

AIRBAG SYSTEM

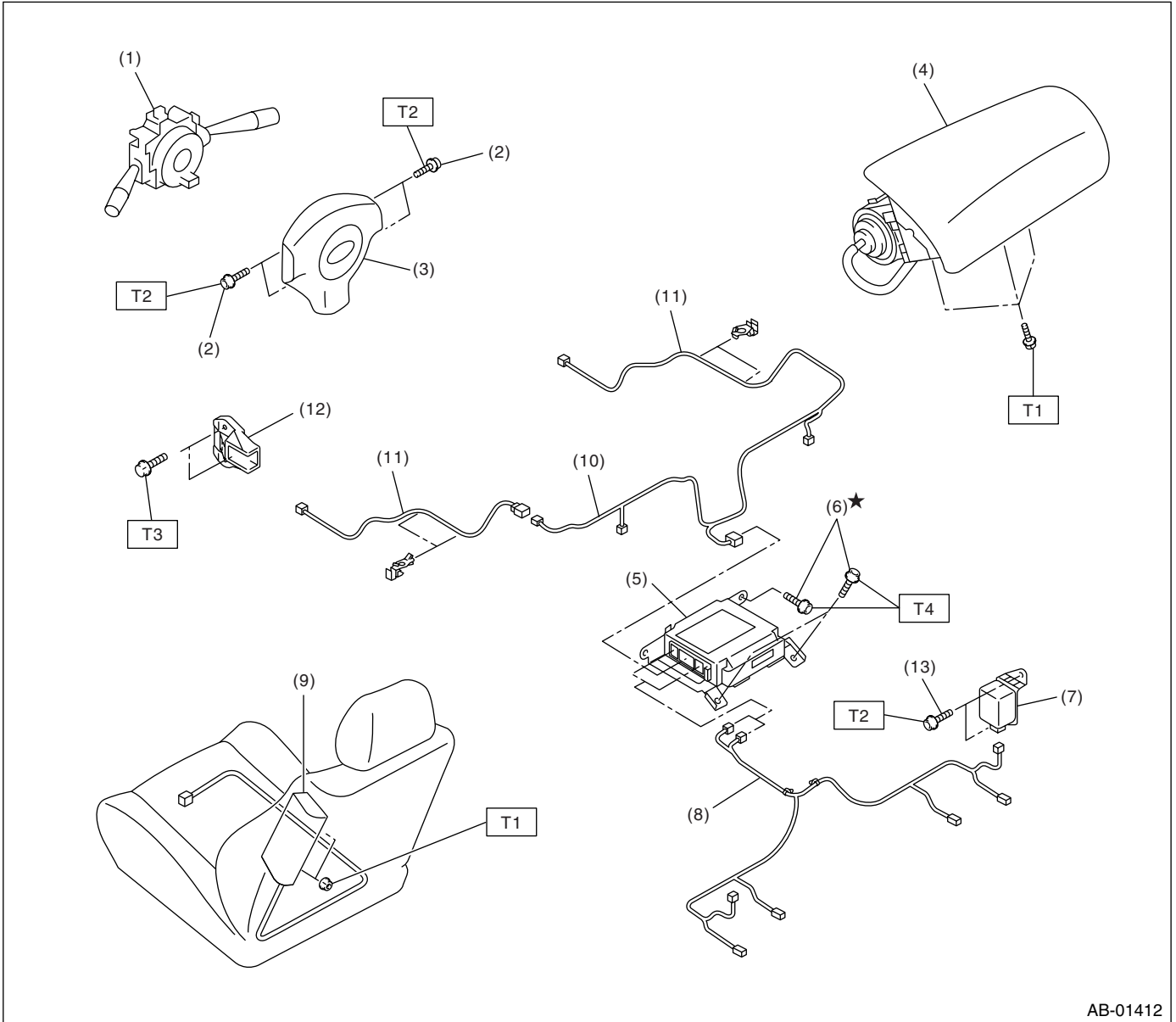
General Description

AIRBAG SYSTEM

1. General Description

A: COMPONENT

1. SRS AIRBAG



AB-01412

- | | |
|---|-------------------------------|
| (1) Combination switch ASSY with roll connector | (6) Bolt (exclusive use) |
| (2) TORX® bolt T30 | (7) Side airbag sensor |
| (3) Airbag module ASSY (Driver's side) | (8) Side airbag harness |
| (4) Airbag module ASSY (Passenger's side) | (9) Side airbag module |
| (5) Airbag control module | (10) Airbag main harness |
| | (11) Front sub sensor harness |
| | (12) Front sub sensor |
| | (13) TORX® bolt T30 |

Tightening torque: N·m (kgf·m, ft·lb)

T1: 7.5 (0.76, 5.5)

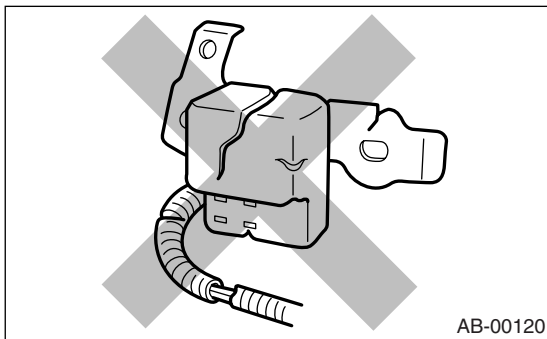
T2: 10 (1.0, 7.4)

T3: 13 (1.3, 9.6)

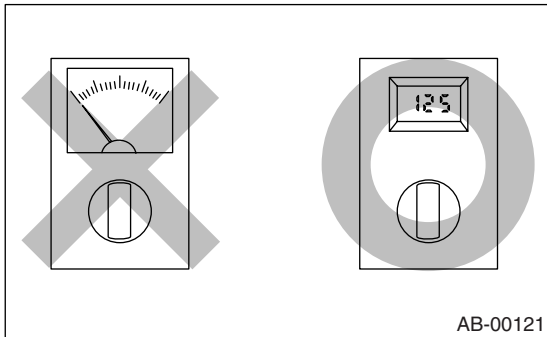
T4: 25 (2.5, 18.4)

