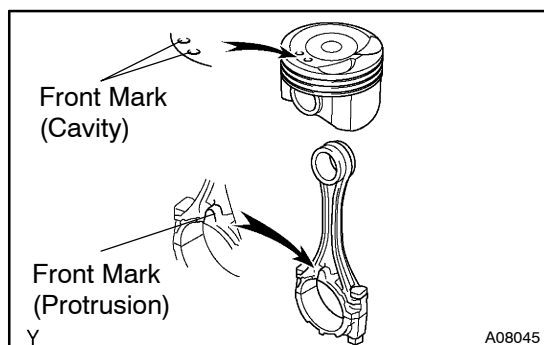


REASSEMBLY

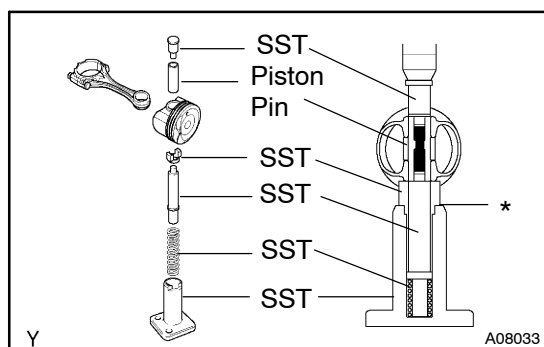
HINT:

- Thoroughly clean all parts to be assembled.
- Before installing the parts, apply fresh engine oil to all sliding and rotating surfaces.
- Replace all gaskets, O-rings and oil seals with new parts.

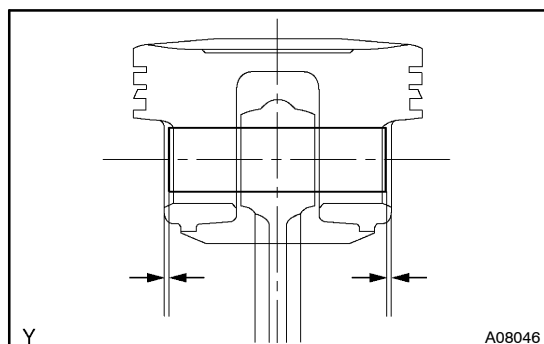


1. ASSEMBLE PISTON AND CONNECTING ROD

- Coat the piston pin and piston hole of the piston with engine oil.
- Align the front marks of the piston and connecting rod.



- Using SST, press in the piston.
SST 09221-25026 (09921-00021, 09221-00030, 09221-00061, 09221-00170, 09221-00210)



- After installing the piston pin, check that when the connecting rod is aligned with the center of the piston the space between the piston and each end of the piston pin is equal on the left and right sides.

HINT:

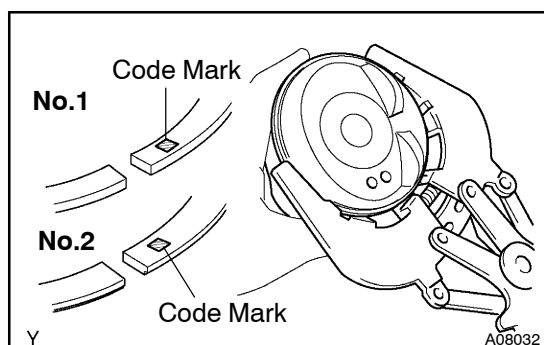
If the piston pin is off-center due to insufficient insertion pressure on piston pin, place a washer at the position indicated by * in the illustration for (c). Then while checking that the space is equal at the ends of the piston pin on the left and right sides, press in the washer.

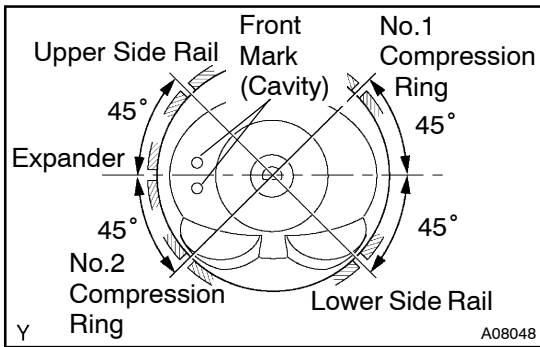
2. INSTALL PISTON RINGS

- Install the oil ring expander and 2 side rails by hand.
- Using a piston ring expander, install the No.2 and No.1 piston rings with the code mark facing upward.

