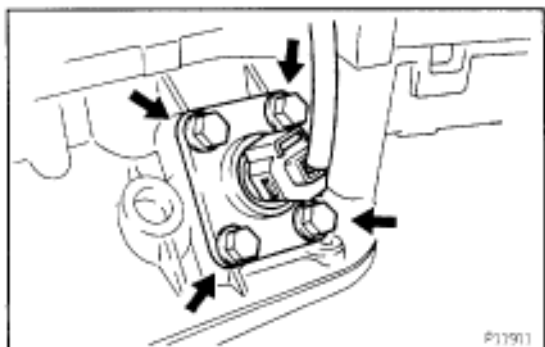
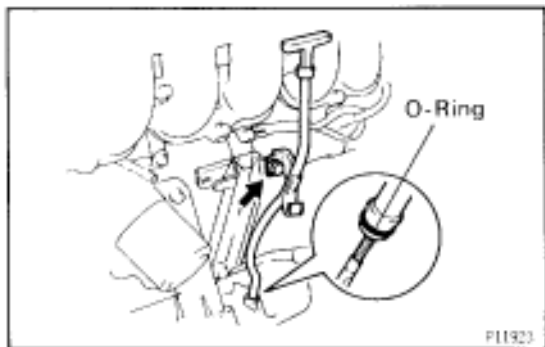
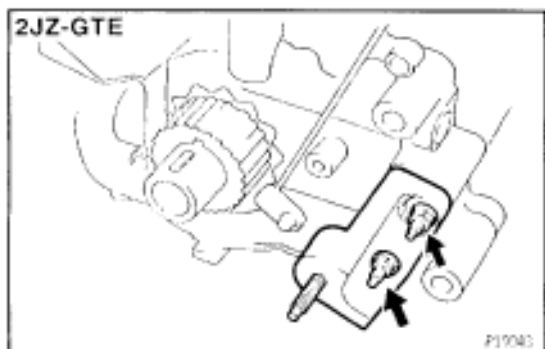
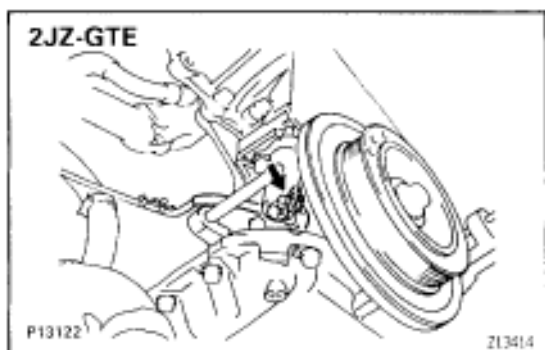


OIL PUMP REMOVAL

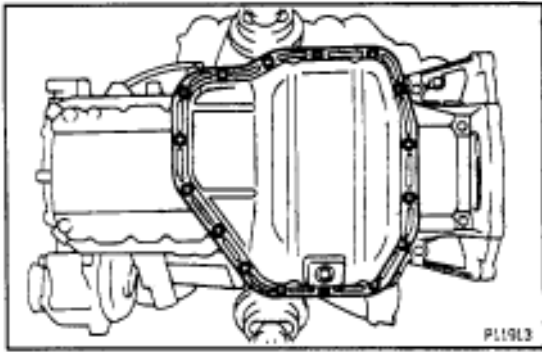
HINT: When repairing the oil pump, the oil pan and strainer should be removed and cleaned.

1. **REMOVE ENGINE WITH TRANSMISSION**
(See components for engine removal and installation)
2. **SEPARATE ENGINE AND TRANSMISSION**
(See components for engine & transmission separation and assembly)



