

Rumney Models – Bogie Bolster E Underframe & Detailing Instructions

This set of instructions covers both etches C.04A and C.04. It seemed sensible to do them as a job lot as anyone wanting to build C.04A will need C.04 and it saves having to refer to two sets of instructions as you go along.

Prototype Information

BR built total of 1200 Bogie Bolster Es between 1961 and 1962 to diagram 1/479. They were the smallest and last of the BR standard steam era bogie bolster designs. They were 32' over headstocks and initially rated at 30 tons which was later uprated to 32 tons. All were vacuum braked from new. Build and numbering details are as follows:

B923300-B924399	Lot 3343	Ashford 1961/2
B924800-B924899	Lot 3440	Ashford 1962

Initially a large number of them seem to have been allocated to South Wales but they could be seen far and wide. A number were converted to carry steel coils in the early 1970s.

Notes

Read the instructions first! I am the worst person in the world for doing this but it does help. At the very least read through each section completely before doing the jobs that are included in it.

This etch has been designed to detail the Lima bogie bolster E model. The basic moulding is accurate and can be made into a good model. The underframe is designed to replace the moulded plastic one on the Lima model. When combined with the detailing etch it will provide a complete etched chassis with all the finesse that goes with it.

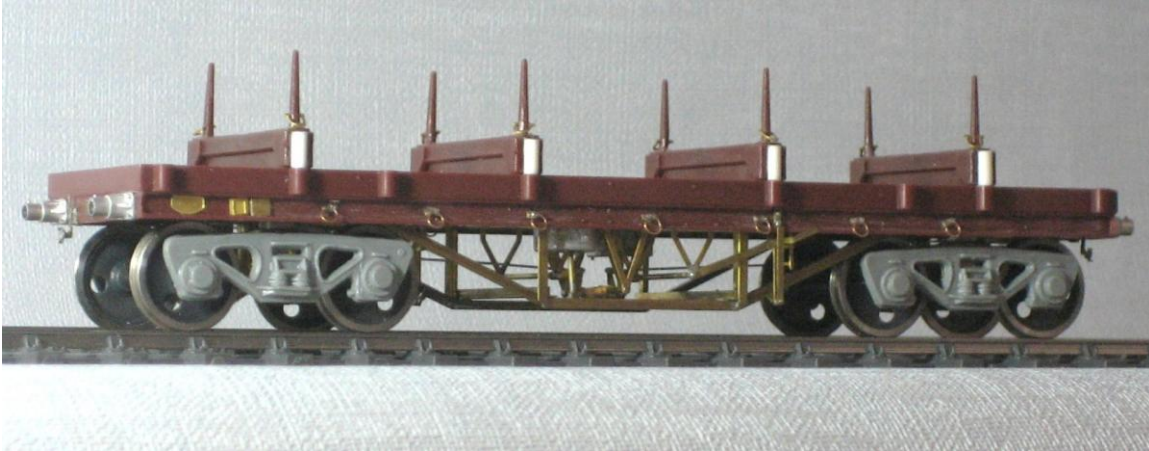
Etch C.04A contains parts to construct the solebars and headstocks. C.04 contains parts to construct the brakegear and provides formers for creating the truss rodding from 1.2mm x 1.2mm brass angle.

All folds are through 90° with the fold line on the inside unless stated.

Everyone has their own soldering methods. I now use a temperature controlled soldering iron with predominantly 145° solder and La-Co paste flux. For a long time I used an Antex 18W soldering iron on virtually everything with few problems.

Check all holes before removing parts from the fret. The drawing process for etching if you use a CAD program, as I do, is extremely accurate but the actual etching process itself not an exact science. If the fret is slightly over etched then there is no problem but if they are under etched the holes will need enlarging. I find that this is easiest to do before removing parts from the fret. The hole sizes will be noted at the appropriate points. For pressing out rivets I use a drop head rivet press with the part held firmly over one of those green cutting mats that everyone seems to have.

The plastic Lima used on these wagons is quite brittle but is easily filled. You will need to remove the solebars and headstocks. I did this by cutting close to the top edge of the solebar with a razor saw and then using a large file to remove the rest.



Materials List

You will need the following:

0.31mm wire for the brakegear
0.7mm wire for the brake shafts
1mm wire to use as alignment pins

Sufficient 1.2 x 1.2mm brass L section for two 90mm lengths and two 27mm lengths will be required to construct the truss rodding. This is available from Eileen's Emporium.

2 x 18" vacuum cylinders will be required. ABS do a whitemetal casting as now do Lanarkshire Model Supplies. Something will hopefully be coming soon from Rumney Models as well.

You will also require items such as buffers, vacuum pipes and bogies as well as couplings to complete.

For buffers I would recommend those produced by Lanarkshire Model Supplies. The quality is excellent. Metal buffer heads and springs are available from Wizard Models. You will need the 1' 8½" Oleo type with 16" heads, code BP03.

Lanarkshire Models also do cast swan neck vacuum pipes, code VP03. These look very good but being whitemetal I find them quite fragile. Homemade ones from brass rod and very thin wire would probably be better.

For couplings I use Masokits coupling hooks. I find the hooks are a bit on the big side but if you aren't using auto couplings this is a help. For instant couplings I use the Exactoscale products available through C&L Finescale.

Cambrian Models do a moulded 5'6" Davis & Lloyd bogie, kit C72. If you wish to you can do as I did and use modified Masokits compensated plate frame freight bogies under the Cambrian sideframes

Contact details for the above suppliers can be found at the end of these instructions.

