5105Y–01

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 LINER RH

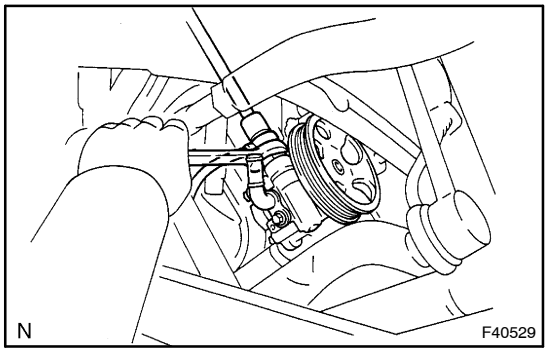
4. REMOVE FRONT FENDER APRON SEAL RH

5. REMOVE FAN AND GENERATOR V BELT
(See page 14–5, 14–70)
SST 09249–63010

6. DISCONNECT OIL RESERVOIR TO PUMP HOSE NO.1

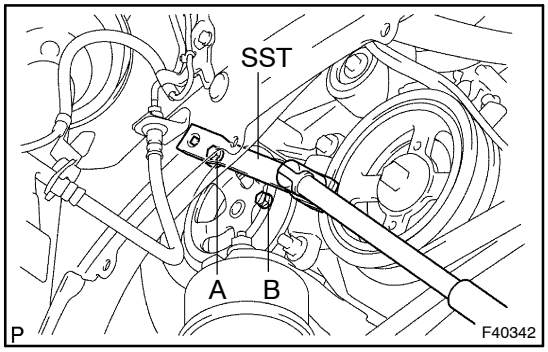
(a) Remove the clip and disconnect the oil reservoir to pump hose No.1.

NOTICE:
Take care not to spill fluid on the V belt.



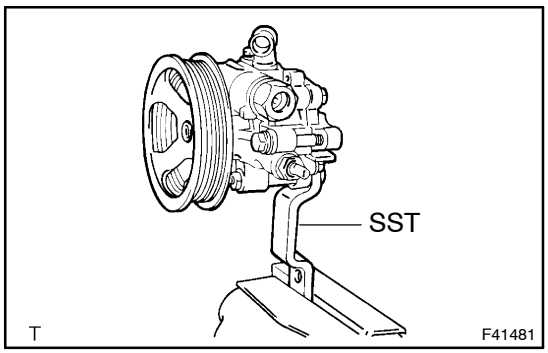
7. DISCONNECT PRESSURE FEED TUBE ASSY

(a) Using a spanner (27 mm) to hold the pressure port union, remove the union bolt and gasket.



8. REMOVE VANE PUMP ASSY

(a) Disconnect the connector from the power steering oil pressure switch.
(b) Using SST and a deep socket (14 mm), loosen the bolt A.
SST 09249–63010
(c) Remove the bolt B and vane pump assy.



9. FIX VANE PUMP ASSY

(a) Using SST, hold the vane pump assy on the vise through the aluminium plate.
SST 09630–00014 (09631–00132)

HINT:
As follow the necessity, remove and install SST for holding.

10. REMOVE POWER STEERING SUCTION PORT UNION

(a) Remove the bolt and power steering suction port union.
(b) Remove the O–ring from the power steering suction port union.

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 POWER STEERING OIL PRESSURE SWITCH

NOTICE:
Be careful not to drop the power steering oil pressure switch.
If the power steering oil pressure switch is dropped or strongly damaged, replace it with a new one.

15. 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.

