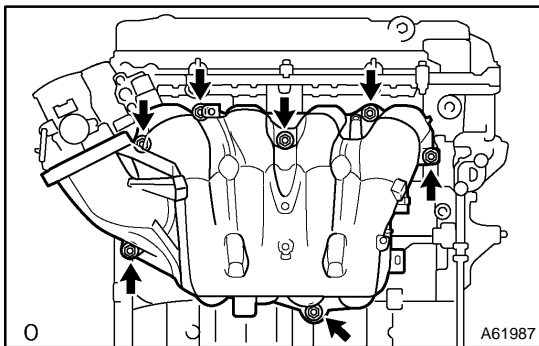


CYLINDER HEAD GASKET (2AZ-FE)(From July, 2003)

REPLACEMENT

141J3-02

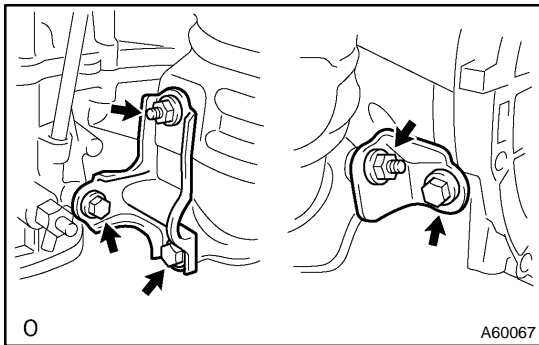
1. WORK FOR PREVENTING GASOLINE FROM SPILLING OUT (See page 11-1)②
2. REMOVE FRONT SUSPENSION UPPER BRACE CENTER (W/ FRONT SUSPENSION BRACE UPPER CENTER)
3. DRAIN COOLANT (See page 16-6)
4. DISCONNECT RADIATOR HOSE OUTLET
5. DISCONNECT UNION TO CONNECTOR TUBE HOSE
6. DISCONNECT HEATER INLET WATER HOSE
7. DISCONNECT FUEL TUBE SUB-ASSY (See page 11-1)②



8. REMOVE INTAKE MANIFOLD

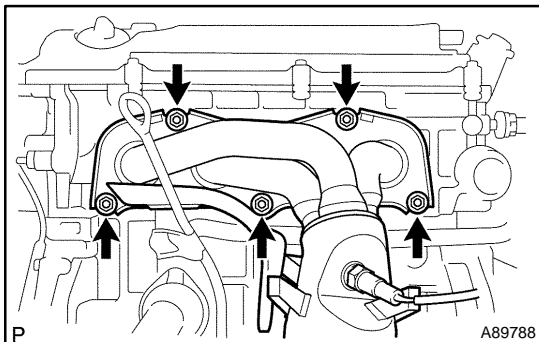
- (a) Disconnect the 2 water by-pass hoses of the throttle body.
- (b) Remove the 5 bolts, 2 nuts, intake manifold and gasket.

9. REMOVE INTAKE MANIFOLD RUNNER VALVE ASSY (See page 13-5)
10. DISCONNECT ENGINE WIRE
11. REMOVE INTAKE MANIFOLD INSULATOR NO.1
12. REMOVE EXHAUST MANIFOLD HEAT INSULATOR NO.1

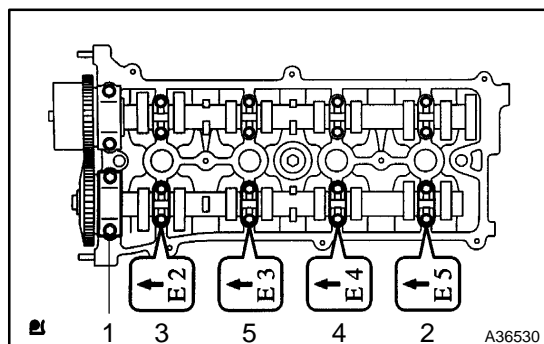


13. REMOVE EXHAUST MANIFOLD CONVERTER SUB-ASSY

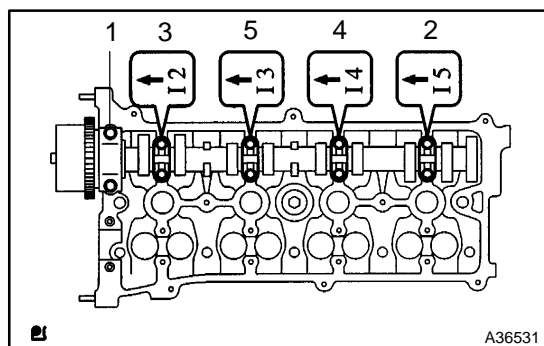
- (a) Remove the 3 bolts, 2 nuts, No. 1 and No. 2 exhaust manifold stays.



