

## LNER CLAYTON STEAM RAIL CAR (Rating 4/4/2)

Manufactured by: GP Models, 44 Wolsey Way, LINCOLN, LN2 4QH  
Built by: Raymond Walley



My friend, and client, Chris Robertson's exhibition layout 'Staindrop' (which will no doubt be on display at Telford one of these years) required more passenger stock and so he commissioned from me a Clayton Steam Rail-car. The box of bits has been lying in a cupboard since we moved here, (fortunately Chris was not in a hurry for this one) but now that most of the DIY is complete, the time had come to make a start on building it.

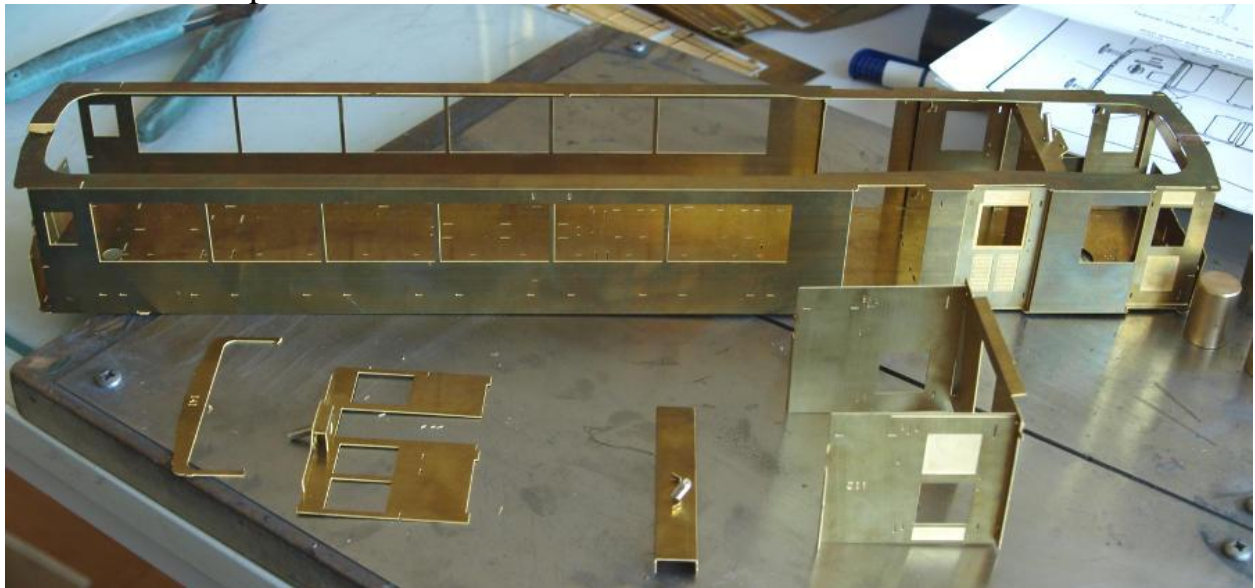
So what comes in the box? In a word - everything! From heaps of sheets of brass and nickel silver etches to the motor, gears and wheels, all that is needed to build the vehicle is in the box save for paint, transfers, solder and glue. It is an impressive collection and, for those too mean to buy a proper wooden box, the stout cardboard box it comes in will hold the finished model.



I am told that the kit is about 20 years old; being the first that GP produced so it was well ahead of its time then. The main body part comes ready folded. The standard of etching (and therefore draughtsman ship) is very high (Modern Outline Kits are credited on some of the etched sheets). There are no white metal castings, they are all lost wax brass (Oh joy!) and seem to be made from good masters but not particularly well cast. The correct Slater's wheels are included for the engine bogie. For many people, this will suit fine, especially as a good deal of thought seems to have gone into the motor gearbox combination. However, if I were building it for myself, I'd be inclined to change the motor and gears for something from ABC, but then we all know how perverse I can be.

The instructions come in a 22 page document that includes a great deal of prototype information and a reasonable, scale drawing. However, it appeared to diverge in some areas from the Isinglass drawing provided by my client, some investigation was in order and confirmation from Chris on exactly what he wanted. This turned out to require a number of modifications for which the kit was not designed.

First impression on starting is that it seems to be an exceedingly well designed kit. All the parts fitted and with almost no requirement for filing cusps save for most of the nickel silver parts.



Construction shown so far had not used any solder, it all held itself together by bending the tabs, as I have often done with WEP kits (among others). It also seemed to be largely impossible to fit parts in the wrong place because the tabs have been well thought out, though there are a few instances where the tabs do not

match the slots, usually because they are in mirror image. Furthermore, the tabs all fitted the slots.



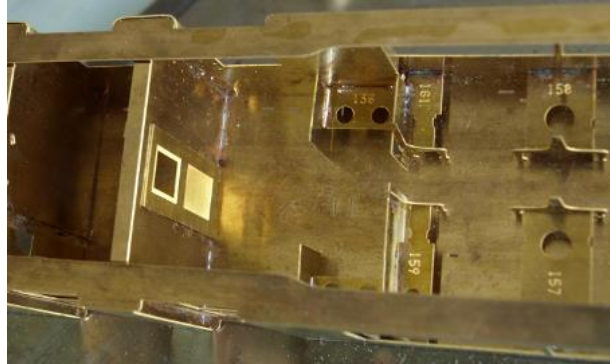
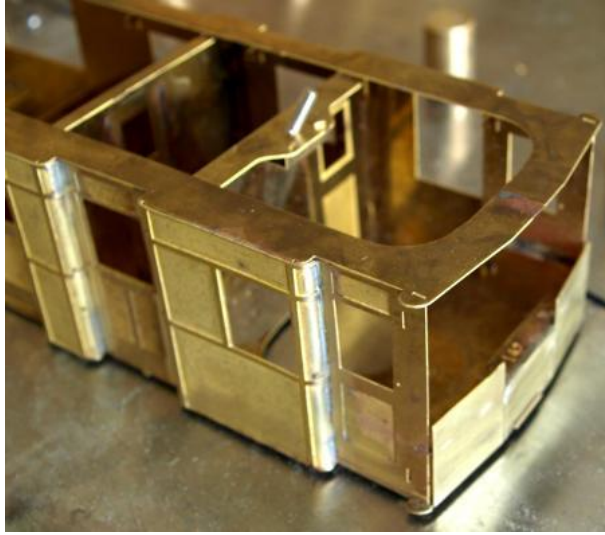
Constructing the sides and ends is where it starts to get a little more complex. The overlays all needed some careful bending and the bends needed to be accurate to fit the body, especially around the ends. However, they are all tabbed so lining them up and tweaking is not too difficult. The brass used for these etches is quite thin but I still annealed the areas for bending. The instructions suggest a length of 3/16th rod to do the bending over. For the two end pieces it worked fine using a 4.9mm drill bit held in the vice, for the others I reduced the size to 4.5mm. Careful lining up and finger pressure was all that was required, followed by straightening up the ends with fine nosed pliers.

