

## **51L** The 4mm wagon and van kit

### **The Prototype**

Built for the transport of iron stone (iron ore) these wagons were used between inland quarries and steel manufacturing plant in various parts of the England and Wales. They were the BR standard type of iron stone wagon; very different to previous designs based on post-group practice. There were two basic variations, one loose coupled; the other vacuum braked the subject of a kit to be released in November.

The body was a hopper of all welded construction, the wagon being some 10' 3 1/2" high and 17" 6" in length. There were two diagrams for unfitted wagons, D163 and D166. Some 1500 D1/163 and 350 1/166 were built at Shildon during the 1955–1959 period. The differences between the two diagrams were minor and principally concerned running gear. D163 had split oil axleboxes and self-contained buffers as built, in comparison at least some D166 had roller bearings, some had spindle buffers and 121 are recorded as being 'piped'. All wagons had either side lifting link brakes and Instanter couplings.

Over the years modifications took place on many wagons, axleboxes were changed to plate fronted all welded pattern or roller bearing types and on some wagons the self contained buffer head became 16". In 1971 some 82 D1/163 were converted to vacuum brake for clinker traffic and became D1/168. Dowty hydraulic or Oleo types buffers were substituted on conversion but this was not necessarily so. The existing brake shoes were retained with the addition of Morton cam levers.

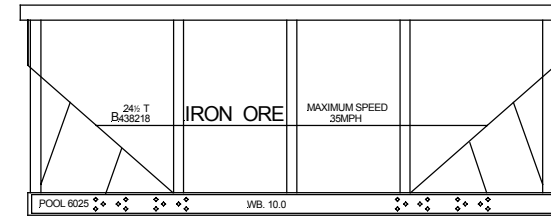
Unfitted iron stone wagons were widely spread geographically and were used for a wide variety of traffic after replacement in iron ore trains by 'Tippler' wagons. Uses included sand, clinker, limestone, and sulphate.

This kit has sufficient parts to build an unfitted version with split axle boxes and self-contained buffers. The axleboxes may be exchanged for the plate fronted types. Send an SAE to the address below.

### **Acknowledgements**

51L would like to thank Preston Transport Trust and the Barrowmore Model Railway Society for their assistance in preparing this kit.

## **British Railways 24.5ton iron stone wagon, unfitted Diagrams 1/163 and 1/166**



### **From 1955 to1984 for OO, EM, P4 and S4**

**Features:** Etched sprung chassis, ladders, resin body, white metal detailing parts.

**Required to complete:** 12mm three hole disc wheels, paint and transfers, HMRS sheet 25.

### **References:**

British Goods Wagons, from 1887 to the present day, Rowland, Essery and Steel, P130  
British Railways Wagons, the first half million, D P Rowland, Leapod, P14, 55-57  
Working Wagons Vol 1, 1968-1973 D Larkin, P28-29  
Working Wagons Vol 2, D Larkin, 1974-1979, P30-31  
Working Wagons Vol 3, D Larkin, 1980-1984, P18-19  
British Goods wagons in Colour, 1960-2003, R Hendy, P52  
British Goods wagons in Colour, R Hendy, P37-38  
Railways in Profile, no 1, opens and hoppers, P46

### **Web site information:**

Paul Bartlett's site:

<http://gallery6801.fotopic.net>

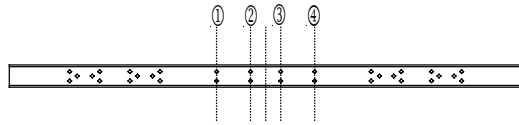
## Assembly

The body of these wagons is of the 'fabricated' type ie welded construction. Butt and fillet welds are not always apparent, being raised, undercut or flush with the surrounding steel work.

Please read these instructions before starting to build your model. Examine all the parts and familiarise yourself with their assembly. Remove any moulding flash and ensure all parts fit correctly. We recommend wet fine 1200 grit emery (Silicon Carbide) paper for cleaning up castings or fine needle files. For assembly use low melt solder (70 degree) for white metal, an epoxy resin such as Araldite or Superglue. The resin body should be carefully washed to remove any residual mould release agent. All etched brass fold lines are inwards and all components should be cleaned with a glass fibre brush and if require tinned prior to removal from the fret wherever possible.

