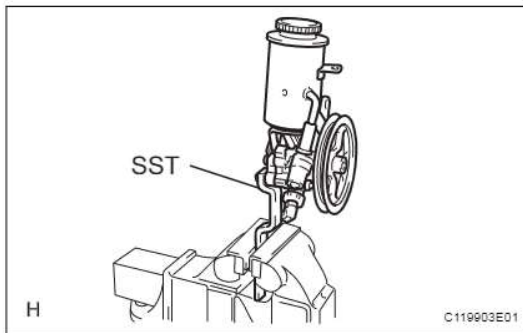
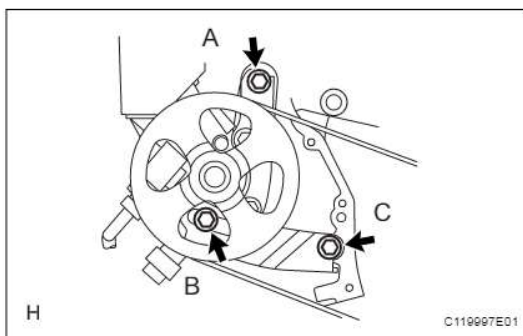
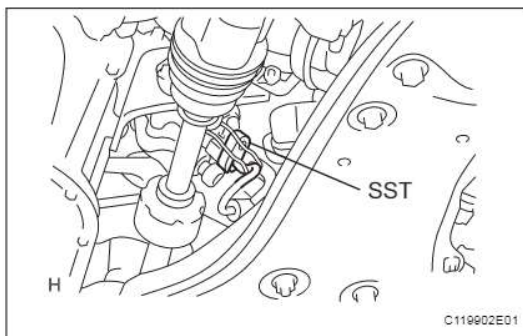


PS-8

POWER STEERING – VANE PUMP

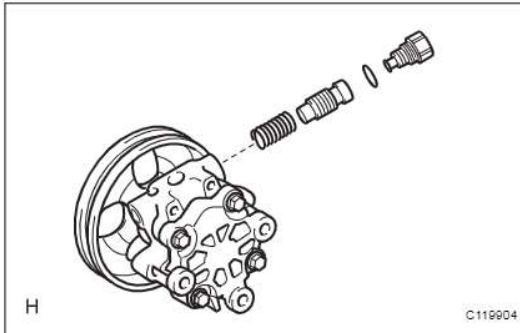
REMOVAL

1. REMOVE FRONT WIPER ARM LH (See page [WW-7](#))
2. REMOVE FRONT WIPER ARM RH (See page [WW-7](#))
3. REMOVE HOOD TO COWL TOP SEAL (See page [WW-7](#))
4. REMOVE COWL TOP VENTILATOR LOUVER LH (See page [WW-7](#))
5. REMOVE COWL TOP VENTILATOR LOUVER RH (See page [WW-7](#))
6. REMOVE WINDSHIELD WIPER LINK ASSEMBLY (See page [WW-8](#))
7. REMOVE COWL PANEL SUB-ASSEMBLY
8. REMOVE VANE PUMP OIL RESERVOIR COVER
9. DRAIN POWER STEERING FLUID
10. REMOVE FRONT WHEEL RH
11. REMOVE ENGINE UNDER COVER RH
12. DISCONNECT PRESSURE FEED TUBE ASSEMBLY
 - (a) Using SST, disconnect the pressure feed tube from the vane pump.
SST 09023-12701
 - (b) Remove the clip and disconnect the return hose.
NOTICE:
Take care not to spill fluid on the V belt.
 - (c) Disconnect the oil pressure sensor connector.
13. REMOVE REAR VANE PUMP STAY
 - (a) Remove the bolt, stay and heat insulator.
14. REMOVE VANE PUMP ASSEMBLY
 - (a) Remove bolts B and C, and the adjusting strut.
 - (b) Loosen bolt A sufficiently so that the vane pump can be removed.
HINT:
Bolt A cannot be removed.



DISASSEMBLY

1. FIX VANE PUMP ASSEMBLY
 - (a) Using SST, secure the vane pump in a vise.
SST 09630-00014 (09631-00132)
2. REMOVE VANE PUMP OIL RESERVOIR CAP SUB-ASSEMBLY
3. REMOVE VANE PUMP OIL RESERVOIR ASSEMBLY
 - (a) Remove the 3 bolts and oil reservoir.
 - (b) Remove the O-ring from the oil reservoir.

POWER STEERING – VANE PUMP**PS-9****4. REMOVE FRONT PUMP BRACKET**

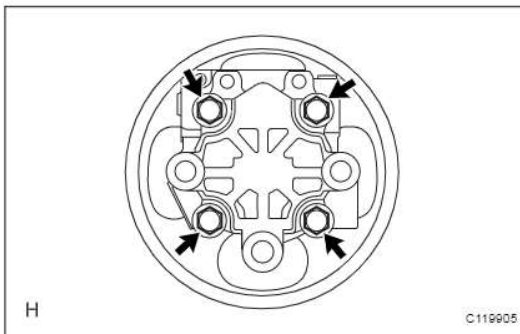
- (a) Remove the 2 bolts, front bracket and rear bracket.

5. REMOVE FLOW CONTROL VALVE

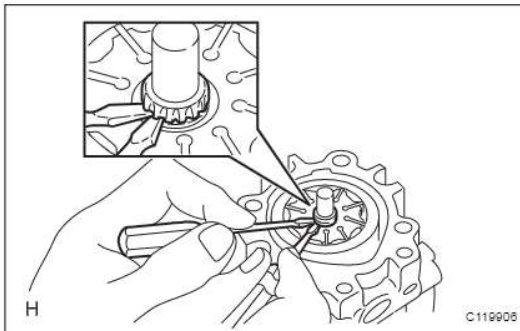
- (a) Remove the pressure port union.
 (b) Remove the O-ring from the pressure port union.
 (c) Remove the flow control valve and compression spring.

6. REMOVE POWER STEERING OIL PRESSURE SENSOR

- (a) Remove the oil pressure sensor from the front housing.

**7. REMOVE REAR VANE PUMP HOUSING**

- (a) Remove the 4 bolts and rear housing from the front housing.
 (b) Remove the O-ring from the rear housing.

**8. REMOVE SHAFT SUB-ASSEMBLY WITH PULLEY**

- (a) Using 2 screwdrivers, remove the snap ring from the shaft.
 (b) Remove the shaft.

9. REMOVE VANE PUMP ROTOR

- (a) Remove the 10 vane pump plates.
 (b) Remove the vane pump rotor.

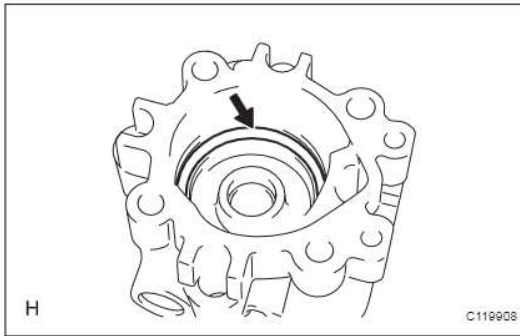
10. REMOVE VANE PUMP CAM RING**11. REMOVE FRONT VANE PUMP SIDE PLATE**

- (a) Remove the side plate from the front housing.
 (b) Remove the O-ring from the side plate.

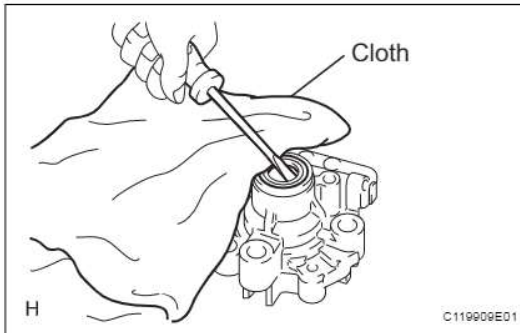
**PS**

PS-10

POWER STEERING – VANE PUMP



(c) Remove the O-ring from the front housing.

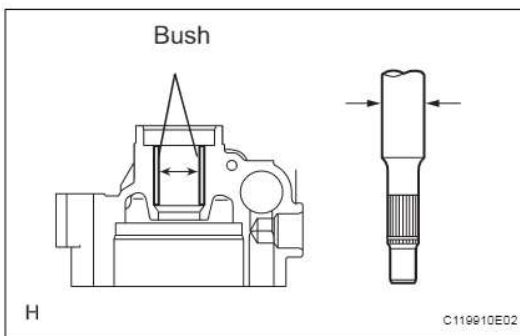


12. REMOVE VANE PUMP HOUSING OIL SEAL

(a) Using a screwdriver and cloth, remove the housing oil seal.

NOTICE:

Be careful not to damage the housing front.



INSPECTION

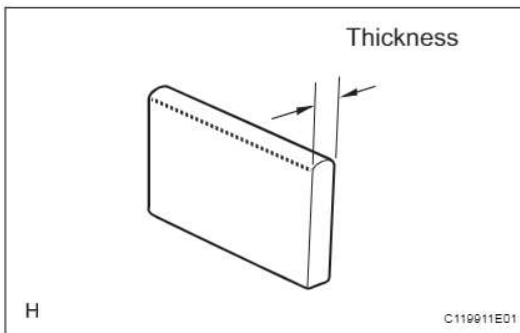
1. INSPECT FRONT VANE PUMP SHAFT AND BUSH IN HOUSING

(a) Using a micrometer and caliper gauge, measure the oil clearance.

Maximum clearance:

0.07 mm (0.0028 in.) or less

If the clearance is greater than the maximum, replace the vane pump.

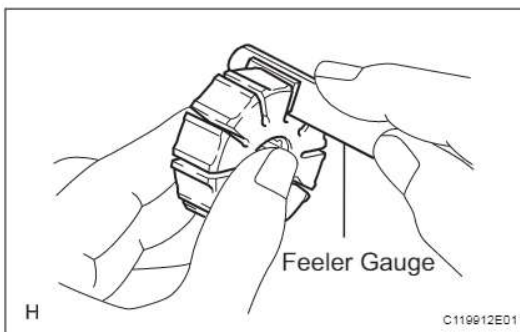


2. INSPECT VANE PUMP ROTOR AND VANE PUMP PLATES

(a) Using a micrometer, measure the thickness of the vane pump plates.

Standard thickness:

1.405 to 1.411 mm (0.05531 to 0.05555 in.)



(b) Using a feeler gauge, measure the clearance between a side face of the vane pump rotor groove and vane plates.

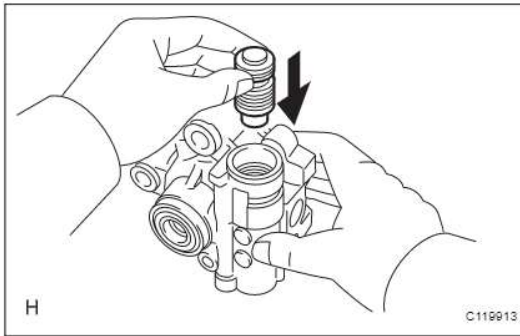
Maximum clearance:

0.03 mm (0.0012 in.)

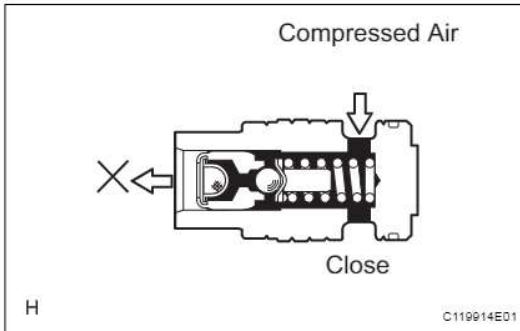
If the clearance exceeds the maximum, replace the vane pump.

POWER STEERING – VANE PUMP

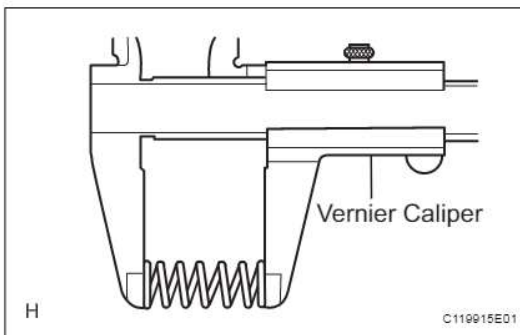
PS-11

**3. INSPECT FLOW CONTROL VALVE**

- (a) Coat the flow control valve with power steering fluid and check that it falls smoothly into the flow control valve hole under its own weight.
If necessary, replace the vane pump.



- (b) Check the flow control valve for leakage. Close one of the holes and apply compressed air of 392 to 490 kPa (4 to 5kgf/cm², 57 to 71 psi) into the opposite side hole, and confirm that air does not come out from the end holes.
If necessary, replace the vane pump.

**4. INSPECT FLOW CONTROL VALVE COMPRESSION SPRING**

- (a) Using a vernier caliper, measure the free length of the compression spring.
Minimum free length:
29.2 mm (1.150 in.)
If the length is less than the minimum, replace the vane pump.

5. INSPECT PRESSURE PORT UNION

If the union seat in the pressure port union is severely damaged, it may cause fluid leakage. In that case, replace the vane pump assembly.

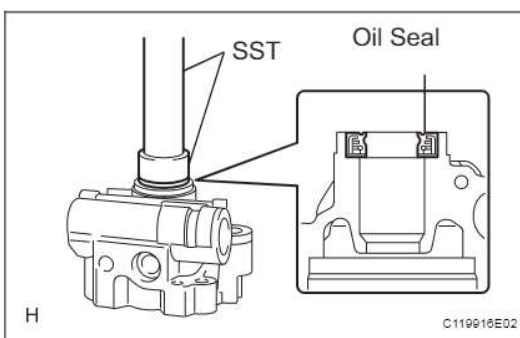
REASSEMBLY**1. INSTALL VANE PUMP HOUSING OIL SEAL**

- (a) Coat a new housing oil seal lip with power steering fluid.
(b) Using SST and a press, press in a new housing oil seal.

SST 09950-60010 (09951-00280), 09950-70010 (09951-07100)

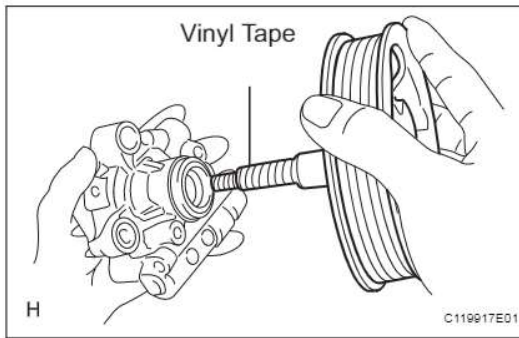
NOTICE:

Make sure that the oil seal is installed correctly.



