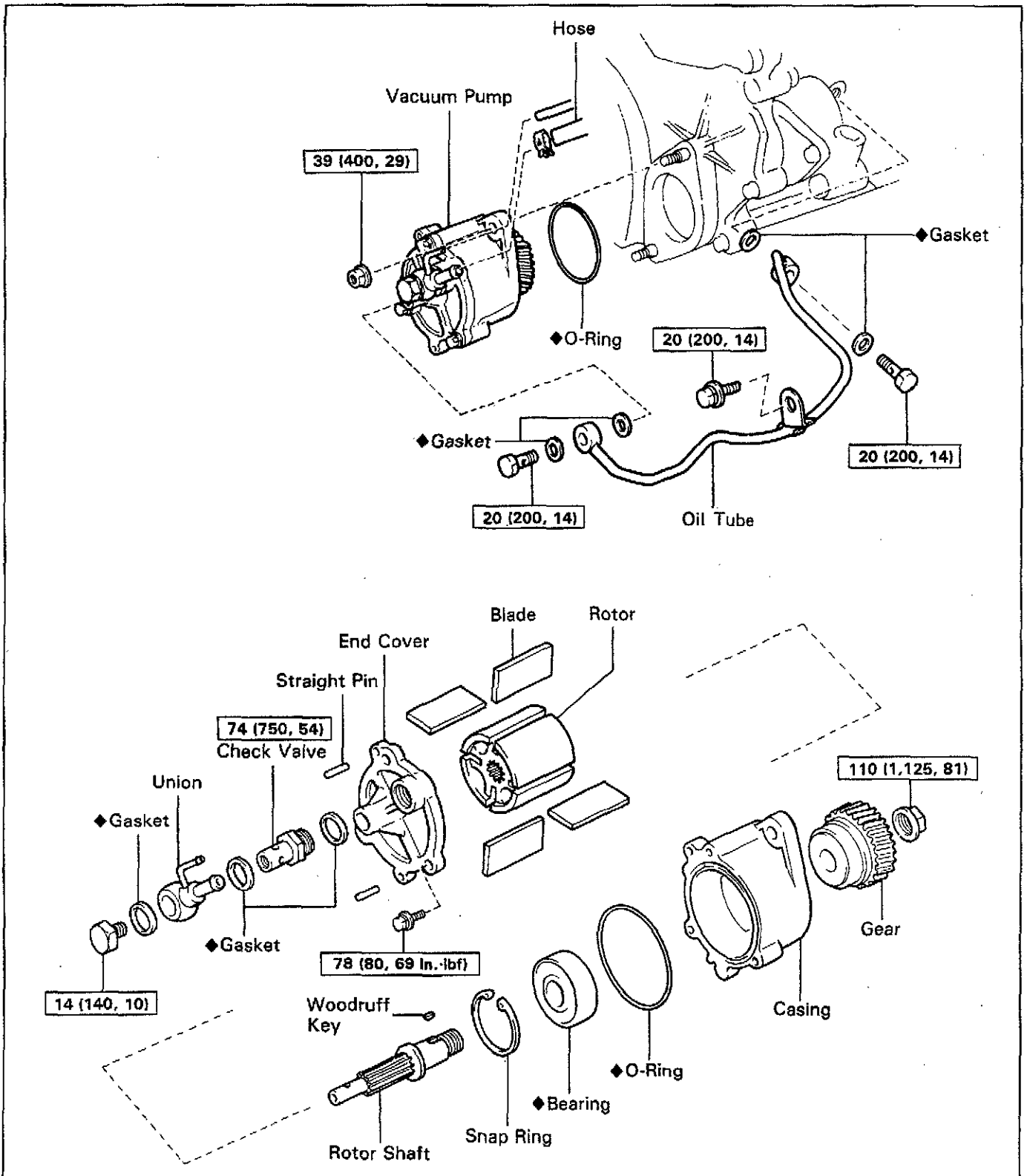
VACUUM PUMP (1HZ Engine)

