

# CYLINDER HEAD ASSEMBLY

(Cylinder head / valve / camshaft)

## REMOVAL

Prior to removing cylinder head :

- Remove the power unit.  
(see page 6-3 to 6-6)
- Remove the timing chain.  
(see page 6-15 to 6-16)

1. Remove the bolts securing the camshaft housing to cylinder head, then remove each camshaft housing.

**NOTE:**

For ease of assembly, note position of each individual camshaft housing.

2. Remove intake and exhaust camshafts.

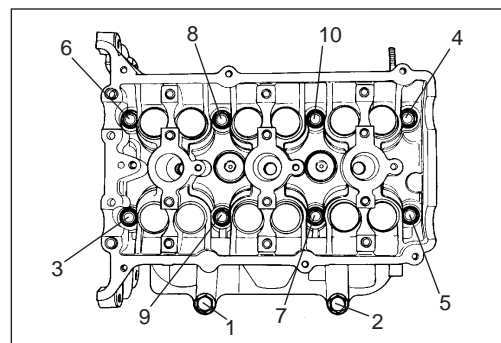
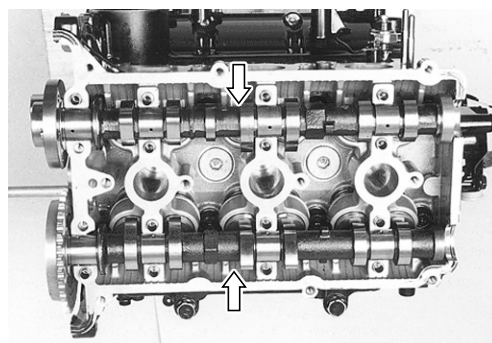
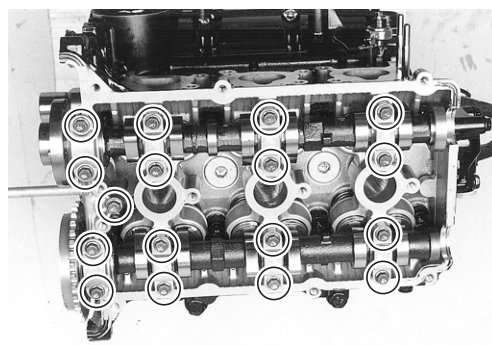
3. Loosen ten (10) cylinder head bolts in the order indicated in figure and remove them.

4. Remove cylinder head assembly and head gasket.

**NOTE:**

Use a special tool (10mm deep socket wrench) when loosening the cylinder head bolts.

 **09919-16010 : Deep socket wrench (10 mm)**



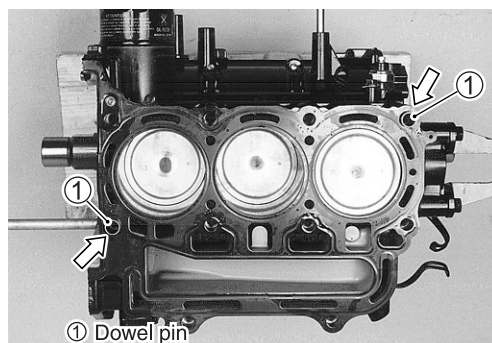
## INSTALLATION

Installation is reverse order of removal with special attention to the following steps.

### CAUTION

**Do not re-use gasket. Always use a new gasket.**

1. Insert the dowel pins and place a new cylinder head gasket into position on the cylinder.



2. Position cylinder head on cylinder.
3. Apply engine oil to cylinder head bolts and tighten them gradually as follows.
  - (a) Tighten all bolts to 30 N · m (3.0 kg-m, 21.5 lb.-ft.) according to numerical order in figure.
  - (b) Loosen all bolts to 0 N · m (0 kg-m, 0 lb.-ft.) according to reverse order in figure.
  - (c) Again tighten all bolts to 30 N · m (3.0 kg-m, 21.5 lb.-ft.) according to numerical order in figure.
  - (d) Finally tighten all bolts to specified torque according to numerical order in figure.

 **Cylinder head bolt : 60 N · m (6.0 kg-m, 43.5 lb.-ft.)**

**NOTE:**

Use special tool (10mm deep socket wrench) when tighten the cylinder head bolt.

