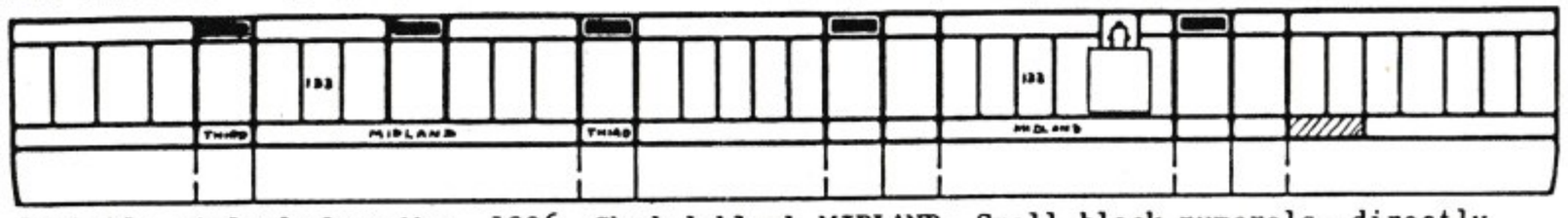
INSIGNIA PLACINGS.

The following diagrams show typical styles for the various companies and periods. We must emphasise that in most cases specific photos are not available, so that although these can be taken to indicate normal practice, exact positions may not necessarily be correct in all cases. It was normal for company letters or vehicle numbers to be placed halfway along the length of the panel in which they appeared, but there may have been exceptions. Note the grey panels on the brake-end vehicles. Corridor sides are shown. The compartment sides were similar, with class designations on all passenger doors.

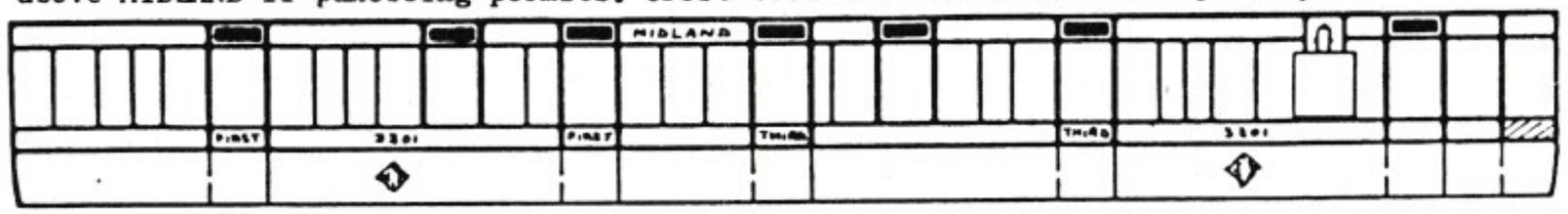
CORRIDOR COMPOSITE, D469. None of these vehicles built for the Midland Railway were of the precise type represented by our kit. If a little licence is acceptable, the following batch (which should be built as instructed for version C) differ only in having slightly shallower eaves panels with door vents of three elements instead of four:

Lot616 of 1907, 40 built, MR/1st LMS nos. 3816/36/47/50/65/67/69, 2872-4/6/80/3/5/6/ 2891/4/5/8/2901/3/5/8/2910-3/6/8/9/2920/2/ 2925-8/3290/3345/3355/80

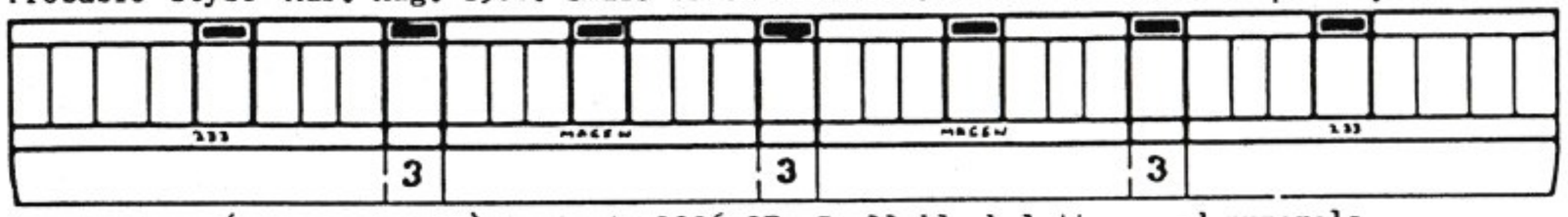
2nd LMS nos. 4863-4902.



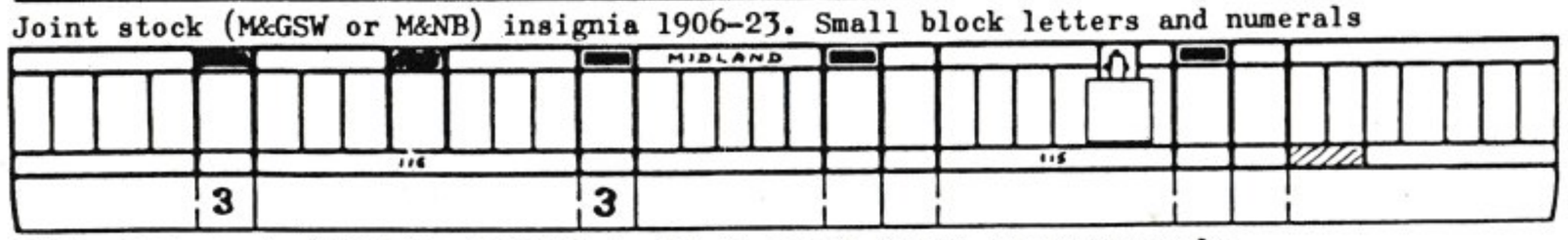
Probable style before Mar. 1906. Shaded block MIDLAND. Small block numerals, directly above MIDLAND if panelling permits. Crest below MIDLAND on brake compo only.



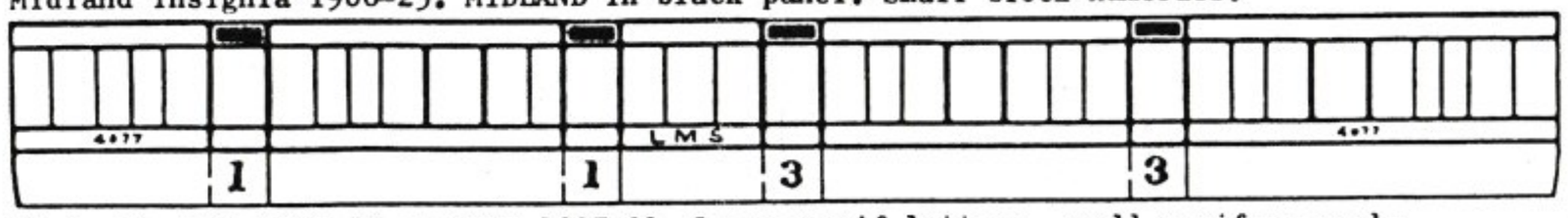
Probable style Mar.-Aug. 1906. Small block numerals. Crests on brake compo only.



