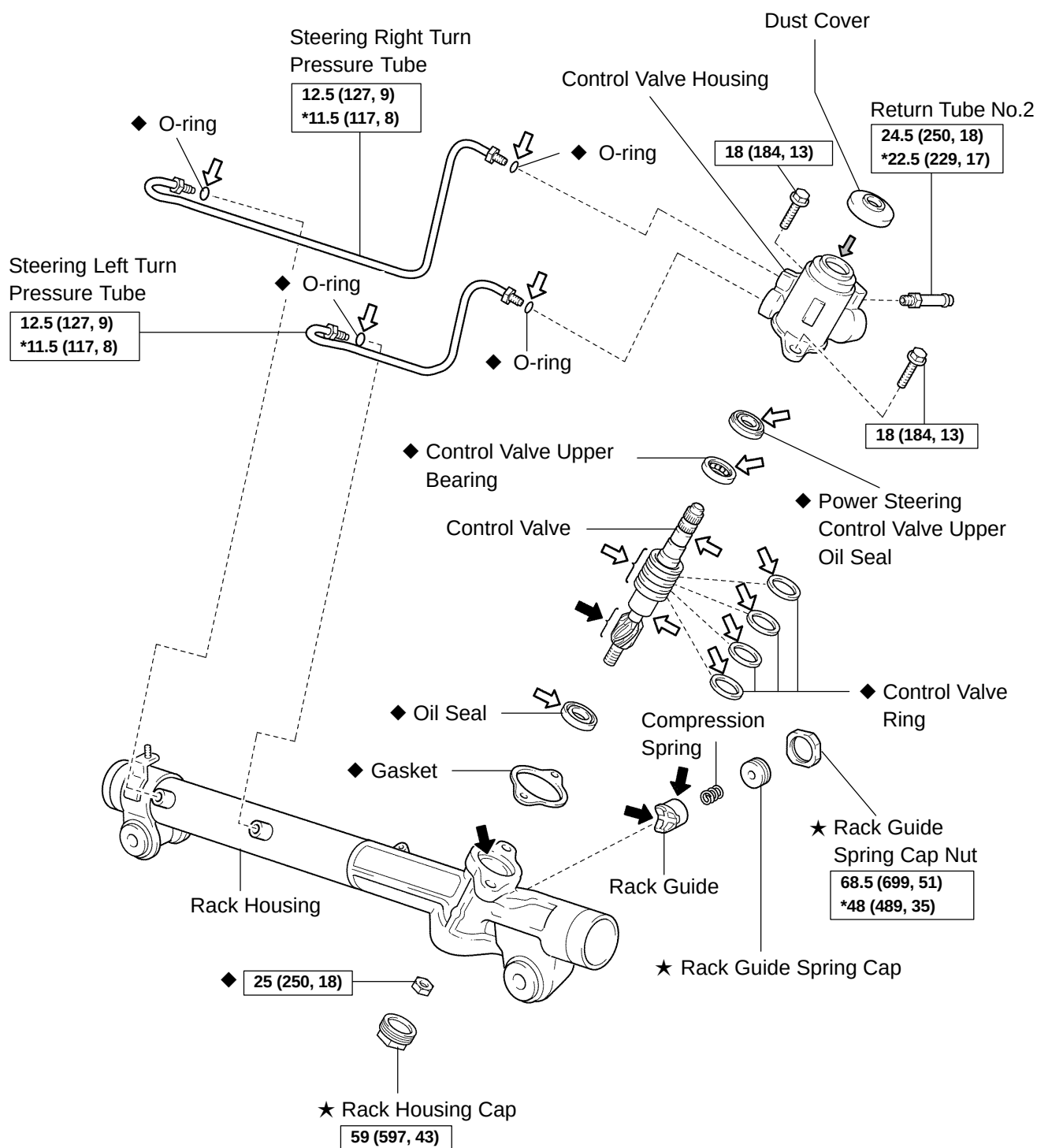


5105B-02





N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

★ Precoated part

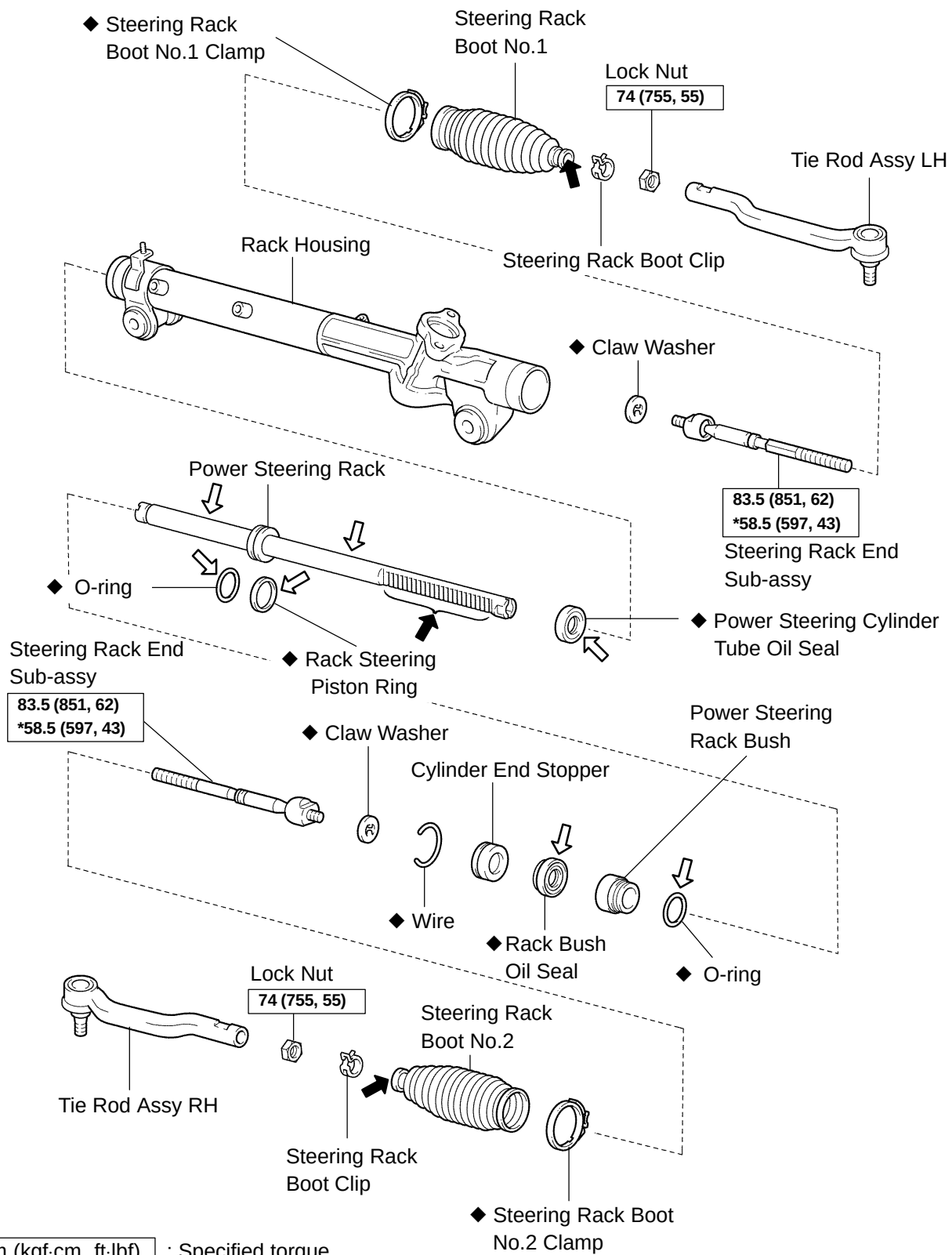
↖ Molybdenum disulfide lithium base grease

↗ Power steering fluid

↘ MP grease

* For use with SST

D29963



N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

➡ Molybdenum disulfide lithium base grease

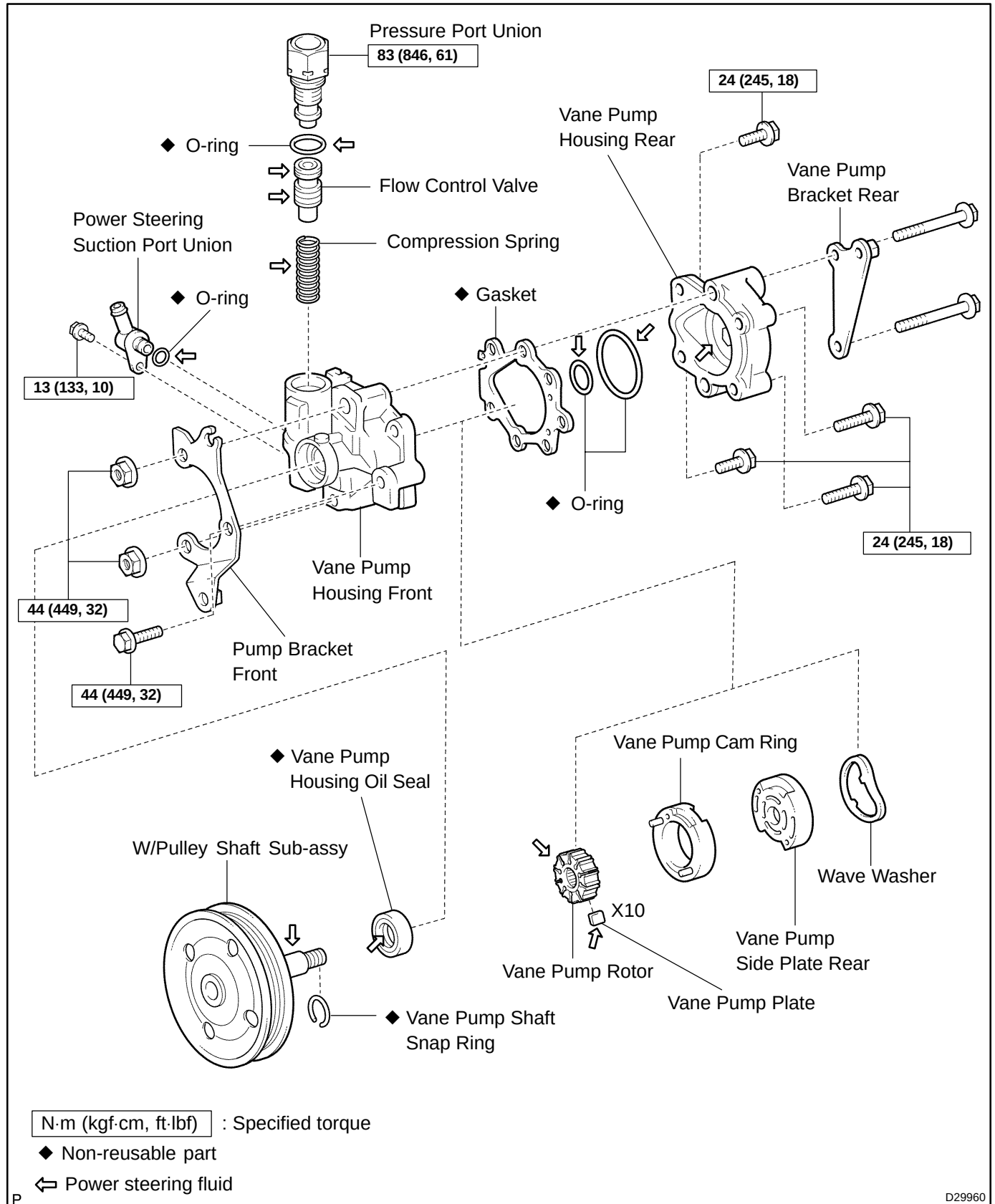
↺ Power steering fluid

* For use with SST

D29964

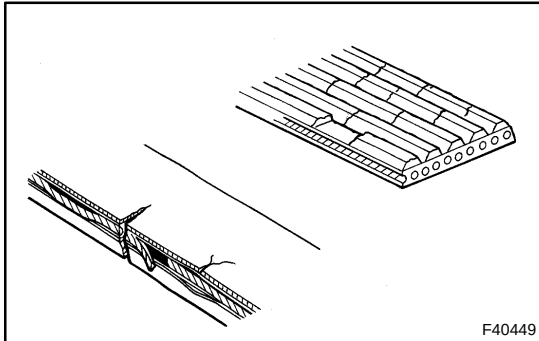
VANE PUMP ASSY COMPONENTS

510C9-02



D29960

ON-VEHICLE INSPECTION



1. INSPECT DRIVE BELT

- (a) Visually check the belt for excessive wear, frayed cords, etc.

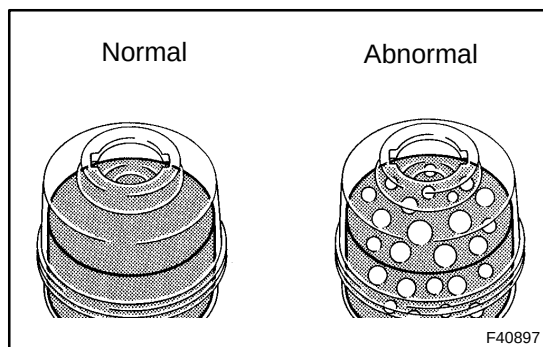
If any defect is found, replace the drive belt.

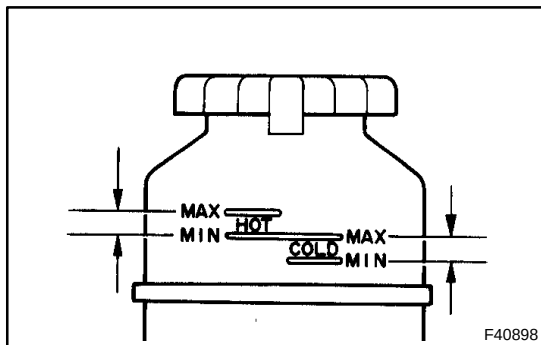
HINT:

Cracks on the rib side of a belt are considered acceptable. If the missing chunks from the ribs are found on the belt, it should be replaced.

2. BLEED POWER STEERING SYSTEM

- (a) Check the fluid level.
- (b) Jack up the front of the vehicle and support it with the stands.
- (c) Turn the steering wheel.
- (1) With the engine stopped, turn the wheel slowly from lock to lock several times.
- (d) Lower the vehicle.
- (e) Start the engine.
- (1) Run the engine at idle for a few minutes.
- (f) Turn the steering wheel.
- (1) With the engine idling, turn the wheel to left or right full lock position and keep it there for 2 - 3 seconds, then turn the wheel to the opposite full lock position and keep it there for 2 - 3 seconds.
- (2) Repeat (1) several times.
- (g) Stop the engine.
- (h) Check for foaming or emulsification.
- If the system has to be bled twice especially because of foaming or emulsification, check for fluid leaks in the system.
- (i) Recheck the fluid level.