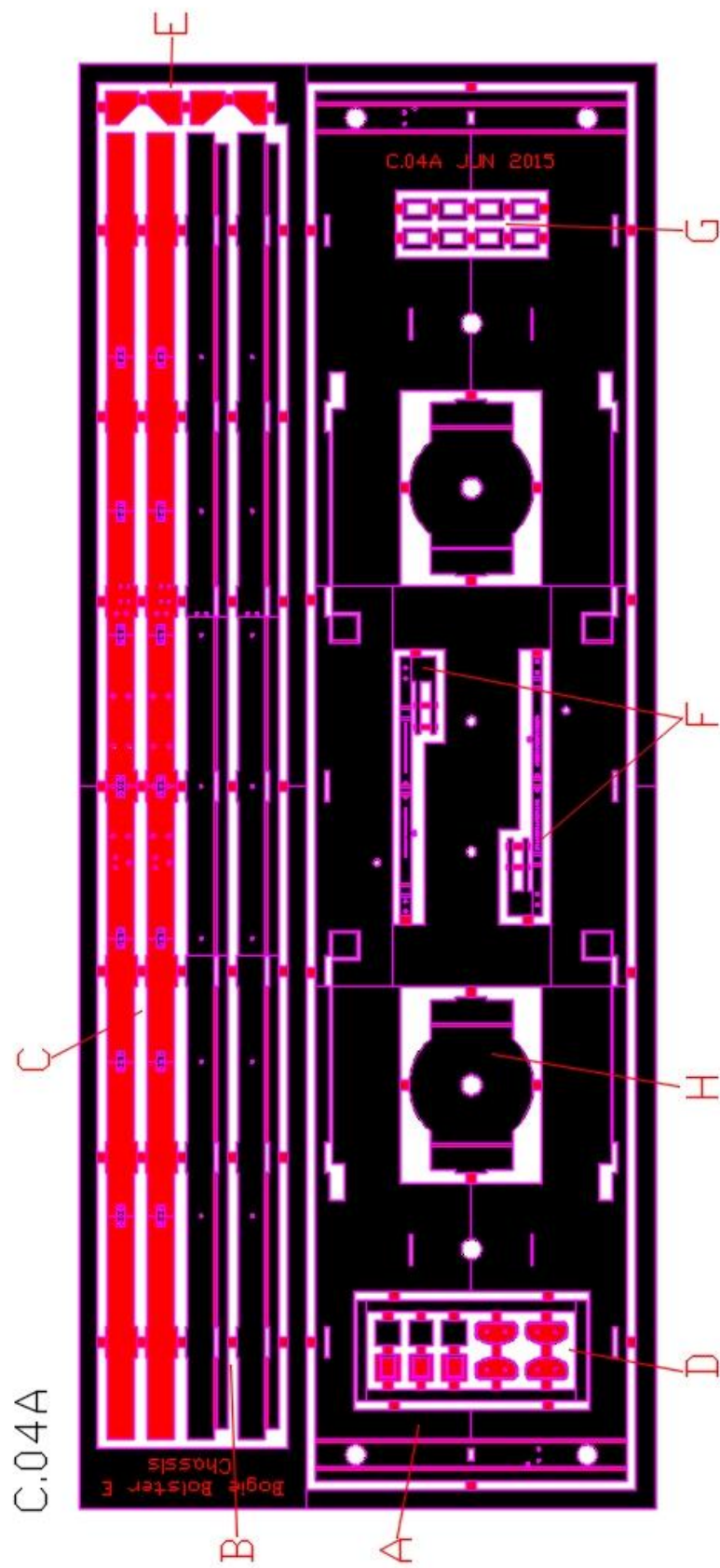
Parts List – Refer to the drawings below

C.04A

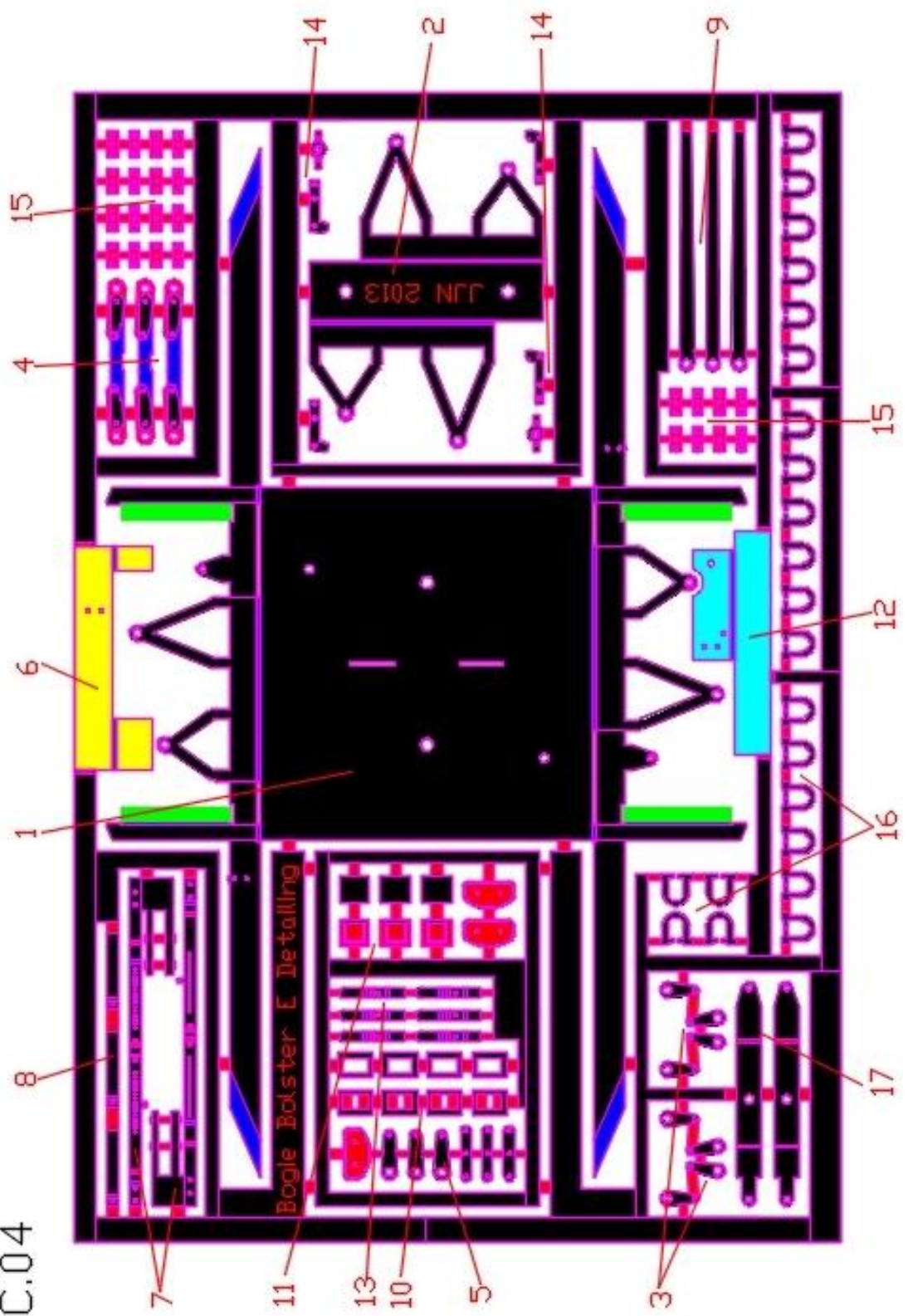
- A – Chassis top plate
- B – Solebars
- C – Solebar detailing overlays
- D – Solebar detailing (replaces part 11 on etch C.04)
- E – Solebar/Headstock corner plates
- F – Brake lever guards (replaces part 9 on etch C.04)
- G – Additional coupling pocket surrounds (part 10 on etch C.04)
- H – Bogie locating plates