There are a couple of minor errors, for instance, there are two parts numbered 130, but it is not difficult to figure out which is which. I also had problems with some of the seat backs (No's: 110 & 111) that, no matter which way I tried them would not go in. Perhaps my brain was not properly in gear that day, in the end I modified the parts to fit and soldered them in place.

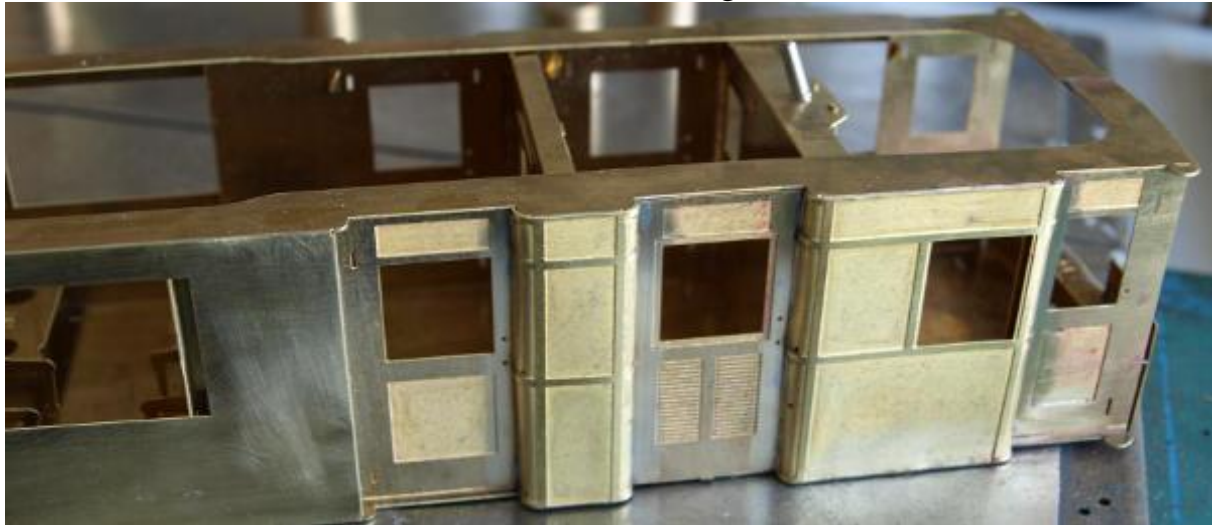
Three of the partitions required captive screws fitting and it is wise to fit them before fitting the partitions into the body. Solder was not necessary, simply bending the tabs was sufficient.

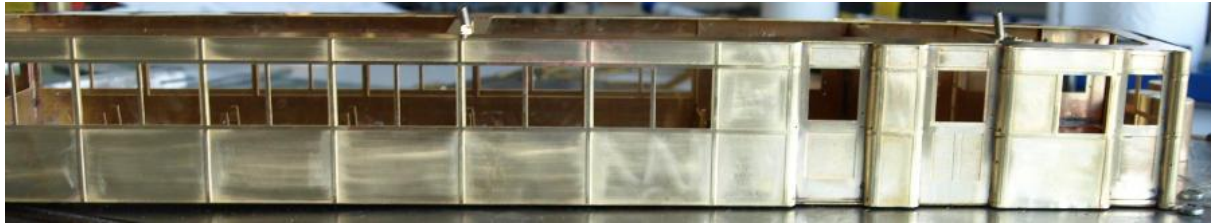
By the way, it is essential to read through the instructions before starting any construction. Much useful information is contained therein but a few more exploded diagrams would make things easier still, but, this is cavilling at minor

oddities, the kit is well designed and goes together with relative ease. Were GP Models to produce a similar GWR vehicle, I would buy it instantly.

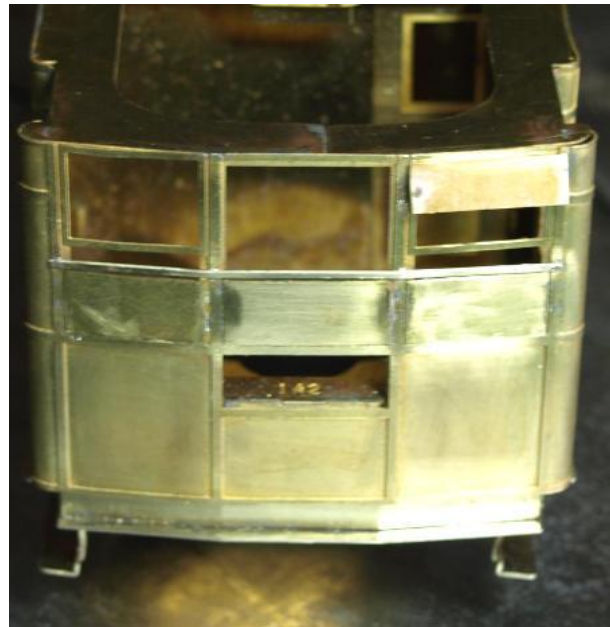


These pictures show some of the detail and how well the parts fit. The 'seats' are in fact only place markers for resin casting to be fitted later.





The body is now largely complete having all the overlays soldered on as these pictures show. The ends are a tad tricky but, if one gets the bending done accurately, they fit well and are easy to solder in place. Some parts are fiddly, the seats 135/6 for instance, but once located in their respective slots, they too are easily soldered in place.



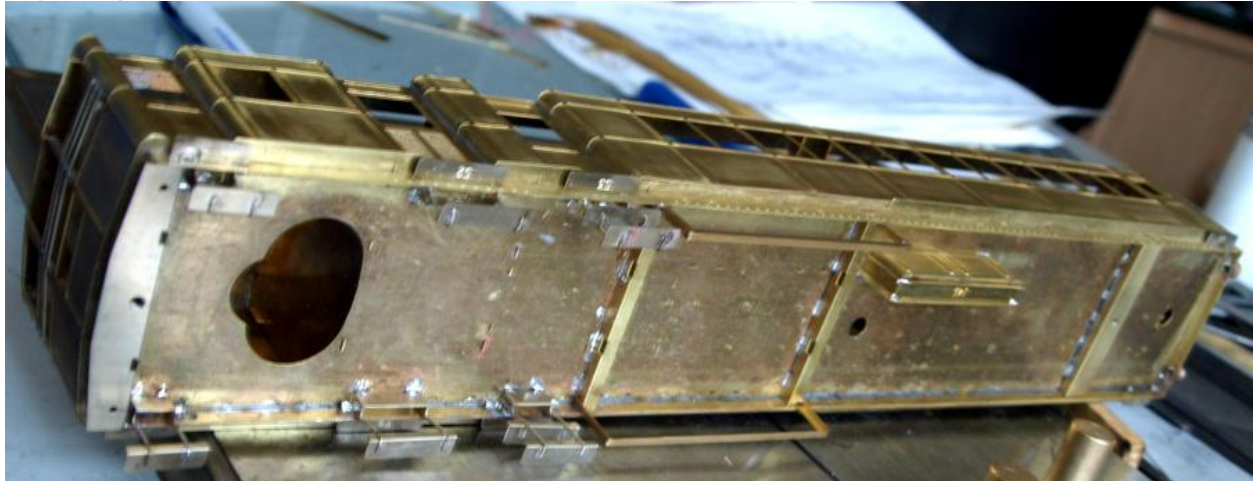
My client wants a version with the lower half of the windows at the engine end plated over. It would have been far easier to do it before fitting the ends, my fault for not checking. I used some



