



Modern Automotive Technology Chapter 49

Engine Removal, Disassembly,
and Parts Cleaning



North Montco
Technical Career Center

Learning Objectives

- Determine if engine removal is necessary for repairs
- List precautions for removing an engine
- Describe general safety rules when removing an engine
- List various methods for cleaning an engine
- Describe safety rules when cleaning parts

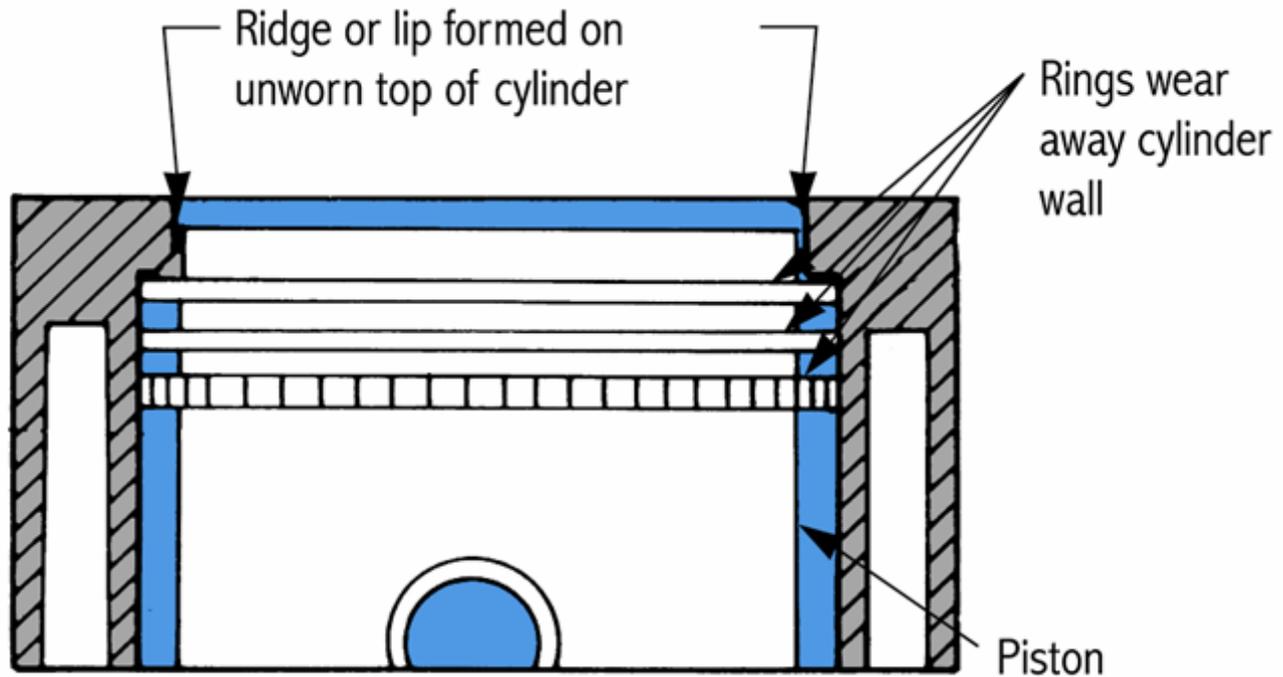


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1. The **RIDGE REAMING TOOL** is needed to cut out and remove the lip at the top of a worn cylinder caused by piston wear
2. A **COLD SOAK TANK** is a cleaning machine for removing oil and grease from parts



