

8. Cylinder Head/Cylinder/Piston

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Service Information

- Camshaft lubricating oil is fed through oil passages in the cylinder head. Clean the oil passages before assembling the cylinder head.
- Clean all disassembled parts with clean solvent and dry them by blowing them off with compressed air before inspection.
- When disassembling, mark and store the disassembled parts to ensure that they are reinstalled in their proper locations.

Troubleshooting

- Engine top-end problem usually affect engine performance. These can be diagnosed by a compression or leak down test, or by tracing noises to the top-end with a sounding rod or stethoscope.
- If 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.

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 head gasket
 - Warped or cracked cylinder head
- Cylinder, piston
 - Leaking cylinder head gasket
 - Loose spark plug
 - Worn, stuck or broken piston ring
 - Worn or damaged cylinder and piston

Compression Too High, Overheating Or Knocking

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

Excessive Smoke

- Cylinder head
 - Worn valve stem or valve guide
 - Damaged stem seal
- Cylinder, piston
 - Worn cylinder, piston, or piston rings
 - Improper installation of piston rings
 - Scored or scratched piston or cylinder wall

Excessive Noise

- Cylinder head
 - Incorrect valve adjustment
 - 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
- Cylinder, piston
 - Worn cylinder and piston
 - Worn piston pin and piston pin hole

Rough Idle

- Low cylinder compression