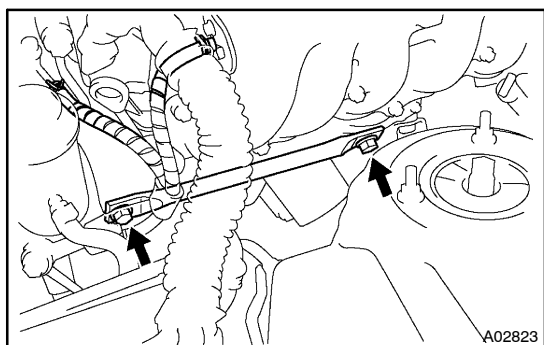


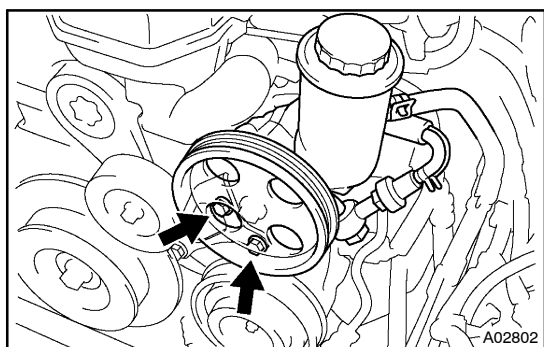
## REMOVAL

1. REMOVE ENGINE UNDER COVER
2. DRAIN ENGINE COOLANT
3. DISCONNECT UPPER RADIATOR HOSE FROM WATER OUTLET
4. REMOVE AIR CLEANER INLET
5. REMOVE AIR CLEANER, AIR FLOW METER AND INTAKE AIR RESONATOR ASSEMBLY (See page EM-61)
6. REMOVE DRIVE BELT (See page CH-6)



### 7. DISCONNECT PS PUMP WITHOUT DISCONNECTING HOSES

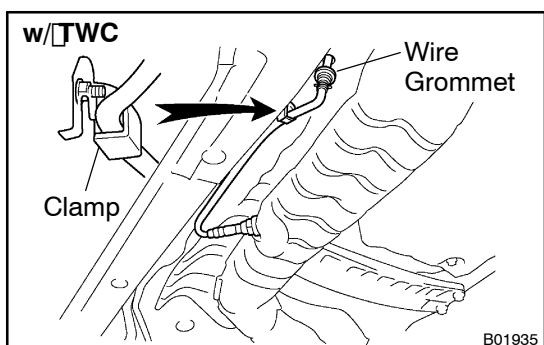
- (a) Disconnect these hoses:
  - PS air hose from No.4 timing belt cover
  - PS air hose from air intake chamber
- (b) Remove the 2 bolts and pump rear stay.



- (c) Remove the 2 bolts, and disconnect the vane pump from the pump bracket.

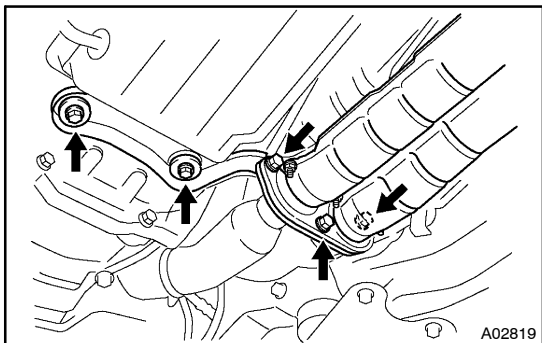
#### HINT:

Put aside the vane pump, and suspend it.

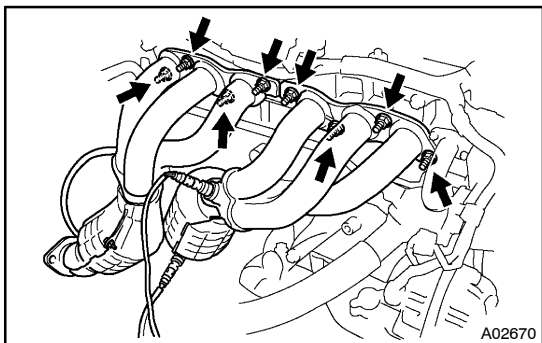


### 8. DISCONNECT FRONT EXHAUST PIPE FROM EXHAUST MANIFOLD

- (a) w/ TWC: Disconnect the wire grommet and sensor wire of the oxygen sensor (bank 2 sensor 2) from the hole and clamp on the floor.



