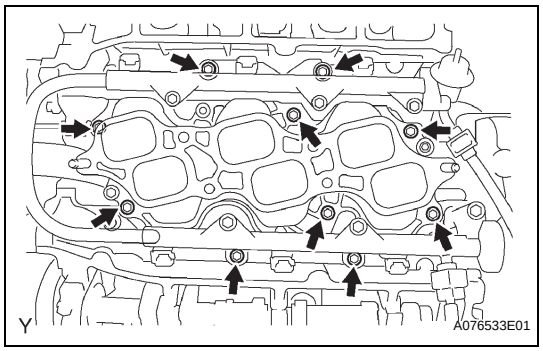
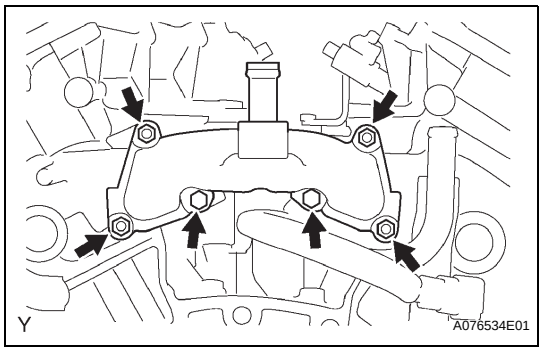
REMOVAL

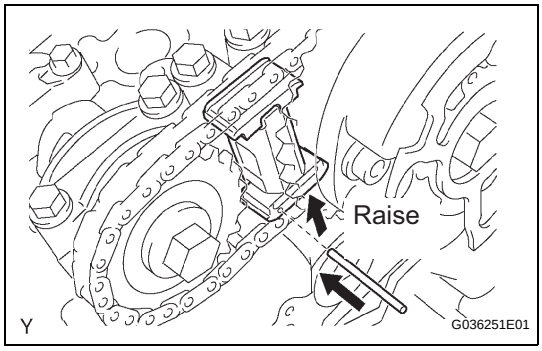
1. **DISCHARGE FUEL SYSTEM PRESSURE**
   (See page FU-1)
2. **REMOVE BATTERY**
3. **DRAIN ENGINE COOLANT (See page CO-3)**
4. **DRAIN ENGINE OIL (See page LU-4)**
5. **REMOVE POWER STEERING LINK ASSEMBLY**
   (See page PS-53)
6. **REMOVE FRONT DIFFERENTIAL CARRIER ASSEMBLY (for 4WD)**
   (See page DF-19)
7. **REMOVE TIMING CHAIN OR BELT COVER SUB-ASSEMBLY**
   (See page LU-34)
8. **REMOVE CHAIN SUB-ASSEMBLY**
   (See page EM-44)
9. **REMOVE NO.1 COOL AIR INLET**
   (a) Remove the 2 bolts, then remove the cool air inlet.
10. **REMOVE FRONT EXHAUST PIPE ASSEMBLY**
    (See page EX-3)
11. **REMOVE MANIFOLD STAY**
    (a) Remove the 3 bolts, then remove the exhaust manifold stay.
12. **REMOVE EXHAUST MANIFOLD SUB-ASSEMBLY**
    (a) Disconnect the air fuel ratio sensor connector.
    (b) Remove the 6 nuts, then remove the exhaust manifold and gasket.
13. **DISCONNECT NO.1 FUEL PIPE SUB-ASSEMBLY (See page FU-13)**
14. **DISCONNECT NO.2 FUEL PIPE SUB-ASSEMBLY (See page FU-13)**
15. **REMOVE INTAKE MANIFOLD**
    (a) Disconnect the 6 fuel injector connectors.
    (b) Remove the 10 bolts, then remove the intake manifold and gasket.
16. **REMOVE WATER BY-PASS JOINT RR**
    (a) Disconnect the engine coolant temperature sensor connector.
    (b) Disconnect the heater hose.



EM

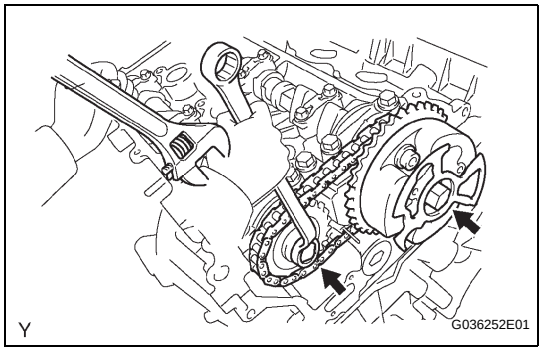


(c) Remove the 2 bolts and 4 nuts, then remove the water by-pass joint RR and 2 gaskets.
(d) Remove the O-ring from the water outlet hose.

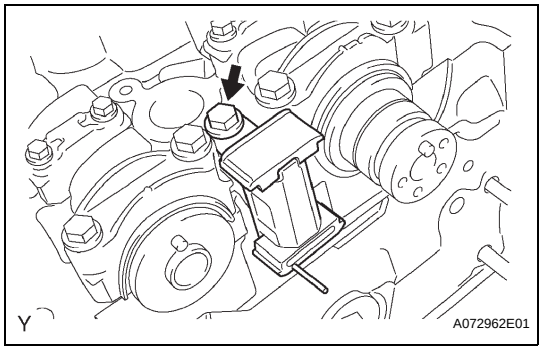


17. REMOVE CAMSHAFT TIMING GEARS AND NO.2 CHAIN (for Bank 1)

(a) While raising the chain tensioner No. 2, insert a pin of ϕ 1.0 mm (0.039 in.) into the hole to fix it.



