

## OVERHAUL

### NOTICE:

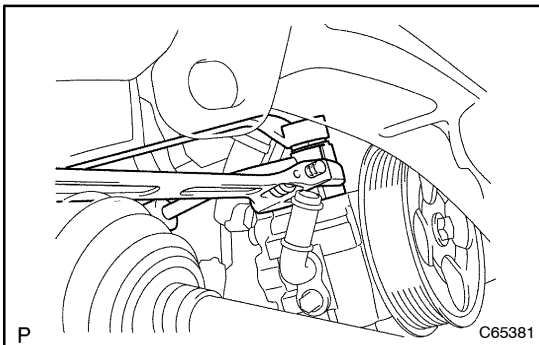
- When using a vise, do not overtighten.
- When installing, coat the parts indicated by the arrows with power steering fluid  
(See page 51-9)

1. REMOVE FRONT WHEEL RH
2. DRAIN POWER STEERING FLUID
3. REMOVE ENGINE UNDER COVER RH
4. REMOVE FAN AND GENERATOR V BELT  
(See page 14-5)  
SST 09249-63010
5. SEPARATE OIL RESERVOIR TO PUMP HOSE NO.1

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

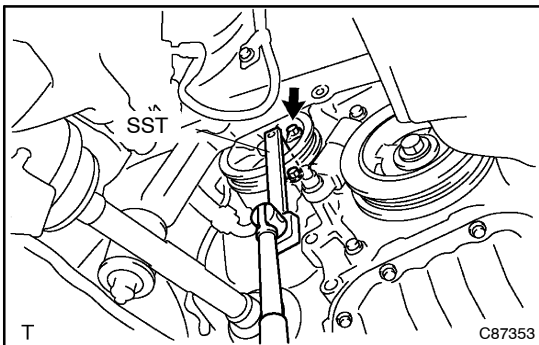
### NOTICE:

Take care not to spill fluid on the V belt.



### 6. SEPARATE PRESSURE FEED TUBE ASSY

- (a) Separate the connector from the oil pressure switch.
- (b) Using a spanner (27 mm) to hold the pressure port union, remove the union bolt and gasket.



### 7. REMOVE VANE PUMP ASSY

- (a) Separate the connector from the power steering oil pressure switch.
- (b) Using SST and a deep socket (14 mm), loosen the 2 bolts.  
SST 09249-63010
- (c) Remove the 2 bolts and vane pump assy.

### 8. REMOVE POWER STEERING SUCTION PORT UNION

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

### 9. REMOVE PRESSURE PORT UNION

- (a) Remove the pressure port union.
- (b) Remove the O-ring from the pressure port union.

### 10. REMOVE FLOW CONTROL VALVE

### 11. REMOVE FLOW CONTROL VALVE COMPRESSION SPRING

**12. REMOVE POWER STEERING OIL PRESSURE SWITCH****NOTICE:**

**Be careful not to drop the power steering oil pressure switch.**

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

**13. REMOVE VANE PUMP HOUSING REAR**

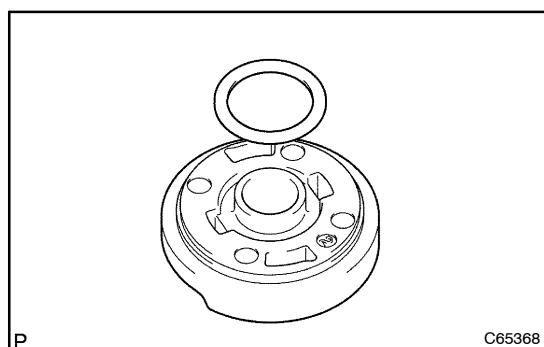
- (a) Remove the 4 bolts and vane pump housing rear from the vane pump housing front.
- (b) Remove the O-ring from the vane pump housing rear.