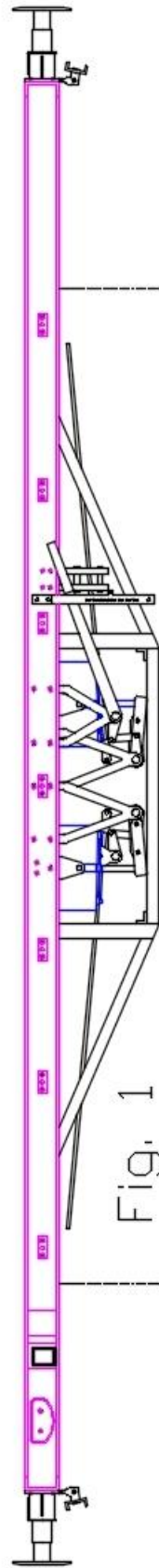
C.04

- 1 – Main vee assembly
- 2 – Inner vee assembly
- 3 – Main brake linkages
- 4 – Vacuum cylinder actuators
- 5 – Bogie brake linkages
- 6 – Brake lever guard drilling jig
- 7 – Brake lever guards
- 8 – Brake lever guard stays
- 9 – Brake levers
- 10 – Coupling pockets and surrounds
- 11 – Solebar detailing
- 12 – Headstock drilling jig
- 13 – Lamp Irons
- 14 – BR swan neck vacuum pipe brackets
- 15 – Shackle ring base plates
- 16 – Bolster pin D links
- 17 – Vacuum cylinder brackets



C.04



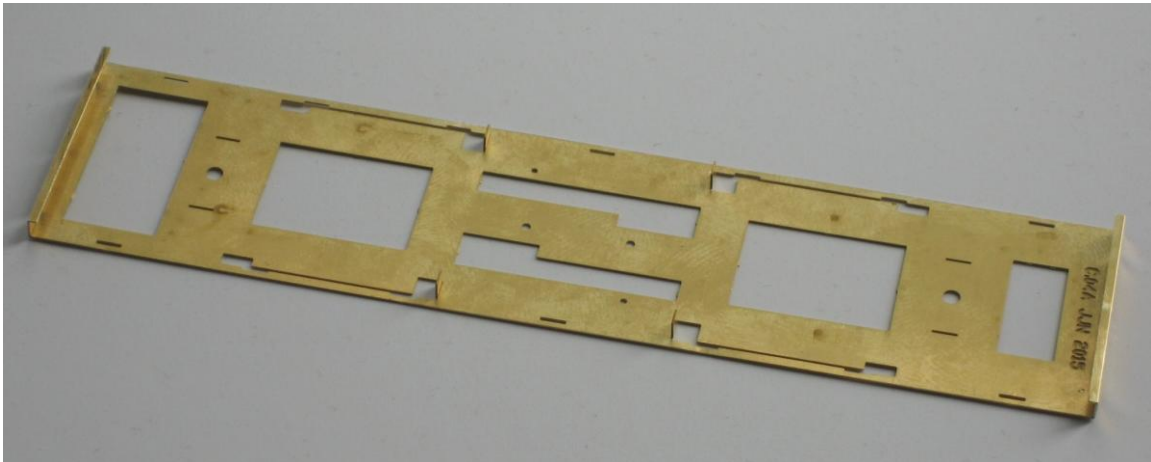


Construction

1. Start with the chassis top plate (A). Firstly check the fit of your buffers in their holes in the headstocks. It may sound a bit odd starting with something that usually goes on at the end but it will be much easier to open out the holes now rather than later. Push out the half etched rivets on the headstocks. I find the easiest way to do this is with a drop head rivet press with the fret placed over one of those ubiquitous green cutting mats. Remove from the fret. Remove all the parts that are contained inside the top plate (D, F, G, H) and put them somewhere safe for now.

The headstocks need to be folded up. This is best done with the chassis top plate clamped to something or held in a vice to avoid distortion. There are two sets of fold lines as the headstocks need to be folded into a channel. Starting with the outermost part of the chassis top plate and fold through 90°. You can reinforce this fold line if you wish but I haven't found need to do this. Next fold the headstocks through 90° to form a channel. Do not reinforce with solder yet.

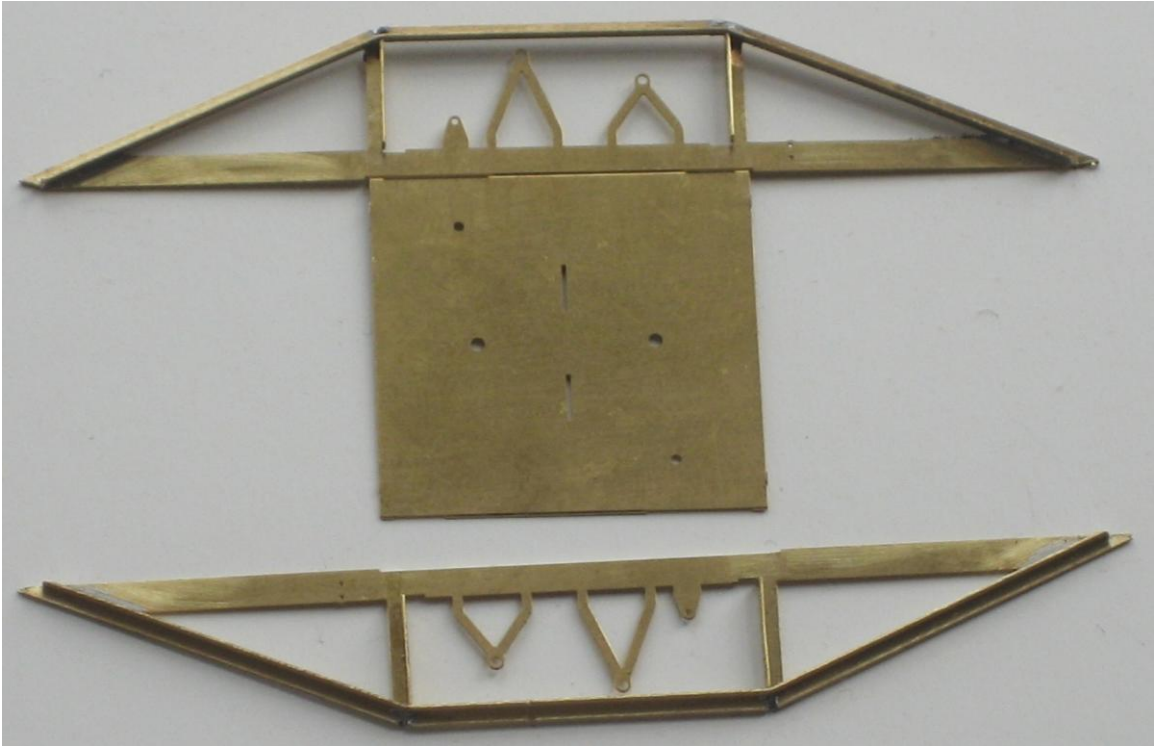
Fold out the four rectangular supports for the sides of the main vee assembly (1).



