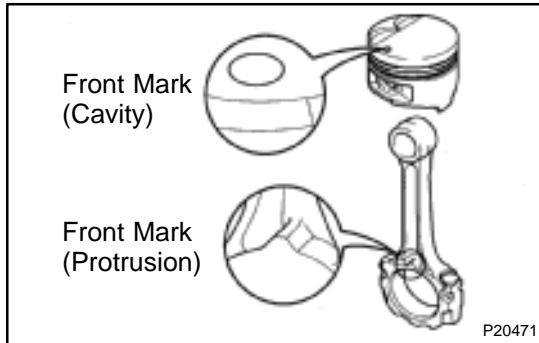


REASSEMBLY

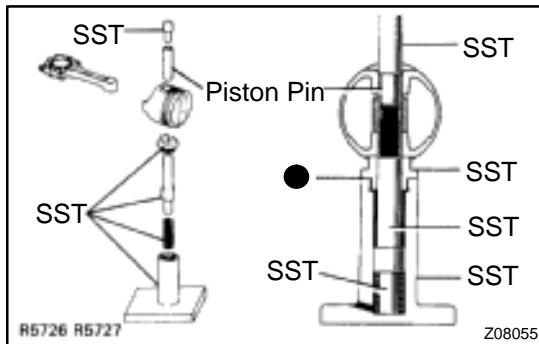
HINT:

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

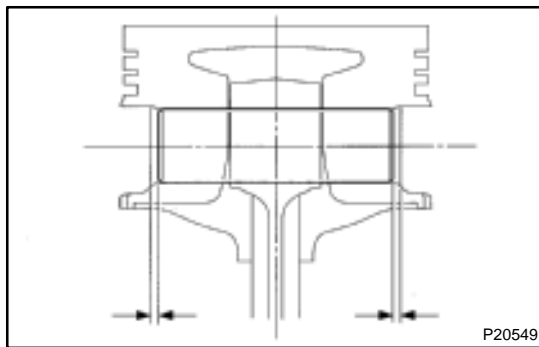


1. ASSEMBLE PISTON AND CONNECTING ROD

- Coat the piston pin and pin holes of the piston with engine oil.
- Align the cavity on the piston with the protrusion on the connecting rod.



- Using SST, press in the piston pin.
SST 09221-25026 (09221-00020, 09221-00030, 09221-00130, 09221-00140, 09221-00150)



- 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 are equal on the left and right sides.

HINT:

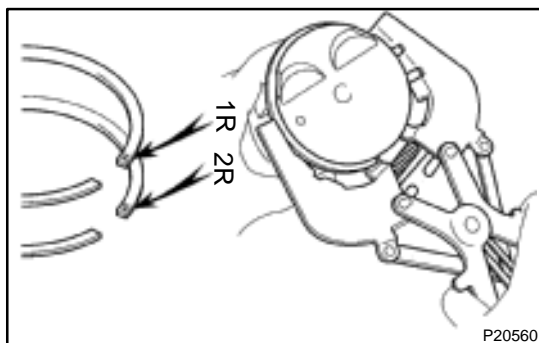
If the piston pin is off-center due to insufficient insertion pressure on the piston pin, place a washer at the position indicated by ● in the illustration for (c). Then, while checking that the space is equal at the ends of the piston pin on the left and right sides, press in the washer.

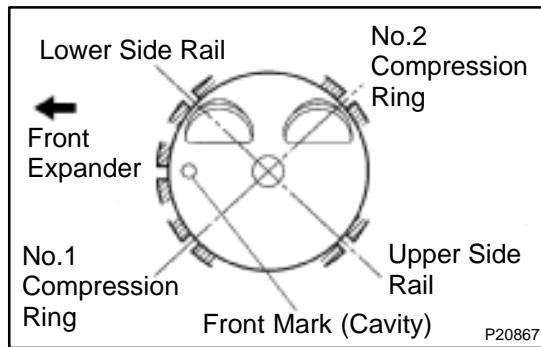
2. INSTALL PISTON RINGS

- Install the oil ring expander and 2 side rails by hand.
- Using a piston ring expander, install the 2 compression rings with the code mark facing upward.

