51L 4mm

London & North Western Railway
London Midland and Scottish Railway British Railways
Inter Corridor Set Carriages

Prototype information

The basic four carriage set, comprising two third brakes and two composites, was widely used on the LNWR and was known as an 'Inter Corridor set'. They were made up locally as required and could be almost any type in the years leading up to the Great War and grouping. Invariably a set consisted of a 57ft corridor brake third, 52' 6" corridor composite, 57ft corridor composite and a further 57ft corridor brake third. Very often the brake carriages at the ends of the sets were of differing diagrams. In fact the actual diagrams changed frequently within the sets, although the arrangement of the 4 carriage set was widely used. On some occasions a mixture of corridor and lavatory stock was used, for example the Crewe and Llandudno sets.

Notes for:

D131 7 compartment corridor composite
D135 7 compartment corridor composite
D307 5 compartment corridor 3rd brake
D308 5 compartment corridor 3rd brake
D309 3 compartment corridor 3rd brake

D131 Corridor 3rd Brake Diagram 131 57ft x 9ft corridor composite carriage

A total of 105 carriages were built between 1913 and 1920 to this diagram. In 1917 to replace an accident victim one identical carriage was built for West Coast Joint Stock service and was to diagram D.23A. This carriage which was numbered WCJS. No. 58 like most of the LNWR examples were dual braked for working Westinghouse braked lines.

These carriages ran on 9ft. bulb iron bogies, many with disc wheels. Suitable LNWR numbers are 2511, 2532 and 2575 which became 8005, 8006 and 8007 after the grouping. It should be noted that these were non dual braked carriages. Suitable numbers for dual braked examples are LNWR 2706, 2709, 2722 these carriages became 8015, 8016 and 8017, renumbering took place when carriages were overhauled and reliveried by the LMS. Withdrawal took place in the 1950's by which time many carriages having had their superior accommodation down graded to third class.

Diagram 135 52ft 6"x9ft corridor composite carriage

A total of 51 carriages are listed to this diagram in the 1915 Diagram Book. They were built between 1913-14. They ran on 8ft. bogies. Some 25 examples were dual braked for working to the Caledonian or other Westinghouse lines. Suitable numbers for such carriages are LNWR 2751, 2753 and 2763 these became after the grouping LMS 8189, 8190 and 8191. The non dual braked examples were fitted with Stone's double battery electric system, suitable numbers for these carriages are 2502, 2541 and 2555 these became after the grouping LMS 8154, 8155 and 8156. Withdrawal took place in the 1950's with many of the carriages having their superior compartments down graded to third class.

Diagram 307 57ft x 9ft corridor brake third carriage.

Some 88 examples are listed in the 1915 Diagram Book. Building of these handsome carriages took place in 1913. These carriages ran on 9ft. bulb iron bogies and were fitted with dual brakes for working onto such lines as the Caledonian and other Westinghouse braked lines. The paneling on this diagram is quite interesting in the manner that the lower corners of the panels immediately above the waist are square. Many carriages went for use in ambulance trains during the Great War and did not return. However from close inspection of the diagram book, 27 carriages are not registered as being given LMS numbers, so it is quite possible that it is these carriages that did return after the Great War.

The numbers given here are suitable for carriages that remained in Capital Stock.
LNWR 6725, 6726 and 6727 these became LMS 6529, 6530 and 6531. Withdrawal took place in the 1950's.

Diagram 308 57ft x9ft corridor brake third carriage
A total of 25 carriages were built on this diagram in 1907. They were the first elliptical roof corridor brakes built by the LNWR. at their Wolverton works. The configuration was derived from the earlier cove profile but these carriages were built to the opposite hand to the cove roof equivalent. The five interior compartments were 6' 6" between the partitions. Carriages built to this diagram were not dual braked. They had long lives in revenue service so were obviously useful carriages, with the last example being withdrawn in December 1955.

LNWR number	First LMS number	Second LMS number.
7047	6584	6261
7345	6562	6267
7381	6568	6283

Diagram 309 57ft x9ft corridor brake third carriage
Thirty carriages were built for general service in 1909. Some 16 vehicles were used in ambulance trains during the Great War of which only six returned, three before Grouping and three much modified after Grouping. All were dual fitted and lasted until the 1950's.

