

2004 Lexus LS430

Submodel: | Engine Type: V8 | Liters: 4.3

Fuel Delivery: FI | Fuel: GAS

50382-01

OVERHAUL

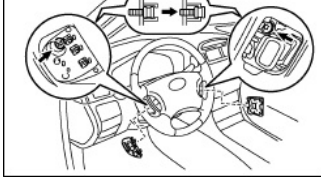
NOTICE:

- If the airbag connector is disconnected with the ignition switch in the ON position, DTCs will be recorded.
- When using a vise, do not overtighten it.
- Coat parts indicated by arrows with molybdenum disulfide lithium base grease (see page 50-6).

HINT:

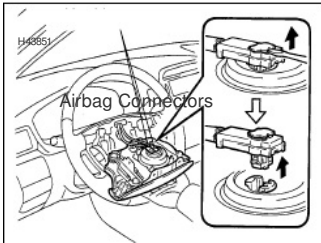
- A bolt without a torque specification is shown in the standard bolt chart (see page 03-2).

1. PRECAUTION (SEE PAGE 60-1)
2. DISCONNECT BATTERY NEGATIVE TERMINAL (SEE PAGE 60-1)
3. PLACE FRONT WHEELS FACING STRAIGHT AHEAD
4. REMOVE SWITCH & VOLUME CASE
5. REMOVE STEERING WHEEL COVER LOWER NO.2



6. REMOVE HORN BUTTON ASSY

- (a) Using a torx socket wrench (T30), loosen the 2 torx screws until the groove along the screw circumference is caught on the screw case.



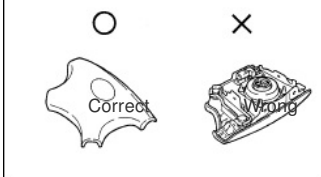
- (b) Pull out the horn button assy from the steering wheel and disconnect the airbag connectors.
- (c) Disconnect the terminal.

NOTICE:

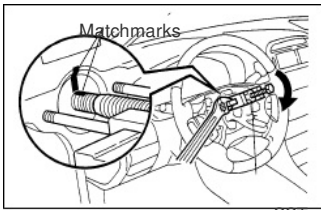
When removing the horn button assy, take care not to pull the airbag wire harness.

CAUTION:

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

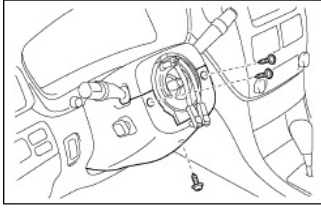


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SST

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H43572

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7. REMOVE STEERING WHEEL ASSY

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

8. REMOVE STEERING COLUMN COVER

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

9. REMOVE SPIRAL CABLE SUB-ASSY (SEE PAGE 60-30)

10. REMOVE TURN SIGNAL SWITCH ASSY (SEE PAGE 65-23)

11. REMOVE INSTRUMENT CLUSTER FINISH PANEL CENTER LOWER (SEE PAGE 71-6)

12. REMOVE INSTRUMENT CLUSTER FINISH PANEL END (SEE PAGE 71-6)

13. REMOVE INSTRUMENT PANEL UNDER COVER SUB-ASSY NO.1 (SEE PAGE 71-6)

14. REMOVE COIN BOX ASSY (SEE PAGE 71-6)

15. REMOVE OUTER MIRROR SWITCH ASSY (SEE PAGE 71-6)

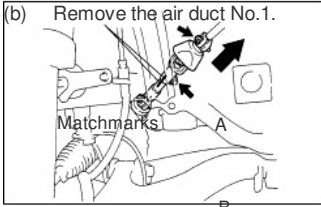
16. REMOVE INSTRUMENT PANEL SAFETY PAD SUB-ASSY NO.1 (SEE PAGE 71-6)

17. REMOVE INSTRUMENT PANEL AIR BAG ASSY LOWER NO.1 (SEE PAGE 71-6)

18. REMOVE AIR DUCT NO.1

- (a) Remove the screw.

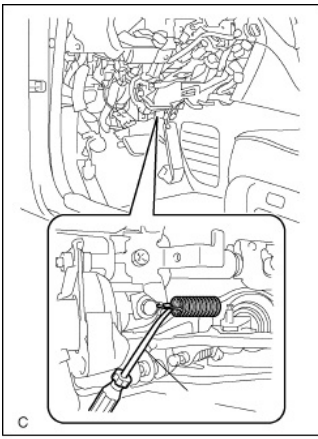
- (b) Remove the air duct No.1.



