REPLACEMENT

1. REMOVE ENGINE AND TRANSMISSION ASSEMBLY FROM VEHICLE (See page 14–26)
2. SEPARATE ENGINE AND TRANSMISSION
3. INSTALL ENGINE STAND
4. REMOVE TIMING BELT (See page 14–71)
5. REMOVE TIMING BELT IDLER SUB–ASSY NO.1 (See page 14–42)
6. REMOVE TIMING BELT IDLER SUB–ASSY NO.2 (See page 14–42)
7. REMOVE CRANKSHAFT TIMING PULLEY (See page 14–42)

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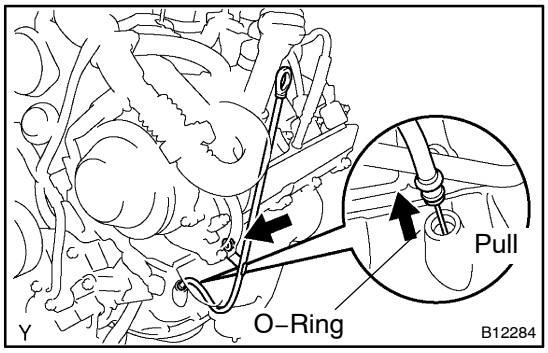
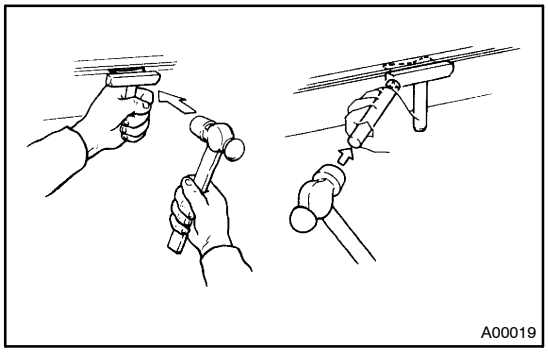


8. REMOVE OIL LEVEL GAGE GUIDE
(a) Remove the bolt holding the guide to the LH cylinder head.
(b) Pull out the guide together with the level gage from the oil pan.
(c) Remove the O–ring from the guide.

9. REMOVE ENGINE OIL LEVEL SENSOR
(a) Remove the 4 bolts and sensor.
(b) Remove the gasket from the sensor.

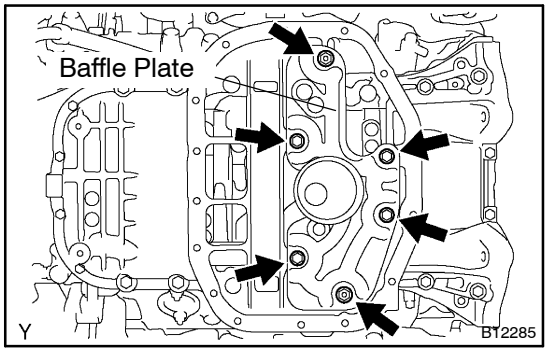
10. REMOVE OIL FILTER BRACKET SUB–ASSY
(a) Disconnect the 2 water by–pass hoses from the oil cooler.
(b) Disconnect the oil pressure switch connector.
(c) Remove the stud bolt, 2 nuts and filter bracket together with the oil filter and oil cooler assembly.
(d) Remove the gasket from the filter bracket.

11. REMOVE CRANKSHAFT POSITION SENSOR
(a) Disconnect the sensor connector.
(b) Remove the bolt and sensor.



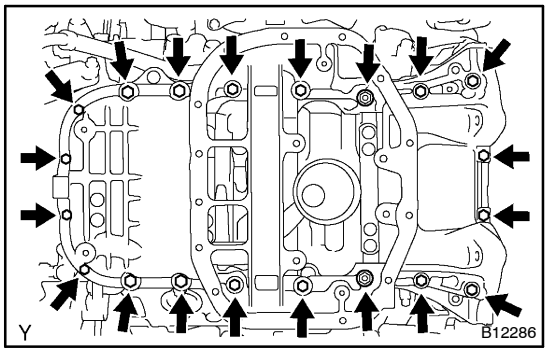
12. REMOVE OIL PAN SUB–ASSY NO.2
(a) Remove the 13 bolts and 2 nuts.
(b) Insert the blade of SST between the oil pan No. 1 and oil pan No. 2, cut through the sealer and remove the oil pan No. 2.
SST 09032–00100