B: CAUTION

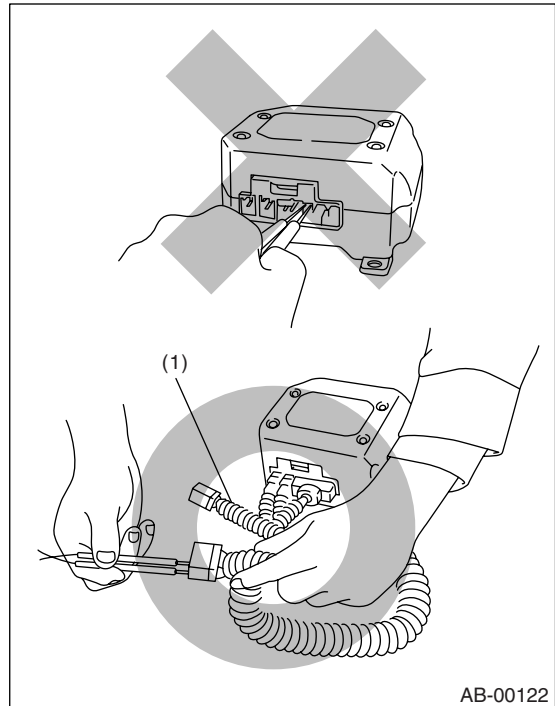
- When servicing a vehicle, be sure to turn the ignition switch to OFF, disconnect the ground cable from battery, and wait for more than 20 seconds before starting work.
- The airbag system is fitted with a backup power source. If the airbag system is serviced within 20 seconds after the ground cable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



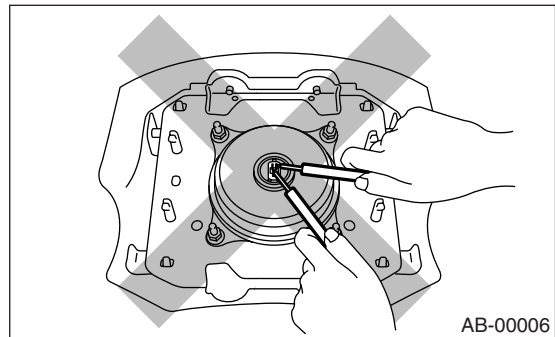
- When checking the airbag system, be sure to use a digital circuit tester. Infinitesimal electric current in an analog circuit tester may cause the airbag to activate erroneously.



- When checking, use a test harness (1). Do not directly apply the tester probe to any connector terminal of the airbag. Damage to the connector terminal may cause the airbag to activate erroneously.



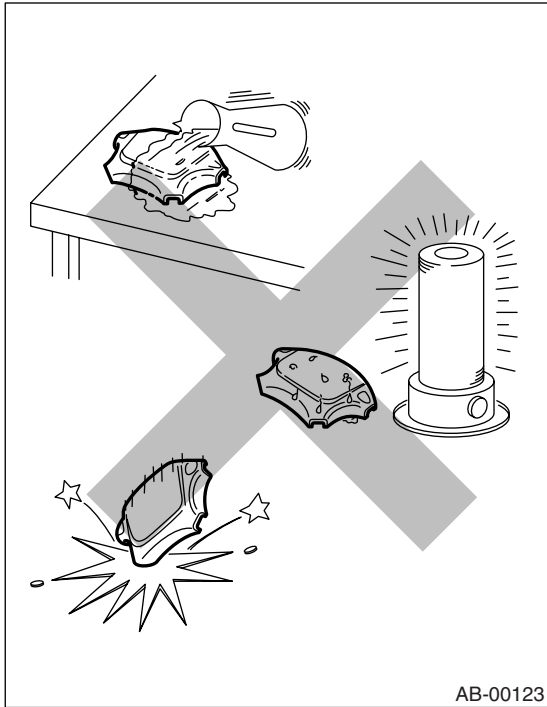
- Do not check continuity of either of the airbag modules for driver, passenger or side, or pretensioner.



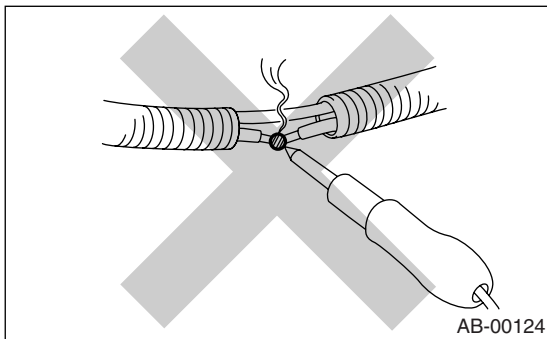
General Description

AIRBAG SYSTEM

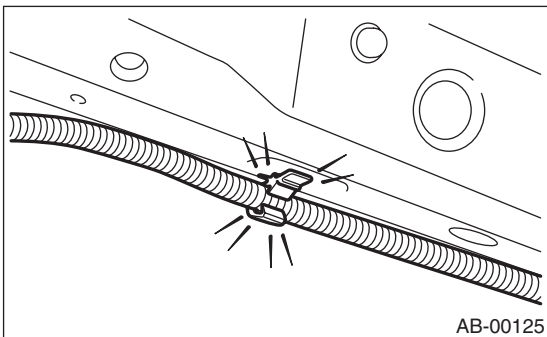
- Do not drop the airbag modulator parts, subject them to high temperature over 93°C (199°F), or let water, oil, or grease get on them; otherwise, the internal parts may be damaged and reliability greatly lowered.



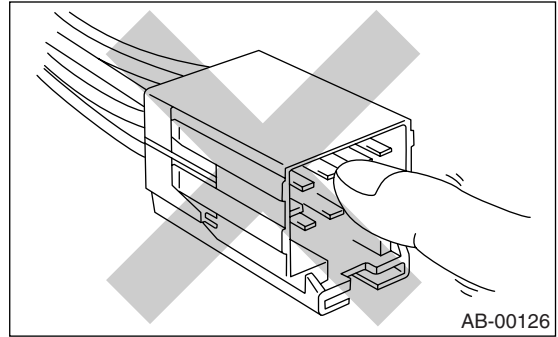
- If any damage, opening, or rust is found on the airbag system wire harness, do not attempt to repair using soldering equipment. Be sure to replace the faulty harness with a new genuine part.



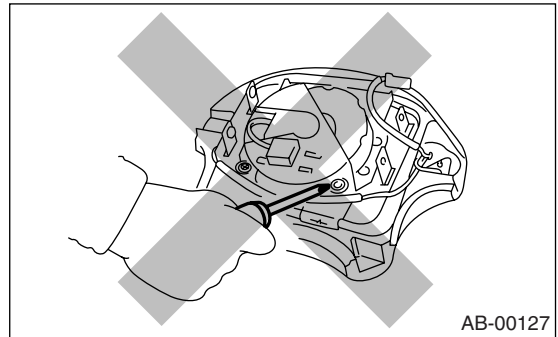
- Install the wire harness securely with the specified clips to avoid interference or tangled up with other parts.



