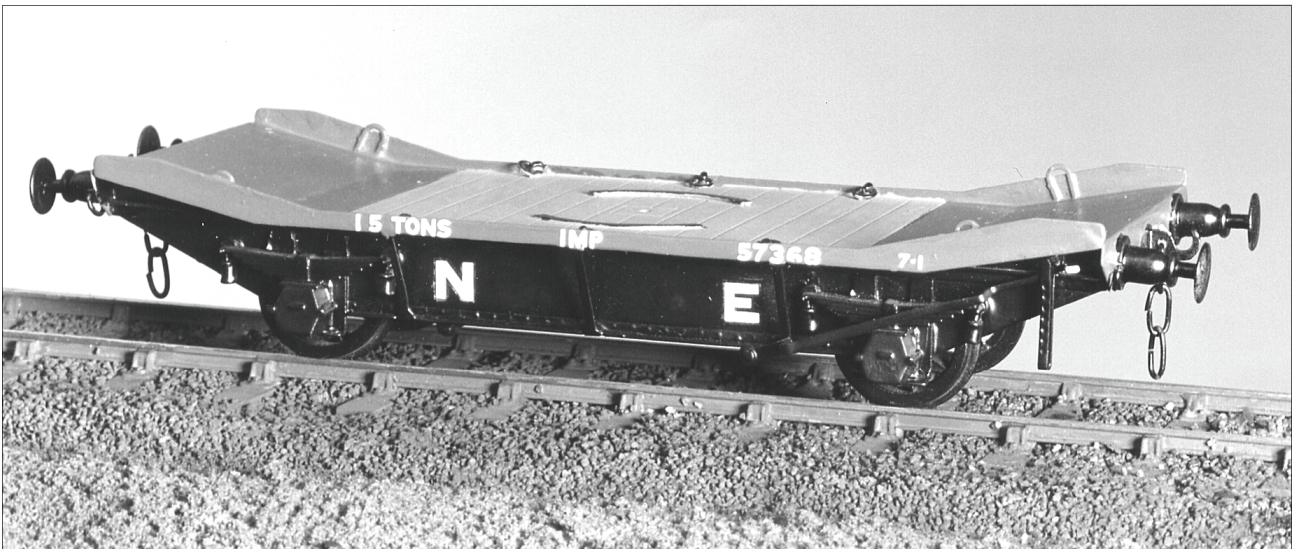


CONNOISSEUR MODELS

- 0 Gauge -

LNER IMP P Agricultural Implement Wagon



PROTOTYPE. Seventeen of these wagons were built by the NER in 1916 for the transportation of farm machinery, tractors and small portable engines. These were driven or winched onto the wagon from an end loading dock and then lashed down into the well section using the floor mounted securing rings. The lowered centre section of the wagon provided high loads with extra clearance to allow them to remain within the railway loading gauge.

When first built these special purpose wagons would be used to convey loads from North Eastern stations to destinations throughout Britain. After the 1923 grouping any LNER station could order up one of these wagons to dispatch a load to destinations throughout the country. These wagons lasted in service well into British Railways days.

KIT. This is a very straightforward kit. Some push out rivet detail, a few parts requiring simple folding and a selection of small detail parts make this an interesting project. The careful modeller can make the individual load securing rings fully working and then use these to lash down one of the delightful 1:43 scale Die-Cast tractors or agricultural machines that are available from model and toy shops.

Wheels are required to complete. 1 Pack, 2'9", 8 Plain Spoke Wagon Wheels (Slater's Catalogue Number 7129). 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**

GENERAL INSTRUCTIONS

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.

