## Rumney Models - Bogie Bolster E detailing Instructions

## 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 $32^{\prime}$ over headstocks and initially rated at 30 tons which was later uprated to 32 tons. All were vacuum braked. 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 that job.

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 main focus is the brakegear but other parts are included to detail the solebars/headstocks and bolsters. How much of it you include is up to you. There is a choice replace the plastic truss rodding with something a bit finer made from $1.2 \times 1.2 \mathrm{~mm}$ brass L section. The main assembly effectively forms a jig to make this easier.

All folds are through $90^{\circ}$ 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 $145^{\circ}$ solder and La-Co paste flux. For a long time I used an Antex 18 W 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. Be careful if you change the buffers when opening out the holes to avoid cracking on the headstock.


## Materials List

You will need the following:
0.31 mm wire for the brakegear
0.7 mm wire for the brake shafts

1 mm wire to use as alignment pins
If constructing new truss rodding sufficient $1.2 \times 1.2 \mathrm{~mm}$ brass L section for two 90 mm lengths and two 26.5 mm lengths will be required. This is available from Eileen's Emporium.

2 vacuum cylinders will be required. ABS do a whitemetal casting.
You may 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 $1^{\prime} 8^{1 / 2}$ " Oleo type with $16^{\prime \prime}$ 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 instanter 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 drawing below
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 pocket 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


## Construction

1. Ensure that the holes in the vees on the main vee assembly (1) for the brake shaft can accept 0.7 mm wire and remove from the fret. If constructing new truss rodding for the wagon from $1.2 \times 1.2 \mathrm{~mm}$ brass L section then you will need to 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. If you aren't making new truss rodding then remove the queen posts and the four alignment jigs that extend away from the queen posts. This will just leave the vees. You will need to remove part of the plastic base to get the brake gear assembly to fit. Having said that it is probably just as easy to make new ones as modify the existing plastic mouldings. In both case the sides of the main vee assembly can be folded up and the fold lines reinforced with solder.
2. Check that the holes in the vees on the inner vee assembly (2) can accept 0.7 mm wire and remove from the fret. Fold up and reinforce with solder. This assembly needs to be soldered in place on the main vee assembly. There are alignment holes in the centre of both parts. These are designed to take lengths of 1 mm wire to make sure everything is correctly in position. Solder in place.


3. If constructing new truss rodding then now is the time to do so. Take two pieces of 1.2 x 1.2 mm brass L section approximately 90 mm long and make two cuts 25 mm apart as shown in Fig. 1. 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. 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. Cut two more lengths of brass $L$ section 26.5 mm long and fix in place at the intersection of truss rods and queen posts.

4. 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 0.7 mm wire. Also make sure the smaller hole in the crank part of the bogie brake linkages and the brackets can accept 0.31 mm 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. 1. The 3 hole brackets for the bogie brake linkages are designed to wrap around the crank part and are pinned in place using 0.31 mm wire. Another piece of 0.31 mm 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 0.7 mm 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.

5. The completed assembly can now be glued to the underside of the Lima wagon. 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. You don't need to do any work to plastic body moulding for the underframe to fit as it is nice and clean. There are two small slots etched in the main vee assembly which mark the centre of it. You can use these as a guide to position the new brakegear. If reusing the plastic truss rodding now is the time to modify it. If you've made new truss rodding then cut the ends with the locating points for the bogies off the Lima underframe. These can be reused to provide locating points for new bogies.
6. The brake levers can be attended to next. There is a jig for drilling holes in the solebar (6) to pin the brake lever guards in place. This is the part shaded yellow in the part numbering drawing. Remove from the fret and fold up. You should place this against the bottom of the solebar with the larger of the folded down tab sections between the legs of the right hand vee. You can now use this as a guide to drill two 0.3 mm holes through the solebar. With any luck these will correspond with the holes etched in the main assembly. Open out the holes in the brake lever guards (7) and brake lever guard stays (8) to accept 0.31 mm wire and remove from the fret. Fold up the brake lever guard as per Fig. 2. This can be glued in place with short lengths of 0.31 mm wire acting as pins through the solebar to give the lever guard some extra strength. The brake lever guard stays can be fitted to the back of the lever guards using 0.31 mm wire. Arrange the other end of the stay so that it attaches to the truss rodding and solder to the lever guard and either soldered or glued to the truss rodding depending on whether it's brass or plastic.


