A).



- 3) Remove rear gate upper trim (A).



(1) Hook pawl

B: INSTALLATION

Install in the reverse order of removal.

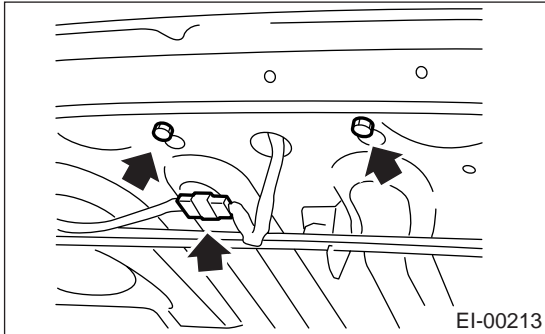
REAR SHELF TRIM

EXTERIOR/INTERIOR TRIM

25.Rear Shelf Trim

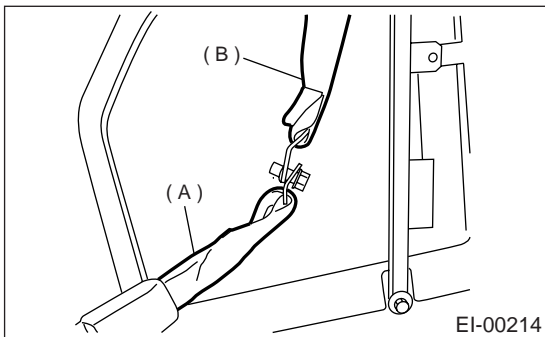
A: REMOVAL

1) Remove high-mounted stop light.

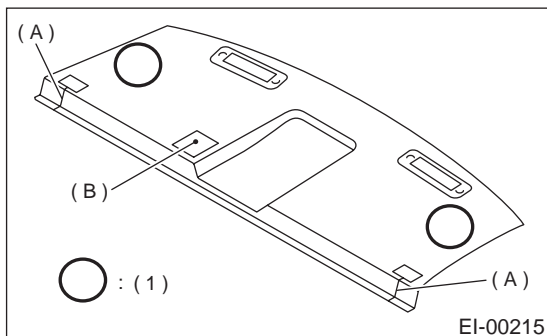


2) Remove rear seat backrest. <Ref. to SE-17, REMOVAL, Rear Seat.>

3) Remove inner seat belt RH, then disconnect inner seat belt RH (A) and outer seat belt center (B).



4) Detach rear shelf trim through each rear outer seat belt from slits (A) and hole (B) of rear shelf trim.



(1) Clip

B: INSTALLATION

Install in the reverse order of removal.

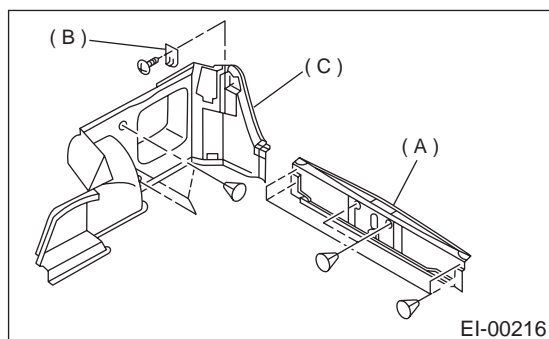
TRUNK TRIM

EXTERIOR/INTERIOR TRIM

26.Trunk Trim

A: REMOVAL

- 1) Remove clips, and then detach trunk rear trim (A).
- 2) Remove luggage hook (B) and clips, then detach trunk side trim (C).



B: INSTALLATION

Install in the reverse order of removal.

EI-49

FLOOR MAT

EXTERIOR/INTERIOR TRIM

27.Floor Mat

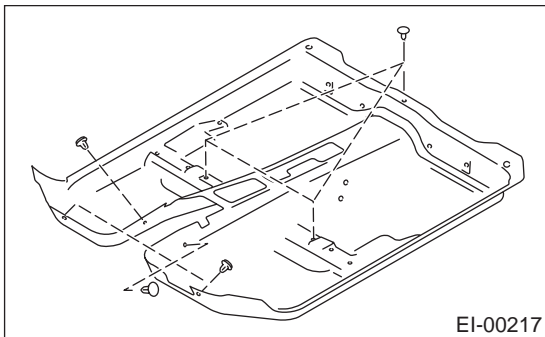
A: REMOVAL

- 1) Remove front seats. <Ref. to SE-7, REMOVAL, Front Seat.>
- 2) Remove rear seat cushion. <Ref. to SE-17, REMOVAL, Rear Seat.>
- 3) Remove console box. <Ref. to EI-36, Console Box.>
- 4) Remove front pillar lower trim, side sill rear upper cover and center pillar lower trim. <Ref. to EI-42, REMOVAL, Lower Inner Trim.>
- 5) Remove clips from floor mat.

NOTE:

When pulling out edge, do not pull mat alone; pull mat together with edge. Ply off two steel clips on side sill front cover and one on side sill rear cover using screwdriver.

- 6) Remove mat hook.
- 7) Remove mat from toe board area.
- 8) Remove mat from rear heater duct.
- 9) Roll mat, and then take it out of opened rear door.



B: INSTALLATION

Install in the reverse order of removal.

NOTE:

- Secure mat firmly with hook and Velcro tape.
- Insert mat edge firmly into the groove of side sill cover.

EI-50

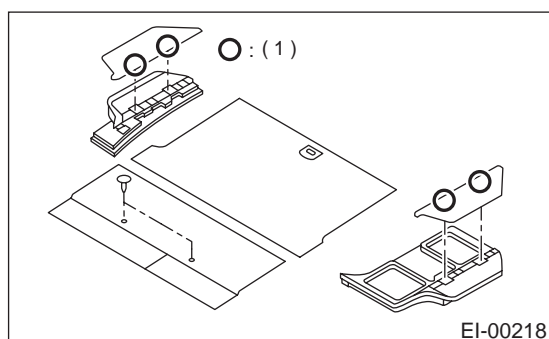
LUGGAGE FLOOR MAT

EXTERIOR/INTERIOR TRIM

28.Luggage Floor Mat

A: REMOVAL

Remove clips, then detach rear floor mats and boxes.



(1) Clips

B: INSTALLATION

Install in the reverse order of removal.

EI-51

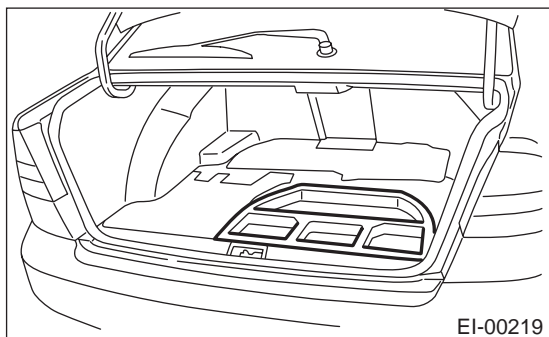
TRUNK ROOM MAT

EXTERIOR/INTERIOR TRIM

29.Trunk Room Mat

A: REMOVAL

Draw out trunk room mat.



B: INSTALLATION

Install in the reverse order of removal.

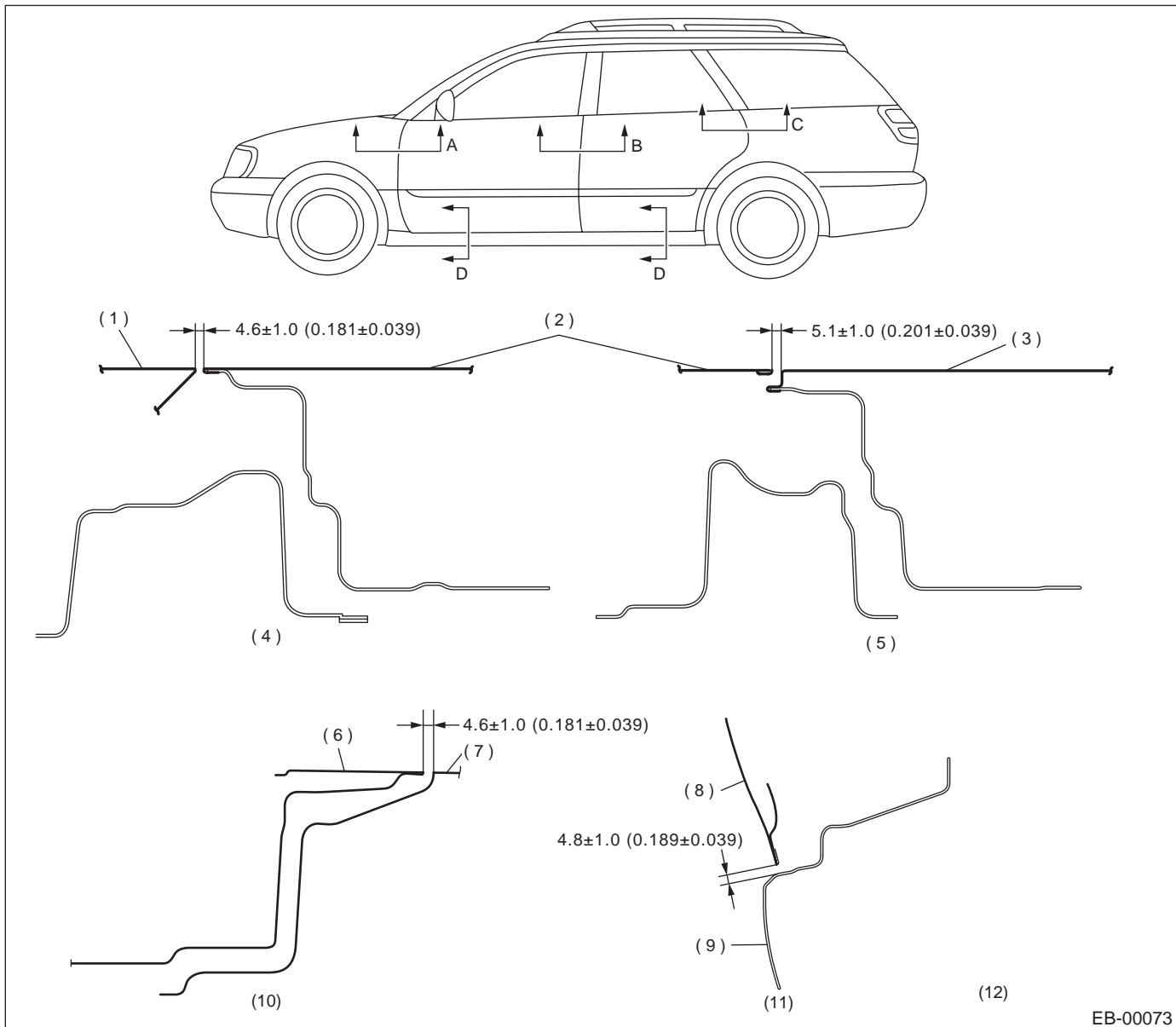
EI-52

GENERAL DESCRIPTION

EXTERIOR BODY PANELS

1. General Description

A: SPECIFICATIONS



EB-00073

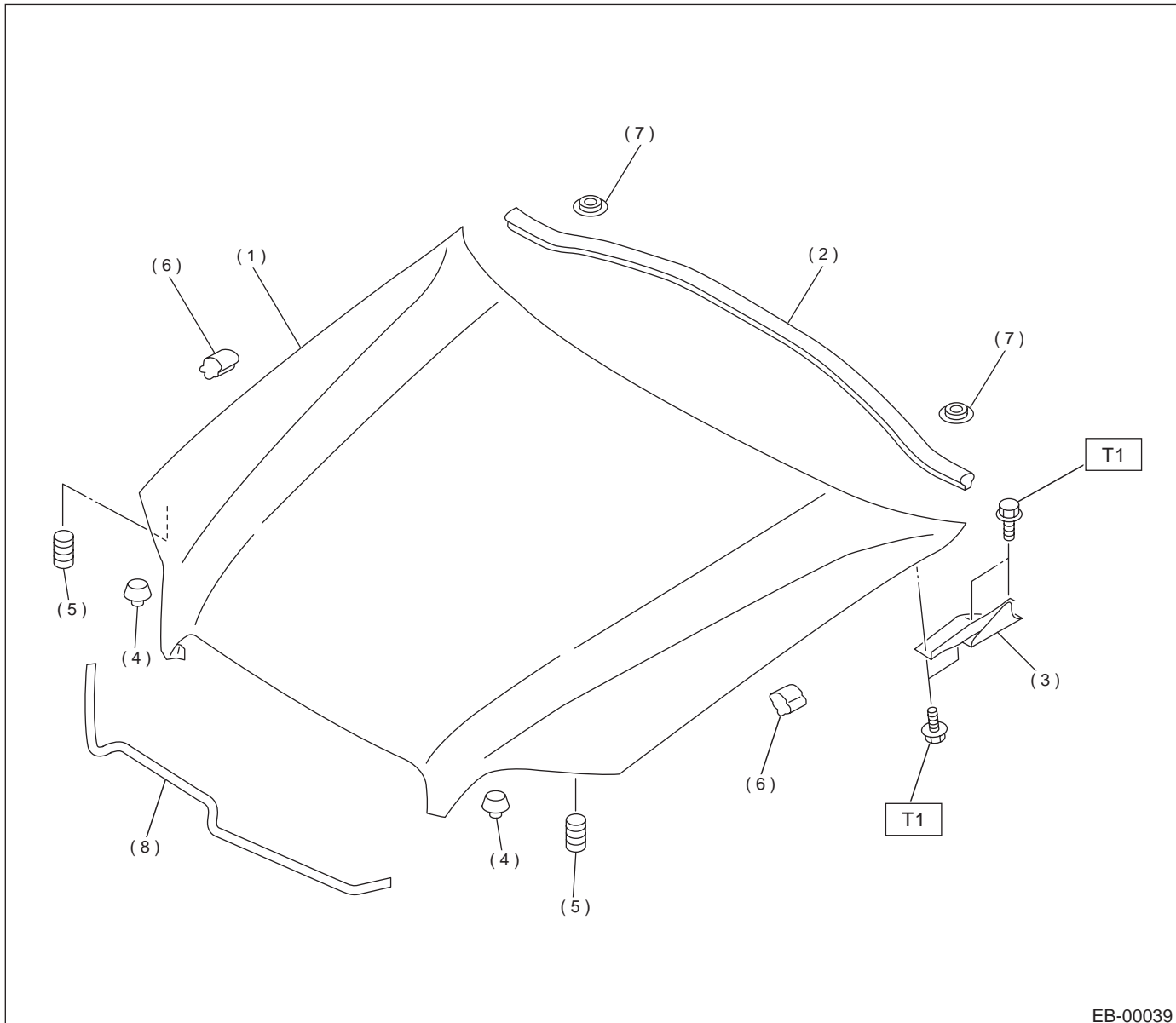
- | | | |
|----------------------|------------------------|--------------------|
| (1) Front fender | (5) Section B | (9) Side sill |
| (2) Front door outer | (6) Rear door outer | (10) Section C |
| (3) Rear door outer | (7) Rear quarter outer | (11) Section D |
| (4) Section A | (8) Door panel | (12) Unit: mm (in) |

GENERAL DESCRIPTION

EXTERIOR BODY PANELS

B: COMPONENT

1. FRONT HOOD



- (1) Front hood
- (2) Seal (Front hood)
- (3) Hinge
- (4) Buffer C

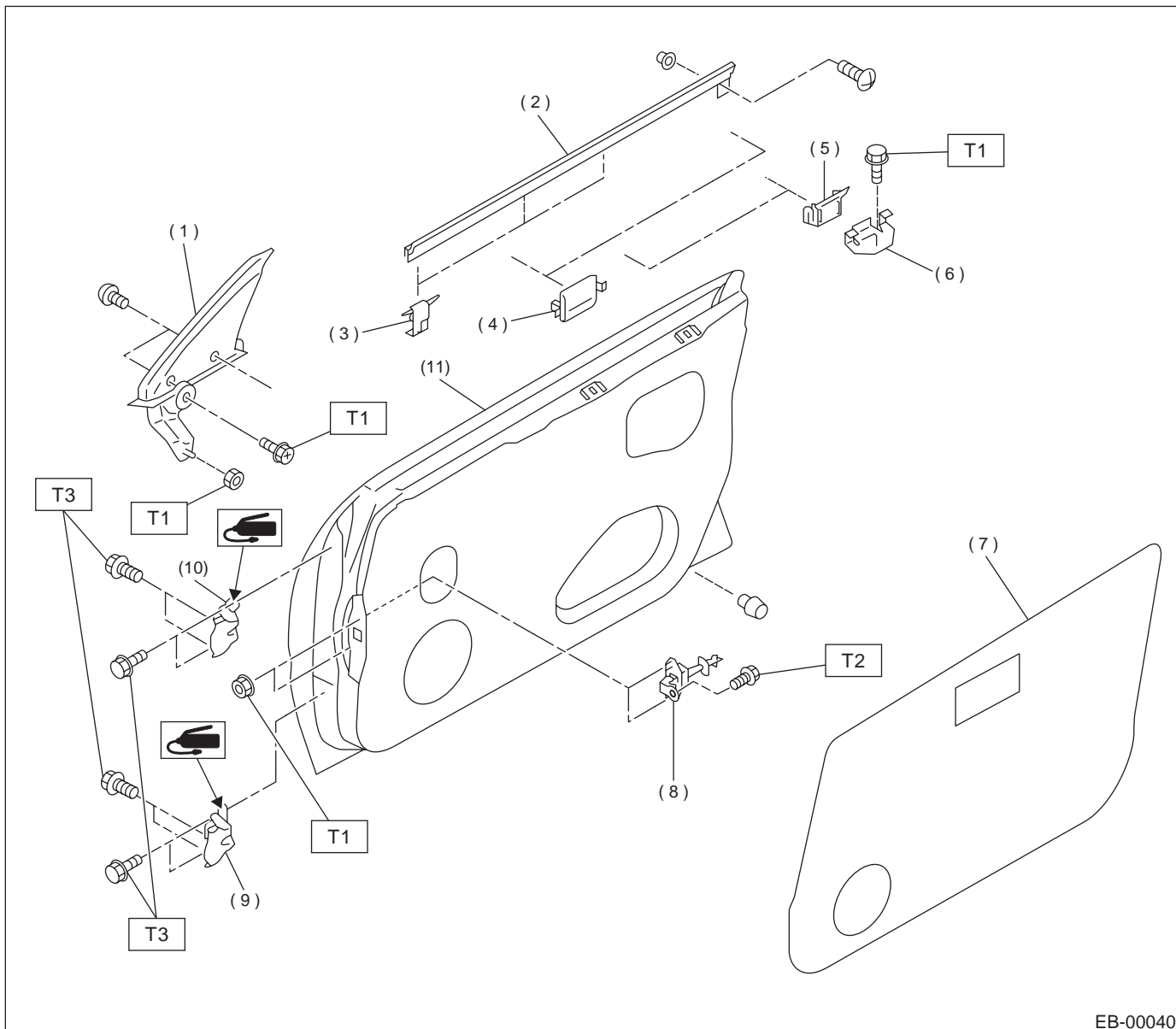
- (5) Buffer A
- (6) Buffer B
- (7) Plug
- (8) Seal ASSY

Tightening torque: N·m (kgf·m, ft·lb)
T1: 24.5 (2.5, 18.1)

GENERAL DESCRIPTION

EXTERIOR BODY PANELS

2. FRONT DOOR PANEL



- | | |
|--------------------------------|-------------------|
| (1) Gusset | (7) Sealing cover |
| (2) Weatherstrip (Outer) | (8) Checker |
| (3) Clip (Weatherstrip, outer) | (9) Lower hinge |
| (4) Stabilizer (Lifter) | (10) Upper hinge |
| (5) Stabilizer (Outer) | (11) Door panel |
| (6) Stabilizer (Inner) | |

Tightening torque: N·m (kgf-m, ft-lb)

T1: 7.35 (0.75, 5.4)

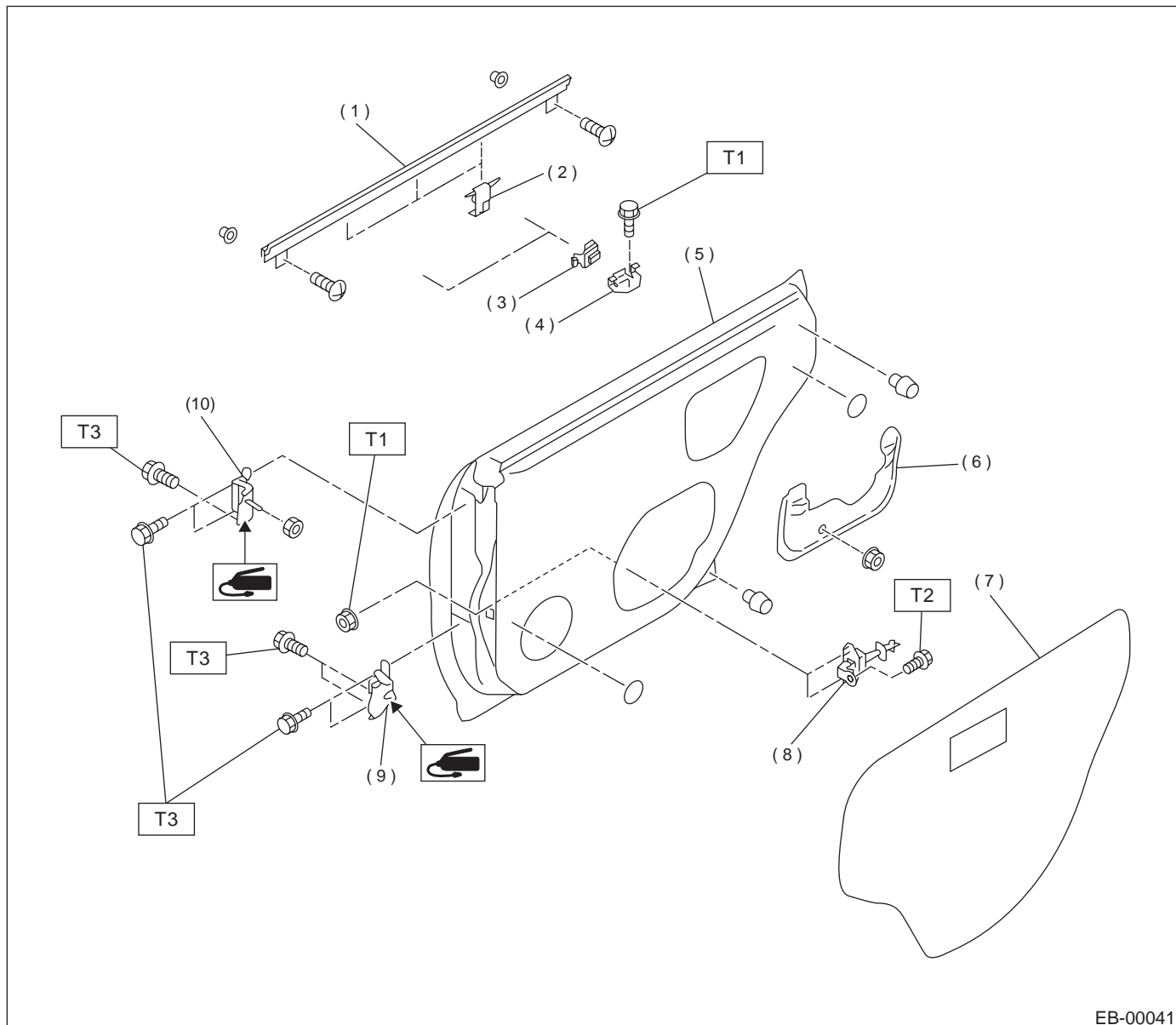
T2: 18 (1.8, 13)

T3: 30 (3.1, 22.4)

GENERAL DESCRIPTION

EXTERIOR BODY PANELS

3. REAR DOOR PANEL



- | | |
|--------------------------------|-------------------|
| (1) Weatherstrip (Outer) | (7) Sealing cover |
| (2) Clip (Weatherstrip, outer) | (8) Checker |
| (3) Stabilizer (Outer) | (9) Lower hinge |
| (4) Stabilizer (Inner) | (10) Upper hinge |
| (5) Door panel | |
| (6) Bracket | |

Tightening torque: N·m (kgf·m, ft·lb)

T1: 7.35 (0.75, 5.4)

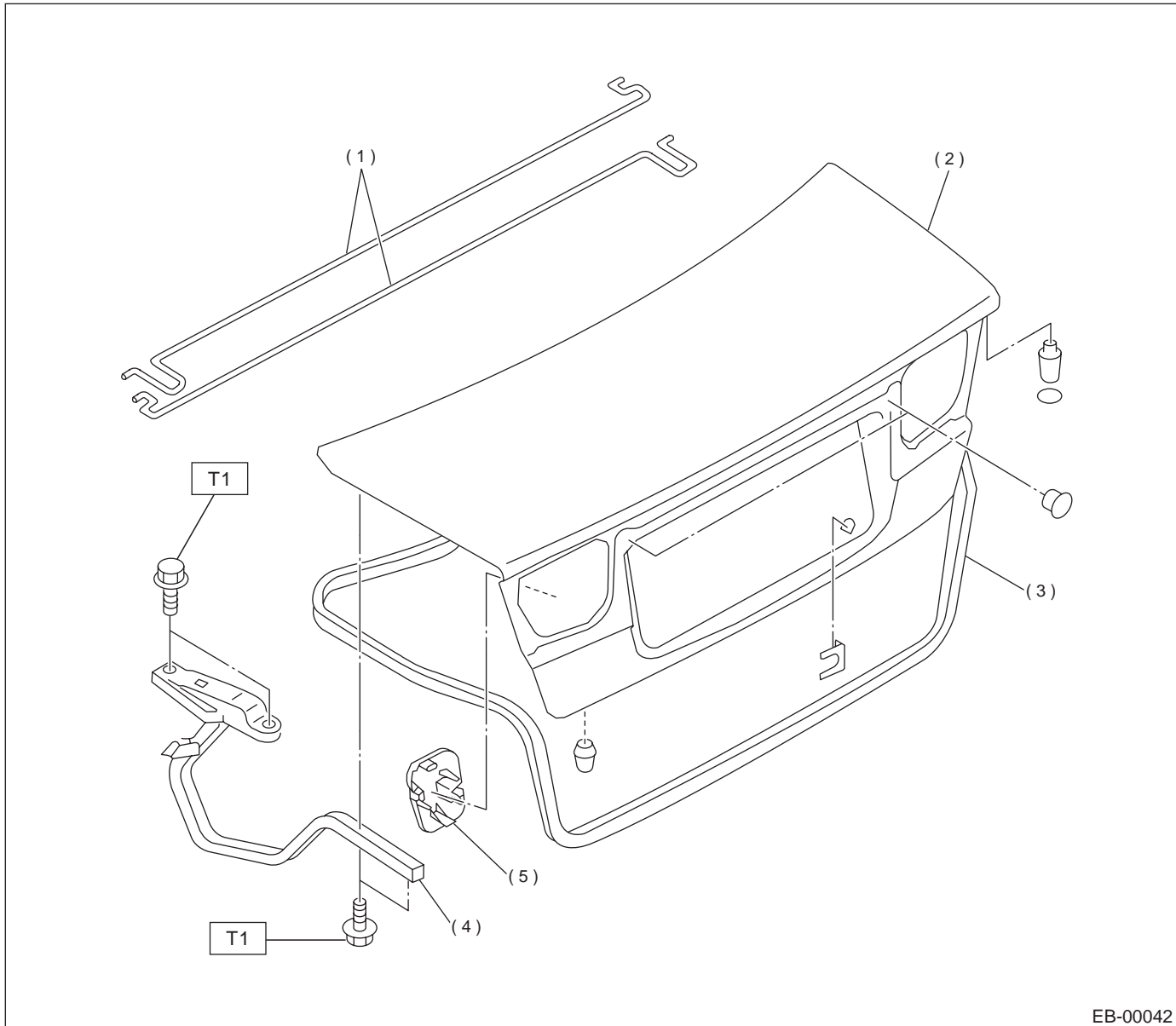
T2: 18 (1.8, 13)

T3: 30 (3.1, 22.4)

GENERAL DESCRIPTION

EXTERIOR BODY PANELS

4. TRUNK LID PANEL



- (1) Torsion bar
- (2) Trunk lid
- (3) Weatherstrip

- (4) Hinge ASSY
- (5) Cover

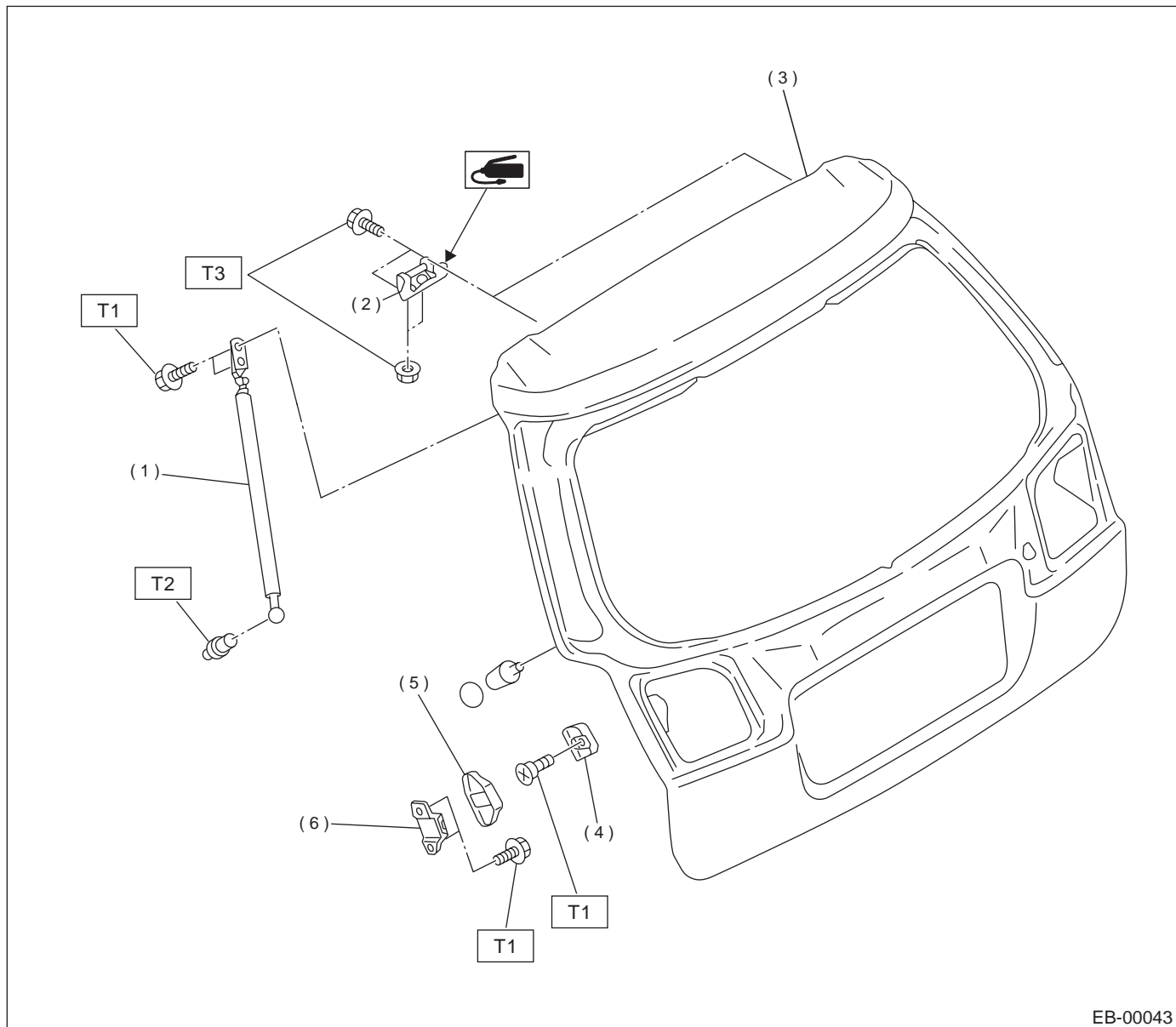
Tightening torque: N·m (kgf-m, ft-lb)

T1: 18 (1.8, 13)

GENERAL DESCRIPTION

EXTERIOR BODY PANELS

5. REAR GATE PANEL



- (1) Gas stay
- (2) Hinge
- (3) Rear gate

- (4) Buffer (Rear gate)
- (5) Buffer cover
- (6) Buffer (Back door)

Tightening torque: N·m (kgf-m, ft-lb)

T1: 7.5 (0.76, 5.5)

T2: 14 (1.4, 10.1)

T3: 25 (2.5, 18.1)

GENERAL DESCRIPTION

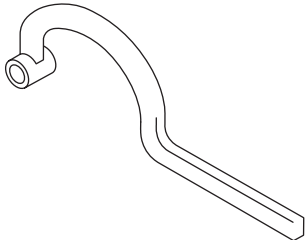
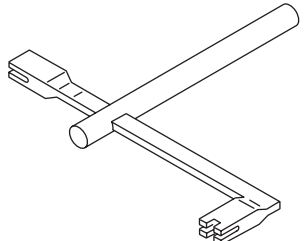
EXTERIOR BODY PANELS

C: CAUTION

- Exterior body panels are heavy. Do not drop and damage the panels. During removal and installation, do not damage the panel painting surface.
- While removing mounting bolts, using assistance devices such as a support jack will help support the panel.
- Be careful not to lose small parts.

D: PREPARATION TOOL

1. SPECIAL TOOLS

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST-925610000	925610000	WRENCH	Used for removing and installing door hinge.
 ST-927780000	927780000	REMOVER	Used for removing and installing trunk torsion bar.

2. GENERAL TOOL

TOOL NAME	REMARKS
Support Jack	Used for supporting door panel.

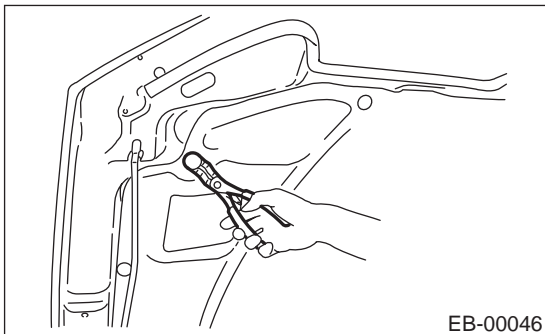
FRONT HOOD

EXTERIOR BODY PANELS

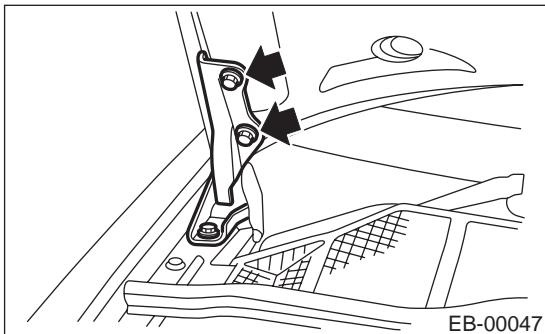
2. Front Hood

A: REMOVAL

- 1) Open front hood to remove washer nozzles.
- 2) Release clips to remove hood insulator.



- 3) Remove bolts to disconnect hood from hinges.



B: INSTALLATION

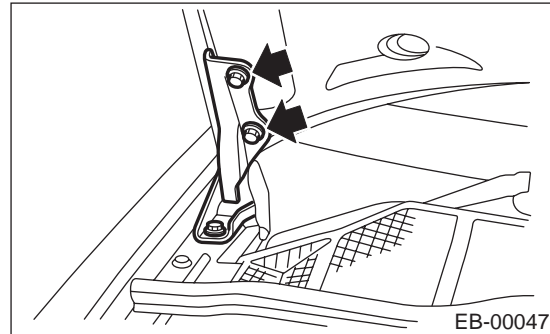
- 1) Install in the reverse order of removal.
- 2) Adjust clearance between hood and fender. Clearance must be equal at both sides.

Tightening torque:

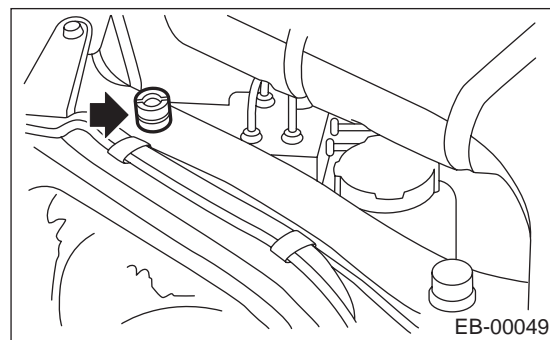
24.5 N·m (2.5 kgf-m, 18.1 ft-lb)

C: ADJUSTMENT

- 1) Use hinge mounting holes to align front hood longitudinally and laterally.



- 2) Adjust height at front end of hood.
<Ref. to SL-43, ADJUSTMENT, Front Hood Lock Assembly.>
- 3) Rotate hood buffer to adjust lateral height.



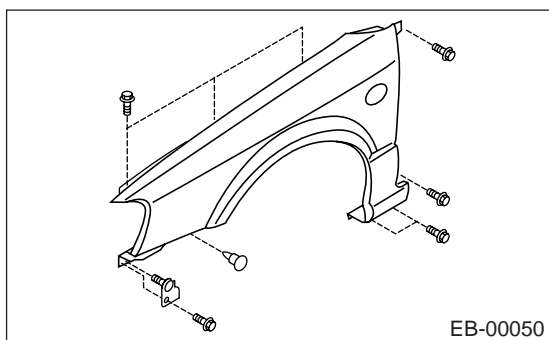
FENDER PANEL

EXTERIOR BODY PANELS

3. Fender Panel

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove side sill spoilers. <Ref. to EI-29, REMOVAL, Side Sill Spoiler.> (If fitted)
- 3) Remove side protectors and fender protectors. (OUTBACK)
- 4) Remove front bumper face. <Ref. to EI-14, REMOVAL, Front Bumper.>
- 5) Remove headlights. <Ref. to LI-11, REMOVAL, Headlight Assembly.>
- 6) Remove mud guard. <Ref. to EI-23, REMOVAL, Mud Guard.>
- 7) Remove bolts and clips to remove front fender.



B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) When fender panel is installed, clearance between fender panel and hood or front fender must be equal.

Tightening torque:

7.35 N·m (0.75 kgf-m, 5.4 ft-lb)

EB-10

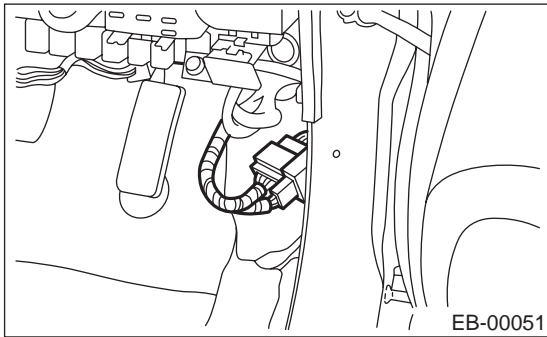
FRONT DOOR PANEL

EXTERIOR BODY PANELS

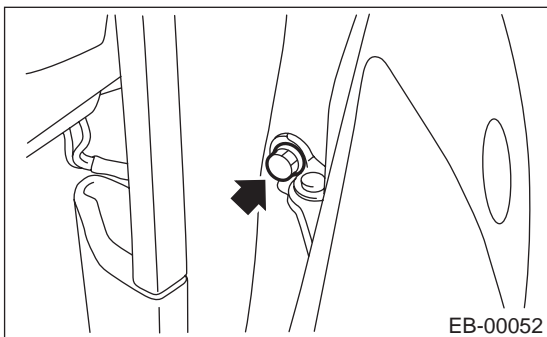
4. Front Door Panel

A: REMOVAL

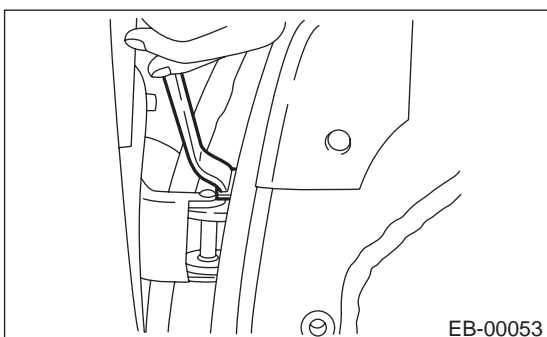
- 1) Disconnect ground cable from battery.
- 2) Remove front door trim. <Ref. to EI-32, REMOVAL, Front Door Trim.>
- 3) Remove outer mirror assembly. <Ref. to GW-33, REMOVAL, Outer Mirror Assembly.>
- 4) Remove front door regulator and motor. <Ref. to GW-16, REMOVAL, Front Regulator and Motor Assembly.>
- 5) Remove front door latch assembly. <Ref. to SL-32, REMOVAL, Front Door Latch Assembly.>
- 6) Remove front outer handle. <Ref. to SL-31, REMOVAL, Front Outer Handle.>
- 7) Remove front pillar lower trim to disconnect connector from body harness.



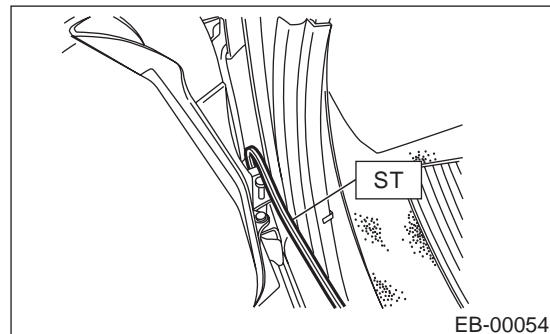
- 8) Put wooden block on jack and place jack under door. Support door with a jack to protect it from damage.
- 9) Remove checker bolts.



- 10) Remove door-side bolts for upper and lower hinges to remove door.



- 11) Using special tool, remove body-side bolts for upper and lower hinges, and remove door hinges.
ST 925610000 DOOR HINGE WRENCH



CAUTION:

- During removal and installation of doors, do not damage body.
- Doors are heavy. Be careful not to drop and damage them.

B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) Apply grease to sliding area of door hinges.

Tightening torque:

Refer to **COMPONENT** in *General Description*. <Ref. to EB-4, FRONT DOOR PANEL, COMPONENT, General Description.>

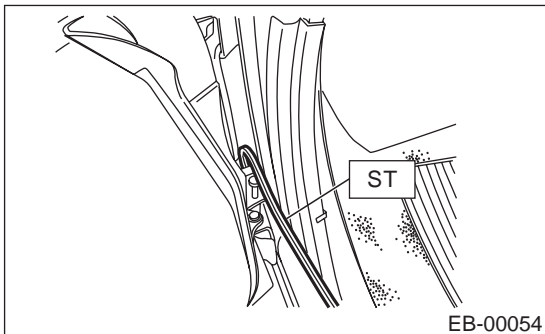
FRONT DOOR PANEL

EXTERIOR BODY PANELS

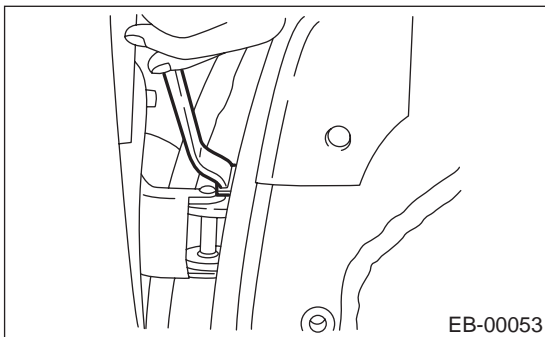
C: ADJUSTMENT

1) Using special tool, loosen body-side bolts of upper and lower hinges to align the position of front door panel longitudinally and vertically.

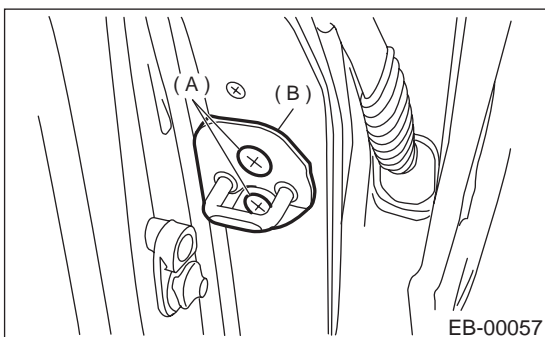
ST 925610000 DOOR HINGE WRENCH



2) Loosen door-side bolts of upper and lower hinges to align the position of front door panel vertically and laterally at the front end.



3) Loosen screw (A) and tap striker (B) using plastic hammer to adjust striker.



CAUTION:
Do not use impact wrench. Welding area on striker nut plate is easily broken.

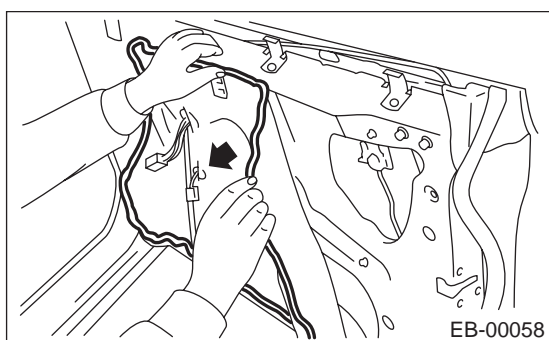
5. Front Sealing Cover

A: REMOVAL

- 1) Remove front door trim. <Ref. to EI-32, REMOVAL, Front Door Trim.>
- 2) Remove front speaker. <Ref. to ET-6, REMOVAL, Front Speaker.>

CAUTION:

- Carefully remove butyl tape. Excessive force will easily break the cover.
- If cover gets broken, replace it with a new one.



B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) When replacing sealing cover, use butyl tape.
- 3) Press sealer-applied area firmly to prevent any floating on surface.

Butyl tape:

3M8626 or equivalent

CAUTION:

- Apply a uniform bead of butyl tape.
- Attach sealing cover, keeping it from becoming wrinkled.
- Breaks in the bead will allow water leakage and contamination.

C: INSPECTION

If sealing cover is damaged, replace it with a new one.

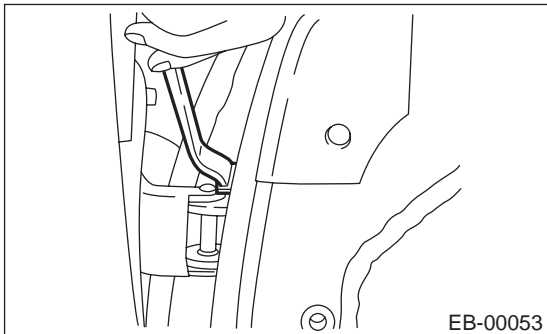
REAR DOOR PANEL

EXTERIOR BODY PANELS

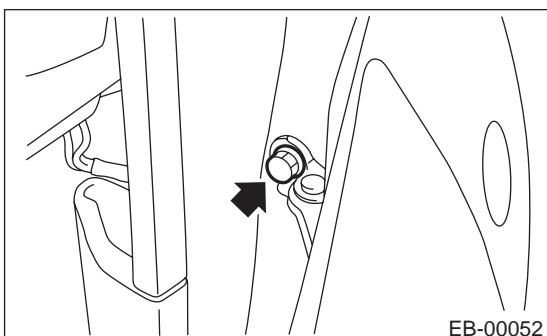
6. Rear Door Panel

A: REMOVAL

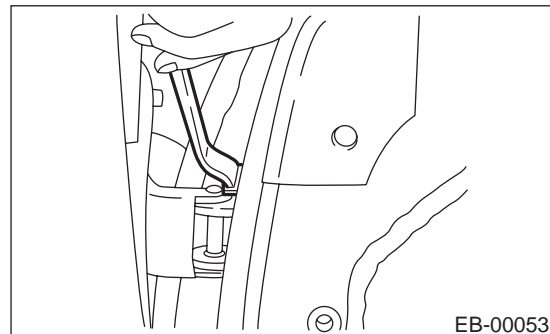
- 1) Disconnect ground cable from battery.
- 2) Remove rear door trim. <Ref. to EI-33, REMOVAL, Rear Door Trim.>
- 3) Remove rear door regulator and motor assembly. <Ref. to GW-19, REMOVAL, Rear Regulator and Motor Assembly.>
- 4) Remove rear door latch. <Ref. to SL-36, REMOVAL, Rear Door Latch Assembly.>
- 5) Remove rear outer handle. <Ref. to SL-35, REMOVAL, Rear Outer Handle.>
- 6) Remove center pillar lower trim. <Ref. to EI-42, REMOVAL, Lower Inner Trim.>
- 7) Remove seatbelt bracket and blind plug. Disconnect connector of door harness and remove door hinge nut.



- 8) Put a wooden block on the jack and place the jack under the door. Support the door with the jack to protect it.
- 9) Remove checker bolts.



- 10) Remove door-side bolts for upper and lower hinges to remove door.



- 11) Using special tool, remove body-side bolts for upper and lower hinges, and remove door hinges. ST 925610000 WRENCH

CAUTION:

- During removal and installation of doors, do not damage body.
- Doors are heavy. Be careful not to drop and damage them.

B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) Apply grease to sliding area of door hinges.

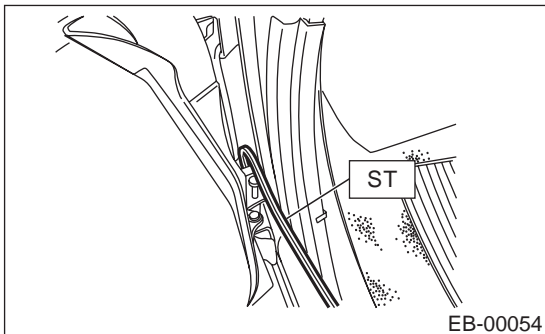
Tightening torque:

Refer to **COMPONENT** in *General Description*. <Ref. to EB-5, REAR DOOR PANEL, COMPONENT, General Description.>

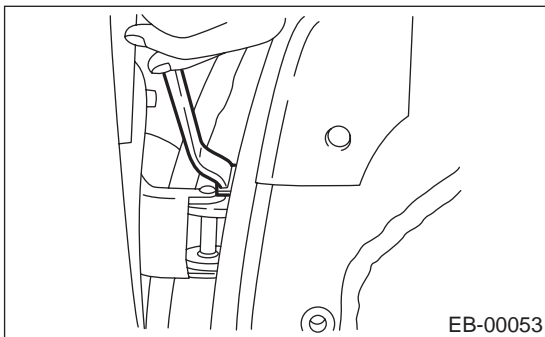
C: ADJUSTMENT

1) Using special tool, loosen body-side bolts of upper and lower hinges to align the position of rear door panel longitudinally and vertically.

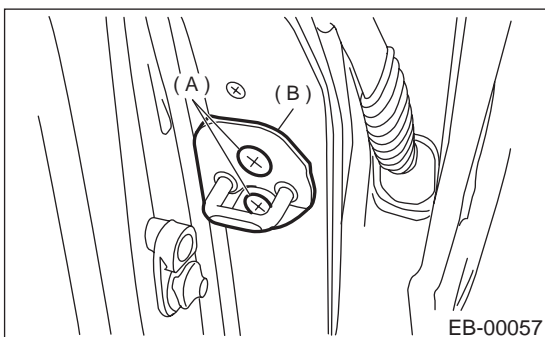
ST 925610000 WRENCH



2) Loosen door-side bolts of upper and lower hinges to align the position of rear door panel vertically and laterally at front-end.



3) Loosen screw (A) and tap striker (B) using plastic hammer to adjust striker.



CAUTION:

Do not use an impact wrench. The welding area on the striker nut plate is easily broken.

REAR SEALING COVER

EXTERIOR BODY PANELS

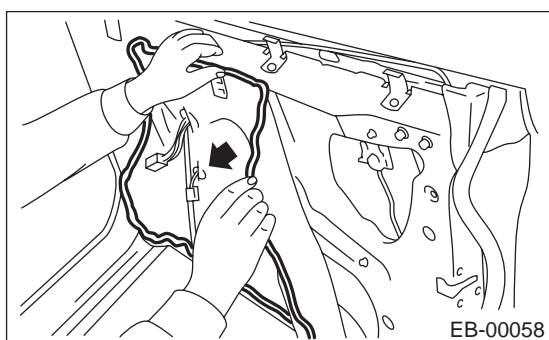
7. Rear Sealing Cover

A: REMOVAL

- 1) Remove rear door trim. <Ref. to EI-33, REMOVAL, Rear Door Trim.>
- 2) Remove rear speaker. <Ref. to ET-8, REMOVAL, Rear Speaker.>

CAUTION:

- Carefully remove butyl tape. Excessive force will easily break the cover.
- If cover gets broken, replace it with a new one.



B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) When replacing sealing cover, use butyl tape.
- 3) Press sealer-applied area firmly to prevent any floating on surface.

Butyl tape:

3M8626 or equivalent

CAUTION:

- Apply an uniform bead of butyl tape.
- Attach sealing cover, keeping it from becoming wrinkled.
- Breaks in the bead will allow water leakage and contamination.

C: INSPECTION

If sealing cover gets damaged, replace it with a new one.

TRUNK LID PANEL

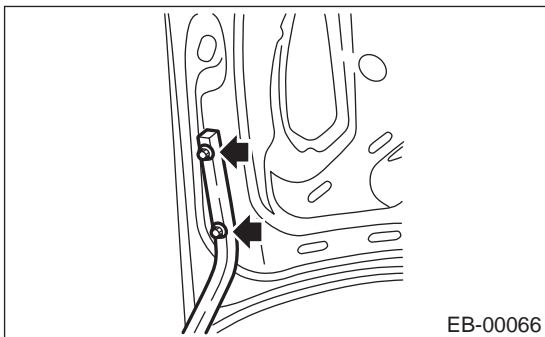
EXTERIOR BODY PANELS

8. Trunk Lid Panel

A: REMOVAL

1. TRUNK LID

- 1) Open trunk lid.
- 2) Disconnect trunk lid connector.
- 3) Loosen trunk lid mounting bolts to remove trunk lid from hinges.



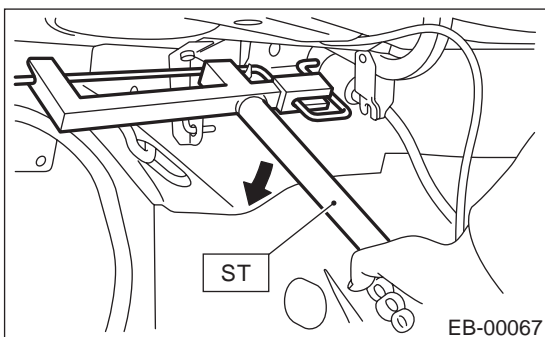
2. TORSION BAR

- 1) Open trunk lid.
- 2) Using special tool, remove torsion bar from hinge link.

ST 927780000 REMOVER

CAUTION:

During removal and installation, carefully handle torsion bar. It will generate reactive force.



- 3) Remove right/left torsion bars.

CAUTION:

After the torsion bar is removed, the trunk lid will slam shut. Be careful not to get hit by the trunk lid.

B: INSTALLATION

1. TRUNK LID

- 1) Install in the reverse order of removal.
- 2) Install trunk lid with uniform clearance.

2. TORSION BAR

- 1) Install in the reverse order of removal.
- 2) Apply grease to rotating area of hinges and mating surface of torsion bar.

Tightening torque:

18 N·m (1.8 kgf·m, 13.0 ft·lb)

REAR GATE PANEL

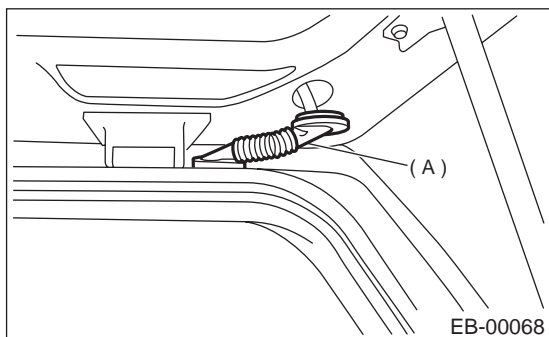
EXTERIOR BODY PANELS

9. Rear Gate Panel

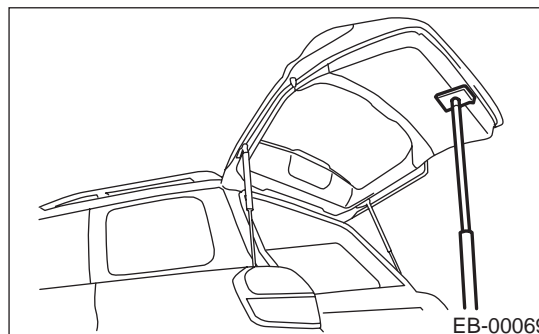
A: REMOVAL

1. REAR GATE PANEL

- 1) Open rear gate.
- 2) Remove rear gate outer handle. <Ref. to SL-38, REMOVAL, Rear Gate Outer Handle.>
- 3) Remove rear gate latch assembly. <Ref. to SL-39, REMOVAL, Rear Gate Latch Assembly.>
- 4) Remove rear gate trim. <Ref. to EI-47, REMOVAL, Rear Gate Trim.>
- 5) Remove rear gate key lock cylinders. <Ref. to SL-46, REAR GATE, REPLACEMENT, Key Lock Cylinders.>
- 6) Remove rear finisher light assembly. <Ref. to LI-20, REMOVAL, Rear Finisher Light Assembly.>
- 7) Remove rear wiper. <Ref. to WW-15, REMOVAL, Rear Wiper Motor.>
- 8) Disconnect connectors of rear wiper, rear defogger, and other lighting devices.
- 9) Disconnect washer hose.
- 10) Remove rubber duct (A) connection, and pull out harness and washer hose from rear gate.



- 11) Using a support, support the rear gate while removing gas stay mounting bolts.



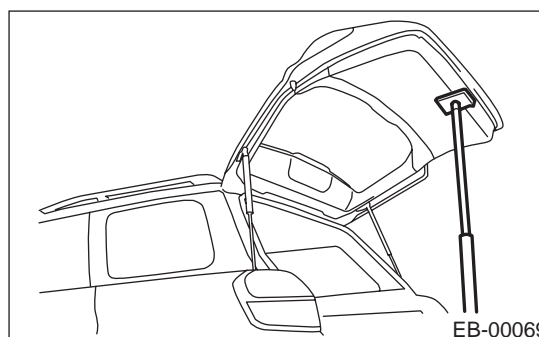
CAUTION:

When the rear gate is released, it may hit and damage the body. To prevent this, place a shop cloth between body and gate.

- 12) Loosen rear gate bolts to remove rear gate.

2. GAS STAY

- 1) Open rear gate. Using a jack to support the rear gate.



CAUTION:

- After gas stay is removed, rear gate cannot stay open. Supporting the rear gate with a jack, remove the bolts.

- Do not damage piston rods and oil seals.
- Never disassemble cylinders: They contain gas.

- 2) Loosen bolts to remove gas stay from rear gate.

REAR GATE PANEL

EXTERIOR BODY PANELS

B: INSTALLATION

1. REAR GATE PANEL

- 1) Install in the reverse order of removal.
- 2) Install rear gate panel with uniform clearance to body.

CAUTION:

Do not damage painted surfaces of body and rear gate.

2. GAS STAY

Install in the reverse order of removal.

CAUTION:

- Do not confuse right and left sides of gas stay.
- After supporting rear gate with a jack, start operation.

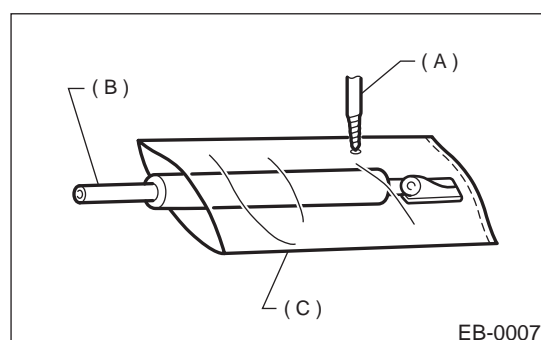
Tightening torque:

Refer to **COMPONENT** in *General Description*. <Ref. to **EB-7, REAR GATE PANEL, COMPONENT, General Description.**>

C: DISPOSAL

1. GAS STAY

- 1) Place the gas stay (B) in a vinyl sack (C) before drilling hole with a drill (A).



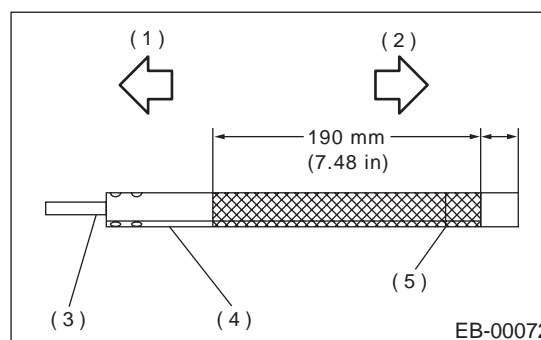
CAUTION:

Prevent the vinyl case from being caught by drill cutting edge

- 2) Lift body side slightly with piston rods fully extended, and secure body side on vise stand. Drill a hole in 2 to 3 mm (0.08 to 0.12 in) diameter at a point 10 to 200 mm (0.39 to 7.87 in) from door side, and bleed gas stay completely.

CAUTION:

Gas is colorless, odorless, and harmless. However, gas pressure may spray cutting powder or oil. Be sure to wear dust-resistant goggles.



- (1) Body side
- (2) Door side
- (3) Piston rod
- (4) Cylinder
- (5) Portion to be drilled

REAR GATE PANEL

EXTERIOR BODY PANELS

MEMO:

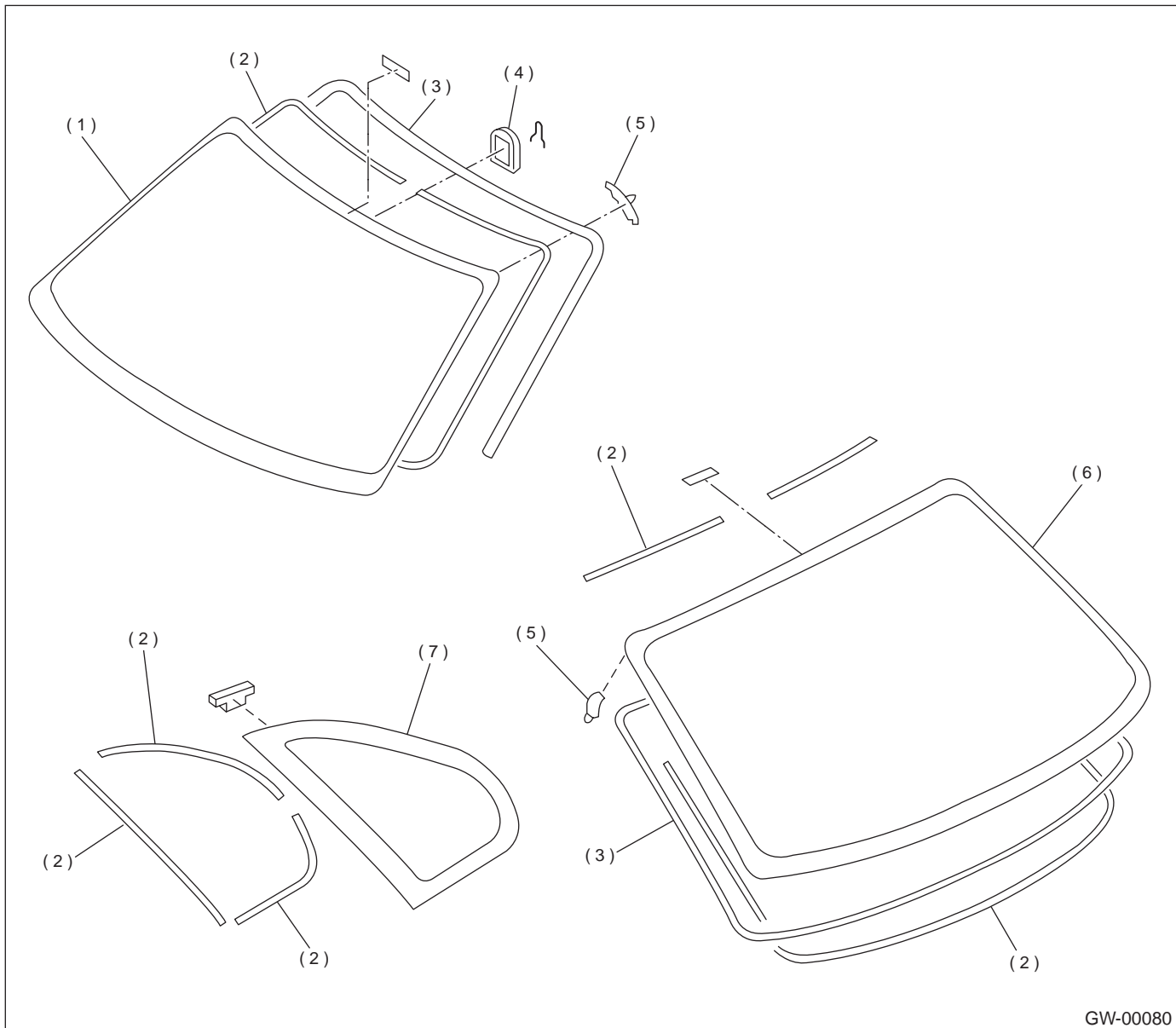
GENERAL DESCRIPTION

GLASS/WINDOWS/MIRRORS

1. General Description

A: COMPONENT

1. FIXED GLASS (SEDAN)



- (1) Windshield glass
- (2) Dam rubber
- (3) Molding

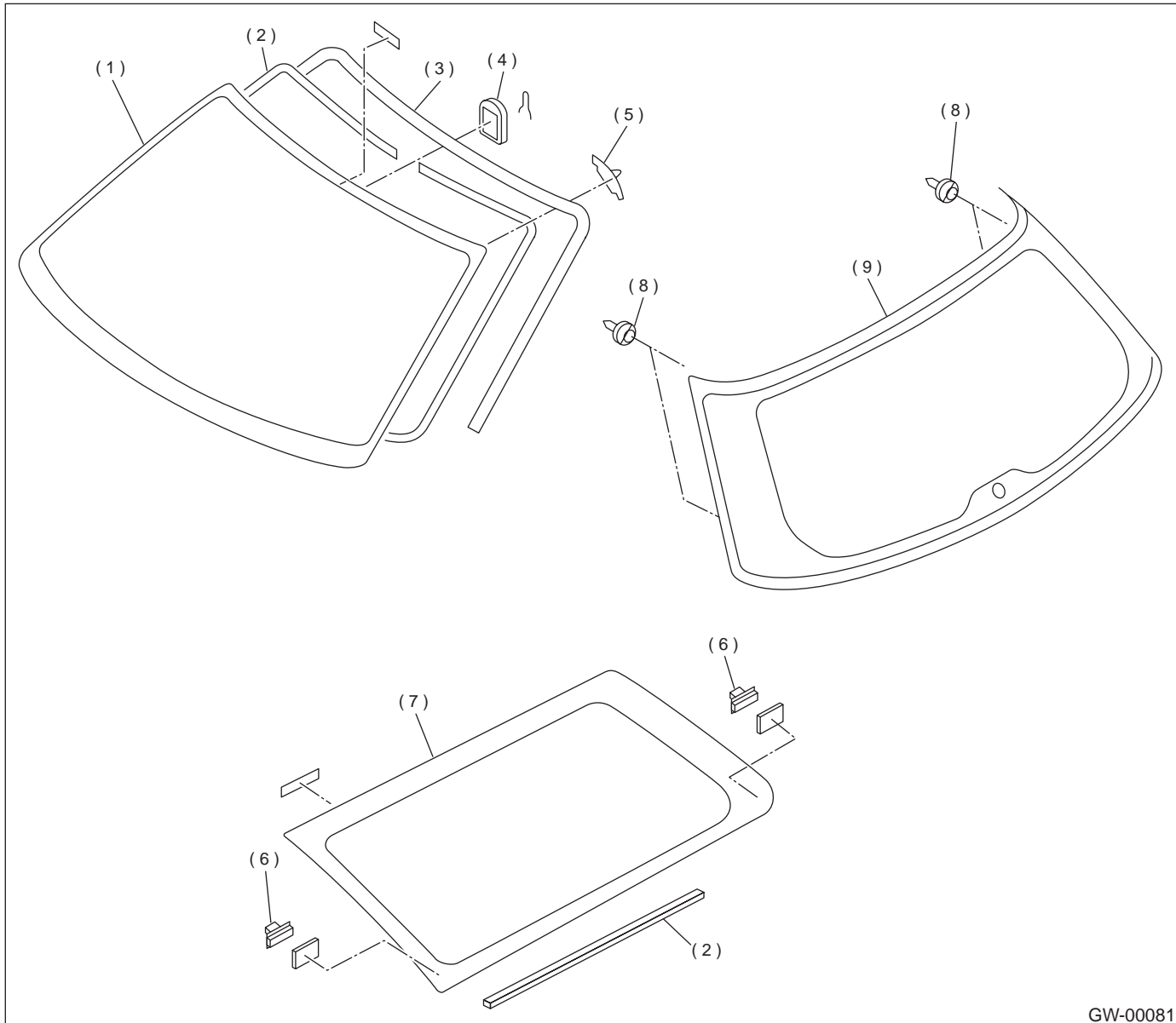
- (4) Rearview mirror mount
- (5) Locate pin
- (6) Rear window glass

- (7) 6 light glass

GENERAL DESCRIPTION

GLASS/WINDOWS/MIRRORS

2. FIXED GLASS (WAGON)



GW-00081

- (1) Windshield glass
- (2) Dam rubber
- (3) Molding

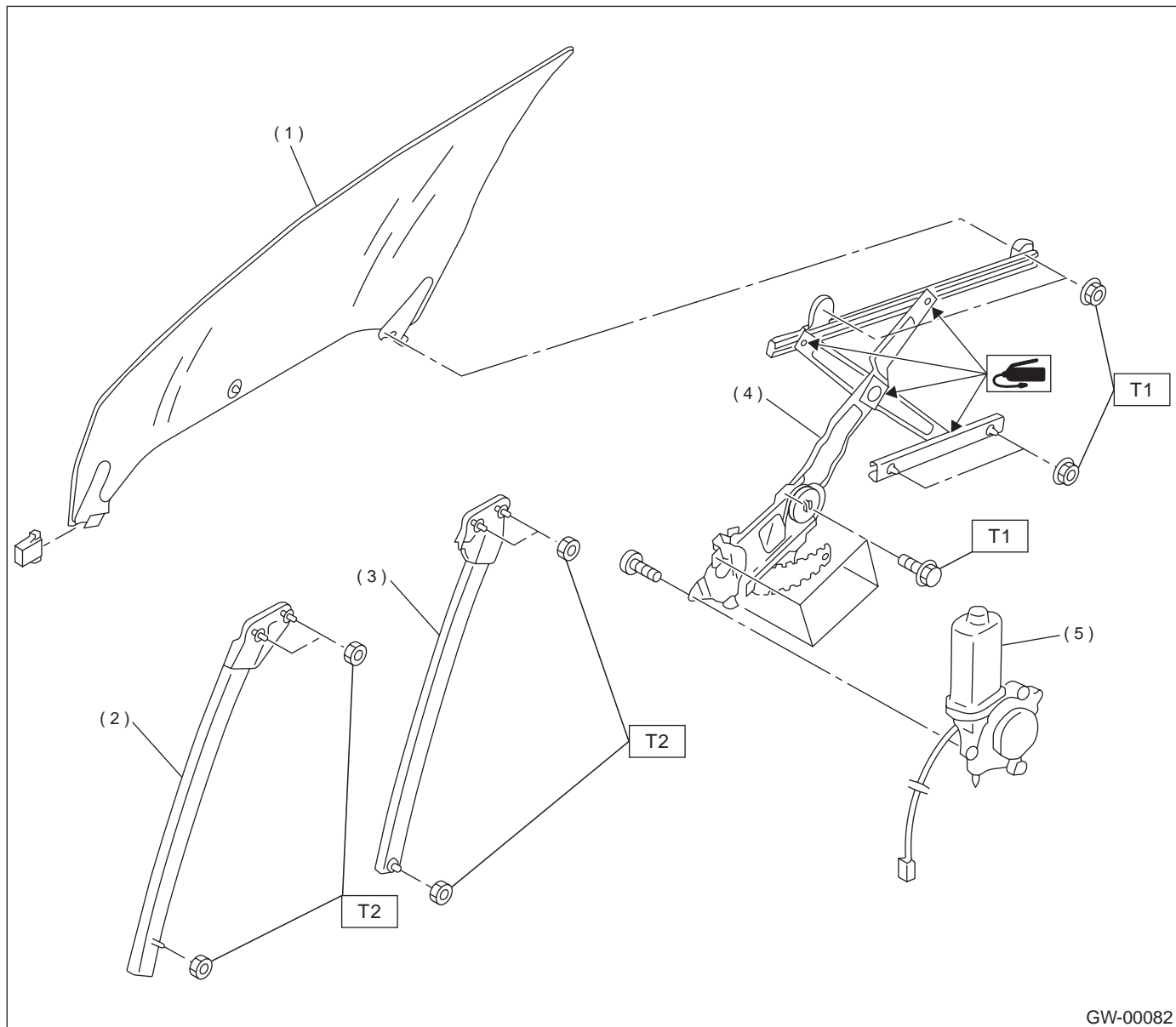
- (4) Rearview mirror mount
- (5) Locate pin
- (6) Fastener

- (7) Rear quarter glass
- (8) Locate pin
- (9) Glass

GENERAL DESCRIPTION

GLASS/WINDOWS/MIRRORS

3. FRONT DOOR GLASS



- (1) Glass
- (2) Door sash (Front)
- (3) Door sash (Rear)
- (4) Regulator ASSY

- (5) Motor ASSY

Tightening torque: N·m (kgf-m, ft-lb)

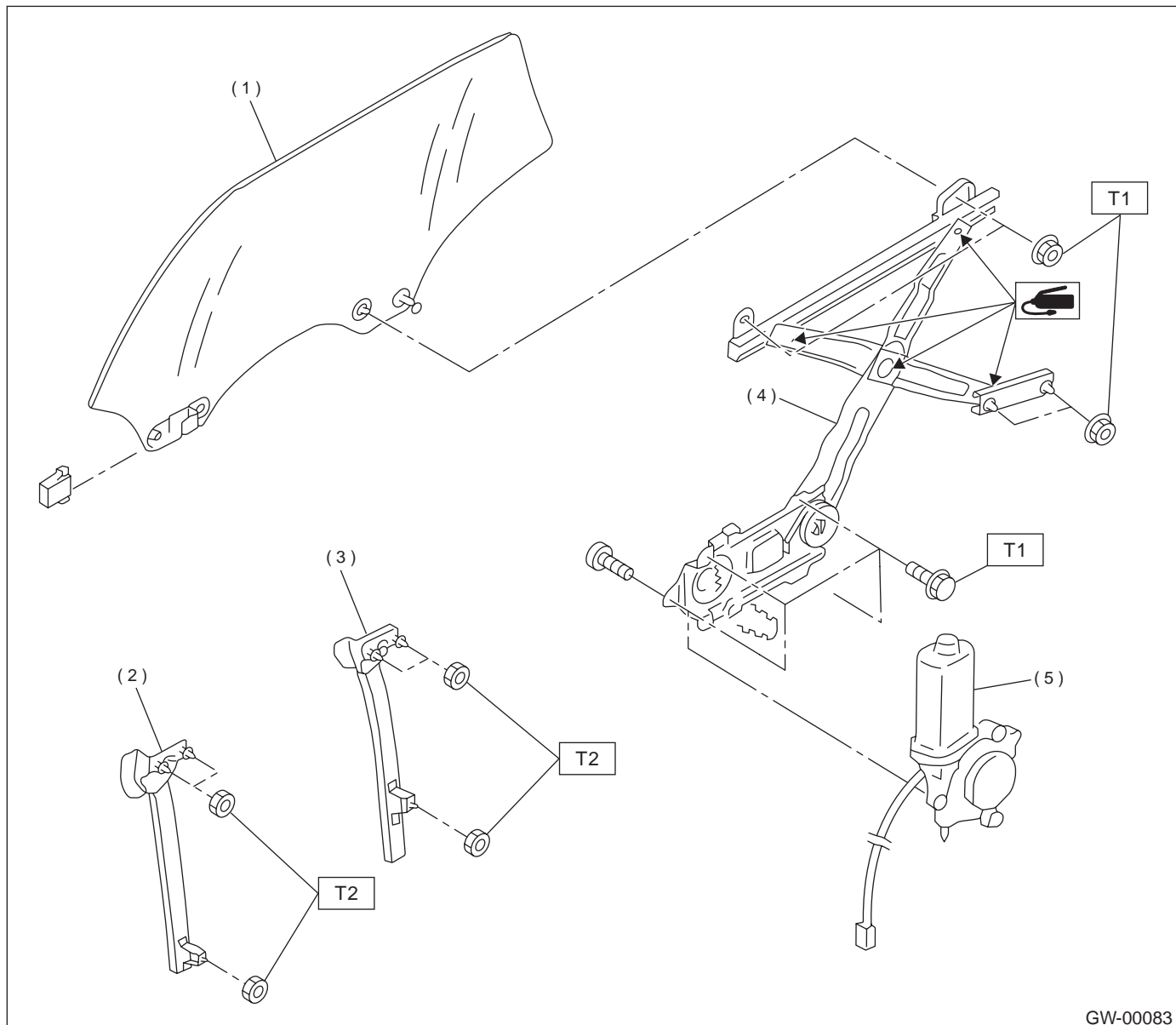
T1: 7.35 (0.75, 5.4)

T2: 14 (1.4, 10.1)

GENERAL DESCRIPTION

GLASS/WINDOWS/MIRRORS

4. REAR DOOR GLASS



- (1) Glass
- (2) Door sash (Front)
- (3) Door sash (Rear)
- (4) Regulator ASSY

- (5) Motor ASSY

Tightening torque: N·m (kgf-m, ft-lb)

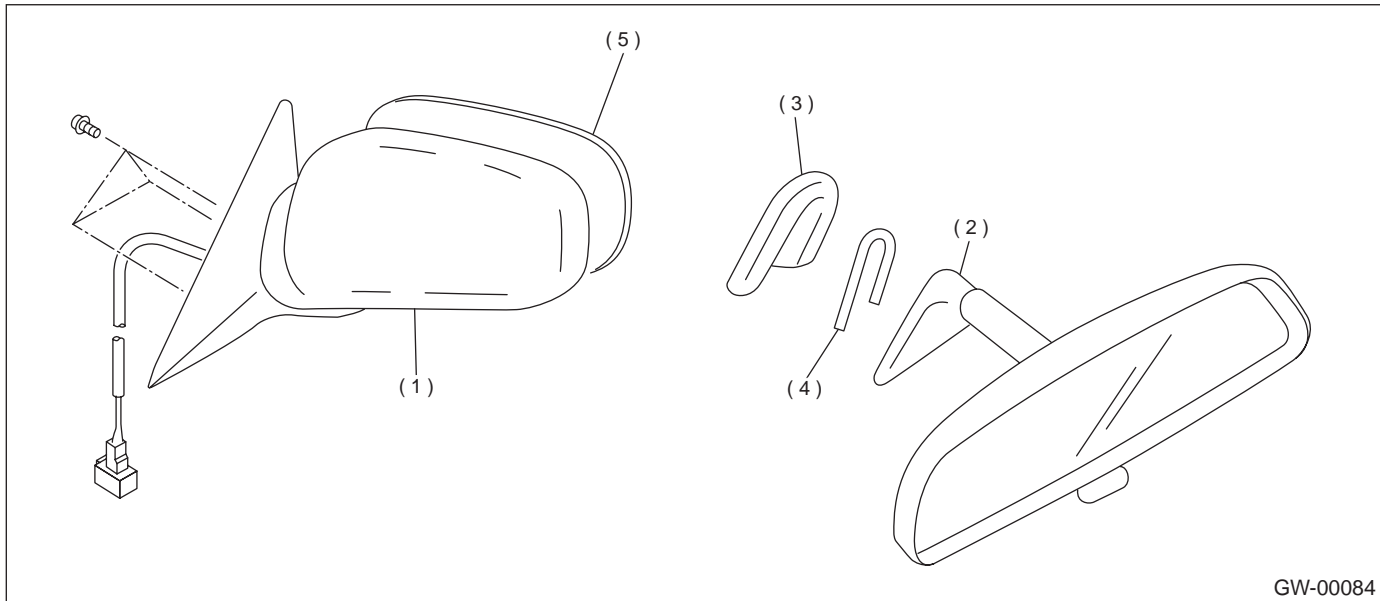
T1: 7.35 (0.75, 5.4)

T2: 14 (1.4, 10.1)

GENERAL DESCRIPTION

GLASS/WINDOWS/MIRRORS

5. MIRRORS



- (1) Outer mirror
- (2) Inner rearview mirror

- (3) Mount
- (4) Spring

- (5) Mirror

GENERAL DESCRIPTION

GLASS/WINDOWS/MIRRORS

B: CAUTION

- When electrical connectors are disconnected, always conduct an operational check after connecting them again.
- Avoid impact and damage to the glass.

C: PREPARATION TOOL

TOOL NAME	REMARKS
Circuit Tester	Used for checking voltage and continuity.
Piano Wire	Used for window glass removal.
Windshield Knife	Used for window glass removal.

POWER WINDOW SYSTEM

GLASS/WINDOWS/MIRRORS

2. Power Window System**A: SCHEMATIC**

<Ref. to WI-186, Power Window System.>

B: INSPECTION

Symptom	Repair order
All power windows does not operate.	(1) Fuse (SBF-6) (F/B No. 18) (2) Power window circuit breaker (3) Power window relay (4) Wire harness
One window does not operate.	(1) Power window main switch (2) Power window sub switch (3) Power window motor (4) Wire harness
"Window Lock" does not operate.	(1) Power window main switch

GW-8

REAR WINDOW DEFOGGER SYSTEM

GLASS/WINDOWS/MIRRORS

3. Rear Window Defogger System

A: SCHEMATIC

<Ref. to WI-194, SCHEMATIC, Rear Window Defogger System.>

B: INSPECTION

Symptom	Repair order
Rear window defogger does not operate.	(1) Fuse (M/B No. 1) (2) Rear defogger relay (3) Defogger switch (4) Rear defogger condenser (5) Defogger wire (6) Wire harness

GW-9

WINDSHIELD WIPER DEICER SYSTEM

GLASS/WINDOWS/MIRRORS

4. Windshield Wiper Deicer System

A: SCHEMATIC

<Ref. to WI-216, Wiper Deicer System.>

B: INSPECTION

Symptom	Repair order
Wiper deicer does not operate.	(1) Fuse (F/B No. 18, 19) (2) Wiper deicer relay (3) Wiper deicer switch (4) Wire harness

GW-10

REMOTE CONTROL MIRROR SYSTEM

GLASS/WINDOWS/MIRRORS

5. Remote Control Mirror System**A: SCHEMATIC**

<Ref. to WI-196, Remote Controlled Rearview Mirror System.>

B: INSPECTION

Symptom	Repair order
All function does not operate.	(1) Fuse (F/B No. 4) (2) Mirror switch (3) Wire harness
One side of the mirror motor does not operate.	(1) Mirror switch (2) Mirror motor (3) Wire harness
Mirror heater does not operate.	(1) Mirror switch (2) Mirror heater (3) Wire harness

GW-11

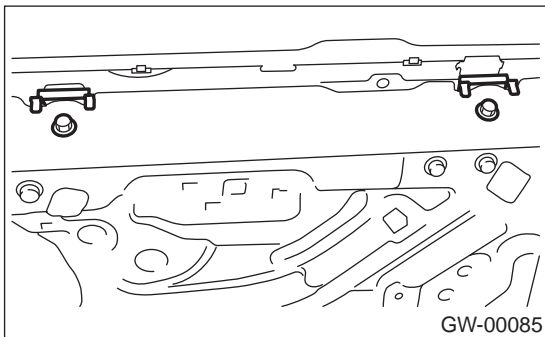
FRONT DOOR GLASS

GLASS/WINDOWS/MIRRORS

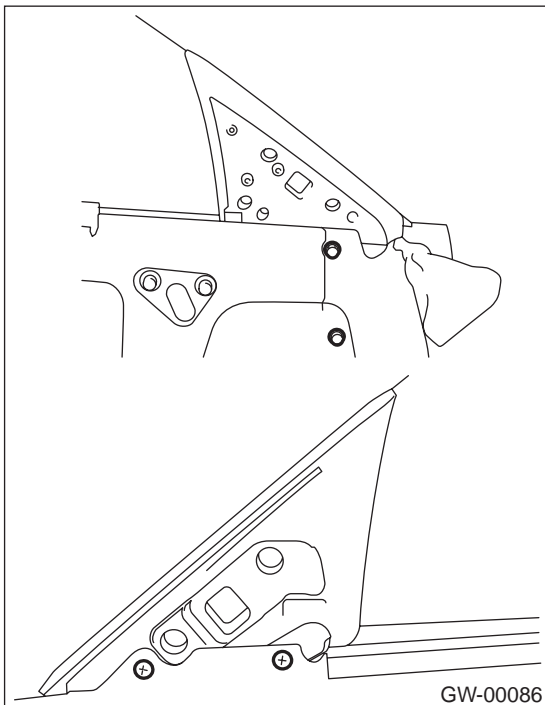
6. Front Door Glass

A: REMOVAL

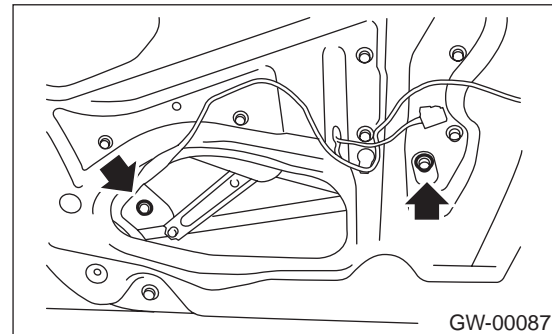
- 1) Remove door trim. <Ref. to EI-32, REMOVAL, Front Door Trim.>
- 2) Remove sealing cover. <Ref. to EB-13, REMOVAL, Front Sealing Cover.>
- 3) Remove outer weatherstrip.
- 4) Remove inner stabilizer.



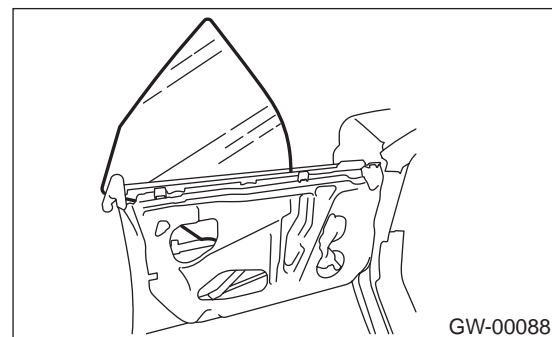
- 5) Remove outer mirror. <Ref. to GW-33, REMOVAL, Outer Mirror Assembly.>
- 6) Remove gusset.



- 7) Operate the power window switch to move glass to the position shown in the figure, and then remove the two nuts from service holes.



- 8) Take out glass door panel upward.



CAUTION:

- Do not turn regulator in the closing direction after removal of the glass. Otherwise gear may be disengaged.
- Avoid impact and damage to the glass.

B: INSTALLATION

- 1) Install in the reverse order of removal.

CAUTION:

Make sure that glass stay is placed securely in sash.

- 2) Adjust front door glass. <Ref. to GW-13, ADJUSTMENT, Front Door Glass.>

Tightening torque:

Refer to **COMPONENT** in *General Description*. <Ref. to EB-4, FRONT DOOR PANEL, COMPONENT, General Description.> and <Ref. to GW-4, FRONT DOOR GLASS, COMPONENT, General Description.>

FRONT DOOR GLASS

GLASS/WINDOWS/MIRRORS

C: ADJUSTMENT

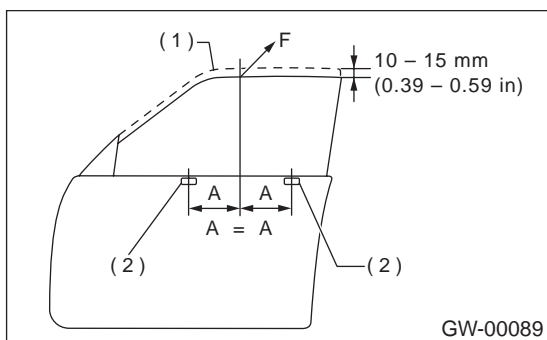
NOTE:

Before adjustment, ensure that all adjusting bolts of stabilizer, upper stopper, and sash are loose and door glass is raised so that it is in contact with weatherstrip.

1) Temporarily tighten one adjusting bolt on one side of rear sash at the midpoint of slotted hole in the inner panel.

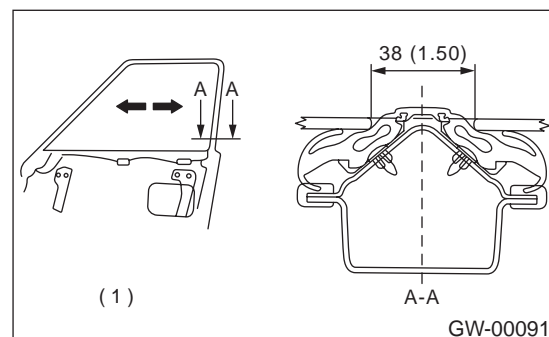
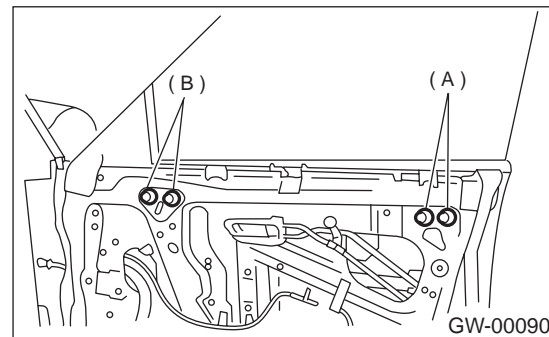
2) Temporarily tighten regulator B-channel in a position slightly lower than midpoint of slotted hole.

3) Lower door glass 10 to 15 mm (0.39 to 0.59 in) from fully closed position. While applying outward pressure of 45 ± 5 N (4.59 ± 0.51 kgf, 10.1 ± 1.1 lb) (F) to upper edge of glass above midpoint of two outer stabilizers, press inner stabilizer at 10 ± 5 N (1.02 ± 0.51 kgf, 2.2 ± 1.1 lb) until it just touches the glass, then secure it.

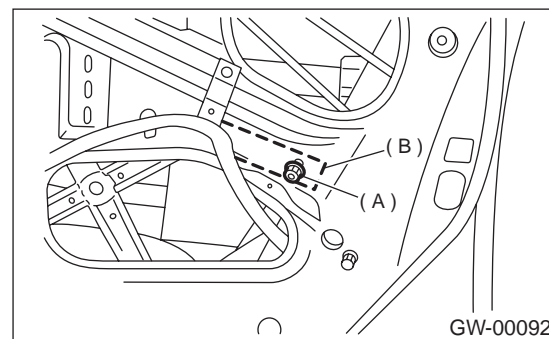


- (1) Full close
(2) Stabilizer

4) For adjustment of clearance between front and rear glasses, loosen nuts (A), and move glass sash back and forth until clearance becomes the value shown.



5) For adjustment of upper and lower ends of center pillar, loosen adjusting nut (A) of B-channel (B).

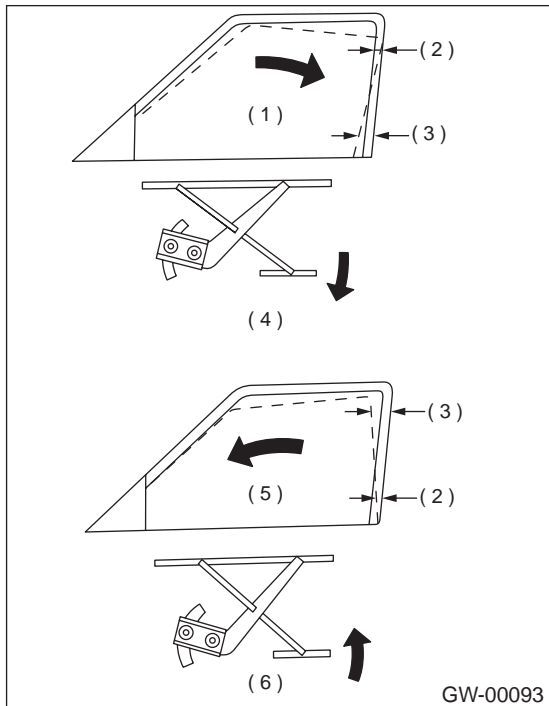


(1) Unit: mm (in)

FRONT DOOR GLASS

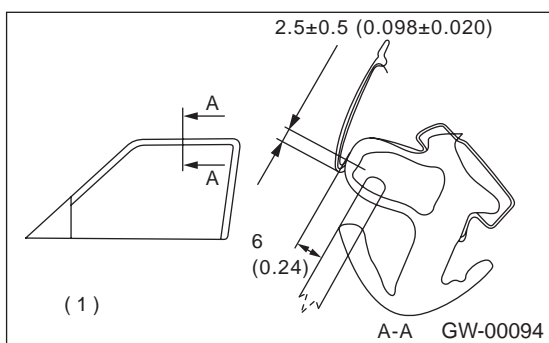
GLASS/WINDOWS/MIRRORS

6) Adjust so that upper and lower ends of center pillar are the same size.



- (1) Glass tilts too far rearward
- (2) Narrow
- (3) Wide
- (4) Lower B channel
- (5) Glass tilts too far forward
- (6) Raise B channel

7) For glass stroke adjustment, close door, raise glass until positional relationship between glass and weatherstrip becomes as shown. And secure the glass so that upper stopper lightly touches the glass holder.



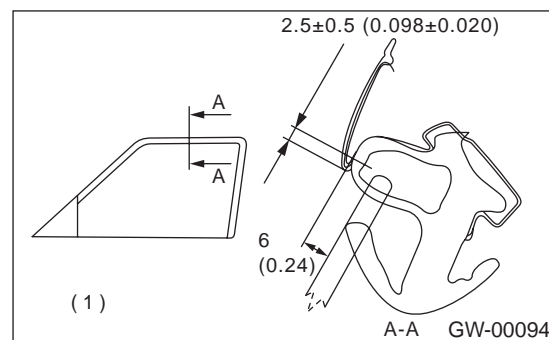
(1) Unit: mm (in)

8) After stabilizer adjustment, carry out glass crimp adjustment. First, visually ensure positional relationship between retainer & molding and glass of the roof side, and then begin with rear sash adjustment. Adjust two adjusting bolts alternately step by step to obtain dimensions shown below (cross-section A).

NOTE:

If two nuts are loosened at the same time, sash moves back and forth. Therefore, when one nut is adjusted, secure the other.

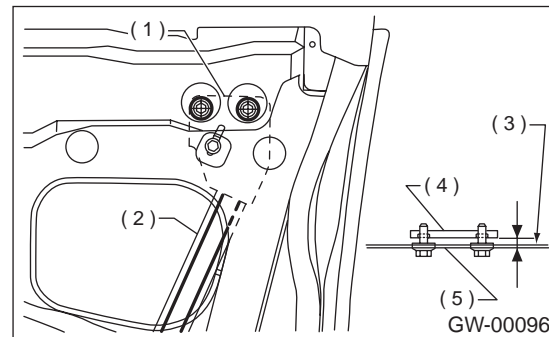
9) Make the same adjustment of two adjusting bolts of rear sash.



(1) Unit: mm (in)

CAUTION:

Do not tilt sash bracket to inner panel during adjustment. Otherwise smooth regulator operation cannot be achieved.



- (1) Sash bracket
- (2) Rear sash
- (3) Adjust a line parallel
- (4) Sash
- (5) Inner panel

FRONT DOOR GLASS

GLASS/WINDOWS/MIRRORS

10) Make adjustment of front sash in the same manner as that of rear sash.

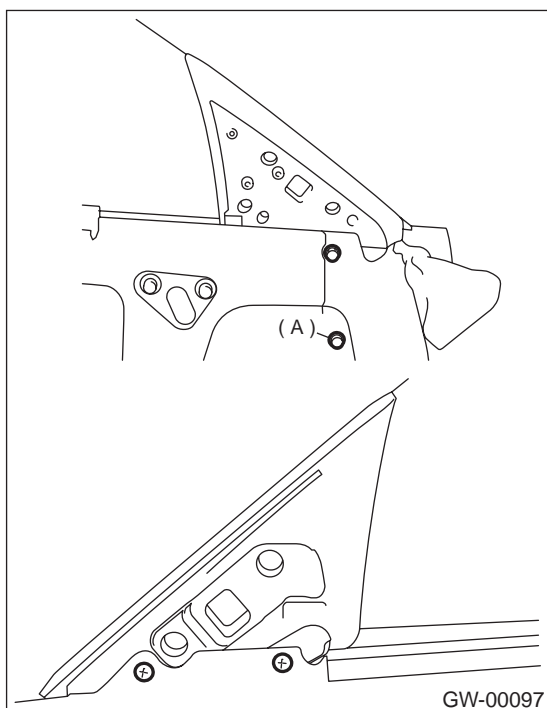
CAUTION:

Although front and rear sashes must, as a rule, be adjusted in the same manner, in some door installation, the adjustment in a different manner may be required. However, adjustment of one sash to the maximum amount and the other to the minimum amount is not permitted. Such adjustment may result in application of excessive load to regulator.

11) After adjustments, tighten nuts.

12) After adjustment of glass, if there is a gap between outer lip of gusset and glass surface, adjust the gap with adjusting bolt (A) in lower fitting part of gusset to prevent generation of wind noise.

13) During adjustments, loosen other three clamping bolts.



14) After adjustment, tighten bolts and nuts.

FRONT REGULATOR AND MOTOR ASSEMBLY

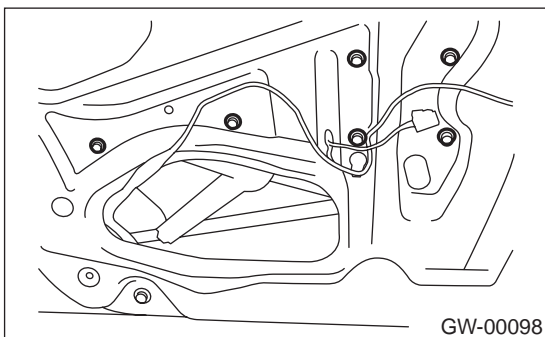
GLASS/WINDOWS/MIRRORS

7. Front Regulator and Motor Assembly

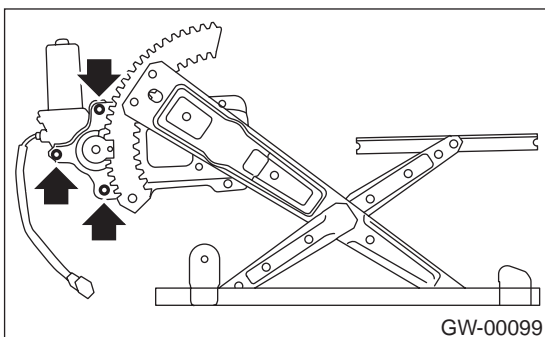
2) Change polarity of battery connections to terminals to ensure that motor rotates in reverse direction.

A: REMOVAL

- 1) Remove door trim. <Ref. to EI-32, REMOVAL, Front Door Trim.>
- 2) Remove sealing cover. <Ref. to EB-13, REMOVAL, Front Sealing Cover.>
- 3) Remove inner remote. <Ref. to SL-30, REMOVAL, Front Inner Remote.>
- 4) Remove door glass. <Ref. to GW-12, REMOVAL, Front Door Glass.>
- 5) Disconnect electrical connector.
- 6) Loosen four bolts and two nuts to pull out regulator assembly.



- 7) Loosen screws to remove motor assembly.



B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) Adjust front door glass. <Ref. to GW-13, Adjustment.>

Tightening torque:

Refer to COMPONENT in General Description. <Ref. to EB-4, FRONT DOOR PANEL, COMPONENT, General Description.> and <Ref. to GW-4, FRONT DOOR GLASS, COMPONENT, General Description.>

C: INSPECTION

- 1) Make sure that power window motor rotates properly when battery voltage is applied to terminals of motor connector.

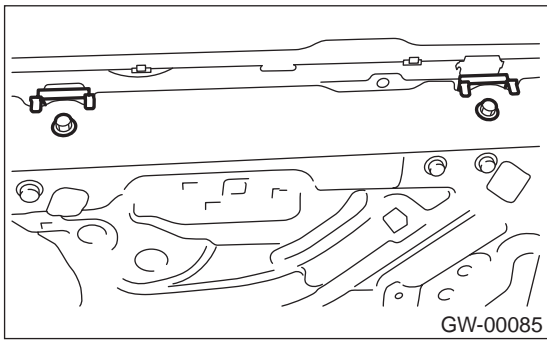
REAR DOOR GLASS

GLASS/WINDOWS/MIRRORS

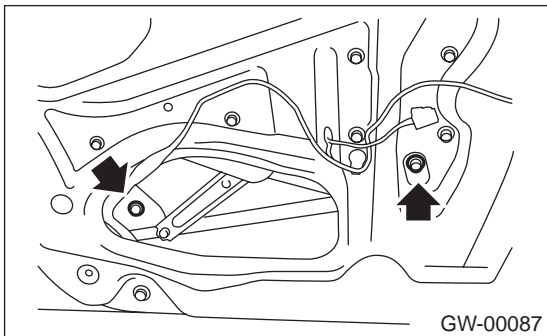
8. Rear Door Glass

A: REMOVAL

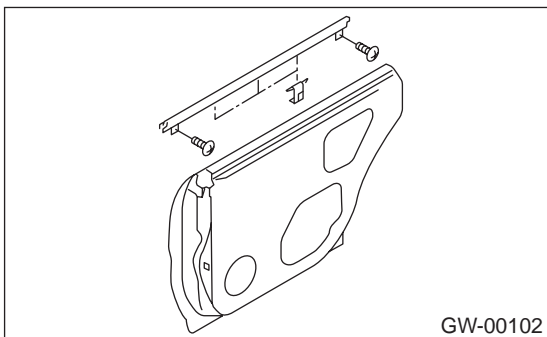
- 1) Remove door trim. <Ref. to EI-33, REMOVAL, Rear Door Trim.>
- 2) Remove sealing cover. <Ref. to EB-16, REMOVAL, Rear Sealing Cover.>
- 3) Remove stabilizer.



- 4) Operate power window switch to move glass as shown in the figure, and remove two nuts.



- 5) Loosen two screws to remove weatherstrip.



- 6) Pull out glass.

CAUTION:

Avoid impact and damage to the glass.

B: INSTALLATION

- 1) Install in the reverse order of removal.

CAUTION:

Make sure that glass stay is placed securely in sash.

- 2) Adjust rear door glass. <Ref. to GW-17, ADJUSTMENT, Rear Door Glass.>

Tightening torque:

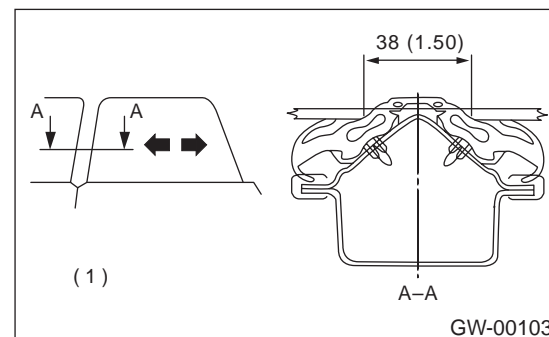
Refer to **COMPONENT** in *General Description*. <Ref. to EB-5, REAR DOOR PANEL, COMPONENT, General Description.> and <Ref. to GW-5, REAR DOOR GLASS, COMPONENT, General Description.>

C: ADJUSTMENT

NOTE:

Rear door glass, as a rule, should be adjusted in the same manner as front glass, although they are different in dimension. Special notes for rear glass are given below.

- 1) Adjust glass position using the following dimensions as a guide line.



(1) Unit: mm (in)

CAUTION:

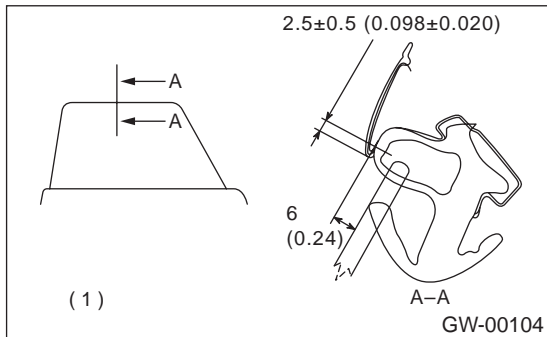
• If dimensions are smaller than the given dimensions, glass may get caught in weatherstrip during lifting/lowering operation. In the worst case, it may cause glass not to be opened fully.

• After adjustment, move glass up and down to check whether it is caught.

REAR DOOR GLASS

GLASS/WINDOWS/MIRRORS

2) Adjust crimp of glass using the following dimensions as a guide line.



(1) Unit: mm (in)

CAUTION:

- If crimp of rear glass is higher than necessary, glass may get caught in weatherstrip of center pillar corner, resulting in early wear of weatherstrip. Be careful when adjusting.
- After adjustment, move glass up and down to check whether it is caught.

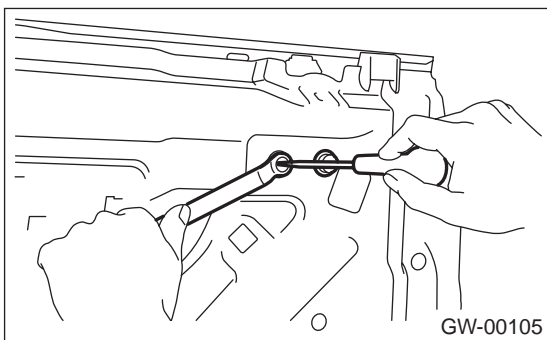
REAR REGULATOR AND MOTOR ASSEMBLY

GLASS/WINDOWS/MIRRORS

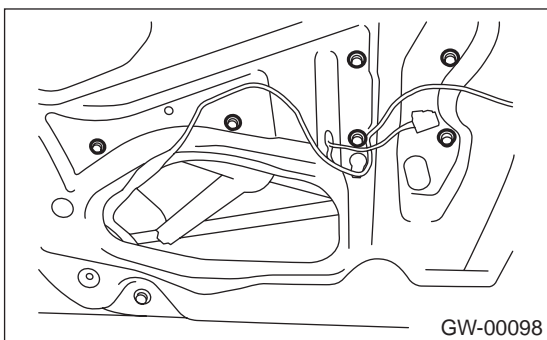
9. Rear Regulator and Motor Assembly

A: REMOVAL

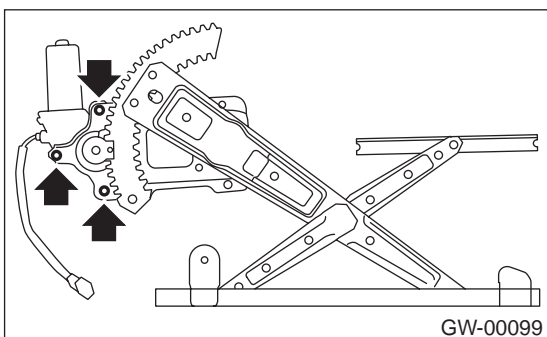
- 1) Remove door trim. <Ref. to EI-33, REMOVAL, Rear Door Trim.>
- 2) Remove sealing cover. <Ref. to EB-16, REMOVAL, Rear Sealing Cover.>
- 3) Remove door glass. <Ref. to GW-17, REMOVAL, Rear Door Glass.>
- 4) Secure bolts using screwdriver to remove front sash adjusting nut.



- 5) Remove front sash.
- 6) Disconnect electrical connector.
- 7) Loosen four bolts and two nuts to remove regulator assembly.



- 8) Loosen screws to remove motor assembly.



B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) Adjust rear door glass. <Ref. to GW-17, ADJUSTMENT, Rear Door Glass.>

Tightening torque:

Refer to **COMPONENT in General Description**. <Ref. to **EB-5, REAR DOOR PANEL, COMPONENT, General Description**> and <Ref. to **GW-5, REAR DOOR GLASS, COMPONENT, General Description**>

C: INSPECTION

- 1) Make sure that power window motor rotates properly when battery voltage is applied to terminals of motor connector.
- 2) Change polarity of battery connections to terminals to ensure that motor rotates in reverse direction.

WINDSHIELD GLASS

GLASS/WINDOWS/MIRRORS

10. Windshield Glass

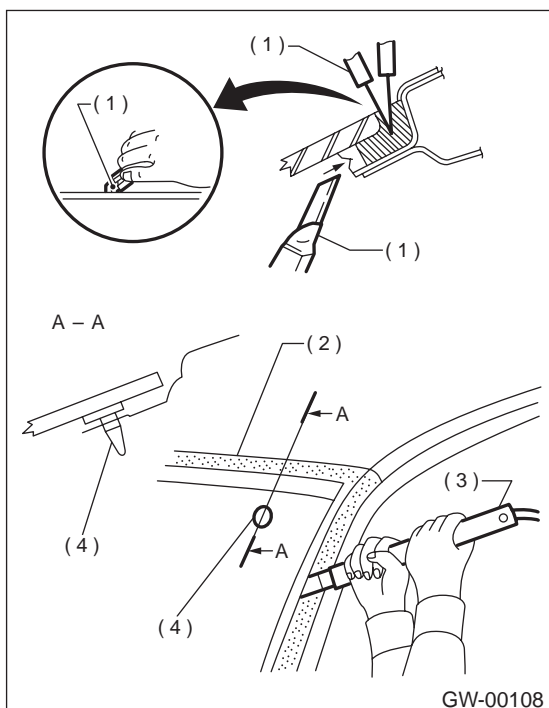
A: REMOVAL

1. USING WINDSHIELD KNIFE

- 1) Remove cowl panel. <Ref. to EI-27, REMOVAL, Cowl Panel.>
- 2) Remove front side molding and upper front molding.
- 3) Tape body side of the circumference of windshield glass for protection.
- 4) Apply sufficient amount of soapy water to adhesive layer.
- 5) Insert windshield knife into the adhesive layer.
- 6) While holding the knife edge and windshield glass edge at a right angle, move windshield knife in parallel to windshield glass edge along face and edge of windshield glass to cut the adhesive layer.

CAUTION:

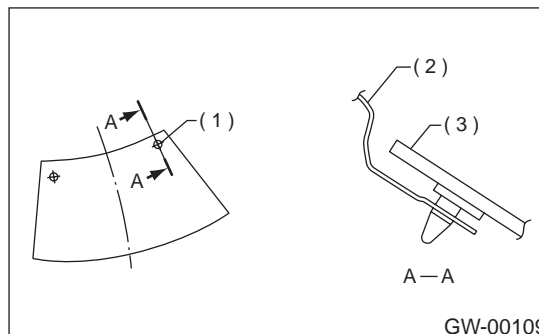
- Do not twist windshield knife.
- Cutting of adhesive layer shall be started with wider gap between windshield glass and body.



- (1) Putty knife
- (2) Protective tape
- (3) Windshield knife
- (4) Matching pin

NOTE:

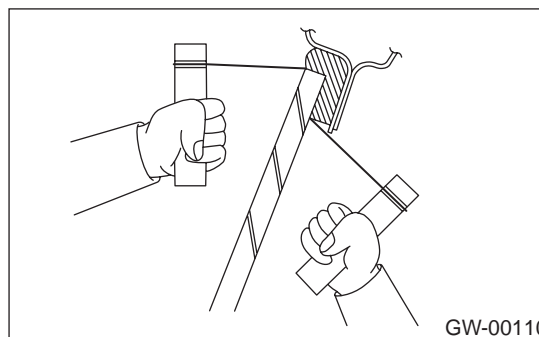
Because matching pins are bonded to the corners of glass, use piano wire to cut the pin.



- (1) Matching pin
- (2) Body panel
- (3) Glass

2. USING PIANO WIRE

- 1) Remove cowl panel. <Ref. to EI-27, REMOVAL, Cowl Panel.>
- 2) Remove roof molding and upper front molding.
- 3) Tape the body side of the circumference of windshield glass for protection.
- 4) Make a hole in adhesive layer using drill or knife.
- 5) Pass piano wire through the hole, and attach securely both the wire ends to pieces of wood.



- 6) Pull the wire ends alternately to cut off the adhesive layer.

CAUTION:

- Do not tightly pull the piano wire against the windshield glass edge.
- Be careful not to damage interior and exterior parts.
- When removal is made with area close to instrument panel, place a protection plate over it. Pay particular attention to the removal.
- Do not cross piano wires. Otherwise they may be cut.

WINDSHIELD GLASS

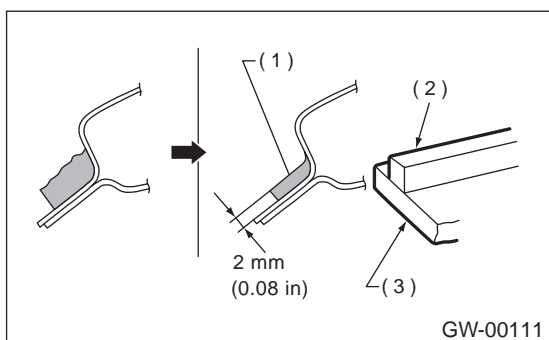
GLASS/WINDOWS/MIRRORS

B: INSTALLATION

- 1) Clean external circumference of windshield glass with alcohol or white gasoline.
- 2) Remove adhesive layer on the body using cutter knife to obtain smooth face 2 mm (0.08 in) thick.

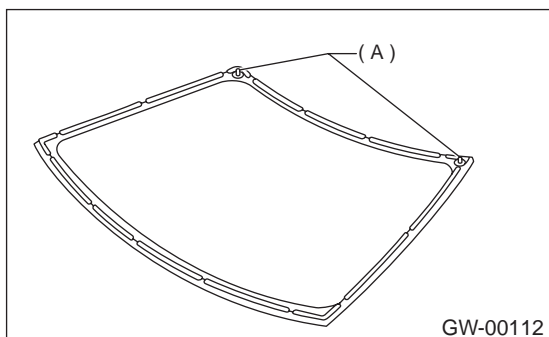
CAUTION:

Be careful not to damage the body and paint surface.



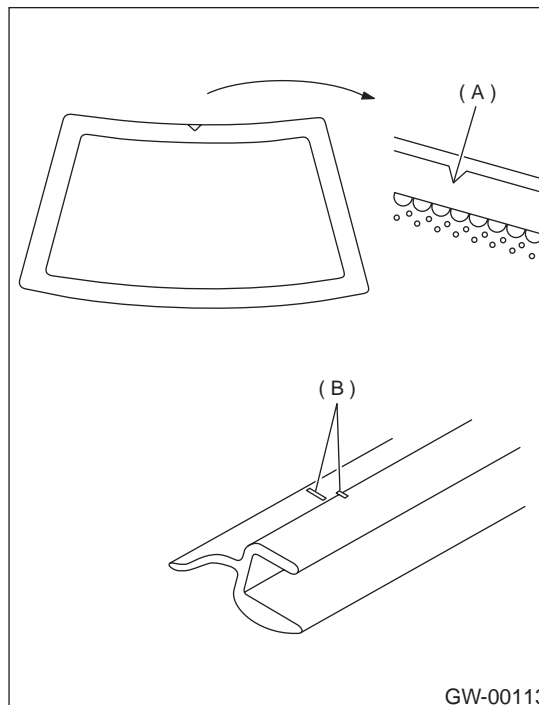
- (1) Adhesive
- (2) Dam rubber
- (3) Glass

- 3) Clean body with alcohol or white gasoline to remove thoroughly chips, dusts, and dirt from body face.
- 4) Place glass on body.
- 5) Adjust glass position to make uniform clearance between body and glass in four corners.
- 6) Place matching pins (A) and body on glass.



- 7) Remove glass from body.

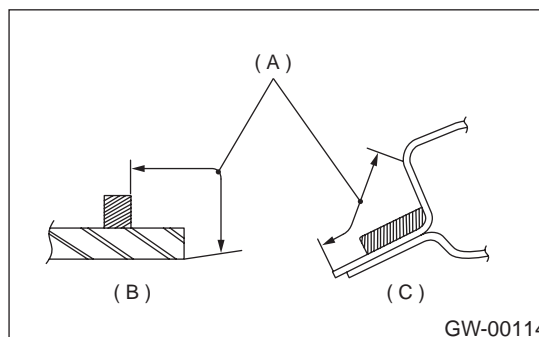
- 8) Fit molding mark (B) to notch (A) of ceramic print.



- 9) Apply primer to adhesive layer (A) of glass (B) using sponge.
- 10) Apply primer to adhesive layer (A) of body (C).

CAUTION:

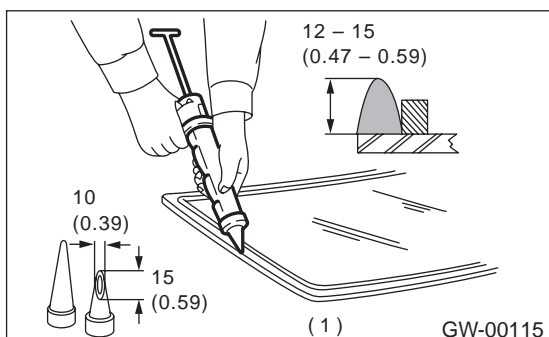
- Primer once attached to the painted surface of the body and internal trim is hard to wipe off. Mask the circumference of such areas.
- Let primer dry for about ten minutes before installing the glass.
- Do not touch surface coated with primer.



WINDSHIELD GLASS

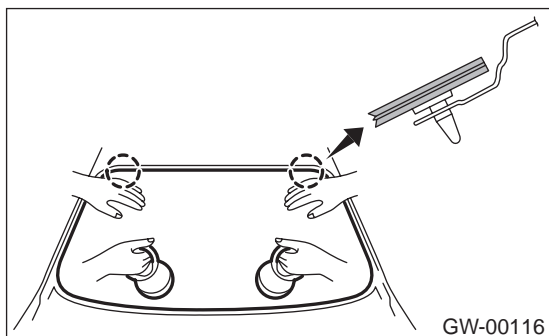
GLASS/WINDOWS/MIRRORS

11) Cut off cartridge nozzle tip and set it in sealant gun as shown.



12) Apply adhesive to glass end surface as shown.

13) Fit matching pins using suction rubber cup to install windshield glass.



14) Lightly press windshield glass for tight fit.

15) Make adhesive surface flush using spatula.

CAUTION:

- When door is opened/closed after glass is bonded, always lower door glass and then open/close it carefully.
- Move vehicle slowly.

16) After completion of all work, allow vehicle to stand for about 24 hours.

NOTE:

For minimum drying time and time the vehicle must be left standing before driving after bonding, follow instructions or instruction manual from the adhesive manufacturer.

17) After curing of adhesive, pour water on external surface of vehicle to check that there are no water leaks.

CAUTION:

When a vehicle is returned to the user, tell him or her that the vehicle should not be subjected to heavy impact for at least three days.

18) Install cowl panel. <Ref. to EI-27, INSTALLATION, Cowl Panel.>

REAR GATE GLASS

GLASS/WINDOWS/MIRRORS

11.Rear Gate Glass

A: REMOVAL

- 1) Remove rear wiper motor. <Ref. to WW-15, REMOVAL, Rear Wiper Motor.>
- 2) Remove electrical connector from rear defogger terminal.
- 3) Remove glass in the same procedure as for windshield glass. <Ref. to GW-20, REMOVAL, Windshield Glass.>

B: INSTALLATION

- 1) Apply adhesive evenly to the glass attachment area.
- 2) Insert the glass clip pin into the rear gate hole, and after pushing on the area around the clip pin to secure it, push lightly all around the area to seal it.
- 3) About one hour after installation, conduct a leak test.

- 4) After completion of all work, allow vehicle to stand for about 24 hours.

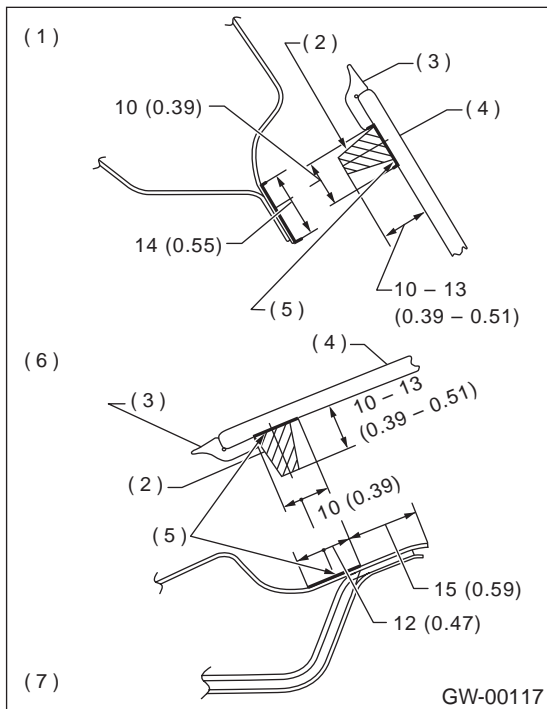
NOTE:

For minimum drying time and time the vehicle must be left standing before driving after bonding, follow instructions or instruction manual from the adhesive manufacturer.

CAUTION:

When a vehicle is returned to the user, tell him or her that the vehicle should not be subjected to heavy impact for at least three days.

- 5) Connect rear defogger terminals.
- 6) Install rear wiper. <Ref. to WW-15, INSTALLATION, Rear Wiper Motor.>



- (1) Upper side
- (2) Adhesive
- (3) Strip rubber
- (4) Glass
- (5) Primer
- (6) Left and right side
- (7) Unit: mm (in)

CAUTION:

- When door is opened/closed after glass is bonded, always lower door glass and then open/close it carefully.
- Move vehicle slowly.

GW-23

REAR QUARTER GLASS

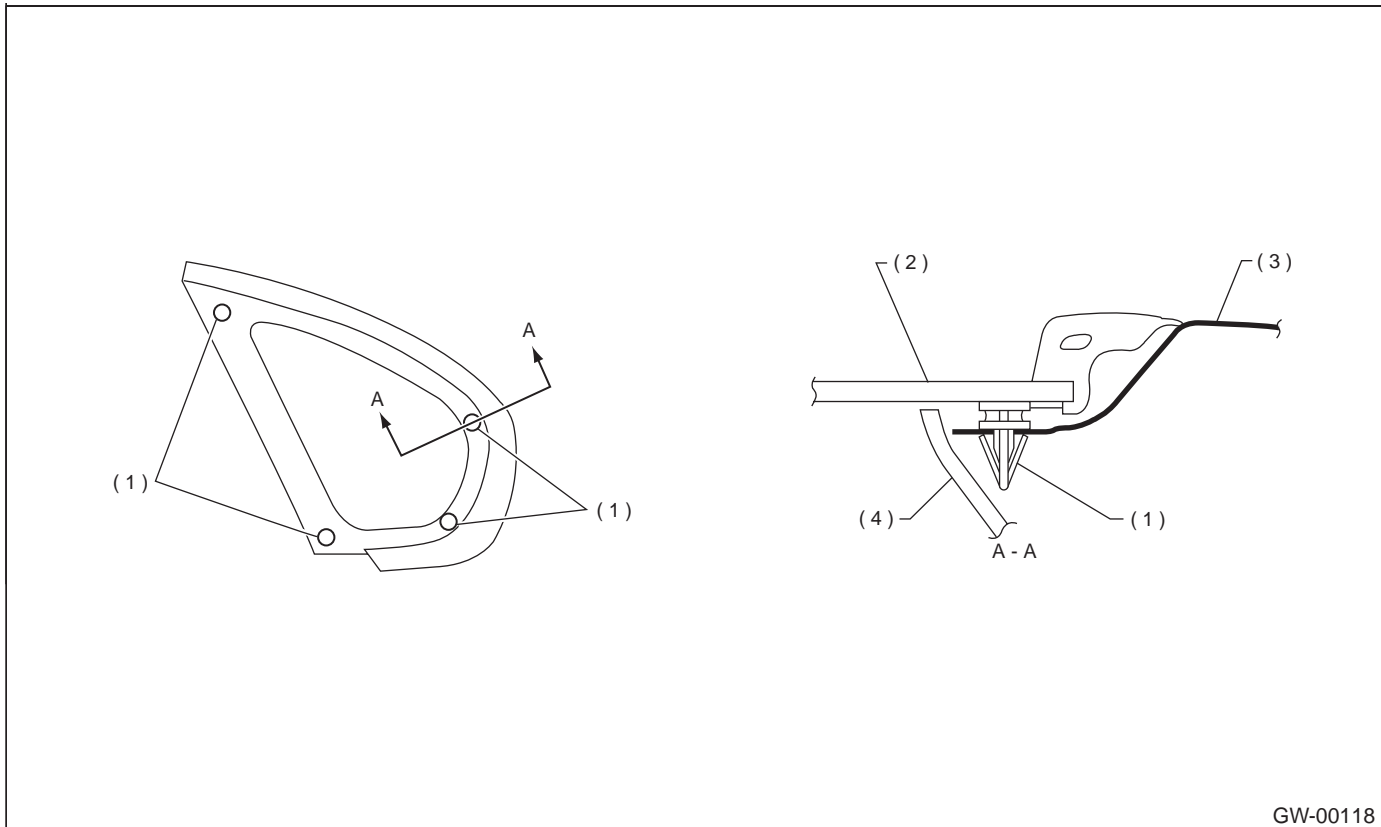
GLASS/WINDOWS/MIRRORS

12.Rear Quarter Glass

A: REMOVAL

1. SEDAN

Remove glass in the same procedure as for windshield glass. <Ref. to GW-20, REMOVAL, Windshield Glass.>



GW-00118

- (1) Matching pin
- (2) Rear quarter glass

- (3) Body panel
- (4) Trim panel

REAR QUARTER GLASS

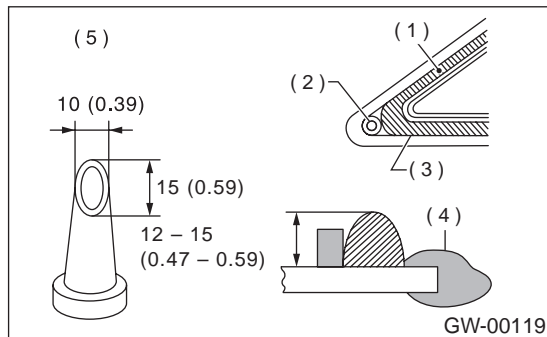
GLASS/WINDOWS/MIRRORS

2. WAGON

Remove glass in the same procedure as for windshield glass. <Ref. to GW-20, REMOVAL, Windshield Glass.>

B: INSTALLATION

1) Cut off nozzle tip as shown in the figure.



- (1) Dam rubber
- (2) Matching pin
- (3) Adhesive
- (4) Molding
- (5) Unit: mm (in)

2) Install glass in the same procedure as for windshield glass. <Ref. to GW-21, INSTALLATION, Windshield Glass.>

CAUTION:

- When door is opened/closed after glass is bonded, always lower door glass and then open/close it carefully.
- Move vehicle slowly.

3) After completion of all work, allow vehicle to stand for about 24 hours.

NOTE:

For minimum drying time and time the vehicle must be left standing before driving after bonding, follow instructions or instruction manual from the adhesive manufacturer.

4) After curing of adhesive, pour water on external surface of vehicle to check that there are no water leaks.

CAUTION:

When a vehicle is returned to the user, tell him or her that the vehicle should not be subjected to heavy impact for at least three days.

REAR WINDOW GLASS

GLASS/WINDOWS/MIRRORS

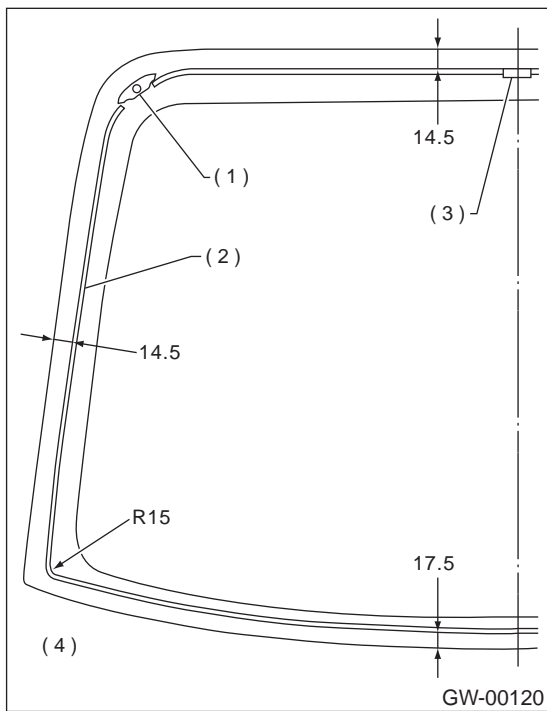
13.Rear Window Glass

A: REMOVAL

- 1) Disconnect electrical connectors from rear de-fogger terminals.
- 2) Remove glass in the same procedure as for windshield glass. <Ref. to GW-20, REMOVAL, Windshield Glass.>

B: INSTALLATION

- 1) Bond dam rubber and matching pin.



- (1) Matching pin
- (2) Dam rubber
- (3) Fastener
- (4) Unit: mm (in)

- 2) Install glass in the same procedure as for windshield glass. <Ref. to GW-21, INSTALLATION, Windshield Glass.>

- 3) Connect rear defogger terminals.

CAUTION:

- When door is opened/closed after glass is bonded, always lower door glass and then open/close door carefully.
- Move vehicle slowly.

- 4) After completion of all work, allow vehicle to stand for about 24 hours.

NOTE:

For minimum drying time and time the vehicle must be left standing before driving after bonding, follow instructions or instruction manual from the adhesive manufacturer.

- 5) After curing of adhesive, pour water on external surface of vehicle to check that there are no water leaks.

CAUTION:

When a vehicle is returned to the user, tell him or her that the vehicle should not be subjected to heavy impact for at least three days.

GW-26

ROOF WINDOW GLASS

GLASS/WINDOWS/MIRRORS

14.Roof Window Glass

A: REMOVAL

<Ref. to SR-6, REMOVAL, Sunroof Lid.>

B: INSTALLATION

<Ref. to SR-6, INSTALLATION, Sunroof Lid.>

C: ADJUSTMENT

<Ref. to SR-6, ADJUSTMENT, Sunroof Lid.>

GW-27

Vehicle-id:
SIE-id::A:Removal

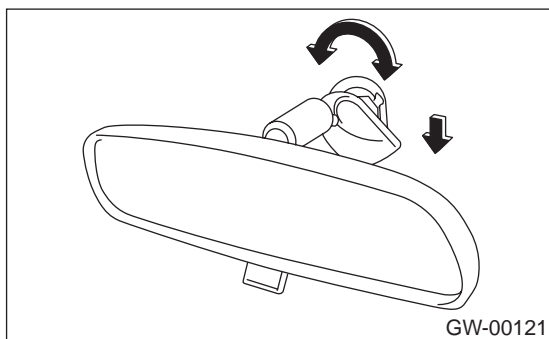
INNER REARVIEW MIRROR

GLASS/WINDOWS/MIRRORS

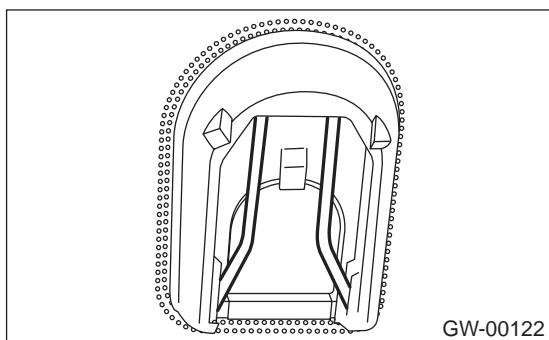
15.Inner Rearview Mirror

A: REMOVAL

1) Turn mirror base 90 degrees clockwise or counterclockwise to remove it.



2) Remove spring from mirror base.



CAUTION:
Be careful not to damage the mirror surface.

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Do not let mirror be damaged.
Do not let spring deteriorate.

GW-28

POWER WINDOW CONTROL SWITCH

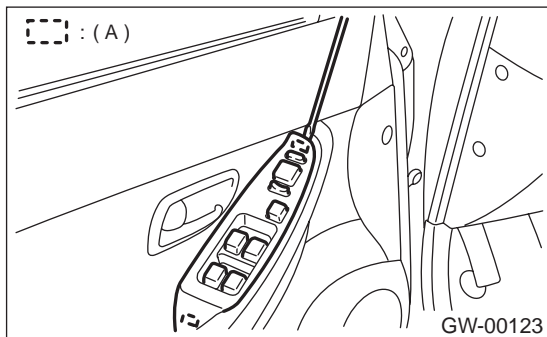
GLASS/WINDOWS/MIRRORS

16. Power Window Control Switch

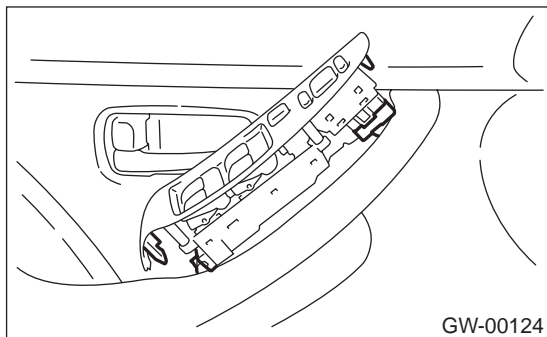
A: REMOVAL

1. MAIN SWITCH

1) Remove two hooks (A) of switch panel to remove power window main switch.

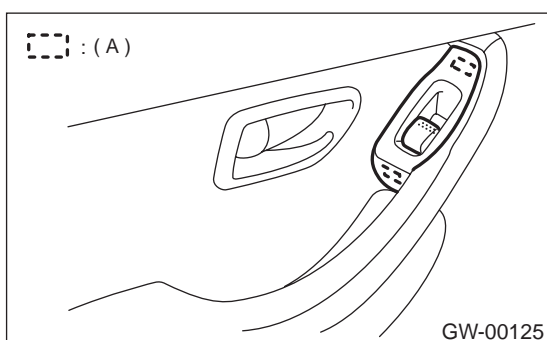


2) Disconnect electrical connectors from power window main switch and mirror switch.



2. SUB-SWITCH

Remove two hooks (A) of switch panel to remove power window sub-switch and disconnect electrical connector.



B: INSTALLATION

1. MAIN SWITCH

Install in the reverse order of removal.

2. SUB-SWITCH

Install in the reverse order of removal.

POWER WINDOW CONTROL SWITCH

GLASS/WINDOWS/MIRRORS

C: INSPECTION

1. MAIN SWITCH

Measure switch resistance.

Driver's switch:

Switch position	Terminal No.	Standard
UP	3 and 9, 7 and 1	Less than 1 Ω
OFF	3 and 7 and 1	Less than 1 Ω
DOWN	7 and 9, 3 and 1	Less than 1 Ω
AUTO DOWN	7 and 9, 3 and 1	Less than 1 Ω

Front passenger's switch:

Switch position	Terminal No.	Standard
UP	9 and 5, 1 and 4	Less than 1 Ω
OFF	1 and 5 and 4	Less than 1 Ω
DOWN	9 and 4, 1 and 5	Less than 1 Ω

Rear left switch:

Switch position	Terminal No.	Standard
UP	9 and 13, 1 and 8	Less than 1 Ω
OFF	1 and 13 and 8	Less than 1 Ω
DOWN	9 and 8, 1 and 13	Less than 1 Ω

Rear right switch:

Switch position	Terminal No.	Standard
UP	9 and 16, 1 and 14	Less than 1 Ω
OFF	1 and 16 and 14	Less than 1 Ω
DOWN	9 and 14, 1 and 16	Less than 1 Ω

If NG, replace the main switch.

2. SUB-SWITCH

Measure switch resistance.

Front passenger's door switch and rear door switch:

Switch position	Terminal No.	Standard
UP	5 and 1, 6 and 2	Less than 1 Ω
OFF	4 and 1, 6 and 2	Less than 1 Ω
DOWN	5 and 2, 4 and 1	Less than 1 Ω

If NG, replace the sub-switch.

REAR WINDOW DEFOGGER SWITCH

GLASS/WINDOWS/MIRRORS

17.Rear Window Defogger Switch**A: REMOVAL**

<Ref. to AC-29, REMOVAL, Control Unit.>

B: INSTALLATION

<Ref. to AC-29, INSTALLATION, Control Unit.>

C: INSPECTION

Check continuity between connectors at the back of heater control unit.

1. AUTO A/C

Switch position	Terminal No.	Standard
OFF	—	More than 1 M Ω
ON	(i48) 13 and (i49) 12	Less than 1 Ω

2. MANUAL A/C

Switch position	Terminal No.	Standard
OFF	—	More than 1 M Ω
OFF	(i17) 14 and (i17) 10	Less than 1 Ω

GW-31

REAR WINDOW DEFOGGER

GLASS/WINDOWS/MIRRORS

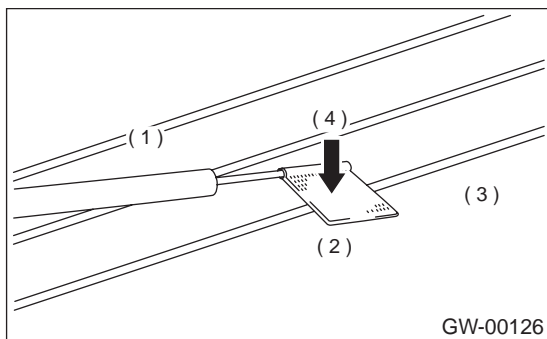
18.Rear Window Defogger

A: INSPECTION

CAUTION:

When wiping stain on glass off with cloth, use a dry and soft cloth and move it in the direction of the heat wire extension to avoid damage to the heat wire.

- 1) Turn ignition switch to ON.
- 2) Turn defogger switch to ON.
- 3) Wrap tips of tester pins with aluminum foil to avoid damage to heat wire.

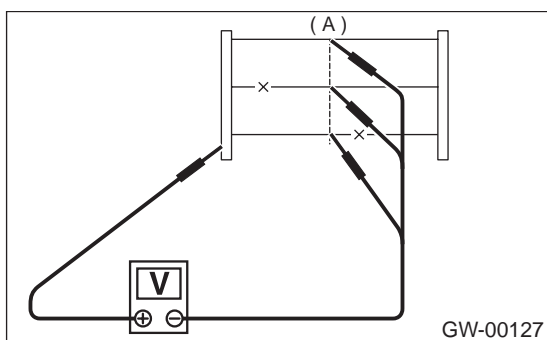


- (1) Tester probe
- (2) Tin foil
- (3) Heat wire
- (4) PRESS

- 4) Measure voltage at wire center (A) with DC voltmeter.

Standard voltage:

Approx. 6 volts



Voltage	Criteria
Approx. 6 V	OK
Approx. 12 V or 0 V	Broken

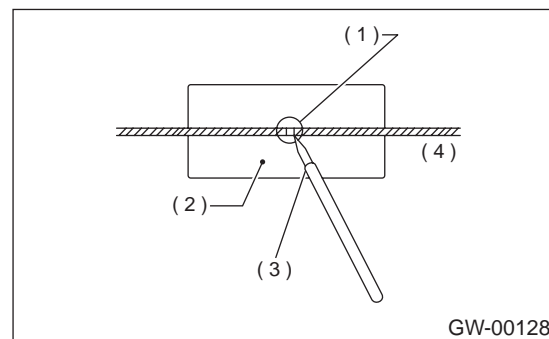
NOTE:

- If the measured value is 12 volts, heat wire is open between wire center and positive (+) end.
- If zero volt, heat wire is open between wire center and ground.

- 5) Apply positive lead of voltmeter to positive terminal of voltmeter, and then move negative lead along the wire up to the negative terminal end. If voltage changes from zero to several volts during movement of lead, heat wire is open at the voltage change point.

B: REPAIR

- 1) Clean broken portion with alcohol or white gasoline.
- 2) Mask both side of wire with thin film.
- 3) Apply conductive silver composition (DUPONT No. 4817) to broken portion.



- (1) Broken portion
- (2) Masking thin film
- (3) Conductive silver composition
- (4) Broken wire

- 4) After repair, check wire.

GW-32

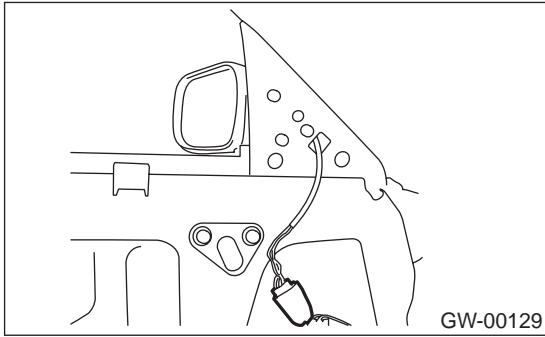
OUTER MIRROR ASSEMBLY

GLASS/WINDOWS/MIRRORS

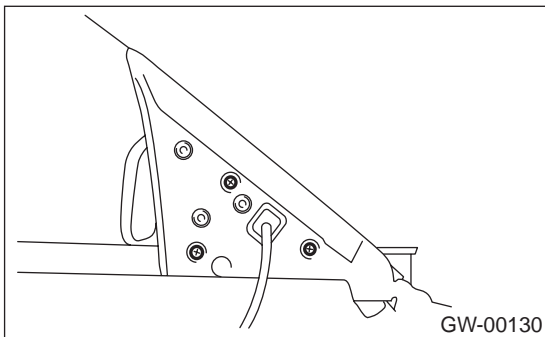
19. Outer Mirror Assembly

A: REMOVAL

- 1) Remove door trim. <Ref. to EI-32, REMOVAL, Front Door Trim.>
- 2) Pull off sealing cover to disconnect mirror electrical connector.



- 3) Loosen screws to remove mirror assembly.



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Check to ensure that rearview mirror moves properly when battery voltage is applied to terminals.

Switch position	Terminal No.
OFF	—
UP	1 (+) and 3 (-)
DOWN	3 (+) and 1 (-)
LEFT	2 (+) and 3 (-)
RIGHT	3 (+) and 2 (-)

If NG, replace the mirror.

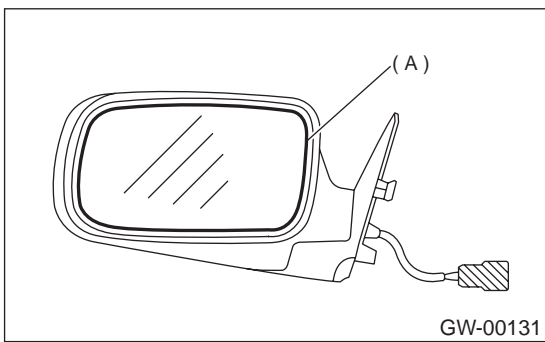
OUTER MIRROR

GLASS/WINDOWS/MIRRORS

20.Outer Mirror

A: REPLACEMENT

- 1) Remove the door mirror assembly. <Ref. to GW-33, REMOVAL, Outer Mirror Assembly.>
- 2) Warm the area around the mirror holder (A) with a hair drier until the edges of the mirror holder become soft (about 2 or 3 minutes with a 1,000 W drier.)
- 3) Use a flat-bladed screwdriver without sharp edges to lift the mirror out of the mirror holder (A). (Also remove the connector from the back of mirrors with heaters.)



- 4) Warm the area around the mirror holder (A) with a hair drier until the edges of the mirror holder (A) become soft (about 2 or 3 minutes with a 1,000 W drier.)
- 5) Remove the backing of the new two-sided tape, and push the mirror in to install it.

CAUTION:

Unless the mirror holder is warmed sufficiently, the mirror holder edges may be damaged or the mirror cracked.

