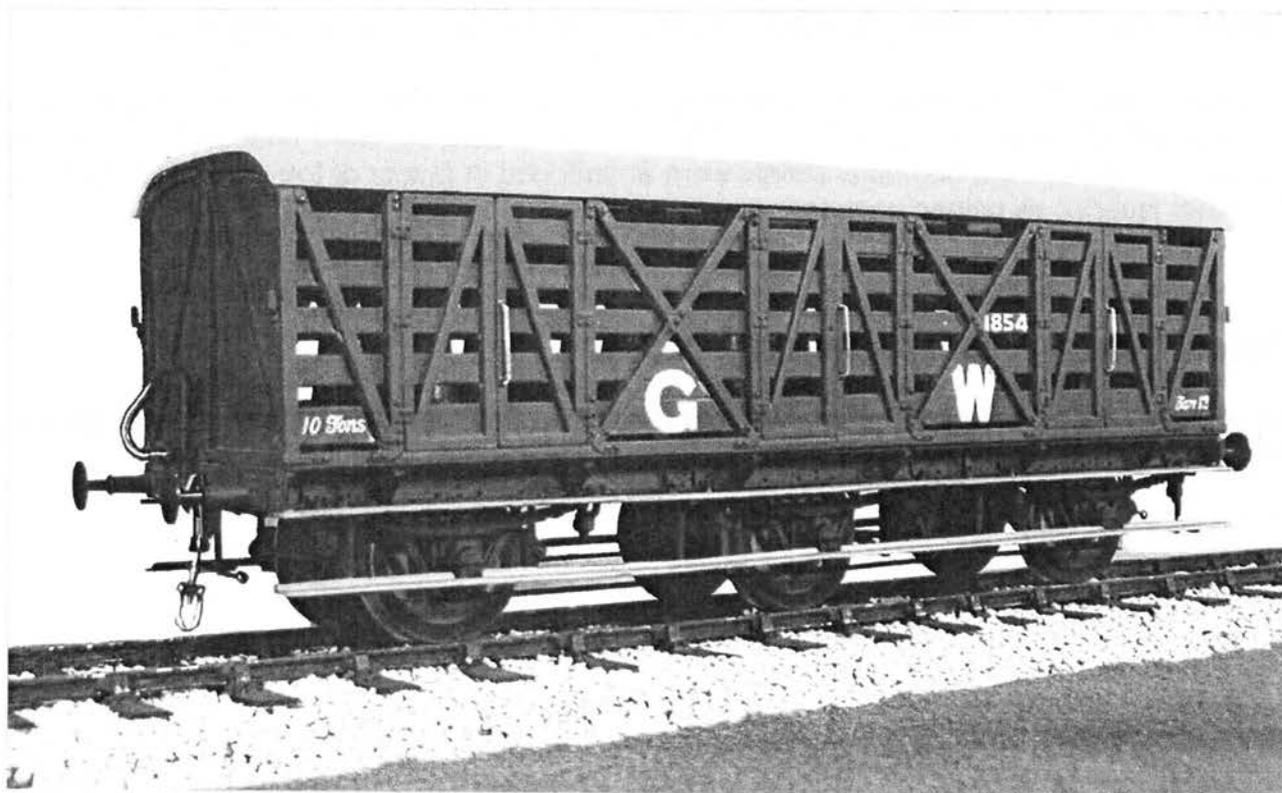


GWR 6 WHEELED MILK SIPHON (to Diagram 0.4)



Historical Notes

The Great Western Railway built large numbers of ventilated vans of one sort or another for milk traffic varying from small four wheeled vehicles with slatted sides to enormous bogie vehicles with louvred sides. The subject of this kit falls in the middle of the range and depicts one of the numerous six wheeled types.

Several variants of the six wheeled van were built, but this kit represents those vehicles allocated to Diagram 04. These were a development of the earlier type but now with three double doors per side instead of two double doors. A total of 263 were built to this diagram, but 10 of these were built to slightly different dimensions to those shown on the diagram. All vehicles were built with vacuum brakes, but a number were dual fitted with Westinghouse brakes as well. The Churchward type of handbrake was fitted to many (but not all) of the vehicles from the late 1920s. This necessitated shortening the footboards at the right hand end to clear the handbrake lever. The end footboard support was repositioned towards the centre of the vehicle. At the same time it is probable that the Westinghouse brake gear was removed.

Livery and Lettering Notes

These 'Siphons' are classed as 'brown vehicles' and as such are in the same category as horseboxes, carriage trucks and other items of non-passenger carrying coaching stock. The entire vehicle was brown with the exception of the white roof and black running gear. The handbrake handle (if fitted) was sometimes painted white all over, or just the disc at the end was so treated. The white roof would, of course, soon weather to a dirty grey.

The earliest recorded livery for these Siphons shows the initials 'G.W.R.' on the second plank up from the centre of the 'X' framing and the running number in italic characters on the bottom plank under each 'X' frame. Circa 1902 this changed to 25" high 'G' and 'W' in a panel formed by filling in the gap between the bottom two planks below the 'X' framing. The running number was painted on the middle plank to the right of the right hand 'X'. Load ('10 Tons') and tare weight ('Tare 11.11.2') were painted in the bottom left and right corners respectively .

The body colour for carriages changed to Lake in 1908, but there is doubt as to whether any of these Siphons were so painted. In 1920 the large 'G' and 'W' were changed in height from 25" to 16". In 1934 the company initials were abandoned in favour of the GWR monogram but the other lettering remained unchanged.