3. CHECK FLUID LEVEL

- Keep the vehicle level.
- With the engine stopped, check the fluid level in the oil reservoir.

If necessary, add fluid.

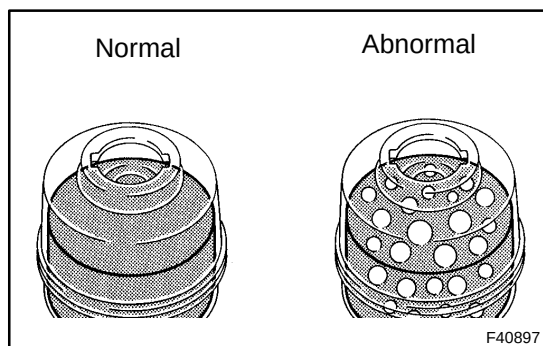
Fluid: ATF DEXRON® II or III

HINT:

If the fluid is not, check that the fluid level is within the HOT LEVEL range on the reservoir cap. If the fluid is cold, check that it is within the COLD LEVEL range.

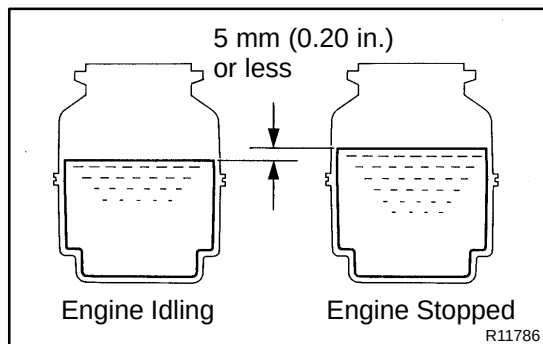
- Start the engine and run it at idle.
- Turn the steering wheel from lock to lock several times to raise fluid temperature.

Fluid temperature: 75 to 80 °C (167 to 176 °F)



- Check for foaming or emulsification.

If foaming or emulsification is identified, bleed the power steering system.



- With the engine idling, measure the fluid level in the oil reservoir.

- Stop the engine.

- Wait a few minutes and remeasure the fluid level in the oil reservoir.

Maximum fluid level rise: 5 mm (0.20 in.)

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

- Check the fluid level.

4. CHECK STEERING FLUID PRESSURE

- Disconnect the pressure feed tube assy from the rack & pinion power steering gear assy (See page 51-19).
- Connect SST, as shown in the illustration on the next page.

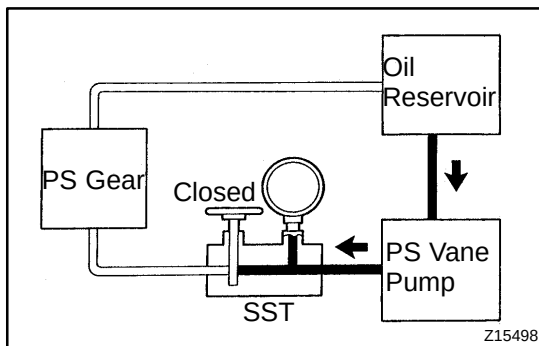
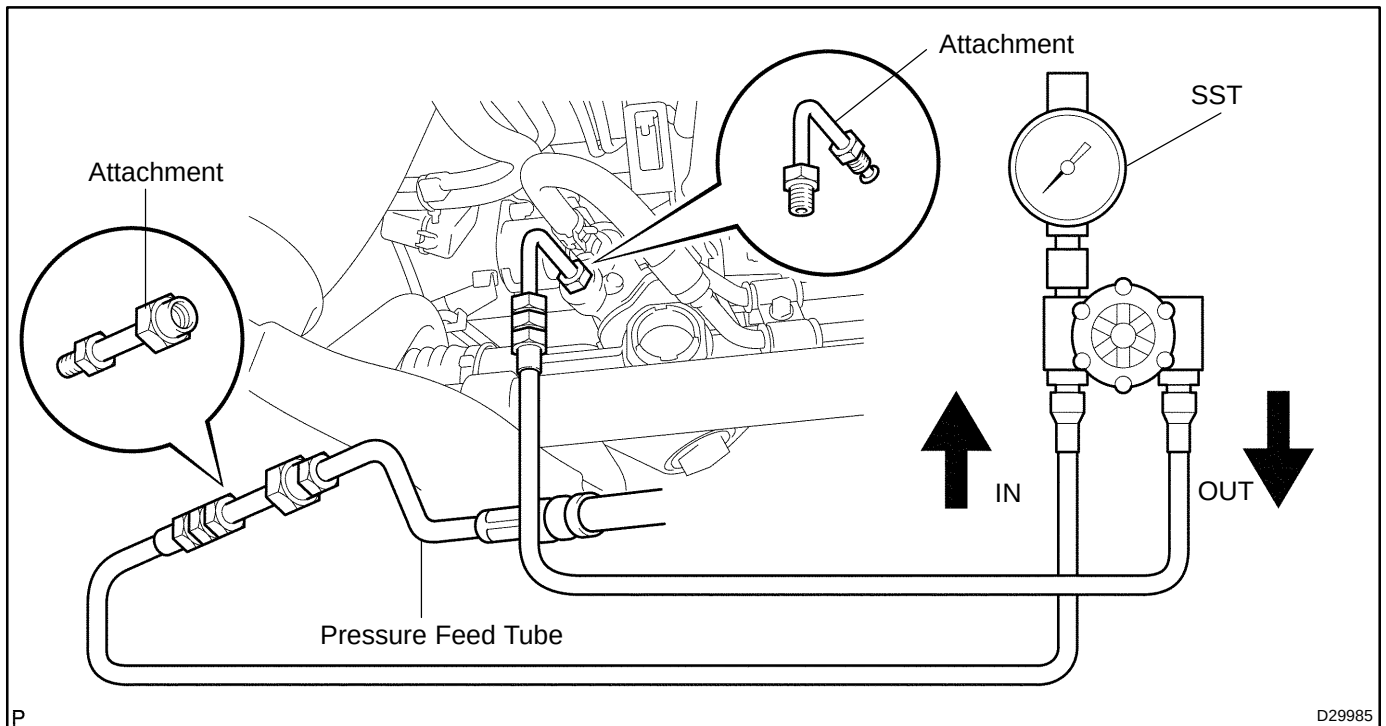
SST 09640-10010 (09641-01010, 09641-01020, 09641-01030)

NOTICE:

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

- Bleed the power steering system.
- Start the engine and run it at idle.
- Turn the steering wheel from lock to lock several times to raise fluid temperature.

Fluid temperature: 75 to 80 °C (167 to 176 °F)



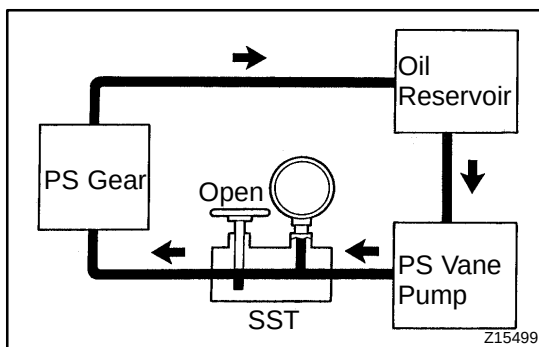
- (f) With the engine idling, close the valve of the SST and observe the reading on the SST.

Fluid pressure:

7,800 to 8,300 kPa (80 to 85 kgf/cm², 1,138 to 1,209 psi)

NOTICE:

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



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

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

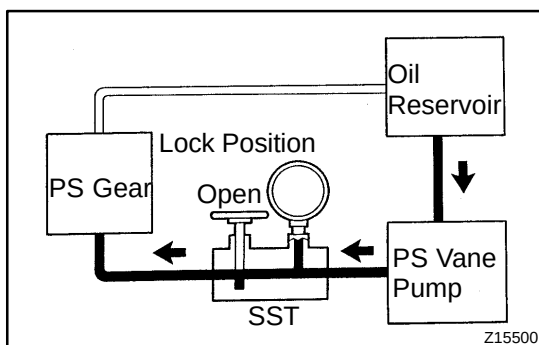
Fluid pressure difference:

490 kPa (5 kgf/cm², 71 psi) or less

NOTICE:

Do not turn the steering wheel.

If necessary, replace the vane pump assy.



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

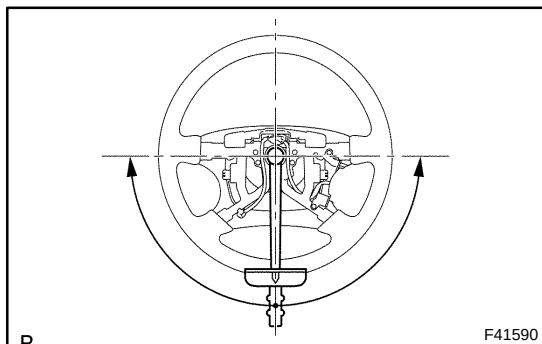
Fluid pressure:

7,800 to 8,300 kPa (80 to 85 kgf/cm², 1,138 to 1,209 psi)

NOTICE:

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

- (j) Disconnect the SST.
- (k) Connect the pressure feed tube assy to the rack & pinion power steering gear assy (See page 51-19).
- (l) Bleed the power steering system.



5. CHECK STEERING EFFORT

- (a) Center the steering wheel assy.
- (b) Remove the horn button assy (See page 60-19).
- (c) Start the engine and run it at idle.
- (d) Using a torque wrench, measure the steering effort in both directions.

Steering effort (Reference):

6.0 N·m (60 kgf·cm, 53 in·lbf) or less

HINT:

Take the tire type, pressure and contact surface into consideration before making your diagnosis.

- (e) Install the steering wheel assy set nut.
Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)
- (f) Install the horn button assy (See page 60-19).

POWER STEERING SYSTEM

510D9-02

PRECAUTION

1. HANDLING PRECAUTIONS ON STEERING SYSTEM

- (a) Care must be taken to when replacing parts. Incorrect replacement could 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 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

HINT:

Use the table below to help you find the cause of the problem. The numbers indicate the likelihood of the cause in the descending order. Check each part in the order shown. Replace parts if necessary.

Symptom	Suspect Area	See page
Hard steering	1. Tires (Improperly inflated) 2. Power steering fluid level (Low) 3. Drive belt (Loose) 4. Front wheel alignment (Incorrect) 5. Steering system joints (Worn) 6. Suspension arm ball joints (Worn) 7. Steering column (Binding) 8. Power steering vane pump 9. Power steering gear	28-1 51-3 14-5 26-7 - 26-19 - 51-8 51-19
Poor return	1. Tires (Improperly inflated) 2. Front wheel alignment (Incorrect) 3. Steering column (Binding) 4. Power steering gear	28-1 26-7 - 51-19
Excessive play	1. Steering system joints (Worn) 2. Suspension arm ball joints (Worn) 3. Intermediate shaft, Sliding yoke (Worn) 4. Front wheel bearing (Worn) 5. Power steering gear	- 26-19 - 26-7 51-19
Abnormal noise	1. Power steering fluid level (Low) 2. Steering system joints (Worn) 3. Power steering vane pump 4. Power steering gear	51-3 - 51-8 51-19

OVERHAUL

NOTICE:

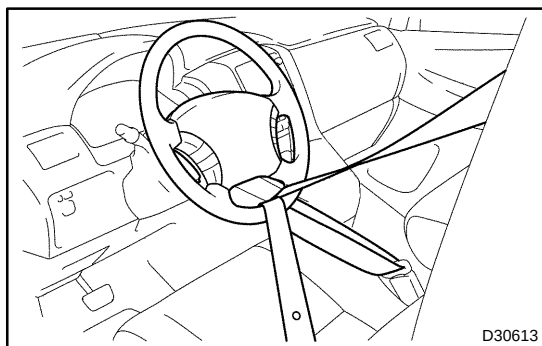
When installing , coat the parts indicated by the arrows with power steering fluid or molybdenum disulfide lithium base grease (See page 51-16).

1. **INSPECT CENTER FRONT WHEEL**
2. **REMOVE FRONT WHEEL**
3. **SEPARATE TIE ROD ASSY LH (See page 30-18)**
SST 09628-6201 1
4. **SEPARATE TIE ROD ASSY RH**
SST 09628-6201 1

510DA-02

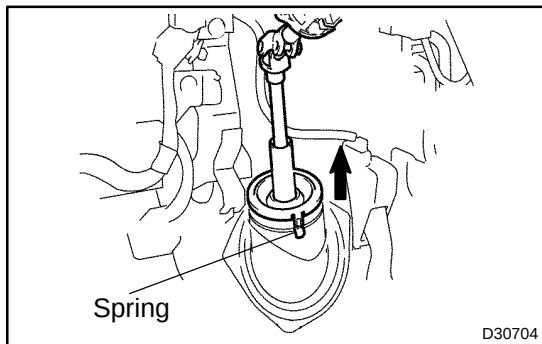
HINT:

Perform the same procedure on the other side.

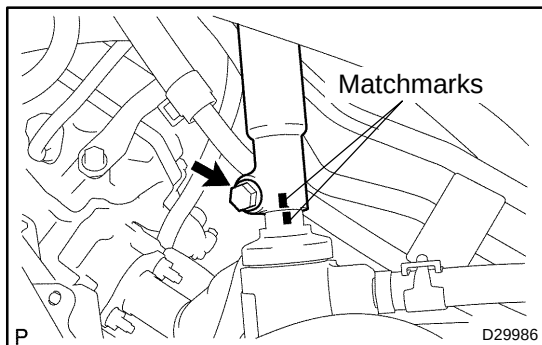


5. SEPARATE STEERING INTERMEDIATE SHAFT ASSY

- (a) Fix the steering wheel with the seat belt.



- (b) Release the 3 springs and separate the dust cover.