**14. REMOVE W/PULLEY SHAFT SUB-ASSY**

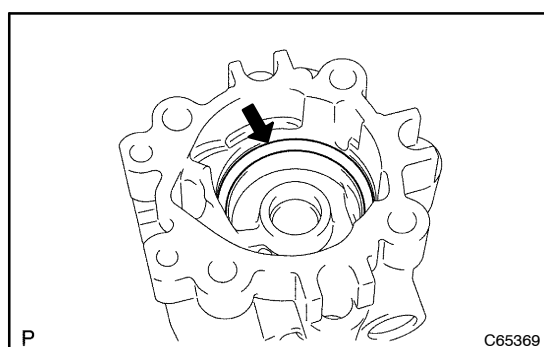
- (a) Using a screwdriver, remove the snap ring from the w/pulley shaft sub-assy.
- (b) Remove the w/pulley shaft sub-assy.

**15. REMOVE VANE PUMP ROTOR**

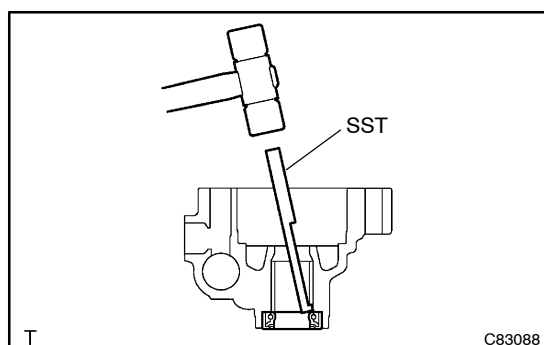
- (a) Remove the 10 vane plates.
- (b) Remove the vane pump rotor.

**16. REMOVE VANE PUMP CAM RING****17. REMOVE VANE PUMP SIDE PLATE FRONT**

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



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

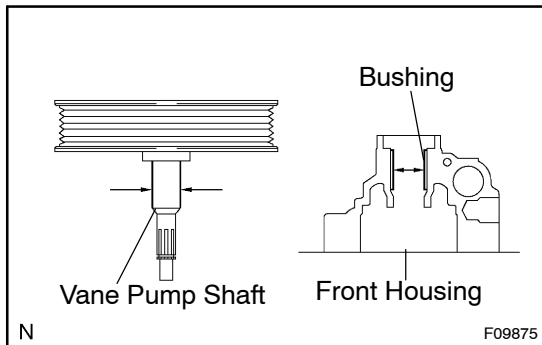
**18. REMOVE VANE PUMP HOUSING OIL SEAL**

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

**NOTICE:**

**Be careful not to damage the vane pump housing front.**

SST 09631-10030

**19. INSPECT OIL CLEARANCE**

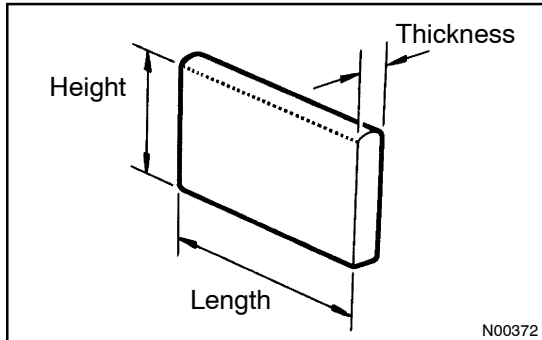
- (a) Using a micrometer and a caliper gauge, measure the oil seal clearance.

**Standard clearance:**

**0.021 – 0.043 mm (0.0008 – 0.0017 in.)**

**Maximum clearance: 0.07 mm (0.0028 in.)**

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

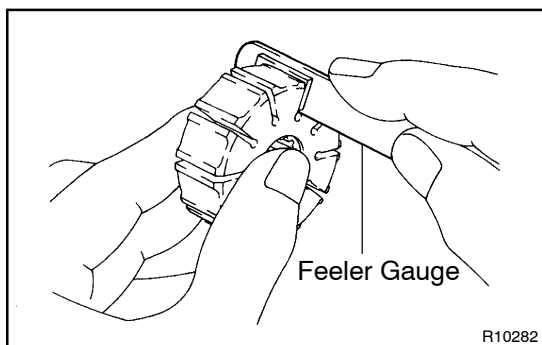
**20. INSPECT VANE PUMP ROTOR AND VANE PLATES**

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

**Minimum height: 7.6 mm (0.299 in.)**

**Minimum thickness: 1.405 mm (0.0553 in.)**

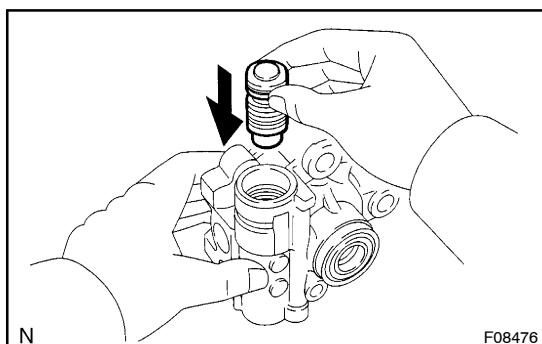
**Minimum length: 11.993 mm (0.4722 in.)**



