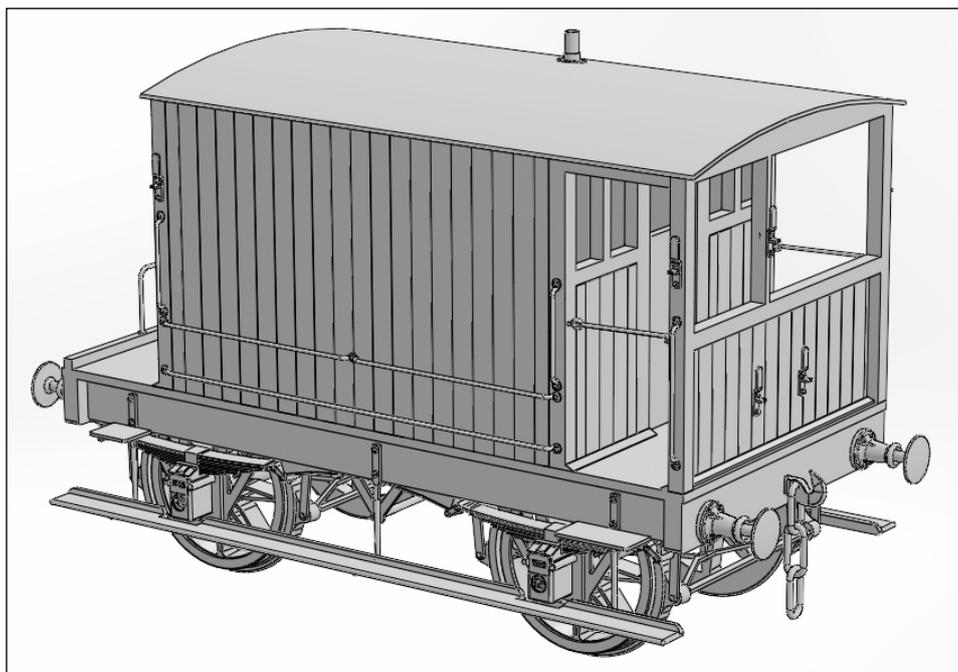


Ref. G3W032 - Gauge 3 Midland/L.M.S. 10 Ton Brake Van



INTRODUCTION

Prototype Information

The 4-wheeled, 10 ton Brake Van, with the 'typical' roofed veranda at one end and open veranda at the other, was introduced by the Midland Railway in 1875. By 1885 the design was classified by Diagram 390, and over 1500 of this type were built. Our model is based on Drawing No. 753, Lot No. 198, a batch of 50 built in 1888.

By careful study of photographs, later modifications and other Lots within Diagram 390 can easily be created by changing minor details, some of which are included in the kit. Vehicles built up to 1892 had grease axleboxes, sandboxes and only the top handrail on each side. They were then built without the sandboxes, and from 1899, the lower handrail was added. The final batch was built in 1902, but because these were fitted with vacuum brakes, they were classified as Diagram 391. Other detail changes took place from 1904 onwards when oil axleboxes (also included in the kit) replaced the earlier grease boxes; from 1907 onwards when desks were installed; and from 1910 onwards when the side lamp irons were removed from the open end. All early vans were eventually fitted with the lower handrail.

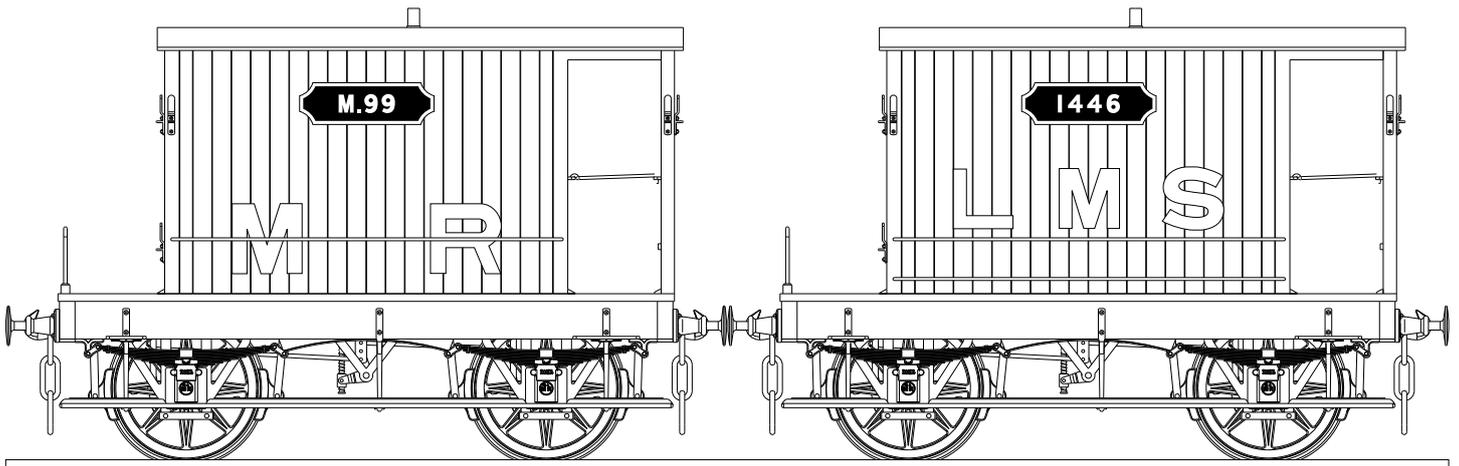
In 1909 it was laid down that all goods brake vans were to carry the train control codes, which took the form of tablets in racks on the side of the van. (These racks are not included, but can easily be added using our Microstrip). The train control system was composed of three groups of letters. The first signifying the train's departure time was based on a clock face whose numbers from 1–12 were lettered from A–M respectively; likewise with the divisions 5mins to 55 mins. afternoon departures were suffixed with the letter P. Thus a train leaving at 5.40 a.m. would have the code EH, and one leaving at 2.30 p.m. would have BFP. The second and third groups were arranged below the first and showed the originating and destination stations of the train, usually made up of the first and last letters of the name: e.g. kettering to Nottingham would have KG NM.

