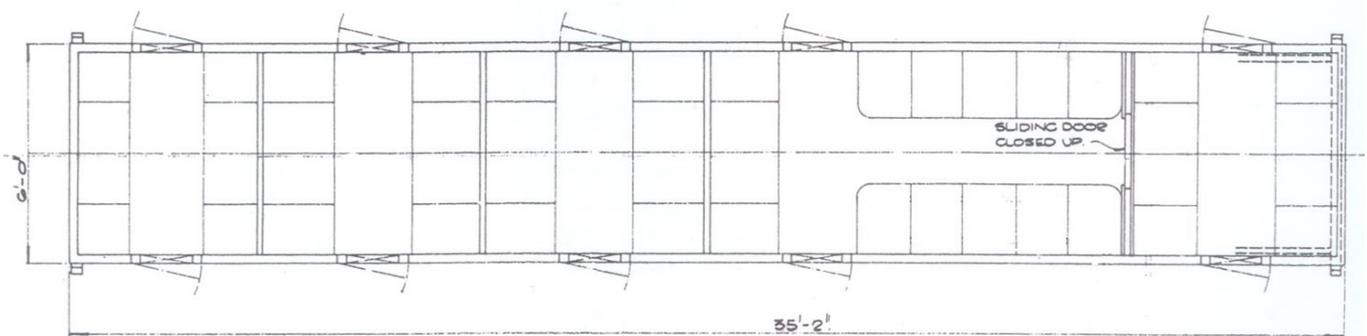


009 Lynton and Barnstaple coach kit

L&B 3 / 4 SR 6991/6992

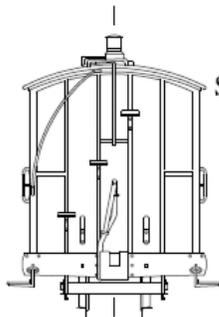
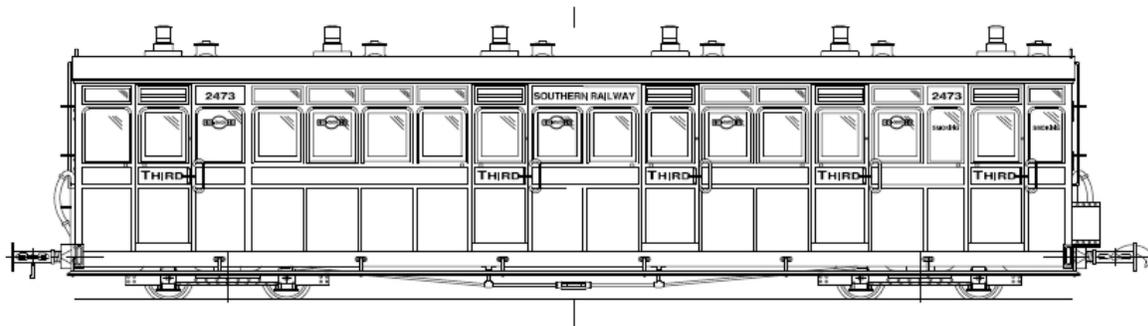
Thanks for purchasing one of our Lynton and Barnstaple coach kits. We have made every effort to make these kits as accurate as possible. These are craftsman kits and do require soldering skills. We do not feel that the kits can be built using glue. The instructions are 'generic' to all the coach types supplied. The kits represent the coaches when running on the line under Southern ownership. It is not difficult to modify the kits to represent the pre-grouping era. **This instruction sheet describes the method used to obtain a more scale appearance for your coach with interior panelling.** We would like to thank John Hedderley and the Lynton and Barnstaple Trust for giving us so much help with drawings and information.



layout (not to scale)

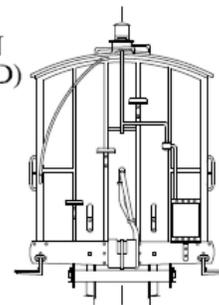
THE LYNTON AND BARNSTAPLE RAILWAY

Passenger Rolling Stock Built By
The Bristol Carriage & Wagon Works 1898



COACH Nos. 3 & 4 - COMPOSITE OBSERVATION
SOUTHERN RAILWAY Nos. 2473 AND 2474 (THIRD)

Length: 35' 2"
Width: 6' 0"
Height: 8' 7"
Weight: 8Tons 16cwt
Seats: 30 First Class
8 Third Class



Full height 27'
Min. height 25'
Min. width 25'
Min. width 25'

R Wilkinson 1/2006



square generator

Coaches 2469 to 2472 were fitted with steam heating, despite several claims to the contrary.

