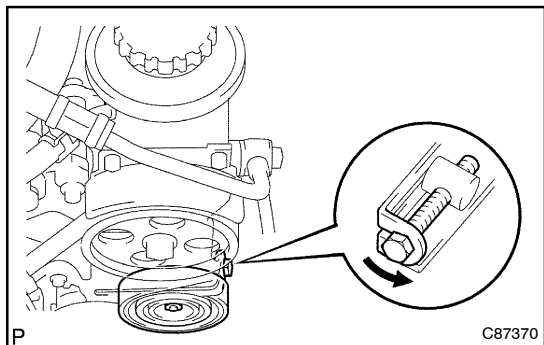


OVERHAUL

NOTICE:

- When using a vise, do not overtighten.
- When installing, coat the parts indicated by the arrows with power steering fluid (See page 51-17).

1. REMOVE FRONT WHEEL RH
2. DRAIN POWER STEERING FLUID



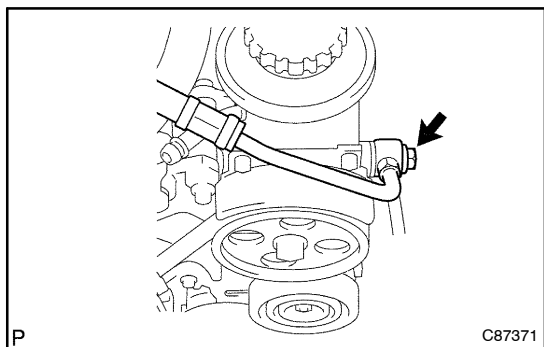
3. REMOVE V (COOLER COMPRESSOR TO CRANKSHAFT PULLEY) BELT NO.1(W/O AIR CONDITIONER)

- (a) Loosen power steering idle pulley set bolt.
- (b) Loosen power steering belt adjusting bolt.
- (c) Remove the V (cooler compressor to crankshaft pulley) belt No. 1.

4. REMOVE V (COOLER COMPRESSOR TO CRANKSHAFT PULLEY) BELT NO.1(W/ AIR CONDITIONER) (See page 55-35)

5. SEPARATE RETURN TUBE SUB-ASSY NO.2

- (a) Remove the clip and separate the return tube sub-assy No. 2.

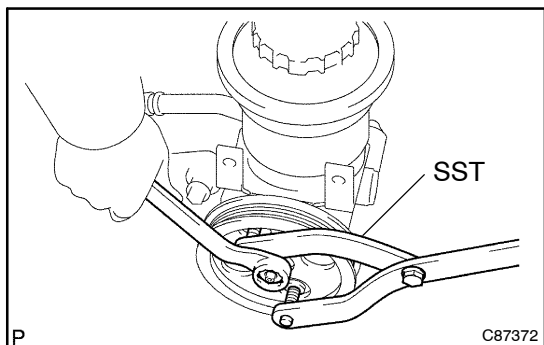


6. SEPARATE PRESSURE FEED TUBE ASSY

- (a) Remove the union bolt, gasket and disconnect the pressure feed tube assy.

7. REMOVE PULLEY COVER

- (a) Remove the 2 bolts and pulley cover.

**8. REMOVE VANE PUMP PULLEY**

- (a) Using SST to stop the pulley rotating, remove the pulley set nut.
SST 09960-10010 (09962-01000, 09963-01000)
- (b) Remove the vane pump pulley from the vane pump shaft.

9. REMOVE VANE PUMP ASSY

- (a) Remove the 3 bolts and vane pump assy.

10. REMOVE VANE PUMP OIL RESERVOIR SUB-ASSY

- (a) Remove the 3 bolts and vane pump oil reservoir sub-assy.
- (b) Remove the O-ring from the vane pump oil reservoir sub-assy.

