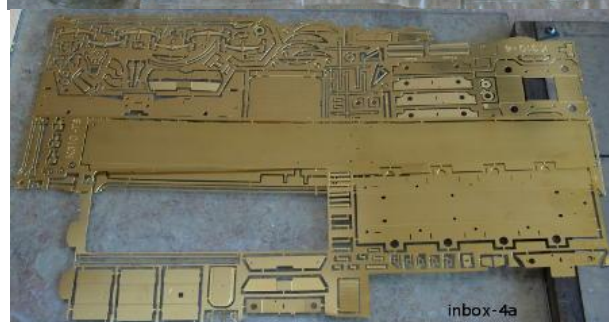


The DJH LNER A3 Pacific 4-6-2

Manufactured by: DJH Engineering Ltd., Project House, Consett Business Park, Villa Road, CONSETT, DH8 6BP. sales@djhmodelloco.co.uk. <http://www.djhmodelloco.co.uk>
Built and reviewed by: Raymond Walley

This commission (Feb-Oct 2010) was to build a DJH A3 with a GNR tender. The kit arrived from my client in its original box. This is a fold-up corrugated thing, which is fine for containing the carefully packed parts but not, in my opinion, a suitable container for the finished model and, I fully approve! It will be housed in a 'proper' box when completed. So, the usual question, what's in the box? In a word, a great deal:



As is normal with DJH, there is a good deal of cast pewter/white metal.

The one piece not shown here is that for the footplate and the only part I think that is inappropriate for a casting, difficult to get that thinness for the footplate in white metal or pewter.

The last picture shews the additional parts necessary to complete, wheels and a motor/gearbox - in this case a Ron Chaplin offering.

Also included are a set of Premier rods, again something I have not tried before but rather doubt I shall be using them, the etched version looks OK, but we shall see. There is also a bound A4 booklet with some historical detail, lists of parts and exploded diagrams.

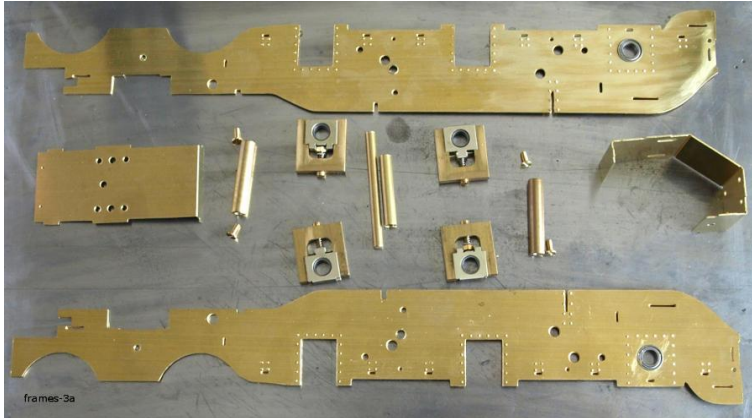
No doubt I shall comment further on them as the build progresses. Before starting on the frames, I sorted out the wheels. After unpacking and cleaning off any rust marks, all wheel backs were rubbed on half a sheet of 400 grit on a plate glass base until the brass boss and steel rim were evenly bright. This is essential to ensure that the wheels run as true as possible. A glass fibre brush was used to clean up the faces and these were then treated with Casey's gun blue. Half the wheels were then shorted out using silver conductive paint. All screws in the ends of axles were removed and drop of silicone oil dropped in before returning the screws. By the time I get round to using them, the oil should have dispersed along the threads. This ought to ensure that they will



never rust solid in the future. The drivers then had the hole for the 12BA bolt that comes with them carefully opened out to take a 10BA tap followed by a 10BA, countersunk bolt which was then fed through. A brass bush, threaded 10BA, was then wound on and tightened up on the bolt. We now have a good basis on which to build the rods and motion and another little pile of steel 12BA nuts and bolts in the spares box, at this rate I shall soon be awash with them, anyone need some?

The frames for this beast are hefty. No nonsense about "scale" thickness here, they are almost a millimetre thick and so take a while to get all the cusps squared up. I know that there are adherents to the view that frames should be to scale.

However, the problem with that idea is that the physics do not scale down, with the result the chassis flexes too much. Still, a millimetre is perhaps a tad overkill.



The parts for the frames cleaned up and ready to start assembly. I do not like turned brass spacers however, they should prove useful during construction but I may replace them with something soldered in place, if only to get rid of the protruding bolt heads.

The roller bearings for the rear axle have been fitted into reamed out holes and fixed with Loctite 408. Whether this setup will prove up to the job remains to be seen but there is a plan B if necessary.

