

Engine Preparation - Iron Cylinders

Finish hone cylinder walls with torque plates installed if available. Recommended hone grit specification: moly-face or cast iron top ring 280-320 grit. Chrome face top ring: 220-280 grit. Finished hone with a 22 to 24 degree cross-hatch pattern off horizontal axis.

Plateau Honing - call

Nikasil® or Coated Cylinders - call

All cylinder heads (new, used or rebuilt) must have valve stem to guide clearance checked. Excessive clearances may lead to oil consumption. Valve to guide clearance must be fitted to the minimum end of manufacturers specification. All applications must use a positive type viton valve guide seal on intake and exhaust valves.

Total Seal Gapless® rings seal so well that increase manifold vacuum and decreased crankcase pressures may lead to excessive flow in the PCV system if the engine is so equipped. In some cases it may be necessary to reduce the amount of flow to prevent oil from being pulled through the PCV system. In most cases, a restrictor with a 1/16" orifice placed in the fresh air inlet breather hose is sufficient to remove all pressure from the crankcase without pulling oil into the induction system.

RING INSTALLATION

Total Seal Gapless® Top Ring

- 1) Install machined ring first with groove side down and gap 180° from 2nd ring end gap (see fig. 1).
- 2) Install rail into groove machined in ring with gaps opposed 180°.

Top Rings (Conventional)

- 1) If ring has a dot, install dot side up.
- 2) Unmarked rings with inner bevel are installed bevel side up.
- 3) Rings without dot or inner bevel install either side up (see fig. 3).

Total Seal Gapless® 2nd Ring

- 1) Install machined ring first with groove side down and gap 180° from top ring end gap (see fig. 1).
- 2) Install rail into groove machined in ring with gaps oppose 180°.

Non Gapless (Conventional) 2nd and 3rd Rings

- 1) If ring has a dot install side up.
- 2) Unmarked rings with an inner bevel install bevel side down.
- 3) Rings without a dot or inner bevel install either side up (see fig. 3).

Oil Control Ring

- 1) Three piece type - install as shown in figure 1.
- 2) Do not attempt to modify expander in any way.

Oil Rings with Nylon Buttons

These buttons are installed as an Anti-Overlap feature. They may be removed if desired. If removed, caution should be taken to insure the expander ends are not overlapped upon installation.

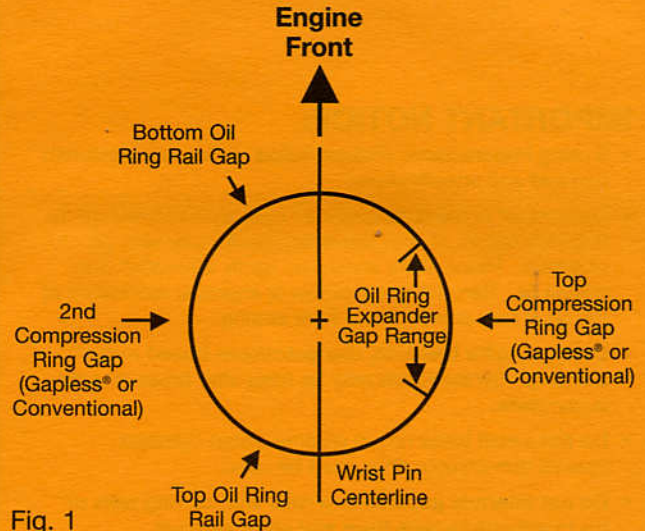


Fig. 1

* If piston has more than 2 compression grooves, subsequent rings should be positioned 180° apart in descending order.

Helpful Tips for Ring Fitting and Seating

All pistons (including new ones) should be checked for proper ring to groove clearances.

Ring to piston groove back clearance should be a MINIMUM of .005" deeper than radial wall dimension of piston ring. If piston ring sticks out of groove by any amount, you have the wrong rings (see fig. 2).

Ring to groove side clearance should be a minimum of .0015 to a maximum of .003" (see fig. 2).

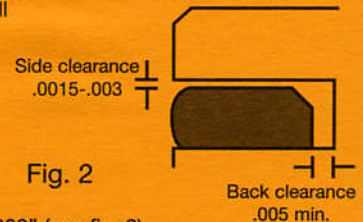


Fig. 2

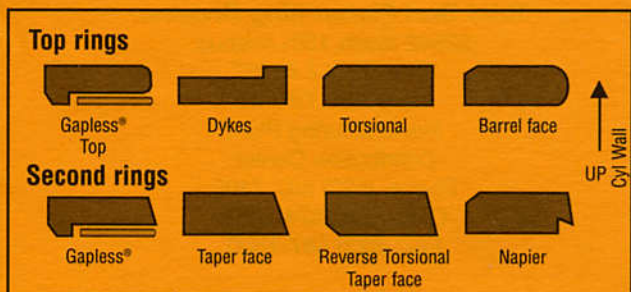


Fig. 3