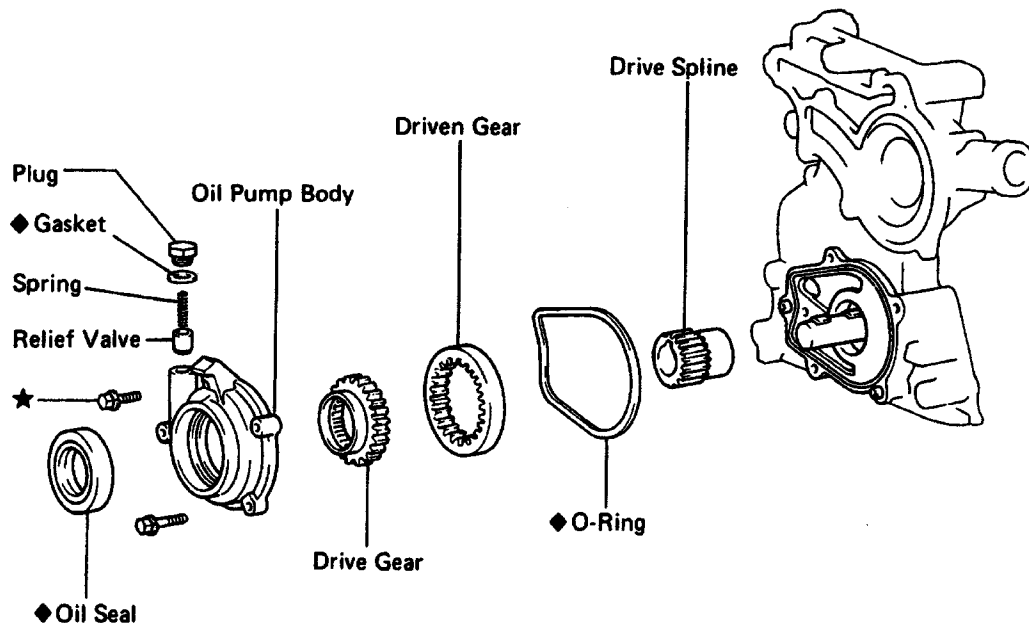


OIL PUMP

COMPONENTS FOR REMOVAL AND INSTALLATION



- ◆ Non-reusable part
- ★ Precoated part

LU0687

OIL PUMP REMOVAL

HINT: When repairing the oil pump, the oil pan and strainer should be removed and cleaned.

1. REMOVE OIL PAN

(See steps 3 and 4 in preparation of removal in timing chain in Engine Mechanical)

2. REMOVE OIL STRAINER

Remove the 4 bolts holding the oil strainer.

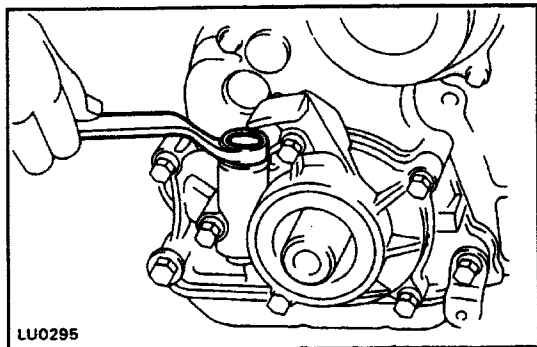
3. REMOVE DRIVE BELTS

4. REMOVE CRANKSHAFT PULLEY

(See steps 4 in timing chain removal in timing chain in Engine Mechanical)

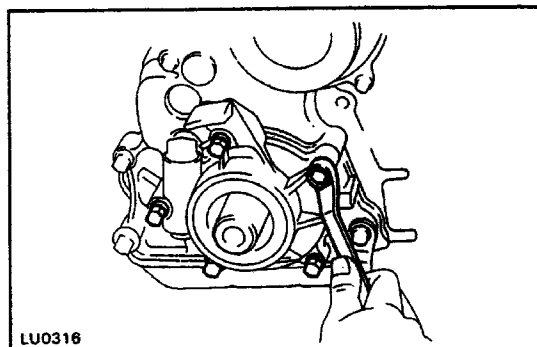
5. w/ A/C:

