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## “Old Rube restoration part 21”

This document was written by Paul Naylor in spring 2026 and is the twentyfirst article in a restoration project. The articles were published more or less simultaneously in the Frimley and Ascot Locomotive Society newsletter.

Whilst marking time a little until I can get help with the tender, there were a couple of small jobs on the front end of the chassis. The first was refitting a couple of oilers on the weigh shaft, and making a couple more for the valve drive that were missing. More bits of brass turned up and no major undertaking - one pair press in with a little Loctite, the other pair is threaded ¼” BSF, so a little variety!

Next, I decided to refinish the cover plate mounted over the chassis forward of the smokebox saddle. This is 1/8” brass painted black except for a polished brass edge. It is screwed to a wooden mahogany ‘buffer’ beam (the right place but no buffers) with brass bases for the flag poles, and is bolted onto the chassis with seven 2BA bolts (plus a large bolt at the front through everything: photo shows it as it came on the loco). The side control for the bogie is now mounted to the chassis underneath this cover plate, and the bolt heads for this protrude above the chassis, so these need holes cut in the brass plate to accommodate them. I did not use countersunk bolts under the cover here (or in the plate: they are ‘thread loctited’ and countersunk screws can be hard to remove), because I want to be able to remove the side control without having to take this plate and everything fastened to it off if the need arose, so I had to drill two 15mm holes to clear these bolt heads. Maybe I make a wooden box or something to cover them in due course. The top paintwork on this plate is in reasonable order with a few chips here and there as the builder used good etch primer for the brass and the paint has adhered well. Underneath however the paint was applied directly to the brass and this was flaking off. I rubbed down the top and recoated it with black enamel (after etch priming the worn areas) that I will flat and polish to (hopefully) bring back the satin appearance: the chips were filled with car fine scratch filler obtainable in tubes (left over from doing up cars!). In thin layers it hardens off nicely and can be rubbed down. The underside needed stripping and a good coat of etch primer though first.



The ‘buffer beam’ with its oil soaked and chipped varnish was sanded back, redyed and revarnished. This is, of course, all pretty straightforward stuff but quite satisfying to do!

The main event here though is working out how the 'cow catcher' fits. This adds about 200mm to the loco length and naturally it looks bare without it. It is a heavy fabricated welded steel structure with two unthreaded prongs that push into holes in the front wooden beam, and through the steel chassis behind it. In the box of bits, there is a turnbuckle-based stretcher that superficially looks like one end is bolted through the buffer beam central hole, and the other end over a pin at the front of the cow catcher. However, this seems too large to fit (the screws are rusted in so I didn't bother testing it) and is a little crude to be on display anyway, so I suspect a little re-engineering will be called for here. The turnbuckle idea is good though as it makes it fairly quick to loosen and remove. I will need to strip and repaint the cowcatcher and can think about reattachment



while doing this. I started to see how hard this would be, first by scraping the paint, but this is difficult in the angles. Then I tried grit blasting, and it does work but takes a long time and gets lots of paint flakes in the grit (which is reused and big flakes will block the feed). The third resort is paint stripping. Fortunately, this lump of steel is not a thing of precision and fineness, and has no moving parts etc, so a good soak in caustic soda should do the trick. The shape is a pain as it is too wide to go deep into a conventional bucket (or use loads of soda to cover it), so it looks like two or three stages of dip. As a tip, I found that Dyas, the High Street household shop, have small but handy containers of certain useful chemicals on their shelves. In particular, they have granulated caustic soda and ammonia.

The snag with the caustic soda stripper is that it can take ages, so it is best to plan ahead and leave it soaking, maybe even for a week at room temperatures. I believe that commercial caustic soda strippers use elevated temperatures to speed things up, but I use a bucket and time... and reduced hazard from hot caustic. The reaction when caustic soda granules are mixed with water is exothermic, so it gets hot itself to start with. In fact, if you add the water to a pile of granules, this can be so fast that the water boils and spits concentrated caustic soda everywhere (which is guaranteed to remove skin and worse), so always add caustic soda to water and stir it in gradually. I once mixed a very weak solution of this for cleaning down signal poles at the club: it cleaned all right, but I didn't bother with gloves, and even this weak solution gave me red raw rashes on my hands for a few days, lesson learned!