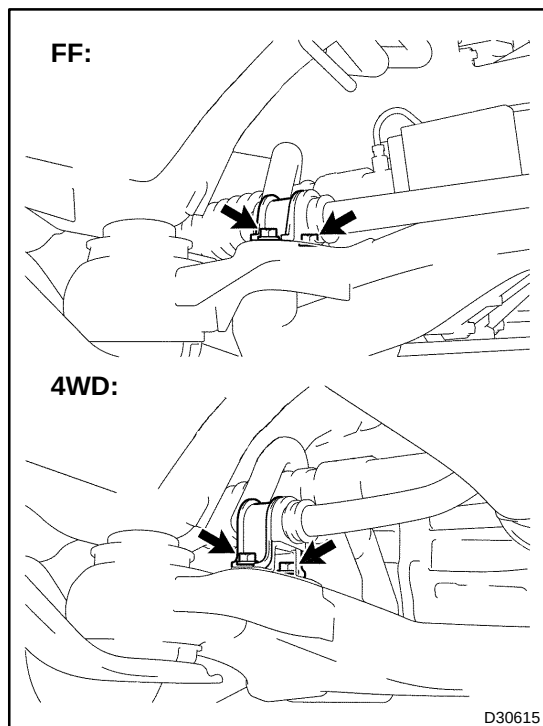
- (c) Place matchmarks on the intermediate shaft assy and power steering gear assy.
(d) Remove the bolt and separate the intermediate shaft assy.

6. SEPARATE FRONT STABILIZER LINK ASSY LH (See page 30-18)

7. SEPARATE FRONT STABILIZER LINK ASSY RH

HINT:

Perform the same procedure on the other side.



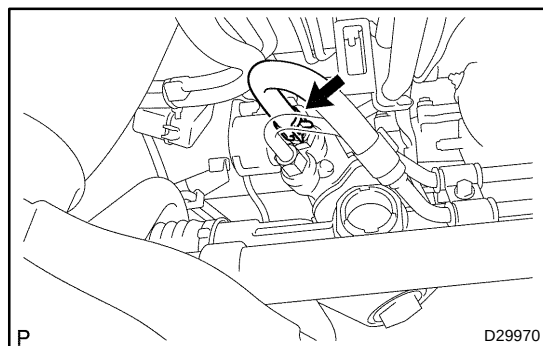
8. REMOVE FRONT STABILIZER BRACKET NO.1 LH

- (a) Remove the 2 bolts and remove the stabilizer bracket No.1.

9. REMOVE FRONT STABILIZER BRACKET NO.1 RH

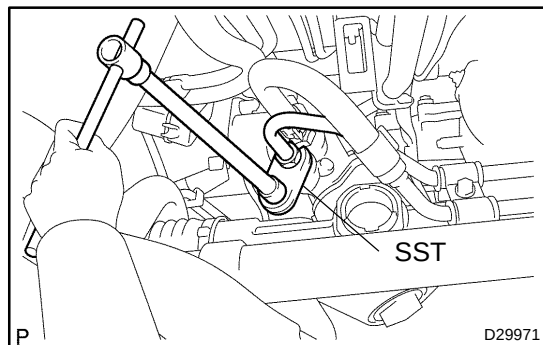
HINT:

Perform the same procedure on the other side.

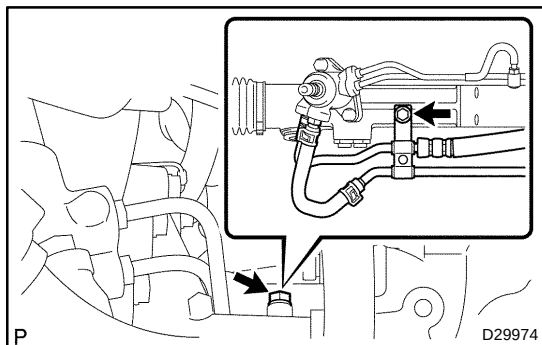


10. DISCONNECT PRESSURE FEED TUBE ASSY

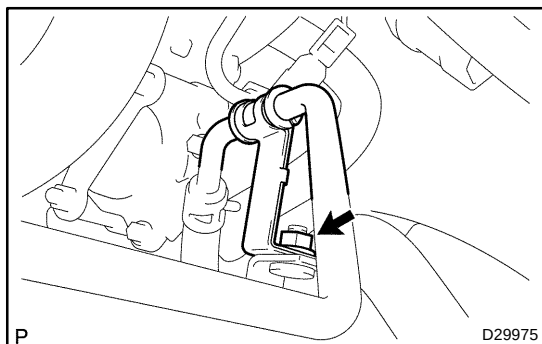
- (a) Remove the clip and disconnect the return tube assy from the power steering gear assy.



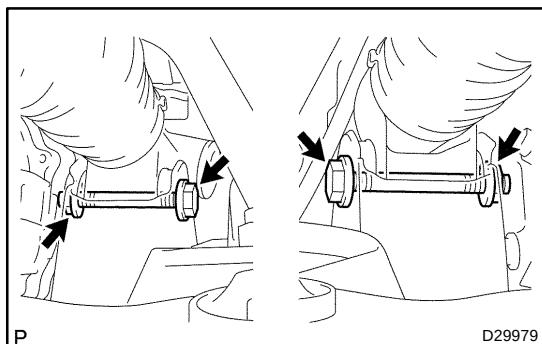
- (b) Using SST, disconnect the pressure feed tube assy from the power steering gear assy.
SST 09023-12701



- (c) Remove the bolt and separate the tube clamp.



- (d) Remove the nut and separate the tube clamp.

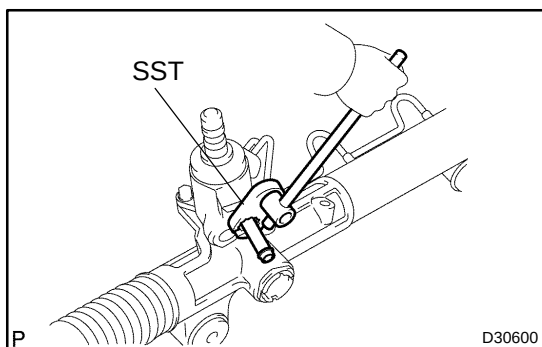


11. REMOVE RACK & PINION POWER STEERING GEAR ASSY

- (a) Remove the 2 bolts, nuts and the power steering gear assy.

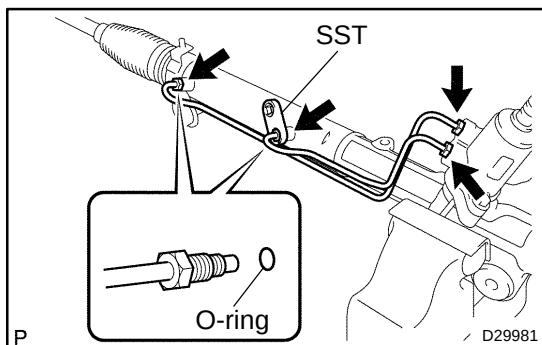
NOTICE:

Do not damage the 2 pressure tubes.



12. REMOVE RETURN TUBE NO.2

- (a) Using SST, remove the return tube No.2.
SST 09023-12701



13. REMOVE STEERING LEFT TURN PRESSURE TUBE

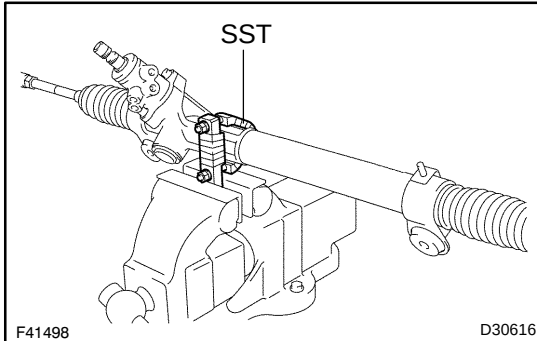
- (a) Using SST, remove the left turn pressure tube.
SST 09023-38201
- (b) Remove the 2 O-rings from the left turn pressure tube.

14. REMOVE STEERING RIGHT TURN PRESSURE TUBE

SST 09023-38201

HINT:

Perform the same procedure on the other side.

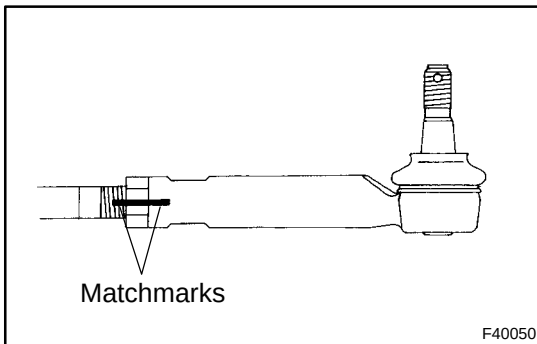
**15. FIX RACK & PINION POWER STEERING GEAR ASSY**

- (a) Using SST, secure the power steering gear assy.

SST 09612-00012

HINT:

Tape the SST before use.

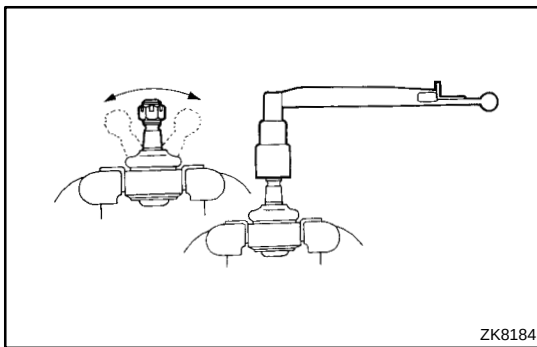
**16. REMOVE TIE ROD ASSY LH**

- (a) Place matchmarks on the tie rod assy and rack end sub-assy.
- (b) Loosen the lock nut, and remove the tie rod assy and lock nut.

17. REMOVE TIE ROD ASSY RH

HINT:

Perform the same procedure on the other side.

**18. INSPECT TIE ROD ASSY LH**

- (a) Secure the tie rod assy in a vise.
- (b) Install the nut to the stud bolt.
- (c) Flip the ball joint stud back and forth 5 times.
- (d) Using a torque wrench, turn the nut continuously at a rate of 3 to 5 seconds per turn and take the torque reading on the 5th turn.

Turning torque:**0.83 to 3.43 N·m (8.5 to 35.0 kgf·cm, 7.3 to 30.4 in.·lbf)****19. INSPECT TIE ROD ASSY RH**

HINT:

Perform the same procedure on the other side.

20. REMOVE STEERING RACK BOOT CLIP

- (a) Remove the 2 rack boot clips.

21. REMOVE STEERING RACK BOOT NO.2 CLAMP

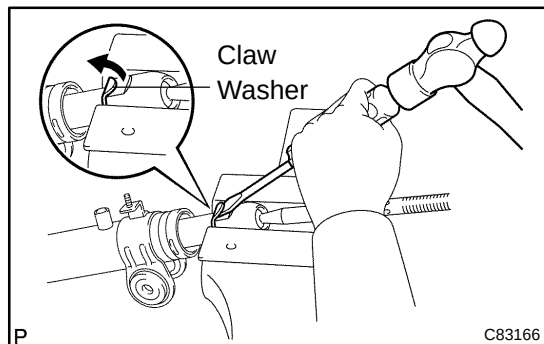
- (a) Using pliers, remove the rack boot No.2 clamp.

NOTICE:**Be careful not to damage the steering rack boot No.2.**

22. REMOVE STEERING RACK BOOT NO.1 CLAMP

HINT:

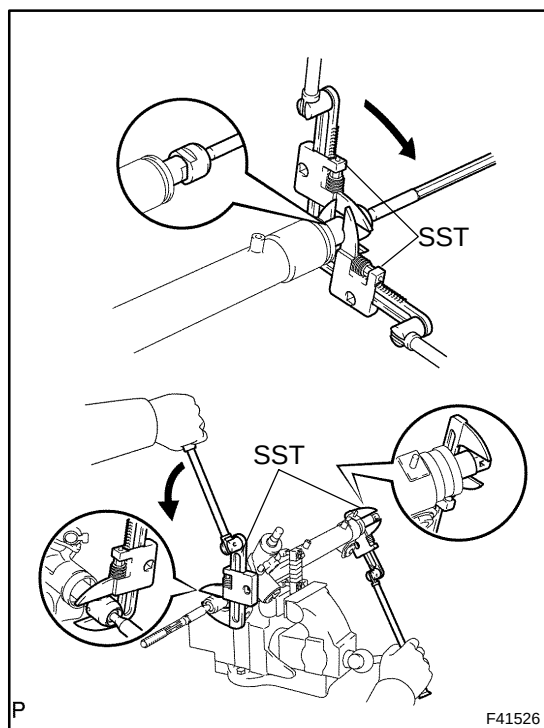
Perform the same procedure on the other side.

23. REMOVE STEERING RACK BOOT NO.2**24. REMOVE STEERING RACK BOOT NO.1****25. REMOVE STEERING RACK END SUB-ASSY**

- (a) Using a screwdriver and a hammer, unstake the claw washer.

NOTICE:

Avoid any impact to the power steering rack.

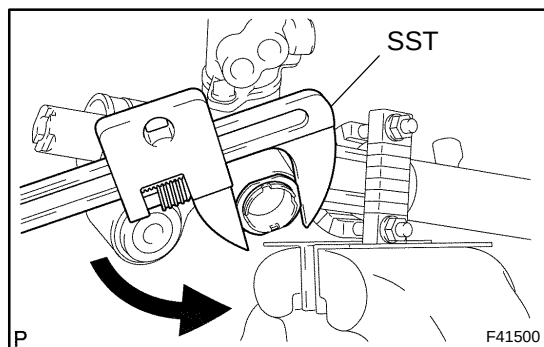


- (b) Using 2 SST, remove the 2 steering rack end sub-assy and 2 claw washers.

SST 09922-10010

NOTICE:

- Use SST 09922-10010 in the direction shown in the illustration.
- Securely hold the power steering rack end with a SST.

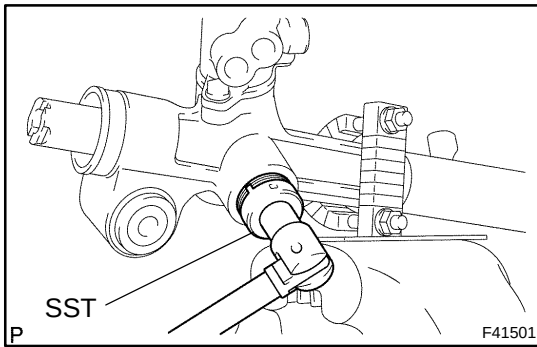
**26. REMOVE RACK GUIDE**

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

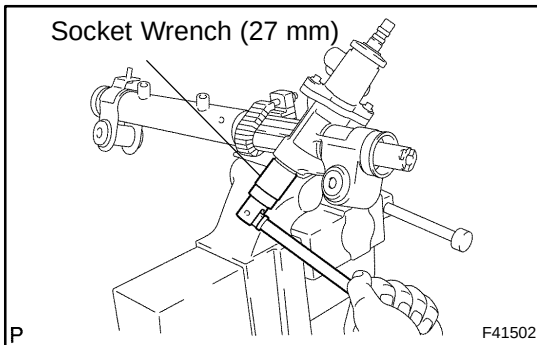
SST 09922-10010

NOTICE:

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

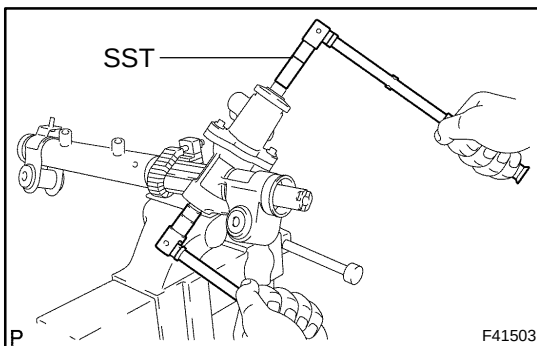


- (b) Using SST, remove the rack guide spring cap.
SST 09631-10021
- (c) Remove the compression spring and the rack guide.

