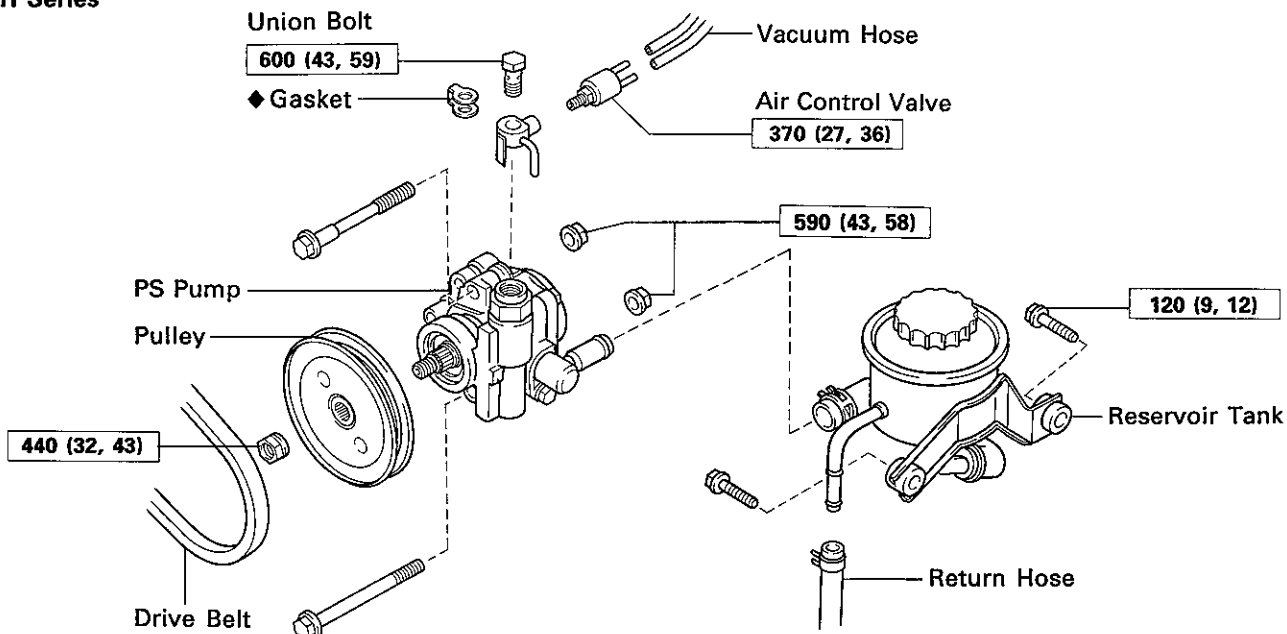


Power Steering Pump

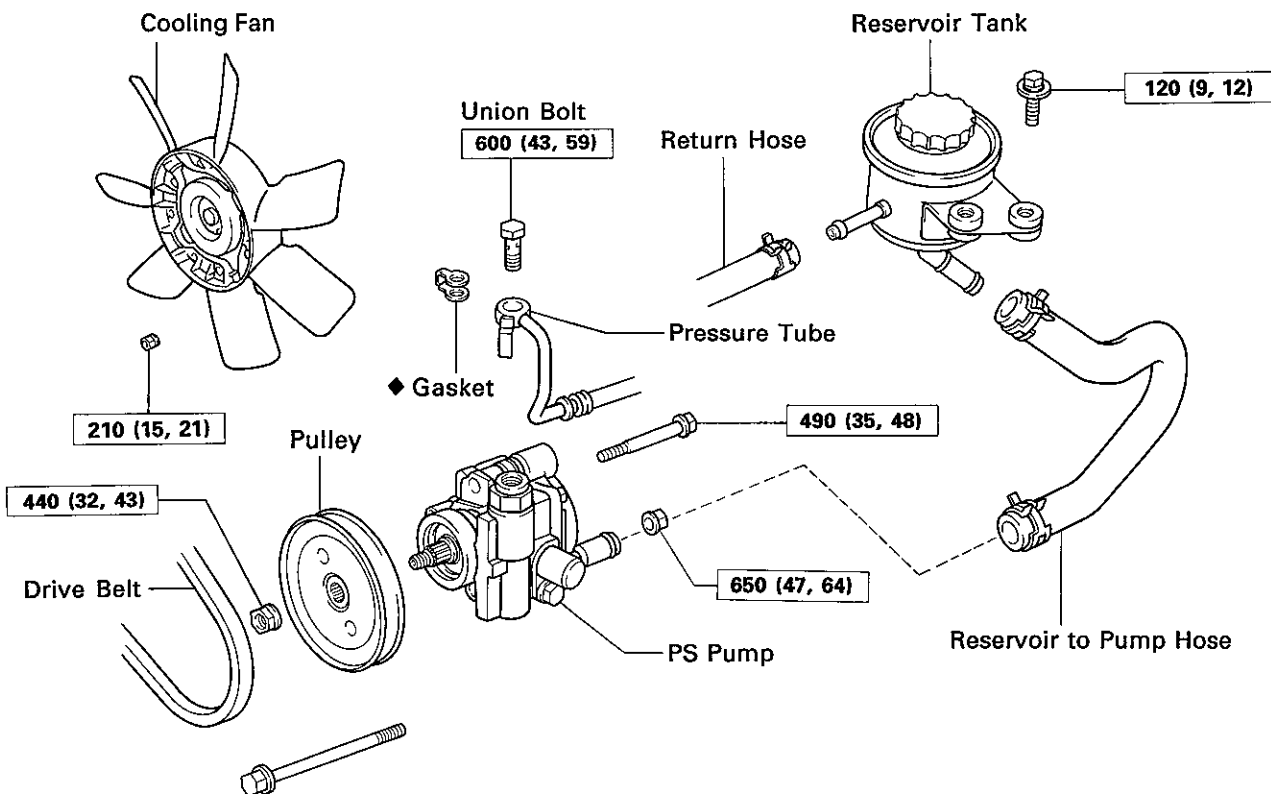
REMOVAL AND INSTALLATION OF POWER STEERING PUMP

Remove and install the parts as shown.

RZH Series



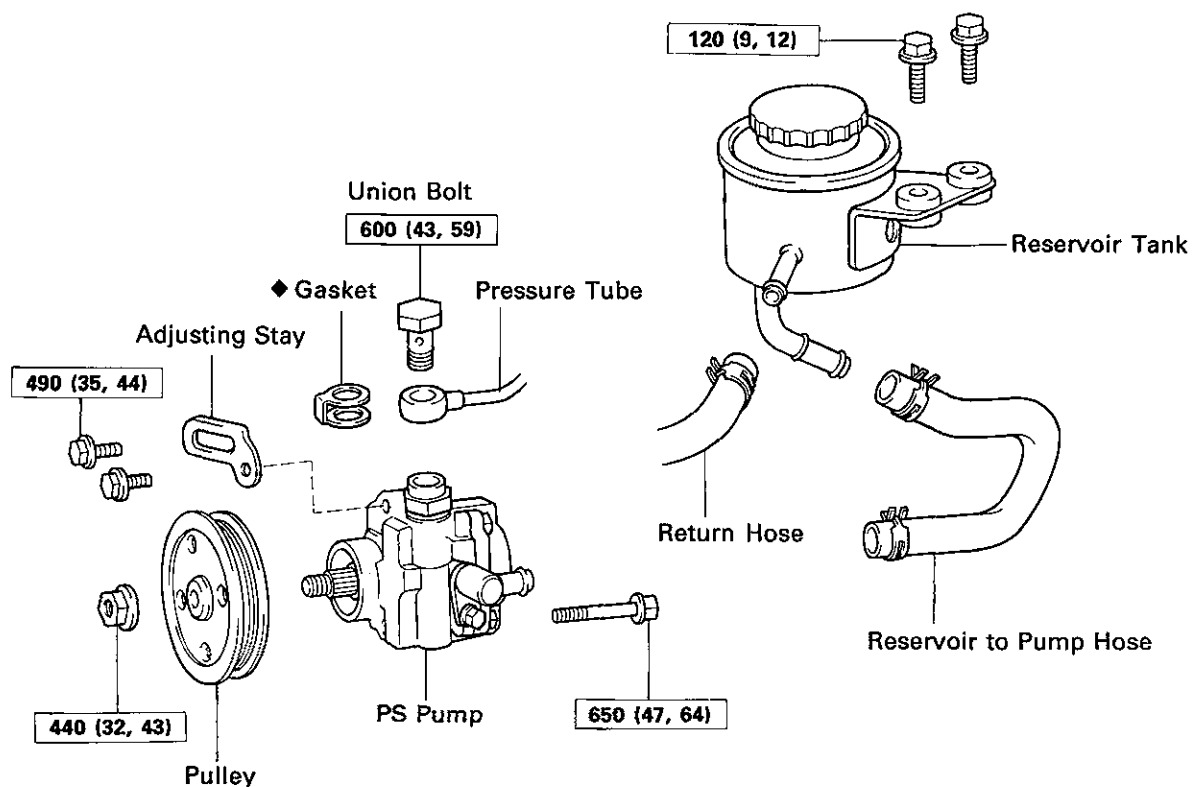
LH Series (2WD)



kg-cm (ft-lb, N·m) : Specified torque

◆ Non-reusable part