2. Ensure that the holes in the vees for the brake shafts on the main vee assembly (1) can accept 0.7mm wire and remove from the fret. Fold the queen posts into an L shape. The areas to be folded are marked in green on the parts numbering drawing. To do these make sure that the part of the queen post attached to the main vee assembly is firmly clamped and then make the fold.

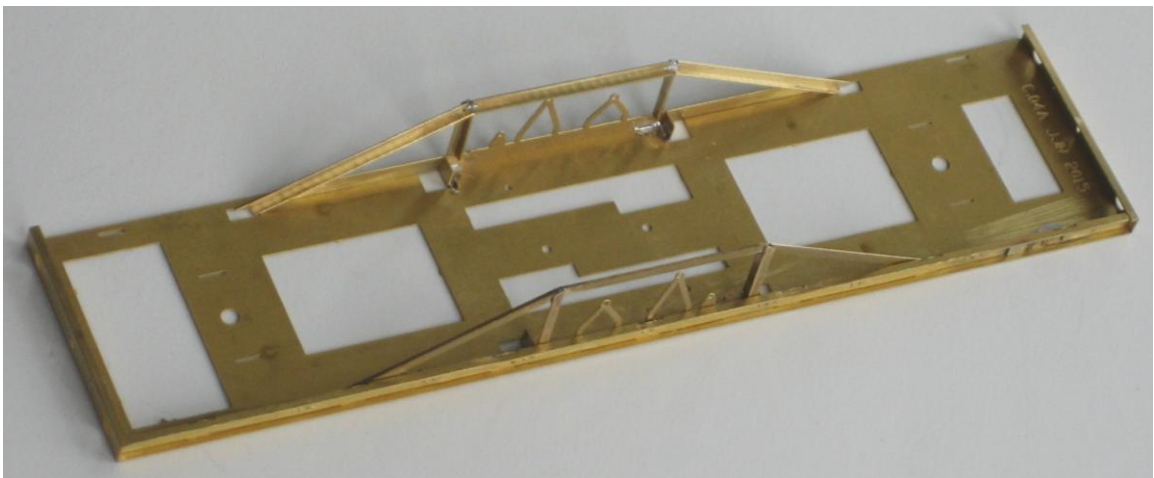
3. Take two pieces of 1.2 x 1.2mm brass L section approximately 90mm long and make two cuts 25mm apart as shown in Fig. 2. These cuts should be equally spaced about the centre of the length of the L section. These pieces can then be bent at the cut points and placed one at a time behind the queen posts. Whilst the piercing saw is out cut two more lengths of brass L section a smidge under 27mm long and place to one side

Adjust the L section so that it matches the angle in the ends of the main vee assembly. These are effectively alignment jigs for the truss rodding. Solder in place and repeat for the other side. Trim any excess off so that the truss rodding is flush with the base.



Remove the two sides of the main vee assembly from the spacer by folding back and forth until the fold line breaks. Clean up any remaining half etched fold line from the sides.

The two sides can now be fixed in place on the chassis top plate. There are two slots on each side of the top plate to aid location. Once you are happy that the sides are vertical they can be soldered in place.



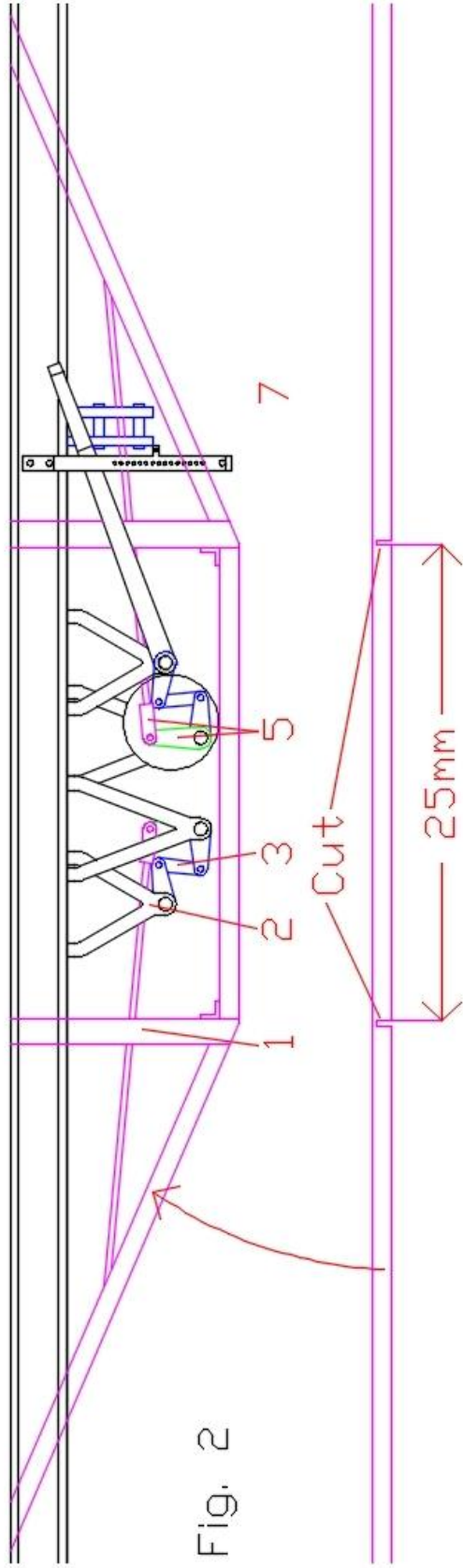


Fig. 2

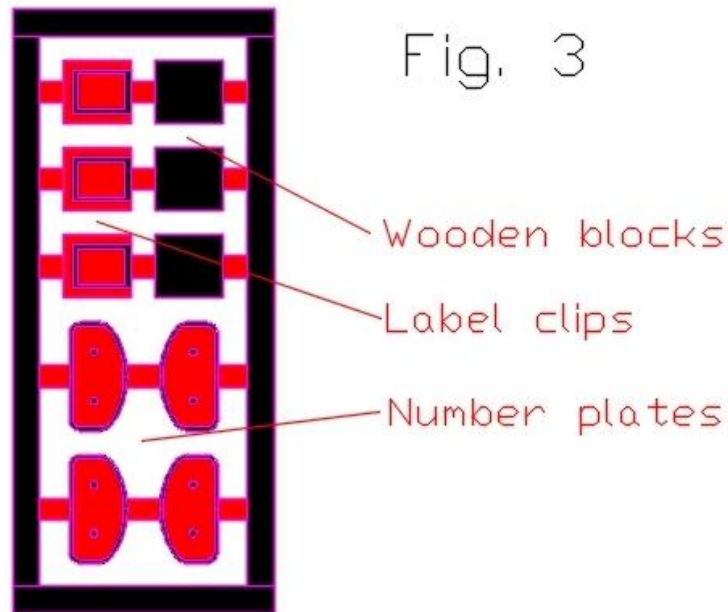
4. Next remove the solebars (B) from the fret and fold into an L shape. I find the best way to do this is in a vice using a couple of steel rulers or pieces of Aluminium. A hold and fold jig would also be a good way to go.