We strongly recommend that you have in your possession some of the excellent books about this iconic railway. These can be obtained from the Lynton and Barnstaple Railway at Woody Bay. Their gift shop website is on <http://www.lynton-rail.co.uk/railway/shop>

You should always work with photographs of the prototype alongside you. There is also a page on how to build these coaches on <http://www.009.cd2.com/instructions.pdf>

Recommended tools:

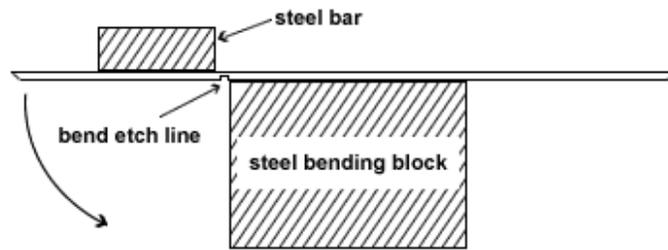
- 25 amp soldering iron.
- Fine multicore solder
- Flux (we still prefer to use Bakers Fluid, but there are many alternatives on the market
- craft knife
- needle files
- Dremel tool or equivalent with fine drills, small burrs and sanding fitting
- Small set square
- Steel rule
- Small square steel block
- Fine rail cutting pliers such as supplied by Expo Tools
- Bending tool if available
- Small vice with smooth jaws
- Fine sharp metal scraper (ideal for removing excess solder fro difficult corners)
- PVA glue
- 5 minute epoxy glue
- Etching primer (from car accessory shop)
- SR green paint, grey, mat black. We use Tamiya spray paint for finishing and find the colour 'NATO green' very close to the Southern colour.
- Decals can be obtained from Peter Blackham or Fox
- One long can of your favourite beer(no, really)
- Spray mount and artist fixative. These spray cans can be bought at most stationary shops

The etchings are quite thin and may have slightly warped during the etching process. They can be very carefully straightened once removed from the fret. A sharp craft knife can be used to remove the etchings from the fret, or a sharp pair of scissors.

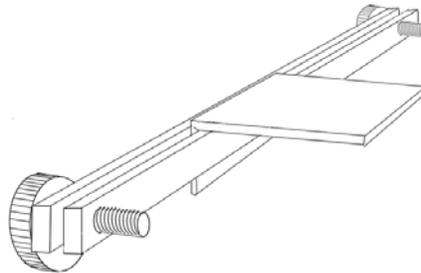
Bending the etches

Folding etch lines are on both sides of the etchings. Always leave the etch line on the INSIDE of the fold. On small parts, it may be a good idea to strengthen this point with a run of solder.

The etchings can be bent using accurately machined steel blocks.



Or you may have a bespoke metal bender.



Sometimes, a good model making vice is still easiest. Once the fold is made, I find that a cleaner angle can be achieved by running a smooth metal surface over the fold with a bit of force (I use the handle of my forceps).

Soldering

Soldering skills are needed to make a good job of our kits. Personally, I still find Bakers Fluid best for this kind of work although it would not be a good idea to get some in your eyes. I apply with a paint brush and the solder flows almost instantly. This is fine provided everything is thoroughly washed off afterwards. There are many alternatives if you prefer.

For very small parts, lightly tin the two mating surfaces, apply together with a little flux and place a clean soldering iron (wipe off solder with paper towel) on the work until you can see the solder melting. This should be enough to obtain a good joint.

There are some moments when you need to solder very small parts which have been pushed through holes in the etching. I tend to hold the part with the end of a finger (if you are quick, it will not get unbearable), hold the work vertical then touch the job with the soldering iron from the back. This stops any solder from flowing downward through gaps around the locating hole and depositing on the good side.

