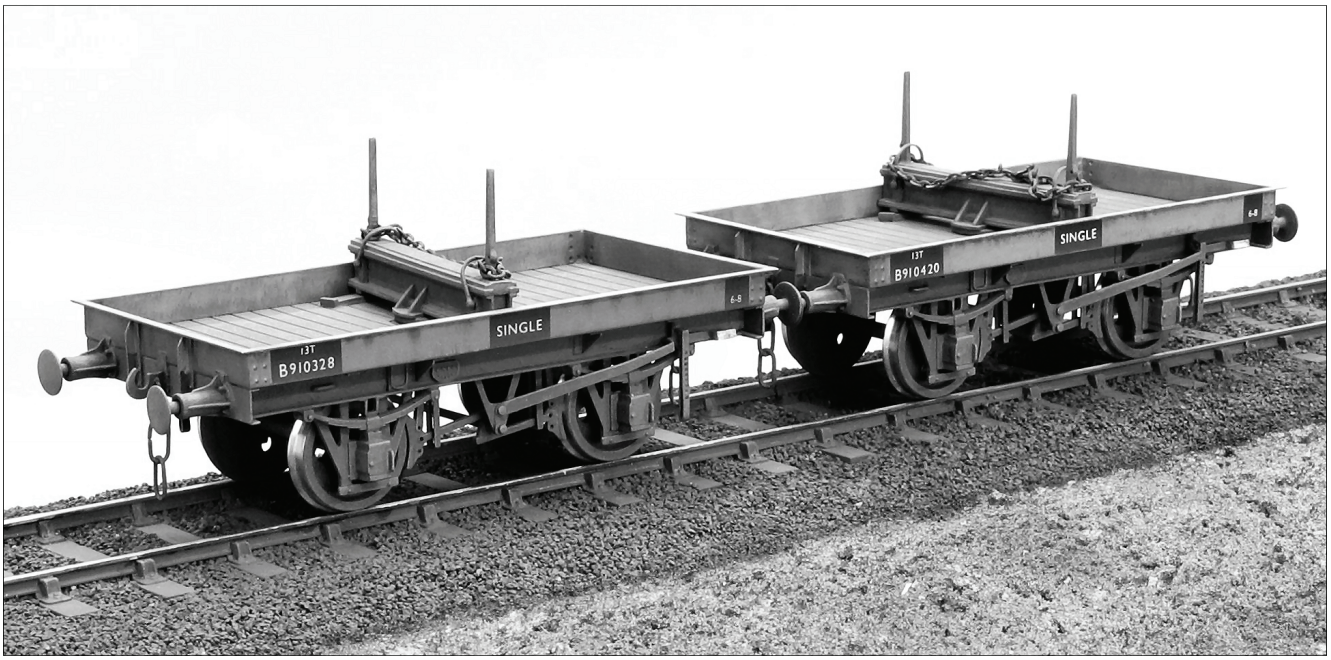
CONNOISSEUR MODELS

- 0 Gauge -

LNER & British Railways Single Bolster Wagons



PROTOTYPE. These were the last design of 13 ton single bolster wagon built by the LNER between 1945 and 1948. The design was continued by British Railways who built 8000 between 1949 and 1957 as a BR standard wagon. They continued in revenue earning service until 1972 and remained in engineers use and in internal user fleets at docks and steelworks etc into the 1980's.

KIT. This is a very straightforward wagon that is ideal for a newcomer to build as one of their first projects. As the kit contains components for two separate wagons all operations are going to be repeated at least twice. Providing an instant opportunity to experiment with different construction techniques and compare the results.

The bolsters are designed to swivel with working shackles so that the careful modeller can fabricate a load of timber, steel sections, pipes etc. Then secure this load to the bolsters using fine chain to provide a distinctive wagon for their layout.

