

In Aug 2015 my Maico blew a big end. Basically some of the roller cage broke off and damaged the piston and head.

After careful examination, my thoughts were that the lack of bevel on the oil slot in the big-end scraped off the oil from the rollers. Probably a great Taiwanese or Chinese copy and they forgot to bevel the slots.



The problem I had was that I had no idea where replacement parts were being made. The original one came from a reputable Maico supplier in the US.

The Maico has an odd eye to eye length of 132 mm and this made alternatives difficult. After much searching around the closest match I could find was a YZ 250 83-86 at 130 mm. It had the same diameter pin but was 3 mm wider than the Maico.

The decision was made to use the Yamaha rod as the bike was supposed to put out more power and revved a bit higher than the Maico so it should stand the test.



The YZ has a much lighter Big-end housing.

I purchased both a ProX and Hot RodRod kit. The ProX is made in Japan which I will use but the HotRods had the better plain type bearing. The YZ pins are 60 mm long instead of 57.4. I turned these down with a diamond tip lathe tool. More about this next.

CRANKCASE MODS

From several forums, I gleaned that in order to reduce the wind factor in the crankcases, there needs to be a minimum of 1 mm clearance all the way around the crank.

The internal width I had to play with between the casings was 59 mm. Subtracting the pin length (same width as the crank) gives only 1.6 mm or a clearance of 0.8 mm each side. I needed more space. I trimmed down the pin a bit further to 57 mm to give the required minimum of 1 mm.

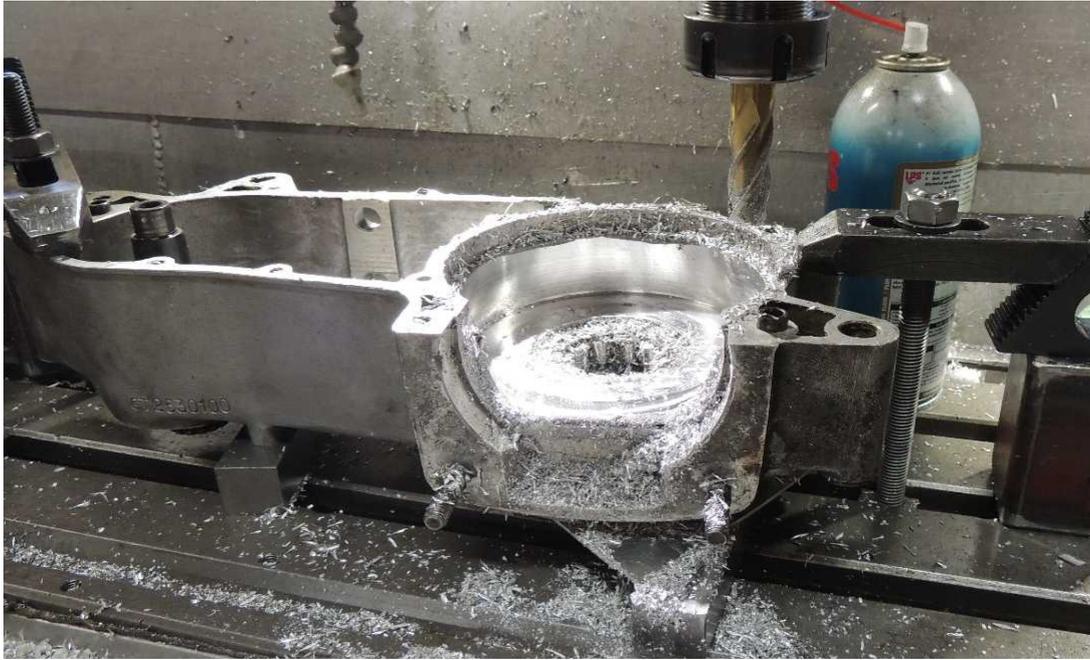
Now I had the crank pin length, I had to trim the webs to give the 0.5 mm clearance between the big-end and webs. I wanted to retain the 1 mm thrust washers.

This now required that I remove 2 mm from each web reducing it from 19 to 17 mm. Fingers crossed this is still enough material.



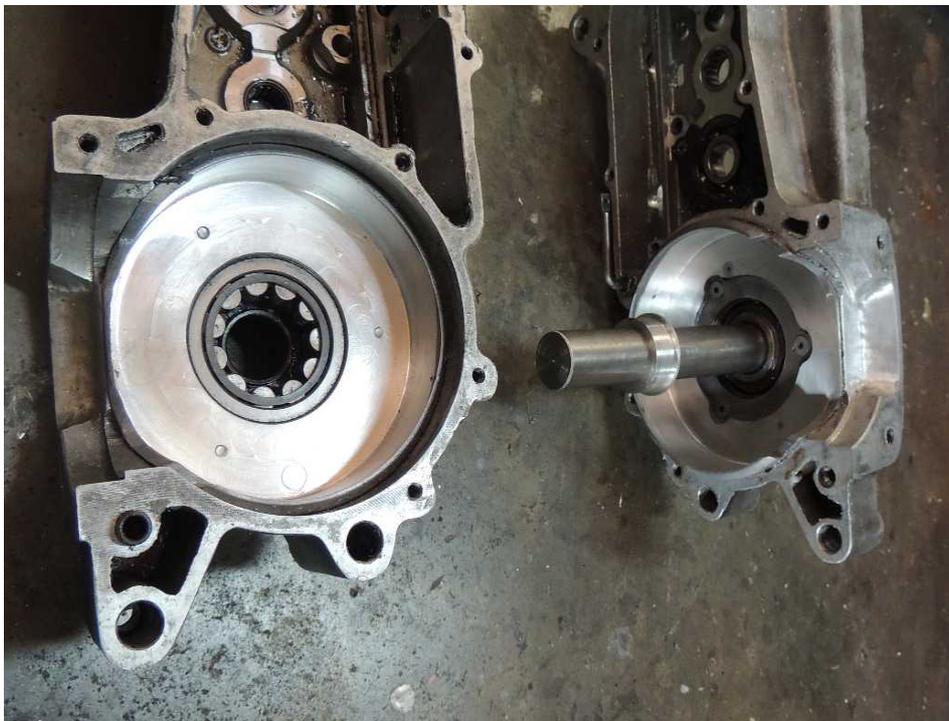
I did this in the lathe to get a good clean finish on the surfaces.

While I was checking clearances, the space around the peripheral of the crank was not uniform. I finally scummed to machining the inserts in place in diameter from a radius of 58 to 59 mm and I skimmed them 0.5 mm deeper to increase the web to crankcase gap to 1.5 mm..



The last step was to trim the casing down by 2 mm. I thought this was better than machining each barrel.

I made an insert to fit into the roller bearing and used a 25 mm shaft to clamp the casing to the table. Using the bearings, it meant that the cylinder surface should be parallel to the crank.





The next step is to rebuild the crank. The drive side shaft has worn oval, so it will be copper plated and the machined back to size. I have already built up the spline using TIG and a hard facing rod and hand ground it back to size. I TIGed quickly and only did one spline shoulder at a time to reduce the heat damage. The cranks are not hard at all, they are only 25 Rockwell C.