

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

Issue 11

Summer 2020

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



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Editorial

What a lot has happened since the last Digest!

There is a report from the annual Blatchington Mill meeting of the Brighton Circle, which always features a selection of models from those attending. This year, Blatchington was almost immediately followed by the onset of Coronavirus and the subsequent lockdown. While Coronavirus has been devastating in so many ways, it has given many people a lot more time to do railway modelling and, as a result, this Digest features some of those “lockdown labours”. A further side effect has been a “Virtual Blatchington”, where members participated in a “show and tell” session, using Zoom to share their modelling activities. This is also featured in this edition.

In deference to those who model “modern image”, which in Brighton terms constitutes anything in the twentieth century, there are a number of features which will appeal. Gerry Bixley’s push-pull sets even include a vehicle of which the prototype was built in 1924 - only 96 years old!

New products include not only the Terrier from Rails of Sheffield, but the Craven goods loco from EBM and various 3D printed items - and more in the pipeline.

Finally, a magazine like this is only as good as the material submitted and I am grateful to all those who have provided articles. The next issue should be available just in time for Christmas, with a production deadline at the end of November. Although many of the articles are provided by members of the Brighton Circle, anyone is welcome to contribute - just as long as the models are of an LB&SCR prototype!

Eric Gates

Modelling Steward, The Brighton Circle

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The Blatchington Mill Meeting

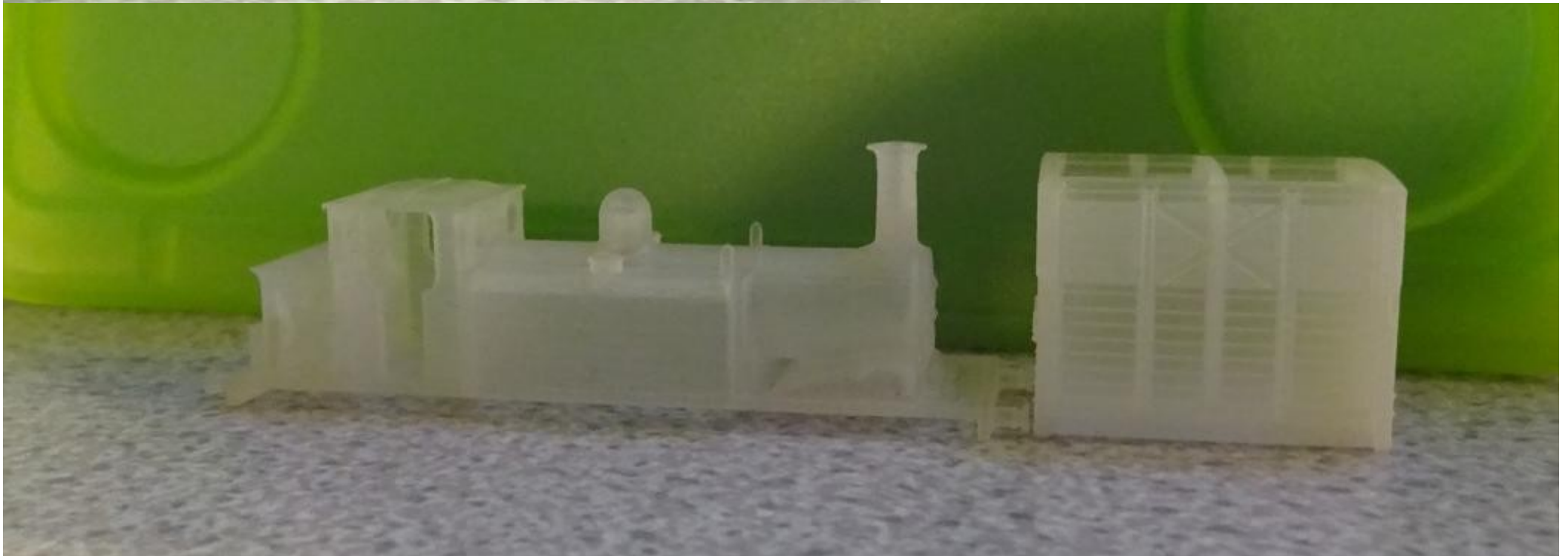
Blatchington Mill is the venue for the Brighton Circle's Spring meeting. It is also an opportunity for modellers to bring along examples of their work and the following pages show some completed and some work in progress.

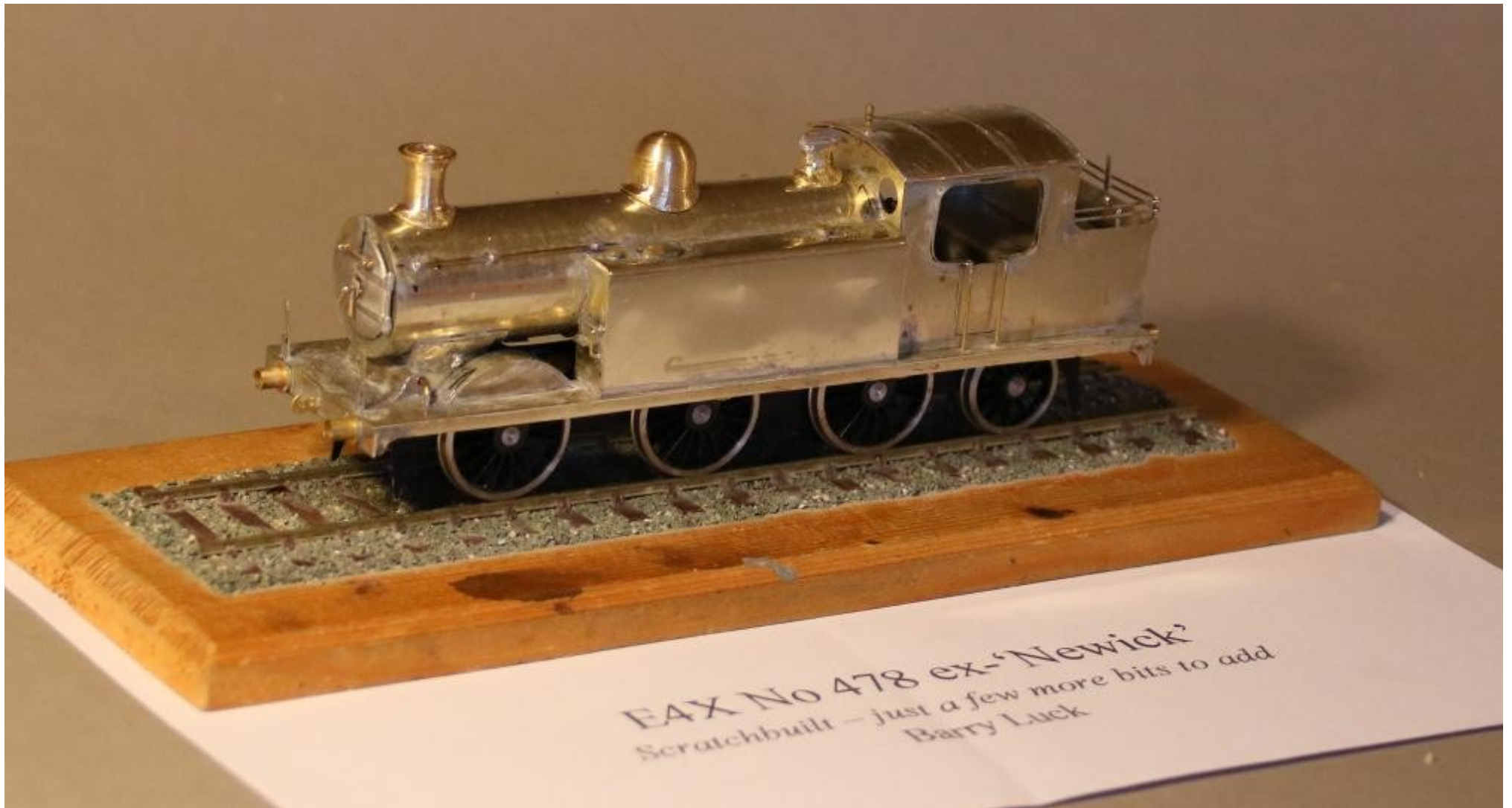


Starting with the smallest scale, Andy Coombes brought along some examples from Epsom and Ewell's 2mm Finescale project to model Lewes. New releases of 2mm scale rolling stock are at pages [223](#) and [224](#).



3D printing is creating solutions to some of the challenges of 2mm scale modelling. However, photos of very small items in translucent material do not really do them justice!





Barry Luck brought along two scratch built locos, both at an advanced stage in their construction. The E4X will be no 478 ex 'Newick'. The body is almost finished, but quite a lot of work is still required on the chassis. There is a feature on this project [later in this edition](#).



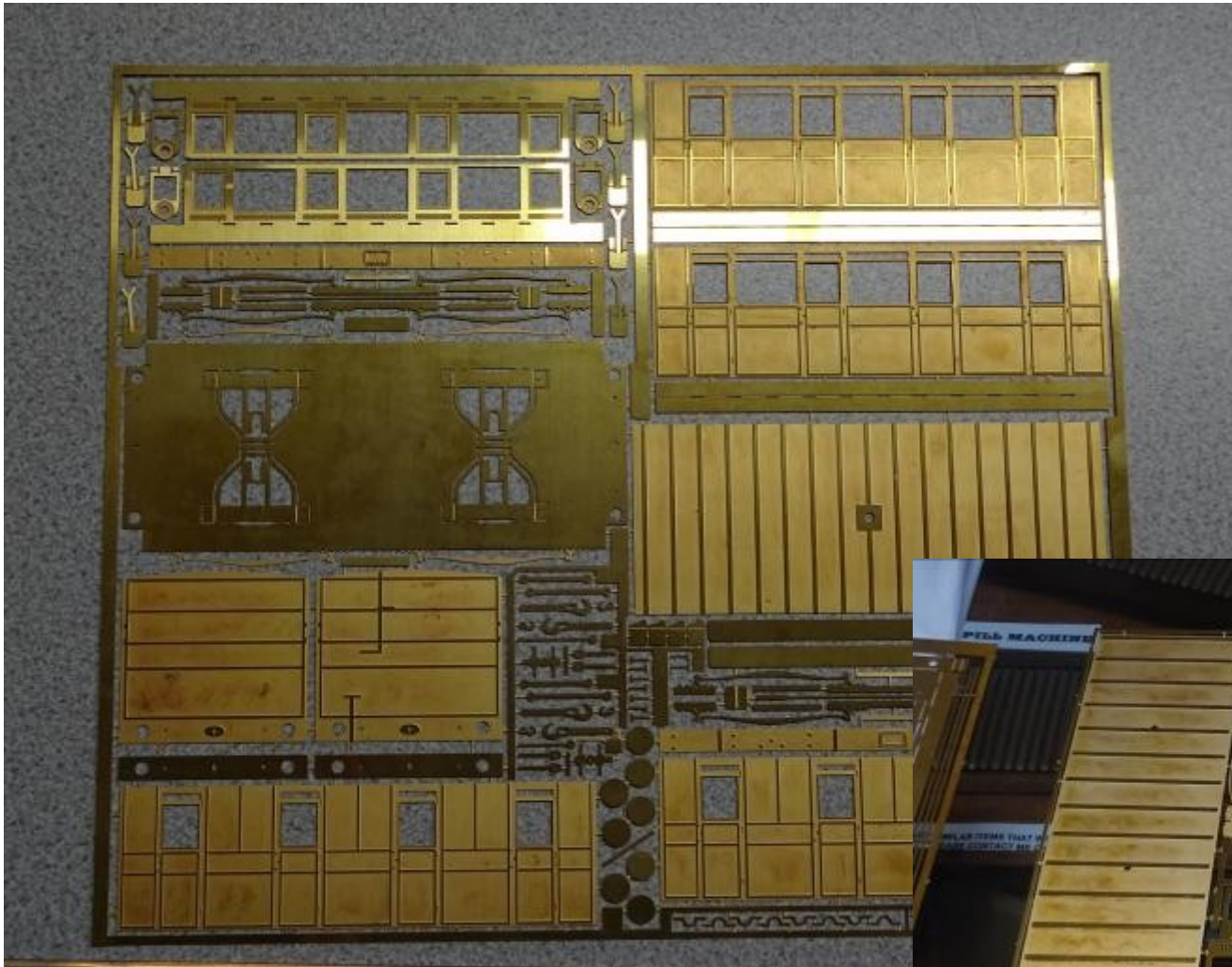
The I2 will be no 13, chosen because of its history – the accident at Streatham in 1915, and the fact that it was one of the last survivors, ending its days as a temporary bomb shelter at Portsmouth during the second World War, parked over a pit, and covered in sandbags. There is still quite a lot to do on the body, most noticeably the smokebox door, but also tank fillers, steps, and finishing the chimney, dome, and safety valve casing. The chassis needs brakes, guard-irons and various other bits and pieces.



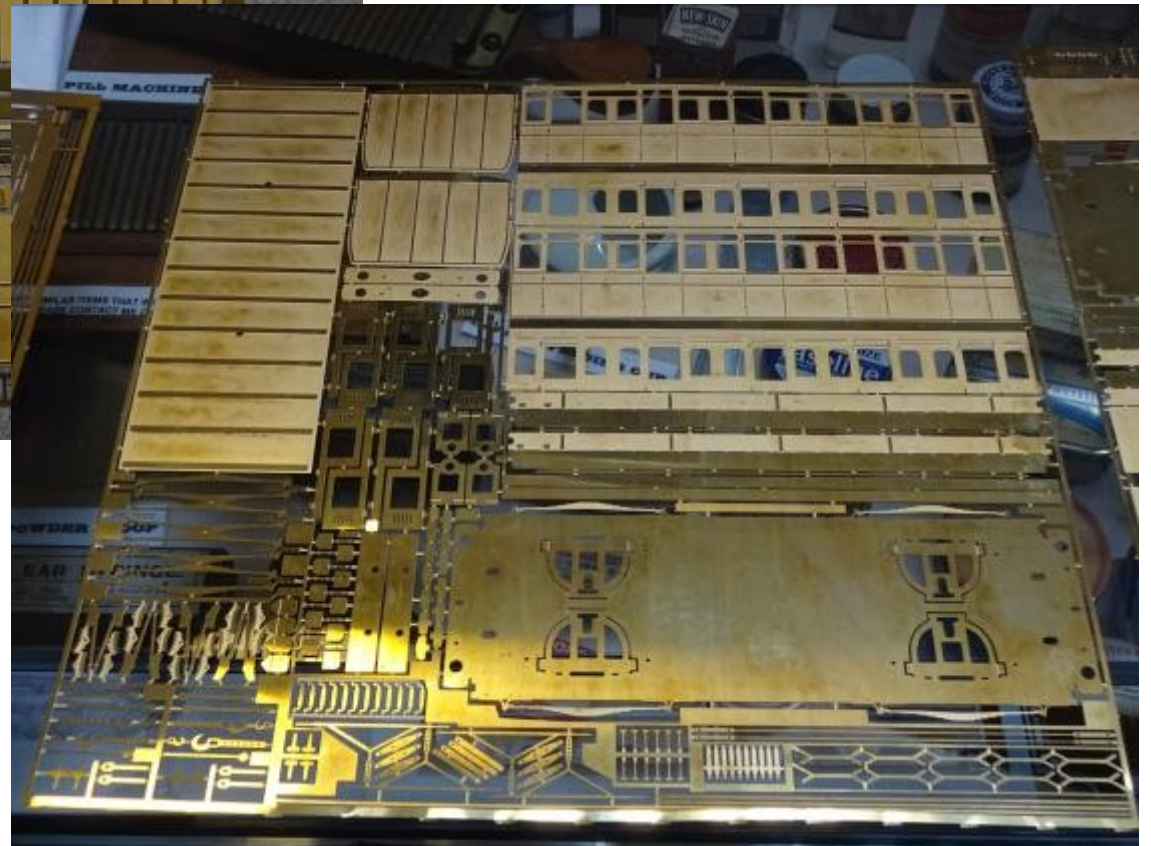
Ian MacCormac arrived with some 4mm scale kits for the Slaughter goods loco - but seemed to leave empty handed!

He had also brought along examples of the components for 7mm scale versions of the same prototype.

The sharp eyed may also notice examples of carriage lettering transfers at the top of the photo!



Two of the etched brass frets for Ian's 7mm scale Craven carriages.





David Lowe had brought along another example of 3D printing, in the shape of a kit to build a low round end Open A in 7mm scale. There is more on this project [later in this edition](#).

This rather striking 7mm scale E4 was also David's.





D2 0-4-2 Paris, with a set of 4 wheeled carriages was brought along by Nicholas Pryor, together with a pair of lime wagons. All are to 4mm scale. The transfers for the lime wagon are new from PoW Sides, based on Simon Turner's projected lettering layout for this wagon.



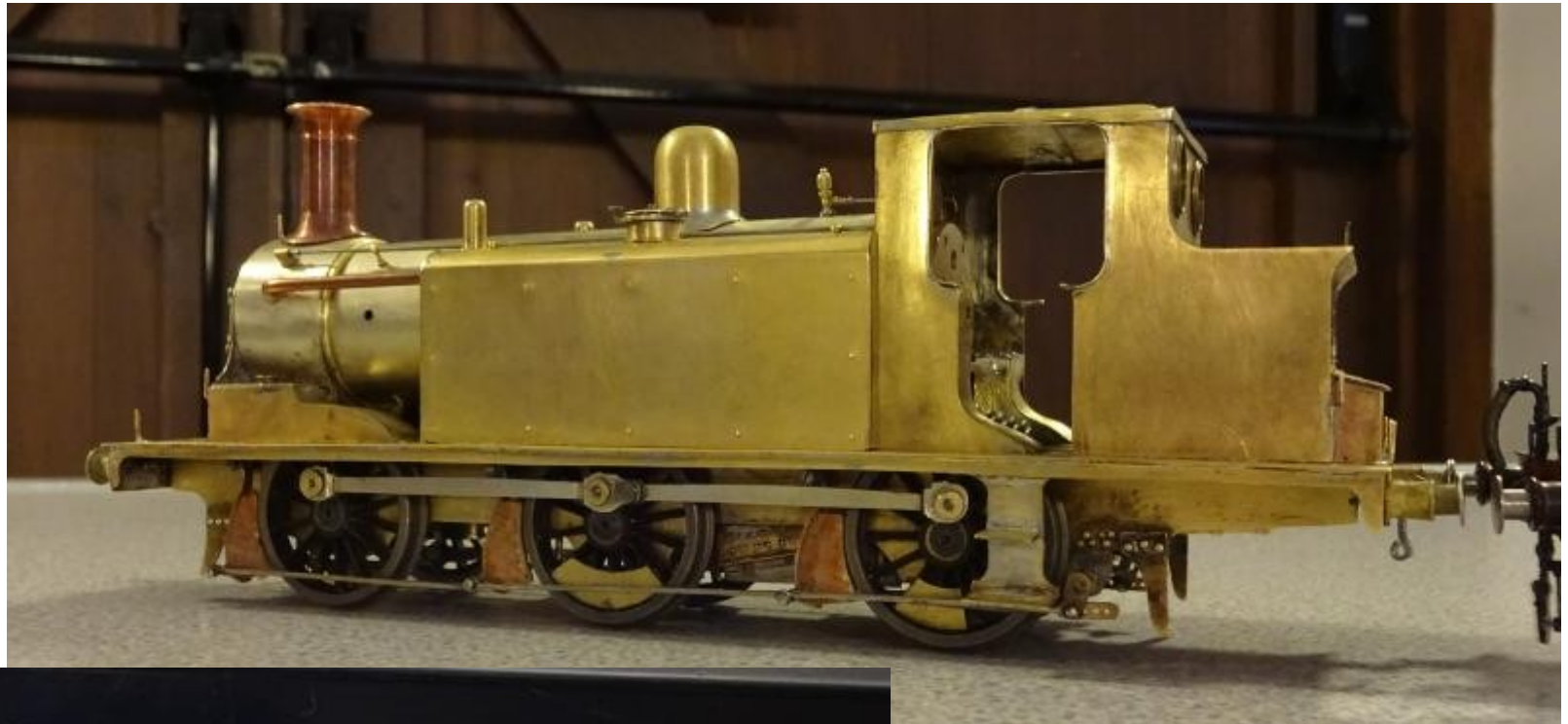


Peter Wisdom's 7mm scale models of Epsom and the petrol railcar.



Right

[Unpainted 7mm f/s LB&SCR E1 by Cliff Pester](#). It is completely scratch built with working inside motion. Cliff also turned up the chimney, dome, and Westinghouse pump.



Left

Colin Paul's E1X No.89 (ex-Brest). Virtually scratch built with Slaters wheels and buffers. Mashima 1833 motor. S&D Models 40:1 Gearbox. Chimney and dome are cut down Marsh white metal castings.

The travelling crane was also in attendance.

Following a previous discussion, Eric Gates brought along some examples of locos in different versions of Improved Engine Green livery.



On the left, the recent Brighton Circle enamel Improved Engine Green and on the right, an old Dapol Terrier body, repainted using Railmatch Desert Sand (intended for the experimental livery used on the Western class diesel hydraulics).

On the following page, the same locos are contrasted with others that have had “weathering” applied. The thesis is that a little judicious weathering will result in a significant colour change.



Above - the Brighton Circle colour - “weathered” and clean.

Below - Desert Sand - clean and fairly heavily weathered.



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... and the Virtual Blatchington

The following pictures show some of the items that featured during the “Virtual Blatchington” meeting that was held on Zoom on 13th May. This online session took place during the Coronavirus lockdown and was attended by 18 members of the Brighton Circle. It took the form of a “show and tell”, providing a progress report on some of the projects on which members had been working. Several of the projects are described elsewhere in this edition of the Digest.

There was a lengthy discussion about the pros and cons of 3D printing, with examples appearing in following articles. Other experiments are illustrated here.

The Brighton Circle will be holding a further “virtual Blatchington” on 14th July for Circle members.



Midhurst by moonlight. Michael de Jong Smith's Midhurst station showing the lighting that is built into the station and signals.

[There is more on Midhurst later in this edition.](#)



The loco shed is also illuminated.



Mike Waldron's Littlehampton shed. Built from a slightly longer version of the [LCut](#) kit. The real Littlehampton shed was not very big, and quite a few locos were shedded there. Most must have stood in the open air over night.

The turntable is powered by a Chinese 12v motor, geared down to about 30 rpm, but manageable at $\frac{1}{4}$ speed. The next challenge is to get it to stop in alignment.





The working level crossing gates on Barry Luck's Plumpton Green.



The lever frame that operates the signalling for Plumpton Green.

[Watch this video, which shows how the crossing and signalling are interlocked.](#)

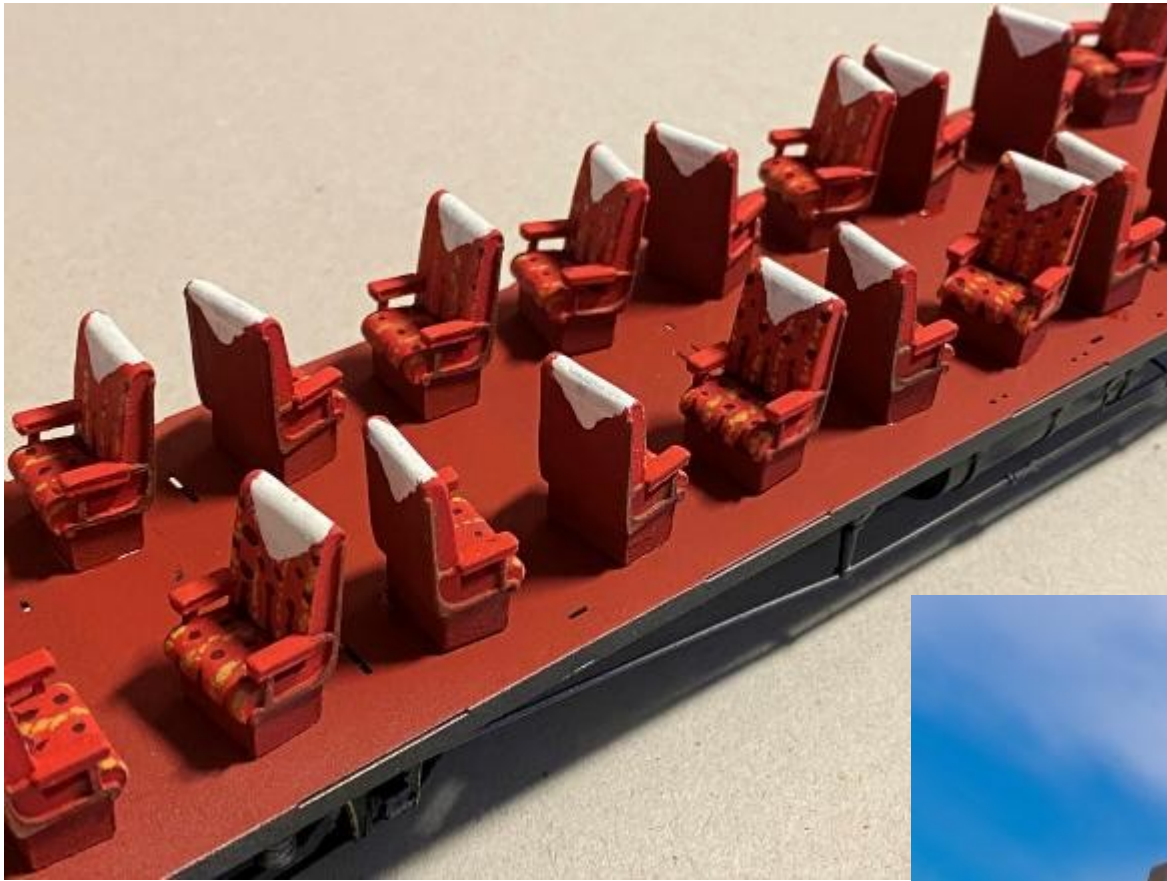


Phil Taylor's Craven Slaughter goods loco under construction, from an EBM kit. Many of the detailing parts for this loco are 3D printed to a very fine standard.

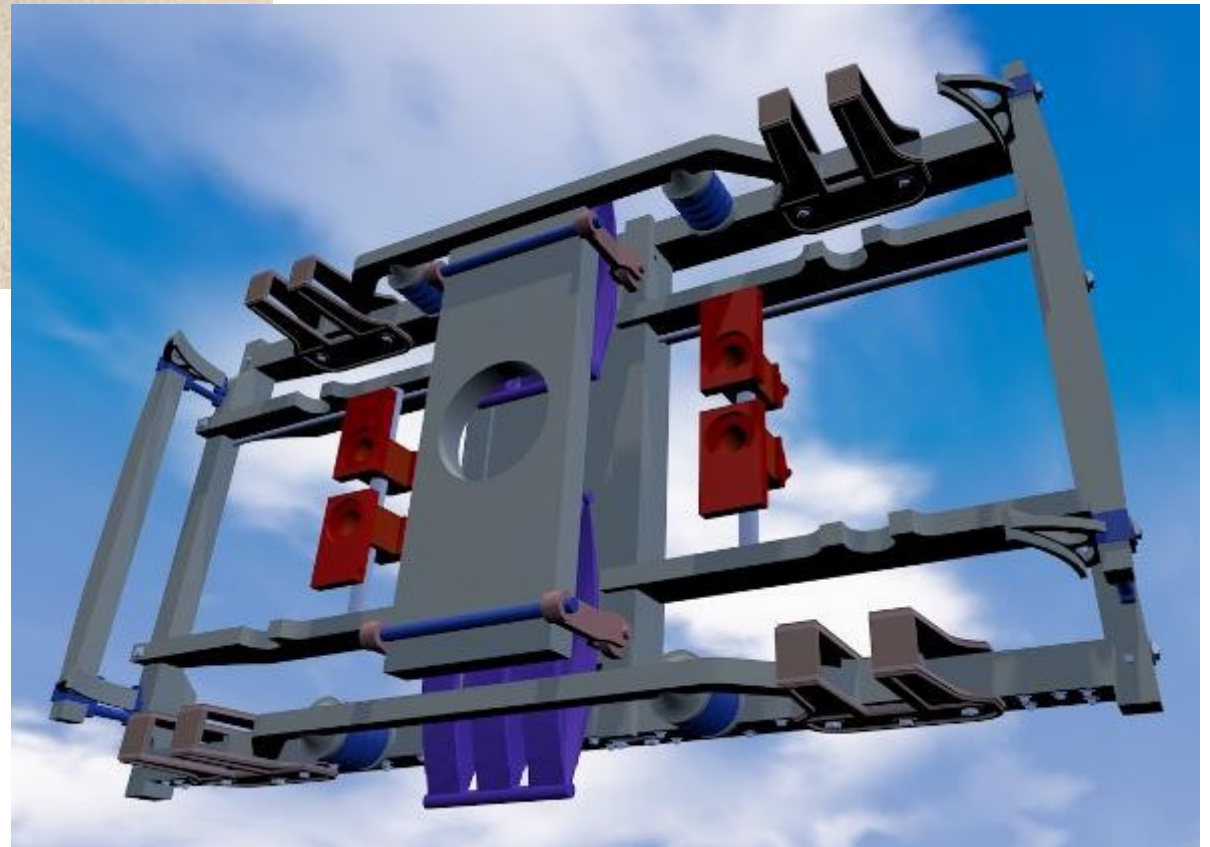




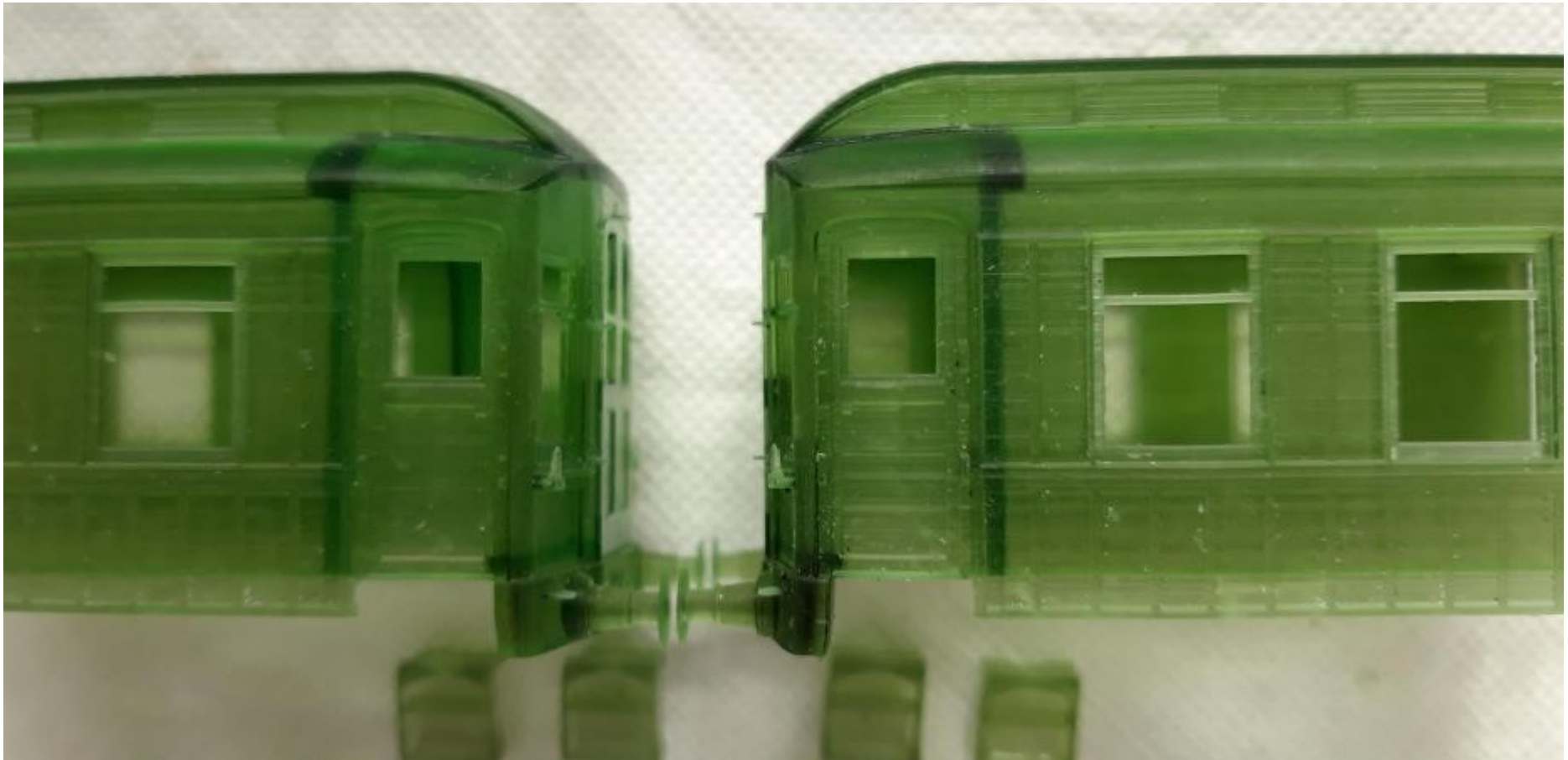
Peter Warren's project to build the Pullman train of 1895.



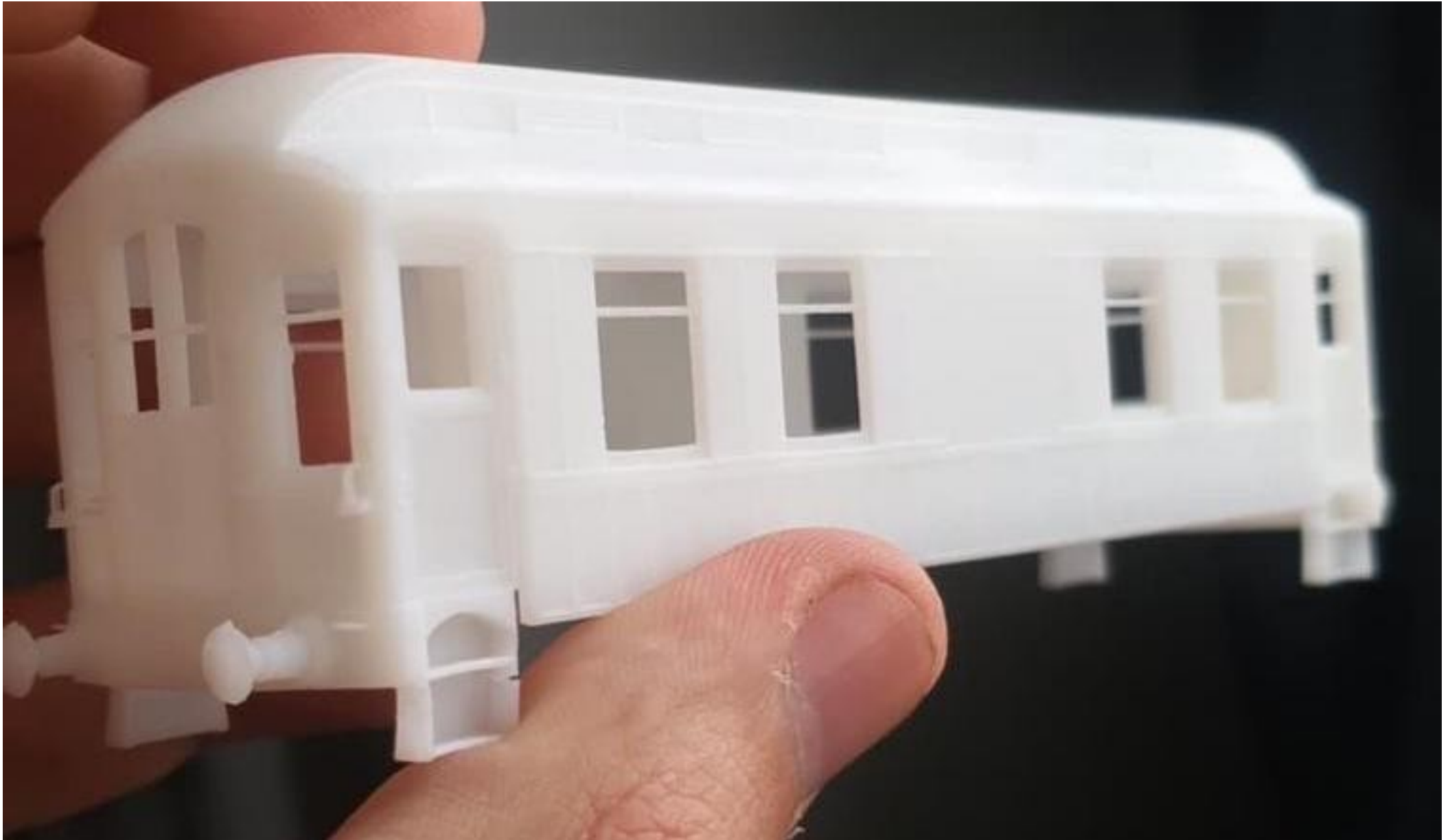
3D printing has been used for some of the components.



After the last Modellers' Digest was issued, Hans van de Burgt contacted Ian MacCormac with a proposal to collaborate on a 3D print of the 1895 Pullman train. Hans, and a colleague Jan Bouwman, have been inspired by Peter Warren's article and wanted to look at creating this train. They have been working in the Netherlands for some time on 3D designed trains and have access to laser cutting machinery as well as 3D printing, but wanted someone to help with the writing up of an article and some knowledge of the carriages. The coloured 3D drawing was sent a couple of months ago and then they have tried various ways of printing the Pup body on a small home use 3D resin printer such as the Anycubic Photon or the Elegoo Mars. The green resin print is from Ian's printer and shows the latest version; the body is in two halves with separate steps.



The white resin print has come from a commercial printer in Holland, which apparently is large enough to print the other carriages in the 1895 train in one piece. They will be working on underframes next and hope to have this completed for the next edition.





Richard Barton's Hayling Island in 7mm scale, under construction.



Sue Rose's brake van with working tail light. For more, [follow this link](#).





Nicholas Pryor showed a pair of recently completed locos in Craven livery. Both 0-4-2T no 167 (1863) and 2-4-0 no 175 (1864) on the following page are built from the set of “scratchbuilder’s aids” etches made available several years ago by Ian White. Both are built to 16.5mm gauge, with Alan Gibson wheels, and a Mashima 1220 driving through a High Level Roadrunner gearbox.



Loco fittings are from castings by 5&9 Models, as is the tender. They were built by David Amias and painted by Dave Studley in Craven era livery. They have both proved to be smooth and powerful performers, no 175 managing a train of thirteen four wheel coaches without slipping.

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LB&SCR Modelling in S Scale

Part 3

By Mike Watts

It is now over 2 years since my last article - Part 2 of LB&SCR Modelling. Part of the delay has been by me postponing writing further while I embraced a change of direction in my S scale modelling.

My old Wandle Valley Railway had been showing its age and it was time to replace it. So it was broken up and a new one started, but this didn't work out as hoped. It was designed as a terminus with an out-and-back loop, but after one exhibition it was clear that it was too much to take around to shows, so Whitford Green was reduced to a branch line with a single main platform and a bay platform. I re-used much of the station building work, which had been based on Mitcham. I also decided to move forward in time, that is to c.1906-1912, which a few of our worthy members call LB&SCR "Modern Image". The truth was that it enabled me to keep many of my Stroudley IEG locos running, yet enable me to introduce some 'modern' umber liveried locos!

Stroudley C Class 0-6-0 No. 409

Although this locomotive had run on my WVR, I had not mentioned it in my earlier articles. But what can you say about a humble 'work horse' like a C? It does its job hauling a few wagons in and out. It is a fairly conventional 6-coupled loco with a Portescap motor/gearbox and still in Stroudley green, the sort of loco on a layout that is utterly reliable but which you hardly notice. It carries one of the original set of Bill Bedford etched number plates which I had Bill etch for me 25 years ago.



Stroudley E4 Class
0-6-2T No. 467.

This is somewhat out-of-sequence as it has been completed only within the last year. Once again it goes back to the original etch numberplate orders. Besides ordering no. 464 (see Part 2 Christmas 2017) I also ordered no. 467. Like most scratch-and kit-building modellers, I generally only build one of each kind. But with the E4, I figured building 2 would hardly take much more time and so it turned out. But no. 467 sat unfinished for several years. As soon as



Whitford Green, c.1912 started to take shape, here was my excuse to finish no. 467. I don't know whether Marsh allowed no. 467 to continue to carry the cast numberplate, as was done on some other umber locos, but in my land of make-believe, that is what happened. I still think of it as "Berwick"!

Marsh H1 Class 4-4-0 No. 38

Enough of building these small locos I thought, I want to build a proper big one, and so the H1 was born. Besides being bigger, the Atlantic posed some challenges, the most significant of which, from a modelling point-of-view, is the clearance between each of the driving wheels and the bogie wheels. I did not want to use under scale wheels, but proper scale ones. Those available to me in S scale were very close to scale, but an inch or so clearance in 12 inches to the foot is almost nothing in S scale. To add a millimetre or two between the wheels would distort

the appearance of the loco, so I resorted to an old scratch building trick - add a millimetre in length in 3 or 4 places along the length of the loco body. No-one has noticed this slight distortion and no-one has yet asked to place their millimetre rule along the body length! Meanwhile the driving wheels look correct! My only regret is that I had never ordered etched number plates, as most of the Atlantics carried these in 1912. One of these days I'll stop being so cheap and order some!



The H1 no. 38 and the E4 No. 467 have both been painted in the early Umber livery with full Marsh lining. Lettering and numbers are courtesy of Mike Waldron and his EU friends.

This ends Part 3 of my S scale Brighton loco modelling. There are 3 more locos to come and that will be it, but one of them, my B4 still has a lot of work to do on it.



Photographs copyright Mike Watts

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54 Foot Carriages from Bisley Works

By Gerry Bixley

A picture says a thousand words!

The attached picture of S.R. Set 768 comprising 3 former LBSC carriages certainly said quite a few words to me. I first saw it on a visit to the Bluebell Railway archive at Horsham in 2019 and my initial delight, since I had long since modelled the very set in S.R. livery, was quickly dampened by the realisation that I had a problem – my models were wrong!

Photo courtesy of Bluebell archives.



I had always wanted a model of a typical ex. LBSC 3 coach set with a centre lavatory composite. Luckily, Branchlines (in the Andrew Mullins era) had produced the appropriate Brake Thirds for the Diagram 74/165 vehicles in etched brass. It was known that photos indicated variations to the brake ends of these vehicles, which were rebuilds of former 6 wheelers onto bogie 54 foot underframes around 1907-8. The centre vehicle, a First/Third Lavatory Composite of Diagram 112, was an etched brass kit from Smokey Loco Models, alas no longer in production. I had not previously seen a photograph of this set but the LBSC records, to which I had access, indicated that the 3 vehicles were quite standard products from Lancing Works. In respect of the Composite, this appears to be correct, but a problem arose when looking at the photo in that the ends of the Brake Thirds were of an entirely different pattern to the standard design I had made up. I say “standard” but LBSC coaches are a can of worms in reality and photos of trains have been known to show vehicles which, according to the official diagrams, did not exist.

The Diagram 74/165 Brake Thirds usually comprised a 5 compartment 30 foot Third with a Brake end, which utilised part of a 30 foot double ended Brake van with ends incorporating 4 large windows Stroudley fashion and wide duckets. Indeed a number of vehicles clearly adhered to this standard with a few variations to the panels appearing.

Closer scrutiny of the photo, which shows a party of workmen apparently cleaning down the sides of the set, perhaps ready for a re-varnishing which was S.R. practice, showed a vehicle with an end comprising 2 much smaller windows and no sign of duckets. Where the duckets might have been, there was a flush sided arrangement with two panels above the waistline. I should say that my mistake depicted the end of the sides behind a set of double van doors to be steel sheeted, in accordance with the S.R.’s desire to have vehicles with an overall body width of 8’0”, to allow a wider route availability, particularly on some Kent routes.

Oh dear no, I couldn't live with this situation: the Brake Thirds must be replaced! After all, there are quite a number of S.R. 3 sets in photos, often unidentifiable, but here we had a good view of a positively identifiable set. A phone call to the ever helpful Brian Osborne at Branchlines produced replacement sides but the ends normally supplied were wrong, as were the ends of the sides. Luckily, I had some ex LBSC 6 wheel sides of various types in my spares box. Andrew Mullins had produced a number of these vehicles. With these I had some ends, again with a variety of styles.



To the left, 4 end windows, with steel sheet on the last two panels.

To the right, 2 end windows and panels on the sides, as shown in the photo.

Over the years I have constructed a number of LBSC types from etched brass components, some of which comprise 2 or 3 sections of different bits, soldered together in appropriate configurations. One vehicle comprises parts from 3 different manufacturers. One gets the impression that Lancing Works did much the same thing when assembling their rebuilds onto 54 foot underframes. This rather frugal way of using parts is not fully recorded in company records it seems. However, recent research, especially by Ian White, Ian MacCormac and Mike King has produced much more information, much quite unknown to me, about the differences among vehicles. It is now known that even within vehicles to one diagram, variations included some which had some entirely new parts. The new parts did not conform to the designs of the old 6-wheelers necessarily and this is the case with the vehicles within Set 768.

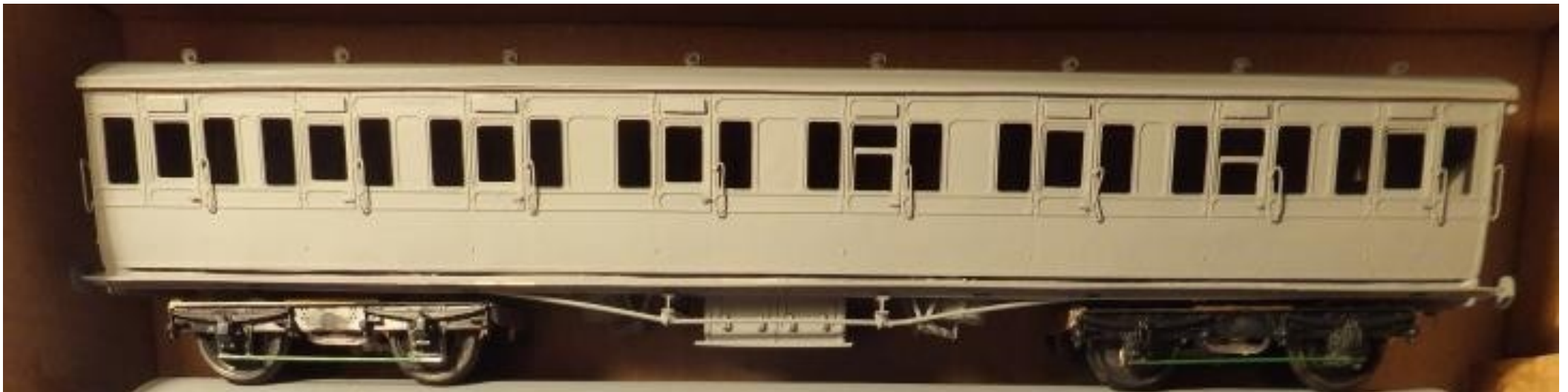
As I am familiar with the process of reassembling the order of coach sides, I took some suitable six wheelers and cut off sections of the ends of the sides to include the outer set of double van doors. The Branchlines bogie vehicle sides were reduced by a similar amount using a very fine tooth saw and, after a little filing smooth, the parts were soldered together. By including the van doors I find the soldered joint to be in the best practical position. The 2-window ends came from other Branchlines' kits, not necessarily the ones giving up their side parts.

You may finish up with bits of kits which are not realistically useable in the construction of further vehicles, but don't worry too much about that, since the S.R. sold off bits of some carriages for use as dwellings or garden sheds, others became railway store rooms or mess rooms etc.



The replacement 5 compartment Brake Third, for set 768, built by blending parts from Branchlines etched kits.

