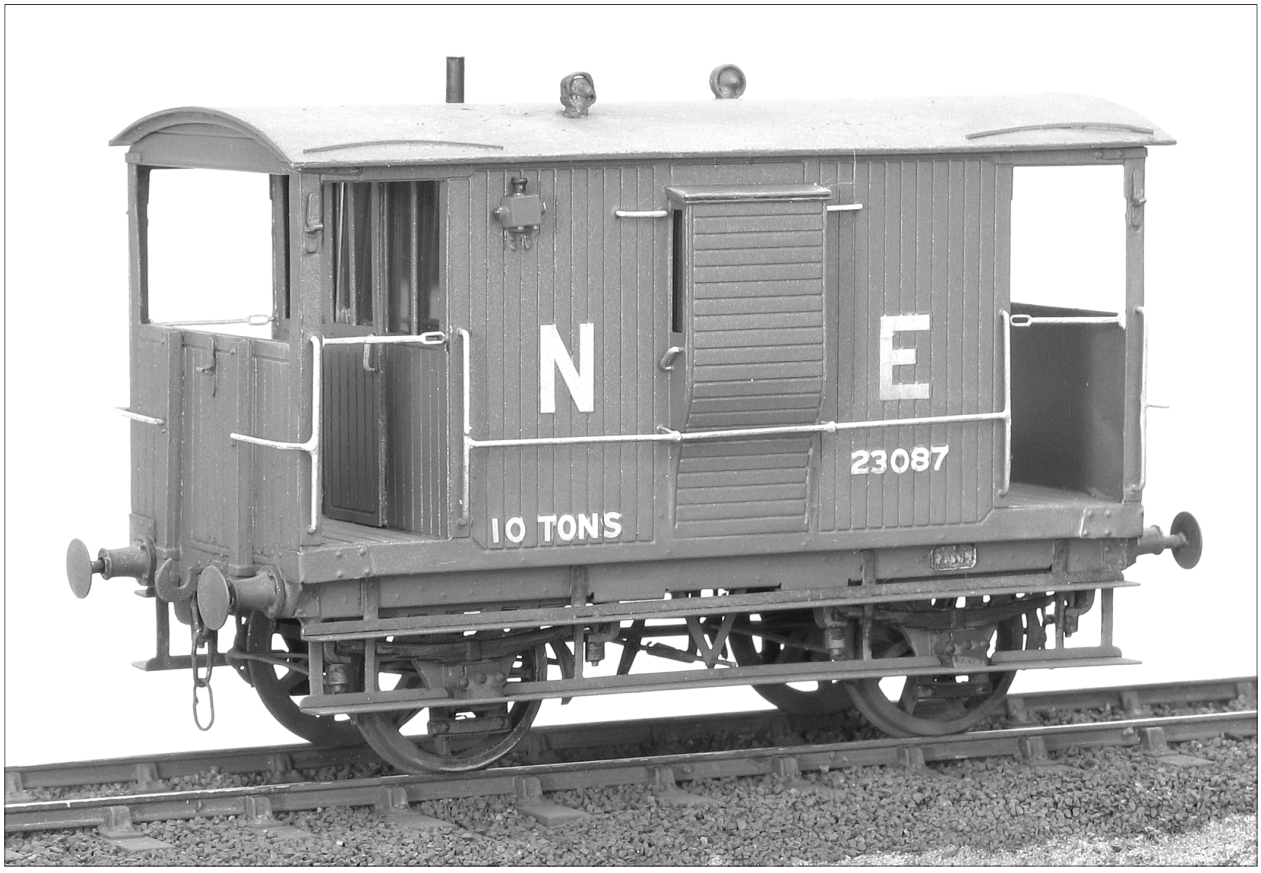
# CONNOISSEUR MODELS

## - 0 Gauge -

# North Eastern Railway
# 10 ton Brake Van Diagram V4




**PROTOTYPE.** This diagram was the last design of goods brake van built by the NER. Many of the constructional features found their way into the LNER standard design. After grouping the brakes could and often did work all over the LNER system. A number lasted into BR days.

**KIT.** This is a very nice kit to build. The side duckets are fabricated from etchings. A pre-formed brass roof is included, as is straight brass wire for the handrails.

**Wheels,** 3'7", 8 Spoke (7123) are required to complete, Available from Slater's, Temple Road, Matlock Bath, Derbyshire, DE4 3PG, Telephone 01629 583993.

**Connoisseur Models, 33 Grampian Road, Penfields, Stourbridge, DY8 4UE, Telephone 01384 371418**

Please read this section carefully, especially if this is your first etched brass kit. Many modellers fight shy of working in this medium, but the basic skills are relatively easy to acquire. Once you've learned how to form and solder brass, you'll find all kinds of modelling possibilities will open up for you.

Assembling an etched kit involves exactly the same skills that a scratchbuilder uses – the only difference is that the cutting out of the parts is already done for you. Some filing and trimming will, however, be necessary from time to time. Where this is the case, I have highlighted it in the instructions.

The main skill to master is soldering and I would recommend a Weller 40 Watt soldering iron. This has a 6mm diameter, removable copper bit. The bit is shaped like a screwdriver and has a bright coating of solder (tinned). This combination of iron and bit shape is ideal for running fillet joints and has a good reserve of heat, that is necessary for soldering small parts on to large components. Note the shape and condition of a new bit, as this won't last long and will need restoring back to this condition.

It is important to keep the bit clean and in good condition as you work. Get a soldering iron stand containing a damp sponge; old oxidized solder is wiped off on this before picking up fresh solder for each joint. If you haven't made a joint for some time you may find that a hard black crust has formed on the bit. Remove this with a brass wire brush (suede brush) and then feed some multicore solder onto each side of the bit to restore a bright surface (referred to as wetting or tinning the bit). After about 8 hours use you will find the bit is in poor condition, with holes and a ragged edge. File the bit back to its original shape using a hand bastard file and then polish the surfaces on emery cloth. Coat the bit with Fluxite Soldering Paste (traditionally used by plumbers) and this will prevent the bare copper oxidizing as the iron heats up. Then feed multicore solder onto the bit to form a generous coating and leave to bubble away for a couple of minutes before wiping excess off to give a bit almost as good as new.

A smaller Antex 25 Watt iron with a 3.2mm screwdriver bit is very useful for small assemblies and detail work such as handrails, but will have insufficient heat reserve for main assembly work. The Antex has a plated iron bit, after a little use with 145° solder a grey oxide appears on the bit that will prevent you from picking up the solder. Touch the bit to some multicore solder and it will flash over the bit, wetting it so that you can continue picking up 145° solder. I have found no problems with mixing the two solders in this way.

I use 145° solder for virtually all assembly work. I prefer it in wire form but it is also produced in stick form by Carrs. I find that its lower working temperature helps to give a quick clean joint. Limiting the build up of heat in components, which may cause distortion. I find that I can hold parts together with my finger ends and make a joint before heat reaches my fingers or other etched parts drop off.