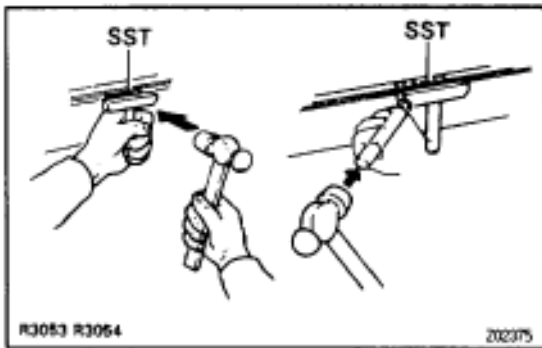
3. **INSTALL ENGINE TO ENGINE STAND FOR REMOVAL**
4. **2JZ-GTE:**
REMOVE GENERATOR
5. **2JZ-GTE:**
REMOVE CRANKSHAFT POSITION SENSOR
 - (a) Disconnect the sensor connector from the bracket.
 - (b) Disconnect the sensor connector from the wiring connector.
 - (c) Disconnect the wire clamp from the cylinder block.
 - (d) Remove the bolt and position sensor.
6. **REMOVE TIMING BELT**
(See steps 4 to 8 in timing belt removal in Engine Mechanical)
7. **2JZ-GTE M/T:**
REMOVE DRIVE BELT TENSIONER BRACKET
Remove the 2 nuts and tensioner bracket.
8. **REMOVE IDLER PULLEY**
(See step 15 in timing belt removal in Engine Mechanical)
9. **REMOVE CRANKSHAFT TIMING PULLEY**
(See step 17 in timing belt removal in Engine Mechanical)
10. **REMOVE OIL DIPSTICK AND GUIDE ASSEMBLY**
 - (a) Remove the bolt.
 - (b) Pull out the dipstick guide together with the dipstick.
 - (c) Remove the O-ring from the dipstick guide.
11. **REMOVE OIL LEVEL SENSOR**
 - (a) Disconnect the level sensor connector.
 - (b) Remove the 4 bolts and level sensor.
 - (c) Remove the gasket from the level sensor.

NOTICE: Be careful not to drop the oil level sensor when removing it.



12. REMOVE NO.2 OIL PAN

- (a) Remove the 14 bolts and 2 nuts.

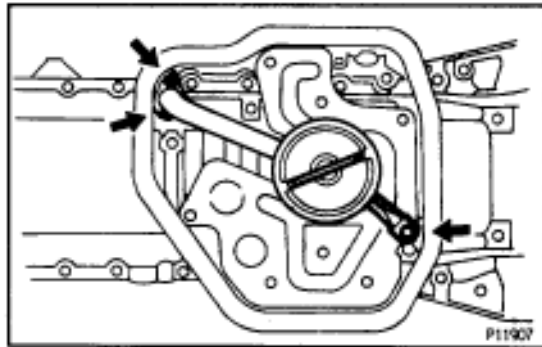


- (b) Insert the blade of SST between the No.1 and No.2 oil pan, break the seal of the applied sealer and remove the No.2 oil pan.

SST 09032-00100

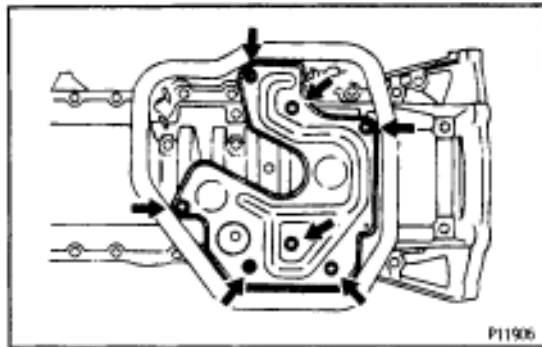
NOTICE:

- Be careful not to damage the No.2 oil pan contact surface of the No.1 oil pan.
- Be careful not to damage the oil pan flange.



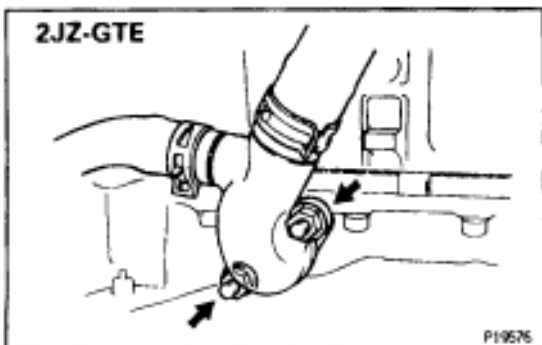
13. REMOVE OIL STRAINER

Remove the bolt, 2 nuts, oil strainer and gasket.



14. REMOVE OIL PAN BAFFLE PLATE

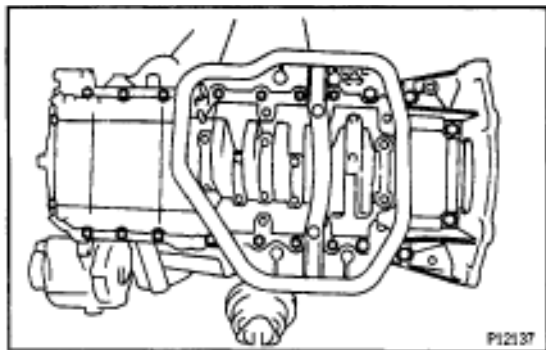
Remove the 5 bolts, 2 nuts and baffle plate.