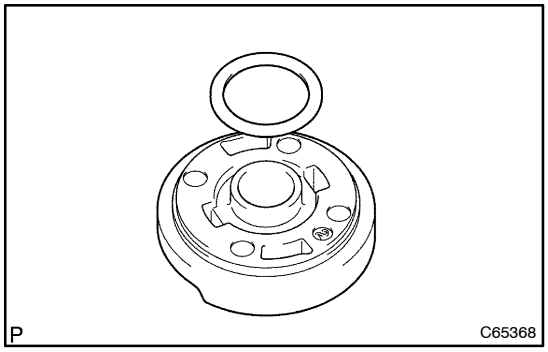
16. REMOVE W/PULLEY SHAFT SUB–ASSY

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

17. REMOVE VANE PUMP ROTOR

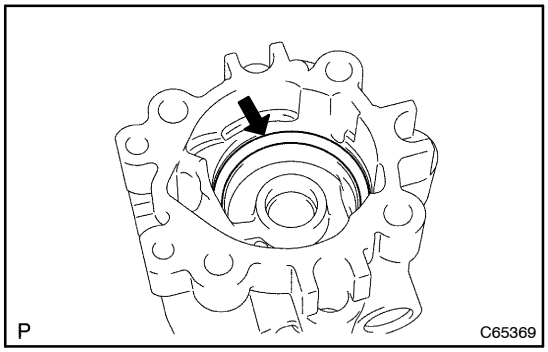
(a) Remove the 10 vane pump plates.
(b) Remove the vane pump rotor.

18. REMOVE VANE PUMP CAM RING

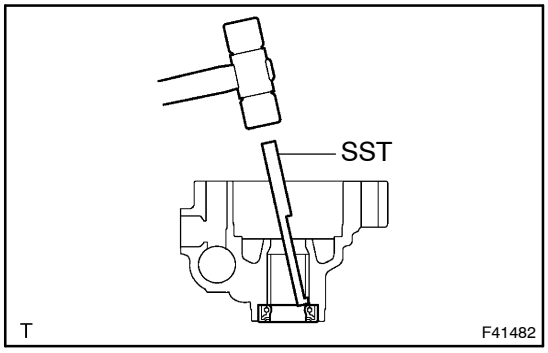


19. REMOVE VANE PUMP SIDE PLATE FRONT

(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.



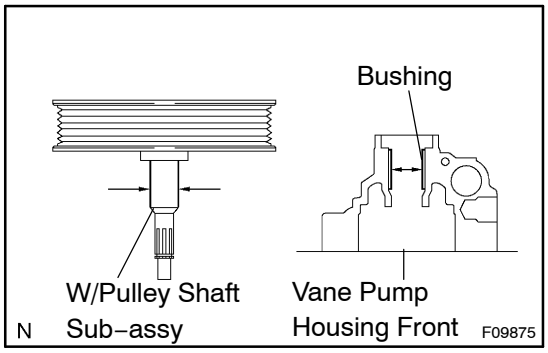
(c) Remove the O–ring from the vane pump housing front.



20. REMOVE VANE PUMP HOUSING OIL SEAL

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

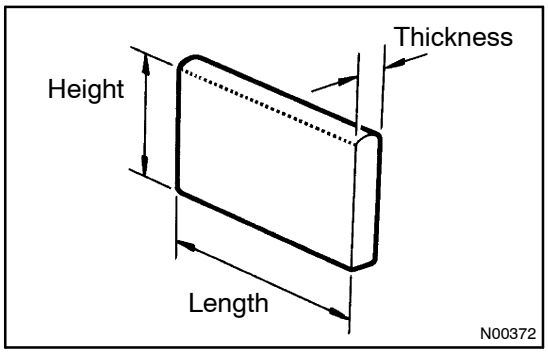
NOTICE:
Be careful not to damage the bushing of the vane pump housing front.



21. INSPECT OIL CLEARANCE

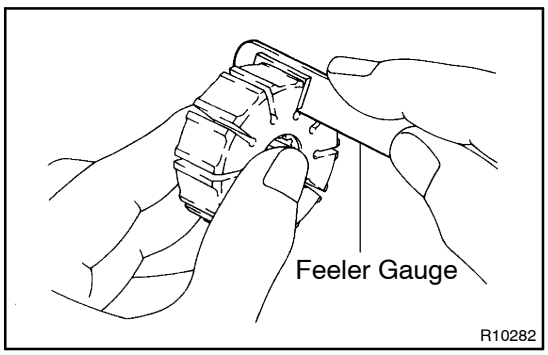
(a) Using a micrometer and a caliper gauge, measure the oil seal clearance.
Standard clearance:
0.009 – 0.031 mm (0.00035 – 0.00122 in.)
Maximum clearance: 0.07 mm (0.0028 in.)