Painting Details

As built, these brake vans were painted in the standard Midland mid-grey colour, with all "ironwork" below floor level picked out in black. Those which survived to LMS days would have been repainted into LMS darker grey, and later into L.M.S. bauxite. These colours are available from Precision Paints.

Lettering Details

Known running numbers for these Brake Vans were: 7, 50, 68, 73, 99, 142, 151, 241, 284, 368, 628, 1332, 1408, 1434, 1435, 1446, 1482, 1566 and 2046. In Midland days, the number was prefixed with the letter M but this was omitted in L.M.S. days. The number was contained in a black panel edged in white with inverse rounded corners, placed on the upper side of the body. A typical tare weight of one of these vans would be 10.8.3. These pictures show the approximate layout of the lettering:



The following books will be of use when building this kit, although all of them are now out of print:

Midland Style published by the Historical Model Railway Society

The L.M.S. Wagon by Bob Essery and Ken Morgan, published by David & Charles

Midland Wagons an Illustrated History Vol. 1, 1978

Midland Wagons an Illustrated History Vol. 2, 1980

published by OPC and both written by Bob Essery to whom we are indebted for much of the information contained in these instructions.

MODEL INFORMATION

This kit will enable you to build an accurate replica of a Midland Railway 10 Ton Brake Van, fitted with either Ellis Patent grease lubricated axleboxes or later oil axleboxes. It has been designed to be as simple, and therefore as quick, as possible to assemble. The main body is formed from three precision made polyurethane castings, etched brass axle guards and brake linkage, injection moulded polystyrene axleboxes (but with CNC machined brass 'slides') and (dummy) leaf springs, turned buffers, and cast coupling hooks. The buffers and couplings are sprung, and the axleboxes can be sprung or solid. The model has steel tyred, glass-filled nylon centred wheels (being impervious to most oils and other chemicals encountered on indoor or outdoor model railways). The wheels are to standard Gauge 3 profile.

Tools Needed

The following tools are needed, most of which will already be in the toolkit of the average modeller.

- | | |
|--|---|
| Piercing Saw or Nippers | for removing lost wax castings from their sprues |
| "Stanley" type knife | for removing etched parts or polystyrene mouldings from the frets or mouldings. |
| Assortment of small files | for finishing removal of pips, tabs, and general cleaning up |
| Cyanoacrylate (Loctite Superglue or similar) | for quick fixing of parts where maximum strength is less important |

2-part Epoxy Glue (Araldite or similar) for fixing polystyrene to brass. The 5 minute setting variety is OK for most of this work, but the 24 hour setting version is better if you have the patience to wait for each bit to set!

Glass Fibre Pencil **OR** Abrasive Rubber Block for cleaning all materials (but particularly etched brass parts) prior to glueing and prior to painting.

Resin Body

Carefully check over the parts for moulding pips or flash, and if necessary remove these with a sharp knife or by filing. Be very careful not to breath any of the resulting dust. The parts may still have traces of the mould parting agent, so before assembly, wash in warm (not hot) soapy water. Once assembled, a more thorough wash will be needed prior to painting - see below.

Etched Components

Remove components from the sheets only when you need them. This is done by cutting through the small tabs with a Stanley-type knife, or a small chisel blade, whilst resting on a fairly hard surface like a piece of MDF. In many places it is possible to cut the tabs with scissors or nippers, but however you do it, do it carefully to avoid distorting the part you are removing and any adjoining parts. Usually it is best to cut the tab at the end away from the part and then remove the remains with fine nippers, finishing off with a fine file.