15. 2JZ-GTE:

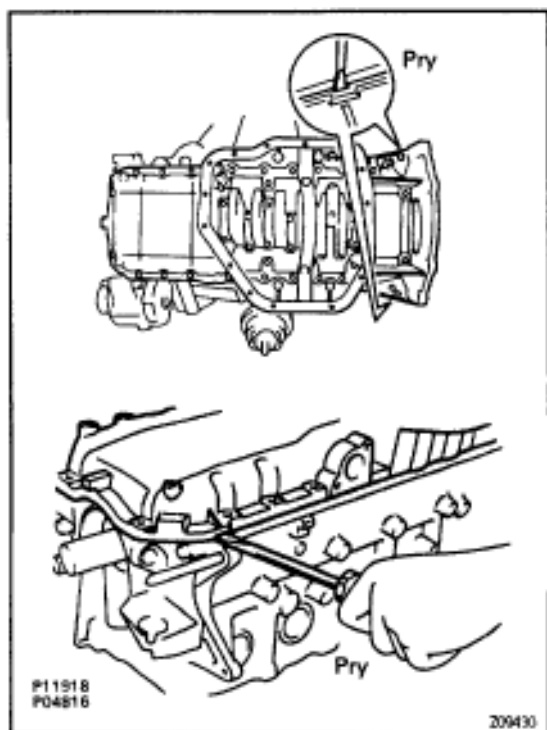
REMOVE TURBO OIL OUTLET PIPE

- (a) Disconnect the 2 turbo oil outlet hoses.
 (b) Remove the 2 nuts, oil outlet pipe and gasket.



16. REMOVE NO.1 OIL PAN

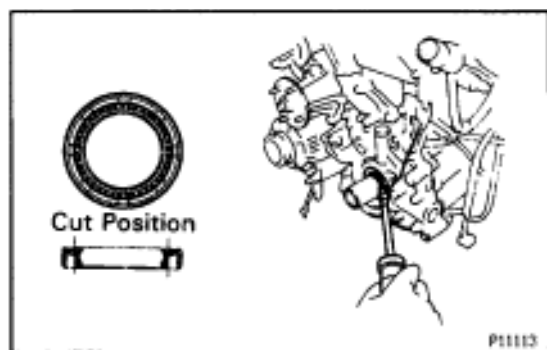
- (a) Remove the 22 bolts.



- (b) Remove the No.1 oil pan by prying the portions between the cylinder block and No.1 oil pan with a screwdriver.

NOTICE: Be careful not to damage the contact surfaces of the cylinder block and No.1 oil pan.

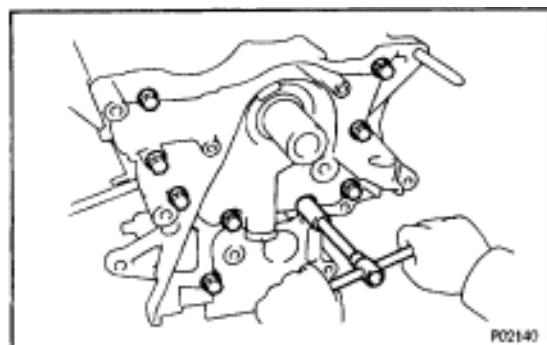
- (c) Remove the O-ring from the cylinder block.



17. REMOVE CRANKSHAFT FRONT OIL SEAL

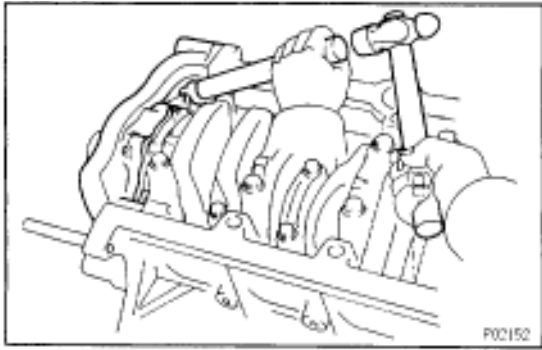
- (a) Using a knife, cut off the oil seal lip.
 (b) Using a screwdriver, pry out the oil seal.

NOTICE: Be careful not to damage the crankshaft. Tape the screwdriver tip.



