

INSTALLATION

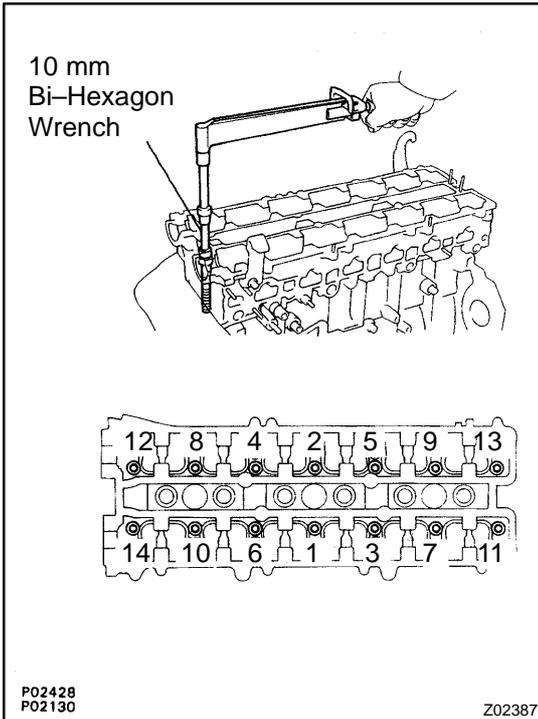
1. PLACE CYLINDER HEAD ON CYLINDER BLOCK

- Place a new cylinder head gasket in position on the cylinder block.

NOTICE:

Be sure to install it correctly.

- Place the cylinder head in position on the cylinder head gasket.



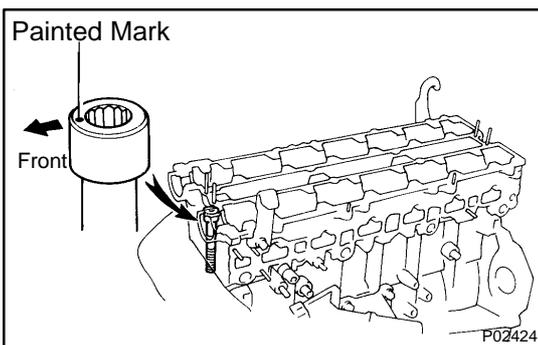
2. INSTALL CYLINDER HEAD BOLTS

HINT:

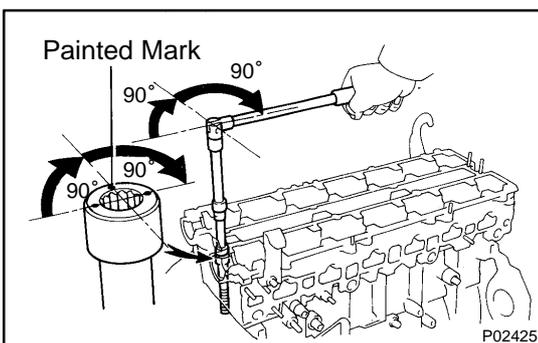
- The cylinder head bolts are tightened in 2 progressive steps (steps (c) and (f)).
 - If any of bolts break or deform, replace them.
- Apply a light coat of engine oil on the threads and under the heads of the cylinder head bolts.
 - Install the 14 plate washers to each cylinder head bolt.
 - Using a 10 mm bi-hexagon wrench, uniformly tighten the cylinder head bolts, in several passes, in the sequence shown.

Torque: 34 N·m (350 kgf·cm, 25 ft·lbf)

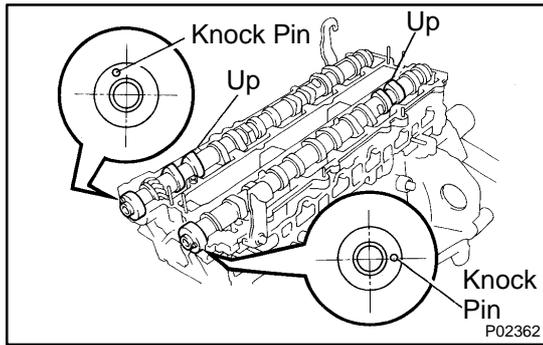
If any of the bolts do not meet the torque specification, replace the bolt.



