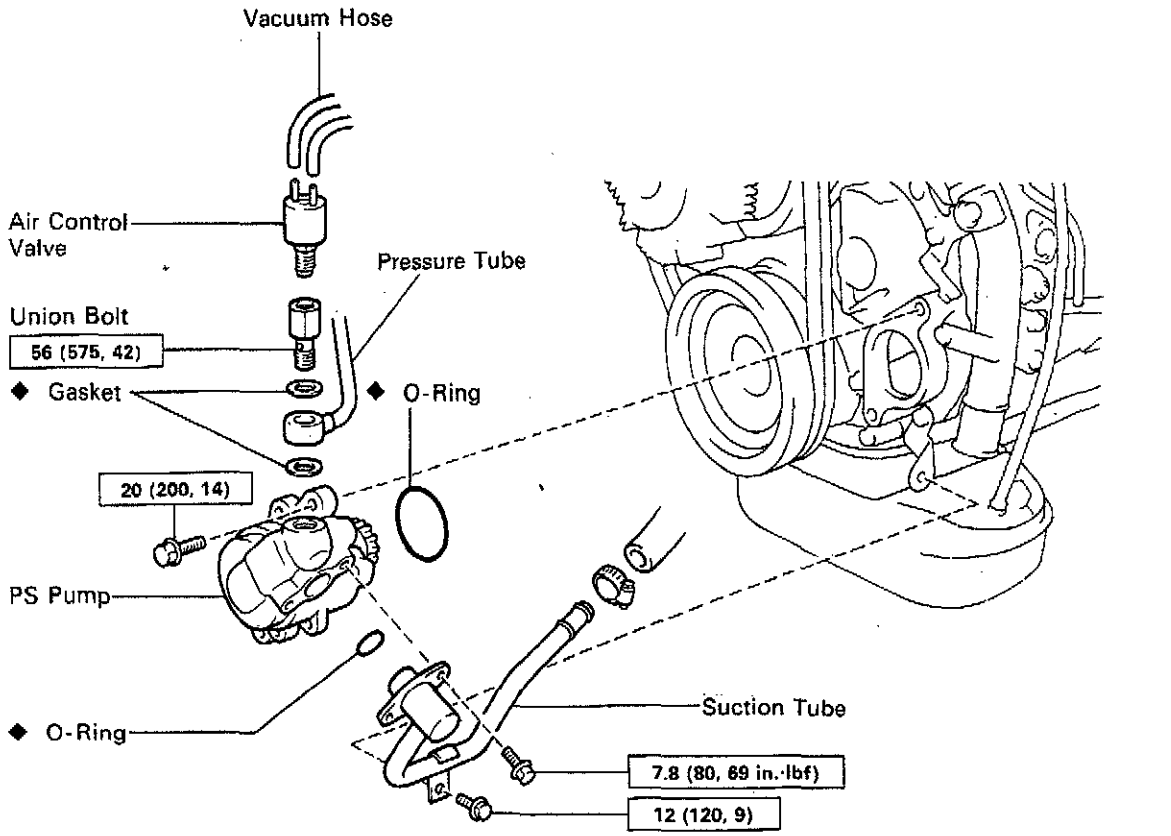
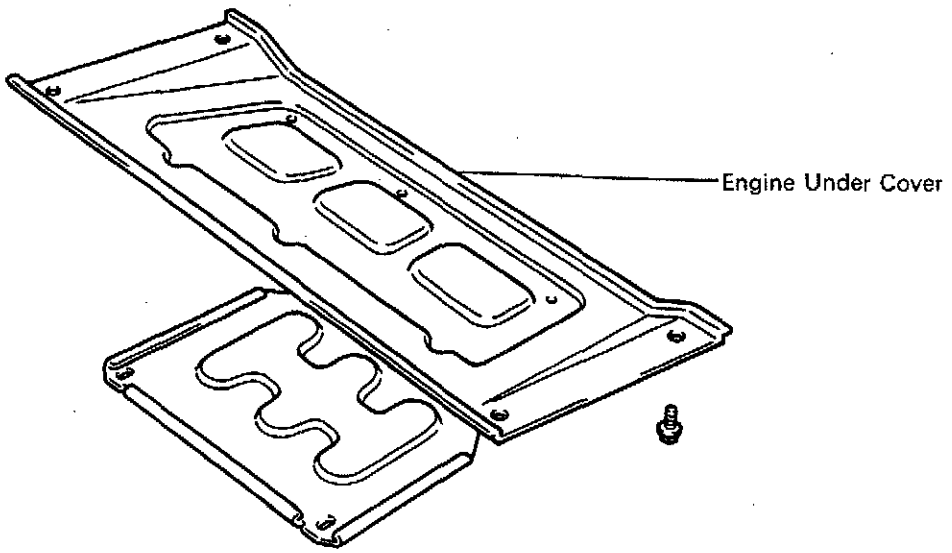
# POWER STEERING PUMP

## POWER STEERING PUMP REMOVAL AND INSTALLATION

SR0000-01

Remove and install the parts, as shown.