Code mark:

No.1	1R
No.2	2R

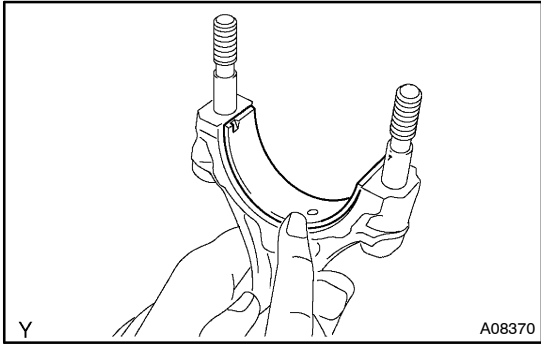




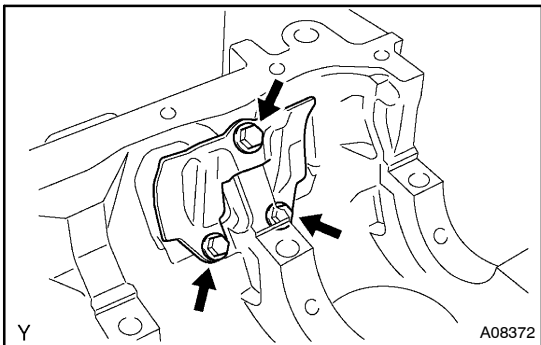
- (c) Position the piston rings so that the ring ends are as shown.

NOTICE:

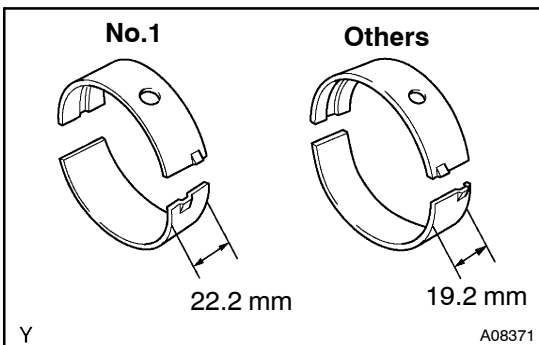
Do not align the ring ends.

**3. INSTALL CONNECTING ROD BEARINGS**

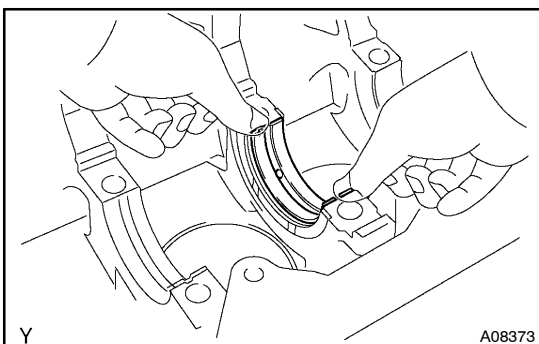
- (a) Align the bearing claw with the groove of the connecting rod or connecting cap.
 (b) Install the bearings in the connecting rod and connecting rod cap.

**4. INSTALL OIL SEPARATOR**

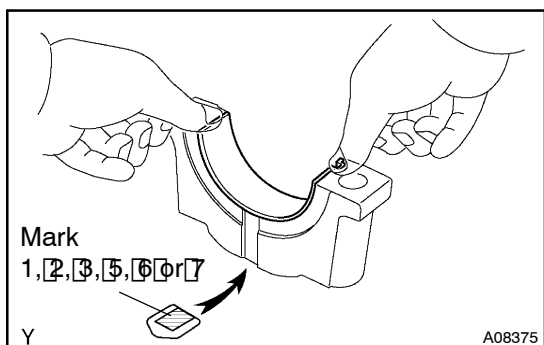
Install the oil separator with the 3 bolts.

