

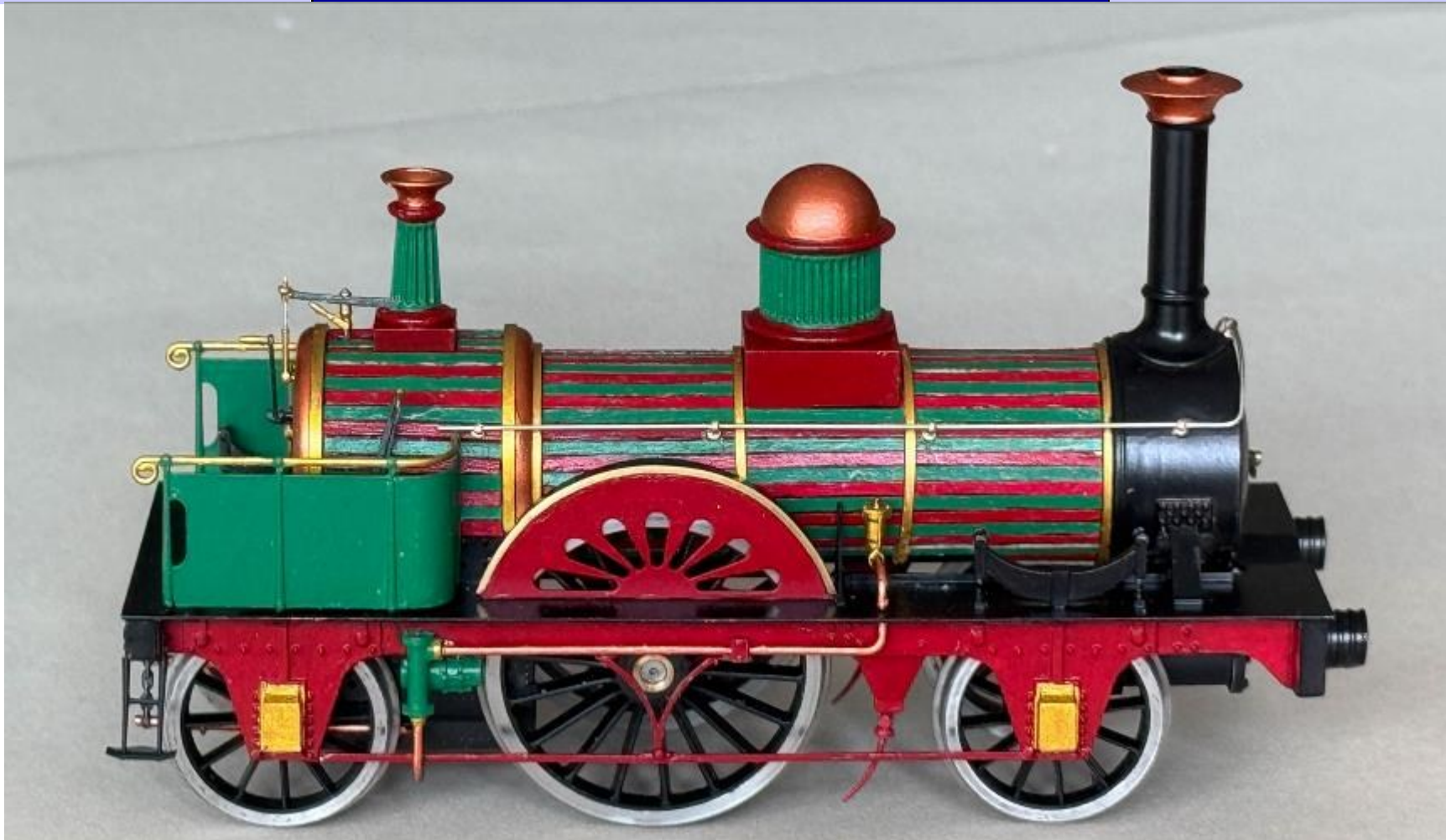
A journal of the Brighton Circle, for those modelling the "Brighton" in all scales and gauges.

The L.B.& S.C.R. Modellers' Digest

Issue 21

Summer 2025

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Editorial

Preparing this issue, I have been struck by the proportion of the material that relates to new Ready to Run models. The Circle has been involved in providing research information to a number of manufacturers and this is showing tangible results, as Brighton models are now increasingly available straight out of the box. I look forward to more layouts appearing, as these products make modelling the LB&SCR increasingly accessible.

Production of these items is a longish process; the first comments on RMWeb about the Rapido E tanks appeared in 2018. As most people will be aware, manufacture of many model railway items takes place in China, which has a small eco-system of companies, that are set up to meet a world-wide market for model railways. At the time of writing, that eco-system is subject to major disturbance, as the US part of its market is being disrupted by the imposition of significant tariffs when items are imported into America. The unpredictability is as significant as the size of the tariffs - even if they were to be removed, the ongoing threat of re-imposition will make investment in new products by companies selling into the US market a much riskier proposition, so the effects will linger for some years.

How does this affect us? Without knowing how important the US off-take from the manufacturing base in China may be, it is hard to tell. If it is a major part, then some producers may not survive. On the other hand, it may mean that projects that are in the pipeline for Canada, Europe, Australia, Japan and other markets could be brought forward.

On balance, if you want your Brighton models, now is probably a good time to buy them.

Eric Gates, Modelling Steward, The Brighton Circle,

ericgates1310@gmail.com

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First Steps - Jenny Lind

David Rigler

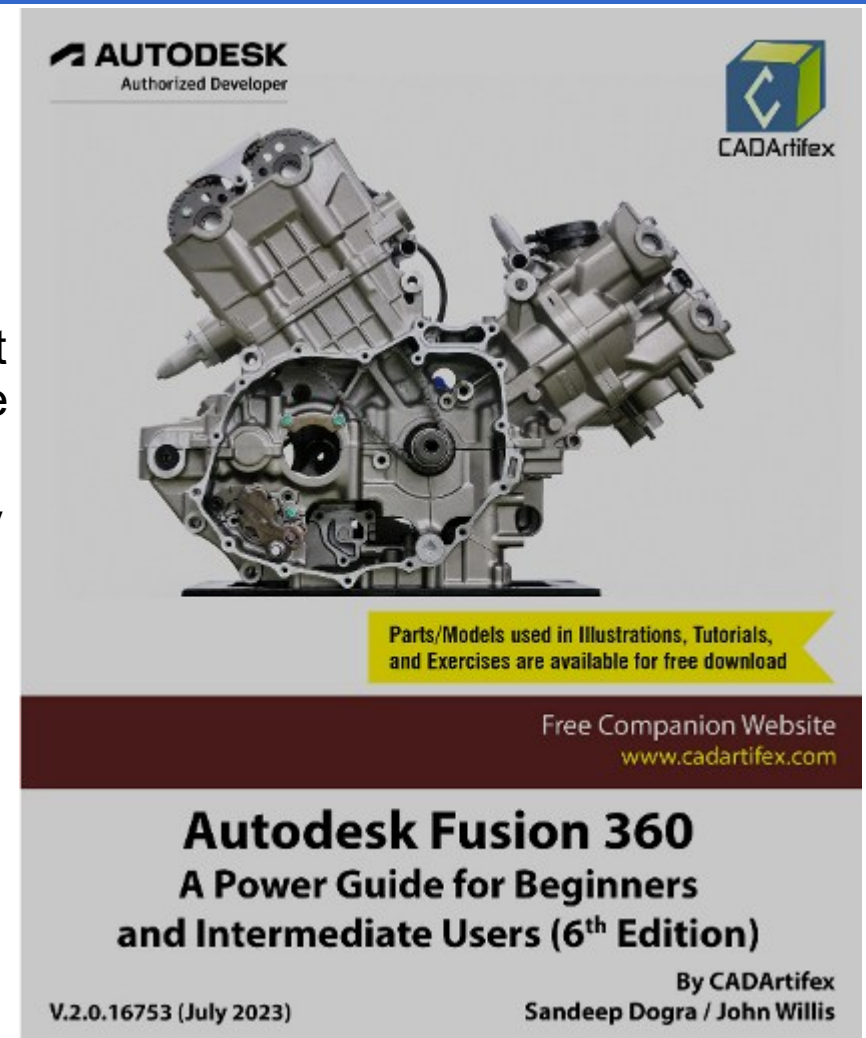
Background

This article is a bit of mish-mash of subjects but tells the story of my first steps in using Fusion 360, 3D modelling a locomotive, scratch building a locomotive and 3D printing.

This is not a detailed teach-in on any of the subjects, that would require volumes, but some of my learnings may be of interest.

The starting point was wanting to make a real effort to try the free version of Autodesk Fusion 360. I have been using TurboCad for more than two decades but increasingly feeling it was getting a bit clunky and slow; however, I did not want to spend the money on yet another upgrade.

To give it a proper go I needed a subject. The article recently in the Journal by Chris Cox on Jenny Lind, based on an article in "The Engineer", prompted me to use this locomotive for the trial.



I did buy a Kindle Book to supplement the online manual and get me started, which was helpful. With the free version of Fusion 360 it is particularly important to know there are two approaches to creating a complex model. Top Down and Bottom Up

Top Down - The free version of 360 only allows you to work on 10 drawings at a time, which is severely limiting for a large model, or if you have multiple projects on the go. The Top Down approach uses one drawing and you create the parts and sub-assemblies within that drawing. For me, it also gives more visibility of how the parts you are creating fit with others.

Bottom Up – You create each part or sub-assembly as a separate drawing and import a copy of them to the main assembly drawing. Updating any of the individual drawings automatically updates the copy in the main assembly. With this approach you can quickly accumulate many drawings.

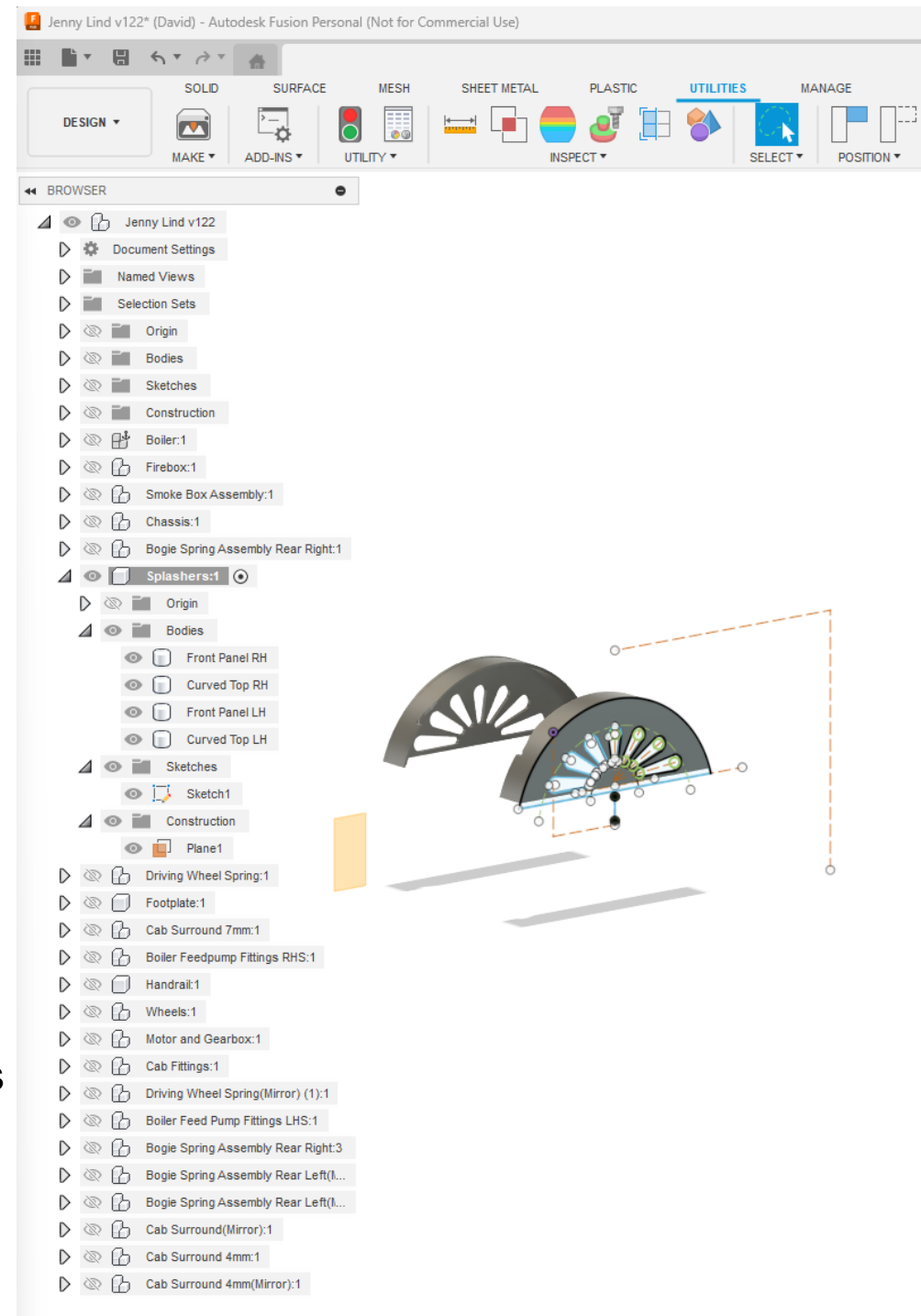
A locomotive in CAD is a relatively complex model and therefore needs to be constructed in manageable assemblies and parts. In TurboCad I typically use “Layers” to create these, which enables their visibility to be turned on and off, allowing you to work on individual parts of the model without distractions from other elements.

Fusion 360 uses a browser approach to managing parts. I learned about halfway through that it is well worth the time to plan out how you want to structure this and then work within the structure. Start off with a clear idea of how you want to break the model down into Assemblies, Sub-Assemblies, Parts etc. It is not set in stone, so you can develop the structure as you move through.

The screenshot displays Jenny Lind high-level components beneath the top level Component “Jenny Lind v122” which is the complete model. The “Splashers:1” Component is expanded to show all the elements within it. If you want to create within one of these sub-assemblies you need to activate it. Failure to do so will result in the part being created somewhere else and moving it to where you want it afterwards is not always straight forward.

Visibility of any object can be turned on and off easily. Also, you can “Isolate” the component you are working on, avoiding the need to turn off multiple other components using the eyeball graphics.

In Fusion 360 it is important to understand that the objects you create can be either Bodies or Components. Bodies can be as complex as you like but it is best to keep them simple and if they get more complex, then use a Component. You can create a Component from a Body or create an empty Component first and then add/create Bodies within it. There are operations you can do with Components that you can’t do with Bodies, and it helps keep the model well structured. Each Component will also contain folders for related



Sketches, Construction, etc. Sketches are where you create 2D profiles, from which you extrude in some fashion a solid shape. Construction will contain such things as planes you created to position the Sketch.

I recommend naming every Component and Body when you create them. This makes navigating the Browser far easier. You can also name Sketches and Constructions.

Overall, I much preferred the Browser in Fusion 360 as a more flexible and powerful way of managing the model.

Graphics

I am very impressed with the graphics of Fusion 360. The clarity of the working solid rendering and the speed with which you can manipulate the model image is impressive. Examples can be seen in the following pages.

Downsides

- The free version is limited on export options, making sharing of the model to other CAD formats difficult. STEP and STL exports are allowed, enabling 3D printing.
- The limitation on the number of Drawings may prove restrictive.
- Will there always be a free version?

So I will leave the Fusion 360 side there. One last comment is that, if you are using a Microsoft operating system, then the AI Copilot seems to work very well if you ask it a Fusion related question.

The CAD Model of Jenny Lind

The CAD model of Jenny Lind is predominantly based on the drawings published in the Engineer. Chris Cox and Ian MacCormac also pointed me towards some other sources, which proved useful. Following Ian's advice I modelled at 7mm / ft, scaling off the drawings. Initially I used scans from the Circular, but then downloaded the files directly from an archive to minimise distortions from repeated reproductions. I found, even after this, that scaling varied across the drawing and, indeed, with the marked scale at the base of the drawing. To get the best result to work from, I used Photoshop to remove as much distortion as possible and re-sized to the scale I wanted, using the wheelbase as the prime reference.

I had no detailed drawings of any of the fittings on the locomotive, such as the feed pump and those in the cab area. I created these by taking the best dimensions I could from the main drawings, looking at photographs of other locomotives of that era and applying some engineering judgement. So, what I am really saying is that there is a good degree of interpretation in my model!

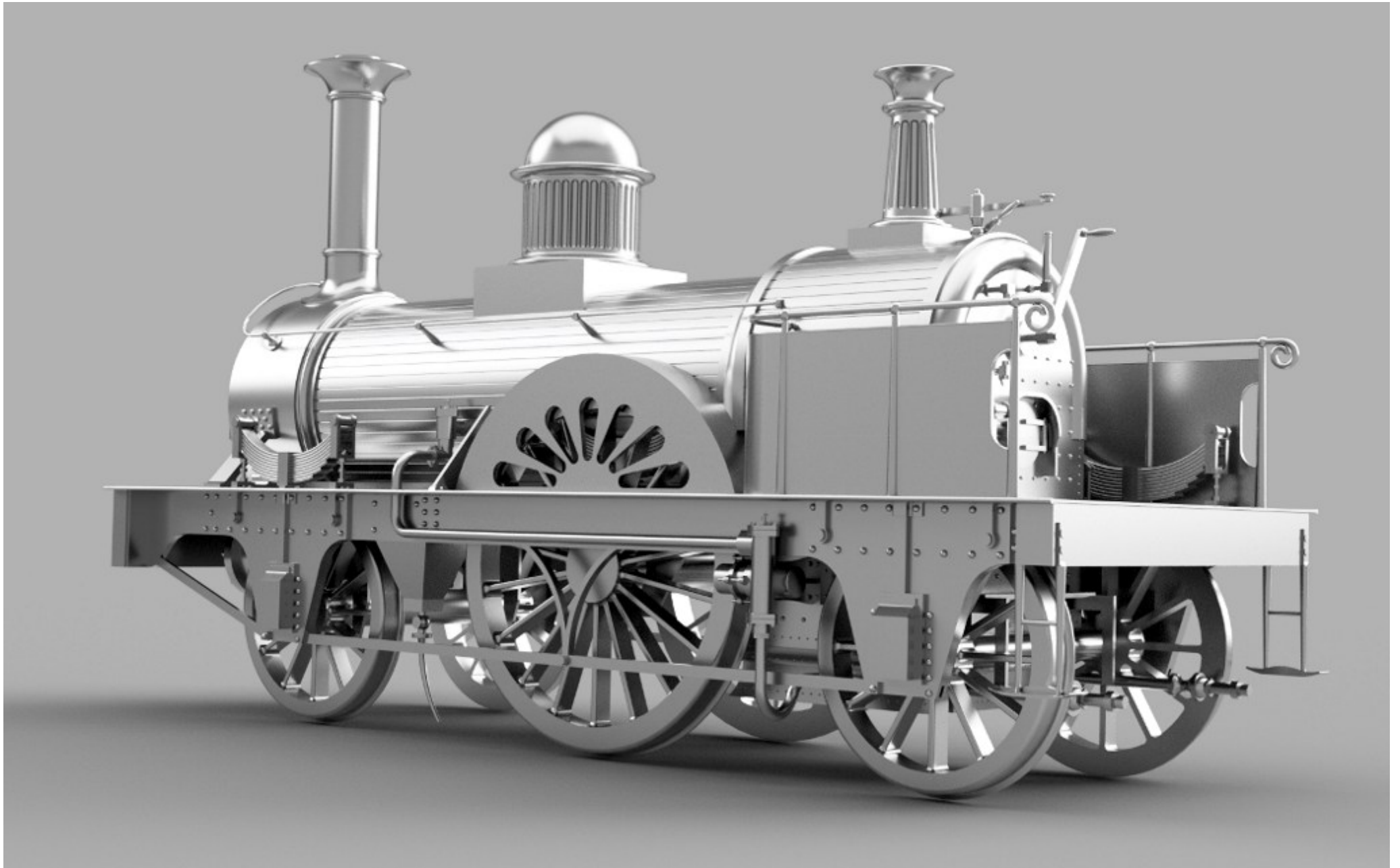
I did model as strictly as possible to scale, without considering the needs of a running models in their various scales. This was essentially a CAD exercise.





Examples of renderings of the complete model, which pleased me enough that it prompted me to make a physical model. The grey renders are snap shots from the working area.





The polished steel version is a presentation render which takes over a minute to generate but is very attractive.

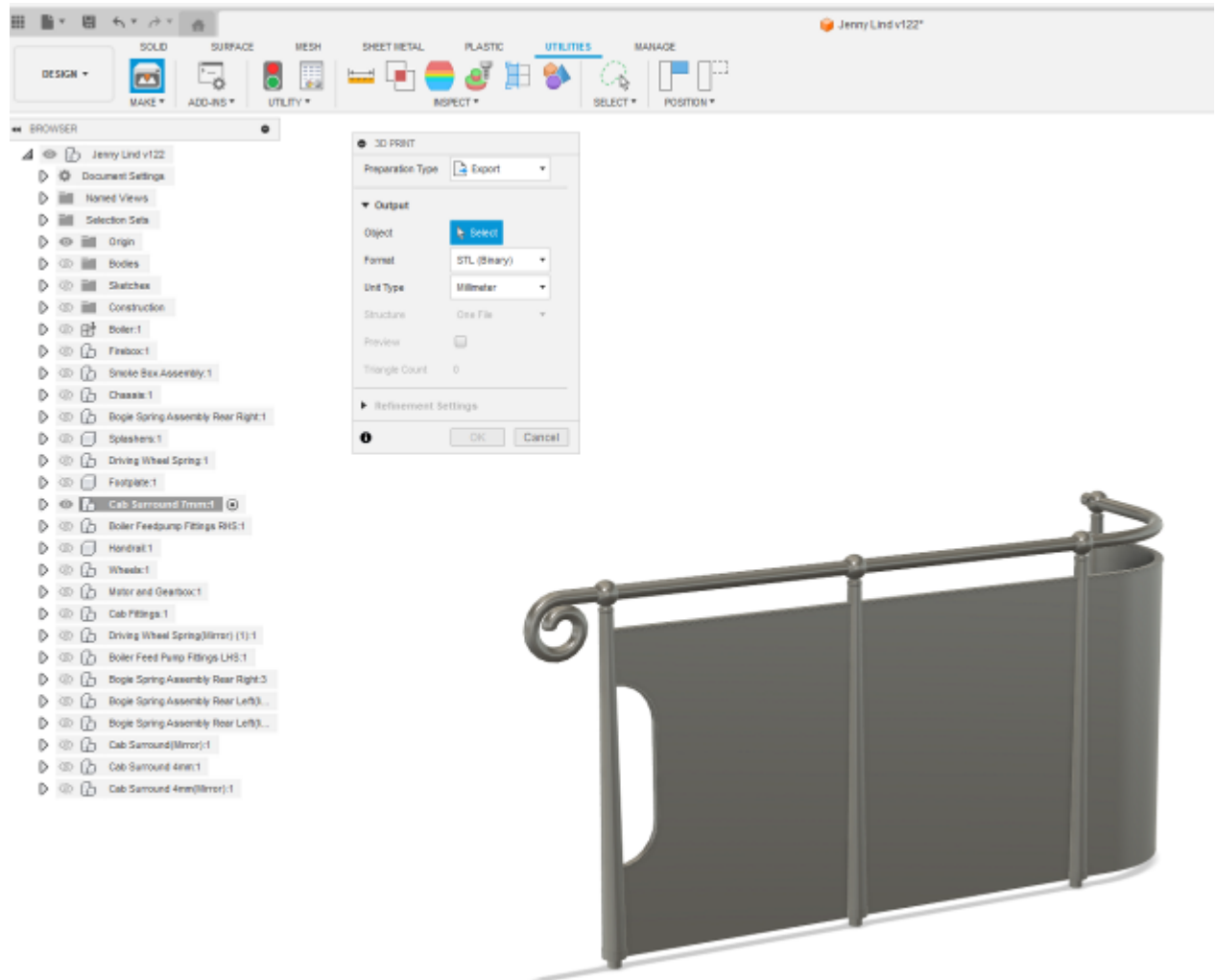
Where I anticipated I might want to produce a part separately from the main printed assembly, I designed in location features. The domes and chimney, for example, have a location ring dimensioned 0.1 – 0.2 mm less than a hole let in their bases. Smaller parts are located using micro precision tubing inserted into printed holes.

Physical Model

I had been considering getting a 3D printer for many years but waiting until I had a meaningful project to justify the purchase. Jenny Lind provided the excuse. It was clear that this would need to be a resin printer to get the surface quality and resolution I wanted.

I had a short list of two, of which Ian MacCormac was using one and, with his endorsement, I plumped for an Elegoo Saturn 4 Ultra. Ian also shared his settings for the printer to help get me started.

As stated at the start of the article, this is not a detailed description of how to print but I was pleasantly surprised at how accessible this technology is for ease of setup, use and quality of output.



Process of Preparing Parts for Printing

- In Fusion 360 make only the part or assembly of parts you want to print visible.
- Using the “Make” function, choose “Export” as preparation type. Select the part and set file type to STL. Make sure that the quality is set to “High” under the refinement settings and export to a chosen location
- Import the STL file of the part you want to print into the Slicer software - I used Chitubox Pro which came as a 3 month free trial with the printer. Position on the print plate so that faces that are most important visually are not facing the plate. The surface quality of areas where the supports locate can be quite rough. See photos showing underside of chassis footplate.
- Add supports. I am still using the “Auto Support” Function, but did modify some of the settings associated with them. This is mainly to make the contact to the model smaller.
- Slice the model and save the file.

Finding the best balance between printing individual parts and larger assemblies took five iterations. The aim was to ensure ease of painting and final assembly and to minimise damage of fine detail parts during handling. It is also necessary to orient parts, so that the more visible surfaces are not impacted by the supports.

The images on the following page are snapshots of the final print arrangements for iteration 5.

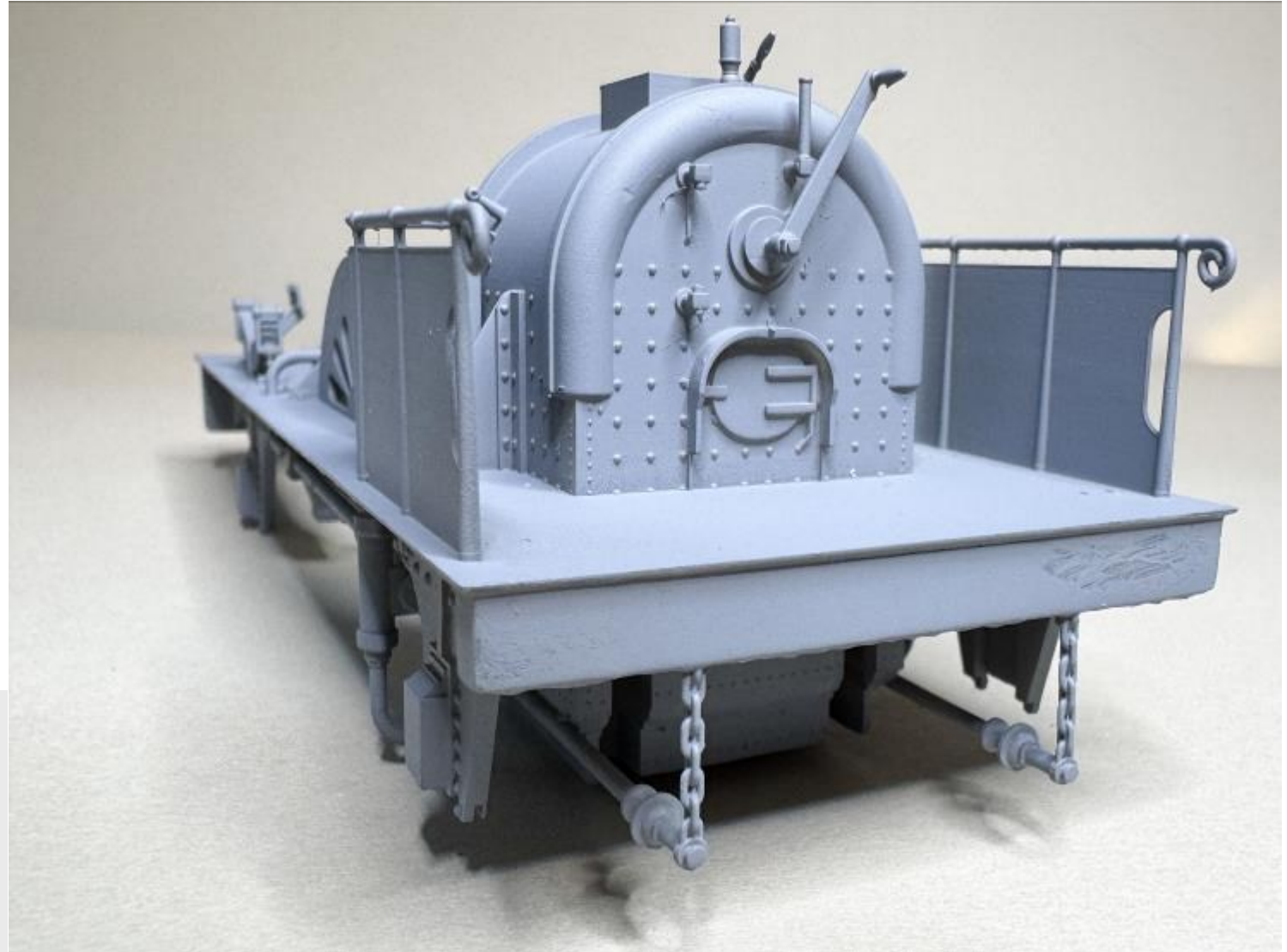
Note: You can duplicate parts in the slicer so only have to import each one once.

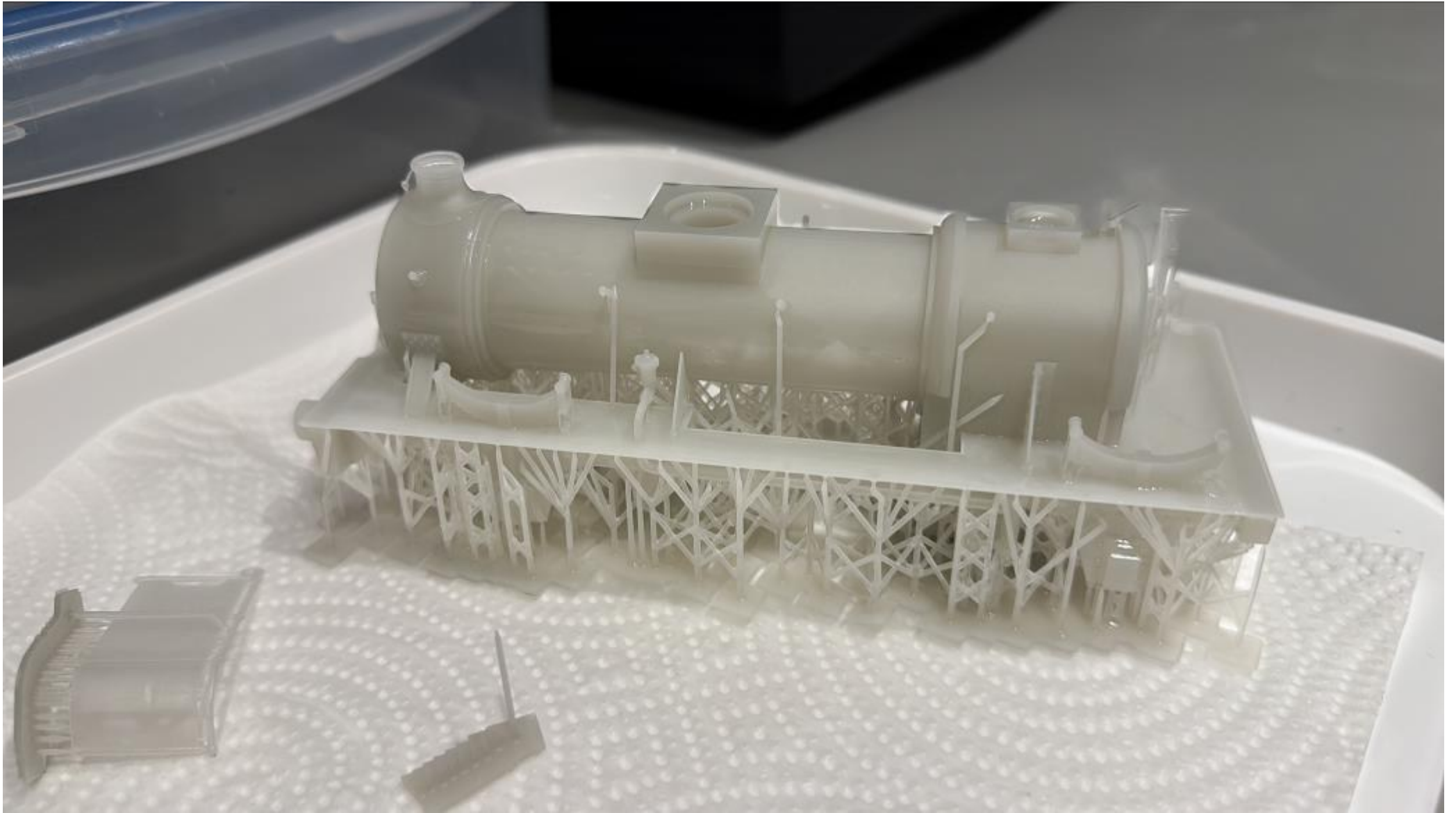
Process of Printing

Resin printing is messy but if you develop a routine and have everything you need set up and ready, it is very manageable. Appropriate PPE is essential.

- Transfer sliced file to the printer with an USB stick or WIFI.
- Print the file.
- Remove parts from the print plate.
- Wash, I use isopropyl alcohol, progressing through two tanks. The second wash is in cleaner fluid than the first.
- Dry, remove the supports and clean up the contact areas.
- Cure with ultraviolet light.

This image, in grey primer, illustrates very well the detail that can be achieved with a resin printer (Iteration 2)





Parts washed and waiting to have supports removed. (Iteration 3)

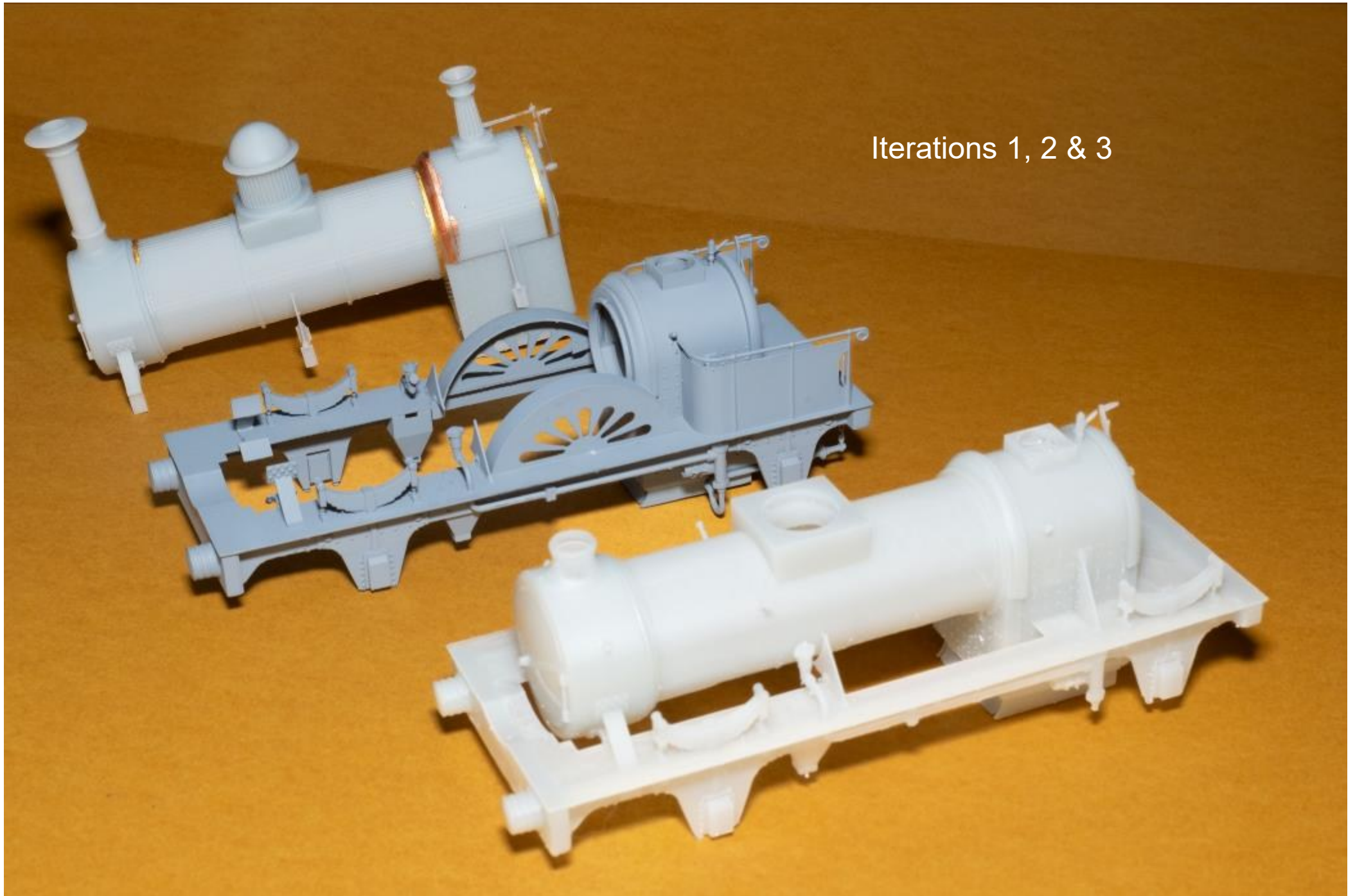
The following pictures are from a mix of iterations

The first iteration was primarily a first test of the printer. However, I had in mind that I would print the core of the locomotive, firebox, boiler and smoke box, and make the footplate and chassis in brass sheet. I was unsure how stiff a thin printed footplate would be.

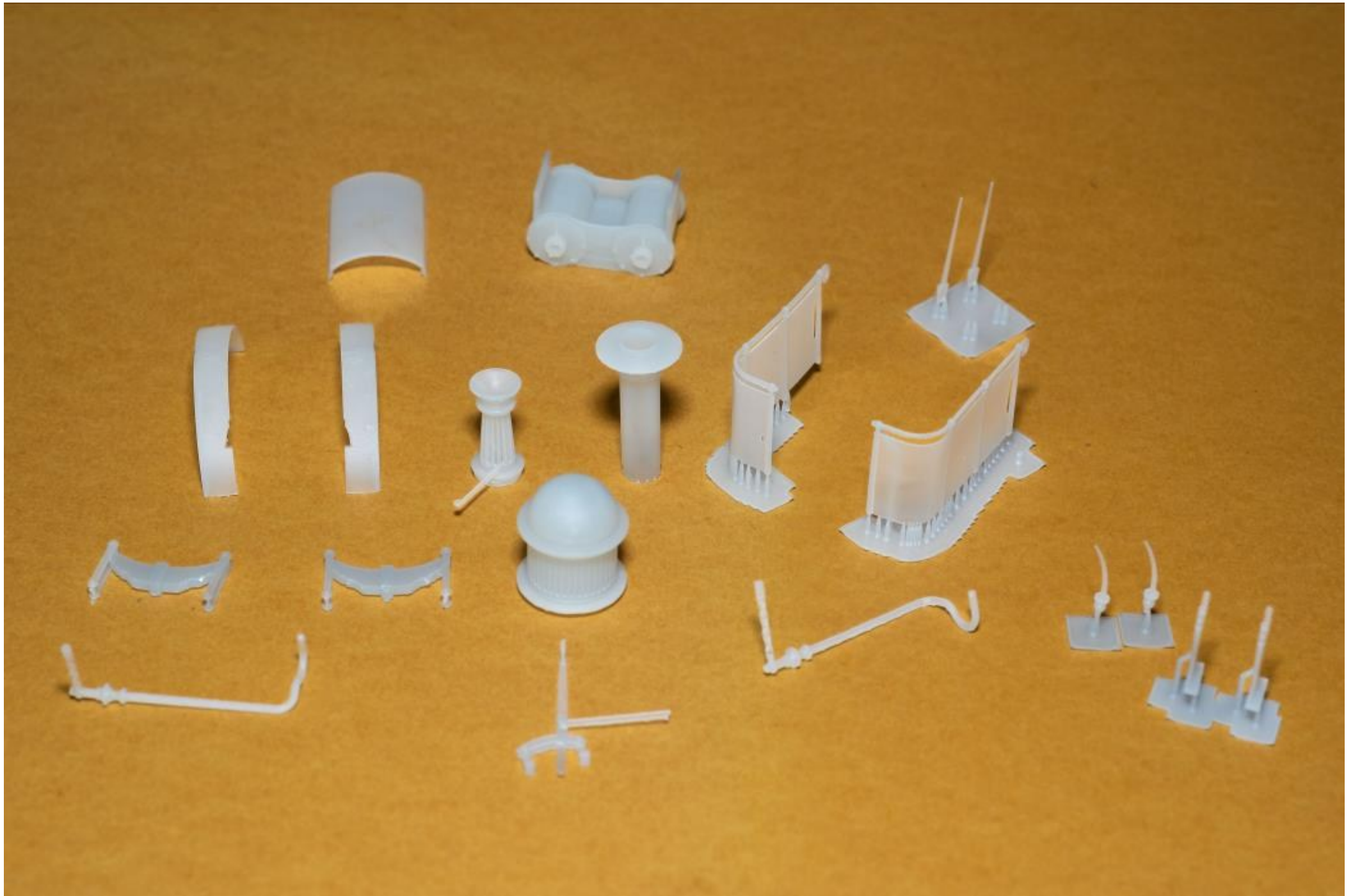
The second added the footplate, outer chassis and most of the components attached to them. It excluded the boiler and smoke box for ease of painting. The footplate however, developed a slight longitudinal bow but was otherwise stiff enough. The boiler diameter was modelled undersize at this stage, to allow for real wood strips to be used for the cladding.