Many of the etched components require folding, and as a general rule, where components form a right angle, the fold line is on the inside, but where it folds back on itself (i.e. to 180°), the line is on the outside.

Before you do any folding or assembly work, clean any edges or surfaces with the glass fibre brush or abrasive rubber prior to glueing. This is done by running some superglue into the joints after assembly or smear some epoxy (Araldite) on the faces and joints during assembly.

Removing plastic parts from the Sprues

Cut through the joining tabs with a sharp knife or nippers, away from item required, removing the remains of the tab afterwards with the knife and finishing with a file. Do not try to break or snap the tabs, as this usually results in breaking away part of the item you need!

Cleaning up Lost Wax Castings

Remove pieces from the sprue with a piercing saw or nippers and finish off with a fine file. Remove any blemishes with a file and finish with a quick polish with a glass fibre brush.

Painting and Finishing

The secret of good painting is preparation. Make sure that all parts are thoroughly clean, dry and free of any grease. Metal parts should be cleaned with the glass fibre brush as the slight scratching helps the paint to key. Everything should be washed with a mildly abrasive kitchen cream cleaner, such as Cif (ex Jif), or even better, if you can get it, a product called Shiny Sinks, which is intended for stainless steel sinks, but cleans brass beautifully. Use an old toothbrush to work into the corners and crevices. You may need to repeat if the foam goes grey the first time. When it is clean, rinse in clean water. Once thoroughly clean and dry do not handle the model except with surgical gloves or tissue paper/kitchen roll. Leave to dry, at least overnight, before applying the primer. Cover with a clean cardboard box or similar to prevent dust settling.

To prime the body, it only needs a light mist coat from a car aerosol spray, but brass should be primed more thoroughly. In fact, an etching primer is best; this is available from good model suppliers. Read the manufacturer's recommendations on the minimum drying time. If you are going to follow a car aerosol spray primer with the same maker's top coat, ten minutes may be sufficient. However, with many paints you will find that at least 24 hours should elapse before the top coat is finally applied. The transfers for this kit are of the waterslide type, which are best sealed after thorough drying with a coat of suitable matt varnish.

The final job is to give everything a coat of rust, dust, dirt and grime!

ASSEMBLY INSTRUCTIONS

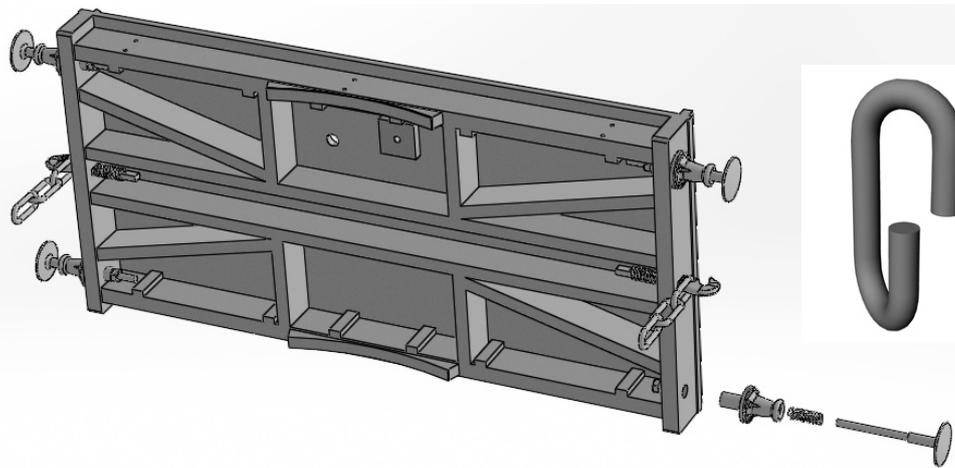
To avoid tedious repetition, it will be assumed in each sub-section that the parts have been removed from the etched fret, moulding or casting sprue, etc., that tabs, moulding pips, etc., have been removed, rivets formed, and preliminary cleaning done ready for glueing.

Stage 1 - Check fit of resin body parts.

Do this first, in case any slight adjustments are needed, before any other components are attached. (The parts should fit perfectly, but it's a lot easier to do any filing which may be necessary before anything else; however, **do not** glue the parts together at this stage).

Stage 2 - Fit Buffers and couplings.