COMPONENTS

BR0KU-01

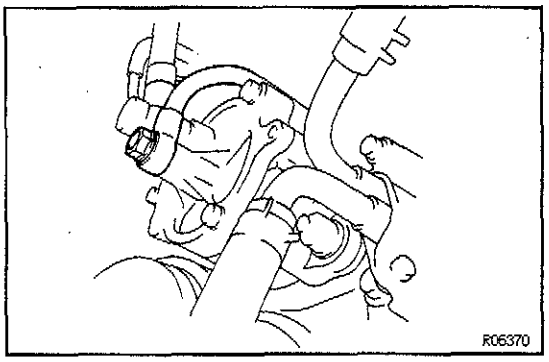


N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

R06360
R06786

Z07293

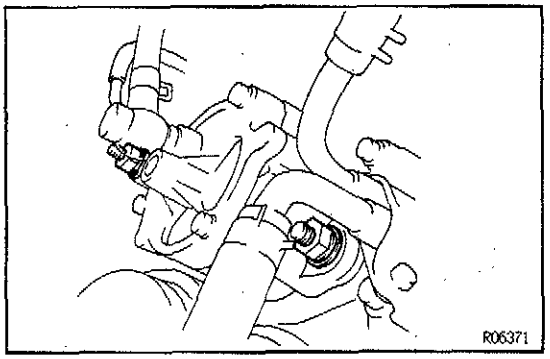


VACUUM PUMP REMOVAL

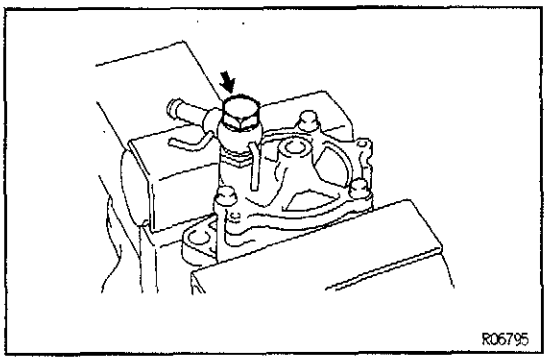
BR0KV–01

REMOVE VACUUM PUMP

(a) Remove the 2 union bolts, 4 gaskets and disconnect oil tube from the vacuum pump.
(b) Using pliers, disconnect the 2 hoes from the vacuum pump.



(c) Remove the 2 nuts and pump from the engine.
(d) Remove the O–ring.

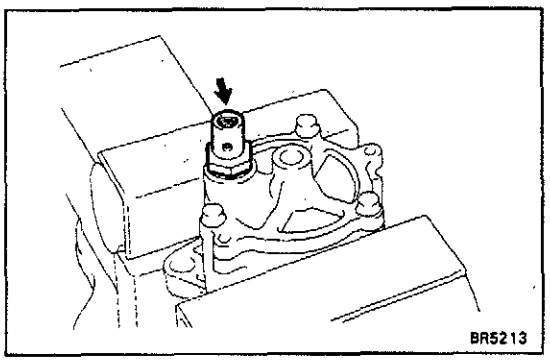


VACUUM PUMP DISASSEMBLY

BR0KW–01

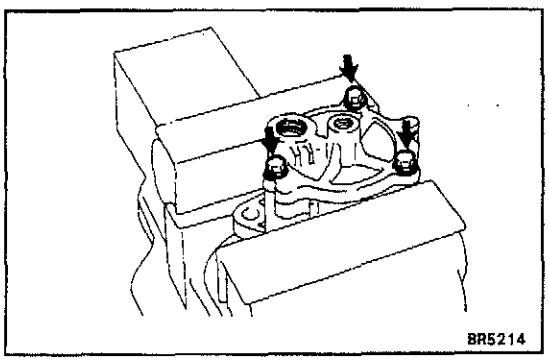
1. REMOVE VACUUM HOSE UNION

Remove the union bolt, union and 2 gaskets.
NOTICE: Do not tighten the vise too tightly.



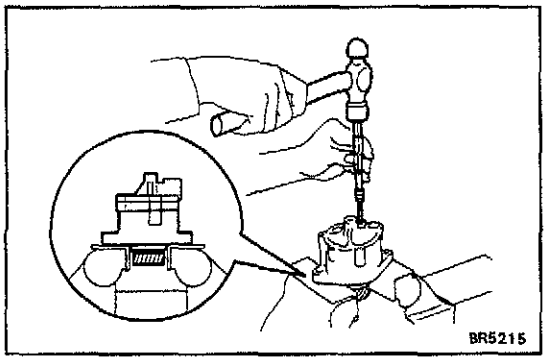
2. REMOVE CHECK VALVE

Remove the check valve and gasket.