The third iteration added the boiler and smoke box back, to provide support for the footplate. The splashers, cab fenders and some fittings were removed, again for ease of painting.

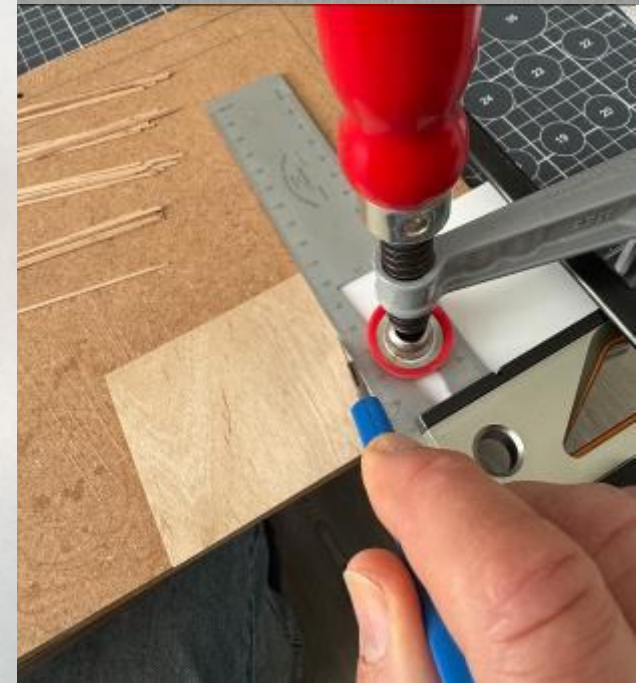
The 4th and 5th iterations were fine tuning, including finally giving up on the handrail supports and providing holes for brass parts! With the 5th, I also took the opportunity to paint the cladding in what I understand was the early livery. To my surprise it looks far nicer than I expected and is, in fact, my favourite.



Iterations 1, 2 & 3



Not everything is 3D printed. The cladding for the boiler is cut from wood veneer. The splashers are edged with brass 1mm angle strip. The sight glass is optic fibre inserted in the printed holes in the boiler fixings. The handrails are nickel silver precision tube. The connecting bars between axle boxes proved too fragile and are brass strips, slotted into printed grooves. The “Y” shaped central support, however, is 3D printed.



Chassis

I modelled an inner chassis to scale width and designed it to protrude above the footplate, as per prototype, which I produced in 0.5 mm brass sheet, using my CNC Router. I also packaged a gearbox and motor (Slaters SG38). This chassis ideally is suited to Scale 7, traditional O gauge being a bit tight on the back to back dimensions.

For the final model iteration, I revised the chassis so that it sat below the footplate and bonded the cylinders to the sideframes in place of a brass cross member. This would allow at some future point different scales/standards to be accommodated more easily without too much visual impact.

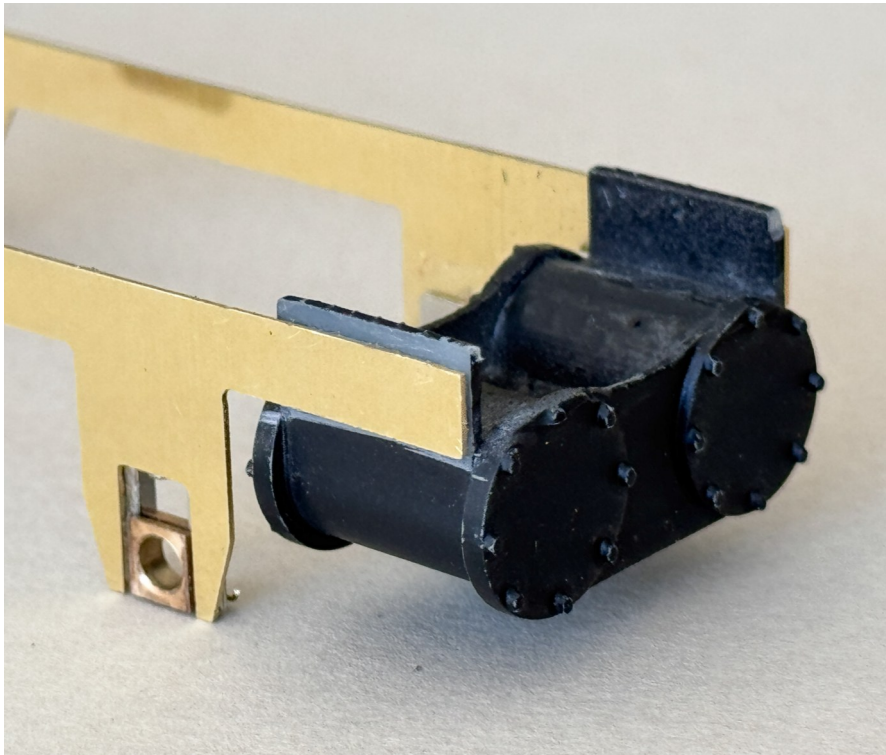
The parts of the inside frame, that do protrude above the footplate, were then added to the footplate assembly print.



I purchased Slaters wheels and axles to Fine Scale so that I could present a complete model, but have not purchased or fitted a motor and gearbox, as I am unlikely to build a 7mm layout to run it on.

Below - body iteration 4 and chassis version 1, with wheels fitted, are shown below. The cylinders are shown here loose assembled and are not integral to the chassis.



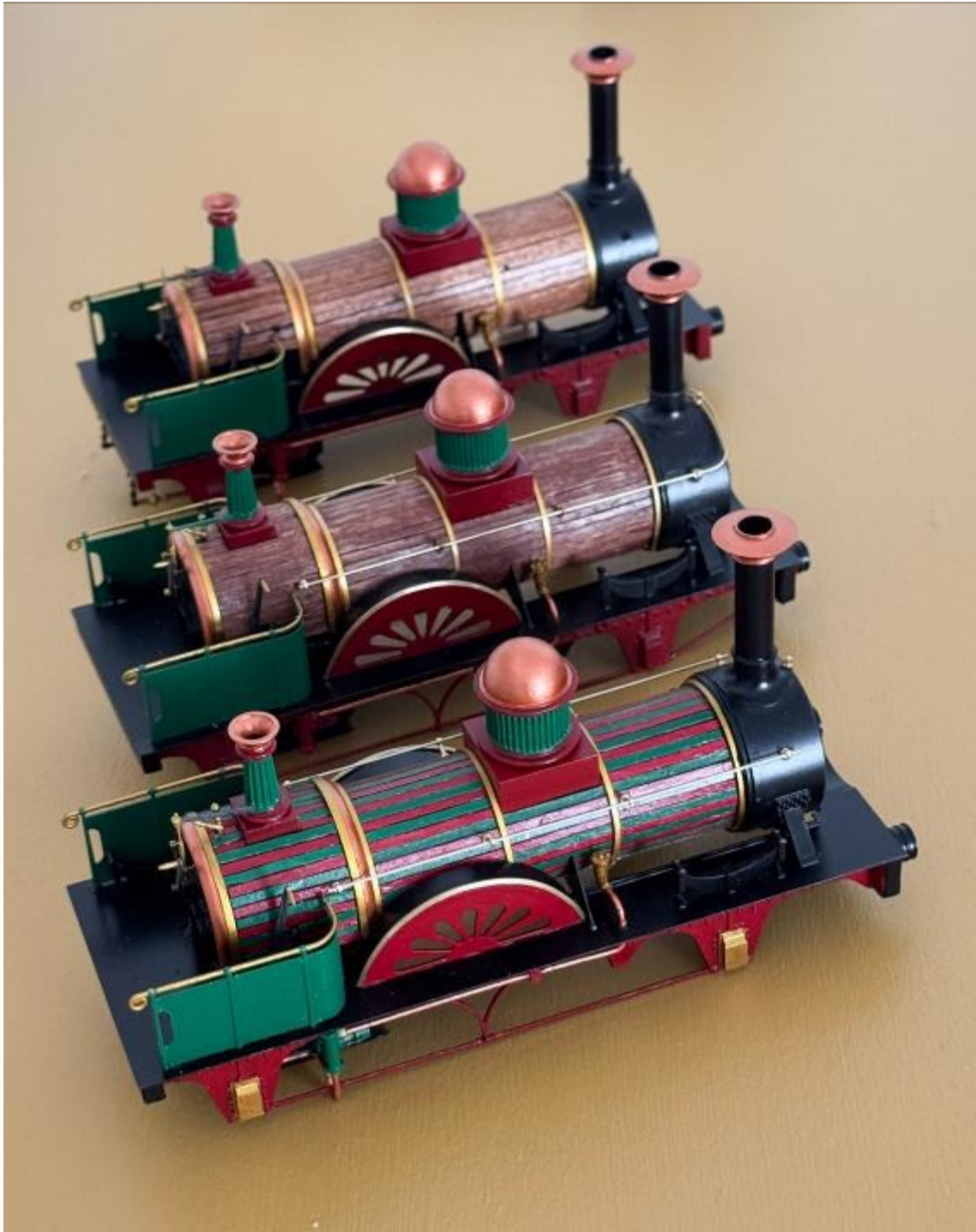


The picture above is of the modified chassis to sit below the footplate, with the cylinders providing the spacing.

The picture on the right shows how the chassis drops in through slots printed in the firebox. Both carrying wheel sets are fitted to the chassis using High Level axle boxes.

The picture also illustrates how the underside of the print facing the print plate has quite poor surface appearance, as noted earlier in the article.





This photo shows the last three versions, lined up together.

There is still some fine detail to be added, including the locomotive name plate, but overall I am pleased with the final result and making a start in 3D printing.

Many thanks again for the help and advice from Ian MacCormac and Chris Cox.

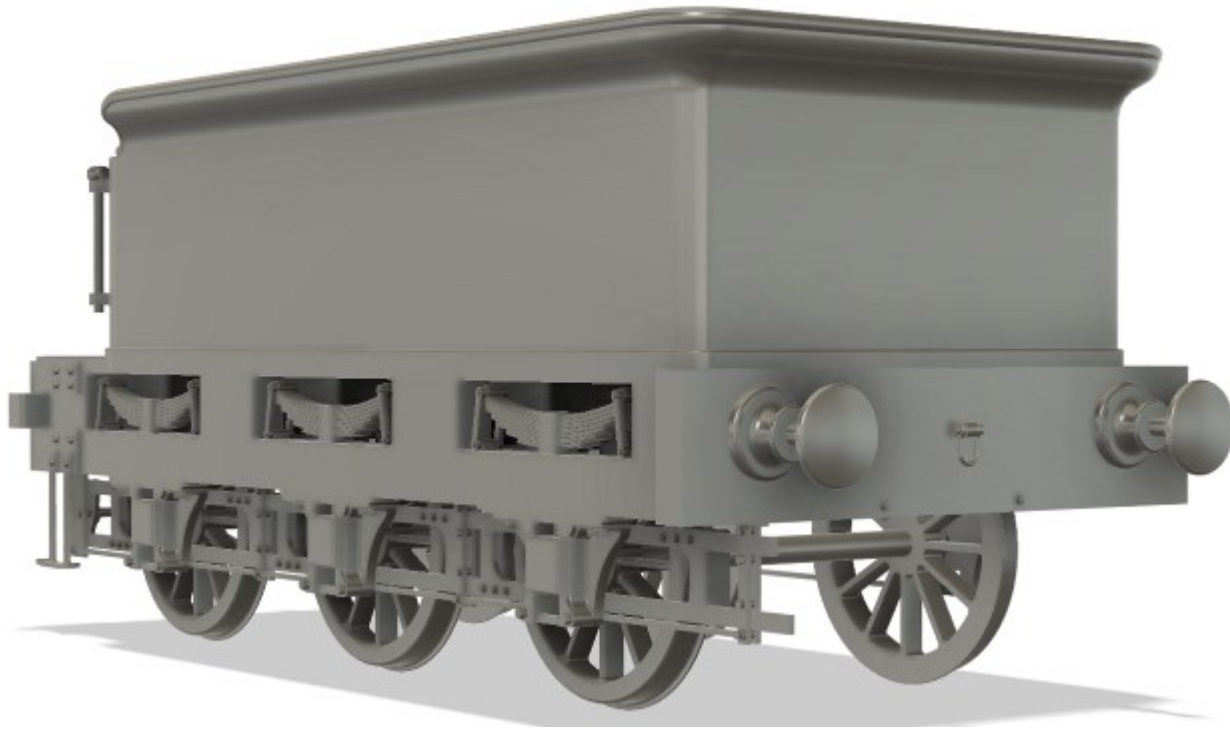
The following pictures are of the final version.





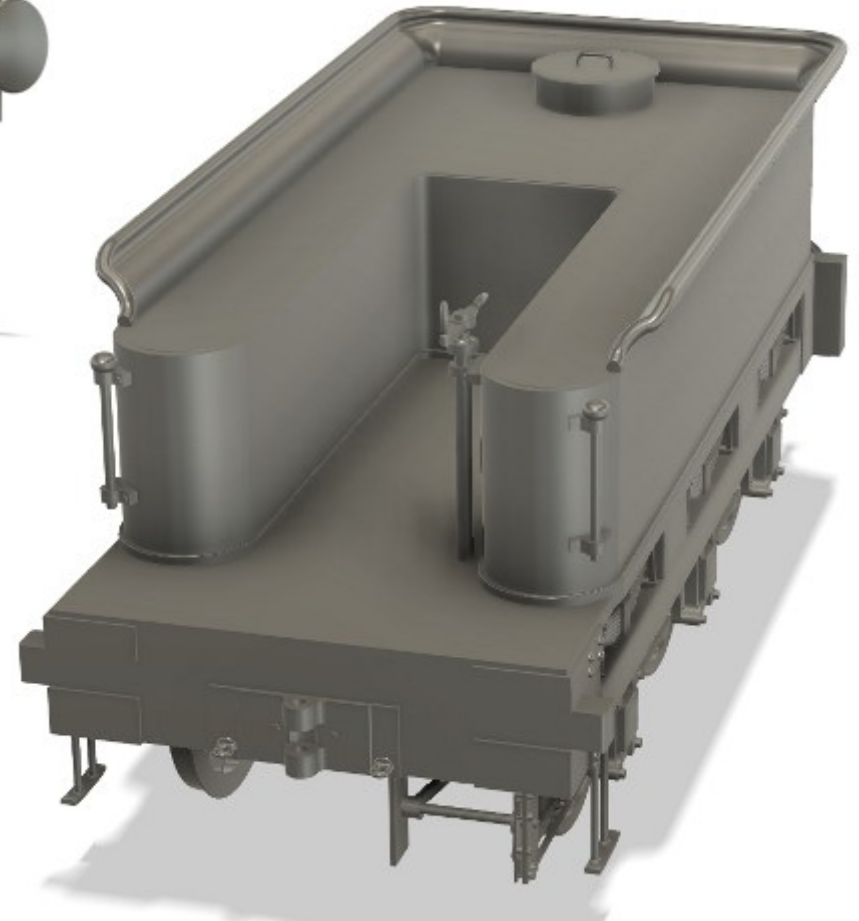


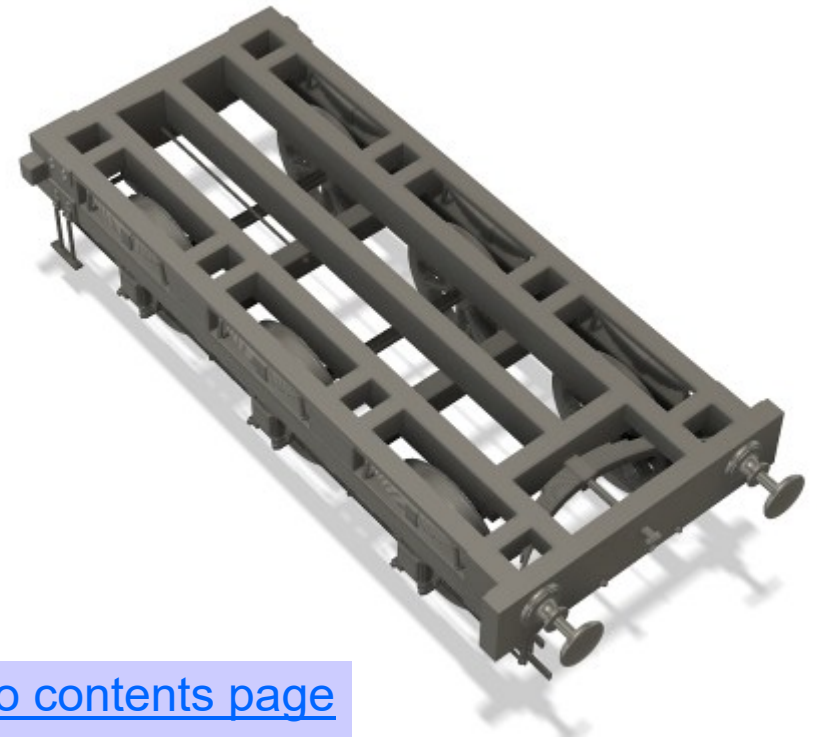
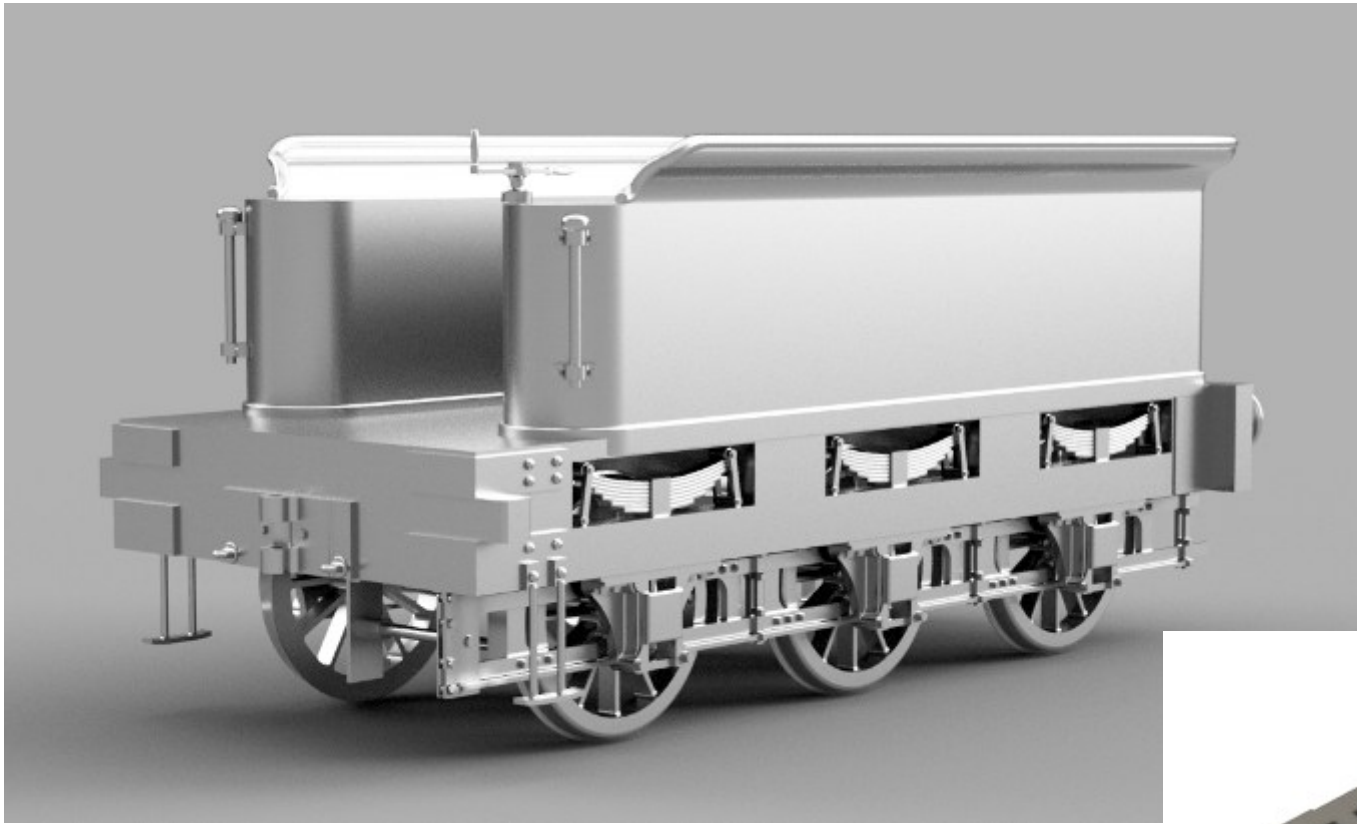




With thanks to Chris Cox again, he has sent me drawings of an appropriate tender.

“Standard Tender 1845—1847” Built by EB Wilson. This has only got as far as the modelling stage and will be printed in due course.





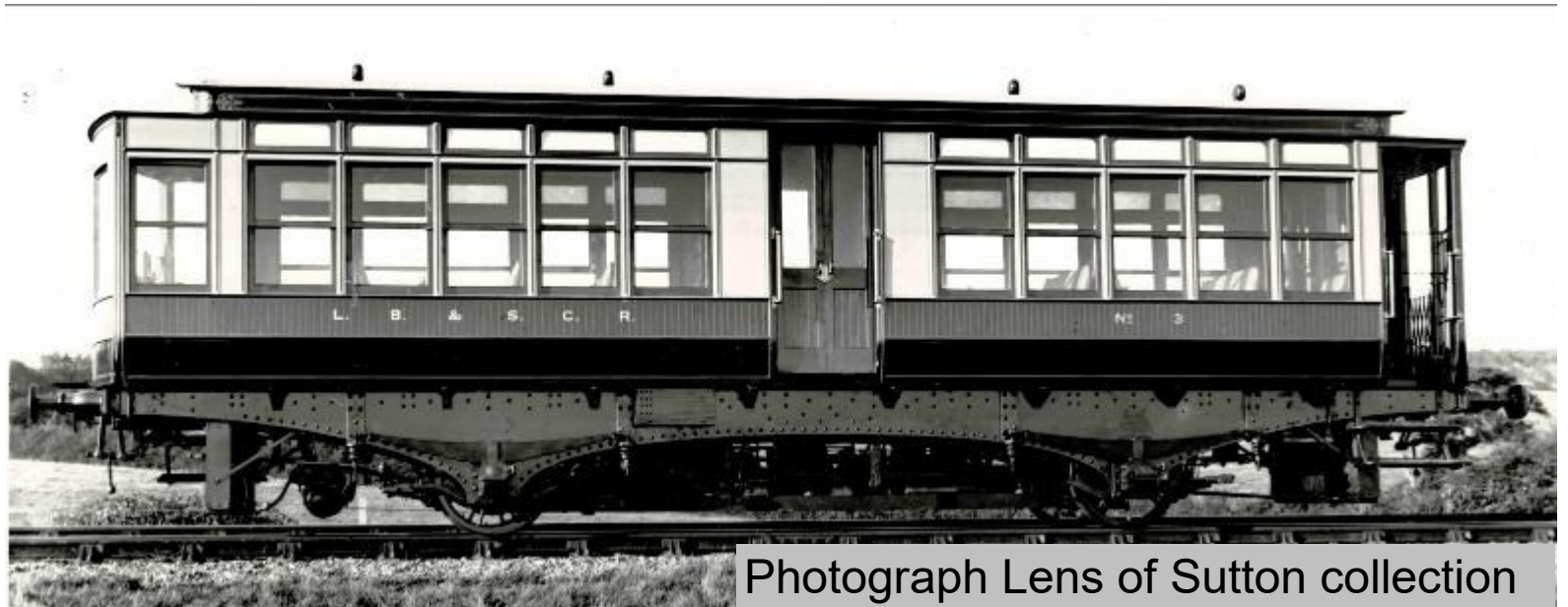
Images and photographs copyright David Rigler [Return to contents page](#)

LB&SCR Petrol Railcar No 3

Huw Evans

I have been working on my N gauge diorama of the Lewes Rd area of the Kemptown branch line in Brighton for over 4 years. However I'm finally on the home straight in completing this initial model* and hope to be able to show this in all its glory in time for the Christmas 2025 Modellers Digest.

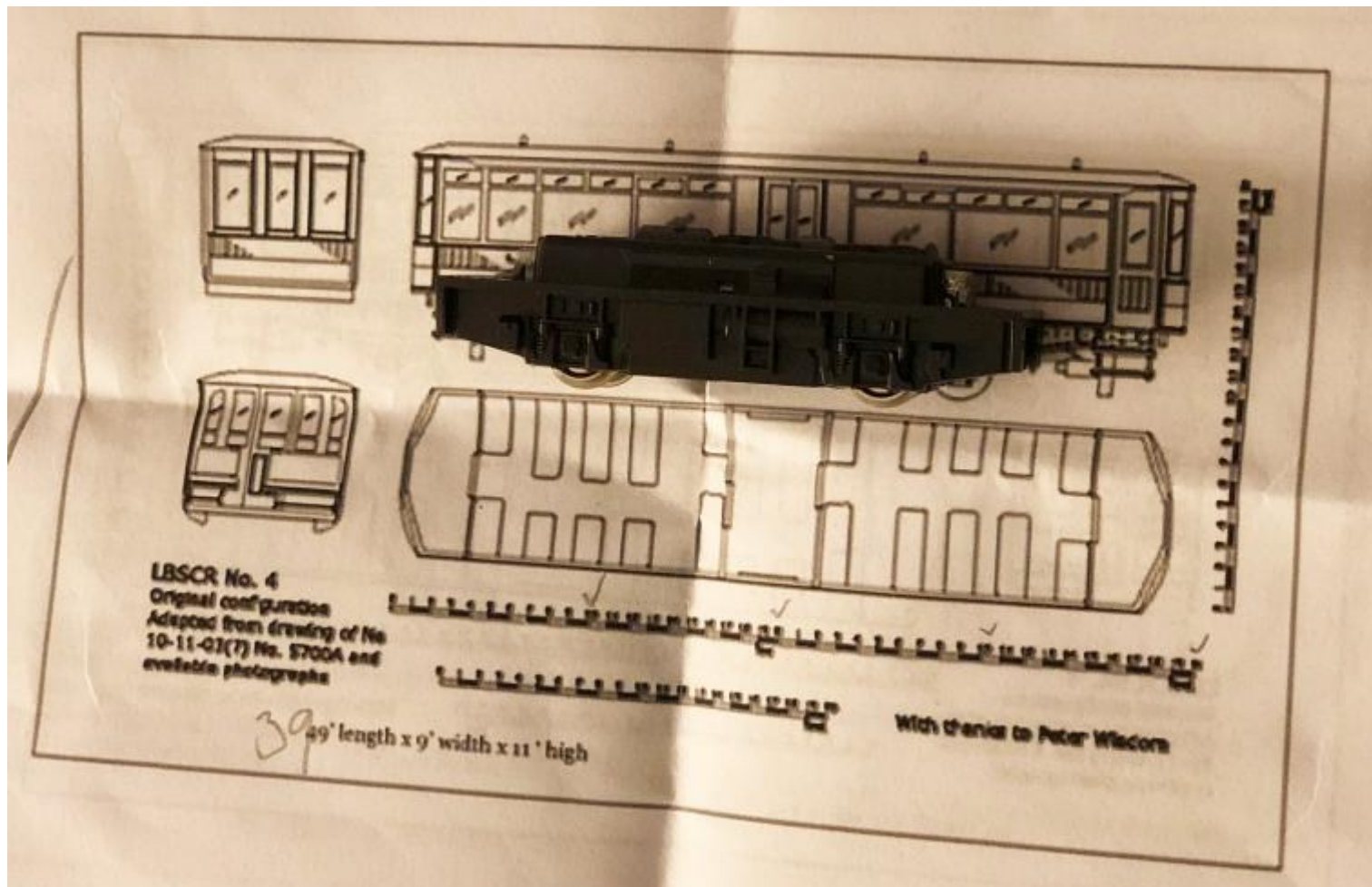
For this update, I have focused on my efforts to model an LBSCR petrol rail car. This prototype only came to my attention through the previous work of the the Brighton Circle. I particularly liked number 3, with its smaller windows and clerestory roof, which to my untrained eye looks rather like an Edwardian garden conservatory. I found the idea of this prototype trundling over the Lewes Rd viaduct a key feature I'd like to model in my diorama and hence this narrowed down the year I was portraying to 1911.



Photograph Lens of Sutton collection

My sole inputs to the modelling process of this railcar, were the photograph of the prototype number 3, as shown in the Circle website, posted by Dave Searle, plus a scale drawing (of number 4) supplied by Peter Wisdom in the Brighton Circular magazine. My assumption was that number 3 shared similar dimensions to 4 so, using the drawing scale, I first reduced this to 2mm to 1 foot / N gauge and printed it off.

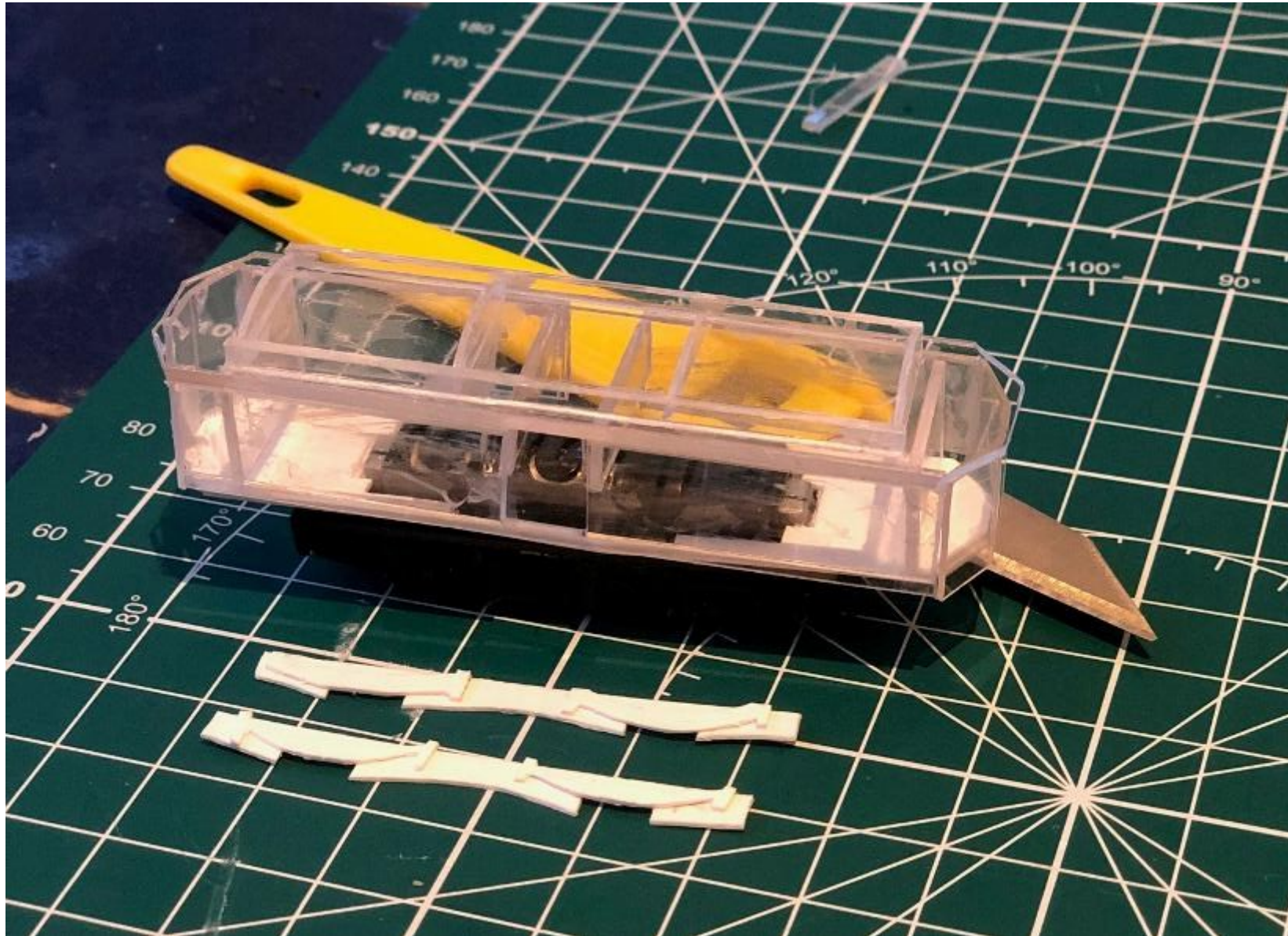
I was able to marry this reduced drawing up to the intended powered chassis, the Kato 109, which you can see from the photograph is a pretty good match of wheelbase and width, though this would have to be extended to replicate the length of the railcar.



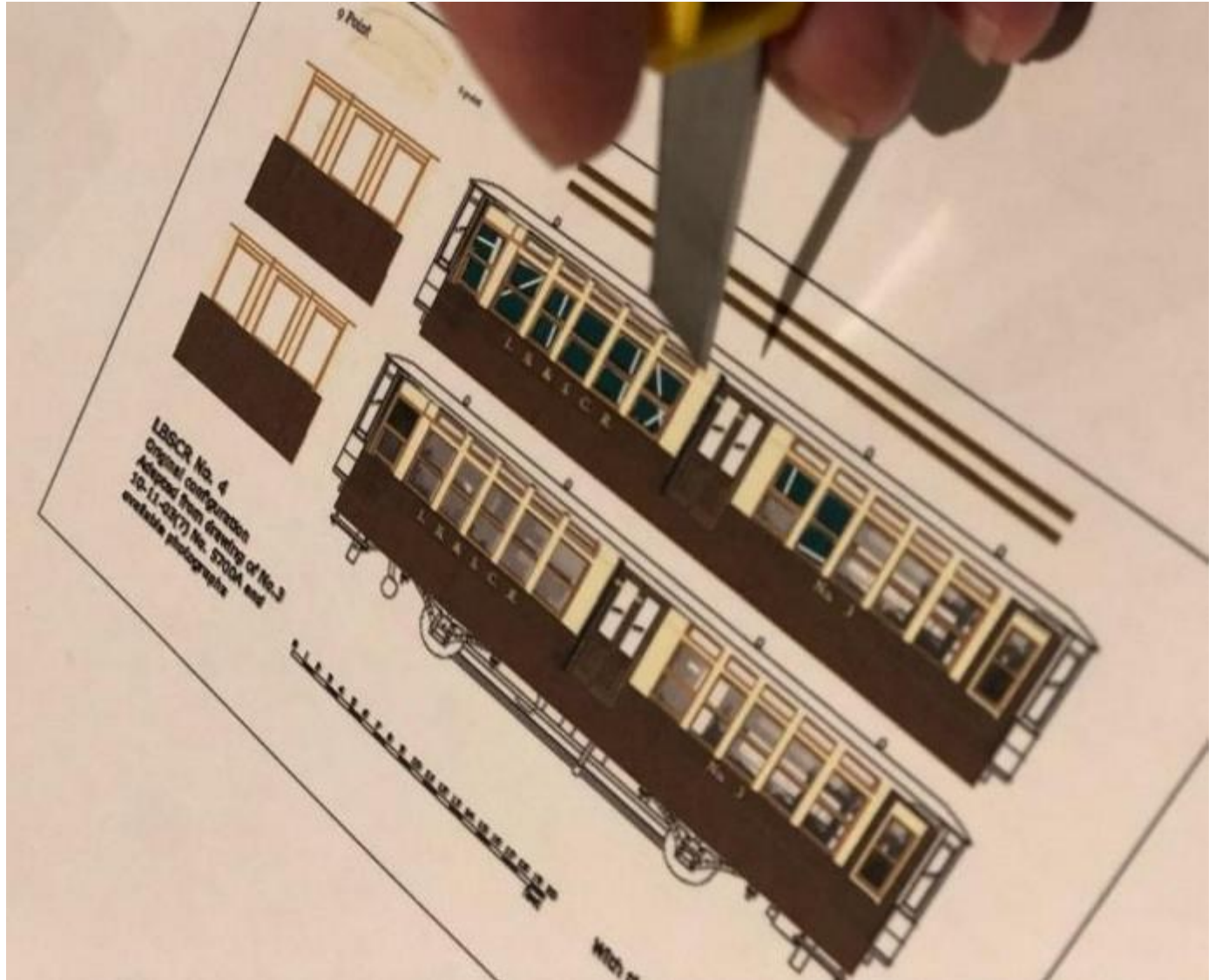
Firstly extraneous detail on this chassis was cut and filed off (compressor tanks and ladder etc). Then the N gauge couplers were removed as this would be a solitary vehicle not required to tow any wagons. I then hand crafted extensions to the chassis and some suspension springs with various thicknesses of plasticard, using the photograph as a guide. As you can probably gather, this was a pretty crude process compared to the accuracy achievable in larger scales, but I was pretty happy with the end result. At the same time, I took the opportunity to add some steel weights to the chassis, which in my case were some sawn offcuts of 2mm steel bar from Wickes. This would hopefully improve adhesion to the finished model. All these additional components were sprayed black to blend in with the existing chassis.



Then onto the superstructure, which I made from clear plastic sheet. The prototype had recessed doors, so I replicated this by constructing the sides with two layers of plastic, with a first layer showing the recessed doors themselves and the second layer on top showing the railcar sides. Similarly the recessed lower profile of the body side is again created with the two distinct layers of plastic.



The body covering is simply a paper overlay created in Photoshop. I began by importing the scale drawing and overlaying with a brown and cream design (taken from Circle images of other models of LBSCR railcars) created from many filled rectangles of colour, overlaid and stretched into place in many layers on the drawing. The 'LBSCR' and 'No 3' lettering was also added using the most appropriate standard Photoshop font I could find. Once printed off and checked for scale, the print was sprayed with multiple layers of fixative, then spray varnish, then finally, brushed varnish. The window apertures were cut out with a scalpel and the sections were ready to be glued into place, beginning with the recessed doors. The printed body sides were draped over the two layers of plastic to show the profile shape. My only disappointment here was my use of various glues to secure the paper overlay. Superglue, plastic glue and 'Delux Materials Glue N Glaze' all smeared my lovely clean superstructure on my experiments and final application. I'll investigate this further if I produce another version of this model.



The roof was a similar process, using layers of Plasticard, with the top layer hand scribed into planks as per the original. Again, I took the opportunity to put weights into the roof void before sealing it up, so the overall model now has a bit of heft to it!



After running in, the Kato chassis proved a great runner and, with the weights added to the model, I'm really pleased with the slow and stable running I can get.

So to conclude, this overlay technique has long been used for modelling coaches and seems to work well enough for this railcar model too. I appreciate I've cut a few corners compared to the 3D printed or brass etch options, which would have given me more accurate detailing, but, for an N gauge model just over 3 inches long, I'm pretty happy with the overall results and believe I have a credible, good running model to add to my diorama.

Close up shot of the railcar with Brighton's Cox's pill factory in the background. At this scale, the camera is a fickle friend, highlighting many blemishes in the model, which will need to be neaten up in due course.