PS-12

POWER STEERING – VANE PUMP

**2. INSTALL SHAFT SUB-ASSEMBLY WITH PULLEY**

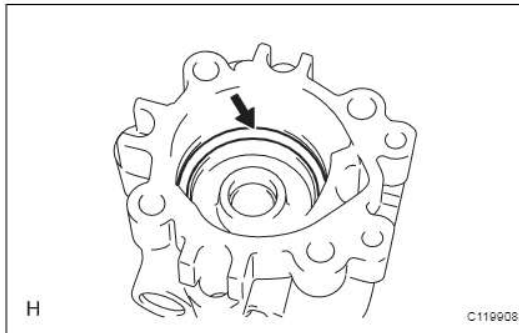
- (a) Coat the inside bushing surface of the front housing with power steering fluid.
- (b) Gradually insert the shaft with pulley.

NOTICE:

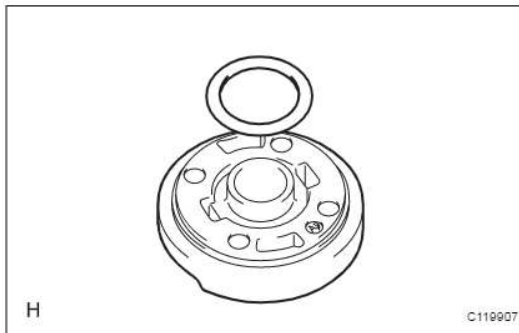
Be careful not to damage the oil seal lip.

HINT:

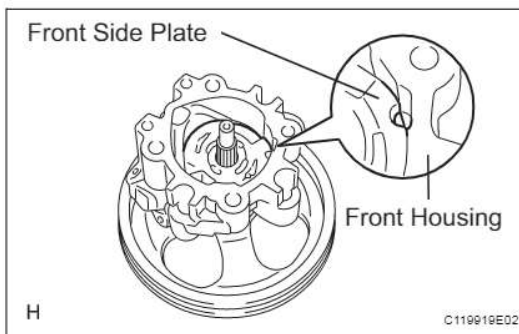
Wrap the shaft with vinyl tape before inserting.

**3. INSTALL FRONT VANE PUMP SIDE PLATE**

- (a) Coat a new O-ring with power steering fluid and install it to the front housing.



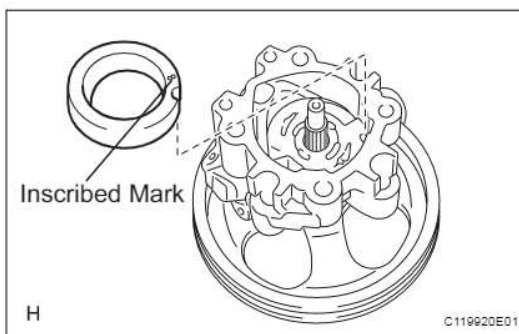
- (b) Coat a new O-ring with power steering fluid and install it to the front side plate.



- (c) Align the dent of the front side plate with that of the front housing and install them.

NOTICE:

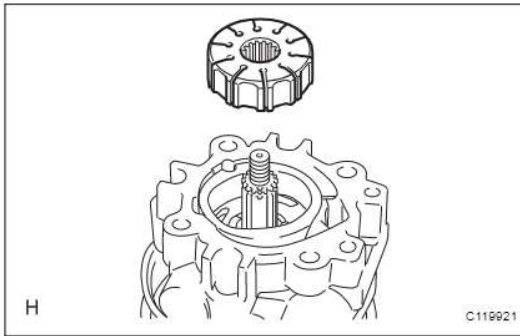
Make sure that the front side plate is installed correctly.

**4. INSTALL VANE PUMP CAM RING**

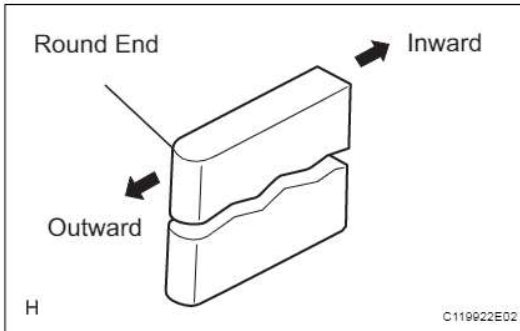
- (a) Align the dent of the cam ring with that of the front side plate, and install the cam ring with the inscribed mark facing upward.

POWER STEERING – VANE PUMP

PS-13

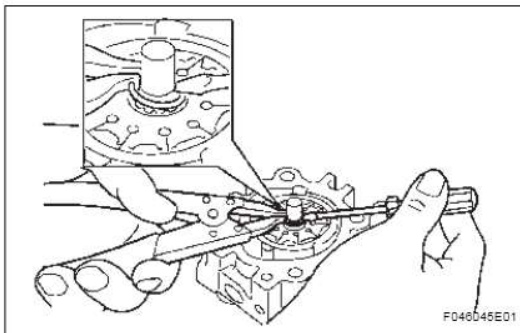
**5. INSTALL VANE PUMP ROTOR**

- (a) Install the vane pump rotor.

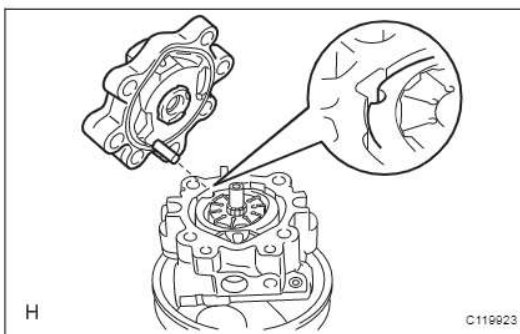


- (b) Apply power steering fluid to the 10 vane pump plates.

- (c) Install the vane pump plates with the round end facing outward.

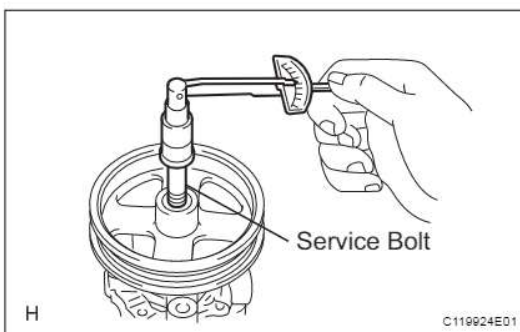
**6. INSTALL VANE PUMP SHAFT SNAP RING**

- (a) Using a screwdriver and snap ring expander, install a new snap ring to the shaft.

**7. INSTALL REAR VANE PUMP HOUSING**

- (a) Apply power steering fluid to a new O-ring and install it to the rear housing.
- (b) Align the straight pin of the rear housing with the dents of the cam ring, the front side plate and the front housing, and install the rear housing with the 4 bolts.

Torque: 22 N*m (224 kgf*cm, 16 ft.*lbf)

**8. INSPECT PRELOAD**

- (a) Check that the pump rotates smoothly without abnormal noise.
- (b) Temporarily install the service bolt.

Recommended service bolt:

Thread diameter:

10 mm (0.39 in.)

Thread pitch:

1.25 mm (0.0492 in.)

Bolt length:

50 mm (1.97 in.)

PS

PS-14

POWER STEERING – VANE PUMP

- (c) Using a torque wrench, check the pump rotating torque.

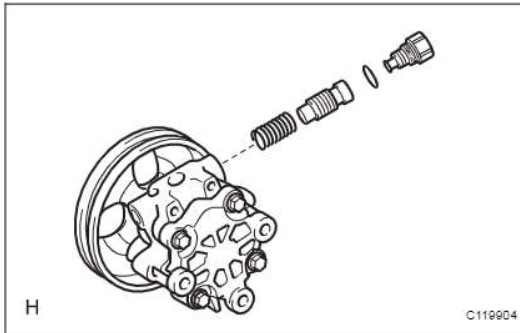
Standard rotating torque:

0.27 N*m (2.8 kgf*cm, 2.4 in.*lbf) or less

If the rotating torque is not as specified, check installation of the housing oil seal.

9. INSTALL POWER STEERING OIL PRESSURE SENSOR

- (a) Apply power steering fluid to a new O-ring and install it to the oil pressure sensor.
- (b) Install the oil pressure sensor to the front housing.
Torque: 21 N*m (214 kgf*cm, 15 ft.*lbf)



10. INSTALL FLOW CONTROL VALVE

- (a) Apply power steering fluid to the compression spring and flow control valve.
- (b) Install the compression spring and the flow control valve.
- (c) Apply power steering fluid to a new O-ring and install it to the pressure port union.
- (d) Install the pressure port union.
Torque: 69 N*m (704 kgf*cm, 51 ft.*lbf)

11. INSTALL FRONT PUMP BRACKET

- (a) Install the front bracket and rear bracket with the 2 bolts.

12. INSTALL VANE PUMP OIL RESERVOIR ASSEMBLY

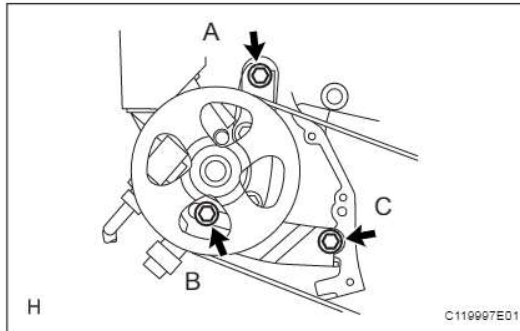
- (a) Apply power steering fluid to a new O-ring and install it to the oil reservoir.
- (b) Install the oil reservoir with the 3 bolts to the front housing.
Torque: 9.0 N*m (92 kgf*cm, 80 in.*lbf)

13. INSTALL VANE PUMP OIL RESERVOIR CAP SUB-ASSEMBLY

INSTALLATION

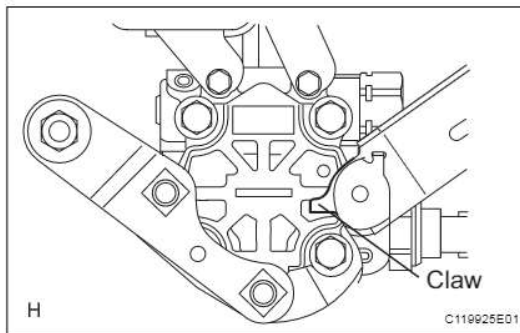
NOTICE:

When installing, coat the parts indicated by arrows with power steering fluid (see page PS-6).



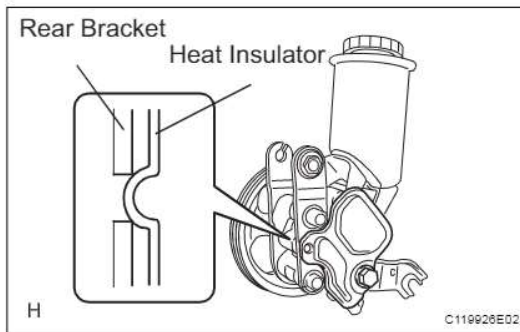
1. INSTALL VANE PUMP ASSEMBLY

- (a) Temporarily install the vane pump with bolt A.
HINT:
After adjusting the V belt tension, torque the bolt.
- (b) Install the adjusting strut with bolt B.
Torque: 44 N*m (449 kgf*cm, 32 ft.*lbf)
- (c) Temporarily install bolt C.
HINT:
After adjusting the V belt tension, torque the bolt.



2. INSTALL REAR VANE PUMP STAY

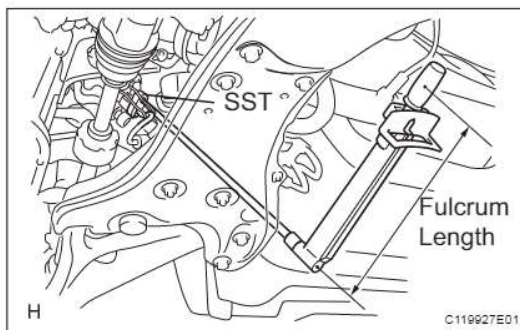
- (a) Install the rear stay to the rear housing, as shown in the illustration.



- (b) Install the heat insulator and rear stay with the bolt.
Torque: 44 N*m (449 kgf*cm, 32 ft.*lbf)

NOTICE:

Install the heat insulator by pressing its projection into a hole in the rear bracket, as shown in the illustration.

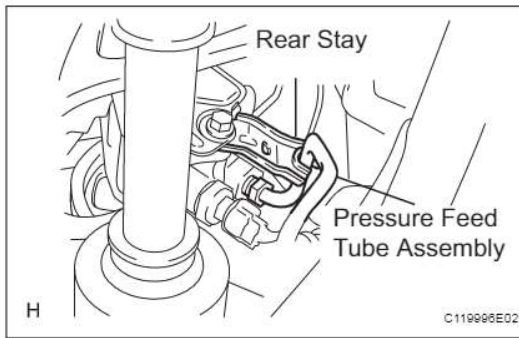


3. CONNECT PRESSURE FEED TUBE ASSEMBLY

- (a) Using SST, connect the pressure feed tube.
Torque: 41 N*m (414 kgf*cm, 30 ft.*lbf)
SST 09023-12701
HINT:
 - Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).
 - This torque value is effective when SST is parallel to a torque wrench.

PS-16

POWER STEERING – VANE PUMP



(b) Check that the pressure feed tube is properly installed to the rear stay.

(c) Connect the return hose with the clip.

NOTICE:

Take care not to spill fluid on the V belt.

(d) Connect the oil pressure sensor connector.