References and Acknowledgements

As with any model be sure to refer to photographs of your chosen prototype in order to get the details, livery and lettering correct. Some sources of further information are:

- 'Great Western Way' by J.N.Slinn (HMRS, 1978)
- 'A Pictorial Record of Great Western Coaches', Part 1 by J.H. Russell (OPC, 1972)
- 'Great Western Coaches Appendix'. Volume 2 by J.H. Russell (OPC, 1984)
- 'The Siphon Story: Part 1' by J. Lewis (Model Trains Jan 1982)
- 'Milk Traffic on the GWR: Part 4' by J.N. Slinn
in HMRS Journal volume 11 No. 7, summer 1983
- 'GWR Six-Wheeled Siphons' by J. Lewis (MRJ No. 5 Jan/Feb 1986)

Various photographs of the vehicles can be obtained from the Historical Model Railway Society, and they often appear in the background of views of locomotives.

This kit has been prepared from official GWR drawings, measurements of a preserved 6 wheel carriage chassis, and details from various sources. In particular we would like to express our sincere thanks to Messrs. Adrian Gray and Jim Whittaker who have been kind enough to place various photographs and other records at our disposal.

Assembly Notes

Before starting assembly, read the instructions carefully and identify the various parts. These notes are offered to help you construct an accurate and attractive model.

- Cut moulded or etched parts from their sprues or frets with a sharp craft knife or piercing saw. Do not break the parts away or use cutters as there will be a high risk of damage to the part. Clean off the remaining pips with a fine file.
- When folding etched parts have the etched fold line on the inside of the bend (unless otherwise stated). Then reinforce the bend with a fillet of solder.
- Use liquid polystyrene cement for joining plastic parts; Slater's Mekpak is ideal. Hold the parts together and run Mekpak into the joint using a small paintbrush.
- Painting is rarely best left until construction is complete. Our instructions indicate stages at which we consider it advisable to paint various components.
- A piece of plate glass (or mirror) is an ideal surface on which to assemble parts in order to ensure squareness and accuracy.

Parts List

Moulded Parts

Part No.	Description	No. of Sprues	Check
X7C0311(A)	Body side A (half length)	2	
X7C0311(B)	Body side B (half length)	2	
X7C0312	Body ends	2	
X7C0313	Roof	1	
X7C0314	Floor (half)	2	
X7C0317	Solebars (1 pair)	1	
X7C0318	Vacuum cylinder	1	
X7C0319	Headstock, springs & axleboxes	2	

Etched Parts

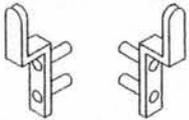
Part No.	Description	No. of Etchings	Check
X7C031	Underframe and brake parts	1	
X7C032	Stepboards	1	
X7C033	Replacement part 14a	1	
X705402	Buffer spring clip	1	

Cast Parts

Part No.	Description	No. of Castings	Check
-	As packed (see illustrations below)	1 (packet)	

Miscellaneous Parts

Part No.	Description	Quantity	Check
7124G	3'-7" Mansell wheels with bearings	3 axles	
X7C0102	Coach buffer heads	4	
71564	Buffer bodies	4	
X715552	Buffer springs (to be cut to make 4)	2	
-	Springs (vacuum hoses)	4	
-	8 BA cheesehead screws	3	
1213	0.020" (0.5mm) brass wire x 12"	1	
1214	0.030" (0.75mm) brass wire x 6"	3	
-	0.020" (0.5mm) piano wire x 7"	2	
1008	0.020" x 0.040" Microstrip	2	



C1 lamp iron
(2 required)



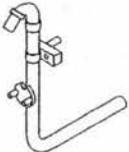
C2 lamp iron
(not required)



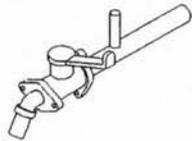
C3 grab
(6 required)



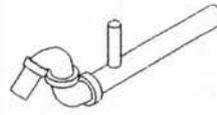
C4 door handle
x (6)



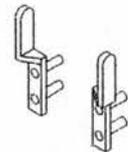
C5 vacuum pipe
x (2)



C6 steam heating
pipe (optional)



C7 vacuum pipe
(not required)



C8 lamp iron
(corner type) x (4)



C9 'J' hanger
(lt & rt hand) x (12)



C10 foot board
support x (8)

ASSEMBLING THE FLOOR & BODY

Take the two halves of the floor moulding and remove the raised rib in the two corners as shown in fig 1. Then glue the two pieces together. If you are modelling the later version with the 25" high letters (see 'Livery Notes' on page 2) add the small moulded plank as shown in fig 4.

Carefully remove the two moulded ribs as shown in Fig 1. This will permit the fitting of the etched 'vee' hangers (part 14a) to the floor.

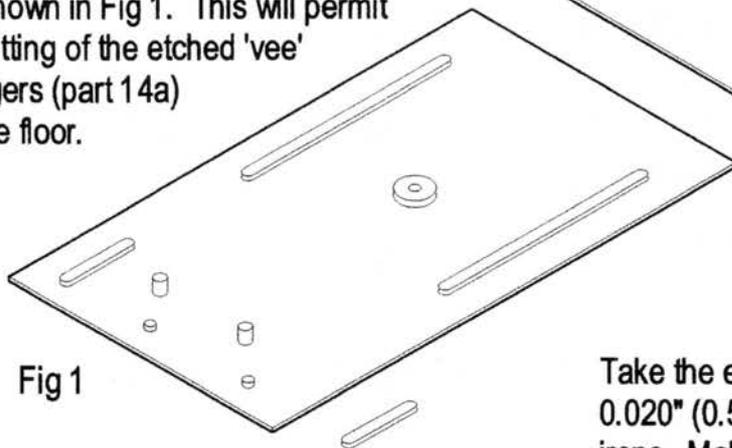
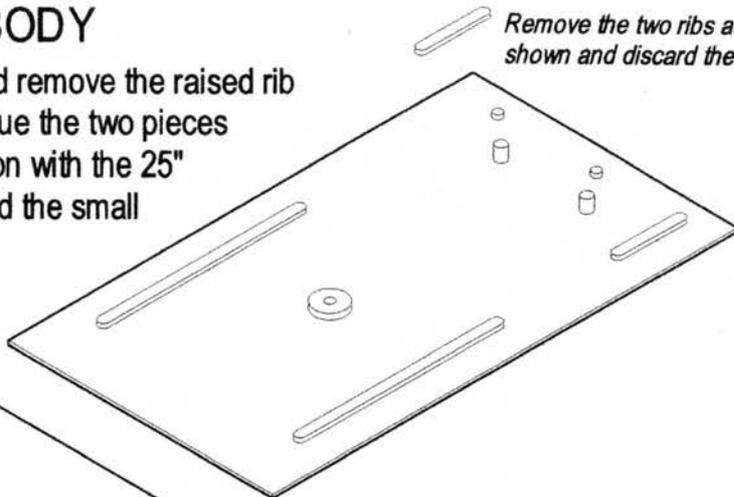