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



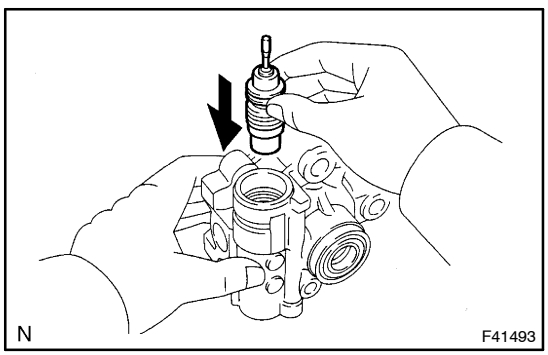
22. INSPECT VANE PUMP ROTOR AND VANE PUMP PLATES

(a) Using a micrometer, measure the height, thickness and length of the vane pump plates.
Minimum height: 7.7 mm (0.303 in.)
Minimum thickness: 1.408 mm (0.05543 in.)
Minimum length: 11.993 mm (0.47216 in.)



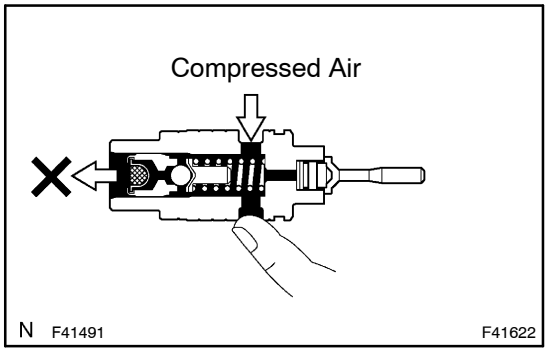
(b) Using a feeler gauge, measure the clearance between a side face of the vane pump rotor groove and vane pump plate.
Maximum clearance: 0.03 mm (0.0012 in.)

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



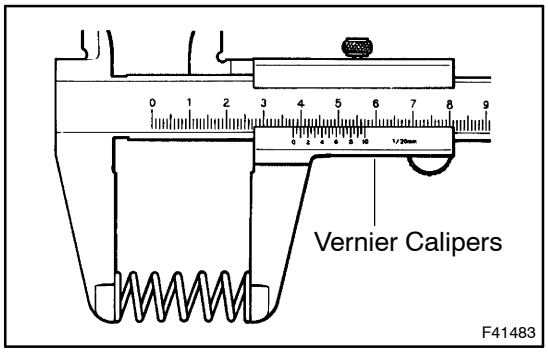
23. INSPECT FLOW CONTROL VALVE

(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^2, 57 – 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.



24. INSPECT FLOW CONTROL VALVE COMPRESSION SPRING

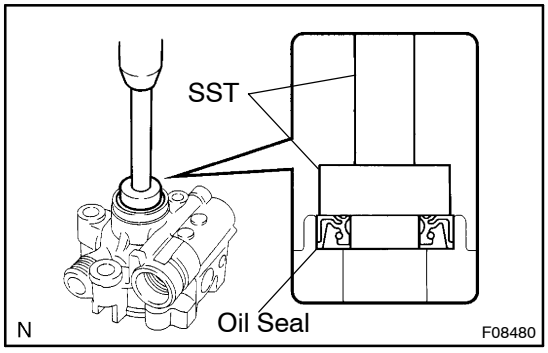
(a) Using vernier calipers, measure the free length of the flow control valve compression spring.

Minimum free length: 35.8 mm (1.409 in.)