4. **ADJUST VANE PUMP V BELT** (See page [EM-7](#))
5. **INSPECT DRIVE BELT DEFLECTION AND TENSION** (See page [EM-6](#))
6. **ADD POWER STEERING FLUID**
 - (a) Add power steering fluid (see page [SR-2](#)).
7. **BLEED AIR FROM POWER STEERING SYSTEM**
 - (a) Bleed air from the power steering system (see page [PS-2](#)).
8. **INSPECT POWER STEERING FLUID LEAK**
9. **INSTALL ENGINE UNDER COVER RH**
10. **INSTALL FRONT WHEEL RH**
Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)
11. **CHECK POWER STEERING FLUID LEVEL IN RESERVOIR** (See page [PS-3](#))
12. **INSTALL VANE PUMP OIL RESERVOIR COVER**
13. **INSTALL COWL PANEL SUB-ASSEMBLY**
14. **INSTALL WINDSHIELD WIPER LINK ASSEMBLY** (See page [WW-10](#))
15. **INSTALL COWL TOP VENTILATOR LOUVER LH** (See page [WW-10](#))
16. **INSTALL COWL TOP VENTILATOR LOUVER RH** (See page [WW-10](#))
17. **INSTALL HOOD TO COWL TOP SEAL** (See page [WW-10](#))
18. **INSTALL FRONT WIPER ARM LH** (See page [WW-11](#))
19. **INSTALL FRONT WIPER ARM RH** (See page [WW-11](#))

PS-20

POWER STEERING – POWER STEERING LINK

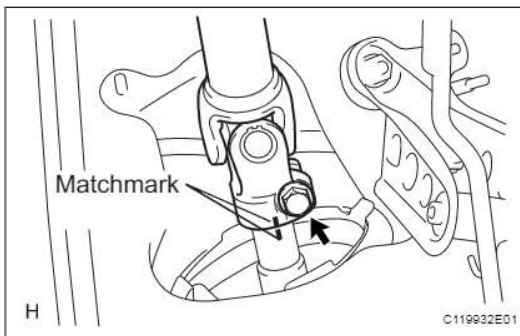
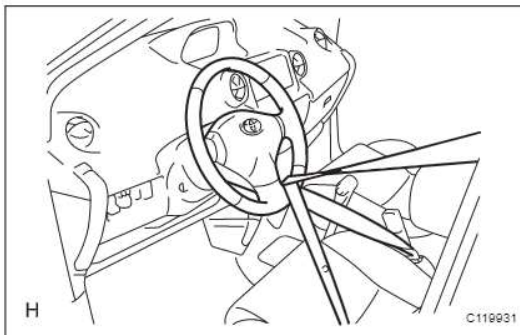
REMOVAL

1. REMOVE FRONT WIPER ARM RH (See page [WW-7](#))
2. REMOVE FRONT WIPER ARM LH (See page [WW-7](#))
3. REMOVE HOOD TO COWL TOP SEAL (See page [WW-7](#))
4. REMOVE COWL TOP VENTILATOR LOUVER RH (See page [WW-7](#))
5. REMOVE COWL TOP VENTILATOR LOUVER LH (See page [WW-7](#))
6. REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY (See page [WW-8](#))
7. REMOVE COWL PANEL SUB-ASSEMBLY
8. INSPECT FRONT WHEELS FACING STRAIGHT AHEAD
9. REMOVE STEERING COLUMN HOLE COVER PLATE (See page [SR-8](#))
10. REMOVE STEERING SLIDING YOKE SUB-ASSEMBLY

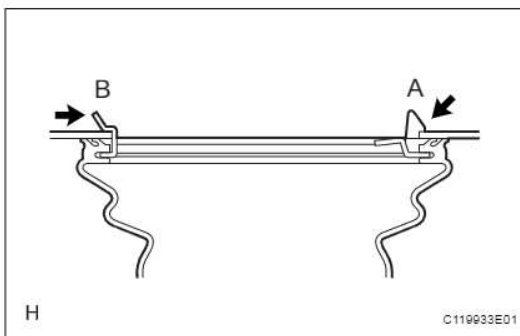
- (a) Fix the steering wheel with the seat belt in order to prevent rotation.

HINT:

This operation is also useful to prevent damaging the spiral cable.



- (b) Put matchmarks on the sliding yoke and intermediate shaft.
- (c) Loosen the bolt, and then disconnect the sliding yoke from the intermediate shaft.



11. DISCONNECT NO. 1 STEERING COLUMN HOLE COVER SUB-ASSEMBLY

- (a) Detach clip A and disconnect the hole cover.

NOTICE:

Be careful not to damage clip B.

12. REMOVE HOOD SUB-ASSEMBLY
13. DRAIN POWER STEERING FLUID
14. REMOVE FRONT WHEELS
15. DISCONNECT TIE ROD END SUB-ASSEMBLY LH (See page [DS-5](#))

POWER STEERING – POWER STEERING LINK**PS-21****16. DISCONNECT TIE ROD END SUB-ASSEMBLY RH****HINT:**

Use the same procedures described for the LH side.

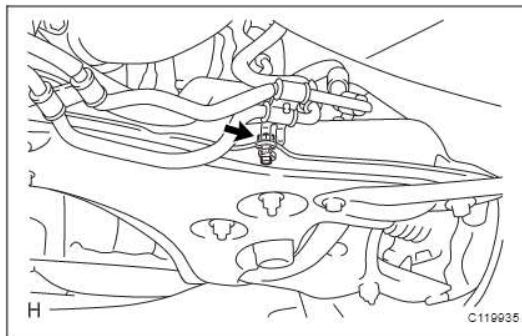
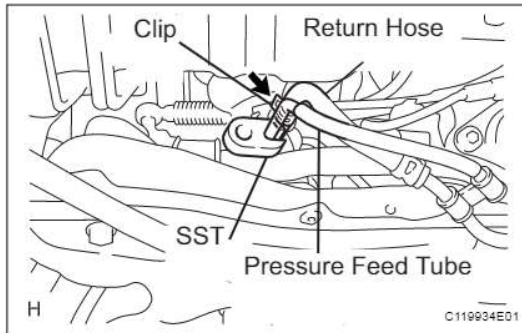
17. REMOVE ENGINE UNDER COVER LH**18. REMOVE ENGINE UNDER COVER RH****19. DISCONNECT PRESSURE FEED TUBE ASSEMBLY**

(a) Remove the clip and disconnect the return hose.

(b) Using SST, disconnect the pressure feed tube.

SST 09023-12701

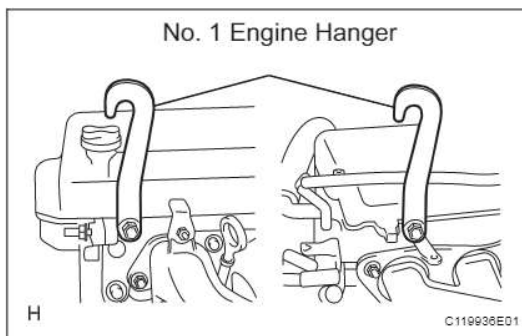
(c) Using SST, remove the return tube.

SST 09023-12701

(d) Remove the bolt and disconnect the tube clamp.

20. DISCONNECT NO. 1 FRONT SUSPENSION ARM SUB-ASSEMBLY LOWER LH (See page DS-5)**21. DISCONNECT NO. 1 FRONT SUSPENSION ARM SUB-ASSEMBLY LOWER RH****HINT:**

Use the same procedures described for the LH side.

**22. SUSPEND ENGINE ASSEMBLY**

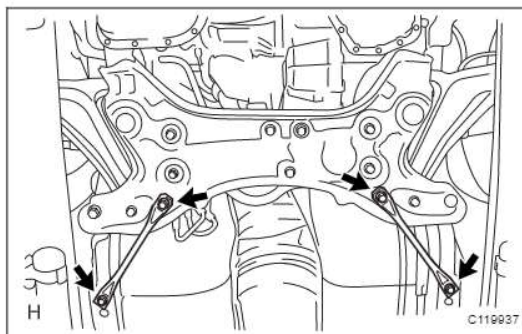
(a) Install the 2 No. 1 engine hangers with the bolts in the correct direction.

Parts No.:**No. 1 engine hanger:****12281-21010****Bolt:****91642-81025****Torque: 40 N*m (408 kgf*cm, 30 ft.*lbf)**

(b) Hold the engine with the sling device and chain hoist.

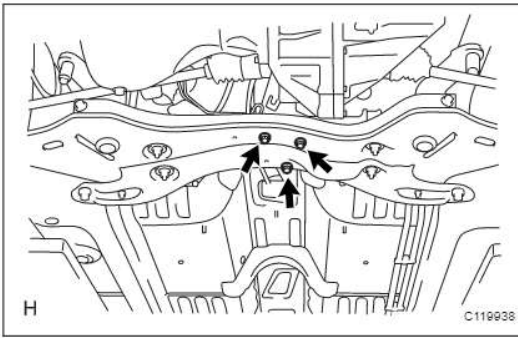
NOTICE:**Do not hang the engine by hooking the chain to any other parts.****23. REMOVE FRONT SUSPENSION CROSSMEMBER SUB-ASSEMBLY**

(a) Remove the 4 bolts and 2 reinforcements.

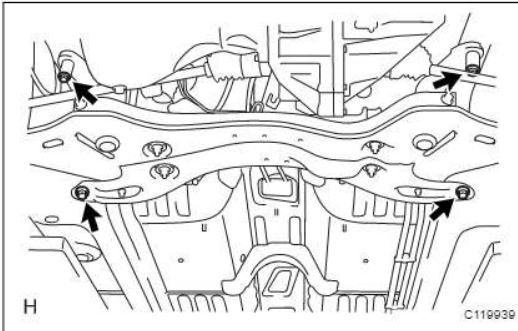
**PS**

PS-22

POWER STEERING – POWER STEERING LINK



- (b) Remove the bolt and 2 nuts, and disconnect the engine mounting insulator rear.
- (c) Using a transmission jack, support the crossmember.

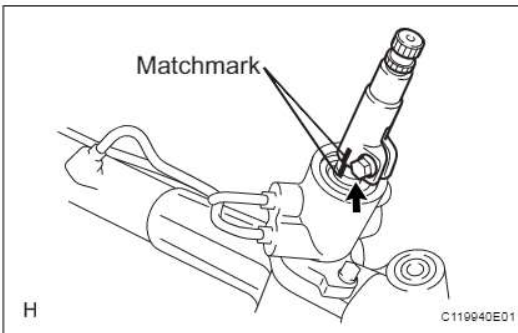


- (d) Remove the 4 bolts and crossmember.

24. REMOVE POWER STEERING RACK HOUSING HEAT INSULATOR

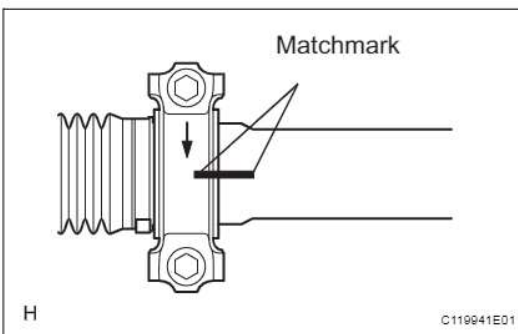
- (a) Remove the 2 bolts and heat insulator.

25. REMOVE NO. 1 STEERING COLUMN HOLE COVER SUB-ASSEMBLY



26. REMOVE STEERING INTERMEDIATE SHAFT

- (a) Put matchmarks on the steering link and intermediate shaft.
- (b) Remove the bolt and intermediate shaft.



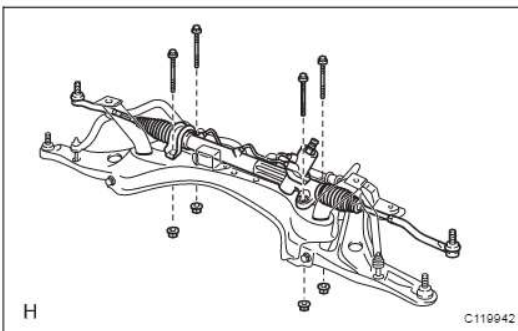
27. REMOVE POWER STEERING LINK ASSEMBLY

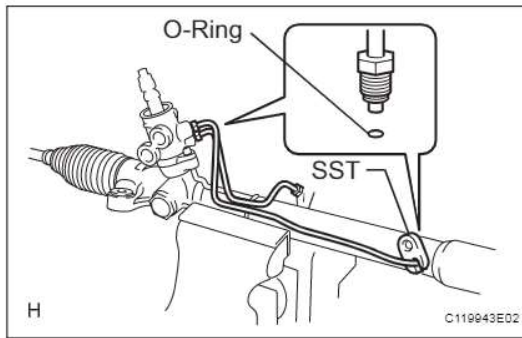
- (a) Put matchmarks on the steering link and No. 2 bracket.

- (b) Remove the 4 bolts, nuts, No. 2 bracket, No. 2 grommet and steering link.

NOTICE:

- Torque the bolt with the nut fixed as the nut has its own stopper.
- Do not turn the nut.



POWER STEERING – POWER STEERING LINK**PS-23****28. REMOVE STEERING TURN PRESSURE TUBE RH**

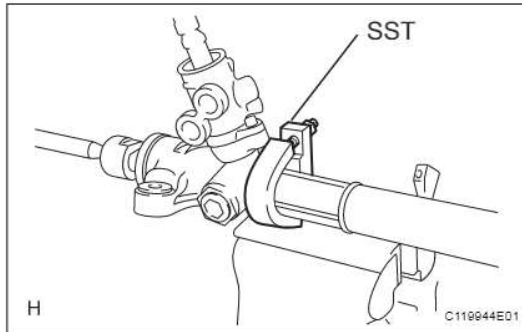
- (a) Using SST, remove the turn pressure tube.

SST 09023-38201

- (b) Remove the 2 O-rings from the right turn pressure tube.

29. REMOVE STEERING TURN PRESSURE TUBE LH**HINT:**

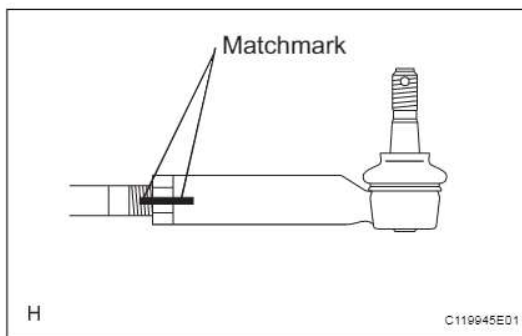
Use the same procedures described for the RH side.

**DISASSEMBLY****1. FIX POWER STEERING LINK ASSEMBLY**

- (a) Using SST, secure the steering link.

SST 09612-00012**HINT:**

Wrap the SST with vinyl tape before use.

**2. REMOVE TIE ROD END SUB-ASSEMBLY LH**

- (a) Put matchmarks on the tie rod end LH and rack end.
(b) Loosen the lock nut and remove the tie rod end and lock nut.

3. REMOVE TIE ROD END SUB-ASSEMBLY RH**HINT:**

Use the same procedures described for the LH side.

4. REMOVE STEERING RACK BOOT CLIP

- (a) Remove the 2 boot clips.

5. REMOVE NO. 2 STEERING RACK BOOT CLAMP

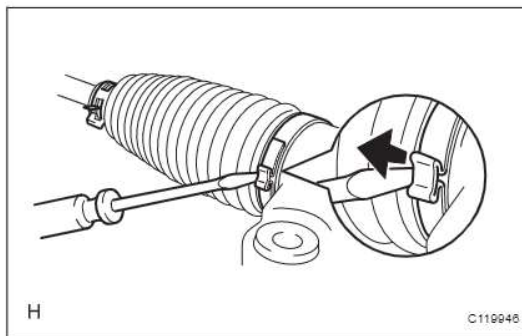
- (a) Using a screwdriver, remove the rack boot clamp.

