

TOOLS

Compression gauge attachment	07RMJ-MY50100	Equivalent commercially available
Valve spring compressor	07757-0010000	
Valve spring compressor attachment	07959-KM30101	
Tappet hole protector	07HMG-MR70002	
Valve guide driver	07743-0020000	
Valve guide reamer, 4,508 mm	07HMH-ML00101	
Valve seat cutters		- these are commercially available
Seat cutter, 27.5 mm (45° IN/EX)	07780-0010200	
Flat cutter, 27 mm (32° EX)	07780-0013300	
Flat cutter, 30 mm (32° IN)	07780-0012200	
Interior cutter, 24 mm (60° IN/EX)	07780-0010600	
Cutter holder, 4.5 mm	07781-0010600	

TROUBLESHOOTING

- Engine top-end problems usually affect engine performance. These problems can be diagnosed by a compression 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 12).

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

- Valves:
 - Incorrect valve adjustment
 - Burned or bent valve
 - Incorrect valve timing
 - Broken valve spring
 - Uneven valve seating
- Sticking valve or broken valve spring
- Damaged or worn camshaft
- Loose or worn cam chain
- Worn or damaged cam chain
- Worn or damaged cam chain tensioner
- Worn cam sprocket teeth
- Worn cylinder, piston or piston rings (section 12)
- Cylinder head:
 - Leaking or damaged head gasket
 - Warped or cracked cylinder head
- Worn cylinder, piston or piston rings (section 12)

Rough idle

- Low cylinder compression

Compression too high, overheating or knocking

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

Excessive smoke

- Cylinder head:
 - Worn valve stem or valve guide
 - Damaged stem seal
- Worn cylinder, piston or piston rings (section 12)

Excessive noise

- Cylinder head:
 - Incorrect valve adjustment