

REMOVAL

1. REMOVE ENGINE UNDER COVER
2. DRAIN ENGINE COOLANT
3. DISCONNECT UPPER RADIATOR HOSE FROM WATER OUTLET

4. REMOVE ENGINE COVER

Remove the 4 nuts and engine cover.

5. REMOVE AIR CLEANER INLET

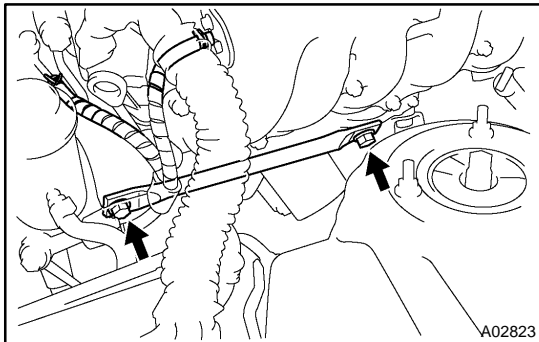
6. REMOVE AIR CLEANER, MAF METER AND INTAKE AIR RESONATOR ASSEMBLY (See page [EM-65](#))

7. M/T:

REMOVE DRIVE BELT TENSIONER ABSORBER

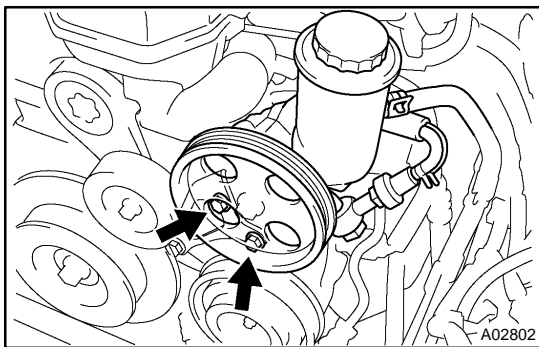
Remove the 2 nuts and absorber.

8. REMOVE DRIVE BELT (See page [CH-1](#))



9. DISCONNECT PS PUMP WITHOUT DISCONNECTING HOSES

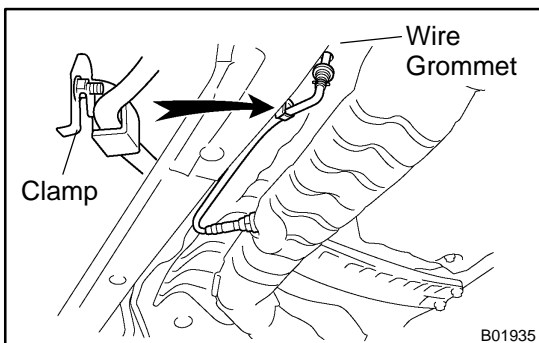
- (a) Disconnect the PS air hose from the No. 4 timing belt cover.
- (b) Disconnect the PS air hose from the air intake chamber.
- (c) Remove the 2 bolts and pump rear stay.



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

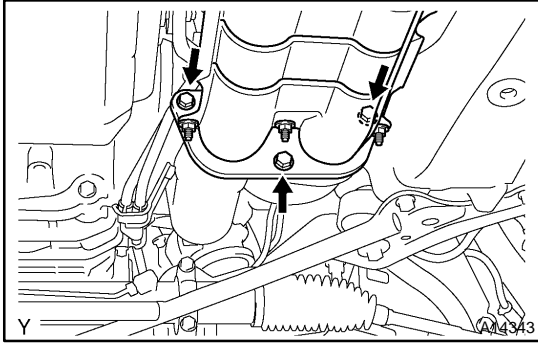
HINT:

Put aside the vane pump, and suspend it.