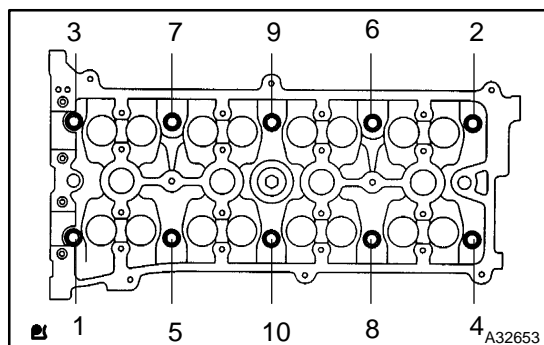
- (b) Remove the 5 nuts, exhaust manifold and gasket.

14. REMOVE CHAIN SUB-ASSY (See page 14-75)**15. REMOVE NO.2 CAMSHAFT**

- (a) Uniformly loosen and remove the No. 2 camshaft's 10 bearing cap bolts in the sequence shown in the illustration. Then remove the 5 bearings.
- (b) Remove the camshaft.

**16. REMOVE CAMSHAFT**

- (a) Uniformly loosen and remove the No. 2 camshaft's 10 bearing cap bolts in the sequence shown in the illustration. Then remove the 5 bearings.
- (b) Remove the camshaft.

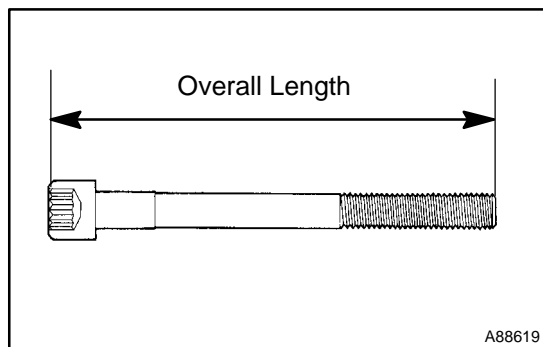
17. REMOVE CAMSHAFT BEARING NO.2**18. REMOVE CAMSHAFT TIMING OIL CONTROL VALVE ASSY****19. REMOVE CYLINDER HEAD SUB-ASSY**

- (a) Using a 10 mm bi-hexagon wrench, uniformly loosen the 10 bolts in the sequence shown in the illustration. Remove the 10 cylinder head bolts and plate washers.

NOTICE:

- Be careful not to drop washers into the cylinder head.
- Head warpage or cracking could result from removing bolts in an incorrect order.

20. REMOVE CYLINDER HEAD GASKET

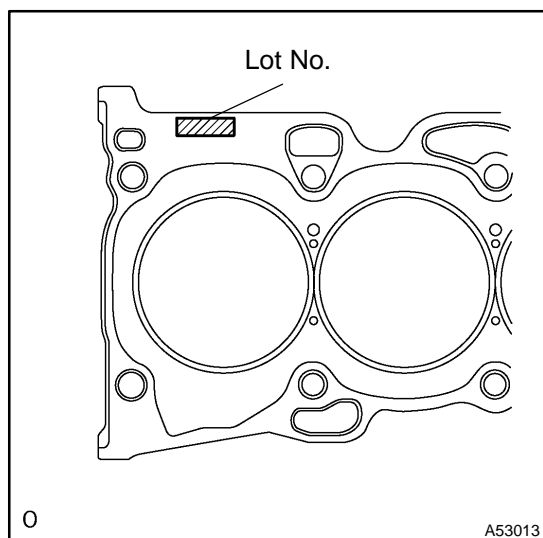
**21. INSPECT CYLINDER HEAD SET BOLT**

- (a) Using a vernier caliper, measure the length of the head bolts from the seat to the end.

