"Old Rube restoration part 13"

This document was written by Paul Naylor in winter 2025 and is the eighth article in a restoration project. The articles were published more or less simultaneously in the Frimley and Ascot Locomotive Society newsletter.

After the chassis dried off and I could have a good look at it, I tested the strength of a few patches of old paint and it was quite easy to flake them off. Wire brushing them and using some 40 grit abrasive showed that the paint was applied directly onto metal. The black on most surfaces had stuck reasonably, but had started to fall off around the edges, whereas the red applied on inside surfaces fell off when I looked at it. Not the best base coat for new paint, so there is nothing for it but to scrape and brush the old paint off. This is where you get your drill or angle grinder out with wire brushes and other abrasive paint removal tools isn't it? If you were stripping a freestanding large piece of steel, it might be OK but here this only works for a few places, the rest need a scraper, old screwdriver, little wire brushes etc to get into the crevices.

I divided the chassis into two bits (figuratively speaking!), each side of the driving axle. The back end was dry, the paint poor and the metal was rusty where it showed. This is the bit that got no oil soaking or, if it did, it was rapidly dried by the ashpan and fire. I scraped the paint off this and used a wire brush to make sure followed by a wash down in acetone thinners to get rid of last traces of oil in joints etc. I am a fairly recent convert (pardon the forthcoming pun) to Jenolite rust converter. I used this a lot in repairing some steel on a car and I was impressed with the performance. I had some of this as an aerosol 'in stock' so, after masking the sliding surfaces in the frames for the axle boxes, gave this end of the chassis a spray with it as per the instructions. This is now going through its 48-hour curing period before I can apply paint (photo, right).

The front half of the chassis is a different case as, firstly, it is not rusty, and secondly is full of bits and pieces that get in the way of scraping paint. As a result, I will not 'Jenolite' this area but just brush apply the 'Combicolour' paint to the metal. I am going to paint it all black to start with at least then decide whether to apply red enamel onto the black inside the chassis. The trouble with most red paint is that it can be 'transparent' (ie not heavily pigmented) over strong background colours and getting it to cover the black might not be easy, I don't want paint as thick as lino on the chassis after umpteen coats to cover the black. Getting the old paint off adequately was about sitting at the work for half an hour at a time (until my patience wore through) and dealing with a bit at a time. The transporter that came with the loco supports it at just the right height for my rolling stool.

This, for those interested, was an old cheap office chair that my daughter was discarding, so I removed everything above the bracket screwed to the old (broken) seat, and made an upholstered round seat 300mm diameter.

It is all compromised by the fact that turning the chassis over to get to the other side is not a five-minute job: I may stand the chassis on end temporarily, one end at a time to try to avoid paint line joins. I never did make a ‘rotisserie’ to turn my engines over, and if I had made one, it would not have been big enough for Old Rube…

It is now getting on for winter and cold days in the workshop. Whilst I can stand the cold for an hour or two, paint reacts differently and takes ages to dry. That means everything takes longer since the wife – rightly - will not allow the chassis into the house to dry (I can often sneak little bits in though!). I am painting the chassis in two stages, the rear end and then the front end. I have stood it on end for this so I can get at both top and bottom. I also attempted to remove the tiny (for Old Rube: 6BA) screws holding the front two axle spring mounts together (six per axle spring mount): these came off easily in spite of appearances so I can deal with them separately, and also get behind them on the chassis. At least, all bar one came off OK, the extra one was actually filler covering the hole as I later found when cleaning out the screw holes that a tap had broken off in the hole ‘from birth’. No chance of removing this so I am one screw short. At least whilst I am waiting for the rear bit to dry, I can carry on scraping paint off the front (the flaky bits of paint fall down!). The ensuing few weeks involved scraping paint and moving the chassis into a number of different positions to apply the recommended two coats of ‘Combicolour’ paint to all previously black and red surfaces on the chassis (but not the valve gear components). It being now winter and low temperatures in the workshop, this meant that hardening times were long, adding to the time. I will continue this work on the chassis in another article.

During this time, the tyre from the CNC shop was completed and I was able to begin work on the outstanding wheel of the loco and get that finished. As you would expect, the tyre is what I ordered and looks fine and well machined. I have a decision to make as to whether to make it a heated and pressed fit or a ‘close sliding fit’ and use plenty of Loctite 603. I do not like using press fit methods, heated or otherwise, as machining is quite critical and if you depend on the expansion caused by the heat to make this easier, you had better get it right first time… both the size you are machining to and the fitting, because, as soon as the tyre hits the cold wheel it cools down quickly and shrinks so you don’t have much time to get it home. It is better for large and heavy items (like real tyres!) or where the wheel has some give (like wooden cart wheels) thanks to the mass of iron being heated cooling more slowly. I have had such smaller things stick half way on before now and that is an absolute pain to sort out! It is not helped by the fact that I cannot measure the wheel diameter accurately since my vernier is not big enough… at least with a close but essentially sliding fit you can try it and see while machining. I had the tyre made with an inner flange on the outside of the tyre, so if it did come loose in service, it will not move inwards at least (the direction it is being forced in curves) and to give it some more stiffness. The finish is very good, so I will have to roughen it a bit inside to give the Loctite more to ‘bite on’. Being anaerobic, a

very close fit for the Loctite is nearly as bad as pressing it on as the Loctite starts to go off as soon as it is enclosed, but at least heating it softens the Loctite for another go.

I turned the wheel to suit the tyre and with the slight push fit as planned for Loctite. This was like turning up the treads for the other wheels, however without a means of measuring accurately the diameter, I had to go slowly. The outside 3mm of the rim had to be turned away for the inner flange on the tyre, so that bit provided a test cut: I was able to approach the final size a ‘thou’ at a time using this 3mm of tread, and when the fit was OK, I cut away the whole width of the tread, again in stages and with light final cuts. When I had done this, I trimmed back the 3mm on the wheel rim for the tyre inner flange. The photo shows the wheel ready to accept the tyre.

After roughening the tyre mating surface with a bit of coarse grit emery, I cleaned everything with meths and applied a good coating of Loctite 603 to the tyre inner surfaces. The moment of truth then arrived, and I was able to push the tyre into place with the aid of a hammer and block of wood - I did not need to force it particularly – and then set it aside to cure. This is a piece I will sneak into the house for a bit of warmth! The photo shows the tyre fitted and undergoing curing but not yet machined outside to suit the other wheels. I looked up the curing time for Loctite 603 - I always had 24 hours in my mind – and indeed this is the time at 22 degrees C, but could be up to 72 hours for larger gaps, lower temperatures etc, so 72 hours it will be prior to machining! I also noticed that while I used Loctite 647 on the axle/wheel joint, I picked up the 603 bottle for the tyre as it had more in! Fortunately, both are good for this application.