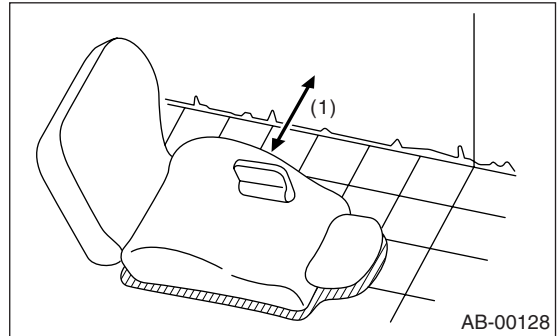
- Do not allow water or oil to come in contact with the connector terminals. Do not touch the connector terminals.



- Either of the airbag modules for driver, passenger or side, or pretensioner must not be disassembled.



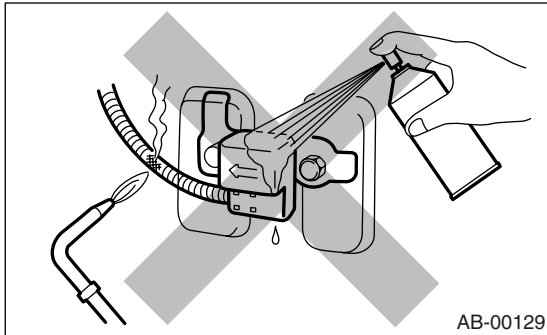
- The removed front seat with the airbag module must be kept at least 200 mm (8 in) away from walls and other objects.



(1) More than 200 mm (8 in)

- Do not use the airbag or pretensioner parts from other vehicles. Always replace defective parts with new parts.
- Never reuse 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 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.

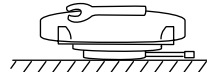
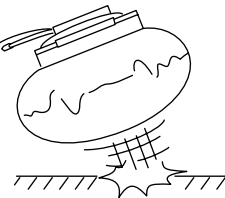
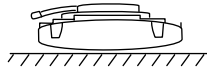
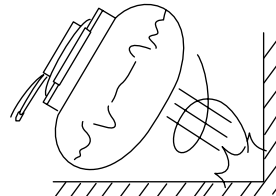
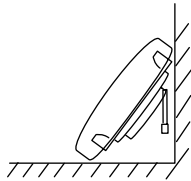
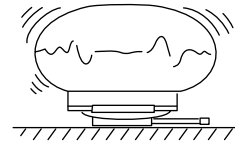
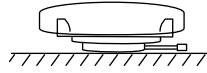


General Description

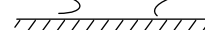
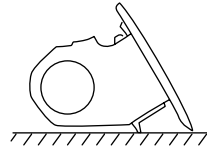
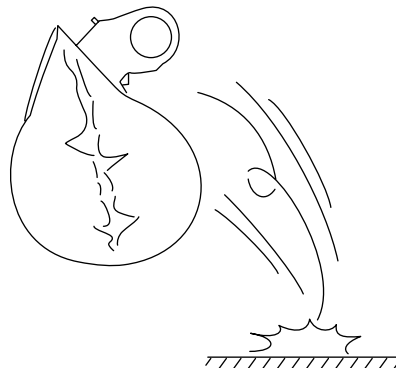
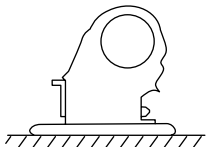
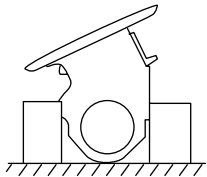
AIRBAG SYSTEM

• 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's airbag module

(2) Passenger's airbag module

C: PREPARATION TOOL

1. GENERAL TOOL

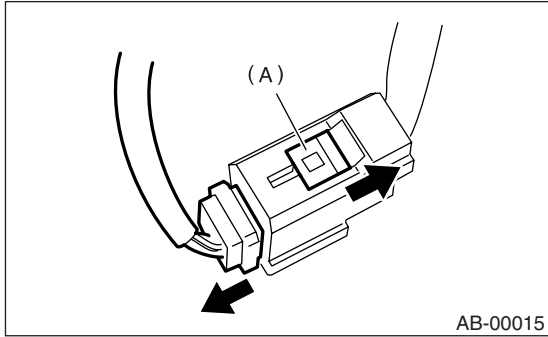
TOOL NAME	REMARKS
TORX® T30	Used for removal/installation of driver's airbag module.

2. Airbag Connector

A: PROCEDURE

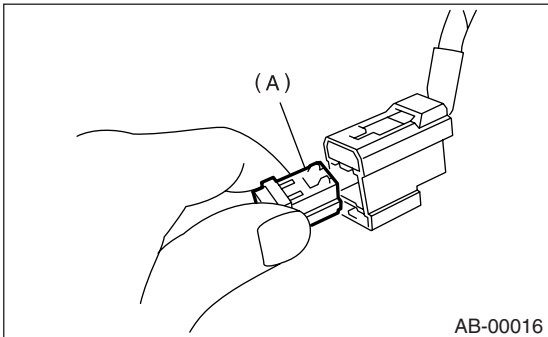
1. POWER SUPPLY, BUCKLE SWITCH

- 1) How to disconnect
 - (1) Move the slide lock (A) in the direction of the arrow.
 - (2) Disconnect the connector with slide lock (A) moved.



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

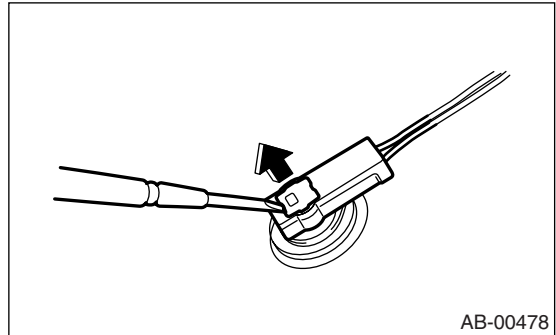
- 2) How to connect
Holding the connector (A), and push it in carefully until a connecting sound is heard.



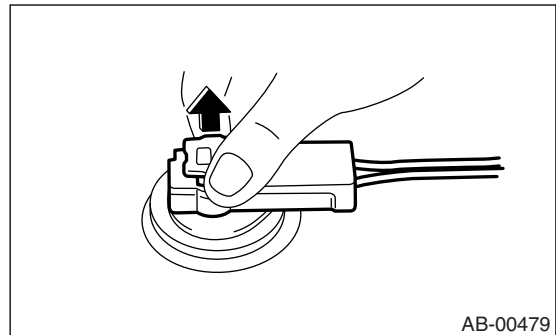
CAUTION:
Be sure to insert the connector in until it locks. Then pull on it gently to make sure that it is locked.