**5. INSTALL MAIN BEARINGS****HINT:**

- Main bearings come in widths of 19.2 mm (0.756 in.) and 22.2 mm (0.874 in.). Install the 22.2 mm (0.874 in.) bearings in the No.1 cylinder block journal position with the main bearing cap. Install the 19.2 mm (0.756 in.) bearings in the other positions.
- Upper bearings have an oil groove and oil holes; lower bearings do not.



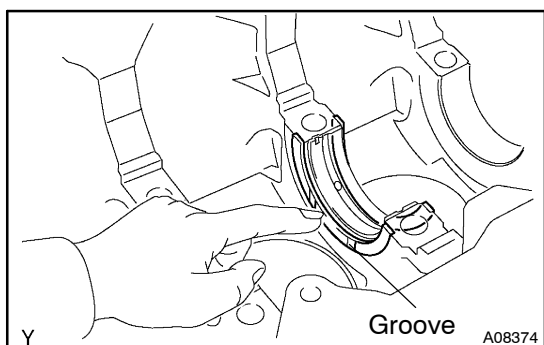
- (a) Align the bearing claw with the claw groove of the cylinder block, and push in the 7 upper bearings.



(b) Align the bearing claw with the claw groove of the main bearing cap, and push in the 7 lower bearings.

HINT:

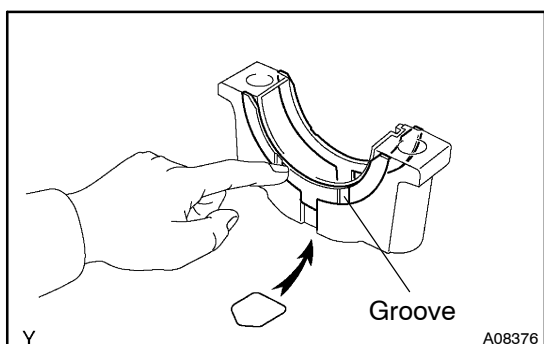
A number is marked on each main bearing cap to indicate the installation position.



6. INSTALL UPPER THRUST WASHERS

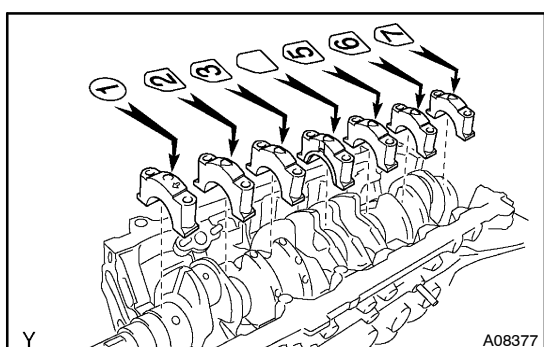
Install the 2 thrust washers under the No. 4 journal position of the cylinder block with the oil grooves facing outward.

7. PLACE CRANKSHAFT ON CYLINDER BLOCK



8. INSTALL MAIN BEARING CAPS AND LOWER THRUST WASHERS

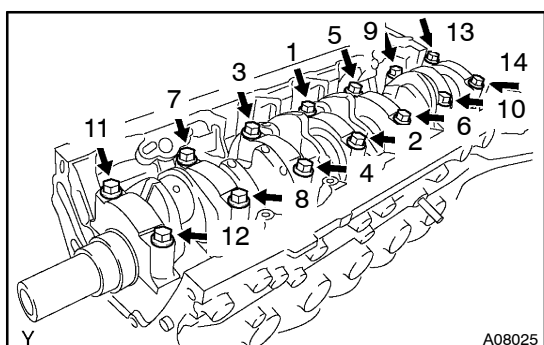
(a) Install the 2 thrust washers on the No. 4 bearing cap with the oil grooves facing outward.



(b) Install the 7 main bearing caps in their proper locations.

