PS

REMOVAL

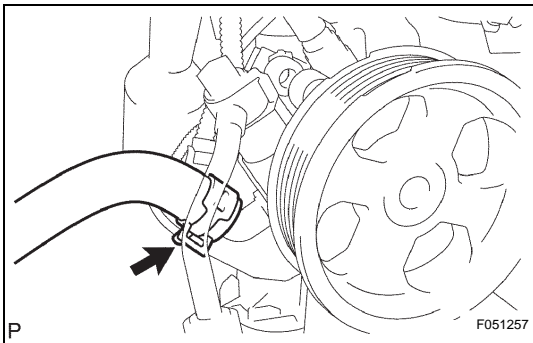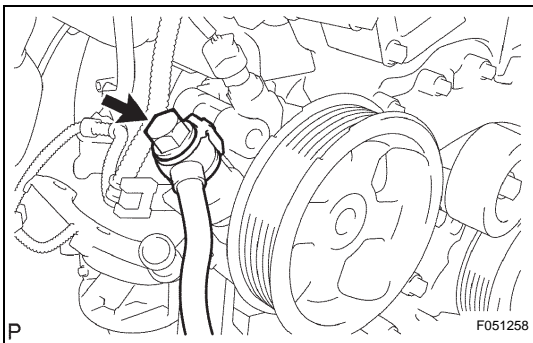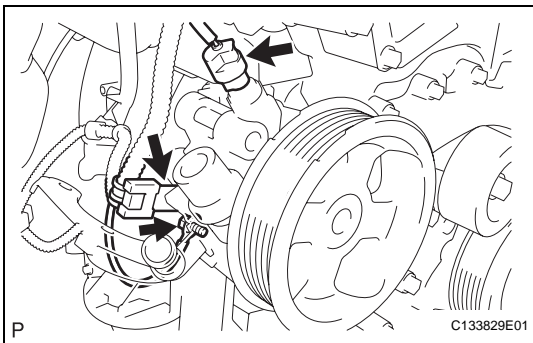1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**

2. **REMOVE NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY (See page EM-6)**

3. **REMOVE FAN AND GENERATOR V BELT (See page EM-6)**

4. **DRAIN POWER STEERING FLUID**

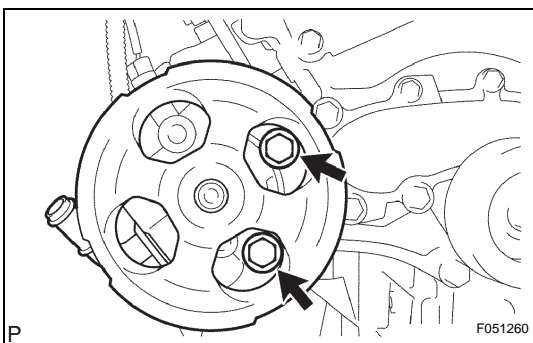5. **DISCONNECT NO. 1 OIL RESERVOIR TO PUMP HOSE**
   (a) Disengage the clip and disconnect the No. 1 oil reservoir to pump hose.
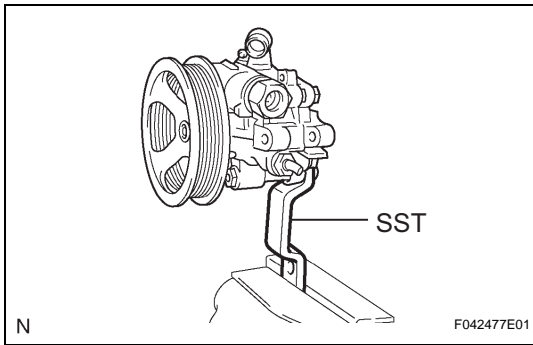

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6. **DISCONNECT PRESSURE FEED TUBE ASSEMBLY**
   (a) Remove the union bolt, then disconnect the pressure feed tube.
   (b) Remove the gasket from the pressure feed tube.

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7. **REMOVE VANE PUMP**
   (a) Disconnect the oil pressure switch connector.
   (b) Remove the bolt and the wire harness clamp bracket.

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   (c) Remove the 2 bolts and the vane pump assembly.

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DISASSEMBLY

1. FIX VANE PUMP
   (a) Using SST, fix the vane pump assembly in a vise.
       SST   09630-00014 (09631-00132)
       NOTICE:
       Do not over tighten the vise.