I use 60/40, tin/lead, fluxed multicore electrical solder (melting point about 190°) mainly to keep the iron bits in good condition. As it gives a slightly stronger joint than 145° I sometimes use it for small spot joints on handrail wire, lamp brackets etc, but still use extra liquid flux.

For all brass and nickel silver work I use Carrs green label liquid flux. You will soon get the feel for how much to use but more problems are caused by too little flux than too much.

Before soldering components together, thoroughly clean both surfaces along the join line with a glass fibre burnishing brush. Using your tweezers or a knife blade etc, hold the parts together in the correct position and, with an old paintbrush, run some flux along the area to be joined. Still keeping the parts correctly aligned, pick up a small quantity of solder on the tip of your iron and carry it to the joint (unlike electrical soldering, when you feed solder into the joint). Hold the iron against the joint just long enough for the solder to flash between the parts. Don't let go of the parts until the solder has cooled – this takes from five to ten seconds. To run a fillet of solder along a joint, wait until the solder flashes between the parts and then pull the molten solder along

the joint with the iron tip. Don't load the iron tip with a lot of extra solder, but work the joint in 1" lengths, bringing in small quantities of solder. Brass is a very forgiving material and if you get something out of alignment, use heat from the iron to desolder the joint before starting again. For complicated assemblies, it is a good idea to only tack solder parts together. You can then make adjustments by desoldering until you are happy with the location of parts and then solder solid.

When you need to laminate two or more layers of brass together, align the parts and carefully clamp them together, either in the vice or by holding them with miniature crocodile clips. Run flux around the edges, and then go around with the soldering iron. Clean up thoroughly afterwards.

To fit small parts and overlays on to a larger assembly, such as strapping to a wagon side, when you need to prevent finely detailed areas such as planking becoming clogged up with solder. Tin the back of the small component first, then hold in place on the model and apply flux. Carefully wipe the tip of your iron on a sponge to remove any solder from it (dry iron), and then touch it against the parts to be joined. After a few seconds you'll see molten solder bubbling from the edges. Remove the iron, still holding the parts in place, and allow the joint to cool. An alternative is to use solder paint (I would recommend Carrs 188 solder paste). As the name suggests, this is a flux and solder in one. Simply apply a thin coat of solder paint to the back of the component instead of tinning. Still apply a small amount of liquid flux before you solder the part into place.

Any surplus solder should be removed using a craft knife, I find No 10 curved scalpel blades ideal, then burnish clean with a glass fibre brush. With practice, you'll learn how to use the minimum amount of solder to do the job. Flux is corrosive so, after each soldering session, give your model a good scrub with washing up liquid or Jif. After a day or two, any remaining flux residues will show as a green film, which should be washed away.

To cut parts from the fret, use a sharp Stanley knife on a piece of hardboard or a pointed scalpel blade on a block of softwood. Remove tags and burrs with a fine file.

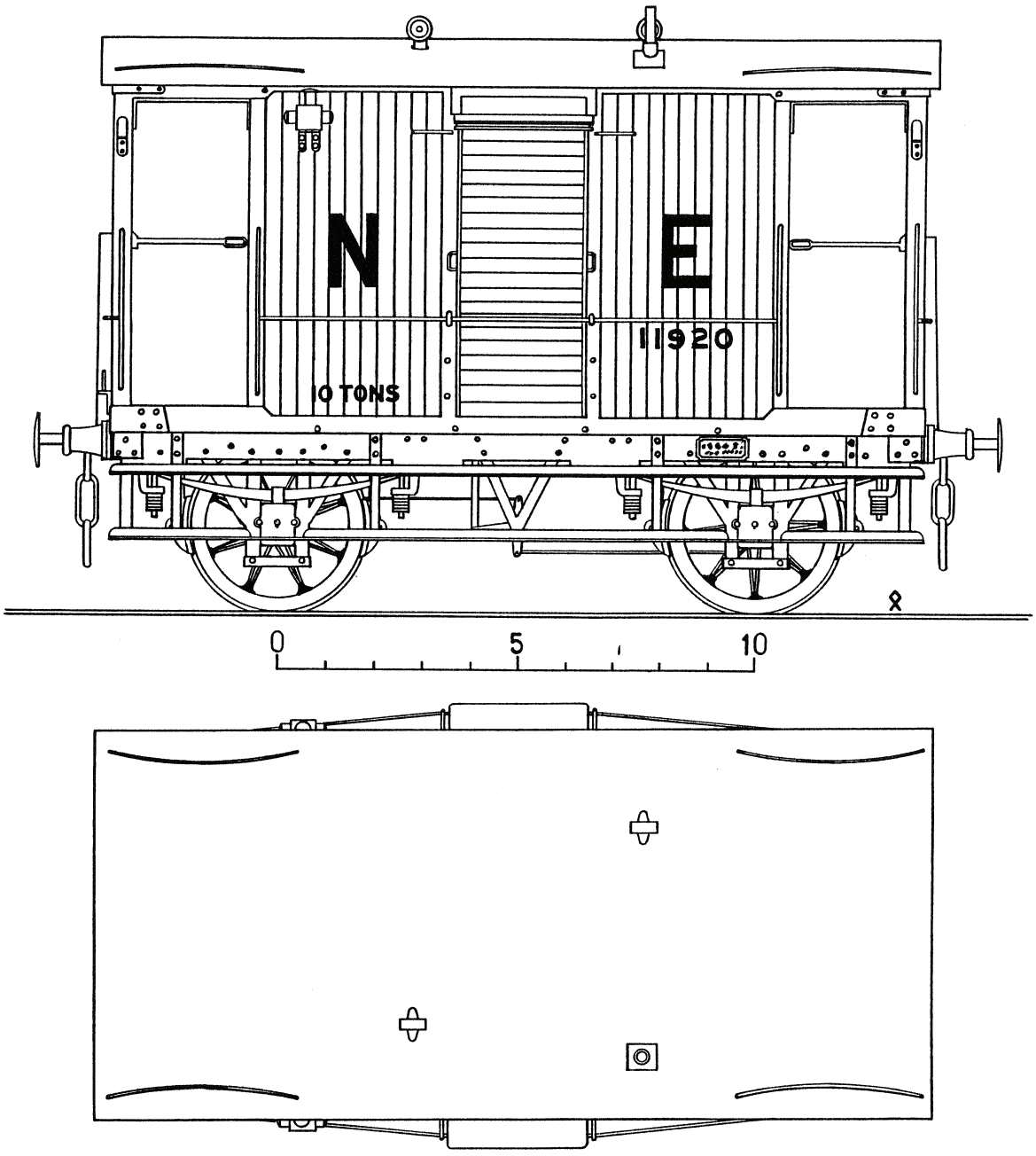
Three-dimensional parts are formed by folding. On an etched brass kit, the fold lines are normally half-etched on the inside of the fold. You'll be able to fold most parts using smooth-jawed pliers. For longer parts folding bars are desirable.