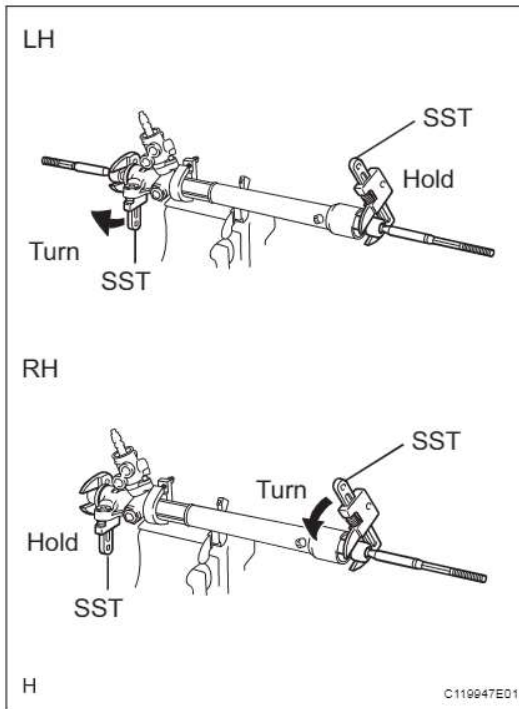
NOTICE:

Be careful not to damage the boot.

6. REMOVE NO. 1 STEERING RACK BOOT CLAMP**HINT:**

Use the same procedures described for the No. 2 side.

7. REMOVE NO. 2 STEERING RACK BOOT**8. REMOVE NO. 1 STEERING RACK BOOT**

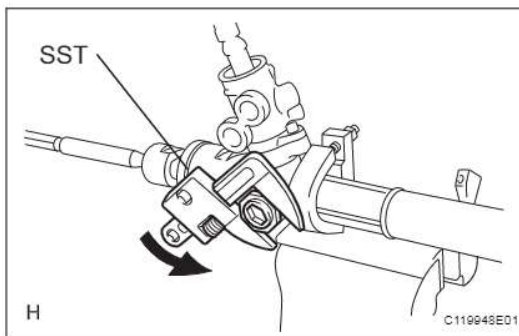
PS-24**POWER STEERING – POWER STEERING LINK****9. REMOVE STEERING RACK END SUB-ASSEMBLY**

- (a) Using SST, remove the 2 rack ends.

SST 09922-10010

NOTICE:

Use SST 09922-10010 in the direction shown in the illustration.

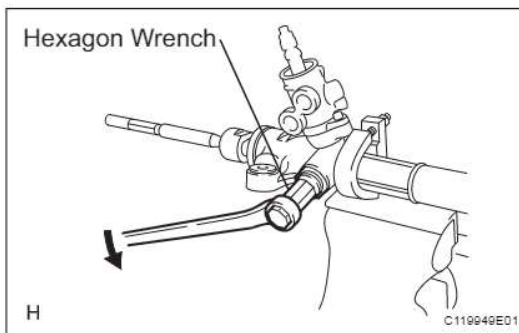
**10. REMOVE RACK GUIDE**

- (a) Using SST, remove the spring cap lock nut.

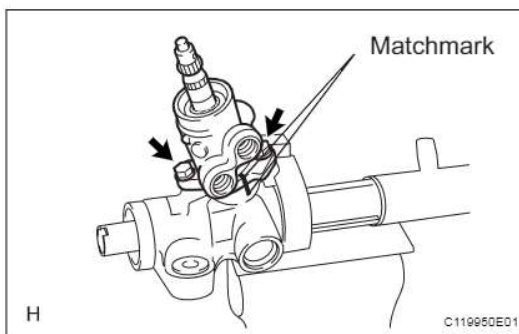
SST 09922-10010

NOTICE:

Use SST 09922-10010 in the direction shown in the illustration.



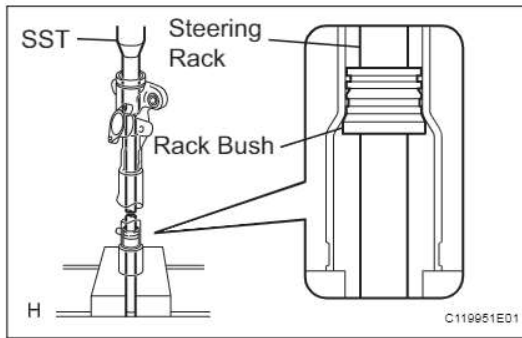
- (b) Using a 19 mm hexagon wrench, remove the rack guide spring cap.
(c) Remove the rack guide spring, rack guide spring spacer and rack guide.

**11. REMOVE POWER STEERING CONTROL VALVE**

- (a) Put matchmarks on the control valve and rack housing.
(b) Remove the 2 bolts and control valve.
(c) Remove the gasket.

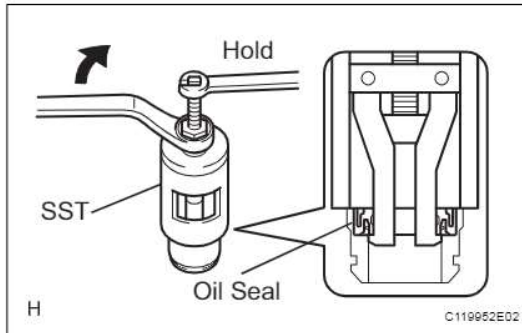
12. REMOVE CYLINDER END STOPPER

- (a) Using needle nose pliers, remove the hole snap ring.
(b) Pull out the cylinder end stopper.

POWER STEERING – POWER STEERING LINK**PS-25****13. REMOVE POWER STEERING RACK**

- (a) Using SST and a press, press out the steering rack with rack bush.

SST 09950-70010 (09951-07200)

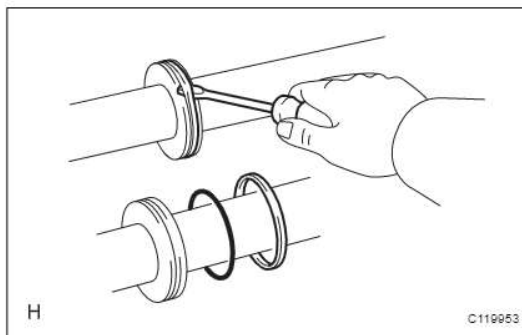
**14. REMOVE POWER STEERING RACK BUSH**

- (a) Remove the rack bush from the steering rack.

- (b) Using SST, remove the rack bush oil seal.

SST 09612-24014 (09613-22011)

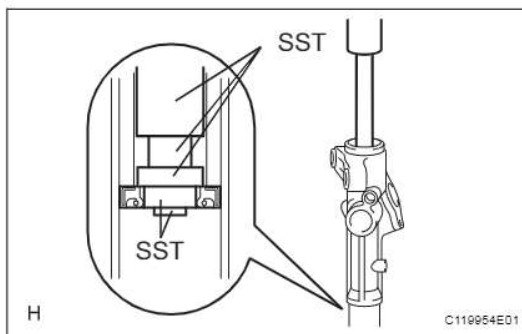
- (c) Using a screwdriver, remove the O-ring from the rack bush.

**15. REMOVE RACK STEERING PISTON RING**

- (a) Using a screwdriver, remove the piston ring and O-ring.

NOTICE:

Be careful not to damage the grooves for the piston ring and O-ring.

**16. REMOVE POWER STEERING RACK HOUSING OIL SEAL**

- (a) Using SST and a press, press out the housing oil seal.

SST 09950-60010 (09951-00200, 09951-00240, 09952-06010), 09950-70010 (09951-07360)

NOTICE:

Be careful not to damage the rack housing.

INSPECTION**1. INSPECT POWER STEERING RACK**

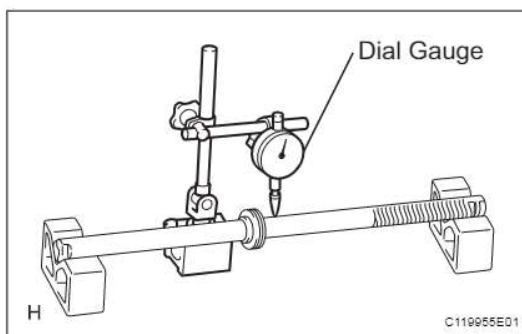
- (a) Using a dial gauge, check the steering rack for runout, teeth wear and damage.

Maximum runout:

0.1 mm (0.004 in.)

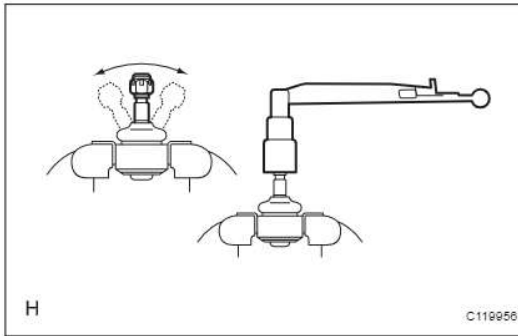
If the runout is greater than the maximum, replace the power steering rack.

- (b) Check the rack surface of the steering rack for wear and damage.

**PS**

PS-26

POWER STEERING – POWER STEERING LINK



2. INSPECT TIE ROD END SUB-ASSEMBLY

- Secure the tie rod end in a vise.
- Install the nut to the stud bolt.
- Flip the ball joint stud back and forth 5 times.
- Using a "torx" wrench, turn the nut continuously at a rate of 2 to 4 seconds per turn and take the torque reading on the 5th turn.

Standard turning torque:

0.8 to 3.4 N*m (8.2 to 34.7 kgf*cm, 7.1 to 30.1 in.*lbf)

REASSEMBLY

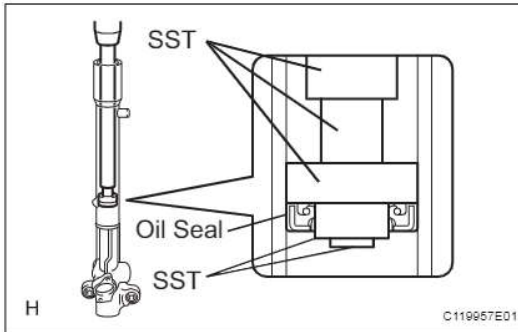
1. INSTALL POWER STEERING RACK HOUSING OIL SEAL

- Coat a new oil seal lip with power steering fluid.
- Using SST and a press, press in the housing oil seal.

SST 09950-60010 (09951-00210, 09951-00370, 09952-06010), 09950-70010 (09951-07360)

NOTICE:

Make sure that the oil seal is installed correctly.



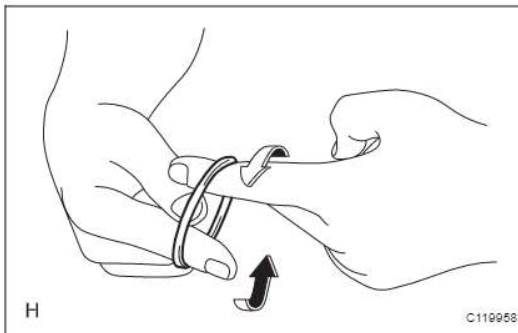
2. INSTALL RACK STEERING PISTON RING

- Apply power steering fluid to a new O-ring and install it to the steering rack.
- Expand a new piston ring with your fingers.

NOTICE:

Be careful not to overly expand the piston ring.

- Apply power steering fluid to the piston ring.
- Install the piston ring to the steering rack, and adjust with your fingers.



3. INSTALL POWER STEERING RACK

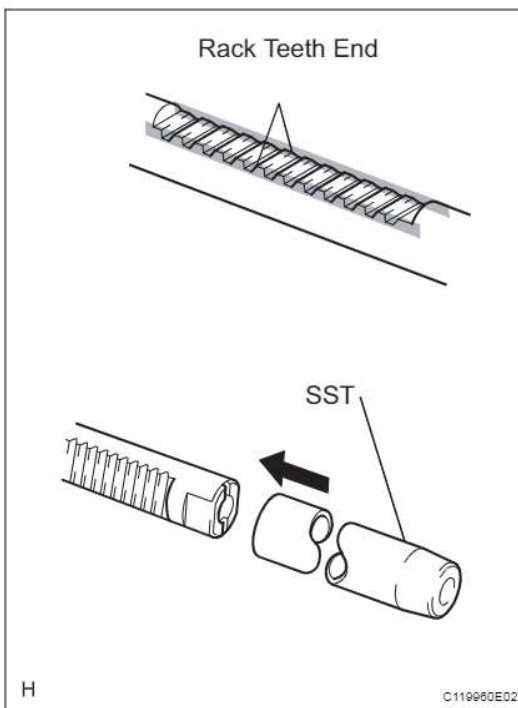
- Install SST to the steering rack.

SST 09631-10041

HINT:

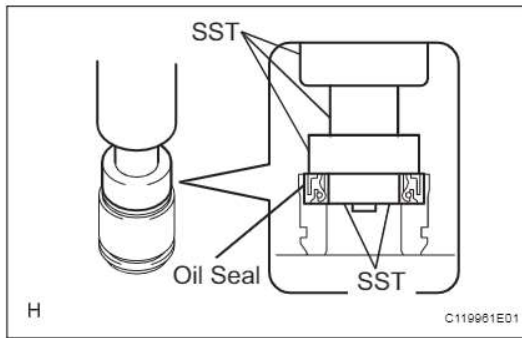
If necessary, scrape the burrs off the steering rack teeth end and burnish.

- Apply power steering fluid to the SST.
- Install the steering rack to the rack housing.
- Remove SST.



POWER STEERING – POWER STEERING LINK

PS-27

**4. INSTALL POWER STEERING RACK BUSH**

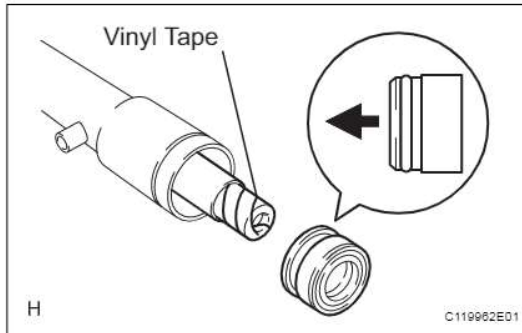
- (a) Using SST and a press, press in the rack bush oil seal to the rack bush.

SST 09950-60010 (09951-00210, 09951-00340, 09952-06010), 09950-70010 (09951-07100)

NOTICE:

Make sure that the oil seal is installed correctly.

- (b) Apply power steering fluid to a new O-ring and install it to the rack bush.



- (c) Wrap vinyl tape around the steering rack end to prevent damaging the rack bush oil seal lip, and apply power steering fluid to the rack bush oil seal.

- (d) Install the rack bush into the rack housing.