19. REMOVE AIR SEALED PLATE LH

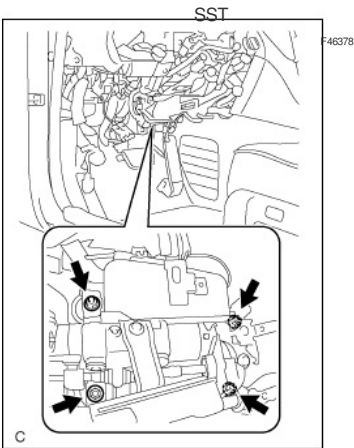
- (a) Remove the 2 clips and the air sealed plate LH.
- (b) Put matchmarks on the steering sliding w/ shaft yoke sub-assy and control valve shaft.
- (c) Loosen bolt A and remove bolt B.
- (d) Slide the steering sliding w/ shaft yoke sub-assy in the direction shown by the arrow in the illustration and remove it.

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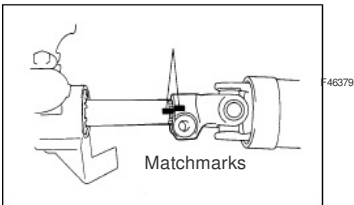


20. REMOVE STEERING COLUMN ASSY

- (a) Disconnect the connectors.
- (b) Using SST, remove the return spring.
SST 09921-00010
- (c) w/ Smart key system:
Remove the bolt, 2 screws and the ignition switch assy.
- (d) Loosen the steering column hole cover sub-assy No.1 clamp.
- (e) Remove the bolt and 2 nuts to the steering column hole cover sub-assy No.1.

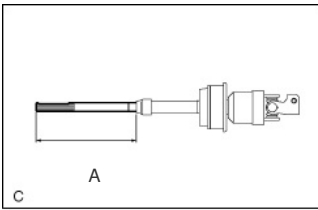


- (f) Remove the 4 nuts and steering column assy.



21. REMOVE STEERING INTERMEDIATE SHAFT ASSY NO.2

- (a) Put matchmarks on the intermediate shaft assy No.2 and steering main shaft assy.
- (b) Remove the bolt and steering intermediate shaft assy No.2.



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22. INSPECT STEERING INTERMEDIATE SHAFT ASSY NO.2

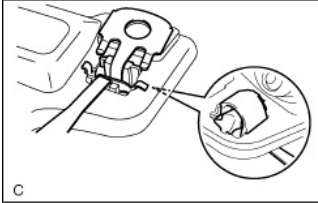
- (a) Measure dimension A of the steering intermediate shaft assy No.2 as shown in the illustration.

If dimension A is not within the specified range, replace the steering intermediate shaft assy No.2 with a new one.

Standard Value: 172 to 178 mm (6.77 to 7.01 in.)

23. REMOVE STEERING COLUMN HOLE COVER SUB-ASSY NO.1

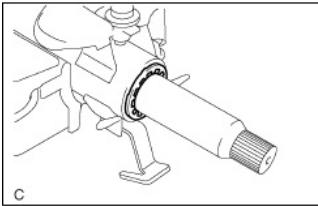
- (a) Remove the steering column hole cover sub-assy No.1.



24. INSPECT STEERING COLUMN ASSY

- (a) Check that the steering energy absorbing pin sub-assy, steering column energy absorbing plate and steering energy absorbing plate guide are not damaged.

If the steering energy absorbing pin sub-assy, steering column energy absorbing plate and/or steering energy absorbing plate guide are damaged, replace them with new ones.



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- (b) Check that the claws of the steering column ring No.1 are completely engaged in the groove of the main shaft.

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25. REMOVE WIRE HARNESS BRACKET

- (a) Using a screwdriver, remove the connector.

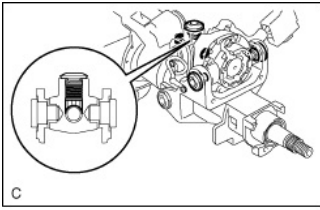
HINT:

Tape up the screwdriver tip before use.

- (b) Remove the screw and the wire harness bracket.

26. REMOVE TURN SIGNAL BRACKET

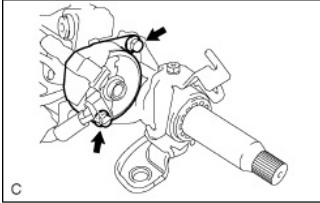
- (a) Remove the 3 screws and the turn signal bracket.



