

OIL AND FILTER INSPECTION

LU040-01

1. CHECK OIL QUALITY

Check the oil for deterioration, entry of water, discoloring or thinning.

If oil quality is visibly poor, replace the oil.

Oil grade (2JZ-GE):

API grade SH Energy-Conserving II or SJ, Energy-Conserving or ILSAC multigrade engine oil.

SAE 5W-30 is the best choice for your vehicle, for good fuel economy, and good starting in cold weather.

Oil grade (2JZ-GTE):

API grade SH Energy-Conserving II or SJ, Energy-Conserving or ILSAC multigrade engine oil.

Recommended viscosity is as shown in the illustration.

2. CHECK ENGINE OIL LEVEL

After warming up the engine and then 5 minutes after the engine stop, oil level should be between the low level and full level marks on the dipstick.

If low, check for leakage and add oil up to full level mark.

NOTICE:

Do not fill with engine oil above the full level mark.

3. REMOVE ENGINE UNDER COVER

4. 2JZ-GTE

DISCONNECT PS OIL RESERVOIR WITHOUT DISCONNECTING HOSES

- (a) Disconnect the 2 clamps of the engine wire protector from the bracket.
- (b) Remove the 3 bolts and disconnect the reservoir.

5. REMOVE OIL PRESSURE SWITCH, AND INSTALL OIL PRESSURE GAUGE

- (a) Disconnect the oil pressure switch connector.
- (b) Using SST, remove the oil pressure switch.
SST 09816-30010
- (c) Install an oil pressure gauge.

6. WARM UP ENGINE

Allow the engine to warm up to normal operating temperature.

7. CHECK OIL PRESSURE

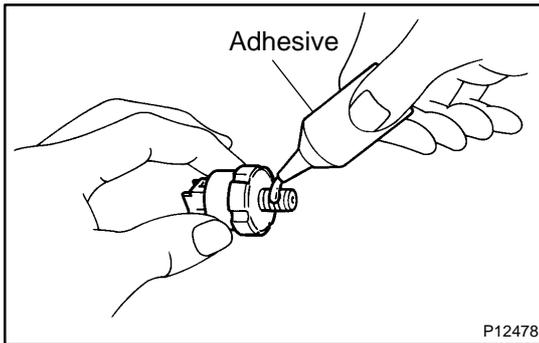
Oil pressure:

At idle

49 kPa (0.5 kgf/cm², 7 psi) or more

At 3,000 rpm

324 kPa (3.3 kgf/cm², 47 psi) or more



8. REMOVE OIL PRESSURE GAUGE AND REINSTALL OIL PRESSURE SWITCH

- (a) Remove the oil pressure gauge.
- (b) Tighten the union bolt.
- (c) Apply adhesive to 2 or 3 threads of the oil pressure switch.

Torque: 90 N·m (900 kgf·cm, 66 ft·lbf)

Adhesive:

**Part No. 08833-00080, THREE BOND 1344,
LOCTITE 242 or equivalent**

- (d) Using SST, install the oil pressure switch.
SST 09816-30010

Torque: 15 N·m (150 kgf·cm, 11 ft·lbf)

- (e) Connect the oil pressure switch connector.

9. DISCONNECT PS OIL RESERVOIR WITH HOSES

10. START ENGINE AND CHECK FOR LEAKS

11. REINSTALL ENGINE UNDER COVER

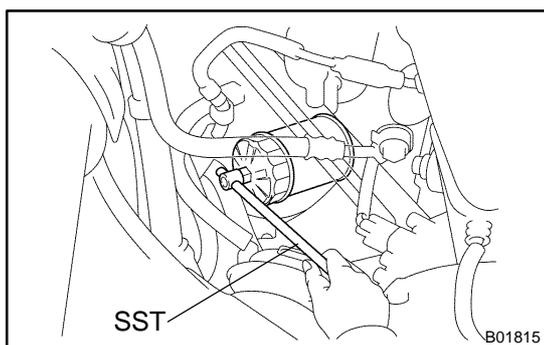
REPLACEMENT

CAUTION:

- ★ Prolonged and repeated contact with mineral oil will result in the removal of natural fats from the skin, leading to dryness, irritation and dermatitis. In addition, used engine oil contains potentially harmful contaminants which may cause skin cancer.
- ★ Exercise caution in order to minimize the length and frequency of contact of your skin to used oil. Wear protective clothing and gloves. Wash your skin thoroughly with soap and water, or use water-less hand cleaner, to remove any used engine oil. Do not use gasoline, thinners, or solvents.
- ★ In order to preserve the environment, used oil and used oil filters must be disposed of only at designated disposal sites.

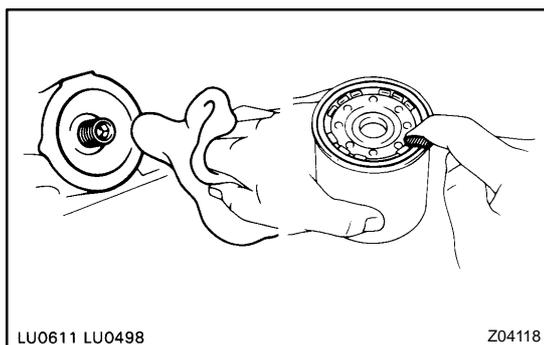
1. DRAIN ENGINE OIL

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

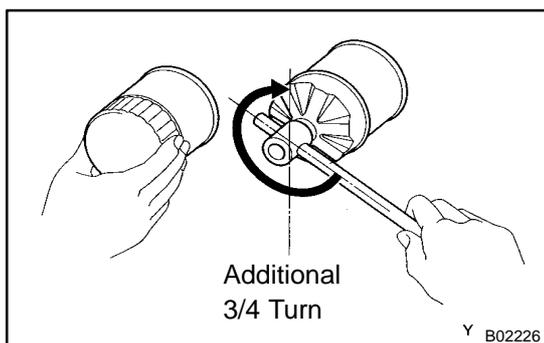


2. REPLACE OIL FILTER

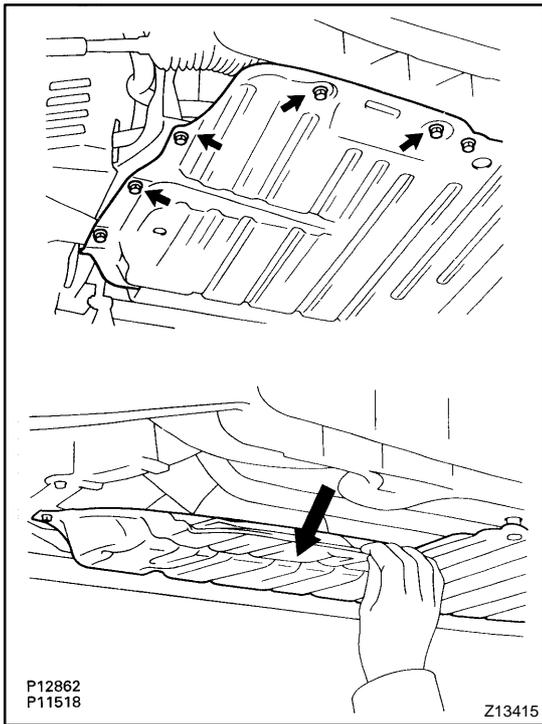
- (a) Using SST, remove the oil filter.
SST 09228-07501