I have drilled an extra hole between the horn guide cut-outs for the compensating beam pivot. The unused hole for the plunger pick-ups (not needed for 'American' style current collection) was not in quite the right place. Into these holes will be soldered the piece of brass rod shewn with the adjacent

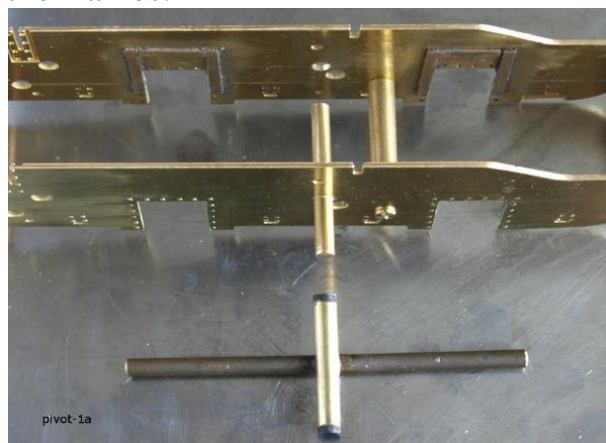


tube fitted over it and to that will be soldered the compensation beam. The horn guides and roller bearings are from Hobby Holidays and, because they need to be set so high in these frames to get the axles lined up, require some padding out to stop the bearing carrier fouling the frames. I used some 2x0.5mm brass strip. One of the horn guides is laid in position to shew what it will look like once assembled.

There was a question about the instructions, which I asked DJH about. The answer came commendably quickly. The instructions for fitting the front spacer (left hand side in the picture above of the frame parts laid out) have a small, but confusing, error in that the diagrams shew a pair of 2mm mounting holes at the end where the bend is. The holes are in fact in the centre so, confusion over, work can commence on building the frames.



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The rear of this part of the chassis has five holes tapped M2. This is to hold the rear of the chassis part that hides the fake cartarzi truck and the pony that is used in its stead. I am not happy with tapped holes in 0.5mm thickness of brass (no doubt the engineers among you will maintain it is perfectly feasible) and so drilled them all out for 10BA and soldered nuts over them as shewn above.

The pivot for the compensation beam partly constructed. The beam is simply a length of brass rod with a half round indent filed in it and then soldered to the pivot tube, which has its ends, inside and out, chemically blackened so that it will not seize solid when the pivot rod is soldered into the frames.

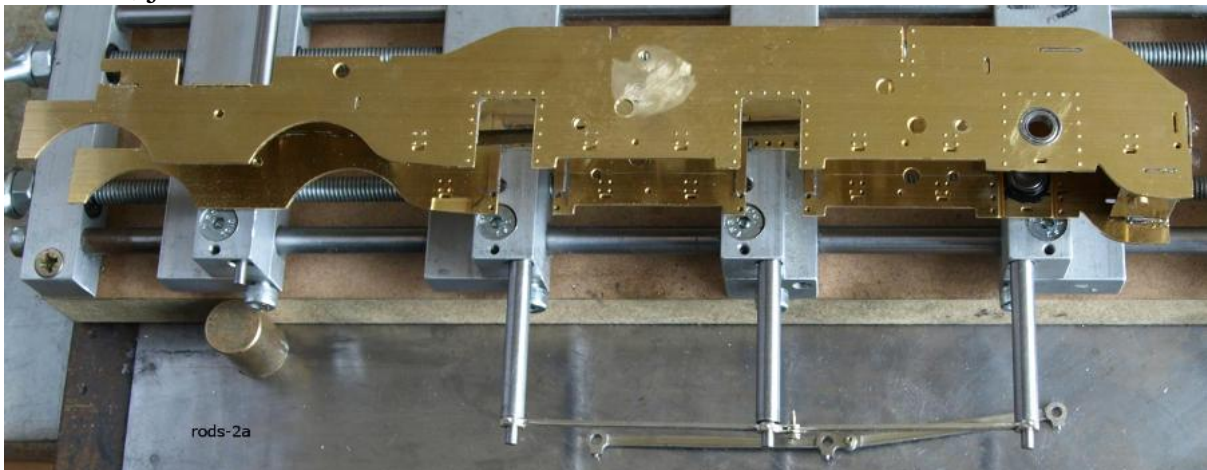


Here is the finished article fitted into the frames.



I laminated and cleaned up the rods enough to use them for the next stage, they will have to have some more TLC in due course. The cast crankpin nuts were carefully opened out by 0.1mm stages to 1.4mm and a 10BA tap run through them. The rods are properly jointed using a cast

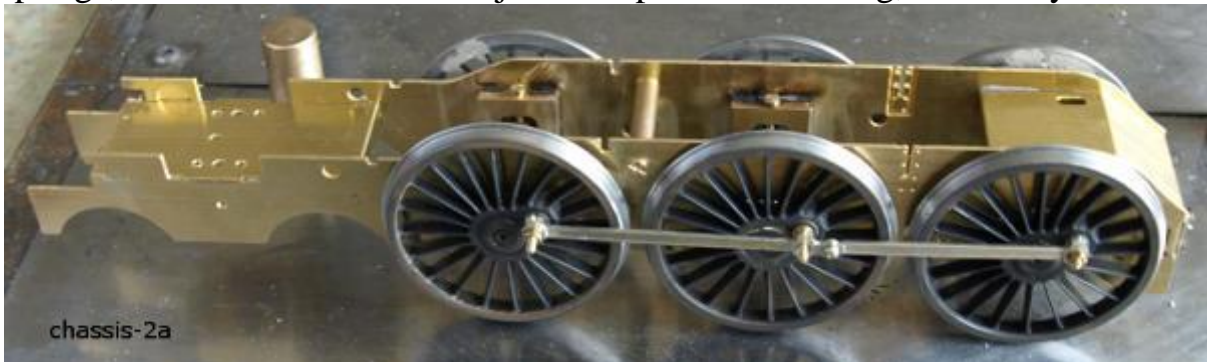
12BA nut that screws into the rear of a fork in the right hand rod. Neat and effective, just like those for the 9F



Setting up the jig ready to solder up the horn guides using the rods. Both sets were checked before the dummy axles were locked down. Here is the chassis set



up ready for the horn guides to be soldered in place. They are held in place by springs, which allows of some adjustment prior to soldering, when they are held



tight by a clamp made from aluminium hair clips.