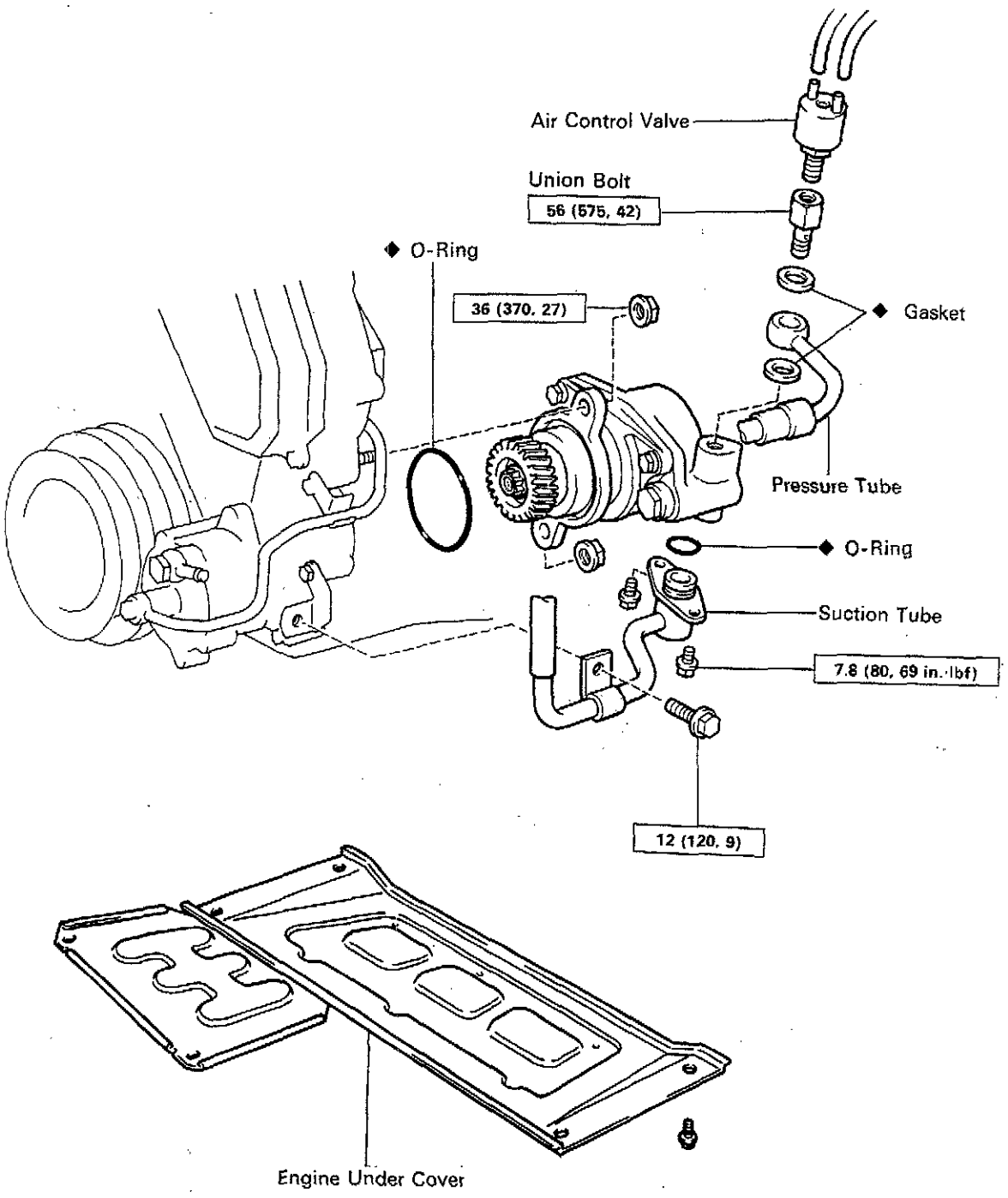




N·m (kgf·cm, ft·lbf) : Specified torque

◆ *Non-reusable part*

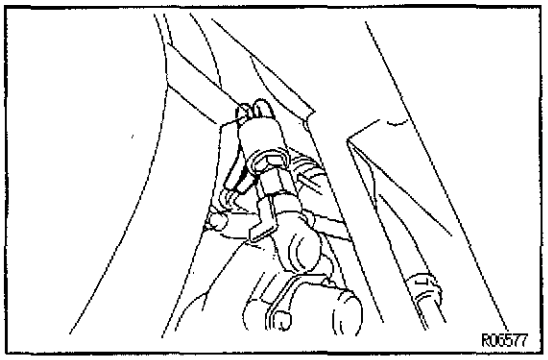
R06575

SR




N·m (kgf·cm, ft·lbf) : Specified torque
◆ Non-reusable part

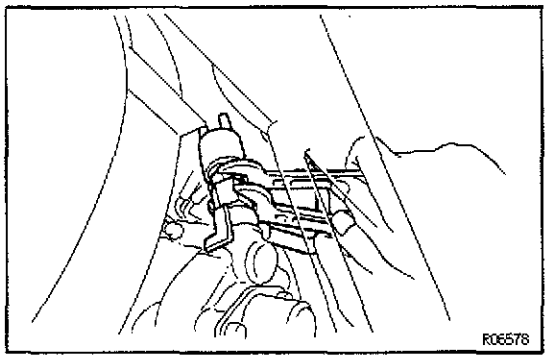
R06576




## MAIN POINTS OF REMOVAL AND INSTALLATION

### REMOVE AIR CONTROL VALVE

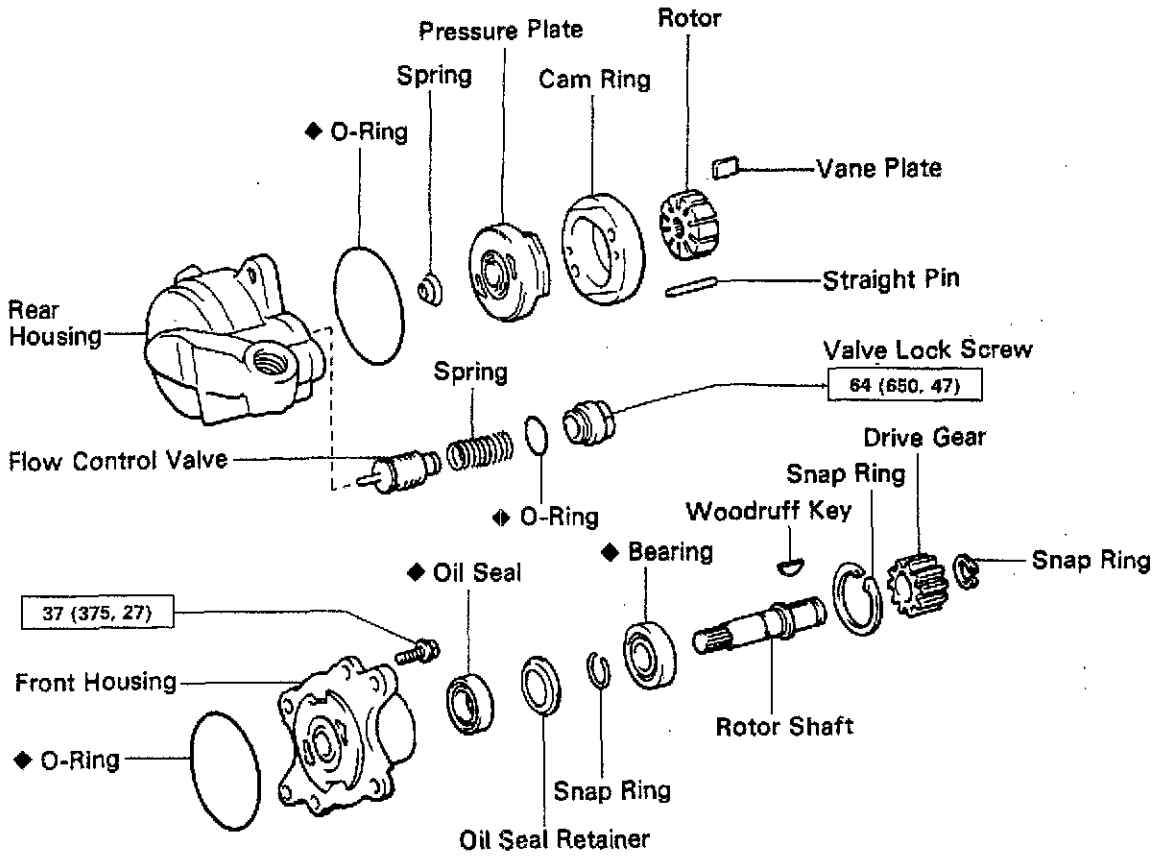
(a) Remove the 2 vacuum hoses.




(b) Remove the air control valve.