Code Mark:

No.1	1R
No.2	2R

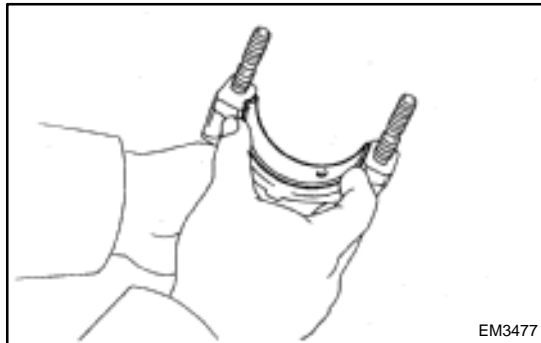




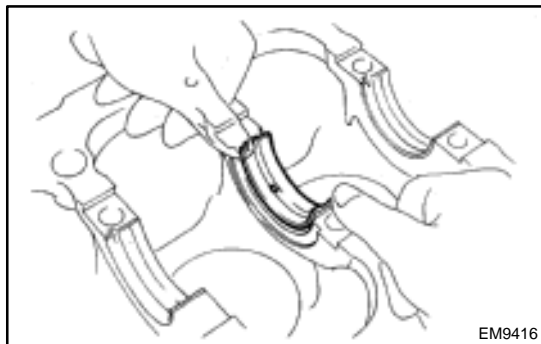
- (c) Position the piston rings so that the ring ends are as shown.

NOTICE:

Do not align the end gaps.

**3. INSTALL BEARINGS**

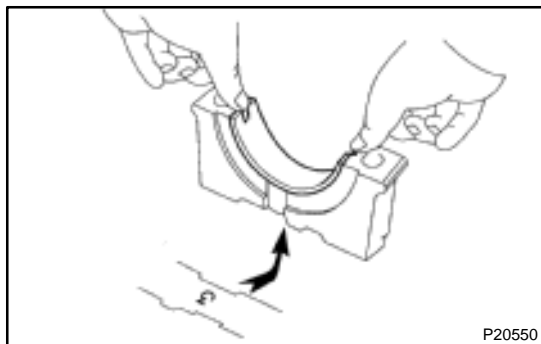
- (a) Align the bearing claw with the groove of the connecting rod or connecting cap.
- (b) Install the bearings in the connecting rod and connecting rod cap.

**4. INSTALL MAIN BEARINGS**

- (a) Align the bearing claw with the claw groove of the cylinder block, and push in the 5 upper bearings.

NOTICE:

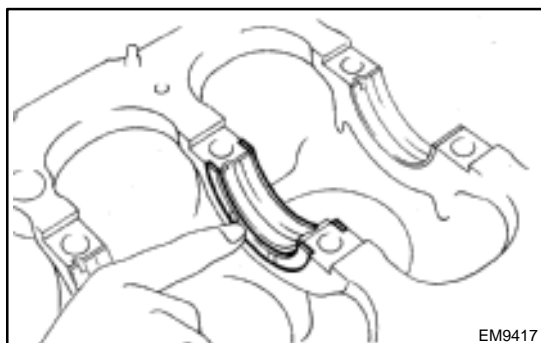
Install the bearing with the oil hole in the cylinder block.



- (b) Align the bearing claw with the claw groove of the main bearing cap, and push in the 5 lower bearings.

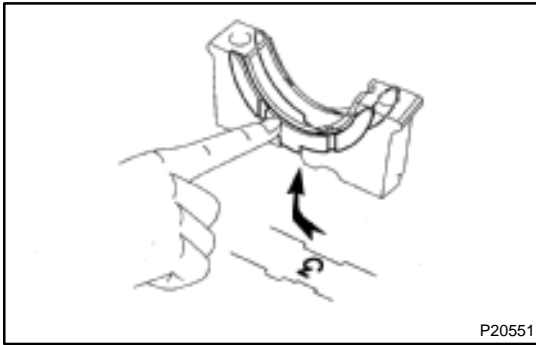
HINT:

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

**5. INSTALL UPPER THRUST WASHERS**

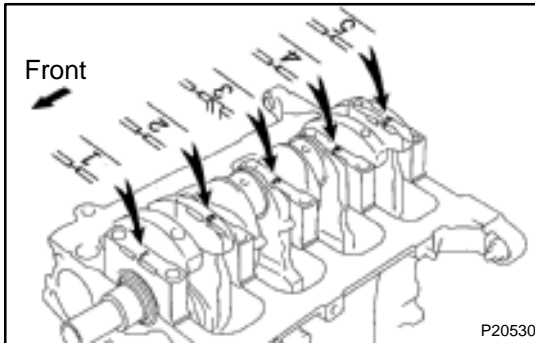
Install the 2 thrust washers under the No.3 journal position with the oil grooves facing outward.