Now having produced vehicles which are much more appropriate for Set 768, I looked round for a set for which the original 4-window brakes could be utilised. My choice was restricted by my desired period (circa 1935) and choice of area, (Central/Eastern Sections) and I failed to find a set which was suitable. However, Set 813, which emigrated to the farther corners of the South West Section would at a pinch be suitable. But what would I do about the centre Composite, a 1924 built LBSC design Composite to S.R. Diagram 337? This is the type of which nine gravitated to the Isle of Wight and some lasted to the end of steam. No kit of this type is available but the basic components for the sides can be produced from a Mallard Models elliptical kit – if you can find one. Luckily I had a spare and, after providing a new arc roof from tin, and new 8 foot wide ends from my spares' box, the sides were reduced in height both at the top and bottom a little to conform to the standards of the Branchlines' vehicles, to represent the slightly different arc roof type. The whole lot assembled, with soldered joints of course, is remarkably accurate; the fact that the panels above the windows are a scale 6" instead of the correct 5½" is not obvious.





1924 built LBSC design Composite to S.R.
Diagram 337

So, I now can assemble two 3 coach S.R. "Rover" sets, both quite different, and I will have to invent reasons for both to find their way to the Central Section to carry out duties from Horsham.

You never know but you may even pass by a garden containing a garden shed with an arc roof!





Isle of Wight set 503 which went over in 1938. The original was converted from a LBSC 1911 Brighton to Worthing set which once had sliding doors at the front end. The set was gangwayed and the models are built from parts supplied by Allen Doherty of Worsley Works in accordance with my drawings.

And for the real modern image enthusiasts, LB&SCR carriages in BR red livery!



Set 727 represents the BR era. The original set comprised a driving Brake Third of 1912 which was paired with a Composite built new in 1922. Another gangwayed set built from parts supplied by Allen Doherty of Worsley Works in accordance with my drawings.

Photographs copyright Gerry Bixley

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Midhurst LB&SCR 1866 - Timber Traffic

By Michael de Jong Smith

Local trade in timber started in the 19th Century. Based around the West Sussex/Hampshire/Surrey borders, a family would buy a 'parcel' of timber. A parcel is the industry term for a number of trees, often still standing in the woodland, and most probably sold through an auction. The timber would be felled and cut into beams, posts or planks where they fell. This would be achieved by digging a pit and hand sawing, the resultant production being hauled out of the woods by horse and waggon. It would not have been unusual for the workers to walk 12 miles to wherever they were working and back again in the evening!

Beech was in particular demand and was despatched from the Earl of Egremont's underwoods to be sent as far away as Newcastle and Yorkshire, where it was used by the coal trade as rails for the horse drawn wagons between colliery and wharfs and also as pit props, especially in the Yorkshire coalfields. There was also demand from the North Wales slate mines.

Up to the coming of the Brighton Railway to Midhurst, all outward shipments of timber had been done either by canal barge or by waggons using the turnpikes. In the early days, the railway company showed little interest in this type of freight, primarily due to lack of suitable wagons to carry it, but then some bright spark seems to have realised that this business could be profitable and wagons for this trade started to make up a large part of those seen in the yard, even from far afield.



Timber on a waggon by the crane, waiting to be loaded. The two single bolster wagons were built by me from kits and lettered and painted by Amanda, a friend who has offered to help me with painting of this kind.



A 3-horse timber waggon entering the yard.



Timber already loaded onto wagons awaiting sheeting.

Away from that subject, I do seem to be developing a liking for locomotives with a 2-2-2 wheel configuration, as I now have my scratchbuilt Sharps tank, a “Jenny Lind” from a 5 and 9 kit of castings, my version of “Chichester” which is from an EBM Models etched kit, built and base painted by Richard Jones, finished and lined by Geoff Haynes, and “Albany”, built, painted and lined by me pre Parkinsons. This is from a Peter Ks kit in etched brass and went together without any problems.

This photo shows “Albany” entering Midhurst with a short train comprising a D77 oil-lit 6-wheel double ducketed full Luggage brake van, followed by a 4-compartment D 43 First, a 5-compartment D44 Third, and a D45 Third Brake. The make up of the train means that luggage and first class passengers can alight under the canopy, while the “hoi poloi” have to alight in the rain! The 6-wheel brake was built by me pre-P and lined for me by Amanda in Holland, the other coaches were my work pre-P.





Top
Jenny Lind
from the 5
and 9
Models kit.



Lower
Albany from
a Peter K kit

I am now enjoying starting to run trains in and out of Midhurst and a short goods train is shown arriving on the run-round prior to the loco going on to the turntable. It will then use the platform road to run round it's train before shunting the wagons into the yard. Train consists of an acid tank destined for the gas works, two elderly horseboxes, two six ton dumb buffer coal wagons with an early brake van attached.



Other additions to the layout are a loading gauge at the goods yard throat. The first poles have also been erected for the new telegraph system, which is being installed to enable working with more than one-engine-in-steam.



"Chichester" passing the new semaphore signal, which is in the off position, with a train comprising a 5 compartment 1850s open-sided carriage, followed by two 1866 5 compartment Seconds, a 4 compartment First, a Craven Family Luggage, with a birdcage brake at the rear.



“Chichester” has now acquired a crew, beautifully painted by my friend Graeme, and also now has a tender full of coal. This loco is the pride of my collection.



My thanks are not really enough to acknowledge the wonderful work done for me by the individuals mentioned in the text, as well as the help and advice received from various members of the Brighton Circle. Thank you all.

Photographs copyright Michael de Jong Smith

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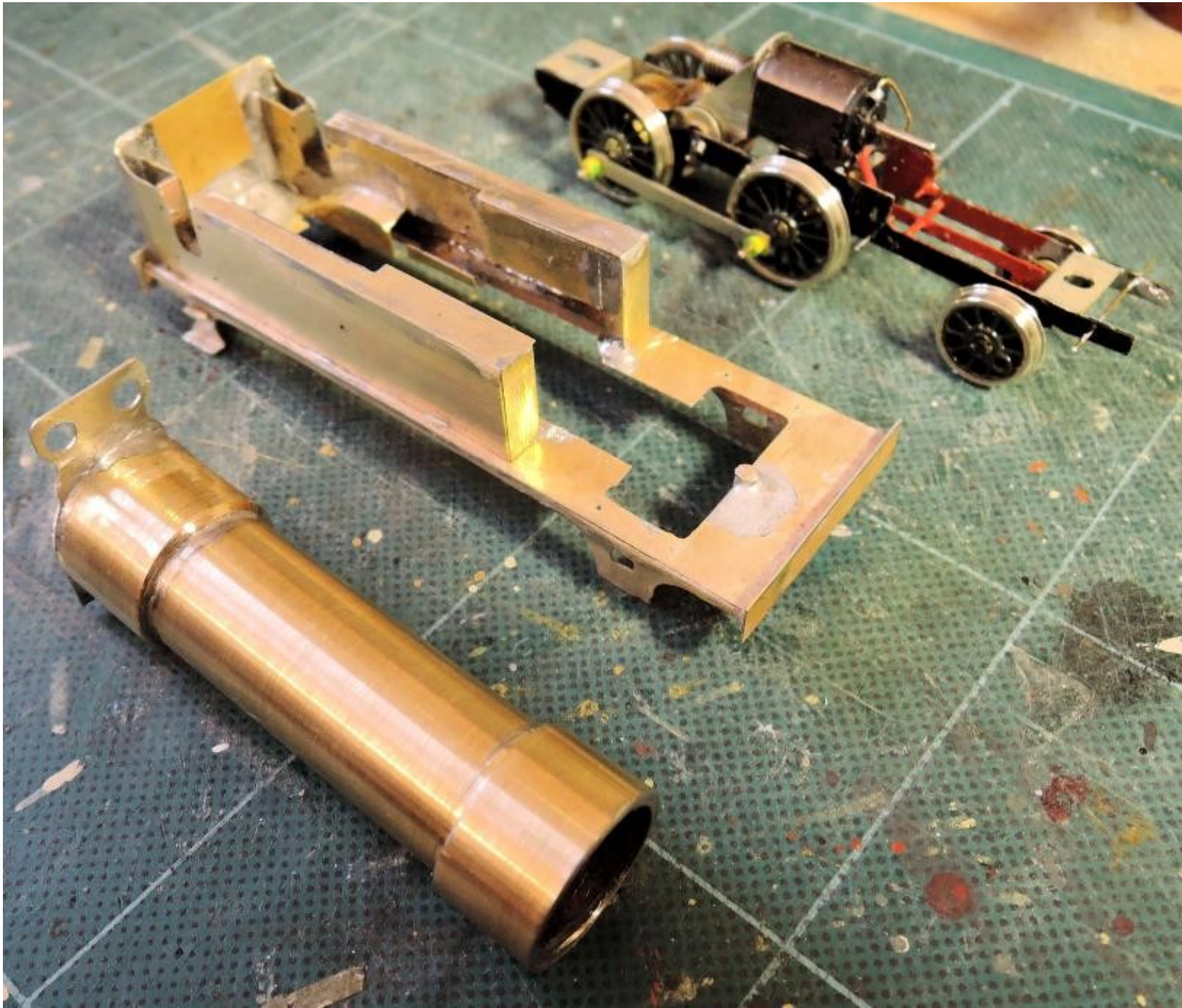
Well Tanks for East Grinstead Town

By Ian White

In 2012 I cut the sheet metal parts for two locomotives that had an association with East Grinstead. One was a 2-4-0 long boiler locomotive (No.120, built 1857), and the other a 2-4-0WT that had started life as a Hackworth single in 1847, been rebuilt as a 4-2-0 Crampton in 1853, rebuilt again as a 2-4-0 in 1855, and finally as 2-4-0WT No.58 in 1858. Such a rate of rebuild must have been something of a record but it was one of several locomotives once described by the Board of the LB&SCR as “useless Hackworth engines”. They were discussed in an article by Eric Gates (The Brighton Circular, Vol.39, 2013, pp.116-130) and the Crampton was modelled by Chris Cox (www.5and9models.co.uk).

I built my model of the long boiler loco and exhibited it at the Blatchington meeting in 2013. However, the Hackworth was shelved and lay forgotten until a few months ago, when I got as far as assembling the frames and starting on the boiler, only to pop the bits back in a box again and forget them while I attended to my more pressing duties. A few weeks later we were in lockdown!

My East Grinstead Town layout presently resides at the Museum and Study Centre of the Historical Model Railway Society, that is located on the extensive site of the “Midland Railway – Butterley”, which is a few miles north of Derby. The layout is operated for a few hours whenever our hosts have an event and I restrict my choice of stock to represent the 1870s, although the Hackworth was withdrawn in 1868!



The component parts of No.58 ready for testing, detailing and assembly. Each of the two side tanks were initially a sub-assembly, designed so that they fitted around the broadened firebox, and based on dimensions taken from an original cross section drawing that another Circle member kindly provided. The downside of modelling in 00 is that large wheels intrude into an open cab and splashers have had to be added.



The assembled No.58 ready for a final clean up and then painting. Note that the boiler fittings are loose so they can be removed for painting and the chimney “copper” top has yet to be made. The well-fed crew will hide the cab splashers!



Now with the cap on the chimney and a first coat of paint.

Having prepared the Hackworth for finishing in Craven livery, I looked to see what I had in my spares box for another project. I had some 5'6" driving wheels, a 1024 motor, some outside cranks, and a tinlet of IEG. With those, I decided to model a West End well tank, one of which was rebuilt as a side tank and finished in Stroudley passenger livery. Even more remarkably, No.378 was photographed on both sides (left, in D.L. Bradley, *Locomotives of the L.B.& S.C.R.*, Fig.27; right, in V. Mitchell and K. Smith, *Three Bridges to Brighton*, Plate 90). It will make an interesting contrast to the little green well tank, although in this case I doubt that the real thing ever went anywhere near East Grinstead!

Drawing – The F. Burt drawing in *Moore's Monthly Magazine*, Vol.1, 1896, p.128 (Fig.34 in the later reprints).

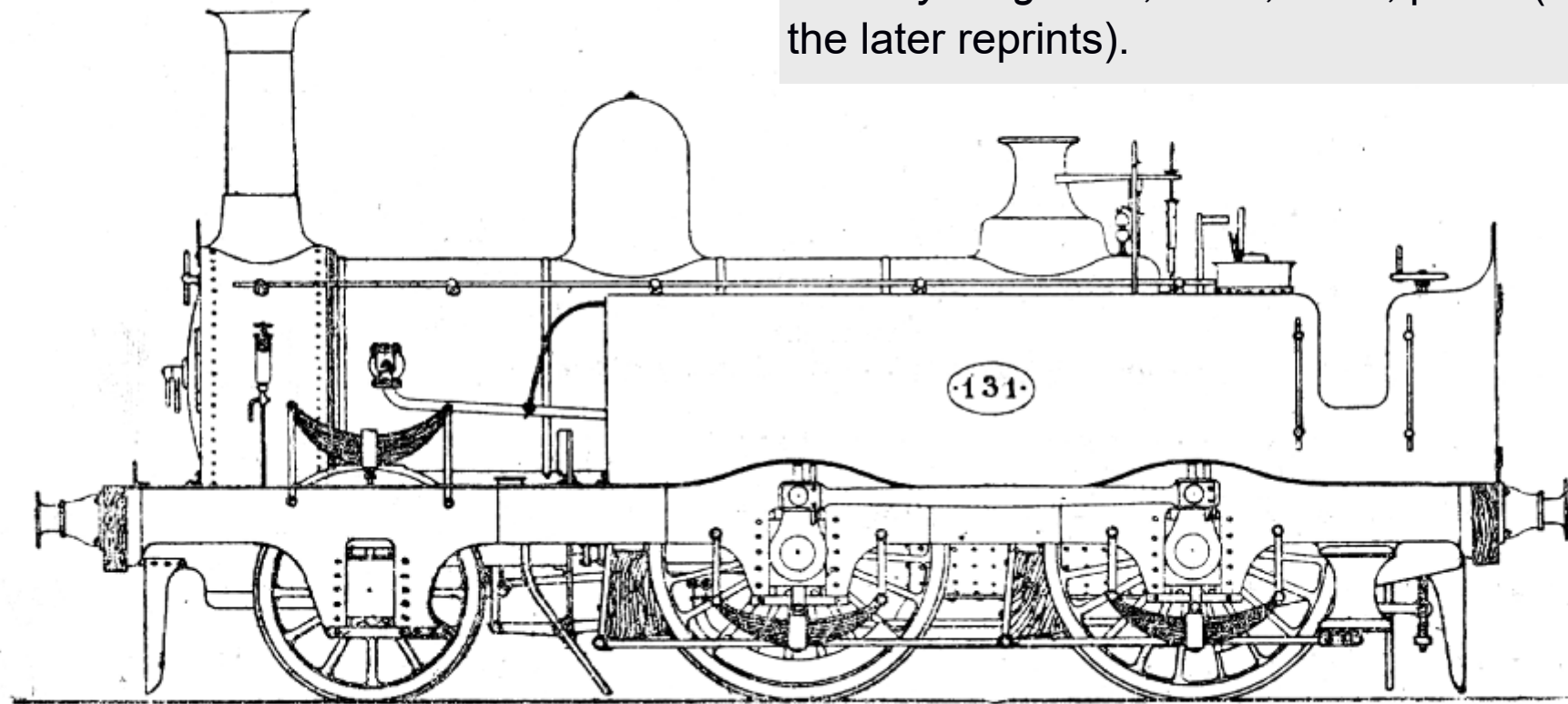
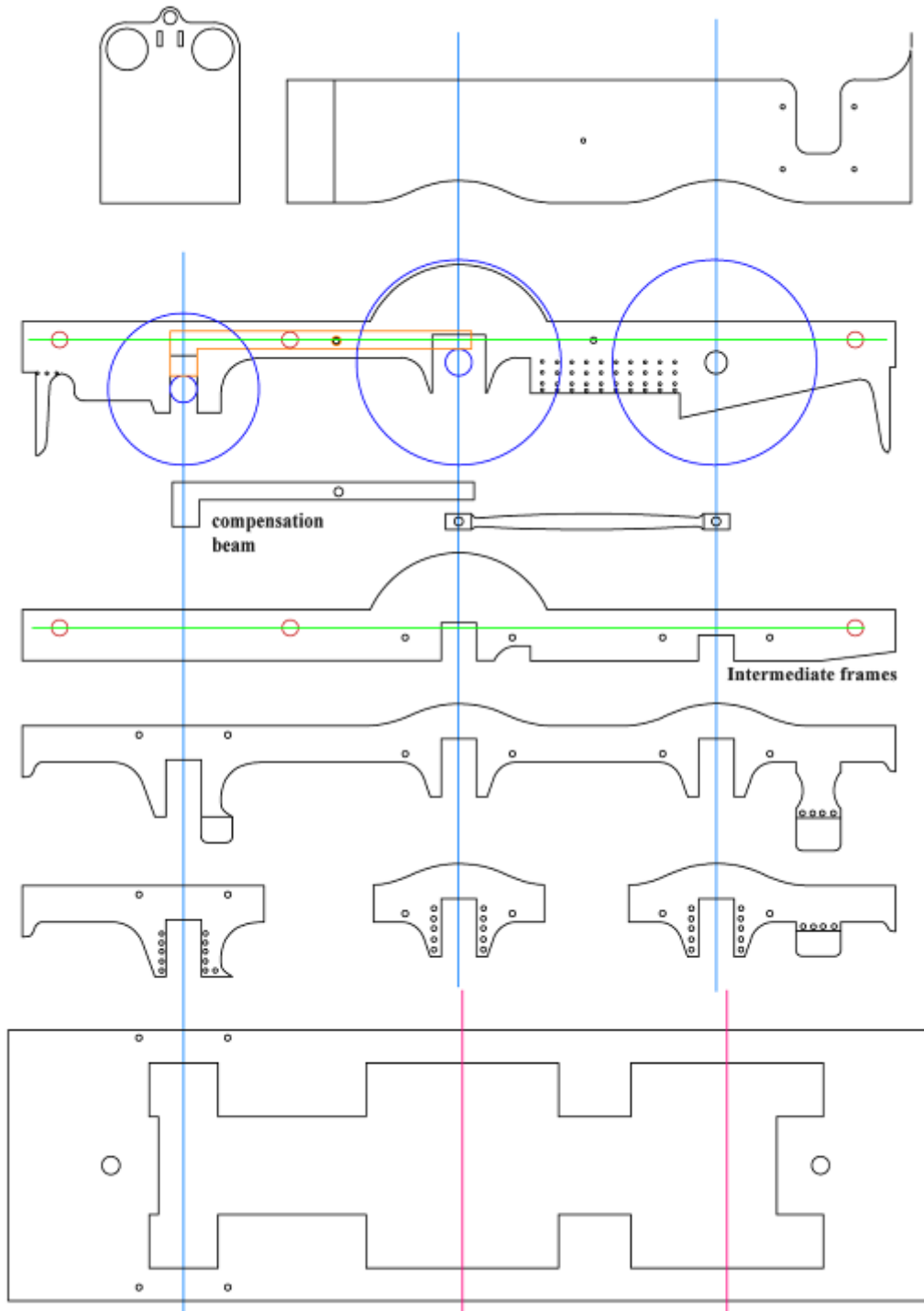
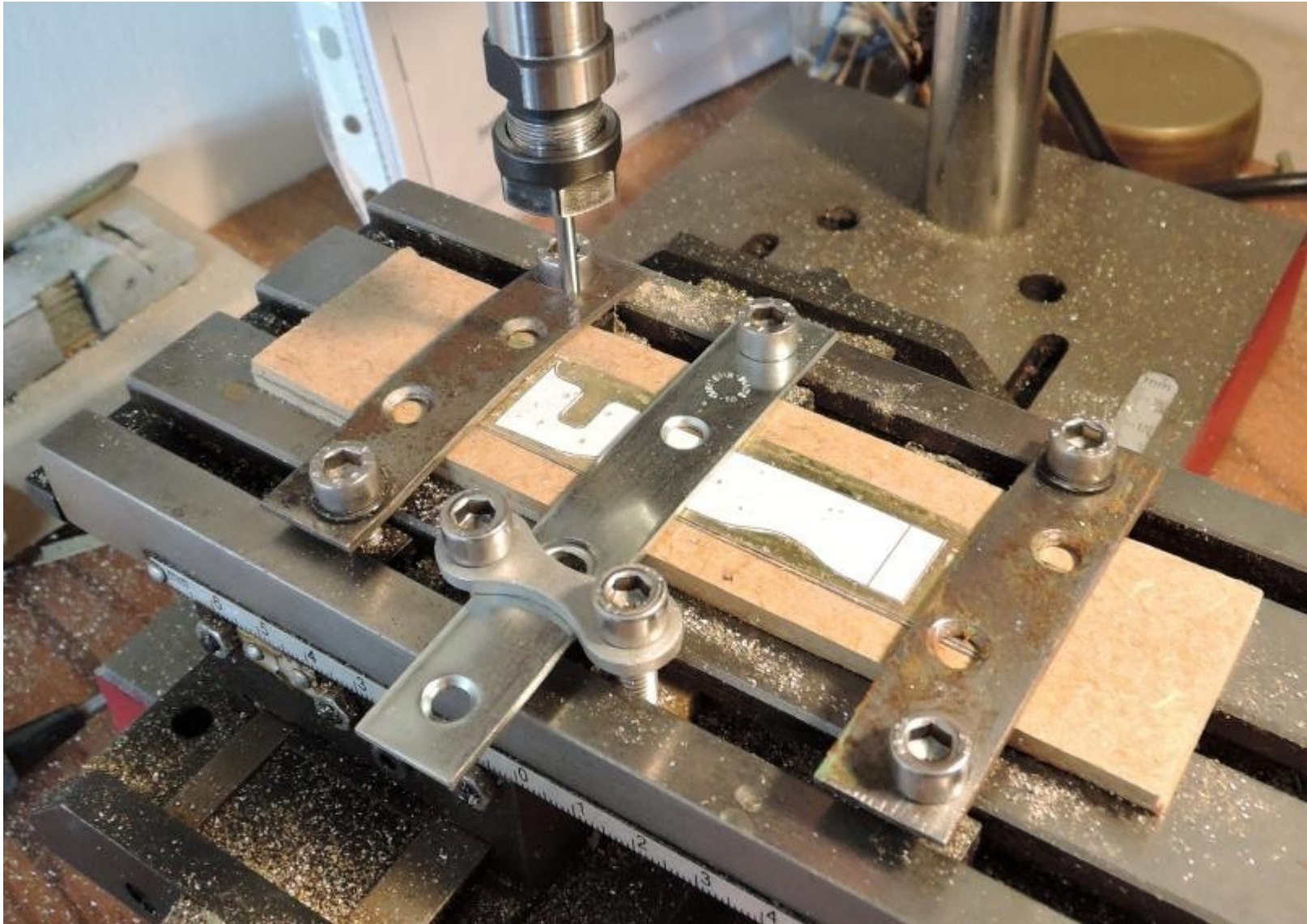


FIG. 30.

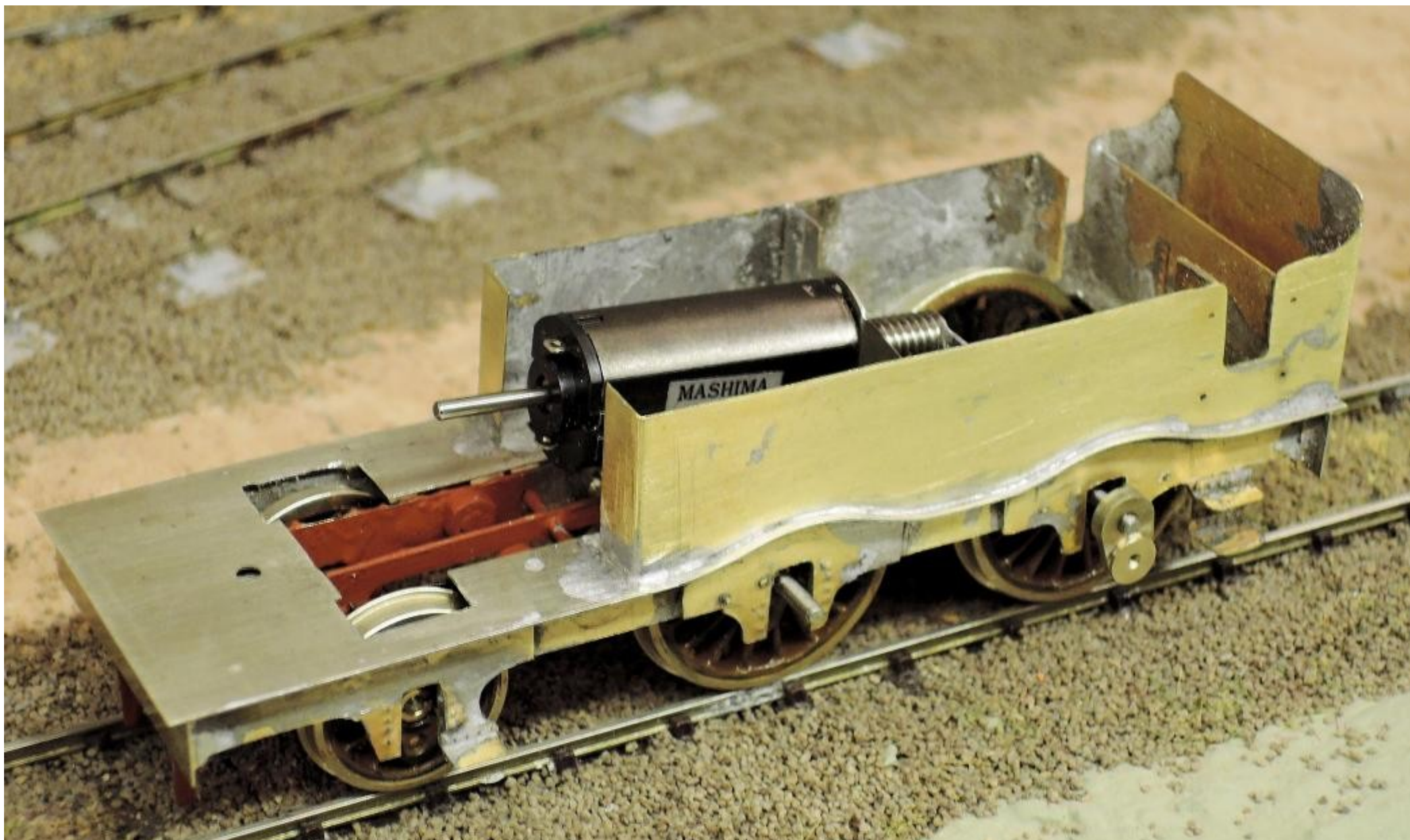


The cutting plans prepared from the drawing on the previous page. Note that the centre lines for the driving wheel cuts in the footplate allow for the circumference of the crank splashers.

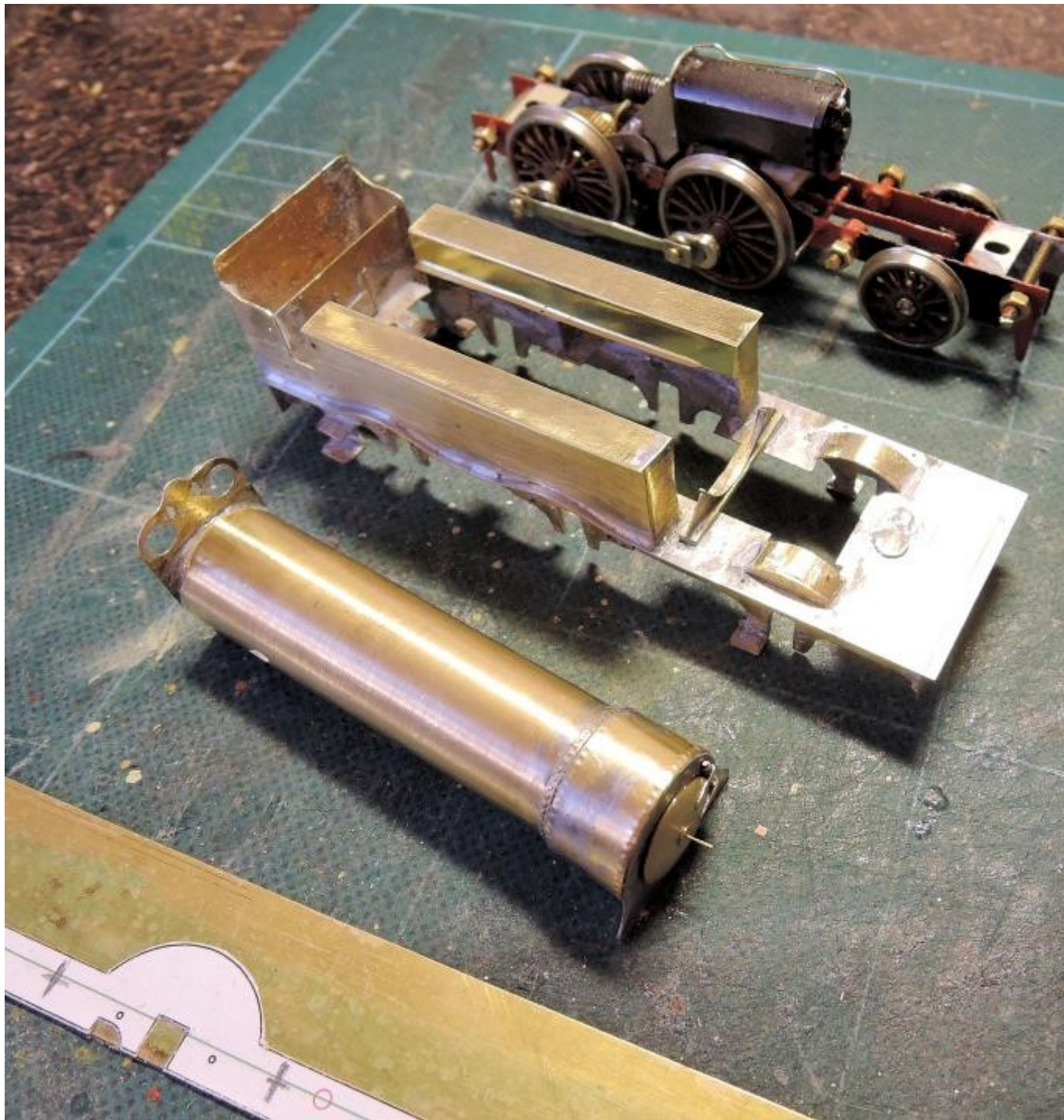


I am not a fan of the piercing saw so I decided to mill the more complex parts, using a method described by Terry Bendall in *Scalefour News* (No.165, Dec. 2009, pp.10-12). Each drawing was glued (using a glue stick) to either a single sheet of metal, or a pair of sheets soldered together for a paired structure. Most of the cuts were performed using a 3mm milling cutter but I used a 2mm cutter for the cab entrance.

My attempt at milling the curvaceous lower edge of the tank side was a failure, so I started again and cut the sweeping curves using a small drum sander. This technique allowed regular checking of the parts against the footplate, that had by then been soldered to the outside frames.



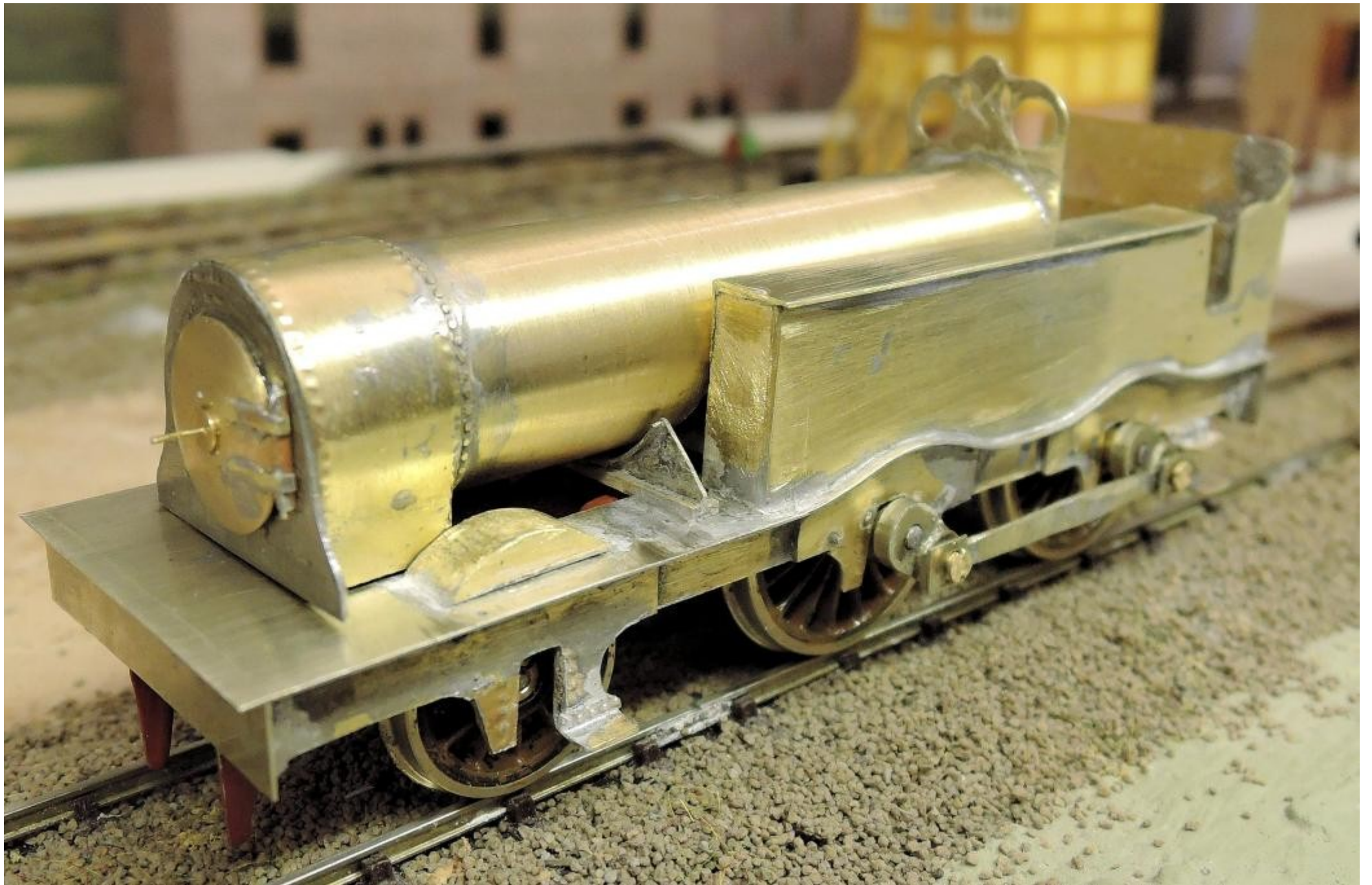
The re-cut tank sides fitted to the footplate. No.378 lacks a wide firebox so the tanks are of uniform width, making the remaining tank assembly less complex than that of No.58.

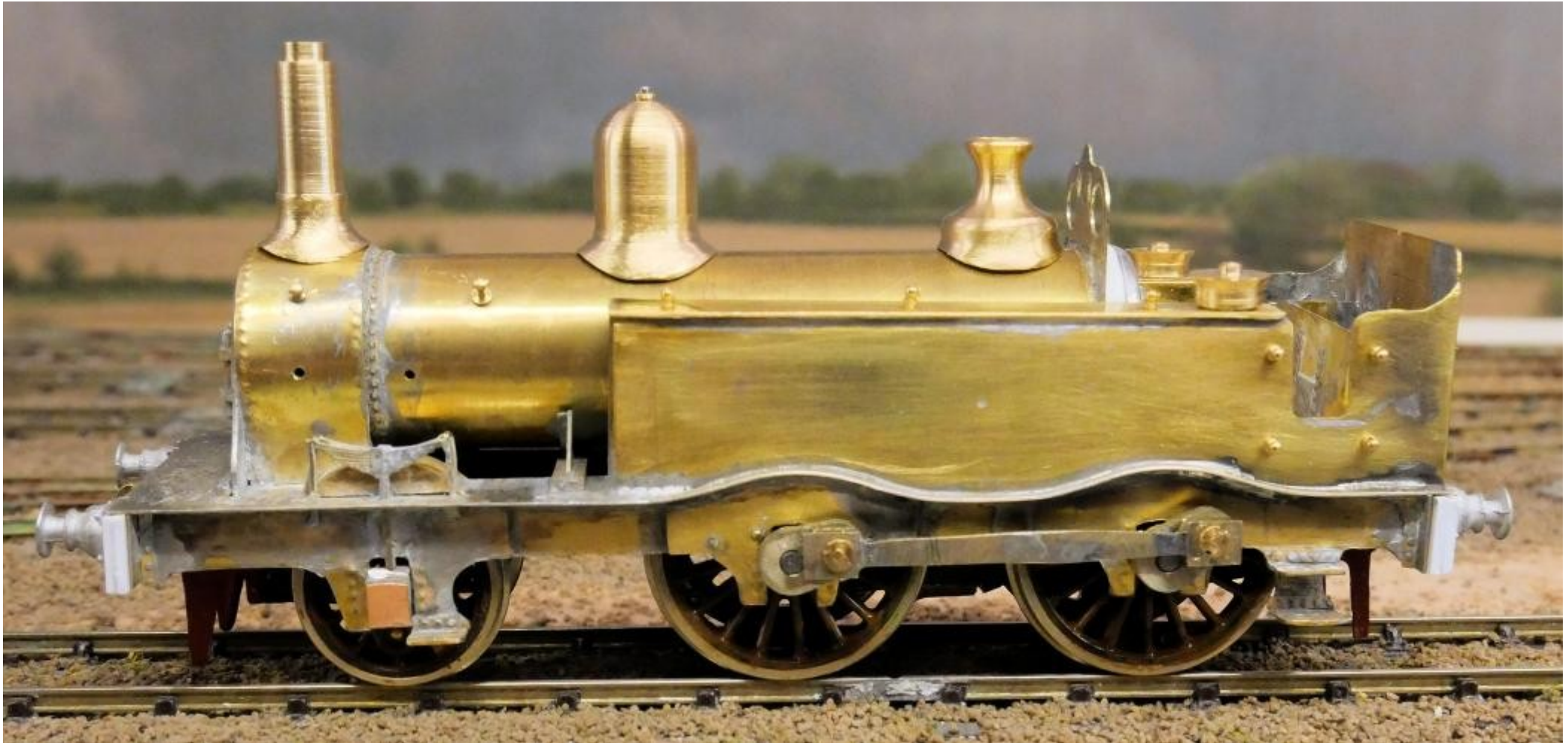


The basic parts ready for detailing and finishing. The bits of studding sticking out of the chassis frames will support hidden “intermediate” frames, which will be soldered to the nuts after they have been adjusted to position these frames immediately inside the outside frames. These intermediate frames have yet to be cut, and they can just be seen at the lower edge of the photograph. They will support the underhung springs which have to look as if they are fitted to the outside frames. The idea of using intermediate frames derives from a rather more sophisticated approach to the underhung springs with double frames problem suggested many years ago by Guy Williams (*Model Railway Journal*, No.46, 1991, pp.105-108).

Previous photo continued – However, in his method the footplate was soldered to the intermediate frame and the outside frames were permanently fixed to the inside frames. That would make for a better presentation of the springs but would be difficult to achieve with this footplate and tank side shape. Turning to the body, the bunker front may need to be taken off again for two reasons; the floor will have to be set high to help disguise the gearbox, so the coal door needs to be higher; secondly, similar locos appear to have had a bunker across only $\frac{3}{4}$ of the cab width, leaving a gap on one side to accommodate the brake standard. The arrangement I ended up with on No.58 was a by-product of the way I constructed the tanks and is almost certainly wrong, although it will largely be hidden by a coal load.

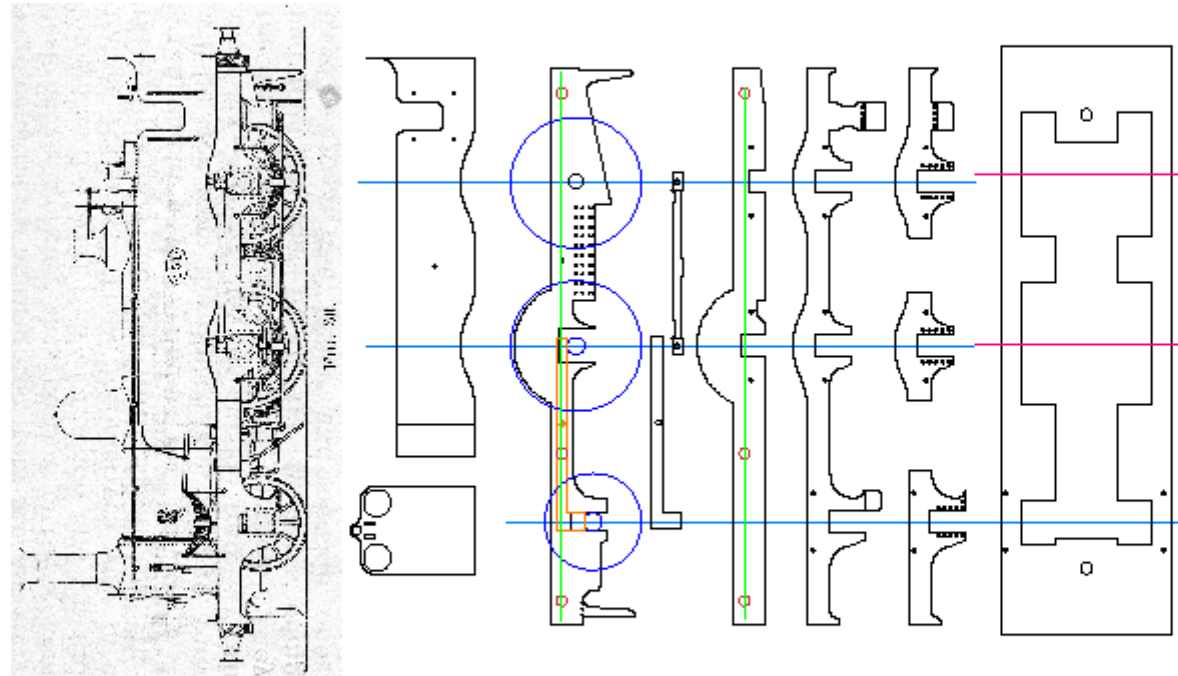
Following page – A trial fit of the boiler assembly. The rivets on the smokebox wrapper should perhaps have been more prominent. Although I have a rivet press it lacks a feed system, so I had to find an alternative approach to forming a row of evenly spaced rivets. I fixed the metal to a bit of scrap wood on the compound table of the mill/drill machine and put a blunt pointer into the drill chuck; the pointer was made from a broken shank drill. The pointer was pressed into the metal and the metal advanced to the next rivet position using the adjustment wheels on the compound table, e.g. rivets at 3 inch (1mm) intervals were separated by a full turn of the wheel. Some of the other rivet detail on the model was made by fitting etched wagon strapping, e.g. the rivets behind the smokebox.





Boiler and some details now fitted, brass turnings produced, and bunker corrected to leave a clear space to its side for the brake stanchion, and presumably also for tools. Once the model is completed and given a really good clean, then both locos can be primed and painted, and the final fittings added, including their copper coloured (phosphor bronze) chimney tops that have yet to be made. I decided to paint both locos at the same time to save on PPE!

The drawing below is scaled to provide a cutting plan for a 4mm scale model of the West End tank. By printing this page and setting the printer to print “actual size”, it should retain the scale. As a quick check, the wheelbase is 15 feet and therefore should measure 60mm from leading wheel centre line to trailing driver centre line.



Some Etched Brass Coaching Stock

By Phil Taylor

I decided to make good use of the hiatus caused by our impending and much delayed house move (and latterly the lockdown) to make up some of my stash of 4mm scale kits, at least to reach the “ready for paint shop” stage. I didn’t think this would make for a ground-breaking article, but the Editor suggested it might be of interest, particularly to those who are not regular builders of etched kits. The methods for building etched kits are well known and amply covered in numerous magazine articles and books, so I won’t repeat them here. Also, the instructions with all the kits I am about to describe are mostly pretty comprehensive and clear, so I don’t really need to expand on them. However, I will start with some general comments:

It is vital that surfaces to be soldered are clean, I use a fibre glass scratch tool or fine emery. A method I have found for making good soldered joints, with an easily controlled amount of solder, is to apply some liquid flux (e.g. Carr’s Green Label) to the joint with a small brush, and cut a length of solder off the reel (I use cored electrical solder in two sizes, 1.7mm dia. for big jobs needing plenty of strength and 0.7mm dia. for finer details – the old type containing lead, which I hope is still available. I bought a large stock a few years ago before the EU lead ban came in. The piece of solder is then placed into the flux with tweezers. It is possible to vary the length of the solder piece down to really tiny for minute details. Then apply the hot, clean iron to the solder / flux pool. It will (usually....) melt instantly and flow nicely into the joint. The iron can be removed quickly to avoid too much heat spreading to adjacent joints, and minimal cleaning up should be required. I have a selection of irons of different wattages and with various different shaped bits,

selecting the most appropriate one for each joint (which sometimes means having to wait for the iron to heat up when changing mid-job). If necessary, use a marker pen or grease to prevent solder flowing where it's not wanted. Remember to wash the assembly thoroughly after each working session (I use cheap 'cream cleaner'), otherwise the remnants of liquid flux will cause tarnishing. The flux in the cored solder doesn't seem to cause any issues as any remnant turns into what I hope is an inert solid.

Another very useful technique is resistance soldering, in fact some kits would be very difficult to build at all neatly otherwise, for example the very fine strapping on the horse box. This does require a level of investment, but is well worth while if you are building kits regularly.

I usually start with the chassis, on the basis that the body can then be made to fit it! (To be fair, in all these kits there has been no problem in that regard.) As I model in P4, some form of springing or compensation is a requirement for long wheelbase vehicles, and all these kits make provision for this in varying forms of greater or lesser elegance, as I will explain with the photos. In all these kits apart from the lantern roof brake, it was only necessary to follow the instructions. The most frustrating job is shortening the buffers – why do they supply castings with the buffer in the fully extended 'rest' position? Using them unaltered would mean an enormous and totally un-prototypical gap between vehicles, so large that most couplings won't even reach! I usually cut off the buffer head at the outer end of the housing, shorten the shaft and re-drill the housing to take it, fixed with superglue or low melt solder. A fiddly and time consuming job that should be unnecessary! Buffers with a separate head would be better, and some kits do provide these (or you could source separately). I have added Westinghouse pipes from bent wire where not provided in the kits.

With the body, I usually form the turn-under/tumblehome first (by rolling a piece of tube over the side resting on a soft surface), and then add all the details while still in the flat, such as door hinges, droplights, door handles, handrails, vents etc. I don't use the etched handrails (if supplied) as they look rather flat, preferring to bend them up from 0.3mm wire in a simple jig to ensure they are all the same. Some kit producers include spare door handles (T shape), and these are handy for those kits that omit them... A slip of thin card behind the handle can space it off the side while soldering from the back. The ease of adding the details like this outweighs in my mind the added difficulty it entails when assembling the body (as it usually prevents simply placing the two halves in a right angle fixture). Soldering the sides to the ends is always a bit tricky – the best method seems to be to use whatever you can contrive to hold the parts at right angles and in the correct alignment (usually the end goes inside the side) and tack solder at one point. Then check carefully for fit and don't be afraid to unsolder and try again. Once happy, add further tacks until finally completing the full seam (making sure you don't re-melt the whole thing and allow it to move). Then join the two L shaped parts together to make a whole body. You did make sure the two L's were correctly handed of course....!!! If you are worried about melting off the previously-applied details, a judiciously applied aluminium hair grip or two will give an adequate heat sink.

Please note none of the vehicles have the roofs fixed on (until after painting), so they don't all lie perfectly in place in the pictures. The vehicles all need further attention such as cleaning and the filling of some joints before / during painting.