SR0BH-02

# COMPONENTS (3B Engine)




N·m (kgf·cm, ft·lbf) : Specified torque

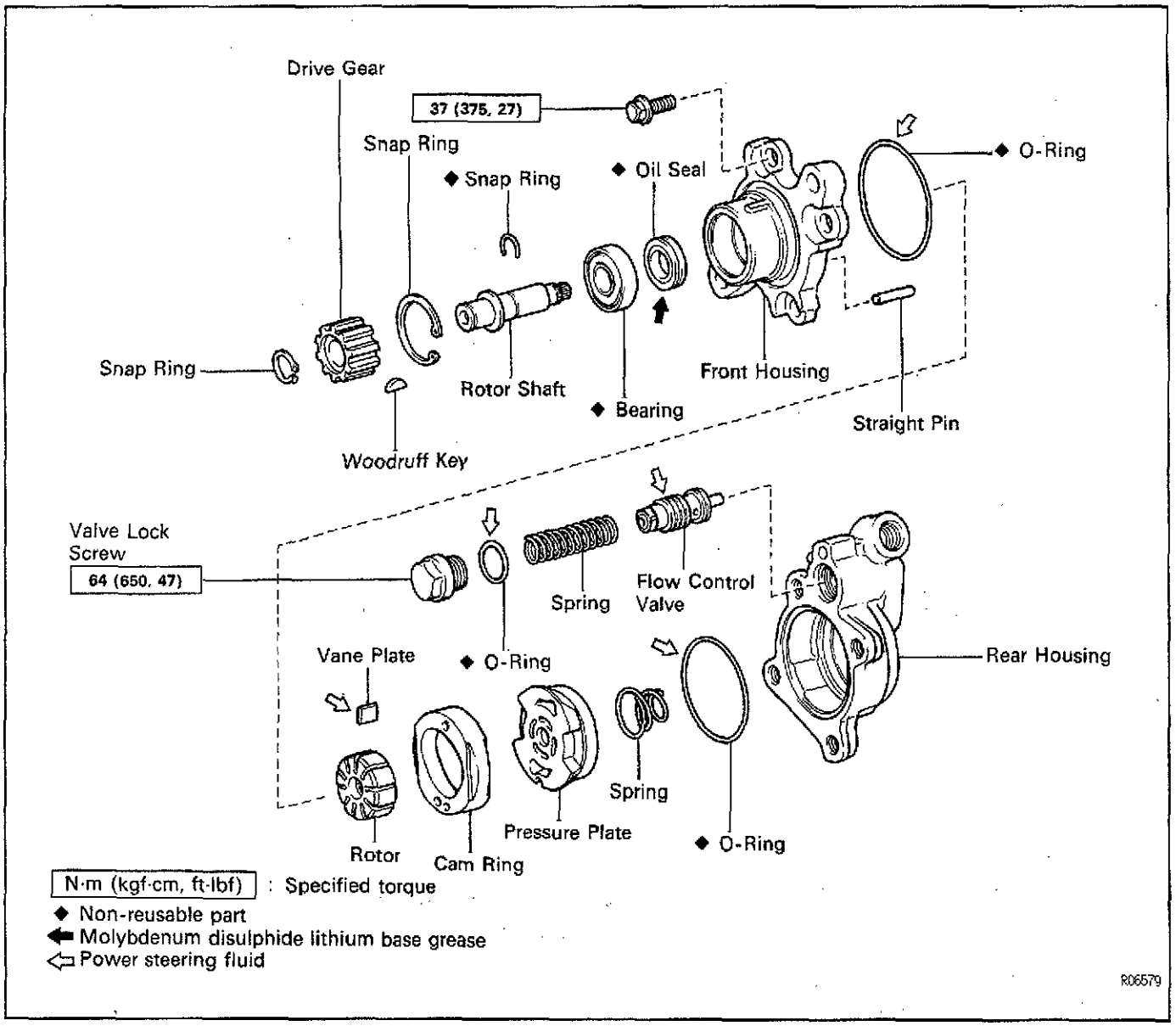
◆ Non-reusable part

R06742

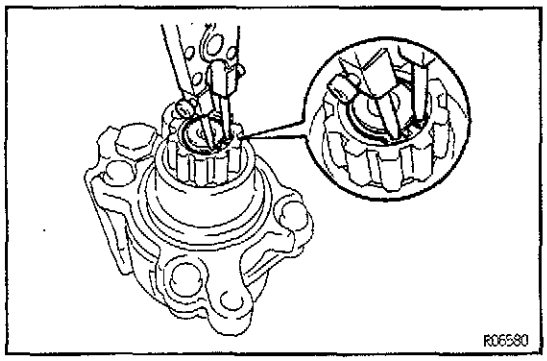
SR

SR0F9-01

## COMPONENTS (14B Engine)




SR



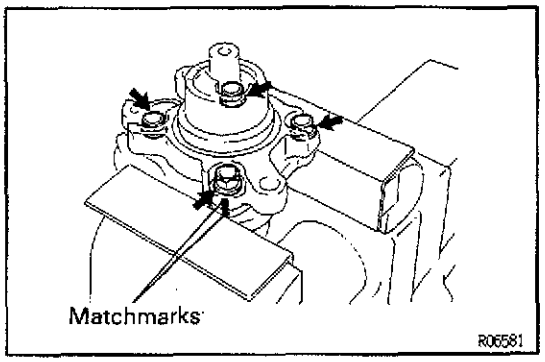

## POWER STEERING PUMP DISASSEMBLY

SR0FA-01

### 1. REMOVE DRIVE GEAR

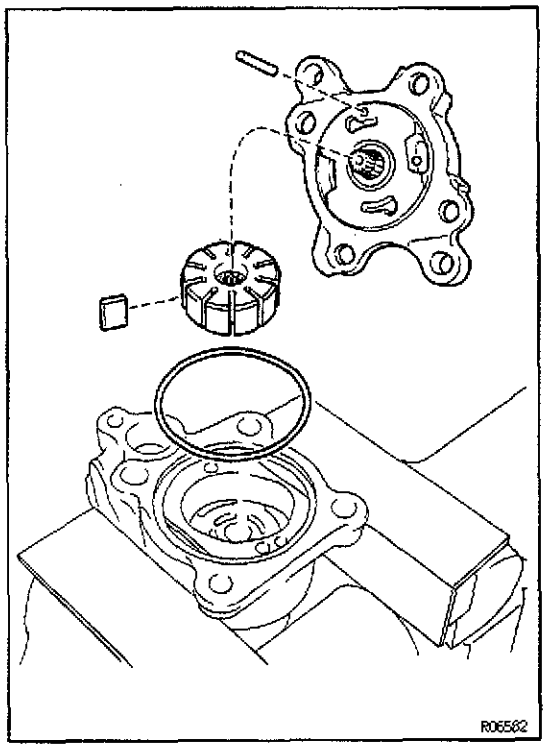
(a) Using snap ring pliers, remove the snap ring from the shaft.

(b) Remove the gear and woodruff key.



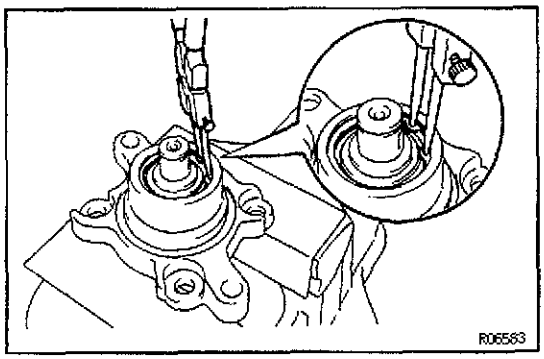

**2. REMOVE REAR HOUSING**

(a) Place matchmarks on the front and rear housings.
(b) Remove the 4 bolts.
(c) Using a plastic hammer, tap off the front housing.
**NOTICE: Be careful that the vane plates, rotor and cam ring do not fall out.**
(d) Remove the O–ring.



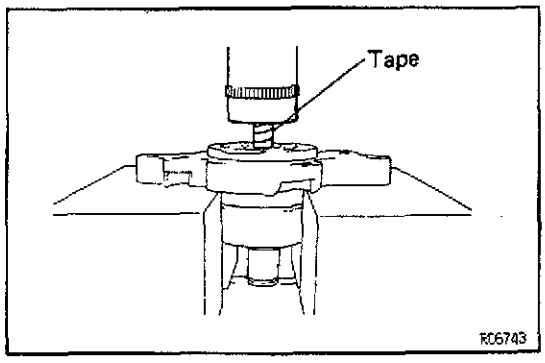

**3. REMOVE CAM RING, ROTOR, VANE PLATES AND STRAIGHT PIN**

**NOTICE: Be careful not to scratch the cam ring, rotor, and vane plates.**

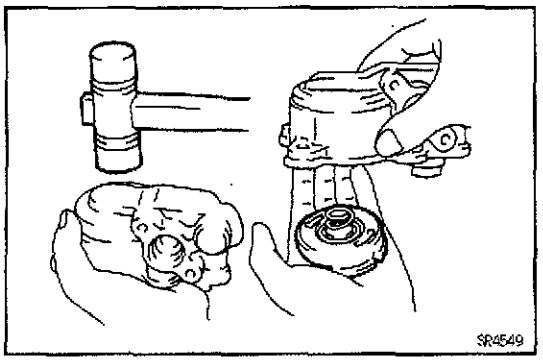



**4. REMOVE ROTOR SHAFT**

(a) Using snap ring pliers, remove the snap ring.




(b) Using a press out the rotor shaft with the bearing.
(c) Remove the oil seal retainer.
(3B Engine)

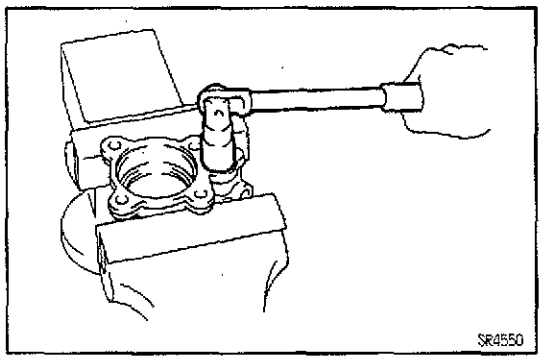



**5. REMOVE PRESSURE PLATE AND SPRING**

(a) Using a plastic hammer, tap the bottom end of the rear housing, and remove the pressure plate and spring.

**NOTICE: Be careful not to scratch the front side of the pressure plate.**

(b) Remove the O–ring.



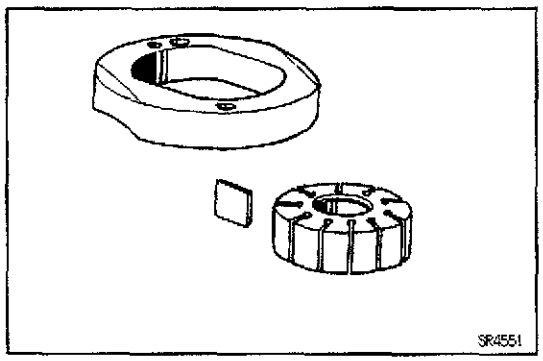

**6. REMOVE VALVE LOCK SCREW**

(a) Remove the valve lock screw.

(b) Remove the O–ring.

**7. REMOVE COMPRESSION SPRING AND FLOW CONTROL VALVE**

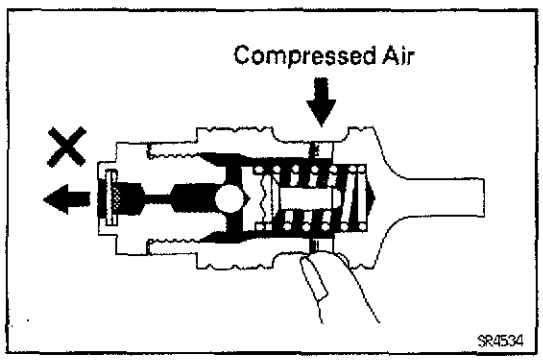





## POWER STEERING PUMP INSPECTION SROFB–01

**1. INSPECT ROTOR, CAM RING AND VANE PLATES**

Check the cam ring and rotor for wear or scratches, if necessary, replace the cam ring, the rotor and the vane plates as a set.



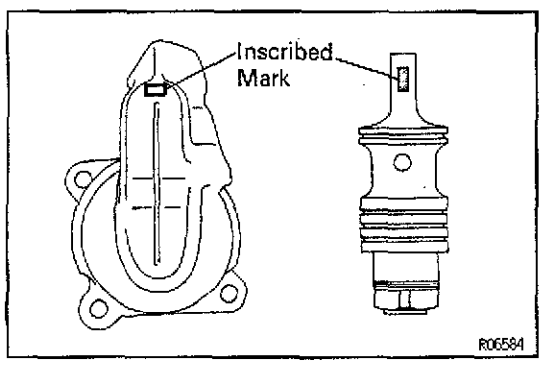

**2. INSPECT FLOW CONTROL VALVE**

(a) Check the flow control valve for wear or damage.

(b) Apply fluid to the valve and check that it falls smoothly into the valve hole by its own weight.