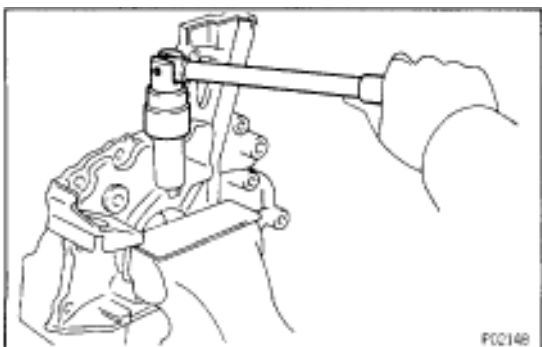
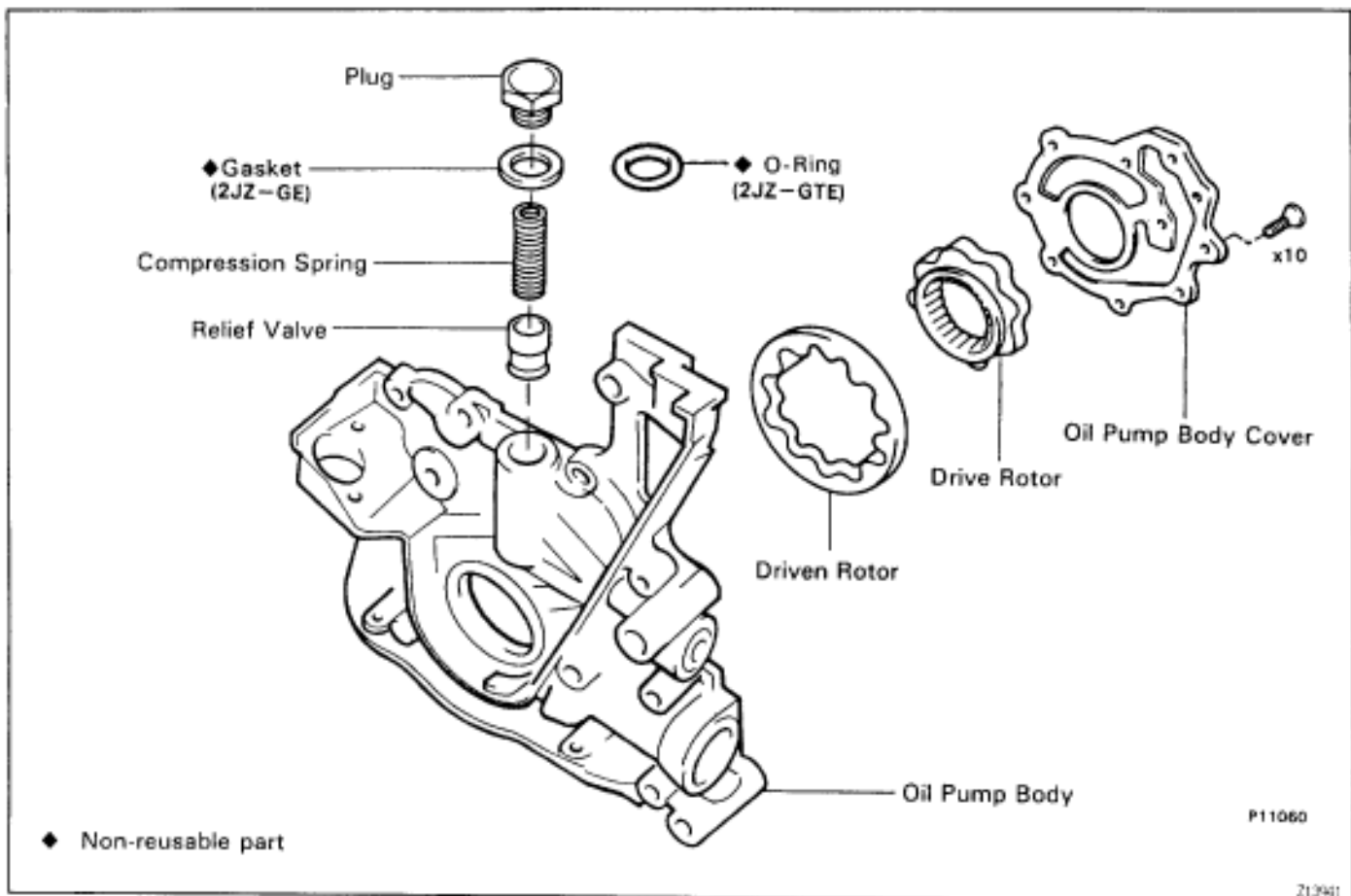
18. REMOVE OIL PUMP

- (a) Remove the 9 bolts.



- (b) Using a hammer and brass bar, remove the oil pump by carefully tapping the oil pump body.
- (c) Remove the 2 O-rings from the cylinder block.

COMPONENTS FOR DISASSEMBLY AND ASSEMBLY



OIL PUMP DISASSEMBLY

Assembly is in the reverse order of disassembly.

1. REMOVE RELIEF VALVE

- (a) Slightly mount the pump body in a vise.
NOTICE: Be careful not to damage the pump body.
- (b) Remove the plug, gasket (2JZ-GE), O-ring (2JZ-GTE), compression spring and relief valve.