Once that job was done, the wheels were set up with the rods and the chassis was tested on a slight slope, it ran away smoothly first time. The roller bearings make a great deal of difference so that finding the inevitable tight spots should be far easier. Next job was to take most of it down again, fit the motor and run it on the rolling road. Which proved to be a joy? It ran perfectly first time, with

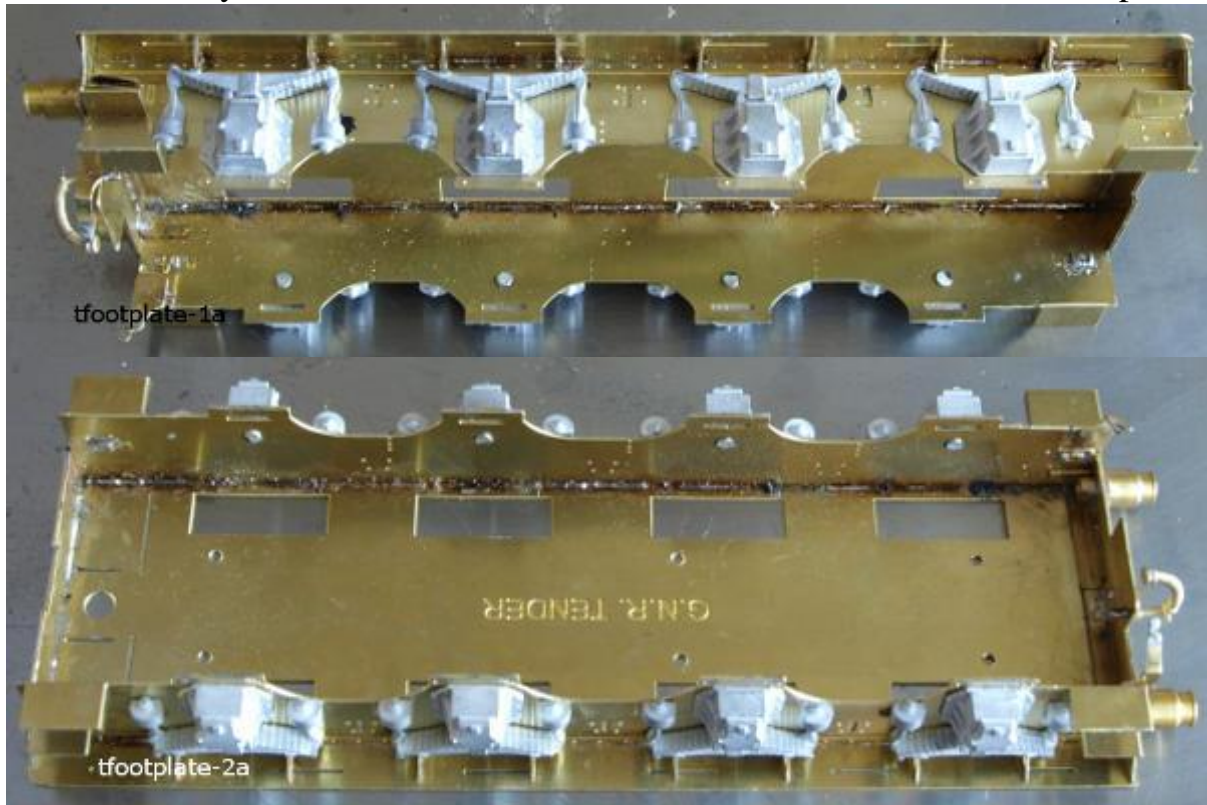


no sign of any excessive current consumption that comes of binding. Having got the basic unit running, it was time to fit the brake gear. This is a time consuming job as the white metal brake blocks have very little clearance and can foul the flanges easily. To ensure that they did not short out the wheels, I fitted the rodding with the cross beams and then fixed it at the front end and then fixed the rear blocks and rods in position, leaving all remaining joints unsoldered. This gave a relatively solid basis on which to assemble the remaining four blocks. Each one was individually fettled and then fitted ensuring that the wheels were free to turn. Some filing away of the base of each was also required to clear the flanges and the brake blocks themselves