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27. REMOVE POWER TILT MOTOR

- (a) Using a hexagon wrench (4 mm), remove the tilt steering support stopper bolt.
- (b) Using a magnet handle, remove the tilt steering stopper No.1 and the tilt steering support compression spring.
- (c) Using a screwdriver, remove the tilt motor shaft lower E-ring and tilt motor shaft upper E-ring.
- (d) Using a hexagon wrench (6 mm), remove the 2 tilt steering support stopper bolts No.1 and power tilt motor.
- (e) Remove the 2 tilt steering support stopper bolt bushings from the power tilt motor.



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28. REMOVE POWER TELESCOPIC MOTOR

- (a) Remove the 2 bolts and the power telescopic motor.

29. REMOVE TELESCOPIC STEERING COLUMN CABLE

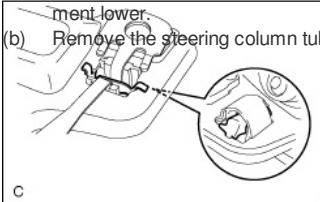
- (a) Remove the telescopic steering column cable.

30. REMOVE STEERING LOWER TUBE BRACKET NO.1

- (a) Remove the screw and steering lower tube bracket No.1.

31. REMOVE STEERING COLUMN TUBE SUPPORT

- (a) Remove the bolt and the steering column tube support together with the steering column tube attachment lower.
- (b) Remove the steering column tube attachment lower from the steering column tube support.



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32. REMOVE STEERING ENERGY ABSORBING PIN SUB-ASSY

- (a) Using a screwdriver, remove the 2 steering energy absorbing pin sub-assys.

HINT:

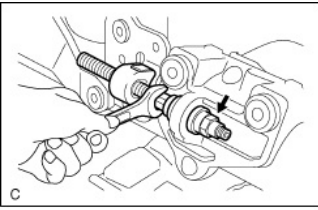
Tape up the screwdriver tip before use.

33. REMOVE STEERING COLUMN ENERGY ABSORBING PLATE

34. REMOVE STEERING ENERGY ABSORBING PLATE GUIDE

35. REMOVE TELESCOPIC STEERING SLIDER SUPPORT

- (a) Remove the 2 bolts and the telescopic steering slider support.



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36. REMOVE TELESCOPIC STEERING SCREW

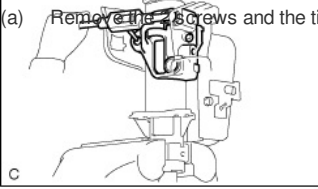
- (a) Using 2 wrenches, remove the nut, 4 steering main shaft bushing stoppers, 2 thrust ball bearings and the telescopic steering screw.
- (b) Remove the telescopic steering bushing and steering column bracket spacer from the telescopic steering slider.
- (c) Remove the telescopic steering slider from the telescopic steering screw.

37. REMOVE TELESCOPE LEVER LOCK BOLT

- (a) Using a hexagon wrench (6 mm), remove the 2 telescope lever lock bolts.
- (b) Remove the 2 telescopic steering wedge lock springs.

38. REMOVE TILT STEERING SUPPORT BOND CABLE

- (a) Remove the 2 screws and the tilt steering support bond cable.



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39. REMOVE STEERING LOCK ACTUATOR & SWITCH SET (W/ SMART KEY)

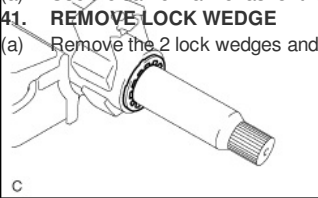
- (a) Using a centering punch, mark the center of the 2 steering lock set bolts.
- (b) Using a 3 to 4 mm (0.12 to 0.16 in.) drill, drill a hole in the 2 steering lock set bolt heads.
- (c) Remove the steering column tube stopper bolt, steering lock actuator & switch set and the steering column clamp upper.

40. REMOVE STEERING COLUMN UPPER W/SWITCH BRACKET ASSY (W/O SMART KEY)

- (a) Use the same manner as for the steering lock actuator & switch set.

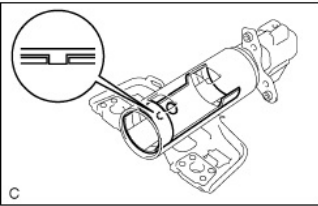
41. REMOVE LOCK WEDGE

- (a) Remove the 2 lock wedges and the 2 telescopic steering guides from the steering column clamp upper.