INSTALLATION HINT:

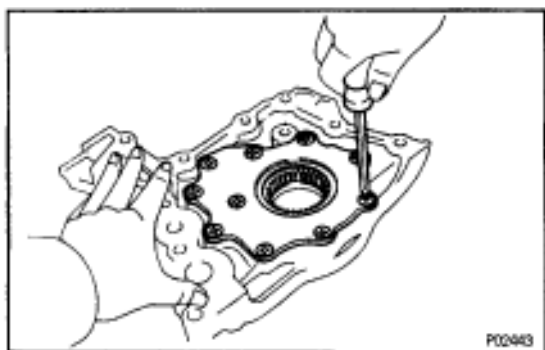
Use a new gasket (2JZ-GE) or O-ring (2JZ-GTE).

Torque:**2JZ-GE**

49 N·m (500 kgf·cm, 36 ft·lbf)

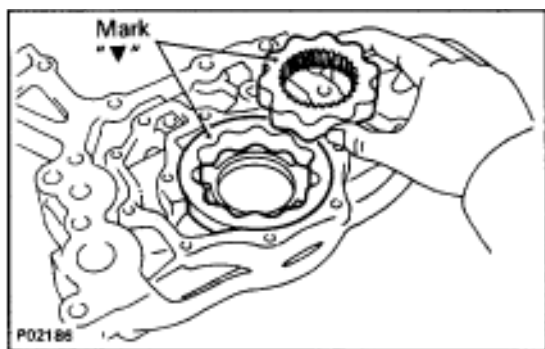
2JZ-GTE

29 N·m (300 kgf·cm, 22 ft·lbf)

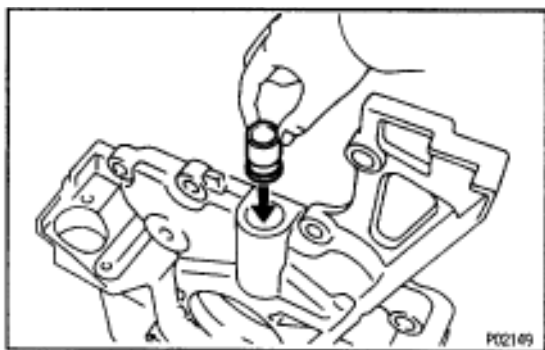
**2. REMOVE DRIVE AND DRIVEN ROTORS**

Remove the 10 screws, pump body cover, the drive and driven rotors.

Torque: 10 N·m (105 kgf·cm, 8.0 ft·lbf)

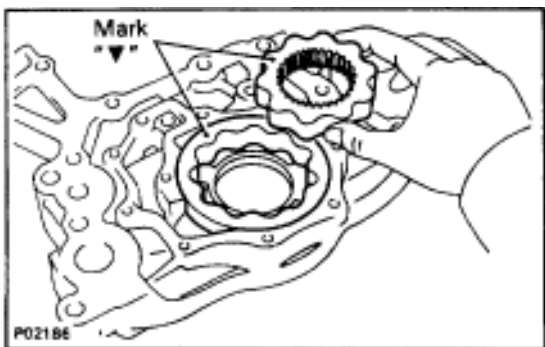


ASSEMBLY HINT: Place the drive and driven rotors into the oil pump body with the mark facing upward.

**OIL PUMP INSPECTION****1. INSPECT RELIEF VALVE**

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

If it doesn't, replace the relief valve. If necessary, replace the oil pump assembly.

**2. INSPECT DRIVE AND DRIVEN ROTORS****A. Place drive and driven rotors into oil pump body**

ASSEMBLY HINT: Place the drive and driven rotors into the oil pump body with the mark facing upward.

**B. Inspect rotor tip clearance**

Using a feeler gauge, measure the clearance between the drive and driven rotors.

Standard tip clearance:

2JZ-GE

0.310–0.490 mm (0.0122–0.0193 in.)

2JZ-GTE

0.056–0.326 mm (0.0022–0.0128 in.)

Maximum tip clearance:

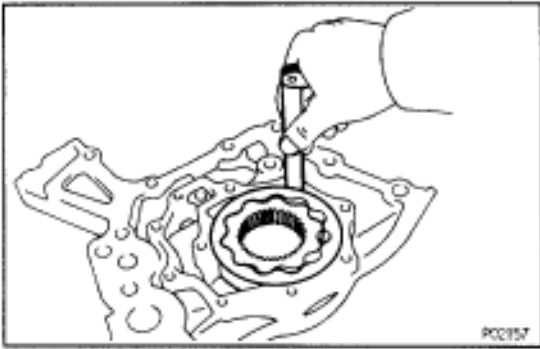
2JZ-GE

0.53 mm (0.0209 in.)

