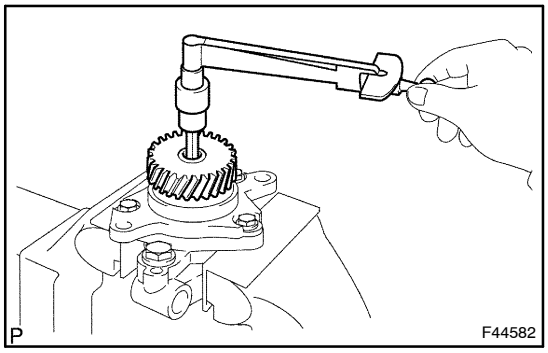
510CM–02

OVERHAUL

NOTICE:

When using a vise, do not overtighten it.



1. INSPECT VANE PUMP ROTATING TORQUE

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

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

Rotating torque:

0.27 N·m (2.75 kgf·cm, 2.39 in.·lbf) or less

2. REMOVE POWER STEERING SUCTION PORT UNION

(a) Remove the bolt and disconnect the suction port union.

(b) Remove the O–ring from the suction port union.

3. REMOVE VANE PUMP GEAR

(a) Using a snap ring expander, remove the snap ring from the vane pump shaft.

(b) Remove the vane pump gear and woodruff key.

4. REMOVE FLOW CONTROL VALVE

(a) Remove the housing end.

(b) Remove the O–ring from the housing end.

(c) Remove the flow control valve compression spring and flow control valve assy.

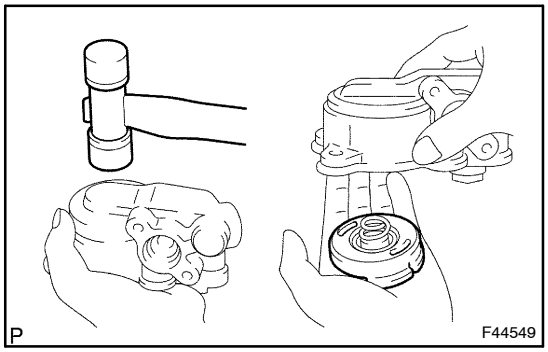
5. REMOVE VANE PUMP HOUSING REAR

(a) Remove the 3 bolts.

NOTICE:

When removing the rear housing, be careful that the vane plates, rotor and cam ring do not fall out.

(b) Remove the O–ring from the front housing.



6. REMOVE REAR SIDE PLATE

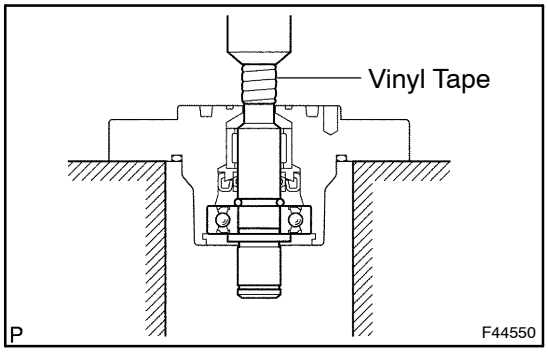
(a) Using a plastic hammer, tap out the rear side plate and pressure plate compression spring from the rear housing.

(b) Remove the O–ring from the front housing.

7. REMOVE VANE PUMP CAM RING

8. REMOVE VANE PUMP ROTOR

9. REMOVE VANE PLATES



10. REMOVE STRAIGHT PIN

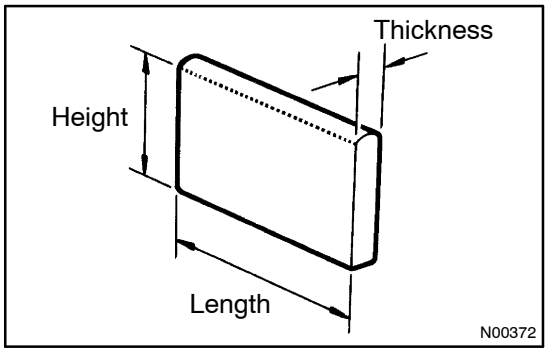
(a) Using pliers, pull out the pin from the front housing.

11. REMOVE VANE PUMP SHAFT WITH BEARING

(a) Using snap ring pliers, remove the snap ring from the front housing.

(b) Wind vinyl tape on the serrated part of the vane pump shaft.

(c) Using a press, press out the shaft together with the bearing.



