

# Cylinder Head

## Installation

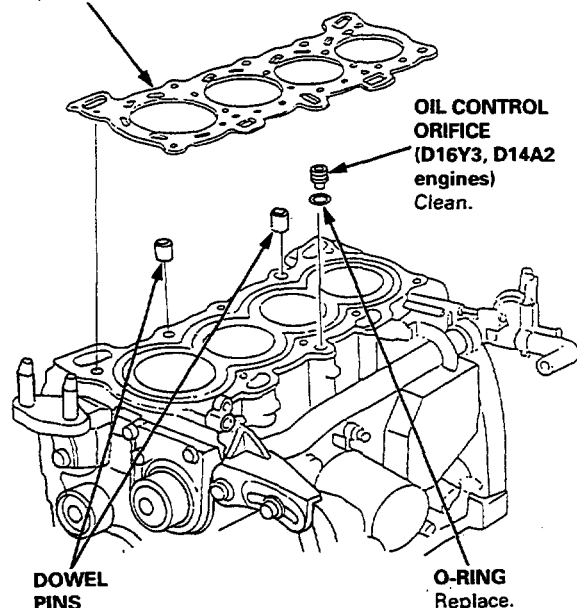
Install the cylinder head in the reverse order of removal:

### NOTE:

- Always use a new head gasket.
- Cylinder head and cylinder block surface must be clean.
- "UP" mark on camshaft pulley should be at the top.
- Turn the crankshaft so the No. 1 piston is at TDC (see page 6-14).
- Clean the oil control orifice before installing.
- Do not use the upper cover and lower cover for storing items disassembled.
- Clean the upper cover and lower cover before installation.

1. Cylinder head dowel pins must be aligned.
2. Install the oil control orifice (D16Y3, D14A2 engines).

**CYLINDER HEAD GASKET**  
Replace.



3. Position the camshaft correctly (see page 6-14).

4. Tighten the cylinder head bolts sequentially in two steps.

**1st step: 29 N-m (3.0 kgf-m, 22 lbf-ft)**

**2nd step:**

**D16Y2, D15Z3 engines:**

**72 N-m (7.3 kgf-m, 53 lbf-ft)**

**D16Y3, D14A2 engines:**

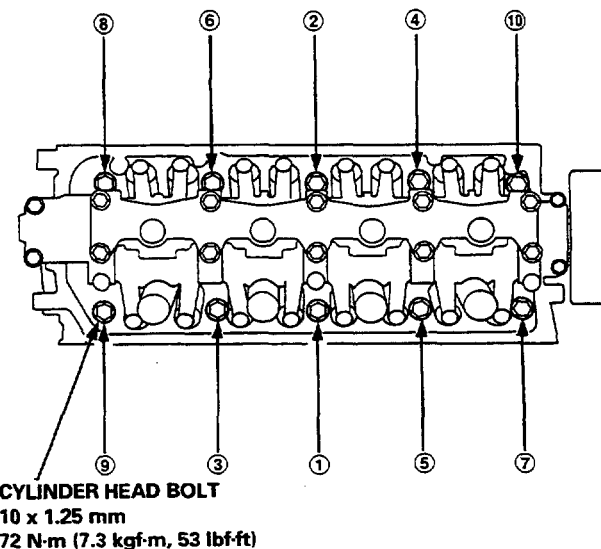
**64 N-m (6.5 kgf-m, 47 lbf-ft)**

### NOTE:

- We recommend using a beam-type torque wrench. When using a preset-type torque wrench, be sure to tighten slowly and not to overtighten.
- If a bolt makes any noise while you are torquing it, loosen the bolt, and retighten it from the 1st step.

