

## Design and making Magneto Cam Rings (part 2)

As a prologue, the reason I am going to all this efforts to make some cam rings, is that as best as I could determine last year, there were no new cam rings available for BTH magnetos and there seemed to be no prospect of any being made.

At the end of part 1 of my missive, I was finishing the machining on the first small batch of cam rings. This I have now completed and I have had the rings case hardened (Tufftrided). The Tufftriding process blackens the surface (see picture, the thin ring is for a ML magneto), I can explain this if interested. I wasn't quite sure if the Tufftriding was going to distort the component and if it did by how much; but I needn't have worried. The changes were very slight and the rings fitted nicely into the magnetos.

I have checked the cam rings in the BTH magnetos I have. I checked the points opening timing using my magneto timing light (see picture) and I couldn't discern any difference from a good condition original cam ring (see last picture). The line on the edge of the disc is the point where the points open, the other line is where the points open with a worn out cam ring; as you can see it is about 2 to 3 degrees retarded. The point (snort!) here is, you can still correctly time on an engine, a magneto with a worn cam ring. However, what has changed is the angular relationship between the armature and the magnet pole pieces inside the magneto. Thus, when the points open (i.e. a spark is produced), this may no longer be at the point of maximum magnetic flux density and hence the spark may be weaker.

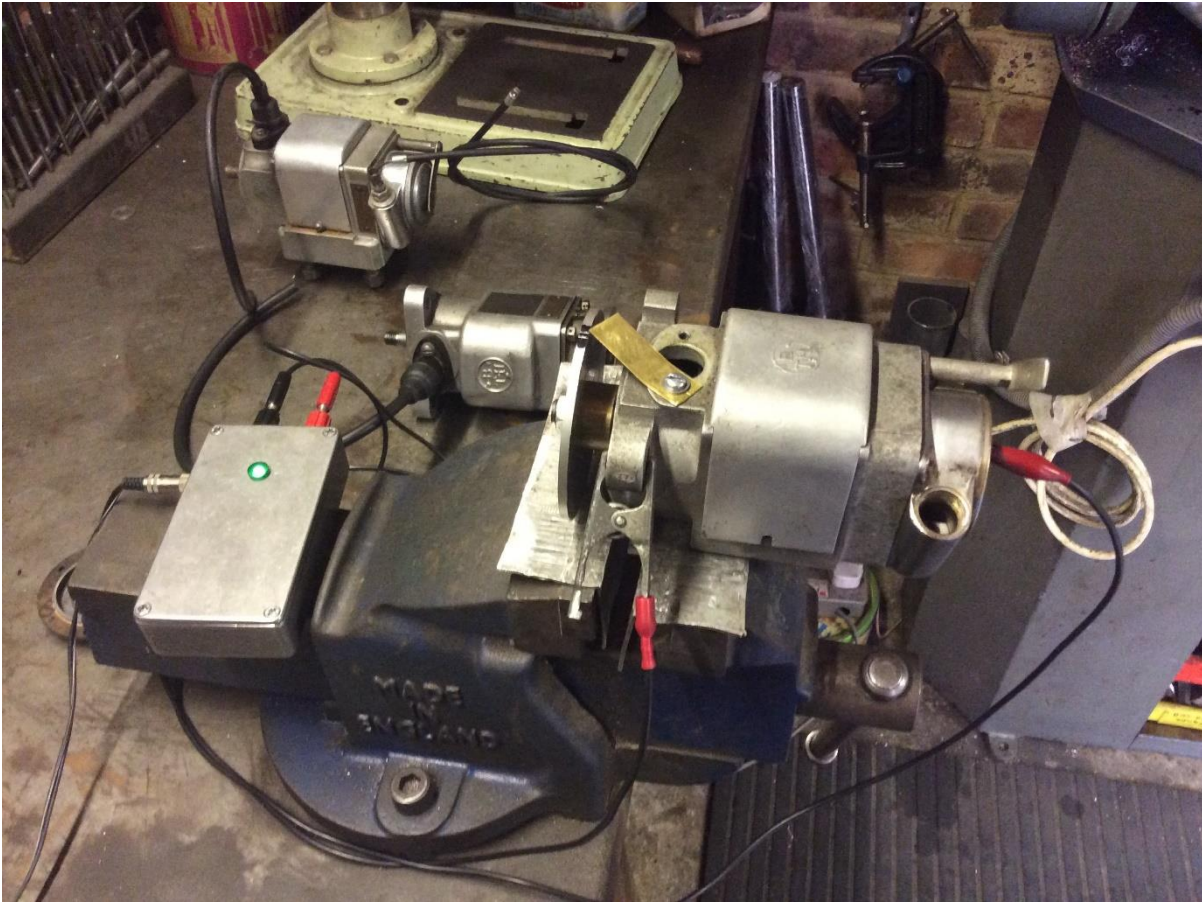
The next step in the project is to fit a cam ring into the BTH magneto on my Mk II and see how it performs. Hopefully, the current gradual lifting of the lockdown restrictions will continue and I can use the bike a lot more. Once I am happy, I will be asking if anybody, who uses there Velo regularly and it has a BTH magneto, would be willing to try one.