2. DRIVER'S AIRBAG MODULE AND PRE-TENSIONER

- 1) How to disconnect
 - (1) Using a flat tip screwdriver, pry the push lock upward to unlock.



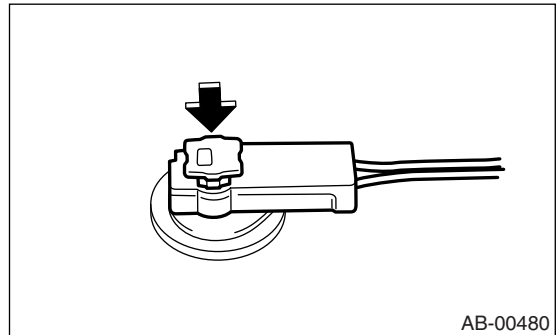
- (2) Pull the connector to disconnect from driver's side airbag module assembly.



- 2) How to connect
Connect the connector in reverse order of disconnecting. At this time, be sure to insert the push lock in until connecting sound is heard.

CAUTION:

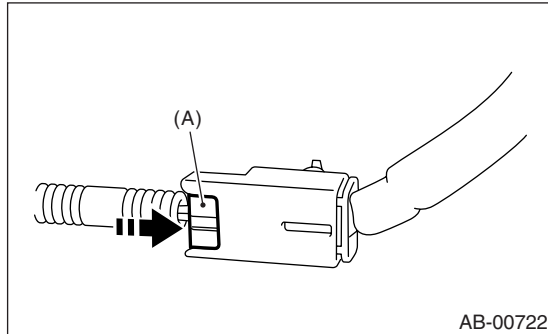
- Be sure to insert the connector in until it locks. Then pull on it gently to make sure that it is locked.
- At this time, be sure to insert the push lock in.



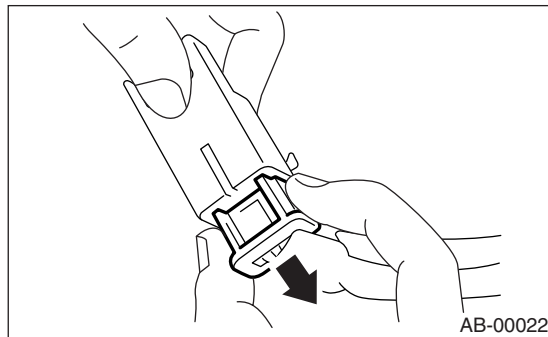
3. DRIVER'S AIRBAG (BETWEEN AIRBAG MAIN HARNESS AND ROLL CONNECTOR), PASSENGER'S AIRBAG

1) How to disconnect

- (1) Push the slide lock (A) into the direction of arrow.



- (2) With the slide lock pushed, disconnect the connector.



CAUTION:

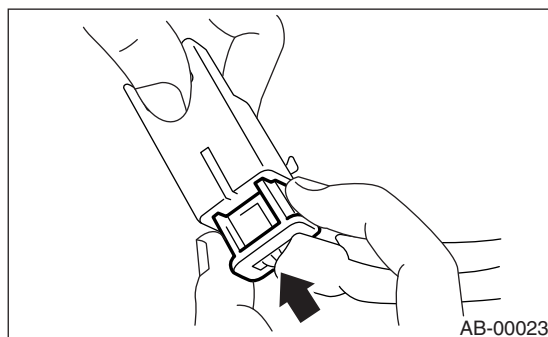
When pulling the side lock or disconnecting the connector, be sure to hold onto the connector and not the wire.

2) How to connect

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

CAUTION:

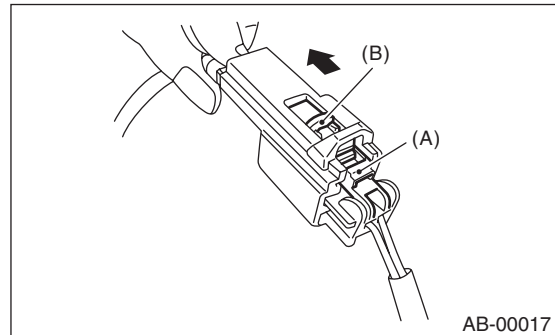
Be sure to insert the connector in until it is locked. Then pull on it gently to make sure that it is locked.



4. SIDE AIRBAG

1) How to disconnect

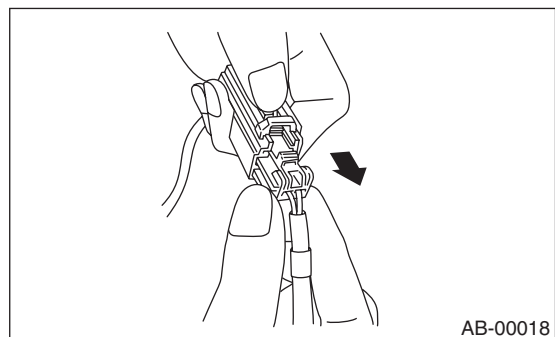
- (1) Push the lock arm (A).
- (2) With the lock arm (A) pushed in, move the slide lock (B) in the direction of arrow.



- (3) With the slide lock moved, release the lock arm (back to its original position), and disconnect the connector.

CAUTION:

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

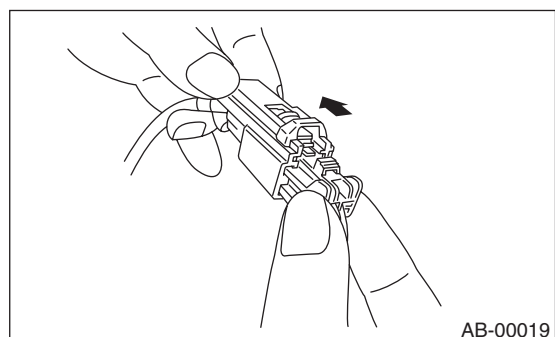


2) How to connect

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.