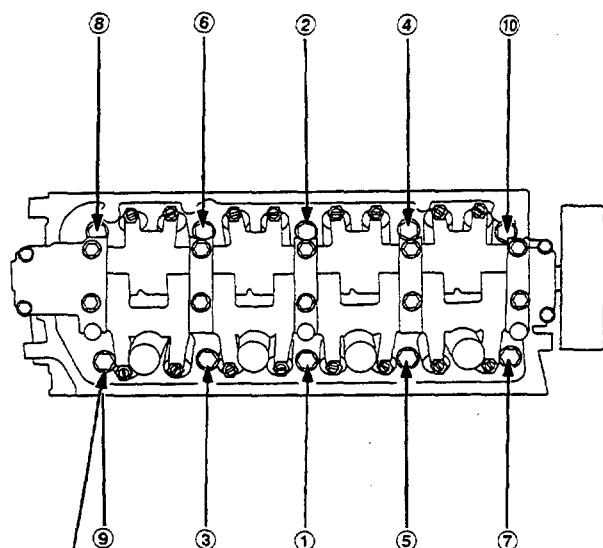
### CYLINDER HEAD BOLTS TORQUE SEQUENCE

**D16Y2 engine:**



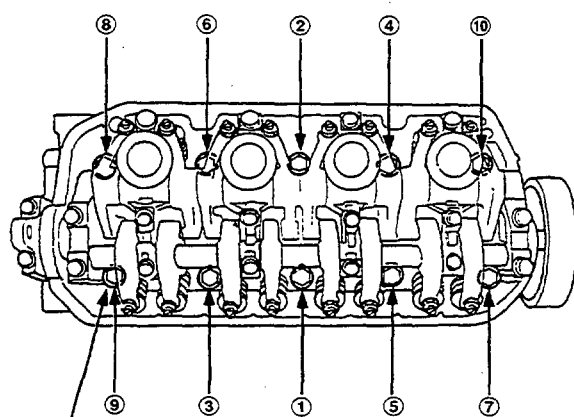


# **D15Z3 engine:**



**CYLINDER HEAD BOLT**  
10 x 1.25 mm  
72 N·m (7.3 kgf-m, 53 lbf-ft)

# **D16Y3, D14A2 engines:**



**CYLINDER HEAD BOLT**  
10 x 1.25 mm  
64 N·m (6.5 kgf-m, 47 lbf-ft)

5. Install the intake manifold and tighten the nuts in a crisscross pattern in 2 or 3 steps, beginning with the inner nuts (see pages 9-2 and 3).
  - Always use a new intake manifold gasket.
6. Install the exhaust manifold and tighten the nuts in a crisscross pattern in 2 or 3 steps, beginning with the inner nut (see pages 9-4 thru 9-6).
  - Always use a new exhaust manifold gasket.
7. Install the exhaust manifold bracket, then install the exhaust pipe A and the bracket, and then install the cover.

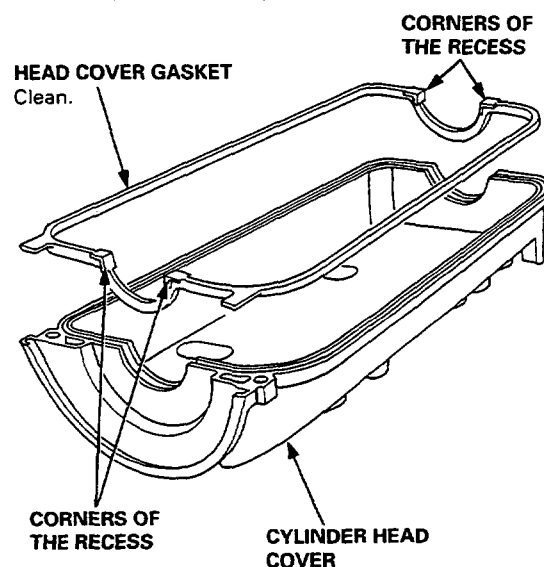
8. Install the timing belt (see page 6-24).

9. Adjust the valve clearance (see page 6-14).

10. Install the head cover gasket in the groove of the cylinder head cover. Seat the recesses for the camshaft first, then work it into the groove around the outside edges.

## **NOTE:**

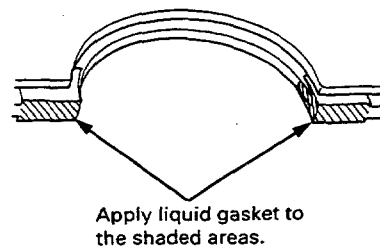
- Before installing the head cover gasket, thoroughly clean the seal and the groove.
- When installing, make sure the head cover gasket is seated securely in the corners of the recesses with no gap.



