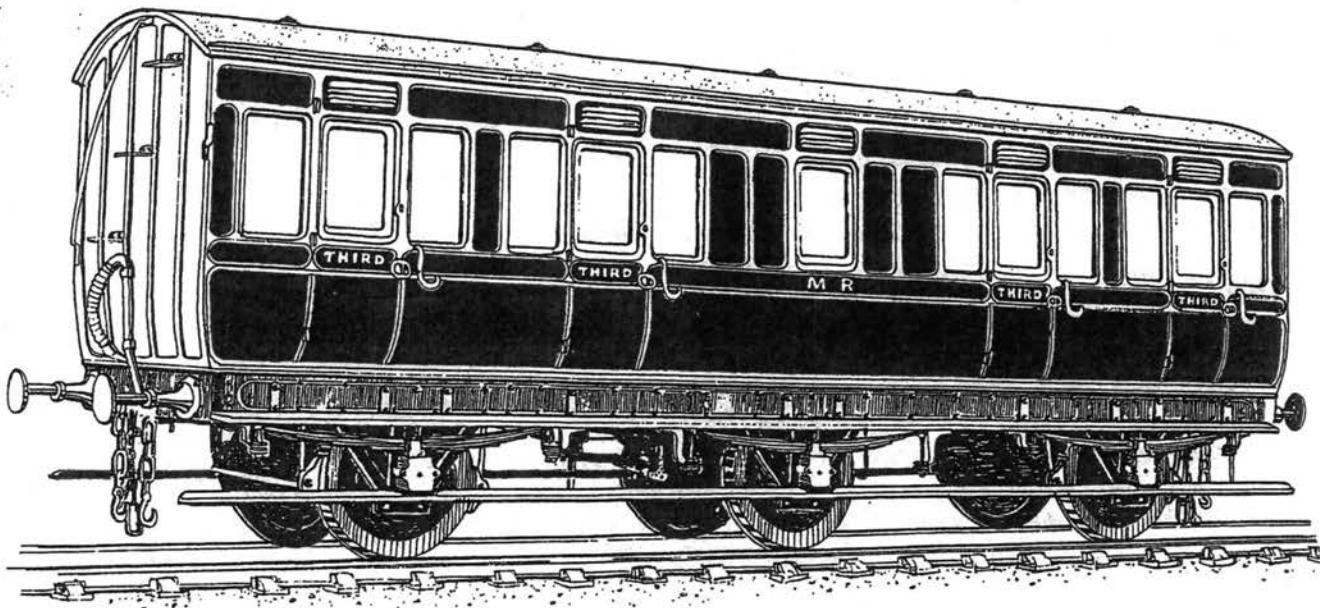


SLATER'S COACH KITS



7C012·CLAYTON ARC-ROOF COACH LAVATORY THIRD diagram 494

INTRODUCTION

In 1884 the Midland Railway Company acknowledged the need to build 50 six wheel twin composites and a further quantity of 5-bodied six wheel third class carriages for excursion traffic. This was one year before the Glasgow & South Western and the North British had built respectively 10 third class and 25 composite six wheel carriages. These vehicles were built to Midland drawings and employed on the Midland Scottish Joint Stock trains. Derby Carriage & Wagon Works started a programme of renewals that lasted from March 1884 to January 1888. In all, 551 long-buffered vehicles were constructed, comprising: 314 third class, 200 composites, 30 brake thirds and 19 for the West Bridge line (with restricted clearances). Renewed vehicles, as a rule, took the numbers of scrapped carriages and replaced them compartment for compartment.

Derby began constructing further coaches as additions to the replacement stock in 1887. This work continued until 1895 by which time a total of 499 had been built, comprising: 364 third class, 93 brake thirds and 42 lavatory thirds, but no composites.

This kit, and the four companion Clayton arc-roof carriages, are fine examples of vehicles built by a railway company pioneering previously unheard of standards of passenger comfort. This in an age that saw the middle and lower classes enjoying a newly discovered freedom to travel.

ASSEMBLY INSTRUCTIONS for 7mm scale ·O'gauge

GENERAL NOTES

These carriages were designed by T.G.Clayton, Carriage and Wagon Superintendent of the Midland Railway (1873-1901). The term arc-roof refers to the fact that the curve of the roof is a single centre arc with an 8 foot radius.

All the vehicles followed a 5 compartment layout and were sometimes referred to as 5-bodied carriages. Lavatory thirds were created by fitting an oblique partition across the centre compartment. The centre compartment of the composite was reduced to 3'7", fitted with double doors (24" and 20" wide) and used for stowage of luggage. The adjacent compartments were for first class accommodation. In 1892 nineteen of these coaches had their luggage compartment converted into lavatories for first class travellers. The resulting lavatories were smaller than those in the lavatory thirds.

UNDERFRAME

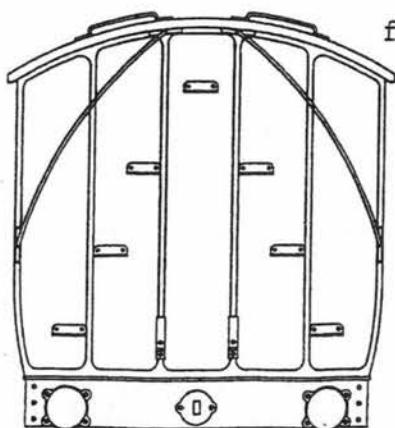
The vehicle body was mounted on a wooden underframe built of 11" x 4" timbers; the solebar was plated on the outside with iron. Headstocks were also of wood with additional 1 1/4" timber packing behind the cast buffer bodies. Safety chains were fitted 10" either side of the drawbar but were probably removed around the turn of the century. Two footboards, mounted on iron brackets, ran the length of the vehicle. All were wooden but only the lower boards had rear-edge upstands and cut-outs to clear the axleboxes. Brakes were fitted to the outer wheels only. The leaf springs were 7' long and secured to the solebar by means of 6" J-hangers. The centre wheelset was later refitted with 12" J-hangers allowing more lateral movement of the centre wheels. We presume that coaches built after 1891 were fitted with the 12" J-hangers from new. General arrangement drawings were annotated 2/91 at the side of this alteration. Both types of hanger are supplied in this kit.

EMERGENCY VACUUM BRAKE RELEASE

As originally built, these carriages had rings screwed to the edges of the roof to carry the outside communications cord. One end ran to the guard's compartment, the other to a whistle in the driver's cab. From about 1901 this arrangement was replaced by an internal chain connected to the automatic braking system.

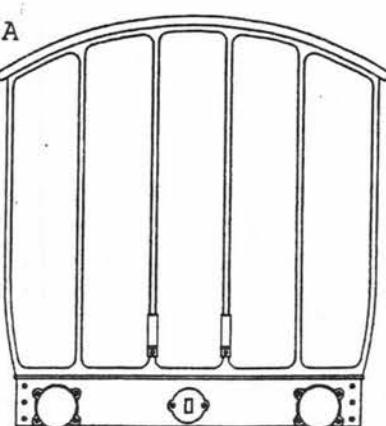
CARRIAGE BODY ENDS

The coach end is worthy of note because of the variation in arrangement of steps and handrails, fitted to facilitate the servicing of the roof lamps. More will be said about these in the next section but the drawings below illustrate the usual layout of the ends. Figure A would seem to be common on brake thirds, (the steps are at the guard's end) while most other carriages (perhaps all of the third class) used the more common arrangement shown in fig B.



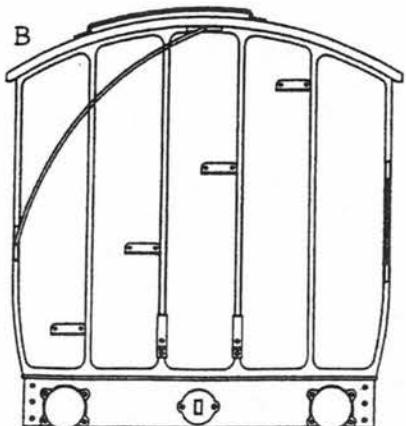
step end

fig A



plain end

fig B

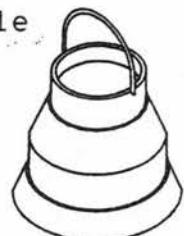


both ends identical

LIGHTING

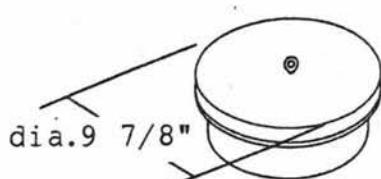
Coach lighting (perhaps a trifle prosaic to some!) is interesting with respect to these vehicles because they were subject to several refinements during their lifetime. Arc-roof stock was originally fitted with oil lamps and fig C shows a typical pattern. The provision of a handle is significant because the lamps were cleaned, filled and lit in a lamp room, then carried out onto the coach roof and placed into a hole in the centre of each compartment. When the lamp was removed, the hole was covered with the part shown in fig D. This cover was secured to the roof by a short length of chain and stowed on the stand (located near the lamp top).

wire loop handle

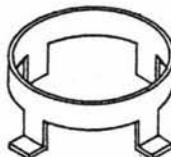


OIL LAMP

fig.D

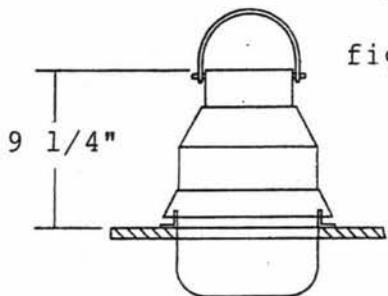


COVER (for lamp hole)



STAND (for cover)

fig C



section through roof

From about 1890 the Midland began converting to oil-gas lamps. A single pipe supply ran from the gas reservoir under the coach through a shut off valve on the coach end to the jet burner lamps on the roof. A two-pipe gas mantle lamp was introduced around 1908; the second pipe branched off below the valve and supplied the pilot flame on each lamp. The conversion of all vehicles took time (perhaps as long as 10 years); period photographs often show a variety of lamp tops. Two points are worth remembering: official exworks photos frequently show carriages with oil lamps removed, and secondly, some coaches would appear to have retained their, now redundant, cover-stands after conversion to gas lighting. We must assume that when a carriage with steps as in fig.A was converted to gas lighting the piping and valve were fitted to the plain end.