6. PLACE CRANKSHAFT ON CYLINDER BLOCK



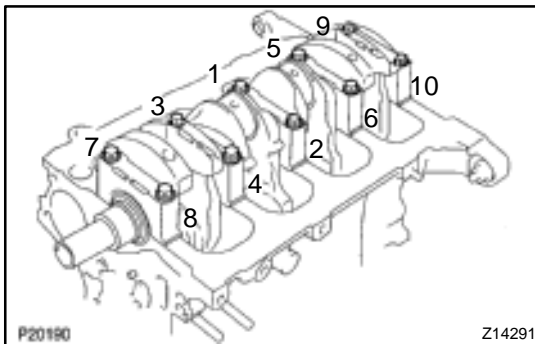
7. INSTALL MAIN BEARING CAPS AND LOWER THRUST WASHERS

- (a) Install the 2 thrust washers on the No.3 bearing cap with the oil grooves facing outward.



- (b) Install the 5 main bearing caps in their proper locations.
HINT:

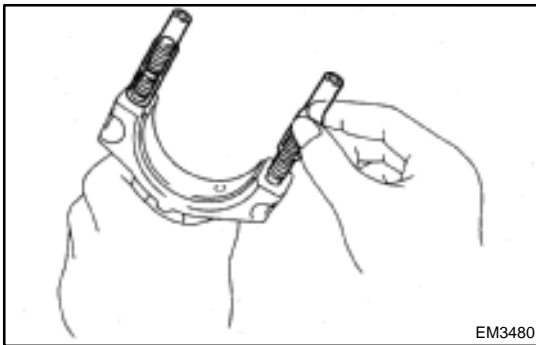
Each bearing cap has a number and front mark.



- (c) Apply a light coat of engine oil on the threads and under the heads of the main bearing caps.
(d) Install and uniformly tighten the 10 bolts of the main bearing caps, in several passes, in the sequence shown.

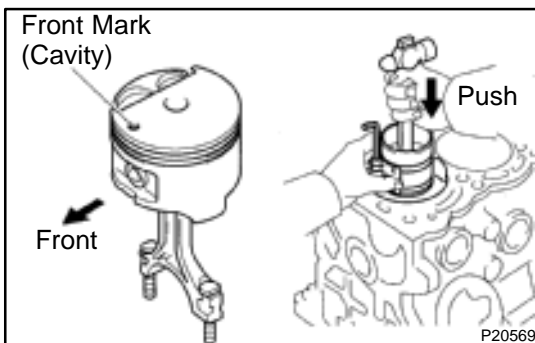
Torque: 58 N·m (580 kgf-cm, 42 ft·lbf)

- (e) Check that the crankshaft turns smoothly.
(f) Check the crankshaft thrust clearance (See page [EM-68](#)).

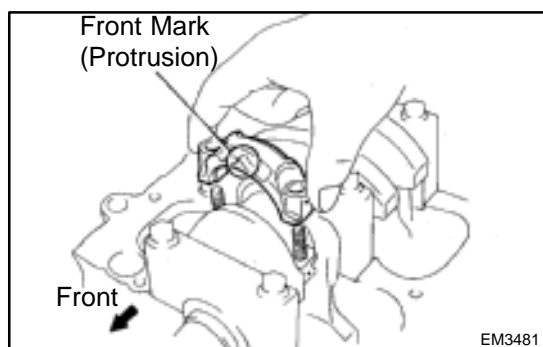


8. INSTALL PISTON AND CONNECTING ROD ASSEMBLIES

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

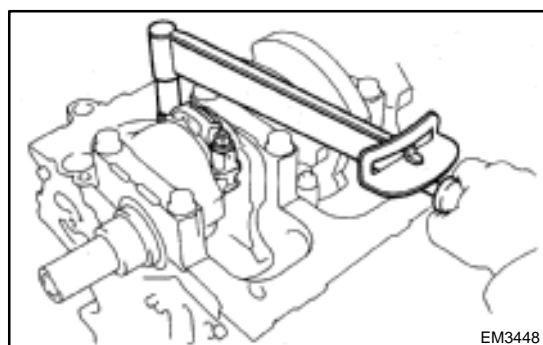


- (b) Using a piston ring compressor, push the correctly numbered piston and connecting rod assemblies into each cylinder with the front mark of the piston facing forward.



9. INSTALL CONNECTING ROD CAPS

- Match the numbered connecting rod cap with the numbered connecting rod.
- Install the connecting rod cap with the front mark facing forward.



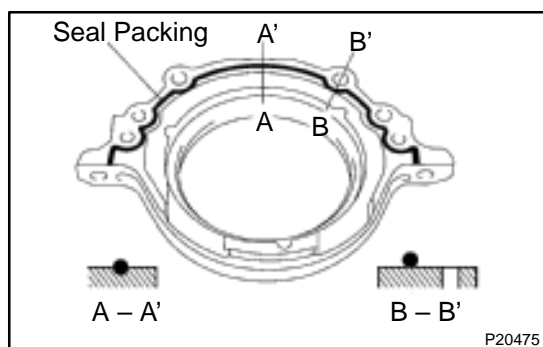
- Apply a light coat of engine oil on the threads and under the nuts of the connecting rod cap.
- Install and alternately tighten the nuts of the connecting rod cap in several passes.