Remove the solebar detailing overlays (C) from the fret. I have included the base plates for the shackle rings on the overlay. There are half etched rivets on the back that need to be pressed out. I find the easiest way to do this is with a drop head rivet press with the fret placed over one of those ubiquitous green cutting mats. The solebar detail overlays are designed to fit into the slots in the solebars. The completed solebar then locates into the slots in the chassis top plate. Locate the solebar detailing overlay in the solebar and tack solder in place. Note that there is a right way up for the overlays (if in doubt note that the holes for the brake lever guard should match those in the solebar).

Now is probably the easiest time to attach the solebar detailing to the solebars so I shall cover this now before returning to the business of assembling the chassis.

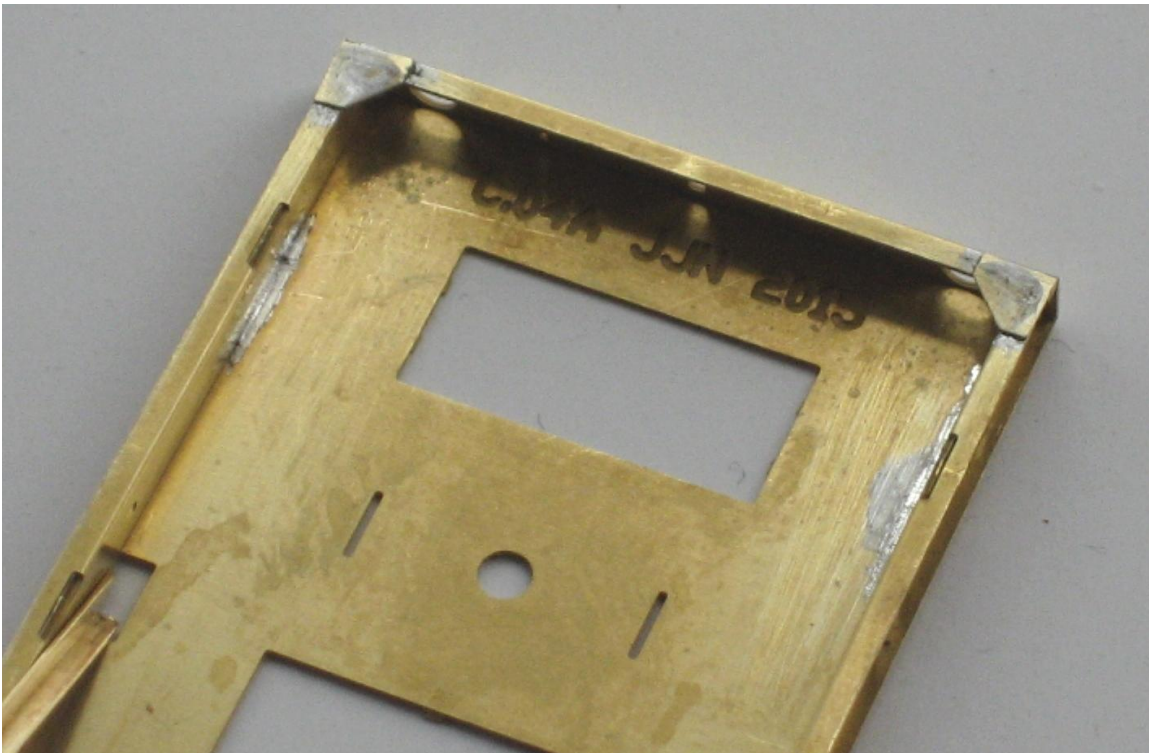
5. The solebar detailing (D) comes contained in its own little fret. See Fig.3. On it you will find number plates, label clips and a rectangle that is actually a block of wood on the real thing I have no idea what the purpose of the last item is but the rectangular block of wood was quite common. The position of all this stuff was pretty consistent on the Bogie bolster Es though things did disappear over time. See Fig.1 or a picture of your prototype. The details can be soldered on before fitting the solebars to the top plate.



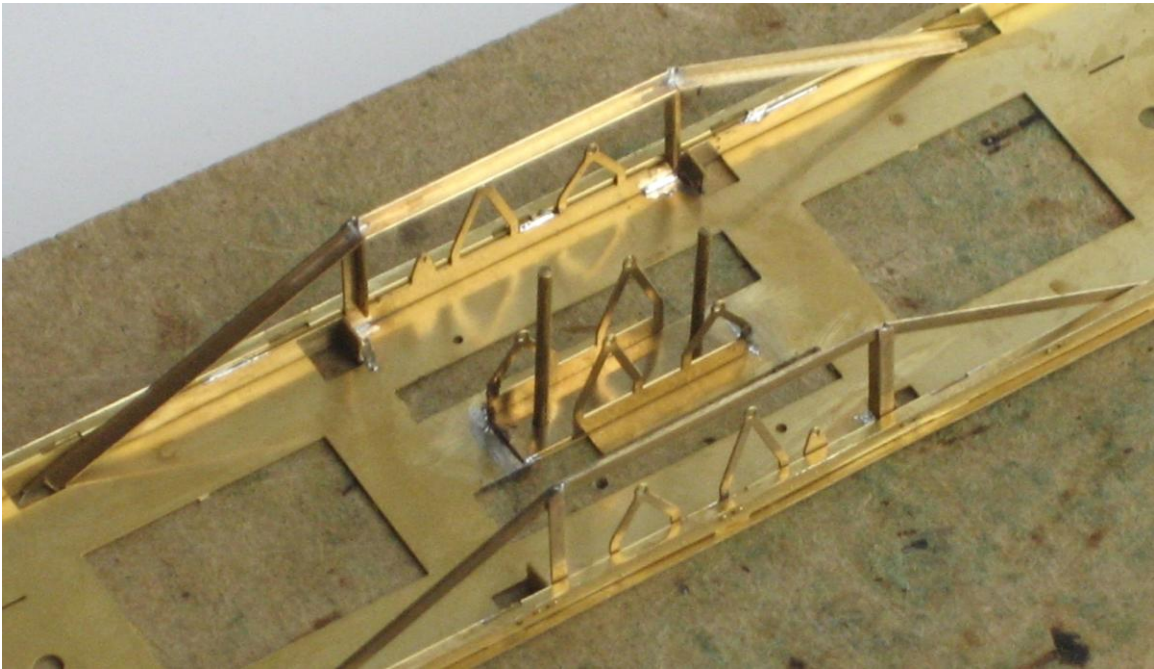


6. The solebars can now be fitted to the chassis. Note that the solebars are identical so it doesn't matter which way around they go. There are slots and tabs to aid location and the ends go into the channel that is the headstock. Fit the solebars at an angle and then straighten locating the slots and tabs at the same time. Once in place then the solebar can be soldered in place towards the ends. The accessible fold line on the headstock can now be reinforced with solder if you wish but I don't find it necessary.