Roxey
Mouldings
Stroudley
6 Wheel
Full Brake
D37

The Roxey kits are well designed and go together easily, although they do contain some small

compromises, such as the running boards being attached directly to the sole bars (in 4 places). This does make them much more builder-friendly however. This makes into a very nice looking vehicle – the tarnish visible is due to prolonged storage before assembly! The duckets are folded up from one piece (rather than trying to assemble separate pieces), and go together well. I like the Roxey roofs, provided in vac-formed plastic and easy to cut to size, they represent the prototype thickness well. I will have to fix that wonky oil pot!

The Roxey 6 wheelers utilise outside pin-point bearings and have a well thought out chassis compensation and sliding arrangement which is both easy to assemble and works well, see photo below.



Roxey Mouldings Stroudley 6 Wheel First D46

Another nice vehicle, the chassis is identical to the brake apart from the wheelbase.





Roxey Mouldings Stroudley 4 Wheel Third D33

The Roxey 4 wheeler chassis have a different compensation arrangement, with inside bearings and a simple V pivot for one axle. It works well although obviously with higher friction than the outside pin-point variety. It does require a fair bit of filing of the bearing surfaces to give the correct ride height, and removal of the axle ends, but it has the bonus of not having to hollow out the cosmetic axle boxes. I may have erred in making the seat backs full height, but hopefully this won't be apparent once the windows are glazed.



Roxey Mouldings Stroudley 4 Wheel Brake Third D34

Nothing to add here, but the same comment applies to the seats!



London Road
Models
Stroudley Flat
Sided
Passenger
Brake

This is a more “high fidelity” kit than the Roxeys, and consequently requires more care to build. It does have some lovely touches like the door vents, and has sprung buffers. The duckets are more tricky, being

assembled from separate parts, but have a lovely representation of the raised beading. It also has much better brake gear than the rather flat Roxey version. The compensation is a simple rocking axle arrangement with pin-point bearings.



E.B. Models
Stroudley 4
Wheel
Second
Saloon D23

This is a much more recent kit than the others. The axles are individually sprung with wire leaf springs on pin

-point bearing carriers. I must admit I was initially a bit sceptical about this, but they work beautifully, giving a lovely soft ride (probably better than the original passengers had to endure!). Not only that, they are completely hidden! The roof in this case is brass. Uniquely, a printed cut-out-and-fold-up interior is provided (rather like the ancient Micro-Models kits I sometimes made as a child, remember them?!!), which I am sure will look great through the glazed windows. This will provide a nice addition to a regular passenger train and provide an opportunity for some shunting, perhaps with a horse box and carriage truck?



Chatham Kits Stroudley 14' Horsebox

Now this was a much more 'interesting' proposition!! I built two of these. The kit dates from the early nineties and unfortunately the quality of the etching is a bit variable, for example the very fine vents at the top of the sides were over etched in some cases (OK on the one in the photo) and some of the strapping etc. was a somewhat poorly formed. The very fine panelling overlays are really at the limit of what is possible with etched brass. To assemble them, I tinned them while still all in the fret. They then require very careful removal from the fret and cleaning up with a fine file. Attachment to the sides (in the flat as mentioned above) requires a

resistance soldering unit and very great care to correctly position them. It would be very difficult to achieve a neat job with an iron. All the beading, straps, hinges etc. have to be attached to the sides, a job requiring huge patience, but which gets much easier by the fourth one! At least the sides fold up from the floor, which makes assembly of the body (i.e. adding the ends) much easier, provided you can form the bend at the bottom edge sharply, which again takes considerable care. The compensation is again by a simple rocking axle unit with outside bearings. The roof is brass and only just big enough. It does produce an interesting and attractive vehicle at the end though.



Chatham Kits
Stroudley Goods
Brake Van

This also shows its age with some variable quality, but it does make a very characterful vehicle. On the plus side, it has proper buffers, joy! Again, the sides fold up from the floor but the lantern roof requires a lot of care.

The roof is brass once again – I added a support inside at the centre of the lantern to ensure correct alignment. The lantern roof was too small so I had to make a new one.



The compensation is by rocking axle, but any similarity to the previously mentioned examples is sadly lacking, as it is a poorly designed arrangement (different from the horse box from the same stable – sorry, I couldn't resist that one!) which does not hold the axle parallel to the fixed one – I had to add a piece of square brass across the floor in a desperate bid to hold it in line. The brakes give a good representation but are pretty fiddly to correctly align, as no aid is given.

Photographs copyright Phil Taylor

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7mm Scale Stroudley Carriages

By David Rigler

A few editions ago I wrote an article on my experiences of using a CNC router for modelling. As an initial trial I produced parts for a 7mm Stroudley 4 wheel 3rd body.

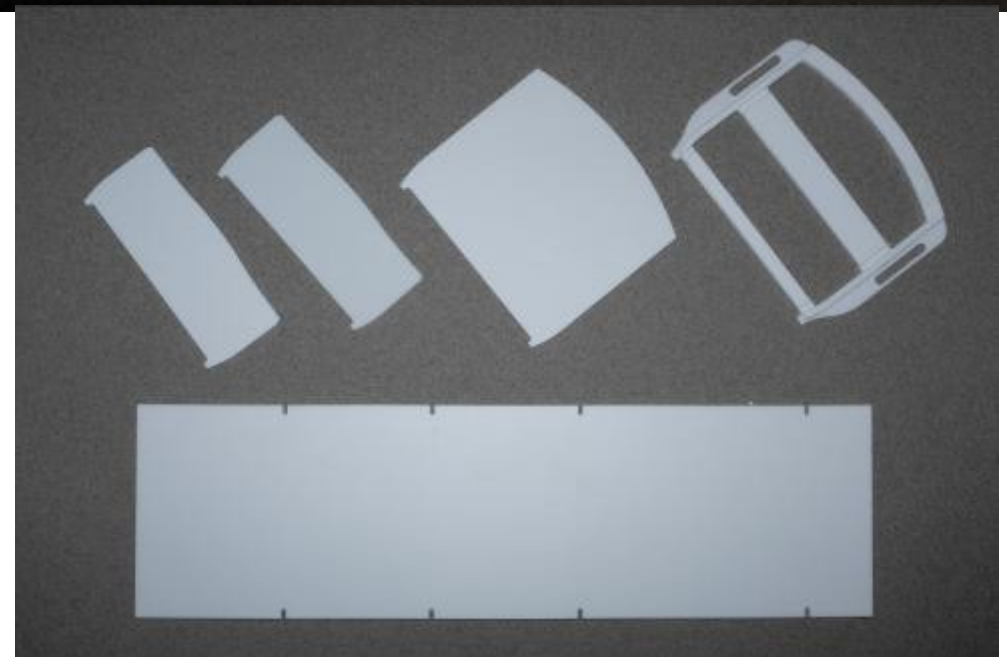
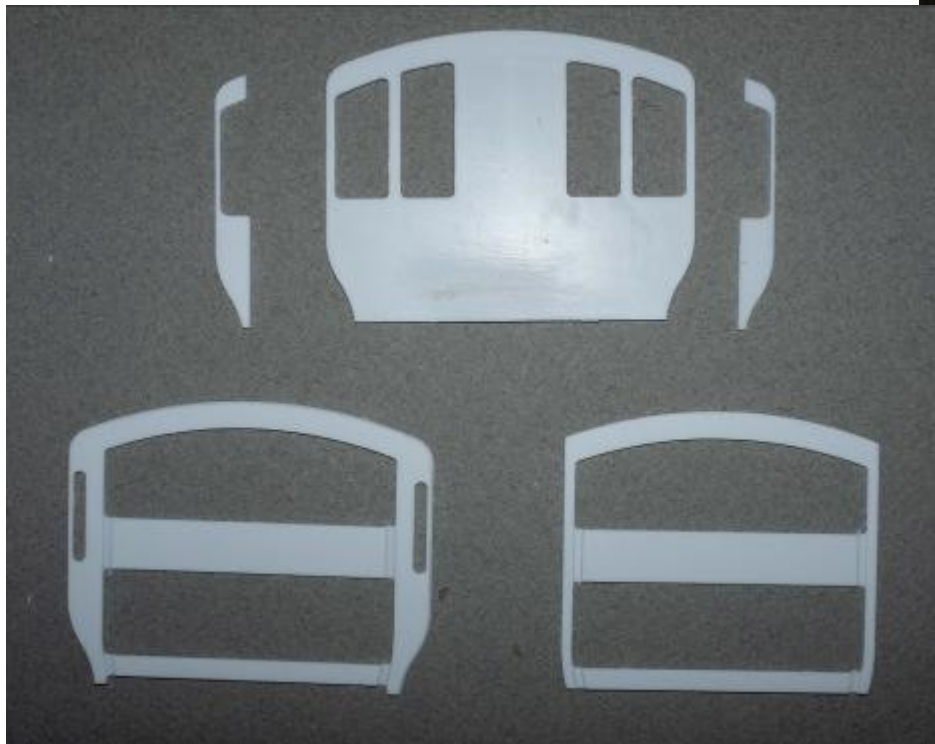
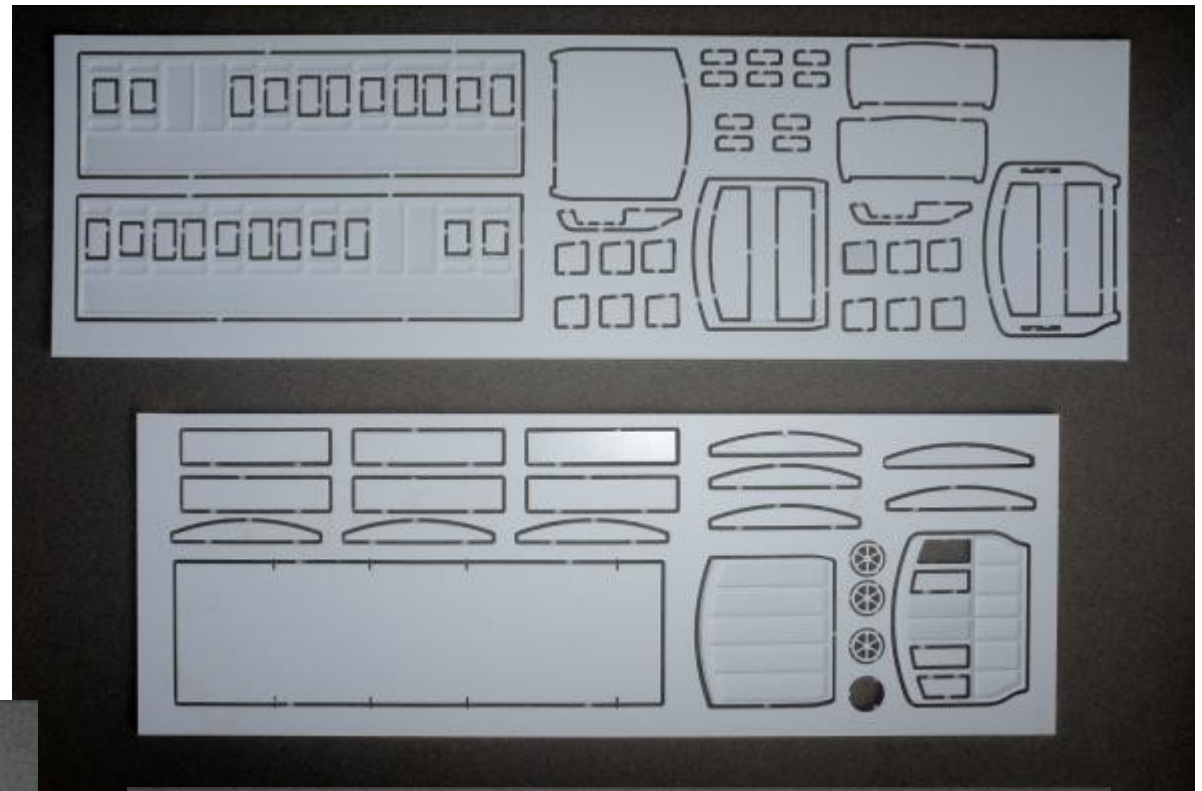
This article describes how I have refined and improved the method on a Brake 3rd, trialling both Plasticard and Walnut (as an alternative to the mahogany, shown here, whose grain looks too non scale and toy like) and then starting production of a rake of carriages.



The parts are produced on two sheets. The upper (sides, partitions, vents, seat supports) is 1mm thick and the lower (floor, ends, roof braces, seats, brake wheel) 1.5mm.

Assembly is improved by the partitions having tabs that locate in the floor slots.

The duct end and partition are made up as an assembly so as to provide location for the full side and for the duct panel itself.



All panelling is lightly rubbed down to remove machining witness marks. The window apertures particularly for the wood are also cleaned up.

Before assembly the floor edges are chamfered to match the side tumblehome .

The tumblehome is pre-formed using the simple jig shown but this area needs improving. For plasticard the pre-bending is important to ensure the partitions don't "shadow" through the side. In the timber version "shadowing" is not an issue but the pre-bending reduces the risk of the wood splitting.



The recesses for the vents are cut 0.1mm longer than the vents . This allows the top of the vent to be pushed into the recess and create an angled effect. Fixing is best done after assembly.

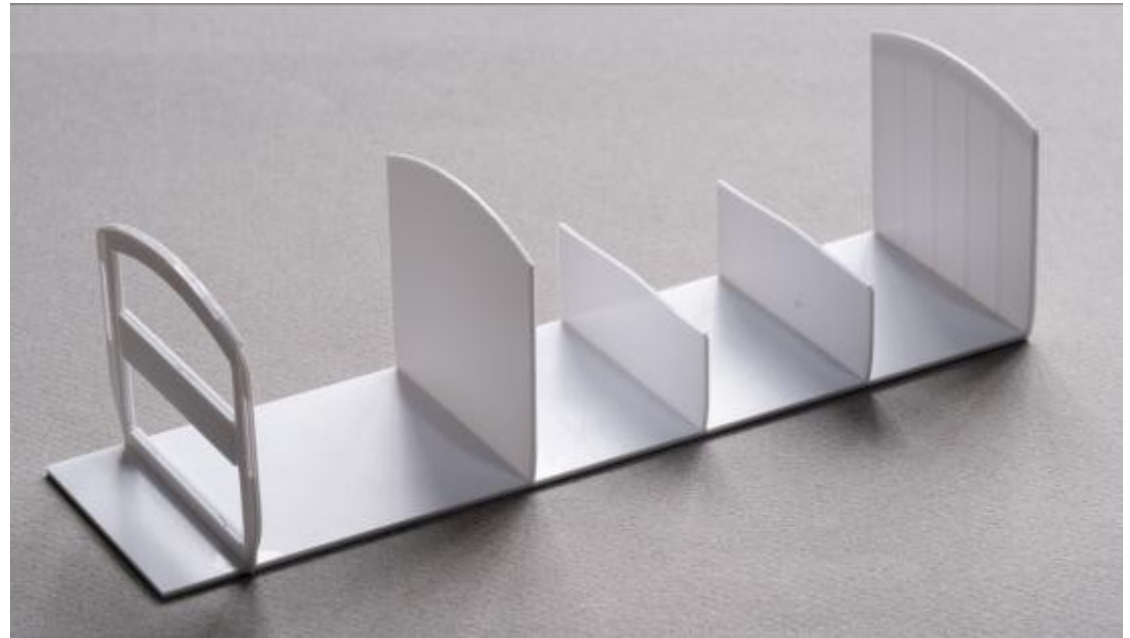


Here we can see the stages of fitting the sides. First the bottom edge of the sides are glued to the floor. Once this has set the sides are gentle coaxed up to vertical and glued. (More pre-bending is required!)



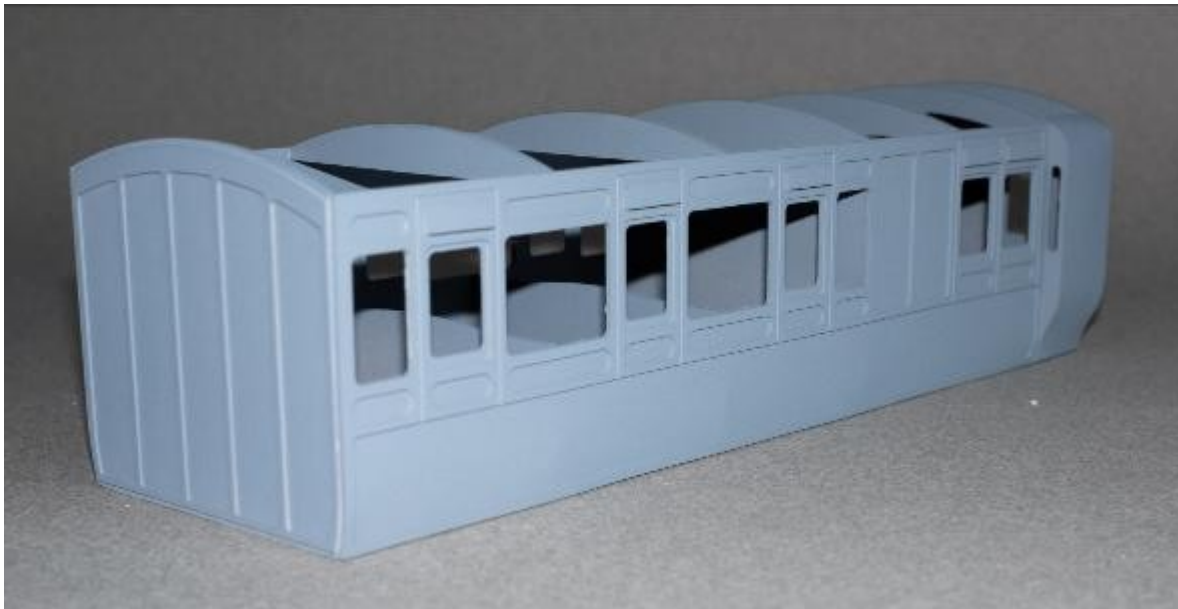
These pictures shows the carriage assembly sequence. It can be seen in the picture below that not enough pre-bending was applied to the side and the partitions are showing through.

In the bottom right photo, the ducket sheeting is applied; originally 0.5mm plasticard was tried but this was not compliant enough, so 0.25mm is used. The timber version uses two layers of 90gm printer paper.

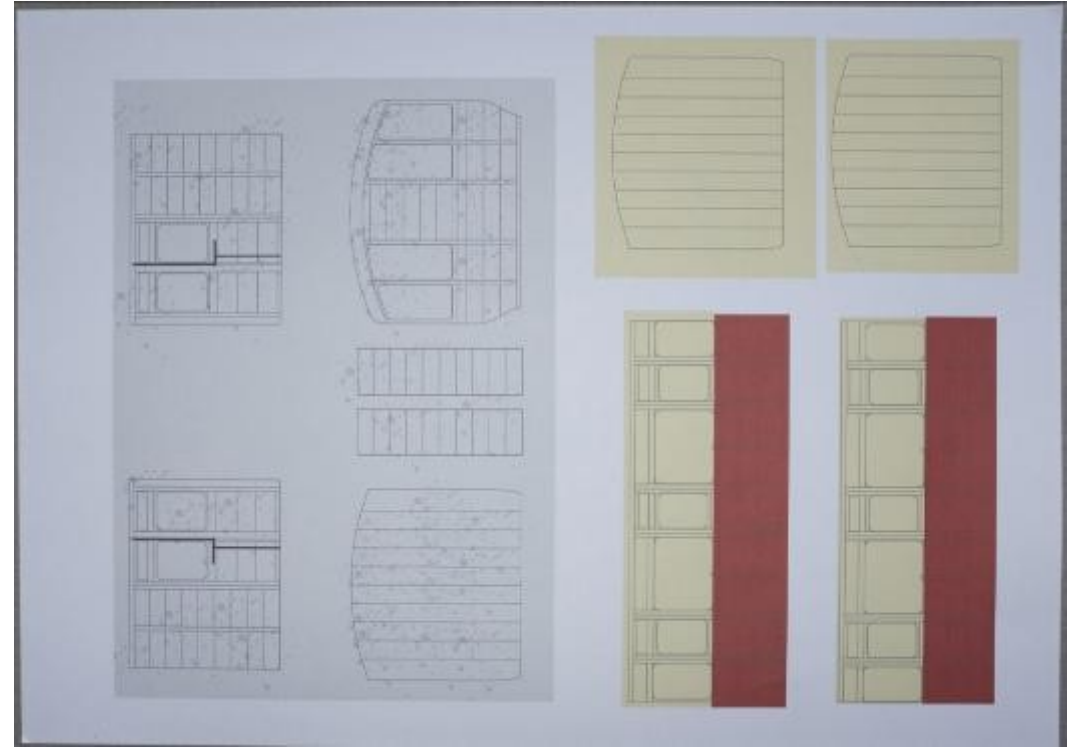
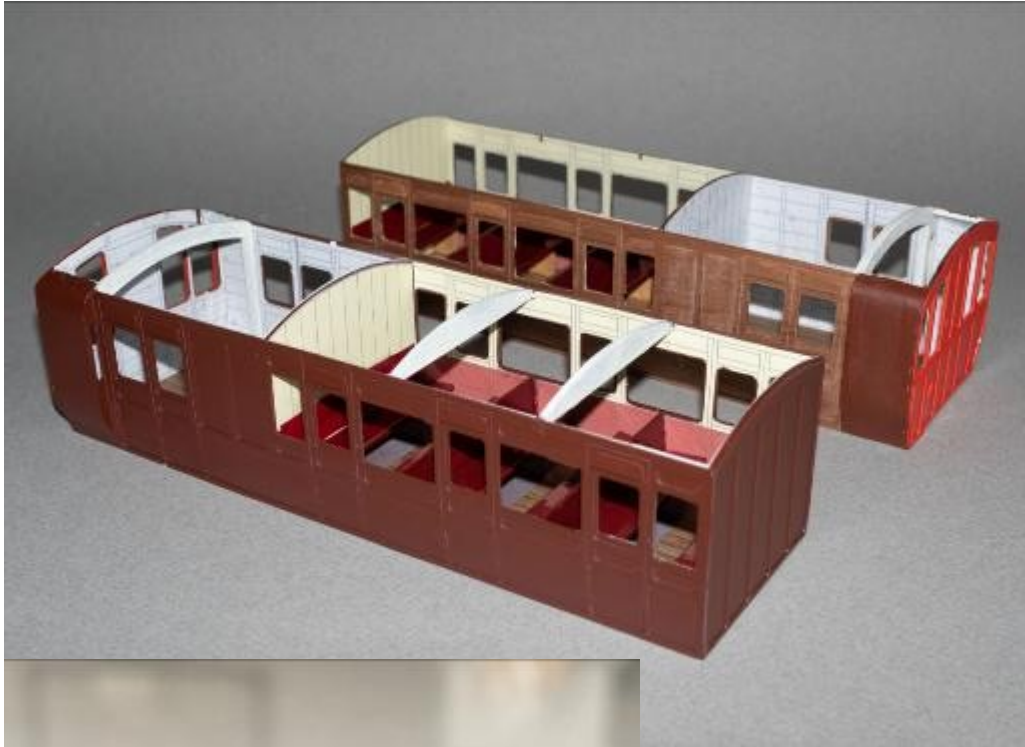


Before starting to apply the final finish, thin strips of plasticard representing the door “seals” were glued in place along the lower panel. Thin strips of wood were used on the wooden carriage, however brass strip would have worked better here. This will all be done before priming on future builds.

After priming the plasticard model was finished with mahogany coloured paint. All the coats applied to the wooden carriage were satin varnish.

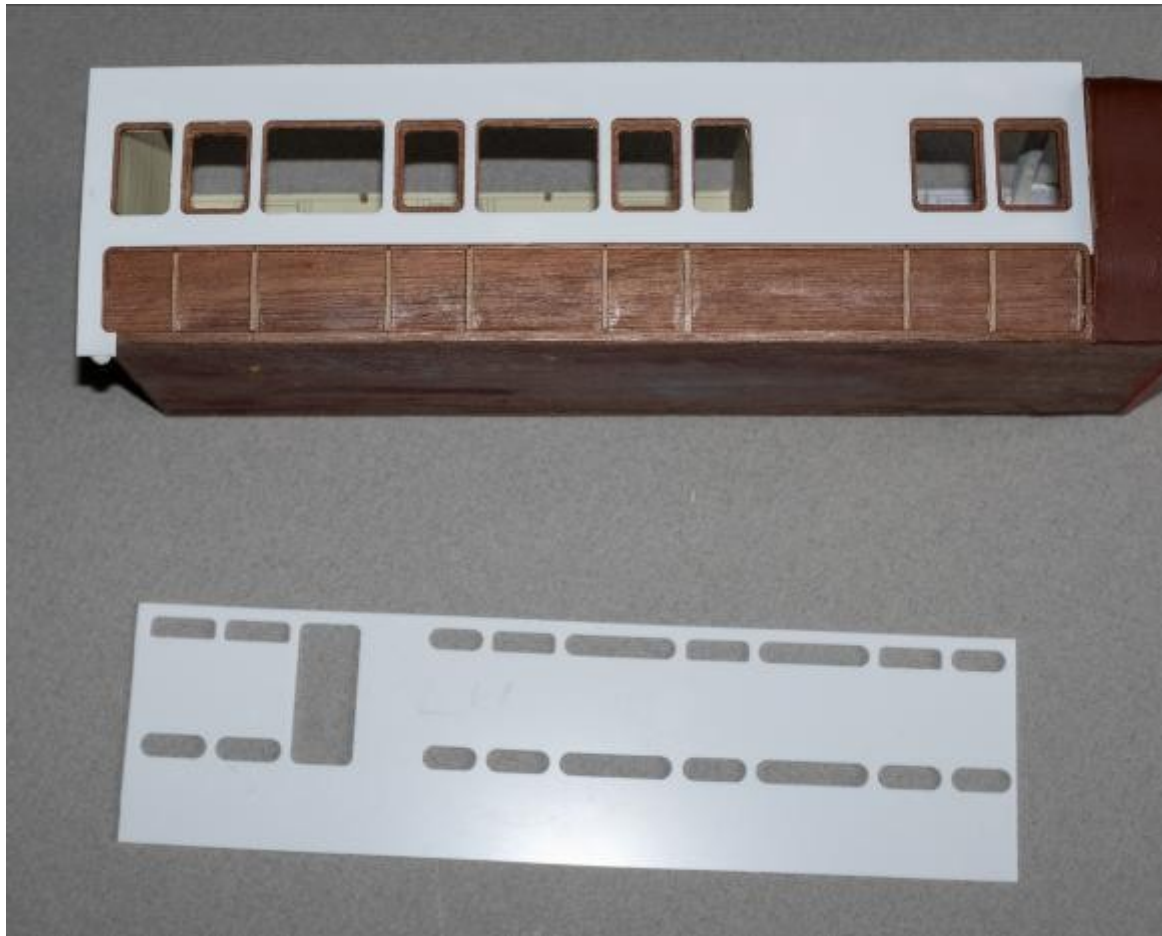


The interiors are not intended to be super detailed but to give a representative appearance. I used Peter Smith's method of producing art work, based off my CAD models, in Photoshop. This is printed out, cut to shape and glued to the interior of the carriage. For the apertures, I found the best appearance was achieved by pre-cutting slightly oversize before gluing in place as opposed to slicing out after gluing with a sharp knife around the aperture profile.



The brake wheel support is made from stock plasticard materials, but broadly in line with drawing dimensions.

The most difficult aspect of this project was lining. Initially on the plasticard version I lined within the panels using its edge as a guide. This was not satisfactory as there is precious little space for lettering as is and also when viewing from an angle the lining becomes less visible.



Using the CAD models it was easy to produce very accurate templates to enable lining on the top surfaces. Two templates are needed to ensure there is enough stiffness to support the pen when profiles are too close together. Now it was just my skill level letting me down!!

After the lining had been completed and transfers affixed, the sides were sealed with further coats of satin varnish.

The glazing was then cut to shape and glued in place followed by the roof, which is card, and the ventilators in Plasticard. Holes still have to be added, as do door handles and grab rails.

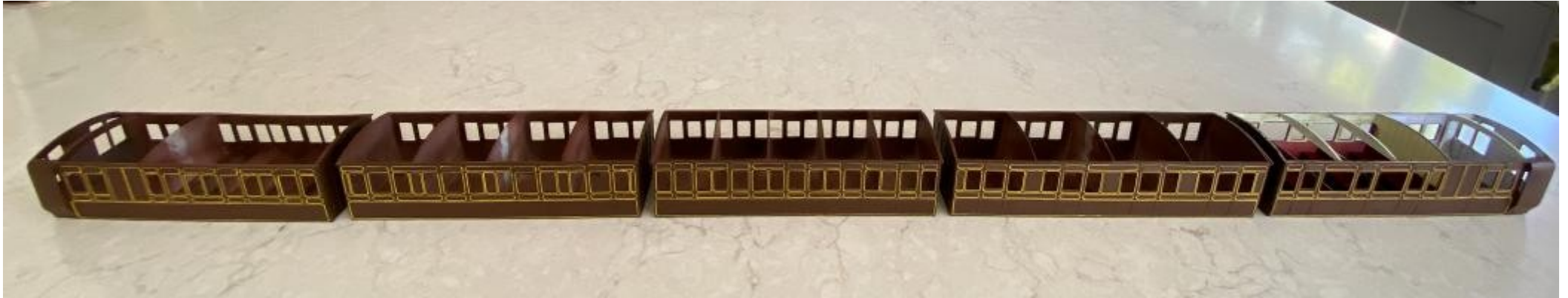


This further work using the CNC router machining method for producing the parts has demonstrated its capability for forming the basis for a good model, particularly in flexibility of using different materials. The wood versions are attractive to me even though the grain still looks oversize, runs in the wrong direction on some panels and does require more cleaning up.

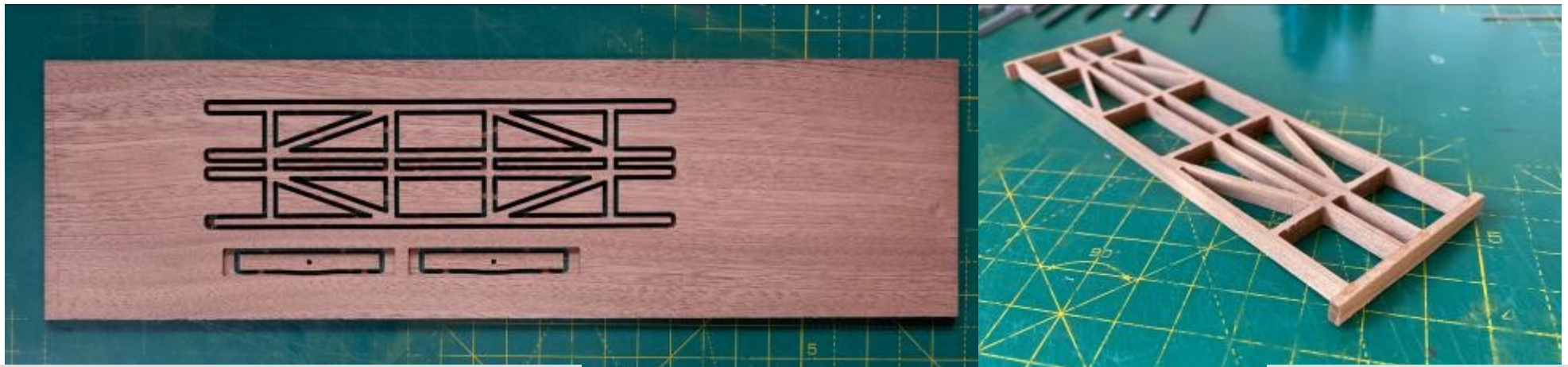
The plasticard, however, does produce clean lines and is easier to handle and finish.

Work in progress....

I have started production of a batch of carriages in plasticard to make up a mainline set. The batch consists of another Brake Third with quarterlights, 6 wheel First, 4 compartment Second and a five compartment Third.



In preparation for the next stage of providing running gear, I am also experimenting with producing an underframe from solid wood using the CNC router.



Photographs copyright David Rigler

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Working Lighting

By Sue Rose

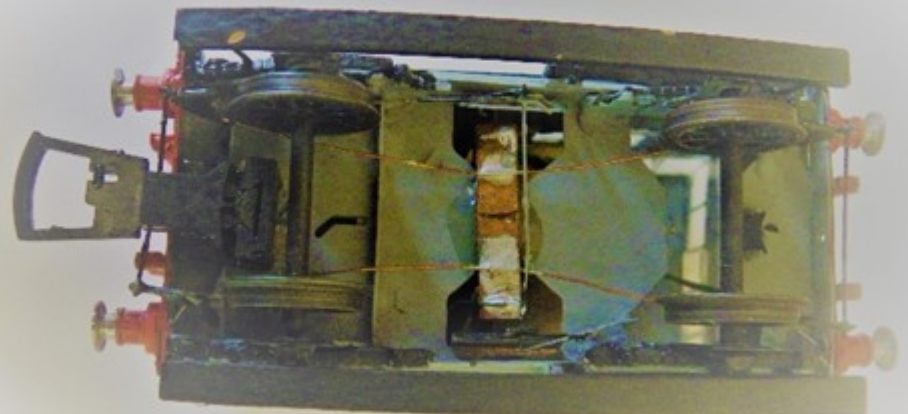
My layout is loosely based in the Surrey/Sussex area running as a preserved line. This was my only way of running stock from the 1840's to the 1940's.

As my layout is run on DCC, the engines that I have built are fitted where possible with working head and tail lamps which change with direction. This led me to want to add tail lights to the brake end of carriages and brake vans.

The first try was on a Stroudley Goods Brake van. This was done with phosphor bronze wire pickups from the wheels similar to those used on locomotive wheels. As the wheels aren't powered a anti-flicker board was put in the circuit. This system works if the backs of the wheels are kept clean and good contact is maintained between the wheels and wire.

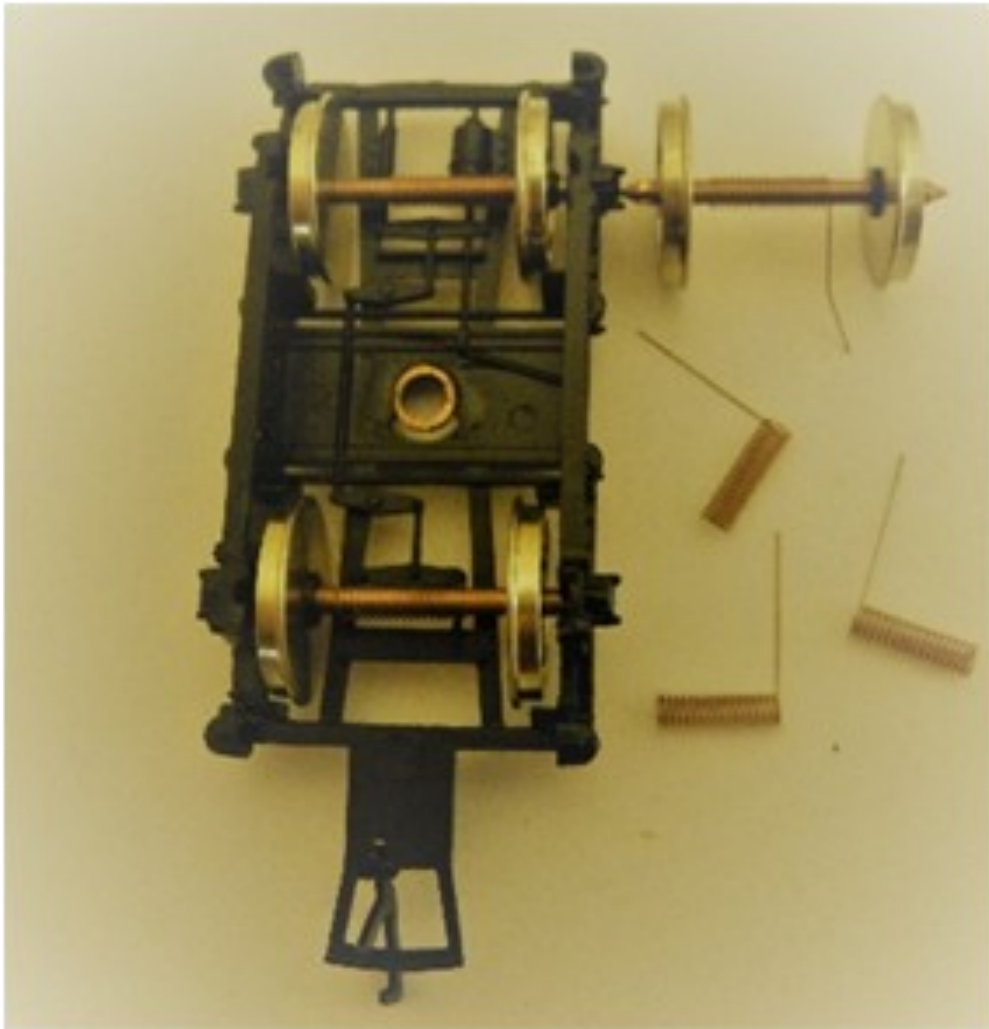


4mm Roxey Mouldings Stroudley Goods Van



The next experiment was to use DCC Concept pick ups on the wheels, where the spring wire fits over the axle. Anti-flicker boards were again fitted into the circuit. After a time I have found that there was some oxidisation between the spring and axle, leading to poor lighting even with the anti-flicker board.

These have used commercial coach bogies by simply replacing the axles. They can still be used in any kit built bogie or 4/6 wheel stock.

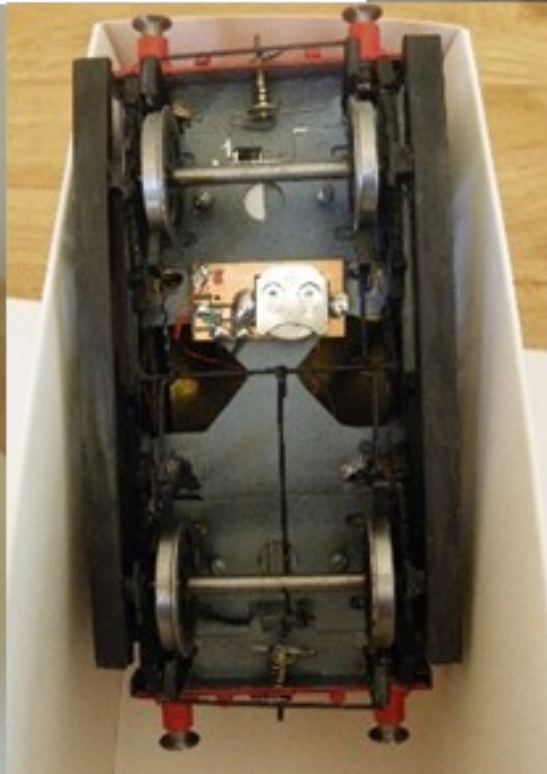


Bogies fitted running both interior lights and tail lamp



Looking for a better idea, I found that these same lamps could be powered by a 3v battery. A small switch was placed in the circuit and glued in place under the vehicle, along with the battery holder. The battery holder needs to be suitably placed so that the battery can be changed when required. The 3v batteries and holders come in at least two different sizes, depending on the supplier, so it is worth checking to see which suits your space available.

7mm Stroudley Brake Van by Roxey Mouldings



The battery system can be used on both 4mm and 7mm; this 7mm model has as a Laurie Griffin cast Brighton headlamp drilled out and a red LED glued in place. The battery holder is from Express Models and an anti-flicker board was incorporated.



4mm Craven Birdcage Brake by 5 & 9 Models



I am working on a 5 coach set of Billinton/ Marsh bogie coaches which will have interior lighting along with tail lamps. These will each use the battery system, but incorporate a latching reed switch which is easier to operate than the micro-switch. The reed switch is placed in the roof, a magnet is passed over the reed switch to switch on and passed again to switch off.

The coach lighting kit is from Layouts4U. Notice that this battery and holder is somewhat larger than that use on the brake vans. The smaller holder is from Express Models and the larger one from Layouts 4U. Reed switches are also available individually.

Suppliers

Express Models: 4mm scale Oil type head and tail lamps in Red and White.

[DCC Concepts](#): Axle pick up wheels or just the springs to add to other suppliers' wheels.

[Layouts4U](#): Coach lighting light strip, battery and holder, latching switch as a kit or individually.



An I4 tank

By Pete McFarlane

I originally started this 4mm scale 16.5 mm gauge model of an I4 class in 2012 for a scratch building completion on RMWeb. I missed the competition deadline by about 7 years, as it wasn't finished until 2019. As ever, once it becomes obvious that you aren't going to meet the deadline the project slips even further behind schedule.

I picked the I4 as it was a relatively straightforward design for my first attempt at scratch building a loco in metal – for example there are no awkward bits like splashers to worry about. It's also a type not available as a kit (and there was no likelihood of Hornby announcing one the moment I'd finished it).

The loco is mainly built out of nickel silver sheet and strip, apart from the boiler which is from a section of brass tube. This wasn't the best of ideas, as the brass acted as a big heatsink which made soldering parts to it quite hard. The cab clerestory roof was a bit of a cheat, and is made out of a block of laminated plastic filed to shape. Boiler fittings are spares from SE Finecast LBSC kits (mainly the I3). The rest of the loco is fairly standard 4mm scale fare – Gibson wheels, and a Mashima motor.





The finished model was sprayed with Acid-8 etch primer from Halfords, and then airbrushed with precision paints. One of the good points of the delayed construction was that I'd acquired an airbrush, although I'm still learning how to use it and the finish isn't 100% perfect. HMRS transfers and a coat of Ronseal varnish finished it off.





Overall I'm very happy with the finished result, as it runs well and is an elegant looking loco. Whoever said that "if it looks right, it is right" had obviously never heard of Marsh's smaller 4-4-2 tanks, which are elegant and perfectly proportioned but poor performers.

Photographs copyright Pete McFarlane

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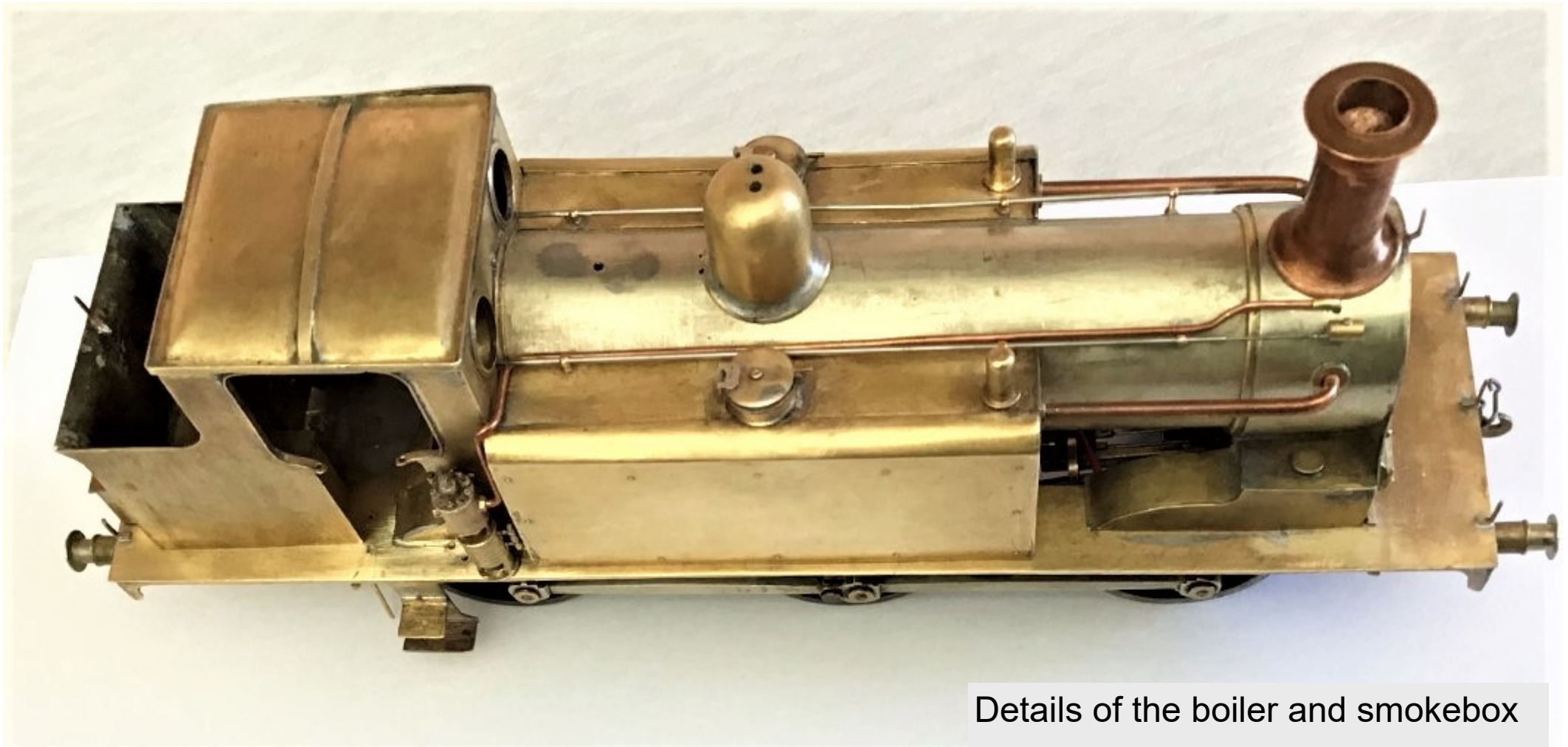
Burgundy in 7mm scale

By Cliff Pester

Having been confined to home, self-isolating, I needed to have a project. How about finishing one of my many incomplete locos? So, I decided to finish scratch building my E1 Tank 110 *Burgundy*. The loco is in as-built condition and required finishing the boiler, smoke box and cab.

The boiler was rolled from nickel silver sheet and was quite an interesting experience as I have never used nickel silver before. I found the material to be quite hard to roll, but my rolling bars coped very well and produced an excellent finished boiler barrel. The steam dome was a simple turning exercise on the lathe with a soldered base flare. Some old clack valves from the extinct Hobby Horse range provided very good valves once the copper piping was applied. The whistle is another lathe job with a silver steel shaft and an 18 BA nut on the whistle gland.

The smoke box was quite difficult due to the integral sand boxes and the front wing plate. However, all was successfully completed along with the door hinges and handle. The two fitments on the side of the smoke box were tackled next. These are lathe turnings with additional details silver soldered on. Finally, the chimney was tackled, this is a copper lathe turning on which I tried a new technique to produce the bottom flare. I turned the chimney to shape and then bored out the base section into a bell shape. On removing the chimney from the lathe, the base section was heated to red heat to anneal the metal. Once cooled it was placed onto a former consisting of a steel rod turned to the same diameter as the smoke box, the chimney was gently squeezed down onto the former using the vice and the base section of the chimney slowly formed into the flare section required to seat the chimney onto the smoke box. I was very pleased with the result.



Details of the boiler and smokebox

The cab was a basic sheet metalwork job and did not cause any major problems. The boiler backhead is fully detailed, but the bottom section had to be trimmed back to clear the drive gear which intrudes into the cab due to the working piston rods on the centre axle.

The next challenge was the Westinghouse brake pump. On this loco, as on a number of other E1s, this is a special device that combines the air pump with an auxiliary water pump. See my account of this unit in the next edition of the Brighton Circular. The pump was turned up in the lathe and the additional details soldered to the body.



The Westinghouse pump can be seen on the side of the cab. The extra water pump was the section on the bottom, and an additional section will be added below the foot plate under the pump.



Above

Some of the other fittings to be attached to the loco.

Right

A general view of the loco and detail fittings.

The loco is more or less finished and is ready for a deep clean, primer and a paint job, but for me that is another story!



Photographs copyright Cliff Pester

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Hayling Island Station

By Richard Barton

A hand coloured postcard taken from the south c1910. The change in colour of the furthest section of the awning shows clearly the extension of 1900.



