

G1 STEERING

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1 STEERING SYSTEM

1-1 INSTRUCTIONS FOR SERVICE OPERATION

CAUTION

- See the servicing instructions.

Refer to Page A1-26.

1-2 BASIC CHECK AND ADJUSTMENT

1-2-1 CHECK OF STEERING WHEEL

(1) Free play check

1. Set the tires to a straight-ahead state.
2. Start the engine and keep the engine idling.
3. Lightly turn the steering wheel by hand to the right and left. At this time, measure the free play (Amount of movement before the tires start moving) on the outer periphery of the steering wheel.

SPECIFIED VALUE: 0 - 10 mm

(2) Check of excessive play

1. Move the steering wheel in up-and-down, right-and-left and fore-and-aft directions by holding it by hand. At this time, check that no excessive play is present.

(3) Check of operating conditions

1. As for the operating conditions during running, check the following items to see if there is any abnormality.
 - (1) The steering wheel does not shake continuously during running at a constant speed.
 - (2) The vehicle does not pull to the right or left during running straight on a flat road.
 - (3) The steering effort is normal and does not vary considerably over the entire operating range.
 - (4) When returning to straightforward running after turning, there is no abnormally heavy steering effort or binding in steering operation.

1-2-2 CHECK OF STEERING GEAR

(1) Operations prior to check

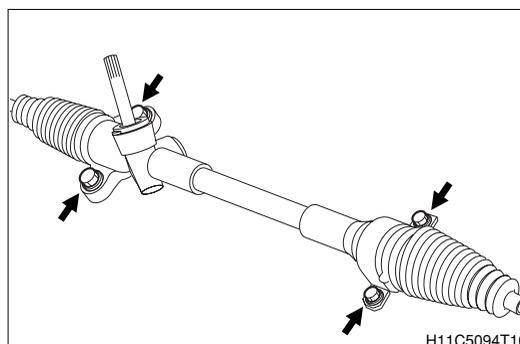
1. Jack up the vehicle.

(2) Check of tightening conditions

1. Check to see if any looseness exists at the installation of the steering gear and the front suspension member, using a spanner or the like.
2. With the tire touching the ground, let the assistant turn the steering wheel approx. 90 degrees to the right and left. Visually check to see if any looseness exists at the installation section between the steering gear and front suspension member.

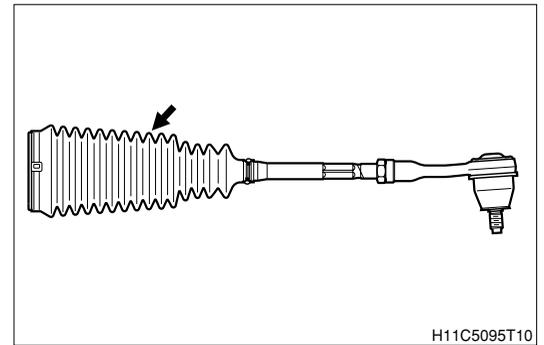
CAUTION

- Since the steering rack housing bracket LH is installed through the steering rack housing grommet LH, care must be exercised not to tighten excessively.
- If the steering wheel is turned with the vehicle stopped, movement is made only in the amount of deformation of the steering rack housing grommet. This should not be taken as looseness.



(3) Check of cracks and damage

1. Wipe off dirt on the boot. Check to see if there is crack, damage, disengagement or deterioration. If the boot has crack or damage, there might be rust formation at the gear, admission of foreign matters and lack of grease. Check these points, too.

**1-2-3 CHECK OF STEERING TIE ROD S/A AND STEERING RACK END S/A****(1) Operations prior to check**

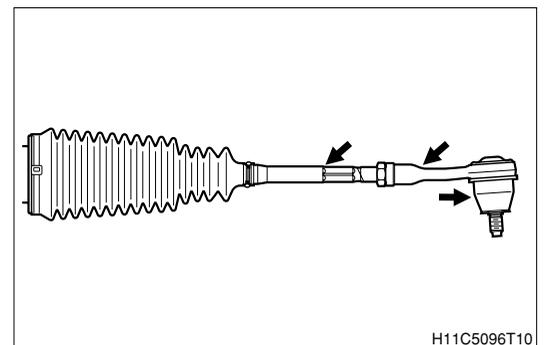
Jack up the vehicle.