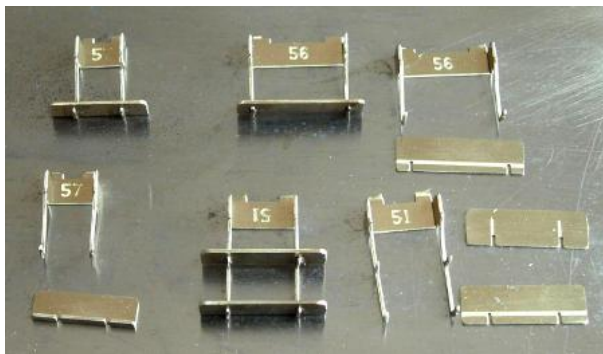
0.3mm brass sheet carefully cut and filed to fit each aperture, having firstly removed two of the bars.

The sole bars need careful bending as there are a number of tabs that are left straight. Some form of bending bars is essential if one is to stand any chance of a neat finish, I used

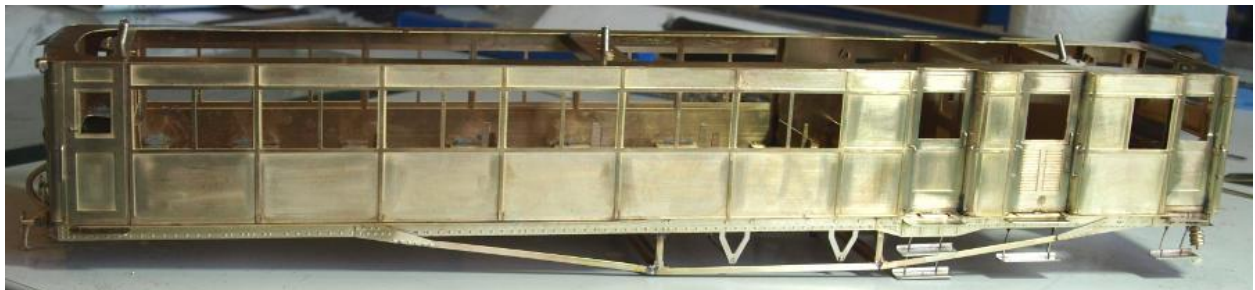
the trusty 'Hold & Fold'. To this folded up base is then added the overlay. The tabs and slots are so arranged that the bars will only go on one way. The passenger end buffer beam then fits over the ends of the sole bars and the buffer housings were fitted before fitting the beam to the frame. I, as always, strengthened this to make sure that it cannot be pulled out in service. However, since it 'will never pull anything' this seems a little like overkill.



The under frame detail is not difficult. The steps are reasonably tough in thick nickel silver, shown here partly assembled, and then fitted to the body.



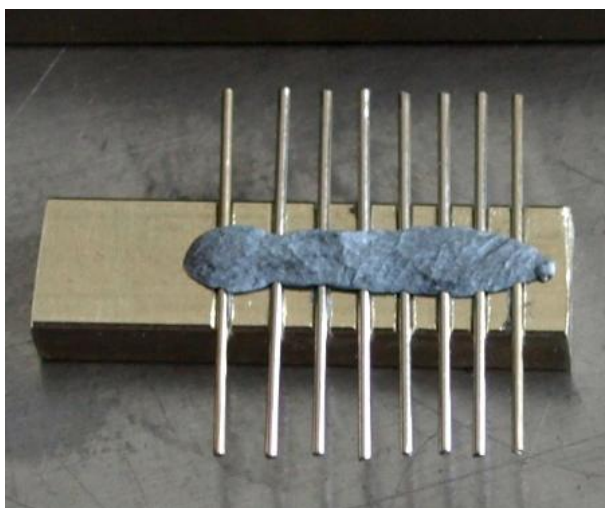
In addition a start was made on the trussing and the battery box fitted. Time it had a good clean-up too. The body needs some modification to fit the client's requirements. Plated over lower windows in the engine, as mentioned above and horizontal bars across windows behind each cab.





All the myriad bits and pieces, like hand rails and conduit pipes, etc., having been fitted, it was given a thorough clean up before being photographed. Only two bits fell off, always a good way to see just how good one's soldering is. You will see also from this view that the sun visors have been removed and put back on the correct way up.

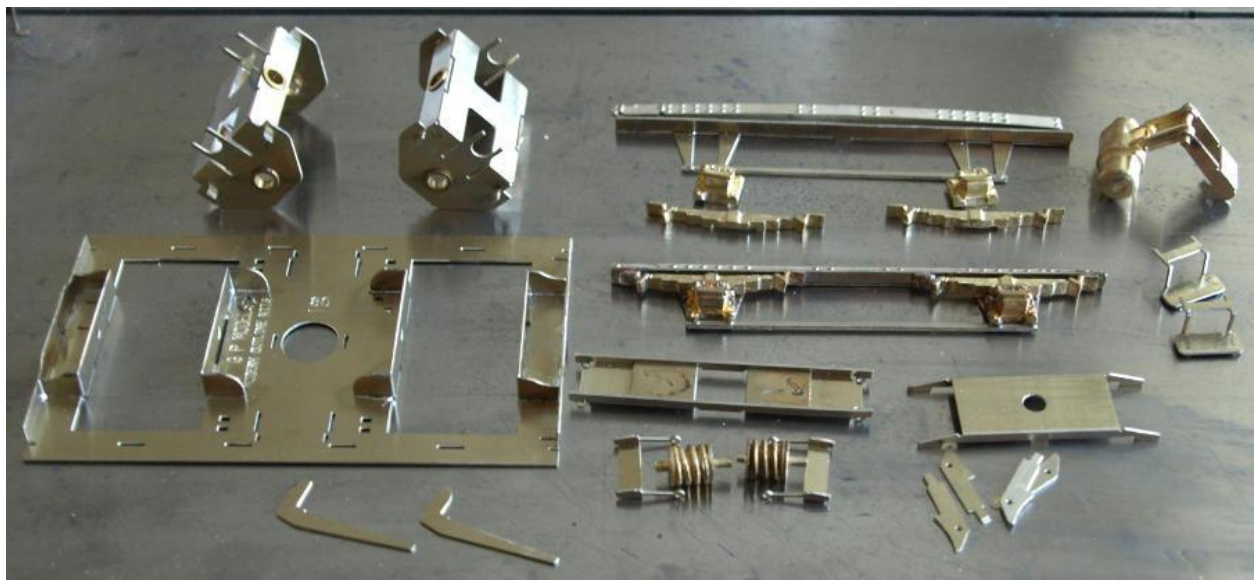
Now for the window bars. It proved somewhat easier than expected, but then I gave it a lot of thought and decided that some sort of jig would be the only way to get the bars anything like consistently level and spaced. The first jig did not work but this one did. A short length of nickel silver bar measured up and grooves for the bars cut with a piecing saw and then opened out a little with a triangular file to take 0.5mm nickel silver wire. The slots were partially filled with a little soft blue tack to hold the wire lightly. Once they were all lined up some more blue tack was used to hold the bars firmly in position.