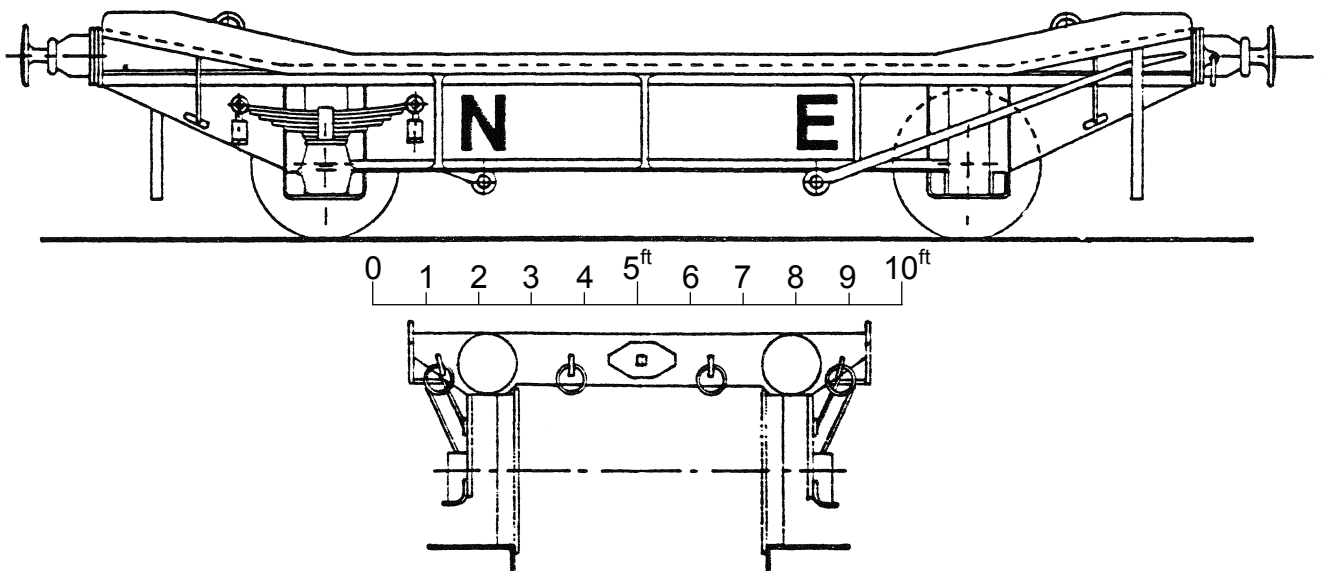
Other useful tools include a bench vice, a good pair of tweezers, a set of Swiss files (get a full set of cheap ones and then buy quality replacements for the three that you use the most), a pin vice with a selection of drills from 0.5mm to 2.1mm plus a few larger sizes that you use regularly (2.6mm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

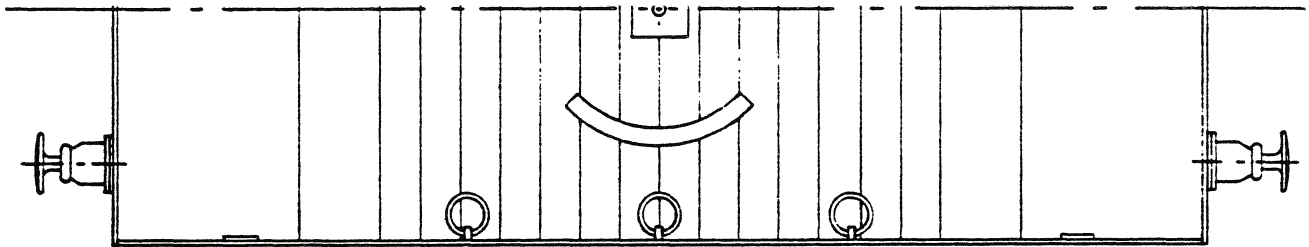
A better alternative is to solder your white metal castings using Carrs 70 degree low melt solder and Carrs red label white metal flux. The iron should be run at a much lower heat so that you do not melt the castings. I have a domestic light dimmer switch and plug socket fixed to a piece of wood, wired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