HINT:

Each bearing cap has a number and a front mark.



(c) Apply a light coat of engine oil on the threads and under the heads of the main bearing cap bolts.

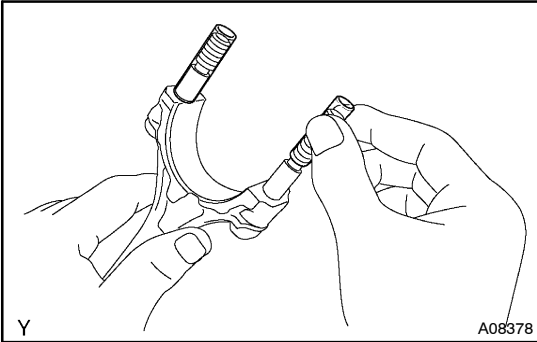
(d) Install and uniformly tighten the 4 bolts of the main bearing cap, in several passes, in the sequence shown.

Torque: 60 N·m (600 kgf·cm, 43 ft·lbf)

(e) Check that the crankshaft turns smoothly.

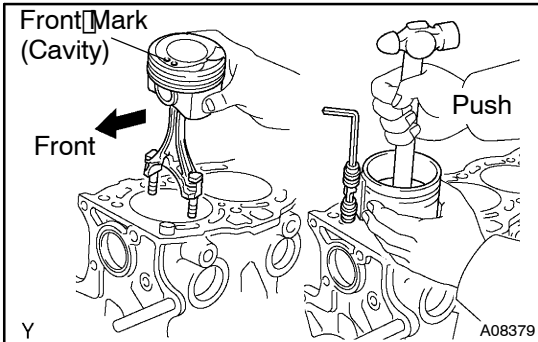
9. CHECK CRANKSHAFT THRUST CLEARANCE

(See page EM-82)

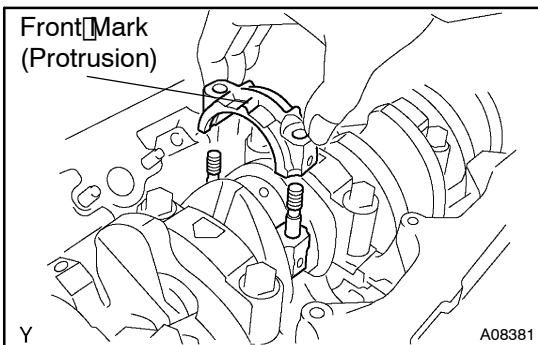


10. INSTALL PISTON AND CONNECTING ROD ASSEMBLES

- (a) Cover the connecting rod bolts with a short piece of hose to protect the crankshaft from damage.

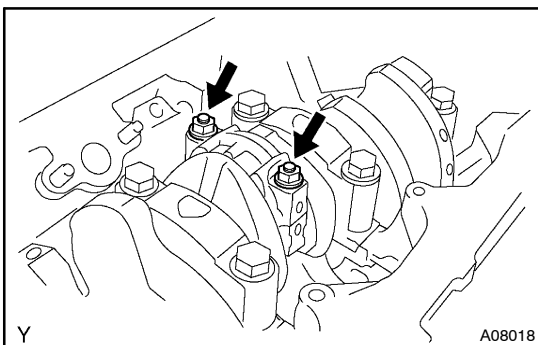


- (b) Using a piston ring compressor, push the correct numbered piston and connecting rod assemblies into each cylinder with the front mark of the piston facing forward.



11. INSTALL CONNECTING ROD CAP

- (a) Match the numbered connecting rod cap with the connecting rod.
(b) Install the connecting rod cap with the front mark facing forward.



