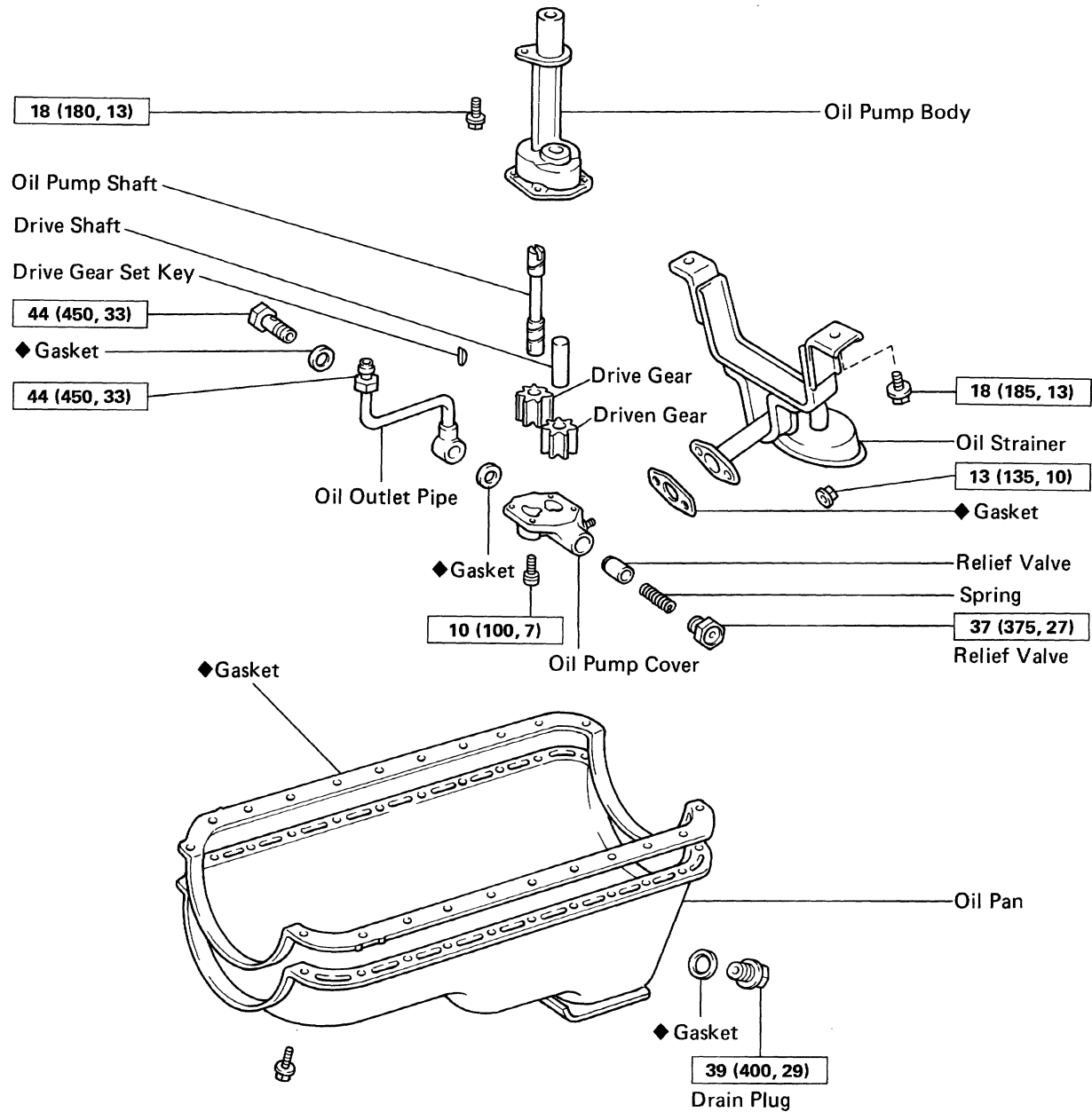
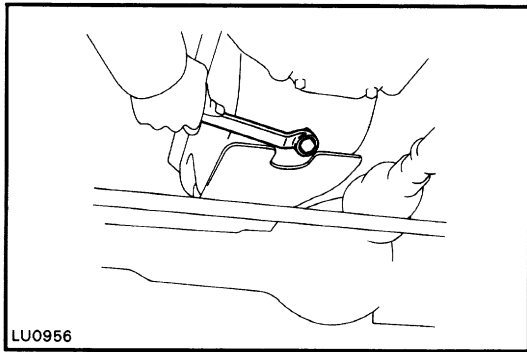