VENTILATION

All the coach doors were fitted with a sliding ventilator above the droplight. A louvred bonnet on the outside prevented the ingress of inclement weather. Further ventilation was provided by torpedo-type roof vents fitted from about 1906. The lavatory compartment was fitted with a mushroom-like vent (and a filler cap for the water tank).

ACKNOWLEDGEMENTS

These kits have been prepared from copies of the original Midland Railway works drawings, measurements taken from preserved vehicles and many happy hours spent studying photographs. We are extremely grateful to Mr. R.J.Essery, Derby Industrial Museum and Mr. David Jenkinson for supplying us with historical and constructional information.

CONSTRUCTION - GENERAL NOTES

These carriage kits all share a common form of construction but with certain changes according to the exact nature of the vehicle being built. Obviously many of the components supplied in each kit are identical and so these instructions have been compiled as a general sheet but with extra notes on the variants as necessary.

A variety of materials have been utilised in the manufacture of this kit although it is predominantly moulded in polystyrene. Moulded parts should be cut from their sprues with a SHARP craft knife or scalpel; do not attempt to break them off the sprues as the risk of damage is high especially with some of the smaller items. Clean off any ejector pips and/or flash using small needle files - do not use a knife as there is a high risk of removing too great a quantity at a time!

Take great care with the etched parts as some are very delicate indeed as you will soon find out! They should only be removed from the frets when required as the identification numbers are usually etched into the surrounding waste metal. To remove the parts use a SHARP craft knife or a piercing saw; do not try to break them out or use cutters as the risk of damage is very high. Any remaining pips and ties should be removed using small needle files, and the metal cleaned if required using a small glass fibre burnishing brush.

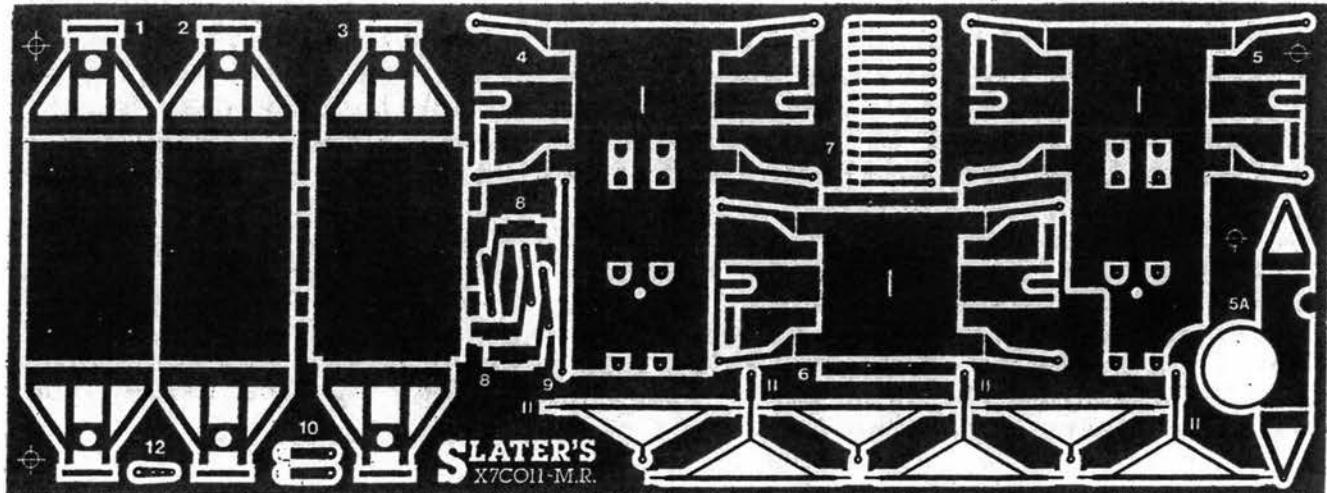
Castings should be removed from their sprues using a piercing or razor saw. The use of cutters will probably damage them. Resultant pips, etc. should be removed using small needle files and/or emery paper.

To construct the model upon it is well worthwhile investing in a small piece of plate glass - this will help to ensure that all the parts go together squarely and accurately. Use MEKPAK fluid cement to bond plastic parts together, and use an epoxy type (eg: fast setting Araldite) or one of the slower curing cyanoacrylic adhesives (eg: Loctite Multibond) for bonding metal to plastic. Solder is recommended for assembling the etched items although it is conceivable that certain types of glue could be used. Solder, however, is far superior!

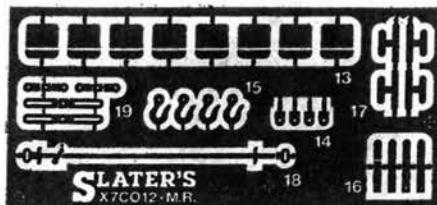
Before starting the construction of the model please read all through the assembly instructions and study as many photographs of the prototype as you can lay your hands on so as to ensure you get the details correct.

IDENTIFICATION OF ETCHED PARTS

- | | |
|--|---------------------------|
| 1. W-iron unit | 6. Middle axle carrier |
| 2. W-iron unit | 7. Inner brake hanger |
| 3. Middle W-iron unit | 8. Brake lever |
| 4. Axle carrier unit | 9. Brake pull rod |
| 5. Axle carrier unit with
cutout for vac.cylinder | 10. Vacuum cylinder lever |
| 5A. Vee hanger unit | 11. Triangular cross bar |
| | 12. Brake actuating lever |

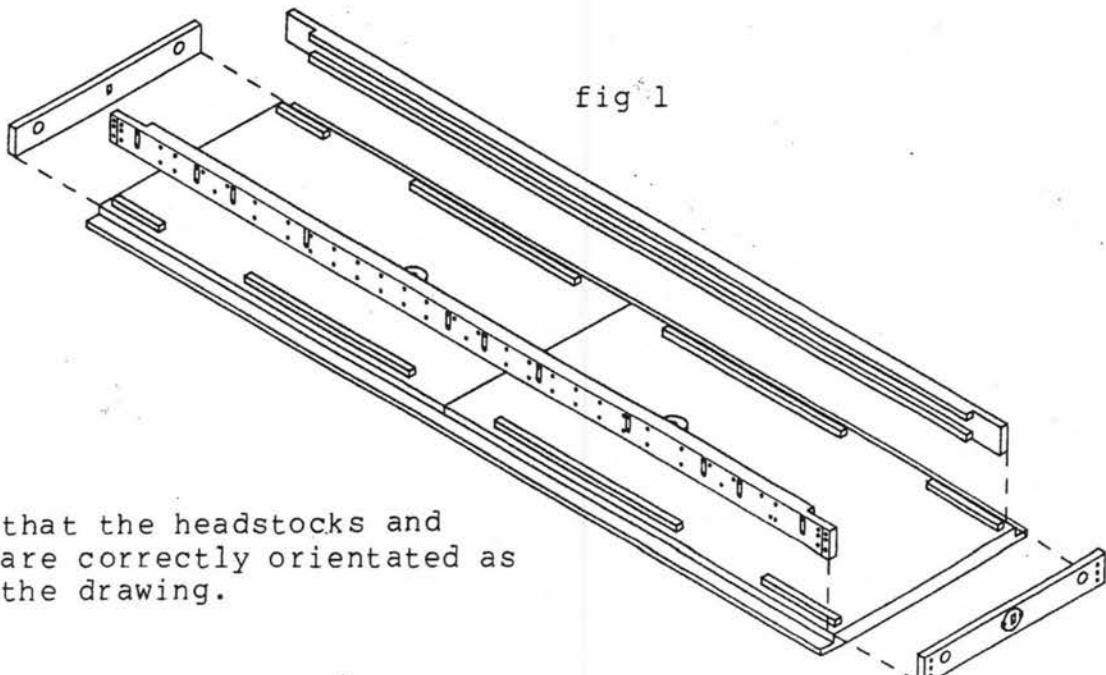


13. Steps for coach end
14. Eye bolt for safety chain
15. Safety chain hook
16. Lamp bracket
17. Lamp bracket for corner
18. Gas supply control bar
19. Pull rod adjuster