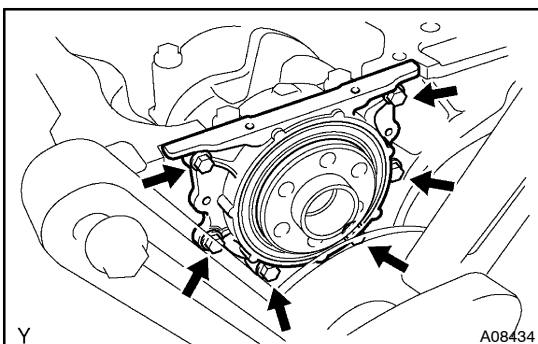
- (c) Apply a light coat of engine oil on the threads and under the nuts of the connecting rod cap.
(d) Install and alternately tighten the 2 cap nuts in several passes.

Torque: 50 N·m (500 kgf·cm, 36 ft·lbf)

- (e) Check that the crankshaft turns smoothly.

12. CHECK CONNECTING ROD THRUST CLEARANCE

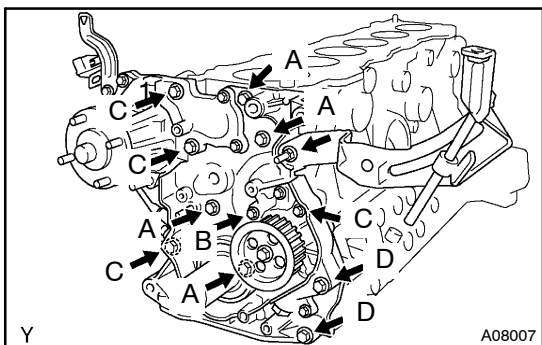
(See page EM-82)



13. INSTALL REAR OIL SEAL RETAINER

Install a new gasket and the retainer with the 6 bolts.

Torque: 8.5 N·m (85 kgf·cm, 74 in·lbf)

**14. INSTALL TIMING BELT CASE**

Install a new gasket, the timing belt case and alternator adjusting bar with the 11 bolts and nut.

Torque:

18.5 N·m (185 kgf·cm, 13 ft·lbf) for 12 mm head

37.5 N·m (375 kgf·cm, 27 ft·lbf) for 14 mm head

HINT:

Each bolt length is indicated in the illustration.

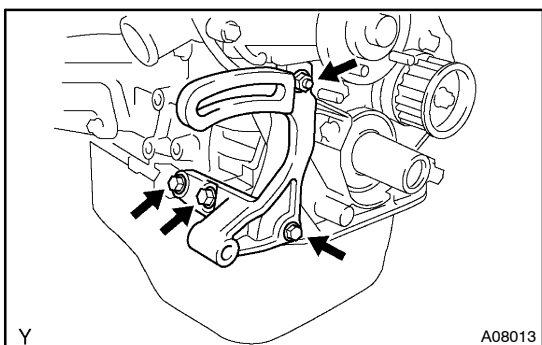
Bolt length:

30 mm (1.18 in.) for A

35 mm (1.38 in.) for B

40 mm (1.57 in.) for C

50 mm (1.97 in.) for D

**15. INSTALL PS VANE PUMP BRACKET**

Install the pump bracket with the 3 bolts and nut.

Torque:

19.1 N·m (195 kgf·cm, 14 ft·lbf) for 12 mm head

39.2 N·m (400 kgf·cm, 29 ft·lbf) for 14 mm head

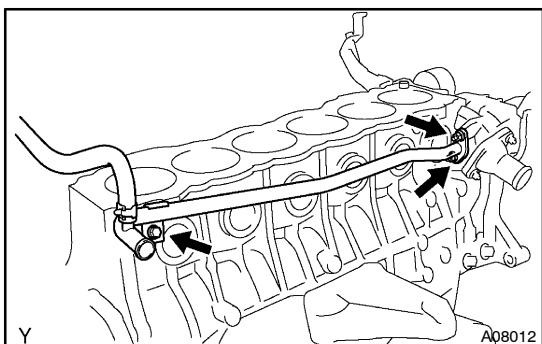
16. INSTALL OIL STRAINER AND OIL PAN

(See page LU-14)

17. INSTALL RH ENGINE MOUNTING BRACKET AND INSULATOR ASSEMBLY

Install the mounting bracket with the 3 bolts and nut.