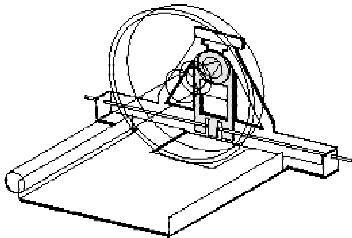
## Chassis

Remove the chassis unit (part 10) from the fret. Fold down solebar, buffer beams and spring supports, solder avoiding area adjacent to brake shoes. Fold down the bridal bar and brass section connecting w-irons, solder. Attach floor plate (part 8) to the chassis unit, using lugs for alignment. It will be necessary to remove any cusp from part 10. Ensure the floor plate is central, solder or super glue in place. Taking the buffer beam open out buffer holes to suit buffers (1.70mm). Drill the central hole for the coupling hook. Fit coupling pocket from etch (Part 7) over this hole. The legs should be removed from part 7 if self contained buffers are to be fitted. Attach solebars to the chassis followed by the buffer beam. The rivets marked 1, 2, 3 and 4 will need to be removed



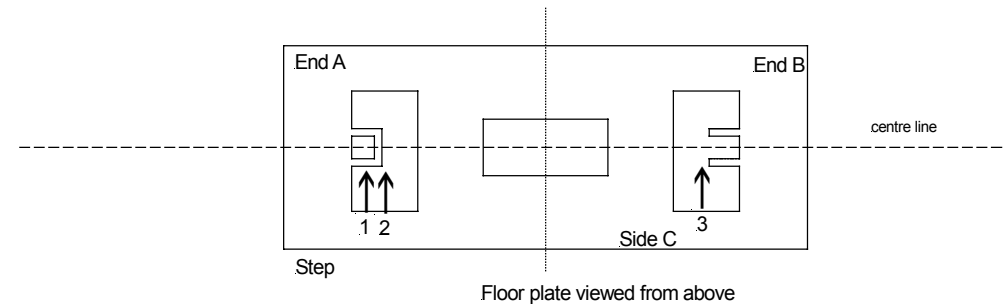
Using the edge of a flat file and the solebar trimming to length, taking equal amounts of each end. Cut the support block at the rear of the buffer to thickness of the buffer beam and attach to the buffer beam.

Cut four sections of spring wire approximately 25 mm in length. Remove the bearing carriers from the fret (part 3). These have three prongs at the top. Bend out the central prong sufficiently to thread the spring wire into the horizontal groove. When the wire is central on the carrier gently squeeze the prongs until the wire just starts to bend.



The wires with bearing carriers should be placed in the spring supports, gently push out the w-irons to allow the wheel sets to be inserted. It is suggested that the wheels are removed or are masked prior to painting.

The iron stone wagon was fitted with a lifting link either side brake system. Fold up brake shoes (part 13) adding shoe packing piece between shoes and solder. Attach to chassis floor. Tin mating faces of lifting link brake levers (part 11) and sweat together. Ensure both surfaces are firmly attached to each other. Thread a length of 0.7mm wire between the brake shoes and use this to align the V's. Add inner V's (part 4) and solder to the chassis plate in slots provided but not the wire at this stage. Prepare the outer V (part 5), firstly form rivet detail by pressing half etch hole with a pin on a firm surface. The V needs to be attached to the centre of the solebar using a U shaped (part 2) steel packing piece. (You are supplied with spares). The packing piece can be either soldered to the rear of the V or alternatively glued in place in the solebar channel and the outer V then attached. We suggest the packing piece is glued in place on the solebar followed by soldering the V to the packing piece. The inner V can be used to position the packing pieces. The wire may now be soldered in place. After soldering cut the wire adjacent to the inner V and about 0.5mm beyond the outer V.



Fold up the brake lever guide following the attached sketch and solder each of the fold lines in turn. Position the guide in line with the centre of the right hand spring hanger. The guide should fit into the solebar channel. Attach the brake lever in place. A second short section of 0.7mm wire will be needed for the fulcrum position. Lastly attach the safety loops (part 12) adjacent to each shoe.

To the hopper door screw mechanism add a section of 0.5mm wire between the two pot marked blocks, The wire ends will need bending at 90 degrees to form a handle which should be just behind the hopper door wheel. Add an etched wheel (part 9) to each side then attach to the floor plate. This should be 10mm from end A, indicated 1, with the levers facing the end.

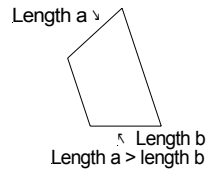
At each end add the hopper door release mechanism. There are two castings, one including the lever rod pot mark should be at end B, position 3, the other at A position 2. The pot mark for the lever rod will need opening to accept 0.5mm wire. In both cases the casting should be with the angled surface facing side C. These castings should be

attached under the chassis plate with the detail facing upwards. The base of the round part of the casting should be in the centre of the wagon and the casting positioned in the centre of the space adjacent to the lengthwise underframe member. At end A the casting base should only be part way across the space, ending just at the far side of the etched underframe support member. This will require trimming if desired but will hardly be noticeable on the finished model. The lever rod and lever at end B ends on a stand about 3mm above the floor adjacent to the side. This stand is too fine to cast or etch but may be fabricated from a U shaped piece of wire soldered to the lever if desired. The lever varies in length; 4mm is probably about right and normally is on the left. This part may be left till after the body.

This now completes the underframe.

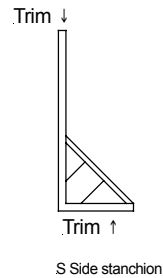
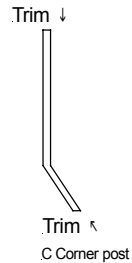
### Body

Ensure the body has been cleaned using soapy water to remove mould release agents. Attach the resin body to the floor plate using superglue or araldite. Following the sketch add 2 end supports, E, to each end in line with the vertical strapping.