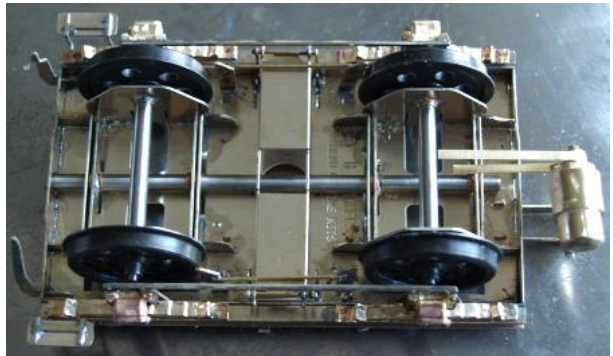
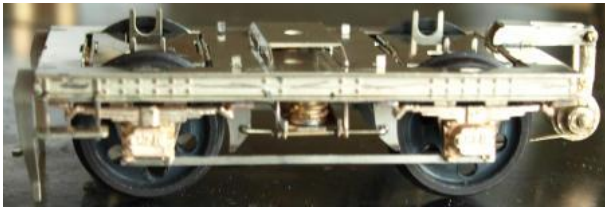
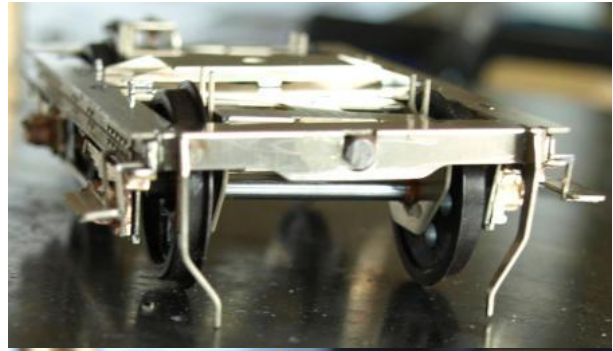
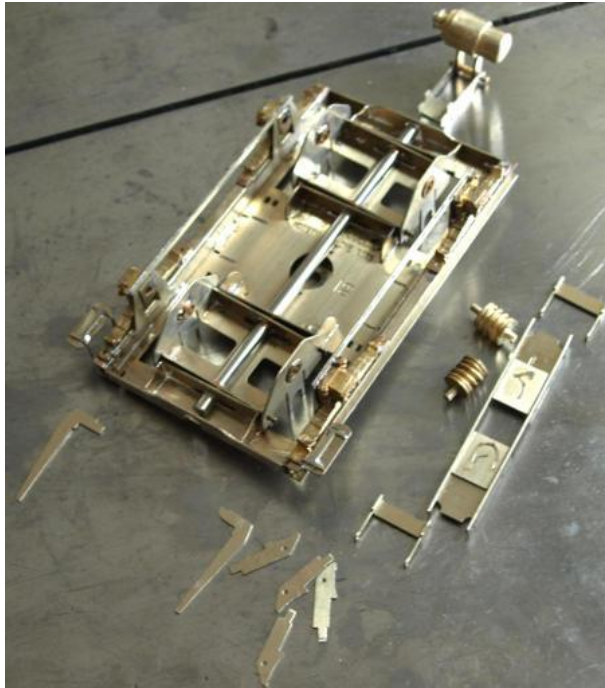
More blue tack was used to hold the jig place while soldering the ends of the bars

### **The Coach bogie.**

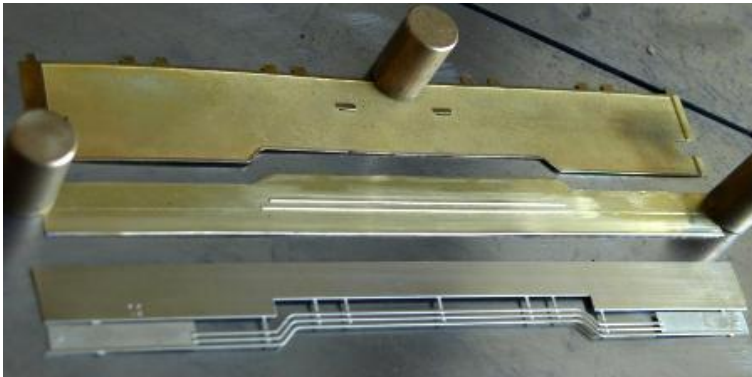
The components for the coach end bogie are seen here largely ready for assembly. Time needs to be spent here cleaning up the parts and filing cusps off. The castings seem to me to have been overheated during manufacture and or, perhaps the waxes were not as good as they could have been. Nevertheless, far better than white metal.



This set of pictures show how the bogie is constructed. It is well designed and worth the time taken to prepare the parts. The compensation works very well. The wheels for this bogie do not have shouldered axles and so it is essential that the back-to-back is checked when assembling. Still to be fitted are the plunger pick-ups.



### **The Bunker.**



The version my client wants is, of course, non-standard. It requires that the coal rails are all horizontal and plated over. This means that the supplied rails are redundant and new parts needed to be made. When partially completed I ran out of half round brass

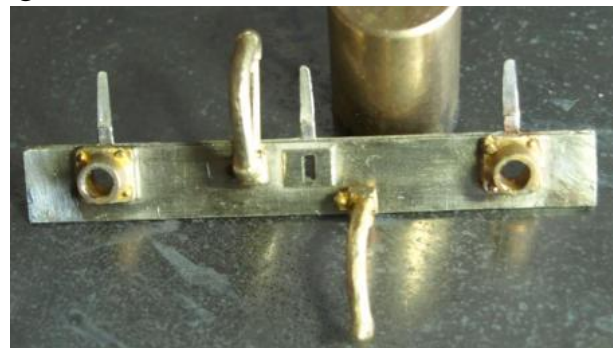
beading so the last two rails had to await a consignment from Eileen's Emporium, which arrived with great promptitude, despite the postal strike.