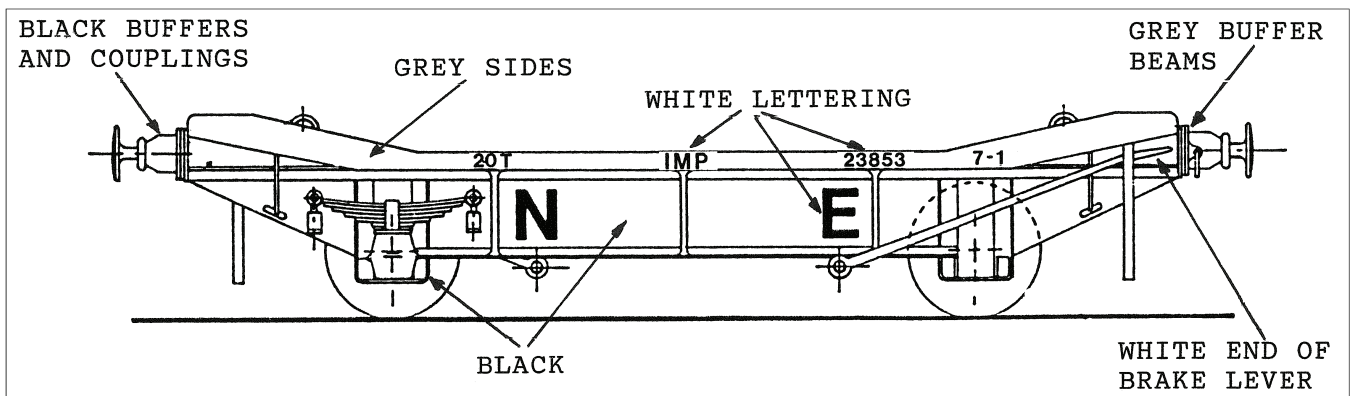
LSNER Agricultural Implement Wagon



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



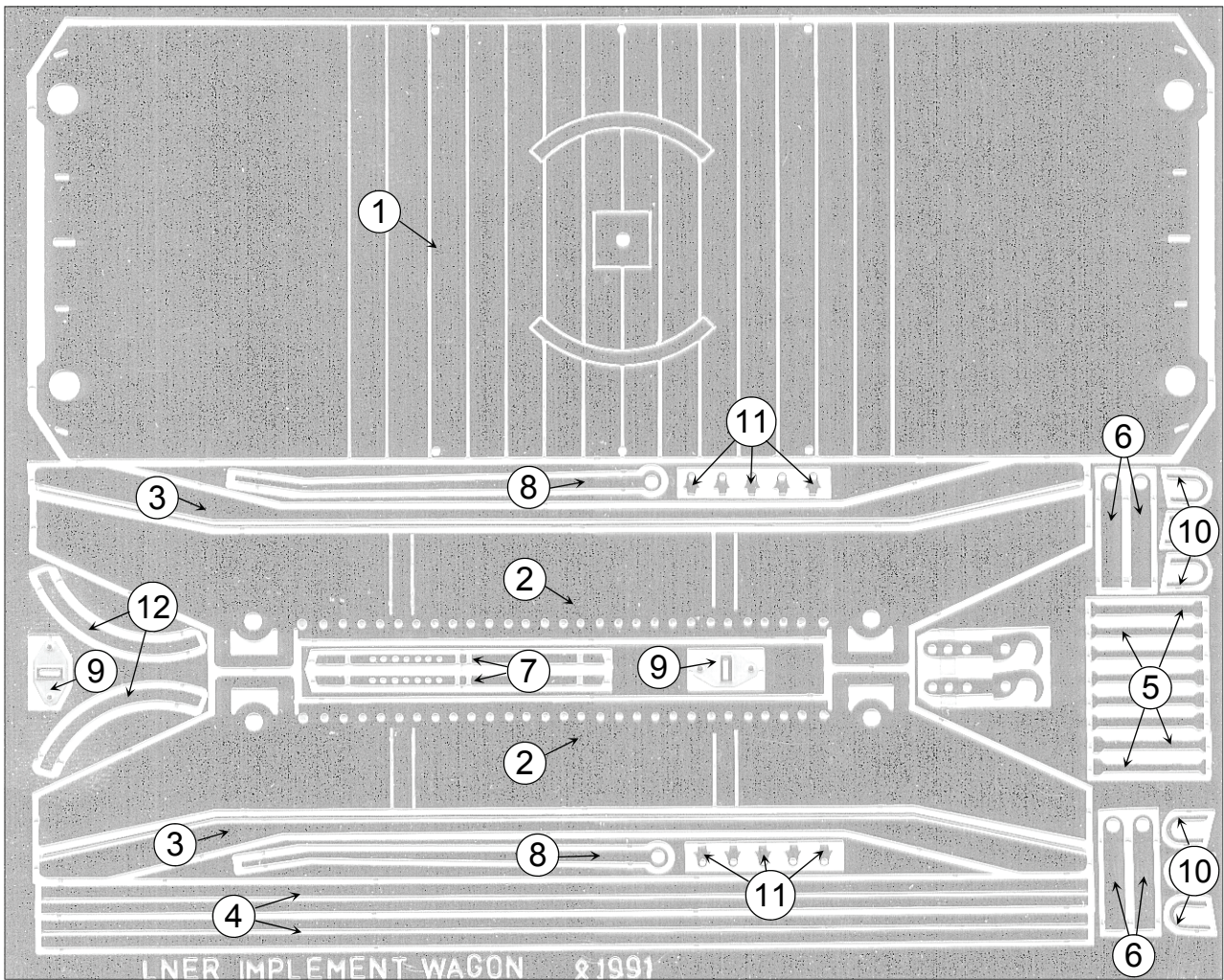
LSNER Livery. Grey (RailMatch paints LSNER freight grey No 624) body sides (curb rail), buffer beams and steel sheeted end ramps. Black sideframes, axleboxes, buffers and couplings. White lettering. White end of brake lever. Dirty wood floor planks. Black/rusty load securing rings. In British Railways days the 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. Also included are castings for wagon number plates. These were fitted to the side frames somewhere left of centre but exact positions varied greatly between wagons.