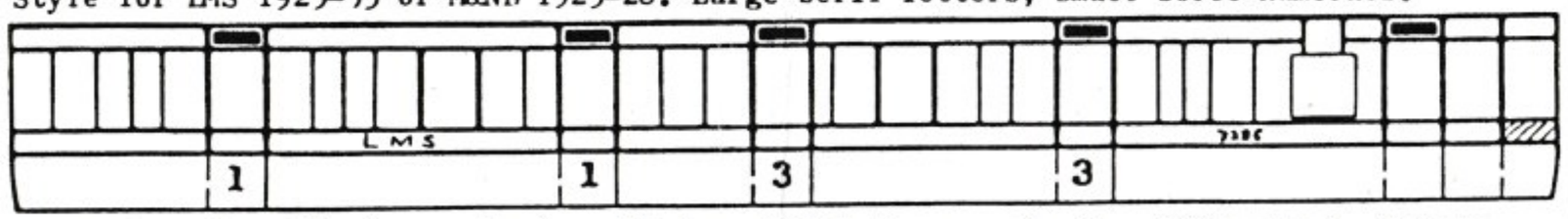
Joint stock (M&GSW or M&NB) insignia 1906-23. Small block letters and numerals



Midland insignia 1906-23. MIDLAND in black panel. Small block numerals.



Style for LMS 1923-33 or M&NB 1923-28. Large serif letters, small serif numerals.



LMS style after final renumbering. Plain gold block numerals when fully lined. Yellow insignia (not in kit) if repainted in simple livery. LNER markings (not in kit) positioned similarly, with GUARD in waist of single guard's door of brake third.

P. C. Models (P.G. Chatham), 2 Marsh Lane, Birmingham B23 6NX.

Made in England

4mm scale.

P C Models MR clerestory corridor stock.

THE PROTOTYPES.

The coaches represented by these kits were built around 1905-7. The parts supplied allow the model to be built with either of two roof heights, two varieties of corridor side panelling or gas or electric lighting fittings. Transfers are supplied to letter the model either MR, M&GSW (Midland & Glasgow & South Western Joint Stock), M&NB (Midland & North British Joint Stock) or pre-1933 LMS. MR and M&GSW vehicles became LMS property in 1923. M&NB joint stock remained in being until 1928, when the coaches were shared between the LMS and LNER. Suitable LNER or post-1933 LMS transfers are available separately from P C Models. The numbering information which follows is given in good faith and is to the best of our knowledge correct, but we cannot accept responsibility for any errors. There is unfortunately virtually no information available as to which coaches had gas lighting and which electric, though many of those originally gas-lit were probably later converted. So far as is known, none of the vehicles converted for ambulance service in 1917 returned to passenger service after the war. Apart from one or two accident victims, most of the others were withdrawn over the period about 1936-51. More information on these vehicles will be found in a series of articles in 'Model Railway Constructor' by Arthur Whitehead, the late Ralph Lacy and David Jenkinson.

The main variations which can be built (using the same designations as the articles just mentioned) are as follows:

Version A: High roof. Use the ends on the underframe sheet - discard those on the body sheet. Use the corridor side outer layer, part (26) on the main body sheet.

Version B: Low roof. Use the ends and corridor side outer layer part (26).

Version C: Low roof, no ventilators over corridor side droplights. Use the ends on the main body sheet and the corridor side outer layer (26c).

Type	Diag.	Lot	Qty.	Version	Orig. no.	1913/14 no.	1923 LMS	1932/3 LMS
Third	D473	587	4	A	MGSW 233-6	MGSW 366-9	4000-3	3174-7
		592	20	A	MR15/54/56/67/78 90/92/104 MR23/26/42/45/58 66/74-5/77/79/81/105	Unchanged	Unchanged	3154/61
						Converted to ambulances 1917		
		601	4	A or B	MGSW209/226/244-5	MGSW 342/359 377/8	3976 3993 4011-2	3172-3 3178-9
		618	14	C	MR575/578/605/607 615/634/648-9	Unchanged	Unchanged	3190-8
					MR561/573/577/ 632/639	Converted to ambulances 1917		
		644	6	C	M&NB 125-130 until 1928, then LNER 3894/5/9&3904/6			
Brake Third	D561	588	7	A	MGSW: 237-243	MGSW371-6 (237 scrapped)	4005-10	6438-43
		593	30	A	MR115/117/122-3 133/137/153/156 166/181/188/193 224/227/238/277 326/330/435	Unchanged	Unchanged	6420-37
	Lot 593 originally built without gangway at brake end (diag. D476), but second gangway added, probably fairly soon.				MR113/135/148/ 155/170/211/215 231/237/257/272	Converted to ambulances 1917		
Nos. 122/227/238 altered to D544 in 1908 - 2 gangways, no external alterations, but brake compt. 3ft shorter and 9ft5in kitchen adjoining. Reverted to D561 before 1933.								
		628	12	C	M&NB113-124 until 1928		4117/4123/8 LNER3907/13/16-17	6467-73
Compo	D469	600	10	A	MGSW242/260-7	MGSW259/277-284	3942 3960-7	4843-51
					M&NB 101	M&NB 11	4034(1928)	4852
		626	15	C	M&NB 144-50	M&NB 54-60	4077-83 4093-5 (in 1928)	4853-62
					M&NB 160-7	M&NB 70-77	LNER32535-8	(1928)

Brake	D559	586	2	A	M&GSW 258-9	MGSW275-6	3958-9	7283-4
compo		594	10	A	MR3301	Unchanged	Unchanged	7282
					Other 9 nos unknown - ambulances 1917			
		617	23	Prob.B	Nos unknown - all but 1 ambulances 1917			None
		627	6	C	M&NB 151-3	M&NB61-63	LNER32539-40	
							LMS4086)	7285-8
					M&NB 168-70	M&NB78-80	4101-3)	

LIVERY AND PAINTING.

