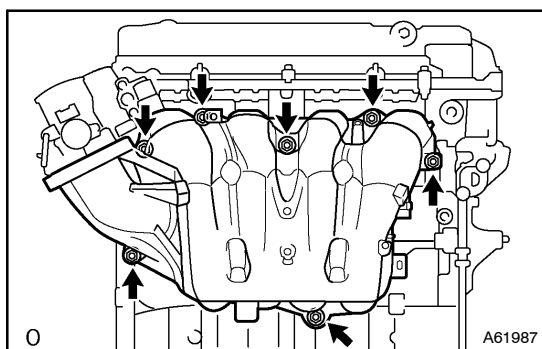


CYLINDER HEAD GASKET (2AZ-FE)

140HU-02

REPLACEMENT

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. REMOVE CHAIN SUB-ASSY (See page 14-70)
4. DRAIN COOLANT (See page 16-6)
5. DISCONNECT RADIATOR HOSE OUTLET
6. DISCONNECT UNION TO CONNECTOR TUBE HOSE
7. DISCONNECT HEATER INLET WATER HOSE
8. DISCONNECT FUEL TUBE SUB-ASSY (See page 11-1)②



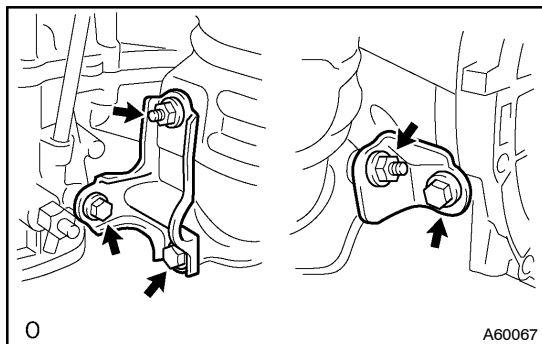
9. REMOVE INTAKE MANIFOLD

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

10. DISCONNECT ENGINE WIRE

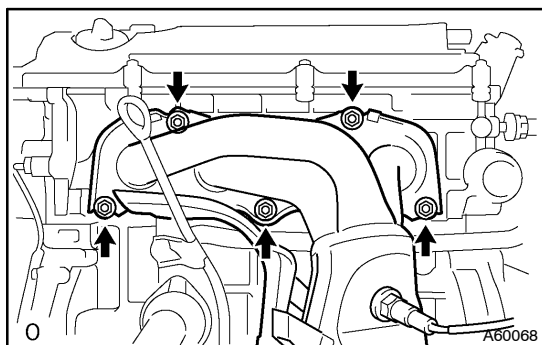
11. REMOVE INTAKE MANIFOLD INSULATOR NO.1

12. REMOVE EXHAUST MANIFOLD HEAT INSULATOR NO.1

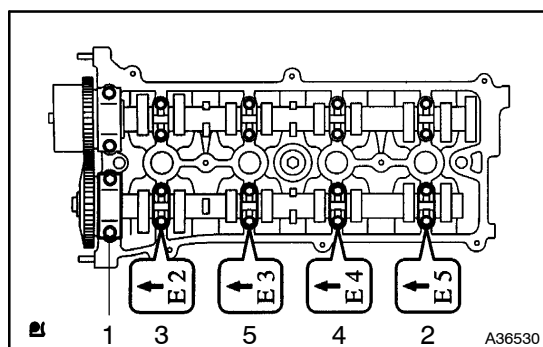


13. REMOVE EXHAUST MANIFOLD CONVERTER SUB-ASSY

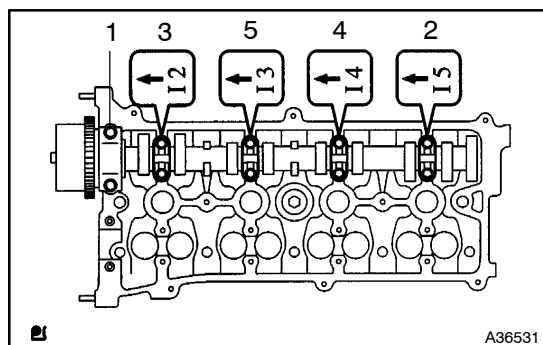
- (a) Remove the 3 bolts, 2 nuts No.1 and No.2 exhaust manifold stay.