The station building dated from the opening of the branch in 1867 and, for a small terminus, was a unique and complicated design. It was certainly the most difficult building I have ever constructed. Fortunately, architect's drawings have survived, drawn up for the addition of the ticket office extension of 1896 and they show all but the northern elevation. The station was constructed in brick to a "gothic" design with a timber framework with inset panels of herringbone brick in alternative red and white colours. Upper panels were plaster filled and small lower panels were of flint. The separate two storey building housed the Porters' Room on the ground floor, with a water tank for the domestic station supply above. The only access to the upper room was by a ladder.

The station structure was formed of 120 thou Plastikard for strength. The timber framing is Evergreen strip 155 (1.5mm x 3.2mm) and the brickwork was some old 7mm moulded sheets from Thornton's of Easingwold, which were red, so only the alternative courses needed painting-in Revell matt white No 5. As the flint infills were small and barely visible I cheated and used a commercial design, which was printed on paper from the Internet. For authenticity I made myself a great deal of unnecessary work by making the framing for the upper panels to the full depth, using Evergreen strip 155 and 156. The plaster was formed using DAS clay but I had great difficulty with shrinkage and cracking, in spite of covering the DAS with a damp cloth whilst it was drying. Next time I would find an easier solution!

To access the interiors, all the roofs with their chimney stacks were made removable, the chimneys locating into sockets between the internal walls. Internal doors and fireplaces were constructed later and more detail can be added in the future. I'm not sure the lighter panels in the interior doors are correct but it does make them visible. The attractive end gables were fretted out of Plastikard and attached to the roofs. The roof tiles, in bands of rectangular and half round shape, were laser cut for me in card by Devon Lasercraft. The lighter tan of the woodwork was Humbrol 34 matt white mixed 50:50 with 148 Radome Tan. I failed to note down the exact mixture

used for the darker buff but for touching up I mixed Humbrol 94 with white. The beading on the awning, the awning supports and the platform fencing posts appeared darker on photographs and were painted SECR Crimson. That appeared a little bright so was lightened with a thin coat of Hull Red H177.

Taken from a similar angle to the well known NRM photo c1880, which appeared in Circular Vol 39 No 2 of Summer 2013. Changes in 1896 included the ticket office extension to the left and the modification of the front of the roof to attach the platform awning. The window in the south gable has been removed and the original herringbone brickwork of the whole south wall now clad in large grey tiles. These were subsequently replaced with smaller red tiles, which lasted until closure.





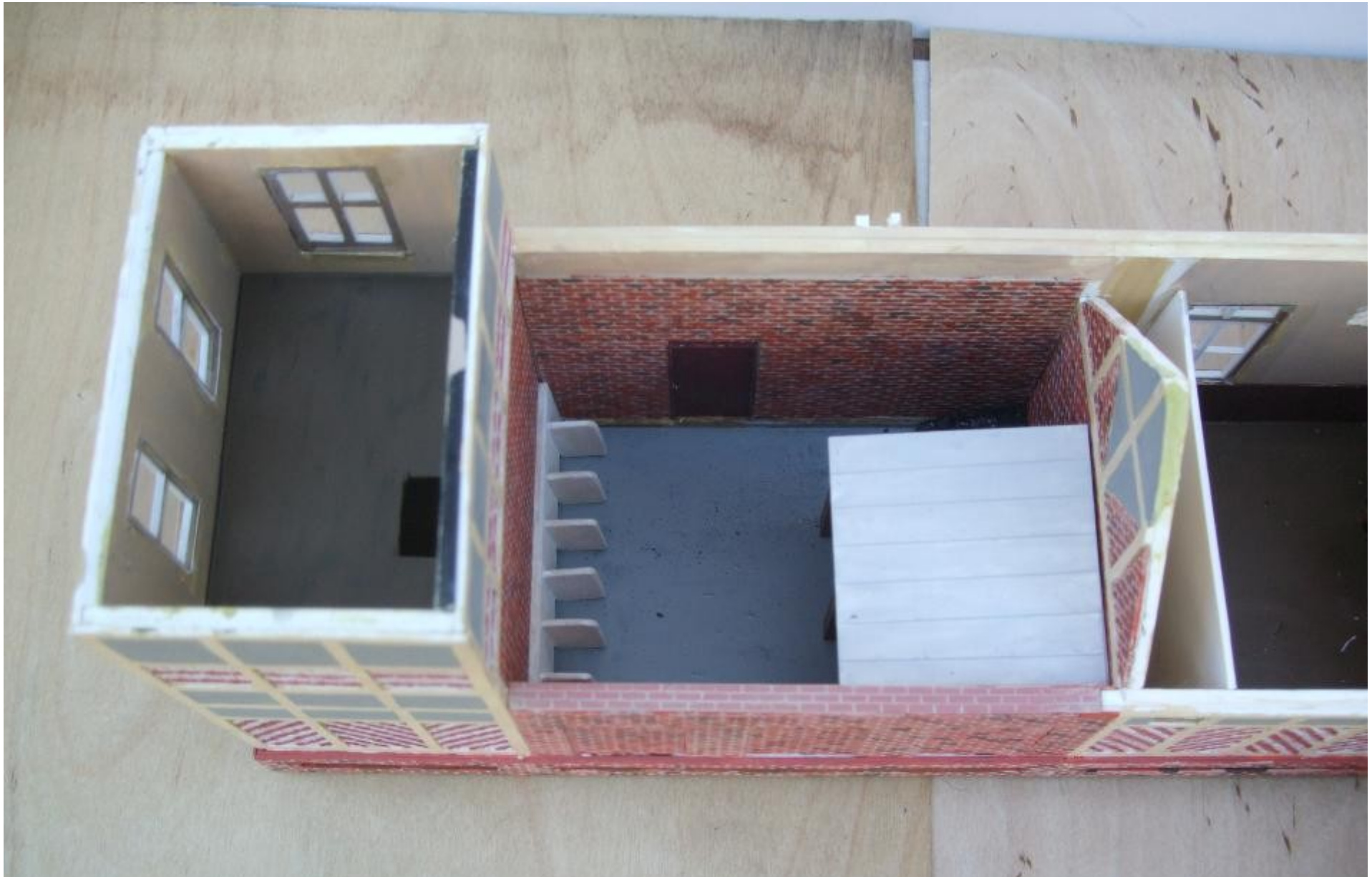
Aerial view from the south. The ticket office chimney is in place but is removable.



Aerial view from the north.



The removable roof components. The two patterns of tiles were lasercut by [Devon Lasercraft](#).



Showing “facilities” between the two buildings - the urinals, the two WCs with the sloping roof, beyond which is the station coal store. The hole in the floor of the “water tower is visible on the left, with the water tank still to be modelled.



The rear of the building, Although not visible from the front of the layout I decided to model the detail in full.

The front elevation in close up.



The major part of the structure was constructed at least 7 years ago but thanks to the lockdown is at last complete - well nearly! Still to be added are advertisements, timetables and signage for the Booking Office, Ladies Room and the “Gents”.



The station with the awning added, correct for the 1896 to the early 1900 period. There are glazed portions over the doors and the remainder of the roof was made and painted to simulate zinc sheeting. The awning was cut for me by Devon Lasercraft.

Photographs of models copyright Richard Barton

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E4X no 478 ex “Newick”

By Barry Luck

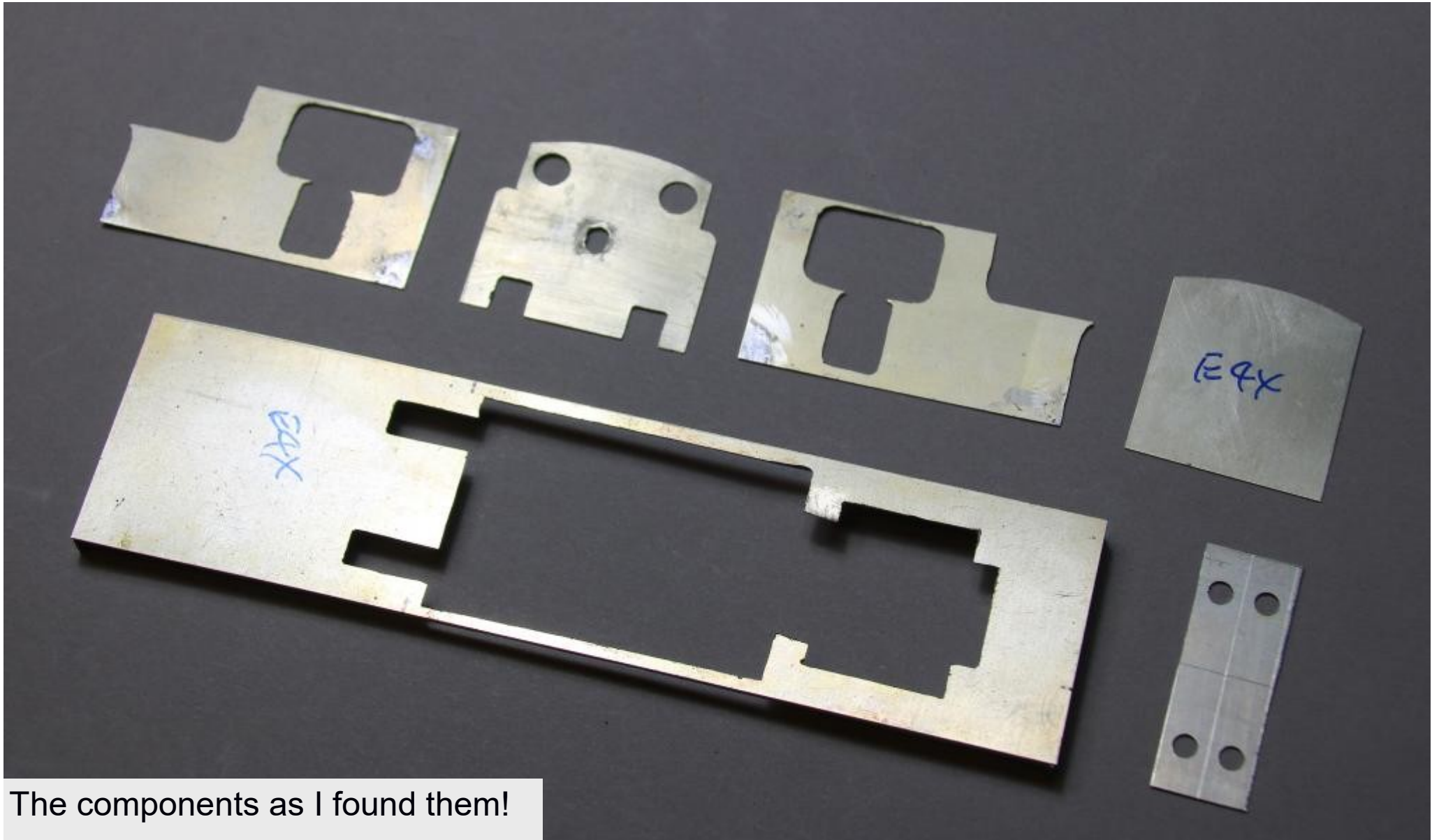
Sometime in the 1990's I started to cut out the frames and other parts for an E4, but then acquired a 'pre-owned' white metal model from a friend (with a chassis that I had made some years earlier). A few years later I bought another Stenning E4, which required repainting and a reconstructed chassis. Thus my own E4 scratchbuild remained unloved and unnoticed in a box at the bottom of the cupboard.

Late last year while searching for something else, I stumbled across my nascent E4, and was surprised to find that I not only had frames, but also running plate and buffer beams, and cab front, rear and sides. A further search revealed a set of Mike Sharman wheels which I had also forgotten about.

With two E4's already in the roster, there didn't seem to be much point in continuing with yet another one. With the commercial availability of the Birch Grove style engine with I1 boiler, that version didn't excite either. The alternative was an E4X with the larger I2 boiler, of which only four were built. They were: 466 (Honor Oak); 477 (Poynings); 478 (Newick) and 489 (Boxgrove). When building an engine I like to choose one which has had an interesting history, but it seems none of the E4X's were involved in anything particularly exciting. I therefore chose 'Newick', being the nearest of the four named villages to Plumpton – even though my model will be nameless in Marsh umber livery.

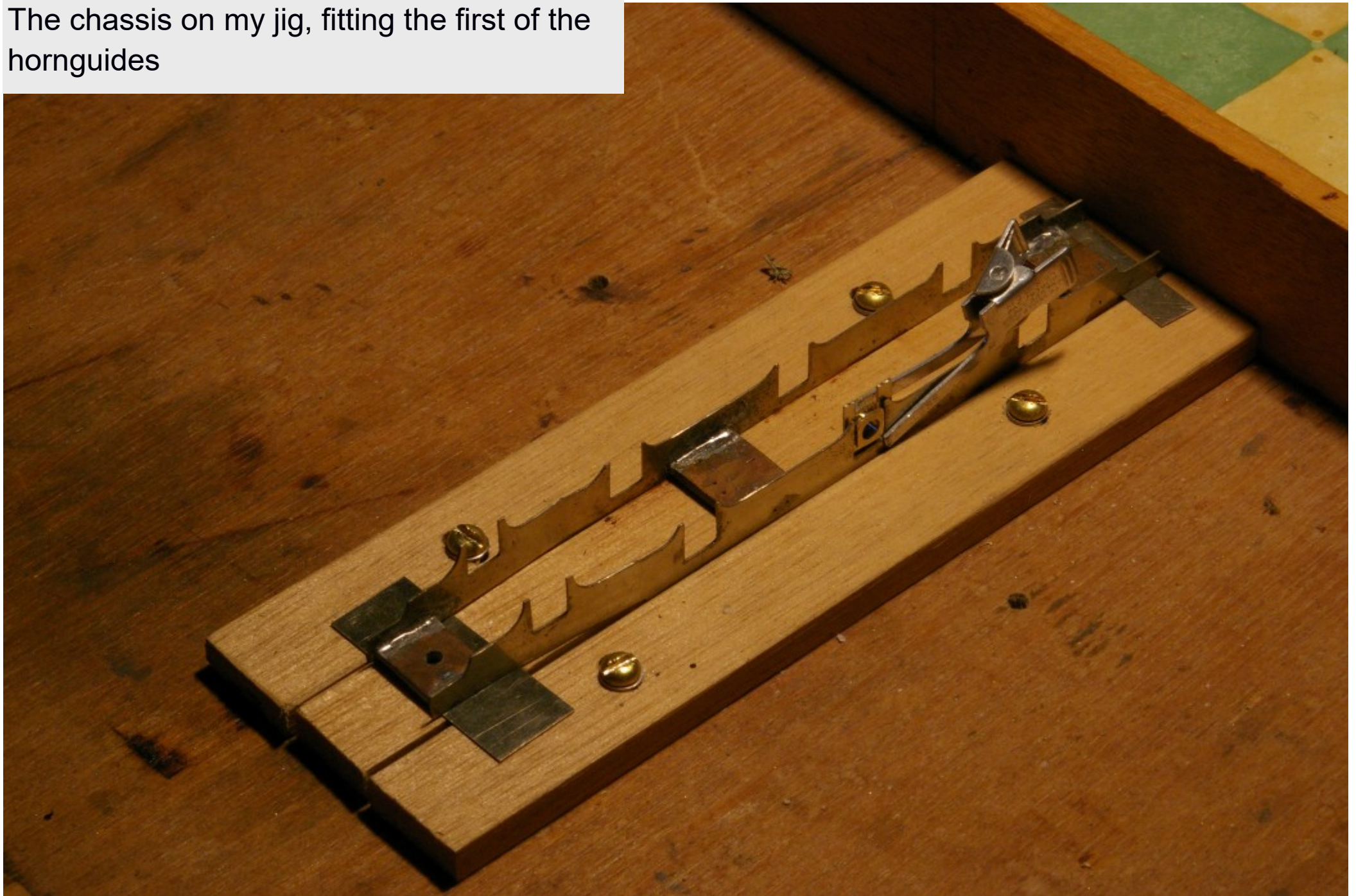
The chassis for this engine uses my tried-and-tested technique – fully compensated with a Mashima motor, High Level Models gearbox, and split axle pickup. My website shows more detail

of my methods, using an E5 as the example. The body is made from nickel-silver sheet (so much easier to solder and keep clean than brass), plus various turned and fettled bits and pieces to add detail.



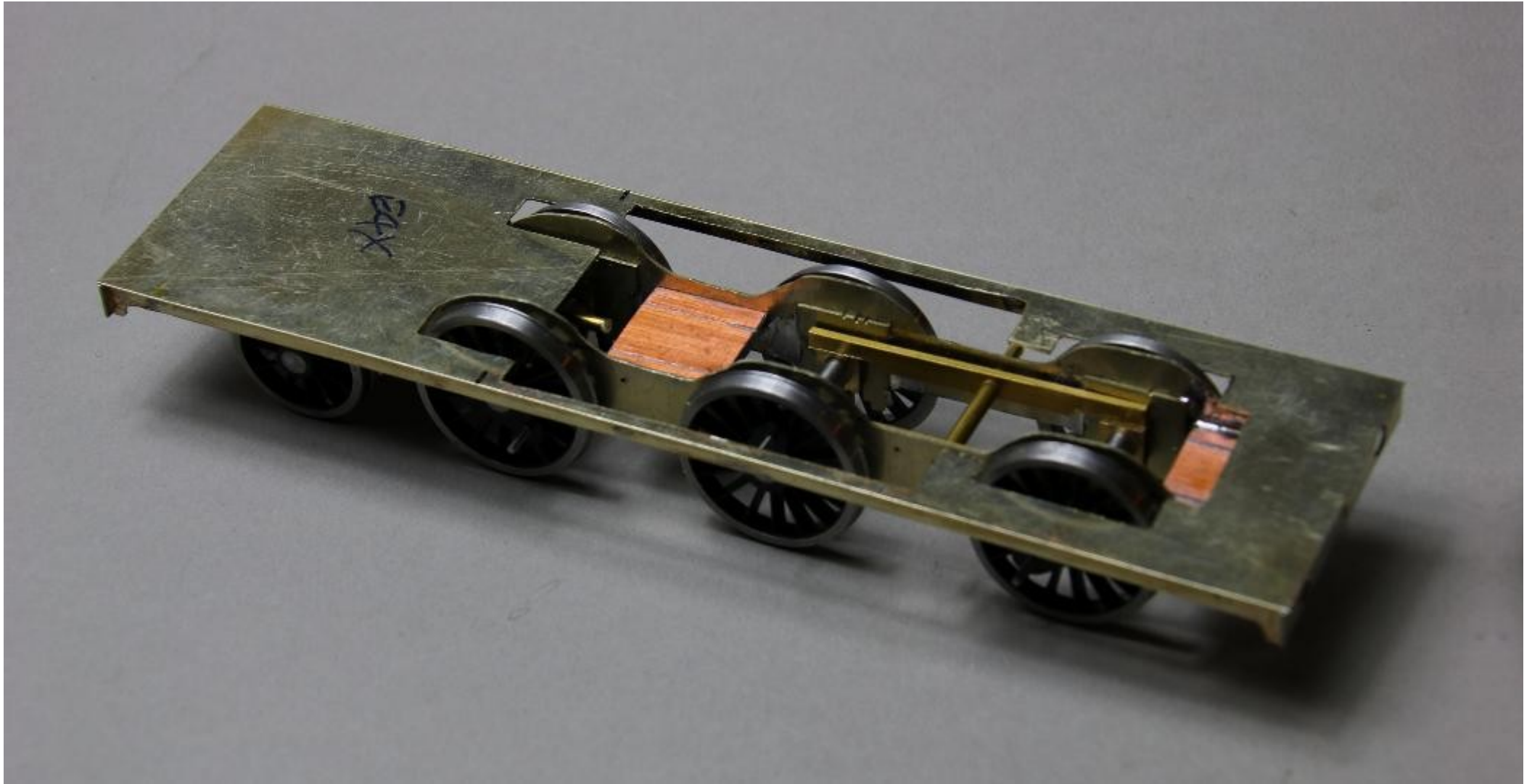
The components as I found them!

The chassis on my jig, fitting the first of the hornguides

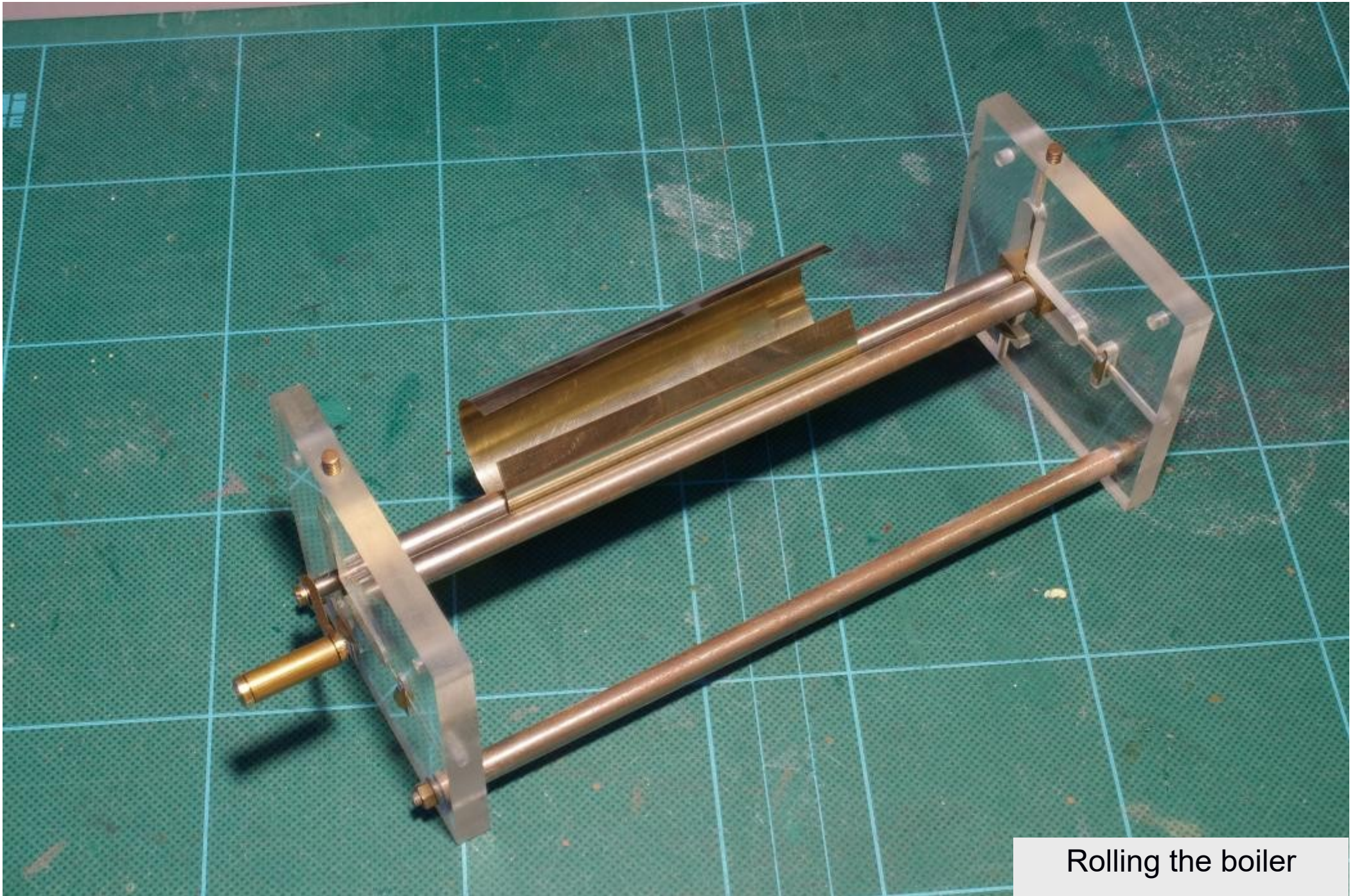




The rolling chassis, showing the twin side beams at the front, single central beam at the rear, and radial axle box for the trailing wheels



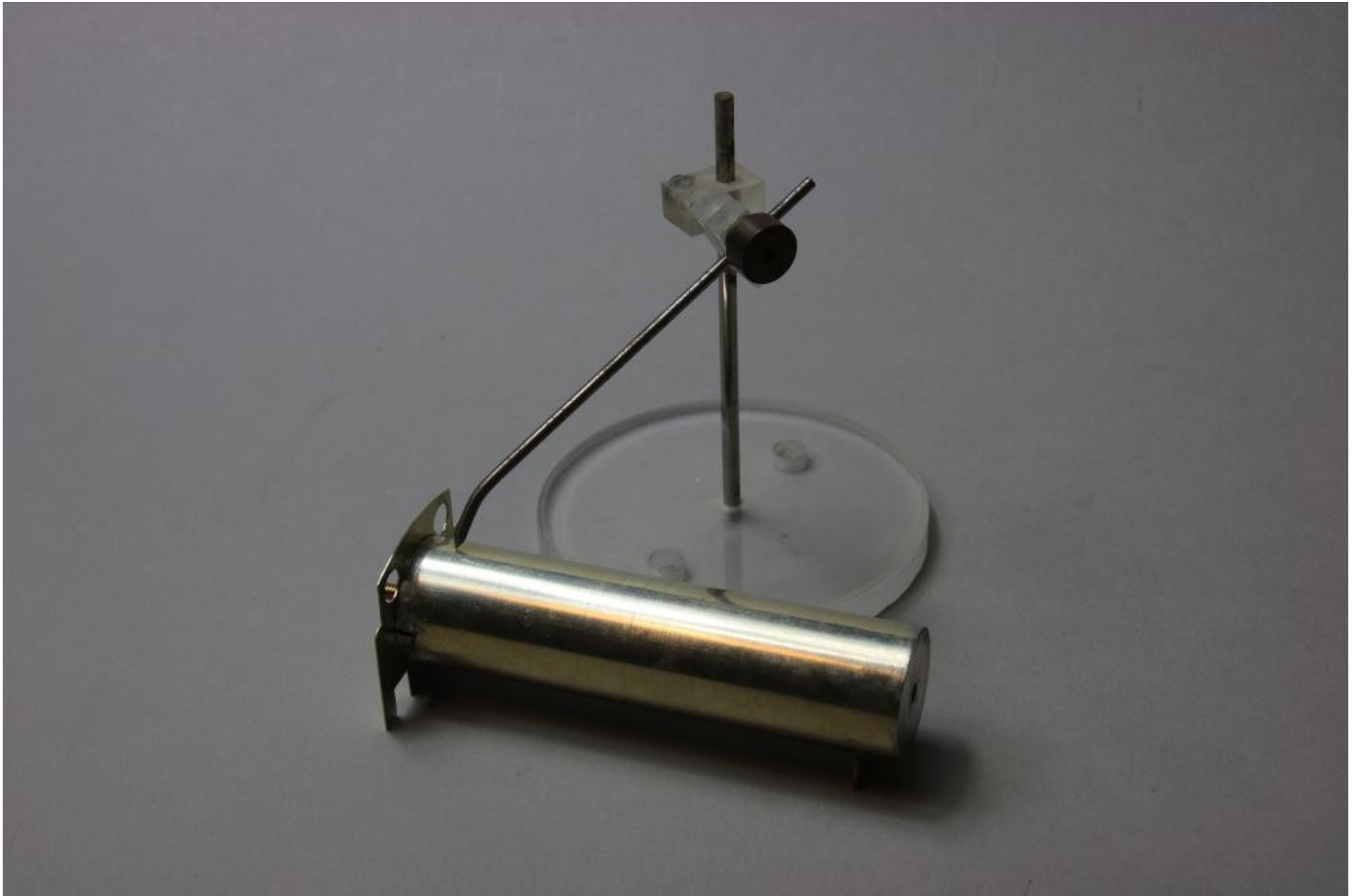
First fit of the running plate on the chassis



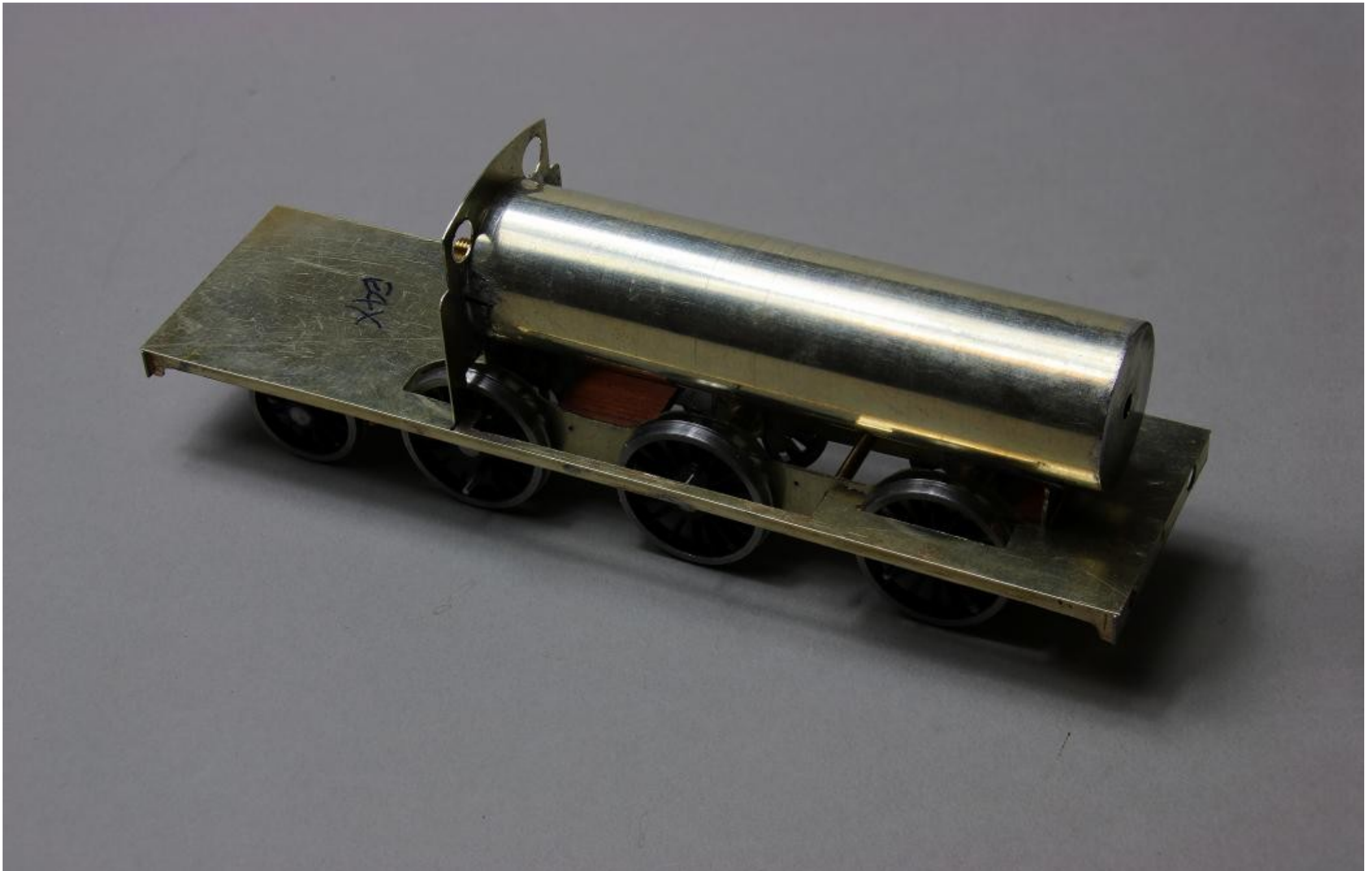
Rolling the boiler



The boiler wrapped around a former, ready to be soldered along the seam



The boiler fitted to the cab front and saddle, being checked for level



The boiler added to the running plate



The motor/gearbox fitted to the chassis and checked for clearance

Alas at this stage I started to make more rapid progress, and failed to take any further photographs as the cab sides and rear, and then tank sides and fronts were added.

Making and adding the detail (handrails, smokebox door, boiler fittings, filler caps, step, lamp-irons etc) seems to take forever, but eventually ends up as shown in the photo below. At various stages along the way I cleaned off any excess solder with a minidrill, equipped with dental burs of various shapes and sizes, and abrasive discs.



Before painting I gave the engine a few minutes in the ultrasound water-bath to get rid of any remaining bits of dirt, flux and solder paste. A quick blast with a mini grit blaster completes the final cleaning and I think aids paint adhesion. I've then sprayed the body with Halfords grey primer, followed by several coats of Precision paints umber. I've then picked out the steel, brass and copper components, the buffer beams and smokebox, and finally hand painted the dark umber where required, as shown in the photo on the following page.

The next stage will be to spray some decal sheet with umber, and make the lined out decals to attach to the loco. Unfortunately I've got rather engrossed with videoing my layout, which has proved interesting, difficult, frustrating and rewarding by turns – but it's stopped me making further progress on completing this engine (and a Gladstone and I2 which are in exactly the same state – waiting to be lined out).

No 478 will be an interesting heavyweight addition to the Plumpton loco roster, but I have to say it's rather front-heavy in appearance and lacks the elegance and balance of the original E4 design. Hopefully there will be a picture of the finished engine in the next Digest!



Photographs copyright Barry Luck

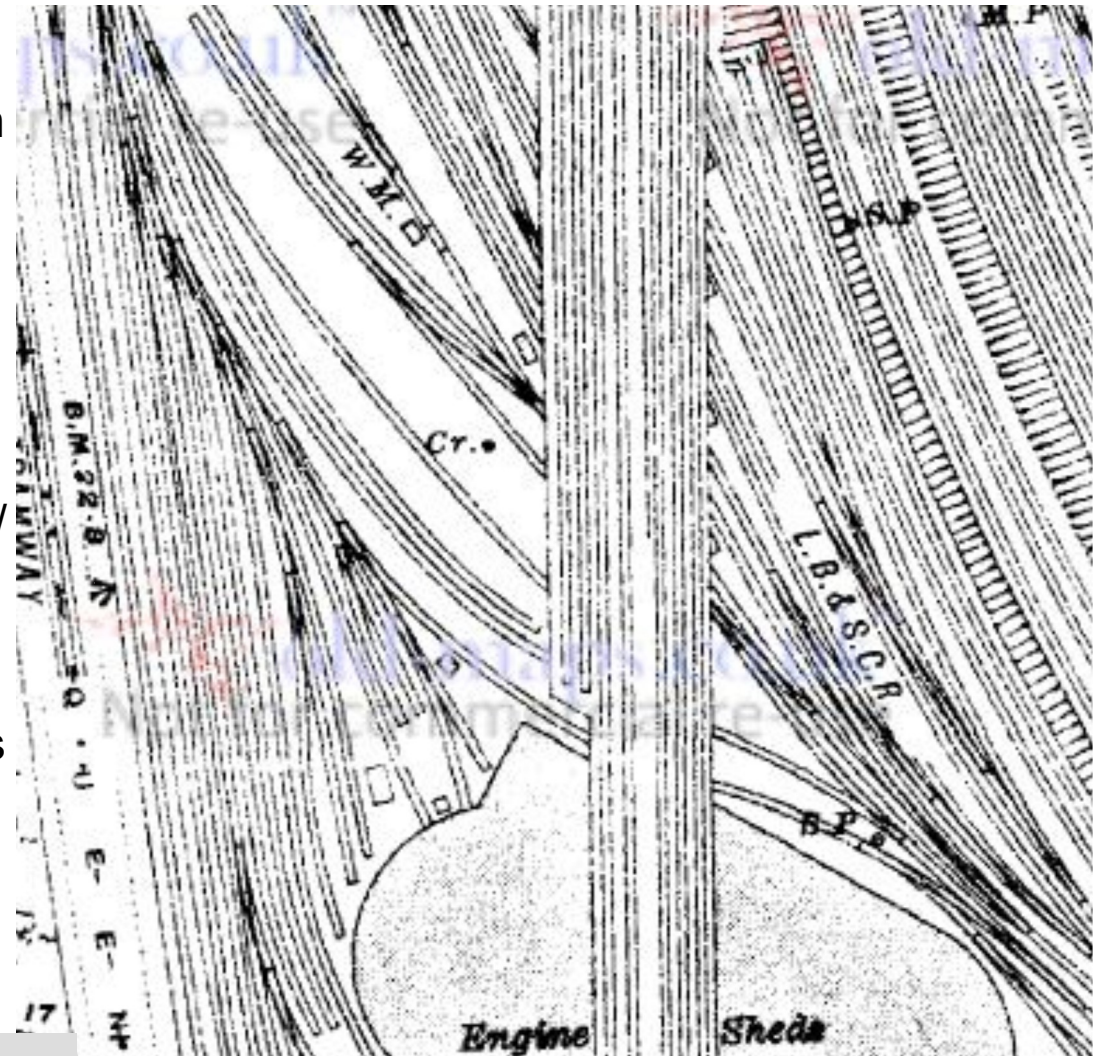
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Some Modelling Ideas from a Photo

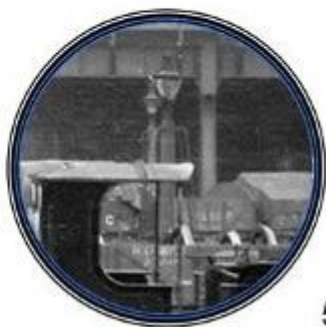
By Nick Holliday

Although photographs are the staple diet of railway historians, and thanks to the Victorian and Edwardian railwayacs we are blessed with a fine collection of LBSCR locomotive studies, it is often the background to these that provide modellers with ideas that have escaped the attention of the experts.

For example, the main photograph is a fine picture of the doyen of Stroudley's magnificent G Class Singles, *Stephenson*. Built in 1881 he/she is seeing out the twilight years on light duties from Battersea shed, where this was taken, in the north end of the yard, to the west of the main lines into Victoria. *Stephenson* was renumbered 329A in December 1909, effectively on the duplicate list, but carried out various tasks from summer 1910 to May 1914 when finally laid aside for scrapping.



1916 OS - Courtesy old-maps



But behind the loco there are some nice vignettes that modellers might like to note.

Going clockwise:



Image 1

The main line to Victoria runs on the viaduct, but during the rebuilding of that station at the turn of the century a pair of carriage sidings were added. In almost every view of this area, one or both of these sidings are occupied, and this could make a very effective, and simple, back-drop for a loco shed or goods yard cameo.

Also note that despite being out of service several of the droplight windows in the balloon stock are open, presumably the weather remained fine. Note too the Smoking plates above the three compartments to the right-hand end of the left coach, and the roof board above the cantrail. The coach on the right appears to have a smaller destination board below the gutter level.



Image 2

Tucked away at the rear is a Stroudley goods brake van, clearly showing the end painted in red or vermillion, a practice soon to be abandoned, with the main body in a dark grey, with the framing to the end apparently painted black. Unfortunately the lettering is partially obscured by the loads in the wagons in front.

Image 3

Although referred to as 329A, in fact the A was painted above the numberplate, and perhaps it should have been referred to as A329!





Image 4

A modellers' favourite since time immemorial, random sets of loco wheels in open wagons. At last, justification (but please use finescale wheels)!

Image 5

Often overlooked, even in Edwardian days, adequate lighting was provided for safety.

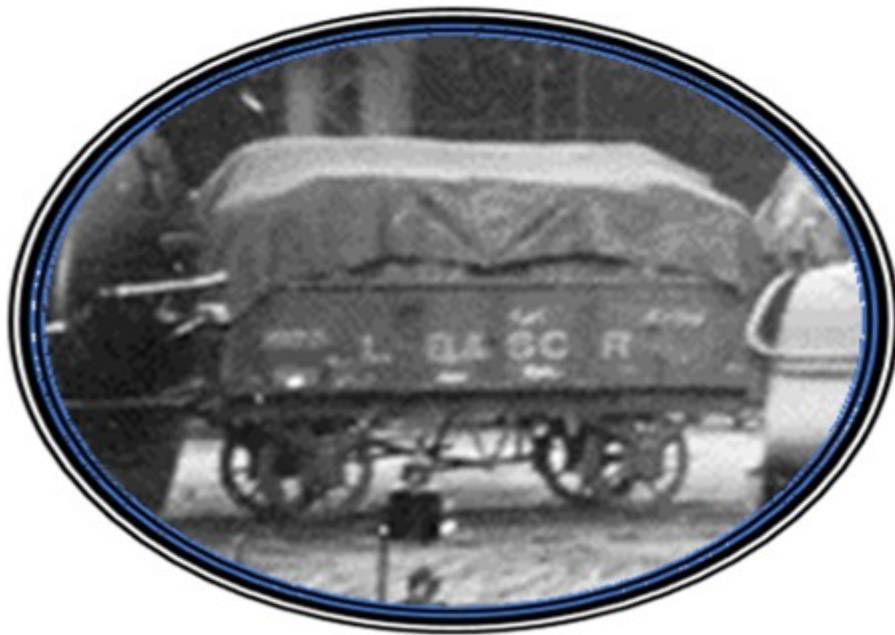
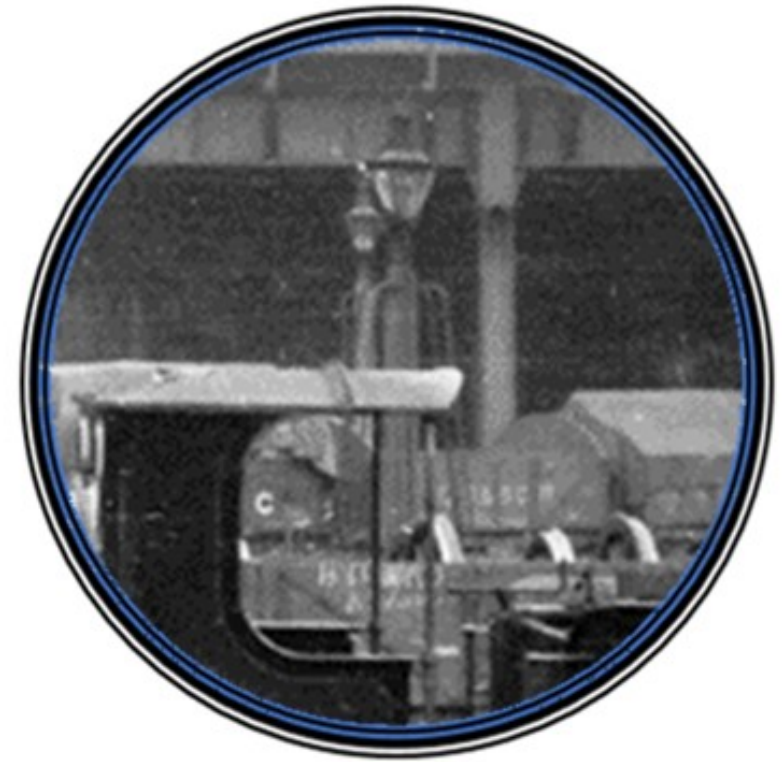


Image 6

Nothing particularly unusual about this Open A wagon, but note that its sheeted load is too high for the sheeting rail to be positioned to support the sheets, so it has been laid down to one side, visible below the bottom of the sheet, which doesn't actually reach the top of the sides.

Note how spindly the brake gear looks. No handle or blocks on this side, although the v-hanger is clearly outlined.



Image 7

With some thirty years of age difference, it is notable how the buffer heights are quite different, although probably safely within limits. Although not clear from this photo, Stephenson is fitted with a three link coupling at the front, not a screw coupling. Brighton tender locos were not expected to haul carriages tender first. Exceptionally, one or two C2Xs were fitted with screw couplings at the front.

Image 8

Another fixture that often gets overlooked is the yard crane, often to be found in goods yards, but seldom photographed. In those yards where no fixed crane was provided, the goods department would send one of their dozen travelling cranes, with capacities ranging from 5 to 10 tons, to do the job.



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More scenes from Ashcombe Down

Mike Cruttenden

A1 class 0-6-0T, Thames, heading the branch line Craven set, rounding the curve under Summit Bridge. Behind the engine can be seen the excavations required to build the new Sandrocks railmotor halt, which should be complete by the time that this picture appears. Engine and train are by Peter Wisdom.



Northbound Somerfield branch railmotor train at Sandrocks Junction, leaving the down relief line and proceeding onto the branch. This is an off peak morning service, which will return in mid-afternoon and, after a reversal, will go via Sandrocks motor train halt to terminate at Ramber Park, south bay platform.

Train owned by David Lowe; carriage painted by Colin Hayward.



The late afternoon Somerfield branch empties coal train, returning south, crossing the lifting bridge (now disused) at the entrance to Ramber Park South tunnel. The portal is in false colours awaiting a brickwork finish to be applied. The railings on the bridge are temporary replacements, as the original scale versions were demolished by the local blackbird population.



A loaded coal train for the Somerfield branch disappears into Ramber Park South tunnel, at the start of its northbound journey. The train will reverse direction at Ashcombe Down, as there is no direct link in the down direction between the down mainline and the branch itself.



Colin Paul's B2 class 4-4-0, Wolfe Barry, standing in the headshunt at the south end of Ashcombe Down station. The falling gradient of the main lines is visible in the background, together with the headshunt for the carriage and loading dock.



Colin Paul's travelling crane No 19 in Ashcombe Down carriage siding.



A six wheeled milk van to a design that is apparently based on those built by the GWR, which has been the subject of notes and photographs in the Circular. None of the photos so far published give any clue as to how these vehicles were finished or lettered. The livery in the photos is pure speculation and, if anyone can come up with any details, I should be grateful. The origins of the model are unknown, but it is now owned by Bruce MacIntosh of the Burgess Hill MRC. The van is now believed to be one of a batch built commercially, as we have found another one that is identical in construction and finish.

Photo taken in the headshunt to the train despatch line at Ashcombe Down carriage sidings.



The all year round operators' shelter. It is fitted out with heating, lighting and tip-up, upholstered seating. By the time of this edition of the Digest, it should be glazed on three sides. Some of the more irreverent members of the Circle O gauge group have entitled it "Mike's ice cream kiosk".

The cover protects the CCTV screens and the controls for the Somerhill branch and the down main and relief lines. The Royal Alexandra bridge is in the background, leading to Anscombe Mill viaduct.



Photographs copyright Mike Cruttenden

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Wagon Production using CAD and 3D Printing

David Lowe

Background

A Brighton modeller in 7mm scale is pretty well-served in terms of locomotive and carriage kits, and there is an emerging RTR availability via Dapol. Their Terrier is now due to be joined by a variety of Stroudley carriages, and Brighton Circle members have been assisting Dapol with the necessary historical information.

Unfortunately, the same situation does not apply to goods stock at present, and this gave rise to the idea of producing some open wagons. There are a number of high-quality resin bodied wagons and vans available for other railway companies, and so first thoughts were to produce casting masters for Brighton Open A and D wagons followed by a limited run of each. After the preparatory research had been undertaken, a start was made on producing a master for an Open D. In parallel, potential casters were sought via the internet and from personal knowledge. Sadly, no-one who was approached was either able or willing to undertake the casting. Some never even replied to the initial contact.

Ian MacCormac and I are joint owners of EB Models, though it has to be said that Ian has been far and away the more productive. During 2019 Ian started talking to me about some 3D CAD software that he had discovered, together with developments in the use of 3D printing for model railway components. Neither topic is new, but two things were significant. The first was that the software was from the Autodesk stable but provided free to hobbyists and small businesses. It has the distinct advantage of being easy to use. The second was that impressive amounts of

detail on the finished output could be achieved using entry-level stereo lithography printers. For those unfamiliar with the technology, there are broadly two types of 3D printing that are relevant. The first uses layer-by-layer deposition of a very fine plastic filament, which is heated and then extruded through a nozzle. This is Fused Deposition Moulding (FDM). The second category – Stereolithography – is more commonly referred to as SLA 3D printing. It works by using a high-powered laser to harden liquid resin contained in a reservoir, and so creates the desired 3D shape. Both methods come under the heading of Additive Manufacturing, and both require a file containing a CAD model as their input.

