4-Cycle/Auto Rings

This ring set contains a HIGH PERFORMANCE oil control ring. It is recommended to use a high quality ring compressor to avoid damage to the piston, ring or cylinder during installation.

For use in cast iron, nickel ceramic coatings (Nikasil), Electrofusion and boron composite cylinders.

Do Not Use in chrome plated cylinders. *Engine damage will occur.*

Prepare the cylinder
as outlined in Wiseco's recommended cylinder preparation instructions.

Check for Proper Ring End Gap
Failure to ensure proper ring end gap may cause ring tips to butt, and engine damage could occur.

1. A torque plate should be attached to the engine block or cylinder (if applicable), and torqued to specifications.

2. Check the end gap by placing the ring into the cylinder. Cylinder bore should be free of taper. Use the piston to square up the ring in the bore, and check the end gap by using a feeler gage.

3. See table below for proper ring end gap for your application.

4. The oil rails may be installed without modifying the end gap. The gap should be a minimum of .010".

Ring Gap Table Instructions

1. This table is in inches. If you are measuring your bore in millimeters, you will need to convert to inches by dividing your bore size by 25.4.

2. Multiply your inch bore size by the "Bore x" column for your application to determine the end gap.

Example: For the top ring of an ATV with a 4.0" bore, multiply 4.0 X .004 = .016

Notes:
1. The chart to the right is a general guideline. Each ring should be fitted to the particular cylinder in which they are to be installed.

2. The gap on the second ring should always be larger than the top ring end gap, this will help to reduce top ring flutter or lifting.

Application	Top Ring Bore x	2nd Ring Bore x
Dirt, ATV, Snow, PWC	.0040"	.0050"
High-Performance Street/Strip	.0045"	.0055"
Street-Moderate Turbo/Nitrous	.0050"	.0055"
Late Model Stock	.0050"	.0055"
Circle Track/Drag Race	.0055"	.0060"
Blown Race Only	.0065"	.0070"
Nitrous Race Only	.0070"	.0075"

Ring Installation *(See Illustration 1)*

1. **Check each ring** in its corresponding piston groove to ensure proper axial and radial clearance. *(See Illust. 2)*

2. **Oil ring expander:** Place the oil ring expander into the oil groove with the butted tips of the expander 90° from either end of the wrist pin. Be sure the tips of the expander are visible and properly butted *(See Illustration 3)*. If the expander tips are overlapped, the engine will smoke due to excessive oil use, and engine damage could occur.
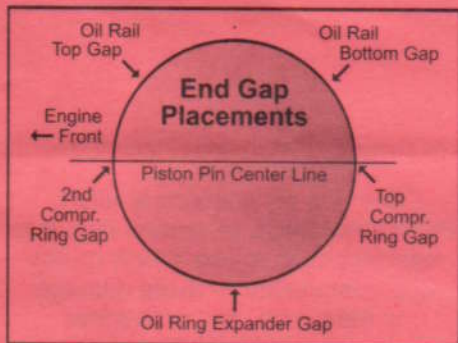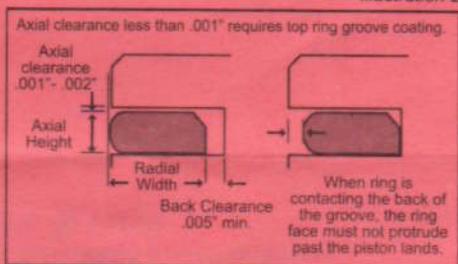
3. **Oil rails:** The oil rails can be installed with either side up. Using a ring expander, install the rails into the oil groove, placing the first rail below the expander, and the second rail above the expander. The rail end gaps should be located at least 90° from each other. After the oil rails are installed, double check that the tips of the expander are properly butted.

4. **Second ring:** Using a piston ring expander, install the second ring with the marked side up. If the ring is not marked on one side near the end gap, *and does not have a bevel,* either side can be up. An unmarked **2nd ring**, *with an inner bevel,* should be installed **bevel side down**. *(See Illustration 4)*
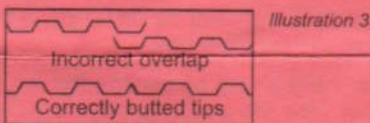
5. **Top ring:** Using a piston ring expander, install the top ring with the marked side up. If the ring is not marked on one side near the end gap, *and does not have a bevel,* either side can be up. An unmarked **top ring**, *with an inner bevel,* should be installed **bevel side up**. *(See Illustration 5)*

End Gap Placements

Oil Rail Top Gap — Oil Rail Bottom Gap — Engine Front ← — Piston Pin Center Line — 2nd Compr. Ring Gap — Top Compr. Ring Gap — Oil Ring Expander Gap

Illustration 1

Illustration 2

Axial clearance less than .001" requires top ring groove coating.

Axial clearance .001" - .002" — Axial Height — Radial Width — Back Clearance .005" min. — When ring is contacting the back of the groove, the ring face must not protrude past the piston lands.

Illustration 3

Incorrect overlap

Correctly butted tips

Illustration 4 **2nd Ring**

Illustration 5 **Top Ring**

Filing Gaps

1. Wiseco recommends filing ring end gaps using the proper ring end gap filing tool, either an electric ring grinding machine or manual hand crank style grinder.

2. Always file from the ring face towards the inside diameter to avoid damaging the face coating.

3. File only one end of the ring. Use the unfiled end as a reference.

4. Be sure to keep end gaps square. *(See illustration)*

5. File until the desired end gap is achieved.

6. Remove all sharp edges and burrs.

Good — Bad

Failure to remove all burrs and sharp edges could cause engine damage.