OIL PUMP COMPONENTS



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

◆ Non-reusable part



REMOVAL OF OIL PUMP

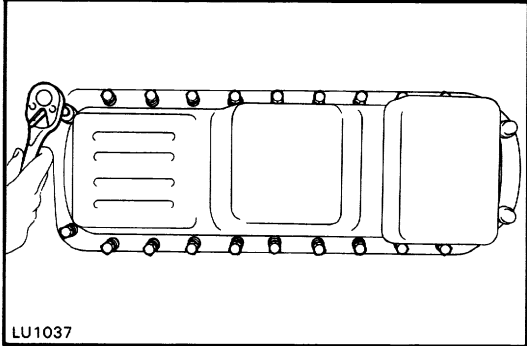
(See page [LU-7](#))

1. RAISE VEHICLE

NOTICE: Be sure the vehicle is securely supported.

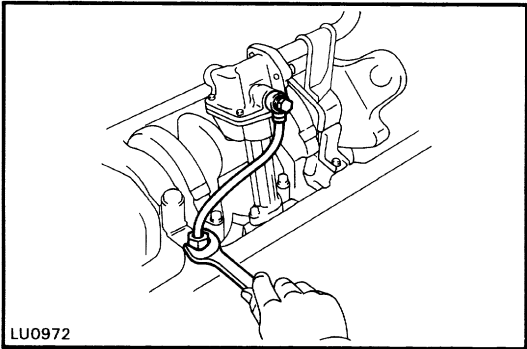
2. DRAIN ENGINE OIL

- (a) Remove the oil filler cap.
- (b) Remove the oil drain plug and drain the oil into a container.



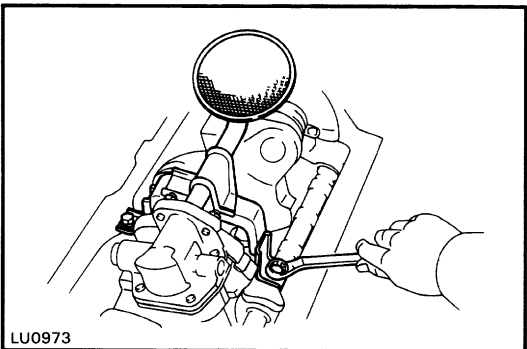
3. REMOVE OIL PAN

Remove the twenty-two bolts, oil pan and gasket.



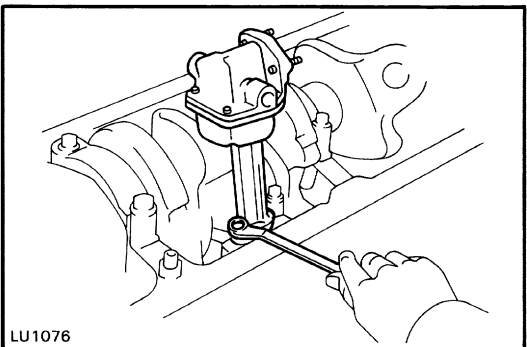
4. REMOVE OIL OUTLET PIPE

Remove the union nut, bolt, two gaskets and outlet pipe.

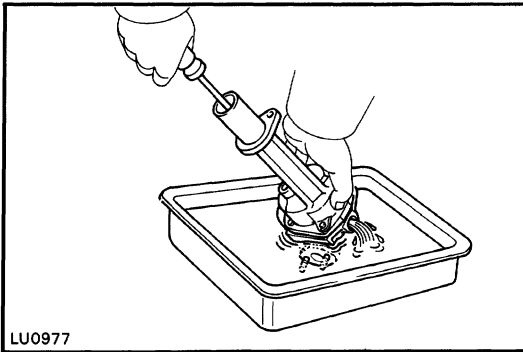


5. REMOVE OIL PUMP

- (a) Remove the two bolts and nuts, remove the oil strainer and gasket.



