

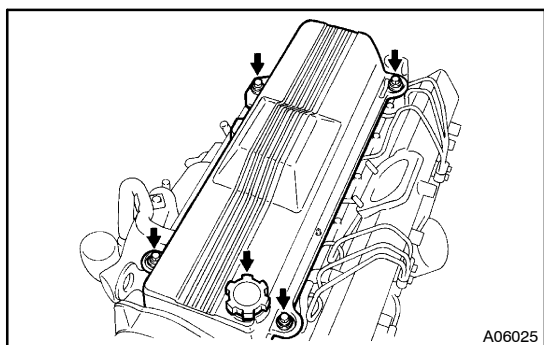
## REMOVAL

### 1. REMOVE INTAKE PIPE ASSEMBLY

- Disconnect the vacuum hose to the clamp and timing belt cover.
- Disconnect the 5 vacuum hoses to the No.2 cylinder head cover.
- Remove the 2 nuts and gasket from the EGR cooler pipe.
- Remove the 4 bolts and 2 intake pipe assembly brackets.
- Remove the 2 bolts, 2 nuts, gasket and intake pipe assembly.

### 2. REMOVE EGR COOLER PIPE

- Disconnect the 2 water hoses from the EGR cooler pipe.
- Remove the bolt, 2 nuts, gasket and EGR cooler pipe from the intake pipe assembly.



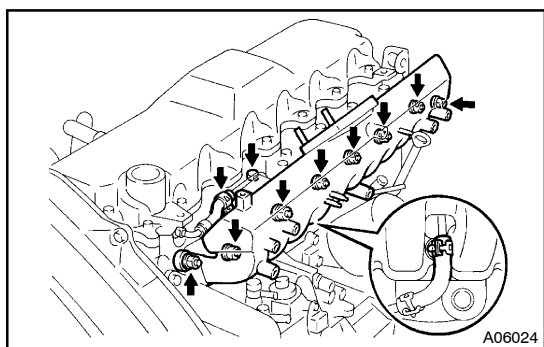
### 3. REMOVE NO.2 CYLINDER HEAD COVER

- Remove the oil filler cap.
- Remove the 4 bolts and cylinder head No.2 cover.

### 4. REMOVE INJECTION PIPE

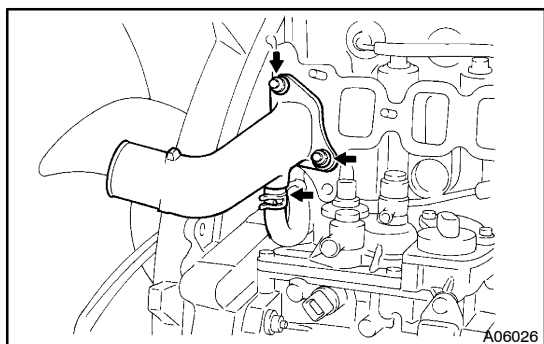
(See Pub. No. RM617E, on page FU-33)

### 5. REMOVE 2 INTAKE MANIFOLD INSULATOR



### 6. REMOVE INTAKE MANIFOLD WITH INTAKE AIR CONTROL VALVE

- Remove the fuel hose from the injection pump.
- Remove the 8 nuts, 8 seal washers, 4 gaskets and intake manifold insulator with the intake air control valve.



### 7. REMOVE WATER OUTLET

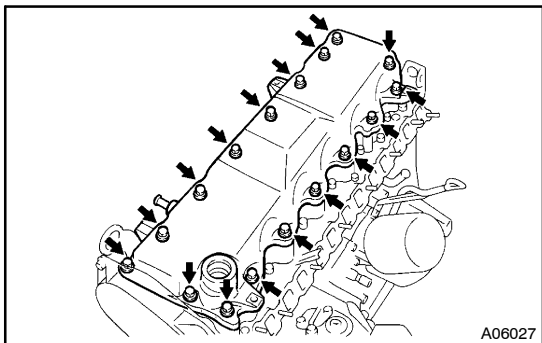
- Disconnect the water bypass hose from the water outlet.
- Remove the 2 bolts, water outlet and gasket.

### 8. REMOVE TURBOCHARGER AND EXHAUST MANIFOLD ASSEMBLY

(See page TC-7)

### 9. REMOVE EXHAUST MANIFOLD FROM TURBOCHARGER

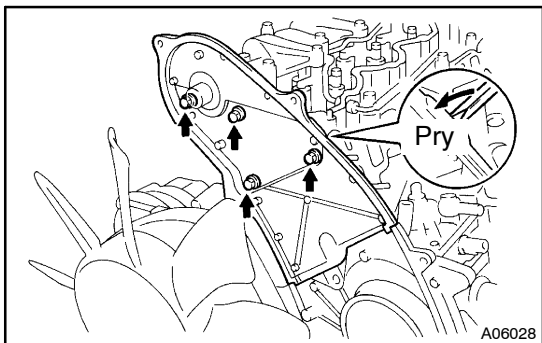
(See page TC-7)

**10. REMOVE NO. 1 CYLINDER HEAD COVER**

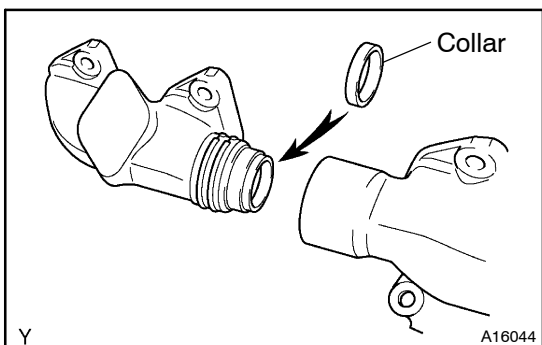
Remove the 17 bolts, 17 seal washers, No. 1 cylinder head cover and gasket.