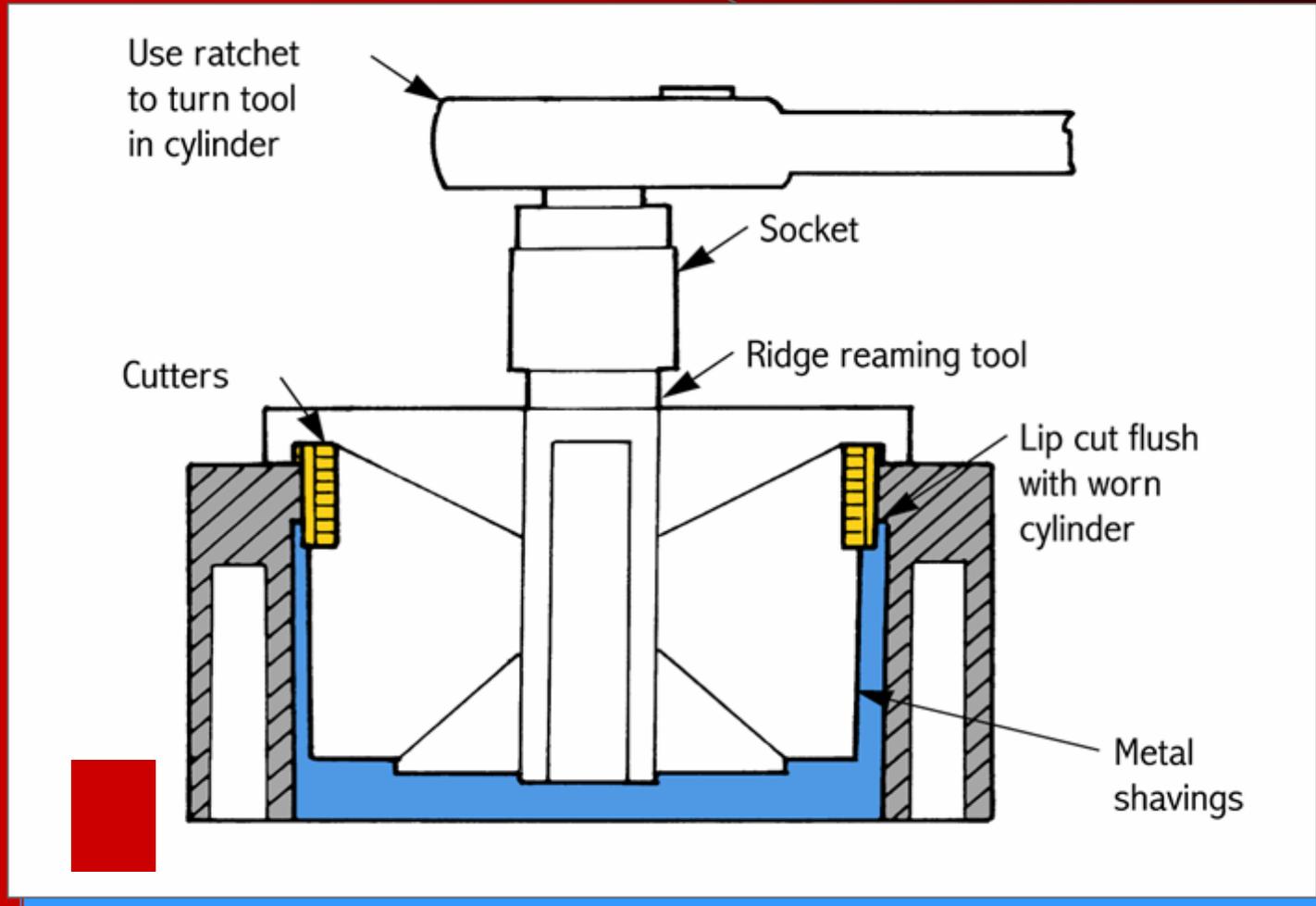
Cylinder Inspection



Inspect for wear, indicated by a ridge or lip at the top of the cylinder



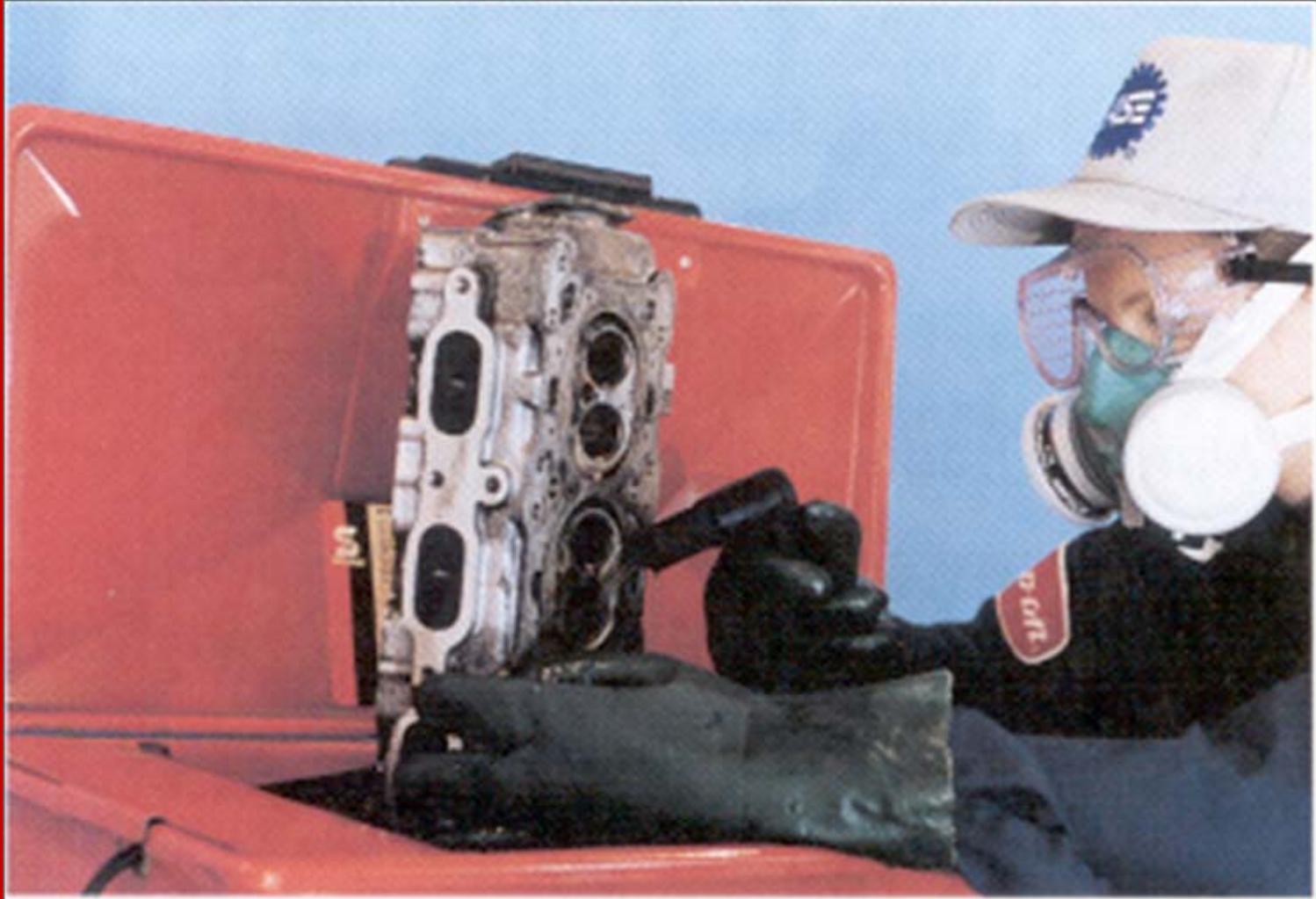
Cylinder Inspection



A ridge reamer cuts off the lip



Cold Soak Tank



Wear eye protection, gloves, and a respirator

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3. Using an **ORGANIZING TRAY** is a board with holes in it for push rods, valves, and lifters, and is usefully for keeping engine parts together during disassembly
4. **AIR DRYING** is normally the last method of cleaning parts, it uses pressure from the compressor to remove dirt, solvent, water, etc.



Air Blower



Although an indispensable tool, **NEVER** blow compressed air directly onto skin or towards a person; eye injuries, health issues or death can result!



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5. An engine that is BOLIED is cleaned in strong chemicals to remove mineral deposits in water jackets
6. A MUSHROOMED VALVE STEM tip is enlarged and smashed outward by rocker arm action