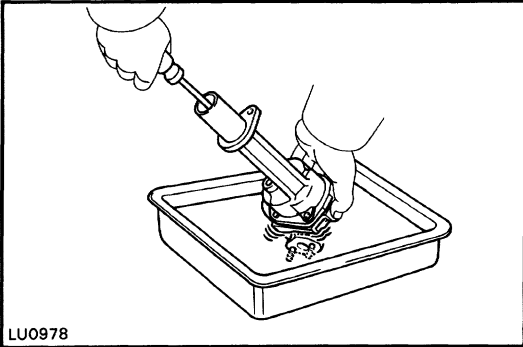
- (b) Remove the bolt and oil pump.



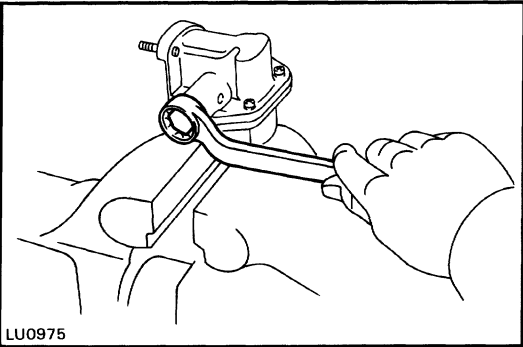
OPERATION CHECK OF OIL PUMP

CHECK PUMP OPERATION

- (a) Using a screwdriver, immerse the oil inlet hole into clean engine oil and turn the oil pump shaft clockwise. Oil should come out of the oil outlet hole.



- (b) Close the oil outlet hole with your thumb, and turn the shaft as before. The shaft should be difficult to turn.



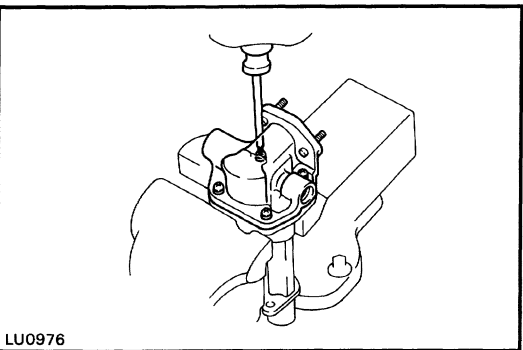
DISASSEMBLY OF OIL PUMP

(See page [LU-7](#))

1. MOUNT OIL PUMP IN VISE

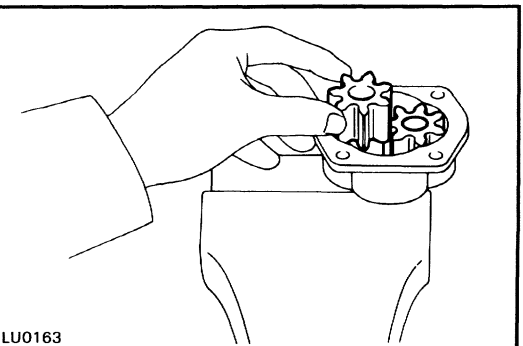
2. REMOVE RELIEF VALVE

Remove the plug, spring and relief valve.



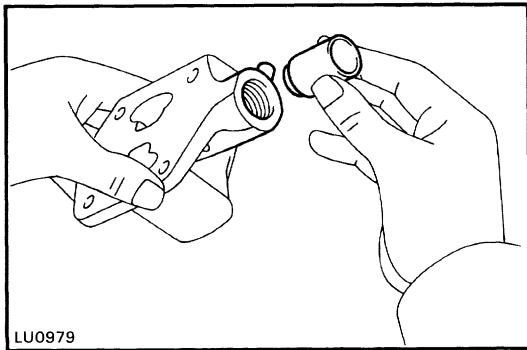
3. REMOVE OIL PUMP STRAINER

Remove the four screws and oil pump strainer.



4. REMOVE DRIVEN GEAR

5. REMOVE DRIVE GEAR AND OIL PUMP SHAFT ASSEMBLY



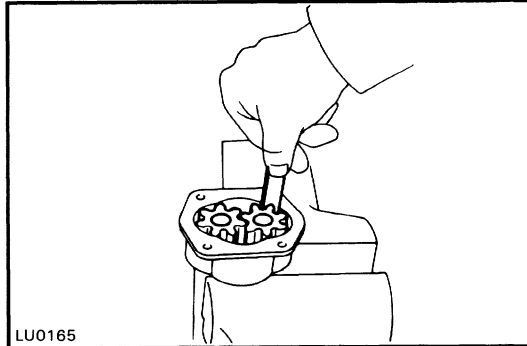
LU0979

INSPECTION OF OIL PUMP

1. INSPECT RELIEF VALVE

Coat the valve with engine oil and check that it falls smoothly into the valve hole by its own weight.