- (b) Check and clean the oil filter installation surface.
- (c) Apply clean engine oil to the gasket of a new oil filter.



- (d) Lightly screw the oil filter into place, and tighten it until the gasket contacts the seat.
- (e) Using SST, tighten it an additional 3/4 turn.
SST 09228-07501



3. REFILL WITH ENGINE OIL

- (a) To wipe off oil that has dripped onto the engine under cover, remove the 4 screws and bend the under cover downward.

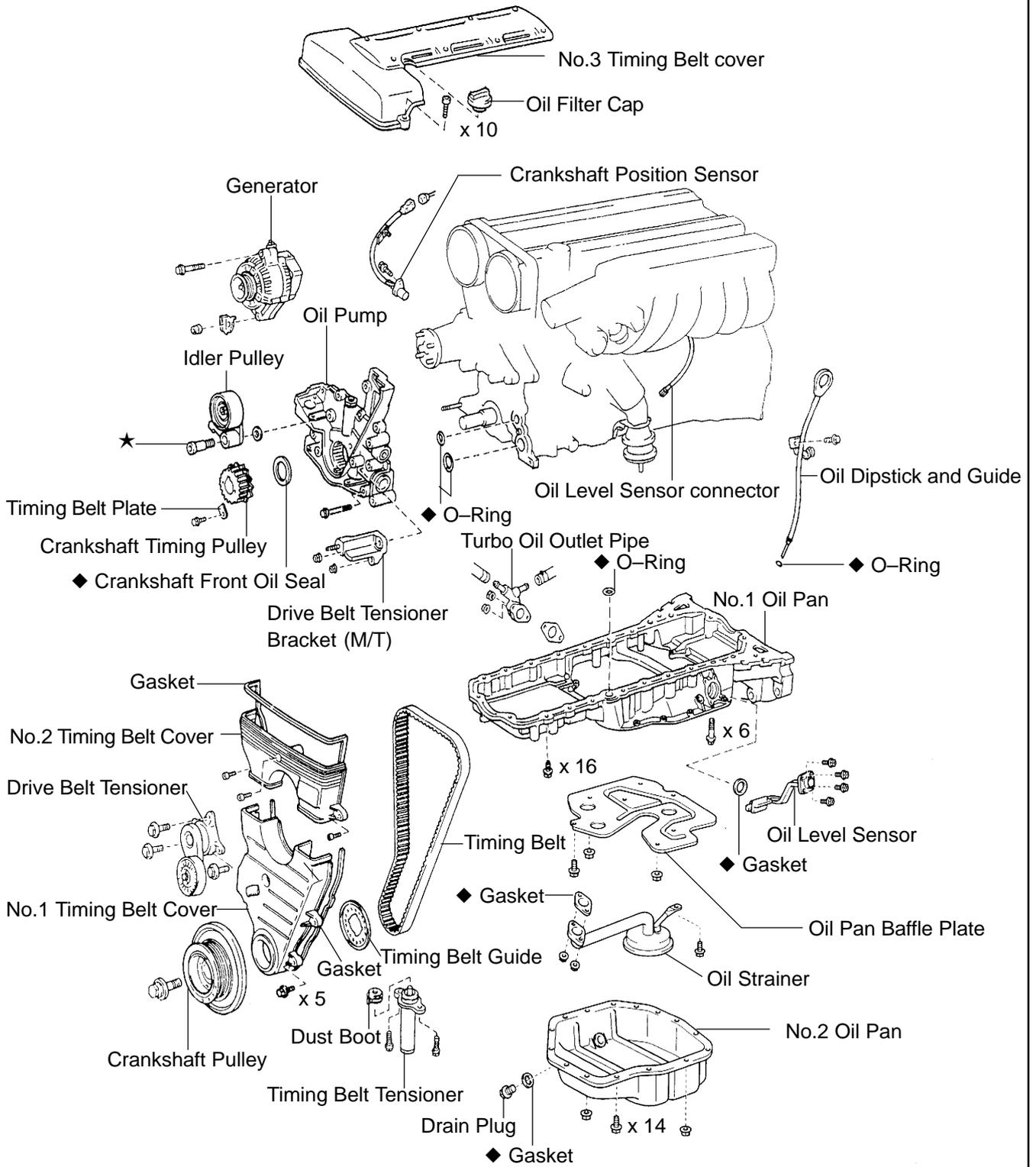
NOTICE:

- ★ **To avoid damaging the silencer, do not bend the engine under cover more than 150 mm (5.91 in.).**
- ★ **If oil gets on the silencer, wipe it off with a dry rag.**
- (b) Clean and install the oil drain plug with a new gasket.
Torque: 38 N·m (375 kgf-cm, 27 ft-lbf)
- (c) Fill with fresh engine oil.