NOTICE:

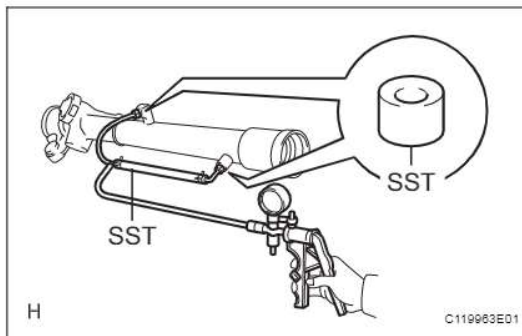
- **Make sure that the rack bush is installed correctly.**
- **Be careful not to damage the oil seal lip.**

5. INSTALL CYLINDER END STOPPER

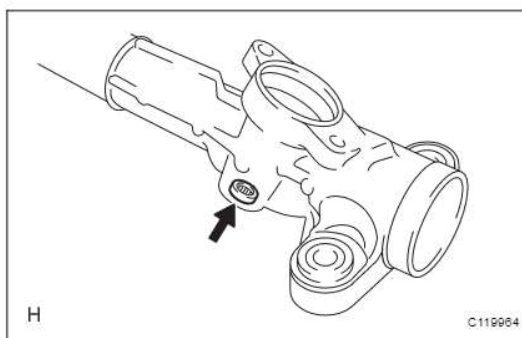
- (a) Push into the cylinder end stopper.
(b) Using needle nose pliers, install the hole snap ring.

6. CHECK AIR TIGHTNESS

- (a) Install SST onto the rack housing.
SST 09631-12071 (09633-00010)
(b) Apply vacuum of 53 kPa (400 mmHg, 15.75 in.Hg) for approximately 30 seconds.
(c) Check that there is no change in the vacuum.
If there is a change in the vacuum pressure, check the installation of the oil seals.

**7. INSTALL POWER STEERING CONTROL VALVE**

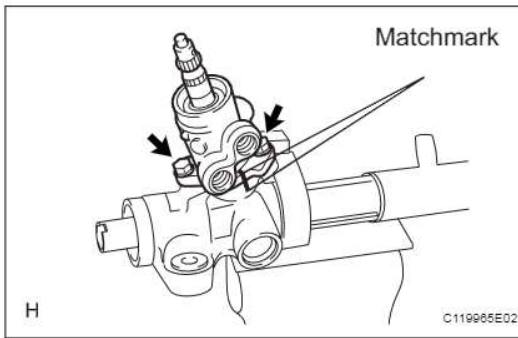
- (a) Apply grease to the needle roller bearing.
(b) Install a new gasket to the control valve.



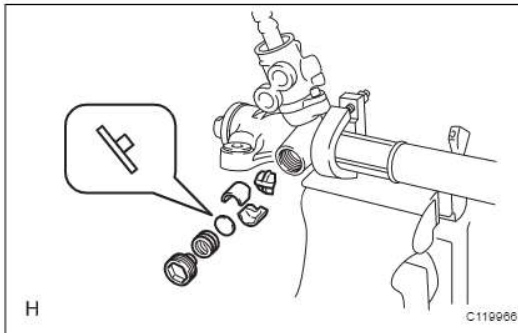
PS

PS-28

POWER STEERING – POWER STEERING LINK



- (c) Align the matchmarks and install the control valve to the rack housing with the 2 bolts.
Torque: 21 N*m (214 kgf*cm, 15 ft.*lbf)



8. INSTALL RACK GUIDE

- (a) Install the rack guide, rack guide spring spacer and rack guide spring.

NOTICE:

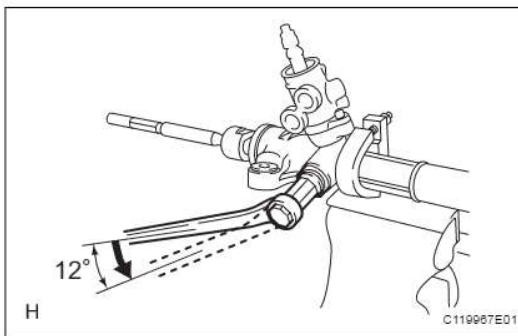
Make sure that the rack guide spring spacer is installed correctly

- (b) Apply sealant to 2 or 3 threads of the rack guide spring cap.

Sealant:

Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

- (c) Temporarily install the rack guide spring cap.



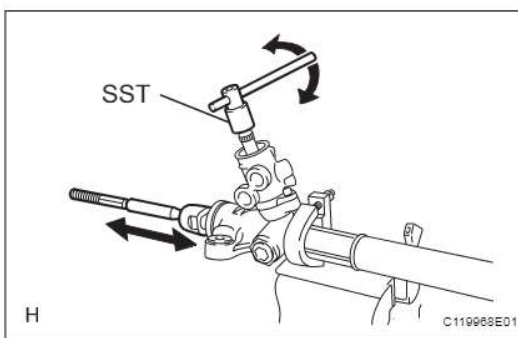
9. ADJUST TOTAL PRELOAD

- (a) To prevent the steering rack teeth from damaging the oil seal lip, temporarily install the RH and LH rack ends.

- (b) Using a 19 mm hexagon wrench, torque the rack guide spring cap.

Torque: 25 N*m (250 kgf*cm, 18 ft.*lbf)

- (c) Using a 19 mm hexagon wrench, return the rack guide spring cap approximately 12°.



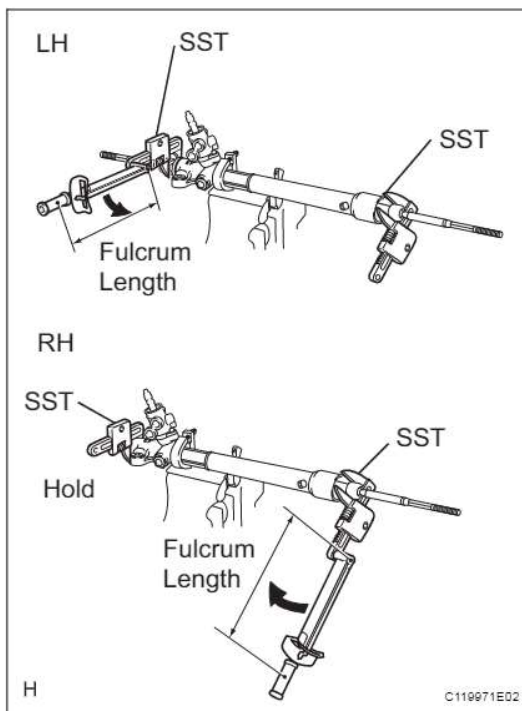
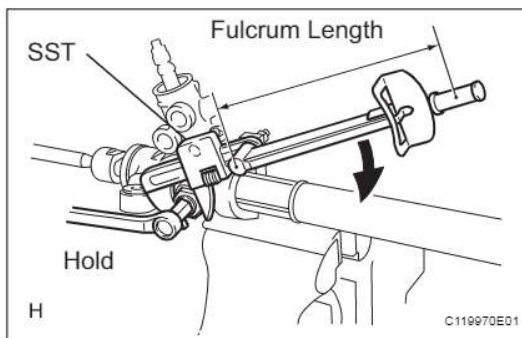
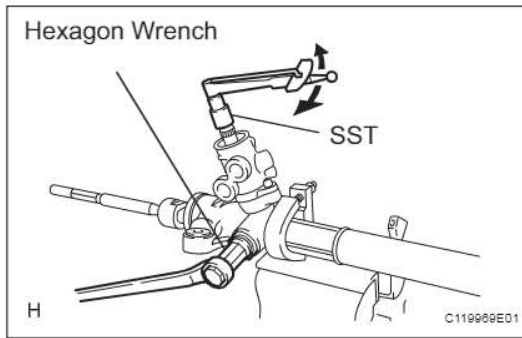
- (d) Using SST, turn the control valve to the right and left once or twice.

SST 09616-00011

- (e) Using a 19 mm hexagon wrench, loosen the rack guide spring cap until the rack guide spring stops functioning.

POWER STEERING – POWER STEERING LINK

PS-29



- (f) Using SST, a torque wrench and 19 mm hexagon wrench, tighten the rack guide spring cap until the preload is within the specification.

SST 09616-00011

Standard preload (turning):

1.2 to 1.5 N*m (12 to 15 kgf*cm, 10.6 to 13.3 in.*lbf)

- (g) Apply sealant to 2 or 3 threads of the spring cap lock nut.

Sealant:

Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

- (h) Temporarily install the spring cap lock nut.

- (i) Hold the rack guide spring cap by using a 19 mm hexagon wrench, and using SST, torque the spring cap lock nut.

Torque: 28 N*m (286 kgf*cm, 21 ft.*lbf)

NOTICE:

Use SST 09922-10010 in the direction shown in the illustration.

HINT:

Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).

- (j) Recheck the total preload.

Standard total preload (turning):

1.2 to 1.5 N*m (12 to 15 kgf*cm, 10.6 to 13.3 in.*lbf)

- (k) Remove the RH and LH rack ends.

10. INSTALL STEERING RACK END SUB-ASSEMBLY

- (a) Temporarily install the 2 rack ends.

- (b) Using SST, torque the 2 rack ends.

SST 09922-10010

Torque: 60 N*m (614 kgf*cm, 44 ft.*lbf)

NOTICE:

Use SST 09922-10010 in the direction shown in the illustration.

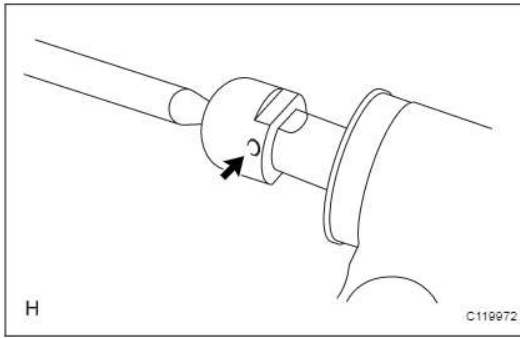
HINT:

- Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).
- Using SST, hold the rack and install the rack end.

PS

PS-30

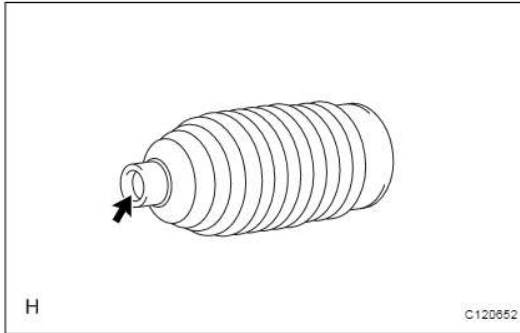
POWER STEERING – POWER STEERING LINK

**11. INSPECT STEERING RACK END HOLE**

- (a) Ensure that the hole of the rack end is not clogged with grease.

HINT:

If the hole is clogged, the pressure inside the boot will change after it is assembled and the steering wheel is turned.

**12. INSTALL NO. 2 STEERING RACK BOOT**

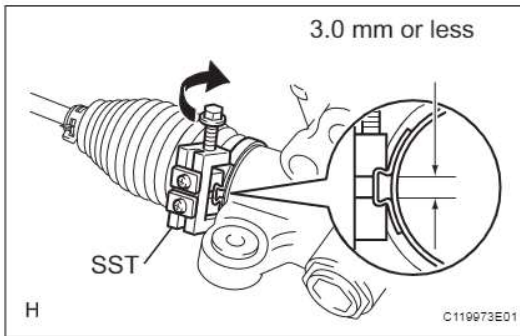
- (a) Apply silicon grease to the inside small caliber of No. 2 rack boot.
 (b) Install the No. 2 rack boot onto the groove on the rack housing.

NOTICE:

Be careful not to damage or twist the boot.

13. INSTALL NO. 1 STEERING RACK BOOT**HINT:**

Use the same procedures described for the No. 2 side.

**14. INSTALL NO. 2 STEERING RACK BOOT CLAMP**

- (a) Using SST, tighten the No. 2 rack boot clamp, as shown in the illustration.

SST 09240-00020, 09521-24010

Standard clearance:

3.0 mm (0.118 in.) or less

NOTICE:

Be careful not to damage the boot.

15. INSTALL NO. 1 STEERING RACK BOOT CLAMP**HINT:**

Use the same procedures described for the No. 2 side.

16. INSTALL STEERING RACK BOOT CLIP

- (a) Using pliers, install the 2 rack boot clips.

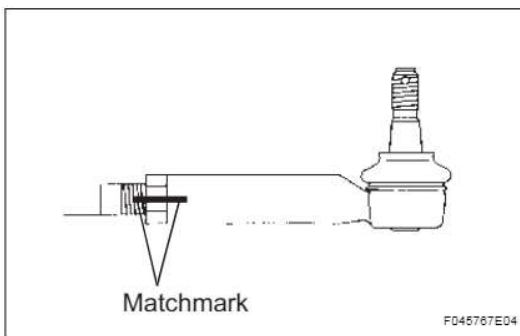
17. INSTALL TIE ROD END SUB-ASSEMBLY LH

- (a) Screw the lock nut and tie rod end on the rack end until the matchmarks are aligned.

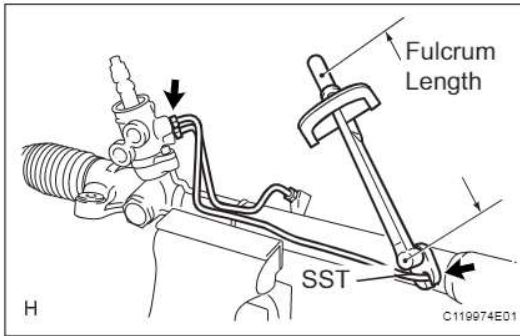
Torque: 74 N*m (750 kgf*cm, 54 ft.*lbf)

HINT:

After adjusting toe-in, torque the lock nut (See page [SP-2](#)).

**18. INSTALL TIE ROD END SUB-ASSEMBLY RH****HINT:**

Use the same procedures described for the LH side.

POWER STEERING – POWER STEERING LINK**PS-31****19. INSTALL STEERING TURN PRESSURE TUBE RH**

- (a) Apply power steering fluid to 2 new O-rings and install them to the turn pressure tube.
- (b) Using SST, install the turn pressure tube to the steering link.

SST 09023-38201**Torque: 12 N*m (118 kgf*cm, 9 ft.*lbf)****HINT:**

- Use a torque wrench with a fulcrum length of 250 mm (9.84 in.).
- This torque value is effective when SST is parallel to a torque wrench.

20. INSTALL STEERING TURN PRESSURE TUBE LH**HINT:**

Use the same procedures described for the RH side.

POWER STEERING SYSTEM

PRECAUTION

1. HANDLING PRECAUTIONS FOR STEERING SYSTEM

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

2. HANDLING PRECAUTIONS FOR SRS

- (a) The vehicle is equipped with a Supplemental Restraint System (SRS) which includes a driver side airbag. Failure to carry out service procedures in the correct sequence may unexpectedly deploy the SRS and cause serious injuries. Furthermore, if a mistake is made in servicing the SRS, it may fail to operate when required.

Before servicing (including installation, removal, inspection or replacement of parts), read the SRS section's "Precaution" (see page [RS-1](#)).