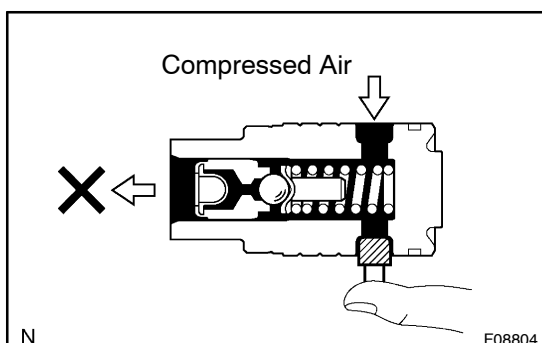
- (b) Using a feeler gauge, measure the clearance between a side face of the vane pump rotor groove and vane plate.

**Maximum clearance: 0.03 mm (0.0012 in.)**

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

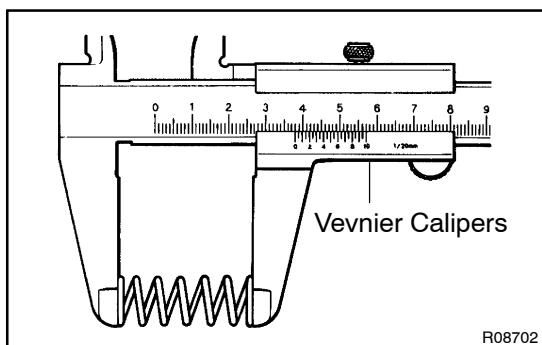
**21. INSPECT FLOW CONTROL VALVE**

- (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.



- (b) Check the flow control valve for leakage. Close one of the holes and apply compressed air of 392 – 490 kPa (4 – 5 kgf/cm<sup>2</sup>, 57 – 71 psi) into the opposite side hole, and confirm that air does not come out from the end holes.

If necessary, replace a new vane pump assy.



## 22. INSPECT FLOW CONTROL VALVE COMPRESSION SPRING

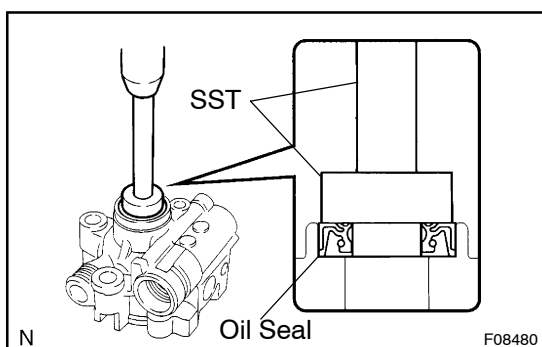
- (a) Using vernier calipers, measure the free length of the spring.

**Minimum free length: 36.9 mm (1.453 in.)**

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

## 23. 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.

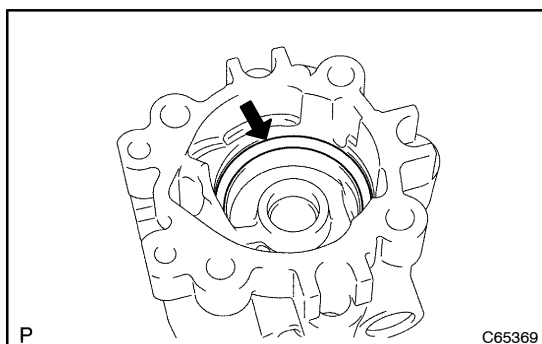


## 24. INSTALL VANE PUMP HOUSING OIL SEAL

- (a) Coat a new vane pump housing oil seal lip with power steering fluid.
- (b) Using SST and a press, install the oil seal.
- SST 09950-60010 (09951-00280), 09950-70010 (09951-07100)