NOTICE:
- **Do not damage the contact surface of the oil pan No. 1 and oil pan No. 2.**
- **Do not damage the flange portion of the oil pan No. 2 during removal.**



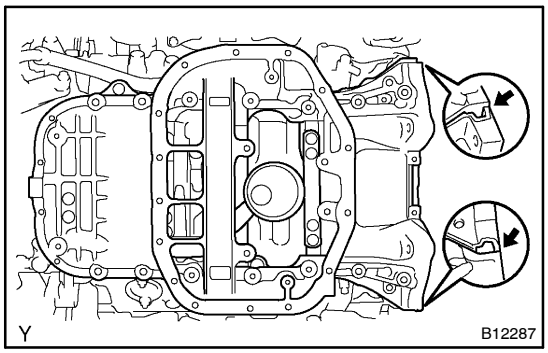
13. REMOVE OIL PAN BAFFLE PLATE

Remove the 4 bolts, 2 nuts and baffle plate.



14. REMOVE OIL PAN SUB–ASSY

(a) Remove the 18 bolts and 2 nuts.



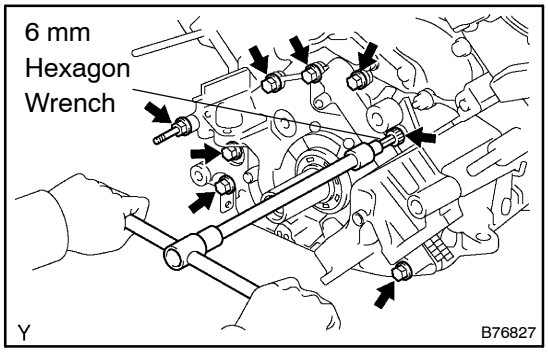
(b) Using a screwdriver, remove the oil pan by prying the portions between the cylinder block and oil pan.

NOTICE:

Be careful not to damage the contact surfaces of the cylinder block and oil pan.

15. REMOVE OIL STRAINER SUB–ASSY

(a) Remove the bolt, 2 nuts, oil strainer and gasket.

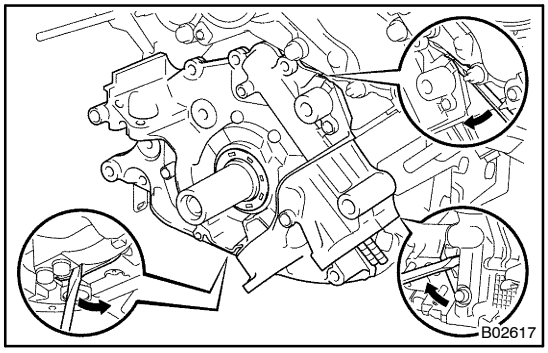


16. REMOVE OIL PUMP ASSY

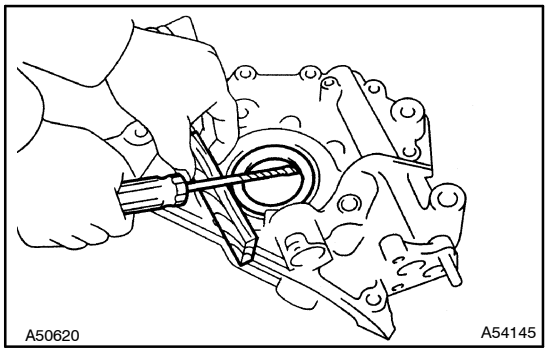
(a) Remove the 8 bolts.

HINT:

Use a 6 mm hexagon wrench for the hexagon head bolt.



(b) Using a screwdriver, remove the oil pump by prying the portions between the oil pump and cylinder block.
(c) Remove the O–ring from the cylinder block.



17. REMOVE OIL PUMP SEAL

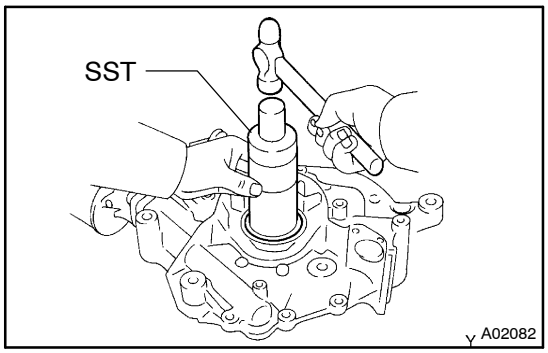
(a) Using a screwdriver, pry out the seal.

HINT:

Tape the screwdriver tip.