Specified bolt length:

161.3 to 164.2 mm (6.350 to 6.465 in.)

If the length is greater than the maximum, replace the bolt.

**22. INSTALL CYLINDER HEAD GASKET**

- (a) Place a new gasket on the cylinder block surface with the Lot No. stamp upward.

NOTICE:

- Remove any oil from contact surface.
- Be careful of the installation direction.
- To avoid damage to the gasket, place the cylinder head on the gasket carefully.

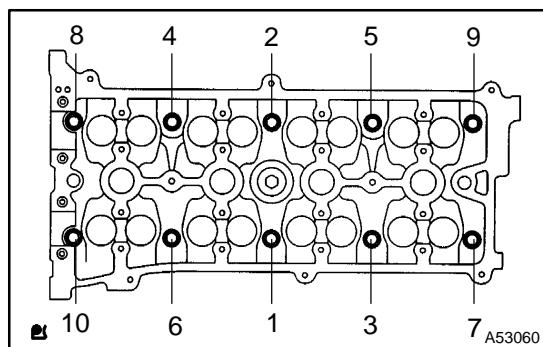
23. INSTALL CYLINDER HEAD SUB-ASSY**HINT:**

The cylinder head bolts are tightened in 2 progressive steps.

- (a) Apply a light coat of engine oil on the threads and under the heads of the cylinder head bolts.
- (b) Install the bolts and plate washers to the cylinder head.

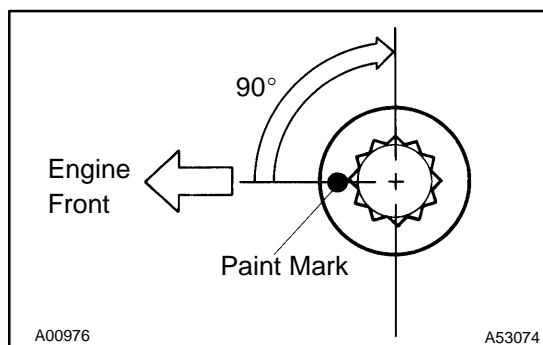
NOTICE:

Do not drop the washers into the cylinder head.



- (c) Using a 10 mm bi-hexagon wrench, uniformly tighten the 10 bolts in the sequence shown in the illustration.

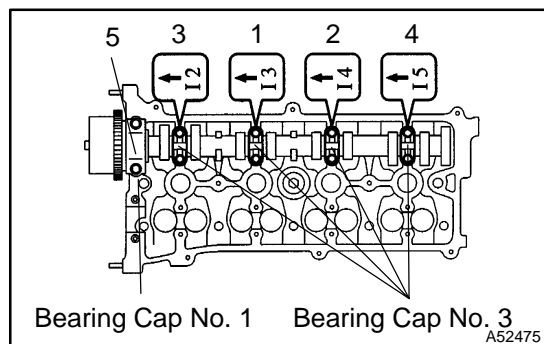
Torque: 79 N·m (806 kgf·cm, 58 ft·lbf)



- (d) Mark the front side of the cylinder head bolt with paint.
- (e) Retighten the cylinder head bolts by 90° in the sequence shown in the illustration.
- (f) Check that the painted mark is now at a 90° angle to the front.

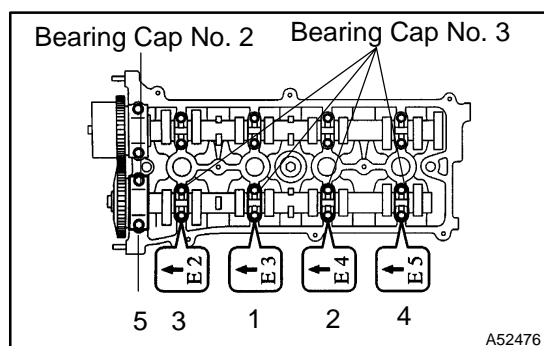
24. INSTALL CAMSHAFT TIMING OIL CONTROL VALVE ASSY

Torque: 9.0 N·m (92 kgf·cm, 80 in·lbf)

