

STEERING SYSTEM

5003T-01

PRECAUTION

1. HANDLING PRECAUTIONS ON STEERING SYSTEM

- (a) Care must be taken when replacing parts. Incorrect replacement may affect the performance of the steering system and result in a driving hazard.

2. HANDLING PRECAUTIONS ON SRS AIRBAG SYSTEM

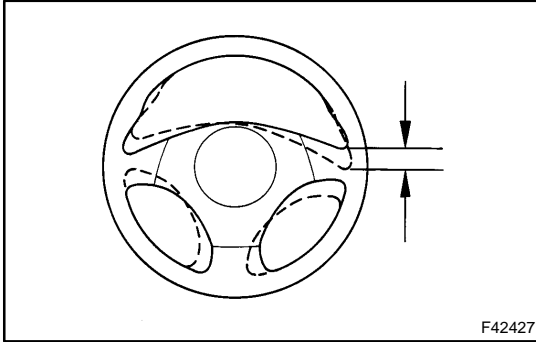
- (a) The vehicle is equipped with SRS (Supplemental Restraint System) such as the driver airbag and front passenger airbag. Failure to carry out service operation in the correct sequence could cause the SRS to unexpectedly deploy during servicing, possibly leading to a serious accident. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the precautionary notice for the supplemental restraint system (See page [60-1](#)).

PROBLEM SYMPTOMS TABLE

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in the order shown. If necessary, repair or replace these parts.

Symptom	Suspect Area	See page
Hard steering	1. Tires (Improperly inflated)	28-1
	2. Power steering fluid level (Low)	51-3
	3. Front wheel alignment (Incorrect)	26-5
	4. Steering system joints (Worn)	-
	5. Suspension arm ball joints (Worn)	26-17
	6. Steering column (Binding)	-
	7. Power steering vane pump	51-8
	8. Power steering gear	51-18
Poor return	1. Tires (Improperly inflated)	28-1
	2. Front wheel alignment (Incorrect)	26-5
	3. Steering column (Binding)	-
	4. Power steering gear	51-18
Excessive play	1. Steering system joints (Worn)	-
	2. Suspension arm ball joints (Worn)	26-17
	3. Intermediate shaft, Sliding yoke (Worn)	-
	4. Front wheel bearing (Worn)	30-17
	5. Power steering gear	51-18
Abnormal noise	1. Power steering fluid level (Low)	51-3
	2. Steering system joints (Worn)	-
	3. Power steering vane pump	51-8
	4. Power steering gear	51-18

ON-VEHICLE INSPECTION

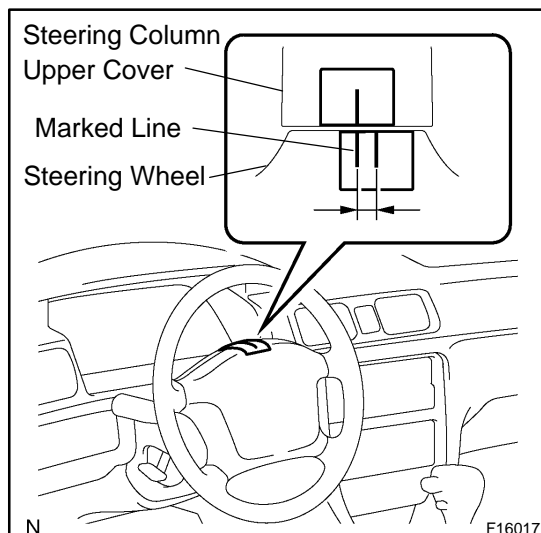
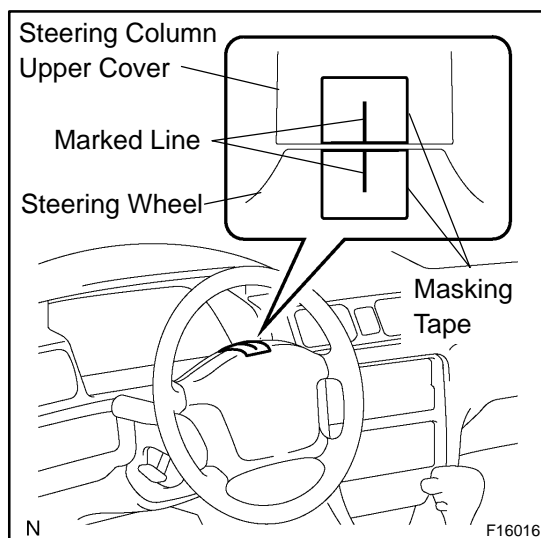
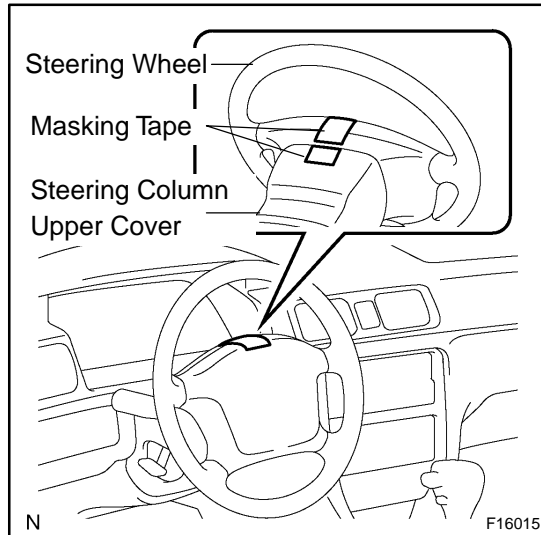