I hope this is of interest and you haven't fallen asleep.

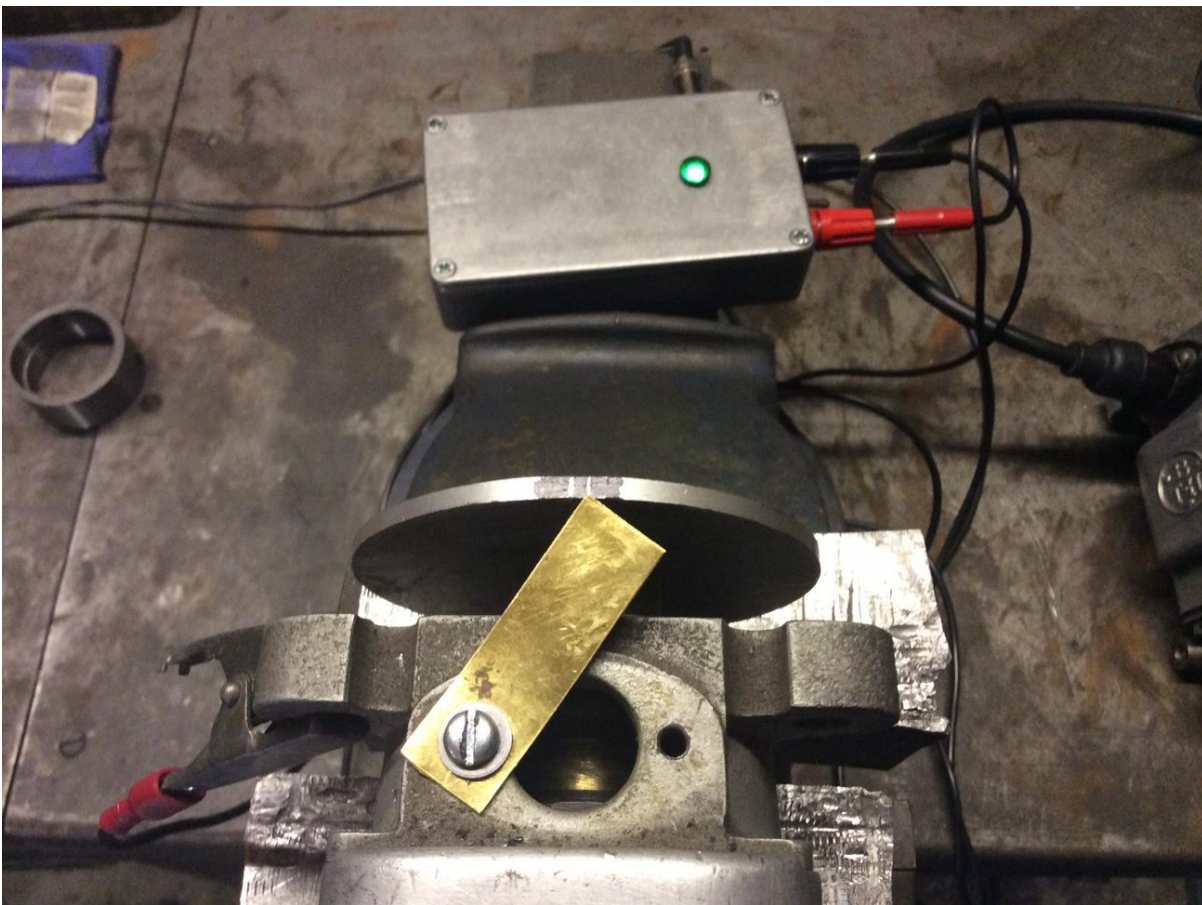
Chris



Finished Cam Rings



Cam Rings on test



Points opening comparison