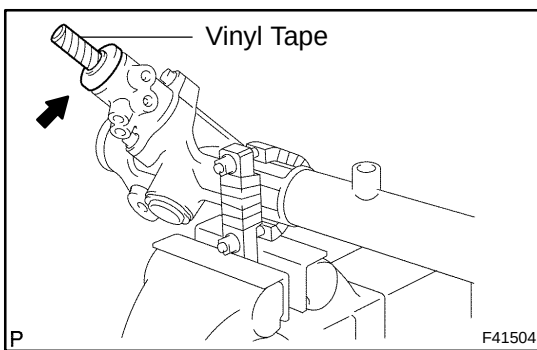


27. REMOVE POWER STEERING CONTROL VALVE

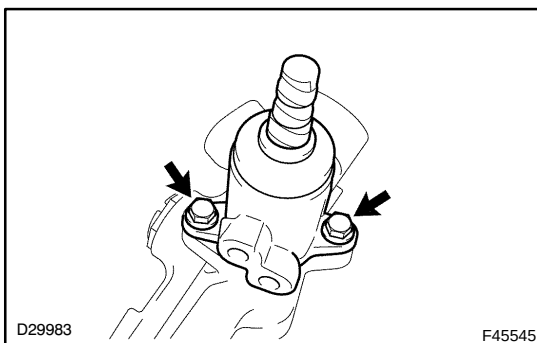
- (a) Using a socket wrench (27 mm), remove the rack housing cap.



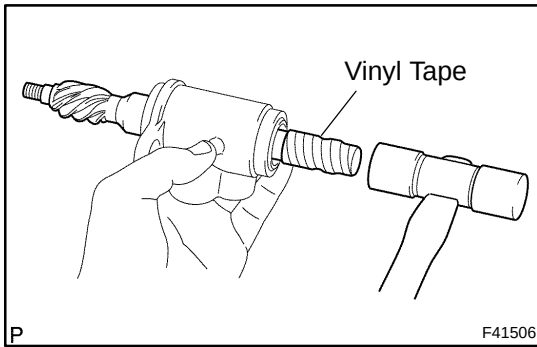
- (b) Using SST, hold the control valve and remove the nut.
SST 09616-0001 1



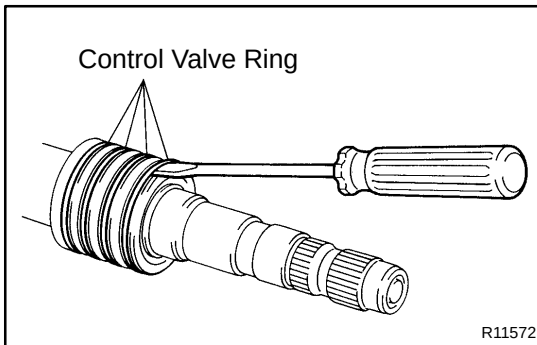
- (c) Wind vinyl tape around the serrated part of the control valve.
- (d) Remove the dust cover from the control valve housing.



- (e) Remove the 2 bolts and the control valve w/ control valve housing.
- (f) Remove the gasket.



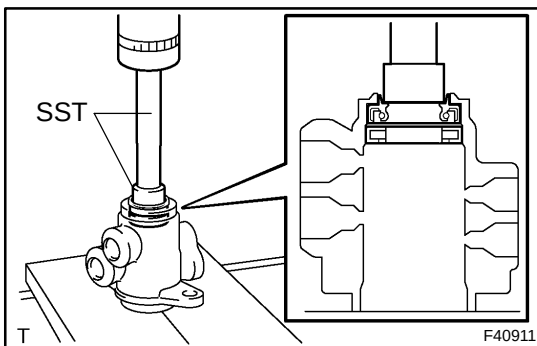
- (g) To prevent oil seal lip damage, wind vinyl tape around the serrated part of the control valve.
- (h) Using a plastic hammer, remove the control valve w/ oil seal from the control valve housing.
- (i) Remove the oil seal from the control valve.



- (j) Using a screwdriver, remove the 4 control valve rings.

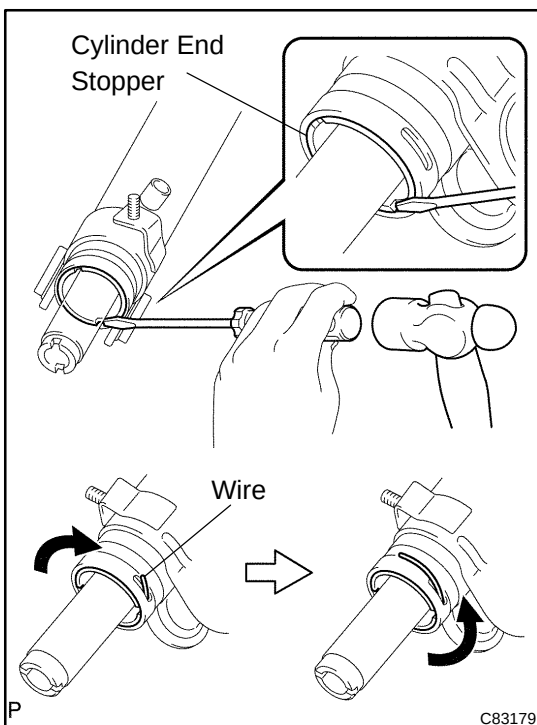
NOTICE:

Be careful not to damage the grooves for the control valve rings.

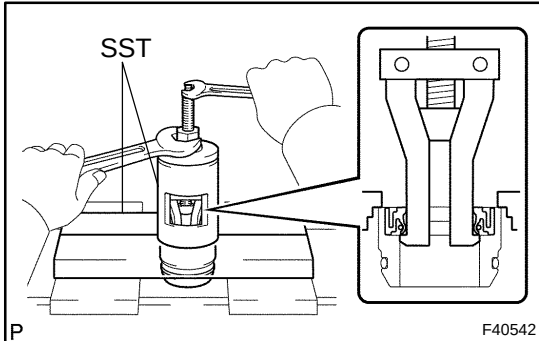
**28. REMOVE POWER STEERING CONTROL VALVE UPPER OIL SEAL**

- (a) Using SST and a press, remove the control valve upper bearing and control valve upper oil seal from the control valve housing.

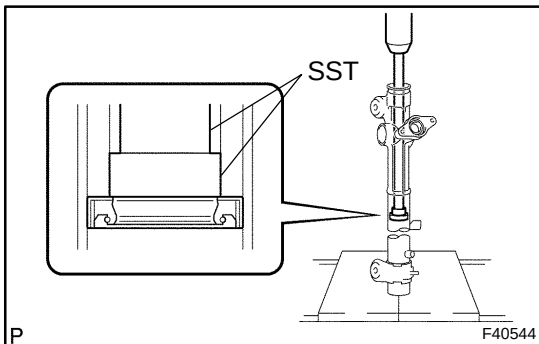
SST 09950-70010 (09951-07150), 09950-60010 (09951-00250)

**29. REMOVE CYLINDER END STOPPER**

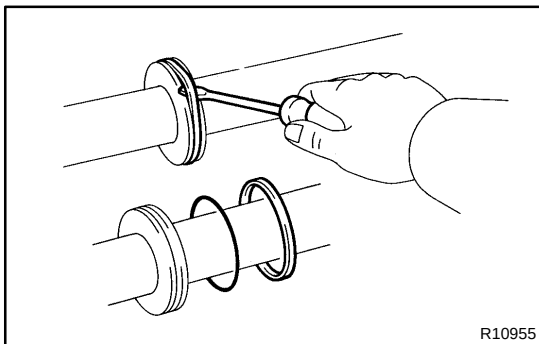
- (a) Using a screwdriver and a hammer, turn the cylinder end stopper clockwise until the wire end is visible through the service hole.
- (b) Using a screwdriver and a hammer, turn the cylinder end stopper counterclockwise, and remove the wire and cylinder end stopper.

30. REMOVE POWER STEERING RACK**31. REMOVE POWER STEERING RACK BUSH**

- (a) Remove the rack bush from the power steering rack.
- (b) Using SST, remove the rack bush oil seal.
SST 09527-2101 1, 09612-24014 (09613-22011)
- (c) Using a screwdriver, remove the O-ring from the rack bush.

**32. REMOVE POWER STEERING CYLINDER TUBE OIL SEAL**

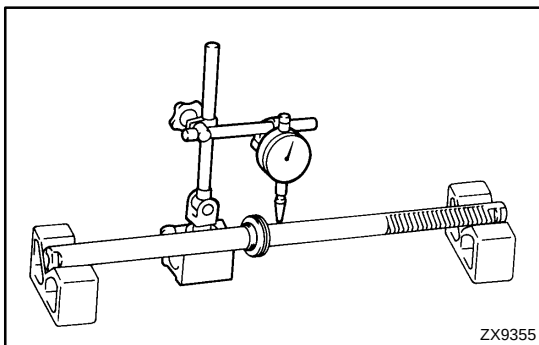
- (a) Using SST and a press, remove the cylinder tube oil seal.
SST 09950-70010 (09951-07360), 09950-60010 (09951-00290)

**33. REMOVE RACK STEERING PISTON RING**

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

NOTICE:

Be careful not to damage the grooves for rack steering piston ring.

**34. INSPECT POWER STEERING RACK**

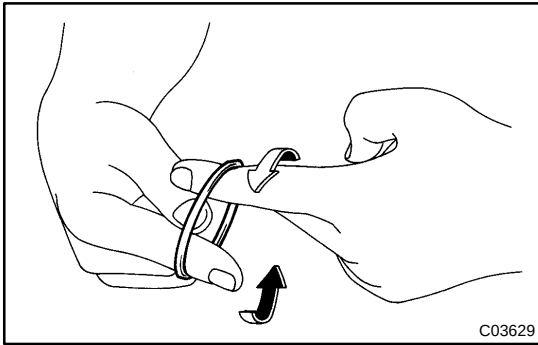
- (a) Using a dial indicator, check the power steering rack for runout and for teeth wear and damage.

Maximum runout: 0.3 mm (0.012 in.)

If necessary, replace the rack & pinion power steering gear Assy.

- (b) Check the back surface for wear and damage.

If necessary, replace the rack & pinion power steering gear Assy.



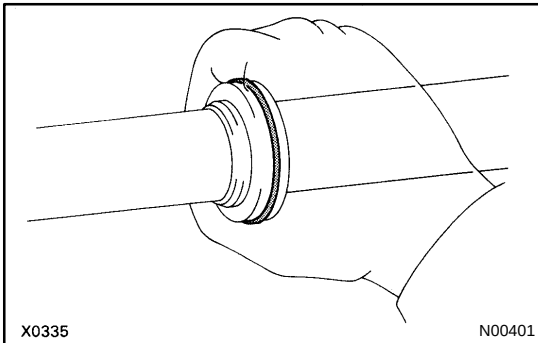
35. INSTALL RACK STEERING PISTON RING

- (a) Coat a new O-ring with power steering fluid and install it onto the power steering rack.
- (b) Expand a new rack steering piston ring with your fingers.

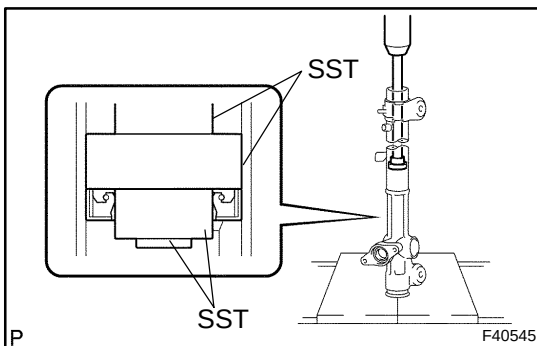
NOTICE:

Be careful not to over expand the rack steering piston ring.

- (c) Coat a new rack steering piston ring with power steering fluid.



- (d) Install the rack steering piston ring onto the power steering rack, and settle it down with your fingers.

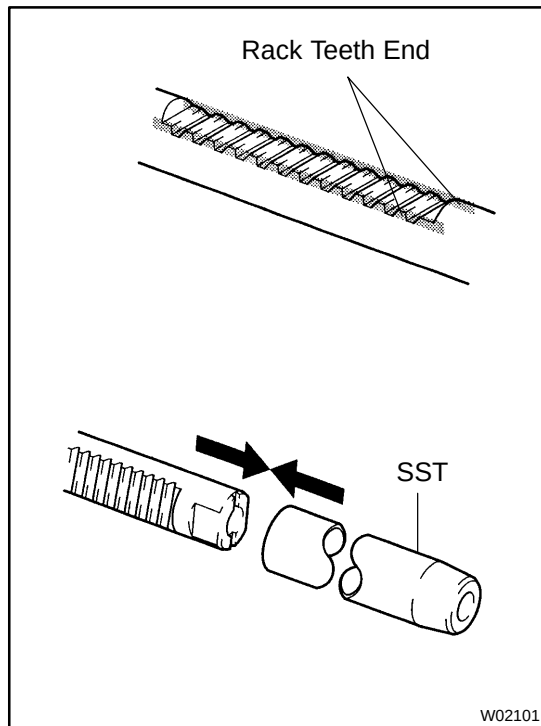


36. INSTALL POWER STEERING CYLINDER TUBE OIL SEAL

- (a) Coat a new cylinder tube oil seal lip with power steering fluid.
- (b) Using SST and a press, install the cylinder tube oil seal.
SST 09950-60010 (09951-00420, 09951-00250, 09952-06010), 09950-70010 (09951-07360)

NOTICE:

- Make sure that the cylinder tube oil seal is installed facing in the correct direction.
- Take care so that the cylinder tube oil seal will not be reversed as you install it.