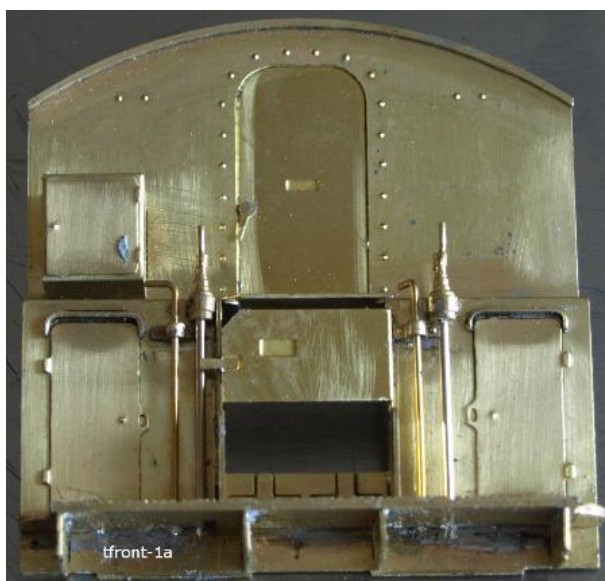


were chamfered off on the backs. This is one area where plastic brake blocks would have been a good idea however, since I suspect most of these kits get built with a solid chassis, it would make no difference since the wheels then have no vertical movement and so the block would need far less fettling. It still remains to see how well it runs on real track. I added some lead to the trailing pony truck and also the leading bogie to ensure they stay on the track and run smoothly into curves when leading. It may be necessary to add some side springing, we shall see. About all that's left for the chassis now are the sand boxes and pipes before work begins on the cylinders and motion.

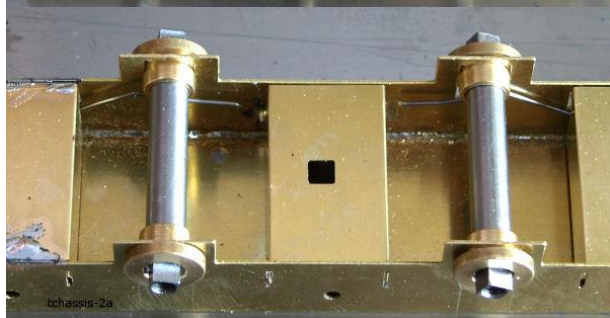
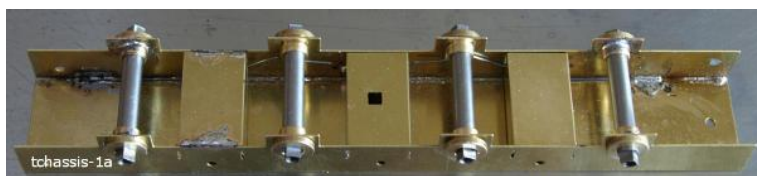
April. Having taken a break to get my garden sorted now that the weather has improved, it is time to do some more work on this project. Not being in the mood for fiddly stuff like the motion, I started work on the tender. The footplate



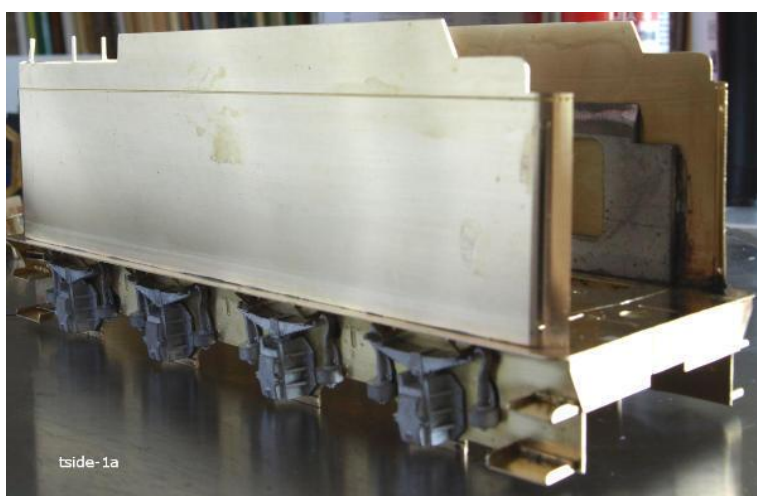
and outer frames are simple enough and go together very well. The etching is well done and all parts needed their cusps filing off to ensure a good fit. As usual, I strengthened the buffer beam with L angle so that a heavy train cannot pull it off, there is not a great deal of contact for a soldered joint on the original and I like my builds to be robust. This later required that the inner chassis be modified slightly to allow for this addition.



The tender front, which is made up of over 30 parts, is well designed and goes together with ease but is time consuming and a number of the etched parts are tiny, which made life interesting.



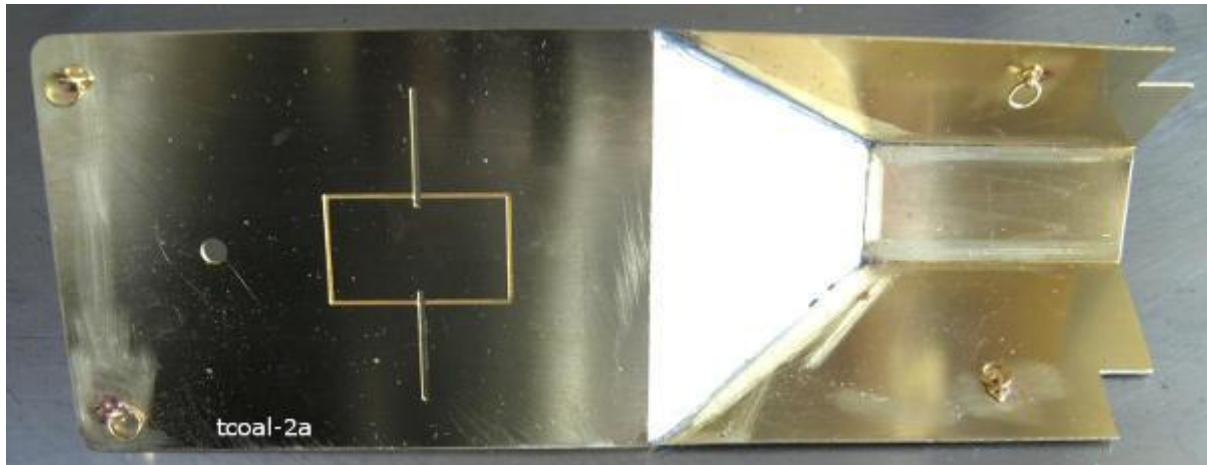
This is a well engineered kit so it came as complete surprise to find that the two centre wheels are provided with two centre bearings that are substantially over bored, which allows the axles to move horizontally as well as vertically, "to give the necessary play when running".