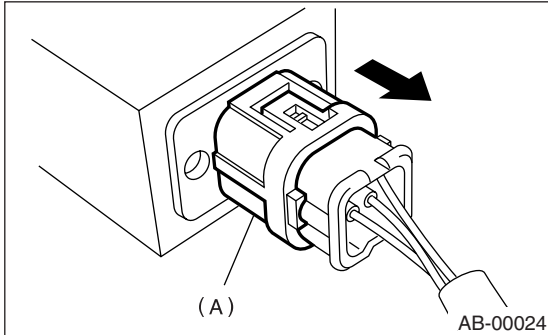
5. FRONT SUB-SENSOR AND SIDE AIR-BAG SENSOR AND SEAT POSITION SENSOR

1) How to disconnect

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

CAUTION:

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

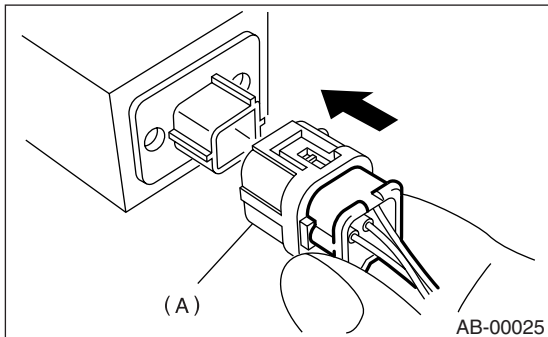


2) How to connect

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. Inspection Locations After a Collision

A: REPLACEMENT

When airbag system is deployed, replace the following parts.

1. FRONT COLLISION

- 1) Driver's airbag module
- 2) Passenger's airbag module
- 3) Driver's seat belt (pretensioner)
- 4) Passenger's seat belt (pretensioner)
- 5) Airbag control module
- 6) Front sub-sensor
- 7) Roll connector

2. SIDE COLLISION

- 1) Airbag control module
- 2) Side airbag module (operating side seat backrest)
- 3) Side airbag sensor (operating side)

3. INSPECTION OF OTHER PARTS

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

- 1) Steering wheel and steering shaft
Check the steering wheel and steering shaft for mounting condition and deflection of axial and radial, upward and downward direction. Check the steering shaft for deflection of axial and radical direction with tilt lever released. (After a collision, absorbing part of steering shaft may inflate.)
- 2) Check the direct type connector of driver's airbag module, pretensioner, etc. for damage, and also check each harness for pinch and connector damage. If damage is found, replace the harness as a unit.
- 3) Check the seat cushion frame, backrest, seat rail and headrest for deformation, distortion, crack, installing condition and play.
- 4) For passenger's seat, replace the seat cushion pad frame assembly with new one if the seat cushion frame assembly is deformed or cracked.
- 5) If the passenger's seat cushion cover is torn or frayed, replace the seat cushion cover with a new one. Otherwise, the occupant detection system may not operate properly.
- 6) Be sure to perform the system calibration for occupant detection system when the passenger's seat cushion cover has been removed or replaced. Failure to do so may cause improper activation of occupant detection system. <Ref. to OD(diag)-19, SYSTEM CALIBRATION (REZEROING), OPERATION, Subaru Select Monitor.>

7) Check if the driver's seat position sensor, and the driver's and passenger's seatbelt buckle switches operate normally.

B: INSPECTION

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

1. DRIVER'S AIRBAG MODULE

- 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.
 - The module surface is fouled with grease, oil, water or cleaning solvent.
- 2) When installing a new driver's airbag module, check the following, and replace the damaged parts with new ones.
 - 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.
 - The steering wheel deformation in axial and radial directions exceed limits.

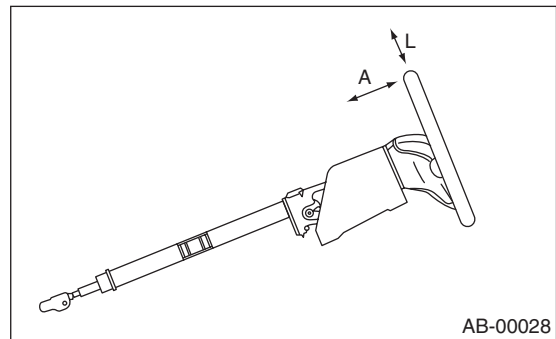
Specifications:

Height deflection A

Less than 6 mm (0.24 in)

O.D. deflection L

Less than 7 mm (0.28 in)



2. PASSENGER'S AIRBAG MODULE

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.

3. SIDE AIRBAG MODULE

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

- Front seat, airbag module and mounting bracket are damaged or deformed.

Inspection Locations After a Collision

AIRBAG SYSTEM

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

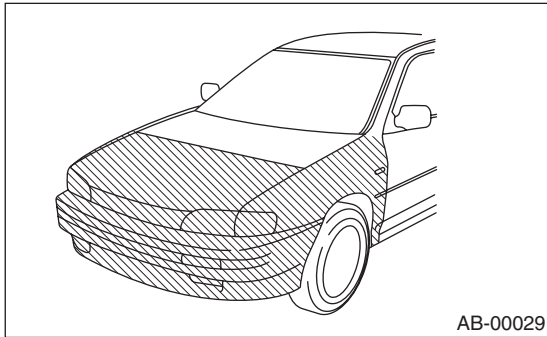
4. AIRBAG CONTROL MODULE

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, cracked or deformed.
- Airbag is deployed.
- Side airbag is deployed.

5. FRONT SUB SENSOR

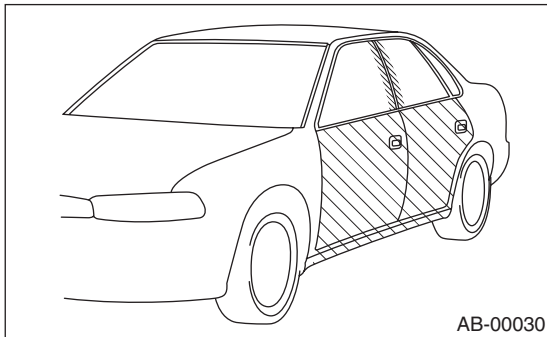
If the front section of vehicle as shown in the figure is damaged, check for the following, and replace damaged parts with new parts.



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

6. 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, cracked or deformed.
- Side airbag is deployed. (operating side)

7. ROLL CONNECTOR

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

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

8. STEERING SHAFT

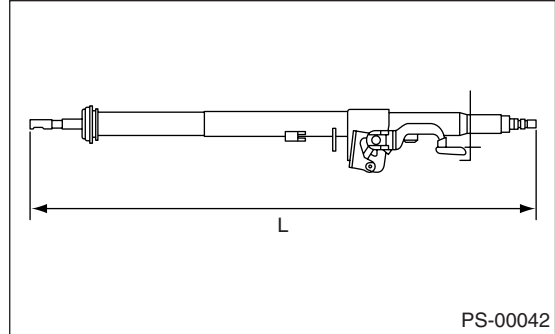
Check for the following, and replace damaged parts with new parts.

- Overall length of steering column should be within specifications.

Specifications:

Overall length L

818.7±1.5 mm (32.23±0.06 in)



9. DRIVER'S SEAT

Check the following items and replace the damaged parts with new one.