	W/ Oil filter Change	W/o Oil filter Change	Dry fill
2JZ-GE	5.5 liters (5.8 US qts, 4.8 Imp. qts)	5.2 liters (5.5 US qts, 4.6 Imp. qts)	6.6 liters (7.0 US qts, 5.8 Imp. qts)
2JZ-GTE	5.0 liters (5.3 US qts, 4.4 Imp. qts)	4.7 liters (5.0 US qts, 4.1 Imp. qts)	6.5 liters (6.9 US qts, 5.7 Imp. qts)

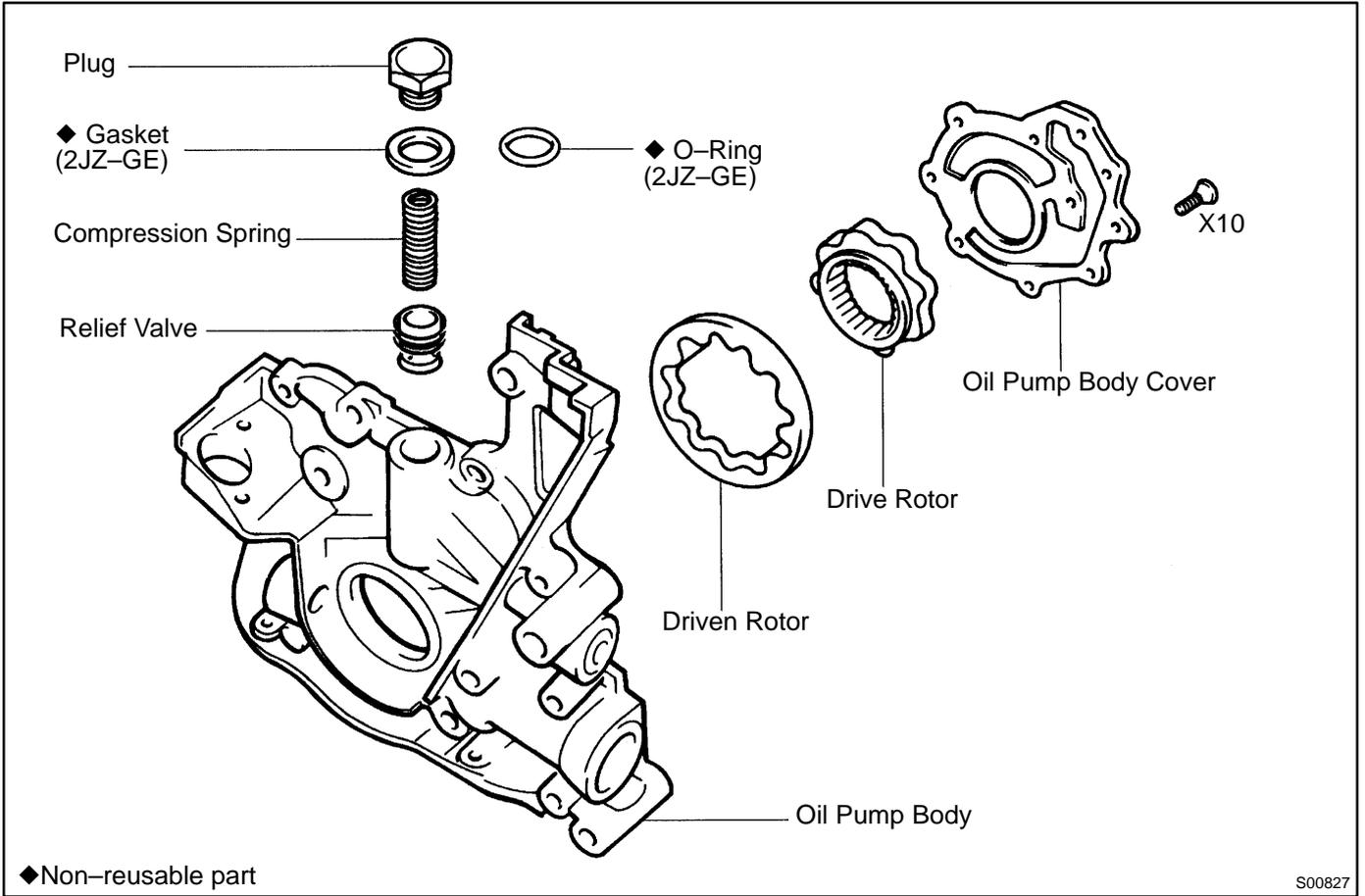
- (d) Reinstall the oil filler cap.
- 4. START ENGINE AND CHECK FOR OIL LEAKS**
- 5. RECHECK ENGINE OIL LEVEL**

2JZ-GTE



◆ Non-reusable part
 ★ Precoated part

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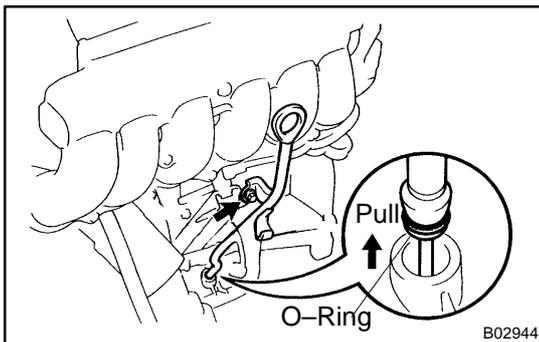


REMOVAL

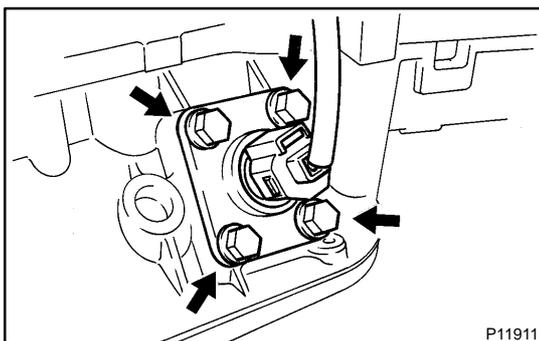
HINT:

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

1. **REMOVE ENGINE WITH TRANSMISSION**
(2JZ-GE: See page [EM-58](#))
(2JZ-GTE: See page [EM-58](#))
2. **SEPARATE ENGINE AND TRANSMISSION**
(2JZ-GE: See page [AT-20](#))
(2JZ-GTE: See page [EM-58](#))
3. **INSTALL ENGINE TO ENGINE STAND FOR REMOVAL**
4. **REMOVE GENERATOR** (See page [CH-8](#))
5. **REMOVE CRANKSHAFT POSITION SENSOR**
 - (a) Disconnect the sensor connector from the clamp bracket.
 - (b) Disconnect the sensor connector from the wiring connector.
 - (c) 2JZ-GTE:
Disconnect the wire clamp from the cylinder block.
 - (d) Remove the bolt and position sensor.
6. **REMOVE TIMING BELT**
(2JZ-GE: See page [EM-15](#))
(2JZ-GTE: See page [EM-15](#))
7. **2JZ-GTE M/T:**
REMOVE DRIVE BELT TENSIONER BRACKET
Remove the 2 nuts and tensioner bracket.
8. **REMOVE IDLER PULLEY AND CRANKSHAFT TIMING PULLEY**
(2JZ-GE: See page [EM-15](#))
(2JZ-GTE: See page [EM-15](#))



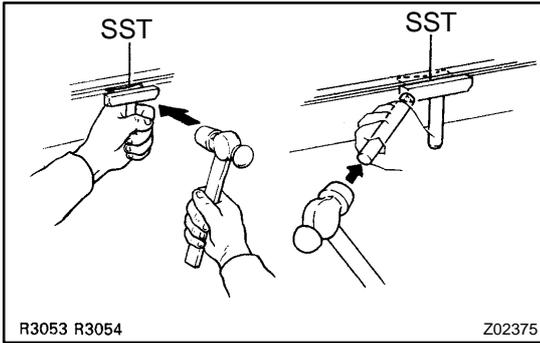
9. **REMOVE OIL DIPSTICK AND GUIDE**
 - (a) Remove the bolt.
 - (b) Pull out the dipstick guide together with the dipstick.
 - (c) Remove the O-ring from the dipstick guide.