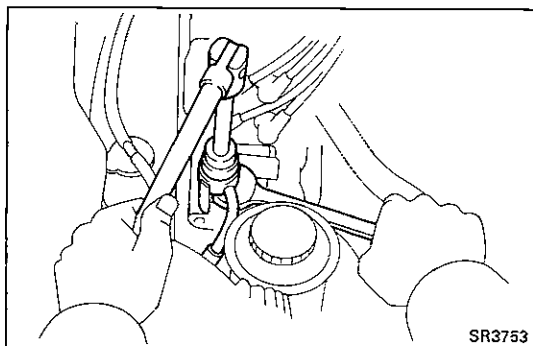
LH Series (4WD)



kg-cm (ft-lb, N·m) : Specified torque

◆ Non-reusable part

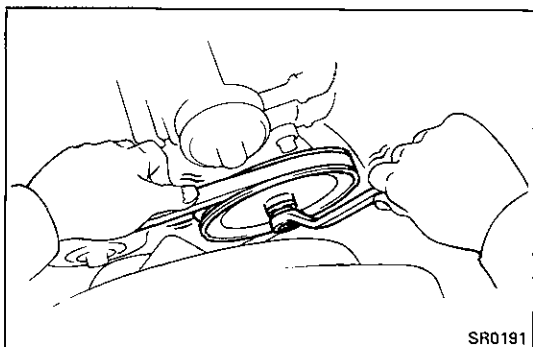
SR3759



(MAIN POINTS OF REMOVAL AND INSTALLATION)

1. DISCONNECT PRESSURE LINE

While holding the pressure port union, disconnect the pressure line.