- Seat belt buckle or seat position sensor body/bracket is cracked or deformed.
- Harness or connector is cracked, deformed or disconnected. Harness wire is exposed.

CAUTION:

Do not remove the seat position sensor from seat rail.

10. PASSENGER'S SEAT

1) Check the following items and replace the damaged parts with new one.

- Seat belt buckle body/bracket has scratch, crack or deformation.
- Backrest frame has crack or deformation.
- Headrest has deformation or play.
- If the seat cushion cover or seat back cover is torn or frayed, replace the cover with new one and perform the system calibration. <Ref. to OD(diag)-19, SYSTEM CALIBRATION (REZEROING), OPERATION, Subaru Select Monitor.>

CAUTION:

Check the following items, and if faulty, replace the seat cushion pad and frame as assembly. Never disassemble.

- Seat cushion frame or seat cushion pad has crack or deformation.

- **Occupant detection system pressure sensor hose, occupant detection control module or its installing bracket has scratch, crack or deformation.**

- **Harness or connector is cracked, deformed or disconnected. Harness wire is exposed.**

2) After checking the installing condition of passenger's seat, perform the system calibration of occupant detection system. <Ref. to OD(diag)-19, SYSTEM CALIBRATION (REZEROING), OPERATION, Subaru Select Monitor.>

11.BELT TENSION SENSOR

Check the following items, and replace the damaged parts with new one.

- Belt tension sensor has scratch, crack or deformation.

- Harness or connector is cracked, deformed or disconnected. Harness wire is exposed.

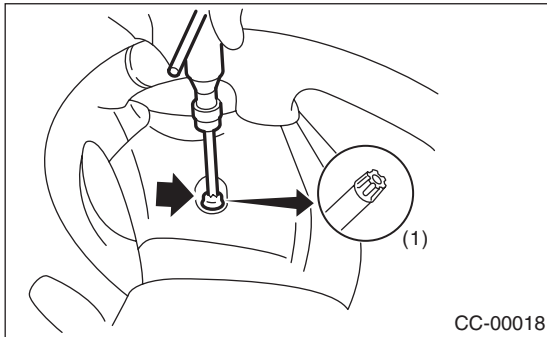
4. Driver's Airbag Module

A: REMOVAL

CAUTION:

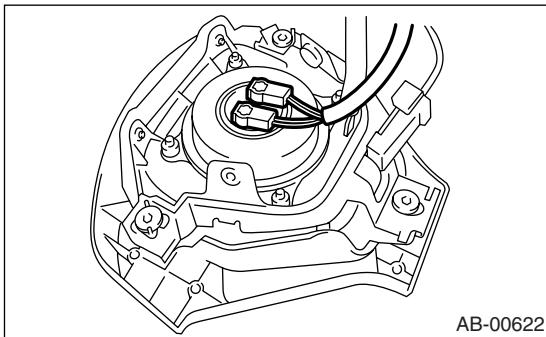
Refer to "CAUTION" in General Description before handling the airbag module. <Ref. to AB-3, CAUTION, General Description.>

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



(1) TORX® BIT T30

- 5) Disconnect the horn harness.
- 6) Disconnect the airbag connector on the back of airbag module, and then remove the airbag module. <Ref. to AB-8, PROCEDURE, Airbag Connector.>



- 7) 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:

- Refer to "CAUTION" in General Description before handling the airbag module. <Ref. to AB-3, CAUTION, General Description.>
- Do not allow harness and connectors to interfere or get tangled up with other parts.

Tightening torque:

Refer to "COMPONENT" in "General Description" <Ref. to AB-2, SRS AIRBAG, COMPONENT, General Description.>

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. <Ref. to AB-11, DRIVER'S AIRBAG MODULE, INSPECTION, Inspection Locations After a Collision.>

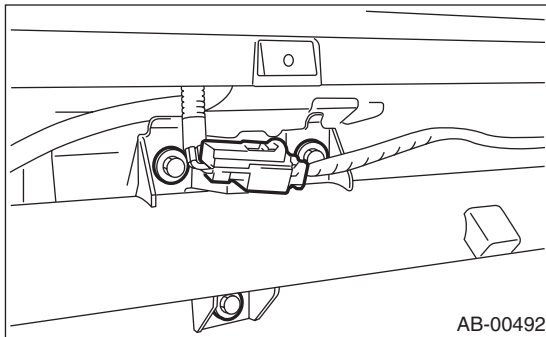
5. Passenger's Airbag Module

A: REMOVAL

CAUTION:

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

- 1) Turn the ignition switch to OFF.
- 2) Disconnect the ground cable from battery, and wait for at least 20 seconds before starting work.
- 3) Remove the glove box. <Ref. to EI-43, REMOVAL, Glove Box.>
- 4) Detach the airbag connector from support beam bracket, and then disconnect the airbag connector.



- 5) Remove the three bolts, and then carefully remove the passenger's 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.

Tightening torque:

Refer to "COMPONENT" in "General Description" <Ref. to AB-2, SRS AIRBAG, COMPONENT, General Description.>

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. <Ref. to AB-11, PASSENGER'S AIRBAG MODULE, INSPECTION, Inspection Locations After a Collision.>

6. Side Airbag Module

A: REMOVAL

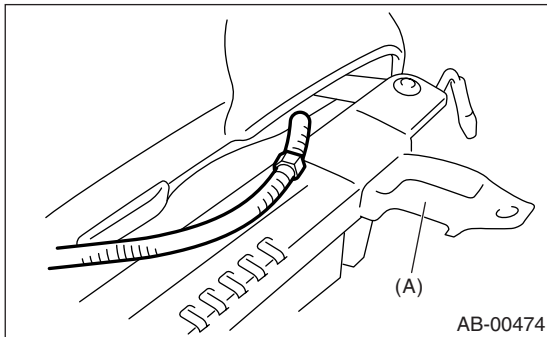
CAUTION:

Before working on the airbag module, refer to the “CAUTION” in General Description. <Ref. to AB-3, CAUTION, General Description.>

NOTE:

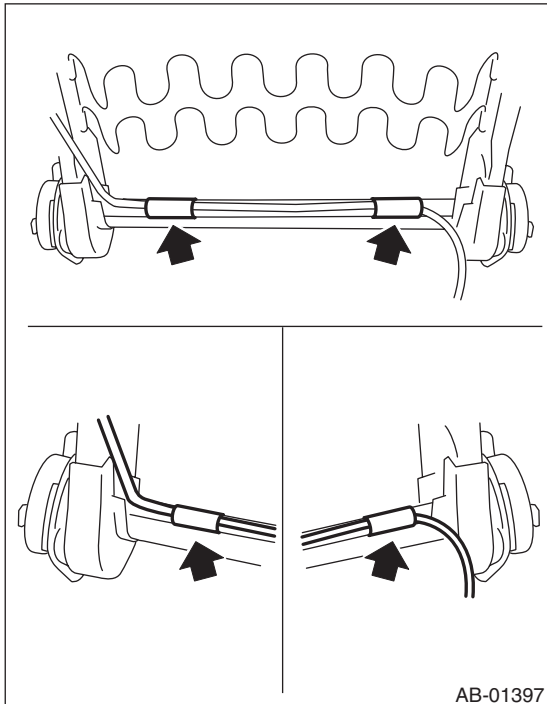
Remove the passenger’s side by referring to driver’s side.