If it does not, replace the relief valve. If necessary, replace the oil pump assembly.



LU0165

2. INSPECT DRIVE AND DRIVEN GEARS

A. Inspect gear body clearance

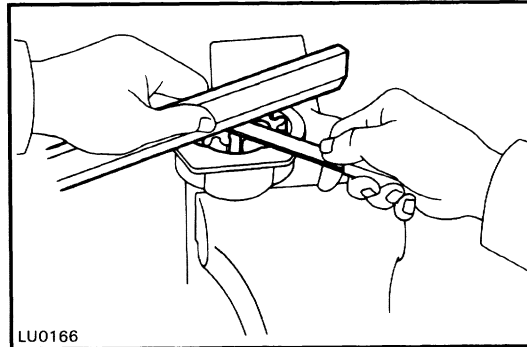
Using a thickness gauge, measure the clearance between the gear and pump body.

Standard body clearance: 0.095 – 0.175 mm

(0.0037 – 0.0069 in.)

Maximum body clearance: 0.20 mm (0.0079 in.)

If the clearance is greater than maximum, replace the gears or oil pump assembly.



LU0166

B. Inspect gear side clearance

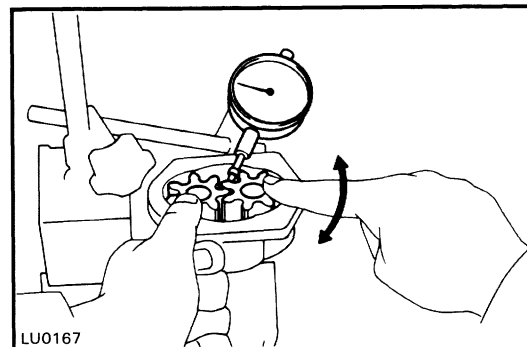
Using a thickness gauge and precision straight edge, measure the clearance between the gear and precision straight edge.

Standard side clearance: 0.030 – 0.090 mm

(0.0012 – 0.0035 in.)

Maximum side clearance: 0.15 mm (0.0059 in.)

If the clearance is greater than maximum, replace the gears. If necessary, the oil pump assembly.



LU0167

C. Inspect gear backlash

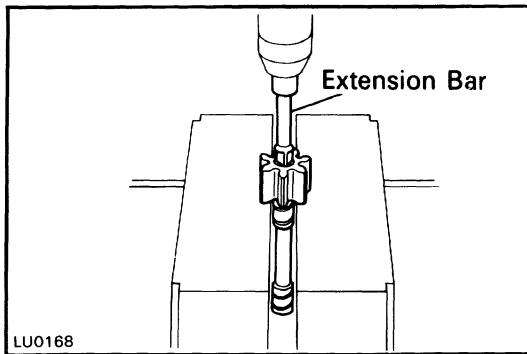
Using a dial indicator, measure the backlash while turning the driven gear clockwise and counterclockwise in several places.

Standard backlash: 0.500 – 0.600 mm

(0.0197 – 0.0236 in.)

Maximum backlash: 0.95 mm (0.0374 in.)

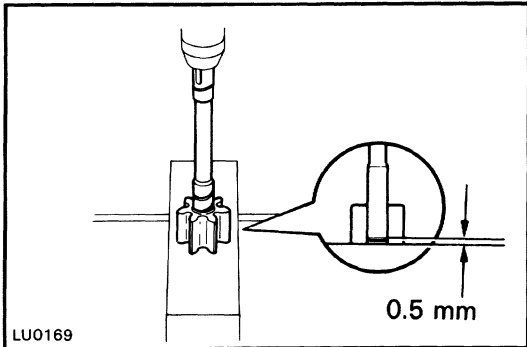
If the backlash is greater than maximum, replace the gears. If necessary, replace the shaft.