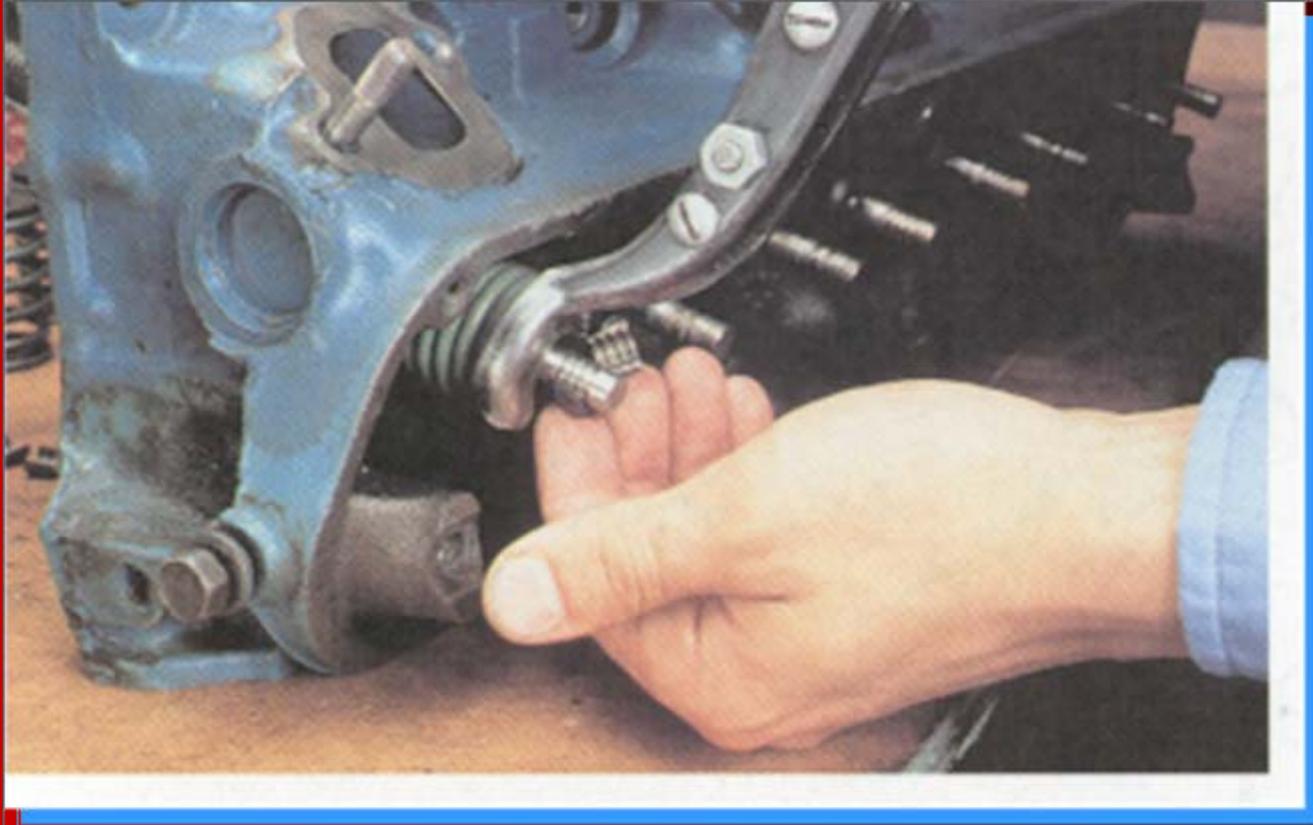


Block and Cylinder Preparations

- If the engine is old, pry out the block and head core (freeze) plugs
- Block and cylinder heads may be boiled out to remove mineral deposits from water jackets
- If cylinders are excessively worn, the block may be sent to a machine shop for boring and cleaning



Cylinder Head Disassembly



With the valve springs compressed, keepers can be removed



Grinding the Valve Tip

Remove only
enough to
smooth the tip



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7. A **HOT TANK** is a cleaning machine that is filled with strong, corrosive chemicals that dissolve grease, grime and carbon from engine and other automotive parts
8. A **RING GROOVE CLEANER** is used to remove carbon, it is a special cleaning tool commonly used during piston service