Casting around for something useful to do on the loco while waiting I started looking at the reversing gear. This is a standard ratchet lever type mounted in the cab, and usually it is mounted to the chassis directly with suitable holes in the cab. Here, the ratchet frame is mounted onto the cab floor, and this is elevated above the chassis with four cast iron brackets, so the fact that it needs the cab in place (which itself needs the boiler in place) means that I can't fit it properly now. I

also can't see a reach rod in the pile of bits, so that will need measuring and remaking. One of the four brackets has a hole to receive one bolt through the ratchet frame as the only direct connection between the lever mounting and the chassis, as well as the lever pivot which is mounted on the chassis. At least I can sort out the four brackets and mount them on the chassis ready, and maybe try out the lever mounting. More paint removal (this time with the wire brush), degreasing and then painting. This was only complicated by the fact that one of the rear brackets, mounted via one bolt only to the chassis, had stripped the threads of its 1/4" BSF hole, so I had to drill and tap it out a larger size. For some reason, I did it 5/16" BSF and not M8. The photo shows the brackets in place, the nearer one on the left in the photo is shorter than its opposite number and is the one the reversing frame bolts to with its one bolt. The reversing lever pivot hole is in the upper chassis member between the pair of brackets on the left in the photo.



I found the reversing lever pivot in a miscellaneous box: it was bent and marked with Stilson wrench jaws as it is circular and yet threaded 3/8" BSF to go in a threaded hole in the chassis. I found out why it was bent too when I came to try it in situ - it fouls the clevis of the righthand side brake cylinder a small amount, 'fixed' by the bend when bolted up. I thought I could do a little better and remade it from some hex bar so I can use a spanner, and cut away to clear the clevis. The photo shows the lever, the old pivot and the as yet unpainted new one. After cleaning up the lever a little and painting the pivot, I should be able to mock it up to see if I can measure it for a new reach rod.



The lever is somewhat stuck together and I am not inclined to take it to bits just to repaint it, so as long as it fits when it is properly mounted sometime later, it will do as is. In the end, after these photos, I did scrape the paint off as it was flaking, and I have ended up with a raw metal assembly that I will paint the frame bits of but leave the lever etc as bare metal. I clamped it to the chassis in the right place and with packing to represent the cab floor to eyeball it for a reach rod. Unfortunately, it is not in direct line with the valve gear lever and the reach

rod pierces the cab front 'wall', so it is not a simple matter of a straight rod: it will have to wait to be tailored in situ. Or I could mount up the cab and do it properly, but that is a lot of work, and the cab is a little flimsy as some joints have flexed (it is an all-wood construction and will need some attention and glue) anyway. Maybe this was caused by the forces on the reach rod being mainly borne by the wood frame. On the photo you can just see the close proximity of the lever pivot to the brake cylinder: it now has about 1/16" clearance at the worst-case position.

Back to the cowcatcher (or pilot, as I suspect its proper title is). It is now all stripped and then grit blasted. I offered it up to the chassis to see how the securing turnbuckle would fit. I decided to remake the fixture and ordered a stainless steel M8 turnbuckle that I will need to make 'ends' for its pivots. These are ludicrously cheap (around £6 delivered), so we will see what arrives. To be able to remove the pilot easily for transport (it would shorten the engine by 200mm plus), I don't want to use nuts and bolts, and I think I can make something to suit that just needs the turnbuckle to be loosened, then it would pull off the chassis. It has two 3/8" diameter prongs that push into holes in the buffer beam and is secured by the turnbuckle arrangement. The photo shows the mock up with a chunk of 0.5" square steel to make the fixing with through the existing holes (pilot as yet unpainted). That is the next job and for the next article.