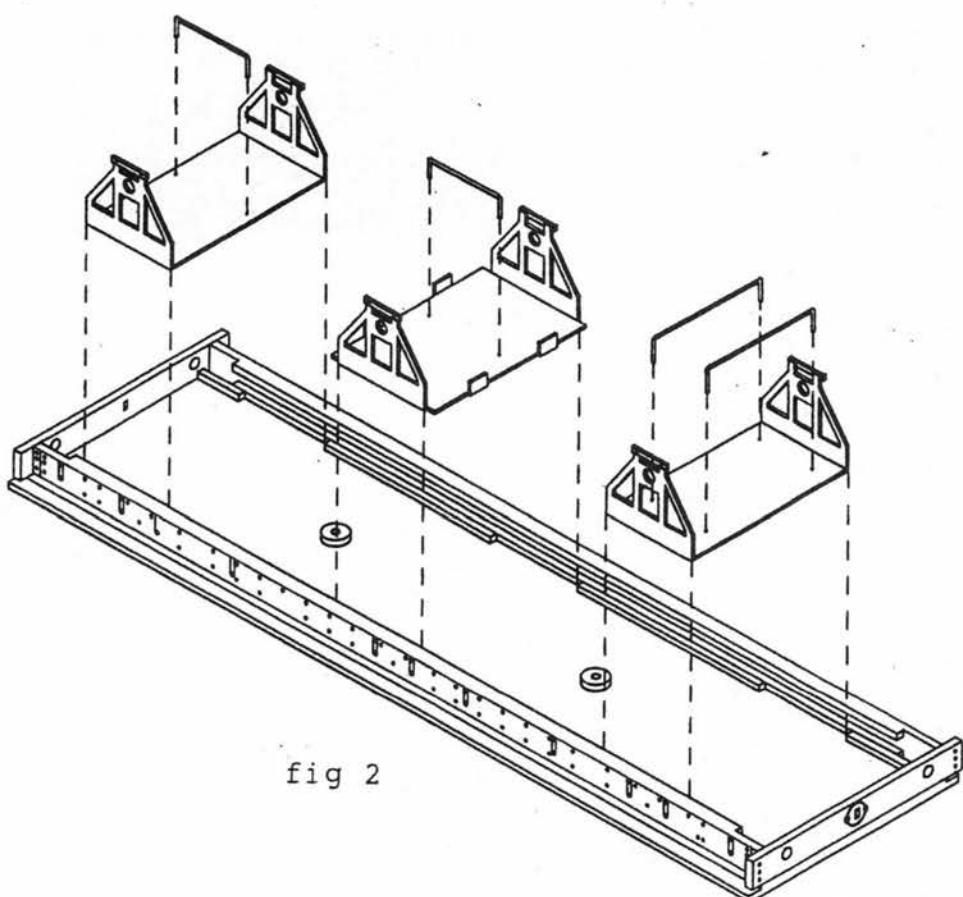
CHASSIS ASSEMBLY

1. The floor is moulded in two halves and will need to be joined. This should not present any problems if you first carefully remove any flash from the parts, work on a firm flat surface and check the joined parts with a metal straight edge.
2. Glue the solebars to the floor outside the longitudinal ribs ensuring that they are centrally located. Note the correct way up as shown in the drawing below.
3. Fit the headstocks onto the underside of the floor so that the inner faces locate against the ends of the outer moulded ribs. Note that the holes for the buffer guides are positioned BELOW the centre line of the headstock.



4. Remove the three w-iron assemblies (1,2 & 3) from the etched fret and, referring to figure 2, bend up four lengths of 0.020" diameter brass wire to fit into the holes in each unit. These form the pivots for the compensation. Solder them in place noting that they must lie on the same side of each component as the main fold lines. Now cut off any excess wire on the top and file flush - this is important!

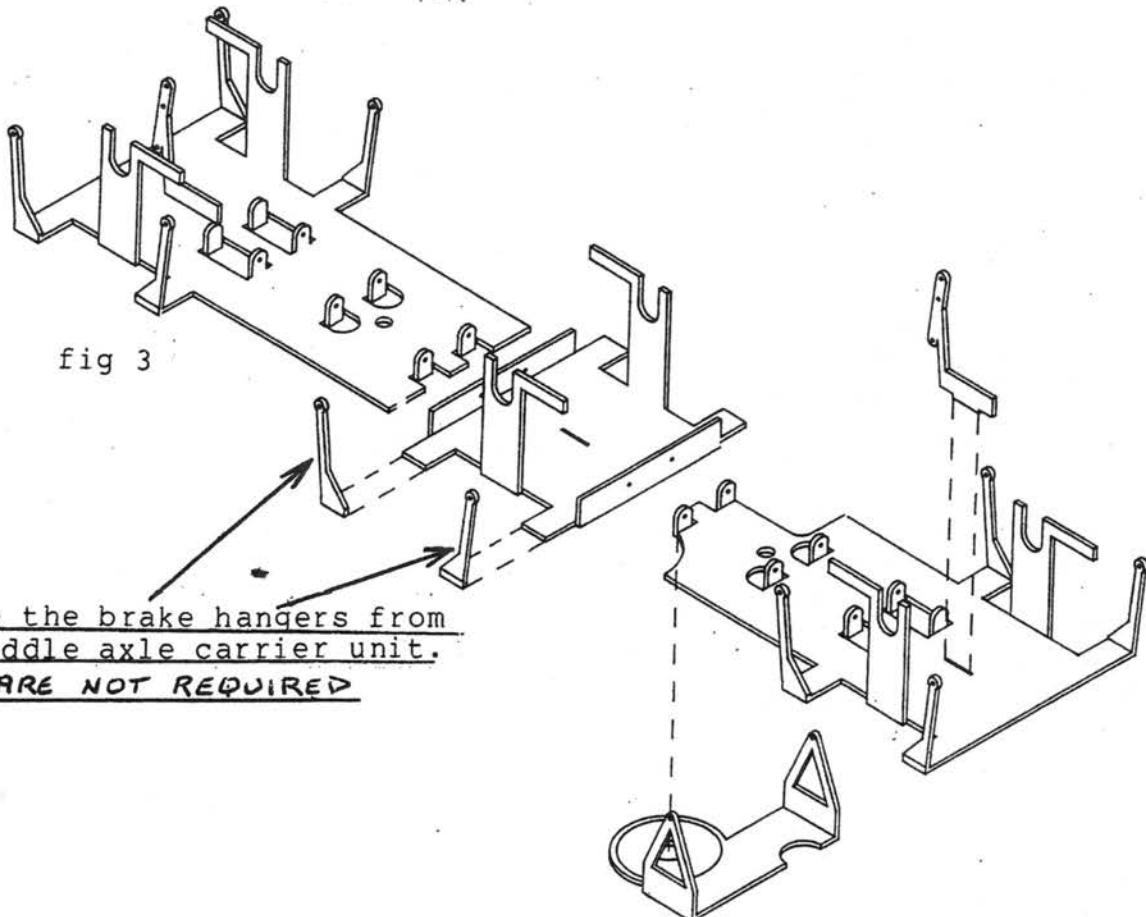
5. Using a blunt scribe and Plastikard anvil, or better still a rivetting tool, punch out the rivets on the stays on these w-irons. Fold the stays back through 180° (fold line on the outside of the bend) so that the stays will end up on the outside face of each unit. Now fold up the w-irons at 90° to the stretcher and, in the case of the middle unit (3), the small rectangular tabs. When satisfied that all are square reinforce each bend with a fillet of solder.



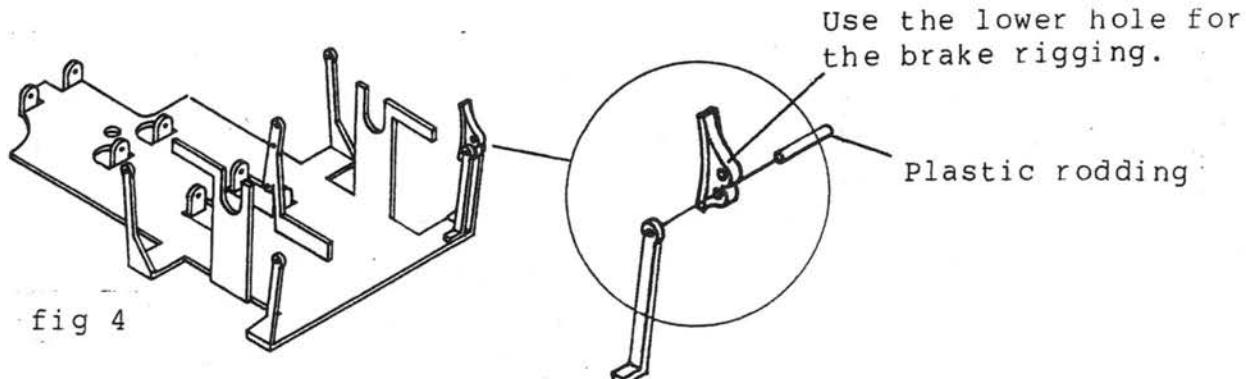
6. Using an epoxy adhesive (e.g. Araldite or similar) fix each w-iron unit to the floor in between the raised ribs. Ensure that each unit is in the correct position; figure 2 should make this clear.