REPLACEMENT OF OIL PUMP COMPONENTS

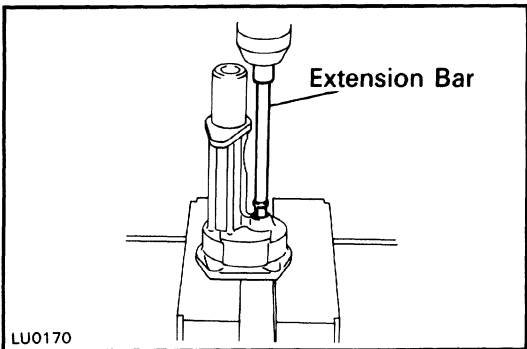
1. REPLACE DRIVE GEAR (OR OIL PUMP SHAFT)

- (a) Using an extension bar and press, press out the oil pump shaft from the drive gear.



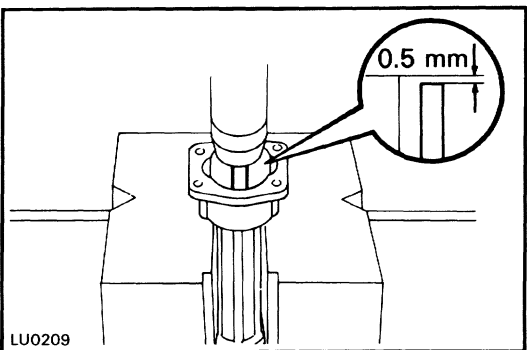
- (b) Align the drive gear set key with the key groove of a new drive gear.

- (c) Using a press, press in the oil pump shaft until it is 0.5 mm (0.020 in.) from the drive gear edge.

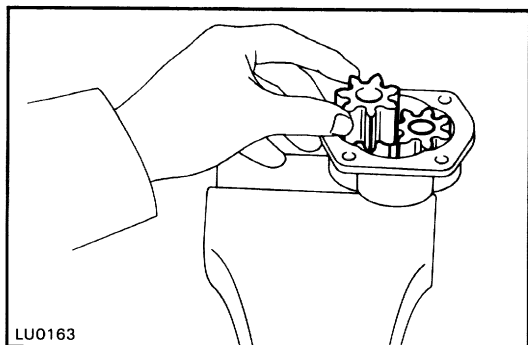


2. REPLACE DRIVEN SHAFT

- (a) Using an extension bar and press, press out the driven shaft from the oil pump body.



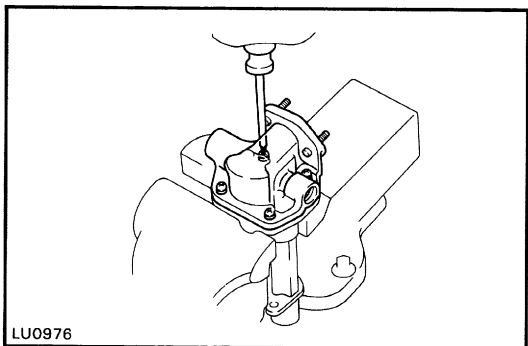
- (b) Using a press, press in a new driven shaft until it is 0.5 mm (0.020 in.) from the oil pump body edge.



ASSEMBLY OF OIL PUMP

(see page [LU-7](#))

1. MOUNT OIL PUMP BODY IN VISE
2. INSTALL DRIVE GEAR AND OIL PUMP SHAFT ASSEMBLY
3. INSTALL DRIVEN GEAR

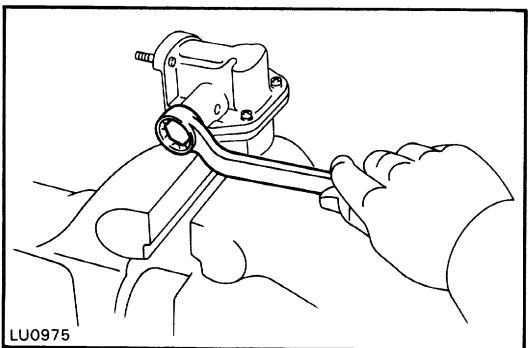


4. INSTALL OIL PUMP STRAINER

Install the oil pump strainer with the four screws.

Torque the screws.

Torque: 10 N-m (100 kgf-cm, 7 ft-lbf)



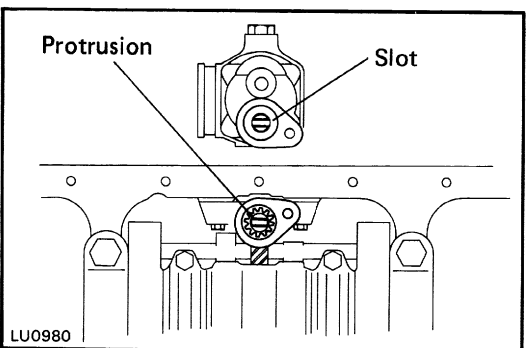
5. INSTALL RELIEF VALVE

Install the relief valve and spring with the relief valve plug. Torque the plug.