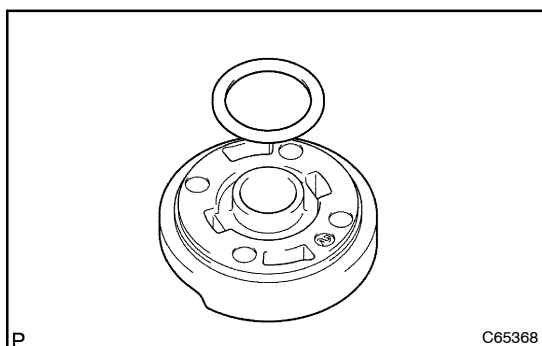
### NOTICE:

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

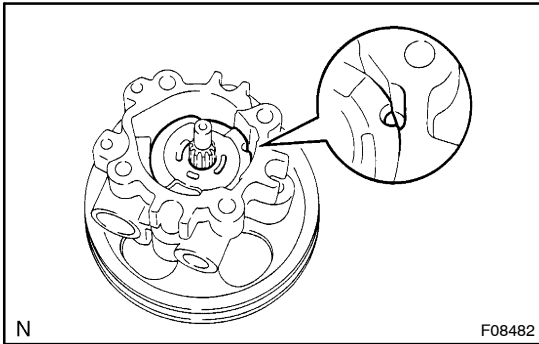


## 25. INSTALL VANE PUMP SIDE PLATE FRONT

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



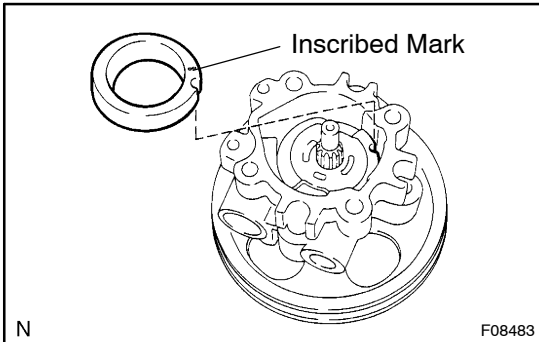
- (b) Install the O-ring to the vane pump side plate front.



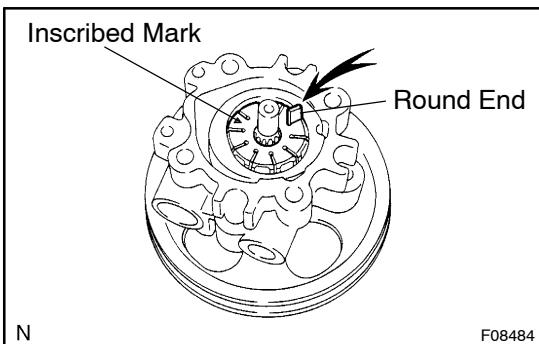
- (c) Align the dent of the vane pump side plate front with that of the front housing and install the vane pump side plate front.

**NOTICE:**

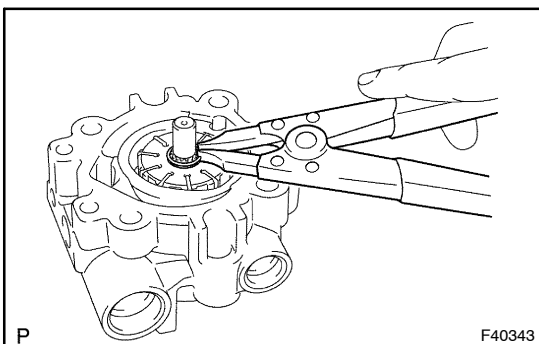
**Make sure that the vane pump side plate front is installed facing in the correct direction.**

**26. INSTALL VANE PUMP CAM RING**

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

**27. INSTALL W/PULLEY SHAFT SUB-ASSY****28. INSTALL VANE PUMP ROTOR**

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

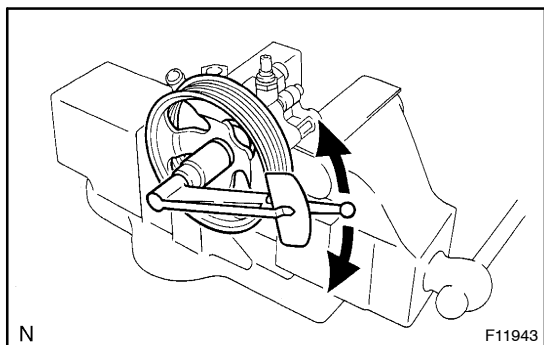


- (d) Using a snap ring expander, install a new snap ring to the w/pulley shaft sub-assy.