Construction

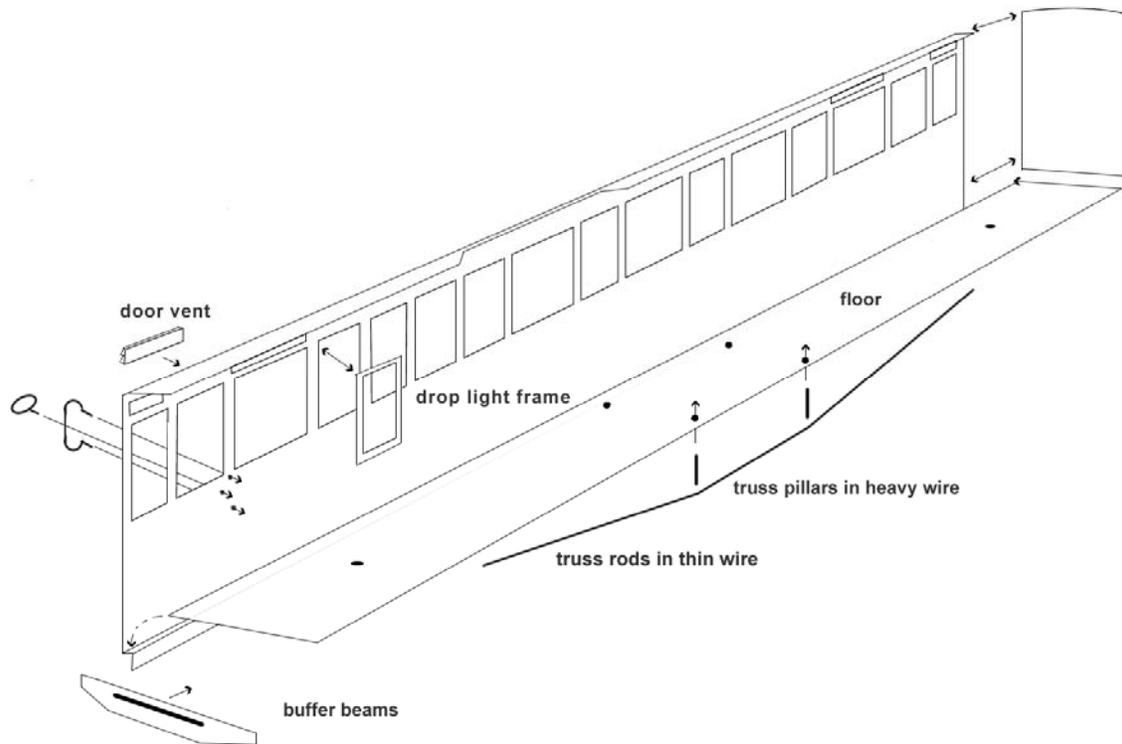
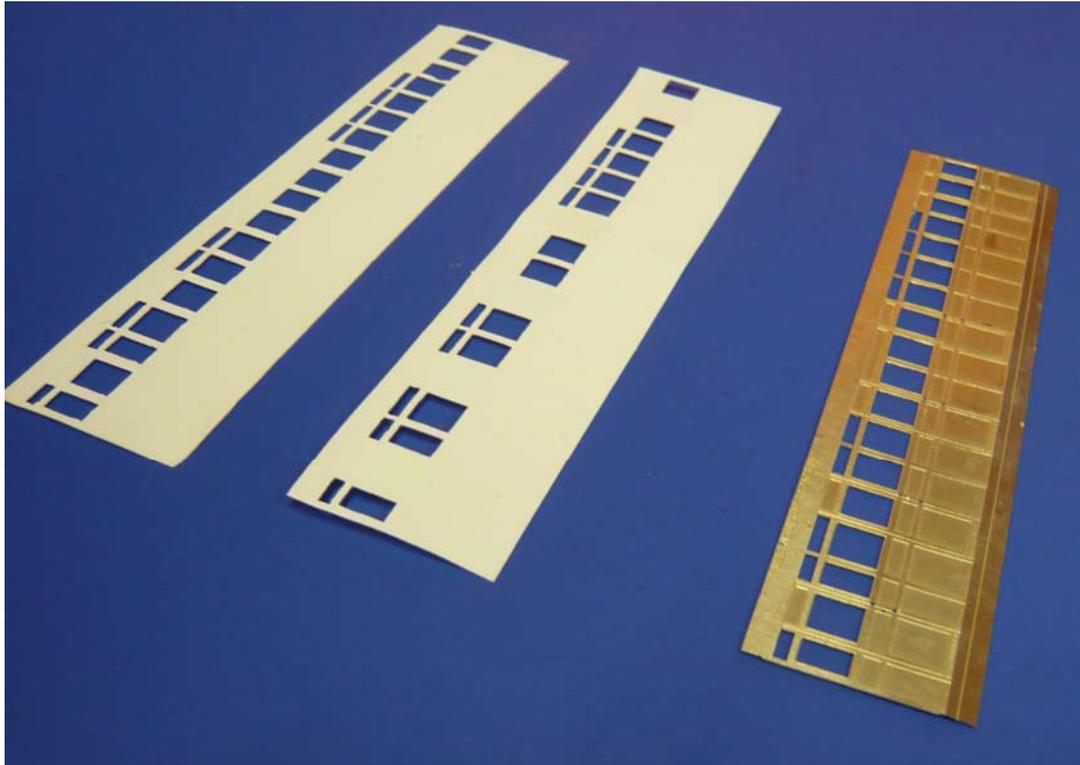


fig. 1

The instructions describe building the coach with full structural thickness, by adding Plasticard sheets on the inside. You can of course just solder the kit up and simply glaze behind, but the result will look a lilt skinny! The extra five hours estimated time is well worth it.

First, remove the coach sides from the fret (craft knife or sharp scissors) and sand off the remains of the sprues. The sides may be slightly curved after the etching process and may need very careful straightening. Now spray a sheet of Plasticard the same thickness as the etching with spray mount. Scotch Weld spray mount does a good job and this can be bought at most stationary shops.

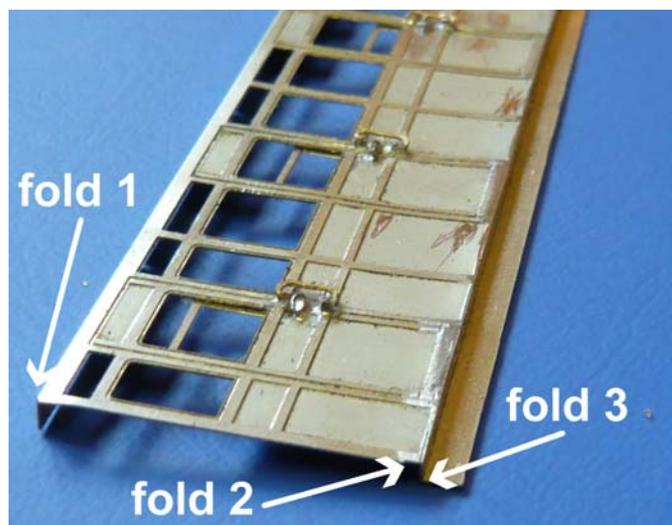
Now lay on the coach sides with the backs downwards onto the Plasticard. Carefully, cut out the window apertures in the plastic with a very sharp craft knife. Take care to keep the knife upright at all times. Peel off the plastic as soon as you have finished. Each side will require two plastic copies. You do not have to cut out door apertures on one of the sheets. Keep these sheets marked for the correct sides.



Remove the residual spray mount from the etching and plastic using white spirit. (Just pour a small amount into your wife's best casserole dish). Once the spray mount has dissolved, wash with warm water and detergent. Spray paint them with primer and then 'hardwood brown'.