REMOVE A/C COMPRESSOR AND BRACKET

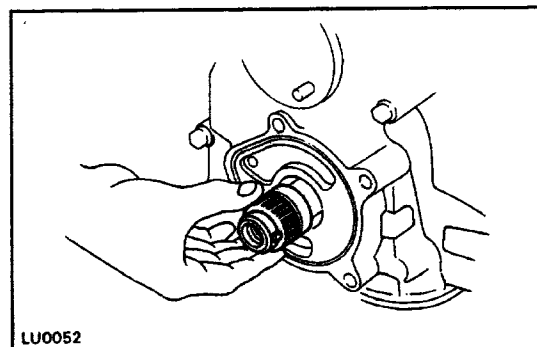


6. REMOVE OIL PUMP ASSEMBLY

(a) Loosen the oil pump relief valve plug.



(b) Remove the 5 bolts, the oil pump assembly and O-ring.

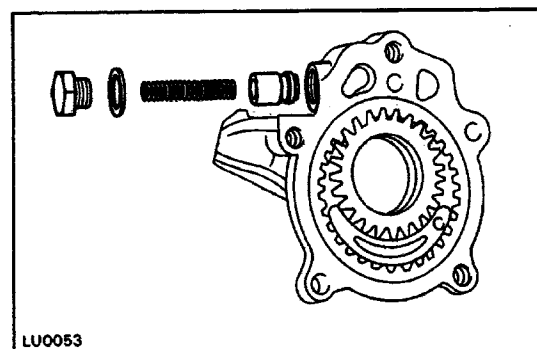


7. REMOVE OIL PUMP DRIVE SPLINE

HINT: If the oil pump drive spline cannot be removed by hand, use SST to remove the pump drive spline and crankshaft together.

(See step 10 in timing chain removal in timing chain in Engine Mechanical)

SST 09213-36020

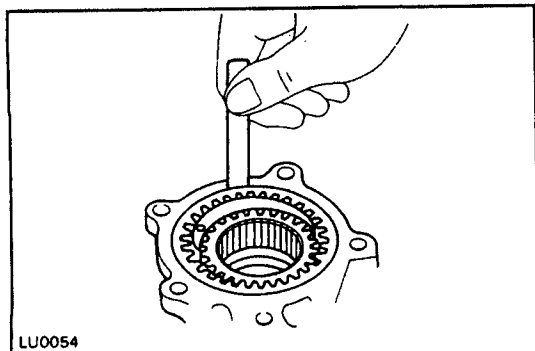


OIL PUMP DISASSEMBLY

1. REMOVE RELIEF VALVE

Unscrew the relief valve plug and gasket, and remove the spring and the relief valve.

2. REMOVE DRIVEN AND DRIVE GEARS



OIL PUMP INSPECTION

1. MEASURE BODY CLEARANCE

Using a thickness gauge, measure the clearance between the driven gear and body.

Standard clearance:

0.09 – 0.15 mm (0.0035 – 0.0059 in.)

Maximum clearance:

0.2 mm (0.008 in.)

If the clearance is greater than maximum, replace the gear and/or body.

2. MEASURE TIP CLEARANCE

Using a thickness gauge, measure the clearance between both of the gear tips and crescent.

Standard clearance:

Driven gear

0.15 – 0.21 mm (0.0059 – 0.0083 in.)

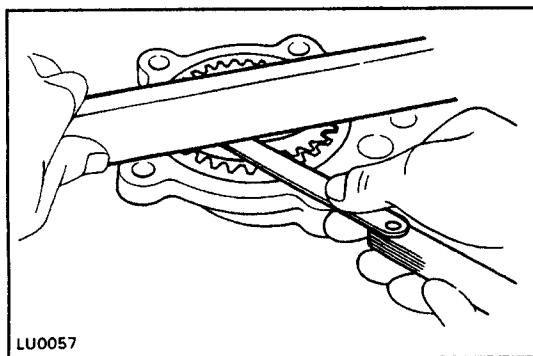
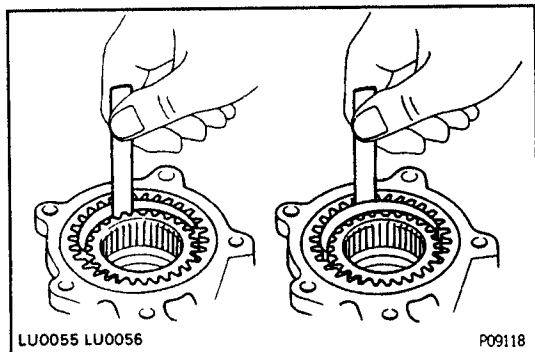
Drive gear

0.22 – 0.25 mm (0.0087 – 0.0098 in.)