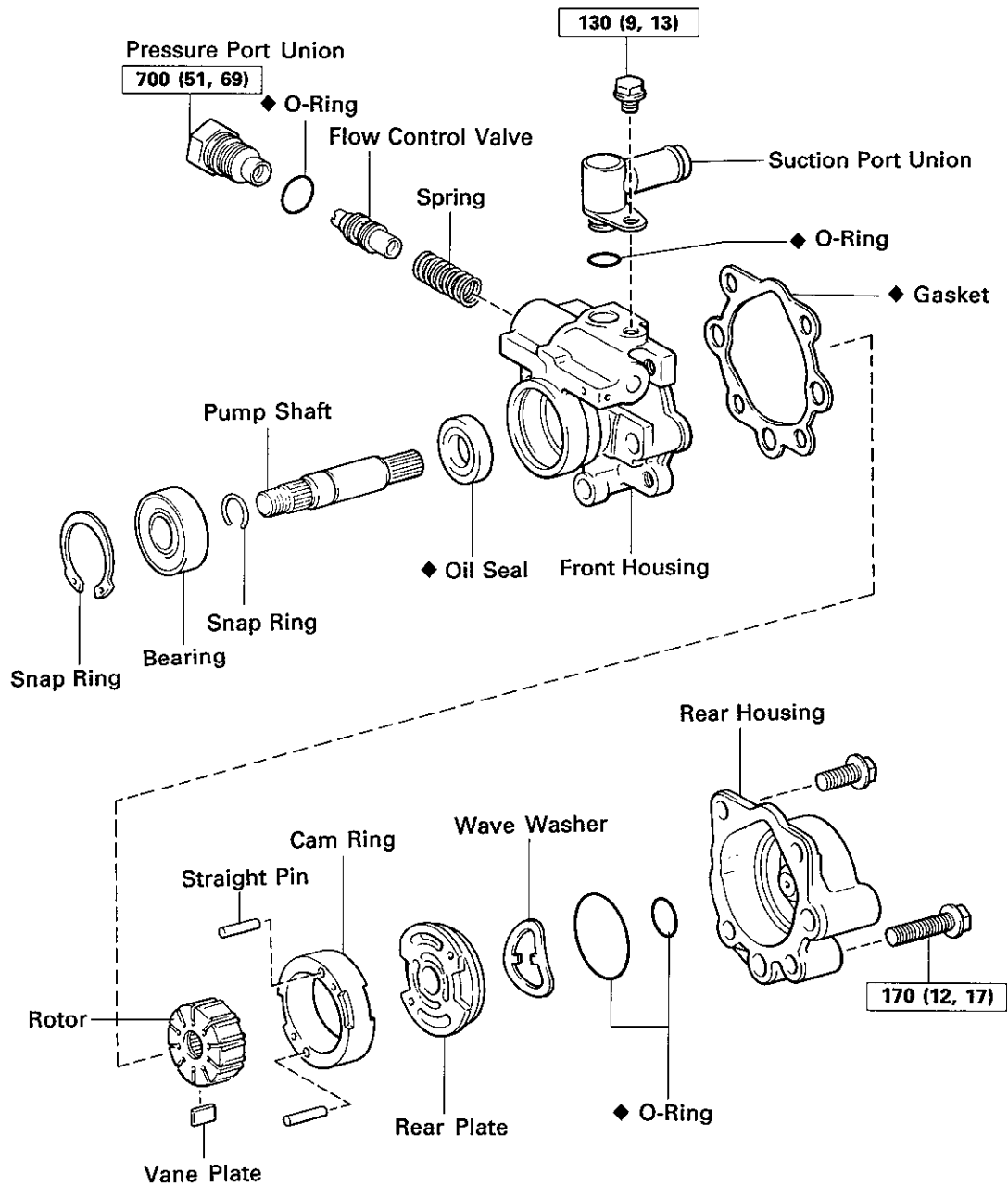
2. LOOSEN PULLEY NUT

Push on the drive belt with your hand to hold the pulley in place and loosen the pulley nut.