1. CHECK STEERING WHEEL FREEPLAY

- (a) Stop the vehicle and face the tires straight ahead.
- (b) Rock the steering wheel gently up and down by your hand, check the steering wheel freeplay.

Maximum freeplay: 30 mm (1.18 in.)

REPAIR



1. STEERING OFF CENTER REPAIR PROCEDURE

- (a) Inspect steering wheel off center.
 - (1) Apply masking tape on the top center of the steering wheel and steering column upper cover.
 - (2) Driving the vehicle on a straight line for 100 meters at a constant speed of 35 mph (56 km/h), and hold the steering wheel to maintain the course.
 - (3) Draw a line on the masking tape as shown in the illustration.
 - (4) Turn the steering wheel to its straight position.
- HINT:**
Refer to the upper surface of the steering wheel, steering spoke and SRS airbag line for the straight position.
- (5) Draw a new line on the masking tape or the steering wheel as shown in the illustration.
 - (6) Measure the distance between the 2 lines on the masking tape of the steering wheel.

- (7) Convert the measured distance to steering angle.
Measured distance 1 mm (0.04 in.) = Steering angle approximately 1 deg.

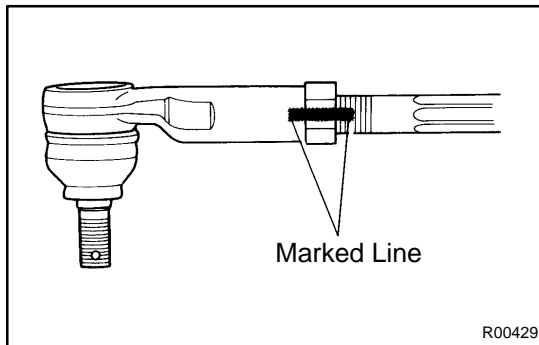
HINT:

Make a note of the steering angle.

- (b) Adjust steering angle.

NOTICE:

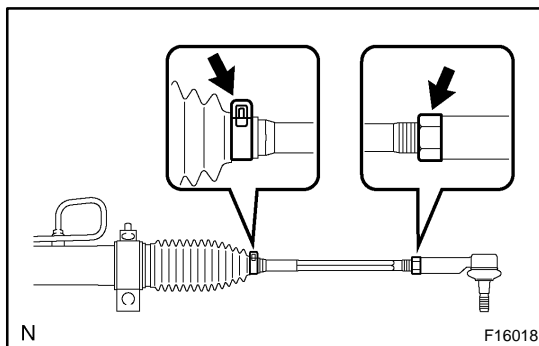
The adjustment method for steering angle varies depending on the models. Check whether it is type A or B.



- (1) Draw a line on the RH and LH tie rod and rack ends where it can easily be seen.
 (2) Using a paper gauge, measure the distance from RH and LH tie rod ends to the rack end screws.

HINT:

- Measure the RH side and LH side.
- Make a note of the measured values.



- (3) Remove the RH and LH boot clips from the rack boots.
 (4) Loosen the RH and LH lock nuts.
 (5) Turn the RH and LH rack end by the same amount (but in different directions) according to the steering angle.

1 turn 360 deg. of rack end (1.5 mm (0.059 in.) horizontal movement) – 12 deg. of steering angle.

- (6) Tighten the RH and LH lock nuts by the specified torque.

Torque: 74 N·m (750 kgf·cm, 54 ft·lbf)

