

A Spoke In the Wheel

WORDS/PHOTOS: Rod Gibson



Egged on by editorial pressure, editor Rod Gibson explores the art of wheel building for the first time, and discovers the black art isn't as mysterious as it looks.

I have always farmed out wheel re-spoking to a specialist, and since discovering the talents of Paul Jackson (01422 378100) many years ago, have always been more than happy to keep

turning up at his workshop, drop my hubs and rims in a pile on the floor (with a note of offsets, of course), and call back a couple of weeks later to collect the shiny results. But having had a

go at almost every other aspect of bike spannering over the years, I was aware that actually re-spoking a wheel was scary new territory, and it was about time I had a go.

My project XT500 provided an excellent opportunity as I'd just had the hub powder coated by Triple S and now needed to replace the rim I'd spent hours polishing.



1: First lesson, there are spokes and spokes. Dave Newitt at the XT500 Owners Club had warned me to use only genuine Yamaha spokes for the XT, as others can touch where the spoke pattern crosses and lead to trouble truing the wheel. A call to Granby Motors produced a jiffy-bag by return of post with a full set of shiny spokes and nipples. Note the head angles which identify the 'inner' and 'outer' spokes – the XT rear wheel has only two types, some wheels have different angles for left- and right-hand too.



2: First job is to feed the outer spokes outward through the holes in the hub flange. It's useful to have photos of the original wheel to work from, but here the hub shows clear indentations where the original spokes fitted, so I can use them as a guide.



3: With all the outer spokes fed through the hub I can lay the wheel out on the living room floor and make sure they're all facing the right way and sitting at the right angle in the flanges. I've also smeared a trace of copper grease onto the thread at the end of each spoke.



4: The spoke nipples are supplied with tiny, dished washers, to cushion the head of the nipple from the soft alloy of the wheel rim. Steel rims will usually have the nipples in direct contact. Each nipple has a cross head to accept a screwdriver for initial assembly, and a square shank for final truing with a spoke key.



5: The first trick is to engage the outer spokes with their corresponding holes in the rim and fit a nipple to each. Again, photos are useful, but the spokes should engage directly into the angled holes in the rim – if they have to bow to fit the rim they're laying at the wrong angle. Each spoke received a nipple, loosely fitted for now.



6: With a manageable wheel I can now feed through the inner spokes and engage them into their respective holes in the rim too. Things get a little fiddly here, and I found I had to remove three or four spokes and gently waggle things around until I had everything correctly engaged.



7: A specialist would breeze this job I'm sure, but it takes me a good bit of juggling to get all 40 spokes in their correct locations and get a nipple loosely wound onto each one. The secret is not to tighten anything until all the spokes are in place.



8: With all the spokes fitted I can wind down the nipples evenly, then think about trying to get the rim to run true. This is the point at which I thought I'd have to abandon ship and farm the job out to a specialist for finishing, but a spin on my improvised jig (using a screwdriver as a pointer) shows the rim is only a few millimetres out of true.



9: Working carefully and methodically I can now adjust the spoke tension with this spoke key to correct lateral (side to side) run out at the rim, then radial (up and down) movement the same way. Eventually, after an hour or so's fettling, I've got the rim to run within 2mm of true in both planes, which will do me. I've 'pinged' another wheel's spokes to make sure these sound similar and even. Job done.

OFFSETS AND RUN-OUT



Rule one for working on older motorcycle wheels – don't assume the rim runs in line to the centre of the hub. Particularly on a rear wheel, the rim may be offset to one side to allow clearance between chain and tyre. Before dismantling the wheel, set the whole thing on a flat surface and measure the distance from worktop to rim edge. Note down the figure, then turn the wheel over and measure the other side too. When your new rim is laced up it needs to match these figures for offset, and if you're not doing the job yourself make sure you pass the measurements on to your wheel builder. A skilled wheel builder can vary the amount of offset by judicious adjustments to the spokes, so the idea is take the guesswork out of it and duplicate the factory settings.

Playing around with spoke tensions at the truing stage can also allow you to fine tune any runout and make sure the rim spins concentrically, both radially (up and down) and laterally (side to side). Most wheel rims are made from an extrusion or pressing which is formed into a circle and welded up, so there will inevitably be a little fluctuation which is impossible to true out. However time and patience should allow you to get within a couple of millimetres of perfectly true, which is good enough for our purposes. Don't fully tighten any spokes until the rim is running true, then go round and ensure the spokes are all tightened to a similar tension. 'Ping' each tightened spoke with a screwdriver and listen to the note it sounds. All the spokes should sound similar (or, in fact, 'ring true!'). And if in doubt, take your wheel to a specialist for truing, you'll have saved a fair bit of cash by doing the lacing up yourself!

CONCLUSION

For a first attempt at wheel building I'm delighted with the results. I had planned to get as far as I could with the job then break off and seek specialist help, but have surprised myself by seeing it through to the end. To be fair I've stumbled upon a fairly easy wheel to work on, and by using factory spokes I've taken the guesswork out of spoke lengths and angles. I'm sure I'll still need to call on the experts for future jobs which require, say, stainless spokes – but I've a feeling this first re-spoke won't be my last.