Needless to say I passed over that method and instead filed out the two centre bearing housings oval to give a couple of millimetres up and down play. Steel spring wire was fitted and then the box sections in the frame were modified to allow the spring's free movement.

The bearings are not, yet, fixed to the springs as the wheels will hold them in place, we shall see if we have problems with spinning bearings. I find that the less steel spring wire is soldered the better it keeps its springiness.

The tender sides and end are a wrap around etch and, on reflection, it may have been easier to fit it to the footplate before fitting the footplate to the frames. At the rear there is an optional cut-out in the upper side sheet so that one can represent both the early and later versions. The older version had a sloping tender front, for which the etched sides as received allow. However, the later version has a straight front and one is provided with two etched pieces to solder on to fill the gap! Why was not the same method used as for the rear providing an optional piece to be removed? Soldering the little pieces on is a fiddle and will require some filler and careful rubbing down to achieve a smooth finish, which is essential in this highly visible area.



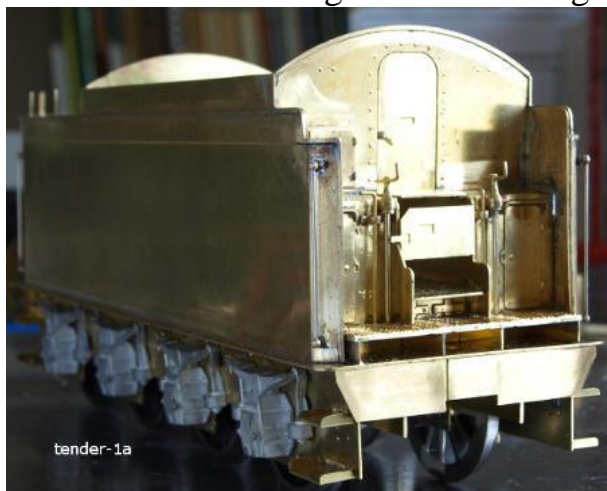
The coal plate has lifting lugs that work like the real thing and are made from three of the tiniest bits of etch I have seen for a while. Fiddly to fettle up and get square edges but they do provide an authentic touch and look good. There is an integral shovel plate on this etch, which I removed and soldered in from the front plate, to make fitting the unit in place simpler. To ensure that the front of the coal plate is properly supported I

soldered a piece of angle on the back of the tender front.

The rear, where the corner flares fit is always a source of potential difficulty on tenders. This one is provided with cast white metal pieces to fit in the space. They are a good fit and I decided to glue them in place with Loctite408. However, such glues can have a tendency to degrade in the presence of heat (though 408 claims not to be affected) so I have added most of the detail to the back of the tender before fitting the corner flares. The guard irons as provided are, I think, a little thin and the etched bend lines make them rather frail.



I used one as a master and cut some new ones from nickel silver, using the etched fold lines as a guide for bending them to shape.



Here it is largely complete save for the coal rails, brakes and a good clean-up.

Work then began on completing the inner chassis. The brakes proved somewhat problematic. If fitted as provided they trap the wheels in permanently, with a great risk of shorting out on the brake tie rods because the clearances are very tight. I decided to make them removable

and so the white metal brake shoes just would not do. There is nothing intrinsically wrong with them but I considered that they would not be strong

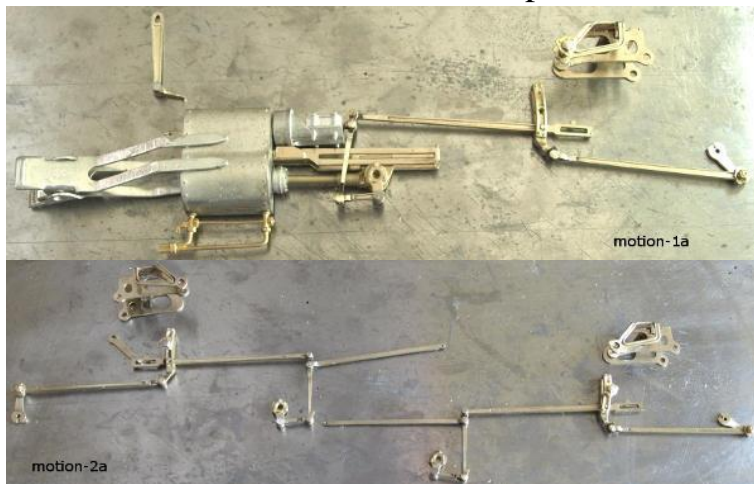


enough to stand up to too many flexings when removing the brake detail for painting and maintenance so, I got some similar brake shoes from Laurie Griffin in lost wax brass. These were drilled at both ends 1mm and brass rod soldered into the lower holes to make pairs. Short lengths of rod were soldered into the



tops to fit into the brass tube that was fitted in the chassis. Here above are the parts ready to be assembled. The two short lengths of tube fit at the rear where the brake cylinder also lives. Once these parts were fitted it is an easy matter to arrange the brake gear. The shoes are a long way from the wheels but they would also have been with the shoes provided too.