- (b) Remove the 3 bolts and nuts holding the front exhaust pipe to the exhaust manifold.
- (c) Remove the 2 bolts and pipe support bracket.
- (d) Disconnect the front exhaust pipe from the exhaust manifold, and remove the 2 gaskets.



## 9. REMOVE EXHAUST MANIFOLD

- (a) w/ TWC:  
Disconnect the 3 oxygen sensor connectors and clamp.
- (b) w/ TWC:  
Remove the clamp and case clamp.
- (c) Using a 14 mm deep socket wrench, remove the 3 nuts, exhaust manifold and 2 gaskets.

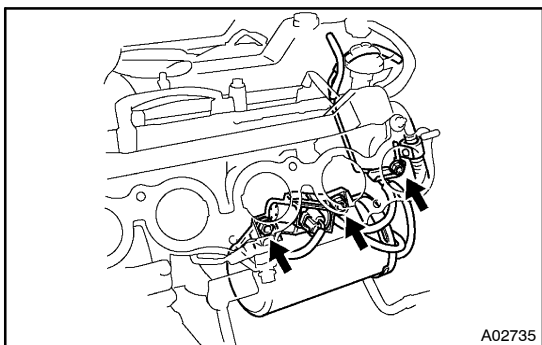
## 10. REMOVE WATER BYPASS OUTLET AND NO.1 WATER BYPASS PIPE (See page CO-5)

## 11. REMOVE THROTTLE BODY AND INTAKE AIR CONNECTOR ASSEMBLY (See page EM-6)

## 12. REMOVE OIL DIPSTICK AND GUIDE FOR ENGINE (See page LU-6)

## 13. REMOVE OIL DIPSTICK AND GUIDE FOR A/T (See page EM-61)

## 14. REMOVE AIR INTAKE CHAMBER (See page FI-45)



## 15. REMOVE VACUUM CONTROL VALVE SET AND NO.2 VACUUM PIPE

- (a) Disconnect the VSV connector from the ACIS.
- (b) Remove the 3 nuts, vacuum control valve set and No.2 vacuum pipe.
- (c) Disconnect the engine wire clamp from the clamp bracket of the No.2 vacuum pipe.

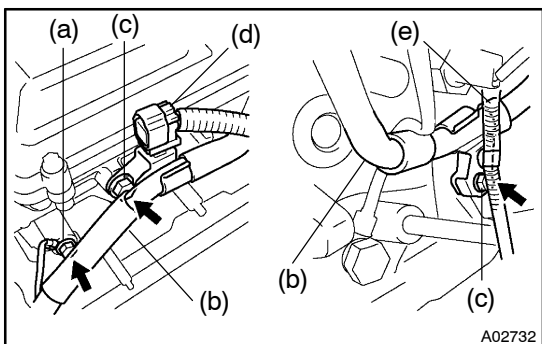
## 16. REMOVE NO.3 TIMING BELT COVER

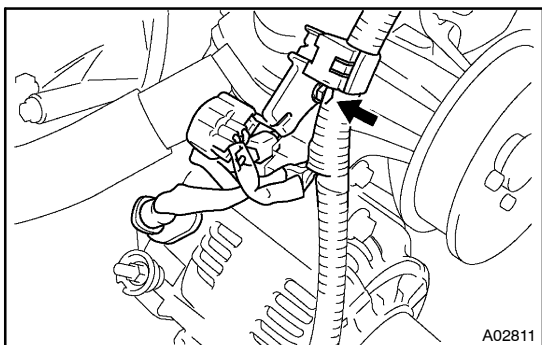
## 17. REMOVE IGNITION COILS AND HIGH-TENSION CORD SET ASSEMBLY (See page IG-7)

## 18. REMOVE SPARK PLUGS

## 19. DISCONNECT ENGINE WIRE FROM CYLINDER HEAD

- (a) Disconnect the ground strap from the cylinder head.
- (b) Disconnect the 2 water bypass hoses from the hose clamps on the cylinder head and oil filter bracket.
- (c) Remove the 2 bolts and hose clamps.
- (d) w/ TWC:  
Disconnect the oxygen sensor (bank 2 sensor 1) connector from the hose clamp.
- (e) Disconnect the engine wire clamp from the hose clamp.