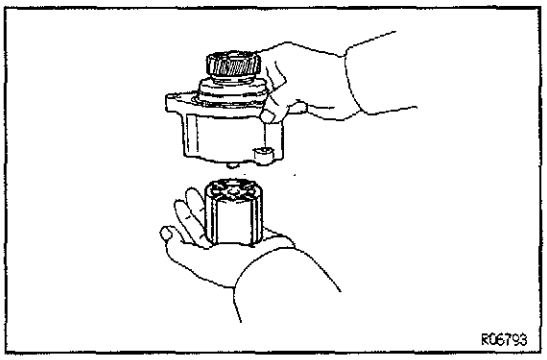


3. REMOVE END COVER

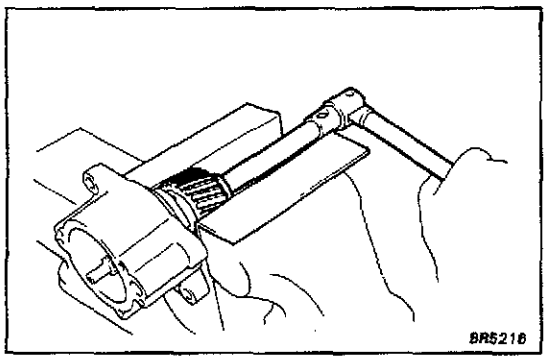
(a) Remove the 3 bolts.



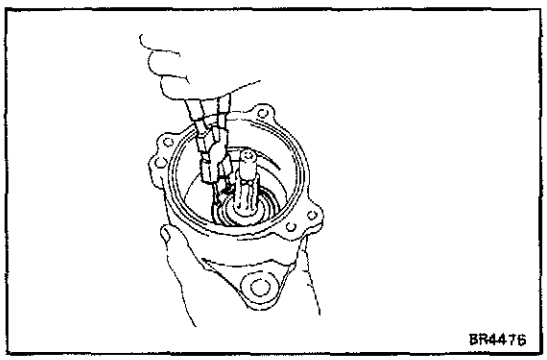
(b) Place the vacuum pump on vise, as shown in the illustration.
NOTICE: Do not tighten the vice.
(c) Using a pin punch and hammer, drive out the 2 straight pins.
(d) Remove the end cover and 2 O–rings.



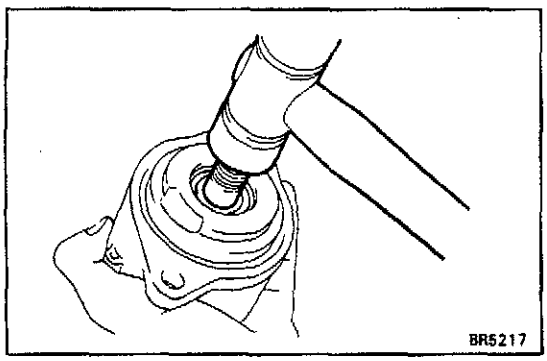
4. REMOVE ROTOR AND 4 BLADES



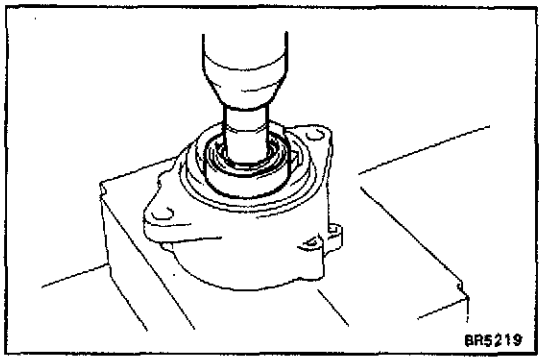
5. REMOVE GEAR
(a) Using soft jaws on the vise, clamp the gear in the vise.
(b) Remove the gear lock nut.
(c) Remove the gear and woodruff key.