The model may be assembled, painted and lined in the conventional way, but in our experience only a handful of top-class model painters are capable of acheiving a high standard like this. We therefore stronly recommend the painting procedure described, which should enable any reasonably careful modeller to produce a highly satisfactory finish. The livery used was as follows:

MR period, Body sides and ends crimson lake; mouldings black; edges of mouldings on sides only lined gold (no lines against window bolection mouldings or extreme outer edges); end mouldings unlined. Window bolection mouldings and door droplight frames may at least at first have been varnished mahogany rather than crimson lake. Solebars, headstocks and buffer bodies unlined red-brown until 1912, then black. Wheel centres possibly Indian red when new. All other fittings below the solebars black, except that dynamos when new appear to have been light coloured, probably aluminium grey. Roof and roof fittings light grey, though some sources suggest that the lower roof below the rainstrip may have been varnished black when new - after a short period in service the entire roof would in any case have become dirty dark grey. M&GSW and M&NB vehicles differed from Midland only in lettering. Lettering styles are shown in the diagrams, but company lettering positions are not precisely known in all cases and pre-August 1906 schemes are probable only as no photos of these vehicles at this period are known. The recommended method of painting and lining the sides is as follows:

Spray first with etch primer if available, then with brown primer, then crimson lake finish. Simple card masks can be used for the different colours of solebars etc. When thoroughly dry scrape the raised mouldings (except window bolections and door joint mouldings below the waist until clean and bright. Be very careful not to touch the scraped surface with the fingers. The black centres of the mouldings should be drawn in using a technical pen (Rotring, Staedtler etc) of about 0.25mm wide filled with non-etching plastic film ink, which is fairly quick drying. Leave a gold edging of bright brass showing on each side of the moulding, except that the black is taken right to the outer edges of the side and against the window bolections. The rounded corners are drawn in freehand. Any mistakes are readily scraped away and redrawn. Please note that the beading at the bottom edge of the side represents the packing between body and underframe - there was no bead on the body side itself. Before starting painting the lower edge should therefore be made bright and clean and covered with a tape mask trimmed with a knife and rule to approx 1mm from the lower edge of the side, so that when the black edging is drawn in the gold line is within the bottom panel. A coat of clear lacquer will protect the finished side against handling - the ink is not waterproof.

'PRESSFIX' lettering transfers are provided. With a scalpel or sharp knife cut round each item through the tissue top layer but NOT THROUGH THE THICK BACKING PAPER. Peel the tissue away from the backing, lay face down in position and press gently. If the position seems incorrect, remove and replace. When satisfied, press firmly, soak the tissue with water and peel off when it has released (about 30 seconds). Wash away surplus gum and blot dry. Varnishing of transfers is not essential, though obviously it provides additional protection against handling etc. Some oil-based varnishes can cause 'gold' transfers to tarnish rapidly. Cellulose lacquer can be applied with great care from an airbrush provided that the first coating is applied from far enough away to produce a matt finish. When this is hard dry additional light coats can be applied from progressively closer distances until the desired gloss is produced. This information is given in good faith, but we cannot accept any responsibility for the results as the conditions of use are outside our control. We therefore suggest trials on scrap material before working on the model itself.

LMS period livery, 1923-33 (approx) was the same as for the MR post-1912 except that end mouldings were supposed not to be painted black. LMS company lettering was of course used inconjunction with serif pattern instead of block numbers. M&NB vehicles 1923-28 used company letters in LMS style with the serif numbers. LMS vehicles given their 1932-33

INTERIOR AND ROOF ASSEMBLY.

This is designed to be built and fitted as a complete unit, which can be removed if required to give access to the interior. The polystyrene parts are best fixed to each other with liquid cement (methyl ethyl ketone), but tube model cement may be used.

Please note that, as described on page 1, these coaches were built in two variations of body height. The partitions and roofbase verticals are therefore provided in the corresponding two heights. Take care, therefore, to use the parts (high roof or low roof) appropriate to the version you are building, and discard the others.

First cut out the FLOOR. To this fix the COMPARTMENT PARTITIONS and LAVATORY PARTITIONS, lining up the former with the printed position of the COMPARTMENT PARTITION, which is added next, using a glue such as UHU or clear Bostik. Then add the SEAT SUPPORTS, SEATS and SEAT BACKS, with end and central ARMRESTS in first class compartments only (these had two a side seating). The corridor parttition has separate DOORS which can be glued in place in either open or closed positions. Check that the assembly fits neatly inside the body. The outer parts of the partitions should be ½mm below the top of the compartment side. Before commencing the roof assembly, study the body cross-section carefully to ensure that the parts are fitted correctly in relation to each other. Cut out the ROOFBASE LOWER LAYER, compartment side, and fix to the partitions, followed by the ROOFBASE VERTICAL and the ROOFBASE UPPER LAYER on the same side. Cut out and assemble together on a flat base the other ROOFBASE VERTICAL and ROOFBASE UPPER LAYER. With the interior assembly in place in the model, fix this second roofbase unit to the partitions - the roofbase vertical buts against the upper edge of the corridor partition. Leave for the cement to set, lift out, then add the ROOFBASE LOWER LAYER, corridor side, with its inner edge touching against the corridor partition. At this stage the interior should be painted - partitions and floor in a brown similar to the corridor partition, and seats blue in the first class and red in the third. The two clerestory sides, Part 35, compartment side and Part 36, corridor side, should also be painted. When dry, replace the interior, then fix parts 35 and 36 to it. Note that the lower edges of these fit between the roofbase verticals and the partitions. Cut out the three sections of the vacuum-formed plastic ROOF, along the moulded grooves in the case of the outer sections, and as close as possible to t the outer edges. Trim to length (218mm). Fix the outer sections to the top edges of the roofbase verticals (just below the lower beading of the clerestory sides) and to the roofbase upper layer. Cut two rainstrips about 0.5mm wide from spare sections of the plastic sheeting and fix to the lower roofs, about 5mm from the edge in the centre, curving down to about 3mm from the edge at the ends. Cut suitable sections of clerestory glazing from the window sheet and fix inside the clerestory windows. Fix the centre section of the roof to the top edges of the clerestory sides and the tops of the partitions. Drill

holes for gaslamps (if required) and torpedo vents along a line 3mm from the inner side of the lower roof. On gas lit coaches, fit a lamp halfway along the length of each compartment and lavatory on the compartment side, with a vent 4.5mm to the right of the left-hand end one and the right of the others. Photos of gaslit coaches from the corridor side are rare, but one of the third, D473, shows three lamps opposite the first, fourth end seventh compartments, with vents to the left. Other vehicles probably followed a similar arrangement. On electrically lit vehicles there was a vent in each of the positions described for gas lamps. On the corridor side two vents were normally fitted, at about 57mm from each end. The completed lower roofs should be painted, as should the CLERESTORY SIDES, parts (35) and (36). The latter are then glued to the lower roofs so that only the portions with beading are left visible, and the assemblies then glued to the interior partitions. If the interior is to be removable, do not glue to the sides or ends. Cut out the UPPER ROOF LOWER and UPPER LAYERS, curve them to match the shape of the ends and glue them together. If electrically lit, drill holes approx. 0.5mm for parts (38), ROOF END HANDRAILS, bend these and glue in place. If gaslit, fit also a series of parts (37), UPPER ROOF HANDRAILS, one above each gaslamp, with the holes along the marked dotted lines. Paint the upper roof, then glue to the tops of the partitions.