NOTICE:

To protect the oil pump body while prying out the seal, place a wooden block between the screwdriver and oil pump body.



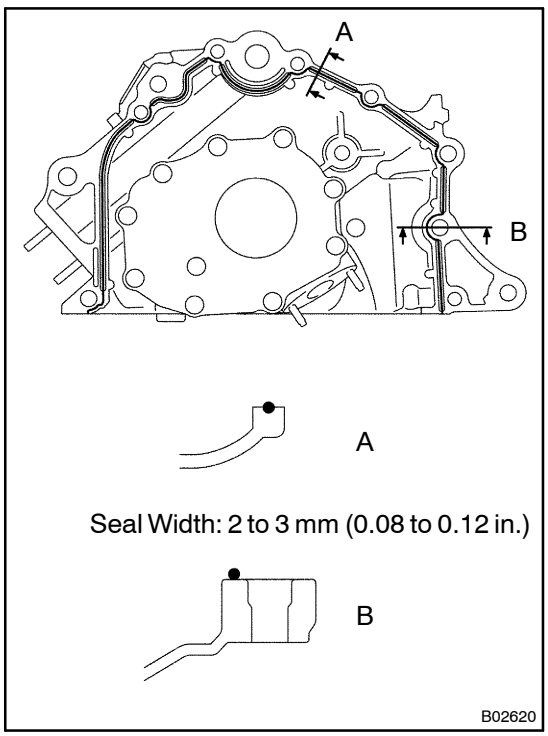
18. INSTALL OIL PUMP SEAL

(a) Using SST and a hammer, tap in a new oil seal until its surface is flush with the oil pump body edge.
SST 09316–60011 (09316–00011)

NOTICE:

Be careful not to tap the oil seal in at an angle.

(b) Apply a small amount of MP grease to the oil seal lip.

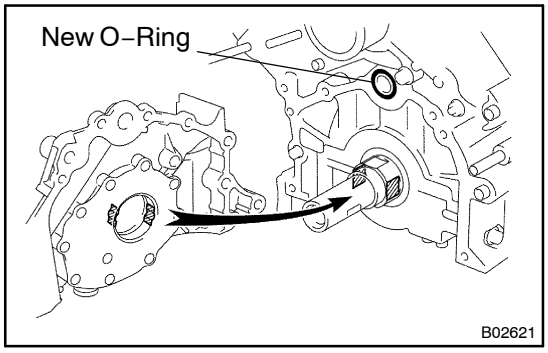


19. INSTALL OIL PUMP ASSY

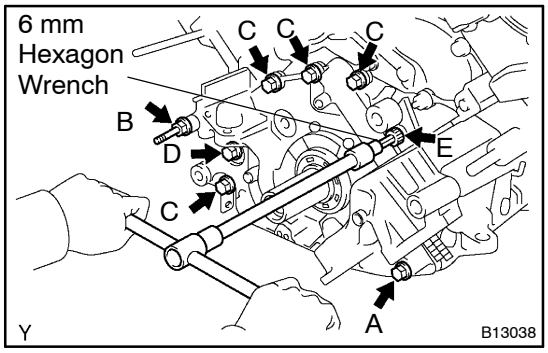
(a) Apply seal packing to the oil pump as shown in the illustration.
Seal packing: Part No. 08226–00080 or equivalent

NOTICE:

- **Remove any oil from the contact surface.**
- **Install the oil pump within 3 minutes after applying seal packing.**
- **Do not put into engine oil for at least 2 hours after installing.**



(b) Install a new O–ring to the cylinder block. 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.



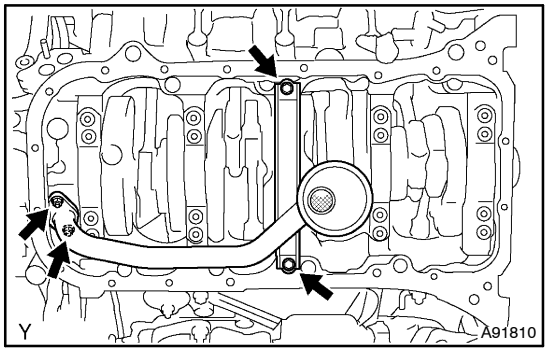
(c) Install the oil pump with the 8 bolts. Uniformly tighten the bolts in several passes.

Torque:
15.5 N·m (160 kgf·cm, 11 ft·lbf) for 12 mm head (A, C), stud bolt (B) and 6 mm hexagon head (E)
30.5 N·m (310 kgf·cm, 22 ft·lbf) for 14 mm head (D)

HINT:

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

NOTICE:
Do not reuse the stud bolt (B).