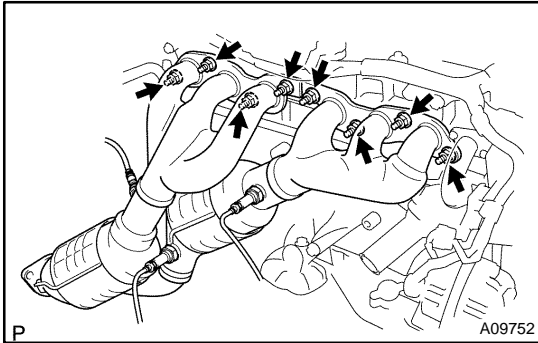


10. DISCONNECT FRONT EXHAUST PIPE FROM EXHAUST MANIFOLD

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



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



11. REMOVE EXHAUST MANIFOLD

- (a) Disconnect the 3 heated oxygen sensor connectors and clamp.
- (b) Remove the clamp and case clamp.
- (c) Using a 14 mm deep socket wrench, remove the 8 nuts, exhaust manifold and 2 gaskets.

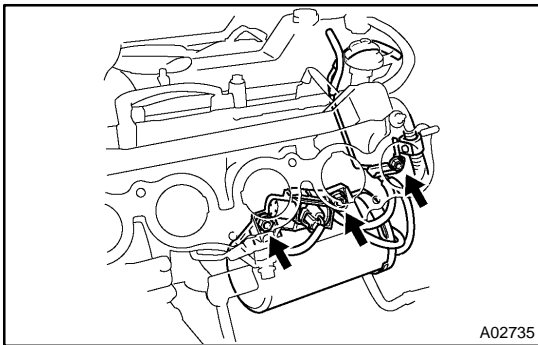
12. REMOVE WATER BYPASS OUTLET AND NO. 1 WATER BYPASS PIPE (See page [CO-12](#))

13. REMOVE THROTTLE BODY AND INTAKE AIR CONNECTOR ASSEMBLY (See page [EM-5](#))

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

15. REMOVE OIL DIPSTICK AND GUIDE FOR A/T (See page [EM-65](#))

16. REMOVE AIR INTAKE CHAMBER (See page [SF-46](#))



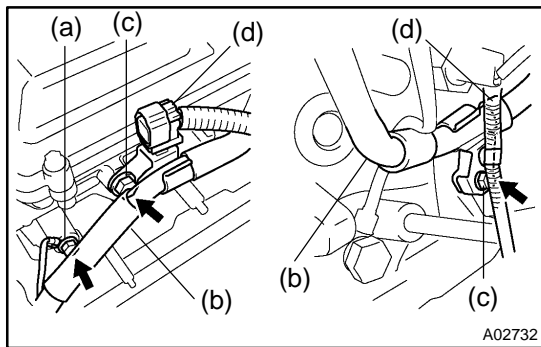
17. REMOVE VACUUM CONTROL VALVE SET AND NO. 2 VACUUM PIPE

- (a) Disconnect the VSV connector for 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.