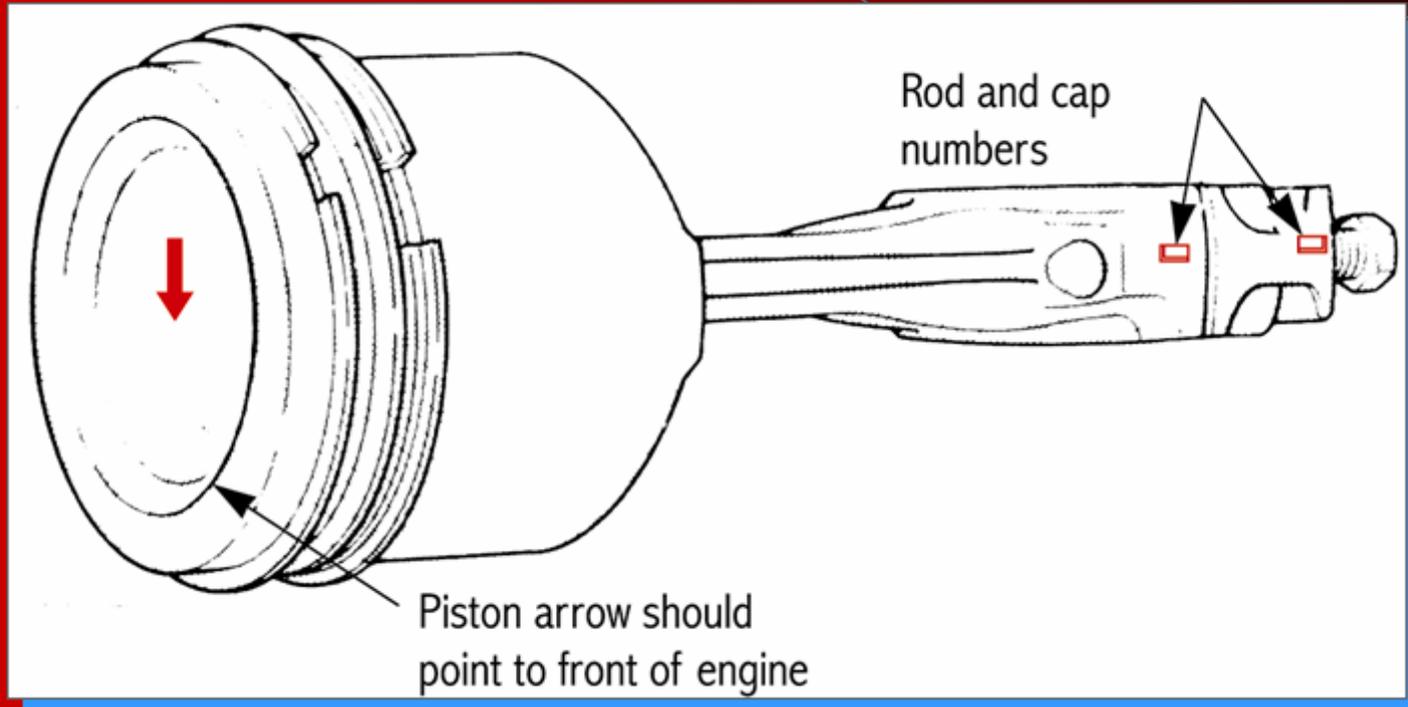


Hot Tank

Clean only cast
iron and steel
parts



Piston Inspection