General comments
These corridor carriages were fitted with electric lighting from new. Originally the Stone's double battery system was used but from 1913 the Wolverton single battery was used on all new stock. Loose vehicles were fitted with batteries beneath the floor. Carriages operating permanently in fixed sets often had batteries in only one or two vehicles with jumper cables between carriages. Usually it was the brakes that had batteries fitted. After 1913, when the Wolverton system became standard on the LNWR, any loose vehicles without batteries created from sets had the Wolverton system fitted and of course new build.

The LNWR used Mansell wheels until 1914 when a change to steel disc wheels was made. Carriages produced before 1914 would have retained their Mansell wheels until the end of their working days. Many of these corridor carriages were fitted with the Westinghouse brake for operation over the Caledonian Railway or other Westinghouse systems.

References

LNWR Liveries, HMRS, Talbot, Millard, Dow, Davies,
An Illustrated History of LNWR Coaches (including West Coast Joint Stock), D Jenkinson P65
A Register of West Coast Joint Stock, R M Casserley & P A Millard, HMRS
Selected LNWR Carriages, A Detailed Commentary, P A Millard, LNWR Society
An Illustrated History of LMS Standard Coaching Stock, R Essery, D Jenkinson, P41

Construction notes for:
D131 7 compartment corridor composite
D135 7 compartment corridor composite
D307 5 compartment corridor 3rd brake
D308 5 compartment corridor 3rd brake
D309 3 compartment corridor 3rd brake

Parts list

Packet 1
Underfame castings

Packet1A
Regulator (for Wolverton lighting system only)

Dynamo 1 off
Vacuum cylinder 2 off

Packet1B ex D308
Westinghouse cylinder
Westinghouse reservoir

Packet 2
Bogie castings

Bogie side plates 4 off
Bogie end plate 4 off

(9' deep frame, D308, D309)
(9' bulb iron, D131, D135 D307)

Interior items
Polystyrene strip 0.030" x1
Polystyrene strip 0.020 x 2
Glazing strip, 2 off
Seating

Packet 3
Investment castings and fastenings

King posts 2 off
12BA nuts and bolts x 4

10BA nuts and bolts x 2

Roof materials
Aluminium roof

Microstrip, 2 lengths

Packet 4
Roof castings

Torpedo vents, 20 off
Duck boards, 2 off

Side lights, 2 off brake only

Lavatory water tank fillers, x3

Miscellaneous
0.5mm wire, x2 brass, Nickel-silver x2
0.7mm wire, x0.5

Packet 5
Set round buffers

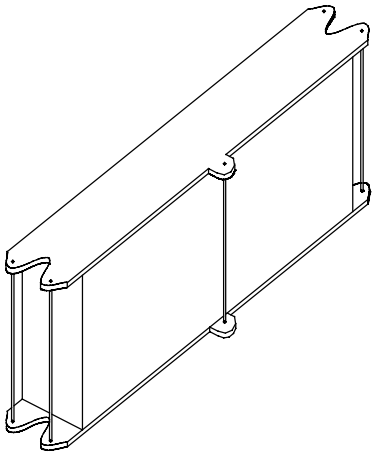
You are supplied with extra vents and lavatory water tank fillers, so you should have some spare parts to allow for loss.

Underframe
Cut or snip out floor from stepboards, place the stepboards carefully to one side. Taking the floor there are 6 holes to be drilled, these are in the corners and two for the bogies. Firstly drill the 4 corner pilot holes to accommodate the 12 BA bolts provided. Then drill out the 2 bogie centre pilot holes to accommodate 10 BA bolts provided. Do not fold up the vee hangers yet. Punch the rivet detail on the solebars to represent the rivets. Do this on a firm surface, taking care not to distort the floor. Fold along the half etched lines to 90 degrees form the floor and solebar.

Taking the full length stepboards, tin the inner face of one board and then fold through 180 degrees with the half etched tab to the inside. Supporting the stepboard in a vice run your soldering iron along the edge. Start at the centre of the board and work out to the end. Repeat this process for each full length stepboard and for lower stepboards. If using glue, apply to the inner faces and fold.