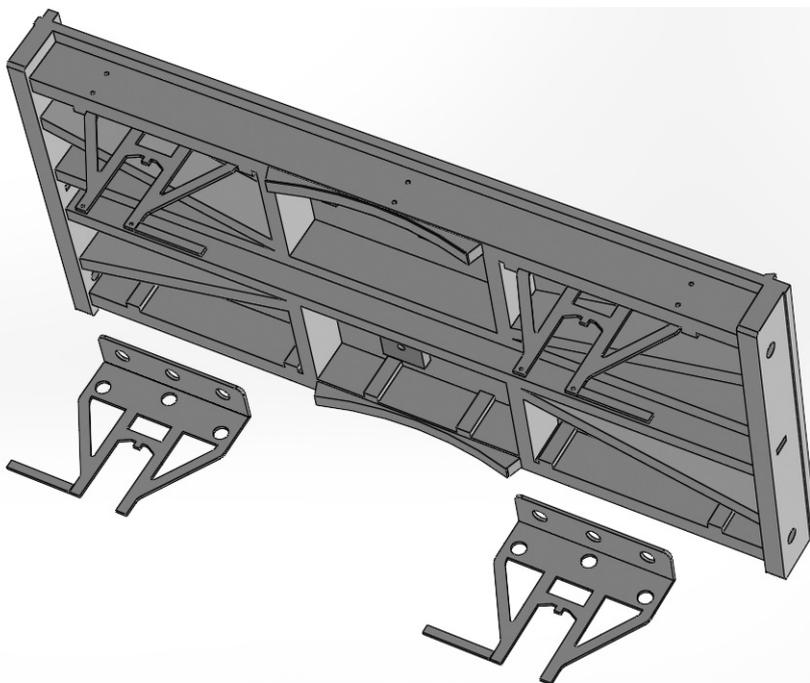
Refer to drawing below. Check that the steel buffer rams slide inside the brass buffer bases; if necessary, clean out the inside with 2.2mm and 3.8mm drill bits. Then assemble as shown, securing the the ram with a 8BA nut. The buffer bases have 4 representations of the full size securing nuts: the pair closes together go horizontally at the top and bottom, the two furthest apart go vertically. The coupling hooks go through the headstock, with a spring on the inside, secured with a split pin. To



fit this, you will have to tilt the inner end of the hook down to get the split pin through. Bend over the ends of the open end of the split pin. The coupling links form a short chain by twisting them open as shown (it's easy with 2 pairs of plyers), and closed again after passing through the hook and adjoining link.

Stage 3 - Fit Axleguards ("W-irons")

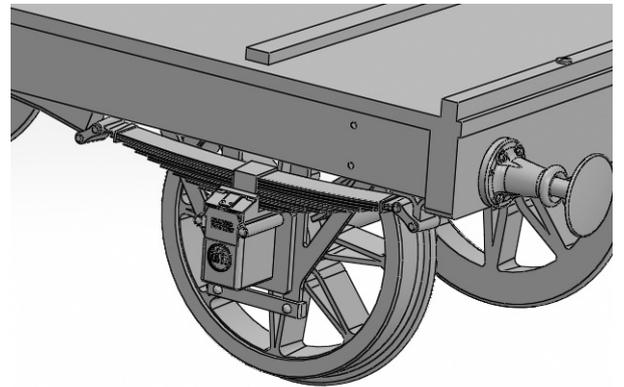
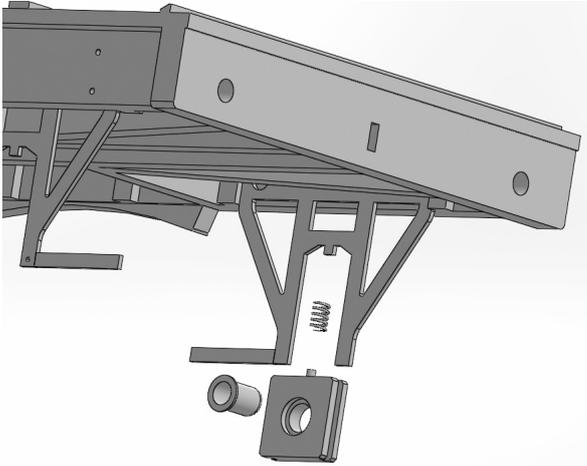
First, check that the axlebox slides do slide smoothly; if necessary, gently file inside of the axleguard until the slides move up and down but without any slop. Bend the top section of each axleguard through 90° and then fit tightly to the inside of the solebar and the underside of the floor. They are



located by ribs on the inside of the solebar. Whatever adhesive you use, make sure that the parts cannot move until dry. A method we have used with success it to lightly stick the axleguard with a tiny drop of superglue (so it can be broken again if necessary), then when satisfied that all is OK to run in a bit more superglue by capillary action and when that is dry to finish off with fillet of 24hr epoxy to make sure it will never part company!

Stage 4 - Assemble and insert Axleboxes and wheels into axleguards.

