

## INSTALLATION

### 1. INSTALL OIL PUMP

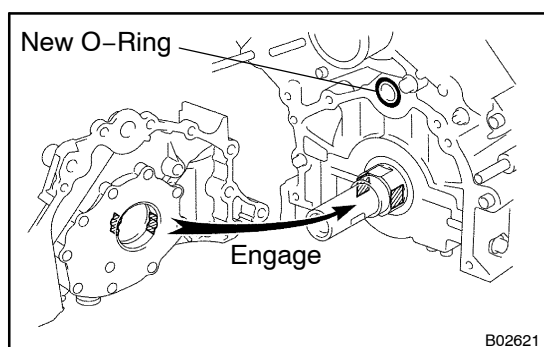
- (a) Remove any old packing (FIPG) material and be careful not to drop any oil on the contact surfaces of the oil pump and cylinder block.
  - Using a razor blade and gasket scraper, remove all the old packing (FIPG) material from the gasket surfaces and sealing groove.
  - Thoroughly clean all components to remove all the loose material.
  - 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**

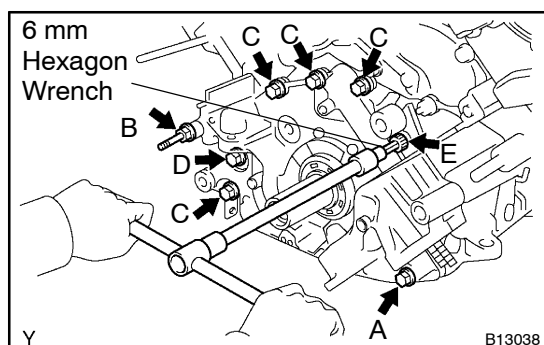
#### NOTICE:

**Avoid applying an excessive amount to the surface. Be particularly careful near oil passage.**

- Install a nozzle that has been cut to a 2 – 3 mm (0.08 – 0.12 in.) opening.
- 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 a new O-ring to the cylinder block.
- (d) Engage the spline teeth of the oil pump drive gear with the large teeth of the crankshaft, and slide the oil pump on the crankshaft.



- (e) Install the oil pump with the 8 bolts. Uniformly tighten the bolts in several passes.

#### Torque:

**15.5 N·m (160 kgf·cm, 11 ft·lbf) for 12 mm head and stud bolt (B)**

**30.5 N·m (310 kgf·cm, 22 ft·lbf)**

**for 14 mm head and 6 mm hexagon head**

#### NOTICE:

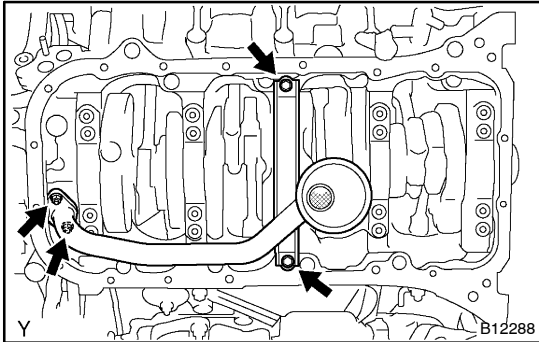
**Do not reuse the stud bolt (B).**

**HINT:**

- Use a 6 mm hexagon wrench for the hexagon head bolt.
- Each bolt length is indicated in the illustration.

**Bolt length:**

50 mm (1.97 in.) for A of 12 mm head  
 106 mm (4.17 in.) for B of 12 mm head  
 30 mm (1.18 in.) for C of 12 mm head  
 44 mm (1.73 in.) for D of 14 mm head  
 28 mm (1.10 in.) for E of 6 mm hexagon head

**2. INSTALL OIL STRAINER**

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

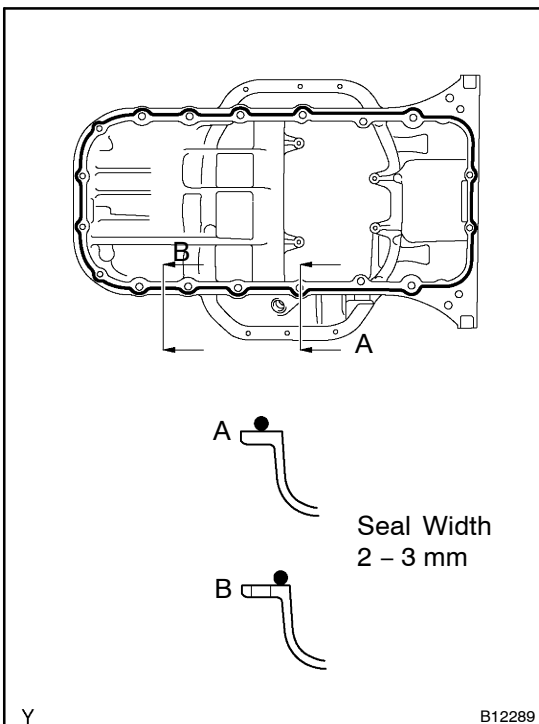
**Torque: 7.5 N·m (80 kgf·cm, 66 in.·lbf)**

**HINT:**

Use bolt 12 mm (0.47 in.) in length.