The full length stepboards should now be fitted to the floor leaving 1mm of solebar showing below. Now fit the lost wax castings of king posts, 35mm apart (31mm D135), thread 0.5mm wire through the holes in the king posts to form the trussing. Using etched droppers fit lower stepboards.

The battery box and underframe fittings
First of all drill out the pilot holes to accept 0.5mm wire. Then carefully scribe a centre line on what will be the outer face of the battery box, use this as guide when lining up with the base. Fold the sides to 90 degrees, then place in position on base plate with the scribed centre line in line with the centre hole. Then repeat this for the top plate and thread the wire through the holes. Solder or glue in place between the king posts.



On carriages with the Wolverton electric system one battery box is needed, this should be placed on the corridor side. On the opposite side fit the cast regulator box. The regulator box should be fitted with the angled face facing outwards just below the solebar. See P21 Jenkinson for a photograph of the installation. If the carriage is to be fitted with Stones electric system place a battery box between the king posts on both sides. No regulator box is required.

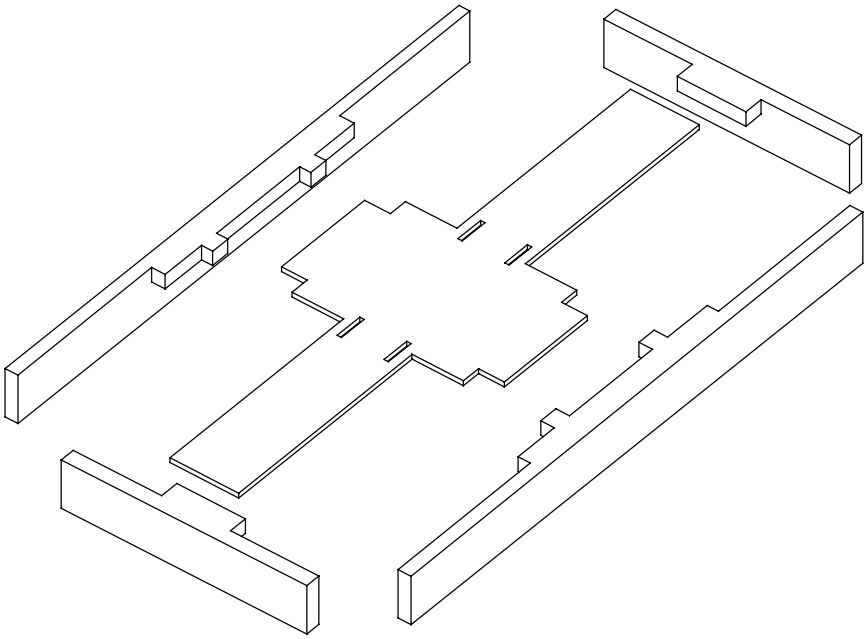
The cast dynamo should be fitted under a third class section of the carriage never under the brake compartment or a 'superior class'. Position the dynamo some 16mm (4') from the adjacent bogie axle centre line and 3mm from the carriage centre line. The dynamo may require a triangular packing piece to ensure it is vertical and the pulley slightly lower than the wheel axle.

Fold the vee hangers and thread 0.7mm wire through the holes and through etched brake linkage components, the hole in the floor next to the vee hangers gives the position for the cast vacuum brake cylinders.

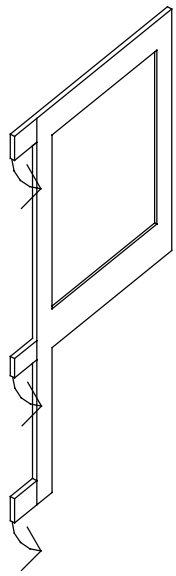
For dual fitted carriages, castings are provided for the Westinghouse brake system. The brake reservoir should be fitted opposite the dynamo so that the far end is 14.5mm (3' 71/2") from the centre line. The pump is situated 8.5mm (2' 2") from the carriage centre along the centre line away from the brake end.

