

YAMAHA SERVICE NEWS

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Service News 201

PISTON RINGS

Cast Iron Vs. Chrome---Relative Advantages and Disadvantages

The trend has been to less break-in and stronger performance "out of the box." During the past two years, Yamaha has met the public demand for faster new machine performance by technological advancements that allow hard use initially without the usual new machine problems. The counter-acting affect has been the mechanical condition of the machines after many miles of use in terms of increased blow-by.

Chrome rings are harder and therefore do not create as much friction as cast iron rings. Cast iron rings seal better after they are properly worn in and mated to the cylinder wall. Each have their own advantage. Our new machines are now all coming with 2 chrome piston rings. For those who want cast iron rings, we have ordered them from the factory for these special purposes, and the Parts Department will stock both kinds. The top groove of the piston should always have a chrome ring in it for best heat and scuffing resistance. The choice you have concerns the second piston ring for the lower groove only. At the present time, these are available for the YG5T, YDS3 (series), YDS5, YM1, and YM2C models. Coming soon will be the alternate second groove cast iron rings for the other models and you will be notified upon arrival of these items.

Discussed below are the relative advantages and caution points of each type. The information furnished is accurate and should be closely followed with the necessary information and restrictions being passed onto the customer.

1. Chrome piston ring. This unit has a hard, scuff resistant wearing surface. It is easily lubricated and resists wear. Its life is long but its sealing function is not as good as that of the cast iron ring. The advantage of this ring is that it may be operated at maximum output from its new condition quite easily. The disadvantage is that during operation, there is blow-by past this ring from the combustion chamber with subsequent discoloration and by-product formation on the side of the piston below the ring.

2. Cast iron ring. This is softer than the chrome ring and therefore the wearing surface must be smoothly matched by operation to that of the cylinder. The minimum break-in period for this ring is 300 miles. If maximum performance is obtained from the machine before that time, the ring actually gets hot enough to turn blue, and this naturally will destroy the lubricating film. The disadvantages of the ring is then that it must be broken-in or else it will readily score the cylinder wall. The advantage of the ring is that it will set and seal ideally after break-in and allow many miles of satisfactory sealing and performance with a minimum of blow-by. Wear is actually quite nominal and total life expectancy is very good following proper break-in.

Part number for set with 1 each chrome and cast iron

YG5	180-11610-00 (std)	-10 (1st o.s.)	-20 (2nd o.s.)
YDS3 (series) & YDS5	156-11610-00 (std)	-10 (1st o.s.)	-20 (2nd o.s.)
YM1 & YM2c	159-11610-00 (std)	-10 (1st o.s.)	-20 (2nd o.s.)