The combination of CAD software and 3D printing looked to provide a way out of the impasse. I had no experience of either.

Learning CAD

Ian very kindly put me up for a week at his home in Blackpool to help me familiarise myself with the software - Fusion 360 – a product from the makers of AutoCAD. With anything new and complex, the difficulty is in finding a suitable starting point. This is made straightforward thanks to the University of Warwick, who have allowed their set of introductory tutorials to be freely available on the internet. These can be found at https://warwick.ac.uk/fac/sci/wmg/about/outreach/resources/fusion_tutorials There are fifteen in total, and come in both written and video versions. Each builds on the content of the preceding tutorial and so it is worth following them in sequence. Which version to use is a matter of personal choice. The video can be paused and re-run if necessary, but with the more advanced lessons I found it helpful to print the written version beforehand, and after reading it through to keep it to hand during the video. These teaching methods allow everyone to learn at their own pace and with their own style.

Back home, I felt the need to do some consolidation before embarking on wagon development, and I turned to YouTube as the next source of learning material. I spent a week working through

what was available. Searching under Fusion 360 produced a wide range of topics, some of which were outside the scope of what I was intending to do - Computer Aided Manufacturing for example. Not all the tutorials were easy to follow in my experience, and presentation skills were variable, but those which I did find helpful were by Lars Christensen.

At the end of this process I felt that I had sufficient knowledge of Fusion 360 to move on to the next stage.

Choosing the Basis for the CAD Drawing

The original objective was to produce two types of wagon, influenced by the fact that until 1904 Opens A and D shared the same underframe dimensions and LOA. For no other reason than I like the look of them, I decided to begin with an Open D. I already had copies of HMRS drawings for the Open A, but thanks to the late Ray Chorley previously unseen drawings of the D had become available and I ordered digital copies. There are two drawings, and both are quite dark. Some work in Photoshop to adjust the highlights, shadows and brightness made them much easier to use.

The more helpful drawing of the two contains a plan, plus two end and one side elevations and is labelled 'D'. However, the planking dimensions disagree with data that is more widely known, and thanks to Simon Turner I discovered that this is actually a Low A. He also sent me a photograph of an example, which has proved invaluable.

The upshot was that I now had three wagons with some common features to choose from for the prototype model. The decision was to go with the Low A. First because I had a digital copy and a photograph, and second because the drawing was smothered in dimensions.

Thinking about the design

A wagon body is essentially a set of rectangles of varying size and thickness – a rectangular cuboid to be precise – whether they make up the underframe, the floor, the sides or the ends, though for the latter there is an added radius. Onto these rectangles, a variety of fittings are fixed – crown plates, washer plates, and so on. How many separate rectangles, and ultimately how many wagon parts, are created for the model depends on the designer.

My preference is for goods stock, and I have a fixation about their appearance. Often the sides are either dead straight, or bowed in because the model has warped over time. My other issue is where the junction between sides and ends fails to meet cleanly, and the radius on the corner plate is missing or badly formed. The result IMHO is that the model becomes less convincing.

It is easier to address this in 7mm than the smaller scales. First, I elected to produce the doors as separate components. Each wagon side then became the length between the knee and the corner plate, with four now required. Second, I made the knees separate items so that they could be fixed slightly off the vertical if desired, and so give the typical bowed out appearance of wagons in use. Third, I decided to design the sides and ends so that they could be printed as one unit and so prevent the corner problem. At the same time, it would, I hoped, make life a bit easier for the modeller.

The result, in terms of the number of major parts to be printed, came down to an underframe, a floor, a pair of doors and a pair of sides and ends. As far as the latter were concerned, only one side and one end needed drawing up in CAD. The drawn side could be duplicated, rotated 180 degrees, and then positioned up against the end on the opposite side of the wagon. The same was also true for the door. This simplified matters.

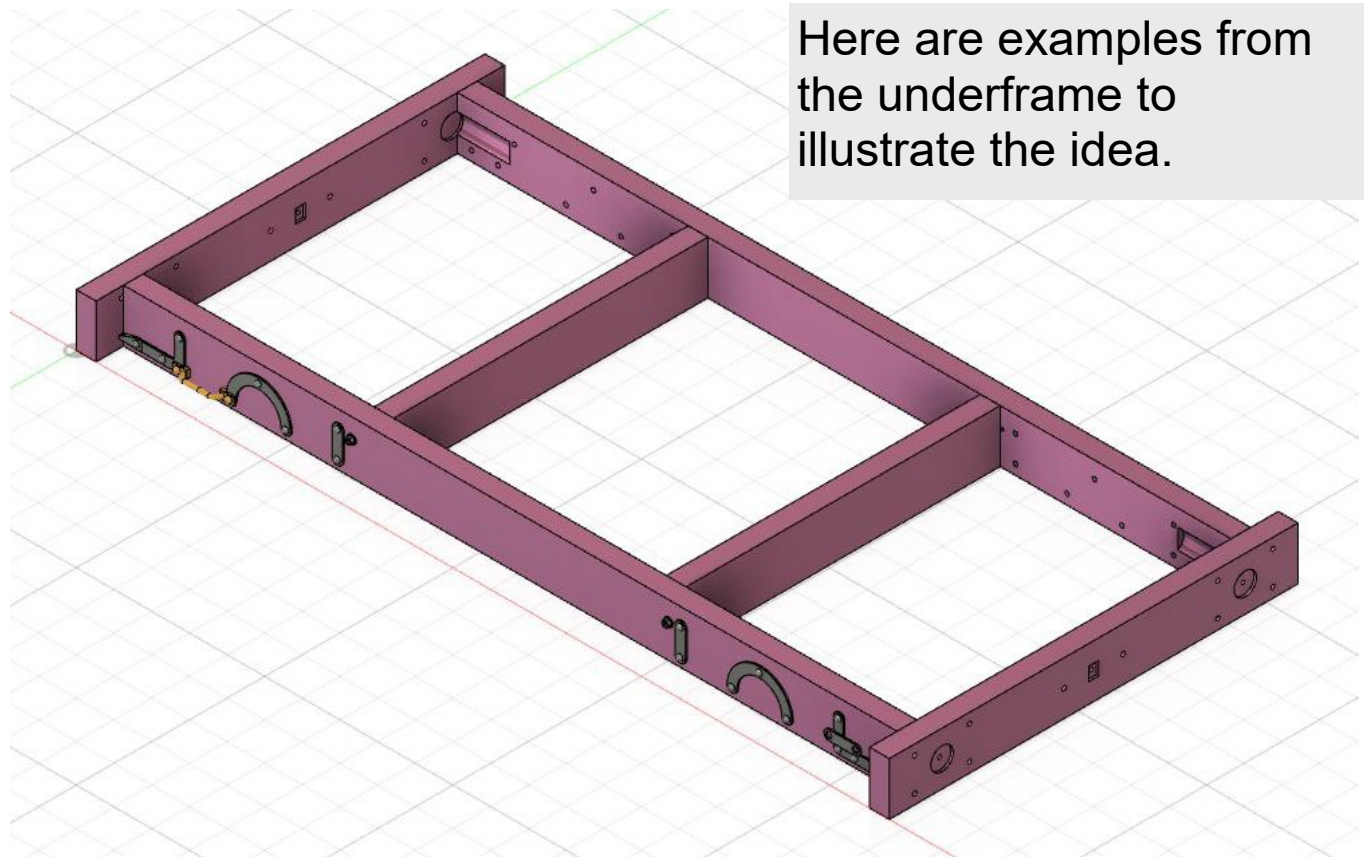
A similar method was used for the fittings. They were drawn once, duplicated and positioned.

Re-usability

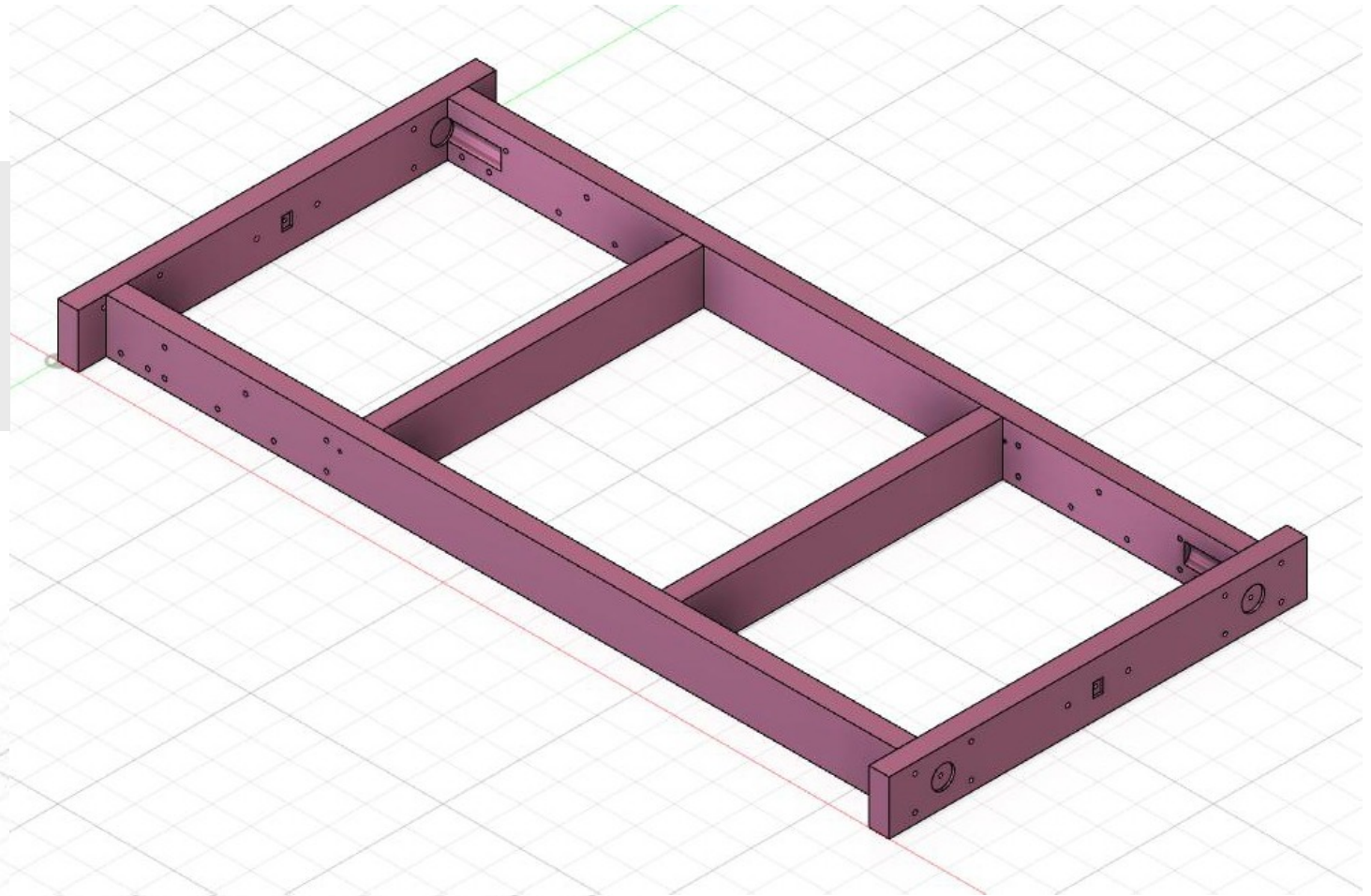
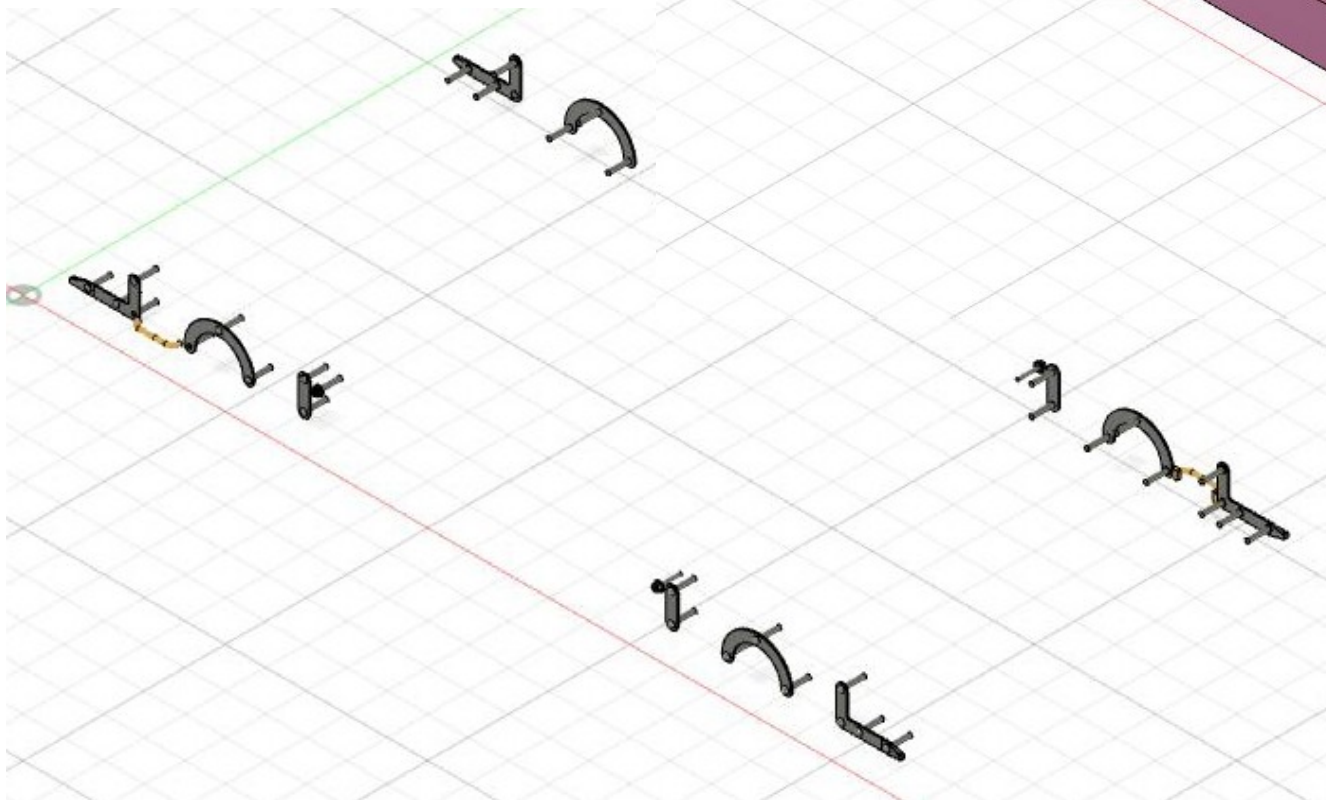
In the previous section I talked about keeping the number of parts to a minimum for printing purposes and ease of use. There was another factor which influenced the design, and that was re-usability. Each of the three wagon types showed detail variations over time, for example the presence or absence of crown and washer plates. At the same time, all three share common components. It is more efficient if they do not have to be drawn from scratch each time.

In Fusion any three-dimensional object created is classed as a body. These can be combined into components, but I left everything as bodies, partly because I wasn't sure that I understood fully how components worked in Fusion. I ended up with a couple of hundred bodies. It saves confusion and much time if all bodies are given meaningful names from the start. Each can be switched in or out of a drawing, and more than one body can occupy the same position.

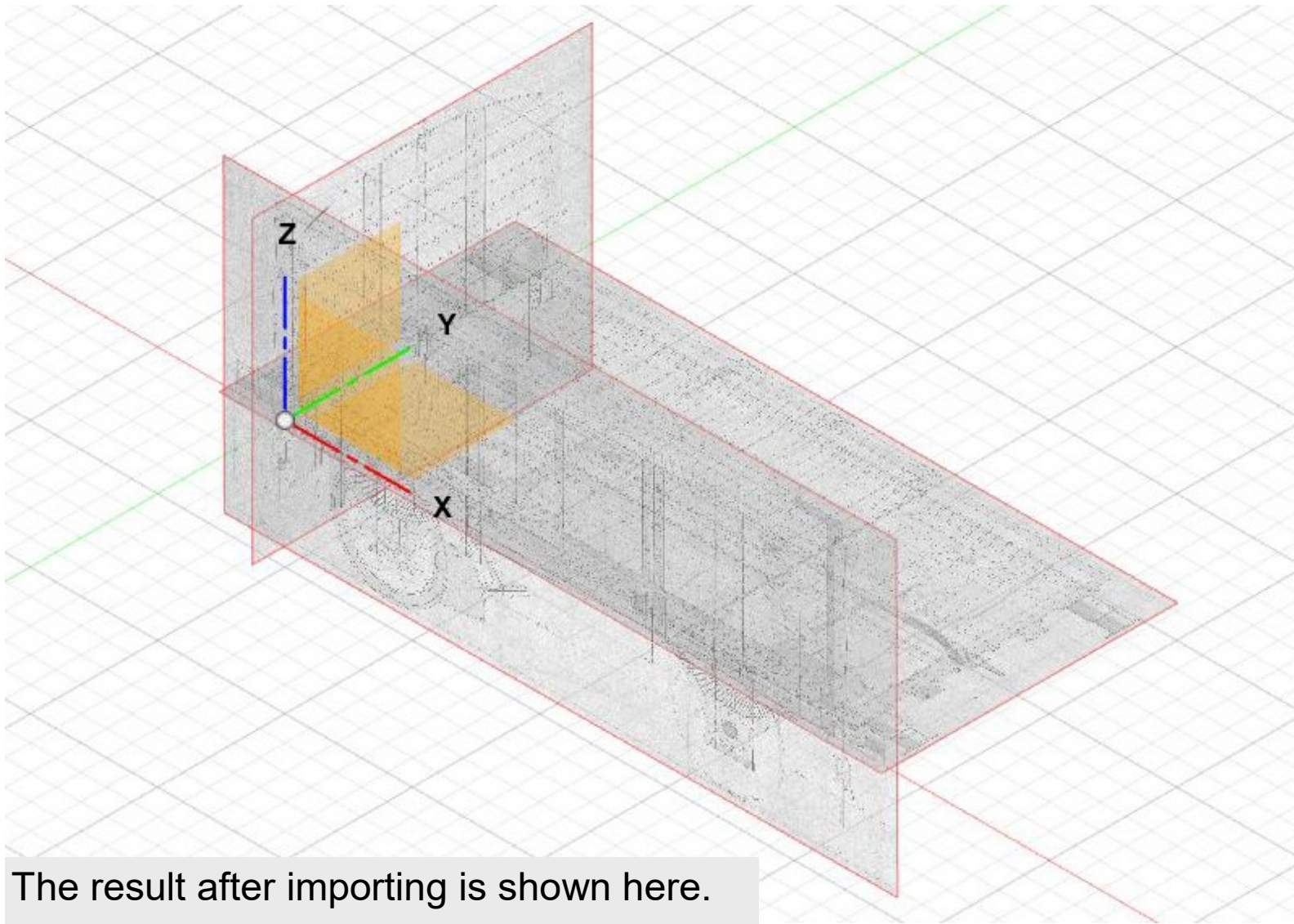
The final piece in the jigsaw is that those bodies visible in the drawing can then be merged into an output file – which is used by the 3D Printer to create the finished model. These features of the software allow variations on a theme to be produced with little additional effort.



The complete underframe drawing on the previous page is made up of these two self contained elements.



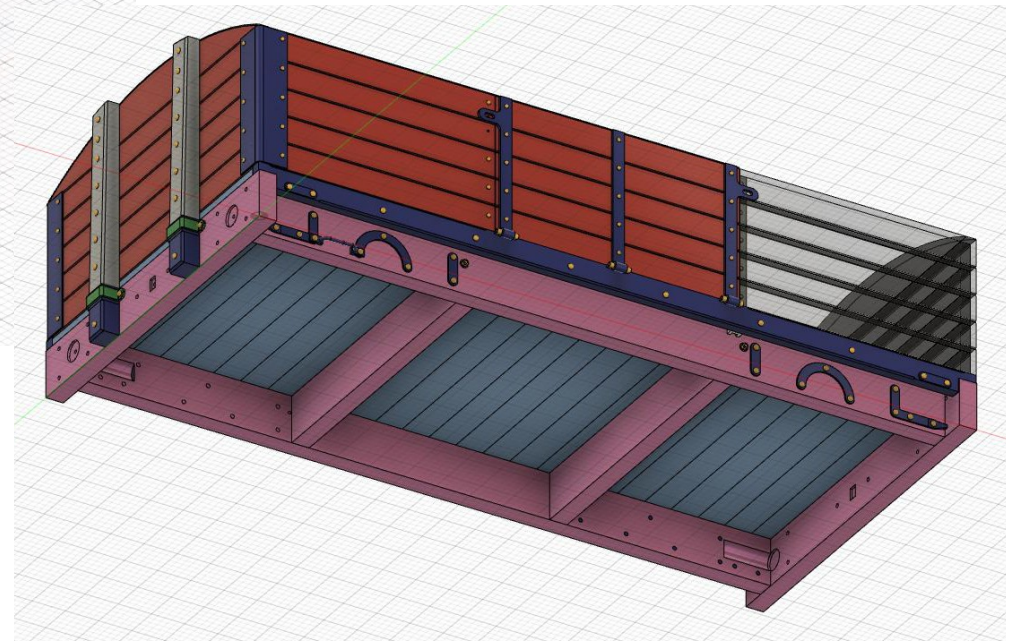
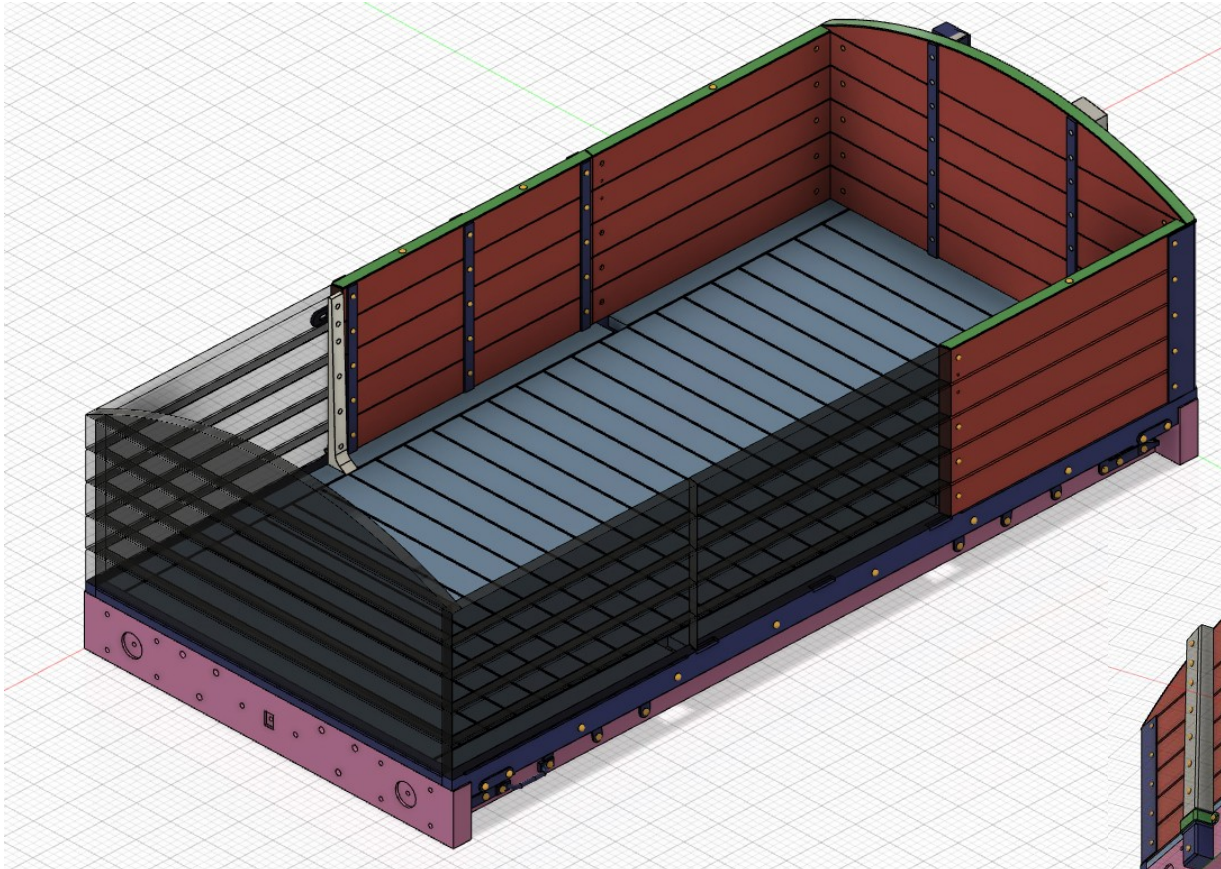
Setting Up in Fusion

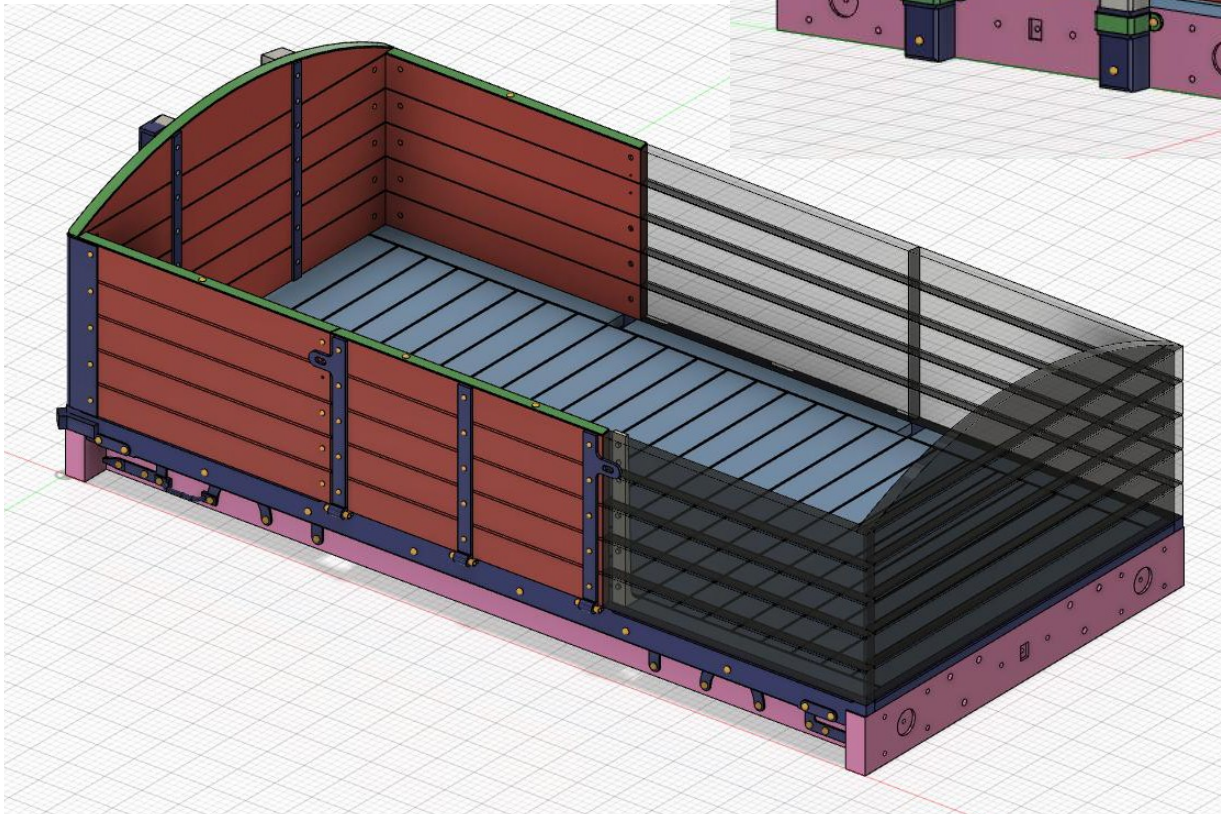
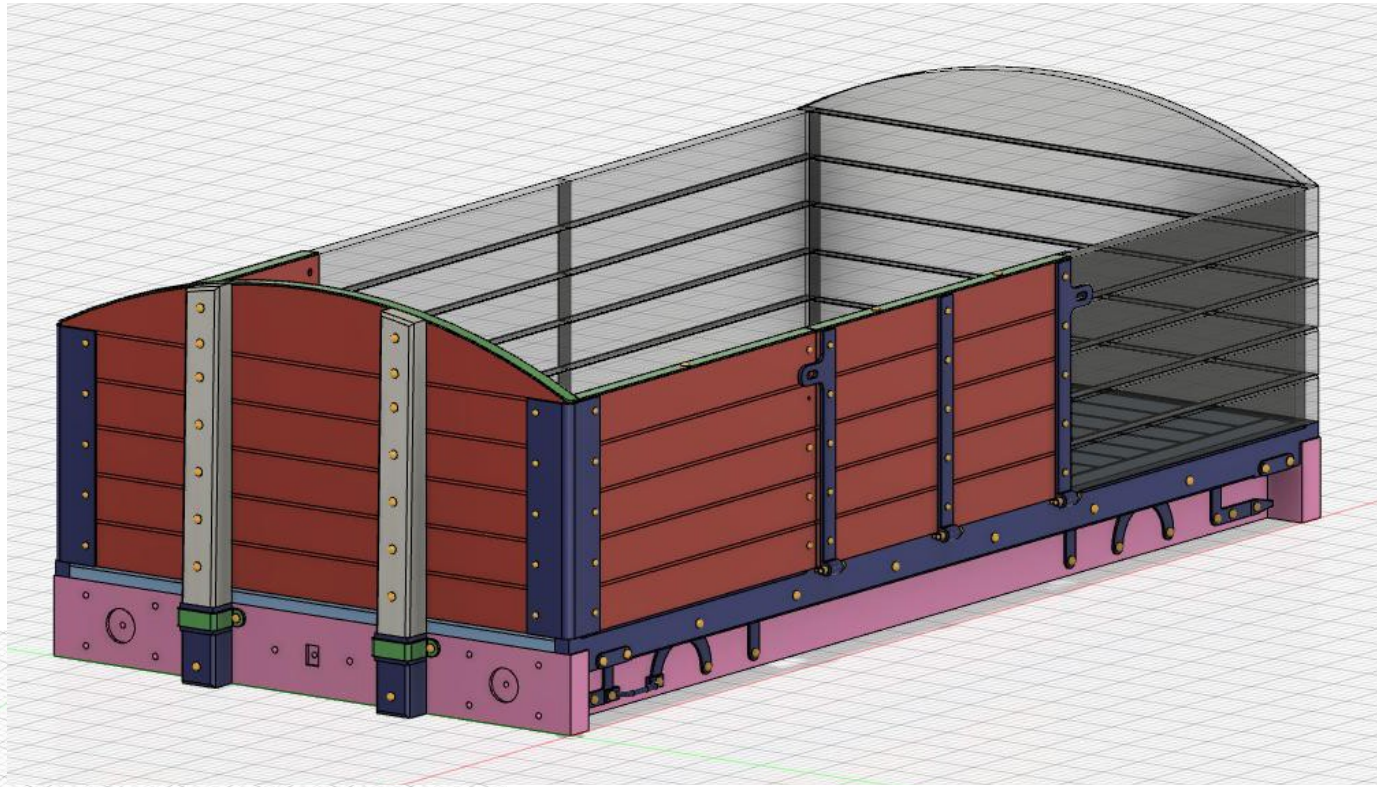


Fusion allows images to be imported, scaled and positioned as an aid to creating the CAD drawing. The preliminary step was to use Photoshop again, this time to crop out from the original drawing a separate image of each elevation for import, one for each face of the 3D image. The end elevation with the most information was used for this purpose. In Fusion terminology images are 'canvases'.

Once the 2D sketch was complete, the final step was to create volume by adding the third dimension. For the most part this uses the 'Extrusion' function, and the results can be seen above under Re-usability.

The final 3D wagon drawing is shown below: -



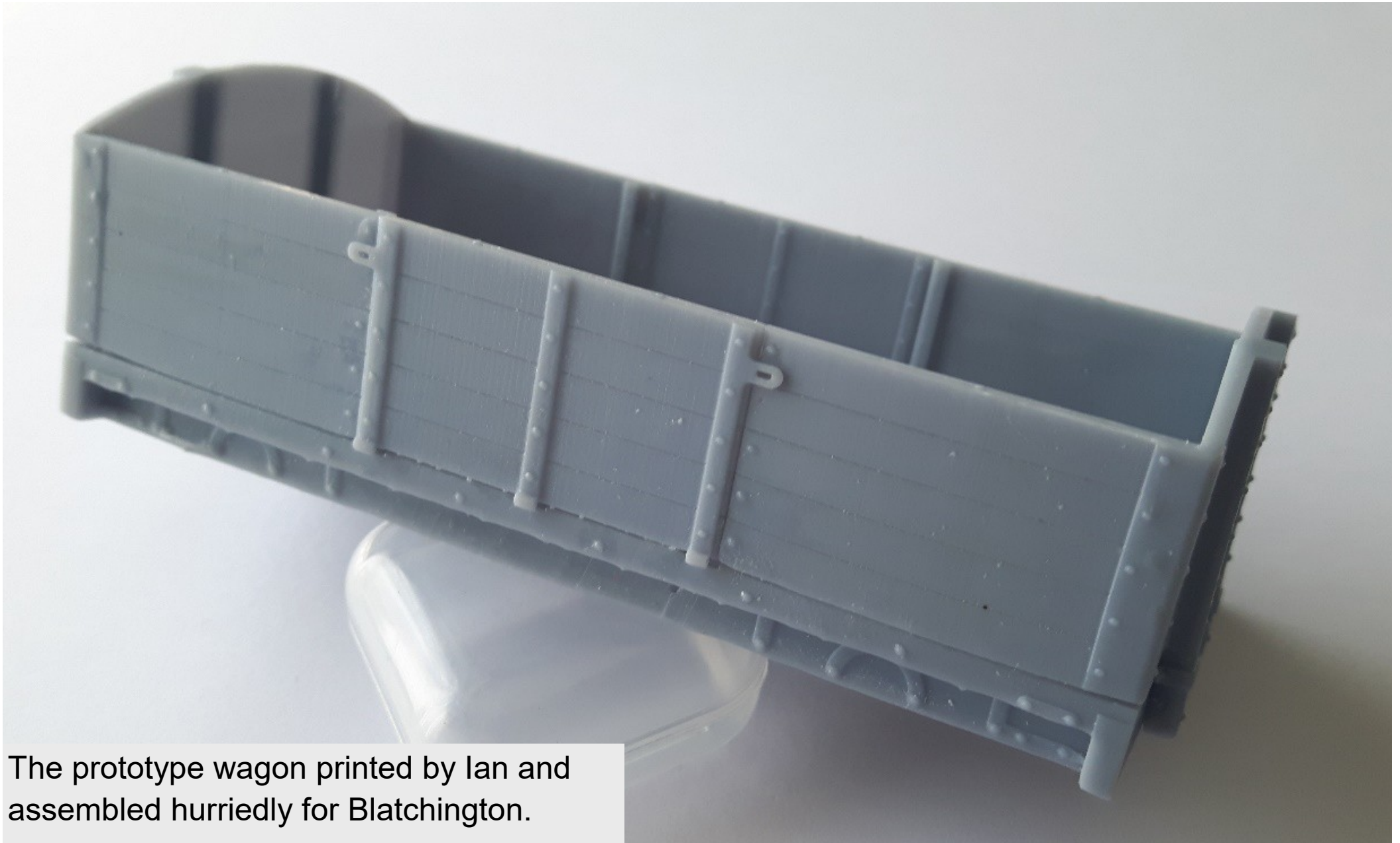


Printing the Wagon

At the moment I don't have a 3D printer, but Ian does, and it was thanks to his expertise and effort that the drawing became a model. As a parallel exercise, commercial 3D printing companies were sent the output file so that we could evaluate what route we might follow for the future. These all used FDM as opposed to SLA printers, and all operated at a lower resolution. The results were disappointing. The quality was truly poor, and at roughly £50 per wagon it was also uneconomic.

The practical problem we are facing at the moment is that the wagon takes up almost the entire surface of the build plate on Ian's printer, and in his view this is pushing the boundaries of the equipment. We think it is for this reason that there is still a tendency for the wagon sides and underframe to lift slightly at the ends, although the level of detail is excellent.

At present there is a step change between the type of entry level printer which Ian uses very successfully for smaller items, and higher capacity machines. We both feel that given the cost of the latter, the business case cannot justify the investment. However, an intermediate size of machine is due for release in late Q2 or Q3 this year by one of the better manufacturers, and we are both intending to invest in one. Watch this space.



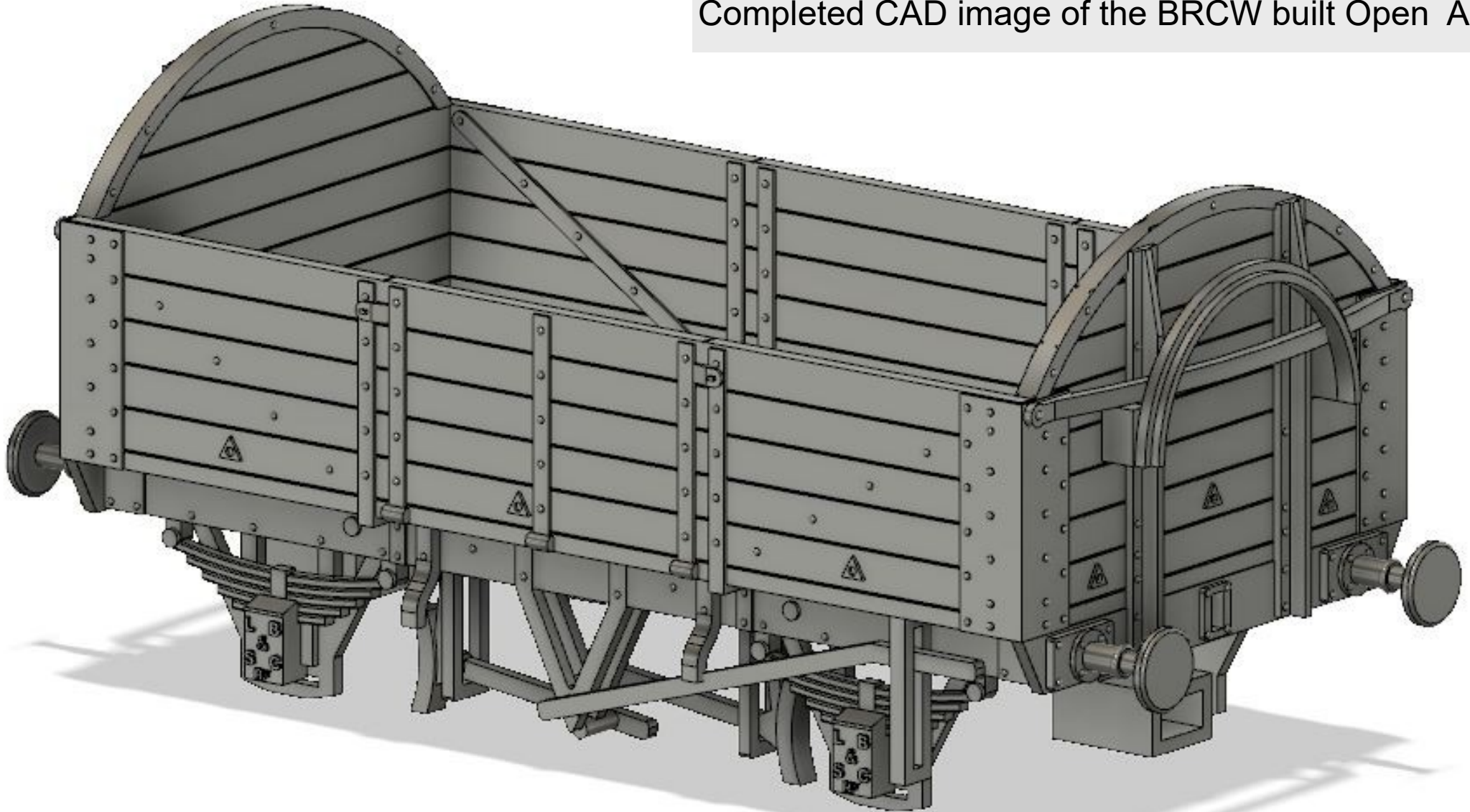
The prototype wagon printed by Ian and assembled hurriedly for Blatchington.

LBSC Steel-framed Open A: 3D printed wagon

by Tom Hyde

Like many others, I have been monitoring and experimenting with 3D printing as a method of making small production runs of wagons and locomotives. In my case, I was intending to make quantities of wagons for my colliery layout and one of the designs I settled on to make as a kit was the steel-framed version of the LBSC Open A (later SR diagram 1371). It is not designed to be the last word in fine detail, but rather to be accurate, relatively robust, easy to build and good value. This article will give an overview of the process of designing and making the wagons, and an insight into what is achievable with 3D printing – there is a lot of talk about it replacing traditional modelling techniques, but while still being in favour of the process, I hope to give a more down-to-earth view.

The first stage of this project was to gather as many photos and drawings as possible, as well as general research. A very popular wagon, over 900 remained at grouping, built in 3 batches between 1896 and 1900 by BRCW and Cravens. This helped me identify the differences between the two manufacturer versions, so I could model both types which gives a nice bit of variety on the layout while keeping the stock consistent. Many thanks to James Hilsdon and Gary Kemp for their input on the research. The next job was scaling the drawings to 1:76 so they could be used to start the CAD drawing process. Some prefer to make their drawings full size, and scale down later, which has its advantages, but I prefer to have drawings in 4mm scale as it makes it much easier to work with the tolerances of the 3D printers, and also for working with standard wheels, bearings, couplings and so on. As ever, everyone has their own preference, and none is necessarily better or worse than any other.



Once the drawings were scaled, I could move onto starting the CAD work – this is another area where everyone will have their preferred techniques, so instead of detailing that process, I'll take a quick look at the compromises designed in. Many people are a bit scared of the word

“compromise”, but in this case I think it’s necessary due to the materials involved. 3D printing is not the perfect solution to everything right now. You could have a much finer kit made in etched brass and cast details, but the time and cost of producing such a kit is significant, and the skills required by the modeller are much higher. So to make the kit more accessible, 3D printing is a good option, and a good level of detail can still be achieved. One of the key areas one has to think about when designing for printing is the wall thicknesses. 3D printing requires a certain thickness, otherwise it is both very fragile and can warp very easily while printing. This affects areas like brake gear and w-irons, which end up a little overscale – having said that, from normal viewing distances this is hardly noticeable. You also have to think about whether a part is worth printing, or whether a simple bit of practical modelling could be better. An example of this is lamp irons – I leave these off all my kits, as I find it very simple and much more effective to make them out of small staples. The same goes for parts like sheet rails, coupling hooks, handrails, pipework on locomotives and so on; modelling these little details can be fun and good for developing common modelling skills.

A freshly printed model, alongside a completed model in a fictional 'Kent Coal' livery



One of the downsides of budget home printers is that, occasionally, you will find small imperfections in the finish, or some layer lines – two minutes with some sandpaper and filler usually fixes this. I have found that superglue (or UHU glue if you have a bit more patience to let it dry) is adequate for assembly, though one tip is to spray the model with primer beforehand to increase the adhesion. Most primers work well, Halfords grey plastic primer is my personal favourite, but if it is not covering properly, a wash in warm soapy water (or in isopropyl alcohol if you have some) will usually solve that. Assembly just involves inserting top hat bearings into the solebars, then glueing each solebar to the main body locating tabs, trapping the wheel set in between. It can take a little fettling to get the chassis to sit perfectly flat, but once it does, the use of standard brass bearings and readily-available wheels means these wagons can run very freely. Then it is simply adding coupling hooks, NEM couplings and painting to finish. Some modellers will take things a lot further than the simple kit build. I have had several customers replace axleboxes, w-irons, couplings, buffers and so on, particularly in EM/P4, and I have printed a special version without these details for them. This is a big advantage of 3D printing as a traditionally designed kit would need re-tooling or new etches to make such changes – the same goes for detail changes and any custom modifications.

In summary, while 3D printing is not the ideal medium for all purposes, it can be used to create a very satisfactory wagon, with the advantages of being easy to build and relatively low-cost, so it's a great way of making those more unusual wagons that wouldn't repay an investment into mould tooling or etches. If anyone would like to purchase a wagon kit, please visit my website at ts3dmodels.blogspot.com for more info – the pages also have links to videos of the construction of some of the wagons if you'd like to know more about how it works. As a learning exercise, this project was a fun one, and I've gone on to develop other wagons and locomotives for the colliery layout. I suppose I should go and develop the layout beyond bare baseboards so I have somewhere to run them!



Tom's website is at ts3dmodels.blogspot.com, which contains details of his products.

Image and photographs copyright Tom Hyde

A test print Cravens version (with some imperfections/details that have later been corrected), built by Gary Kemp.