11. Apply liquid gasket to the head cover gasket at the four corners of the recesses.

## **NOTE:**

- Use liquid gasket, Part No. 0Y740 - 99986.
- Check that the mating surfaces are clean and dry before applying liquid gasket.
- Do not install the parts if 5 minutes or more have elapsed since applying liquid gasket. Instead, reapply liquid gasket after removing old residue.
- After assembly, wait at least 20 minutes before filling the engine with oil.



(cont'd)

# Cylinder Head

## Installation (cont'd)

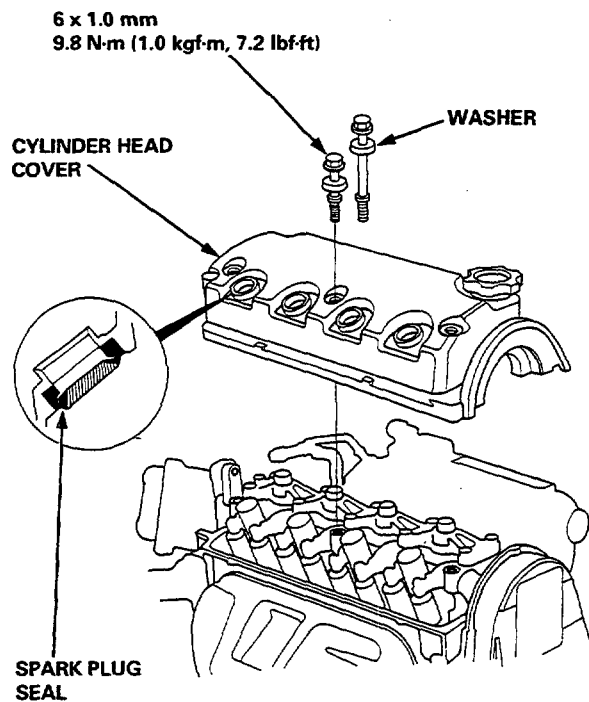
12. When installing the cylinder head cover, hold the head cover gasket in the groove by placing your fingers on the camshaft contacting surfaces (top of the semicircles).

Set the spark plug seal on the spark plug pipe (D16Y2, D15Z3 engines).

Once the cylinder head cover is on the cylinder head, slide the cover slightly back and forth to seat the head cover gasket.

### NOTE:

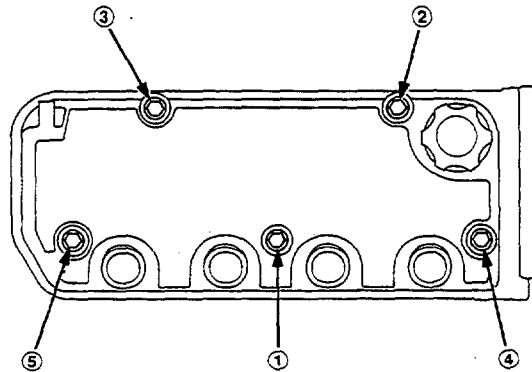
- Before installing the cylinder head cover, clean the cylinder head contacting surfaces with a shop towel.
- Do not touch the parts where liquid gasket was applied.
- Take care not to damage the spark plug seal when installing the cylinder head cover (D16Y2, D15Z3 engines).
- Visually check the spark plug seal for damage (D16Y2, D15Z3 engines).
- Replace the washer when damaged or deteriorated.



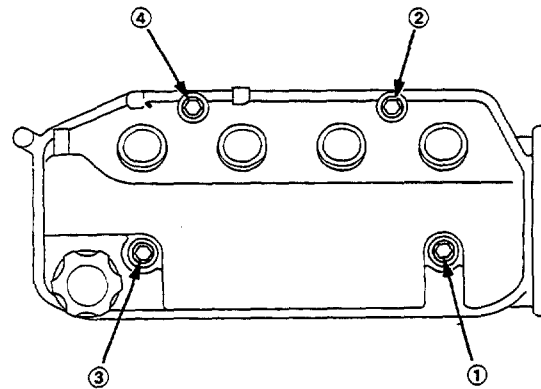
13. Tighten the nuts in 2 or 3 steps. In the final step, tighten all nuts, in sequence, to 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft).

NOTE: After assembly, wait at least 20 minutes before filling the engine with oil.

### D16Y2, D15Z3 engines:



### D16Y3, D14A2 engines:



14. After installation, check that all tubes, hoses and connectors are installed correctly.