42. REMOVE BREAK AWAY W/CAPSULE BRACKET SUB-ASSY

- (a) Using a screwdriver, remove the steering column ring No.1.
- (b) Remove the break away w/ capsule bracket sub-assy.

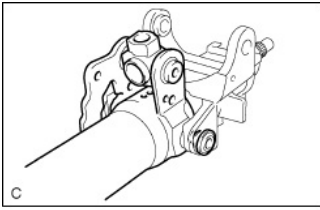


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43. REMOVE TELESCOPIC STEERING GUIDE

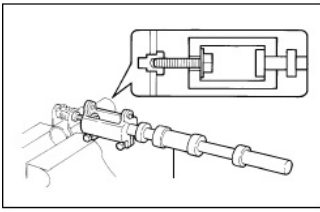
- (a) Remove the telescopic steering guide from the break away w/ capsule bracket sub-assy.

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44. REMOVE STEERING COLUMN TUBE ASSY

- Using a hexagon wrench (6 mm), remove the 2 tilt steering bolts No.1 and the steering column tube assy together with the steering main shaft assy.
- Remove the steering column tube assy from the steering main shaft assy.
- Remove the 2 steering support stopper bolt bushings from the steering column tube assy.

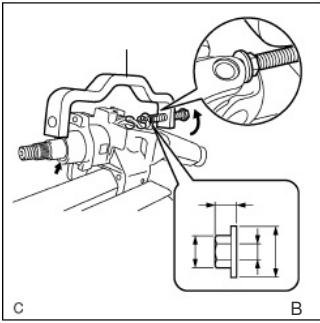


45. REMOVE TILT STEERING ADJUSTING NUT NO.1

- Set SST, a plate washer (36 mm outer diameter) and bolt (6 mm diameter, 1.0 mm pitch, 50 mm length), as shown in the illustration.
SST 09910-00015 (09911-0001 1, 09912-00010)

Reference:

- Remove the 2 tilt steering shafts No.2 by using SST (sliding hammer) from the tilt steering adjusting nut No.1.
- Remove the 2 tilt steering support stopper bolt bushings from the tilt steering adjusting nut No.1.



46. REMOVE STEERING MAIN SHAFT ASSY

- Using SST and a nut, compress the steering main shaft compression spring.
SST 09950-4001 1 (09958-04011)

Reference:

Nut 90179-06307

Details:

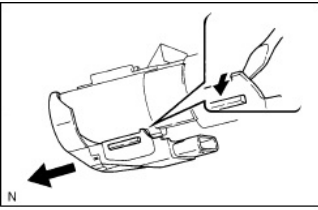
A 4.917 mm

B 6.6 mm

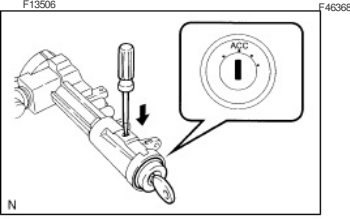
C 11.5 mm

D 16 mm

- Using an expander set, remove the steering main shaft snap ring.
- Remove the steering main shaft assy from the steering column tube sub-assy upper.
- Remove the steering main shaft compression spring, steering main shaft bearing from the steering main shaft assy.



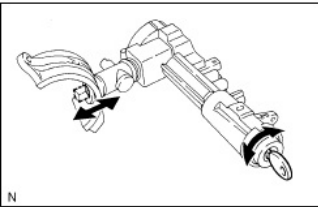
- 47. REMOVE TRANSPONDER KEY AMPLIFIER (W/O SMART KEY)**
- (a) Widen the claw hanging onto the upper bracket by approximately 1.0 mm (0.039 in.) using a screwdriver.
 - (b) Pull the transponder key amplifier with the claw open.



- 48. REMOVE IGNITION SWITCH LOCK CYLINDER (W/O SMART KEY)**
- (a) Place the ignition key in the ACC position.
 - (b) Using a screwdriver, push down the stop pin of the cylinder, and pull out the key cylinder.
- HINT:**
Make sure the key is in the ACC position.