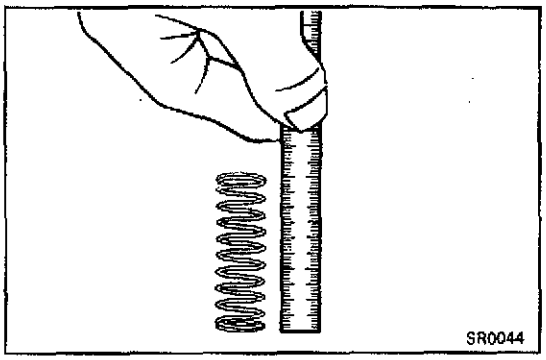
(c) Check the flow control valve for leakage.

Close one of the holes and apply compressed air [392 or 490 kPa (4 or 5 kg/cm², 57 or 71 psi)] into the opposite side, and confirm that air does not come out from the end hole.




(d) If necessary, replace the valve with one having the letter as inscribed on the rear housing.

| Pump housing number | Valve cutter mark |
|---|---|
| 0 | II |
| 1 | I |
| 2 | None |



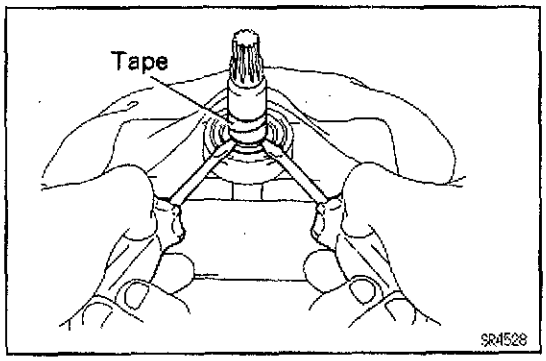

**3. INSPECT FLOW CONTROL VALVE SPRING**

Check that the spring length is within specification.

**Spring length:**

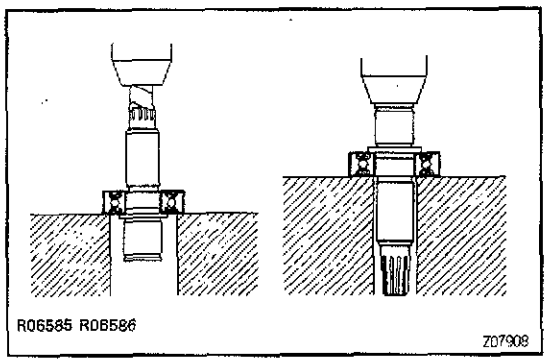
**50 – 55 mm (1.97 – 2.17 in.)**

If the spring is not within specification, replace it.




**4. IF NECESSARY, REPLACE ROTOR SHAFT BEARING**

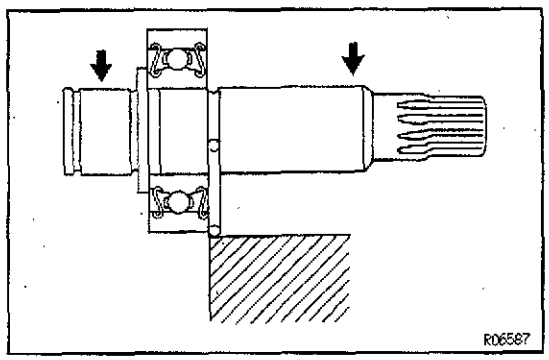
(a) Using 2 screwdrivers, remove the snap ring.



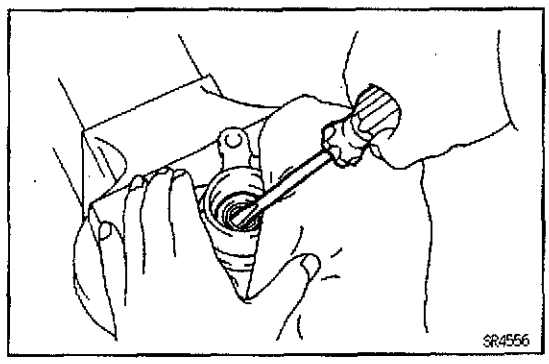

(b) Using a press, press out the bearing.

(c) Using a press, press in a new bearing.

**NOTICE: Be careful not to scratch the rotor shaft contact surface with oil seal and bearing.**




(d) Install the snap ring.



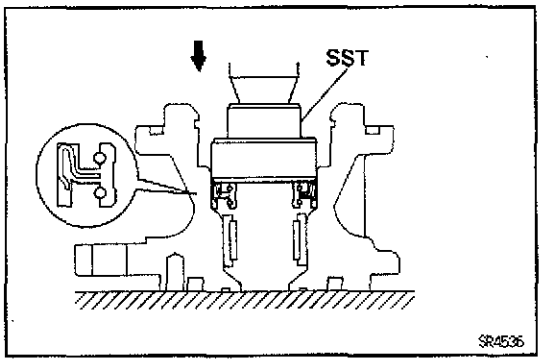

**5. IF NECESSARY, REPLACE OIL SEAL**

(a) Clamp the front housing in a vise.

**NOTICE: Do not tighten the vise too tight.**

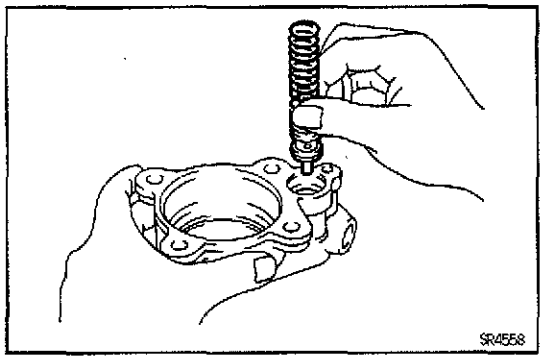
(b) Using a screwdriver, remove the oil seal.

**NOTICE: Be careful not scratch the housing with a screwdriver.**




(c) Apply MP grease to the lip and outside of a new oil seal.

(d) Using SST and a press, press in the oil seal to the front housing.
SST 09630–24013 (09620–24020)
**NOTICE: Be careful not to scratch the frictional surface of the front housing.**




## POWER STEERING PUMP ASSEMBLY

SR0FC-01

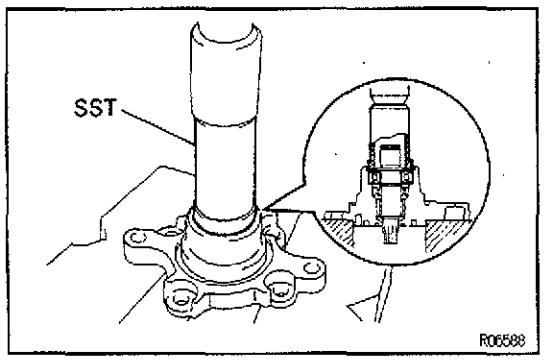
**1. COAT POWER STEERING FLUID ON EACH PARTS**

**2. INSTALL FOLLOW CONTROL VALVE AND SPRING**
*Insert the spring and valve to the rear housing.*

**3. INSTALL VALVE LOCK SCREW**

(a) Install a new O–ring to the valve lock screw.

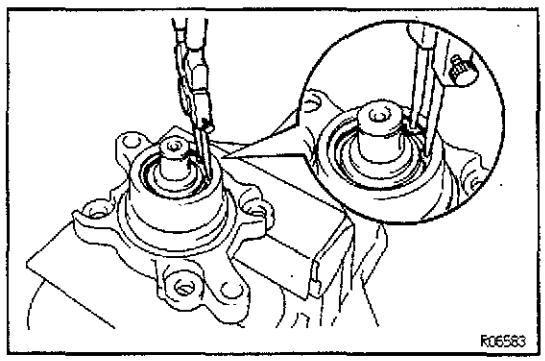
(b) Install the valve lock screw.
**Torque: 64 N·m (650 kgf·cm, 47 ft·lbf)**




**4. INSTALL ROTOR SHAFT**

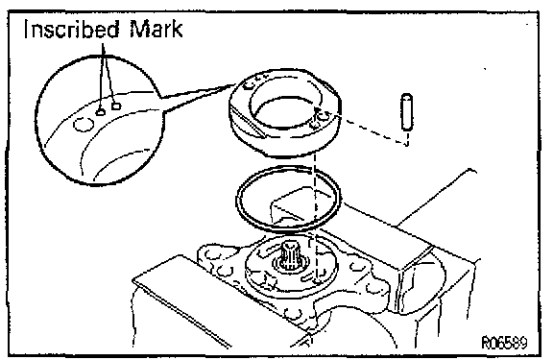
(a) Place the protruding side of the oil seal retainer to the oil seal side.
(3B Engine)

(b) Using SST and a press, press in the rotor shaft to the front bushing.
SST 09632–36010
**NOTICE: Be careful not to scratch the oil seal lip and the rotor frictional surface.**



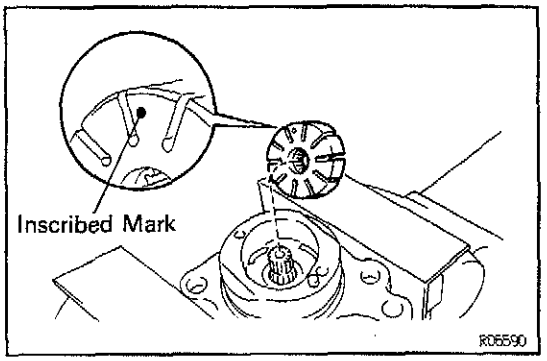

(c) Using snap ring pliers, install the snap ring.