Other useful tools include a bench vice, a good pair of tweezers, a set of Swiss files (get a full set of cheap ones and then buy quality replacements for the three that you use the most), a pin vice with a selection of drills from 0.5mm to 2.1mm plus a few larger sizes that you use regularly (2.6mm for axle bearings etc), some square-nosed pliers and some very pointed-nosed ones, preferably with smooth jaws. Buy cheap tools first and duplicate the most used ones with quality.

Try to complete all high-temperature soldering before attaching any of the cast whitemetal parts. These can be attached with two-part epoxy resin such as Devcon or Araldite Rapid. Ensure the surfaces to be glued are clean and free of grease.

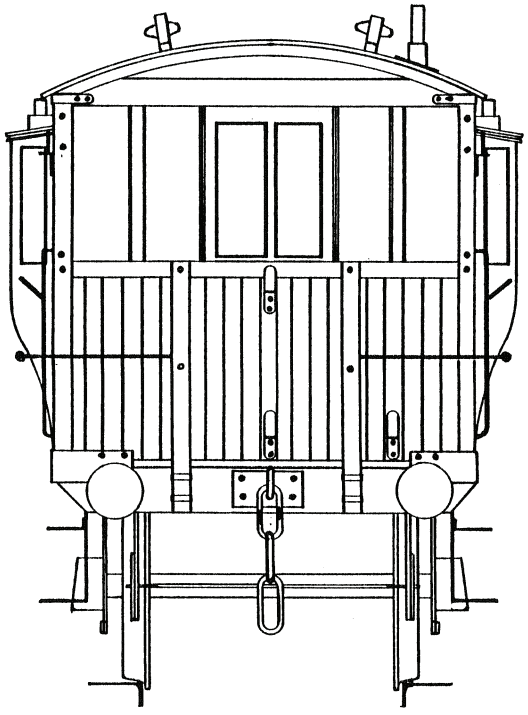
A better alternative is to solder your white metal castings using Carrs 70 degree low melt solder and Carrs red label white metal flux. The iron should be run at a much lower heat so that you do not melt the castings. I have a domestic light dimmer switch and plug socket fixed to a piece of wood, wired up with a lead and 3 amp mains plug to the input side of the dimmer switch and the output of the dimmer switch into the plug socket (remember to continue the earth). Plug your 40 Watt iron (25 Watt iron won't work) with a clean and freshly tinned bit into this and experiment with adjusting the switch until you find the range of temperature at which the solder melts, but a scrap casting does not. **Note** as the iron is running at a lower voltage it will take longer to heat up, so when you think the adjustment is correct do check a few minutes later on another scrap casting to see that it doesn't melt. Then scribe a mark on the switch knob to indicate this position.

When attaching white metal fittings to brass the surface of the brass must be tinned with 145° solder, to allow the solder to grip. The surface of the casting at the joint should be burnished bright. The casting can then be soldered into place with 70° solder and fillets of solder run into any gaps with no risk of melting the casting.



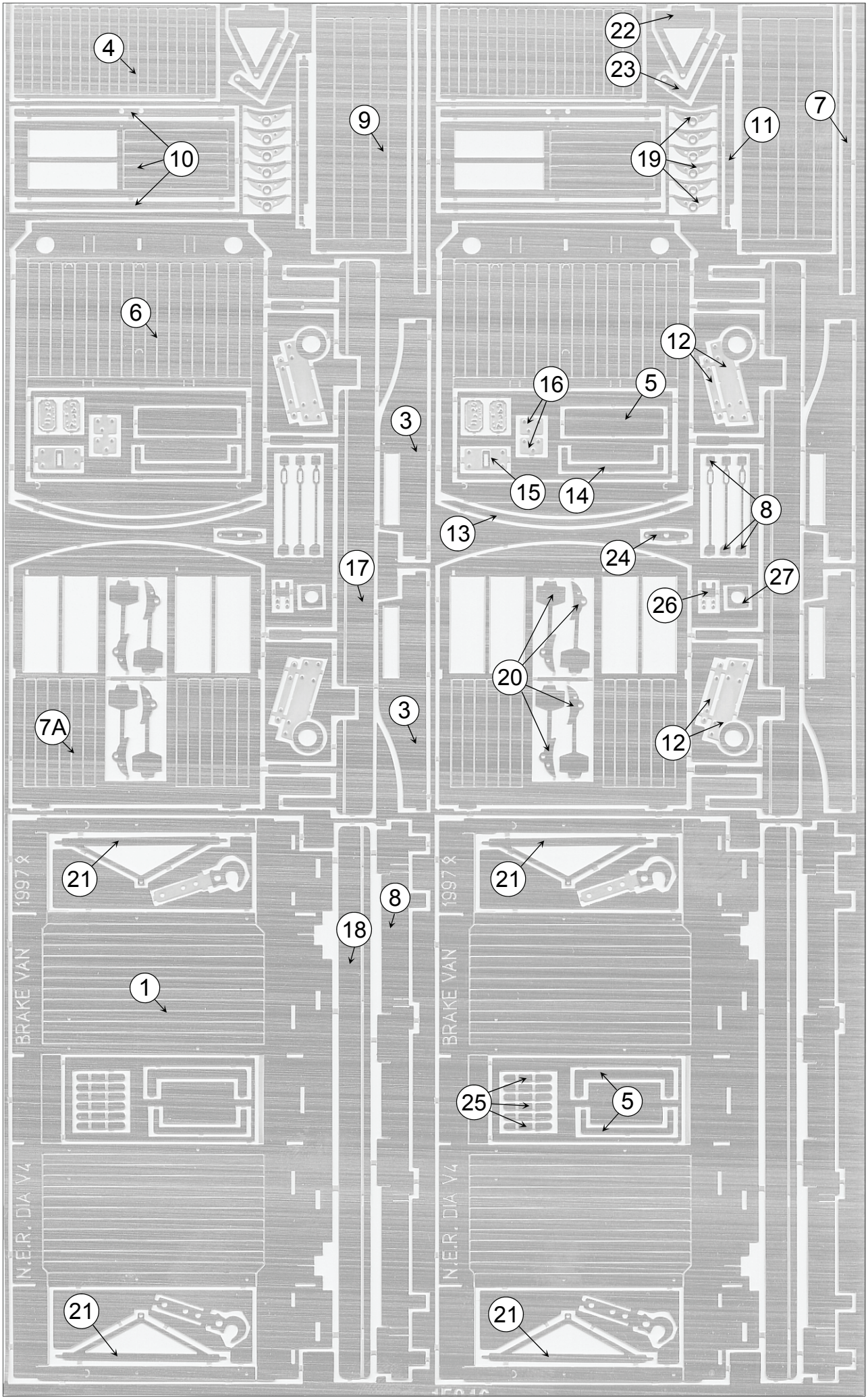

# North Eastern Railway 10 Ton Brake Van Diagram V4

Drawing shows a van with pre 1937 LNER lettering



**Livery,** Bodywork - Red Oxide. Buffer beams, solebars, footboards and running gear - Black. Roof - White lead (probably better as dirty grey). Veranda floor - Dirty wood (Humbrol 110). Lettering - White.