7. Remove the outer axle parts (4 & 5) from the etched fret and fold up the bearing supports, brake hangers and spring wire tabs. Note that it may be necessary to drill out the holes in the tabs No.74 (0.022"/0.58mm) to allow the piano wire spring to pass through. The centre unit (6) can also be prepared. Note that on these vehicles the centre wheels were not originally braked. Carefully remove the brake hangers at the fold line. When satisfied all is square, solder reinforce at each fold. At this stage check that the centre unit (6) fits into the centre w-iron unit. It should slide freely from side to side between the folded tabs.

8. Referring to the brake gear sketch in figure 3 solder the brake levers (8) into the slot in the centre of each of the units.



9. Carefully drop the wheelsets into place but DO NOT YET FOLD OVER the retaining straps. Following the sketch in figure 4 assemble the brake shoes to the hangers using a 3mm length of 0.030" plastic rod through the upper hole and the hangers. Mekpak will secure the rod and a quick touch with the soldering iron (or drop of cyanoacrylate) will secure the etched hanger. Wait atleast 12 hours for this to set before cutting off the surplus rod.

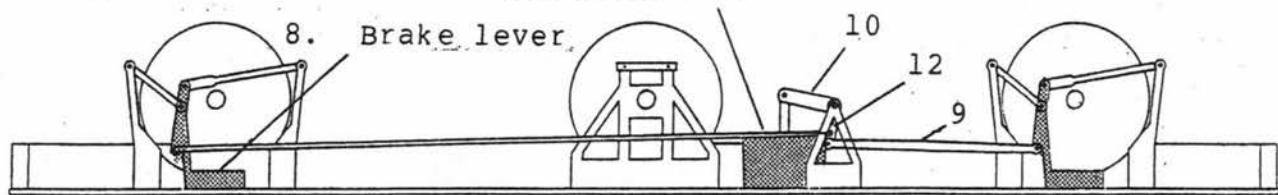


10. Locate the moulded vacuum cylinder in the recess on the vee hanger unit (5A) and glue in place. The cover plate locates into this. Fold the vees through 90 (fold line on the inside) and carefully solder reinforce the folds. Fix this unit to the underside of the floor with the half round cutout fitting around one of the raised bosses. At this stage it does not matter which boss you choose.

11. Fold the vacuum cylinder lever (10) through 180° with the half etched fold on the inside). Glue the moulded vacuum cylinder push rod into the hole in the cylinder cover, note that the other end will need to be thinned so that it fits inside the lever (10). Thread a piece of 0.030" diameter wire through the vee hangers and slide on the brake actuating lever (12) and the lever(10) before soldering the wire in place. The brake actuating lever must be positioned along the centre line of the vehicle.

fig 5

Moulded vacuum cylinder
and push rod.

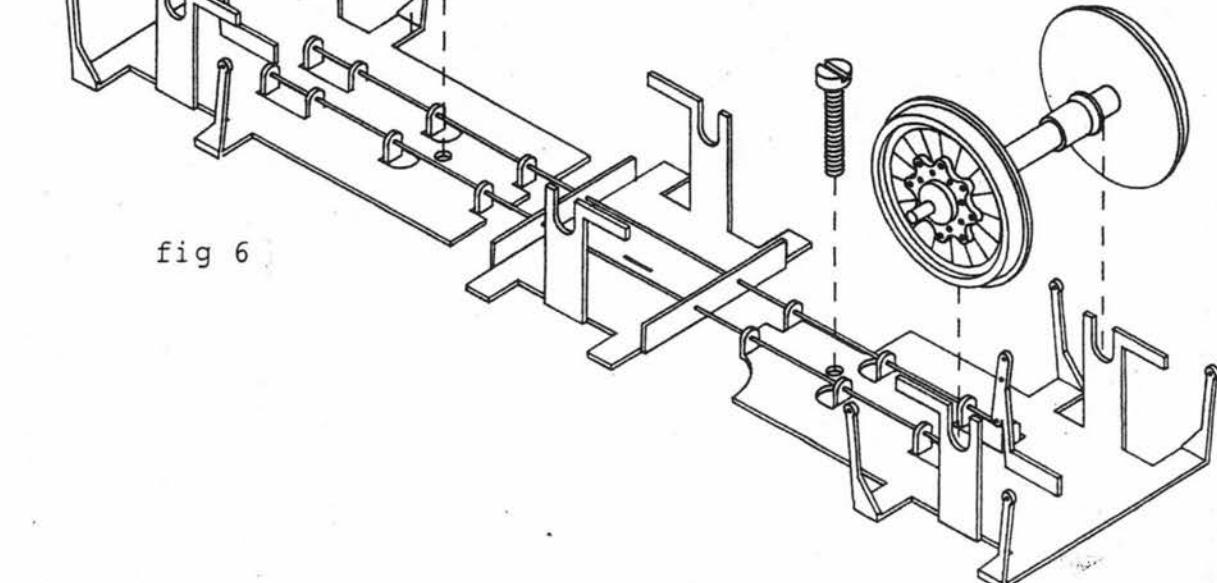


12. Remove the etched triangular cross bars (11) from the fret, note that there are two types - those with a circular end and those with an elongated end. You will need one of each type for the outer wheelsets. Referring to figure 6 twist the shaft through 90° near to the end. Locate the cross bar with the circular end between the pairs of brake shoes and carefully solder the circular end to the central hole in the brake lever (8).

13. Solder the etched brake pull rod (9) between the actuating lever (12) and the lever (8). Also solder a length of 0.030" wire from the actuating lever to the brake lever (8) at the far end of the vehicle. Do not add the other pull rod until the wheelsets have been finally fitted.

fig 6

Fold retaining straps through 180°
to secure the wheel bearings.



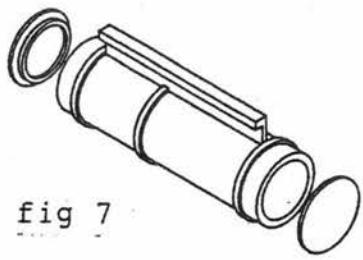
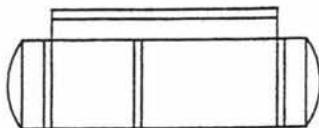


fig 7



14. Remove the wheelsets and place to one side. The underframe components should be painted before proceeding. An airbrush or aerosol can of matt black will be ideal for this task. Paint the wheels at this stage but do take care to keep the treads clean.

15. When the paint is dry drop the wheels back in situ and fold over the bearing retaining straps (with the fold line on the outside of the bend). Use a drop of glue to secure them in place.

16. Now fit the remaining brake pull rods between the brake shoes and attach the ends to the lower hole in the brake lever. Touch up the unpainted areas with matt black paint.

17. Cut two pieces of piano wire to 5" (127mm) in length. Lay the three units (4, 5 & 6) on your worksurface and thread the wire through the tabs. The end tabs do not have holes so they will trap the wires in place.

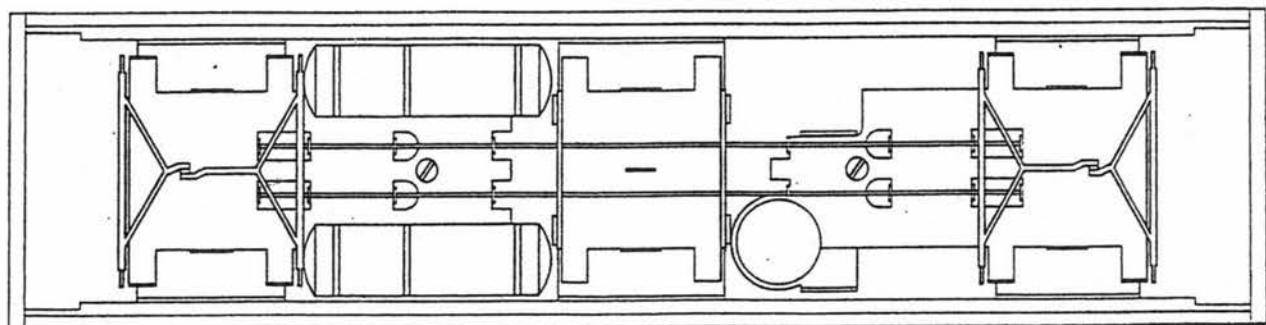
18. Now fasten the units to the carriage floor using the two 8BA cheesehead screws as per figure 6. The screws will form their own thread in the plastic but do not attempt to overtighten as the units should be free to pivot slightly.

19. Try the underframe on your track. What appears at first sight as a complex system to hold the wheels in place has been designed to both assist your model in negotiating the sharp curves that abound on a typical model railway layout as well as helping the vehicle ride smoothly over irregularities in the rail levels.

20. Using the positions of the w-irons as a guide fit the moulded springs and hangers to the bottom of the solebars. See notes regarding the springs on page 1. Glue a moulded axlebox onto each w-iron underneath each spring.