(2) Check of tightening condition and excessive play

1. Shake the moving sections by hand in the direction that the steering force is transmitted. Visually check the installing section for looseness and moving sections for excessive play.
2. With the tire touching the ground, let the assistant turn the steering wheel approx. 90 degrees to the right and left. Visually check to see if any looseness exists at the installation section and excessive play exists at the moving sections.

(3) Check of cracks and damage

1. Visually check the following items.
 - (1) The steering tie rod end S/A and steering rack end S/A should have no damage nor bend.
 - (2) The dust boot of the ball joint of the steering tie rod end S/A should have no crack nor damage.

**1-2-4 CHECK OF STEERING KNUCKLE****(1) Operations prior to check**

1. Jack up the vehicle.

(2) Check of tightening conditions and excessive plays

1. Check the attaching bolts for the steering knuckle and front shock absorber for looseness. Also check the fitting section for excessive play.

(3) Check of ball joint for excessively play

1. With the brake pedal depressed, move the tire by holding the upper and lower parts of the tire. Check to see if the ball joint has excessive play.

2 STEERING WHEEL

2-1 REMOVAL AND INSTALLATION

CAUTION

- See the servicing instructions.

Refer to Page A1-26.

2-1-1 ARTICLES TO BE PREPARED

Instrument

Torque wrench

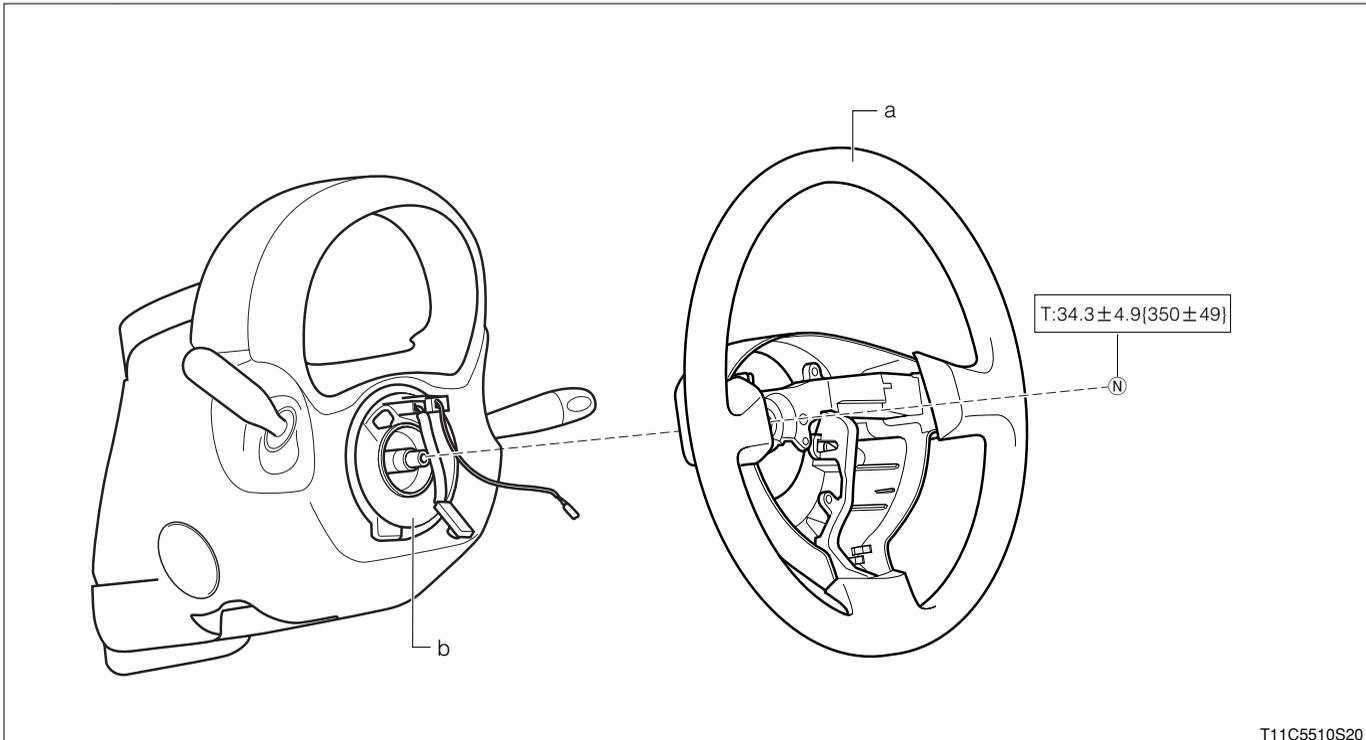
2-1-2 OPERATION BEFORE REMOVAL

1. After the IG SW has been set to "LOCK" position, remove the negative terminal of the battery. Leave the engine under this state for 60 seconds or more.
2. Ensure that the steering wheel Ay is in the straight ahead condition.
3. Remove the steering pad Ay.