**3. INSTALL NO.1 OIL PAN**

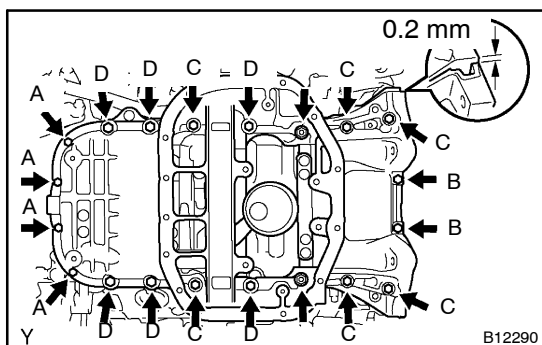
- (a) Remove any old packing (FIPG) material and be careful not to drop any oil on the contact surfaces of the No.1 oil pan, cylinder block, oil pump and rear oil seal retainer.
- Using a razor blade and gasket scraper, remove all the old packing (FIPG) material from the gasket surfaces and sealing groove.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



- (b) Apply seal packing to the No.1 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 – 5 mm (0.12 – 0.20 in.) opening.
- 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) Temporarily install the No.1 oil pan with the 18 bolts and 2 nuts.

**HINT:**

Each bolt length is indicated in the illustration.

Bolt length:

A: 20 mm (0.79 in.) of 10 mm head

B: 35 mm (1.38 in.) of 10 mm head

C: 60 mm (2.36 in.) of 12 mm head

D: 25 mm (0.98 in.) of 12 mm head

- (d) Set the No.1 oil pan as shown in the illustration.

**NOTICE:**

**Make sure the clearance between the rear ends of the No.1 oil pan and cylinder block is 0.2 mm (0.008 in.) or less. If the clearance is more than 0.2 mm (0.008 in.), the No.1 oil pan will be stretched.**

- (e) Uniformly tighten the bolts, stud bolts and nuts in several passes.

**Torque:**

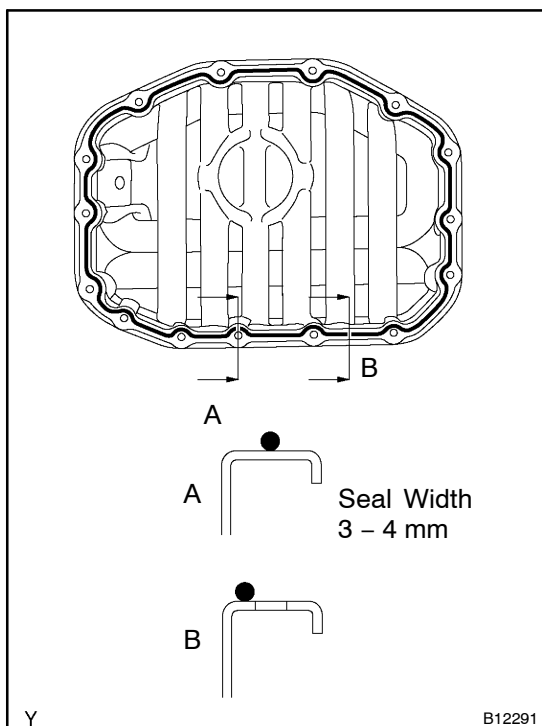
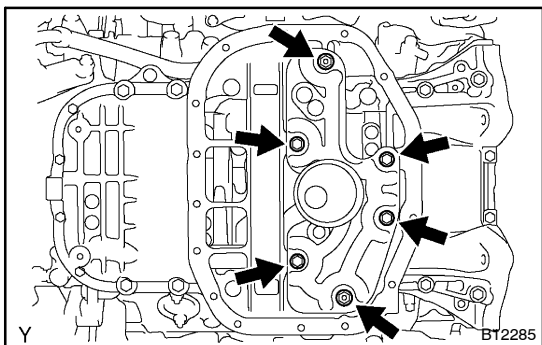
**7.5 N·m (80 kgf·cm, 66 in.·lbf) for 10 mm head**

**28 N·m (290 kgf·cm, 21 ft·lbf) for 12 mm head**

**4. INSTALL OIL PAN BAFFLE PLATE**

Install the baffle plate with the 4 bolts and 2 nuts.

**Torque: 7.5 N·m (80 kgf·cm, 66 in.·lbf)**



**5. 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 loose material.
- 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 - 5 mm (0.12 - 0.20 in.) opening.

- 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 13 bolts and 2 nuts. Uniformly tighten the bolts and nuts in several passes.

**Torque: 7.5 N·m (80 kgf·cm, 66 in.·lbf)**

HINT:

Use bolts 14 mm (0.55 in.) in length.

## 6. INSTALL OIL LEVEL SENSOR

(a) Install a new gasket to the level sensor as shown in the illustration.

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

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

HINT:

Use bolts 16 mm (0.63 in.) in length.

## 7. INSTALL CRANKSHAFT POSITION SENSOR

(a) Install the position sensor with the bolt.

**Torque: 6.5 N·m (65 kgf·cm, 58 in.·lbf)**

HINT:

Use bolt 17 mm (0.67 in.) in length.

(b) Connect the position sensor connector.

## 8. INSTALL FILTER BRACKET ASSEMBLY

(a) Install the a new gasket to the oil filter bracket.

(b) Install the oil filter and filter bracket assembly with the stud bolt and 2 nuts.

**Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)**

(c) Connect the oil pressure switch connector.

(d) Connect the 2 water bypass hoses to the oil cooler.

## 9. INSTALL OIL DIPSTICK GUIDE AND DIPSTICK

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

(b) Apply soapy water to the O-ring.

(c) Push in the dipstick guide end into the guide hole of the No.1 oil pan.

(d) Install the dipstick guide with the bolt.

(e) Install the dipstick.

## 10. INSTALL CRANKSHAFT TIMING PULLEY

(See page EM-26)

11. INSTALL NO.1 IDLER PULLEY (See page EM-26)

12. INSTALL NO.2 IDLER PULLEY (See page EM-26)

13. INSTALL TIMING BELT (See page EM-26)

14. DISCONNECT ENGINE FROM ENGINE STAND

15. ASSEMBLE ENGINE AND TRANSMISSION

(See page EM-89)

16. INSTALL ENGINE AND TRANSMISSION ASSEMBLY TO VEHICLE (See page EM-89)