**5. INSTALL O–RING AND STRAIGHT PIN**
Install a new O–ring and straight pin to the front housing.



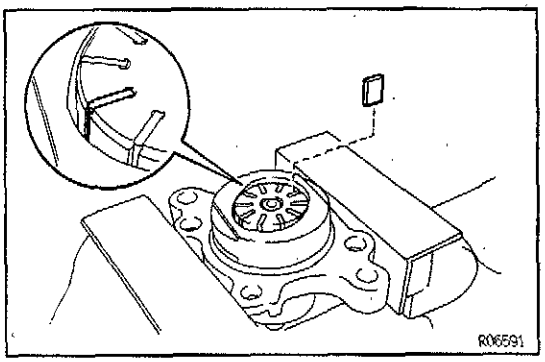

**6. INSTALL CAM RING**
Install the cam ring with the inscribed mark facing upper side.

SR



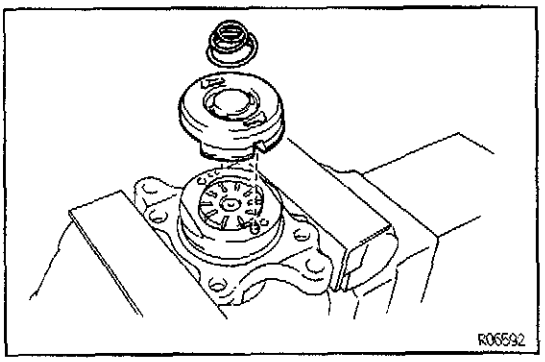

**7. INSTALL ROTOR**

Install the rotor, as shown.




**8. INSTALL VANE PLATES**

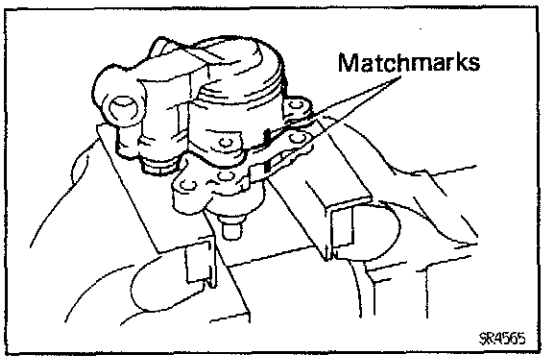
Install the 10 vane plates with the round end facing outward.




**9. INSTALL PRESSURE PLATE AND SPRING**

(a) Align the cut portion of the pressure plate to the straight pin and install it.

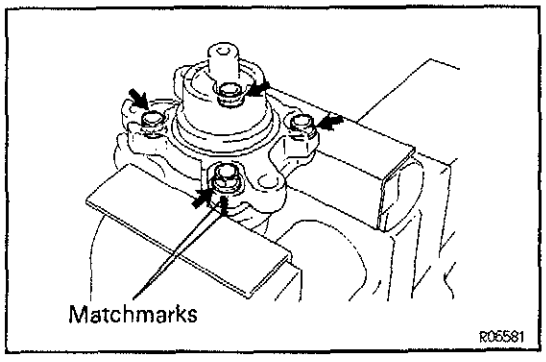
(b) Place the spring on the pressure plate.




**10. INSTALL REAR HOUSING**

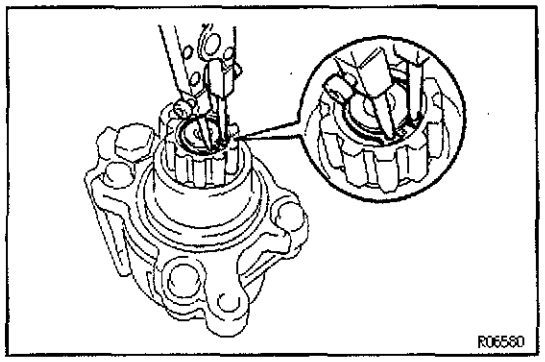
(a) Apply fluid to a new O–ring and install it to the rear housing.

(b) Align the matchmarks on the front and rear housings and assemble them.




(c) Torque the 4 bolts.

**Torque: 37 N·m (375 kgf·cm, 27 ft·lbf)**




**11. INSTALL VANE PUMP GEAR**

(a) Install the vane pump gear, as shown.

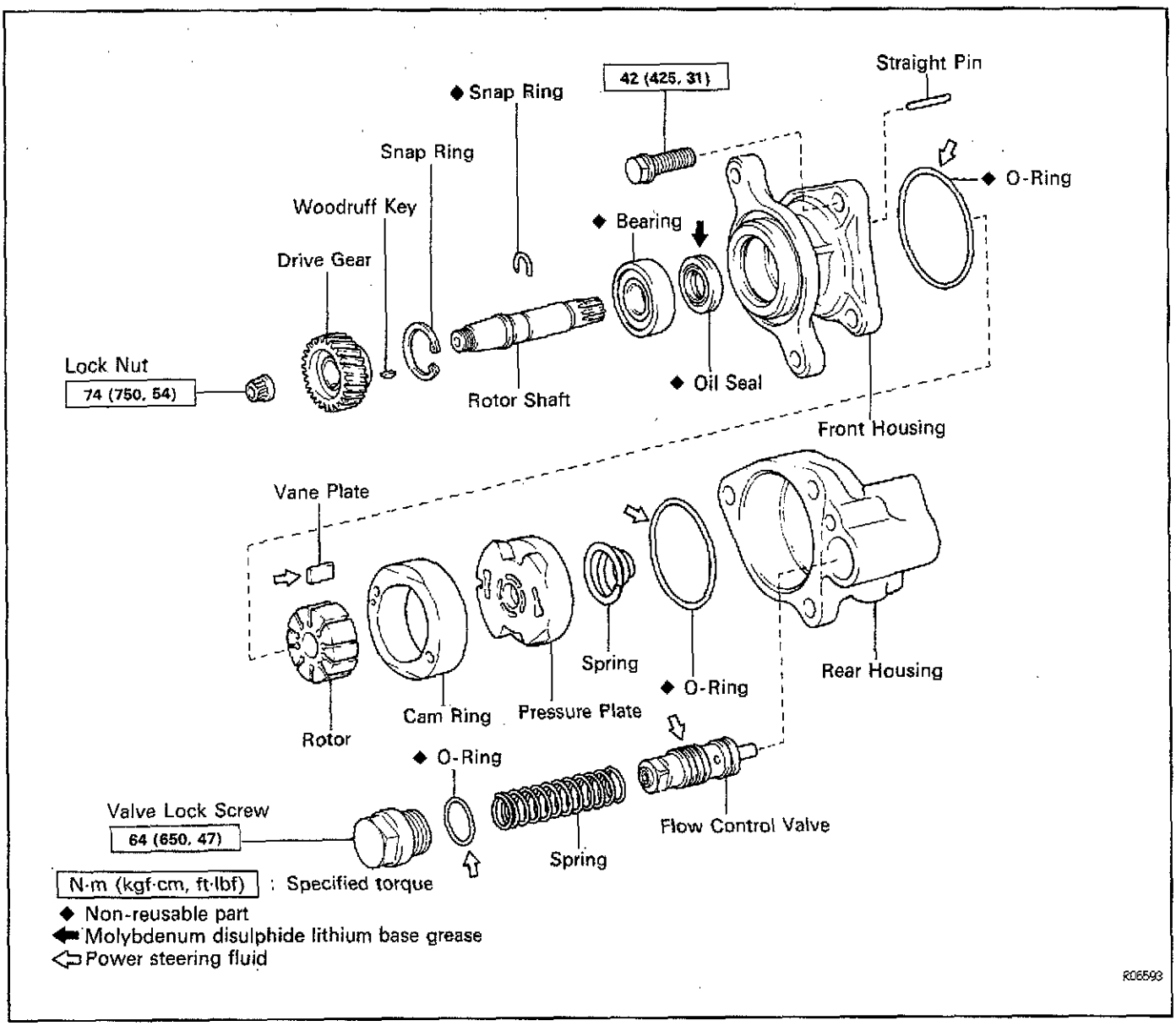
(b) Using snap ring pliers, install the snap ring.

**12. CHECK ROTOR SHAFT ROTATION CONDITION**

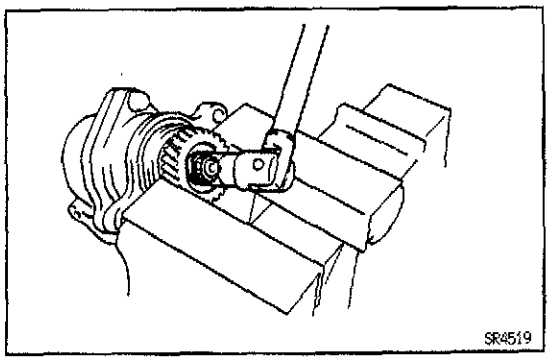
Check that the rotor shaft rotates smoothly without abnormal noise.