Transfers for LSNER & 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 LSNER goods vehicles or sheet 25 BR revenue wagon.

LSNER Imp P Running Numbers, 15 Ton Wagons, 1472, 11519, 19561, 33666, 35334, 38083, 50430, 57368, 62896, 70030, 71648, 72716, 72940, 79566. 20 Ton Wagons, 7503, 23853, 25164 (*all wagons were designated IMP P regardless of carrying capacity*).

Prototype Reference, This kit was developed from information and drawings contained in an article by Dr Scott published in the November 1982 Railway Modeller Magazine.



Casting Identification and Parts Check List

1 X 5" length of 1.6mm brass rod for brake cross shafts. 1 X 6" of spring steel Wire. 2 X 6" length of 22 swg tinned copper wire for winding load securing rings.



6 X Coupling links
& 6 X Split Pins



4 X Axle Boxes



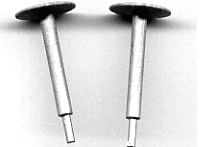
2 X Number
Plates



4 X Buffers



4 X Buffer
Retaining
Collars



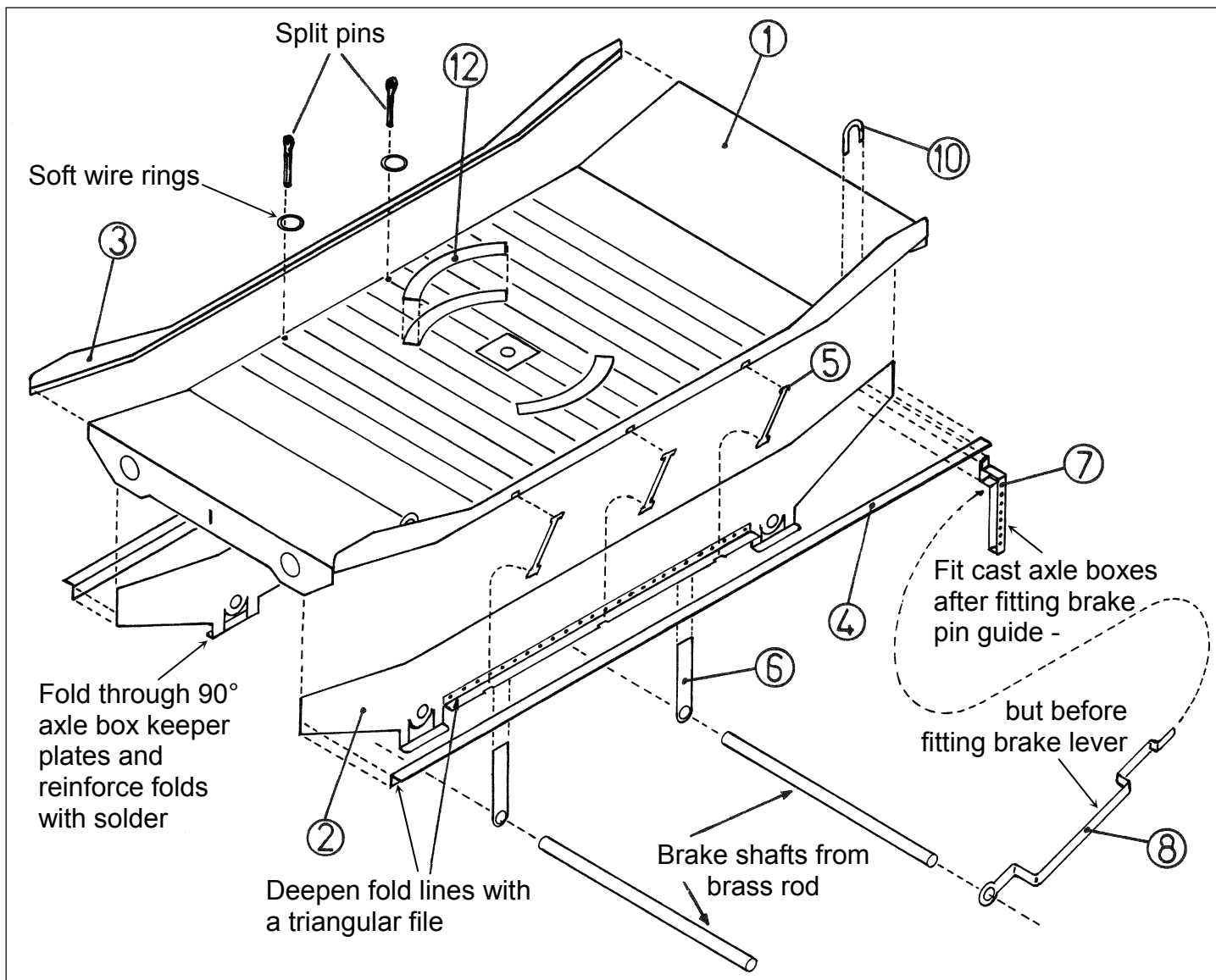
4 X Buffer
Heads/Shanks

I try to include extra castings when I make the moulds for a kit to cover failures so hopefully you will have some spares.

1. Remove the floor section (part 1) and side frames (parts 2) from the fret but I would recommend trying to keep the curb rails (parts 3) still tagged into the fret. Now using the top profile of a side frame as a guide form up the main floor and buffer beams. The bend lines are etched on the underside. It is best to use the jaws of a vice for the 105° or so buffer beam folds but I find that using gentle finger pressure with the floor held against a square cornered block of wood will form the upwards slopes of the end ramps.

Now form the bottom angles of the side frames. To achieve this I deepened the fold line (lowest of the two etched lines) by pushing a sharp triangular file up it until a faint witness mark appears on the reverse side (don't widen the fold line). Then clamp the side frame in the vice jaws or bending bars with only the bend line and strip to be folded projecting. Then using a block of wood or steel fold the angle through 90° taping down flat using the block and a small hammer. As the strip to be folded is only just over 1mm wide it is difficult to apply pressure but hopefully deepening the fold line with the file has made the job easier.