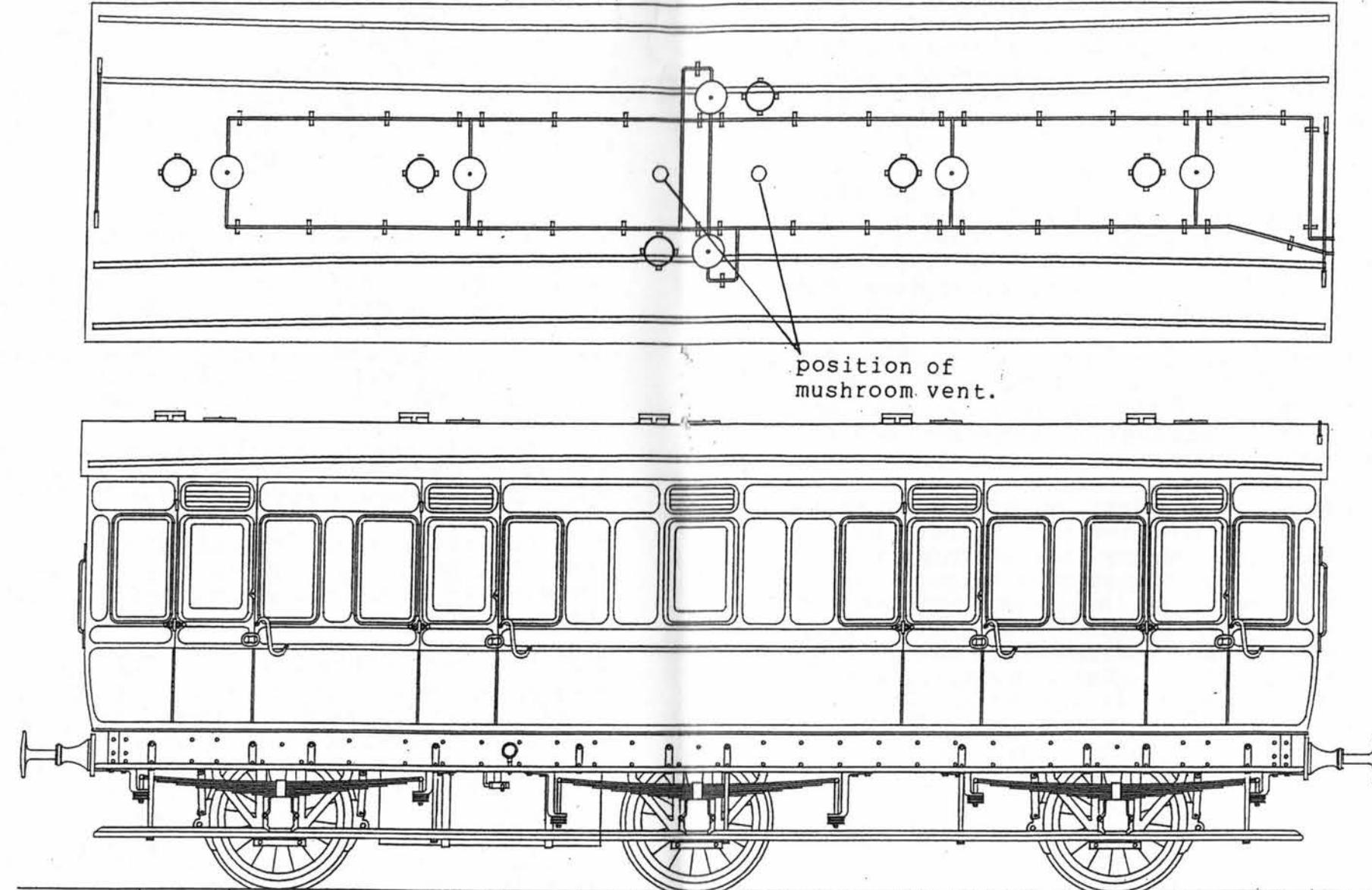
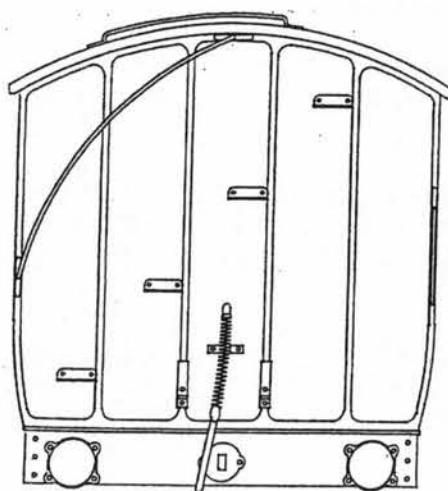
21. If you are building a gas fitted vehicle assemble the gas cylinders as shown in figure 7 and fix to the floor. The correct locations are shown in figure 8.

fig 8



Underside of underframe showing the positions of the vacuum cylinder and the gas reservoir for coach lighting.

Note that the precise route of the piping to the lavatory lamps is unknown and the drawing on the left shows a suggested layout. We have shown the roof with the lamps removed and the original cover stands in place. Most modellers will wish to fit either early or later type gas lamps (both are supplied) and the later style of servicing stand (supplied).



**7C012·CLAYTON ARC-ROOF COACH
LAVATORY THIRD diagram 494**

The Midland Railway started fitting gas lighting to its new coaches as built early in 1890. It is likely that Lot 257 (brake third), Lot 258 (lavatory third), Lot 259 (all third), Lot 290 (all third), Lot 291 (brake third) and Lot 357 (all third) were fitted with the early type of gas lighting from new. The remainder of the various 31' six wheel types would have been built with oil lamps when new and subsequently converted to gas lighting. As mentioned in the notes on page 2, there were two types of gas lights fitted to these coaches and both styles are included in this kit. The 1890 type, (see page 13) would have been fitted to the first few Lots that were gas lit from new. It would appear that the majority of the original oil lit coaches received the 1899 version of gas lamp. Later still, some of the vehicles carrying the 1899 type lamp were fitted with a second pipe to supply a pilot light.

Note the positions of the roof fittings and the layout of the gas piping on this coach. The two pipe supply is illustrated but if you are fitting the early style of gas lamp the pilot supply piping should be omitted. The positions for the lamps in the lavatory compartments are indicated with an X on the underside of the roof.

Known vehicle numbers are as follows:

Midland Railway additions to stock

Lot	Date	Type	Quantity	Known numbers
225	1889	lav. third	22	874
258	1890	lav. third	20	

We would be very grateful for any further information regarding the running numbers. One should always be wary when studying Clayton lavatory thirds because a great number were actually conversions from all thirds.

BODY ASSEMBLY

Before starting to actually assemble the components of the body it is worth while spending a little time working on them whilst still separate. Indeed, you may wish to paint the sides and ends and line them out before construction commences as it will be found far easier to do this now rather than after all the small details have been applied. Any damage as a result of assembling can of course be touched up later.

22. Take the side mouldings and clean off any flash and moulding pips, etc with fine needle files. Open out the holes for the door and commode handles with a 0.5mm drill (No.76/0.020"). Do not fit the handles at this stage, however. Clean up the moulded door ventilators carefully ensuring the bottom is flat. One should be glued centrally in the panel above each door using MEK PAK.

23. Clean up the two end mouldings and check that they fit satisfactorily to the sides trimming if necessary. There is nothing to do to the ends at this stage. You could conceivably fit the lamp irons, steps, etc. at this stage but we strongly recommend that you do not as they are rather vulnerable!

24. Assemble one end to a side on your piece of plate glass to ensure that the bottom of each is coincident and ensure that the two parts are at right angles to each other. You may find it necessary to remove a small amount of plastic from the inside edge of each end to ensure that the panelling on the ends is at the same level as the extreme ends of each side - the ends of the side form the outside verticals of the panelling on each end. Run MEKPAK along the join to weld the two together. Add the other end and then the opposite side to form a box without base or lid. Ensure all is square and leave to set. Carefully fit the body shell onto the floor and run MEKPAK around the joint.

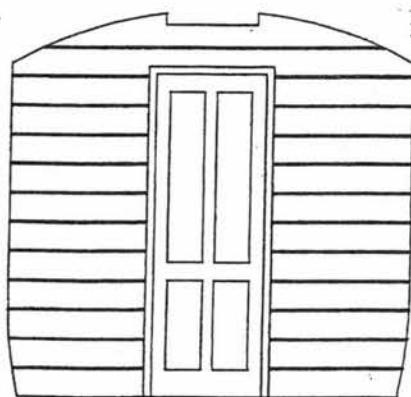


fig 9A

Side A for 3rd class

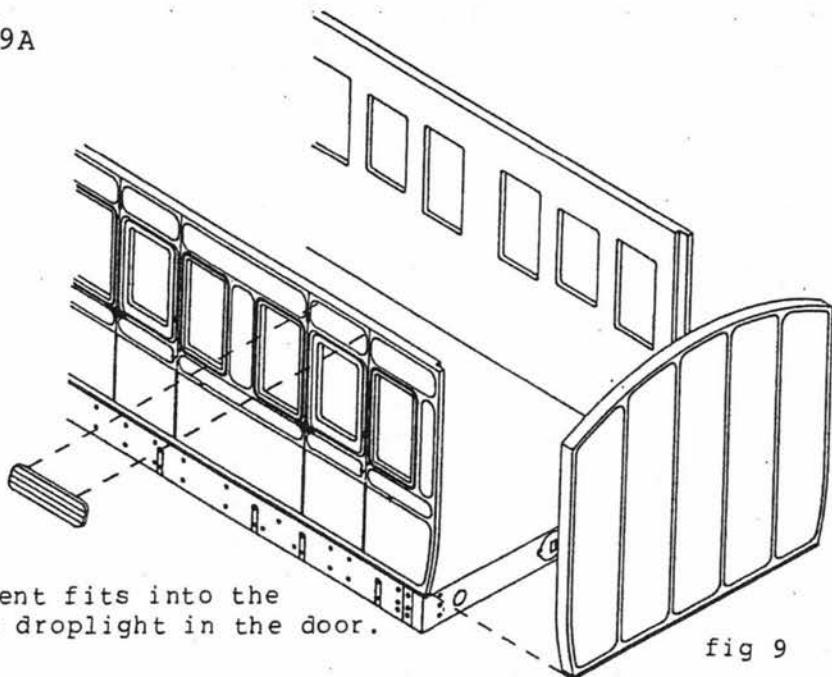


fig 9

25. The partitions can now be added. These were made up of two layers of planks on the prototype which is why the boards run vertically on one side and horizontally on the other. The partitions near the centre of the coach have a door for the lavatory. Note that for this coach (Lavatory Third) side A of the partition, shown in fig.9A, should face the third class compartment.