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

7. There are various detailing parts that you may or may not wish to include. It depends on how much of what is on the Lima bogie bolster E you want to replace. I pretty much replaced everything for various reasons. The plastic Lima used is quite brittle but can be cut with a knife blade as long as you don't apply too much pressure. I used a small burr in a mini drill to remove the solebar detailing which worked very well.
a) Solebar detailing (11). The moulded number plate and label clip are on the wrong end of the solebar! No idea why. There are number plates, label clips and blocks of wood. See Fig. 3.


There is a headstock drilling jig (12), the part shaded light blue in the part numbering drawing, which can be used as an aid to pinning the lamp irons and vacuum pipe brackets to the headstock if you wish. I find such items hopelessly vulnerable if just glued in place and so like to use small 0.31 mm wire pins to help provide a secure fix. Remove the jig and fold up. The part with the drilling holes in goes up against the headstock with the rest hard up underneath it. The far left hand edge of the jig should be aligned with the left hand edge of the headstock. The holes are for (from left to right) vacuum pipe bracket (pair), lamp iron and then coupling in the centre.
b) Etched coupling pocket surrounds (10). There are parts with and without a half etched guide for the coupling hook. I soldered the two parts together on mine doing all four at the same time whilst still tagged together and then glued then glued them in place with the half etched area against the headstock.

## c) Headstock detailing:

The Lima buffer mouldings aren't great and could do with replacing. Buffers on the bogie bolster Es were $1^{\prime} 81 / 2^{\prime \prime}$ 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 1.45 mm shank for Oleo buffers.

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 0.31 mm wire can be soldered in place to act as a pin to aid location. These can then be glued 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. If you wish to pin the bracket to the headstock there are brackets with all the holes etched out, otherwise press out the rivets on the other brackets Remove from the fret. Twist the base of the bracket through $90^{\circ}$ 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 $145^{\circ}$ solder. If using pins to help secure them solder two lengths of 0.31 mm wire in place using two suitable drilled holes in a block of wood to help. Glue in place on the headstock.
d) If you wish to replace the moulded plastic shackles for chaining loads down then there are etched base plates (15) included. The rungs can be made from suitable wire with a tail to go through the base plate and into a 0.3 mm hole drilled in the solebar. I used 33 SWG phosphor bronze wire formed into a rung around a 1.4 mm drill bit. I found the best way of removing the plastic shackles was very carefully with a burr in a minidrill. The solebar can be finished with a fine file before fitting the new shackles and base plates. I made a jig out of wood to replicate the bottom of the solebar really useful when soldering the ring to the base plate.
e) Finally 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 0.4 mm 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...
8. The Lima bogies are not good and really need replacing. 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. Whatever you use some method of locating them is required. I reused the bogie pivot point on the Lima underframe moulding with suitable bolts glued in place.


## 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 1 mm drill will do that. You wouldn't need to go all the way through as a hole 1 mm 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 2014

## Suppliers List

Eileen's Emporium ( 1.2 mm brass angle)
Unit 19.12 Highnam Business Centre
Newent Road
Gloucester
GL2 8DN
UK
www.eileensemporium.com
Lanarkshire Models and Supplies (buffers 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)<br>Cambrian Models<br>10 Long Road<br>Tydd Gote<br>WISBECH, PE13 5RB<br>www.cambrianmodels.co.uk<br>Cambridge Custom Transfers (Transfers for the as built wagons. Sheet BL57)<br>6 Roseland Gardens<br>Bodmin<br>PL31 2EY<br>www.cctrans.freeserve.co.uk