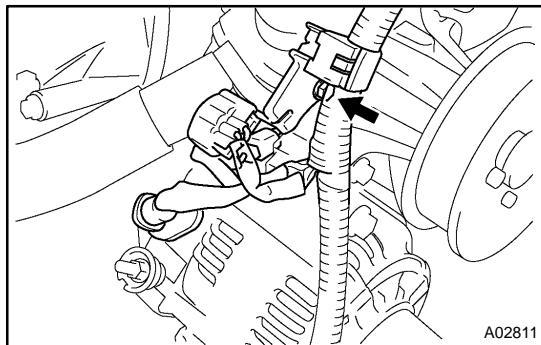
18. REMOVE NO. 3 TIMING BELT COVER

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

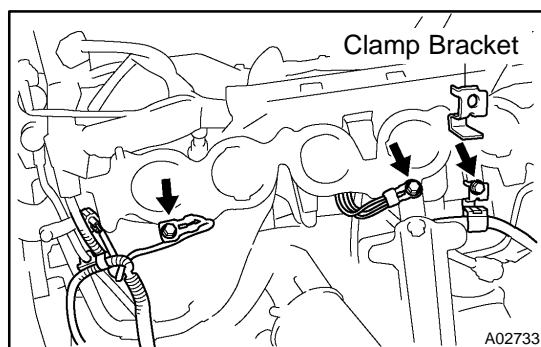
20. REMOVE SPARK PLUGS

**21. DISCONNECT ENGINE WIRE FROM CYLINDER HEAD**

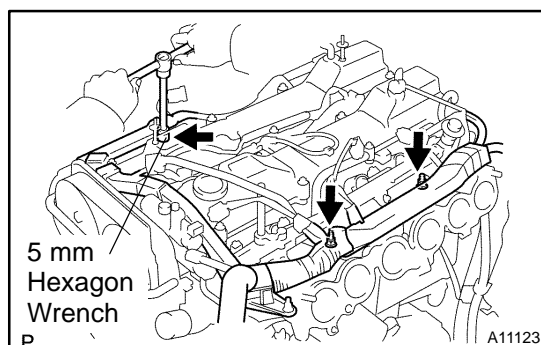
- (a) Disconnect the ground strap from the cylinder head.
- (b) Disconnect the 2 water bypass hoses from the hose clamps on the cylinder head and oil filter bracket.
- (c) Remove the 2 bolts and hose clamps.
- (d) Disconnect the heated oxygen sensor (bank 2 sensor 1) connector and engine wire clamp from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



- (e) Disconnect the heated oxygen sensor (bank 1 sensor 1) connector.
- (f) Disconnect the crankshaft position sensor connector.
- (g) Disconnect the generator connector.
- (h) Remove the bolt and clamp bracket, and disconnect the engine wire from the water pump.

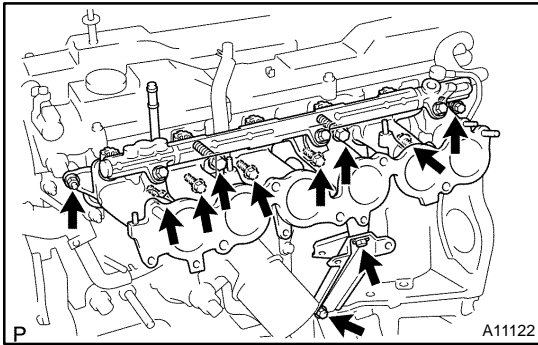


- (i) Disconnect the 2 ground terminals from the intake manifold.
- (j) Disconnect the 2 engine wire clamps from the No. 1 oil pipe and clamp bracket on the intake manifold.
- (k) Remove the bolt and clamp bracket.
- (l) Disconnect the ECT sensor connector.
- (m) Remove the 2 knock sensor connectors.
- (n) Remove the oil pressure switch connector.
- (o) Remove the oil level sensor connector.
- (p) Remove the starter connector.
- (q) Remove the 6 injector connectors.
- (r) Remove the camshaft timing oil control valve connector.
- (s) Remove the camshaft position sensor connector.

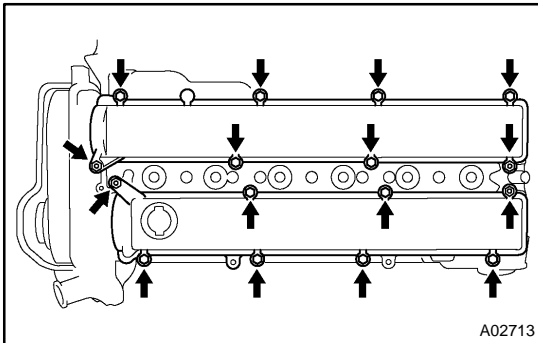


- (t) Using a 5 mm hexagon wrench, remove the bolt holding the engine wire protector to the No. 2 cylinder head cover.
- (u) Remove the 3 nuts, and disconnect the engine wire protector from the intake manifold.