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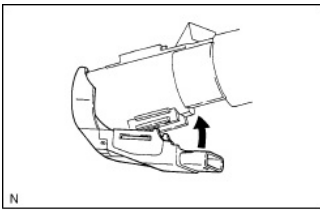
- 49. REMOVE UN-LOCK WARNING SWITCH ASSY (W/O SMART KEY)**
- 50. REMOVE KEY INTER LOCK SOLENOID (W/O SMART KEY)**
- (a) Remove the 2 screws and key inter lock solenoid.
 - (b) Disconnect the connectors.
- 51. REMOVE IGNITION OR STARTER SWITCH ASSY (W/O SMART KEY)**
- (a) Remove the 2 screws and ignition or starter switch assy.



- 52. INSPECT STEERING LOCK OPERATION (W/O SMART KEY)**
- (a) Check that the steering lock mechanism operates properly.

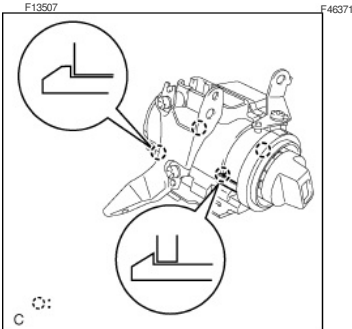
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- 53. INSTALL IGNITION OR STARTER SWITCH ASSY (W/O SMART KEY)**
- (a) Install the ignition or starter switch assy with the 2 screws.
- 54. INSTALL KEY INTER LOCK SOLENOID (W/O SMART KEY)**
- (a) Install the key inter lock solenoid with the 2 screws.
 - (b) Connect the connectors.
- 55. INSTALL UN-LOCK WARNING SWITCH ASSY (W/O SMART KEY)**
- 56. INSTALL IGNITION SWITCH LOCK CYLINDER (W/O SMART KEY)**



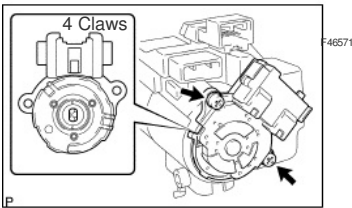
57. INSTALL TRANSPONDER KEY AMPLIFIER (W/O SMART KEY)

- (a) Align the transponder key amplifier with the installation position of the upper bracket with the amplifier inclined.
- (b) Push the transponder key amplifier up and connect it to the upper bracket.



58. REMOVE TRANSPONDER KEY AMPLIFIER (W/ SMART KEY)

- (a) Disengage the 4 claws and remove the transponder key amplifier.



59. REMOVE IGNITION OR STARTER SWITCH ASSY (W/ SMART KEY)

- (a) Place the ignition key in the ACC position.
- (b) Remove the 2 screws and the ignition or starter switch assy.

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60. REMOVE STARTER SWITCH KNOB (W/ SMART KEY)

- (a) Using a screwdriver, remove the starter switch knob.

61. INSTALL STARTER SWITCH KNOB (W/ SMART KEY)

62. INSTALL IGNITION OR STARTER SWITCH ASSY (W/ SMART KEY)

63. INSTALL TRANSPONDER KEY AMPLIFIER (W/ SMART KEY)



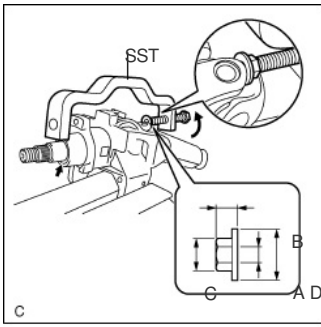
64. INSPECT STEERING MAIN SHAFT BEARING

- (a) Check the bearing rotation condition and check for abnormal noise.

If the steering main shaft bearing is worn or damaged, replace the steering column tube sub-assy upper.

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65. INSTALL STEERING MAIN SHAFT ASSY

- (a) Install the steering main shaft compression spring and a new steering main shaft bearing to the steering main shaft assy.
- (b) Install the steering main shaft assy to the steering column tube sub-assy upper.
- (c) Using SST and a nut, compress the steering main shaft compression spring.

SST 09950-4001 1 (09958-04011)

Reference:

Nut 90179-06307

Details:

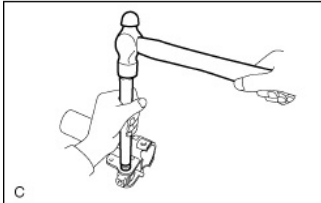
A 4.917 mm

B 6.6 mm

C 11.5 mm

D 16 mm

- (d) Using an expander set, install a new steering main shaft snap ring.