PS-2

POWER STEERING – POWER STEERING SYSTEM

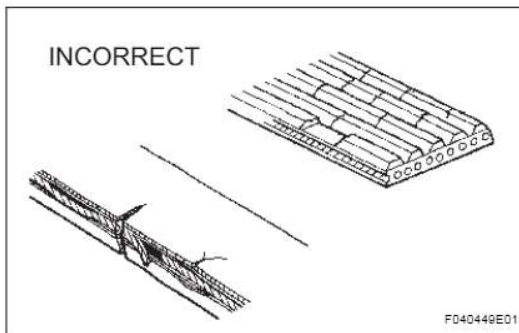
PROBLEM SYMPTOMS TABLE

HINT:

Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

Power steering system

Symptom	Suspected area	See page
Hard steering	1. Tires (improperly inflated)	TW-3
	2. Power steering fluid level (low)	PS-2
	3. Drive belt	EM-6
	4. Front wheel alignment (incorrect)	SP-2
	5. Steering system joints (worn)	-
	6. Suspension arm ball joints (worn) ATM	SP-17
	7. Suspension arm ball joints (worn) MTM	SP-21
	8. Steering column (binding)	-
	9. Vane pump assembly	PS-10
	10. Power steering link assembly	PS-25
Poor return	1. Tires (improperly inflated)	TW-3
	2. Front wheel alignment (incorrect)	SP-2
	3. Steering column (binding)	-
	4. Power steering link assembly	PS-25
Excessive play	1. Steering system joints (worn)	-
	2. Suspension arm ball joints (worn) ATM	SP-17
	3. Suspension arm ball joints (worn) MTM	SP-21
	4. Front wheel bearing (worn)	AH-6
	5. Power steering link assembly	PS-25
Abnormal noise	1. Power steering fluid level (low)	PS-2
	2. Steering system joints (worn)	-
	3. Vane pump assembly	PS-10
	4. Power steering link assembly	PS-25



ON-VEHICLE INSPECTION

1. INSPECT DRIVE BELT

- (a) Visually check the belt for excessive wear, frayed cords, etc. If any defect is found, replace the drive belt.

HINT:

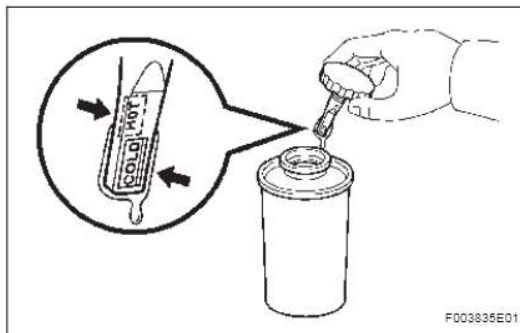
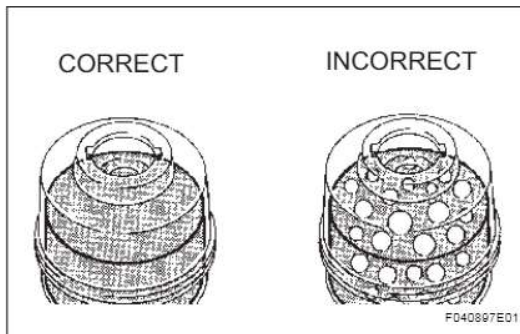
Cracks on the rib side of the belt are considered acceptable. Replace the belt if there are any missing ribs.

2. BLEED AIR FROM POWER STEERING SYSTEM

- (a) Check the fluid level.
 (b) Jack up the front of the vehicle and support it with stands.
 (c) Turn the steering wheel.
 (1) With the engine stopped, turn the steering wheel slowly from lock to lock several times.
 (d) Lower the vehicle.

POWER STEERING – POWER STEERING SYSTEM**PS-3**

- (e) Start the engine. Run the engine at idle for a few minutes.
- (f) Turn the steering wheel.
 - (1) With the engine idling, turn the steering wheel to the left or right full lock position and hold it there for 2 to 3 seconds. Then turn the steering wheel to the opposite full lock position and hold it there for 2 to 3 seconds.
 - (2) Repeat the step above several times.
- (g) Stop the engine.
- (h) Check for foaming or emulsification. If the system has to be bled twice because of forming or emulsification, check for fluid leaks in the system.
- (i) Check the fluid level.

**3. CHECK FLUID LEVEL**

- (a) Keep the vehicle level.
- (b) With the engine stopped, check the power steering fluid level in the oil reservoir. If necessary, add power steering fluid.

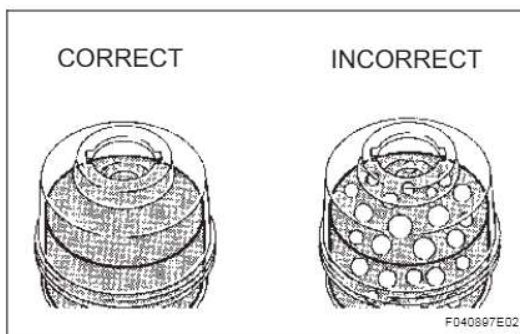
Power steering fluid:**ATF "DEXRON" II or III****HINT:**

If the fluid is hot, check that the fluid level is within the HOT range on the oil reservoir. If the fluid is cold, check that the fluid level is within the COLD range.

- (c) Start the engine and run it at idle.
- (d) Turn the steering wheel to the left or right full lock position, and then the wheel to the opposite full lock position. Repeat this several times to raise fluid temperature.

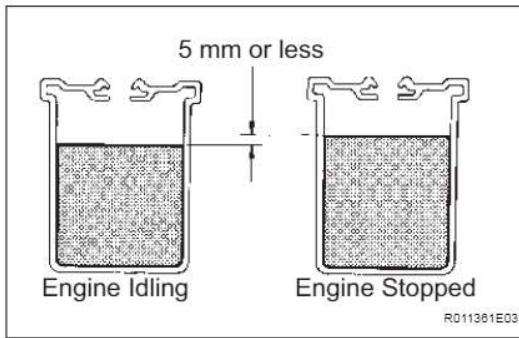
Standard fluid temperature:**80°C (176°F)**

- (e) Check for foaming or emulsification. If foaming or emulsification is identified, bleed air from the power steering system.

**PS**

PS-4

POWER STEERING – POWER STEERING SYSTEM



- (f) With the engine idling, measure the fluid level in the oil reservoir.
- (g) Stop the engine.
- (h) Wait a few minutes and remeasure the fluid level in the oil reservoir.

Maximum fluid level increase:

5 mm (0.20 in.)

If a problem is found, bleed air from the power steering system.

- (i) Check the fluid level.

4. CHECK STEERING FLUID PRESSURE

- (a) Disconnect the pressure feed tube (see page PS-8).
- (b) Connect SST as shown in the illustration below.

SST 09640-10010 (09641-01010, 09641-01030, 09641-01060)

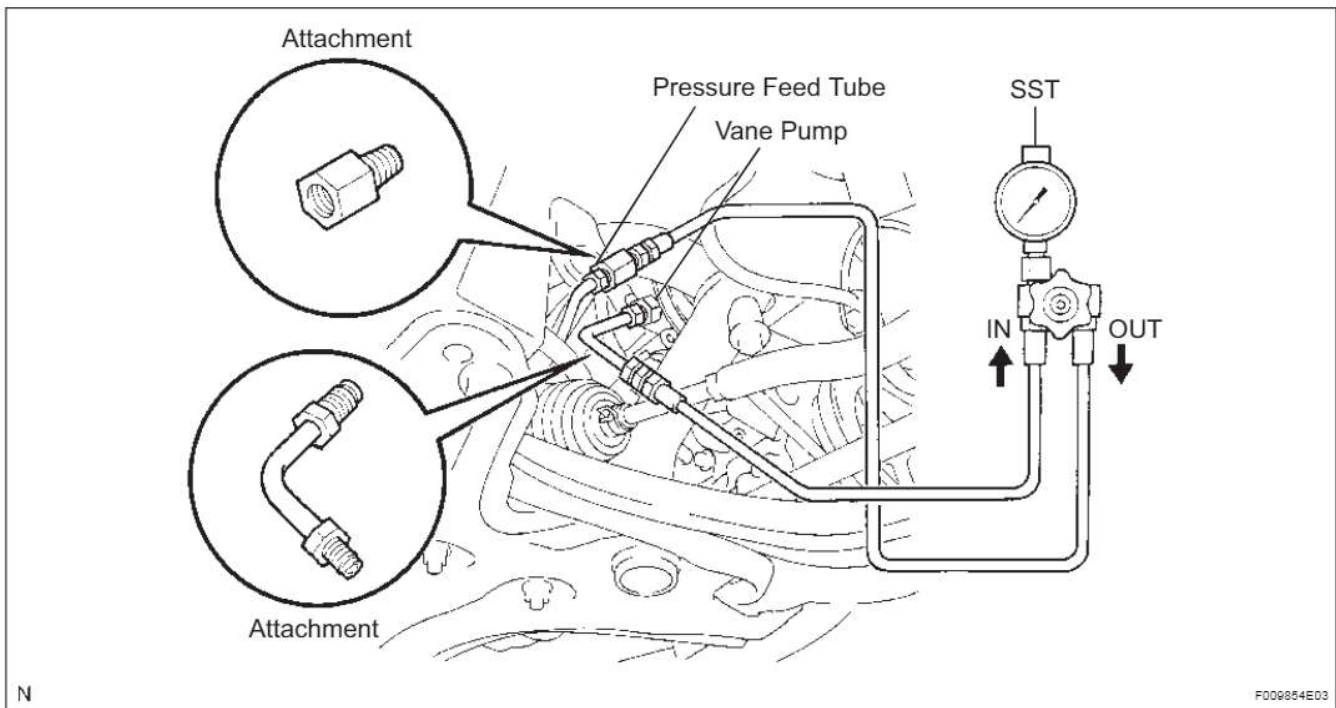
NOTICE:

Check that the value of SST is in the open position.

- (c) Bleed air from the power steering system.
- (d) Start the engine and run it at idle.
- (e) Turn the steering wheel to the left or right full lock position. Then turn the wheel to the opposite full lock position. Repeat this several times to raise fluid temperature.

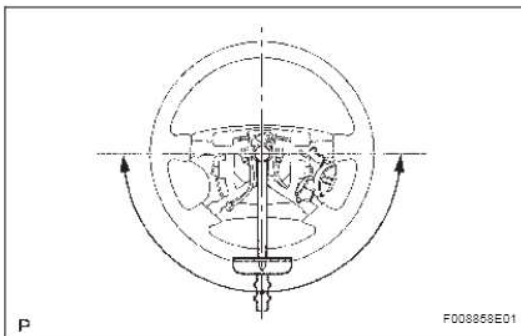
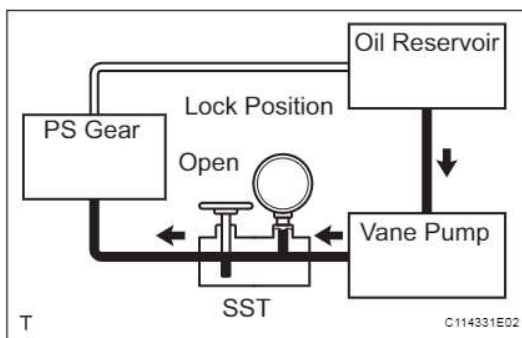
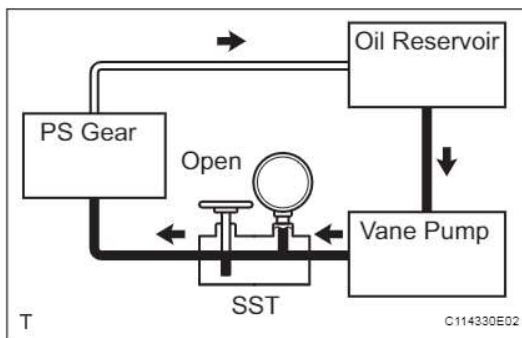
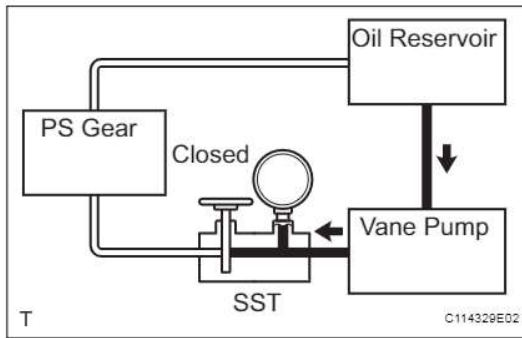
Standard fluid temperature:

75 to 80°C (167 to 176°F)



POWER STEERING – POWER STEERING SYSTEM

PS-5



- (f) With the engine idling, close the valve of SST and observe the reading on SST.

Minimum fluid pressure:

5,900 kPa (60 kgf/cm², 852 psi)

NOTICE:

- Do not keep the valve closed for more than 10 seconds.
- Do not let the fluid temperature become too high.

If the pressure is not within the specified range, check for fluid leaks and replace parts as necessary.

- (g) With the engine idling, fully open the valve.

- (h) Measure the fluid pressure at engine speeds of 1,000 rpm and 3,000 rpm.

Standard fluid pressure difference:

490 kPa (5 kgf/cm², 71 psi) or less

NOTICE:

Do not turn the steering wheel.

If the pressure is not within the specified range, check for fluid leaks and replace parts as necessary.

- (i) With the engine idling and the valve fully opened, turn the steering wheel to the full lock position.

Minimum fluid pressure:

5,900 kPa (60 kgf/cm², 852 psi)

NOTICE:

- Do not maintain the lock position for more than 10 seconds.
- Do not let the fluid temperature become too high.

If the pressure is not within the specified range, check for fluid leaks and replace parts as necessary.

- (j) Disconnect SST.

SST 09640-10010 (09641-01010, 09641-01030, 09641-01060)

- (k) Connect the pressure feed tube (see page PS-14).

- (l) Bleed air from the power steering system.

5. CHECK STEERING RESISTANCE

- Center the steering wheel.
- Remove the steering pad (see page RS-287).
- Start the engine and run it at idle.
- Measure the steering resistance in both directions.

Standard steering resistance (Reference):

6 N*m (60 kgf*cm, 53 in.*lbf)

HINT:

Tire type, tire pressure and type of surface beneath the vehicle should be taken into consideration before making your diagnosis.

- (e) Tighten the steering wheel set nut.

Torque: 50 N*m (510 kgf*cm, 37 ft.*lbf)

- (f) Install the steering pad (see page RS-288).

PS

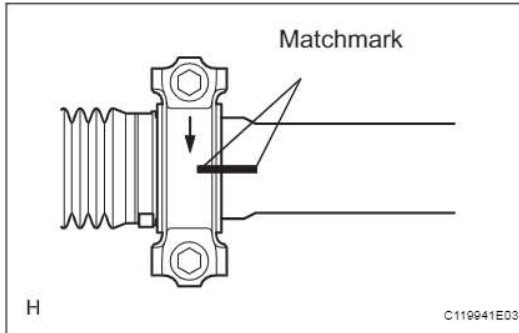
PS-32

POWER STEERING – POWER STEERING LINK

INSTALLATION

NOTICE:

When installing, apply power steering fluid or molybdenum disulfide lithium base grease to the parts indicated by arrows (see page PS-17).