GW-34

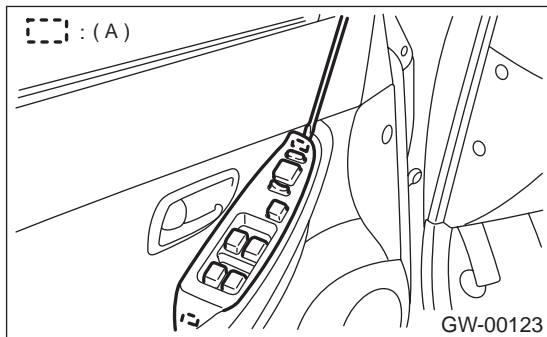
REMOTE CONTROL MIRROR SWITCH

GLASS/WINDOWS/MIRRORS

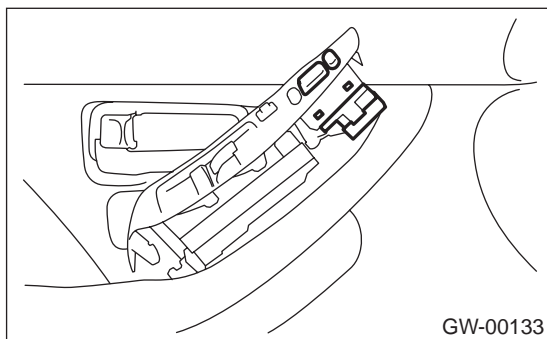
21. Remote Control Mirror Switch

A: REMOVAL

1) Remove power window main switch panel.



2) Remove four hook (A) to remove remote control mirror switch.

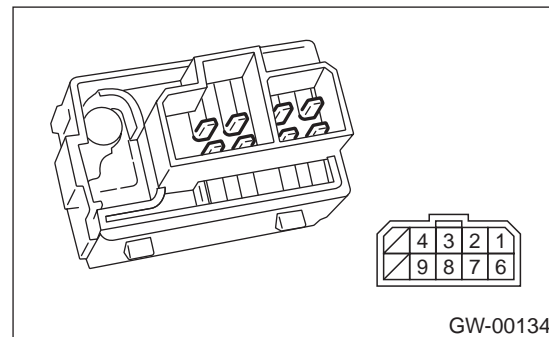


B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Move rearview mirror switch to each position and check continuity between terminals.



Change over switch left position:

Switch position	Terminal No.	Standard
OFF	—	More than 1 MΩ
UP	7 and 4, 2 and 1	Less than 1 Ω
DOWN	7 and 2, 4 and 1	Less than 1 Ω
LEFT	9 and 4, 2 and 1	Less than 1 Ω
RIGHT	9 and 2, 4 and 1	Less than 1 Ω

Change over switch right position:

Switch position	Terminal No.	Standard
OFF	—	More than 1 MΩ
UP	6 and 4, 2 and 1	Less than 1 Ω
DOWN	6 and 2, 4 and 1	Less than 1 Ω
LEFT	8 and 4, 2 and 1	Less than 1 Ω
RIGHT	8 and 2, 4 and 1	Less than 1 Ω

If NG, replace the switch.

WIPER DEICER

GLASS/WINDOWS/MIRRORS

22.Wiper Deicer

A: INSPECTION

Refer to INSPECTION under Rear Window Defogger. <Ref. to GW-32, INSPECTION, Rear Window Defogger.>

B: REPAIR

Refer to REPAIR under Rear Window Defogger. <Ref. to GW-32, REPAIR, Rear Window Defogger.>

GW-36

Vehicle-id:
SIE-id::A:Inspection

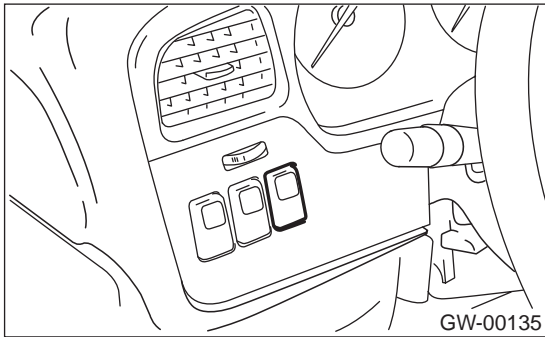
WIPER DEICER SWITCH

GLASS/WINDOWS/MIRRORS

23. Wiper Deicer Switch

A: REMOVAL

Remove driver side switch panel, and then remove wiper deicer switch.



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Move wiper deicer switch to each position and check continuity between terminals.

Switch position	Terminal No.	Standard
OFF	—	More than 1 M Ω
ON	3 and 5	Less than 1 Ω

If NG, replace the switch.

WIPER DEICER SWITCH

GLASS/WINDOWS/MIRRORS

MEMO:

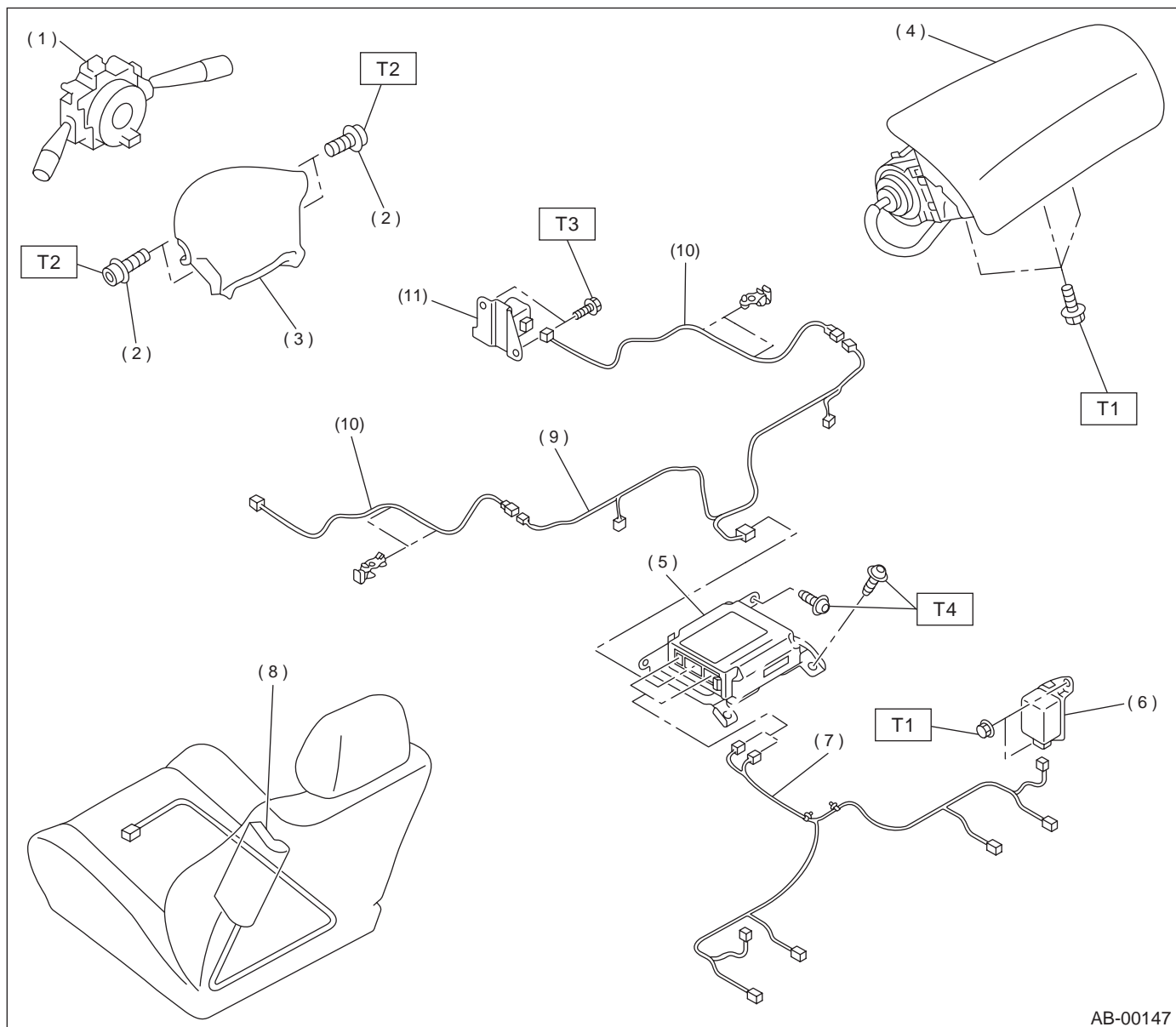
GENERAL DESCRIPTION

AIRBAG SYSTEM

1. General Description

A: COMPONENT

1. SRS AIRBAG



- | | |
|---|-------------------------------|
| (1) Combination switch ASSY with roll connector | (6) Side airbag sensor |
| (2) TORX® bolt T30 | (7) Side airbag harness |
| (3) Airbag module ASSY (Driver) | (8) Side airbag module |
| (4) Airbag module ASSY (Passenger) | (9) Airbag main harness |
| (5) Airbag control module | (10) Front sub sensor harness |
| | (11) Front sub sensor |

Tightening torque: N·m (kgf-m, ft-lb)

T1: 7.4 (0.75, 5.4)

T2: 10 (1.0, 7.2)

T3: 20 (2.0, 14.5)

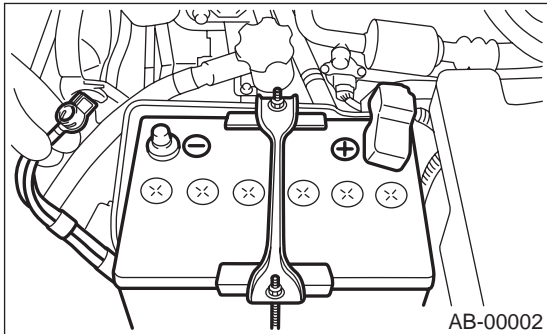
T4: 25 (2.5, 18.1)

GENERAL DESCRIPTION

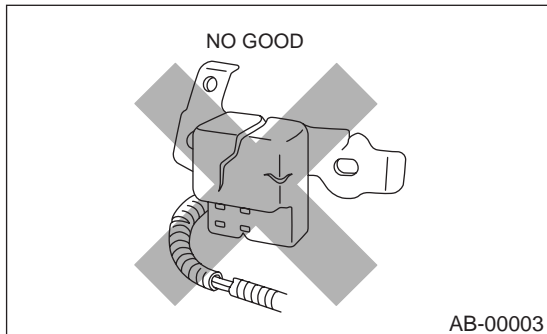
AIRBAG SYSTEM

B: CAUTION

- When servicing a vehicle, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait for more than 20 seconds before starting work.
- The airbag system is fitted with a backup power source. If the airbag system is serviced within 20 seconds after the ground cable is disconnected, it may inflate.

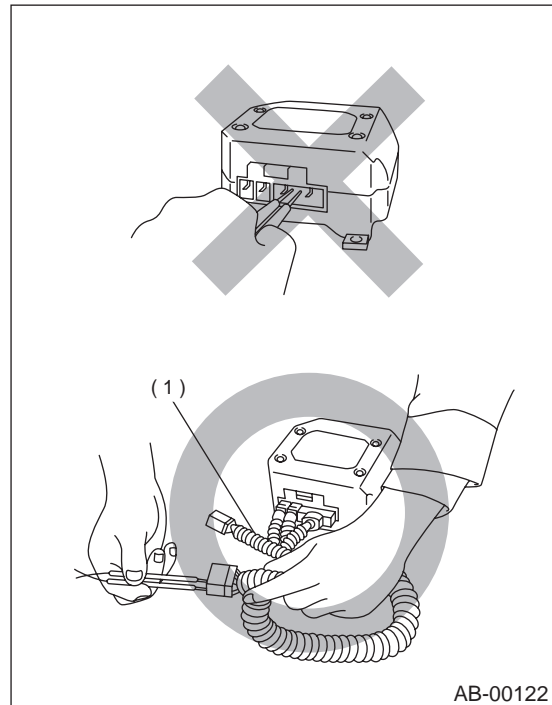
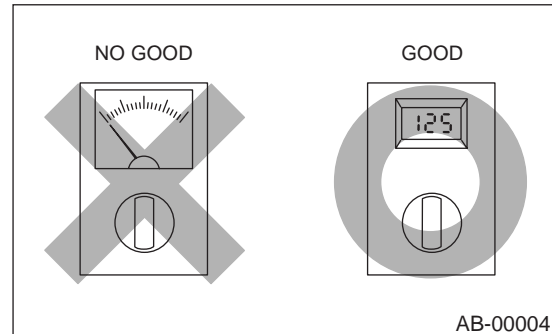


- If sensors, airbag module, airbag control module, pretensioner, and harness are deformed or damaged, replace them with new genuine parts.



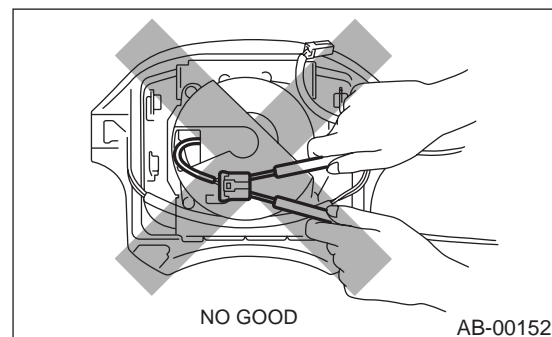
- When checking the system, be sure to use a digital circuit tester. Use of an analog circuit tester may cause the airbag to activate erroneously.

- When checking, use a test harness. Do not directly apply the tester probe to any connector terminal of the airbag.



(1) Test harness

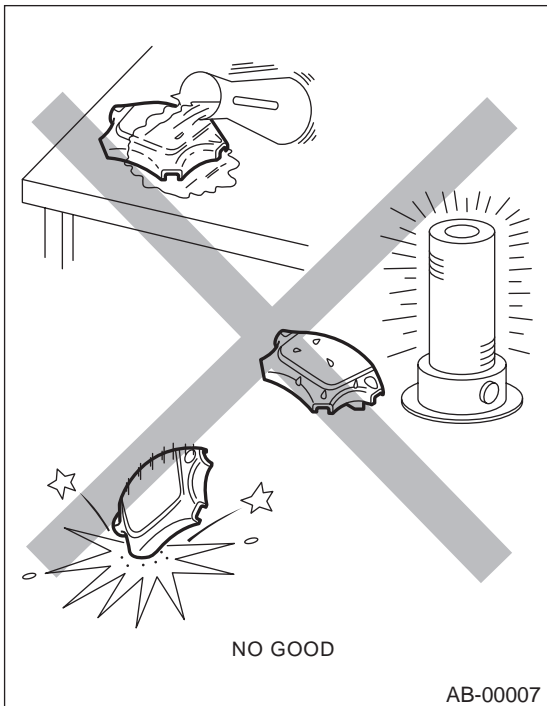
- Do not check continuity of either of the airbag modules for driver, passenger or side, or pretensioner.



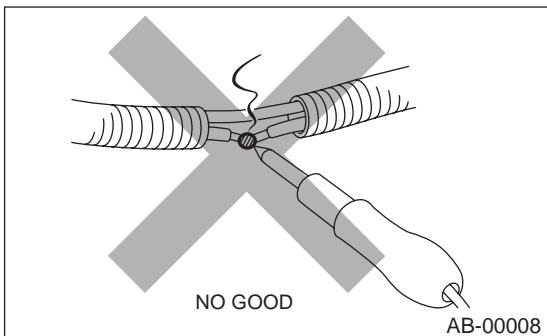
GENERAL DESCRIPTION

AIRBAG SYSTEM

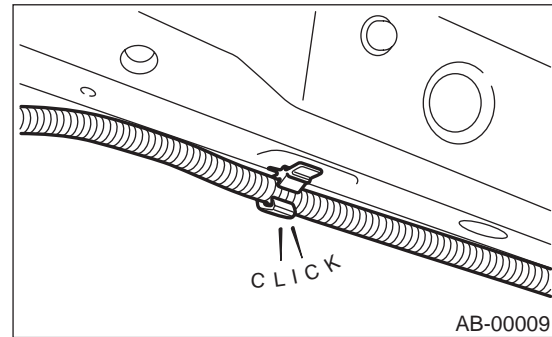
- Do not drop the airbag modulator parts, subject them to high temperature over 93°C (199°F), or let water, oil, or grease get on them; otherwise, the internal parts may be damaged and reliability greatly lowered.



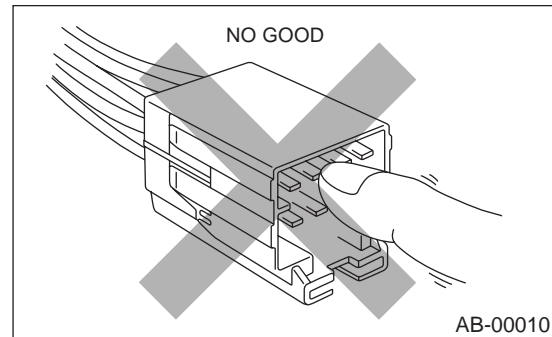
- If any damage, opening, or rust is found on the airbag system wire harness, do not attempt to repair using soldering equipment. Be sure to replace the faulty harness with a new genuine part.



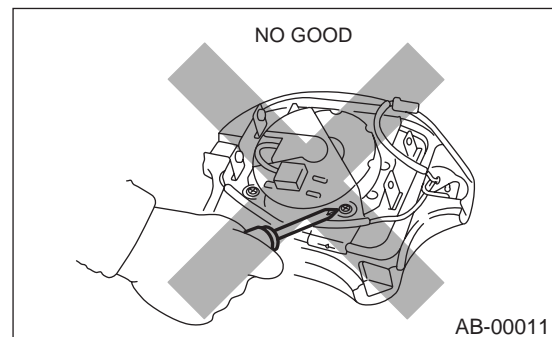
- Install the wire harness securely with the specified clips to avoid interference or tangled up with other parts.



- Do not allow water or oil to come in contact with the connector terminals. Do not touch the connector terminals.



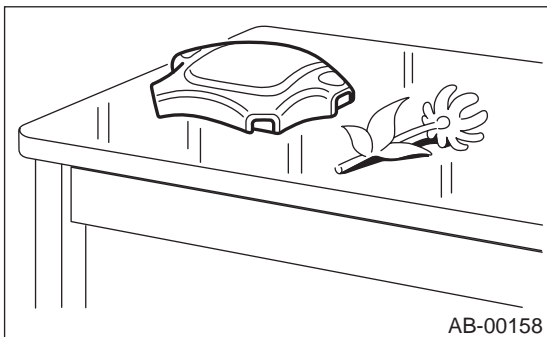
- Either of the airbag parts, or pretensioner must not be disassembled.



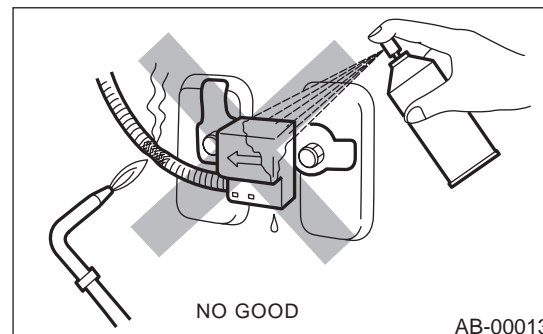
GENERAL DESCRIPTION

AIRBAG SYSTEM

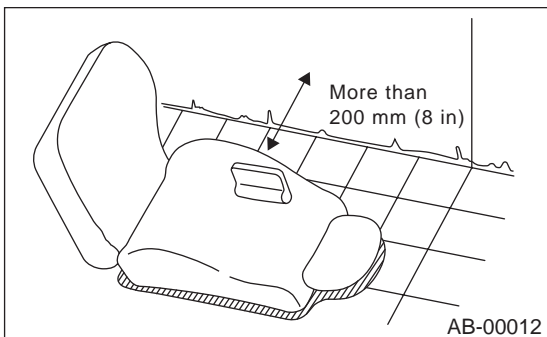
- After removal, keep the airbag module with the pad facing upward on a dry, clean, and flat surface away from heat and light sources, and moisture and dust.



of the welding burner directly to the side airbag sensors and wire harness of the airbag system.



- The removed front seat with the airbag module must be kept at least 200 mm (8 in) away from walls and other objects.



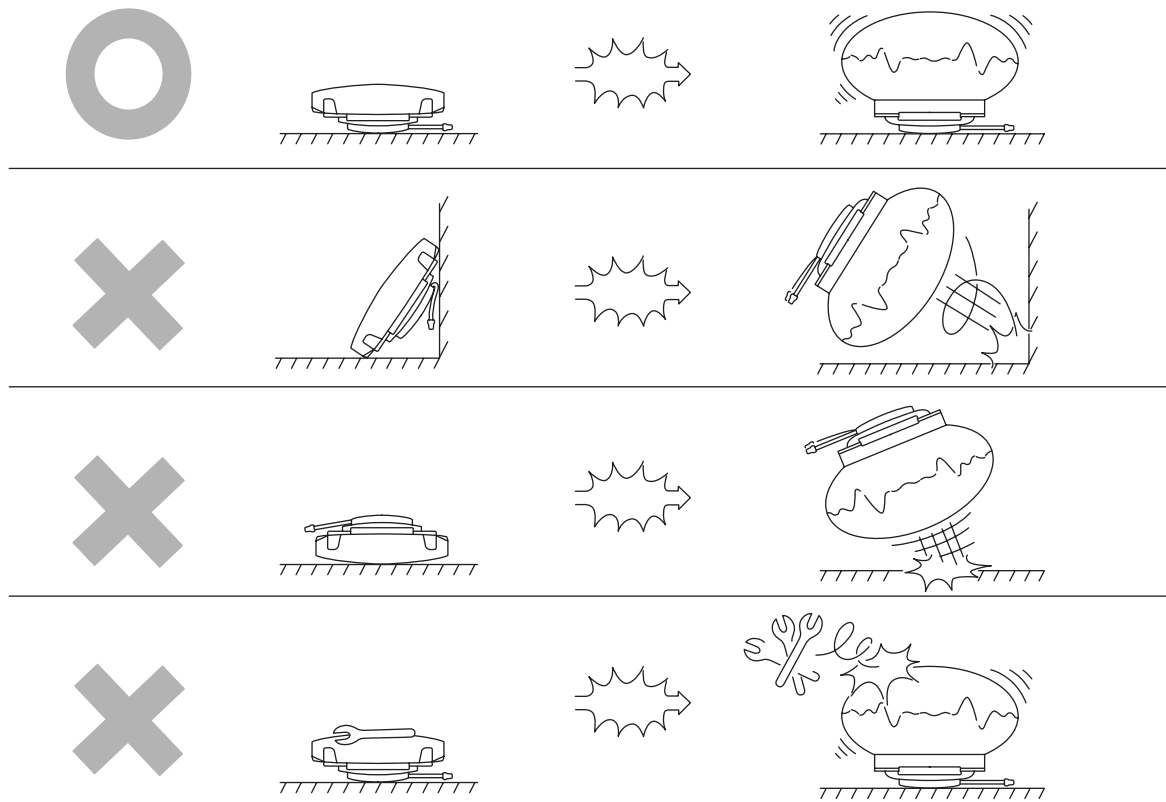
- Do not use the airbag or pretensioner parts from other vehicles. Always replace defective parts with new parts.
- Never re-use a deployed airbag or pretensioner.
- When painting or performing sheet metal work on the front part of the vehicle, including the front wheel apron, front fender, and front side frame, remove parts and take utmost care not to apply paint or the flame of the welding burner directly to the front sub sensors and wire harness of the airbag system.
- When painting or performing sheet metal work on the side of the vehicle, including the side sill, center pillar, and front and rear doors, remove parts and take utmost care not to apply paint or the flame

GENERAL DESCRIPTION

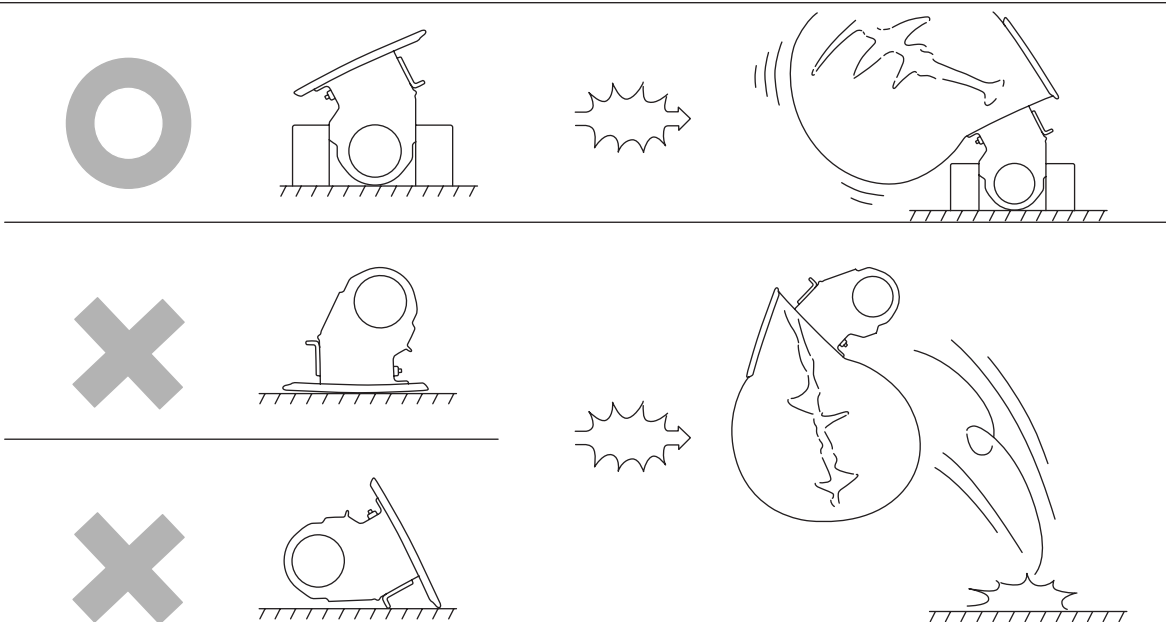
AIRBAG SYSTEM

- When storing a removed airbag module, do not place any objects on it or pile airbag modules on top of each other. If the airbag inflates for some reason when it is placed with its pad side facing downward or under any object, a serious accident may result.

(1)



(2)



AB-00130

(1) Driver side

(2) Passenger side

GENERAL DESCRIPTION

AIRBAG SYSTEM

C: PREPARATION TOOL

1. GENERAL TOOL

TOOL NAME	REMARKS
TORX® T30	Used for removal/installation of drivers airbag module

AIRBAG CONNECTOR

AIRBAG SYSTEM

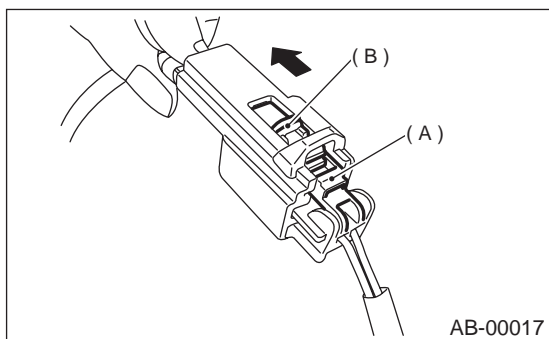
2. Airbag Connector

A: OPERATION

1. DRIVER'S AIRBAG, PASSENGER'S AIRBAG, SIDE AIRBAG, FRONT SUB SENSOR HARNESS TO AIRBAG MAIN HARNESS AND PRETENSIONER

• How to disconnect:

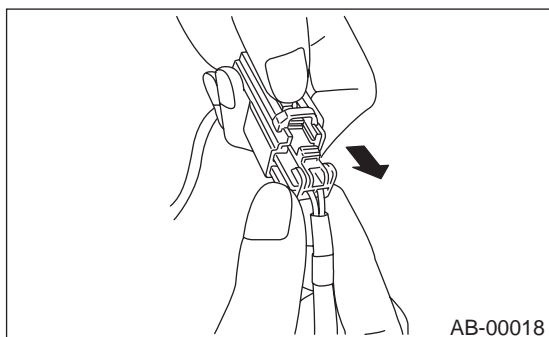
- 1) Push lock arm (A).
- 2) With lock arm (A) pushed in, move slide lock (B) in the direction of the arrow.



- 3) With slide lock (B) pulled, remove lock arm (A) to its original position, and then pull in the direction of the arrow and separate the connector.

CAUTION:

When pulling, be sure to hold onto the connector and not the wire.

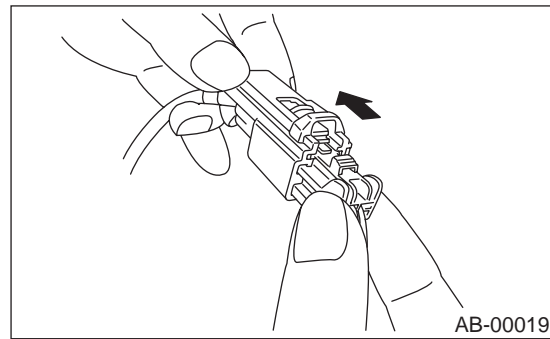


• How to connect:

Holding the connector, and push it in carefully until a connecting sound is heard.

CAUTION:

Be sure to insert the connector in until it locks. Then pull on it gently to make sure that it is locked.



AIRBAG CONNECTOR

AIRBAG SYSTEM

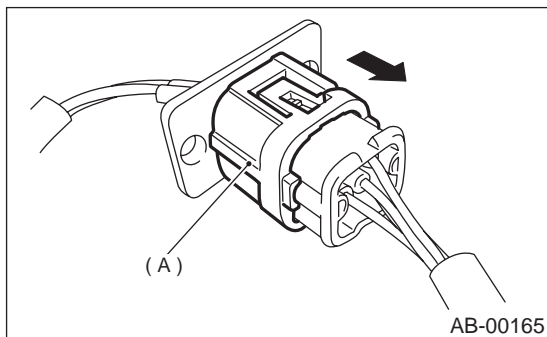
2. FRONT SUB-SENSOR, SIDE AIRBAG SENSOR

• How to disconnect:

1) Holding outer part (A), pull it in the direction of the arrow.

CAUTION:

When pulling, be sure to hold onto the connector and not the wire.

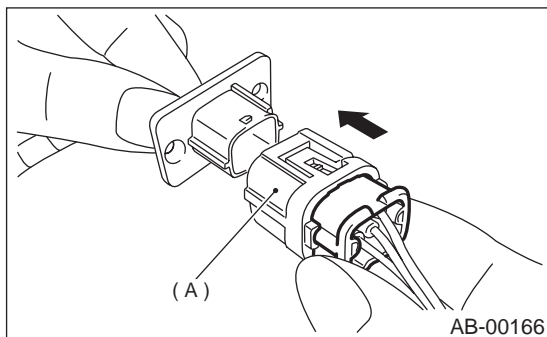


• How to connect:

Holding the connector, and push it in carefully until a connecting sound is heard.

CAUTION:

- Outer (A) moves back, and so do not put your hand on the outer part.
- Be sure to insert the connector in until it locks. Then pull on it gently to make sure that it is locked.



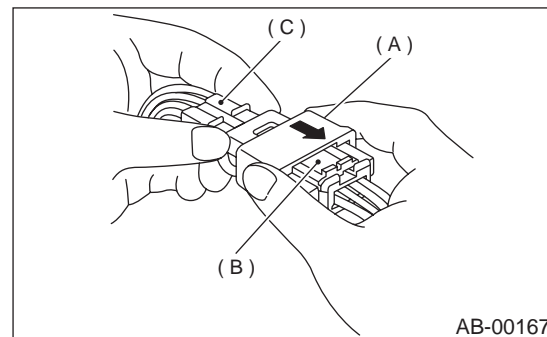
3. PASSENGER'S AIRBAG

• How to disconnect:

Holding female connector (C) in one hand, use your other hand to pull slide lock (A) in the direction of the arrow.

CAUTION:

When pulling, be sure to hold onto the slide lock and not the male connector or wire.



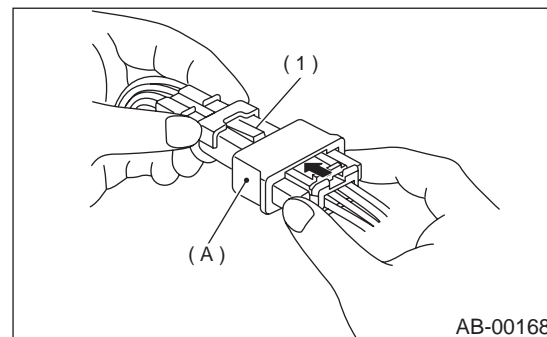
• How to connect:

1) Insert female connector (C) over male connector socket (B), and push slide lock (A) into the female connector tabs.

CAUTION:

Do not hold onto the slide lock.

2) If the male connector socket is pushed too hard, slide lock (A) will go past slide lock (A) tabs and connect.



(1) Hook

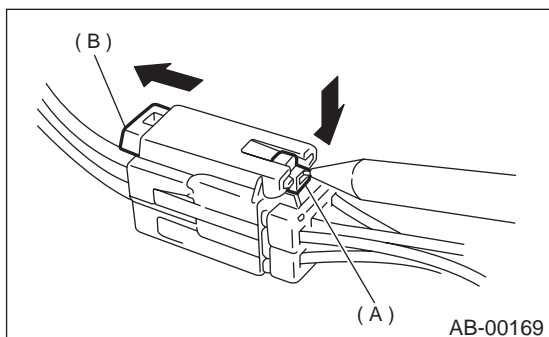
AIRBAG CONNECTOR

AIRBAG SYSTEM

4. AIRBAG MAIN HARNESS TO BODY HARNESS CONNECTOR

1) How to disconnect:

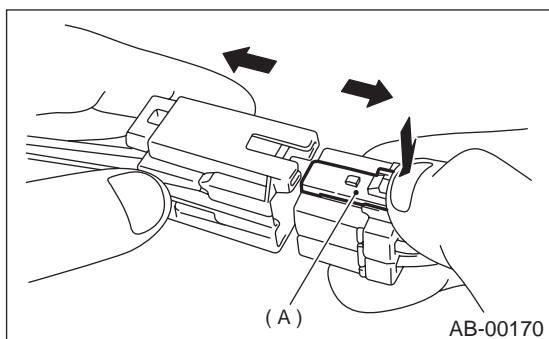
- (1) Push lock arm (A) to let green lever (B) pop out.



- (2) Then separate the connector halves by pulling them apart while pressing lever (A).

CAUTION:

When pulling, be sure to hold onto the connector and not the wire.



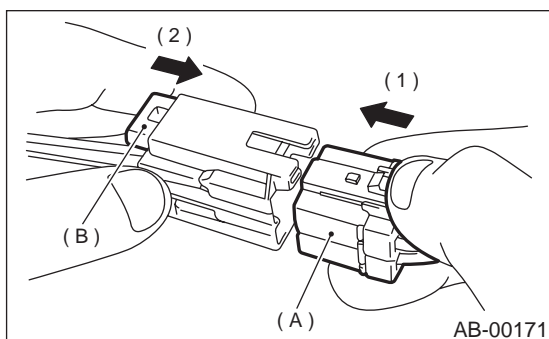
2) How to connect:

- (1) Insert the (A) connector half into the other until a “click” is heard.
- (2) Push in green lever (B) until a “click” is heard.

This engages the double lock mechanism.

CAUTION:

Be sure to insert the connector in until it locks. Then pull on it gently to make sure that it is locked.



INSPECTION LOCATIONS AFTER A COLLISION

AIRBAG SYSTEM

3. Inspection Locations After a Collision

A: INSPECTION

If the vehicle is involved in a collision on any side, even if it is a slight collision, be sure to check the following system parts.

1. AIRBAG MODULE (DRIVER)

1) Check for the following, and replace damaged parts with new parts.

- Airbag module is cracked or deformed.
- Harness and/or connector is cracked, deformed or open. Lead wire is exposed.
- Mounting bracket is cracked or deformed.
- The module surface is fouled with grease, oil, water or cleaning solvent.

2) When installing a new driver's airbag module, check the following. If necessary, install a new airbag module and steering wheel.

- The steering wheel is in the way, making it difficult to install the airbag module.
- The clearance between the driver's airbag module and steering wheel is not constant.
- Free play of the steering wheel is over specifications in axial and radial directions.

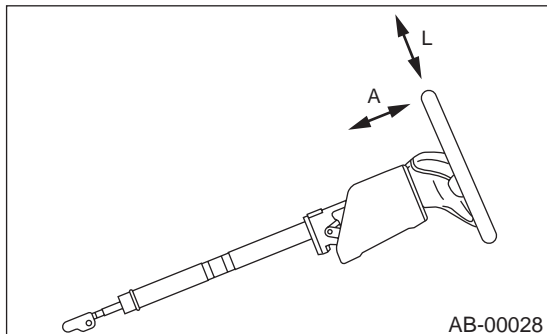
Specifications:

Height deflection A

Less than 6 mm (0.24 in)

O.D. deflection L

Less than 7 mm (0.28 in)



2. AIRBAG MODULE (PASSENGER)

Check for the following, and replace damaged parts with new parts.

- Airbag module is cracked or deformed.
- Harness and/or connector is cracked, deformed or open. Lead wire is exposed.
- Mounting bracket is cracked or deformed.
- The module surface is fouled with grease, oil, water or cleaning solvent.

3. AIRBAG MODULE (SIDE)

Check for the following, and replace damaged parts with new parts.

- Front seat is damaged or deformed.
- Harness and/or connector is cracked, deformed or open.
- Lead wire is exposed.

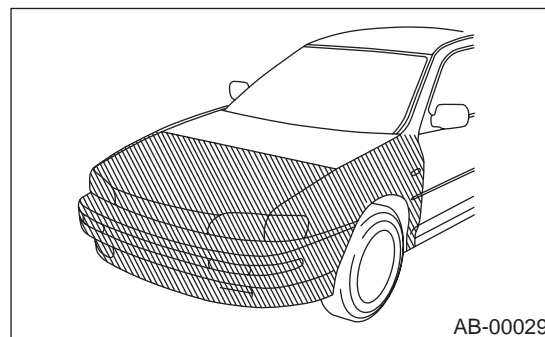
4. AIRBAG CONTROL MODULE

Check for the following, and replace damaged parts with new parts.

- Control module is cracked or deformed.
- Mounting bracket is cracked or deformed.
- Connector is scratched or deformed.
- Airbag is deployed.
- Side airbag is deployed.

5. FRONT SUB SENSOR

If the front section of vehicle as shown in the figure is damaged:



Check for the following, and replace damaged parts with new parts.

- Front sub sensor is cracked or deformed.
- Mounting bracket is cracked or deformed.
- Connector is scratched or cracked.
- Airbag is deployed.

6. FRONT SUB SENSOR HARNESS

Check for the following, and replace damaged parts with new parts.

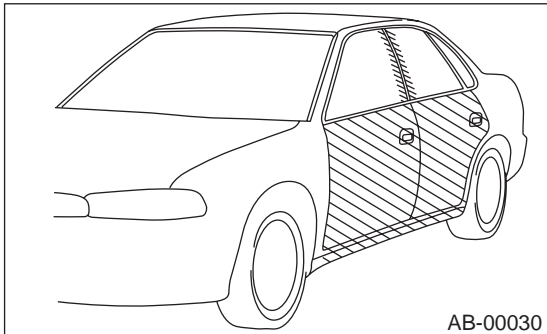
- Harness is open, lead wire is exposed, and corrugated tube is noticeably cracked.
- Connector is scratched or cracked.

INSPECTION LOCATIONS AFTER A COLLISION

AIRBAG SYSTEM

7. SIDE AIRBAG SENSOR

If the side section of vehicle as shown in the figure is damaged:



Check for the following, and replace damaged parts with new parts.

- Side airbag sensor is cracked or deformed.
- Mounting bracket is cracked or deformed.
- Connector is scratched or cracked.
- Side airbag is deployed. (operating side)

8. SIDE AIRBAG SENSOR HARNESS

Check for the following, and replace damaged parts with new parts.

- Harness is open, lead wire is exposed, and corrugated tube is noticeably cracked.
- Connector is scratched or cracked.

9. MAIN HARNESS

Check for the following, and replace damaged parts with new parts.

- Harness is open, lead wire is exposed, and corrugated tube is noticeably cracked.
- Connector is scratched or cracked.

10. ROLL CONNECTOR

Check for the following, and replace damaged parts with new parts.

- Combination switch or steering roll connector is cracked or deformed.

11. STEERING SHAFT

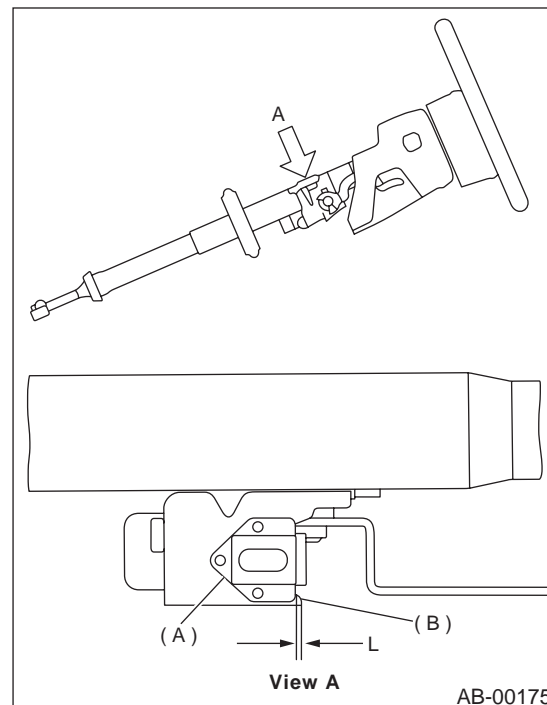
Check for the following, and replace damaged parts with new parts.

The clearance between capsule (A) and tip of column bracket (B) on steering column upper side should be within specifications.

Specifications:

Clearance between capsule and tip of column bracket L

More than 1.3 mm (0.051 in)



If necessary, replace them with new parts.

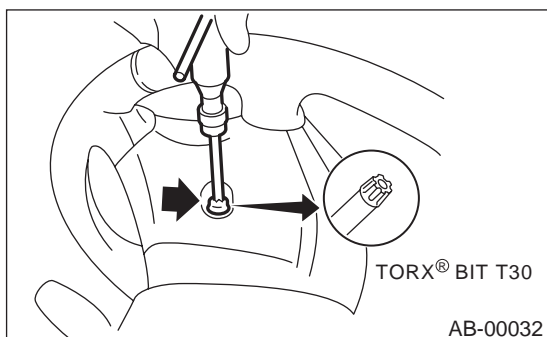
4. Driver's Airbag Module

A: REMOVAL

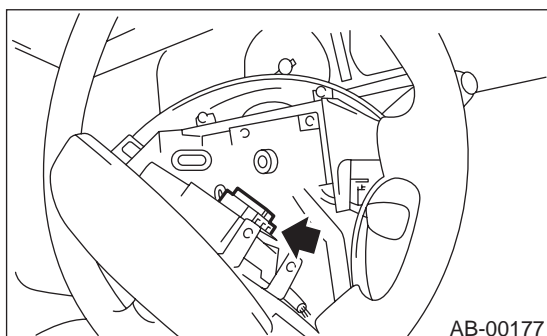
CAUTION:

Refer to "CAUTION" in General Description before handling the airbag module. <Ref. to AB-3, CAUTION, GENERAL DESCRIPTION.>

- 1) Position front wheels straight ahead. (After moving a vehicle more than 5 m (16 ft) with front wheels positioned straight ahead, make sure that the vehicle moves straight ahead).
- 2) Turn ignition switch OFF.
- 3) Disconnect the ground cable from the battery, and wait for at least 20 seconds before starting work.
- 4) Using TORX® BIT T30, remove two TORX® bolts on side of steering wheel.



- 5) Disconnect airbag connector on back of airbag module, and then remove airbag module.



- 6) Refer to "CAUTION" for handling of a removed airbag module. <Ref. to AB-3, CAUTION, GENERAL DESCRIPTION.>

B: INSTALLATION

- 1) Install in the reverse order of removal.

CAUTION:

Do not allow harness and connectors to interfere or get tangled up with other parts.

C: INSPECTION

CAUTION:

Refer to "CAUTION" in General Description before handling the airbag module. <Ref. to AB-3, CAUTION, GENERAL DESCRIPTION.>

Check for the following, and replace damaged parts with new parts.

- Airbag module, harness, connector, and mounting bracket are damaged.

PASSENGER'S AIRBAG MODULE

AIRBAG SYSTEM

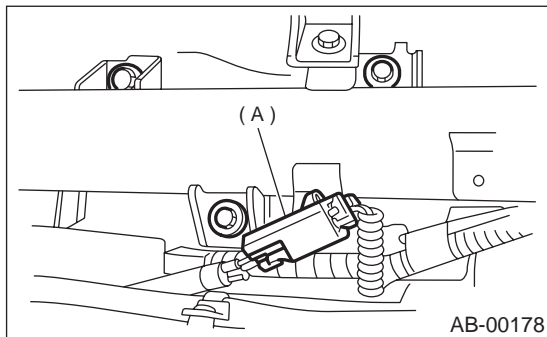
5. Passenger's Airbag Module

A: REMOVAL

CAUTION:

Refer to "CAUTION" in General Description before handling the airbag module. <Ref. to AB-3, CAUTION, GENERAL DESCRIPTION.>

- 1) Turn ignition switch OFF.
- 2) Disconnect the ground cable from the battery, and wait for at least 20 seconds before starting work.
- 3) Remove glove box. <Ref. to EI-34, REMOVAL, Glove Box.>
- 4) Disconnect airbag connector (A), and then detach airbag connector from support beam bracket.
- 5) Remove three bolts, and then carefully remove airbag module.



- 6) Refer to "CAUTION" for handling of a removed airbag module. <Ref. to AB-3, CAUTION, GENERAL DESCRIPTION.>

B: INSTALLATION

Install in the reverse order of removal.

CAUTION:

Do not allow harness and connectors to interfere or get tangled up with other parts.

C: INSPECTION

CAUTION:

Refer to "CAUTION" in General Description before handling the airbag module. <Ref. to AB-3, CAUTION, GENERAL DESCRIPTION.>

Check for the following, and replace damaged parts with new parts.

- Airbag module, harness, connector, and mounting bracket are damaged.

SIDE AIRBAG MODULE

AIRBAG SYSTEM

6. Side Airbag Module

A: REMOVAL

CAUTION:

- Refer to “CAUTION” in General Description before handling the airbag module. <Ref. to AB-3, CAUTION, GENERAL DESCRIPTION.>
- The side airbag module cannot be detached from the front seat assembly.
- When replacing side airbag module, replace front seat assembly.
<Ref. to SE-7, REMOVAL, Front Seat.>

B: INSTALLATION

<Ref. to SE-8, INSTALLATION, Front Seat.>

C: INSPECTION

CAUTION:

Refer to “CAUTION” in General Description before handling the airbag module. <Ref. to AB-3, CAUTION, GENERAL DESCRIPTION.>

Check for the following, and replace damaged parts with new parts.

- Front seat is deformed or damaged.
- Harness and/or connector is cracked, deformed or open.
- Lead wire is exposed.

AB-15

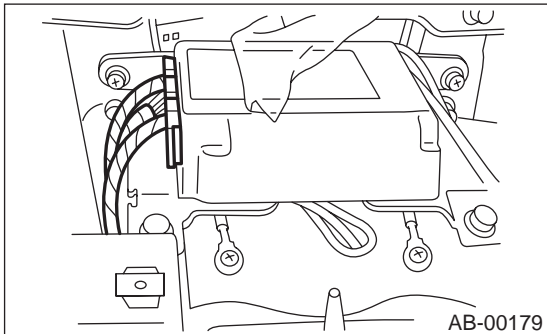
MAIN HARNESS

AIRBAG SYSTEM

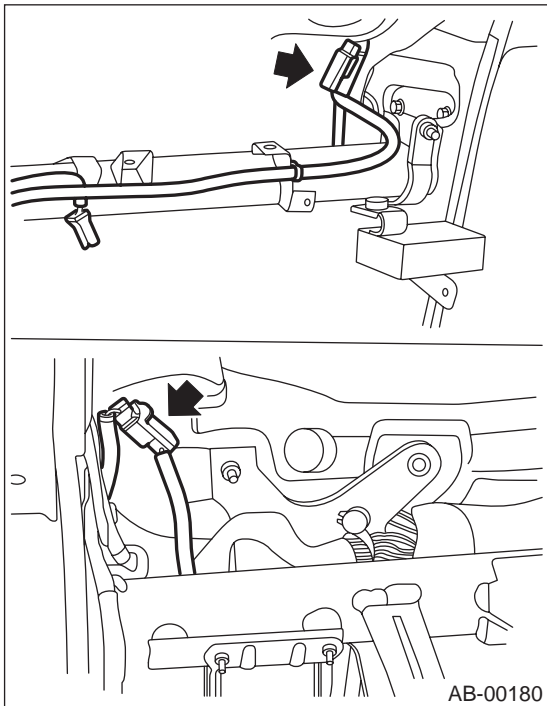
7. Main Harness

A: REMOVAL

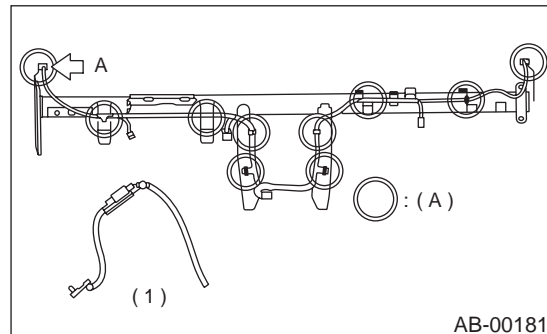
- 1) Turn ignition switch OFF.
- 2) Disconnect the ground cable from the battery and wait for at least 20 seconds before starting work.
- 3) Remove instrument panel. <Ref. to EI-37, REMOVAL, Instrument Panel Assembly.>
- 4) Disconnect connector from airbag control module.



- 5) Disconnect front sub sensor connector (blue) from airbag main harness.



- 6) Detach clips (A) from steering support beam, and remove main harness.



(1) View A

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

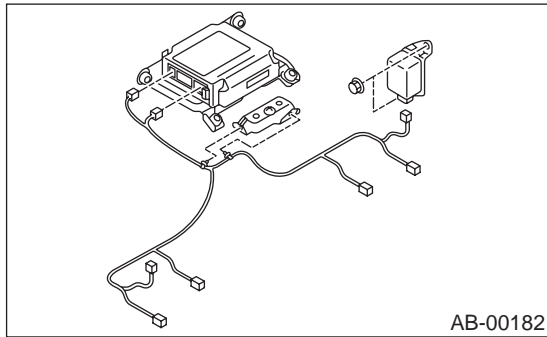
Check for the following, and replace damaged parts with new parts.

- Harness and/or connector is damaged.

8. Side Airbag Harness

A: REMOVAL

- 1) Turn ignition switch OFF.
- 2) Disconnect the ground cable from the battery, and wait for at least 20 seconds before starting work.
- 3) Remove front seat. <Ref. to SE-7, REMOVAL, Front Seat.>
- 4) Remove console box. <Ref. to EI-36, REMOVAL, Console Box.>
- 5) Roll up floor mat, and then disconnect two 12-pin yellow connectors from airbag control module.
- 6) Disconnect connector from side airbag sensor. <Ref. to AB-19, REMOVAL, Side Airbag Sensor.>
- 7) Detach clips, and then remove side airbag harness.



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Check for the following, and replace damaged parts with new parts.

- Harness and/or connector is damaged.

AIRBAG CONTROL MODULE

AIRBAG SYSTEM

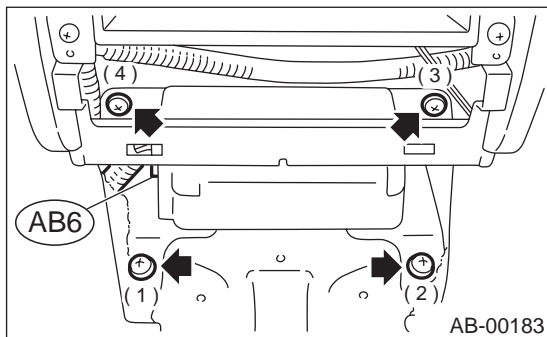
9. Airbag Control Module

A: REMOVAL

CAUTION:

- Do not disassemble the airbag control module.
- If the airbag control module is deformed or if water damage is suspected, replace the airbag control module with a new genuine part.
- Do not drop the airbag control module.
- After removal, keep the airbag control module on a dry, clean surface away from moisture, heat, and dust.

- 1) Turn ignition switch OFF.
- 2) Disconnect the ground cable from the battery, and wait for at least 20 seconds before starting work.
- 3) Remove console box. <Ref. to EI-36, REMOVAL, Console Box.>
- 4) Disconnect connector from airbag control module.
- 5) Remove four airbag control module mounting bolts in the order shown in the figure.



B: INSTALLATION

CAUTION:

Use new mounting bolts during re-assembly.
Install in the reverse order of removal.

C: INSPECTION

Check for the following, and replace damaged parts with new parts.

- Control module, connector, and mounting bracket are damaged.
- Airbag is deployed.
- Side airbag is deployed.

10.Side Airbag Sensor

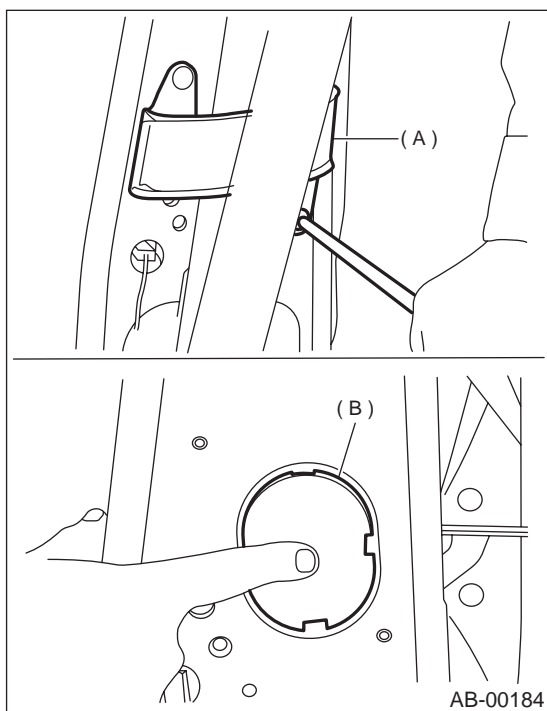
A: REMOVAL

- 1) Turn ignition switch OFF.
- 2) Disconnect the ground cable from the battery, and wait for at least 20 seconds before starting work.
- 3) Remove center pillar lower trim. <Ref. to EI-42, REMOVAL, Lower Inner Trim.>
- 4) Remove Outer Belt (FRONT). <Ref. to SB-7, REMOVAL, Front Seat Belt.>
- 5) Remove bracket (A), and then remove cap (B).

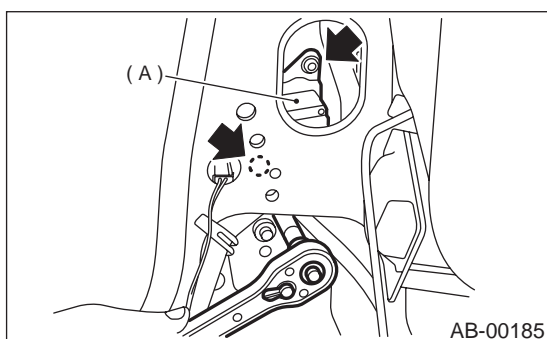
C: INSPECTION

Check for the following, and replace damaged parts with new parts.

- Bracket connector for side airbag sensor is damaged.



- 6) Remove two mounting nuts, and then detach side airbag sensor (A).



B: INSTALLATION

CAUTION:

Use new mounting nuts during re-assembly.
Install in the reverse order of removal.

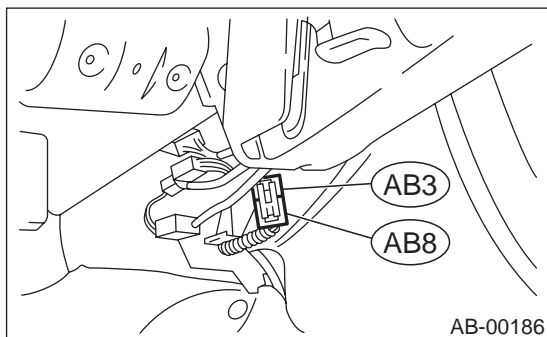
ROLL CONNECTOR

AIRBAG SYSTEM

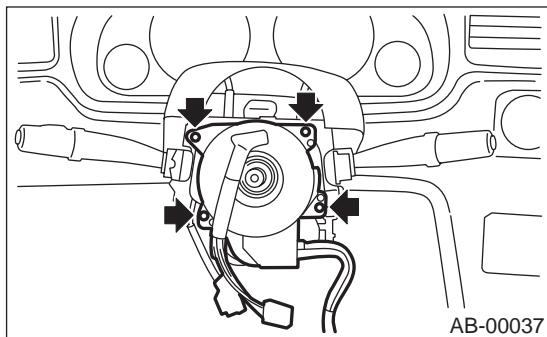
11.Roll Connector

A: REMOVAL

- 1) Turn ignition switch OFF.
- 2) Disconnect the ground cable from the battery, and wait for at least 20 seconds before starting work.
- 3) Remove instrument panel lower cover.
- 4) Disconnect airbag connector (AB3) and (AB8) below steering column.



- 5) Remove driver's airbag module. <Ref. to AB-13, Driver's Airbag Module.>
- 6) Remove steering wheel. <Ref. to PS-18, REMOVAL, Steering Wheel.>
- 7) Remove steering column cover.
- 8) Remove screws, and then remove roll connector.



B: INSTALLATION

Install in the reverse order of removal.

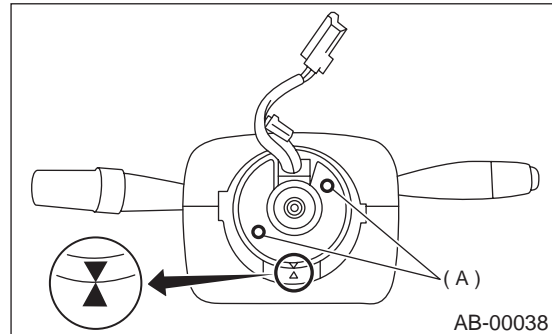
C: INSPECTION

Check for the following, and replace damaged parts with new parts.

- Combination switch and roll connector is cracked or deformed.

D: ADJUSTMENT

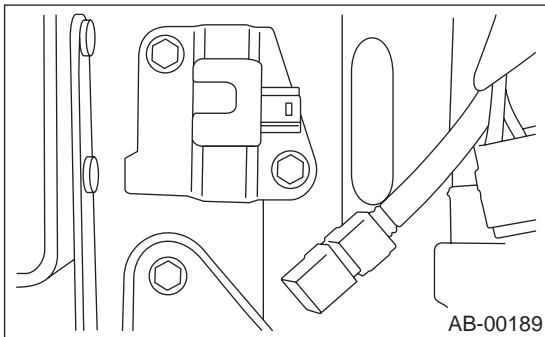
- 1) Check that front wheels are positioned in straight ahead direction.
- 2) Turn roll connector pin (A) clockwise until it stops.
- 3) Turn roll connector pin (A) counterclockwise approximately 2.65 turns until "▲" marks are aligned.



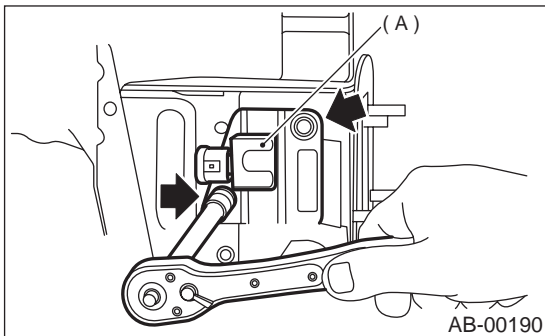
12. Front Sub Sensor

A: REMOVAL

- 1) Turn ignition switch OFF.
- 2) Disconnect the ground cable from the battery, and wait for at least 20 seconds before starting work.
- 3) Remove front bumper. <Ref. to EI-14, REMOVAL, Front Bumper.>
- 4) Disconnect connector from front sub sensor.



- 5) Remove front sub sensor (A).



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Check for the following, and replace damaged parts with new parts.

- Front sub sensor, mounting bracket, and connector are damaged.

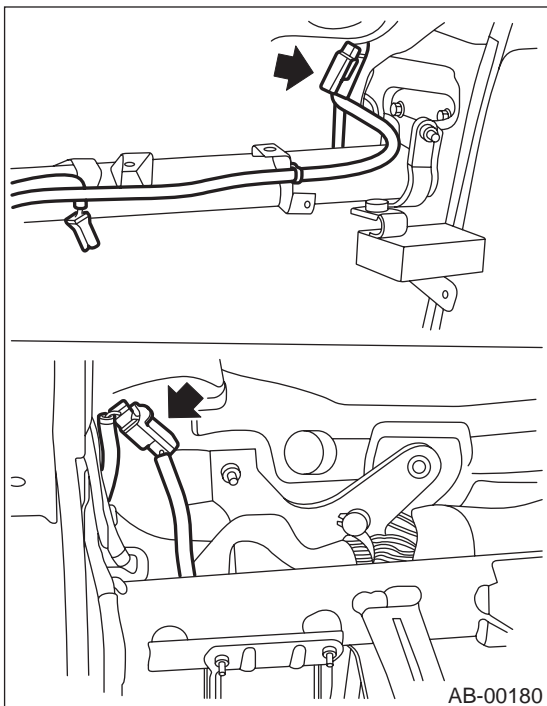
FRONT SUB SENSOR HARNESS

AIRBAG SYSTEM

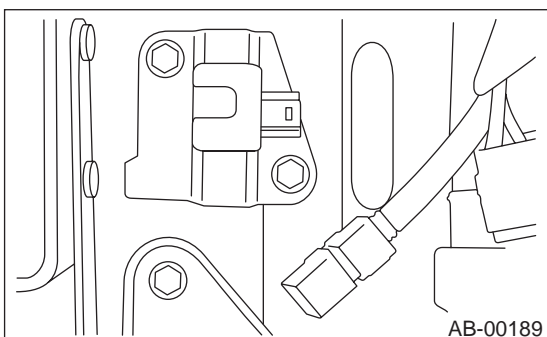
13. Front Sub Sensor Harness

A: REMOVAL

- 1) Turn ignition switch OFF.
- 2) Disconnect the ground cable from the battery, and wait for at least 20 seconds before starting work.
- 3) Remove instrument panel. <Ref. to EI-37, REMOVAL, Instrument Panel Assembly.>
- 4) Disconnect front sub sensor connector (blue) from airbag main harness.

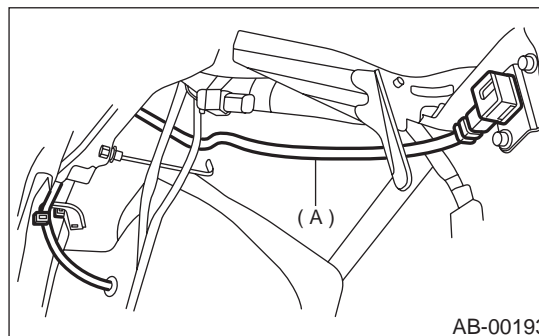


- 5) Remove front bumper. <Ref. to EI-14, REMOVAL, Front Bumper.>
- 6) Disconnect connector from front sub sensor.



- 7) Remove wiring harness clips.

- 8) Remove grommet, and then detach front sub sensor harness (A).



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Check for the following, and replace damaged parts.

- Harness and/or connector is damaged.

BASIC DIAGNOSTIC PROCEDURE

AIRBAG SYSTEM (DIAGNOSTICS)

1. Basic Diagnostic Procedure

A: PROCEDURE

Step	Value	Yes	No
1 Read DTC. <Ref. to AB-20, Read Diagnostic Trouble Code (DTC).> Is the normal code being detected?	Normal code detected.	Finish the diagnosis.	Go to step 2.
2 Read DTC. <Ref. to AB-20, Read Diagnostic Trouble Code (DTC).> Is the DTC being detected?	DTC detected.	Go to step 3.	Go to "Airbag Warning Light Failure".<Ref. to AB-24, Airbag Warning Light Failure.>
3 Perform the diagnosis. 1) Judge the possible cause from "List of Diagnostic Trouble Code (DTC)" <Ref. to AB-28, List of Diagnostic Trouble Code (DTC).> . 2) Inspect using "Diagnostic Chart with Diagnostic Trouble Code (DTC)". 3) Repair the cause of the trouble. 4) Perform the clear memory mode. <Ref. to AB-22, Clear Memory Mode.> 5) Perform the inspection mode. <Ref. to AB-21, Inspection Mode.> 6) Read DTC. Is the DTC being detected?	DTC detected.	Perform the procedure 1) to 5) in step 3.	Finish the diagnosis.

AB-2

CHECK LIST FOR INTERVIEW

AIRBAG SYSTEM (DIAGNOSTICS)

2. Check List for Interview

A: CHECK

Customer's Name		Inspector's Name	
Date Vehicle Brought In	/ /	Registration No.	
Odometer Reading	km Miles	Vin No.	
Date Problem Occurred	/ /	Registration Year	/ /
Weather	<input type="checkbox"/> Fine <input type="checkbox"/> Cloudy <input type="checkbox"/> Rainy <input type="checkbox"/> Snowy <input type="checkbox"/> Other:		
Temperature	°C (°F)		
Road Condition	<input type="checkbox"/> Level road <input type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input type="checkbox"/> Rough road <input type="checkbox"/> Others:		
Vehicle Operation	<input type="checkbox"/> Driving (<input type="checkbox"/> Constant Speed <input type="checkbox"/> Acceleration <input type="checkbox"/> Deceleration) <input type="checkbox"/> Starting <input type="checkbox"/> Idling <input type="checkbox"/> Steering wheel turn <input type="checkbox"/> Other:		
Details of Problem			
Check Airbag Warning Light	<input type="checkbox"/> Remains ON <input type="checkbox"/> Remains OFF		
Check DTC	<input type="checkbox"/> Normal Code <input type="checkbox"/> Trouble Code: (Code:)		

AB-3

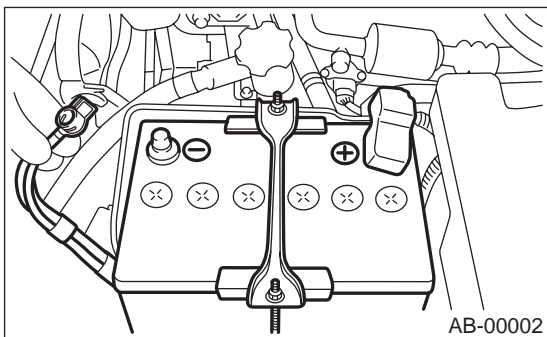
GENERAL DESCRIPTION

AIRBAG SYSTEM (DIAGNOSTICS)

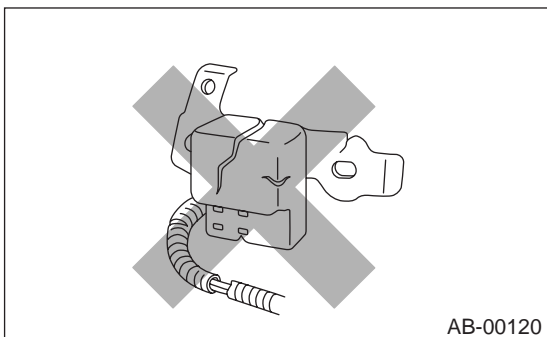
3. General Description

A: CAUTION

- When servicing a vehicle, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait for more than 20 seconds before starting work.
- The airbag system is fitted with a backup power source. If the airbag system is serviced within 20 seconds after the ground cable is disconnected, it may inflate.

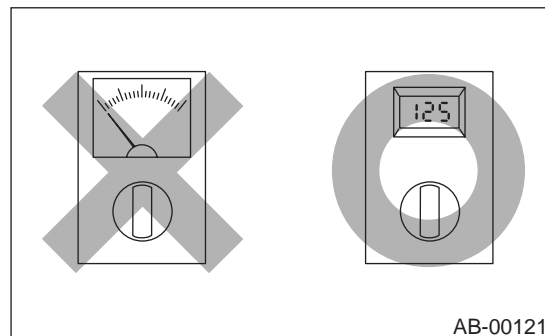


- If the airbag warning light illuminates, repair the vehicle immediately. Airbag or pretensioner may inflate incorrectly, or not inflate in collision.
- If sensors, airbag module, airbag control module pretensioner, and harness are deformed or damaged, replace them with new genuine parts.
- Do not use the airbag system and pretensioners on other vehicles. When replacing parts, be sure to replace them with new parts.

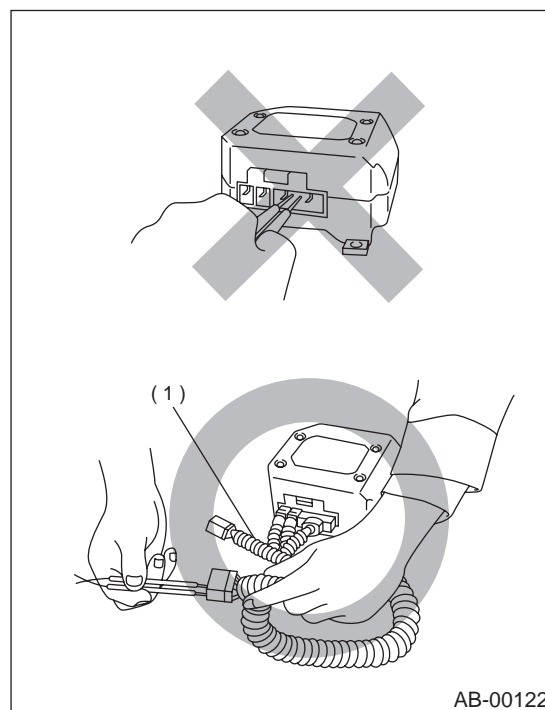


- When checking the system, be sure to use a digital circuit tester.

Use of an analog circuit tester may cause the airbag to activate erroneously.



- When checking, use a test harness. Do not directly apply the tester probe to any connector terminal of the airbag.



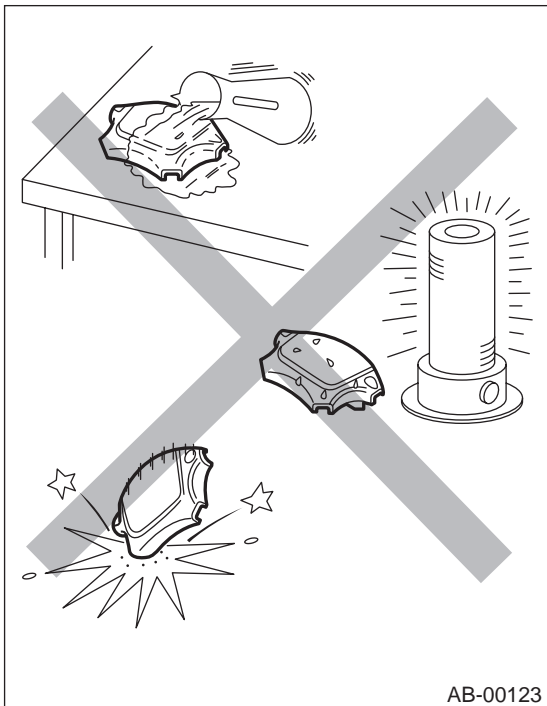
(1) Test harness

- Do not drop the airbag modulator parts, subject them to high temperature over 93°C (199°F), or let water, oil, or grease get on them; otherwise, the in-

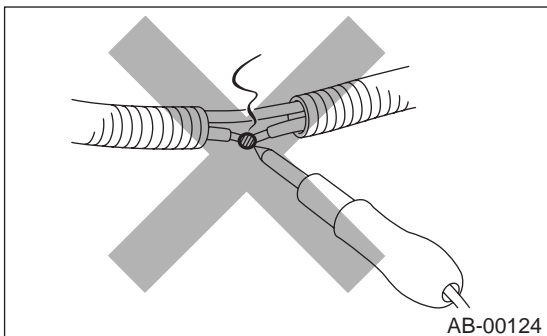
GENERAL DESCRIPTION

AIRBAG SYSTEM (DIAGNOSTICS)

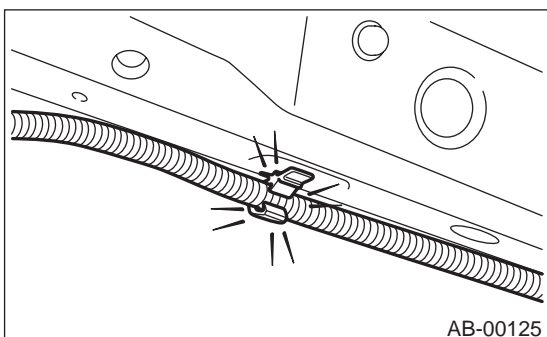
ternal parts may be damaged and reliability greatly lowered.



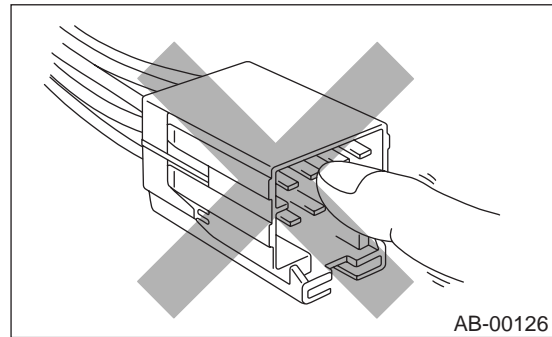
- If any damage, opening or rust is found on the airbag system wire harness, do not attempt to repair using soldering equipment. Be sure to replace the faulty harness with a new genuine part.



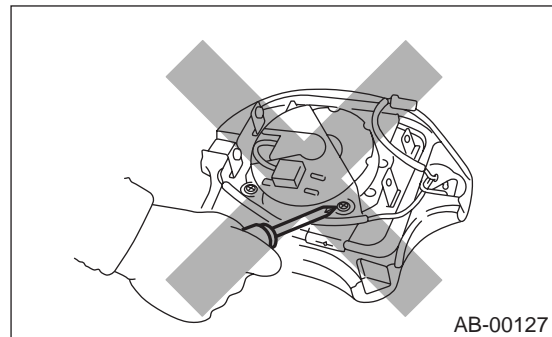
- Install the wire harness securely with the specified clips to avoid interference or tangled up with other parts.



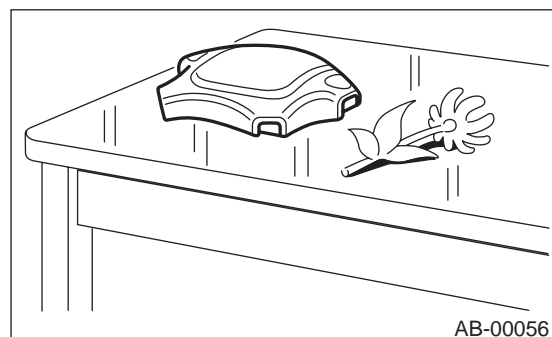
- Do not allow water or oil to come in contact with the connector terminals. Do not touch the connector terminals.



- The airbag module (driver, passenger, and side, pretensioner) must not be disassembled.
- The airbag module cannot be used again once inflated.



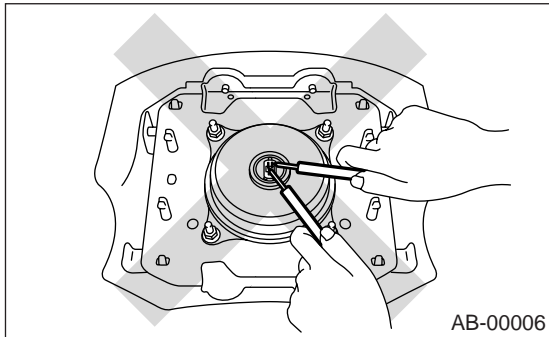
- After removal, keep the airbag module with the pad facing upward on a dry, clean, and flat surface away from heat and light sources, and moisture and dust.



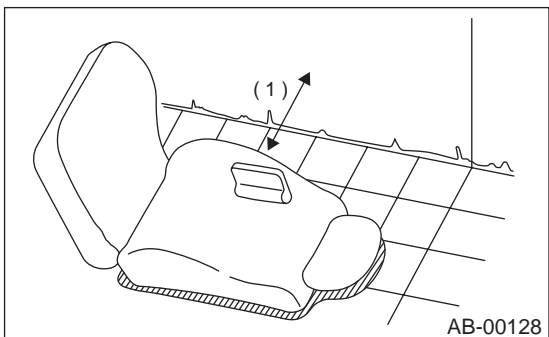
GENERAL DESCRIPTION

AIRBAG SYSTEM (DIAGNOSTICS)

- Do not check continuity of the airbag module (driver, passenger, and side, pretensioner).

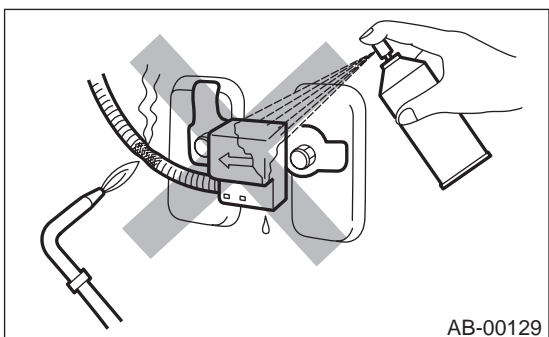


- The removed front seat with the airbag module must be kept at least 200 mm (8 in) away from walls and other objects.



(1) More than 200 mm (8 in)

- When painting or performing sheet metal work on the front part of the vehicle, including the front wheel apron, front fender, and front side frame, remove the front sub sensors and wire harness of the airbag system.
- When painting or performing sheet metal work on the side of the vehicle, including the side sill, center pillar, and front and rear doors, remove the side airbag sensors and wire harness of the airbag system.

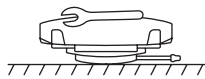
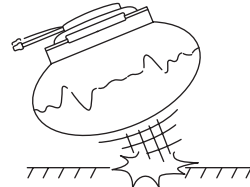
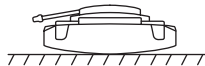
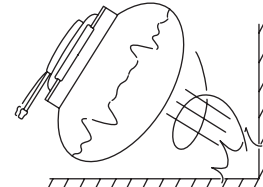
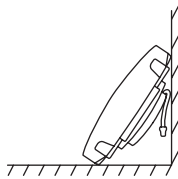
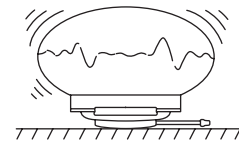
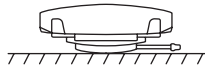


GENERAL DESCRIPTION

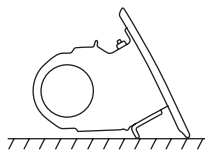
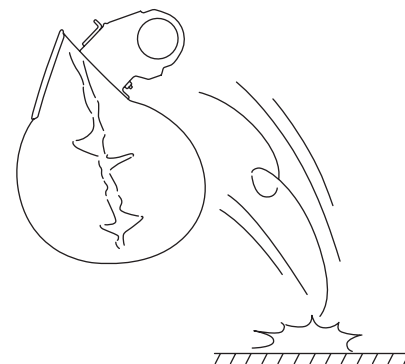
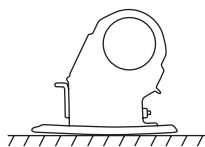
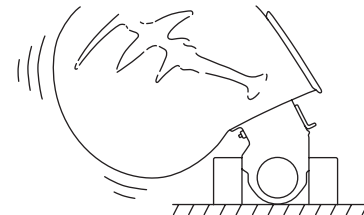
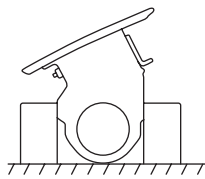
AIRBAG SYSTEM (DIAGNOSTICS)

- When storing a removed airbag module, do not place any objects on it or pile airbag modules on top of each other. If the airbag inflates for some reason when it is placed with its pad side facing downward or under any object, a serious accident may result.

(1)



(2)



AB-00130

(1) Driver side

(2) Passenger side

- Do not discard undeployed airbag modules. They could easily cause a serious accident if accidentally deployed.
- Do not damage the airbag module or drop it.

GENERAL DESCRIPTION

AIRBAG SYSTEM (DIAGNOSTICS)

B: INSPECTION

Before diagnosing, check the following items that might be related to the engine problem:

1. BATTERY

Measure battery voltage and specific gravity of electrolyte.

Standard voltage: 12 V

Specific gravity: Above 1.260

GENERAL DESCRIPTION

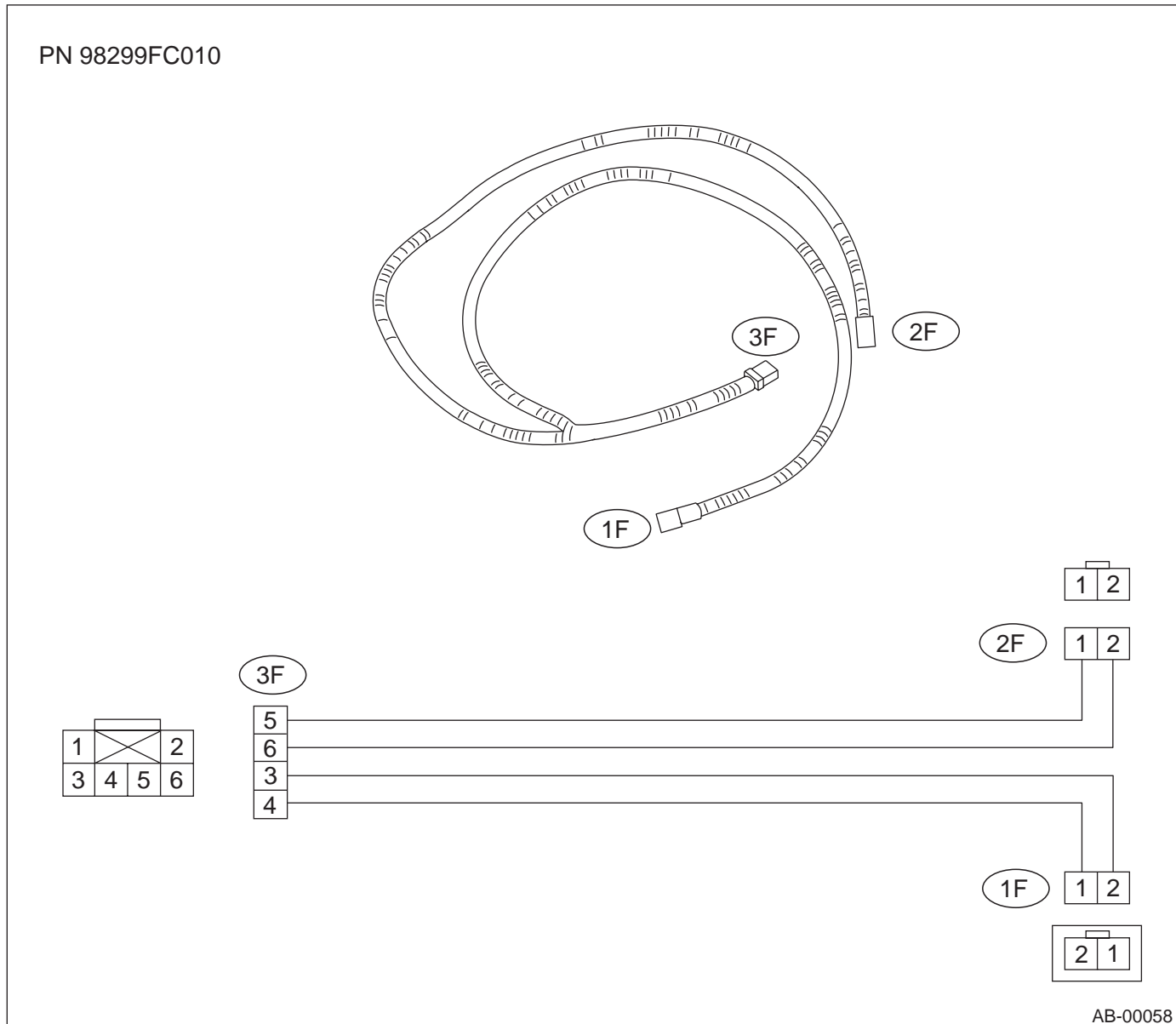
AIRBAG SYSTEM (DIAGNOSTICS)

C: PREPARATION TOOL

CAUTION:

Be sure to use specified test harness F, G, H, K and I or I2 when measuring voltage, resistance, etc. of AIRBAG system component parts.

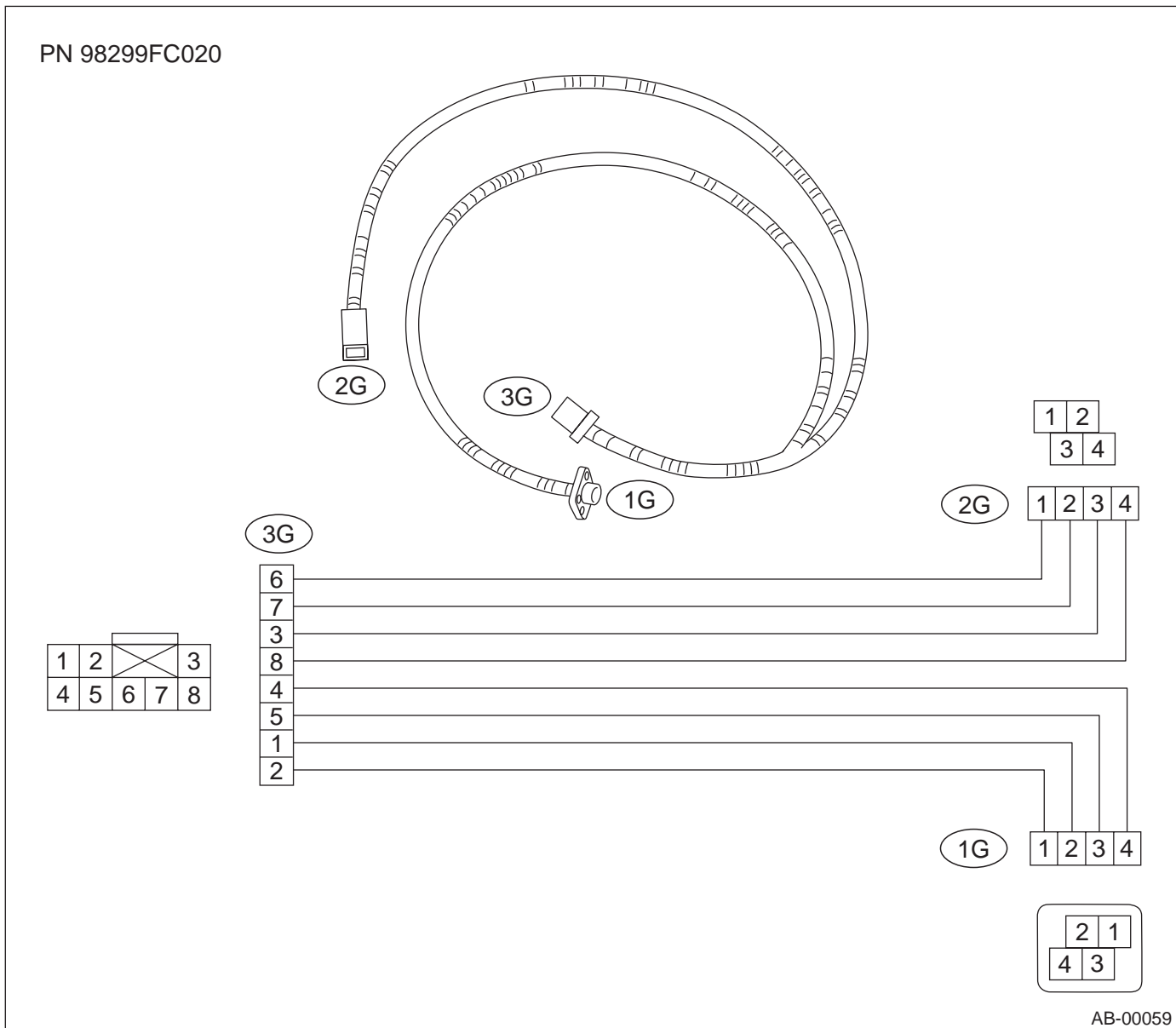
1. TEST HARNESS F



GENERAL DESCRIPTION

AIRBAG SYSTEM (DIAGNOSTICS)

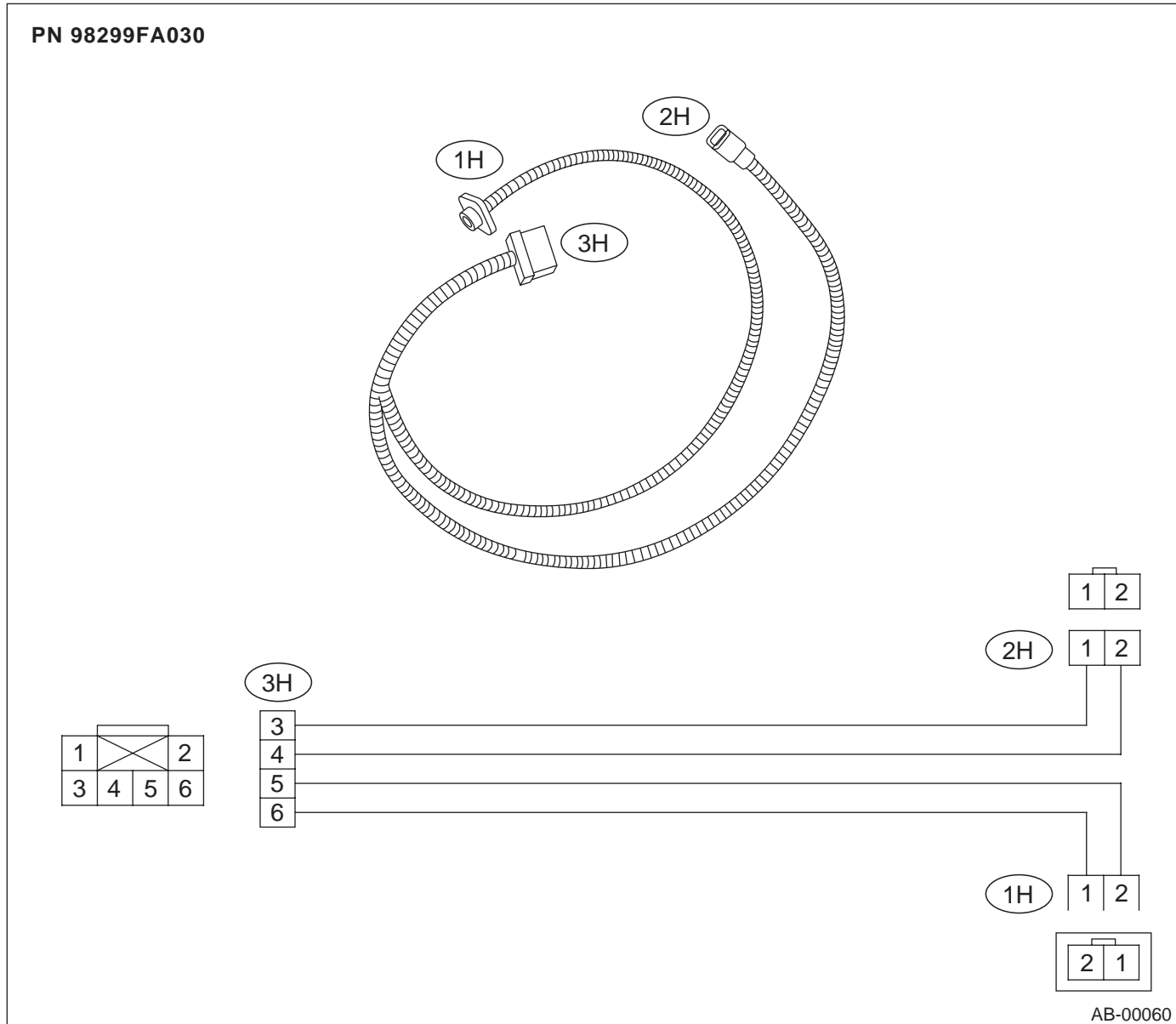
2. TEST HARNESS G



GENERAL DESCRIPTION

AIRBAG SYSTEM (DIAGNOSTICS)

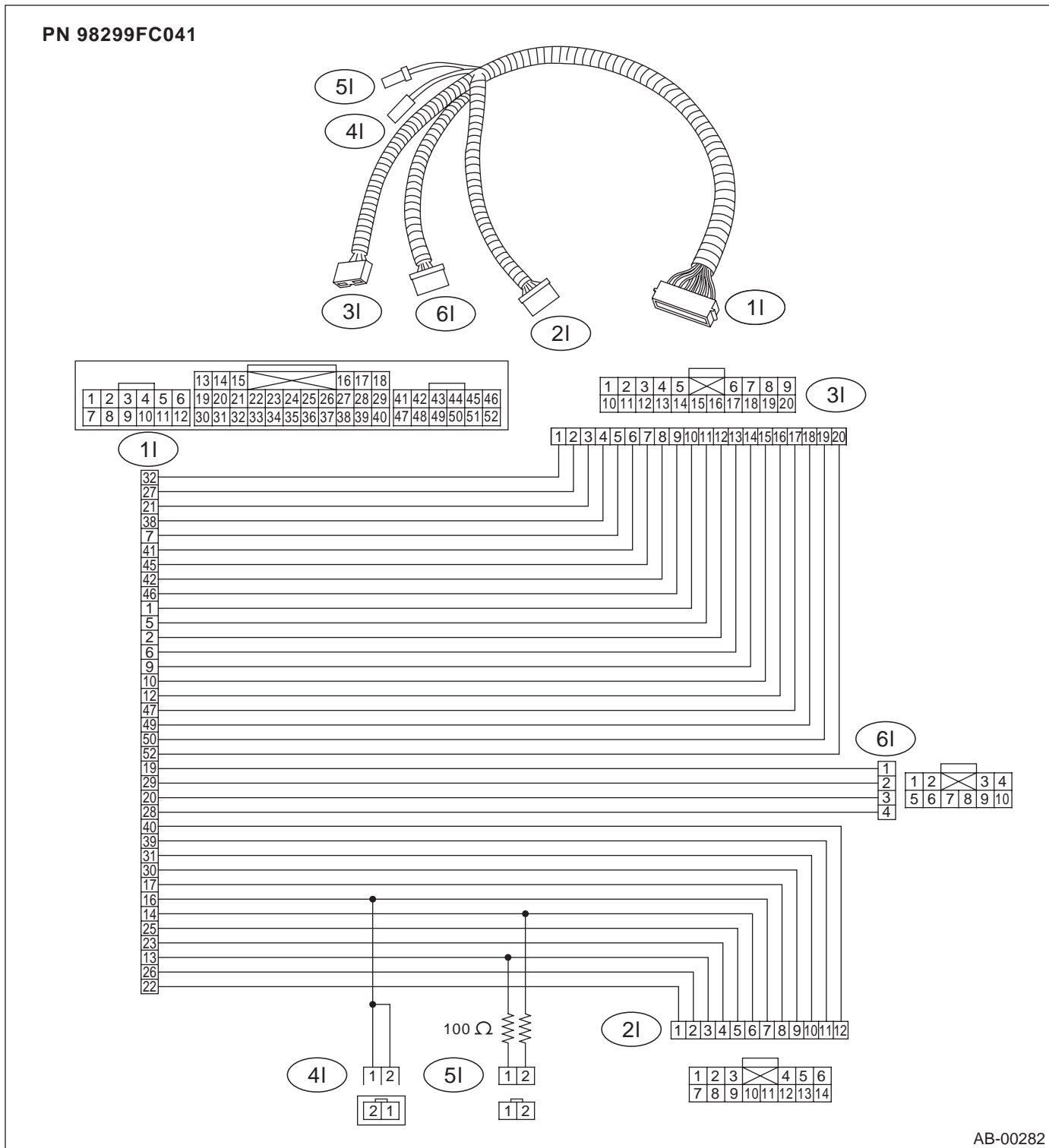
3. TEST HARNESS H



GENERAL DESCRIPTION

AIRBAG SYSTEM (DIAGNOSTICS)

4. TEST HARNESS I2

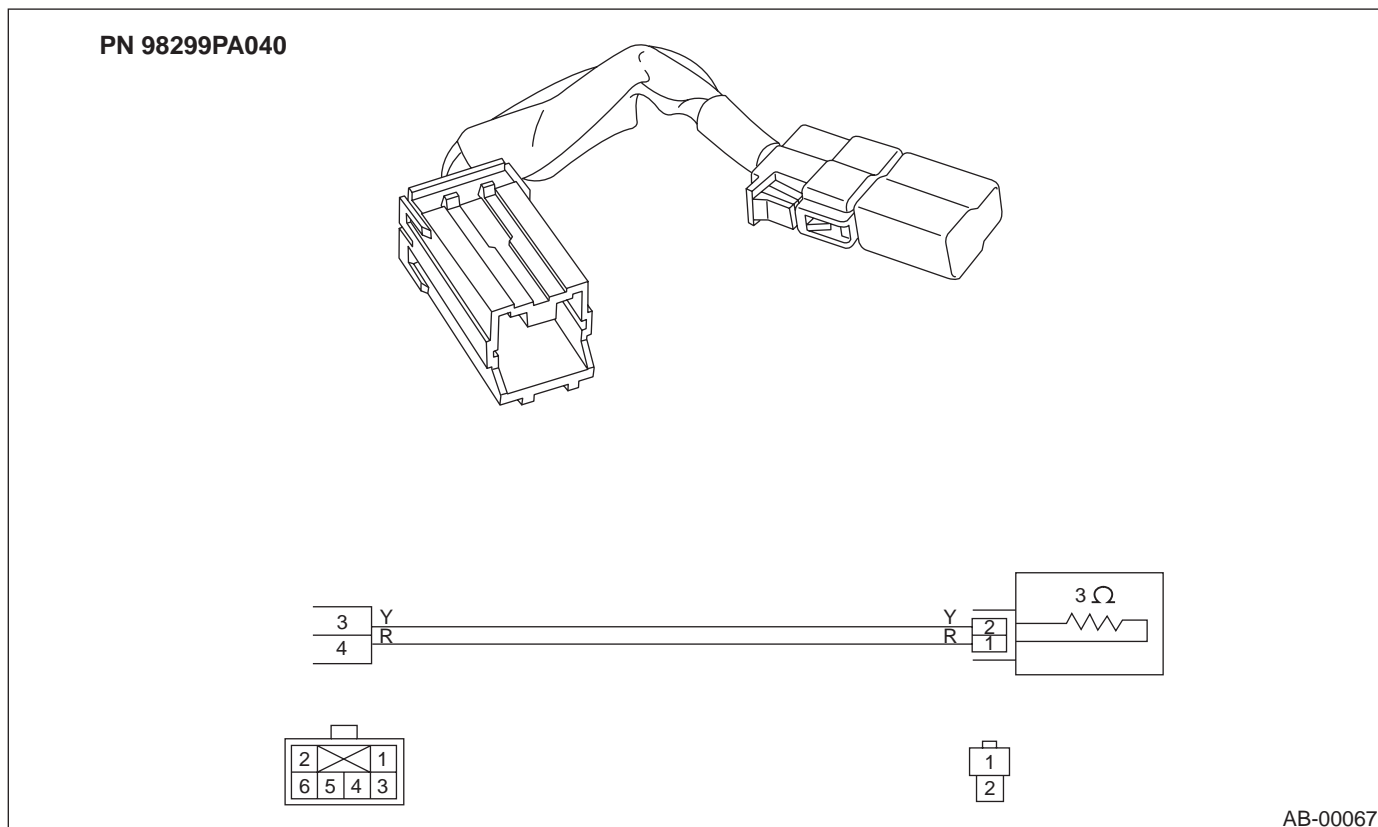


GENERAL DESCRIPTION

AIRBAG SYSTEM (DIAGNOSTICS)

5. AIRBAG RESISTOR

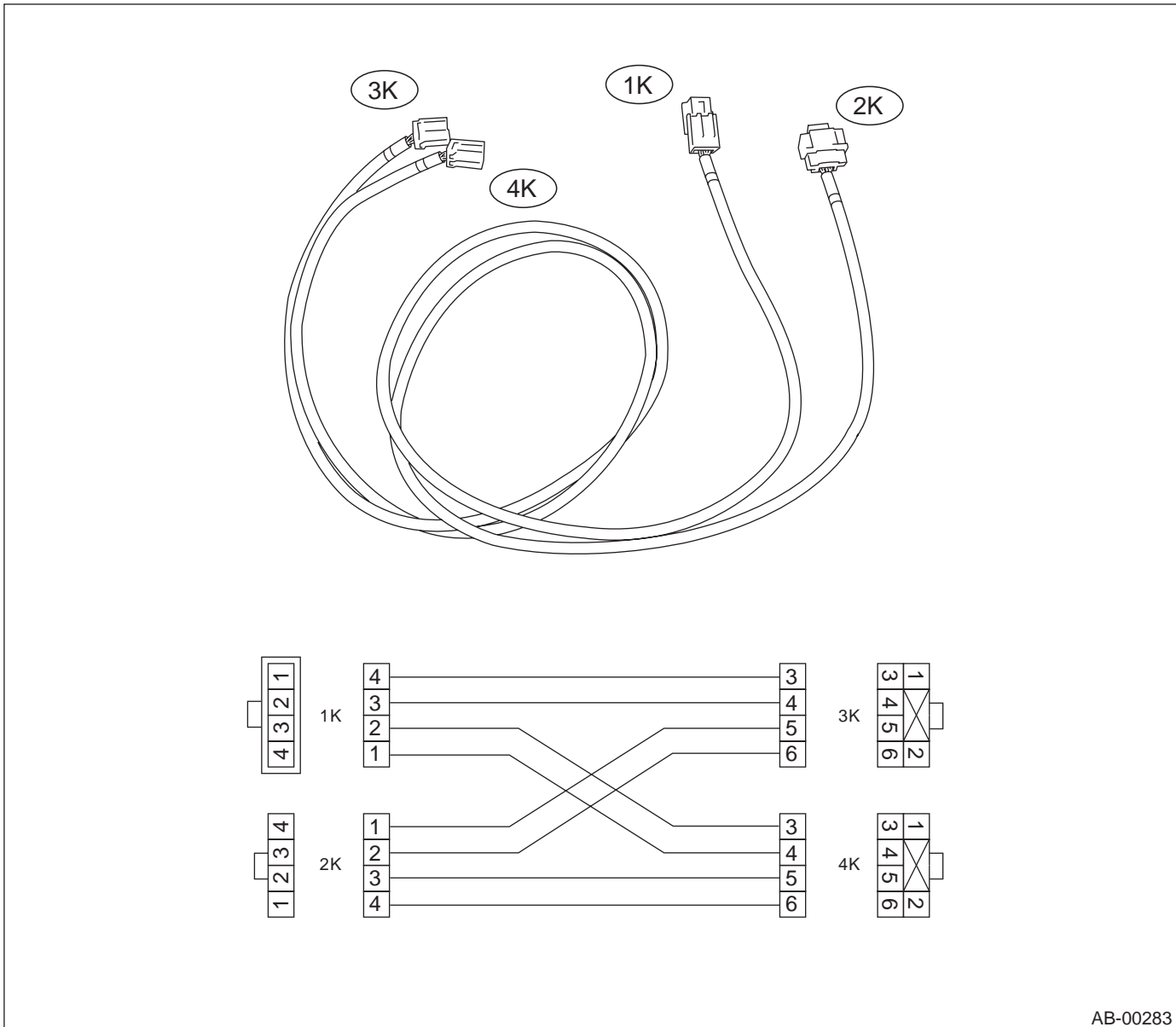
The airbag resistor is used during diagnostics. The airbag resistor has the same resistance as the airbag module and thus provides safety when used instead of the airbag module. It also makes it possible to finish, diagnostics in less time.



GENERAL DESCRIPTION

AIRBAG SYSTEM (DIAGNOSTICS)

6. TEST HARNESS K

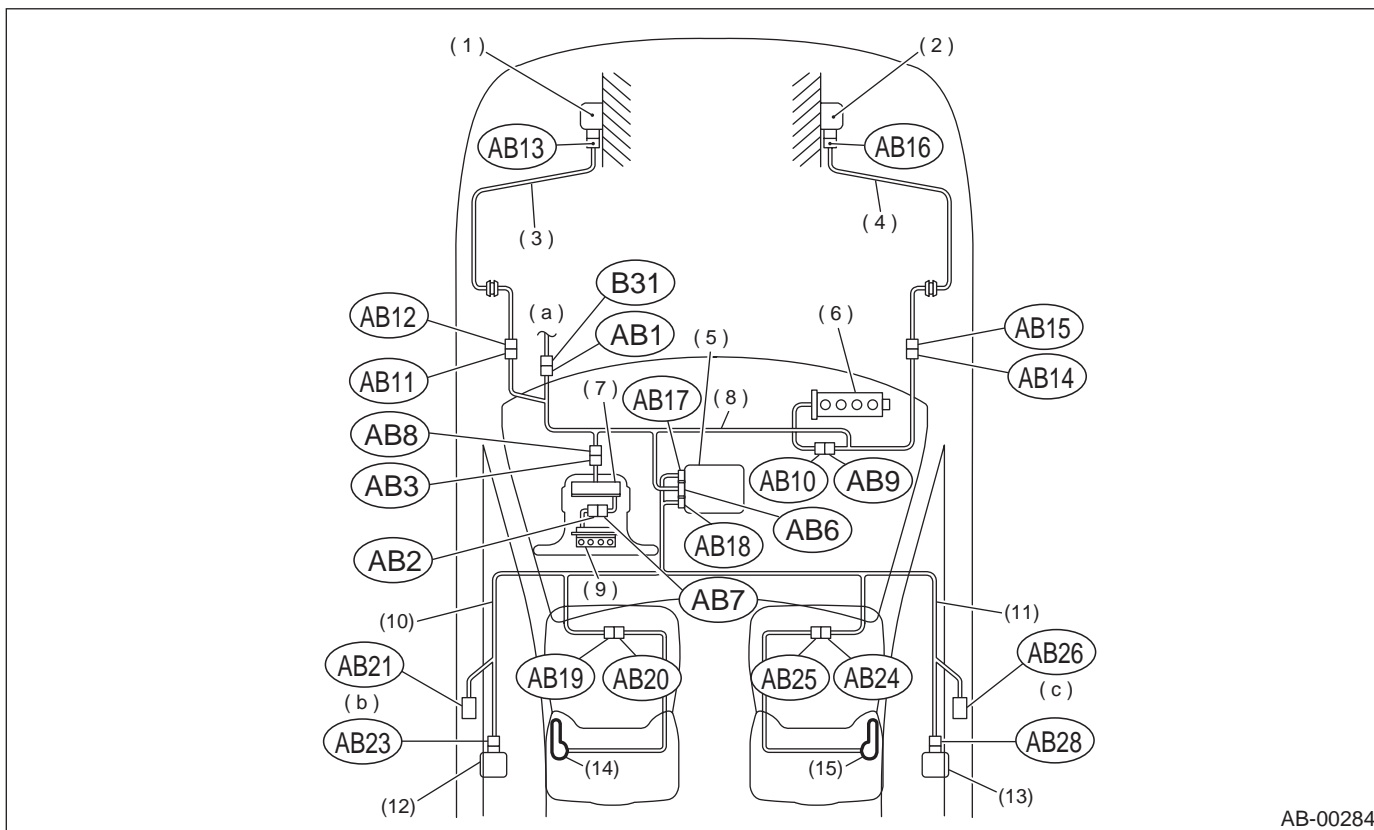


ELECTRICAL COMPONENTS LOCATION

AIRBAG SYSTEM (DIAGNOSTICS)

4. Electrical Components Location

A: LOCATION



AB-00284

- | | | |
|--|-------------------------------|------------------------------------|
| (1) Front sub sensor (LH) | (7) Roll connector | (13) Side airbag sensor (RH) |
| (2) Front sub sensor (RH) | (8) Airbag main harness | (14) Side airbag inflator (LH) |
| (3) Front sub sensor harness (LH) | (9) Inflator (Driver) | (15) Side airbag inflator (RH) |
| (4) Front sub sensor harness (RH) | (10) Side airbag harness (LH) | (a) To body harness |
| (5) Airbag control module with safety sensor and electric sensor | (11) Side airbag harness (RH) | (b) To seat belt pretensioner (LH) |
| (6) Inflator (Passenger) | (12) Side airbag sensor (LH) | (c) To seat belt pretensioner (RH) |

Conne- tor No.	(AB1)	(AB2)	(AB3)	(AB6)	(AB7)	(AB8)	(AB9)	(AB10)	(AB11)	(AB12)	(AB13)	(AB14)
Pole	12	2	2	28	2	2	4	4	2	2	2	2
Color	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Blue	Blue	Yellow	Blue
Male/ Female	Male	Male	Male	Female	Female	Female	Female	Male	Male	Female	Female	Male
Conne- tor No.	(AB15)	(AB16)	(AB17)	(AB18)	(AB19)	(AB20)	(AB21)	(AB23)	(AB24)	(AB25)	(AB26)	(AB28)
Pole	2	2	12	12	2	2	2	4	2	2	2	4
Color	Blue	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Male/ Female	Female	Female	Female	Female	Female	Male	Female	Female	Female	Male	Female	Female

AB-15

AIRBAG CONNECTOR

AIRBAG SYSTEM (DIAGNOSTICS)

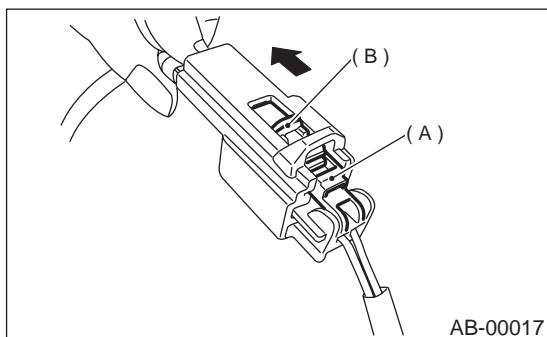
5. Airbag Connector

A: OPERATION

1. DRIVER'S AIRBAG (AIRBAG MAIN HARNESS AND ROLL CONNECTOR), SIDE AIRBAG, FRONT SUB SENSOR HARNESS TO AIRBAG MAIN HARNESS AND PRETENSIONER

• How to disconnect:

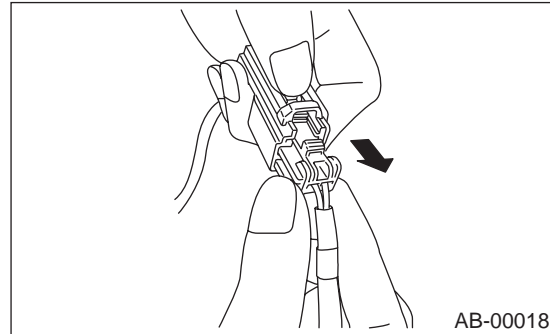
- 1) Push lock arm (A).
- 2) With lock arm (A) pushed in, move slide lock (B) in the direction of the arrow.



- 3) With slide lock (B) pulled, remove lock arm (A) to its original position, and then pull in the direction of the arrow and separate the connector.

CAUTION:

When pulling, be sure to hold onto the connector and not the wire.

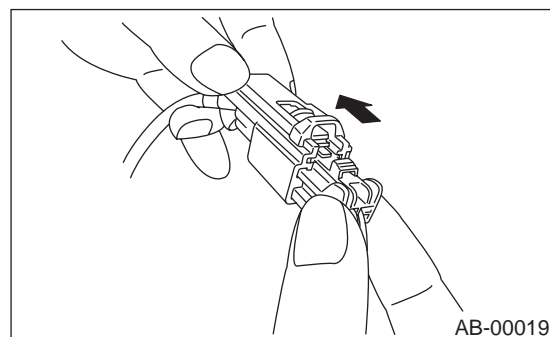


• How to connect:

Holding the connector, and push it in carefully until a connecting sound is heard.

CAUTION:

Be sure to insert the connector in until it locks. Then pull on it gently to make sure that it is locked.



AIRBAG CONNECTOR

AIRBAG SYSTEM (DIAGNOSTICS)

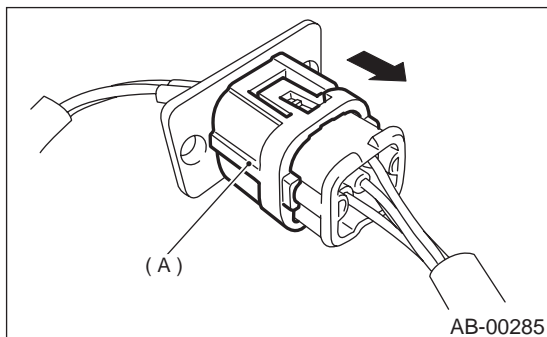
2. FRONT SUB-SENSOR, SIDE AIRBAG SENSOR

• How to disconnect:

1) Holding outer part (A), pull it in the direction of the arrow.

CAUTION:

When pulling, be sure to hold onto the connector and not the wire.

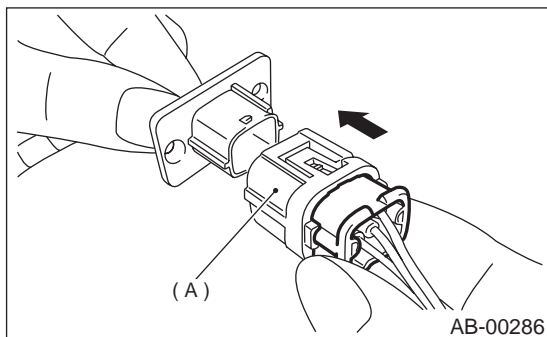


• How to connect:

Holding the connector, and push it in carefully until a connecting sound is heard.

CAUTION:

- Outer (A) moves back, and so do not put your hand on the outer part.
- Be sure to insert the connector in until it locks. Then pull on it gently to make sure that it is locked.



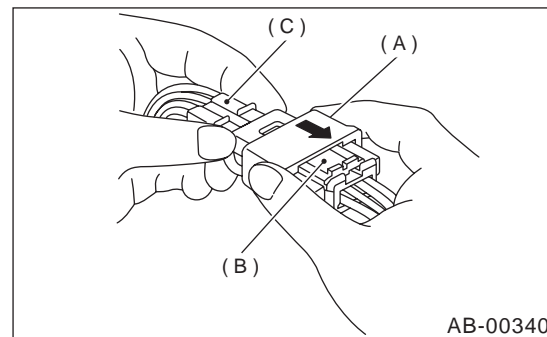
3. PASSENGER'S AIRBAG

• How to disconnect:

Holding female connector (C) in one hand, use your other hand to pull slide lock (A) in the direction of the arrow.

CAUTION:

When pulling, be sure to hold onto the slide lock and not the male connector or wire.



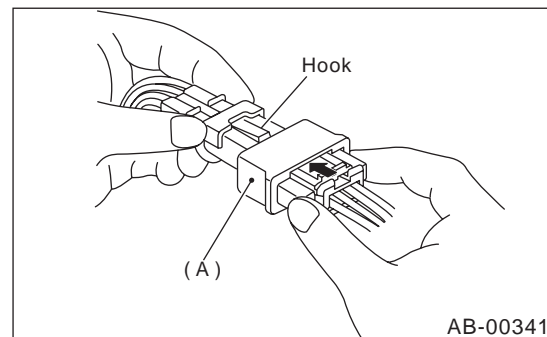
• How to connect:

1) Insert female connector (C) over male connector socket (B), and push slide lock (A) into the female connector tabs.

CAUTION:

Do not hold onto the slide lock.

2) If the male connector socket is pushed too hard, slide lock (A) will go past slide lock (A) tabs and connect.



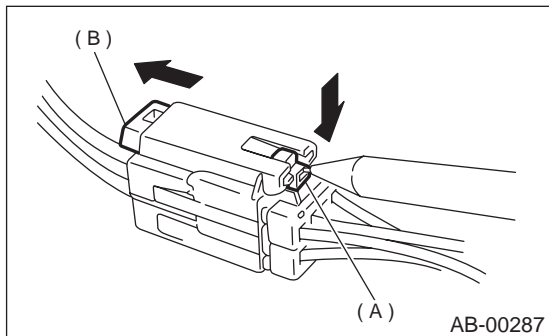
AIRBAG CONNECTOR

AIRBAG SYSTEM (DIAGNOSTICS)

4. AIRBAG MAIN HARNESS TO BODY HARNESS CONNECTOR

1) How to disconnect:

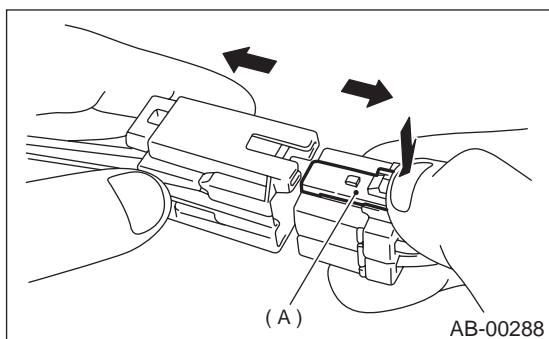
- (1) Push lock arm (A) to let green lever (B) pop out.



- (2) Then separate the connector halves by pulling them apart while pressing lever (A).

CAUTION:

When pulling, be sure to hold onto the connector and not the wire.



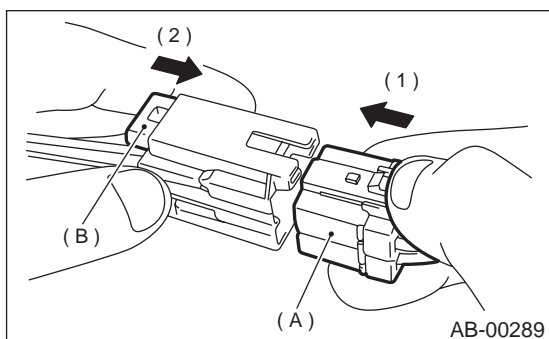
2) How to connect:

- (1) Insert the (A) connector half into the other until a “click” is heard.
- (2) Push in green lever (B) until a “click” is heard.

This engages the double lock mechanism.

CAUTION:

Be sure to insert the connector in until it locks. Then pull on it gently to make sure that it is locked.



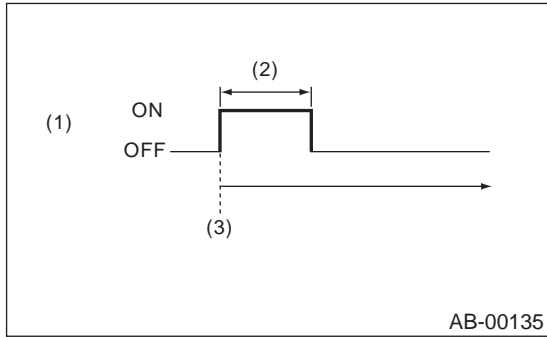
AIRBAG WARNING LIGHT ILLUMINATION PATTERN

AIRBAG SYSTEM (DIAGNOSTICS)

6. Airbag Warning Light Illumination Pattern

A: INSPECTION

Keep the ignition switch ON, and confirm that the airbag warning light remains off approximately 6 seconds after being turned on.



AB-00135

- (1) Airbag warning light
- (2) Approx. 6 seconds
- (3) Ignition switch ON

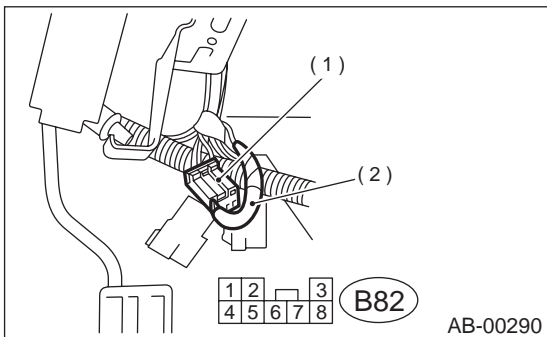
READ DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

7. Read Diagnostic Trouble Code (DTC)

A: OPERATION

- 1) Turn the ignition switch ON.
- 2) Connect the diagnosis terminal to diagnosis connector terminal No. 2 in the driver's seat lower cover area.



- (1) Diagnosis connector
- (2) Diagnosis terminal

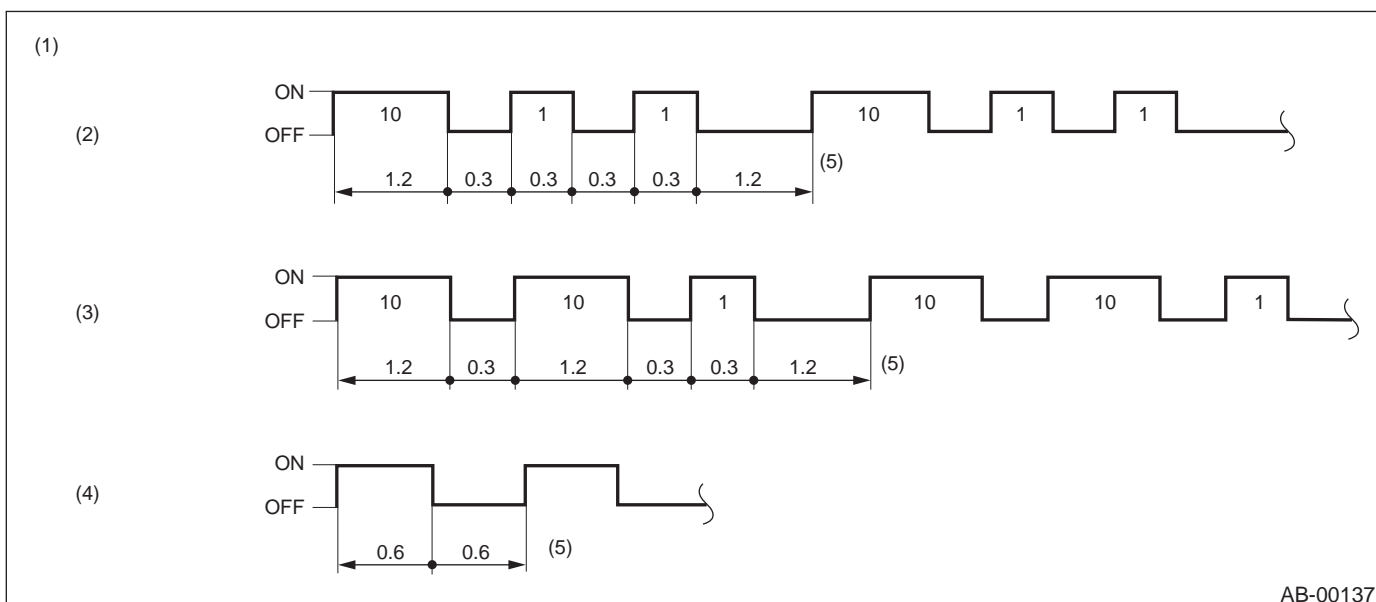
- 3) Read DTC by identifying the way the air bag warning light flashes.

The airbag warning light flashes a DTC corresponding to the faulty parts.

The long segment (1.2 sec on) indicates a "ten", and the short segment (0.3 sec on) indicates a "one".

NOTE:

- "List of Diagnostic Trouble Code (DTC)" <Ref. to AB-28, List of Diagnostic Trouble Code (DTC).>
- "Airbag Warning Light Failure" <Ref. to AB-24, Airbag Warning Light Failure.>



- (1) Example
- (2) Flashing code 12
- (3) Flashing code 21
- (4) Flashing normal code
- (5) Sec.

- 4) Turn the ignition switch OFF, and disconnect the diagnosis terminal from the diagnosis connector terminal No. 2.

- 5) Wind tape around the diagnosis terminal and return it to its original position.

INSPECTION MODE

AIRBAG SYSTEM (DIAGNOSTICS)

8. Inspection Mode

A: OPERATION

Recreate the circumstance by referring to the conditions described in the checklist.

AB-21

Vehicle-id:
SIE-id::A:Operation
~

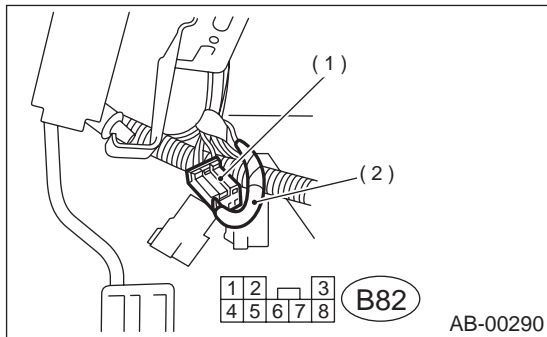
CLEAR MEMORY MODE

AIRBAG SYSTEM (DIAGNOSTICS)

9. Clear Memory Mode

A: OPERATION

- 1) Turn the ignition switch ON.
- 2) Connect the diagnosis terminal to diagnosis connector terminal No. 2 in the driver's seat lower cover area.



- 3) While the warning light flashes, connect another diagnosis terminal to diagnosis connector terminal No. 3.
- 4) Once the memory is erased, the warning light returns to the normal flash rate (0.6 sec on). The failure to recover the normal flash rate indicates that trouble parts still remain. Having repaired such parts, erase the memory again and confirm that the normal flash rate has returned.
- 5) When the memory has been cleared, disconnect the diagnosis terminal from the diagnosis connector.
- 6) Wind tape around the diagnosis terminal and return it to its original position.

CLEAR MEMORY MODE

AIRBAG SYSTEM (DIAGNOSTICS)

MEMO:

AIRBAG WARNING LIGHT FAILURE

AIRBAG SYSTEM (DIAGNOSTICS)

10. Airbag Warning Light Failure

A: AIRBAG WARNING LIGHT REMAINS ON.

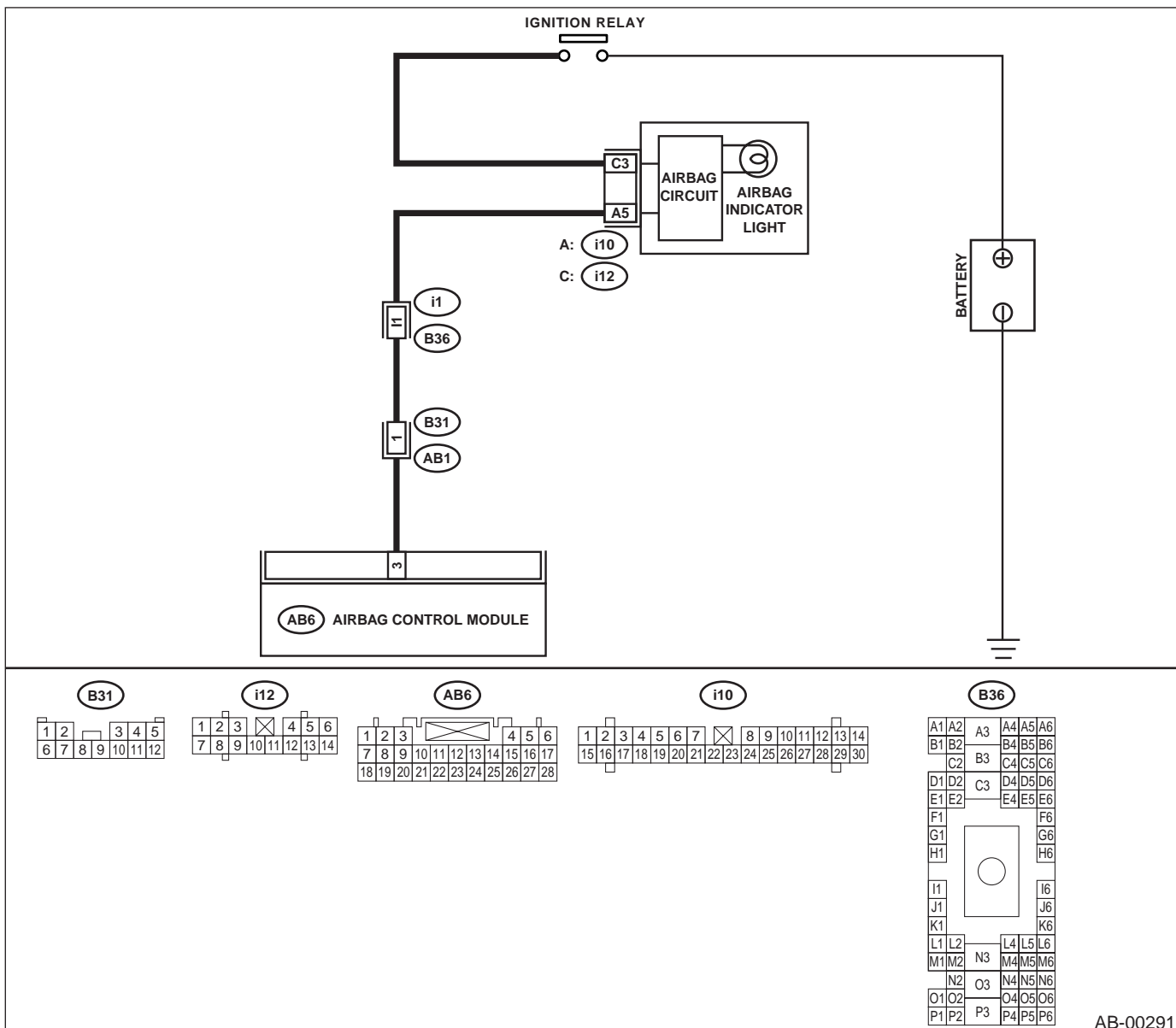
DIAGNOSIS:

- Airbag warning light is faulty.
- Airbag control module to airbag warning light circuit is shorted or open.
- Grounding circuit is faulty.
- Airbag control module is faulty.
- (AB1) and (B31) are not connected properly.
- (AB6) is not connected properly to airbag control module.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the airbag module connector of the driver and passenger seats for safety reasons.

WIRING DIAGRAM:



AIRBAG WARNING LIGHT FAILURE

AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK POOR CONTACT IN CONNECTORS (AB1) AND (B31). 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Remove side sill cover. (Driver's side) 3) Confirm that firm contact is secured between connectors (AB1) and (B31). Is the poor contact in connectors (AB1) and (B31)?	There is no poor contact.	Go to step 2.	Repair the body harness or replace airbag main harness. <Ref. to AB-16, Main Harness.>
2 CHECK POOR CONTACT. Confirm that firm contact is secured between the air bag control module and the connector (AB6). <Ref. to AB-18, Airbag Control Module.> Is the poor contact in connector (AB6)?	There is no poor contact.	Go to step 3.	Replace airbag main harness. <Ref. to AB-16, Main Harness.> Or replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>
3 CHECK AIRBAG MAIN HARNESS. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Connect the connector (AB1) to (B31). 3) Disconnect connectors (AB3) and (AB8). 4) Pull out the two stopper pins and lower the glove box and disconnect connectors (AB10) and (AB9). 5) Disconnect the connector (AB6) from the airbag control module, and connect the connector (1I) in test harness I2. <Ref. to AB-18, Airbag Control Module.> 6) Connect the battery ground cable and turn the ignition switch ON. 7) Connect connectors (4I) and (5I) in test harness I2. NOTE: After problem has been eliminated, disconnect connectors (4I) and (5I). Is the airbag warning light turned off?	Airbag warning light turns OFF.	Go to step 4.	Replace airbag main harness. <Ref. to AB-16, Main Harness.> Or replace combination meter printed circuit. <Ref. to IDI-12, Combination Meter Assembly.> Or repair the body harness.
4 CHECK AIRBAG MAIN HARNESS. 1) Connect the connector (AB1) to (B31). 2) Disconnect the connector (AB6) from the airbag control module, and connect the connector (1I) in test harness I2. <Ref. to AB-18, Airbag Control Module.> 3) Measure the resistance between connector (2I) in test harness I2 and the chassis ground. Connector & terminal (2I) No. 9 — Chassis ground: (2I) No. 10 — Chassis ground: Is the measured value less than the specified value?	10 Ω	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Replace airbag main harness. <Ref. to AB-16, Main Harness.> Or repair the body harness.

AIRBAG WARNING LIGHT FAILURE

AIRBAG SYSTEM (DIAGNOSTICS)

B: AIRBAG WARNING LIGHT REMAINS OFF.

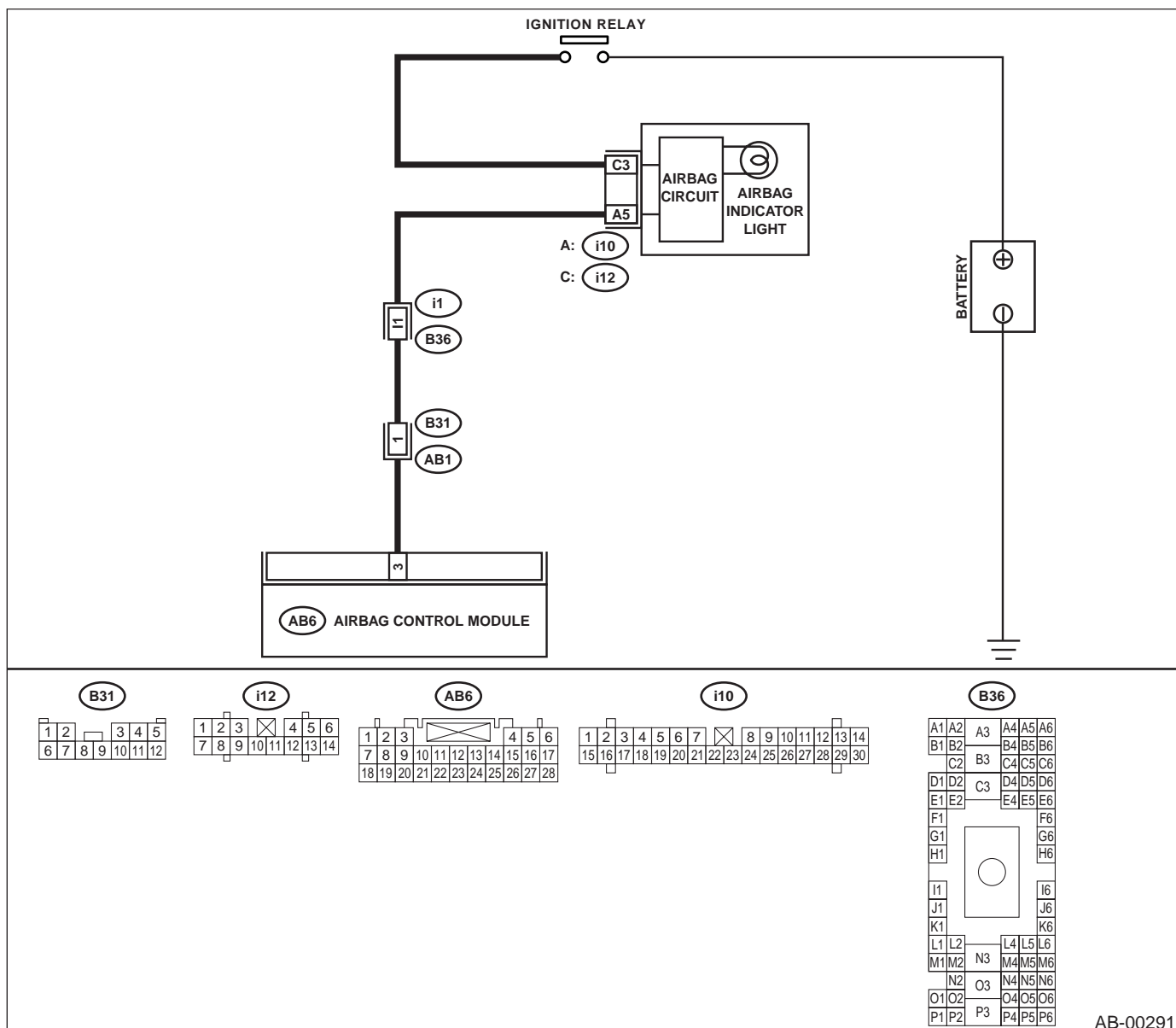
DIAGNOSIS:

- Fuse No. 5 (in fuse box) is blown.
- Body harness circuit is open.
- Airbag warning light is faulty.
- Airbag main harness is faulty.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the airbag module connector of the driver and passenger seats for safety reasons.

WIRING DIAGRAM:



AIRBAG WARNING LIGHT FAILURE

AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK COMBINATION METER. Turn the ignition switch ON, and confirm that warning lights equipped in the combination meter are turned on. Do warning lights not for the airbag turn on?	Warning lights not for the airbag turn ON.	Go to step 2.	Repair combination meter power supply. <Ref. to IDI-4, Combination Meter System.>
2 CHECK FUSE NO. 5 (IN MAIN FUSE BOX). Remove fuse No. 5 and perform visual inspection. Is fuse No. 5 (in main fuse box) blown?	Fuse No. 5 is not blown.	Go to step 3.	Replace fuse No. 5. If fuse No. 5 blows again, go to step 3.
3 CHECK AIRBAG WARNING LIGHT CIRCUIT (IN COMBINATION METER). 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the connector (AB1) from (B31). 3) Connect the battery ground cable and turn the ignition switch ON. Is the airbag warning light turned on?	Airbag warning light turns ON.	Go to step 4.	Replace airbag warning light bulb or combination meter printed circuit. <Ref. to IDI-12, Combination Meter Assembly.> Or repair the body harness.
4 CHECK AIRBAG MAIN HARNESS. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Connect the connector (AB1) to (B31). 3) Disconnect the connector (AB6) from the airbag control module. <Ref. to AB-18, Airbag Control Module.> 4) Connect the battery ground cable and turn the ignition switch ON. Is the airbag warning light turned on?	Airbag warning light turns ON.	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Replace airbag main harness. <Ref. to AB-18, Airbag Control Module.>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

11. List of Diagnostic Trouble Code (DTC)

A: LIST

DTC	Memory function	Contents of diagnosis	Index No.
11	Provided.	<ul style="list-style-type: none"> • Airbag main harness circuit is open, shorted or shorted to ground. • Airbag module harness (driver) circuit is open, shorted or shorted to ground. • Roll connector circuit is open, shorted or shorted to ground. • Airbag control module is faulty. • Driver's airbag module is faulty. 	<Ref. to AB-32, DTC 11, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
12	Provided.	<ul style="list-style-type: none"> • Airbag main harness circuit is open, shorted or shorted to ground. • Airbag module harness (passenger) circuit is open, shorted or shorted to ground. • Airbag control module is faulty. • Passenger's airbag module is faulty. 	<Ref. to AB-36, DTC 12, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
15	Provided.	<ul style="list-style-type: none"> • Airbag main harness circuit (driver) is shorted to power supply. • Airbag module harness (driver) is shorted to power supply. • Roll connector is shorted to power supply. • Airbag control module is faulty. • Driver's airbag module is faulty. 	<Ref. to AB-38, DTC 15, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
16	Provided.	<ul style="list-style-type: none"> • Airbag main harness circuit (passenger) is shorted to power supply. • Airbag module harness (passenger) is shorted to power supply. • Airbag control module is faulty. • Passenger's airbag module is faulty. 	<Ref. to AB-40, DTC 16, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
21	Provided.	Airbag control module is faulty.	<Ref. to AB-41, DTC 21, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
22	Provided.	Front airbag module and seat belt pretensioner (LH/RH) are inflated.	<Ref. to AB-42, DTC 22, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
23	Not provided.	(AB6), (AB17) and (AB18) are not connected properly to airbag control module.	<Ref. to AB-43, DTC 23, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
24	Not provided.	<ul style="list-style-type: none"> • Airbag control module is faulty. • Airbag main harness circuit is open. • Fuse No. 11 (in joint box) is blown. • Body harness circuit is open. 	<Ref. to AB-44, DTC 24, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
25	Provided.	<ul style="list-style-type: none"> • Airbag control module is faulty. • Airbag main harness circuit is open. • Fuse No. 6 (in joint box) is blown. • Body harness circuit is open. 	<Ref. to AB-46, DTC 25, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
31	Provided.	<ul style="list-style-type: none"> • Front sub-sensor harness (RH) circuit is shorted. • Front sub-sensor harness (RH) circuit is open. • Front sub-sensor (RH) is faulty. • Airbag control module is faulty. 	<Ref. to AB-48, DTC 31, Diagnostic Chart with Diagnostic Trouble Code (DTC).>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC)**AIRBAG SYSTEM (DIAGNOSTICS)**

DTC	Memory function	Contents of diagnosis	Index No.
32	Provided.	<ul style="list-style-type: none"> • Front sub-sensor harness (LH) circuit is shorted. • Front sub-sensor harness (LH) circuit is open. • Front sub-sensor (LH) is faulty. • Airbag control module is faulty. 	<Ref. to AB-52, DTC 32, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
41	Provided.	<ul style="list-style-type: none"> • Side airbag harness (RH) is faulty. • Side airbag module (RH) is faulty. • Airbag control module is faulty. 	<Ref. to AB-56, DTC 41, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
42	Provided.	<ul style="list-style-type: none"> • Side airbag harness (LH) is faulty. • Side airbag module (LH) is faulty. • Airbag control module is faulty. 	<Ref. to AB-58, DTC 42, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
45	Provided.	<ul style="list-style-type: none"> • Side airbag harness (RH) is shorted to power supply. • Airbag control module is faulty. 	<Ref. to AB-60, DTC 45, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
46	Provided.	<ul style="list-style-type: none"> • Side airbag harness (LH) is shorted to power supply. • Airbag control module is faulty. 	<Ref. to AB-62, DTC 46, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
51	Provided.	<ul style="list-style-type: none"> • Side airbag sensor (RH) is faulty. • Side airbag harness (RH) is faulty. • Airbag control module is faulty. 	<Ref. to AB-64, DTC 51, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
52	Provided.	<ul style="list-style-type: none"> • Side airbag sensor (LH) is faulty. • Side airbag harness (LH) is faulty. • Airbag control module is faulty. 	<Ref. to AB-66, DTC 52, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
53	Provided.	Side airbag sensor (RH) is faulty.	<Ref. to AB-67, DTC 53, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
54	Provided.	Side airbag sensor (LH) is faulty.	<Ref. to AB-67, DTC 54, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
55	Provided.	Side airbag module is inflated.	<Ref. to AB-67, DTC 55, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
61	Provided.	<ul style="list-style-type: none"> • Seat belt pretensioner (RH) circuit is open, shorted or shorted to ground. • Airbag control module is faulty. • Pretensioner is faulty. • Pretensioner harness is faulty. 	<Ref. to AB-68, DTC 61, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
62	Provided.	<ul style="list-style-type: none"> • Seat belt pretensioner (LH) circuit is open, shorted or shorted to ground. • Airbag control module is faulty. • Pretensioner is faulty. • Pretensioner harness is faulty. 	<Ref. to AB-70, DTC 62, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
65	Provided.	<ul style="list-style-type: none"> • Seat belt pretensioner (RH) circuit is shorted to power supply. • Pretensioner is faulty. • Pretensioner harness is faulty. • Airbag control module is faulty. 	<Ref. to AB-72, DTC 65, Diagnostic Chart with Diagnostic Trouble Code (DTC).>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC)**AIRBAG SYSTEM (DIAGNOSTICS)**

DTC	Memory function	Contents of diagnosis	Index No.
66	Provided.	<ul style="list-style-type: none">• Seat belt pretensioner (LH) circuit is shorted to power supply.• Pretensioner is faulty.• Pretensioner harness is faulty.• Airbag control module is faulty.	<Ref. to AB-74, DTC 66, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
72	Provided.	<ul style="list-style-type: none">• Airbag harness is open, shorted or shorted to ground.• Airbag module harness (passenger) circuit is open, shorted or shorted to ground.• Airbag control module is faulty.• Passenger's airbag module is faulty.	<Ref. to AB-76, DTC 72, Diagnostic Chart with Diagnostic Trouble Code (DTC).>
76	Provided.	<ul style="list-style-type: none">• Airbag harness (passenger) is shorted or shorted to power supply.• Airbag module harness (passenger) is shorted to power supply.• Airbag control module is faulty. Passenger's airbag module is faulty.	<Ref. to AB-78, DTC 76, Diagnostic Chart with Diagnostic Trouble Code (DTC).>

AB-30

LIST OF DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

MEMO:

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

12. Diagnostic Chart with Diagnostic Trouble Code (DTC)

A: DTC 11

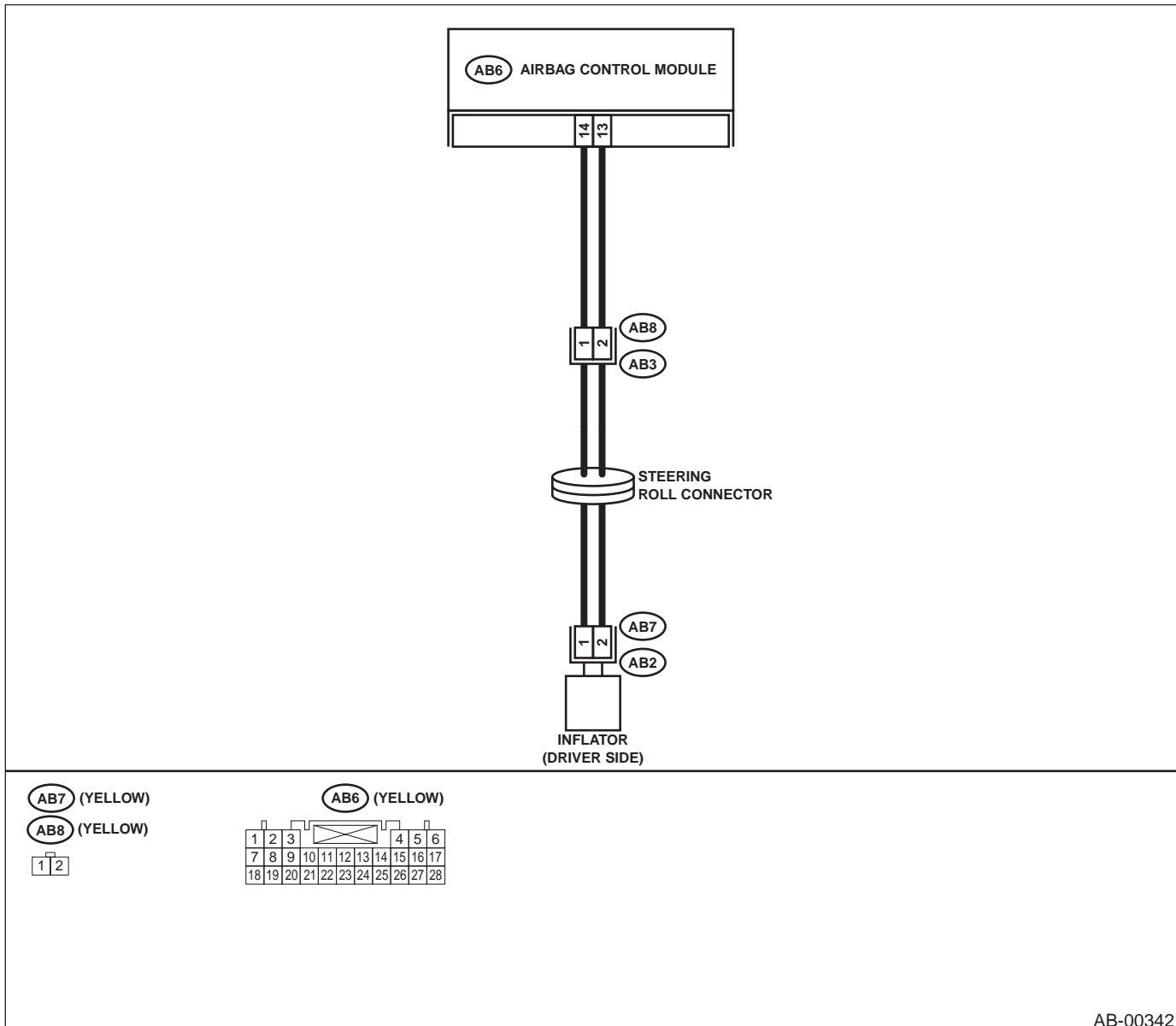
DIAGNOSIS:

- Airbag main harness circuit is open, shorted or shorted to ground.
- Airbag module harness (Driver) circuit is open, shorted or shorted to ground.
- Roll connector circuit is open, shorted or shorted to ground.
- Driver's airbag module is faulty.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll controller, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the driver's airbag module and passenger's airbag module connectors for safety reasons.

