

Lucas 18D2 Distributor Ignition Timing Corrections By Paul Allen

I'm slowly stepping through a full rebuild of my 1963 G15/45, which uses a Lucas 18D2 distributor with battery and coil ignition. I dismantled the distributor, off the bike, to clean it and check the condition of its components. All were in pretty good shape, but earlier I had observed a significant difference in points gap between the two lobes of the breaker cam. I wanted to assure that the upper, narrow section of the distributor shaft was properly aligned with the base of the shaft, so I took the opportunity to chuck it up and center it in my metal lathe. I thought that straightening it a bit would improve a difference in ignition timing for the two cylinders.

It took a bit of tweaking on the lathe- no metal removal, just bending- to make the shaft concentric along its full length. It turns out the steel shaft had a "memory"- straightening it in one direction always required perhaps 10x more force than in the reverse direction. Until I learned this, with very little effort I would overcorrect and return the shaft to its full, original "bent" condition. Finally, after lots of trials, it was true. I lubricated and reassembled the newly straightened shaft, its advance mechanism and the points plate in the distributor body. But then I found to my dismay that the point gap on one lobe was still very different than on the other- 0.024" vs 0.014".

I then mounted a timing degree wheel to the bottom of the distributor drive gear with duct tape, and fashioned a wire indicator pointer. I used a continuity tester across the points to see what that points gap difference might represent in terms of an ignition timing difference. By my test methods, the 0.010" difference in point gap equals 7.5 degrees in crankshaft timing difference- not good.

Throwing away all my earlier work truing the distributor shaft in the lathe, I decided to just go for the desired end result. By inserting a narrow-blade screwdriver between the highest lobe of the points cam and the center hole in points base plate in the distributor, I tweaked the shaft until the points gap became equal on each lobe. With my timing disk and continuity tester, I checked ignition timing differences along the way, as I made improvements in gap. In a short time I had leveraged the shaft until I had 0.018" gap at the top of each lobe. (Note: That's not a clearance I will use in running the engine.) Voila!- the previous measured ignition timing difference on each cylinder also disappeared. I love it when the planets align and the world finally makes sense, even if only for a brief moment!

So with an 18D2 distributor in reasonably good condition, getting the plugs to fire with the same timing on each cylinder should be simply a matter of tweaking the distributor shaft as needed to get point gap identical on each cam lobe. With care and finesse, this can probably be done with the distributor mounted in place on the bike. My concern about a possible imperfect grind on the Lucas breaker cam has now been put to rest. On with the remainder of the rebuild, one step at a time!