SR0FD-01

## COMPONENTS (1HZ Engine)




SR



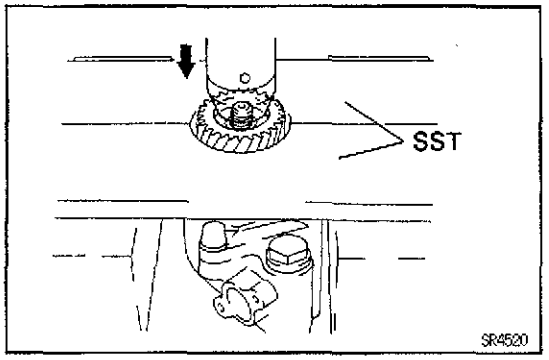

SR0FE-01

## POWER STEERING PUMP DISASSEMBLY

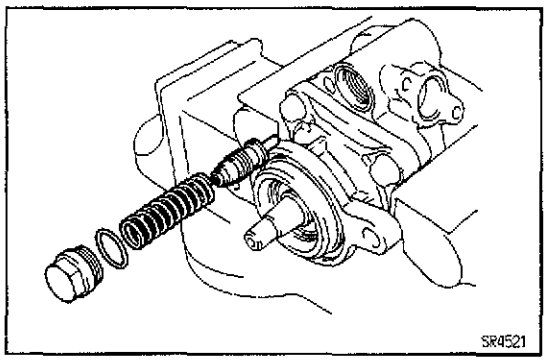
**1. REMOVE DRIVE GEAR**

(a) Using soft jaws on a vise clamp the gear in the vise.

(b) Remove the gear lock nut.



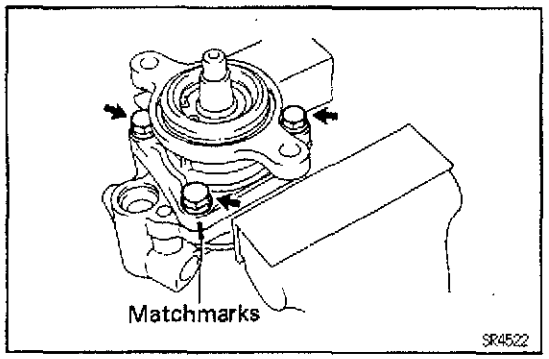

(c) Using SST and a press, remove the gear from the drive shaft.
SST 09527–10011
(d) Remove the woodruff key.




**2. REMOVE VALVE LOCK SCREW, SPRING AND FLOW CONTROL VALVE**

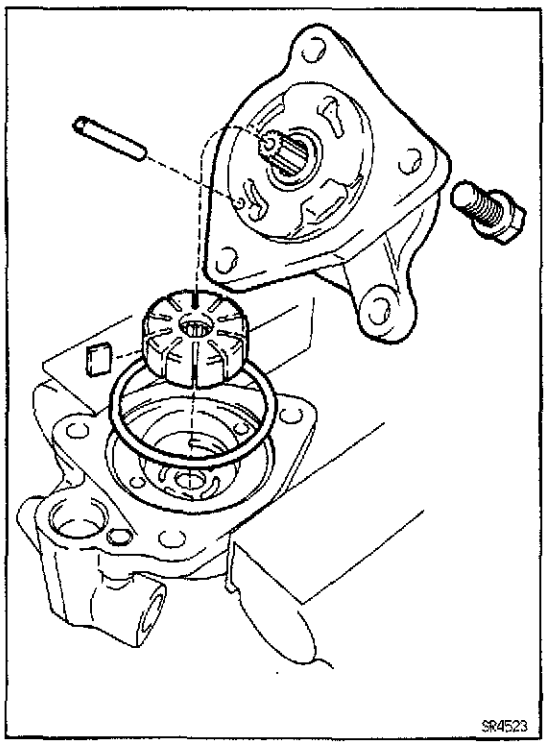
(a) Remove the valve lock screw, spring and control valve.
(b) Remove the O–ring from the valve lock screw.

SR




**3. REMOVE FRONT HOUSING**

(a) Place matchmarks on the front and rear housings.
(b) Remove the 3 bolts and the front housing.
(c) Remove the O–ring front the housing.

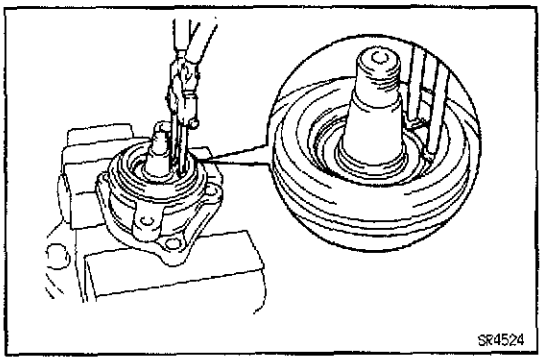



**4. REMOVE ROTOR AND VANE PLATES**

**NOTICE: Be careful that the vane plates and rotor do not fall out.**

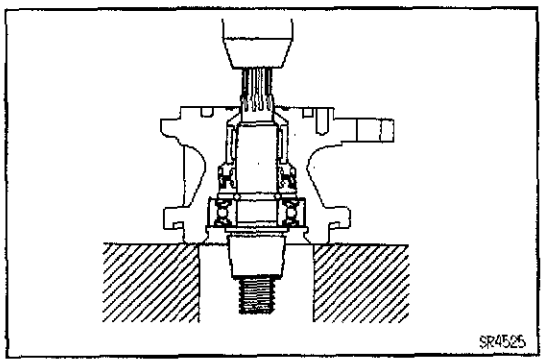
**5. REMOVE STRAIGHT PIN**

**6. REMOVE O–RING**



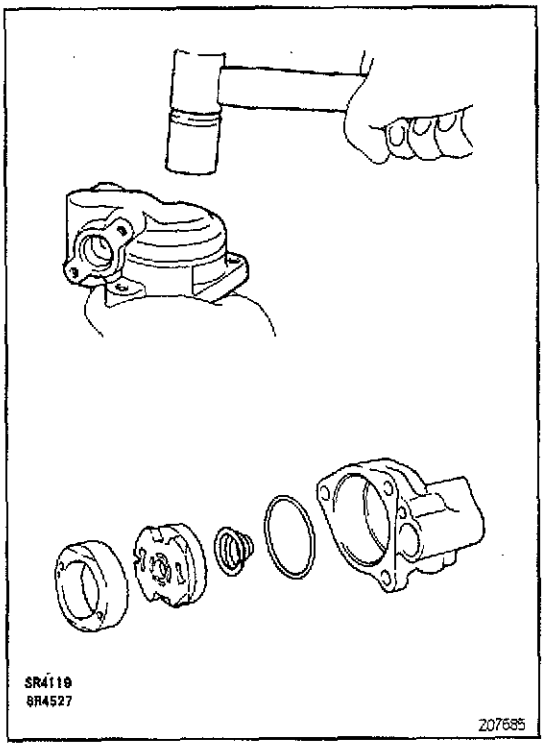

**7. REMOVE ROTOR SHAFT**

(a) Using snap ring pliers, remove the snap ring.




(b) Using a press, press out the rotor shaft with the bearing.



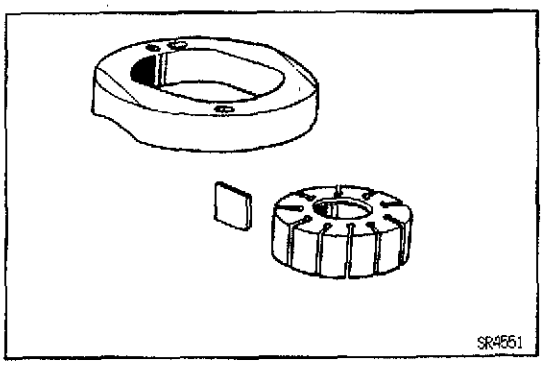



**8. REMOVE CAM RING, PRESSURE PLATE AND SPRING**

(a) Using a plastic hammer, tap the bottom end of the rear housing, and remove the pressure plate and spring.

**NOTICE: Be careful not to scratch the front side of the pressure plate.**

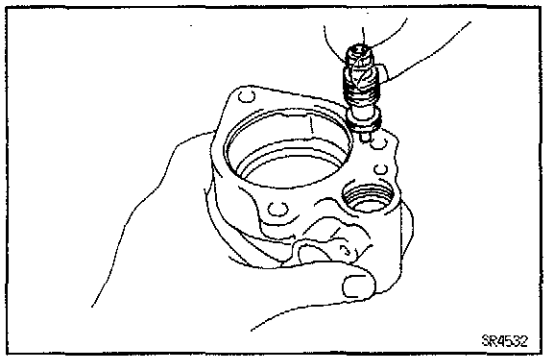
(b) Remove the O–ring front the rear housing.