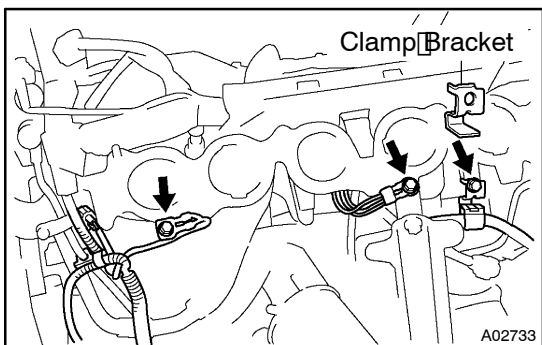




(f) Disconnect these connectors:

- w/TWC:  
Oxygen sensor (bank 1 sensor 1) connector
- Crankshaft position sensor connector
- Alternator connector

(g) Remove the bolt and clamp bracket, and disconnect the engine wire from the water pump.



(h) Disconnect the 2 ground terminals from the intake manifold.

(i) Disconnect the 2 engine wire clamps from the No.1 oil pipe and clamp bracket on the intake manifold.

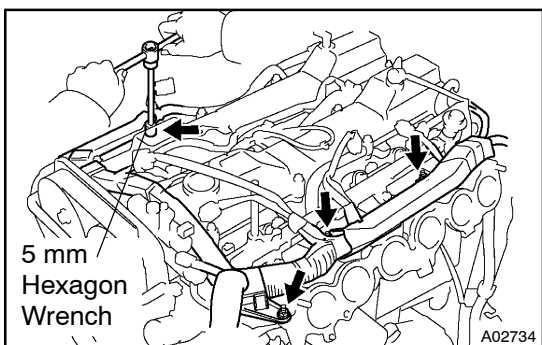
(j) Remove the bolt and clamp bracket.

(k) Disconnect these connectors:

- Water temperature sensor connector
- 2 knock sensor connectors
- Oil pressure switch connector
- Oil level sensor connector
- Starter connector
- 6 injector connectors
- Camshaft timing oil control valve connector
- Camshaft position sensor connector

(l) Using a 5 mm hexagon wrench, remove the bolt holding the engine wire protector to the No.2 cylinder head cover.

(m) Remove the 3 nuts, and disconnect the engine wire protector from the intake manifold.



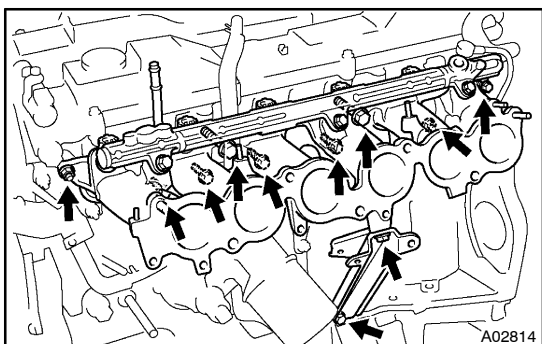
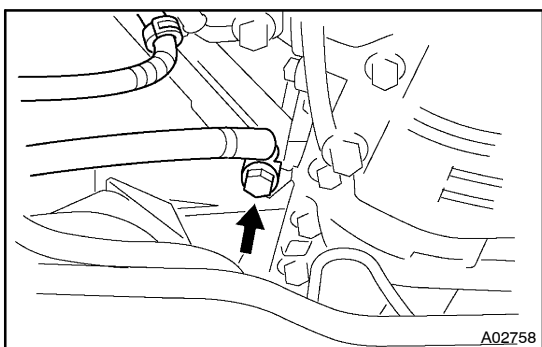
## 20. REMOVE FUEL PRESSURE PULSATION DAMPER (See page FI-26)

### 21. REMOVE INTAKE MANIFOLD ASSEMBLY

(a) Disconnect the starter wire from the manifold stay.

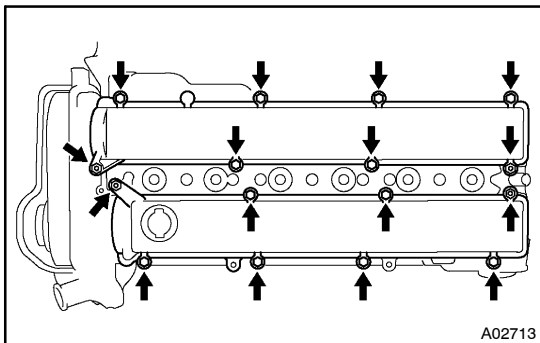
(b) Australia and G.C.C. Countries:

Disconnect the ground cable from the manifold stay.