2JZ-GTE

0.40 mm (0.0157 in.)

If the tip clearance is greater than maximum, replace the rotors as a set.

**C. Inspect rotor body clearance**

Using a feeler gauge, measure the clearance between the driven rotor and pump body.

Standard body clearance:

2JZ-GE

0.100–0.175 mm (0.0039–0.0069 in.)

2JZ-GTE

0.080–0.135 mm (0.0031–0.0053 in.)

Maximum body clearance:

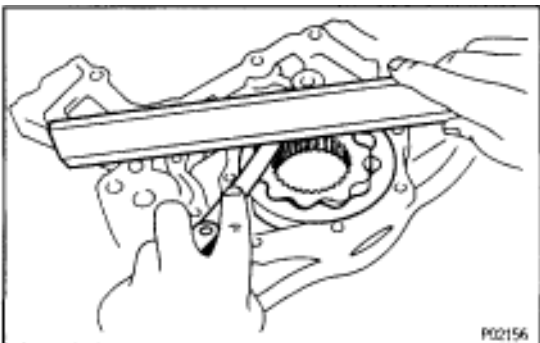
2JZ-GE

0.20 mm (0.0079 in.)

2JZ-GTE

0.16 mm (0.0063 in.)

If the body clearance is greater than maximum, replace the rotors as a set. If necessary, replace the oil pump assembly.

**D. Inspect rotor side clearance**

Using a feeler gauge and precision straight edge, measure the clearance between the rotors and precision straight edge.

Standard side clearance:

2JZ-GE

0.030–0.090 mm (0.0012–0.0035 in.)

2JZ-GTE

0.020–0.065 mm (0.0007–0.0026 in.)

Maximum side clearance:**2JZ-GE**

0.12 mm (0.0047 in.)

2JZ-GTE

0.10 mm (0.0039 in.)

If the side clearance is greater than maximum, replace the rotors as a set. If necessary, replace the oil pump assembly.

E. Remove drive and driven rotors**OIL PUMP INSTALLATION****1. INSTALL OIL PUMP**

- (a) Remove any old packing (FIPG) material and be careful not to drop any oil on the contact surfaces of the oil pump and cylinder block.

- Using a razor blade gasket scraper, remove all the old packing (FIPG) material from the gasket surfaces and sealing groove.
- Thoroughly clean all components to remove all the debris.
- Using a non-residue solvent, clean both sealing surfaces.

- (b) Apply seal packing to the oil pump as shown in the illustration.

Seal packing:**Part No. 08826-00080 or equivalent**

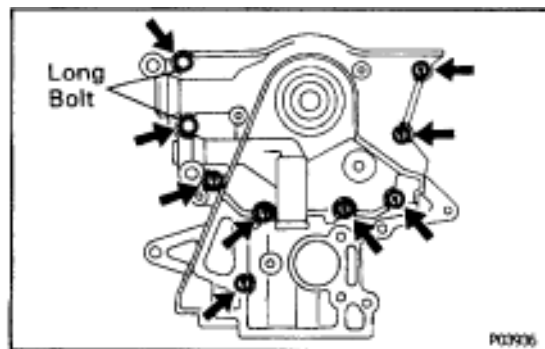
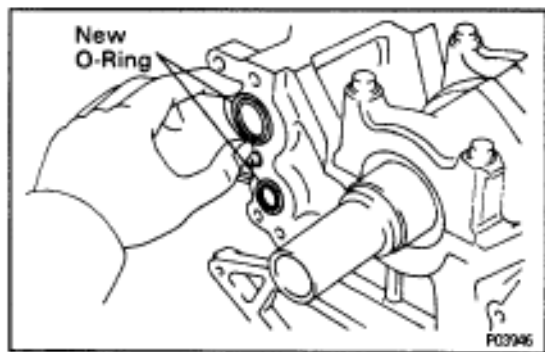
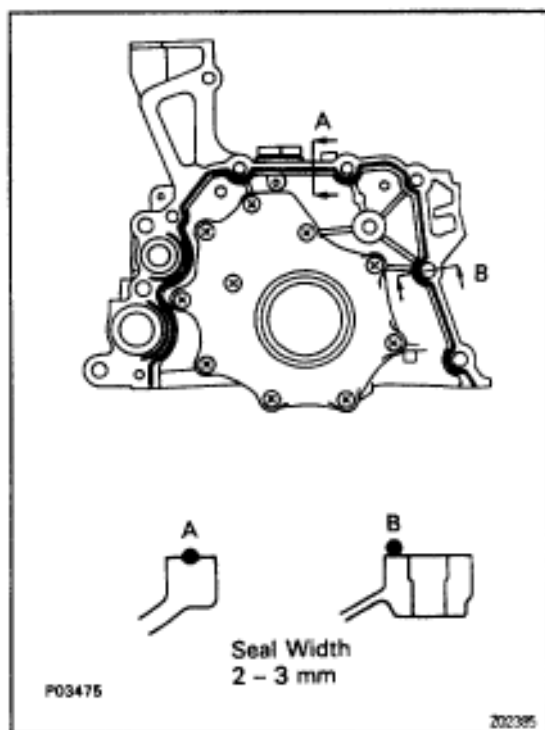
- Install a nozzle that has been cut to a 2–3 mm (0.08–0.12 in.) opening.