Transfers for lettering are available from the Historical Model Railway Society (HMRS), Voluntary sales officer, 8 Gilpin Green, Harpenden, Herts, AL5 5NR. Send SAE for list and order form. You will require sheet 12, LNER goods vehicle insignia.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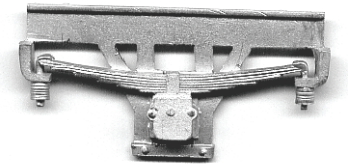
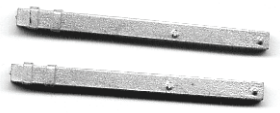
# NER 10 Ton Brake Van Dia V4 Parts Identification and check list

1 X guillotined brass roof approximately 58 X 123mm. 6 X 10" length 0.7mm brass wire (grab handles, handrails etc). 1 X 10" length 0.9mm brass wire. 1 X 6" length spring steel wire for buffer springing (may be tarnished). 1 X 8" tinned copper wire (soft wire for rainstrips).



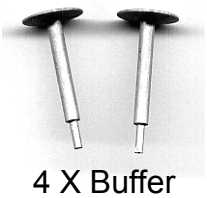
4 X Axle guards



4 X End Stanchions

4 X Buffers

4 X Buffer Retaining Collars



4 X Buffer Heads/Shanks

6 X Coupling links

2 X Roof Vents

2 X Side Lamps

1 X Chimney

4 X Split pins

When I made the centrifugal mould (one mould two spins) to produce a full set of castings for this kit I took a bakers dozen approach to the number of small part sub masters I placed in the mould. So you should find extra castings to guard against accidents and mishaps but the quantities listed are the minimum required.

**Suggested Assembly Order**

1. Remove the main sides (parts 1) from the etch and emboss the ten push out bolt heads on each side. Then fold the top and bottom strips through 90deg. Then fit safety bars (parts 2) into doorways, note etched marks to help locate these.

Fit the ducket sides (parts 3) locating their top and bottom tags into the slots on the top and bottom side strips. Form up the ducket fronts (parts 4) they should bend naturally at the plank lines so don't use to much force and work over a piece of tube to get the curves.

First tack solder the bottom of the ducket front into place on the van side at the etched overlap. Then work upwards, tack soldering at each side, making sure the ducket front is square to each side, when happy, solder solid with a good seam of solder. The ducket front should be slightly high in relation to the sides so that it can be dressed down with a file to match the sides, also file off any overhang at the sides.

Make up and fit the ducket tops from (parts 5). Make sure that you don't introduce a twist into the sides, when fitting the duckets.

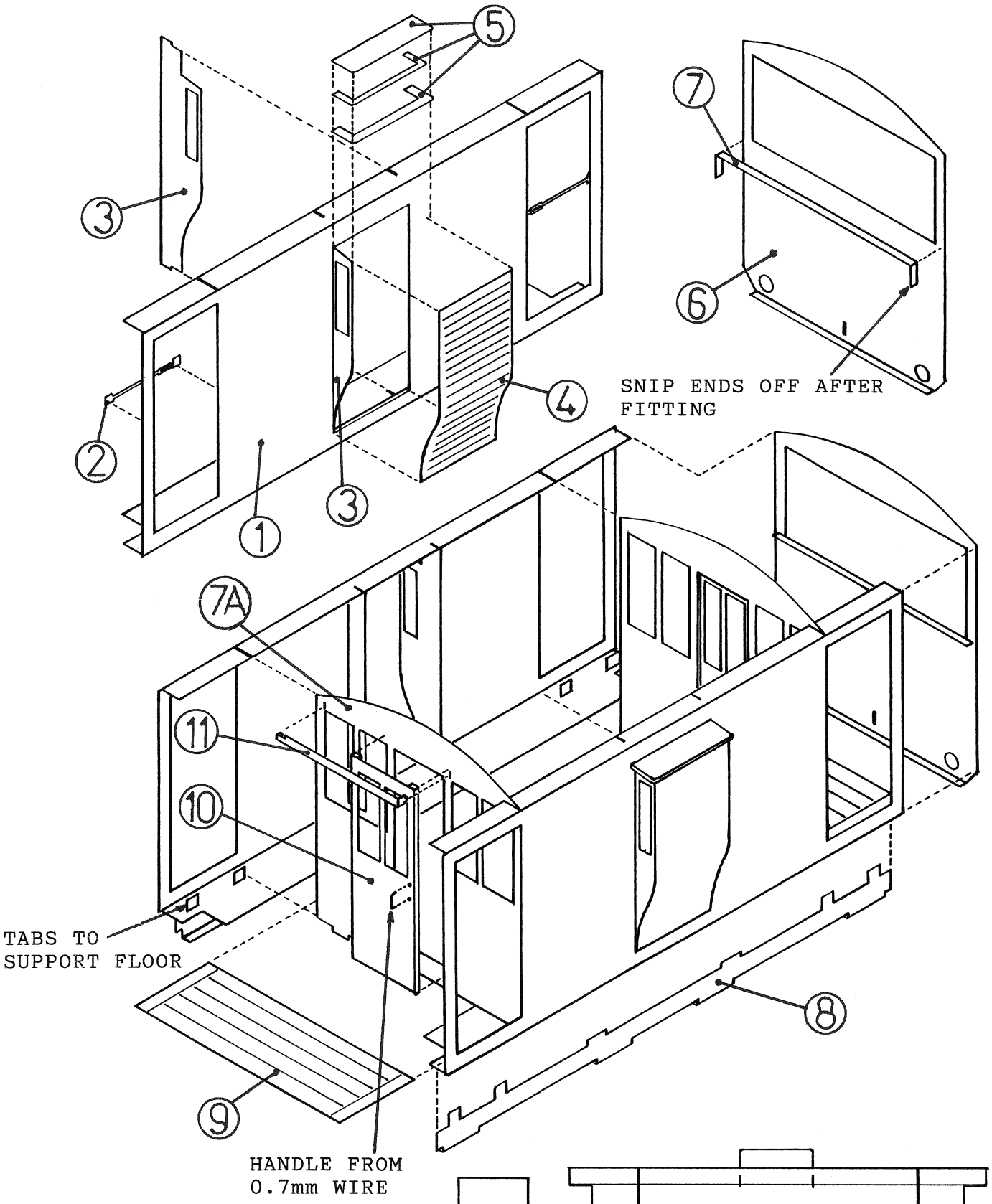
Take the van ends (parts 6) and Fold the bottom of the buffer beam through 90deg. Then fit the strip (parts 7) that provides a ledge for the end opening. The ends of this strip fold down through 90° to help you locate it squarley but snip them off after you have soldered the strip firnly in the centre.