2. REMOVE POWER STEERING SUCTION PORT UNION
   (a) Remove the bolt and suction port union.
   (b) Remove the O-ring from the suction port union.

3. 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 compression spring.

4. REMOVE POWER STEERING OIL PRESSURE SWITCH
   NOTICE:
   Be careful not to drop or badly damage the oil pressure switch. If damaged, replace it with a new one.

5. REMOVE VANE PUMP REAR HOUSING
   (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 front.

6. REMOVE PULLEY SHAFT SUB-ASSEMBLY
   NOTICE:
   Be careful not to drop or badly damage the pulley shaft. If damaged, replace it with a new one.
   (a) Using a screwdriver, remove the snap ring from the pulley shaft.
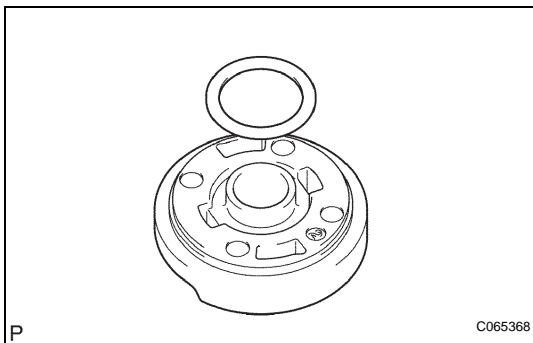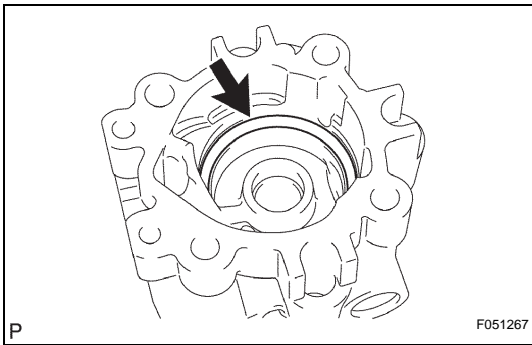   (b) Remove the pulley shaft.

7. REMOVE VANE PUMP ROTOR
   (a) Remove the 10 vane plates.
   (b) Remove the vane pump rotor.
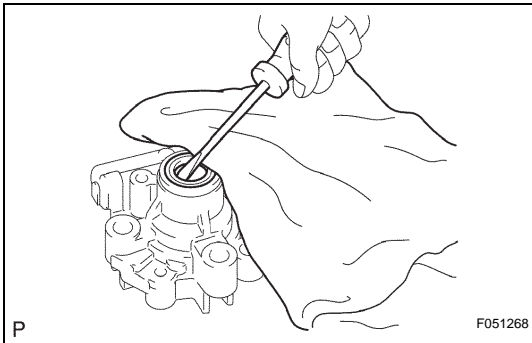
8. REMOVE VANE PUMP CAM RING

9. REMOVE VANE PUMP FRONT SIDE PLATE
   (a) Remove the side plate from the vane pump housing front.
   (b) Remove the O-ring from the side plate.
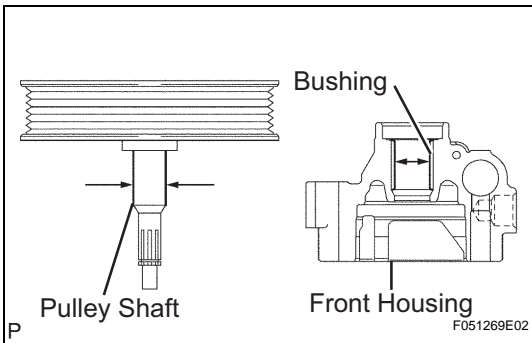
(c) Remove the O-ring from the vane pump housing front.

10. REMOVE VANE PUMP HOUSING OIL SEAL
(a) Using screwdriver, remove the oil seal.
NOTICE:
Be careful not to damage the vane pump housing front.

INSPECTION

1. INSPECT OIL CLEARANCE
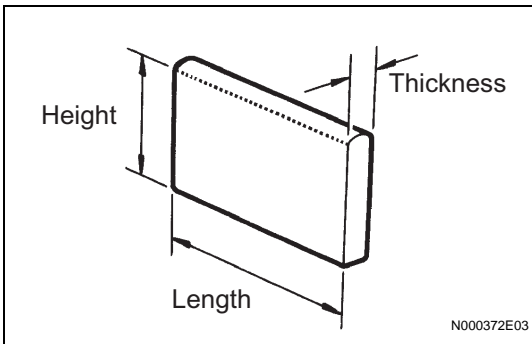(a) Using a micrometer and caliper gauge, measure the oil seal clearance.
Standard clearance:
0.021 to 0.043 mm (0.0008 to 0.0017 in.)
Maximum clearance:
0.07 mm (0.0028 in.)
If it is greater than the maximum, replace the vane pump assembly.