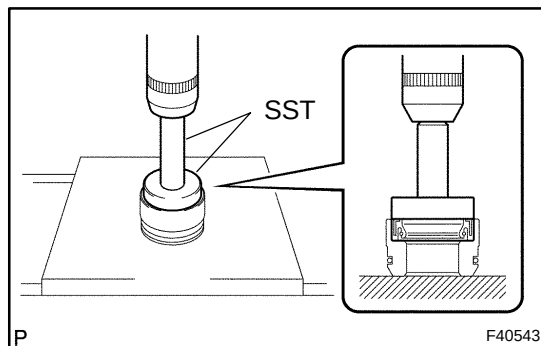
37. INSTALL POWER STEERING RACK

- Install SST onto the power steering rack.
SST 09631-33010

HINT:

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

- Coat the SST with power steering fluid.
- Install the power steering rack into the rack housing.
- Remove the SST.



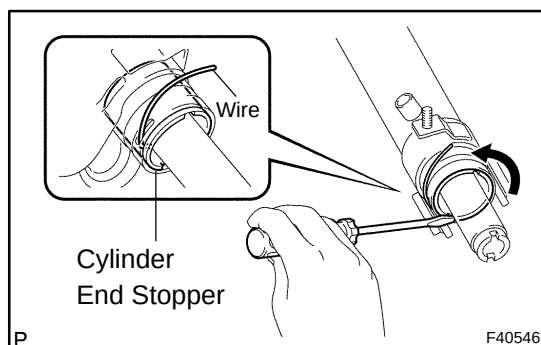
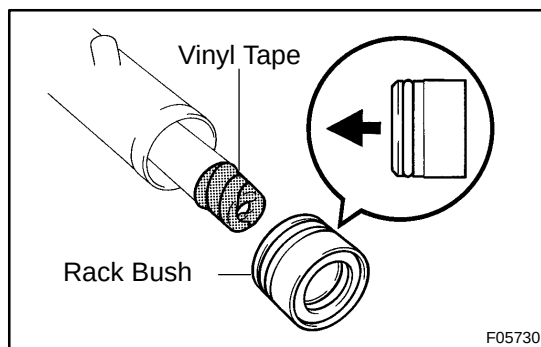
38. INSTALL POWER STEERING RACK BUSH

- Using SST and a press, install the rack bush oil seal onto the rack bush.
SST 09950-60010 (09951-00400), 09950-70010 (09951-07100)

NOTICE:

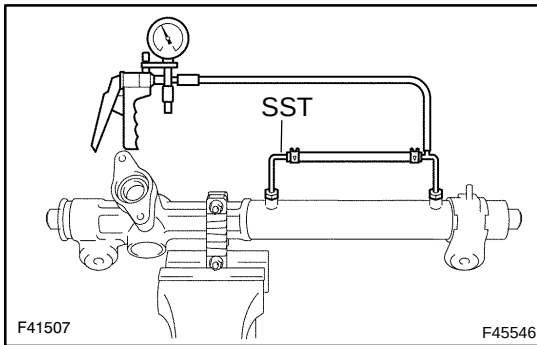
Make sure that the rack bush oil seal is installed facing in the correct direction.

- Coat a new O-ring with power steering fluid and install it onto the rack bush.
- To prevent rack bush oil seal lip damage, wind vinyl tape around the rack end, and apply power steering fluid.
- Install the rack bush onto the power steering rack.

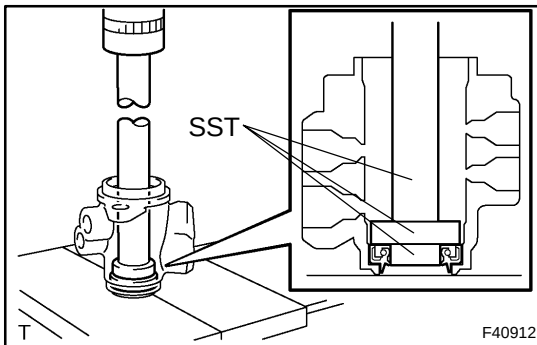


39. INSTALL CYLINDER END STOPPER

- Align the installation hole for the wire of the cylinder end stopper with the slot of the rack housing.
- Install a new wire into the cylinder end stopper.
- Using a screwdriver, turn the cylinder end stopper counterclockwise by $450 \pm 50^\circ$.

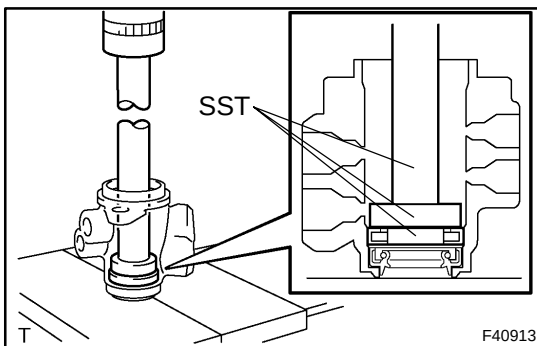
**40. AIR TIGHTNESS TEST**

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

**41. INSTALL POWER STEERING CONTROL VALVE UPPER OIL SEAL**

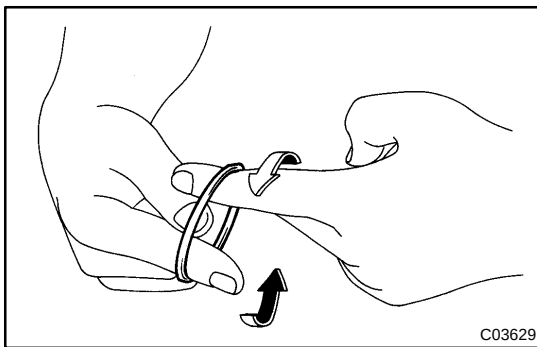
- Coat a control valve upper bearing and a new control valve upper oil seal with power steering fluid.
- Using SST and a press, install the control valve upper oil seal.

SST 09950-70010 (09951-07150), 09950-60010 (09951-00180, 09952-06010, 09951-00320)



- Using SST and a press, install the control valve upper bearing.

SST 09950-70010 (09951-07150), 09950-60010 (09951-00180, 09952-06010, 09951-00340)

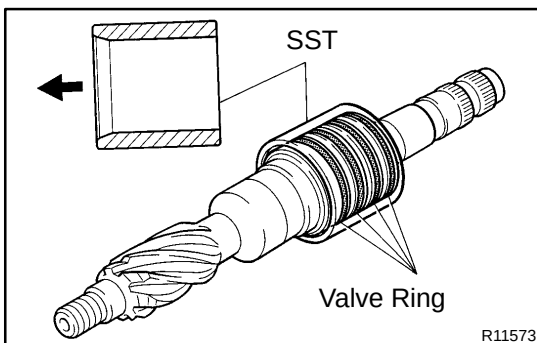
**42. INSTALL POWER STEERING CONTROL VALVE**

- Expand 4 new control valve rings with your fingers.

NOTICE:

Be careful not to over expand the control valve rings.

- Coat the 4 control valve rings with power steering fluid.
- Install the 4 control valve rings onto the control valve, and settle them down with your fingers.

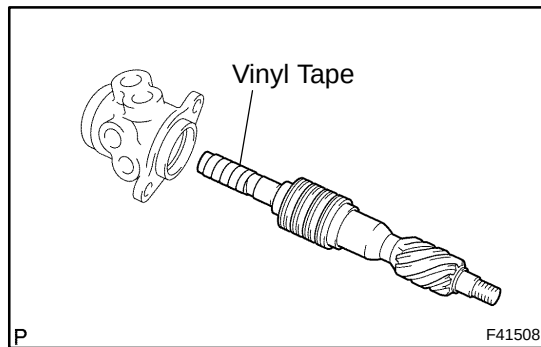


- Carefully slide the tapered end of SST over the control valve rings until they fit to the control valve.

SST 09631-20081

NOTICE:

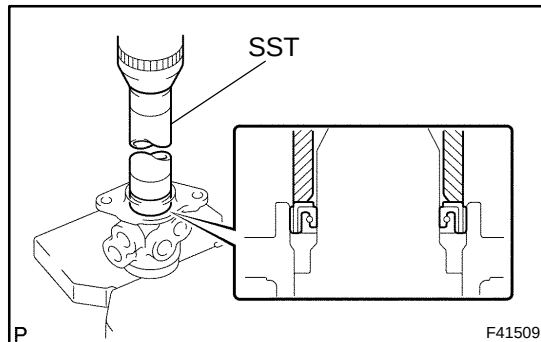
Be careful not to damage the control valve rings.



- (e) To prevent control valve upper oil seal lip damage, wind vinyl tape around the serrated part of the control valve.
- (f) Coat the control valve upper oil seal lip with power steering fluid.
- (g) Install the control valve onto the control valve housing.

NOTICE:

Be careful not to damage the control valve ring and control valve upper oil seal lip.



- (h) Coat a new oil seal lip with power steering fluid.

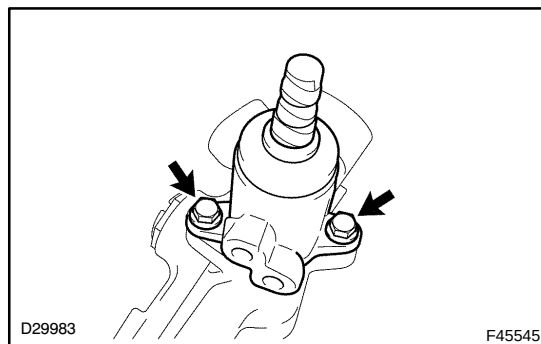
- (i) Using SST and a press, install the oil seal.

SST 09612-2201 1

NOTICE:

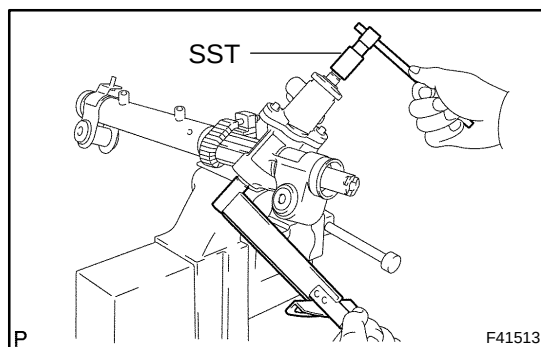
Make sure that the oil seal is installed facing in the correct direction.

- (j) Apply grease to the needle roller bearing.
- (k) Install a new gasket onto the control valve housing.
- (l) Wind vinyl tape around the serrated part of the control valve.



- (m) Install the control valve w/ control valve housing onto the rack housing with the 2 bolts.

Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)



- (n) Using SST, hold the control valve rotation and install a new lock nut.

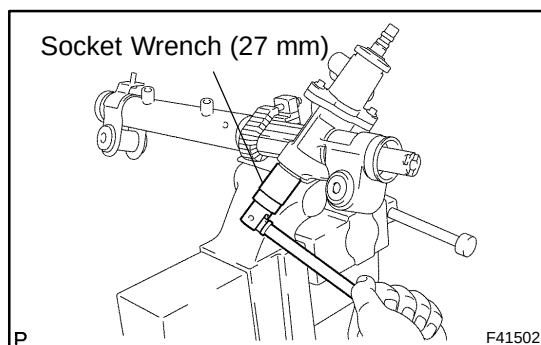
SST 09616-0001 1

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

- (o) Apply sealant to 2 or 3 threads of the rack housing cap.

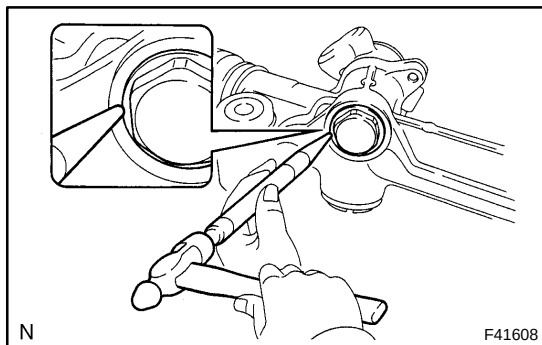
Sealant:

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



- (p) Using a socket wrench (27 mm), install the rack housing cap.

Torque: 59 N·m (597 kgf·cm, 43 ft·lbf)



- (q) Using a punch and a hammer, stake the rack housing cap and rack housing.

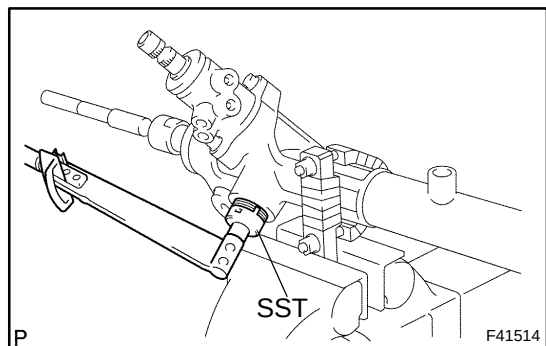
43. INSTALL RACK GUIDE

- Install the rack guide.
- Install the compression spring.
- Apply sealant to 2 or 3 threads of the rack guide spring cap.

Sealant:

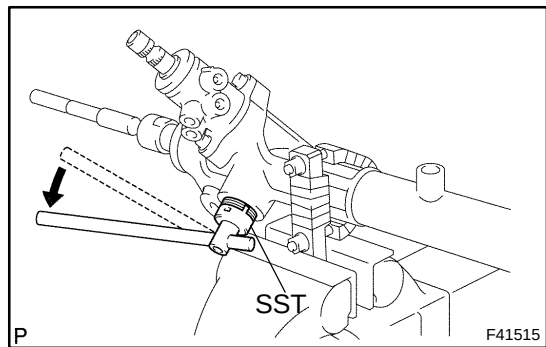
Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

- Temporarily install the rack guide spring cap.