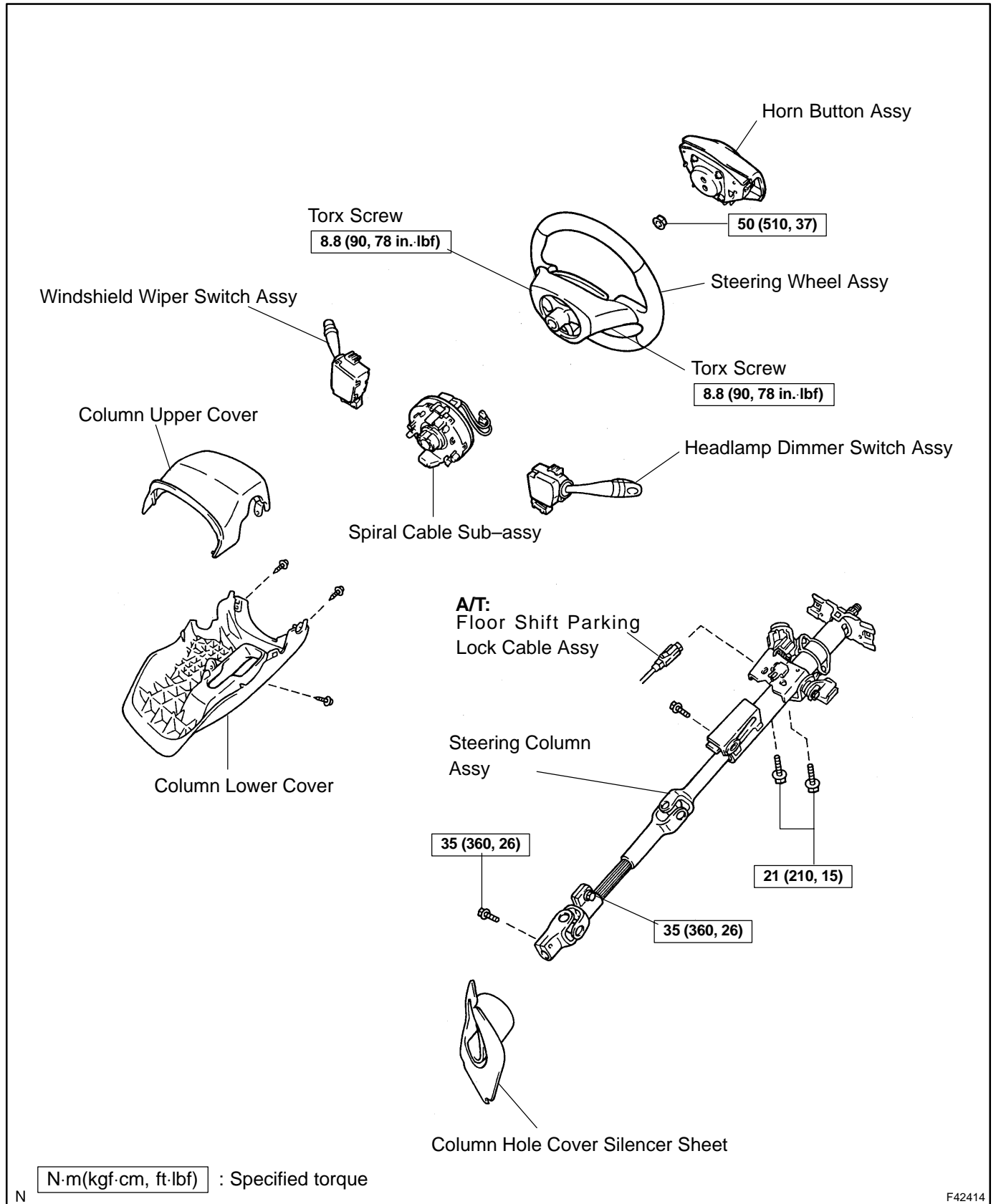
NOTICE:

Make sure that the difference in length between RH and LH tie rod ends and rack end screws are within 1.5 mm (0.059 in.).