3. ADJUST DRIVE BELT TENSION AFTER INSTALLING PS PUMP

(See page SR-33)

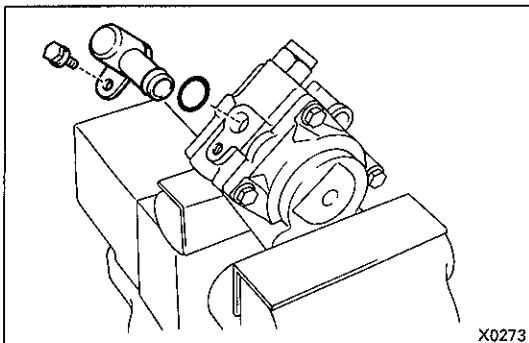
COMPONENTS



kg-cm (ft-lb, N.m) : Specified torque

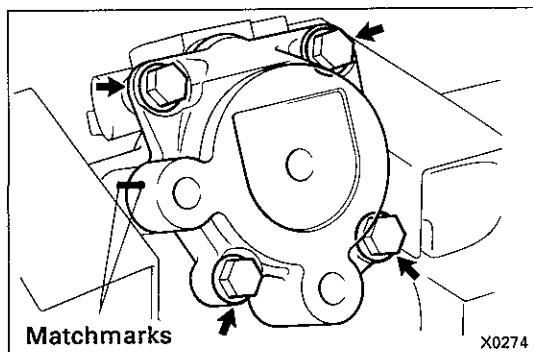
◆ Non-reusable part

X0403



DISASSEMBLY OF POWER STEERING PUMP

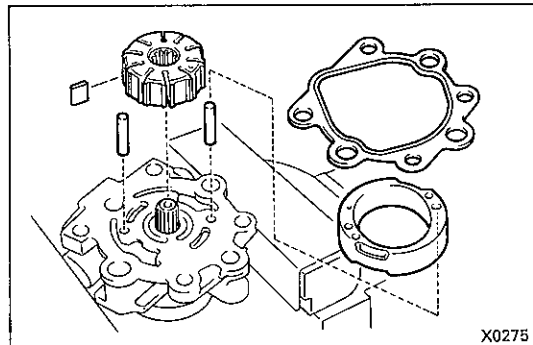
1. CLAMP PS PUMP IN VISE
NOTICE: Do not tighten the vise too tight.
2. REMOVE SUCTION PORT UNION
 - (a) Remove the bolt and union.
 - (b) Remove the O-ring from the union.



3. REMOVE FRONT HOUSING

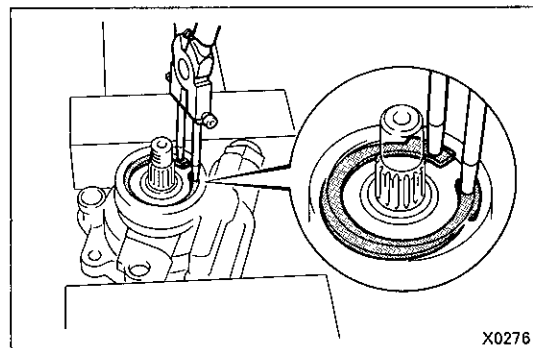
- (a) Place matchmarks on the front and rear housing.
- (b) Remove four bolts.
- (c) Using a plastic hammer, tap off the front housing.

NOTICE: Be careful that the vane plates, rotor and cam ring do not fall out.



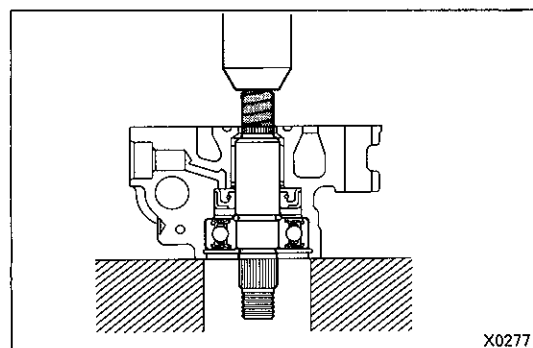
4. REMOVE GASKET, CAM RING, ROTOR, VANE PLATES AND STRAIGHT PIN

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

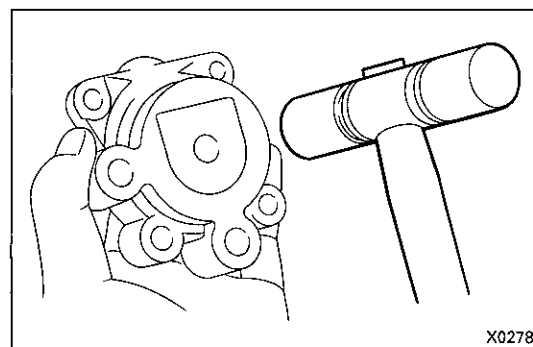


5. REMOVE PUMP SHAFT

- (a) Clamp the front housing in a vise.
- NOTICE:** Do not tighten the vise too tight.
- (b) Using snap ring pliers, remove the snap ring.

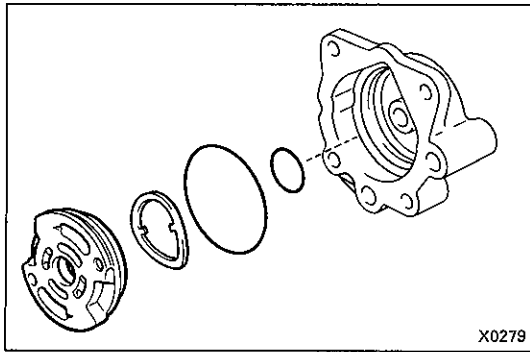


- (c) Wind vinyl tape on the serration of the pump shaft.
- (d) Using a press, press out the shaft with bearing.