Refer to Page H1-1.

2-1-3 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



Unit:N·m{kgf·cm}

(2) Removal and installation procedures

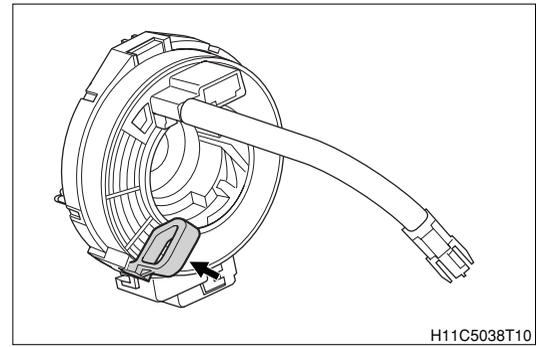
- ▲ 1 a Wheel S/A, steering
- 2 b Cable S/A, spiral

2-1-4 POINTS OF INSTALLATION

(1) Wheel S/A, steering

1. Ensure that the tires are in a straight-ahead state.
2. Align the center position of the spiral cable S/A.

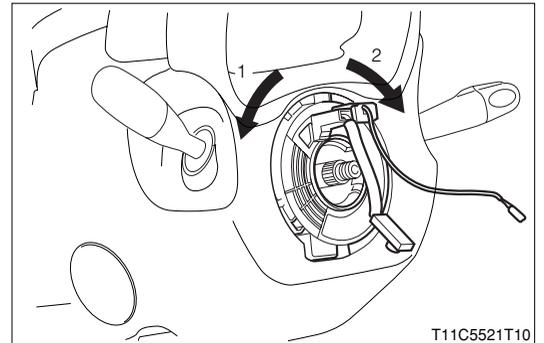
3. When installing the new spiral cable S/A, ensure that the neutral securing pin is not disengaged. Only if it is disengaged, perform the following operations.



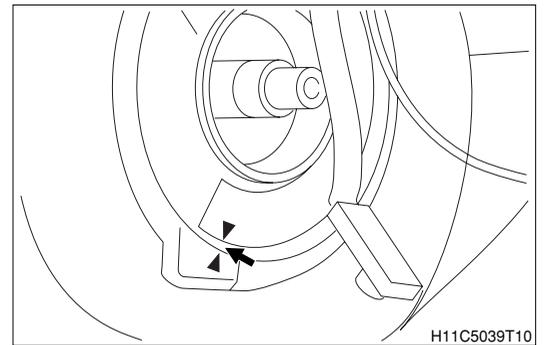
(1) Turn the spiral cable S/A counterclockwise (Direction 1 in the right figure) until it is locked. Back off about three turns clockwise (Direction 2 in the right figure) from the lock position.

NOTE

- It should be noted that the number of lock-to-lock turns of the spiral cable subassembly is about six.

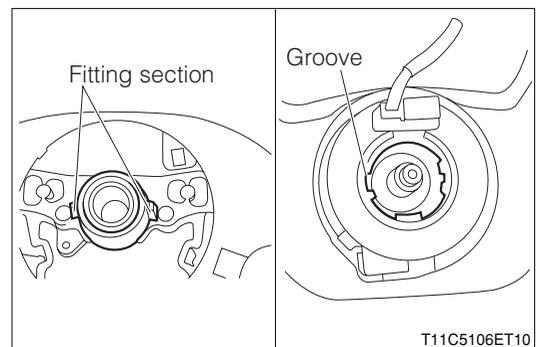


(2) Adjust the center position by turning the spiral cable subassembly in the direction close to the center mark.



4. Insert the wheel S/A completely as far as it will go. Turn it two or three times to the right and left so as to install it to the steering column tube Ay in such a way that the assembling groove at the spiral cable S/A side can align with the fitting section of the wheel S/A.

5. When a new spiral cable subassembly is installed, remove the neutral securing pin by breaking it.



2-1-5 OPERATION AFTER INSTALLATION

1. Ensure that the steering wheel Ay is in the straight ahead condition.
2. Install the steering wheel pad Ay.

Refer to Page H1-1.