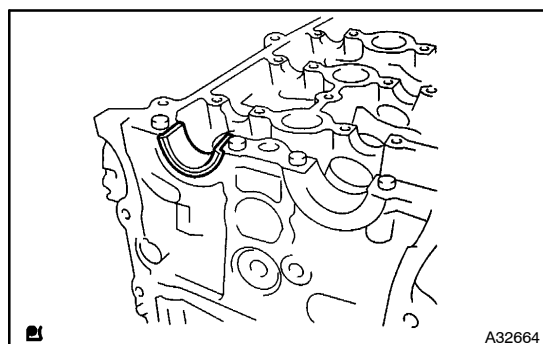
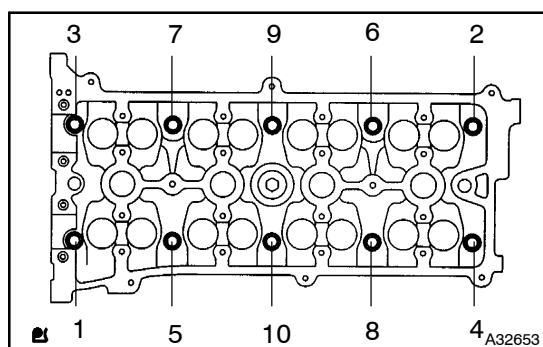
- (b) Remove the 5 nuts, exhaust manifold and gasket.

**14. REMOVE NO.2 CAMSHAFT**

- (a) Remove the No.2 and No.3 camshaft bearing cap in the sequence shown in the illustration.
- (b) Remove the No.2 camshaft.

**15. REMOVE CAMSHAFT**

- (a) Remove the No.1 and No.3 camshaft bearing cap in the sequence shown in the illustration.
- (b) Remove the No.1 camshaft.

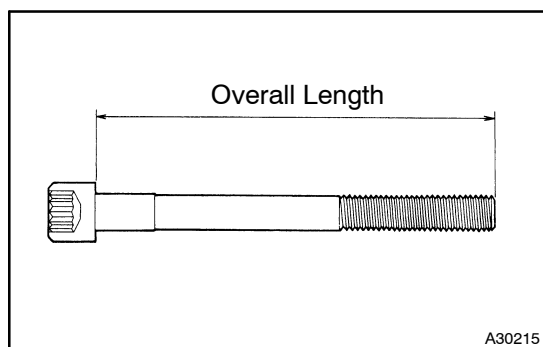
**16. REMOVE CAMSHAFT BEARING NO.2****17. REMOVE CAMSHAFT TIMING OIL CONTROL VALVE ASSY****18. REMOVE CYLINDER HEAD SUB-ASSY**

- (a) Using a 10 mm bi-hexagon wrench, uniformly loosen and remove the 10 cylinder head bolts, in several passes, in the sequence shown. 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 and installing in incorrect order.

19. REMOVE CYLINDER HEAD GASKET

**20. INSPECT CYLINDER HEAD SET BOLT**

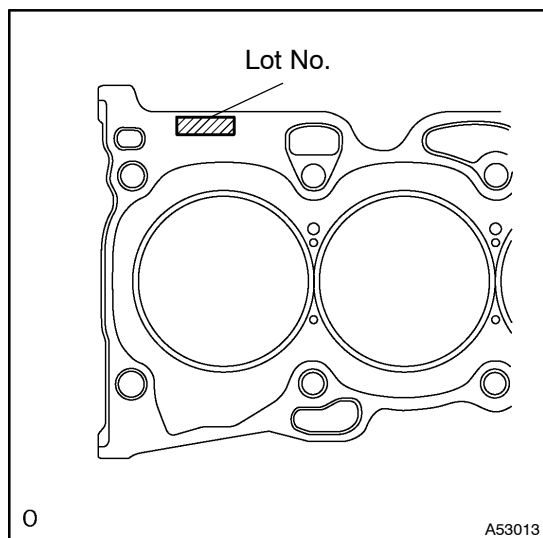
- (a) Using vernier calipers, measure the length of head bolts from the seat to the end.