Emboss the line of rivet heads that run above the angle. For this I would recommend you use a scribe with the point rounded off slightly on an oil stone. Place the part face down onto a block of softwood and firmly press the point of the scribe down into the half etched hole. Work your way along the row of rivets. The fine etched line above the row of rivets will create a shadow to represent the top of the riveted angle.



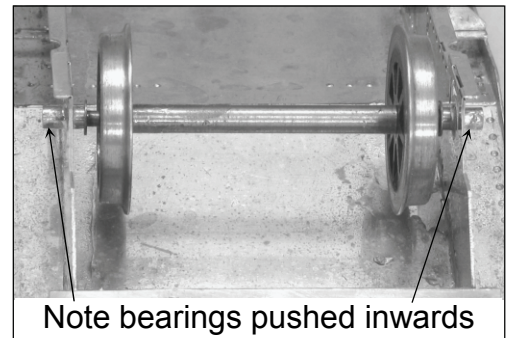
2. Open up the holes in the side frames so that a Slater's turned brass axle bearing is a good but not tight push fit into them. Once this is achieved the side frames can be soldered into place on the underside of the floor with the wheel sets between them. Fit the side frame that you used to form up the floor with first. There are etched grooves on the inside of the buffer beams into which the ends of the side frames fit and these will help to set the side frame the correct distance (about 7mm) in from the edge of the floor. Solder this first side frame solidly into place and then check that the body is not twisted.

Then offer the second side frame into place to check its fit. Once you are happy with the fit of the side frame fit bearings onto axles and spring wheel sets between frames so that the bearings locate into their holes. Then solder second side frame solid. Leave wheel bearings unsoldered and lose in their holes for the time being.

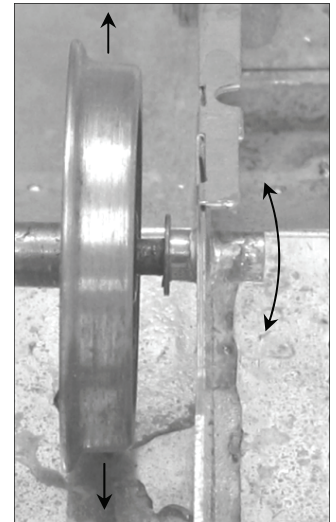
3. Fit the curb rails (parts 3) to the edge of the floor. I pin with drawing pins the etched fret containing the curb rails to a flat surface and then offer the assembled wagon to this. Locate the edge of the floor into the etched groove in the curb rail. It is easier to solder squarely a large object like the floor to a secured narrow strip than it is to solder a separate strip to a large object. I then solder into place using plenty of flux and touching the iron tip to the curb rail only. In this way the flux will draw the solder into the joint but should not flood into the plank lines. Once cleaned up with a fibre glass brush this should give you a neat gap free joint.