Folding the coach sides

Make sure that the coach sides are flat, and then fold the roof return inwards. The order of folding is important. Fold 3 is difficult but it can be done by holding the coach side in the vice and gradually pushing down with a square bit of steel. It just needs a bit of patience.



Door furniture

Remove the door handles and grab rails from the fret. Don't lose them! Open up the etched holes on the coach side to 4.0mm. Tin the rear of the coach panel round the

holes (you might have to open them up a little). Do all of this while holding the coach side upright to prevent solder migration to the front side.

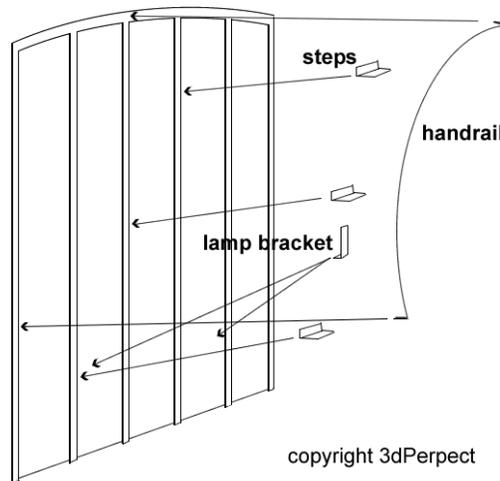
Insert a door handle with tweezers and hold in place with a finger. Brush on flux on the back and touch with your soldering iron while still holding the coach side upright. Repeat the same process for the grab handles, and gradually work your way down both coach sides. There are spares in case you lose one or two handles! Now fold the grab handles over a small off-cut of the fret surround. Using the Dremel sanding disc, sand the back flush.

Preparing the ends

Remove coach end from the fret. It is a lot easier to fit the steps, lamp brackets and grab rail while the ends are still unattached. Enlarge etched holes to 4.0mm and use the same technique as you did with the door furniture. With any luck, you will get quite good at this! The handrail is made from thin brass wire.

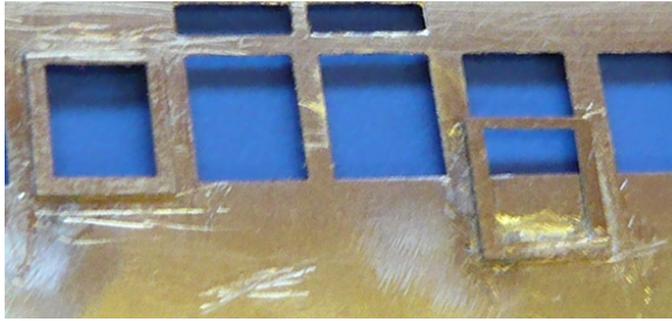
An important point is the provision of horizontal beading on the coach ends. The height of such beading can be seen to vary from coach to coach. With the exception of the observation cars, there were no horizontal beadings when these vehicles were first built. The beadings began to appear when a partial replacement of a panel took place, and the position depending upon how big the replacement was. We therefore do not include any horizontal beadings at all, but rather provide a small strip and you can add them where you wish.

If your coach is fitted with an acetylene generator, solder the rectangular base in place.

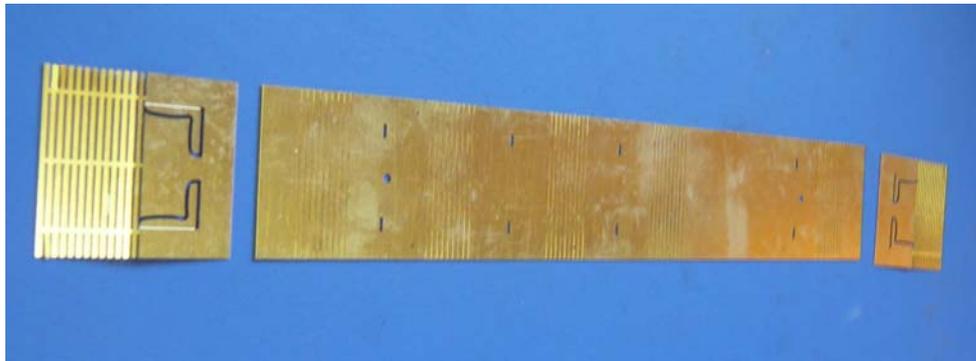


Assembly

Remove the door drop light frames from the fret, clean off sprues, and epoxy glue to the back of the coach sides. Use glue so not to disturb the door furniture. You may select to have the windows shut or open to varying degrees.



Remove the floor from the fret and separate the seat units at each end.

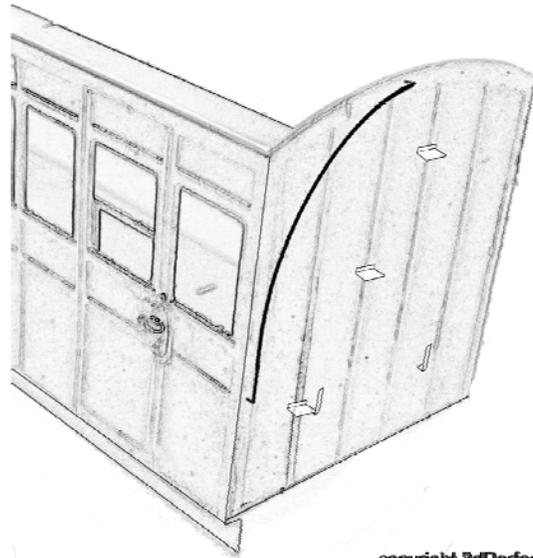


Centralise the floor against a coach side and solder together, Make sure they are at right angles. I like to do this work over an accurately machined piece of timber.