As I have indicated in previous articles, my ultimate target is to have 3 similar sized dioramas covering the entire area from Brighton's Ditchling Rd tunnel through to Elm Grove tunnel, totalling 9 feet in length, which I intend to display both at model rail exhibitions and local community events and discussions.

Previous articles appear in Digest 14 (Dec 2021) 'Cox's pill factory', Digest 15 (June 2022) 'Lewes Road viaduct' and Digest 18 (December 2023) 'Urban Landscape'.



Model photographs copyright Huw Evans

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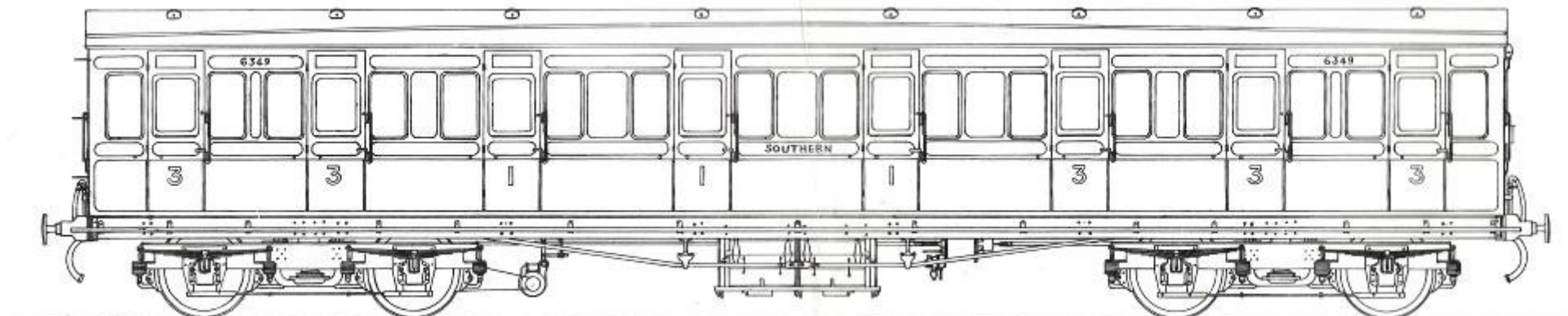
Isle of Wight 'Brighton' Carriages

Gerry Bixley

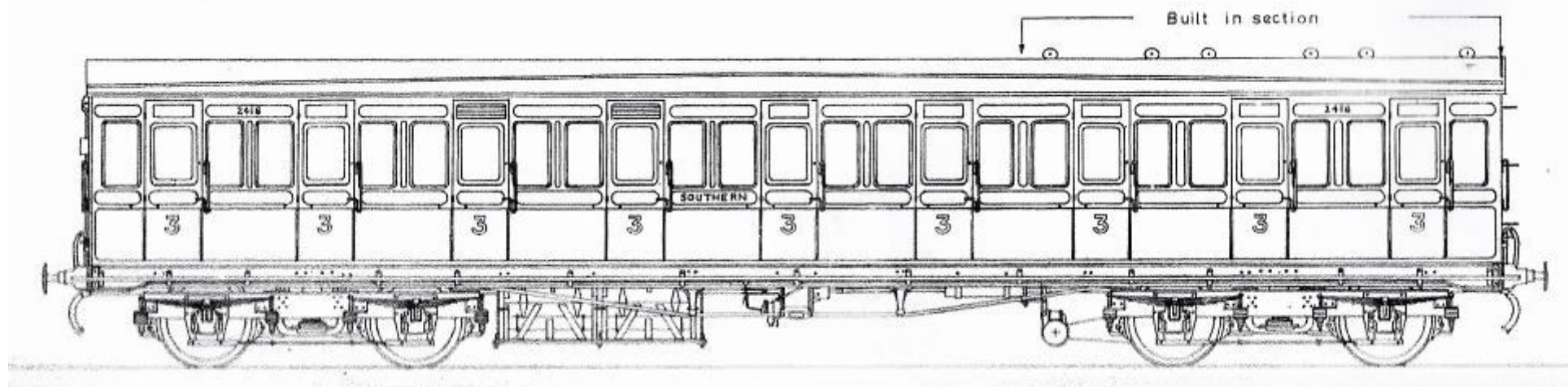
Elsewhere in this issue, there is the report of an announcement by [EFE of the release of a four coach set](#) of carriages for the Isle of Wight system. Two of the vehicles, of which the prototypes survive on the Isle of Wight Steam Railway, are also [available as a pair from the shop at Havenstreet](#). Having had some part in providing the information for this set, it may be helpful to provide a little background.

First of all, EFE has chosen to release the vehicles as a set, although the reality on the Island meant that “sets” were not sacrosanct and coaches were mixed and matched on a regular basis, not only for maintenance reasons but also to reflect the seasonal ebb and flow of traffic. However, the four vehicles create a pleasingly consistent rake, with four designs of vehicle, that provides a good mix of accommodation.

The vehicles all have the unmistakeable look of products of Lancing Carriage Works, although, as modelled, none are precisely appropriate for the LB&SCR period. They are specifically tailored for use on the Isle of Wight, where they operated from the mid 1930s to the end of steam on the Island.

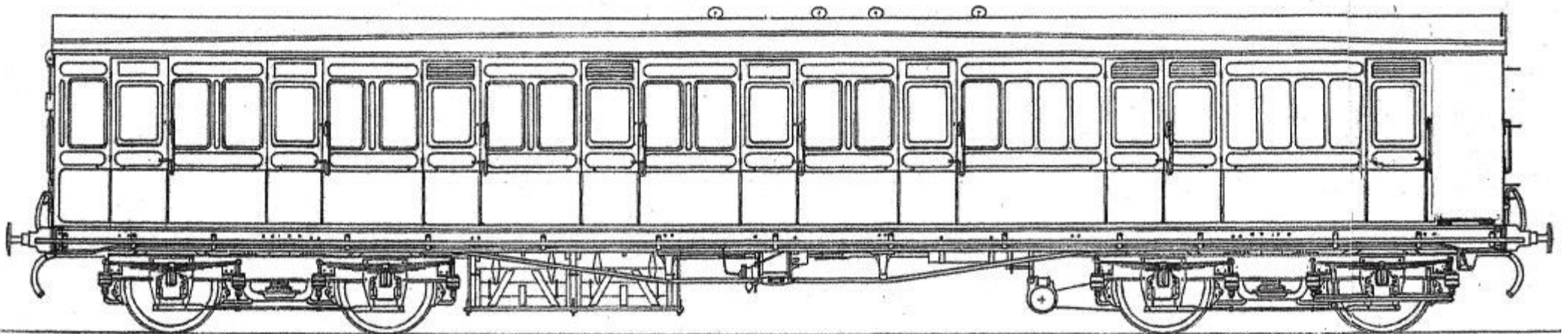
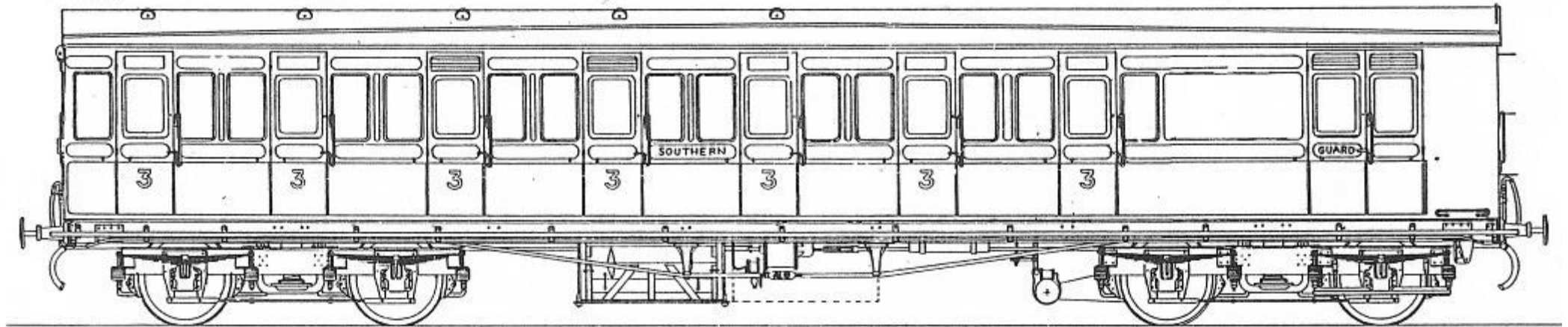


Composite – the vehicles chosen for the Isle of Wight came from a batch of Composites built in 1924. They therefore never ran in Brighton livery, even if they are very typical Lancing designs.



9 compartment 3rd - since the stock of Brighton 9 compartment thirds had been exhausted by conversion to 2 car trailer sets to work with electric stock, 'new' thirds were created by taking brake/3rds and replacing the brake section with passenger compartments. The result was almost indistinguishable from those built from new as all thirds.

Brake/3rds – the guards lookouts were removed and plated over, to give wider route availability.







Photographs from the Gerry Bixley collection

Whereas, from new, Brighton vehicles would have been fitted with the Westinghouse air brake, the Southern standardised on the vacuum brake and vehicles progressively would have been converted. However, the Isle of Wight system continued to use air braking, with the result that all vehicles would have been converted back to air brakes when they were shipped to the Island in the mid 1930s.

So could you repaint a four car set in umber, as Brighton vehicles? The answer depends on the compromises that you are willing to make. With the reservations noted above, they are, in many ways, typical Brighton vehicles. If you are happy with using [Rapido's Evolution generic pre-grouping vehicles](#) in the right livery, then these carriages would be at least as good an alternative. On the mainland, in early Southern days, very similar vehicles were in service until displaced by electrification (although note the point about air or vacuum brakes). For the purist, they should probably stay on the Isle of Wight!

You pays your money (£269-95 per set), and you makes your choice.

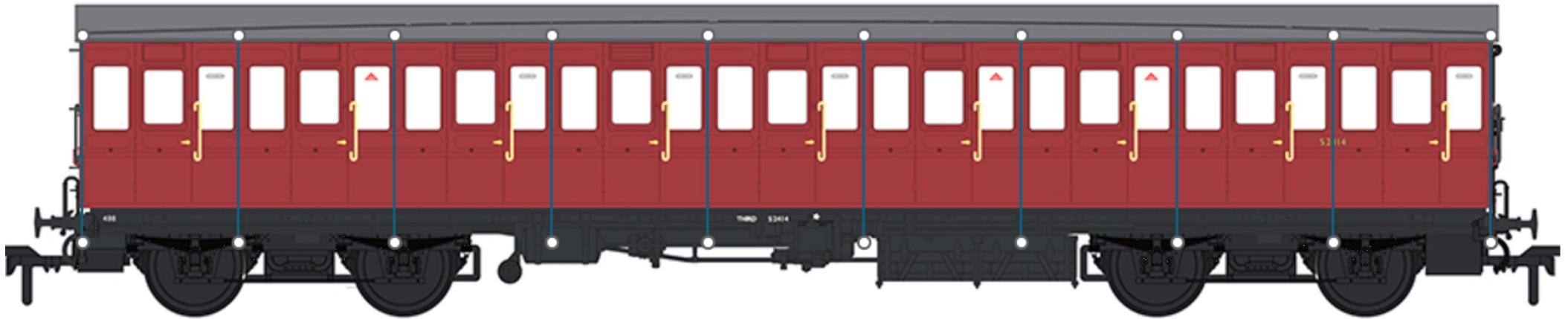
The Art of Compromise

Nick Holliday

As Gerry Bixley has explained, the EFE Isle of Wight coaches are accurate reproductions of the stock that, following modifications, was peculiar to the island, and hence there are certain compromises if they are to be used as pre-grouping LBSCR mainland stock. We have seen, however, that, judging from the enthusiastic reception the Hattons' Genesis and Hornby's four and six- wheeled stock received, and the interest in the forth-coming Evolution bogie coaches from Rapido, many pre-grouping modellers are prepared to overlook the various compromises, in the interests of obtaining well-finished RTR coaching stock for the growing plethora of pre-grouping locomotives to haul.

The purpose of this exercise is to attempt to highlight the compromises to be considered, should EFE choose to release them in LBSC lined umber livery, so that the modeller can decide whether they are acceptable. As Brighton fans, we have been a bit spoilt, in that all the generic carriages produced so far have many aspects with a distinct Brighton slant to them – length, roof profile and moulding details – and the Hornby range, apart from the over-long 4 wheeled full brake, were almost perfect Stroudley, including the provision of Westinghouse brakes. EFE has taken this one step further with LBSCR style door grab handles, instead of the indeterminate generic efforts, although it must be said that the proposed Evolution coaches will be fitted with authentic LBSCR Fox bogies.

Full third



Initially 43 were produced from 6-wheeled D140/171 and D160/171 full- thirds, with additional compartments added on the 54' underframe. Subsequently 105 were built new after 1910, D162/198, with even compartments. Torpedo vents were installed on the roof above the three smoking compartments, and different ventilation hoods (Anderson's) fixed on the doors.

As can be seen from the markings showing equal spacings overlaid on the EFE drawing, the model appears to have unequally spaced compartments, reflecting its origins from a third brake, with new compartments replacing the guards' accommodation. The first batch of the LBSCR original full-thirds were also created from a six-wheeled third with additional compartments added, so they also had subtle variations.

The smoking compartments were provided with a pressed metal ventilation hood on the doors, with the ribbed version for non-smokers. Provision for smokers changed over the years, with only three compartments at one end – the EFE model is rather more generously provided, with only two compartments still non-smoking, but no roof-top ventilators. The hoods are a minor compromise, and the fitting of roof ventilators over three compartments at one end would probably be sufficient to effectively back-date the model.

Composite



As Gerry Bixley notes, the EFE composite is based upon a 1924 built type, albeit a Brighton design. It doesn't have any lavatories, so cannot masquerade as one of the eight LBSCR designs which did; however one type, originally to D151, was an 8-compartment non-lavatory vehicle, and was, in fact, the most numerous of the 54' composites, with 66 examples built from 1909, using four compartments from a 6-wheel Tri-Composite (3-1-2-1) with four new compartments (1-2-2-2), although the new second class compartments were graded as thirds, resulting in a 3-2-2-1-1-3-3-3 compartment arrangement, with considerably variation in compartment spacings. After the general abolition of second class in 1912, they were reclassified as either 3-3-3-1-1-3-3-3 or 3-1-1-1-1-3-3-3, with the second class compartments upgraded to firsts, or down-graded to thirds.

As can be seen from the overlay of the D151 compartment spacings over the EFE image, there are many differences in the compartment distribution, with a knock-on effect on the inter-compartment panel mouldings, but the overall impression is very similar, and, in fact, the original cramped third class compartment at the left-hand end, only 5' 9", looks rather incongruous, if

distinctive. One benefit might be that the D151 coaches appeared in umber and white livery, a possible one-off for EFE to produce.

Third brakes

As Gerry observed, the main problem with these is the removal of the end guard's ducket, resulting in a blank panel at the extreme end. The source vehicles appeared after 1912, so never were in umber and white. If EFE were prepared to produce these coaches in Brighton umber livery, perhaps the lining would give the effect of the missing mouldings which would make them more acceptable.

One possible scenario, that would assist further in any compromise, is that Ian White has

deduced that, in 1907, Lancing built 12 of the D74A/165 five compartment brake third design and 4 of a similar five-compartment brake second, to D129/199. These were fitted with what he calls the Type F lookout arrangement, which consisted only of two large end windows.

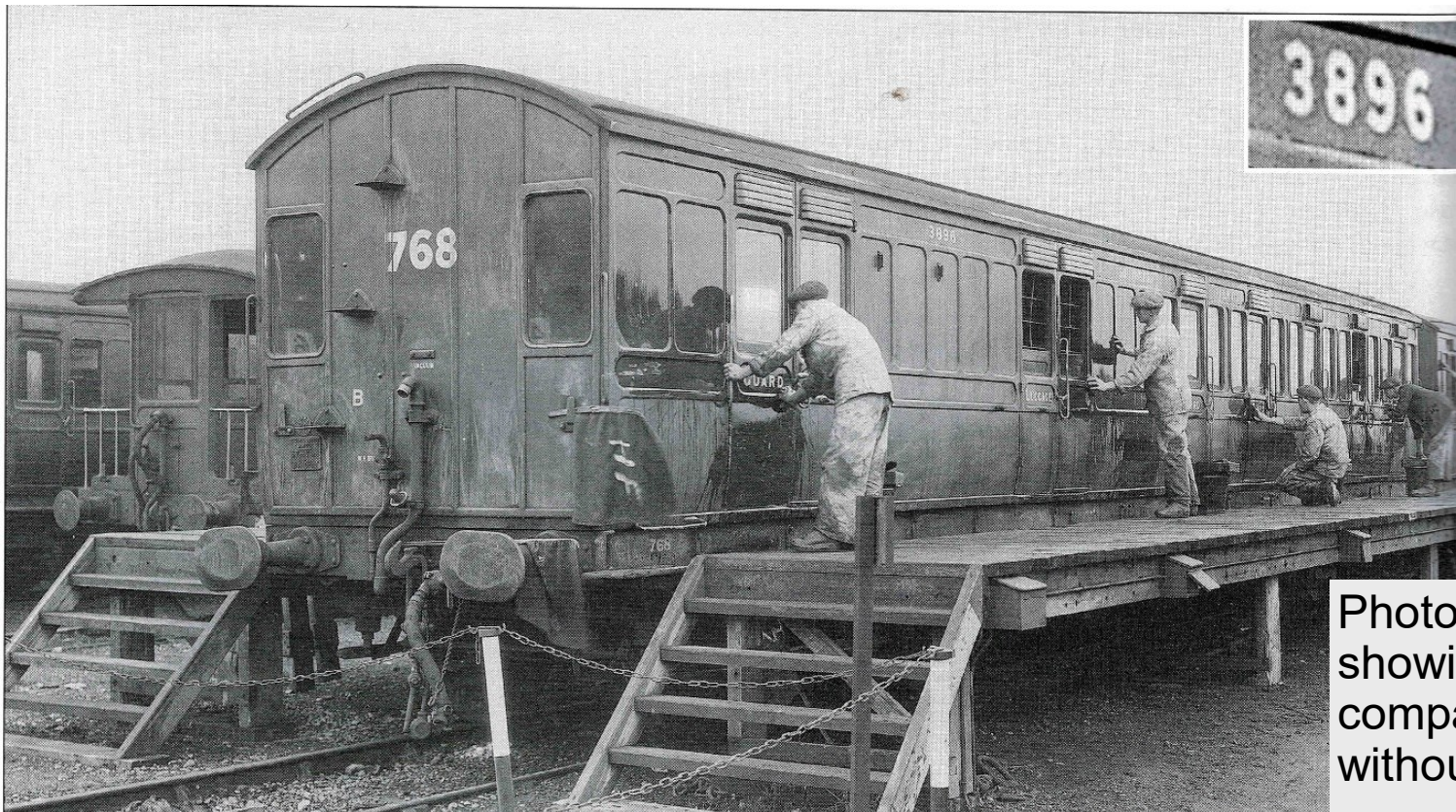


Photo from the Bluebell Archive showing the end of a 5-compartment brake third, as built without projecting duckets.

This was presumably to allow their use on lines, such as the South Eastern, where there were width restrictions preventing the use of projecting duckets. It would not be too much of a stretch of the imagination to say that Lancing produced this variation on a handful of the later six- and seven-compartment brakes, justifying the lack of duckets.

The seven-compartment brake, as modelled, has roof vents for the three smoking compartments, and the six-compartment version would have had similar fittings, although it is not clear which compartments were 'smokers'; the fitting of these would help in back-dating it.

Conclusion

If EFE were to produce this set in lined umber livery, it would provide a welcome addition to most Brighton modellers' coaching stock, with a different feel - longer than the Evolution 48' range, and with far fewer compromises than the generic stock.



Obviously kit-built coaches would offer a more accurate and wider range, for those with the skills to be able to match the finish of the RTR examples.

Roxey Mouldings etching for the D151 Composite showing the panelling – four of this type were transferred to the Isle of Wight.

Garden Railways in the Snow

Richard Heasman



My 7mm scale garden railway is in Bergen, Norway, where winter tends to mean snow. The following photos show a winter operating session.

We try and use the garden whenever we get a few dry days in a row. The day on which these photos were taken was -2 or -3 degrees. We run DCC and were finding problems with the locos. After a short while, if the engines were left standing, they refused to go forwards or backwards but the sound was still good. Once they had been brought back inside, they returned to running normally.





Does anyone have information on Brighton snow ploughs please? I have a practical use for one.



Photographs copyright Richard Heasman

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The H class “Might Have Been” Test Running at Ashcombe Down

By Mike Cruttenden

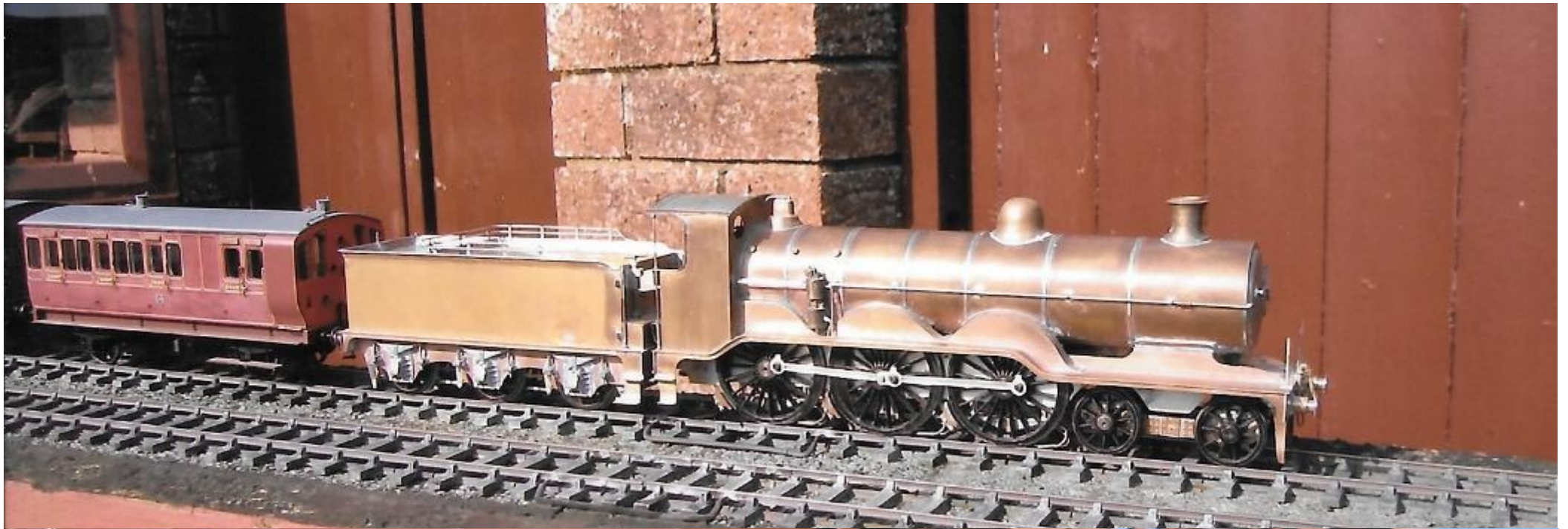




For comparison, the Billinton Atlantic and the H class 4-6-0.



Colin Paul's construction of this loco was documented in [Digest 20](#) and the present photographs show it on running trials, on Mike Cruttenden's Ashcombe Down layout.







Still to come - the Stroudley 2-4-2.

Construction of the Super Gladstone

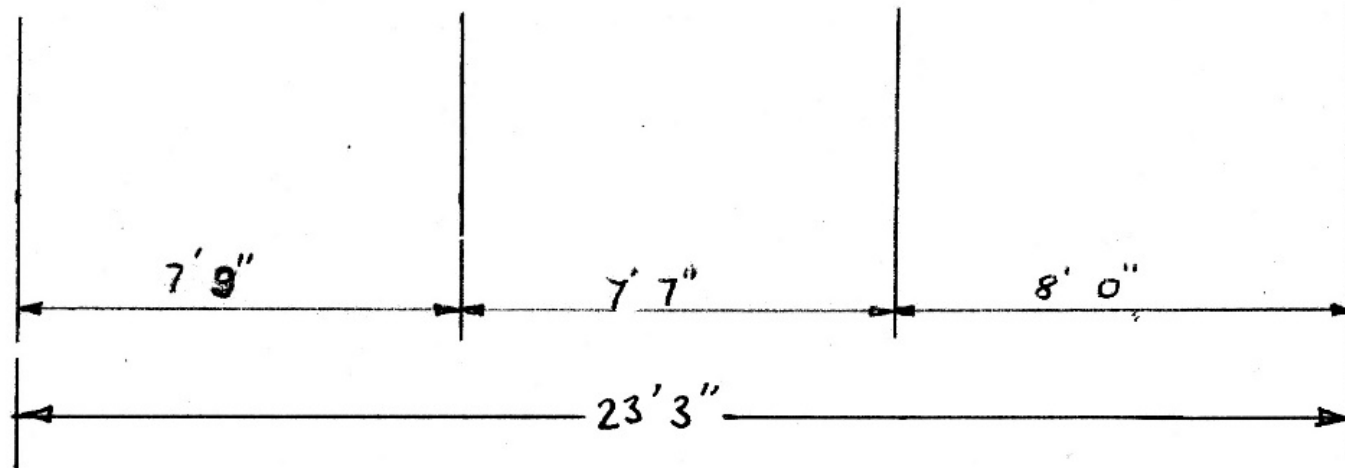
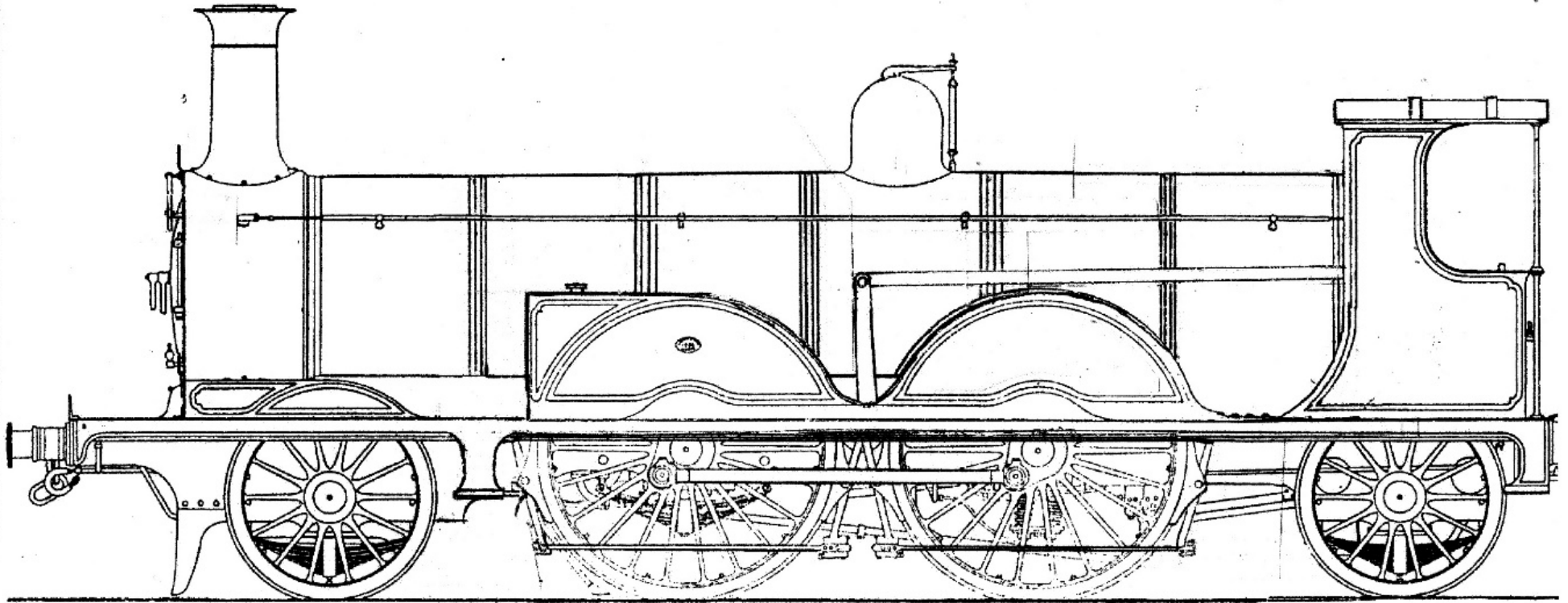
“Might Have Been”

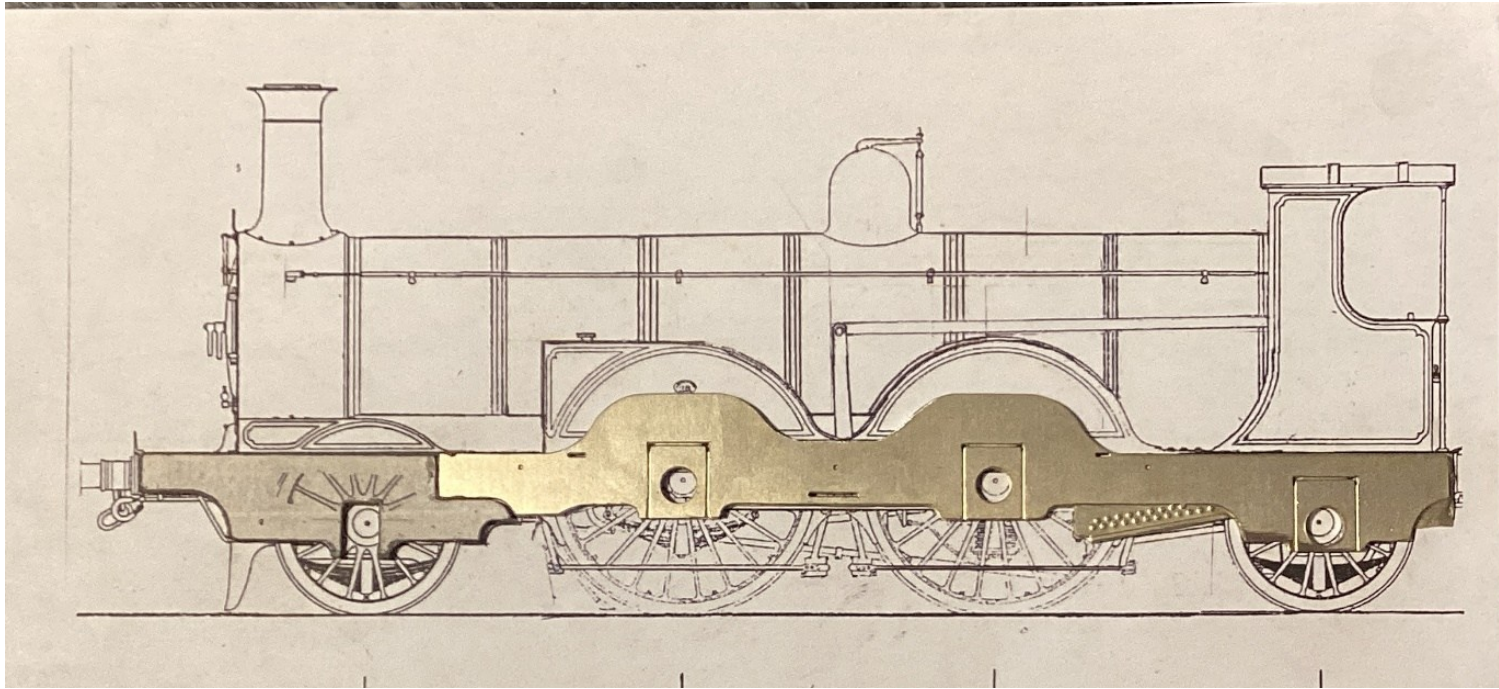
By Colin Paul

Following on from the previous 'Might Have Been' locomotives Mike Cruttenden presented me with the next one, which is the 6th in the series, which I have named an LB&SCR 'Super Gladstone' 2-4-2. From the drawing (on the following page) that he had prepared, it is in essence a stretched LB&SCR B1 Gladstone class 0-4-2, with frames extended to the front, a front axle, a much longer boiler but keeping the original cab and tender. The wheels have remained the same at 6' 6", 22 spoke drivers and 4' 6", 14 spoke leading and trailing wheels.

He also gave me a second-hand Albion Models B1 kit. Sadly, all of the bits had been cut off their respective frets but never started. Fortunately, it appears the lost wax castings are complete. Also included were some pre-used wheels. All in all, a box of bits-n-pieces. It took some time to work out what was missing.

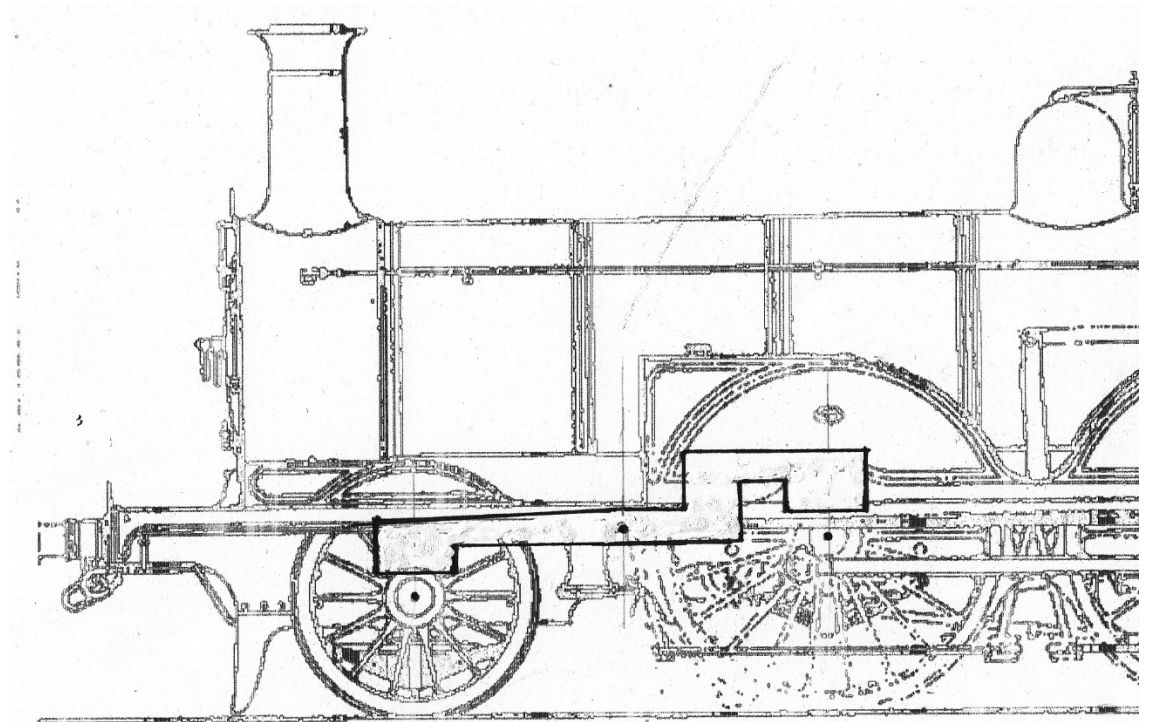
Both Mike and I dislike the nickel silver (n/s) layered connecting and coupling rods that some kit manufactures produce. On this occasion I contacted John Taylor (Mechanical Repairs & Conversation) in Halifax (email: jar56e@btinternet.com Tel: 01422 839538 Mob: 07583 672 111) who mills mainly 10mm rods upwards. Following his instructions, I made the 7' 7" patterns using 2mm thick Plastikard and 4 times the required size. The resulting milled rods were perfect at 7' 7" centres.

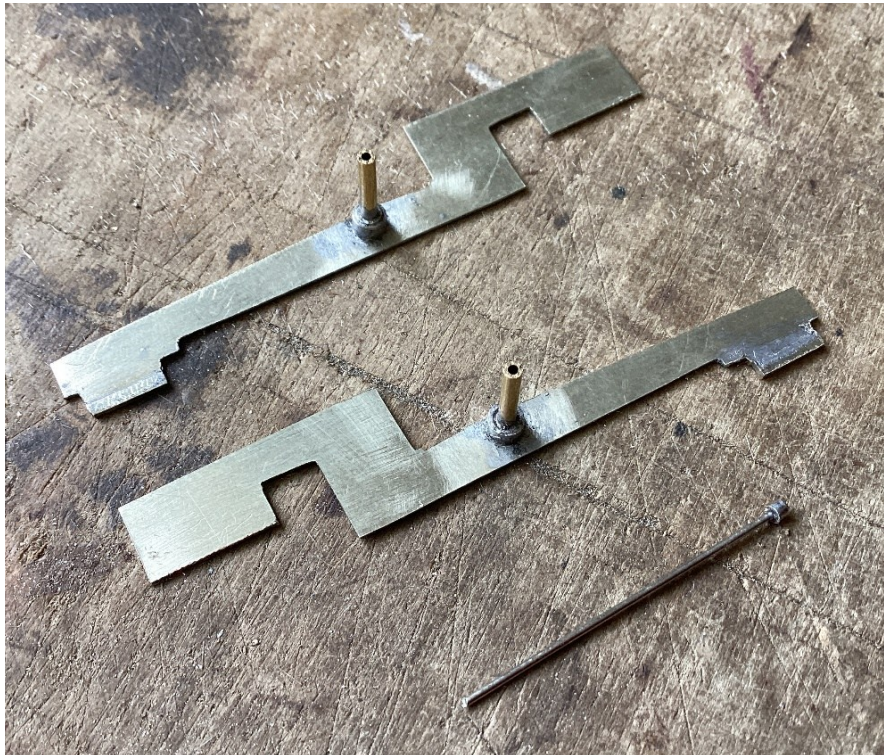




Using as much of the kit as possible, the existing chassis sideframes were pretty accurate when overlayed onto the drawing, so they were used. The front extension pieces were cut out from a spare offcut of n/s sheet. When separated, they would be soldered onto the frames with n/s packing strips on the back.

I have only ever previously constructed one 2-4-2 locomotive, which was my scratch built LB&SCR 2-4-2T 'Inspector'. The motor drove a fixed rear driver, which was double beamed on the front drivers and front axle, with a sprung rear axle. Having no problems with it, I decided to copy it for this locomotive. My only concern was the much longer wheelbase (w/b) of 23' 3" (162.5mm).