- Mark the front of the cylinder head bolt head with paint.

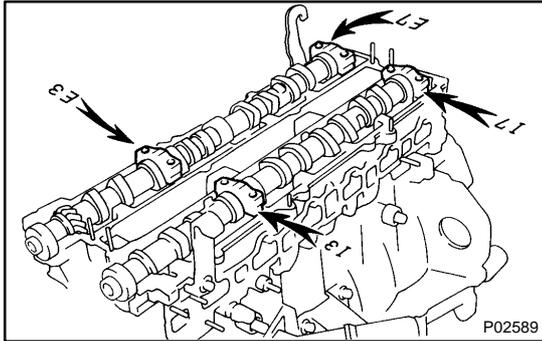


- Retighten the cylinder head bolts by 90° in the numerical order shown in the illustration on previous page.
- Retighten cylinder head bolts by an additional 90° shown in the illustration on previous page.
- Check that the painted mark is now turned to the rear.

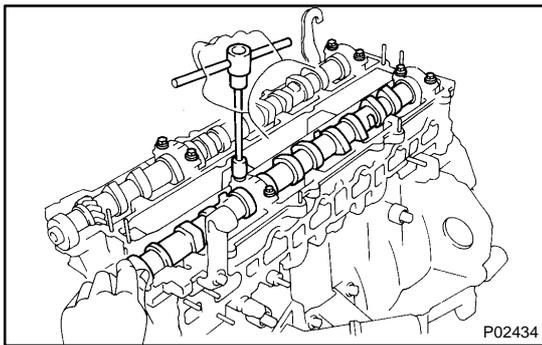


3. INSTALL CAMSHAFTS

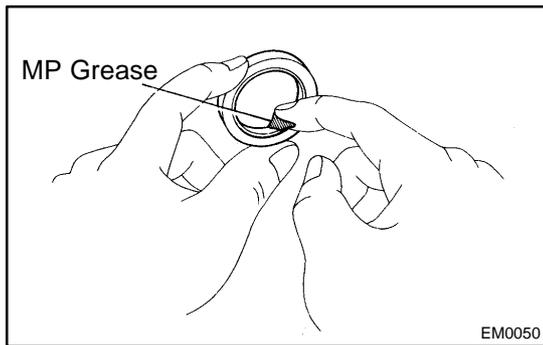
- (a) Apply engine oil to the thrust portion of the camshaft.
- (b) Place the camshaft on the cylinder head with the cam lobe facing up as shown.



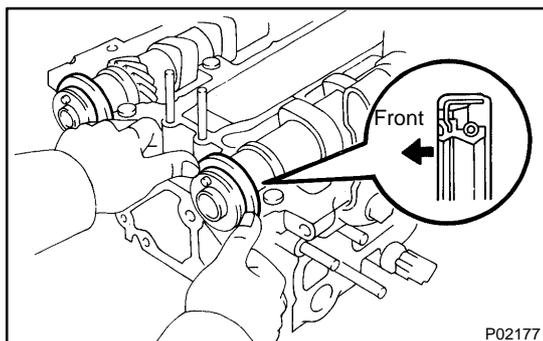
- (c) Place the No.3 and No.7 bearing caps in their proper location.



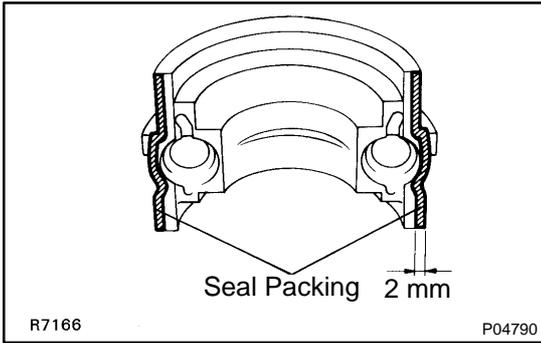
- (d) Apply a light coat of engine oil on the threads and under the heads of the bearing cap bolts.
- (e) Temporarily tighten these bearing cap bolts uniformly and alternately, in several passes, until the bearing caps are snug with the cylinder head.