Wheels are required to complete. 2 Packs, 3'1", 3 hole disc Wagon Wheels (Slater's Catalogue Number 7122). Available From Slater's Plastikard, Temple Rd, Matlock Bath, Matlock, 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.

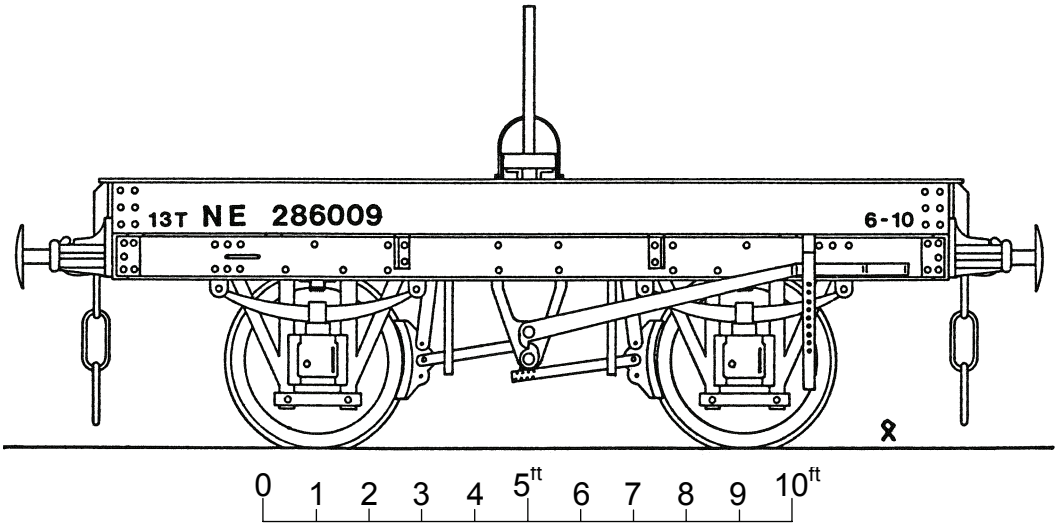
Other useful tools include a bench vice, a good pair of tweezers, a set of Swiss files (get a full set of cheap ones and then buy quality replacements for the three that you use the most), a pin vice with a selection of drills from 0.5mm to 2.1mm plus a few larger sizes that you use regularly (2.6mm 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 Araldite Rapid. Ensure the surfaces to be glued are clean and free of grease.

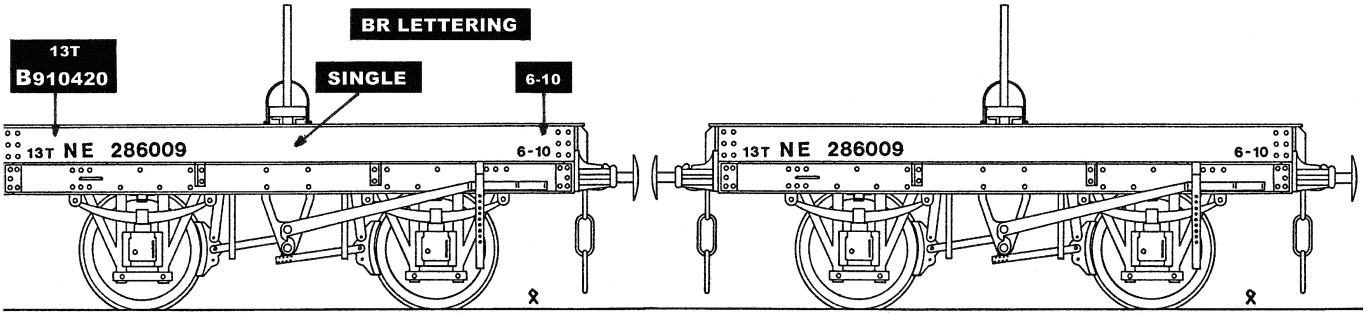
A better alternative is to solder your white metal castings using Carrs 70 degree low melt solder and Carrs red label white metal flux. The iron should be run at a much lower heat so that you do not melt the castings. I have a domestic light dimmer switch and plug socket fixed to a piece of wood, wired 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.