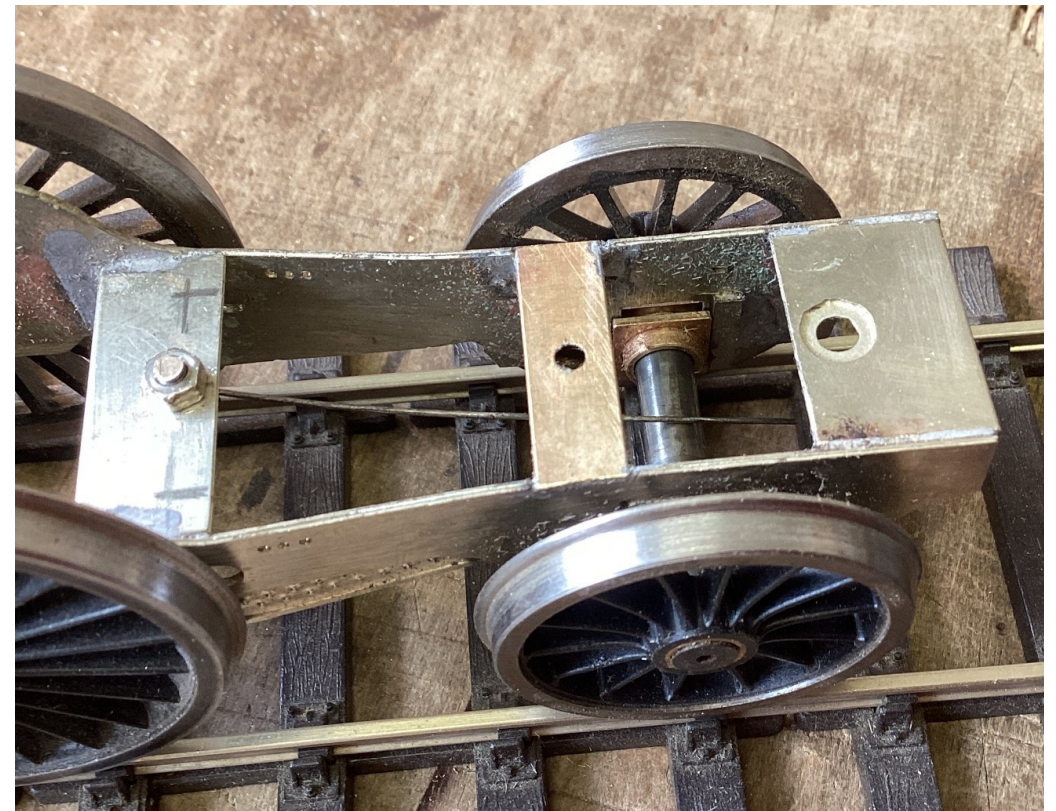


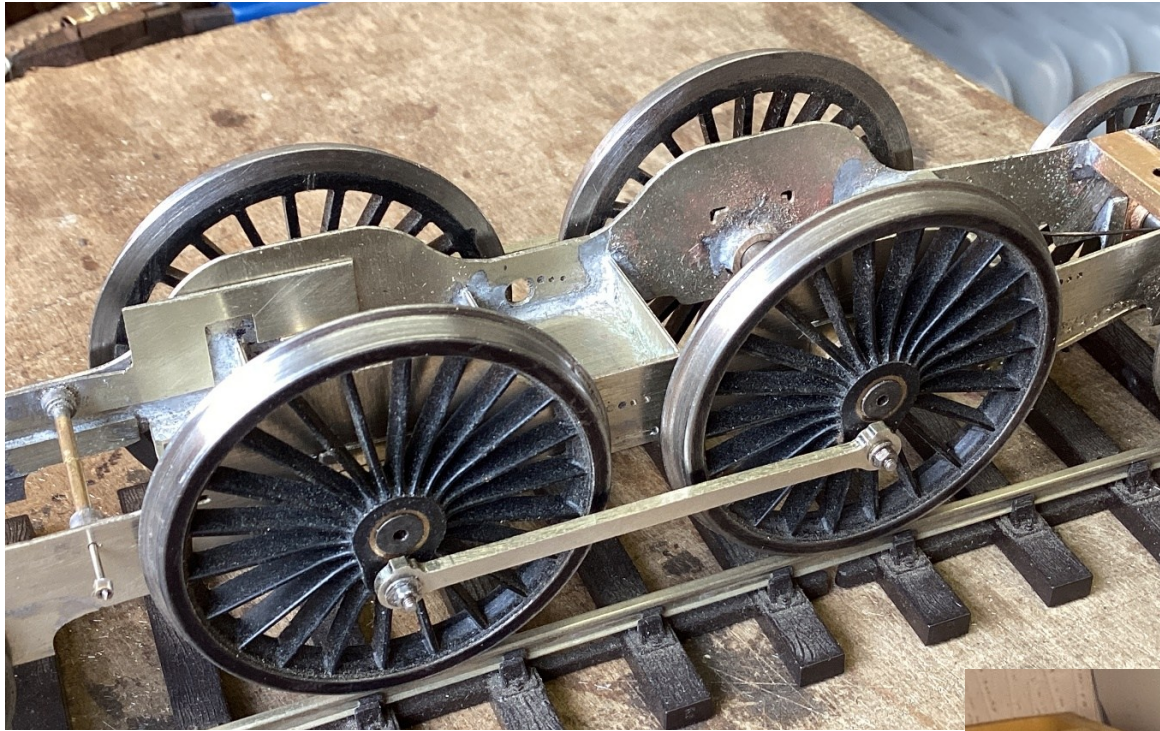


The pair of compensation beams cut out. Since they are rather narrow and flimsy on the front (down to 4mm wide), I decided to use chassis sideframe n/s thickness for greater strength. The pivots are 1/16th brass tubing. The pin secures them in place within the frame.

The beams are designed to rest on top of the four Slaters square hornblocks (simulated by the round wheel centres on the drawing) and pivoted in the centre. They look quite odd as they have to negotiate the frame spacers etc. but, from experience, the system works well.

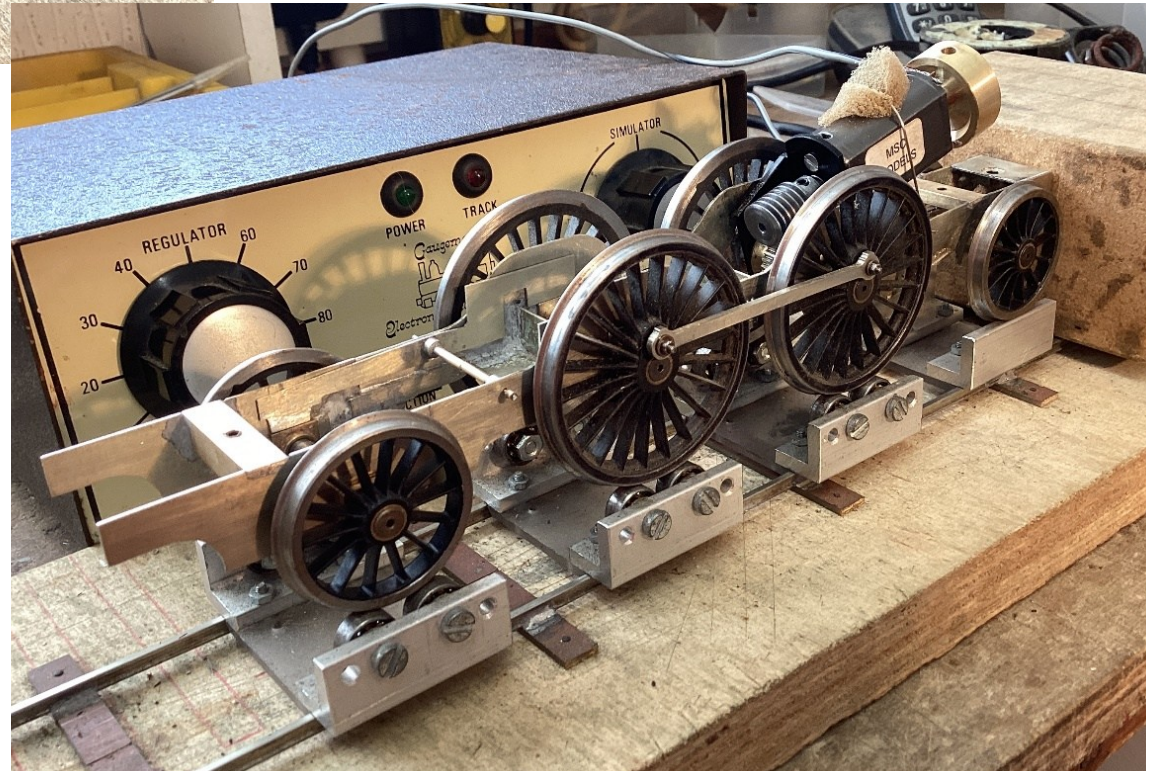
When I first soldered up the chassis, the frames were parallel throughout, but I found that the rear axle would not negotiate the 6' 0" radius test curve. By removing the two rearmost frame spacers, the frames were tapered inwards down to 21mm, just behind the rear drivers. This gave me just enough side swing for the axle. The existing frame spacers were then filed down to 19mm wide and reinstated. The springing is a simple but effective spring wire which works perfectly. Downward pressure can easily be adjusted with the aid of tweezers.

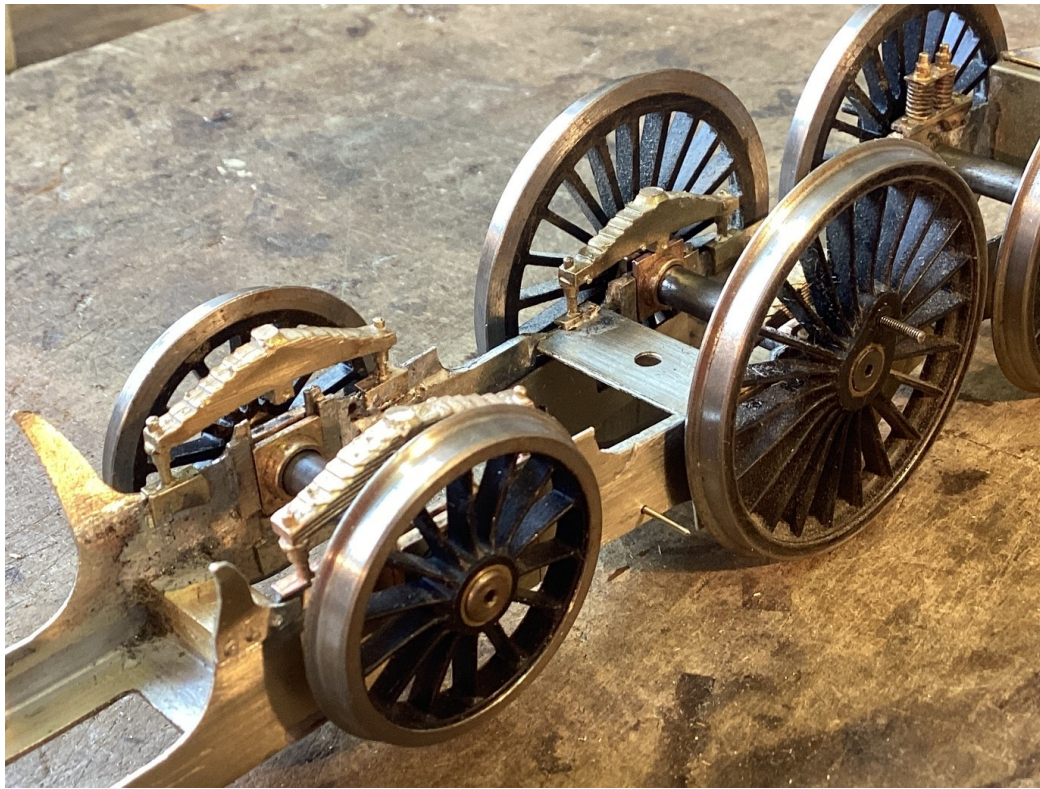




With the chassis levelled, the compensation beams performed their task by keeping the wheels on the bumpy test track. The crank pins were fitted into the drivers and the coupling rods fitted. It was obvious there were going to be a 'tight spot(s)' which indeed did happen. Not wanting to open up the crank pin holes too much, I first adjusted (0.5mm) the position of one of the front driving axle hornblock slots. This cured the problem into a perfect 'push along' chassis.

As on Mike's previous locomotives, I used the excellent [MSC Models range of motors](#). The only one that fitted was a SM 33:1 single reduction gearbox with 22mm x 8mm brass flywheel, which had to be turned down into a conical shape to give most clearance behind the backhead. To stop the motor from 'kicking back' too, I fitted a thin 0.6mm diameter n/s rod 'kick back' strap. There was still a bit of upward movement, so a small piece of sponge can be seen.



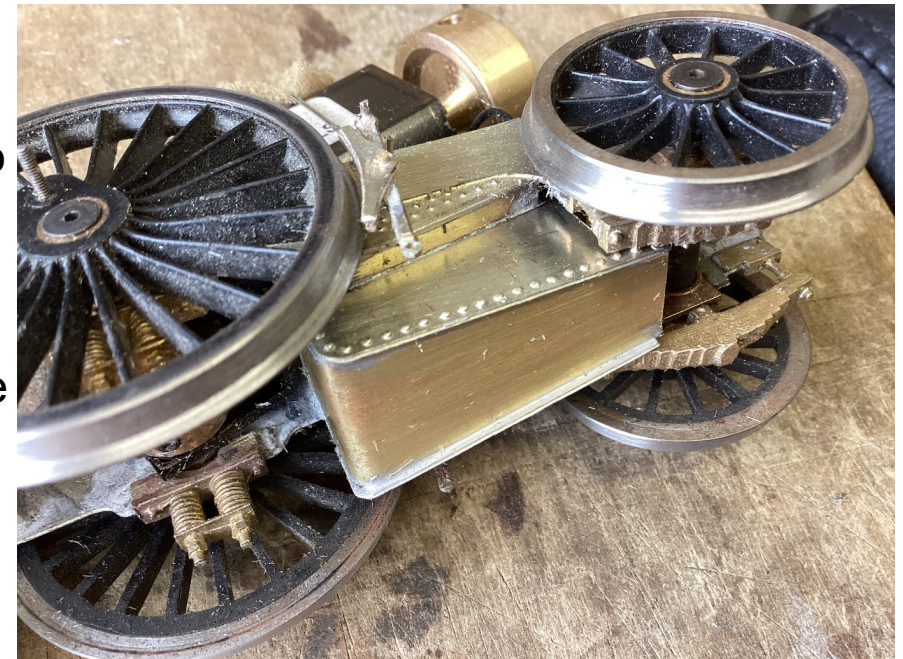


By the time this (upside-down) photo was taken, the frames had been tapered inwards slightly behind the front drivers which can just be seen. The temporary n/s rod 'keeper plates' have also been removed and replaced by the superb Laurie Griffin (Ref:27-042 L&SWR Drummond/Urie loco) 3' 6" lost wax leafspring castings, but more importantly they are to the correct radii. If at any time the axles require maintenance or removal, they can be simply unsoldered.

As fitted to the prototype B1 Gladstone, there were a pair of brakes acting on each of the four drivers (i.e. eight brakes in total) which were each actuated by four wrap round brake rods.

On Mike's last locomotive (his B1 Special 4-4-2), which in essence is the same as this one, he was happy just to have four single brakes acting on each of the drivers with internal brake pull rodding.

The brake hangers from the kit were modified slightly by soldering on a length of 1.5mm x 0.5 n/s strip with a hole drilled at their foot for the brake pull rodding. Although the brake shoe could be moved inwards closer to the tread of the wheel, they were moved outwards, to match the front compensated driver clearance.

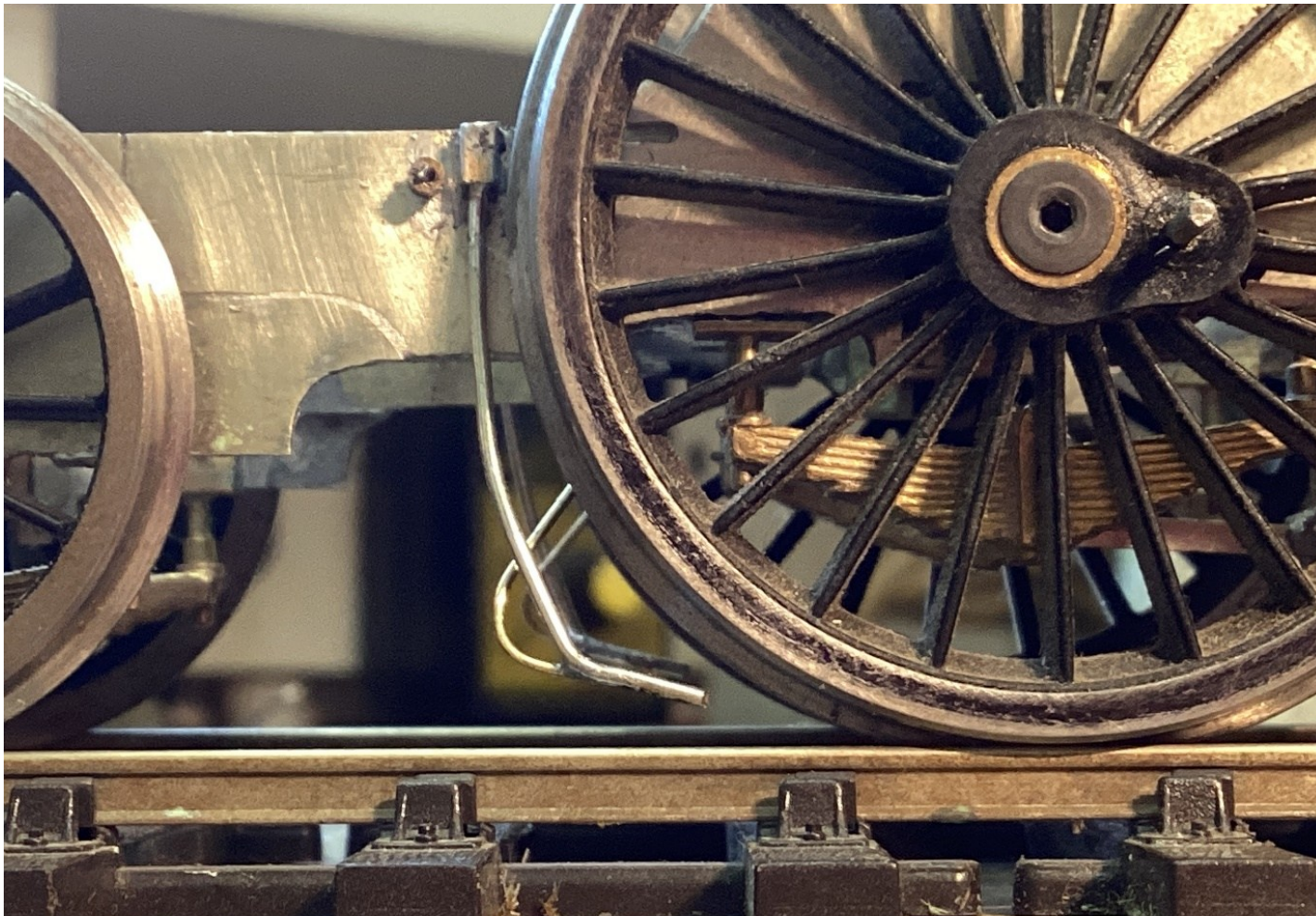




On the prototype fireboxes, they are set back slightly in behind the rear axle leafsprings. Because the cast leafsprings on the model are slightly wider and with the frames tapering inwards more for clearances, they had to be set back further. From this angle it looks rather narrow and cramped, but from normal side-on viewing angles it is not noticeable. Also, if the hornblocks require removal, the leafspring (keeper plates) can be unsoldered and removed.

The pull rods were hand cut and filed from the n/s locomotive chassis etch. On the drawing they are very thin, so, erring on the side of caution I plumped for slightly wider ones at 1.25mm wide for strength.

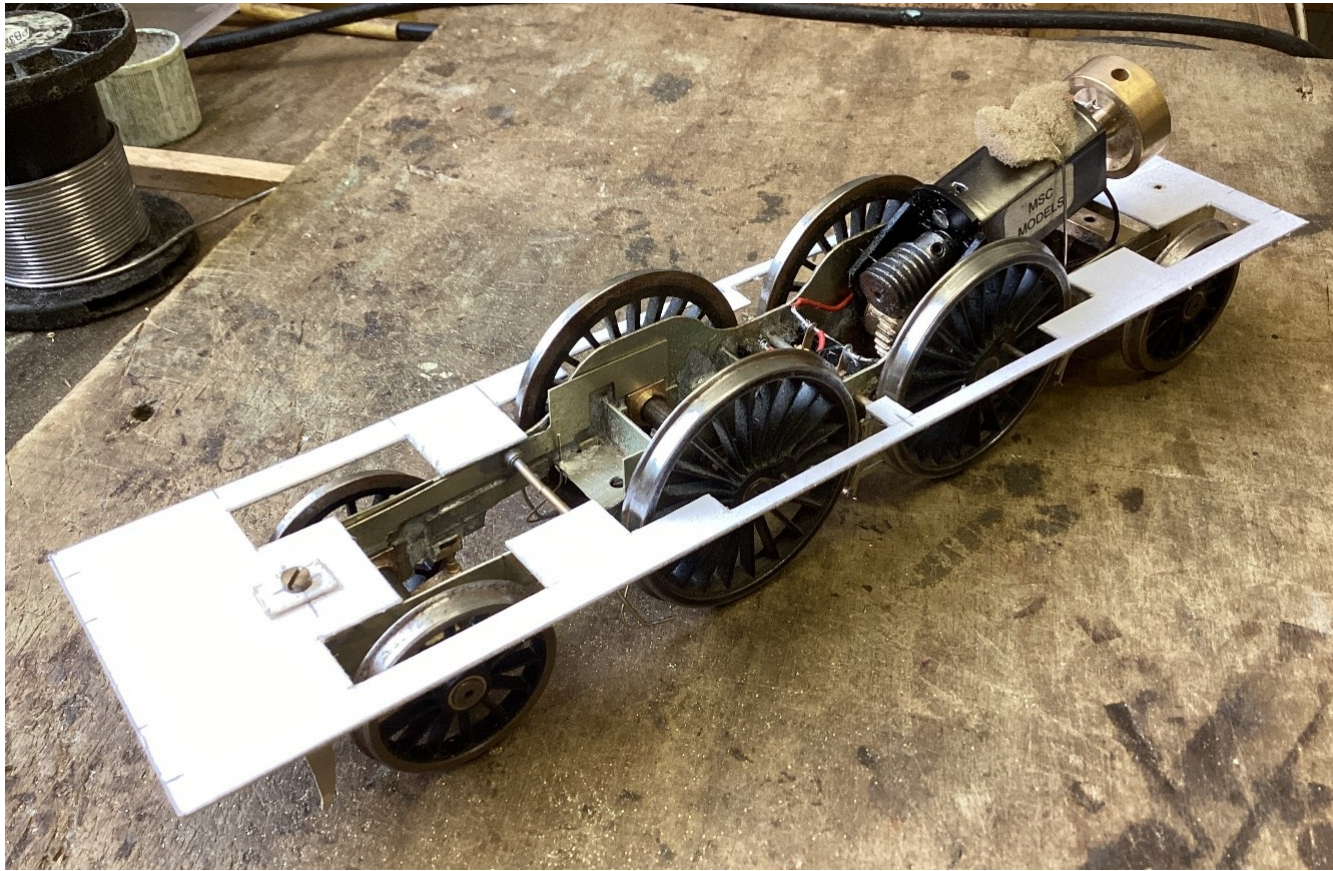
To secure the rods in place (via 0.8mm n/s rods), four 2mm and two 25mm lengths of 1/16th brass tubing were cut. When the pins were slid through the tubes, a little bit of filing had to be done here and there for a snug fit. All of the items were secured in place by small dabs of solder. For the time being, the whole assembly has not been soldered to the hangers just in case it has to be removed.



On the real B1's, there are two sandpipes in front of the front driver which come down from the sandbox above on a shallow curve.

The sandpipes have always been my Achilles' heel on any locomotive I've constructed, they are a pig to form and shape - let alone fit. These ones were no exception. To avoid shorting, the pipes have to be set further away than the drawing indicates. When all are painted black and weathered, this gap is not noticeable.

The thinner 0.6mm brass (blower?) rod was more straightforward to bend. It is secured behind the main pipe and up into a frame spacer with solder.



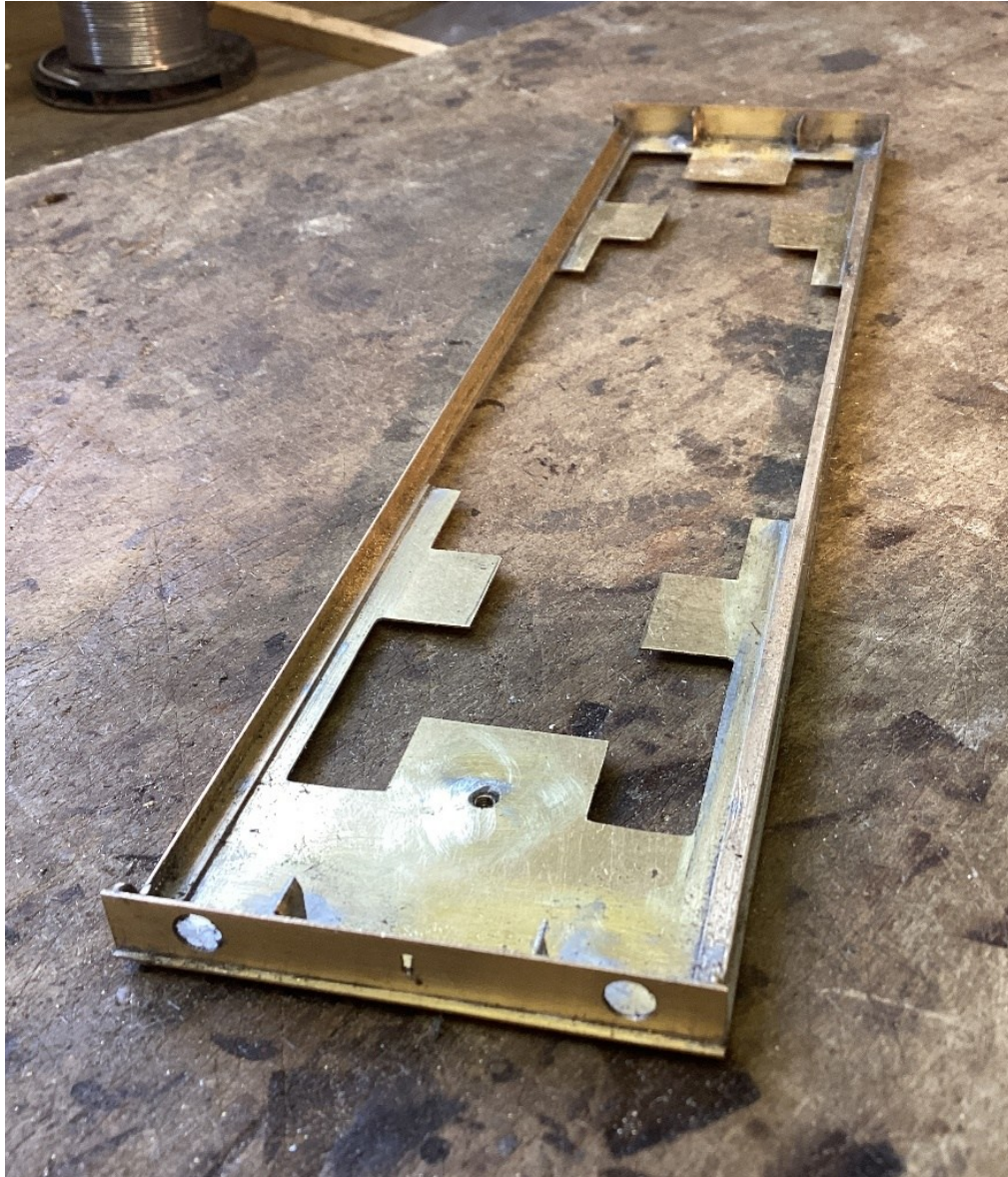
A whole day was spent designing the artwork for the 'footplate'. The open central area was virtually the same as for Mike's 4-4-2 locomotive which has the same 'Gladstone' driver wheelbase and small coupling rod splashers. The overall width was increased from 53mm in the kit to 56mm. This gives an extra 1mm clearance outside the crank pin bolt ends. The overall length is 225mm.

Thickish white cardboard was marked and cut out. The very narrow 3mm wide strips by the cut-outs for the coupling rods just about gave enough rigidity. After

some slight tweaking here and there, there was enough side play for the wheels to move across without fouling the edges.

On Mike's previous locomotives, I used 18 thou 'half hard' brass sheet for virtually everything. With the demise of Eileen's Emporium, I found it hard finding a source of the same. I did find a company called [College Engineering](#) that sold brass sheet which was purchased. It wasn't until I started to cut it out, I found it was 'hard brass'!

Not wanting to scribe lines everywhere, I covered the brass with masking tape then drew on the lines in pencil, which showed up well. Cutting out and filing took a whole day's session.



An underside view of the basic footplate. The first items to make and fit were the front and rear headstocks. Both were prepared from scrap brass then cut to 56mm x 7mm. The front headstock has had the buffer housing holes drilled out and the drawbar slot cut ready, whereas the rear (cab) headstock is left blank. A hook will eventually be soldered on the outside face for coupling up to the tender.

The valances on the drawings are 3mm deep, so 3mm x 3mm 'L' angle was purchased. Each one was cut to length then soldered in position 1mm in from the edges. The areas for the crank pin bolts were then filed back to the original openings.



Both splasher sides were soldered on and little filing was required to solder on the tops. Some very slight gaps were filled in with solder.

For both the main and connecting rod splashers, I could not use the large splashers from the kit because of clearance issues with the front drivers. The radii had to be increased slightly by 1.5mm. I also increased the sandbox length (over the front driver) by 1mm to avoid the tread of the driver touching.

All four driving splashers soldered on. Although there appears to be quite a large

amount of excess brass showing around the outside of the tread of the wheels, this is intentional because of the upward travel of the front drivers. The curved splasher tops will not be fitted until the boiler is in place.

There are two styles of cab sides etches in the kit. One in the shape of a shallow 'S' as fitted to B1 'Gladstone' No.214, the other (as fitted to the remaining B1 Class) is on a constant curve. Mike's drawing has the latter style cab side. Overlaying the etched items onto the drawing, it was a perfect match, so they were used.



Sadly, the spectacle plate could not be used because of the extra width of the cab, which was widened from 42mm to 47mm, to allow for the extra sideways movement of the rear axle. To within a millimetre, the width matches the LB&SCR B4 Class locomotive spectacle plate, its spectacle window diameters (9mm) and positioning. I have given enough clearance for the MSC 22mm diameter flywheel to pass within it.

A cardboard template for the cab front was drawn up, from which the spectacle plate was cut out, formed to the profile of the sides, then soldered together. The over-long legs were trimmed back slightly and filed to a knife edge on the bottom. Double checking its location, the whole assembly was then soldered to the footplate.



The B1 class cab had two rectangular splasher boxes enclosing the rear axle wheels. The left hand one (17.5mm high) will have the reverser mounted on top, whereas the right hand one (14.5mm high) contains an oil box within it. Again, because of the sideplay of the rear axle, the ones in the kit could not be used, so they were scratch built wider from scrap brass. I know that the opening for the crew to stand within is very narrow, but this had to be done on the model.

The backhead intrudes further into the cab than it should by a good 8mm, although visually it doesn't project further out than the curved cab openings. The flywheel has been turned into a conical shape which also reduces the extent to which the backhead protrudes.

In the kit there was a lovely cast white metal backhead and it seemed a shame not to use it.

Checking it within the cab, the bottom portion was too wide and it was also too high by 4mm on the drawing (NB spot on for a B1) because the boiler is lower at 37mm from the footplate. So, it had to be cut down slightly. To clear the flywheel, it had to be moved out further into the cab and so a brass strip 6mm wide was bent to shape. After soldering in place, the edges were smoothed off for an invisible joint.

The captive nut on the floor secures the body to the chassis and was the only place in which it could be located. Being hidden in the gloom and with a crew in front of it, it won't be seen.



The smokebox front and wingplate is based partly on an LB&SCR G class 2-2-2 locomotive and, after studying numerous photographs of the front end, a drawing was prepared. Because of the extra sideplay of the front axle, the splashers had to be set wider. The result may appear fatter and lower from the front but is correct from the side view.

Another pet hate of mine is the boiler which is a pig to design. let alone make. After numerous paper templates were made (and

binning), this is the final one that fitted reasonably well. Behind the large splashers, cut outs have been made for the driving wheels to pass into. The firebox has been splayed out leaving a large void for the motor/gearbox.



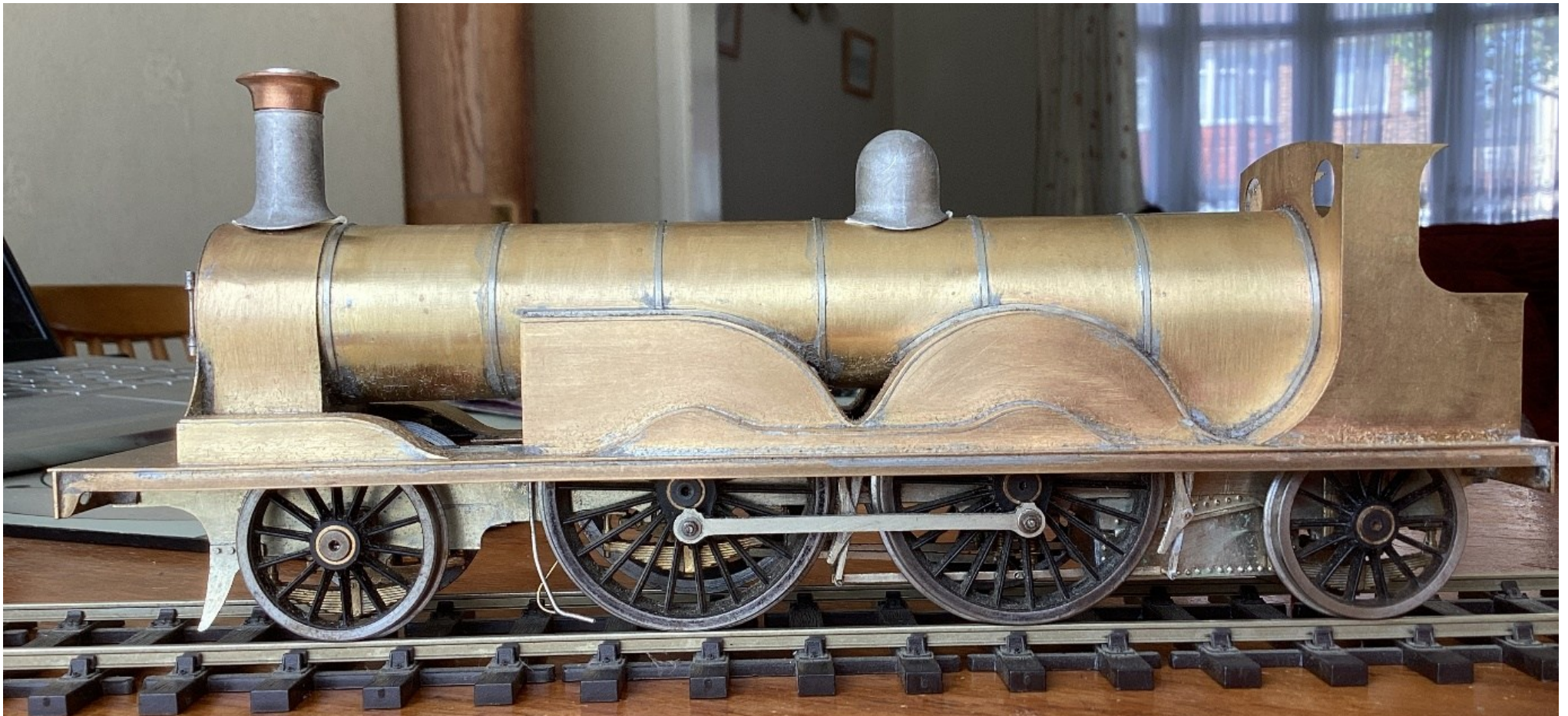
With an accurate template, I cut out a boiler blank measuring 176mm x 94mm. Knowing the brass is 'hard' and not 'half hard', it was annealed on the gas hob to a dull colour. I wasn't sure how long to keep it over the flame but after a few minutes, it started to bend and bow slightly so it was removed and allowed to cool down. For ease of cutting in the 'flat', I transferred all of the 'cut outs' from the template onto the brass except for the front driver slots which would be done later. Using my Metal Smith rolling bars, the required 30mm diameter was reached.

The width of the smokebox wrapper is 18mm, so an oversize strip of brass 95mm long was cut. It too was rolled but it was a bit tricky getting the profile to match the smokebox front.

After many hours work, the boiler was finally fitted. There are several crucial areas to contend with. Firstly, it must be perfectly parallel to the footplate. This was done with the aid of a 'T'



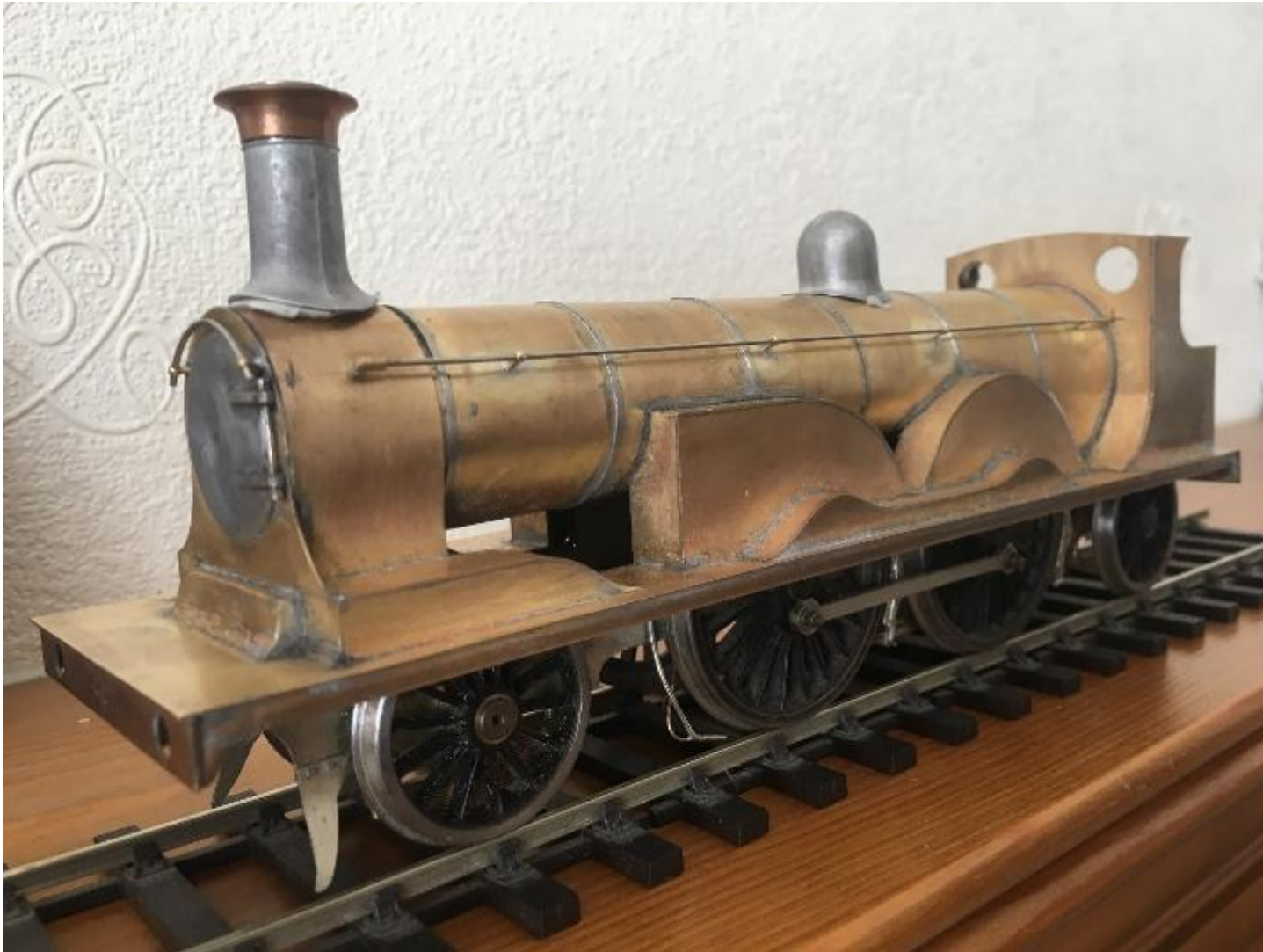
square. Secondly, it must be in parallel with the footplate edges when viewed from above. Thirdly, the shallow curve of the firebox was meshed into the spectacle plate's curved legs. And lastly, the driving wheel openings were given a last-minute file for clearances. So, all in all, making a boiler and fitting it is not for the faint hearted! The smokebox wrapper has also been soldered in position.



The boiler bands' widths on the drawing were 1mm wide and spaced at 25.75mm intervals. Having previously used 0.30mm n/s thick strips they were used again. Transferring their positions from the drawing to the boiler was relatively easy using a pencil. The first bands to fit (in two halves) were the beading strips in front of the spectacle plate (on the right). Curving them around the curvature of the boiler took many tweaks. In the end, they were soldered in place. The same procedure applied to the four driver splasher tops. Again, many tweaks were done for a seamless join. The remaining six boiler bands were then done, making sure they were perfectly vertical when viewed from the side, and at right angles to the boiler when viewed from above. Just for the photo I have Blu Tac'd on the chimney and dome.

The valve chest cover was formed from a strip of thin scrap brass (8mm x 31mm) then bent into a shallow 'S' shape matching the drawing. When soldered into position, the open ends were filled in with brass shim then filed to the profile.