10. **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.



11. REMOVE NO.2 OIL PAN

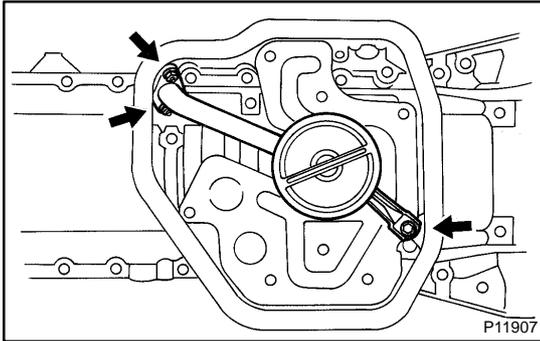
- (a) Remove the 14 bolts and 2 nuts.
 - (b) Insert the blade of SST between the No.1 and No.2 oil pan, break the seal of the applied sealer and remove the No.2 oil pan.
- SST 09032-00100

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.

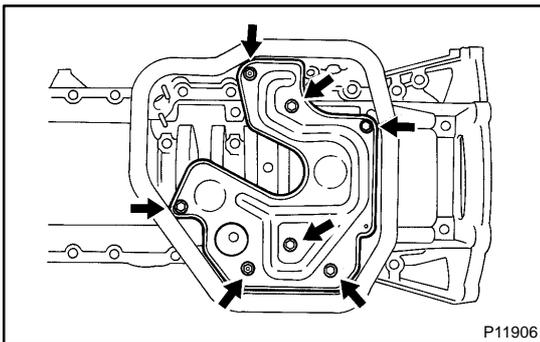
12. REMOVE OIL STRAINER

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



13. REMOVE OIL PAN Baffle PLATE

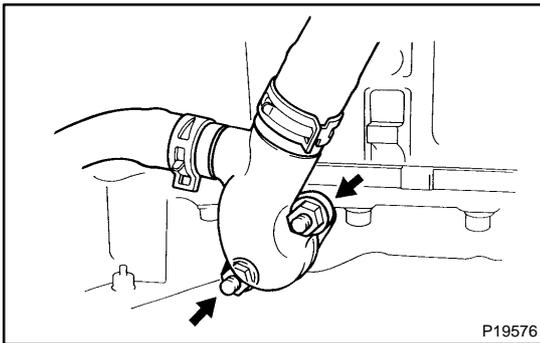
Remove the 5 bolts, 2 nuts and baffle plate.

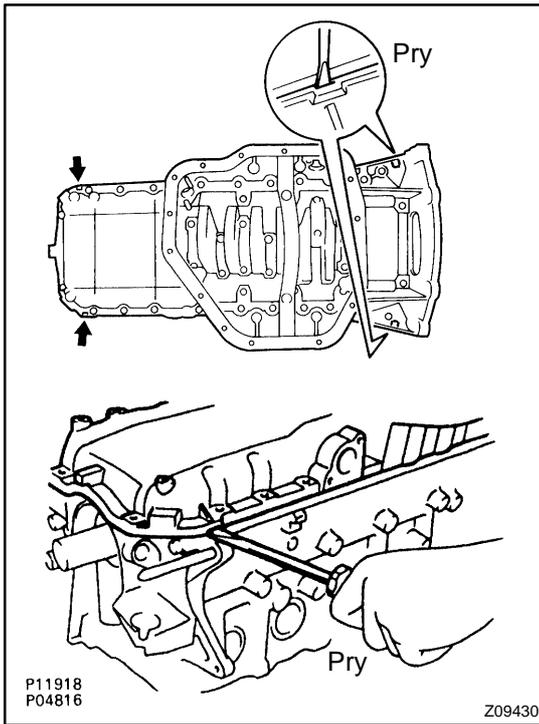


14. 2JZ-GTE:

REMOVE TURBO OIL OUTLET PIPE

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



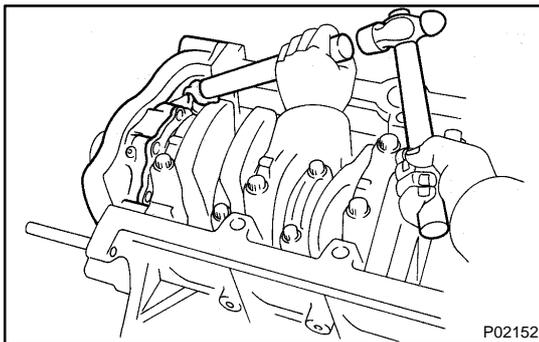
**15. REMOVE NO.1 OIL PAN**

- (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.

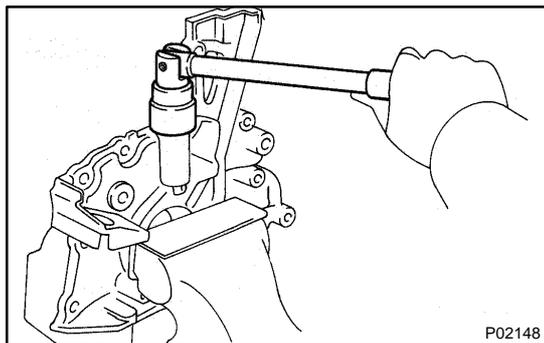
NOTICE:

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.

**16. 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.



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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.

HINT:

At the time of reassembly, please refer to the following items.