6. REMOVE SNAP RING
Using snap ring pliers, remove the snap ring.

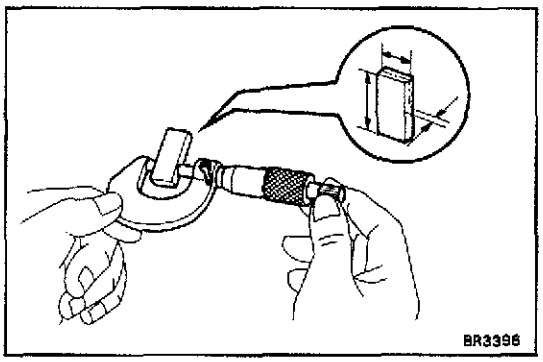


7. REMOVE ROTOR SHAFT
Using a plastic hammer, tap out the rotor shaft.



8. REMOVE BEARING

Using a press and 17 mm socket, press out the bearing.



VACUUM PUMP INSPECTION

BR0KX–01

1. INSPECT BLADE

(a) Check the blades for wear or damage.

(b) Using a micrometer, measure the height, width and length of the blades.

Minimum height:

16.50 mm (0.6496 in.)

Minimum width:

4.95 mm (0.1949 in.)

Minimum length:

44.96 mm (1.7701 in.)

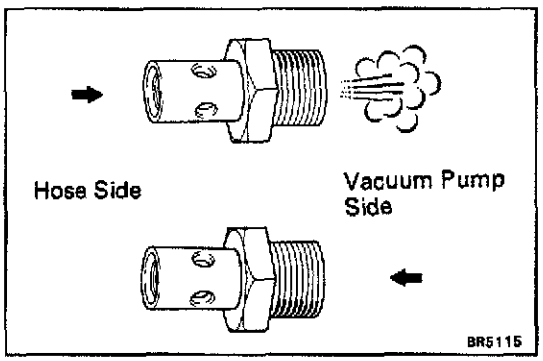
If necessary, replace the blade.

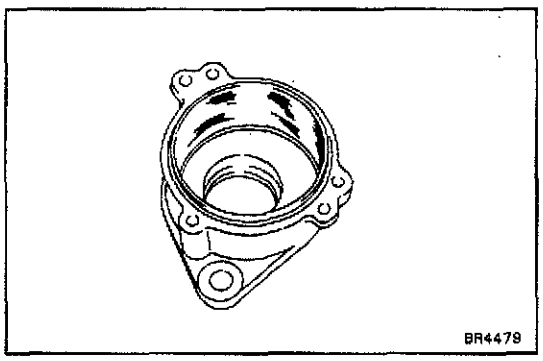
2. INSPECT CHECK VALVE OPERATION

(a) Check that air flows from the hose side to the pump side.

(b) Check that air does not flow from the pump side to the hose side.

If necessary, replace the check valve.

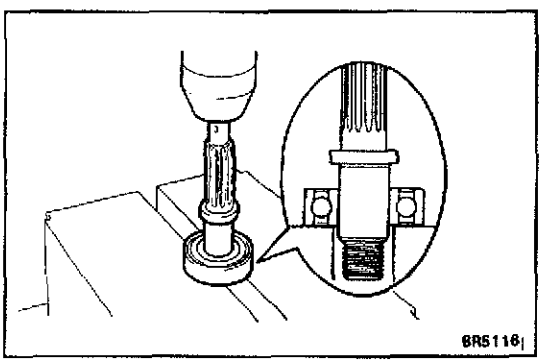




3. INSPECT INSIDE SURFACE OF CASING

Inspect the inside surface on the casing for scoring.

If necessary, replace the vacuum pump assembly.