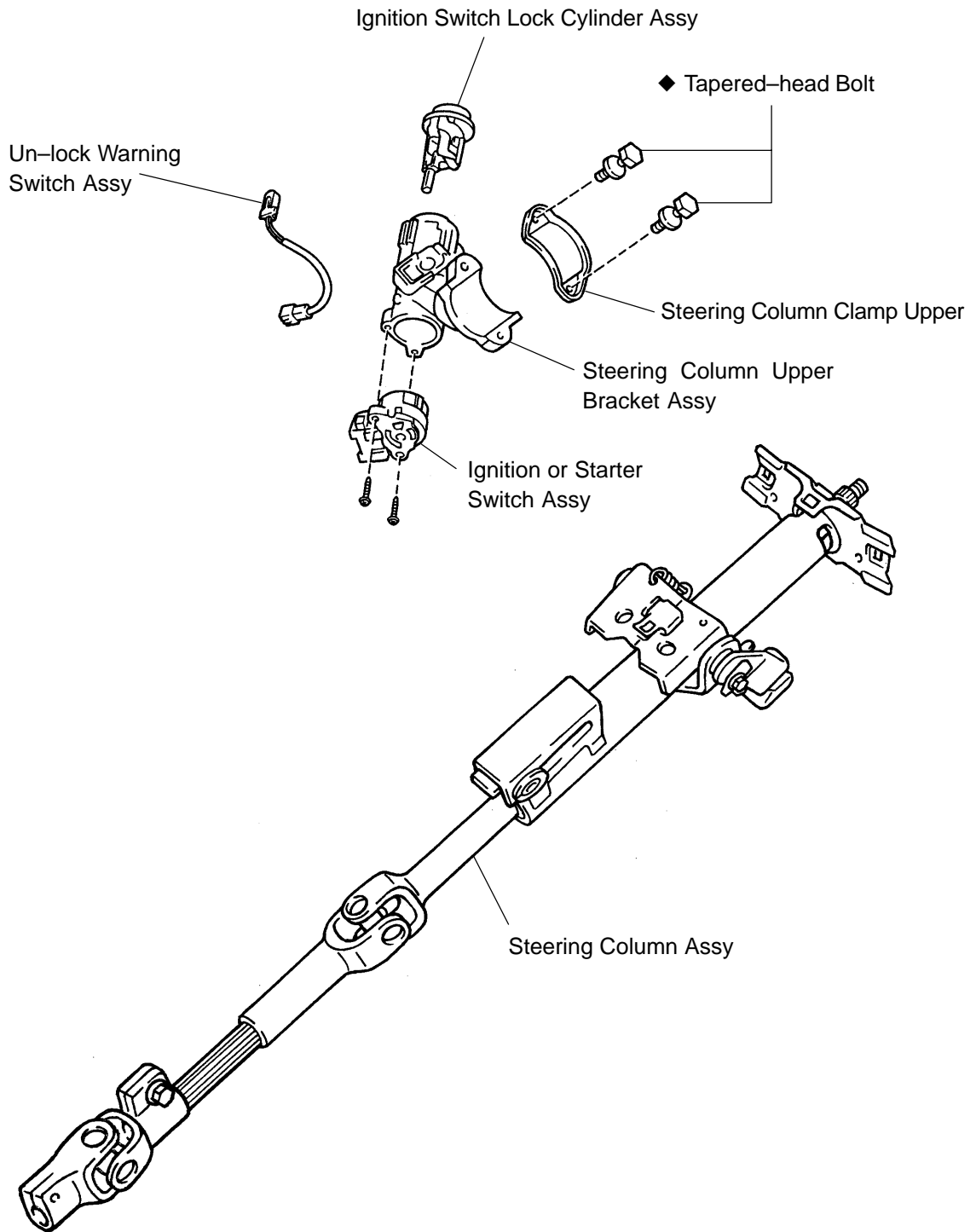
- (7) Install the RH and LH boot clips.

STEERING COLUMN ASSY COMPONENTS

5003U-01



F42414



◆ Tapered-head Bolt

Un-lock Warning Switch Assy

Ignition Switch Lock Cylinder Assy

Steering Column Clamp Upper

Steering Column Upper Bracket Assy

Ignition or Starter Switch Assy

Steering Column Assy

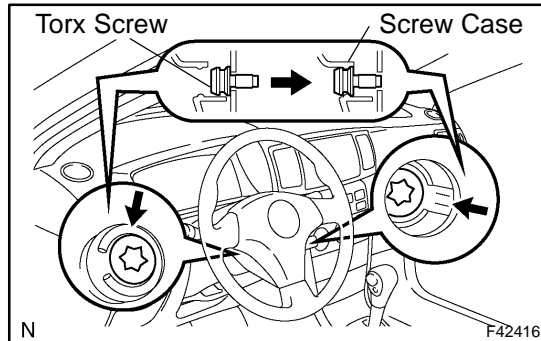
◆ Non-reusable part

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OVERHAUL

1. PRECAUTION
2. DISCONNECT BATTERY NEGATIVE TERMINAL
3. INSPECT PLACE FRONT WHEELS FACING STRAIGHT AHEAD

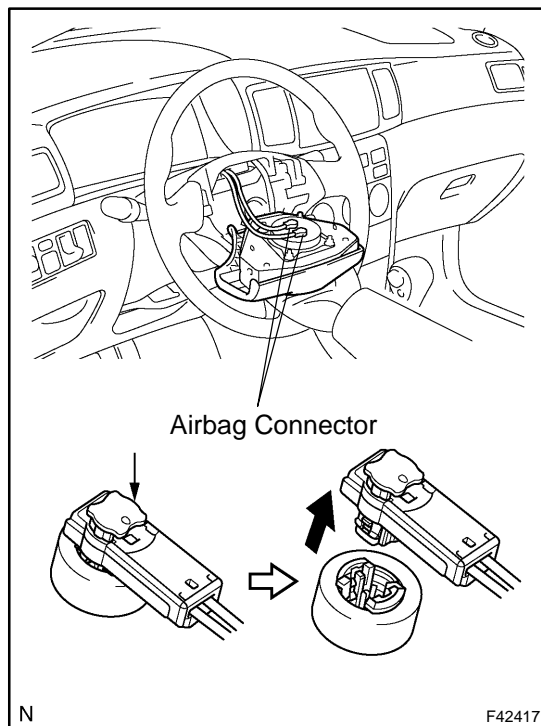


4. REMOVE HORN BUTTON ASSY

NOTICE:

If the airbag connector is disconnected with the ignition switch being at ON, DTCs will be recorded.