Fig 1

Remove the two ribs as shown and discard them.



For extra realism you may wish to scribe diagonal planking (approx. 5mm spacing) on the upper side of the floor. Note that Fig 1 shows the under side of the floor!

Take the end mouldings and carefully drill holes 0.020" (0.5mm, No. 76 drill) to take the cast lamp irons. Make the mounting block for C1 from plastic and add to the end as in Fig 2 and 3.

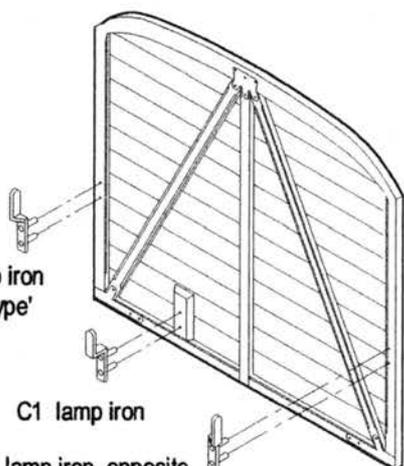


Fig 2

C8 lamp iron 'corner type'

C1 lamp iron

C8 lamp iron, opposite handed to the other C8.

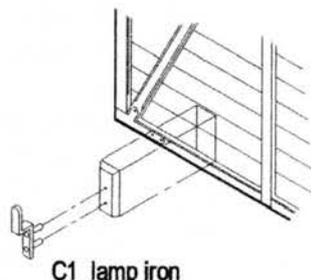
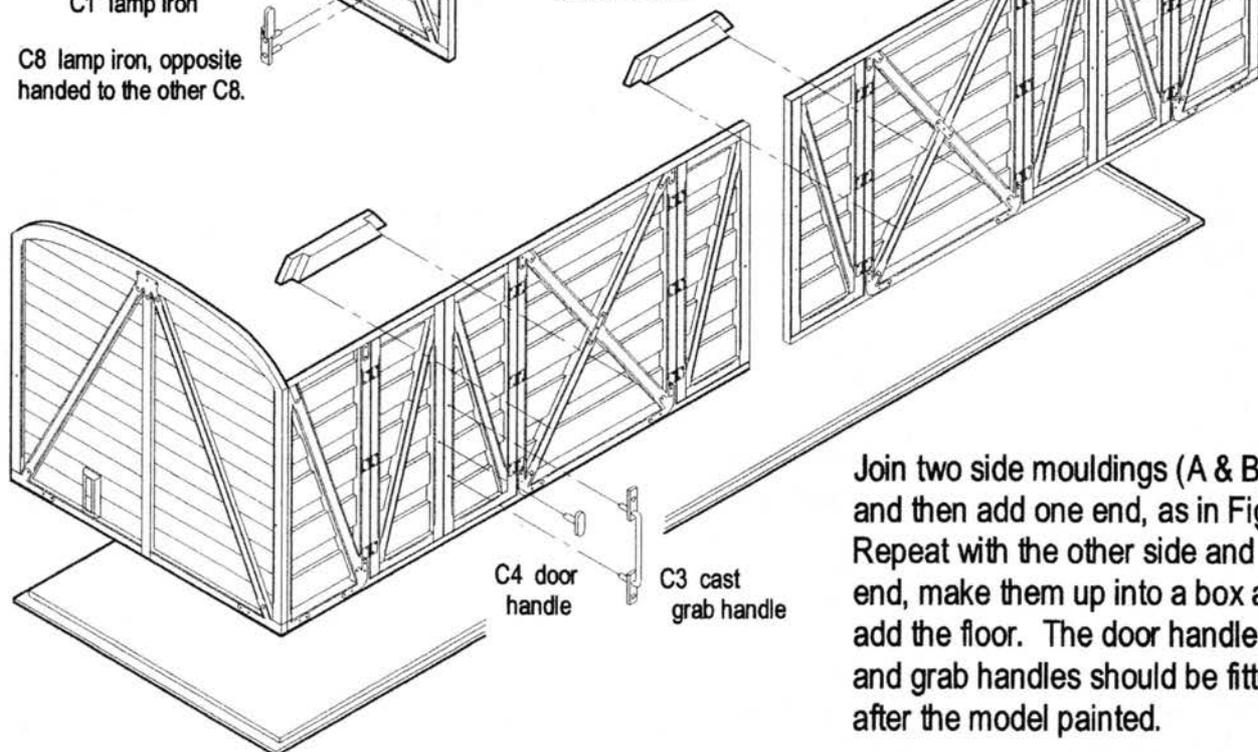