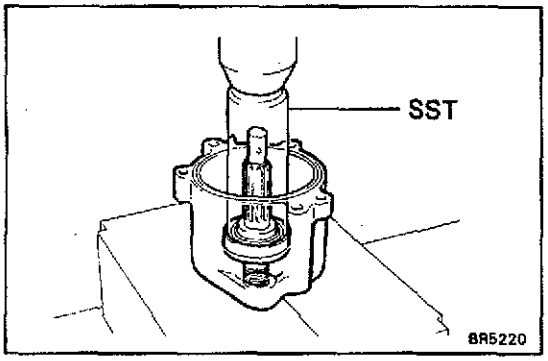


VACUUM PUMP ASSEMBLY

BR0KY–01

1. INSTALL BEARING TO ROTOR SHAFT

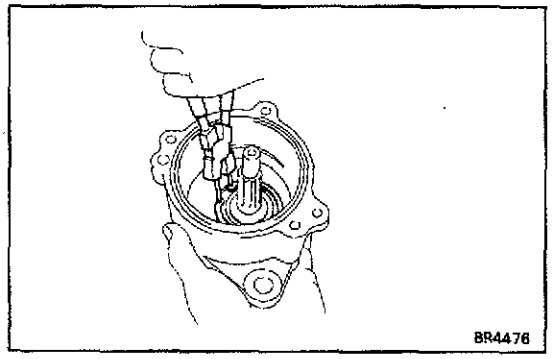
Using a press, install the bearing to the rotor shaft.



2. INSTALL ROTOR SHAFT

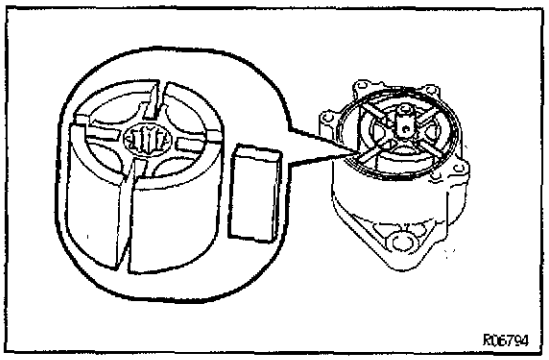
Using SST and a press, install the rotor shaft to the casing.

09608–30012 (09608–04030)



3. INSTALL SNAP RING

Using snap ring pliers, install the snap ring.



4. INSTALL ROTOR INTO CASING

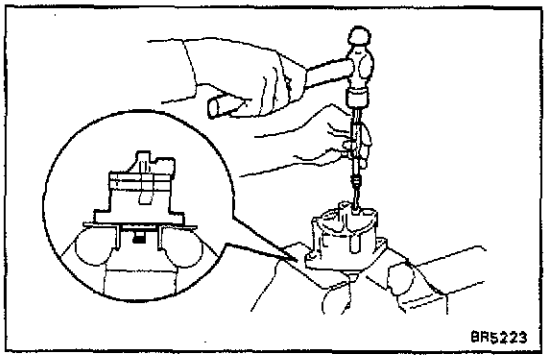
Apply engine oil to the rotor and install it to the rotor shaft.

5. INSTALL 4 BLADES

(a) Apply engine oil to the blades.

(b) Install the 4 blades with the round end facing outward.

(c) Be sure that the blades and rotor surfaces are even.



6. INSTALL END COVER

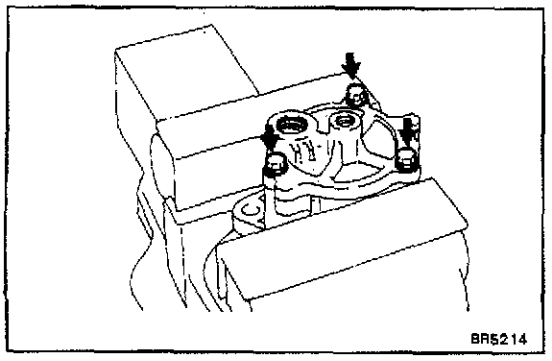
(a) Place the vacuum pump on the vise, as shown in the illustration.

NOTICE: Do not tighten the vise.

(b) Install a new O–ring.

(c) Install the end cover and temporarily install the 3 bolts.

(d) Using a pin punch and hammer, drive in the 2 straight pins.

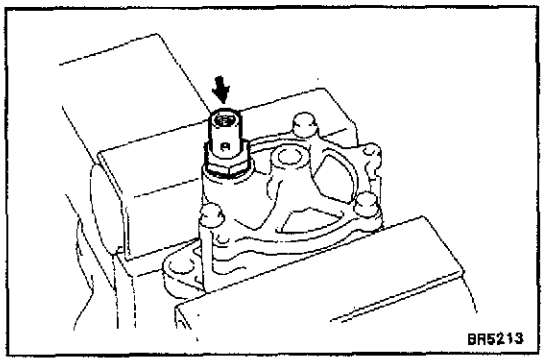


(e) Using soft jaws on the vise, place the vacuum pump in the vise.