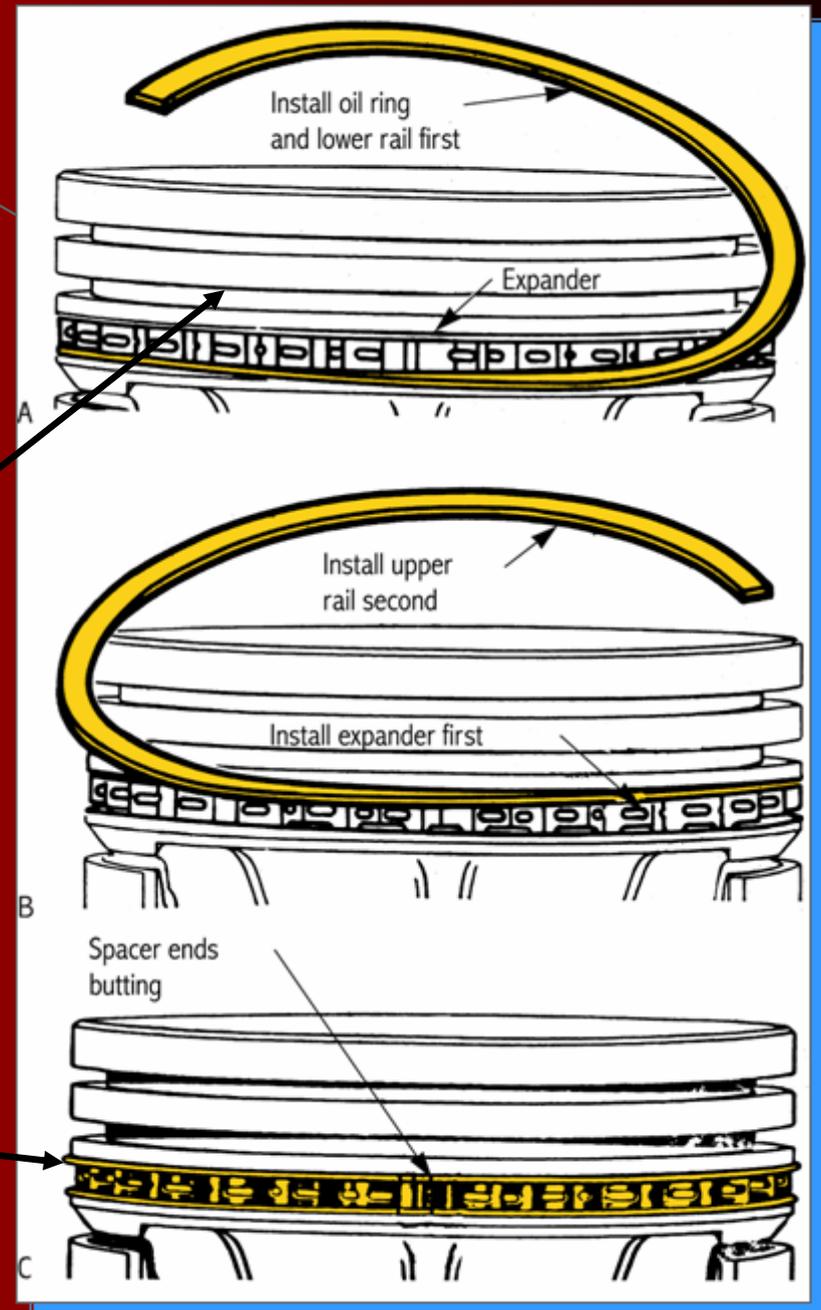
Cap and rod markings should match cylinder number