Clearly visible on the G Class photos, there are 'L' angled strips either side of the cover on the face of the smokebox and top of the footplate. 1mm x 1mm 'L' angle seemed the correct size

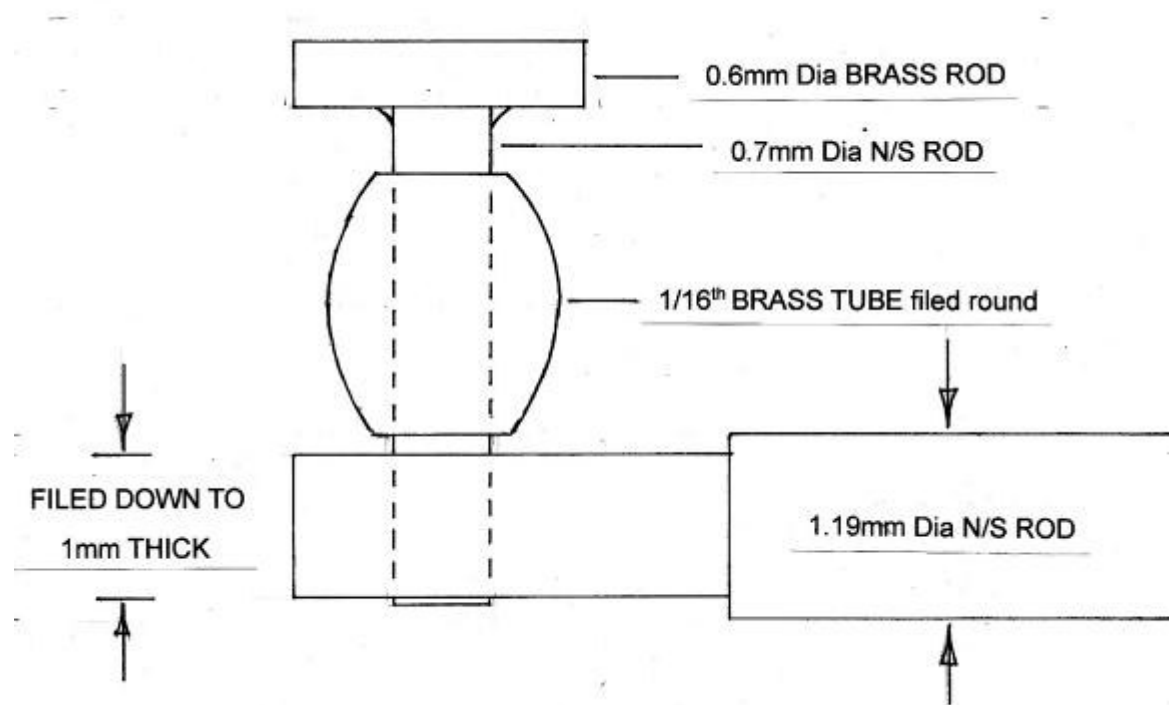


which was cut to length then soldered in position as can be seen (just). The smokebox door has also been soldered on but awaits a dart (from the kit).

The position of the long horizontal handrail (0.8mm n/s) was carefully marked from the drawing, as were the position of the handrail knobs. Ten holes were drilled out, two on the smokebox wrapper, and eight on the boiler sides. Soldering the knobs in position was straight forward. When the rod was slid in, the rod was perfectly horizontal with no kinks. More luck than judgement.

On the drawing, there appears to be a 3mm long tubed end that enters the smokebox wrapper (blower lever). It was made from 1/16th tubing filed down slightly. A 0.75mm hole was then drilled midway in it for a 0.7mm diameter rod which was then soldered in place. The whole rail can be slid in (after painting) with a bit of persuasion into the wrapper hole.

The two handrail knobs that secure the curved handrail (temporarily for the photo) have been soldered in place.



Many years ago, Microcast produced a pair of beautiful lost wax castings of an LB&SCR lubricators, which are sadly no longer available. Being barely the size of a grain of rice (3.5mm high), I've had to make them from scratch. The drawing above right gives the dimensions.

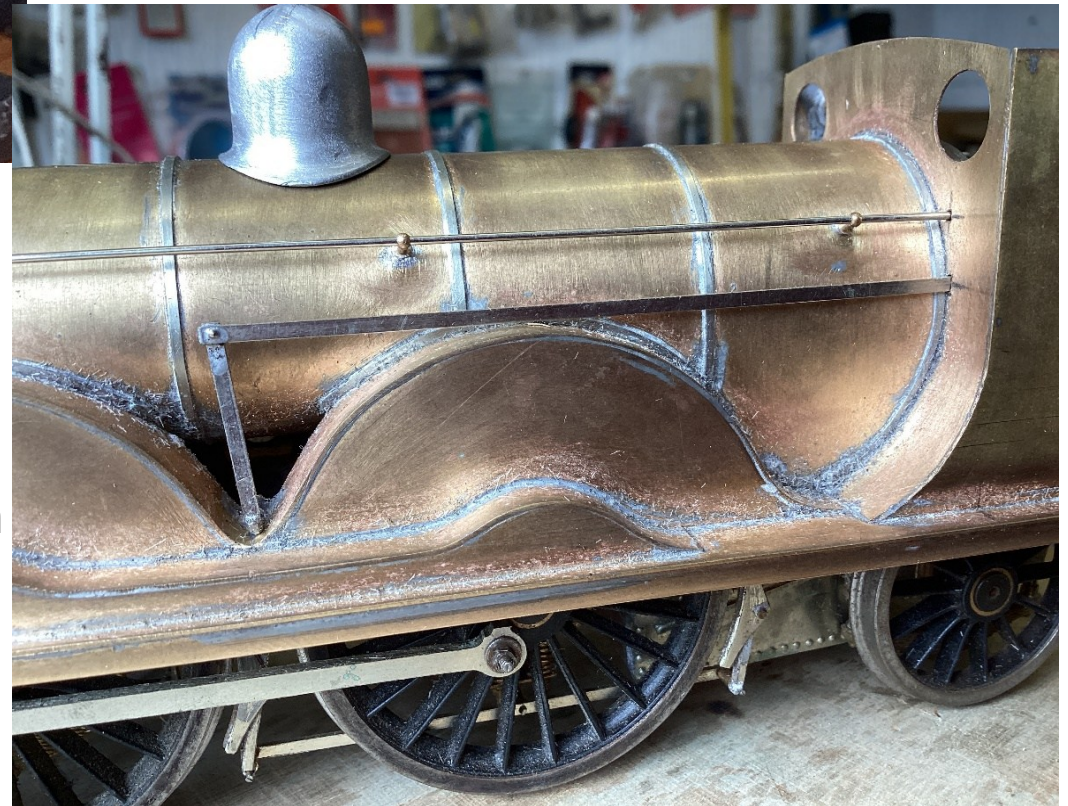
The pair were made them from various bits-n-pieces of brass and n/s rod and tubing very carefully soldered together with a minute amount of solder. One false move and the whole lot would end up in pieces. After two holes were then drilled in the front, they were then soldered in place. Subsequent photos will show them fitted.

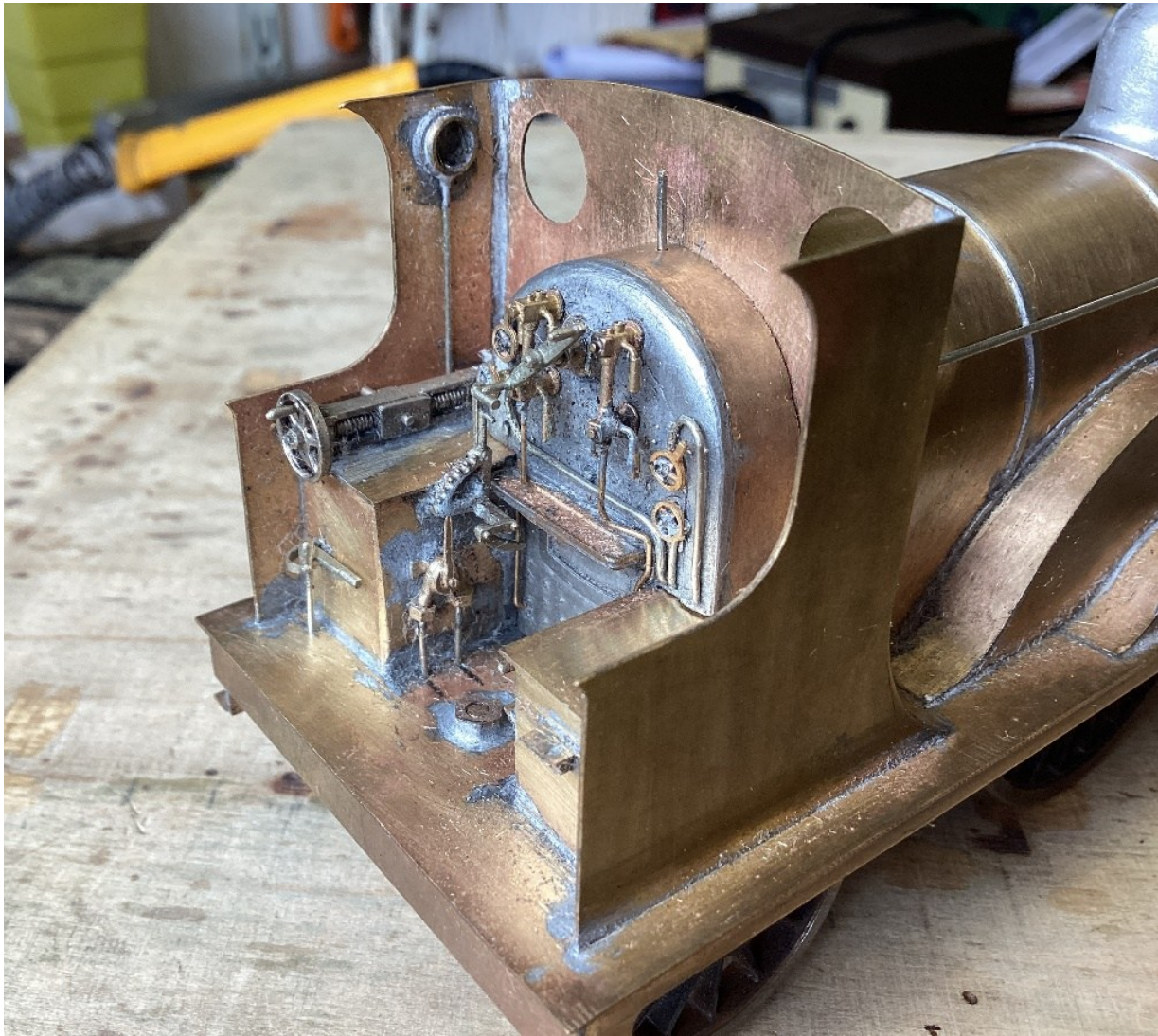




The footsteps were cut out from scrap brass and weren't the easiest of items to make. The fronts were cut out first as per the drawings. More scrap pieces were then soldered onto the back leaving a 2.5mm high recessed area that is located behind the valance strip for a flush finish. They were then re-profiled again to match the front. The treads were 1.5mm x 3mm 'L' angle.

The long reversing lever was made from a strip of 0.5mm x 1.5mm n/s strip, as is the vertical lever. On the bottom of the lever, a 0.8mm n/s rod is soldered in place which in turn passes through a 1/16th brass tube soldered in between the two splashers. The long strip passes through a small slot drilled out in the spectacle plate and is made to be removable.





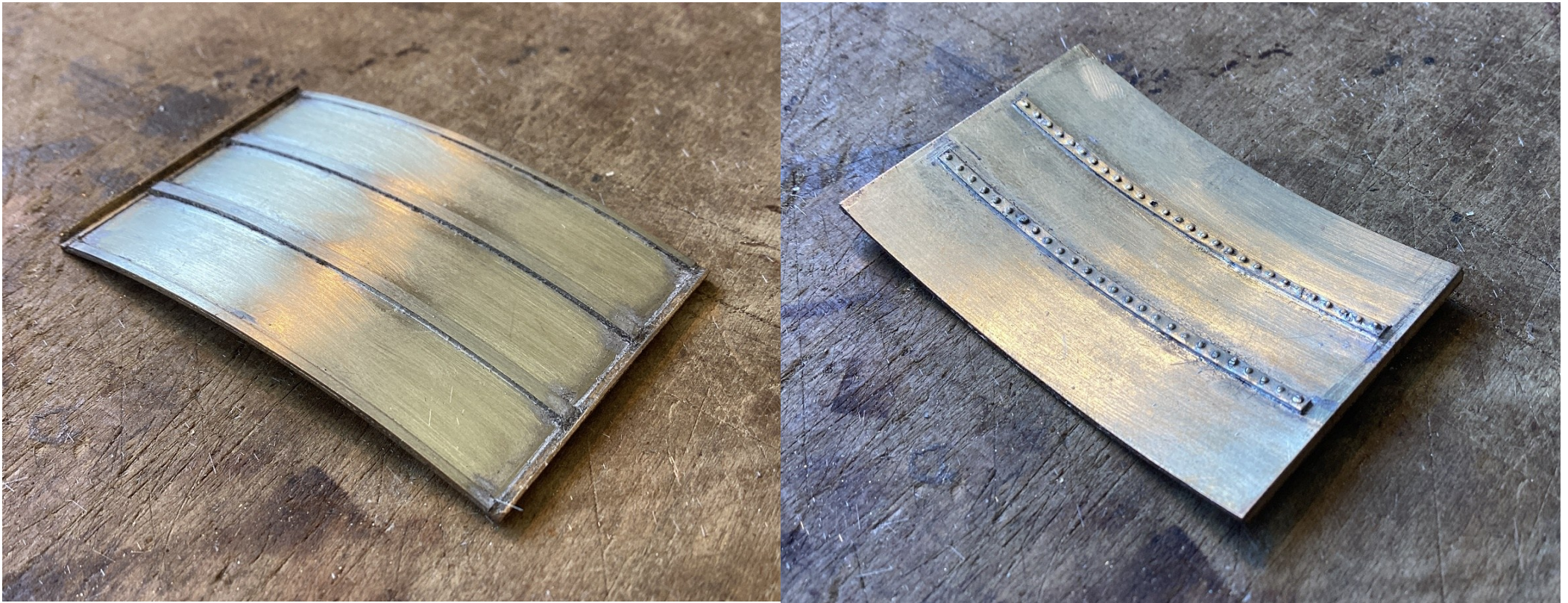
The interior of the cab has made use of the excellent lost-wax castings supplied in the kit which are exquisite. Almost all of the castings were used in this tight space. They included the reverser and wheel, brake pump steam cock, forward sanding lever, fire door lever, sight glasses (x2), regulator, and an oil box. All were fed by 0.6mm, 0.7mm and 0.8mm diameter brass and n/s rod pipework. I enhanced it more by adding some tiny etched hand wheels ([Martin Finney](#) Ref:M2). All were temporarily fixed in their respective positions. There was just one item not in the pack (in the list of items but not in the box) which was a grate lever which I made from scrap n/s. As there was no room for it in its correct position on the side of the lefthand splasher box, it is mounted on the side of the right hand one. I also

had to put the oil box on the front instead of the side for the same reason.

Lastly, a pair of gauges were made using $7/32^{\text{nd}}$ (inner) and $1/4^{\text{th}}$ (outer) brass tubing with 0.6mm diameter brass rod for the pipes. The left hand one is a pressure gauge, whereas right hand one is a speed indicator.

The cab roof was made from a piece of hard 20thou (0.5mm) n/s sheet, cut, then rolled to the spectacle plate profile. The sides then had two lengths of 1.0mm x 1.5mm 'L' angled strips soldered on. The end beading strips are 1.0mm x 0.3mm n/s whilst the slightly wider middle ones are 1.5mm x 0.3mm n/s strips.

As the cab is 'open', I added two riveted strips (again 1.5mm wide x 0.3mm) on the underside which correspond to the position of the top ones.



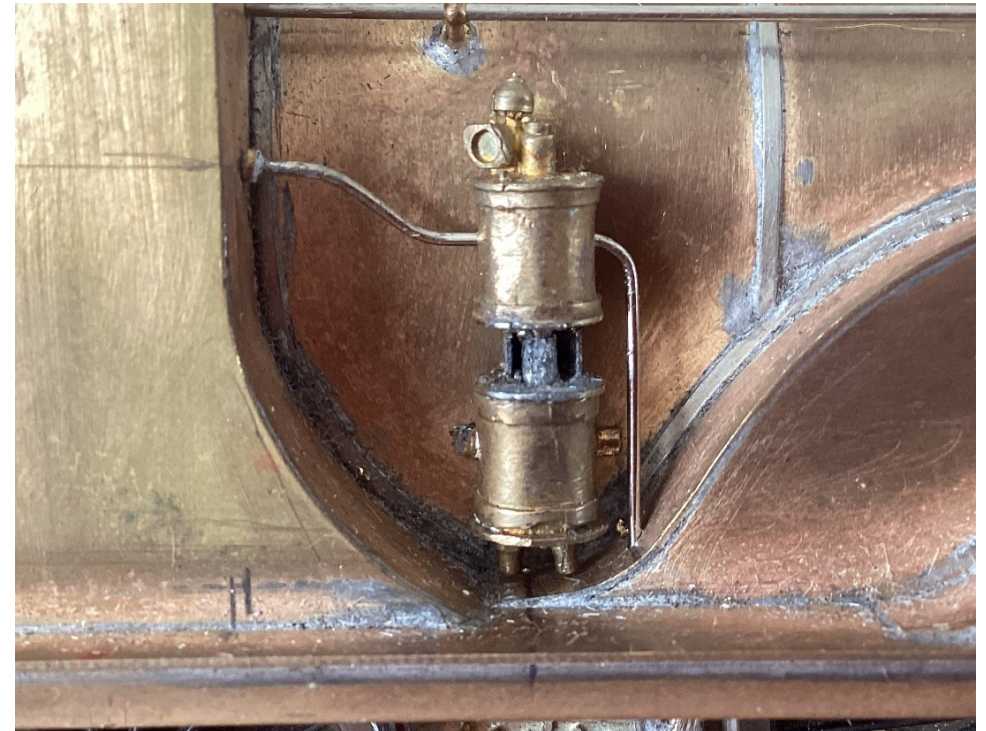


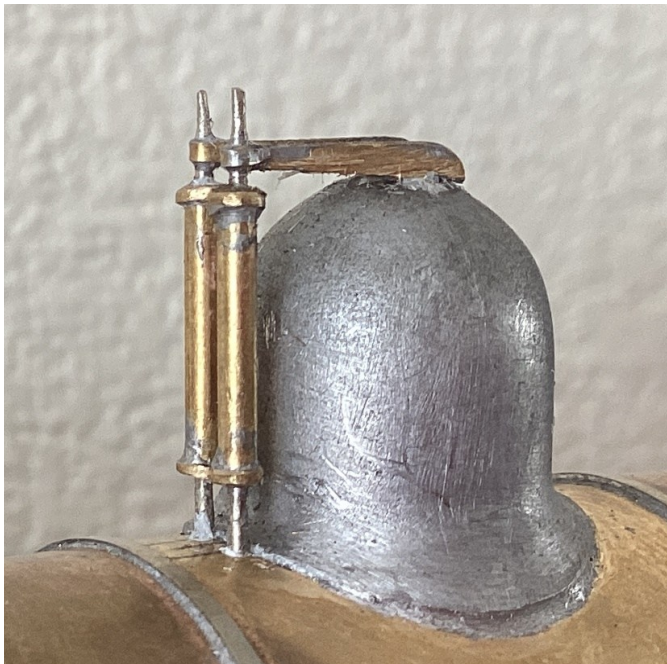
After the cab roof was soldered on, the beading strips were tackled next. This is another pet hate of mine in that they are a pig to pre-bend to shape let alone fit. There were a pair of 2.0mm wide (brass) beading strips on the etch which to me look a bit too wide, so I made my own from 1.5mm x 0.4mm n/s strip. Bending them to the cab opening profile took ages for a tight fit. At this stage they were over long (top and bottom) for trimming back later. Tack soldering at first, they were gradually soldered in position.

Now came the tricky bit, drilling out the holes for the vertical grab rails (0.8mm n/s rod). Very carefully lining up with aid of a T-square, the hole positions (roof, beading end, and footplate) were marked then

drilled out. They must all line up perfectly.

The Westinghouse pump is another Laurie Griffin lost wax casting (Ref:32-002) and the same ones fitted to the other locomotives in the range. The top cylinder is 'D' shaped in profile that has to be 'rounded off' (on the rear) before the two halves were soldered together using the higher (stronger) melting Carr's Speedy Solder. Bits were cut off it to make it look more like the LB&SCR style ones. Holes were drilled out for the piping (0.7mm n/s rod). It is designed as a 'slot-in' unit via two pegs so that it can be removed easily for painting and lining.





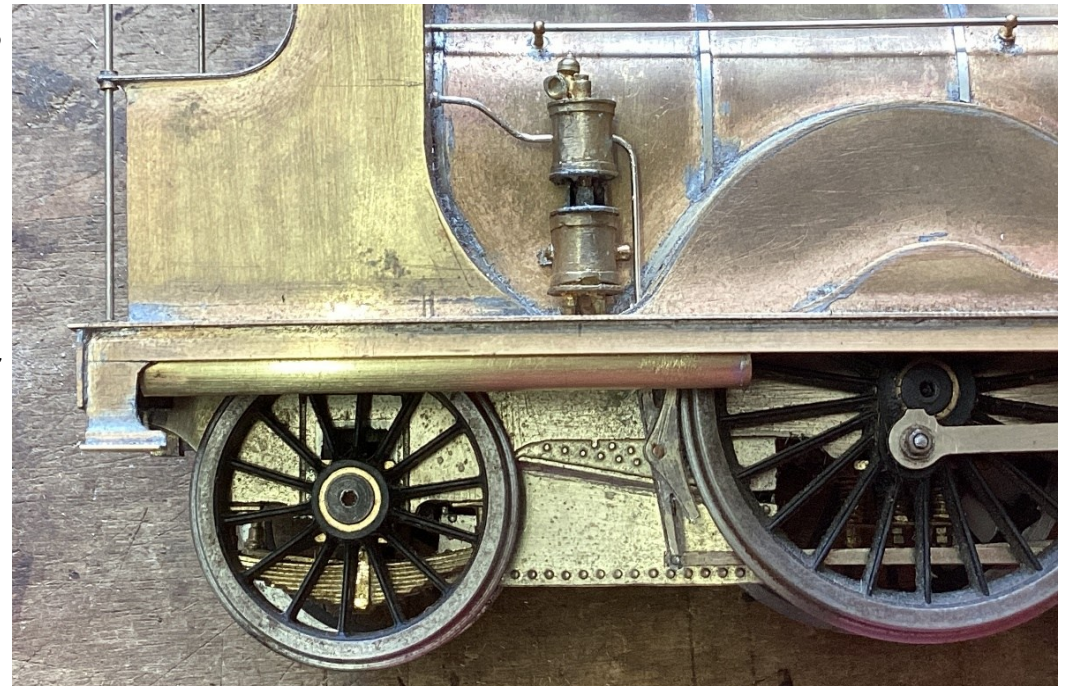
The chimney and dome were soldered on using Carr's 70 degree solder then cleaned up as shown.

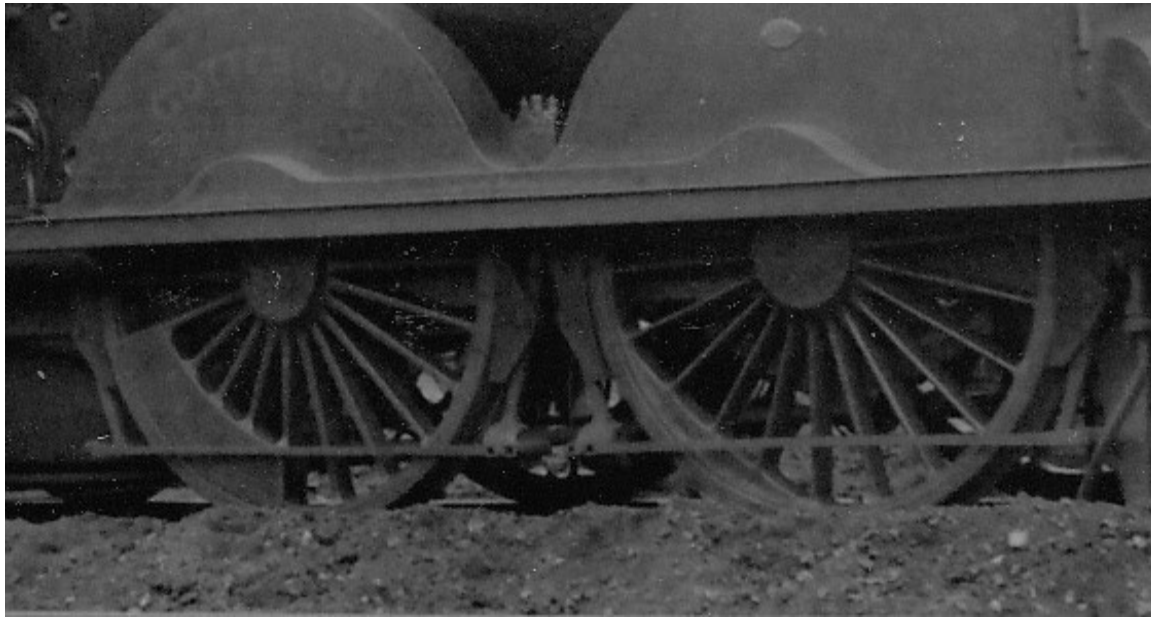
The Salter safety valves were scratch built using the two lever etches from the kit. 1/16th brass tubing (slightly reduced in diameter) was used for the main body. Small 0.5mm high rings of 3/32nd brass tubing were then soldered on to the ends. 0.8mm n/s rodding was then soldered in place. The foot of the valve was kept at 0.8mm (for strength), but I reduced the tops down to 0.5mm, then soldered on the levers.

Their respective holes (two on the boiler and two on top of the dome) were marked on then drilled out. With a little bit of elongating of the holes, both are perfectly aligned.

One item in the bits-n-pieces in the box of bits was a white hollow tube. Initially, I thought it was put in there by mistake. Having re-read the instructions, it is for the brake vacuum tank arrangement. The tube is located on the right-hand side of the locomotive behind the valance.

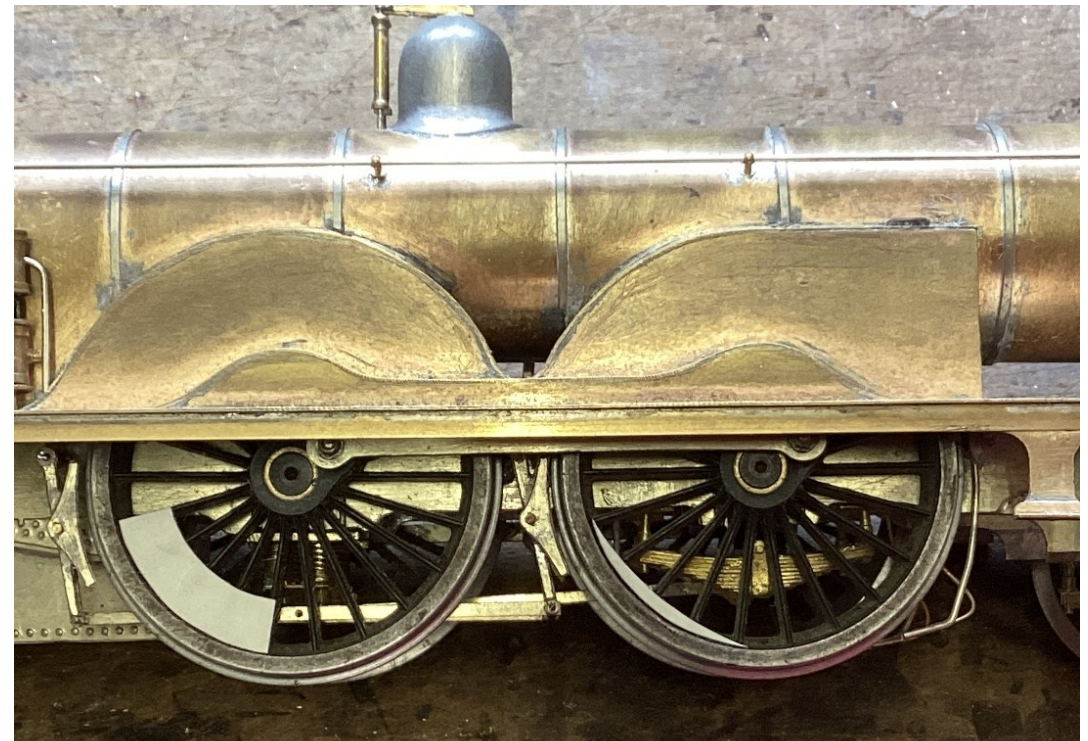
Instead of using the 3/16th (4.5mm) diameter styrene tube supplied, I used the same diameter brass tubing instead. After cutting it to length and placing it into position, I found the wheel of the rear axle fouled the back of it, so half of the tube was removed. From a normal side-on view it is hardly invisible!





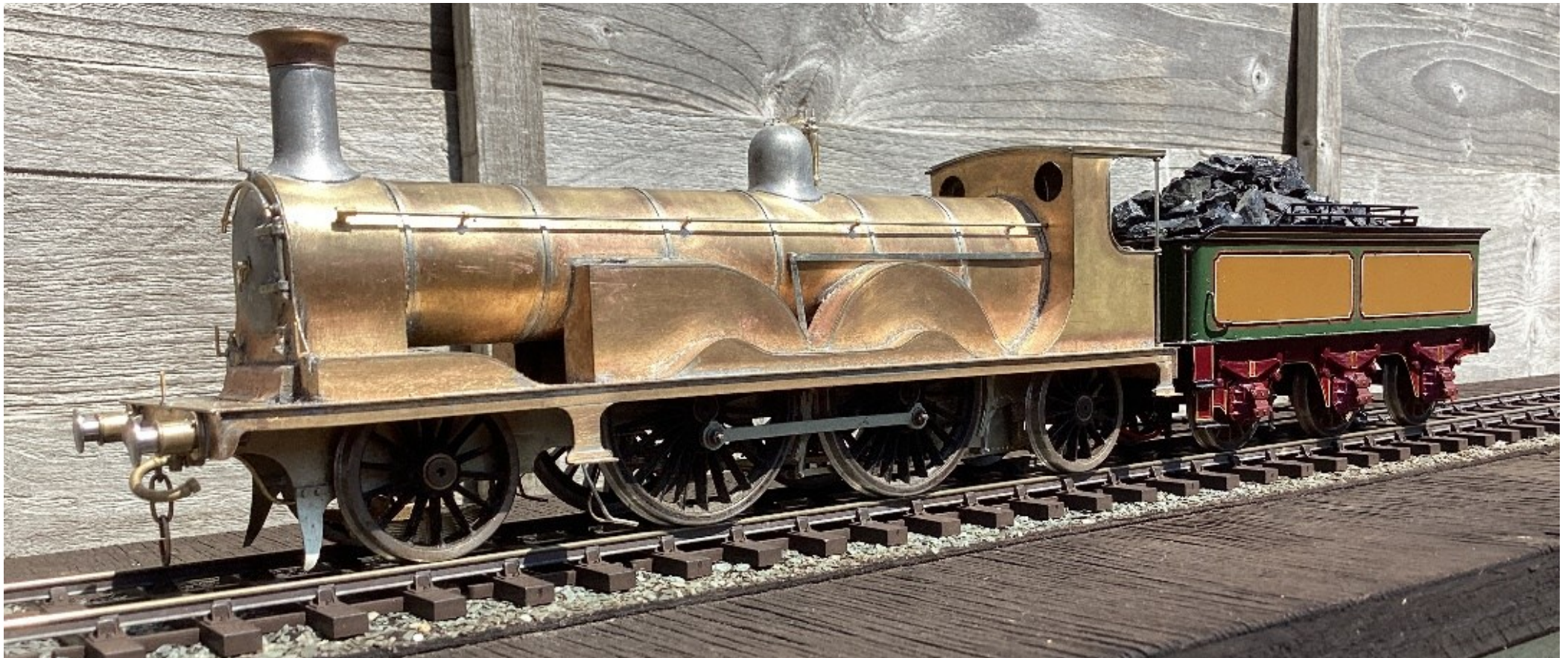
Mike has chosen the model to be painted in the latter years of Engine Improved Green livery period up to 1905 when Marsh's Umber livery was introduced. Being this late, he wanted the 'later' style of front driver balance weights fitted as depicted in the photo to the right. The rear driver weights were original and unchanged, whereas the front driver weights (that originally covered three spokes) were changed to the small crescent shaped variety.

In the kit, every style of etched weight is covered. Wanting to use them as 'templates' only, I scanned them in and printed them off in 'black ink' to 7mm scale. I then stuck them onto 10thou Plastikard and cut them out. Matching their position from photos was not easy. In the end, all I had was a handful of clear views to go by. There was a lovely left hand side view drawing which clearly showed the position of the rear driver weight. The front weight was mirror imaged from the right hand view.



Taking full advantage of the sunny weather, the last pair of photos show the locomotive 99% finished (still to add were the balance weights and vulnerable cab roof whistle) running on my garden railway and it looks splendid. As mentioned, it is virtually scratch built with only a handful of bits from the kit.

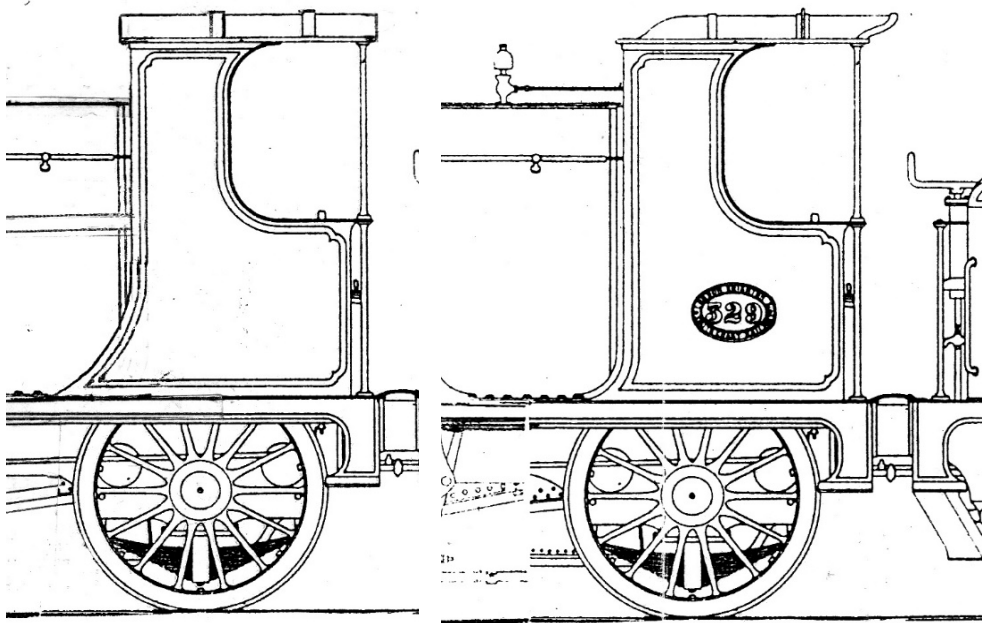
For the test run, it has a borrowed tender from my B2 Class No.209 'Wolfe Barry'.





The “Oh bother” moment

Having successfully handed over Mike's 'Super Gladstone' 2-4-2 to him, both he and I were happy with the model. Then, on another visit, it became evident that there had been confusion in the drawings to which I had been working. A different drawing, which Mike should have given me, showed a Stroudley type cab roof. It also had a different cab side, from a G Class 2-2-2, and a



slightly different tender. The drawings illustrate the difference between the two styles. Fortunately, Mike was happy to keep the arrangement of the sides, but we agreed to rebuild the roof.

Unsoldering the roof took quite some time, while trying not damage the cab and beading strips too much. In the end, with gentle persuasion of my soldering iron and the tip of a scalpel blade, it was slowly removed. It was inevitable the cab side beading strips would get damaged and bent, but with carefully re-tweaking, they were straightened.

Next was to file away the curved roof profile of the spectacle plate which was relatively easy.

A scan of the cabside/roof was printed off to 7mm scale, which matched the dimensions on the model pretty well. The Stroudley style roof is a complex shape to model successfully. The front curves downwards to a horizontal front edge, with a shallow domed top. As no cast white metal roofs are available, this had to be built from scratch.

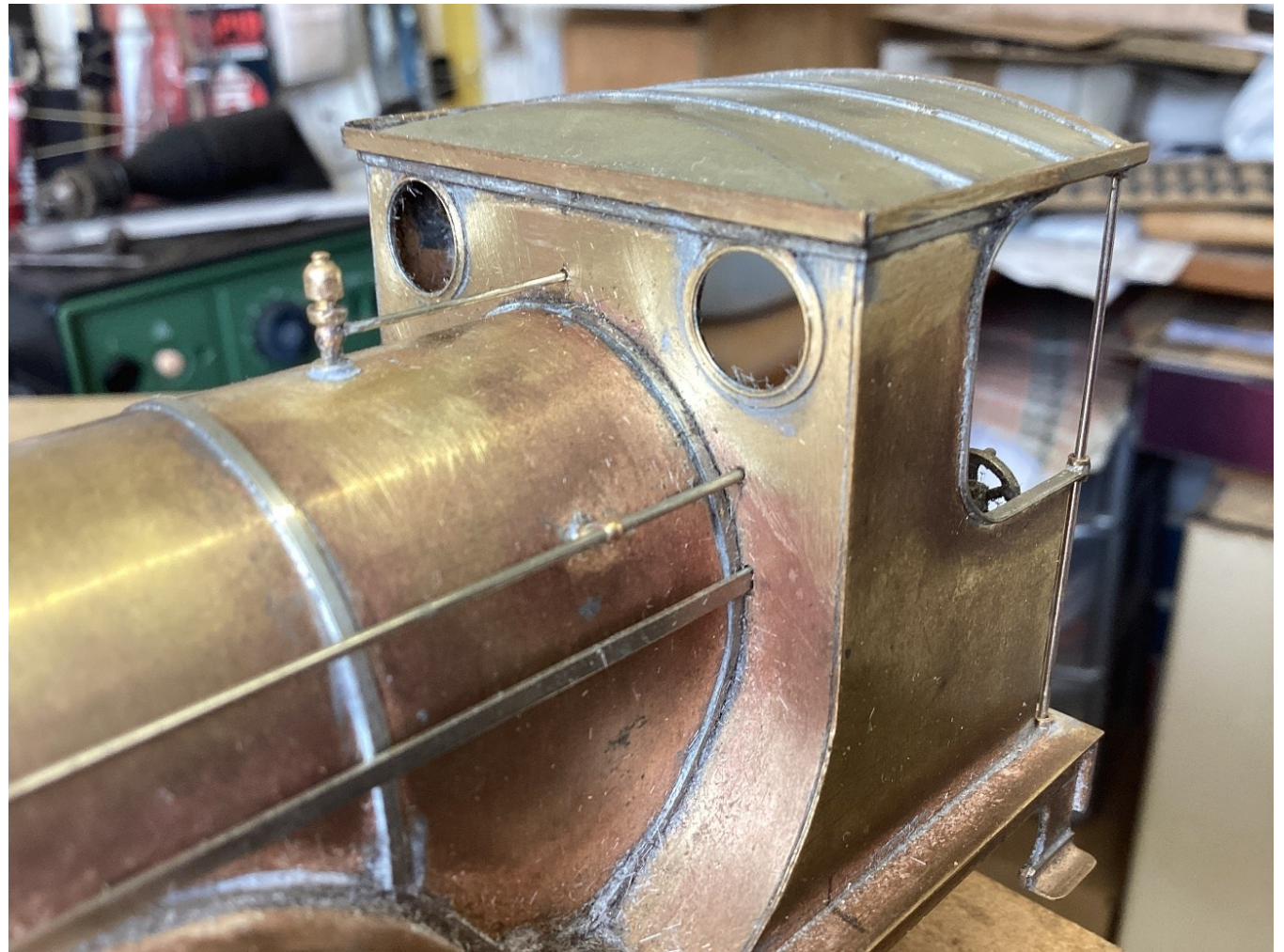
From the outset, I wanted to construct the new roof as a 'complete unit' which could then be soldered straight onto the cab. In the end, I plumped for the same design as used in the Albion Models in which the curved roof sits within a 'U' shape former of 'L' angled brass.

Several roof drawings were done to create numerous cardboard templates. Once curved, it took some time getting the overall height correct to match the drawing.

With the new roof soldered on, 1mm wide n/s strips were then added on the face of the cabsides and spectacle plate which weren't on the original drawing. Also absent were the two window spectacles. Fortunately, there were some spares in the kits bits-n-pieces.

The whistle was removed from the old roof and re positioned on the boiler (15mm out from the spectacle plate). The very thin pipe is 0.6mm brass rod.

With very careful measuring, two holes were then drilled in the roof for the two vertical grab rails which were re-fitted. Being a tight fit, they can be removed if damaged.