WIRING DIAGRAM:



AB-00342

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK DRIVER'S AIRBAG MODULE. 1) Turn the ignition switch OFF, disconnect battery ground cable, and wait more than 20 seconds. 2) Remove the driver's airbag module. <Ref. to AB-13, Driver's Airbag Module.> 3) Connect the connector (1F) in test harness F to connector (AB7). 4) Connect airbag resistor to connector (3F) in test harness F. 5) Connect the battery ground cable and turn the ignition switch ON. Does the airbag warning light operate properly?	Operates properly.	Replace the driver's airbag module. <Ref. to AB-13, Driver's Airbag Module.>	Go to step 2.
2 CHECK ROLL CONNECTOR. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 second. 2) Disconnect the test harness from the connector (AB7). 3) Remove the lower cover panel, disconnect the connector (AB3) from (AB8) and connect the connector (1F) in test harness F to connector (AB8). 4) Connect the airbag resistor to connector (3F) in test harness F. 5) Connect the battery ground cable and turn the ignition switch ON. Does the airbag warning light operate properly?	Operates properly.	Replace the roll connector. <Ref. to AB-20, Roll Connector.>	Go to step 3.
3 CHECK AIRBAG MAIN HARNESS. 1) Turn the ignition switch OFF, disconnect the ground cable, and wait more than 20 seconds. 2) Disconnect the airbag resistor from the connector (3F) in test harness F. 3) Remove the glove box, <Ref. to AB-<Ref. to AB-14, Passenger's Airbag Module.>, REMOVAL, Passenger's Airbag Module.> and disconnect connectors (AB10) and (AB9). 4) Disconnect the connector (AB6) from the airbag control module, and connect the connector (1I) in test harness I2. <Ref. to AB-18, Airbag Control Module.> 5) Measure the resistance between connector (2I) in test harness I2 and the connector (3F) in test harness F. Connector & terminal (2I) No. 1 — (3F) No. 4: (2I) No. 4 — (3F) No. 3: Is the measured value less than the specified value?	10 Ω	Go to step 4.	Replace airbag main harness. <Ref. to AB-16, Main Harness.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
4 CHECK AIRBAG MAIN HARNESS. Measure the resistance of the connector (21) in test harness I2. <i>Connector & terminal</i> <i>(21) No. 1 — No. 4:</i> <i>(21) No. 4 — Chassis ground:</i> <i>(21) No. 1 — Chassis ground:</i> Does the measured value exceed the specified value?	1 MΩ	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Replace airbag main harness. <Ref. to AB-16, Main Harness.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

MEMO:

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

B: DTC 12

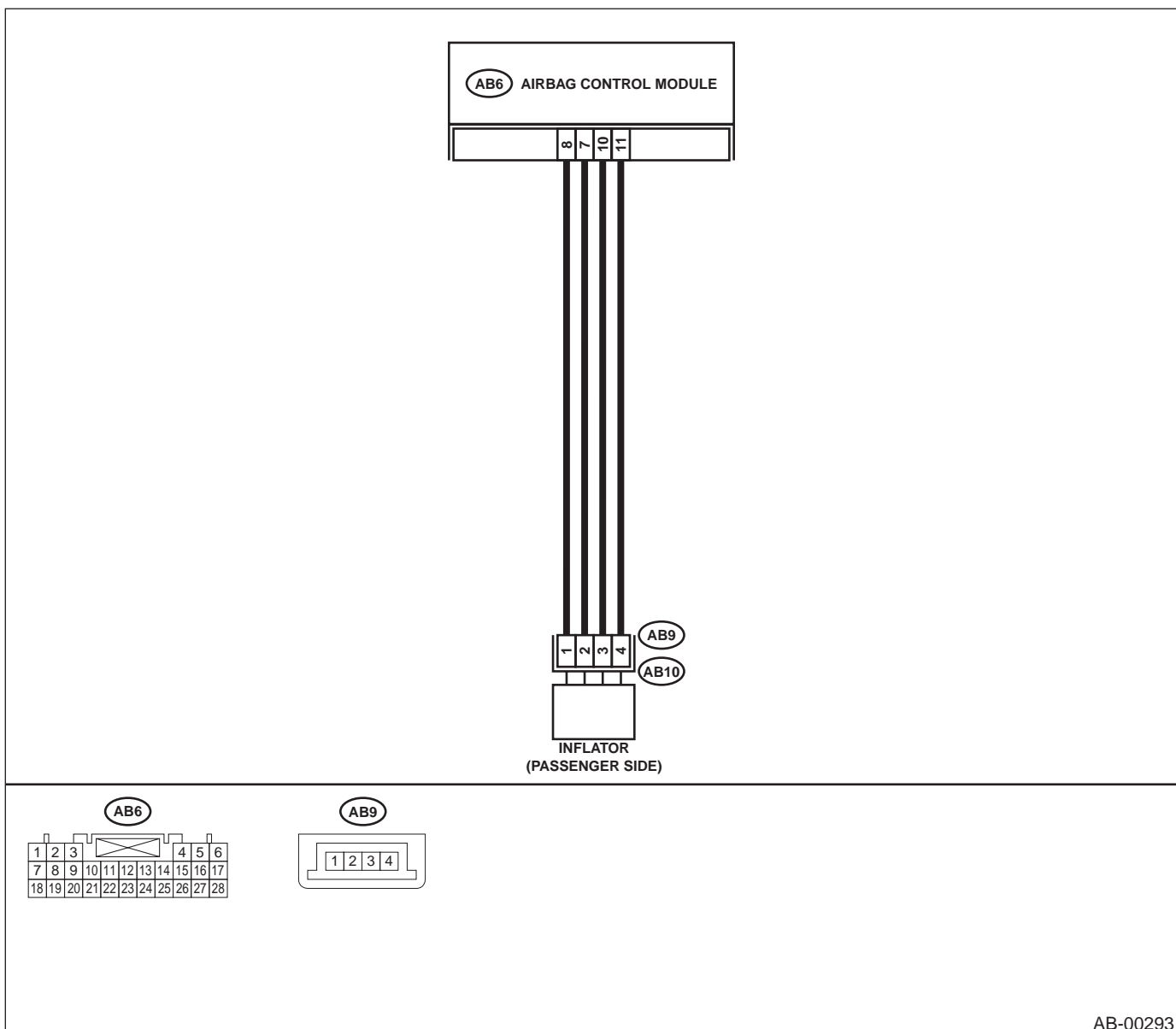
DIAGNOSIS:

- Airbag main harness circuit is open, shorted or shorted to ground.
- Airbag module harness (Passenger) circuit is open, shorted or shorted to ground.
- Passenger's airbag module is faulty.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the airbag module connector of the driver and passenger seats for safety reasons.

WIRING DIAGRAM:



DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK PASSENGER'S AIRBAG MODULE. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Pull out the two stopper pins and lower the glove box. 3) Disconnect the connector (AB10) from (AB9). 4) Connect the connector (1K) in test harness K to connector (AB9). 5) Connect two airbag resistors to connectors (3K) and (4K) in test harness K. 6) Connect the battery ground cable and turn the ignition switch ON. Does the airbag warning light operate properly?	Operates properly.	Replace the passenger airbag module. <Ref. to AB-14, Passenger's Airbag Module.>	Go to step 2.
2 CHECK AIRBAG MAIN HARNESS. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect two airbag resistors from the connectors (3K) and (4K) in test harness K. 3) Remove lower cover and disconnect the connector (AB3) from (AB8). 4) Disconnect the connector (AB6) from the airbag control module, and connect the connector (1I) in test harness I2. <Ref. to AB-18, Airbag Control Module.> 5) Measure the resistance between connector (2I) in test harness I2 and the connector (3K) in test harness K. Connector & terminal (2I) No. 2 — (3K) No. 4: (2I) No. 5 — (3K) No. 3: Is the measured value less than the specified value?	10 Ω	Go to step 3.	Replace airbag main harness. <Ref. to AB-16, Main Harness.>
3 CHECK AIRBAG MAIN HARNESS. Measure the resistance of the connector (2I) in test harness I2. Connector & terminal (2I) No. 2 — No. 5: (2I) No. 2 — Chassis ground: (2I) No. 5 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Replace airbag control module. <Ref. to AB-18, Airbag Control Module.>	Replace airbag main harness. <Ref. to AB-16, Main Harness.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

C: DTC 15

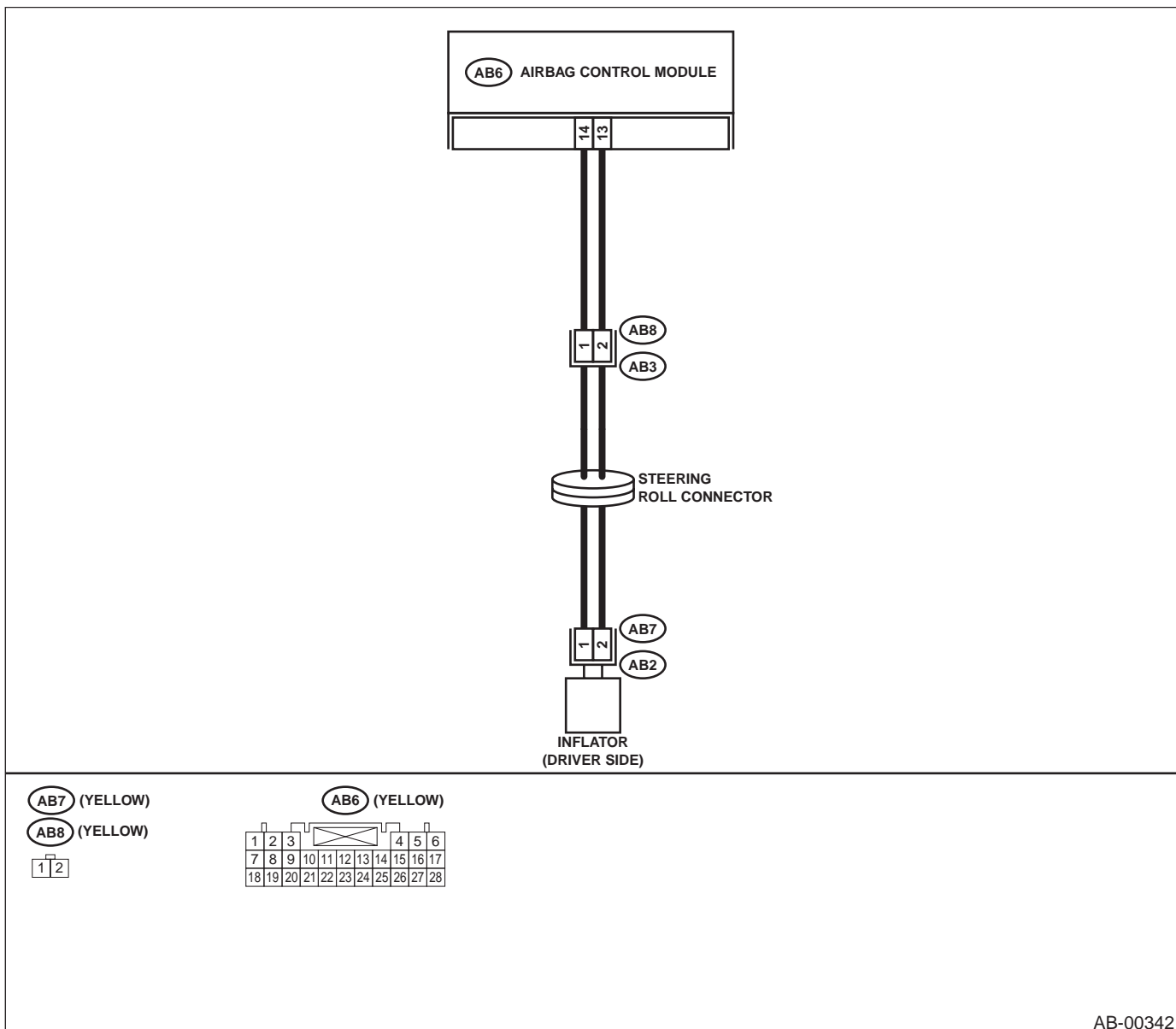
DIAGNOSIS:

- Airbag main harness circuit (Driver) is shorted to the power supply.
- Airbag module harness (Driver) is shorted to the power supply.
- Roll connector is shorted to the power supply.
- Driver's airbag module is faulty.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the driver's airbag module and passenger's airbag module connectors for safety reasons.

WIRING DIAGRAM:



DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK DRIVER'S AIRBAG MODULE. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Remove the driver's airbag module. <Ref. to AB-13, Driver's Airbag Module.> 3) Connect the connector (AB7) to connector (1F) in test harness F. 4) Connect the airbag resistor to connector (3F) in test harness F. 5) Connect the battery ground cable and turn the ignition switch ON. Does the airbag warning light operate properly?	Operates properly.	Replace the driver's airbag module. <Ref. to AB-13, Driver's Airbag Module.>	Go to step 2.
2 CHECK ROLL CONNECTOR. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the test harness from the connector (AB7). 3) Remove the lower cover panel and disconnect the connector (AB3) from (AB8). 4) Connect the connector (1F) in test harness F to connector (AB8). 5) Connect the airbag resistor to connector (3F) in test harness F. 6) Connect the battery ground cable and turn the ignition switch ON. Does the airbag warning light operate properly?	Operates properly.	Replace the roll connector. <Ref. to AB-20, Roll Connector.>	Go to step 3.
3 CHECK AIRBAG MAIN HARNESS. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the airbag resistor from the connector (3F) in test harness F. 3) Pull out the two stopper pins and lower the glove box, and disconnect connectors (AB10) and (AB9). 4) Disconnect the connector (AB6) from the airbag control module, and connect the connector (1I) in test harness I2. <Ref. to AB-18, Airbag Control Module.> 5) Connect the battery ground cable and turn the ignition switch ON. (Engine OFF) 6) Measure the voltage between connector (2I) in test harness I2 and the chassis ground. Connector & terminal (2I) No. 4 (+) — Chassis ground (-): (2I) No. 1 (+) — Chassis ground (-): Is the measured value less than the specified value?	1 V	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Replace airbag main harness. <Ref. to AB-16, Main Harness.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

D: DTC 16

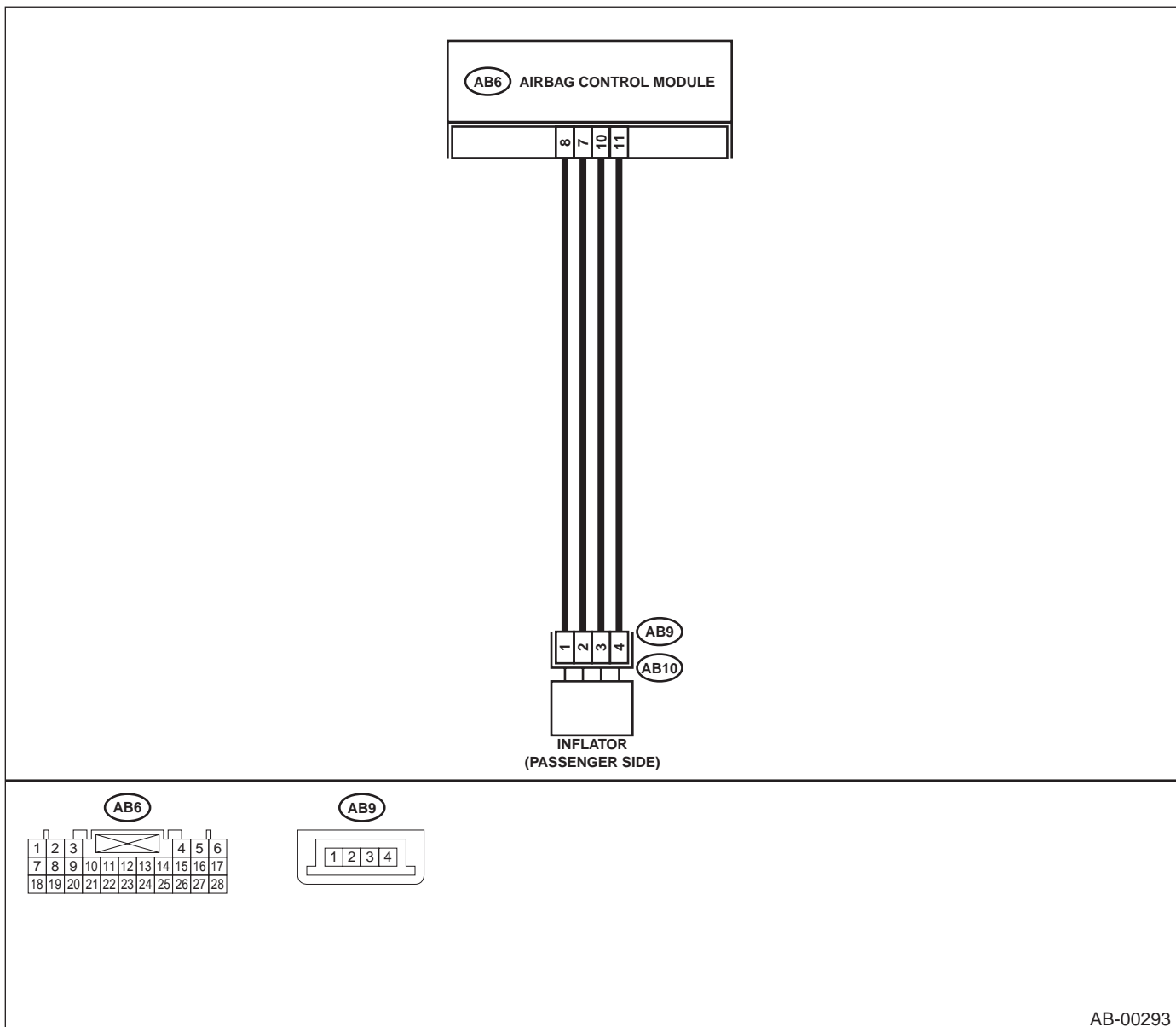
DIAGNOSIS:

- Airbag main harness circuit (Passenger) is shorted to the power supply.
- Airbag module harness (Passenger) is shorted to the power supply.
- Passenger's airbag module is faulty.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the airbag module connector of the driver and passenger seats for safety reasons.

WIRING DIAGRAM:



AB-00293

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK PASSENGER'S AIRBAG MODULE. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Pull out the two stopper pins and lower the glove box. 3) Disconnect the connector (AB10) from (AB9) 4) Connect the connector (1K) in test harness K to connector (AB9). 5) Connect two airbag resistors to connectors (3K) and (4K) in test harness K. 6) Connect the battery ground cable and turn the ignition switch ON. Does the airbag warning light operate properly?	Operates properly.	Replace the passenger airbag module. <Ref. to AB-14, Passenger's Airbag Module.>	Go to step 2.
2 CHECK AIRBAG MAIN HARNESS. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect two airbag resistors from the connectors (3K) and (4K) in test harness K. 3) Remove the lower cover and disconnect the connector (AB3) from (AB8). 4) Disconnect the connector (AB6) from the airbag control module, and connect the connector (1I) in test harness I2. <Ref. to AB-18, Airbag Control Module.> 5) Measure the voltage between connector (2I) in test harness I2 and the chassis ground. Connector & terminal (2I) No. 2 — Chassis ground: (2I) No. 5 — Chassis ground: Is the measured value less than the specified value?	1 V	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Replace airbag main harness. <Ref. to AB-16, Main Harness.>

E: DTC 21

DIAGNOSIS:

- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.

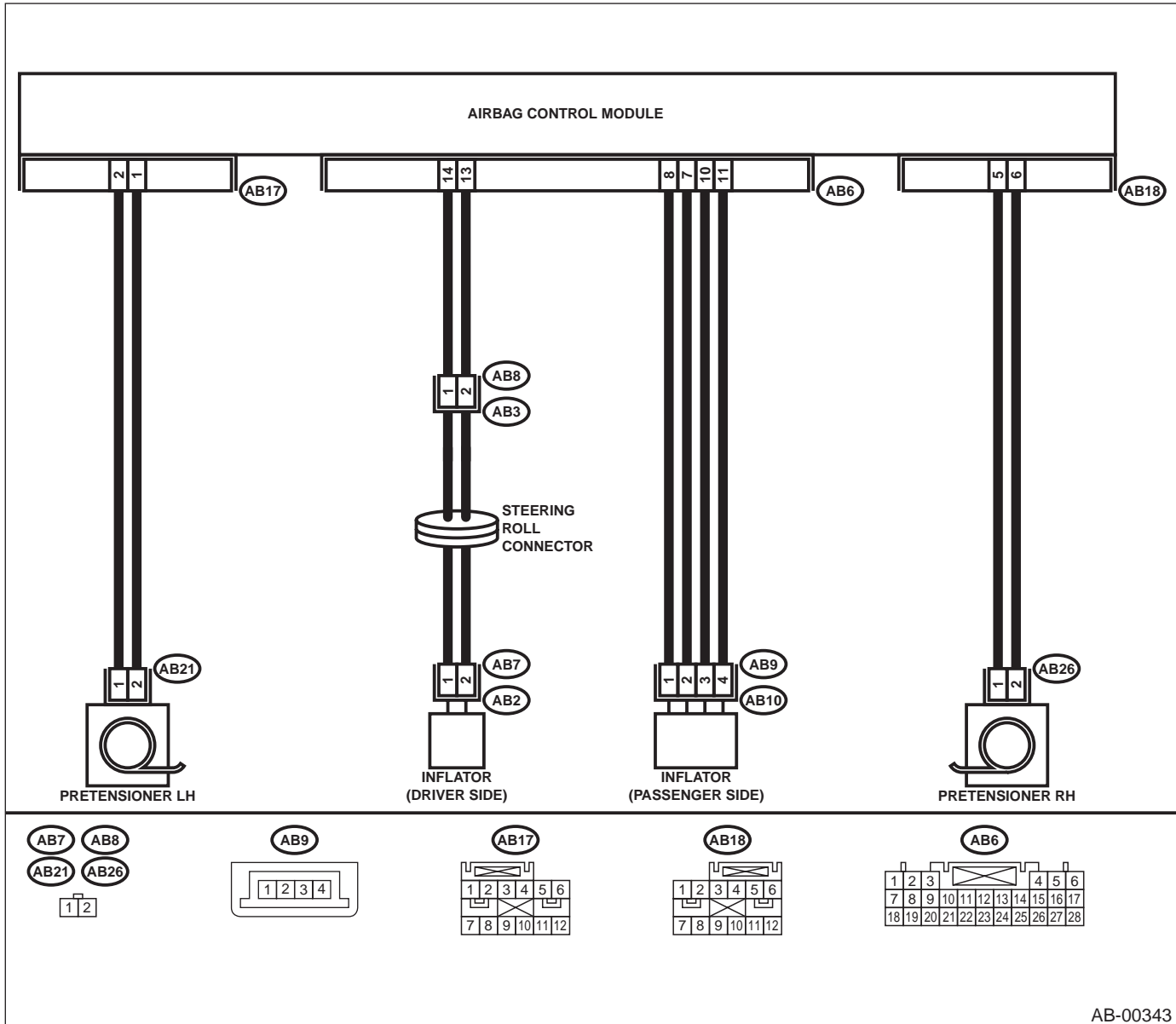
Step	Value	Yes	No
1 CHECK IF DTC 21 IS INDICATED. Read Diagnostic Trouble Code. <Ref. to AB-20, Read Diagnostic Trouble Code (DTC).> Is airbag warning light trouble code 21 indicated?	DTC 21 is not indicated.	Perform clear memory. <Ref. to AB-22, Clear Memory Mode.>	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

F: DTC 22

WIRING DIAGRAM:



AB-00343

- This code is indicated when the front airbag and the pretensioner are in operation. Once this code is indicated, memory is not erasable; therefore change the following parts.
- Airbag control module. <Ref. to AB-18, Airbag Control Module.>
 - Driver's airbag module. <Ref. to AB-13, Driver's Airbag Module.>
 - Passenger's airbag module. <Ref. to AB-14, Passenger's Airbag Module.>
 - Front sub-sensor of both sides. <Ref. to AB-21, Front Sub Sensor.>
 - Front seat belt outer with pretensioner of both sides. <Ref. to SB-7, Front Seat Belt.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

G: DTC 23

DIAGNOSIS:

(AB6), (AB17) and (AB18) are not connected properly to airbag control module.

CAUTION:

Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.

Step	Value	Yes	No
1 CHECK POOR CONTACT IN CONNECTORS (AB6), (AB17) and (AB18). 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the connectors (AB6), (AB17) and (AB18) from the airbag control module. <Ref. to AB-18, Airbag Control Module.> Check if rust or damage appear on the harness connector and the control module connector.	Rust or damage on the harness connector and the control module are not found.	Go to step 2.	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.> Replace airbag main harness. <Ref. to AB-16, Main Harness.> Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>
2 CHECK POOR CONTACT IN CONNECTORS (AB6), (AB17) and (AB18). 1) Ensure that connectors are firmly reconnected. 2) Connect the battery ground cable and turn the ignition switch ON. Does the air bag warning light operate properly?	Operates properly.	Finish the diagnosis.	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

H: DTC 24

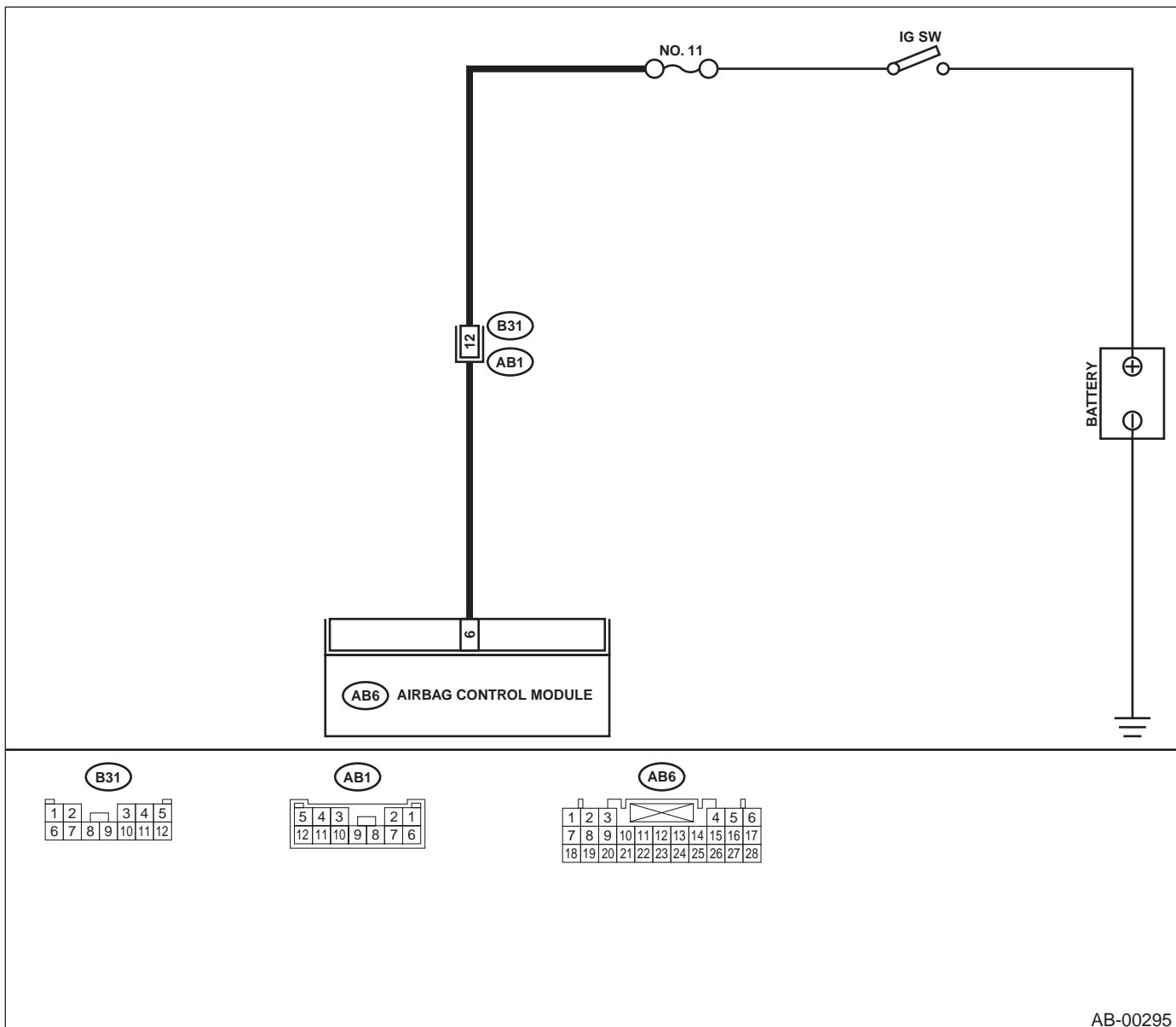
DIAGNOSIS:

- Airbag control module is faulty.
- Airbag main harness circuit is open.
- Fuse No, 11 (in joint box) is blown.
- Body harness circuit is open.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the driver's airbag module and passenger's airbag module connectors for safety reasons.

WIRING DIAGRAM:



AB-00295

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK FUSE No. 11 (IN JOINT BOX). 1) Confirm that the ignition switch is turned OFF. 2) Remove fuse No. 11 (in joint box) and perform visual inspection. Is fuse No.11 blown?	Fuse No. 11 is not blown.	Go to step 2.	Replace fuse No. 11. If fuse No. 11 blows again, repair the body harness.
2 CHECK AIRBAG CONTROL MODULE. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the connector (AB6) from the airbag control module. <Ref. to AB-18, Airbag Control Module.> 3) Connect the connector (1I) in test harness I2 to connector (AB6). 4) Connect the battery ground cable and turn the ignition switch ON. 5) Measure the voltage between connector (2I) in test harness I2 and chassis ground. Connector & terminal (2I) No. 3 (+) — Chassis ground (-): Does the measured value exceed the specified value?	10 V	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Go to step 3.
3 CHECK BODY MAIN HARNESS. 1) While checking control module, turn the ignition switch OFF and disconnect the battery ground cable. Wait more than 20 seconds before operation. 2) Disconnect the airbag connector (AB1) from the body harness (B31). 3) Measure the voltage between the connector (B31) and the chassis ground. Connector & terminal (B31) No. 12 (+) — Chassis ground (-): Does the measured value exceed the specified value?	10 V	Replace airbag main harness. <Ref. to AB-16, Main Harness.>	Repair the body harness.

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

I: DTC 25

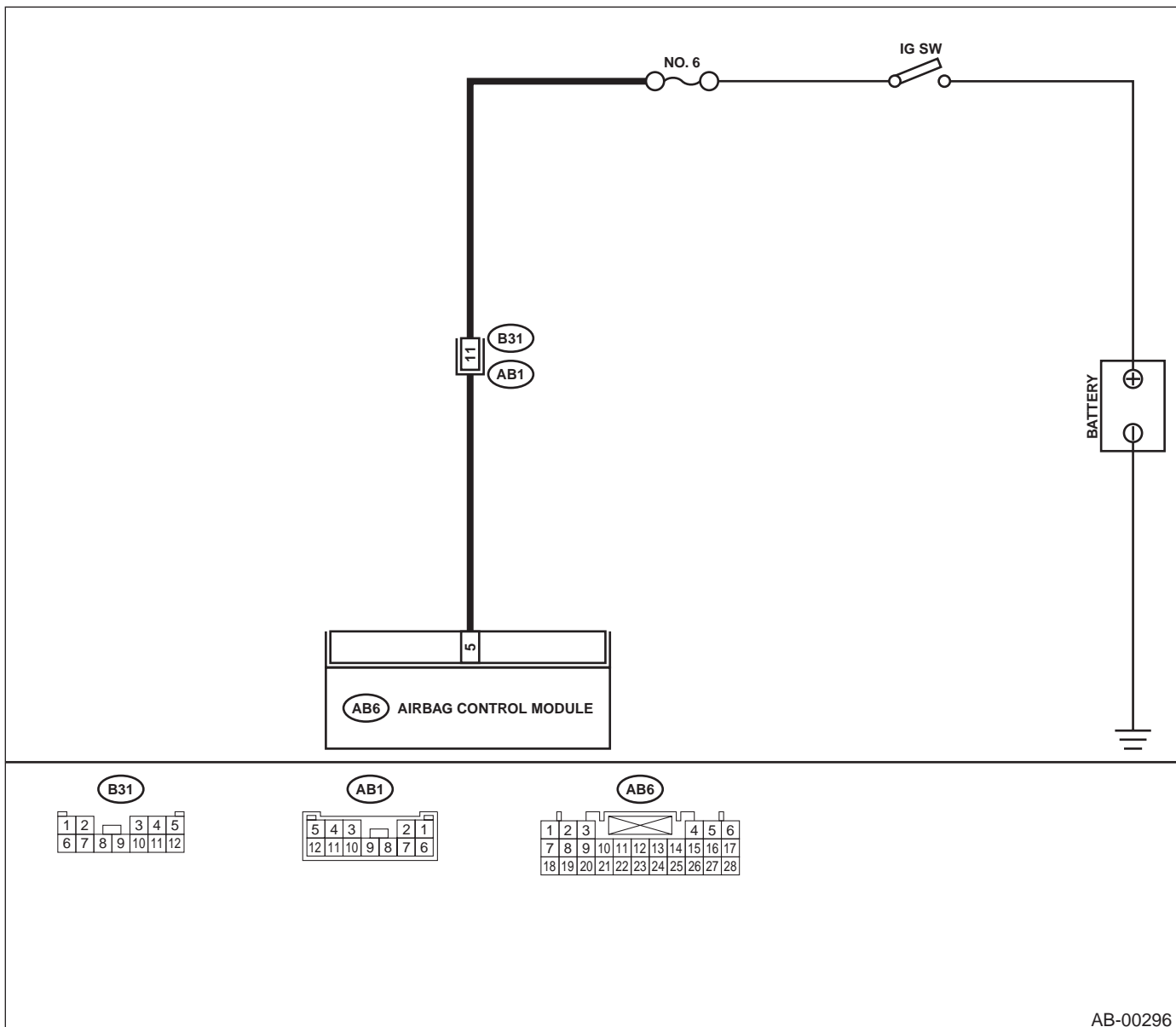
DIAGNOSIS:

- Airbag control module is faulty.
- Airbag main harness circuit is open.
- Fuse No. 6 (in joint box) is blown.
- Body harness circuit is open.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the driver's airbag module and passenger's airbag module connectors for safety reasons.

WIRING DIAGRAM:



DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK FUSE NO. 6 (IN JOINT BOX). 1) Confirm that the ignition switch is turned OFF. 2) Remove No. 6 fuse (in joint box) and perform visual inspection. Is fuse No. 6 blown?	Fuse No. 6 is not blown.	Go to step 2.	Replace fuse No. 6. If fuse No. 6 is blown again, repair the body harness.
2 CHECK AIRBAG CONTROL MODULE. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the connector (AB6) from airbag control module. <Ref. to AB-18, Airbag Control Module.> 3) Connect the connector (11) in test harness I2 to connector (AB6). 4) Connect the battery ground cable, and turn the ignition switch ON. 5) Measure the voltage between the connector (21) in test harness I2 and the chassis ground. Connector & terminal (21) No. 6 (+) — Chassis ground (-): Does the measured value exceed the specified value?	10 V	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Go to step 3.
3 CHECK AIRBAG MAIN HARNESS. 1) While checking control module, turn the ignition switch OFF and disconnect the battery ground cable. Wait more than 20 seconds before operation. 2) Disconnect the airbag connector (AB1) from the body harness (B31). 3) Measure the voltage between the connector (B31) and the chassis ground. Connector & terminal (B31) No. 11 (+) — Chassis ground (-): Does the measured value exceed the specified value?	10 V	Replace the airbag main harness. <Ref. to AB-16, Main Harness.>	Repair the body harness.

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

J: DTC 31

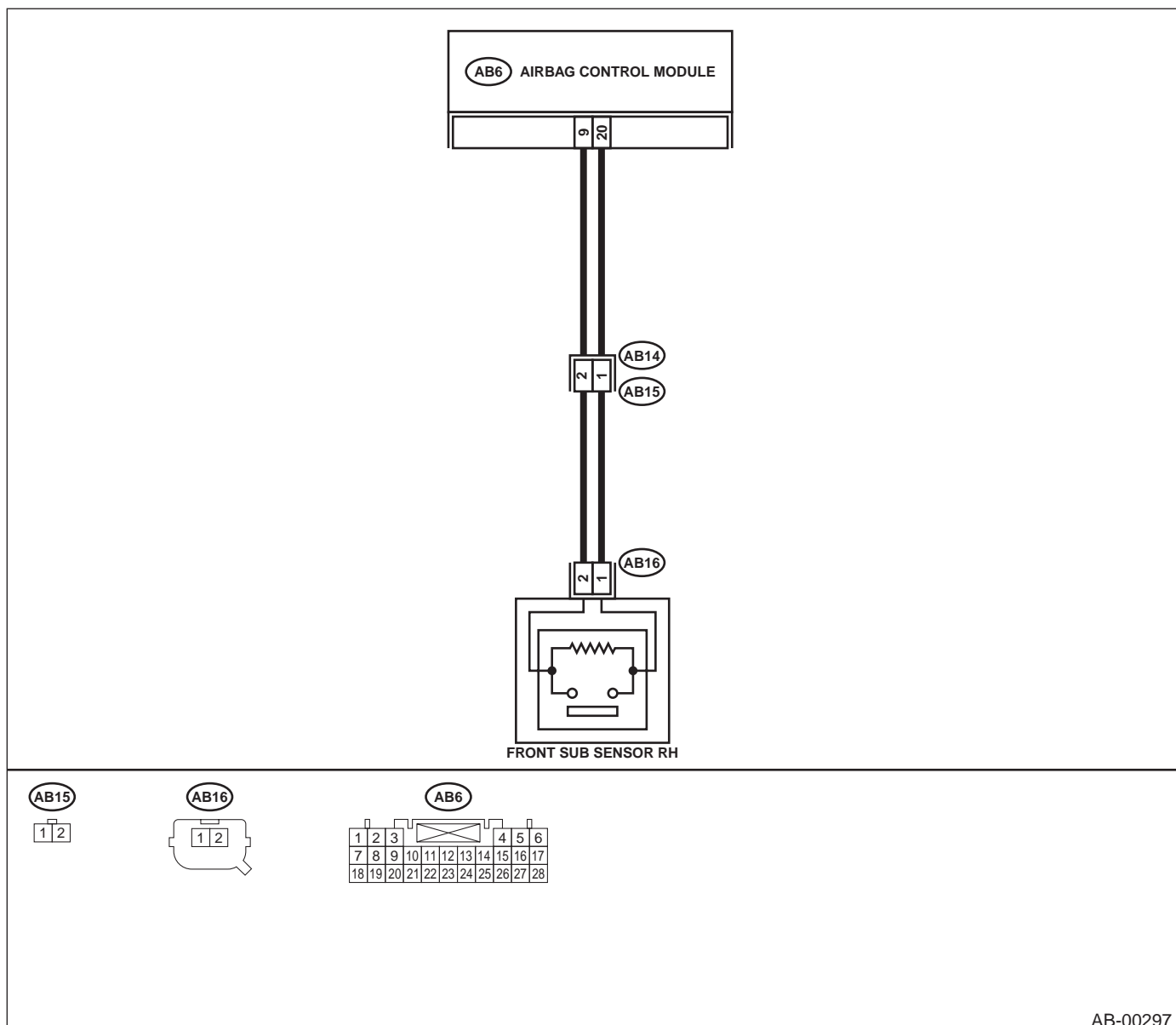
DIAGNOSIS:

- Front sub-sensor harness (RH) circuit is shorted.
- Front sub-sensor harness (RH) circuit is open.
- Front sub-sensor (RH) is faulty.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the driver's airbag module and passenger's airbag module connectors for safety reasons.

WIRING DIAGRAM:



DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK FRONT SUB-SENSOR (RH) AND FRONT SUB-SENSOR HARNESS (RH). 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the connector (AB6) from the airbag control module, and connect the connector (1I) in test harness I2. <Ref. to AB-18, Airbag Control Module.> 3) Measure the resistance of the connector (3I) in test harness I2. Connector & terminal (3I) No. 2 — No. 4: Is the measured value within the specified range?	750 Ω — 1 KΩ	Go to step 2.	Go to step 3.
2 CHECK FRONT SUB-SENSOR (RH) AND FRONT SUB-SENSOR HARNESS (RH). Measure the resistance between connector (3I) in test harness I2 and the chassis ground. Connector & terminal (3I) No. 2 — Chassis ground: (3I) No. 4 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Go to step 3.
3 CHECK AIRBAG MAIN HARNESS AND FRONT SUB-SENSOR HARNESS (RH). 1) Disconnect connector (AB16) from the front sub-sensor. <Ref. to AB-21, Front Sub Sensor.> 2) Connect connector (IH) in test harness H to connector (AB16). 3) Measure the resistance between connector (3I) in test harness I2 and connector (3H) in test harness H. Connector & terminal (3I) No. 2 — (3H) No. 5: (3I) No. 4 — (3H) No. 6: Is the measured value less than the specified value?	10 Ω	Go to step 4.	Go to step 5.
4 CHECK AIRBAG MAIN HARNESS AND FRONT SUB-SENSOR HARNESS (RH). Measure the resistance between connector (3I) in test harness I2 and the chassis ground. Connector & terminal (3I) No. 2 — Chassis ground: (3I) No. 4 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Go to step 9.	Go to step 5.

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
5 CHECK AIRBAG MAIN HARNESS 1) Remove the instrument panel. <Ref. to EI-37, Instrument Panel Assembly.> 2) Disconnect connector (AB15) from (AB14), and connect connector (2F) in test harness F to connector (AB14). 3) Measure the resistance between connector (3I) in test harness I2 and connector (3F) in test harness F. Connector & terminal <i>(3I) No. 2 — (3F) No. 6:</i> <i>(3I) No. 4 — (3F) No. 5:</i> Is the measured value less than the specified value?	10 Ω	Go to step 6.	Replace airbag main harness. <Ref. to AB-16, Main Harness.>
6 CHECK AIRBAG MAIN HARNESS Measure the resistance between connector (3I) in test harness I2 and the chassis ground. Connector & terminal <i>(3I) No. 2 — Chassis ground:</i> <i>(3I) No. 4 — Chassis ground:</i> Does the measured value exceed the specified value?	1 MΩ	Go to step 7.	Replace airbag main harness. <Ref. to AB-16, Main Harness.>
7 CHECK FRONT SUB-SENSOR HARNESS (RH). 1) Connect connector (1F) in test harness F to the connector (AB15). 2) Measure the resistance between connector (3H) in test harness H and connector (3F) in the test harness F. Connector & terminal <i>(3F) No. 3 — (3H) No. 5:</i> <i>(3F) No. 4 — (3H) No. 6:</i> Is the measured value less than the specified value?	10 Ω	Go to step 8.	Replace the front sub-sensor harness (RH) <Ref. to AB-22, Front Sub Sensor Harness.>
8 CHECK FRONT SUB-SENSOR HARNESS (RH). Measure the resistance between connector (3F) in test harness F and the chassis ground. Connector & terminal <i>(3F) No. 3 — Chassis ground:</i> <i>(3F) No. 4 — Chassis ground:</i> Does the measured value exceed the specified value?	1 MΩ	Go to step 9.	Replace the front sub-sensor harness (RH) <Ref. to AB-22, Front Sub Sensor Harness.>
9 CHECK FRONT SUB-SENSOR (RH). 1) Connect connector (2H) in test harness H to front sub-sensor (RH). 2) Measure the resistance of the connector (3H) in test harness H. Connector & terminal <i>(3H) No. 3 — No. 4:</i> Is the measured value within the specified range?	750 Ω — 1 KΩ	Go to step 10.	Replace the front sub-sensor (RH) <Ref. to AB-21, Front Sub Sensor.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
10 CHECK FRONT SUB-SENSOR (RH). Measure the resistance between connector (3H) in test harness H and the chassis ground. Connector & terminal (3H) No. 3 — Chassis ground: (3H) No. 4 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Finish the diagnosis.	Replace the front sub-sensor (RH) <Ref. to AB-21, Front Sub Sensor.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

K: DTC 32

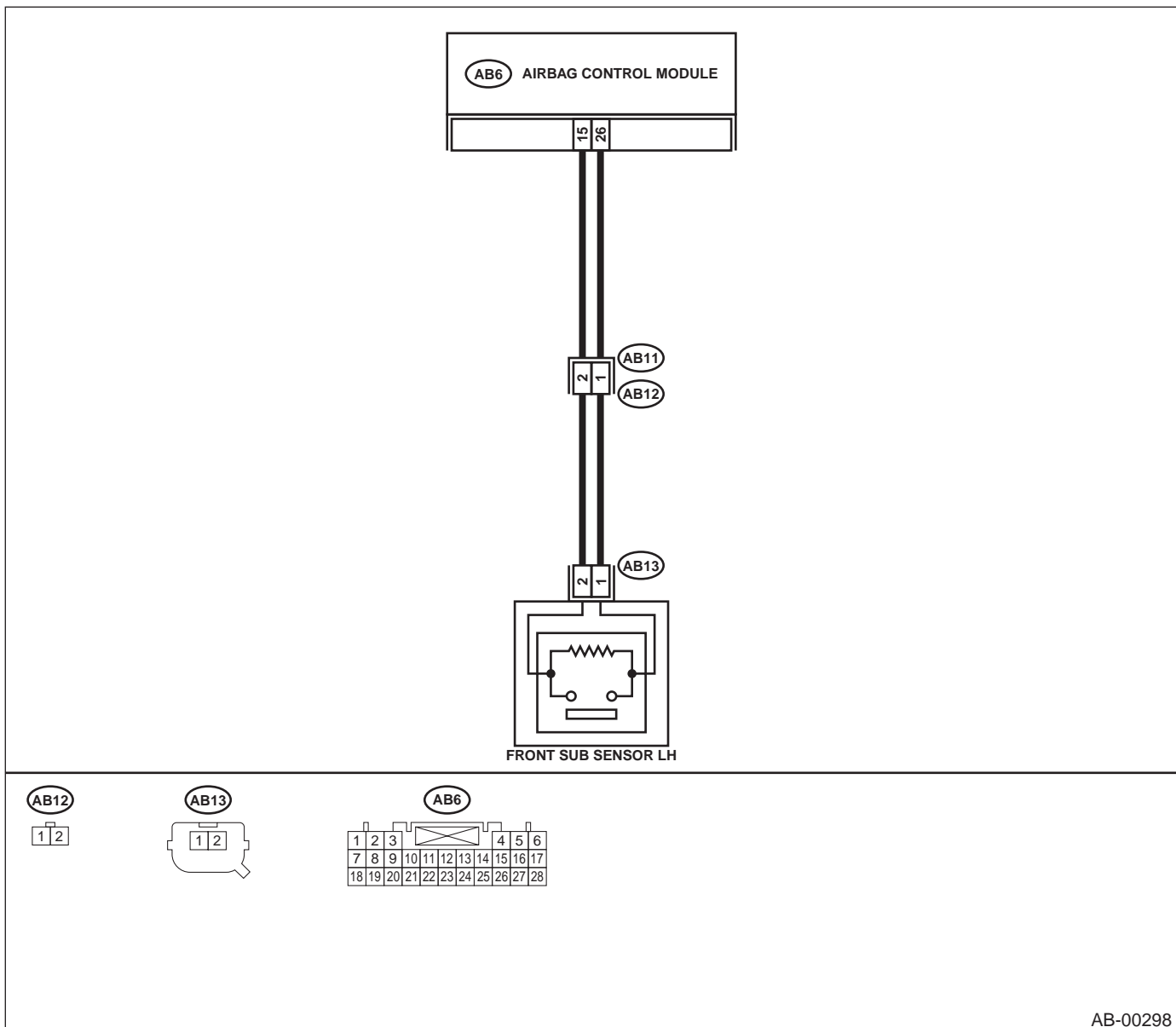
DIAGNOSIS:

- Front sub-sensor harness (LH) circuit is shorted.
- Front sub-sensor harness (LH) circuit is open.
- Front sub-sensor (LH) is faulty.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the driver's airbag module and passenger's airbag module connectors for safety reasons.

WIRING DIAGRAM:



DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK FRONT SUB-SENSOR (LH) AND FRONT SUB-SENSOR HARNESS (RH). 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect connector (AB6) from the airbag control module, and connect connector (1I) in the test harness I2 to connector (AB6). <Ref. to AB-18, Airbag Control Module.> 3) Measure the resistance of the connector (3I) in the test harness I2. Connector & terminal (3I) No. 1 — No. 3: Is the measured value within the specified range?	750 Ω — 1 KΩ	Go to step 2.	Go to step 3.
2 CHECK FRONT SUB-SENSOR (LH) AND FRONT SUB-SENSOR HARNESS (RH). Measure the resistance between connector (3I) in test harness I2 and the chassis ground. Connector & terminal (3I) No. 1 — Chassis ground: (3I) No. 3 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Go to step 3.
3 CHECK AIRBAG MAIN HARNESS AND FRONT SUB-SENSOR HARNESS (LH). 1) Disconnect the connector (AB13) from the front sub-sensor. <Ref. to AB-21, Front Sub Sensor.> 2) Connect connector (1H) in test harness H to connector (AB13). 3) Measure the resistance between connector (3I) in test harness I2 and connector (3H) in test harness H. Connector & terminal (3I) No. 3 — (3H) No. 5: (3I) No. 1 — (3H) No. 6: Is the measured value less than the specified value?	10 Ω	Go to step 4.	Go to step 5.
4 CHECK AIRBAG MAIN HARNESS AND FRONT SUB-SENSOR HARNESS (LH). Measure the resistance between connector (3I) in test harness I2 and the chassis ground. Connector & terminal (3I) No. 3 — Chassis ground: (3I) No. 1 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Go to step 9.	Go to step 5.

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
<p>5 CHECK AIRBAG MAIN HARNESS.</p> <p>1) Remove the instrument panel. <Ref. to EI-37, Instrument Panel Assembly.></p> <p>2) Disconnect connector (AB11) from (AB12), and connect connector (2F) in test harness F to (AB11).</p> <p>3) Measure the resistance between connector (3I) in test harness I2 and connector (3F) in test harness F.</p> <p>Connector & terminal (3I) No. 3 — (3F) No. 6: (3I) No. 1 — (3F) No. 5:</p> <p>Is the measured value less than the specified value?</p>	10 Ω	Go to step 6.	Replace the airbag main harness. <Ref. to AB-16, Main Harness.>
<p>6 CHECK AIRBAG MAIN HARNESS.</p> <p>Measure the resistance between connector (3I) in the test harness I2 and the chassis ground.</p> <p>Connector & terminal (3I) No. 3 — Chassis ground: (3I) No. 1 — Chassis ground:</p> <p>Does the measured value exceed the specified value?</p>	1 MΩ	Go to step 7.	Replace the airbag main harness. <Ref. to AB-16, Main Harness.>
<p>7 CHECK FRONT SUB-SENSOR HARNESS (LH).</p> <p>1) Connect connector (1F) in test harness F to connector (AB12).</p> <p>2) Measure the resistance between connector (3H) in test harness H and connector (3F) in test harness F.</p> <p>Connector & terminal (3F) No. 3 — (3H) No. 5: (3F) No. 4 — (3H) No. 6:</p> <p>Is the measured value less than the specified value?</p>	10 Ω	Go to step 8.	Replace the front sub-sensor harness (LH). <Ref. to AB-16, Main Harness.>
<p>8 CHECK FRONT SUB-SENSOR HARNESS (LH).</p> <p>Measure the resistance between connector (3F) in test harness F and the chassis ground.</p> <p>Connector & terminal (3F) No. 3 — Chassis ground: (3F) No. 4 — Chassis ground:</p> <p>Does the measured value exceed the specified value?</p>	1 MΩ	Go to step 9.	Replace the front sub-sensor harness (LH). <Ref. to AB-16, Main Harness.>
<p>9 CHECK FRONT SUB-SENSOR (LH).</p> <p>1) Connect connector (2H) in test harness H to front sub-sensor (LH).</p> <p>2) Measure the resistance of the connector (3H) in test harness H.</p> <p>Connector & terminal (3H) No. 3 — No. 4:</p> <p>Is the measured value within the specified range?</p>	750 Ω — 1 KΩ	Go to step 10.	Replace the front sub-sensor (LH). <Ref. to AB-21, Front Sub Sensor.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

	Step	Value	Yes	No
10	<p>CHECK FRONT SUB-SENSOR (LH). Measure the resistance between connector (3H) in test harness H and the chassis ground.</p> <p>Connector & terminal (3H) No. 3 — Chassis ground: (3H) No. 4 — Chassis ground:</p> <p>Does the measured value exceed the specified value?</p>	1 MΩ	Finish the diagnosis.	Replace the front sub-sensor (LH). <Ref. to AB-21, Front Sub Sensor.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

L: DTC 41

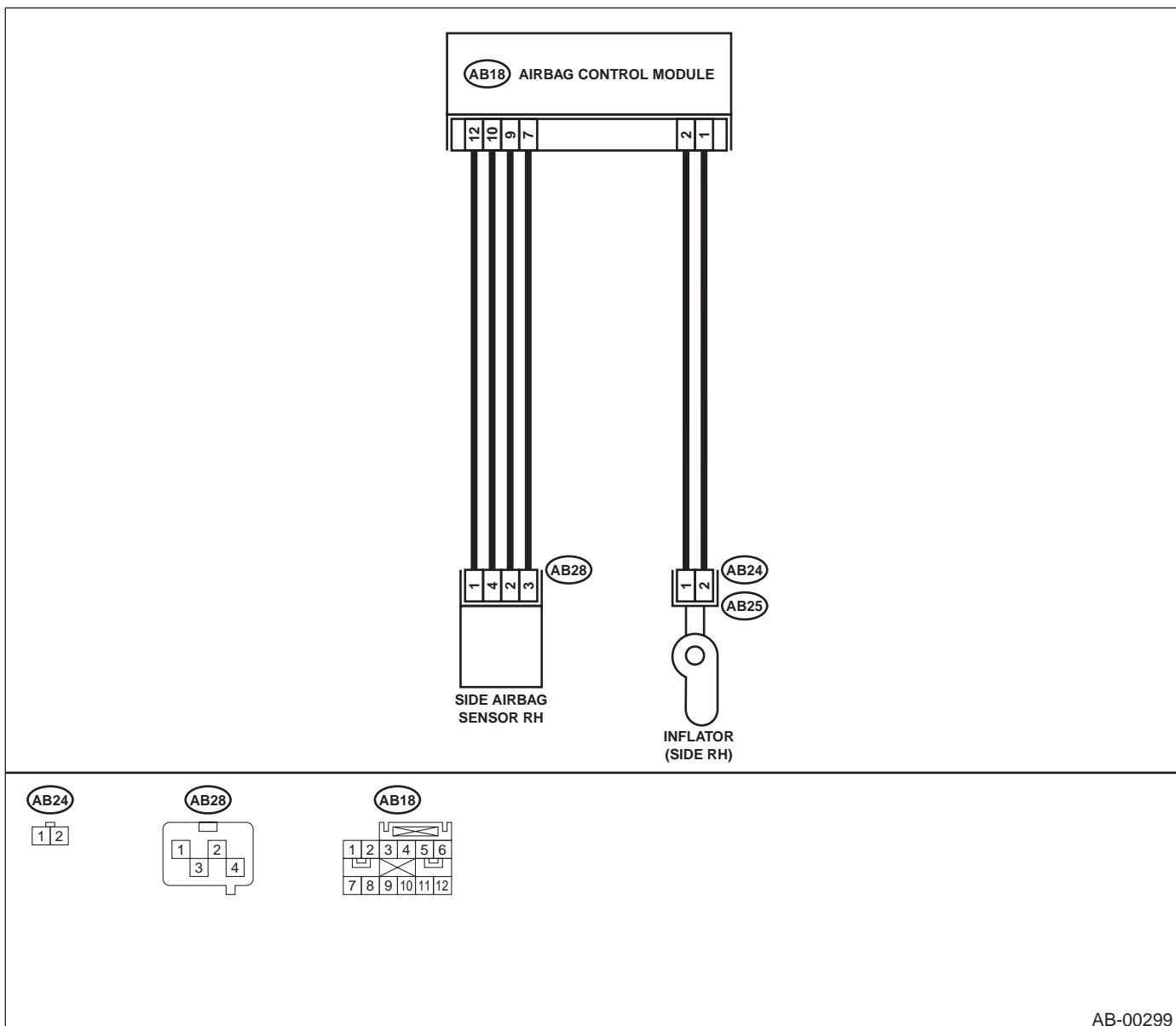
DIAGNOSIS:

- Side airbag harness (RH) is faulty.
- Side airbag module (RH) is faulty.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the driver's airbag module and passenger's airbag module connectors for safety reasons.
- When inspecting the side airbag harness, disconnect the side airbag module connector and seat belt pretensioner connector for the safety reasons.

WIRING DIAGRAM:



AB-00299

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK SIDE AIRBAG MODULE. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the connector (AB26) from the seat belt pretensioner (RH). <Ref. to SB-7, Front Seat Belt.> 3) Disconnect connector (AB25) from (AB24), and connect connector (1F) in test harness F to (AB24). 4) Connect air bag resistor to connector (3F) in test harness F. 5) Connect the battery ground cable, and turn the ignition switch ON. Does the airbag warning light operate properly?	Operates properly.	Replace front seat with side airbag module (RH). <Ref. to SB-7, Front Seat Belt.>	Go to step 2.
2 CHECK SIDE AIRBAG HARNESS (RH). 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect airbag resistor from test harness. 3) Disconnect the connector (AB18) from air bag control module. <Ref. to AB-18, Airbag Control Module.> 4) Connect connector (1I) in test harness I2 to connector (AB18). 5) Measure the resistance between connector (3I) in test harness I2 and connector (3F) in test harness F. Connector & terminal (3I) No. 7 — (3F) No. 4: (3I) No. 9 — (3F) No. 3: Is the measured value less than the specified value?	10 Ω	Go to step 3.	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>
3 CHECK SIDE AIRBAG HARNESS (RH). Measure the resistance of the connector (3F) in test harness F. Connector & terminal (3F) No. 3 — No. 4: Does the measured value exceed the specified value?	1 MΩ	Go to step 4.	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>
4 CHECK SIDE AIRBAG HARNESS (RH). Measure the resistance between connector (3F) in test harness F and the chassis ground. Connector & terminal (3F) No. 3 — Chassis ground: (3F) No. 4 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

M: DTC 42

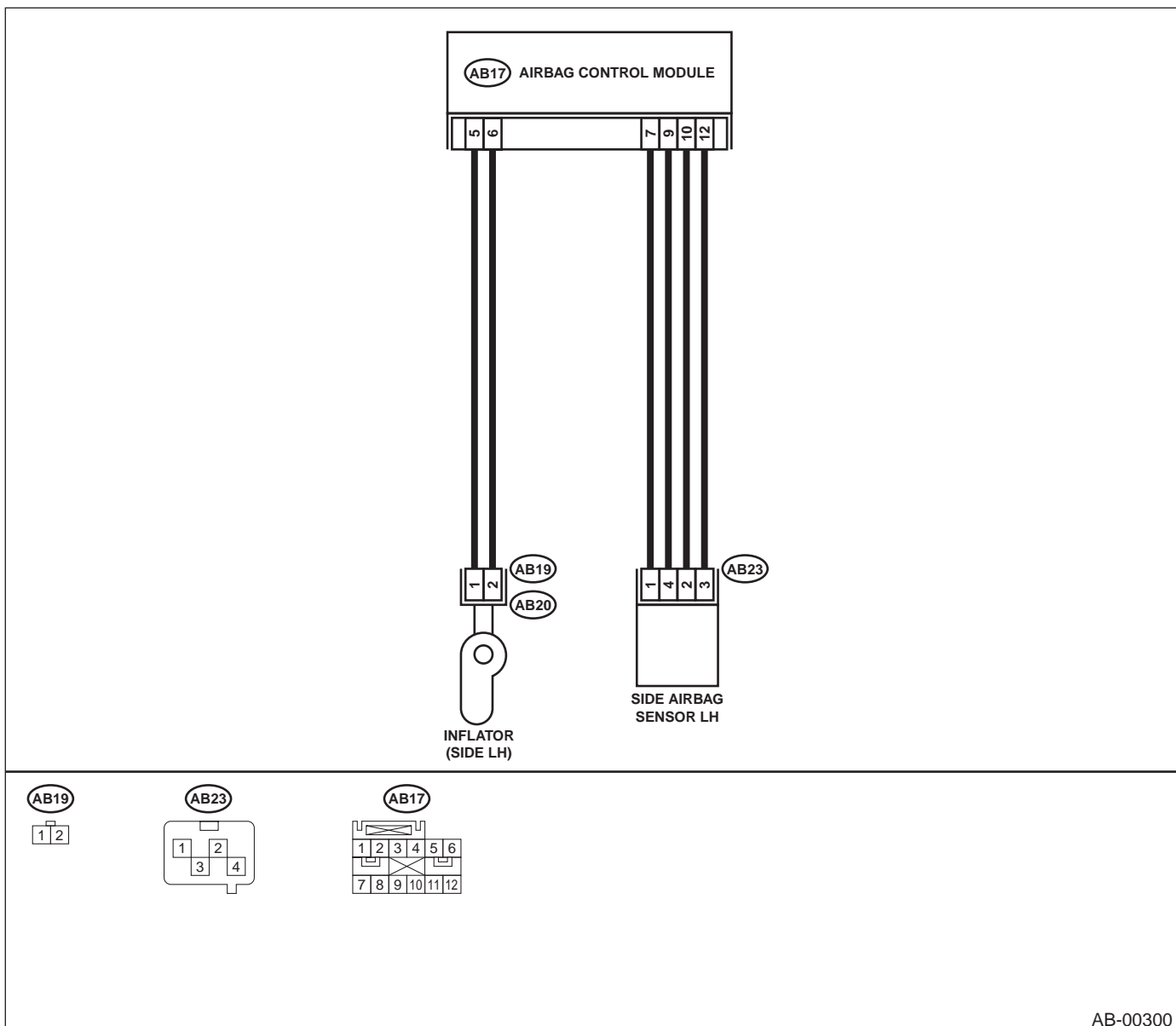
DIAGNOSIS:

- Side airbag harness (LH) is faulty.
- Side airbag module (LH) is faulty.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the driver's airbag module and passenger's airbag module connectors for safety reasons.
- When inspecting the side airbag harness, disconnect the side airbag module connector and seat belt pretensioner connector for the safety reasons.

WIRING DIAGRAM:



DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK SIDE AIRBAG MODULE. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the connector (AB21) from the seat belt pretensioner (LH). <Ref. to SB-7, Front Seat Belt.> 3) Disconnect connector (AB20) from (AB19), and connect connector (1F) in test harness F to (AB19). 4) Connect airbag resistor to connector (3F) in test harness F. 5) Connect the battery ground cable, and turn the ignition switch ON. Does the air bag warning light operate properly?	Operates properly.	Replace front seat with side airbag module (LH). <Ref. to SB-7, Front Seat Belt.>	Go to step 2.
2 CHECK SIDE AIRBAG HARNESS (LH). 1) Turn ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect airbag resistor from the test harness. 3) Disconnect the connector (AB17) from the airbag control module. <Ref. to AB-18, Airbag Control Module.> 4) Connect connector (1I) in test harness I2 to connector (AB17). 5) Measure the resistance between connector (3I) in test harness I2 and connector (3F) in test harness F. Connector & terminal (3I) No. 10 — (3F) No. 3: (3I) No. 12 — (3F) No. 4: Is the measured value less than the specified value?	10 Ω	Go to step 3.	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>
3 CHECK SIDE AIRBAG HARNESS (LH). Measure the resistance of the connector (3F) in test harness F. Connector & terminal (3F) No. 3 — No. 4: Does the measured value exceed the specified value?	1 MΩ	Go to step 4.	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>
4 CHECK SIDE AIRBAG HARNESS (LH). Measure the resistance between connector (3F) in test harness F and the chassis ground. Connector & terminal (3F) No. 3 — Chassis ground: (3F) No. 4 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

N: DTC 45

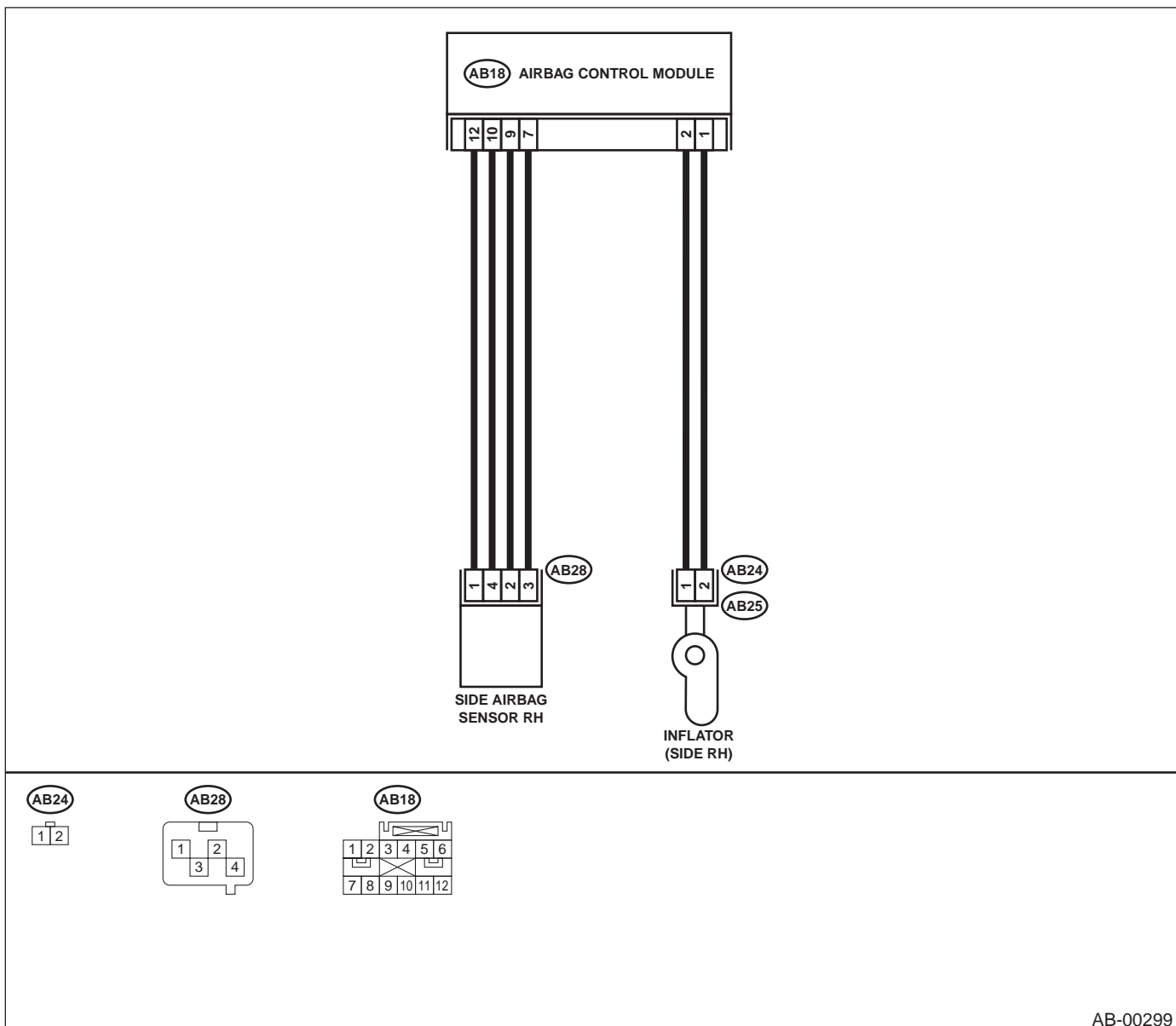
DIAGNOSIS:

- Side airbag harness (RH) is shorted to power supply.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the driver's airbag module and passenger's airbag module connectors for safety reasons.
- When inspecting the side airbag harness, disconnect the side airbag module connector and seat belt pretensioner connector for the safety reasons.

WIRING DIAGRAM:



DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

	Step	Value	Yes	No
1	<p>CHECK SIDE AIRBAG MODULE.</p> <ol style="list-style-type: none"> 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the connector (AB26) from the seat belt pretensioner (RH). <Ref. to SE-7, Front Seat.> 3) Disconnect the connector (AB25) from (AB24), and connect connector (1F) in test harness F to (AB24). 4) Connect airbag resistor to connector (3F) in test harness F. 5) Connect the battery ground cable, and turn the ignition switch ON. <p>Does air bag warning light operate properly?</p>	Operates properly.	Replace front seat with side airbag module (RH). <Ref. to SE-7, Front Seat.>	Go to step 2.
2	<p>CHECK SIDE AIRBAG HARNESS (RH).</p> <ol style="list-style-type: none"> 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect airbag resistor from the test harness. 3) Disconnect the connector (AB18) from the airbag control module. <Ref. to AB-18, Airbag Control Module.> 4) Connect connector (1I) in test harness I2 to connector (AB18). 5) Connect the battery ground cable, and turn the ignition switch ON. 6) Measure the voltage between connector (3I) in test harness I2 and the chassis ground. <p>Connector & terminal (3I) No. 7 (+) — Chassis ground (-): (3I) No. 9 (+) — Chassis ground (-):</p> <p>Is the measured value less than the specified value?</p>	1 V	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

O: DTC 46

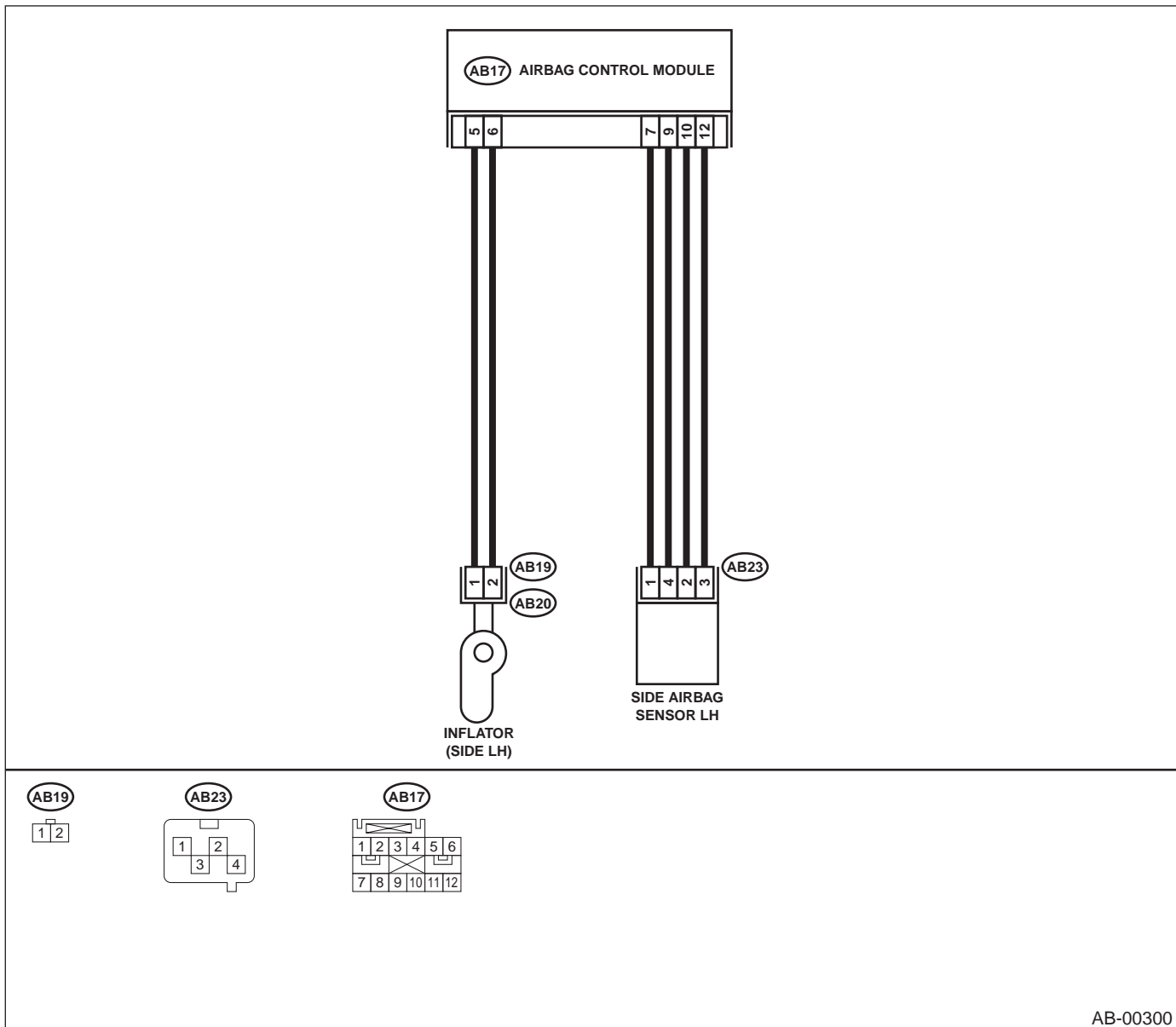
DIAGNOSIS:

- Side airbag harness (LH) is shorted to power supply.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the driver's airbag module and passenger's airbag module connectors for safety reasons.
- When inspecting the side airbag harness, disconnect the side airbag module connector and seat belt pretensioner connector for the safety reasons.

WIRING DIAGRAM:



DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
<p>1</p> <p>CHECK SIDE AIRBAG MODULE.</p> <ol style="list-style-type: none"> 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect connector (AB21) from the seat belt pretensioner (LH). <Ref. to SE-7, Front Seat.> 3) Disconnect connector (AB20) from (AB19), and connect connector (1F) in test harness F to (AB19). 4) Connect airbag resistor to connector (3F) in test harness F. 5) Connect the battery ground cable and turn the ignition switch ON. Does air bag warning light operate properly? 	Operates properly.	Replace front seat with side airbag module (LH). <Ref. to SE-7, Front Seat.>	Go to step 2.
<p>2</p> <p>CHECK SIDE AIRBAG HARNESS (LH).</p> <ol style="list-style-type: none"> 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect airbag resistor from the test harness. 3) Disconnect the connector (AB17) from the airbag control module. <Ref. to AB-18, Airbag Control Module.> 4) Connect connector (11) in test harness I2 to connector (AB17). 5) Connect the battery ground cable, and turn the ignition switch ON. 6) Measure the voltage between connector (31) in test harness I2 and the chassis ground. <p>Connector & terminal (31) No. 10 (+) — Chassis ground (-): (31) No. 12 (+) — Chassis ground (-): Is the measured value less than the specified value?</p>	1 V	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

P: DTC 51

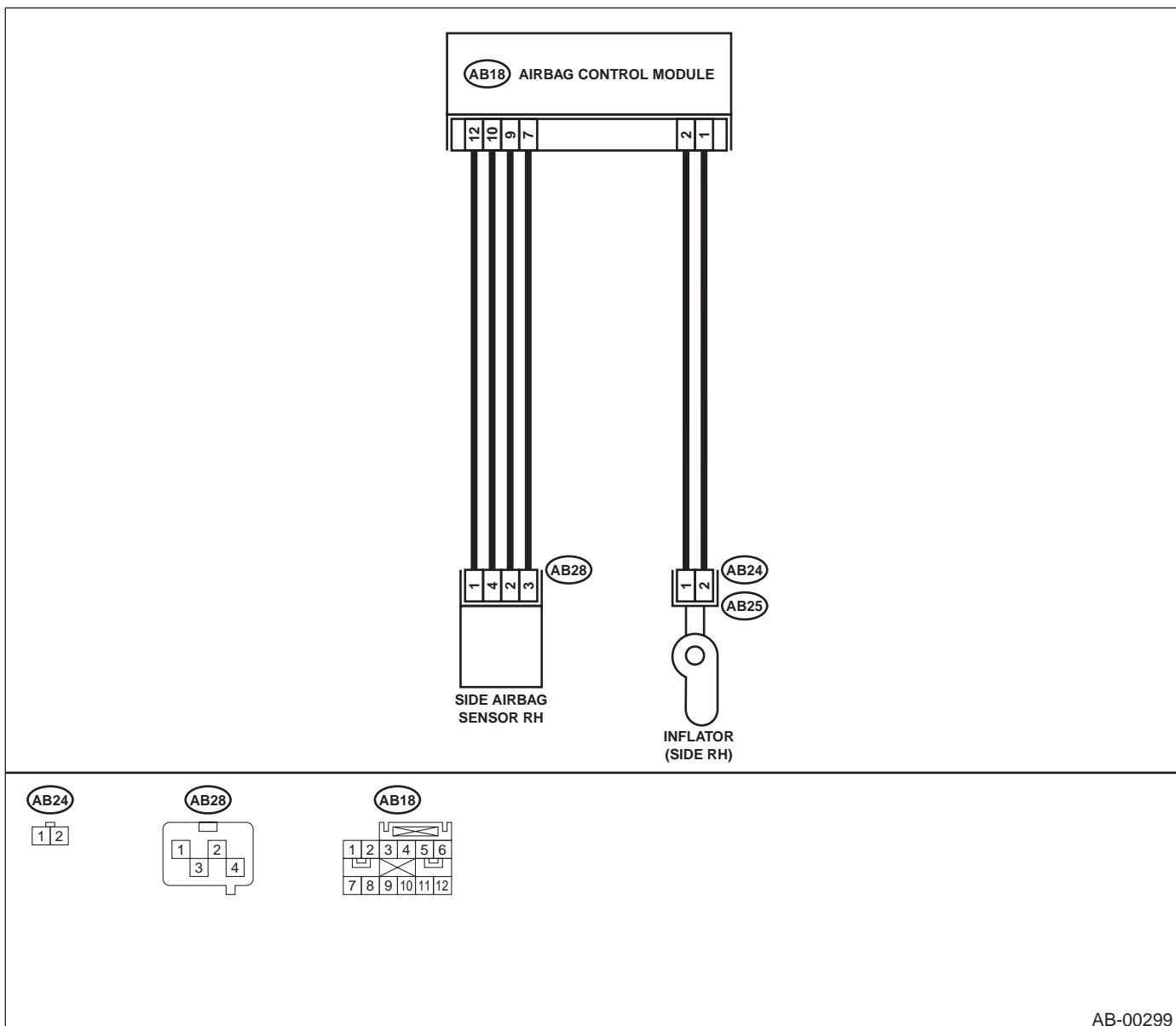
DIAGNOSIS:

- Side airbag sensor (RH) is faulty.
- Side airbag harness (RH) is faulty.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the driver's airbag module and passenger's airbag module connectors for safety reasons.
- When inspecting the side airbag harness, disconnect the side airbag module connector and seat belt pretensioner connector for the safety reasons.

WIRING DIAGRAM:



DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
<p>1</p> <p>CHECK SIDE AIRBAG HARNESS (RH).</p> <ol style="list-style-type: none"> 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect connector (AB26) from the seat belt pretensioner (RH). <Ref. to SB-7, Front Seat Belt.> 3) Disconnect connector (AB25) from (AB24). 4) Disconnect connector (AB18) from the airbag control module. <Ref. to AB-18, Airbag Control Module.> 5) Connect connector (1I) in test harness I2 to the connector (AB18). 6) Disconnect connector (AB28) from the side airbag sensor (RH), and connect connector (1G) in test harness G to connector (AB28). 7) Measure the resistance between connector (3I) in test harness I2 and connector (3G) in test harness G. <p>Connector & terminal</p> <p>(3I) No. 17 — (3G) No. 2:</p> <p>(3I) No. 18 — (3G) No. 4:</p> <p>(3I) No. 19 — (3G) No. 1:</p> <p>(3I) No. 20 — (3G) No. 5:</p> <p>Is the measured value less than the specified value?</p>	<p>10 Ω</p>	<p>Go to step 2.</p>	<p>Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.></p>
<p>2</p> <p>CHECK SIDE AIRBAG HARNESS (RH).</p> <p>Measure the resistance between connector (3I) in test harness I2 and the chassis ground.</p> <p>Connector & terminal</p> <p>(3I) No. 17 — Chassis ground:</p> <p>(3I) No. 18 — Chassis ground:</p> <p>(3I) No. 19 — Chassis ground:</p> <p>(3I) No. 20 — Chassis ground:</p> <p>Does the measured value exceed the specified value?</p>	<p>1 MΩ</p>	<p>Replace side airbag sensor (RH). <Ref. to AB-19, Side Airbag Sensor.> When sensor replacement is not OK, replace the airbag control module. <Ref. to AB-18, Airbag Control Module.></p>	<p>Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.></p>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

Q: DTC 52

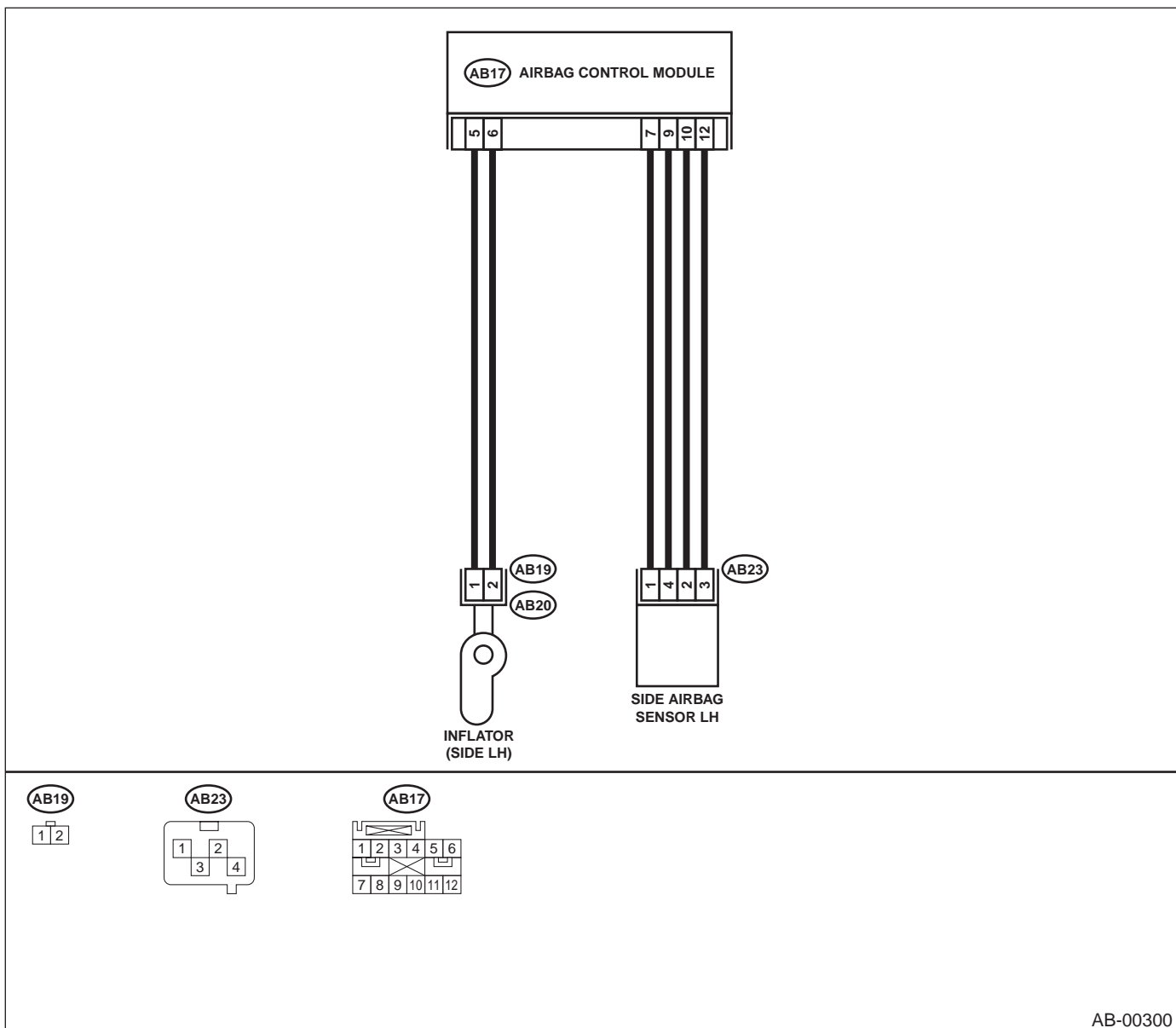
DIAGNOSIS:

- Side airbag sensor (LH) is faulty.
- Side airbag harness (LH) is faulty.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the airbag main harness, disconnect the driver's airbag module and passenger's airbag module connectors for safety reasons.
- When inspecting the side airbag harness, disconnect the side airbag module connector and seat belt pretensioner connector for the safety reasons.

WIRING DIAGRAM:



DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK SIDE AIRBAG HARNESS (LH). 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the connector (AB21) from the seat belt pretensioner (LH). <Ref. to SB-7, Front Seat Belt.> 3) Disconnect connector (AB20) from (AB19). 4) Disconnect connector (AB17) from the airbag control module. <Ref. to AB-18, Airbag Control Module.> 5) Connect connector (1I) in test harness I2 to connector (AB17). 6) Disconnect connector (AB23) from the side airbag sensor (LH), and connect connector (1G) in test harness G to connector (AB23). 7) Measure the resistance between connector (3I) in test harness I2 and connector (3G) in test harness G. Connector & terminal (3I) No. 5 — (3G) No. 5: (3I) No. 14 — (3G) No. 1: (3I) No. 15 — (3G) No. 4: (3I) No. 16 — (3G) No. 2: Is the measured value less than the specified value?	10 Ω	Go to step 2.	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>
2 CHECK SIDE AIRBAG HARNESS (RH). Measure the resistance between connector (3I) in test harness I2 and the chassis ground. Connector & terminal (3I) No. 5 — Chassis ground: (3I) No. 14 — Chassis ground: (3I) No. 15 — Chassis ground: (3I) No. 16 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Replace side airbag sensor (LH). <Ref. to AB-19, Side Airbag Sensor.> When sensor replacement is not OK, replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>

R: DTC 53

DIAGNOSIS:

- Side airbag sensor (RH) is faulty.

When Code 53 is displayed, the circuit within the side airbag sensor (RH) is faulty. Replace the side airbag sensor (RH).

<Ref. to AB-19, Side Airbag Sensor.>

S: DTC 54

DIAGNOSIS:

- Side airbag sensor (LH) is faulty.

When Code 53 is displayed, the circuit within the side airbag sensor (LH) is faulty. Replace the side airbag sensor (LH).

<Ref. to AB-19, Side Airbag Sensor.>

T: DTC 55

This code is displayed when the side airbag is deployed.

When this code is displayed, the memory cannot be erased. Replace the following parts.

- Airbag control module. <Ref. to AB-18, Airbag Control Module.>
- Front seat with side airbag module. (Operating side) <Ref. to SE-7, Front Seat.>
- Side airbag sensor. (Operating side) <Ref. to AB-19, Side Airbag Sensor.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

U: DTC 61

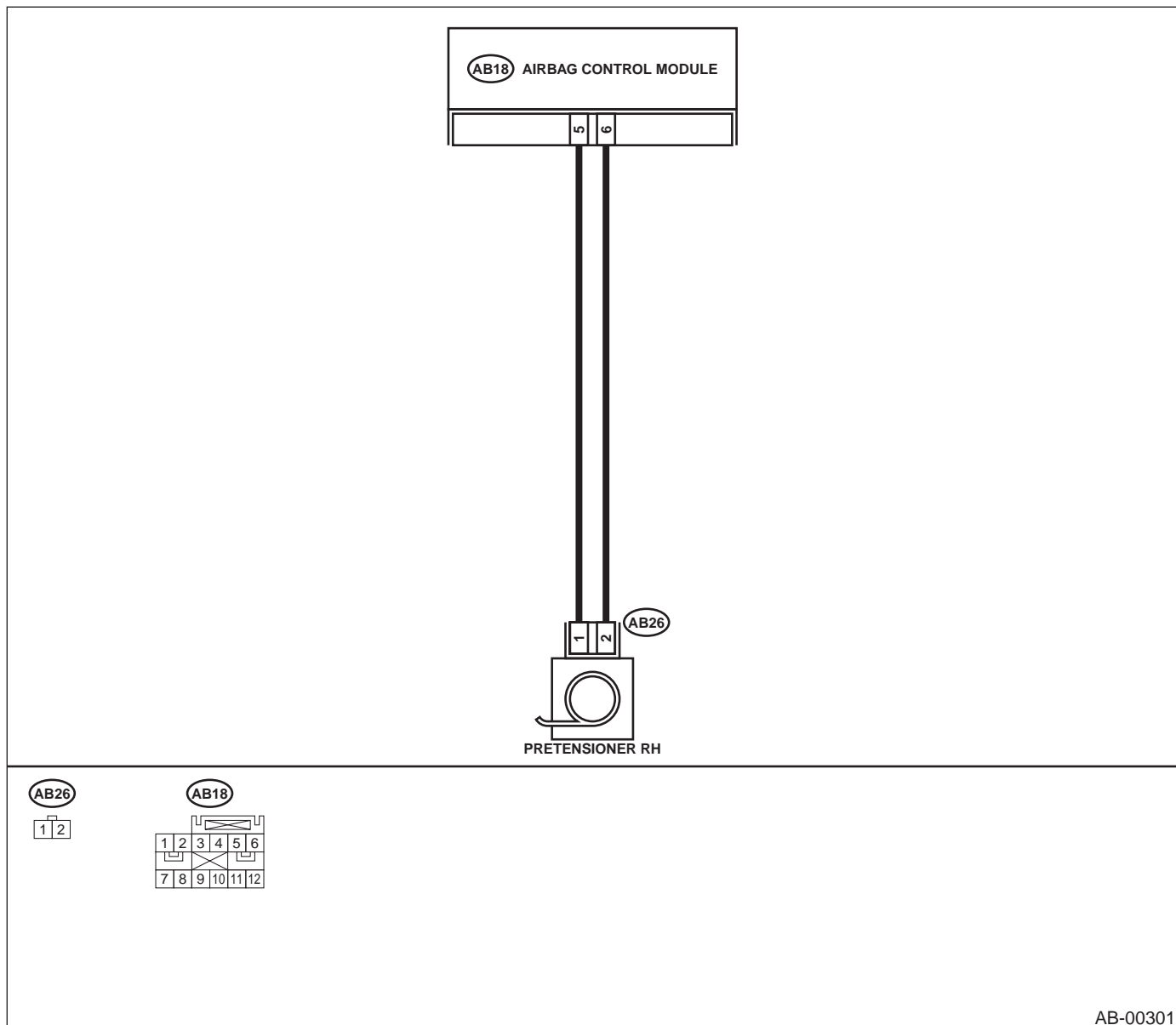
DIAGNOSIS:

- Seat belt pretensioner (RH) circuit is open, shorted or shorted to ground.
- Airbag control module is faulty.
- Pretensioner is faulty.
- Pretensioner harness is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the side airbag harness, disconnect the side airbag module connector and seat belt pretensioner connector for the safety reasons.

WIRING DIAGRAM:



DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK SEAT BELT PRETENSIONER. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the connector (AB26) from the seat belt pretensioner (RH). <Ref. to SB-7, Front Seat Belt.> 3) Connect the connector (1F) in test harness F to (AB26). 4) Connect the airbag resistor to connector (3F) in test harness F. 5) Connect the battery ground cable and turn the ignition switch ON. Does the airbag warning light operate properly?	Operates properly.	Replace seat belt pretensioner (RH). <Ref. to SB-7, Front Seat Belt.>	Go to step 2.
2 CHECK SIDE AIRBAG HARNESS (RH). 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the airbag resistor from the test harness. 3) Disconnect the connector (AB25) from (AB24). 4) Disconnect the connectors (AB17) and (AB18) from the airbag control module. <Ref. to AB-18, Airbag Control Module.> 5) Connect the connector (1I) in test harness I2 to connector (AB18). 6) Measure the resistance between connector (3I) in test harness I2 and connector (3F) in test harness F. Connector & terminal (3I) No. 8 — (3F) No. 4: (3I) No. 6 — (3F) No. 3: Is the measured value less than the specified value?	10 Ω	Go to step 3.	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>
3 CHECK SIDE AIRBAG HARNESS (RH). Measure the resistance of the connector (3I) in test harness I2. Connector & terminal (3I) No. 6 — No. 8: Does the measured value exceed the specified value?	1 MΩ	Go to step 4.	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>
4 CHECK SIDE AIRBAG HARNESS (RH). Measure the resistance between connector (3I) in test harness I2 and the chassis ground. Connector & terminal (3I) No. 6 — Chassis ground: (3I) No. 8 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

V: DTC 62

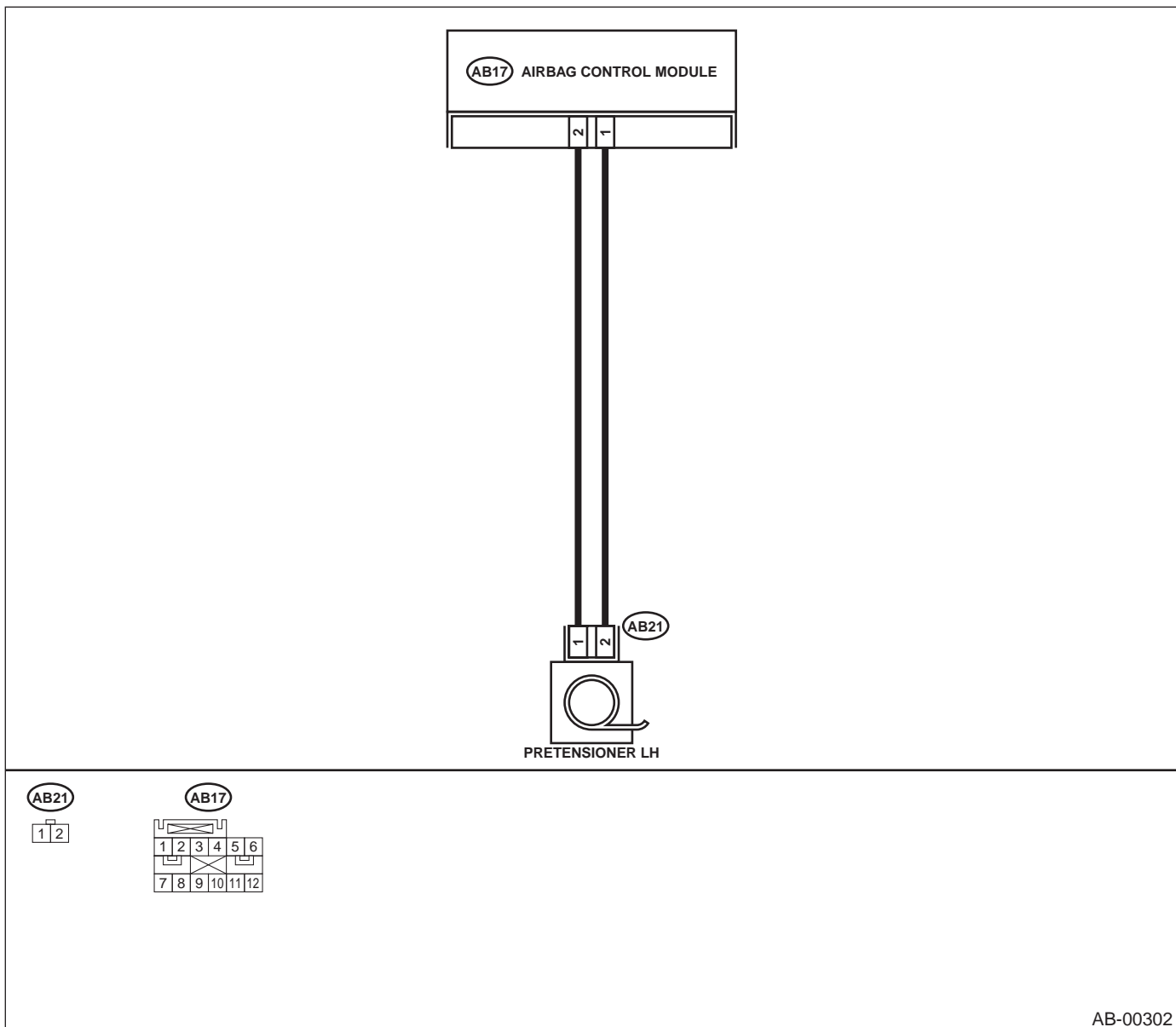
DIAGNOSIS:

- Seat belt pretensioner (LH) circuit is open, shorted or shorted to ground.
- Airbag control module is faulty.
- Pretensioner is faulty.
- Pretensioner harness is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the side airbag harness, disconnect the side airbag module connector and seat belt pretensioner connector for the safety reasons.

WIRING DIAGRAM:



DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK SEAT BELT PRETENSIONER. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the connector (AB21) from the seatbelt pretensioner (LH). <Ref. to SB-7, Front Seat Belt.> 3) Connect the connector (1F) in test harness F to (AB21). 4) Connect the airbag resistor to the connector (3F) in test harness F. 5) Connect the battery ground cable and turn the ignition switch ON. Does the airbag warning light operate properly?	Operates properly.	Replace seat belt pretensioner (LH). <Ref. to SB-7, Front Seat Belt.>	Go to step 2.
2 CHECK SIDE AIRBAG HARNESS (LH). 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the airbag resistor from the test harness. 3) Disconnect the connector (AB20) from (AB19). 4) Disconnect the connectors (AB17) and (AB18) from the airbag control module. <Ref. to AB-18, Airbag Control Module.> 5) Connect the connector (1I) in test harness I2 to the connector (AB17). 6) Measure the resistance between connector (3I) in test harness I2 and the connector (3F) in test harness F. Connector & terminal (3I) No. 11 — (3F) No. 4: (3I) No. 13 — (3F) No. 3: Is the measured value less than the specified value?	10 Ω	Go to step 3.	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>
3 CHECK SIDE AIRBAG HARNESS (LH). Measure the resistance of the connector (3I) in test harness I2. Connector & terminal (3I) No. 11 — No. 13: Does the measured value exceed the specified value?	1 MΩ	Go to step 4.	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>
4 CHECK SIDE AIRBAG HARNESS (LH). Measure the resistance between the connector (3I) in test harness I2 and the chassis ground. Connector & terminal (3I) No. 11 — Chassis ground: (3I) No. 13 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

W: DTC 65

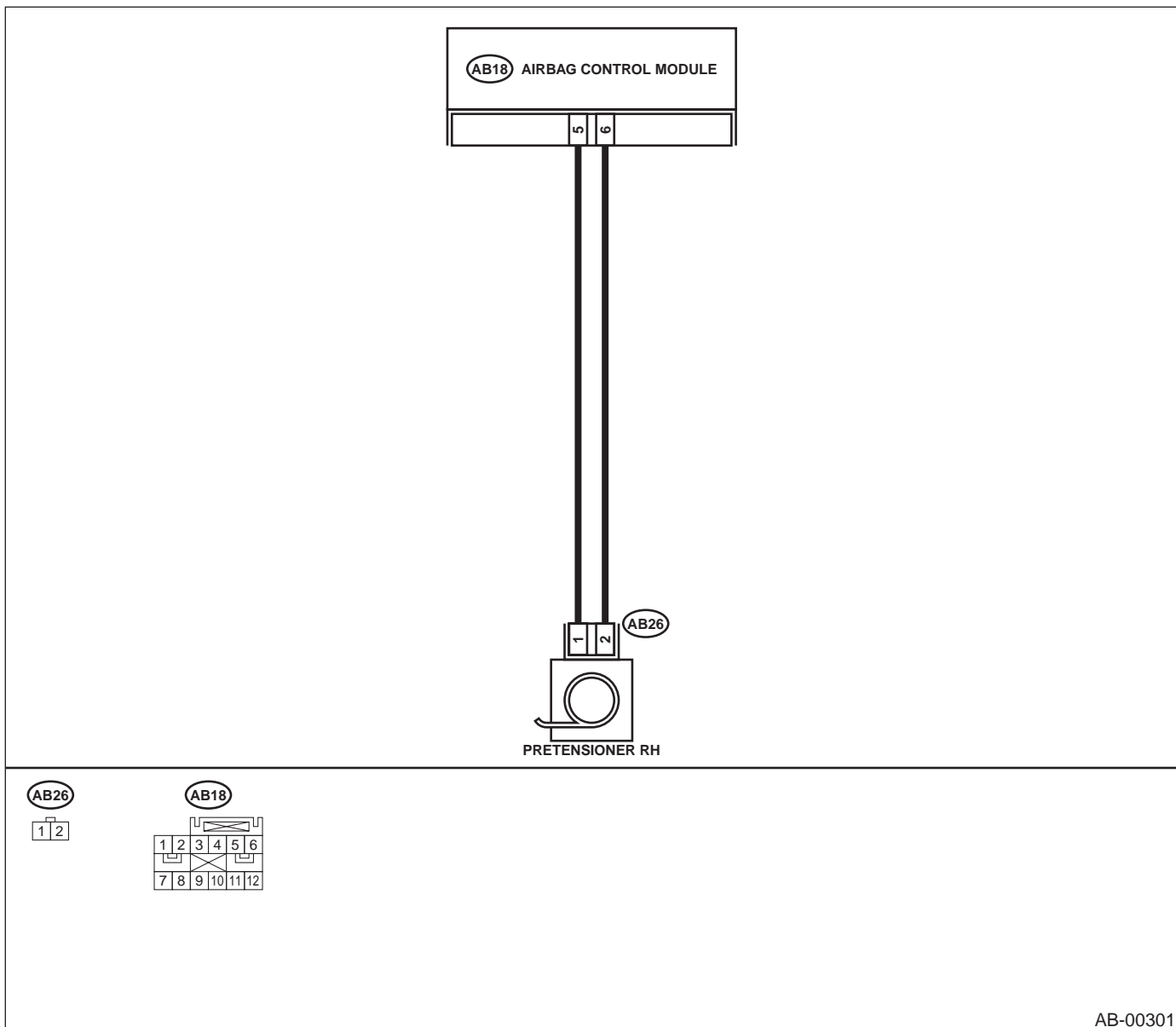
DIAGNOSIS:

- Seat belt pretensioner (RH) circuit is shorted to the power supply.
- Pretensioner is faulty.
- Pretensioner harness is faulty.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module, and sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the side airbag harness, disconnect the side airbag module connector and seat belt pretensioner connector for the safety reasons.

WIRING DIAGRAM:



AB-00301

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
<p>1</p> <p>CHECK SEAT BELT PRETENSIONER.</p> <ol style="list-style-type: none"> 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the connector (AB26) from the seat belt pretensioner (RH). <Ref. to SB-7, Front Seat Belt.> 3) Connect the connector (1F) in test harness F to (AB26). 4) Connect the airbag resistor to connector (3F) in test harness F. 5) Connect the battery ground cable, and turn the ignition switch ON. <p>Does the airbag warning light operate properly?</p>	Operates properly.	Replace seat belt pretensioner (RH). <Ref. to SB-7, Front Seat Belt.>	Go to step 2.
<p>2</p> <p>CHECK SIDE AIRBAG HARNESS (RH).</p> <ol style="list-style-type: none"> 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the airbag resistor from the test harness. 3) Disconnect the connector (AB25) from (AB24). 4) Disconnect the connectors (AB17) and (AB18) from the airbag control module. <Ref. to AB-18, Airbag Control Module.> 5) Connect the connector (1I) in test harness I2 to the connector (AB18). 6) Connect the battery ground cable and turn the ignition switch ON. 7) Measure the voltage between connector (3I) in test harness I2 and the chassis ground. <p>Connector & terminal</p> <p>(3I) No. 6 (+) — Chassis ground (-):</p> <p>(3I) No. 8 (+) — Chassis ground (-):</p> <p>Is the measured value less than the specified value?</p>	1 V	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

X: DTC 66

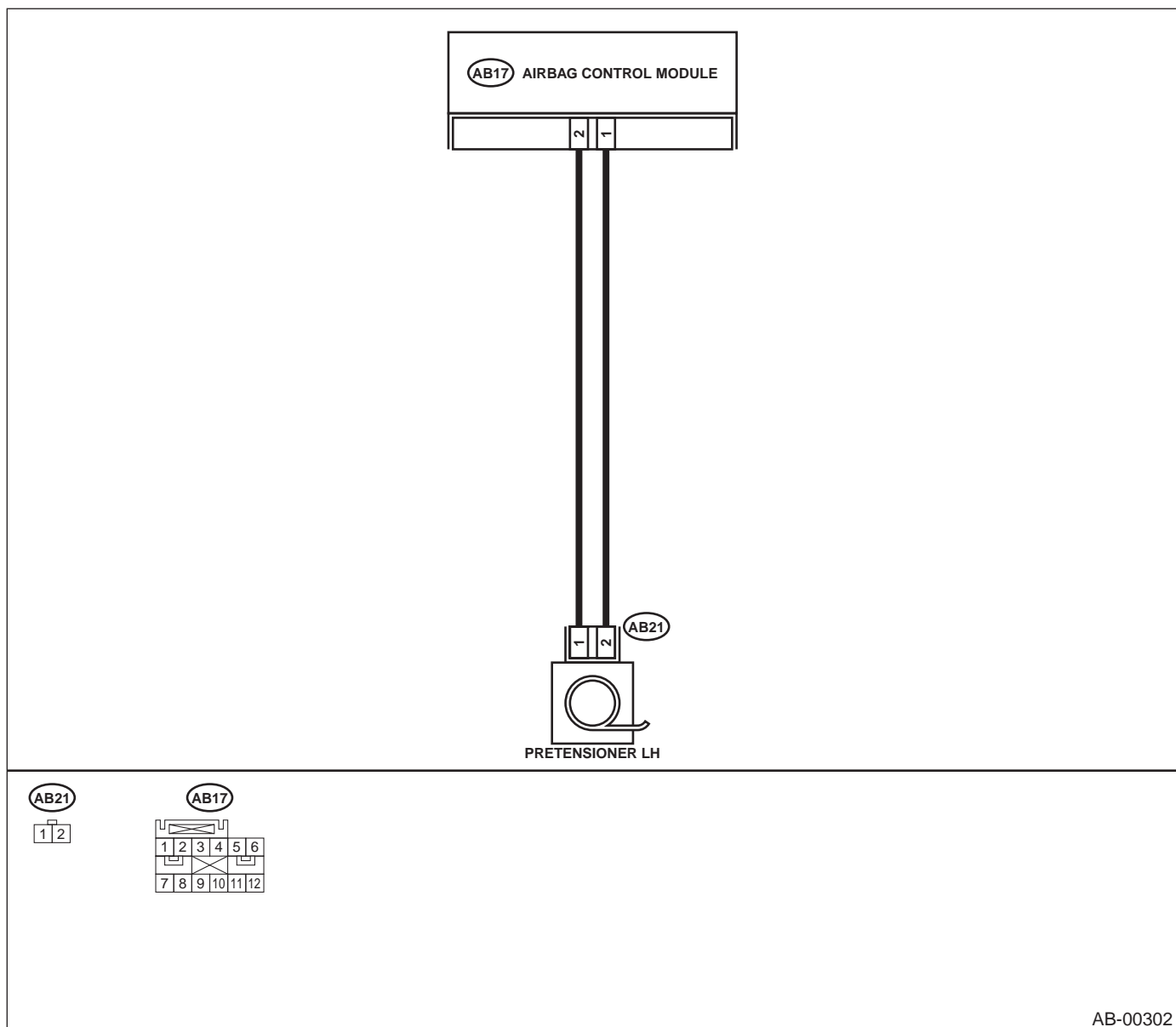
DIAGNOSIS:

- Seat belt pretensioner (LH) circuit is shorted to the power supply.
- Pretensioner is faulty.
- Pretensioner harness is faulty.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- Before replacing the airbag module, roll connector, control module and the sensor, reconnect each part and confirm that the warning light operates properly.
- When inspecting the side airbag harness, disconnect the side airbag module connector and seat belt pretensioner connector for the safety reasons.

WIRING DIAGRAM:



DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

	Step	Value	Yes	No
1	<p>CHECK SEAT BELT PRETENSIONER.</p> <ol style="list-style-type: none"> 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the connector (AB21) from the seat belt pretensioner (LH). <Ref. to SB-7, Front Seat Belt.> 3) Connect the connector (1F) in test harness F to (AB21). 4) Connect the airbag resistor to the connector (3F) in test harness F. 5) Connect the battery ground cable and turn the ignition switch ON. <p>Does the airbag warning light operate properly?</p>	Operates properly.	Replace seat belt pre-tensioner(LH). <Ref. to SB-7, Front Seat Belt.>	Go to step 2.
2	<p>CHECK SIDE AIRBAG HARNESS (LH).</p> <ol style="list-style-type: none"> 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect the airbag resistor from the test harness. 3) Disconnect the connector (AB20) from (AB19). 4) Disconnect the connectors (AB17) and (AB18) from the airbag control module. <Ref. to AB-18, Airbag Control Module.> 5) Connect the connector (1I) in test harness I2 to the connector (AB17). 6) Connect the battery ground cable and turn the ignition switch ON. 7) Measure the voltage between connector (3I) in test harness I2 and the chassis ground. <p>Connector & terminal (3I) No. 11 (+) — Chassis ground (-): (3I) No. 13 (+) — Chassis ground (-):</p> <p>Is the measured value less than the specified value?</p>	1 V	Replace the airbag control module. <Ref. to AB-18, Airbag Control Module.>	Replace side airbag harness. <Ref. to AB-17, Side Airbag Harness.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

Y: DTC 72

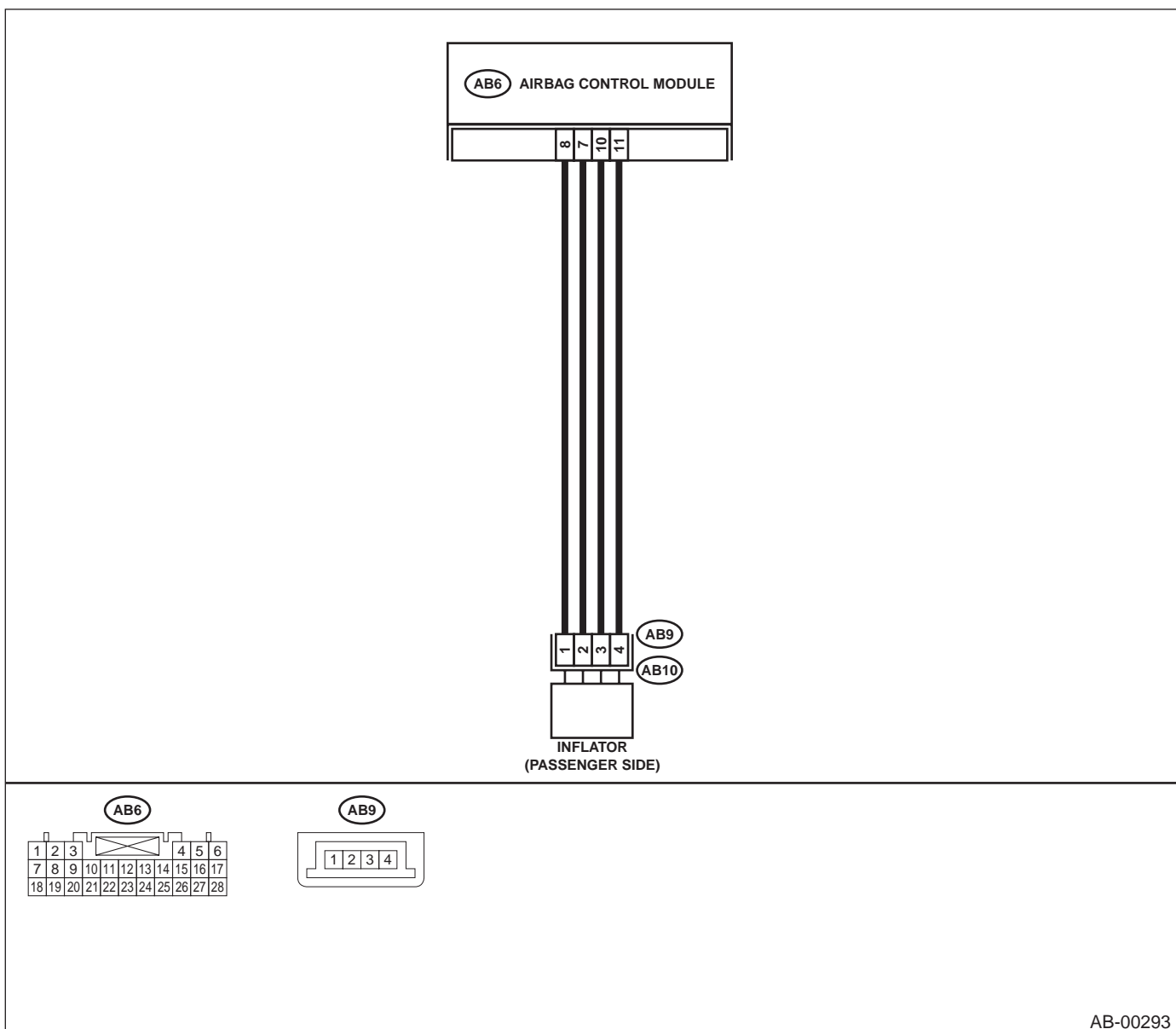
DIAGNOSIS:

- Airbag harness is open, shorted or shorted to ground.
- Airbag module harness (Passenger) circuit is open, shorted or shorted to ground.
- Passenger's airbag module is faulty.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- When inspecting the airbag main harness, disconnect the driver's airbag module and passenger's airbag module connectors for safety reasons.

WIRING DIAGRAM:



DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK PASSENGER'S AIRBAG MODULE. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Pull out the two stopper pins and lower the glove box. 3) Disconnect the connector passenger's airbag module from (AB9). 4) Connect the connector (1K) in test harness K to connector (AB9). 5) Connect two airbag resistors to connectors (3K) and (4K) in test harness K. 6) Connect the battery ground cable and turn the ignition switch ON. Does the airbag warning light operate properly?	Operates properly.	Replace the passenger's airbag module. <Ref. to AB-13, Passenger's Airbag Module S802308.>	Go to step 2.
2 CHECK AIRBAG MAIN HARNESS. 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect two airbag resistors from the connectors (3K) and (4K) in test harness K. 3) Remove the lower cover and disconnect the connector (AB3) from (AB8). 4) Disconnect the connector (AB6) from the air bag control module, and connect the connector (1I) in test harness I2. 5) Measure the resistance between connector (6I) in test harness I2 and the connector (4K) in test harness K. Connector & terminal (6I) No. 2 — (4K) No. 3: (6I) No. 4 — (4K) No. 4: Is the measured value less than specified value?	10 Ω	Go to step 3.	Replace the airbag main harness. <Ref. to AB-16, Main Harness.>
3 CHECK AIRBAG MAIN HARNESS. Measure the resistance of the connector (6I) in test harness I2. Connector & terminal (6I) No. 2 — No. 4: (6I) No. 2 — Chassis ground: (6I) No. 4 — Chassis ground: Is the measured value more than specified value?	1 MΩ	Replace the airbag control module. <Ref. to AB-15, Airbag Control Module S802302.>	Replace the airbag main harness. <Ref. to AB-16, Main Harness.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

Z: DTC 76

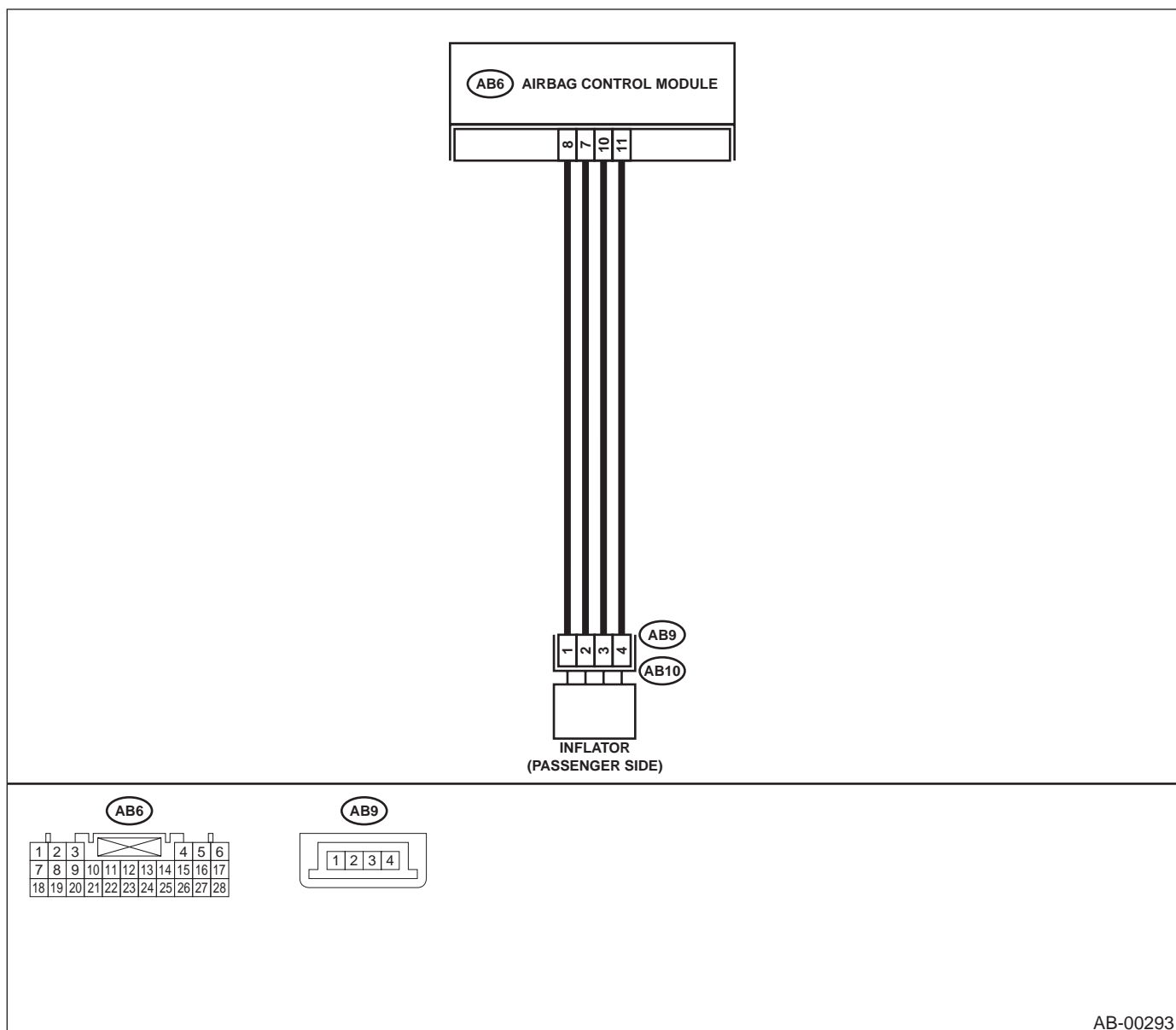
DIAGNOSIS:

- Airbag main harness (Passenger) circuit is shorted to the power supply.
- Airbag module harness (Passenger) is shorted to the power supply.
- Passenger's airbag module is faulty.
- Airbag control module is faulty.

CAUTION:

- Before diagnosing the airbag system, be sure to turn the ignition switch OFF, disconnect the ground cable from the battery, and wait more than 20 seconds before starting to work.
- When inspecting the airbag main harness, disconnect the driver's airbag module and passenger's airbag module connectors for safety reasons.

WIRING DIAGRAM:



DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)
AIRBAG SYSTEM (DIAGNOSTICS)

	Step	Value	Yes	No
1	<p>CHECK PASSENGER'S AIRBAG MODULE.</p> <ol style="list-style-type: none"> 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Pull out the two stopper pins and lower the glove box. 3) Disconnect the connector (AB9) from passenger's airbag module. 4) Connect the connector (1K) in test harness K to connector (AB9). 5) Connect two airbag resistors to connectors (3K) and (4K) in test harness K. 6) Connect the battery ground cable and turn the ignition switch ON. <p>Does the airbag warning light operate properly?</p>	Operates properly.	Replace the passenger's airbag module. <Ref. to AB-13, Passenger's Airbag Module S802308.>	Go to step 2.
2	<p>CHECK AIRBAG MAIN HARNESS.</p> <ol style="list-style-type: none"> 1) Turn the ignition switch OFF, disconnect the battery ground cable, and wait more than 20 seconds. 2) Disconnect two airbag resistors from the connectors (3K) and (4K) in test harness K. 3) Remove the lower cover and disconnect the connector (AB3) from (AB8). 4) Disconnect the connector (AB6) from the airbag control module, and connect the connector (1I) in test harness I2. 5) Measure the voltage between connector (6I) in test harness I2 and the chassis ground. <p>Connector & terminal (6I) No. 2 (+) — Chassis ground (-): (6I) No. 4 (+) — Chassis ground (-):</p> <p>Is the measured value less than specified value?</p>	1 V	Replace the airbag control module. <Ref. to AB-15, Airbag Control Module S802302.>	Replace the airbag main harness. <Ref. to AB-16, Main Harness.>

DIAGNOSTIC CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

AIRBAG SYSTEM (DIAGNOSTICS)

MEMO:

GENERAL DESCRIPTION

LIGHTING SYSTEM

1. General Description

A: SPECIFICATIONS

Headlight		12 V — 65 W/55 W (Except GT, OUTBACK) 12 V — 60 W/55 W (GT, OUTBACK)
Front turn signal light		12 V — 27 W (2 pieces)
Side marker light, parking light		12 V — 8 W
Front fog light		12 V — 55 W (Except OUTBACK) 12 V — 51 W (OUTBACK)
Rear combination light	Tail/Stop light	12 V — 8/27 W
	Turn signal light	12 V — 21 W
	Back-up light	12 V — 27 W
License plate light		12 V — 5 W
High-mounted stop light	Sedan	12 V — 16 W
	Wagon	12 V — 13 W (4 pieces)
Room light		12 V — 8 W
Spot light		12 V — 8 W
Door step light		12 V — 3.4 W
Luggage room light		12 V — 13 W
Trunk room light		12 V — 5 W
Glove box light		12 V — 1.4 W

GENERAL DESCRIPTION

LIGHTING SYSTEM

B: PRECAUTIONS

- 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.

WARNING:

- **Airbag system wiring harness is routed near electrical parts and switches. All airbag system wiring harnesses and connectors are yellow. Do not use electric test equipment on these circuits.**
- **Be careful not to damage the airbag system wiring harness when servicing electrical parts and switches.**

C: PREPARATION TOOL

1. GENERAL TOOLS

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

HEADLIGHT AND TAIL LIGHT SYSTEM

LIGHTING SYSTEM

2. Headlight and Tail Light System

A: SCHEMATIC

1. HEADLIGHT 2-LIGHT MODEL

<Ref. to WI-154, 2-LIGHT MODEL, SCHEMATIC, Headlight System.>

2. HEADLIGHT 4-LIGHT MODEL

<Ref. to WI-155, 4-LIGHT MODEL, SCHEMATIC, Headlight System.>

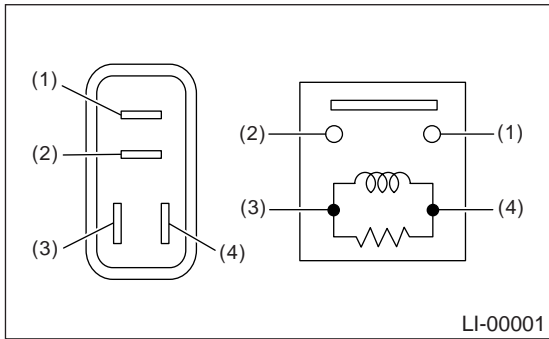
3. CLEARANCE LIGHT AND ILLUMINATION LIGHT

<Ref. to WI-146, SCHEMATIC, Clearance Light and Illumination Light System.>

B: INSPECTION

1. HEADLIGHT RELAY

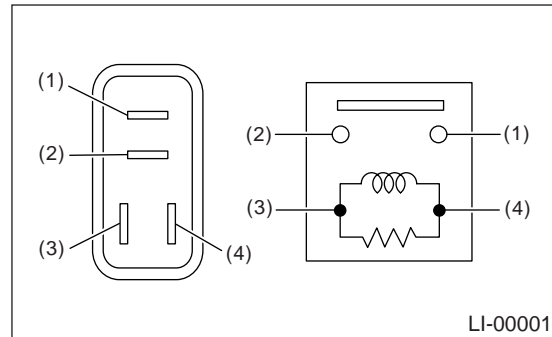
Measure headlight relay resistance between terminals while connecting terminal No. 4 to battery positive terminal No. 3 to battery ground terminal.



Current	Terminal No.	Standard
Flow	1 and 2	Less than 1 Ω
No flow		More than 1 MΩ

2. TAIL AND ILLUMINATION RELAY

Measure tail and illumination relay resistance between terminals while connecting terminal No. 4 to battery positive terminal No. 3 to battery ground terminal.



Current	Terminal No.	Standard
Flow	1 and 2	Less than 1 Ω
No flow		More than 1 MΩ

LI-4

FRONT FOG LIGHT SYSTEM

LIGHTING SYSTEM

3. Front Fog Light System**A: SCHEMATIC****1. FRONT FOG LIGHT 4 CYLINDER ENGINE MODEL**

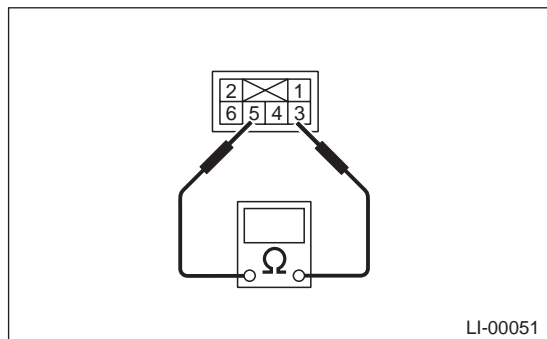
<Ref. to WI-152, 4-CYLINDER ENGINE MODEL, SCHEMATIC, Front Fog Light System.>

2. FRONT FOG LIGHT 6 CYLINDER ENGINE MODEL

<Ref. to WI-153, 6-CYLINDER ENGINE MODEL, SCHEMATIC, Front Fog Light System.>

B: INSPECTION**1. FRONT FOG LIGHT SWITCH**

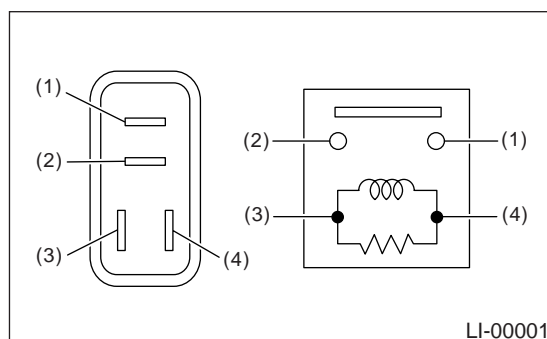
Measure front fog light switch resistance.



Switch position	Terminal No.	Standard
OFF	—	More than 1 MΩ
ON	3 and 5	Less than 1 Ω

2. FRONT FOG LIGHT RELAY

Measure front fog light relay resistance between terminals while connecting terminal No. 4 to battery positive terminal and terminal No. 3 to battery ground terminal.



Current	Terminal No.	Standard
Flow	1 and 2	Less than 1 Ω
No flow		More than 1 MΩ

LI-5

TURN SIGNAL AND HAZARD LIGHT SYSTEM

LIGHTING SYSTEM

4. Turn Signal and Hazard Light System

A: SCHEMATIC

1. TURN SIGNAL LIGHT AND HAZARD LIGHT

<Ref. to WI-172, SCHEMATIC, Turn Signal Light and Hazard Light System.>

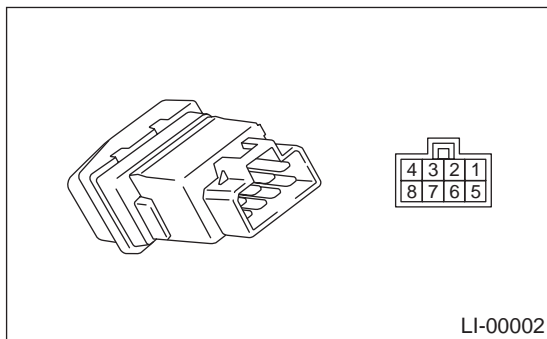
B: INSPECTION

1. TURN SIGNAL SWITCH

<Ref. to LI-10, INSPECTION, Combination Switch (Light).>

2. HAZARD SWITCH

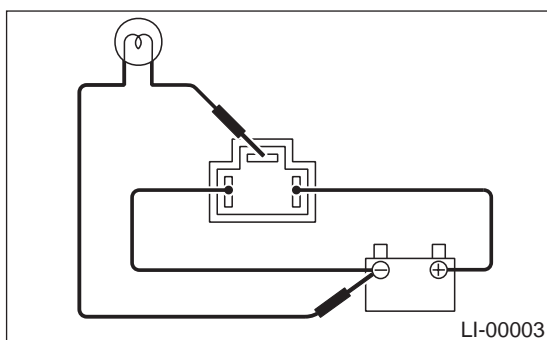
Measure hazard switch resistance.



Switch position	Terminal No.	Standard
OFF	6 and 7	Less than 1 Ω
ON	1, 3 and 4	Less than 1 Ω
	7 and 8	Less than 1 Ω

3. TURN SIGNAL & HAZARD MODULE

Connect battery and turn signal light bulb to the module, as shown in the figure. The module is properly functioning if it blinks when power is supplied to the circuit.



LI-6

BACK-UP LIGHT SYSTEM

LIGHTING SYSTEM

5. Back-up Light System

A: SCHEMATIC

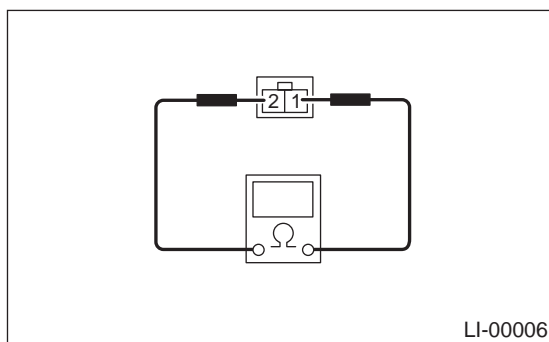
1. BACK-UP LIGHT

<Ref. to WI-142, SCHEMATIC, Back-up Light System.>

B: INSPECTION

1. BACK-UP LIGHT SWITCH (M/T)

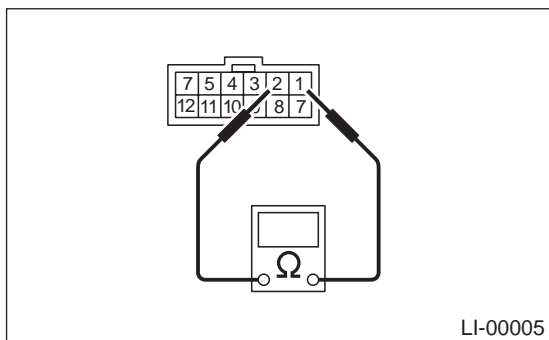
Measure back-up light switch resistance.



Switch position	Terminal No.	Standard
When shift lever is set in reverse position	1 and 2	Less than 1 Ω
Other positions		More than 1 MΩ

2. INHIBITOR SWITCH (A/T)

Measure inhibitor switch resistance.



Switch position	Terminal No.	Standard
When select lever is set in "R" position	1 and 2	Less than 1 Ω
Other positions		More than 1 MΩ

LI-7

STOP LIGHT SYSTEM

LIGHTING SYSTEM

6. Stop Light System

A: SCHEMATIC

1. STOP LIGHT SEDAN MODEL

<Ref. to WI-168, SEDAN MODEL, SCHEMATIC, Stop Light System.>

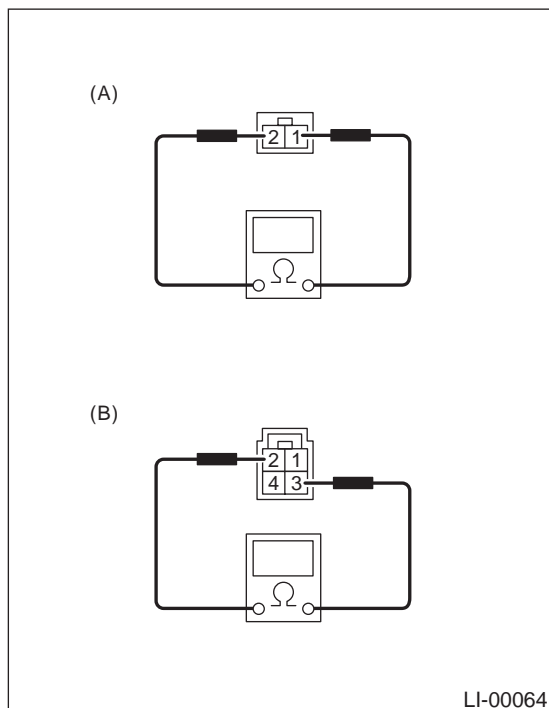
2. STOP LIGHT WAGON MODEL

<Ref. to WI-169, WAGON MODEL, SCHEMATIC, Stop Light System.>

B: INSPECTION

1. STOP LIGHT SWITCH

Measure stop light switch resistance.



- (A) Without cruise control
(B) With cruise control

Switch position	Terminal No.	Standard
When brake pedal is depressed	1 and 2: Without cruise control	Less than 1 Ω
When brake pedal is released	2 and 3: With cruise control	More than 1 M Ω

LI-8

INTERIOR LIGHT SYSTEM

LIGHTING SYSTEM

7. Interior Light System

A: SCHEMATIC

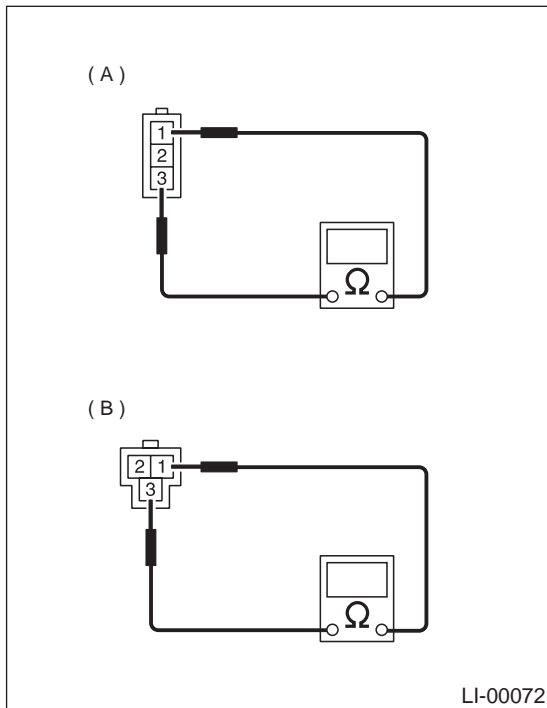
1. INTERIOR LIGHT

<Ref. to WI-158, SCHEMATIC, In Compartment Light System.>

B: INSPECTION

1. DOOR SWITCH

Measure door switch resistance.



(A) Front door switch
(B) Rear door switch

Switch position	Terminal No.	Standard
When door is open	1 and 3	Less than 1 Ω
When door is closed		More than 1 MΩ

2. REAR GATE LATCH SWITCH

Measure rear gate latch switch.

Switch position	Terminal No.	Standard
When rear gate is open	1 and 2	Less than 1 Ω
When rear gate is closed		More than 1 MΩ

3. TRUNK ROOM LIGHT SWITCH

Measure trunk room light switch.

Switch position	Terminal No.	Standard
When trunk lid is open	1 and 2	Less than 1 Ω
When trunk lid is closed		More than 1 MΩ

LI-9

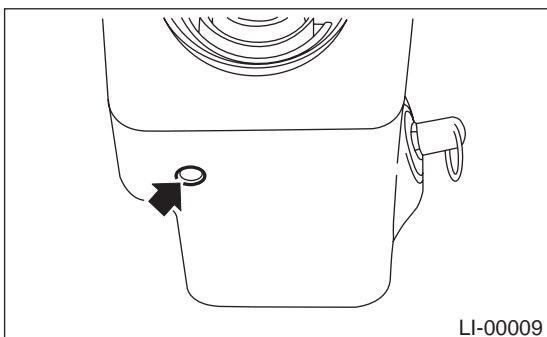
COMBINATION SWITCH (LIGHT)

LIGHTING SYSTEM

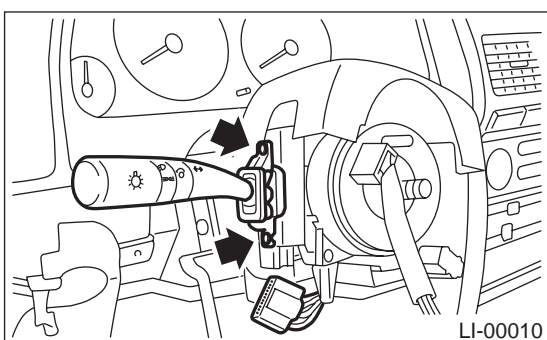
8. Combination Switch (Light)

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove instrument panel lower cover. <Ref. to EI-37, REMOVAL, Instrument Panel Assembly.>
- 3) Remove screws which secure upper column cover to lower column cover.



- 4) Disconnect connector from combination switch.
- 5) Remove screws which secure switch and remove switch.

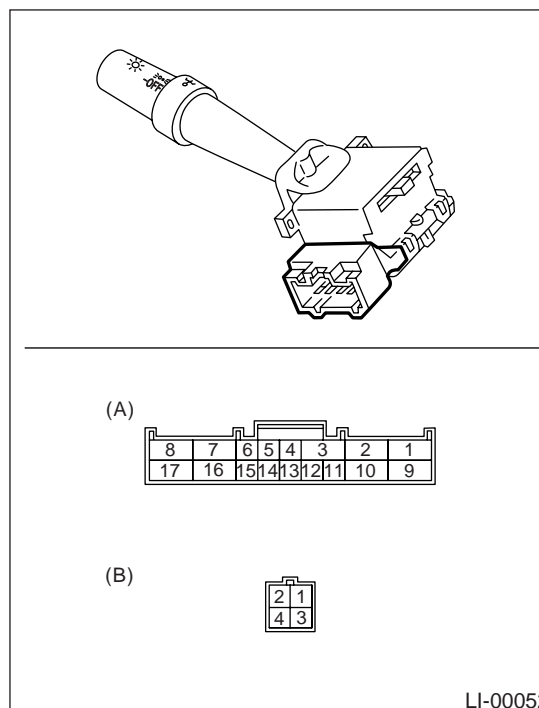


B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Measure combination switch resistance.