CORRIDOR CONNECTIONS are assembled as described in the separate instructions and, after painting, glued in place on the coach ends.

COUPLINGS after assembly and painting are fitted by means of a wire link from the drawbar to the central bracket in part (3), allowing sideways play.

BOGIES. Assemble as described in the separate instruction sheet and paint. Fix to the pivot screw with a 6BA nut, left a little loose and secured with a spot of 'soft' glue such as UHU or clear Bostik.

numbers while still fully lined had unshaded gold numbers. Vehicles repainted with simple lining (any full repaints from about 1934) would have shaded yellow insignia, which is not included in the kit but available on P C Models transfer sheet 2.
LNER livery: We have no definite information on these vehicles in LNER colours but from photos of other vehicles of non-LNER origin it seems likely that they would have been painted in simulated teak grain finish, with the grain in the long direction of each panel, with a red-edged gold line round the waist and eaves horizontal panels, and a red-edged gold line with arrow-head ends down the centre of each vertical beading except those adjacent to doors or the extreme ends. LNER lettereing transfers are available on P C Models transfer sheet 4.

BODY & UNDERFRAME ASSEMBLY.
Before starting, please refer to the notes concerning cutting out, bending, joining and raising of rivet detail (part nos. marked *) in the bogie and corridor connection instructions. Body and underframe parts should be assembled in the following order:

*(1) COMPARTMENT INNER SIDE. Raise rivets, curve tumblehome and bend lower part forming solebar as shown in cross-section.

*(2) CORRIDOR INNER SIDE. Prepare as for part (1)
(3) END CROSS-PIECES. Fix to (1) and (2). The locating tabs fit from above the solebars. Do not use an excess of solder on the upper side of the joints as it would hinder the subsequent fitting of the interior.

(4) BOGIE SUPPORTS. Bend and fit - the plan shows position. Fix a 6BA screw in etched recess.
(5) BOGIE BOLSTER SPACERS. Fit to underside of (4).

†(6W) BRAKE GEAR SUPPORT, Westinghouse end. Fit to (1) and (2) in position shown on plan.
(6D) BRAKE GEAR SUPPORT, dynamo end. If your coach is to be gas-lit, do not bend the three dynamo brackets. Fit to (1) and (2) as shown.

*(7) ALARM GEAR END. This appears from photos to have been on the right when seen from the corridor side. Curve the tumblehome, grip the buffer beam in a vice to bend the required angle, then fit: (Don't forget to raise rivets!)

(8) ALARM GEAR 'EARS'. Fit through the slots at cantrail level with the holes below centre

(10) END STEPS through the four horizontal slots on the left-hand side
LAMPIRONS, one each side as shown. Not numbered on fret; found among parts (37)
HANDRAILS, made from wire, long on the left, short on the right, both straight.
ALARM GEAR PIPES. Bend one piece of wire to make the horizontal pipe as shown and fit to parts (8) (On the original the bends are in fact a complex system of cranks) and another to run down the end from the first, then alon the top of the buffer beam to the vac pipe position. A small scrap of brass can represent the valvebox where the pipes join. Fix the assembled end to parts (1) and (2). Use side and buffer beam holes to check alignment.

(9) SECOND END. Raise rivets, add steps, lampirons and handrails and fix to sides.
BUFFERS. Onto the back of a turned brass buffer body thread
(12) OUTER BUFFER BASE, then
(11) INNER BUFFER BASE. Push through the hole in the end, line up and fix. Repeat for the other three buffers. Push one of the phosphor bronze buffer springs onto the back of each buffer body.

(13) TRUSS FRAMES. Bend the tops of the queenposts to a right-angled bend and sharp curve (see cross-section) and bend the fixing tabs at the outer ends. Fix
(13a) QUEENPOST DETAIL in position on (13) (bend slightly at top first) and
(13b) TURNBUCKLE DETAIL at centre of (13). The thin etched 'tails' at the queenpost and turnbuckle are folded round the front

*(14) LOWER STEP SUPPORTS (not required after about the late 1920's). Raise rivets. Bend as in cross-section (small locating tabs to holes in solebar not shown in drawing).

† BEFORE FITTING part (6W) please see note on brake gear on next page.

(15) LOWER STEPS. Bend, then fix to (14). Fit assembled steps to solebars (solder from behind)
(16) UPPER STEPS, TOP LAYER.
(17) UPPER STEPS, BOTTOM LAYER. Assemble steps, fit through slots in solebars, then solder from behind.

BRAKE GEAR: PLEASE NOTE that M&GSW and some MR vehicles were fitted with vacuum brake only. If building one of these, the brackets supporting parts (19) should be left flat in part (6W) and the Westinghouse cylinder and reservoir and parts (19) omitted, as of course should the Westinghouse hoses on the ends (unless any of the coaches had Westinghouse through pipes only!) Part (20W) should be cut to the same shape as (20D), both being connected only by a wire to the nearby bogie. All M&NB and some MR vehicles were dual fitted and should have brake gear as in the diagrams and following notes:

BRAKE GEAR. Fix the two vacuum brake cylinder castings to the floor (glue if preferred to solder) and glue the Westinghouse cylinder and reservoir to part (6W). Cut two lengths of thick brass wire 15½mm long. Onto one of them thread part
(20W) BRAKE PULLROD LEVER (Westinghouse end) and one part
(18) VACUUM BRAKE CYLINDER LEVER. Assemble to V-hangers of part (6W) as shown. Onto the other wire thread part
(20D) BRAKE PULLROD LEVER, dynamo end, and the other part (18). Assemble this to the V-hangers of part (6D). Then fix the two parts
(19) WESTINGHOUSE CYLINDER LEVERS, to either end of the cylinder and the floor brackets. Link part (20D) to the nearest lever (19) with a length of thin brass wire.
(21) BATTERY BOXES. If building electrically lit version add part
(22) BATTERY BOX DETAIL to the front of each battery box then assemble to solebar.
(24) GAS CYLINDER BRACKETS. If gas-lit, fix these to parts (6D) and (6W). Fit the dished end castings into the brass tube gas cylinders, then fix to the brackets.