Bogies

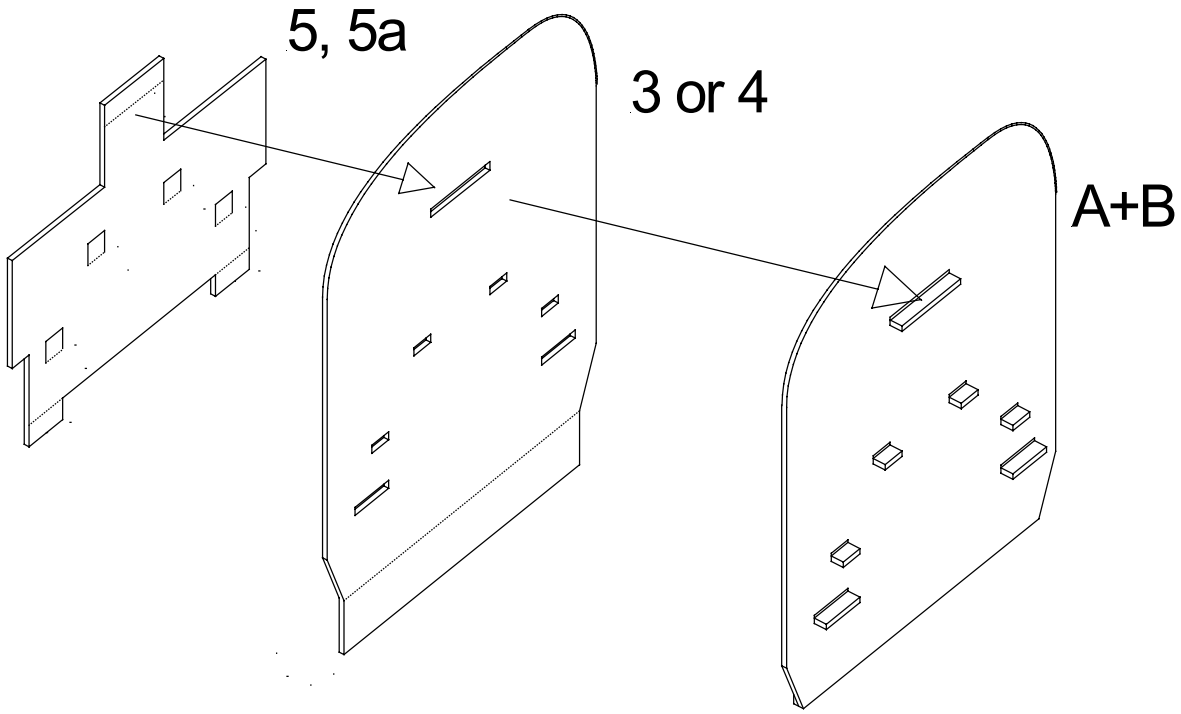
Clean any flash from bogie side frames and transom castings. Cut brass stretchers and radius plates out from the etch. Drill out the pilot holes in the stretchers to accommodate 10 BA bolt, which you should now solder into place on the carriage floor in readiness to accept the bogie. Drill out the pre-marked axle centres on the cast side frames. Solder the two radius plates in the slots on the brass stretcher. Then solder the transom ends in place. Solder one side frame to the brass stretcher, fit bearings and wheels to choice and solder the other cast side in place.



Carriage Sides
Carefully remove carriage side from fret. Take care to form the tumblehome curve below the waistline by forming it around a half inch tube or a suitably profiled piece of wooden skirting board, the amount of curve is shown by the carriage end. Carefully remove the etched droplights with integral hinges from the etch. Bend hinges as shown in the diagram and locate in the pre-etched holes in the carriage sides.