- (A) Lighting and turn signal switch connector
 (B) Parking switch connector

1. LIGHTING SWITCH

Switch position	Terminal No.	Standard
OFF	—	More than 1 MΩ
Tail	14 and 16	Less than 1 Ω
Head	13, 14 and 16	Less than 1 Ω

2. DIMMER AND PASSING SWITCH

Switch position	Terminal No.	Standard
Passing	7, 8 and 16	Less than 1 Ω
Low beam	16 and 17	Less than 1 Ω
High beam	7 and 16	Less than 1 Ω

3. TURN SIGNAL SWITCH

Switch position	Terminal No.	Standard
Left	1 and 2	Less than 1 Ω
Neutral	—	More than 1 MΩ
Right	2 and 3	Less than 1 Ω

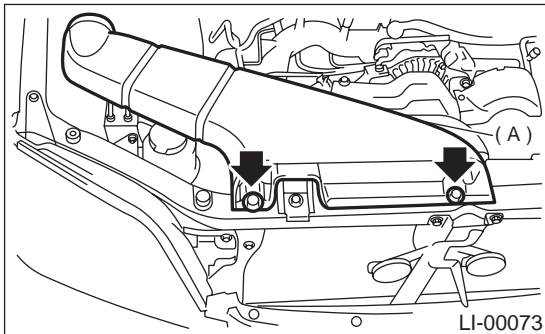
4. PARKING SWITCH

Switch position	Terminal No.	Standard
OFF	2 and 4	Less than 1 Ω
ON	1 and 4	Less than 1 Ω

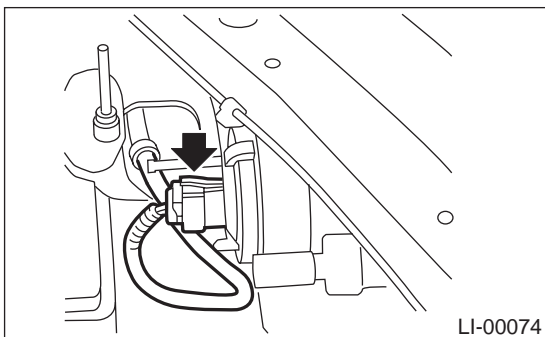
9. Headlight Assembly

A: REMOVAL

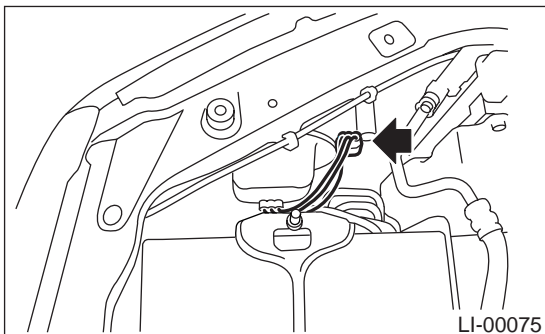
- 1) Disconnect ground cable from battery.
- 2) Remove duct (A) (when right side headlight is removed).



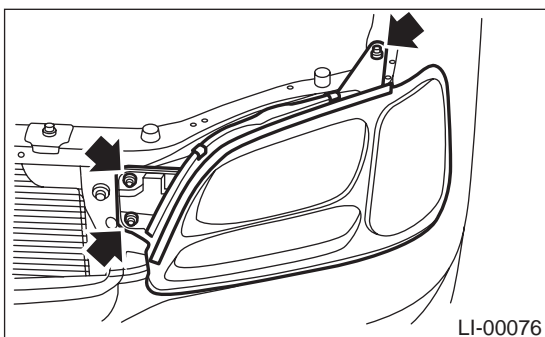
- 3) Disconnect headlight bulb connector.
Single-bulb type



Dual-bulb type



- 4) Remove three bolts and disconnect connectors, and then detach headlight assembly.



B: INSTALLATION

Install in the reverse order of removal.

C: ADJUSTMENT

1. HEADLIGHT AIMING

NOTE:

As this headlight is the "VISUAL AIMING TYPE", it is possible to adjust aiming only in the vertical direction. It cannot be adjusted in the horizontal direction.

CAUTION:

Turn off the light before adjusting headlight aiming. If the light is necessary to check aiming, do not turn on for more than two minutes.

NOTE:

Before checking the headlight aiming, be sure of the following:

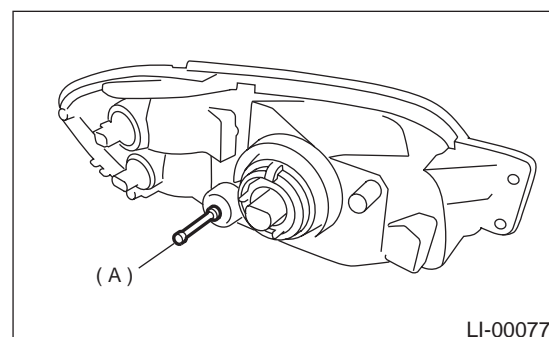
- The area around the headlight has not sustained any accident, damage or other type of deformation.
- Vehicle is parked on level ground.
- The inflation pressure of tires is correct.
- Vehicle's gas tank is fully charged.
- Bounce the vehicle several times to normalize the suspension.
- Make certain that someone is seated in the driver's seat.

Turn the headlights on and then adjust the low beam pattern to the following positions on the screen.

NOTE:

Adjust the headlight aiming by turning the adjusting screw (A).

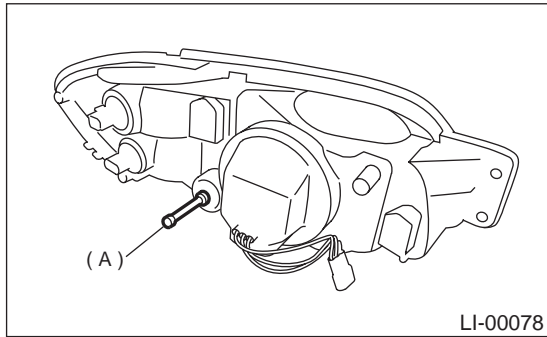
Single-bulb type



HEADLIGHT ASSEMBLY

LIGHTING SYSTEM

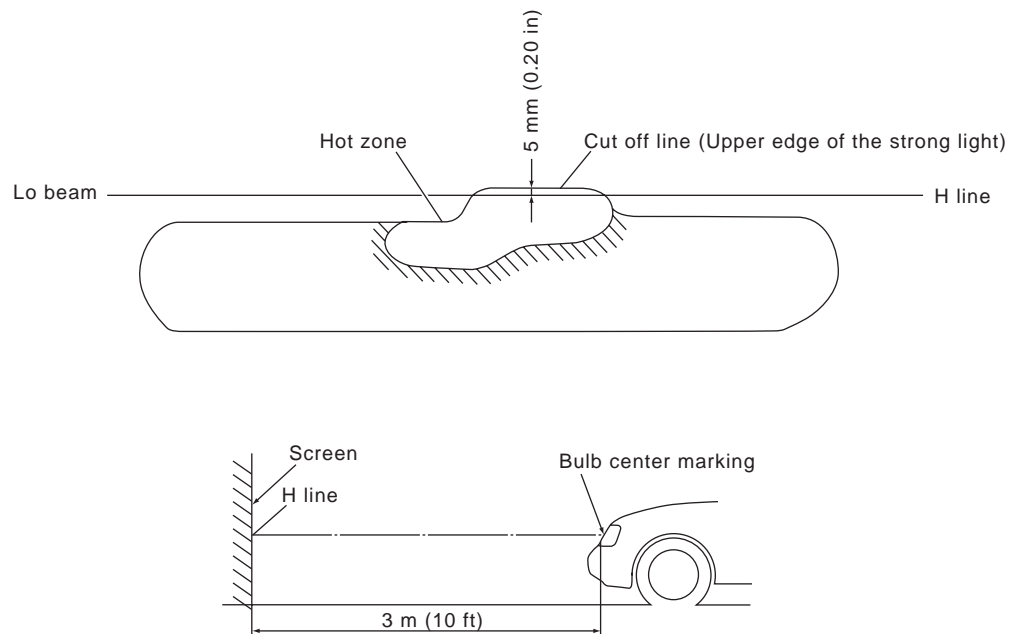
Dual-bulb type



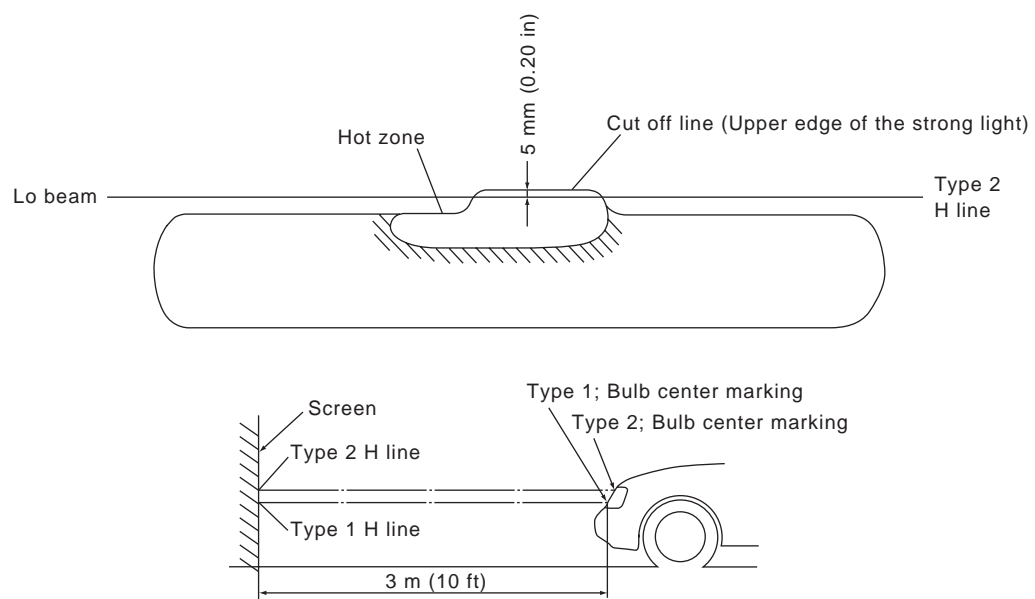
HEADLIGHT ASSEMBLY

LIGHTING SYSTEM

Single-bulb headlight



Dual-bulb headlight



LI-00079

HEADLIGHT BULB

LIGHTING SYSTEM

10. Headlight Bulb

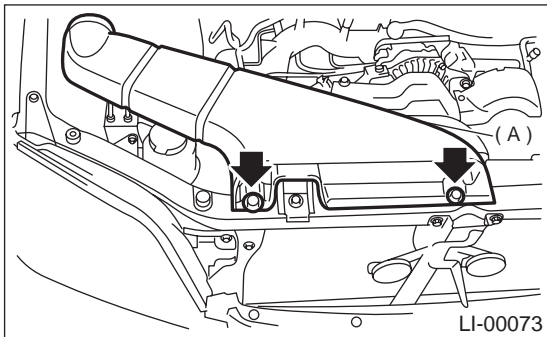
A: REMOVAL

CAUTION:

- Because the tungsten halogen bulb operates at a high temperature, dirt and oil on the bulb surface reduces the bulb's service life. Hold the flange portion when replacing the bulb. Never touch the glass portion.
- Do not leave the headlight without a bulb for a long time. Dust, moisture, etc. entering the headlight may affect its the performance.

1. SINGLE-BULB TYPE

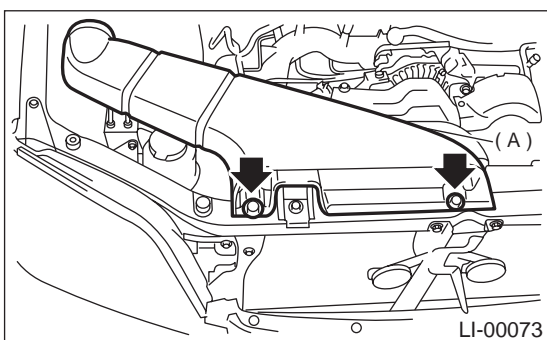
- 1) Disconnect ground cable from battery.
- 2) Remove duct (A) (when right side headlight is removed).



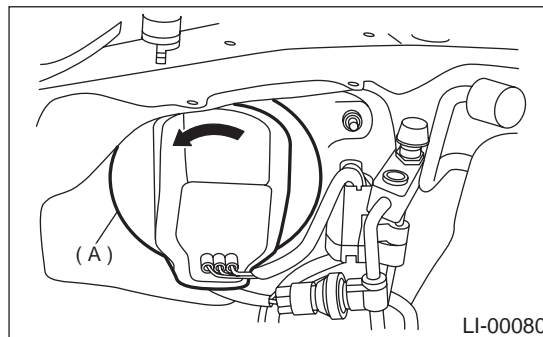
- 3) Disconnect harness connector.
- 4) Remove rubber cover.
- 5) Push to remove spring retainer, and then detach the headlight bulb.

2. DUAL-BULB TYPE

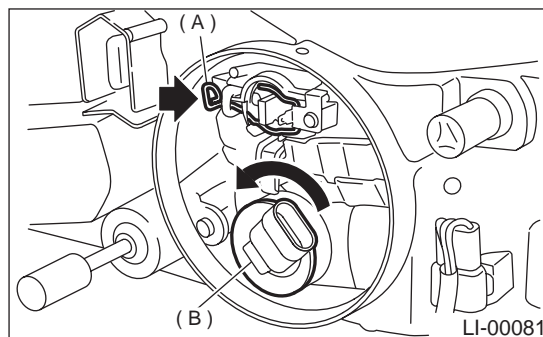
- 1) Disconnect ground cable from battery.
- 2) Remove duct (A) (when right side headlight is removed).



- 3) Remove back cover (A).



- 4) Disconnect harness connector.
- 5) Push to remove spring retainer (A) (low beam) or turn bulb assembly (B) counterclockwise (high beam), and then detach headlight bulb.



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

- 1) Visually check the bulb for blow out.
- 2) Check the bulb specification. <Ref. to LI-2, SPECIFICATIONS, General Description.>
- 3) If NG, replace the bulb with a new one.

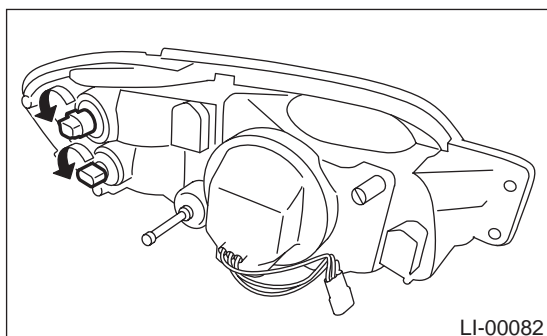
FRONT TURN SIGNAL LIGHT BULB

LIGHTING SYSTEM

11. Front Turn Signal Light Bulb

A: REMOVAL

- 1) Remove headlight assembly. <Ref. to LI-11, REMOVAL, Headlight Assembly.>
- 2) Turn the socket and remove the bulb.



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

- 1) Visually check the bulb for blow out.
- 2) Check the bulb specification. <Ref. to LI-2, SPECIFICATIONS, General Description.>
- 3) If NG, replace the bulb with a new one.

LI-15

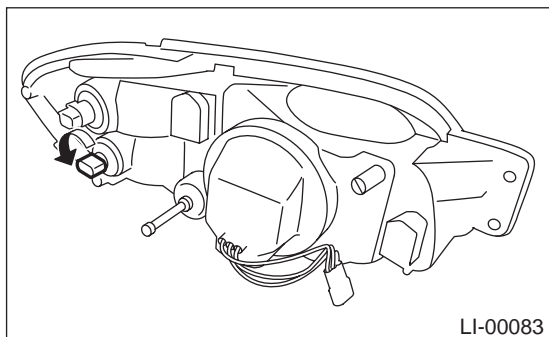
PARKING /SIDE MARKER LIGHT BULB

LIGHTING SYSTEM

12.Parking /Side Marker Light Bulb

A: REMOVAL

- 1) Remove headlight assembly. <Ref. to LI-11, REMOVAL, Headlight Assembly.>
- 2) Turn the socket and remove the bulb.



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

- 1) Visually check the bulb for blow out.
- 2) Check the bulb specification. <Ref. to LI-2, SPECIFICATIONS, General Description.>
- 3) If NG, replace the bulb with a new one.

LI-16

FRONT FOG LIGHT ASSEMBLY

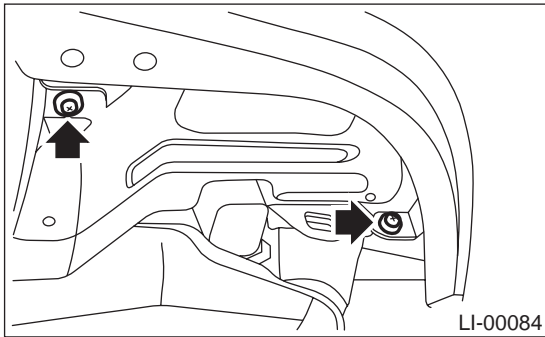
LIGHTING SYSTEM

13. Front Fog Light Assembly

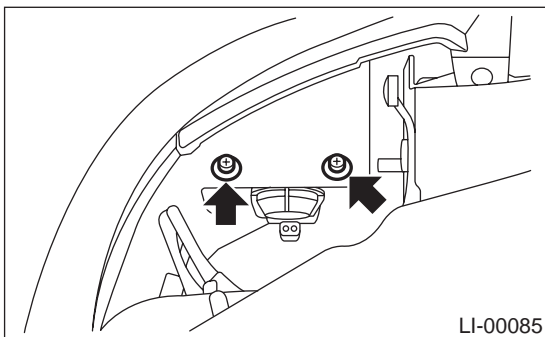
A: REMOVAL

1. EXCEPT OUTBACK

- 1) Disconnect ground cable from battery.
- 2) Remove two clips and lower the mudguard.

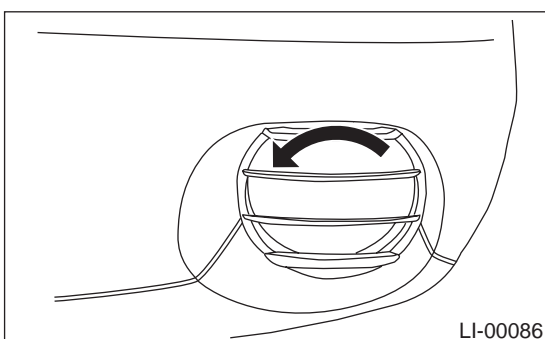


- 3) Disconnect harness connector.
- 4) Remove mounting bolts, and then detach fog light assembly.

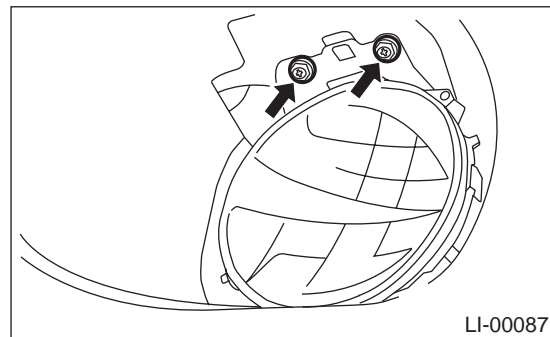


2. OUTBACK

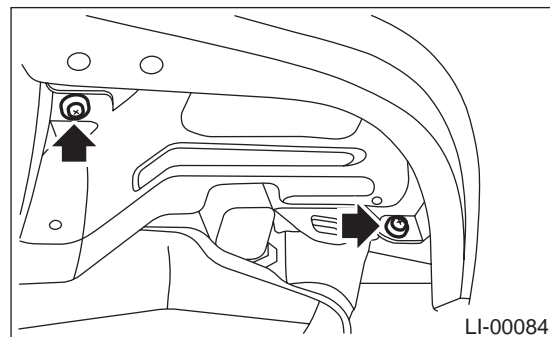
- 1) Disconnect ground cable from battery.
- 2) Turn stone guard counterclockwise, and then remove it.



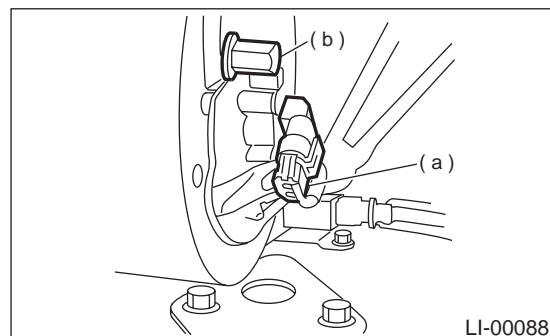
- 3) Remove mounting bolts.



- 4) Remove two clips and lower the mudguard.



- 5) Disconnect harness connector (a).
- 6) Remove nut (b) then detach fog light assembly.



B: INSTALLATION

Install in the reverse order of removal.

FRONT FOG LIGHT BULB

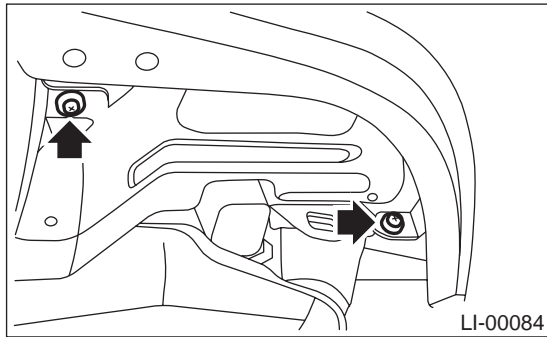
LIGHTING SYSTEM

14. Front Fog Light Bulb

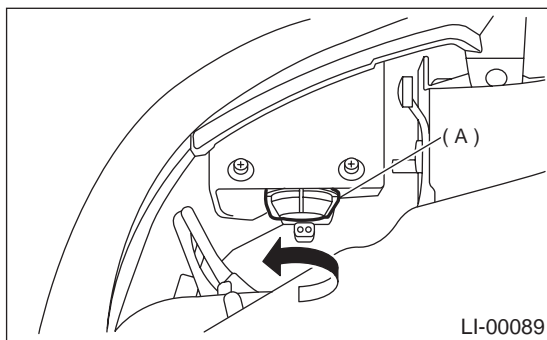
A: REMOVAL

1. EXCEPT OUTBACK

- 1) Disconnect ground cable from battery.
- 2) Remove the two clips and lower the mudguard.



- 3) Disconnect harness connector.
- 4) Remove back cover (A).



- 5) Remove spring retainer then detach fog light bulb.

2. OUTBACK

- 1) Remove fog light assembly. <Ref. to LI-17, OUTBACK, REMOVAL, Front Fog Light Assembly.>
- 2) Disconnect harness connector.
- 3) Loosen screws and turn the bulb assembly counterclockwise, and then detach the bulb.

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

- 1) Visually check the bulb for blow out.
- 2) Check the bulb specification. <Ref. to LI-3, PRE-CAUTIONS, General Description.>
- 3) If NG, replace the bulb with a new one.

REAR COMBINATION LIGHT ASSEMBLY

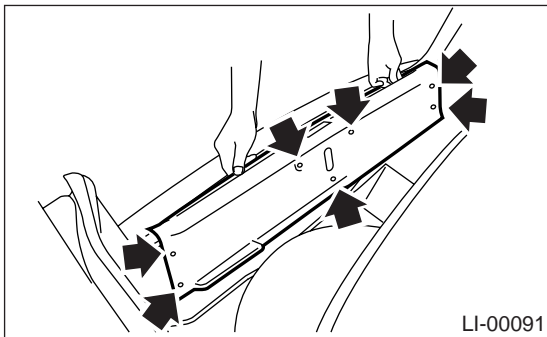
LIGHTING SYSTEM

15. Rear Combination Light Assembly

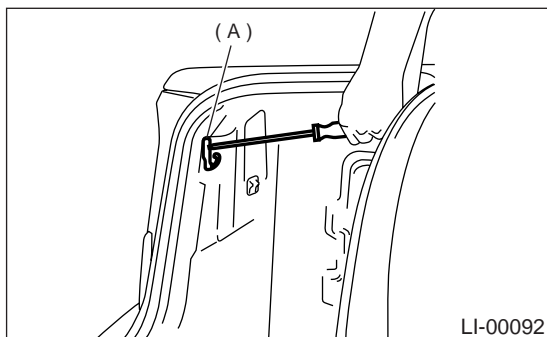
A: REMOVAL

1. SEDAN

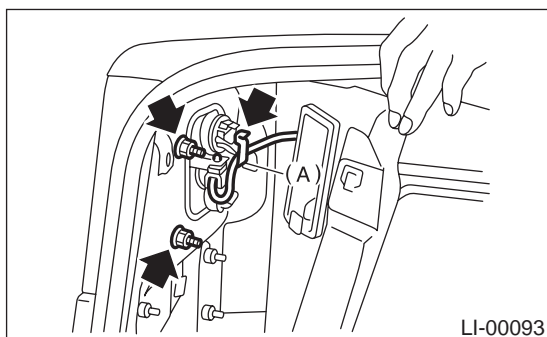
- 1) Disconnect ground cable from battery.
- 2) Remove clips and then detach trunk rear trim.



- 3) Remove hook (A) and then turn over the trunk side trim of rear portion.



- 4) Remove harness clip (A).
- 5) Remove three nuts and then detach rear combination light while disconnecting connector.

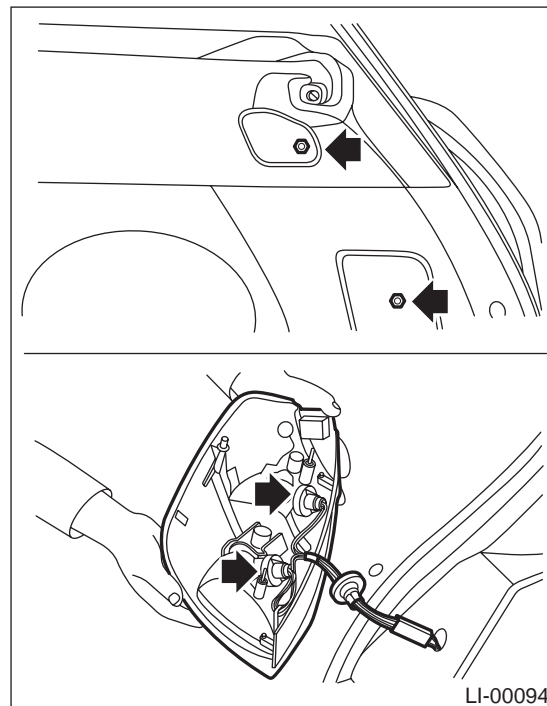


2. WAGON

- 1) Disconnect ground cable from battery.
- 2) Remove two rear quarter trim covers.
- 3) Remove two nuts and then remove rear combination light while disconnecting connector.

NOTE:

Before removing the nuts, apply a few turns of butyl tape to the tip of the service tool. This prevents the nuts from falling during removal.



B: INSTALLATION

Install in the reverse order of removal.

REAR FINISHER LIGHT ASSEMBLY

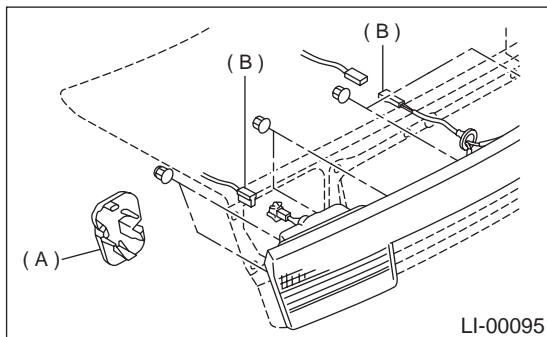
LIGHTING SYSTEM

16. Rear Finisher Light Assembly

A: REMOVAL

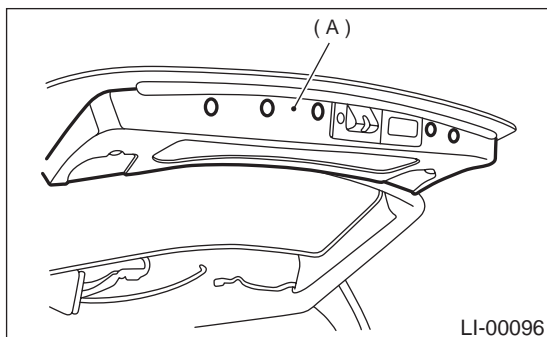
1. SEDAN

- 1) Disconnect ground cable from battery.
- 2) Open the trunk lid.
- 3) Remove cover (A).
- 4) Disconnect connector (B) from rear finisher light.
- 5) Remove ten nuts and then detach rear finisher light from trunk lid.

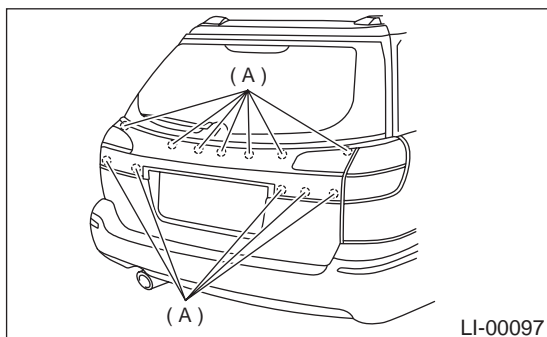


2. WAGON

- 1) Disconnect ground cable from battery.
- 2) Remove rear gate trim (A). <Ref. to EI-47, REMOVAL, Rear Gate Trim.>



- 3) Disconnect connector from rear finisher light.
- 4) Remove nuts (A) and then remove rear finisher light from rear gate.



B: INSTALLATION

Install in the reverse order of removal.

BRAKE/TAIL LIGHT BULB

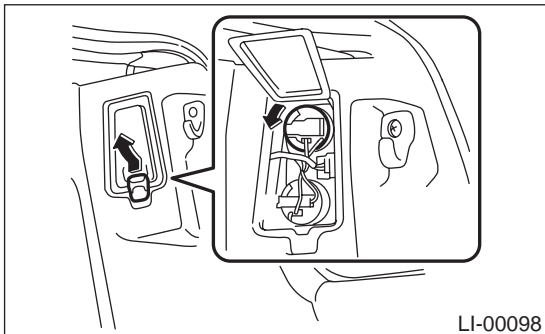
LIGHTING SYSTEM

17.Brake/Tail Light Bulb

A: REMOVAL

1. SEDAN (COMBINATION LIGHT)

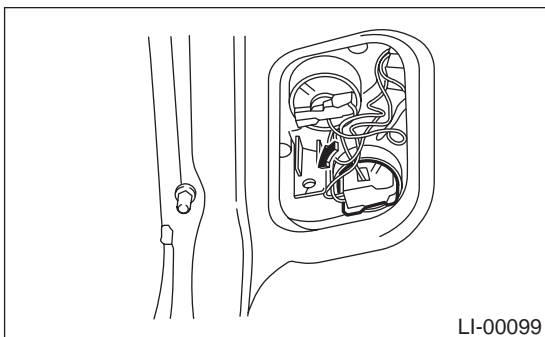
- 1) Open trunk lid and remove cover.



- 2) Turn the socket and remove the bulb.

2. SEDAN (FINISHER LIGHT)

- 1) Open trunk lid and remove cover.

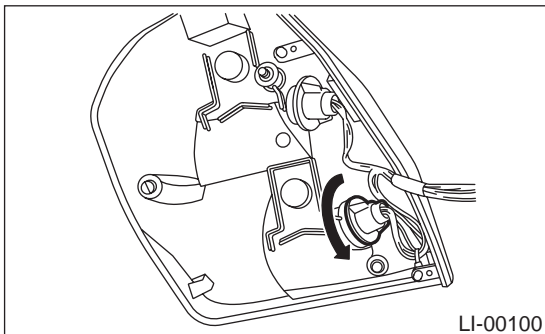


- 2) Turn the socket and remove the bulb.

3. WAGON (COMBINATION LIGHT)

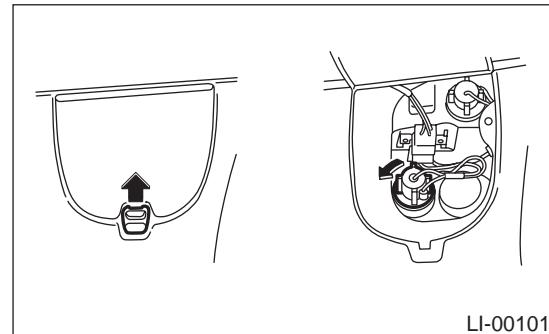
- 1) Remove rear combination light assembly. <Ref. to LI-19, WAGON, REMOVAL, Rear Combination Light Assembly.>

- 2) Turn the socket and remove the bulb.



4. WAGON (FINISHER LIGHT)

- 1) Open rear gate lower trim cover.



- 2) Turn the socket and remove the bulb.

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

- 1) Visually check the bulb for blow out.
- 2) Check the bulb specification. <Ref. to LI-2, SPECIFICATIONS, General Description.>
- 3) If NG, replace the bulb with a new one.

BACK-UP LIGHT BULB

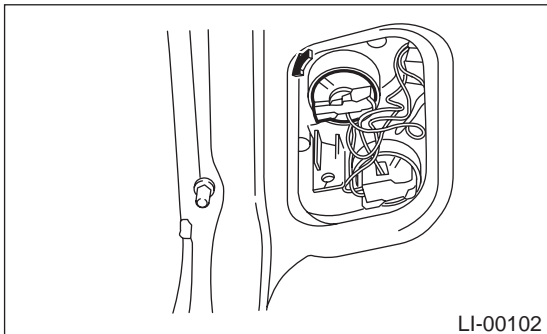
LIGHTING SYSTEM

18. Back-up Light Bulb

A: REMOVAL

1. SEDAN

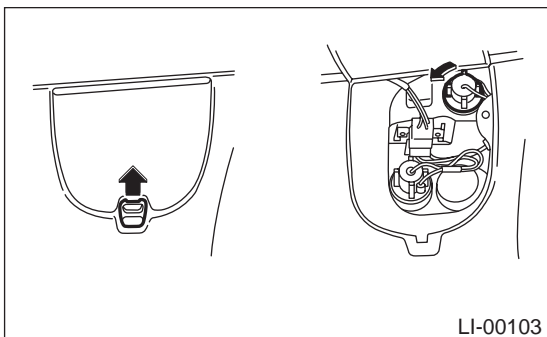
- 1) Open trunk lid and remove cover.



- 2) Turn the socket and remove the bulb.

2. WAGON

- 1) Open rear gate lower trim cover.



- 2) Turn the socket and remove the bulb.

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

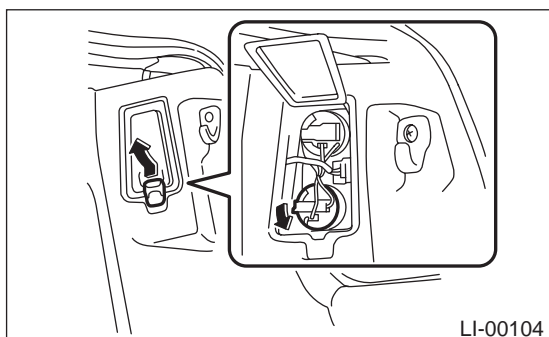
- 1) Visually check the bulb for blow out.
- 2) Check the bulb specification. <Ref. to LI-2, SPECIFICATIONS, General Description.>
- 3) If NG, replace the bulb with a new one.

19. Rear Turn Signal Light Bulb

A: REMOVAL

1. SEDAN

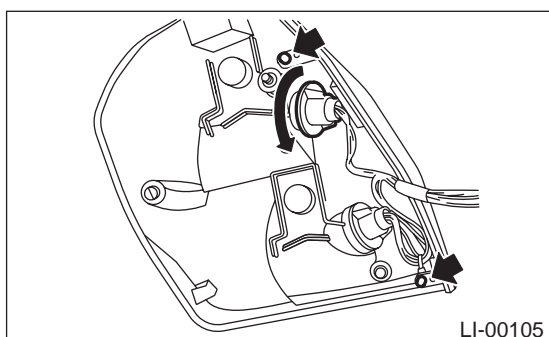
- 1) Open trunk lid and remove cover.



- 2) Turn the socket and remove the bulb.

2. WAGON

- 1) Remove rear combination light assembly. <Ref. to LI-19, WAGON, REMOVAL, Rear Combination Light Assembly.>
- 2) Remove the light cover mounting screws then detach the cover.
- 3) Turn the socket and remove the bulb.



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

- 1) Visually check the bulb for blow out.
- 2) Check the bulb specification. <Ref. to LI-2, SPECIFICATIONS, General Description.>
- 3) If NG, replace the bulb with a new one.

LICENSE PLATE LIGHT

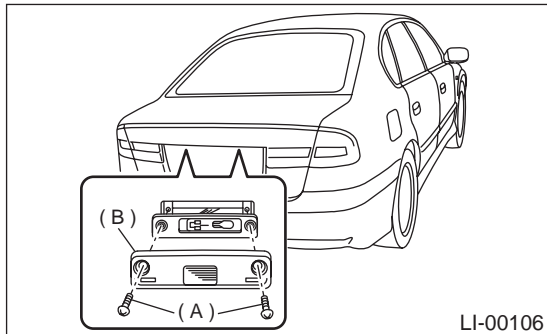
LIGHTING SYSTEM

20. License Plate Light

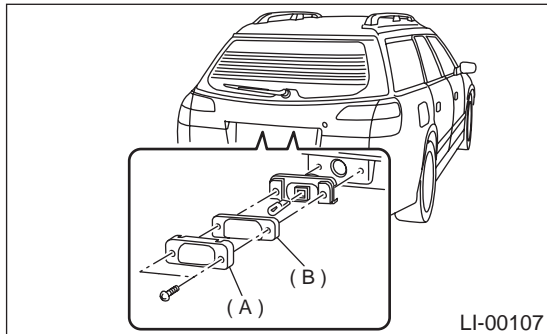
A: REMOVAL

1) Remove license plate light mounting screw (A) and then remove the lens (B)

SEDAN



WAGON



2) Remove the bulb.

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

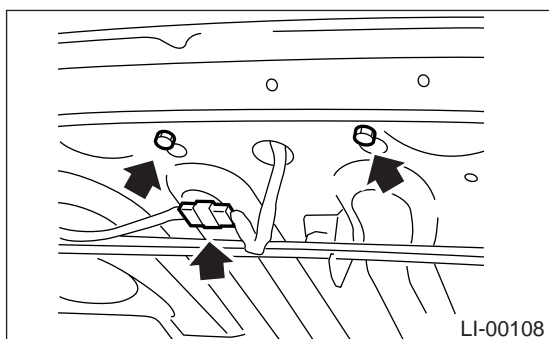
- 1) Visually check the bulb for blow out.
- 2) Check the bulb specification. <Ref. to LI-2, SPECIFICATIONS, General Description.>
- 3) If NG, replace the bulb with a new one.

21.High-mounted Stop Light

A: REMOVAL

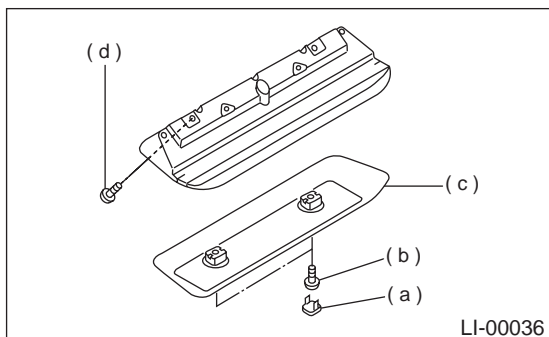
1. SEDAN

- 1) Disconnect ground cable from battery.
- 2) Disconnect connector of high-mounted stop light from body harness.
- 3) Remove bolts, then detach high-mounted stop light assembly.



2. WAGON

- 1) Disconnect ground cable from battery.
- 2) Remove cap (a) by prying on the edge with a screwdriver.
- 3) Remove screws (b) and then detach cover (c).
- 4) Remove screws (d) and then detach high-mounted stop light while disconnecting connector.



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

- 1) Visually check the bulb for blow out.
- 2) Check the bulb specification. <Ref. to LI-2, SPECIFICATIONS, General Description.>
- 3) If NG, replace the bulb with a new one.

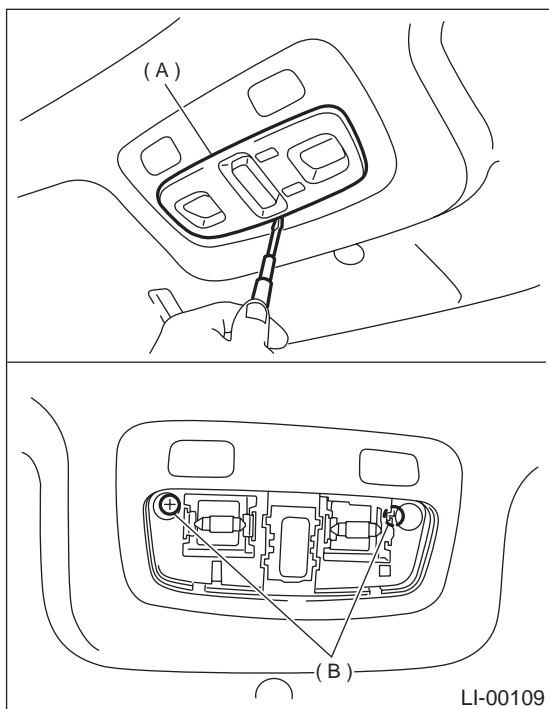
SPOT LIGHT

LIGHTING SYSTEM

22. Spot Light

A: REMOVAL

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



- 3) Disconnect harness connectors and remove spot light.

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

1. SPOT LIGHT BULB

- 1) Visually check the bulb for blow out.
- 2) Check the bulb specification. <Ref. to LI-2, SPECIFICATIONS, General Description.>
- 3) If NG, replace the bulb with a new one.

2. SPOT LIGHT SWITCH

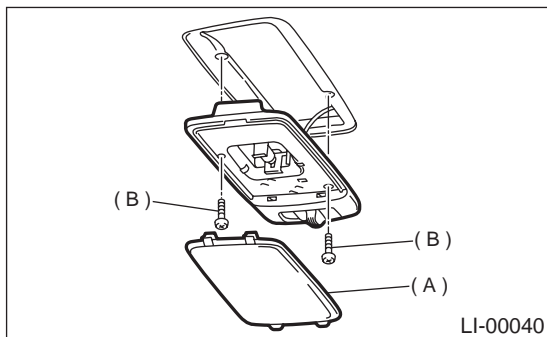
Measure spot light resistance.

Switch position	Terminal No.	Standard
OFF	—	More than 1 M Ω
ON	1 and 2	18 \pm 5.4 Ω

23.Room Light

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove lens (A) and room light mounting screws (B).



- 3) Disconnect harness connectors and remove the light.

B: INSTALLATION

Install in the reverse order of removal.

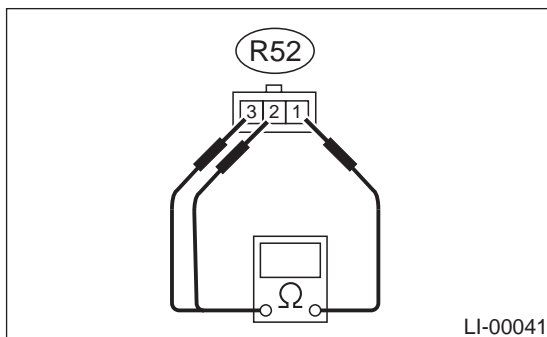
C: INSPECTION

1. ROOM LIGHT BULB

- 1) Visually check the bulb for blow out.
- 2) Check the bulb specification. <Ref. to LI-2, SPECIFICATIONS, General Description.>
- 3) If NG, replace the bulb with a new one.

2. ROOM LIGHT SWITCH

Measure room light switch resistance.



Switch position	Terminal No.	Standard
OFF	—	More than 1 M Ω
ON	1 and 3	1.5 \pm 0.5 Ω
DOOR	1 and 2	1.5 \pm 0.5 Ω

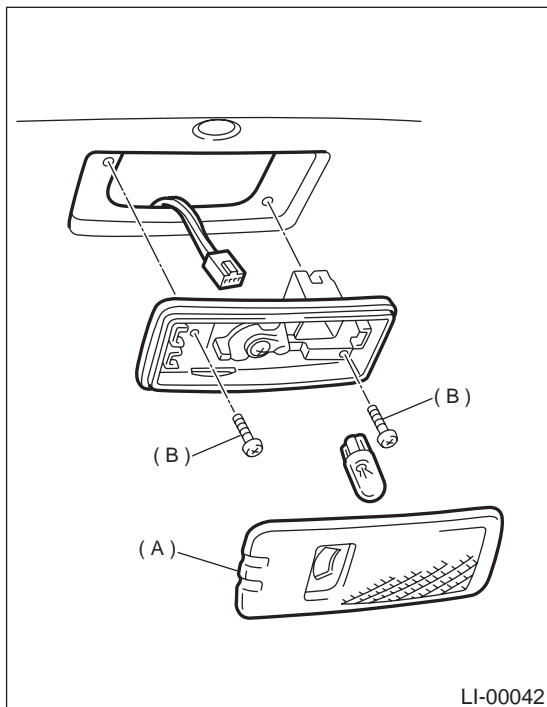
LUGGAGE ROOM LIGHT

LIGHTING SYSTEM

24. Luggage Room Light

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove lens (A) and luggage room light mounting screws (B).



- 3) Disconnect harness connectors and remove luggage room light.

B: INSTALLATION

Install in the reverse order of removal.

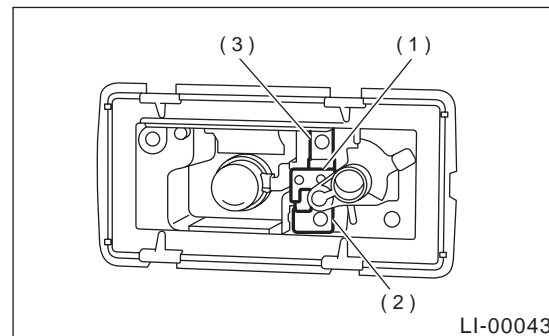
C: INSPECTION

1. LUGGAGE ROOM LIGHT BULB

- 1) Visually check the bulb for blow out.
- 2) Check the bulb specification. <Ref. to LI-2, SPECIFICATIONS, General Description.>
- 3) If NG, replace the bulb with a new one.

2. LUGGAGE ROOM LIGHT SWITCH

Measure luggage room light resistance.

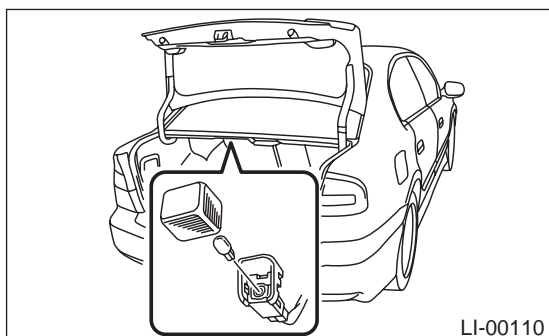


Switch position	Terminal No.	Standard
OFF	—	More than 1 MΩ
ON	1 and 3	1.5±0.5 Ω
DOOR	1 and 2	1.5±0.5 Ω

25.Trunk Room Light

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Disconnect harness connectors and remove trunk room light.



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

- 1) Visually check the bulb for blow out.
- 2) Check the bulb specification. <Ref. to LI-2, SPECIFICATIONS, General Description.>
- 3) If NG, replace the bulb with a new one.

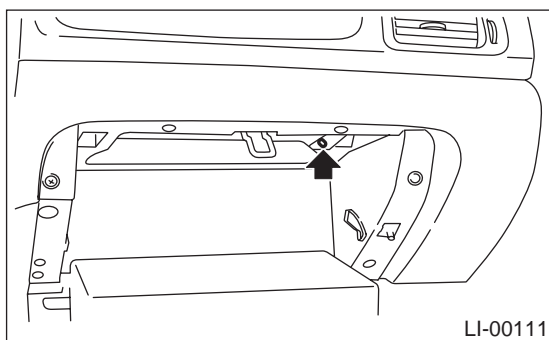
GLOVE BOX LIGHT

LIGHTING SYSTEM

26. Glove Box Light

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove glove box. <Ref. to EI-34, REMOVAL, Glove Box.>
- 3) Disconnect harness connector.
- 4) Remove glove box light.



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

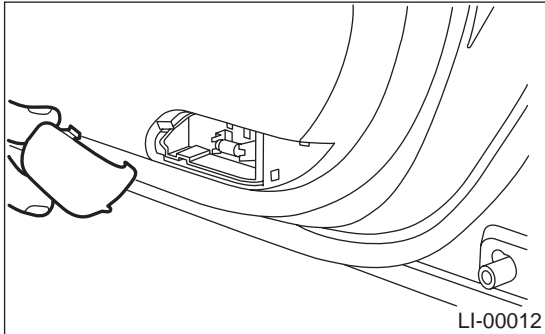
- 1) Visually check the bulb for blow out.
- 2) Check the bulb specification. <Ref. to LI-2, SPECIFICATIONS, General Description.>
- 3) If NG, replace the bulb with a new one.

LI-30

27. Door Step Light

A: REMOVAL

Remove the lens then detach the bulb.



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

- 1) Visually check the bulb for blow out.
- 2) Check the bulb specification. <Ref. to LI-2, SPECIFICATIONS, General Description.>
- 3) If NG, replace the bulb with a new one.

DOOR STEP LIGHT

LIGHTING SYSTEM

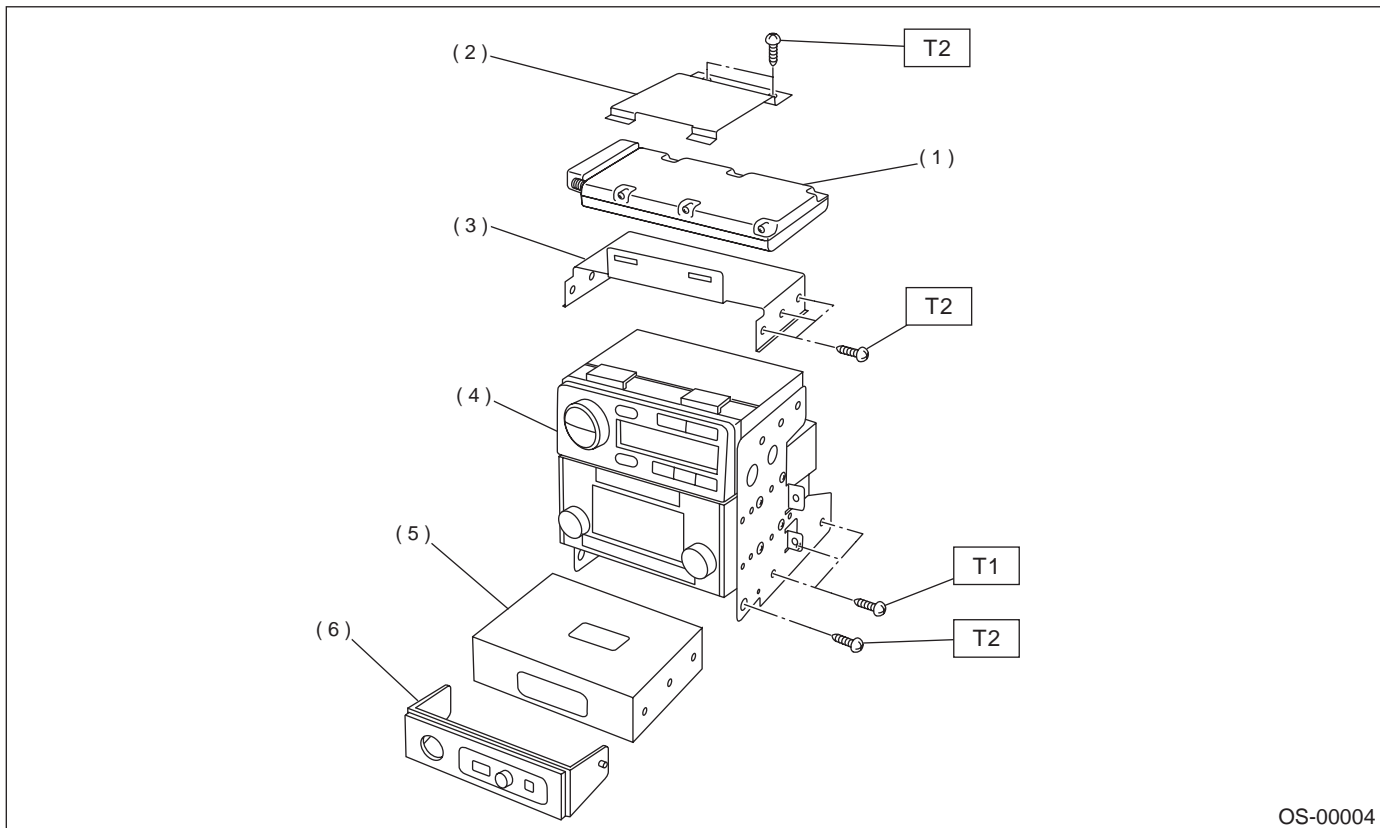
MEMO:

GENERAL DESCRIPTION

OnStar (R)

1. General Description

A: COMPONENT



- | | |
|--------------------------------------|----------------------------------|
| (1) Vehicle communication unit (VCU) | (4) Audio body |
| (2) VCU Bracket (upper) | (5) Vehicle interface unit (VIU) |
| (3) VCU Bracket (lower) | (6) Button ASSY |

Tightening torque: N·m (kgf·m, ft·lb)

T1: 2.2 (0.22, 1.6)

T2: 4.6 (0.47, 3.4)

GENERAL DESCRIPTION

OnStar (R)

B: CAUTION

- Wear work clothing, including a cap, protective goggles, and protective shoes during operation.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust and dirt.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly and replacement.
- Be careful not to burn your hands, because each part in the vehicle is hot after running.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or safety stands at the specified points.
- Before disconnecting electrical connectors of sensor or units, be sure to disconnect the ground cable from battery.

C: PREPARATION TOOL

1. GENERAL PURPOSE TOOLS

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

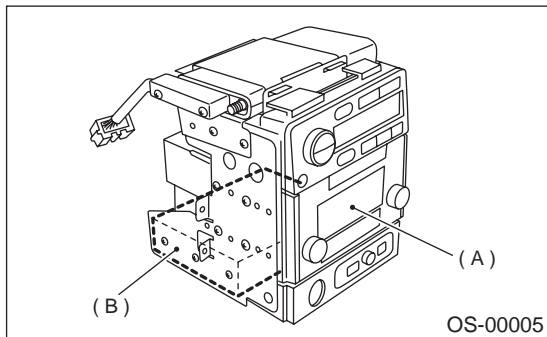
VEHICLE INTERFACE UNIT VIU

OnStar (R)

2. Vehicle Interface Unit VIU

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove meter visor. <Ref. to IDI-12, REMOVAL, Combination Meter Assembly.>
- 3) Remove audio body. <Ref. to ET-5, REMOVAL, Radio Body.>
- 4) Remove VIU from the audio body.



- (A) Audio body
(B) VIU

B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

2.2 N·m (0.22 kgf-m, 1.6 ft-lb)

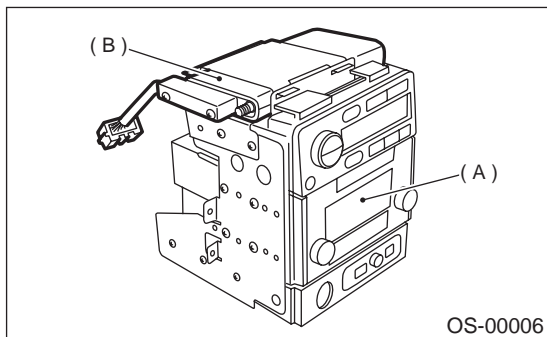
NOTE:

When changing VIU, consult the OnStar (R) call center and request setup.

3. Vehicle Communication Unit VCU

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove meter visor. <Ref. to IDI-12, REMOVAL, Combination Meter Assembly.>
- 3) Remove audio body. <Ref. to ET-5, REMOVAL, Radio Body.>
- 4) Remove VCU from the audio body.



- (A) Audio body
(B) VCU

B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

4.6 N·m (0.47 kgf-m, 3.4 ft-lb)

NOTE:

When changing VCU, consult the OnStar (R) call center and request setup.

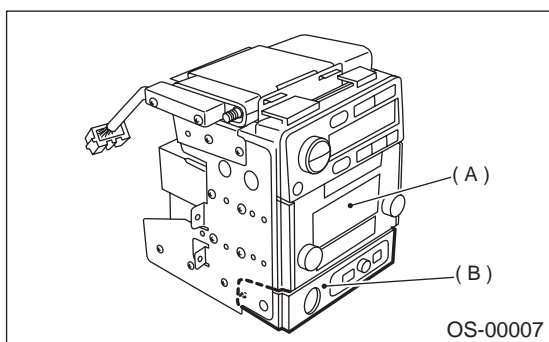
BUTTON ASSEMBLY

OnStar (R)

4. Button Assembly

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove meter visor. <Ref. to IDI-12, REMOVAL, Combination Meter Assembly.>
- 3) Remove audio body. <Ref. to ET-5, REMOVAL, Radio Body.>
- 4) Remove button assembly from the audio body.



- (A) Audio body
(B) Button ASSY

B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

4.6 N·m (0.47 kgf-m, 3.4 ft-lb)

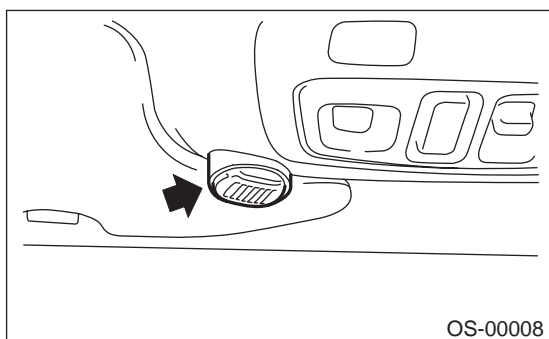
MICROPHONE

OnStar (R)

5. Microphone

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove microphone.



B: INSTALLATION

Install in the reverse order of removal.

OS-7

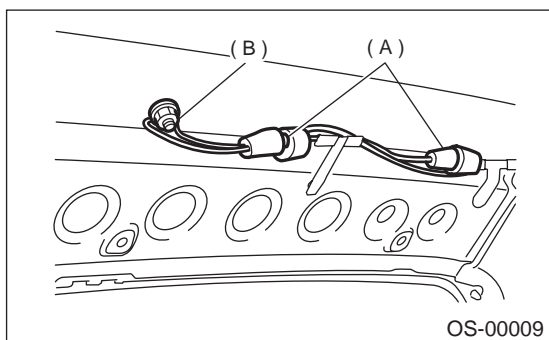
ANTENNA

OnStar (R)

6. Antenna

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove roof trim. <Ref. to EI-45, REMOVAL, Roof Trim.>
- 3) Disconnect connector.
- 4) Remove nut fixing antenna.



- (A) Connector
- (B) Antenna fixing nut

B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

4.4 N·m (0.45 kgf-m, 3.3 ft-lb)

OS-8

BASIC DIAGNOSTIC PROCEDURE

OnStar (R) (Diagnostics)

1. Basic Diagnostic Procedure

A: PROCEDURE

NOTE:

To check harness for broken wires or short circuits, shake it while holding it or the connector.

Step	Value	Yes	No
1 CHECK PRE-INSPECTION. 1) Before performing diagnosis, inspect unit which might influence OnStar (R) problem. <Ref. to OS-3, INSPECTION, General Description.> Is unit that might influence the problem normal?	Normal	Go to step 2.	Repair or replace each unit.
2 CHECK OnStar (R) LED. 1) Does the red LED of OnStar (R) come on when ignition switch is ON?	The LED comes on.	Go to step 3.	Go to step 4.
3 CHECK INDICATION OF DIAGNOSTIC TROUBLE CODE (DTC). 1) Calling up the diagnostic trouble code (DTC). <Ref. to OS-10, OPERATION, Read Diagnostic Trouble Code (DTC).> 2) Record all DTCs. Confirm the meaning of DTC using the list of DTC. <Ref. to OS-17, LIST, List of Diagnostic Trouble Code (DTC).> 3) Proceed with the diagnosis corresponding to the diagnostic trouble code (DTC). <Ref. to OS-18, Diagnostics Chart with Trouble Code.> Confirm repair by activating system. Is repair work completed?	Repair is completed.	System is OK.	Go to step 1.
4 PERFORM DIAGNOSIS ACCORDING TO THE SYMPTOM. Perform diagnostic procedure according to the symptom. <Ref. to OS-33, Diagnosis for Each Symptom.> Confirm repair by activating system. Is repair work completed?	Repair is completed.	System is OK.	Go to step 1.

OS-2

2. General Description

A: CAUTION

When the inspection procedure must be performed pressing each OnStar (R) button, call the OnStar (R) call center first.

When VIU and VCU are replaced, contact to the OnStar (R) call center to ask for set-up.

B: INSPECTION

Before performing diagnostics, check the following items which might affect OnStar (R) problems.

1. BATTERY

Measure the battery voltage and specific gravity of electrolyte.

Standard voltage: 12 V or more

Specific gravity: Above 1.260

2. AIRBAG

Inspect that airbag system is normal. <Ref. to AB-2, Basic Diagnostic Procedure.>

GENERAL DESCRIPTION

OnStar (R) (Diagnostics)

C: PREPARATION TOOL

1. GENERAL PURPOSE TOOLS

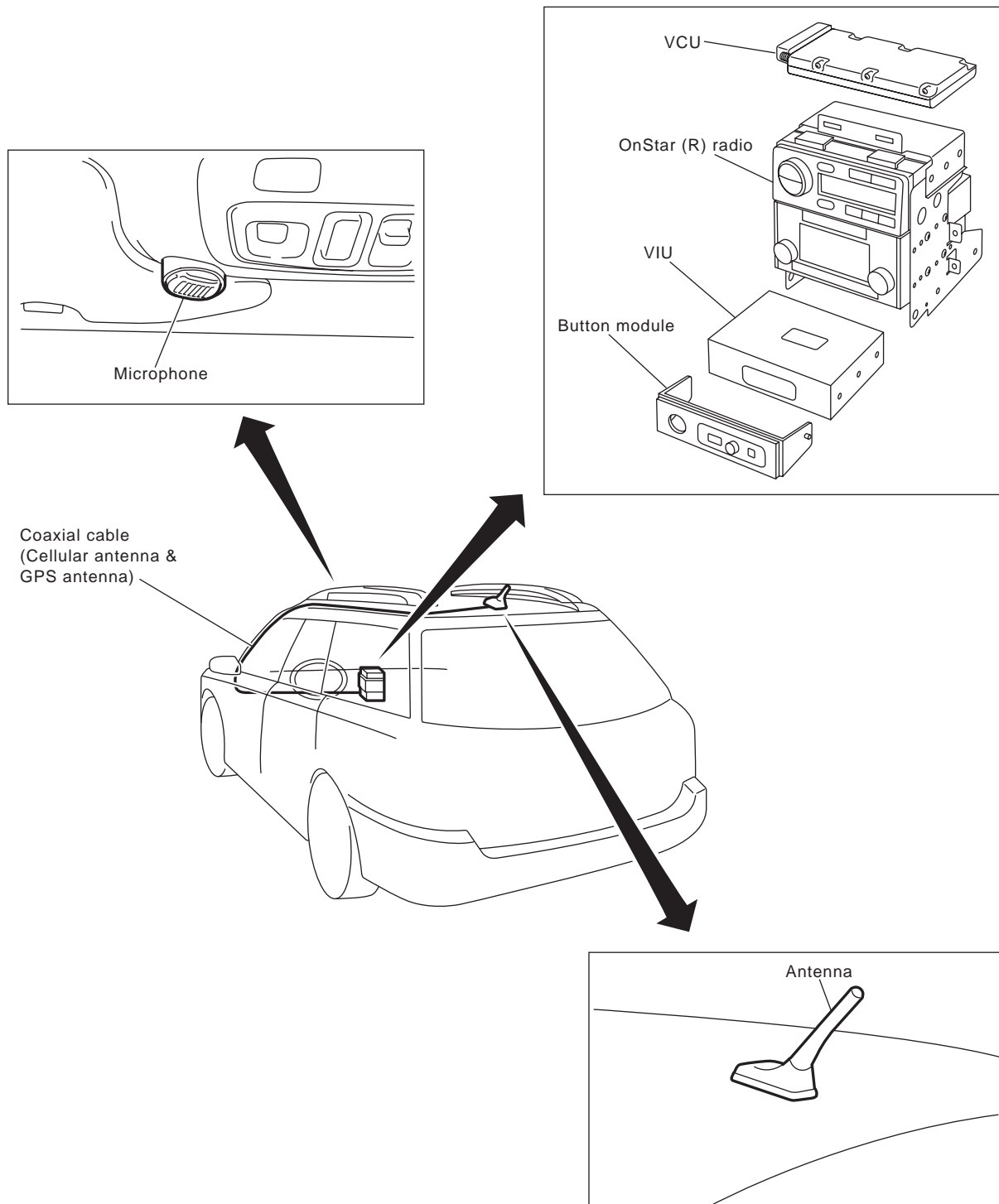
TOOL NAME	REMARKS
Circuit Tester	Used for measuring resistance, voltage and ampere.

ELECTRICAL COMPONENTS LOCATION

OnStar (R) (Diagnostics)

3. Electrical Components Location

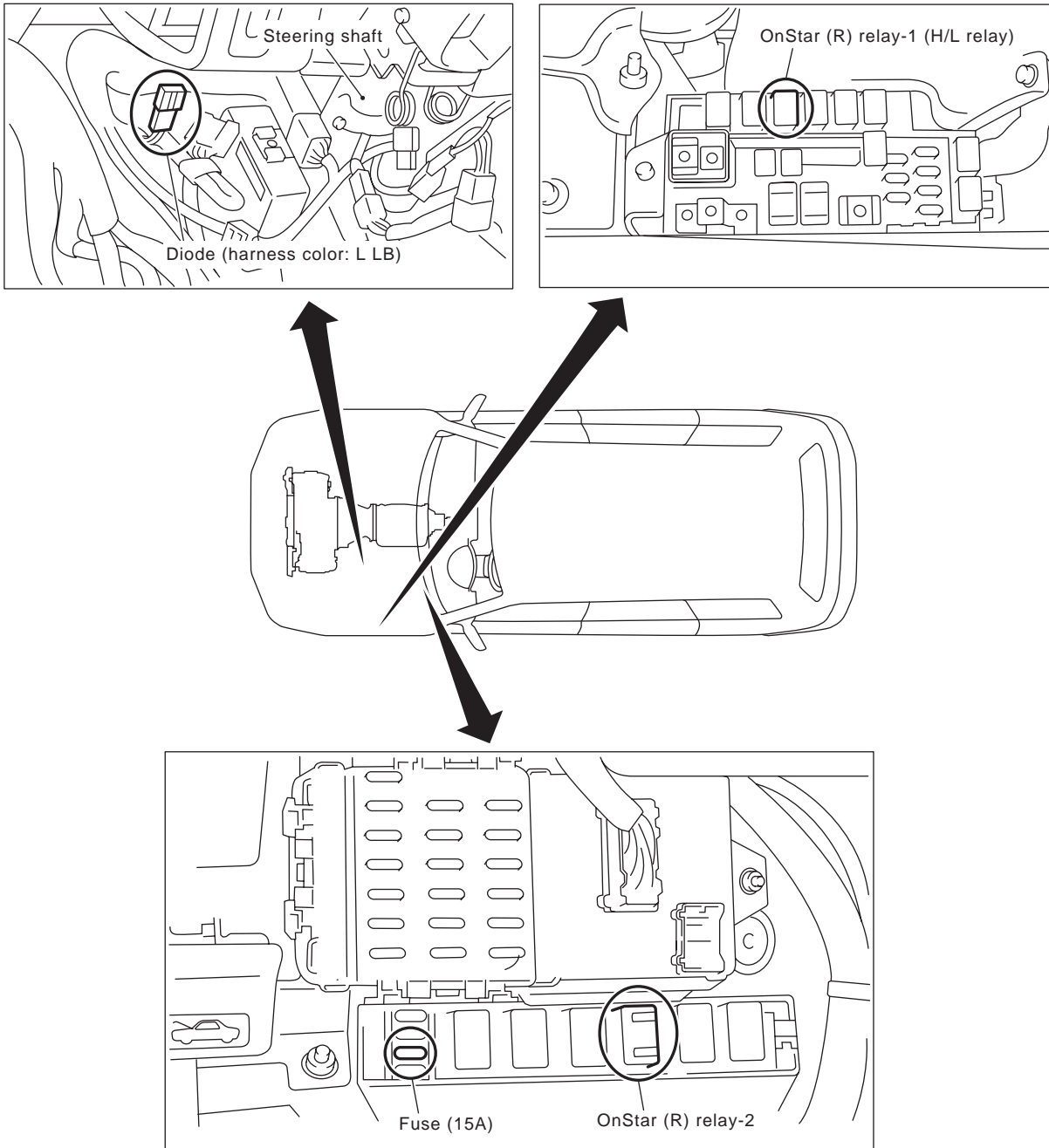
A: LOCATION



OS-00010

ELECTRICAL COMPONENTS LOCATION

OnStar (R) (Diagnostics)

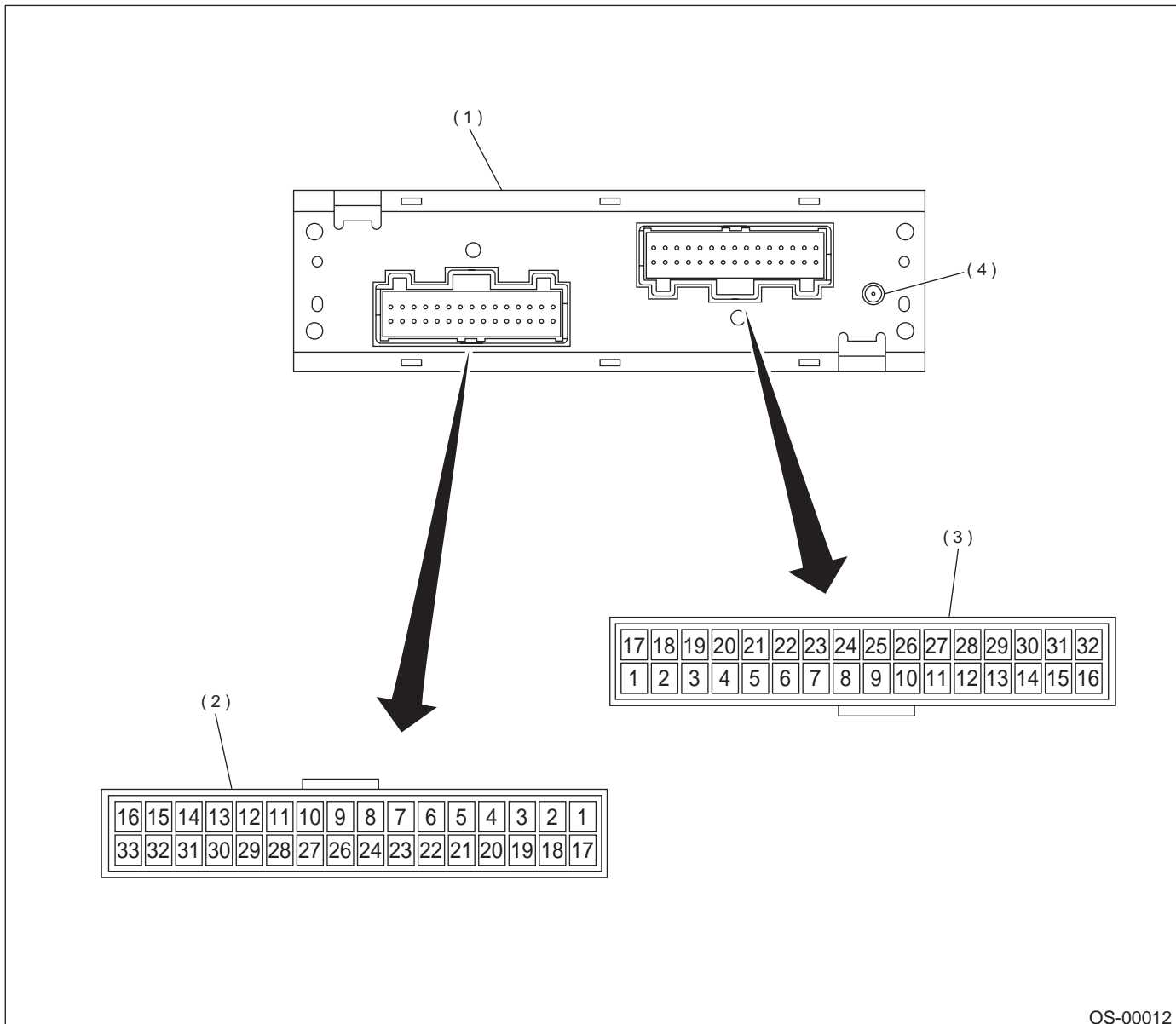


OS-00011

CONTROL MODULE I/O SIGNAL

OnStar (R) (Diagnostics)

4. Control Module I/O Signal A: ELECTRICAL SPECIFICATION



(1) VIU

(2) Connect to i73 (Blue) connector

(3) Connect to i72 (Red) connector

(4) GPS antenna connector

CONTROL MODULE I/O SIGNAL

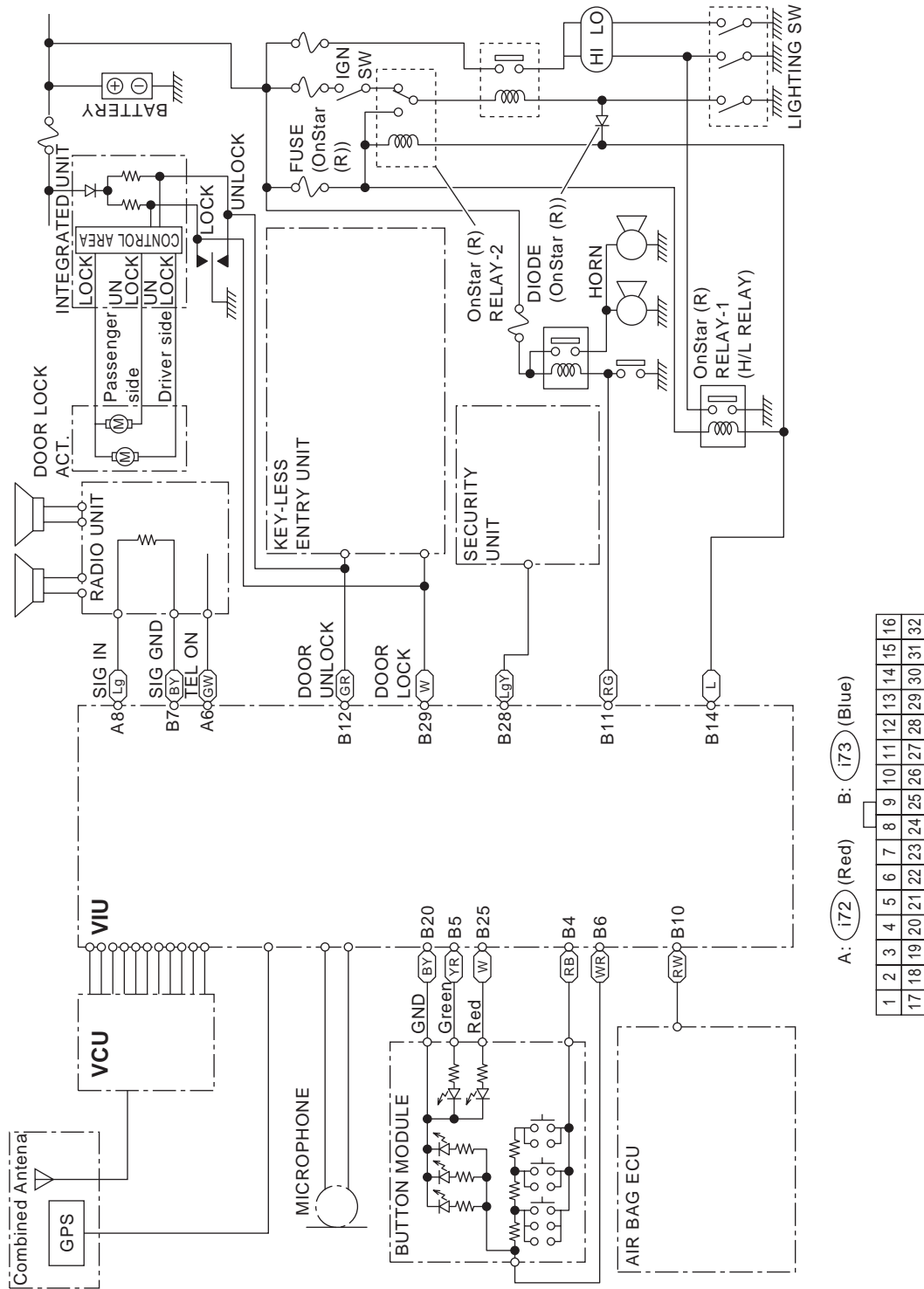
OnStar (R) (Diagnostics)

Contents		Connector No.	Terminal No.	Input/Output signal
Power supply	Power	i73	16	9 — 16 V
	Power	i73	32	9 — 16 V
	GND	i73	1	0 V
	GND	i73	17	0 V
	ACC	i73	27	OnStar (R) activates, when the value is greater than 5.5 V
	IGN	i73	22	OnStar (R) activates, when the value is greater than 5.5 V
VCU I/O	Audio ground	i72	10	0 V
	Audio signal	i72	11	4.5 V when switch is ON
	Audio signal	i72	12	Battery voltage when switch is ON
	Microphone GND	i72	13	0 V when switch is ON
	Microphone input signal	i72	14	Signal
	Power	i72	16	Battery voltage when switch is ON
	3 wire signal data bus	i72	27	Signal
	3 wire signal data bus	i72	28	Signal
Vehicle discrete interface	3 wire signal data bus	i72	29	Signal
	Door unlock signal	i73	13	At actuation of door unlock Battery voltage
	Doorlock signal	i73	14	At actuation of door lock Battery voltage
	Horn signal	i73	11	0V at actuation of horn Battery voltage at no actuation of horn
	Security signal	i73	28	Signal (5 V)
	Headlight signal	i73	14	0V at actuation of headlight Battery voltage at no actuation of headlight
	Low reference of transceiver	i72	30	0 V
User interface	IGN signal	i72	31	Battery voltage when switch is ON
	Mike signal & power supply	i72	25	Signal
	Mike return	i72	26	0 V
	Key pad signal	i73	4	2.14V at pressing emergency button 1.27V at pressing OnStar (R) button 1.27V at pressing call answer/end button
	LED Green	i73	5	3V when LED illuminates
	LED Red	i73	25	2.5V when LED illuminates
	Key pad low reference	i73	20	0 V
Audio output interface	Key pad power supply	i73	6	Battery voltage
	Audio	i72	8	Signal
	Audio GND	i72	8	0 V
	TEL ON signal	i73	7	Battery voltage when switch is ON

CONTROL MODULE I/O SIGNAL

OnStar (R) (Diagnostics)

B: SCHEMATIC



OS-00013

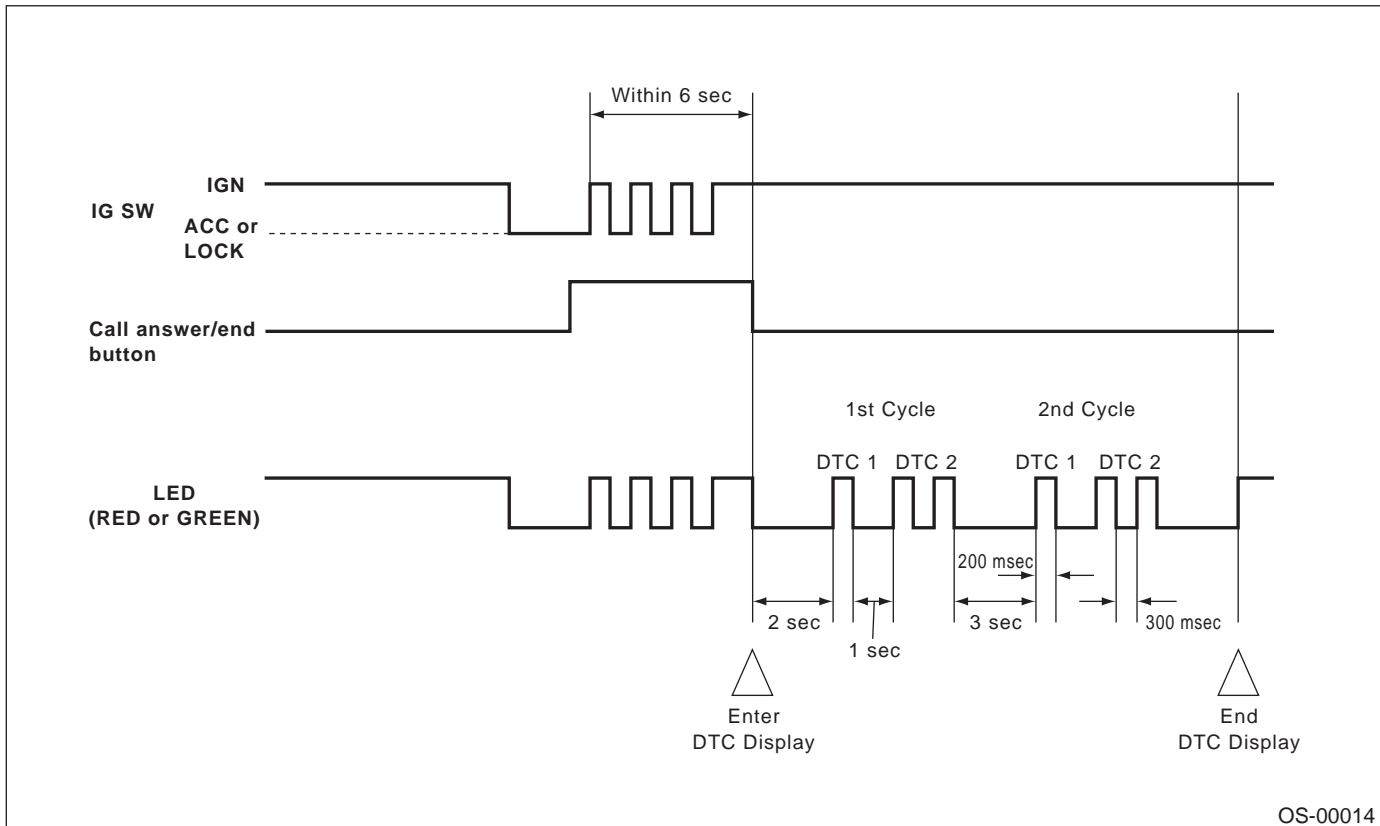
READ DIAGNOSTIC TROUBLE CODE (DTC)

OnStar (R) (Diagnostics)

5. Read Diagnostic Trouble Code (DTC)

A: OPERATION

- 1) Turn ignition switch to OFF.
- 2) Perform the following job steps within 6 seconds.
- 3) Change the ignition switch from ON to OFF 3 times with pressing call answer/end button.
- 4) Turn ignition to ON at the 4th switching action.
- 5) When the call answer/end button is released, LED will blink to indicate DTC.



NOTE:

- Current DTC will be indicated by the red LED.
- Former DTC will be indicated by the green LED.
- Current DTC will be indicated first, and then former DTC will be indicated.
- DTC will be displayed in order of numerical sequence from smallest.
- DTC will be indicated in 2 times.

OUTPUT MODE

OnStar (R) (Diagnostics)

6. Output Mode

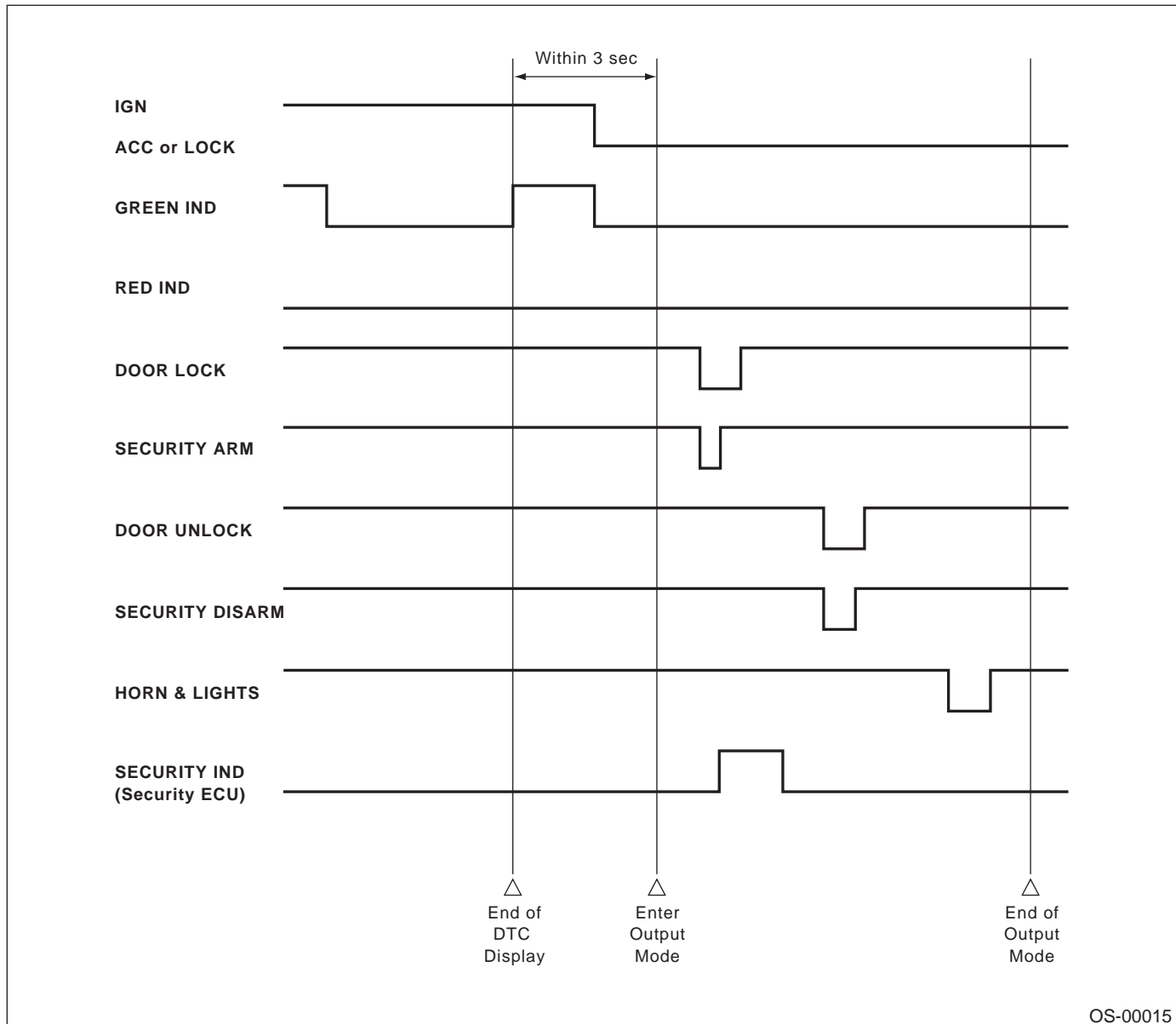
A: OPERATION

NOTE:

Output mode activates lock and unlock of door, security, horn and headlight.

1) Within 3 seconds after reading DTC, turn the ignition to OFF.

- When no DTC is stored

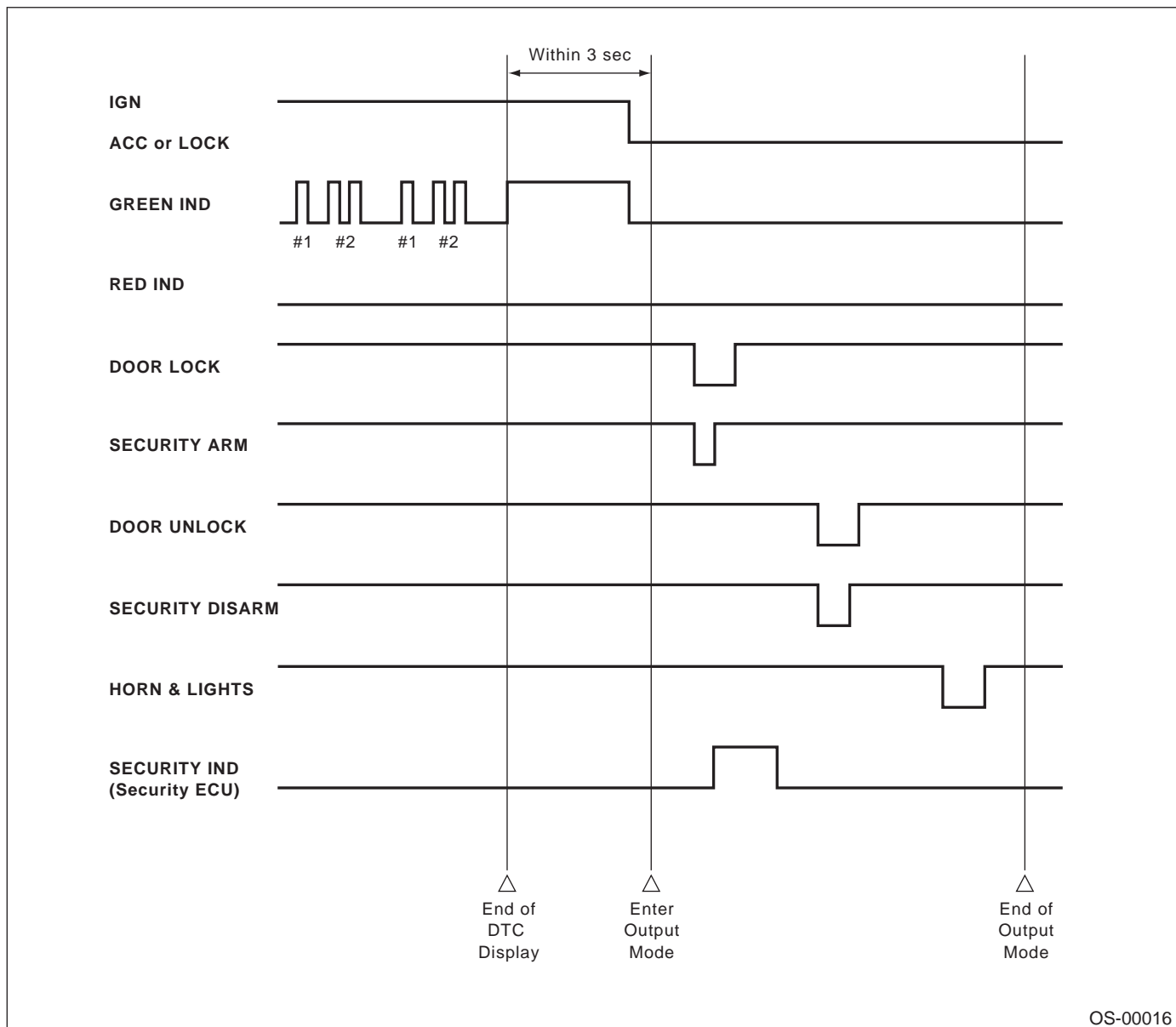


OS-00015

OUTPUT MODE

OnStar (R) (Diagnostics)

- When DTC of former trouble is stored

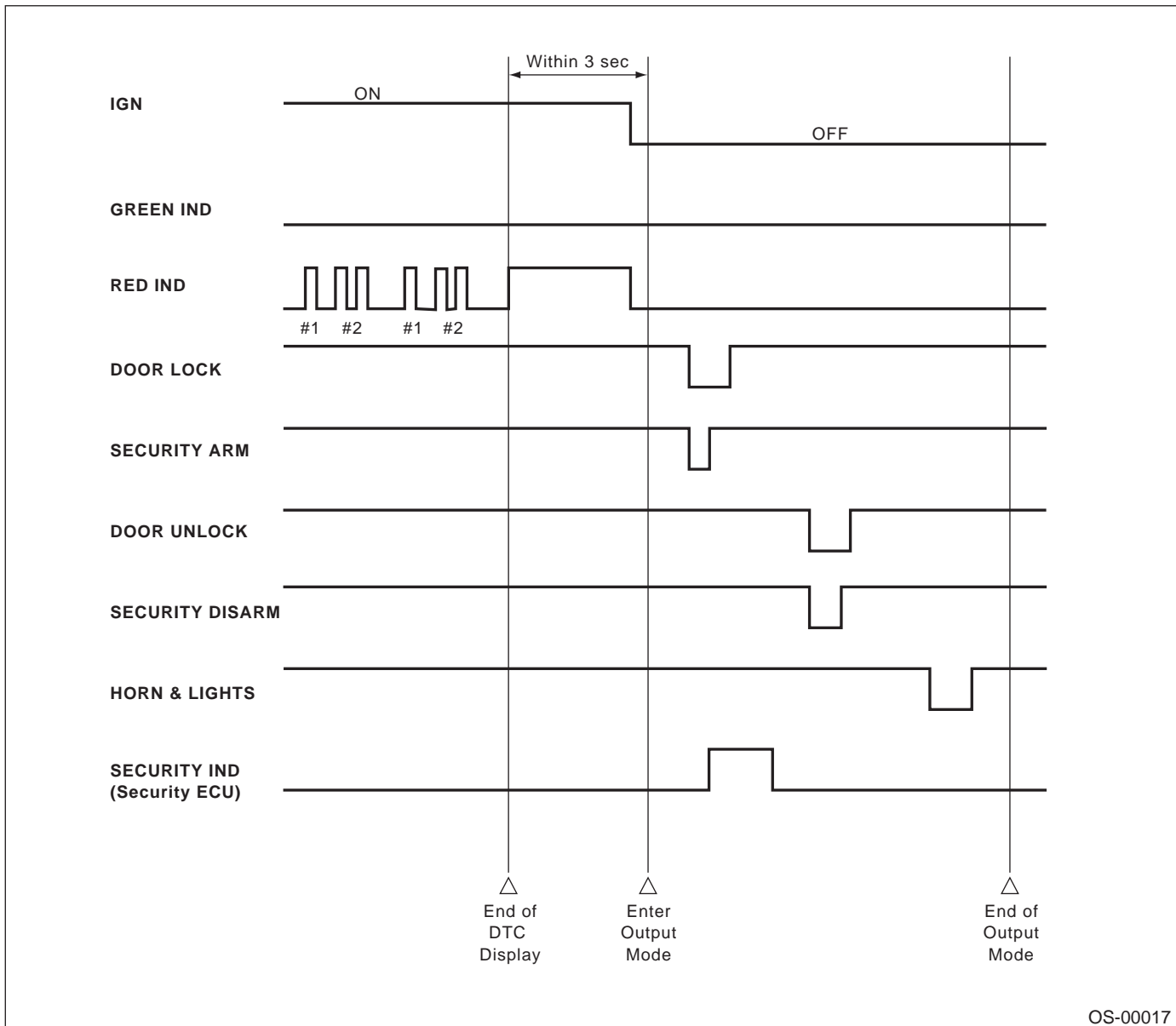


OS-00016

OUTPUT MODE

OnStar (R) (Diagnostics)

- When DTC of current trouble is stored



OS-00017

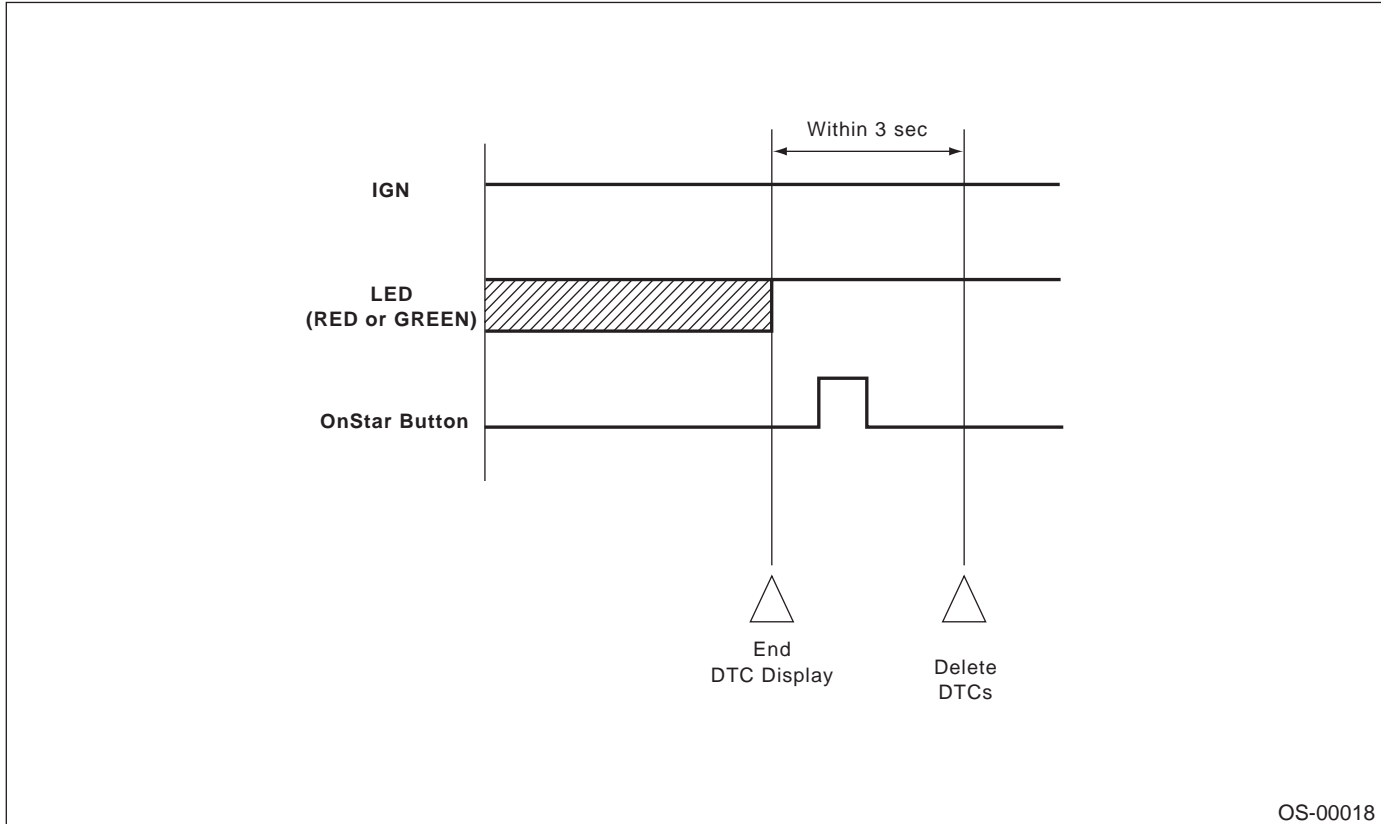
CLEAR MEMORY MODE

OnStar (R) (Diagnostics)

7. Clear Memory Mode

A: OPERATION

1) Within 3 seconds after reading DTC, turn the OnStar (R) button On and OFF.



OS-00018

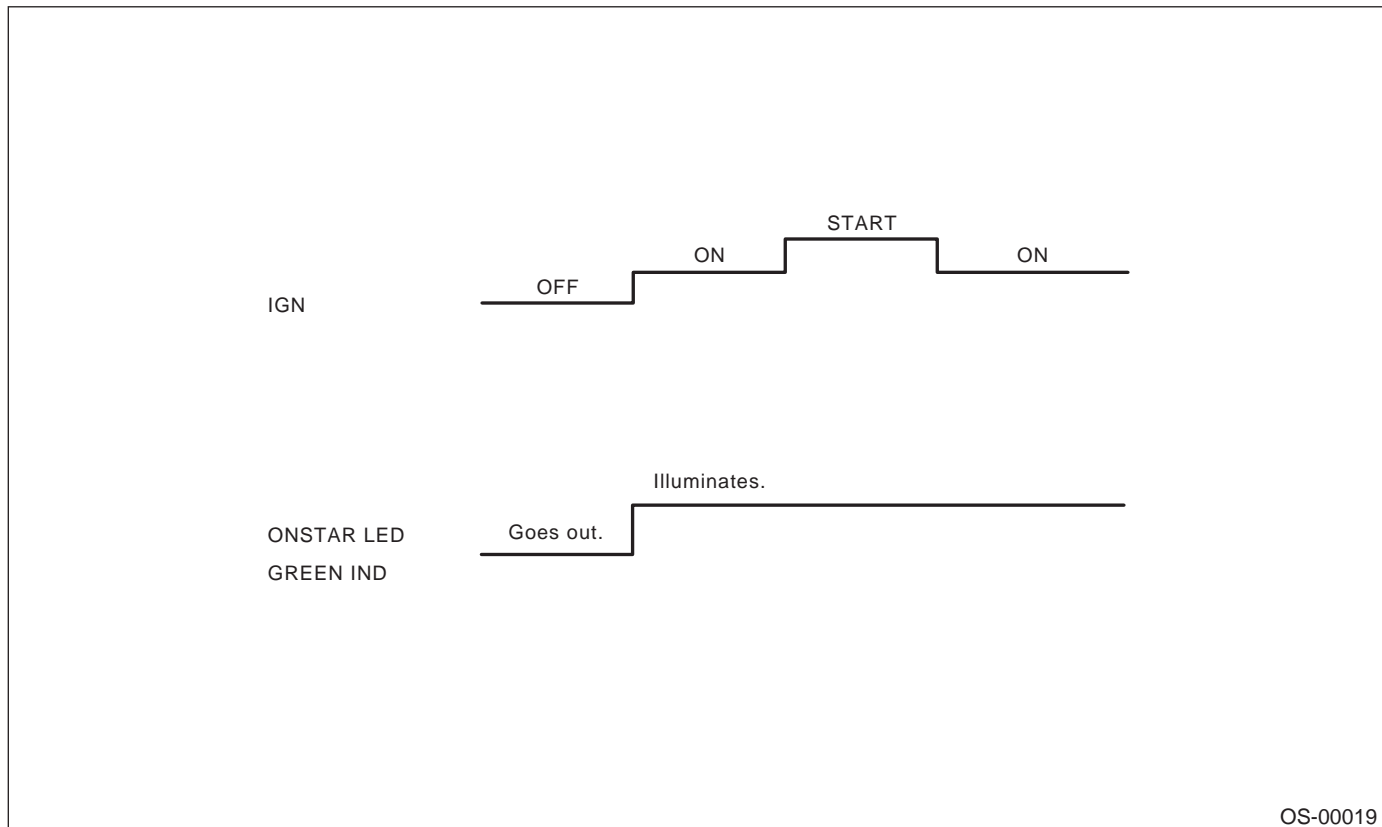
OS-14

ONSTAR (R) LED ILLUMINATION PATTERN

8. OnStar (R) LED Illumination Pattern

A: INSPECTION

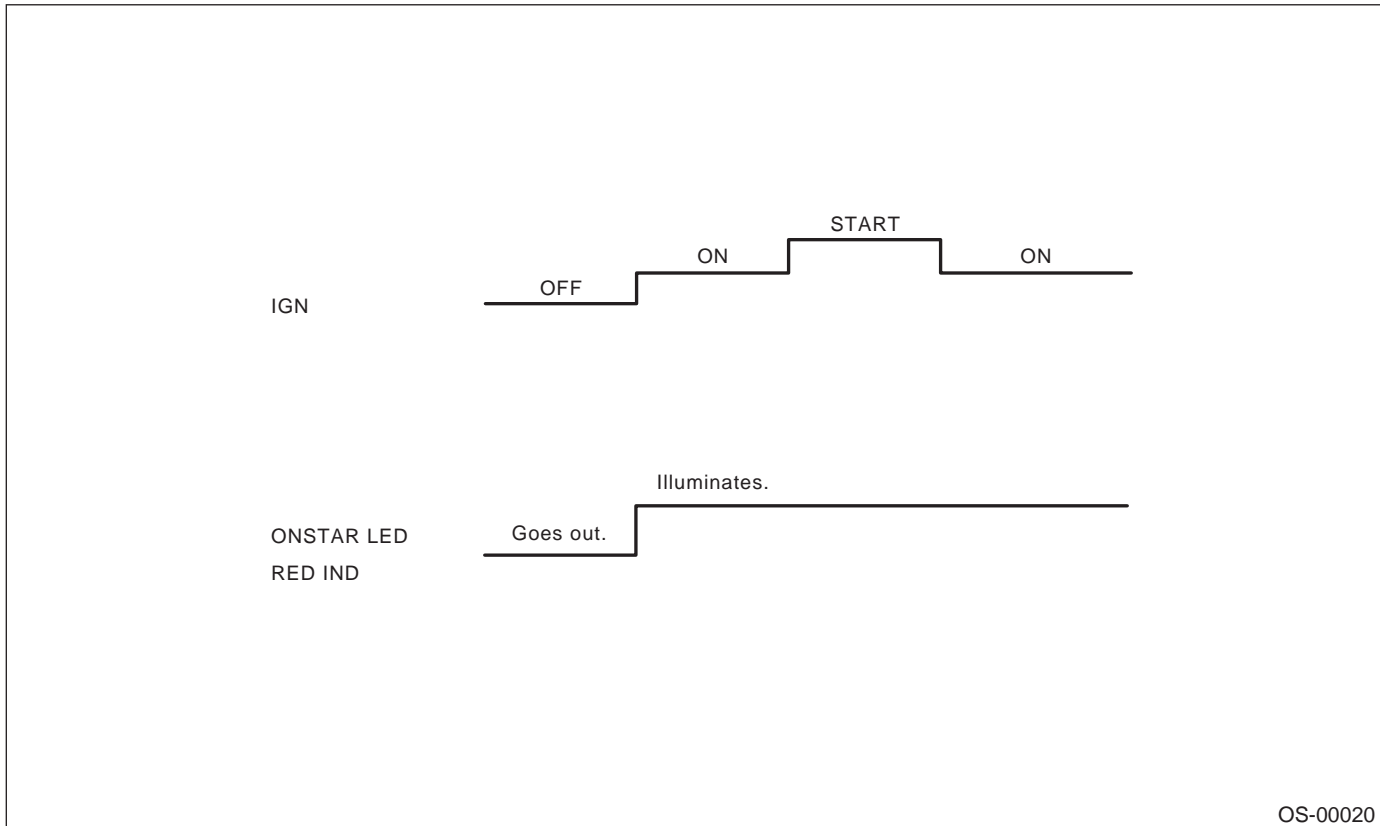
1. LED ILLUMINATES GREEN.



- 1) There is some trouble in electrical system, when OnStar (R) LED does not come on.
- 2) Repair OnStar (R) LED circuit or diagnostic circuit, when OnStar (R) LED remains always OFF. <Ref. to OS-50, OnStar (R) LED DOES NOT OPERATE., Diagnosis for Each Symptom.>

ONSTAR (R) LED ILLUMINATION PATTERN

2. LED ILLUMINATES RED.



When OnStar (R) LED illuminates in red, it means some trouble exist in OnStar (R) system. In such a case, read DTC and repair. <Ref. to OS-10, OPERATION, Read Diagnostic Trouble Code (DTC).>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC)

OnStar (R) (Diagnostics)

9. List of Diagnostic Trouble Code (DTC)

A: LIST

DTC No.	Content of diagnosis	LED indicator pattern	Index No.
0	EEPROM checksum error	No flash	<Ref. to OS-18, DTC 0 — EEPROM CHECKSUM ERROR —, Diagnostics Chart with Trouble Code.>
1	GPS signal error	1 flash	<Ref. to OS-20, DTC 1 — GPS SIGNAL ERROR —, Diagnostics Chart with Trouble Code.>
2	Loss of VCU communication with VIU	2 flashes	<Ref. to OS-22, DTC 2 — LOSS OF VCU COMMUNICATION WITH VIU —, Diagnostics Chart with Trouble Code.>
3	SRS Signal fault	3 flashes	<Ref. to OS-26, DTC 3 — SRS SIGNAL FAULT —, Diagnostics Chart with Trouble Code.>
4	Fault communication between GPS and micro-processor	4 flashes	<Ref. to OS-28, DTC 4 — GPS MICRO-PROCESSOR COMMUNICATION FAULT —, Diagnostics Chart with Trouble Code.>
5	Button assembly malfunction	5 flashes	<Ref. to OS-30, DTC 5 — BUTTON ASSEMBLY MALFUNCTION —, Diagnostics Chart with Trouble Code.>

CAUTION:

When DTC 4, which deactivates button module, VIU will not enter to DTC display mode.

OS-17

DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

10. Diagnostics Chart with Trouble Code

A: DTC 0 — EEPROM CHECKSUM ERROR —

DIAGNOSIS:

Trouble of EEPROM Checksum

SYMPTOM:

- Red LED illuminates
- OnStar (R) does not operate.

	Step	Value	Yes	No
1	DTC 5 Check button assembly for malfunction. <Ref. to OS-30, DTC 5 — BUTTON ASSEMBLY MALFUNCTION —, Diagnostics Chart with Trouble Code.> Run the system and confirm the result of repair. Was the trouble cleared?	System is normal.	System is OK.	REFERENCE: Perform OnStar (R) setup procedure. Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.>

DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

MEMO:

DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

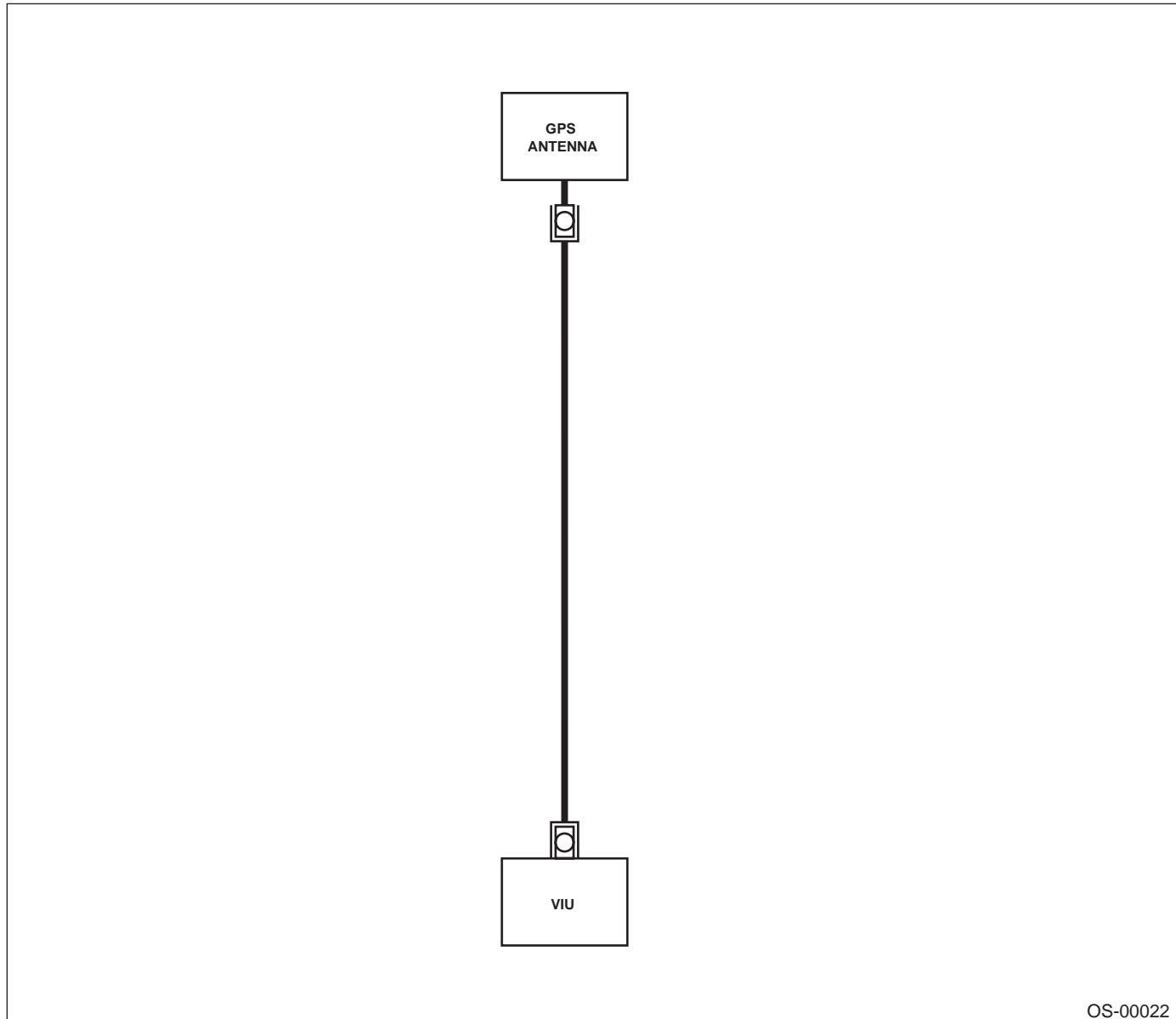
B: DTC 1 — GPS SIGNAL ERROR —

DIAGNOSIS:

Trouble of GPS Signal

SYMPTOM:

- Red LED illuminates
- OnStar (R) does not operate.



DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

Step	Value	Yes	No
1 CHECK HARNESS. 1) Turn ignition switch to OFF. 2) Disconnect GPS antenna connector from VIU. 3) Disconnect connector from GPS antenna. 4) Measure resistance between GPS antenna cables. Is the measured value less than the specified value?	0.5 Ω	Go to step 2.	Repair open harness.
2 CHECK HARNESS. Measure resistance of GPS antenna cable. Does the measured value exceed the specified value?	1 MΩ	Go to step 3.	Repair ground short of GPS antenna cable.
3 CHECK HARNESS. Turn the ignition switch to ON. Measure voltage between GPS antenna cable and chassis ground. Does the measured value exceed the specified value?	1 V	Go to step 4.	Repair battery short of GPS antenna cable.
4 CHECK GPS ANTENNA. 1) Replace GPS antenna. <Ref. to OS-8, Antenna.> 2) Run the system and confirm the result of repair. Was the trouble cleared?	—	System is OK.	REFERENCE: Perform OnStar (R) setup procedure. Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.>

DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

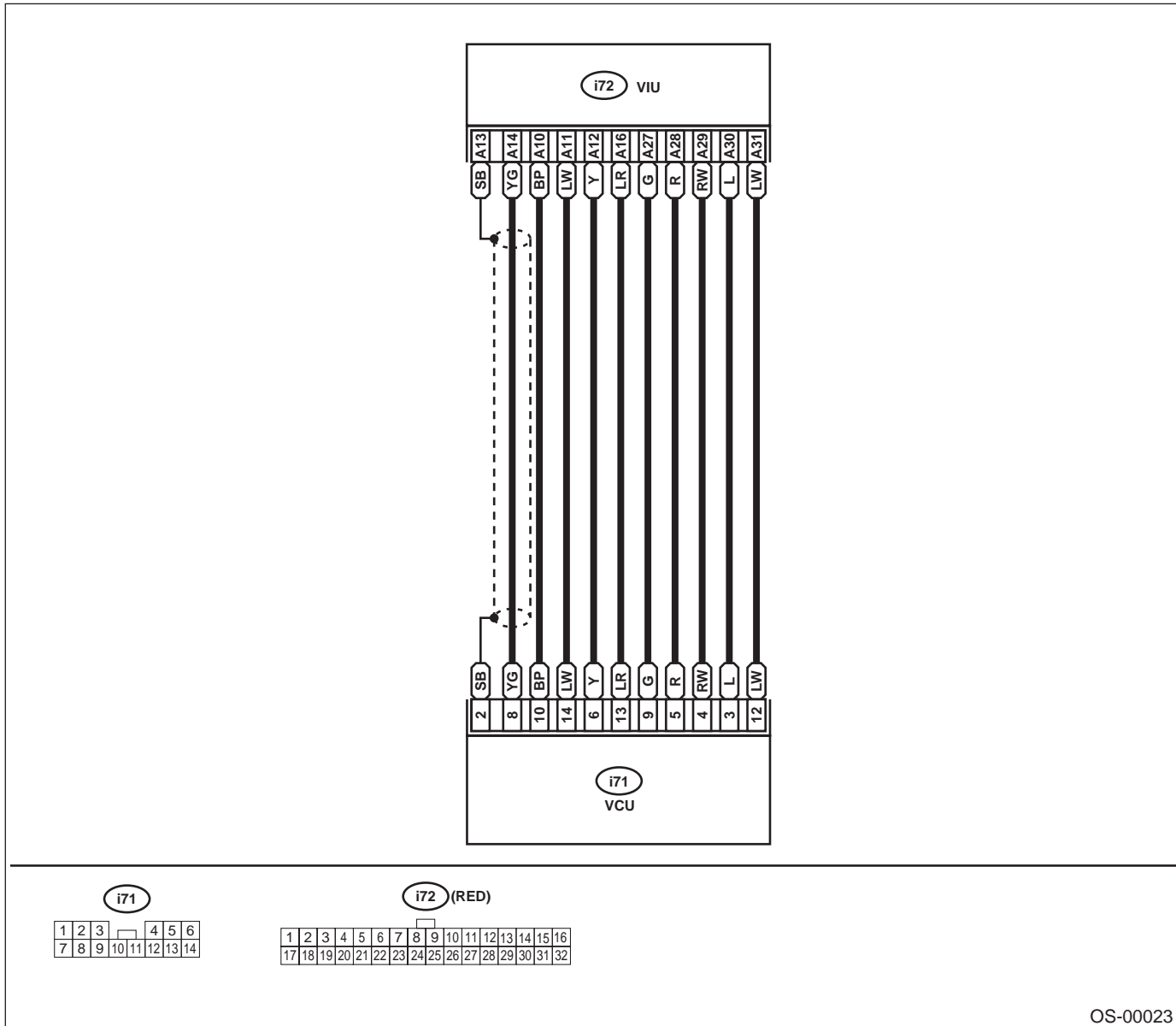
C: DTC 2 — LOSS OF VCU COMMUNICATION WITH VIU —

DIAGNOSIS:

Communication error between VIU and VCU

SYMPTOM:

- Red LED illuminates
- OnStar (R) does not operate.



OS-00023

DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

Step	Value	Yes	No
<p>1</p> <p>CHECK HARNESS. 1) Turn ignition switch to OFF. 2) Disconnect VIU connector. 3) Disconnect VCU connector. 4) Measure resistance between VIU connector and VCU connector.</p> <p>Connector & Terminal <i>(i72) No. 10 — (i71) No. 10:</i> <i>(i72) No. 11 — (i71) No. 14:</i> <i>(i72) No. 12 — (i71) No. 6:</i> <i>(i72) No. 13 — (i71) No. 2:</i> <i>(i72) No. 14 — (i71) No. 8:</i> <i>(i72) No. 16 — (i71) No. 13:</i> <i>(i72) No. 27 — (i71) No. 9:</i> <i>(i72) No. 28 — (i71) No. 5:</i> <i>(i72) No. 29 — (i71) No. 4:</i> <i>(i72) No. 30 — (i71) No. 3:</i> <i>(i72) No. 31 — (i71) No. 12:</i></p> <p>Is the measured value less than the specified value?</p>	0.5 Ω	Go to step 2.	Repair open harness.
<p>2</p> <p>CHECK HARNESS. Measure resistance between VIU connector and chassis ground.</p> <p>Connector & Terminal <i>(i72) No. 10 — Chassis ground:</i> <i>(i72) No. 11 — Chassis ground:</i> <i>(i72) No. 12 — Chassis ground:</i> <i>(i72) No. 13 — Chassis ground:</i> <i>(i72) No. 14 — Chassis ground:</i> <i>(i72) No. 16 — Chassis ground:</i> <i>(i72) No. 27 — Chassis ground:</i> <i>(i72) No. 28 — Chassis ground:</i> <i>(i72) No. 29 — Chassis ground:</i> <i>(i72) No. 30 — Chassis ground:</i> <i>(i72) No. 31 — Chassis ground:</i></p> <p>Does the measured value exceed the specified value?</p>	1 MΩ	Go to step 3.	Repair ground short of harness.
<p>3</p> <p>CHECK HARNESS. 1) Turn the ignition switch to ON. 2) Measure voltage between VIU connector and chassis ground.</p> <p>Connector & Terminal <i>(i72) No. 10 (+) — Chassis ground (-):</i> <i>(i72) No. 11 (+) — Chassis ground (-):</i> <i>(i72) No. 12 (+) — Chassis ground (-):</i> <i>(i72) No. 13 (+) — Chassis ground (-):</i> <i>(i72) No. 14 (+) — Chassis ground (-):</i> <i>(i72) No. 16 (+) — Chassis ground (-):</i> <i>(i72) No. 27 (+) — Chassis ground (-):</i> <i>(i72) No. 28 (+) — Chassis ground (-):</i> <i>(i72) No. 29 (+) — Chassis ground (-):</i> <i>(i72) No. 30 (+) — Chassis ground (-):</i> <i>(i72) No. 31 (+) — Chassis ground (-):</i></p> <p>Does the measured value exceed the specified value?</p>	1 V	Go to step 4.	Repair battery short of harness.

DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

Step	Value	Yes	No
4 CHECK VOLTAGE OF POWER SUPPLY. 1) Turn ignition switch to OFF. 2) Connect connector of VIU and VCU. 3) Turn the ignition switch to ON. 4) Measure voltage between VIU connector and chassis ground. Connector & Terminal (i72) No. 10 (+) — Chassis ground (-): Is the measured value within the specified range?	0 V	Go to step 5.	Go to step 11.
5 CHECK VOLTAGE OF POWER SUPPLY. Measure voltage between VIU connector and chassis ground. Connector & Terminal (i72) No. 11 (+) — Chassis ground (-): Is the measured value within the specified range?	3.0 — 5.0 V	Go to step 6.	Go to step 11.
6 CHECK VOLTAGE OF POWER SUPPLY. Measure voltage between VIU connector and chassis ground. Connector & Terminal (i72) No. 12 (+) — Chassis ground (-): Is the measured value within the specified range?	9 — 16 V	Go to step 7.	Go to step 11.
7 CHECK VOLTAGE OF POWER SUPPLY. Measure voltage between VIU connector and chassis ground. Connector & Terminal (i72) No. 16 (+) — Chassis ground (-): Is the measured value within the specified range?	9 — 16 V	Go to step 8.	Go to step 11.
8 CHECK VOLTAGE OF POWER SUPPLY. Measure voltage between VIU connector and chassis ground. Connector & Terminal (i72) No. 31 (+) — Chassis ground (-): Is the measured value within the specified range?	9 — 16 V	Go to step 9.	Go to step 11.
9 CHECK VCU HARNESS CONNECTOR. Check if there is any poor contact in VCU harness connector.	—	Go to step 10.	Repair poor contact in connector.
10 CHECK VCU. IMPORTANT Perform OnStar (R) setup procedure. Replace VCU. <Ref. to OS-5, Vehicle Communication Unit VCU.> Was the trouble repaired?	—	System is OK.	Go to step 11.
11 CHECK VIU HARNESS CONNECTOR. Check if there is any poor contact in VIU harness connector. Was the condition confirmed or repaired?	—	Go to step 12.	Repair poor contact in connector.

DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

Step	Value	Yes	No
12 CHECK VIU. IMPORTANT Perform OnStar (R) setup procedure. Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.> Was the trouble repaired?	—	System is OK.	Go to step 1.

DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

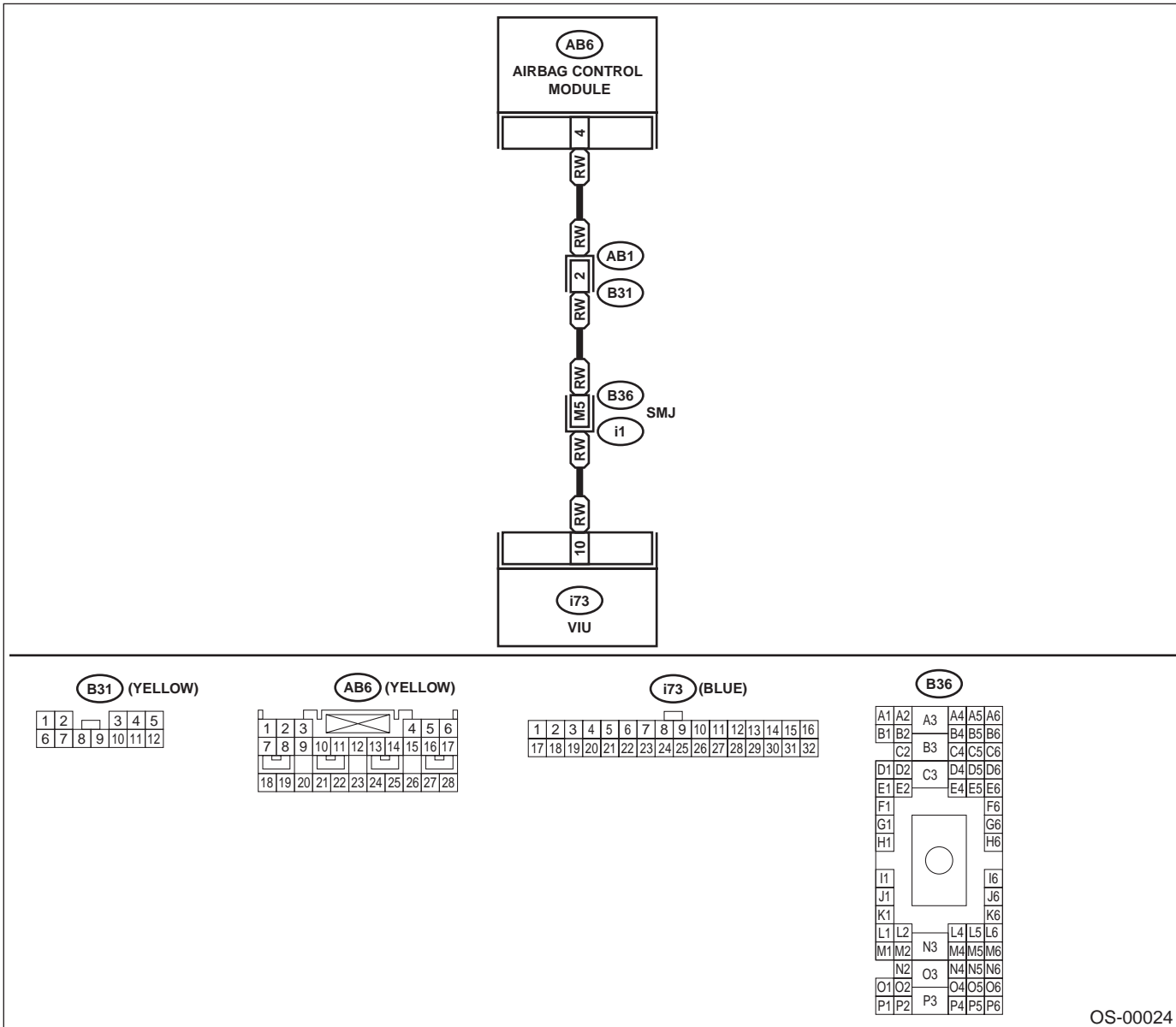
D: DTC 3 — SRS SIGNAL FAULT —

DIAGNOSIS:

Communication error between VIU and SRS.

SYMPTOM:

- Red LED illuminates
- OnStar (R) does not operate.



DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

Step	Value	Yes	No
1 CHECK HARNESS. 1) Turn ignition switch to OFF. 2) Disconnect VIU connector. 3) Disconnect SRS connector. 4) Measure resistance between VIU connector and SRS connector. Connector & Terminal (i73) No. 10 — (AB6) No. 4: Is the measured value less than the specified value?	0.5 Ω	Go to step 2.	Repair open harness.
2 CHECK HARNESS. Measure resistance between VIU connector and chassis ground. Connector & Terminal (i73) No. 10 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Go to step 3.	Repair ground short of harness.
3 CHECK HARNESS. 1) Turn the ignition switch to ON. 2) Measure voltage between VIU connector and chassis ground. Connector & Terminal (i73) No. 10 (+) — Chassis ground (-): Does the measured value exceed the specified value?	1 V	Go to step 4.	Repair battery short of harness.
4 CHECK VOLTAGE OF POWER SUPPLY. 1) Turn ignition switch to OFF. 2) Connect VIU connector. 3) Turn the ignition switch to ON. 4) Measure resistance between SRS connector and chassis ground. Connector & Terminal (AB6) No. 4 (+) — Chassis ground (-): Is the measured value within the specified range?	9 — 16 V	Go to step 5.	Go to step 6.
5 CHECK AIRBAG CONTROL MODULE. 1) Replace airbag control module. <Ref. to AB-18, Airbag Control Module.> 2) Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 6.
6 CHECK VIU. REFERENCE: Perform OnStar (R) setup procedure. 1) Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.> 2) Run the system and confirm the result of repair. Was the trouble repaired?		System is OK.	Go to step 1.

DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

E: DTC 4 — GPS MICRO-PROCESSOR COMMUNICATION FAULT —

DIAGNOSIS:

Trouble of GPS micro-processor in VIU

SYMPTOM:

- Red LED illuminates
- OnStar (R) does not operate.

	Step	Value	Yes	No
1	CHECK VIU. REFERENCE: Perform OnStar (R) setup procedure. 1) Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.> 2) Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Repair trouble.

DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

MEMO:

DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

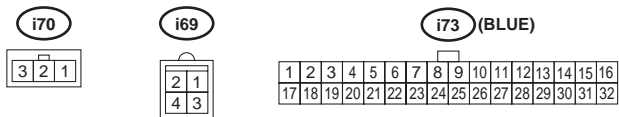
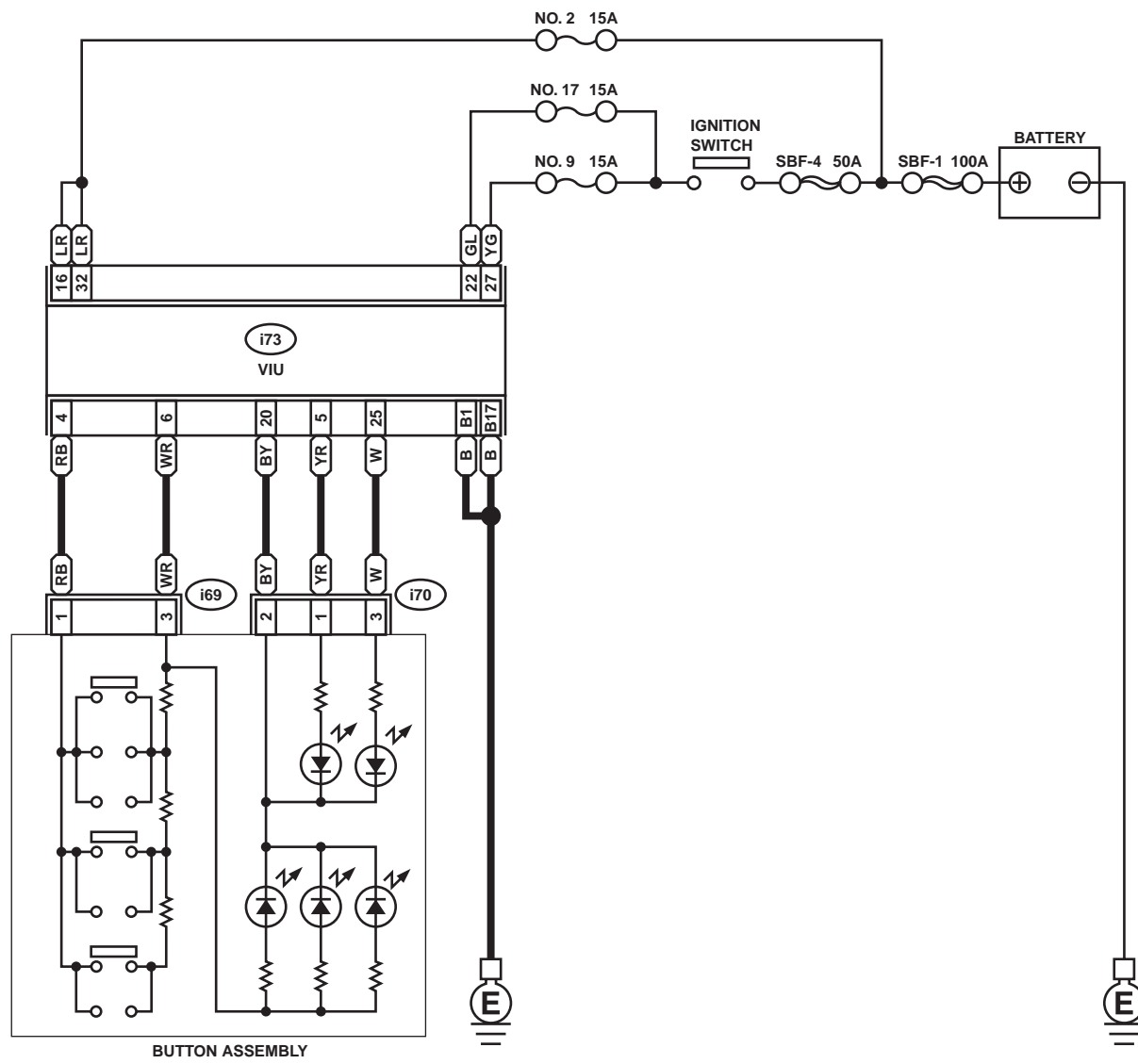
F: DTC 5 — BUTTON ASSEMBLY MALFUNCTION —

DIAGNOSIS:

Communication error of button assembly

SYMPTOM:

- Red LED illuminates
- OnStar (R) does not operate.



OS-00025

DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

Step	Value	Yes	No
1 CHECK HARNESS. 1) Turn ignition switch to OFF. 2) Disconnect VIU connector. 3) Disconnect button assembly connector. 4) Measure resistance between VIU connector and button assembly connector. Connector & Terminal <i>(i73) No. 4 — (i69) No. 1:</i> <i>(i73) No. 6 — (i69) No. 3:</i> <i>(i73) No. 20 — (i70) No. 2:</i> <i>(i73) No. 5 — (i70) No. 1:</i> <i>(i73) No. 25 — (i70) No. 3:</i> Is the measured value less than the specified value?	0.5 Ω	Go to step 2.	Repair open harness.
2 CHECK HARNESS. Measure resistance between VIU connector and chassis ground. Connector & Terminal <i>(i73) No. 4 — Chassis ground:</i> <i>(i73) No. 6 — Chassis ground:</i> <i>(i73) No. 20 — Chassis ground:</i> <i>(i73) No. 5 — Chassis ground:</i> <i>(i73) No. 25 — Chassis ground:</i> Does the measured value exceed the specified value?	1 MΩ	Go to step 2.	Repair ground short of harness.
3 CHECK HARNESS. 1) Turn the ignition switch to ON. 2) Measure voltage between VIU connector and chassis ground. Connector & Terminal <i>(i73) No. 4 (+) — Chassis ground (-):</i> <i>(i73) No. 6 (+) — Chassis ground (-):</i> <i>(i73) No. 20 (+) — Chassis ground (-):</i> <i>(i73) No. 5 (+) — Chassis ground (-):</i> <i>(i73) No. 25 (+) — Chassis ground (-):</i> Does the measured value exceed the specified value?	1 V	Go to step 4.	Repair battery short of harness.
4 CHECK VOLTAGE OF POWER SUPPLY. 1) Turn ignition switch to OFF. 2) Connect VIU connector. 3) Turn the ignition switch to ON. 4) Measure voltage between button assembly connector and chassis ground. Connector & Terminal <i>(i69) No. 3 (+) — Chassis ground (-):</i> Is the measured value within the specified range?	10 — 13 V	Go to step 5.	REFERENCE: Perform OnStar (R) setup procedure. Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.>
5 CHECK EMERGENCY BUTTON. Measure resistance between terminals of button assembly. Terminal No. 1 — No. 3: Is the measured value within the specified range by pressing emergency button?	1.5 KΩ	Go to step 6.	Replace button assembly. <Ref. to OS-6, Button Assembly.>

DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

Step	Value	Yes	No
6 OnStar (R) CHECK BUTTON. Measure resistance between terminals of button assembly. <i>Terminal</i> <i>No. 1 — No. 3:</i> Is the measured value within the specified range by pressing OnStar (R) button?	3.0 K Ω	Go to step 7.	Replace button assembly. <Ref. to OS-6, Button Assembly.>
7 CHECK CALL ANSWER/END BUTTON. Measure resistance between terminals of button assembly. <i>Terminal</i> <i>No. 1 — No. 3:</i> Is the measured value within the specified range by pressing call answer/end button?	13.0 K Ω	Go to step 8.	Replace button assembly. <Ref. to OS-6, Button Assembly.>
8 System check Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 9.
9 CHECK BUTTON ASSEMBLY. 1) Replace button assembly. <Ref. to OS-6, Button Assembly.> 2) Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 10.
10 CHECK VIU. REFERENCE: Perform OnStar (R) setup procedure. 1) Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.> 2) Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 1.

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

11. Diagnosis for Each Symptom

A: LIST

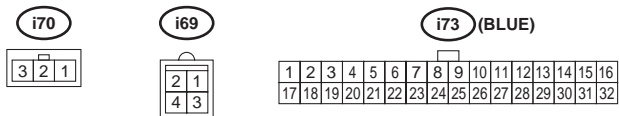
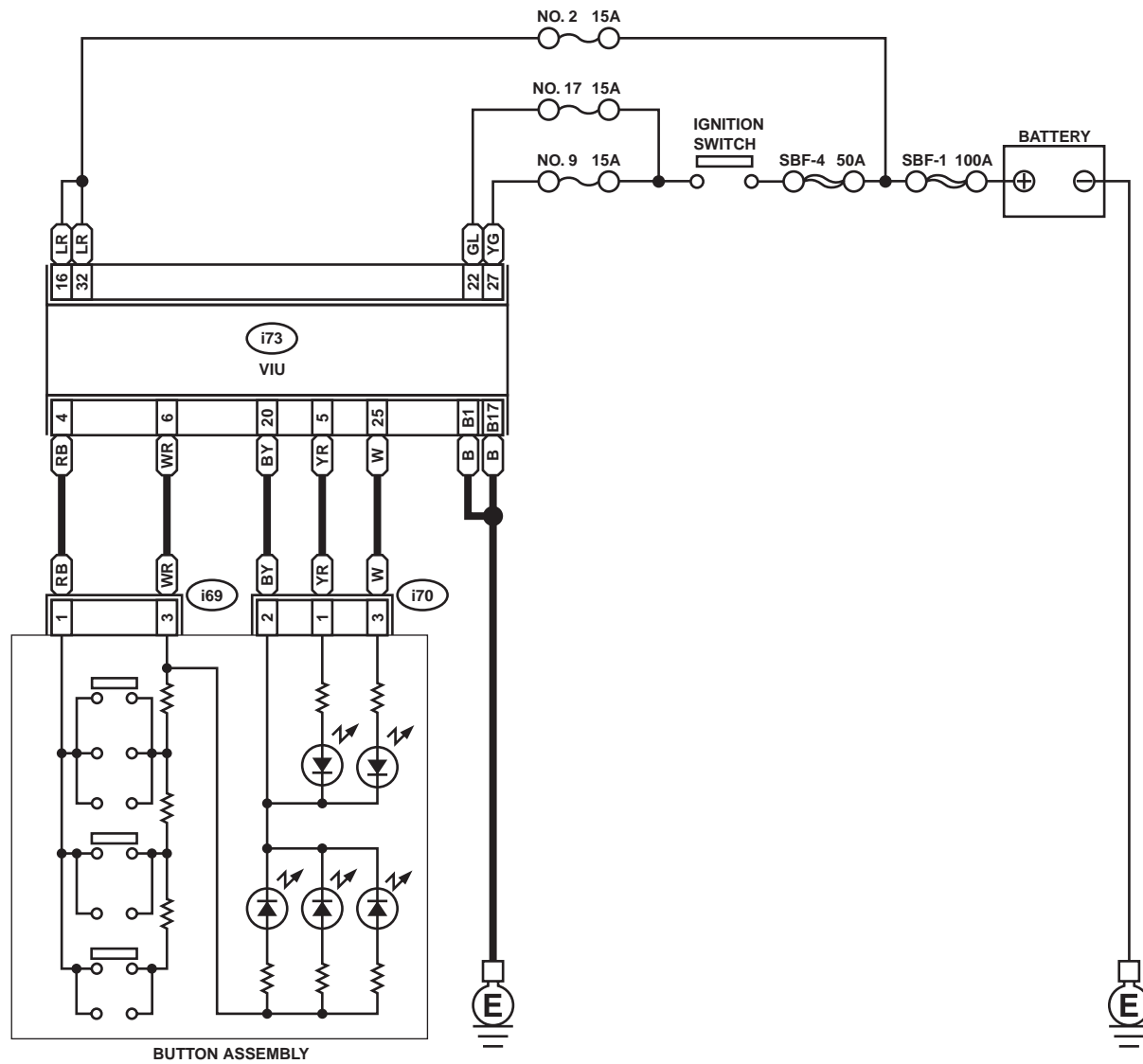
Content of diagnosis	Index No.
One or more OnStar (R) buttons do not operate.	<Ref. to OS-34, ONE OR MORE OnStar (R) BUTTONS DO NOT OPERATE., Diagnosis for Each Symptom.>
Contact to OnStar (R) call center is impossible.	<Ref. to OS-38, CONTACT TO OnStar (R) CALL CENTER IS IMPOSSIBLE., Diagnosis for Each Symptom.>
OnStar (R) call center cannot setup OnStar (R) system.	<Ref. to OS-44, OnStar (R) CALL CENTER CANNOT SETUP OnStar (R) SYSTEM., Diagnosis for Each Symptom.>
OnStar (R) audio does not operate.	<Ref. to OS-46, OnStar (R) AUDIO DOES NOT OPERATE., Diagnosis for Each Symptom.>
OnStar (R) button LED does not operate.	<Ref. to OS-50, OnStar (R) LED DOES NOT OPERATE., Diagnosis for Each Symptom.>

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

B: ONE OR MORE ONSTAR (R) BUTTONS DO NOT OPERATE.

DEFINITION: OnStar (R) does not operate by pressing button.



OS-00025

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

Step	Value	Yes	No
1 CHECK BUTTON ASSEMBLY. IMPORTANT Before pressing button, call OnStar (R) call center to notify the inspection. 1) Turn ignition switch to ON (do not let the engine run). 2) Press each OnStar (R) button. Does the LED illuminate in green?	—	Go to step 3.	Go to step 2.
2 CHECK BUTTON. Does any button malfunction intermittently?	—	Go to step 7.	Poor contact of connection/Repair poor contact.
3 CHECK HARNESS. 1) Turn ignition switch to OFF. 2) Disconnect VIU connector. 3) Disconnect button assembly connector. 4) Measure resistance between VIU connector and button assembly connector. Connector & Terminal <i>(i73) No. 4 — (i69) No. 1:</i> <i>(i73) No. 6 — (i69) No. 3:</i> Is the measured value less than the specified value?	0.5 Ω	Go to step 4.	Repair open harness.
4 CHECK HARNESS. Measure resistance between VIU connector and chassis ground. Connector & Terminal <i>(i73) No. 4 (+) — Chassis ground (-):</i> <i>(i73) No. 6 (+) — Chassis ground (-):</i> Does the measured value exceed the specified value?	1 MΩ	Go to step 5.	Repair ground short of harness.
5 CHECK HARNESS. 1) Turn the ignition switch to ON. 2) Measure voltage between VIU connector and chassis ground. Connector & Terminal <i>(i73) No. 4 (+) — Chassis ground (-):</i> <i>(i73) No. 6 (+) — Chassis ground (-):</i> Does the measured value exceed the specified value?	1 V	Go to step 6.	Repair battery short of harness.
6 CHECK VOLTAGE OF POWER SUPPLY. 1) Turn ignition switch to OFF. 2) Connect VIU connector. 3) Turn the ignition switch to ON. 4) Measure voltage between button assembly connector and chassis ground. Connector & Terminal <i>(i69) No. 3 (+) — Chassis ground (-):</i> Is the measured value within the specified range?	9 — 16 V	Go to step 7.	REFERENCE: Perform OnStar (R) setup procedure. Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.>
7 CHECK EMERGENCY BUTTON. Measure resistance between terminals of button assembly. Terminal No. 1 —No. 3: Is the measured value within the specified range by pressing emergency button?	3.0 KΩ	Go to step 8.	Replace button assembly. <Ref. to OS-6, Button Assembly.>

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

Step	Value	Yes	No
8 CHECK OnStar (R) BUTTON. Measure resistance between terminals of button assembly. <i>Terminal</i> No. 1 — No. 3: Is the measured value within the specified range by pressing OnStar (R) button?	13.0 K Ω	Go to step 9 .	Replace button assembly. <Ref. to OS-6, Button Assembly.>
9 CHECK CALL ANSWER/END BUTTON. Measure resistance between terminals of button assembly. <i>Terminal</i> No. 1 — No. 3: Is the measured value within the specified range by pressing call answer/end button?	470 Ω	Go to step 10 .	Replace button assembly. <Ref. to OS-6, Button Assembly.>
10 POOR CONNECTION OF BUTTON ASSEMBLY/REPAIR POOR CONNECTION. Check, if there is any poor contact in harness connector of button assembly. Was the condition confirmed or repaired?	—	Go to step 12 .	Go to step 11 .
11 CHECK IF THERE IS ANY POOR CONTACT IN VIU HARNESS CONNECTOR. Was the condition confirmed or repaired?	—	Go to step 12 .	Go to step 13 .
12 CHECK SYSTEM. Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 13 .
13 CHECK BUTTON ASSEMBLY. 1) Replace button assembly. <Ref. to OS-6, Button Assembly.> 2) Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 14 .
14 CHECK VIU. REFERENCE: Perform OnStar (R) setup procedure. 1) Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.> 2) Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 1 .