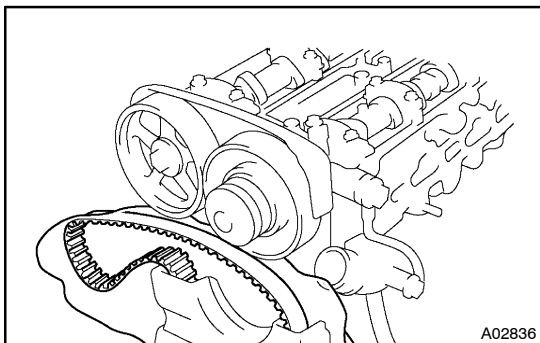
(c) Remove the 2 bolts and manifold stay.

(d) Remove the 7 bolts, 2 nuts, intake manifold and delivery pipe assembly and gasket.



## 22. REMOVE NO.1 AND NO.2 CYLINDER HEAD COVERS

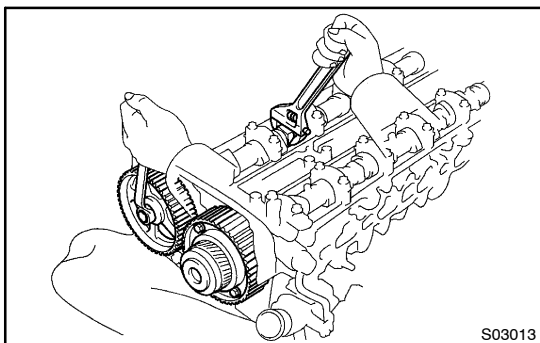
- Remove the 12 bolts and 4 nuts.
- Remove the cylinder head covers and gaskets.



## 23. DISCONNECT TIMING BELT FROM CAMSHAFT TIMING PULLEYS (See page EM-17)

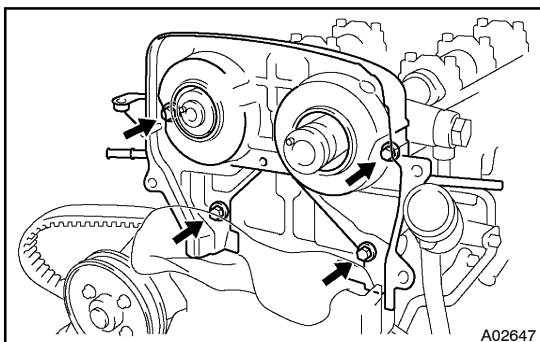
### NOTICE:

- Support the timing belt, so that the measuring of the crankshaft timing pulley and timing belt does not shift.
- Be careful not to drop anything inside the timing belt cover.
- Do not allow the timing belt to come into contact with oil, water or dust.



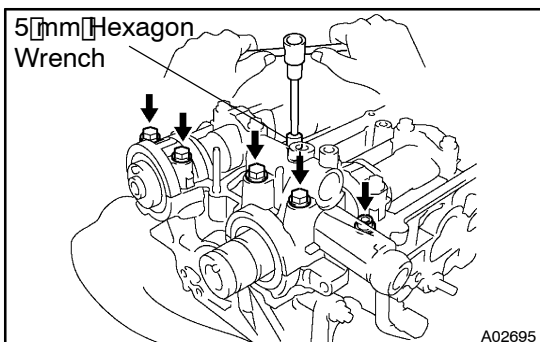
## 24. REMOVE CAMSHAFT TIMING PULLEYS

- Remove the exhaust camshaft timing pulley. Hold the hexagon portion of the camshaft with a wrench, and remove the pulley bolt and camshaft pulley.
- Remove the VVT-i (intake camshaft timing) pulley. (See page EM-17)



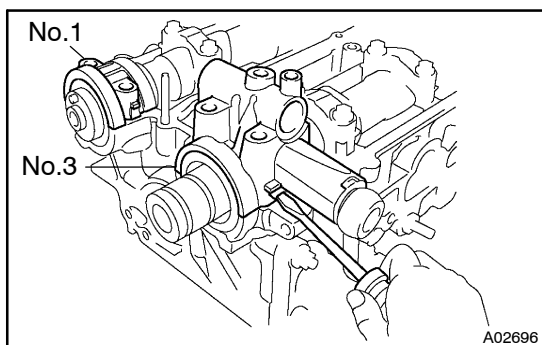
## 25. REMOVE NO.4 TIMING BELT COVER

Remove the 4 bolts and timing belt cover.