(23) BUFFER FACES. File the turned brass buffer heads flat on the face, and file away a little from the edge at two opposite points, so that the heads fit the recess in the back of the etched oval faces, part (23). Fix the faces in place on the heads and fit in place so that the tail of the spring fits into the groove at the back end of the stem . With the spring extended, carefully fix the spring to the stem (solder is best).

(25) COMPARTMENT OUTER SIDE. Curve the tumblehome, then fit over the door hinges which project from the inner side. The two layers may be soldered together at the top edge and ends, and from inside through the door hinge openings. To the side fit:
(27) WINDOW BOLECTIONS. Cyanoacrylate adhesive is probably cleanest and easiest.
(28) DOOR VENTILATORS. Fit to the etched backings in the door top panels.
(29) LAVATORY WINDOW VENTILATORS. Fit like (28).
(26) CORRIDOR OUTER SIDE. Fit to other side of vehicle followed by (27) and (28)
(33) GUARDS' LOOKOUTS. Fit to locating slots on brake-end vehicles only.
For the Midland/early LMS period use the cast version complete with sidelamps on top. For later LMS, after the sidelamps were removed, either cut them from the castings or use the etched version part (33) on the fret.

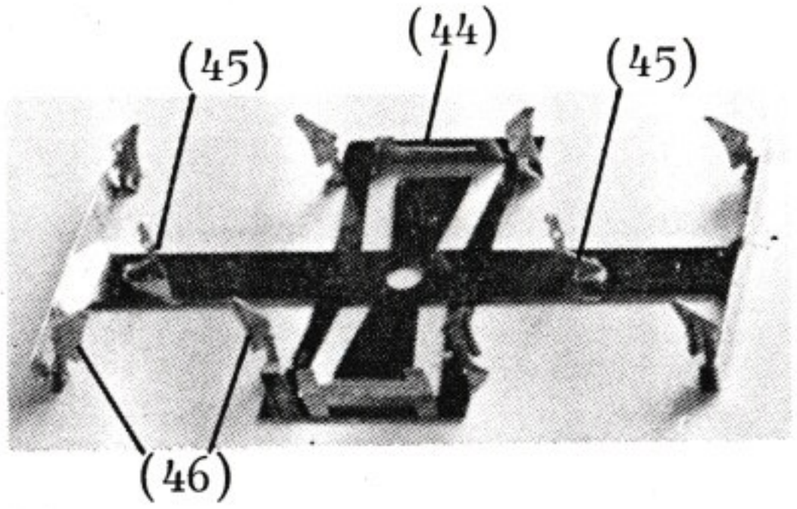
HOSE CONNECTIONS. Vacuum brake, steam heat and, if required, Westinghouse brake hoses should be glued in position on the ends, after which the body and underframe should be painted as previously described. A plain brown finish is suitable for the inside.

WINDOW GLAZING. Cut out the pieces to the outlines printed on the sheet and fit to the inside of the body sides by adhesive at the extreme edges. In the MR period lavatory windows had the leaf pattern round the edge. Most were probably replaced in the LMS period by the plain mottled pattern, in each case with the 'spy-hole' at the top.

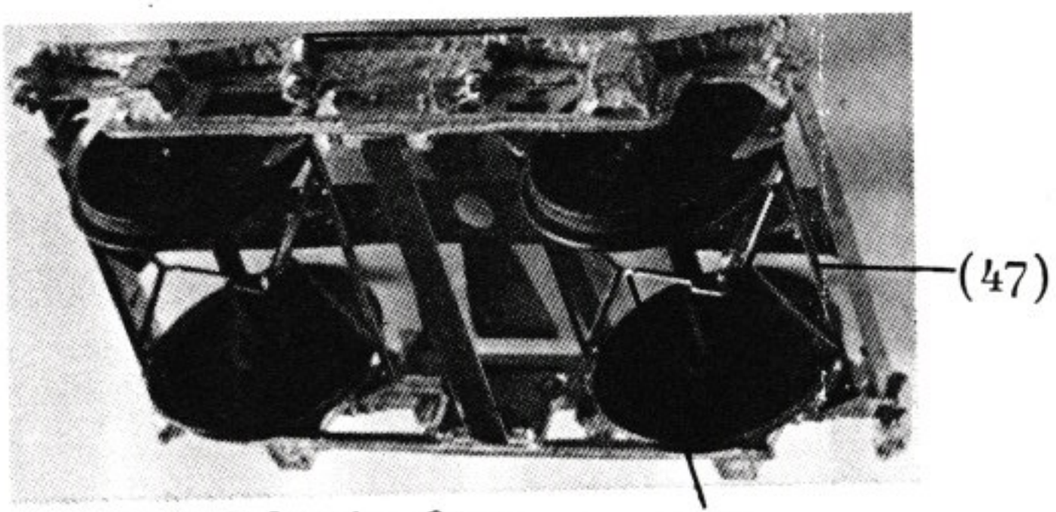
BRASS SAFETY RODS made from thin wire are fitted inside the corridor side drop-lights (fix to the etched brackets). Similar rods in sets of three are inside certain windows in the brake compartments. These rods are best fitted after painting is completed, as are parts:
(30) DOOR T-HANDLES and
(31) GRAB HANDLES and on brake end vehicle double doors only:
(32) LUGGAGE DOOR HANDLES