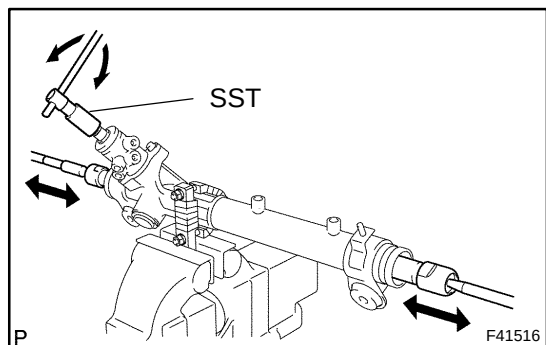


44. ADJUST TOTAL PRELOAD

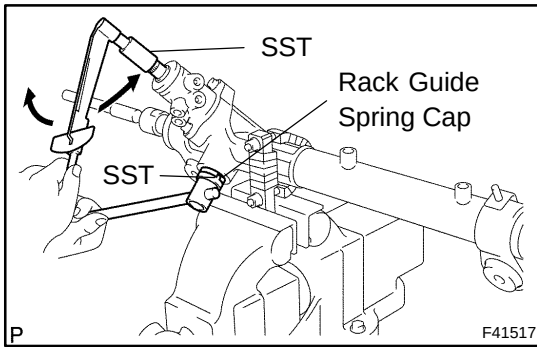
- To prevent the steering rack teeth from damaging the oil seal lip, temporarily install the RH and LH steering rack ends sub-assy.
- Using SST, torque the rack guide spring cap.
SST 09631-10021
Torque: 25 N·m (254 kgf·cm, 18 ft·lbf)



- Using SST, loosen the rack guide spring cap.
SST 09631-10021



- Using SST, turn the control valve to the right and left 1 or 2 times.
SST 09616-0001 1
- Using SST, loosen the rack guide spring cap until the compression spring is not functioning.
SST 09631-10021



- (f) Using SST and a torque wrench, tighten the rack guide spring cap until the preload is within specification.
SST 09616-0001 1, 09631-10021

Preload (turning):

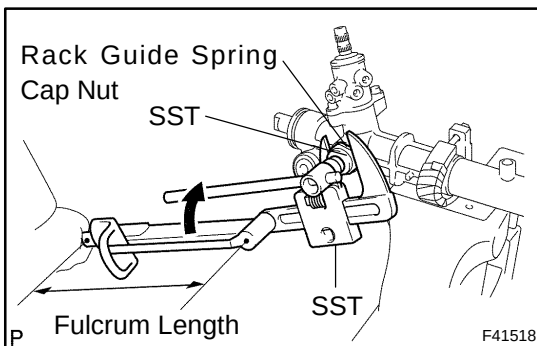
1.2 to 1.5 N·m (12.2 to 15.3 kgf·cm, 10.6 to 13.3 in·lbf)

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

Sealant:

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

- (h) Temporarily install the rack guide spring cap nut.



- (i) Using SST, hold the rack guide spring cap and using another SST, torque the rack guide spring cap nut.
SST 09616-0001 1, 09922-10010

Torque: 48 N·m (489 kgf·cm, 35 ft·lbf)

NOTICE:

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

HINT:

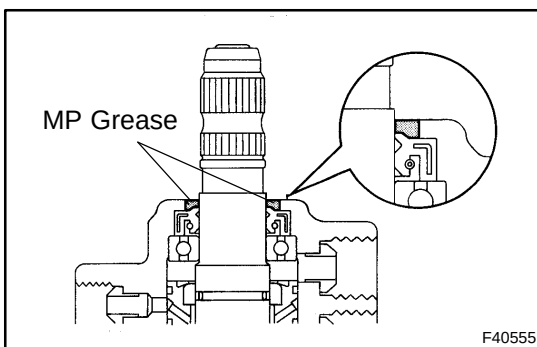
Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).

- (j) Precheck the total preload.

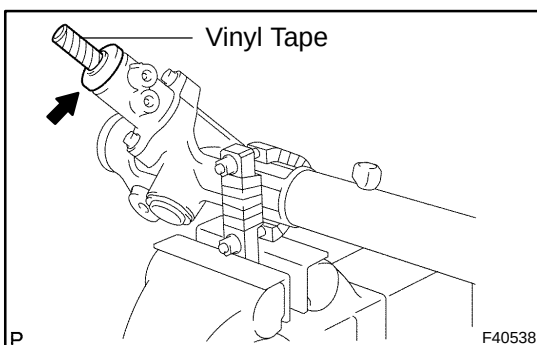
Preload (turning):

1.2 to 1.5 N·m (12.2 to 15.3 kgf·cm, 10.6 to 13.3 in·lbf)

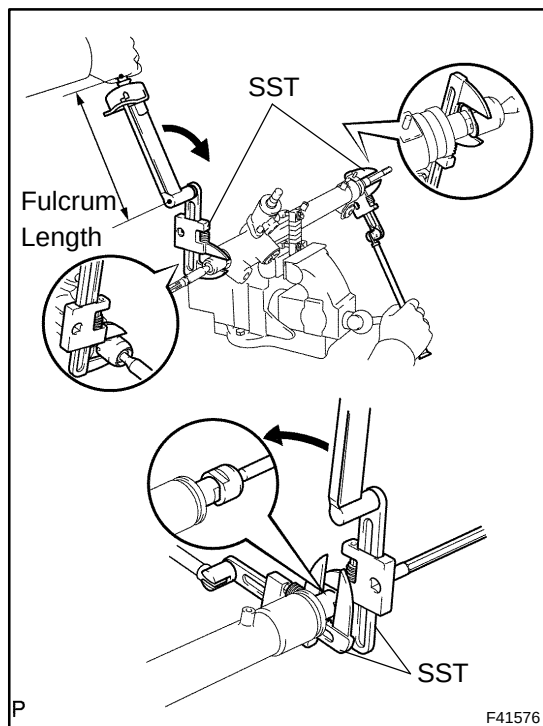
- (k) Remove the RH and LH steering rack ends sub-assy.



- (l) Apply MP grease to the control valve, as shown in the illustration.



- (m) Wind vinyl tape around the serrated part of the control valve.
(n) Install the dust cover onto the control valve housing.

**45. INSTALL STEERING RACK END SUB-ASSY**

- (a) Install 2 new claw washers, and temporarily install the 2 steering rack end sub-assy.

HINT:

Align the claws of the claw washer with the power steering rack grooves.

- (b) Using 2 SST, install the 2 rack end sub-assy.
SST 09922-10010

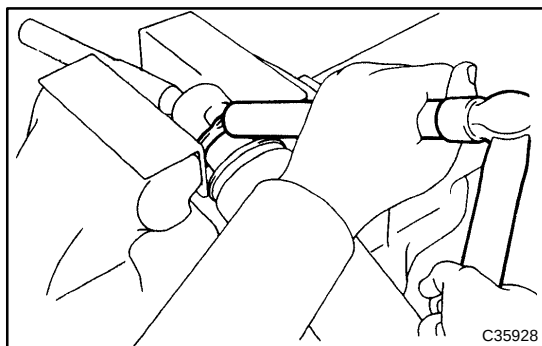
Torque: 58.5 N·m (597 kgf·cm, 43 ft·lbf)

NOTICE:

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

HINT:

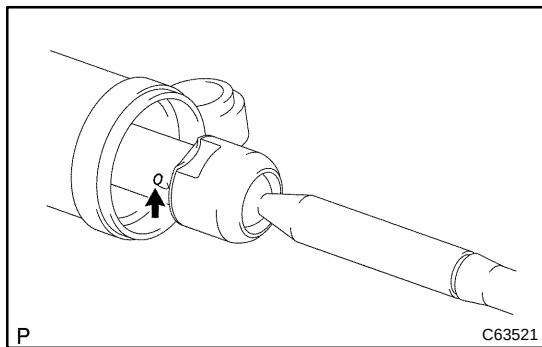
- Using SST, hold the power steering rack and install the rack end sub-assy.
- Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).



- (c) Using a brass bar and a hammer, stake the 2 claw washers.

NOTICE:

Avoid any impact to the power steering rack.

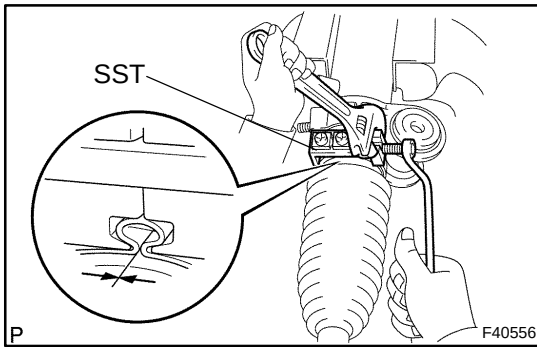
**46. INSPECT STEERING RACK END SUB-ASSY**

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

HINT:

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

47. INSTALL STEERING RACK BOOT NO.2**48. INSTALL STEERING RACK BOOT NO.1**

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

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

SST 09521-24010

Clearance: 3.0 mm (0.118 in.) or less

NOTICE:

Be careful not to damage the rack boot No.2.

50. INSTALL STEERING RACK BOOT NO.1 CLAMP

SST 09521-24010

HINT:

Perform the same procedure on the other side.

51. INSTALL STEERING RACK BOOT CLIP

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

52. INSTALL TIE ROD ASSY LH

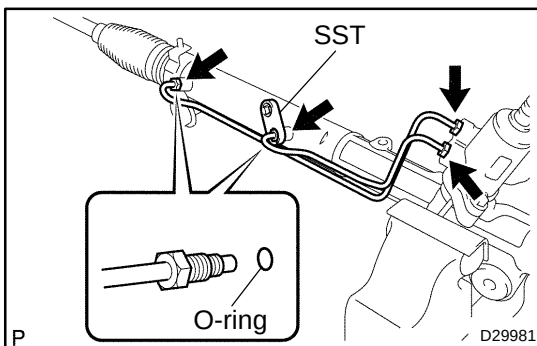
- (a) Screw the lock nut and tie rod assy onto the rack end sub-assy until the matchmarks are aligned.

HINT:

After adjusting toe-in, torque the lock nut.

53. INSTALL TIE ROD ASSY RH**HINT:**

Perform the same procedure on the other side.

**54. INSTALL STEERING LEFT TURN PRESSURE TUBE**

- (a) Coat 2 new O-rings with power steering fluid and install them onto the left turn pressure tube.
- (b) Using SST, install the left turn pressure tube onto the power steering gear assy.

SST 09023-38201

Torque: 11.5 N·m (117 kgf·cm, 8 ft·lbf)

HINT:

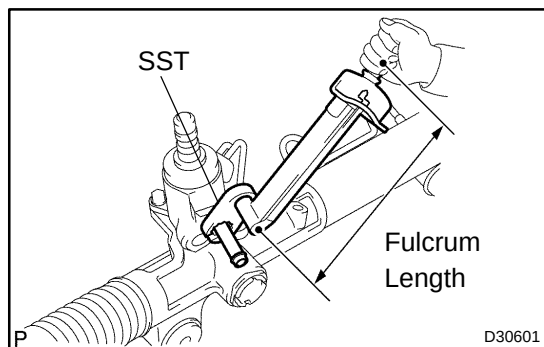
- Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).
- This torque value is effective when SST is parallel to the torque wrench.

55. INSTALL STEERING RIGHT TURN PRESSURE TUBE

SST 09023-38201

HINT:

Perform the same procedure on the other side.

**56. INSTALL RETURN TUBE NO.2**

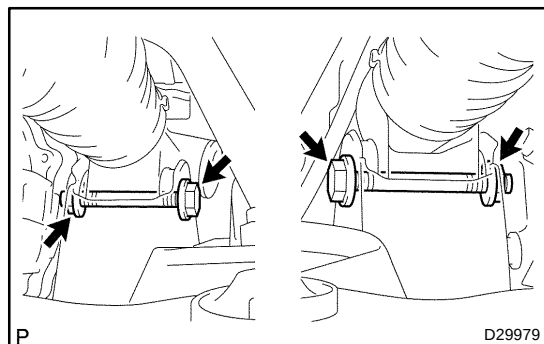
- (a) Using SST, install the return tube No.2.

SST 09023-12701

Torque: 22.5 N·m (229 kgf·cm, 17 ft·lbf)

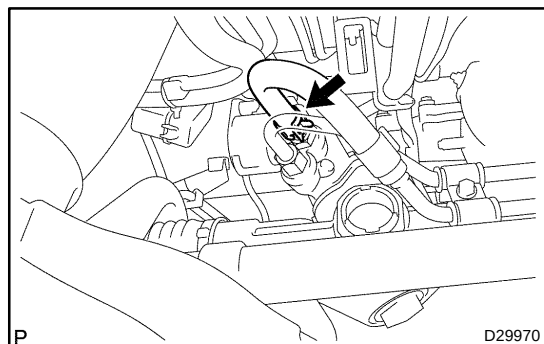
HINT:

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

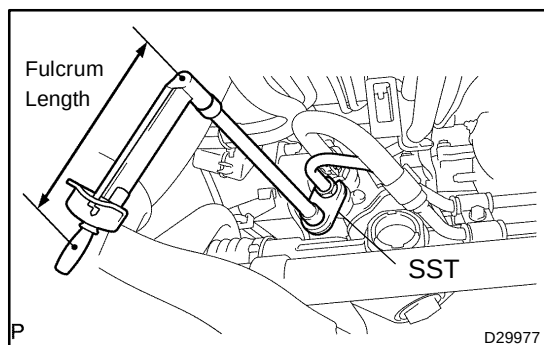
**57. INSTALL RACK & PINION POWER STEERING GEAR ASSY**

- (a) Install the power steering gear assy with the 2 bolts and nuts.

Torque: 70 N·m (714 kgf·cm, 52 ft·lbf)

**58. CONNECT PRESSURE FEED TUBE ASSY**

- (a) Connect the pressure feed tube assy to the power steering gear assy.
(b) Install the clip.



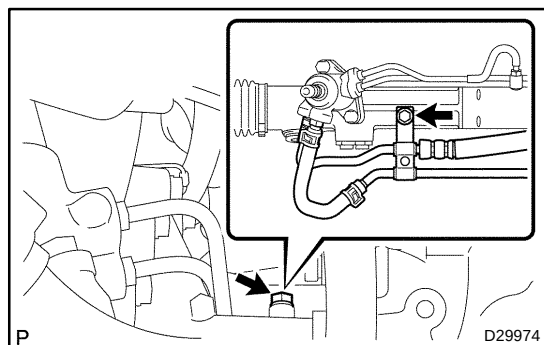
- (c) Using SST, connect the return tube assy to the power steering gear assy.

SST 09023-12701

Torque: 22.5 N·m (229 kgf·cm, 17 ft·lbf)

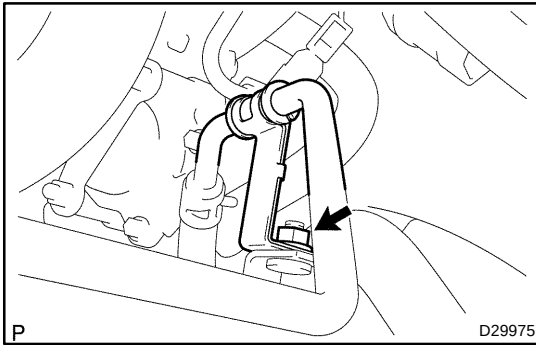
HINT:

- Use a torque wrench with a fulcrum length of 300 mm (11.81 in.).
- This torque value is effective when SST is parallel to the torque wrench.