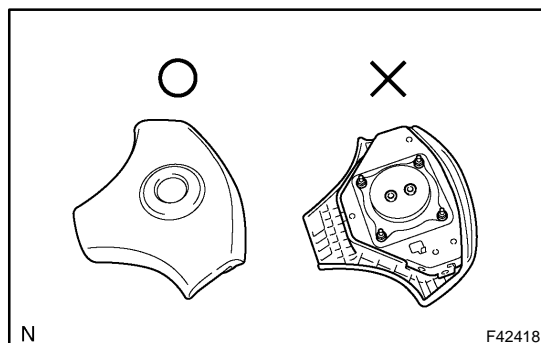
- (a) Using a torx socket wrench, loosen the 2 torx screws until the groove along the screw circumference catches on the screw case.



- (b) Pull out the horn button assy from the steering wheel.
- (c) Using a screwdriver, release the lock part of each airbag connector and disconnect the 2 airbag connectors.

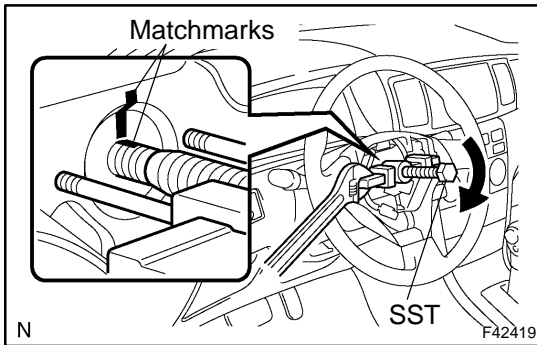
NOTICE:

When removing the horn button assy, take care not to pull the airbag wire harness.



CAUTION:

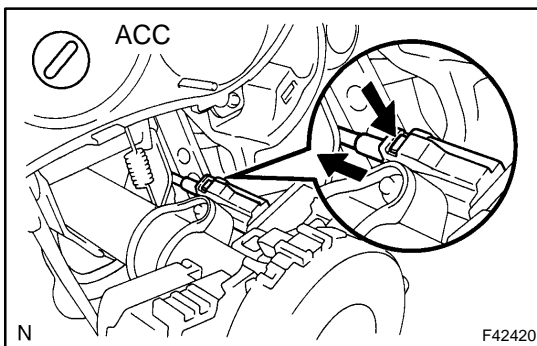
- When storing the horn button assy, keep the upper surface of the pad facing upward.
- Never disassemble the horn button assy.

**5. REMOVE STEERING WHEEL ASSY**

- (a) Disconnect the connector.
- (b) Remove the steering wheel assy set nut.
- (c) Place matchmarks on the steering wheel assy and main shaft assy.
- (d) Using SST, remove the steering wheel assy.
SST 09950-50013 (09951-05010, 09952-05010, 09953-05020, 09954-05021)

6. REMOVE STEERING COLUMN COVER

- (a) Remove the 3 screws and steering column cover.

**7. DISCONNECT FLOOR SHIFT PARKING LOCK CABLE ASSY (A/T TRANSAXLE)**

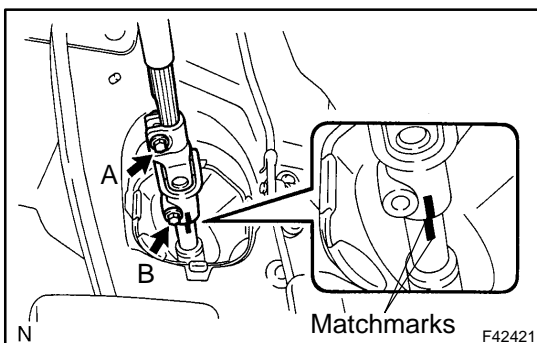
- (a) With the key in ACC, push the claw and pull out the floor shift parking lock cable.