Now solder the ends, ensuring that they align to the top of the side accurately. Again make sure they are at right angles.

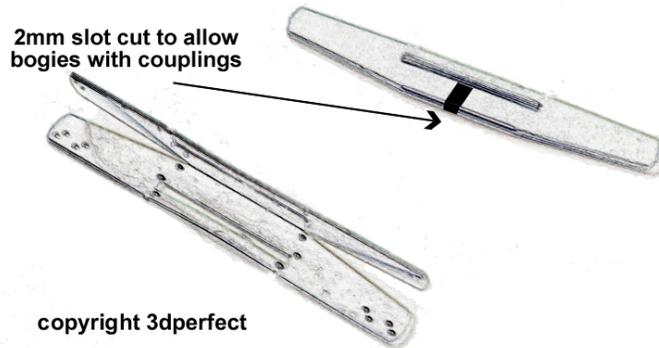
Solder on the second side.



copyright 3dPerfect

Buffer beams

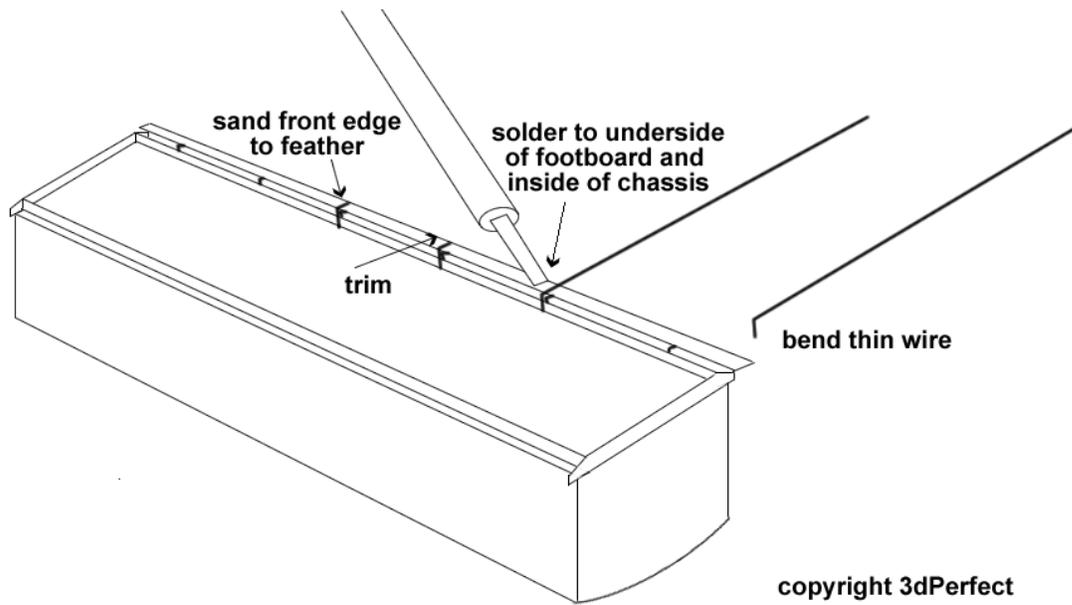
Remove buffer beams from fret. Prick the small etch hole with a point to raise rivet detail. Fold in half and solder them together. Then solder to the coach. You may elect to cut a slot in the buffer beam to be able to later attach your bogie with fitted coupling directly.