2. INSPECT VANE PUMP ROTOR AND VANE PUMP PLATE
(a) Using a micrometer, measure the height, thickness and length of the vane plates.
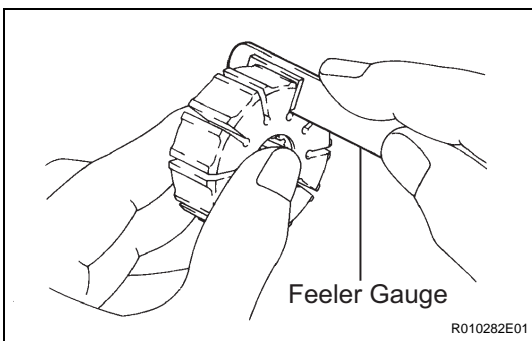**Minimum height:**
7.6 mm (0.299 in.)
Minimum thickness:
1.405 mm (0.0553 in.)
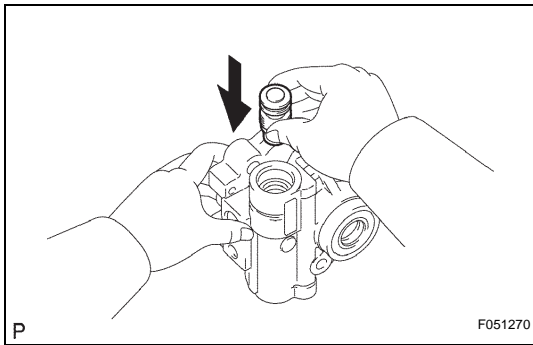**Minimum length:**
11.993 mm (0.4722 in.)

(b) Using a feeler gauge, measure the clearance between a side face of the vane pump rotor groove and vane plate.
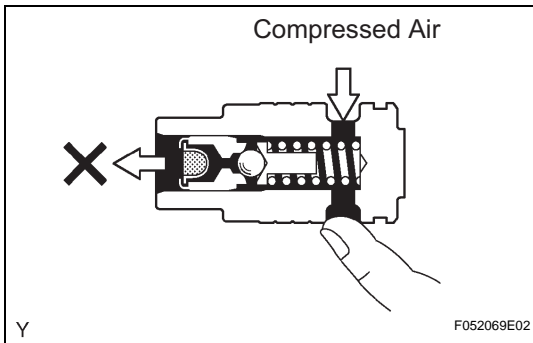**Maximum clearance:**
0.025 mm (0.0010 in.)
If it is greater than the maximum, replace the vane pump assembly.
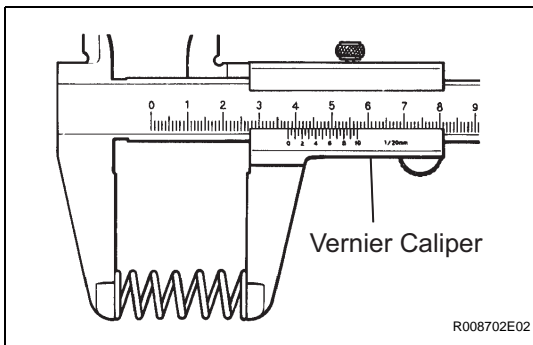
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3. INSPECT FLOW CONTROL VALVE
(a) Coat the flow control valve with power steering fluid and check that it falls smoothly into the flow control valve hole under its own weight.

Compressed Air

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(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/cm^2, 57 to 71 psi) to the hole on the opposite side. Confirm that the air does not flow out from the end holes.
If necessary, replace the vane pump assembly.

Vernier Caliper

R008702E02

4. INSPECT COMPRESSION SPRING
(a) Using vernier calipers, measure the free length of the spring.
   Minimum free length:
      29.2 mm (1.150 in.)
   If it is not within the specification, replace the vane pump assembly.

5. INSPECT PRESSURE PORT UNION SUB-ASSEMBLY
(a) If the union seat in the pressure port union is badly damaged, it could cause fluid leakage, so replace the vane pump assembly.