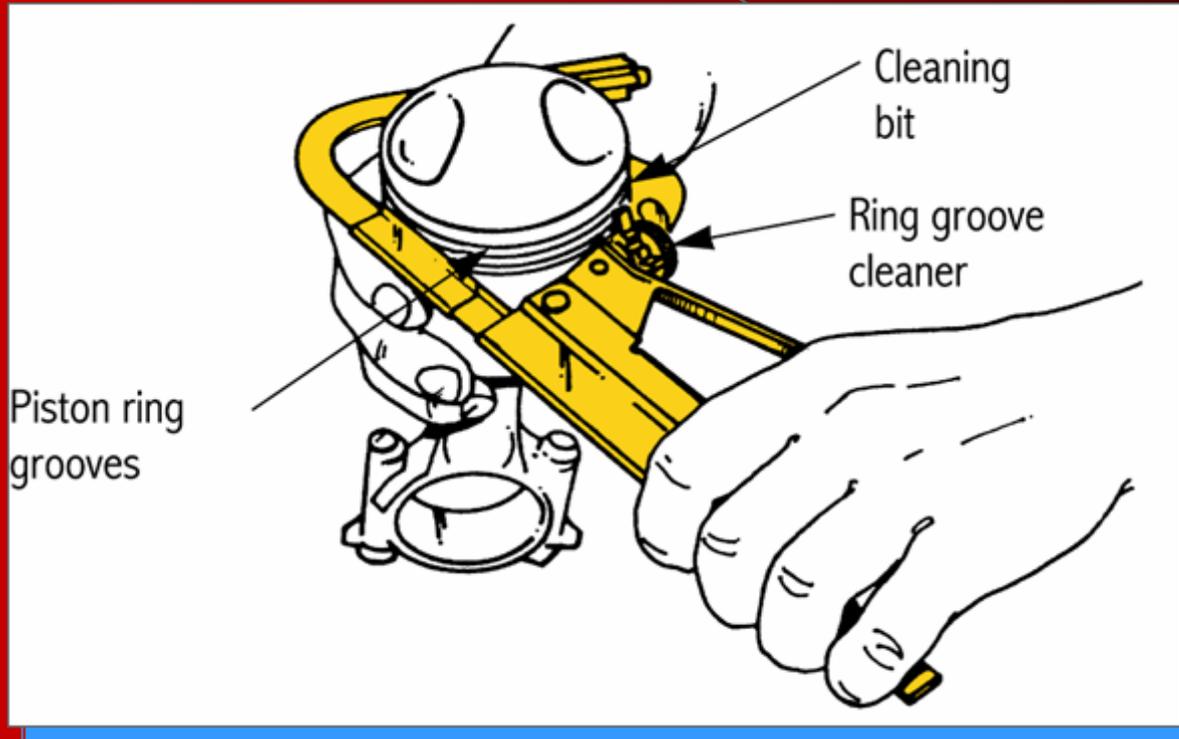
Piston Grooves

Remove carbon build-up from piston ring grooves with a ring groove cleaner.

Oil Rings (typically made up of 3- individual pieces)



Ring Groove Cleaner



Ring groove cleaner—used to scrape carbon from piston ring grooves

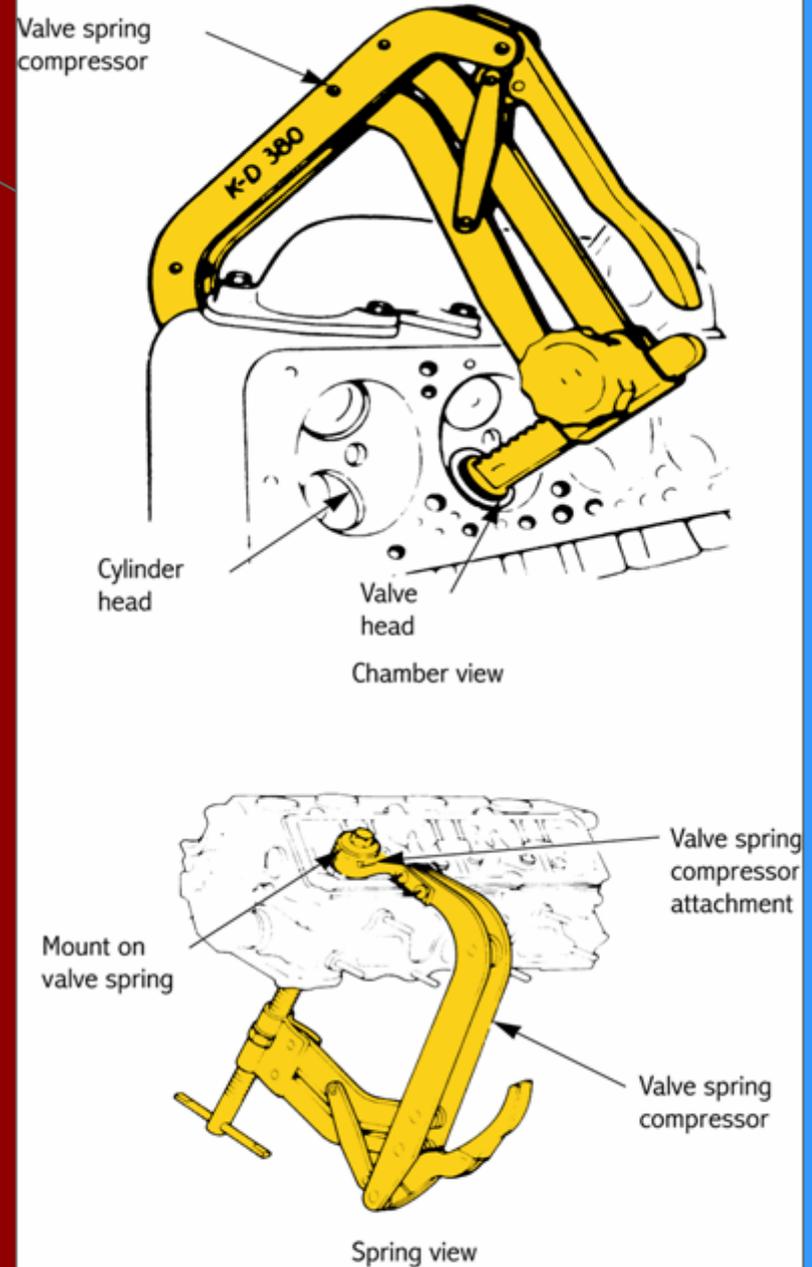


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9. A **VALVE SPRING COMPRESOR** is a tool that fits on the valve head on one end and valve spring retainer on the other end
10. A **POWER BRUSH** is driven by air or electric drill to remove hard carbon deposits