LNER & British Railways Single Bolster Wagons



As this is a photocopy the drawing may not have reproduced exactly to 7mm scale



LNER Livery. Bodywork - Grey (RailMatch paints LNER freight grey No 624). Solebars, running gear and buffers - black. Dirty wood floor planks. Steelwork on bolsters should be grey in theory but would probably be dirty and rusty in practice. White lettering and white end of brake lever.

BR livery. Similar to LNER but British Railways grey is slightly lighter (RailMatch paints BR early freight stock grey No 322) and the lettering was on black patches. The number is prefixed with E for an LNER built wagon and B for a BR built example.

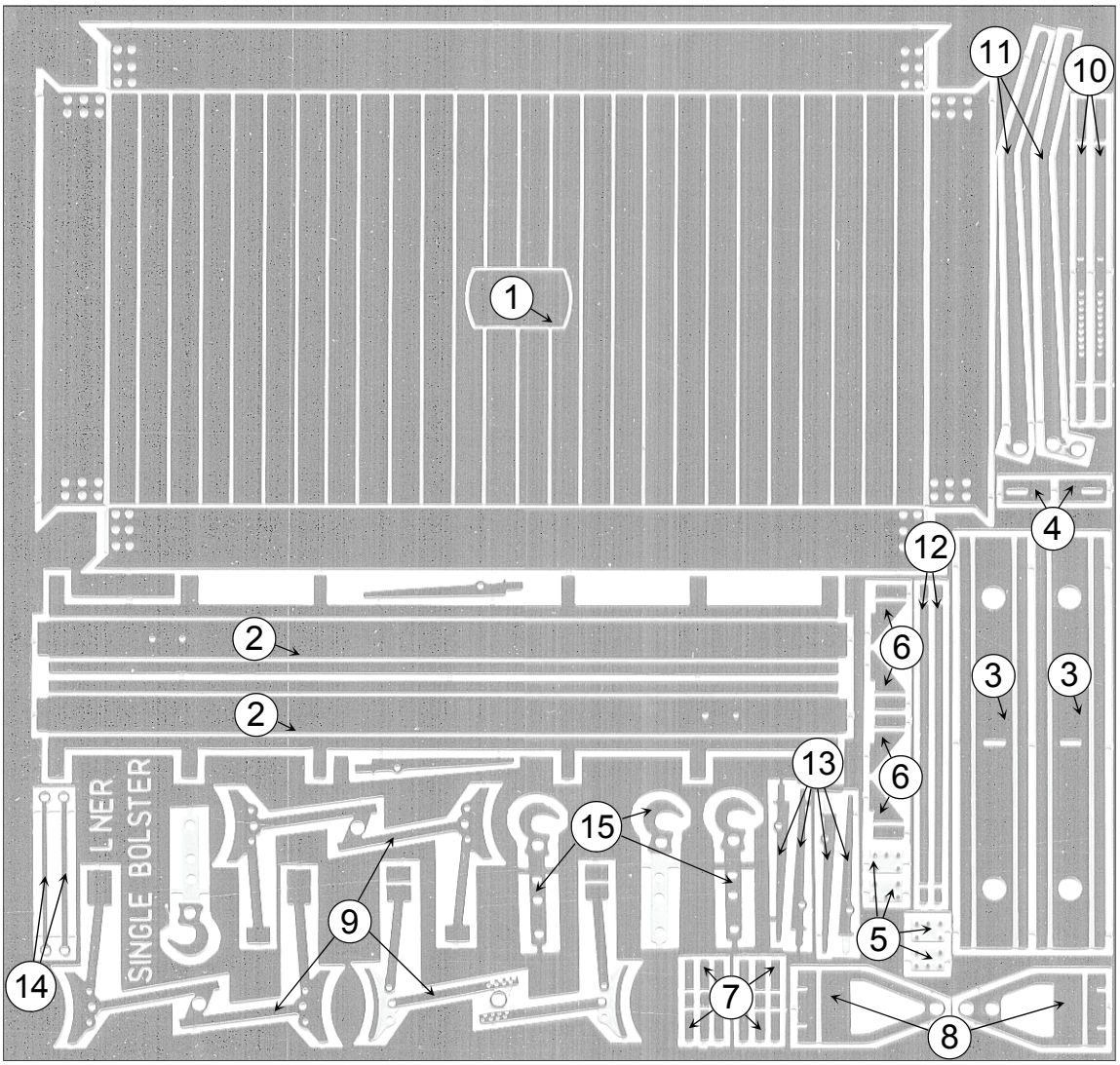
Transfers for LNER & BR lettering are available from the Historical Model Railway Society, Brian Webb (*volunteer sales officer),* 8 Gilpin Green, Harpenden, Herts AL5 5NR. Send SAE for list and order form or they are stocked by some specialist retailers. These are Pressfix type and you will require sheet 12 LNER goods vehicles or sheet 25 BR revenue wagon.