Back to the motion, here mocked up on the bench.



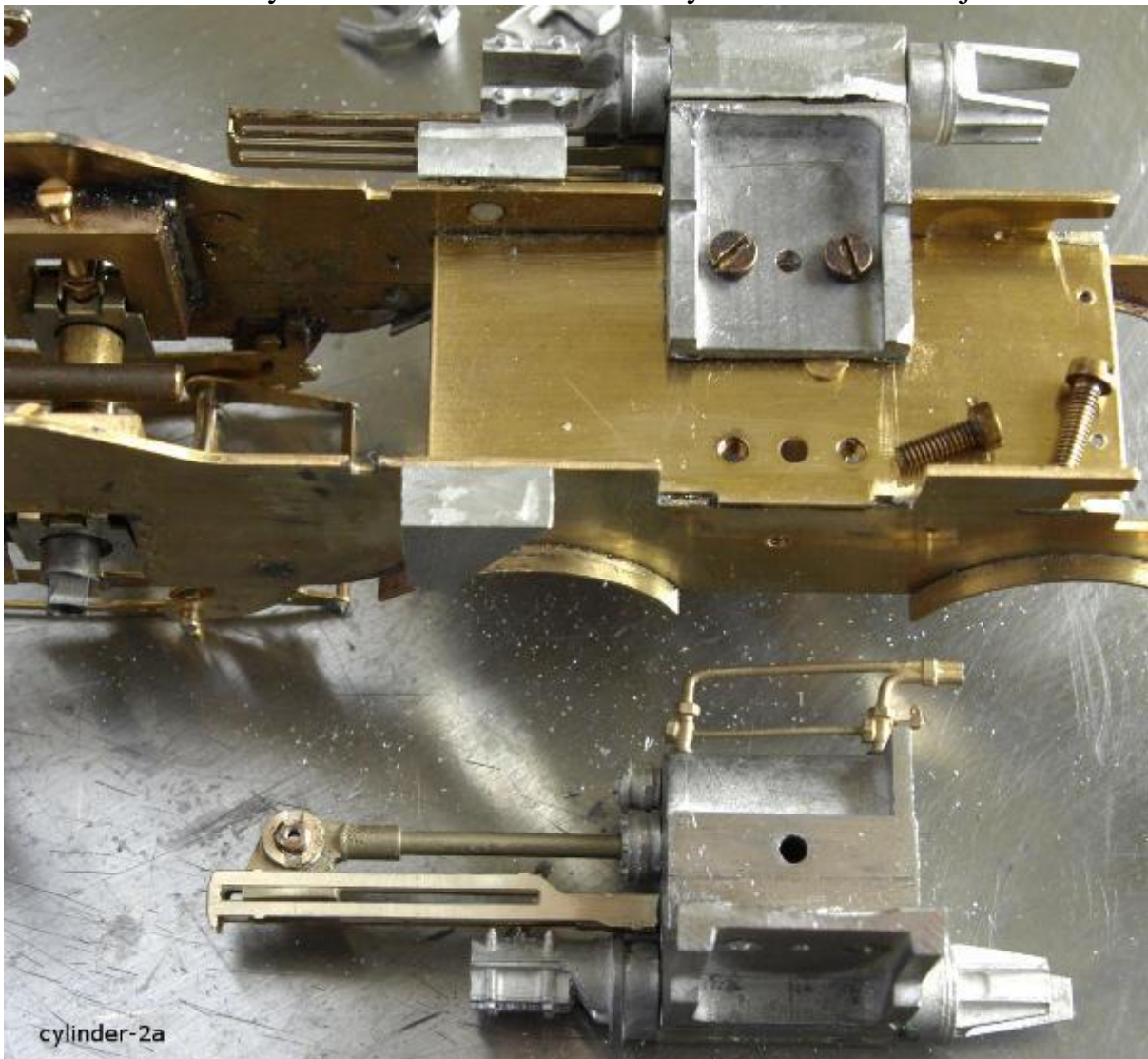
The instructions suggest assembling most of it with brass 14BA nuts and bolts. Naturally, I did not; they would look awful and would spoil an otherwise rather nice engine. Most of the joints were made using 1mm nickel silver rod and some tiny n/s washers I had left over from sets of CPL locomotive couplings.

Never-the-less, there are two points in the set where I have used steel 12BA bolts, made by soldering a nut on the screw and cutting off the head, and one joint is made using the supplied lost wax bolt.



Unfortunately it is not possible to do the same with the joint to the piston rod as the hole is too large to tap 12BA. I got round this by soldering a brass 12BA nut to the back and made up a steel bolt to go in from the front. That way it can be removed. The way the instructions show it the bolt would have gone in from the back, which would have made taking the motion down an interesting exercise. After I had done both sets I discovered one set with a rod the wrong way round.