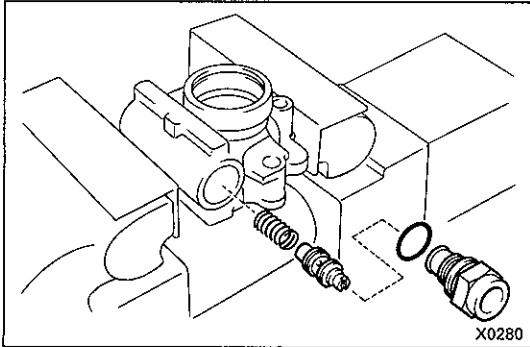


6. REMOVE SIDE PLATE, WAVE WASHER AND O-RINGS

- (a) Using a plastic hammer, lightly tap the bottom end of the rear housing to remove the side plate and wave washer.



- (b) Remove O-rings from the rear housing.

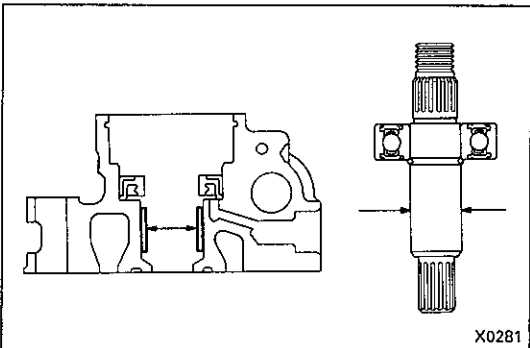


7. REMOVE PRESSURE PORT UNION, FLOW CONTROL VALVE, SPRING AND O-RING

- (a) Remove the pressure port union, flow control valve and spring.

NOTICE: Use care not to drop, scratch or nick this valve.

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



INSPECTION OF POWER STEERING PUMP

1. MEASURE OIL CLEARANCE OF SHAFT AND BUSHING

- (a) Check the bushing for wear or damage. The bushing cannot be replaced separately.

If wear or damage is found, replace entire housing.

- (b) Using a micrometer and calipers, measure the oil clearance between the bushing and rotor shaft.

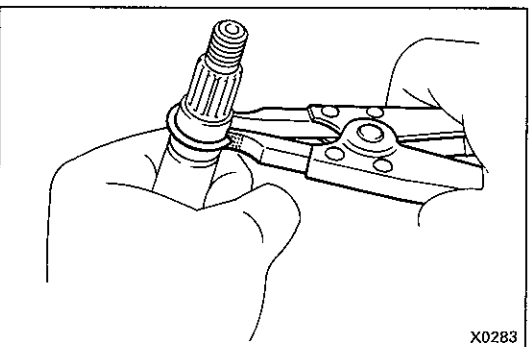
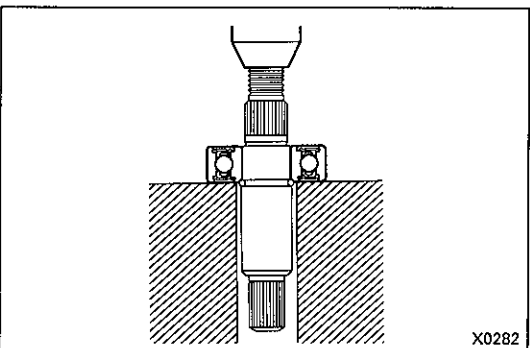
Standard clearance: 0.03 – 0.05 mm
(0.0012 – 0.0020 in.)

Maximum oil clearance: 0.07 mm (0.0028 in.)

2. IF NECESSARY, REPLACE PUMP SHAFT BEARING AND SNAP RING

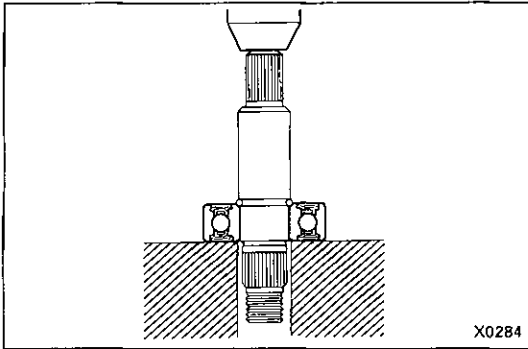
- (a) Using a press, press out the bearing.

NOTICE: Do not scratch the pump shaft.

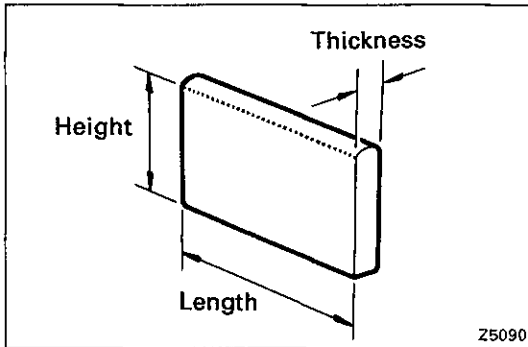


- (b) Using snap ring pliers, remove the snap ring.

- (c) Using snap ring pliers, install a new snap ring.



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



3. INSPECT ROTOR, VANE PLATES AND CAM RING

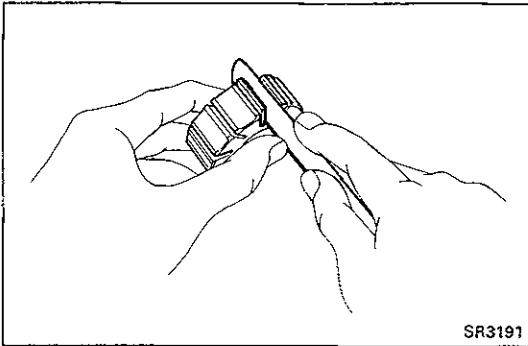
(a) Check the vane plates for wear or scratches.