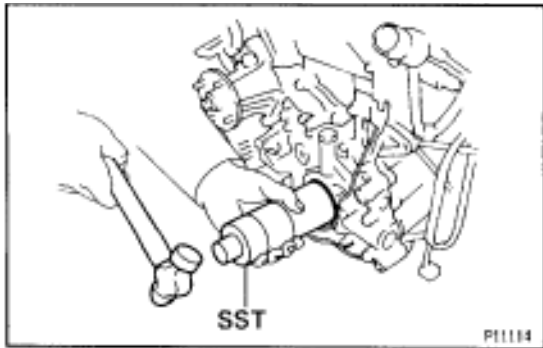
HINT: Avoid applying an excessive amount to the surface. Be particularly careful near oil passages.

- Parts must be assembled within 5 minutes of application. Otherwise the material must be removed and reapplied.
- Immediately remove nozzle from the tube and reinstall cap.

- (c) Place 2 new O-rings in position on the cylinder block.

- (d) Install the oil pump with the 9 bolts.
Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)





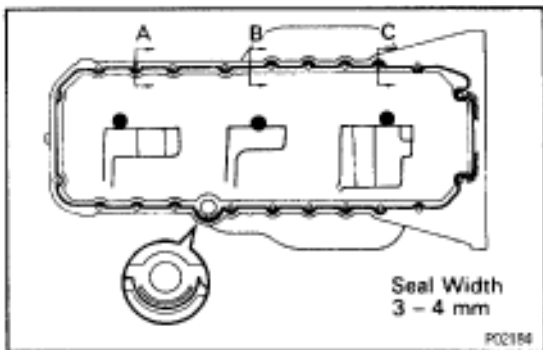
2. INSTALL CRANKSHAFT FRONT OIL SEAL

- (a) Apply MP grease to a new oil seal lip.
- (b) Using SST and a hammer, tap in the oil seal until its surface is flush with the oil pump body edge.
SST 09316-60010 (09316-00010)

3. INSTALL NO.1 OIL PAN

- (a) Remove any old packing (FIPG) material and be careful not to drop any oil on the contact surfaces of the No.1 oil pan and cylinder block.
 - Using a razor blade and gasket scraper, remove all the old packing (FIPG) material from the gasket surfaces and sealing groove.
 - Thoroughly clean all components to remove all the debris.
 - Using a non-residue solvent, clean both sealing surfaces.

NOTICE: Do not use a solvent which will affect the painted surfaces.



- (b) Apply seal packing to the No.1 oil pan as shown in the illustration.

Seal packing:

Parts No. 08826-00080 or equivalent

- Install a nozzle that has been cut to a 3-4 mm (0.12-0.16 in.) opening.

HINT: Avoid applying an excessive amount to the surface.

- Parts must be assembled within 5 minutes of application. Otherwise the material must be removed and reapplied.
- Immediately remove nozzle from the tube and reinstall cap.

- (c) Place a new O-ring in the position on the cylinder block.
- (d) Install the No.1 oil pan with the 22 bolts.

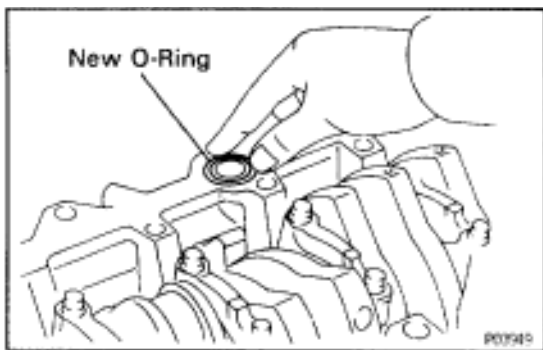
Torque:

12 mm head

21 N·m (210 kgf·cm, 15 ft·lbf)

14 mm head

39 N·m (400 kgf·cm, 29 ft·lbf)



4. 2JZ-GTE:

INSTALL TURBO OIL OUTLET PIPE

- (a) Install a new gasket and the oil outlet pipe with the 2 nuts.
Torque: 27 N·m (280 kgf·cm, 20 ft·lbf)
- (b) Connect the 2 turbo oil outlet hoses.