Torque: 40 N·m (400 kgf-cm, 29 ft-lbf)

- Check that the crankshaft turns smoothly.
- Check the connecting rod thrust clearance (See page [EM-68](#)).

10. INSTALL REAR OIL SEAL RETAINER

- Remove any old packing (FIPG) material and be careful not to drop any oil on the contact surfaces of the rear oil seal retainer 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.

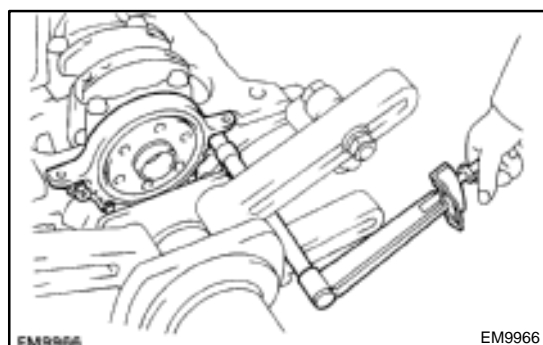


- Apply seal packing to the rear oil seal retainer as shown in the illustration.

Seal packing:

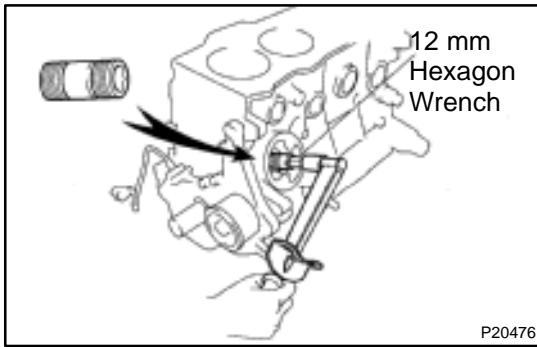
Part No. 08826-00080 or equivalent

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



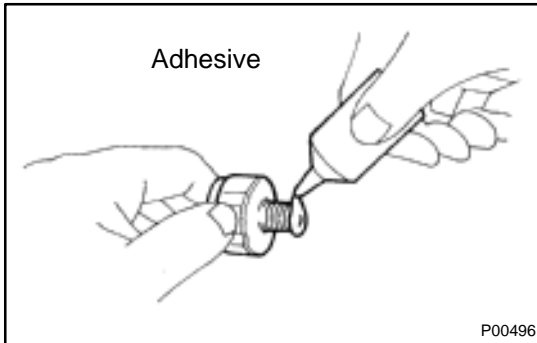
- Install the oil seal retainer with the 4 bolts.

Torque: 7.5 N·m (75 kgf-cm, 65 in.-lbf)

**11. INSTALL OIL FILTER UNION**

Using a 12 mm hexagon wrench, install the oil filter union.

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

12. INSTALL OIL PUMP AND PRESSURE REGULATOR VALVE**13. INSTALL OIL PRESSURE SWITCH**

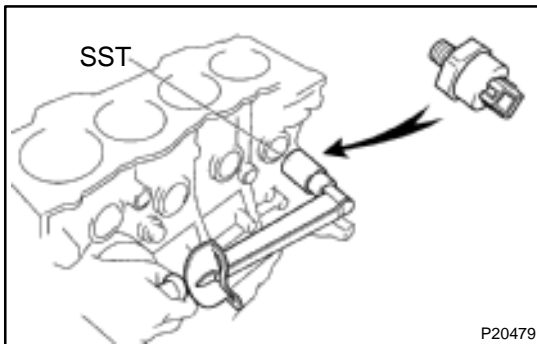
(a) Clean the switch threads and cylinder block switch holes of any sealer, oil or foreign materials.

Remove any oil with kerosene or gasoline.

(b) Apply adhesive to 2 or 3 threads of the switch end.

Adhesive:

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



(c) Using SST, install the oil pressure switch.