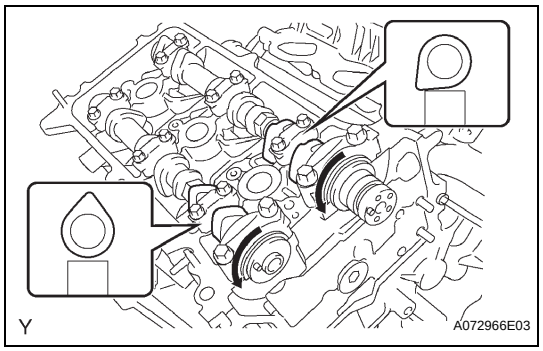
(b) Hold the hexagonal portion of the camshaft with a wrench.
NOTICE:
Be careful not to damage the cylinder head and valve lifter with the wrench.
(c) Remove the 2 bolts, then remove the camshaft timing gear, camshaft timing gear assembly and timing chain No. 2.
NOTICE:
Do not disassemble the camshaft timing gear assembly.



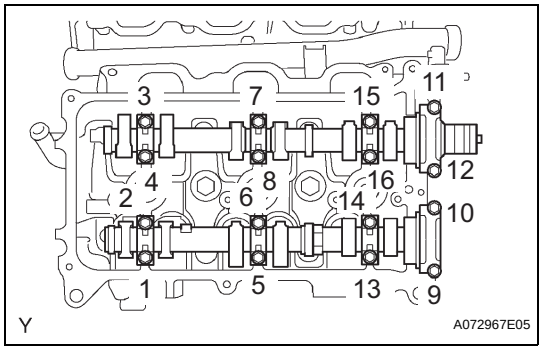
18. REMOVE NO.2 CHAIN TENSIONER ASSEMBLY

(a) Remove the bolt, then remove the chain tensioner No. 2.

19. REMOVE CAMSHAFTS
NOTICE:
Keep the camshaft level while it is being removed. The camshaft thrust clearance is very small and failing to keep it level could crack or damage the cylinder head journal surface, which receives the thrust. This could subsequently lead the camshaft to seize or break. Perform the following steps to avoid such problems.



(a) Rotate the camshafts counterclockwise using a wrench so that the cam lobes of No. 1 cylinder face in the directions shown in the illustration.



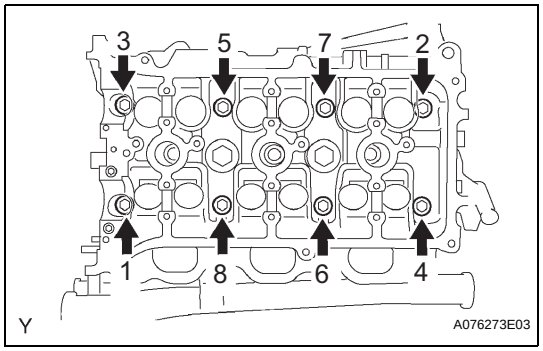
(b) Using several steps, loosen and remove the 16 bearing cap bolts uniformly in the sequence shown in the illustration.

(c) Remove the 8 bearing caps and 2 camshafts.

20. REMOVE NO.2 CAMSHAFT BEARING

21. REMOVE CYLINDER HEAD SUB-ASSEMBLY

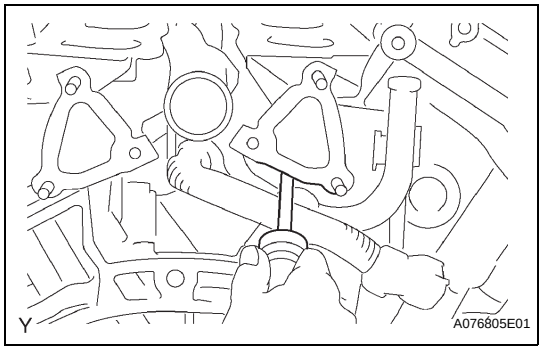
(a) Remove the 2 bolts and separate the 2 ground cables.



(b) Using several steps, loosen the 8 cylinder head bolts on the cylinder head uniformly with a 10 mm bi-hexagon wrench in the sequence shown in the illustration. Remove the 8 cylinder head bolts and 8 plate washers.

NOTICE:

- **Be careful not to drop the plate washers into the cylinder head.**
- **Cylinder head warpage or cracking could result from removing the bolts in the wrong order.**



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

NOTICE:

Be careful not to drop the plate washers into the cylinder head.

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

22. REMOVE CYLINDER HEAD GASKET

INSPECTION

1. INSPECT CYLINDER HEAD SET BOLT

(a) Using a vernier caliper, measure the outside diameter of the bolt thread.

Standard outside diameter:
10.85 to 11.00 mm (0.4272 to 0.4331 in.)

Minimum outside diameter:
10.7 mm (0.421 in.)