For BR lettering a refinement that I use to make life easier is to initially make up the lettering on a sheet of black waterslide transfer paper. Available from Fox Transfers, 138 Main Street, Markfield, Leicestershire, LE67 9UX, Tel 01530 242801. Brush paint the transfer paper with satin varnish first, then when dry and hard. Make up the lettering panel using the HMRS pressfix transfers in the same way as you would letter direct onto a wagon side. Soaking off the pressfix carrier paper to activate the lettering adhesive and leaving to dry. Then with a sharp scalpel cut out around the lettering to produce a rectangular black panel that can then be applied to the wagon side as a waterslide transfer.

Running Numbers LNER. 278081-278278 built 1945, 286009-286258 built 1946, 292345-293144 built 1947, 308680-310380 built 1948.

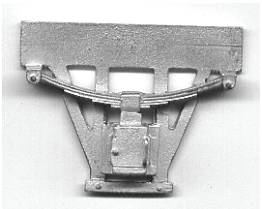
Running Numbers BR. B91000 built 1949-B917999 built 1957.

Prototype References. A Pictorial Record of LNER Wagons, Peter Tatlow, OPC, ISBN 0-92888-92-7, Page 87. An Illustrated History of BR Wagons, Volume One, OPC, ISBN 0-86093-203-6, Page 109. Get them from your local library via their book order system.



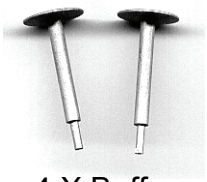
LNER & BR Bolster Wagon Parts Identification and check list

1 X 8” length 1.6mm brass rod (brake cross shafts and bolster pivot). 1 X 6” length 0.7mm brass wire (solebar horse hooking point). 1 X 6” length 0.9mm brass wire (bolster D shackle pivot bar). 2 X 6” length spring steel wire for buffer springing (may be tarnished).