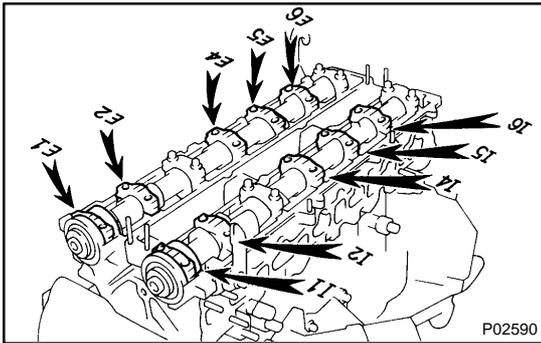
- (f) Apply MP grease to a new camshaft oil seal lip.



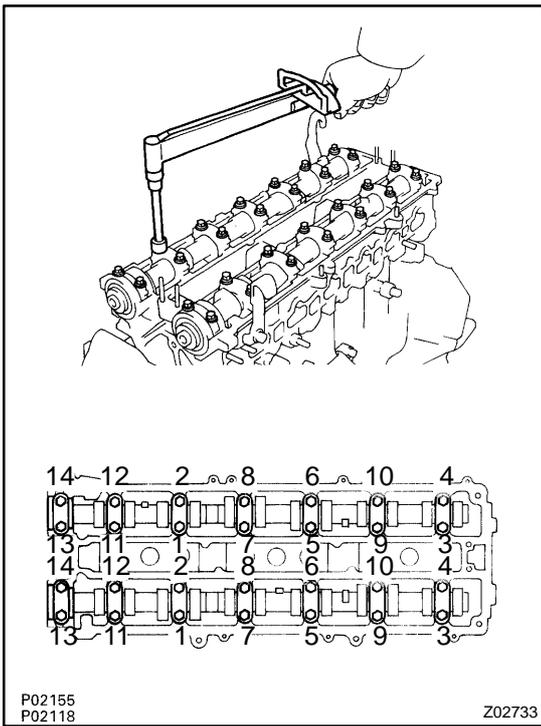
- (g) Install the 2 oil seals to the camshafts.



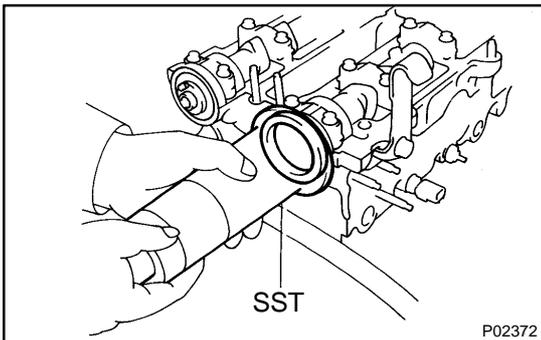
- (h) Clean the installed surfaces of the No.1 bearing cap and cylinder head with cleaner.
- (i) Apply seal packing to the No.1 bearing cap as shown.
Seal packing: Part No. 08826-00080 or equivalent



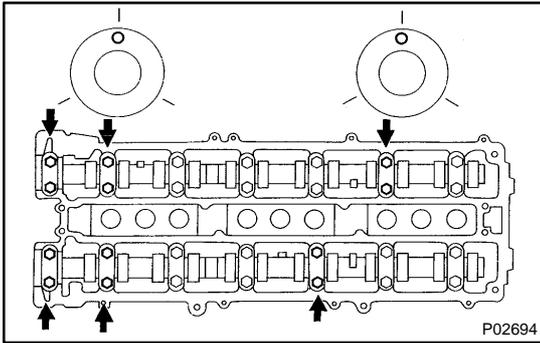
- (j) Install the No.1, No.2, No.4, No.5 and No.6 bearing caps in their proper locations.