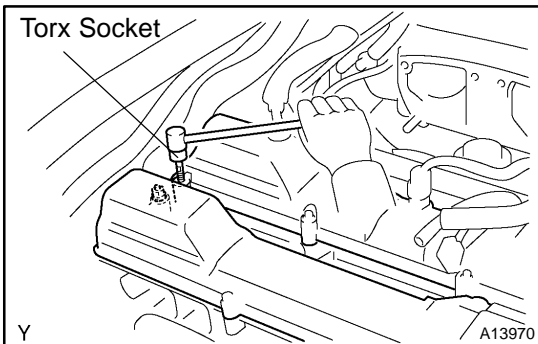
22. REMOVE FUEL PRESSURE PULSATION DAMPER (See page SF-26)

**23. REMOVE INTAKE MANIFOLD ASSEMBLY**

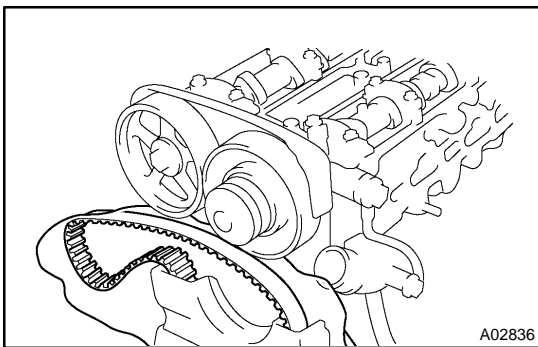
- (a) Disconnect the starter wire from the manifold stay.
- (b) Remove the 2 bolts and manifold stay.
- (c) Remove the 7 bolts, 2 nuts, the intake manifold and delivery pipe assembly and gasket.

**24. REMOVE NO. 1 AND NO. 2 CYLINDER HEAD COVERS**

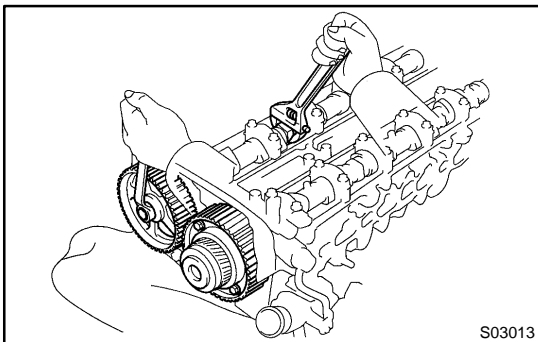
- (a) Remove the 12 bolts and 4 nuts.



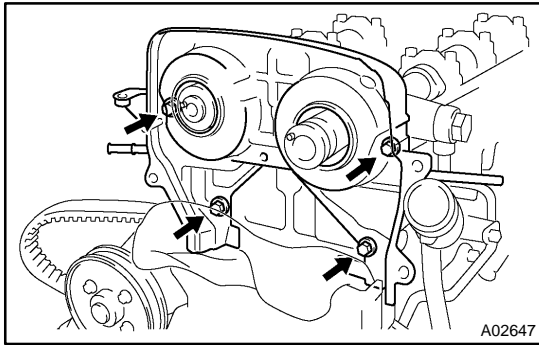
- (b) Using a torx socket (E5), remove the 4 stud bolts.
- (c) Remove the cylinder head covers and gaskets.