Fig 3

C1 lamp iron

'in fill' plank for later versions

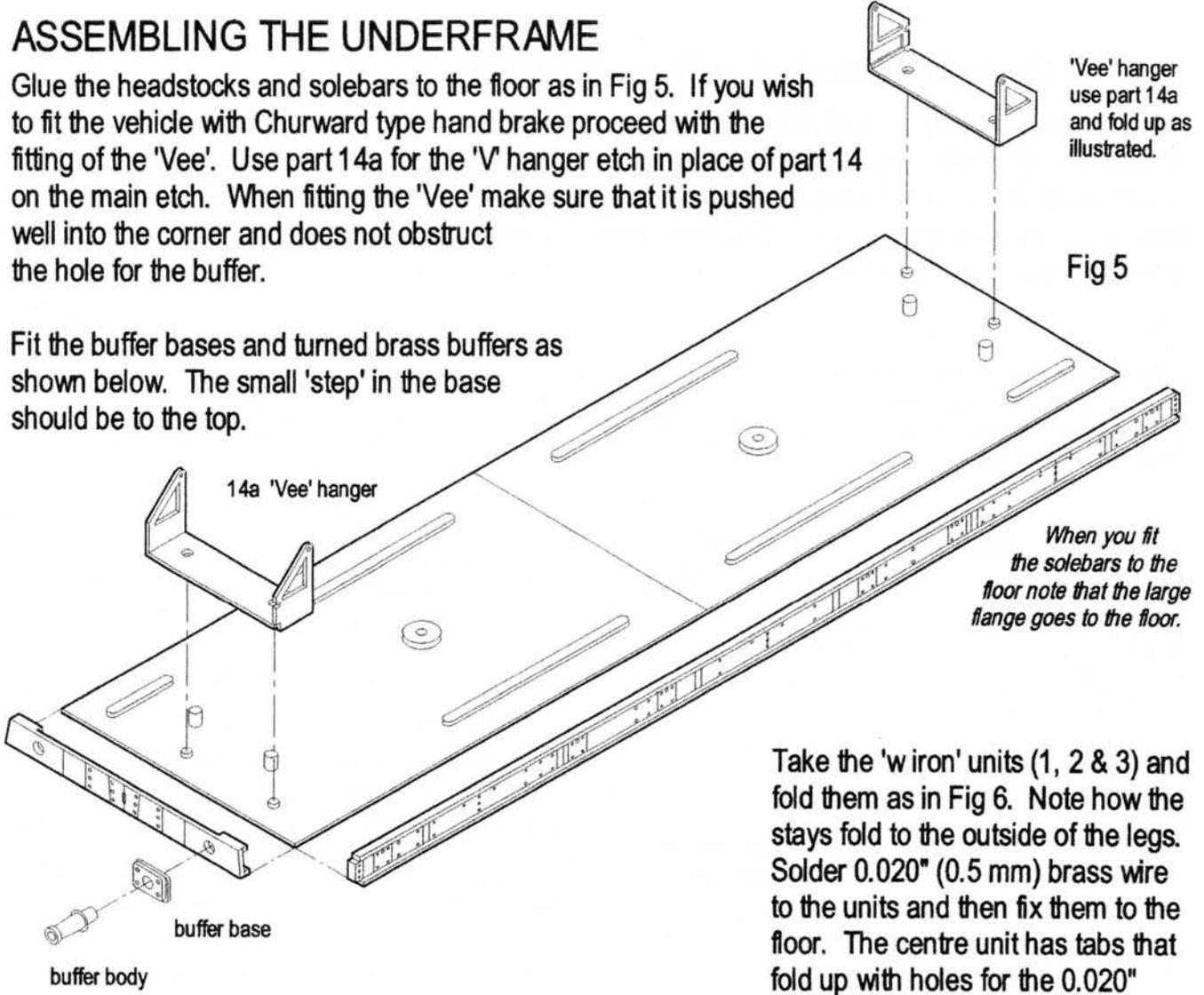


Join two side mouldings (A & B) and then add one end, as in Fig 4. Repeat with the other side and end, make them up into a box and add the floor. The door handles and grab handles should be fitted after the model painted.