Carriage ends
Carefully remove carriage ends, part 3 and part 4, part 5, 5a and both component parts number 7. Drill out the pilot holes for the end handrails and grab rails on each end. Fold part 5a to form the steps by folding each to 90 degrees and the wings to support the sides by folding each to 90 degrees. Locate the steps by fitting from the inner face of the end with pre-etched slots part 3.. Secure with solder or glue. Fold part 5a to form the wings to support the sides at the other end part 4 of the carriage by folding each to 90 degrees. Secure with solder or glue, avoid covering up the holes you have already prepared for the grab rails. Before folding parts 7 mark centres to line up the two holes at each end of the carriage floor, drill to accommodate 10 BA bolts, now fold up part 7 to make a three sided box. Solder parts 7 to the inner faces of each end, leaving enough space to fit the 0.030” polystyrene floor between the brass floor and part 7.



Solder or glue the carriage sides to the ends, ensure square ness, tack solder first then when satisfied run solder into each corner joint. Fit handrails and grab rails from wire to the ends. Carefully cut door and window ventilators, fit short vents in the panel over each door and the longer vents over the corridor windows. Fit door furniture after painting. Trial fit the floor to body, adjust if required, solder 12 BA nuts in place on upper faces of each part 7.

The roof

Cut the aluminium roof to length, trim the corners of the flange to clear the ends. If modelling a toplight carriage the flange will have to removed over all of the corridor windows. Mark the roof centre line and positions of all roof detail. Torpedo vents should be one per compartment along the roof centre line. A ventilator is required for each toilet, on toplight carriages the ventilator is again fitted on the roof centre line but on earlier traditionally panelled carriages it was offset one foot towards the compartment side. A toilet water supply roof tank filler cap is require for each toilet. This is positioned on the centre line close to the partition between the lavatory and the adjacent compartment.

Cast roof duckboards should be fitted on the centre line at each end. Roof grab rails are fitted at the steps end either side of the duckboard. If desired glue the roof on to the body of the carriage after painting.

Interior fittings

The 0.030” polystyrene floor must be cut to length and two holes drilled at each end to accommodate 10 BA bolts. Use the 0.020” polystyrene to make the compartment partitions.

Carefully remove the corridor etch. Fold the full length half etched line to 90 degrees. Fold the toilet ends of the corridor etch. Carefully remove the corridor side extension plates if modelling 57 foot carriages and solder them to each end of the corridor etch. Remove the bulkheads and solder these into the slots provided. Please note the corridor extension plates are not provided in brake ended carriages.

Glue the corridor assembly onto the styrene floor leaving a corridor 9mm wide. Using the bulkheads to give the profile of the compartment partitions cut the required number from the 0.020 polystyrene and glue in place. Cut the seat moulding to fit each compartment and glue in place. On the corridor side a hand rail from 0.5mm brass should be attached along the side at mid window height.

Gangway connections
It is recommended that the etched corridor connections are assembled, painted and then fitted complete to each end of the carriage. Follow the attached instructions.

Finishing

Clean and degrease your model, using white spirit before painting. For etched brass and white metal models an etching primer, such as Precision Paints PS1, is essential. Follow the manufacturers instructions bearing in mind that only a light covering is required. The model should then be painted using the livery of your choice.

After painting, clean your model using a tissue soaked in white spirit. Letter your wagon to suit your chosen period. Suitable lettering is supplied by the HMRS and paint by Precision Paint for the LNWR, LMS and BR periods. It will be appreciated that some carriages, those at the end of their useful life, would not have been repainted by their new owners and earlier liveries could have been around for many years. The London and North Western Railway used a painting cycle of 5 to 6 years and so LNWR livery survived to around 1930. The following information is offered as a guide and modelers are advised to obtain suitable photographs and consult the suggested references listed above.

London and North Western Railway carriage livery
The LNWR livery is often referred to as 'plum and spilt milk'. The lower panels and mouldings were a 'carmine lake' colour. Usually the vents were also lake. The upper panels were a shade of white created by the addition of a small amount of blue to the white base colour and the yellow effect of varnish. The carriage ends were painted chocolate not lake and the underframe and running gear black. Fixed window frame mouldings were usually indian red and the door and window drop lights varnished natural wood. On the rounds of the raised mouldings a gold coloured line (1/2") edged with a 1/8th white was applied. When applied adjacent to the carmine lake panel this white line was both sides of the gold. In contrast the white line was only on one side where the adjacent panel was white. The gold colour was made from a mixture of lemon and orange. A white line 1/8th was applied to the edges of the doors. The brake van double doors were given a slate waste panel for the marking of destinations.