F46573

66. INSTALL TILT STEERING ADJUSTING NUT NO.1

- (a) Install 2 new tilt steering support stopper bolt bushings to the tilt steering adjusting nut No.1.
- (b) Using a brass bar and hammer, install the 2 tilt steering shafts No.2 and the tilt steering adjusting nut No.1 to the steering column tube assy.

NOTICE:

Tap lightly when installing the two tilt steering shafts No.2.

67. INSTALL STEERING COLUMN TUBE ASSY

- (a) Install 2 new steering support stopper bolt bushings to the tilt steering column tube assy.
- (b) Using a hexagon wrench (6 mm), install the 2 tilt steering support stopper bolts No.1 and the steering column tube assy together with the steering main shaft assy.

Torque: 20 N·m (204 kgf·cm, 15 ft·lbf)



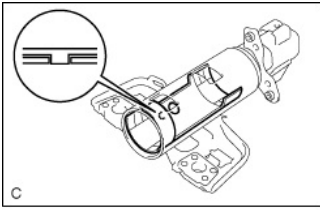
F46574

68. INSTALL TILT STEERING SUPPORT BOND CABLE

- (a) Install the steering support bond cable with the 2 screws as shown in the illustration.

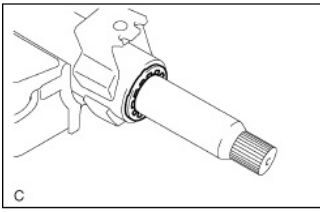
NOTICE:

Be sure to install in the correct direction.



69. INSTALL TELESCOPIC STEERING GUIDE

- (a) Install the telescopic steering guide to the break away w/ capsule bracket sub-assy.



70. INSTALL BREAK AWAY W/CAPSULE BRACKET SUB-ASSY

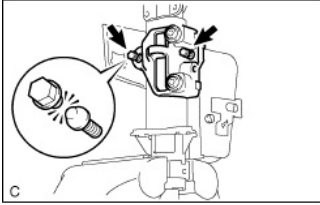
- (a) Install the break away w/ capsule bracket sub-assy to the steering column tube assy.
- (b) Install a new steering column ring No.1.

NOTICE:

- Install the steering column No.1 to the main shaft so that the white markings are facing out.
- Securely install the snap ring in the groove on the main shaft assy.

71. INSTALL LOCK WEDGE

- (a) Install the lock wedge and the telescopic steering guide to the steering column clamp upper.



72. INSTALL STEERING LOCK ACTUATOR & SWITCH SET (W/ SMART KEY)

- (a) Engage 2 new steering lock set bolts to the steering lock actuator & switch set and steering column clamp upper.
- (b) Engage the steering column tube stopper bolt.
- (c) Tighten the 2 steering lock set bolts until the heads break off.
- (d) Tighten the steering column tube stopper bolt.

Torque: 15 N m (153 kgf cm, 11 ft lbf)

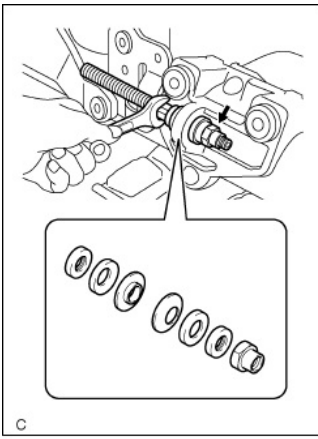
73. INSTALL STEERING COLUMN UPPER W/SWITCH BRACKET ASSY (W/O SMART KEY)

- (a) Use the same manner as for the steering lock actuator & switch set (w/ smart key).

74. INSTALL TELESCOPE LEVER LOCK BOLT

- (a) Install the 2 telescopic steering wedge lock springs.
- (b) Using a hexagon wrench (6 mm), install the 2 telescope lever lock bolts.

Torque: 20 N m (204 kgf cm, 15 ft lbf)



75. INSTALL TELESCOPIC STEERING SCREW

- (a) Install the telescopic steering slider.
- (b) Install the telescopic steering bushing and steering column bracket spacer to the telescopic steering slider.
- (c) Install the 4 steering main shaft bushing stoppers, 2 thrust ball bearings and the telescopic steering screws.
- (d) Using pliers and a wrench, install the nut.

NOTICE:

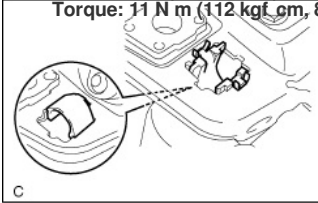
- Check that there is no looseness after installation.
- Install the telescopic steering screw securely (0.8 N m or less).