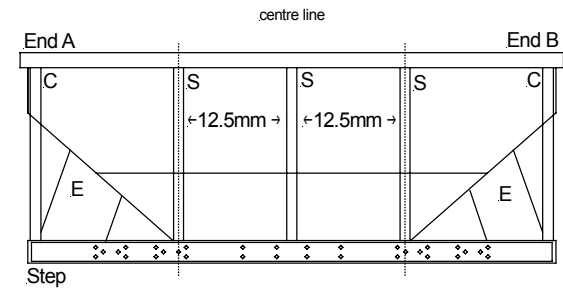


E End stanchion

Add corner post, C, approximately 0.33mm from each corner. At floor position the corner post will need lightly filing to give an angle.



Attach the side supports, S. The side posts should be at the wagon centre and either side leaving a 12.5mm gap between posts. When fitting the posts all will need trimming to length using flat file. Trimming will need to be at the floor level as well as at the post top.



Add the step to the solebar at end A. The casting will be over both the buffer beam and solebar. Earlier wagons had a flat step if required file the step upper surface flat.

A ladder is fitted at one end adjacent to the step. Remove the ladder (part 1) from the fret and fold up the stiles. (Note: the second ladder is a spare). Thread 0.3mm wire and solder. Ensure only the minimum solder is applied. Clean the ladder section using either a fine file or a carbide cutting disc and remove both the spacer pieces. The first rung of the ladder needs to be about 4mm above the floor. On the prototype the ladder ends are twisted through 90 degrees so a flat end can be welded to either the floor or body. This effect can be reproduced using two pairs of pliers. Grip the stile firmly adjacent to where you wish the twist, using the other pliers twist to 90 degrees. The ladder should be about 1mm from the end support.

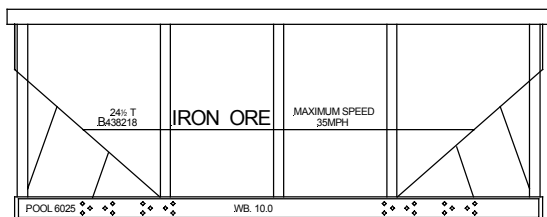
## Livery

As built British Railways unfitted wagons were painted grey and fitted bauxite. However they soon deteriorated to a 'weathered rust'. Lettering was white on, in the case of grey wagons, a black panel. Running gear was black and often the solebars too. The hopper door wheels and levers as well as the brake lever ends would be white. Some vehicles also had white paint on the side posts.

The information below can be considered to be only a guide as lettering varied and modellers are advised to examine photographs.

## British Railways

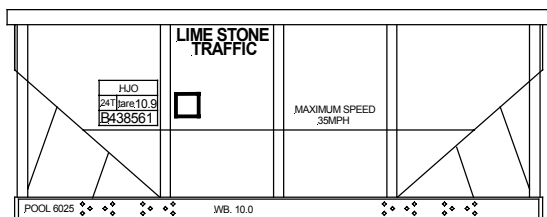
Pre 'TOPS



Bodywork, solebars grey, Precision Paint P126  
Buffers, drawgear, running gear and solebars Black  
Letters and numbers White  
HMRS sheet 25

## British Railways

Post TOPS



Bodywork, solebars grey, Precision Paint P126 pre 1964, P128 post 1964  
Buffers, drawgear, running gear and solebars Black  
Letters and numbers White

## Finish touches

Prepare Instanter coupling chains using etched components and chain of your choice. It is suggested these are blackened rather than painted. The hook is in two parts, which should be sweated together. After painting add coupling hook with Instanter coupling chain.

## Numbers

D1/163: B438000 to B439499

D1/166: B439700 to B440049

A more up to date version of this instruction sheet may be available at:

[www.51l.co.uk](http://www.51l.co.uk).



51L produces a wide range of wagons for the modeller interested in the early British Railways period. See [www.51l.co.uk](http://www.51l.co.uk) for details.

## Interested in the British Railways wagons?

Contact the Diesel and Electric Modellers United

[www.demu.co.uk](http://www.demu.co.uk)

For suggestions for future kits contact:

[ideas@51L.co.uk](mailto:ideas@51L.co.uk)

## Wizard Models

Wizard Models stocks a wide range of components, paints, transfers and other necessities for the modeller in OO, EM and P4. A full price list, for 50p + SAE can be obtained from:-

PO Box 225, Macclesfield, Cheshire. SK10 4GB

Tel / Fax: 01625-532944

Email: [sales@wizardmodels.co.uk](mailto:sales@wizardmodels.co.uk)

Alternatively view our online shop at:

[www.wizardmodels.co.uk](http://www.wizardmodels.co.uk)

The site is fully searchable with many products illustrated. Lists in PDF format may be downloaded. Please contact us for any further assistance.

Version: 1.00

September 2006