The roofs were generally painted white but quickly degenerated to a grey colour in service.
The interior should be painted dark red for third class seats and darkish green for first class seats, wood brown for the compartment divisions and guards area.

We suggest the following Precision Paints:

Carriage carmine lake	P379
Carriage 'white'	P380
Lining tan	P381

London and North Western Railway carriage lettering and numbering
This was applied in the gold colour used for lining, Sans Serif style and edged in black. Class designation and other wording was applied to the waist panels of the doors and running numbers located just above the waste rail. Transfer crests were applied to the lower panels usually one or two to a carriage. Often monogrammed initials were also used. Suitable lettering materials are supplied by the HMRS sheet number 16.

West Coast Joint Stock
Paint and lining details were the same as the London and North Western Railway. However the lettering was shaded green to the left and below and WCJS crests were used in place of LNWR crests. Suitable lettering materials are supplied by the HMRS sheet number 16.

London Midland and Scottish carriage livery
Whilst many carriages were repainted by their new owners some, particularly obsolete, stock retained their previous livery to the end with the addition of LMS numbering and lettering. Suitable lettering materials are supplied by the HMRS, sheet number and paint by Precision Paint.

The London Midland and Scottish carriage livery was highly standardised and it is possible to be fairly sure what the livery was like for a given period. In general up to the war years carriages were painted every six or seven years. Carriages were painted crimson lake, a shade very similar to the Midland Railway shade. Until 1936 both the ends and sides were painted crimson lake but from that date the ends were painted black with the exception of driving ends of motor carriages which remained crimson lake. Detail work on the ends, steps, pipework etc was painted black. In 1946 the LMS changed the name to maroon although it is doubtful if any change in colour was discernible. However it does seam possible that the colour had become slightly darker over the years. Roofs were generally painted in the Midland style of light grey between the rain strips and black between the rain strips and cantrail. From 1933 onwards to outbreak of war the roof was specified to be a metallic aluminium type finish. The roofs quickly became dirty in service and more often than not were a muddy grey colour.

London Midland and Scottish lettering and lining
Prior to the close of 1934 all carriages were lined in Midland Railway style. Raised beading was painted black and edged with a 3/8th gold for gangwayed stock or 3/8th pale yellow for non-gangwayed stock. These lines were edged each side with a 1/16th vermilion line. All three colours appeared on the beading and not the body panels. In all cases the lining followed the outline of the beading. Carriage ends were not lined and beading if present painted black as per the previous Midland practice.

From 1934 onwards a simplified lining system was adopted. This consisted of a ½" yellow line just below the cant rail, and a similar line above the tops of the windows. In addition just below the windows two ½" yellow lines separated by a 1" wide black line. The yellow lining had a darker shade than previously. During the Second World War lining was discontinued on the few carriages to be repainted. General touching up was the norm during this period. From 1946 lining was readopted and the yellow changed to straw.

Lettering such as LMS etc was applied to the carriage sides in serif characters 4" high. The colour was gold untill1934/5 when chrome yellow was used. The lettering was shaded in pinkish white to the left blending to dark red/brown below the characters, in turn the shading was shadow shaded to the right and below in black. Some pre-group carriages with shallow depth waist panels had 3" letting. The class type was marked on the doors 8" high rendered in gold. The LMS emblem was not used on non corridor stock and was near to the centre of the carriage. Insignia were generally placed as near to the centre of the carriage as possible in the waist panel. We suggest the use of HMRS sheet 1 for the early period, gold lining; or sheet 2 for the later period.

The following Precision Paints are suggested:

Crimson lake	P30
Carriage roof grey	P40
Carriage roof aluminium	P41
Lining gold (gangwayed stock)	P35
Lining yellow	P36
Vermilion	P37

British Rail
Gangway carriages which were repainted by BR were painted crimson and cream (blood and custard) and were lined.
We suggest the following Precision Paints:

Carriage crimson red	P116
Carriage cream	P117
Roof grey	P131
Maroon	P108
Roof grey, maroon carriages	P130

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