8. REMOVE SPIRAL CABLE SUB-ASSY**9. REMOVE HEADLAMP DIMMER SWITCH ASSY**

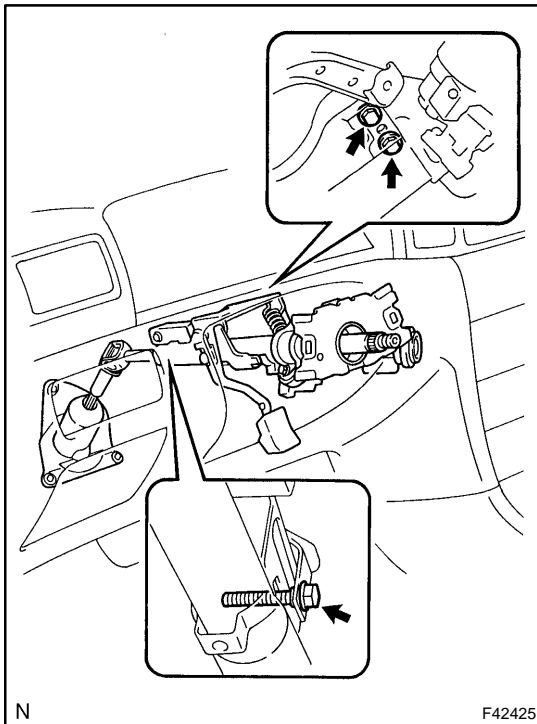
- (a) Disconnect the connector and remove the headlamp dimmer switch assy.

10. REMOVE WINDSHIELD WIPER SWITCH ASSY

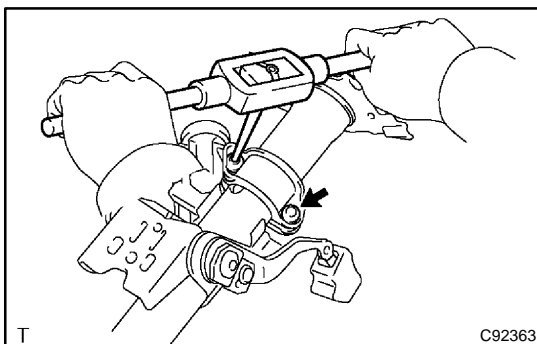
- (a) Disconnect the connector and remove the windshield wiper switch assy.

11. REMOVE COLUMN HOLE COVER SILENCER SHEET**12. DISCONNECT STEERING INTERMEDIATE SHAFT**

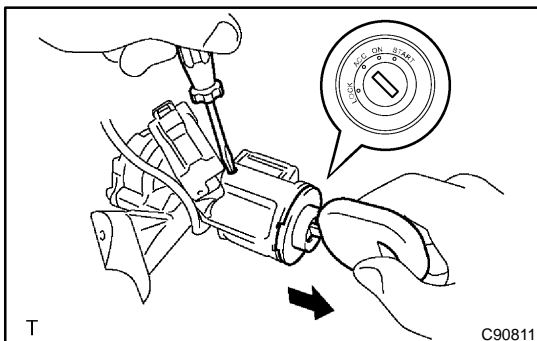
- (a) Place matchmarks on the sliding yoke and steering intermediate shaft.
- (b) Loosen the bolt A and remove the bolt B, then disconnect the steering intermediate shaft.

**13. REMOVE STEERING COLUMN ASSY**

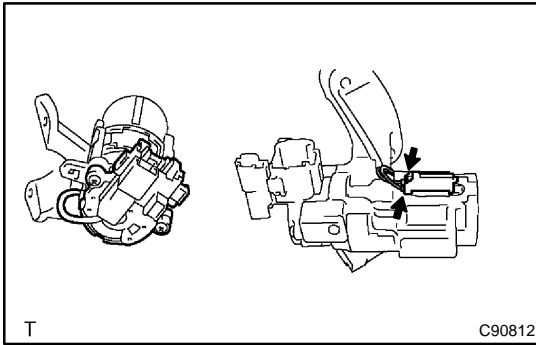
- (a) Disconnect the connectors and wire harness clamps from the steering column assy.
- (b) Remove the 3 bolts and steering column assy.

**14. REMOVE STEERING COLUMN UPPER W/SWITCH BRACKET ASSY**

- (a) Using a centering punch, mark the center of the 2 tapered-head bolts.
- (b) Using a 3 – 4 mm (0.12 – 0.16 in.) drill, drill into the 2 bolts.
- (c) Using a screw extractor, remove the 2 bolts and steering column upper w/switch bracket assy.

15. REMOVE STEERING COLUMN CLAMP UPPER**16. REMOVE IGNITION SWITCH LOCK CYLINDER ASSY**

- (a) Place the ignition switch lock cylinder assy at the ACC position.
- (b) Push down the stop pin with a screwdriver, and pull out the cylinder assy.

**17. REMOVE UN-LOCK WARNING SWITCH ASSY**

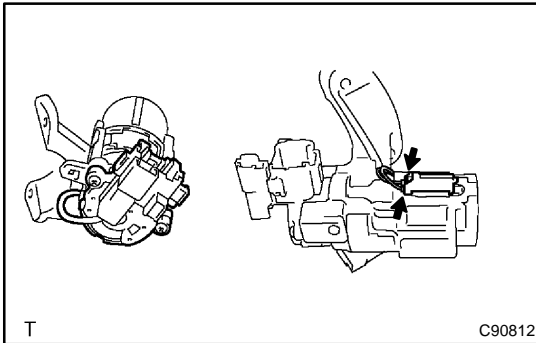
- (a) Disconnect the un-lock warning switch assy connector from the ignition or starter switch assy.
- (b) Remove the un-lock warning switch assy.