Torque: 35 N·m (350 kgf·cm, 25 ft·lbf)

**18. INSTALL NO.2 HEATER WATER OUTLET PIPE**

Install a new gasket and the No.2 heater water outlet pipe with the bolt and 2 nuts.

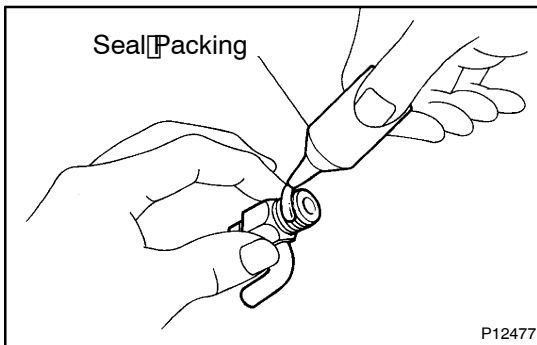
Torque: 9.5 N·m (95 kgf·cm, 82 in·lbf)

19. INSTALL OIL DIPSTICK GUIDE SUPPORT**20. INSTALL LH ENGINE MOUNTING BRACKET AND INSULATOR ASSEMBLY**

Install the mounting bracket with the 3 bolts.

Torque: 35 N·m (350 kgf·cm, 25 ft·lbf)

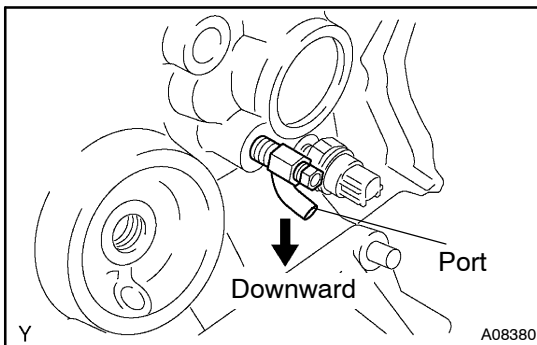
21. INSTALL OIL PRESSURE SWITCH (See page LU-1)



22. INSTALL ENGINE COOLANT DRAIN UNION

- (a) Apply seal packing to 2 or 3 threads.

Seal packing: Part No. 08826-00100 or equivalent



- (b) Install the drain union.

Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

HINT:

After applying the specified torque, rotate the drain union clockwise until its drain port is facing downward.

23. A/T:

INSTALL OIL FILTER UNION

Torque: 30 N·m (300 kgf·cm, 22 ft·lbf)

24. M/T:

INSTALL OIL COOLER (See page LU-19)

25. INSTALL OIL FILTER (See page LU-3)

26. INSTALL KNOCK SENSORS (See page FI-63)

27. INSTALL OIL DIPSTICK GUIDE SUPPORT

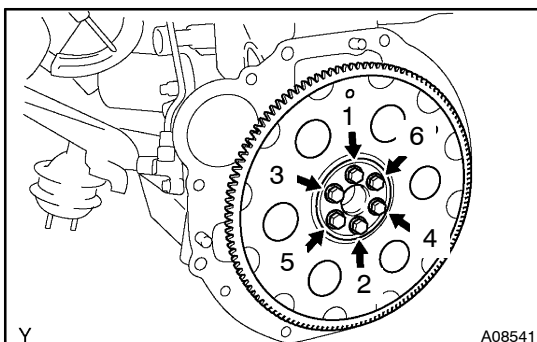
28. INSTALL CYLINDER HEAD (See page EM-59)

29. INSTALL TIMING BELT AND PULLEYS

(See page EM-26)

30. DISCONNECT ENGINE FROM ENGINE STAND

31. INSTALL REAR END PLATE



32. INSTALL DRIVE PLATE OR FLYWHEEL

- (a) A/T:

Install the front spacer, drive plate and rear plate on the crankshaft.

- (b) M/T:

Install the flywheel on the crankshaft.

- (c) Install and uniformly tighten the 6 bolts in several passes, in the sequence shown.

Torque: 75 N·m (750 kgf·cm, 54 ft·lbf)