I fitted the plating and rails to the sides of the bunker. Not the best way to have done it and, on reflection, it would have been better to have fitted the plated coal rails after the bunker was formed.

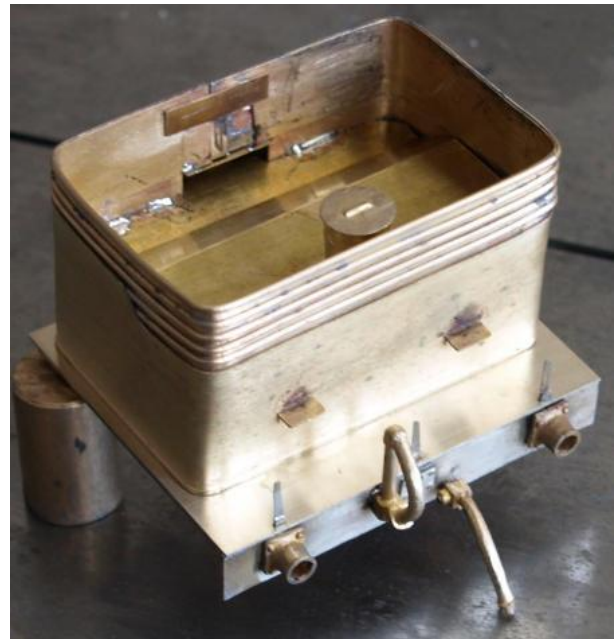
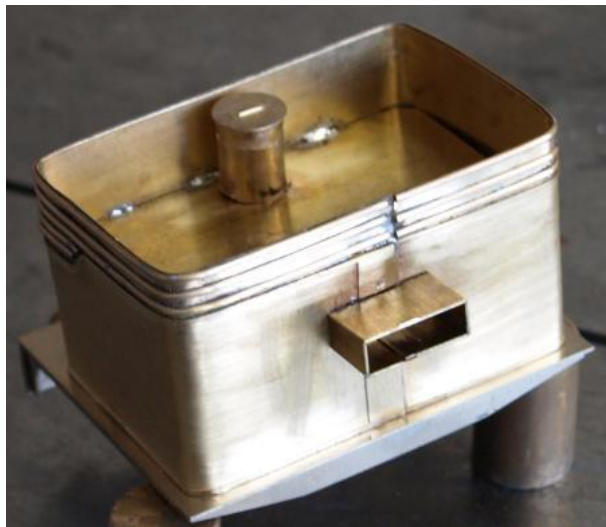


These pictures show the bunker near to completion and the completed buffer plank. The holes for the pipes are the wrong way round on the backing piece and so had to be drilled out through the

laminated face. The holes for the buffer bodies are tiny and have to be opened out to 4mm diameter, which required a good deal of work with broaches.



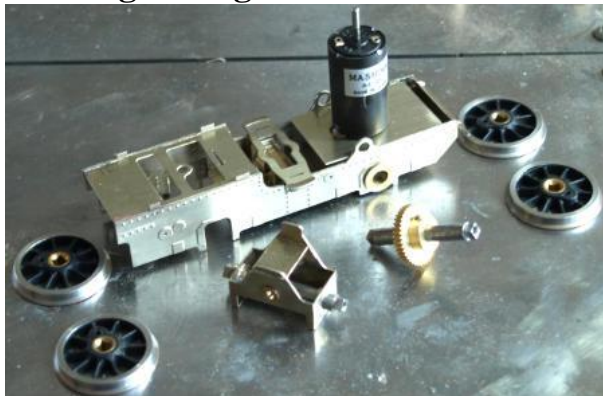
The last two views show it almost complete but in need of some cleaning up and finishing off.





Just about ready to be fitted to the engine bogie, or so I thought. Unfortunately, there is no clearance once fitted to the bogie to allow the coupling hook to be sprung. That makes springing the buffers much more problematic, especially as they have different lengths of shaft. The heads, which are an etch, are soldered to, what looks like a brass rivet but is probably a turning. They were not the same length. The result is that the buffers and coupling hook will be soldered solid.

### The Engine bogie.

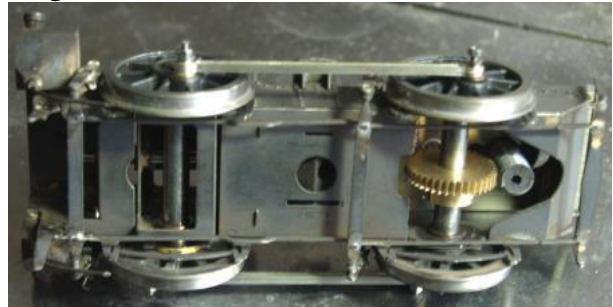
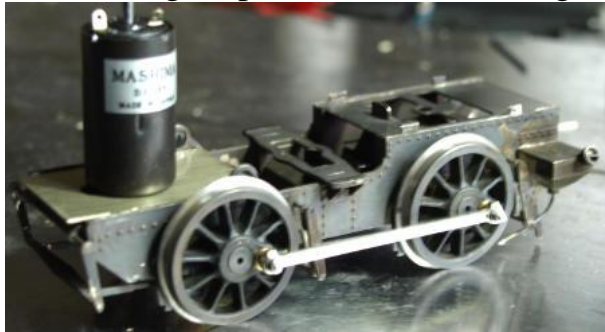


The bogie for the engine end is quite complex and here you can see the basics completed ready for the fitting of brakes and pick-ups. The motor fits into a mounting plate that can be moved back and forth and is not fixed in place until the meshing of the gears is established. The compensated axle in front of the where driven axle goes, fits into a unit that rocks.

However, the clearances are too tight and the bearings had to be ground down considerably so that the part could move properly. Similarly, the pivot, which is a turned piece of hex bar, turned out to be too long for the space. Had the lathe been available, fixing that problem would have been a few minutes work, in the event it took a good 45 minutes to fix.