18. REMOVE IGNITION OR STARTER SWITCH ASSY

- (a) Remove the 2 screws and ignition or starter switch assy from the steering column bracket assy.

19. INSTALL IGNITION OR STARTER SWITCH ASSY

- (a) Install the ignition or starter switch assy to the steering column bracket assy with the 2 screws.

**20. INSTALL UN-LOCK WARNING SWITCH ASSY**

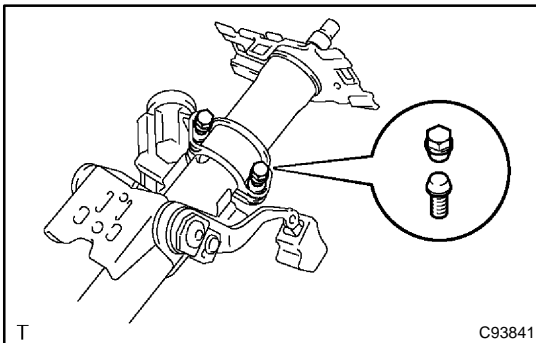
- (a) Install the un-lock warning switch assy.
- (b) Connect the un-lock warning switch assy connector to the ignition or starter switch assy.

21. INSTALL IGNITION SWITCH LOCK CYLINDER ASSY

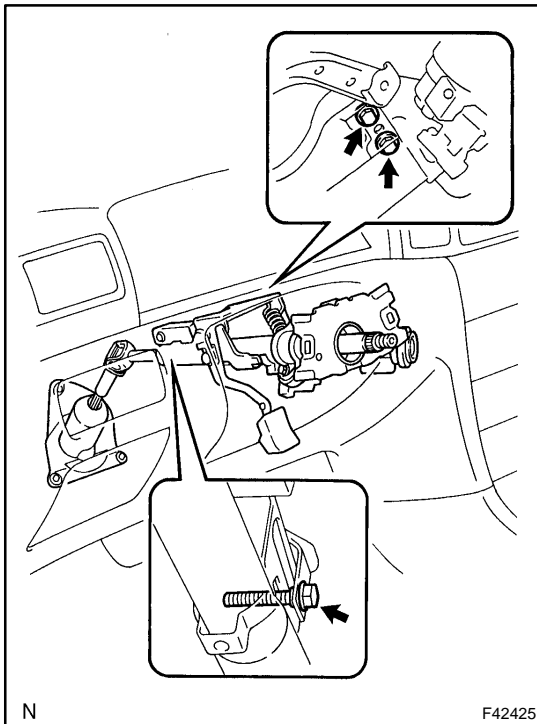
- (a) Make sure that the ignition switch lock cylinder assy is at the ACC position.
- (b) Install the ignition switch lock cylinder assy.

22. INSPECT STEERING LOCK OPERATION

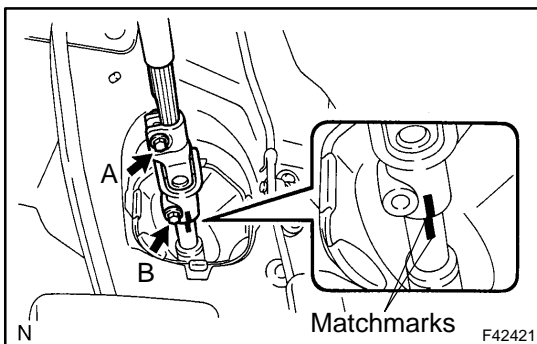
- (a) Check that the steering lock mechanism is activated when removing the key.
- (b) Check that the steering lock mechanism is deactivated when inserting the key and turning it to ACC position.

**23. INSTALL STEERING COLUMN UPPER W/SWITCH BRACKET ASSY**

- (a) Temporarily install the steering column upper w/switch bracket assy and steering column upper clamp with 2 new tapered-head bolts.
- (b) Tighten the 2 tapered-head bolts until the bolt heads break off.

**24. INSTALL STEERING COLUMN ASSY**

- (a) Install the steering column assy with the 3 bolts.
Torque: 21 N·m (210 kgf-cm, 15 ft·lbf)
- (b) Connect the connectors and wire harness clamps.