BOGIE ASSEMBLY

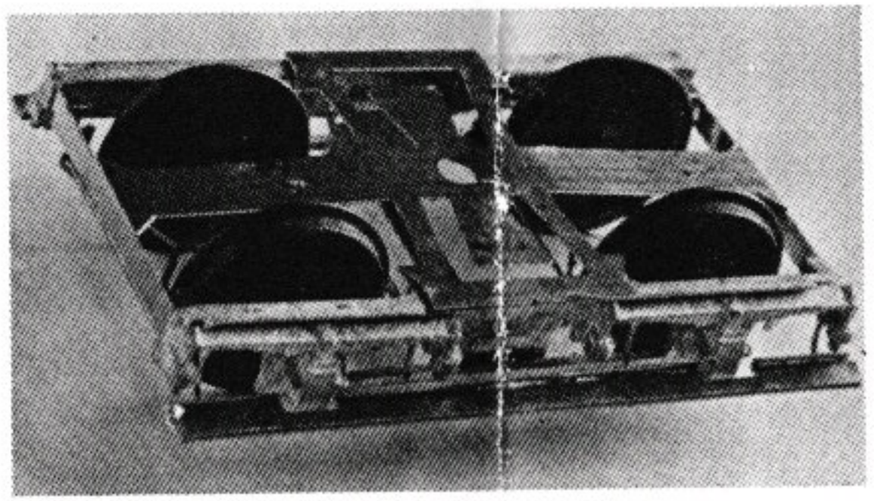
Raise the rivets on the bogie frame headstocks, part (44). Add brake block detail, part (46) on the side with bend lines, bend to shape (all bend lines inside the bends) and add brake linkage hangers, part (45). Cut the pressed brass wheel bearings from the strip, trimming very close in at one side so that they fit snugly into the holes in the bogie sideframe castings and fix in place - remove any excess of adhesive which remains inside the cups. Fix the sideframes to the brass bogie frame. Add the brake block connecting bars, short,(part (47). If bogie steps are required (up to about the mid 1920's), bend the toe boards on the upper layers, part (50) and fix onto the lower layers, part (49). Bend the fixing brackets as shown in the diagram, then fix to the sideframes. Fit the outer brake block connecting bars, long, part (48) temporarily, then paint the bogies. Fit the wheels in place, then fix parts (48). Add a thin strip of metal (scrap from the fret) across the bottoms of the bogie sideframes in the centre to retain the wheels in place. Fit the bogies to the coach (see foot of page 5).



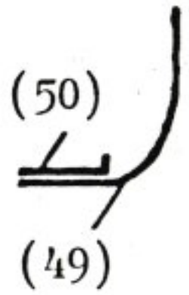
Bogie frame



Assembled bogie from below (without steps)



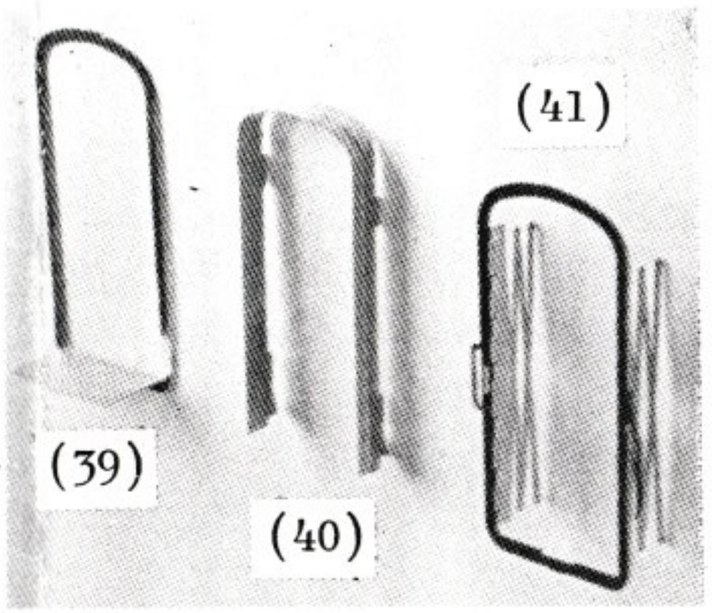
Completed bogie

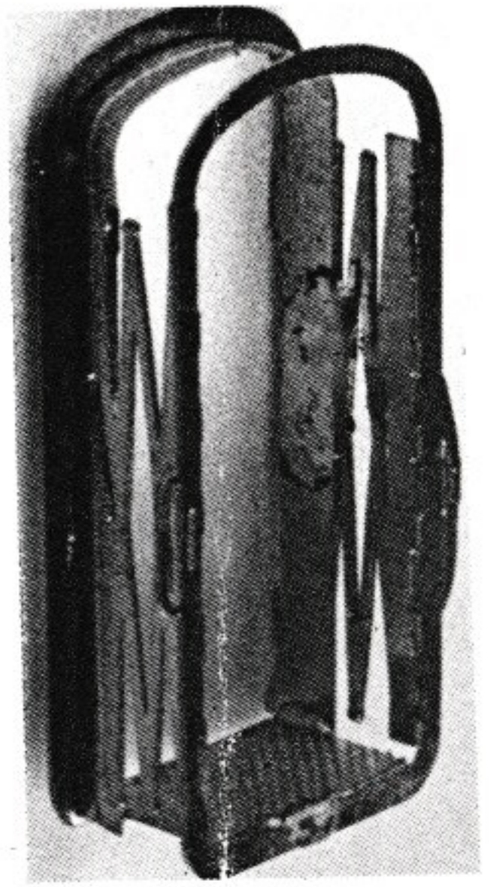


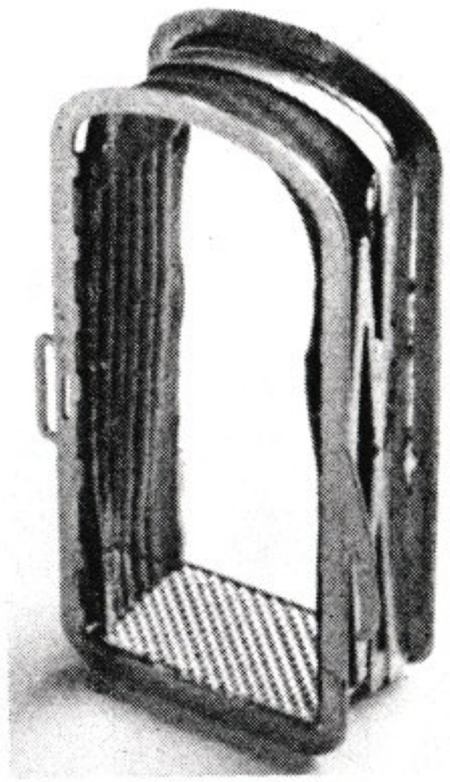
Section of bogie steps (enlarged) after bending brackets.

CORRIDOR CONNECTIONS

Bend part (40) to suit the inside shape of the inner end frame, part (39). Bend down the treadplate of the latter and fix part (40) to it, with the fixing lugs projecting on the opposite side from the treadplate. Bend the 'scissors' on the outer frame, part (41) and fix the 'scissors to the outer thin part of part(40). Trim the plastic liner as required and fit inside the connection, which after painting is fixed to the coach end. Cover boards may be added if desired. Part (42) represents the wood and canvas Midland pattern and part (43) the matchboard LMS version.