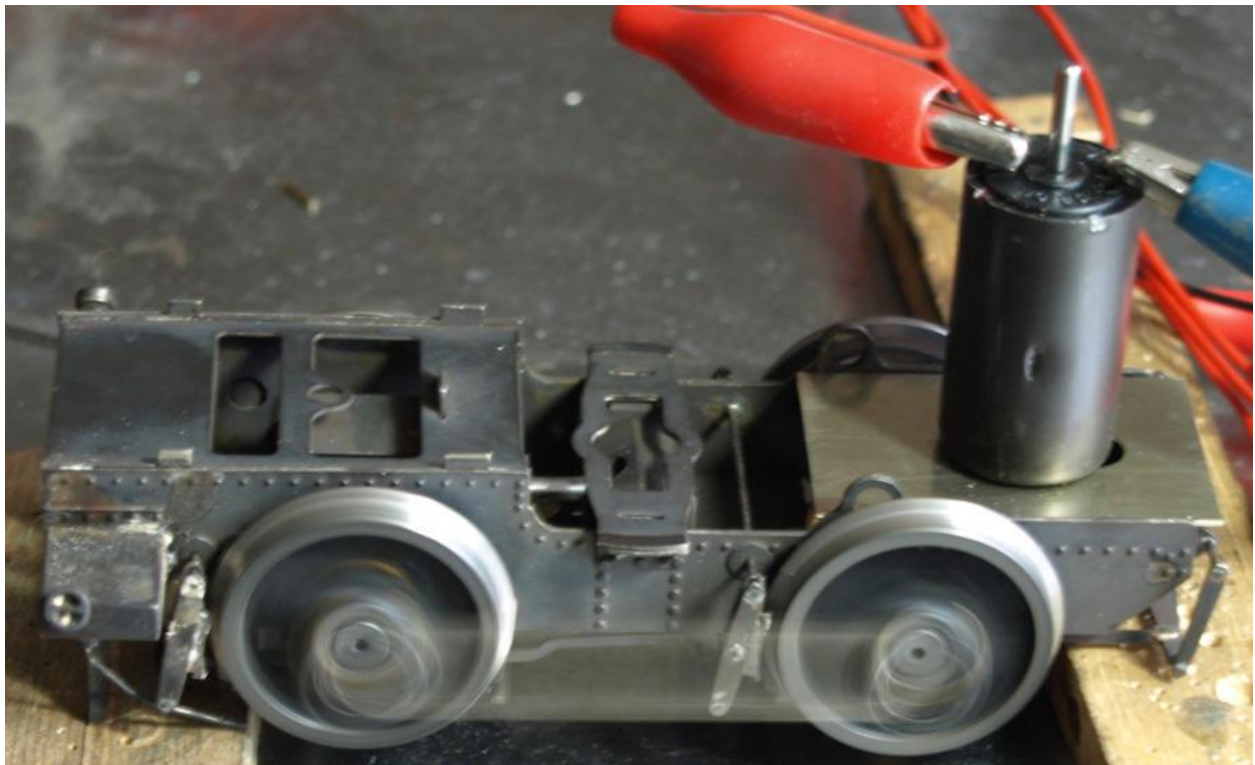
Beware also that the overlay for the frames does *not* have a hole etched through to match the one in the frames to take the plunger pick-ups on the compensated axle. I failed to notice until starting to put the pick-ups in. In the event I was unable to do it anyway because my soldering iron, which I only ever use for electrical

wiring, failed. That though does not detract from the fact that this is a well thought out and elegant piece of miniature engineering.



The brake gear is a fiddle to get right but, once set up and soldered looks good. The rest of it went together relatively easily, so here it is cleaned up and chemically blackened.

Due to the nature of this kit, using the chassis jig was not an option to set up the rods as the chassis is a fold-up. The rods were laminated, cleaned up and the holes opened out to 2.5mm, fitted to the wheels and the power applied. It ran first time,

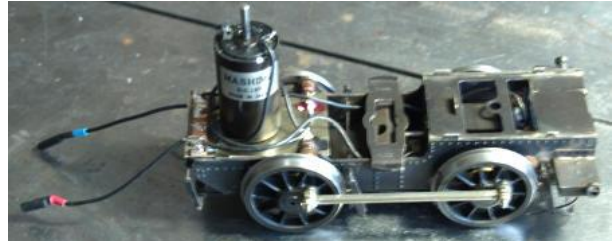
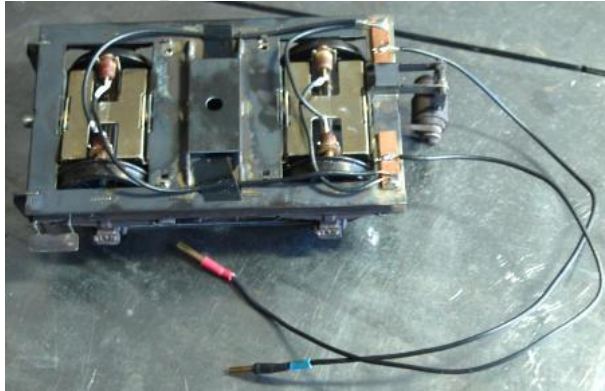


a credit to the accuracy of the original artwork I think.

Here it is on the bench running in. The plate that holds the motor is intended to be soldered in place, not something I was particularly happy with but could see no way to alter it.

## Electrics.

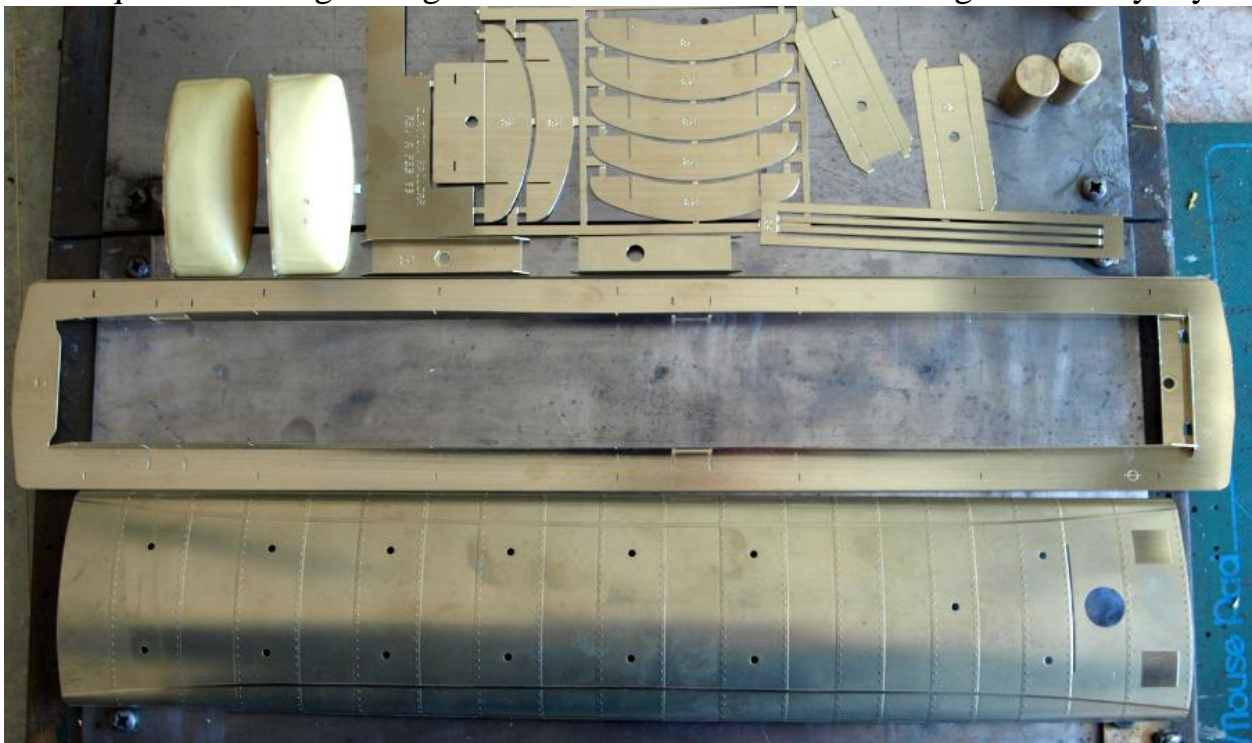
Both bogies are designed for plunger pick-ups and then need to be connected. In my view that connection needed to be capable of being disconnected so that maintenance can be undertaken. I made the connectors from small pieces of tube, which would fit inside one another. The wires were soldered on and then some shrink wrap and coloured indicators fitted to make easier.



