

REBUILDING SPOKE/WIRE WHEELS

Eddie Saunders

During my apprenticeship I learned this method of building Spoke/Wire wheels and have had good success with this procedure.

STEP 1

For reference I always take a few pictures of an assembled wheel before dismantling. In 9 out of 10 cases the nipples are corroded and rusted onto the threaded end of the spoke, making them difficult to loosen and undo. The quickest and easiest way is to use an angle grinder with a metal cutting disk and simply cut through the spokes. The first few that you cut through will make a snapping sound as they are cut. The reason being they are under tension. The spoke head angle and nipple prevent the pieces from shooting out, so just a snapping sound will be heard. Don't worry. (Wear protective glasses for this procedure)

STEP 2

Remove the pieces of spokes from the wheel rim and hub. If the rim has a few small dings (no major buckling) these can be corrected using a hammer and dolly (this is just for small irregularities in the rim edge) if the rim is out of round with some large dings and dents, you will be better off by obtaining a new one.

STEP 3

If the rims and hubs are chrome plated and look OK (no major pitting in chrome finish) they can be cleaned up using steel wool. I usually start with "medium" and finish up with "fine" or "super fine". If they are painted and still look OK then clean up with a degreaser and mild detergent. If a paint over is required follow the usual stripping steps for priming and painting. I prefer to have the rim and hub painted before re-lacing the wheel.

SPOKES AND NIPPLES

Dayton Wire Wheel makes and sells spokes and nipples for most automotive spoke/wire wheels. To help identify wheel type a stamped number inside the rim will determine if the wheels are "Dunlop" made in India or England or if the wheel is a "Dayton" made in USA. Apparently spoke thickness and head angle vary for the different manufacturing locations, so the identification number is critical. Spokes/Nipples are available in Stainless Steel, Chrome and Steel. I have purchased each type and prefer Stainless Steel or Chrome. Believe me painting the steel spokes and nipples is a tedious job, whether assembled in the wheel or painted separately.

STEP 4

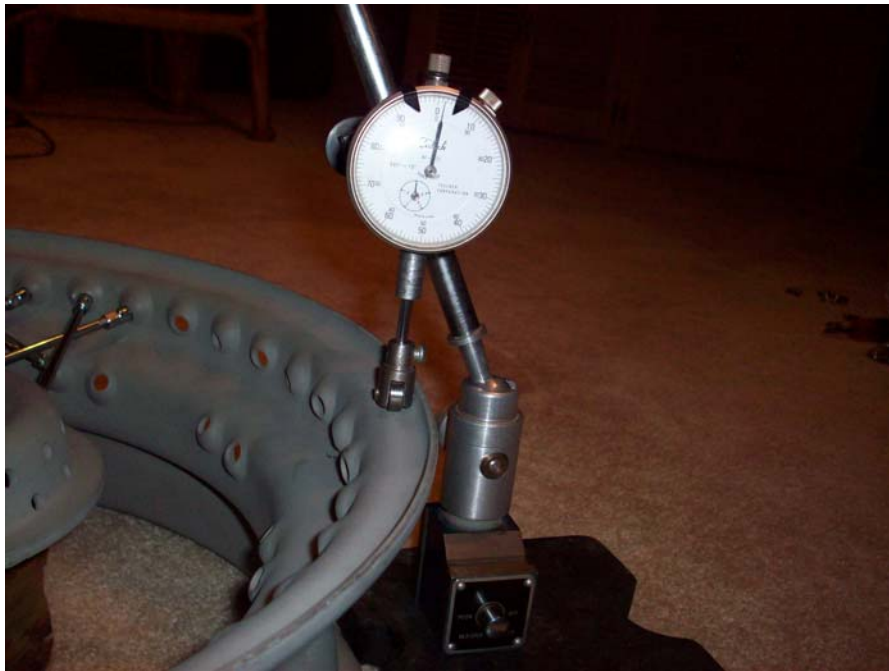
A typical wire wheel has rows of long and short spokes rotating clock wise and anti clock wise. The short spokes influence the out of round axis and the long spokes influence lateral run out. When lacing the spokes make sure that the spoke is correctly angled to line up with the corresponding nipple hole. The re-lacing sequence of short and long spokes varies from wheel type/style and you may have to experiment which lacing sequence fits. I usually try to lace up the short spokes first then continue with the long spokes. Just finger tighten the nipples onto the threaded portion of the spoke trying to keep them tightened as evenly as possible.



STEP 5

Truing a spoke/wire wheel is a tedious job and requires time and patience. For the Jaguar wheels I use a jig that has a stub axle and splined hub permanently mounted. For the MGA I used the front axle hub and trued the wheels on the car. A correct fitting Spoke Spanner and Dial Indicator are also necessary requirements as well as a red and green marking pen.

The first step is to affix the magnetic base Dial Indicator so that it is steady and stable. I fabricated an attachment that has a small wheel and secured this to the Dial Indicator input shaft. Next, adjust the positioning rods/arms so that the Dial Indicator input shaft reads off the tire bead area and is in constant contact with this part of the rim. Adjust the dial to show zero at the highest out of round area. I use a red marker to mark the high out of round area (usually 6 – 8 inches or a span of 10 – 12 short spokes). Similarly use the green marker for the low out of round area.



Now you are ready for some preliminary adjusting. Pick out a high out of round area and gradually tighten up 10 - 12 short spokes turning the wheel to the next high out of round area and repeat the procedure. As you gradually tighten up the short spokes you will notice that the out of round area that you are working on will shift to another position around the wheel. It takes patience, and you will find yourself chasing the out of round area's for a while, but just keep marking and gradually tightening, take care not to tighten the spokes too much. When the out of round is within a 140 – 160 thousandths range, STOP and reposition the dial indicator to read off the face side of the tire bead area. Repeat

the tightening/marking procedure for the long spokes. Again you will find yourself chasing the lateral run out area as the longer spokes are gradually tightened up. When you are within a similar range as the out of round – STOP – reposition the dial indicator and go back to adjusting the short spokes, using the same procedure as before. When the out of round is within the 35 – 50 thousandths range switch over to tightening the long spokes again, once again try to match the lateral run out range to that of the out of round range. When both axis are somewhat similar and spokes are beginning to tighten up, you will have to change the tightening sequence and just work on pairs of short and long spokes over a smaller span constantly monitoring out of round and lateral run out.

Finally when out of round and lateral run out are within a 20 thousandths range, check all spokes to ensure they are reasonably tight. You should have no loose spokes at this stage.

You probably don't want to hear this, but after the wheel / wheels have been mounted and run on the car for approx 200 miles, spokes should be checked for looseness and rims should be checked for trueness.

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