## POWER STEERING PUMP INSPECTION SROFF-01

**1. INSPECT ROTOR, CAM RING AND VANE PLATES**

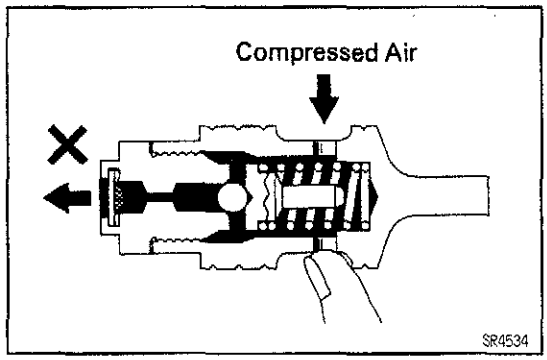
Check the cam ring for wear or scratches. If necessary, replace the cam ring, the rotor and the vane plates in a set.




## 2. INSPECTION FLOW CONTROL VALVE

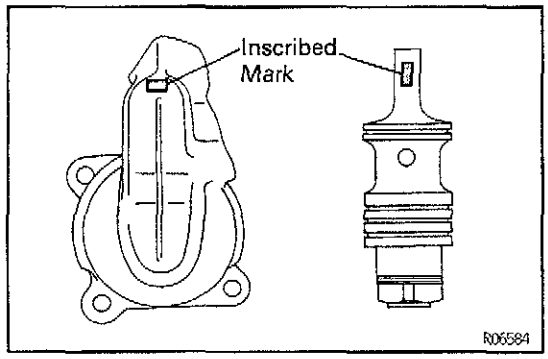
(a) Check the flow control valve for wear or damage.

(b) Apply fluid to the valve and check that it falls smoothly into the valve hole by its own weight.



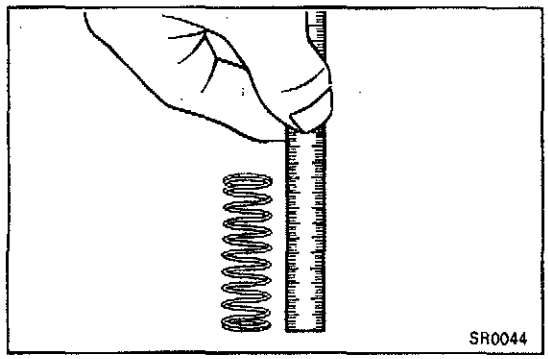

(c) Check the flow control valve for leakage, close one of the holes and apply compressed air [392 or 490 kPa (4 or 5 kg/cm², 57 or 71 psi)] into the opposite side, and confirm that air does not come out from the end hole.

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(d) If necessary, replace the valve with one having the letter as inscribed on the rear housing.

| Pump housing number | Valve cutter mark |
|---|---|
| 0 | II |
| 1 | I |
| 2 | None |



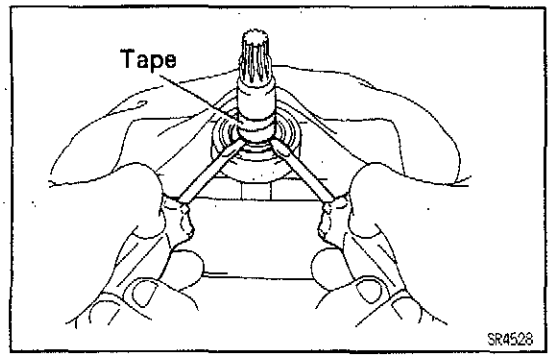

## 3. INSPECT FLOW CONTROL VALVE SPRING

Check that the spring length is within specification.

**Spring length:**

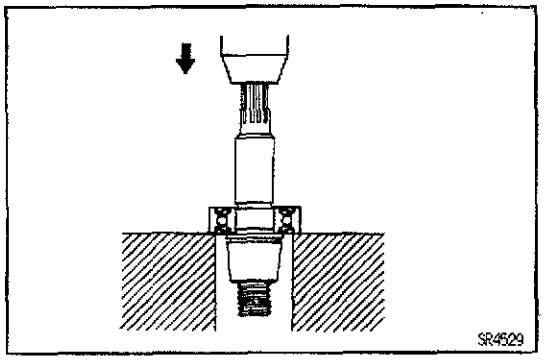
**50 – 55 mm (1.97 – 2.17 in.)**

If the spring is not within specification, replace it.

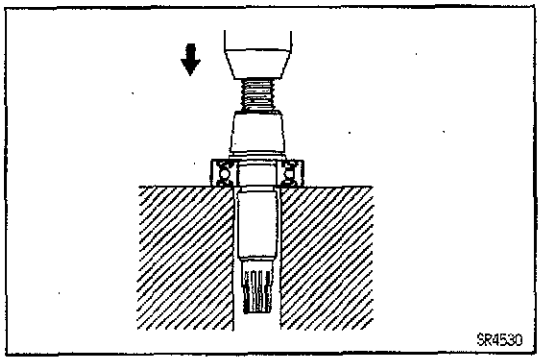



## 4. IF NECESSARY, REPLACE ROTOR SHAFT BEARING

(a) Using 2 screwdrivers, remove the snap ring.

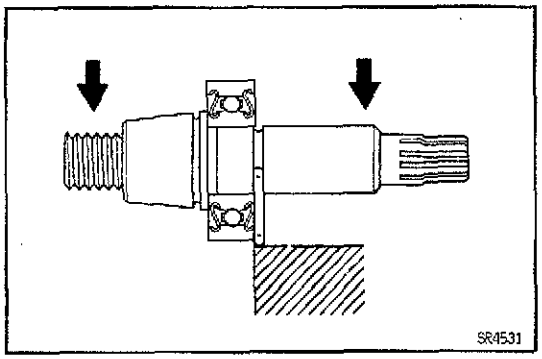



(b) Using a press, press out the bearing.

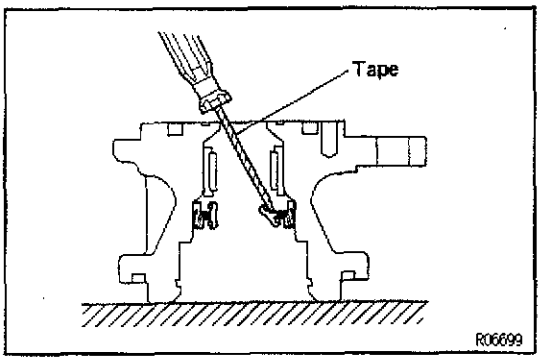



(c) Using a press, press in a new bearing.
**NOTICE: Be careful not to scratch the rotor shaft contact surface with oil seal bearing.**



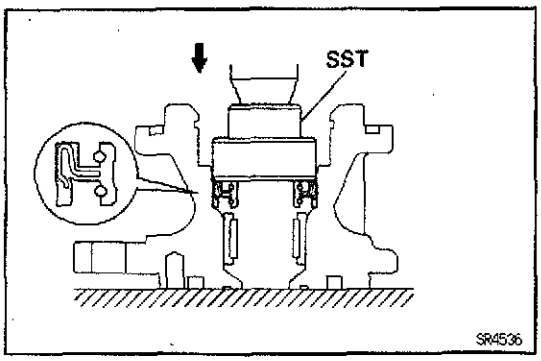



(d) Install the snap ring.



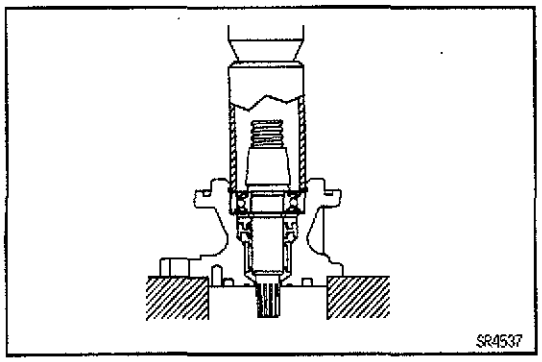

**5. IF NECESSARY, REPLACE OIL SEAL**

(a) Using a screwdriver, remove the oil seal.
**NOTICE: Be careful not to scratch the housing with the screwdriver.**




(b) Apply MP grease to the lip and outside of a new oil seal.