Fix the turned brass bearing into the brass axlebox slide, noting that the flange on the bearing goes in the recess on the slide. Your choice of plastic axlebox then pushes on to the protruding bearing. Make sure that it is on straight (i.e. that the top is parallel with the top of the brass slide), before the glue sets. The round protrusion on the axlebox slide (for taking the small coil spring) is intended to touch the equivalent protrusion on the axleguard. (The spring is there to assist the wheelsets down into dips.) Therefore insert both wheelset/axlebox assemblies and place the model on a flat surface to see if it rocks at all. If it does, gently file a bit off the offending protrusion until the model does not rock. When satisfied, insert a small spring and reassemble the axleboxes and wheels and then fold over the keeper plate to stop the axlebox dropping out (having first embossed the "rivets"). You could leave the keeper plate folding until after the painting is finished, but if you feel strongly that you will need to remove the axleboxes in the future, you can drill through (1mm Ø) the keeper plate and bottom of the axleguard and fit them with 14BA nuts and bolts, but these are not supplied.

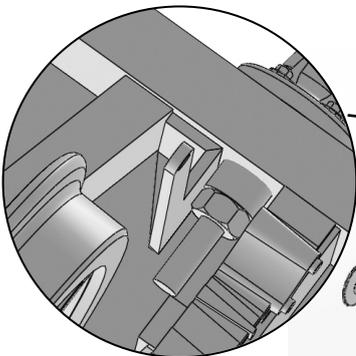


Stage 5 - Attach Dummy Springs

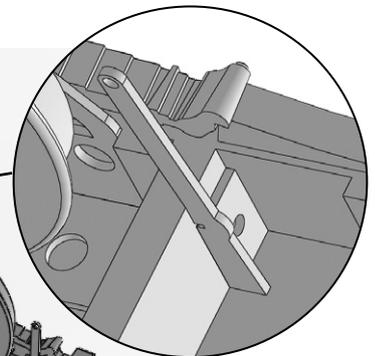
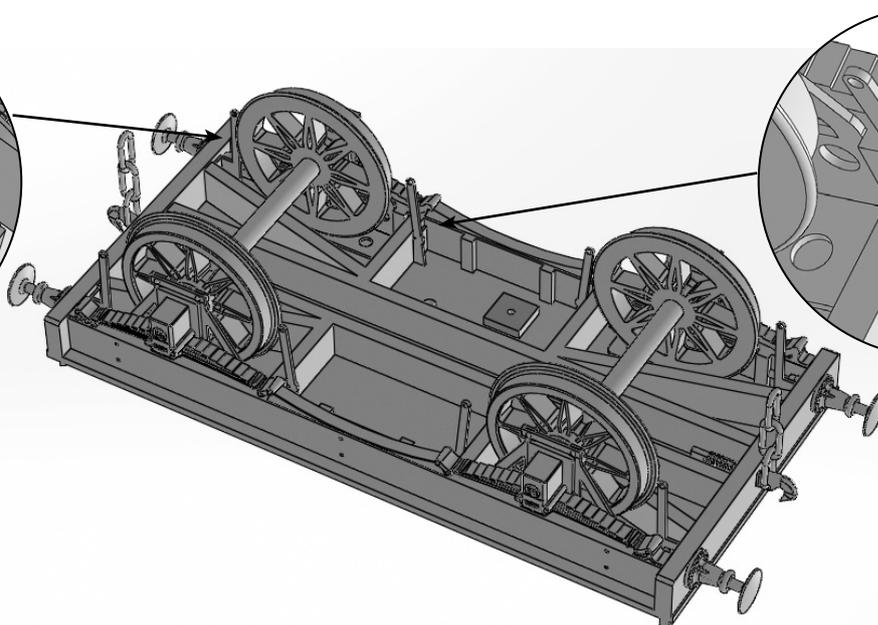
These are glued to the face of the axleguard and the underside of the solebar. The springs are 'handed' (two of each), so that one end fits against the curved centre scroll iron

Stage 6 - Assemble Brake Block Hangers

There are 8 of these, of two basic types (middle and end of vehicle), each of which has a left and a right hand version. Study the illustrations carefully to ensure you get the right ones in the right place. The hangers are etched and require careful folding. Fix these in place so they are vertical when looking from the end of the wagon (they should be slightly inclined when viewed from the side). A suggested method for fixing them is contained in Stage 3.