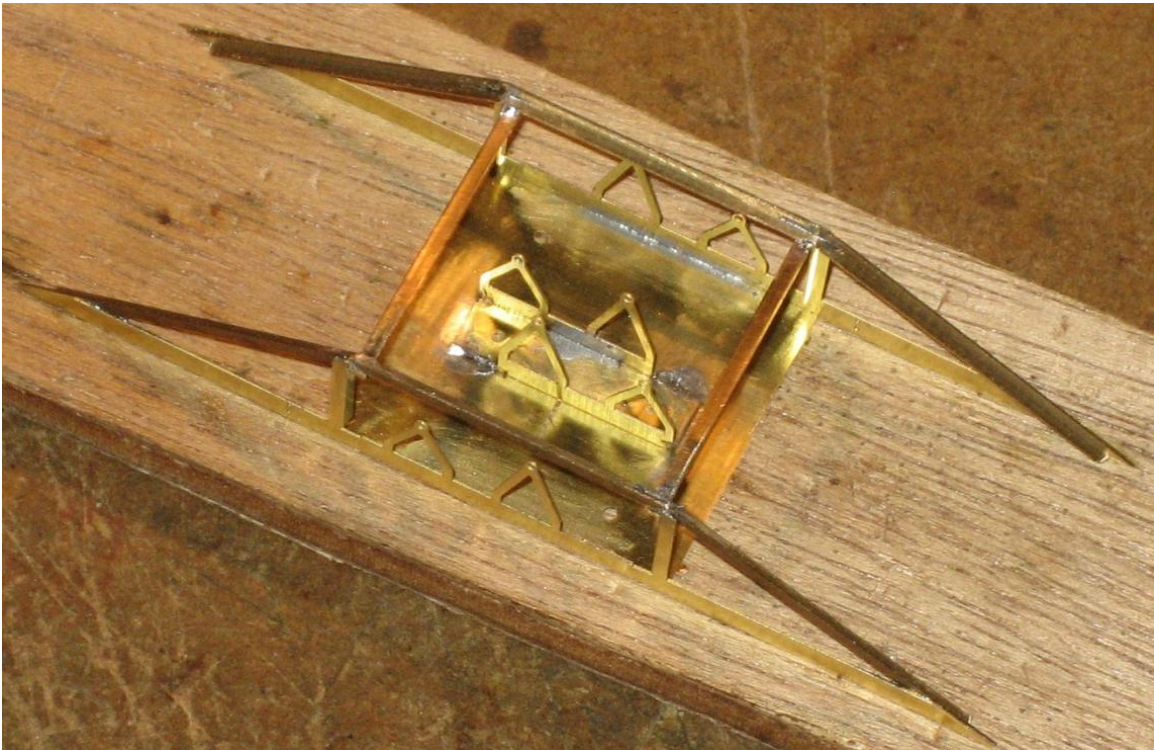
Add the Solebar/Headstock corner plates (E). These should be arranged so that the two straight sides go along the outer edges of the headstock and solebar.



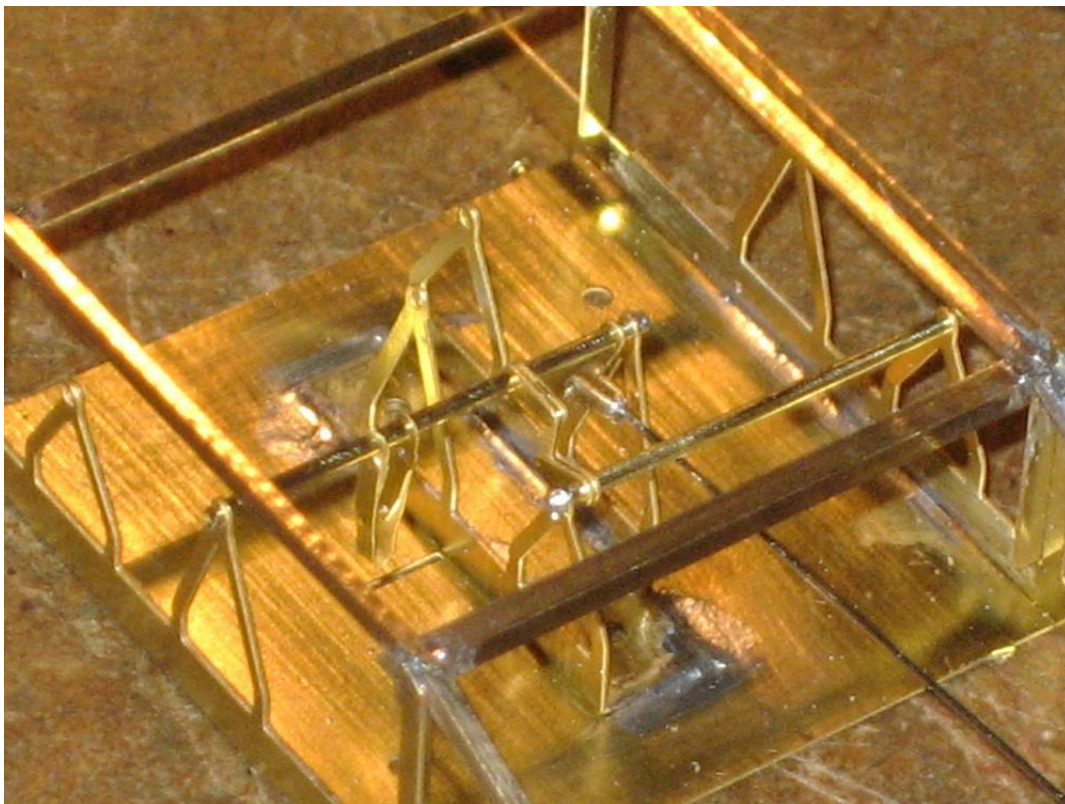
7. Check that the holes in the vees on the inner vee assembly (2) can accept 0.7mm wire and remove from the fret. Fold up and reinforce with solder. This assembly needs to be soldered in place on the chassis top plate. There are alignment holes in the centre of both parts. These are designed to take lengths of 1mm wire to make sure everything is correctly in position. Solder in place.