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

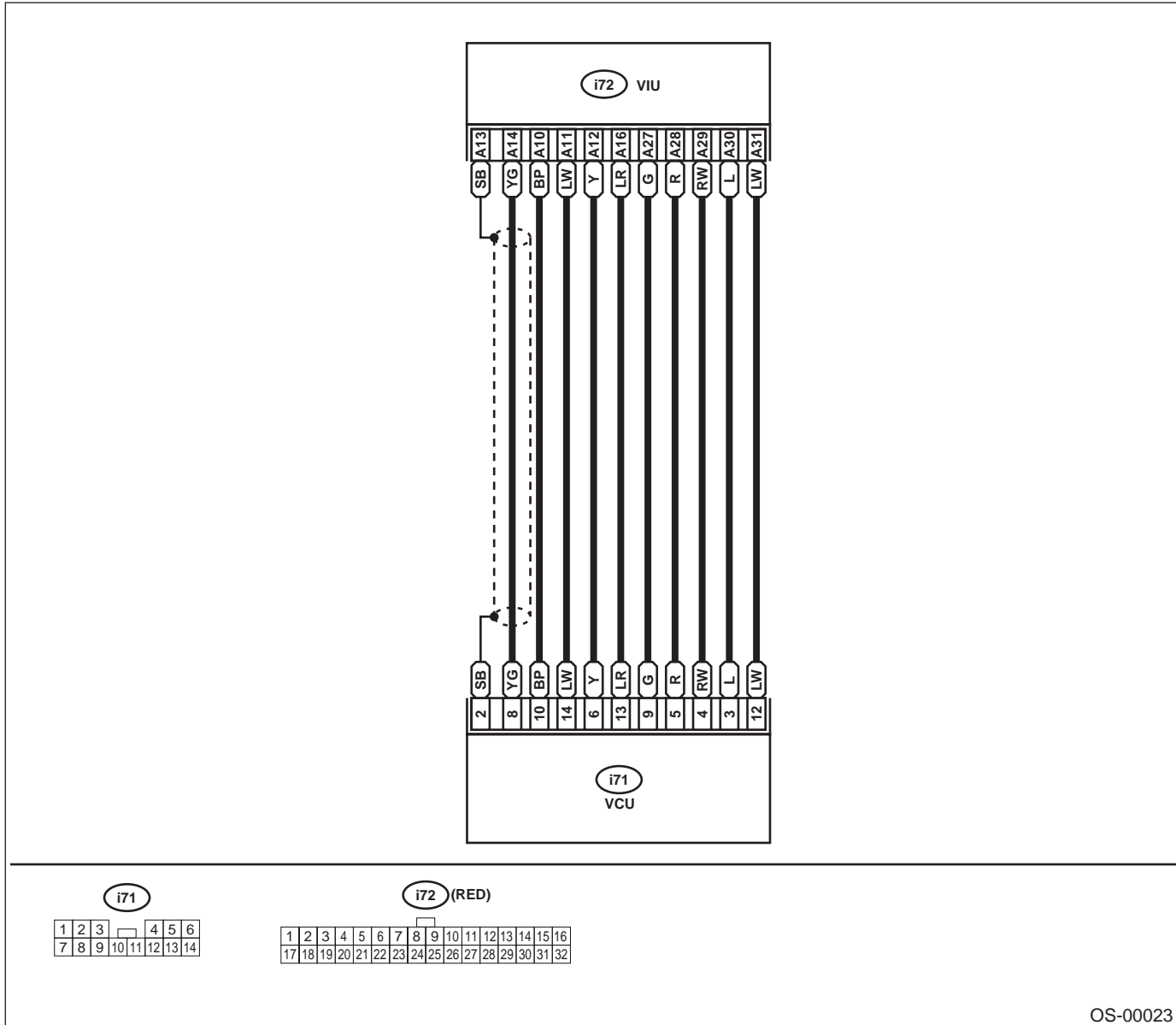
MEMO:

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

C: CONTACT TO ONSTAR (R) CALL CENTER IS IMPOSSIBLE.

DEFINITION: When OnStar (R) call button is pressed, audio prompt “Connected to OnStar (R)” or “Impossible to connect to OnStar (R)” will be announced and connection is not performed.



OS-00023

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

Step	Value	Yes	No
1 CHECK FOR CONNECTION TO OnStar (R) Call Center. 1) Turn ignition to ON (do not let the engine run). 2) Press OnStar (R) button. Is connection to OnStar (R) call center completed?	—	Repair temporary poor connection of wiring.	Go to step 2.
2 CHECK OnStar (R) SERIAL DATA RETURN CIRCUIT. 1) Turn ignition switch to OFF. 2) Disconnect connection from vehicle communication unit (VCU). 3) Turn ignition switch to ON (do not let the engine run). 4) Measure resistance between OnStar (R) serial data return circuit and ground. Connector & Terminal <i>(i71) No. 9 (+) — Chassis ground (-):</i> Is the value of voltage near to the specified value?	5 V	Go to step 3.	Go to step 6.
3 CHECK OnStar (R) SERIAL DATA (-) CIRCUIT. Measure voltage between OnStar (R) serial data (-) circuit and ground. Connector & Terminal <i>(i71) No. 5 (+) — Chassis ground (-):</i> Is the value of voltage near to the specified value?	0.17 V	Go to step 4.	Go to step 9.
4 CHECK CIRCUIT BETWEEN OnStar (R) SERIAL DATA (-) CIRCUIT AND TRANSCIEVER LOW REFERENCE CIRCUIT. Measure voltage between OnStar (R) serial data (-) circuit and transceiver low reference circuit. Connector & Terminal <i>(i71) No. 5 (+) — (i71) No. 3 (-):</i> Is the value of voltage near to the specified value?	5 V	Go to step 5.	Go to step 15.
5 CHECK OnStar (R) SERIAL DATA (+) CIRCUIT. Measure voltage between OnStar (R) serial data (+) circuit and ground. Connector & Terminal <i>(i71) No. 4 (+) — Chassis ground (-):</i> Is the value of voltage near to the specified value?	0.17 V	Go to step 18.	Go to step 12.
6 CHECK SERIAL DATA RETURN HARNESS. 1) Turn ignition switch to OFF. 2) Disconnect VIU connector. 3) Disconnect VCU connector. 4) Measure resistance between VIU connector and VCU connector. Connector & Terminal <i>(i72) No. 27 — (i71) No. 9:</i> Is the measured value less than the specified value?	0.5 Ω	Go to step 7.	Repair open harness.

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

Step	Value	Yes	No
7 CHECK SERIAL DATA RETURN HARNESS. Measure resistance between VIU connector and chassis ground. Connector & Terminal (i72) No. 27 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Go to step 8 .	Repair ground short of harness.
8 CHECK SERIAL DATA RETURN HARNESS. 1) Turn the ignition switch to ON. 2) Measure voltage between VIU connector and chassis ground. Connector & Terminal (i72) No. 27 (+) — Chassis ground (-): Does the measured value exceed the specified value?	1 V	Go to step 19 .	Repair battery short of harness.
9 CHECK HARNESS (-). 1) Turn ignition switch to OFF. 2) Disconnect VIU connector. 3) Disconnect VCU connector. 4) Measure resistance between VIU connector and VCU connector. Connector & Terminal (i72) No. 28 — (i71) No. 5: Is the measured value less than the specified value?	0.5 Ω	Go to step 10 .	Repair open harness.
10 CHECK HARNESS (-). Measure resistance between VIU connector and chassis ground. Connector & Terminal (i72) No. 28 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Go to step 11 .	Repair ground short of harness.
11 CHECK HARNESS (-). 1) Turn the ignition switch to ON. 2) Measure voltage between VIU connector and chassis ground. Connector & Terminal (i72) No. 28 (+) — Chassis ground (-): Does the measured value exceed the specified value?	1 V	Go to step 19 .	Repair battery short of harness.
12 CHECK SERIAL DATA (+) HARNESS. 1) Turn ignition switch to OFF. 2) Disconnect VIU connector. 3) Disconnect VCU connector. 4) Measure resistance between VIU connector and VCU connector. Connector & Terminal (i72) No. 29 — (i71) No. 4: Is the measured value less than the specified value?	0.5 Ω	Go to step 13 .	Repair open harness.
13 CHECK SERIAL DATA (+) HARNESS. Measure resistance between VIU connector and chassis ground. Connector & Terminal (i72) No. 29 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Go to step 14 .	Repair ground short of harness.

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

Step	Value	Yes	No
14 CHECK SERIAL DATA (+) HARNESS. 1) Turn the ignition switch to ON. 2) Measure voltage between VIU connector and chassis ground. Connector & Terminal (i72) No. 29 (+) — Chassis ground (-): Does the measured value exceed the specified value?	1 V	Go to step 19.	Repair battery short of harness.
15 CHECK TRANSCEIVER LOW REFERENCE HARNESS. 1) Turn ignition switch to OFF. 2) Disconnect VIU connector. 3) Disconnect VCU connector. 4) Measure resistance between VIU connector and VCU connector. Connector & Terminal (i72) No. 30 — (i71) No. 3: Is the measured value less than the specified value?	0.5 Ω	Go to step 16.	Repair open harness.
16 CHECK TRANSCEIVER LOW REFERENCE HARNESS. Measure resistance between VIU connector and chassis ground. Connector & Terminal (i72) No. 30 — Chassis ground: Does the measured value exceed the specified value?	1 MΩ	Go to step 17.	Repair ground short of harness.
17 CHECK TRANSEAVER LOW REFERENCE HARNESS. 1) Turn the ignition switch to ON. 2) Measure voltage between VIU connector and chassis ground. Connector & Terminal (i72) No. 30 (+) — Chassis ground (-): Does the measured value exceed the specified value?	1 V	Go to step 19.	Repair battery short of harness.
18 CHECK VCU HARNESS CONNECTOR. Check if there is any poor contact in VCU harness connector.	—	Go to step 20.	Repair poor contact in connector.
19 CHECK VIU HARNESS CONNECTOR. Check if there is any poor contact in VIU harness connector. Was the condition confirmed or repaired?	—	Go to step 21.	Repair poor contact in connector.
20 CHECK VCU. IMPORTANT Perform OnStar (R) setup procedure. Replace VCU. <Ref. to OS-5, Vehicle Communication Unit VCU.> Is replacement completed?	—	Go to step 22.	—
21 CHECK VIU. IMPORTANT Perform OnStar (R) setup procedure. Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.> Is replacement completed?	—	Go to step 22.	—

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

	Step	Value	Yes	No
22	CHECK SYSTEM. Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 1.

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

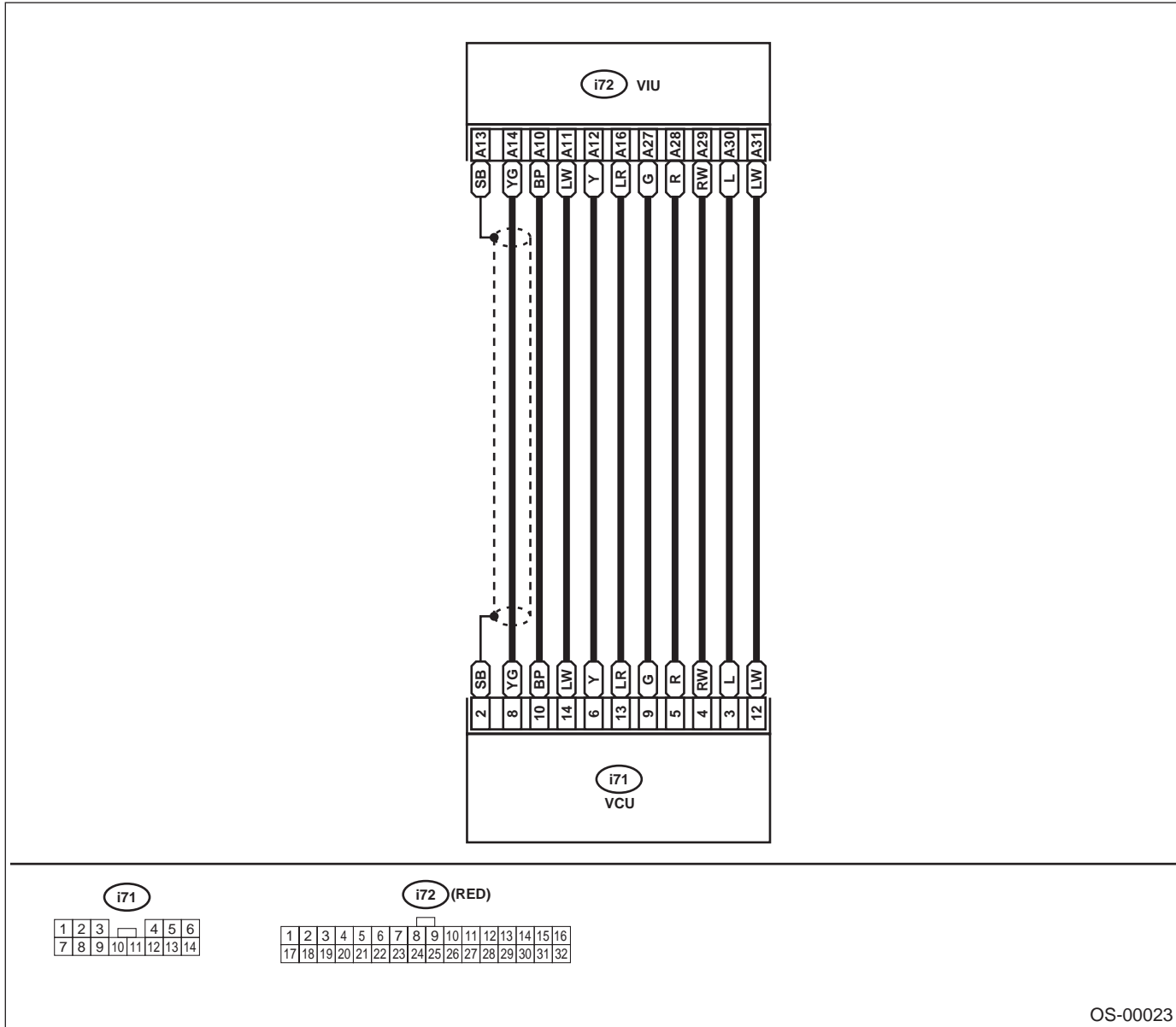
MEMO:

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

D: ONSTAR (R) CALL CENTER CANNOT SETUP ONSTAR (R) SYSTEM.

DEFINITION: OnStar (R) Operator notifies to receiver that the required setup of the OnStar (R) system is impossible.



OS-00023

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

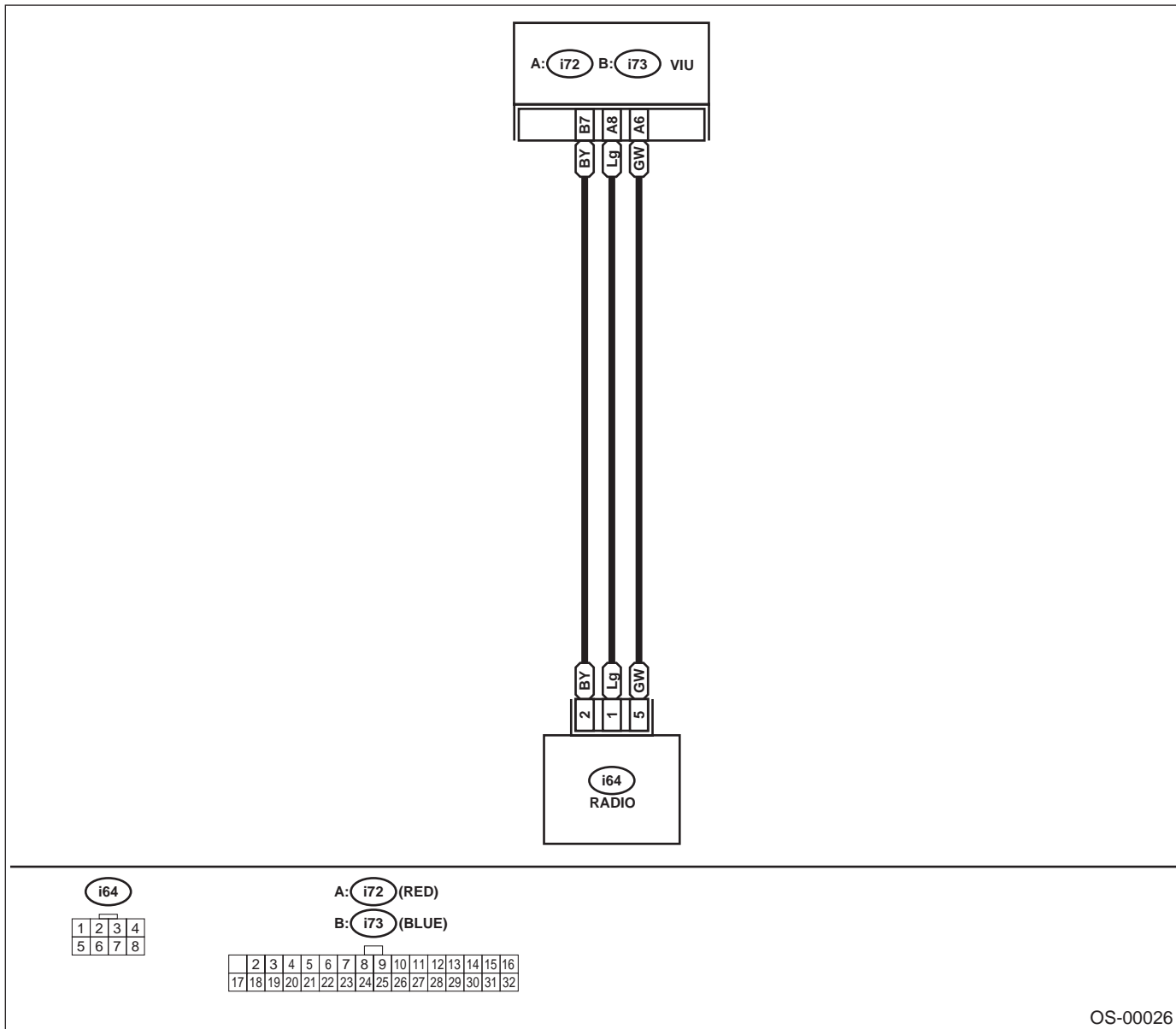
Step	Value	Yes	No
1 CHECK IGNITION ON SIGNAL CIRCUIT. 1) Turn ignition switch to OFF. 2) Disconnect connection from VCU. 3) Turn ignition switch to ON (do not let the engine run). 4) Measure voltage between ignition ON signal circuit and ground. Connector & Terminal <i>(i72) No. 31 (+) — Chassis ground (-):</i> Is the value of voltage near to the specified value?	9 — 16 V	Go to step 4.	Go to step 2.
2 CHECK IGNITION ON SIGNAL HARNESS. 1) Turn ignition switch to OFF. 2) Disconnect VIU connector. 3) Disconnect VCU connector. 4) Measure resistance between VIU connector and VCU connector. Connector & Terminal <i>(i72) No. 31 — (i71) No. 12:</i> Is the measured value less than the specified value?	0.5 Ω	Go to step 3.	Repair open harness.
3 CHECK IGNITION ON SIGNAL HARNESS. Measure resistance between VIU connector and chassis ground. Connector & Terminal <i>(i72) No. 31 — Chassis ground:</i> Does the measured value exceed the specified value?	1 MΩ	Go to step 5.	Repair ground short of harness.
4 CHECK VCU HARNESS CONNECTOR. Check if there is any poor contact in VCU harness connector.	—	Go to step 6.	Repair poor contact in connector.
5 CHECK VIU HARNESS CONNECTOR. Check if there is any poor contact in VIU harness connector.	—	Go to step 7.	Repair poor contact in connector.
6 CHECK VCU. IMPORTANT Perform OnStar (R) setup procedure. Replace VCU. <Ref. to OS-5, Vehicle Communication Unit VCU.> Is replacement completed?	—	Go to step 8.	—
7 CHECK VIU. IMPORTANT Perform OnStar (R) setup procedure. Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.> Is replacement completed?	—	Go to step 8.	—
8 CHECK SYSTEM. Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 1.

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

E: ONSTAR (R) AUDIO DOES NOT OPERATE.

DEFINITION: Audio system display does not change into "Call", even if all buttons are pressed.



OS-00026

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

Step	Value	Yes	No
1 CHECK LED. IMPORTANT Before pressing button, call OnStar (R) call center to notify the inspection. 1) Turn ignition to ON (do not let the engine run). 2) Does LED illuminate, when all of buttons are pressed one to another?	Illuminates.	Go to step 2.	Perform inspection of One or more OnStar (R) button does not operate. <Ref. to OS-34, ONE OR MORE OnStar (R) BUTTONS DO NOT OPERATE., Diagnosis for Each Symptom.>
2 CHECK AUDIO SYSTEM 1) Turn ignition to ON (do not let the engine run). 2) Turn radio ON. 3) Set the volume to comfortable level. 4) Activate all buttons Does the audio system display "Call"?	Call is displayed.	Go to step 11.	Go to step 3.
3 CHECK HARNESS. 1) Turn ignition switch to OFF. 2) Disconnect VIU connector. 3) Disconnect audio connector. 4) Measure resistance between VIU connector and audio connector. Connector & Terminal <i>(i72) No. 6 — (i69) No. 5:</i> <i>(i72) No. 8 — (i69) No. 1:</i> <i>(i73) No. 7 — (i69) No. 2:</i> Is the measured value less than the specified value?	0.5 Ω	Go to step 4.	Repair open harness.
4 CHECK HARNESS. Measure resistance between VIU connector and chassis ground. Connector & Terminal <i>(i72) No. 6 — Chassis ground:</i> <i>(i72) No. 8 — Chassis ground:</i> <i>(i73) No. 7 — Chassis ground:</i> Does the measured value exceed the specified value?	1 MΩ	Go to step 5.	Repair ground short of harness.
5 CHECK HARNESS. 1) Turn the ignition switch to ON. 2) Measure voltage between VIU connector and chassis ground. Connector & Terminal <i>(i72) No. 6 (+) — Chassis ground (-):</i> <i>(i72) No. 8 (+) — Chassis ground (-):</i> <i>(i73) No. 7 (+) — Chassis ground (-):</i> Does the measured value exceed the specified value?	1 V	Go to step 6.	Repair battery short of harness.
6 CHECK VIU HARNESS CONNECTOR. Check if there is any poor contact in VIU harness connector.	—	Go to step 7.	Repair connector.
7 CHECK VIU. IMPORTANT Perform OnStar (R) setup procedure. Replace vehicle interface unit (VIU). <Ref. to OS-4, Vehicle Interface Unit VIU.> Is repair work completed?	—	Go to step 8.	—

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

Step	Value	Yes	No
8 CHECK SYSTEM. Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 8 .
9 CHECK AUDIO HARNESS CONNECTOR. Check if there is any poor contact in audio harness connector.	—	Go to step 9 .	Repair connector.
10 CHECK AUDIO. Replace audio. <Ref. to ET-3, Radio System.> Is repair work completed?	—	Go to step 11 .	—
11 CHECK SYSTEM. Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 1 .

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

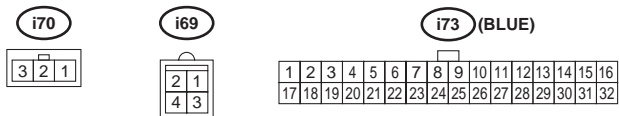
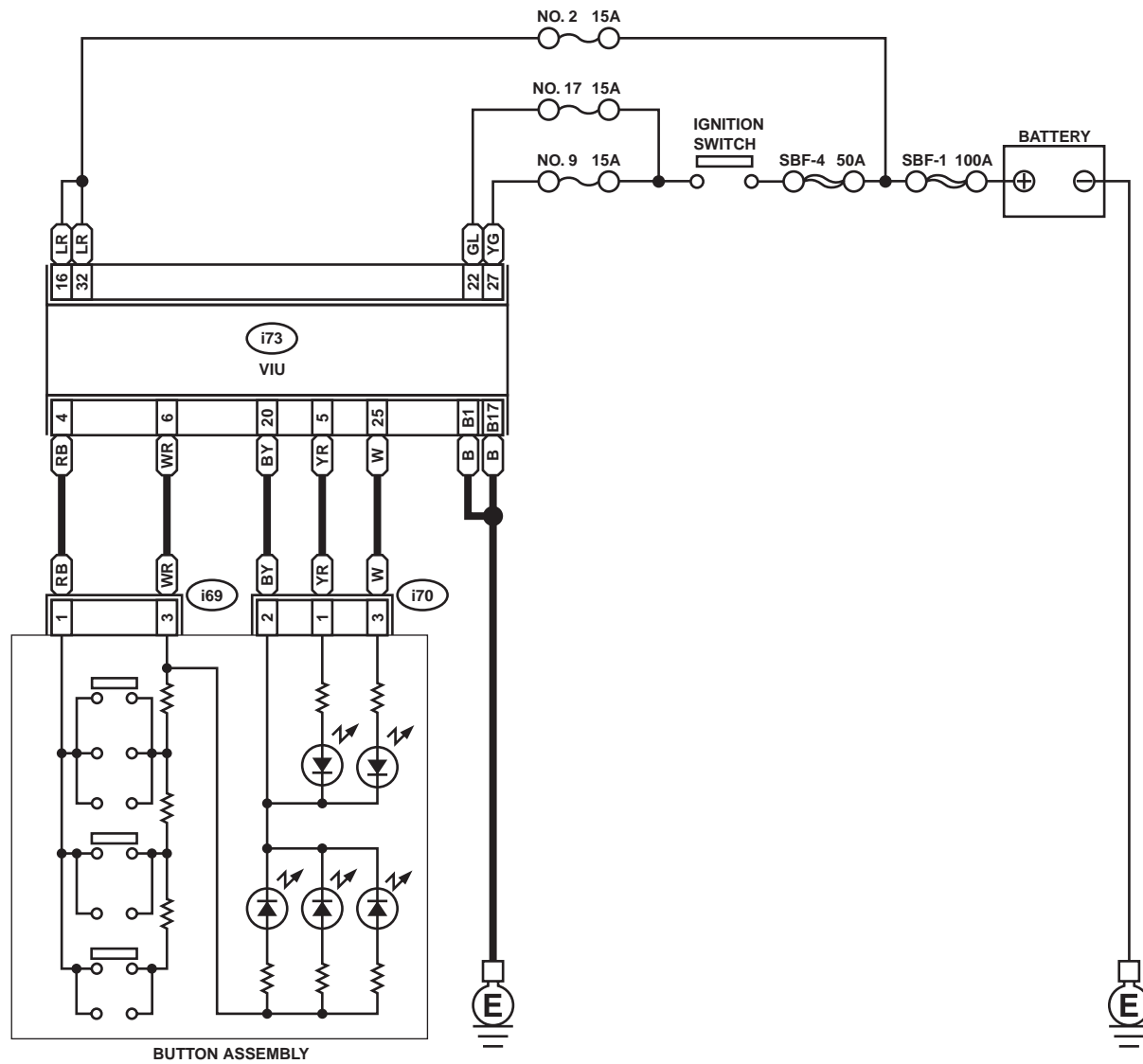
MEMO:

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

F: ONSTAR (R) LED DOES NOT OPERATE.

DEFINITION: When ignition switch is turned to ON, OnStar (R) green LED does not illuminate.



OS-00025

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

Step	Value	Yes	No
1 CHECK LED SIGNAL. 1) Turn ignition switch to OFF. 2) Disconnect connection from button assembly connector. 3) Turn ignition to ON (do not let the engine run). 4) Measure voltage of key pad green LED signal circuit. Connector & Terminal <i>(i73) No. 5 (+) — Chassis ground:</i> <i>(i73) No. 25 (+) — Chassis ground (-):</i> Is the value of voltage near to the specified value?	7 — 9 V	Go to step 10.	Go to step 2.
2 CHECK HARNESS. 1) Turn ignition switch to OFF. 2) Disconnect VIU connector. 3) Disconnect button assembly connector. 4) Measure resistance between VIU connector and button assembly connector. Connector & Terminal <i>(i73) No. 5 — (i70) No. 1:</i> <i>(i73) No. 20 — (i70) No. 2:</i> <i>(i73) No. 25 — (i70) No. 3:</i> Is the measured value less than the specified value?	0.5 Ω	Go to step 2.	Repair open harness.
3 CHECK HARNESS. Measure resistance between VIU connector and chassis ground. Connector & Terminal <i>(i73) No. 5 — Chassis ground:</i> <i>(i73) No. 20 — Chassis ground:</i> <i>(i73) No. 25 — Chassis ground:</i> Does the measured value exceed the specified value?	1 MΩ	Go to step 4.	Repair ground short of harness.
4 CHECK LED SIGNAL HARNESS. 1) Turn the ignition switch to ON. 2) Measure voltage between VIU connector and chassis ground. Connector & Terminal <i>(i73) No. 5 (+) — Chassis ground (-):</i> <i>(i73) No. 25 (+) — Chassis ground (-):</i> Does the measured value exceed the specified value?	1 V	Go to step 5.	Repair battery short of harness. Replace button assembly. <Ref. to OS-6, Button Assembly.>
5 CHECK VIU POWER SUPPLY. 1) Turn the ignition switch to ON. 2) Measure voltage between VIU connector and chassis ground. Connector & Terminal <i>(i73) No. 16 (+) — Chassis ground (-):</i> <i>(i73) No. 32 (+) — Chassis ground (-):</i> <i>(i73) No. 22 (+) — Chassis ground (-):</i> <i>(i73) No. 27 (+) — Chassis ground (-):</i> Does the measured value exceed the specified value?	9 V	Go to step 6.	Check fuse or repair open circuit in harness.

DIAGNOSIS FOR EACH SYMPTOM

OnStar (R) (Diagnostics)

Step	Value	Yes	No
6 CHECK VIU GROUND. 1) Turn ignition switch to OFF. 2) Measure resistance between VIU connector and chassis ground. Connector & Terminal <i>(i73) No. 1 — Chassis ground:</i> <i>(i73) No. 7 — Chassis ground:</i> Is the measured value less than the specified value?	0.5 Ω	Go to step 7.	Repair open circuit in harness.
7 CHECK BUTTON ASSEMBLY HARNESS CONNECTOR. Check if there is any poor contact in button assembly connector.	—	Go to step 8.	Repair poor contact in connector.
8 CHECK BUTTON ASSEMBLY. Replace button assembly. <Ref. to OS-6, Button Assembly.> Is repair work completed?	—	Go to step 9.	—
9 CHECK SYSTEM. Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 8.
10 CHECK VIU HARNESS CONNECTOR. Check if there is any poor contact in VIU harness connector.	—	Go to step 11.	Repair poor contact in connector.
11 CHECK VCU. IMPORTANT Perform setup procedure of OnStar (R). Replace vehicle interface unit (VIU). <Ref. to OS-4, Vehicle Interface Unit VIU.> Is repair work completed?	—	Go to step 12.	—
12 CHECK SYSTEM. Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 1.

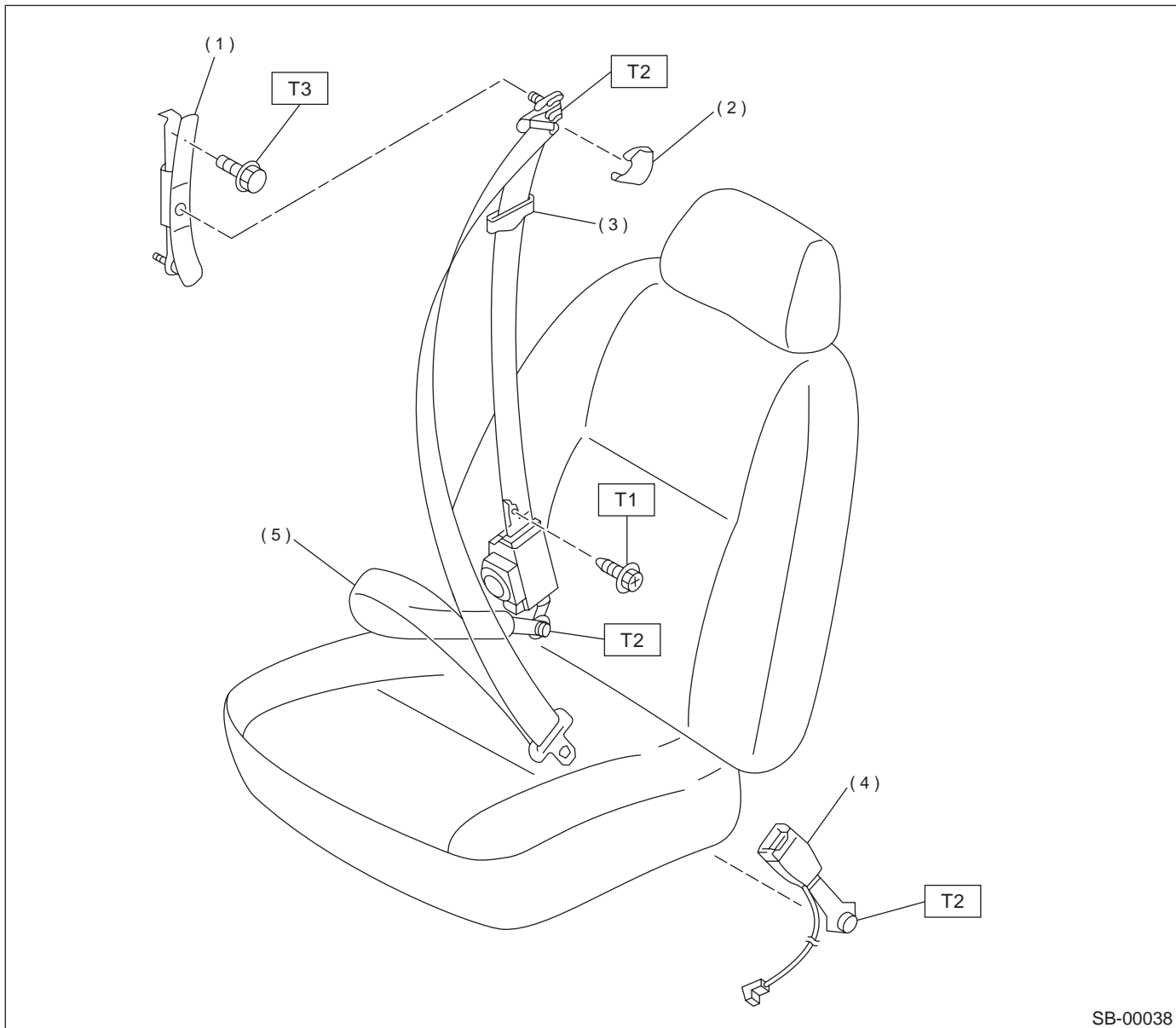
GENERAL DESCRIPTION

SEAT BELT SYSTEM

1. General Description

A: COMPONENT

1. FRONT SEAT BELT



- (1) Adjuster anchor ASSY
- (2) Anchor cover
- (3) Webbing guide
- (4) Inner belt ASSY

- (5) Outer belt ASSY

Tightening torque: N·m (kgf·m, ft·lb)

T1: 7.5 (0.76, 5.5)

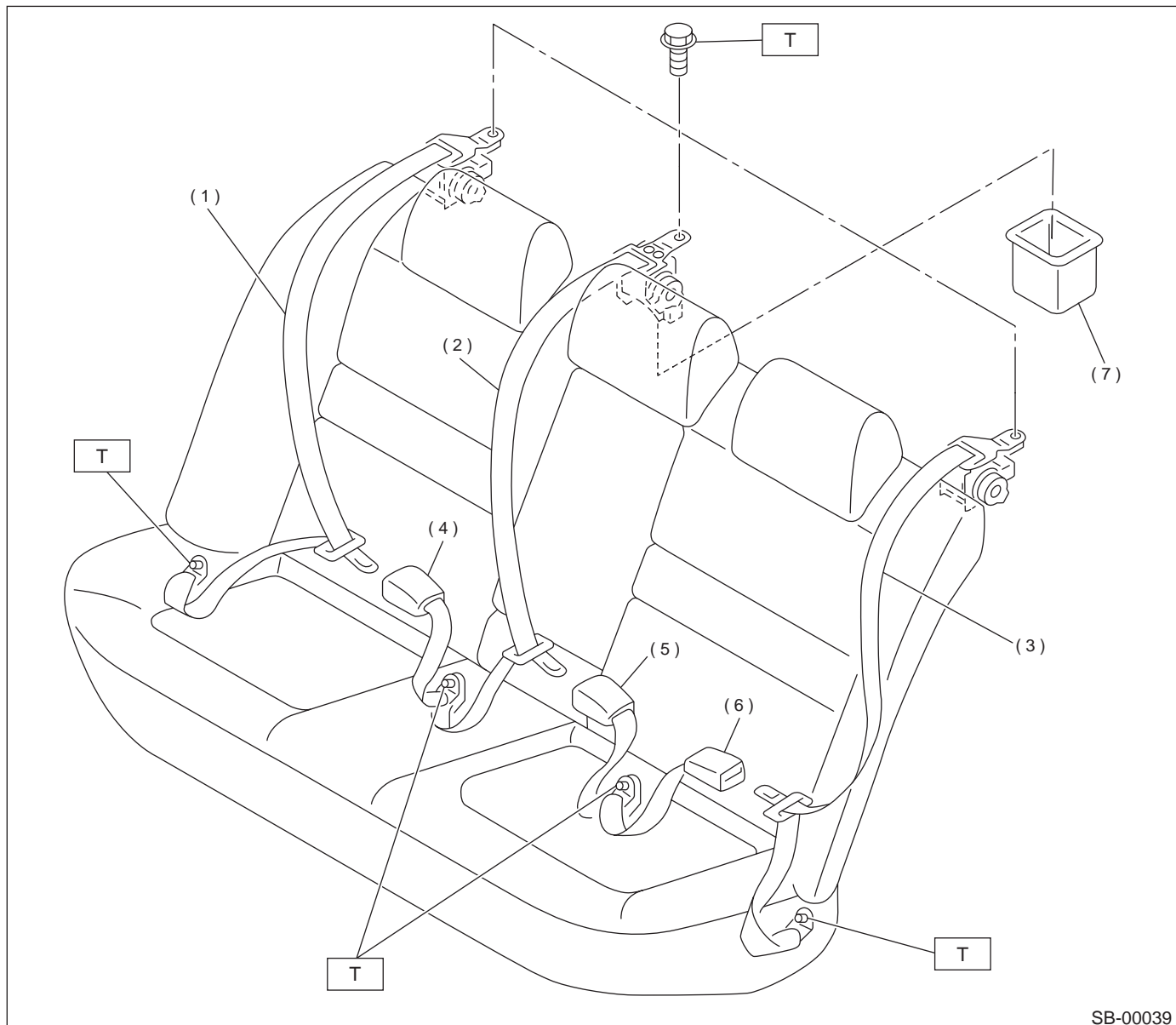
T2: 30 (3.1, 22)

T3: 53 (5.4, 39)

GENERAL DESCRIPTION

SEAT BELT SYSTEM

2. REAR SEAT BELT (SEDAN BODY)



- (1) Outer seat belt RH
- (2) Outer seat belt CENTER
- (3) Outer seat belt LH
- (4) Inner seat belt RH

- (5) Inner seat belt CENTER
- (6) Inner seat belt LH
- (7) Case center ELR

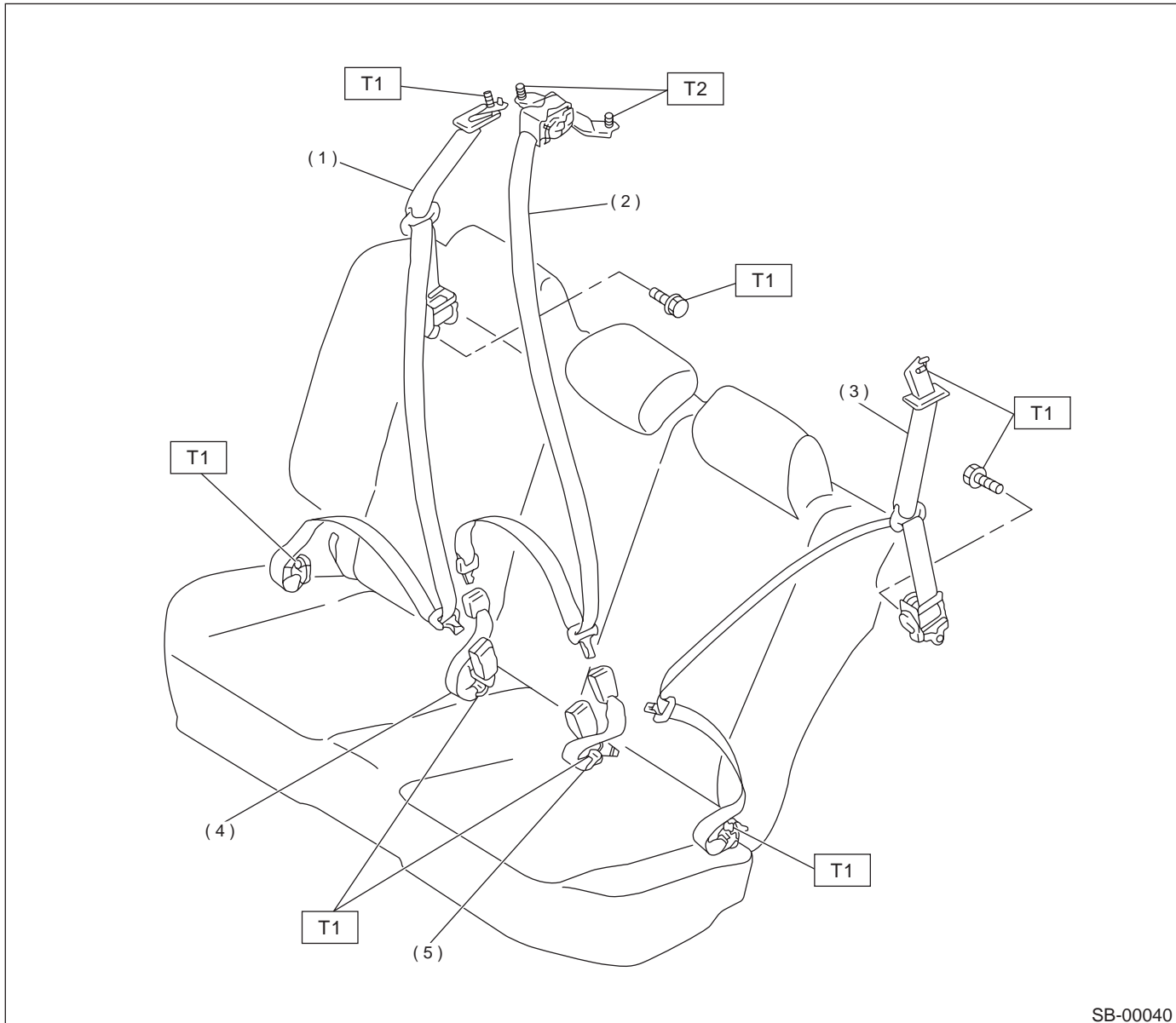
Tightening torque: N·m (kgf-m, ft-lb)

T: 30 (3.1, 22)

GENERAL DESCRIPTION

SEAT BELT SYSTEM

3. REAR SEAT BELT (WAGON BODY)



- (1) Outer seat belt RH
- (2) Outer seat belt CENTER
- (3) Outer seat belt LH
- (4) Inner seat belt RH

- (5) Inner seat belt LH

Tightening torque: N·m (kgf·m, ft·lb)

T1: 30 (3.1, 22)

T2: 53 (5.4, 39)

B: CAUTION

- Before starting, turn the ignition switch OFF, disconnect the battery ground cable and wait for 20 seconds or more.
- The pretension system has a backup power source. The pretensioner might deploy if you do not wait for 20 seconds or more before starting
- Do not drop or apply any impact to the pretensioner.
- If oil, grease, or water gets on the pretensioner, wipe it off immediately with a dry cloth.
- Do not expose the pretensioner to high temperature or flame.
- Do not allow current to flow through or voltage to reach the pretensioner. Do not use a circuit tester to check resistance of the pretensioner.
- Do not disassemble or attempt to repair the pretensioner. If it is dented, cracked, or deformed, replace it with a new one.
- Do not use the airbag or pretensioner parts from other vehicles. Always replace parts with new parts
- When handling a seat belt with a deployed pretensioner, wear gloves and goggles. Wash your hands afterwards.
- Do not re-use a seat belt with a deployed pretensioner again.
- If the material gets in your eyes or on your skin during deployment, wash it away with clean water, and then consult a doctor.

INSPECTION LOCATIONS AFTER A COLLISION

SEAT BELT SYSTEM

2. Inspection Locations After a Collision

A: INSPECTION

Check for the following, and then replace with new parts if necessary.

- Center pillar lower garnish is discolored or cracked.
- Wire harness and/or connector is damaged.

SB-6

FRONT SEAT BELT

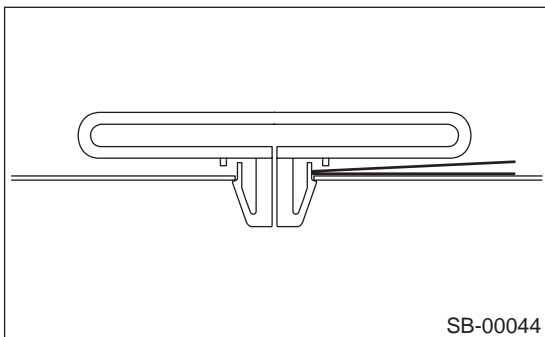
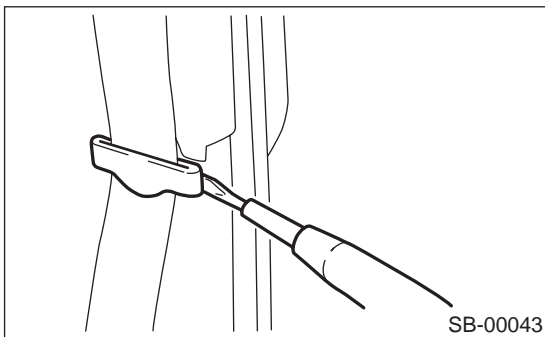
SEAT BELT SYSTEM

3. Front Seat Belt

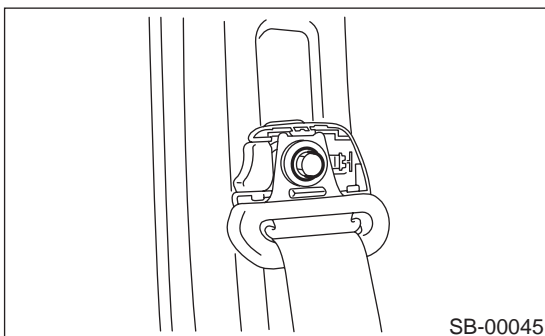
A: REMOVAL

1. OUTER BELT (FRONT)

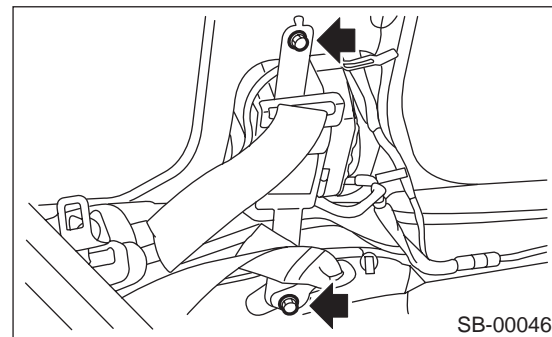
- 1) Fold backrest all the way forward, and then move front seat all the way forward.
- 2) Turn ignition switch OFF, disconnect ground cable from battery, and wait for more than 20 seconds before starting work.
- 3) Remove center pillar lower trim. <Ref. to EI-42, REMOVAL, Lower Inner Trim.>
- 4) Remove webbing guide.



- 5) Remove anchor cover. Loosen shoulder anchor bolt, and then detach shoulder anchor from center pillar.



- 6) Turn over the floor mat to remove bolt.



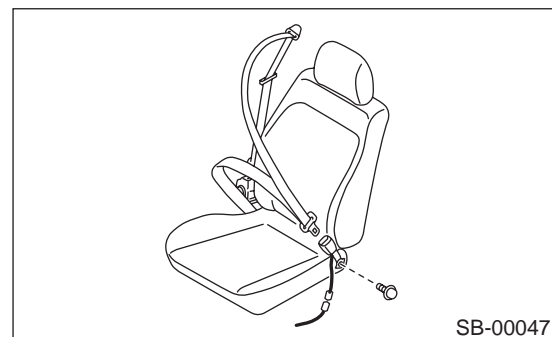
- 7) Disconnect yellow connector of pretensioner harness, and remove outer belt (front).

CAUTION:

- Do not drop or apply any impact to pretensioner.
- Pretensioner and bracket should be treated as an assembly. Do not attempt to disassemble it.

2. INNER BELT (FRONT)

- 1) Disconnect connector.
- 2) Remove anchor bolt, and then detach inner belt.



FRONT SEAT BELT

SEAT BELT SYSTEM

B: INSTALLATION

1. OUTER BELT (FRONT)

Install in the reverse order of removal.

CAUTION:

- The parts on left and right are not identical. Before installation, make sure that the correct part is used.
- Be careful not to twist belts during installation.

2. INNER BELT (FRONT)

Install in the reverse order of removal.

Tightening torque:

Refer to COMPONENT in General Description, <Ref. to SB-2, FRONT SEAT BELT, COMPONENT, General Description.>.

C: INSPECTION

1. OUTER BELT (FRONT)

Check for the following, and replace with new parts if necessary.

- Pretensioner is cracked or deformed.
- Seat belt is slackened, bent, or frayed. Seat belt is abnormally wound or extended.

2. INNER BELT (FRONT)

Check for the following, and replace with new parts if necessary.

- Inner belt is deformed or damaged.
- Seat belt buckle is engaged improperly.

REAR SEAT BELT

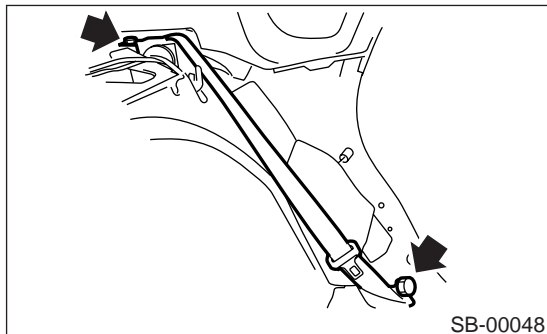
SEAT BELT SYSTEM

4. Rear Seat Belt

A: REMOVAL

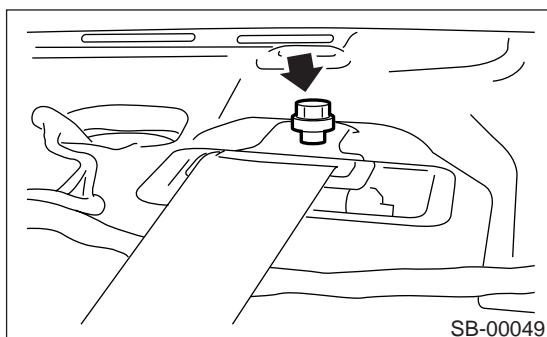
1. OUTER BELT SIDE (SEDAN BODY)

- 1) Remove rear shelf trim. <Ref. to EI-48, REMOVAL, Rear Shelf Trim.>
- 2) Remove side sill rear upper cover. <Ref. to EI-42, REMOVAL, Lower Inner Trim.>
- 3) Remove bolts, then detach outer belt side.



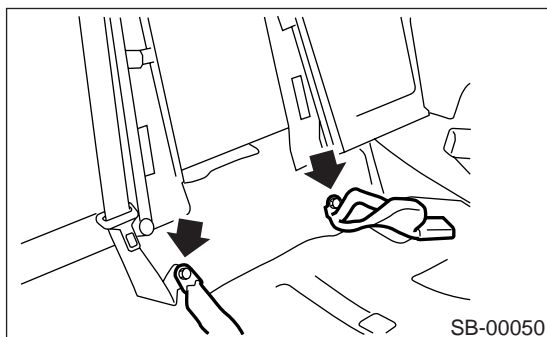
2. OUTER BELT CENTER (SEDAN BODY)

- 1) Remove rear shelf trim. <Ref. to EI-48, REMOVAL, Rear Shelf Trim.>
- 2) Remove bolt, and then detach outer belt center.



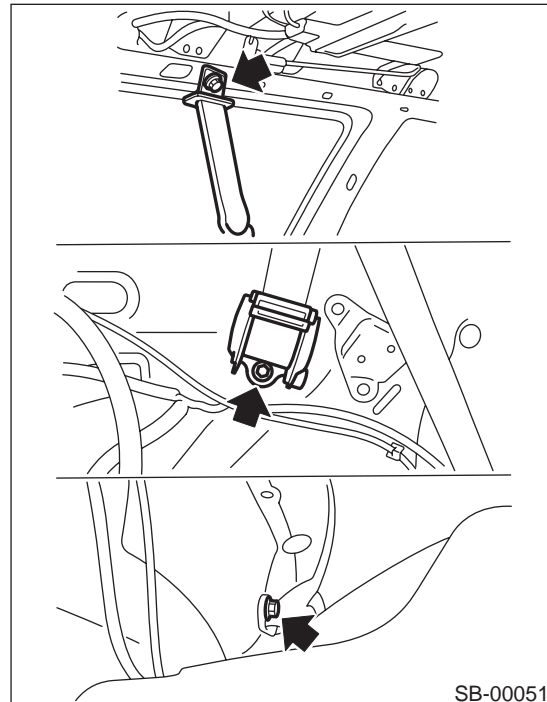
3. INNER BELT (SEDAN BODY)

- 1) Remove the rear cushion. <Ref. to SE-17, REMOVAL, Rear Seat.>
- 2) Remove bolts, and then detach inner belt.



4. OUTER BELT SIDE (WAGON BODY)

- 1) Remove rear quarter trim. <Ref. to EI-43, WAGON, REMOVAL, Rear Quarter Trim.>
- 2) Remove rear quarter upper trim. <Ref. to EI-41, REMOVAL, Upper Inner Trim.>
- 3) Remove bolt and nut, and then detach outer belt side.



REAR SEAT BELT

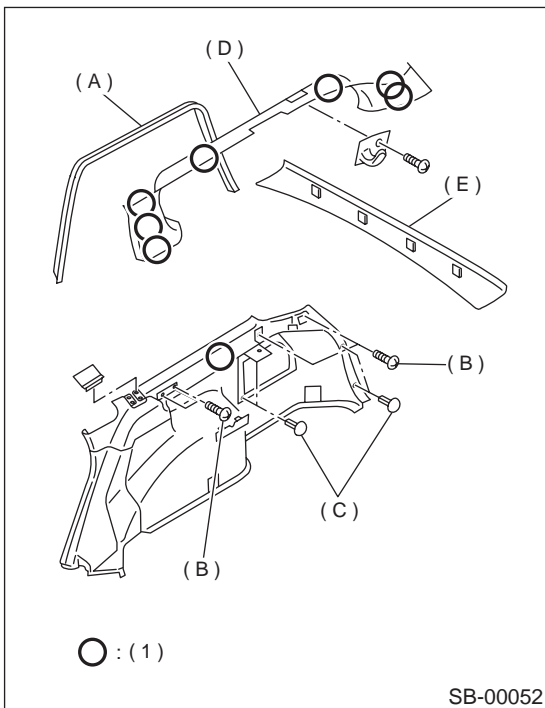
SEAT BELT SYSTEM

5. OUTER BELT CENTER (WAGON BODY)

CAUTION:

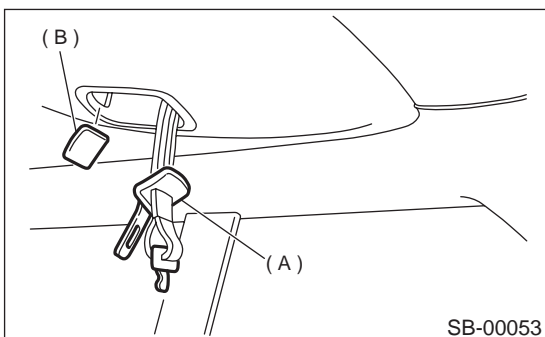
When removing clip, use great care not to damage the roof trim.

- 1) Remove luggage room light. <Ref. to LI-28, REMOVAL, Luggage Room Light.>
- 2) Remove rear mole (A) of right side.
- 3) Remove screws (B) and clips (C) of rear quarter lower trim shown in the figure.
- 4) Remove rear quarter upper trim (D) of right side.
- 5) Remove rear rail trim (E).



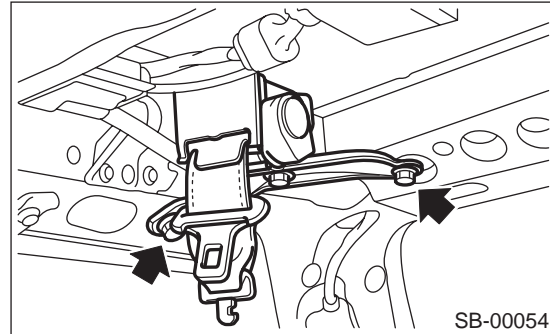
- (1) Hook pawl

6) Remove cover (B) while detaching snap lock carefully. Put the outer belt center tongue (A) out to the other side of the trim through the hole.



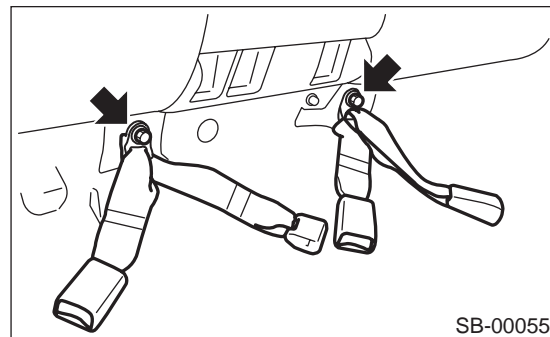
7) Remove clips and hang down rear end of roof trim.

8) Disconnect harness and connector, and then remove outer belt center assembly.



6. INNER BELT (WAGON BODY)

- 1) Raise the rear cushion.
- 2) Remove bolt, and then detach inner belt.



B: INSTALLATION

1. OUTER BELT SIDE (SEDAN BODY)

Install in the reverse order of removal.

CAUTION:

- During installation, make sure that seat belts are not twisted.
- After installation, make sure that seat belts can be smoothly extended and wound.

2. OUTER BELT CENTER (SEDAN BODY)

Install in the reverse order of removal.

CAUTION:

- During installation, make sure that seat belts are not twisted.
- After installation, make sure that seat belts can be smoothly extended and wound.

3. INNER BELT (SEDAN BODY)

Install in the reverse order of removal.

CAUTION:

During installation, make sure that seat belts are not twisted.

4. OUTER BELT SIDE (WAGON BODY)

Install in the reverse order of removal.

CAUTION:

- During installation, make sure that seat belts are not twisted.
- After installation, make sure that seat belts can be smoothly extended and wound.

5. OUTER BELT CENTER (WAGON BODY)

Install in the reverse order of removal.

CAUTION:

- During installation, make sure that seat belts are not twisted.
- After installation, make sure that seat belts are smoothly extended and wound.

6. INNER BELT (WAGON BODY)

Install in the reverse order of removal.

CAUTION:

During installation, make sure that seat belts are not twisted.

Tightening torque:

Refer to COMPONENT in General Description. <Ref. to SB-3, REAR SEAT BELT (SEDAN BODY), COMPONENT, General Description.> or <Ref. to SB-4, REAR SEAT BELT (WAGON BODY), COMPONENT, General Description.>

C: INSPECTION

1. OUTER BELT SIDE (SEDAN BODY)

Check for the following, and replace with new parts if necessary.

- Seat belt is slackened, bent, or frayed. Seat belt is abnormally wound or extended.

2. OUTER BELT CENTER (SEDAN BODY)

Check for the following, and replace with new parts if necessary.

- Seat belt is slackened, bent, or frayed. Seat belt is abnormally wound or extended.

3. INNER BELT (SEDAN BODY)

Check for the following, and replace with new parts if necessary.

- Inner belt is deformed or damaged.
- Seat belt buckle is engaged improperly.

4. OUTER BELT SIDE (WAGON BODY)

Check for the following, and replace with new parts if necessary.

- Seat belt is slackened, bent, or frayed. Seat belt is abnormally wound or extended.

5. OUTER BELT CENTER (WAGON BODY)

Check for the following, and replace with new parts if necessary.

- Seat belt is slackened, bent, or frayed. Seat belt is abnormally wound or extended.

6. INNER BELT (WAGON BODY)

Check for the following, and replace with new parts if necessary.

- Inner belt is deformed or damaged.
- Seat belt buckle is engaged improperly.

REAR SEAT BELT

SEAT BELT SYSTEM

MEMO:

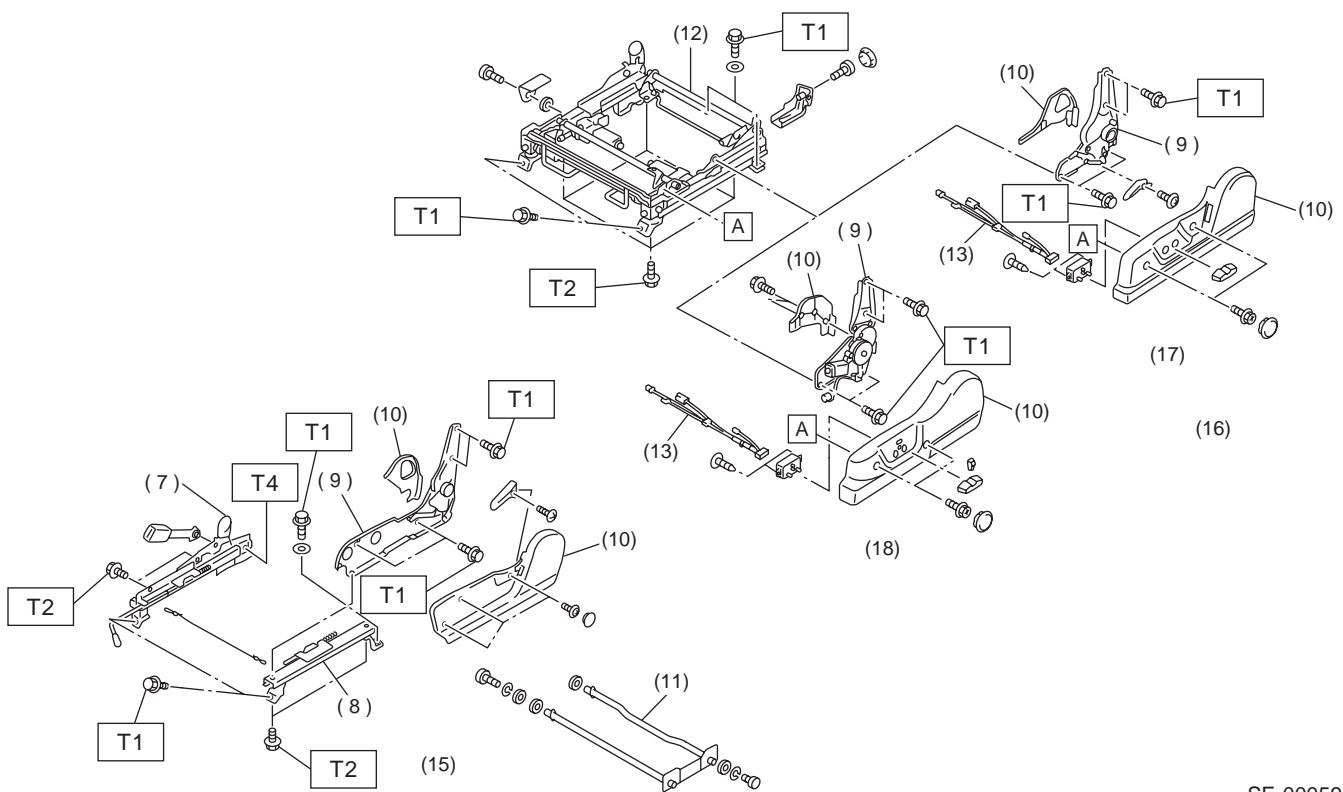
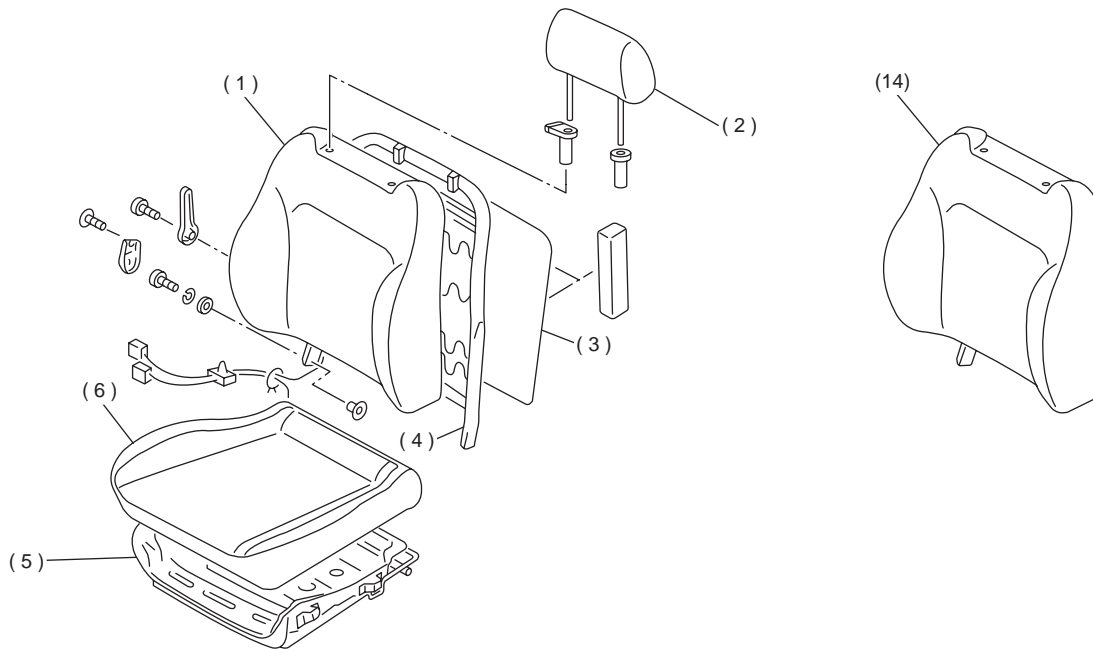
GENERAL DESCRIPTION

SEATS

1. General Description

A: COMPONENT

1. FRONT SEAT



SE-00059

GENERAL DESCRIPTION

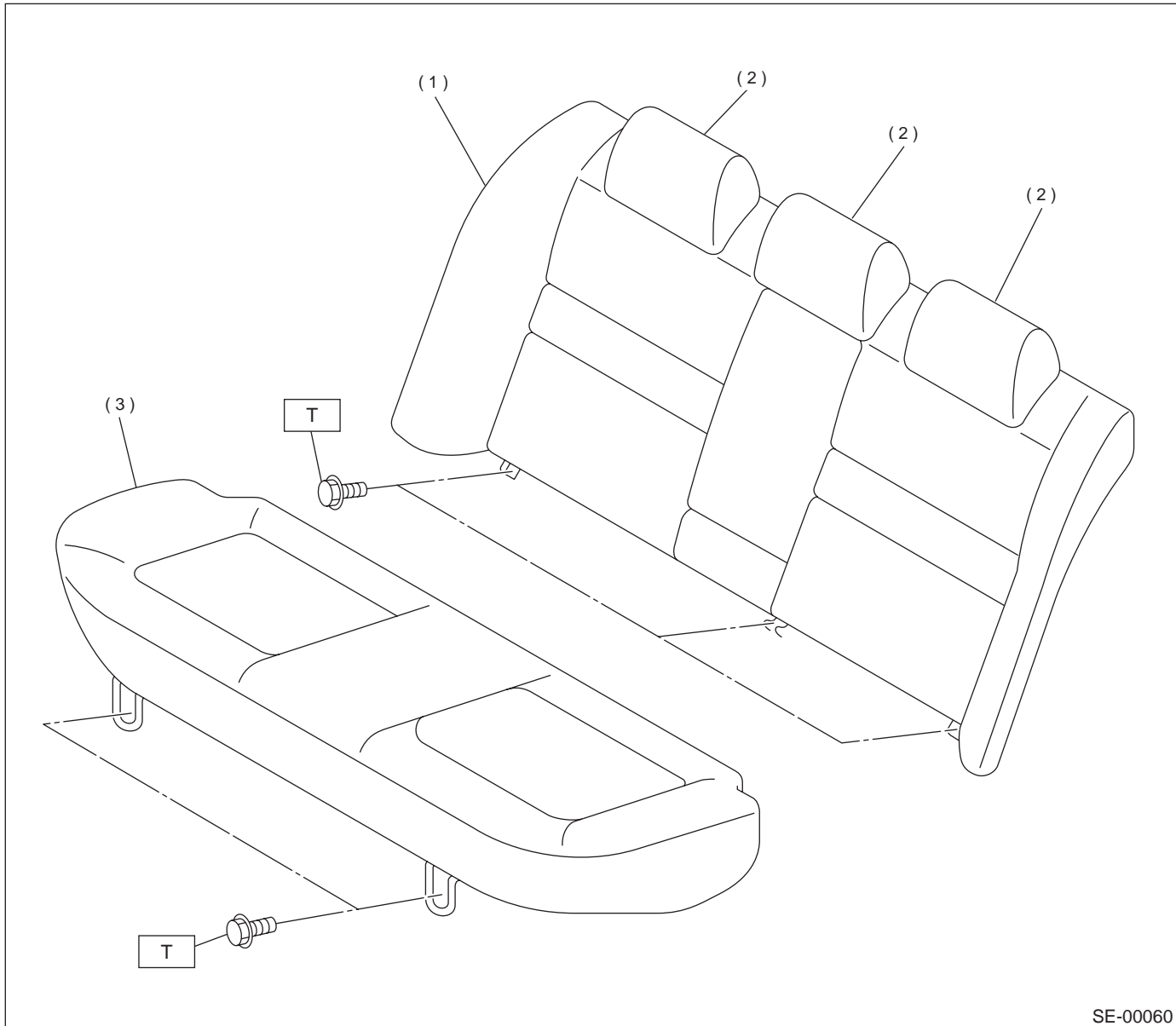
SEATS

(1) Seat back pad	(10) Hinge cover	(18) <8 WAY>
(2) Headrest	(11) Rod	
(3) Seat back board	(12) Slide and unit ASSY	<i>Tightening torque: N·m (kgf-m, ft-lb)</i>
(4) Seat back frame ASSY	(13) Power seat harness	<i>T1: 53 (5.4, 39)</i>
(5) Seat cushion frame ASSY	(14) Seat back ASSY (Model with side airbag)	<i>T2: 18 (1.8, 13)</i>
(6) Seat cushion pad	(15) STANDARD	<i>T3: 6 (0.6, 4.3)</i>
(7) Slide rail inner ASSY	(16) POWER	<i>T4: 30 (3.1, 22)</i>
(8) Slide rail outer ASSY	(17) <6 WAY>	
(9) Hinge ASSY		

GENERAL DESCRIPTION

SEATS

2. REAR SEAT (SEDAN)



- (1) Backrest
- (2) Head restraint

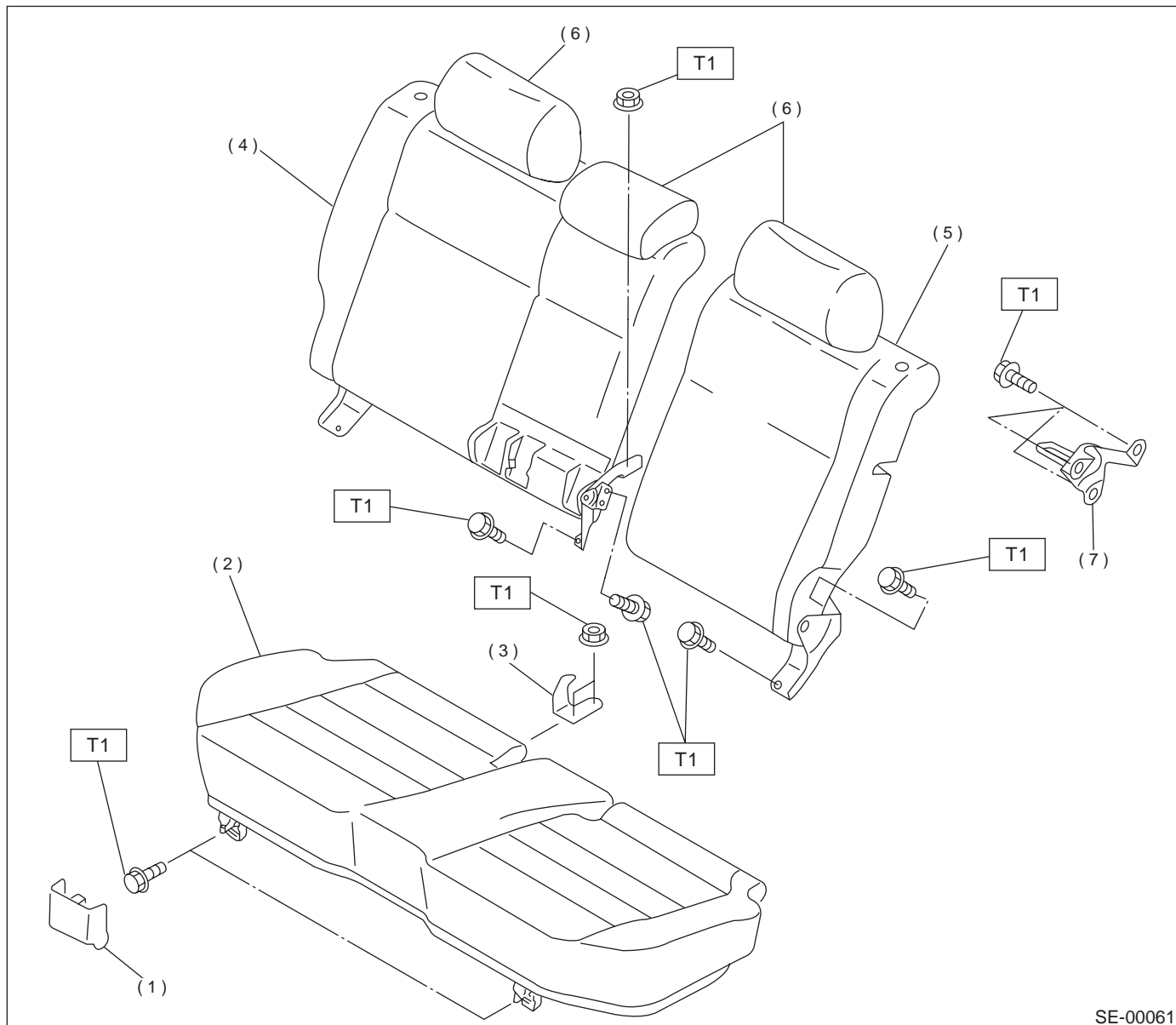
- (3) Cushion

Tightening torque: N·m (kgf·m, ft·lb)
T: 24.5 (2.50, 18.1)

GENERAL DESCRIPTION

SEATS

3. REAR SEAT (WAGON)



- (1) Cover
- (2) Cushion
- (3) Hook
- (4) Backrest RH

- (5) Backrest LH
- (6) Head restraint
- (7) Striker

Tightening torque: N·m (kgf-m, ft-lb)
T1: 24.5 (2.50, 18.1)

GENERAL DESCRIPTION

SEATS

B: CAUTION

- Take care not to contaminate or damage seat surface.
- While loading to or unloading to vehicle, take care not to contact body.

C: PREPARATION TOOL

1. GENERAL TOOL

TOOL NAME	REMARKS
Long Nose Pliers	Used for removing and installing hog ring

FRONT SEAT

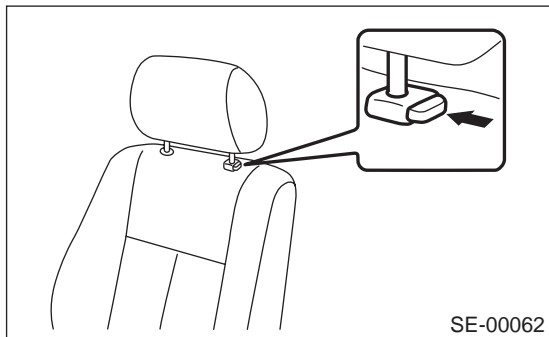
SEATS

2. Front Seat

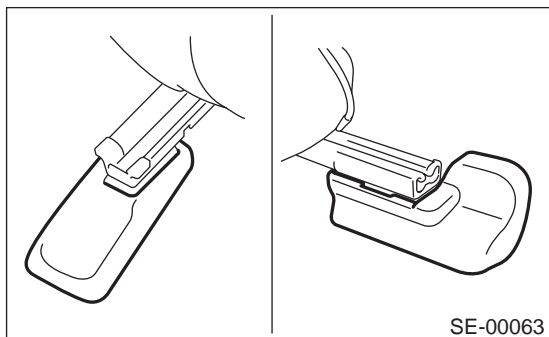
A: REMOVAL

1. STANDARD

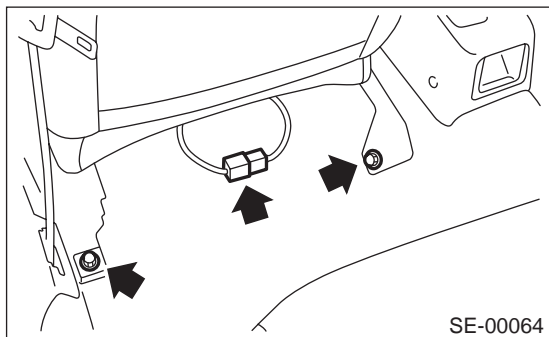
- 1) Disconnect ground cable from battery.
- 2) While pressing headrest lock button, remove headrest.



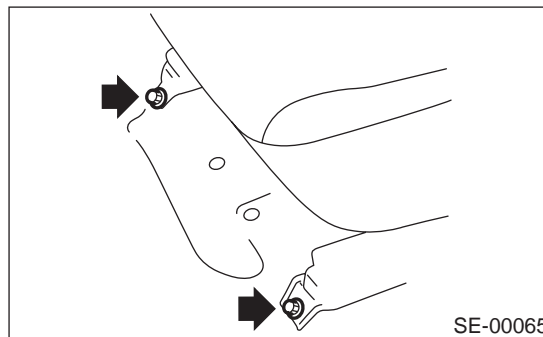
- 3) Tilt forward backrest.
- 4) Move seat to full front end.
- 5) Remove bolt cover at rear end of slide rail.



- 6) Disconnect side airbag connector under the seat. (Side airbag equipped vehicle)
- 7) Disconnect connectors of seat heater and seat belt warning. (Seat heater equipped vehicle)
- 8) Remove two bolts at rear side of seat rail.



- 9) Move seat to full rear end.
- 10) Remove two bolts at front side of seat rail.



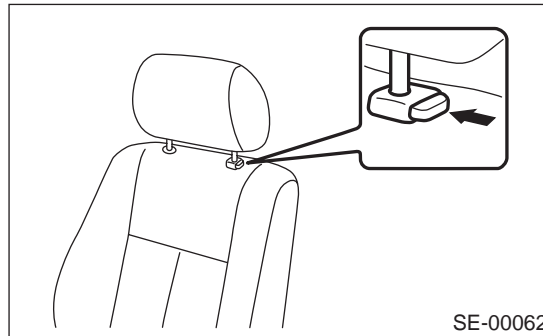
- 11) Remove front seat from vehicle.

CAUTION:

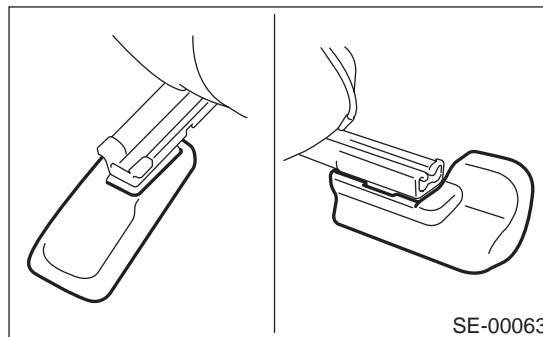
When removing seat from vehicle, take care not to damage body, seat, or trim.

2. POWER

- 1) While pressing headrest lock button, remove headrest.



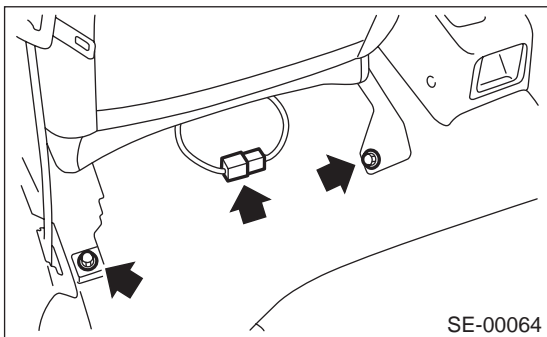
- 2) Tilt forward backrest.
- 3) Move seat to full front end.
- 4) Remove bolt cover at rear end of slide rail.



FRONT SEAT

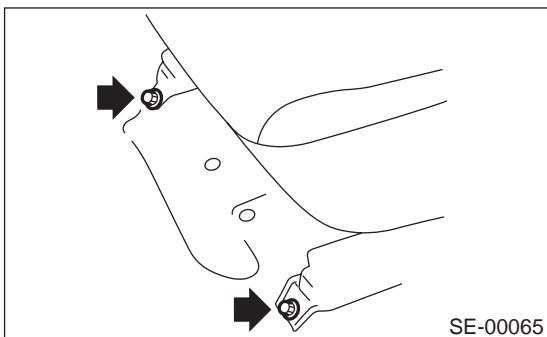
SEATS

5) Remove two bolts at rear side of seat rail.



6) Move seat to full rear end.

7) Remove two bolts at front side of seat rail.



8) Disconnect ground cable from battery.

CAUTION:

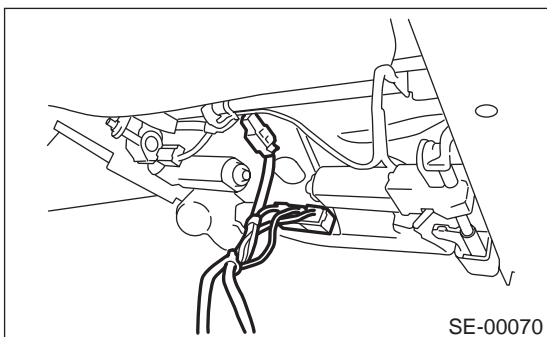
- Wait for 20 seconds or more after disconnecting the battery.

CAUTION:

- The airbag system has a backup power source. The airbag might deploy if you do not wait for 20 seconds or more before starting.

9) Disconnect side airbag connector under the seat. (Side airbag equipped vehicle)

10) Disconnect connectors of seat heater and seat belt warning. (Seat heater equipped vehicle)



11) Remove front seat from vehicle.

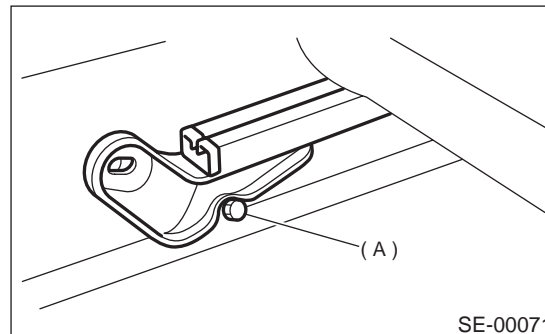
CAUTION:

When removing seat from vehicle, take care not to damage body, seat, or trim.

B: INSTALLATION

1. STANDARD

- 1) Install in the reverse order of removal.
- 2) Place slide rail rear inner on location bolts (A).



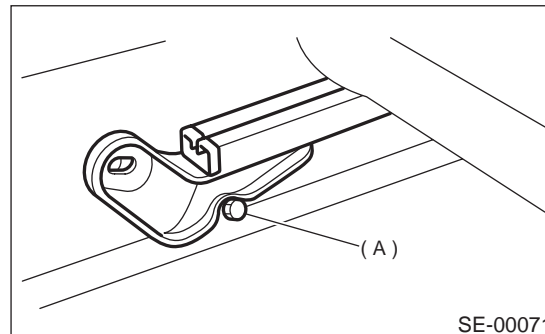
- 3) Tighten the four bolts of slide rail.

CAUTION:

Confirm that seat can move smoothly and be locked securely at any position.

2. POWER

- 1) Install in the reverse order of removal.
- 2) Place slide rail rear inner on location bolts (A).



- 3) Tighten the four bolts of slide rail.

CAUTION:

Confirm that seat can move smoothly.

Tightening torque:

Refer to COMPONENT in General Description.

<Ref. to SE-2, Front Seat.>

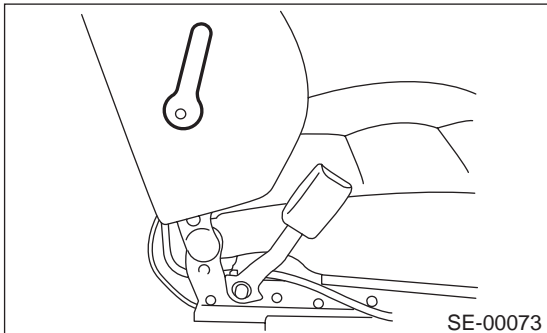
FRONT SEAT

SEATS

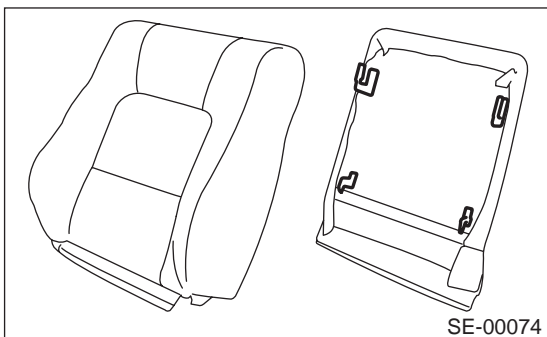
C: DISASSEMBLY

1. STANDARD

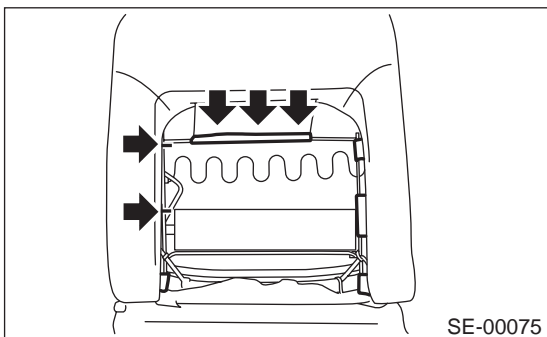
- 1) Remove seats from vehicle. <Ref. to SE-7, Removal.>
- 2) Remove lumbar lever cover.



- 3) Remove hook at bottom, and then remove seat back board.

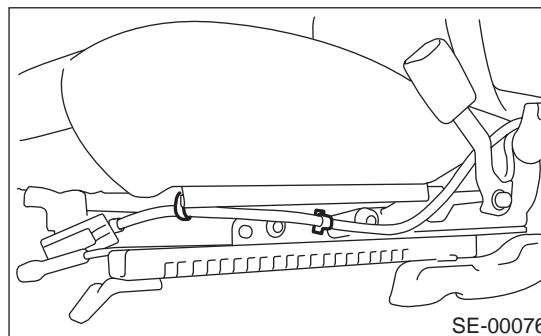


- 4) Remove hook on back side of seat, and remove hog rings using a plier.

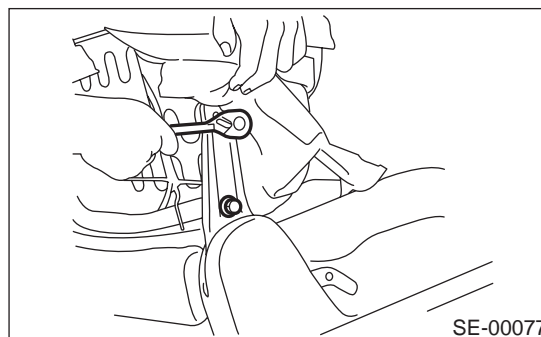


- 5) Remove clamp of side airbag wire harness. (Side airbag equipped vehicle)

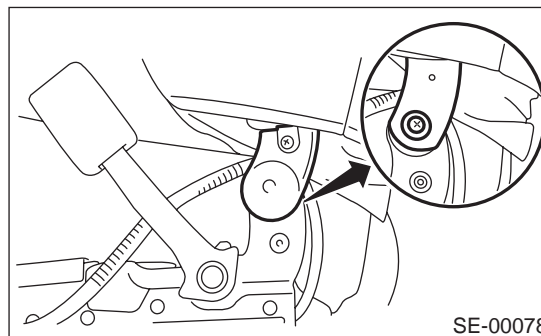
- 6) Remove clamp of seat heater wire harness. (Seat heater equipped vehicle)



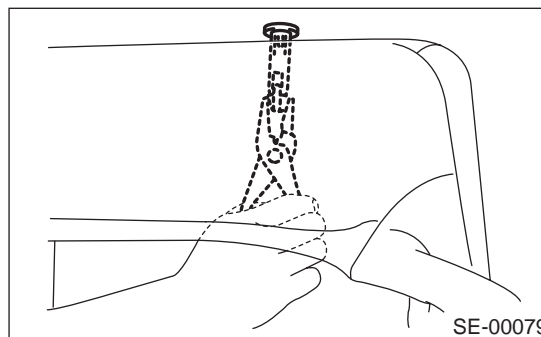
- 7) Turn cover and cushion, and remove the two bolts from hinge.



- 8) Remove hinge screw cover and screws, and remove seat back from hinge.



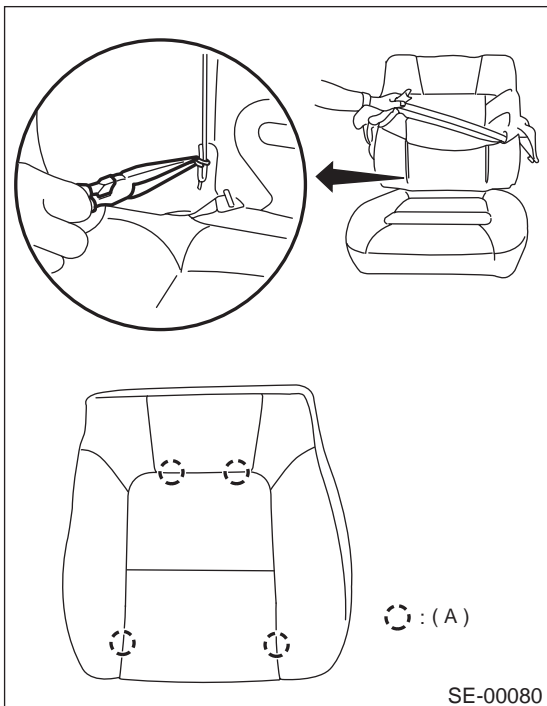
- 9) While picking up tip with a plier, remove head-rest lock bushing.



FRONT SEAT

SEATS

10) Remove hog ring (A) on front face of seat.



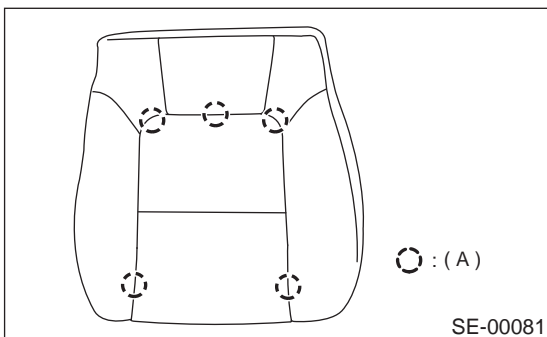
Side airbag equipped vehicle:

NOTE:

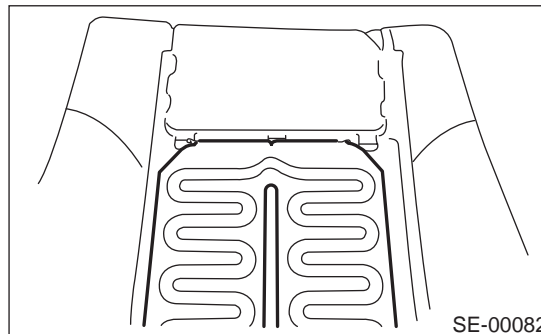
Backrest portion of side airbag equipped vehicle cannot be disassembled. When disposing of it, refer to the following.

CAUTION:

After disassembly of the parts, for side airbag performance assurance reasons, do not assemble and re-use the parts. When replacing it, replace with a complete backrest assembly.



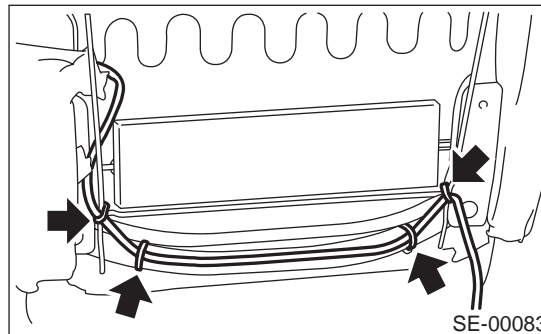
11) Remove hog rings, and then remove seat heater. (Seat heater equipped vehicle)



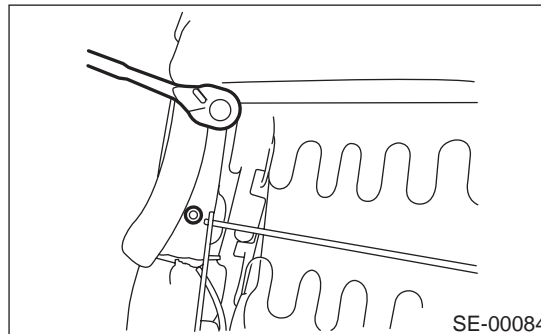
12) Remove seat cover.

13) Remove backrest pad.

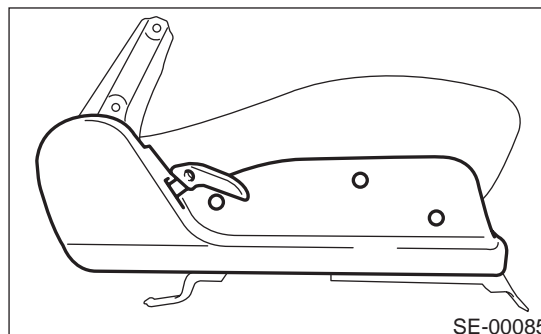
14) Remove clamp of airbag wire harness on back side of seat. (Side airbag equipped vehicle)



15) Remove the two cap nuts, and then remove side airbag module assembly. (Side airbag equipped vehicle)



16) Remove reclining cover and hinge cover. (Non-tilt type vehicle)

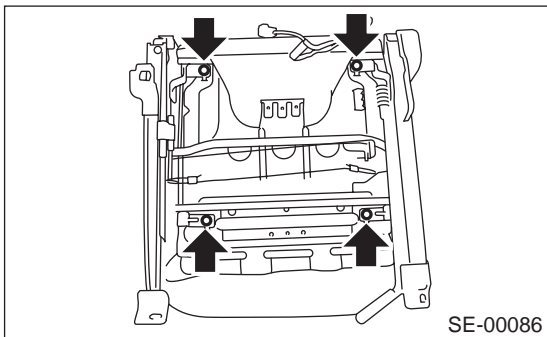


FRONT SEAT

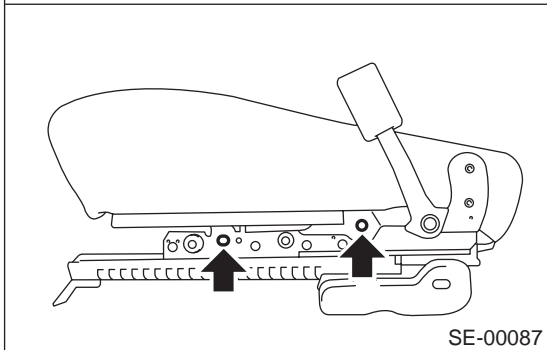
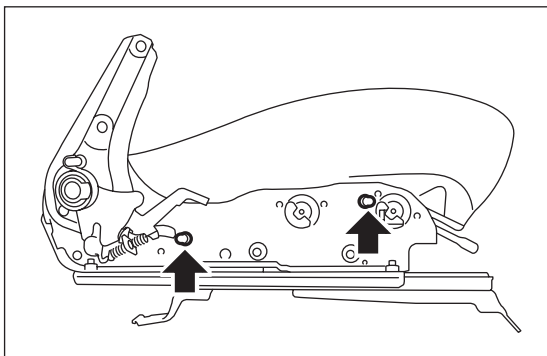
SEATS

17) Remove the 4 bolts of seat hinge assembly, and then remove seat cushion.

Tilt type vehicle:

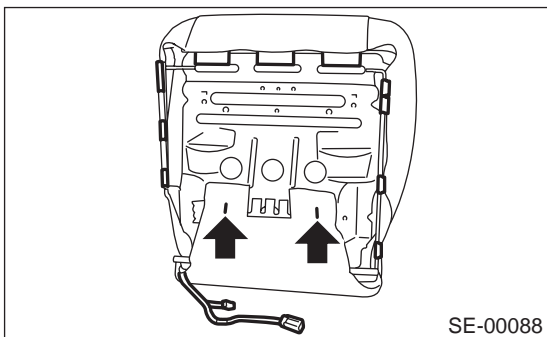


Non-tilt type vehicle:



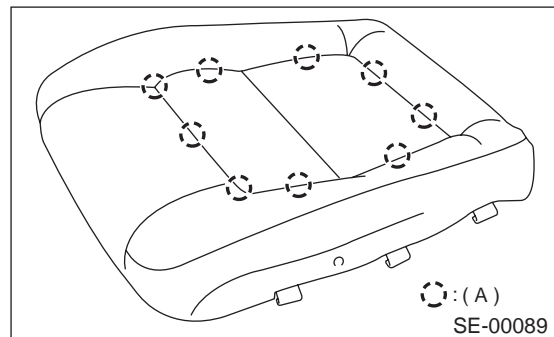
18) Remove hook clips on back side of seat cushion, and remove wire rings.

19) Remove clamp of seat heater wire harness. (Seat heater equipped vehicle)

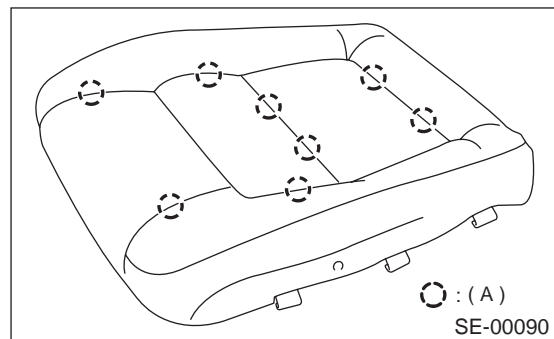


20) Remove hog rings (A).

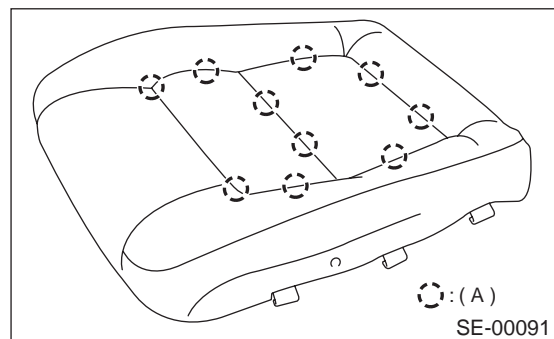
Tilt type vehicle:



Non-tilt type vehicle:



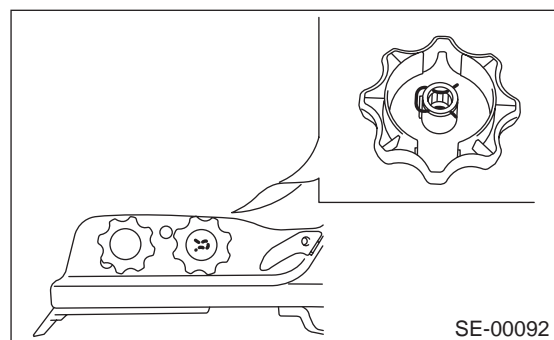
Leather type vehicle:



21) Remove cushion cover.

22) Remove cushion pad.

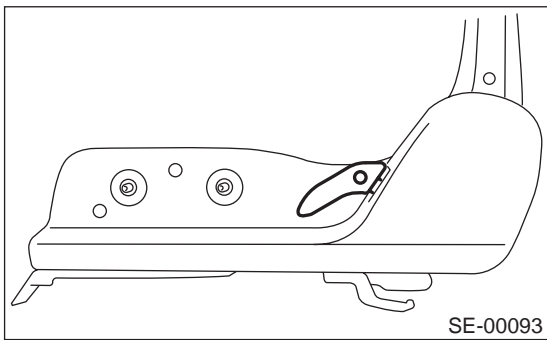
23) Remove clip pins, and remove seat lifter lever.



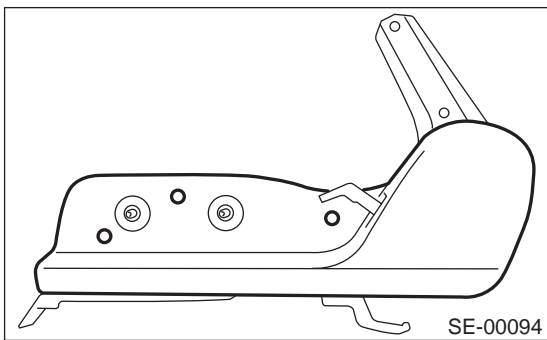
FRONT SEAT

SEATS

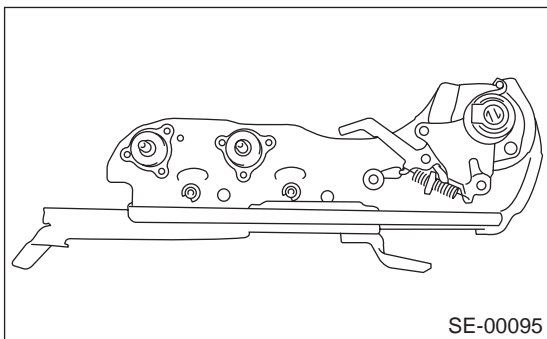
24) Remove reclining lever cover.



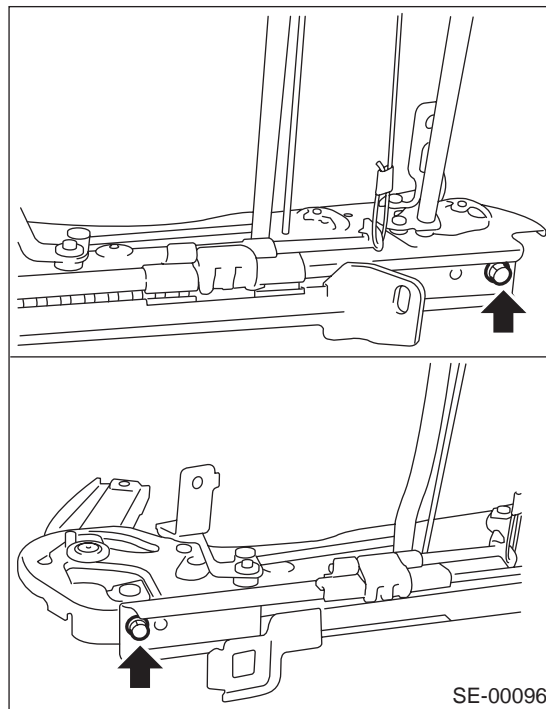
25) Remove hinge cover cap and screws.



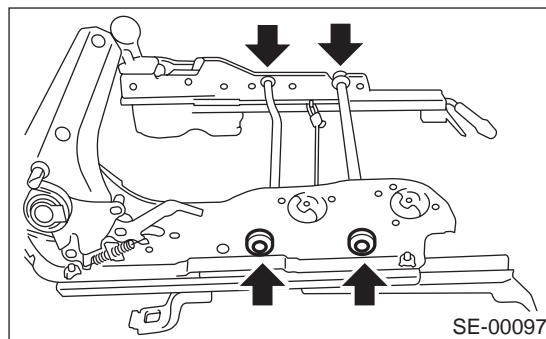
26) Remove seat hinge cover and hinge spring cover.



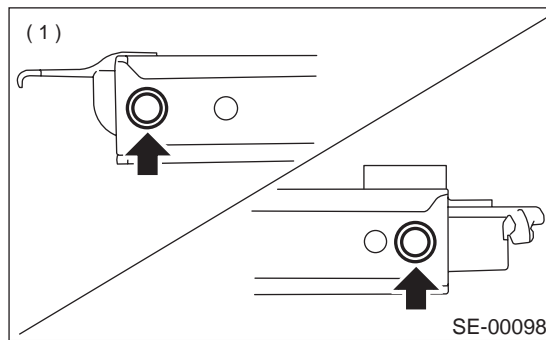
27) Remove 2 bolts, and then remove slide rail.



28) Remove 4 screws, and then remove hinge. (Non-tilt type vehicle)



29) Remove 2 bolts, and then remove slide rail. (Non-tilt type vehicle)



(1) Lower side of seat rail

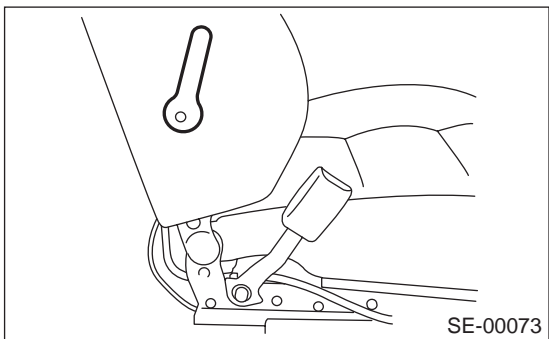
30) Remove connecting wire.

FRONT SEAT

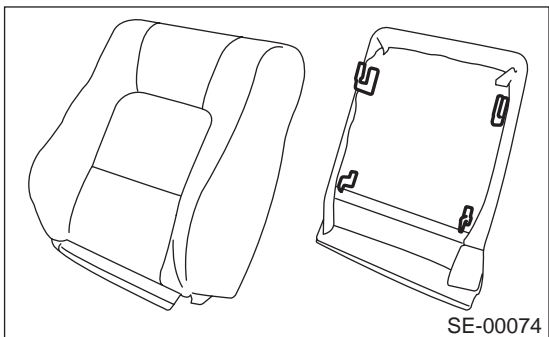
SEATS

2. POWER

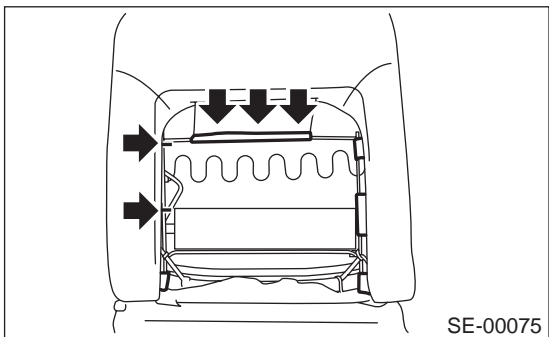
- 1) Remove seats from vehicle. <Ref. to SE-7, Removal.>
- 2) Remove lumbar lever cover.



- 3) Remove hook at bottom, and then remove seat back board.

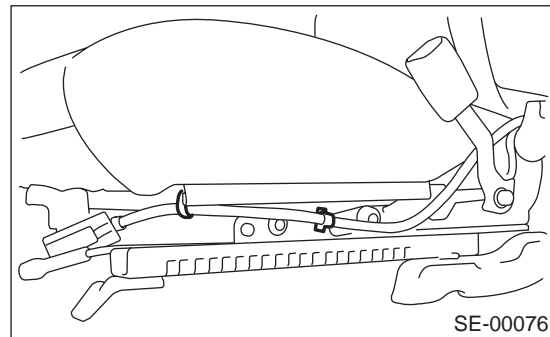


- 4) Remove hook on back side of seat, and remove wire rings using a plier.

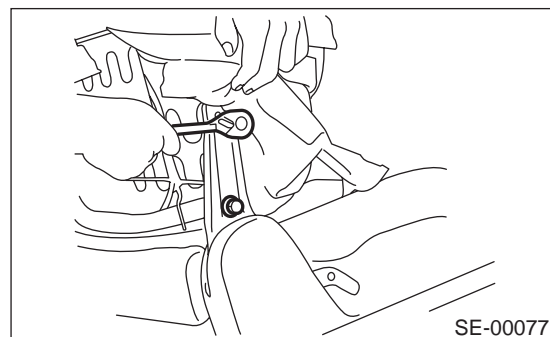


- 5) Remove clamp of side airbag wire harness. (Side airbag equipped vehicle)

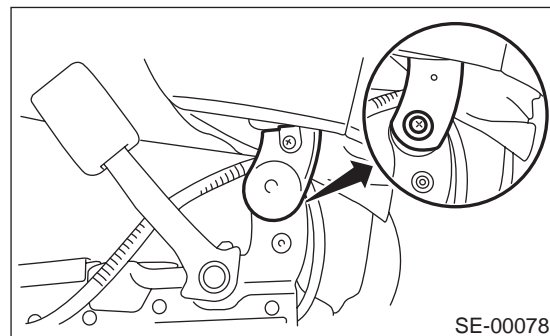
- 6) Remove clamp of seat heater wire harness. (Seat heater equipped vehicle)



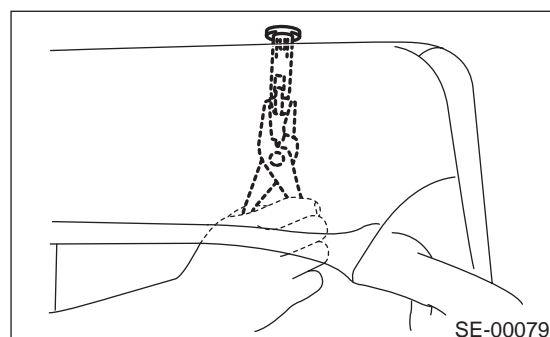
- 7) Turn cover and cushion, and remove the two bolts from hinge.



- 8) Remove hinge screw cover and screws, and remove seat back from hinge.



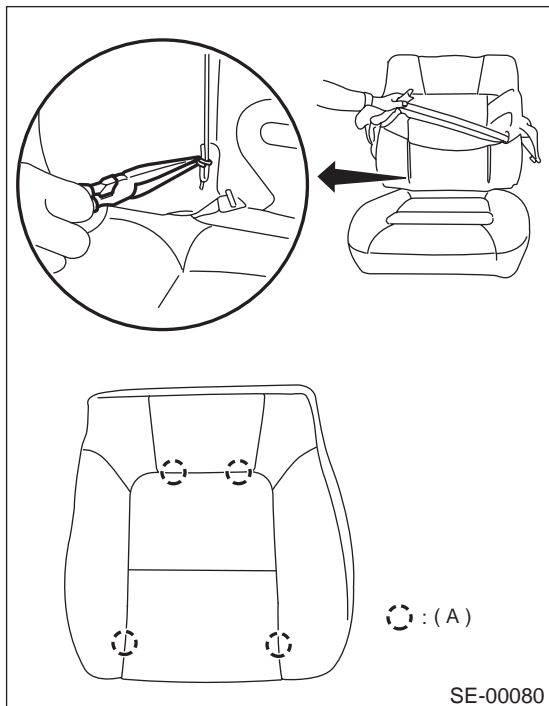
- 9) While picking up tip with a plier, remove head-rest lock bushing.



FRONT SEAT

SEATS

10) Remove hog ring (A) on front face of seat.



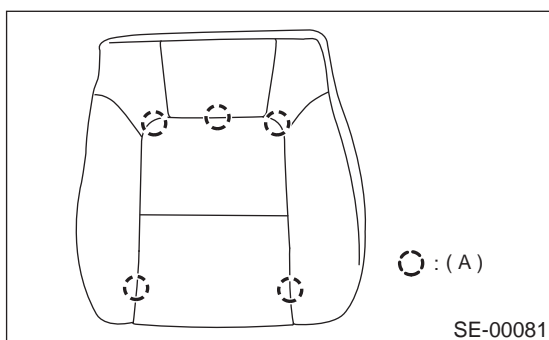
Side airbag equipped vehicle:

NOTE:

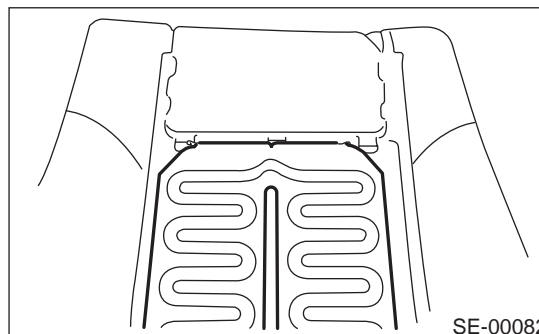
Backrest portion of side airbag equipped vehicle cannot be disassembled. When disposing of it, refer to the following.

CAUTION:

After disassembly of the parts, for side airbag performance assurance reasons, do not assemble and re-use the parts. When replacing it, replace with a complete backrest assembly.



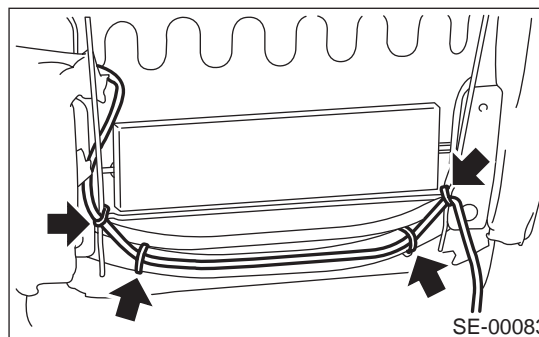
11) Remove wire rings, and then remove seat heater. (Seat heater equipped vehicle)



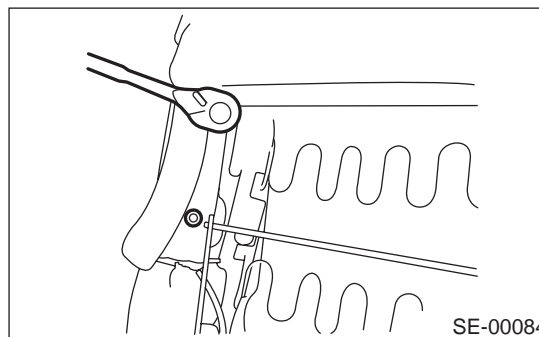
12) Remove seat cover.

13) Remove backrest pad.

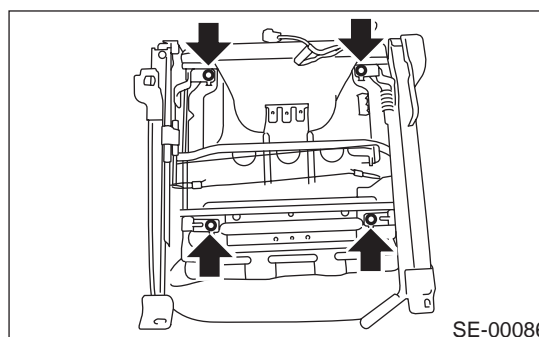
14) Remove clamp of airbag wire harness on back side of seat. (Side airbag equipped vehicle)



15) Remove the two cap nuts, and then remove side airbag module assembly. (Side airbag equipped vehicle)



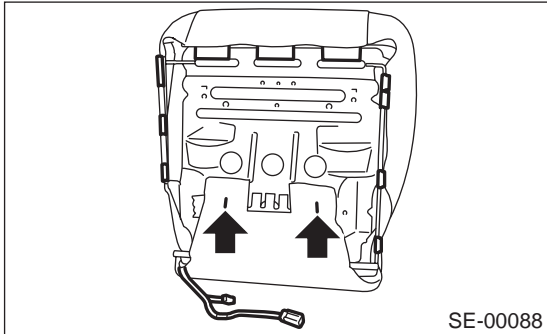
16) Remove the 4 bolts of seat hinge assembly, and then remove seat cushion.



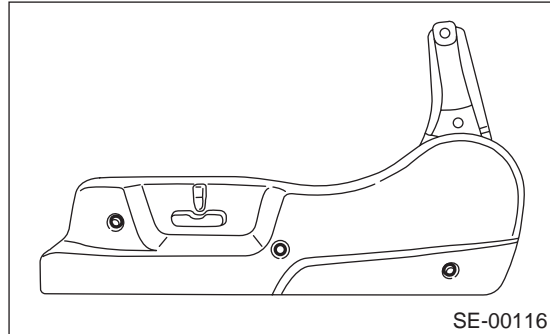
FRONT SEAT

SEATS

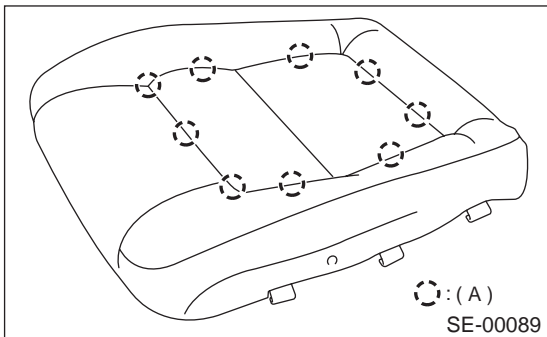
- 17) Remove hook clips on back side of seat cushion, and remove wire rings.
18) Remove clamp of seat heater wire harness. (Seat heater equipped vehicle)



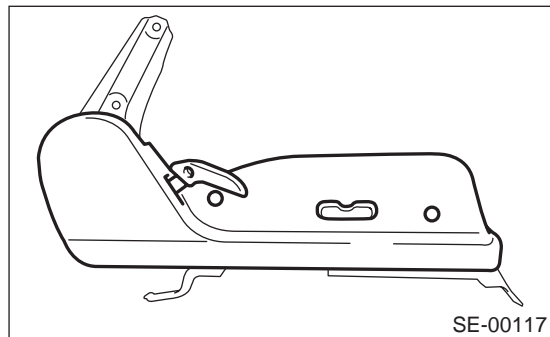
- 23) 8-way power:
Remove the screw, disconnect the seat switch connector on the underside of the cover, and remove the hinge cover.



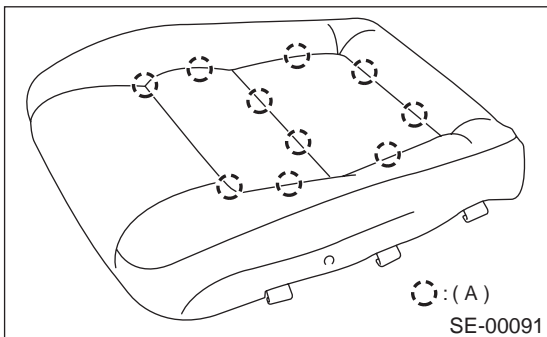
- 19) Remove hog rings (A).



- 6-way power:
Remove the reclining lever cover and screw, disconnect the seat switch connector on the underside of the cover, and remove the hinge cover.

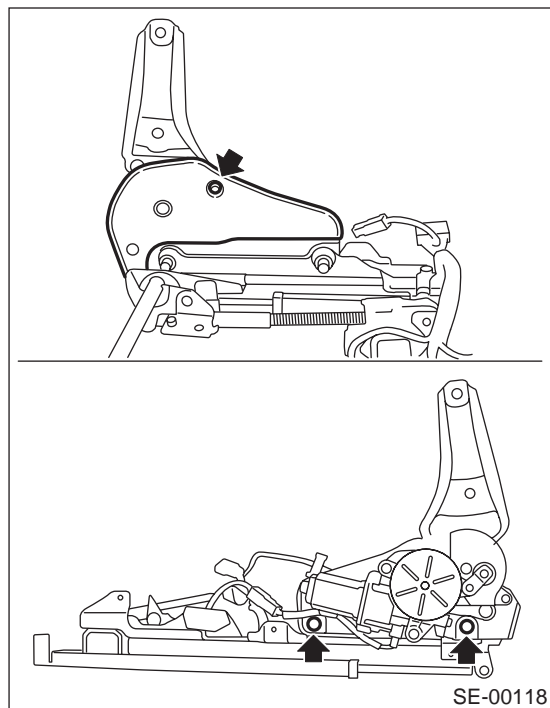
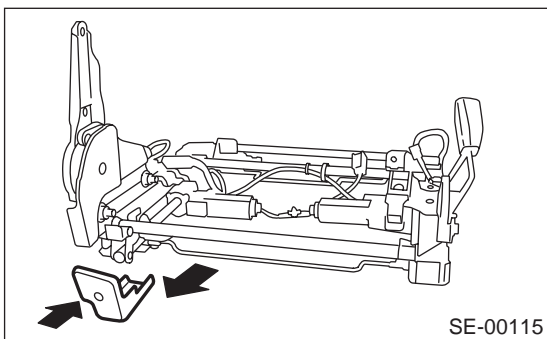


Leather type vehicle:



- 24) Remove the cover on the underside of the seat hinge, remove the two bolts, and remove the seat hinge.

- 20) Remove cushion cover.
21) Remove cushion pad.
22) Remove the screw and then remove the cover.



FRONT SEAT

SEATS

D: ASSEMBLY

1. STANDARD

1) Assemble in the reverse order of disassembly.

NOTE:

- Do not contaminate or damage cover.
- While installing hog rings, prevent seat from getting wrinkled.

2) Attach seat cover end hole to hinge inner. (Only non-tilt type standard seat)

2. POWER

1) Assemble in the reverse order of disassembly.

NOTE:

- Do not contaminate or damage cover.
- While installing hog rings, prevent seat from getting wrinkled.
- Make sure the connector is firmly connected.
- Make sure the wire harness is not pinched.

2) Attach seat cover end hole to hinge inner. (Only non-tilt type standard seat)

Tightening torque:

Refer to COMPONENT in General Description.

<Ref. to SE-2, Front Seat.>

REAR SEAT

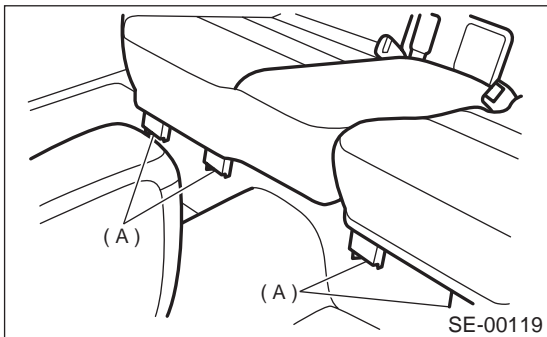
SEATS

3. Rear Seat

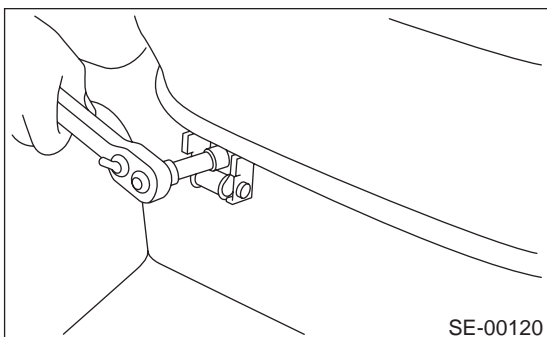
A: REMOVAL

1. WAGON

1) Raise the cushion, and then remove bolt covers (A).

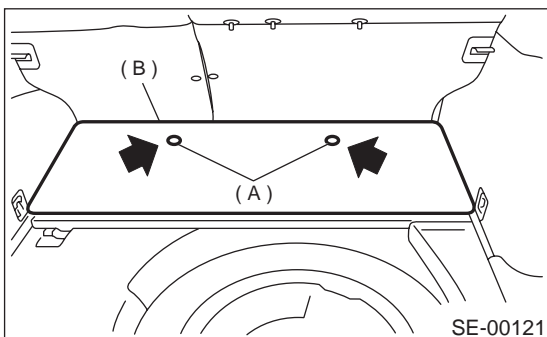


2) Remove bolts, and then remove rear seat cushion.

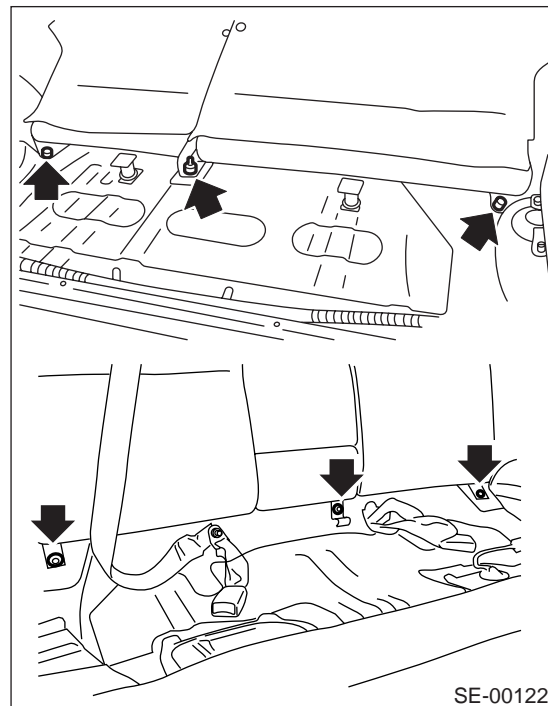


3) Remove headrest.

4) Remove clips (A), and then remove rear floor front mat (B).



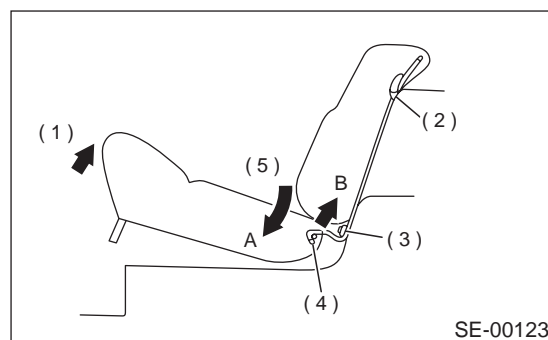
5) Remove bolts and nuts of bracket hinge.



6) Remove rear seat backrest.

2. SEDAN

1) Slightly raise front of cushion while pushing down on cushion in the direction of "A". With cushion held in that position, move it forward until it is unhooked.

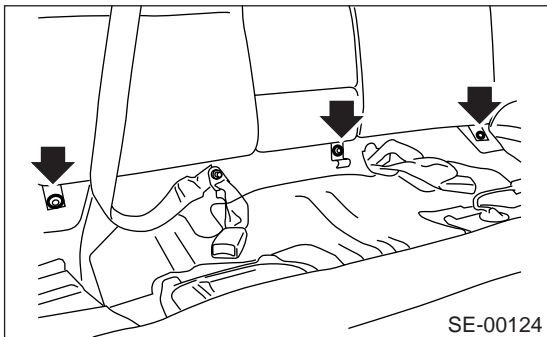


- (1) Raise
- (2) Hook
- (3) Attaching bolt
- (4) Hook
- (5) Push

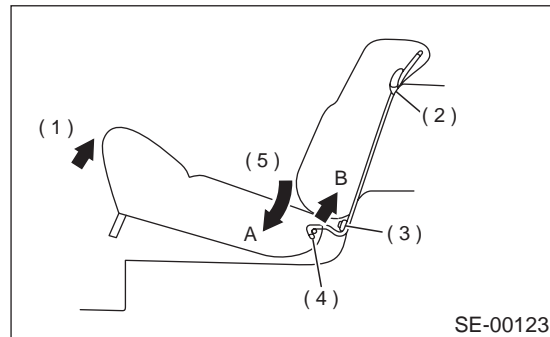
REAR SEAT

SEATS

2) Remove bolts securing lower portion of backrest and then open the center trunk through lid.



3) Hook and fasten the seat cushion to the hook on the lower part of the rear seat backrest.



3) Lift rear seat backrest and then remove it.

B: INSTALLATION

1. WAGON

1) Install in the reverse order of removal.

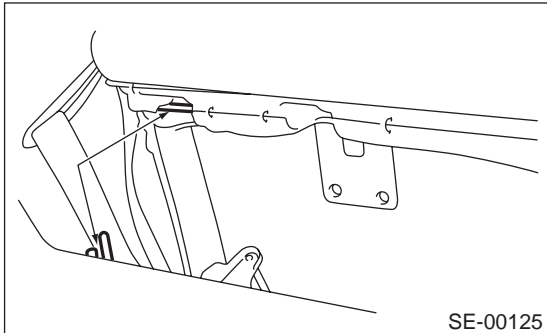
Tightening torque:

Refer to **COMPONENT** in *General Description*.

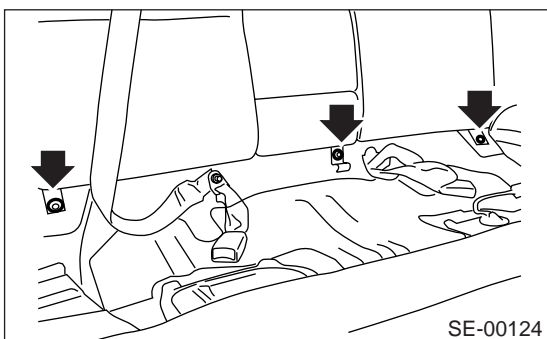
<Ref. to SE-5, Rear Seat (Wagon).>

2. SEDAN

1) Hook and fasten the upper-back side of the rear seat backrest to the body hook.



2) Tighten the bolt and install the backrest.



- (1) Raise
- (2) Hook
- (3) Attaching bolt
- (4) Hook
- (5) Push

Tightening torque:

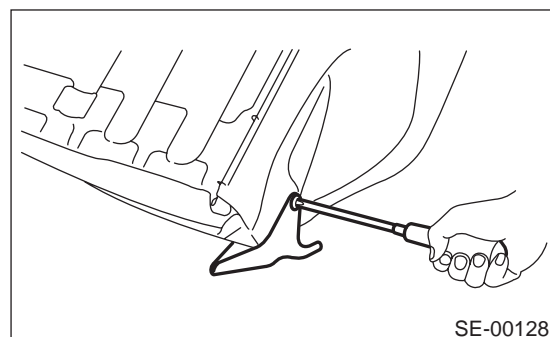
Refer to **COMPONENT** in *General Description*.

<Ref. to SE-4, Rear Seat (Sedan).>

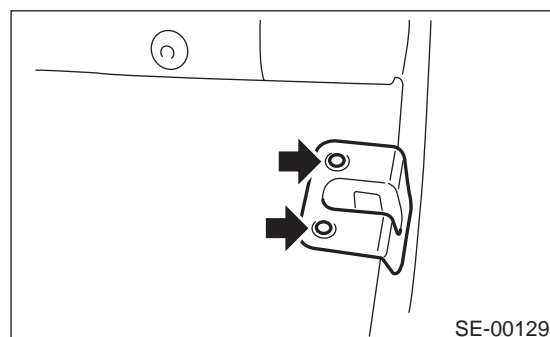
C: DISASSEMBLY

1. WAGON

- 1) Remove rear seat. <Ref. to SE-17, Removal.>
- 2) Remove bolts, and then remove bracket hinge.



3) Remove rear backrest lock cover.

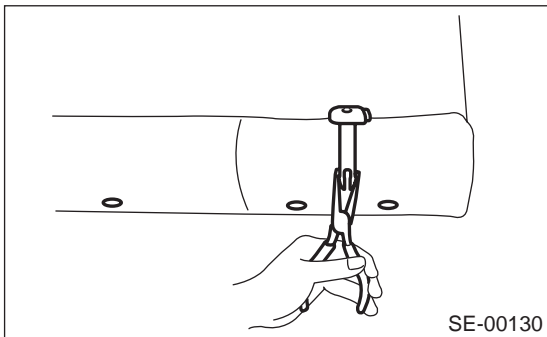


4) While turning counterclockwise rear backrest knob, remove it.

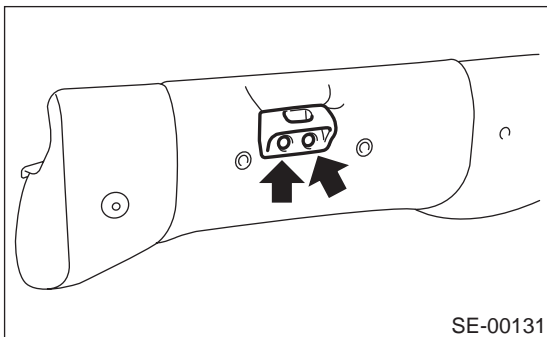
REAR SEAT

SEATS

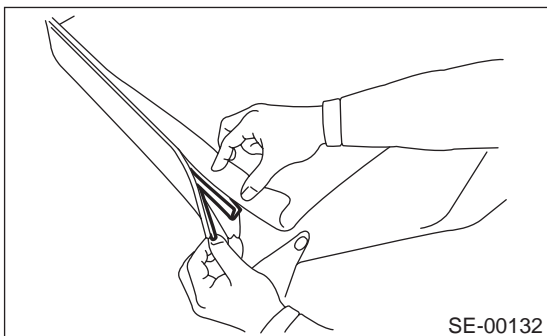
5) While picking up tip with pliers, remove headrest lock bushings.



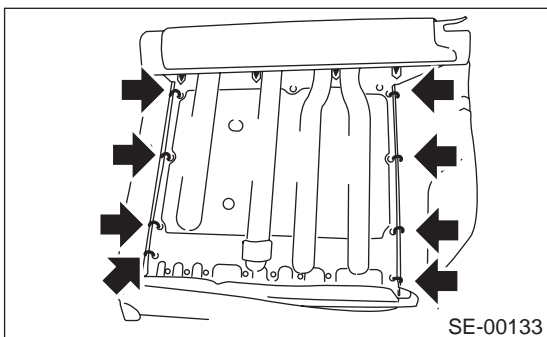
6) Remove backrest hook.



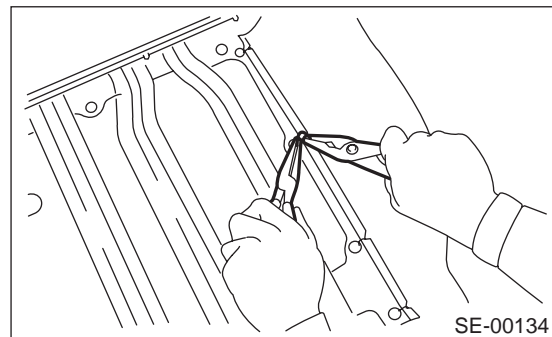
7) Remove hook at bottom.



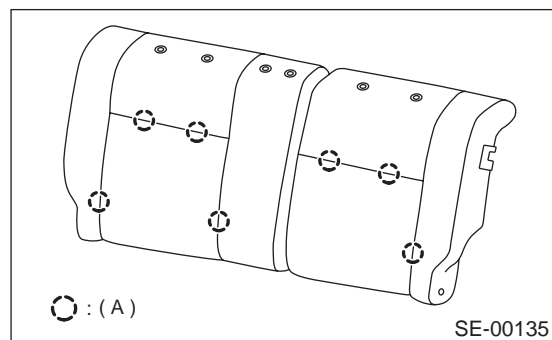
8) Remove 4 pawls.



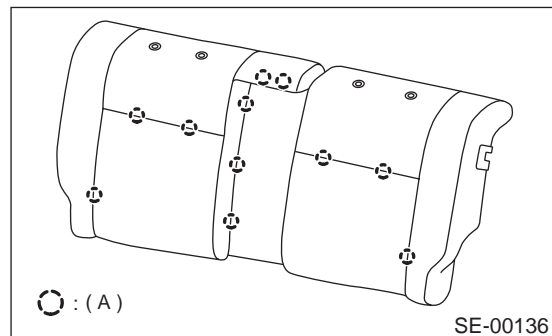
9) Remove 8 hog rings.



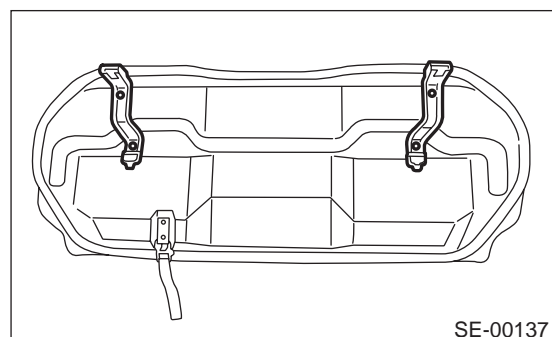
10) Remove the hog rings (A) on front side of cushion pad.



Armrest-equipped vehicle:



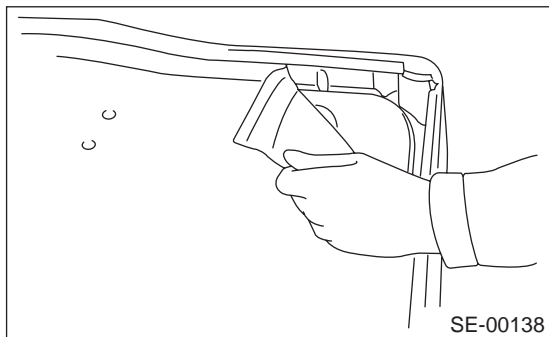
11) Remove cover. When disassembly of rear seat cushion is required, proceed to the following steps.
12) Remove bolts, and then remove cushion hinge.



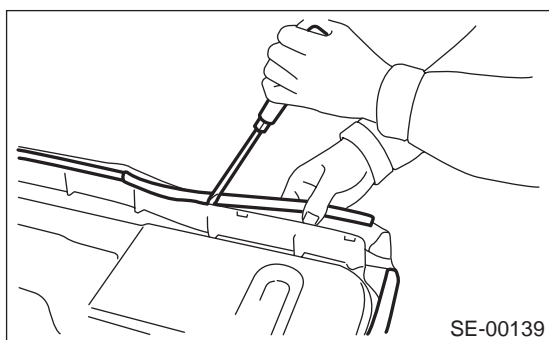
REAR SEAT

SEATS

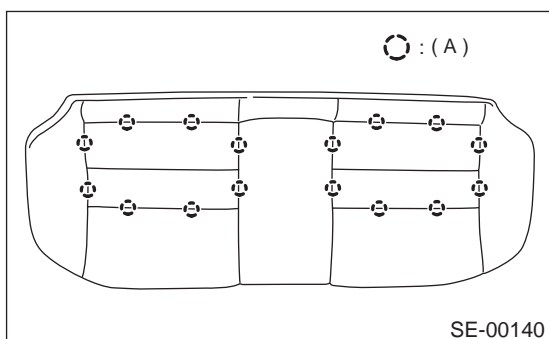
13) Remove rear cushion mat.



14) Remove hook, and then remove frame.



15) Remove hog rings (A), and then remove cover.

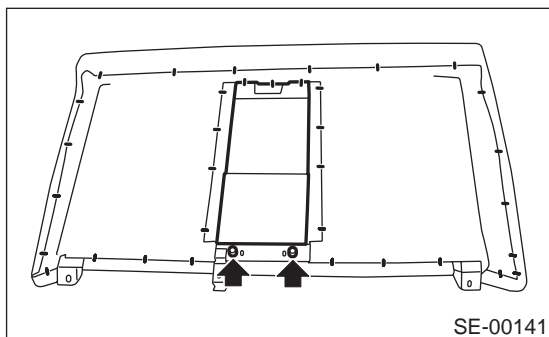


2. SEDAN

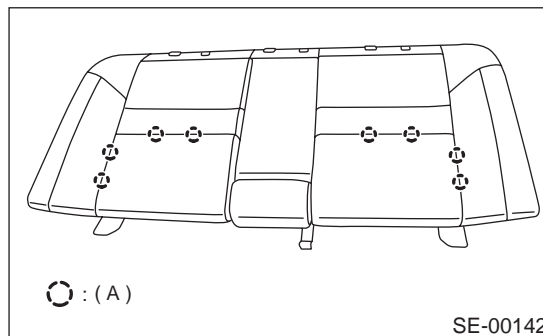
1) Remove the rear seat from the vehicle. <Ref. to SE-17, Removal.>

2) Remove the hog rings from around the seat backrest.

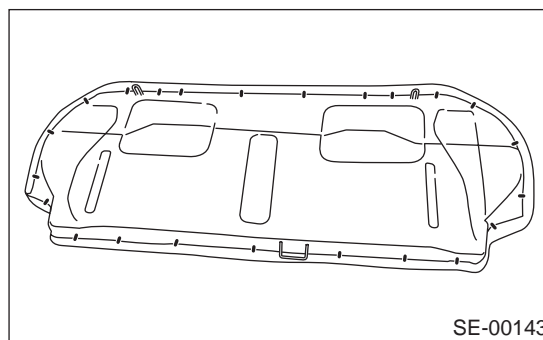
3) Remove the two nuts and remove the armrest assembly.



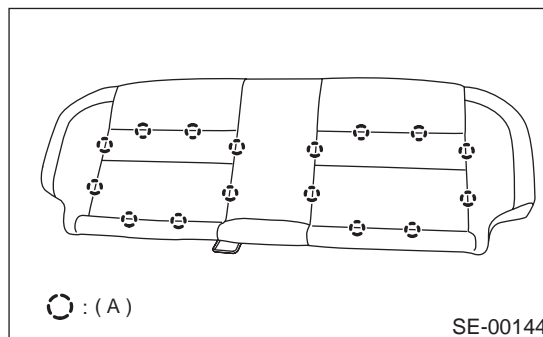
4) Remove the hog rings (A), and then remove the seat cover.



5) Remove the hog rings around the seat cushion.



6) Remove the hog rings (A), and then remove the seat cover



D: ASSEMBLY

1. WAGON

1) Assemble in the reverse order of disassembly.

NOTE:

- Do not contaminate or damage cover.
- While installing wire rings, prevent seat from getting wrinkled.

2. SEDAN

1) Assemble in the reverse order of disassembly.

NOTE:

- Do not contaminate or damage cover.
- While installing wire rings, prevent seat from getting wrinkled.