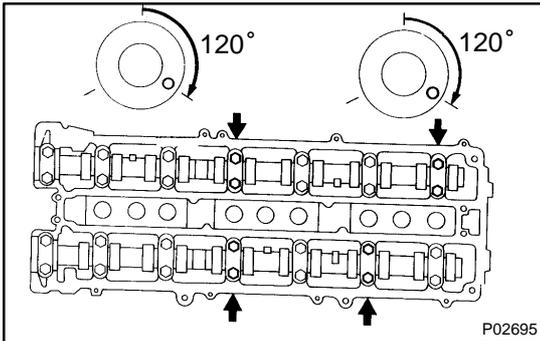
- (k) Apply a light coat of engine oil on the threads and under the heads of the bearing cap bolts.
- (l) Install and uniformly tighten the 14 bearing cap bolts on one side, in several passes, in the sequence shown.
Torque: 20 N·m (200 kgf·cm, 14 ft·lbf)



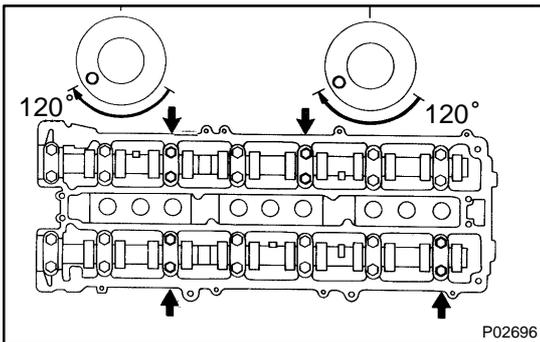
- (m) Using SST, push the 2 oil seals in as far as they can go.
SST 09316-60011 (09316-00011, 09316-00051)



- (n) Rotate the camshaft with a wrench at the hexagon position, bring the forward straight pin up.
- (o) Loosen the 12 bearing cap bolts as shown, until they can be turned by hand; retighten, in several passes.
Torque: 20 N·m (200 kgf·cm, 14 ft·lbf)



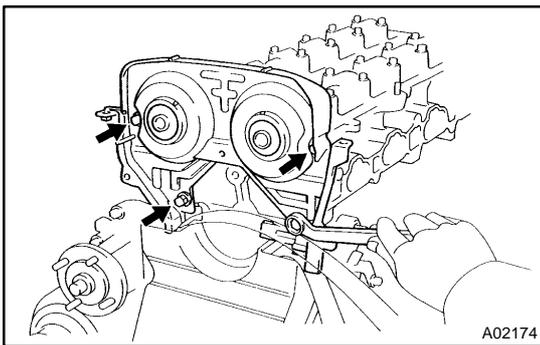
- (p) Turn the camshaft 1/3 of revolution.
- (q) Loosen the 8 bearing cap bolts as shown, until they can be turned by hand; retighten, in several passes.
Torque: 20 N·m (200 kgf·cm, 14 ft·lbf)



- (r) Turn the camshaft a further 1/3 of a revolution.
- (s) Loosen the 8 bearing cap bolts as shown, until they can be turned by hand; retighten, in several passes.
Torque: 20 N·m (200 kgf·cm, 14 ft·lbf)

4. CHECK AND ADJUST VALVE CLEARANCE (See page EM-4)

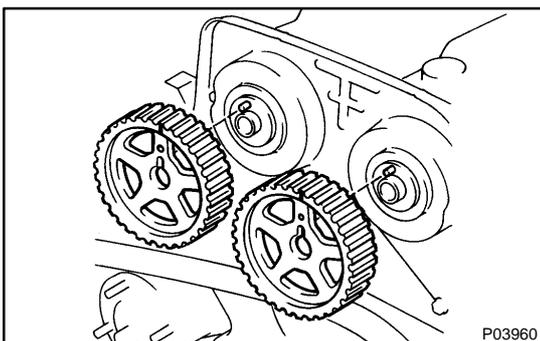
Turn the camshaft, and position the cam lobe upward, check and adjust the valve clearance.