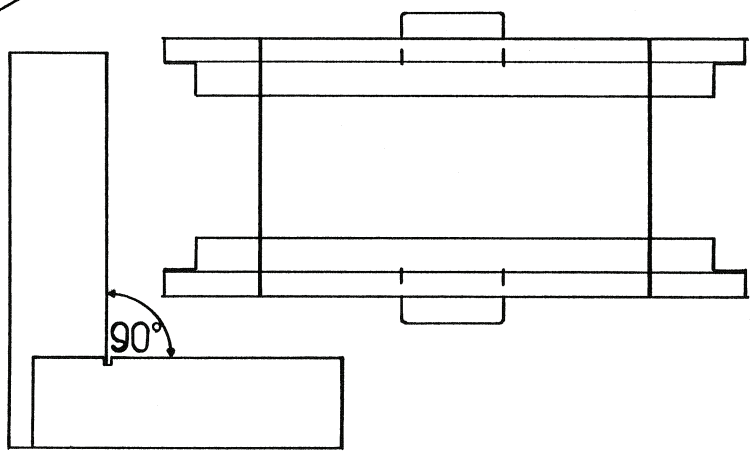
2. Tack solder the cabin ends (parts 7A) to one side using the slots in the top and bottom strip of the side to help with location. Then fit the second side to the other edges of the cabin ends. Check that the body is not twisted and make sure that the van ends will be square (use an engineers square to check this). Don't worry if to achieve this the cabin ends are not completely square across the body, nobody will notice this. When happy solder solid.

The bottom edge of the solebar (parts 8) are folded through 90° but it is at two levels to provide four slightly lower sections. I made the fold first and then embossed the push out rivet detail but you may have to do it the other way around depending on your chosen folding and rivet embossing method. Then fit the solebars locating the tabs into the bottom strips of the body (note that the end tabs project up by about 3mm and this is to support the veranda floor.

Then fit veranda floors (parts 9) but check that the body end is still square when doing this. As once the floors are soldered solid, you wont be able to twist the body square again. Guess who didn't do this when building the sample kit.

Make up and fit the sliding doors (parts 10) and top runners (parts 11). Then fit the van ends locating between the sides. Again keep checking as you do this that you will have a nice square, solid body.




Ensure that the ends of the body will be square before soldering the veranda floor into place. Use an engineers square to check this.

3. I now detail up the body. Fit the corner strapping (parts 12). Fit to the ends first locating the etched packing ring over the buffer hole and then bend around the sides.

Fit the curved end beading (parts 13) and the top of ducket side beading (parts 14) these may need to be trimmed to bring them just short of the top of the sides.

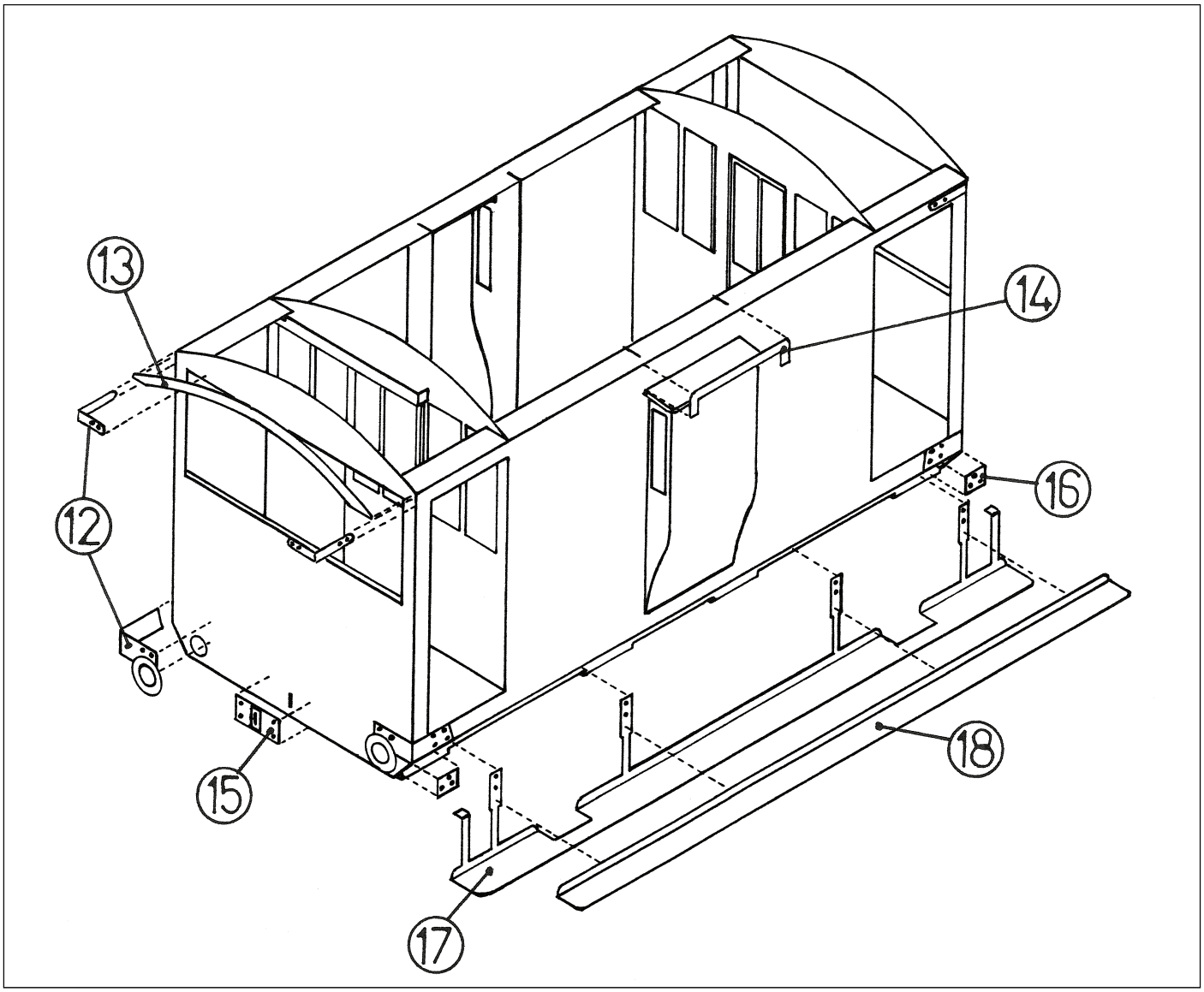
Fit coupling plate (part 15) locating over the coupling slot but ensure that the slot remains free of solder.

I now make up and fit the handrails. Drill out all holes 0.8mm. I find that a piece of card, 0.8-lmm thick, slipped behind the handrail, helps to space them all at the same distance from the body. This spacing card is particularly helpful with the butt joints, between vertical and horizontal handrails.

The horizontal side handrail is supported by two split pins either side of the ducket. I spot-soldered the horizontal to vertical handrail joints using 60/40 electrical solder as this gives a stronger joint than using 145° solder. Use plenty of flux and make sure the solder runs all around the joint.