**25. 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.

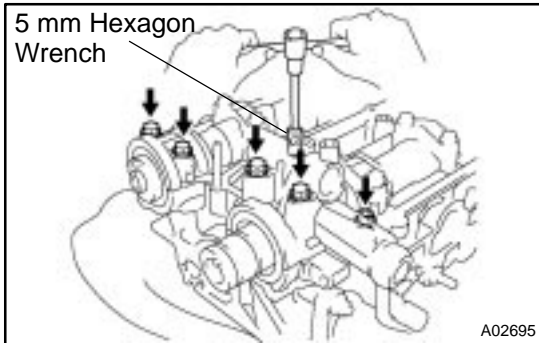
**26. REMOVE CAMSHAFT TIMING PULLEYS**

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



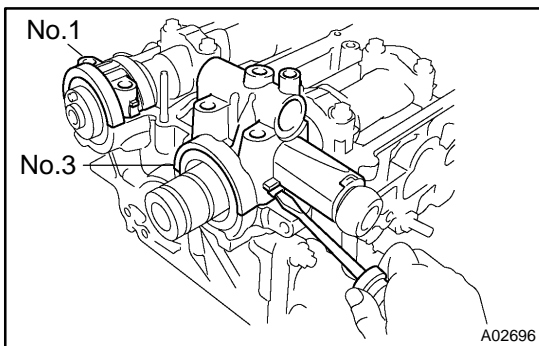
27. REMOVE NO. 4 TIMING BELT COVER

Remove the 4 bolts and timing belt cover.



28. REMOVE CAMSHAFTS

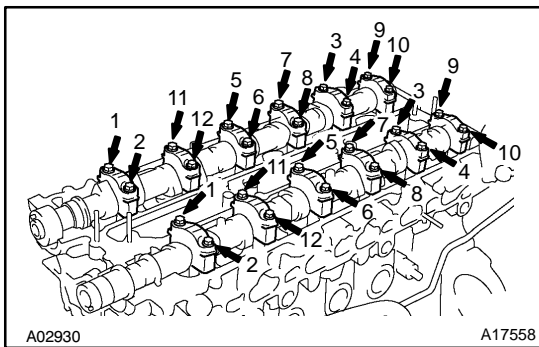
- (a) Using a 5 mm hexagon wrench, the 2 No. 3 camshaft bearing cap bolts.
- (b) Uniformly loosen and remove the 4 camshaft bearing cap bolts.



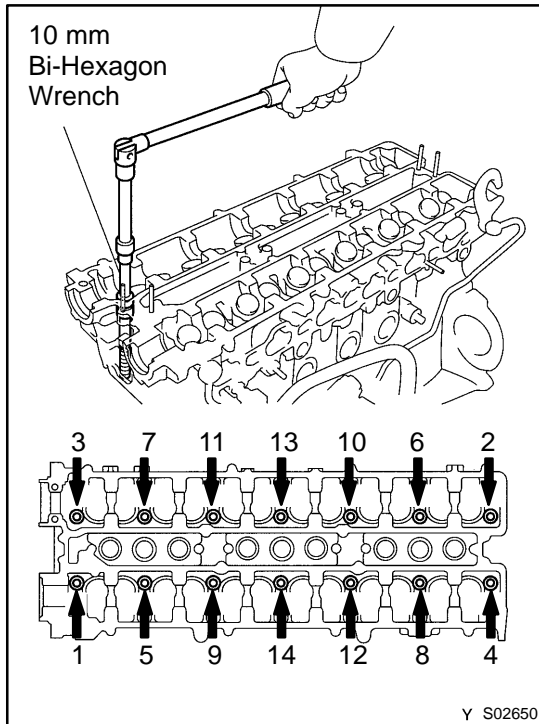
- (c) Using a screwdriver, pry out the Nos. 1, 3 camshaft bearing caps and oil seals.

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.



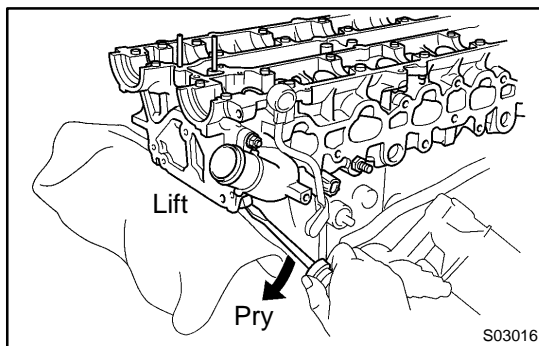
29. REMOVE CYLINDER HEAD ASSEMBLY

- (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.