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Seaford, a 3D print

By Eric Gates

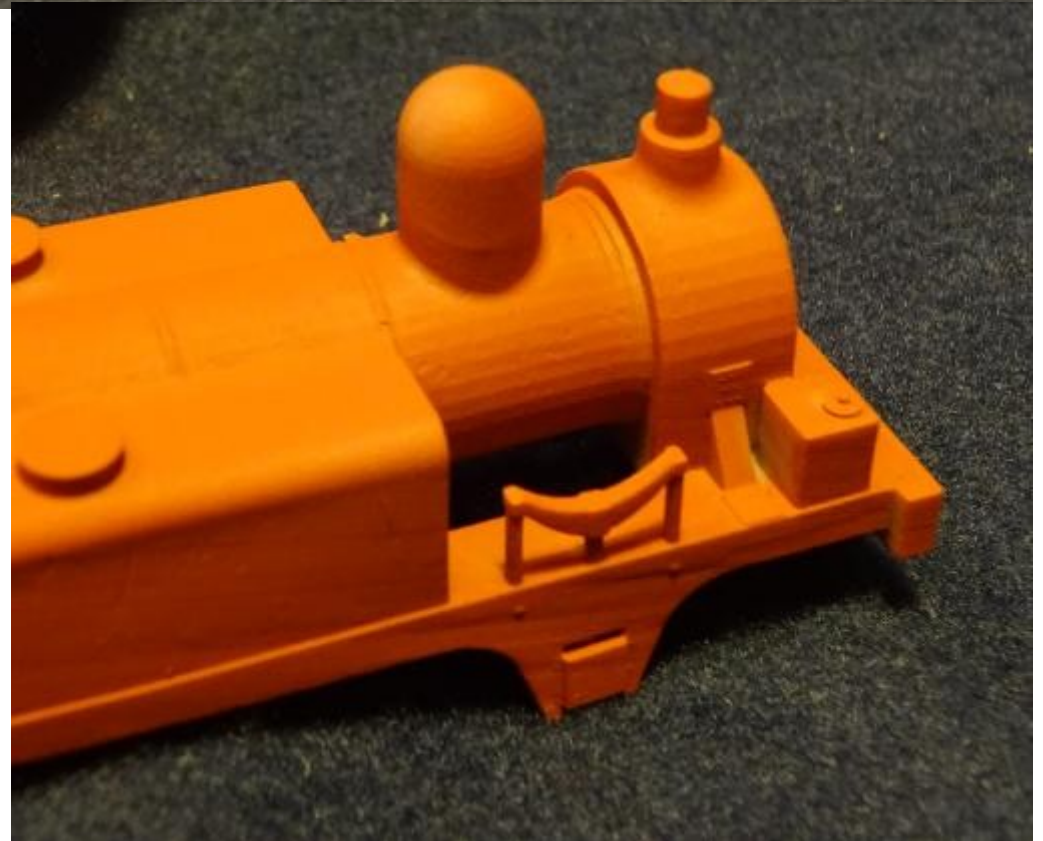
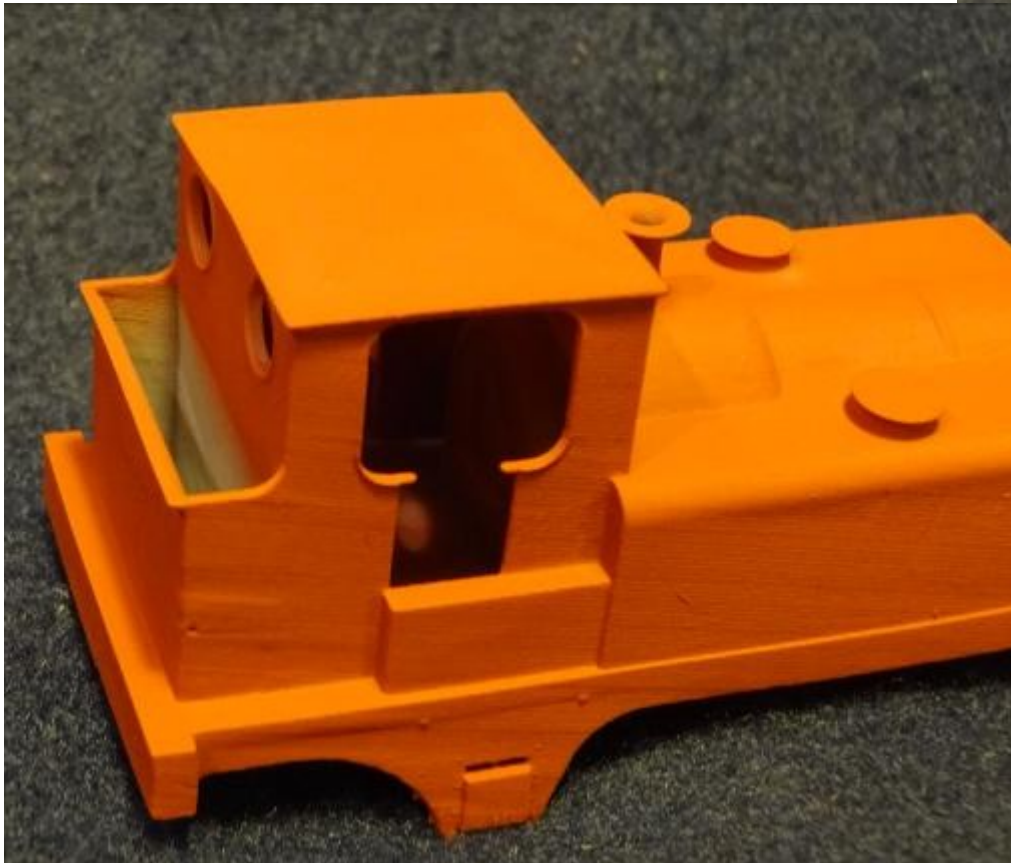
Avid readers of the Digest will remember seeing a picture in the last edition of a 3-D print of the little 2-2-2T, originally built by Craven, and rebuilt by Stroudley. The image showed the loco pretty

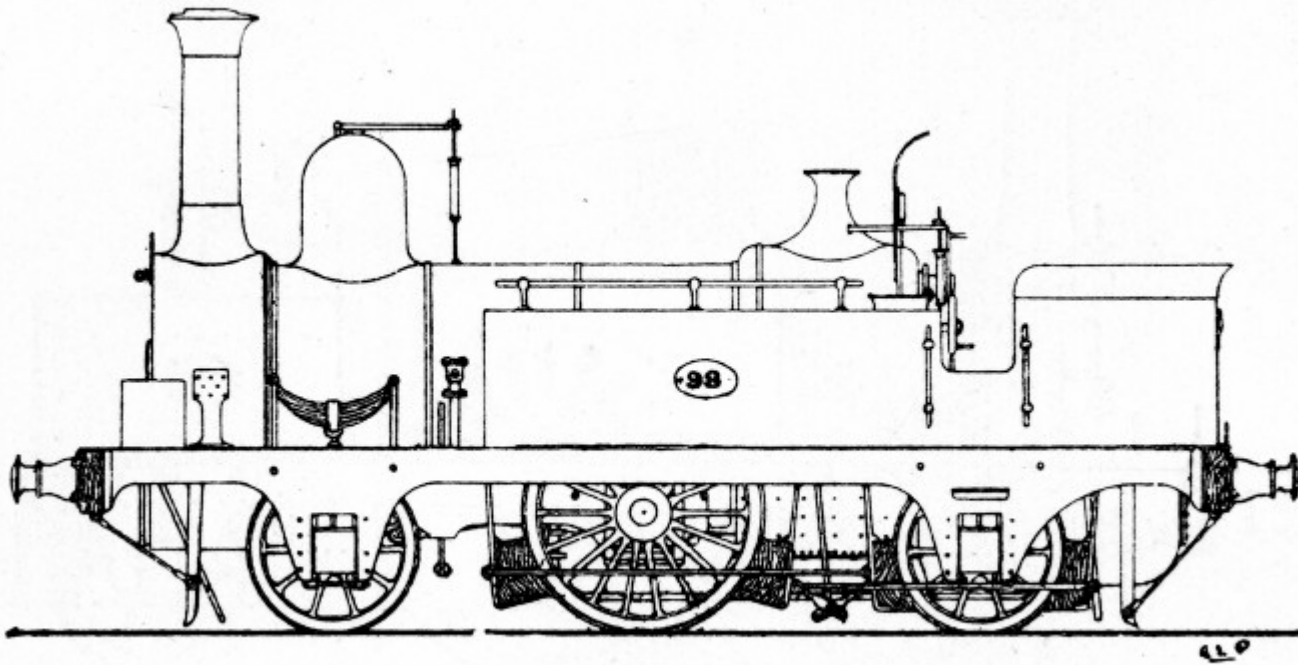


much “as printed”, but with a quick coat of “rattle can red” primer to show up more clearly what work needed to be done.

The print arrived as a body only, so all the running gear and chassis need to be built. Buffers, couplings, spring balances for the dome, cab handrails and lamp irons are also required.

The effect of rattle-can red under artificial light – not pretty! The images are cruel enlargements with the lighting adjusted to highlight the areas of the body that need further work. Note the diagonal layering,





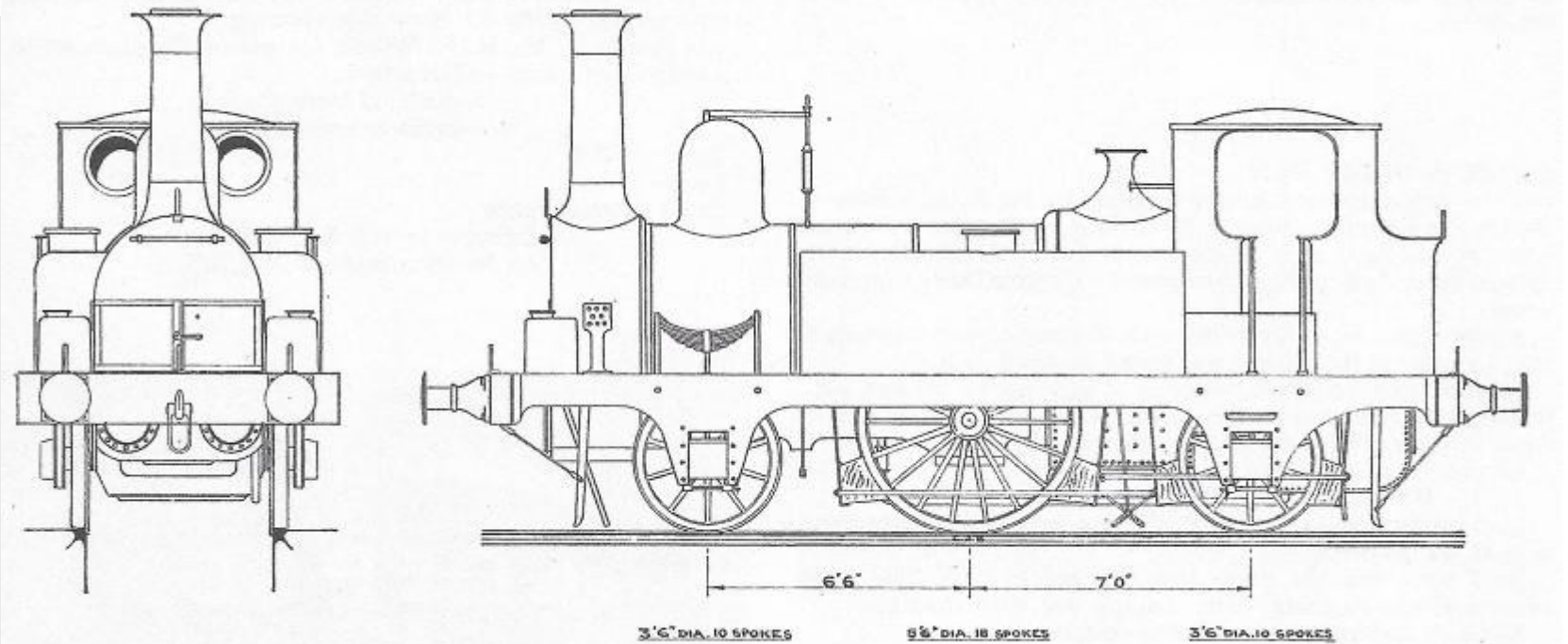
Left

Fig 42 from Burtt, showing the loco as built.

Right

As rebuilt by Stroudley and drawn by the late Colin Binnie, published in Model Railway News.

An alternative front view shows a circular door.



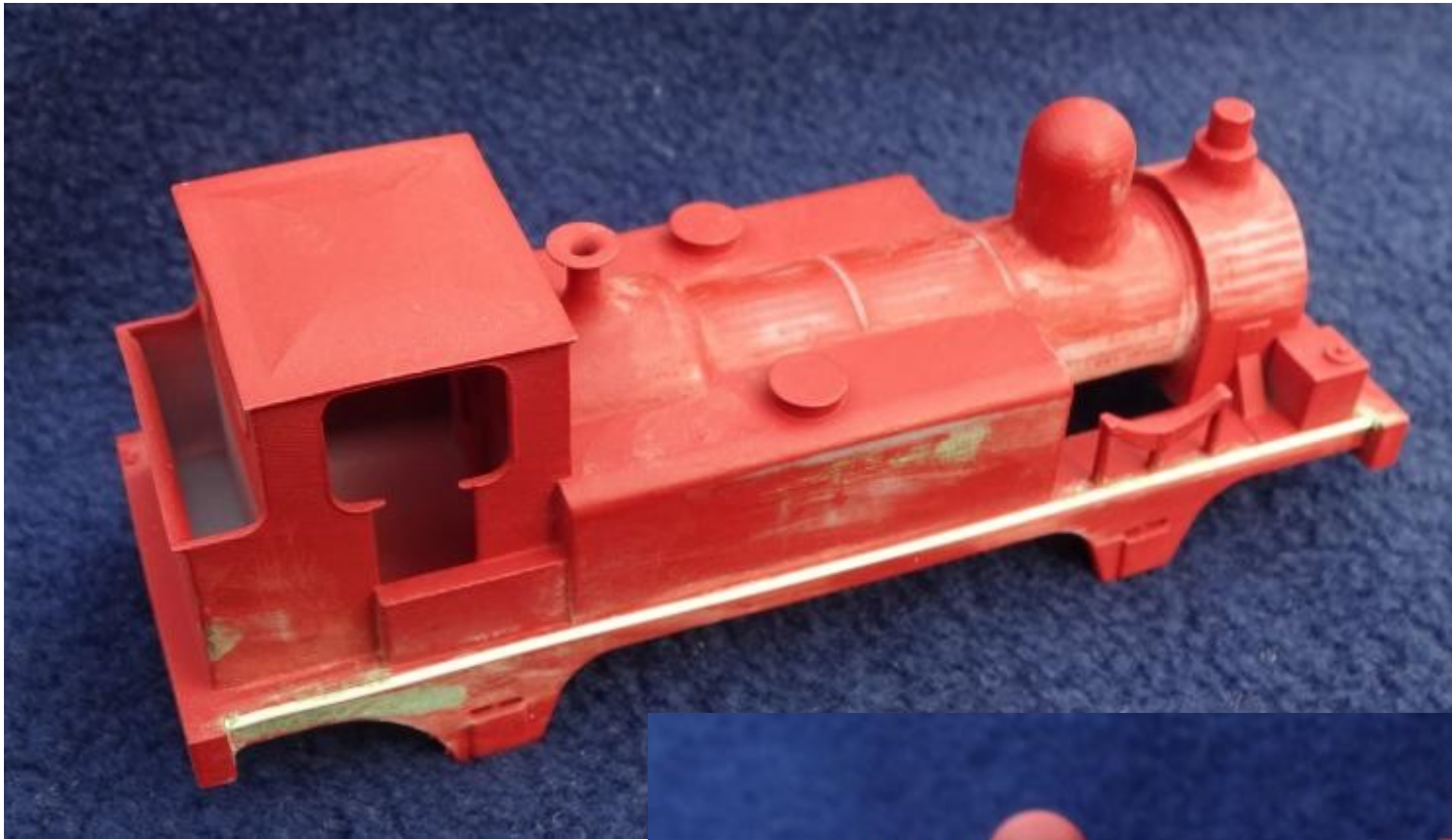
The body.

The first issue with the body is to deal with the layering effect that still seems unavoidable with 3-D printing. In this case, the body was printed at an angle to avoid layering, but there are still pretty clear lines across some surfaces which show exactly how the print was set up. There are also some areas which have suffered from the resin sinking, leaving areas that need to be filled to bring them back up to a flat surface.

The flat surfaces are relatively easy to get at with wet and dry paper, which smooths off the surface quite quickly. Less accessible areas are more of a problem, although wet and dry paper stuck to a coffee stirrer, like a DIY emery board, gets into most of the crevices. The boiler is possibly the most difficult bit as it is cluttered up with the dome, the valve casing, the sidetanks and the springs for the front wheels. I missed the cab front completely. There is also some suggestion of faceting as the design software seems to build the round section out a large number of small flat sections.

One other feature that bothered me was the way in which the footplate edge came flush with the top of the valance, without any overhang. I know that some early locos were built like this, but it really looks odd in this case. I therefore added a strip of 20 thou square plastic strip on either side. The drawings seem to be unhelpful on this detail.

In the end, I had three goes at getting the surfaces smooth, with a coat of red each time to highlight what more needed to be done. When I thought that it was “good enough”, I applied a coat of Improved Engine Green, which was slightly glossy and it promptly showed up a whole lot more! Since the lining was to be the project while I was sitting in the sun on a winter break, I am afraid that I decided to settle for it as it was.



These photos are taken in natural daylight – hence the less dramatic colour!

A bit of work with wet and dry paper has started to remove some of the rough bits, a strip has been added along the edge of the footplate and some filler has been applied.

Two more sessions of sanding and painting followed.



The chassis.

In parallel with getting the basic body shell acceptable, I also started work on the chassis. This is effectively built from scratch and follows the “3 legged stool” principle.

The driving and leading wheels are carried on twin compensating beams, which include top hat bearings in which the axles run. The beams pivot on a pin passing through the frames with a section of tube to keep the beams close to the frames. The front four wheels are therefore suspended from the frames either side to form two of the three legs of the stool.

The third leg is formed to carry the trailing axle, and is a single bearing, attached to a longitudinal rod on the centreline of the frames so that the axle can rock.

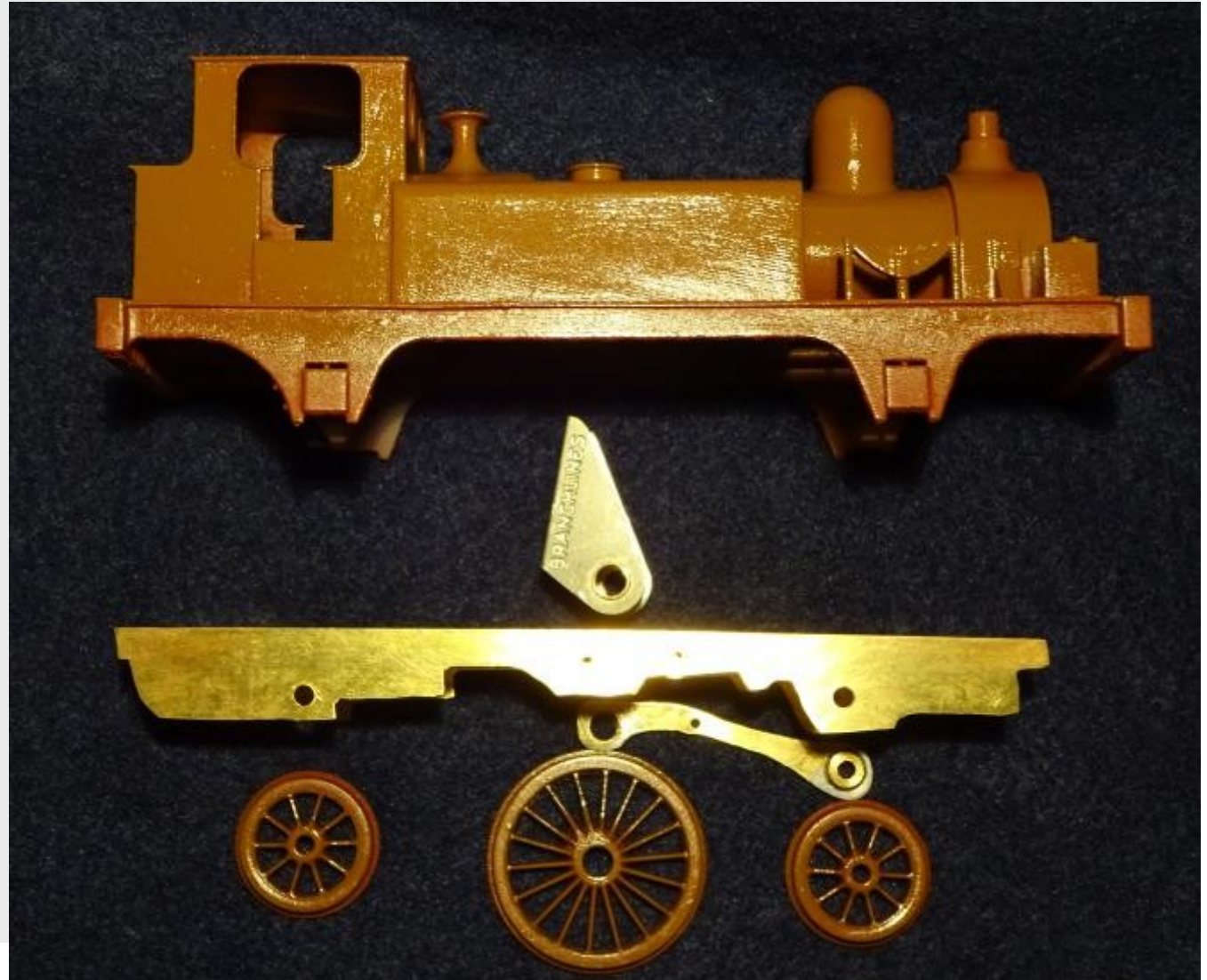
Hopefully the photographs will explain more clearly how these ambitions were implemented in practice. No hornblocks were inconvenienced in this design; there are just four top hat bearings and one bearing formed from a simple piece of brass tube.



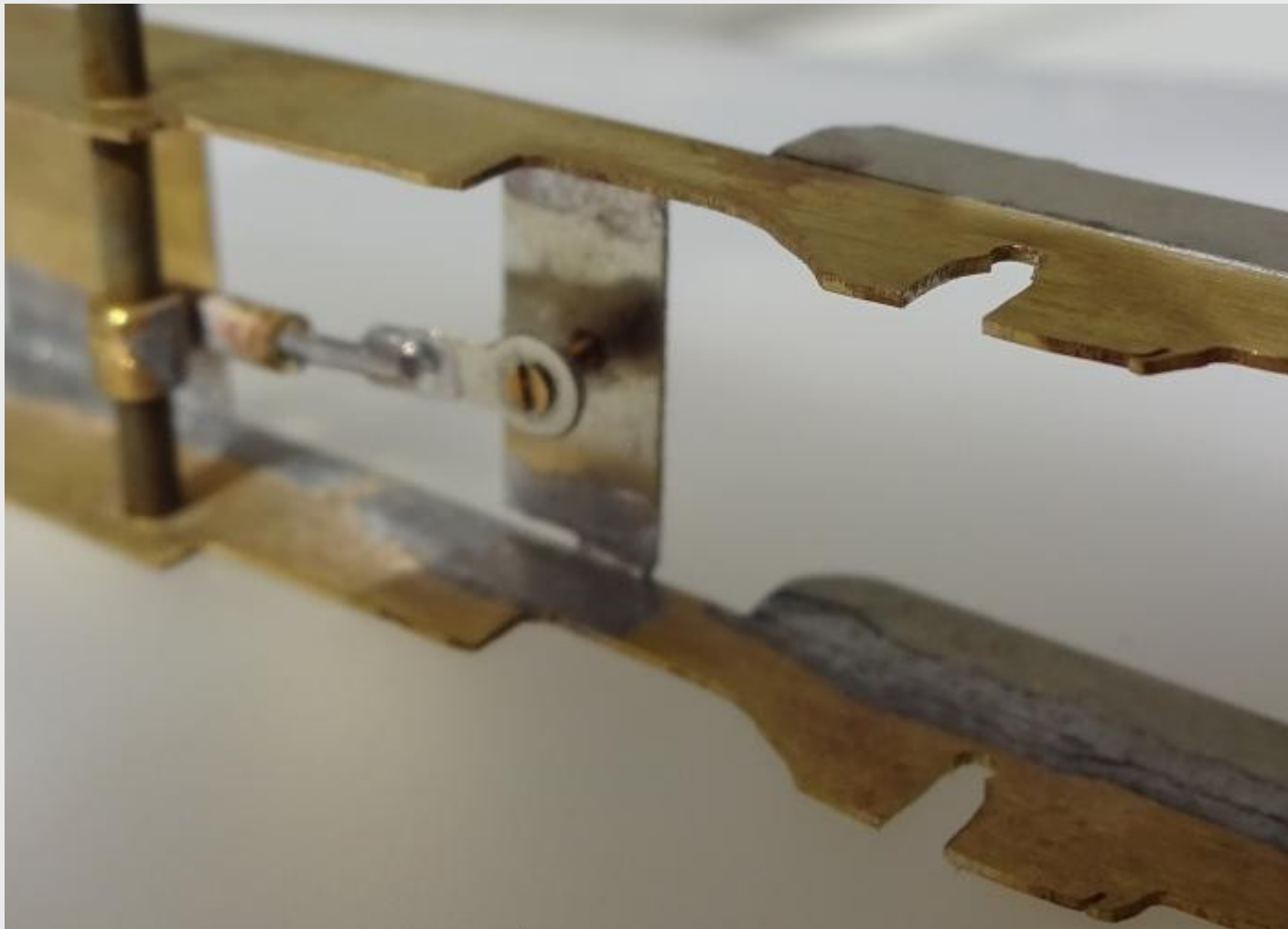
The chassis, showing the relationship with the body, which now has its coat of Improved Engine Green. The wheels have also had the first coat of paint and the driving wheels have had the cranks removed. This shows the planned location of the motor and gearbox and also shows the compensating beam. The chassis was soldered up with a chassis jig, using the 2mm diameter holes of the carrying axles!

Subsequent reflection suggested that opening out the driving axle hole to 1/8th inch was going to break through the top edge of the frames and so an additional fillet has been added to the top of the frames.

The leading and driving axle holes were subsequently opened out into slots so that the suspension unit could be dropped out complete by removing the pivot pin. This is more for ease of construction, rather than for any ambition to be able to dismantle it once it is in service: just as well, as the pin lies behind the driving wheels. Poor planning on my part.



The arrangement of the trailing axle is shown, with the centre bearing attached to the rocker arm. This was all set up using the pilot holes in the chassis, and the bearing was set to match that height. The inner end of the rocker arm is attached to an adjustable bolt so that, in theory, the height can be adjusted subsequently. This is all attached to a frame spacer to which a captive nut is soldered. Soldering the captive nut did not go well and four bolts were destroyed in the process. (Memo to self: must improve technique for soldering captive nuts to reduce mortality rate.) The holes in the frames have now been opened up into an oval shape to allow the axle to rock.



The decision to put the beams on the leading axle was taken because the front of the loco seemed to have more space for weight – in the boiler and sidetanks. To apply as much of the weight as possible to the driving axle, the pivot suspending the compensating beams was set as close to the driving axle as possible (leaving space for gears, etc). It was only when I came to assemble the wheels that I discovered that the pivot actually sat behind the driving wheels, negating my efforts to make the drive unit simple to drop out!

The motor is a Mashima 1215, with a Branchlines 51:1 gearset: pretty well the smallest combination that I could find. With hindsight, I wonder whether one of the HighLevel gearboxes, that allows you to curl the drive back under the motor, might have been a better bet.



Painting

Because I knew that I would have some time to do the lining, I hurried the painting of the body rather more than I should. First, the wheel tyres were blackened chemically and the tyres were then masked. Next the body and wheels were airbrushed with Improved Engine Green. Because I was in a hurry, inevitably the paint had gone a bit gloopy and so I ended up having to strip and clean the airbrush, for a second attempt with rather thinner paint. The second colour was the olive green, that was brushed around the edge of the panels, and, more critically, this adjoins the footplate. Since the inside edges of the green will be covered by lining tapes, it is not essential to get the edges very precise – but I would admit that my efforts push this to the limit. Working downwards, the black footplate comes next – or, my preference, a very dark grey, in this case anthracite black. This is where you overpaint any errors with the green. The final main colour is the claret for the buffer beams and valences/outside frames. The order is quite important, as it allows you most leeway to get clean edges to each of the colours. The final detail colours are Palid Wych Flesh for the cab roof (white), Dwarf Bronze for the copper cap to the chimney and Runelord Brass for the brass safety valve casing. OK, I confess; I like the paints that Games Workshop sells – especially the metallics!

The lining was done with transfers from one of the few remaining sheets from my stock (EBM is looking at new, improved Stroudley lining, hopefully with more of the lining for the frames and some curves that match cab cutouts!) It is one of those really painstaking jobs that takes time – which is why I wanted to do it while we were taking a low energy, winter holiday break. Ideal while Mrs G is sitting in the sun reading. A coat of Klear floor polish on some of the more fiddly small transfers pieces (e.g. around the cab cutout and the curved bits of the frames) helps to protect these bits against subsequent handling. This worked particularly well, as I did a lot more handling than usual, having lined the model out before all the fiddly bits were fitted.



The rough and the smooth. How badly can you paint the olive green edging bands and get away with it by covering the rough edges with the lining strips? The boiler bands have a clear section, so that you need to use some clear transfer paper and paint it olive green. 2mm strips then go under the boiler bands. The outer edge of the boiler bands is a very fine white line which does not allow for the ham fisted approach of daubing the green on with a brush.



As a unique loco, of which no photo survives (can anyone prove me wrong?), I am in much the same position as the paint shop foreman at Brighton was when presented with Seaford for applying the lining; I have used my initiative. I have adopted the normal practices for the most part, but made the following guesses. The opening around the cab is half blocked by the housing over the rear axle spring. I have lined this out as a discrete unit. Adjacent to it, the sidetanks slightly overlap the sides of the cab; I do not think any other loco does this. I have chosen to cut away the red line from the front vertical band on the cab, so that the white edge of the line is straight and continuous while the red has been left off where the tank overlaps.

Body and chassis come together.

Always a moment of truth, and one that I would have liked to have reached before doing the painting and lining.

Rather optimistically, I had bought a flywheel to go with the motor and gearbox. That was a non-starter, as the rear shaft of the motor had to be cropped off as short as I could make it. Even then, the distance between the driving axle and the front of the cab is not that great. I could have tried again with a HighLevel box but instead, tried to see how far I could get by chewing out the rear of the backhead. 3D print may be as light as an etch, but it is much more substantial in thickness, like a whitemetal kit – actually even thicker in some areas. In the end, I had to break through into the cab – but only just. And since the cab is pretty enclosed (and impossible to paint), I reckon it will be invisible – particularly if it is filled up with a driver and fireman.

Having got the chassis with the motor and gearbox to fit into the body, I fitted the wheels. This revealed that the top of the gearbox fouled the inside of the boiler. The tank tops and the boiler are quite low set, but this is emphasised by the thickness of the material in the print. Rather than hacking out some more of the loco body, I removed some of the top of the gearbox frame, which solved the problem.



Brakes

The system of actuation of the brakes is somewhat unusual: to quote Binnie “none of your tatty bell cranks here”.

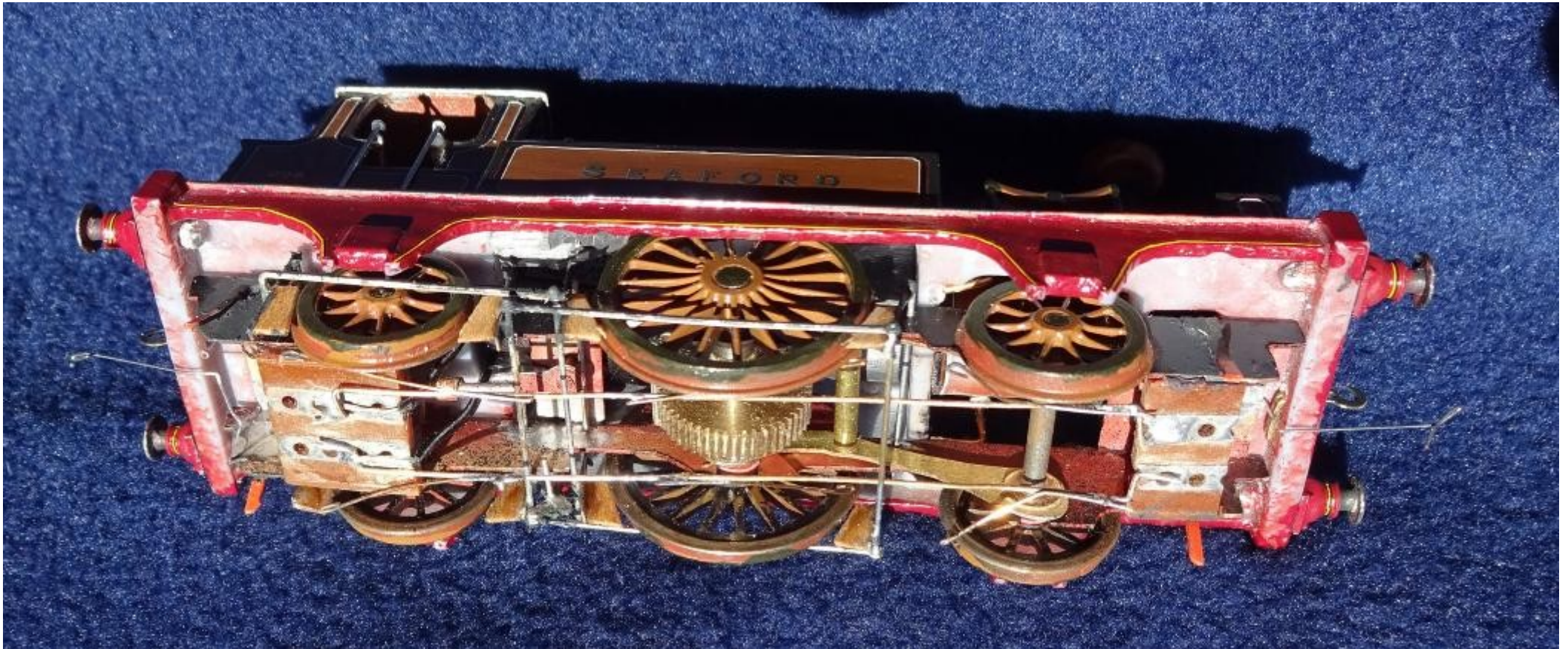


The brake blocks on the leading sides of the wheels are linked by rods, the blocks on the trailing sides are similarly linked and the two sets are connected by a lifting mechanism between them. The drawing of the unrebuilt loco in Bradley (fig 48) seems to show a screw mechanism on the left hand side of the cab, which should link to the vertical shaft between the brakes, also shown on the left hand side. From this, I infer that the loco is right hand drive, unlike Stroudley designed locos.

In construction, I used some scrap etches from a kit for a Manning Wardle tank and, although these are small, it proved impossible to convey the flimsiness of Seaford's brake gear! I cannot see how there could have been a similar mechanism on the right hand side, which suggests that all the brake force is being exerted through this one, rather lightly built, mechanism. Perhaps it is just as well that Seaford would have lived a pretty leisurely existence. The arrangement must have been sufficient, as it seems to have survived the rebuild.

Pickups

I think this is one of my better efforts at building a pick up system. My usual solution is to use two PCB strips, one towards each end of the chassis, with the wheels scrapers soldered directly to these. These wheels scrapers tend to assume all kinds of contorted shapes, sometimes resembling a squashed daddy longlegs. On this occasion, I have soldered two phosphor bronze pieces of rod between the two pieces of PCB and soldered the wheel scrapers to these rods. This is one of those blinding glimpses of the obvious, gained from re-reading the works of Ian Rice.



Chimney. The printed version seems to stand too tall and I reduced it by about 3mm.

Salter balance. The spring balance is from Branchlines and the lever was hacked up from a spare piece of nickel silver fret. The two were soldered together quite painlessly.

In between the safety valve cover and the cab, there should be two further Salter valve levers and a whistle. I could not think of a way to include these tidily and so I have simply left them out. The same goes for any interior fittings for the cab.

Buffers are castings from the 5&9 range, as are the boiler feeds.

Handrails

The cab handrail stanchions are fitted in front of the box for the springs, “giving Seaford a berailed entrance that would not have disgraced a Victorian mansion” (Binnie again). Gluing the nickel silver handrails to the printed material was one of the steps in which I have less confidence.

The original loco had handrails along the top of the side tanks, although Binnie's drawing of the rebuild shows none. I have taken the view that there was no obvious reason to remove the handrails and so I have included them. However, it then became clear that the tank fillers also seem to have been relocated from just in front of the footplate to the centre of the tanks. This makes it difficult to fit a third handrail knob in the centre of the tanks and so I have settled for just 2 handrail knobs.

Weight.

Detecting the weight of the body on its own would need the sort of scales used by pharmacists when selling poison. Fortunately, the front of the boiler and the smokebox are hollow so it is possible to insert a chunk of lead. There is also space in the sidetanks and bunker, so that it should now be able to pull at least as much as the prototype.

Lampirons

Again, these are scrap etches, epoxied to the printed material. I am not convinced how long they will last.

Crew

Useful for filling up the cab and concealing the lack of detail and paintwork!

Thanks to Mike Waldron and Paola for the bespoke lettering and numerals.



Weathering

Not quite the right word, as it suggests the bedraggled, “end of steam” state. I am unconvinced by locos that look as though they have just left Brighton Works and are gleaming all over. I prefer an eggshell kind of finish, varying to matt for the running gear and the top of the boiler where it would get showered with smuts from the chimney. The difference in finish is as important as the addition of a little khaki colour to the matt varnish on the running gear and the black to the top surfaces. It



is not intended to look neglected, so much as “lived in”. In this case, the weathering is minimal – but still there.

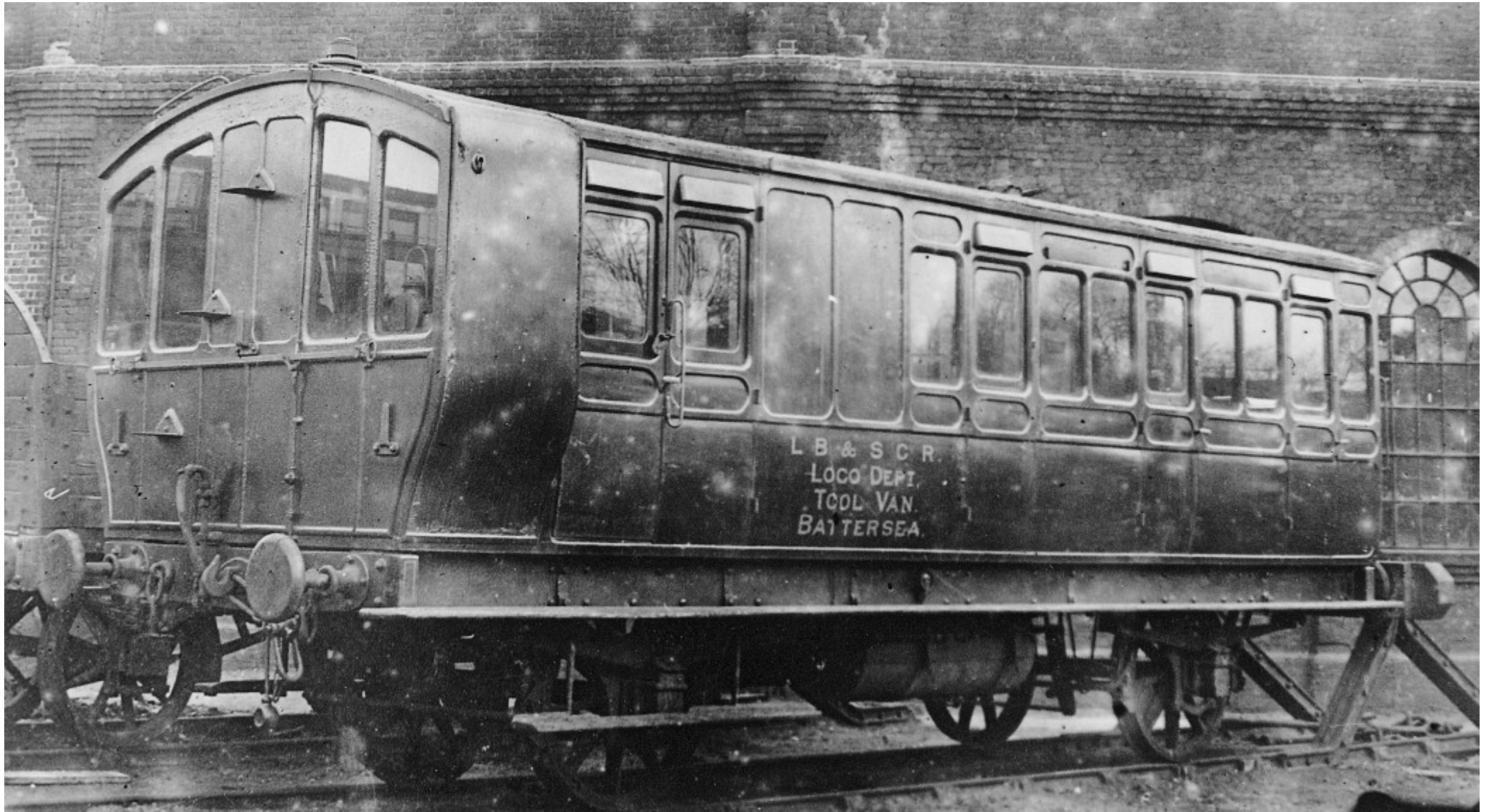
LB&SCR Travelling Hand Crane No.19

The Crew's Riding Van - Part 1

By Colin Paul

Construction, modifications, and super detailing an LB&SCR Stroudley ex- 3rd brake van (to diagram 457) Roxey Mouldings kit (no.7C60).

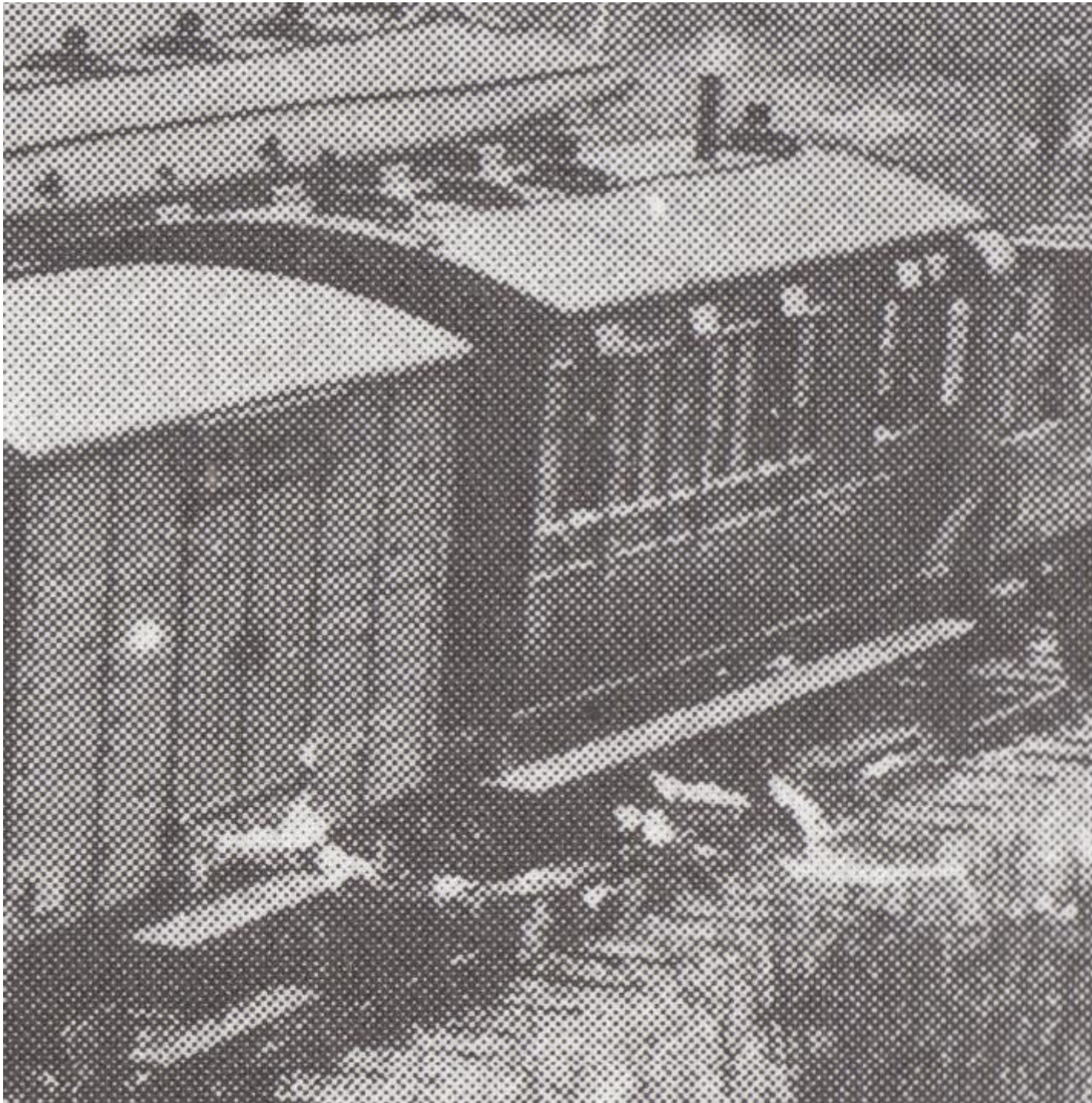
Within six months or so of work starting on the construction of the LB&SCR travelling hand crane no.19's match truck (1) in mid-2015, one or two people mentioned to me that the crane would require a guards/riding van for the operator(s) . Ex passenger rated vans were used extensively for numerous departmental duties from all of the pre-grouping Southern companies from the LB&SCR, L&SWR, LC&DR, SECR, and SER which are mentioned in Service Stock of the Southern Railway (2). There is a brief section on the LB&SCR vans in chapter 2 and in Appendix 2, but nothing specific is mentioned of a riding van associated with no.19, so it may have run with two normal goods brakes which were to hand, one at each end. For the record, travelling hand crane no.19 was owned by the Goods Department and was based at Newhaven. Looking for suitable photos to go with the crane, the ancient looking Stroudley ex-3rd brake van (3) to LB&SCR diagram 45 depicted in the Battersea roundhouse photograph (on the following page) looked ideal as it is the only one photographed (possibly) in Brighton days. Looking at the photo more closely, there are a number of small but significant changes that have been undertaken to it since it entered departmental service.



Notes on the preceding photo.

- A change from oil to gas lighting as noted by the single gas top over the Guard's compartment, and the two gas holders mounted underneath the underframe. No doubt this would have been done when the coach was in ordinary service.
- A gas feed pipe now runs up vertically on the ducket end from below the headstock (hidden by the buffer head). This pipe would normally run up from the other end of the coach.
- The control gear arrangement has also been switched and fitted to the ducket end.
- Bodyside (from left to right): The grab handle has been removed from behind the Guard's ducket lookout window.
- The door knob is missing from the first passenger compartment door hinting has been sealed up.
- All three passenger door compartment grab handles have also been removed.
- Although grainy, it still appears to be in painted Mahogany livery as noted by the faintly painted rectangular box on the end of the headstock end.
- Clearly visible is the wording written on the side:

**L B & S C R.
LOCO DEPT.
TOOL VAN.
BATTERSEA.**



Another photo depicting an ex Stroudley 3rd Brake van in use as a Riding van was taken at the Buxted derailment on 5th April 1916 (4) and clearly out of ordinary use by this date. The most noticeable feature is the stove's chimney over the Guard's compartment which is positioned just in front of the Gas lamp. It still retains three door grab handles hinting that it still retains separate compartments.

STARTING THE MODEL

Having scratch built many models over the years including the now completed crane and the tool van (5) that accompanied it, would be nice this time around to buy a suitable kit, quickly build it, then paint and letter it for a change. No hassle at all. As a bonus I had already bought a Roxey Mouldings kit when work started on the match truck. Modelling any vehicle, be it from a kit or scratch built from a photo, has its pitfalls, as many of us modellers have found out to our cost. As with many kits on the market, some discrepancies creep in, some slight, some major, but this kit is very accurate and perfectly acceptable. The only glaring error is with the rather tall oil lamp chimneys. As this particular model will have Gas Lighting, they won't be used.

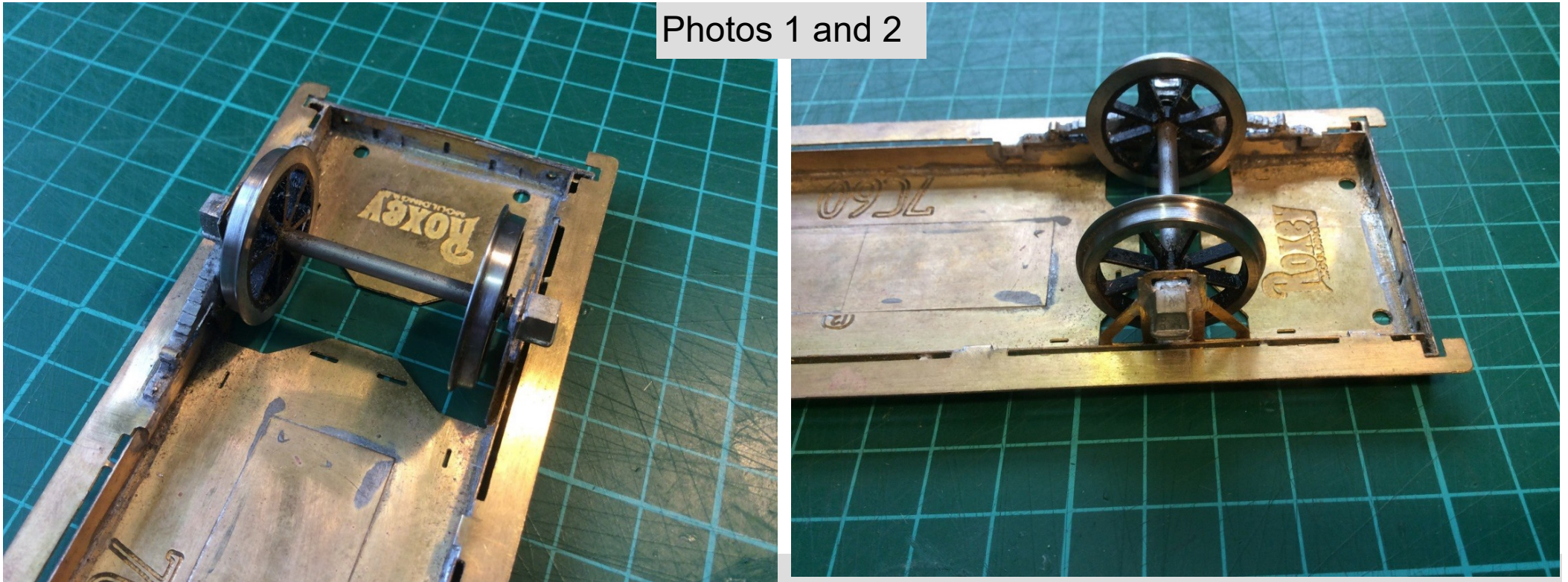
Upon opening the kit, I found the brass very nicely etched as were the very crisp white metal castings which had little flash or mould lines on them. The brass roof comes pre rolled too which was a nice feature as some modellers do not own rolling bars. Upon checking it with a T square the ends were perfectly square. Wheels and good quality couplings are not included in the kit. The latter though are included on the etch and require bending to shape. For the additional price of £15 or so, a pair of Laurie Griffin (www.lgminiatures.co.uk) lost wax couplings really do set a model off nicely.