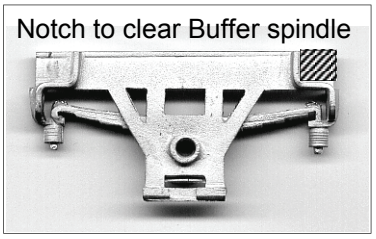
The horizontal van end handrails have one end terminated in a hole in the cast end stanchion and the other end runs around the corner of the van to join the side doorway vertical handrail. I would recommend that you first mark the position at which you want the end handrail to join the vertical side doorway handrail. Then use this mark to determine the position you want to drill holes in the side of the cast end stanchions

Then fit the cast end stanchions and then make and fit the end handrails.



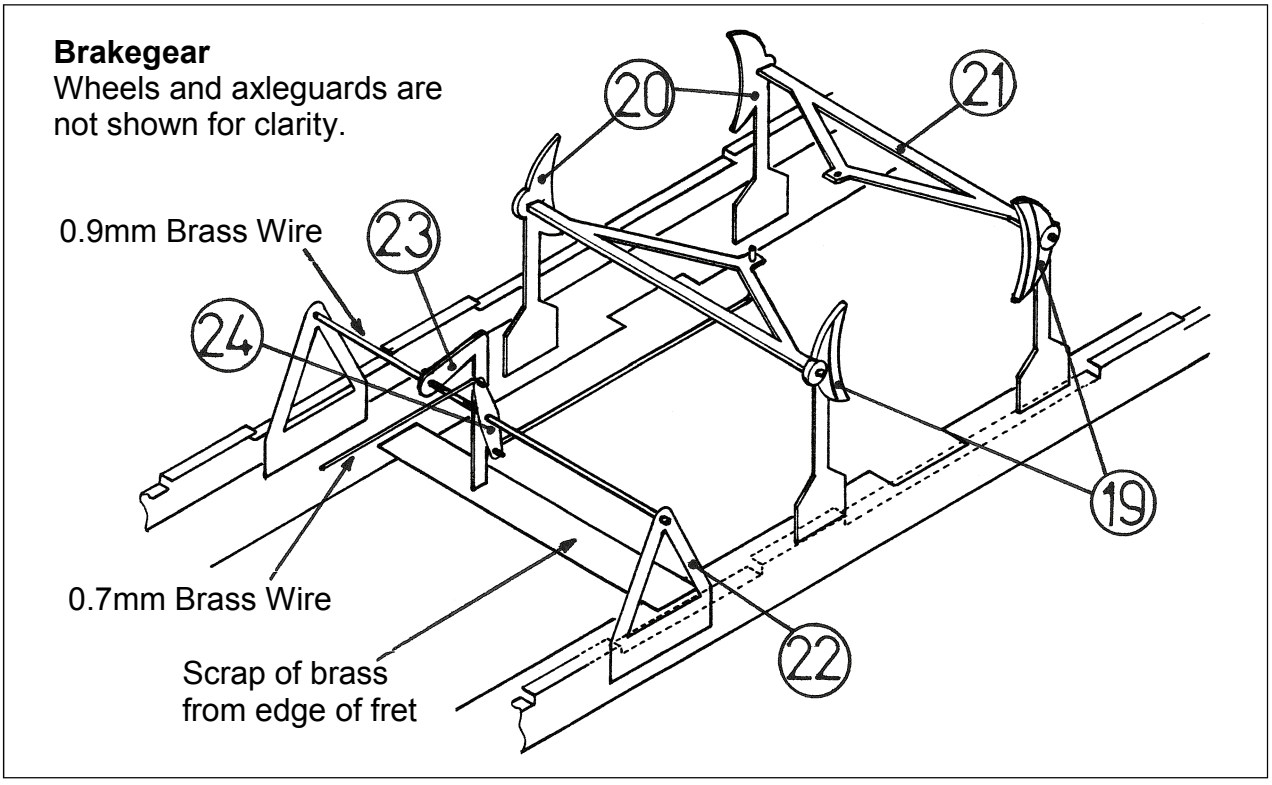

4. Fit corner reinforcing plates (parts 16) to solebars. Then fold up lower foot boards (parts 17) and fit to solebar (Note etched marks on solebars to help with positioning of footboard supports). Then fold up and fit the upper footboards (parts 18) locating onto the footboard supports with etched rebates.

5. Clean up axleguard castings and drill 2.6mm (very slightly oversize) holes to take the wheel bearings. Also file out a notch at the top of the axleguard to clear the back of the buffer spindle. Because the solebars on the prototype are close together, a standard Slater's axle is too long and will force the axle guards outwards if not shortened. This is done by filing down the axle ends by trial and error until the brass bearing is about 0.5mm from the wheel centre. Try a dummy run with a wheel set and axleguards and you will see what I mean. I did not try to restore the pin point onto the axle, as the wheels run all right without it.




When happy with the dummy run fit the axle bearing into the slightly oversize hole in the axle guard with a blob of Evostick, as this takes a little time to set you can make adjustments to the axle guards and then leave the wagon on a flat surface for the glue to set.

Slip wheel sets with the axle guards on between the solebars and tack solder each axle guard with low melt solder to the solebar (the cut-outs in the footboards will help with positioning). Check that the axles are parallel and the wheel centres are about 70mm apart (there are etched centre lines on the underside of the floor to help with lining up). Place the van onto a flat surface and adjust if necessary, by re-soldering each axle guard until the van sits without rocking, when happy solder solid.

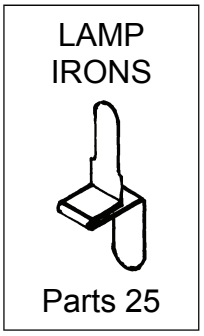



6. Solder brake blocks (parts 19) too brake hangers (parts 20) making up four L/H and four R/H. Then fit into slots to line up with the wheels. I find it useful to hold them with miniature crocodile clips.

Spring brake yokes (parts 21) between brake hangers and solder into place with one running just above and the other just below horizontal.