25. INSTALL CAMSHAFT BEARING NO.2**26. INSTALL CAMSHAFT**

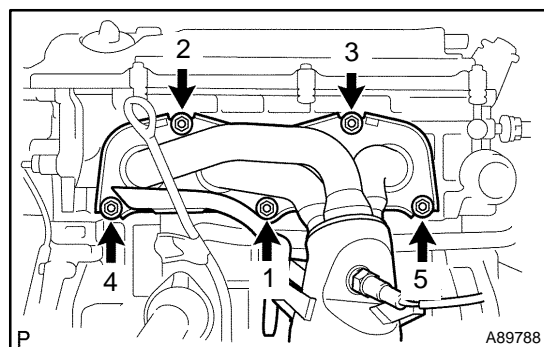
- (a) Examine the front marks and numbers of the 5 bearing caps and install them. Then install the 10 bearing cap bolts. Uniformly tighten the bolts in the sequence shown in the illustration.

Torque:

30 N·m (301 kgf·cm, 22 ft·lbf) for bearing cap No. 1**9.0 N·m (92 kgf·cm, 80 in·lbf) for bearing cap No. 3****27. INSTALL NO.2 CAMSHAFT**

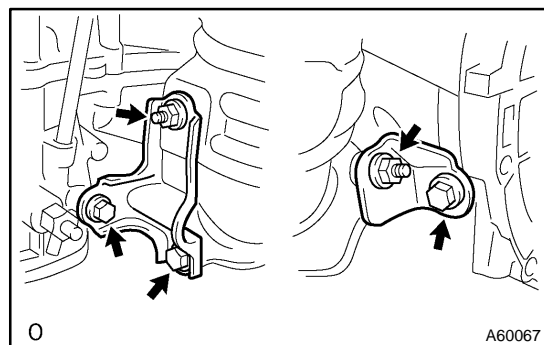
- (a) Examine the front marks and numbers of the 5 bearing caps and install them. Then install the 10 bearing cap bolts. Uniformly tighten the bolts in the sequence shown in the illustration.

Torque:

30 N·m (301 kgf·cm, 22 ft·lbf) for bearing cap No.2**9.0 N·m (92 kgf·cm, 80 in·lbf) for bearing cap No.3****28. INSTALL CHAIN SUB-ASSY (See page 14-75)****29. INSTALL EXHAUST MANIFOLD CONVERTER SUB-ASSY**

- (a) Install a new gasket and the exhaust manifold with the 5 nuts.

Torque: 37 N·m (378 kgf·cm, 27 ft·lbf)

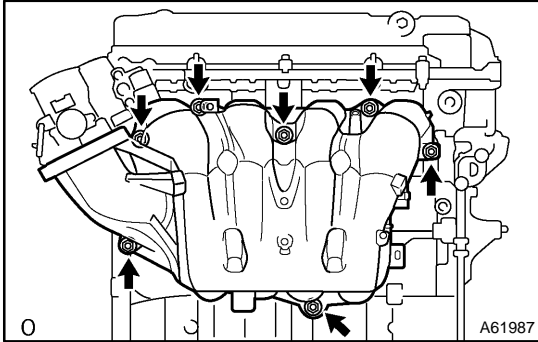


- (b) Install the No. 1 and No. 2 exhaust manifold stays with the 3 bolts and 2 nuts.

Torque: 44 N·m (449 kgf·cm, 32 ft·lbf)

30. INSTALL EXHAUST MANIFOLD HEAT INSULATOR NO.1

Torque: 12 N·m (122 kgf·cm, 9 ft·lbf)

31. INSTALL INTAKE MANIFOLD RUNNER VALVE ASSY (See page 13-5)**32. INSTALL INTAKE MANIFOLD**

- (a) Install a new gasket and the intake manifold with the 5 bolts and 2 nuts.

Torque: 30 N·m (306 kgf·cm, 22 ft·lbf)

33. CONNECT FUEL TUBE SUB-ASSY (See page 11-1)**34. ADD ENGINE OIL****35. ADD ENGINE COOLANT (See page 16-6)****36. CHECK FOR ENGINE OIL LEAKS****37. CHECK FOR ENGINE COOLANT LEAKS (See page 16-1)****38. INSPECT FOR FUEL LEAKS (See page 11-4)****39. INSPECT CHECK IDLE SPEED AND IGNITION TIMING (See page 14-1)****40. INSPECT CO/HC (See page 14-1)**