End Hangers



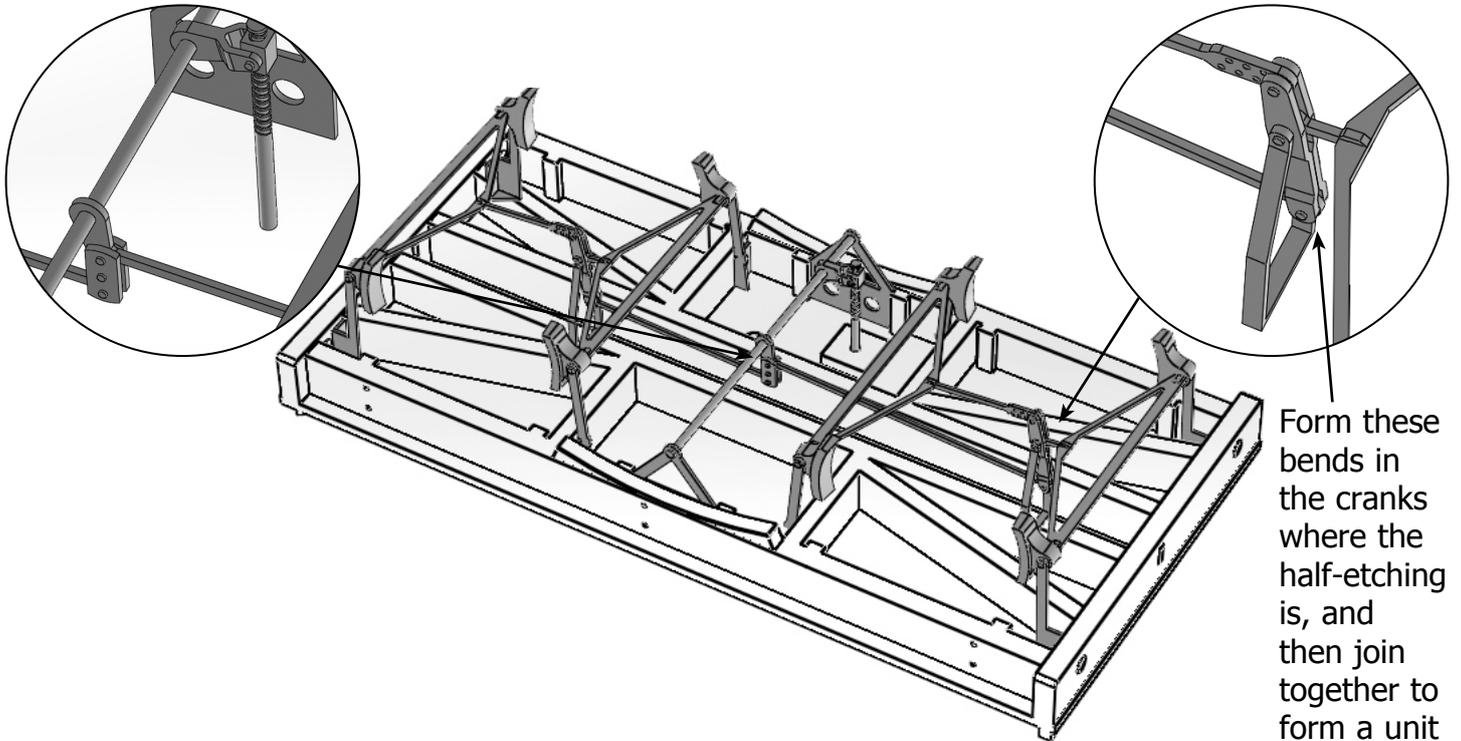
Middle Hangers

Stage 7 - Assemble Brake Cross Beams

These need to have 8mm long pieces of 1.5mm Ø brass wire soldered into each end of each triangular shaped cross beam. Note the the inner and outer beams are slightly different; they have a small I or O etched into them. If you can't do soldering, they can be attached with 24hr epoxy glue.

**Stage 8 - Assemble Remaining Brake Gear**

The parts fit together as shown in the pictures below; be careful to get the orientation right, particularly by reference to the location of the bottom half of the brake column. Note that wheels and axleguards are omitted for clarity. Much of the brake gear is held together with pins made from 1mm Ø brass wire. The forked ends of the pull rods slot into the apex of the triangular cross beams. It will be best to dry assemble all the parts, then solder everything together; use over long pins and trim afterwards. Note also that longer pull rod in each half (with the array of holes at one end) will, if fixed, prevent the wheels being removed. Therefore, if you want to be able to do this this later, do not solder the relevant pin, but substitute a 14BA nut and bolt (not supplied).