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

6. CHECK OIL PUMP OPERATION

(See page [LU-9](#))

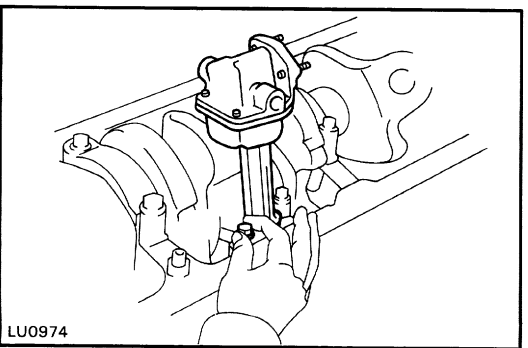


INSTALLATION OF OIL PUMP

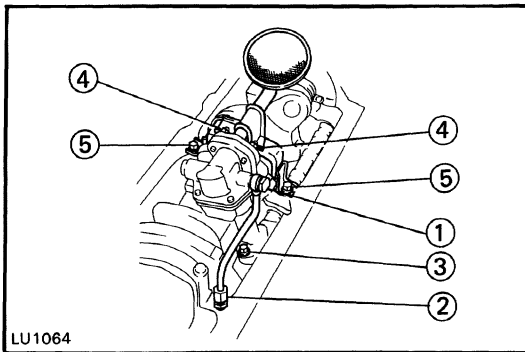
(See page [LU-7](#))

1. INSTALL OIL PUMP

- (a) Align the oil pump shaft slot of the oil pump with the governor shaft protrusion of the distributor.



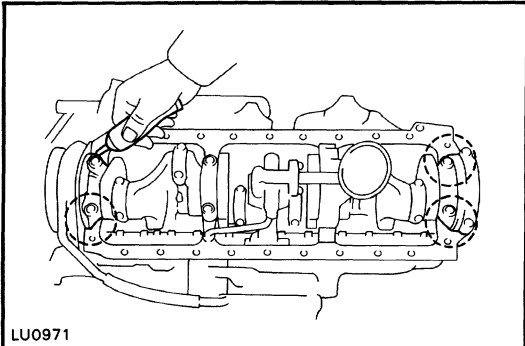
- (b) Temporarily install the oil pump with the bolt.



- (c) Temporarily install the oil strainer and oil outlet pipe with new gaskets.
- (d) Torque the nuts and bolts in the order shown in the illustration.

Torque: (1), (2) 44 N-m (450 kgf-cm, 33 ft-lbf)
 (3) 18 N-m (180 kgf-cm, 13 ft-lbf)
 (4) 13 N-m (135 kgf-cm, 10 ft-lbf)
 (5) 13 N-m (185 kgf-cm, 13 ft-lbf)

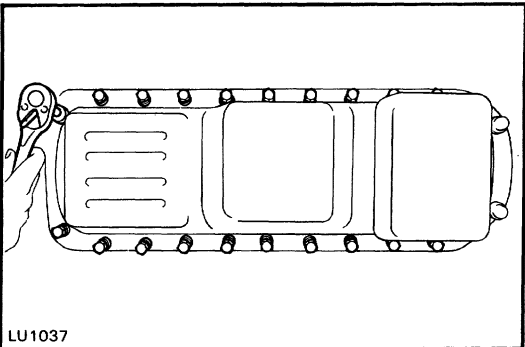
HINT: While torquing the oil strainer nuts (4), press the oil strainer down onto the cylinder block so there is no gap between the oil strainer and cylinder block.



2. INSTALL OIL PAN

- (a) Apply seal packing to the cylinder block, the No. 1 and No. 4 main bearing caps as shown.

Seal packing: Part No. 08826-00080 or equivalent



- (b) Install a new gasket and the oil pan with the twenty-two bolts.

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

3. FILL WITH ENGINE OIL (See step 3 on page [LU-6](#))

4. START ENGINE AND CHECK FOR LEAKS

5. RECHECK OIL LEVEL

Recheck the engine oil level and refill if necessary.