

## CYLINDER HEAD/VALVES

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### TORQUE VALUES

Cylinder head cover bolt	10 N-m (1.0 kgf-m, 7 lbf-ft)	
Cam sprocket bolt	8.8 N-m (0.9 kgf-m, 6.5 lbf-ft)	Apply a locking agent to the threads
Cam chain tensioner plug	4.2 N-m (0.43 kgf-m, 3.1 lbf-ft)	
Camshaft holder bolt	12 N-m (1.2 kgf-m, 9 lbf-ft)	Apply oil to the threads and seating surface
Cylinder head nut	30 N-m (3.1 kgf-m, 22 lbf-ft)	Apply oil to the threads and seating surface

### TOOLS

Valve spring compressor	07757 – 0010000
Attachment	07JME – KY20100
Valve guide driver, 3.8 mm	07GMD – KT70100
Valve guide reamer	07JMH – KY20100
Valve seat cutter	
Seat cutter, 24 mm (45° EX)	07780 – 0010600
Seat cutter, 27.5 mm (45° IN)	07780 – 0010200
Flat cutter, 24 mm (32° EX)	07780 – 0012500
Flat cutter, 27 mm (32° IN)	07780 – 0013300
Interior cutter, 26 mm (60° IN)	07780 – 0014500
Interior cutter, 30 mm (60° EX)	07780 – 0014000
Cutter holder, 3.8 mm	07JMH – KY20200
Tapet hole protector	07JMG – KY20100

### TROUBLESHOOTING

- Engine top-end problems usually affect engine performance. These can be diagnosed by a compression or leak down test, or by tracing engine noises to the top-end with a sounding rod stethoscope.
- If the performance is poor at low speeds, check for white smoke in the crankcase breather tube. If the tube is smoky, check for a seized piston ring (section 11).

#### 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
  - Weak valve spring
- Cylinder head
  - Leaking or damaged cylinder head gasket
  - Warped or cracked cylinder head

#### Compression too high, overheating or knocking

- Excessive carbon build-up in cylinder head or on top of piston

#### Excessive smoke

- Worn valve stem or valve guide
- Damaged stem seal
- Faulty cylinder, piston or piston rings (section 11)

#### Excessive noise

- Cylinder Head
  - Incorrect valve clearance
  - Sticking valve or broken valve spring
- Faulty cylinder or piston (section 11)

#### Rough idle

- Low cylinder compression
- Intake air leak