4 X Axle guards

4 X Buffer Bodies



4 X Buffer Heads/Shanks

4 X Buffer Retaining Collars

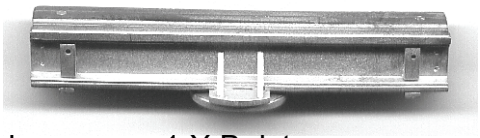
4 X End Stanchions

2 X Number plates and label clips

1 X Pivot Retaining Collar

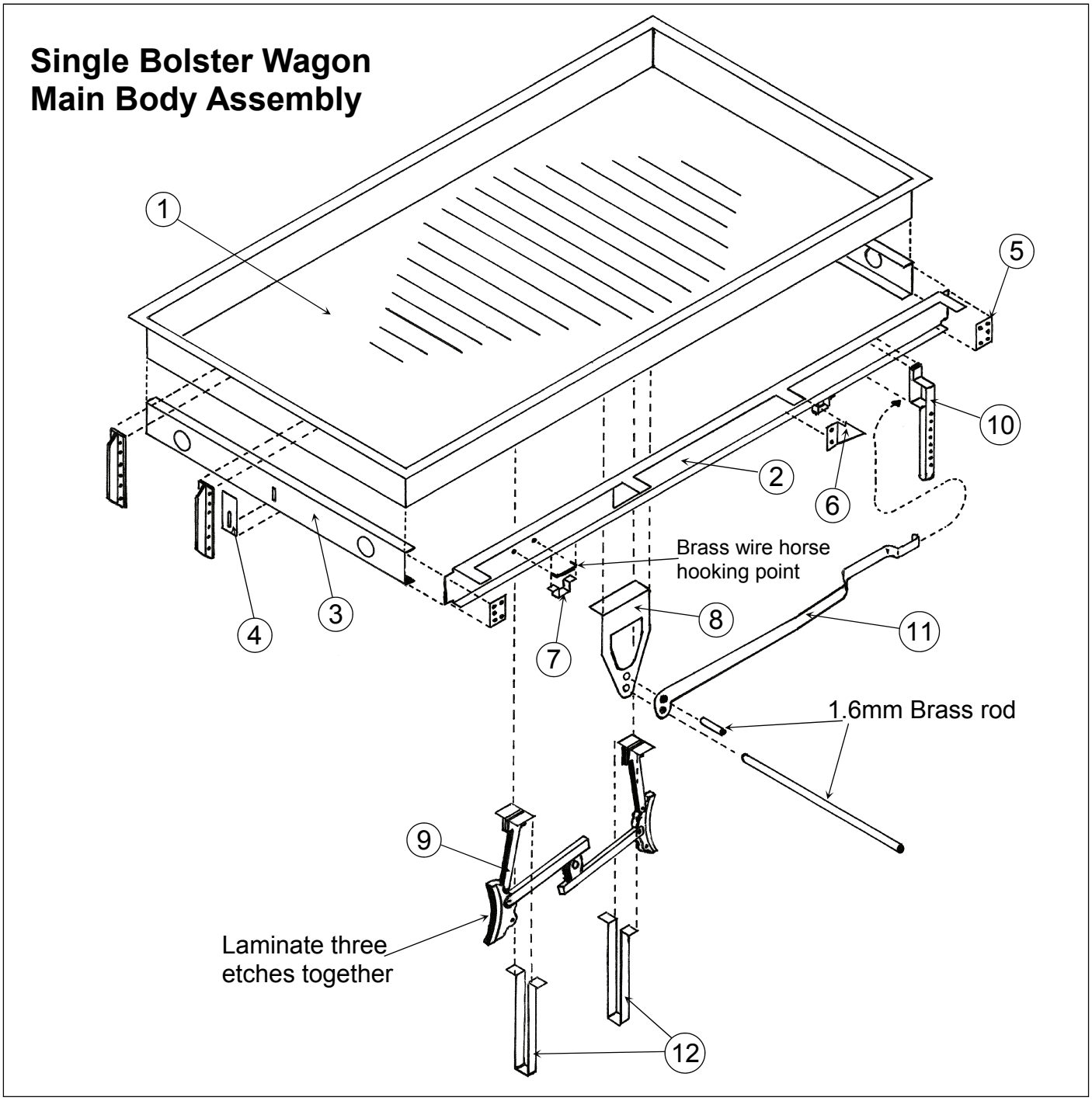
6 X Coupling links

2 X Bolster Swivel Tracks



1 X Bolster

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



Part Numbers and Suggested Assembly Order

Part 1, Body. Drill a 1.6mm hole for the bolster pivot in the centre of the floor. When I first developed this kit the published information stated that the bolsters were fixed. I interpreted this as the bolster being fixed to the floor and not swivelling. This was an erroneous supposition as the term fixed bolster referred to the fact that they could not be removed from the wagon but they did swivel in the conventional way hence the need for the hole literally positioned on the floors two centre lines.