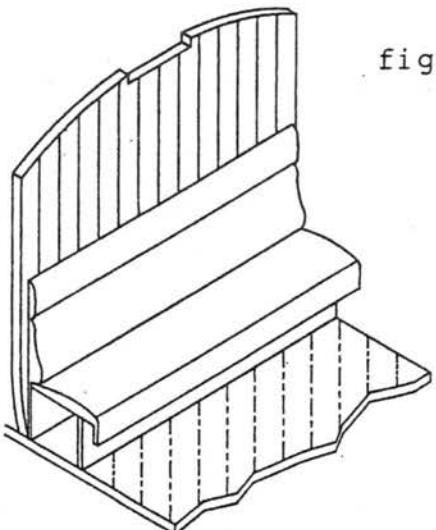
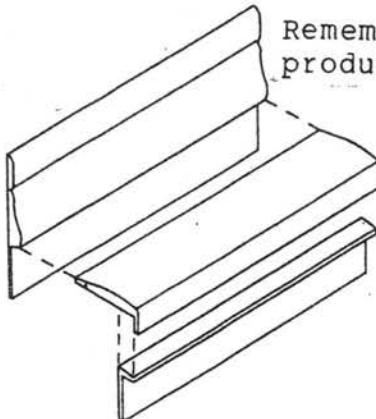


fig 10

Remember to cut the seat to produce 3rd class seating.



The 4 luggage supports should be fitted 35mm above the floor and 16.5mm apart.

26. Moulded seats have been included and should be assembled as shown in figure 11. Note that the seats need to be trimmed along the back edge to produce a shallower third class seat. Left untrimmed, they will produce a slightly deeper first class seat.

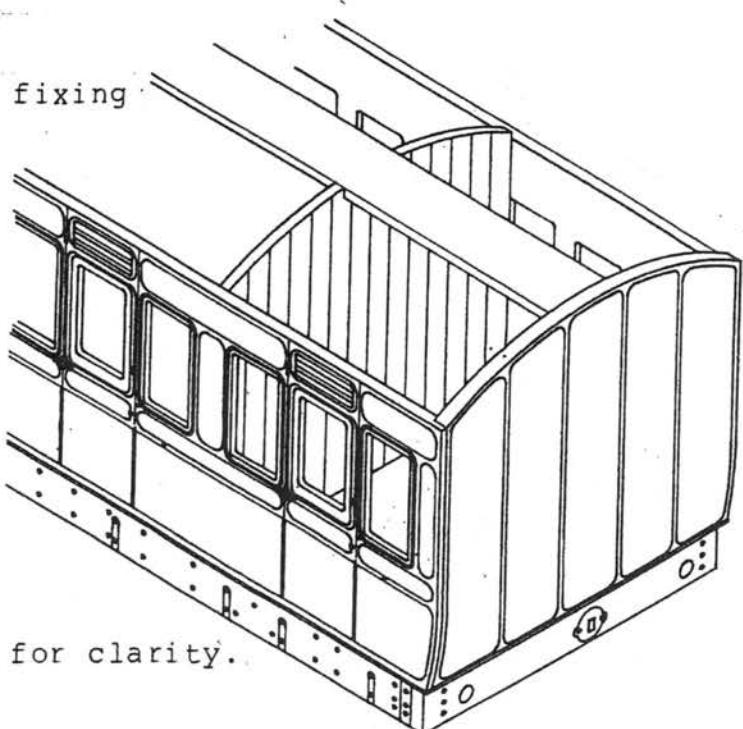
27. If you feel so inclined the luggage racks can now be made up and glued to the partitions. Two patterns of rack are supplied, the longer ones are for first class compartments, the shorter for third class compartments. Each support should be located in its baseplate and soldered and each assembly glued to the partitions. A thin piece of wire should then be soldered across the tops but no netting is supplied.

28. It is a good idea to paint the inside of the vehicle at this stage as it will become a little inaccessible later! Any extra detailing that you wish to incorporate should also be added at this stage. You are referred to the livery notes at the end of the instructions.

29. Now cut to length and fit the 12mm wide strip of 1.5mm thick Plastikard into the channel formed along the top of the partitions. The length should be the same as that between the coach ends. Cement this in place and leave to set.

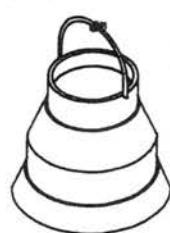
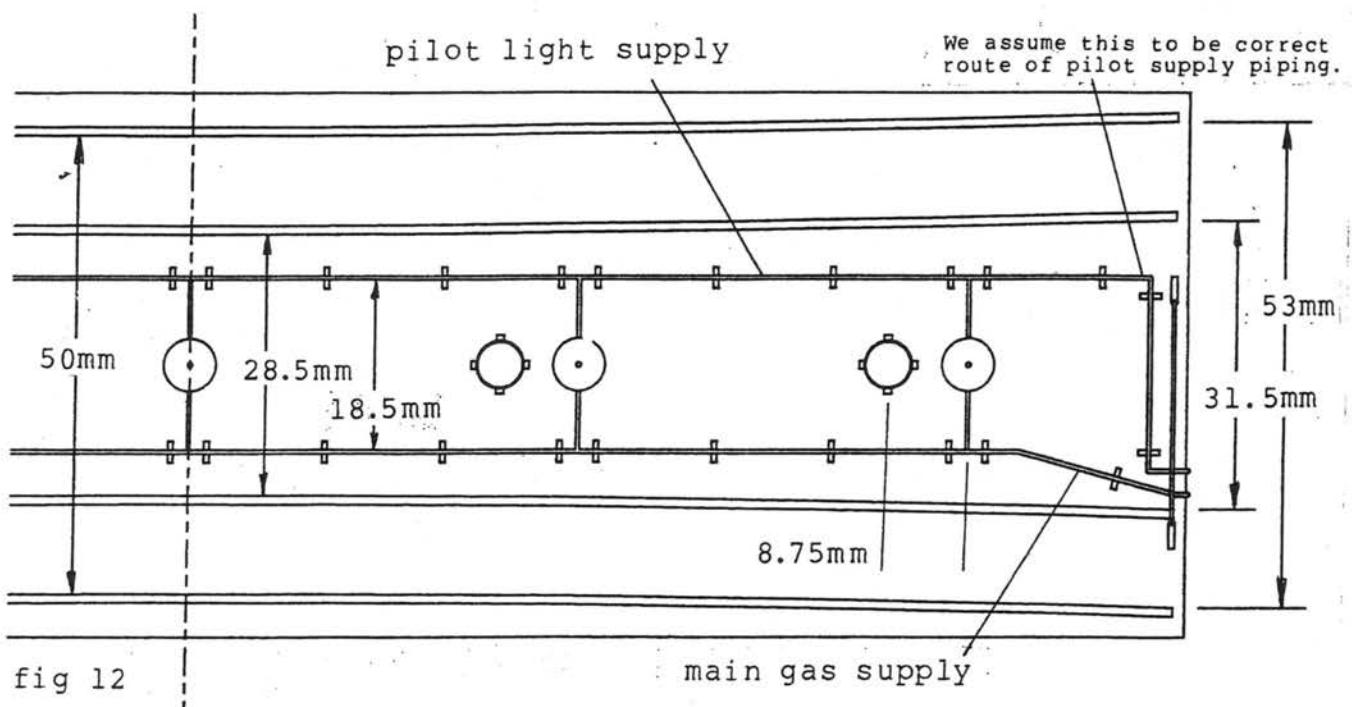
Plastikard strip for fixing the roof in place.

fig 11

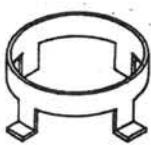


Seats have been removed for clarity.

