

## CYLINDER HEAD/VALVE

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### TORQUE VALUES

Cylinder head cover bolt	10 N·m (1.0 kgf·m , 7 lbf·ft)	
Cam sprocket bolt	20 N·m (2.0 kgf·m , 14 lbf·ft)	Apply locking agent to the threads
Camshaft holder bolt	21 N·m (2.1 kgf·m , 15 lbf·ft)	Apply oil to the threads and seating surface
Cylinder head bolt (10 mm)	53 N·m (5.4 kgf·m , 39 lbf·ft)	Apply oil to the threads and seating surface
Cam chain tensioner bolt	23 N·m (2.3 kgf·m , 17 lbf·ft)	Apply locking agent to the threads
Cam chain guide bolt	23 N·m (2.3 kgf·m , 17 lbf·ft)	Apply locking agent to the threads
Carburetor insulator band screw	1 N·m (0.1 kgf·m , 0.7 lbf·ft)	
Spark plug	14 N·m (1.4 kgf·m , 10 lbf·ft)	

### TOOLS

Valve spring compressor	07757-0010000
Valve guide remover	07742-0010000
Valve guide driver	07743-0020000
Valve guide reamer	07VMH-MBB0200
Valve seat cutter, 40 mm (IN/EX 45°)	07780-0010500
Flat cutter, 38.5 mm (IN 32°)	07780-0012400
Flat cutter, 35 mm (EX 32°)	07780-0012300
Interior cutter, 37.5 mm (IN/EX 60°)	07780-0014100
Cutter holder, 6 mm	07VMH-MBB0100

## TROUBLESHOOTING

Engine top-end problems usually affect engine performance. These can be diagnosed by a compression test, or by tracing top-end noise with a sounding rod or stethoscope.

### Compression too low, hard starting or poor performance at low speed

- Valves
  - Incorrect valve adjustment
  - Burned or bent valves
  - Incorrect valve timing
  - Broken valve spring
  - Uneven valve seating
- Cylinder head
  - Leaking or damaged cylinder head gasket
  - Warped or cracked cylinder head
  - Loose spark plug
- Cylinder/piston (section 12)

### Compression too high

- Excessive carbon build-up on piston head or combustion chamber

### Excessive smoke

- Worn valve stem or valve guide
- Damaged stem seal
- Cylinder/piston problem (section 12)

### Excessive noise

- Incorrect valve clearance
- Sticking valve or broken valve spring
- Worn or damaged camshaft
- Worn or damaged valve lifter
- Worn cam chain
- Worn or damaged cam chain tensioner
- Worn cam sprocket teeth
- Cylinder/piston problem (section 12)

### Rough idle

- Low cylinder compression