11. REMOVE PRESSURE PORT UNION

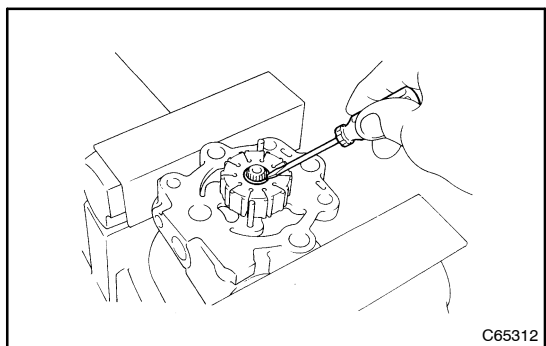
- (a) Using a socket wrench (27 mm), remove the pressure port union.
- (b) Remove the O-ring from the pressure port union.

12. REMOVE FLOW CONTROL VALVE**13. REMOVE FLOW CONTROL VALVE COMPRESSION SPRING****14. REMOVE VANE PUMP HOUSING REAR**

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

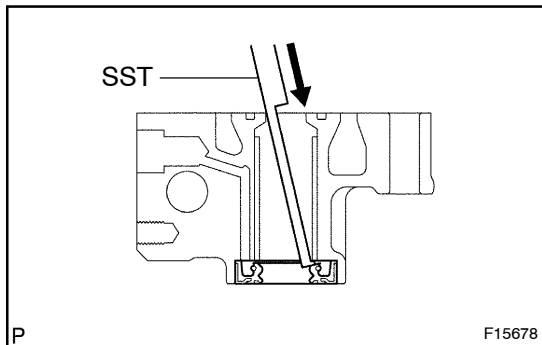
15. REMOVE VANE PUMP SIDE PLATE REAR

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

16. REMOVE VANE PUMP CAM RING**17. REMOVE VANE PUMP ROTOR**

- (a) Remove the 10 vane plates from the vane pump rotor.
- (b) Using a screwdriver, remove the snap ring from the vane pump shaft.
- (c) Remove the vane pump rotor.

18. REMOVE VANE PUMP SHAFT

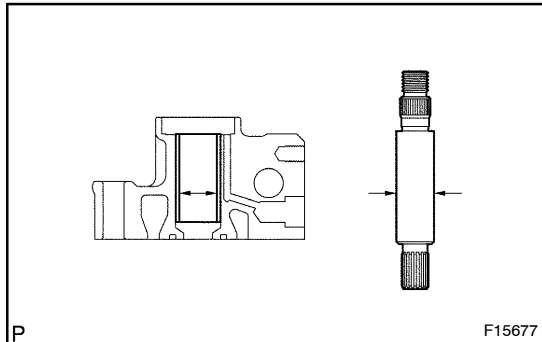
**19. REMOVE VANE PUMP HOUSING OIL SEAL**

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

SST 09631-10030

NOTICE:

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

**20. INSPECT OIL CLEARANCE**

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

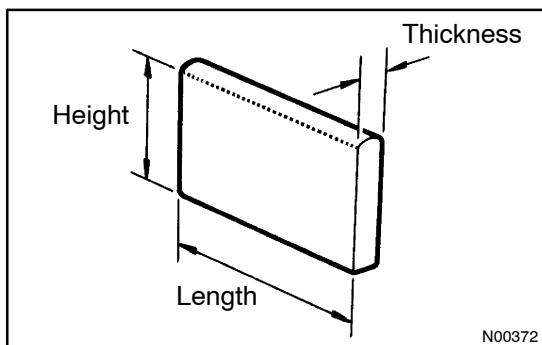
Standard clearance:

0.032 - 0.049 mm (0.0012 - 0.0019 in.)

Maximum clearance:

0.07 mm (0.0028 in.)