3. Connect the negative terminal of the battery.
4. After the IG SW has been set to "ON" position, ensure that the airbag warning lamp is illuminated for about 6 seconds and then remains extinguished afterward.

3 STEERING COLUMN

3-1 REMOVAL AND INSTALLATION

CAUTION

- Refer to the precaution on checking procedure.

Refer to Page A1-26.

3-1-1 ARTICLES TO BE PREPARED

Tool

Center punch, Drill, Tap

Instrument

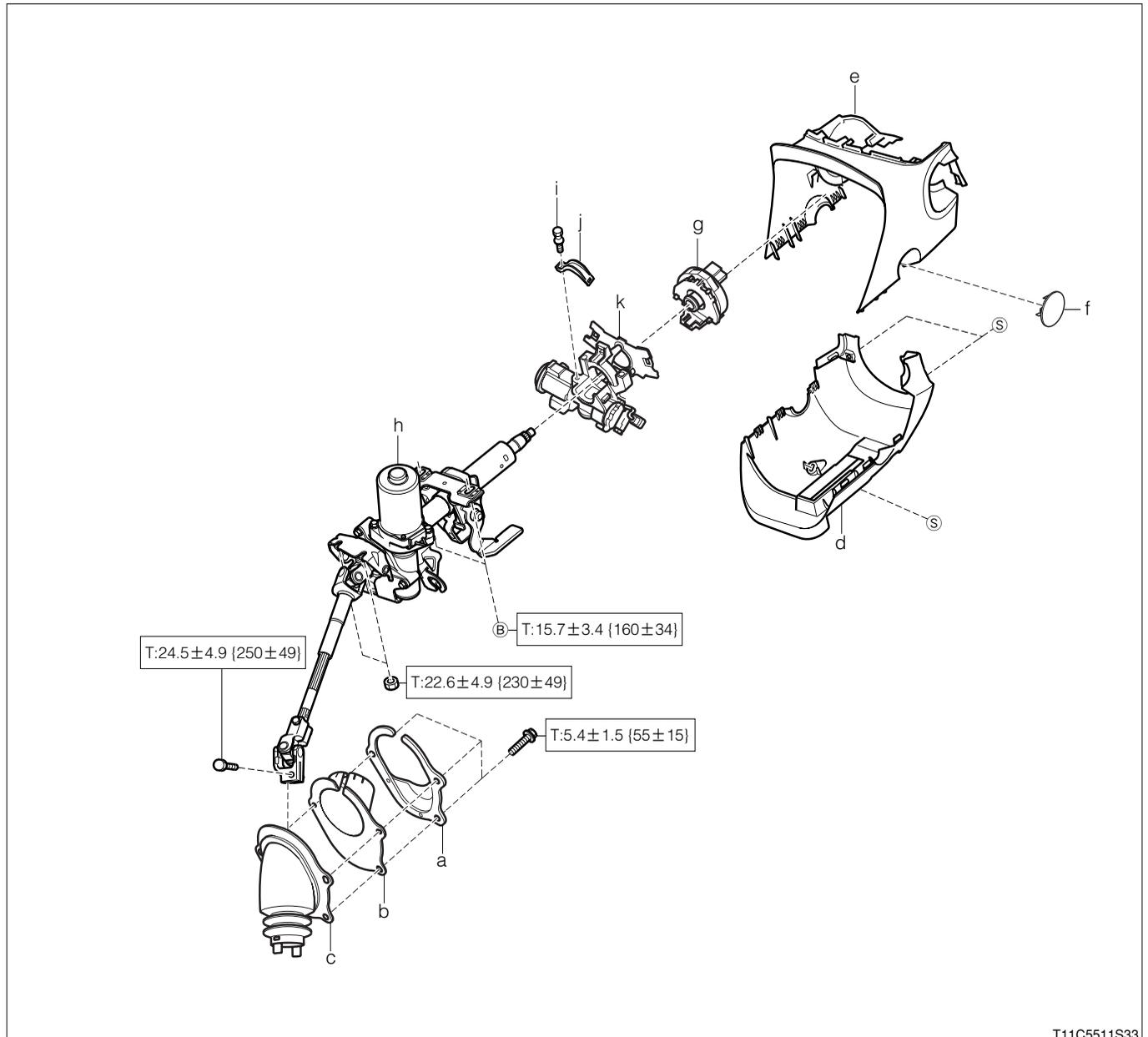
Torque wrench

3-1-2 OPERATION BEFORE REMOVAL

1. After the IG SW has been set to "LOCK" position, remove the negative terminal of the battery. Leave the engine under this state for 60 seconds or more.
2. Remove the steering wheel pad Ay.
Refer to Page H1-1.
3. Remove the steering wheel S/A.
Refer to Page G1-3.
4. Remove the combination meter assembly.
Refer to Page J3-3.
5. Remove the instrument cluster finish panel.
Refer to Page I2-23.
6. Remove the instrument panel finish panel S/A lower.
Refer to Page I2-23.
7. Turn over the carpet near the dust cover retainer.
Refer to Page I2-57.
8. Remove the shift lock release cable Ay. (If so equipped)
Refer to Page F3-38.

3-1-3 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



T11C5511S33

Unit:N·m{kgf·cm}

(2) Removal and installation procedures

- | | | | |
|-----|---------------------------------|--------|---|