Cylinder Head Disassembly



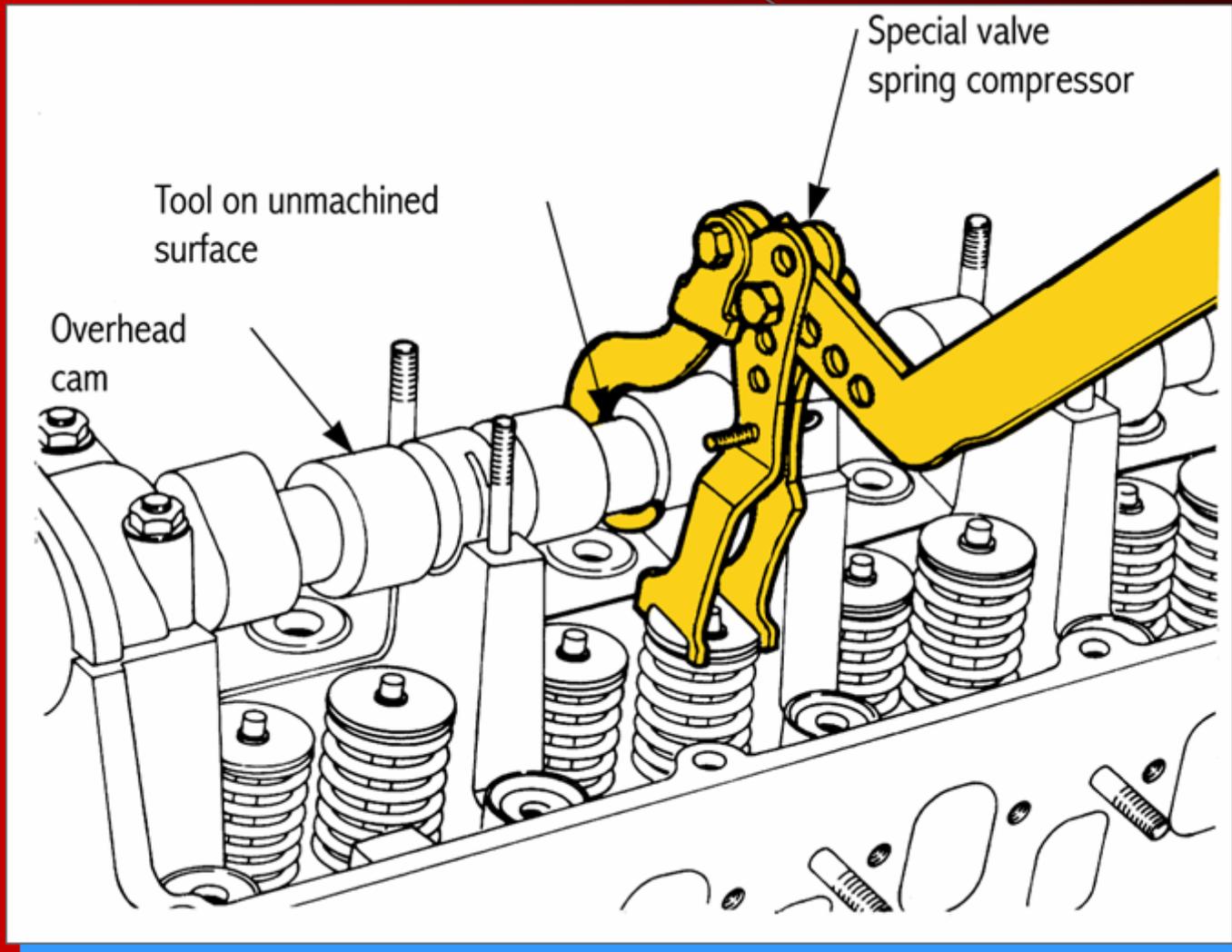
Power Cleaning Tools



Scuff pads are hard plastic cleaning wheels mount in a drill—use on aluminum or plastic engine parts



OHC Valve Spring Compressor



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