- 1) Turn the ignition switch to OFF.
- 2) Disconnect the ground cable from battery, and wait for at least 20 seconds before starting work.
- 3) Remove the front seats. <Ref. to SE-7, REMOVAL, Front Seat.>
- 4) Remove the clip, and then remove the side airbag harness from slide rail IN (A) and reverse side of seat cushion assembly.

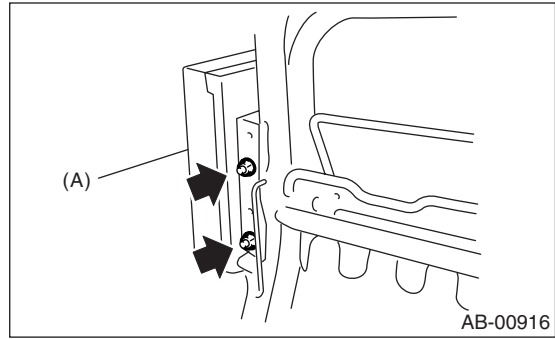


5) Remove the backrest cover. <Ref. to SE-8, DISASSEMBLY, Front Seat.>

6) Remove the side airbag harness from backrest frame assembly.



7) Remove the side airbag module (A) from backrest frame assembly.



B: INSTALLATION

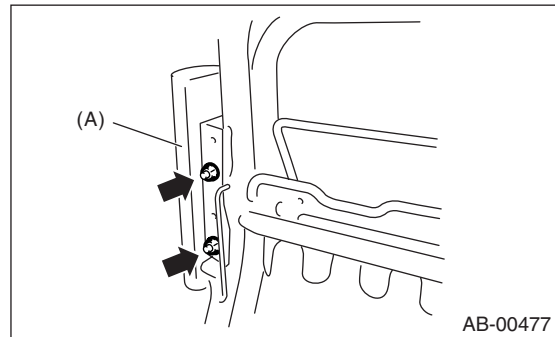
CAUTION:

- Before working on the airbag module, refer to the “CAUTION” in General Description. <Ref. to AB-3, CAUTION, General Description.>
- Be sure to perform the system calibration for occupant detection system after passenger’s seat installation. <Ref. to OD(diag)-19, SYSTEM CALIBRATION (REZEROING), OPERATION, Subaru Select Monitor.>

- 1) Ensure there are no foreign particles on side airbag module.
- 2) Install the side airbag module (A) to backrest frame assembly.

Tightening torque:

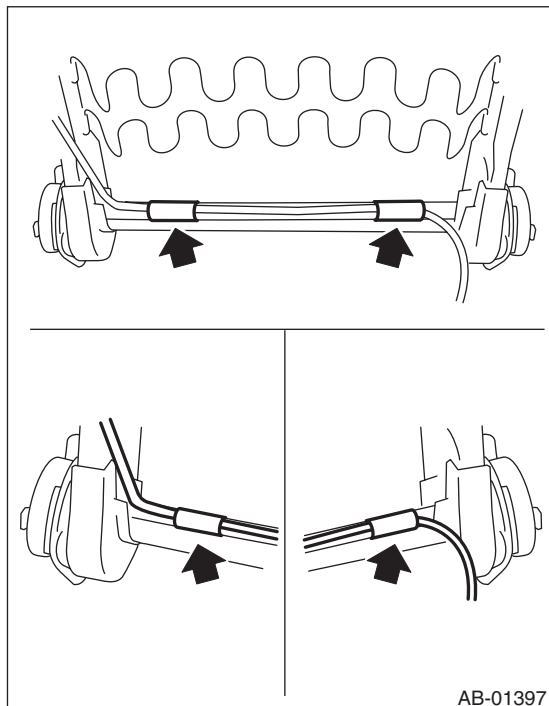
5.9 N·m (0.60 kgf·m, 4.4 ft·lb)



3) Install the side airbag harness to backrest frame assembly.

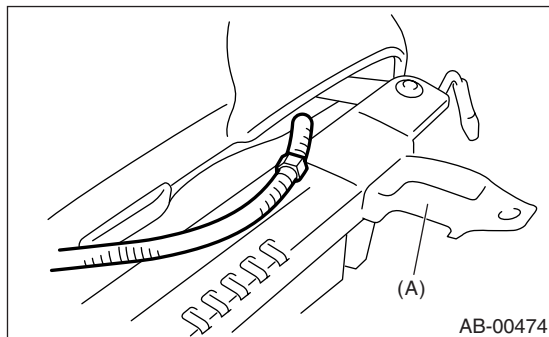
NOTE:

Secure the harness to its original position of seat.



4) Install the backrest cover. <Ref. to SE-12, ASSEMBLY, Front Seat.>

5) Install the side airbag harness to slide rail IN (A), and then secure the connector to the bracket on the back side of seat cushion assembly.



6) Recline the seat or slide it backward and forward. Check there is no contact between seat backrest assembly, cushion cover assembly and side airbag harness.

C: INSPECTION

CAUTION:

Before working on the airbag module, refer to the “CAUTION” in General Description. <Ref. to AB-3, CAUTION, General Description.>

Perform the inspection of following items, and replace the damaged parts with new ones. <Ref. to AB-11, SIDE AIRBAG MODULE, INSPECTION, Inspection Locations After a Collision.>

- 1) With side clash (when side airbag is deployed)
 - Side airbag module assembly
 - Backrest pad assembly
 - Backrest frame assembly
 - Backrest cover assembly
- 2) Other replacement parts, which found to be damaged by visual check
 - Headrest assembly
 - Bushing
 - Slide rail OUT
 - Slide rail IN
 - Seat hinge cover
 - Seat lifter lever
 - Reclining lever
 - Side airbag harness and connector (body side)
- 3) With side clash (when side airbag is not deployed)

Check the seat and airbag module visually, and then replace them with new ones if damaged or cracked.