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

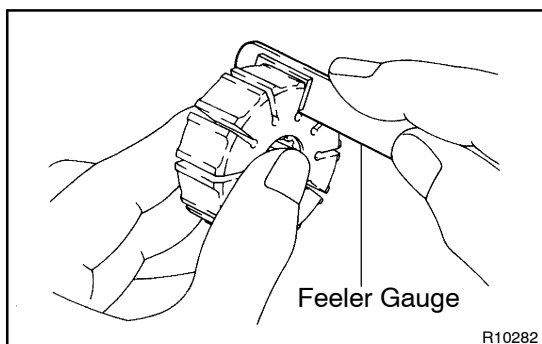
**21. INSPECT VANE PUMP ROTOR AND VANE PLATES**

- (a) Using a micrometer, measure the height, thickness and length of the 10 vane plates.

Minimum height: 8.6 mm (0.339 in.)

Minimum thickness: 1.397 mm (0.05500 in.)

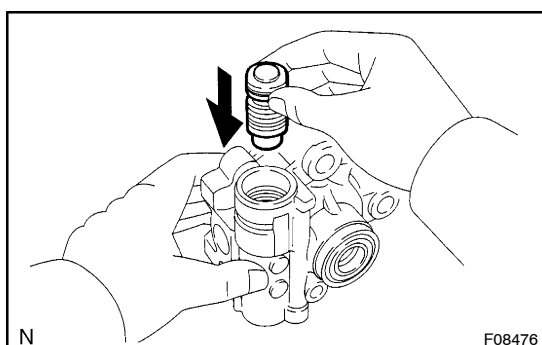
Minimum length: 14.991 mm (0.59020 in.)



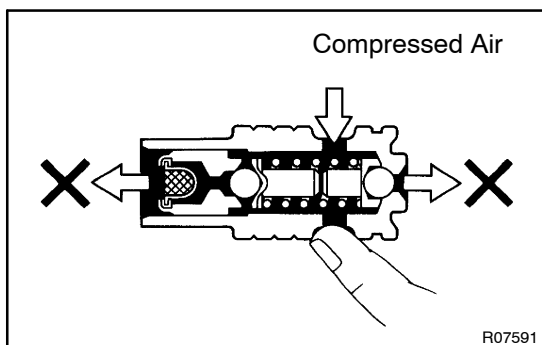
- (b) Using a feeler gauge, measure the clearance between the vane pump rotor groove and vane plate.

Maximum clearance: 0.03 mm (0.0012 in.)

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

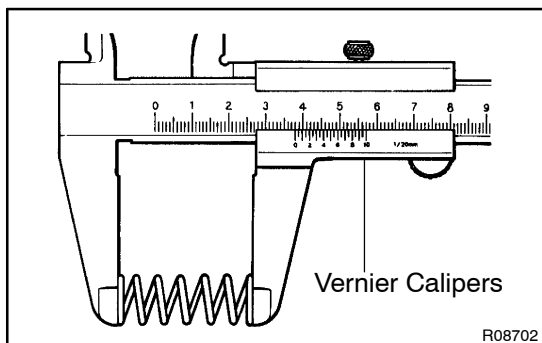
**22. INSPECT FLOW CONTROL VALVE**

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



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

If necessary, replace a new vane pump assy.



23. INSPECT FLOW CONTROL VALVE COMPRESSION SPRING

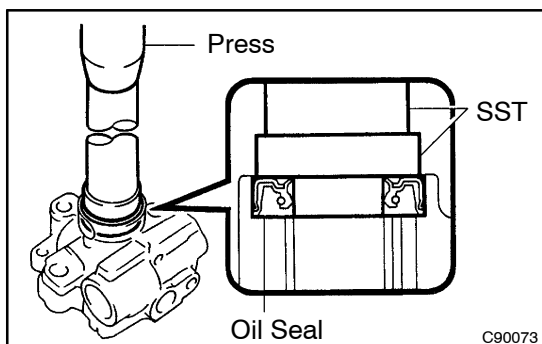
- (a) Using vernier calipers, measure the free length of the spring.