Fold up and fit the long angle irons (parts 4) that run the length of the wagon just below the floor. Again I would recommend deepening the fold line using a triangular file to make the folding job easier. Then check by eye that the wagon is not twisted as this is now the last point to correct it by twisting in the opposite direction with fingers and thumbs at the four corners.

The wheel bearings must now be fixed. As the side frames are wider than the normal distance between conventional wagon axle guards the bearings must be pushed inwards on the axle ends to centre the wheel sets. I hold the bearing on one side in place with my finger end and the bearing on the other side into place with my thumb nail. I then quickly spot solder from the outside this bearing into the hole in the side frame (if you have wenchers fingers you may wish to use a file end or piece of card between thumb and bearing to prevent burning your thumb).



Then holding the unsoldered bearing steadily in position (I use a file end to hold the bearing steady) solder it solidly into its hole. Then return to the spot soldered bearing on the other side and resolder this solidly into place. Repeat for the wheel set at the other end and then check that the wagon sits on a flat surface without rocking. You can adjust any offending wheels by repositioning and resoldering the bearings (again I use a file end to Manipulate the bearing).



4. Fit the curb rail bracing bars (parts 5). There are etched notches on the side frame bottom angle that the bottom of the bracing bar can be located into and etched notches on the curb rail for the top of the bracing bar (the bracing bars are over length). Solder these joints with a generous amount of solder and then dress the joints with a flat file (dressing off the excess length of the bracing bar) to blend the bracing bars into the main components.

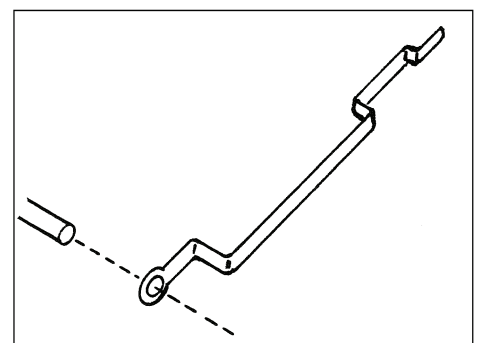
5. Fit the brake shaft brackets (parts 6) to the rear of the side frames using the etched marks to help with location. The wagon had two brake levers at opposite right hand corners of the wagon. So cut two brake shafts from 1.6mm brass rod (about 49mm long) and square off the ends. Solder these shafts across the wagon so that one end projects about 4mm to allow the brake lever to be mounted onto it.

Fold up the brake pin guides (parts 7). As this part is a little vulnerable on the finished wagon I reinforce each fold with 60/40 solder. I place a blob of flux into each fold line and then touch the edge of the pin guide with the soldering iron bit carrying only a small amount of solder on it. The flux will draw the solder into the fold line. Solder the top ends of the pin guide together and then solder solidly to the side frame positioned about 7mm from the buffer beam.

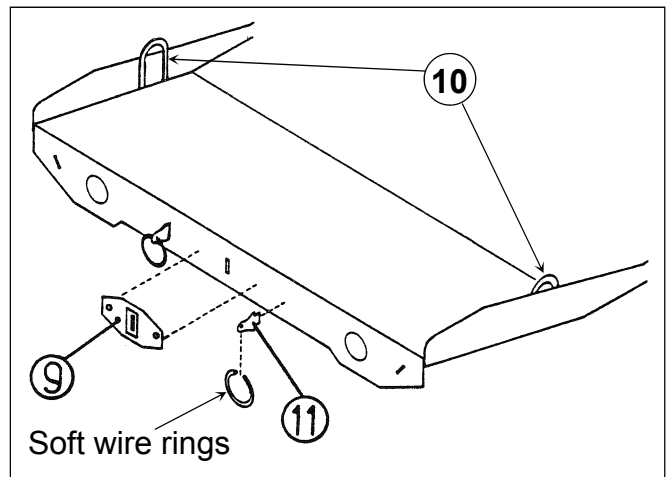
Now fit the cast axle boxes and springs. The hole in the axle box may need deepening slightly to allow the casting to fit over the axle bearing and sit down flat onto the side frame. Ensure that the outer spring mountings are fixed solidly to the side frame to give them strength.

