



**London & North Western Railway
London Midland and Scottish Railway
British Railways
Diagram 267 Toplight Corridor Carriages**

Prototype Information

Diagram 267 50ft x 9ft corridor third carriage

These carriages were built in two batches between 1910 and 1913. The earlier batch, which is not the subject of this kit, was traditionally panelled and electrically lit from the start. The later carriages were of the more modern 'toplight' style and were originally gas lit although it is likely that conversions to electric light was made sooner rather than later. According to the diagram book none of the 'toplight' carriages were dual braked. They were found all over the system strengthening many services and had long lives in revenue service. They lasted beyond the grouping right through the LMS and into BR. One carriage was exported to Ireland in 1948 and became GNR(I) number 480. Withdrawals began in the fifties and most had gone by 1960 although some carriages had extended lives as Camping Coaches.

Selected numbers:

| | |
|------|------|
| LNWR | LMS |
| 36 | 4816 |
| 73 | 4817 |
| | 254 |
| | 389 |
| | 4851 |
| | 4867 |

General comments

Originally the Stone's double battery system was used on LNWR carriages but from 1913 the Wolverton single battery was used on all new stock. Loose vehicles were fitted with batteries beneath the floor. Sets of carriages often had batteries in only one or two vehicles with jumper cables between carriages. It is likely therefore that D267 toplight carriages were fitted with the Wolverton lighting system. Up to around 1914 LNWR carriages were fitted with Mansell wheels and thereafter steel disc.

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

Required to complete

This model requires Mansell carriage wheels, paint and transfers to complete. We recommend Precision Paint and HMRS transfer, Sheet 16. These can be obtained from our fully searchable illustrated online shop at: www.wizardmodels.co.uk or by mail order from PO Box 225, Macclesfield, Cheshire, SK10 4GB.

Construction notes

Parts list

| Packet 1 | Packet 2 | Packet 3 | Packet 4 |
|--|--|--|---|
| Underframe castings | Bogie castings | Investment castings | Roof castings |
| Dynamo 1 off Regulator box (for Wolverton lighting system only) Levers 2 off | Bogie side plates 4 off (8' deep frame) Bogie end plate 4 off 8' Bogie etches (tissue paper) | King posts 2 off 12BA nuts and bolts x 4 10BA nuts and bolts x 2 | Torpedo vents, 20 off Duck boards, 2 off Lavatory water tank fillers, x3 |
| Packet 5 | Interior items | Roof materials | Miscellaneous |
| Set sprung round buffers | Polystyrene strip 0.030" x1 Polystyrene strip 0.020 x 2 Glazing strip, 2 off Seating | Aluminium roof Microstrip, 2 lengths | 0.5mm wire, x4, 3 brass, 1 nickel silver 0.7mm wire, x0.5 Corridor etches (tissue paper) |

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

Underframe

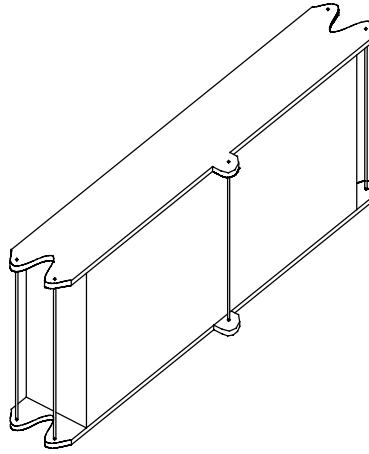
Cut or snip out floor (12) from stepboards (14, 15), place the stepboards carefully to one side. Taking the floor, drill out the 4 end pilot holes to accommodate the 12 BA bolts provided. Then drill out the 2 bogie centre pilot holes to accommodate the 10 BA bolts provided. Do not fold up the vee hangers yet. Punch the rivet detail on the solebars (13) to represent the rivets. Do this on a firm surface, taking care not to distort the floor.

Solder the solebars to the floor using the location slots. Taking the full length stepboards (14), 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. Repeat this process for each full length stepboard. Attach the full length stepboards into the solebars using slots.

Now fit the lost wax king posts, 35mm apart, thread 0.5mm wire through the holes to form the trussing. Taking the lower stepboards, tin the inner face of one board and then fold through 180 degrees with the half etched tab to the inside, fold the lap or fall plate upwards, solder. Using etched droppers 4 off per board (16) fit lower stepboards in place.

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.



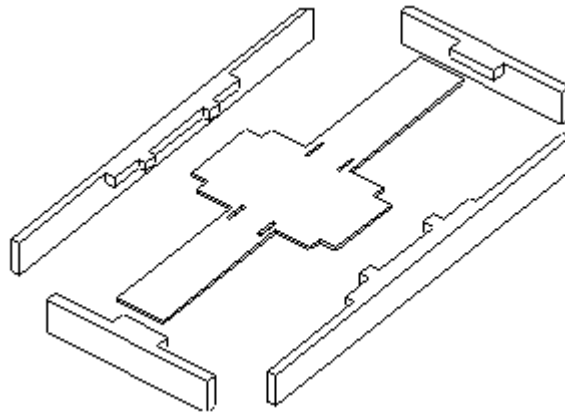
On carriages with the Wolverton electric system one battery box is needed, this should be placed on the corridor side. On the opposite side fit the cast regulator box. The regulator box should be fitted with the angled face facing outwards just below the solebar. See P21 Jenkinson.