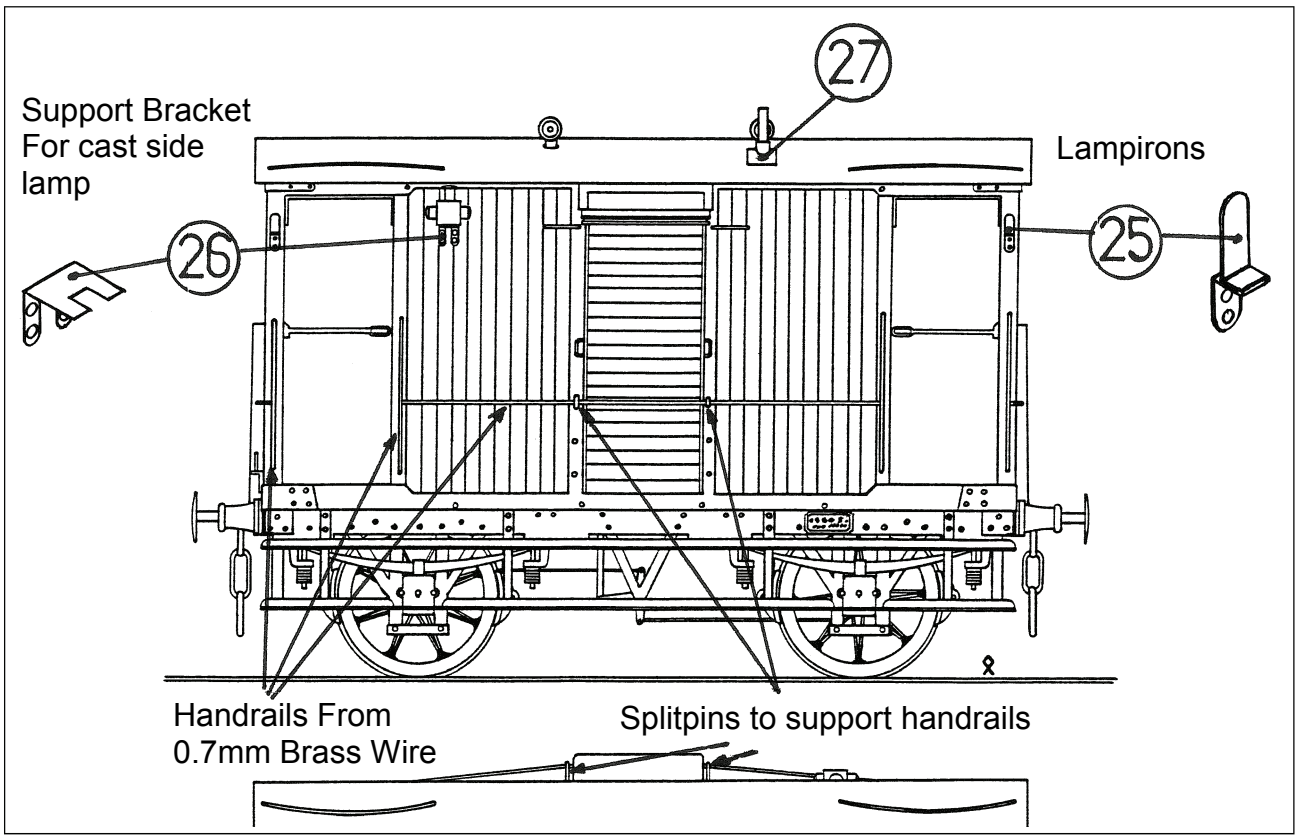
Fit Vee hangers (parts 22) and passing a length of 0.9mm brass wire through them fit brake linkage (parts 23 and 24). Link up to inboard brake yokes with 0.7mm brass wire.

7. Fit lamp irons (parts 25) noting the etched marks on the body to help with location. The central fold on the brackets is a reverse fold and folds back upon itself. I reinforce the folds by holding the bracket in a pair of long nosed pliers and flood the folds with flux. I then touch the tip of the soldering iron loaded with a small spot of 60/40 solder to the side of the bracket and the flux draws the solder into the folds. I then tin the backs of the bracket with 145 degree solder, hold them in position with a knife point and sweat them into place.

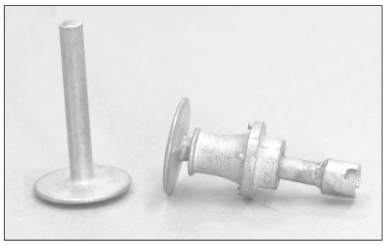



Fit the side lamps. Place a lamp casting onto the van side and position so that its top is just below what will be the underside of the roof and then mark the position of the bottom of the lamp onto the van side. Using these marks for positioning fit the etched support brackets (parts 26) and then fit the lamp castings.

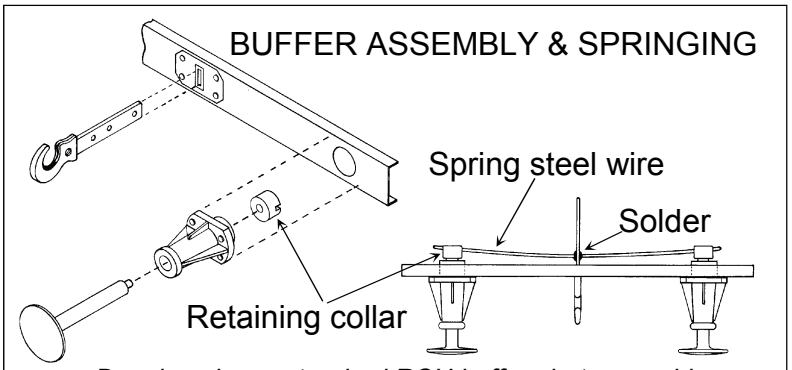
I have included some basic outline etched number plates and these can be fitted to the solebars.




Make up and fit the buffers. Drill out the buffer bodies with a 2.1mm drill to take the cast buffer head/shank. Hold the drill in a hand pin vice (chuck) and grip the buffer body between finger and thumb. Drill through the body from each end so that the hole breaks through in the middle. Use a little spot of spit on the end of the drill (some more technical people have a block of furniture polishers bees wax that they smear on the drill end) and this will help prevent the drill wandering in the white metal and breaking through the side of the buffer.



Then cut off flush the thin stepped end of the buffer head/shank. Pass the shank through buffer body and slip a retaining collar onto the end so that the shank stops at the slots in the retaining collar. If you gently crimp the retaining collar onto the shank with a pair of pliers this will hold the collar in position while you low melt solder it to the shank. (this arrangement is slightly different to what you may have come across in most of my kits. This is because the NER buffer bodies are very short and by fitting the collar over the main shank this reduces the amount the buffer head projects through).

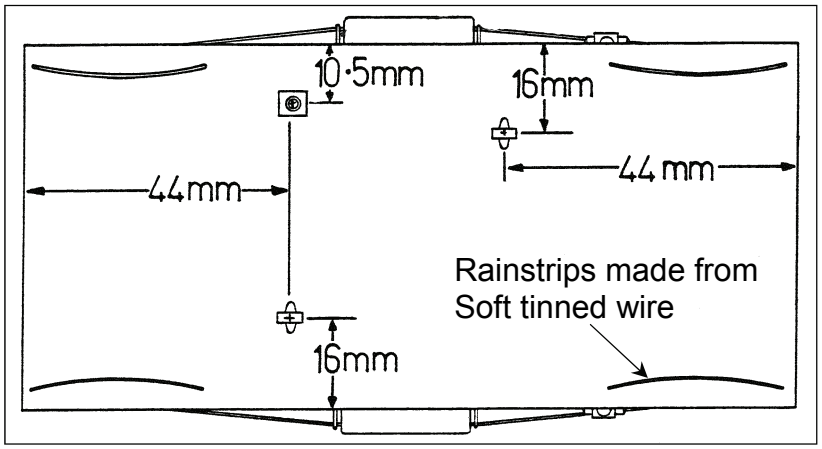



*Drawing shows standard RCH buffers but assembly and springing is similar for all buffers in my range*

Laminate together both halves of the coupling hook and make up the links. I close up the links by holding the curved end in the jaws of a pair of round-nosed pliers in one hand and squeeze the flat parts of the link parallel with long-nosed pliers (angled long-nosed pliers with serrated jaws are even better) held in the other hand. Once you have six even-shaped closed links you can open each one slightly with long-nosed pliers and thread three together. The last link passes through the hole in the coupling hook. I reinforce the joint of each link with a spot of 60/40 solder.