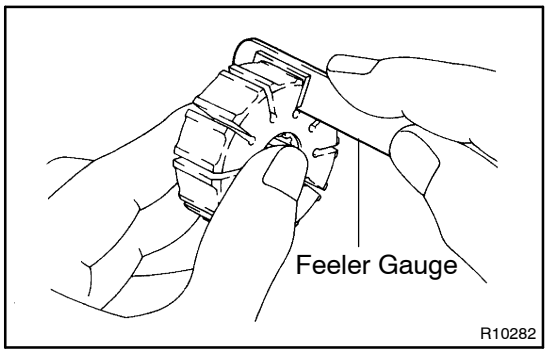
12. INSPECT VANE PUMP ROTOR AND VANE PLATES

(a) Using a micrometer, measure the dimensions.

Minimum dimension:

Height	8.6 mm (0.339 in.)
Thickness	1.397 mm (0.0550 in.)
Length	14.991 mm (0.5902 in.)

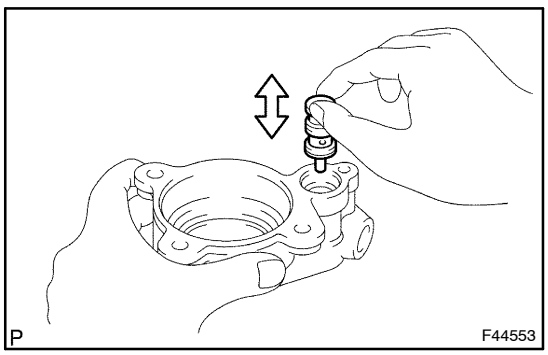
If the result is not as specified, replace the rotor and vane plates with the cam ring.



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

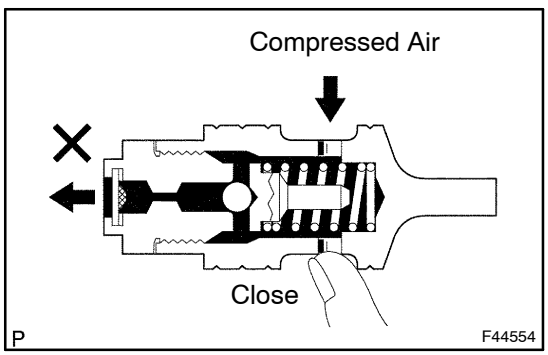
Maximum clearance: 0.033 (0.0013 in.)

If the result is greater than the maximum, replace the rotor and vane plates together with the cam ring.

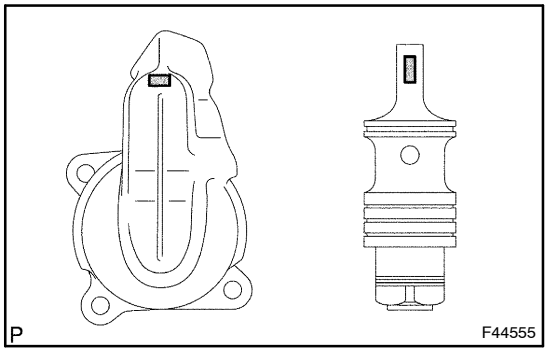


13. INSPECT FLOW CONTROL VALVE

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

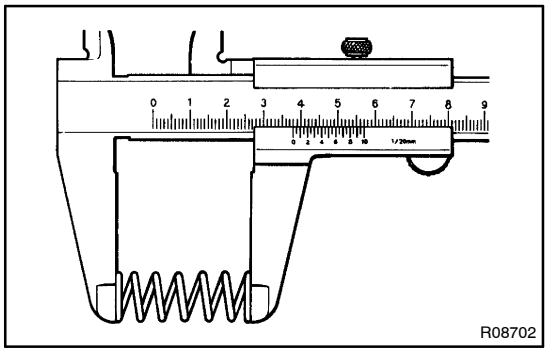


(b) Check the valve for leakage. Close one of the side holes and apply compressed air 392 – 490 kPa (4 – 5 kgf/cm^2, 57 – 71 psi) from another side hole, and confirm that no air comes out from the end hole.



(c) If necessary, replace the valve with one having the same letter as inscribed on the front housing.
Incribed mark:

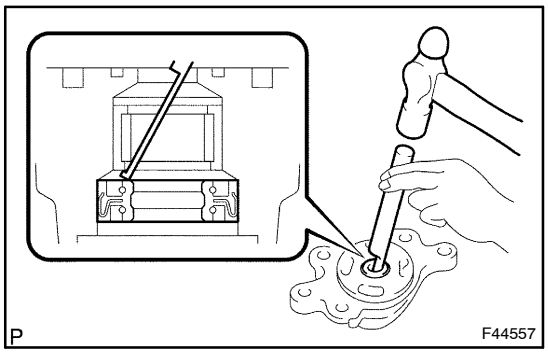
Rear housing mark	Flow control valve mark
0	II
1	I
2	None



14. INSPECT FLOW CONTROL VALVE COMPRESSION SPRING

(a) Using calipers, measure the free length of the spring.
minimum free length: 50 mm (1.97 in.)