Fix the remaining pieces of brass L section in place at the intersection of truss rods and queen posts.



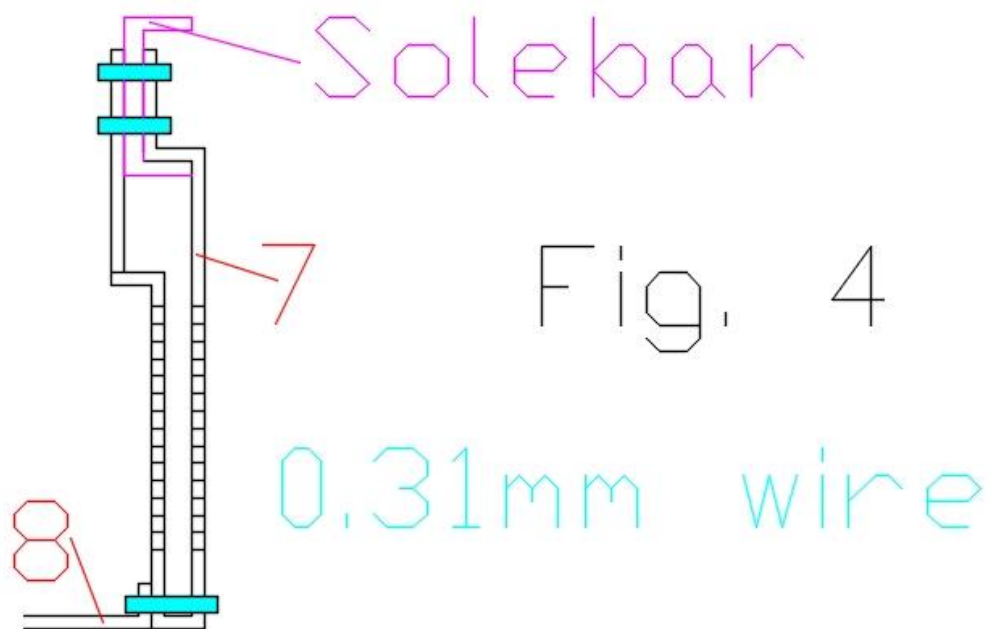
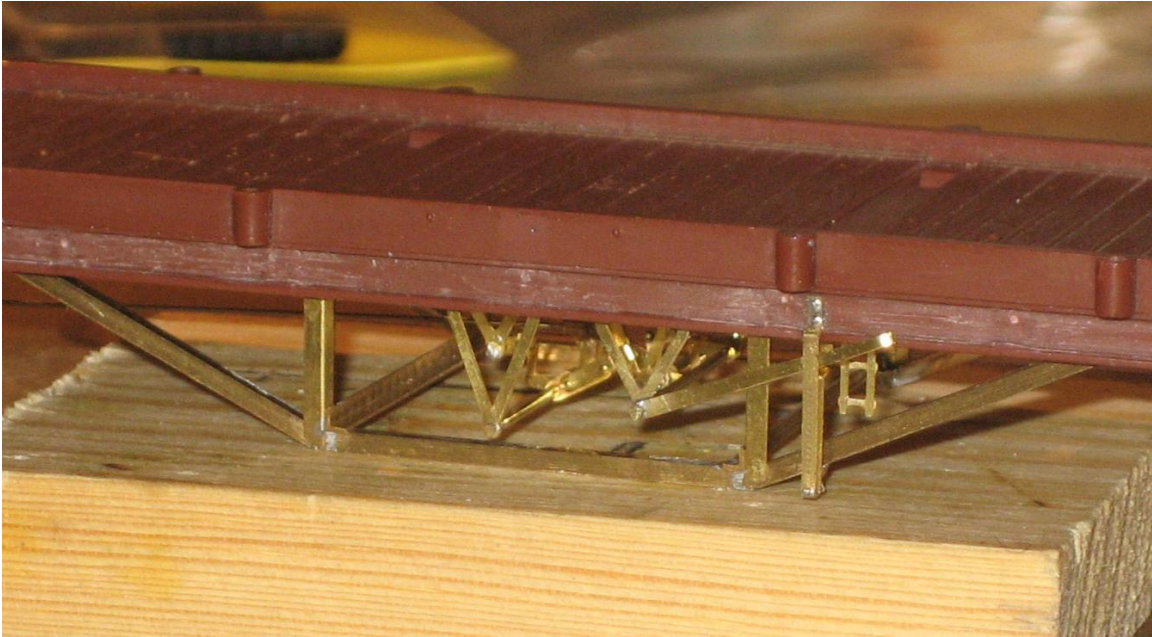
8. The brake gear can be assembled next. Make sure that the holes in the main brake linkages (3), the vacuum cylinder actuators (4) and the crank parts of the bogie brake linkages (5) can accept 0.7mm wire. Also make sure the smaller hole in the crank part of the bogie brake linkages and the brackets can accept 0.31mm wire. The main brake linkages are arranged in pairs. Press out the half etched rivets and then fold them double about the connecting tab. Press out the half etched rivets in the vacuum cylinder actuators. Arrange everything as shown in the photo below and Fig. 3. The 3 hole brackets for the bogie brake linkages are designed to wrap around the crank part and are pinned in place using 0.31mm wire. Another piece of 0.31mm wire can then be fed into it to represent the shaft to the bogie. They are a bit of a fiddle and can be left off if they are going to test your sanity! Solder the main brake linkages and bogie brake linkages in place. The vacuum cylinder actuators are designed to wrap around a wire shaft from the vacuum cylinder. I use more 0.7mm wire for these. Once the vacuum cylinder and shaft are in place the sides of the actuators can be clamped together and soldered in place.



Vacuum cylinder brackets (15) can be added. They fold into a channel shape. The end that's angled goes on the inside with the other end against the bracket on the main vee assembly. Use the holes in the bracket, chassis top plate and main vee assembly to align them and solder in place.

9. Open out the holes in the brake lever guards (F) and brake lever guard stays (8) to accept 0.31mm wire and remove from the fret. Fold up the brake lever guard as per Fig. 4 (see below). This can be soldered in place with short lengths of 0.31mm wire acting as pins through the solebar to locate the lever guard. The brake lever guard stays can be fitted to the back of the lever guards using 0.31mm wire. Arrange the other end of the stay so that it attaches to the truss rodding and solder to the lever guard and to the truss rodding.