Any deviations from the instructions will be highlighted during the article.

UNDERFRAME

As with any kit or scratch build project, I always construct the underframe first which is what is suggested in the instructions. With all of the additional parts cut off the underframe unit, the rivet/bolts were punched in. The sides were then bent downwards (half etch on the inner fold line). During bending though, I noticed the brass was very hard to bend crisply even on the fold lines. The “W-irons” were then bent upright as were the headstock lugs (x4), strengthened with solder and made good.

Photos 1 and 2



By the time these photos of the non-compensated end were taken, the basic underframe was well under way as per instructions. The solebars have had all of the respective bolt detail punched out then bent up at right angles and the long footboards added. Although the brass was very hard, I still ran a fillet of solder in the half-etched fold line for strength. The W-irons have also been bent at right angles that required no strengthening. The white metal axlebox castings had their top and bottom flats filed away slightly (up/down 1mm) so the correct height could be determined. At this stage, only one leafspring casting (the far side) has been soldered in position. The pre-assembled headstocks which are a fold-up half etched item required some remedial work in lining up the buffer holes and filing smooth. I also added a rectangle of scrap brass in the centre void area of the frame (were the droplights were on the etch) not for strength, but for adding details such as the Westinghouse valve, brake pull rod supports, safety loops, and gas holder frame etc.

The separate headstock etches were then folded. Aligning the buffer holes up exactly did not go to plan and they were very slightly out, but not too seriously and they were soldered up. The buffer holes were slightly too small anyway for the castings and subsequently had to be opened up slightly. Small holes were also drilled out at the same time for the safety chain mounting pins. I also noticed on the outside face of the headstocks, just in front of the buffer holes, raised non-etched rings of brass. This area is where the backs of the buffer casting locate onto. Their diameter was strangely smaller than the buffer castings. Not liking the appearance with a buffer in place, I carefully filed them off. The buffer housings now sit flush on the headstocks proper. When the headstocks were fitted, I noticed two of the headstock backs did not touch the outside face(s) of the solebars that left small gaps. Small fillets of scrap brass were used and soldered in place.

It was then time to low melt solder on the four buffers.

Two Laurie Griffin lost wax LB&SCR pressure gauges (Ref:36-032) were then soldered (just to the left of the centre line) onto the solebar fronts.

LEAFSPRING CASTINGS

The four leafsprings were cleaned up and soldered in position. I did not realise until the first leafspring was soldered in position that they were slightly too wide (not mentioned in the instructions) and protruded outside the face of the solebars by 1mm. Thinking 1mm was not too much when painted black and weathered, this error would not easily be seen underneath the footboards. If the backs of the springs were filed back, the overall thickness of them would be very narrow and not very convincing.

KEEPER PLATES

On the bottom of the W-irons legs there are representations of drop down blank keeper plates, devoid of detail. Keeper plates are located and bolted to the bottom of each of the legs of a W-iron. There are two basic designs, either straight or the drop down variety. They are there to stop

the axle box from dropping out of the hornblock guide in case of a derailment. They are also made removable for overhaul if the leafspring or axlebox requires attention. In Plate 1, the drop-down ones are clearly fitted. A few years ago whilst working with John Ritter in Australia, he kindly gave me some spare LB&SCR etched ones he had commissioned. After punching out the half etch holes for the bolt detail, they were simply soldered on over the top of the existing keeper plate.

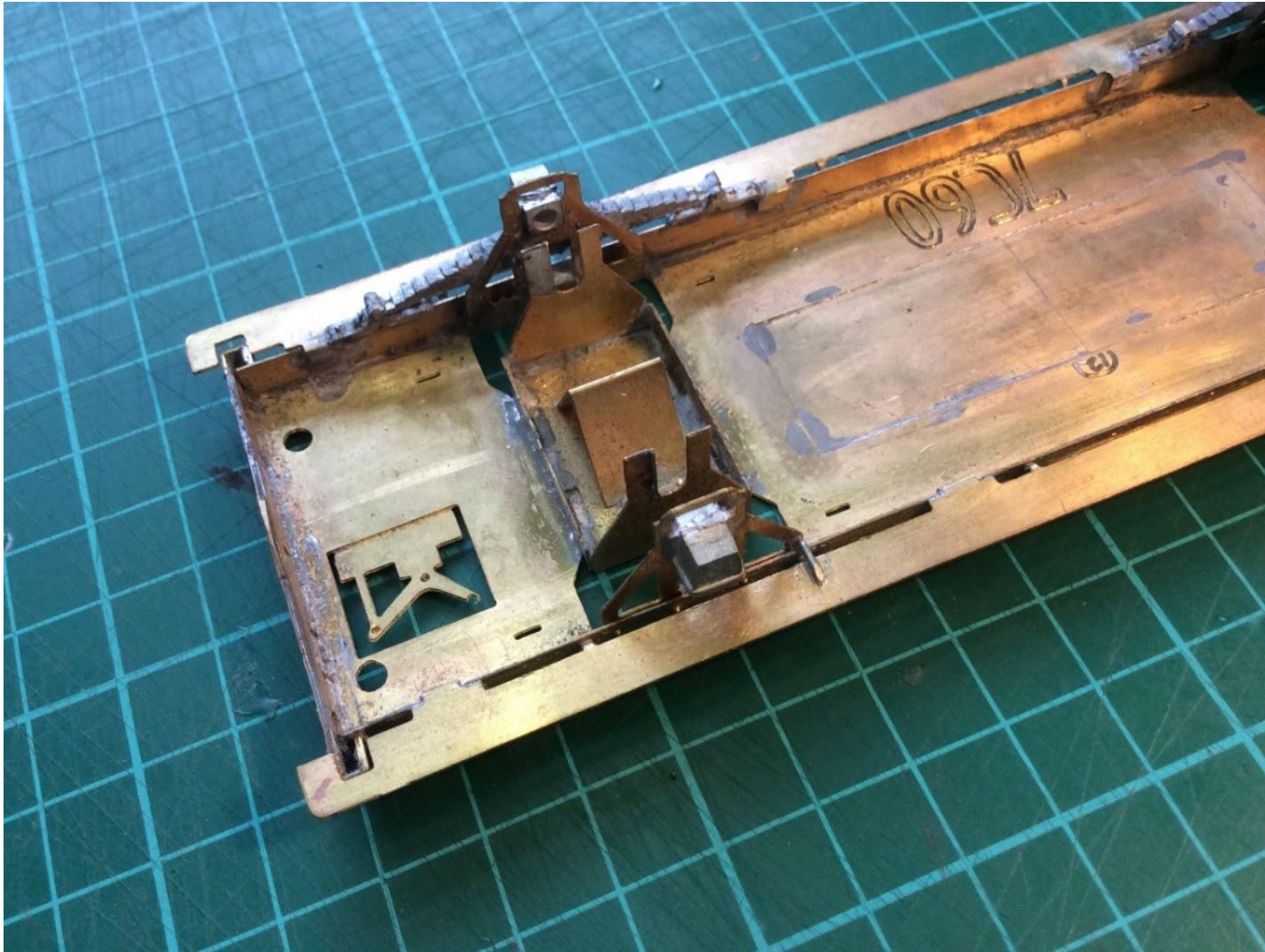


PHOTO 3

Although perfectly adequate for the job that it was designed for, the annoyingly resonating compensation unit fitted was subsequently removed. Just visible is the plain keeper plates on the bottom of the W-irons which would eventually have an extra keeper plate etch soldered on the front. The footboards have also been soldered on from behind the solebars. Note the scrap piece of brass in the centre is more evident in this photo.

FOOTBOARDS and FOOTSTEPS

The two long footboards were fitted as per instructions.

The lower footsteps though were very difficult to fit and not at all easy even for an experienced modeller like myself. Even trial fitting around the axleboxes proved tricky. As the W-irons are set too far out (as mentioned in the section on leafsprings), the overall width of each footstep was now too wide and protruded further out than the top footboards. In practice, they are set back in slightly by 1.5mm each. Each one had to be filed down from 6mm to 4.5mm for a prototypical look. This narrowness sounds a lot, but is not very noticeable. Over length pre-bent 0.7mm n/s rods were (as suggested) soldered to the bottom of the footstep. Soldering them on square, vertical, and straight was again very tricky that took many attempts. I then found that each rod had to be bent backwards under each footboard slightly, then bent upright again for a snug fit behind the solebars. One rod (ducket end) was soldered directly behind the solebars, but I could not get the soldering iron in behind the folded up W-iron. My solution was to drill out a hole in the base in between the W-iron and solebar and soldered the rod in from the top. Once the footboard was perfectly horizontal to the top footboard, I soldered on two more n/s rods directly underneath each one that corresponded with holes drilled out on the face of each W-iron to the sides of the axleboxes. These rods give even more security to a very vulnerable fitting.

COMPENSATING THE UNDERFRAME

I have tried individual springing before on one of my scratch built underframes for an LB&SCR Billinton six wheeler that is still under construction, but I am reverting to a mechanical rocking end for this project. From experience, I prefer not to see sharp movements of deflection on a brake van end when being shunted backwards, preferring a smooth transition. So the non-braked end was chosen for the fixed axle. Firstly, all four axlebox castings were cleaned up. A very small amount of filing had to be done (0.5mm off the top and bottom flats of the square area where the

bearings are located) for final up and down adjustment (the holes in the axleboxes for the subsequent Slaters bearings did not require any enlargement). One axlebox was soldered in place first on the outside of one W-iron. The other side was offered up encapsulating the Slaters (www.slatersplastikard.com) 3' 7" 8 spoked plain (Coach) axle (Ref:7127) and other bearing at the same time. I found the bearings required small thin packing washers each side, due to some slight slop. An etched Roxey rocking unit (Ref:SA600) was purchased and assembled as per instructions and fitted into the four slots on the underside of the underframe. After a small amount of re-tweaking with the non-rocking end, the underframe sat level and square to the track. It was imperative the buffer centres were at a height of 3' 5" (24mm) above rail level. Testing through pointwork and undulating track, no problems were encountered in running. The only problem found was an annoying squeak that resonated through the frame via the axle and upside down `V` of the compensation unit. Grease was applied to the axle to no avail. Motor oil was then applied which helped, but the noise returned once again after testing a few times. This noise carried on for several days and really did annoy me. Not wanting to hear this noise in operation, the unit was sadly removed.

SCRATCH BUILT COMPENSATION UNIT (scratch build deviation from the kit)

Having quite a few ex-MSR Models compensation units to hand, one was utilised. Back in the early 80's they were designed for coarse scale wheels and not suitable for today's f/s wheels. When the two uprights are folded vertically, they are approximately 2mm too far out. The backs of both wheels touch and foul them and do not rotate very well. The only solution was to cannibalise it by cutting off both uprights and re solder them inwards slightly. For strength of the uprights, sections of 3mm x 3mm L section brass angle (Albion Alloys code:A3) was soldered on the backs and soldered to the floor of the unit. Cutting up the unit, I found it was beginning to lose its integral strength and started to twist badly. The solution was to solder in place two sections of Peco bullhead rail. The other problem associated with this unit is the location for the four brake stems. If

using the existing location slots for the four brake stems, they are not at their correct angle. So small extensions pieces had to be designed, cut out, and soldered to the unit making it longer and wider. Two 2mm wide unequal L sections were cut out and bent at right angles then holes drilled out for the pivot pin (0.7mm n/s rod). It was trial and error getting the holes in the correct place though. After several attempts the frame sat correctly at 3' 5" above rail level again.

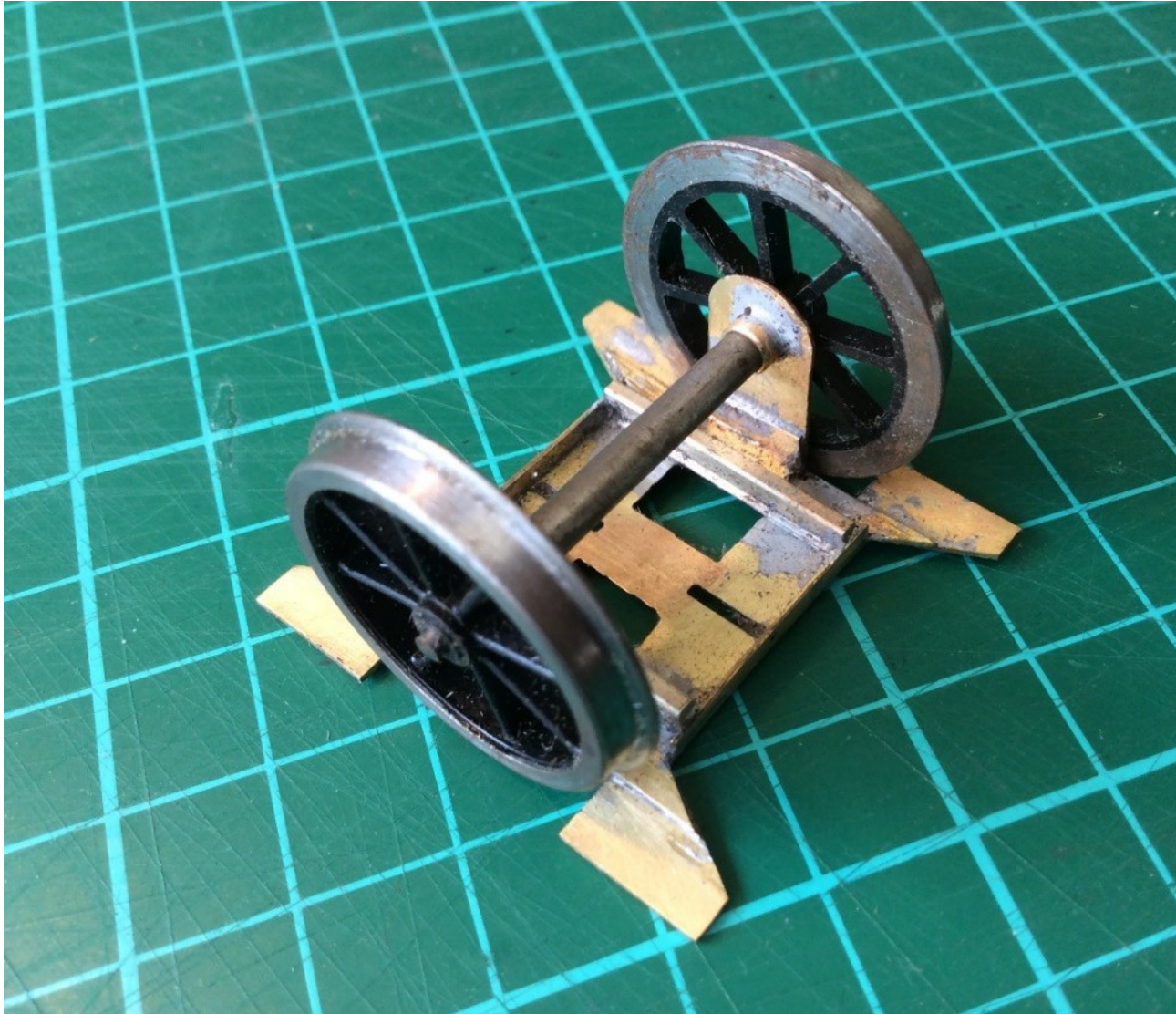


PHOTO 4

The semi scratch-built compensation unit utilised an old MSC unit. Only the flat bottom part (the part with the two large rectangular holes and the two slots) and the two uprights were used. Each upright had to be moved inwards slightly to accommodate the top hat bearings behind the wheels. All was strengthened with Peco rail and square brass channel sections. As I wanted the brake blocks and stems to move in conjunction with the wheel treads and not on the floor, four triangular areas protruding out either side of the wheels were fitted for them (positions to be determined later).

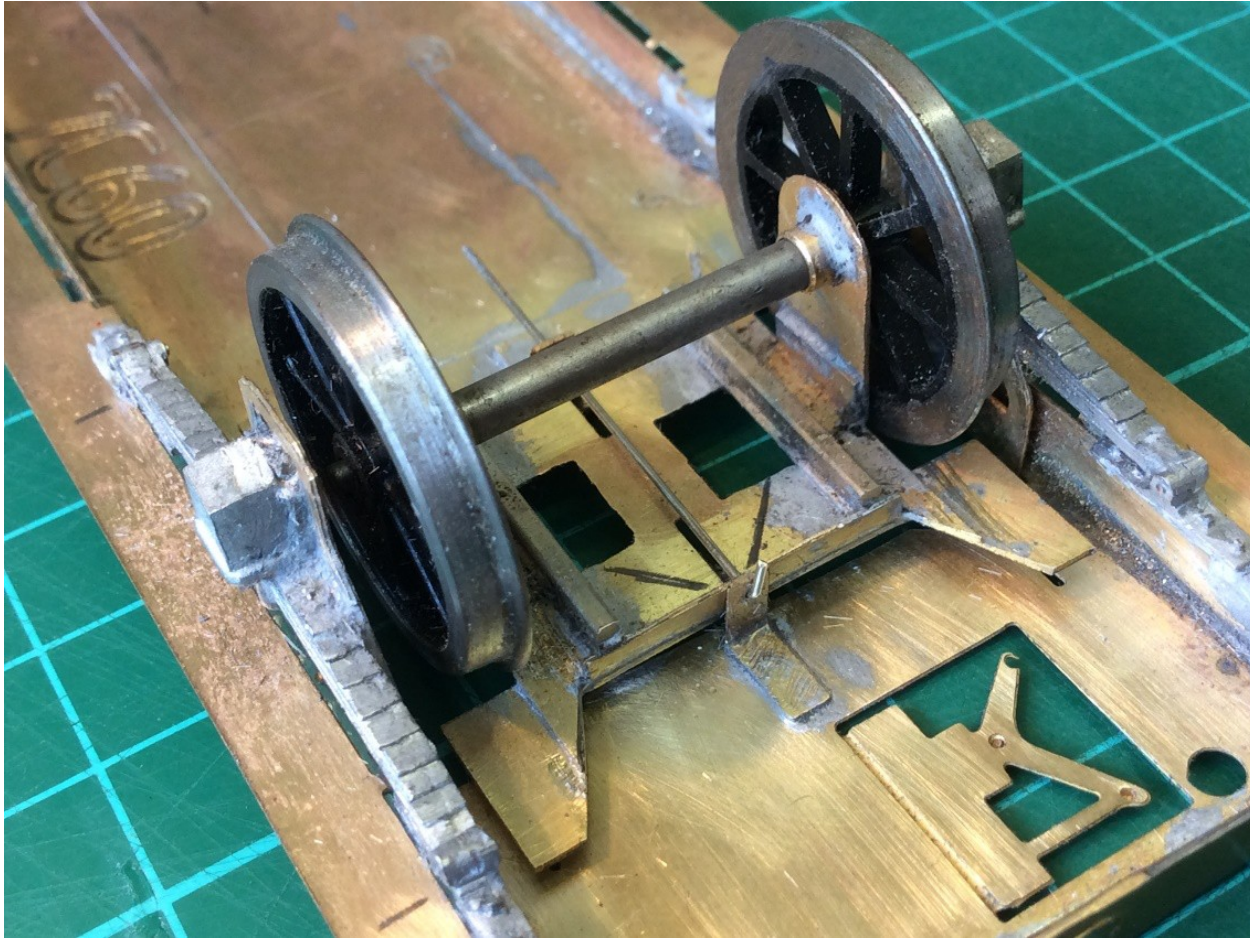


PHOTO 5

Two pre bent unequal L brackets were formed from scrap brass to lock the rocking unit in place. Drilling holes in the correct place for the overall running height was very tricky. Some holes were too high or too low. In the end, the ones fitted were spot-on. Before soldering fully in position though, it was imperative the axle was at a dead right angle to the sides and equidistant from the rear of each W-iron. The up and down movement of the axle is approximately 1.5mm which is more than adequate in F/S O. This angle also shows the PECO strengthening rail to good effect. You may also notice a pencilled arrow onto the top of the unit facing outwards (towards the end on the right). This determines its correct orientation. The leafsprings and axleboxes have also been soldered on using low melt solder.

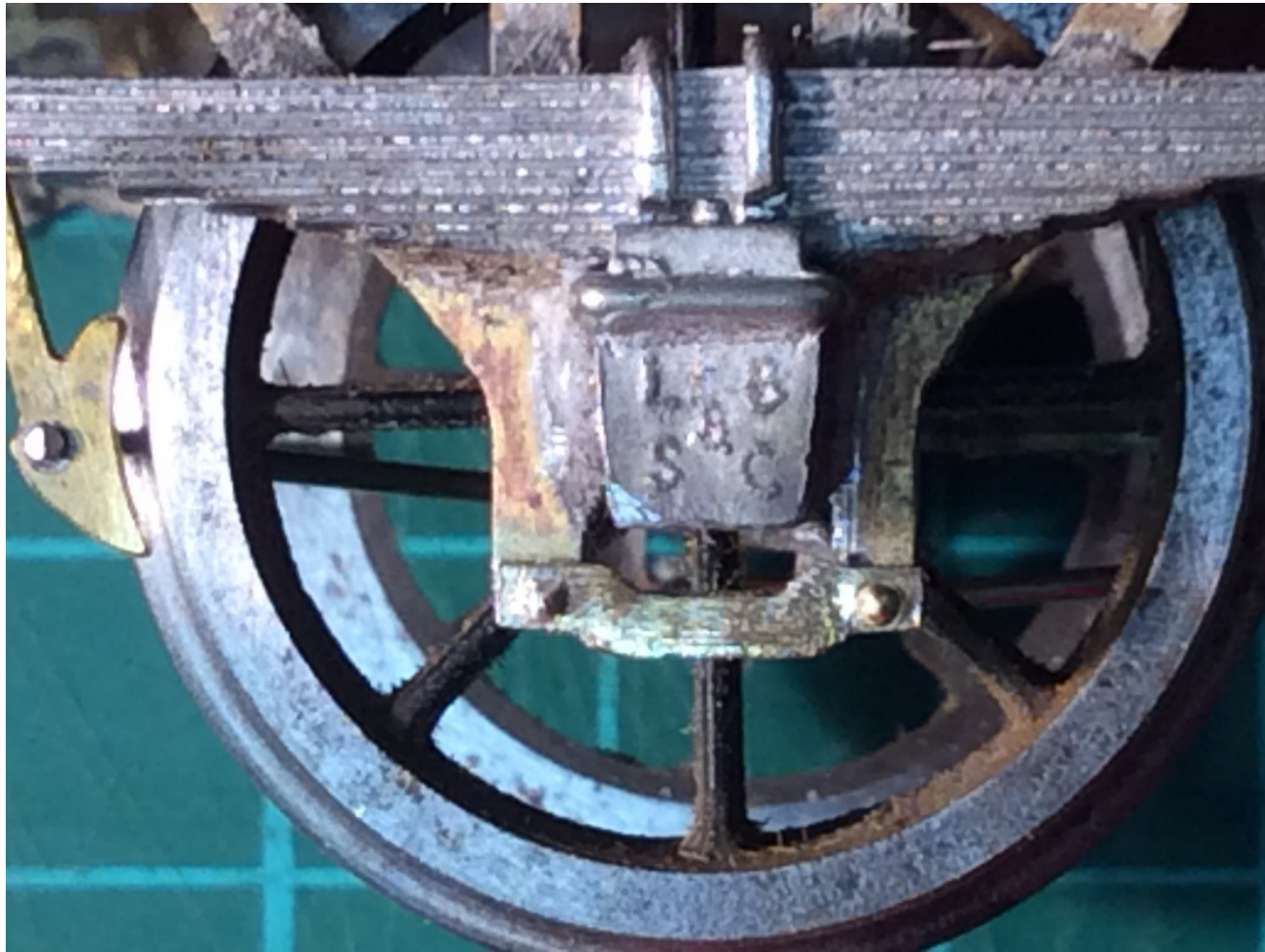


PHOTO 6

To cover up the blank keeper plate on the W-iron etch, prototypical LB&SCR etched ones were obtained from John Ritter. The two bolts were punched in the half-etched holes on the back. They were then simply soldered in position over the blank ones. The white metal leafspring and axleboxes castings were straight out of the box and required little if no cleaning up of flash. The only modification required was to file away part of the two vertical leafspring retaining straps (front face) for the top of the axlebox to sit flush on the W-iron.

BRAKE PULL TRUSSES (scratch built not in the kit)

Constructing a later vehicle with more modern brake linkage arrangement, there are no brake pull trusses (4 in all) in the kit. This might be due to lack of space. Having made several scratch built brake pull trusses in the past on several other Brighton carriages, I made a very simple readymade jig. The jig utilises tiny Peco track pins hammered into a wooden block in which 0.8mm n/s rods pass. All are pre-cut first then placed in position ready for soldering together. The over length rods that protrude outside the face of the brake blocks are trimmed back after fitting.

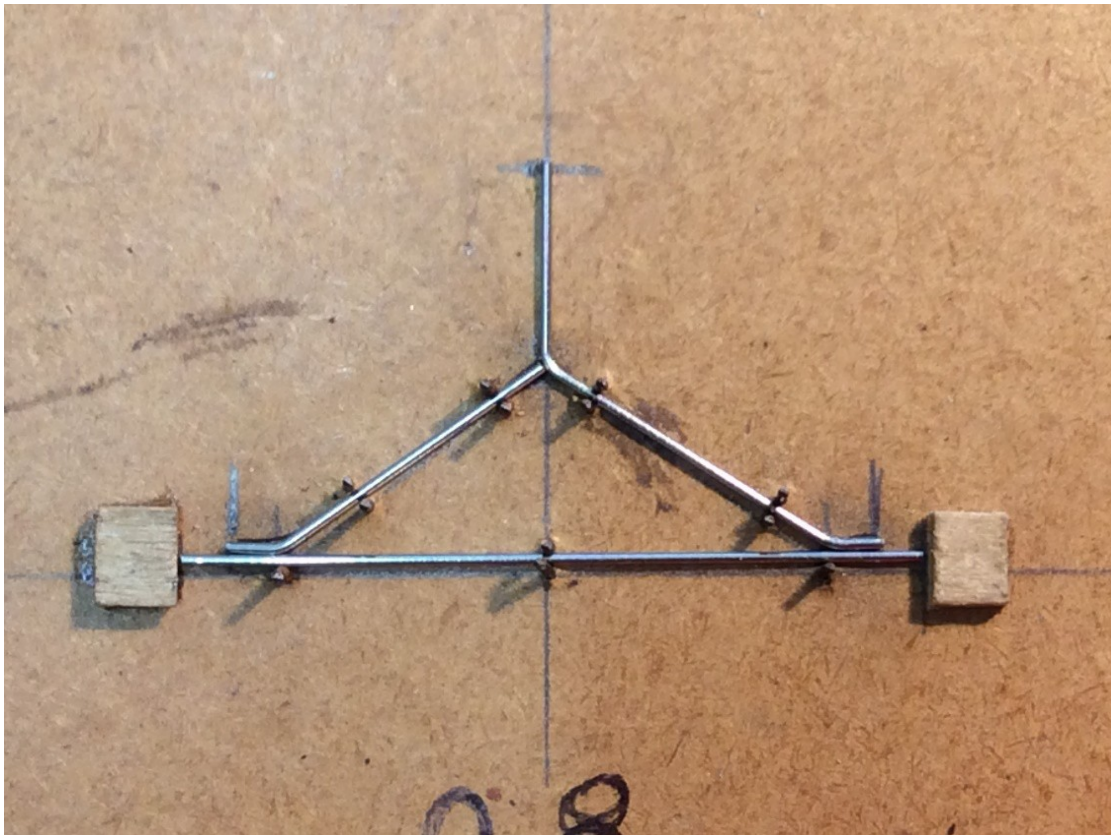


PHOTO 7

Building a later period carriage, the brake arrangement changed over several years from four wooden brake blocks to the eight-clasp type variety. Strangely, there is no version of the earlier brake blocks in the kit; only the latter. There had to be a few compromises with trussing which should, in reality, be wider and set at a slightly shallower angle. This is mainly due to the under scale of f/s O gauge with a back-to-back measurement of 29mm. Accordingly, the brake blocks are positioned further inwards than they should be. Other than that, they are very nearly to scale when placed over a GA.

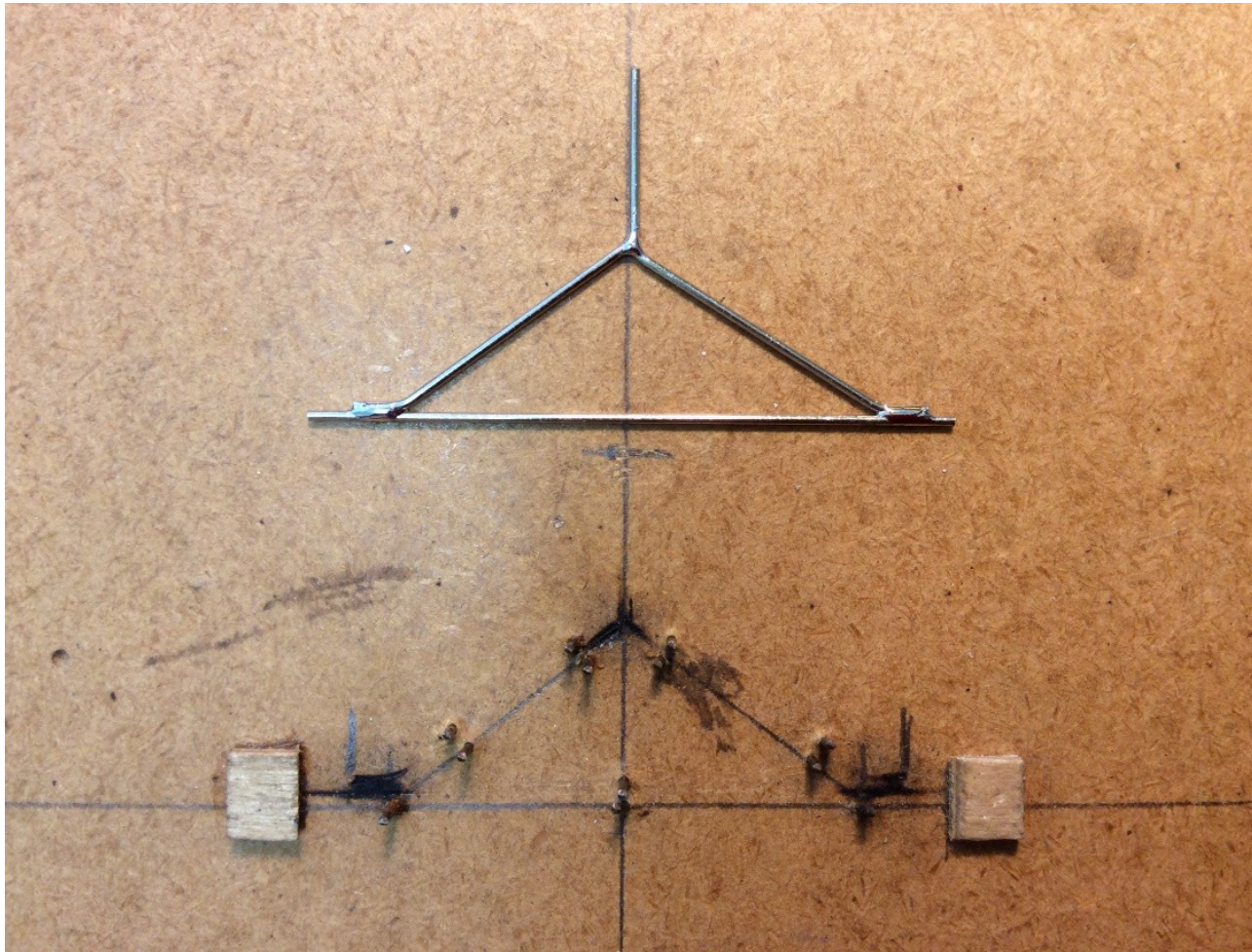


PHOTO 8

A completed brake pull truss rod out of the jig. I used a higher temperature Carrs SPEEDY solder for extra strength on the tiny joints. Although it is a 145 degree solder, I find it requires a bit more heat to melt it. I also found in the past that normal 145 degree solder is softer with one or two failures when oxidised. The straight rod (along the bottom) is deliberately longer at this stage (over both ends) and will be cut shorter when the brake stems are soldered in their final position. Note the burnt areas where the soldering iron tip touches the parts.

BRAKE STEMS

The eight integral brake blocks and stems were removed from the etch. Starting on the non-rocking end, each brake stem was soldered individually in the pre-etched cut-out slots. I found some of the brake blocks required bending so that they acted (as closely as possible) to the wheel tread. I also subsequently found out that the brake pull rods (behind the brake blocks) were not at the correct height and noticeably too low below the centre of the axle. This annoyed me so each one had to be removed, filed accordingly, and re-fitted again. The brake stems on the compensated end had to be much shorter in length anyway due to the rocking unit design. After careful measuring, a 45 degree bend was added just below the bottom of the square base. Another tweak for the correct angle was required before being soldered onto position on the base of the unit.

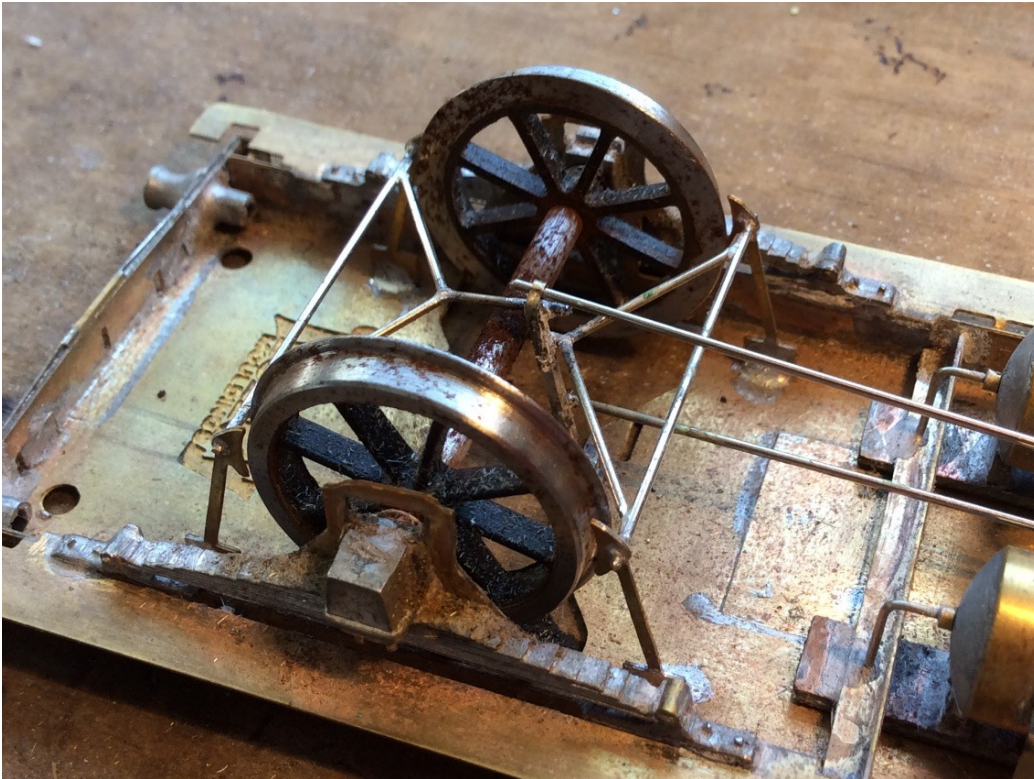


PHOTO 9

The non brake end was the simpler to complete. The four brake stems fitted into their respective etched slots in the base as per the instructions. Some slight tweaking with the stems and blocks though was required for a snug fit (0.5mm spacings) around the tread of the wheels. I decided not to thicken up the thinish brake blocks leaving them unmodified. The brake pull rods were then soldered in place exactly as for the brake end. Due to the solder flux and handling, the wheel treads and axle are beginning to rust quite badly though only superficially.

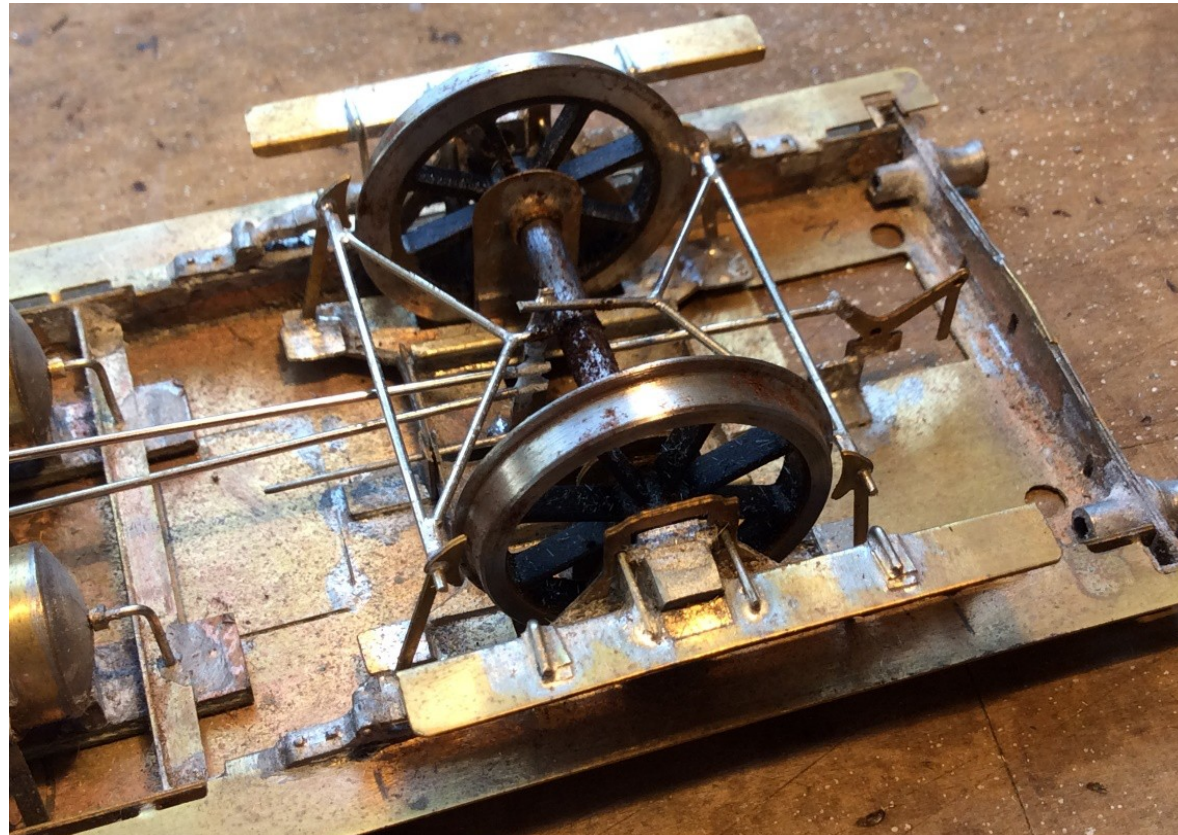


PHOTO 10

A view looking at the Brake End. By this stage, the brake stems have been soldered in place onto the compensation unit. Each stem had to be re-bent shorter matching the position on the GA. The brake truss rods were then soldered in place in the etched-out holes on each brake block. Associated brake rodding was then added with 0.8mm n/s rod. The two lower footboard steps have also been added (note the infill rectangle of scrap brass touching the face of the axlebox). They were not soldered directly onto or around the cast axleboxes but reinforced with more 0.8mm n/s rod through the W-irons. The gas holder frame has now been temporarily fitted (only tack soldered) along with representations of two gas pipes protruding out of the gas cylinder ends.

GAS HOLDERS (scratch build deviation from the kit)

Again having built several LB&SCR scratch built gas holders in the past, I like to add as much detailing as possible including strapping, nuts, bolts, washers, and associated pipework etc. Working from a GA (General Arrangement Drawing), the holders work out at 1' 9" in diameter by 4' 2" in length (not over domed ends). Measuring the diameters of the tubes in the kit, I found they were slightly under scale by 1mm but were to the correct length. 1mm smaller may not sound a lot, but is noticeable. Dead Scale 15/32nd brass tubing (KS138) is used and cut to 29mm in length. The domed cast w/m ends were filed down slightly to fit snugly inside the new tubes and low melt soldered in place. Their respective integral support brackets were retained. As the castings have a small lip around the outside circumference, they were filed smooth with the ends of the tubes. Holes were drilled out in the ends for the piping etc.

GAS HOLDER FRAME (scratch build deviation from the kit)

To support the gas holders, a sub frame assembly had to be designed and made. This unit will eventually fit snugly behind the solebars and soldered in place. Two lengths of C&L Doublesided Copperclad Sleeper strip (Ref:7ZC101B) were cut to 50mm in length. The holders were then low melt soldered in a central position onto them. Two lengths of 3mm x 3mm brass angle (Albion Alloys code:A3) were cut to 46mm in length (which would eventually be filed down later to fit behind the solebars). Before soldering on the two premade copperclad strips, the centre spacings of them must be 1' 9" + 1' 9" (12.25mm x 12.25mm = 24.5mm) out from the centre line.

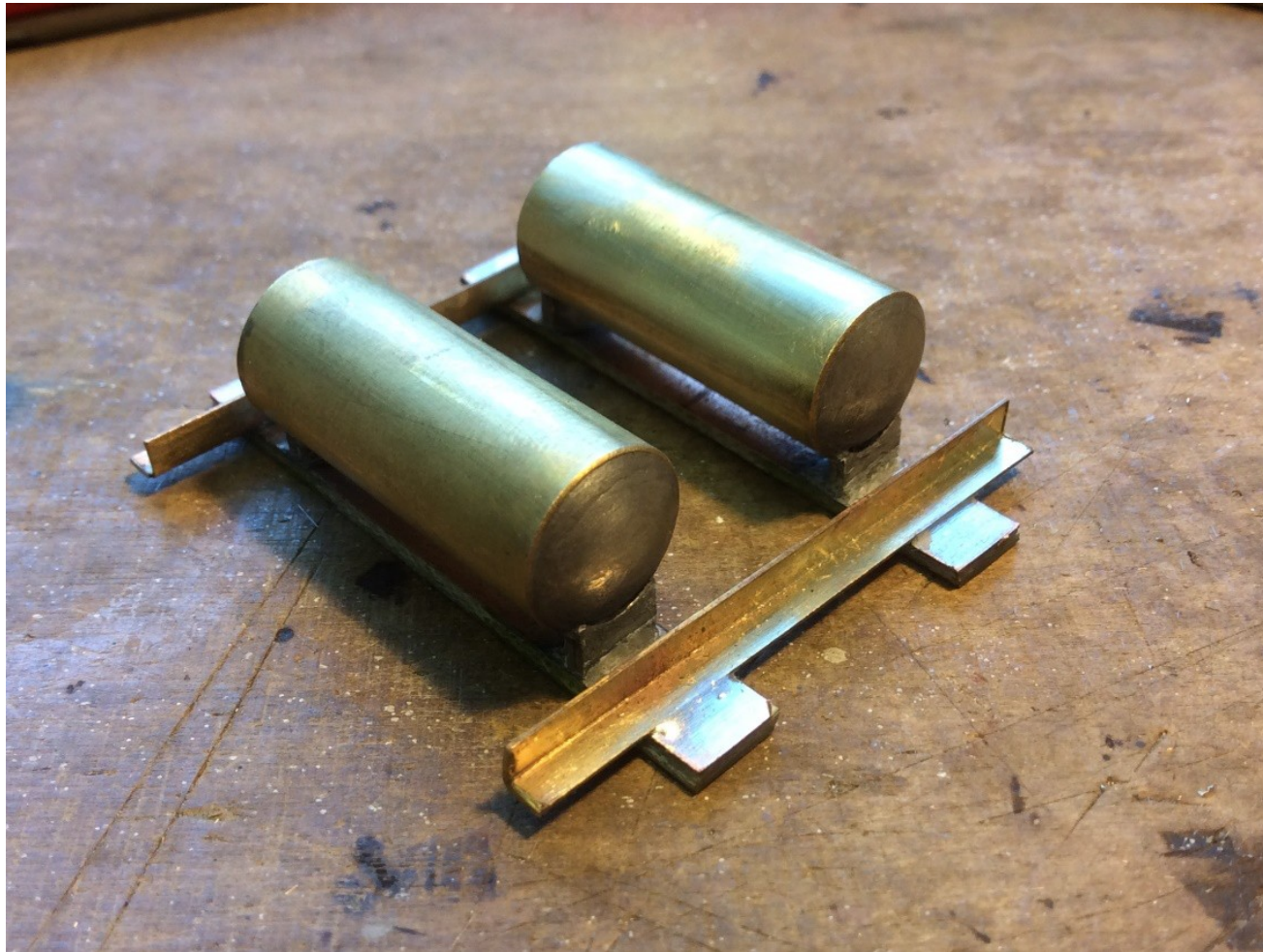


PHOTO 11

The GAS HOLDERS were cut from 15/32nd brass tubing which equates to a scale 1' 9" diameter. Each cylinder was then cut to a length of 29mm for a scale 4' 2". The existing white metal curved ends with supports were modified and used as they sat at the correct height. Both were then soldered onto a framework of C&L doublesided copperclad sleeper strip and brass angle. Though not noticeable, the brass angle strips are over long by 1mm each end. Later, when all of the detailing has been added they will be filed to fit between the backs of the solebars.

GAS HOLDER STRAPPING (scratch build deviation from the kit)

At first glance, it would appear the strapping on each tank simply goes around the whole circumference of each holder which is not strictly true. Having a set of LB&SCR Carriage Stock Notes and drawings by S.M.Hunter (published in Model Railway News, July 1964) included is a drawing of a Billinton six wheel 2nd which is what I based the Stroudley underframe on. Each strap is pre formed to shape and secured in place behind the solebars and inner longitude timbers. A top strapping rod is also preformed and passes through holes in the bottom strapping securing the holder in place. For the lower strapping on each holder, I used 1.5mm x 0.3 n/s strip (Eileen's Emporium Ref:NF01503D). Each one was pre rolled and bent matching an end on 7mm Hunter view. It took many attempts getting them as good as these ones shown. Small 0.7mm holes were then drilled in to accept the top rodding securing straps. All four were then soldered in place around each holder. Pre-bent 0.6mm brass rod was chosen for the top strapping rods, and eight exceedingly small turned down brass tubes (Albion Alloys Code:BT1) were cut to 1mm in height, representing the retaining nuts. I did not bother with washers as there was not a lot of space to include them.