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

Torque:

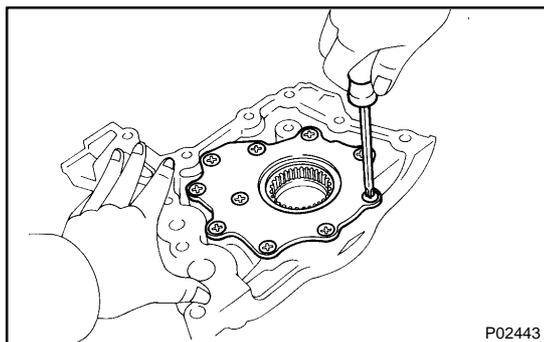
2JZ-GE: 49 N·m (500 kgf·cm, 36 ft·lbf)

2JZ-GTE: 29 N·m (300 kgf·cm, 22 ft·lbf)

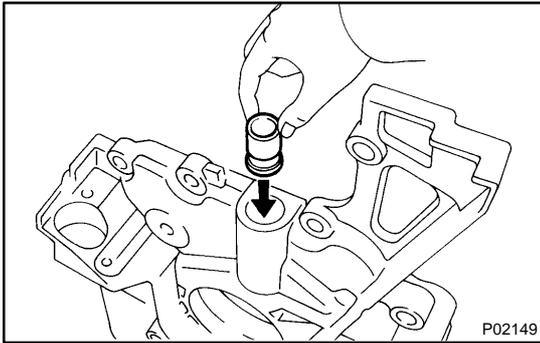
2. REMOVE DRIVE AND DRIVEN ROTORS

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

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



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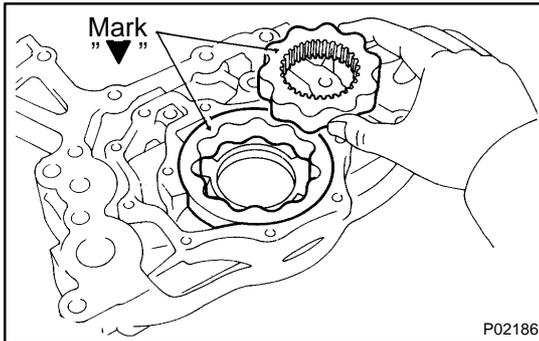


INSPECTION

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.

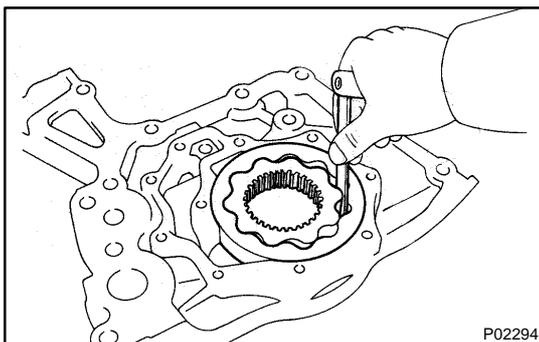


2. PLACE DRIVE AND DRIVEN ROTORS INTO OIL PUMP BODY

(a) Place drive and driven rotors into oil pump body

HINT:

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



3. INSPECT ROTOR TIP CLEARANCE

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

Standard tip clearance:

2JZ-GE: 0.060 – 0.240 mm (0.0024 – 0.0094 in.)

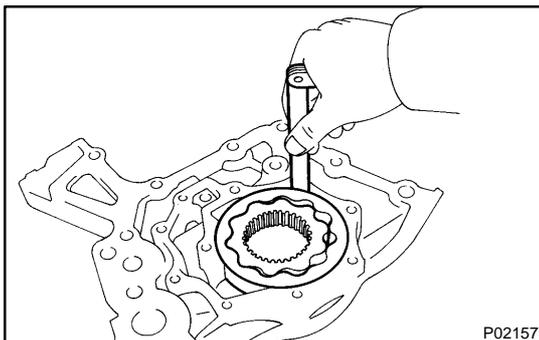
2JZ-GTE: 0.056 – 0.326 mm (0.0022 – 0.0128 in.)

Maximum tip clearance:

2JZ-GE: 0.30 mm (0.018 in.)

2JZ-GTE: 0.40 mm (0.0157 in.)

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



4. 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.)

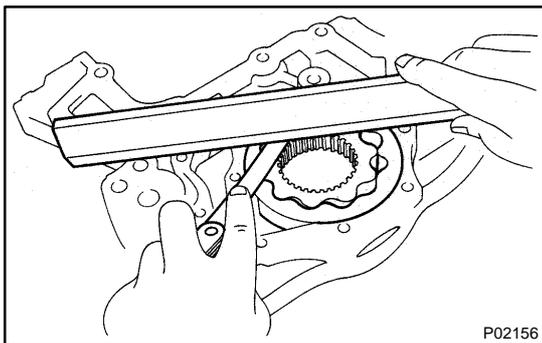
2JZ-GTE: 0.080 – 0.135 mm (0.0031 – 0.0053 in.)

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.



5. 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.

6. REMOVE DRIVE AND DRIVEN ROTORS

REPLACEMENT

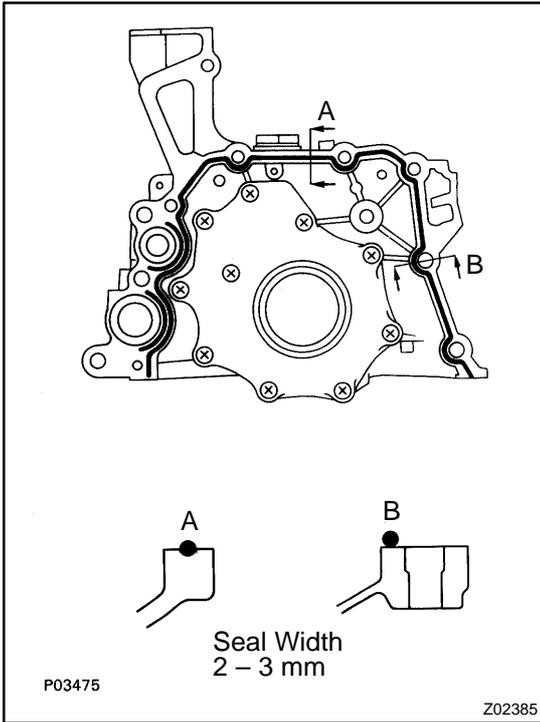
REPLACE CRANKSHAFT FRONT OIL SEAL

(2ZJ-GE: See page EM-80)

(2ZJ-GTE: See page EM-84)

REASSEMBLY

Reassembly is in the reverse order of disassembly (See page [LU-11](#)).