Maximum clearance:

0.3 mm (0.012 in.)

If the clearance is greater than maximum, replace the gears and/or body.



3. MEASURE SIDE CLEARANCE

Using a thickness gauge and flat block, measure the side clearance as shown.

Standard clearance:

0.03 – 0.09 mm (0.0012 – 0.0035 in.)

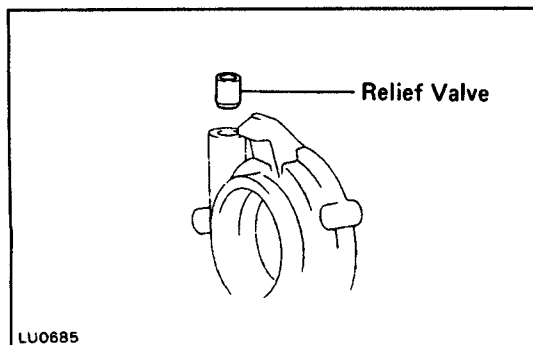
Maximum clearance:

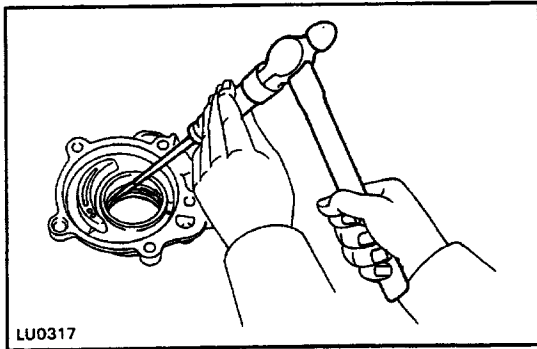
0.15 mm (0.006 in.)

If the clearance is greater than maximum, replace the gears and/or body.

4. INSPECT RELIEF VALVE

Coat the valve piston with engine oil and check that it falls smoothly into the valve hole by its own weight. If the valve does not fall smoothly, replace the valve and/or oil pump assembly.

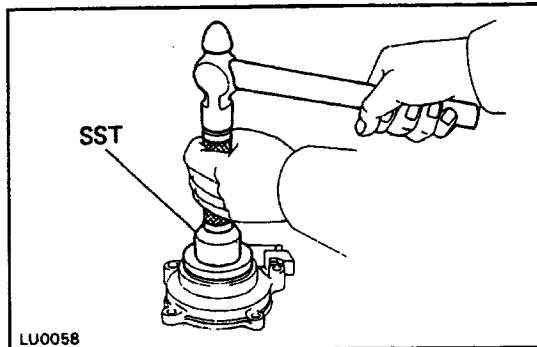




FRONT OIL SEAL REPLACEMENT

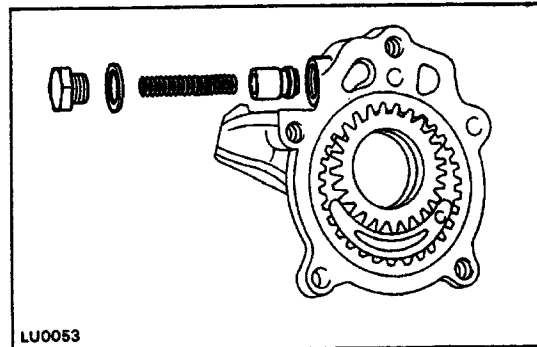
1. REMOVE OIL SEAL

- (a) Remove the drive and driven gears.
- (b) Using a screwdriver, remove the oil seal.