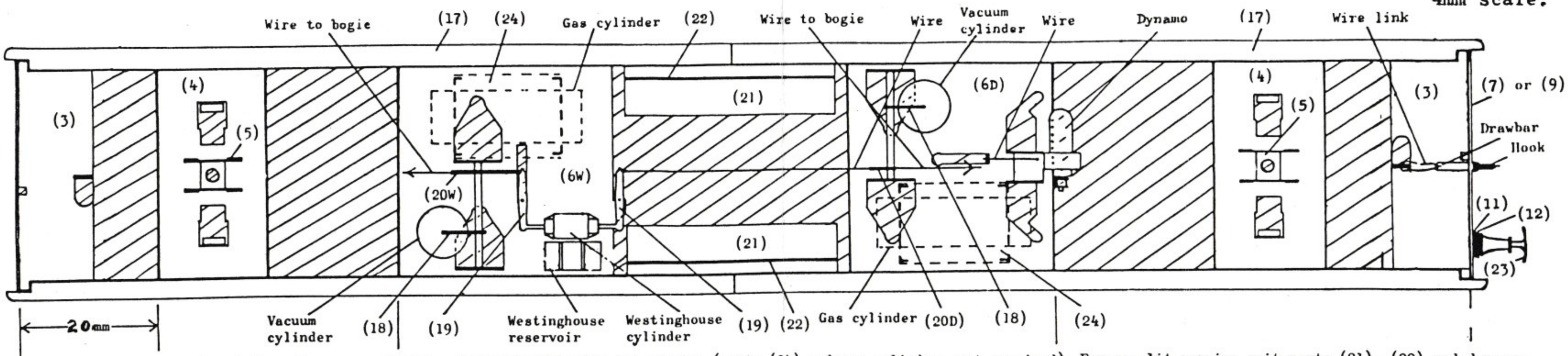


Corridor connection
(a) ready to assemble (b) assembled (c) with lining

COUPLINGS

These are assembled as shown in the diagram overleaf and retained by a length of thin wire between the hole at the back of the coupling hook and the bracket in the floor. Note the coupling hooks are in two layers for scale thickness and that the back portion soldered to them is at right angles so as to give sideplay in the horizontal coupling slot.

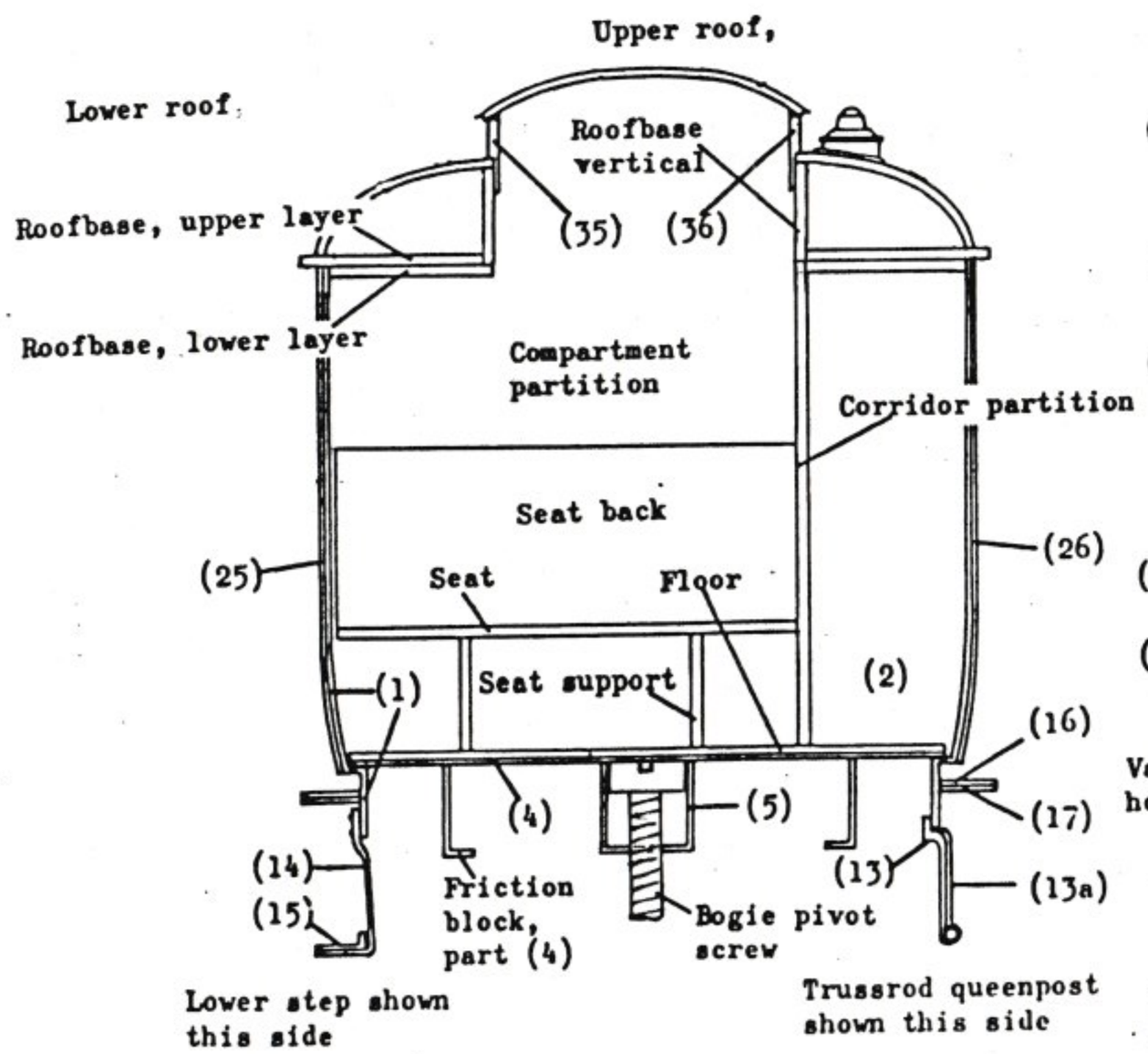
4mm scale.