I had run out of tiny washers and so had carefully to unsolder three joints and



then reuse the bits, interesting, to say the least! The circles indicate where there is a removable bolt or nut. However, I decided to modify it all some more. I do not like cylinders that cannot be removed. Each cylinder is cast in two parts, one of which is designed to be bolted to the frames from the top and side and the second piece permanently fastened to it so that the bolt through the frames would be inaccessible. The top bolts screw into ready tapped holes in the frame spacer, which is thin brass. I replaced them with 8BA nuts soldered to the spacer and bolts. Much stronger and so the bolt that goes in through the side frames can be left out, voila! removable cylinders.



There is a cast w/m bracket that fits into a slot in the frames and should then fit over the top of the slide bars. Unfortunately, it appears to extend out over the bars by some 1-2mm, so some careful filing was called for. It



also sits too high so some had to come off the top too. I had thought that the cylinders, and therefore slide bars, were set too



high, but they match the drawing so the bracket is clearly wrong.

I finally got the motion set up and running (at about 14mph here) but have yet to get the ride height correct, it looks like it droops at the cylinder end.

I finally got the motion set up and running (at about

14mph here) but have yet to get the ride height correct, it looks like it droops at the cylinder end. It can all be taken down but requires the cylinders to be removed to achieve that. It has been a bit of a fag getting it all running. Now all that is needed are a small correction to one of the short rods, the brass bolts through the wheels replacing with steel 10BA bolts and the proper cast crankpin nuts fitted instead of the brass nuts one can see presently. I always feel with engines like this that, once the chassis and motion are running, the job is over the hump and on the home run. Well it was not, see later. Next job is to take it all down, clean-up,



chemically blacken the frames and paint it. This is how the motion is assembled by fitting most of it to the cylinder before offering it all up to the frames. And, this is how it looks running at about 10 mph, pity I do not have enough rollers to accommodate the bogie.



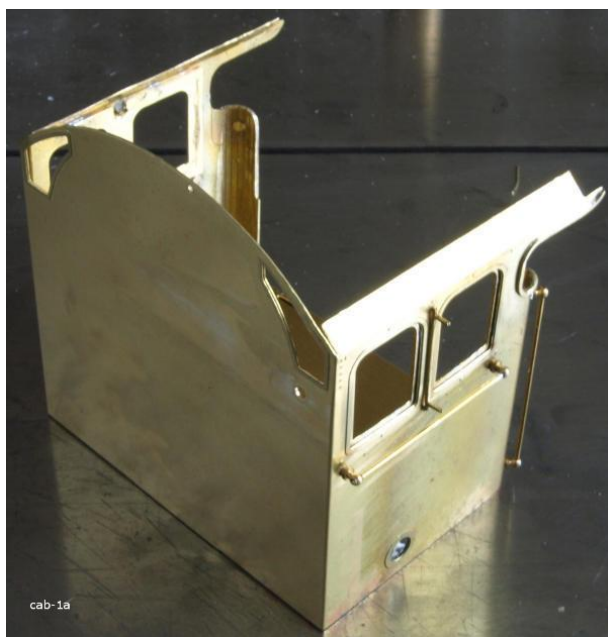
Time to start on the body. The footplate is a white metal casting, in my opinion a most unsuitable material. The first one had so much flash on the delicate edge that it was sent back and promptly replaced by DJH (top marks for service).



It is fixed to the chassis with six M2 bolts, which have to run in holes drilled and tapped in the white metal, I have doubts about how it will stand up to many disassemblies before the threads at the outer ends strip. The fixing points over the rear wheels are far meatier. The boiler is an excellent casting but requires some careful work to ready it for fitting to the footplate.

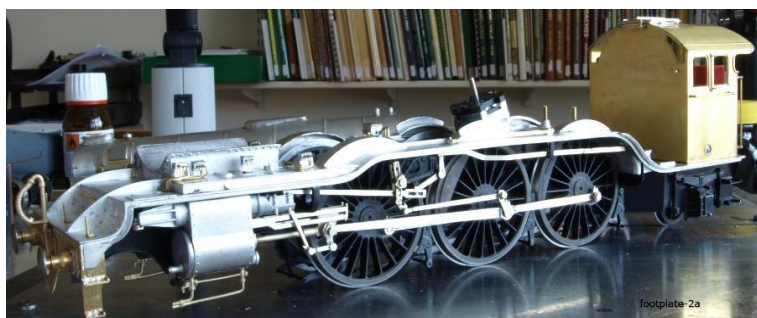


There are a great many holes to drill out and some gentle work bending out the base of the firebox was needed to get it fit on the footplate. Fitting all the 0.5mm wires for the cladding bolts is a bit of a fiddle. With such a huge heat sink I balked at soldering and glued them with 408, which seems have worked well enough.



The cab is a simple etched fold up and presents no real problems. But the hole etched for ejector pipe does not line up with the pipe once fitted to the boiler. Most of the external bits were fitted before folding it up and fitting the floor. The backhead is a good fit.