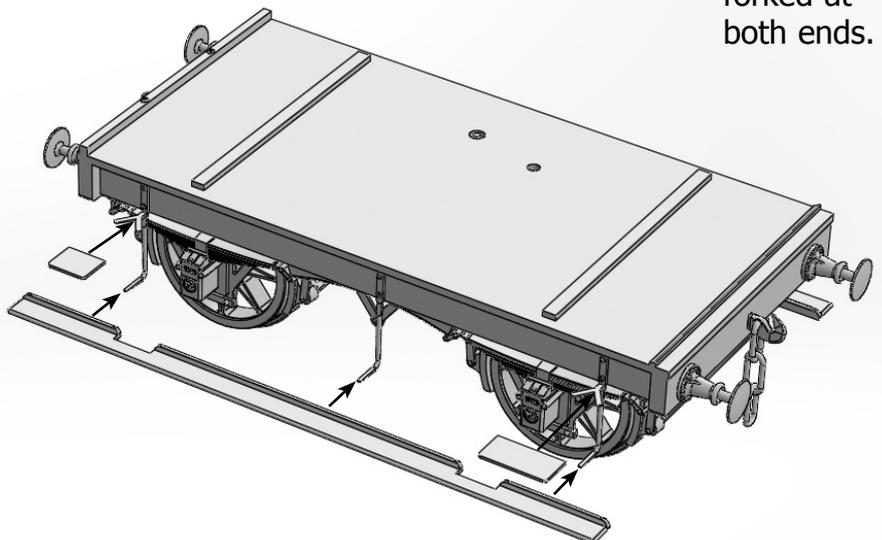


Form these bends in the cranks where the half-etching is, and then join together to form a unit forked at both ends.

Stage 9 - Assemble Footboards

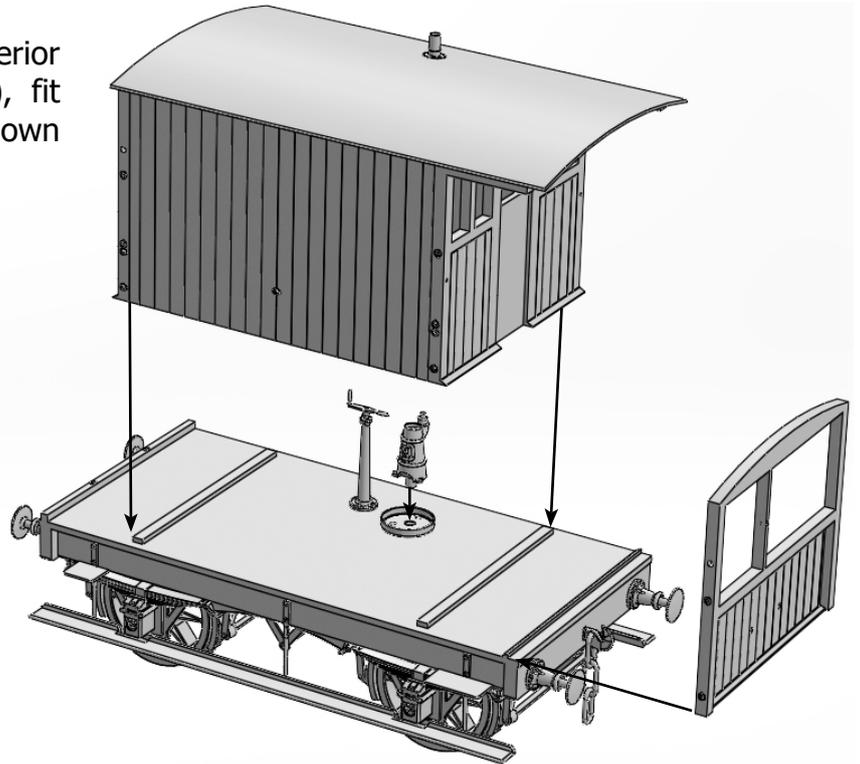
The cast footboard supports; the middle one on each side does not have the upper fork. The larger etched brass step goes at the same end on both sides - at the veranda end. The long plastic footboards are handed, because the middle support is not exactly in the centre of the vehicle.

(Note that the solebars are not fully detailed in these illustrations, and that the holes to take the footboard supports may need slight deepening.)



Stage 10 - Assemble Body.

If you have bought the optional interior detailing pack (our reference G305301), fit the stove and handbrake column as shown (they are not included in the main kit).