2. INSTALL OIL SEAL

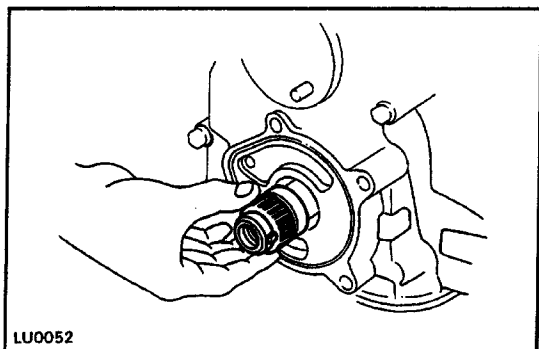
- (a) Apply MP grease to a new oil seal lip.
- (b) Using SST, drive in the new oil seal.
SST 09223-50010



OIL PUMP ASSEMBLY

(See Components for Removal for installation)

- (a) Install the relief valve and spring in the body, and screw on the relief valve plug with a new gasket.
- (b) Insert the drive and driven gears into the pump body.



OIL PUMP INSTALLATION

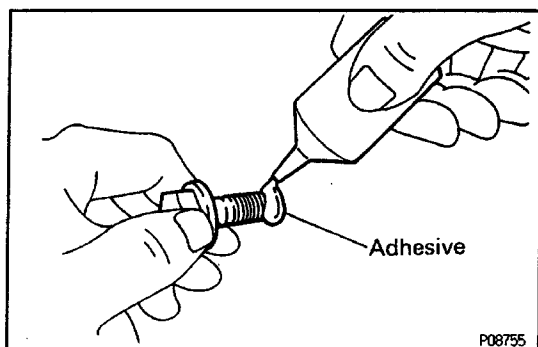
(See Components for Removal and Installation)

1. INSTALL OIL PUMP DRIVE SPLINE AND O-RING

- (a) Slide the pump drive spline onto the crankshaft.

HINT: If the oil pump drive spline cannot be installed by hand, use SST. (See page EG1-42)

- (b) Place the O-ring into the groove.



2. INSTALL OIL PUMP

- (a) Clean the threads of the upper set bolt and timing chain cover bolt hole of any sealer, oil or foreign particles. Remove any oil with kerosene or gasoline.
- (b) Apply sealant to 2 or 3 threads of the bolt end.

Adhesive:

Part No. 08833-O0070. THREE BOND 1324 or equivalent

HINT: This adhesive will not harden while exposed to air. It will act as a sealant or binding agent only when applied to threads, etc. and air is cut off.

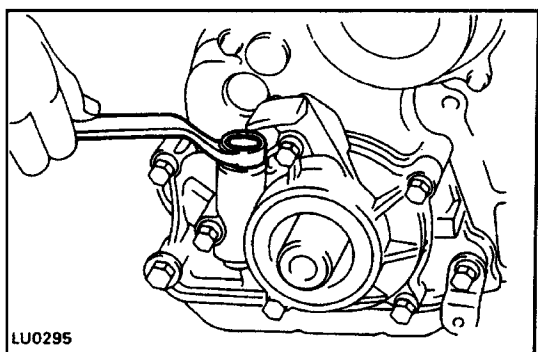
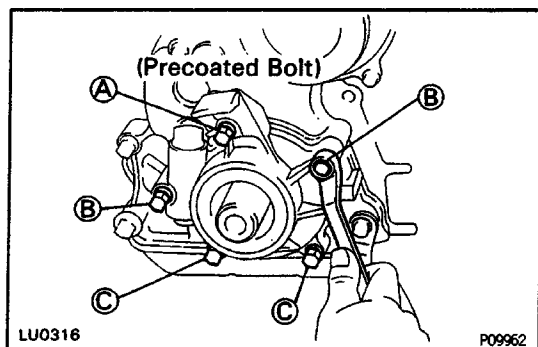
- (c) Torque the 5 bolts.

Torque:

Bolt (A): 25 N-m (250 kgf-cm, 18 ft-lbf)

Bolt (B): 19 N-m (195 kgf-cm, 14 ft-lbf)

Bolt (C): 13 N-m (130 kgf-cm, 9 ft-lbf)



- (d) Torque the relief valve plug.

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

3. INSTALL CRANKSHAFT PULLEY

(See step 8 in timing chain installation in timing chain in Engine Mechanical)

4. INSTALL AND ADJUST DRIVE BELT

(See step 2 in maintenance operations in Maintenance)

5. INSTALL OIL STRAINER

(See step 2 in cylinder block assembly in cylinder block in Engine Mechanical)

6. INSTALL OIL PAN

(See step 13 in timing chain installation in timing chain in Engine. Mechanical)