copyright 3dperfect

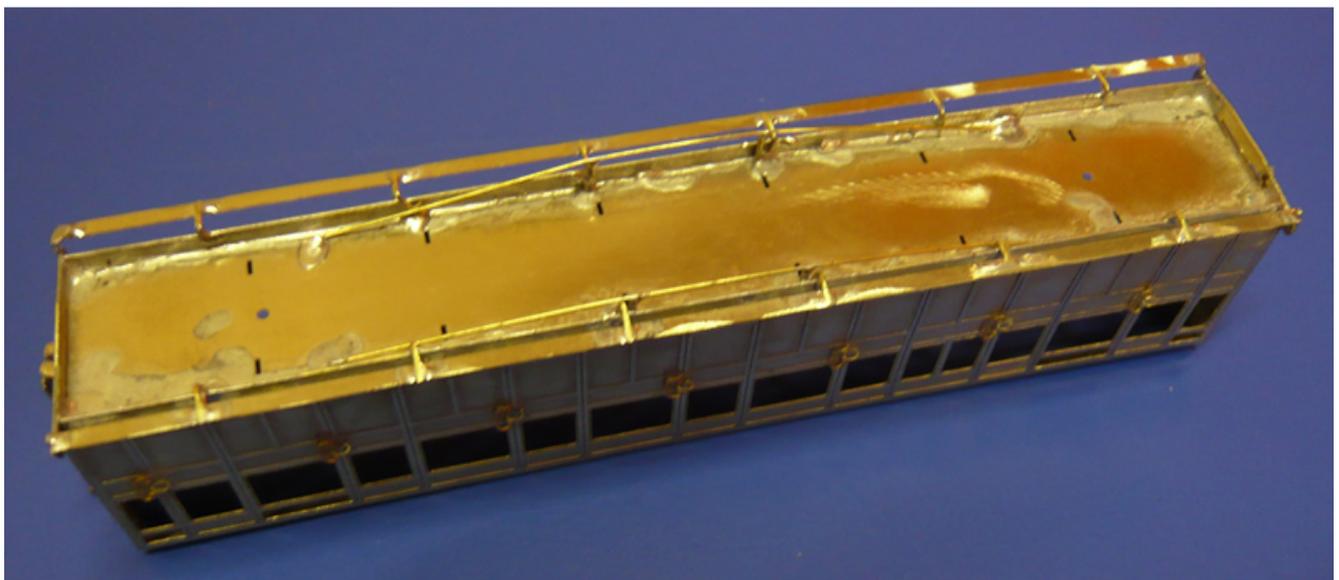
Footboards and trusses

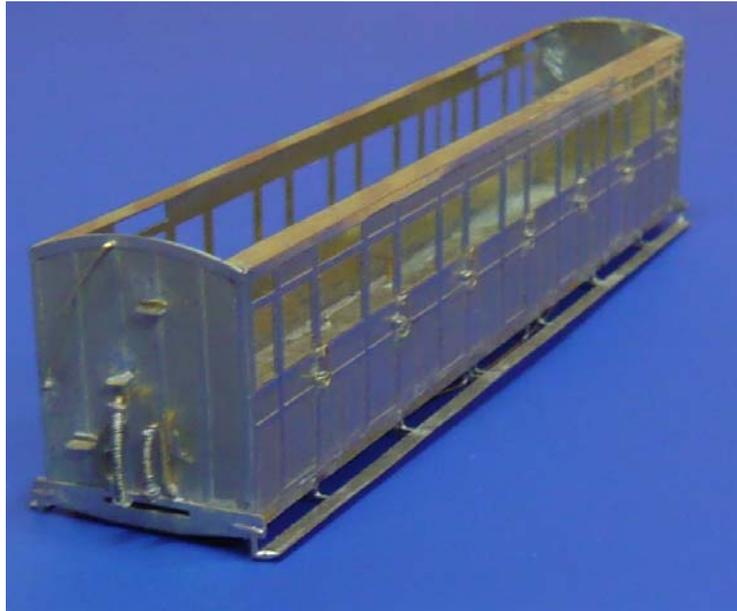
Very carefully remove the footboards from the fret, bend the support brackets to right angles. Lightly tin the coach chassis on the outside. Tin the back of the footboard brackets and solder to the chassis. Make sure the footboard is nice and straight. The assembly is extremely weak and requires reinforcing with thin wire from the rear. Once the wire reinforcers are soldered up, trim flush and sand the wire to a feather at the outside edge.



Cut four short pieces of the thicker wire and solder into the floor in their locating holes. These are the truss pillars. They should be sanded down to project 1mm below the footboard. Now solder the thinner wire to create the trusses as shown on figure 1 above. If required, you can also add the brake cylinders that are under the floor.

These are effectively invisible on the model, but some of you may still choose to include them.





Grind away a section each side of the roof return tab, to allow the seats to be inserted. You should leave 1mm of tab. The only thing left to do is to make the vacuum pipes and heating pipes if fitted. I prefer to make these in brass wire and wrap them with 3 amp fuse wire, soldering each end. I think the result is cleaner than a casting.

Congratulations! You have broken the back of the job. Now wash the coach in warm water and detergent, using a soft brush to make sure all 'bits' and flux are removed. Now glue on the door vents and the acetylene generator. Please note the castings contain square and round generators. Select the correct one!

Lightly spray the coach with etch primer, (this is available in car shops in spray cans). Once dry, spray the coach sides green.

Once dry, mask the green sides and spray the ends and running boards in dirty black. Never use pure matt black on a model. Always add at least some white, and perhaps some brown. The result is much more realistic. There has been some discussion about the colour of the ends, but it does seem they were in fact black. They would have become dirty very quickly. The exception would be the observation ends of coaches SR 6991 & 6992 (L&B 1 & 2), which were green.



Once dry, carefully scrape the paint off the grab rails and door handles.

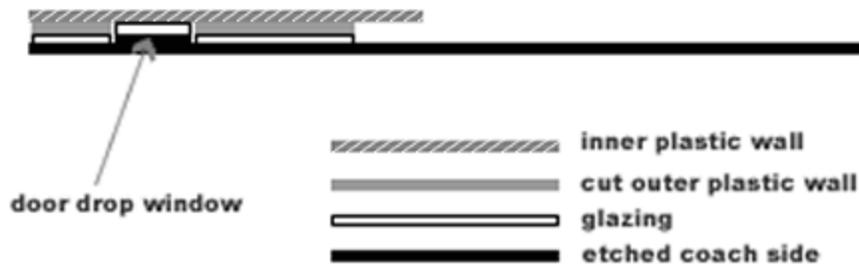
The interior

Add the first layer of glazing to fixed windows. The glazing should just cover the vertical edges of the window apertures. We use epoxy. Great care is needed to prevent glue migrating onto the visible portion of the glass.

Below, is a diagram of the lay-ups of the interior.