The cast w/m Westinghouse brake valve had the ends drilled out to 1mm. These holes would eventually accept the brake pull rodding from the trusses. It was then soldered directly on the centre line of the underframe using a mixture of high and low melt solder. Two cast w/m gas refilling taps (one each side) were soldered onto the backs of the solebars.

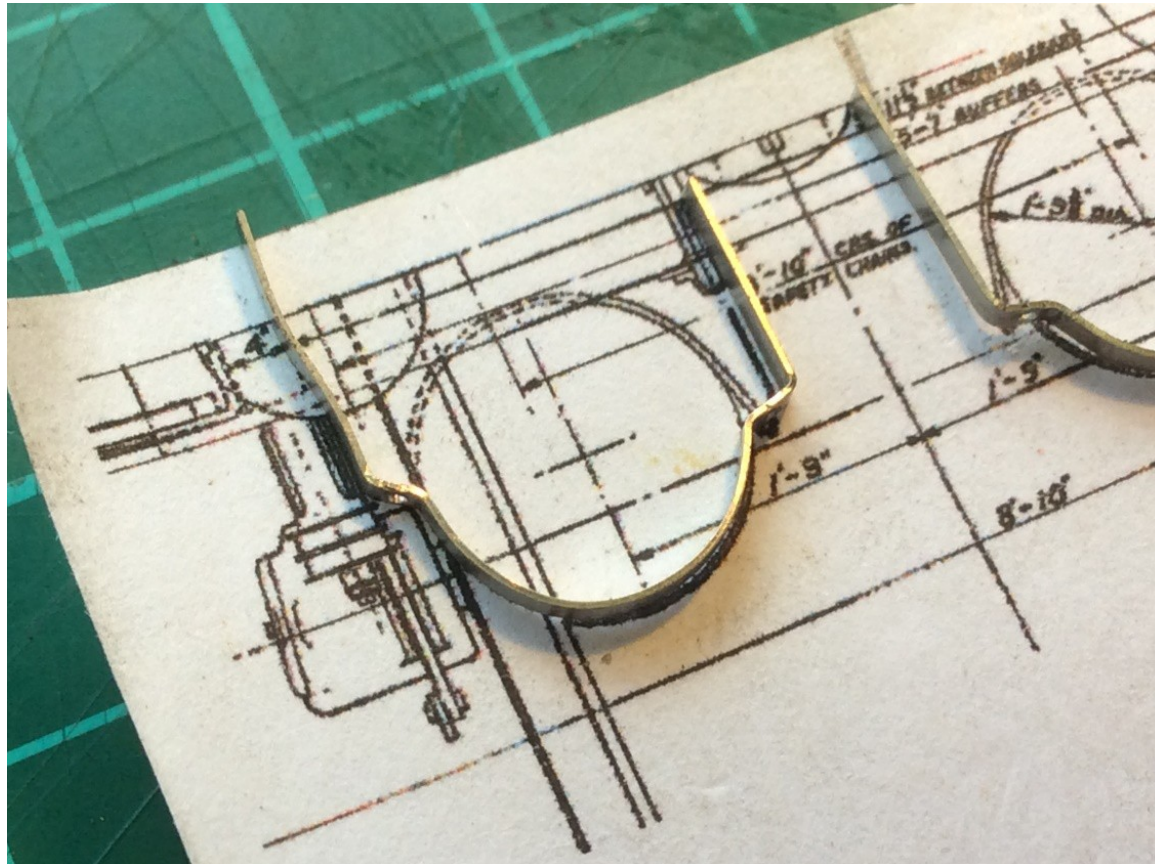


PHOTO 12

To form the tank strapping (two on each tank), a GA drawing was reduced and printed off to 7mm scale. Each strap equates to 1.5mm wide on the side-on GA. Eileens Emporium 0.2mm brass strip was used (Ref:F01502D). Wrapping the strip around a smaller sized tubing obtained the correct circumference. Then, by carefully bending, the flat angles for the retaining rod were formed. When done, small 0.6mm holes were drilled out which are just visible. They will eventually be for the dummy retaining nuts. The two uprights are over long at this stage and will be trimmed to length later. The left upright is bent to a very shallow "S" which is intentional and corresponds with the drawing. In reality, these straps are bolted to the inner face of the solebar.



PHOTO 13

The centre lines of the strapping are 2' 7" apart on the GA (18mm) and equidistant in from both ends. Each one was tack soldered first for lining up. It was imperative they were perfectly vertical and at right angles on the tank. Once happy, the straps were properly secured in place. Overlong 0.6mm brass retaining rods were then pre-rolled, passed through the holes in the strap, then soldered in position. Securing nuts were formed from brass tubing (KS125). Each one was filed with 6 flats on each one hinting a nut shape. The excess rods were then cut accordingly. All eight ends of the strapping have also been cut down their correct lengths. The cast white metal ends that locate onto the base can clearly be seen.

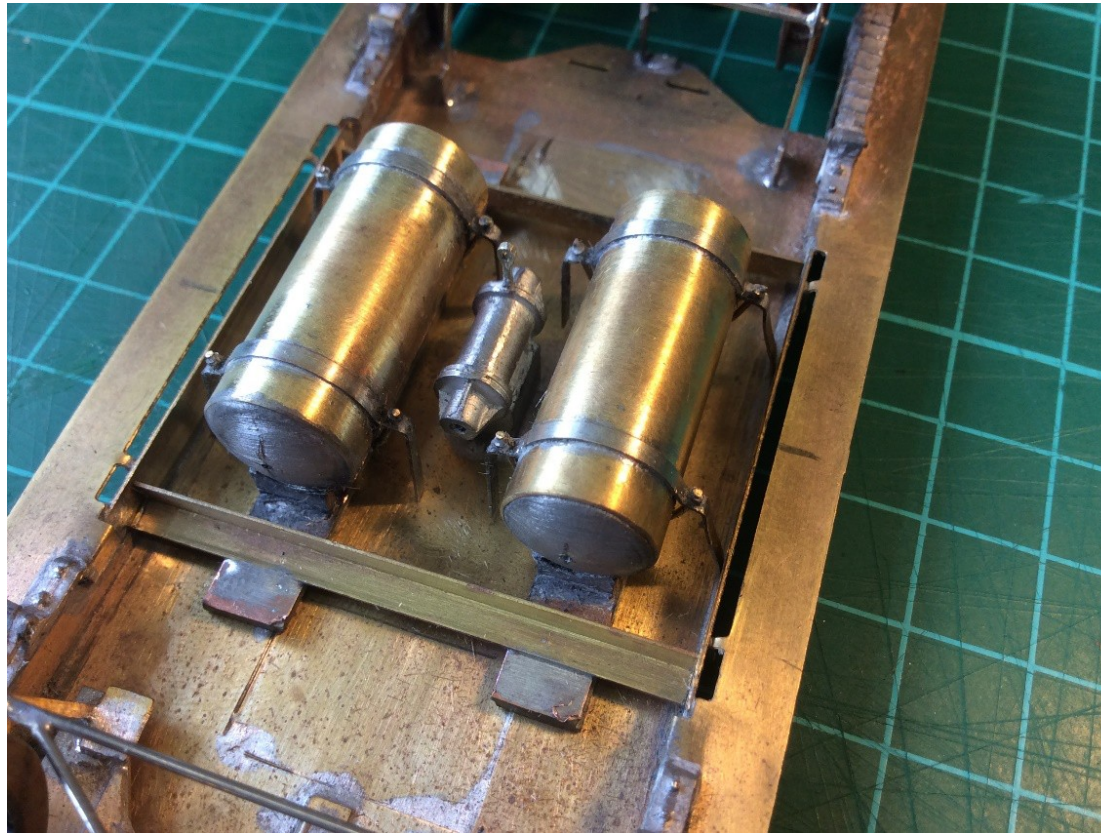


PHOTO 14

The completed gas holder frame temporarily placed in position ready for finally soldering shortly. The pencil line on the underside of the footboards are the centre lines. There are corresponding pencil lines on the cylinder (not visible). Just visible the S shaped outer strapping uprights (right hand side) are just touching the inner face of the solebar as per the GA. The white metal cast Westinghouse brake valve cylinder is also temporarily placed in position to check alignment and overall height. It will eventually be drilled out ready for the brake pull rodding etc. The small rod protruding down from the cylinder (far end) is for the 15' 0" long diagonal brake pull rod to pass through. This rod travels from the brake pull linkages and trussing underneath the Guards compartment down towards the far end brake trussing arrangement.

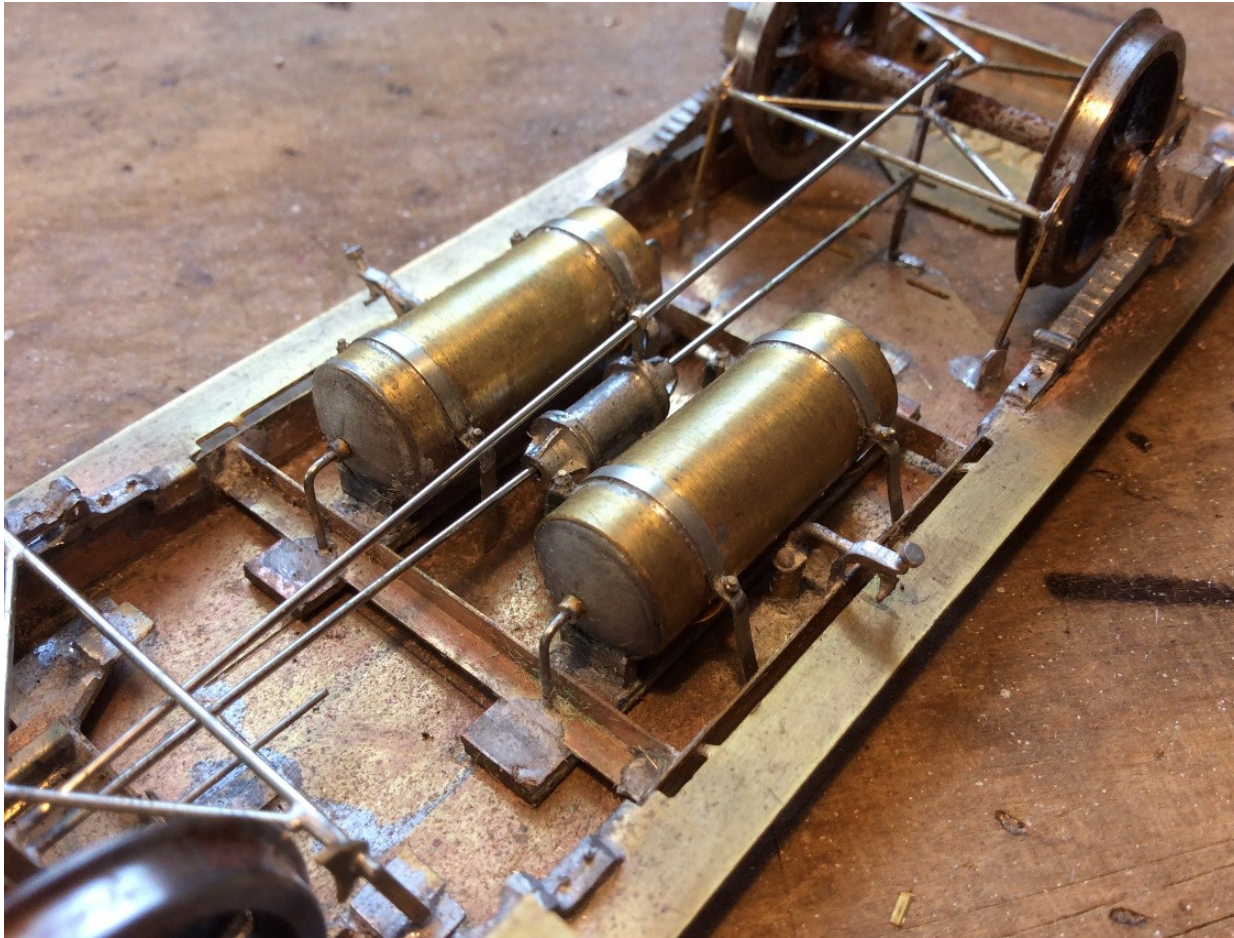


PHOTO 15

The cast Westinghouse brake valve cylinder (from the kit) had to be prepared. Holes were part drilled out in each end (approximately 3mm) for the n/s rods to fit within. Checking for overall height, i.e. its position in its lowest position matched the GA perfectly. A small home turned n/s pin with a 1mm hole drilled thorough the top was then made for supporting the long (15' 0") manual brake pull rod. A hole was then drilled on top of the far ring (just visible) for it. After the valve was low melt soldered in position on the base of the frame, the long rod was temporarily soldered on each brake assembly. Now knowing the precise position of the supporting pin, it could be soldered on the valve. With all brake pull rods removed, the gas holder assembly was now properly soldered in its correct position. Lastly two w/m gas filler tap castings (from John Ritter in Australia) were fitted.

FITTING THE COMPLETED GAS HOLDER FRAME

The slightly over length “L” angle strips were carefully filed back so they snugly touched the backs of the solebars. While filing back though, it was imperative the gas holders remained parallel to the underframe. It was then positioned midway between the two axles and soldered in place.

BUFFER SPRINGING

Having constructed numerous 7mm Roxey carriages over the years, the single springy wire method for buffer springing (as described in the instructions) can, in some instances, be tricky to set up. If not set up correctly, either one or both of the buffers tend to stay put when compressed. This is both frustrating for the builder, but more importantly visually poor. My solution is loosely based on the method Colin Hayward uses on some of his models. His solution is to bend a thickish strip of brass and bend it to shape. My solution utilises 3/32nd square brass tubing (KS150) cut to 44mm in length for the beams. A slot was cut midway through them for my preferred Laurie Griffin drawbar coupling (9-11) to pass through. A scrap piece of brass was then soldered across the opening. Notches were then cut out in and around the areas where the four securing bolts secure the body to the u/f. Holes were then very carefully marked on each end then drilled out for the buffers ends. Eventually (after painting) the buffers would be fitted as per instructions. The ends of the buffers pass through the holes in the beam. A spring and spit pin secure the beams in place. With a bit of tweaking, the buffers compress prototypically.

To be continued in LB&SCR Modellers' Digest 12.

References

- 1.LB&SCR Modellers' Digest Issues 2 and 3.
- 2.Service Stock of the Southern Railway by R.W.Kidner OPC X51.
- 3.A clearer copy kindly supplied to me by Ian White for the model.
- 4.Bygone LB&SCR Steam, Vol.2, by A.C.Perryman Rochester Press (ISBN 0 905540 80 8)
- 5.LB&SCR Modellers' Digest Issues 4-7,9 & 10.
- 6.LB&SCR Carriages Vol.2. Four- & Six-Wheeled Saloons, Vans and Restorations (White, Turner and Foulkes) Kestrel Railway Books. ISBN 978-1-905505-36-4.
- 7.An Illustrated History of Southern Wagons Vol.2 (OPC). Figure 17, Page 40.

The Big Truck

By Simon Turner

There exists in the National Archives a document which consists of copies of letters sent from the Carriage & Wagon Department at Brighton over the period roughly December 1850 to August 1852. Among the diverse subjects covered were a number of specifications for goods vehicles. That for the open goods wagon called for a vehicle 16' 9¹/₄" long and 7' 4¹/₂" wide to carry seven tons. The cost was estimated to be £81 of which included £7 12s of oak, 7s 6d of elm and £8 10s worth of deal. The pattern wagon was No.1601.

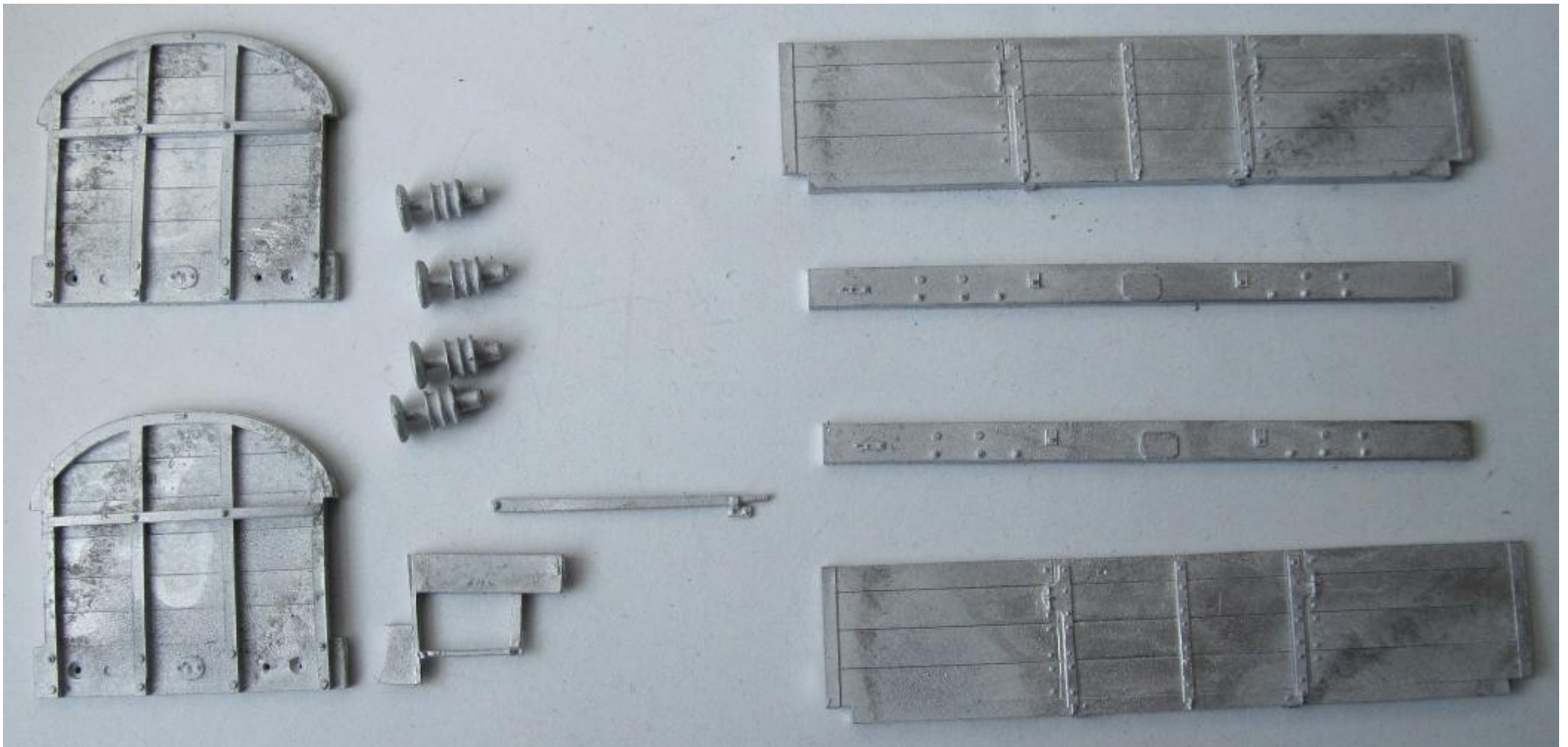
Subsequently the Brighton Works drawing of this vehicle has come to light and, more surprising yet, a photograph of one captured in the Works yard about 1870. From the 1873 wagon register it was apparent that at least twenty of these vast wagons had been built in 1851 which carried Nos.1601-1620. Whether there were others has been impossible to determine.

Remarkably nineteen of these survived to be recorded in the 1873 inventory, the exception being No.1603 which was smashed to pieces by the employees of the contractor building Caterham Asylum in 1869. We know this as it was considered an occurrence of sufficient gravity to be minuted by the Board. The rest survived until 1876-79, when they were replaced in capital stock by either open D or in a few cases open Z wagons.

The answer to the question of why they were so big is not likely to be found. Subsequently Craven designed similar wagons that were the more normal 15'0 internally, so, if it was someone's good idea that didn't really show any benefit, we will probably never know.

Anyway, about a year ago Chris Cox of 5&9 Models fame approached me about the detail of these wagons and I offered to create a master for a cast kit in 4mm scale. As a result, I received a couple of kits gratis and, with the current lockdown and thus time on my hands, I decided to put one together as passing traffic for the Blackfriars Bridge model with which I am involved.

The first picture shows the array of parts supplied. As can be seen, it is a straightforward white metal kit which, with the application of some low melt solder and paint, resulted in the model in the photos on the following pages.





The axleguards are Bill Bedford pedestal bearings, intended for converting RTR stock from OO to P4 gauge. They are also useful to those of us modelling the early days, to represent axleguards without side legs. While I like these in some ways, I find that the sliding axlebox suspension system needs very careful supervision if it is not to become gummed up with either glue when fixing the axleboxes or paint, when that is applied. I guess more care is the answer.

It is very possible that more of the ironwork should be black but the 1870 photo is equivocal on this point. The lettering is from a Southern Railway sheet produced by the HMRS which covers a multitude of styles from all the constituent companies.

Again, the 1870

photo may show shaded lettering but it isn't clear enough to say for definite - thankfully.

The load, just visible in the photo above, is intended to represent Sussex flints which, I understand, were used in the ceramics industry. I don't know that such a traffic crossed London in the 1870s but it is a possibility.

Anyone interested in a kit can contact Chris at: <http://www.5and9models.co.uk>



Rails of Sheffield/Dapol 4mm Terrier

– the first releases

By Nicholas Pryor

This newly tooled model has been awaited since March 2018, when Rails announced a partnership with Dapol and the NRM to produce a new 4mm version of the Terrier to modern standards. Tooling was planned to allow for the A1, A1X and Isle of Wight versions, and included two styles of cab and bunker, and of boiler and smokebox. Both wood and iron brakes were to be modelled. The proposed liveries included LBSC Stroudley (as “Boxhill”), SECR, KESR and BR.

A rival project was announced by Hornby in January 2019 for a slightly less ambitious range of tooling variations. After that announcement, Rails decided to upgrade their proposed models to distinguish them in the marketplace. They spoke of producing “the ultimate Terrier” and of it being a “museum grade model”. Sightings of early livery samples at major exhibitions in 2019 indicated that the models would certainly be to a high standard. It was also decided to enlarge the range of liveries to include a further Stroudley loco “Brighton”, a Marsh loco as 643 and IoW versions in SR livery. There have been delays in delivery, the most recent in part because of the pandemic.

In the last fortnight, the first versions have become available. Liveries issued comprised No 643, K&ESR and BR versions. The Stroudley locos and other liveries are still awaited. This review is limited to the Marsh liveried No 643 illustrated. I am aware from comments on the internet and on the Circle email group that there are some problems with the BR versions, particularly as to the treatment of the bunker and coal rails. There is an excellent review of those versions on Graham

Muspratt's blog site at <https://grahammuz.com/2020/05/18/another-terrier-a1-a1x-class-takes-to-the-rails-of-sheffield/>.

My overall impression of the loco on opening the box was very positive. The loco presents well and is a very attractive little engine. The loco is finished as No 643 in the full early Marsh 'ampersand' livery that was applied in 1905. The loco was based at Brighton and then at Fratton and would have worked the Hayling Island branch and other motor services in this livery. No 643 was reboilered as an A1X in September 1919 and sold off by the SR in 1925 to the Weston, Clevedon & Portishead Light Railway, ending up as GWR No 5.

The loco seems accurate dimensionally in all material respects and is as Graham Muspratt confirms, slightly closer to accuracy than the Hornby model. The chassis and running plate are diecast and give sufficient weight to give the loco an impressive haulage capacity for its size. The promised die cast wheels have been dropped in favour of plastic centres, but these are accurately modelled and the tyres are blackened. The chassis details are well rendered, and the brake gear and guard irons are a visible improvement on the Hornby version. The cab spectacles are individually glazed, and the rims are in brass paint.

The livery is very neatly applied and well executed. So far as I am aware, this is the first ever RTR loco issued in the early 1905 Marsh livery. The suspicion that the lining on the front splashers is over size seems to have been dealt with, and the lining and lettering overall are very crisp. The lining on the Westinghouse pump has been omitted. Also, disappointingly, the number is rendered as a transfer on the bunker side, and no attempt has been made to render the oval plate that 643 was fitted with. The contemporary photo of 643 at Kemp Town, on page 212, shows the number carried on an oval plate.



No 643 at Kemp Town

So, is it “the ultimate Terrier, built to museum standards”? It certainly has a lot going for it, and in many small ways, it is the overall improvement on the Hornby version that Rails and Dapol set out to achieve. It looks very good, it is correctly dimensioned, and it replicates very accurately in many respects the A1 version of the Terrier. Performance is impressive, and the loco has much the same approach to hard work as the prototype. It is well up to the current high levels of finish of the better RTR models on the market. There is lots to like about it. The bunker is modelled empty so one does not have to remove unrealistic moulded coal before filling it with the real thing. The boiler backhead is accurately modelled for the A1. It does appear that the same moulding is being used for all versions of this model including the A1X. Graham Muspratt reports that the Hornby model is the reverse in that it uses a backhead moulding suited for the A1X for all models, including the A1 versions.



Is it worth the extra £30 over the various Hornby versions? I would say probably just, but I appreciate others might take a different view. Some of that price differential has gone into a higher level of refinement both in the tooling (with the exception below) and the livery compared to the Hornby model. Some has also gone into additions which I suspect will prove to be 'Marmite' features, loved by some and unloved by others. These include a flickering firebox glow effect in the cab and the fitting of a loudspeaker to all models regardless of whether they are DCC or analogue. Speaking for myself, I find the firebox effect intrusive and would prefer it was not there. I also do not plan to use the loudspeakers and would rather use the vacant space to add weight to the loco.

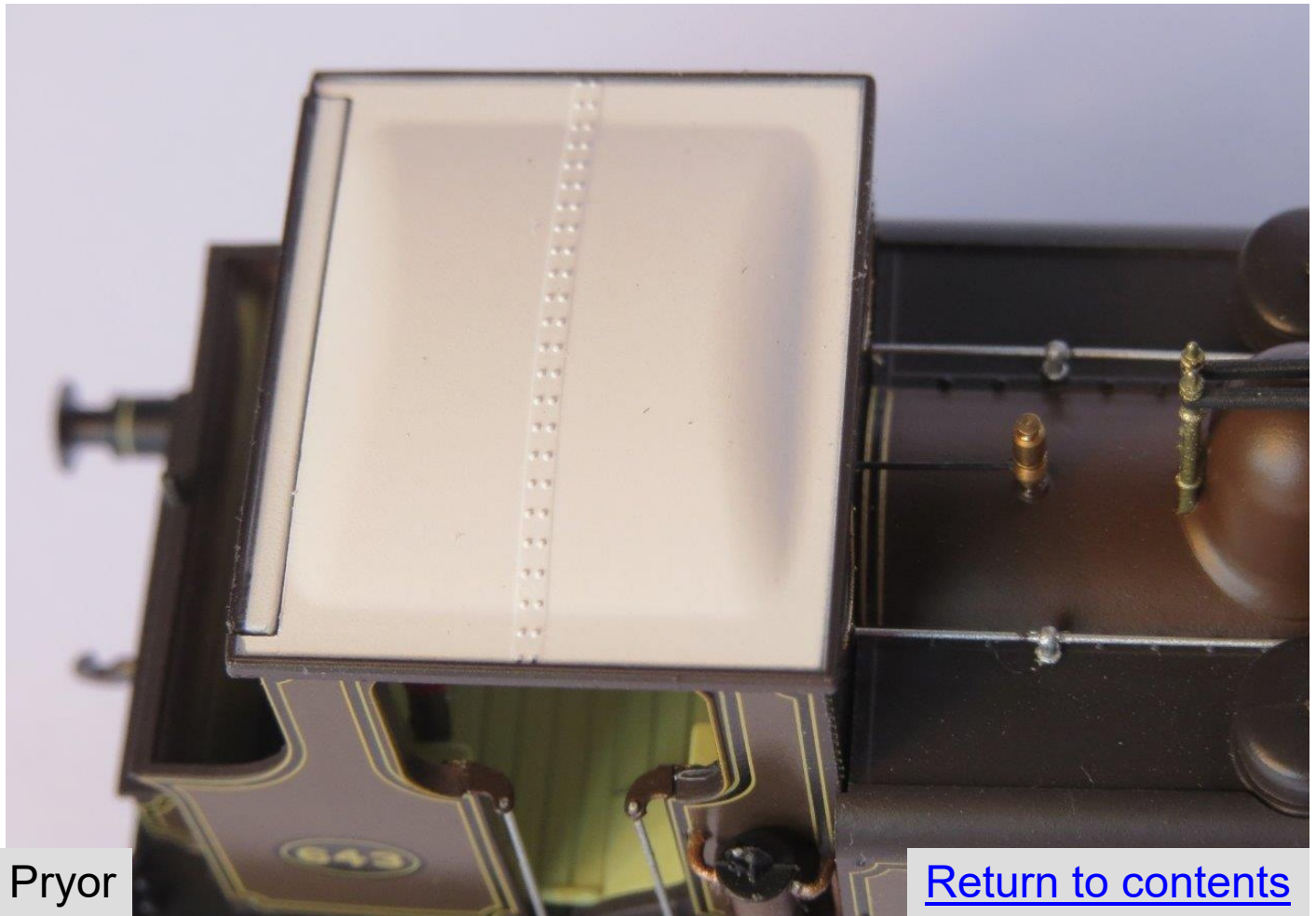


There have been some instances of quality control issues reported online, with models arriving without some small parts such as steps and lamp irons. Others have complained that footplates have been curved up in the middle or that components such as the dome or chimney or handrails have been fitted askew. I ordered two locos. One arrived in good order, the other would not work at all. Both had one step loose in the packing. Both have a slight upwards curvature in the footplate which is only really noticeable when a ruler is held against it. The running problem was a displaced blanking plate which needs to be refitted to the DDC chip mounting. Both loose steps were easily re-glued. The footplate can, so it is reported on the internet, be easily straightened. But that number of issues on delivery is disappointing.



Finally, on the minus side of the review is the issue of the rear of the cab. Of all the differences between the many versions of the Terriers over the years, the detail of the cab rear is one of the most visible and contentious (at least on RMWeb!). The need for a different tooling has led to the adoption of a separate piece for the cab rear which, instead of fitting under the cab roof, continues up and forms the rear of the cab roof. The joint between these two components is thus visible from above and shows as a black line across the rear of the roof (see below). It is capable of remedy, but it seems a strange trade-off to have made. Better I think to have cut the firebox flicker and the unnecessary loudspeaker and spend the money on a tooling that gives a complete cab roof.

Despite the criticisms I mention, this is a very decent model, a slight but visible improvement on the new Hornby model and a quantum leap improvement on the old Dapol and Hornby models from 1989. I am just not sure it lives up to the hype from Rails. It is sadly not quite the ultimate Terrier, but it is, by a small margin, the nearest we have been offered to that yet.



LB&SCR Modelling on YouTube

By Gary Kemp

A little of something different for you all - and hopefully interesting during this time in lockdown! For the past year or so I have been making YouTube videos and Livestreams with viewer interaction mainly focussing around my LB&SCR modelling projects. The livestreams are aimed at modellers of all skills, and aim to teach those of lower skill levels and confidence that all those projects you want to do are indeed possible!

It started with a project scratch building a Stroudley brake van, post rebuild with the lantern lookout removed, and has since featured things such as a K's K Class, improving the old tooling Terrier, many types of Open A, plastic kits, white metal, and 3D printed, and as many variations of Stroudley 4 wheelers as you can think of, including some laser cut kits, the occasional clerestory bash into something more "Brighton", and even a 3D printed Craven 0-4-2T. Soon we will be starting on a new modelling medium (for the live projects anyway) with a resin D3, once a brief SECR interlude is finished.

The live projects happen every Sunday night at 9pm (UK Time), and bring together a small group of viewers who are able to talk to me, and each other as we work on the project. Sharing knowledge, and learning new techniques.

My YouTube channel featuring these projects can be found here <https://www.youtube.com/oakhillmodelrailway>

Construction of Javier's 3D print of Craven well tank No 27, from Gary's YouTube video.



Photographs copyright Gary Kemp

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EBM

Spithead

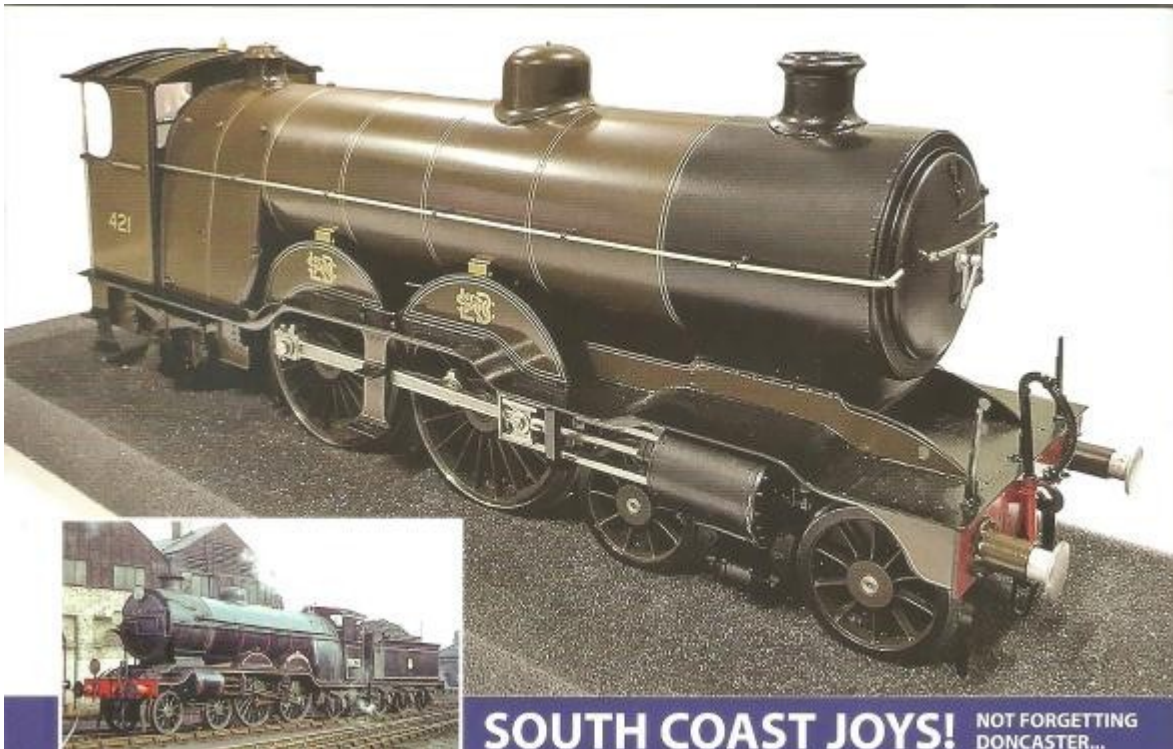


EBM has been developing the 1865 Craven single that became Spithead, No 153, in 7mm. It is almost completed as the photo shows. Ian is awaiting the reopening of the etchers to be able to finalise the development of the 4mm version. He is also waiting for the etchers for the 7mm Slaughter Goods and another couple of versions of the Craven Standard Goods, in 4mm. These locos will all feature chassis and part of the body and tender in etched metals and the other parts printed in resin following the principles of the 4mm Slaughter Goods that is already available.

Masterpiece Models

7mm scale Brighton Atlantic

Masterpiece Models is seeking expressions of interest for a 7mm scale Brighton Atlantic. The project originated with Kemilway but the factory in South Korea has been devastated by fire and all the ex Kemilway models were destroyed. The prototype Atlantic survives and the project is being reassessed, with a plan to build 80 Atlantics split between LB&SCR and GNR versions. For the project to be viable 65 firm expressions of interest are required, with just under 50 recorded so far.



For more information see the website www.masterpiecemodels.co.uk or phone 01737 242073

Rediscovered Sans Pareil Castings

Back in 2012 there was an entry in the Summer addition of Modelling Notes detailing the former Sanspareil 7mm LBSC loco lost wax castings being sold by Alan Gibson. Alan has since discontinued this range of castings, which, along with the loss of the old Hobby Horse range of LBSC loco castings, has been most inconvenient.

As a result of this, Cliff Pester made an internet search and discovered a company called CSP Models of Carlisle which was advertising some 7mm LBSC loco lamp castings, that looked rather like similar castings formally sold by Sanspareil. The owner, Ian Young, confirmed that he was still able to supply many of the lost wax castings from his former LBSC loco kits. Cliff subsequently placed an order for quite a number of castings ranging from Stroudley to Craven loco castings and can confirm they are of quite good quality. They are, of course, raw castings, still on their sprues, and will require a little fettling. Some examples are shown below.

Contact Ian Young (Sanspareil ICS) at CSP Models, email cspmodels@outlook.com for prices.



Craven Bottle Jack Buffers
(supplied with springs)

Salter Safety Valve and
Lever



Furness Railway Wagon Co

Furness Railway Wagon Co now has 4 open wagons and a Brake van in the range of 7mm Brighton vehicles. The 3 plank, 5 plank and 7 plank opens have featured in previous editions.

A 6 plank coal wagon and a Billington 10ton Brake van have now been added to the range. These are both cast resin and brass with brass and 3D printed fittings.

6 plank coal Kit price £50, RTR £125 (in primer) £145 fully painted and lettered.

Brake van Kit Price £65, RTR £135, RTR fully lettered SR £155 or LBSCR £175

Future projects include a dumb buffered coal wagon, some ballast wagons, a 15 ton 6 wheel version of the Brake van and a 0-4-0WT shunter.

Currently on order is a HD 3D printer which should arrive by mid August. This means that it will be possible to produce very small bespoke production runs for wagons that would not normally be cost effective to produce.

www.pregroupingrailways.com



Phone: 01229
468206

E-mail:
furnessrailway@ho
tmal.com

Post: 10 Duke
Street, Dalton-in-
Furness, Cumbria,
LA15 8HH

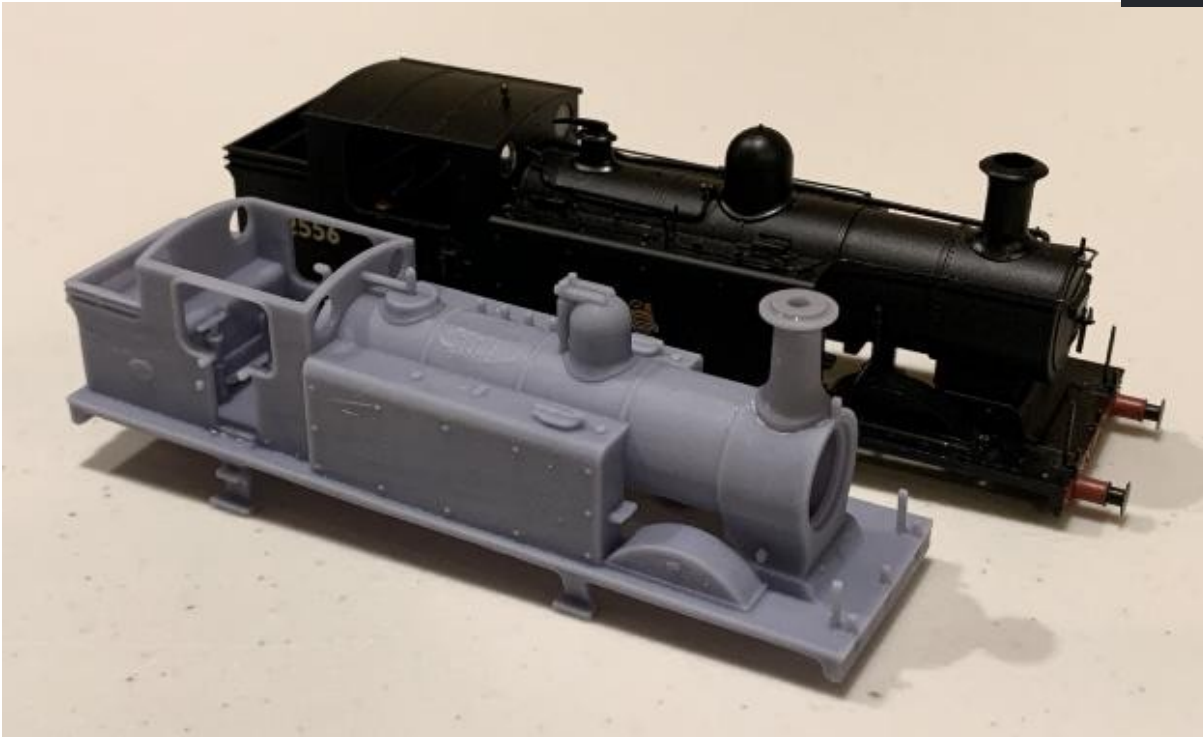
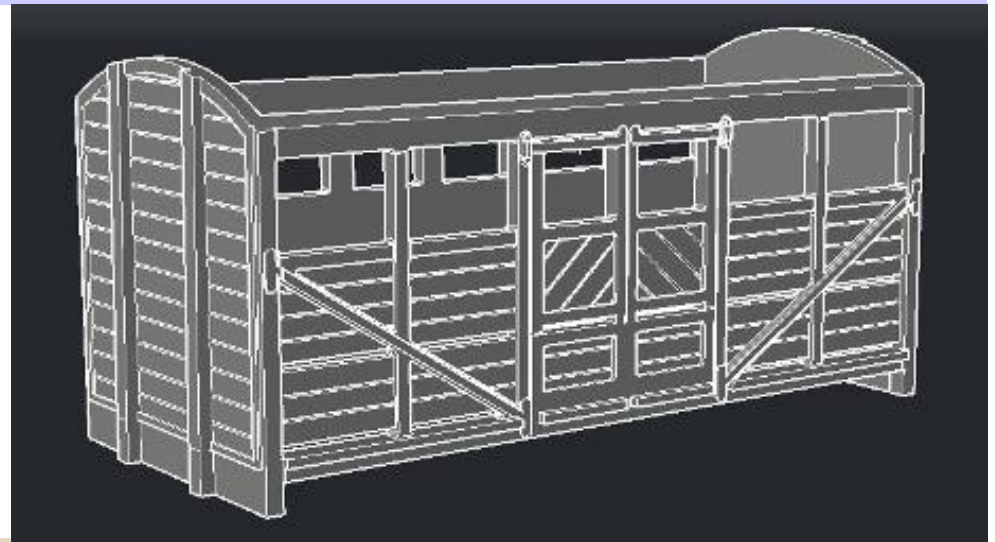
Barm Model Productions

Javier's website is

[Barm Model Productions at Shapeways.](#)

New models include an 8T Van for anyone in British HO and a 6 Ton cattle van has also been in the works for OO and HO.

The LBSCR Sharpies, Hayling Island, Inspector & Kempton, have been released in OO and work is in hand to finish one other LBSC



Sharpys, Bishopstone, which is nearing completion.

In 2mm finescale, the diagram 1616 bolster is available, which is a scaled down version of the HO version. If this goes well, the plan is to scale down the Diagram 1617 bolster to the same scale.

The HO scale E4 illustrated, next to the Bachmann product, is also available in 4mm scale and will be reworked to produce the reboilered version.

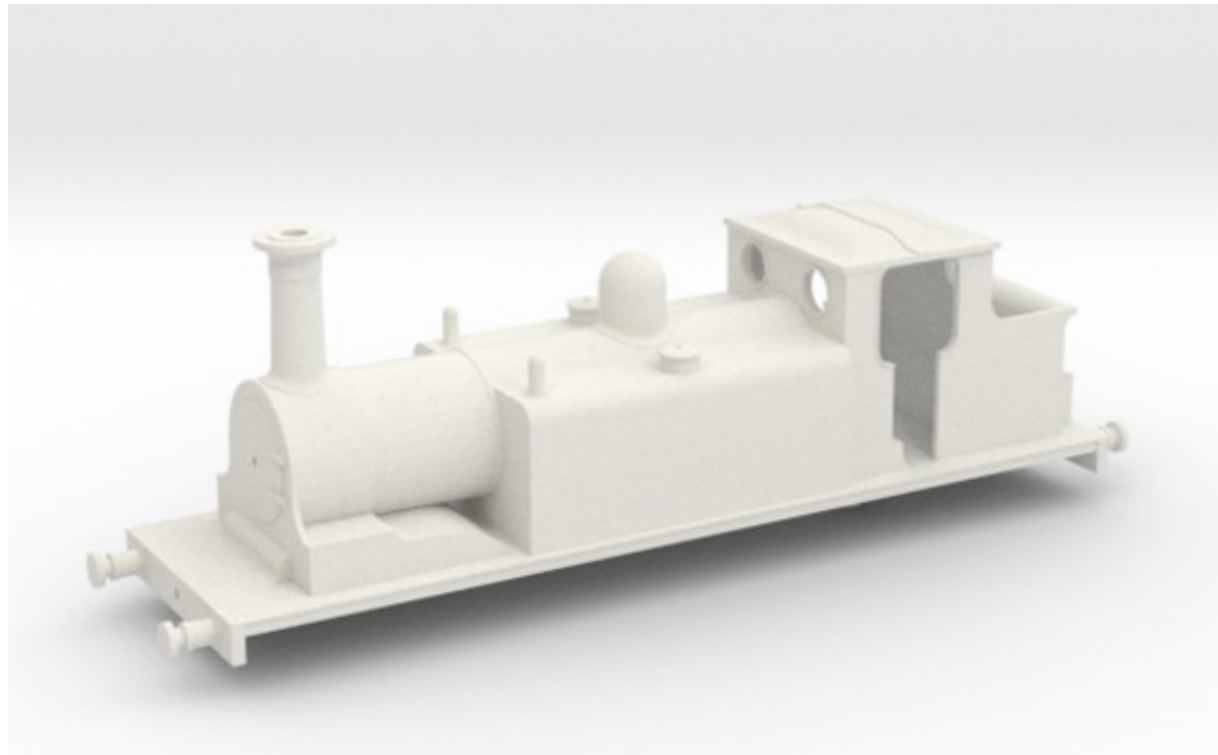
Small Loco Works

[Small Loco Works](#) products by Killian Keane are available on Shapeways

Killian has recently added a body for an E1 in H0 scale to fit a Dapol terrier chassis.

The range also includes some useful E B Wilson/Manning Wardle loco fittings from the Jenny Lind model.

Both the E tank and Jenny Lind are also available in 2mm scale.



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 journal entitled the Brighton Circular.

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 2020 is

£18.00 for full membership

Applications should be sent to

[The Secretary, Nicholas Pryor](mailto:nicholaspryor@sotheby-road.co.uk)

nicholaspryor@sotheby-road.co.uk

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

THE BRIGHTON CIRCLE

Dedicated to the furtherance and publication of original research into the history of the
London, Brighton and South Coast Railway

MEMBERSHIP APPLICATION FORM

To the Hon. Secretary, Nicholas Pryor, 19 Sotheby Road, LONDON N5 2UP

I hereby apply for membership of the Brighton Circle.

NAME.....

ADDRESS.....

.....

.....POSTCODE..... (BLOCK CAPITALS PLEASE)

It would be helpful if you could give some idea of your main interests in the history of the LB&SCR and any special interests. Please indicate if you are a modeller and give any details.

I enclose a cheque/postal order for £19.00/£10.00 to cover the joining fee of £1.00 plus twelve/six months membership of the Brighton Circle for the calendar year 2020 (please delete as necessary).

Cheques should be made payable to **The Brighton Circle**.

Privacy statement

The personal information provided above will be stored on a computer database of members' details and used for administration purposes by the Brighton Circle's appointed representatives.

Please sign below to indicate that you agree to give the Brighton Circle permission to use the personal information that you have supplied in the following ways

- To store it securely for membership purposes
- To communicate with you as a Brighton Circle member
- To send you general information about the Brighton Circle

Please be advised that you can request for your data not to be used for any of these purposes at any time by contacting the Honorary Secretary
by e mail at nicholaspryor@sotheby-road.co.uk or by post to Nicholas Pryor, 19 Sotheby Road, LONDON N5 2UP



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