Minimum free length: 33.2 mm (1.307 in.)

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

24. INSPECT PRESSURE PORT UNION

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



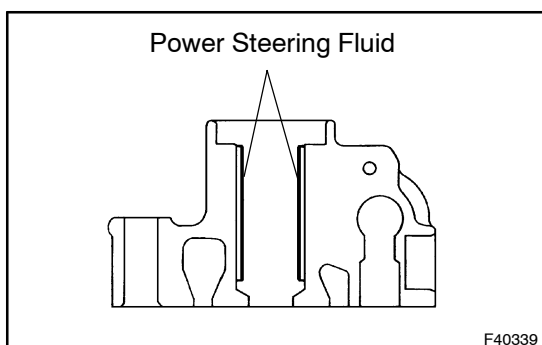
25. INSTALL VANE PUMP HOUSING OIL SEAL

- (a) Coat a new 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:

- Be careful not damage the vane pump housing oil seal.
- Make sure that the vane pump housing oil seal is installed facing in the correct direction.

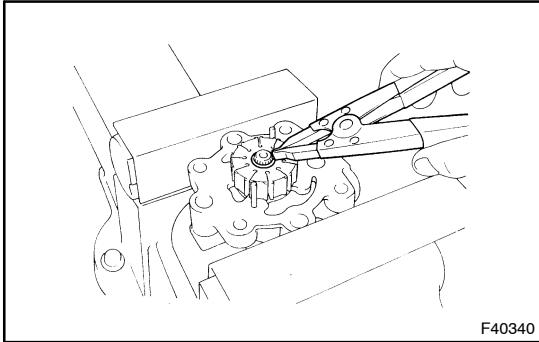


26. INSTALL VANE PUMP SHAFT

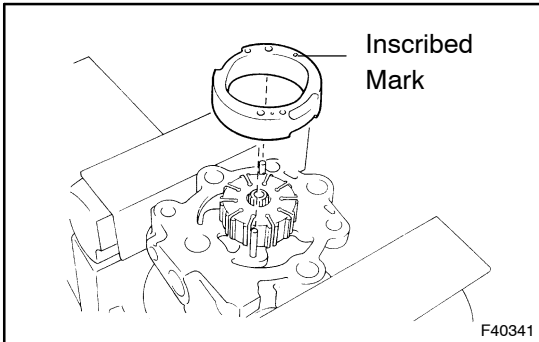
- (a) Coat inside bushing surface of the vane pump housing front with power steering fluid.
(b) Gradually insert vane pump shaft from the pulley side.

NOTICE:

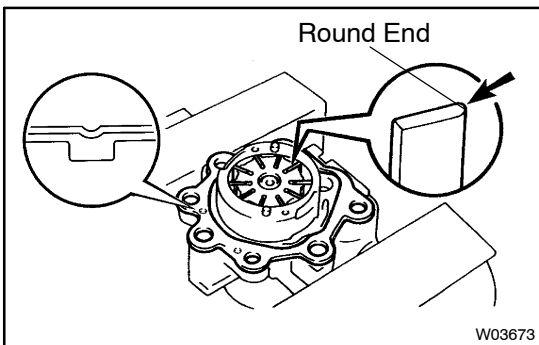
Do not damage the oil seal lip in the front housing.

**27. INSTALL VANE PUMP ROTOR**

- (a) Install the vane pump rotor.
- (b) Using a snap ring expander, install a new snap ring to the vane pump shaft.

**28. INSTALL VANE PUMP CAM RING**

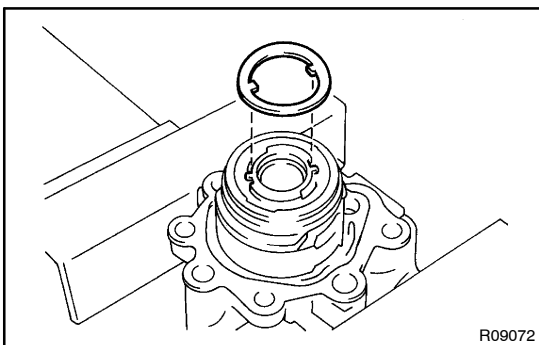
- (a) Align the holes of the vane pump cam ring with 2 straight pins, and install the vane pump cam ring with inscribed mark facing outward.
- (b) Coat 10 vane plates with power steering fluid.