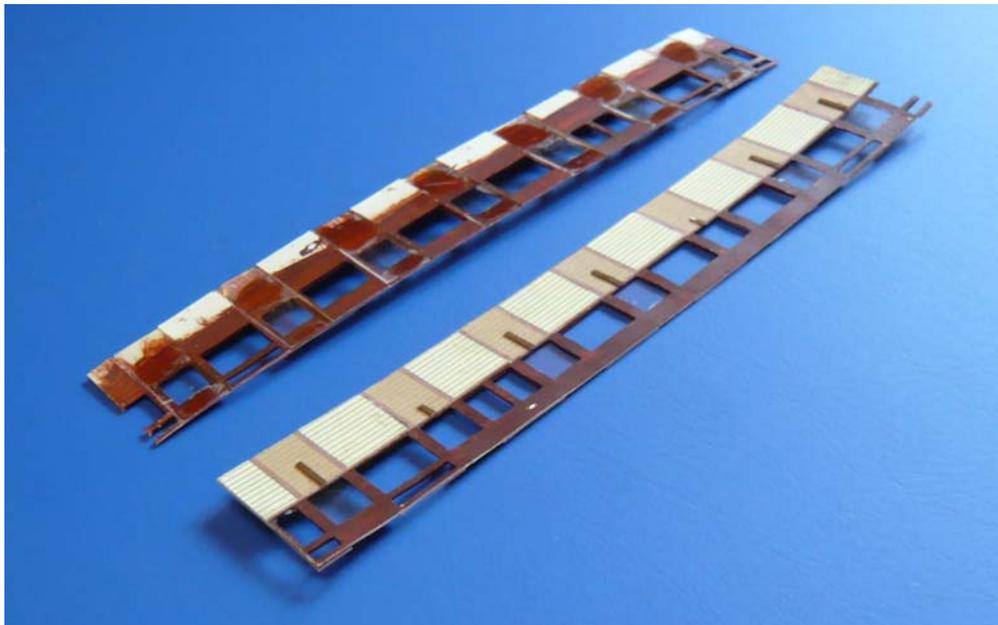
The subsequent layers are built up away from the coach. The paper siding is attached to the inner plastic sheet up to the window frames using PVA glue. On the other side, glaze the drop lights and infill between the transparent parts with parts cut from the second plastic sheet. Add the leather straps. Remember that the strap gets quite short if the window is down! I used PVA for this purpose. Great care is needed to ensure proper register.

Glue the panels into the coach with a sparing amount of epoxy. Again, taking great care is needed to ensure proper register.



You can download the printed coach interior at

http://www.009.cd2.com/coach_siding.doc



Do not forget to paint the side which glues to the coach in brown

Remove the seats from the fret. They will have to be trimmed to fit inside the extra coach side thickness. (Best use your wife's best kitchen scissors). Fold up the seats and solder. The glue tabs must be folded up under the seat.

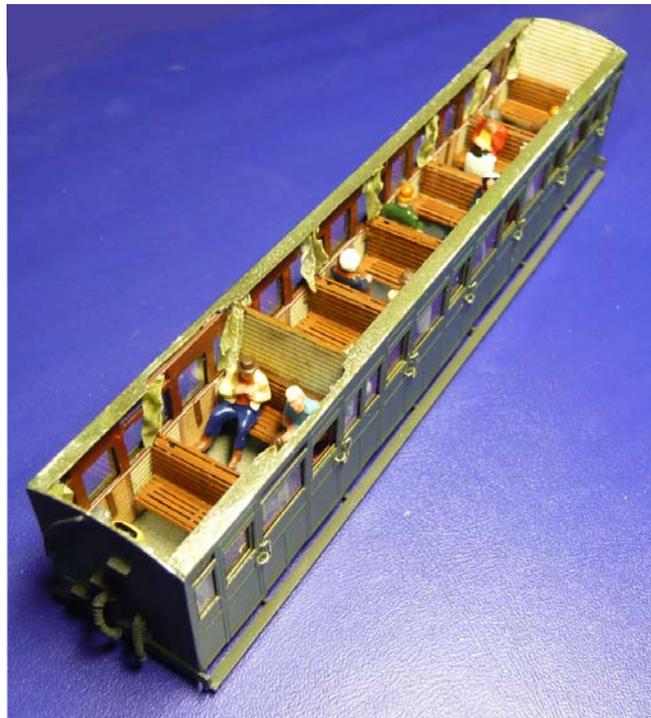


After washing and drying, prime and paint in hardwood brown.

The interior ends of the coaches are covered in matchboard paper.

Now, glue in the seats, remembering to work towards the ground-away area of the roof flange. The bulkhead is made from Plasticard with paper boarding glued on. The boarding is horizontal in L&B coaches. Some coaches are supplied with etched bulkheads. Treat these in the same way.

If the coach has curtains, now is the time to make them. We think they were cream/blue pattern. If you lightly spray textured toilet paper with med blue paint a sort of pattern is created. This now has to be cut up into curtain sizes and scrunched up to give the illusion of folds. Don't breathe heavily as you will lose the lot!



If you want passengers, now is the time to add them. You are now ready for the lid. Take a last look for any unwanted materials that may have entered the coach such as cat hairs.

Now comes the good bit. Drink one LONG can of beer. After all, you deserve it! This will become the roof so don't scrunch it up when you have finished! Of course, once

you have fitted the roof, the interior becomes virtually invisible, but you know it's there! You could of course go completely silly and make luggage racks which will never be seen in 4mm scale!