The plunger bodies are a tight fit and the plungers themselves act as strong brakes on the wheels. It was necessary to file the heads down considerably to give more clearance to prevent the wheels binding.

## The Roof

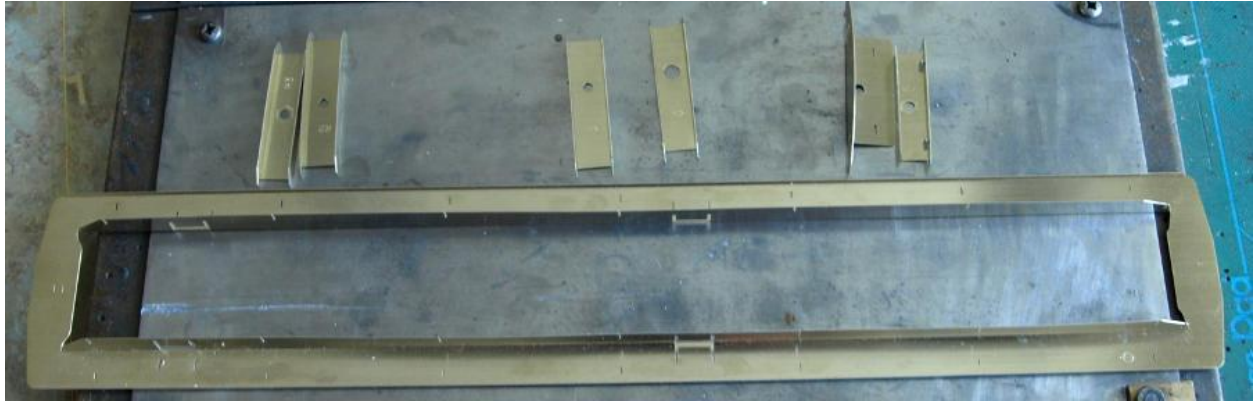
A cleverly designed piece of etching in nickel silver however, it is very delicate and requires care to get it right. The instructions here are wrong in that they say to



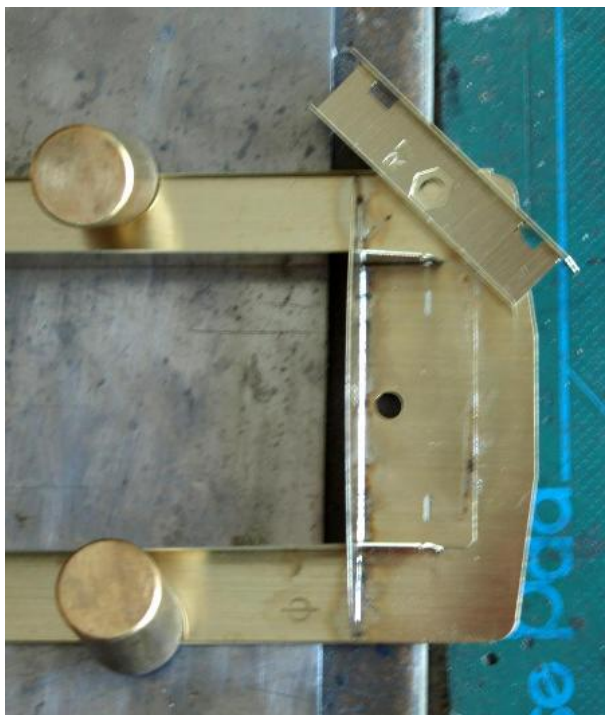
fit a cross member at the opposite end to that which it should go. This is not a problem really as the parts will only fit one way anyway, but it took a little head

scratching until the penny dropped. Here are all the parts largely, 'as they come'. The roof section is ready formed as is the base upon which it is to be fitted.

A little time spent fettling and ensuring right angles is well spent before starting work.

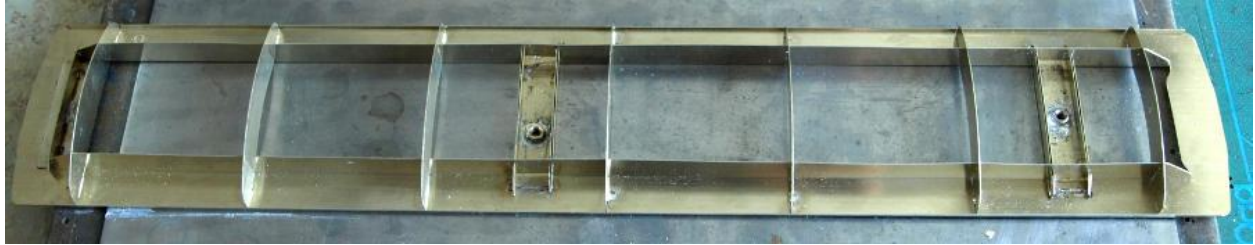


There are three main strengthening pieces that also serve as the fixing points.

