Criterion Hub Skimming from John and Stuart

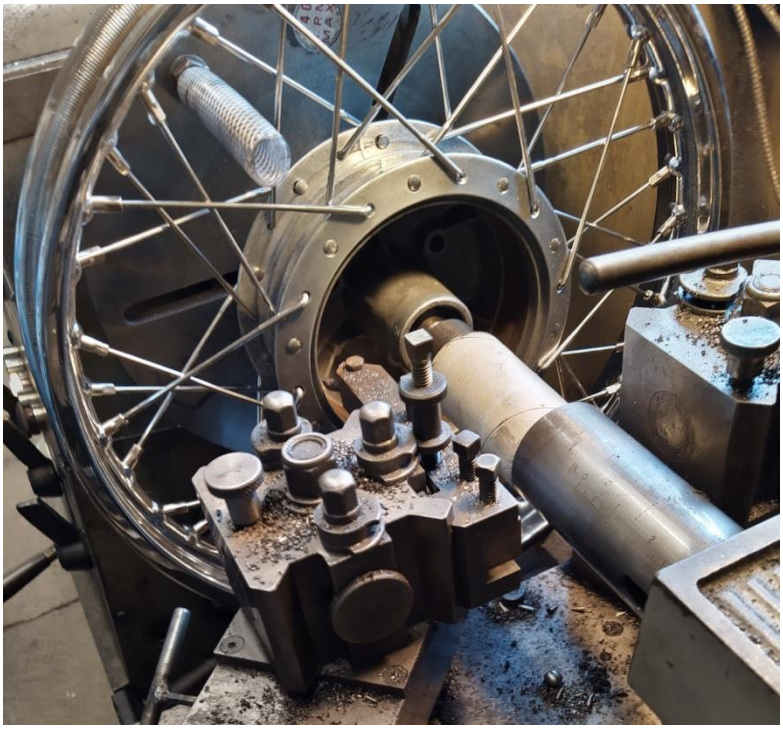
Prompted by Chris Wiggins' ingenious method of truing a brake drum, we thought we would share how we do the job.

When a brake drum, new or otherwise, has been built in to a rim it will inevitably go out of round due the tension of the spokes. The amount varies, difficult to say precisely because the drum can be pulled unevenly in any radial direction and can be tapered. The errors are usually in the range of 5 to 10 thou on radius, enough to be more than noticeable when riding the bike.

Even with our biggest lathe, the first job on any wheel over 16" is to remove the tyre if fitted; we can accommodate wheels up to 21" diameter. We prefer to do the job with the bearings in place. The wheel is mounted in the lathe between centres in such a way that the wheel rotates on its own bearings, that is to say the inner races remain stationary as they do on the bike. This ensures the drum is true to the bearings it rotates on when fitted to the bike. The bearings need to be in good condition for this – which, of course, they should be anyway. If they are, the truth and finish of the drum will not be affected by any minute amount of clearance.

The wheel is driven by a "dog" through the spokes. The spokes are protected by a piece of plastic tube over the driving dog.

The amount of "out of round" is worked out, a suitable cut applied and a few minutes later the drum will be geometrically correct, that is to say round and parallel.



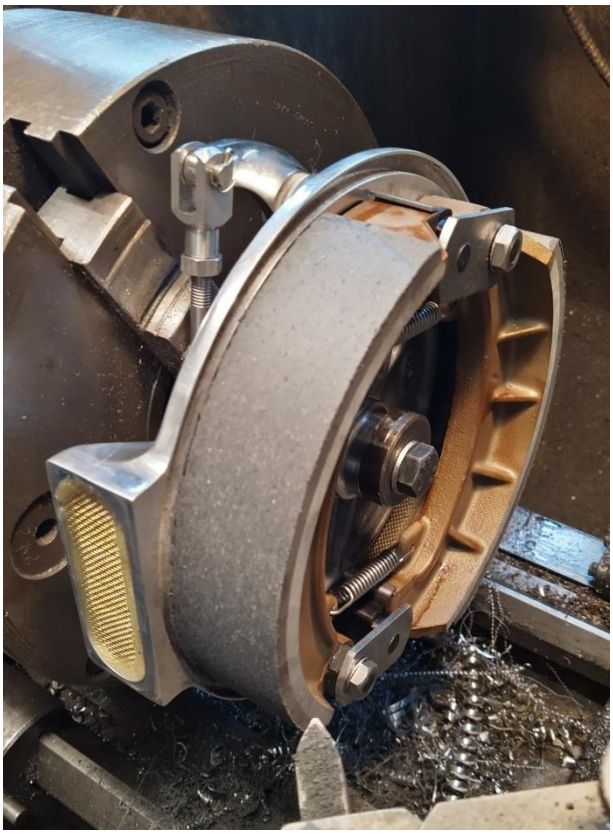
We regard brake drum skimming as only half the job. The second stage is to turn the brake linings to fit the drum. This saves waiting for the linings to "bed-in" and greatly reduces the tedious business of setting up a twin leading shoe brake. With the Velo 7 1/2 " front brake, which has a large lining area, full bedding-in can otherwise take a considerable mileage.

It is quite safe to machine modern linings, we would not attempt it the old asbestos-based linings for obvious reasons.

Our favoured brake reliner is “Saftek” in Cleckheaton, a prompt service at a good price. We always ask for the thickest lining, this gives plenty of material to work with. These days, linings are normally bonded to the shoes, which is much better than riveting if done properly.

With an assembled brake plate, single or twin leading shoe, we use a special tool to pull the shoes in to an “applied” position. Sometimes, if the lining is not thick enough, it will be necessary to use packing at the cam end to spread the shoes sufficiently.

Then the brake plate is mounted on a true running mandrel and the linings machined to exactly the same diameter as the drum - adjusting the shoes if necessary - until they clean up fully.



That’s the job done, just put the wheel back in the bike and ride!

If you find a TLS brake has a tendency to grab, try chamfering the leading edges of each shoe. A little at a time, this should reduce the tendency.

Incidentally, Veloce were the only major English manufacturer to skim their brake drums in production after wheelbuilding. The others finished the drum in the bare hub before building, and relied on the skill of their wheelbuilders to get the drum good enough. Norton were renowned for not always achieving this, though BSA were generally pretty good. However, it is nice to know that Veloce ‘did it right’.