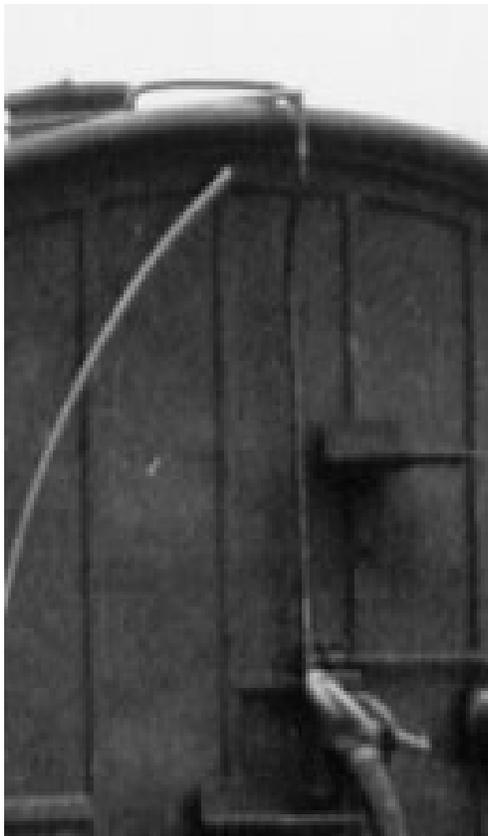
The roof can be cut, again with your wife's best scissors. Great care is needed, as the aluminium is very thin and easily damaged. Cut to allow the correct overhang on the sides and ends of the roof. The underside must be roughed up with sandpaper to allow the epoxy glue to adhere. Once the roof is firmly attached, give the top a good fine sanding to allow for glue and paint adhesion.

Attach two very thin strips of Plasticard under the roof overhang. This is best done by stroking the strip over PVA, removing excess and fixing in position under tension.

Now, using epoxy glue, attach the roof lamps and holders. Their position varies from coach to coach.

Using a very fine drill, make holes in the end overhangs just to the side of the lamps. Stretch 3 amp fuse wire between the holes. This will represent the acetylene pipe, running along the roof. Glue this in place with epoxy. Once dry, attach a short piece of wire to each end which is then bent around the roof overhang and attaches to the end. The junction box is made out of Plasticard and the flexible pipe can be made in slightly thicker wire and attached to the box.

You will also have to drill holes to take the small roof handrails which are made out of thin brass wire and glued into position.





This coach is not fitted with steam heating

Mask off the ends and sides of the coach and spray paint the roof light grey. I tend to then use weathering powder on the roof and ends then fix the result with artist fixative.

Bogies

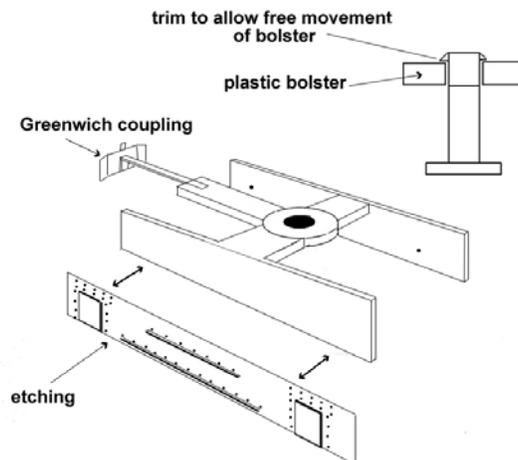
I have not had the good fortune to encounter one free running reliable 009 bogie. We therefore suggest DT16 N gauge bogies by GreenMax (available from Wellington Models UK)

These bogies are 2 mm shorter in wheelbase than they should be. This is necessary to allow the bogie to sit inside the frames and still negotiate 12" curves.

Remove the wheels from the bogies, and sand the plastic details away from the bogie sides. Take care not to sand too deeply otherwise you will encroach upon the needle holes of the wheels. Remove the coupling and attach the coupling of your choice so that they will protrude through the buffer beam slot. If you are using Greenwich couplings, they can be melted in using the soldering iron.

Attach the etched bogie sides and paint the bogie. The ends of the wheels should also be painted. Clean off any paint from the wheel treads. An alternative is to use Carrs Nickel silver metal blackener.

Remove the pivot.



With the thicker Plasticard provided, drill a hole to just clear the pivot. Cut to 8mm X 8mm to make the bolster. The pivot has two locating tags. These have to be trimmed a little so that when the pivot is put through the bogie and the new bolster, there is free turning movement. Once you are happy with this, touch the pivot with your soldering iron to weld the pivot to the bolster. Then clean it flat.

The bogies must be able to pivot in position to accommodate your track radii. Grind anything away which prevents this. Minimum radius design is 12" You can now fix the bogies into place by gluing the bolsters onto the underside of the floor. Make absolutely sure that they are central and level.

The coach is then ready for decals. We recommend those supplied by Peter Blackham (<http://www.blackhamtransfers.com/>)

Time for construction is 30 to 35 hours including the additional time of 4 hours to make the interior layers. The layering of the coach interior does give an appearance which has the correct 'feel' to it. Most etched coaches are just too thin with no structure behind the glass. I think the effect is really worth it.

Finally, get yourself another beer.