SST 09816-30010

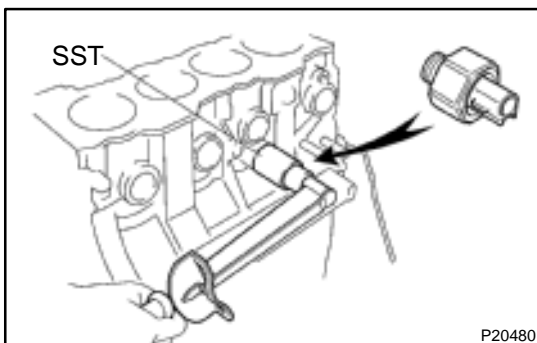
Torque: 13 N·m (130 kgf-cm, 9 ft-lbf)

14. INSTALL OIL FILTER

(See page [LU-1](#))

**15. INSTALL RH ENGINE MOUNTING BRACKET**

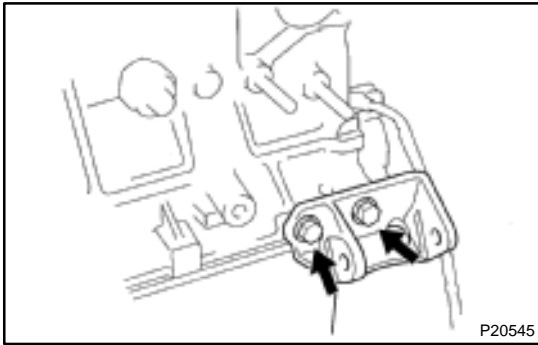
Torque: 58 N·m (590 kgf-cm, 43 ft-lbf)

**16. INSTALL KNOCK SENSOR**

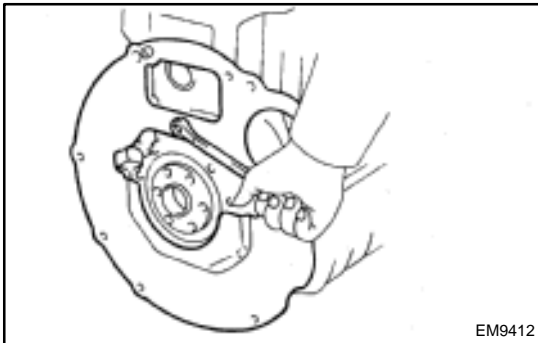
Using SST, install the knock sensor.

SST 09816-30010

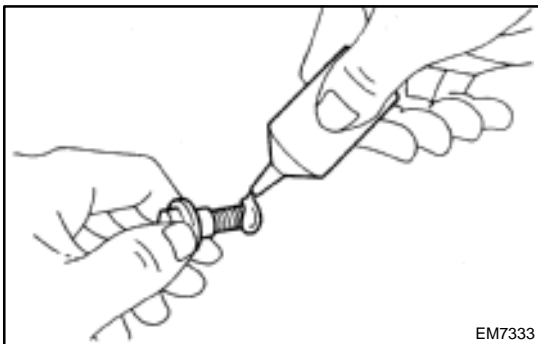
Torque: 45 N·m (450 kgf-cm, 33 ft-lbf)



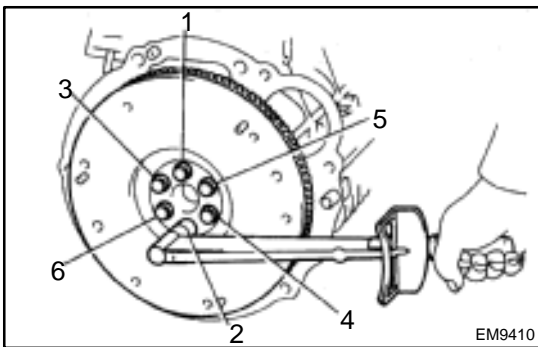
17. **INSTALL GENERATOR BRACKET**
Torque: 24 N·m (240 kgf-cm, 18 ft-lbf)
18. **INSTALL WATER PUMP WITH WATER INLET PIPE**
19. **INSTALL OIL DIPSTICK GUIDE AND GENERATOR ADJUSTING BAR**
20. **INSTALL CYLINDER HEAD**
21. **INSTALL TIMING BELT AND PULLEYS**
22. **REMOVE ENGINE STAND**



23. **INSTALL REAR END PLATE**
Torque: 10 N·m (100 kgf-cm, 7 ft-lbf)



24. **M/T:**
INSTALL FLYWHEEL
 - (a) Apply adhesive to 2 or 3 threads of new mounting bolt end.
Adhesive:
Part No. 08833-00070, THREE BOND 1324 or equivalent



- (b) Install the flywheel on the crankshaft.
 - (c) Install and uniformly tighten the mounting bolts, in several passes, in the sequence shown.
Torque: 90 N·m (900 kgf-cm, 65 ft-lbf)
25. **A/T:**
INSTALL DRIVE PLATE (See step 24)
26. **M/T:**
INSTALL CLUTCH DISC AND COVER