**11. REMOVE TIMING BELT AND PULLEY**

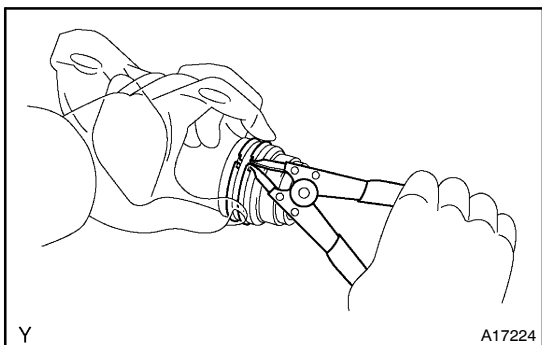
(See page EM-3)

**12. REMOVE CAMSHAFT OIL SEAL RETAINER**

- (a) Remove the 4 bolts.
- (b) Pry out the oil seal retainer.

**13. REMOVE 2 ENGINE HANGER****14. SEPARATE EXHAUST MANIFOLDS**

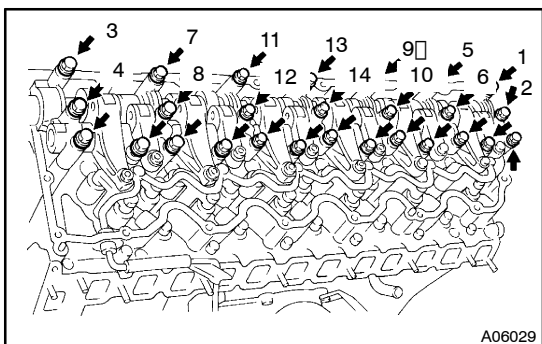
- (a) Separate the front and rear exhaust manifolds.
- (b) Remove the collar.



- (c) Using snap ring pliers, remove the 2 rings from the rear exhaust manifold.
- (d) Remove all the O-ring materials from the rear exhaust manifold grooves.

**15. REMOVE SEMI-CIRCULAR PLUG****16. REMOVE INJECTION NOZZLES**

(See Pub. No. RM617E, on page FU-33)

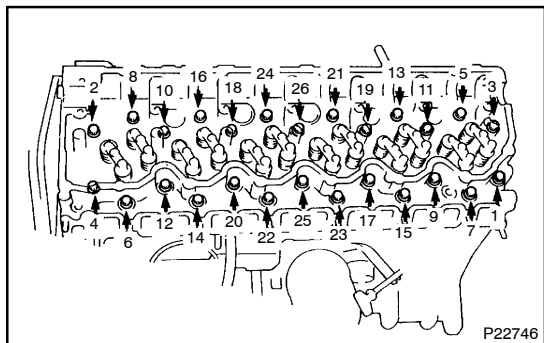
**17. REMOVE CAMSHAFT BEARING CAPS, VALVE ROCKER ARMS, NOZZLE HOLDER CLAMPS, ROCKER SHAFT ASSEMBLY AND CAMSHAFT**

- (a) Remove the 13 bolts.
- (b) Uniformly loosen and remove the 14 other bolts in several passes, in the sequence shown.
- (c) Remove the 7 bearing caps, 12 rocker arms, 6 holder clamps, rocker shaft assembly and 7 upper camshaft bearings.

- Keep the bearing caps, rocker arms and nozzle holder clamps installed with the rocker shaft.
  - Keep the bearings inserted with the bearing cap.
- (d) Remove the camshaft, thrust plate and 7 lower camshaft bearings.

HINT:

Arrange the bearings in correct order.

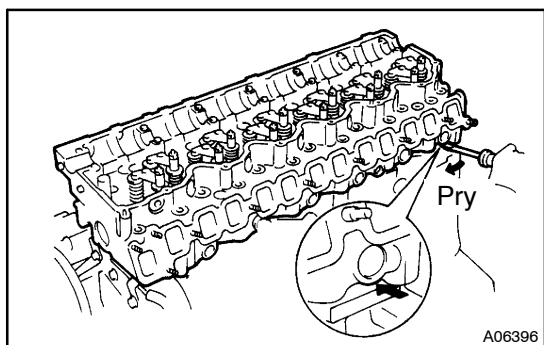


### 18. REMOVE CYLINDER HEAD ASSEMBLY

- (a) Disconnect the water bypass hose (from the injection pump) from the cylinder head.
- (b) Uniformly loosen and remove the 26 cylinder head bolts in several passes, in the sequence shown.

**NOTICE:**

**Head warpage or cracking could result from removing bolts in incorrect order.**



- (c) Lift the cylinder head from the dowels on the cylinder block, and place the cylinder head on wooden blocks on a bench.

HINT:

If the cylinder head is difficult to lift off, pry with a screwdriver between the cylinder head and block.

**NOTICE:**

**Be careful not to damage the contact surfaces of the cylinder head and cylinder block.**