INSTALLATION

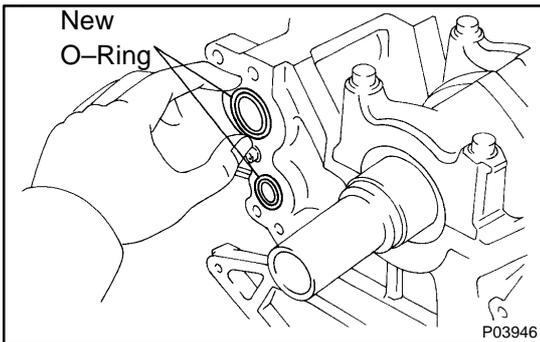
1. INSTALL OIL PUMP

- (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.

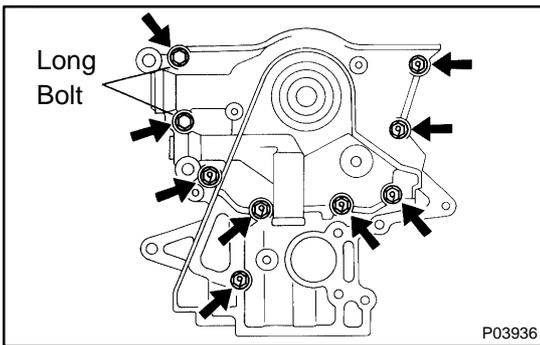


HINT:

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.

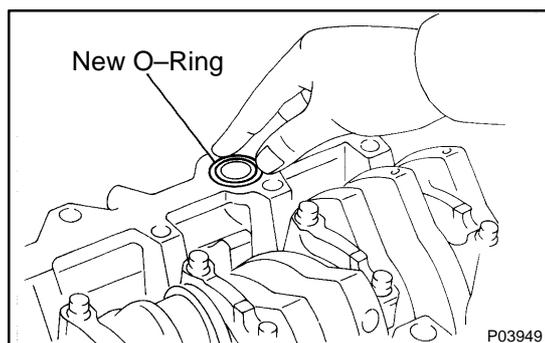
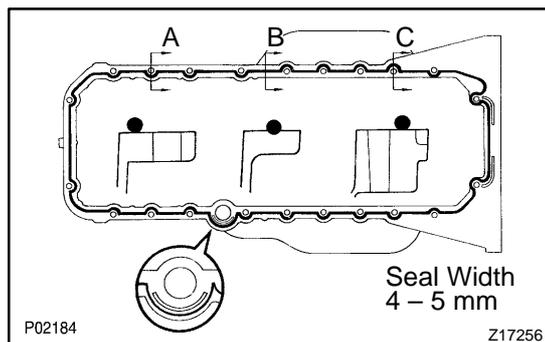
Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)

2. INSTALL 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 4 – 5 mm (0.16 – 0.20 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

40 N-m (400 kgf-cm, 30 ft-lbf)

3. 2JZ-GTE

INSTALL TURBO OIL OUTLET PIPE

- (a) Install a new gasket and the oil outlet pipe with the 2 nuts.

Torque: 28 N-m (280 kgf-cm, 21 ft-lbf)

- (b) Connect the 2 turbo oil outlet hoses.

4. INSTALL OIL PAN Baffle PLATE

Torque: 9.0 N-m (90 kgf-cm, 80 in.-lbf)

5. INSTALL OIL STRAINER

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

Torque: 9.0 N-m (90 kgf-cm, 80 in.-lbf)

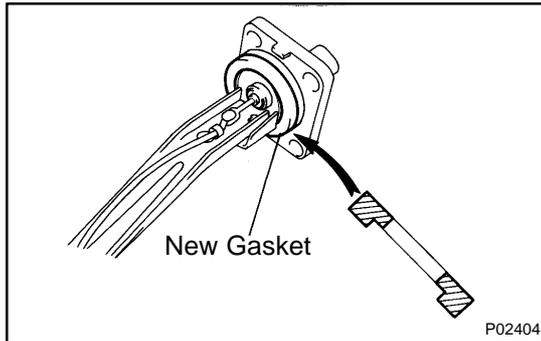
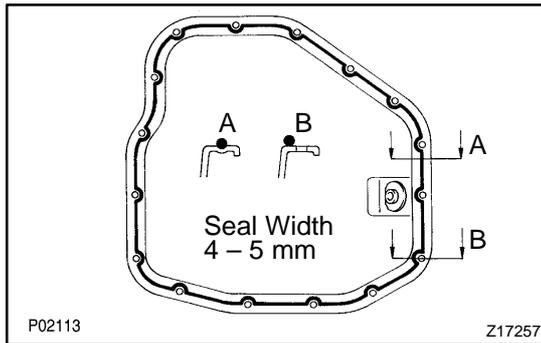
6. INSTALL NO.2 OIL PAN

- (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 4 – 5 mm (0.16 – 0.20 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: 9.0 N·m (90 kgf·cm, 80 in.-lbf)

7. 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.

8. INSTALL OIL DIPSTICK GUIDE AND DIPSTICK

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

- (b) Apply new oil to the O-ring.

- (c) Connect the dipstick guide end to the dipstick tube of the oil pan.

- (d) Install the dipstick guide with the bolt.

- (e) Install the dipstick.

9. INSTALL CRANKSHAFT TIMING PULLEY AND IDLER PULLEY

(2JZ-GE: See page [EM-21](#))

(2JZ-GTE: See page [EM-21](#))

10. 2JZ-GTE M/T:

INSTALL DRIVE BELT TENSIONER BRACKET

Torque: 27 N·m (280 kgf·cm, 20 ft-lbf)

11. INSTALL TIMING BELT

(2JZ-GE: See page [EM-21](#))

(2JZ-GTE: See page [EM-21](#))

12. INSTALL CRANKSHAFT POSITION SENSOR

Torque: 9.0 N·m (90 kgf·cm, 80 in.-lbf)

13. INSTALL GENERATOR (See page [CH-18](#))

14. REMOVE ENGINE STAND FROM ENGINE

15. ASSEMBLY ENGINE AND TRANSMISSION

(2LZ-GE: See page [AT-23](#))

(2JZ-GTE: See page [EM-65](#))