(c) Using SST and a press, press in the oil seal to the front housing.
SST 09630–24013 (09620–24020)
**NOTICE: Be careful not to scratch the frictional surface of the front housing.**

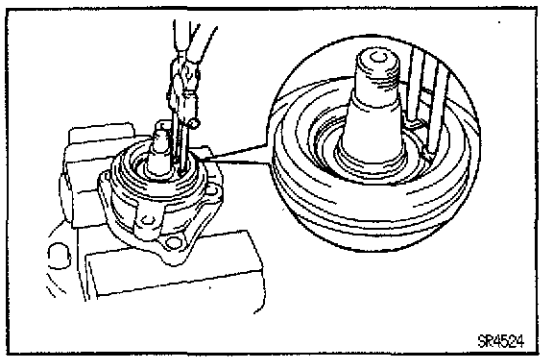



## POWER STEERING PUMP ASSEMBLY

SR0FG-01

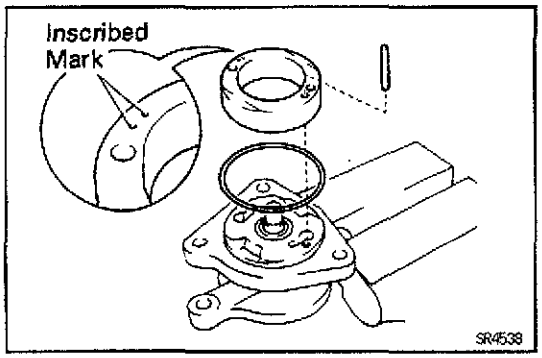
1. **COAT POWER STEERING FLUID ON EACH PART**
2. **INSTALL ROTOR SHAFT**

(a) Using SST and a press, press in the rotor shaft to the front housing.
SST 09632–36010
**NOTICE: Be careful not to scratch the oil seal lip and the rotor frictional surface.**



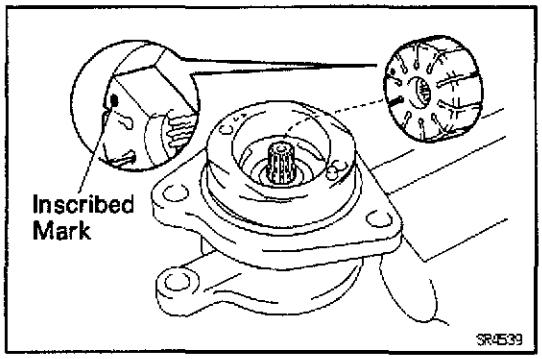

(b) Using snap ring pliers, install the snap ring.

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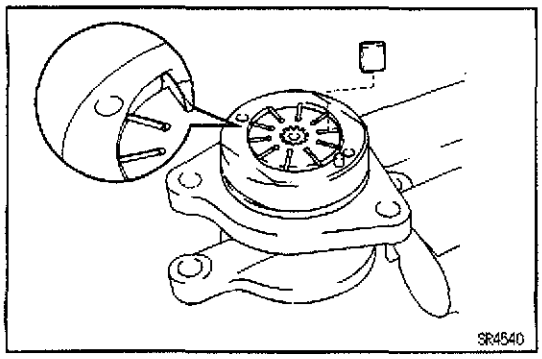

3. **INSTALL CAM RING**

(a) Install a new O–ring.
(b) Install the straight pin to the front housing.
(c) Install the cam ring with the inscribed mark facing upper side.



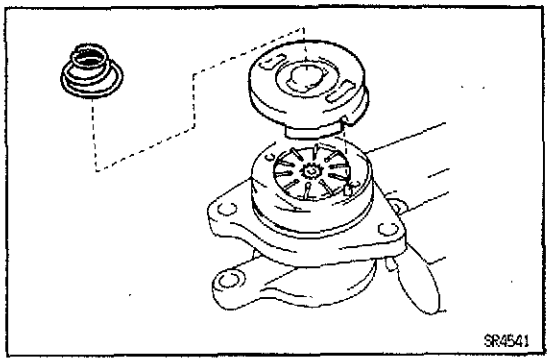

4. **INSTALL ROTOR**

*Install the rotor with the inscribed mark facing lower side.*




5. **INSTALL VANE PLATES**

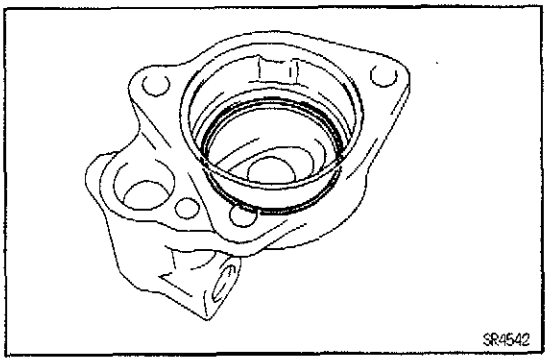
Install the 10 vane plates with the round end facing outward.




**6. INSTALL PRESSURE PLATE AND SPRING**

(a) Align the cut portion of the pressure plate to the straight pin and install it.

(b) Place the spring on the pressure plate.

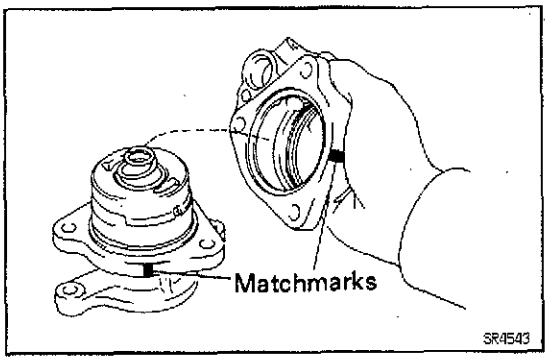



**7. INSTALL REAR HOUSING**

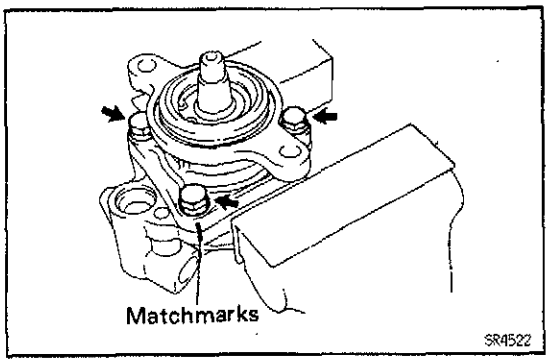
(a) Coat a new O–ring with power steering fluid.

(b) Install the O–ring to the rear housing.

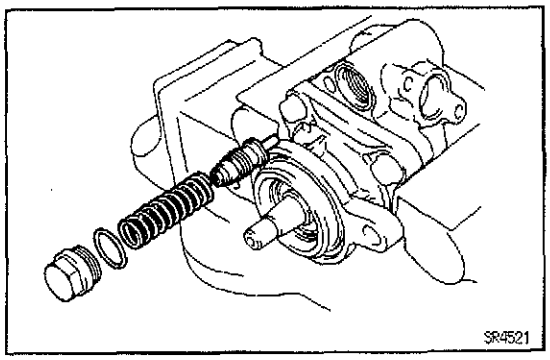





(c) Align the matchmarks on the front and rear housing and assemble them.




(d) Torque the 3 bolts.
**Torque: 42 N·m (425 kgf·cm, 31 ft·lbf)**



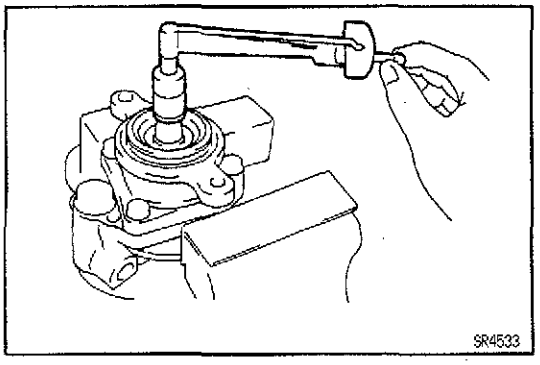

**8. INSTALL FLOW CONTROL VALVE, SPRING AND VALVE LOCK SCREW**

(a) Coat power steering fluid to a new O–ring.

(b) Install the O–ring to the valve lock screw.

(c) Install the flow control valve and the spring.

(d) Install the valve lock screw.
**Torque: 64 N·m (650 kgf·cm, 47 ft·lbf)**



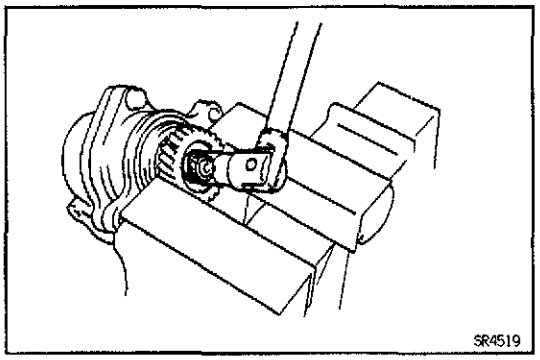

### 9. CHECK ROTOR SHAFT ROTATION CONDITION

(a) Check that the rotor shaft rotates smoothly without abnormal noise.

(b) Temporarily install the gear lock nut and check the rotating torque.

**Rotation torque:**

**0.2 N·m (2.0 kgf·cm, 1.7 in.·lbf) or less**




### 10. INSTALL DRIVE GEAR

(a) Install the gear and woodruff key.

(b) While holding the gear with a vise, install the lock nut.
HINT: Place the workshop rag over the gear to prevent damaging it.

**Torque: 74 N·m (750 kgf·cm, 54 ft·lbf)**