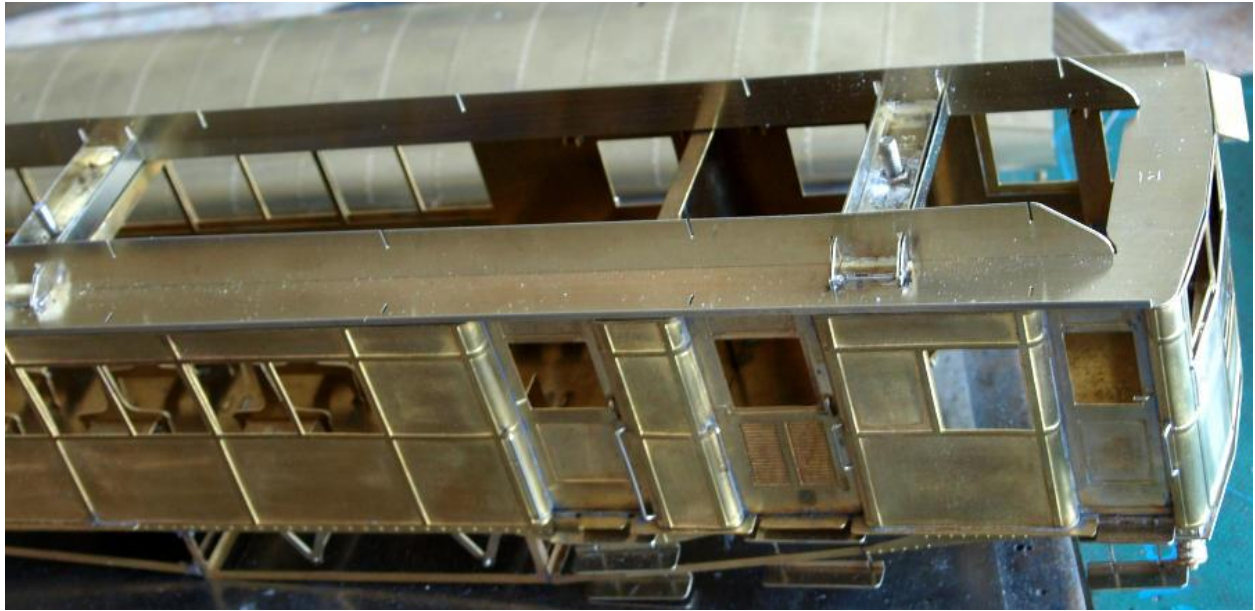


Provided that these parts are carefully fitted, the rest is, relatively, easy.

Fitting the end support and fixing nut. Neat and simple but it is *essential* to keep it all dead flat. The steel plate and magnets did well for me again. Notice that it overhangs the steel plate, to allow for the projecting tabs, which are later filled flat.



Here is the roof base with all the formers fitted. The individual parts appear flimsy because they are etched from quite thin nickel silver but, once soldered up, make up into a strong unit.



At this stage it is a good idea to check that the thing will actually fit the body because once the roof section is fitted, nothing can be easily changed. On reflection, it would have been a good idea to shorten the captive screws by about half their length, it would have made fitting the roof simpler.

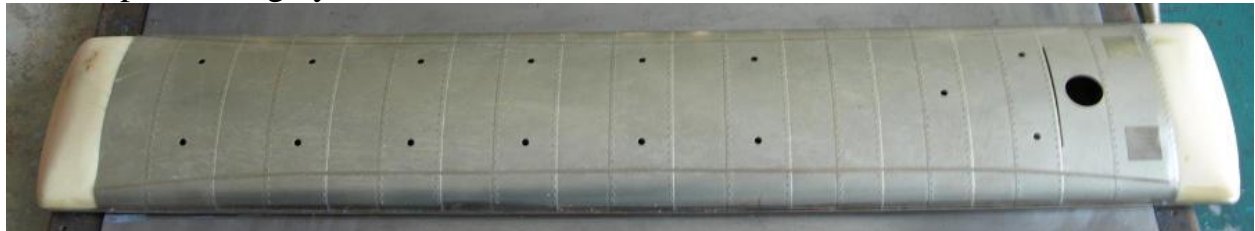


I soldered the roof section down by its edges only, having first of all satisfied myself that it fitted correctly. It is important too, to ensure that the formers have



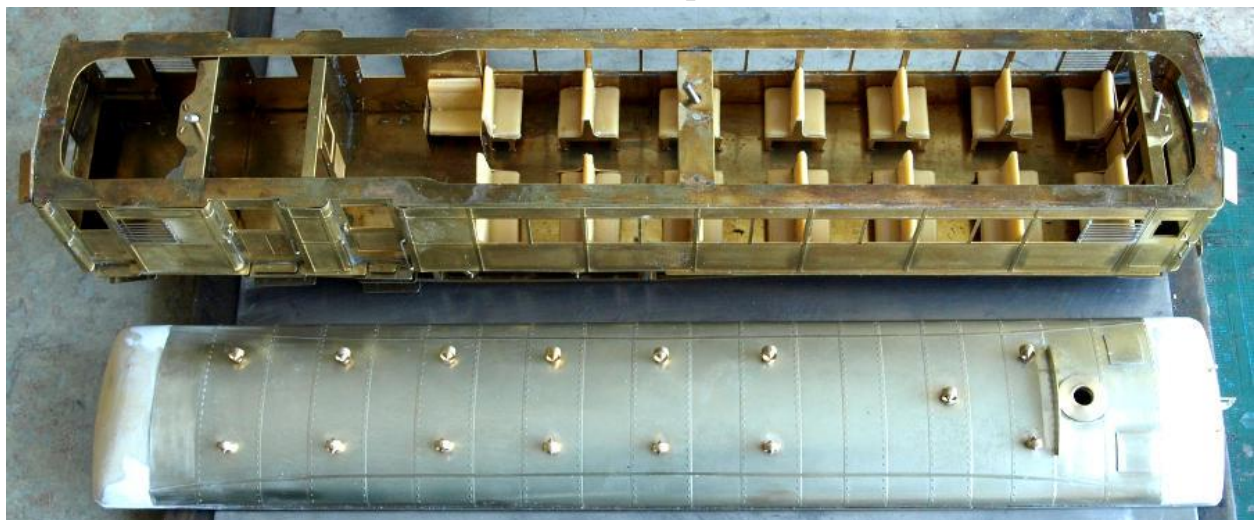
enough clearance with the edge of the base for the roof section to fit snugly. This is made clear in the instructions too.

So, here is the part completed roof awaiting the ends and fittings. The ends should prove 'interesting', I have very little experience of resin castings, especially when used as part of largely metal unit such as this.



Once the Milliput had arrived, it was time to start filling in where the resin casting does not quite match the profile. Tomorrow, once it has hardened it can be sanded and scraped down, at which time the body will be ready for the paint shop.

The final sanding down on the roof is complete and the seats have been filed to size so it is now ready for Dennis's paint shop.





Now returned from Dennis's paint shop, glazing and seats fitted, it is ready for delivery.



A most interesting build of an unusual prototype and not beyond the capabilities of anyone with some experience of etched construction.