5. INSTALL NO.4 TIMING BELT COVER

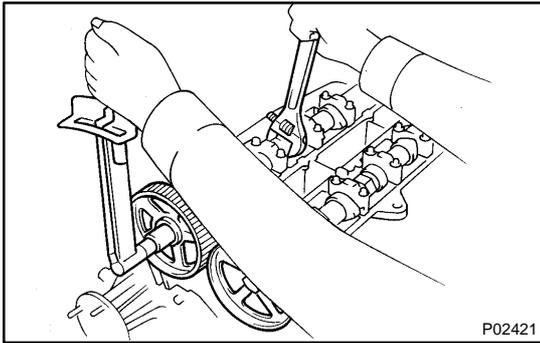
Install the timing belt cover with 4 bolts.

Torque: 8.0 N·m (80 kgf·cm, 71 in·lbf)

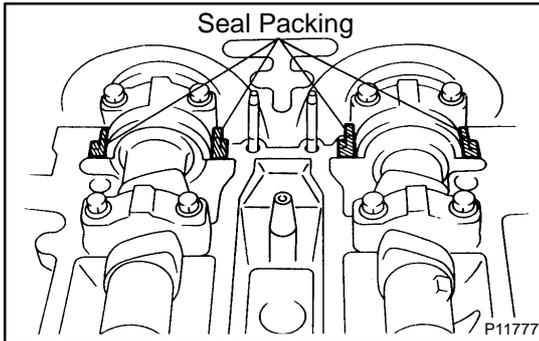


6. INSTALL CAMSHAFT TIMING PULLEYS

- (a) Align the camshaft knock pin with the groove in the pulley, and slide on the pulley.
- (b) Temporarily install the timing pulley bolt.



- (c) Hold the hexagon portion of the camshaft with a wrench, and tighten the timing pulley bolt.
Torque: 81 N-m (810 kgf-cm, 60 ft-lbf)



7. INSTALL NO.1 AND NO.2 CYLINDER HEAD COVERS

- (a) Remove any old packing (FIPG) material.
 (b) Apply seal packing to the cylinder head as shown in the illustration.

Seal packing: Part No. 08826-00080 or equivalent

- (c) Install the gaskets to the No.1 and No.2 cylinder head covers.
 (d) Install the seal washers to the mounting bolts.
 (e) Install the No.1 cylinder head cover with the 4 seal washers and 4 bolts.

Torque: 5.5 N-m (55 kgf-cm, 49 in.-lbf)

- (f) Install the No.2 cylinder head cover with the 4 seal washers and 4 bolts.

Torque: 5.5 N-m (55 kgf-cm, 49 in.-lbf)

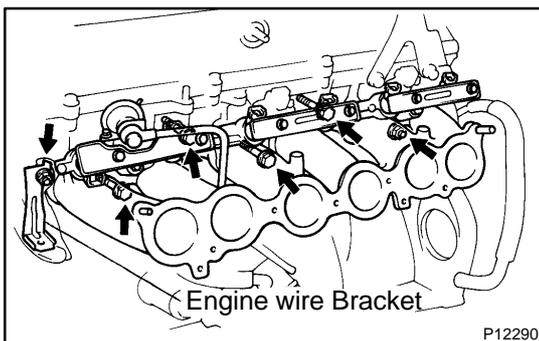
- (g) Install the PCV valve.
 (h) Install the cruise control actuator cable bracket and IAC valve pipe clamp with the 2 bolts.