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

Minimum length: 14.99 mm (0.5902 in.)

Minimum height: 8.6 mm (0.3386 in.)

Minimum thickness: 1.40 mm (0.0551 in.)



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

Standard clearance: 0.025 mm (0.0010 in.)

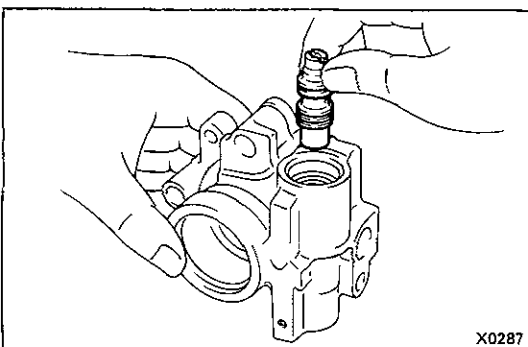
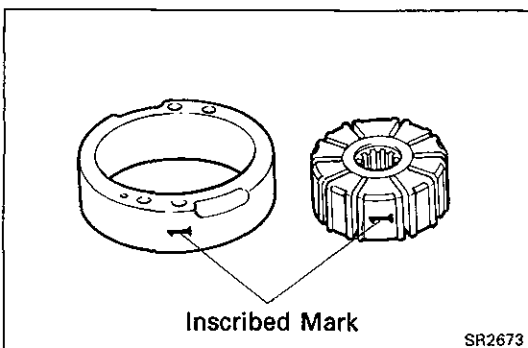
Maximum clearance: 0.035 mm (0.0014 in.)

If more than maximum, replace the vane plate and/or rotor with one having the same mark stamped on the cam ring.

Inscribed mark: 1, 2, 3, 4 or None

HINT: There are five vane lengths with the following rotor and cam ring marks:

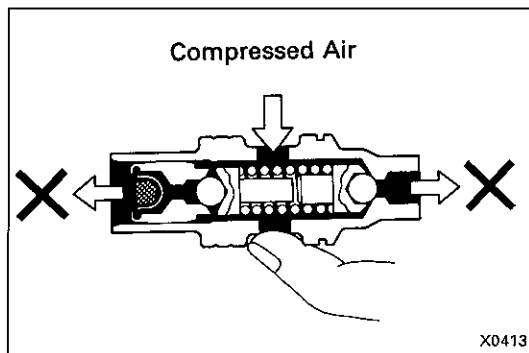
Rotor and cam ring number	Vane length mm (in.)
None	14.999 – 15.001 (0.5905 – 0.5906)
1	14.997 – 14.999 (0.59043 – 0.5905)
2	14.995 – 14.997 (0.59035 – 0.59043)
3	14.993 – 14.995 (0.59027 – 0.59035)
4	14.991 – 14.993 (0.59035 – 0.59027)



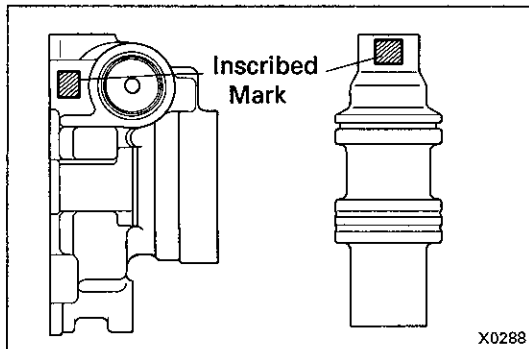
4. INSPECT FLOW CONTROL VALVE

(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.

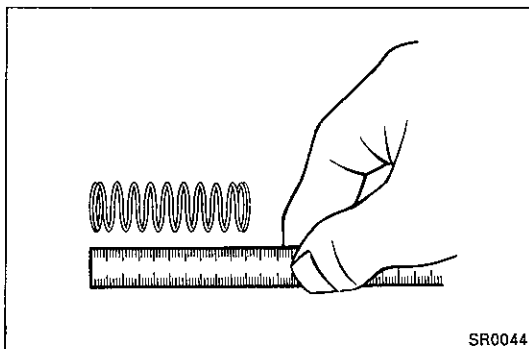


- (c) Check the flow control valve for leakage. Close one of the holes and apply compressed air [4 or 5 kg/cm² (57 or 71 psi, 392 or 490 kPa)] into the opposite side, and confirm that air does not come out from the end hole.



If necessary, replace the valve with one having the same letter as inscribed on the front housing.

Inscribed mark: A, B, C, D, E or F

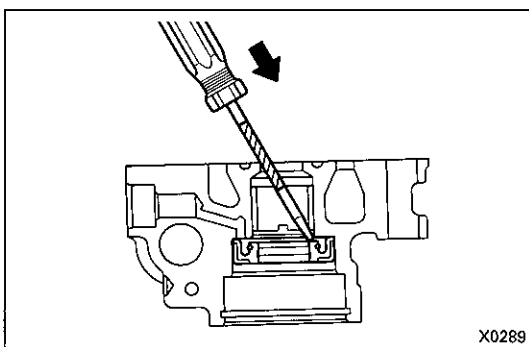


5. INSPECT FLOW CONTROL VALVE SPRING

Check that the spring is within specification.