30. Try the roof in place and gently round the edges with a file. Drill out the lamp top positions with a 2.5mm drill (No.40/0.098") to clear the threaded spigot on the base of each cast lamp. The positions are marked on the underside of the roof moulding but do ensure that you use the correct holes for the coach being modelled! The drawing on pages 9 & 10 will help you to identify the correct ones. Now rest the roof on top of the body so far and mark the lamp top positions through the roof onto the bracing strip inside the model. This strip should be drilled 1.78mm (No.50/0.070") and any burrs removed. The roof is arranged so that the lamp tops can be screwed into this strip thus holding the roof in place and making it removable. If you wish the roof can of course be glued in place after glazing, etc. but the choice is yours!

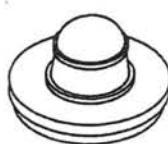


oil lamp top
(fit cover stand off to one side)



Early gas lamp top as fitted on Midland Scottish Joint Stock from 1885 and early Midland from 1890. These had a single pipe supply and empty cover stands were occasionally left in place.

fig 13



Later gas lamp top fitted from 1899. These usually had a two pipe supply. Fit the servicing stand instead of the cover stand.

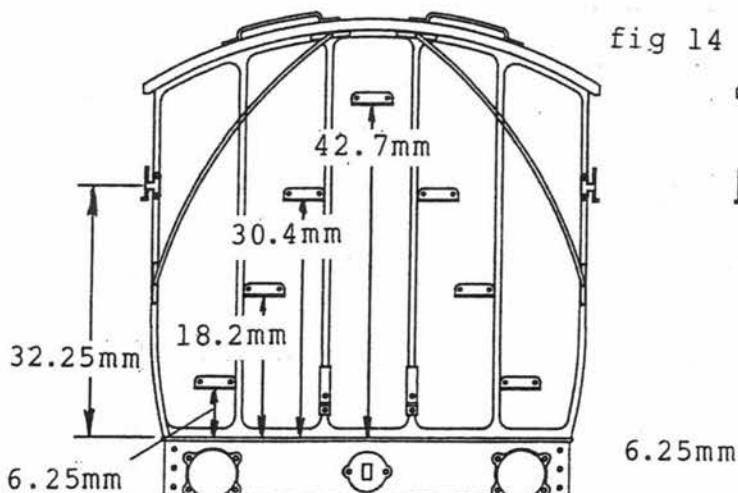
31. The rainstrips are formed from the 0.030" x 0.030" Microstrip supplied. Carefully mark the positions of the ends and middle of each strip following the diagram and carefully cement the strips in place ensuring you get a nice even curve along the roof. Do take care to get this right as the roof is so obvious on the finished model. Figure 12 shows four rainstrips. This is the usual arrangement but some photographs appear to show only the outer.

32. Drill holes in the roof for the grab handle at the end of the coach, as in figure 14. Refer to pages 9 & 10 for further information.

33. The detail on the ends is next and this offers a little scope for variation as will be found by studying photographs. Figure 14 shows two configurations with steps, handrails, and lamp irons on one end only or on both ends as on the right. The gas control gear was fitted on to one end. You are again referred to the notes on page 2. The above notes assume that you are building a gas lighted vehicle. If you wish to model the coach in its original form we can supply (upon request) one plain end moulding and a sprue of lost wax oil lamp-tops in exchange for the gas valve end moulding and sprue of cast gas lamp tops (there will be no charge if the returned items are in as supplied condition).

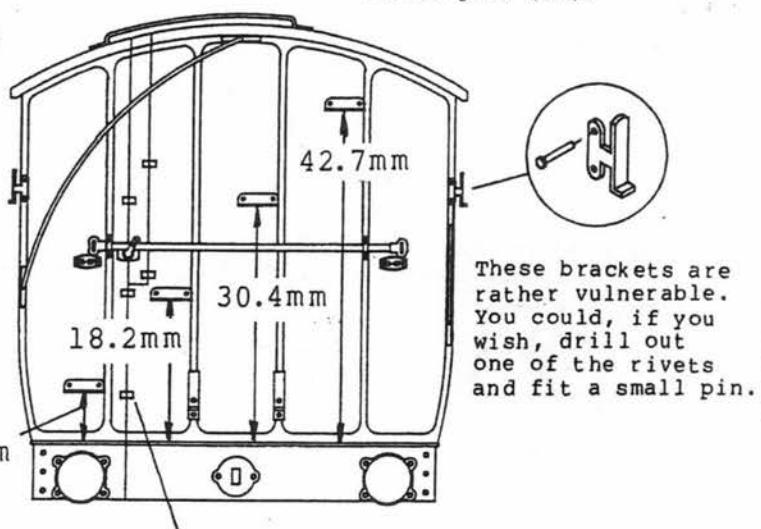
34. The moulded steps should be carefully removed from the sprue and glued to the end as in figure 14. This shows their positions relative to the bottom of the end. Note that etched steps are supplied on the small fret (part 13), fit whichever type you prefer.

Details on the coach ends



Note position of lower lamp brackets. You can use etched part (16) or the cast brackets.

fig 14



Note that this piping support should be made from 0.020" x 0.030" plastikard and fixed in the marked position.

If you are fitting a single pipe supply you will need to remove some of the piping supports.

Note that there are two handrail arrangements.
If in doubt refer back to figures A & B.

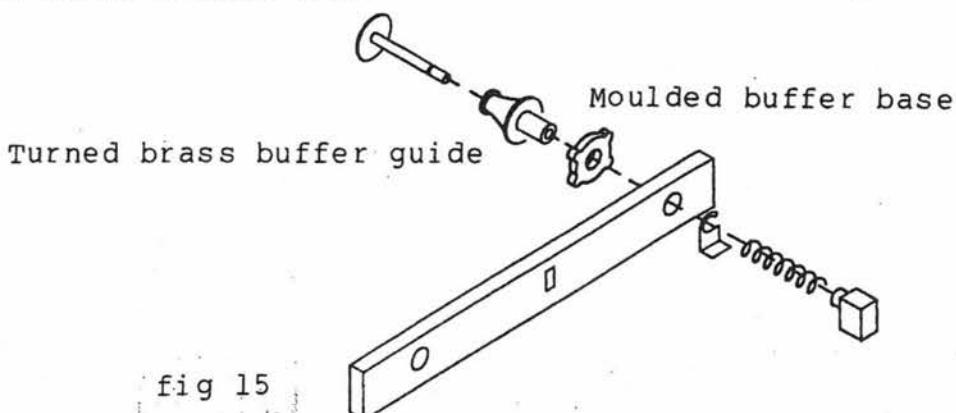
35. Figure 14 should explain the gas control gear better than words but the gas pipes should be added from fuse wire or the thin plastic rod supplied running up the end and onto the roof after it is fitted properly. Note that in order to leave the roof removable the pipes can be cut immediately underneath the roof.

36. Glue the moulded buffer bases over the holes in the headstocks. Note that the bases will extend below the bottom edge of the headstock; this occurs on the prototype! Fit the turned buffer guides into the holes in the buffer bases. These turnings are correct for the long buffers fitted to Clayton arc-roof stock.

37. Following figures 15 & 16, slide the buffer ram into the buffer guide, fold over a little etched spring clip and carefully glue this into the groove towards the end of the buffer ram.

glue a buffer spring pad to the solebar and position a spring between the spring clip and the buffer pad. Admittedly somewhat "Heath Robinson", but it does work!