**29. INSTALL VANE PUMP HOUSING REAR**

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

**Torque: 22 N·m (220 kgf·cm, 16 ft·lbf)**

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

- (a) Check that the pump rotates smoothly without abnormal noise.

- (b) Temporarily install the service bolt.

**Recommended service bolt:**

**Thread diameter: 10 mm (0.3937 in.)**

**Thread pitch: 1.25 mm (0.0492 in.)**

**Bolt length: 50 mm (1.9685 in.)**

- (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**

**31. INSTALL POWER STEERING OIL PRESSURE SWITCH**

- (a) Coat a new O-ring with power steering fluid and install it to the power steering oil pressure switch.

- (b) Install the power steering oil pressure switch to the vane pump assy.

**Torque: 21 N·m (215 kgf·cm, 15 ft·lbf)**

**32. INSTALL FLOW CONTROL VALVE COMPRESSION SPRING**

- (a) Coat the flow control valve 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.

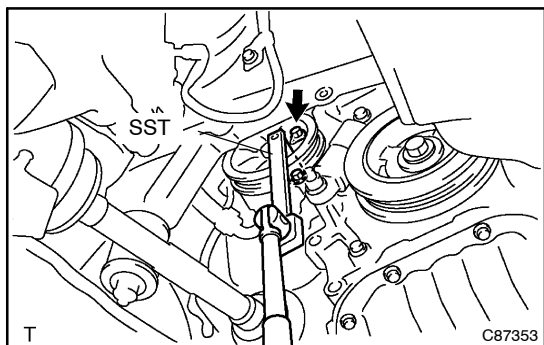
**Torque: 69 N·m (700 kgf·cm, 51 ft·lbf)**

**35. INSTALL POWER STEERING SUCTION PORT UNION**

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

- (b) Install the power steering suction port union with the bolt.

**Torque: 12 N·m (117 kgf·cm, 9 ft·lbf)**

**36. INSTALL VANE PUMP ASSY**

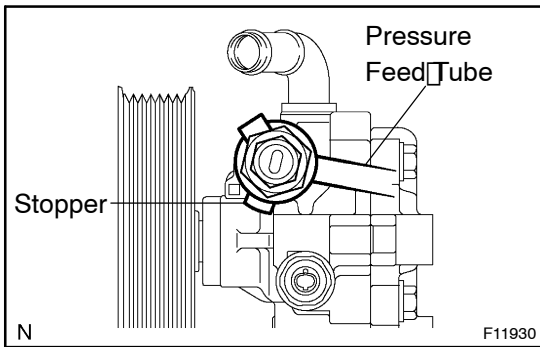
- (a) Temporarily install the vane pump assy with the 2 bolts.

- (b) Using SST and a deep socket (14 mm), tighten the 2 bolts.  
SST 09249-63010

**Torque: 30 N·m (305 kgf·cm, 22 ft·lbf)**

**HINT:**

- Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).
  - This torque value is effective in case that SST is parallel to a torque wrench.
- (c) Connect the connector to the power steering oil pressure switch.

**37. CONNECT PRESSURE FEED TUBE ASSY**

- (a) Install the pressure feed tube assy and gasket to the vane pump assy with the union bolt.

**HINT:**

Make sure the stopper of the pressure feed tube touches the front housing as shown in the illustration.

- (b) Using a spanner (27 mm) to hold the pressure port union, tighten the union bolt.

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

**38. CONNECT OIL RESERVOIR TO PUMP HOSE NO.1**

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

**39. INSTALL FAN AND GENERATOR V BELT**

(See [page 14-5](#))

SST 09249-63010

**40. INSTALL ENGINE UNDER COVER RH****41. INSTALL FRONT WHEEL RH**

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

**42. BLEED POWER STEERING FLUID (See [page 51-3](#))****43. INSPECT FLUID LEAK**