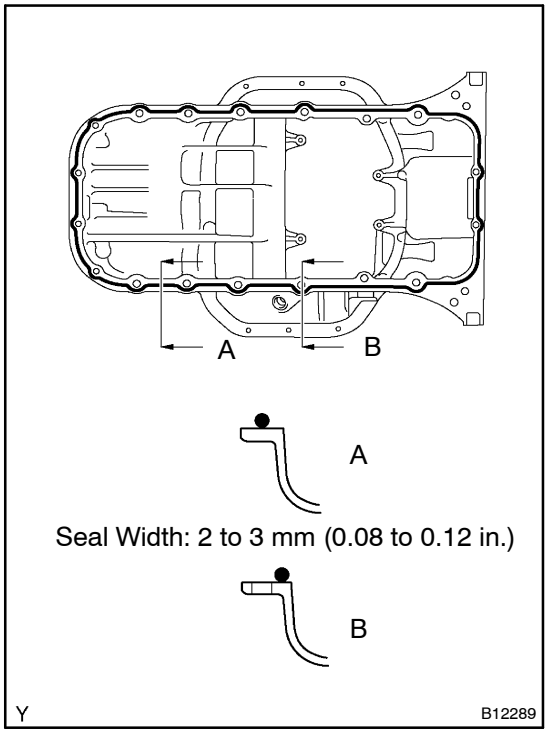


20. INSTALL OIL STRAINER SUB–ASSY

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

Torque: 7.5 N·m (76 kgf·cm, 66 in.·lbf)

HINT:
Use a bolt that is 12 mm (0.47 in.) in length.



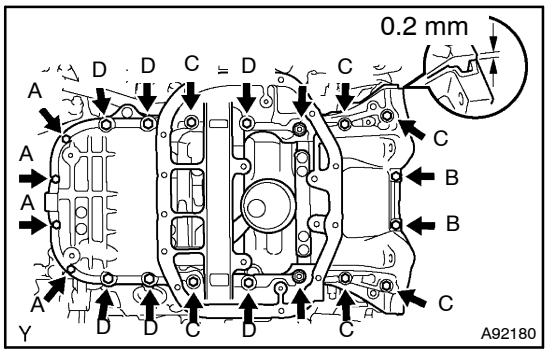
21. INSTALL OIL PAN SUB–ASSY

(a) Apply seal packing to the oil pan as shown in the illustration.

Seal packing: Part No. 08226–00080 or equivalent

NOTICE:

- **Install the oil pan within 3 minutes after applying seal packing.**
- **Do not put into engine oil for at least 2 hours after installing.**
- **Remove any oil from the contact surface.**



(b) Temporarily install the 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

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

NOTICE:

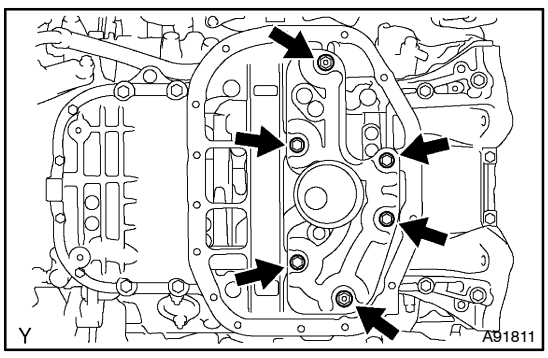
Make sure the clearance between the rear ends of the No. 1 oil pan and cylinder block is 0.2 mm (0.008 in.) or less. If the clearance is more than 0.2 mm (0.008 in.), the No. 1 oil pan will deform when tightening the bolts, stud bolts and nuts.

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

Torque:

7.5 N·m (76 kgf·cm, 66 in.·lbf) for 10 mm head

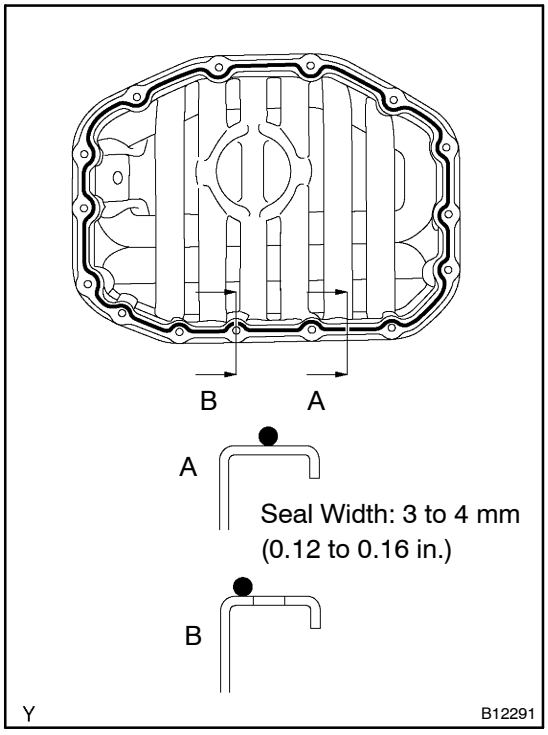
28 N·m (286 kgf·cm, 21 ft·lbf) for 12 mm head



22. INSTALL OIL PAN BAFFLE PLATE

(a) Install the baffle plate with the 4 bolts and 2 nuts

Torque: 7.5 N·m (76 kgf·cm, 66 in.·lbf)



23. INSTALL OIL PAN SUB–ASSY NO.2

(a) Apply seal packing to the oil pan as shown in the illustration.

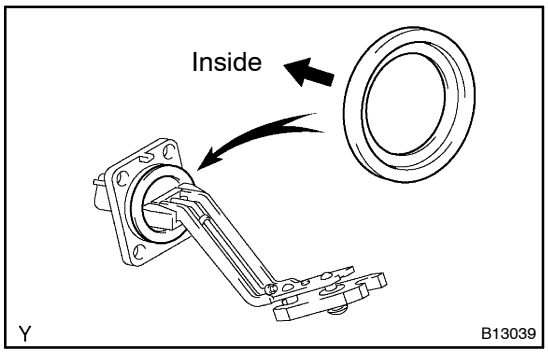
Seal packing: Part No. 08226–00080 or equivalent

NOTICE:

- **Remove any oil from the contact surface.**
- **Install the oil pan within 3 minutes after applying seal packing.**
- **Do not put into engine oil for at least 2 hours after installing.**

(b) Install oil pan with the 13 bolts and 2 nuts. Uniformly tighten the bolts and nuts in several passes.

Torque: 7.5 N·m (76 kgf·cm, 66 in.·lbf)



24. INSTALL ENGINE OIL LEVEL SENSOR

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

(b) Install the sensor with the 4 bolts.

Torque: 6.9 N·m (70 kgf·cm, 61 in.·lbf)

HINT:

Use a bolt that is 16 mm (0.63 in.) in length.

25. INSTALL CRANKSHAFT POSITION SENSOR

(a) Install the sensor with the bolt.

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

HINT:

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

(b) Connect the sensor connector.

26. INSTALL OIL FILTER BRACKET SUB–ASSY

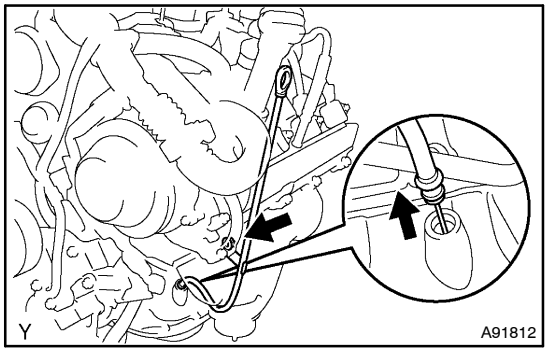
(a) Install a new gasket to the filter bracket.

(b) Install the filter bracket, oil filter and oil cooler 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 by–pass hoses to the oil cooler.



27. INSTALL OIL LEVEL GAGE GUIDE

(a) Install a new O–ring to the gage guide.

(b) Apply soapy water to the O–ring.

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

(d) Install the gage guide with the bolt.

Torque: 15 N·m (153 kgf·cm, 133 in.·lbf)

(e) Install the gage.

28. INSTALL CRANKSHAFT TIMING PULLEY (See page 14–42)

29. INSTALL TIMING BELT IDLER SUB–ASSY NO.1 (See page 14–42)

30. INSTALL TIMING BELT IDLER SUB–ASSY NO.2 (See page 14–42)

31. INSTALL TIMING BELT (See page 14–71)

32. REMOVE ENGINE STAND

33. ASSEMBLE ENGINE AND TRANSMISSION (See page 14–26)

34. INSTALL ENGINE AND TRANSMISSION ASSEMBLY TO VEHICLE (See page 14–26)