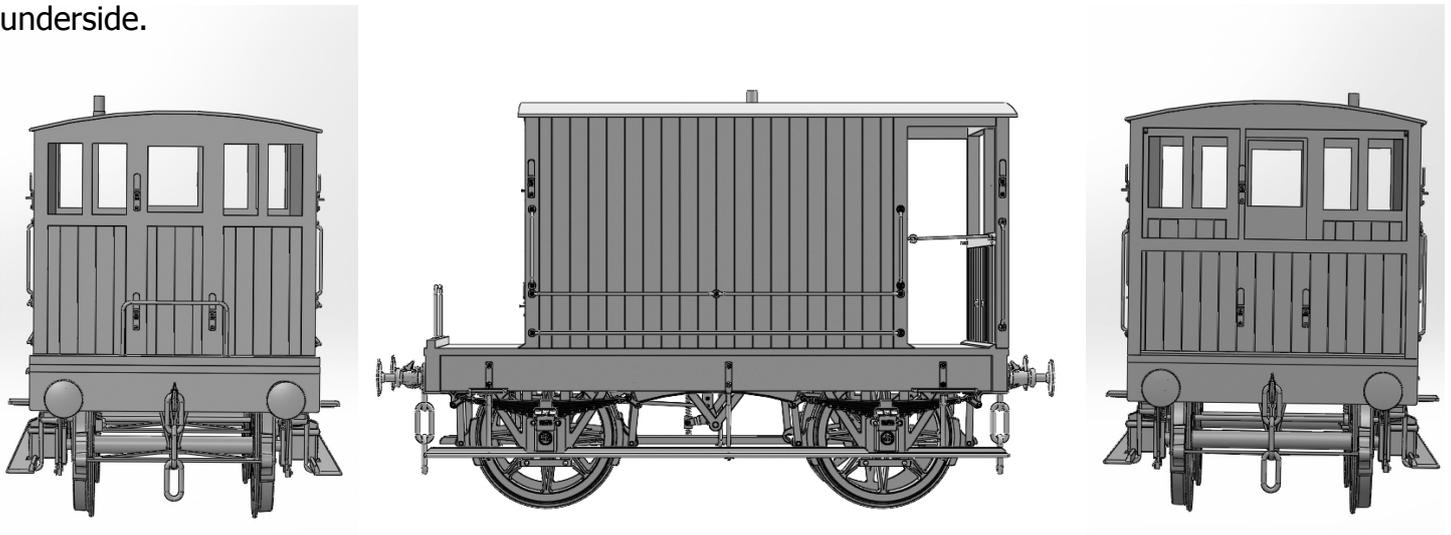
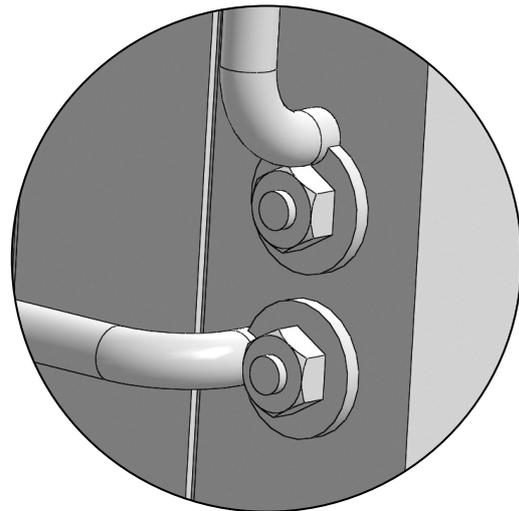


Stage 12 - Fit the handrails and lamp brackets.

Note: Check photographs of your intended prototype; not all of them had all of these items. In particular, the lower body side handrail was not fitted in the early days. If you are not fitting a particular handrail, then carefully file off the nut-and-washers not required. Where handrails are fitted, then drill a 1mm hole, as indicated, to take a piece of 1mm brass wire to make it look like the nut-and-washer is the flattened end of the handrail.

The location of all the handrails and lamp brackets (2mm holes) can be ascertained from the three views below. All these handrails have a gap of 1.5mm between the rail and the body side

There is also a handrail on top of the headstock on the open end. The width can be ascertained from the model, but the height is 18mm to the underside.



Now all you've got to is paint, letter it and 'weather' it!

List of Parts

Part Number	Description	No. Per Kit
Resin Parts		
XG3W03201	Underframe	1
XG3W03202	Main Body	1
XG3W03203	Balcony End.....	1
Plastic Mouldings		
X13W02410	Axleboxes (8 on sprue - 2 types).....	1
XG3W03211	Brake Blocks (8 on sprue - 2 types), Springs (4 on sprue - 2 types)	1
XG3W03212	Footboards (2 on sprue - 2 types)	1
Brass Etchings		
XG3W03220	(see illustration below)	1
Brass Castings		
XG3W03230	Brake Screw	1
XG3W03231	Footboard Support (3 on sprue - 2 types)	2
XG3W03232	Lamp Irons (10 on sprue).....	1
XG3W03233	Veranda doorway handrail (2 on sprue).....	1
G31562	Midland Short / PO Wagon Buffers (Set 4)	1
XG3155	Wagon Couplings Hooks (Set 2)	1
Turnings		
X13W02426	Brass Axlebox slides	4
X13W02430	Steel Buffer Heads	4
XG640154	Gauge 3 Brass Axle Bearings.....	4
Wheels		
G3123	3'-7" 8 Split Spoke Coach Wheels (2 wheels on an axle).....	2
Other Parts		
Brass Wire	1mm (40thou) diameter - 6 inches	7
Brass Wire	1.5mm (60 thou) diameter - 6 inches	1
Brass Wire	2mm (80thou) diameter - 3½ inches.....	1
—	8BA Steel Nut	4
—	Steel Split Pin	2
X9156A	Gauge 1 Coupling Spring	2
X790801	"Saint" Buffer Spring	4
X90054	Gauge 1 Suspension Spring	4
X13W02440	Gauge 3 Coupling Links	6
Transfers	130146..... (sheets)	2
Instructions	(this document)	1