Push out (emboss) the six bolt heads at the corners of each side and end. This is best achieved with a rivet-forming tool. Alternately, you can use a scriber, with the point rounded off slightly on an oilstone. Place the part face down onto a block of softwood and then firmly press down into the half etched hole. This may distort the part so gently correct this by bending back with finger and thumb pressure. I have shown all bolt heads on the main drawing, mostly on the solebars, so use this to help you to check that you have not missed any.

Fold top lip on all four sides first. A set of bending bars will be useful for these folds but if not you may find it helpful to push a triangular file up the folds to reduce the amount of pressure required (but do not widen the fold lines).

Then fold sides and then the ends. You will not be able to use bending bars for this last fold so place a block of wood onto the wagon floor to prevent any tendency for the first plank line to crease. Fill joints with solder and file flush to give sharp neat corners.

Parts 2, Solebars. Push out rivet detail and then fold top and bottom angle. Fit handle (hooking point for horse shunting) made from 0.7mm brass wire and file the wire tails flush with the solebar back.

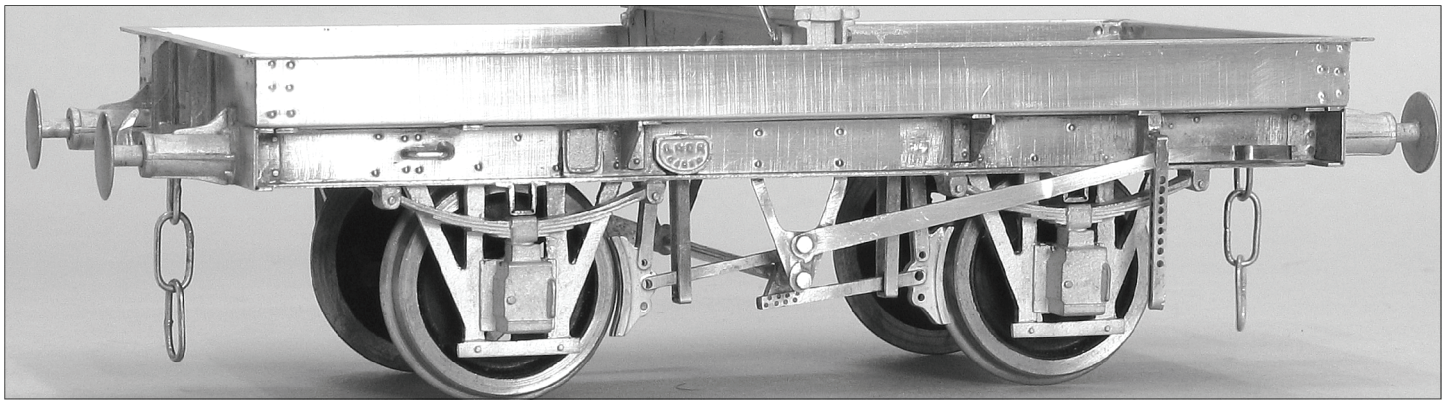
Parts 3, Buffer Beams. Fold up and solder to underside of floor flush with ends. Then fit solebars between buffer beams, (note etched marks on floor to position back of solebars).

Parts 4, Coupling Plates. Solder to buffer beams locating over the coupling slots.

Parts 5, Riveted Plates. Solder into web of solebar.

Parts 6, Bracing Plates. Push out rivet detail, fold up and solder into web of solebar.

Parts 7, Spring Stops. Fold up and solder into half etch rebates on underside of solebar.



Parts 8, Vee Hangers. Fold up and solder to underside of floor, (note etched marks to help position).