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

25. INSPECT PRESSURE PORT UNION

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



26. INSTALL VANE PUMP HOUSING OIL SEAL

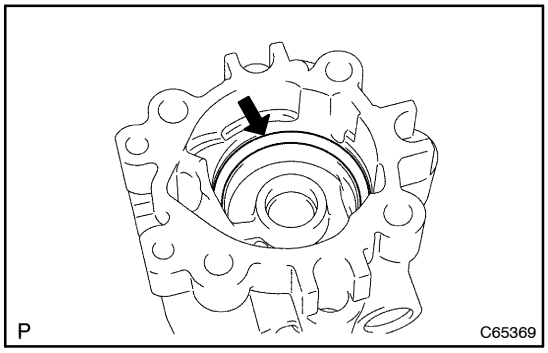
(a) Coat a new vane pump housing oil seal lip with power steering fluid.

(b) Using SST and a press, install the new vane pump housing oil seal.

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

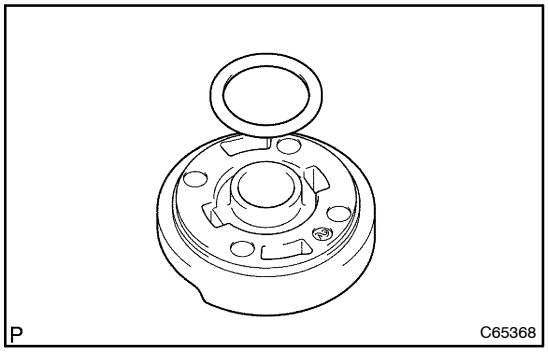
NOTICE:

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

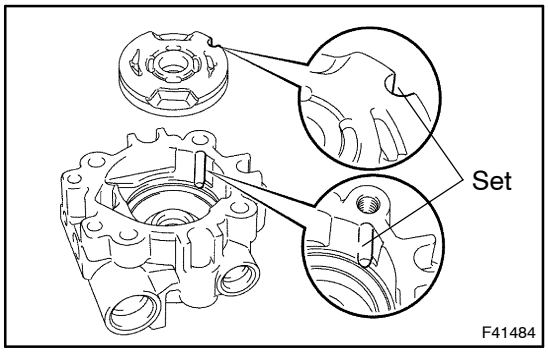


27. INSTALL VANE PUMP SIDE PLATE FRONT

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



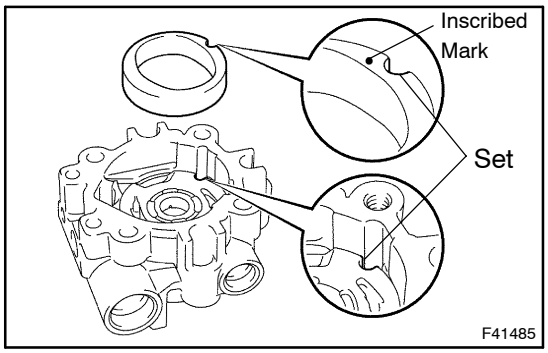
(b) Coat a new O–ring with the power steering fluid and install it to the vane pump side plate front.



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

NOTICE:

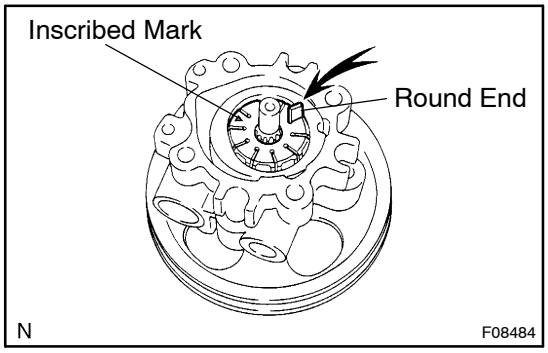
Make sure that the vane pump side plate front is installed facing in the correct direction.



28. 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.

29. INSTALL W/PULLEY SHAFT SUB–ASSY

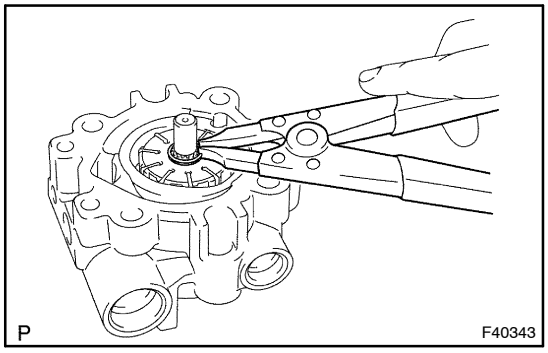


30. INSTALL VANE PUMP ROTOR

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

(b) Coat 10 vane pump plates with power steering fluid.