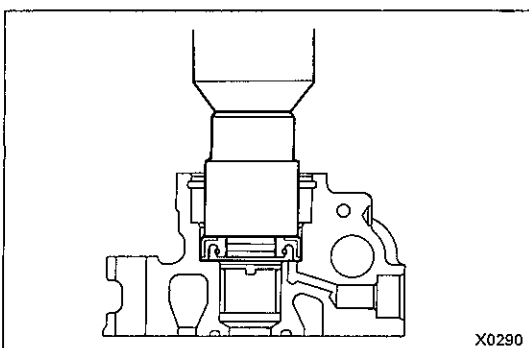
Spring length: 33 – 34mm (1.30 – 1.34 in.)

If the spring is not within specification, replace it.



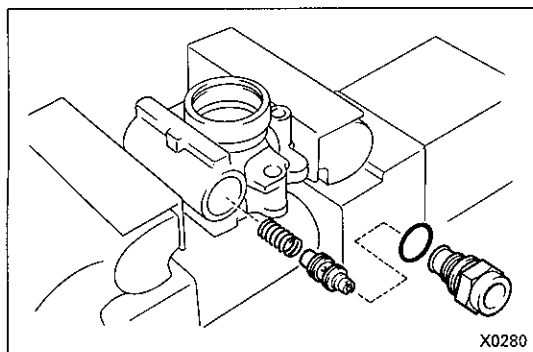
6. IF NECESSARY, REPLACE OIL SEAL

- (a) Using a screwdriver, pry out the oil seal.



- (b) Coat the oil seal lip with power steering fluid.

- (c) Using a 24 mm socket wrench and press, install oil seal.



ASSEMBLY OF POWER STEERING PUMP

(See page SR-40)

1. INSTALL FLOW CONTROL VALVE

- (a) Coat a new O-ring with power steering fluid.
- (b) Install the O-ring to the pressure port union.
- (c) Install the spring and flow control valve into the housing.
- (d) Install and torque the pressure port union.

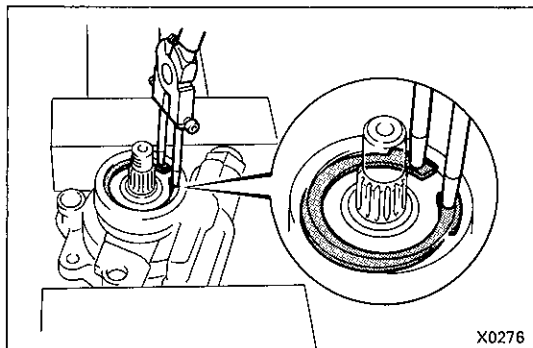
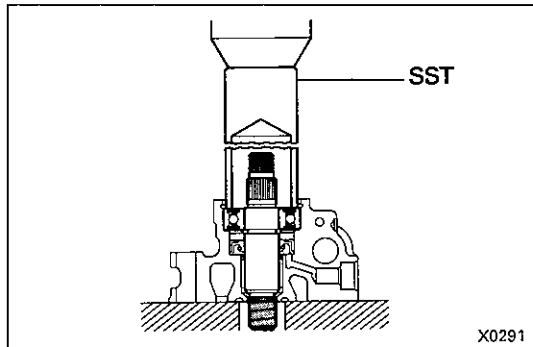
Torque: 700 kg-cm (51 ft-lb, 69 N·m)

2. INSTALL PUMP SHAFT WITH BEARING

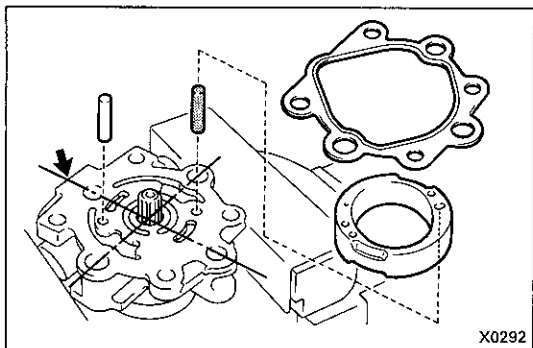
- (a) Replace the bearing. (See step 2 on page SR- 42)
- (b) Wind vinyl tape on the serration of the pump shaft.
- (c) Using SST, press the pump shaft with bearing into the front housing.

SST 09608-30012 (09608-04030)

NOTICE: Be careful not to damage the oil seal lip in the housing.



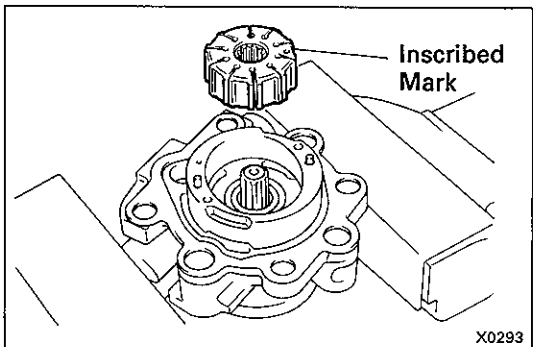
- (d) Install the snap ring.