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 wire through the holes and through cast brake linkage components, the hole in the floor next to the vee hangers gives the position for the cast vacuum brake cylinder.

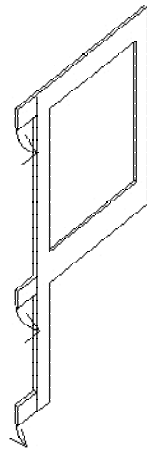
Bogies

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 bolts, 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

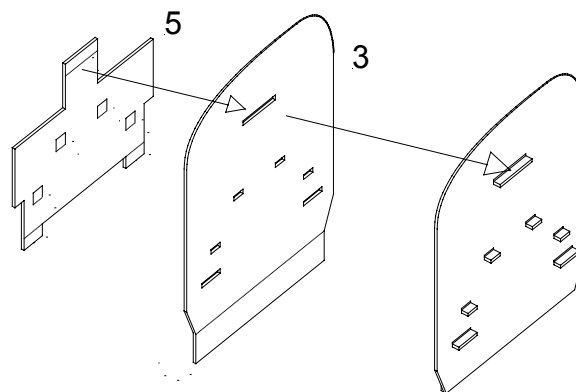
Carefully remove carriage sides (1, 2) from fret. Take care to form the tumblehome curve below the waistline by forming it around a half inch tube or a suitably profiled piece of wooden skirting board, the amount of curve is shown by the carriage end. Carefully remove the etched droplights (17) with integral hinges from the etch. Bend hinges as shown in the diagram and locate in the pre-etched holes in the carriage sides. Two open drop light windows (18) are also supplied. Carefully cut door ventilators, fit vents in the panel over each door. Trial fit the floor to body, adjust if required, solder 12 BA bolts in place on upper faces of each part 7. Fit door furniture after painting



Carriage ends

Carefully remove carriage ends, parts 3, and 4 as well as the inner ends parts 5 and 6. Drill out the pilot holes for the end handrails and grab rails on each end. Fold part 5 to form the steps by folding each to 90 degrees and the wings, which will support the sides, by folding each to 90 degrees. Locate the steps by fitting part 5 into the inner face of part 3 the end with pre-etched slots. Secure with solder or glue. Avoid covering up the holes you have already prepared for the grab rails. Fold part 6 to form the side support wings and alarm hinge. Fit into part 4 to support the sides. Secure with solder or glue.

Before folding parts 7 mark centres to line up the two holes at each end of the carriage floor. Drill holes to accommodate 12 BA bolts. Now fold up both part 7's to make a three sided box.



Solder parts 7 to the inner faces of each end, leaving enough space to fit the styrene floor. Solder or glue the carriage sides to the ends, ensure squareness, tack solder first then when satisfied run solder into each corner joint. Fit handrails and grab rails from 0.5mm wire to the ends.

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 be removed over all of the corridor windows. Mark the roof centre line and positions of all roof detail. Torpedo vents should be fitted two per compartment, 12mm (three feet apart) on the roof centre line. A ventilator is required for each toilet, on toplight carriages the ventilator again fitted on roof centre line but on earlier traditionally panelled carriages it was offset 6 inches towards the compartment side. A toilet water supply filler cap is required for each toilet. This is fitted on the centre line adjacent to the next compartment.

Cast roof duckboards should be fitted on the centre line at each end. Roof grab rails should be 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 0.30" polystyrene floor must be cut to length and two holes drilled at each end to accommodate 10 BA bolts. Using the bulkheads to give the profile of the compartment partitions cut the required number from the 0.020" polystyrene. Carefully remove the corridor etch (9). Fold the full length half etched line to 90 degrees. Fold the toilet ends of the corridor etch. Carefully remove the bulkheads, 8, and solder these into the slots provided on the corridor etch. Glue the corridor assembly onto the polystyrene floor leaving a corridor 9mm wide. Cut the seat moulding to fit each compartment and glue in place. On the corridor side a handrail from 0.5mm nickel silver should be attached along the side at mid window height.

Gangway connections

It is recommended that the etch corridor connections are assembled and then fitted complete to each end of the carriage. See 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 modellers 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:

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

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.

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 seem 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.

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 1/2" yellow line just below the cant rail, and a similar line above the tops of the windows. In addition just below the windows two 1/2" 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 until 1934/5 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" lettering. 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 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 |

Wizard Models 51L
PO Box 225,
Macclesfield
Cheshire,
SK10 4GB
Tel: 01625 532944
www.51L.co.uk
email: info @51L.co.uk

Version: 2.0
Issued: April 2004