GENERAL DESCRIPTION

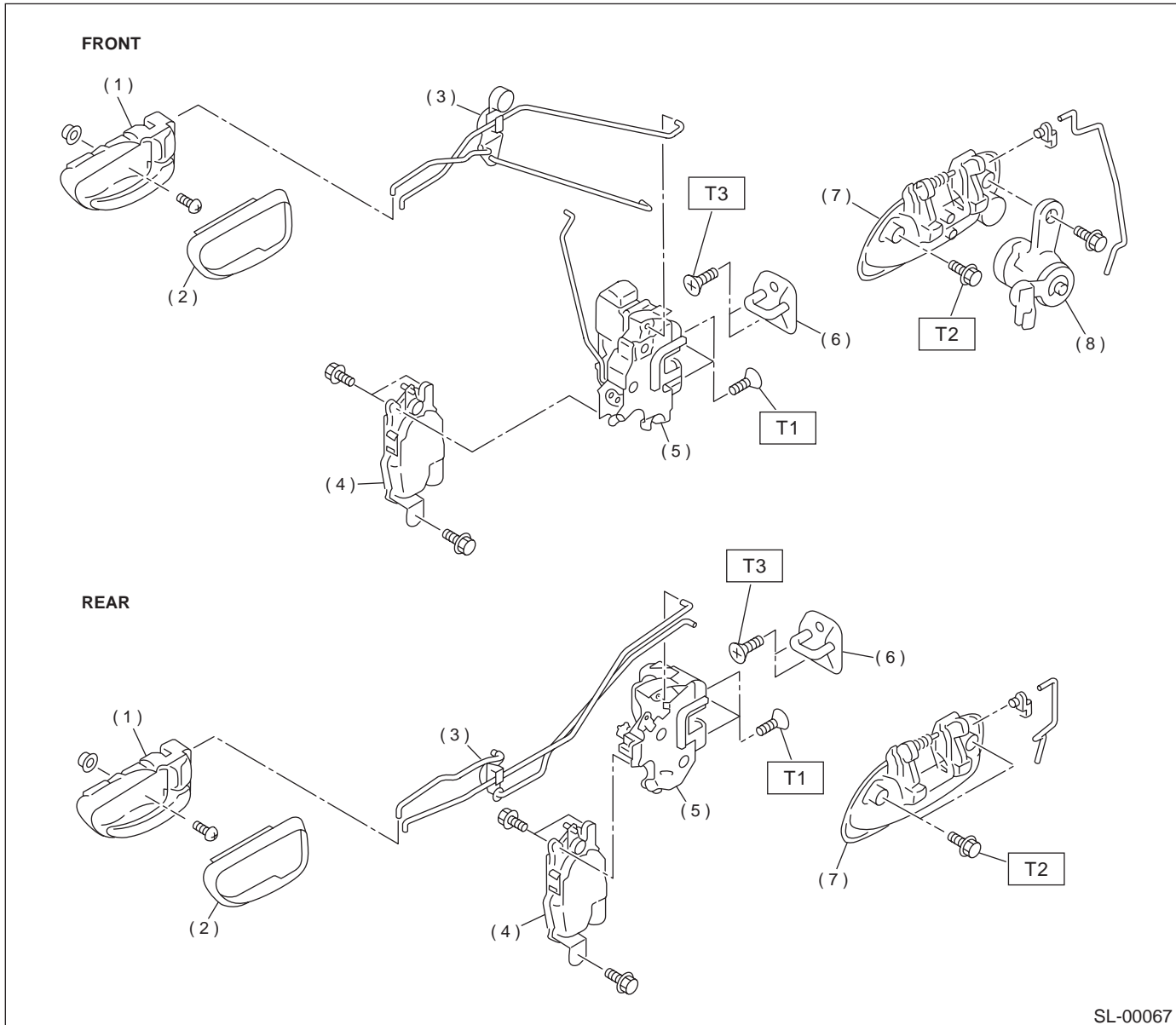
SECURITY AND LOCKS

1. General Description

A: SPECIFICATIONS

B: COMPONENT

1. DOOR LOCK ASSEMBLY



- | | |
|-----------------------------|-----------------------|
| (1) Inner remote ASSY | (6) Striker |
| (2) Inner remote cover | (7) Door outer handle |
| (3) Bell crank | (8) Key cylinder |
| (4) Auto-door lock actuator | |
| (5) Door latch | |

Tightening torque: N·m (kgf·m, ft·lb)

T1: 6.4 (0.65, 4.7)

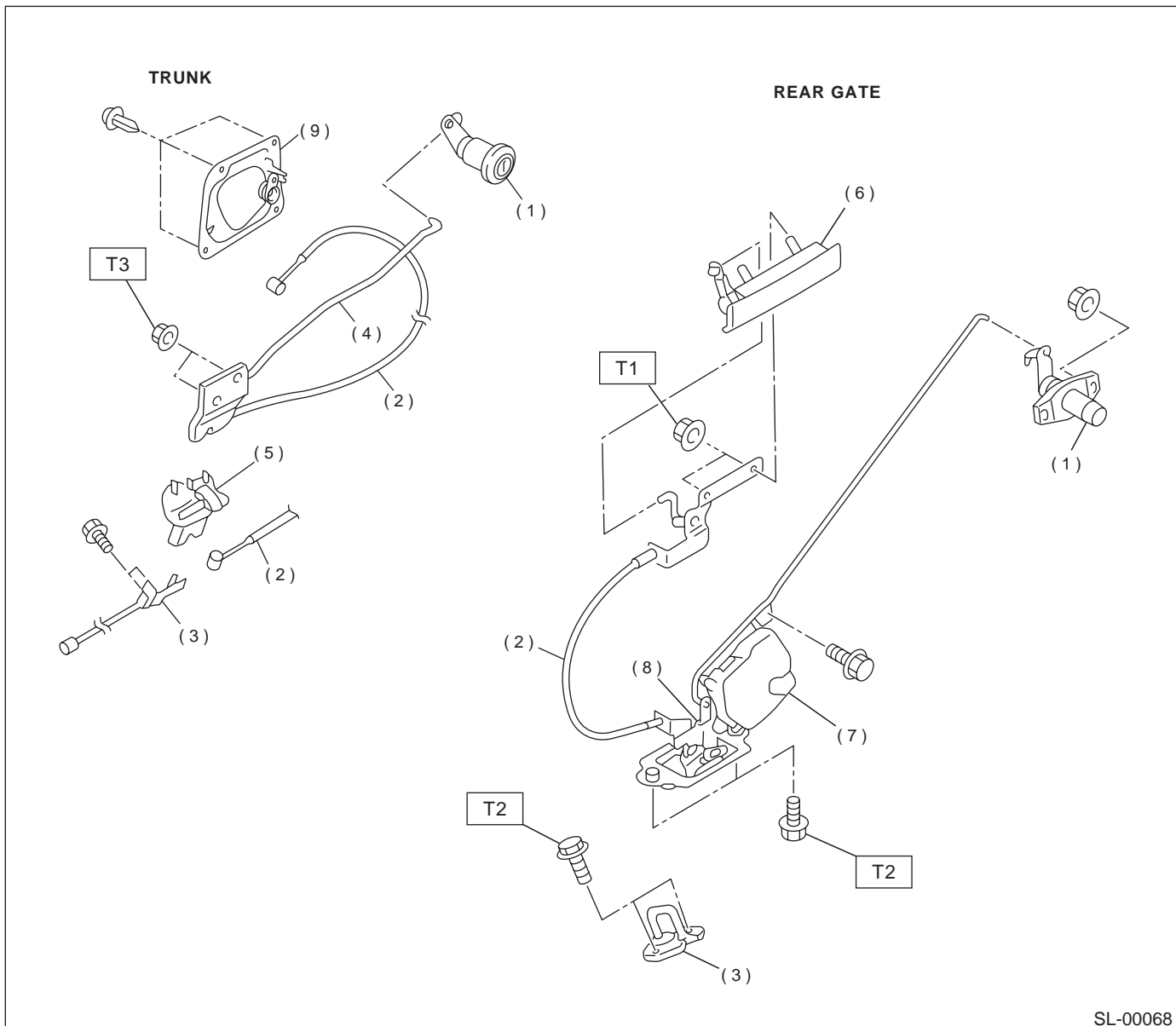
T2: 7.35 (0.75, 5.4)

T3: 18.0 (1.8, 13.0)

GENERAL DESCRIPTION

SECURITY AND LOCKS

2. TRUNK LID AND REAR GATE LOCK



- (1) Key cylinder
- (2) Cable
- (3) Striker
- (4) Trunk lid lock ASSY
- (5) Trunk lid lock cover

- (6) Rear gate outer handle
- (7) Rear gate actuator
- (8) Rear gate latch
- (9) Trunk lid release handle

Tightening torque: N·m (kgf-m, ft-lb)

T1: 7.5 (0.76, 5.5)

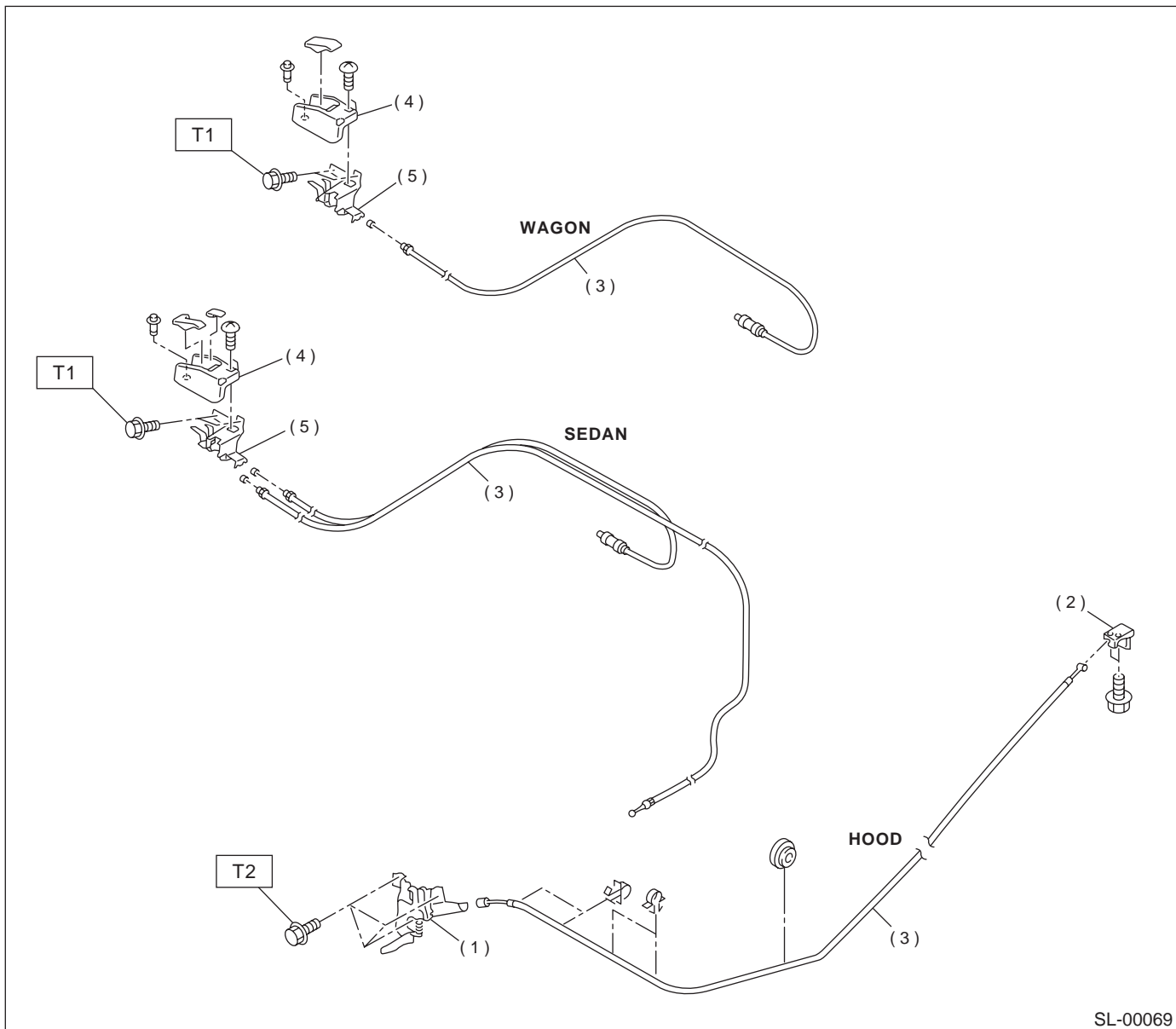
T2: 25 (2.5, 18.1)

T3: 18 (1.8, 13.0)

GENERAL DESCRIPTION

SECURITY AND LOCKS

3. HOOD LOCK AND REMOTE OPENERS



- (1) Hood lock ASSY
- (2) Lever ASSY
- (3) Cable

- (4) Cover
- (5) Pull handle ASSY

Tightening torque: N·m (kgf-m, ft-lb)

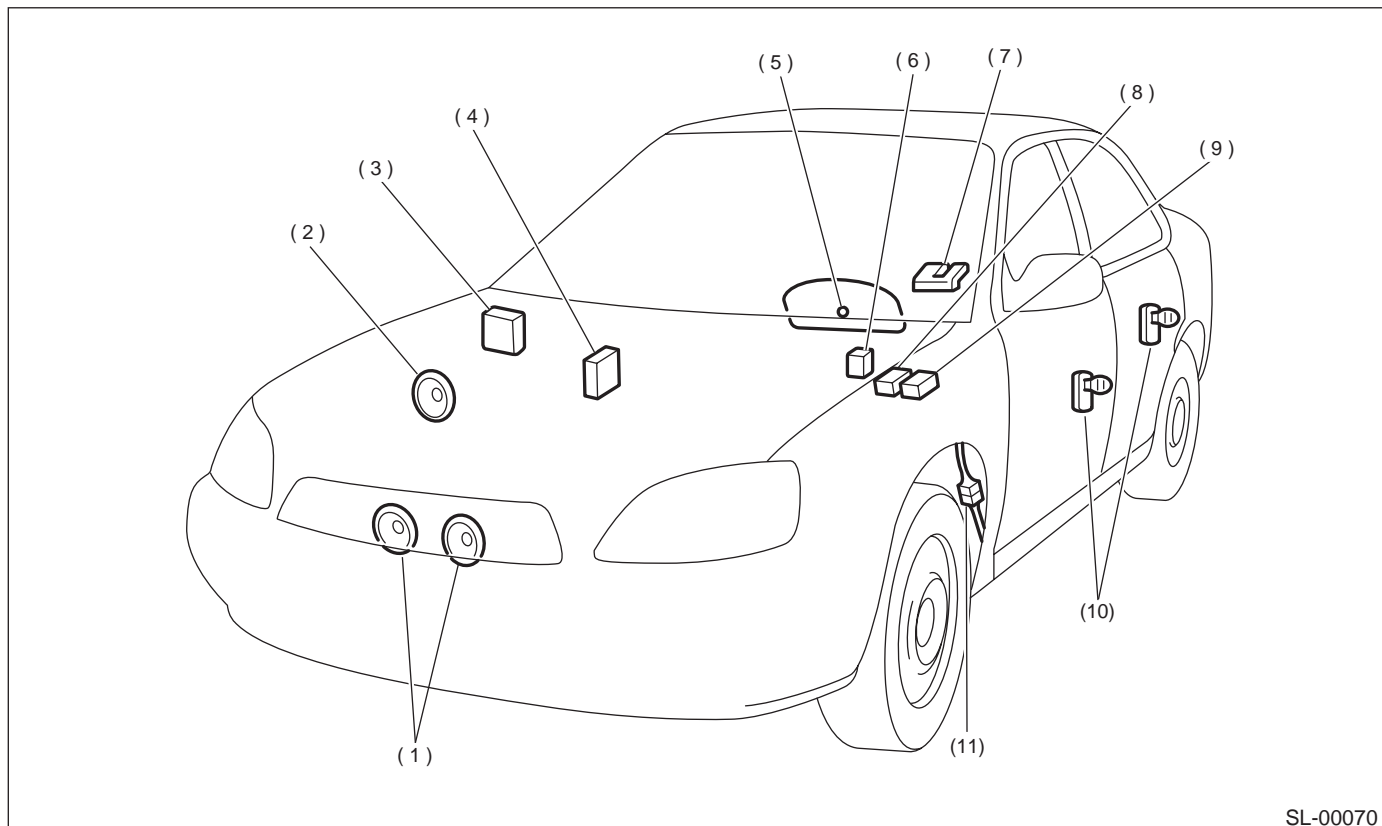
T1: 6.4 (0.65, 4.7)

T2: 32 (3.3, 23.9)

GENERAL DESCRIPTION

SECURITY AND LOCKS

4. SECURITY SYSTEM



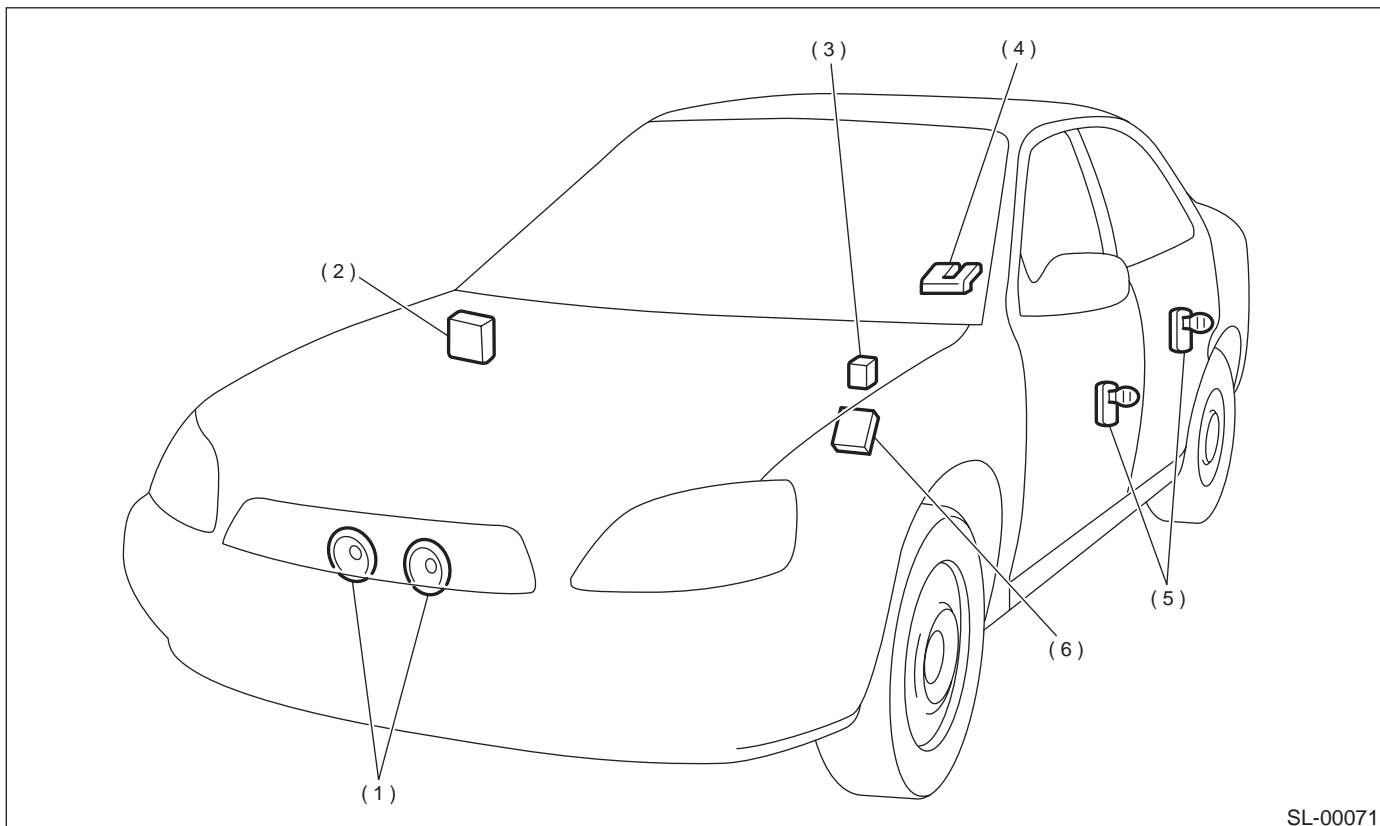
SL-00070

- | | | |
|---|--|----------------------------|
| (1) Horn | (6) Horn relay (in main fuse box) | (10) Door switch |
| (2) Security horn | (7) Trunk room light switch (Sedan),
rear gate latch switch (Wagon) | (11) Passive arm connector |
| (3) Keyless entry control module | (8) Interrupt relay | |
| (4) Security control module | (9) Security horn relay | |
| (5) Security indicator light (in combination meter) | | |

GENERAL DESCRIPTION

SECURITY AND LOCKS

5. KEYLESS ENTRY SYSTEM



- | | | |
|----------------------------------|--|-----------------------|
| (1) Horn | (3) Horn relay | (5) Door switch |
| (2) Keyless entry control module | (4) Rear gate latch switch (Wagon)/
Trunk room right switch (Sedan) | (6) Integrated module |

C: CAUTION

- Before disassembling or reassembling parts, always disconnect battery ground cable. When repairing radio, control module, etc. which are provided with memory functions, record memory contents before disconnecting battery ground cable. Otherwise, these contents are cancelled upon disconnection.
- Reassemble parts in reverse order of disassembly procedure unless otherwise indicated.
- Adjust parts to specifications contained in this manual if so designated.
- Connect connectors and hoses securely during reassembly.
- After reassembly, ensure all functional parts operate smoothly.
- Airbag system wiring harness is routed near the electrical parts and switch.
- All airbag system wiring harness and connectors are colored yellow. Do not use electrical test equipment on these circuits.

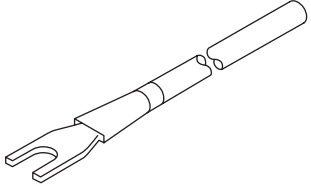
- Be careful not to damage airbag system wiring harness when servicing the ignition key cylinder.

GENERAL DESCRIPTION

SECURITY AND LOCKS

D: PREPARATION TOOL

1. SPECIAL TOOLS

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST-925580000	925580000	PULLER	Used for removing trim clip.

2. GENERAL TOOLS

TOOL NAME	REMARKS
Circuit Tester	Used for measuring resistance and voltage.
Drill	Used for replacing ignition key lock.

DOOR LOCK CONTROL SYSTEM

SECURITY AND LOCKS

2. Door Lock Control System

A: SCHEMATIC

1. DOOR LOCK CONTROL

<Ref. to WI-102, SCHEMATIC, Door Lock System.>

B: INSPECTION

1. SYMPTOM CHART

Symptom	Repair order	Reference
The door lock control system does not operate.	1. Check the fuse.	<Ref. to SL-8, CHECK FUSE, INSPECTION, Door Lock Control System.>
	2. Check the power supply and ground circuit for the integrated module.	<Ref. to SL-9, CHECK POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Door Lock Control System.>
	3. Check the door lock switch and the circuit.	<Ref. to SL-9, CHECK DOOR LOCK SWITCH AND CIRCUIT, INSPECTION, Door Lock Control System.>
	4. Check the door lock actuator and the circuit.	<Ref. to SL-10, CHECK DOOR LOCK ACTUATOR AND CIRCUIT, INSPECTION, Door Lock Control System.>
The door lock switch does not operate.	Check the door lock switch and the circuit.	<Ref. to SL-9, CHECK DOOR LOCK SWITCH AND CIRCUIT, INSPECTION, Door Lock Control System.>
A specific door lock actuator does not operate.	Check the door lock actuator and the circuit.	<Ref. to SL-10, CHECK DOOR LOCK ACTUATOR AND CIRCUIT, INSPECTION, Door Lock Control System.>

2. CHECK FUSE

Step	Value	Yes	No
1 CHECK FUSE. Remove and visually check the fuse No. 2 (in the main fuse box) and No. 3 (in the fuse & relay box). In the fuse blown out?	Fuse is not blown out.	Check the power supply and ground circuit. <Ref. to SL-9, CHECK POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Door Lock Control System.>	Replace the fuse with a new one.

DOOR LOCK CONTROL SYSTEM

SECURITY AND LOCKS

3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Step	Value	Yes	No
1 CHECK POWER SUPPLY. 1) Disconnect the integrated module harness connector. 2) Measure the voltage between the harness connector terminal and chassis ground. Connector & terminal (B281) No. 1, 2 (+) — Chassis ground (–): Is the measured value more than specified value?	10 V	Go to step 2.	Check the harness for open circuits or shorts between the integrated module and the fuse.
2 CHECK GROUND CIRCUIT. Measure the resistance between the harness connector terminal and chassis ground. Connector & terminal (B281) No. 4, 13 — Chassis ground: Is the measured value less than specified value?	10 Ω	The power supply and ground circuit is OK.	Repair the harness.

4. CHECK DOOR LOCK SWITCH AND CIRCUIT

Step	Value	Yes	No
1 CHECK DOOR LOCK SWITCH CIRCUIT. 1) Disconnect the integrated module harness connector. 2) Measure the resistance between the harness connector terminal and chassis ground when moving the door lock switch to LOCK. Connector & terminal (B280) No. 12 — Chassis ground: Is the measured value less than specified value?	10 Ω	Go to step 2.	Go to step 3.
2 CHECK DOOR LOCK SWITCH CIRCUIT. Measure the resistance between the harness connector terminal and chassis ground when the door lock switch is moved to UNLOCK. Connector & terminal (B280) No. 11 — Chassis ground: Is the measured value less than specified value?	10 Ω	The door lock switch is OK.	Go to step 3.
3 CHECK DOOR LOCK SWITCH. 1) Disconnect the door lock switch harness connector. 2) Measure the resistance between the door lock switch terminals when moving the door lock switch to LOCK. Connector & terminal Driver's side: (D7) No. 1 — No. 2 Passenger's side: (D62) No. 2 — No. 5 Is the measured value less than specified value?	1 Ω	Go to step 4.	Replace the door lock switch.

DOOR LOCK CONTROL SYSTEM

SECURITY AND LOCKS

Step	Value	Yes	No
4 CHECK DOOR LOCK SWITCH. Measure the resistance between the door lock switch terminals when moving the door lock switch to UNLOCK. Connector & terminal Driver's side: (D7) No. 1 — No. 6 Passenger's side: (D62) No. 1 — No. 5 Is the measured value less than specified value?	1 Ω	Check the harness for open circuits or shorts between the integrated module and the door lock switch.	Replace the door lock switch.

5. CHECK DOOR LOCK ACTUATOR AND CIRCUIT

Step	Value	Yes	No
1 CHECK OUTPUT SIGNAL. Measure the voltage between the harness connector terminal of integrated module and chassis ground when moving the door lock switch to LOCK. Connector & terminal (B281) No. 6 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Go to step 2.	Replace the integrated module.
2 CHECK OUTPUT SIGNAL. Measure the voltage between the harness connector terminal of integrated module and chassis ground when moving the door lock switch to UNLOCK. Connector & terminal (B281) No. 7, 8 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Go to step 3.	Replace the integrated module.
3 CHECK DOOR LOCK ACTUATOR. Check the door lock actuator. Front door lock actuator: <Ref. to SL-33, Front Door Lock Actuator.> Rear door lock actuator: <Ref. to SL-37, Rear Door Lock Actuator.> Rear gate latch lock actuator: <Ref. to SL-40, Rear Gate Latch Lock Actuator.> Is the door lock actuator OK?	Door lock actuator is OK.	Check the harness for open circuits or shorts between the integrated module and the door lock actuator.	Replace the door lock actuator.

KEYLESS ENTRY SYSTEM

SECURITY AND LOCKS

3. Keyless Entry System

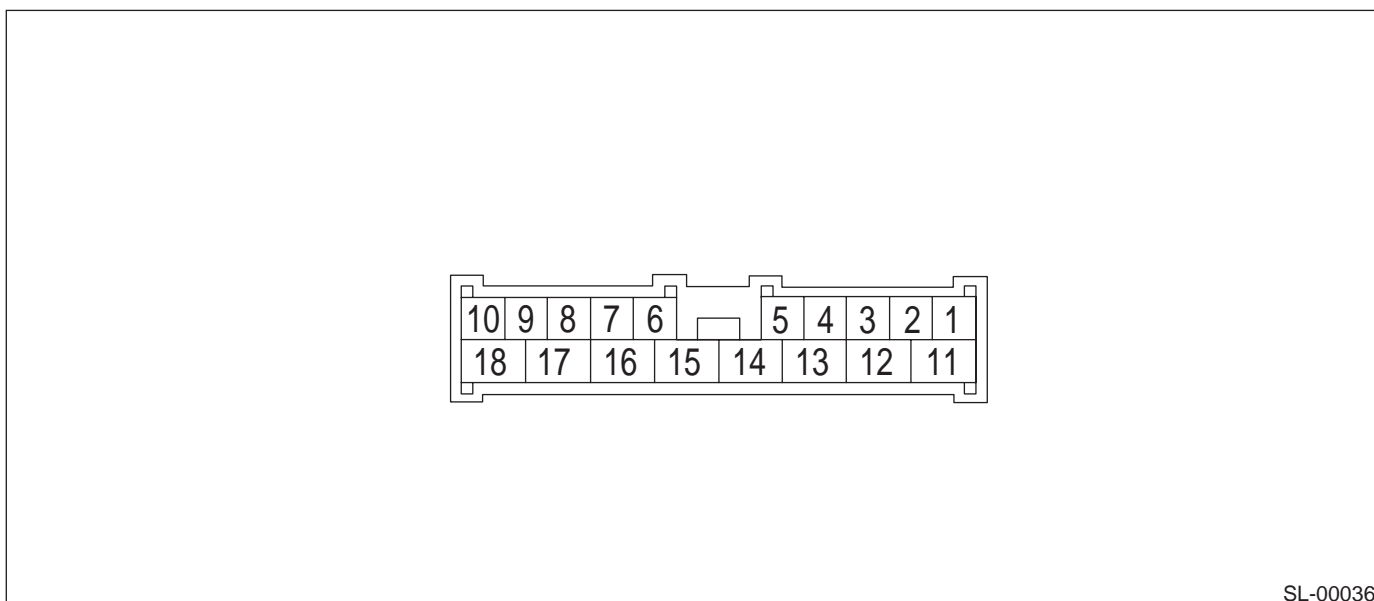
A: SCHEMATIC

1. KEYLESS ENTRY

<Ref. to WI-138, SCHEMATIC, Keyless Entry System.>

B: ELECTRICAL SPECIFICATION

1. KEYLESS ENTRY CONTROL MODULE



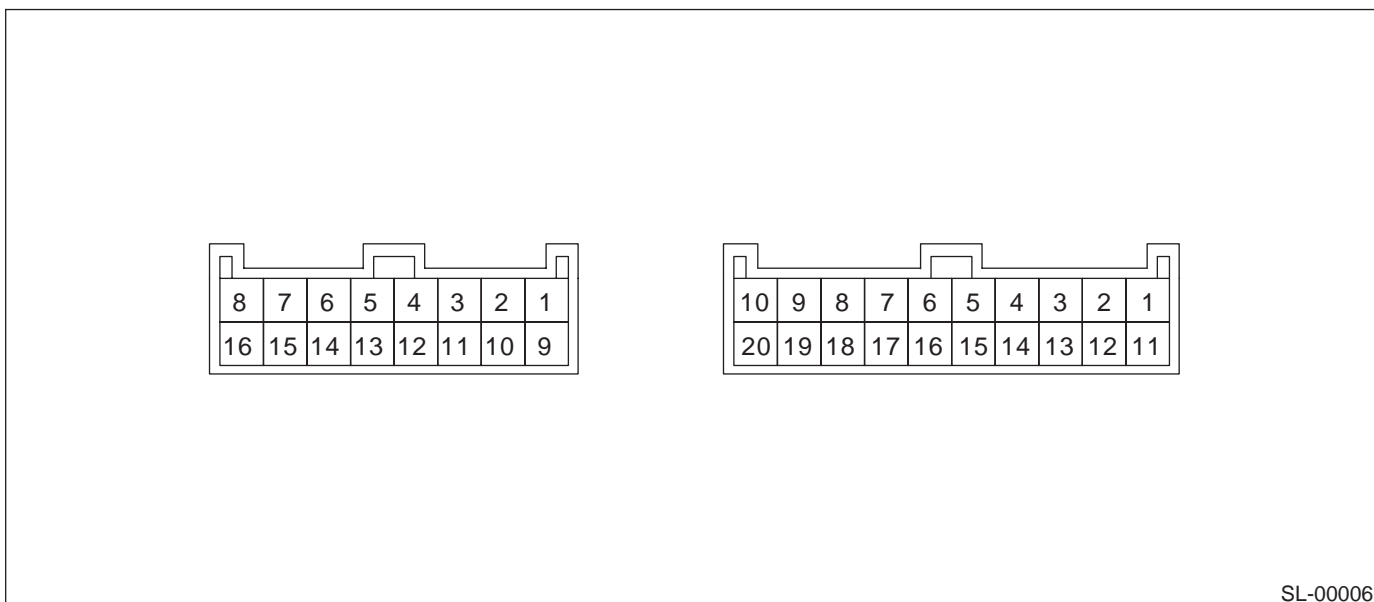
SL-00036

Content	Terminal No.	Measuring condition
Integrated module	1 (OUTPUT)	Battery voltage is present when pressing the transmitter LOCK/ARM button.
Integrated module	2 (OUTPUT)	Battery voltage is present when pressing the transmitter UNLOCK/DISARM button.
Security control module	3	—
Security control module	4	—
Door lock switch	5 (INPUT)	0 V is present when operating the door lock switch.
Ignition switch (ON)	6 (INPUT)	Battery voltage is present when ignition switch is turned to ON.
Key warning switch	7 (INPUT)	Battery voltage is present when inserting the key into the ignition switch.
Door unlock switch	8 (INPUT)	0 V is present when operating the door lock switch.
Trunk room light switch (Sedan), rear gate latch switch (Wagon)	9 (INPUT)	0 V is present when trunk lid or rear gate is open.
Door switch	10 (INPUT)	0 V is present when any door is open.
Ground	11	0 V is constantly present.
Turn signal light (Left)	12 (OUTPUT)	Battery voltage is present when pressing the transmitter UNLOCK/DISARM or LOCK/ARM button.
Horn relay	13 (OUTPUT)	0 V is present when pressing the transmitter LOCK/ARM button three times within 5 seconds.
Power supply (Back-up)	14	Battery voltage is constantly present.
Power supply (Back-up)	15	Battery voltage is constantly present.
Keyless buzzer	16 (OUTPUT)	0 V is present when pressing the transmitter UNLOCK/DISARM or LOCK/ARM button.
Security control module	17	—
Turn signal light (Right)	18 (OUTPUT)	Battery voltage is present when pressing the transmitter UNLOCK/DISARM or LOCK/ARM button.

KEYLESS ENTRY SYSTEM

SECURITY AND LOCKS

2. INTEGRATED MODULE



Content	Terminal No.	Measuring condition
Ignition switch illumination	A2 (OUTPUT)	0 V is present when door is opened and then closed.
Door switch (Except driver's door)	A7 (INPUT)	0 V is present when any door is open (Except driver's door).
Door switch (Driver's door)	A8 (INPUT)	0 V is present when driver's door is open.
Door unlock switch	A11 (INPUT)	0 V is present when operating the door lock switch.
Door lock switch	A12 (INPUT)	0 V is present when operating the door lock switch.
Keyless entry control module	A13 (INPUT)	Battery voltage is present when pressing the transmitter LOCK/ARM button.
Keyless entry control module	A14 (INPUT)	Battery voltage is present when pressing the transmitter UNLOCK/DIS-ARM button.
Ignition switch (ON)	A19 (INPUT)	Battery voltage is present when ignition switch is turned to ON.
Key warning switch	A20 (INPUT)	Battery voltage is present when inserting the key into ignition switch.
Power supply	B1	Battery voltage is constantly present.
Power supply	B2	Battery voltage is constantly present.
Ground	B4	0 V is constantly present.
Room light	B5 (OUTPUT)	0 V is present when pressing the transmitter UNLOCK/DISARM button.
Door and rear gate lock actuator	B6 (OUTPUT)	Battery voltage is present when pressing the transmitter LOCK/ARM button.
Door and rear gate lock actuator (Except driver side)	B7 (OUTPUT)	Battery voltage is present when pressing the transmitter UNLOCK/DIS-ARM button two times.
Door lock actuator (Driver side)	B8 (OUTPUT)	Battery voltage is present when pressing the transmitter UNLOCK/DIS-ARM button one time.
Ground	B13	0 V is constantly present.

KEYLESS ENTRY SYSTEM

SECURITY AND LOCKS

C: INSPECTION

1. SYMPTOM CHART

Symptom	Repair order	Reference	
None of the functions of the keyless entry system operate.	1. Check the transmitter battery and function.	<Ref. to SL-14, CHECK TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.>	
	2. Check the fuse.	<Ref. to SL-15, CHECK FUSE, INSPECTION, Keyless Entry System.>	
	3. Check the keyless entry control module power supply and ground circuit.	<Ref. to SL-15, CHECK POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Keyless Entry System.>	
	4. Replace the keyless entry control module.	<Ref. to SL-51, Keyless Entry Control Module.>	
The transmitter cannot be programmed.	1. Check the transmitter battery and function.	<Ref. to SL-14, CHECK TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.>	
	2. Check the ignition switch circuit.	<Ref. to SL-16, CHECK IGNITION SWITCH CIRCUIT, INSPECTION, Keyless Entry System.>	
	3. Check the door switch.	<Ref. to SL-16, CHECK DOOR SWITCH, INSPECTION, Keyless Entry System.>	
	4. Replace the keyless entry control module.	<Ref. to SL-51, Keyless Entry Control Module.>	
The door lock or unlock does not operate. NOTE: If the door lock control system does not operate when using the door lock switch, check the door lock control system. <Ref. to SL-8, INSPECTION, Door Lock Control System.>	1. Check the transmitter battery and function.	<Ref. to SL-14, CHECK TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.>	
	2. Check the key warning switch.	<Ref. to SL-17, CHECK KEY WARNING SWITCH, INSPECTION, Keyless Entry System.>	
	3. Check the door switch.	<Ref. to SL-16, CHECK DOOR SWITCH, INSPECTION, Keyless Entry System.>	
	4. Check the output signal to integrated module.	<Ref. to SL-19, CHECK OUTPUT SIGNAL TO INTEGRATED MODULE, INSPECTION, Keyless Entry System.>	
	5. Replace the keyless entry control module.	<Ref. to SL-51, Keyless Entry Control Module.>	
The panic alarm does not operate.	1. Check the transmitter battery and function.	<Ref. to SL-14, CHECK TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.>	
	2. Check the horn operation.	<Ref. to SL-19, CHECK HORN OPERATION, INSPECTION, Keyless Entry System.>	
	3. Replace the keyless entry control module.	<Ref. to SL-51, Keyless Entry Control Module.>	
The buzzer chirp and hazard light do not operate.	1. Check the buzzer chirp function.	<Ref. to SL-15, CHECK BUZZER CHIRP SETTING, INSPECTION, Keyless Entry System.>	
	2. Check the buzzer and hazard light operation.	Buzzer	<Ref. to SL-20, CHECK KEYLESS BUZZER, INSPECTION, Keyless Entry System.>
		Hazard light	<Ref. to SL-20, CHECK HAZARD LIGHT OPERATION, INSPECTION, Keyless Entry System.>
	3. Replace the keyless entry control module.	<Ref. to SL-51, Keyless Entry Control Module.>	

KEYLESS ENTRY SYSTEM

SECURITY AND LOCKS

Symptom	Repair order		Reference
The room light does not turn on.	1. Check the operation of room light.	Room light	<Ref. to SL-18, CHECK ROOM LIGHT OPERATION, INSPECTION, Keyless Entry System.>
	2. Replace the keyless entry control module.		<Ref. to SL-51, Keyless Entry Control Module.>
The door warning does not operate.	1. Check the door switch.		<Ref. to SL-16, CHECK DOOR SWITCH, INSPECTION, Keyless Entry System.>
	2. Check the buzzer operation.		<Ref. to SL-20, CHECK KEYLESS BUZZER, INSPECTION, Keyless Entry System.>
	3. Replace the keyless entry control module.		<Ref. to SL-51, Keyless Entry Control Module.>

2. CHECK TRANSMITTER BATTERY AND FUNCTION

Step	Value	Yes	No
1 CHECK TRANSMITTER BATTERY. 1) Remove the battery from the transmitter. <Ref. to SL-53, REMOVAL, Keyless Transmitter.> 2) Check the battery voltage. <Ref. to SL-53, INSPECTION, Keyless Transmitter.> Is the measured value more than specified value?	2 V	Go to step 2.	Replace the transmitter battery.
2 CHECK LED OF TRANSMITTER. 1) Press the LOCK/ARM or UNLOCK/DISARM button six times to synchronize with the keyless entry control module. 2) Press the LOCK/ARM button. Does the LED blink one time?	LED blinks one time.	Go to step 3.	Replace the transmitter. <Ref. to SL-53, REPLACEMENT, Keyless Transmitter.>
3 CHECK LED OF TRANSMITTER. Keep the LOCK/ARM button pressed. Does the LED blink one time, and then turn on?	LED blinks one time, and then turns on.	Go to step 4.	Replace the transmitter. <Ref. to SL-53, REPLACEMENT, Keyless Transmitter.>
4 CHECK LED OF TRANSMITTER. Press the UNLOCK/DISARM button. Does the LED blink one time?	LED blinks one time.	Go to step 5.	Replace the transmitter. <Ref. to SL-53, REPLACEMENT, Keyless Transmitter.>
5 CHECK LED OF TRANSMITTER. Keep the UNLOCK/DISARM button pressed. Does the LED blink two times?	LED blinks two times.	Transmitter is OK.	Replace the transmitter. <Ref. to SL-53, REPLACEMENT, Keyless Transmitter.>

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3. CHECK BUZZER CHIRP SETTING

Step	Value	Yes	No
1 CHECK BUZZER CHIRP SETTING. 1) Check the current setting of the buzzer chirp. 2) Remove the key from the ignition switch. 3) Close all doors and the rear gate. 4) Press the LOCK/ARM or UNLOCK/DISARM button. Does the buzzer signal chirp?	Buzzer signal chirps.	Buzzer chirp function is OK.	Go to step 2.
2 CHECK BUZZER CHIRP SETTING. 1) Press the UNLOCK/DISARM button once. 2) Press both the LOCK/ARM and UNLOCK/DISARM buttons for more than 2 seconds. 3) Press the LOCK/ARM or UNLOCK/DISARM button. Does the buzzer signal chirp?	Buzzer signal chirps.	Buzzer chirp function is OK.	Check the transmitter function. <Ref. to SL-14, CHECK TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.>

4. CHECK FUSE

Step	Value	Yes	No
1 CHECK FUSE. Remove and visually check the fuse No. 6 (in the main fuse box) and No. 3 (in the fuse and relay box). Is the fuse blown out?	Fuse is not blown out.	Check the power supply and ground circuit. <Ref. to SL-15, CHECK POWER SUPPLY AND GROUND CIRCUIT, Keyless Entry System.>	Replace the fuse with a new one.

5. CHECK POWER SUPPLY AND GROUND CIRCUIT

Step	Value	Yes	No
1 CHECK POWER SUPPLY. 1) Disconnect the keyless entry control module harness connector. 2) Measure the voltage between the harness connector terminal and chassis ground. Connector & terminal (B176) No. 14, No. 15 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Go to step 2.	Check the harness for open circuits and shorts between the keyless entry control module and fuse.
2 CHECK GROUND CIRCUIT. Measure the resistance between the harness connector terminal and chassis ground. Connector & terminal (B176) No. 11 — Chassis ground: Is the measured value less than specified value?	10 Ω	The power supply and ground circuit are OK.	Repair the harness.

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6. CHECK IGNITION SWITCH CIRCUIT

Step	Value	Yes	No
1 CHECK IGNITION SWITCH SIGNAL. 1) Disconnect the keyless entry control module harness connector. 2) Turn the ignition switch to ON. 3) Measure the voltage between harness connector terminal and chassis ground. Connector & terminal (B176) No. 6 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Ignition switch circuit is OK.	Check the harness for open circuits and shorts between the keyless entry control module and ignition relay.

7. CHECK DOOR SWITCH

Step	Value	Yes	No
1 CHECK DOOR SWITCH CIRCUIT. 1) Measure the voltage between the keyless entry control module harness connector terminal and chassis ground. Connector & terminal Front and rear side door: (B176) No. 10 (+) — Chassis ground (-): Rear gate or trunk lid: (B176) No. 9 (+) — Chassis ground (-): 2) Is the measured value less than specified value when each door, rear gate or truck lid is opened?	0 V	Go to step 2.	Go to step 3.
2 CHECK DOOR SWITCH CIRCUIT. 1) Measure the voltage between the keyless entry control module harness connector terminal and chassis ground. Connector & terminal Front and rear side door: (B176) No. 10 (+) — Chassis ground (-): Rear gate or trunk lid: (B176) No. 9 (+) — Chassis ground (-): 2) Does the measured value exceed the specified value when all doors and rear gate or truck lid is closed?	10 V	The door switch is OK.	Go to step 3.
3 CHECK DOOR SWITCH. 1) Disconnect the door switch harness connector. 2) Measure the resistance between the door switch terminals. Terminal Door switch No. 1 — No. 3: Rear gate latch switch or trunk room light switch No. 1 — No. 2: 3) Is the measured value more than specified value when the door switch is depressed?	1 MΩ	Go to step 4.	Replace the door switch.

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Step	Value	Yes	No
4 CHECK DOOR SWITCH. 1) Measure the resistance between the door switch terminals. <i>Terminal</i> <i>Door switch No. 1 — No. 3:</i> <i>Rear gate latch switch or trunk room light switch No. 1 — No. 2:</i> 2) Is the measured value less than specified value when the door switch is released?	1 Ω	Check the harness for open circuits and shorts between the integrated module and door switch.	Replace the door switch.

8. CHECK KEY WARNING SWITCH

Step	Value	Yes	No
1 CHECK FUSE. Remove and visually check the fuse No. 6 (in the main fuse box). Is the fuse blown out?	Fuse is not blown out.	Go to step 2.	Replace the fuse with a new one.
2 CHECK KEY WARNING SWITCH CIRCUIT. 1) Disconnect the keyless entry control module harness connector. 2) Insert the key into the ignition switch. (LOCK position) 3) Measure the voltage between the harness connector terminal and chassis ground. <i>Connector & terminal</i> <i>(B176) No. 7 (+) — Chassis ground (-):</i> Is the measured value more than specified value?	10 V	Go to step 3.	Go to step 4.
3 CHECK KEY WARNING SWITCH CIRCUIT. 1) Remove the key from the ignition switch. 2) Measure the voltage between the harness connector terminal and chassis ground. <i>Connector & terminal</i> <i>(B176) No. 7 (+) — Chassis ground (-):</i> Is the measured value less than specified value?	0 V	Key warning switch is OK.	Go to step 4.
4 CHECK KEY WARNING SWITCH. 1) Disconnect the key warning switch harness connector. 2) Insert the key into the ignition switch. (LOCK position) 3) Measure the resistance between the key warning switch terminals. <i>Terminal</i> <i>No. 1 — No. 2:</i> Is the measured value less than specified value?	1 Ω	Go to step 5.	Replace the key warning switch.

KEYLESS ENTRY SYSTEM

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Step	Value	Yes	No
5 CHECK KEY WARNING SWITCH. 1) Remove the key from the ignition switch. 2) Measure the resistance between the key warning switch terminals. Terminal No. 1 — No. 2: Is the measured value more than specified value?	1 M Ω	Check the following: • Harness for open circuits and shorts between the key warning switch and fuse • Harness for open circuits and shorts between the keyless entry control module and key warning switch	Replace the key warning switch.

9. CHECK ROOM LIGHT OPERATION

Step	Value	Yes	No
1 CHECK ROOM LIGHT OPERATION. Make sure the room light illuminates when the room light switch is turned ON. Does the room light illuminate?	Room light illuminates.	Go to step 2.	Check the room light circuit.
2 CHECK HARNESS BETWEEN ROOM LIGHT AND INTEGRATED MODULE. 1) Disconnect the integrated module harness connector and room light harness connector. 2) Measure the resistance between the integrated module harness connector terminal and the room light harness connector terminal. Connector & terminal (B281) No. 5 — (R52) No. 2: Is the measured value less than specified value?	10 Ω	The room light operation circuit is OK.	Check the harness for open circuits and/or shorts between the integrated module and room light.

KEYLESS ENTRY SYSTEM

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10.CHECK OUTPUT SIGNAL TO INTEGRATED MODULE

Step	Value	Yes	No
1 CHECK OUTPUT SIGNAL. Measure the voltage between the keyless entry control module harness connector terminal and chassis ground when UNLOCK/DISARM button of transmitter is pressed. Connector & terminal (B176) No. 2 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Go to step 2.	Replace the keyless entry control module.
2 CHECK OUTPUT SIGNAL. Measure the voltage between the keyless entry control module harness connector terminal and chassis ground when LOCK/ARM button of transmitter is pressed. Connector & terminal (B176) No. 1 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Go to step 3.	Replace the keyless entry control module.
3 CHECK HARNESS BETWEEN KEYLESS ENTRY CONTROL MODULE AND INTEGRATED MODULE. 1) Disconnect the keyless entry control module harness connector and integrated module harness connector. 2) Measure the resistance between the keyless entry control module harness connector terminal and integrated module harness connector terminal. Connector & terminal (B176) No. 2 — (B280) No. 14: (B176) No. 1 — (B280) No. 13: Is the measured value less than specified value?	10 Ω	Replace the integrated module.	Check the harness for open circuit or shorts between the keyless entry control module and integrated module.

11.CHECK HORN OPERATION

Step	Value	Yes	No
1 CHECK HORN OPERATION. Make sure the horn sounds when the horn switch is pushed. Does the horn sound?	Horn sounds.	Go to step 2.	Check the horn circuit.
2 CHECK HORN OPERATION. 1) Disconnect the keyless entry control module harness connector. 2) Ground the harness connector terminal with a suitable wire. Connector & terminal (B176) No. 13 — Chassis ground: Does the horn sound?	Horn sounds.	Replace the keyless entry control module.	Check the harness for open circuits and/or shorts between the keyless entry control module and horn relay.

KEYLESS ENTRY SYSTEM

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12.CHECK HAZARD LIGHT OPERATION

Step	Value	Yes	No
1 CHECK HAZARD LIGHT OPERATION. Make sure the hazard light blinks when hazard switch is turned ON. Does the hazard light blink?	Hazard light blinks.	Go to step 2.	Check the hazard light circuit.
2 CHECK OUTPUT SIGNAL. 1) Remove the key from ignition switch. 2) Close all doors and rear gate or trunk lid. 3) Measure the voltage between keyless entry control module harness connector terminal and chassis ground when LOCK/ARM button of transmitter is pressed. Connector & terminal (B176) No. 12, 18 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Check the harness for open or short between keyless entry control module and turn signal lights.	Replace the keyless entry control module.

13.CHECK KEYLESS BUZZER

Step	Value	Yes	No
1 CHECK FUSE. Remove and check the fuse No. 3 (located in fuse and relay box). Is the fuse blown out?	Fuse is not blown out.	Go to step 2.	Replace the fuse with a new one.
2 CHECK KEYLESS BUZZER POWER SUPPLY. 1) Disconnect the connector from keyless buzzer. 2) Measure the voltage between keyless buzzer harness connector and chassis ground. Connector & terminal (D70) No. 2 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Go to step 3.	Check the harness for open or short between fuse and keyless buzzer.
3 CHECK HARNESS BETWEEN KEYLESS BUZZER AND KEYLESS ENTRY CONTROL MODULE. 1) Disconnect the connector from keyless entry control module. 2) Measure the resistance between keyless buzzer and keyless entry control module. Connector & terminal (D70) No. 1 (+) — (B176) No. 16: Is the measured value less than specified value?	10 Ω	Go to step 4.	Repair the harness between keyless buzzer and keyless entry control module.
4 CHECK KEYLESS BUZZER. Make sure that the buzzer sounds when connecting battery positive terminal to No. 2 terminal of keyless buzzer connector and battery ground terminal to No. 1 terminal of keyless buzzer connector. Does the buzzer sound?	Buzzer sounds.	Replace the keyless entry control module.	Replace the keyless buzzer.

SECURITY SYSTEM

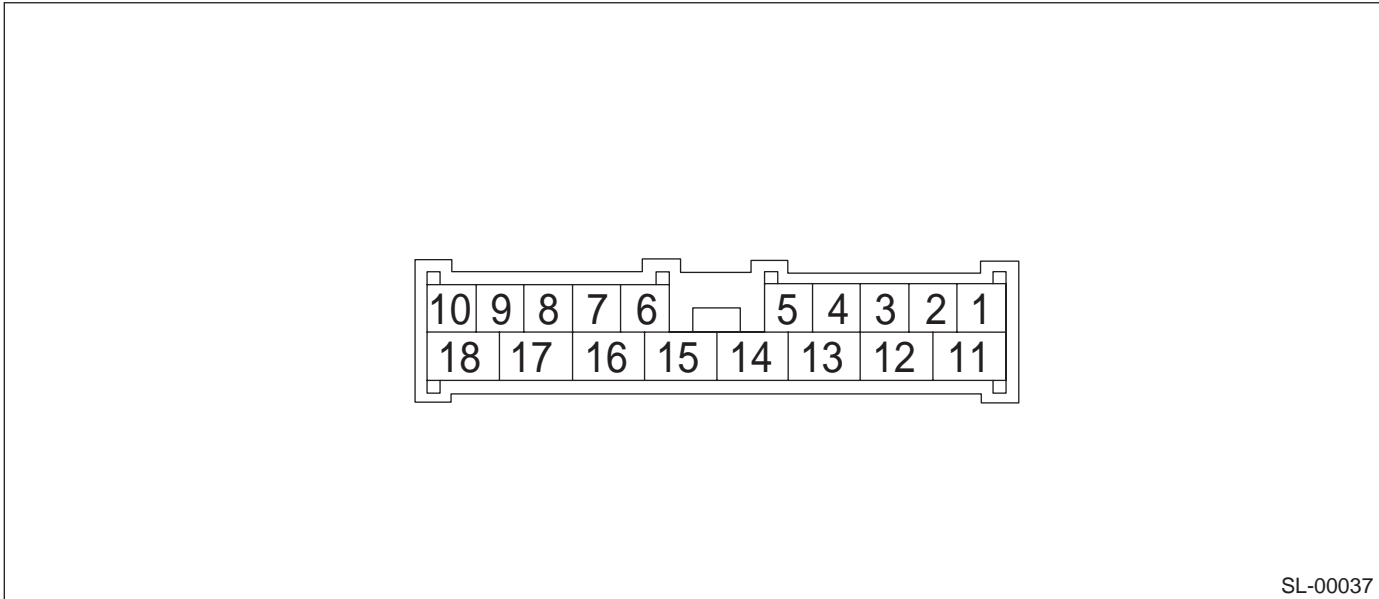
SECURITY AND LOCKS

4. Security System

A: SCHEMATIC

<Ref. to WI-200, SCHEMATIC, Security System.>

B: ELECTRICAL SPECIFICATION



Content	Terminal No.	Measuring condition
Empty	1	—
Ignition switch (ON)	2 (INPUT)	Battery voltage is present when ignition switch is turned to ON.
Passive arm	3	—
Rear gate latch switch	4 (INPUT)	0 V is present when rear gate is open.
Door switch	5 (INPUT)	0 V is present when any door is open.
Empty	6	—
Keyless entry control module	7	—
Keyless entry control module	8	—
Security indicator light	9 (OUTPUT)	0 V is present when activating the alarm operation.
Keyless entry control module	10	—
Power supply (Back-up)	13	Battery voltage is constantly present.
Ground	14	0 V is constantly present.
Interrupt relay	15 (OUTPUT)	Battery voltage is present when activating the alarm operation.
Security horn relay	16 (INPUT)	Battery voltage is present when activating the alarm operation.
Security horn	17 (OUTPUT)	Battery voltage is present when activating the alarm operation.
Security horn relay	18 (INPUT)	Battery voltage is present when activating the alarm operation.

SECURITY SYSTEM

SECURITY AND LOCKS

C: INSPECTION

1. BASIC DIAGNOSTIC PROCEDURE

	Step	Value	Yes	No
1	CHECK SECURITY SYSTEM SET OPERATION. 1) Before starting this diagnosis, open all windows. 2) Remove the key from ignition key cylinder, and then close all doors and rear gate. 3) Press the LOCK/ARM button of transmitter. Can the security system be set?	Security system can be set.	Go to step 2.	Go to symptom 1. <Ref. to SL-23, SYMPTOM CHART, INSPECTION, Security System.>
2	CHECK SECURITY INDICATOR LIGHT AND HAZARD LIGHT BLINKING. Check the security indicator light and hazard light blinking. Do the security indicator light and hazard light blink?	Security indicator light and hazard light blink.	Go to step 3.	Go to symptom 2. <Ref. to SL-23, SYMPTOM CHART, INSPECTION, Security System.>
3	CHECK SECURITY ALARM OPERATION. 1) Unlock all doors using the door lock switch on front door. 2) Open any door, rear gate or trunk lid. Does the security alarm operate when any door, rear gate or trunk lid is opened?	Security alarm operates when any door, rear gate or trunk lid are opened.	Go to step 4.	Go to symptom 3. <Ref. to SL-23, SYMPTOM CHART, INSPECTION, Security System.>
4	CHECK SECURITY ALARM OPERATION. Check the security alarm operation. Does all security alarm (horn, hazard light and security indicator light) operate? And is the starter motor deactivated?	All security alarm operates, but starter motor does not operate.	Go to step 5.	Go to symptom 4. <Ref. to SL-23, SYMPTOM CHART, INSPECTION, Security System.>
5	CHECK SECURITY ALARM CANCEL OPERATION. Press the UNLOCK/DISARM button of transmitter. Do all security alarm (horn and hazard light) stop? And is the starter motor activated?	All security alarm stop and starter motor is activated.	Go to step 6.	Go to symptom 5. <Ref. to SL-23, SYMPTOM CHART, INSPECTION, Security System.>
6	CHECK BATTERY DISCONNECT PROTECTION. Check the battery disconnect protection. <Ref. to SL-23, CHECK BATTERY DISCONNECT PROTECTION, INSPECTION, Security System.> Is the battery disconnect protection OK?	Battery disconnect protection is OK.	Go to step 7.	Replace the security control module.
7	PERFORM IMPACT SENSITIVITY TEST. Perform the impact sensitivity test. <Ref. to SL-47, IMPACT SENSITIVITY TEST, INSPECTION, Security Control Module.> Is the impact sensitivity properly set?	Impact sensitivity is properly set.	Press the UNLOCK/DISARM button of transmitter, and finish the diagnosis.	Adjust the impact sensitivity.<Ref. to SL-47, IMPACT SENSITIVITY, ADJUSTMENT, Security Control Module.>

SECURITY SYSTEM

SECURITY AND LOCKS

2. CHECK BATTERY DISCONNECT PROTECTION

- 1) Remove the key from the ignition switch.
 - 2) Close all the doors, rear gate and trunk lid.
 - 3) Open the front hood.
 - 4) Press the LOCK/ARM button of the transmitter.
 - 5) Disconnect the ground cable from the battery.
 - 6) Reconnect the cable to the battery.
 - 7) Check that the security indicator light blinks after reconnecting the battery cable.
- If NG, replace the security control module.

3. SYMPTOM CHART

Symptom		Repair order	Reference
1	Security system cannot be set.	1. Check the transmitter function.	<Ref. to SL-14, CHECK TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.>
		2. Check the fuse.	<Ref. to SL-24, CHECK FUSE, INSPECTION, Security System.>
		3. Check the security control module power supply and ground circuit.	<Ref. to SL-24, CHECK POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Security System.>
		4. Check the door switch.	<Ref. to SL-24, CHECK DOOR SWITCH, INSPECTION, Security System.>
		5. Replace the security control module.	<Ref. to SL-47, Security Control Module.>
2	Security system can be set, but the security indicator light or hazard light does not blink.	Security indicator light	<Ref. to SL-26, CHECK SECURITY INDICATOR LIGHT CIRCUIT, INSPECTION, Security System.>
		Hazard light	<Ref. to SL-28, CHECK HAZARD LIGHT OPERATION, INSPECTION, Security System.>
3	Security system does not alarm when one of the door is opened.	Check the door switch.	<Ref. to SL-24, CHECK DOOR SWITCH, INSPECTION, Security System.>
4	Security alarm does not activate.	All functions	Check the door switch. <Ref. to SL-24, CHECK DOOR SWITCH, INSPECTION, Security System.>
		Security indicator light	Check the security indicator light circuit. <Ref. to SL-26, CHECK SECURITY INDICATOR LIGHT CIRCUIT, INSPECTION, Security System.>
		Security horn	Check the security horn. <Ref. to SL-26, CHECK SECURITY HORN, INSPECTION, Security System.>
		Hazard light	Check the hazard light operation. <Ref. to SL-28, CHECK HAZARD LIGHT OPERATION, INSPECTION, Security System.>
		Starter motor deactivation	Check the interrupt relay circuit. <Ref. to SL-28, CHECK INTERRUPT RELAY CIRCUIT, INSPECTION, Security System.>
5	Security system cannot be canceled.	Transmitter	Check the transmitter function. <Ref. to SL-14, CHECK TRANSMITTER BATTERY AND FUNCTION, INSPECTION, Keyless Entry System.>
		Ignition switch	Check the ignition switch circuit. <Ref. to SL-29, CHECK IGNITION SWITCH CIRCUIT, INSPECTION, Security System.>

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4. CHECK FUSE

Step	Value	Yes	No
1 CHECK FUSE. Remove and visually check the fuse No. 2 (in main fuse box). Is the fuse blown out?	Fuse is not blown out.	Check the power supply and ground circuit. <Ref. to SL-24, CHECK POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Security System.>	Replace the fuse with a new one.

5. CHECK POWER SUPPLY AND GROUND CIRCUIT

Step	Value	Yes	No
1 CHECK POWER SUPPLY. 1) Disconnect the security control module harness connector. 2) Measure the voltage between the harness connector terminal and chassis ground. Connector & terminal (B93) No. 13 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Go to step 2.	Check the harness for open circuits and shorts between the security control module and fuse.
2 CHECK GROUND CIRCUIT. Measure the resistance between the harness connector terminal and chassis ground. Connector & terminal (B93) No. 14 — Chassis ground: Is the measured value less than specified value?	10 Ω	The power supply and ground circuit are OK.	Repair the harness.

6. CHECK DOOR SWITCH

Step	Value	Yes	No
1 CHECK DOOR SWITCH CIRCUIT. Measure the voltage between the security control module harness connector terminal and chassis ground. Connector & terminal Front and rear door: (B93) No. 5 (+) — Chassis ground (-): Rear gate or trunk lid: (B93) No. 4 (+) — Chassis ground (-): Is the measured value less than specified value when each door, rear gate or truck lid is opened?	0 V	Go to step 2.	Go to step 3.

SECURITY SYSTEM

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Step	Value	Yes	No
<p>2 CHECK DOOR SWITCH CIRCUIT. Measure the voltage between the security control module harness connector terminal and chassis ground.</p> <p>Connector & terminal Front and rear door: (B93) No. 5 (+) — Chassis ground (-): Rear gate or trunk lid: (B93) No. 4 (+) — Chassis ground (-):</p> <p>Does the measured value exceed the specified value when all doors and rear gate or truck lid is closed?</p>	10 V	The door switch is OK.	Go to step 3.
<p>3 CHECK DOOR SWITCH. 1) Disconnect the door switch harness connector. 2) Measure the resistance between the door switch terminals.</p> <p>Terminal Door switch: No. 1 — No. 3: Rear gate latch switch or trunk room light: No. 1 — No. 2:</p> <p>Is the measured value more than specified value when door switch is pushed?</p>	1 MΩ	Go to step 4.	Replace the door switch.
<p>4 CHECK DOOR SWITCH. Measure the resistance between the door switch terminals.</p> <p>Terminal Door switch: No. 1 — No. 3: Rear gate latch switch or trunk room light switch: No. 1 — No. 2:</p> <p>Is the measured value less than specified value when door switch is released?</p>	1Ω	Check the harness for open circuits and shorts between the security control module and door switch.	Replace the door switch.

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7. CHECK SECURITY INDICATOR LIGHT CIRCUIT

Step	Value	Yes	No
1 CHECK SECURITY INDICATOR LIGHT. 1) Disconnect the security control module harness connector. 2) Ground the harness connector terminal with a suitable wire. Connector & terminal (B93) No. 9 — Chassis ground: Does the security indicator light illuminate?	Security indicator light illuminates.	Replace the security control module.	Go to step 2.
2 CHECK POWER SUPPLY FOR SECURITY INDICATOR LIGHT. 1) Disconnect the connector from the combination meter. 2) Measure the voltage between the combination meter harness connector terminal and chassis ground. Connector & terminal (i12) No. 7 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Go to step 3.	Check the harness for open circuits and shorts between the combination meter and the fuse.
3 CHECK SECURITY INDICATOR LIGHT CIRCUIT. Measure the resistance between the combination meter harness connector terminal and security control module harness connector terminal. Connector & terminal (i12) No. 1 — (B93) No. 9: Is the measured value less than specified value?	10 Ω	Replace the combination meter printed circuit.	Check the harness for open circuits and shorts between the combination meter and security control module.

8. CHECK SECURITY HORN

Step	Value	Yes	No
1 CHECK SECURITY HORN RELAY. Remove and check the security horn relay. <Ref. to SL-49, Security Horn Relay.> Is the security horn relay OK?	Security horn relay is OK.	Go to step 2.	Replace the security horn relay.
2 CHECK POWER SUPPLY FOR SECURITY HORN RELAY. Measure the voltage between the security horn relay harness connector terminal and chassis ground. Connector & terminal (B243) No. 1 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Go to step 3.	Check the harness for open circuits and shorts between the security horn relay and horn relay.
3 CHECK POWER SUPPLY FOR SECURITY HORN RELAY. Measure the voltage between the security horn relay harness connector terminal and chassis ground. Connector & terminal (B243) No. 2 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Go to step 4.	Check the harness for open circuits and shorts between the security horn relay and the fuse.

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Step	Value	Yes	No
4 CHECK HARNESS BETWEEN SECURITY HORN RELAY AND SECURITY CONTROL MODULE. 1) Disconnect the security control module harness connector. 2) Measure the resistance between the security horn relay harness connector terminal and security control module harness connector terminal. Connector & terminal (B243) No. 3 — (B93) No. 18: Is the measured value less than specified value?	10 Ω	Go to step 5.	Check the harness for open circuits and shorts between the security horn relay and security control module.
5 CHECK HARNESS BETWEEN SECURITY HORN RELAY AND SECURITY CONTROL MODULE. Measure the resistance between the security horn relay harness connector terminal and security control module harness connector terminal. Connector & terminal (B243) No. 4 — (B93) No. 16: Is the measured value less than specified value?	10 Ω	Go to step 6.	Check the harness for open circuits and shorts between the security horn relay and security control module.
6 CHECK HARNESS BETWEEN SECURITY CONTROL MODULE AND SECURITY HORN. 1) Disconnect the security horn harness connector. 2) Measure the resistance between the security control module harness connector terminal and security horn harness connector terminal. Connector & terminal (B93) No. 17 — (B204) No. 1: Is the measured value less than specified value?	10 Ω	Go to step 7.	Check the harness for open circuits and shorts between the security control module and security horn.
7 CHECK SECURITY HORN. Remove and check the security horn. <Ref. to SL-48, Security Horn.> Is the security horn OK?	Security horn is OK.	Replace the security control module.	Replace the security horn.

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9. CHECK HAZARD LIGHT OPERATION

Step	Value	Yes	No
1 CHECK SECURITY CONTROL MODULE OUTPUT SIGNAL. 1) Remove the key from the ignition switch. 2) Open the driver's window, and then close all doors and rear gate. 3) Lock all doors with the transmitter or door lock switch to arm the security system. 4) Unlock all doors with the door lock switch. 5) Measure the voltage between the security control module harness connector terminal and chassis ground when any door is open. Connector & terminal (B93) No. 10 (+) — Chassis ground (-): Is the measured value within specified value?	1 — 4 V	Go to step 2.	Replace the security control module.
2 CHECK HARNESS BETWEEN SECURITY CONTROL MODULE AND KEYLESS ENTRY CONTROL MODULE. 1) Disconnect the security control module harness connector and keyless entry control module harness connector. 2) Measure the resistance between the security control module harness connector terminal and keyless entry control module harness connector terminal. Connector & terminal (B93) No. 10 — (B176) No. 3: Is the measured value less than specified value?	10 W	Check the hazard light output of keyless entry control module.<Ref. to SL-20, CHECK HAZARD LIGHT OPERATION, INSPECTION, Keyless Entry System.>	Check the harness for open circuit and shorts between the security control module and keyless entry control module.

10.CHECK INTERRUPT RELAY CIRCUIT

Step	Value	Yes	No
1 CHECK INTERRUPT RELAY. Remove and check the interrupt relay. <Ref. to SL-50, Interrupt Relay.> Is the interrupt relay OK?	Interrupt relay is OK.	Go to step 2.	Replace the interrupt relay.
2 CHECK POWER SUPPLY FOR INTERRUPT RELAY. Measure the voltage between the interrupt relay harness connector terminal and chassis ground. Connector & terminal Without On Star: (B59) No. 1 (+) — Chassis ground (-): With On Star: (B59) No. 4 (+) — Chassis ground (-): Is the measured value more than specified value when ignition switch is turned to START?	10 V	Go to step 3.	Check the harness for open circuits and shorts between the interrupt relay and ignition switch.

SECURITY SYSTEM

SECURITY AND LOCKS

Step	Value	Yes	No
3 CHECK HARNESS BETWEEN INTERRUPT RELAY AND SECURITY CONTROL MODULE. 1) Turn the ignition switch to OFF. 2) Disconnect the security control module harness connector. 3) Measure the resistance between the interrupt relay harness connector terminal and security control module harness connector terminal. Connector & terminal Without On Star: (B59) No. 4 — (B93) No. 15: With On Star: (B59) No. 2 — (B93) No. 15: Is the measured value less than specified value?	10 Ω	Replace the security control module.	Check the harness for open circuits and shorts between the interrupt relay and security control module.

11.CHECK IGNITION SWITCH CIRCUIT

Step	Value	Yes	No
1 CHECK IGNITION SWITCH SIGNAL. 1) Disconnect the security control module harness connector. 2) Turn the ignition switch to ON. 3) Measure the voltage between the harness connector terminal and chassis ground. Connector & terminal (B93) No. 2 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Ignition switch circuit is OK.	Check the harness for open circuits and shorts between the security control module and ignition switch.

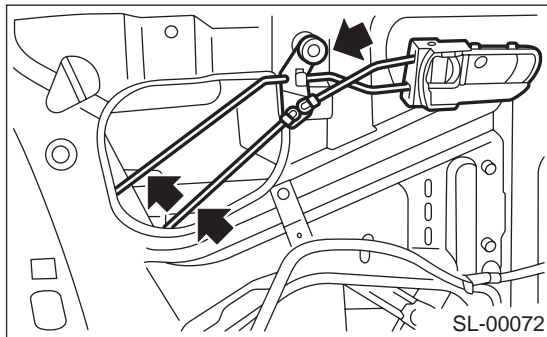
FRONT INNER REMOTE

SECURITY AND LOCKS

5. Front Inner Remote

A: REMOVAL

- 1) Remove the door trim. <Ref. to EI-32, REMOVAL, Front Door Trim.>
- 2) Remove the sealing cover. <Ref. to EB-13, REMOVAL, Front Sealing Cover.>
- 3) Remove the two rod joints.
- 4) Remove the screw, and detach the front inner remote.



B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Make sure the inner remote works properly after installation.

C: INSPECTION

- 1) Make sure the rod is not deformed.
- 2) Make sure the lever and rod work smoothly.

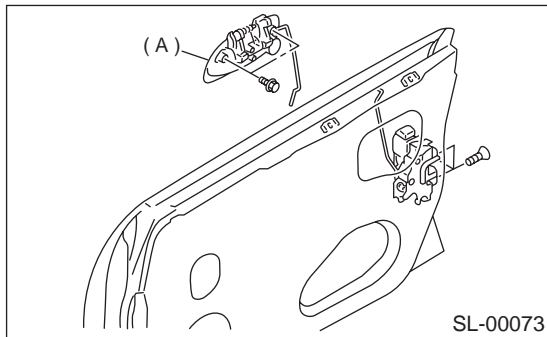
FRONT OUTER HANDLE

SECURITY AND LOCKS

6. Front Outer Handle

A: REMOVAL

- 1) Remove the front door latch assembly. <Ref. to SL-32, REMOVAL, Front Door Latch Assembly.>
- 2) Remove the two bolts. Remove the front outer handle (A).



CAUTION:

Do not use excessive force to remove the door panel. This will deform it.

B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Make sure the outer handle works properly after installation.

C: INSPECTION

- 1) Make sure the rod is not deformed.
- 2) Make sure the lever and rod work smoothly.

SL-31

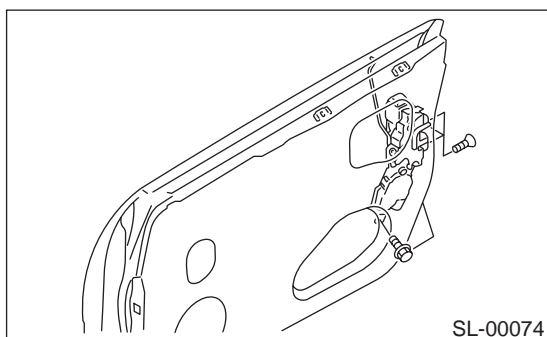
FRONT DOOR LATCH ASSEMBLY

SECURITY AND LOCKS

7. Front Door Latch Assembly

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove the front door trim. <Ref. to EI-32, REMOVAL, Front Door Trim.>
- 3) Remove the sealing cover. <Ref. to EB-13, REMOVAL, Front Sealing Cover.>
- 4) Remove the front inner remote. <Ref. to SL-30, REMOVAL, Front Inner Remote.>
- 5) Remove the front door glass. <Ref. to GW-12, REMOVAL, Front Door Glass.>
- 6) Remove three nuts, and detach the front door sash (Rear).
- 7) Remove the three screws and bolt.



- 8) Disconnect the connector. Remove the front door latch assembly.

B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Make sure the lock works properly after installation.

C: INSPECTION

- 1) Make sure the rod is not deformed.
- 2) Make sure the lever and rod work smoothly.

SL-32

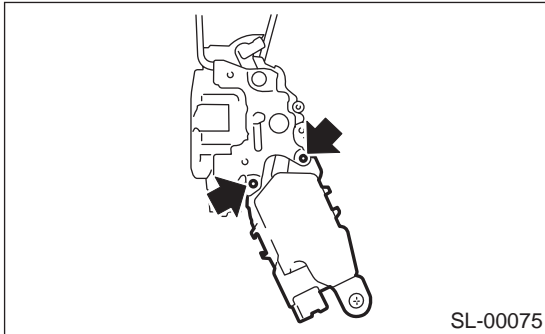
FRONT DOOR LOCK ACTUATOR

SECURITY AND LOCKS

8. Front Door Lock Actuator

A: REMOVAL

- 1) Remove the front door latch assembly. <Ref. to SL-32, REMOVAL, Front Door Latch Assembly.>
- 2) Remove the bolt. Remove the front door lock actuator.



B: INSTALLATION

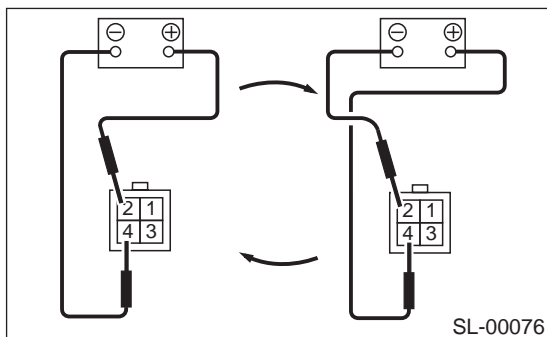
Install in the reverse order of removal.

NOTE:

Make sure the lock works properly after installation.

C: INSPECTION

- 1) Disconnect the door lock actuator harness connector.
- 2) Connect the battery to the door lock actuator terminals.



Terminal No.	Actuator operation
No. 2 (+) and No. 4 (-)	Unlocked → Locked
No. 4 (+) and No. 2 (-)	Locked → Unlocked

If NG, replace the door lock actuator.

SL-33

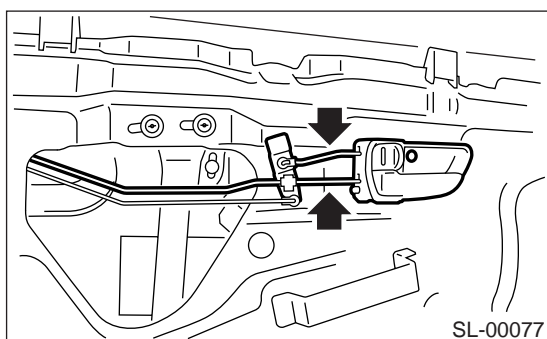
REAR INNER REMOTE

SECURITY AND LOCKS

9. Rear Inner Remote

A: REMOVAL

- 1) Remove the rear door trim. <Ref. to EI-33, REMOVAL, Rear Door Trim.>
- 2) Remove the sealing cover. <Ref. to EB-16, REMOVAL, Rear Sealing Cover.>
- 3) Remove the two rod joints.
- 4) Remove the screw, and detach the inner remote.



B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Make sure the inner remote works properly after installation.

C: INSPECTION

- 1) Make sure the rod is not deformed.
- 2) Make sure the lever and rod work smoothly.
- 3) Make sure the child safety lock on rear doors work properly, when applicable.

SL-34

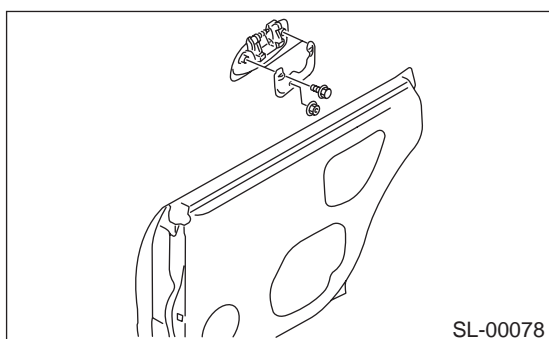
REAR OUTER HANDLE

SECURITY AND LOCKS

10.Rear Outer Handle

A: REMOVAL

- 1) Remove the rear door trim. <Ref. to EI-33, REMOVAL, Rear Door Trim.>
- 2) Remove the sealing cover. <Ref. to EB-16, REMOVAL, Rear Sealing Cover.>
- 3) Remove the rear inner remote. <Ref. to SL-34, REMOVAL, Rear Inner Remote.>
- 4) Remove the rear door latch assembly. <Ref. to SL-36, REMOVAL, Rear Door Latch Assembly.>
- 5) Remove the two bolts and nut. Remove the rear outer handle.



CAUTION:

Do not use excessive force to remove the door panel. This will deform it.

B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Make sure the outer handle works properly after installation.

C: INSPECTION

- 1) Make sure the rod is not deformed.
- 2) Make sure the lever and rod work smoothly.

SL-35

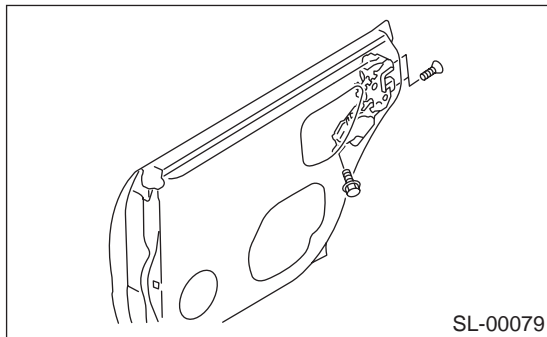
REAR DOOR LATCH ASSEMBLY

SECURITY AND LOCKS

11.Rear Door Latch Assembly

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove the rear door trim. <Ref. to EI-33, REMOVAL, Rear Door Trim.>
- 3) Remove the sealing cover. <Ref. to EB-16, REMOVAL, Rear Sealing Cover.>
- 4) Remove the rear inner remote. <Ref. to SL-34, REMOVAL, Rear Inner Remote.>
- 5) Remove the three screws and bolt.



- 6) Disconnect the connector. Remove the rear door latch assembly.

B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Make sure the lock works properly after installation.

C: INSPECTION

- 1) Make sure the rod is not deformed.
- 2) Make sure the lever and rod work smoothly.

SL-36

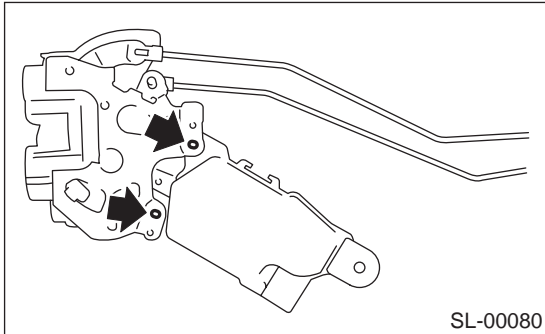
REAR DOOR LOCK ACTUATOR

SECURITY AND LOCKS

12.Rear Door Lock Actuator

A: REMOVAL

- 1) Remove the rear door latch assembly. <Ref. to SL-36, REMOVAL, Rear Door Latch Assembly.>
- 2) Remove the bolt. Remove the rear door lock actuator.



B: INSTALLATION

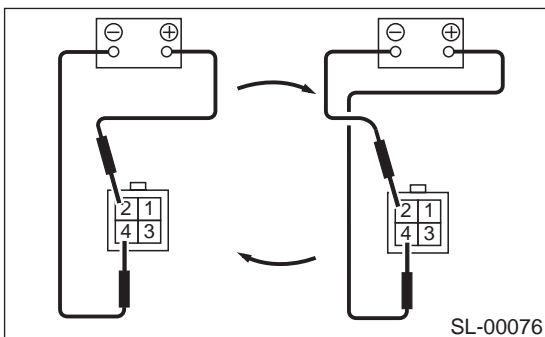
Install in the reverse order of removal.

NOTE:

Make sure the lock works properly after installation.

C: INSPECTION

- 1) Disconnect the door lock actuator harness connector.
- 2) Connect the battery to the door lock actuator terminals.



Terminal No.	Actuator operation
No. 2 (+) and No. 4 (-)	Unlocked → Locked
No. 4 (+) and No. 2 (-)	Locked → Unlocked

If NG, replace the door lock actuator.

SL-37

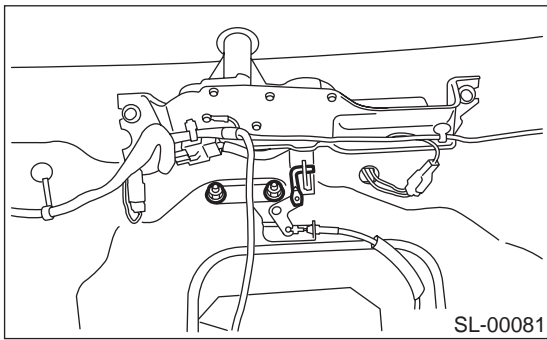
REAR GATE OUTER HANDLE

SECURITY AND LOCKS

13.Rear Gate Outer Handle

A: REMOVAL

- 1) Remove the rear gate lower trim. <Ref. to EI-47, REMOVAL, Rear Gate Trim.>
- 2) Remove the rear gate latch rod.
- 3) Remove the nut holding the rear gate outer handle, and then remove the rear gate outer handle.



B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Make sure the outer handle works properly after installation.

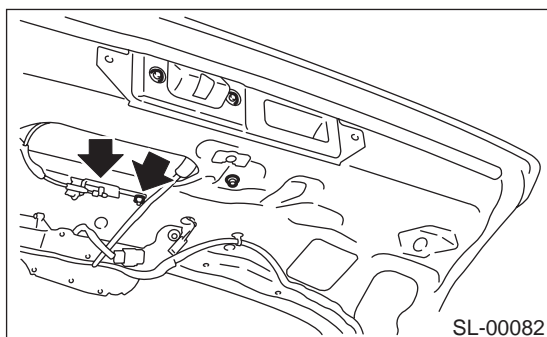
C: INSPECTION

- 1) Inspect the rod for deformation.
- 2) Make sure the lever and rod move smoothly.

14.Rear Gate Latch Assembly

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove the rear gate lower trim. <Ref. to EI-47, REMOVAL, Rear Gate Trim.>
- 3) Remove the rear gate key cylinder rod.
- 4) Remove the rear gate outer handle. <Ref. to SL-38, REMOVAL, Rear Gate Outer Handle.>
- 5) Remove the three bolts.



- 6) Remove the two connectors and pull out the latch.

B: INSTALLATION

Install in the reverse order of removal.

NOTE:

Make sure the lock works properly after installation.

C: INSPECTION

- 1) Make sure the rod is not deformed.
- 2) Make sure the lever and rod work smoothly.

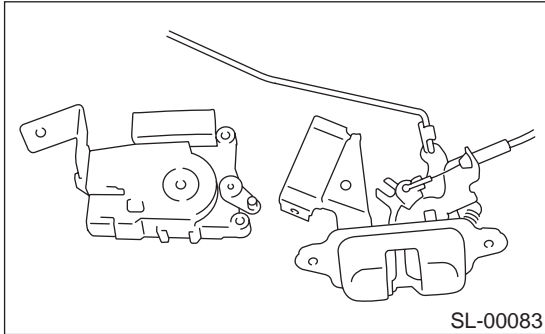
REAR GATE LATCH LOCK ACTUATOR

SECURITY AND LOCKS

15. Rear Gate Latch Lock Actuator

A: REMOVAL

- 1) Remove the rear gate latch assembly. <Ref. to SL-39, REMOVAL, Rear Gate Latch Assembly.>
- 2) Remove the rear gate lock actuator.



B: INSTALLATION

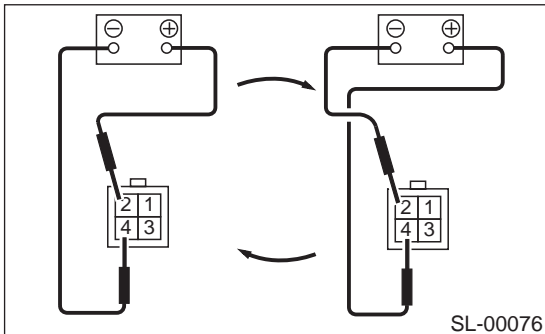
Install in the reverse order of removal.

NOTE:

Make sure the lock works properly after installation.

C: INSPECTION

- 1) Disconnect the door lock actuator harness connector.
- 2) Connect the battery to the door lock actuator terminals.



Terminal No.	Actuator operation
No. 2 (+) and No. 4 (-)	Unlocked → Locked
No. 4 (+) and No. 2 (-)	Locked → Unlocked

If NG, replace the rear gate latch lock actuator.

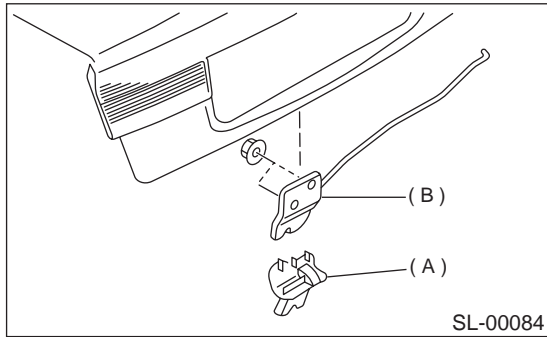
TRUNK LID LOCK ASSEMBLY

SECURITY AND LOCKS

16.Trunk Lid Lock Assembly

A: REMOVAL

- 1) Remove the trunk lid key cylinder rod.
 - 2) Remove the lock assembly cover (A).
 - 3) Remove the nut while holding the lock assembly.
- Remove the lock assembly (B).



B: INSTALLATION

Install in the reverse order of removal.

NOTE:

- Apply grease to parts that rub.
- Make sure the lock works properly after installation.

C: INSPECTION

- 1) Check the striker for bending or abnormal wear.
- 2) Check the safety lever for improper movement.
- 3) Check other levers and the spring for rust formation and unsmooth movement.

SL-41

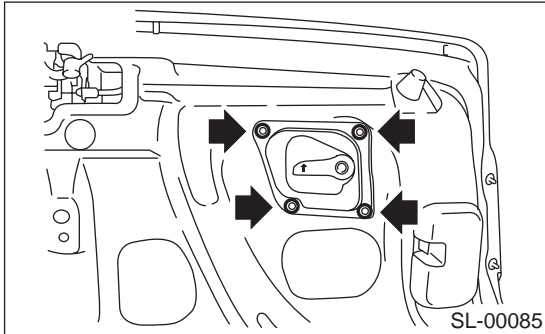
TRUNK LID RELEASE HANDLE

SECURITY AND LOCKS

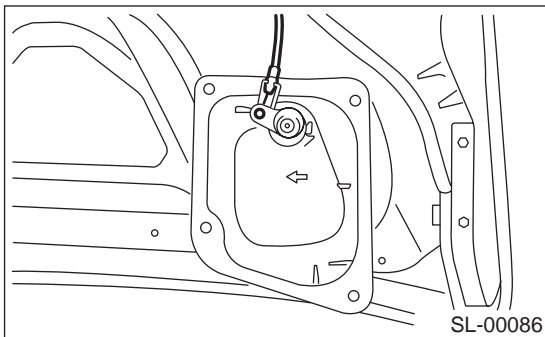
17. Trunk Lid Release Handle

A: REMOVAL

1) Remove the four clips.



2) Remove the cable from trunk lid release handle.



B: INSTALLATION

Install in the reverse order of removal.

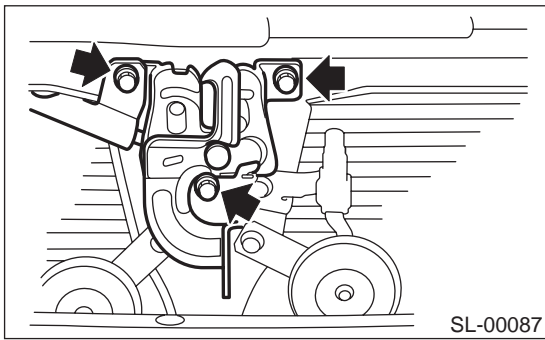
C: INSPECTION

- 1) Make sure the cable is not deformed.
- 2) Make sure the lever works smoothly.

18. Front Hood Lock Assembly

A: REMOVAL

- 1) Open the hood.
- 2) Remove the bolt. Remove the hood lock assembly.
- 3) Remove the release cable from the lock assembly.



B: INSTALLATION

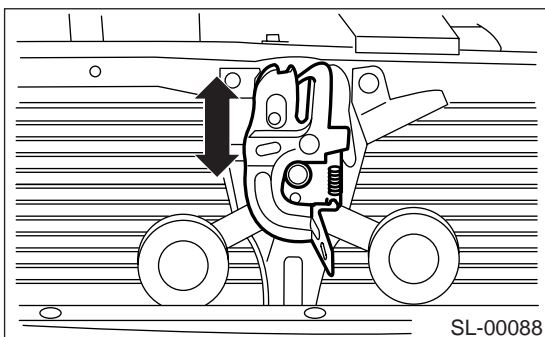
Install in the reverse order of removal.

NOTE:

- Apply grease to parts that rub.
- Make sure the release cable works properly after installation.

C: ADJUSTMENT

Loosen the bolt. Adjust the lock assembly while moving it up and down.



D: INSPECTION

- 1) Check the striker for bending or abnormal wear.
- 2) Check the safety lever for improper movement.
- 3) Check other levers and the spring for rust formation and unsmooth movement.

REMOTE OPENERS

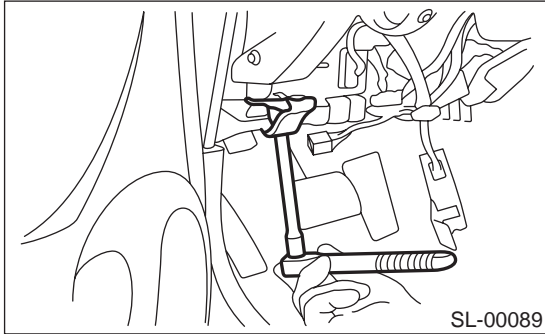
SECURITY AND LOCKS

19. Remote Openers

A: REMOVAL

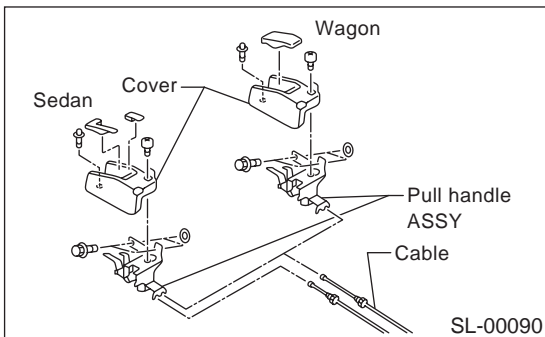
1. HOOD OPENER

- 1) Remove the release cable from the hood lock.
- 2) Remove the bolt. Remove the opener lever.

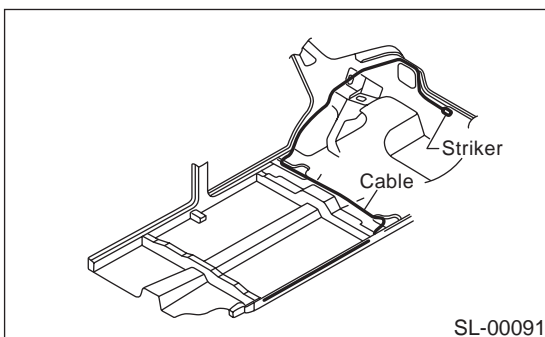


2. TRUNK LID OPENER

- 1) Remove the rear seat. <Ref. to SE-17, REMOVAL, Rear Seat.>
- 2) Remove the center pillar lower trim and side sill cover on the passenger side. Remove the rear pillar lower trim. Pull back the floor mat. Remove the clip holding the cable.
- 3) Remove the bolt. Remove the opener pull handle.

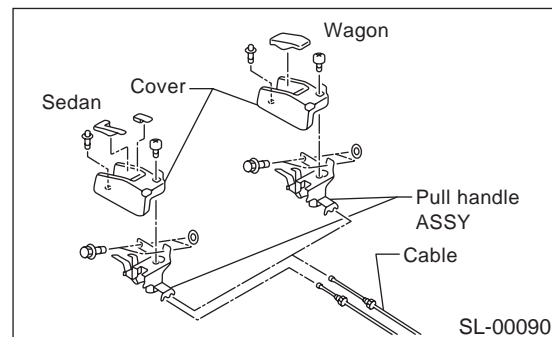


- 4) Remove the cable from the opener pull handle.
- 5) Remove the striker from the trunk lid.
- 6) Remove the cable from the striker.

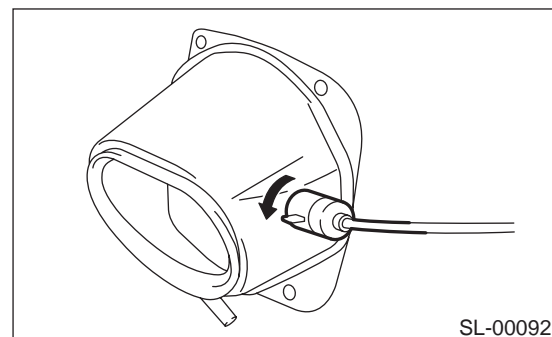


3. FUEL FLAP OPENER

- 1) Remove the rear seat. <Ref. to SE-17, REMOVAL, Rear Seat.>
- 2) Remove the center pillar lower trim and side sill cover on the passenger side. Remove the rear pillar lower trim. Pull back the floor mat. Remove the clip holding the cable.
- 3) Remove the bolt. Remove the opener pull handle.



- 4) Remove the cable from the opener pull handle.
- 5) Remove the right rear quarter trim. <Ref. to EI-43, REMOVAL, Rear Quarter Trim.>
- 6) Rotate the fuel lock inside the quarter panel to left and remove.



B: INSTALLATION

1. HOOD OPENER

Install in the reverse order of removal.

2. TRUNK LID OPENER

Install in the reverse order of removal.

3. FUEL FLAP OPENER

Install in the reverse order of removal.

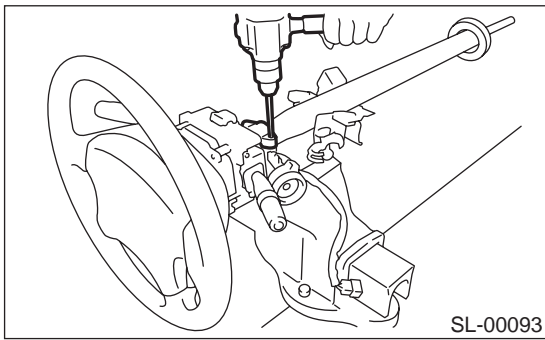
C: INSPECTION

Make sure the fuel flap opens and closes smoothly.

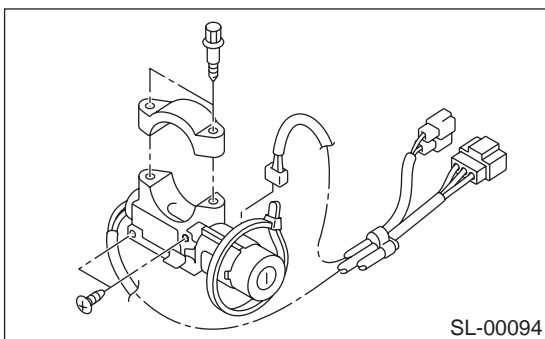
20. Ignition Key Lock

A: REPLACEMENT

- 1) Disconnect ground cable from battery.
- 2) Remove the steering column. <Ref. to PS-21, REMOVAL, Tilt Steering Column.>
- 3) Secure the steering column in a vise. Remove the bolt with a drill.



- 4) Remove the ignition key lock.
- 5) Use a new torn bolt. Tighten the torn bolt to the end of the thread.



B: INSPECTION

- 1) Remove the instrument panel lower cover.
- 2) Remove the lower column cover.
- 3) Unfasten the hold-down clip which secures the harness and disconnect the connector of the ignition switch from the body harness.
- 4) Turn the ignition key plate to each position and check the continuity between the terminals of the ignition connector.

Switch position	Terminal No.	Standard
LOCK	—	—
ACC	No. 1 and No. 2	Less than 1 Ω
ON	No. 1 and No. 2 No. 1 and No. 4 No. 2 and No. 4	Less than 1 Ω
ST	No. 1 and No. 3 No. 1 and No. 4 No. 3 and No. 4	Less than 1 Ω

If NG, replace the ignition switch.

KEY LOCK CYLINDERS

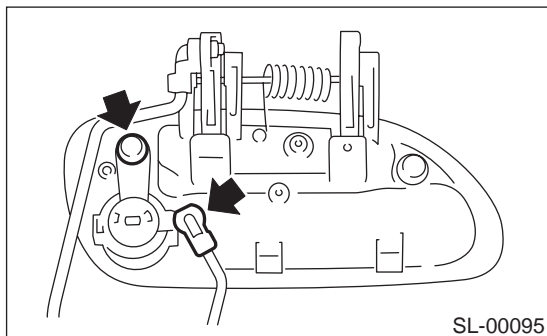
SECURITY AND LOCKS

21. Key Lock Cylinders

A: REPLACEMENT

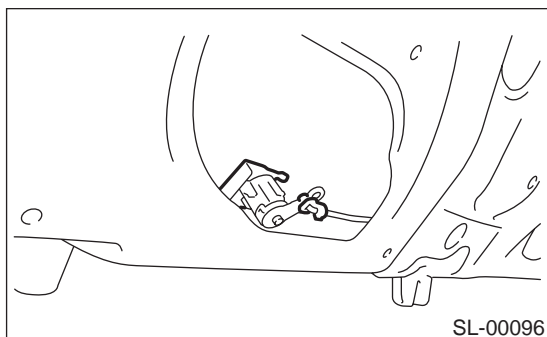
1. FRONT DOOR

- 1) Remove the front outer handle. <Ref. to SL-31, REMOVAL, Front Outer Handle.>
- 2) Remove the rod clamp. Replace the key cylinder.



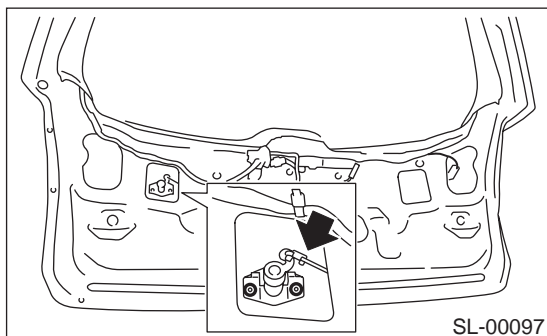
2. TRUNK LID

- 1) Remove the trunk trim. <Ref. to EI-49, REMOVAL, Trunk Trim.>
- 2) Remove the rod clamp. Remove the lock plate. Replace the key cylinder.



3. REAR GATE

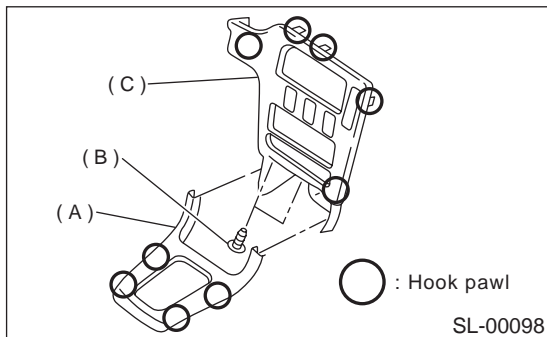
- 1) Remove the rear gate lower trim. <Ref. to EI-47, REMOVAL, Rear Gate Trim.>
- 2) Remove the rod clamp. Remove the nut. Replace the key cylinder.



22.Security Control Module

A: REMOVAL

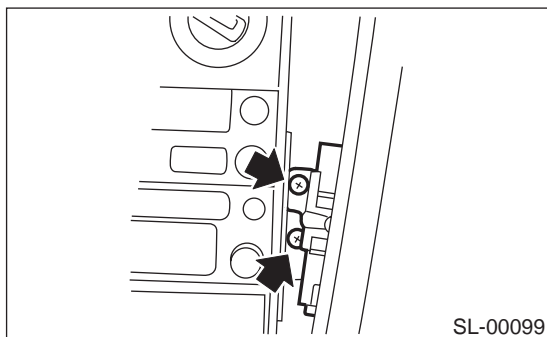
- 1) Disconnect the ground cable from battery.
- 2) Remove front cover (A).
- 3) Remove screws (B) and then detach center panel (C) while disconnecting connector.



- 4) Remove two screws.

NOTE:

Before removing the screw, apply a few turns of butyl tape to the tip of the service tool. This prevents the screw from falling during removal.



- 5) Remove radio and security control module together while disconnecting connector. <Ref. to ET-5, REMOVAL, Radio Body.>

B: INSTALLATION

Install in the reverse order of removal.

NOTE:

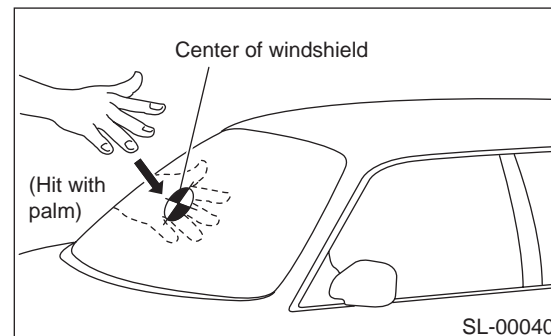
To install the security control module, tighten the bolts securely so that the bolts do not come loose.

C: INSPECTION

1. IMPACT SENSITIVITY TEST

- 1) Remove the key from the ignition switch.
- 2) Close all windows.
- 3) Close all doors and the rear gate.
- 4) Cover the hood with a blanket.
- 5) Press the LOCK/ARM button of the transmitter.
- 6) Confirm that the security indicator light blinks every 2 seconds.

- 7) Hit the center of the windshield with your palm and make sure the alarm operates.



If NG, adjust the impact sensitivity. <Ref. to SL-47, ADJUSTMENT, Security Control Module.>

D: ADJUSTMENT

1. IMPACT SENSITIVITY

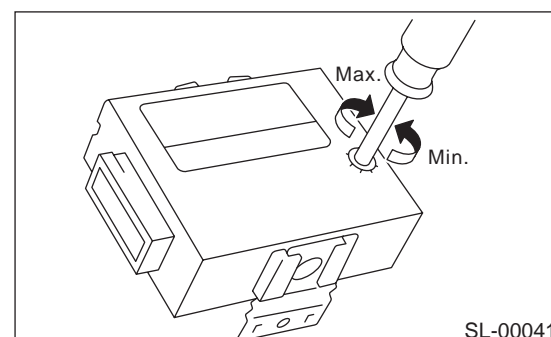
NOTE:

Before adjustment, make sure the security control module has been securely installed on the bracket.

- 1) Remove the security control module. <Ref. to SL-47, REMOVAL, Security Control Module.>
- 2) Adjust the sensitivity adjust screw in the security control module.

NOTE:

After adjusting, be sure to plug the adjust screw hole.



- 3) Install the security control module.
- 4) Perform the impact sensitivity test.

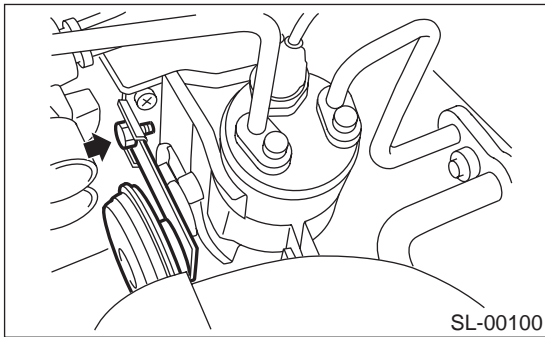
SECURITY HORN

SECURITY AND LOCKS

23.Security Horn

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the nuts and then detach the security horn while disconnecting the connector.

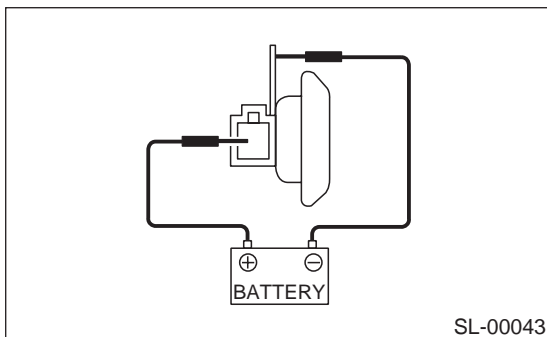


B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Connect the battery to the security horn terminal and case ground and make sure the horn sounds properly.

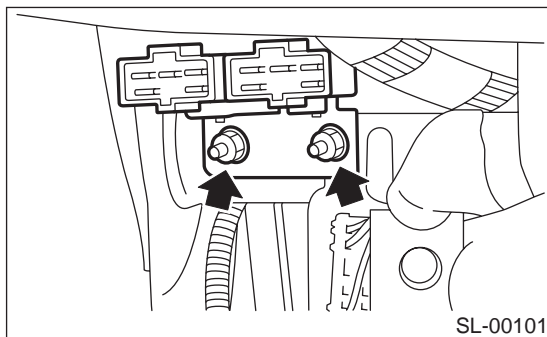


If NG, replace the security horn.

24. Security Horn Relay

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the mounting bolt and detach the security horn relay (near the fuse box).



B: INSTALLATION

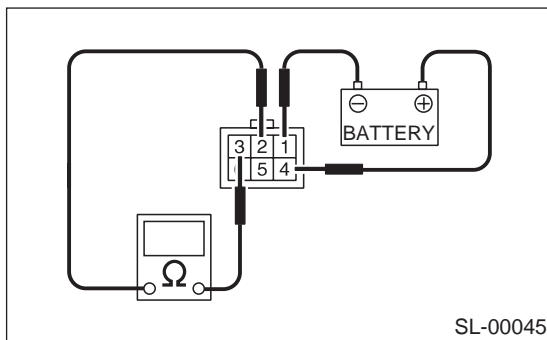
Install in the reverse order of removal.

C: INSPECTION

Measure the security horn relay resistance between terminals (indicated in the table below) when connecting terminal No. 1 (without OnStar (R)) or No. 3 (with OnStar (R)) to battery positive terminal and terminal No. 4 (without OnStar (R)) or No. 2 (with OnStar (R)) to battery ground terminal.

Without OnStar (R):

Current	Terminal No.	Standard
Flow	2 — 3	Less than 1 Ω
No flow		More than 1 M Ω



With OnStar (R):

Current	Terminal No.	Standard
Flow	1 — 4	Less than 1 Ω
No flow		More than 1 M Ω

If the measured value is out of specifications indicated in table, replace security horn relay.
If NG, replace door lock actuator.

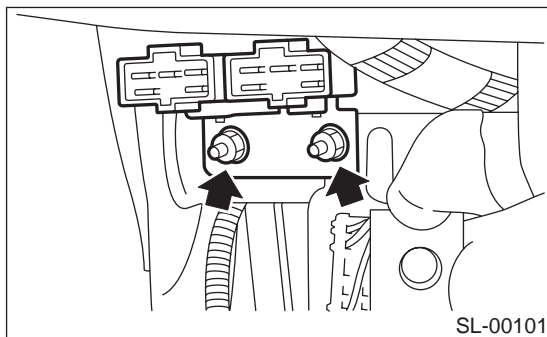
INTERRUPT RELAY

SECURITY AND LOCKS

25. Interrupt Relay

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the mounting nuts and detach the interrupt relay (near the fuse box).



B: INSTALLATION

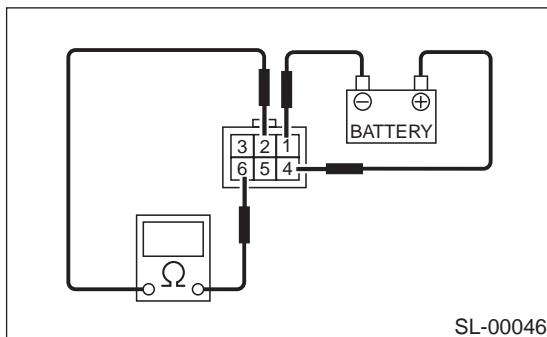
Install in the reverse order of removal.

C: INSPECTION

Measure the interrupt relay resistance between terminals (indicated in the table below) when connecting terminal No. 1 (without OnStarr (R)) or No. 4 (with OnStarr (R)) to battery positive terminal and terminal No. 4 (without OnStarr (R)) or No. 2 (with OnStarr (R)) to battery ground terminal.

Without OnStar (R):

Current	Terminal No.	Standard
Flow	2 — 6	More than 1 MΩ
No flow		Less than 1 Ω



With OnStar (R):

Current	Terminal No.	Standard
Flow	1 — 3	More than 1 MΩ
No flow		Less than 1 Ω

If the measured value is out of specifications indicated in table, replace security horn relay.

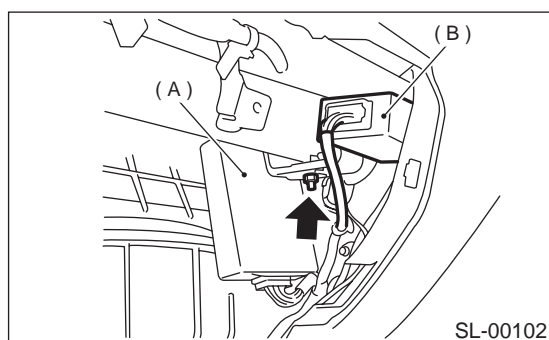
KEYLESS ENTRY CONTROL MODULE

SECURITY AND LOCKS

26. Keyless Entry Control Module

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove glove box. <Ref. to EI-34, REMOVAL, Glove Box.>
- 3) Remove nut, then remove keyless entry control module (B) and the other electrical control module (A) while disconnecting connector.



- 4) Disconnect keyless entry control module and the other electrical control module.

B: INSTALLATION

Install in the reverse order of removal.

SL-51

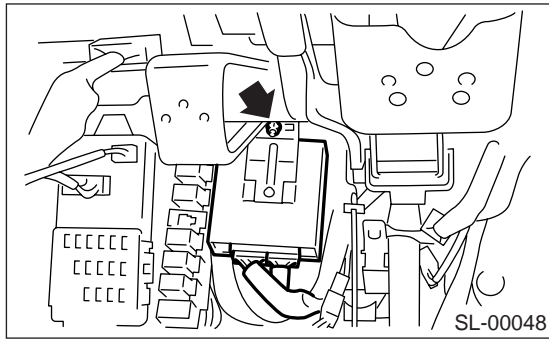
INTEGRATED MODULE

SECURITY AND LOCKS

27. Integrated Module

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the instrument panel lower cover. <Ref. to EI-37, REMOVAL, Instrument Panel Assembly.>
- 3) Remove the nut, then remove the integrated module while disconnecting the connector.



B: INSTALLATION

Install in the reverse order of removal.

28. Keyless Transmitter

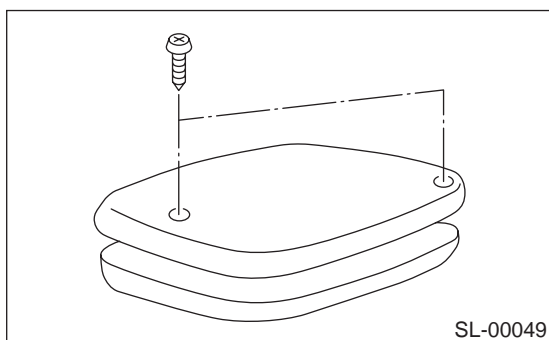
A: REMOVAL

1. TRANSMITTER BATTERY

Remove the battery from transmitter.

NOTE:

To prevent static electricity damage to transmitter printed circuit board, touch the steel area of building with hand to discharge the static electricity carried on body or clothes before disassembling transmitter.



B: INSTALLATION

1. TRANSMITTER BATTERY

Install in the reverse order of removal.

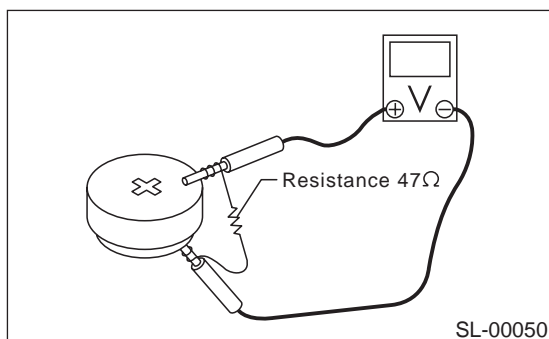
C: INSPECTION

1. TRANSMITTER BATTERY

Measure the voltage between battery (+) terminal and (-) terminal.

NOTE:

- Battery discharge occurs during measurement. Complete the measurement within 5 seconds.
- During battery voltage measurement, voltage falls more than 1.8 volts in 3 seconds period.



Tester connection		Standard
(+)	(-)	
Battery (+) terminal	Battery (-) terminal	2.5 — 3.0 V

If NG, replace the battery. (Use CR1620 or equivalent.)

D: REPLACEMENT

1. TRANSMITTER REGISTRATION

NOTE:

- A maximum of four transmitters can be registered for each individual vehicle.
- When replacing or adding the transmitter (key), registration is also necessary.
- Finish the operation from step 1) through 4) within 45 seconds.

- 1) Sit on the driver's seat and close all doors and rear gate.
- 2) Open the driver's door.
- 3) Close the driver's door.
- 4) Turn the ignition switch from ON to LOCK ten times within 15 seconds.

NOTE:

Do not start the engine at this time.

- 5) The horn chirps one time to indicate that the system has entered in the programming mode.
- 6) Open the driver's door.
- 7) Close the driver's door.
- 8) Press any button on the transmitter that you wish to program into the system.
- 9) Horn will chirp two times to indicate that the transmitter has been programmed.

NOTE:

Repeat steps 6) through 9) for an additional transmitter.

- 10) Remove the ignition key from the ignition switch.
- 11) The horn will chirp three times to indicate that the system has exited the programming mode.
- 12) Check the keyless entry system properly operates by operating each transmitter.

KEYLESS TRANSMITTER

SECURITY AND LOCKS

MEMO:

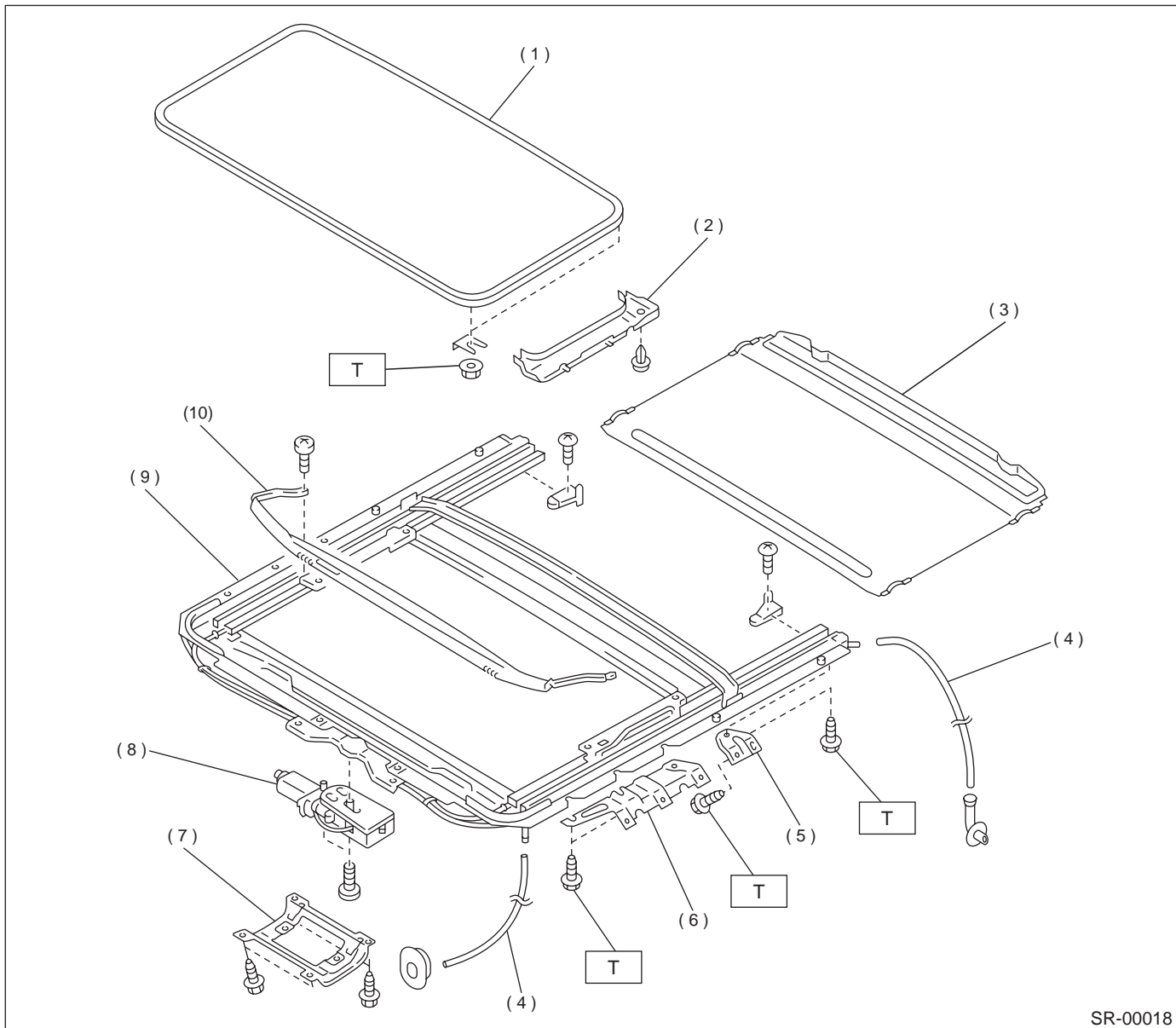
GENERAL DESCRIPTION

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

1. General Description

A: COMPONENT

1. SEDAN



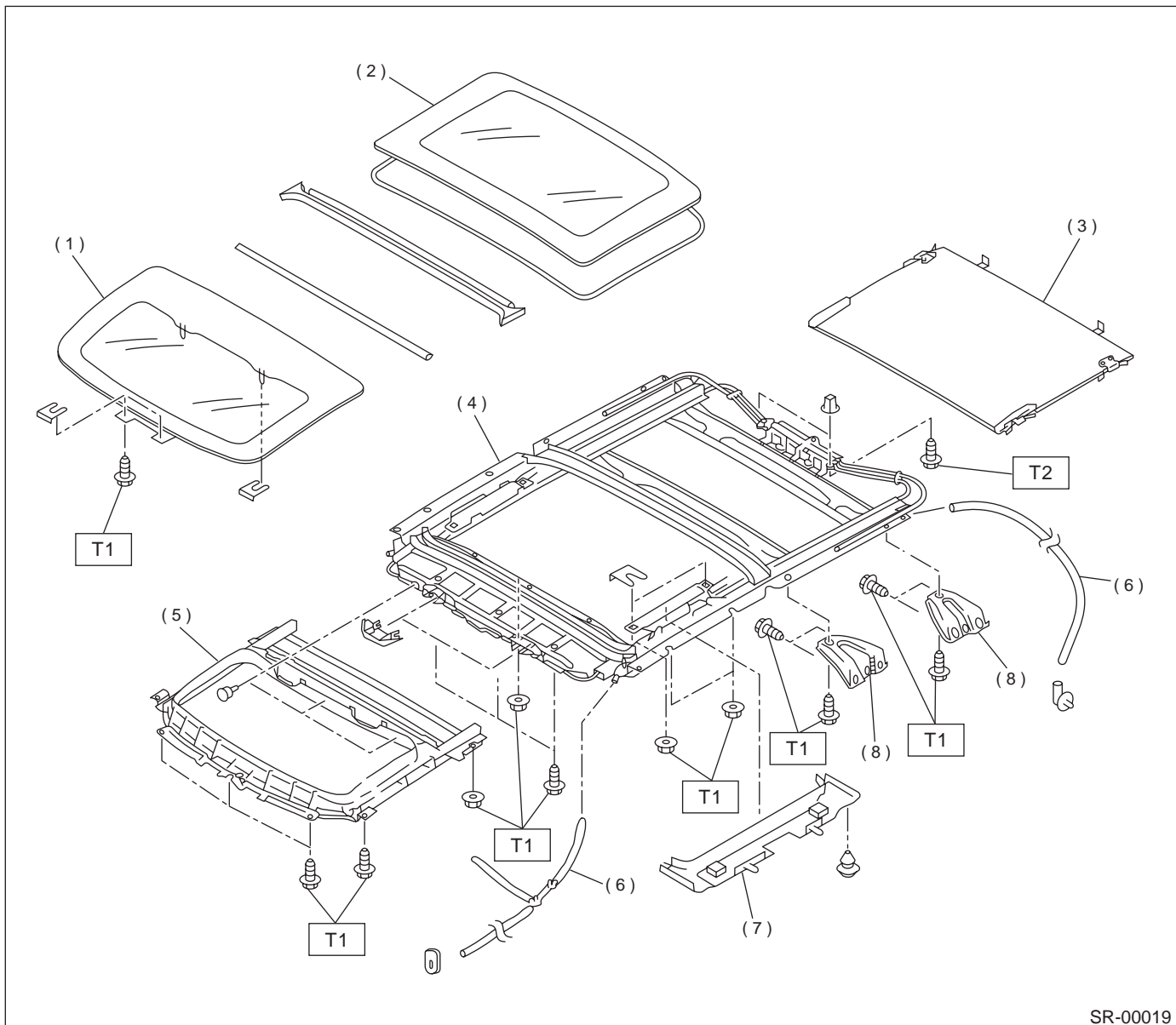
- | | |
|----------------------------|-----------------------------|
| (1) Glass lid | (6) Sunroof bracket (Front) |
| (2) Guide rail cover | (7) Motor cover |
| (3) Sunshade | (8) Motor ASSY |
| (4) Drain tube | (9) Frame ASSY |
| (5) Sunroof bracket (Rear) | (10) Deflector |

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

GENERAL DESCRIPTION

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

2. WAGON



- | | |
|-----------------------|------------------------|
| (1) Glass lid (Front) | (5) Frame ASSY (Front) |
| (2) Glass lid (Rear) | (6) Drain tube |
| (3) Sunshade | (7) Cover |
| (4) Frame ASSY (Rear) | (8) Frame bracket |

Tightening torque: N·m (kgf·m, ft·lb)

T1: 7.4 (0.75, 5.4)

T2: 1.5 (0.15, 1.1)

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 all 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

<Ref. to WI-206, SCHEMATIC, Sunroof System.>

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.

SR-5

SUNROOF LID

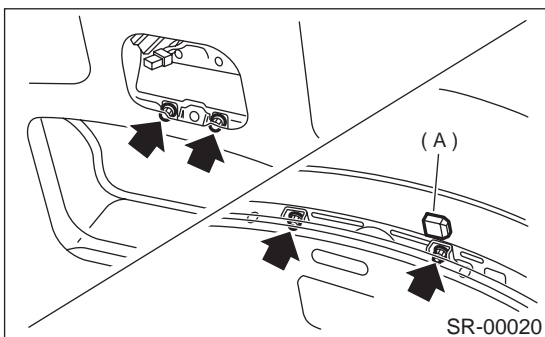
SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

3. Sunroof Lid

A: REMOVAL

1. WAGON (FRONT)

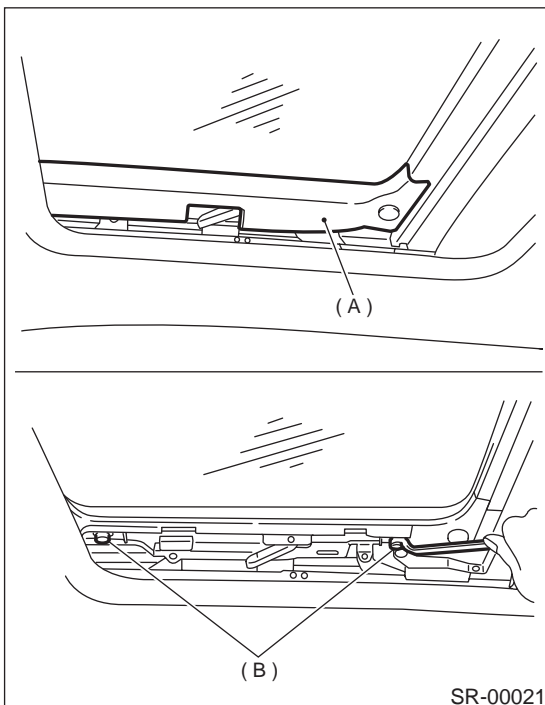
- 1) Tilt-up the front sunroof (most upper position).
- 2) Remove sunroof switch. <Ref. to SR-14, REMOVAL, Sunroof Switch.>
- 3) Remove two mounting bolts.
- 4) Detach covers (A) then remove two nuts from tilt-up assembly.



- 5) Remove the sunroof lid carefully.

2. SEDAN AND WAGON (REAR)

- 1) Completely close rear sunroof lid and open sunshade.
- 2) Remove covers (A) then remove nuts (B).



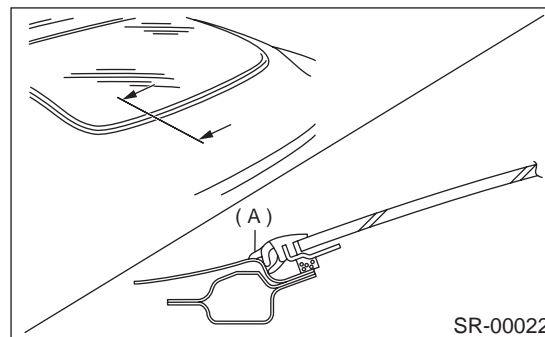
- 3) Remove the sunroof lid carefully.

B: INSTALLATION

Install in the reverse order of removal.

CAUTION:

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



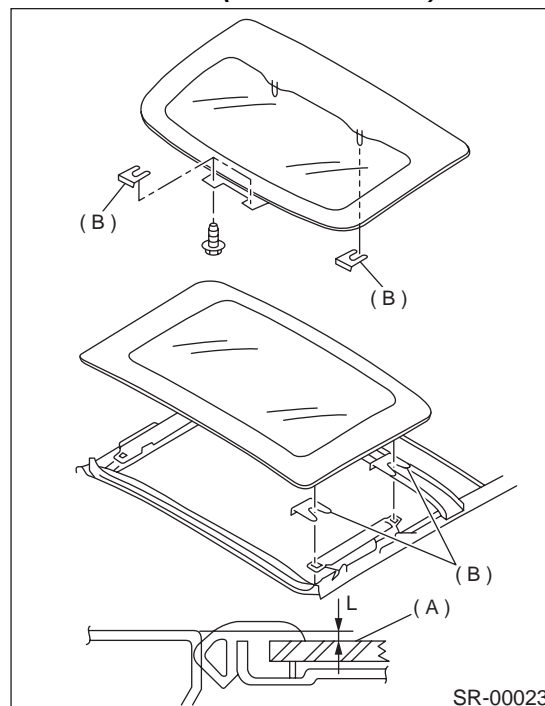
C: ADJUSTMENT

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 (B) (standard: one piece) between sunroof lid (A) 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

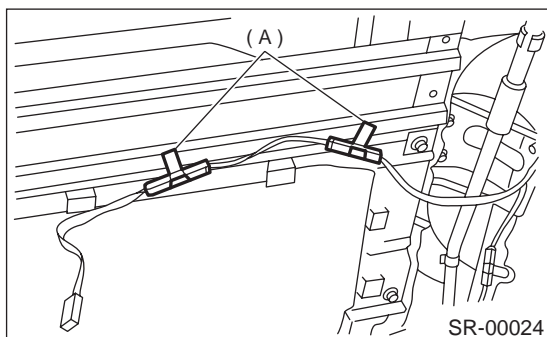
SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

4. Sunroof Assembly

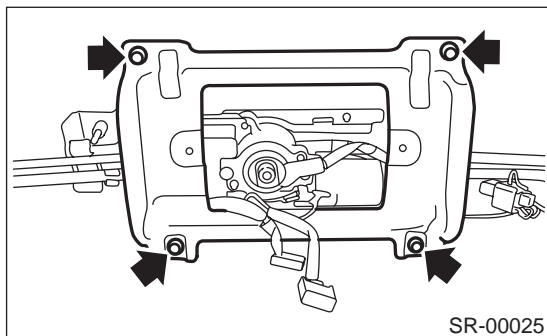
A: REMOVAL

1. SEDAN

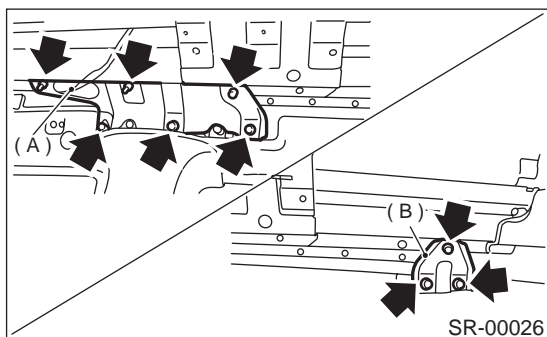
- 1) Disconnect ground cable from battery.
- 2) Remove roof trim. <Ref. to EI-45, SEDAN, REMOVAL, Roof Trim.>
- 3) Remove sunroof lid. <Ref. to SR-6, SEDAN AND WAGON (REAR), REMOVAL, Sunroof Lid.>
- 4) Disconnect drain tubes from sunroof frame.
- 5) Remove room lamp harness clip (A).



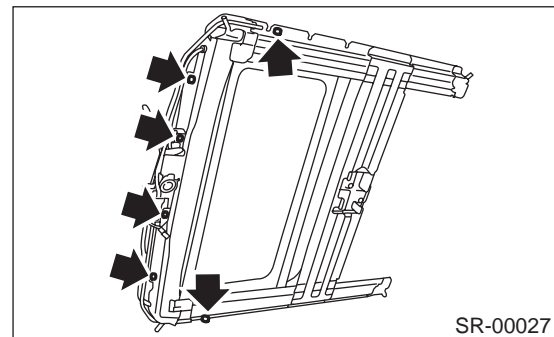
- 6) Disconnect sunroof harness connector.
- 7) Remove motor cover.



- 8) Remove sunroof brackets front (A) and rear (B).

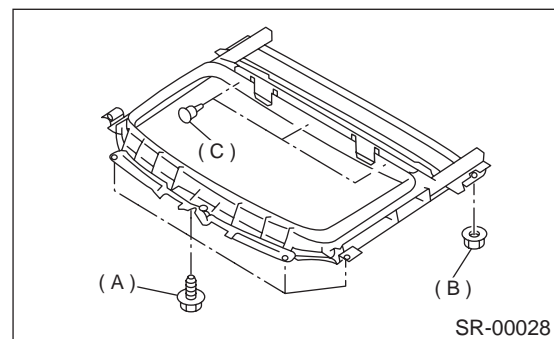


- 9) Remove nuts then detach the sunroof frame.



2. WAGON (FRONT)

- 1) Disconnect ground cable from battery.
- 2) Remove roof trim. <Ref. to EI-45, WAGON, REMOVAL, Roof Trim.>
- 3) Remove front sunroof lid. <Ref. to SR-6, WAGON (FRONT), REMOVAL, Sunroof Lid.>
- 4) Remove room lamp harness clip.
- 5) Remove bolts (A), nuts (B) and clips (C) then detach the sunroof frame.

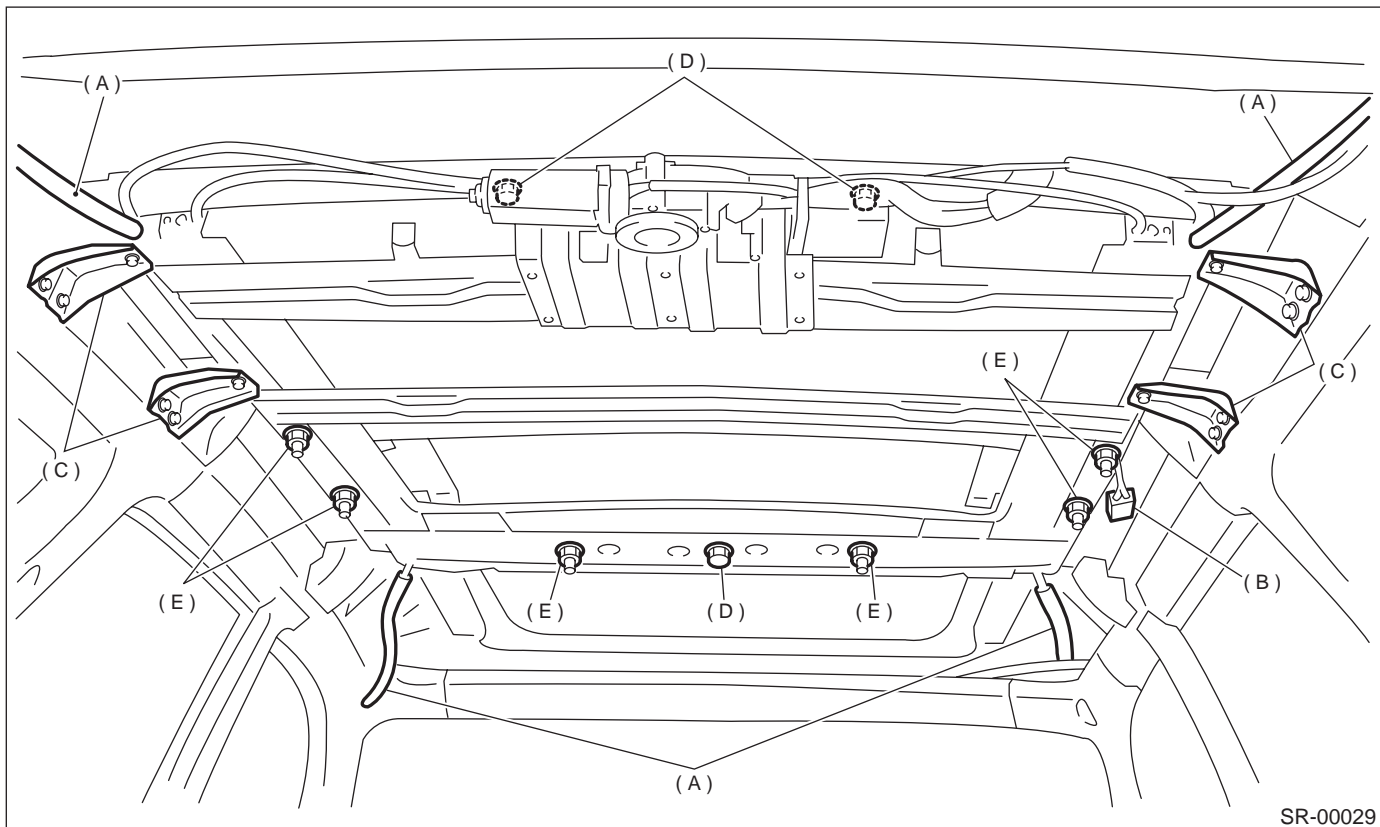


SUNROOF ASSEMBLY

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

3. WAGON (REAR)

- 1) Disconnect ground cable from battery.
- 2) Remove roof trim. <Ref. to EI-45, WAGON, REMOVAL, Roof Trim.>
- 3) Remove rear sunroof lid. <Ref. to SR-6, SEDAN AND WAGON (REAR), REMOVAL, Sunroof Lid.>
- 4) Disconnect drain tubes (A) from rear sunroof frame.
- 5) Disconnect sunroof harness connector (B).
- 6) Remove sunroof brackets (C).
- 7) Remove bolts (D) and nuts (E) then detach the sunroof frame.



SR-00029

SUNROOF ASSEMBLY

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

B: INSTALLATION

Install in the reverse order of removal.

CAUTION:

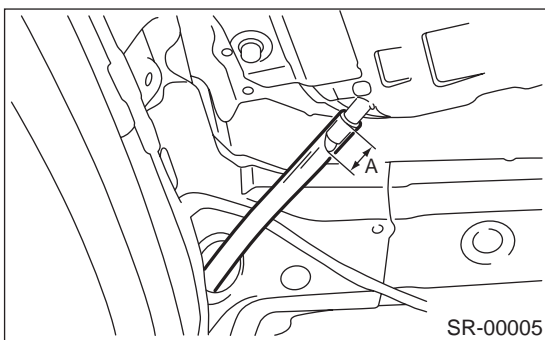
Be careful not to snag the harness.

NOTE:

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

Length A:

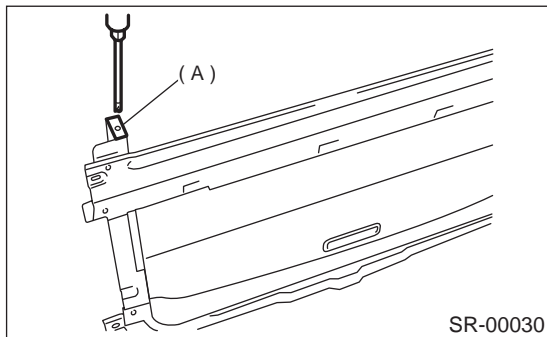
15 mm (0.59 in) or more



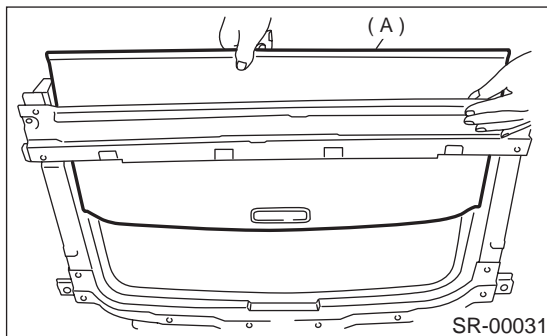
C: DISASSEMBLY

1. SEDAN AND WAGON (FRONT)

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

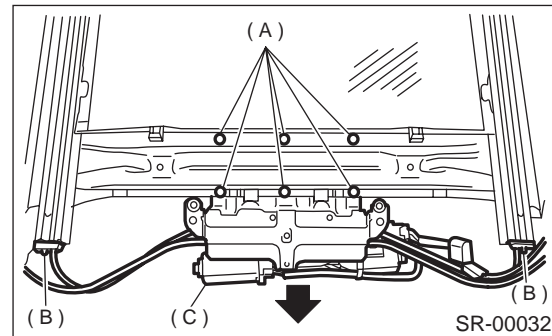


- 3) Pull out the sunshade (A) from sunroof frame.

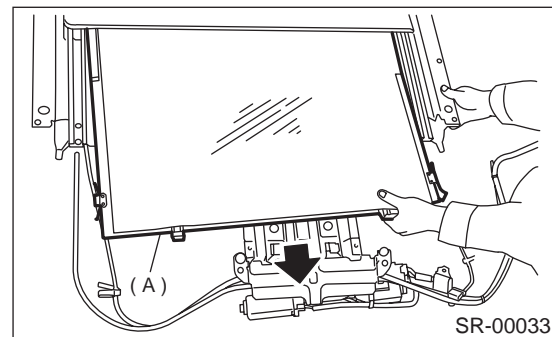


2. WAGON (REAR)

- 1) Remove rear sunroof frame.
- 2) Remove sunroof motor bracket mounting screws (A).
- 3) Remove rail stoppers (B) then pull the motor assembly (C) in the direction shown in the figure.



- 4) Pull out the sunshade (A) from sunroof frame.



D: ASSEMBLY

Assemble in the reverse order of disassembly.

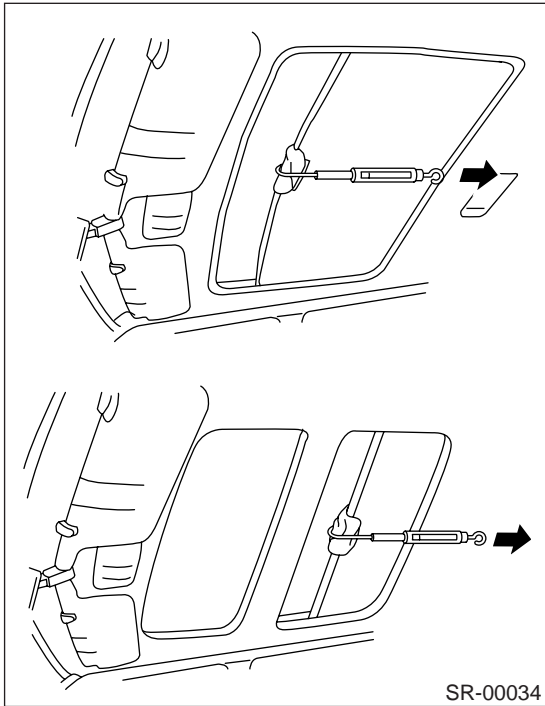
SUNROOF ASSEMBLY

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, 5.5 ± 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

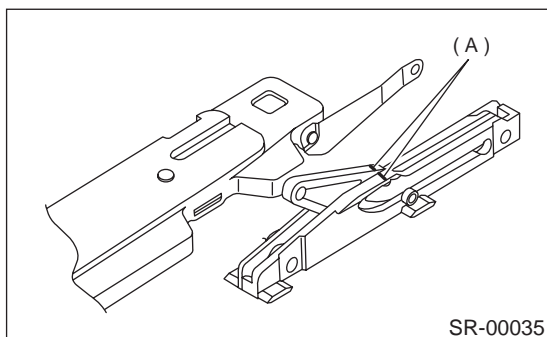
A: REMOVAL

CAUTION:

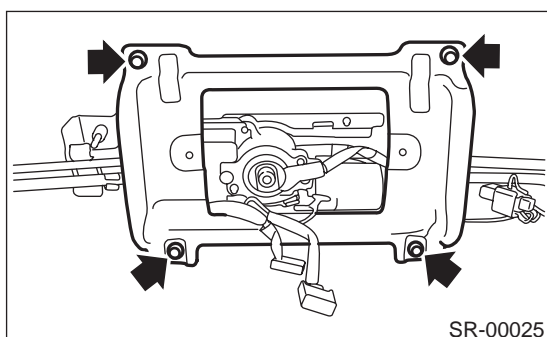
When removing clip, use great care not to damage the roof trim.