3. INSTALL GASKET AND STRAIGHT PIN

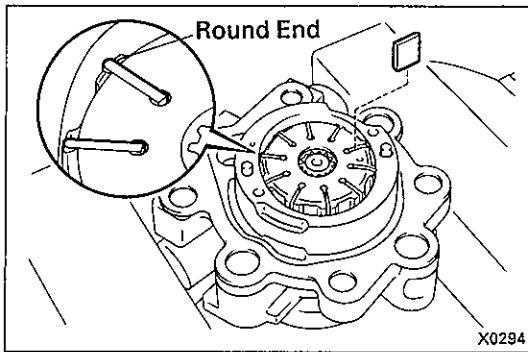
4. INSTALL CAM RING

Align the hole of the cam ring and straight pin, and insert the cam ring with the inscribed mark facing upward.

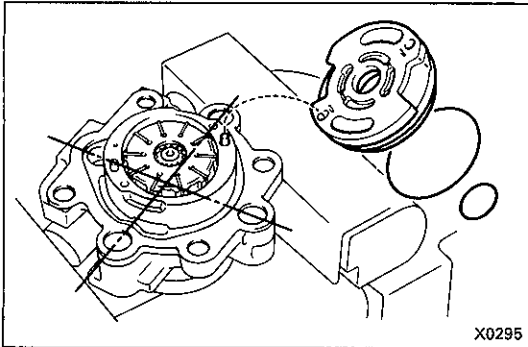


5. INSTALL ROTOR

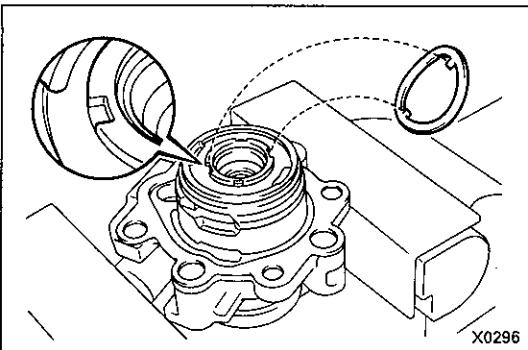
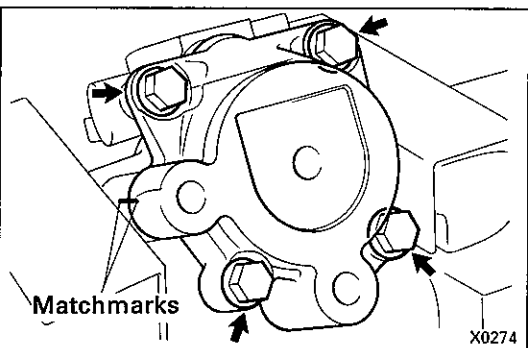
Install the rotor with the inscribed mark facing upward.

**6. INSTALL VANE PLATES**

- (a) Coat the plates with power steering fluid.
- (b) Install the vane plates with the round end facing outward.

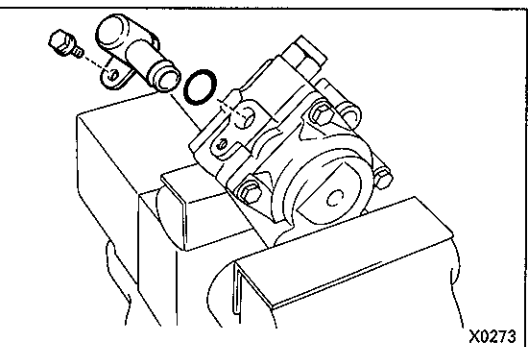
**7. INSTALL SIDE PLATE**

- (a) Coat two new O-rings with power steering fluid.
- (b) Install the O-rings to the side plate.
- (c) Align the hole of the side plate and straight pin, and install the side plate.

**8. INSTALL WAVE WASHER****9. INSTALL REAR HOUSING TO FRONT HOUSING**

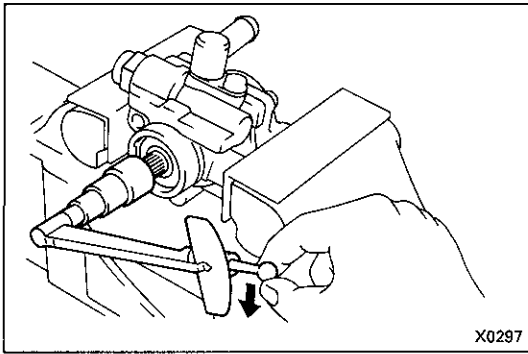
- (a) Align matchmarks on the front housing and the rear housing.
- (b) Install four bolts.

Torque: 170 kg-cm (12 ft-lb, 17 N·m)

**10. INSTALL SUCTION PORT UNION**

- (a) Coat a new O-ring with power steering fluid.
- (b) Install the O-ring to the union.
- (c) Install the union with a bolt.

Torque: 130 kg-cm (9 ft-lb, 13 N·m)

**11. CHECK ROTOR SHAFT ROTATION CONDITION**

- (a) Check that the rotor shaft rotates smoothly without abnormal noise.
- (b) Provisionally install the pulley nut and check the rotation torque.

**Rotation torque: 2.8 kg-cm (2.4 in.-lb, 0.3 N·m)
or less**