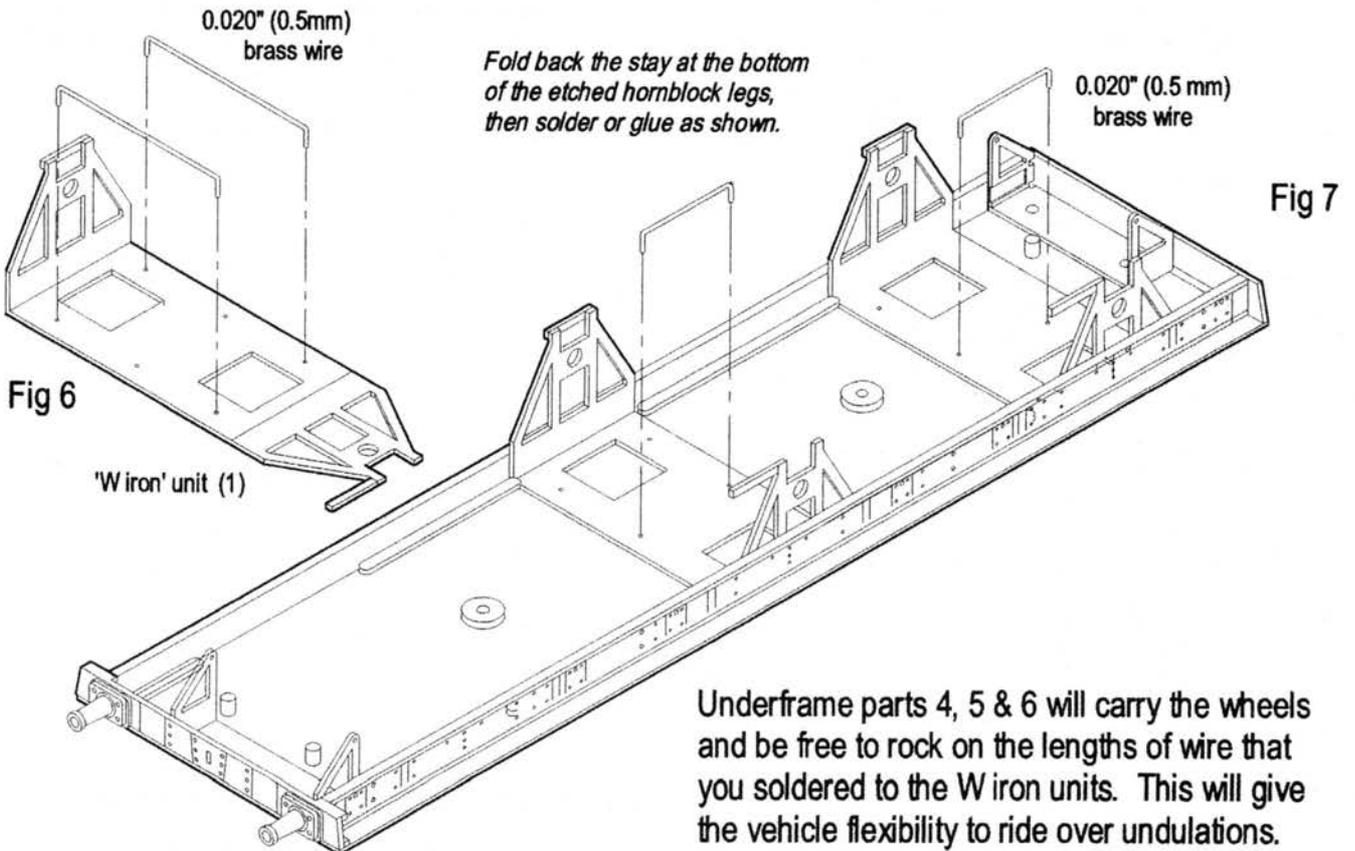
ASSEMBLING THE UNDERFRAME

Glue the headstocks and solebars to the floor as in Fig 5. If you wish to fit the vehicle with Churward type hand brake proceed with the fitting of the 'Vee'. Use part 14a for the 'V' hanger etch in place of part 14 on the main etch. When fitting the 'Vee' make sure that it is pushed well into the corner and does not obstruct the hole for the buffer.

Fit the buffer bases and turned brass buffers as shown below. The small 'step' in the base should be to the top.



Take the 'w iron' units (1, 2 & 3) and fold them as in Fig 6. Note how the stays fold to the outside of the legs. Solder 0.020" (0.5 mm) brass wire to the units and then fix them to the floor. The centre unit has tabs that fold up with holes for the 0.020" (0.5 mm) steel wire.



THE 'CLEMINSON' SUSPENSION ASSEMBLY

Take the 'inner' parts (4, 5 & 6) of the 'Cleminson' suspension and carefully fold as in fig 8. The wheel sets can be positioned with the bearings sitting in the etched slots. Don't bend the tabs over yet. These will hold the wheels in place when they are finally fitted. Using side cutter snip off the extended axle points flush with the wheels.

Solder a brake gear bracket (7) into the slot as shown in Fig 8. Note how the ends of the brackets point to the ends of the vehicle.

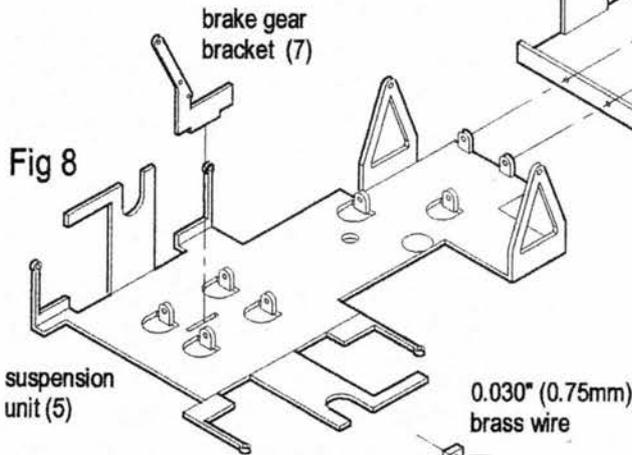
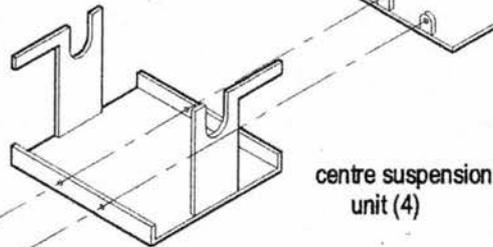


Fig 8



suspension unit (6)

centre suspension unit (4)

Referring to Fig 9 attach a moulded brake shoe to each of the brake shoe hangers. The shoes align with the tread of the wheels. Take the brake beams (10 & 11) twist the pull rod through 90 degrees then fit them into the middle hole in the brake shoe. The longer of the two pull beams attaches to the upper hole in bracket (7) as in Fig 11.