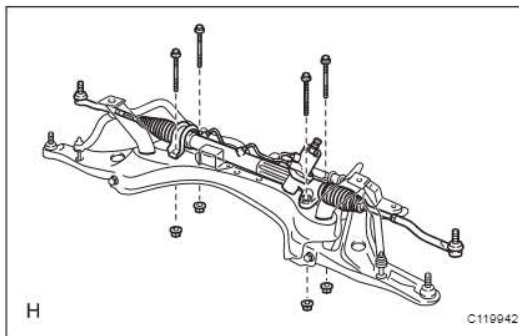


1. INSTALL POWER STEERING LINK ASSEMBLY

- Install the No. 2 grommet to the steering link.
- Align the matchmarks and install the No. 2 bracket to the steering link.

NOTICE:

Install the bracket with the inscribed mark facing to the front of the vehicle.

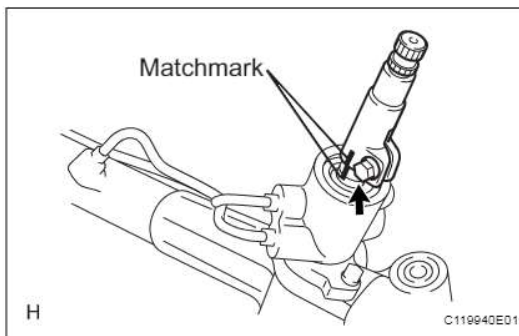


- Install the steering link with the 4 bolts and nuts.

Torque: 74 N*m (749 kgf*cm, 54 ft.*lbf)

NOTICE:

- Torque the bolt with the nut fixed as the nut has its own stopper.
- Do not turn the nut.

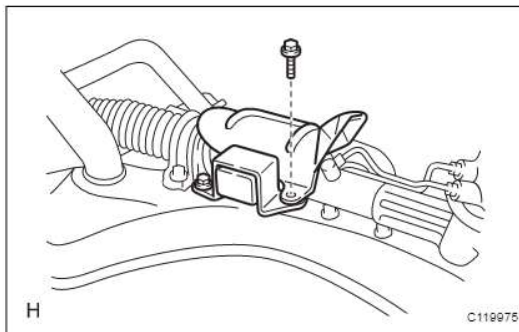


2. INSTALL STEERING INTERMEDIATE SHAFT

- Align the matchmarks on the intermediate shaft with the pinion shaft.
- Install the bolt.

Torque: 28 N*m (290 kgf*cm, 21 ft.*lbf)

3. INSTALL NO. 1 STEERING COLUMN HOLE COVER SUB-ASSEMBLY



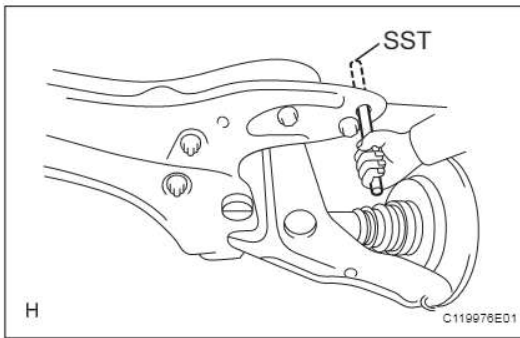
4. INSTALL POWER STEERING RACK HOUSING HEAT INSULATOR

- Install the heat insulator with the bolt as shown in the illustration.

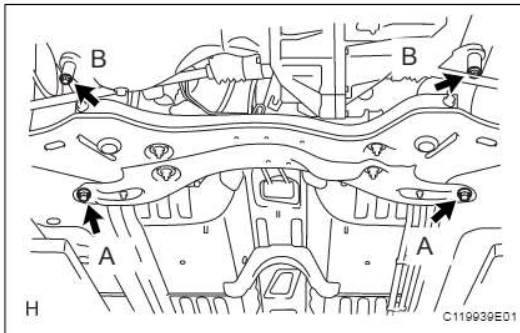
Torque: 18 N*m (178 kgf*cm, 13 ft.*lbf)

- Install the bolt to the heat insulator.

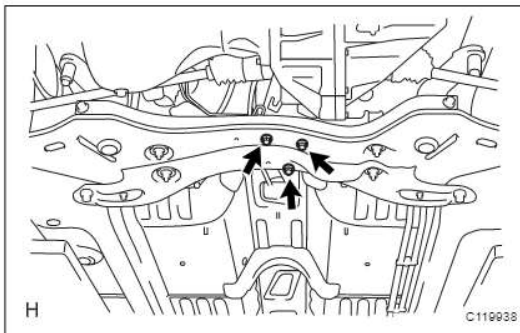
Torque: 35 N*m (360 kgf*cm, 26 ft.*lbf)

POWER STEERING – POWER STEERING LINK**PS-33****5. INSTALL FRONT SUSPENSION CROSSMEMBER SUB-ASSEMBLY**

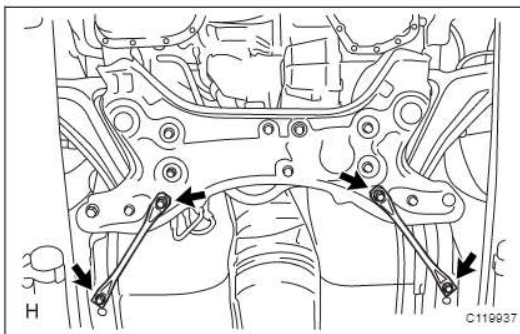
- (a) Using a transmission jack, support the crossmember.
- (b) Using SST, align the holes of the crossmember.
SST 09670-00010
HINT:
Use the same procedures described for the other side.



- (c) Install the crossmember with the 4 bolts.
Torque: 116 N*m (1,183 kgf*cm, 86 ft.*lbf) for bolt A
Torque: 70 N*m (714 kgf*cm, 52 ft.*lbf) for bolt B



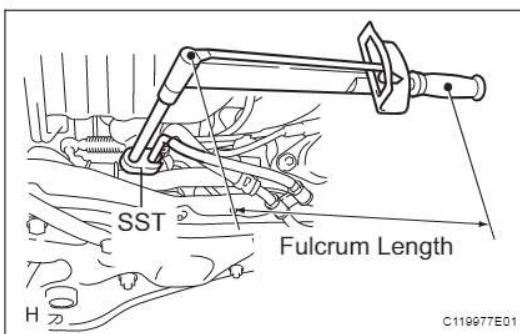
- (d) Install the crossmember with the bolt and 2 nuts.
Torque: 72 N*m (734 kgf*cm, 53 ft.*lbf)



- (e) Install the 2 reinforcements with the 4 bolts.
Torque: 47 N*m (479 kgf*cm, 35 ft.*lbf)

6. CONNECT NO. 1 FRONT SUSPENSION ARM SUB-ASSEMBLY LOWER LH (See page DS-13)**7. REMOVE NO. 1 FRONT SUSPENSION ARM SUB-ASSEMBLY LOWER RH**

- HINT:
Use the same procedures described for the LH side.

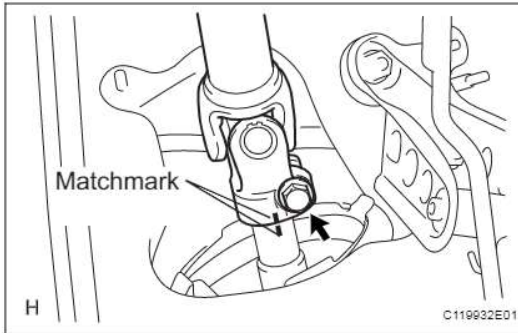
**8. CONNECT PRESSURE FEED TUBE ASSEMBLY**

- (a) Using SST, connect the pressure feed tube.
SST 09023-12701
Torque: 27 N*m (273 kgf*cm, 20 ft.*lbf)
HINT:
 - Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).
 - This torque value is effective when SST is parallel to a torque wrench.
- (b) Connect the return hose with the clip.

PS

PS-34

POWER STEERING – POWER STEERING LINK



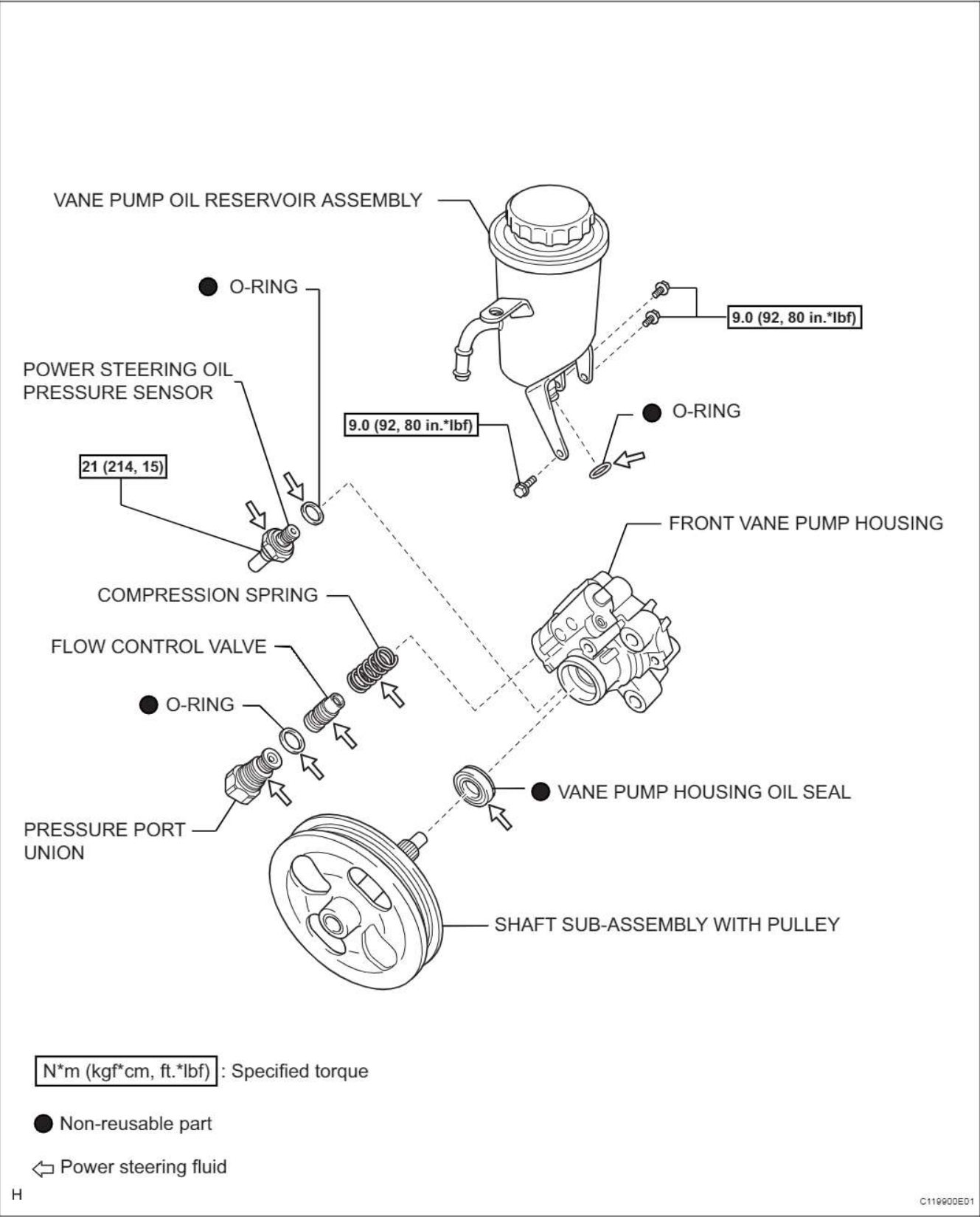
- (c) Install the tube clamp to the crossmember with the bolts.

Torque: 7.8 N*m (80 kgf*cm, 69 in.*lbf)

9. **INSTALL TIE ROD END SUB-ASSEMBLY LH** (See page [DS-13](#))
10. **INSTALL TIE ROD END SUB-ASSEMBLY RH**
HINT:
Use the same procedures described for the LH side.
11. **INSTALL FRONT WHEEL**
Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)
12. **INSTALL STEERING SLIDING YOKE SUB-ASSEMBLY**
 - (a) Align the matchmarks on the sliding yoke and intermediate shaft.
 - (b) Tighten the bolt.
Torque: 28 N*m (290 kgf*cm, 21 ft.*lbf)
13. **INSPECT FRONT WHEELS FACING STRAIGHT AHEAD**
14. **REMOVE NO. 1 STEERING COLUMN HOLE COVER SUB-ASSEMBLY**
15. **ADD POWER STEERING FLUID**
16. **BLEED AIR FROM POWER STEERING SYSTEM** (See page [PS-3](#))
17. **CHECK POWER STEERING FLUID LEVEL IN RESERVOIR** (See page [PS-3](#))
18. **INSPECT POWER STEERING FLUID LEAK**
19. **INSTALL HOOD SUB-ASSEMBLY**
 - (a) Install the hood with the 4 bolts.
Torque: 13 N*m (133 kgf*cm, 10 ft.*lbf)
20. **INSPECT AND ADJUST FRONT WHEEL ALIGNMENT**
 - (a) Inspect and adjust the front wheel alignment (see page [SP-2](#)).
21. **INSTALL ENGINE UNDER COVER LH**
22. **INSTALL ENGINE UNDER COVER RH**
23. **INSTALL COWL PANEL SUB-ASSEMBLY**
24. **INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY** (See page [WW-10](#))
25. **INSTALL COWL TOP VENTILATOR LOUVER LH** (See page [WW-10](#))
26. **INSTALL COWL TOP VENTILATOR LOUVER RH** (See page [WW-11](#))
27. **INSTALL HOOD TO COWL TOP SEAL** (See page [WW-10](#))
28. **INSTALL FRONT WIPER ARM LH** (See page [WW-11](#))
29. **INSTALL FRONT WIPER ARM RH** (See page [WW-11](#))