Open out the holes in the brake levers (9) to accept 0.7mm wire if necessary and remove from the fret. Bend the end to crank the handle away from the solebar (see photos below) and solder in place.



10. There are various detailing parts that can now be added to the chassis.

a) Headstock detailing:

Coupling pockets and surrounds (10) are provided with additional surrounds (G). The prototype was fitted with Instanter couplings which were also used on vehicles fitted with 1'6" buffers. This meant that the pockets on those vehicles with 1' 8½" buffers had to be

extended. In 4mm scale this extension works out at about 0.75mm. So there should be 3 layers of surrounds on top of the main pocket hence the extra ones on the chassis etc. Solder the four layers together and then fix in place on the headstocks. I use a cocktail stick that has been filed to fit the slot for the coupling to help align things. Lamp irons (13) are included on the fret. Press out the half etched rivets, fold up and reinforce with a little solder. A short length of 0.31mm wire can be as a pin to aid location. These can then be soldered in place.

There are two BR swan neck vacuum pipe brackets (14). These are quite distinctive and come in two parts. There is a bracket which attaches to the solebar and a round head that has 'tails' that fold up.

Use the brackets with two of the holes etched out and press out the remaining half etched rivets. Remove from the fret. Twist the base of the bracket through 90° so that the interface with the head faces away from the rivets. This bracket can then be soldered to the back of the head (the side with no half etched areas). It is easiest to do this while the head is still attached to the fret. There is a small slot to help provide a positive location. Once soldered in place the assembly can be removed from the fret and the 'tails' on the head folded out. If you're brave these fold lines can be reinforced by the use of a very small quantity of solder and a very quick soldering iron. Some step soldering might be a good idea but I haven't encountered many issues with just using 145° solder.

Using two lengths of 0.31mm wire to help aid location and to represent the rivets locate in place on the headstock and solder in place.

Buffers on the bogie bolster Es were 1'8½" Oleos with 16" heads. I would thoroughly recommend those produced by Lanarkshire Model Supplies as replacements. If you wish to make them sprung then Wizard models do 16" buffer heads with a 1.45mm shank for Oleo buffers.

b) The rungs for the shackles for chaining loads down can be made from suitable wire with a tail to go through the 0.3mm holes etched in the solebar. I used 33 SWG phosphor bronze wire bent in to an L shape and formed into a rung around a 1.4mm drill bit held in a pin vice. Trim the wire so that it looks like a rung and apply a little solder to keep it all in place. You will need to make sure the holes go all the way through the solebars (the main vee assembly sides will get in the way of those in the centre), use a 0.3mm drill. The shackles can then be located in place and soldered to the backs of the solebars.

8. Bogie locating plates (H) are included to help aid fitting the bogies. The holes are etched 2mm in diameter. For such things I generally use 2.5 x 2mm tube over an M2 bolt though this does vary depending on the setup of the bogies themselves. Personally I think it's important not to use a thread as a bearing surface. You can of course go your own way with this but it does explain why the holes are the sizes that they are. Solder a suitable cheese head screw in place on the locating plate and fold into a channel. This assembly can then be located in place on the chassis using the tabs and slots provided.

Cambrian make a suitable Davis & Lloyd 5'6" type. If you aren't worried about compensating or springing them they will do as they are. I used modified Masokits plate frame compensated freight bogies on mine with cosmetic Cambrian sideframes on top.

Colin Craig has suggested that he will be doing some point and if he does I would recommend them. His design is lovely and one reason why I have so far not done any myself.

9. The plastic body of the Lima wagon will now need to be modified to fit it's new chassis. If you haven't taken the wagon to bits now is the time. Prise the bogies off. There are four pairs of clips on the underside of the bolsters. If you pull the clips towards each other and pull on the bolster they should come out. Once all four bolsters are removed the underframe moulding will fall out. The solebars and headstocks on the body need to be removed. I used a razor saw to cut near to the top of the solebar and then a big file to take the rest away. The plastic used by Lima files quite nicely but it's quite brittle so beware applying too much pressure with a chisel or knife blade. The body and chassis can be glued together once painted.

There are D links for fitting to the bolster pins (16). There are way too many of these on the Lima model as they paid too much attention to the weight diagram which shows all the possible positions for them and there should only be two per bolster. Once the excess bolster pins have been removed you will need to carefully drill a 0.4mm hole near the base of those left. The D link can then be gently fitted in place. You will have to prise the sides out slightly to locate them in the holes then close them up again. There are spares in case any go disappearing across the room! Some will...

Conclusion

There are still some areas you could improve on things. You could drill out the pockets for the bolsters on those that are not in use. Some careful work with a 1mm drill will do that. You wouldn't need to go all the way through as a hole 1mm deep would give the right impression though I did drill those on mine all the way. If you haven't thought about them yet BR swan neck vacuum pipes will need to be added. All that needs to be done is to paint it all. The Lima body is moulded in self coloured plastic and doesn't need stripping, just the transfers removing if required. The body was painted Bauxite when first built with the solebars, headstocks and everything below them black. Latterly the bodies would have been freight brown. Cambridge Custom Transfers do a sheet (BL57) for the as built wagons.

There wasn't that fun! Hopefully the model should now look a lot better than it did before hand. All that remains is to start on the next one...!

Justin Newitt – March 2015

Suppliers List

Eileen's Emporium (1.2mm brass angle)
Unit 19.12 Highnam Business Centre
Newent Road
Gloucester
GL2 8DN
UK
www.eileensemposium.com

Lanarkshire Models and Supplies (buffers, vacuum cylinders and vacuum pipes)
9 Nairn Avenue
Blantyre
G72 9NF
www.lanarkshiremodels.com

C&L Finescale (Exactoscale wheels, bearings and couplings)
Aran Lodge
Severn Road
Hallen
Bristol
BS10 7RZ
<http://www.finescale.org.uk>

Masokits (Coupling hooks and compensated freight bogies)
Michael Clark
c/o 27 Crotch Crescent
New Marston
Oxford
OX3 0JL
www.scalefour.org/masokits

Wizard Models (sprung 16" Oleo buffer heads)
PO Box 70
Barton upon Humber
DN18 5XY
www.wizardmodels.co.uk

ABS (vacuum cylinders)
39 Napier Road
Hamworthy
Poole
Dorset
BH15 4JX

Cambrian (Davis & Lloyd "ride control" bogies. Kit C72)
Cambrian Models
10 Long Road
Tydd Gote
WISBECH, PE13 5RB
www.cambrianmodels.co.uk

Cambridge Custom Transfers (Transfers for the as built wagons. Sheet BL57)
6 Roseland Gardens
Bodmin
PL31 2EY
www.cctrans.freemove.co.uk