- (c) Install the vane plates with the round end facing outward.
- (d) Install a new gasket on the vane pump housing front.

29. INSTALL VANE PUMP SIDE PLATE REAR

- (a) Align the holes of the vane pump side plate rear and 2 straight pins.

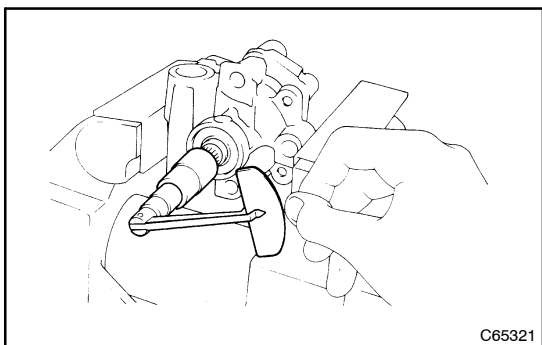


- (b) Install the wave washer so that its protrusions fit into the slots in the vane pump side plate rear.

30. INSTALL VANE PUMP HOUSING REAR

- (a) Coat 2 new O-rings with power steering fluid and install them to the vane pump housing rear.
- (b) Install the vane pump housing rear with the 2 bolts.

Torque: 24 N·m (240 kgf·cm, 17 ft·lbf)

**31. MEASURE PS VANE PUMP ROTATION TORQUE**

- (a) Check that the pump rotates smoothly without abnormal noise.
- (b) Temporarily install the pulley set nut.
- (c) Using a torque wrench, check the pump rotating torque.

Rotating torque:

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

32. INSTALL FLOW CONTROL VALVE COMPRESSION SPRING

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

33. INSTALL FLOW CONTROL VALVE

- (a) Coat the flow control valve with power steering fluid and install it.

34. INSTALL PRESSURE PORT UNION

- (a) Coat a new O-ring with power steering fluid and install it to the pressure port union.
- (b) Using a socket wrench (27 mm), install the pressure port union.

Torque: 83 N·m (850 kgf·cm, 61 ft·lbf)

35. INSTALL VANE PUMP OIL RESERVOIR SUB-ASSY

- (a) Coat a new O-ring with power steering fluid and install it to the vane pump oil reservoir sub-assy.
- (b) Install the vane pump oil reservoir sub-assy with the 3 bolts.

Torque:

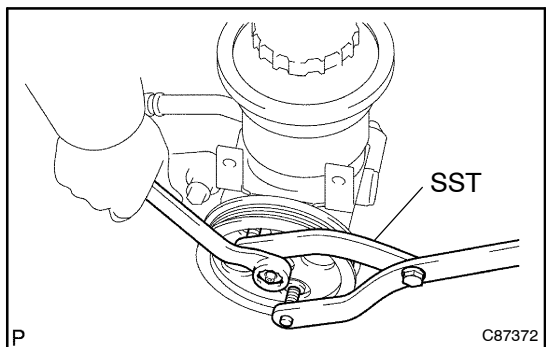
Front housing side Bolt: 13 N·m (130 kgf·cm, 9 ft·lbf)

Rear housing side Bolt: 24 N·m (240 kgf·cm, 17 ft·lbf)

36. INSTALL VANE PUMP ASSY

- (a) Install the vane pump assy with 3 bolts.

Torque: 39.2 N·m (400 kgf·cm, 29 ft·lbf)

**37. INSTALL VANE PUMP PULLEY**

- (a) Using SST to stop the pulley rotating, install the pulley set nut.