Using long nosed pliers form up the brake lever (part 8) so that it would clear the axlebox if applied. I find it easier to form up by eye (refer to photos) than using exact dimensions.

Once you are happy with the shape of the levers thread the handle end through the top of the pin guide and solder the other end over the brass rod cross shaft just clear of the side frame. Then spot solder the handle end to the top of the pin guide.



6. Fit the coupling reinforcing plates (parts 9) so that they correspond with the coupling slots in the buffer beam. Ensure that the coupling slot does not get blocked with solder. I tin the backs before removing them from the etch. Then I hold them into place with a knife point and apply plenty of flux. Then with a very small amount of solder on the iron bit just to help transfer the heat. I touch the iron to their edge and allow heat to build up until the tinned solder flashes around all edges. A little cleaning up with a knife blade should then give crisp edges. This technique can be used for fitting a wide range of small overlay type parts.

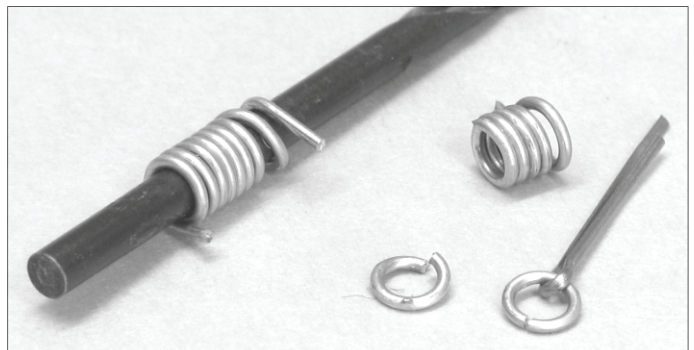


Fit the load securing hoops (parts 10) to the inside of the curb rail set about 14mm from the wagon end. These hoops provided the strongest securing points for the heaviest loads. Heavy tractors and machinery would be secured at their four corners to these using chains with hooks on their ends. They would then have additional securing to prevent movement on the wagon floor using ropes passing through the lighter lashing rings on the wagon floor and ends.

Lighter and awkwardly shaped agricultural machinery and farm carts etc would be secured using ropes passing through the lashing rings and a few wooden chocks or battens hammered under the wheels.

Locate on the fret the end lashing ring brackets (parts 11) and check that the 22swg tinned copper wire will pass comfortably through the hole in each of them. If required drill out any offending holes before removing from the fret. Then remove each bracket and solder into the slots in the buffer beam. I find that holding them in the jaws of a miniature electrical crocodile clip allows me to hold the bracket square in the slot and secure it with a spot of solder from the rear.

The lashing rings are made from 22 swg soft tinned copper wire. Wind the wire around a 2.5mm drill shank (similar to a spring) and then snip into individual rings using flush cutting side cutters.

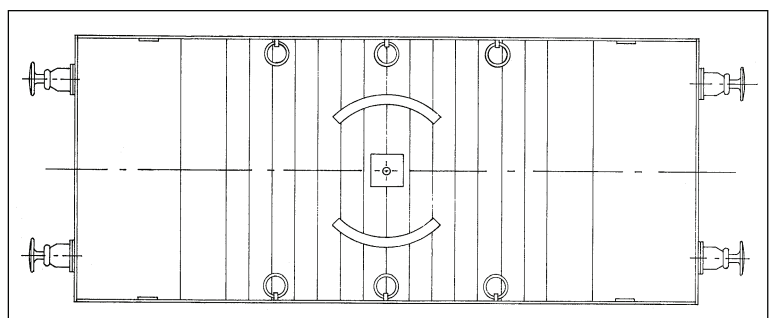


Straighten up the rings using long nosed pliers and then slightly open the ring out so that it will spring over the lashing ring bracket and thread its end through the hole in the bracket. Once in place gently close up the ring with pliers. I solder the joint closed with a tiny spot of 60/40 electrical solder on the iron bit and a very quick touch.

For the six rings on the planked wagon floor I solder the rings closed first and then thread a ring into the eye of a split pin. I pass the split pin through the hole in the floor and grip its tail in the jaws of a miniature electrical crocodile clip. I then turn the wagon upside down and using the crocodile clip pull the split pin so the eye is against the floor. I then spot solder the split pin to the underside of the floor and snip the tail off flush. With the wagon upside down the ring should hang down away from the wagon floor and there should be no risk of solder flowing through and soldering the ring solid. The centre split pin is slightly tricky as it is behind the curb rail bracing bar but I found that I could cut it off flush with a sharp scalpel blade.