1. SEDAN

- 1) Completely close the sunroof.
- 2) Disconnect ground cable from battery.
- 3) Remove sunroof lid. <Ref. to SR-6, SEDAN AND WAGON (REAR), REMOVAL, Sunroof Lid.>
- 4) Confirm the matching mark (A) of sunroof bracket link and the guide from sunroof opening. (If the mark does not match, adjust to match the mark.)



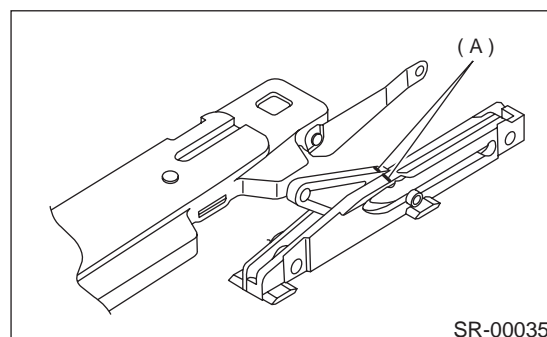
- 5) Remove roof trim. <Ref. to EI-45, SEDAN, REMOVAL, Roof Trim.>
- 6) Remove motor cover.



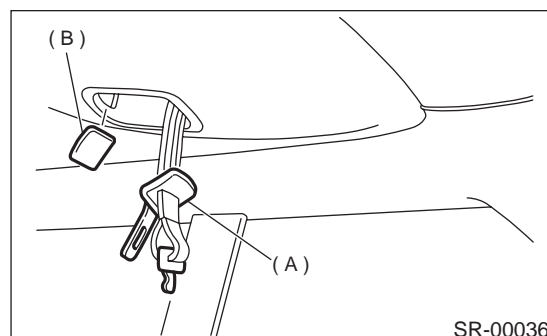
- 7) Disconnect harness connector and remove sunroof motor mounting screw.

2. WAGON

- 1) Completely close the front and rear sunroof, then tilt-up the front sunroof to the most upper position.
- 2) Disconnect ground cable from battery.
- 3) Remove rear sunroof lid. <Ref. to SR-6, SEDAN AND WAGON (REAR), REMOVAL, Sunroof Lid.>
- 4) Confirm the matching mark (A) of rear sunroof bracket link and the guide from sunroof opening. (If the mark does not match, adjust to match the mark.)



- 5) Remove luggage room light. <Ref. to LI-28, REMOVAL, Luggage Room Light.>
- 6) Remove rear assist grips.
- 7) Remove rear quarter trim. <Ref. to EI-43, WAGON, REMOVAL, Rear Quarter Trim.>
- 8) Remove cover (B) while detaching snap lock carefully. Put the rear center seat belt tongue (A) out to the other side of the trim through the hole.

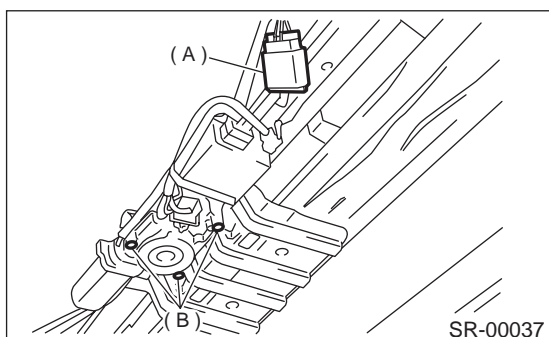


- 9) Remove clips and hang down rear end of roof trim.

SUNROOF MOTOR

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

10) Disconnect harness connector (A) and remove sunroof motor mounting screw (B).

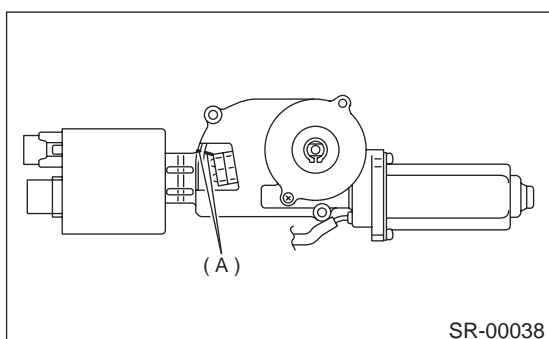


B: INSTALLATION

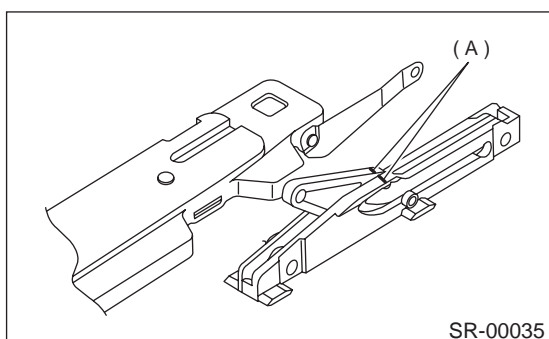
CAUTION:

- 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) Check the sunroof operation with the procedure as shown in the table.

SUNROOF MOTOR

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

SEDAN

Operation	Switch position
(1) Completely close sunroof.	Closed
(2) Tilt-up sunroof to most upper position.	Tilt-up
(3) Lower sunroof completely.	Tilt-down
(4) Open sunroof to near the completely open position.	Open
(5) Completely open sunroof.	Open
(6) Close sunroof 150 mm (5.91 in) away from completely closed position.	Closed
(7) Completely close sunroof.	Closed

WAGON

Operation	Switch position
(1) Completely close front and rear sunroof.	Closed
(2) Tilt-up front sunroof to most upper position.	Open
(3) Open rear sunroof to near the completely open position.	Open
(4) Completely open front and rear sunroof.	Open
(5) Close rear sunroof 150 mm (5.91 in) away from completely closed position.	Closed
(6) Completely close rear sunroof.	Closed
(7) Lower front sunroof and completely close front and rear sunroof.	Closed

7) Install trims in the reverse order of removal.

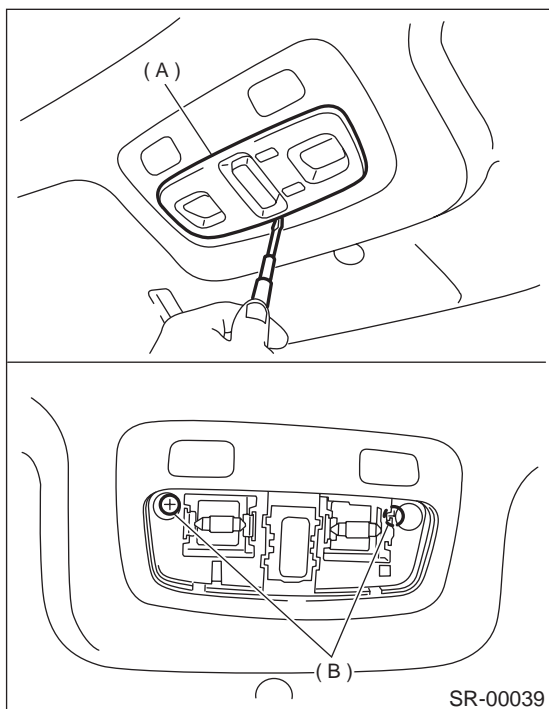
SUNROOF SWITCH

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.

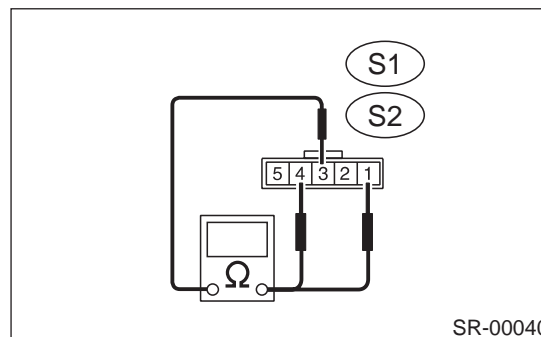
B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

1. SEDAN

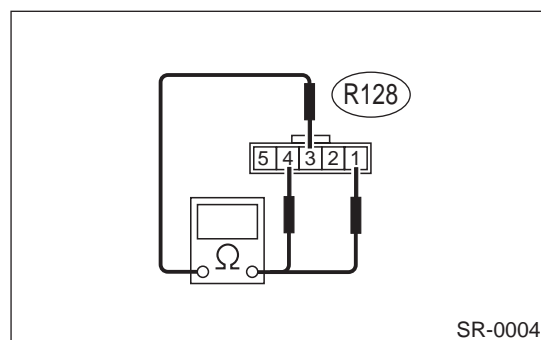
Measure sunroof switch resistance.



Switch position	Terminal No.	Standard
Open	S1: 3 and 4	Less than 1 Ω
Close	S1: 1 and 3	Less than 1 Ω
Tilt-up	S2: 3 and 4	Less than 1 Ω
Tilt-down	S2: 1 and 3	Less than 1 Ω

2. WAGON

Measure sunroof switch resistance.



Switch position	Terminal No.	Standard
Open	3 and 4	Less than 1 Ω
Close	1 and 3	Less than 1 Ω

GENERAL DESCRIPTION

WIPER AND WASHER SYSTEMS

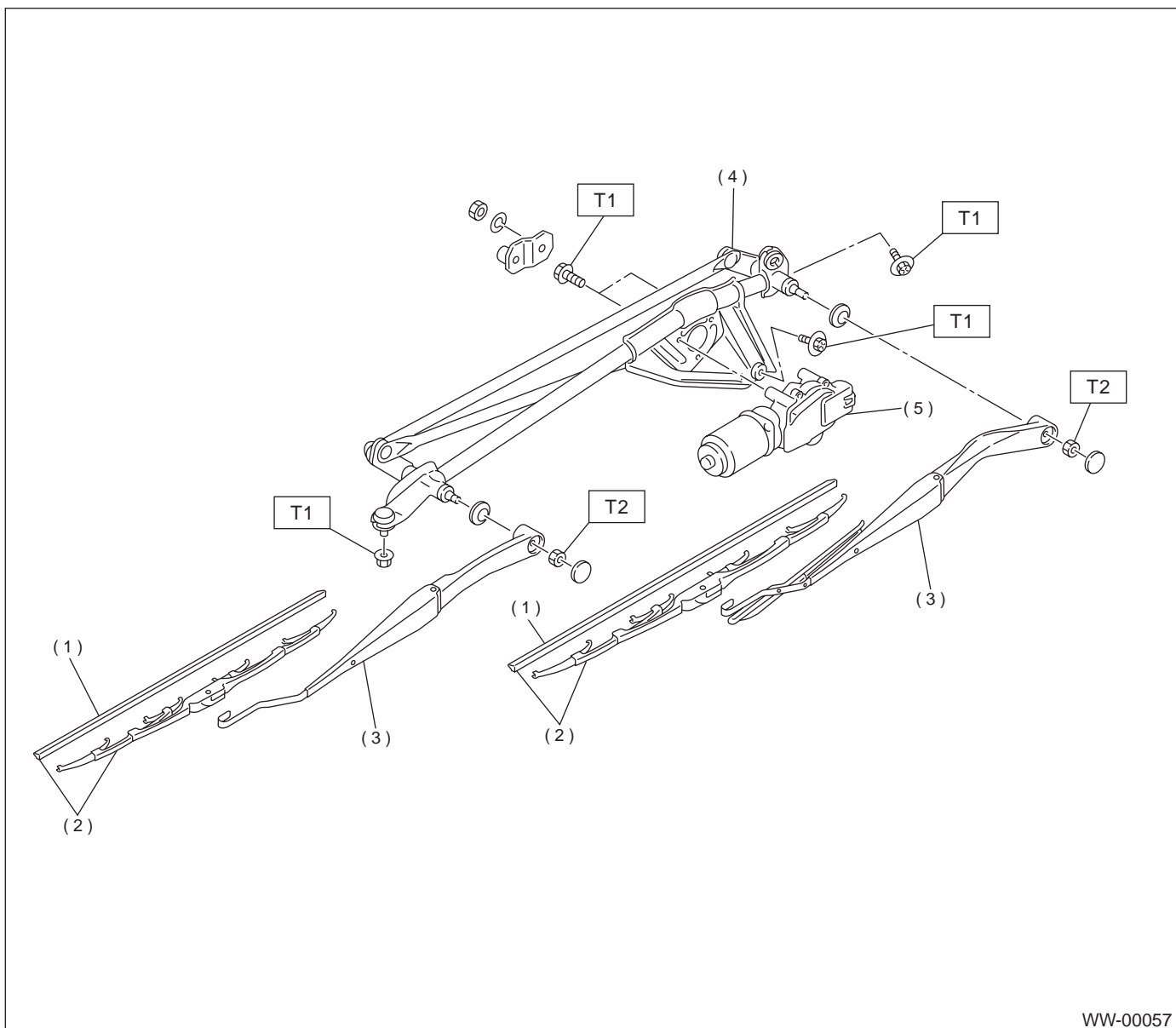
1. General Description

A: SPECIFICATIONS

Front wiper motor	Input	12 V — 72 W or less
Rear wiper motor	Input	12 V — 42 W or less
Front washer motor	Pump type	Centrifugal
	Input	12 V — 36 W or less
Rear washer motor	Pump type	Centrifugal
	Input	12 V — 36 W or less

B: COMPONENT

1. FRONT WIPER



- (1) Wiper rubber
- (2) Wiper blade ASSY
- (3) Wiper arm

- (4) Wiper link
- (5) Wiper motor

Tightening torque: N·m (kgf·m, ft·lb)

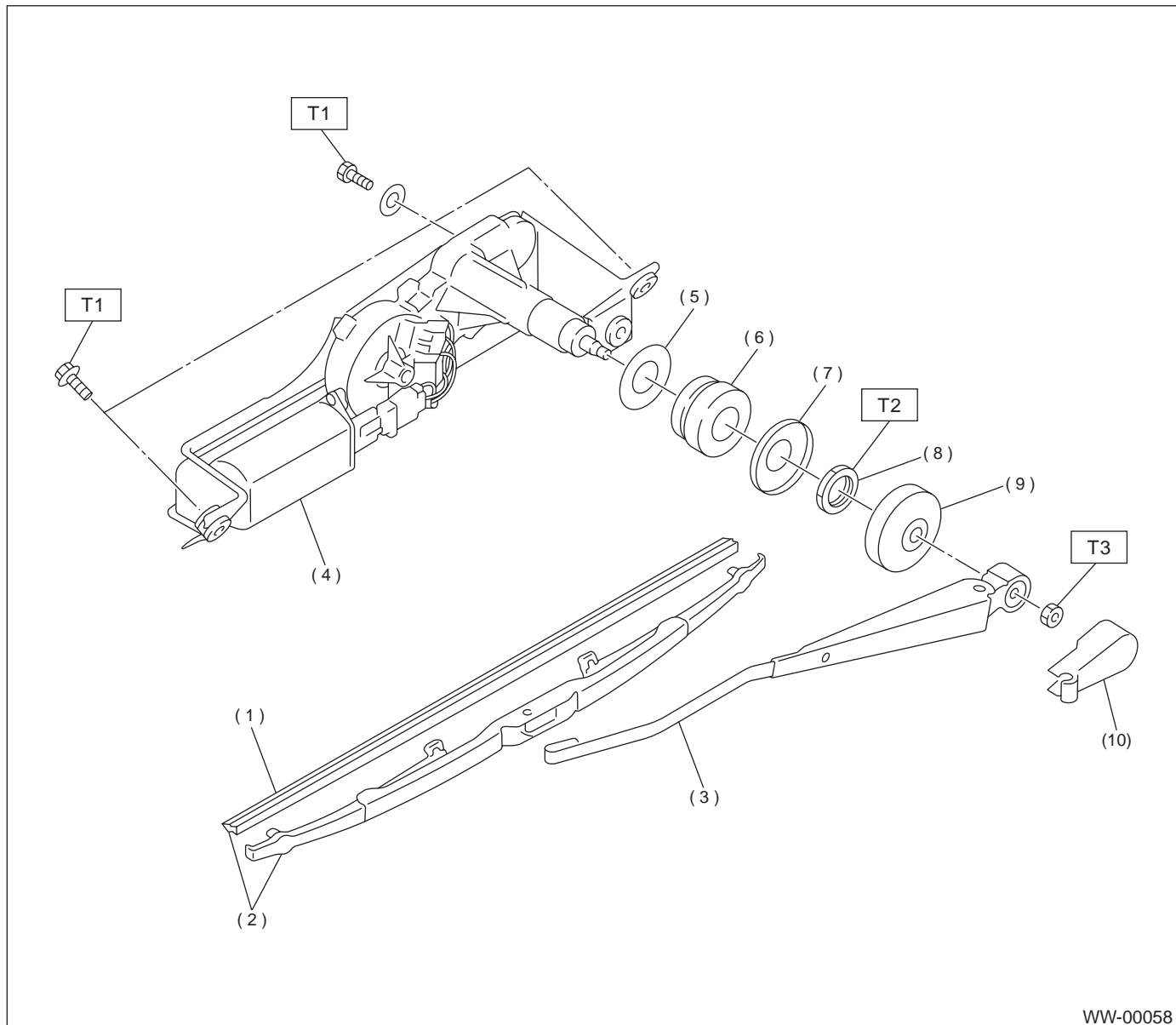
T1: 5.9 (0.6, 4.3)

T2: 20 (2.0, 14.5)

GENERAL DESCRIPTION

WIPER AND WASHER SYSTEMS

2. REAR WIPER



- | | |
|----------------------|----------------------|
| (1) Wiper rubber | (6) Cushion |
| (2) Wiper blade ASSY | (7) Spacer B |
| (3) Wiper arm | (8) Nut |
| (4) Wiper motor | (9) Cap |
| (5) Spacer A | (10) Wiper arm cover |

Tightening torque: N·m (kgf·m, ft·lb)

T1: 5.9 (0.6, 4.3)

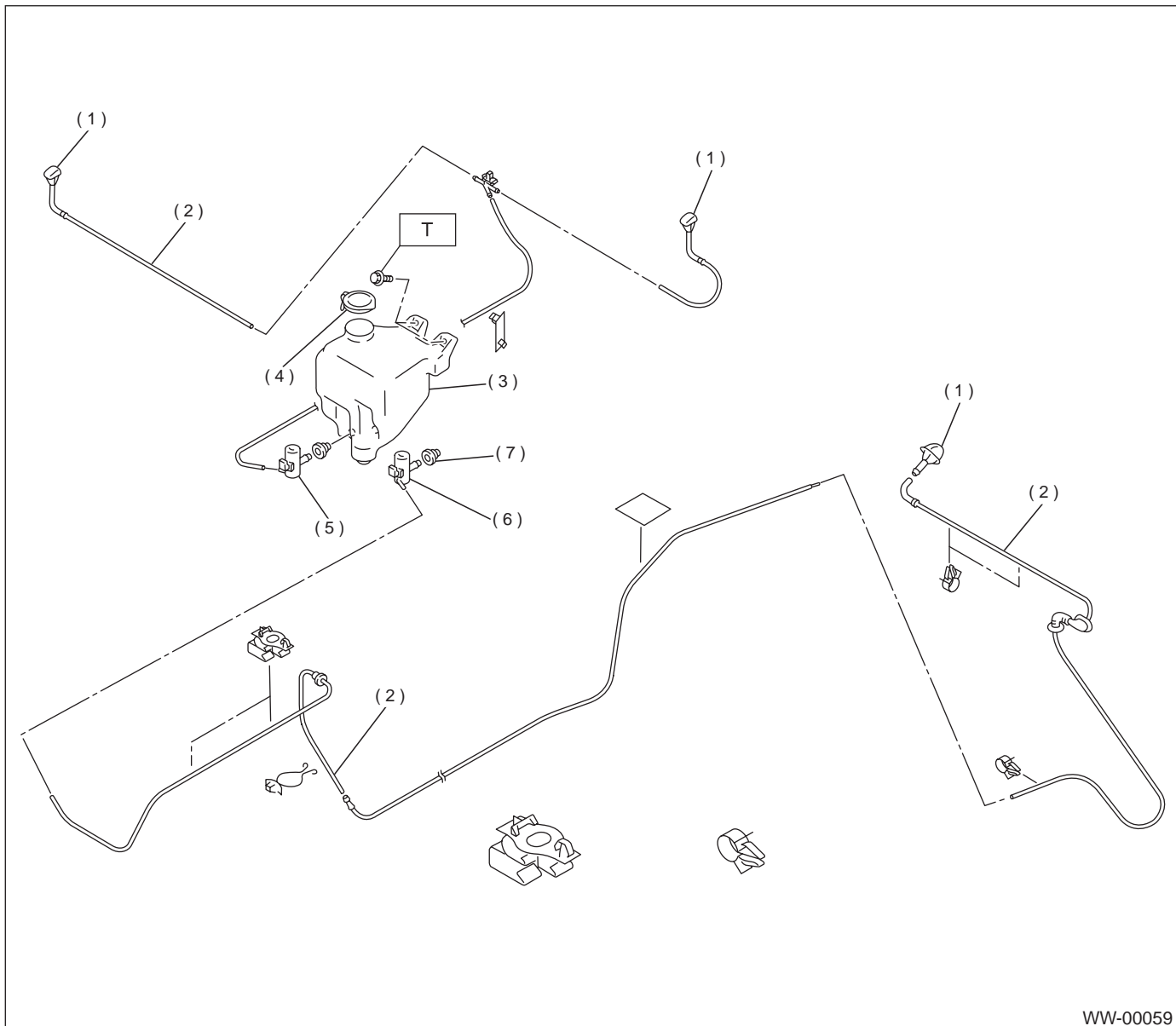
T2: 7.4 (0.75, 5.4)

T3: 7.8 (0.8, 5.8)

GENERAL DESCRIPTION

WIPER AND WASHER SYSTEMS

3. WASHER TANK



- (1) Washer nozzle
- (2) Washer hose
- (3) Washer tank
- (4) Washer tank cap

- (5) Front washer motor
- (6) Rear washer motor
- (7) Grommet

Tightening torque: N·m (kgf·m, ft·lb)
T: 5.9 (0.6, 4.3)

GENERAL DESCRIPTION

WIPER AND WASHER SYSTEMS

C: CAUTION

- Reconnect connectors and hoses securely. After reconnecting, confirm that each function operates normally.
- Be careful that wire harnesses of airbag system pass near electrical parts and switches.
- Wire harnesses and connectors of all airbag system are yellow color. Do not use a tester on these circuits.
- Care must be taken when installing the piping hose so that no bending, jamming, etc. are caused.
- If even a little oil or grease such as silicon oil gets in the tank and washer passages, an oil film easily forms on the glass, causing the wiper to chatter and judder. Therefore, be careful not to let this happen.

WIPER AND WASHER SYSTEM

WIPER AND WASHER SYSTEMS

2. Wiper and Washer System

A: SCHEMATIC

1. WIPER AND WASHER (FRONT)

<Ref. to WI-214, Wiper and Washer System (Front).>

2. WIPER AND WASHER (REAR)

<Ref. to WI-215, Wiper and Washer System (Rear).>

B: INSPECTION

Symptom	Repair order
Wiper and washers do not operate.	(1) Wiper fuse (F/B No. 14, 15) (2) Combination switch (3) Wiper motor (4) Wire harness
Wipers do not operate in LO or HI.	(1) Combination switch (2) Wiper motor (3) Wire harness
Wipers do not operate in INT.	(1) Combination switch (2) Wiper motor (3) Wire harness
Washer motor does not operate.	(1) Washer switch (2) Washer motor (3) Wire harness
Wipers do not operate when washer switch is ON.	(1) Washer motor (2) Wire harness
Washer fluid spray does not operate.	(1) Washer hose and nozzle

WW-6

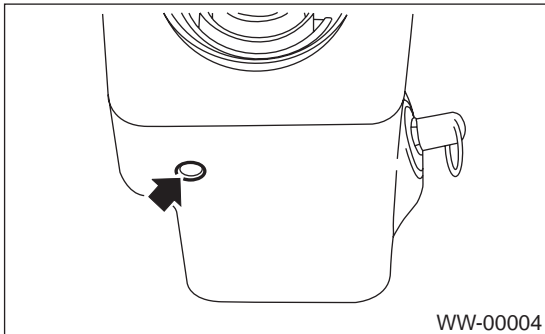
COMBINATION SWITCH (WIPER)

WIPER AND WASHER SYSTEMS

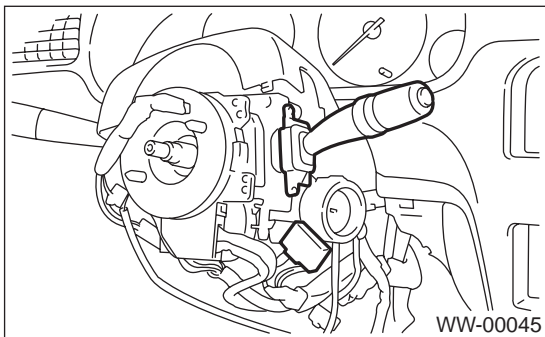
3. Combination Switch (Wiper)

A: REMOVAL

- 1) Loosen screw to remove a steering column cover.



- 2) Disconnect connectors from combination switches.
- 3) Loosen screw to remove combination switch.

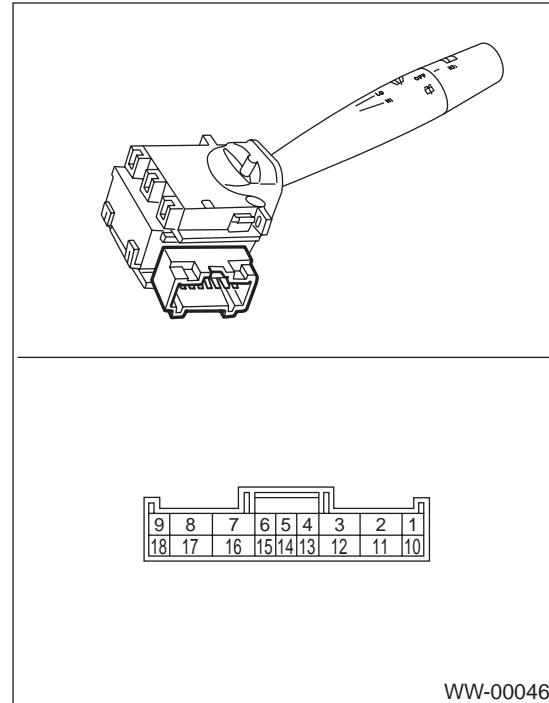


B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

- Inspect the continuity between each connector terminal.



	Switch position	Terminal No.	Standard
FRONT	OFF	7 and 16 7 and 17 8 and 17 2 and 11	More than 1 Ω
	INT	7 and 16	Less than 1 Ω
	LO	7 and 17	Less than 1 Ω
	HI	8 and 17	Less than 1 Ω
	Washer ON	2 and 11	Less than 1 Ω
REAR	Washer ON	2 and 10 10 and 12 2 and 12	Less than 1 Ω
	OFF	2 and 10 10 and 12 2 and 12	More than 1 MΩ
	ON	2 and 10	Less than 1 Ω
	Washer ON	2 and 10 10 and 12 2 and 12	Less than 1 Ω

If continuity is not as specified, replace the switch.

COMBINATION SWITCH (WIPER)

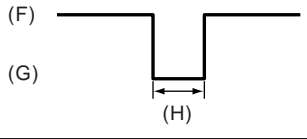
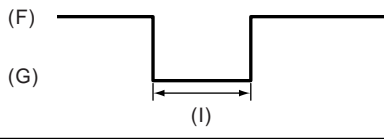
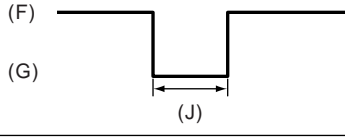
WIPER AND WASHER SYSTEMS

- Intermittent operation inspection

1) Turn the wiper switch to INT.

2) Adjust the intermittent control switch to MAX.

3) Apply battery voltage to switch terminals 17 and 2, and inspect the voltage of terminals 7 and 2. (Measure the voltage from after the second time the wiper stops.)

(A)	(B)
(C)	
(D)	
(E)	

WW-00053

(A) Switch position

(B) Voltage

(C) MIN.

(D) MAX.

(E) Non-variable

(F) 12 V

(G) 0 V

(H) Approx. 2 sec.

(I) 16 ± 6 sec.

(J) 3 ± 1 sec.

If operation is not as specified, replace the switch.

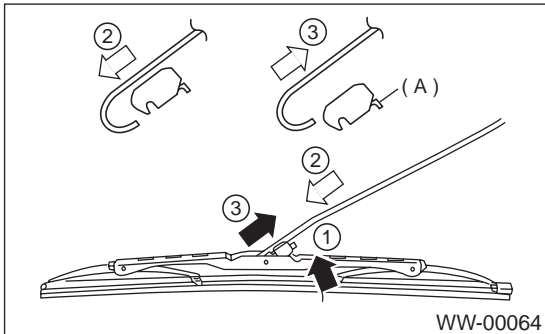
WIPER BLADE

WIPER AND WASHER SYSTEMS

4. Wiper Blade

A: REMOVAL

While pushing locking clip (A) up, pull out blade from arm to arrow direction.

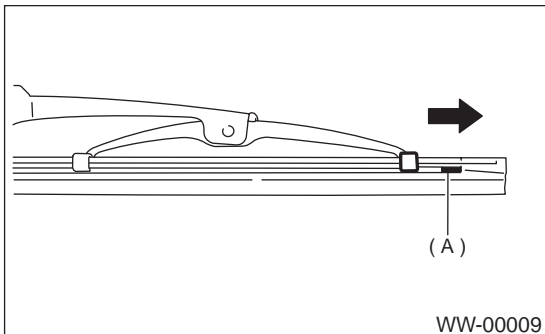


B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) Confirm that clip was locked securely.

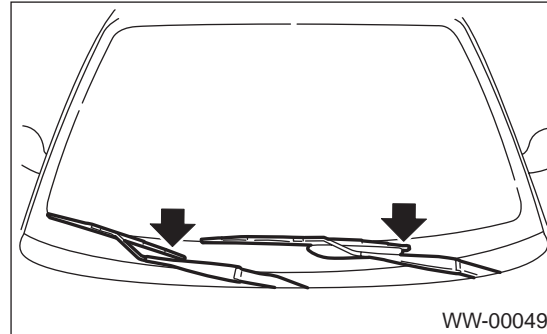
C: DISASSEMBLY

Pull on side (A) of the wiper rubber stopper and remove the rubber from the blade assembly.

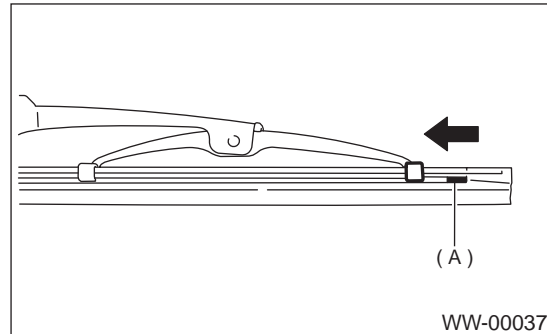


D: ASSEMBLY

- 1) Insert the wiper rubber onto the blade so that the stopper is in the position shown (at the bottom of the wiper arm).



- 2) Make sure the wiper rubber is securely fastened to the pull stopper (A).



E: INSPECTION

- 1) When the wiper does not perform well, inspect the following:
 - Make sure the movable part of the blade assembly moves smoothly.
 - Make sure the wiper rubber is not deformed or damaged.
- 2) Replace with a new part if damage is found.

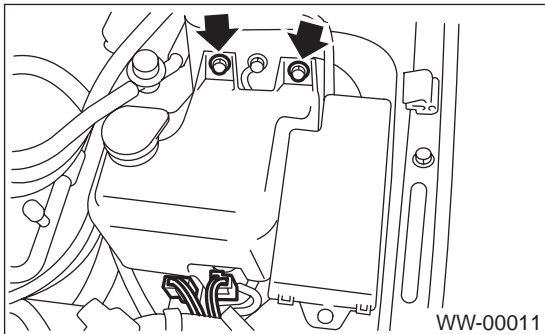
WASHER TANK AND MOTOR

WIPER AND WASHER SYSTEMS

5. Washer Tank and Motor

A: REMOVAL

- 1) Open hood.
- 2) Remove the 2 bolts, hose and connector and then remove the tank.



B: INSTALLATION

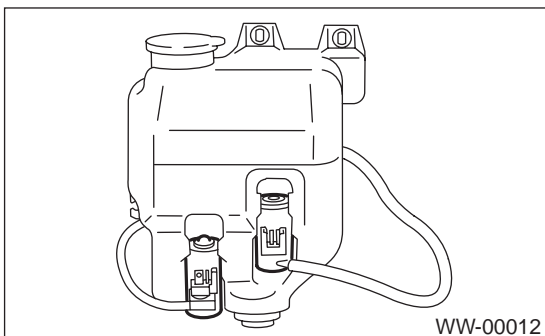
Install in the reverse order of removal.

Tightening torque:

5.9 N·m (0.6 kgf-m, 4.3 ft-lb)

C: DISASSEMBLY

Remove washer motor from tank.

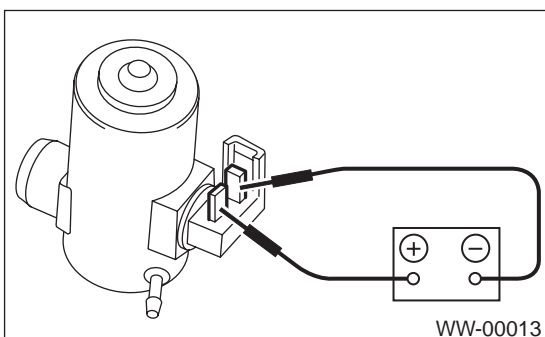


D: ASSEMBLY

- 1) Assemble in the reverse order of disassembly.
- 2) Confirm that water does not leak from installation area of motor.

E: INSPECTION

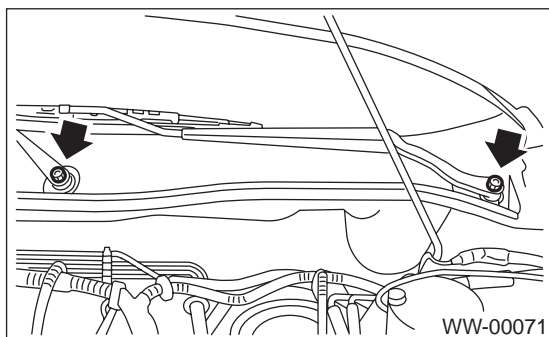
Apply battery voltage to the connector terminal of the washer motor and make sure the motor operates.



6. Front Wiper Arm

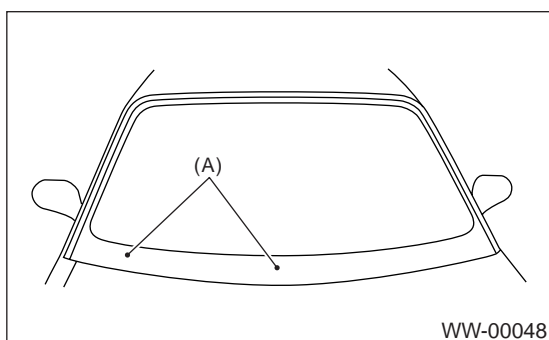
A: REMOVAL

- 1) Open hood.
- 2) Remove cap.
- 3) Loosen nut to remove arm.



B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) Operate wiper once.
- 3) Align wiper blade to ceramic print point mark (A) of front window pane.

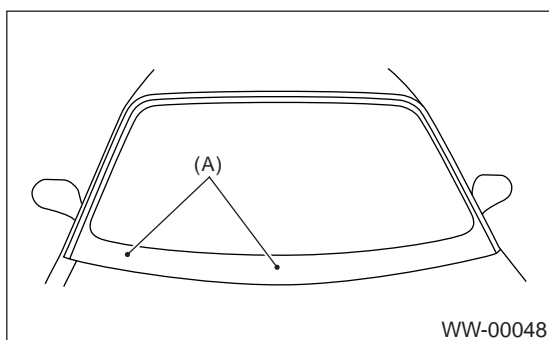


Tightening torque:

Refer to **COMPONENT** in *General Description*. <Ref. to WW-2, **FRONT WIPER, COMPONENT, General Description.**>

C: ADJUSTMENT

Operate wiper once. Align wiper blade to ceramic print point mark (A) of front window pane.



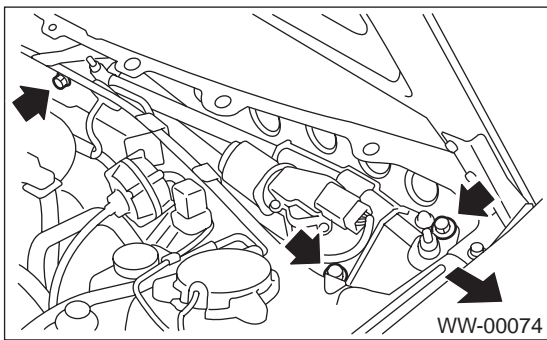
FRONT WIPER MOTOR AND LINK

WIPER AND WASHER SYSTEMS

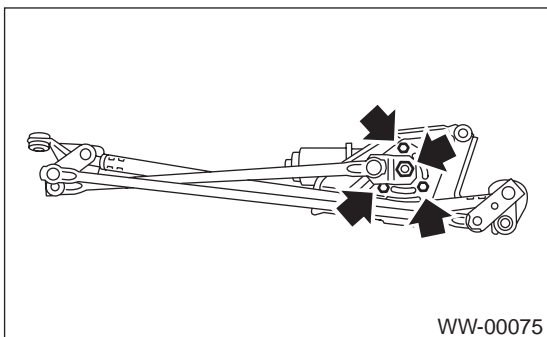
7. Front Wiper Motor and Link

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove cowl panel. <Ref. to EI-27, REMOVAL, Cowl Panel.>
- 3) Disconnect connector of motor.
- 4) Loosen bolts and nuts to remove wiper link.



- 5) Loosen bolts and nuts to remove motor.



B: INSTALLATION

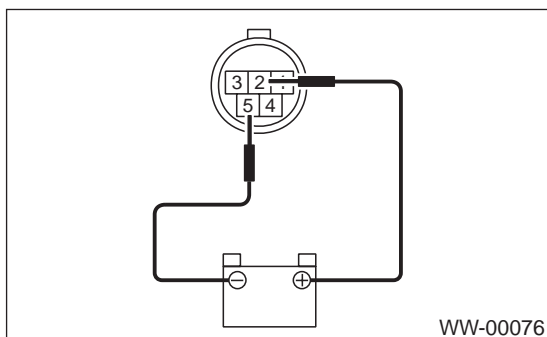
Install in the reverse order of removal.

Tightening torque:

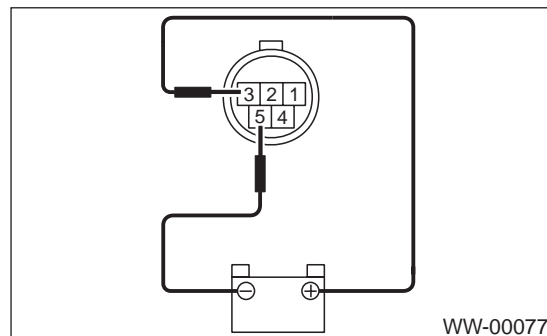
Refer to **COMPONENT** in *General Description*. <Ref. to **WW-2, FRONT WIPER, COMPONENT, General Description**.>

C: INSPECTION

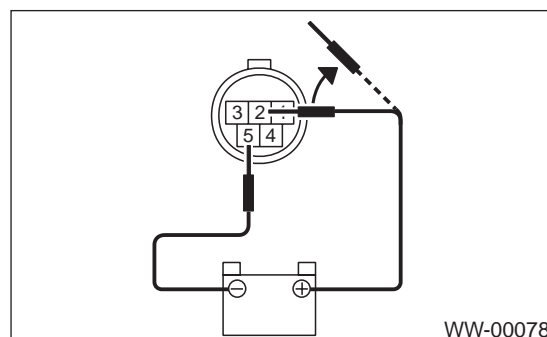
- 1) When battery is connected to terminal of connectors, confirm that motor operates at low speed.



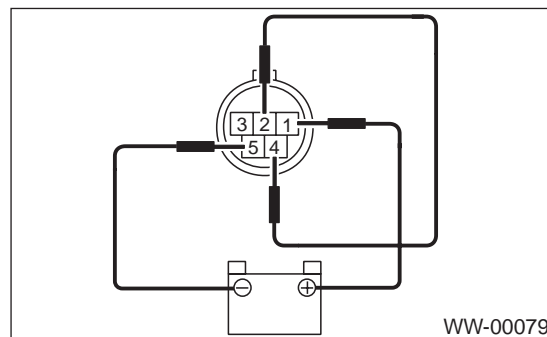
- 2) When battery is connected to terminal of connectors, confirm that motor operates at high speed.



- 3) Connect battery to terminals of connector, and remove terminal connection with motor rotated at low speed, and stop wiper motor through operation.



- 4) Connect battery and confirm that motor stops at automatic stop position after motor operates at low speed again.



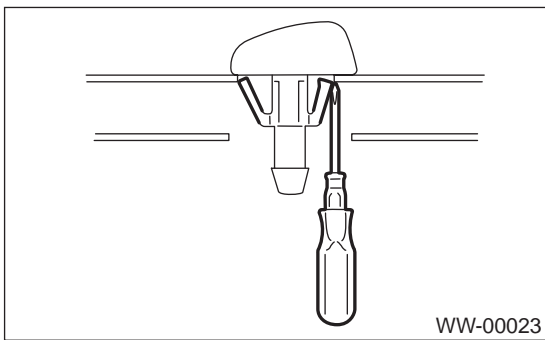
FRONT WASHER NOZZLE

WIPER AND WASHER SYSTEMS

8. Front Washer Nozzle

A: REMOVAL

- 1) Remove the washer hose from the washer nozzle.
- 2) Open the clips on the underside of the hood with a thin screwdriver or other tool, and remove the washer nozzle.



B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) Adjust the position of the washer liquid sprayer.
<Ref. to WW-13, ADJUSTMENT, Front Washer Nozzle.>

C: INSPECTION

- Make sure the nozzle and hose are not clogged.
- Make sure the hose is not bent.

D: ADJUSTMENT

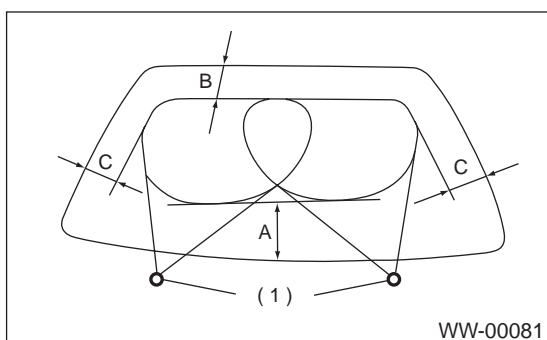
- 1) Turn wiper switch to OFF position.
- 2) When vehicle stops, adjust washer injection position as shown in the figure.

Injection position:

A: 300 mm (11.81 in)

B: 100 mm (3.94 in)

C: 200 mm (7.87 in)



(1) Nozzle

WW-13

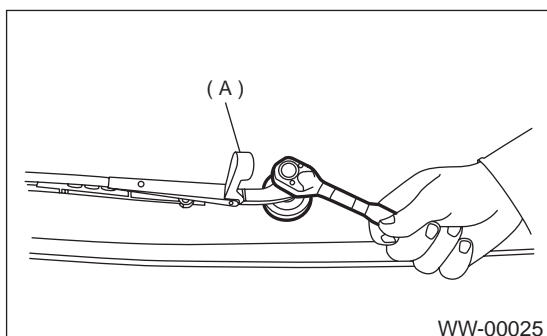
REAR WIPER ARM

WIPER AND WASHER SYSTEMS

9. Rear Wiper Arm

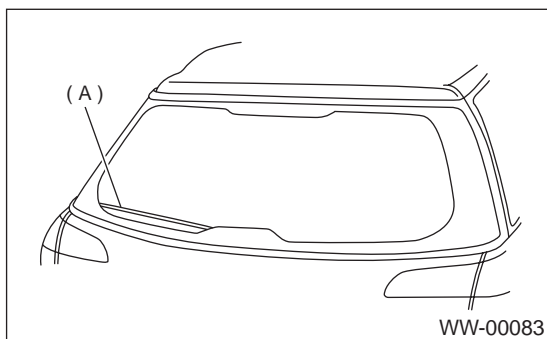
A: REMOVAL

- 1) Raise wiper arm cover (A).
- 2) Loosen nut to remove wiper arm.



B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) Operate rear wiper once.
- 3) Align blade to rear defogger heat wire (A).

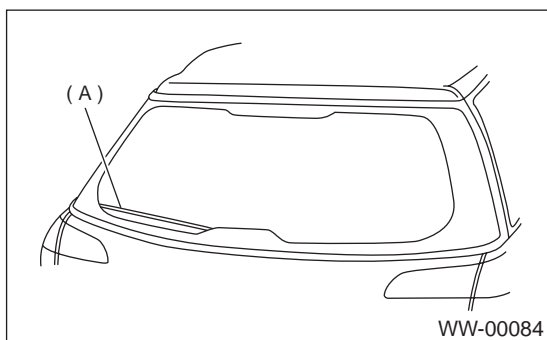


Tightening torque:

Refer to COMPONENT in General Description. <Ref. to WW-2, FRONT WIPER, COMPONENT, GENERAL DESCRIPTION.>

C: ADJUSTMENT

- 1) Operate rear wiper once.
- 2) Align blade to rear defogger heat wire (A).



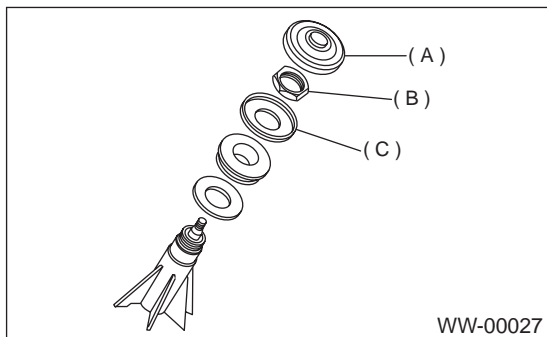
REAR WIPER MOTOR

WIPER AND WASHER SYSTEMS

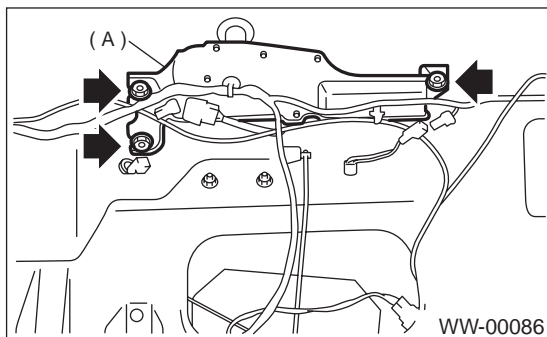
10.Rear Wiper Motor

A: REMOVAL

- 1) Remove rear wiper arm.
- 2) Remove cap (A), nut (B), and spacer (C) from rear wiper shaft.

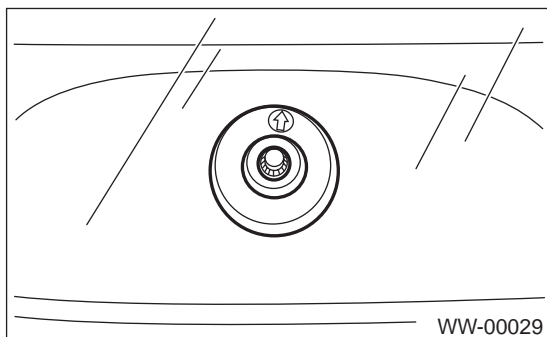


- 3) Remove rear gate lower trim. <Ref. to EI-47, REMOVAL, Rear Gate Trim.>
- 4) Unclip clip of harness and disconnect connector of wiper motor.
- 5) Loosen bolts to remove wiper motor assembly (A).



B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) Install rear wiper cushion with the arrow mark facing up, as shown in the figure.

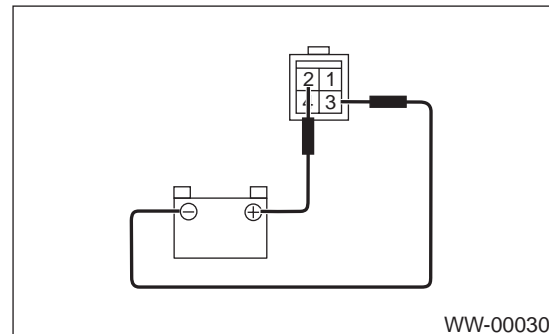


Tightening torque:

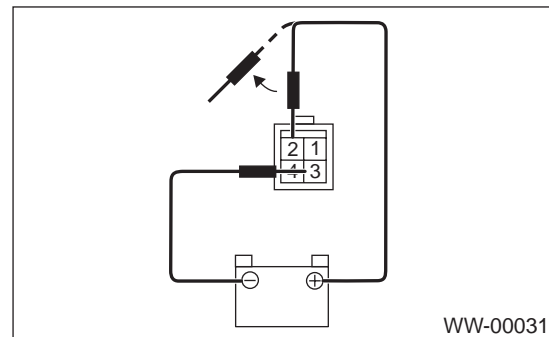
Refer to **COMPONENT** in **General Description**. <Ref. to WW-2, **FRONT WIPER, COMPONENT, General Description**.>

C: INSPECTION

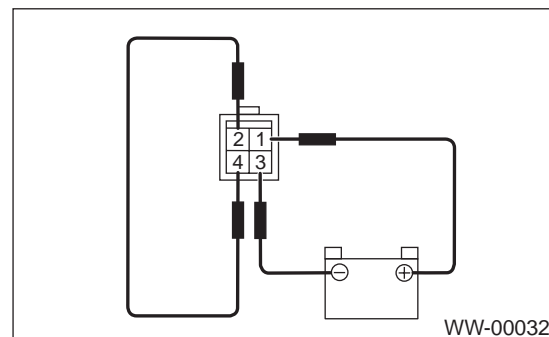
- 1) Connect battery to wiper motor connector and confirm that wiper motor operates.



- 2) Connect battery to terminal of connector and remove terminal connections with motor rotated, and stop wiper motor through operation.



- 3) Connect battery and confirm that motor stops at automatic stop position after motor operates at low speed again.



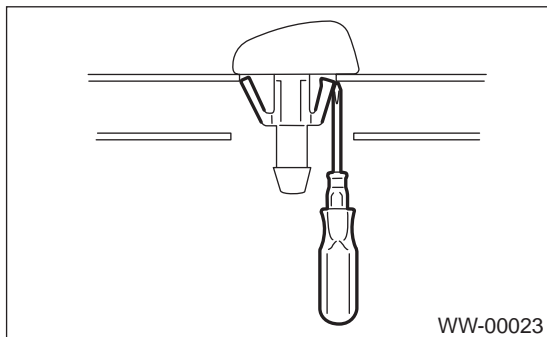
REAR WASHER NOZZLE

WIPER AND WASHER SYSTEMS

11.Rear Washer Nozzle

A: REMOVAL

- 1) Remove the high-mount stop light. <Ref. to LI-25, REMOVAL, High-mounted Stop Light.>
- 2) Remove the washer hose from the washer nozzle.
- 3) Open the clips on the underside of the hood with a thin screwdriver or other tool, and remove the washer nozzle.



B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) Adjust the position of the washer liquid sprayer. <Ref. to WW-16, ADJUSTMENT, Rear Washer Nozzle.>

C: INSPECTION

- Make sure the nozzle and hose are not clogged.
- Make sure the hose is not bent.

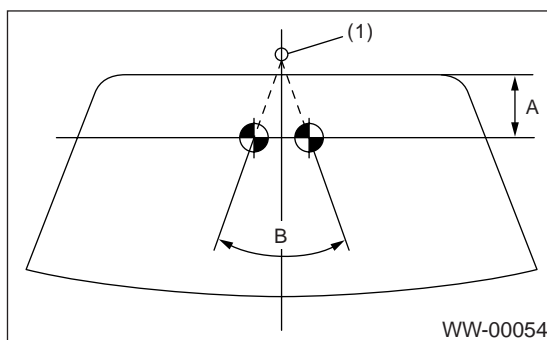
D: ADJUSTMENT

- 1) Turn wiper switch to OFF position.
- 2) When vehicle stops, adjust washer injection position as shown in the figure.

Injection position:

A: 60 mm (2.36 in)

B: 42°



(1) Nozzle

WW-16

WIPER CONTROL RELAY

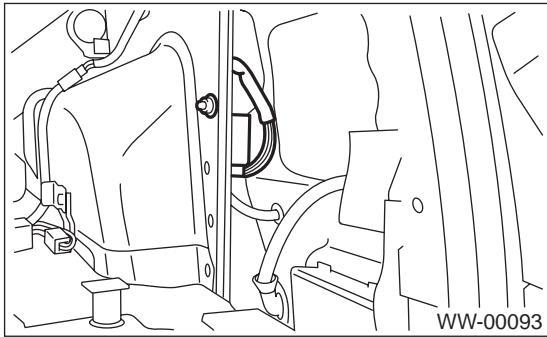
WIPER AND WASHER SYSTEMS

12. Wiper Control Relay

A: REMOVAL

1. WAGON

- 1) Remove right quarter lower trim. <Ref. to EI-43, REMOVAL, Rear Quarter Trim.>
- 2) Remove quarter pocket.
- 3) Loosen nut to remove control unit.



B: INSTALLATION

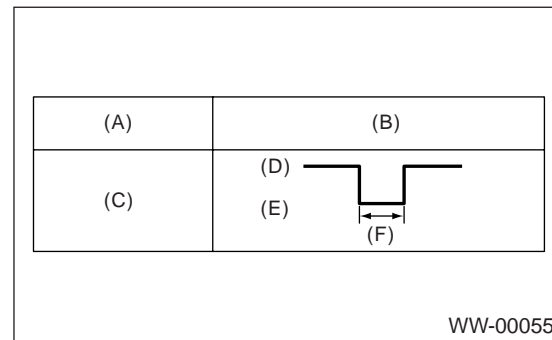
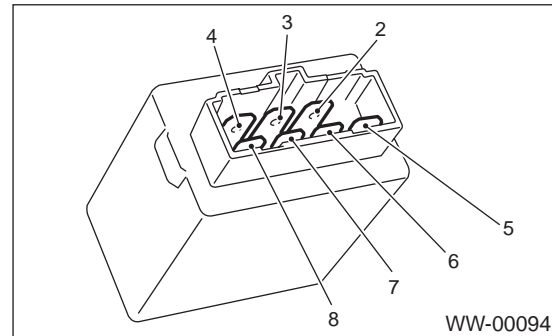
1. WAGON

Install in the reverse order of removal.

C: INSPECTION

1. WAGON

- 1) Apply battery voltage to the rear terminals 8 and 2, and then inspect the voltage of 6 and 2. (Measure the voltage from after the second time the wiper stops.)



- (A) Switch position
- (B) Voltage
- (C) ON
- (D) 12 V
- (E) 0 V
- (F) 9 ± 2 sec.

If operation is not as specified, replace the switch.

WIPER CONTROL RELAY

WIPER AND WASHER SYSTEMS

MEMO:

BASIC DIAGNOSTIC PROCEDURE

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

1. Basic Diagnostic Procedure

A: PROCEDURE

Step	Value	Yes	No
1 START INSPECTIONS. 1) Perform pre-inspection. 2) Perform self-diagnosis. <Ref. to AC-9, OPERATION, Self-Diagnosis Procedure.> Dose self-diagnosis operate?	Self-diagnosis operates.	Go to step 2.	<Ref. to AC-12, A/C AND/OR SELF-DIAGNOSIS SYSTEMS DO NOT OPERATE, Diagnostics for A/C System Failure.>
2 CHECK DTC. Check DTC. Is DTC indicated?	DTC indicated.	<Ref. to AC-24, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Go to step 3.
3 CHECK BLOWER MOTOR OPERATION. 1) Turn blower switch ON. 2) Check blower motor operation. Is blower motor rotated?	Blower motor rotates.	Go to step 4.	<Ref. to AC-14, BLOWER MOTOR DOES NOT ROTATE, Diagnostics for A/C System Failure.>
4 CHECK FRESH/RECIRC MODE. Change FRESH/RECIRC mode by pushing mode switch. Is FRESH/RECIRC mode changed?	FRESH/RECIRC mode changes.	Go to step 5.	<Ref. to AC-20, FRESH/RECIRC DOES NOT CHANGE, Diagnostics for A/C System Failure.>
5 CHECK COMPARTMENT TEMPERATURE. 1) Turn A/C switch ON. 2) Set temperature at 18°C (65°F) (MAX COOL). 3) Check compartment temperature changes. Is the compartment temperature changed?	Compartment temperature changes.	Go to step 6.	<Ref. to AC-16, COMPARTMENT TEMPERATURE DOES NOT CHANGE FROM "SET" TEMPERATURE OR AIR CONDITIONING SYSTEM DOES NOT RESPOND QUICKLY, Diagnostics for A/C System Failure.>
6 CHECK A/C SYSTEM RESPONSE. Change the temperature setting, and check response of A/C system. Dose A/C system respond quickly?	A/C system responds quickly.	A/C system is OK.	<Ref. to AC-16, COMPARTMENT TEMPERATURE DOES NOT CHANGE FROM "SET" TEMPERATURE OR AIR CONDITIONING SYSTEM DOES NOT RESPOND QUICKLY, Diagnostics for A/C System Failure.>

AC-2

GENERAL DESCRIPTION

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

2. General Description

A: CAUTION

- 1) Never connect the battery in reverse polarity.
 - The auto A/C control module may be destroyed instantly.
- 2) Do not disconnect the battery terminals while the engine is running.
 - A large counter electromotive force will be generated in the alternator, and this voltage may damage electronic parts such as A/C control module.
- 3) Before disconnecting the connectors of each sensor and the A/C control module, be sure to turn off the ignition switch.
 - Otherwise, the Auto A/C control module may be damaged.
- 4) Every auto A/C-related part is a precision part. Do not drop them.
- 5) Airbag system wiring harness is routed near the A/C control panel (A/C control module) and junction box.

CAUTION:

- All airbag system wiring harness and connectors are colored yellow. Do not use electrical test equipment on these circuits.
- Be careful not to damage Airbag system wiring harness when servicing the A/C control panel (A/C control module) and junction box.

B: INSPECTION

Before performing diagnosis, check the following items which might affect engine problems.

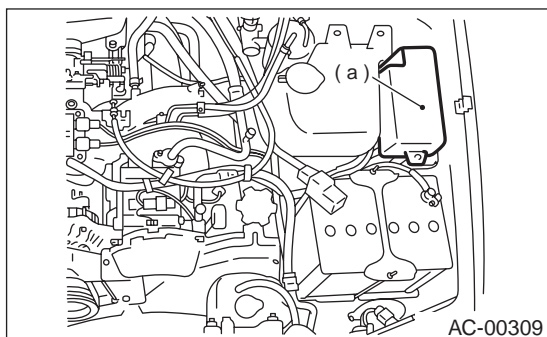
1. BATTERY

- 1) Measure battery voltage and specific gravity of electrolyte.

Standard voltage: 12 V

Specific gravity: Above 1.260

- 2) Check the condition of the fuses for A/C, heater and other fuses.

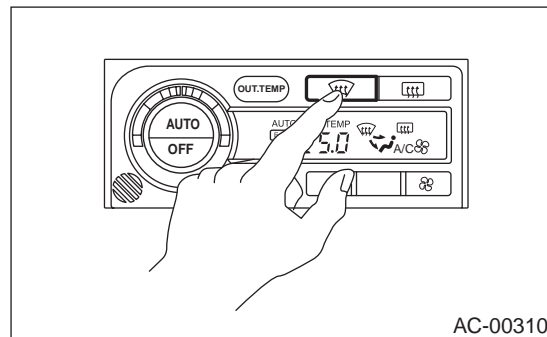


(a) Main fuse box

- 3) Check the condition of the harnesses and harness connectors connection.

2. ASPIRATOR HOSE

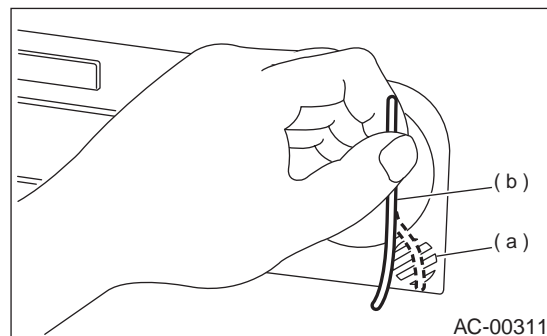
- 1) Turn ignition switch to ON.
- 2) Push "DEF" switch and then blower fan switch to turn the blower fan to maximum speed.



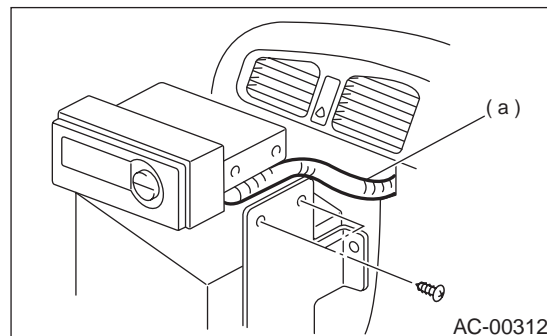
- 3) Firmly hold a thin thread (b) in front of the in-vehicle sensor suction port (a) for the auto A/C control unit and check that the thread moves towards the port indicating that air is being sucked into the port.

NOTE:

- Ensure the thread does not get sucked into the port.



- 4) If the thread does not move at all, remove the auto A/C control unit <Ref. to AC-29, REMOVAL, Control Unit.> and check for improper connection of the aspirator hose (a) and auto A/C control unit and secure as necessary.

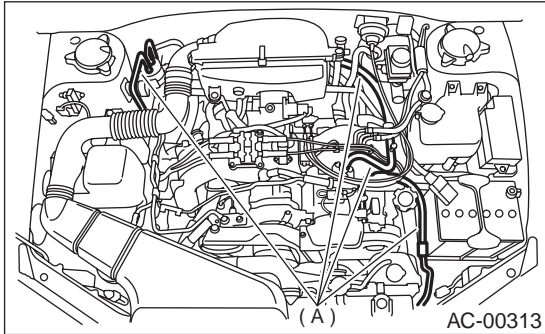


GENERAL DESCRIPTION

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

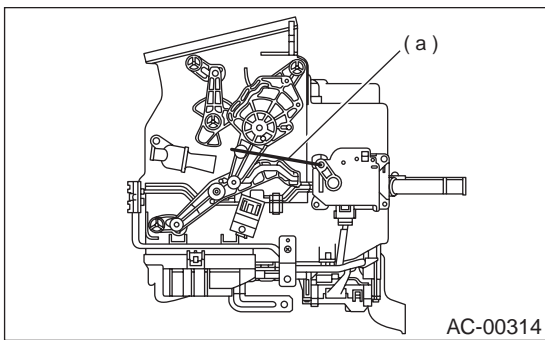
3. REFRIGERANT LINE

Check contact for refrigerant line (A).



4. CONTROL LINKAGE

- 1) Check state of mode door control rod and linkage.
- 2) Check state of air mix door control rod and linkage.
- 3) Check state of intake door control rod and linkage.



(a) Control rod

GENERAL DESCRIPTION

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

5. CONTROL SWITCHES

Start and warm up engine completely.

1) Inspection using switches.

No.	Point to check	Switch operation	Judgement standard
1	OFF switch	OFF switch "ON"	"SET" temperature display go out. • Air flow → OFF • Outlet → HEAT • Inlet → FRESH • Compressor → OFF
2	AUTO switch	A. AUTO switch "ON" B. Temp. control dial 18°C (65°F) (Max. Cold)	a. AUTO switch display illuminates. b. • Outlet air → Cool • Air flow → HI (AUTO) • Outlet → VENT • Inlet → AUTO • Compressor → AUTO
		C. TEMP control dial is gradually set from 18°C (65°F) to 32°C (85°F).	c. Air and air outlet mode change as follows: • Outlet air: cool → hot • Air flow: AUTO • Outlet: VENT → BI-LEVEL → HEAT • Inlet: AUTO
		D. Temp. control dial 32°C (85°F) (Max. Hot)	d. Outlet air → Hot • Air flow → HI (AUTO) • Outlet → HEAT • Inlet → FRESH (AUTO) • Compressor → AUTO
3	DEF switch	A. DEF switch "ON" B. Temp. control dial 18 — 32°C (65 — 85°F)	a. DEF switch display illuminates. b. • Outlet air temperature (AUTO control) • Air flow (AUTO control) • Outlet → DEF • Inlet → FRESH • Compressor → ON
4	FRESH/RECIRC switch	FRESH/RECIRC switch "ON"	Changes from RECIRC → FRESH, or FRESH → RECIRC.
5	MODE switch	MODE switch "ON"	Outlet changes from VENT → BI-LEVEL → HEAT → DEF/HEAT each time MODE switch is pushed.
6	FAN switch	FAN switch "ON"	Fan speed changes from LO → M1 → M2 → HI each time FAN switch is pushed.
7	OUT-TEMP switch	OUT-TEMP switch "ON"	Ambient temperature flashes on "set" temperature display, and "set" temperature appears.

2) Compressor operation inspection

No.	Point to check	Switch operation	Judgement standard	Remarks
1	Compressor	A. AUTO switch "ON" B. A/C switch "ON" C. DEF switch "ON"	a. Compressor ON b. Compressor ON c. Compressor ON	Compressor turns OFF several seconds after AUTO switch is turned ON.

3) Illumination control inspection

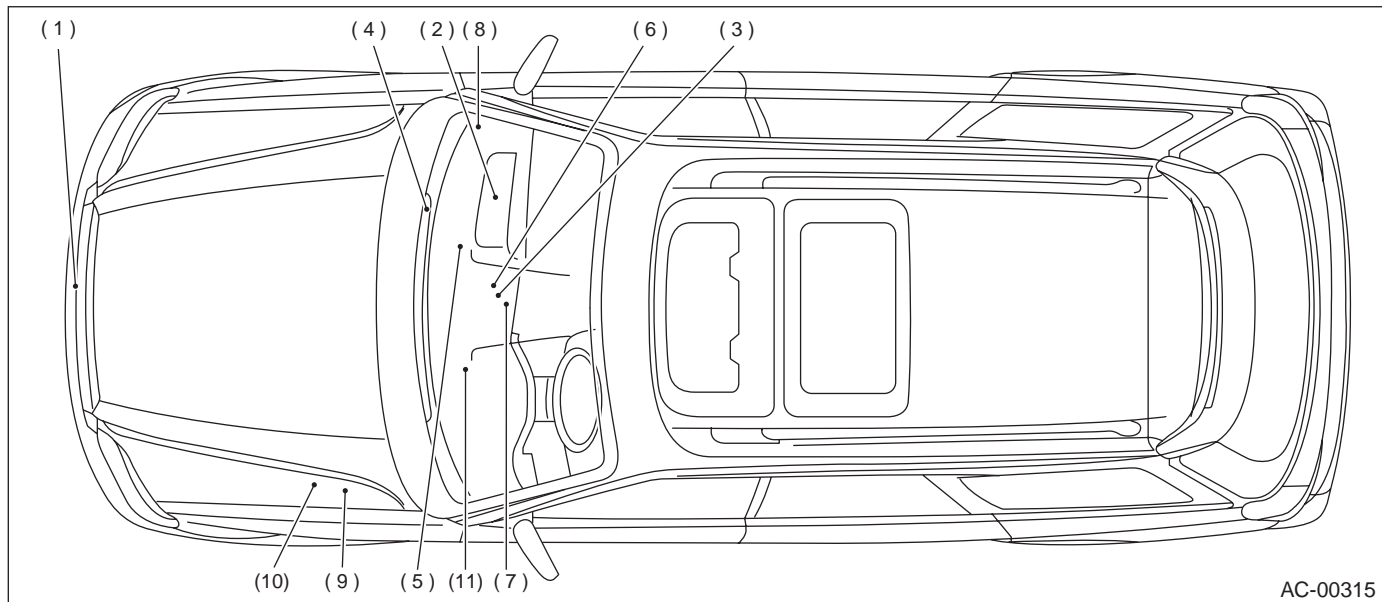
No.	Point to check	Switch operation	Judgement standard	Remarks
1	Illumination	Lighting switch "ON"	Illumination light illuminates and both switch light and "set" temperature display dim.	Green lights remain on although OFF and OUT-TEMP switches remain ON.
		Press OFF switch longer than 1 second.	Dimming of illumination is canceled.	

ELECTRICAL COMPONENTS LOCATION

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

3. Electrical Components Location

A: LOCATION



- (1) Ambient sensor
- (2) Blower motor
- (3) In-vehicle sensor
- (4) Sunload sensor

- (5) Evaporator sensor
- (6) Auto A/C control module
- (7) Air mix door actuator
- (8) Intake door actuator

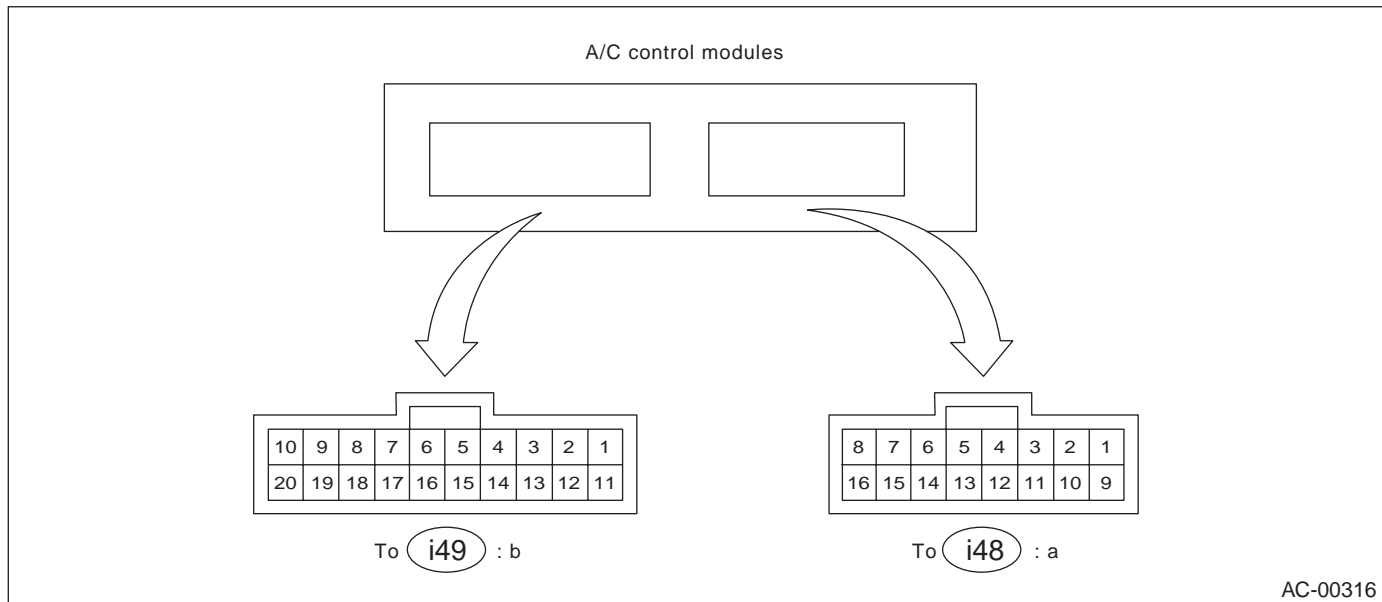
- (9) A/C relay
- (10) A/C fuse
- (11) Mode door actuator

A/C CONTROL MODULE I/O SIGNAL

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

4. A/C Control Module I/O Signal

A: ELECTRICAL SPECIFICATION



Content	Connector & Terminal No.	Signal (V)
BATT voltage (Memory back-up)	b1—b12	BATT voltage, 13 — 14 (engine running)
IGN power supply	a8—b12	Battery voltage (ignition switch ON), 13 — 14 (engine running)
ACC power supply (OFF: ignition in START or diagnosis system reset)	b2—b12	BATT voltage, 0 (engine cranking), BATT voltage (during engine starts)
A/C control module ground circuit	b12—body	0 (ignition switch ON) — circuit constantly grounded
Sensor ground circuit	b17—body	0 (ignition switch ON) — circuit constantly grounded
Ambient sensor	b6—b17	Approx. 3.3 (disconnect connector, and ignition switch ON)
Evaporator sensor	b7—b17	
Thermometer	b15—b12	
Sunload sensor	b16—b17	Approx. 4.2 (disconnect connector, and ignition switch ON)
Air mix door actuator	a4—a3	BATT voltage (AUTO mode) positive “+” at terminal “a4” and negative “-” at “a3” [temperature set at 18°C (65°F)]; negative “-” at terminal “a4” and positive “+” at “a3” [temperature set at 32°C (90°F)]
Air mix door actuator P.B.R.	a12—b17	Approx. 0.5 [temperature set at 18°C (65°F) in AUTO mode] Approx. 4.5 [temperature set at 32°C (90°F) in AUTO mode]
Mode actuator VENT	a5—b17	BATT voltage (ignition switch ON in MANUAL mode); positive “+” at terminal “a5” and negative “-” at “b17” (VENT); negative “-” at “a5” and positive “+” at “b17” (DEF)
Mode actuator DEF	a6—b17	BATT voltage (ignition switch ON in MANUAL mode) Approx. 4.5 (VENT); approx. 0.5 (DEF)
Intake door actuator FRS voltage	a7—a15	BATT voltage (CIRC switch OFF)
Intake door actuator CIRC voltage	a15—a7	BATT voltage (CIRC switch ON)
Blower fan relay	b14—body	BATT voltage (ignition switch ON)
A/C relay	b3—b12	0 (ignition and A/C switches ON) BATT voltage (A/C switch OFF)
Illumination control signal	b10—b20	BATT voltage (ignition and lighting switches ON)
Rear defogger	a13—b12	0 (IGN ON, R Def SW ON)

A/C CONTROL MODULE I/O SIGNAL

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

B: SCHEMATIC

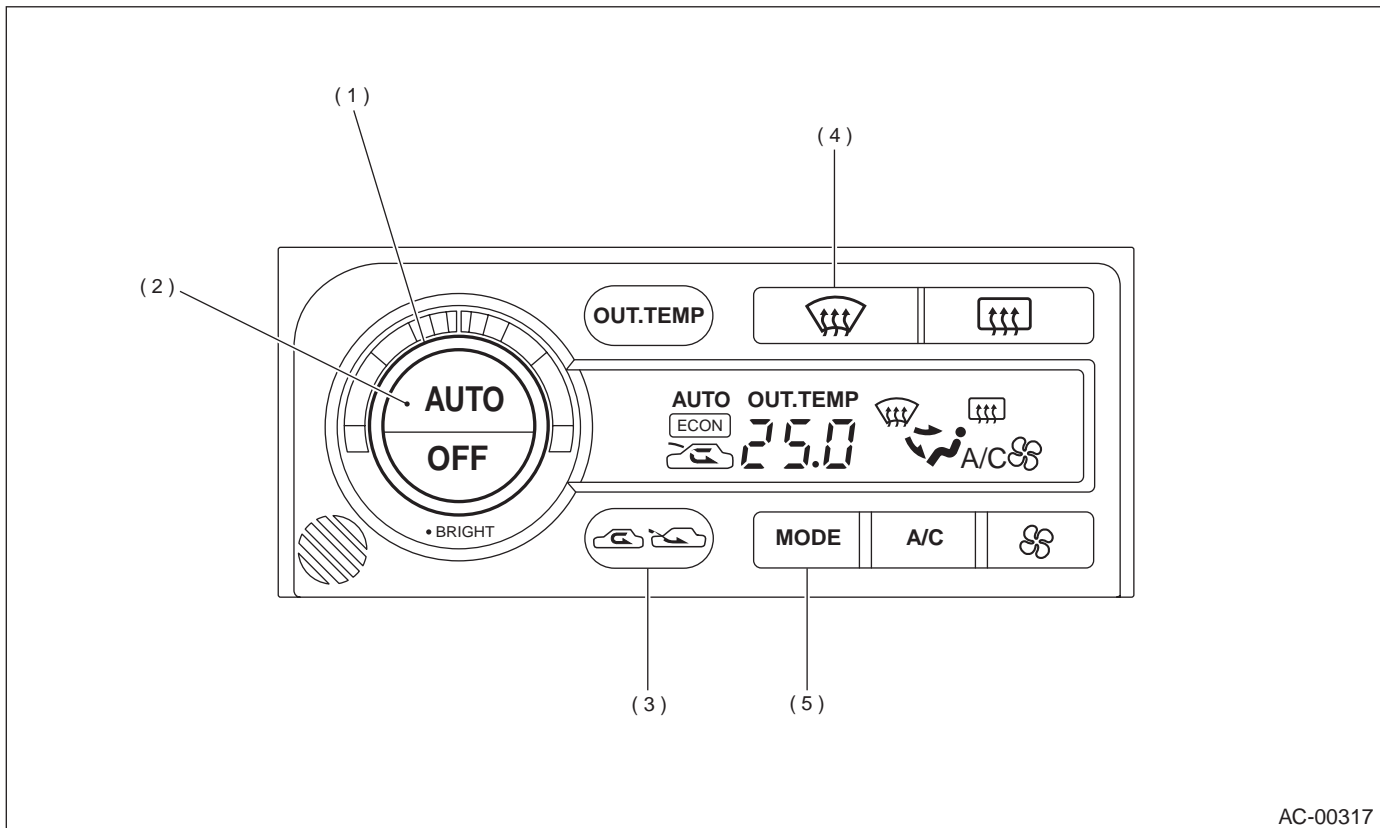
<Ref. to WI-50, SCHEMATIC, Automatic Air Conditioning System.>

SELF-DIAGNOSIS PROCEDURE

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

5. Self-Diagnosis Procedure

A: OPERATION



AC-00317

(1) Temperature control dial
(2) AUTO switch

(3) FRESH/RECIRC switch
(4) DEF switch

(5) MODE switch

SELF-DIAGNOSIS PROCEDURE

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Value	Yes	No
1 SELECT CONTROL PANEL TO SELF-DIAGNOSIS MODE. 1) Turn ignition switch to OFF. 2) While pushing "AUTO" and "FRESH/RECIRC" switches, start the engine. Can it be moved to the self-diagnosis mode?	It can be moved to self-diagnosis mode.	Go to step 2.	<Ref. to AC-12, A/C AND/OR SELF-DIAGNOSIS SYSTEMS DO NOT OPERATE, Diagnostics for A/C System Failure.>
2 CHECK INDICATOR. 1) Turn temperature control dial clockwise by one click. 2) Make sure that all characters illuminate on the display. Does each character illuminate?	Each character illuminates.	Go to step 3.	Go to step 7.
3 CHECK EACH SENSOR AND EACH POTENTIOMETER. 1) Turn temperature control dial clockwise by one click. 2) If system has the trouble for each sensor and/or each potentiometer, DTC is indicated on indicator. 3) If system has no trouble, DTC "20" is indicated on indicator. NOTE: When the sunload sensor is checked inside the passenger compartment or in the shade, DTC "25" may appear on the indicator. Always check the sunload sensor in a place where it senses direct sunlight. Is the DTC "20" indicated on indicator?	DTC "20" indicated.	Go to step 4.	Perform diagnosis procedure according to the displayed DTC. <Ref. to AC-22, DTC FOR SENSOR AND POTENTIOMETER, LIST, List of Diagnostic Trouble Code (DTC).>
4 CHECK DOOR MOTOR POSITION SWITCH. 1) Turn temperature control dial clockwise by one click. 2) If system has the trouble for each door position switch, DTC is indicated on indicator. 3) If system has no trouble, DTC "30" is indicated on indicator. Is the DTC "30" indicated on indicator?	DTC "30" indicated.	Go to step 5.	Perform diagnosis procedure for mode door actuator. <Ref. to AC-32, DTC 31, 32, 33, 34 OR 35 (MODE DOOR ACTUATOR), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
5 CHECK OPERATION OF EACH ACTUATOR, BLOWER FAN AND COMPRESSOR CLUTCH. 1) Turn temperature control dial clockwise by one click. 2) Select operating mode by pushing every "DEF" switch. 3) Check the operation for each mode. •Air inlet: •Air outlet: •Air mix door: •Blower fan: •A/C compressor: Does each mode displayed match the operating mode table? <Ref. to AC-11, OPERATING MODE TABLE, OPERATION, Self-Diagnosis Procedure.>	Each mode displayed match the operating mode table.	Go to step 6.	Go to step 7.

SELF-DIAGNOSIS PROCEDURE

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Value	Yes	No
6 CHECK INDICATED VALUE OF EACH SENSOR. 1) Turn temperature control dial clockwise by one click. 2) Each time the "DEF" switch is pressed, the value indicated on the display changes to correspond with the ambient sensor, in-vehicle sensor and intake sensor, in that order. 3) Make sure there is no big difference between the temperature indicated on the display and the measured temperature. Is a proper input signal value displayed in each sensor?	Proper input signal value displayed.	End	Go to step 7.
7 CHECK POOR CONTACT. Check poor contact in A/C control module connector. Is there poor contact in connector?	There is no poor contact.	Replace A/C control module.	Repair connector.

1. OPERATING MODE TABLE

Mode display	41	42	43	44	45	46	47	48
Air inlet	REC	REC	REC	FRE	FRE	FRE	FRE	FRE
Air outlet	VENT	VENT	B/L	B/L	B/L	HEAT	D/H	DEF
Air mix door	FULL COOL	FULL COOL	FULL COOL	FULL HOT	FULL HOT	FULL HOT	FULL HOT	FULL HOT
Blower fan	5V	5V	Power supply voltage	8.5V	8.5V	8.5V	8.5V	Power supply voltage
A/C compressor	ON	ON	ON	OFF	OFF	OFF	ON	ON

DIAGNOSTICS FOR A/C SYSTEM FAILURE

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

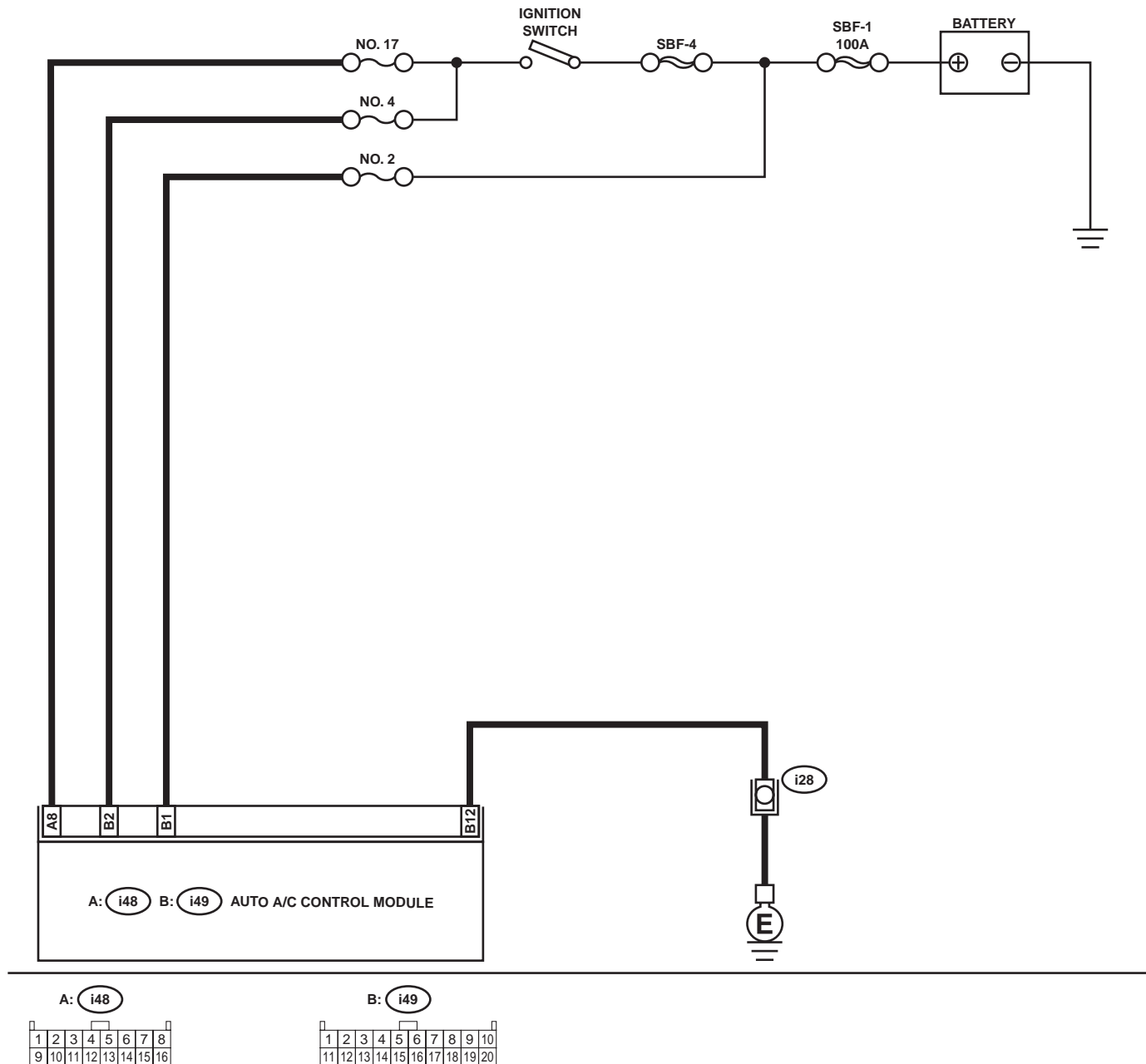
6. Diagnostics for A/C System Failure

A: A/C AND/OR SELF-DIAGNOSIS SYSTEMS DO NOT OPERATE

TROUBLE SYMPTOM:

- “Set” temperature is not indicated on display, switch LEDs are faulty and switches do not operate.
- Self-diagnosis system does not operate.

WIRING DIAGRAM:



AC-00318

DIAGNOSTICS FOR A/C SYSTEM FAILURE

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK FUSE. 1) Turn ignition switch to OFF. 2) Remove fuse No. 2 from main fuse box. 3) Check condition of fuse. Is the fuse blown-out?	Fuse is not blown-out.	Go to step 2.	Replace fuse.
2 CHECK FUSE. 1) Turn ignition switch to OFF. 2) Remove fuses No. 4 and No. 17 from fuse & relay box. 3) Check condition of fuse. Is the fuse blown-out?	Fuse is not blown-out.	Go to step 3.	Replace fuse.
3 CHECK A/C CONTROL MODULE POWER CIRCUIT. 1) Disconnect A/C control module connector. 2) Measure voltage between A/C control module connector terminal and chassis ground when turning ignition switch to OFF. Connector & terminal <i>(i49) No. 1 (+) — Chassis ground (-):</i> Does the measured value exceed the specified value?	10 V	Go to step 4.	Repair harness for power supply line.
4 CHECK A/C CONTROL MODULE POWER CIRCUIT. Measure voltage between A/C control module connector terminal and chassis ground when turning ignition switch to ACC. Connector & terminal <i>(i49) No. 2 (+) — Chassis ground (-):</i> Does the measured value exceed the specified value?	10 V	Go to step 5.	Repair harness for power supply line.
5 CHECK A/C CONTROL MODULE POWER CIRCUIT. Measure voltage between A/C control module connector terminal and chassis ground when turning ignition switch to ON. Connector & terminal <i>(i48) No. 8 (+) — Chassis ground (-):</i> Does the measured value exceed the specified value?	10 V	Go to step 6.	Repair harness for power supply line.
6 CHECK A/C CONTROL MODULE GROUND CIRCUIT. Measure resistance of harness between A/C control module and chassis ground. Connector & terminal <i>(i49) No. 12 — Chassis ground:</i> Is the measured value less than the specified value?	1 Ω	Go to step 7.	Repair harness for ground line.
7 CHECK POOR CONTACT. Check poor contact in A/C control module connector. Is there poor contact in connector?	There is no poor contact.	Replace A/C control module.	Repair connector.

DIAGNOSTICS FOR A/C SYSTEM FAILURE

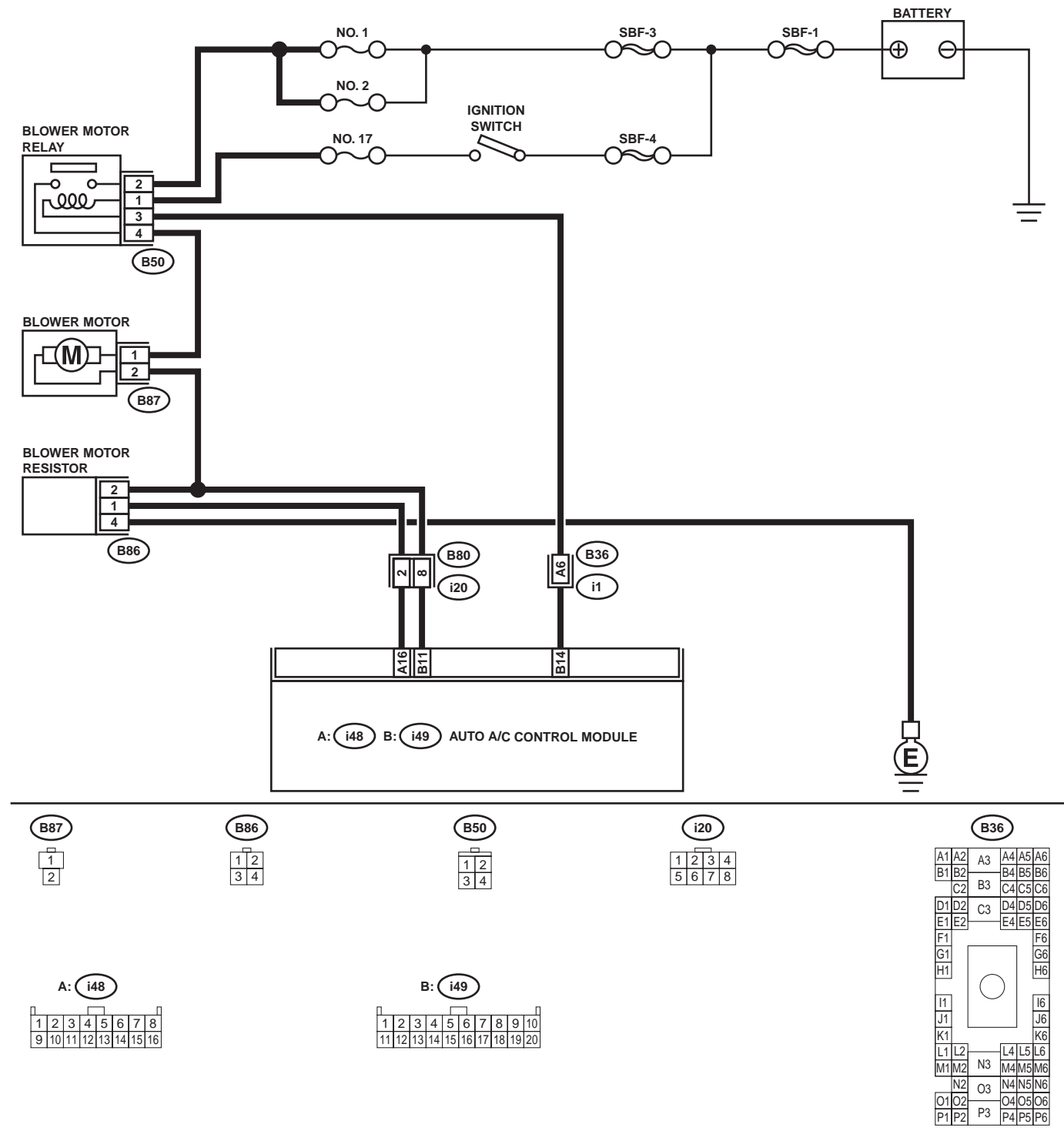
HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

B: BLOWER MOTOR DOES NOT ROTATE

TROUBLE SYMPTOM:

- Blower motor does not rotate.
- Blower motor does not rotate in "HI".

WIRING DIAGRAM:



DIAGNOSTICS FOR A/C SYSTEM FAILURE

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

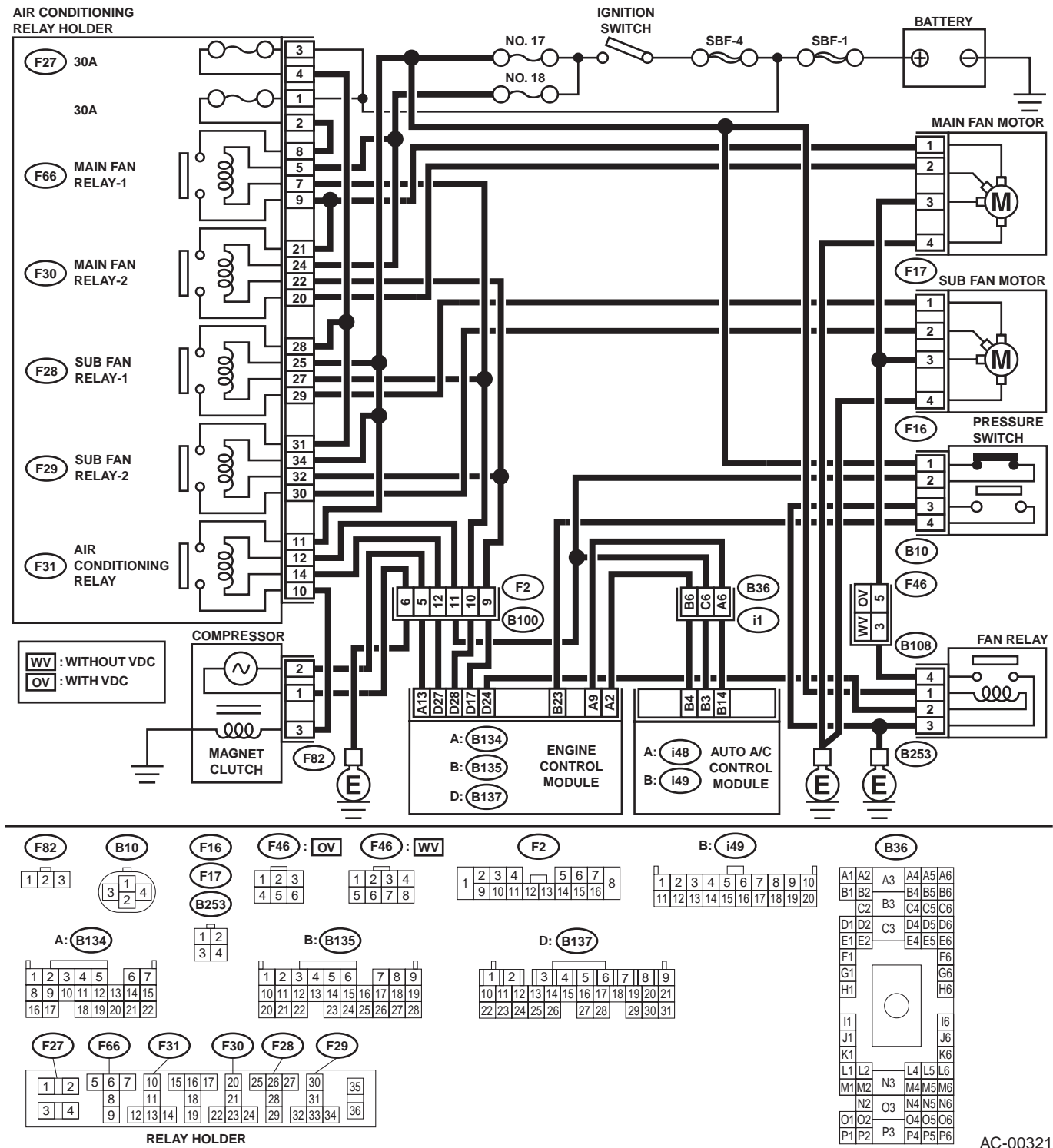
Step	Value	Yes	No
1 CHECK FUSE. 1) Remove No. 1, No. 2 and No. 17 fuses in fuse & relay box. 2) Check condition of fuses. Are any of the fuses blown-out?	Fuse is not blown-out.	Go to step 2.	Replace fuse.
2 CHECK POWER SUPPLY TO BLOWER FAN MOTOR. 1) Turn ignition switch to ON. 2) Turn blower switch to ON. 3) Measure voltage between blower fan motor and chassis ground. Connector & terminal (B87) No. 1 (+) — Chassis ground (-): Does the measured value exceed the specified value?	10 V	Go to step 3.	Repair harness for blower fan motor power supply line.
3 CHECK BLOWER FAN MOTOR RELAY. 1) Turn ignition switch to OFF. 2) Remove blower fan motor relay. 3) Connect terminals as follows: Positive terminal (+) of battery to terminal No. 1 of blower fan motor relay Negative terminal (-) of battery to terminal No. 3 of blower fan motor relay 4) Measure resistance between No. 2 and No. 4 terminals. Terminals: No. 2 — No. 4 Is the measured value less than the specified value?	1 Ω	Go to step 4.	Replace blower fan motor relay.
4 CHECK BLOWER FAN MOTOR. 1) Disconnect connector from blower fan motor. 2) Connect terminals as follows: Positive terminal (+) of battery to terminal No. 1 of blower fan motor relay Negative terminal (-) of battery to terminal No. 2 of blower fan motor relay 3) Make sure that blower fan motor is operated. Does the blower fan motor operate?	Blower fan motor operates.	Go to step 5.	Replace blower fan motor.
5 CHECK POOR CONTACT. Check poor contact in A/C control module connector. Is there poor contact in connector?	There no poor contact.	Replace A/C control module.	Repair connector.

DIAGNOSTICS FOR A/C SYSTEM FAILURE

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

C: COMPARTMENT TEMPERATURE DOES NOT CHANGE FROM "SET" TEMPERATURE OR AIR CONDITIONING SYSTEM DOES NOT RESPOND QUICKLY

WIRING DIAGRAM:



AC-00321

DIAGNOSTICS FOR A/C SYSTEM FAILURE

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK FUSE. 1) Turn the ignition switch to OFF. 2) Remove the main fan fuse and sub fan fuse in main fuse box. 3) Check the condition of fuse. Is the fuse blown out?	No fuse blown out.	Go to step 2.	Replace the fuse.
2 CHECK THE POWER SUPPLY TO PRESSURE SWITCH. 1) Disconnect the connector from pressure switch. 2) Turn the ignition switch to OFF. 3) Measure the resistance between harness connector and chassis ground. Connector & terminal (B10) No. 1 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Go to step 3.	Repair the harness for pressure switch power supply circuit.
3 CHECK THE HARNESS BETWEEN PRESSURE SWITCH AND A/C RELAY HARNESS. 1) Turn the ignition switch to OFF. 2) Remove the A/C relay in main fuse box. 3) Measure the resistance between A/C relay and pressure switch connector. Connector & terminal (F31) No. 12 — (B10) No. 2: Is the measured value less than specified value?	1 Ω	Go to step 4.	Repair the harness between A/C relay and pressure switch.
4 CHECK THE PRESSURE SWITCH. Measure the resistance between pressure switch terminals. Terminals No. 1 — No. 2: Is the measured value less than specified value?	1 Ω	Go to step 5.	Replace the pressure switch.
5 CHECK THE A/C CUT SIGNAL CIRCUIT. 1) Disconnect the connector from A/C control module. 2) Measure the resistance between A/C control module and pressure switch connector. Connector & terminal (i49) No. 3 — (B10) No. 2: Is the measured value less than specified value?	1 Ω	Go to step 6.	Repair the harness between A/C control module and pressure switch.
6 CHECK THE A/C ON SIGNAL CIRCUIT. 1) Disconnect the connector from engine control module. 2) Measure the resistance between engine control module and A/C control module connector. Connector & terminal (B134) No. 2 — (i49) No. 4: Is the measured value less than specified value?	1 Ω	Go to step 7.	Repair the harness between A/C control module and engine control module.
7 CHECK A/C RELAY. 1) Remove the A/C relay in main fuse box. 2) Check the A/C relay. <Ref. to AC-40, INSPECTION S701287A10, Relay and Fuse S701287.> Is the operation of the relay OK?	Relay operates normally.	Go to step 8.	Replace the A/C relay.

DIAGNOSTICS FOR A/C SYSTEM FAILURE

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Value	Yes	No
8 CHECK POWER SUPPLY TO MAGNET CLUTCH OF A/C COMPRESSOR. 1) Turn the ignition switch to OFF, and then connect the A/C relay connector and all removed connectors. 2) Start the engine, and turn A/C switch to ON. 3) Set the temperature control dial to maximum cold position. 4) Measure the voltage between magnet clutch harness connector and chassis ground. Connector & terminal (F82) No. 3 (+) — Chassis ground (-): Is the measured value more than specified value?	10.5 V (At normal temperature)	Go to step 9.	Repair the harness for power supply line of A/C compressor.
9 CHECK OPERATION OF MAIN FAN MOTOR. 1) Start the engine and turn the A/C switch to ON. 2) Check the operation of main fan motor. Does the main fan motor operate?	Fan motor operates.	Go to step 14.	Go to step 10.
10 CHECK POWER SUPPLY TO MAIN FAN MOTOR. CAUTION: Be careful not to overheat the engine during repair. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from main fan motor. 3) Start the engine, and warm it up until engine coolant temperature increases over 95°C (203°F). 4) Stop the engine and turn ignition switch to ON. 5) Measure the voltage between main fan motor harness connector and chassis ground. Connector & terminal Turbo engine model: (F17) No. 1, 2, 3 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Go to step 11.	Repair the harness for main fan motor power supply circuit.
11 CHECK GROUND CIRCUIT OF MAIN FAN MOTOR. 1) Measure the resistance between main fan motor harness connector and chassis ground. Connector & terminal (F17) No. 4 — Chassis ground: Is the measured value less than specified value?	1 Ω	Go to step 12.	Repair the harness for main fan motor ground circuit.
12 CHECK MAIN FAN MOTOR. Connect the battery positive (+) terminal to terminals No. 1, 2 and 3, and ground (-) terminal to terminal No. 4 of main fan motor connector to make sure that main fan motor rotate. Does the main fan rotate?	Fan motor operates.	Go to step 13.	Replace the main fan motor.

DIAGNOSTICS FOR A/C SYSTEM FAILURE

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Value	Yes	No
13 CHECK POOR CONTACT IN MAIN FAN MOTOR CONNECTOR. Check poor contact in main fan motor harness connector. Is there poor contact in connector?	There is no poor contact.	Go to step 14.	Repair the poor contact in main fan motor connector.
14 CHECK OPERATION OF SUB FAN MOTOR. 1) Start the engine and turn the A/C switch to ON. 2) Check the operation of sub fan motor. Does the sub fan motor operate normally?	Fan motor operates.	Go to step 19.	Go to step 15.
15 CHECK POWER SUPPLY TO SUB FAN MOTOR. CAUTION: Be careful not to overheat the engine during repair. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from sub fan motor. 3) Start the engine, and warm it up until engine coolant temperature increases over 100°C (212°F). 4) Stop the engine and turn ignition switch to ON. 5) Measure the voltage between sub fan motor harness connector and chassis ground. Connector & terminal (F16) No. 1, 2, 3 (+) — Chassis ground (-): Is the measured value more than specified value?	10 V	Go to step 16.	Repair the harness for sub fan motor power supply circuit.
16 CHECK GROUND CIRCUIT OF SUB FAN MOTOR. Measure the resistance between sub fan motor harness connector and chassis ground. Connector & terminal (F16) No. 4 — Chassis ground: Is the measured value less than specified value?	1 Ω	Go to step 17.	Repair the harness for sub fan motor ground circuit.
17 CHECK SUB FAN MOTOR. Connect the battery positive (+) terminal to terminals No. 1, 2 and 3, and ground (-) terminal to terminal No. 4 of sub fan motor connector to make sure that sub fan motor rotate. Does the sub fan motor rotate?	Fan motor rotates.	Go to step 18.	Replace the sub fan motor.
18 CHECK POOR CONTACT IN SUB FAN MOTOR CONNECTOR. Check poor contact in sub fan motor connector. Is there poor contact in connector?	There is no poor contact.	Go to step 19.	Repair the poor contact in sub fan motor connector.
19 CHECK POOR CONTACT IN AUTO A/C CONTROL MODULE CONNECTOR. Check poor contact in auto A/C control module connector. Is there poor contact in connector?	There is no poor contact.	Replace the auto A/C control module.	Repair the connector.

DIAGNOSTICS FOR A/C SYSTEM FAILURE

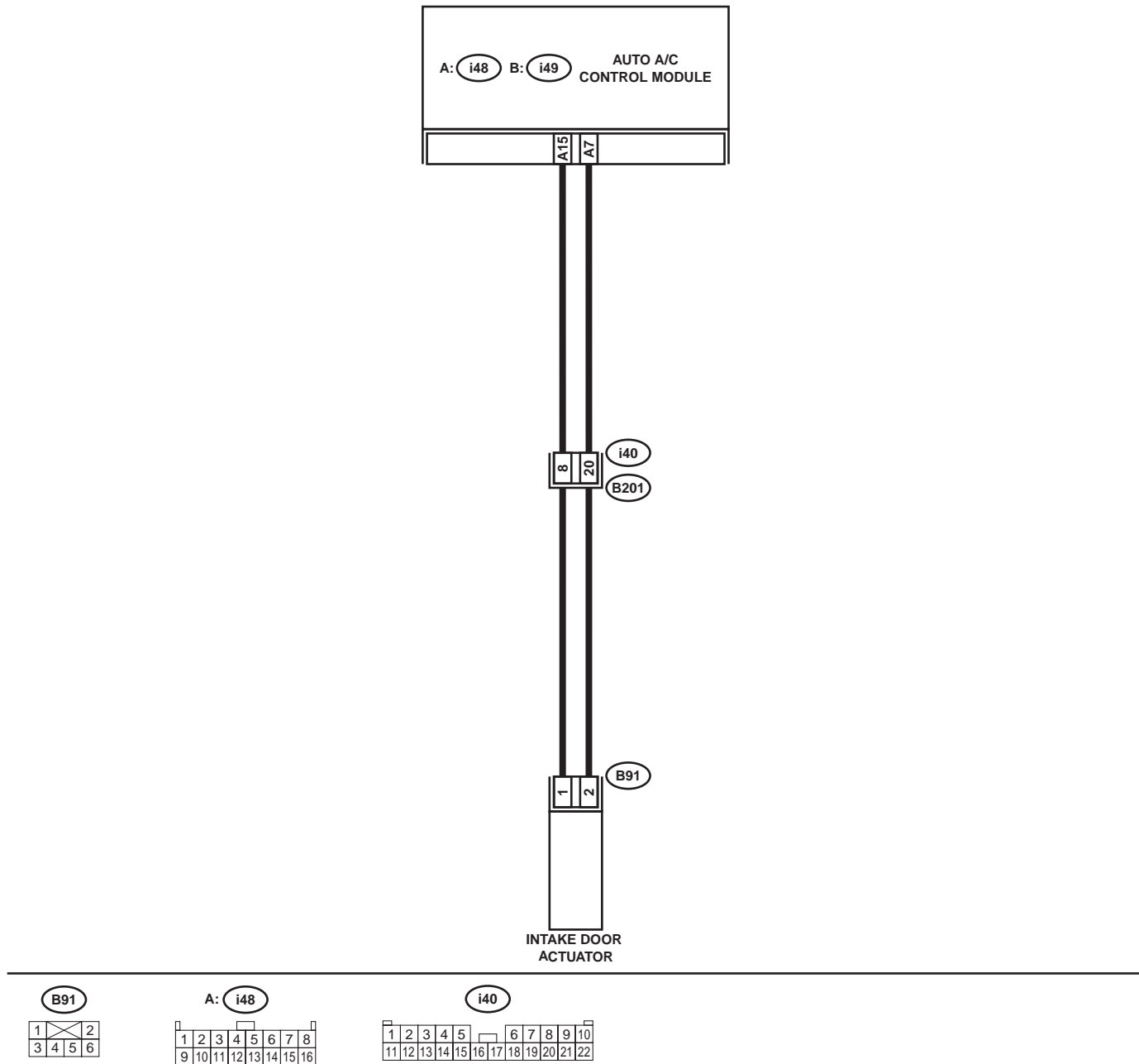
HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

D: FRESH/RECIRC DOES NOT CHANGE

TROUBLE SYMPTOM:

FRESH/RECIRC mode door does not change.

WIRING DIAGRAM:



AC-00320

DIAGNOSTICS FOR A/C SYSTEM FAILURE

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK SWITCH OPERATION. Make sure that the mode selection on display is changed when pushing the "FRESH/RECIRC" switch. Does the mode selection change?	Mode selection changes.	Go to step 7.	Go to step 2.
2 CHECK FUSE. 1) Remove No. 17 fuse in fuse & relay box. 2) Check condition of fuse. Is the fuse blown-out?	Fuse is not blown-out.	Replace fuse.	Go to step 3.
3 CHECK SIGNAL VOLTAGE. 1) Change display to RECIRC by pushing FRESH/RECIRC switch. 2) Measure voltage between A/C control module and chassis ground. Connector & terminal <i>(i48) No. 15 (+) — Chassis ground (-):</i> Is the measured value less than the specified value?	1 V	Go to step 4.	Repair short circuit in harness between A/C control module and intake door actuator.
4 CHECK SIGNAL VOLTAGE. 1) Change display to FRESH with pushing FRESH/RECIRC switch. 2) Measure voltage between A/C control module and chassis ground. Connector & terminal <i>(i48) No. 7 (+) — Chassis ground (-):</i> Is the measured value less than the specified value?	1 V	Go to step 5.	Repair short circuit in harness between A/C control module and intake door actuator.
5 CHECK HARNESS CONNECTOR BETWEEN A/C CONTROL MODULE AND INTAKE DOOR ACTUATOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from A/C control module and intake door motor. 3) Measure resistance of harness between A/C control module and intake door actuator. Connector & terminal: <i>(i48) No. 15 — (B91) No. 1</i> Is the measured value less than the specified value?	1 Ω	Go to step 6.	Repair open circuit in harness between A/C control module and intake door actuator.
6 CHECK HARNESS CONNECTOR BETWEEN A/C CONTROL MODULE AND INTAKE DOOR ACTUATOR. Measure resistance of harness between A/C control module and intake door actuator. Connector & terminal: <i>(i48) No. 7 — (B91) No. 2</i> Is the measured value less than the specified value?	1 Ω	Go to step 7.	Repair open circuit in harness between A/C control module and intake door actuator.
7 CHECK POOR CONTACT. Check poor contact in A/C control module connector. Is there poor contact in connector?	There is no poor contact.	Replace A/C control module.	Repair connector.

LIST OF DIAGNOSTIC TROUBLE CODE (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

7. List of Diagnostic Trouble Code (DTC)

A: LIST

1. DTC FOR SENSOR AND POTENTIOMETER

DTC	Trouble Unit	Contents
20	No Trouble	—
21	Ambient sensor	Open
-21		Short
22	In-vehicle sensor	Open
-22		Short
24	Evaporator sensor	Open
-24		Short
25	Sunload sensor	Open
-25		Short
26	Air mix door motor	Open
-26		Short

2. DTC FOR MODE DOOR POSITION SWITCH

DTC	30	31	32	33	34	35
Faulty Door	No Trouble	VENT	B/L	HEAT	D/H	DEF

LIST OF DIAGNOSTIC TROUBLE CODE (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
 HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

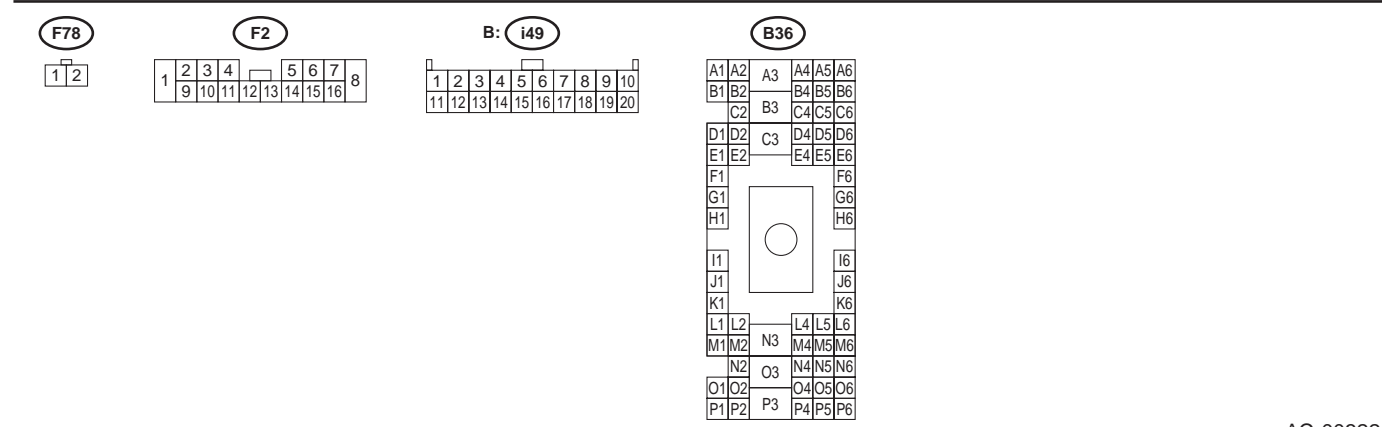
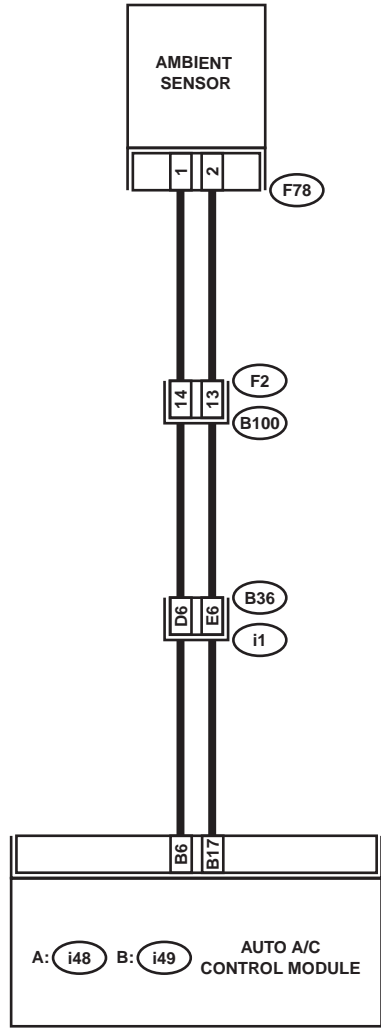
8. Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC 21 OR -21 (AMBIENT SENSOR)

TROUBLE SYMPTOM:

Fan speed, outlets and inlets are not switched when AUTO or ECON switch is ON.

WIRING DIAGRAM:



AC-00322

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK AMBIENT SENSOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ambient sensor. 3) Measure resistance between connector terminals of ambient sensor. Terminals: No. 1 — No. 2 Is the measured value within the specified range?	Approx. 2.2 k Ω : 25°C (77°F)	Go to step 2.	Replace ambient sensor.
2 CHECK INPUT SIGNALS FOR AMBIENT SENSOR. 1) Turn ignition ON. 2) Measure voltage between ambient sensor harness connector terminals. Connector & terminal: (F78) No. 1 (+) — No. 2 (-): Is the measured value within the specified range?	Approx. 4.5 V	Go to step 6.	Go to step 3.
3 CHECK OUTPUT SIGNALS FROM A/C CONTROL MODULE. 1) Turn ignition switch to OFF. 2) Pull out A/C control panel. 3) Disconnect connector from ambient sensor. 4) Turn ignition switch to ON. 5) Measure voltage between connector terminals of A/C control module. Connector & terminal: (i49) No. 6 (+) — No. 17 (-): Is the measured value within the specified range?	Approx. 4.5 V	Go to step 6.	Go to step 4.
4 CHECK HARNESS CONNECTOR BETWEEN A/C CONTROL MODULE AND AMBIENT SENSOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from A/C control module. 3) Measure resistance of harness between A/C control module and ambient sensor. Connector & terminal: (F78) No. 1 — (i49) No. 6 Is the measured value less than the specified value?	1 Ω	Go to step 5.	Repair harness between A/C control module and ambient sensor.
5 CHECK HARNESS CONNECTOR BETWEEN A/C CONTROL MODULE AND AMBIENT SENSOR. Measure resistance of harness between A/C control module and ambient sensor. Connector & terminal: (F78) No. 2 — (i49) No. 17 Is the measured value less than the specified value?	1 Ω	Go to step 6.	Repair harness between A/C control module and ambient sensor.
6 CHECK POOR CONTACT. Check poor contact in A/C control module connector. Is there poor contact in connector?	There is no poor contact.	Replace A/C control module.	Repair connector.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

B: DTC 22 OR -22 (IN-VEHICLE SENSOR)

TROUBLE SYMPTOM:

When turning AUTO switch to ON, blower fan speed, outlet port and inlet port is not changed.

If DTC 22 or -22 appears on the display, replace the A/C control module. The in-vehicle sensor is built into the A/C control module and cannot be replaced as a single unit.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

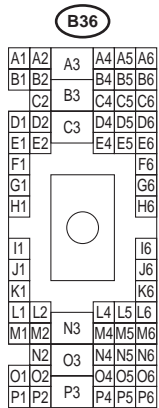
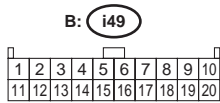
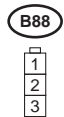
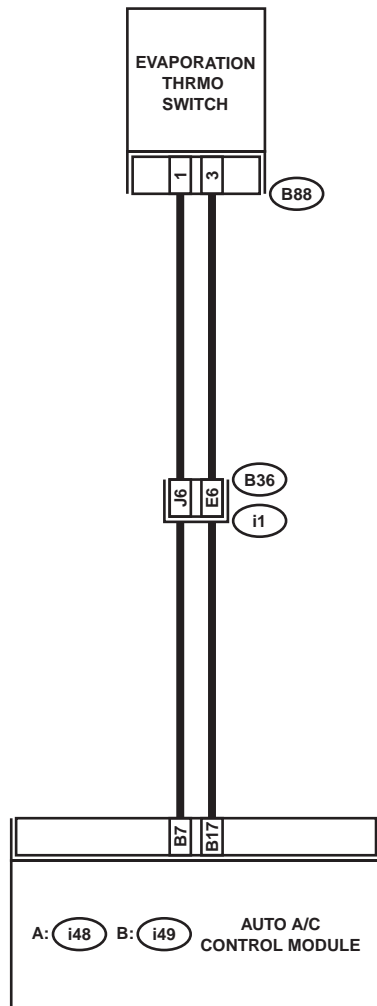
HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
 HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

C: DTC 24 OR -24 (EVAPORATOR SENSOR)

WIRING DIAGRAM:



AC-00323

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK EVAPORATOR SENSOR. 1) Turn ignition switch to OFF. 2) Remove glove box. 3) Disconnect connector from evaporator sensor. 4) Measure resistance between connector terminals of evaporator sensor. Terminals: No. 1 — No. 3 Is the measured value within the specified range?	Approx. 1.8 to 2.0 k Ω : 20°C (68°F)	Go to step 2.	Replace evaporator sensor.
2 CHECK INPUT SIGNALS FOR EVAPORATOR SENSOR. 1) Turn ignition switch to "ON". 2) Measure voltage between evaporator sensor harness connector terminal and chassis ground. Connector & terminal (B88) No. 1 (+) — Chassis ground (-): Is the measured value within the specified range?	Approx. 4.5 V	Go to step 3.	Replace evaporator sensor.
3 CHECK OUTPUT SIGNALS FROM A/C CONTROL MODULE. 1) Turn ignition switch to OFF. 2) Pull out A/C control module. 3) Turn ignition switch to ON. 4) Measure voltage between A/C control module connector terminals. Connector & terminal: (i49) No. 7 (+) — No. 17 (-): Is the measured value within the specified range?	Approx. 4.5 V	Go to step 4.	Go to step 6.
4 CHECK HARNESS CONNECTOR BETWEEN A/C CONTROL MODULE AND EVAPORATOR SENSOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from A/C control module. 3) Measure resistance of harness between A/C control module and evaporator sensor. Connector & terminal: (B88) No. 1 — (i49) No. 7 Is the measured value less than the specified value?	1 Ω	Go to step 5.	Repair harness between A/C control module and evaporator sensor.
5 CHECK HARNESS CONNECTOR BETWEEN A/C CONTROL MODULE AND EVAPORATOR SENSOR. Measure resistance of harness between A/C control module and evaporator sensor. Connector & terminal: (B88) No. 3 — (i49) No. 17 Is the measured value less than the specified value?	1 Ω	Go to step 6.	Repair harness between A/C control module and evaporator sensor.
6 CHECK POOR CONTACT. Check poor contact in A/C control module connector. Is there poor contact in connector?	There is no poor contact.	Replace A/C control module.	Repair connector.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

D: DTC 25 OR -25 (SUNLOAD SENSOR)

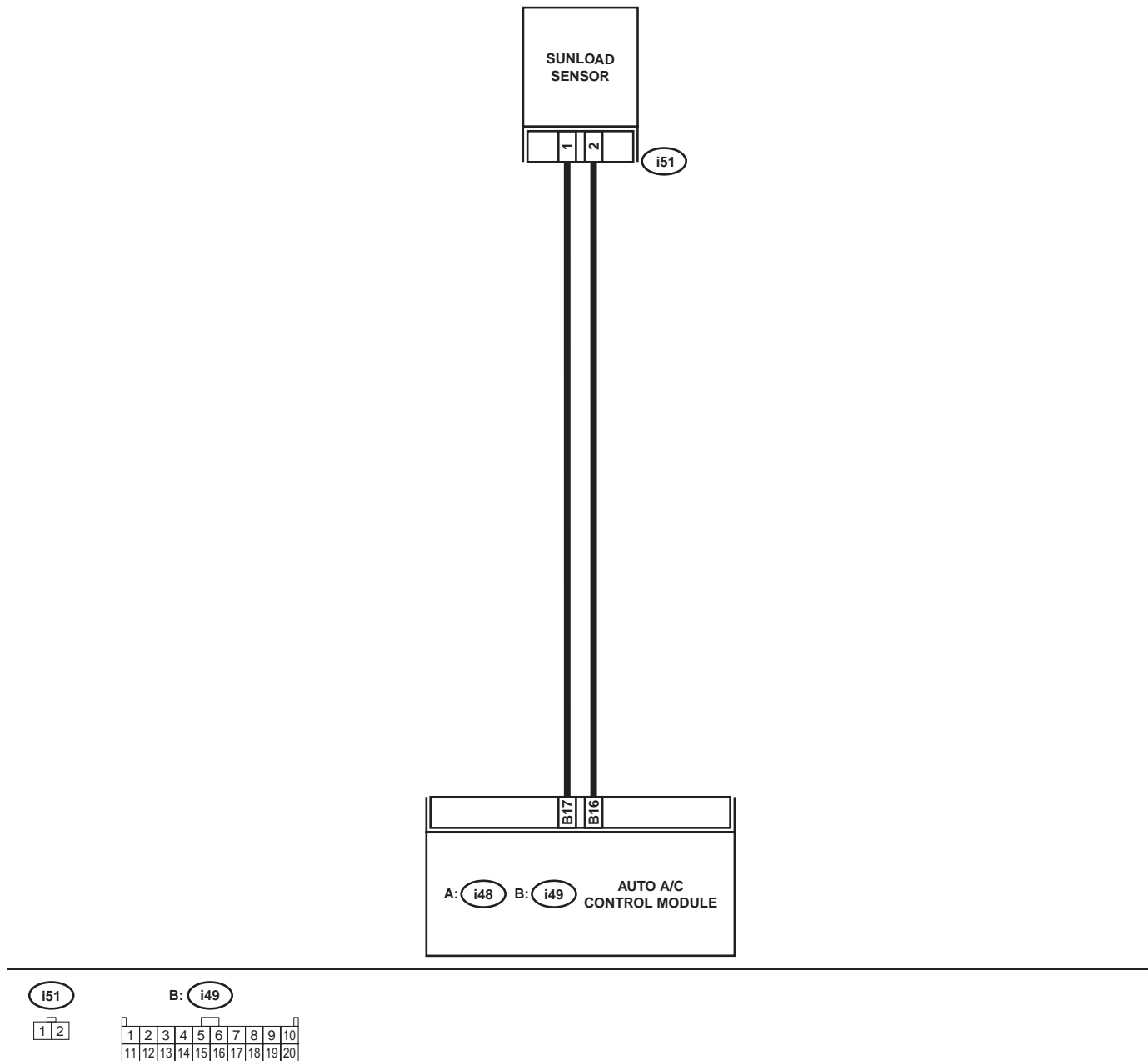
TROUBLE SYMPTOM:

- Sensor identified that sunlight is at maximum. Then, A/C system is controlled to COOL side.
- Sensor identified that sunlight is at minimum. Then, A/C system is controlled to HOT side.

NOTE:

When the sunload sensor is checked inside the passenger compartment or in the shade, DTC "25" may appear on the indicator. Always check the sunload sensor in a place where it senses direct sunlight.

WIRING DIAGRAM:



AC-00324

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Value	Yes	No
1 CHECK INPUT VOLTAGE TO SUNLOAD SENSOR. 1) Turn ignition switch to OFF. 2) Remove sunload sensor. <Ref. to AC-42, REMOVAL, Sunload Sensor (Auto A/C).> 3) Turn ignition switch to ON. 4) Measure input voltage to sunload sensor. Connector & terminal: <i>(i51) No. 2 (+) — No. 1 (-):</i> Is the measured value within the specified range?	Approx. 4.5 V	Go to step 3.	Go to step 2.
2 CHECK HARNESS CONNECTOR BETWEEN A/C CONTROL MODULE AND SUNLOAD SENSOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from A/C control module. 3) Measure resistance of harness between A/C control module and sunload sensor. Connector & terminal: <i>(i51) No. 2 — (i49) No. 16</i> Is the measured value less than the specified value?	1 Ω	Go to step 3.	Repair harness between A/C control module and sunload sensor.
3 CHECK HARNESS CONNECTOR BETWEEN A/C CONTROL MODULE AND SUNLOAD SENSOR. Measure resistance of harness between A/C control module and sunload sensor. Connector & terminal: <i>(i51) No. 1 — (i49) No. 17</i> Is the measured value less than the specified value?	1 Ω	Go to step 4.	Repair harness between A/C control module and sunload sensor.
4 CHECK VOLTAGE OF INPUT SIGNAL TO A/C CONTROL MODULE. 1) Connect connectors to A/C control module and sunload sensor. 2) Turn ignition switch to ON. 3) Measure voltage between A/C control module connectors. Connector & terminal: <i>(i49) No. 16 (+) — No. 17 (-):</i> Is the measured value within the specified range?	Approx. 2.5 V	Go to step 5.	Replace sunload sensor.
5 CHECK POOR CONTACT. Check poor contact in A/C control module connector. Is there poor contact in connector?	There is no poor contact.	Replace A/C control module.	Repair connector.

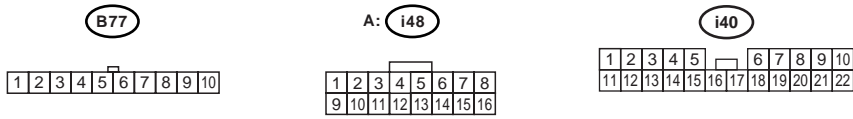
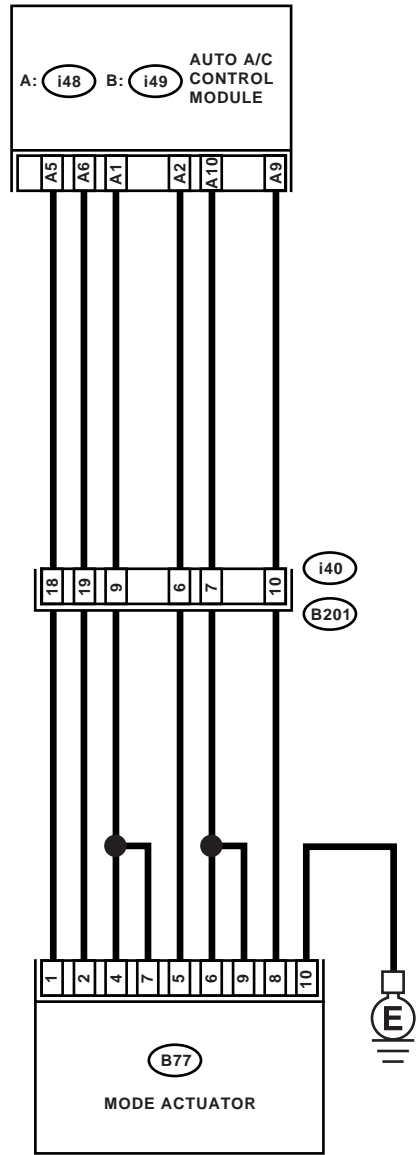
DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
 HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

E: DTC 31, 32, 33, 34 OR 35 (MODE DOOR ACTUATOR)

TROUBLE SYMPTOM:

Air flow outlet is not changed.

WIRING DIAGRAM:



AC-00331

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Value	Yes	No
<p>1</p> <p>CHECK POWER SUPPLY FOR AUTO A/C CONTROL MODULE SIDE.</p> <p>1) Turn the ignition switch to ON. 2) Press the mode switch to VENT position. 3) Press the DEF switch and measure the voltage between auto A/C control module and chassis ground when VENT is changed to DEF position.</p> <p>Connector & terminal (i48) No. 6 (+) — Chassis ground (-): Is the measured value more than specified value?</p>	12 V	Go to step 2.	Replace the auto A/C control module.
<p>2</p> <p>CHECK POWER SUPPLY FOR ACTUATOR SIDE.</p> <p>1) Press the mode switch to VENT position. 2) Press the DEF switch and measure the voltage between mode door actuator harness connector and chassis ground when VENT is changed to DEF position.</p> <p>Connector & terminal (B77) No. 2 (+) — Chassis ground (-): Is the measured value more than specified value?</p>	7 V (At normal temperature)	Go to step 3.	Repair the harness between auto A/C control module and mode door actuator.
<p>3</p> <p>CHECK POWER SUPPLY FOR AUTO A/C CONTROL MODULE SIDE.</p> <p>1) Press the DEF switch. 2) Press the mode switch to VENT position and measure the voltage between auto A/C control module and chassis ground when DEF is changed to VENT position.</p> <p>Connector & terminal (i48) No. 5 (+) — Chassis ground (-): Is the measured value more than specified value?</p>	12 V	Go to step 4.	Replace the auto A/C control module.
<p>4</p> <p>CHECK POWER SUPPLY FOR ACTUATOR SIDE.</p> <p>1) Press the DEF switch. 2) Press the mode switch to VENT position and measure the voltage between mode door actuator harness connector and chassis ground when DEF is changed to VENT position.</p> <p>Connector & terminal (B77) No. 1 (+) — Chassis ground (-): Is the measured value more than specified value?</p>	7 V (At normal temperature)	Go to step 5.	Repair the harness between auto A/C control module and mode door actuator.
<p>5</p> <p>CHECK ACTUATOR.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Connect the battery positive (+) terminal to terminal No. 1 and ground (-) terminal to terminal No. 2 of mode door actuator to make sure that actuator operates. 4) Connect the battery positive (+) terminal to terminal No. 2 and ground (-) terminal to terminal No. 1 of mode door actuator to make sure that actuator operates. Does the motor operate normally?</p>	The motor operates normally.	Go to step 6.	Replace the mode door actuator.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Value	Yes	No
6 CHECK AUTO A/C CONTROL MODULE SIGNAL VOLTAGE. 1) Turn the ignition switch to ON. 2) Turn the mode control dial and measure voltage between auto A/C control module harness connector and chassis ground for each mode. Connector & terminal (i48) No. 2 (+) — Chassis ground (-): Is the measured value within specified value?	HEAT, D/H, DEF: 5 V, VENT, BI-LEVEL: 0 V	Go to step 9.	Go to step 7.
7 CHECK AUTO A/C CONTROL MODULE SIGNAL POWER SUPPLY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Turn the ignition switch to ON. 4) Measure the voltage between mode door actuator harness connector and chassis ground. Connector & terminal (B77) No. 5 (+) — Chassis ground (-): Is the measured value within specified value?	5 V	Go to step 9.	Go to step 8.
8 CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND MODE DOOR ACTUATOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from auto A/C control module and mode door actuator. 3) Measure the resistance of harness between auto A/C control module and mode door actuator. Connector & terminal (i48) No. 2 — (B77) No. 5: Is the measured value less than specified value?	1 Ω	Replace the auto A/C control module.	Repair the harness between auto A/C control module and mode door actuator.
9 CHECK AUTO A/C CONTROL MODULE SIGNAL VOLTAGE. 1) Turn ignition switch to ON. 2) Press the mode control dial and measure voltage between auto A/C control module harness connector and chassis ground for each mode. Connector & terminal (i48) No. 10 (+) — Chassis ground (-): Is the measured value within specified value?	VENT, D/H: 5 V, BI-LEVEL, HEAT, DEF: 0 V	Go to step 12.	Go to step 10.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Value	Yes	No
10 CHECK AUTO A/C CONTROL MODULE SIGNAL POWER SUPPLY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Turn the ignition switch to ON. 4) Measure the voltage between mode door actuator harness connector and chassis ground. Connector & terminal (B77) No. 6, 9 (+) — Chassis ground (-): Is the measured value within specified value?	5 V	Go to step 12.	Go to step 11.
11 CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND MODE DOOR ACTUATOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from auto A/C control module and mode door actuator. 3) Measure the resistance of harness between auto A/C control module and mode door actuator. Connector & terminal (i48) No. 10 — (B77) No. 6, 9: Is the measured value less than specified value?	1 Ω	Replace the auto A/C control module.	Repair the harness between auto A/C control module and mode door actuator.
12 CHECK AUTO A/C CONTROL MODULE SIGNAL VOLTAGE. 1) Turn ignition switch to ON. 2) Turn the mode control dial and measure voltage between auto A/C control module harness connector and chassis ground for each mode. Connector & terminal (i48) No. 1 (+) — Chassis ground (-): Is the measured value within specified value?	BI-LEVEL, DEF: 5 V, VENT, HEAT, D/H: 0 V	Go to step 15.	Go to step 13.
13 CHECK AUTO A/C CONTROL MODULE SIGNAL POWER SUPPLY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Turn the ignition switch to ON. 4) Measure the voltage between mode door actuator harness connector and chassis ground. Connector & terminal (B77) No. 4, 7 (+) — Chassis ground (-): Is the measured value within specified value?	5 V	Go to step 15.	Go to step 14.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Value	Yes	No
14 CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND MODE DOOR ACTUATOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from auto A/C control module and mode door actuator. 3) Measure the resistance of harness between auto A/C control module and mode door actuator. Connector & terminal (i48) No. 1 — (B77) No. 4, 7: Is the measured value less than specified value?	1 Ω	Replace the auto A/C control module.	Repair the harness between auto A/C control module and mode door actuator.
15 CHECK AUTO A/C CONTROL MODULE SIGNAL VOLTAGE. 1) Turn ignition switch to ON. 2) Press the mode switch and measure voltage between auto A/C control module harness connector and chassis ground for each mode. Connector & terminal (i48) No. 9 (+) — Chassis ground (-): Is the measured value within specified value?	VENT, BI-LEVEL, HEAT: 5V, D/H, DEF: 0 V	Go to step 19.	Go to step 16.
16 CHECK AUTO A/C CONTROL MODULE SIGNAL POWER SUPPLY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Turn the ignition switch to ON. 4) Measure the voltage between mode door actuator harness connector and chassis ground. Connector & terminal (B77) No. 8 (+) — Chassis ground (-): Is the measured value within specified value?	5 V	Go to step 18.	Go to step 17.
17 CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND MODE DOOR ACTUATOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from auto A/C control module and mode door actuator. 3) Measure the resistance of harness between auto A/C control module and mode door actuator. Connector & terminal (i48) No. 9 — (B77) No. 8: Is the measured value less than specified value?	1 Ω	Replace the auto A/C control module.	Repair the harness between auto A/C control module and mode door actuator.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Value	Yes	No
18 CHECK ACTUATOR GROUND CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Measure the resistance of harness between mode door actuator and chassis ground. Connector & terminal (B77) No. 10 — Chassis ground: Is the measured value less than specified value?	1 Ω	Replace the mode door actuator.	Repair the harness between auto A/C control module and mode door actuator.
19 CHECK POOR CONTACT. Check poor contact in auto A/C control module connector. Is there poor contact in connector?	There is no poor contact.	Repair the poor contact in auto A/C control module.	Repair the connector.