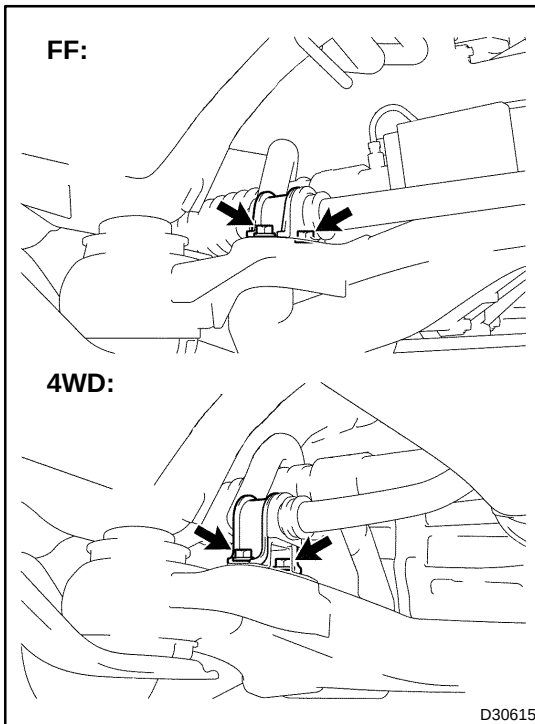


- (d) Install the tube clamp with the bolt.

Torque: 9.8 N·m (100 kgf·cm, 87 in·lbf)



- (e) Install the tube clamp with the nut.
Torque: 9.8 N·m (100 kgf·cm, 87 in.-lbf)



59. INSTALL FRONT STABILIZER BRACKET NO.1 LH

- (a) Install the stabilizer bracket No.1 with the 2 bolts.
Torque: 17 N·m (173 kgf·cm, 12 ft·lbf)

60. INSTALL FRONT STABILIZER BRACKET NO.1 RH

HINT:

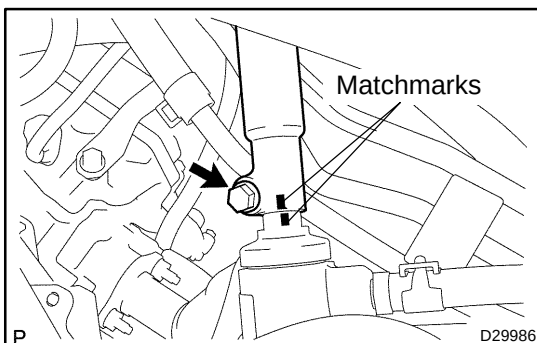
Perform the same procedure on the other side.

61. INSTALL FRONT STABILIZER LINK ASSY LH (See page 30-18)

62. INSTALL FRONT STABILIZER LINK ASSY RH

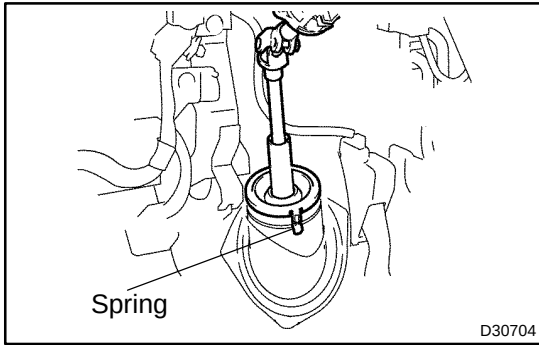
HINT:

Perform the same procedure on the other side.



63. INSTALL STEERING INTERMEDIATE SHAFT ASSY

- (a) Align matchmarks on the intermediate shaft assy and power steering gear assy.
 (b) Install the bolt.
Torque: 36 N·m (367 kgf·cm, 27 ft·lbf)



(c) Install the dust cover.

HINT:

Ensure that the springs are installed tightly.

64. INSTALL TIE ROD ASSY LH (See page 30-18)

65. INSTALL TIE ROD ASSY RH

HINT:

Perform the same procedure on the other side.

66. INSTALL FRONT WHEEL

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

67. INSPECT CENTER FRONT WHEEL

68. INSPECT STEERING WHEEL CENTER POINT

69. ADD POWER STEERING FLUID

70. BLEED POWER STEERING FLUID (See page 51-3)

71. CHECK POWER STEERING FLUID LEAKAGE

72. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT (See page 26-7)

OVERHAUL

NOTICE:

- When using a vise, do not over tighten.
- When installing, coat the parts indicated by the arrows with power steering fluid (See page 51-7).

1. REMOVE FRONT WHEEL RH
2. DRAIN POWER STEERING FLUID
3. REMOVE FRONT FENDER APRON SEAL RH
4. DISCONNECT OIL RESERVOIR TO PUMP HOSE NO.1

(a) Remove the clip and disconnect the oil reservoir to pump hose No.1.

NOTICE:

Take care not to spill fluid on the V belt.

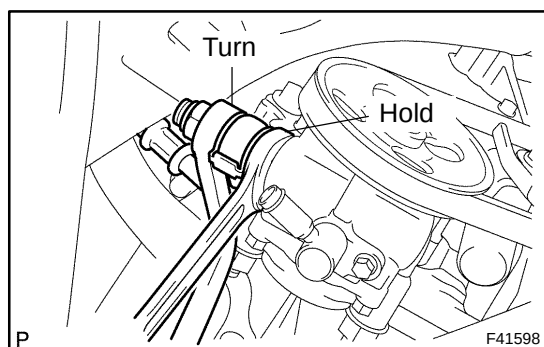
5. REMOVE POWER STEERING OIL PRESSURE SWITCH

- (a) Disconnect the connector.
 (b) Remove the oil pressure switch from the union bolt.

NOTICE:

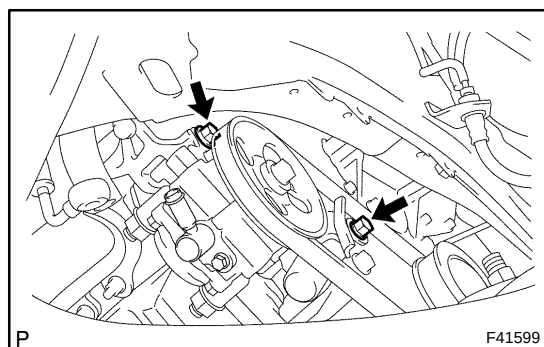
Be careful not to drop the oil pressure switch.

If the oil pressure switch is dropped or strongly damaged, replace it with a new one.



6. DISCONNECT PRESSURE FEED TUBE ASSY

- (a) Using a spanner (24 mm) to hold the pressure port union, remove the union bolt and the gasket.
 (b) Disconnect the pressure feed tube assy.



7. REMOVE VANE PUMP V BELT

- (a) Loosen the 2 bolts and remove the vane pump V belt.

8. REMOVE VANE PUMP ASSY

- (a) Remove the 2 bolts and the vane pump assy.

9. REMOVE POWER STEERING SUCTION PORT UNION

- (a) Remove the bolt and the suction port union.
- (b) Remove the O-ring from the suction port union.

10. 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 the compression spring.

11. REMOVE VANE PUMP BRACKET REAR

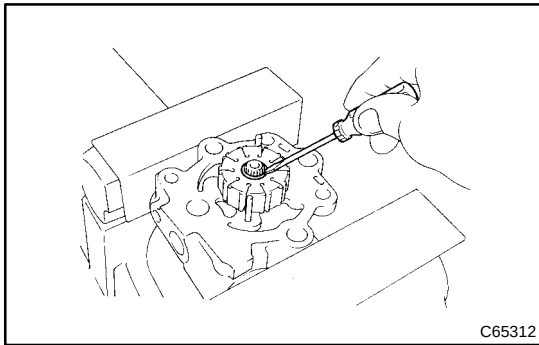
- (a) Remove the 2 bolts, nuts, and the vane pump bracket rear from the vane pump assy.

12. REMOVE VANE PUMP HOUSING REAR

- (a) Remove the 4 bolts and the vane pump housing rear from the vane pump housing front.
- (b) Remove the gasket.
- (c) Remove the 2 O-rings from the vane pump housing rear.

13. REMOVE VANE PUMP SIDE PLATE REAR

- (a) Remove the wave washer from the vane pump side plate rear.
- (b) Remove the vane pump side plate rear.

14. REMOVE VANE PUMP CAM RING**15. REMOVE VANE PUMP SHAFT SNAP RING**

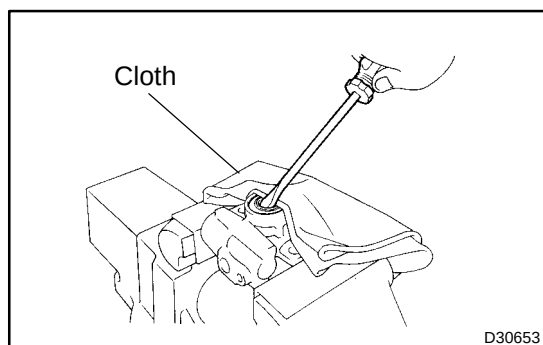
- (a) Using a screwdriver, remove the vane pump shaft snap ring from the w/ pulley shaft sub-assy.

16. REMOVE VANE PUMP ROTOR

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

17. REMOVE W/PULLEY SHAFT SUB-ASSY**18. REMOVE PUMP BRACKET FRONT**

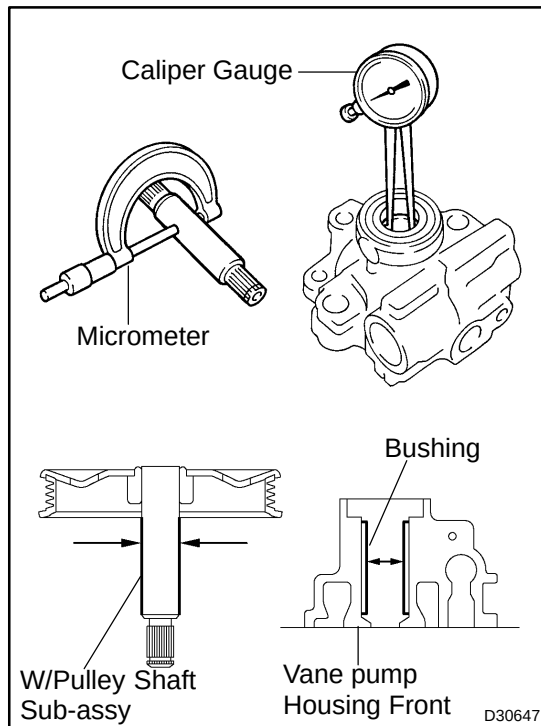
- (a) Remove the bolt and the pump bracket front from the vane pump housing front.

**19. REMOVE VANE PUMP HOUSING OIL SEAL**

- (a) Using a screwdriver, remove the vane pump housing oil seal from the vane pump housing front.

NOTICE:

Be careful not to damage the bushing of the vane pump housing front.



20. INSPECT VANE PUMP SHAFT AND BUSH IN HOUSING FRONT

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

Standard clearance:

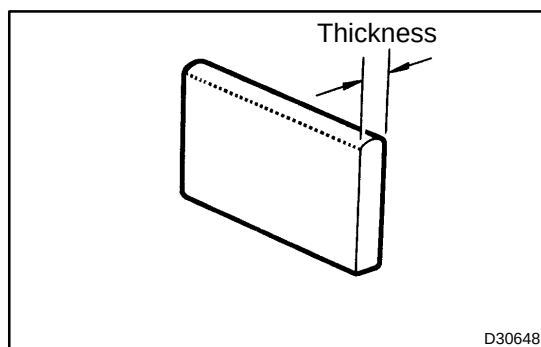
0.027 to 0.054 mm (0.00106 to 0.00213 in.)

Maximum clearance: 0.07 mm (0.0028 in.)

If it is more than the maximum, replace the vane pump assy.

- (b) Check if there is any damage or wear on the bushing of vane pump housing front and the w/ pulley shaft sub-assy.

If necessary, replace the vane pump assy.

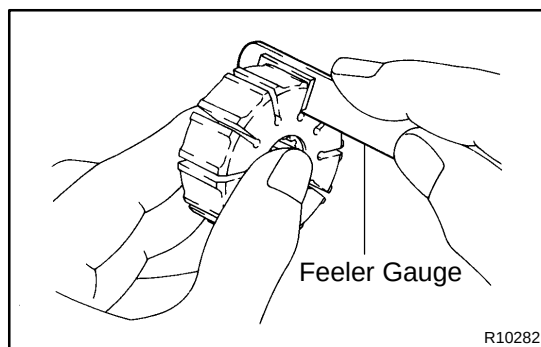


21. INSPECT VANE PUMP ROTOR AND VANE PUMP PLATES

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

Minimum thickness:

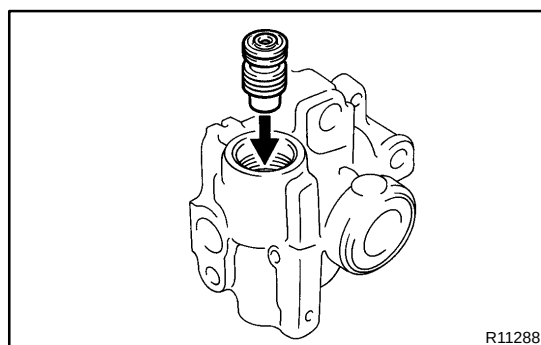
1.397 to 1.403 mm (0.0550 to 0.05524 in.)



- (b) Using a feeler gauge, measure the clearance between the vane pump rotor groove and the vane pump plate.

Maximum clearance: 0.03 mm (0.0012 in.)

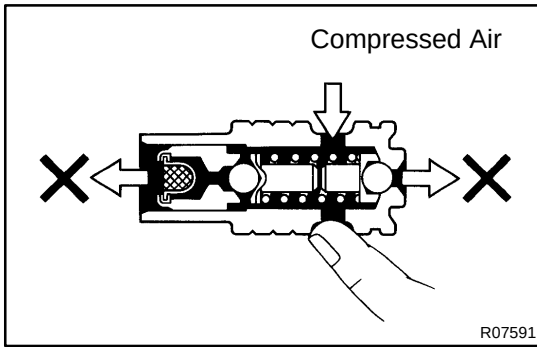
If it is more than the maximum, replace the vane pump assy.