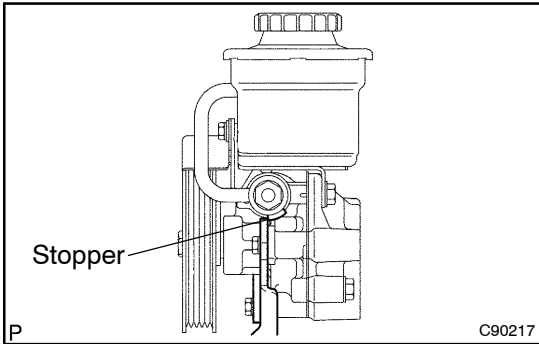
SST 09960-10010 (09962-01000, 09963-01000)

Torque: 43 N·m (440 kgf·cm, 31 ft·lbf)

38. INSTALL PULLEY COVER

- (a) Install the pulley cover with 2 bolts.

Torque: 8.0 N·m (82 kgf·cm, 71 in·lbf)



39. CONNECT PRESSURE FEED TUBE ASSY

- (a) Connect the pressure feed tube assy and install a new gasket with the union bolt.

Torque: 51.5 N·m (525 kgf·cm, 38 ft·lbf)

HINT:

Make sure the stopper of the tube is touching the pump bracket as shown, then torque the union bolt.

40. CONNECT RETURN TUBE SUB-ASSY NO.2

- (a) Connect the return tube sub-assy No.2 with the clip.

41. INSTALL V (COOLER COMPRESSOR TO CRANKSHAFT PULLEY) BELT NO.1 (W/O AIR CONDITIONER)

- (a) Temporarily install the V (cooler compressor to crankshaft pulley) belt No.1.

42. INSTALL V (COOLER COMPRESSOR TO CRANKSHAFT PULLEY) BELT NO.1 (W/ AIR CONDITIONER)

(See page 55-35)

43. ADJUST V (COOLER COMPRESSOR TO CRANKSHAFT PULLEY) BELT NO.1 (W/O AIR CONDITIONER)

- (a) Using a belt tension gauge, apply load of 98 N (10 kgf, 22 lbf).

- (b) Measure drive belt deflection.

Belt tension:

New belt: 10 - 11 mm (0.30 - 0.43 in.)

Used belt: 15 - 18 mm (0.59 - 0.70 in.)

HINT:

- "New belt" refers to a belt which has been used less than 5 minutes on a running engine.
- "Used belt" refers to a belt which has been used on a running engine for 5 minutes or more.
- After installing a drive belt, check that it fits properly in the ribbed grooves.
- Check with your hand to confirm that the drive belt has not slipped out of the groove on the bottom of the pulley.
- After installing a new belt, run the engine for about 5 minutes and recheck the belt tension.

(Reference):

- Using a belt tension gauge, measure the drive belt tension.

Belt tension:

New belt: 686 - 784 N (70 - 80 kgf)

Used belt: 294 - 441 N (30 - 45 kgf)

44. ADJUST V (COOLER COMPRESSOR TO CRANKSHAFT PULLEY) BELT NO.1 (W/ AIR CONDITIONER)

(See page 55-35)

45. FULLY TIGHTEN V (COOLER COMPRESSOR TO CRANKSHAFT PULLEY) BELT NO.1 (W/O AIR CONDITIONER)

- (a) Tighten the power steering idle pulley set bolt.

Torque: 39 N·m (390 kgf·cm, 29 ft·lbf)

46. FULLY TIGHTEN V (COOLER COMPRESSOR TO CRANKSHAFT PULLEY) BELT NO.1 (W/ AIR CONDITIONER)
(See [page 55-35](#))
47. INSTALL FRONT WHEEL RH
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
48. BLEED POWER STEERING FLUID (See [page 51-3](#))
49. INSPECT FLUID LEAK