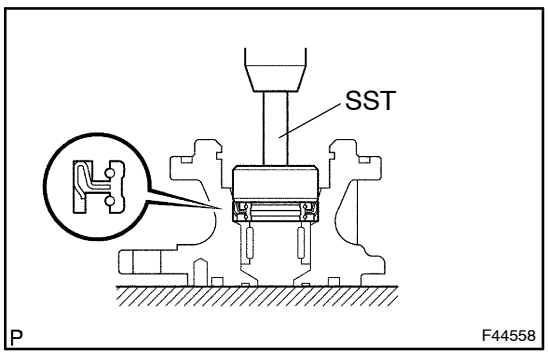
If the result is less than the minimum, replace the spring.



15. REPLACE VANE PUMP HOUSING OIL SEAL

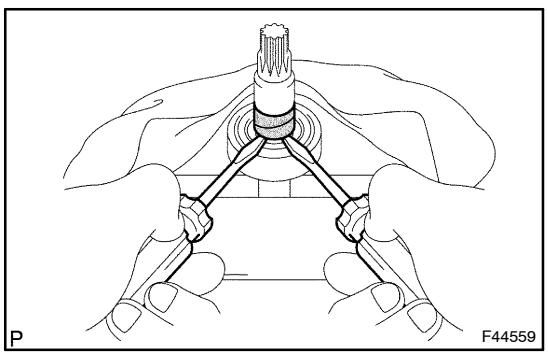
(a) Using SST and hammer, tap out the oil seal from the front housing.
SST 09631–10030

NOTICE:
Be careful not to damage the front housing.



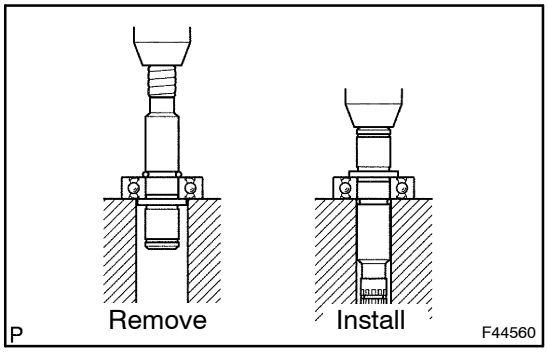
(b) Coat a new oil seal lip with power steering fluid.
(c) Using SST and a press, install the oil seal.
SST 09950–60010 (09951–00310), 09950–70010 (09951–07100)

NOTICE:
Make sure to install the oil seal so that it faces to the correct direction.



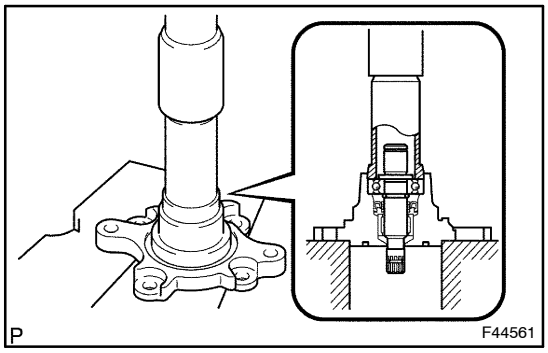
16. REPLACE VANE PUMP SHAFT BEARING

(a) Wind vinyl tape on the vane pump shaft.
(b) Using 2 screwdrivers, remove the snap ring from the vane pump shaft.



(c) Wind vinyl tape on the serrated part of the vane pump shaft.
(d) Press out the bearing from the vane pump shaft.
(e) Coat a new bearing with power steering fluid.
(f) Press in the bearing to the shaft.
(g) Using snap ring pliers, install a new snap ring to the shaft.

NOTICE:
Be careful not to damage the vane pump shaft.