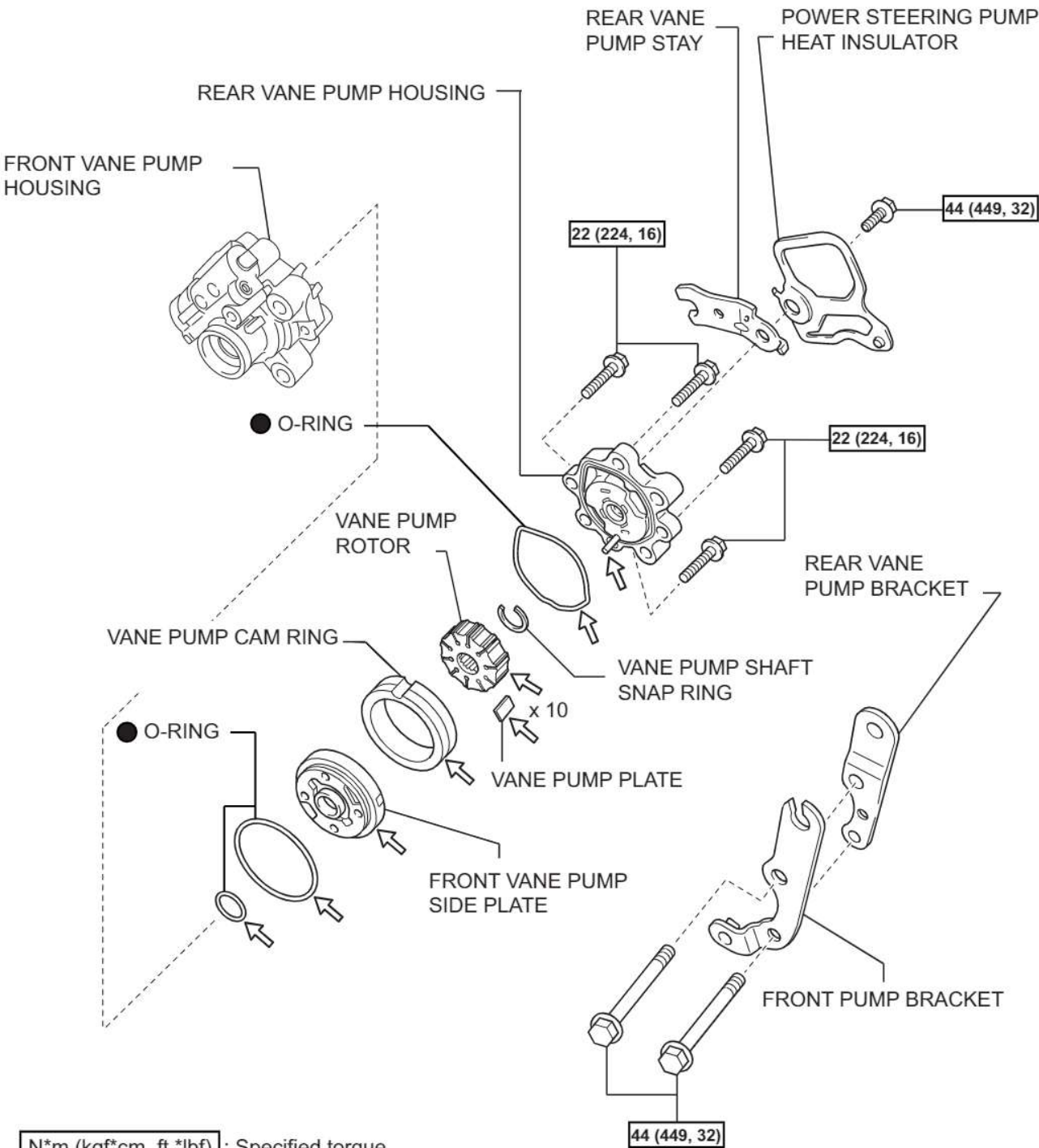
VANE PUMP

COMPONENTS



POWER STEERING – VANE PUMP

PS-7

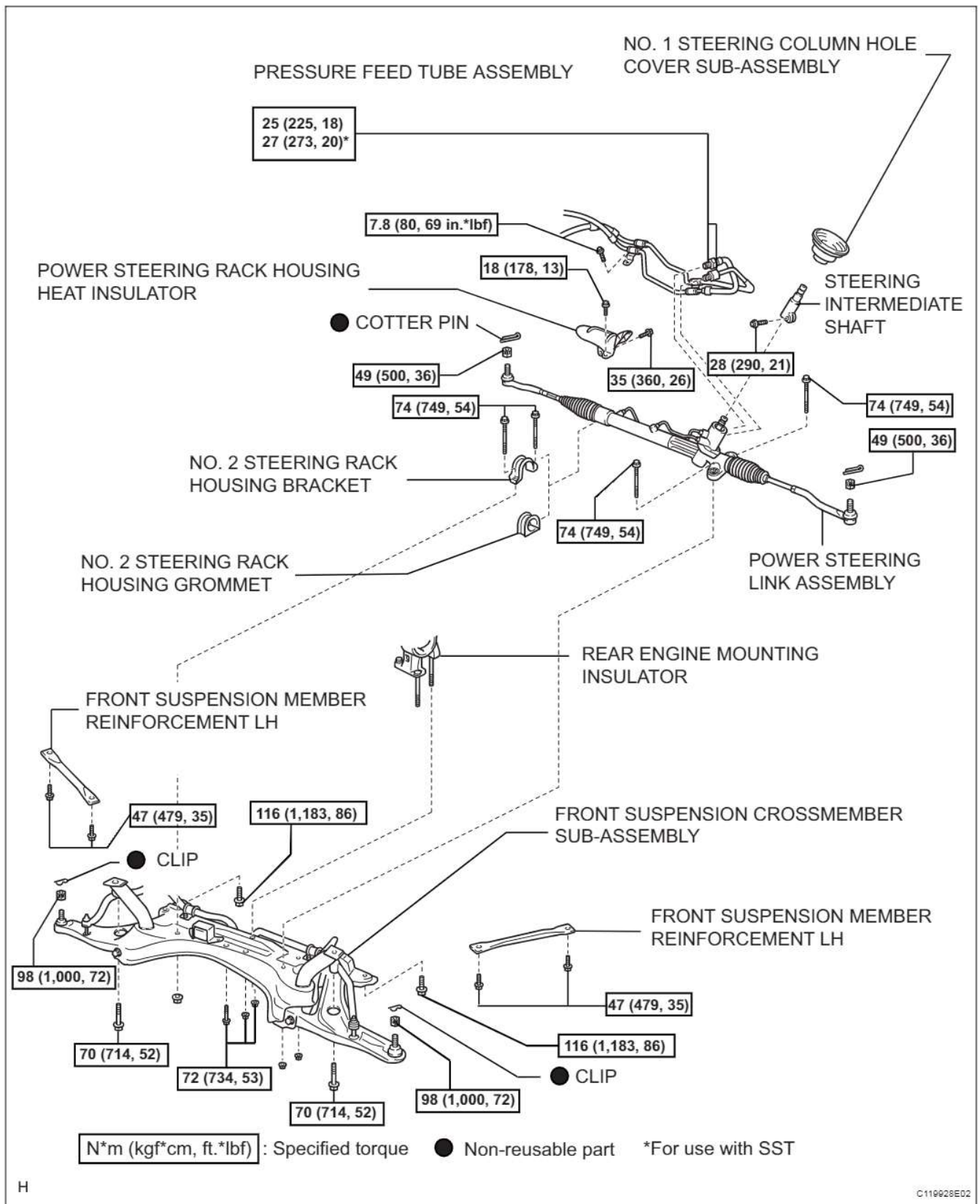


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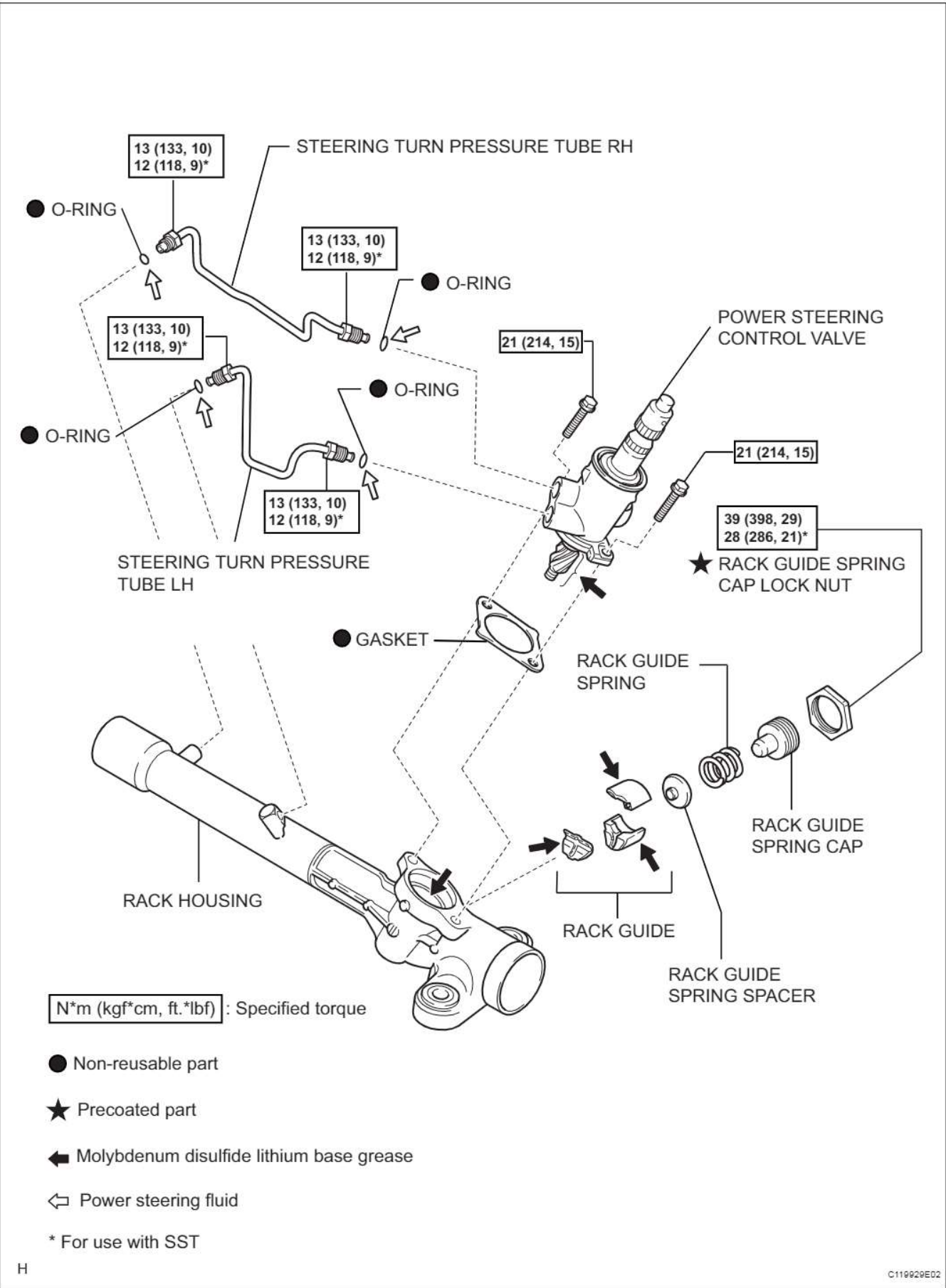
POWER STEERING LINK

COMPONENTS



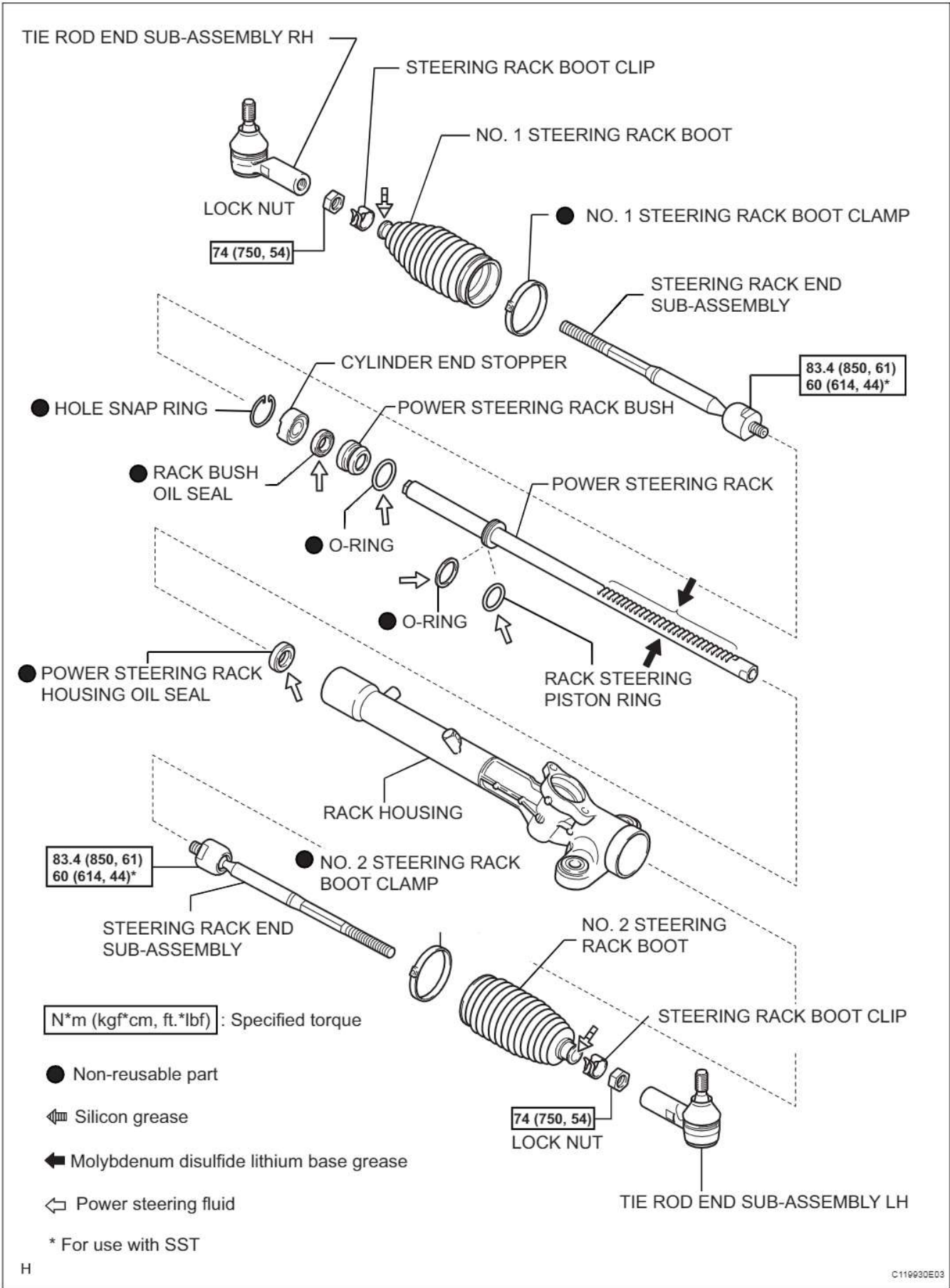
PS-18

POWER STEERING – POWER STEERING LINK



POWER STEERING – POWER STEERING LINK

PS-19



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