Parts 9, Brake Gear. Laminate three etches together. Solder to underside of floor. Fit brass rod through vee hangers to position brake gear centrally and use a wheel set in two axle guards to find the correct position just clear of wheels.

Cast Axle Guards. Fit axle guards and wheel sets. My casting technology is not very sophisticated and I never seem to be able to cast axle guards cleanly, so clean out any flash between the W irons with a sharp pointed scalpel blade. If necessary file a little off the top of the casting so that the spring ends will fit hard against the bottom of the solebar. Drill out to 2.6mm diameter the hole to take the brass axle bearing (go carefully as you don't want to drill through the front of the axle box). This hole is formed by a small rubber peg in the mould, which tends to flex as metal flows into the mould cavity and this is why the hole is not the full depth of the bearing. You will probably find that the hole is not quite square to the back of the axle guard. To correct this use a drill held in a hand pin vice (chuck) and by applying a gentle sideways pressure as you drill out the hole, you will be able to square it up. Then fit the axle bearing into the 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.

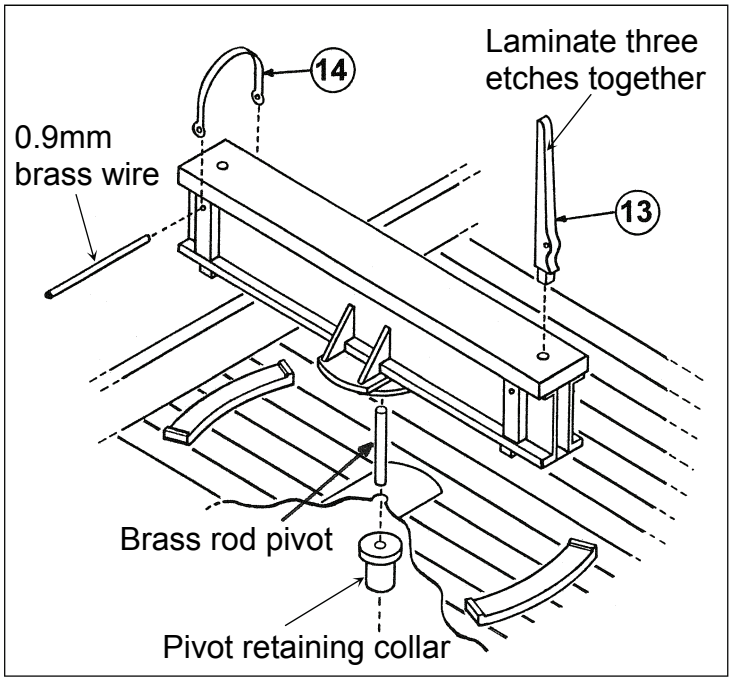
Slip wheel sets with axle guards on, between the solebars and tack solder each axle guard with low melt solder to the solebar. Check that the axles are parallel and the wheel centres are about 56mm apart. Place the wagon onto a flat surface and adjust if necessary, by re-soldering an axle guard until the wagon sits without rocking, when happy solder solid.

Parts 10. Brake Pin Guides. Fold up (note bottom 180° fold is a curved bend). Reinforce the folds with 60/40 solder.

Parts 11, Brake Levers. Fold up as shown on diagram. Use lever to find the correct position of pin guide on solebar. Fit pin guide to the edges of the solebar angle and not into the web. Then solder lever to brass rod and pin guide. Fit second piece of brass rod on clutch side.

Parts 12, Safety Loops. Fold up and solder to underside of floor.