F46575

76. INSTALL TELESCOPIC STEERING SLIDER SUPPORT

- (a) Install the telescopic steering slider support with the 2 bolts.

Torque: 11 N m (112 kgf cm, 8 ft lbf)



77. INSTALL STEERING ENERGY ABSORBING PLATE GUIDE

- (a) Install 2 new steering energy absorbing plate guide.

NOTICE:

- Be sure to install in the correct direction.
- Securely install the steering energy absorbing plate guide.

F46576

78. INSTALL STEERING COLUMN ENERGY ABSORBING PLATE

- (a) Install 2 new steering column energy absorbing plate.

NOTICE:

Securely install the steering column energy absorbing plate.



79. INSTALL STEERING ENERGY ABSORBING PIN SUB-ASSY

- (a) Install 2 new steering energy absorbing pin sub-assy.

NOTICE:

- Install the steering column energy absorbing pin sub-assy .
- Check that there is not too much looseness after installation.

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80. INSTALL STEERING COLUMN TUBE SUPPORT

- (a) Install the steering column tube attachment lower to the steering column tube support.
- (b) Install the steering column tube support with the bolt.

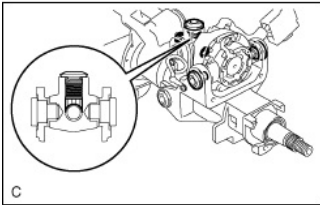
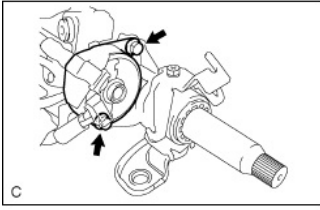
Torque: 15 N·m (153 kgf·cm, 11 ft·lbf)

81. INSTALL STEERING LOWER TUBE BRACKET NO.1

- (a) Install the steering lower tube bracket No.1 with the screw.

82. INSTALL TELESCOPIC STEERING COLUMN CABLE

- (a) Install the telescopic steering column cable.



83. INSTALL POWER TELESCOPIC MOTOR

- (a) Install the power telescopic motor with the 2 bolts.

Torque: 9.0 N·m (92 kgf·cm, 80 in.·lbf)

84. INSTALL POWER TILT MOTOR

- (a) Install 2 new tilt steering support bolt bushings to the power tilt motor.
- (b) Install the power tilt motor.
- (c) Using a hexagon wrench (6 mm), install the 2 tilt steering support stopper bolts No.1.

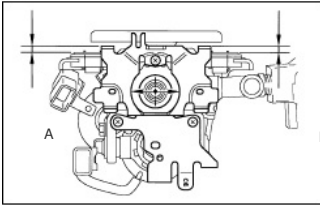
Torque: 20 N·m (204 kgf·cm, 15 ft·lbf)

- (d) Using needle nose pliers, install the tilt motor shaft lower E-ring and tilt motor shaft upper E-ring.
- (e) Install the tilt steering stopper No.1 and the tilt steering stopper compression spring.
- (f) Using a hexagon wrench (4 mm), install the tilt steering stopper bolt.

Torque: 5.0 N·m (51 kgf·cm, 44 in.·lbf)

NOTICE:

Be sure to install in the correct direction.



85. INSTALL TURN SIGNAL BRACKET

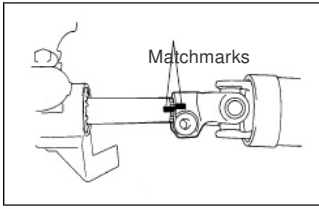
- (a) Install the turn signal bracket with the 3 screws.

NOTICE:

- Clearance between the turn signal bracket and the steering column tube should be the same.
- The connecting part of the turn signal switch and the break away bracket should be held horizontally so that they can be installed together properly. (Dimensions A and B should be equal.)

86. INSTALL WIRE HARNESS BRACKET

- (a) Install the wire harness bracket with the screw.
Torque: 5.0 N·m (51 kgf·cm, 44 in. lbf)
- (b) Connect the connector.