Standard bolt length:

161.3–162.3 mm (6.350–6.390 in.)

Maximum bolt length: 164.2 mm (6.465 in)

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

**21. INSTALL CYLINDER HEAD GASKET**

- (a) Place a new cylinder head 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.**
- **Place the cylinder head quietly in order not to damage the gasket with the bottom part of the head.**

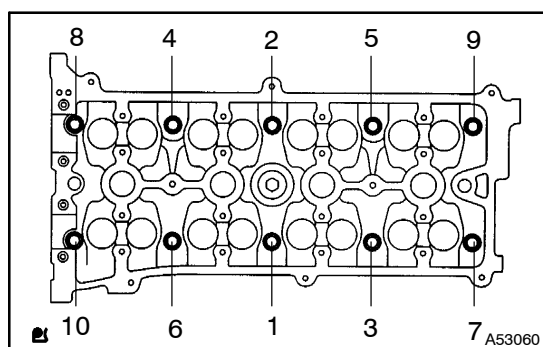
22. INSTALL CYLINDER HEAD SUB-ASSY**HINT:**

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 bolts and plate washers to the cylinder head.

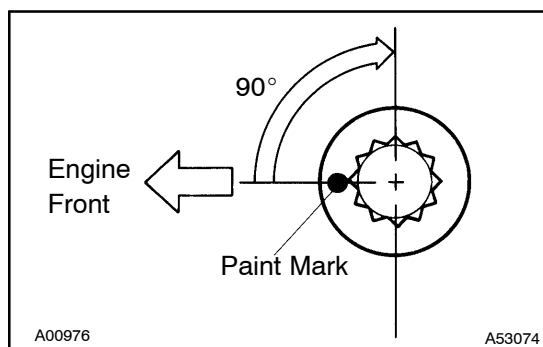
NOTICE:

Do not drop the washers into the cylinder head.



- (c) Using a 10 mm bi-hexagon wrench, install and uniformly tighten the 10 cylinder head bolts and plate washers, in several passes, in the sequence shown.

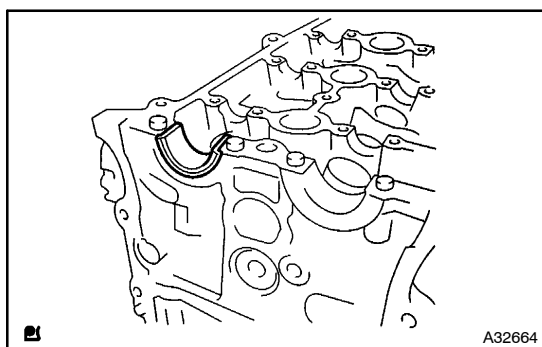
Torque: 79 N·m (806 kgf·cm, 58 ft·lbf)



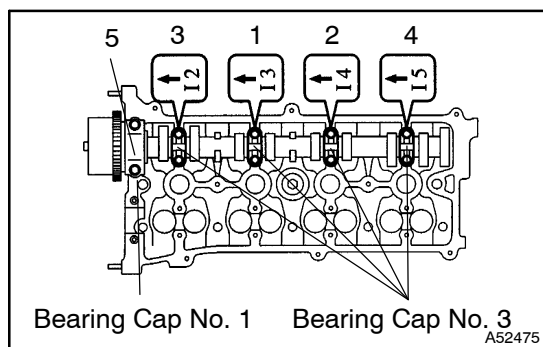
- (d) Mark the front side of the cylinder head bolt with paint.
- (e) Retighten the cylinder head bolts by 90° in the sequence shown.
- (f) Check that the paint mark is now at a 90° angle to the front.