SYMPTOM RELATED DIAGNOSTIC

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

9. Symptom Related Diagnostic

A: GENERAL DIAGNOSTICS TABLE

Symptom	Component parts													
	A/C system fails to operate when IG SW is turned "ON".	Burned-out fuse.	Previous mode immediately before resetting operation is not retained in memory.	No indication appears on display.	Illumination does not dim at night.	Blower motor does not rotate or rotates erroneously.	A/C does not change from "Fresh" to "Recirc" or vice versa.	Air vents cannot be switched.	Compartment temperature does not increase (No hot air is discharged).	Compartment temperature does not decrease (No cool air is discharged).	Compartment temperature is higher than or lower than the set value.	Compartment temperature does not quickly respond to the set value.	Condenser fan does not operate during A/C operation.	
Fuses (M/B No. 5, F/B No. 17)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor connector contacts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ground	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A/C control module	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Air mix servo motor and potentiometer (including links)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Air vent select servo motor and potentiometer (including links)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fresh-Recirc select servo motor and potentiometer (including links)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blower fan motor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Power transistor & fuse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blower fan relay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A/C relay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Magnet clutch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiator fan motors (Main and sub)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiator fan relays (Main and sub)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sensors (In-vehicle, ambient, water temperature, evaporator, sunload, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In-vehicle sensor aspirator duct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

AC-00325

GENERAL DESCRIPTION

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

1. General Description

A: SPECIFICATIONS

1. HEATER SYSTEM

Item		Specifications	Condition
Heating capacity		5.0 kW (4,300 kcal/h, 17,062 BTU/h) or more	<ul style="list-style-type: none"> • Mode selector switch: HEAT • Temperature control switch: FULL HOT • Temperature difference between hot water and inlet air: 65°C (149°F) • Hot water flow rate: 360 ℓ (95.1 US gal, 79.2 Imp gal)/h
Air flow rate		300 m ³ (10,593 cu ft)/h	Heat mode (FRESH), FULL HOT at 12.5 V
Max air flow rate		500 m ³ (17,655 cu ft)/h	<ul style="list-style-type: none"> • Temperature control switch: FULL COLD • Blower fan speed: 4th position • Mode selector lever: RECIRC
Heater core size (height × length × width)		193.5 × 152 × 35.0 mm (7.62 × 5.98 × 1.378 in)	—
Blower motor	Type	Magnet motor 220 W or less	at 12 V
	Fan type and size (diameter × width)	Sirocco fan type 150 × 75 mm (5.91 × 2.95 in)	—

GENERAL DESCRIPTION

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

2. A/C SYSTEM (4 CYLINDER)

• LHD Model:

Item		Specifications	
Type of air conditioner		Reheat air-mix type	
Cooling capacity		5.2 kW (4,471 kcal/h, 17,741 BTU/h)	
Refrigerant		HFC-134a (CH ₂ FCF ₃) [0.65±0.05 kg (1.43±0.11 lb)]	
Compressor	Type	5-vane rotary, fix volume (DKV-14G)	
	Discharge	140 cm ³ (8.54 cu in)/rev	
	Max. permissible speed	7,000 rpm	
Magnet clutch	Type	Dry, single-disc type	
	Power consumption	45 W	
	Type of belt	V-Ribbed 4 PK	
	Pulley dia. (effective dia.)	125 mm (4.92 in)	
	Pulley ratio	1.064	
Condenser	Type	Corrugated fin (Multi-flow)	
	Core face area	0.21 m ² (2.26 sq ft)	
	Core thickness	24 mm (0.94 in)	
	Radiation area	6.52 m ² (70 sq ft)	
Receiver drier	Effective inner capacity	250 cm ³ (15.26 cu in)	
Expansion valve	Type	External equalizing	
Evaporator	Type	Single tank	
	Dimensions (W × H × T)	235 × 224 × 60 mm (9.25 × 8.82 × 2.36 in)	
Blower fan	Fan type	Sirocco fan	
	Outer diameter × width	150 × 75 mm (5.91 × 2.95 in)	
	Power consumption	220 W at 12 V	
Condenser fan (Sub fan)	Motor type	Magnet	
	Power consumption	75 W at 12 V	
	Fan outer diameter	300 mm (11.81 in)	
Radiator fan (Main fan)	Motor type	Magnet	
	Power consumption	75 W at 12 V	
	Fan outer diameter	300 mm (11.81 in)	
Idling speed (A/C ON)	MPFI model	850±100 rpm	
Dual switch (Pressure switch)	Low-pressure switch operating pressure	ON → OFF	177±25 kPa (1.80±0.25 kg/cm ² , 25.6±3.6 psi)
		OFF → ON	216 ⁺³⁹ / ₋₂₅ kPa (2.2 ^{+0.4} / _{-0.25} kg/cm ² , 31 ^{+5.7} / _{-3.6} psi)
	High-pressure switch operating pressure	ON → OFF	2,942±196 kPa (30±2 kg/cm ² , 427±28 psi)
		DIFF	588±196 kPa (6±2 kg/cm ² , 85±28 psi)
Thermo control amplifier working temperature (Evaporator outlet air)		<p style="text-align: center;"> OFF ————— 1.5±0.5°C (35±0.9°F) ————— ON Diff. 3.0±0.3°C (37±0.5°F) </p> <p style="text-align: right;">AC-00082</p>	

GENERAL DESCRIPTION

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

3. A/C SYSTEM (6 CYLINDER)

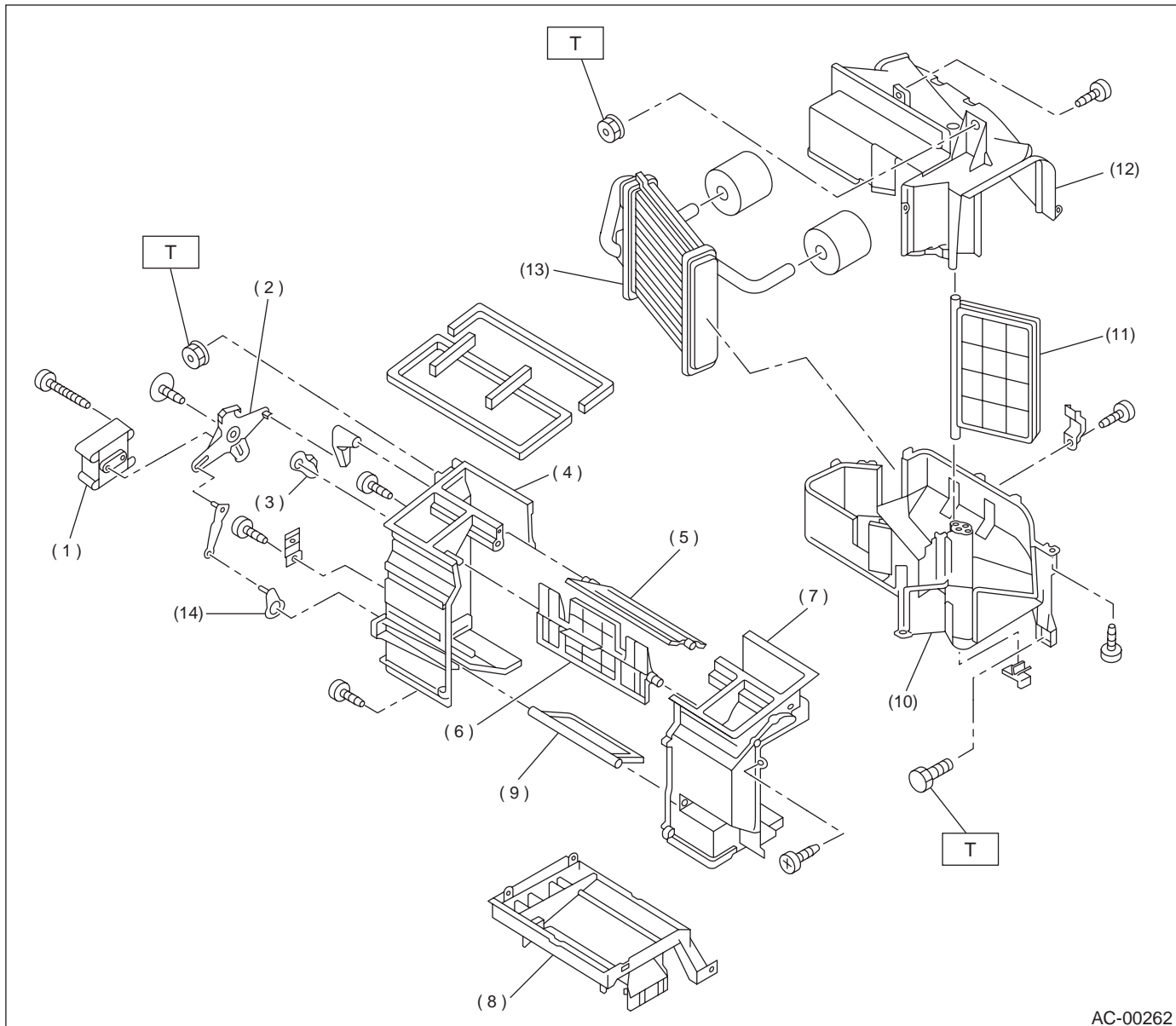
Item		Specifications	
Type of air conditioner		Reheat air-mix type	
Cooling capacity		5.2 kW (4,471 kcal/h, 17,741 BTU/h)	
Refrigerant		HFC-134a (CH ₂ FCF ₃) [0.65±0.05 kg (1.43±0.11 lb)]	
Compressor	Type	5-vane rotary, fix volume (DKV-14G)	
	Discharge	140 cm ³ (8.54 cu in)/rev	
	Max. permissible speed	7,000 rpm	
Magnet clutch	Type	Dry, single-disc type	
	Power consumption	38 W	
	Type of belt	V-Ribbed 6 PK	
	Pulley dia. (effective dia.)	125 mm (4.92 in)	
	Pulley ratio	1.064	
Condenser	Type	Corrugated fin (Multi-flow)	
	Core face area	0.22 m ² (2.37 sq ft)	
	Core thickness	24 mm (0.94 in)	
	Radiation area	6.52 m ² (70 sq ft)	
Receiver drier	Effective inner capacity	250 cm ³ (15.26 cu in)	
Expansion valve	Type	External equalizing	
Evaporator	Type	Single tank	
	Dimensions (W × H × T)	235 × 224 × 60 mm (9.25 × 8.82 × 2.36 in)	
Blower fan	Fan type	Sirocco fan	
	Outer diameter × width	150 × 75 mm (5.91 × 2.95 in)	
	Power consumption	220 W at 12 V	
Condenser fan (Sub fan)	Motor type	Magnet	
	Power consumption	120 W at 12 V	
	Fan outer diameter	320 mm (12.60 in)	
Radiator fan (Main fan)	Motor type	Magnet	
	Power consumption	120 W at 12 V	
	Fan outer diameter	320 mm (12.60 in)	
Idling speed (A/C ON)	MPFI model	850±100 rpm	
Dual switch (Pressure switch)	Low-pressure switch operating pressure	ON → OFF	177±25 kPa (1.80±0.25 kg/cm ² , 25.6±3.6 psi)
		OFF → ON	216 ⁺³⁹ / ₋₂₅ kPa (2.2 ^{+0.4} / _{-0.25} kg/cm ² , 31 ^{+5.7} / _{-3.6} psi)
	High-pressure switch operating pressure	ON → OFF	2,942±196 kPa (30±2 kg/cm ² , 427±28 psi)
		DIFF	588±196 kPa (6±2 kg/cm ² , 85±28 psi)
Thermo control amplifier working temperature (Evaporator outlet air)		<p style="text-align: center;"> OFF ————— 1.5±0.5°C (35±0.9°F) ————— ON Diff. 3.0±0.3°C (37±0.5°F) </p> <p style="text-align: right;">AC-00082</p>	

GENERAL DESCRIPTION

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

B: COMPONENT

1. HEATER UNIT



- (1) Vent door actuator
- (2) Side link
- (3) Vent door lever
- (4) Case A
- (5) DEF door
- (6) Vent door

- (7) Case B
- (8) Foot duct
- (9) Foot door
- (10) Case D
- (11) Mix door
- (12) Case C

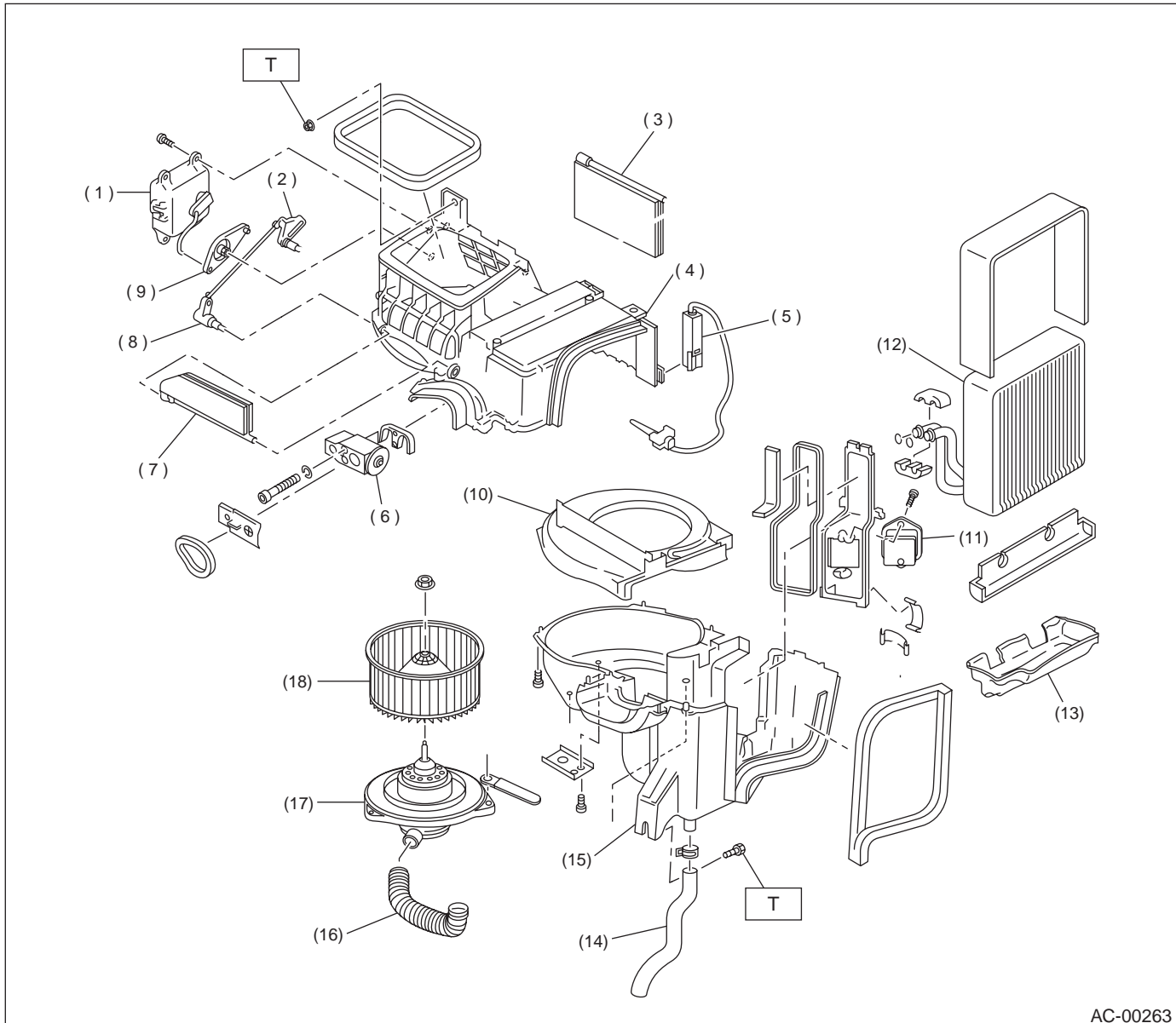
- (13) Heater core
- (14) Foot door lever

Tightening torque: N·m (kgf·m, ft·lb)
T: 7.35 (0.750, 5.421)

GENERAL DESCRIPTION

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

2. INTAKE UNIT WITH EVAPORATOR



AC-00263

- | | | |
|--|---------------------------------------|---------------------|
| (1) Intake door actuator | (8) Lever (B) | (16) Aspirator pipe |
| (2) Lever (A) | (9) Lever (C) | (17) Blower motor |
| (3) Door (A) | (10) Blower plate | (18) Fan |
| (4) Intake unit case upper | (11) Resistor | |
| (5) Thermistor (With A/C model) | (12) Evaporator (With A/C model) | |
| (6) Block expansion valve (With A/C model) | (13) Evaporator case (With A/C model) | |
| (7) Door (B) | (14) Drain hose | |
| | (15) Intake unit case lower | |

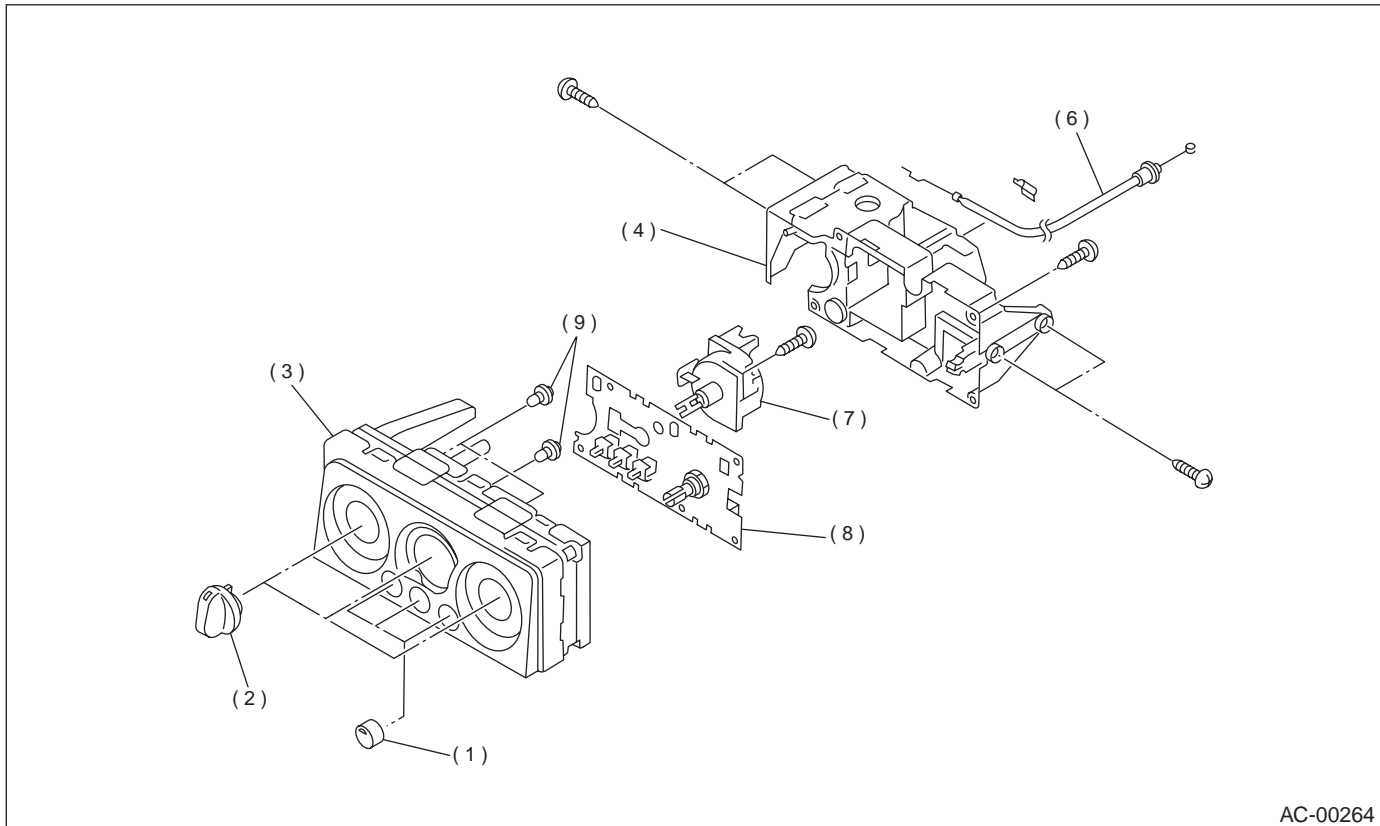
Tightening torque: N·m (kgf·m, ft·lb)

T: 7.4 (0.75, 5.4)

GENERAL DESCRIPTION

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

3. CONTROL UNIT (MANUAL A/C)



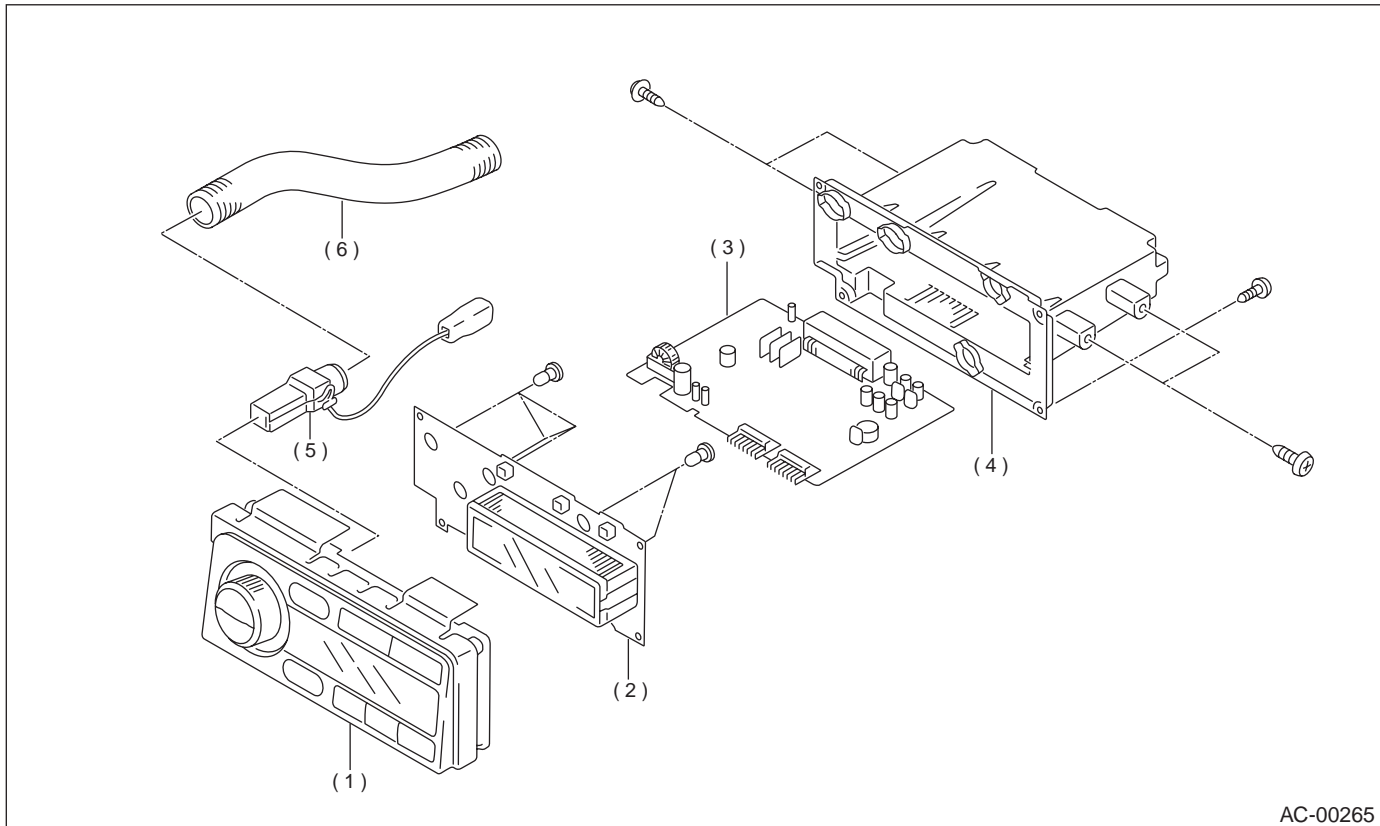
AC-00264

- | | | |
|------------------------|-------------------------------|---------------------|
| (1) Switch | (4) Base unit | (7) Fan switch ASSY |
| (2) Control dial knob | (5) Cover | (8) Circuit ASSY |
| (3) Control panel ASSY | (6) Temperature control cable | (9) Bulb |

GENERAL DESCRIPTION

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

4. CONTROL UNIT (AUTO A/C)



AC-00265

(1) Control panel
(2) Circuit ASSY

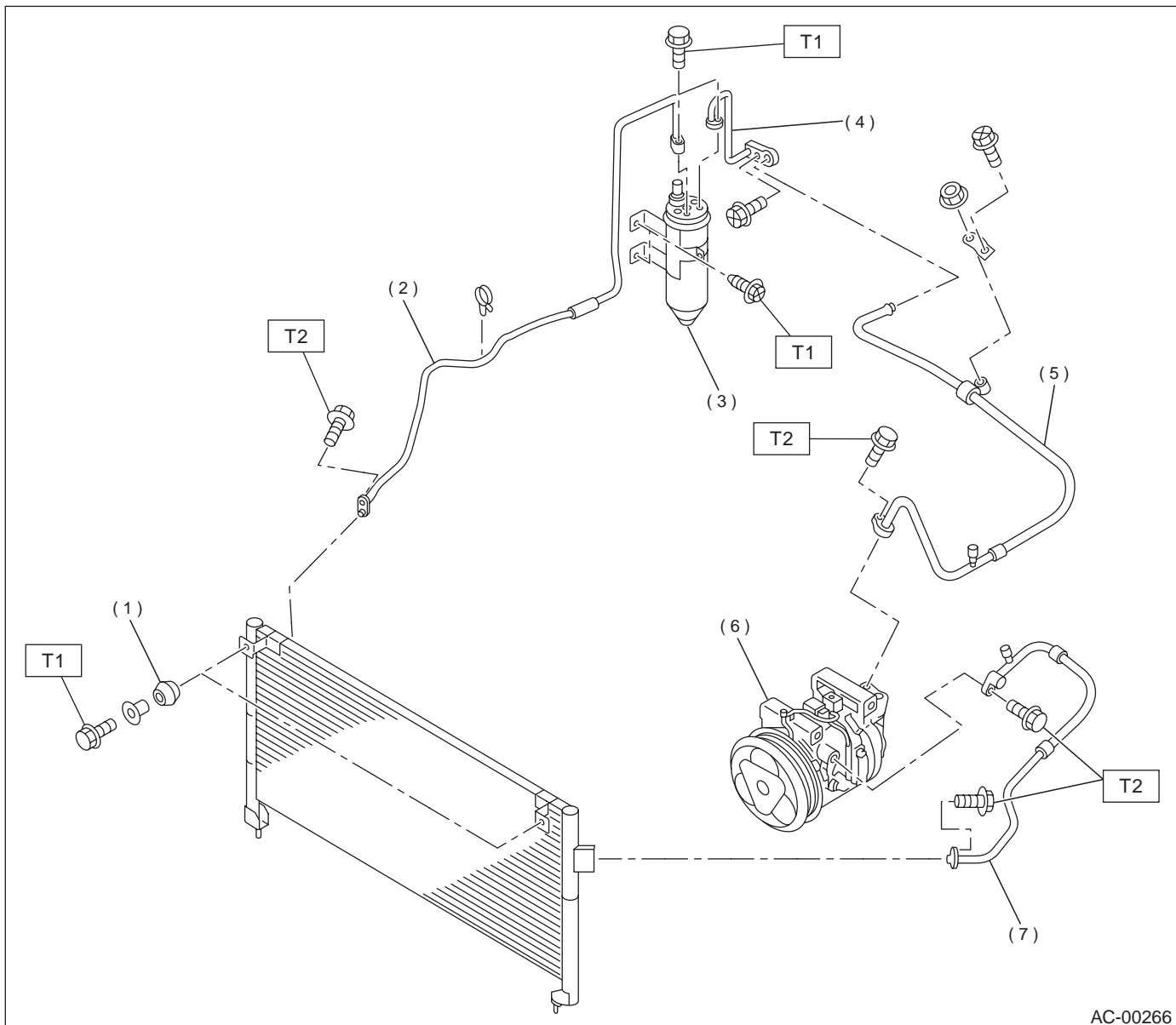
(3) Electronic control unit
(4) Control case

(5) In-car sensor
(6) Aspirator hose

GENERAL DESCRIPTION

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

5. AIR CONDITIONING UNIT



- | | |
|---------------------------------------|------------------------------------|
| (1) Condenser | (4) Pipe (Receiver drier — C/unit) |
| (2) Pipe (Condenser — Receiver drier) | (5) Hose (Low-pressure) |
| (3) Receiver drier | (6) Compressor |
| | (7) Hose (High-pressure) |

Tightening torque: N·m (kgf-m, ft-lb)

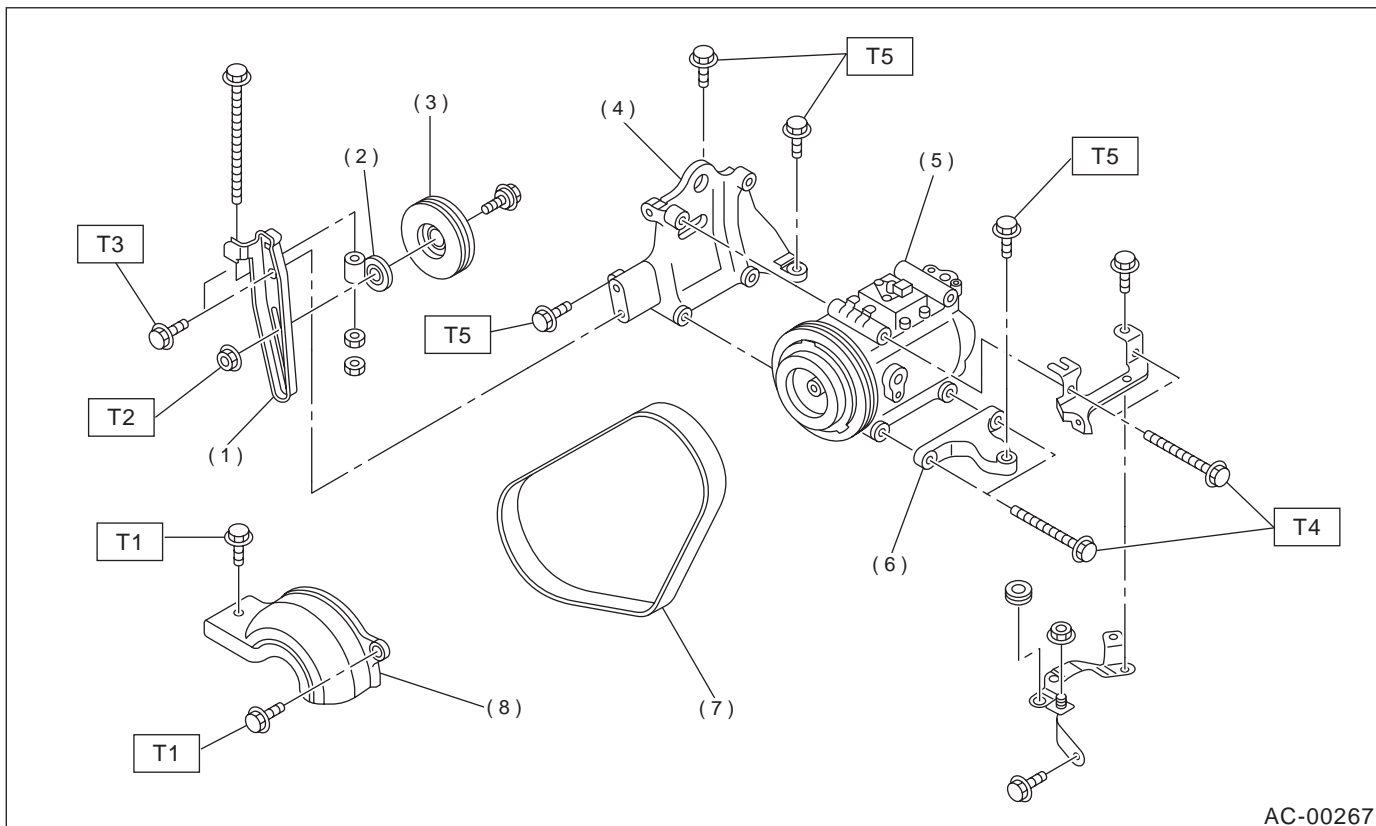
T1: 7.4 (0.75, 5.4)

T2: 15 (1.5, 10.8)

GENERAL DESCRIPTION

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

6. COMPRESSOR



- | | |
|-----------------------------|---------------------------|
| (1) Idler pulley bracket | (7) V-belt |
| (2) Idler pulley adjuster | (8) Compressor belt cover |
| (3) Idler pulley | |
| (4) Compressor bracket main | |
| (5) Compressor | |
| (6) Compressor bracket sub | |

Tightening torque: N·m (kgf-m, ft-lb)

T1: 7.4 (0.75, 5.4)

T2: 23 (2.3, 17)

T3: 23.0 (2.35, 17.0)

T4: 28.9 (2.95, 21.3)

T5: 35 (3.6, 26)

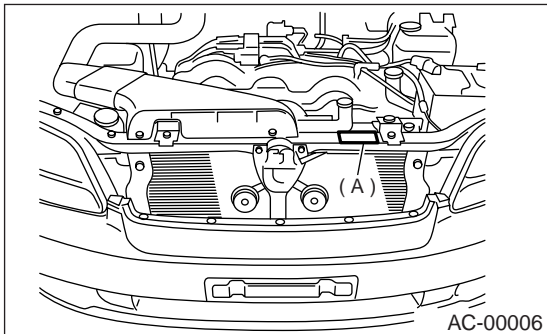
GENERAL DESCRIPTION

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

C: CAUTION

1. HFC-134A A/C SYSTEM

- Unlike the old conventional HFC-12 system components, the cooling system components for the HFC-134a system such as the refrigerant and compressor oil are incompatible.
- Vehicles with the HFC-134a system can be identified by the label "A" attached to the vehicle. Before maintenance, check which A/C system is installed in the vehicle.



2. COMPRESSOR OIL

- HFC-134a compressor oil has no compatibility with that for R12 system.
- Use only the manufacturer-authorized compressor oil for the HFC-134a system; only use ZXL200PG.
- Do not mix multiple compressor oils. If HFC-12 compressor oil is used in a HFC-134a A/C system, the compressor may become stuck due to poor lubrication, or the refrigerant may leak due to swelling of rubber parts. On the other hand, if HFC-134a compressor oil is used in a HFC-12 A/C system, the durability of the A/C system will be lowered.
- HFC-134a compressor oil is very hygroscopic. When replacing or installing/removing A/C parts, immediately isolate the oil from the atmosphere using a plug or tape. In order to avoid moisture, store the oil in a container with its cap tightly closed.

3. REFRIGERANT

- The HFC-12 refrigerant cannot be used in the HFC-134a A/C system. The HFC-134a refrigerant, also, cannot be used in the HFC-12 A/C system.
- If an incorrect or no refrigerant is used, poor lubrication will result and the compressor itself may be damaged.

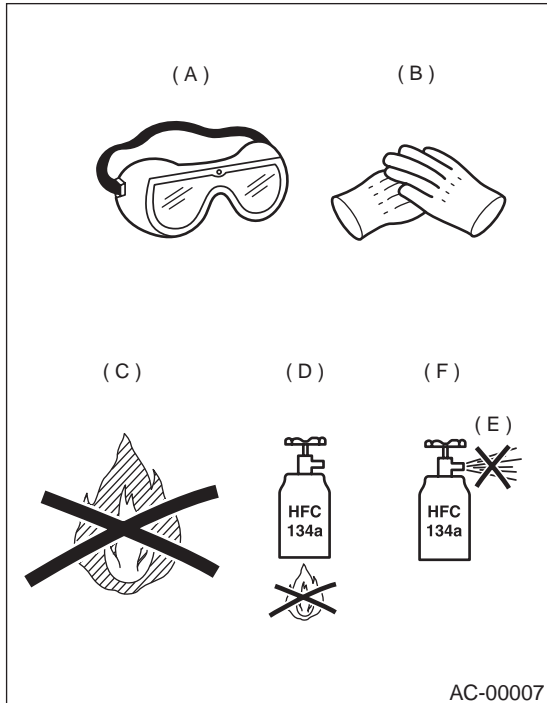
4. HANDLING OF REFRIGERANT

- The refrigerant boils at approx. -30°C (-22°F). When handling it, be sure to wear safety goggles and protective gloves. Direct contact of the refrigerant with skin may cause frostbite. If the refrigerant gets into your eye, avoid rubbing your eyes with your hands. Wash your eye with plenty of water, and receive medical treatment from an eye doctor.
- Do not heat a service can. If a service can is directly heated, or put into boiling water, the inside pressure will become extremely high. This may cause the can to explode. If a service can must be warmed up, use hot water in 40°C (104°F) max.
- Do not drop or impact a service can. (Observe the precautions and operation procedure described on the refrigerant can.)
- When the engine is running, do not open the high-pressure valve of the manifold gauge. The high-pressure gas will back-flow resulting in an explosion of the can.
- The refrigerant is non-toxic and harmless under normal operating circumstance, but it may change to phosgene (a noxious fume) under open flames or high temperatures (caused by a cigarette or heater).
- Provide good ventilation and do not work in a closed area.
- Never perform a gas leak test using a halide torch-type leak tester.

GENERAL DESCRIPTION

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

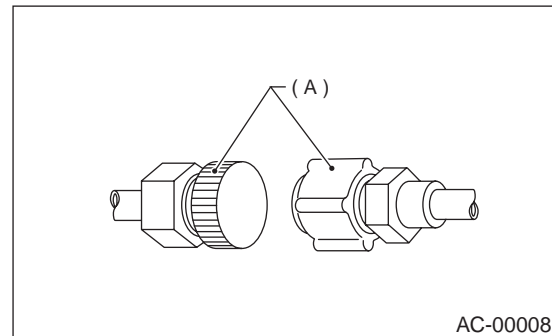
- In order to avoid destroying the ozone layer, prevent HFC-134a from being released into the atmosphere. Using a refrigerant recovery system, discharge and reuse it.



- (A) Goggles
- (B) Gloves
- (C) Avoid open flame
- (D) No direct heat on container
- (E) Do not discharge
- (F) Loosen

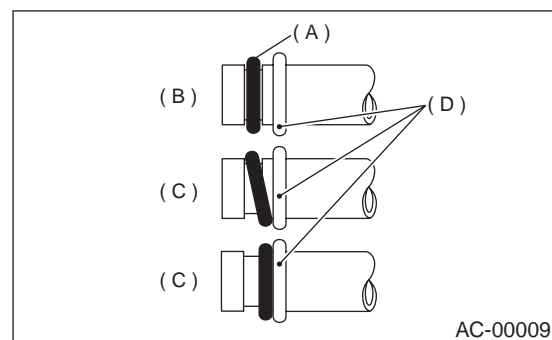
5. O-RING CONNECTIONS

- Use new O-rings.
- In order to keep the O-rings free of lint which will cause a refrigerant gas leak, perform operations without gloves and shop towels.
- Apply the compressor oil to the O-rings to avoid sticking, then install them.
- Use a torque wrench to tighten the O-ring fittings: Over-tightening will damage the O-ring and tube end distortion.
- If the operation is interrupted before completing a pipe connection, recap the tubes, components, and fittings with a plug or tape to prevent contamination from entering.



(A) Seal

- Visually check the surfaces and mating surfaces of O-rings, threads, and connecting points. If a failure is found, replace the applicable parts.
- Install the O-rings at right angle to the tube beards.

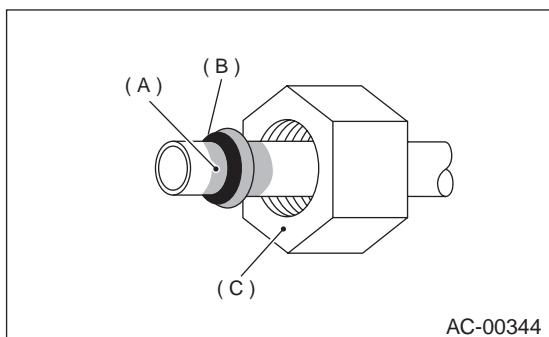
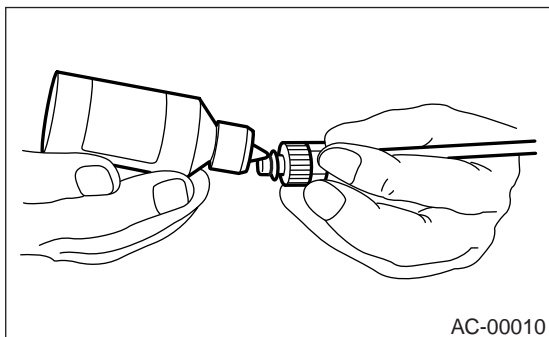


- (A) O-ring
- (B) OK
- (C) NG
- (D) Bead

GENERAL DESCRIPTION

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

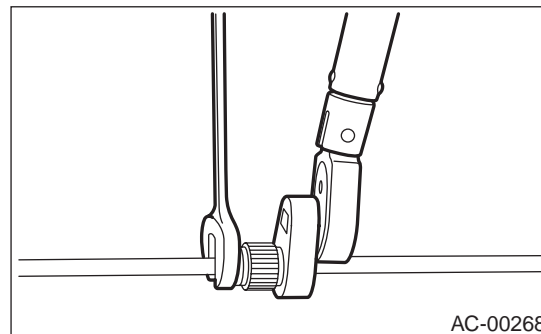
- Use the oil specified in the service manual to lubricate the O-rings. Apply the oil to the top and sides of the O-rings before installation. Apply the oil to the area including the O-rings and tube beads.



- (A) Apply refrigerant oil
- (B) O-ring
- (C) Do not apply refrigerant oil to the threads.

- When connecting hoses or pipes, use 2 wrenches (a torque wrench for tightening). While securing one side with a wrench, tighten the other side to the specified torque with a torque wrench. If only one wrench is used to tighten, the tightening torque will be excessive or insufficient. This may cause a pipe distortion or gas leak, resulting in damage to hoses and pipes.
- After tightening, using a clean shop towel to remove excess oil from the connections and any oil which may have run on the vehicle body or other parts.

- If any leakage is suspected after tightening, do not retighten the connections. Disconnect the connections, remove the O-rings, and check the O-rings, threads, and connections.



GENERAL DESCRIPTION

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

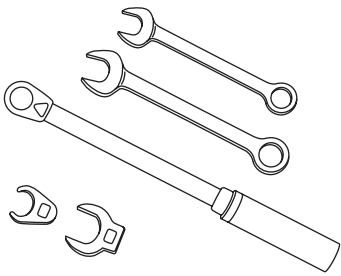
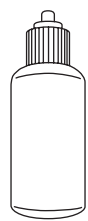
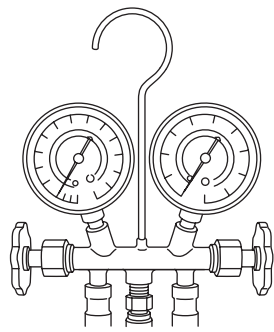
D: PREPARATION TOOL

CAUTION:

When working on vehicles with the HFC-134a system, only use HFC-134a specified tools and parts. Do not mix with CFC-12 tools and parts. If HFC-134a and CFC-12 refrigerant or compressor oil is mixed, poor lubrication will result and the compressor itself may be destroyed.

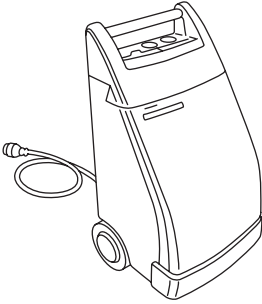
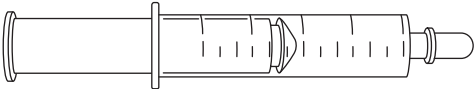
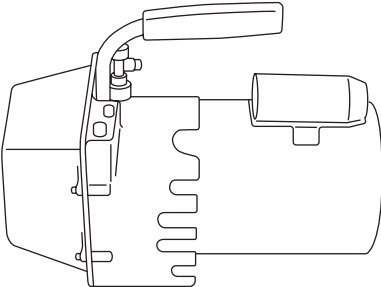
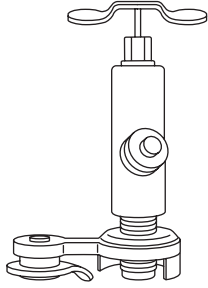
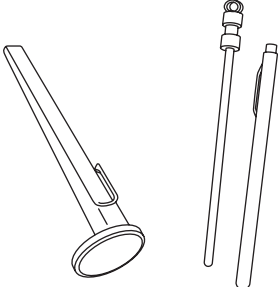
In order to help prevent mixing HFC-134a and CFC-12 parts and liquid, the tool and screw type and the type of service valves used are different. The gas leak detectors for the HFC-134a and CFC-12 systems must also not be interchanged.

	HFC-134a	CFC-12
Tool & screw type	Millimeter size	Inch size
Valve type	Quick joint type	Screw-in type

Tools and Equipment	Description
<p>Wrench</p> <p>Various WRENCHES will be required to service any A/C system. A 7 to 40 N·m (0.7 to 4.1 kg·m, 5 to 30 ft·lb) torque wrench with various crowfoot wrenches will be needed. Open end or flare nut wrenches will be needed for back-up on the tube and hose fittings.</p>	 <p style="text-align: right;">AC-00347</p>
<p>Applicator bottle</p> <p>A small APPLICATOR BOTTLE is recommended to apply refrigerant oil to the various parts. They can be obtained at a hardware or drug store.</p>	 <p style="text-align: right;">AC-00348</p>
<p>Manifold gauge set</p> <p>A MANIFOLD GAUGE SET (with hoses) can be obtained from either a commercial refrigeration supply house or from an auto shop equipment supplier.</p>	 <p style="text-align: right;">AC-00349</p>

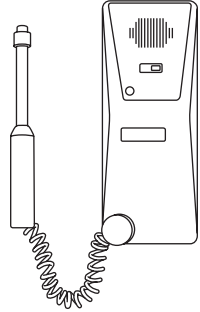
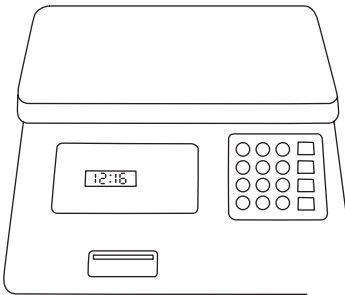
GENERAL DESCRIPTION

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

Tools and Equipment	Description
<p>Refrigerant recovery system</p> <p>A REFRIGERANT RECOVERY SYSTEM is used for the recovery and reuse of A/C system refrigerant after contaminants and moisture have been removed from the refrigerant.</p>	 AC-00350
<p>Syringe</p> <p>A graduated plastic SYRINGE will be needed to add oil back into the system. The syringe can be found at a pharmacy or drug store.</p>	 AC-00351
<p>Vacuum pump</p> <p>A VACUUM PUMP (in good working condition) is necessary, and may be obtained from either a commercial refrigeration supply house or an automotive equipment supplier.</p>	 AC-00352
<p>Can tap</p> <p>A CAN TAP for the 397 g (14 oz) can is available from an auto supply store.</p>	 AC-00353
<p>Thermometer</p> <p>Pocket THERMOMETERS are available from either industrial hardware store or commercial refrigeration supply houses.</p>	 AC-00354

GENERAL DESCRIPTION

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

Tools and Equipment	Description
<p>Electronic leak detector</p> <p>An ELECTRONIC LEAK DETECTOR can be obtained from either a specialty tool supply or an A/C equipment supplier.</p>	 <p>AC-00355</p>
<p>Weight scale</p> <p>A WEIGHT SCALE such as an electronic charging scale or a bathroom scale with digital display will be needed if a 13.6 kg (30 lb) refrigerant container is used.</p>	 <p>AC-00356</p>

REFRIGERANT PRESSURE WITH MANIFOLD GAUGE SET

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

2. Refrigerant Pressure with Manifold Gauge Set

A: OPERATION

- 1) Place the vehicle in the shade and draftless condition.
- 2) Connect the manifold gauge set.
- 3) Open the front windows and close all doors.
- 4) Open the hood.
- 5) Increase engine speed to 1,500 rpm.
- 6) Turn ON the A/C switch.
- 7) Turn the temperature control switch to MAX COOL.
- 8) Put in RECIRC position.
- 9) Turn the blower control switch to HI.
- 10) Read the gauge.

Standard:

Low pressure: 127 — 196 kPa (1.3 — 2.0 kg/cm², 18 — 28 psi)

High pressure: 1,471 — 1,667 kPa (15 — 17 kg/cm², 213 — 242 psi)

Ambient temperature: 30 — 35 °C (86 — 95 °F)

B: INSPECTION

Symptom	Probable cause	Repair order
High-pressure side is unusually high.	<ul style="list-style-type: none"> • Defective condenser fan motor • Clogged condenser fan • Too much refrigerant • Air inside the system • Defective receiver dryer 	<ul style="list-style-type: none"> • Replace the fan motor. • Clean the condenser fin. • Discharge refrigerant. • Replace the receiver dryer.
High-pressure side is unusually low.	<ul style="list-style-type: none"> • Defective compressor • Not enough refrigerant • Clogged expansion valve • Expansion valve frozen temporarily by moisture 	<ul style="list-style-type: none"> • Replace the compressor. • Check for leaks. • Replace the expansion valve.
Low-pressure side is unusually high.	<ul style="list-style-type: none"> • Defective compressor • Defective expansion valve • Too much refrigerant 	<ul style="list-style-type: none"> • Replace the compressor. • Replace the expansion valve. • Discharge refrigerant.
Low-pressure side is unusually low.	<ul style="list-style-type: none"> • Not enough refrigerant • Clogged expansion valve • Expansion valve frozen temporarily by moisture • Saturated receiver dryer 	<ul style="list-style-type: none"> • Check for leaks. • Replace the expansion valve • Replace the receiver dryer.

AC-17

REFRIGERANT RECOVERY PROCEDURE

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

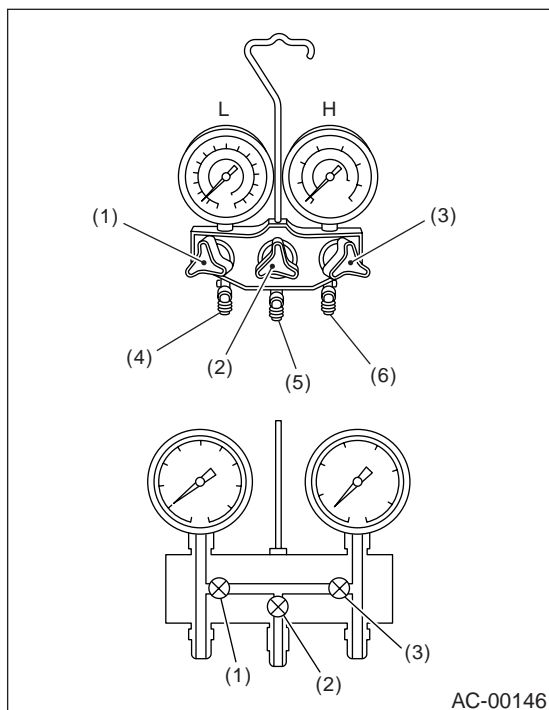
3. Refrigerant Recovery Procedure

A: OPERATION

CAUTION:

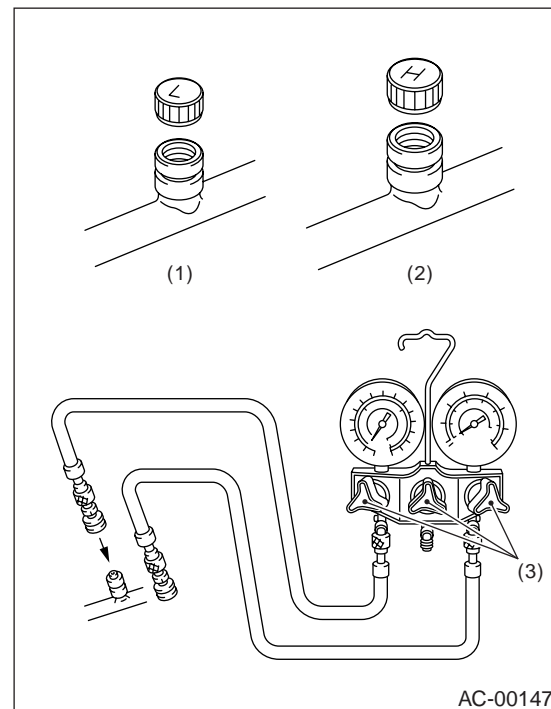
- During operation, be sure to wear safety goggles and protective gloves.
- Connect the refrigerant recovery system with the manifold gauge set to discharge the refrigerant from the A/C system and reuse it.
- When reusing the discharged refrigerant, keep service cans on hand. Because the discharge rate with the recovery system is approx. 90%, service cans are necessary to charge the refrigerant.
- Follow the detailed operation procedure described in the operation manual attached to the refrigerant recovery system.

- 1) Perform the compressor oil return operation. <Ref. to AC-24, OPERATION, Compressor Oil.>
- 2) Stop the engine.
- 3) Make sure the valves on low-/high-pressure sides of manifold gauge set are fully closed.



- L: Low-pressure gauge
- H: High-pressure gauge
- (1) Low-pressure valve
- (2) Vacuum pump valve
- (3) High-pressure valve
- (4) For low-pressure
- (5) For vacuum pump
- (6) For high-pressure

- 4) Install the low-/high-pressure hoses to the service ports on the low-/high-pressure sides of the vehicle respectively.



- (1) Low service port
- (2) High service port
- (3) Close

- 5) Connect the center hose to the refrigerant recovery system.
- 6) Follow the operation manual to activate the refrigerant recovery system.

REFRIGERANT CHARGING PROCEDURE

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

4. Refrigerant Charging Procedure

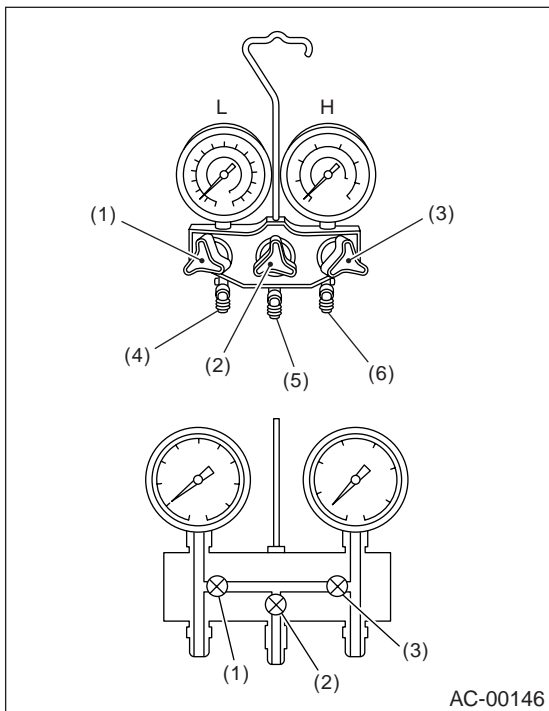
A: OPERATION

CAUTION:

- During operation, be sure to wear safety goggles and protective gloves.
- If air is mixed in refrigeration cycle, poor cooling may result, and also if moisture is mixed in refrigeration cycle, clogging (freezing) or rust may result.

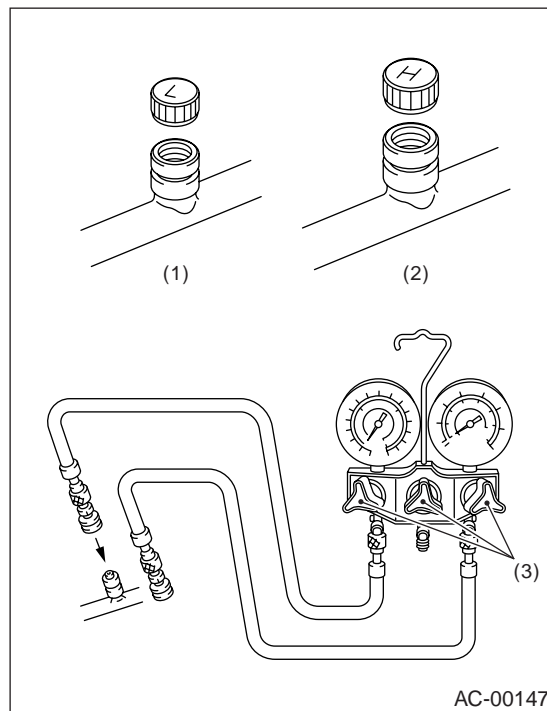
Before charging the refrigerant, evacuate the system using vacuum pump to remove air and moisture in the system. Moisture can be evaporated and removed easily even at normal temperature, if the system is evacuated using vacuum pump.

1) Close all valves of manifold gauge.



- L: Low-pressure gauge
- H: High-pressure gauge
- (1) Low-pressure valve
- (2) Vacuum pump valve
- (3) High-pressure valve
- (4) For low-pressure
- (5) For vacuum pump
- (6) For high-pressure

2) Install the low-/high-pressure hoses to corresponding service ports on vehicle.



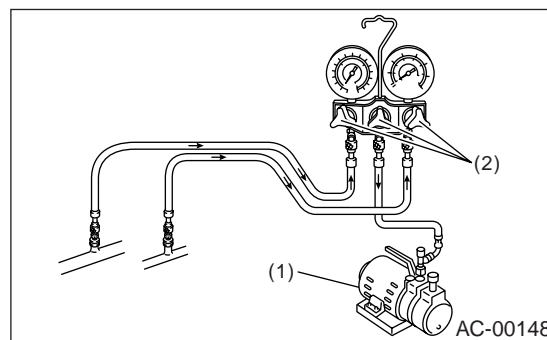
- (1) Low service port
- (2) High service port
- (3) Close

CAUTION:

Be sure that the hoses are securely connected.

3) Connect the center hose of manifold gauge with vacuum pump.

4) Activate the vacuum pump and then open the valves on low-/high-pressure sides.



- (1) Vacuum pump
- (2) Open

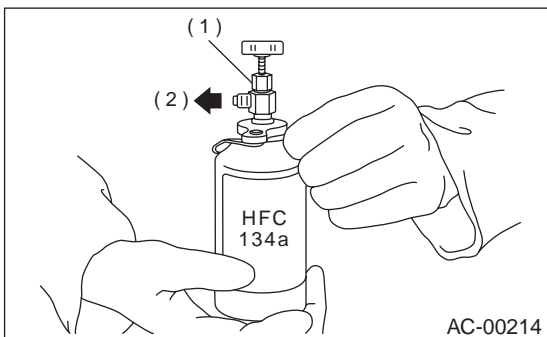
CAUTION:

Be sure to evacuate the system using vacuum pump.

REFRIGERANT CHARGING PROCEDURE

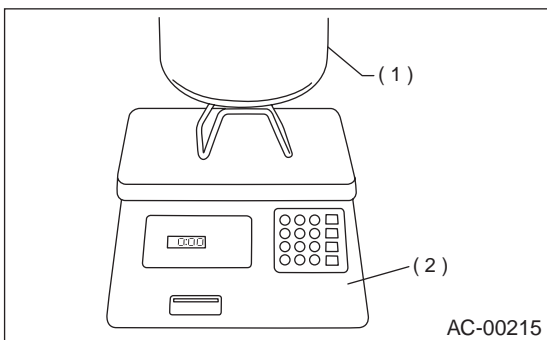
HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- 5) After at least 5 minutes of evacuation, if the low-pressure gauge reading shows 100.0 kPa (750 mmHg, 29.5 inHg) or higher, close the valves on center hose to stop the vacuum pump.
- 6) Leave it at least 5 to 10 minutes after closing the valves on low-/high-pressure sides, and then check the low-pressure gauge reading for any changes. When the gauge reading changes, this is a sign of leakage. Check the pipe or hose connector points, and repair if necessary. Repeat the procedure from 1) after repairing the faulty part.
- 7) If there are no leaks, further evacuate the system 20 to 30 minutes.
- 8) Close all valves and stop the vacuum pump.
- 9) Following the can tap operation manual instructions, install it to refrigerant can.



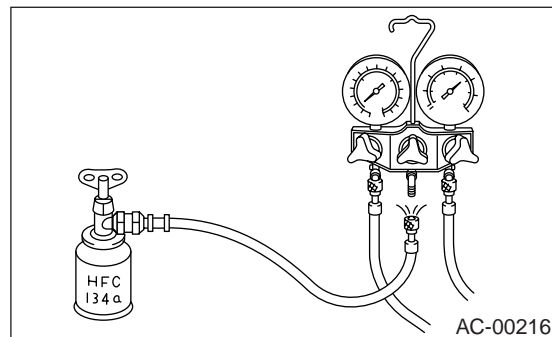
- (1) Tap valve
- (2) Connect to center hose

- 10) Disconnect the vacuum pump from center hose, and connect the hose to tap valve.
- 11) When a refrigerant recovery container is used, measure the refrigerant amount in use using a weighting scale before connecting to center hose.

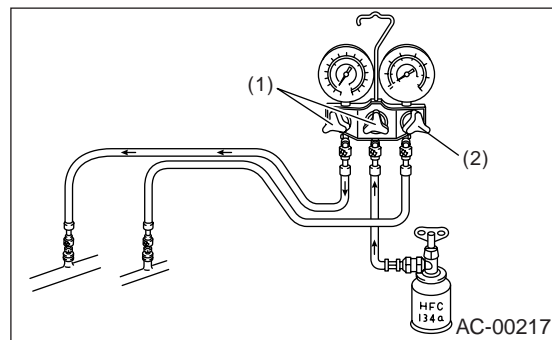


- (1) Refrigerant recovery container
- (2) Weighting scale

- 12) Open the valve on HFC-134a source.
- 13) Loosen the center hose connection on manifold gauge (if applicable, press a purge valve on manifold gauge) only for a couple of seconds to allow the air in the center hose to escape by the refrigerant.



- 14) Make sure that the high-pressure valve of manifold gauge is closed, and then open the low-pressure side valve only to charge the refrigerant.



- (1) Open
- (2) Close

CAUTION:

Do not open the high-pressure valve. Be sure to open the low-pressure valve.

- 15) Close the low-pressure valve when the low-pressure gauge reading reaches 200 kPa (1,500 mmHg, 59.1 inHg).
- 16) Using a leak tester, check the system for refrigerant leaks.
- 17) After confirming that there are no leaks with the leak test, charge the required amount of refrigerant.
- 18) If the HFC-134a source is empty, close the low-pressure valve and then close the valve on can tap before replacing the empty source. Restart charging operation after replacing the HFC-134a source with a new one and purging.
- 19) Close the low-pressure valve if the charge rate of refrigerant becomes worse.
- 20) Confirm that both the low-/high-pressure valves are closed. Start the engine with A/C switch OFF.

REFRIGERANT CHARGING PROCEDURE

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

21) Quickly repeat A/C switch ON-OFF cycles a few times to prevent initial compressor damage.

22) Set up the vehicle to the following status:

- A/C switch ON
- Engine running at 1,500 rpm
- Blower speed setting to "Hi"
- Temperature setting to "MAX COOL"
- Air inlet setting to "RECIRC"
- Window open

23) Open the low-pressure valve and charge the specified amount of refrigerant.

24) Close all valves and disconnect the hoses from service port after charging the refrigerant.

25) Install the cap to service port.

REFRIGERANT LEAK CHECK

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

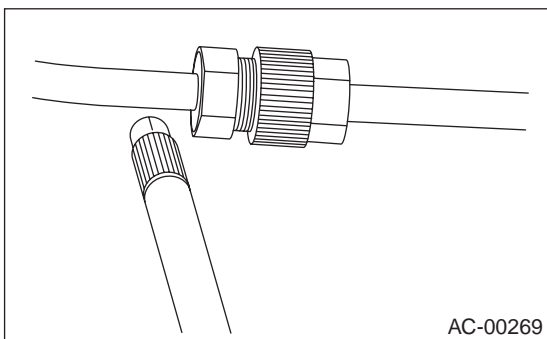
5. Refrigerant Leak Check

A: INSPECTION

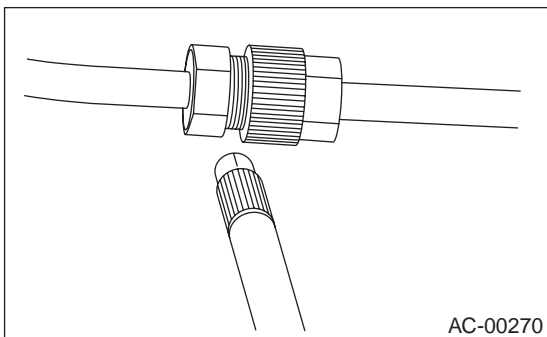
1) Operate the A/C system for approx. 10 minutes, and confirm that the high-side pressure shows at least 690 kPa (7.03 kg/cm², 100 psi). Then stop the engine to start the leak test.

2) Starting from the connection between the high-pressure tube and evaporator, check the system for leaks along the high-pressure side through the compressor. The following items must be checked thoroughly.

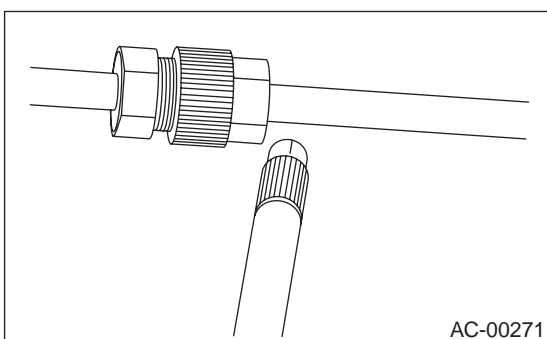
- Connection between the tube and tube fitting



- Connection between 2 parts



- Connection between the tube and nut



3) Check the joint and seam between the pressure switch (dual switch) and receiver dryer.

4) Check the connections between the condenser and tubes, and welded joints on the condenser. The leak tester may detect the oil on the condenser fins as a leak.

5) Check the joint between the compressor and hoses.

6) Check the machined area of compressor and other joints on the compressor.

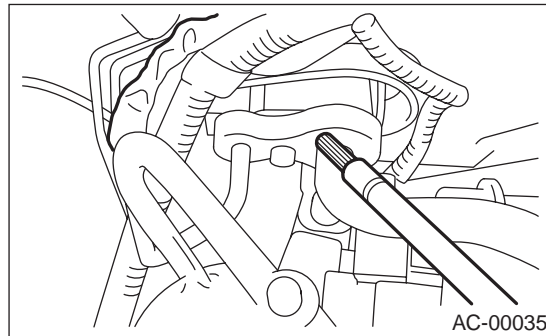
7) Check the thermal limiter (if equipped) on the compressor housing.

8) Check the compressor shaft seal at the area near the center of compressor clutch pulley.

Some shaft seals show a slight amount of leakage about 28 g (1.0 oz) per year. This is not a problem.

9) Starting from the connection between the low-pressure tube and evaporator, check the system for leakage along the high-pressure side through the compressor. The following items must be checked thoroughly.

- Connection between the tube and tube fitting
- Connection between 2 parts
- Connection between the tube and nut

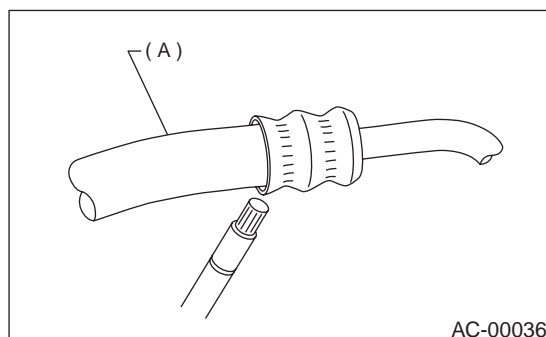


10) Visually check the rubber area of the flexible hose for cracks.

Check the entire length of the flexible hose, especially the connection with the metal hose end.

CAUTION:

Carefully check the external surface of hoses and tubes at approx. 25 mm (0.98 in) per second.



(A) Flexible hose

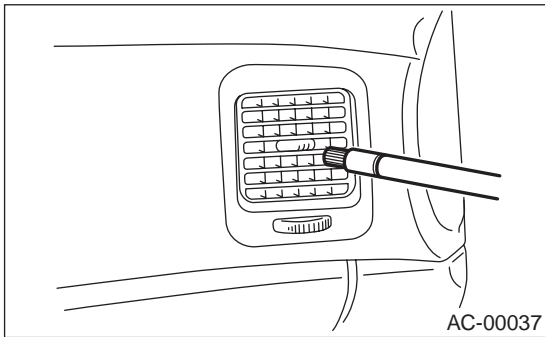
11) Disconnect the drain hose from the evaporator case, and check the hose end for at least 10 seconds.

After the test is finished, reconnect the drain hose.

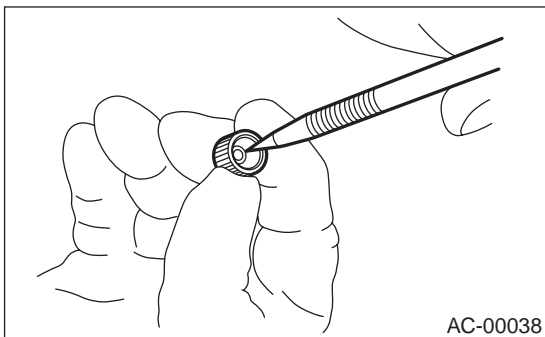
REFRIGERANT LEAK CHECK

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

12) Turn the ignition key to ON position, and run the blower at high speed for 1 minute. Stop the blower to check the ventilation grille on the instrument panel. While moving the tester closer to the grille, run the blower for 1 or 2 seconds, then stop it. Check the grille at that point for at least 10 seconds.



13) Check the valve in the service port.
14) Visually check the rubber seal in the service port cap.



COMPRESSOR OIL

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

6. Compressor Oil

A: OPERATION

NOTE:

Before making repairs, conduct the oil return operation to return the compressor oil in circulation with the refrigerant to the compressor.

- 1) Increase engine speed to 1,500 rpm.
- 2) Turn ON the A/C switch.
- 3) Turn the temperature control switch to MAX COOL.
- 4) Put in RECIRC position.
- 5) Turn the blower control switch to HI.
- 6) Leave in this condition for 10 minutes.

B: REPLACEMENT

NOTE:

- If a component is replaced, add an appropriate amount of compressor oil.
- When replacing the compressor, the new compressor will already have the specified amount of oil in it. Install the new compressor after removing the same amount of oil that is remaining in the compressor removed.

Replacement parts	Amount of oil replenishment
Evaporator	114 m ℓ (3.9 US fl oz, 4.0 Imp fl oz)
Receiver drier	5 m ℓ (0.2 US fl oz, 0.2 Imp fl oz)
Condenser	2 m ℓ (0.07 US fl oz, 0.07 Imp fl oz)
Hose	1 m ℓ (0.03 US fl oz, 0.04 Imp fl oz)

AC-24

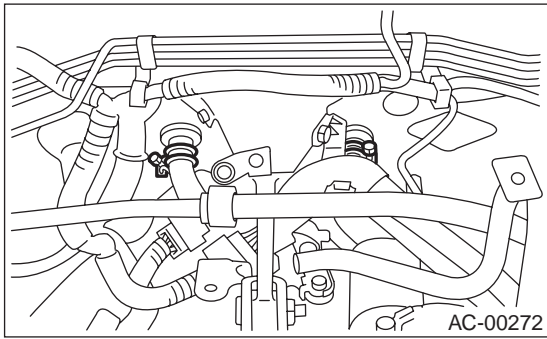
HEATER UNIT

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

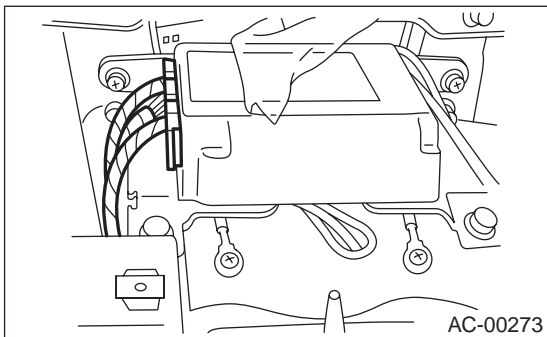
7. Heater Unit

A: REMOVAL

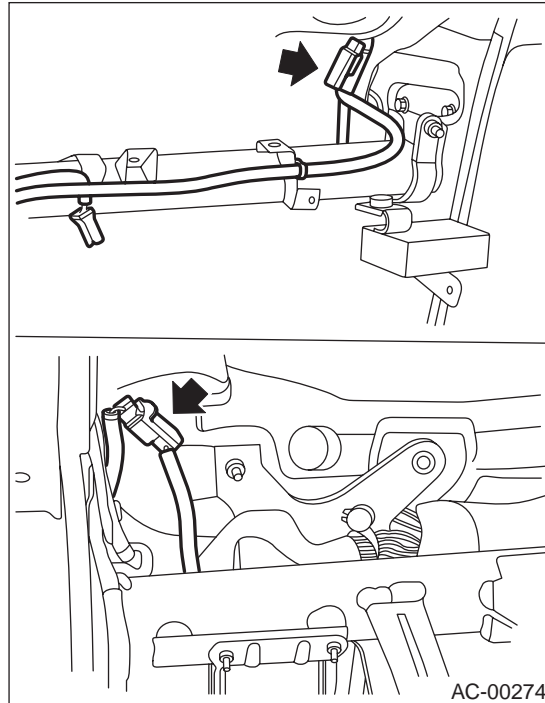
- 1) Disconnect ground cable from battery.
- 2) Pull out LLC.
- 3) Remove air cleaner case.
- 4) Release heater hose clamps in engine compartment to remove the hoses.



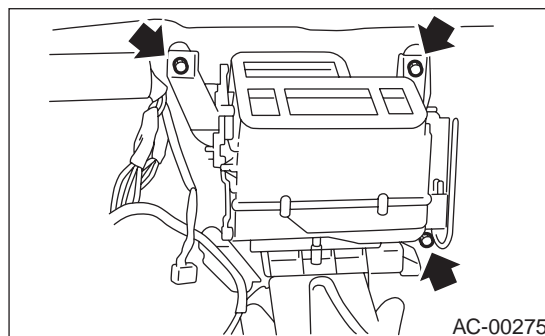
- 5) Remove A/C unit. <Ref. to AC-34, Intake Unit.>
- 6) Using a Torx wrench, remove airbag control unit.



- 7) Disconnect connector of airbag main harness near steering support beam.



- 8) Loosen bolts and nuts of support beam to remove support beam.
- 9) Disconnect servo connector.
- 10) Loosen bolts and nuts of heater unit to remove heater unit.



B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

Refer to COMPONENT of General Description

<Ref. to AC-5, HEATER UNIT, COMPONENT, General Description.>

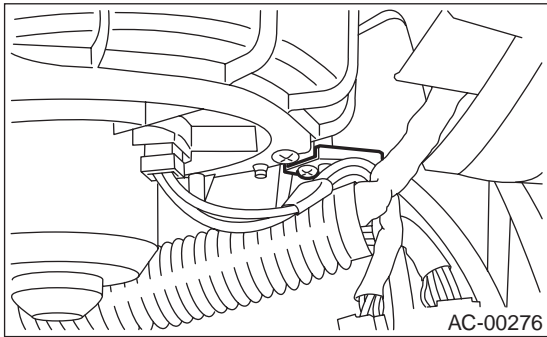
BLOWER MOTOR ASSEMBLY

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

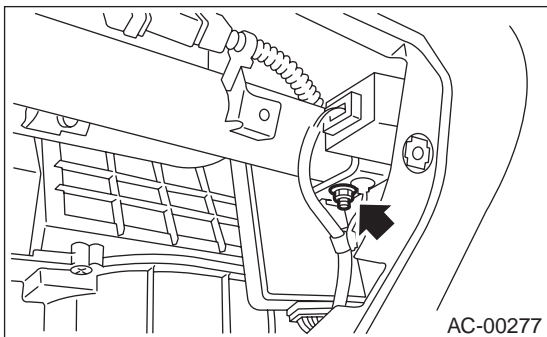
8. Blower Motor Assembly

A: REMOVAL

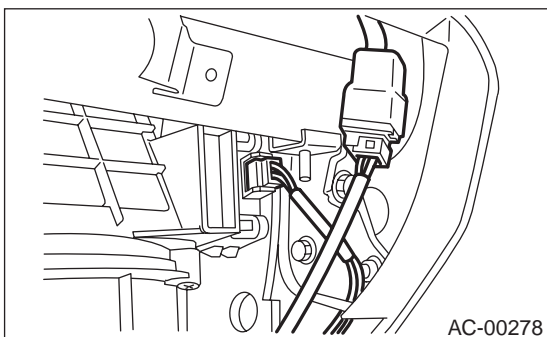
- 1) Disconnect ground cable from battery.
- 2) Remove glove box. <Ref. to EI-34, REMOVAL, Glove Box.>
- 3) Remove mounting bolts of harness stay.



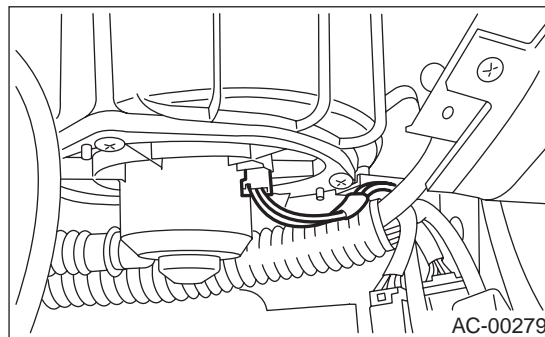
- 4) Remove nuts of keyless unit stay and CRU unit stay.



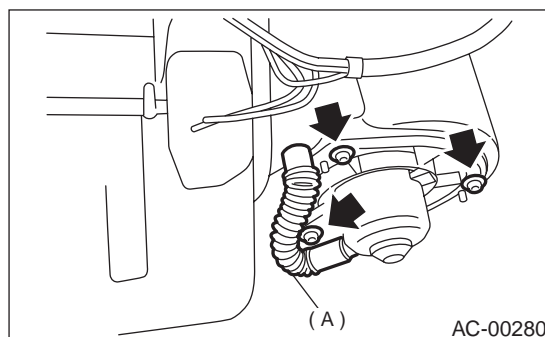
- 5) Disconnect connector of sunroof.
- 6) Disconnect servo connector.



- 7) Disconnect motor connector.



- 8) Remove 3 screws.
- 9) Disconnect aspirator pipe (A) and remove blower motor.

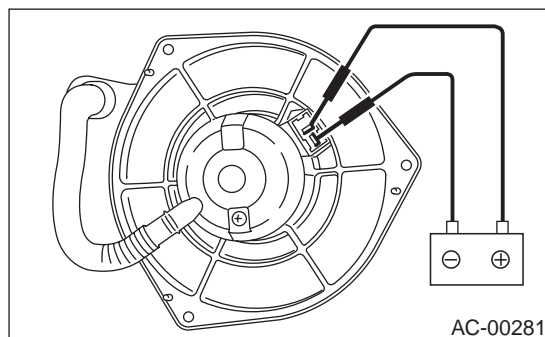


B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Connect motor connector terminal 1 from the battery to the positive (+) lead and terminal 2 to the negative (-) lead. Make sure the motor runs smoothly.



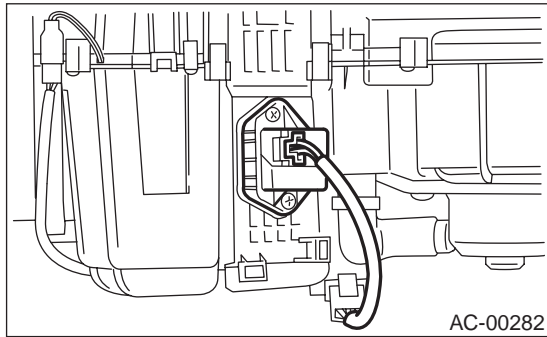
HEATER BLOWER RESISTOR

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

9. Heater Blower Resistor

A: REMOVAL

- 1) Remove glove box. <Ref. to EI-34, REMOVAL, Glove Box.>
- 2) Disconnect power transistor connector.
- 3) Loosen 2 screws to remove power transistor.

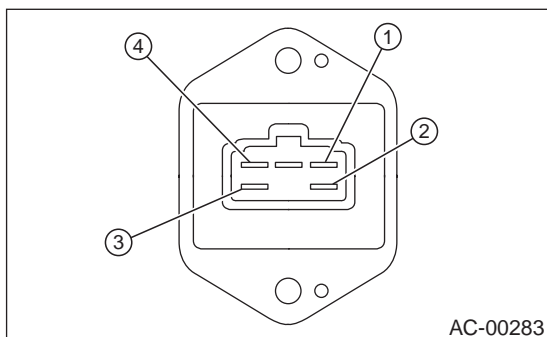


B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

1. MANUAL A/C



Measure switch resistance.

Terminal No.	Condition	Standard
4 and 3	Constant	Approx. 0.46 Ω
3 and 2	Constant	Approx. 0.85 Ω
2 and 1	Constant	Approx. 1.77 Ω

If NG, replace the blower resistor.

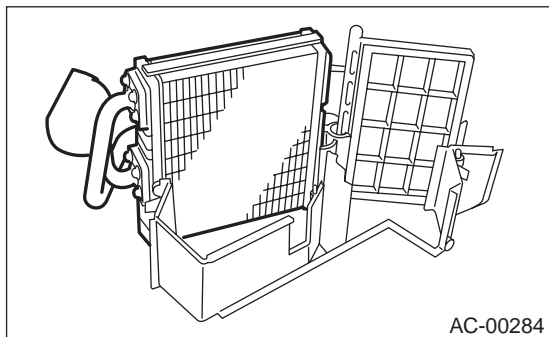
HEATER CORE

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

10.Heater Core

A: REMOVAL

- 1) Remove heater unit. <Ref. to AC-25, REMOVAL, Heater Unit.>
- 2) Remove screws to separate heater unit case.
- 3) Remove heater core.



B: INSTALLATION

Install in the reverse order of removal.

AC-28

CONTROL UNIT

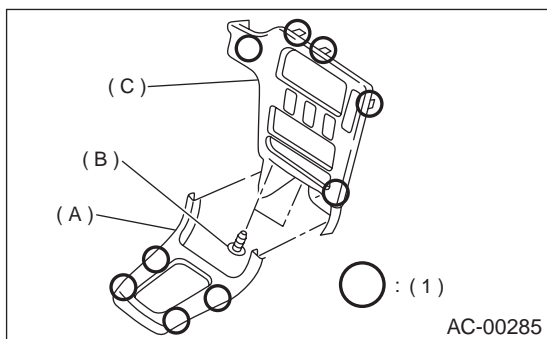
HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

11. Control Unit

A: REMOVAL

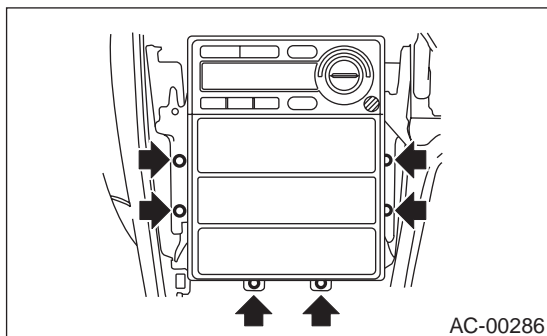
1. AUTO A/C

- 1) Disconnect ground cable from battery.
- 2) Remove front cover (A).
- 3) Loosen 2 screws (B) to remove center panel (C).



(1) Hook pawl

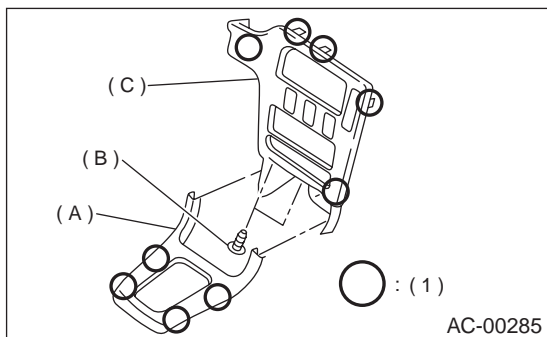
- 4) Loosen screws to pull control unit slightly out of center console.



- 5) Disconnect connector from antenna cable to remove control unit.

2. MANUAL A/C

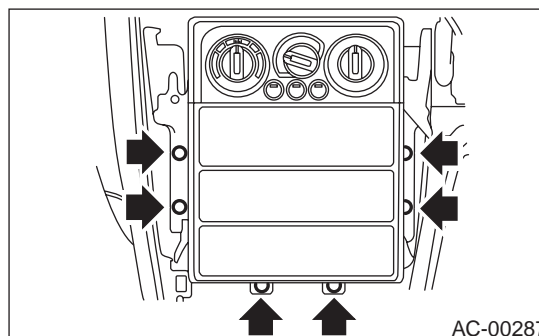
- 1) Disconnect ground cable from battery.
- 2) Remove front cover (A).
- 3) Loosen 2 screws (B) to remove center panel (C).



(1) Hook pawl

- 4) Set temperature control switch to "FULL HOT", and disconnect temperature control cable from heater unit.

- 5) Loosen screws to pull control unit slightly out of center console.



- 6) Disconnect connector from antenna cable to remove control unit.

B: INSTALLATION

1. AUTO A/C

Install in the reverse order of removal.

2. MANUAL A/C

- 1) Install in the reverse order of removal.
- 2) Before installation, set temperature control switch to "FULL HOT".

COMPRESSOR

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

12. Compressor

A: INSPECTION

1. MAGNETIC CLUTCH CLEARANCE

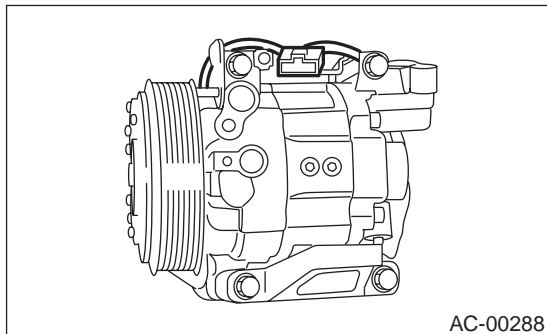
1) Check the clearance of the entire circumference around the drive plate and pulley.

Standard:

$0.45 \pm 0.15 \text{ mm } (0.0177 \pm 0.0059 \text{ in})$

2. MAGNETIC CLUTCH OPERATION

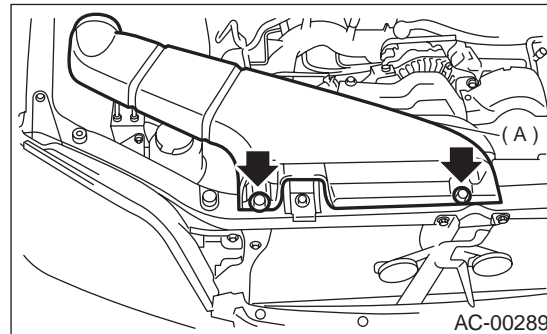
1) Disconnect the compressor connector.
2) Connect the No. 3 terminal of the compressor connector from the battery to the positive (+) lead. Ground the negative (-) lead to the body.



3) Make sure the magnet clutch engages. If NG, replace the compressor.

B: REMOVAL

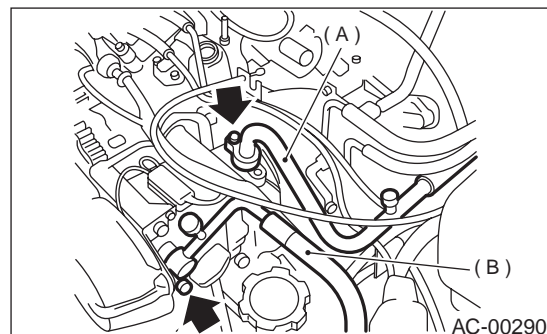
- 1) Perform oil return operation. <Ref. to AC-24, OPERATION, Compressor Oil.>
- 2) Turn A/C switch OFF and stop the engine.
- 3) Using refrigerant recovery system, discharge refrigerant. <Ref. to AC-18, OPERATION, Refrigerant Recovery Procedure.>
- 4) Disconnect ground cable from battery.
- 5) Remove duct (A).



6) Disconnect low-pressure hose (A) and high-pressure hose (B).

CAUTION:

Be careful not to lose O-rings on hose. Immediately seal hose with a plug or vinyl tape to prevent the entry of contamination.



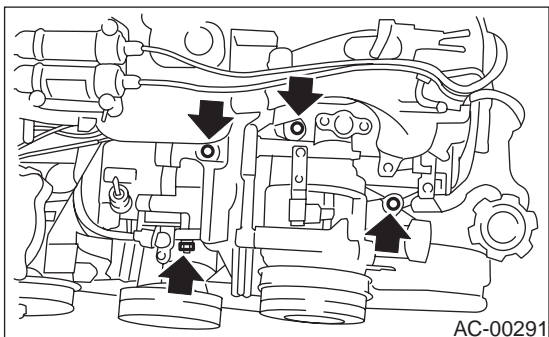
- 7) Remove V-belt. <Ref. to ME(H6DO)-28, REMOVAL, V-belt.>
- 8) Remove generator. <Ref. to SC(H6DO)-14, REMOVAL, Generator.>
- 9) Disconnect compressor harness from body harness.

COMPRESSOR

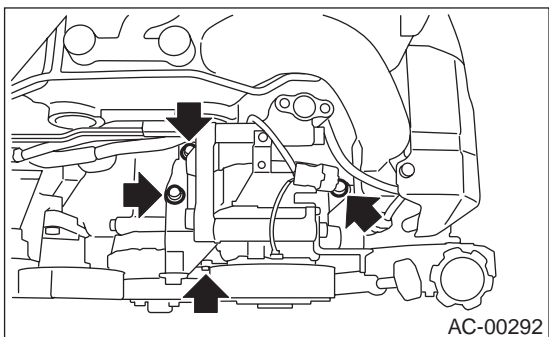
HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

10) Remove bolts from compressor bracket.

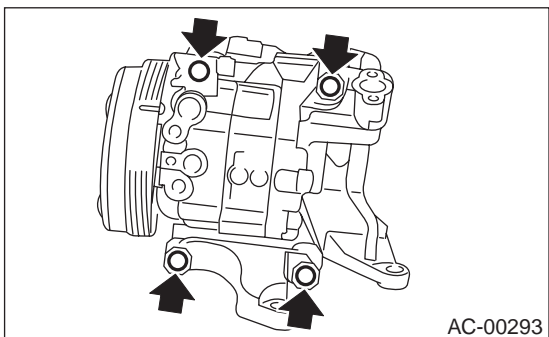
4 CYLINDERS:



6 CYLINDERS:



11) Loosen bolts to remove compressor from bracket.



C: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) Replace O-rings on low-/high-pressure hoses with new ones, then apply compressor oil.
- 3) When replacing compressor, adjust amount of compressor oil. <Ref. to AC-24, Compressor Oil.>
- 4) Charge refrigerant. <Ref. to AC-19, OPERATION, Refrigerant Charging Procedure.>

Tightening torque:

Refer to **COMPONENT** of *General Description*

<Ref. to AC-9, AIR CONDITIONING UNIT, COMPONENT, General Description.>

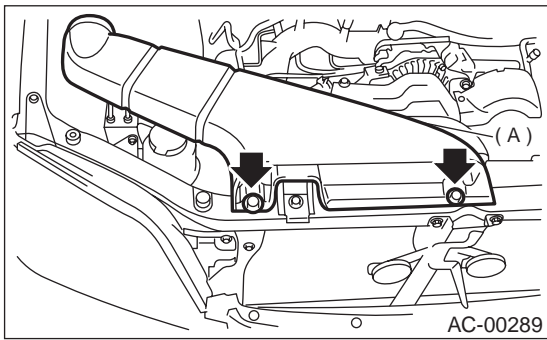
CONDENSER

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

13. Condenser

A: REMOVAL

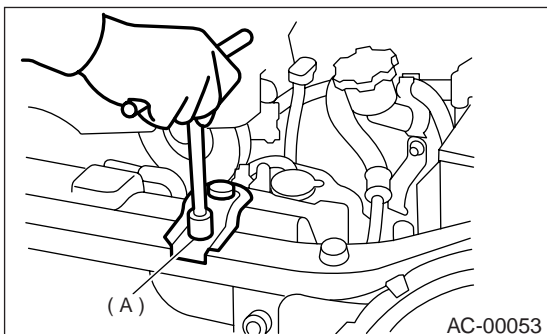
- 1) Using refrigerant recovery system, discharge refrigerant. <Ref. to AC-18, OPERATION, Refrigerant Recovery Procedure.>
- 2) Disconnect ground cable from battery.
- 3) Remove duct (A).



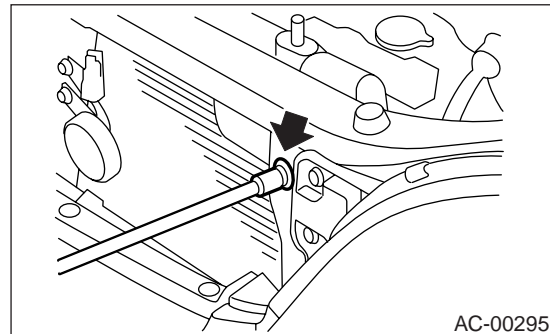
- 4) Disconnect high-pressure hose (A) and low-pressure hose (B) from condenser.



- 5) Remove radiator bracket (A).



- 6) Remove 2 bolts. While lifting condenser, pull it out through the space between the radiator and the radiator panel.



CAUTION:

Be careful not to damage condenser fins. If a damaged fin is found, repair it using a thin screwdriver.

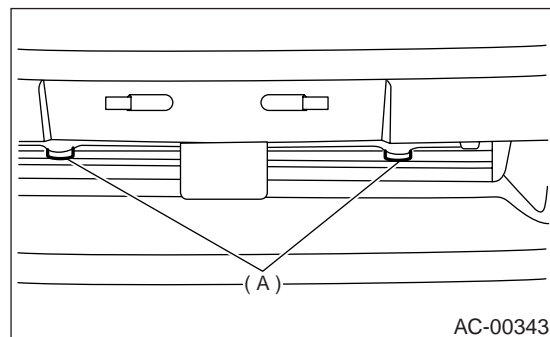
If condenser is replaced, add appropriate amount of compressor oil to the compressor. <Ref. to AC-24, REPLACEMENT, Compressor Oil.>

B: INSTALLATION

- 1) Install in the reverse order of removal.

CAUTION:

Replace O-rings on hoses or pipes with new ones, and then apply compressor oil. Confirm that lower guide of condenser has been fitted into holes on radiator panel.



- 2) Charge refrigerant. <Ref. to AC-19, OPERATION, Refrigerant Charging Procedure.>

C: INSPECTION

- 1) Confirm that no dust or insects are found on the condenser fins. Air-blow or flush fins with water as needed.
- 2) Confirm that no oil leaks from condenser. If a failure is found, replace condenser with a new one.

Tightening torque:

Refer to **COMPONENT** of **General Description**

<Ref. to AC-9, AIR CONDITIONING UNIT, COMPONENT, General Description.>

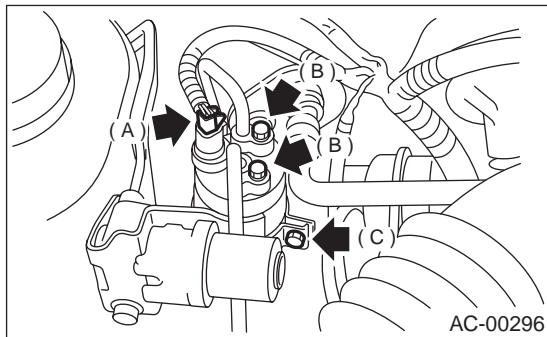
RECEIVER DRIER

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

14. Receiver Drier

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Using refrigerant recovery system, discharge refrigerant. <Ref. to AC-18, OPERATION, Refrigerant Recovery Procedure.>
- 3) Disconnect pressure switch harness (A).
- 4) Disconnect pipe (B).
- 5) Loosen mounting bolts (C) to remove receiver drier.



CAUTION:

The receiver drier contains a desiccant. After disconnecting receiver drier, plug it to avoid moisture.

If receiver drier is replaced, add appropriate amount of compressor oil to the compressor. <Ref. to AC-24, REPLACEMENT, Compressor Oil.>

B: INSTALLATION

- 1) Install in the reverse order of removal.

CAUTION:

Replace O-rings with new ones, and apply compressor oil.

- 2) Charge refrigerant. <Ref. to AC-19, OPERATION, Refrigerant Charging Procedure.>

Tightening torque:

Refer to **COMPONENT** of *General Description*

<Ref. to AC-9, **AIR CONDITIONING UNIT, COMPONENT, General Description.**>

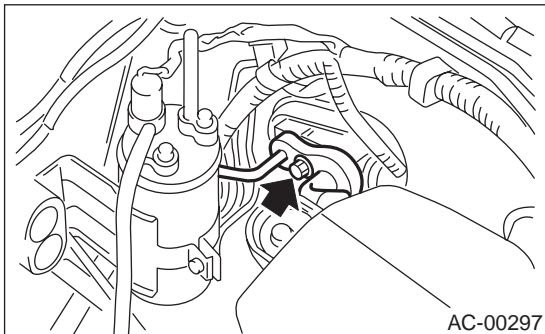
INTAKE UNIT

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

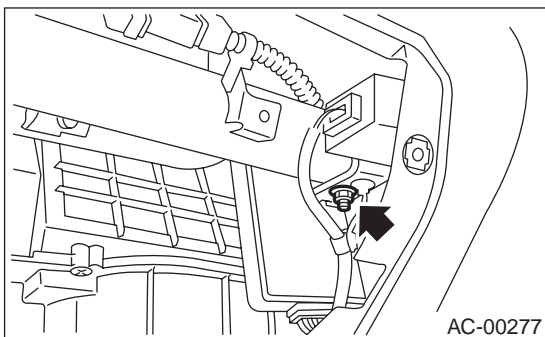
15. Intake Unit

A: REMOVAL

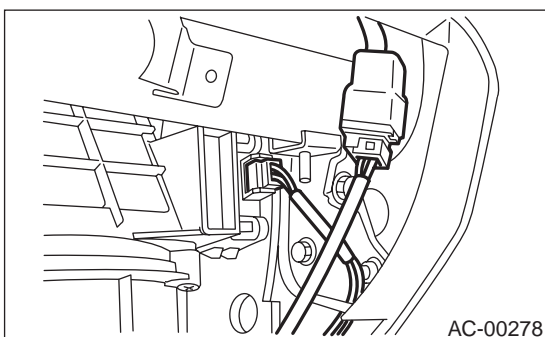
- 1) Using refrigerant recovery system, discharge refrigerant. <Ref. to AC-18, OPERATION, Refrigerant Recovery Procedure.>
- 2) Disconnect ground cable from battery.
- 3) Remove bolts securing expansion valve and pipe in engine compartment.



- 4) Remove instrument panel. <Ref. to EI-37, REMOVAL, Instrument Panel Assembly.>
- 5) Remove keyless unit and CRU unit.

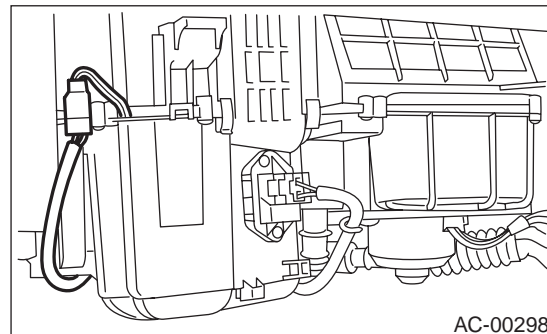


- 6) Disconnect sunroof connector.
- 7) Disconnect servo motor connector.

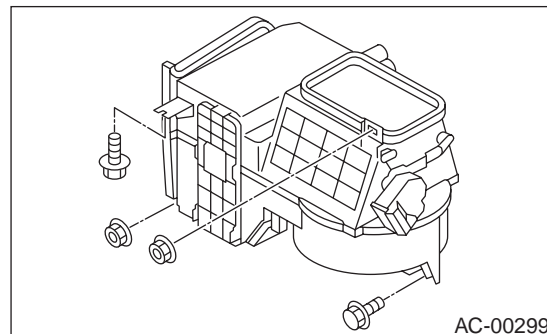


- 8) Disconnect heater blower power transistor connector.
- 9) Disconnect heater blower motor connector.

- 10) Disconnect in-vehicle temperature sensor connector.



- 11) Remove bolts and nuts on the unit.



- 12) Disconnect drain hose.
- 13) Remove the unit.

B: INSTALLATION

- 1) Install in the reverse order of removal.

CAUTION:

Replace O-rings with new ones, and apply compressor oil.

Tightening torque:

Refer to **COMPONENT** of **General Description**

<Ref. to AC-6, **INTAKE UNIT WITH EVAPORATOR, COMPONENT, General Description**.>

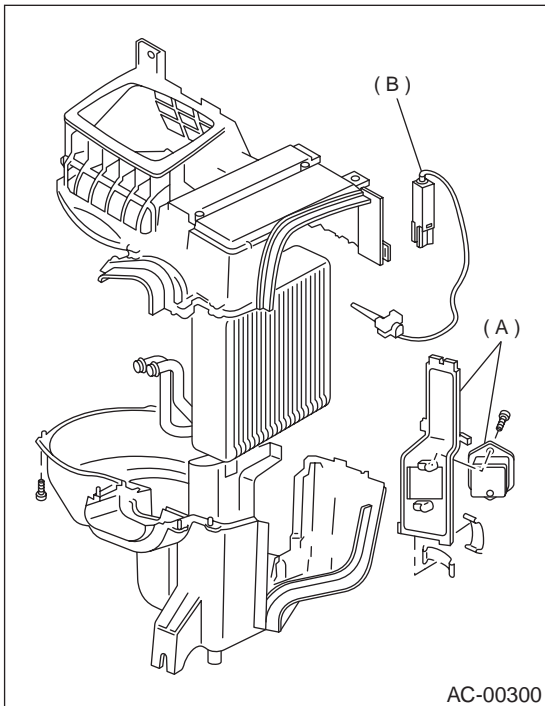
- 2) Charge refrigerant. <Ref. to AC-19, OPERATION, Refrigerant Charging Procedure.>

INTAKE UNIT

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

C: DISASSEMBLY

- 1) Remove resistor (A) and thermistor (B) from intake unit case.
- 2) Remove screws and clips to separate intake unit.

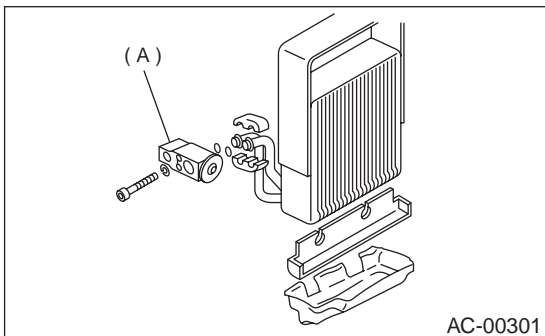


D: ASSEMBLY

Assemble in the reverse order of disassembly.

CAUTION:
Replace O-rings with new ones, and then apply compressor oil.

- 3) Remove expansion valve (A) from evaporator.



CAUTION:
If evaporator is replaced, add appropriate amount of compressor oil to evaporator. <Ref. to AC-24, REPLACEMENT, Compressor Oil.>

FLEXIBLE HOSE

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

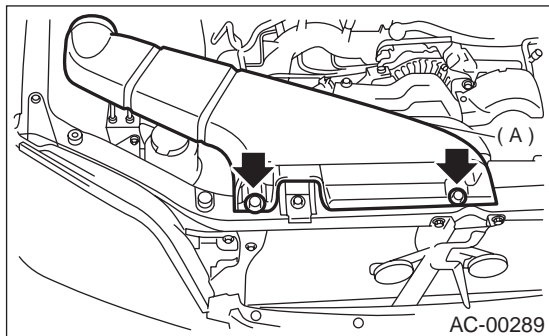
16.Flexible Hose

A: REMOVAL

CAUTION:

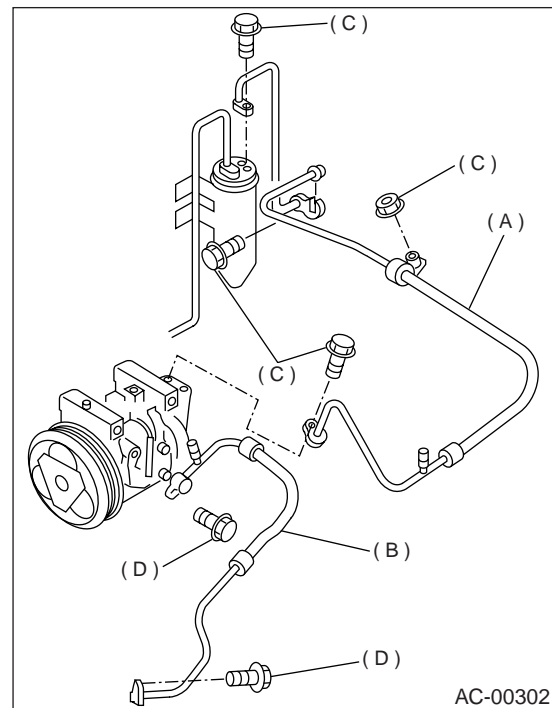
- When disconnecting/connecting hoses, do not apply excessive force them. Confirm that no torsion and excessive tension exist after installing.
- Seal the disconnected hose with a plug or vinyl tape to prevent contamination from entering.

- 1) Disconnect ground cable from battery.
- 2) Using refrigerant recovery system, discharge refrigerant. <Ref. to AC-18, OPERATION, Refrigerant Recovery Procedure.>
- 3) Remove duct (A).



- 4) Remove hose attaching bolts (C).
- 5) Disconnect hose from evaporator unit.
- 6) Disconnect hose from compressor.
- 7) Remove low-pressure hose (A) from the vehicle.
- 8) Remove hose attaching bolts (D).
- 9) Disconnect hose from compressor.
- 10) Disconnect hose from condenser.

- 11) Disconnect high-pressure hose (B) from the vehicle.



B: INSTALLATION

CAUTION:

When disconnecting/connecting hoses, do not apply an excessive force them. Confirm that no torsion and excessive tension exist after installing. Seal the disconnected hose with a plug or vinyl tape to prevent contamination from entering.

- 1) Install in the reverse order of removal.
- 2) Charge refrigerant. <Ref. to AC-19, OPERATION, Refrigerant Charging Procedure.>

Tightening torque:

Refer to **COMPONENT** of *General Description*

<Ref. to AC-9, AIR CONDITIONING UNIT, COMPONENT, General Description.>

C: INSPECTION

NOTE:

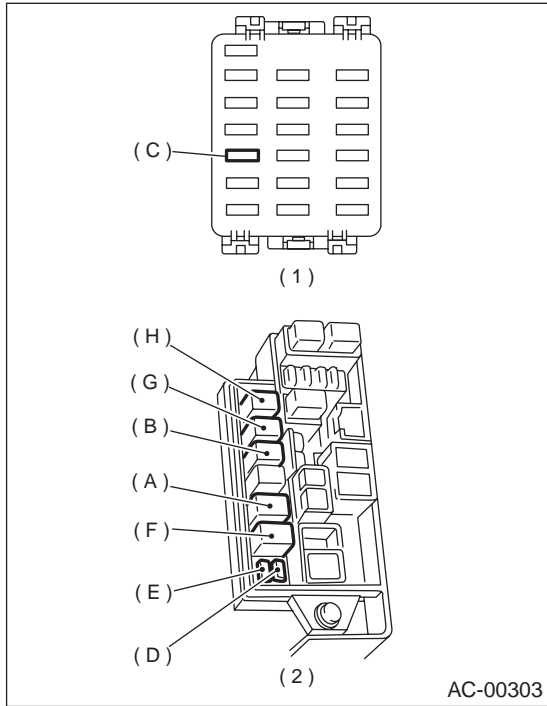
If cracking, damage, or swelling is found on a hose, replace it with a new one.

RELAY AND FUSE

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

17. Relay and Fuse

A: LOCATION



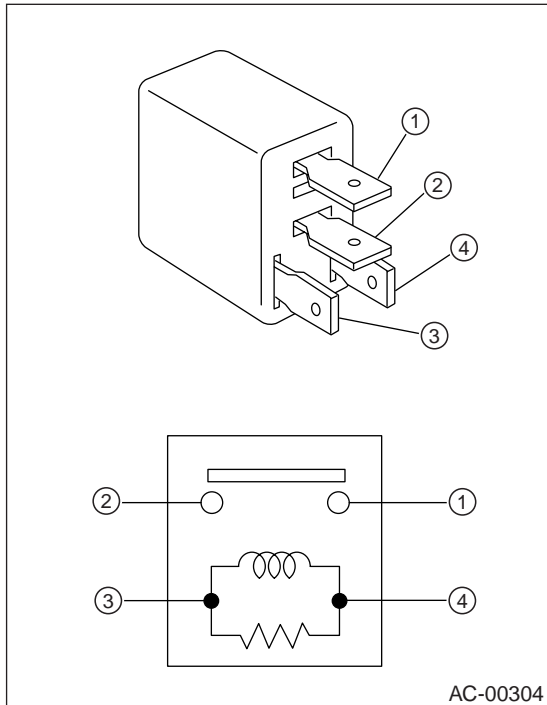
- (1) Joint box
 (2) Main fuse box

	4 cylinder engine model	6 cylinder engine model
Main fan relay	F	—
Sub fan relay	B	—
A/C relay	A	A
Main fan relay 1	—	F
Sub fan relay 1	—	G
Main fan relay 2	—	B
Sub fan relay 2	—	H
A/C fuse	C	C
Main fan fuse	E (20 A)	E (30 A)
Sub fan fuse	D (20 A)	D (30 A)

RELAY AND FUSE

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

B: INSPECTION



(3) — (4): Continuity exists.

(1) — (2): No continuity

While applying battery voltage to the cable between (3) and (4), check continuity between (1) and (2).

If no continuity exists, replace the relay with a new one.

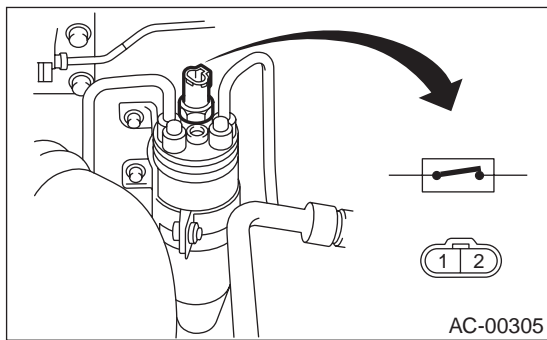
PRESSURE SWITCH (DUAL SWITCH)

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

18. Pressure Switch (Dual Switch)

A: INSPECTION

- 1) Connect the manifold gauge to the service valve on the high-pressure side.
- 2) Remove the pressure switch harness connector. Using a circuit tester, inspect the ON-OFF operation of the pressure switch.



	Tester connection	Operation	Specified condition kPa (kg/cm ² , psi)
High and low pressure switch	1 — 2	Turns OFF.	Increasing to 2,942±196 (30±2, 427±28)
			Decreasing to 177±25 (1.8±0.25, 25.6±3.6)
		Turns ON.	Increasing to 216 (2.2, 31) or less
			Decreasing to 2,354±196 (24±2, 341±28)

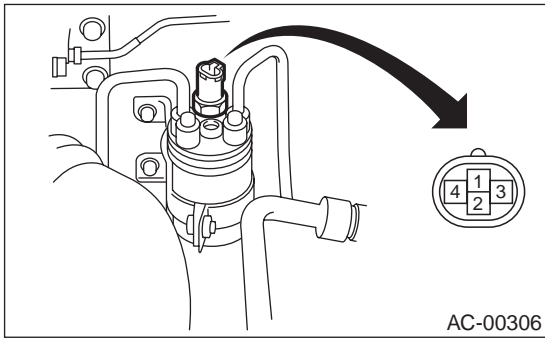
PRESSURE SWITCH (TRIPLE SWITCH)

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

19. Pressure Switch (Triple Switch)

A: INSPECTION

- 1) Connect the manifold gauge to the service manifold on the high-pressure side.
- 2) Remove the pressure switch harness connector. Using a circuit tester, inspect the ON-OFF operation of the pressure switch.



	Tester connection	Operation	Specified condition kPa (kg/cm ² , psi)
High and low pressure switch	1 — 2	Turns OFF.	Increasing to 2,940±196 (29.98±2.00, 426±28) Decreasing to 177±20 (1.8±0.2, 26±3)
		Turns ON.	Increasing to 216 or less (2.2, 31) Decreasing to 2,350±196 (23.97±2.00, 341±28)
Middle pressure switch	3 — 4	Turns OFF.	1,370±120 (13.97±1.22, 199±17)
		Turns ON.	1,770±100 (18.05±1.02, 257±15)

AC-40

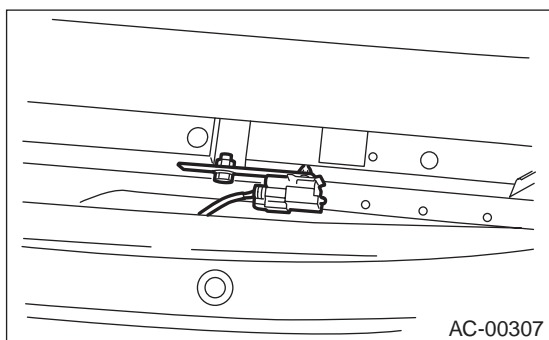
AMBIENT SENSOR (AUTO A/C)

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

20.Ambient Sensor (Auto A/C)

A: REMOVAL

- 1) Open front hood.
- 2) Disconnect ground cable from battery.
- 3) Disconnect ambient sensor connector.
- 4) Remove ambient sensor from radiator lower panel.



B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

<Ref. to AC-24, DTC 21 OR -21 (AMBIENT SENSOR), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AC-41

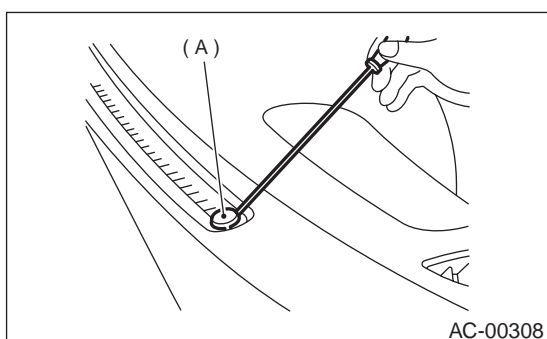
SUNLOAD SENSOR (AUTO A/C)

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

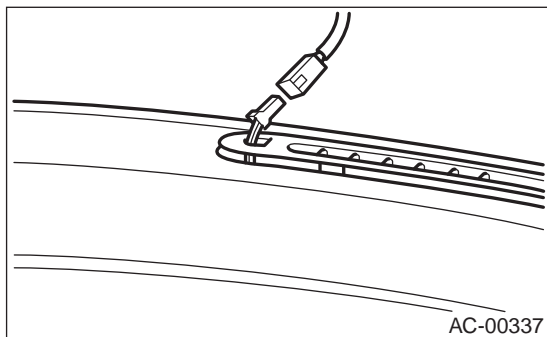
21. Sunload Sensor (Auto A/C)

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Insert a slotted screwdriver to remove sunload sensor.



- 3) Disconnect sunload sensor connector.



CAUTION:

Be careful not to damage sensors and interior trims when removing them.

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

<Ref. to AC-30, DTC 25 OR -25 (SUNLOAD SENSOR), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AIR VENT GRILLE

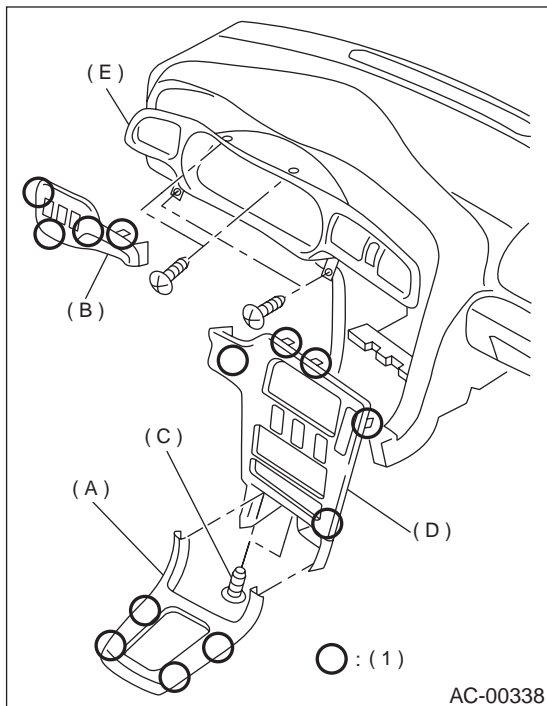
HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

22. Air Vent Grille

A: REMOVAL

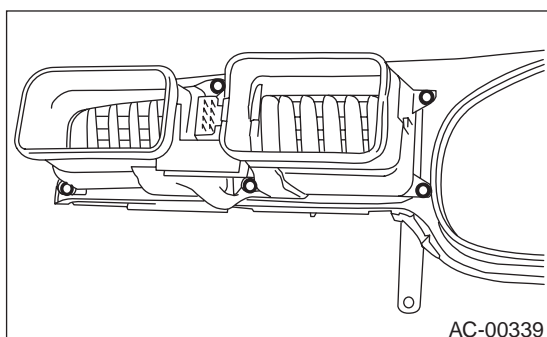
1. AIR VENT GRILLE DRIVER SIDE

- 1) Disconnect ground cable from battery.
- 2) Set tilt steering to the lowest position.
- 3) Disconnect each electrical connector to remove front cover (A) and switch panel (B).
- 4) Loosen screw (C) to remove center panel (D).
- 5) Remove meter visor (E).



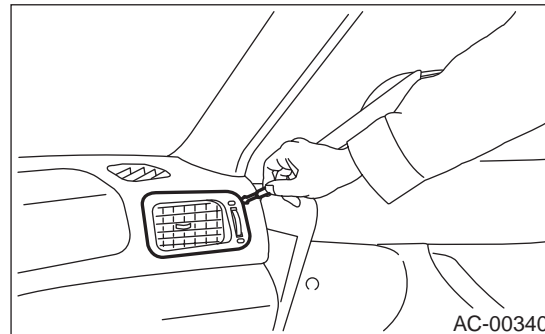
(1) Hook pawl

- 6) Loosen screws to remove grille.



2. AIR VENT GRILLE PASSENGER SIDE

- 1) Remove grille using sharp-edged screwdriver.



CAUTION:
Wrap screwdriver with vinyl tape to prevent damage to interior parts.

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

The direction and amount of air should be adjusted smoothly.

The adjustment should be kept in each position.

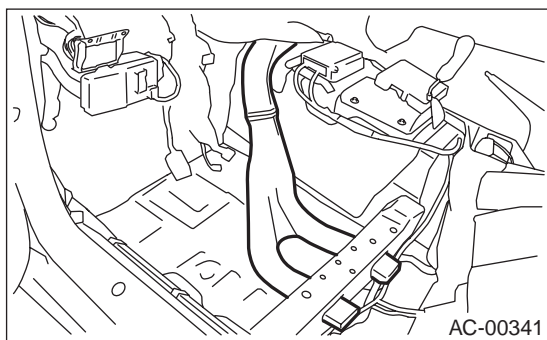
HEATER DUCT

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

23.Heater Duct

A: REMOVAL

- 1) Remove heater unit. <Ref. to AC-25, REMOVAL, Heater Unit.>
- 2) Remove front seat. <Ref. to SE-7, REMOVAL, Front Seat.>
- 3) Remove front side sill cover.
- 4) Pull off floor mat to remove heater duct.



B: INSTALLATION

Install in the reverse order of removal.

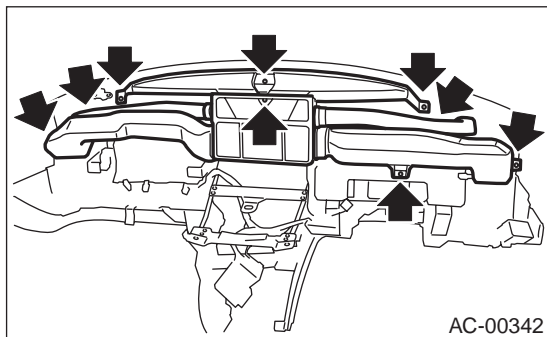
HEATER VENT DUCT

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

24.Heater Vent Duct

A: REMOVAL

- 1) Remove instrument panel. <Ref. to EI-37, REMOVAL, Instrument Panel Assembly.>
- 2) Remove nine screws.
- 3) Remove heater vent duct.



B: INSTALLATION

Install in the reverse order of removal.

GENERAL DIAGNOSTICS

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

25.General Diagnostics

A: INSPECTION

Symptom		Repair order
Blower motor	Doesn't move.	Fuse
		Blower motor relay
		Blower motor
		Blower motor resistor
		Blower switch
		Wire harness
	Strange noise.	Blower motor
Compressor	Doesn't move.	Refrigerant
		Fuse
		Air conditioning relay
		Magnet clutch
		Compressor
		Pressure switch
		A/C switch
		Blower switch
	Strange noise	Wire harness
		V-Belt
		Magnet clutch
Cold air not emitted.	Compressor	
	Refrigerant	
	V-Belt	
	Magnet clutch	
	Pressure switch	
	A/C switch	
	Blower switch	
	Wire harness	
	Heater duct	
	Heater vent duct	
	Warm air not emitted.	Engine coolant
Blower switch		
Heater core		
Temperature of air from vents does not change.	Engine coolant	
	Mode actuator	
	Wire harness	
Unable to switch blow vents.	Mode actuator	
	Air flow switch	
	Wire harness	
Unable to switch suction vents.	Air inlet select switch	
	FRESH/RECIRC actuator	
	Wire harness	

AC-46

GENERAL DESCRIPTION

INSTRUMENTATION/DRIVER INFO

1. General Description

A: SPECIFICATIONS

Combination meter	Speedometer	Electric pulse type
	Temperature gauge	Cross coil type
	Fuel gauge	Cross coil type
	Tachometer	Electric pulse type
	Turn signal indicator light	12 V — 1.4 W
	Charge indicator light	12 V — 1.4 W
	Oil pressure indicator light	12 V — 1.4 W
	ABS warning light	12 V — 1.4 W
	CHECK ENGINE warning light (Malfunction indicator light)	12 V — 1.4 W
	HI-beam indicator light	12 V — 1.4 W
	Door open warning light	LED
	Seat belt warning light	LED
	Brake fluid and parking brake warning light	12 V — 1.4 W
	FWD indicator light	12 V — 1.4 W
	AIRBAG warning light	12 V — 1.4 W
	Meter illumination light	12 V — 3.4 W
	AT OIL TEMP. warning light	12 V — 1.4 W
	Security indicator light	LED
	VDC warning light	12 V — 1.4 W
	VDC function indicator light	12 V — 3 W
	VDC OFF indicator light	12 V — 1.4 W
	Low fuel warning light	12 V — 1.4 W
	Cargo light indicator light	LED
	Switch back gate indicator light	LED
	AT select lever position indicator light	12 V — 100 mA
	SPORT shift indicator	LED
LCD back light	12 V — 1.4 W	

GENERAL DESCRIPTION

INSTRUMENTATION/DRIVER INFO

B: CAUTION

- Be careful not to damage meters and instrument panel.
- Be careful not to damage meter glasses.
- Make sure that electrical connector is connected securely.
- After installation, make sure that each meter operates normally.
- Use gloves to avoid damage and getting fingerprints on the glass surface and meter surfaces.
- Do not apply excessive force to printed circuit.
- Do not drop or otherwise apply impact.

C: PREPARATION TOOL

1. GENERAL TOOLS

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

COMBINATION METER SYSTEM

INSTRUMENTATION/DRIVER INFO

2. Combination Meter System

A: SCHEMATIC

1. COMBINATION METER

<Ref. to WI-86, SCHEMATIC, Combination Meter.>

2. OUTSIDE TEMPERATURE INDICATOR

<Ref. to WI-182, SCHEMATIC, Outside Temperature Display System.>

B: INSPECTION

CAUTION:

- When measuring voltage and resistance of the ECM, TCM, or each sensor, use a tapered pin with a diameter of less than 0.64 mm (0.025 in) in order to avoid poor contact. Do not insert the pin more than 2 mm (0.08 in).

1. SYMPTOM CHART

Symptom	Repair order	Reference
Combination meter assembly does not operate.	(1) Power supply (2) Ground circuit	<Ref. to IDI-5, CHECK POWER SUPPLY AND GROUND CIRCUIT, INSPECTION, Combination Meter System.>
Speedometer does not operate.	(1) (MT) Vehicle speed sensor (AT) Transmission control module (2) Harness (3) Speedometer	MT: <Ref. to IDI-6, CHECK VEHICLE SPEED SENSOR, INSPECTION, Combination Meter System.>
		AT: <Ref. to IDI-7, CHECK TRANSMISSION CONTROL MODULE, INSPECTION, Combination Meter System.>
Tachometer does not operate.	(1) Engine control module (2) Harness (3) Tachometer	<Ref. to IDI-8, CHECK ENGINE CONTROL MODULE, INSPECTION, Combination Meter System.>
Fuel gauge does not operate.	(1) Fuel level sensor (2) Harness (3) Fuel gauge	<Ref. to IDI-9, CHECK FUEL LEVEL SENSOR, INSPECTION, Combination Meter System.>
Water temperature gauge does not operate.	(1) Engine coolant temperature sensor (2) Harness (3) Water temperature gauge	<Ref. to IDI-10, CHECK ENGINE COOLANT TEMPERATURE SENSOR, INSPECTION, Combination Meter System.>
Outside temperature indicator does not operate.	(1) Ambient sensor (2) Harness (3) Combination meter	<Ref. to IDI-11, CHECK OUTSIDE TEMPERATURE INDICATOR, INSPECTION, Combination Meter System.>

COMBINATION METER SYSTEM

INSTRUMENTATION/DRIVER INFO

2. CHECK POWER SUPPLY AND GROUND CIRCUIT

Step	Value	Yes	No
1 CHECK POWER SUPPLY FOR COMBINATION METER. 1) Remove combination meter. <Ref. to IDI-12, REMOVAL, Combination Meter Assembly.> 2) Disconnect combination meter harness connector. 3) Turn ignition switch to ON. 4) Measure voltage between combination meter connector and chassis ground. Connector & terminal <i>(i12) No. 3 (+) — Chassis ground (-):</i> Does the measured value exceed the specified value?	10 V	Go to step 2.	Check harness for open or short between ignition relay and combination meter.
2 CHECK POWER SUPPLY FOR COMBINATION METER. Measure voltage between combination meter connector and chassis ground. Connector & terminal <i>(i12) No. 7 (+) — Chassis ground (-):</i> Does the measured value exceed the specified value?	10 V	Go to step 3.	Check harness for open or short between fuse and combination meter.
3 CHECK GROUND CIRCUIT OF COMBINATION METER. 1) Turn ignition switch to OFF. 2) Measure resistance of harness between combination meter connector and chassis ground. Connector & terminal <i>(i10) No. 20 (+) — Chassis ground (-):</i> Is the measured value less than the specified value?	10 Ω	Go to step 4.	Repair wiring harness.
4 CHECK GROUND CIRCUIT OF COMBINATION METER. Measure resistance of harness between combination meter connector and chassis ground. Connector & terminal <i>(i11) No. 16 (+) — Chassis ground (-):</i> Is the measured value less than the specified value?	10 Ω	Replace combination meter.	Repair wiring harness.

COMBINATION METER SYSTEM

INSTRUMENTATION/DRIVER INFO

3. CHECK VEHICLE SPEED SENSOR

Step	Value	Yes	No
<p>1 CHECK VEHICLE SPEED SENSOR.</p> <p>1) Lift-up the vehicle and support it with safety stands.</p> <p>2) Remove the combination meter with harness connector.</p> <p>3) Drive the vehicle at a speed greater than 20 km/h (12 MPH).</p> <p>Warning: Be careful not to get caught in the running wheels.</p> <p>4) Measure voltage between combination meter connector and chassis ground.</p> <p>Connector & terminal (i10) No. 13 (+) — Chassis ground (-): Is the measured value same as the specified value?</p>	0 V ↔ 5 V	Check speedometer. <Ref. to IDI-14, REMOVAL, Speedometer.>	Go to step 2.
<p>2 CHECK VEHICLE SPEED SENSOR POWER SUPPLY.</p> <p>1) Turn ignition switch to OFF.</p> <p>2) Disconnect vehicle speed sensor harness connector.</p> <p>3) Turn ignition switch to ON.</p> <p>4) Measure voltage between vehicle speed sensor connector and engine ground.</p> <p>Connector & terminal (B17) No. 3 (+) — Engine ground (-): Does the measured value exceed the specified value?</p>	10 V	Go to step 3.	Check harness for open or short between ignition relay and vehicle speed sensor.
<p>3 CHECK HARNESS BETWEEN VEHICLE SPEED SENSOR AND ENGINE GROUND.</p> <p>1) Turn ignition switch to OFF.</p> <p>2) Measure resistance between vehicle speed sensor connector and engine ground.</p> <p>Connector & terminal (B17) No. 2 — Engine ground: Is the measured value less than the specified value?</p>	10 Ω	Go to step 4.	Repair wiring harness.
<p>4 CHECK HARNESS BETWEEN VEHICLE SPEED SENSOR AND COMBINATION METER.</p> <p>1) Disconnect connector from combination meter.</p> <p>2) Measure resistance between vehicle speed sensor harness connector and combination meter harness connector.</p> <p>Connector & terminal (B17) No. 1 — (i10) No. 13: Is the measured value less than the specified value?</p>	10 Ω	Replace vehicle speed sensor.	Repair wiring harness.

COMBINATION METER SYSTEM

INSTRUMENTATION/DRIVER INFO

4. CHECK TRANSMISSION CONTROL MODULE

Step	Value	Yes	No
<p>1</p> <p>CHECK TRANSMISSION CONTROL MODULE SIGNAL.</p> <p>1) Lift-up the vehicle and support it with safety stands.</p> <p>2) Drive the vehicle faster than 10 km/h (6 MPH).</p> <p>Warning: Be careful not to get caught in the running wheels.</p> <p>3) Measure voltage between transmission control module connector and chassis ground.</p> <p>Connector & terminal With VDC: (B56) No. 17 (+) — Chassis ground (-): Without VDC: (B55) No. 13 (+) — Chassis ground (-): Is the measured value same as the specified value?</p>	<p>0 V ↔ 5 V</p>	<p>Go to step 2.</p>	<p>Check transmission control module. <Ref. to AT-2, Basic Diagnostic Procedure.></p>
<p>2</p> <p>CHECK HARNESS BETWEEN TRANSMISSION CONTROL MODULE AND COMBINATION METER.</p> <p>1) Turn ignition switch to OFF.</p> <p>2) Disconnect connector from transmission control module and combination meter.</p> <p>3) Measure resistance between transmission control module harness connector and combination meter harness connector.</p> <p>Connector & terminal With VDC: (B56) No. 17 — (i10) No. 13: Without VDC: (B55) No. 13 — (i10) No. 13: Is the measured value less than the specified value?</p>	<p>10 Ω</p>	<p>Check speed meter. <Ref. to IDI-14, REMOVAL, Speedometer.></p>	<p>Repair wiring harness.</p>

COMBINATION METER SYSTEM

INSTRUMENTATION/DRIVER INFO

5. CHECK ENGINE CONTROL MODULE

Step	Value	Yes	No
<p>1</p> <p>CHECK ENGINE CONTROL MODULE SIGNAL.</p> <p>1) Start the engine. 2) Measure voltage between engine control module connector and engine ground.</p> <p>Connector & terminal H6 model: (B136) No. 9 (+) — Engine ground (-): H4 model: (B134) No. 10 (+) — Engine ground (-):</p> <p>Is the measured value same as the specified value?</p>	<p>0 ↔ 14 V</p>	<p>Go to step 2.</p>	<p>Check engine control module. <Ref. to EN(H4SO)-2, Basic Diagnostic Procedure.> or <Ref. to EN(H6DO)-2, Basic Diagnostic Procedure.></p>
<p>2</p> <p>CHECK HARNESS BETWEEN COMBINATION METER AND ENGINE CONTROL MODULE.</p> <p>1) Turn ignition switch to OFF. 2) Disconnect connector from engine control module and combination meter. 3) Measure resistance between engine control module harness connector and combination meter harness connector.</p> <p>Connector & terminal H6 model: (B136) No. 9 — (i11) No. 7: H4 model: (B134) No. 10 — (i11) No. 7:</p> <p>Is the measured value less than the specified value?</p>	<p>10 Ω</p>	<p>Check tachometer. <Ref. to IDI-15, REMOVAL, Tachometer.></p>	<p>Repair wiring harness.</p>

COMBINATION METER SYSTEM

INSTRUMENTATION/DRIVER INFO

6. CHECK FUEL LEVEL SENSOR

Step	Value	Yes	No
<p>1 CHECK FUEL LEVEL SENSOR.</p> <p>1) Remove the fuel level sensor. <Ref. to FU(H4SO)-71, REMOVAL, Fuel Level Sensor.> or <Ref. to FU(H6DO)-72, REMOVAL, Fuel Level Sensor.></p> <p>2) Measure the resistance between the fuel level sensor terminals when setting the float to FULL and EMPTY position.</p> <p>Terminals No. 3 — No. 6</p> <p>Is the measured value within the specified range?</p>	<p>FULL: 0.5 — 2.5 Ω, EMPTY: 52.5 — 54.5 Ω</p>	Go to step 2.	Replace the fuel level sensor.
<p>2 CHECK FUEL SUB LEVEL SENSOR.</p> <p>1) Remove the fuel sub level sensor. <Ref. to FU(H4SO)-72, REMOVAL, Fuel Sub Level Sensor.> or <Ref. to FU(H6DO)-73, REMOVAL, Fuel Sub Level Sensor.></p> <p>2) Measure the resistance between the fuel sub level sensor terminals when setting the float to FULL and EMPTY position.</p> <p>Terminals No. 1 — No. 2</p> <p>Is the measured value within the specified range?</p>	<p>FULL: 0.5 — 2.5 Ω, EMPTY: 39.5 — 41.5 Ω</p>	Go to step 3.	Replace the fuel sub level sensor.
<p>3 CHECK HARNESS BETWEEN FUEL SUB LEVEL SENSOR AND COMBINATION METER.</p> <p>1) Disconnect the connector from the combination meter.</p> <p>2) Measure the resistance between the fuel sub level sensor harness connector terminal and combination meter harness connector terminal.</p> <p>Connector & terminal (R59) No. 1 — (I10) No. 3:</p> <p>Is the measured value less than the specified value?</p>	10 Ω	Go to step 4.	Repair wiring harness.
<p>4 CHECK HARNESS BETWEEN FUEL LEVEL SENSOR AND FUEL SUB LEVEL SENSOR.</p> <p>Measure the resistance between the fuel level sensor harness connector terminal and fuel sub level sensor harness connector terminal.</p> <p>Connector & terminal (R58) No. 6 — (R59) No. 2:</p> <p>Is the measured value less than the specified value?</p>	10 Ω	Go to step 5.	Repair wiring harness.
<p>5 CHECK FUEL LEVEL SENSOR GROUND CIRCUIT.</p> <p>Measure the resistance between the fuel level sensor harness connector terminal and chassis ground.</p> <p>Connector & terminal (R58) No. 3 — Chassis ground:</p> <p>Is the measured value less than the specified value?</p>	10 Ω	Check the fuel gauge. <Ref. to IDI-16, REMOVAL, Fuel Gauge.>	Repair wiring harness.

COMBINATION METER SYSTEM

INSTRUMENTATION/DRIVER INFO

7. CHECK ENGINE COOLANT TEMPERATURE SENSOR

Step	Value	Yes	No
1 CHECK ENGINE COOLANT TEMPERATURE SENSOR. Check engine coolant temperature sensor. <Ref. to EN(H4SO)-2, Basic Diagnostic Procedure.>, or <Ref. to EN(H6DO)-2, Basic Diagnostic Procedure.> Is engine coolant temperature sensor OK?	Engine coolant temperature sensor is OK.	Go to step 2.	Replace engine coolant temperature sensor.
2 CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND COMBINATION METER. 1) Turn ignition switch to OFF. 2) Disconnect connector from engine coolant temperature sensor and combination meter. 3) Measure resistance between engine coolant temperature sensor harness connector and combination meter harness connector. Connector & terminal Normal meter: (E8) No. 3 — (i12) No. 8:	10 Ω	Go to step 3.	Repair wiring harness.
3 CHECK WATER TEMPERATURE GAUGE GROUND CIRCUIT. Measure resistance between combination meter harness connector terminal and chassis ground. Connector & terminal (i12) No. 9 — Chassis ground: Is the measured value less than the specified value?	10 Ω	Check water temperature gauge. <Ref. to IDI-17, REMOVAL, Water Temperature Gauge.>	Repair wiring harness.

COMBINATION METER SYSTEM

INSTRUMENTATION/DRIVER INFO

8. CHECK OUTSIDE TEMPERATURE INDICATOR

Step	Value	Yes	No
1 CHECK POWER SUPPLY FOR AMBIENT SENSOR. 1) Turn ignition switch OFF. 2) Disconnect connector from ambient sensor. 3) Turn ignition switch ON. 4) Measure voltage between ambient sensor harness connector terminal and chassis ground. Connector & terminal (F78) No. 1 (+) — Chassis ground (-): Does the measured value exceed the specified value?	4 V	Go to step 2.	Check harness for open or short between ambient sensor and combination meter.
2 CHECK AMBIENT SENSOR. 1) Turn ignition switch OFF. 2) Remove ambient sensor. 3) Check ambient sensor. <Ref. to IDI-18, INSPECTION, Ambient Sensor.> Is the ambient sensor OK?	Ambient sensor is OK.	Go to step 3.	Replace the ambient sensor.
3 CHECK HARNESS BETWEEN AMBIENT SENSOR AND COMBINATION METER. 1) Disconnect connector from combination meter. 2) Measure resistance between ambient sensor harness connector terminal and combination meter harness connector terminal. Connector & terminal (F78) No. 2 — (i10) No. 22: Is the measured value less than the specified value?	10 Ω	Go to step 4.	Repair wiring harness.
4 CHECK OUTSIDE TEMPERATURE INDICATOR. 1) Connect combination meter harness connector. 2) Connect a resistor (1.7 kΩ) between terminals of ambient sensor harness connector. 3) Turn ignition switch ON and check the outside temperature indicator display. Is the outside temperature indicator indicating the specified value?	25°C (77°F)	Outside temperature indicator is OK.	Replace combination meter printed circuit.

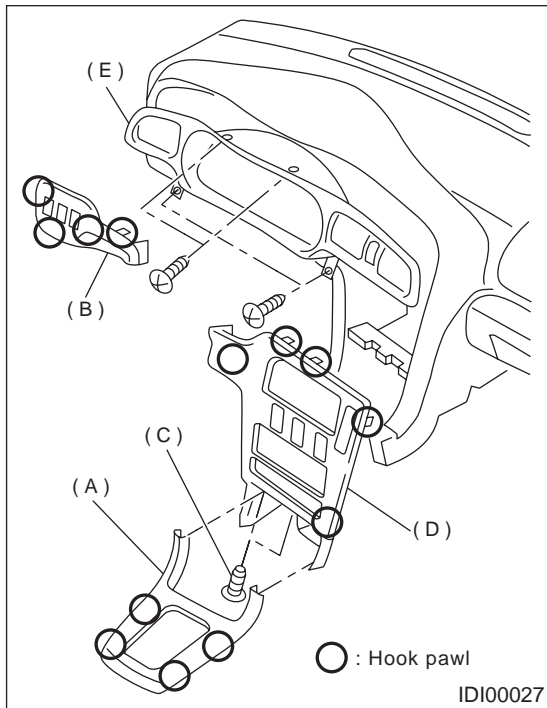
COMBINATION METER ASSEMBLY

INSTRUMENTATION/DRIVER INFO

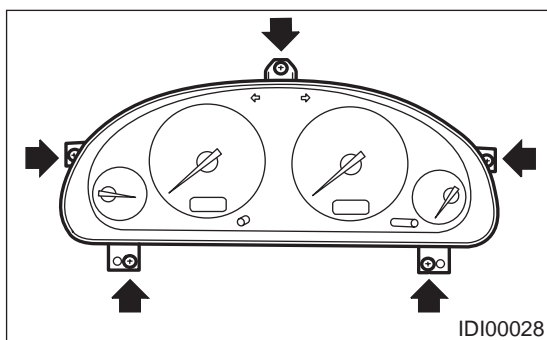
3. Combination Meter Assembly

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Set tilt steering at the lowest position.
- 3) Disconnect each electrical connector to remove front cover (A) and switch panel (B).
- 4) Loosen screws (C) to remove center panel (D).
- 5) Remove meter visor (E).



- 6) Remove screws of combination meter to pull out the meter toward you.
- 7) Remove connector in the upper area of combination meter to remove meter.



CAUTION:

- Be careful not to damage meter or instrument panel.
- Pay particular attention to avoid damaging the meter glass.

B: INSTALLATION

Install in the reverse order of removal.

CAUTION:

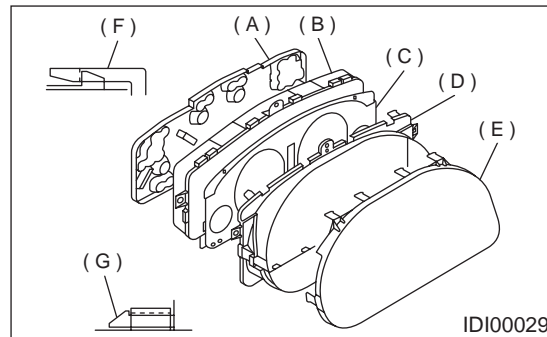
- Make sure that electrical connector is connected securely.
- Make sure that each meter operates normally.

C: DISASSEMBLY

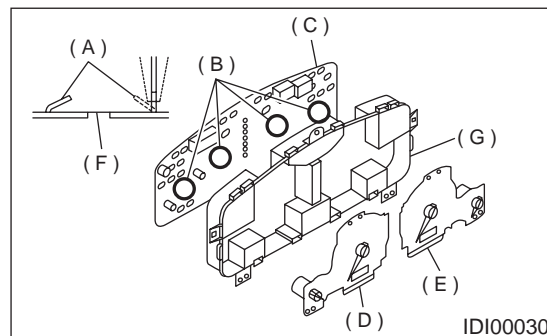
CAUTION:

Use gloves to avoid damage and getting fingerprints on the glass surface and meter surfaces.

- 1) Disengage claw (F) to remove case (B) from back cover (A).
- 2) Disengage claw (G) to remove meter glass (E), reflector (D), and window plate (C) from inner case.



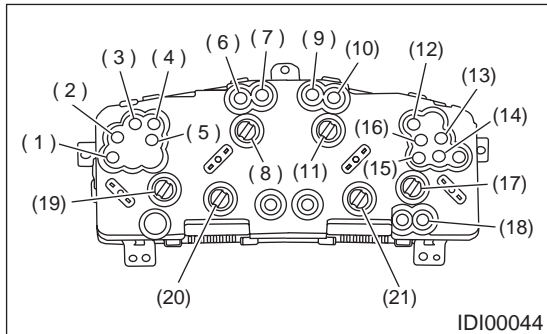
- 3) Pull up claw (A) in portion (B) of printed circuit (C) with combination pliers. Push out speedometer assembly (D) and tachometer assembly (E) using hole (F).
- 4) Pull up claw in the center of printed circuit (C), and remove printed circuit from case (G).



COMBINATION METER ASSEMBLY

INSTRUMENTATION/DRIVER INFO

1. BULB REPLACEMENT



- (1) FWD
- (2) AT OIL TEMP
- (3) Oil pressure
- (4) Check engine
- (5) Charge
- (6) HI-beam
- (7) Turn RH
- (8) Tachometer
- (9) Turn LH
- (10) Brake
- (11) Speedometer
- (12) VDC function
- (13) Airbag
- (14) ABS
- (15) VDC OFF
- (16) VDC
- (17) Speedometer and fuel gauge
- (18) Low fuel
- (19) Tachometer and water temperature gauge
- (20) LCD
- (21) LCD

D: ASSEMBLY

Assemble in the reverse order of disassembly.

SPEEDOMETER

INSTRUMENTATION/DRIVER INFO

4. Speedometer

A: REMOVAL

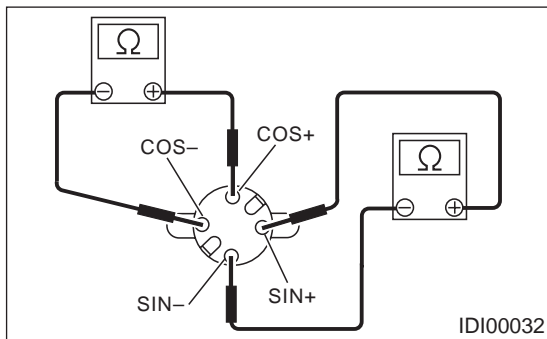
Disassemble combination meter, and then remove speedometer and fuel gauge assembly. <Ref. to IDI-12, DISASSEMBLY, Combination Meter Assembly.>

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Measure speedometer resistance.



Terminal	Resistance
Terminals SIN+ and SIN-	200±8 Ω
Terminals COS+ and COS-	200±8 Ω

If NG, replace speedometer and fuel gauge assembly.

If OK, replace combination meter printed circuit.

IDI-14

TACHOMETER

INSTRUMENTATION/DRIVER INFO

5. Tachometer

A: REMOVAL

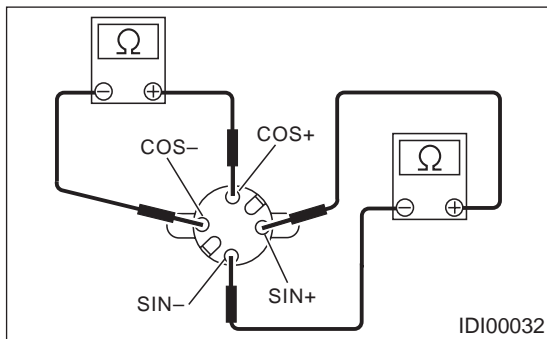
Disassemble combination meter, and then remove tachometer and water temperature gauge assembly. <Ref. to IDI-12, DISASSEMBLY, Combination Meter Assembly.>

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Measure tachometer resistance.



Terminal	Resistance
Terminals SIN+ and SIN-	200±8 Ω
Terminals COS+ and COS-	200±8 Ω

If NG, replace tachometer and water temperature gauge assembly.

If OK, replace combination meter printed circuit.

IDI-15

FUEL GAUGE

INSTRUMENTATION/DRIVER INFO

6. Fuel Gauge

A: REMOVAL

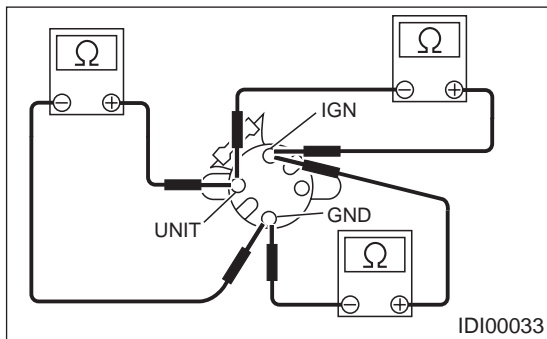
Disassemble combination meter, and then remove speedometer and fuel gauge assembly. <Ref. to IDI-12, DISASSEMBLY, Combination Meter Assembly.>

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Measure fuel gauge resistance.



Terminal	Resistance
Terminals IGN and GND	170±10 Ω
Terminals IGN and UNIT	35±10 Ω
Terminals UNIT and GND	136±10 Ω

If NG, replace speedometer and fuel gauge assembly.

If OK, replace combination meter printed circuit.

IDI-16

WATER TEMPERATURE GAUGE

INSTRUMENTATION/DRIVER INFO

7. Water Temperature Gauge

A: REMOVAL

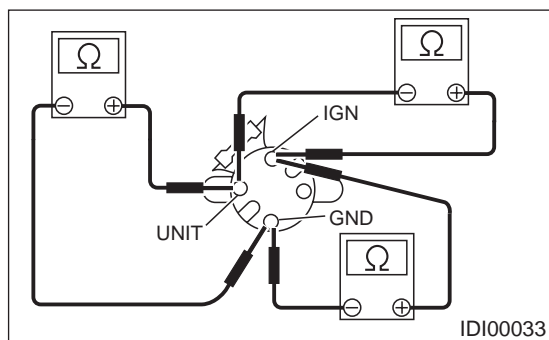
Disassemble combination meter, and then remove tachometer and water temperature gauge assembly. <Ref. to IDI-12, DISASSEMBLY, Combination Meter Assembly.>

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Measure water temperature gauge resistance.



Terminal	Resistance
Terminals IGN and GND	208±10 Ω
Terminals IGN and UNIT	56±10 Ω
Terminals UNIT and GND	264±10 Ω

If NG, replace tachometer and water temperature gauge assembly.

If OK, replace combination meter printed circuit.

IDI-17

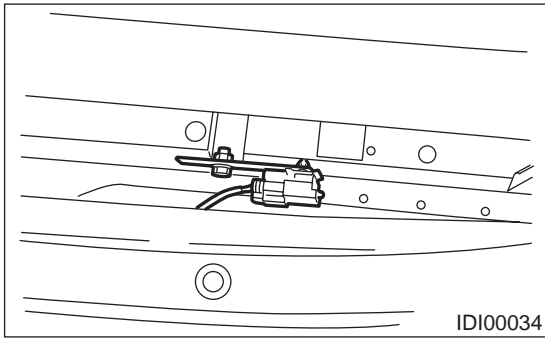
AMBIENT SENSOR

INSTRUMENTATION/DRIVER INFO

8. Ambient Sensor

A: REMOVAL

- 1) Open front hood.
- 2) Disconnect ground cable from battery.
- 3) Disconnect ambient sensor connector.
- 4) Remove ambient sensor from radiator lower panel.

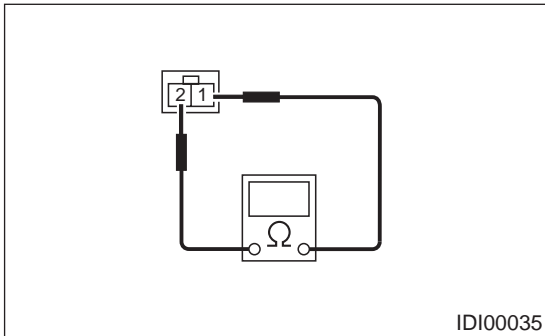


B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION

Measure ambient sensor resistance.



Terminal No.	Resistance
1 and 2	1.7 k Ω /25°C (77°F)

If NG, replace the ambient sensor.

IDI-18