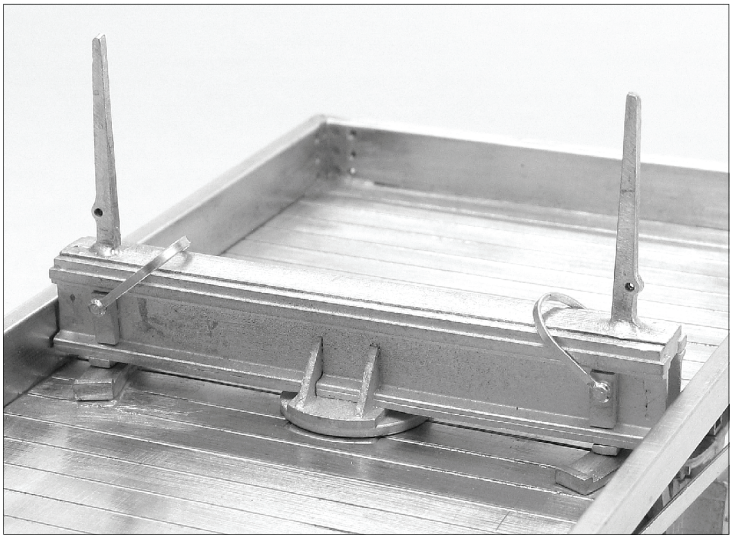
Cast Bolster. Fit the swivel guides to the centreline of the floor about 5.5mm from each wagon side. Drill the bottom of bolster 1.6mm diameter about 6mm deep and fit a 12mm length of brass rod to form the pivot pin. A retaining collar fits below the floor to retain the bolster. It may be a good idea to paint the wagon with the bolster removed and then glue this collar into place.



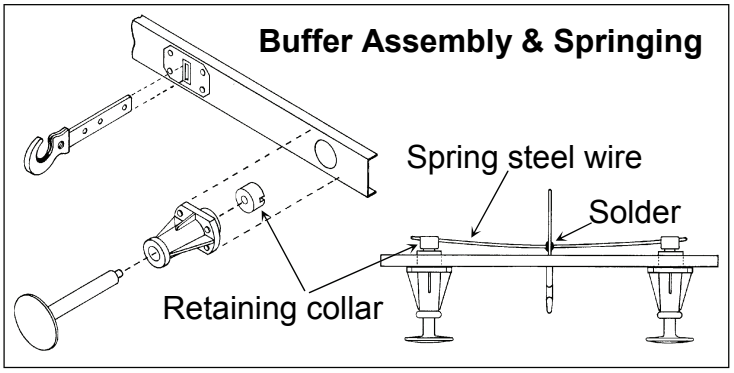
Parts13, Bolster Stanchions. Laminate three etches together and fit into holes in bolster (holes in casting will require drilling deeper).

Parts 14, D Shackles. Curve around a drill shank. Drill through bolster and fit a piece of brass wire to form a pivot. Decide according to your intended load if shackles need to be inboard or outboard of stanchions

Cast End Stanchions. Fit to the wagon ends locating them with the etched marks on the buffer beams.



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 fit shank through buffer body, snip off some of the narrow end of the shank to leave just over 1mm from the step and solder a retaining collar onto the shank. Open up holes in buffer beam slightly and fit buffers.



Parts 15, Coupling Hooks. 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.

The final job before painting is to fit the cast wagon label clip and number plate into the web of the solebars. As these are not a structural part I would recommend fixing them with a spot of glue.

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 (as hot as your hands can bear) water 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 (avoid cold, damp or humid) day. 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 creating worn and weathered planking for wagon floors by blending brown and grey paints to form a base. Then dry brushing darker shades to represent the wood grain is particularly effective on this type of wagon. 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.

Can You Help Me?

If you have enjoyed building this kit and have been satisfied with the quality, I would be most grateful if you could recommend it to your friends and fellow modellers. Although my kits are not perfect, I try to put a lot of time and effort into producing them. If I can get extra sales of a kit through customer's personal recommendation and I find that word of mouth is the best form of advertising. This will help me to put extra time and money into developing the next kit. Hopefully this will give me more satisfied customer to recommend my kits to their friends.

If you are not happy with this kit then please tell me. Hopefully I will then be able to help and sort out any problem.

Best Regards And Happy Modelling

Jim McGeown