## 26. REMOVE CAMSHAFTS

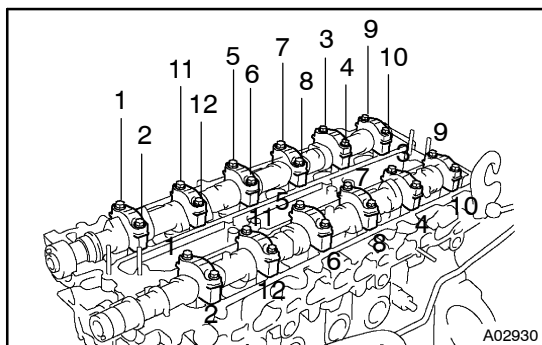
- Using a 5 mm hexagon wrench, the 2 No.3 camshaft bearing cap bolts.
- Uniformly loosen and remove the 4 camshaft bearing cap bolts.



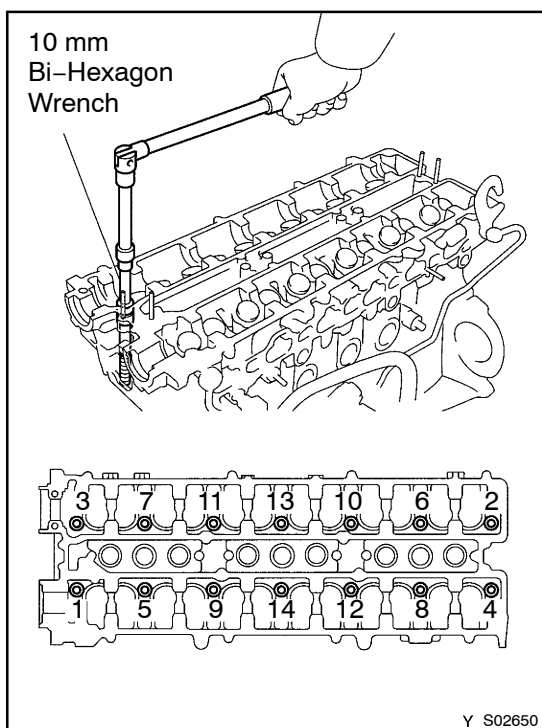
- (c) Using a screwdriver, pry out the Nos. 1, 3 camshaft bearing caps and oil seals.

**NOTICE:**

**Be careful not to damage the cap. Tape the screwdriver tip.**



- (d) Uniformly loosen and remove the 12 camshaft bearing cap bolts, in several passes, in the sequence shown.
- (e) Remove the 6 No. 2 camshaft bearing caps and camshaft. Remove the intake and exhaust camshafts.

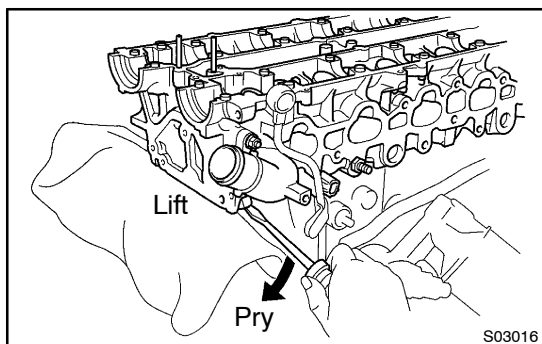
**27. REMOVE CYLINDER HEAD ASSEMBLY**

- (a) Using a 10 mm bi-hexagon wrench, uniformly loosen and remove the 14 cylinder head bolts, in several passes, in the sequence shown.

**NOTICE:**

**Cylinder head warpage or cranking could result from removing in incorrect order.**

- (b) Remove the 14 plate washers.



- (c) Lift the cylinder head from the dowels on the cylinder block.
- (d) Disconnect the heater hose from the heater union.
- (e) Place the head on wooden blocks on a bench.

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

**NOTICE:**

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