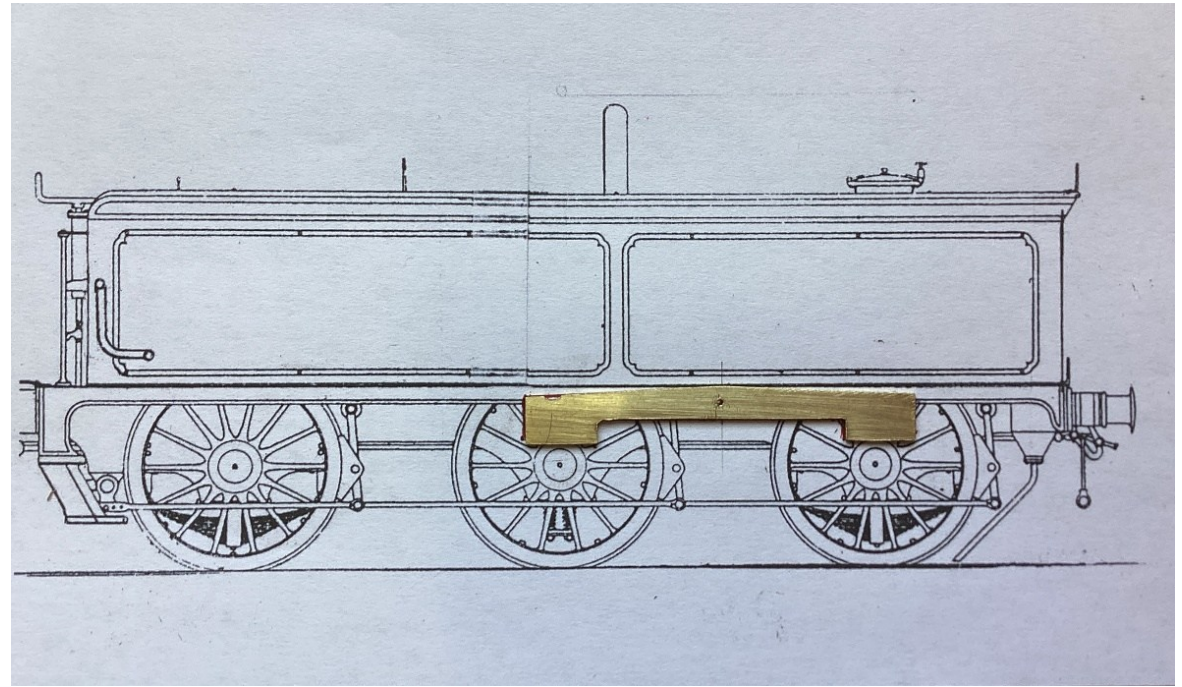


The Tender

The typical Stroudley tenders supplied with the kit, with the angled front footstep and toolbox on the rear, were used with the B and G class 2-2-2s, C class 0-6-0s and the B1 Gladstone class 0-4-2s and were all pretty much identical. All could carry 2 Tons of coal with a 2250-gallon water capacity. They were 22' 6" long with a wheelbase of 7' 0" + 7' 0" and ran on 14 spoke 4' 6" wheels.

Mike decided to keep the overall length and wheelbase unchanged, so the drawing shows the compensation mechanism designed for the running gear.

However, he decided to remove the toolbox altogether and extend the tanks further back. To match the width of the locomotive footplate, it was also necessary to increase the width of the tender from 53mm to 57mm. This meant that I needed to design my own footplate, using cardboard templates to get the right clearances. I then marked and cut it out in hard brass, using the same process as described for the loco.



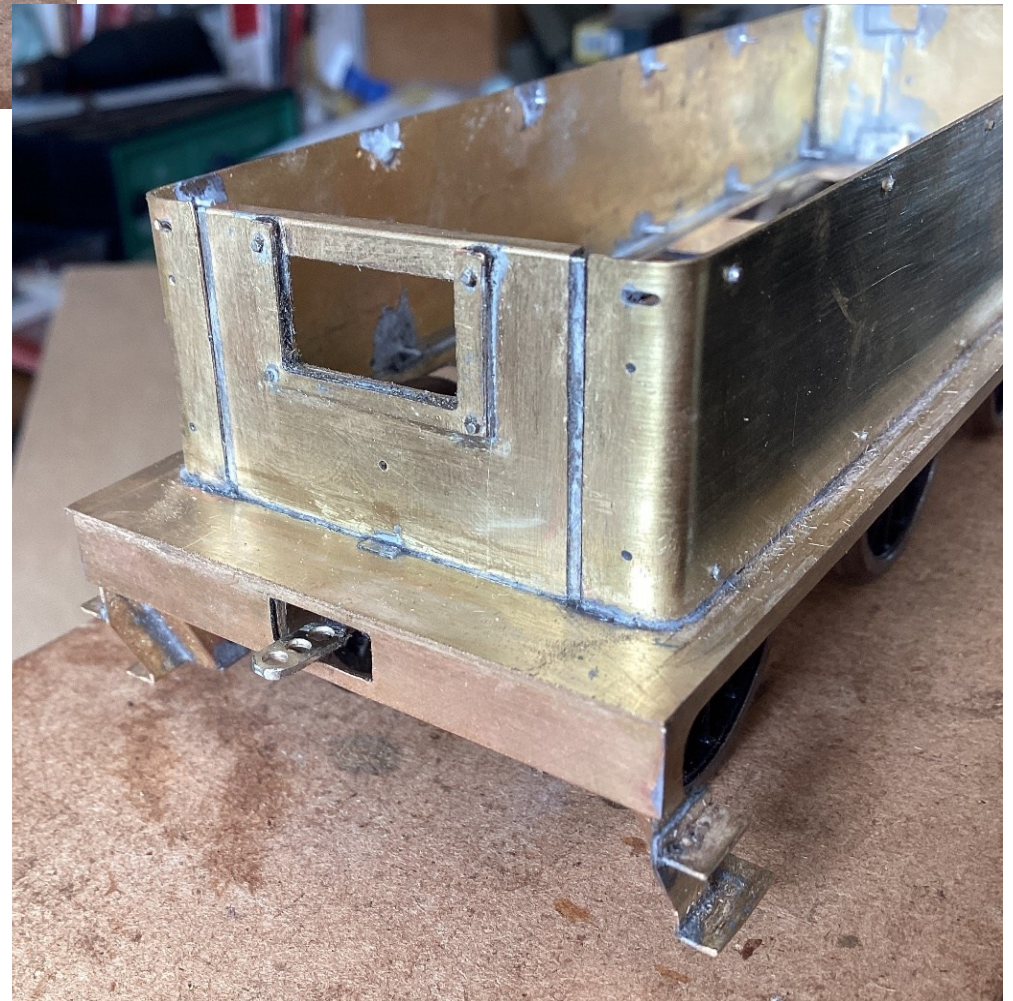


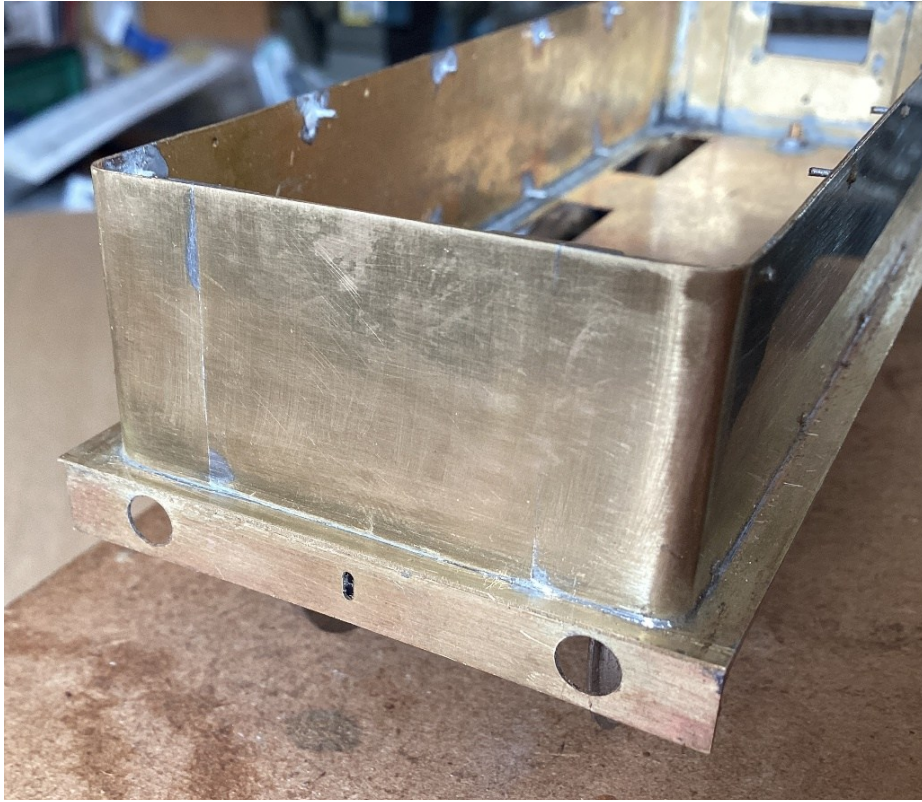
With the toolbox removed, the overall length of the sides increased from 142mm (20' 3") to 149mm (21' 3"). Wanting to use the existing side tanks from the kit, the rear had to be extended with a scrap of brass.

Looking at the GA drawing of the tender, the sides are 4mm (8") in from the footplates edge, leaving a gap to fill.

When offering up the tender front, it too was too narrow by 3mm. I simply soldered on two rear vertical extension pieces either side of it and soldered it in place. The gaps were then packed with 1.5mm wide brass strips.

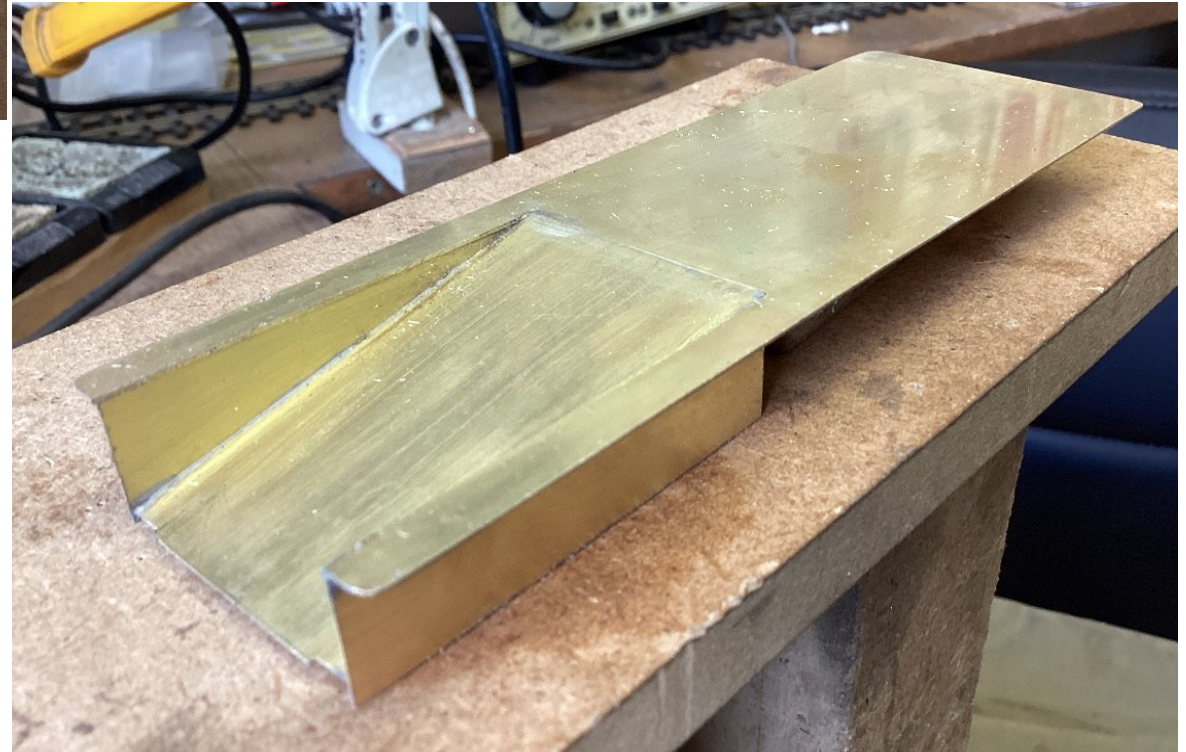
The tender front was built up from the kit. The 'U' shaped surround around the opening was built up in layers to accept the coal door.





The rear panel in place, with the joint for the additional panel invisible. Note the top row of rivets poking through with solder blobs. All would be hidden by the top plate.

The top plate with coal chute from the kit was too narrow and too short, so this had to be scratch built.

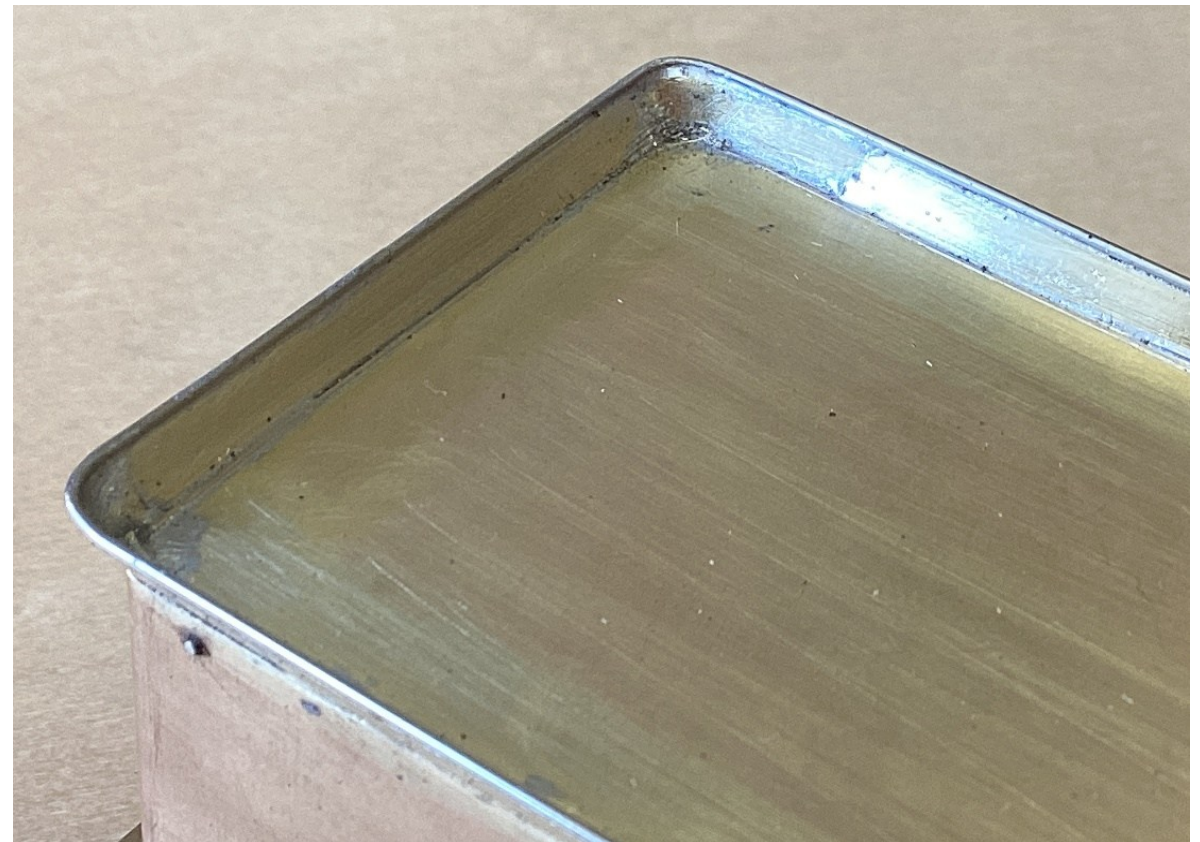


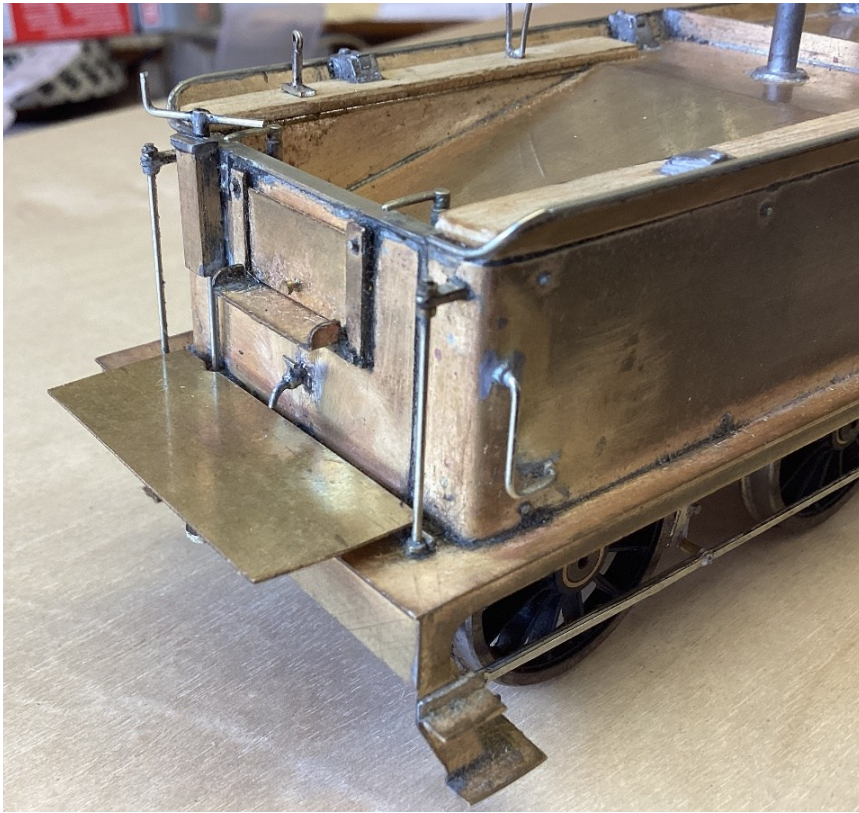


With the top plate soldered in position, the copings were then fitted. I used the ones from the kit, but they were cut up and botched to fit, adding extra strips here and there, and made good.

I devised a simple Plastikard jig to set the angle of the coping, cutting it to the angle on the GA. Each strip was first tack soldered in place (on the back) using the 'jig' as a guide.

A cruel close-up, showing the snug interface between the top plate and coping. Any slight gaps were filled in with solder and smoothed off. 0.8mm n/s rod was used for the beading strip around the top. Again, these were tack soldered in place first, before soldering proper.





The cast w/m brake standard body was replaced by a brass one (to the same dimensions), so that the shaft of the handle could pass through it. The shaft then goes through a drilled-out hole in the footplate down to the linkage below.

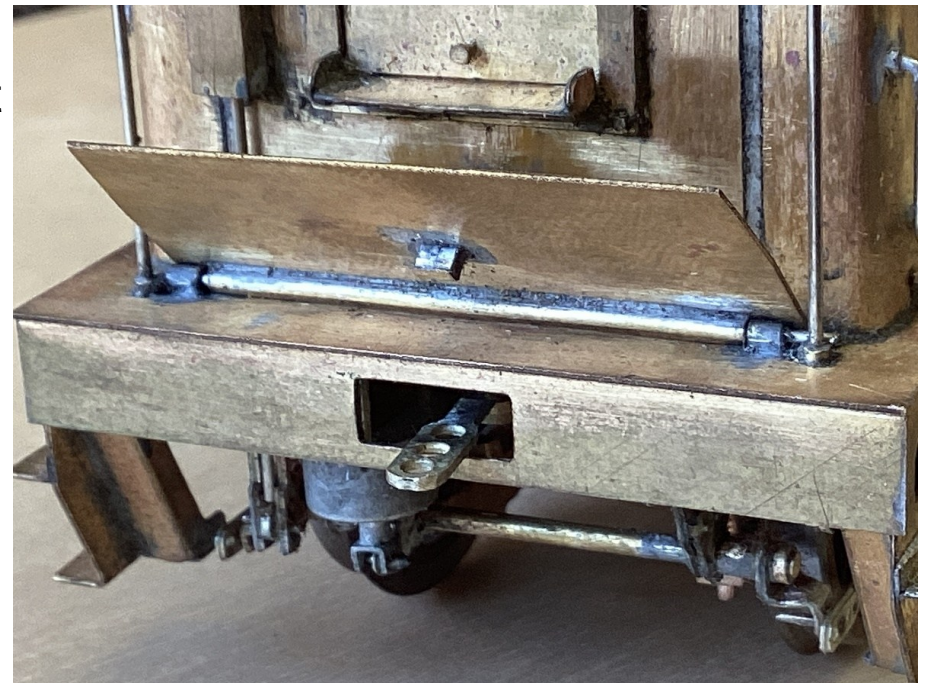
The door and shovel plate have been fitted. The door is a snug fit and can be slid out as intended.

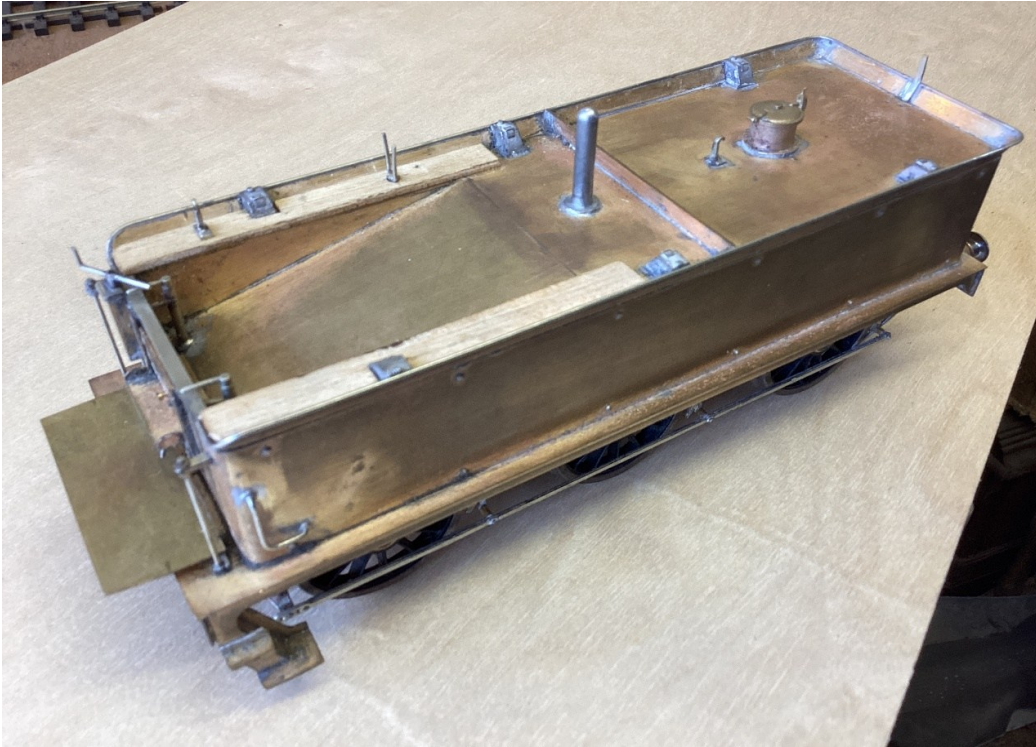
Grab rails (0.8mm n/s rod) have also been fitted via the handrail stays (from the kit).

Note also a small tap (not in the kit) underneath the shovel plate which was made up of various bits-n-pieces. No doubt on the real locomotives, a hose would be attached so the fireman could hose down coal dust.

Lastly, I made a fall plate. It should be much narrower and curved, but it looked a bit silly being far too high with an oversized working hinge. The wider one looked much better.

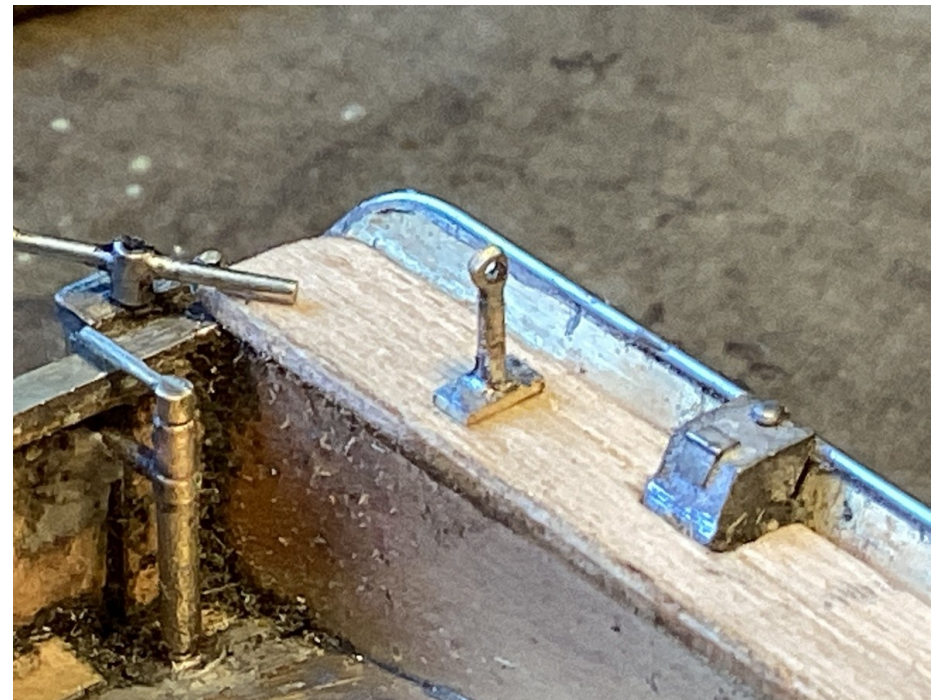
A close-up showing the working fall plate's hinge arrangement using 1/16th round brass tubing. Two small end pieces (3mm) were soldered in place on top of the footplate. 0.7mm n/s rod is threaded through the long tube and is held in place behind the vertical grab rails. To keep it level a small rectangular block was soldered underneath.

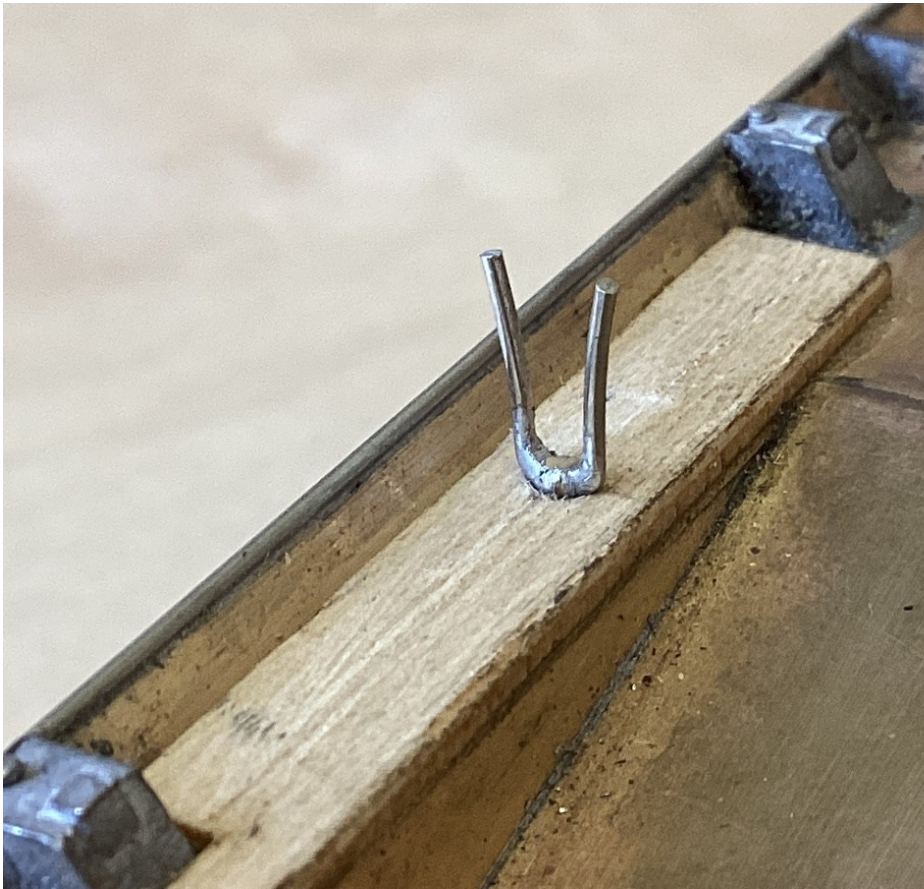




The top was completed with parts from the kit plus the addition of the spike and fire iron yoke.

In the kit, there was a very nicely cast lost wax spike but sadly, there wasn't a fixing rod on the bottom of the base to secure it to the top of the wooden plank. With one slight knock, it will be lost forever. After considering various options, I made my own spike, using part 9e in the kit. A rectangular base was made and soldered in place. The rod passes through the wooden strip down through the tank, exiting the bottom of the footplate. It is held by a dab of solder. No glue is used. If it does get damaged, it can be unsoldered, repaired, and re fitted.

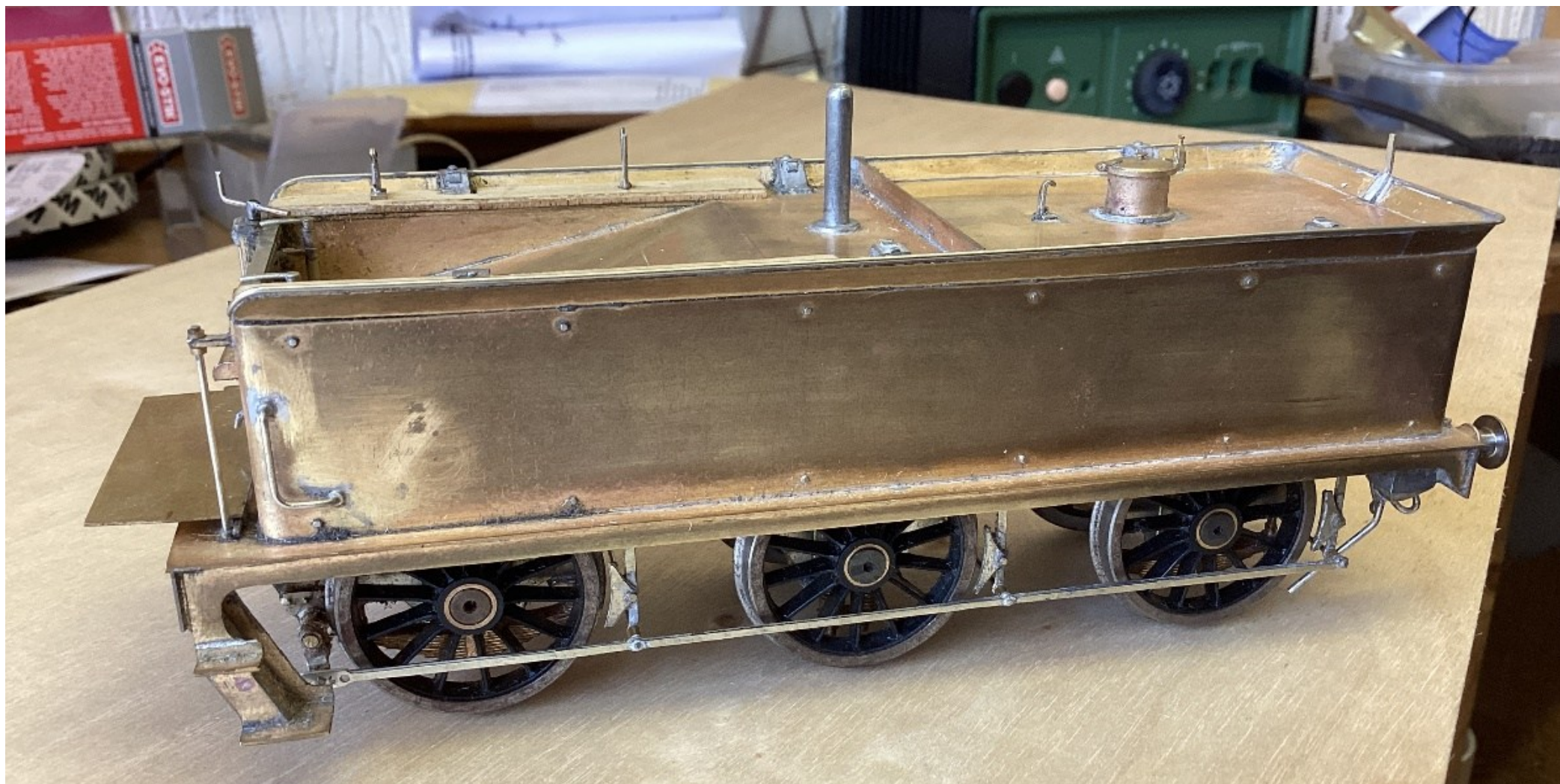




The same method applied to the fire iron yoke, which was made from 0.7mm diameter n/s rod replacing the two, thin brass etches in the kit for strength. A larger diameter 1.19mm n/s rod was used which had a 0.75mm hole drilled near to the top. When soldered, I filed the rod to a round shape. Again, no glue is used. At the time of taking the photo, for health and safety reasons, the ends had not been filed to a point!

The rather thin etched lamp irons were replaced by [Laurie Griffin](#) LB&SCR lost wax ones (Ref:17-016) along with a screw coupling (Ref:9-011). Being vulnerable, the top lamp iron is made from slightly thicker scrap n/s strip. The vac pipe is from the kit and is lovely, as is the water filler which can just be seen.



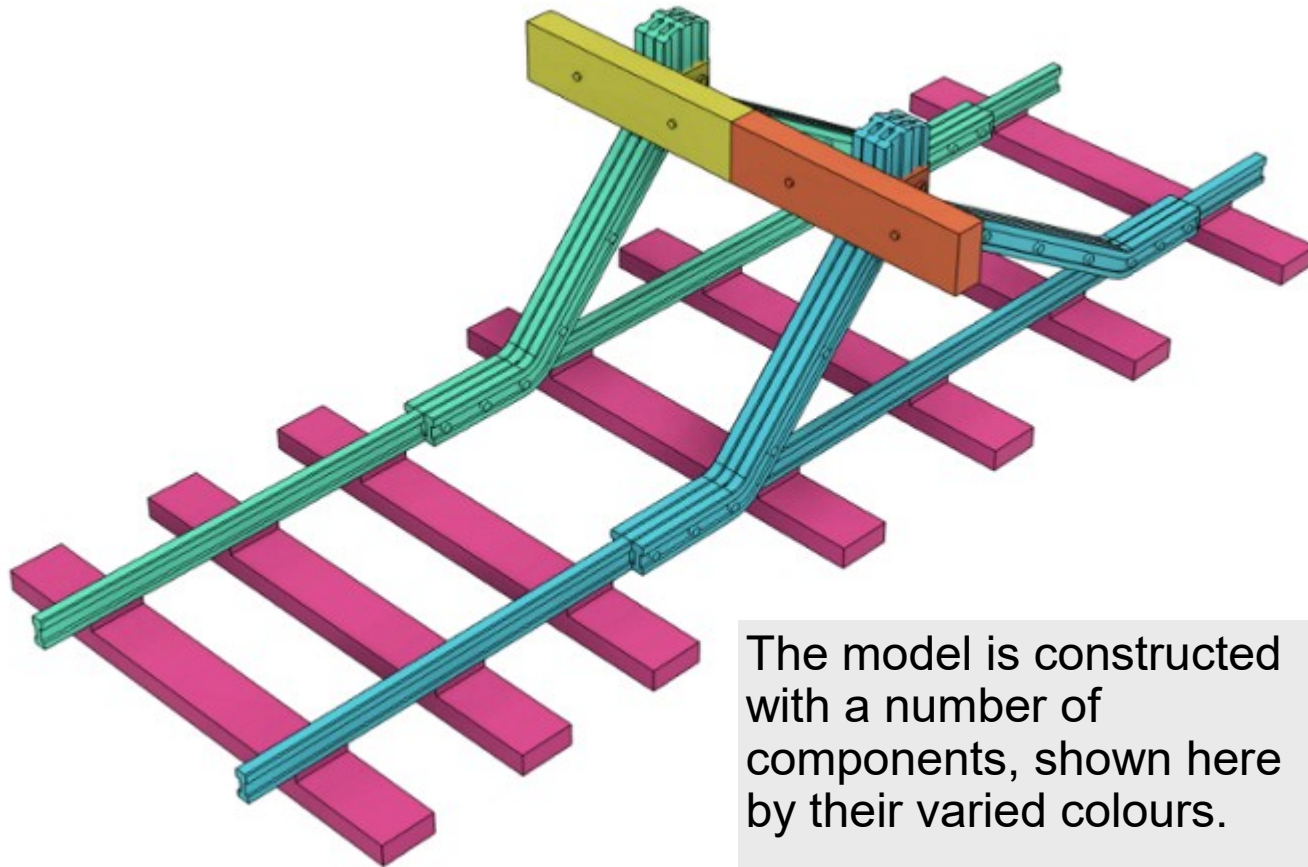


Brighton Buffer Stops

William Ayerst

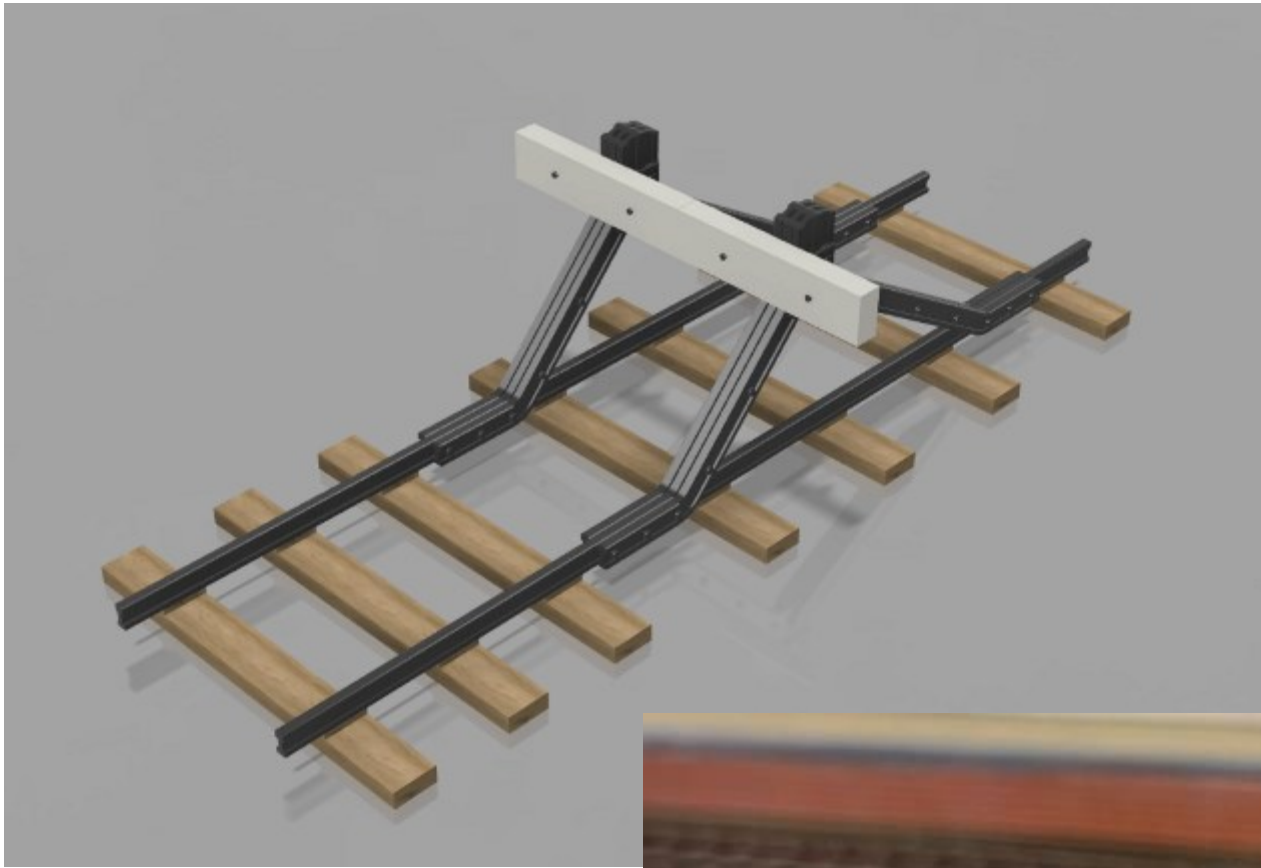
LBSCR Buffer Stop

The LBSCR settled on a standard stop-block design fairly early on in the mid-late 19th century, superseding a variety of wood-built offerings. Though Ragstone Models offer a 7mm version of this bufferstop, I am not aware of any other kit or ready-to-plonk products.