23. INSTALL CAMSHAFT TIMING OIL CONTROL VALVE ASSY

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



24. INSTALL CAMSHAFT BEARING NO.2



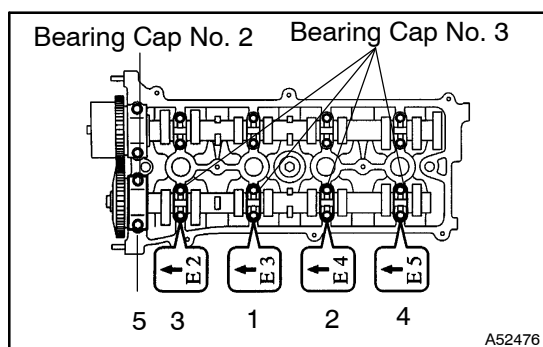
25. INSTALL CAMSHAFT

- (a) Tighten the camshaft bearing cap No.1 and No.3 as the sequence shown in the illustration.

Torque:

Bearing cap No.1 30 N·m (301 kgf·cm, 22 ft·lbf)

Bearing cap No.3 9.0 N·m (92 kgf·cm, 80 in·lbf)



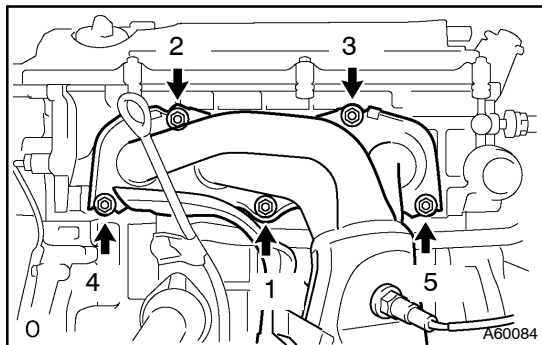
26. INSTALL NO.2 CAMSHAFT

- (a) Tighten the camshaft bearing cap No.2 and No.3 as the sequence shown in the illustration.

Torque:

Bearing cap No.2 30 N·m (301 kgf·cm, 22 ft·lbf)

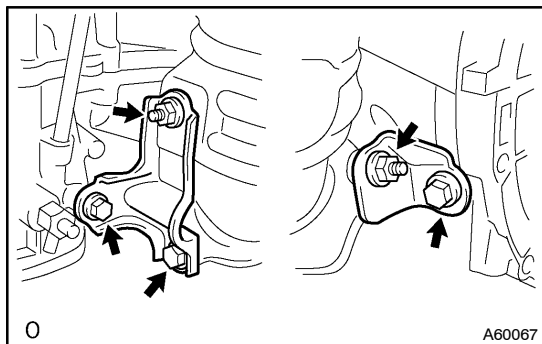
Bearing cap No.3 9.0 N·m (92 kgf·cm, 80 in·lbf)



27. 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)

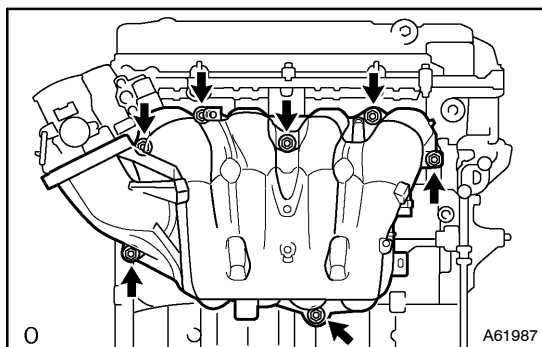


- (b) Install the No.1 and No.2 exhaust manifold stay with the 3 bolts and 2 nuts.

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

28. INSTALL EXHAUST MANIFOLD HEAT INSULATOR NO.1

Torque: 12 N·m (122 kgf·cm, 9 ft·lbf)



29. 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)

30. CONNECT FUEL TUBE SUB-ASSY (See page 11-1)

31. INSTALL CHAIN SUB-ASSY (See page 14-70)

SST 09309-37010

32. ADD ENGINE OIL

33. ADD COOLANT (See page 16-6)

34. INSPECT OIL LEAK

35. CHECK FOR ENGINE COOLANT LEAKS (See page 16-1)

36. INSPECT FUEL LEAK (See page 11-5)

37. INSPECT CHECK IDLE SPEED AND IGNITION TIMING (See page 14-1)

38. INSPECT CO/HC (See page 14-1)