Specially inspect the damage of airbag module body, installing bracket, harness connector.
- 4) Without side clash (dirt and damage of cover)

Replace the corresponding part with a new one.

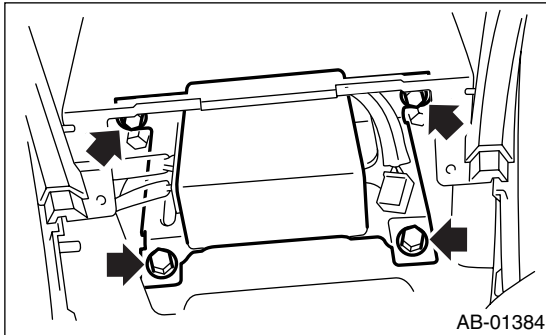
7. Airbag Control Module

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 one.
- 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 the ignition switch to OFF.
- 2) Disconnect the ground cable from battery, and wait for at least 20 seconds before starting work.
- 3) Remove the console cover. <Ref. to EI-46, REMOVAL, Console Box.>
- 4) Remove the center console panel. <Ref. to EI-47, REMOVAL, Instrument Panel Assembly.>
- 5) Disconnect the connector from airbag control module.
- 6) Remove the four bolts and remove airbag control module.



B: INSTALLATION

CAUTION:

Use new bolts (for airbag control module only) during installation.

Install in the reverse order of removal.

Tightening torque:

Refer to "COMPONENT" in "General Description" <Ref. to AB-2, SRS AIRBAG, COMPONENT, General Description.>

C: INSPECTION

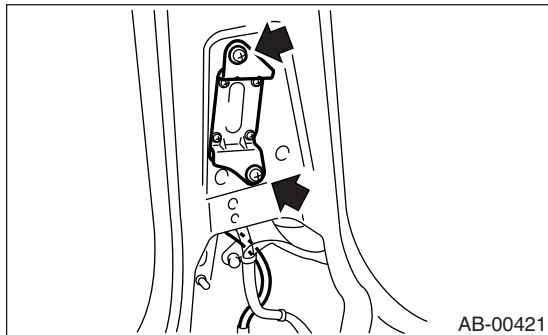
Check for the following, and replace damaged parts with new parts.

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

8. Side Airbag Sensor

A: REMOVAL

- 1) Turn the ignition switch to OFF.
- 2) Disconnect the ground cable from battery, and wait for at least 20 seconds before starting work.
- 3) Remove the outer seat belt (FRONT). <Ref. to SB-10, INNER SEAT BELT ASSEMBLY, REMOVAL, Front Seat Belt.>
- 4) Detach the side airbag sensor, and then disconnect the airbag connector.



B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

Refer to "COMPONENT" in "General Description" <Ref. to AB-2, SRS AIRBAG, COMPONENT, General Description.>

C: INSPECTION

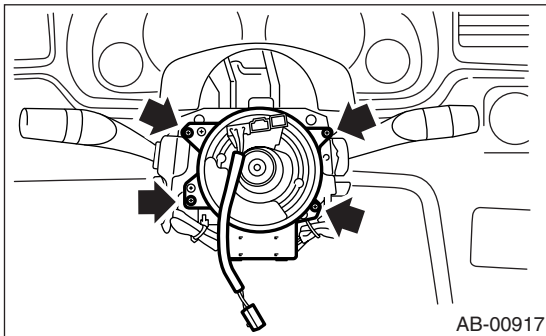
Check for the following, and replace damaged parts with new parts.

- Mounting bracket of side airbag sensor or connector is damaged.
- Side airbag is deployed.

9. Roll Connector

A: REMOVAL

- 1) Turn the ignition switch to OFF.
- 2) Disconnect the ground cable from battery, and wait for at least 20 seconds before starting work.
- 3) Remove the driver's airbag module. <Ref. to AB-14, Driver's Airbag Module.>
- 4) Remove the steering wheel. <Ref. to PS-20, REMOVAL, Steering Wheel.>
- 5) Remove the steering column cover.
- 6) Remove the screws, and then remove the roll connector.



B: INSTALLATION

- 1) Install in the reverse order of removal.
- 2) Before installing the steering wheel, be sure the direction of roll connector is adjusted with steering. <Ref. to AB-20, ADJUSTMENT, Roll Connector.>

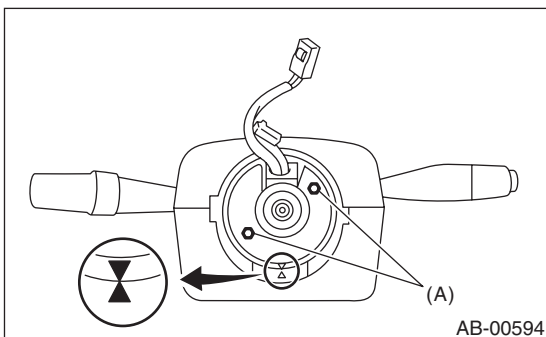
C: INSPECTION

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

- Combination switch and roll connector is cracked or deformed.

D: ADJUSTMENT

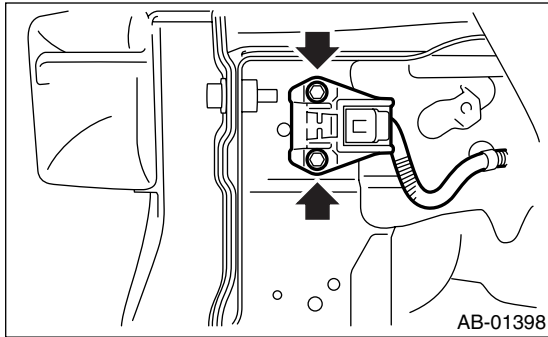
- 1) Check that the front wheels are positioned in straight ahead direction.
- 2) Turn the roll connector pin (A) clockwise until it stops.
- 3) Turn the roll connector pin (A) counterclockwise approx. 3.25 turns until "▲" marks are aligned.



10. Front Sub Sensor

A: REMOVAL

- 1) Turn the ignition switch to OFF.
- 2) Disconnect the ground cable from battery, and wait for at least 20 seconds before starting work.
- 3) Remove the front bumper. <Ref. to EI-24, REMOVAL, Front Bumper.>
- 4) Remove the bolt, and then detach the front sub sensor.



- 5) Disconnect the connector from front sub sensor.

B: INSTALLATION

Install in the reverse order of removal.

Tightening torque:

Refer to “COMPONENT” in “General Description” <Ref. to AB-2, SRS AIRBAG, COMPONENT, General Description.>

C: INSPECTION

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

- Front sub sensor and connector are damaged.
- Airbag is deployed.