| ▲ 1 | a Retainer, dust cover | 7 | g Cable S/A, spiral |
| 2 | b Cover, dust | ▼ ▲ 8 | h Tube Ay, steering column |
| 3 | c Shield, steering column hole | 9 | i bolt, steering lock set |
| 4 | d Cover, steering column, lower | 10 | j Housing, steering column, upper |
| ▼ 5 | e Cover, steering column, upper | ▼ ▲ 11 | k Bracket Ay, steering column upper, w/switch |
| 6 | f Spacer, columu cover | | |

3-1-4 POINTS OF REMOVAL

(1) Cover, steering column, upper

- 1.Unlock the operation lever of the tilt mechanism. Lower the steering column tube Ay fully and remove the cover.

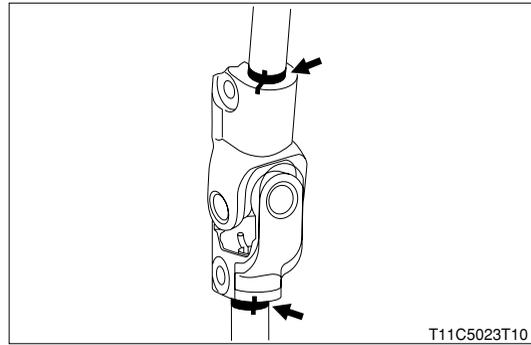
G1-7

(2) Tube Ay, steering column

1. Put mating marks on the joint section of the universal joint section.
2. Disconnect the connector of each harness.
3. Be sure to lock the operating lever of the tilt mechanism. Then, remove the tube Ay.

CAUTION

- Do not operate the operating lever of the tilt mechanism when the tube Ay is in the unit state.



(3) Bracket Ay, steering column upper w/ swich

1. Remove the lever Ay in the following procedure.
 - (1) Make a hole, using a drill, to such an extent that the reverse tapping of the steering lock set bolt is possible.

TOOL: Center punch

Drill

- (2) Remove the steering lock set bolt, using the reverse tapping. Then, remove the lever assembly.

TOOL:

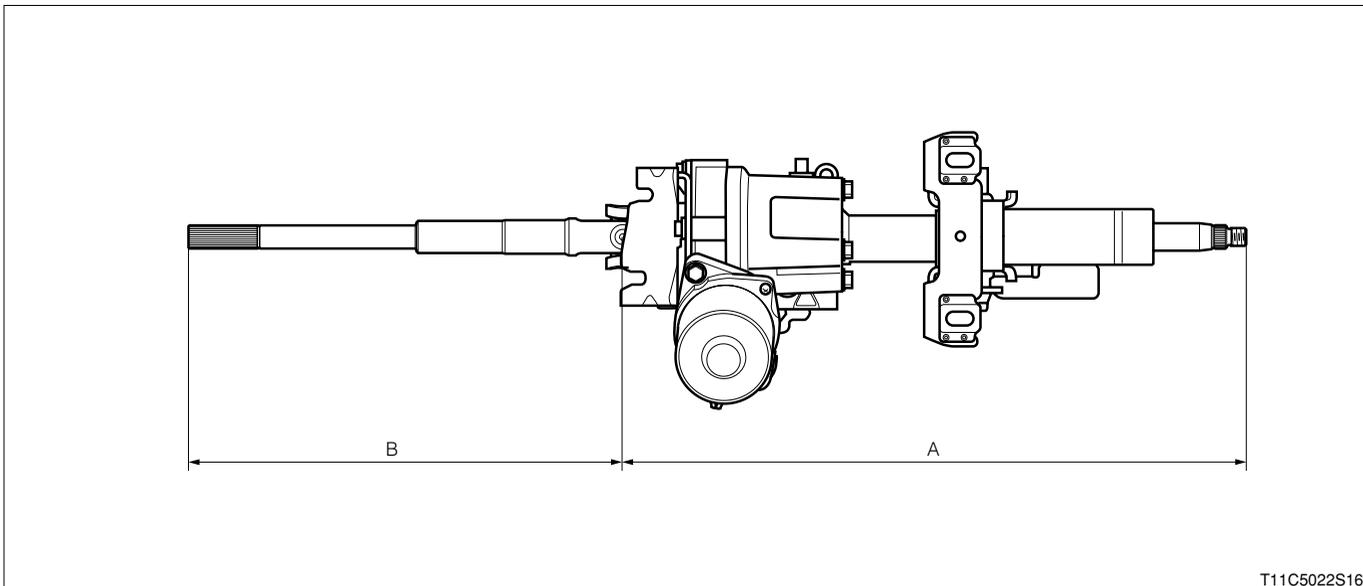
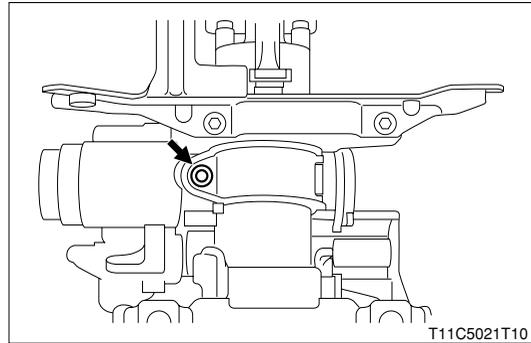
3-1-5 INSPECTION

(1) Tube Ay, steering column

Since the tube Ay has impact absorbing construction, measure the dimensions A and B shown in the figure below after the removal. If they are considerably short, replace the assembly.

SPECIFIED VALUE: A:430.7mm

B:301.0mm



3-1-6 POINTS OF INSTALLATION

(1) Bracket Ay, steering column upper w/switch

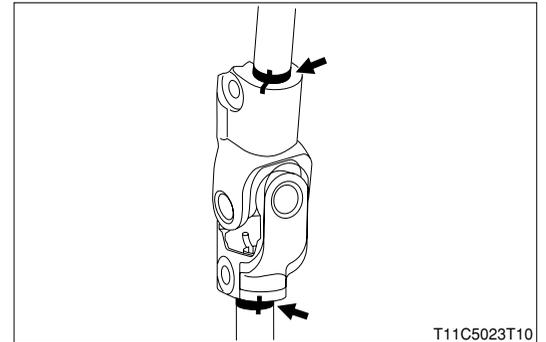
1. Install a new steering lock set bolt. Tighten it, until the head of the bolt is cut off.

(2) Tube Ay, steering column

1. Perform the installation while aligning the mating mark of the steering gear assembly with that of the tube assembly.

CAUTION

- Ensure that there are no foreign matters.



2. Ensure that the operating lever of the tilt mechanism is locked.

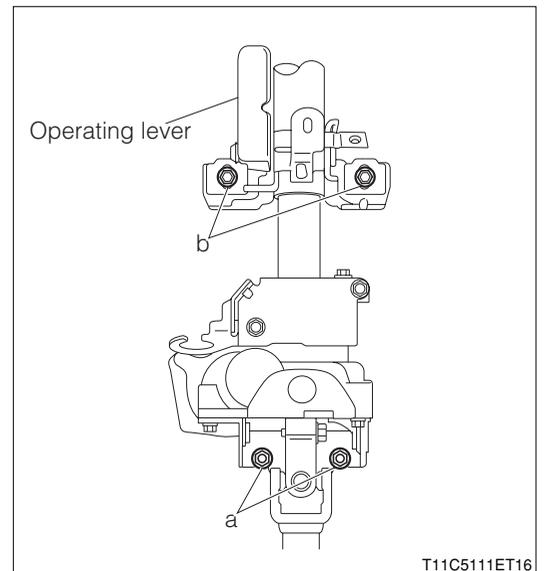
CAUTION

- Do not operate the operating lever of the tilt mechanism when the tube Ay is in the unit state.