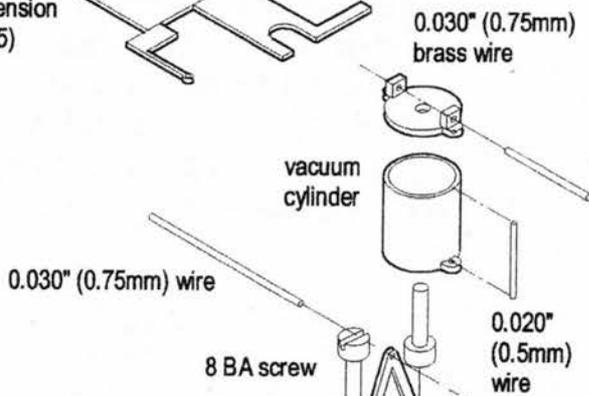


Fig 9

Solder one of the 8 BA screws into the recessed hole in part 5 as in Fig 9. Assemble the vacuum cylinder and screw it onto the bolt until it is 3mm from the base. Add length of 0.030" (0.75 mm) wire through the lugs on the cylinder and short pieces of 0.020" (0.5mm) wire to either side.

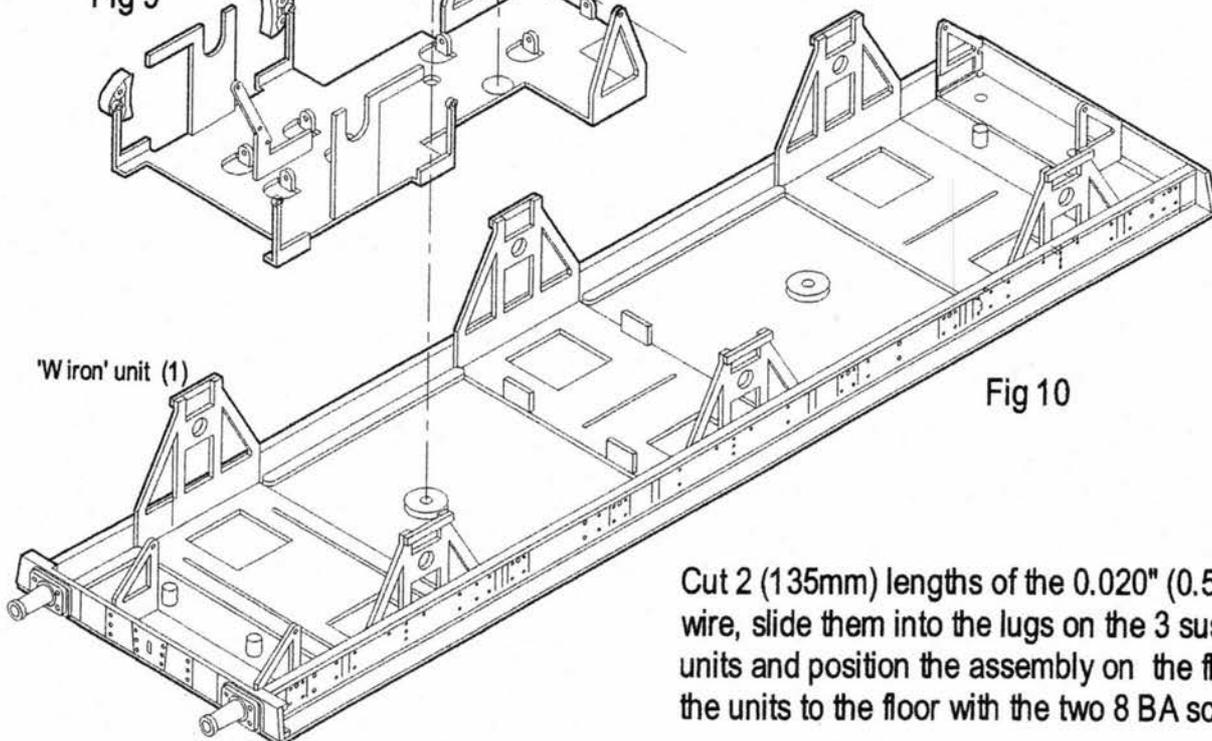
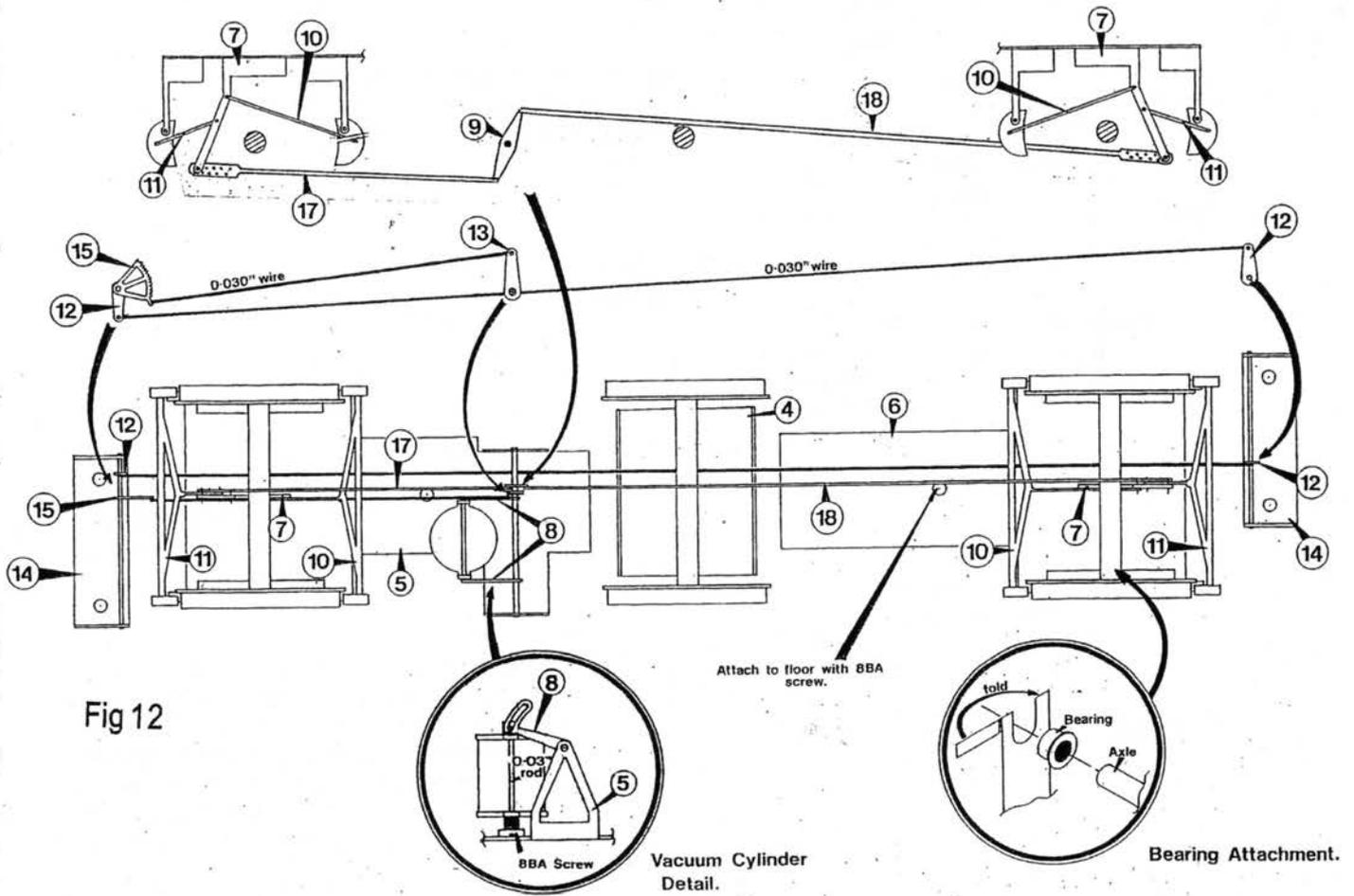