The model is constructed with a number of components, shown here by their varied colours.

Upon commencing research and reading the [LBSCR Modeller's Digest Issue 0](#), in which Phil Taylor has a construction article, I found the drawings produced by John Talbot-Jones in 1975. These are perfect fodder for 3D modelling, so I embarked upon that journey to see if I could produce them for my layout Brighton Trafalgar.

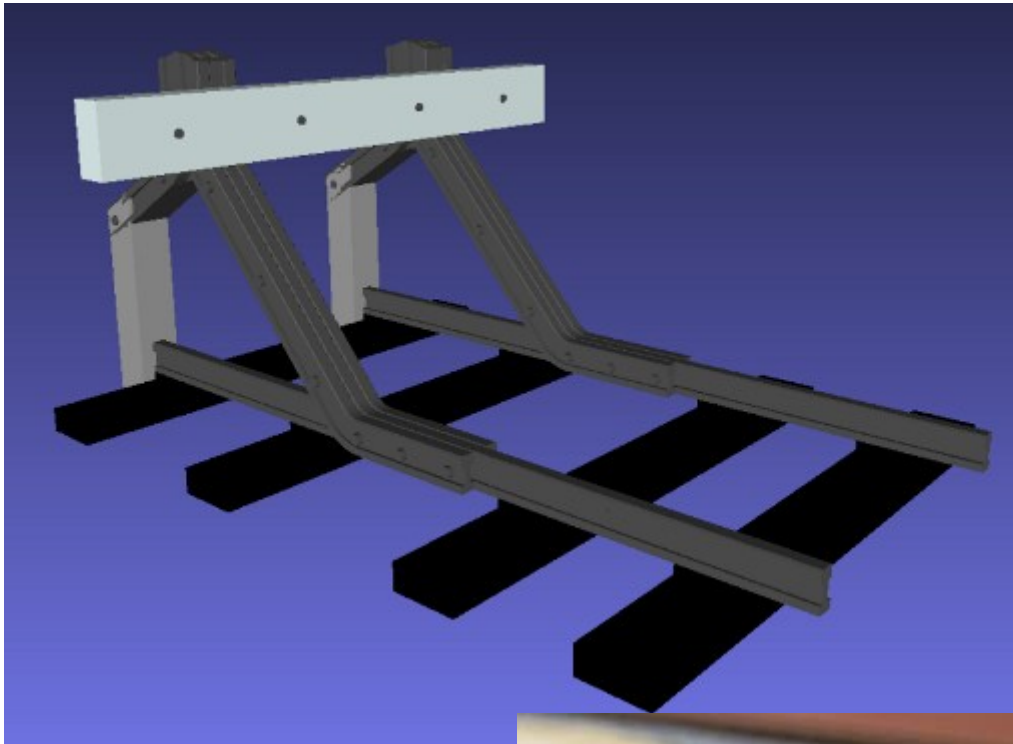


The model is built to real life dimensions and so can be printed in any scale and there is a parameter to adjust the gauge for non-scale track widths such as 00 or Triang-TT.

I have chosen not to model the chairs holding the rail in place, these being easily available off-the-shelf components.

The initial print was successful with no islands, but, without any supports, there was a splintering of the lower face of the buffer beam and the rail underneath became wavy.





The platform-end buffers at Brighton Trafalgar are to the design shown at Central Croydon, which shows them being laid in slots in the masonry of the platforms. In order that these can be represented, I produced an abbreviated version of the same design that can be inserted into holes in the embossed styrene faces, but not so long that a significant excavation is required.

William's blog, describing progress on the project, can be opened [here](#).



Photographs and images copyright William Ayerst

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Off to the Races

John Shaw

PROTOTYPE

No. 77 Class A1 0-6-0 Terrier from the 7th and final batch of the class, entered service in June 1880. Not withdrawn from service by the L B & S C R, but by British Railways in 1959, she achieved 79 service years. She was one of the first two rebuilt to class A1x in November 1911 and was then sent to work from Tunbridge Wells Shed, without the former name 'Wonersh', but with a new, much inflated number, No. 677, indicating duplicated status. Surely, the 'Brighton' never had that many engines 'in service' at any one time? Gone also, was the Stroudley 'IEG' livery, to which the 'Terriers' were admirably suited, to be replaced by D.E. Marsh's two-tone umber version, fully lined out and with gilt-transferred letters and numbers. She looked quite at home in this version too, but it was not quite a total change from the 'IEG' version, in that the lining out included Marsh's pattern of reversed corner. Lettering was in gilt, blocked black to the right and below, with N^o 677 on the buffer beam. The cab roof, remaining white, could be left untouched. Builder's plates and number plates disappeared, but the Stroudley chimney was retained, as it did not look out of place on the extended smokebox, on its new saddle. There was now just a plain splasher, not the integrated sand box/splasher, but an elegantly-designed, globular lubricator to the fore of it. The dome on the new, enlarged boiler (3" longer) was slightly advanced, but, thankfully, the elegant Salter safety valves were retained, as was the single brass whistle, the Stroudley pattern roof, large pattern spectacle plates with their brass rims and wooden tool box across the outer base of the coal bunker plus a cage bunker extension, filling in

75% of the remaining height to the cab coping. As 677, the loco was refitted with its condensing gear with the external tank cladding protecting the paint from hot water damage; the rivet patterns, especially the corner ones, provide excellent geographical locations for applying the in-curved tank side lining. The buffer beam base line was the location for the Westinghouse brake pipe attachment, but this was not a universal choice for the class, as photographic evidence shows 'tallish' stand pipes being used on N^o 650, ex – 'Whitechapel' of 12/1876, from the fourth-built batch. The Brighton' was about to get a very pleasant bargain from these rebuilds.

Could I coax a sound and good model out of an available commercial A1x? It seemed feasible. And, therefore, to the modelling details!

MODELS

I had long been studying the photographs of 677 in both Handel Kardas's and Klaus Marx's books, checking out whether such a conversion was possible and I concluded that it was feasible. The usual annual visit to North East Essex Gauge 0 Guild's Autumn gathering two years ago gave me the chance to purchase a finescale Dapol A1x, kitted out in pallid IEG and, named 'Brighton Works' i.e. ex-N^o 35 'Morden', the first of the sixth batch, which entered service in June 1878.

The deconstructive phase now followed:

- i) all the vacuum brake fittings were removed, as gently as possible, and some subsequent holes filled in;
- ii) where required, the IEG livery was dealt with, the lettering and numbering were erased completely using fine emery paper, the IEG was flatted, using even finer emery paper, with the exception of the buffer beam, the lining parts being treated exceptionally gently. De-construction had now finished.

Constructive updating could now begin, progressing clockwise around the loco:



The Fireman's side.

Although this was the second side to be dealt with, it was the more difficult, as the Westinghouse brake and paraphernalia, plus the tank top provision of fire irons had to be considered. I made and fitted the fire irons, along with the recently out of use coal shovel and sorted out the pipe

work. You couldn't just apply the new paint, as the parts of the model were washed in 'turps' by brushing over and allowed to dry overnight. Next day the first thin coat of umber was applied as and where needed and was left to dry. Before lining out and lettering could begin, a darker brown paint had to be found. A very clear image of 673 (ex- Deptford) (Kardas p.30) just about proves that the borders were darker, but it was unlike the very dark chocolate brown that 'Birch Grove' received when the Bluebell Railway gave her a full restoration (Wisdom p.32). So a paint search began!

I thought I had achieved success when I happened upon [Sennellier's N° 205 'Terre d'ombre naturelle'](#) (Raw UMBER), described as an 'abstract innovative acrylic'. It is applied with a brush, which has been dipped lightly in clean water; you have to work with it quickly and accurately. Once I had the last of the three coats of body umber applied, varnished and dried hard, I could start work with the French paint. The two largest areas to cover were the curved sections of the tank tops and the splasher tops; all the rest was narrow edging. The results were both very interesting and pleasingly subtle. Painting was done in such a manner that the colour boundaries would be hidden beneath the lining. The French paint gave a strong matte finish, which had to be varnished. I had to be very careful and not let any of the acrylic run onto the main body brown, as that would dull the already applied varnish and main body umber. The new pipe sections for the restored condensing gear were made, fitted and either varnished or painted.

I then checked to make sure all of the pallid IEG had been eradicated by the body umber, especially the wheels, with their many 'nooks and crannies', not forgetting the rears of the spokes and the balance weights, whilst also ensuring that no paint was left on vulnerable areas, and also protecting areas to be varnished which hadn't been so treated. All was now left to harden off for two weeks.

Lining and lettering could now begin, starting with the tank sides. With guidance from the rivet heads, top and bottom lines, along with their in-curved corners, were applied and checked, followed by the two verticals, with the aid of a miniature set square.

Next, I dealt with the cab side sheet, with its attendant Westinghouse brake pump fittings, plus its additional effects upon the background of the forward cabside sheet. Answer: the pump was supremely dealt by the Paint Shop gentlemen, who just lined it fully. As for me, I eventually succeeded. In Stroudley's days of IEG, Westinghouse brake pumps were apparently treated like royalty, with a multi-coloured pattern of distinction. The new era paint scheme was not plain umber, but quite elegantly restrained, plenty of brass to the tops of the two cylinders plus lubricators and copper piping to please the eye. Two gilt lines were applied at the top and bottom of both cylinders. N. B. The pump rodding from the lower cylinder to the upper one was steel and has been so rendered on the model. In true Stroudley IEG times, the IEG itself had a tendency to blister and come off in zones where it came into contact with great heat and or very hot steam. Several quite large zones were affected, which despoiled the whole livery effect; plenty of photographs show this. However, with the new umber version, upsets do not seem to have been so common nor extensive, but I have included some effects on the top corner, where both the water tank, plus the escaping steam from the Westinghouse brake pump could do their work.

Lettering on this side came in two forms, the 'L B & S C R' on the tank side and the shed code on the valence next to the front buffer beam. The latter, 'T-W', was in 1¼" white letters. The hyphen was interesting. By combining the Campbell Cornwell and the Hamilton Ellis list, plus adding in the possibility of Hayling Island (H I), the 'Brighton' had twenty-five engine sheds. Only four had the hyphenated code (E-G, 3-B, T-W, W-C); an unusual 'Brighton' whimsy, perhaps? On the model, the T-W was transferred on the sides, with hand painted hyphens. For the full L B & S C R on the tank side, I made up an accurate scale plan of the lettering in relation to the applied lining. The results don't look too intrusive. The numbers on the cabside bunker section went on last to match up with the Westinghouse pump and the lettering. Changes had certainly occurred to this tank side, but the results were attractive!



The Front.

The eight most evident changes were:

- i) the removal of the vacuum brake pipe;
- ii) the removal of the buffer beam cartouche and its replacement with slimline, sharp numbering and lettering;
- iii) the appearance of a smokebox saddle;
- iv) the investment in taller lamp irons;
- v) the re-installation of condenser pipes;
- vi) the arrival of a set of fire irons;
- vii) four new spectacle plates;
- viii) lining out hassles.

Tasks i)-iv) were all straight forward, whilst v) needed new pipes making/fitting, including getting a nice sheen on the main copper pipes. A fire iron set was made and fitted. The old spectacle plates looked jaded and dirty, so a newly made set arrived.

Lining out had its difficulties, before the cab front pattern was fully confirmed. Once the narrow band of dark French raw umber had been painted on, including at the very narrow tank/boiler cleading band interface, the tank front transfers were fitted. These had to be split vertically and trimmed on the inner edges, worked around the copper condenser pipes and behind the oil boxes/piping. All the cleading bands were then finished.

Viewed from the front changes had been wrought, but the lining patterns were still, essentially, William Stroudley's.

The Driver's side.

Much has already been dealt with, but the following are the salient features:

i) the splashers – raw umber on the tops and umber on the sides, plus, very carefully positioned lining transfers on the face;

ii) full cab side lining on view, with raw umber edging and matched up 'in-curved' corners. Miniature set squares and rulers to the fore.

iii) the valences were unusual in that the lining was split at steps, then both ends curved down to make the side lining of the steps.

iv) inside the cab, matters were attended to, like a complete coal hole, with real coal, also the roof interior was painted white, together with some real wood flooring and seat tops. Finally, a crew arrived from

[Northumbrian
Painting
Services](#).





The Locomotive Rear.

This zone has a far greater density of in-curved corners than any other part of the engine! In total, there are eighteen (18) crammed into this area, with twelve alone, occupying the tool box! Does any reader know of any other pre-grouping company that could boast of a more over-lined rear tool box? In the end, they were all fitted and joined-up.

The last task was to fill up the bunker with some non-miniscule chunks of coal. The Aberdare zone collieries in the central zone of the South Wales Coalfield were particularly known for this high quality, high price coal to power steam engines, so the extended bunker was thus loaded!

And the model runs beautifully!

During the summer of 2024, I did some research to try to gain a clearer understanding of what route discs were required for the last part of a journey from Tonbridge Wells to Goodwood race course. This is to be hauled by 677. It is intended to follow a quieter route via Groombridge, East Grinstead, Three Bridges, Horsham, Pulborough, Midhurst and Chichester. I sat down and hand drew a map of the Brighton system with all the 91 services at the end of the Stroudley era.

These services were put into eight colour coded groups, five of which had distinct geographical reasons. The route planned, for the peace and calm of the horses, left my so-called 'train staff' zone at Three Bridges to join the South Coast zone for the rest of the journey. According to the [Southern E mail Group's published work](#), the route discs on the front of the loco show a Pulborough-Midhurst-Chichester day special.

LB & SCR: SCHEMATIC MAP OF TRAIN SERVICES 1910



Map Legend:

Settlements etc:

Coastal West → East North → South

P Portsmouth	L London	Do Dorking	U Uckfield
Ha Havant	L St. Liverpool Street Sta.	Gu Guildford	Heathfield
Hg Hayling	SD Shoreditch	PI Peasemarch Jctn	Hi Hailsham
Ch Chichester	W Whitechapel	Cr Cranleigh	AM Amberley
Ba Barnham	ELL East London Line	HH Haywards Heath	AR Arundel
Bo Bognor	LB London Bridge Sta.	CRW Crawley	Hm J Hardham Jctn.
L Littlehampton	WLL West London Line	BBR Three Bridges	<u>Line Groupings</u>
Wo Worthing	WW Willow Walk	RO Rowfant	London Bridge ———
La Lancing	LV London Victoria Sta.	ED East Grinstead	Victoria - - - - -
Sh Shoreham	BY Battersea Yard	FR Forest Row	Kensington ———
The Dyke	DR Deptford	GR Groombridge	South Coast ———
Ho Hove	WWR Wandsworth Road	TW Tonbridge Wells	Shoreditch ———
Bt Brighton	CLJ Clapham Junction	To Tonbridge	Miscellaneous ———
Kt Kemp town	CL Clapham	CJ Copyhold Jctn	Empties ———
Le Lewes	PR Peckham Rye	ER Eridge	Train Staff etc. + + + + +
Bal Balham	NC New Cross	HO Horsham	
NH Newhaven	CP Crystal Palace	CH Chicks Hospital	
SF Seaford	NJ Norwood	PU Pulborough	
Ha Hampden Park	WC West Croydon	Mi Midhurst Junction	
Be Berwick	EC East Croydon	F Fittleworth	
E Eastbourne	E Epsom	S Singleton	
Bex Bexhill	ED Epsom Downs	LA Lavant	
H Hastings	S Sanderstead	WG West Grinstead	
FJ Ford Junction	Ox Oxted	KJ Keymer Jctn.	
SJ Southerham Jctn.	ED Edenbridge	HMJ Hamworthy Jctn.	
NHH Newhaven Harbour			



Rural Sussex

20/10/24

A quick look at some horse box matters:

Goodwood Race Course did not seem to have adjacent railway facilities – why not? So the choices were Lavant, Singleton or Chichester, with the middle one having four platforms, and underpasses to cope with the large crowds of pedestrian race fans heading towards The Trundle. The preference was, unsurprisingly, Chichester for de-training, as there was no steep hill involved in the walk. The same holds good for the horses, unless horse box provision were available from the Brighton at Singleton, where long sidings had been provided. The Southern Railway certainly had some very smart road horse boxes, including ones based upon Maudslay chassis.



Racing thoroughbreds are highly strung, somewhat skittish creatures, involved in a multi-faceted, very high money operation. Some of the great flat races have very long histories e. g. the St. Leger was first run in 1776, the Derby in 1780, and the Goodwood Gold Cup in 1812.

All began in the era before either road or rail horse boxes were developed. Lord George Bentinck, the 'Leviathan of the Turf', used a road horse box, invented by his trainer, John Doe, in 1836, when he delivered his horse [Elis](#), 'fresh as a daisy and in tip-top racing condition' to the Leger course at Doncaster, some 200 miles from its home stables in Goodwood. He won some 12,000 guineas in heavy pre-race betting, saying nothing of this new invention. Before this development, racehorses had had to be walked all the way with all the attendant dangers - say three weeks or more from Goodwood to 'Donny'!

References:

- a) 'Terriers' Handel Kardas 1999 ISBN 0 7110 2652 2;
- b) 'London, Brighton and South Coast Railway' Klaus Marx 1982 ISBN 0 7110 87 7, especially page 85;
- c) 'London, Brighton and South Coast Miscellany' Kevin Robertson 2004 ISBN 8690993 583 3, especially page 92;
- d) 'Southern Style' Part 2 2016 P. J. Wisdom ISBN 978 0 902835 32 0;
- e) Internet research, particularly for the racing data.

A C3 0-6-0

Dr Arun Sharma

A friend of mine, well known in both the Brighton Circle and South Western Circle, has an enormous 4mm SR layout, which will eventually have at least one of every class of Southern loco operating between 1923 and 1948. Not entirely surprisingly, there are some classes which have never appeared in RTR or kit form. I believe he came up with a list of twelve or so such classes (see [LBSCR-Modellers-Digest-12.pdf](#) page 252). Over the past three or four years, I have designed several of these missing locos for him, including the LSWR L12 and the W&C four wheel shunter. I have undertaken to produce two further ex-Brighton locos for him as well, of which the first was the Marsh C3 in its later days, when paired with a withdrawn B2X tender.

Designing the kit, as a mixture of etched nickel-silver with 3D printed boiler, smokebox and firebox, was no great problem - the Russell and Skinley drawings are the basis. However, it became a difficult kit to assemble because the prototype unusually had its frames extended upwards to form an inner splasher. In any model, this will interfere with the seating of the firebox and indeed, would make the lower part of the firebox very narrow if it were actually to fit between the frames. This narrowness would be compounded by the unnaturally narrow frame width used in 00, 16.5 mm gauge models. Thus in practice the frame extensions closest to the cab needed to be deleted and this allows the firebox to appear much closer to the correct width.

Oddly enough, because of the actual thickness of the resin material used (usually 1.5mm), it is also a problem in my preferred scale of 7mm to the foot, albeit to a lesser degree. Having

designed the engine in 4mm, the same basic drawings were then used to produce a 7mm scale loco and this is what the photographs show. This will eventually be 32302, which was one of the few survivors into BR days and, I think, the only one with SR group standard buffers.



For both engines, all of the boiler furniture castings - chimney, dome, safety valve bonnet with attached whistle, clack valves, Westinghouse pump, smokebox door et al, were drawn in 3D (using Autodesk Inventor), 3D printed on an Elegoo Saturn 8K printer and then used as masters for either casting in polyester resin or lost wax brass.

For the 7mm model, the tender needed to be drawn from scratch; the 4mm model uses a commercially available B2X tender.

The 7mm model still needs to have the crankpins trimmed as well as having its number and shed plate applied. I'll get around to that eventually!

The second Brighton engine (again to be done in 4mm and 7mm scales) will be the D3X, again using the Skinley D3 drawing and the D3X drawing from Russell's book (the drawings by Maskelyne and Lindsay have also now been acquired). Work on that will start in a couple of weeks once I get suitable 4mm and 7mm scale wheelsets. The available wheelsets define the clearances of the frame and size of the splashers above the footplate, so have to be the first items to be measured and sited on the drawing. The engine is drawn in 3D to confirm such clearances and then those parts such as cab, frames, motion and footplate drawn in 2D and etched in appropriate thicknesses of Nickel-silver. For the 2D etched artwork, I use the CAD programme "Draftsight".



Mr Craven's No 165

Eric Gates

It is interesting to revisit a design which you last tackled 10 years previously. In May 2010, Ian White produced his “scratch builder aids”, in the form of sets of frets, with which to build two locos which he wanted for his East Grinstead layout. One was the Brighton built version of the standard Craven 2-4-0 tender loco and the other was for the pair of 0-4-2 saddle tanks numbers 166 and 167. There were 14 sets of frets produced, so, as editor, I wait with interest for progress reports on some of the others!

One of my earlier loco builds was of number 166 and it has been a reliable model that attracts attention ever since. Andy York's photo was taken at the RMweb South West Area members' day some years ago, which resulted in some amusement with the number of people who were misled by the Brunswick green livery and copper capped chimney.



I have also built the 2-4-0, documented in [Modellers' Digest 18](#). The current project came about because I was able to obtain another set of frets for the saddle tank from a member of the Circle .

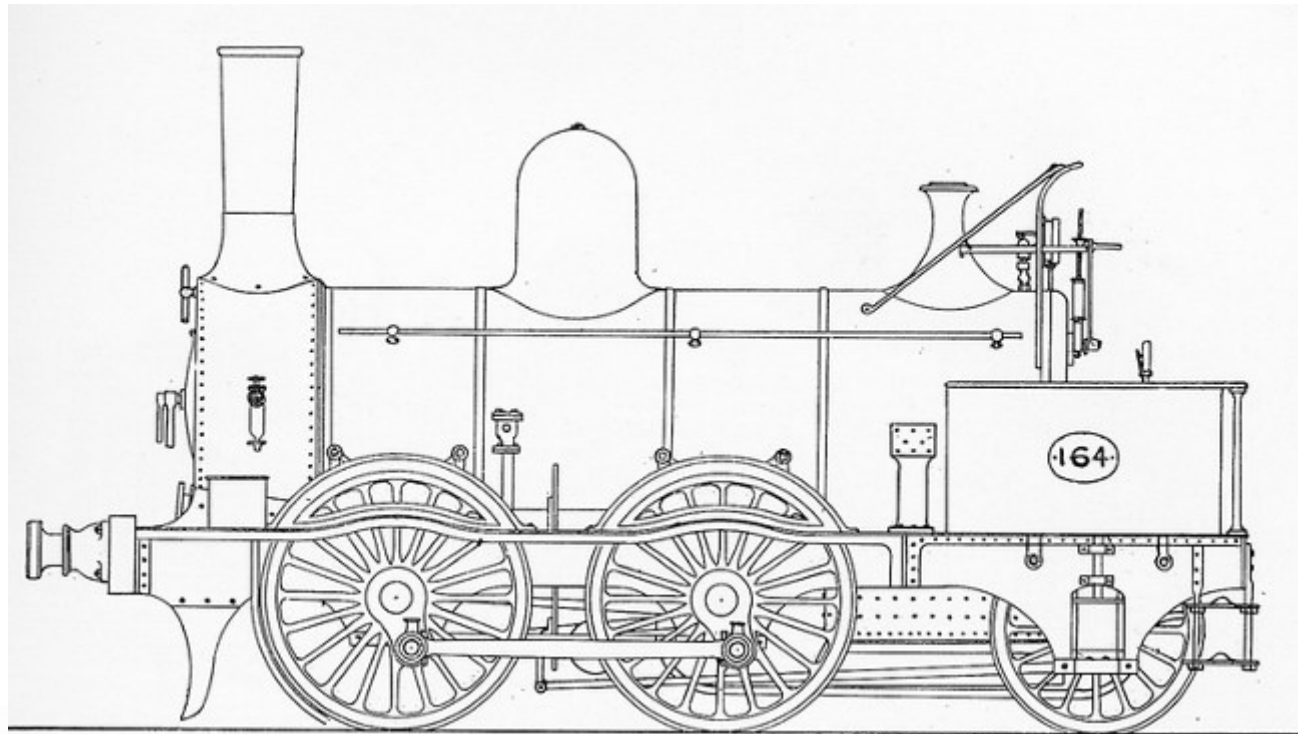
Ian's original design was to enable the construction of the saddle tanks. However, these two locos had originally been built as part of a batch of four 0-4-2 tender engines, numbers 164 to 167, but, for reasons unknown, the second pair were almost immediately rebuilt as tank engines. This time, the plan was to construct the unrebuilt, tender version. The frames, both inside and outside, are somewhat shorter for the tender version and the design includes some etched lines where they need to be cut, where the bunker would otherwise be.

Curiously, there is more prototype information available for the tender loco than for the tank. There is not only the inevitable drawing by Burt, but also a photograph showing the loco in post 1877 condition and in Stroudley livery (see following page). My intention was to complete the loco in Craven colours, but the photo is interesting in having so little in common with the drawing. Both illustrate a 0-4-2 tender loco, but in almost every other respect, the appearance differs. The drawing shows a stovepipe chimney, while the photo (and Bradley's description) suggest a copper cap, and the safety valve cover is a completely different shape. The cab steps are drawn as a simple ladder type arrangement, while the photo shows an elegantly curved, solid step and the relationship between the spring of the trailing axle and the fender is shown differently. This latter point has interesting structural implications when you try to figure out how to build the model.

It is possible that the photo shows later modifications by Stroudley, but Bradley does not suggest that they were substantially altered and the open, slotted splashers are a feature that Stroudley frequently amended on other locos. I have therefore relied more heavily on the photo than on the drawing.

Despite research by both Ian White and Ian MacCormac, no other drawings have been found. What was the basis for Burt's drawing, given that he could have had only minimal first hand knowledge of the locos? Were there drawings that have been lost, covering the first pair of 0-4-2s

with larger driving wheels and 164/5 as shown in the photo? Or were the instructions from the Drawing Office to Brighton Works sufficiently broad as to leave considerable latitude for interpretation? Curiously, some drawings survive for the rebuilt saddle tanks numbers 166/7.



The chassis

Rather than follow a blow by blow account of the construction, I will simply highlight the features that created the “interesting challenges” that are an inevitable part of any kit build. The design of the frets provided for 3 point suspension. The compensating beams for the driving wheels are suspended from a bar between the frames, giving two points of suspension, and the trailing axle rocks against a centre pivot for the third. Getting the pivot on the trailing axle exactly right is critical, as otherwise you end up with the loco low at one end. You also need to get the weight right, so that the wheels track correctly. With No 166, by luck rather than good management, I got the pivot for the trailing axle exactly right and the loco runs very reliably.

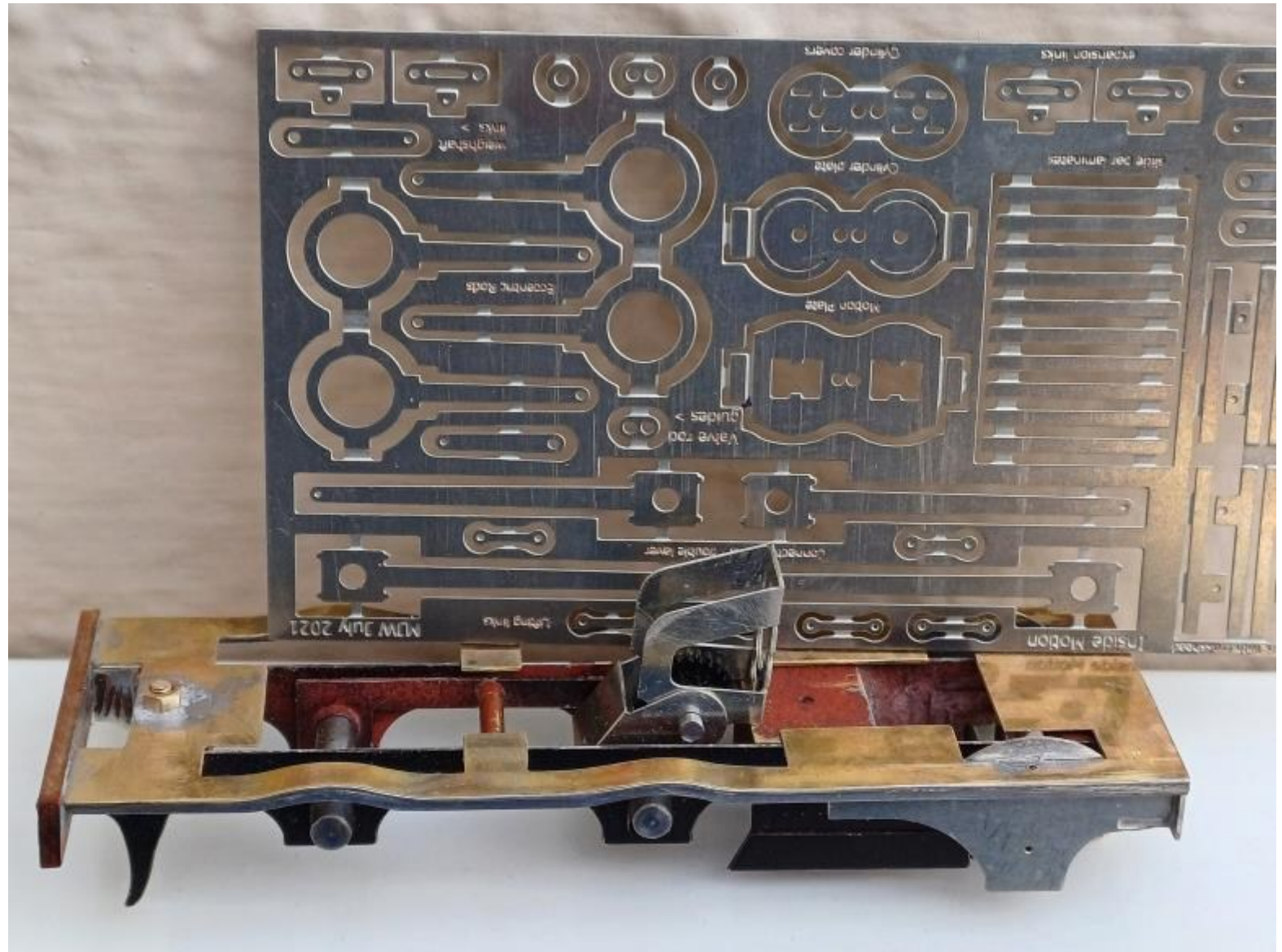
Subsequent efforts to use the same kind of chassis arrangement have had rather more qualified success. Adjustment of the pivot arm has involved either re-soldering, using the “hit and hope” technique, or controlled violence, using a pair of pliers to bend the arm – preferably without twisting the frames or breaking the solder joint. The obvious solution would be to design a mounting for the pivot arm that allows some degree of adjustment.

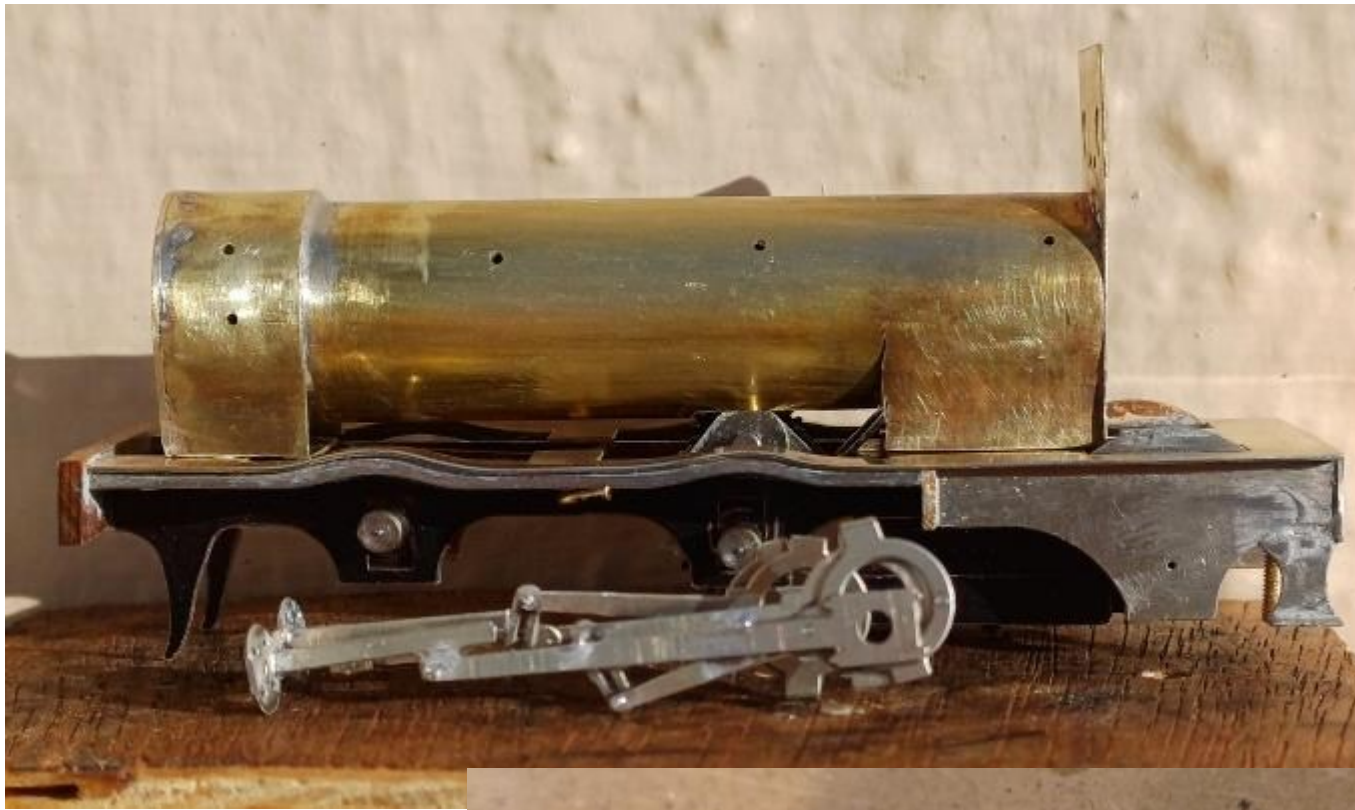
In this case, I have soldered a bolt onto one of the frame spacers, to which the rocking arm is secured with two nuts. This should allow for vertical adjustment. When the whole chassis is complete, I doubt that this will be very accessible, but I am hoping that, once the right height is established, it should not need further attention and can be locked in position with nail varnish.



Since I had a couple of sets of Stephenson valve gear from frets produced by Mike Waldron, I was curious to see whether I could find a way to use this.

The result is interesting, although perhaps not as Mike intended. The eccentrics, which are the most obvious bit of the assembly, should fit around the crank axle. Unfortunately, on this, as on many models, the crank axle has an unprototypical High Level gearbox attached to it, which means that the eccentrics cannot be used. The bits that were readily usable were the rear of the cylinders and the set of slidebars (modelled in a severely simplified form), which nestle largely concealed behind the leading driving wheels. At least I know that they are there!



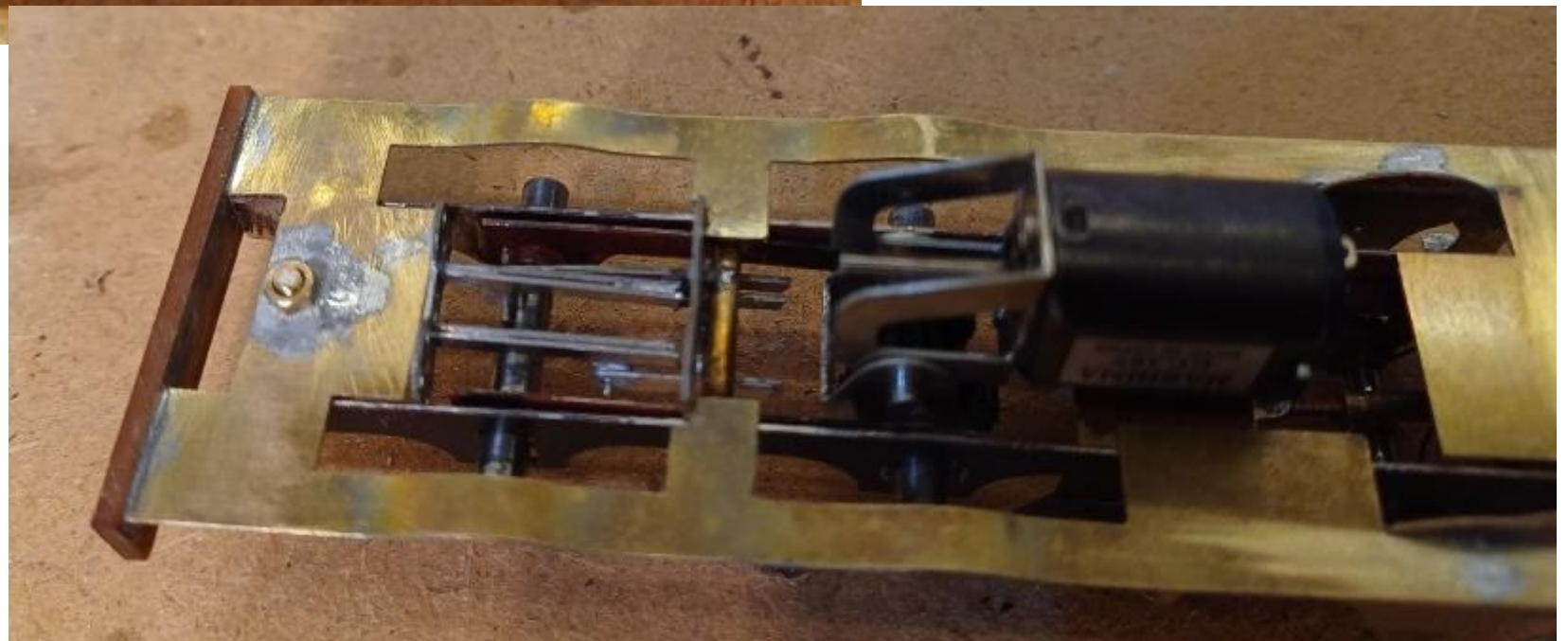


Left

Most of the bits from the fret, assembled to show the relationship to the running gear.

Below

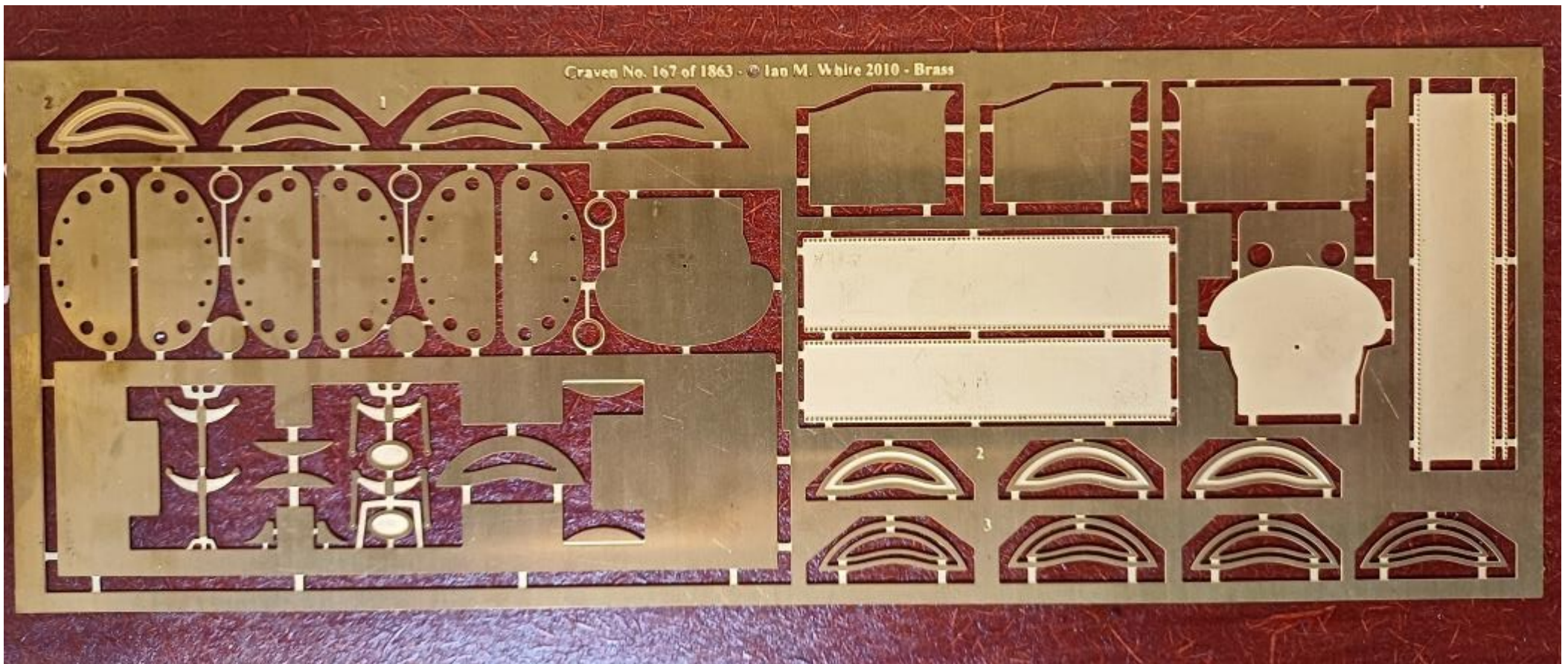
What survived, given the need for space for the compensating mechanism and the gearbox.