NOTE

- If the tilt mechanism is operated, the impact absorption construction of the tube Ay is actuated during the installation and the tube Ay contracts.

3. Temporarily tighten the nut (a) of the lower side bracket of the tube Ay.
4. Temporarily tighten the bolt (b) of the upper side bracket of the tube Ay.
5. Completely tighten the nut (a) of the lower side bracket of the tube Ay. Then, completely tighten the bolt (b) of the upper side bracket.
6. Loosen the bolt (2) indicated in the right figure.



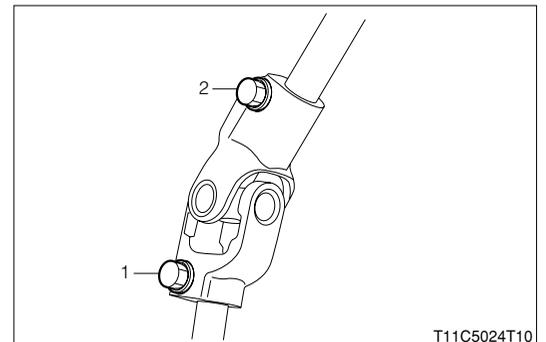
7. Temporarily install the bolts (1) and (2) shown in the right figure in this order. Then, tighten the bolts (1) and (2) again to the specified torque in this order.

TIGHTENING TORQUE: $24.5 \pm 4.9 \text{ N} \cdot \text{m}$
 $\{250 \pm 49 \text{ kgf} \cdot \text{cm}\}$

CAUTION

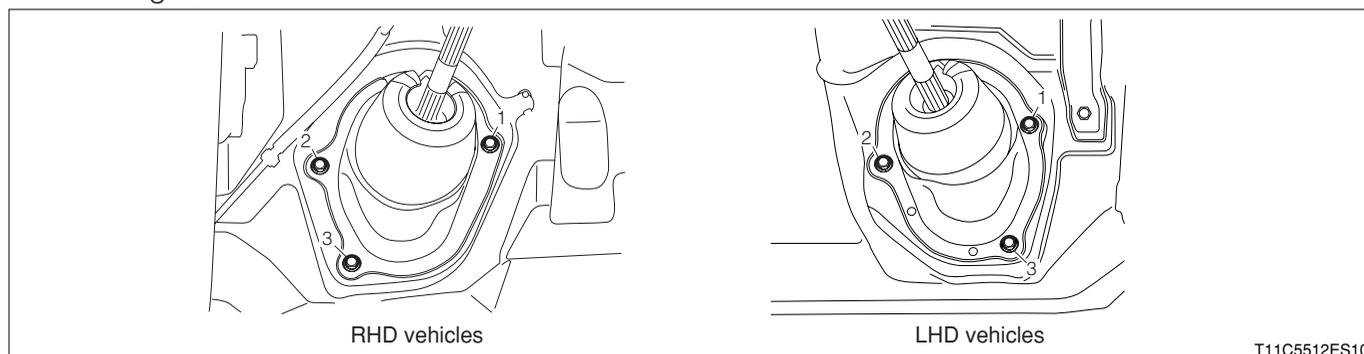
- Be sure to start the installation of bolts from the direction where the spot facing of the joint Ay is present.

8. Connect the connector to each harness, etc.



(3) Retainer, dust cover

1. Tighten the retainer attaching bolts to the specified torque in the sequence of (1), (2) and (3) as shown in the figure below.



3-1-7 OPERATION AFTER INSTALLATION

1. Install the shift lock release cable Ay. (If so equipped)
Refer to Page F3-38.
2. Place the carpet near the dust cover retainer.
Refer to Page I2-57.
3. Install the instrument panel finish panel S/A lower.
Refer to Page I2-23.
4. Install the instrument cluster finish panel.
Refer to Page I2-23.
5. Install the combination meter assembly.
Refer to Page J3-3.
6. Install the steering wheel S/A.
Refer to Page G1-3.
7. Ensure that the steering wheel Ay is in the straight ahead condition.
8. Install the steering wheel pad Ay.
Refer to Page H1-1.
9. Connect the negative terminal of the battery.
10. After the IG SW has been set to "ON" position, ensure that the airbag warning lamp is illuminated for about 6 seconds and then remains extinguished afterward.
11. Check the shift lock operation check. (If so equipped)
Refer to Page F3-37.
12. Check of key-interlocking mechanism check. (If so equipped)
Refer to Page F3-37.