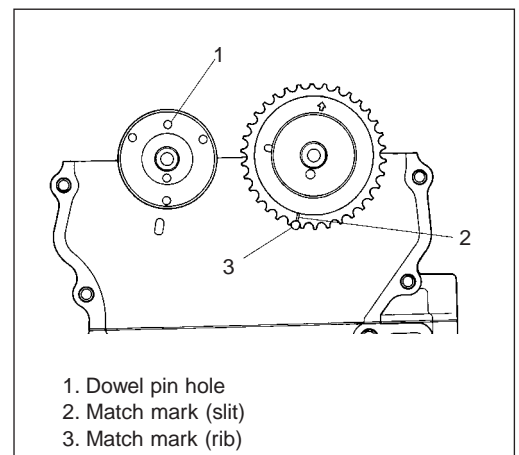
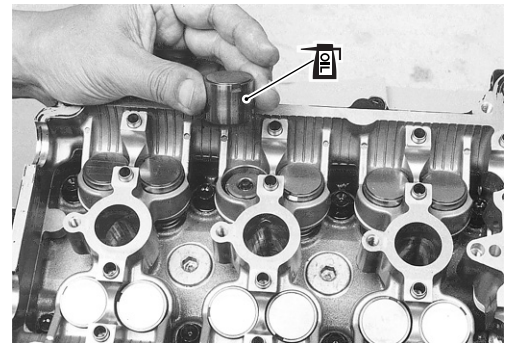
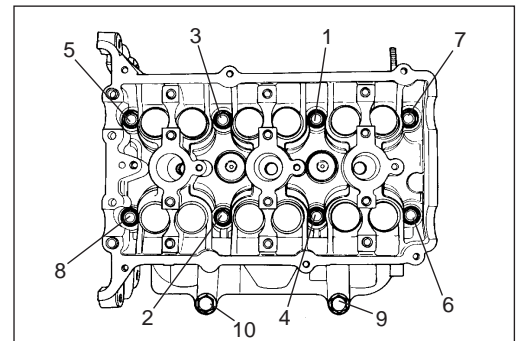
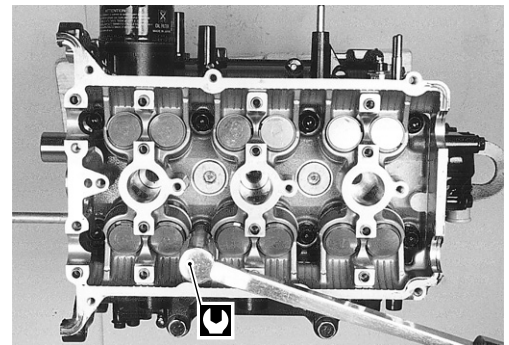
 **09919-16010 : Deep socket wrench (10 mm)**

4. Apply engine oil around tappets and install.
5. Install tappet shims.

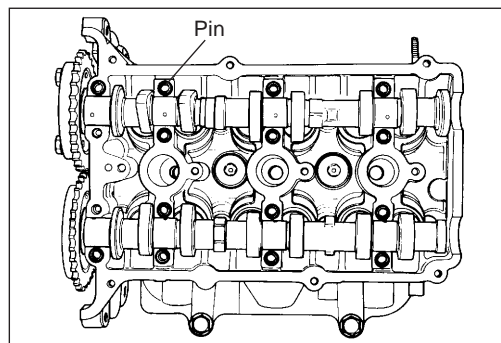
6. Apply engine oil to the surface of each camshaft lobe and journal, then install them as shown in figure.

**NOTE:**

Before installing camshafts, turn crankshaft until No.1 cylinder reaches top dead center. (see page 6-15)

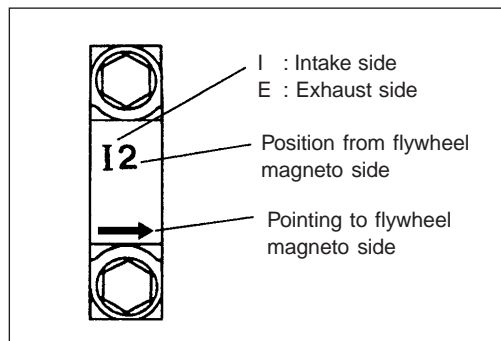


7. Install camshaft housing pins as shown in figure.



8. Check position of camshaft housing.


- Embossed marks are provided on each camshaft housing indicating position and direction of installation. Install housings as indicated by these marks.

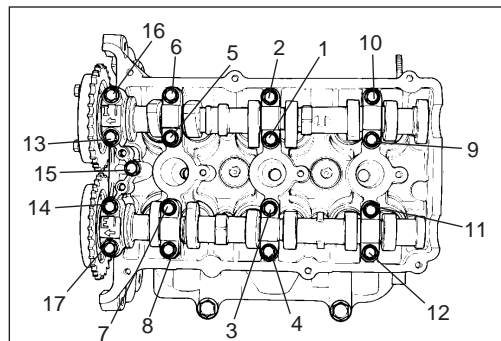


9. Apply engine oil to housing bolts.

10. Lightly seat all housing bolts at first.

Following numerical order in figure, tighten bolts to 1/3 of specified torque, then 2/3 of specified torque and finally to full specified torque.

 **Camshaft housing bolt : 10 N · m (1.0 kg-m, 7.0 lb.-ft.)**



11. Install timing chain. (see page 6-18)

12. Adjust tappet clearance. (see page 2-8)