**25. CONNECT STEERING INTERMEDIATE SHAFT**

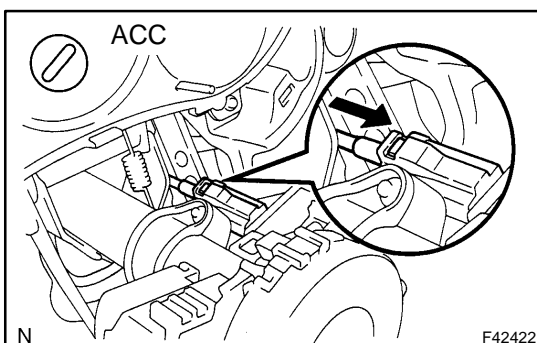
- (a) Align the matchmarks on the sliding yoke and steering intermediate shaft.
- (b) Install the bolt B and torque the bolt A.
Torque: 35 N·m (360 kgf-cm, 26 ft·lbf)

26. INSTALL COLUMN HOLE COVER SILENCER SHEET**27. INSTALL WINDSHIELD WIPER SWITCH ASSY**

- (a) Install the windshield wiper switch assy and connect the connector.

28. INSTALL HEADLAMP DIMMER SWITCH ASSY

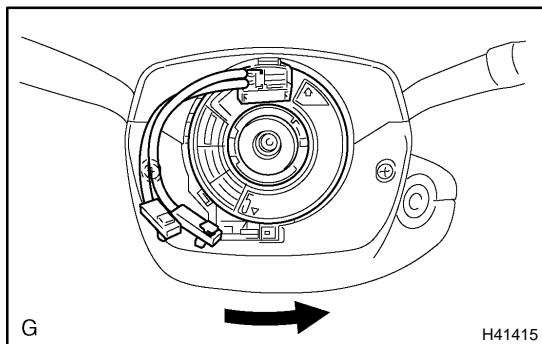
- (a) Install the headlamp dimmer switch assy and connect the connector.

29. PLACE FRONT WHEELS FACING STRAIGHT AHEAD**30. INSTALL SPIRAL CABLE SUB-ASSY****31. CONNECT FLOOR SHIFT PARKING LOCK CABLE ASSY (A/T TRANSAXLE)**

- (a) With the key in ACC, push into the floor shift parking lock cable and install it.

32. CONNECT CHECK KEY INTERLOCK OPERATION**33. INSTALL COVER SET STEERING COLUMN**

- (a) Install the steering column cover with the 3 screws.

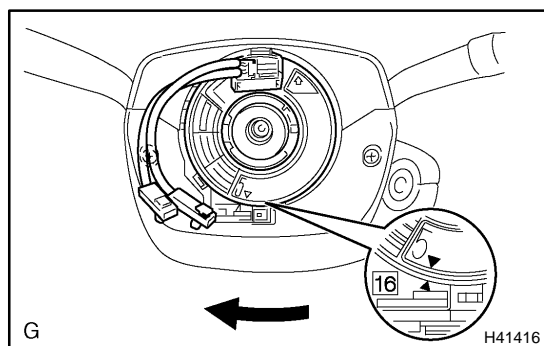
**34. CENTER SPIRAL CABLE**

- (a) Check that the ignition switch is at OFF.
 (b) Check that the battery negative terminal is disconnected.

NOTICE:

Do not start the operation for 90 seconds after removing the terminal.

- (c) Turn the cable counterclockwise by hand until it becomes harder to turn.



- (d) Then rotate the cable clockwise about 2.5 turns to align the marks.

HINT:

The cable will rotate about 2.5 turns to either right or left of the center.

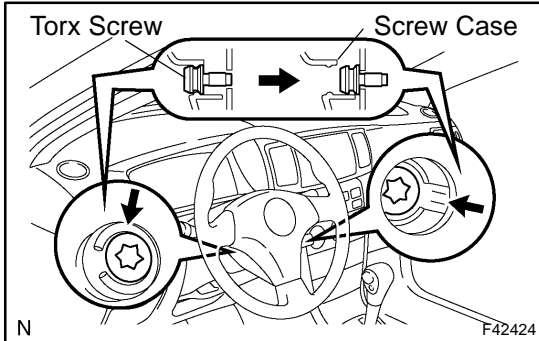
35. INSTALL STEERING WHEEL ASSY

- (a) Align the matchmark with the one on the steering wheel assy and steering main shaft assy.
 (b) Install the steering wheel assy with the set nut.
Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)
 (c) Connect the connector.

36. INSPECT HORN BUTTON ASSY (See page 60-8)**37. INSTALL HORN BUTTON ASSY****NOTICE:**

- Never use the airbag parts removed from another vehicle. When replacing parts, replace with new ones.
- Make sure that the horn button assy is installed to the specified torque.
- If the horn button assy has been dropped, or there are cracks, dents or other defects in the case or connector, replace the horn button assy with a new one.
- When installing the horn button assy, take care so that the wirings do not interfere with other parts and that they are not pinched between other parts.

- (a) Connect the 2 airbag connectors.
- (b) Install the horn button assy after confirming that the circumference groove of the torx screws is caught on the screw case.



- (c) Using a torx socket wrench, torque the 2 torx screws.
Torque: 8.8 N·m (90 kgf·cm, 78 in·lbf)

38. STEERING WHEEL CENTER POINT

39. INSPECT SRS WARNING LIGHT (See page [05-424](#))