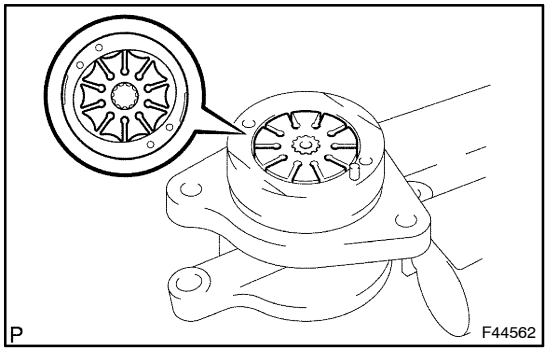
17. INSTALL VANE PUMP SHAFT WITH BEARING

(a) Using SST, press in the shaft with the bearing to the front housing.
SST 09632–36010
(b) Using snap ring pliers, install a new snap ring to the front housing.

18. INSTALL STRAIGHT PIN

(a) Using a plastic hammer, tap in a new pin.

NOTICE:
Be careful not to damage the pin.

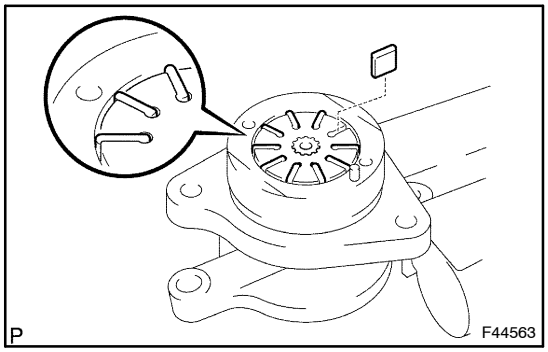


19. INSTALL VANE PUMP CAM RING

(a) Install the ring with the inscribed mark facing outward.

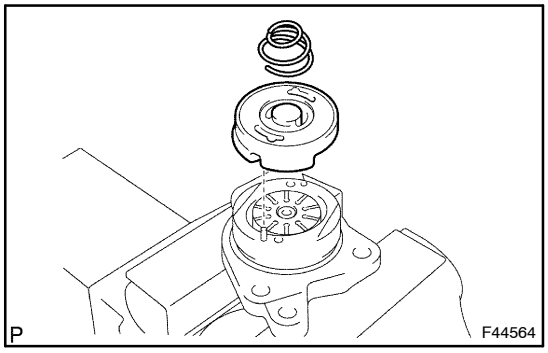
20. INSTALL VANE PUMP ROTOR

(a) Install the rotor with the inscribed mark facing outward.



21. INSTALL VANE PLATES

(a) Install the 10 plates with the round end facing outward.



22. INSTALL REAR SIDE PLATE

(a) Coat a new O–ring with power steering fluid.
(b) Install the O–ring to the rear housing.
(c) Install the rear side plate to the cam ring positioning the groove to the straight pin.
(d) Install the pressure plate compression spring to the rear side plate.

NOTICE:
Make sure to install the pressure plate compression spring, as shown in the illustration.

23. INSTALL VANE PUMP HOUSING REAR

(a) Coat a new O–ring with power steering fluid.
(b) Install the O–ring to the front housing.
(c) Install the 3 bolts.
Torque: 42 N·m (425 kgf·cm, 31 ft·lbf)

24. INSTALL FLOW CONTROL VALVE

(a) Install the flow control valve assy and flow control valve compression spring.
(b) Coat a new O–ring with power steering fluid.
(c) Install the O–ring to the housing end.
(d) Install the housing end.
Torque: 64 N·m (650 kgf·cm, 47 ft·lbf)

25. INSTALL VANE PUMP GEAR

(a) Install the woodruff key and vane pump gear.
(b) Using a snap ring expander, install a new snap ring to the vane pump shaft.

26. INSTALL VANE PUMP ASSY

(a) Coat a new O–ring with power steering fluid.
(b) Install the O–ring to the vane pump assy.
(c) Install the 2 bolts.
Torque: 20 N·m (200 kgf·cm, 14 ft·lbf)

27. INSTALL POWER STEERING SUCTION PORT UNION

(a) Coat a new O–ring to with power steering fluid.
(b) Install the O–ring to the suction port union.
(c) Install the suction port union with the 2 bolts.
Torque: 8.0 N·m (80 kgf·cm, 69 ft·lbf)
(d) Install the tube support bracket No. 1 set bolt.
Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)

28. CONNECT RETURN HOSE

29. CONNECT PRESSURE FEED HOSE

(a) Install the union bolt with a new gaskets on each side of the pressure feed hose.
Torque: 56 N·m (575 kgf·cm, 42 ft·lbf)

30. ADD POWER STEERING FLUID

31. BLEED POWER STEERING FLUID

32. INSPECT FOR FLUID LEAKS