22. INSPECT FLOW CONTROL VALVE

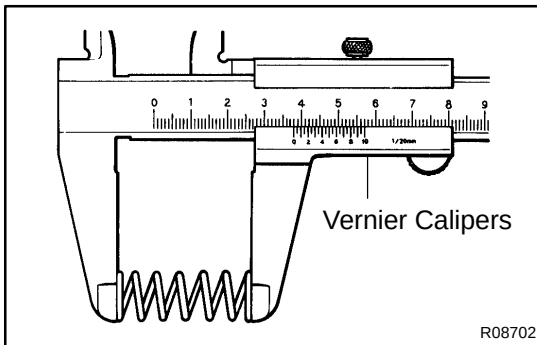
- (a) Coat the flow control valve with power steering fluid and check that it falls smoothly into the flow control valve hole by its own weight.

If necessary, replace the vane pump assy.



- (b) Check the flow control valve for leakage. Close one of the holes and apply compressed air of 392 to 490 kPa (4 to 5 kgf/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 assy.



23. INSPECT FLOW CONTROL VALVE COMPRESSION SPRING

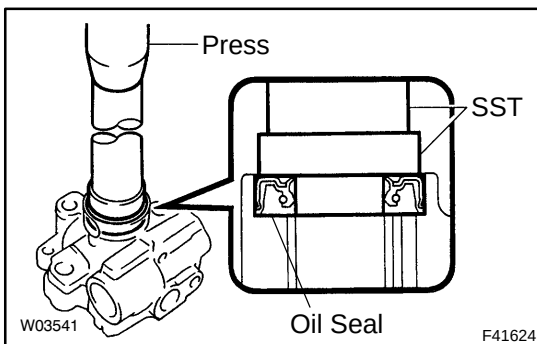
- (a) Using vernier calipers, measure the free length of the compression spring.

Minimum free length: 32.24 mm (1.2693 in.)

If it is not within the specification, replace the vane pump assy.

24. INSPECT PRESSURE PORT UNION

If the union seat in the pressure port union is remarkably damaged, it may cause fluid leakage. Replace the vane pump assy.



25. INSTALL VANE PUMP HOUSING OIL SEAL

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

SST 09950-60010 (09951-00330),
09950-70010 (09951-07100)

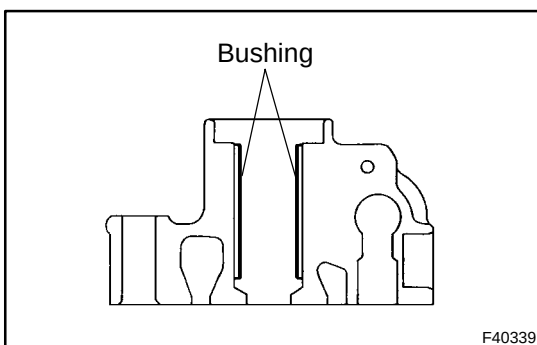
NOTICE:

Make sure that the vane pump housing oil seal is installed facing in the correct direction.

26. INSTALL PUMP BRACKET FRONT

- (a) Install the pump bracket front with the bolt.

Torque: 44 N·m (449 kgf·cm, 32 ft·lbf)

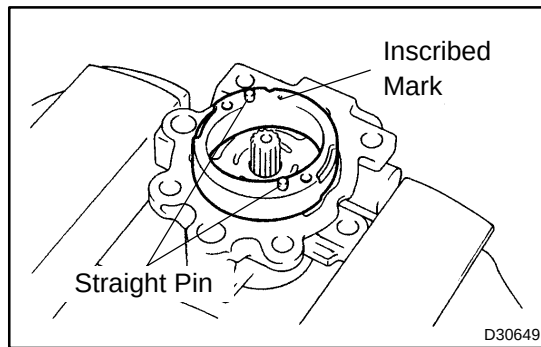


27. INSTALL W/PULLEY SHAFT SUB-ASSY

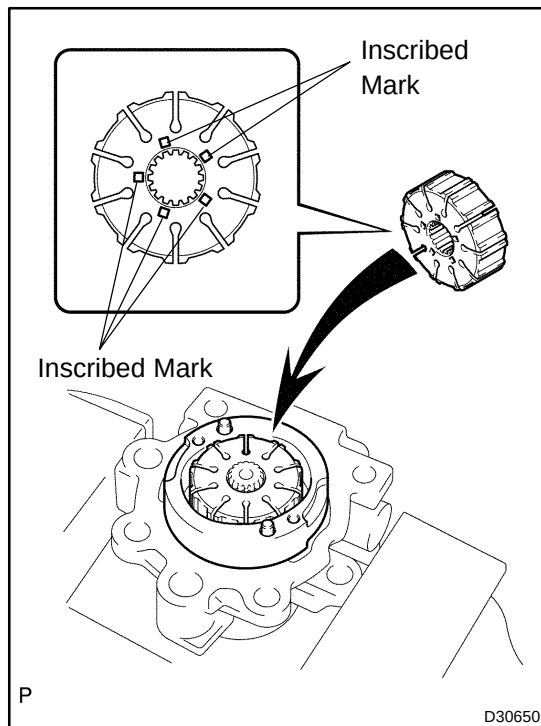
- (a) Coat bushing surface of the vane pump housing front with power steering fluid.
- (b) Gradually insert the w/pulley shaft sub-assy from the pulley side.

NOTICE:

- Do not damage the vane pump housing oil seal lip in the vane pump housing front.
- After installation, check the vane pump housing oil seal lip.

**28. INSTALL VANE PUMP CAM RING**

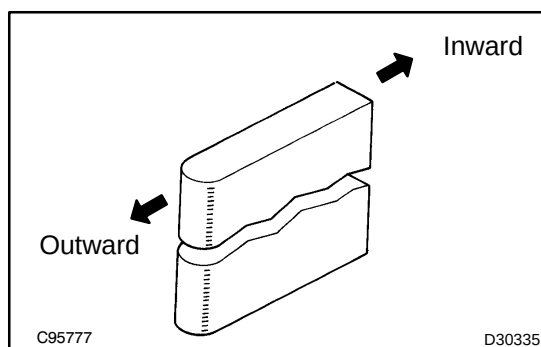
- (a) Align the holes of the vane pump cam ring with 2 straight pins, and install the vane pump cam ring with inscribed mark facing upward.

**29. INSTALL VANE PUMP ROTOR**

- (a) Install the vane pump rotor with inscribed mark facing downward.

NOTICE:

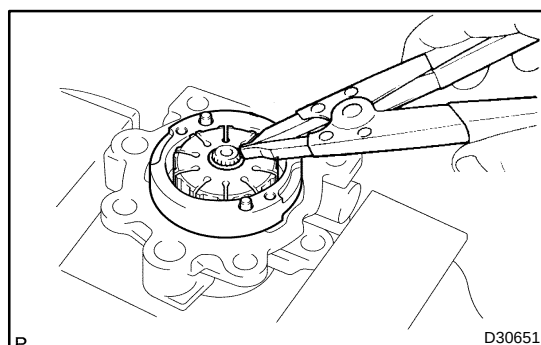
Make sure that the vane pump rotor is installed facing in the correct direction.

**30. INSTALL VANE PUMP VANE PLATES**

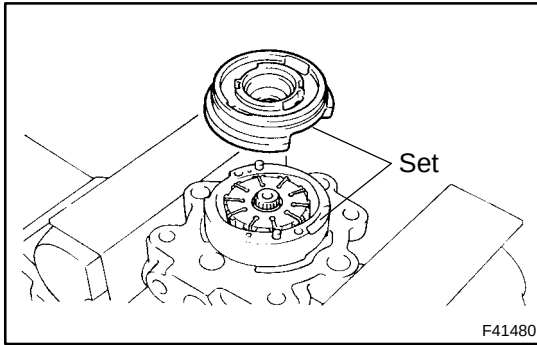
- (a) Coat 10 vane pump plates with power steering fluid.
(b) Install the vane pump plates with the round end facing outward.

NOTICE:

Make sure that the vane pump plates are installed facing in the correct direction.

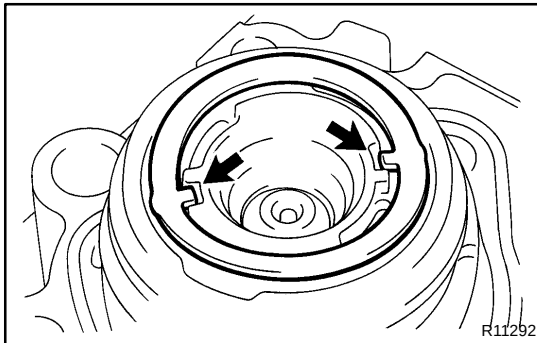
**31. INSTALL VANE PUMP SHAFT SNAP RING**

- (a) Using a snap ring expander, install a new vane pump shaft snap ring onto the w/ pulley shaft sub-assy.

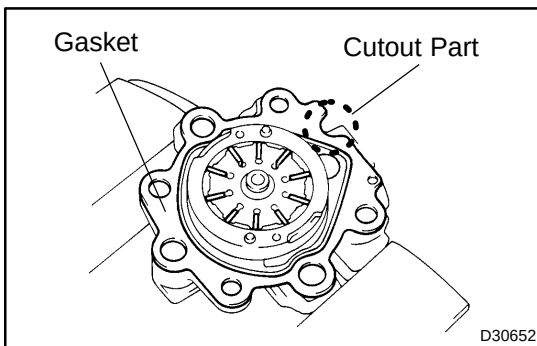


32. INSTALL VANE PUMP SIDE PLATE REAR

- (a) Align the groove of the vane pump cam ring with that of the vane pump side plate rear, and install the vane pump side plate rear.



- (b) Install the wave washer so that its protrusions fit into the slots in the vane pump side plate rear.
- (c) Coat 2 new O-rings with power steering fluid and install them onto the vane pump side plate rear.



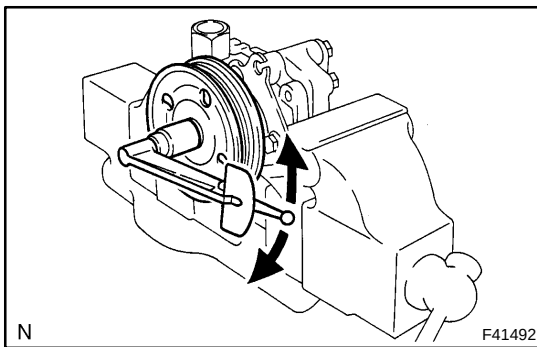
33. INSTALL VANE PUMP HOUSING REAR

- (a) Install a new gasket onto the vane pump housing front.

NOTICE:

Make sure that the gasket is installed facing in the correct direction.

- (b) Install the vane pump housing rear with the 4 bolts.
Torque: 24 N·m (245 kgf·cm, 18 ft·lbf)



34. MEASURE VANE PUMP ROTATION TORQUE

- (a) Check that the vane 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.)

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

Rotating torque:

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

35. INSTALL VANE PUMP BRACKET REAR

- (a) Install the vane pump bracket rear with the 2 bolts and nuts.
Torque: 44 N·m (449 kgf·cm, 32 ft·lbf)

36. INSTALL FLOW CONTROL VALVE

- (a) Coat the compression spring with power steering fluid and install it.
 (b) Coat the flow control valve with power steering fluid.
 (c) Install the flow control valve.

NOTICE:

Make sure that the flow control valve is installed facing in the correct direction.

- (d) Coat a new O-ring with power steering fluid and install it onto the pressure port union.
 (e) Install the pressure port union.

Torque: 83 N·m (846 kgf·cm, 61 ft·lbf)

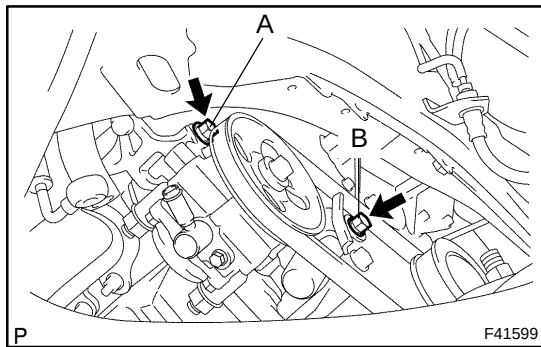
37. INSTALL POWER STEERING SUCTION PORT UNION

- (a) Coat a new O-ring with power steering fluid and install it onto the suction port union.
 (b) Install the suction port union with the bolt.

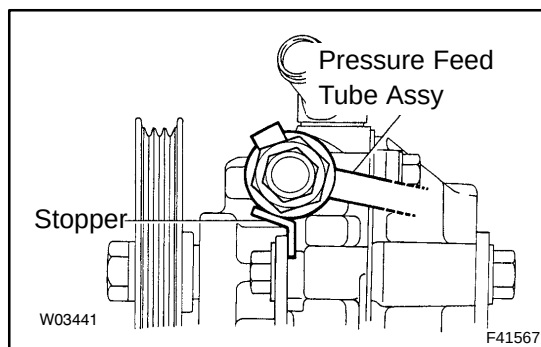
Torque: 13 N·m (133 kgf·cm, 10 ft·lbf)

38. INSTALL VANE PUMP ASSY

- (a) Temporarily install the vane pump assy with the 2 bolts.

**39. INSTALL VANE PUMP V BELT**

- (a) Install the vane pump V belt and adjust the V belt tension (See page).
 (b) Torque the bolt A.
Torque: 44 N·m (449 kgf·cm, 32 ft·lbf)
 (c) Torque the bolt B.
Torque: 44 N·m (449 kgf·cm, 32 ft·lbf)

**40. CONNECT PRESSURE FEED TUBE ASSY**

- (a) Using a spanner (24 mm) to hold the pressure port union, connect the pressure feed tube assy with the union bolt and a new gasket.
Torque: 52 N·m (525 kgf·cm, 38 ft·lbf)

NOTICE:

Make sure that the stopper of the pressure feed tube assy touches the pump bracket front as shown in the illustration, then tighten the union bolt.

41. INSTALL POWER STEERING OIL PRESSURE SWITCH

- (a) Install the oil pressure switch to the union bolt.
Torque: 21 N·m (214 kgf·cm, 15 ft·lbf)

NOTICE:

Make sure that there is no oil on or inside the connector.

- (b) Connect the connector.

42. CONNECT OIL RESERVOIR TO PUMP HOSE NO.1

- (a) Connect the oil reservoir to pump hose No.1.
 (b) Install the clip.

- 43. INSTALL FRONT FENDER APRON SEAL RH
- 44. INSTALL FRONT WHEEL RH
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
- 45. BLEED POWER STEERING FLUID (See page [51-3](#))
- 46. INSPECT FLUID LEAK