The body

The elegant curves of the footplate are formed by first annealing the bits above the wheels and then forming them around the valance. The valance comes as a chunky nickel silver fret with a stiffening bar below it. This provides a firm grip when you wrestle the footplate into the shape of the valance and it is cut off afterwards, when all is firmly soldered.

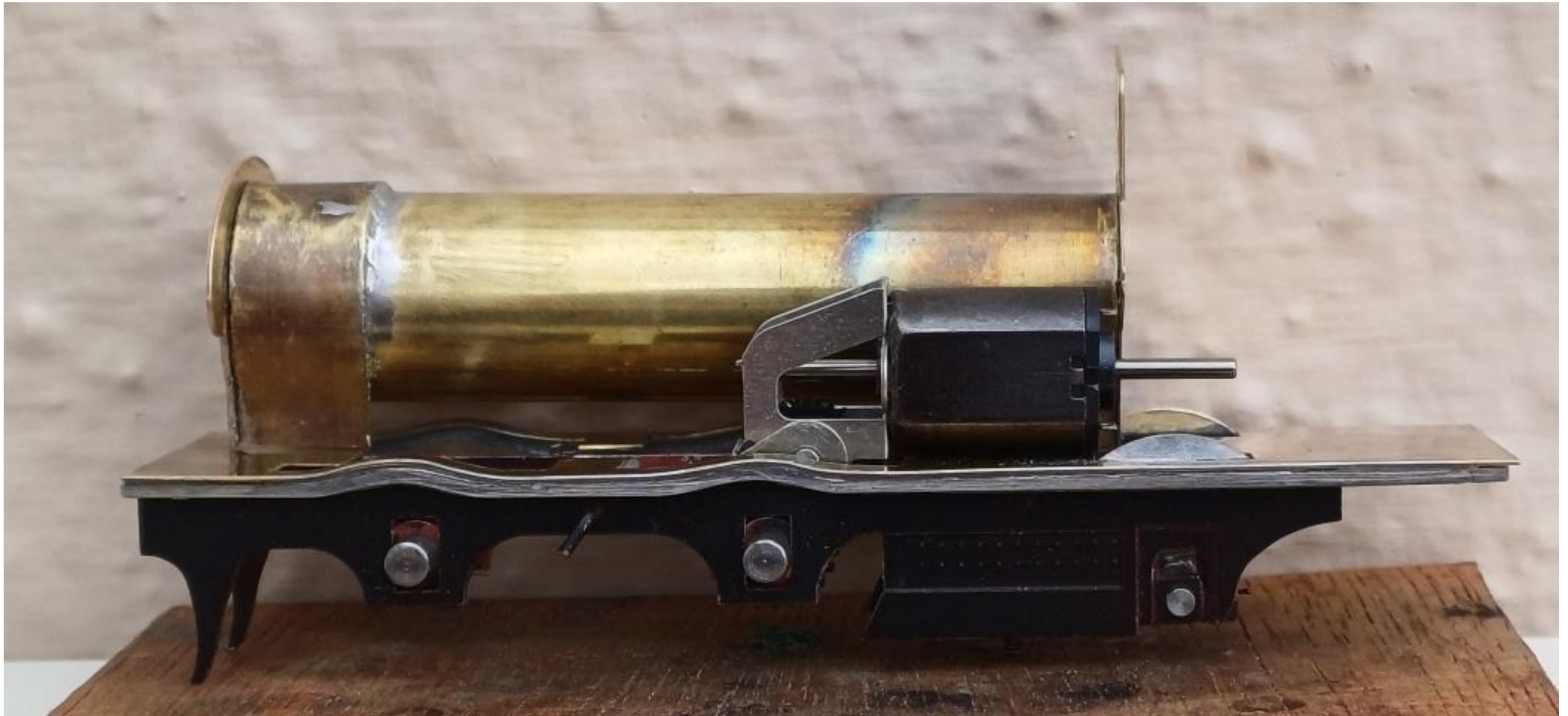
One of the key aims of the design of the etches is to facilitate construction of the complex curves of the saddle tank. It uses a neat arrangement of frames, etched to the profile of the tank, with etched holes for longitudinal rods around which you bend the overlays of the tank skin.



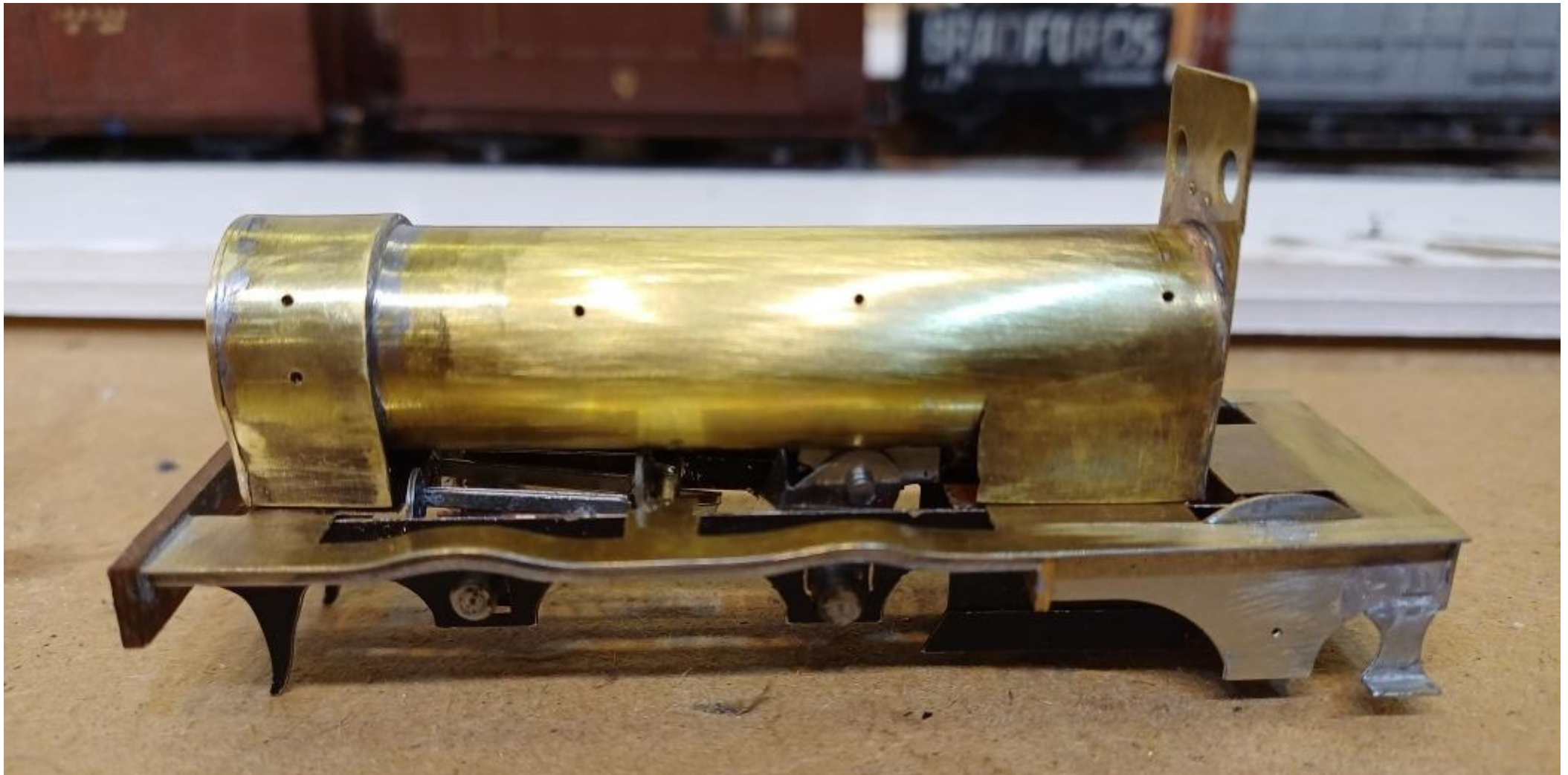
At first sight, these did not help with a tender loco and so I set them aside.

I spent some time trying to figure out how to place the boiler (brass tube) at the right height above the footplate. This is where I came back to the principle on which the saddle tank is built. I cut two plastic discs with holes in the centre, that fitted inside the boiler. I then ran a brass rod through the discs, like a kebab skewer, and used the central holes in the etches to set the smokebox front and firebox rear in relation to the boiler. This set the boiler at the right height above the footplate. Once soldered, it was possible to reprofile the ends to the shape of the boiler – rather than that of a saddle tank.





With the chassis, footplate and body beginning to come together, I spent some time trying to work out how much of the footplate needed to be removed to match the chassis. After some experimentation, I took a piercing saw to the footplate and cut off what I judged to be the bunker area. Adding a headstock at the rear and then the outside frames, I sat back to admire my handiwork and discovered another area where the drawing and photo diverge. Whereas the drawing shows the valance running the full length of the loco, the photo shows that it stopped at the point where the rear outside frame started.



I cut through the valance very carefully and unsoldered the back section of valancing, melting the joints to the rear frames in the process. This actually saved any reluctance to relocate them slightly closer to the edge of the footplate. As a footnote, I strongly suspect that, if a photo of the tank engine version existed, it would show the same arrangement. Fortunately, none has so far come to light and I have no intention of trying to unpick number 166, which faithfully reflects the drawing!



The fenders (the panels around the side of the footplate forming a vestige of a cab) were made up from brass sheet and the beading around the top came from the nickel silver fret surrounding a High Level gearbox. The springs to the trailing axle sit outside the fenders but need to protrude through the footplate to align with the axleboxes.

The splashers have an opening in the middle, edged with brass borders. The painted area between the borders seems to have matched the frames but it is not an easy area to apply masking fluid. I therefore ended up painting the whole lot with primer, scraping the beading clean and then covering the whole area with masking fluid when the green coat was applied.

The footplate is pretty exposed and so needs a bit of detailing. The weatherboard was annealed so that the top could be bent back and stays were attached to brace it to the firebox. The fall-plate is hinged from the rear of the footplate, using three short lengths of 0.5mm inside diameter tube and some 0.5mm rod threaded through.



The lining was completed during the winter on a south facing balcony in warm sunshine, which is always a good way to tackle a job that needs time, patience and good light! It was self contained part of the project which I could easily take away with me on a winter-sun break.

The boiler fittings are plonked in place for the time being, to try out for appearance. The safety valve cover is brass, the dome is white metal and the chimney is 3D printed. A consensus view was that this particular chimney is oversize for the loco and I shall be looking for an alternative.

The tender

The tender is one of Chris Cox's castings from the 5&9 Models range, which has been in my kit stash for some while. The body has been assembled according to the instructions, with the sole exception that the brake has been put on the right hand side, assuming left hand drive of the loco.

The chassis was built from scratch with the same 3 point suspension as the loco. However, in this case, with three axles all at the same height, I have simply soldered in place a fixed pivot point, with the frames assembled in a chassis jig to get the right height on the rocking axle.





Toolboxes, handrails and lampirons installed, but the springs above the footplate will be added after the lining.

Overall, the project has turned out to be an interesting exercise, at the extreme end of the kit bashing spectrum and not far short of scratch building. Until someone else rises to the challenge, I think I have a loco that is unique and probably beyond even the wildest ambitions of Rapido!

I still have the etches to build a rather nice saddle tank (by which I mean literally just the tank) but new projects have started with less. However, most Craven saddle tanks seem to have had a rectangular section to their tanks and so these bits are likely to remain in the box of scrap etched frets. You never know what may come in handy.



Almost finished, but needing a coat of varnish to bring out the colour in the frames, which are still unmistakably Halfords rattle-can red. The wheels, therefore, still have masking fluid around the flanges and so running trials will have to wait for the varnishing and weathering to be completed.

The Brighton Circle Spring Meeting at Patcham.

The annual Brighton Circle Spring meeting was held at Patcham Community Centre near Brighton, on Saturday 26th April. As usual, the meeting included a display of models, some traders and, in the afternoon, a presentation. On this occasion, the talk was given by John Minnis, who showed yet more hitherto unknown photographs of the LB&SCR. John has an amazing track record of unearthing railway photographs, that have not previously been available. As always, the show did not disappoint.







The full set of Mike Cruttenden's "Might Have beens".

As regular readers will know, the construction of these locos has been documented over recent issues of this journal.

The complete project shows a series of Brighton designs that were considered but never built.



A display of models salvaged from David Edsall's layout, Willingly.









Livery samples of the E tanks and the engineering prototype of the 8T van, together with examples of the 'Evolution' generic 48' bogie carriages, kindly loaned by Rapido Trains.

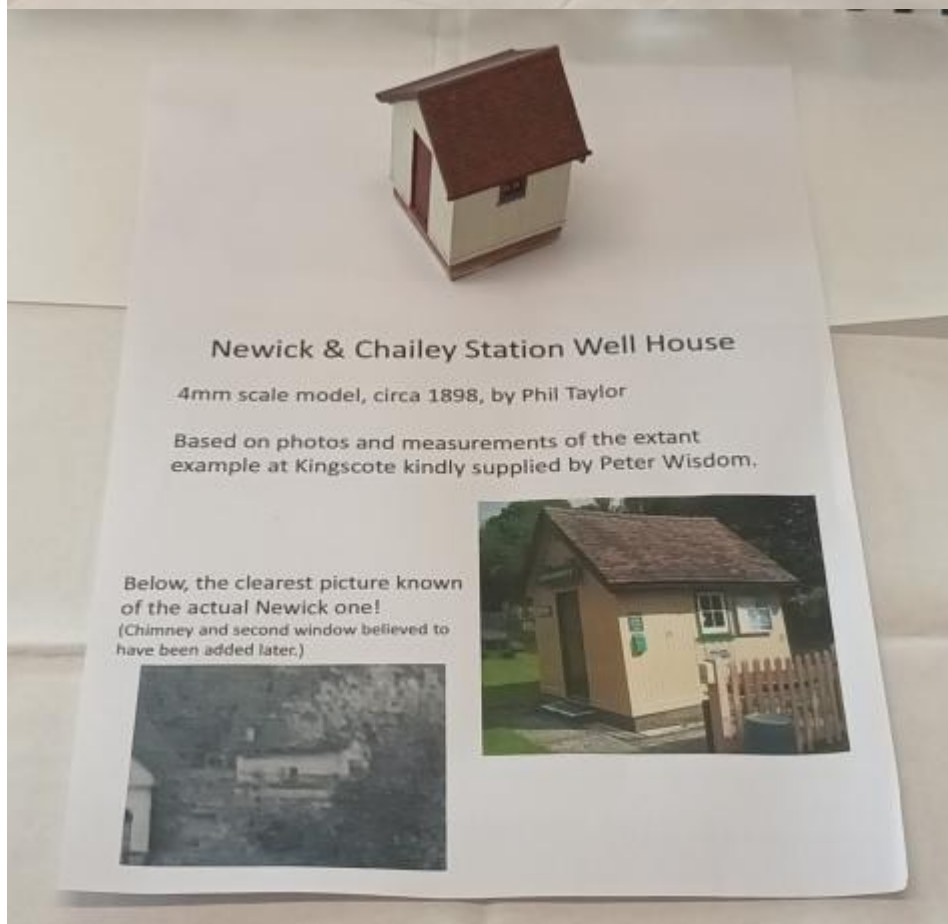


Rapido Trains kindly loaned the livery samples of the 4 E tanks that will be available in Brighton liveries.



Top - France, in Improved Engine Green.
 Above right - Poitiers, in Goods Green.
 Above - Marsh Umber.
 Right - Goods Black, commissioned by the Brighton Circle.





Above

A rake of 7mm scale vehicles by Andrew Mortlock.

Left

Phil Taylor's Well House.



This page and following, 7mm scale models by Thomas Potter.

Stroudley G Class No.326 'Grosvenor'

Built from an E.B.Models brass/nickel silver etched kit with 3d printed resin fittings. Wheels are from Slaters. Painted with Craftmaster Paints Improved Engine Green and lined out with E.B.Models transfers.

D78 (D222) 6 Wheel Louvred Van

3D printed body designed and printed by Thomas, with scratch built brass chassis incorporating E.B.Models W Irons and underframe with cast brass springs, brake gear and axle boxes from Laurie Griffin. Thomas has since started 3D printing his own chassis and is now offering [his first 7mm scale kit](#). See '[New Cross Studios](#)' on Facebook to follow his projects.



Billinton L Class No.333 'Remembrance.'

Built using the ACE Products Etches and Castings as a basis, with scratchbuilt boiler and replacement fittings from Laurie Griffin or 3D printed parts. Slater's Motor and Gearbox fitted inside with a large brass flywheel and Slater's wheels. Finished in Marsh Umber, a fictional livery the prototype unfortunately never received, having only received works grey and then subsequently red oxide. The model is finished with transfers and works plates from E.B.Models, and Remembrance plaques commissioned from [Diane Carney](#).



Ballast Brake and Wagons

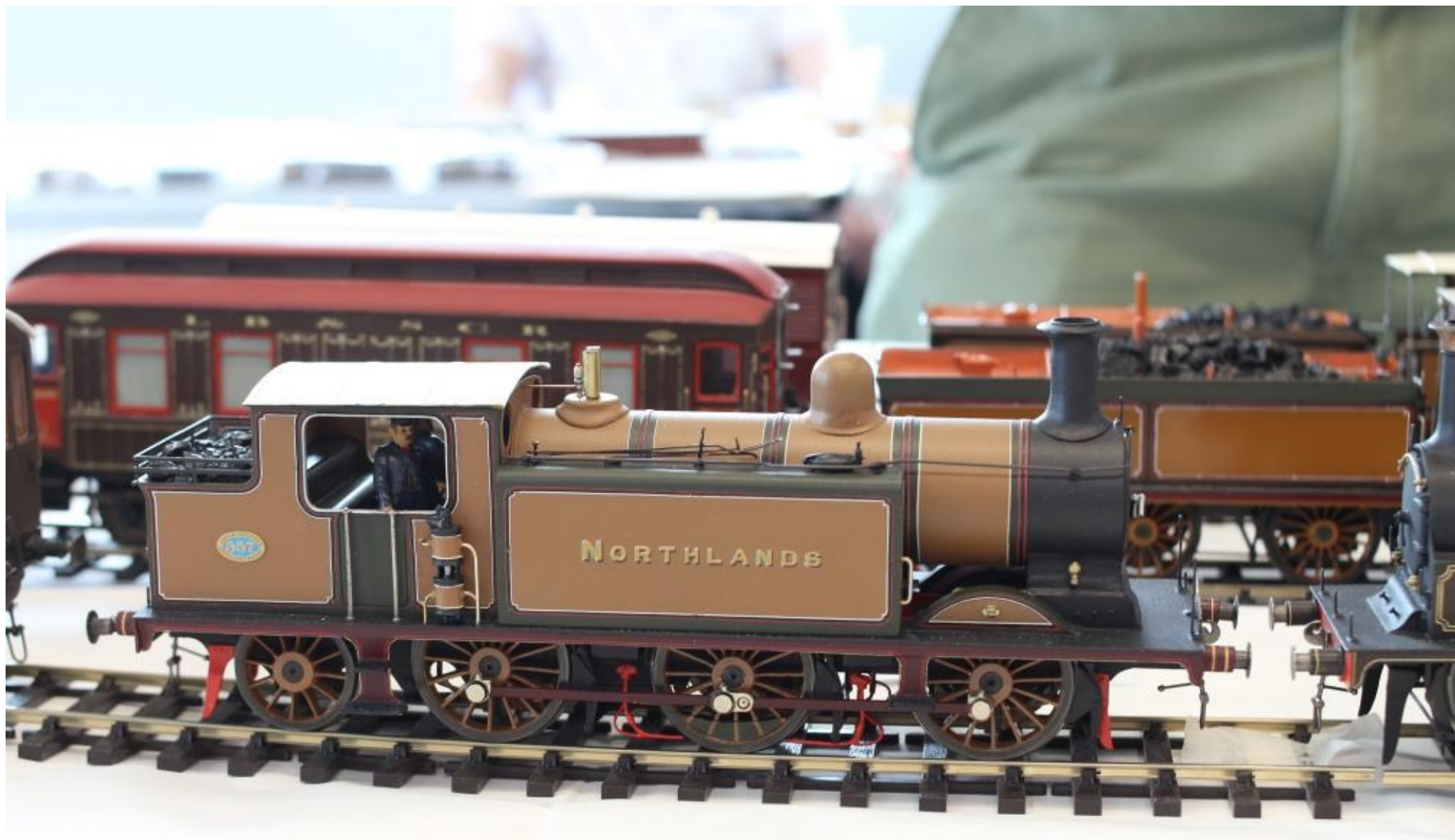
Stroudley Ballast Brake from the Roxey Mouldings Kit, with modified birdcage on end to reflect the photo of the prototype at Hastings. 4 and 6 ton Ballast Wagons, developed and printed using drawings as a basis. Both fitted with Slater's wheels.



4mm scale locomotives
by Andrew Jones.



7mm scale G class Albany with Pullman set by Peter Warren.



E4 class Northlands by Colin Hayward.

The models on the following pages are also from his collection.



Above, I3 tank, number 77.

Right, D tank, number 627, formerly Uckfield, with "Liver and Bacon" style lettering.





Above, B2X number 323

Below, H2 Atlantic number 425







Dave Hammersley with the [Roxey Mouldings stand](#).

Terry Bendall did a magnificent job setting out and managing Arkwright's Stores. He managed to move on a huge amount of the materials and models we had been given, and every single item of rolling stock on offer went. Peter Wisdom and Lesley Stockwell did their usual calm double act in the kitchen, despite virtually all the kitchen equipment fighting back and making things difficult

(including a dishwasher that made items dirtier!). Peter's cake and Lesley's rock cakes are the stuff of legend.



Photographs copyright Phil Taylor, Richard Schmidt, Huw Evans and Nick Holliday

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Rails of Sheffield/Dapol

7mm scale

[A complete 7mm scale train for less than £400!](#)

Rails of Sheffield are currently advertising the Dapol Terrier with three 4 wheeled coaches for £399.



Image copyright Rails of Sheffield

Dapol Stroudley Carriages

7mm scale



Dapol has announced plans to release the [Stroudley 4 wheel carriages](#) in umber livery, with gas lighting, and these should already be available. Variants cover the all Third, Composite and Brake/3rd with two running numbers.



The similar combination of vehicles is due for release during the Summer, [in Southern livery and with electric lighting](#).

Both sets are priced per carriage at £122.96 without lighting, £150.91 with a lightbar and £184.43 with a DCC lightbar.

At the grouping, over 100 of these vehicles were still in service, although most were withdrawn fairly shortly after. Survivors included two 4 coach sets, 495 and 496, on the IoW, some forming part of the “Lancing Belle”, the works train for Lancing carriage works, and, possibly, some in departmental use.

A picture showing the assembly process of these vehicles at Chirk.

All moulding, painting, printing, assembly, packaging and distribution is carried out in- house.

Images copyright Dapol



8 Ton Van - 3D Print by New Cross Studios

7mm scale

The kit covers the early Stroudley version of the 8 ton Diagram 8 Van, with one wooden brake block. The later Billinton versions with upgraded brake gear and higher roofline will be covered in another kit. The kit requires couplings, wheels, glue, paint and transfers to complete. Orders can be sent by messaging the New Cross Studios Facebook page. There will be a short lead time, as vehicles are printed to order. The price per vehicle is at £35 plus postage. A 4mm scale body will also be available.



<https://www.facebook.com/profile.php?id=61564896944909>

Rapido

E tanks, 4mm scale

The long-awaited livery samples of the E tank were first seen on the Rapido stand at the Alexandra Palace Show in March and received a lot of positive comment. All four LBSC versions look very presentable. We are very grateful to Rapido for providing the following photographs which show the four locos looking their best in a variety of poses. We are also grateful to Rapido for allowing us to borrow the four prototypes for display at our Spring meeting at Patcham. Photographs of that day show these with prototypes of forthcoming Rapido LBSC rolling stock and a selection of kit-built Brighton vehicles, being probably the first ever photos of these models at the head of an authentic Brighton train.

We are particularly pleased to see how well the Marsh lined black No 110 has turned out. This model is being produced for the benefit of the Circle, and we are pleased that Rapido UK allowed us to persuade them such a model was a viable proposition.

At the time of writing, the E1s are nearly complete and will be flown to the UK, so should be available late June or early July.

Nicholas Pryor









Photographs copyright Rapido UK

Sonic Models and Rails of Sheffield

K class Mogul, 4mm scale

Revised artwork is due to go to the factory very shortly. This will include two locomotives in Brighton liveries, 341 in lined black and 342 umber.



Photograph copyright Sonic Models

During development of the model for the K class Mogul, Sonic contacted the Brighton Circle for information about the build standards and liveries of the members of the class. Research of the subject demonstrated that the number of photos is limited (although there is significant documentary evidence) and the range of variations is surprising, given that there are only 17 locomotives in the class. However, the decision taken to produce tooling that covers only single dome locomotives (at least for the first production batch of models) reduces the number of permutations available. Members of the Circle endeavoured to provide a summary of the situation in Brighton days – after which the story becomes even more complicated.

The class was built in three batches. Numbers 337 and 338 appeared in 1913 and featured slightly shorter smokeboxes than other members of the class, numbers 339, 340 and 341 appeared in the following year and all would initially have worn the lined black livery adopted by Marsh for goods locos. The second batch of five, numbers 342 to 346, appeared in 1916 and personal notes suggest that these were finished in all-over black, including the buffer beams, and with unshaded lettering. The third batch of seven were constructed with double domes post war, so, for this exercise, they can be discounted.

Variations to the basic design began early on and the different versions of black livery are almost impossible to distinguish in photographs of less than clean, black locomotives. Relatively few photos have a definite date.

Top feed was added progressively from 1916 and double domes were fitted to 337 and 339 in 1920. A Worthington pump was fitted to 340 in 1922.

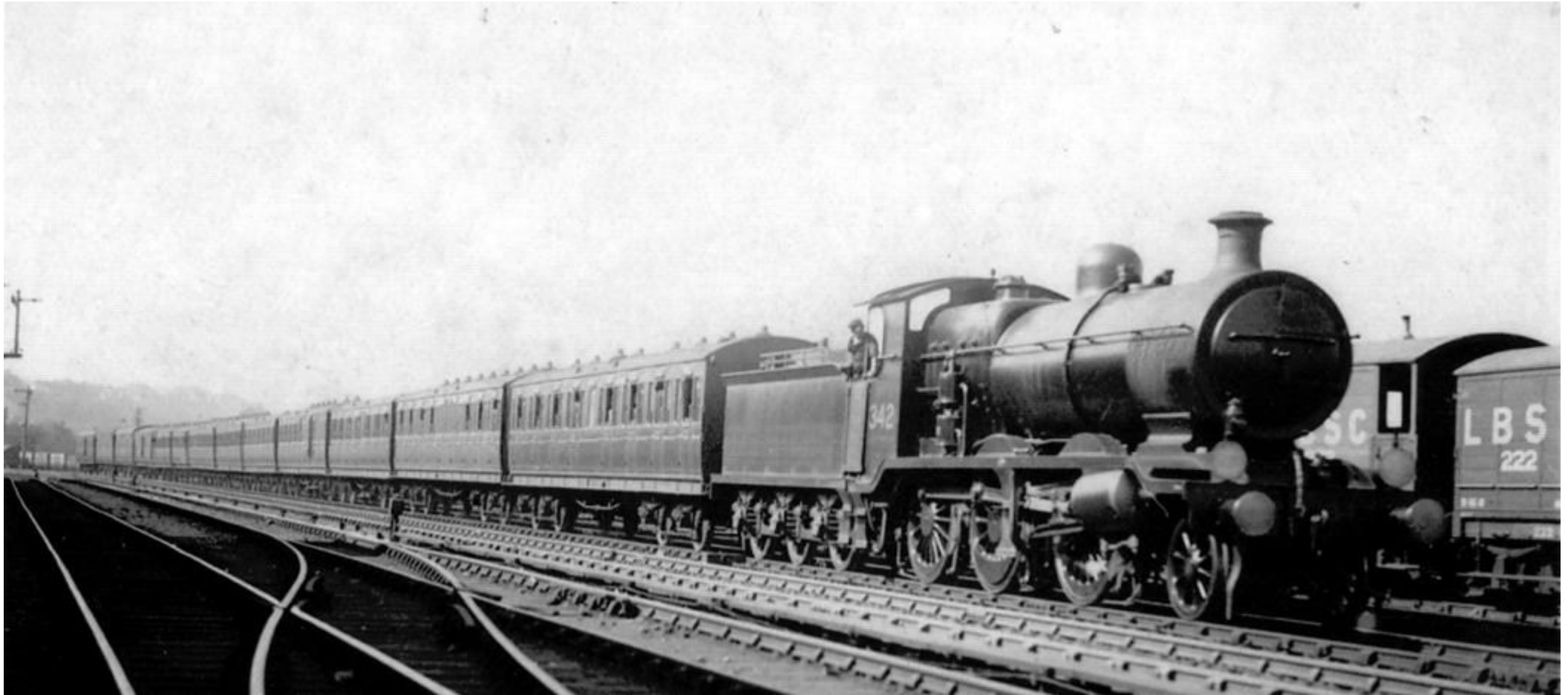
As a rule of thumb, locos might have been repainted roughly every 7 years, so that it is unlikely that there would have been many changes before grouping, except possibly where a loco went into the Works for modification. In 1923, 342 and 344 are recorded as having been repainted in umber, 345 in Southern lined black and 346 in a hybrid Brighton black livery with Southern cabside plates. Thereafter, the class appeared in variations of transitional and Southern liveries.

In summary, Sonic's choices appear to steer a carefully researched course in identifying
- number 341, which combines the lined black livery with top feed



and

- number 342 in umber, albeit in the very last days of the Brighton.



Photographs from the collection of Dave Searle

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PDK Models

K class Mogul, 4mm scale

PDK Models has recently announced the release of a kit for the Billinton K class Mogul [PDK 79](#). The kit contains an etched brass body with pre-rolled boiler, whitemetal and lost wax brass castings, sprung buffers and turned brass detail parts. There is a detailed nickel silver chassis with optional beam compensation and all bearings are included. Wheels, motor and gearbox are required in addition

The price is £125 plus £6 p&p.



Photograph copyright PDK Models

ACE Products

Billinton B2, 4mm scale



ACE Products released [a kit for a Billinton B2](#) at the beginning of June.

For further information contact a4ace@talktalk.net



Some other examples of Brighton prototypes from the ACE range.

Rapido

Carriages, 4mm scale,

The [Evolution carriages in LBSCR livery](#) are currently scheduled for 4th quarter 2025.



Photograph copyright Rapido UK

EFE Rail (Bachmann)

Carriages, 4mm scale

The background to prototypes of these vehicles is discussed [earlier in this issue](#).

The vehicles are being released as four coach packs, consisting of a 6 compartment Brake Third to Diagram 210, 9 compartment Third to Diagram 90, 8 compartment Composite to Diagram 373 and a 7 compartment Brake Third to Diagram 211. This reflects their service on the Isle of Wight in Southern days. Packs of 4 vehicles will be available at £269.95, with delivery scheduled for Nov/Dec 2025.

The potential for backdating to use in LBSCR days on the mainland is also [discussed earlier](#).

[New EFE Rail Coaches Provide the Perfect Ryde for Isle of Wight Enthusiasts - BACHMANN EUROPE NEWS](#)

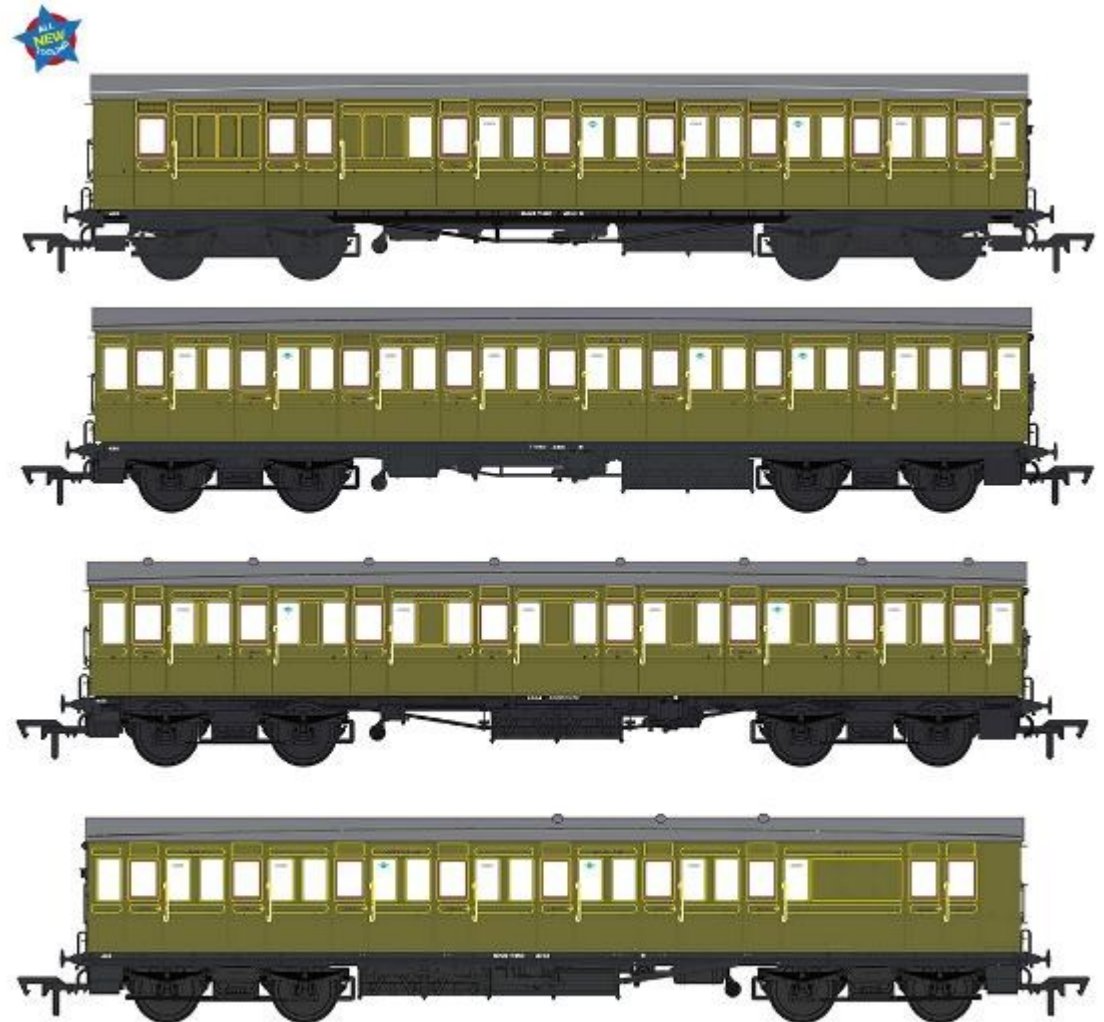


Image copyright Bachmann Europe

EFE - Isle of Wight Steam Railway

Carriages, 4mm scale

As an exclusive from the shop at the Isle of Wight Steam Railway, a pack containing a 9 compartment third and a composite is available for pre-order at a price of £134.95. These vehicles will complement those in the 4 coach pack available from EFE.

[Exclusive LBSCR 54ft Isle of Wight 2 coach pack 2416, 9 compartment and 6349 composite - Isle of Wight Steam Railway](#)



Image copyright Isle of Wight Steam Railway

Rapido

Wagons, 4mm scale

Engineering prototypes of the [LBSCR 8 ton van](#) have been received although there is not yet a scheduled delivery date.

One of the two engineering prototypes was loaned to the Circle for display at [our Spring Meeting](#) and attracted much positive comment. For a very long time, this staple of LBSC goods stock has only been available from hard to find cast kits. As set out in Digest 20, there are six LBSC versions of the van available, five from Rapido or retailers, and the sixth direct from the Bluebell Railway Goods Division.

The order book closes on 30 June.



Kernow Model Rail Centre

Wagons, 4mm scale

A repeat run of the Open A!

Kernow has announced a re-run of the Open A wagons. This will be a small run of the three wagons available last year, plus a larger run of three new identities for which the Circle has provided assistance to confirm numbers. All will carry LBSC lettering.

Both reruns are for quite small quantities overall, so members are encouraged to place pre-orders as soon as they are announced; the Brighton liveries sold out in less than a week last time.

[Kernow Model Rail Centre](#)



Photograph copyright Kernow Model Rail Centre

Bluebell Railway Carriage Shop

PO Wagons, 4mm scale

The Bluebell Railway Carriage Shop has commissioned two additional Private Owner wagons, based on the 4mm scale Rapido 7 plank 1907 RCH wagon. These are produced as limited production runs and are available only in person from the Carriage Shop at Horsted Keynes, at a price of £35.95.



For those who can't get to the Bluebell to buy these wagons, the Circle still holds a very small remaining stock of each and can supply by post. This service is for Circle members only. Please contact the Secretary via secretary@lbscr.org.



Photographs copyright Bluebell Railway Carriage Shop

Hornby

TT gauge 1:120 scale Terrier and Carriages

Hornby has announced new releases to its range of TT gauge 1:120 scale products. A Terrier, liveried as number 40, Brighton, will be available in November 2025 with a pre-order price of £159.99.

The prototype was built in 1878 and attended the Paris Exhibition in the same year. In 1902 it was sold to the Isle of Wight Central Railway.

The model features a coreless motor, housed within a robust diecast body, to ensure excellent running characteristics and realistic weight distribution. The locomotive is DCC Ready, with a 6-pin socket, allowing for straightforward digital conversion, while NEM tension lock couplings provide seamless compatibility with rolling stock.

[TT3039M LB&SCR - Terrier - 40 'Brighton'](#)





A matching set of carriages will be available, consisting of scaled down versions of the generic 4 wheel coaches already announced for 4mm scale. The passenger vehicles closely reflect LB&SCR designs although the full brake is somewhat over length.

Availability is scheduled for December 2025, with a pre-order price of £34.99 per coach.

[TT Gauge Model Railway Coaches and Wagons - Hornby TT:120](#)

Photographs copyright Hornby Hobbies

The Brighton Circle Facebook Group

There is a Facebook page (search for @LB&SCRBrightonCircle) and a lively and growing associated group, which currently numbers over 2,300 members.

See <https://www.facebook.com/groups/249226986001750/>

These are aimed at giving a presence on social media for the Circle. It is a place for people, including non-members of the Circle, to post material, find out about the Circle, see some local history and to ask questions.

Please do visit the page if you are on Facebook.

The Brighton Circle

The Brighton Circle is the Historical Society of the London, Brighton and South Coast Railway (L.B & S.C.R.). It is dedicated to the research and publication of information about the company and it produces a quarterly newsletter and a historical journal entitled the Brighton Circular, which is published three times a year.

While the Circle is primarily focussed on railway historical research, there has been an important interaction with preservationists, particularly on the Bluebell Railway, and with railway modellers. The Bluebell line provides an important source of original artefacts, which contribute valuable information about the company's practice. Modellers have benefitted by access to data about the physical appearance of the company and its operations and, as a result, members of the Circle have been able to produce scratch builder aids, kits, paint and lettering on a limited run basis, which are made available among other members.

Membership of the Brighton Circle for 2025 is

£23.00 for full membership

Applications should be sent to

membership@lbscr.org

The Circle is also in contact with local historians, industrial archaeologists, family historians and other groups whose interests intersect with those of the Circle.

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