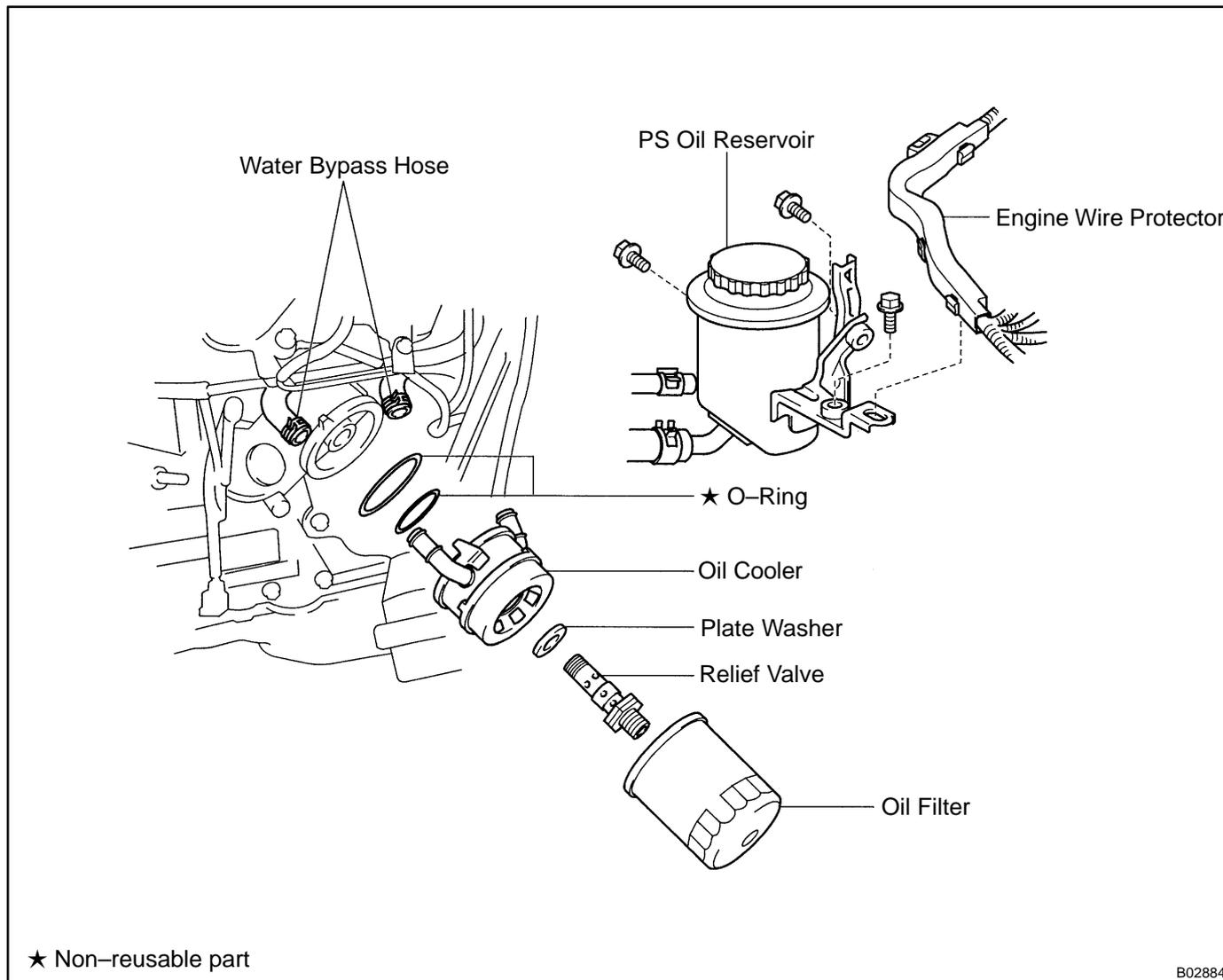
16. INSTALL ENGINE WITH TRANSMISSION

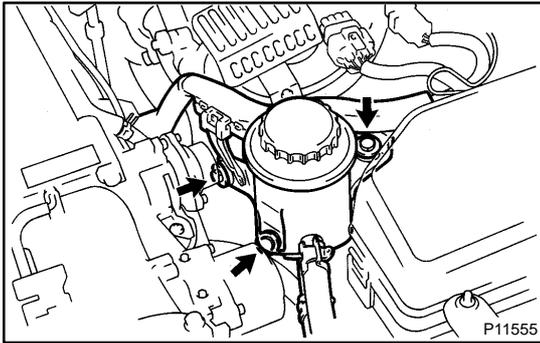
(2JZ-GE: See page [EM-58](#))

(2JZ-GTE: See page [EM-65](#))

OIL COOLER (2JZ-GTE) COMPONENTS

LU04Q-01





REMOVAL

1. DISCONNECT PS OIL RESERVOIR WITHOUT DISCONNECTING HOSES

- (a) Disconnect the 2 clamps of the engine wire protector from the bracket.
- (b) Remove the 3 bolts and disconnect the reservoir.

2. DRAIN ENGINE COOLANT

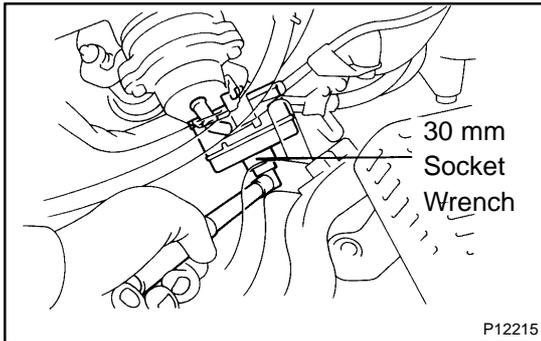
3. REMOVE OIL FILTER

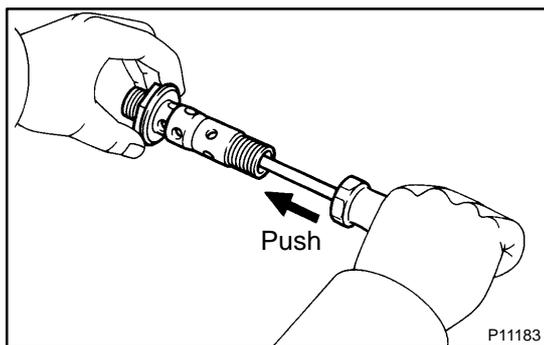
(See page [LU-3](#))

4. DISCONNECT WATER BYPASS HOSES FROM OIL COOLER

5. REMOVE OIL COOLER

- (a) Remove the relief valve, plate washer and oil cooler.
- (b) Remove the 2 O-rings from the oil cooler.