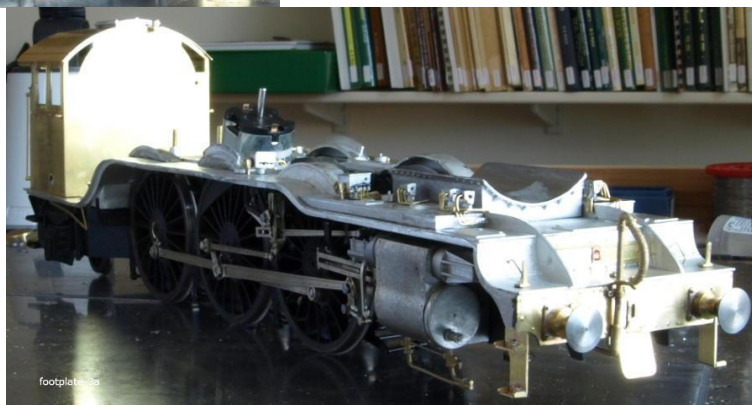
Fitting the cab roof was not easy. Care needs to be taken to get the shape as exact as possible. Then it is possible to clamp it in place and tack solder. Once it is true then seaming up is not a problem.



Here is the footplate with the cab fitted and all the various bits and pieces added.

The boiler proved to be a problem. It would not line

up when offered up to the footplate and chassis and looked as though it was twisted. After much puzzling and various experiments culminating in measuring the height of the handrails on both sides on a flat plate, I discovered that I had fitted the smoke box door out of true! Dry runs are essential.



The buffers are most interesting as they are double sprung. There is a brass tube that fits into the buffer housing into which the buffer shank goes and both parts then slide independently. The buffer shank has a small bronze spring but the shank is too fat and needs some filing down. There is another spring held in place by a small bracket on the back of the buffer beam to spring the brass tube. Once set up it works well and the buffer can still be removed without disturbing the other sprung part.

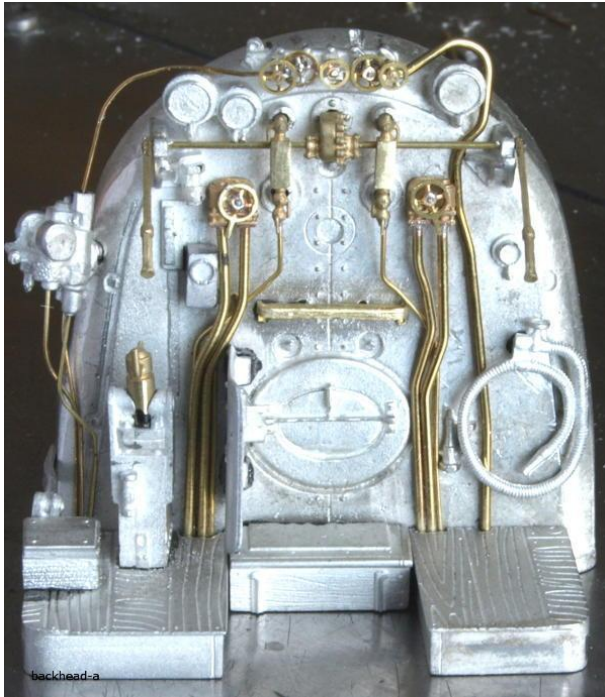
The couplings supplied are Slater's with left and right hand threaded trunnions. Nice idea but the links are so frail that they fracture on the curved part when attempting to fit the trunnions. They were scrapped and replaced with CPL couplings. It would have been a good idea to have remembered to fit the sand pipes before painting the chassis, not easy to fit afterwards.

Finally almost finished, just the backhead to do and I have not put on a piece of rodding under the cab.



Well that's the backhead complete and the regulator still moves. These things always seem daunting to me until I actually start, when it seems to go together more easily than I thought it would. It is, not naturally, very fiddly work.

The test run proved that the bogie needs some attention as it shorts out on the cylinders so, a little more work with the Dremel and a dentist burr removed the offending metal. It is now on its way to the client who is to paint it himself. Hopefully there will be some pictures of it in action in due course.



An interesting kit to build and it goes together well generally. The changes I made were mostly to satisfy my own building methods and ideas. Not for the beginner though.

I passed this review to Stephen Widdows at DJH and here is his response

Dear Raymond

It all seems fine. Thank you for the advance copy.

The K310A/B/C LNER A3 kit range was designed some 15+ years ago, so I think it holds up pretty well to modern day review.

We (DJH) continue to use pewter for our one-piece cast footplates and boilers; it's a trademark of our 'unique' kit style.

To supply a footplate as a flat etching or stamping asks for a great deal more skill from the builder and most, unlike your, are not 'professional'. To bend and form the profile, add the rivets, valance, etc. You already make the comment in your review that the A3 kit is not for a beginner, how much harder would be adding footplate fabrication to the list of work required?

There are plenty of 100% etched kits on the market from manufacturers who don't have our range of tool making and casting skills, for anyone who favours brass or nickel, but many at best require 2~3 times the assembly time to build or at worst effectively require 'scratch building', and so add to the skill required to complete them.

The whole material selection argument is a complex mix; we have opted firstly for 'ease of assembly' whilst retaining the authenticity and scale of the prototype.

Regards

Stephen,

He makes valid points; my view of course is entirely based upon my own prejudices.

Raymond Walley – Bexhill - December 2010