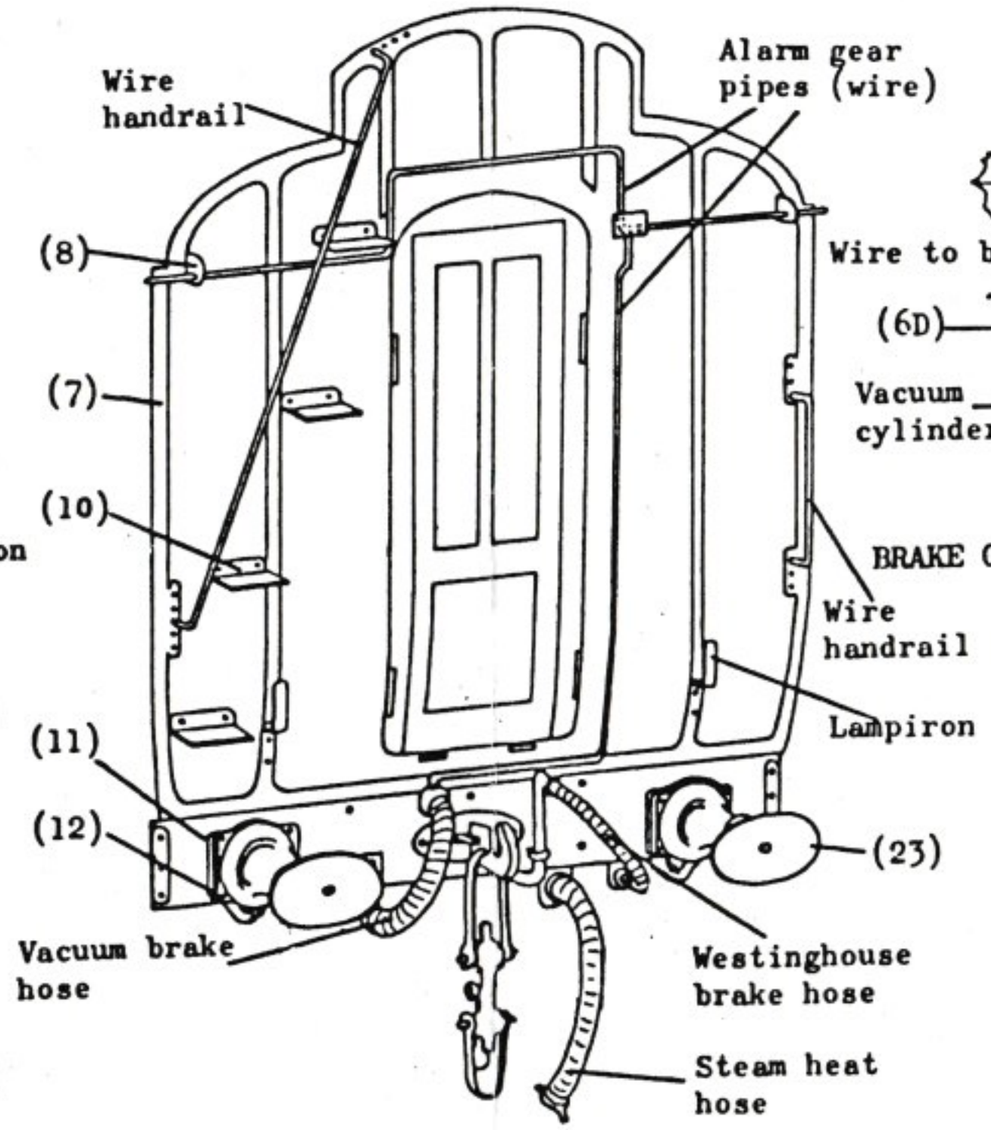
UNDERFRAME LAYOUT seen from below. Open areas shaded. Shows electrically lit version (parts (24) and gas cylinders not required). For gas lit version omit parts (21), (22) and dynamo. Leave dynamo brackets (part (6D)) flat in floor.

56mm

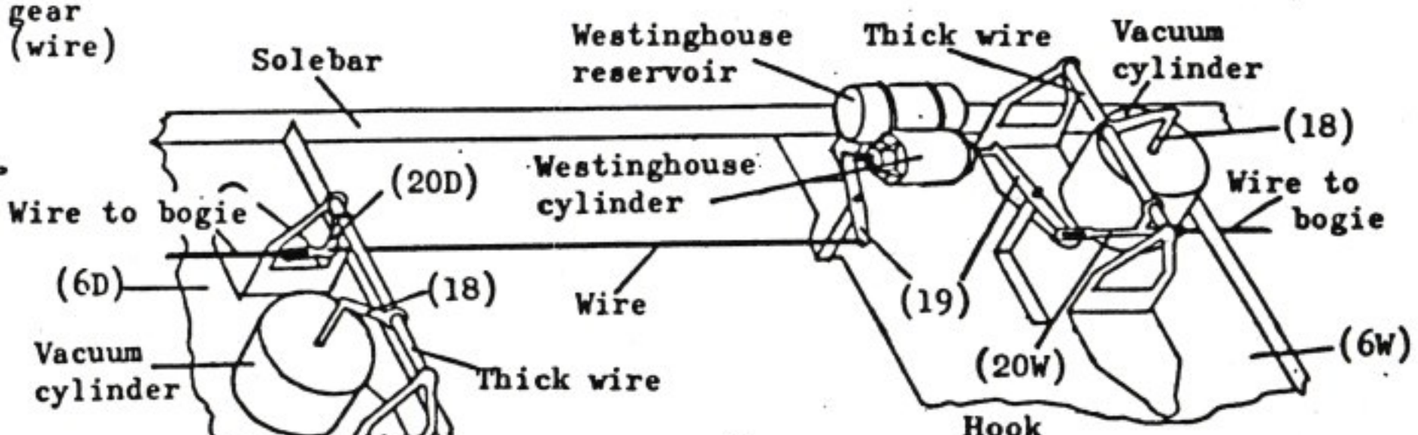
58mm



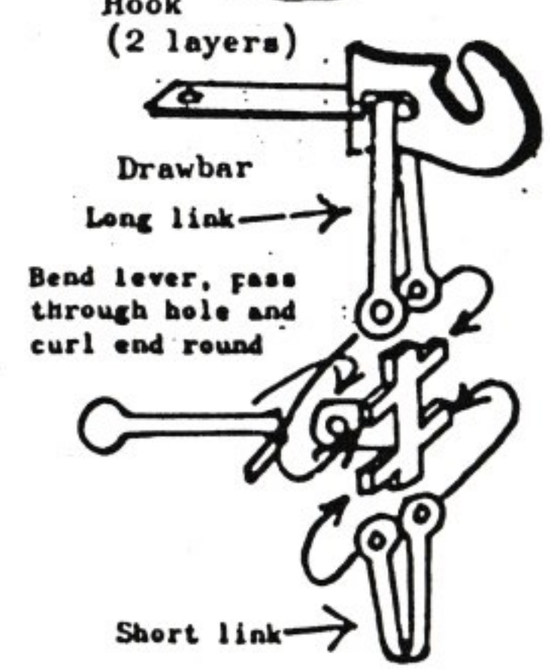
BODY CROSS-SECTION. Please note that the features shown do not all occur at the same point along the length of the vehicle.



END DETAILS, omitting corridor connections. (Other end similar, but without alarm gear pipes)



BRAKE GEAR arrangement, seen from below.



COUPLINGS