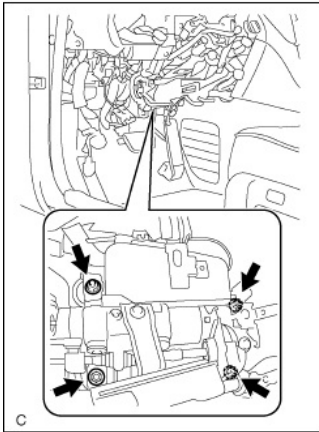
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87. INSTALL STEERING INTERMEDIATE SHAFT ASSY NO.2

- (a) Align the matchmarks on the steering intermediate shaft assy No.2 and main shaft assy.
- (b) Install the bolt.
Torque: 35.3 N·m (360 kgf·cm, 26 ft·lbf)

88. INSTALL STEERING COLUMN HOLE COVER SUB-ASSY NO.1

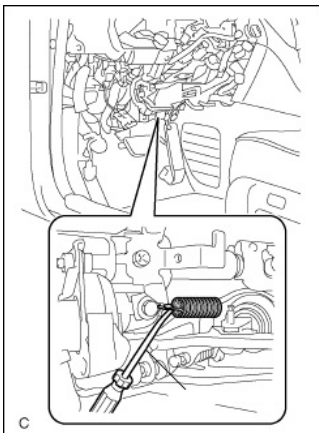
- (a) Install the steering column hole cover sub-assy No.1.



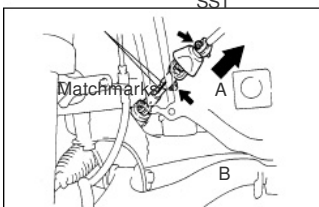
89. INSTALL STEERING COLUMN ASSY

- (a) Install the steering column assy with the 4 nuts.
Torque: 25.5 N·m (260 kgf·cm, 19 ft·lbf)
- (b) w/ smart key system:
Install the ignition switch assy with the bolt and 2 screws.
- (c) Install the steering column hole cover sub-assy No.1 with the bolt and 2 nuts.
Torque: 5.0 N·m (51 kgf·cm, 44 in. lbf)

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- (d) Using SST, Install the return spring.
SST 09921-00010
- (e) Connect the connectors.



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90. INSTALL AIR SEALED PLATE LH

- (a) Align the matchmarks on the steering sliding w/ shaft yoke sub-assy and control valve shaft.
- (b) Tighten bolts A and B.
Torque: 35.3 N·m (360 kgf·cm, 26 ft·lbf)
- (c) Install the air sealed plate LH with the 2 clips.

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91. INSTALL AIR DUCT NO.1

- (a) Install the air duct No.1.
- (b) Install the screw.

92. INSTALL TURN SIGNAL SWITCH ASSY (SEE PAGE 65-23)

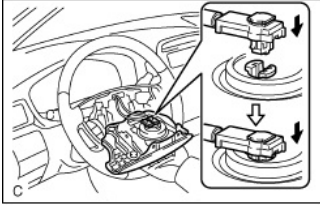
93. INSTALL SPIRAL CABLE SUB-ASSY (SEE PAGE 60-30)



94. INSTALL STEERING COLUMN COVER

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

95. **INSTALL INSTRUMENT PANEL AIR BAG ASSY LOWER NO.1 (SEE PAGE 60-57)**
96. **INSTALL STEERING WHEEL ASSY**
- (a) Align the matchmarks on the steering wheel assy and steering main shaft assy.
- (b) Install the steering wheel assy set nut.
- Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)**
97. **PLACE FRONT WHEELS FACING STRAIGHT AHEAD**



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98. **INSTALL HORN BUTTON ASSY**

NOTICE:

- Never use airbag parts removed from another vehicle. When replacing parts, replace with new ones.
 - Make sure the wheel pad is installed with the specified torque.
 - If the wheel pad is dropped or there are cracks, dents or other defects on the case or connector, replace the wheel pad with a new one.
 - When installing the wheel pad, take care so that the wiring does not interfere with other parts and that they are not pinched between other parts.
- (a) Connect the terminal.
- (b) Connect the connectors to the horn button assy.
- (c) Install the steering wheel pad after confirming that the circumference groove of the torx screws is caught on the screw case.
- (d) Using a torx socket wrench (30T), torque the 2 torx screws.

Torque: 8.8 N·m (90 kgf·cm, 78 in.-lbf)

99. **CONNECT BATTERY NEGATIVE TERMINAL**
100. **INSPECT HORN BUTTON ASSY (SEE PAGE 60-21)**
101. **SRS WARNING LIGHT (SEE PAGE 05-995)**
102. **PERFORM INITIALIZATION (SEE PAGE 01-19)**