Fig 10

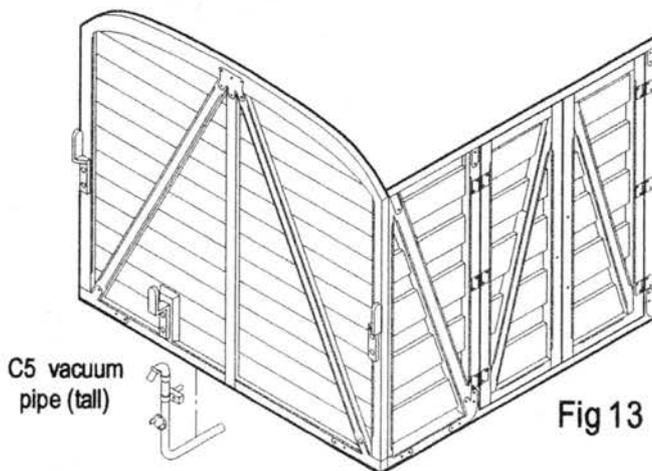
Cut 2 (135mm) lengths of the 0.020" (0.5mm) piano wire, slide them into the lugs on the 3 suspension units and position the assembly on the floor. Pivot the units to the floor with the two 8 BA screws.

Bend up the brake handles (16) and solder each handle to a length of 0.030" (0.75mm) brass wire. Thread the wire through the vee hangers on part 14a (fitted earlier). Add linkages (12) at each end and a ratchet quadrant (15) at the vacuum cylinder end (as Fig 12).



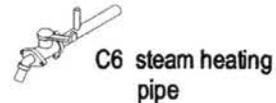
This is a good time to paint the underframe parts and the wheels too, if you wish. With the painting complete, fit the wheel sets and secure them by folding back the retaining straps.

Fit the short brake pull rod (17) to the double ended brake lever (9) and the bottom hole of the support (7). Solder the lever (9) to the shaft such that it lies on the centre line of the vehicle.



Note that some photos of the Dia 0.4 show only vacuum pipes fitted, and no evidence of steam heating connection.