I prefer to fit the rings in this way and at this point of construction as then I know that they are all soldered securely and I like the novelty of them working. If you wished you could make up and paint the rings separately and glue them into place after painting the wagon.



7. Fit the curved bolster tracks (parts 12) to the wagon floor locating over the etched outline and using the pre tinned soldering technique used for the coupling plates. When the wagons were first built the idea was that they could be used in pairs with removable swivel bolster cradles if required to carry long heavy loads. There seems to be no evidence that this happened in reality but the pivot hole and tracks remained on the wagon floors throughout their working lives.

8. 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.

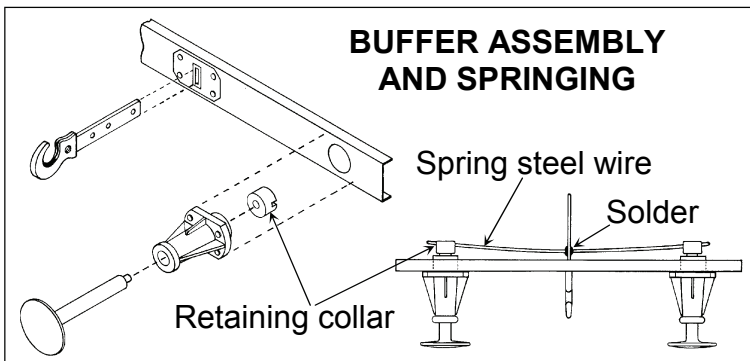
Then fit shank through buffer body, snip off some of the narrow end of the shank to leave just over 1mm from the step and solder a retaining collar onto the shank. Solder buffers into place but check that the retaining collars don't jamb on the underside of the end ramp when fully depressed.

Make up the coupling links and fit to the coupling hooks. 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.

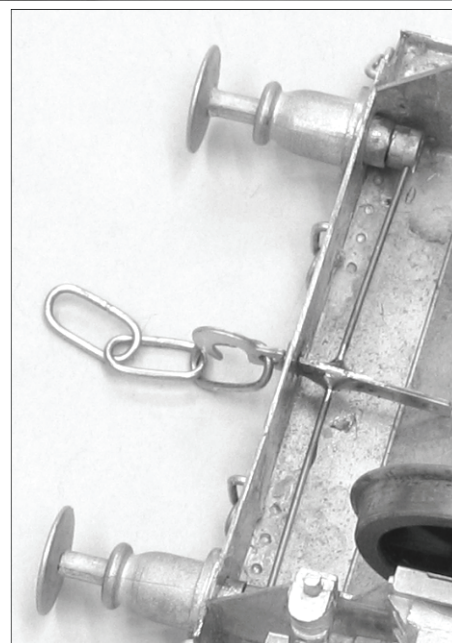
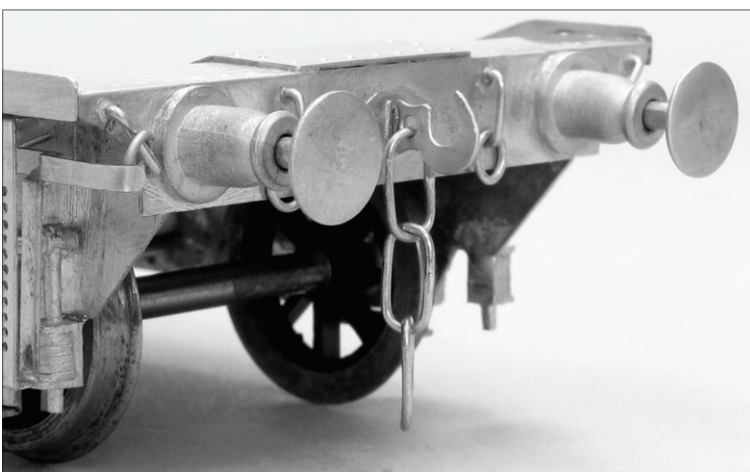
Pass the coupling hook through the buffer beam slot and retain it with a length of spring wire. Polish the centre of this wire with emery cloth first so that you can solder it to the coupling hook shank once you are happy that the buffers spring freely.

That should now 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 (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.



Drawing shows RCH standard buffers but method is the same for all buffers in my range. Photos show NER buffers fitted to MAC L but they are the same buffers as used in this IMP wagon kit.



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



This wagon is one of the few models built and painted by my wife Megan. I am sure that you will agree with me that it is an excellent example of model making even if one or two parts are not exactly positioned in accordance with the instructions.