Pass the coupling hook through the slot and retain it with a length of spring wire. Polish the centre of this wire with emery cloth first so that you can solder it to the coupling hook shank once you are happy that the buffers spring freely.

8. Now for the roof. I have pre-rolled this in my rolling bars but you may have to work it a little with finger and thumb to get it to the exact profile. Mark out and drill holes for the chimney and ventilators.




Mark with a pencil the position and centre point of the rain strips. The rain strips are made from soft wire by gently pulling the wire through finger and thumb to curve it (offer the curved wire up to the main scale drawing to check radius) and then spot soldered to the roof at the centre point. Trim square the two ends of the wire with side cutters and then holding the wire down with a knifepoint, solder the two ends to the roof. Apply plenty of flux and solder again at the centre point with the iron tip on the inside of the curve. The solder should flash along the wire soldering it solid to the roof. The wire will tend to expand with the heat but by soldering on the inside it should still keep an even curve. Clean up with knife and fibre brush.

It is intended that after painting the roof is glued into place with Evostick, used as a contact adhesive (follow the instructions on the tube) but if you wish to have a removable roof, solder tabs made from waste etch to the underside of the roof so that they will clip inside the cabin body.

Fit etched plate (part 27) over chimney hole and fit cast chimney from underside. Then fit ventilator castings. That should then be all the metalwork construction completed.

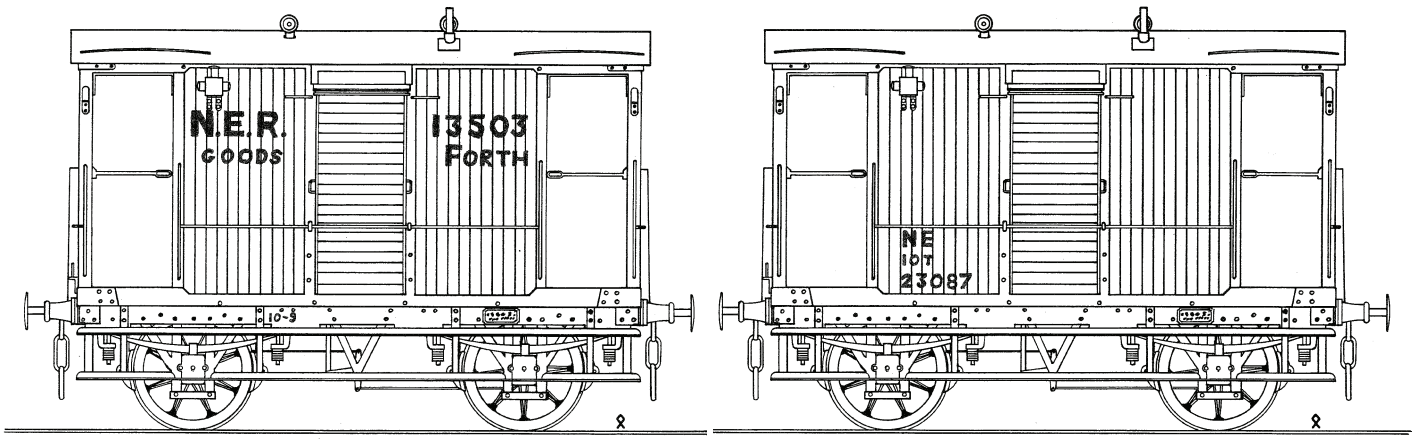
9. Painting is a vast subject that cannot be covered fully here. The important thing with a metal model is to get a good base coat of primer. Hopefully you have been cleaning up and washing the model at the end of each modelling session but it will still need thoroughly cleaning before painting. I give my models a good scrub with a stiff-bristled paint brush in a sink full of hot water, as hot as your hands can bear, and cheap washing up liquid (the expensive stuff that's kind to your hands has an oil in it that will stop the paint keying to the metal). If you know somebody who works in catering and can scrounge you some industrial-strength liquid this is better still. Then rinse the model a couple of times in clean warm water and place in a dust-free box to dry. I use car aerosol primer and Halfords grey primer is one of the best. For the best results you want to spray at room temperature (25°C) on a dry day, avoid cold, damp or humid days. I find it helps to warm the model to about 30°C (put it in the airing cupboard overnight) and I warm up the paint tin by putting it onto a radiator (about 40°C, but use your common sense as I don't want anybody blowing themselves up). I find it best to prime the model in two light coats, about 15 minutes apart and then leave for 48 hours to harden off (in the airing cupboard in a dust-free box).

I brush-paint my models with Humbrol enamel. For years I just stirred it up and painted straight from the tin but I was never completely happy with the results. Recently two things have transformed my painting. The first was a copy of Martyn Welch's book, The Art of Weathering, Wild Swan Publications, ISBN 1 874103 11 9. Martyn's basic techniques are very useful and almost foolproof. Martyn's method of mixing coarse talcum powder into the paint to give a textured roof is particularly effective.

The second thing is to mix the paint in the tin and then transfer it to a palette (a sheet of clean plasticard) with blobs of lighter and darker shades of paint surrounding the main colour. Then work the paint with the brush on the palette, slightly varying the tones of the paint. This seems to totally change the texture of the paint and the way it goes on and covers on the model.

Make a floor from the quality card that the etch was packed onto and glue inside the cabin with Evostick. I prefer a card floor as this helps to deaden the rattling empty box noise that you can get when the wagon is running on a layout. For glazing the end windows, you can use clear plasticard, but I prefer to cut flat sheets from the clear blister packs that many items are packaged in nowadays. This has a textured surface probably caused by the moulding process, which gives it a slightly opaque quality that I think represents dirty windows just right.

**NER LIVERY.** Indian red,body and solebars. Black, footboards and running gear. White/grey, roof. White, lettering.
**LNER Livery.** Pre 1937. Red Oxide, body. Black, solebars, footboards and running gear. White, roof, handrails and lettering. Lettering, 18" NE, 5" number, 4" 10 TONS. Post 1937, livery the same but lettering, 4" NE, 3" 10T, 4" number
**British Railways**. as post 1937 but body is grey, lettering on a Black patch, E in front of number. Known running numbers, 11920, 23087, 13503, 5856.



North Eastern Railway Lettering LNER Post 1937 Lettering

**References,** A pictorial record of LNER wagons, Peter Tatlow, ISBN 0-92888-92-7, page 156. North Eastern Record, volume 2, The North Eastern Railway Association, ISBN 0-902-835-19X, page 104. Get them from your local library !

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