NOTICE: Do not tighten the vise too tightly.

(f) Tighten the 3 bolts.

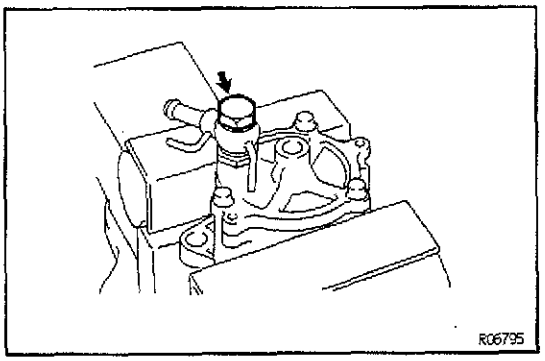
Torque: 7.8 N·m (80 kgf·cm, 69 in.·lbf)



7. INSTALL CHECK VALVE

Install the check valve with a new gasket.

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

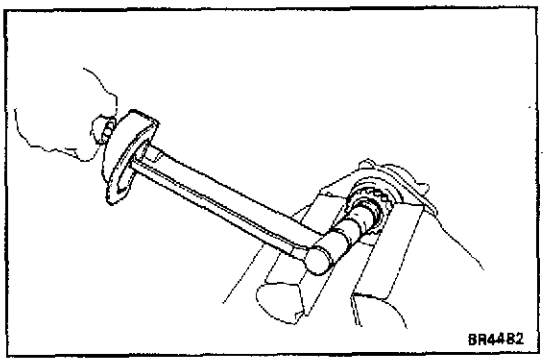


8. INSTALL VACUUM HOSE UNION

Install the vacuum hose union with 2 new gaskets and install and torque the union bolt.

Torque: 14 N·m (140 kgf·cm, 10 ft·lbf)

HINT: Align and insert the union pin into the matching hole of the casing.



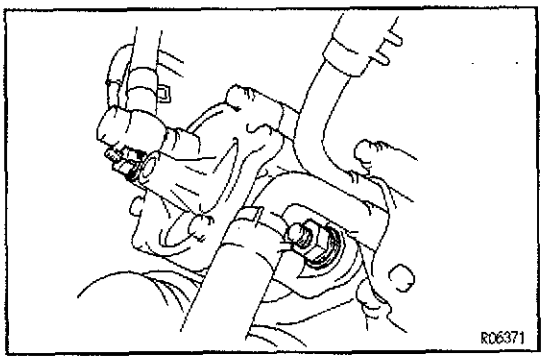
9. INSTALL GEAR

(a) Temporarily install the woodruff key, gear and lock nut to the pump.

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

(c) Tighten the gear lock nut.

Torque: 110 N·m (1,125 kgf·cm, 81 ft·lbf)



VACUUM PUMP INSTALLATION

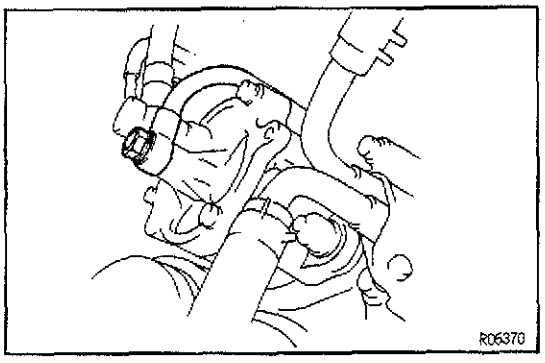
BR0KZ-01

INSTALL VACUUM PUMP

(a) Install a new O-ring to the vacuum pump.

(b) Install the vacuum pump in place, then install and tighten the 2 nuts.

Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)



(c) Set the oil tube and 4 new gaskets and install the union bolts.

Torque: 20 N·m (200 kgf·cm, 14 ft·lbf)

(d) Using pliers, set the vacuum hoses.