"Old Rube restoration part 6"

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

Firstly, this time, an amendment to the ashpan assumptions from the last article. Because I had to drill out four securing bolts not accessible with the boiler in situ, I assumed (rightly probably) that the ashpan was not designed to drop, and so raking out the fire after a run involved much scraping with long handled implements, dust in the eyes and a mess. I nearly started cutting stainless steel to make a new ashpan to the shape of the old one but thought 'I wonder if it could be improved to make it easier to clean up after a run?'. I played around with the old ashpan, imagining the boiler in place, and decided that if the grate and ashpan were slightly narrower than the foundation ring, then the whole lot might be able to be lifted inside the firebox, over the axle and out the rear, as there were no obvious hindrances to this – at least without any pipe work in place. Obviously, the ashpan could not be bolted in for this and routing of the pipework will have to be altered, but the resulting ease of access was a prize worth having. The snag of course is that without the [new] boiler to measure up, it was too much of a gamble to make up a new ashpan and grate and expect this to work. I reluctantly decided therefore that this would have to wait for the boiler and so remaking the ashpan is shelved for now. On the one hand, it is a good job that this bit of thought happened now, but on the other hand it means that I have no real alternative but to press on with the bit I was not looking forward to: turning the chassis upside down so that I could remove the brake gear including a load of compensating links right under the ash pan, the suspension compensation beams and springs and enough of the valve gear to release the crank axle as well as the other axles. It is tempting to take the whole lot outside first and with much application of degreaser and pressure washer to get rid of the dirt, but on reflection I think it would be better to dismantle it 'dirty' and clean the removed pieces in a more controlled way. I don't want to clean off all the oil and then have it sitting dry for a while, especially for sliding surfaces etc., while I paint it in stages. Better to clean things up, paint them and protect the unpainted surfaces one by one. I don't intend to remove big, well-fixed bits like the cylinders, saddle, bolster etc. but to clean and paint them in situ. The wheels will all have to be re-turned of course but I think I will get away without having to fit steel tyres with flanges, as the flanges are OK in the main.

As an aside, I am writing these articles as I go, and the thought required for this is a good planning aid: I have changed the order I expected to do things from time to time as I write up some work – the above is a case in point!

Some of the work needs me to obtain more labour to help move things, and this is usually limited to family visits(!): my son came the other day and we were able to invert the chassis so I could get at the brake linkage (to remove it) and the wheel axlebox keeps. This is what it looks like after the

oily and grunting: note the somewhat agricultural but fully compensated brake linkage that I hope to remove now in one piece for now to retain the relative positions and avoid having to remember it all (for now).

Well, amazingly and in spite of looks, the brake linkage came off in one piece by removing the brake hanger nuts and the adjuster nut at the rear. There was enough slack in 'the system' to remove it without issue then. At least I don't yet have to worry about which bit goes where, although it needs cleaning, painting etc and that will need a strip down. The next job 'on the critical path', to get to the wheels and re-turn them, is to remove the axlebox keeps. These are substantial and seem to fulfil a role as frame stretchers too (I suspect that the loco is a little 'bendy' but it doesn't seem to have suffered as a result). This quite a big and long task since the steps for each wheel set will involve removal, degreasing, protecting the bearings with masking tape etc, centring and re-turning the treads and then painting. It would be best to do all of the wheelsets simultaneously to avoid disturbing lathe settings etc (I need to try to get all the treads the same diameter!) and that implies a big pile of bits that my workshop is not quite ready for owing to a parallel project using nice clean wood and white paint…

In the meantime (and to avoid a future pile of miscellaneous bits that all need refurbishment, I will carry on with sorting out the other pair of drain cocks and the brake actuation cylinders. The drain cocks were going to be easy (as I had already done one pair satisfactorily) weren't they? Well, this time the screwed in end caps retaining the piston were seized and simply would not budge with strength, oil or heat (they were brass). Maybe a victim of unbalanced oiling (see earlier regarding the stuck cylinders). The others more or less fell out, revealing a piston with two hardened and scrap O rings each, so I had to get inside to replace these on this side too. Nothing for it but to drill out the ends and worry about the thread size to make new ones. They were 9/16" x 26 tpi and, needless to say, I did not have a tap and die to suit and did not fancy spending the £25 necessary to buy a cheap set for two holes (the hidden cost of arcane restoration projects?). Fortunately, the body would stand a 5/8" x 26 tpi thread, and I did have a set for this from making regulators and glands in previous locos, so I was able to make up the parts OK and breath again. I had forgotten how painful it is making matching 5/8" x 26 tpi threads: the fit has to be very good or it is easy to cross thread when fitting, or make them too sloppy (or too tight) with rough adjustment of the die stock.

Next for now on to the brake cylinders. These are substantial castings, one on each side, operating the loco brakes using compressed air. Although externally they look ‘ropey’, the fact that they run on air means that internal oil and grease is retained and the insides were very good. Even the rubber cup washers and cast iron piston rings are in good order and will live again. The only casualty is one of the cover securing bolts on one cylinder which simply turned in the hole thanks to stripped threads, so I need to find a way round this when I re-assemble. The photo shows the simple design and appearance prior to cleaning.

Cleaning and repainting was easy, involving – after degreasing - a few minutes under the wire wheel mounted in my second double ended grinder. I have one such beast with grinding wheels for the obvious jobs, and when I acquired a second one for a pittance, I adapted it to take a 150mm wire wheel at one end and a polishing mop on the other. I decided to use satin finish ‘Rustoleum Combi-colour’ paint for this (and for the future chassis jobs too) as my experience is that it goes on well with few runs, dries quickly and doesn’t need primer… and lasts. They were then reassembled with new grease and the stripped thread it turned out was owing to an over short bolt that depended on a few threads that had pulled out: there was enough material to deepen the thread and recut it and use a longer bolt. This cover is not subject to full air pressure as it is on the ‘open’ end of the cylinder and the cover simply supports the piston rod. I have been ‘bagging up’ finished bits to keep them together and safe! On the subject of threads, I am still trying to make up my mind whether imperial or metric is the ruling standard here: the bolts seem to be a mixture of BSF and metric so far, and I am trying to re-use good condition bolts especially when BSF as my stocks are mainly these days either smaller BA or metric.

With all the brake gear removed, I was able to see if the keeps would come off easily: the oil present ensured they came off fine and I could see that I will then be able to lift out the wheel sets on three of the axles with no issues: the fourth is the driven axle and has the eccentrics and valve gear attached, so that is a little harder but other than using allen keys in confined spaces (ie ‘one flat at a time’!) will not difficult to remove the straps. I have not yet completely removed these as I will need to mark them to replace them in the right places: the eccentrics themselves will stay on the axles during tread returning as I do not want to disturb the wheel quartering to get them off. The same will be true of the axle boxes wit