5. INSTALL OIL PAN BAFFLE PLATE

Torque: 8.8 N·m (90 kgf·cm, 78 in·lbf)

6. INSTALL OIL STRAINER

Install a new gasket and the oil strainer with the bolt and 2 nuts.

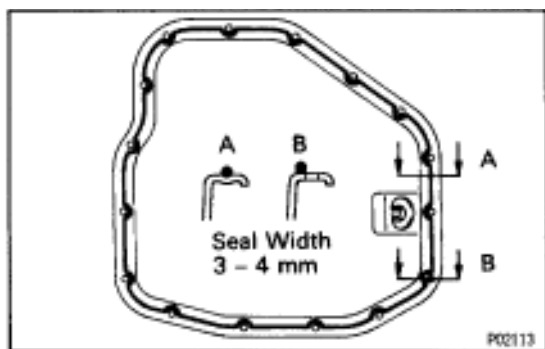
Torque: 8.8 N·m (90 kgf·cm, 78 in.·lbf)

7. INSTALL NO.2 OIL PAN

(a) Remove any old packing (FIPG) material and be careful not to drop any oil on the contact surfaces of the No.1 and No.2 oil pans.

- Using a razor blade and gasket scraper, remove all the old packing (FIPG) material from the gasket surfaces and sealing groove.
- Thoroughly clean all components to remove all the debris.
- Using a non-residue solvent, clean both sealing surfaces.

NOTICE: Do not use a solvent which will affect the painted surfaces.



(b) Apply seal packing to the No.2 oil pan as shown in the illustration.

Seal packing:

Part No.08826-00080 or equivalent

- Install a nozzle that has been cut to a 3-4 mm (0.12-0.16 in.) opening.

HINT: Avoid applying an excessive amount to the surface.

- Parts must be assembled within 5 minutes of application. Otherwise the material must be removed and reapplied.
- Immediately remove nozzle from the tube and reinstall cap.

(c) Install the No.2 oil pan with the 14 bolts and 2 nuts.

Torque: 8.8 N·m (90 kgf·cm, 78 in.·lbf)

8. INSTALL OIL LEVEL SENSOR

(a) Install a new gasket to the level sensor.

(b) Install the level sensor with the 4 bolts.

Torque: 5.4 N·m (55 kgf·cm, 48 in.·lbf)

(c) Connect the level sensor connector.

9. INSTALL OIL DIPSTICK GUIDE AND DIPSTICK

(a) Install a new O-ring on the dipstick guide.

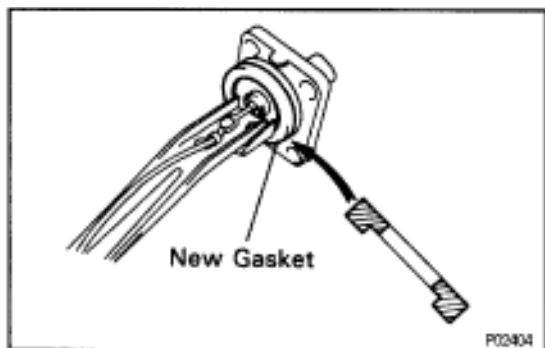
(b) Install the guide with the bolt.

10. INSTALL CRANKSHAFT TIMING PULLEY

(See step 1 in timing belt installation in Engine Mechanical)

11. INSTALL IDLER PULLEY

(See step 2 in timing belt installation in Engine Mechanical)



12. 2JZ-GTE M/T:
INSTALL DRIVE BELT TENSIONER BRACKET
Torque: 27 N·m (280 kgf·cm, 20 ft·lbf)
13. INSTALL TIMING BELT
(See step 3 in timing belt installation in Engine Mechanical)
14. 2JZ-GTE:
INSTALL CRANKSHAFT POSITION SENSOR
Torque: 8.8 N·m (90 kgf·cm, 78 in·lbf)
15. 2JZ-GTE:
INSTALL GENERATOR
16. REMOVE ENGINE STAND FROM ENGINE
17. ASSEMBLY ENGINE AND TRANSMISSION
(See components for engine removal & transmission separation and assembly)
18. INSTALL ENGINE WITH TRANSMISSION
(See components for engine removal and installation)

OIL COOLER (2JZ-GTE) COMPONENTS FOR REMOVAL AND INSTALLATION