8. INSTALL SPARK PLUGS

9. INSTALL IGNITION COILS ASSEMBLIES

(See page [IG-7](#))

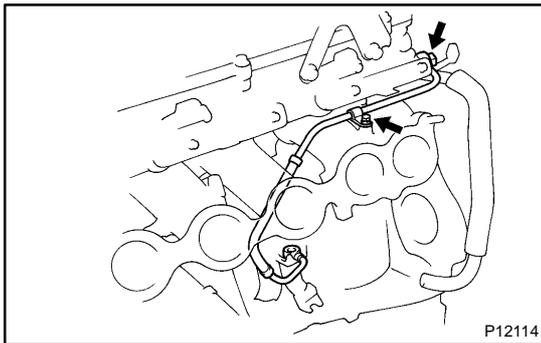
10. INSTALL TIMING BELT (See page [EM-21](#))



11. INSTALL INTAKE MANIFOLD AND DELIVERY PIPE ASSEMBLY

Install a new gasket, the intake manifold, delivery pipe assembly and engine wire bracket with the 4 bolts and 2 nuts.

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

**12. INSTALL FUEL INLET PIPE**

- (a) Connect the fuel inlet pipe with 2 new gaskets and the union bolt.

Torque: 42 N·m (420 kgf·cm, 30 ft·lbf)

- (b) Install the clamp bolt to the intake manifold.

13. INSTALL FUEL PRESSURE PULSATION DAMPER (See page SF-32)**14. INSTALL PRESSURE TANK AND VSV ASSEMBLY**

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

15. CONNECT ENGINE WIRE

- (a) Install the engine wire protector to the intake manifold with the nut.
- (b) Install the 2 ground straps to the intake manifold with the bolts.
- (c) Connect these connectors and clamps:
- VSV connector for EVAP
 - 6 injectors connectors

HINT:

The No.1, No.3 and No.5 injector connectors are dark gray, and the No.2, No.4 and No.6 injector connectors are gray.

- 2 camshaft position sensor connectors
- 3 engine wire clamps to injector holders

16. INSTALL AIR INTAKE CHAMBER ASSEMBLY (See page SF-29)**17. CONNECT FUEL RETURN HOSE****18. INSTALL PS PUMP**

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

19. INSTALL NO.1 WATER BYPASS PIPE AND WATER OUTLET

- (a) Install 2 new O-rings to the No.1 water bypass pipe.
- (b) Apply soapy water to the O-rings.
- (c) Install the No.1 water bypass pipe to the water pump.
- (d) Install a new gasket and the water outlet with the 2 bolts.

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

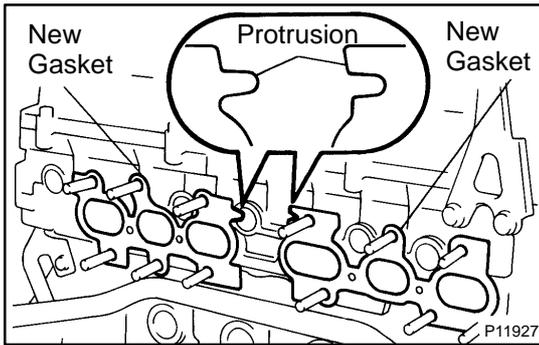
- (e) Connect the ECT sensor and sender gauge connectors.
- (f) Connect the upper radiator hose to the water outlet.

20. INSTALL DRIVE BELT

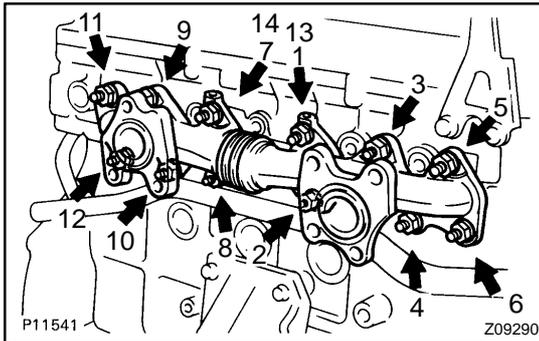
Install the drive belt by turning the drive belt tensioner clockwise.

21. M/T:**INSTALL DRIVE BELT TENSIONER DAMPER**

(See page EM-21)

**22. INSTALL EXHAUST MANIFOLD**

- (a) Place 2 new gaskets to the cylinder head facing the protrusion as shown.



- (b) Install the exhaust manifold with 12 new nuts, in several passes, in the sequence shown.

Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

23. INSTALL TURBOCHARGER (See page [TC-20](#))