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



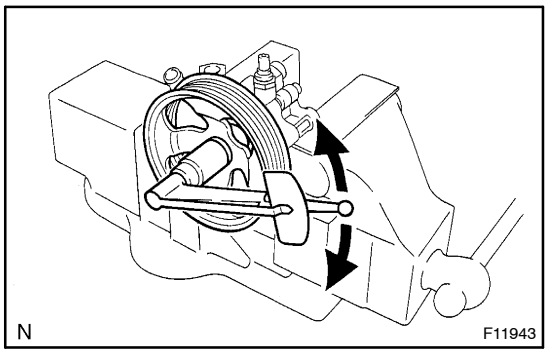
(d) Using a snap ring expander, install a new vane pump shaft snap ring to the w/pulley shaft sub–assy.

31. 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 vane pump housing rear 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 (224 kgf·cm, 16 ft·lbf)



32. 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

33. 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 (214 kgf·cm, 15 ft·lbf)

34. INSTALL FLOW CONTROL VALVE COMPRESSION SPRING

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

35. INSTALL FLOW CONTROL VALVE

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

36. 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.

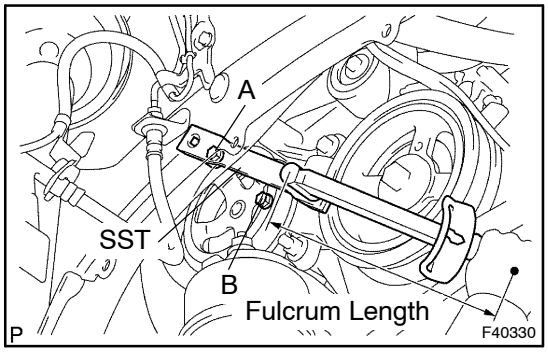
Torque: 69 N·m (704 kgf·cm, 51 ft·lbf)

37. 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 (122 kgf·cm, 9 ft·lbf)

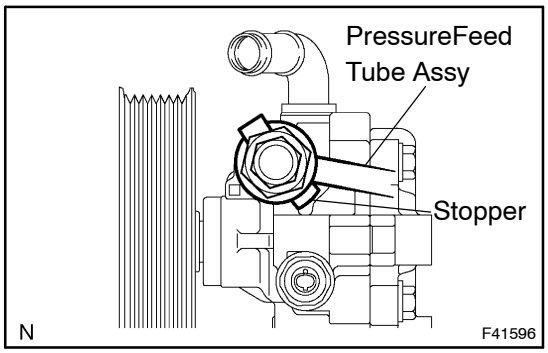


38. INSTALL VANE PUMP ASSY

(a) Temporarily tighten the bolt A to the vane pump assy.
(b) Install the vane pump assy and bolt B.
Torque: 43 N·m (438 kgf·cm, 32 ft·lbf)
(c) Using SST and a deep socket (14 mm), tighten the bolt A.
SST 09249–63010
Torque: 30 N·m (306 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.

(d) Connect the connector to the power steering oil pressure switch.



39. 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 assy touches the pump housing front as shown in the illustration.

(b) Using a spanner (27 mm) to hold the pressure port union, torque the union bolt.
Torque: 51.5 N·m (525 kgf·cm, 38 ft·lbf)

40. CONNECT OIL RESERVOIR TO PUMP HOSE NO.1

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

41. INSTALL FAN AND GENERATOR V BELT
(See page 14–5, 14–70)
SST 09249–63010

42. INSTALL FRONT FENDER APRON SEAL RH

43. INSTALL FRONT FENDER LINER RH

44. INSTALL FRONT WHEEL RH
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

45. BLEED POWER STEERING FLUID

46. INSPECT FLUID LEAK