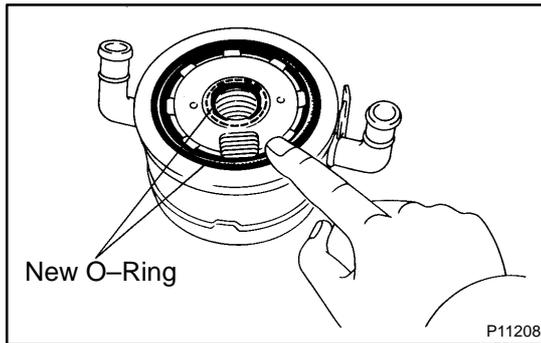
INSPECTION

1. INSPECT RELIEF VALVE

Push the valve with a wooden stick to check if it is stuck.
If stuck, replace the relief valve.

2. INSPECT OIL COOLER

Check the oil cooler for damage or clogging.
If necessary, replace the oil cooler.



INSTALLATION

1. INSTALL OIL COOLER

- (a) Install 2 new O-rings to the oil cooler.
- (b) Apply a light coat of engine oil on the threads and under the head of the relief valve.
- (c) Temporarily install the oil cooler with the plate washer and relief valve.
- (d) Tighten the relief valve.

Torque: 80 N·m (800 kgf·cm, 59 ft·lbf)

2. CONNECT WATER BYPASS HOSES TO OIL COOLER

3. CONNECT PS OIL RESERVOIR

4. INSTALL OIL FILTER

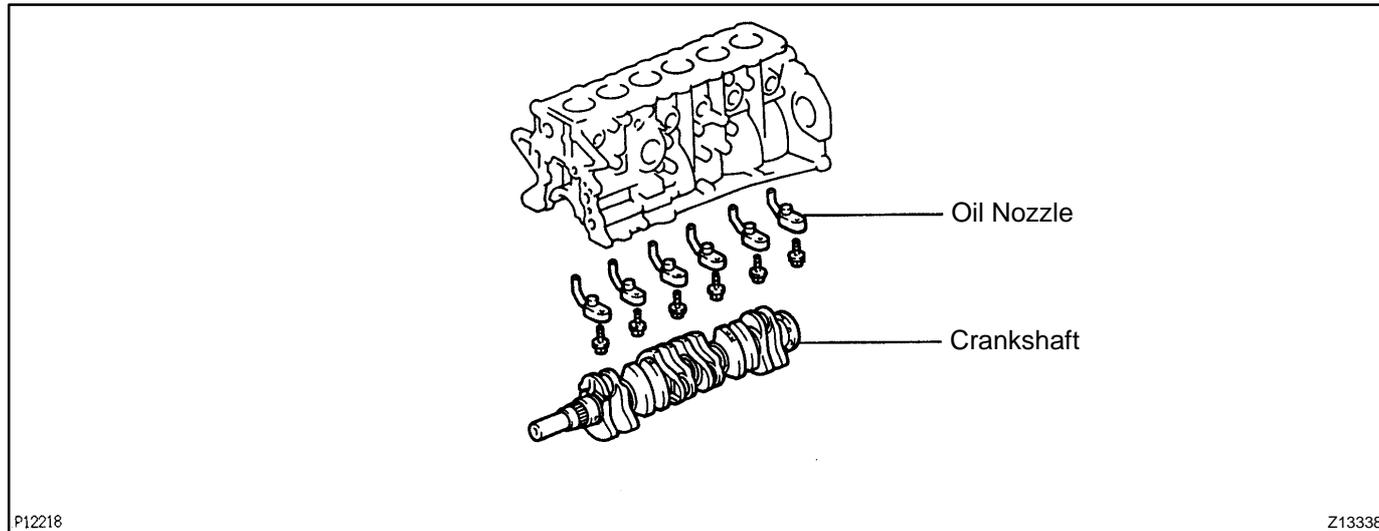
5. FILL WITH ENGINE COOLANT

6. START ENGINE AND CHECK FOR LEAKS

7. CHECK ENGINE OIL LEVEL

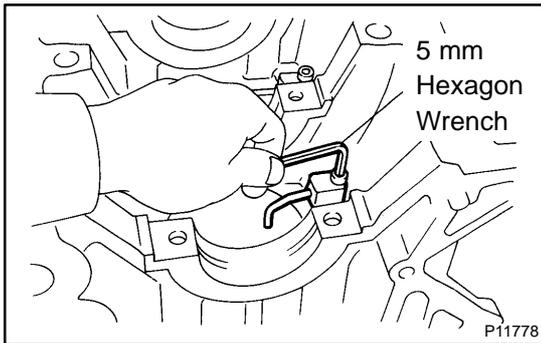
OIL NOZZLE (2JZ-GTE) COMPONENTS

LU051-01



P12218

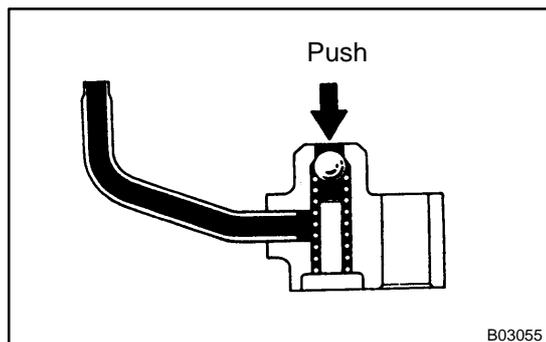
Z13338



REMOVAL

1. **REMOVE CRANKSHAFT**
(See page EM-71)
2. **REMOVE OIL NOZZLES (WITH RELIEF VALVES)**

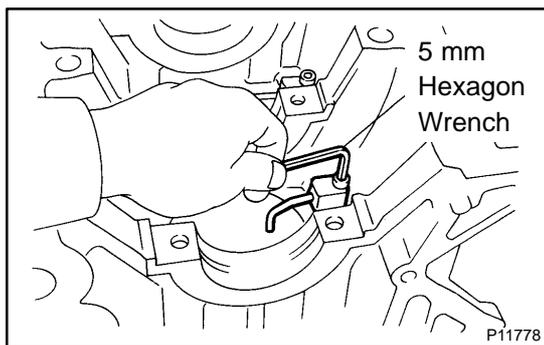
Using a 5 mm hexagon wrench, remove the bolt and oil nozzle.
Remove the 6 oil nozzles.



INSPECTION

INSPECT RELIEF VALVES (OIL NOZZLES)

Push the valve with a wooden stick to check if it is stuck.
If stuck, replace the relief valve.



INSTALLATION

1. INSTALL OIL NOZZLES (WITH RELIEF VALVES)

Using a 5 mm hexagon wrench, install the oil nozzle with the bolt. Install the 6 oil nozzles.

Torque: 9.0 N·m (90 kgf·cm, 80 in.-lbf)

2. INSTALL CRANKSHAFT

(See page EM-87)