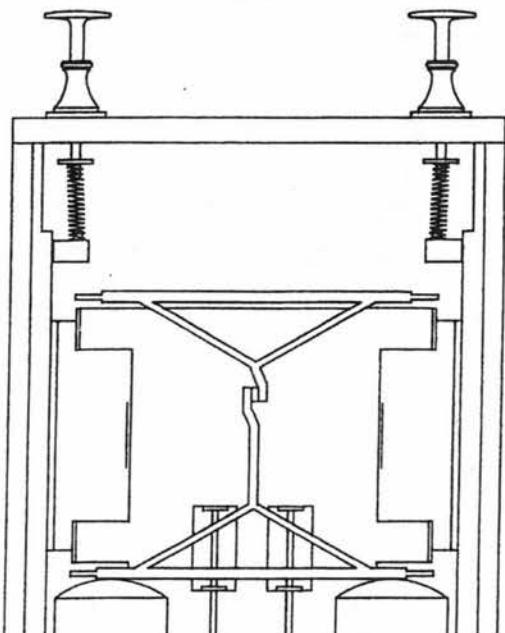
Turned steel buffer ram



Not used in this kit

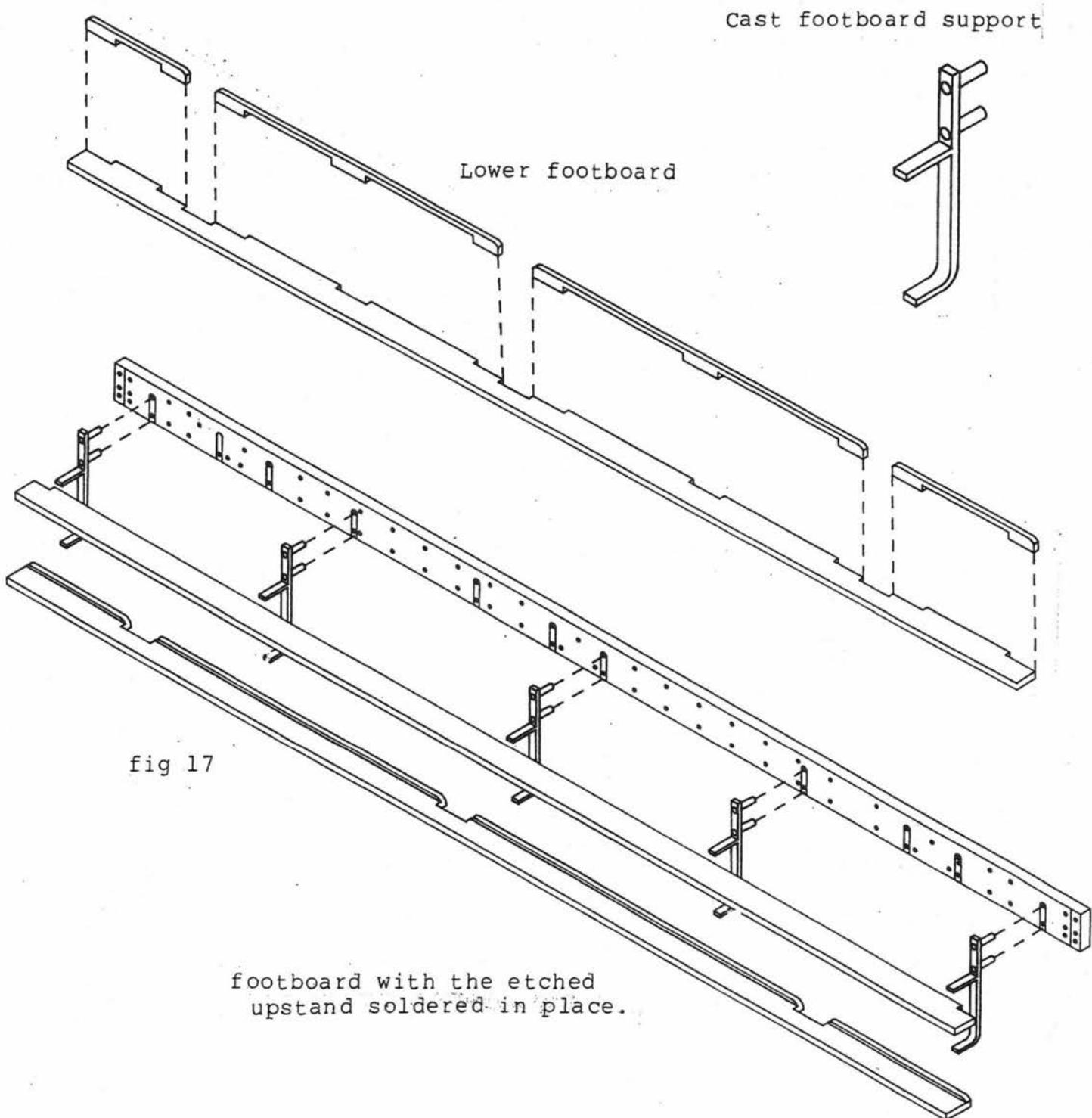
Retaining clip

fig 16



The etched spring clip slides over the slot in the buffer ram. Secure it in place with a TINY spot of adhesive but not to the vehicle floor. The steel buffer ram should be chemically blackened by heating to a bright red colour over a gas flame and then quickly quenching in oil. This will, in addition, help prevent rusting.

38. Carefully clean up ten cast footboard supports and, referring to figure 17, glue five onto each solebar using the cast pegs and moulded holes for location. Ensure that they are all pushed well home and vertical before allowing the glue to harden.



39. The etched top footboard should be fitted first, the notches at each end fit around the headstocks. The lower footboards come in five parts - the main board and four parts to form the rear edge or upstand. The upstand should be soldered (or glued) to the main board, as shown in figure 17, and then attached to the supports. A quick touch with the soldering iron or a drop of adhesive should be used to secure both boards in place.

FINAL ASSEMBLY AND DETAILING

40. The model can now be painted or any touching up completed as required depending on how you decided to proceed. Before glazing fit the cast commode handles and the door handles. You may like to file these down a little and polish them before fitting. They should be secured to the sides using a tiny drop of cyanoacrylic adhesive so as not to damage the paintwork so carefully applied!

41. Fit the cast vacuum pipes to each end of the chassis. Glue a connector onto one end of each vacuum pipe spring and glue the other end of the spring over the top end of the vacuum pipe. These pipes will look most realistic in a train of vehicles as they can be easily coupled and uncoupled.

42. Remove the roof and glaze each compartment by locating individual pieces of clear plastic onto the ribs on the inside of the sides. Take care not to frost the glazing with solvent. Now fit the roof and connect up any gas pipes, etc.

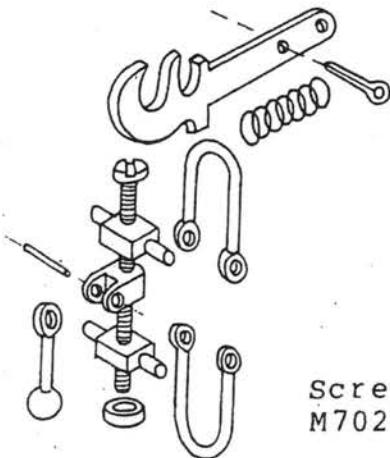
43. Carefully fit the cast handrails onto the end. The drawing on pages 9 & 10 shows side and end views. Note that there are two sprues included, these correspond to figures A & B back on page 1.

44. Screw link couplings are not supplied in the kit but can be obtained from Slaters (reference M7023).

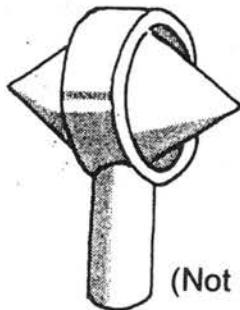
45. Transfers of your choice can now be applied, Midland numbers, etc. are to be found on the sheet Ref.7150 from the Slaters range of transfers.

46. Note that if you glue the roof in place you should drill a small hole through the floor of each compartment to equalise air pressure.

47. Mention was made in the historical notes of additional roof vents added about 1906. A suitable moulded vent, shown below, is available from us. Please quote part number 7201, one packet will be sufficient for a coach.

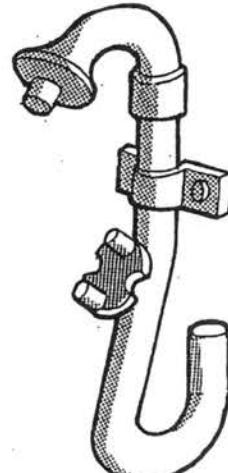


Screw link couplings
M7023



torpedo-type
roof vents
7201

(Not supplied with kit)



Cast vacuum pipe

48. The four castings left on the sprue are details for gas lighted vehicles. The round part is a gas gauge and locates on each solebar near the gas cylinder. The second piece, a filling valve, fits behind the solebar close to the gauge. Both items are shown on pages 9 & 10. Wrap the short lengths of piping behind the solebars.

REFERENCES

Several books and magazine articles have appeared over the years which contain photos and drawings of these coaches. Sources well worth consulting are:

- "Midland Carriages, An Illustrated Review" by D.Jenkinson & R.J.Essery (O.P.C.)
- "Midland Railway Carriages", Volume 1 & 2 by R.E.Lacy & G.Dow (Wild Swan)
- "Midland Railway Portrait" by P.Truman & D.Hunt (Platform 5)
- "Midland Style" by G.Dow (H.M.R.S.)
- "M.R. 31ft. Composite Coaches" by R.E.Lacy (in Model Railway News, March 1960)

Modellers are urged to study as many photographs as possible. Preserved examples of these delightful carriages can be seen at:

- National Railway Museum, York
- Midland Railway Centre, Butterley, Derbyshire
- Keithley and Worth Valley, Yorkshire

LIVERY NOTES

In Midland Railway days the sides and ends were crimson lake with the mouldings picked out in black. On the coach sides, the edges of the black mouldings were lined in gold with vermillion edging. Yellow was used in place of the gold on the underframe lining. The steps and handrails on the ends were painted black. The roof was painted grey.

Until 1902 the solebars and headstocks were crimson lake lined in yellow. Between 1902 and 1912 the lining was deleted and the solebars, headstocks and buffer bodies were painted red-brown. After this date the solebars etc. were painted black. All ironwork under the solebars was black and it is thought that the wheel centres were initially Indian red and later black.

The colour scheme of compartment interiors is described in marvellous detail in "Midland Style". The following simplified notes should provide some guidance to the modeller. First class compartments were panelled with maple and sycamore, the ceiling was white, seats were blue (trimmed with lace) and a blue carriage rug covered the lino floor. The third class compartment was painted in grained-oak finish and varnished, upper parts of side and ceiling were white and seats were crimson (moquette).

L.M.S. (up to 1933)

The livery applied to Midland carriages after 1912 was used on L.M.S. vehicles.

L.M.S. (post 1933)

From this date the lining was simplified with horizontal yellow lines painted along the cantrails and the beading above the windows. Additionally, the upper of the two waist beading strips was painted black, lined yellow on each edge.

Circa 1936 coach ends were painted black, but it is doubtful that many of the arc-roof carriages achieved this style.

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