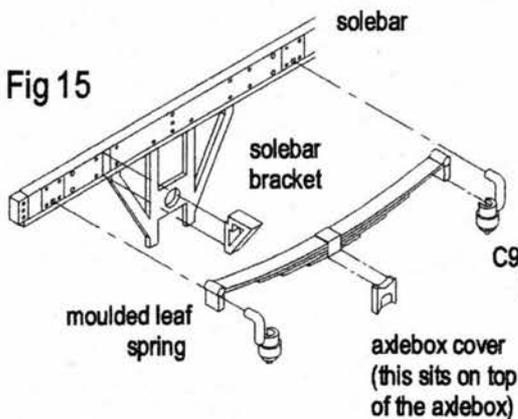
Fig 14



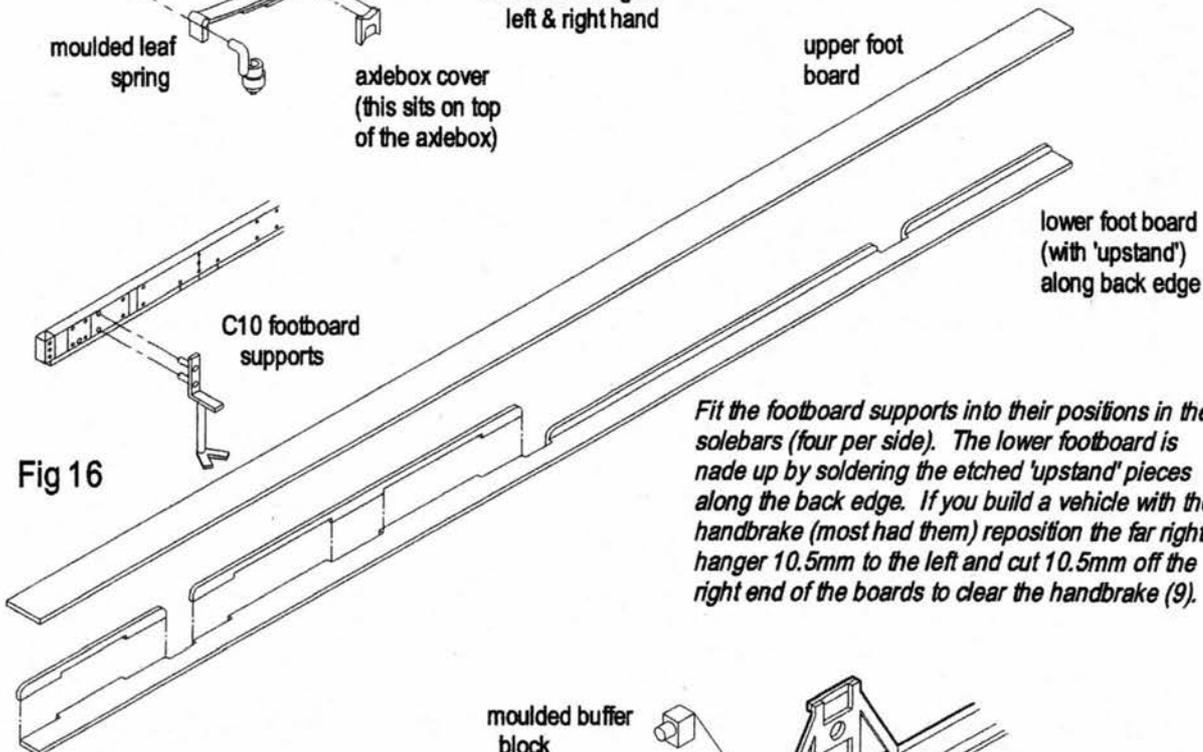
If you wish to model a vehicle that is 'piped through', (but with no provision for steam heating) fit the steam heating pipe (C6). The pipe connection castings should be fitted to the lower edge of the headstock (to the right of centre). Both the vacuum pipe (C5) and the steam heat pipe (C6) should be positioned 0.25" (6.35mm) either side of the coupling.

ADDING STEPBOARDS & ROOF DETAIL

Fit the detail onto the 'W irons' as shown in Fig 15 below. The cast 'J hangers' fit into the holes in the solebars. Each end of the leaf spring then rests in the cup of the J hangers. Finally add the axleboxes and the small axlebox covers.

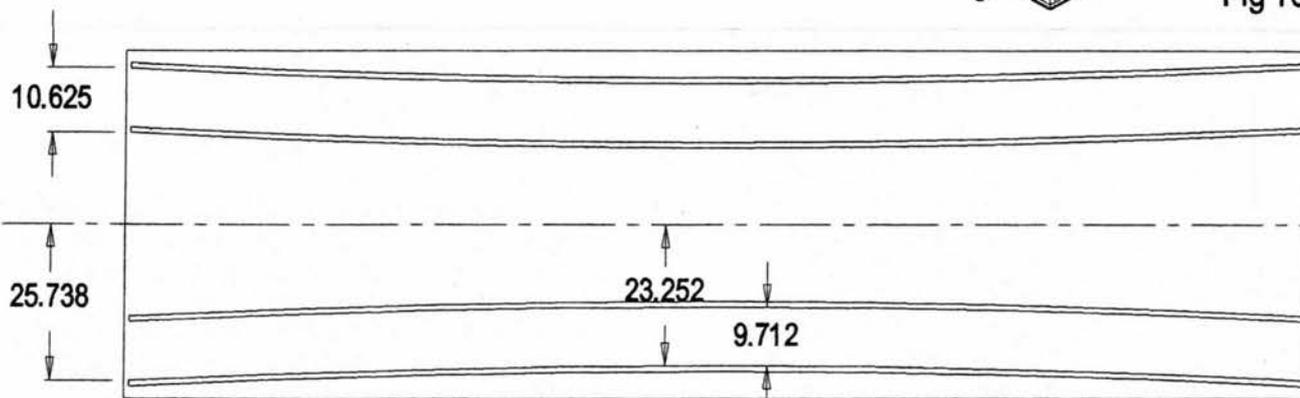
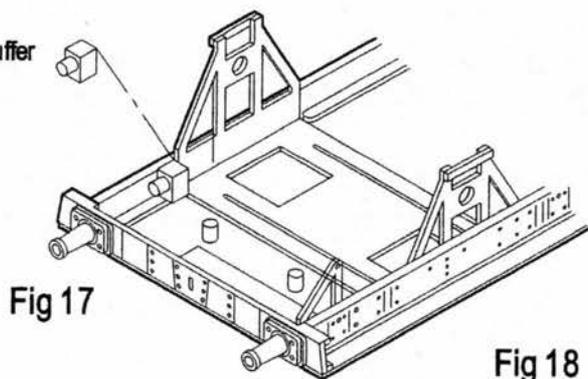


Note. The small moulded 'solebar brackets' shown in Fig 15 fit in the shallow recesses in the solebar. You will find six locations per solebar.



Fit the footboard supports into their positions in the solebars (four per side). The lower footboard is made up by soldering the etched 'upstand' pieces along the back edge. If you build a vehicle with the handbrake (most had them) reposition the far right hanger 10.5mm to the left and cut 10.5mm off the right end of the boards to clear the handbrake (9).

Add the small buffer spring blocks shown in Fig 17. The steel buffer passes through the buffer body and has a small etched clip (from X705402) glued into the groove. Cut the buffer springs in half and put them between the clip and the moulded blocks.



Finally, add the outer rainstrips using the microstrip supplied; dimensions are given in Fig 18. Paint the interior if you wish; and perhaps add a load of milk churns. The roof can then be glued to the body.