

**London and North Western Railway
LMS, BR
54' x 9'0" Corridor Brake Vans to D370E**

Prototype notes by Philip A Millard

In all there were 26 brake vans to D370E. Ten were originally built during World War 1 as Ward Cars in Continental Ambulance Trains number 21 and 30. They were released in June 1921 and the spring of 1922 taking numbers 8979-8988. These carriages were mounted on modern bogies of the 1911 bulb-iron pattern with 8ft. wheelbase at 39'6" centres.

A further 16 vehicles were built for use in the US Army Ambulance Trains, Numbers 71 and 72, but the war was over by the time they were ready for service. After some delay they were converted into D370E brake vans and placed in traffic in 1920 as numbers 8899-8914. These carriages were mounted on second hand truss-rod pattern bogies, also of 8ft wheelbase but dating from the 1890s and reconstructed to comply with the 1911 standard for use with ambulance vehicles, and they retained these bogies until withdrawal. This, together with other detail differences means that the Chowbent kit represents the second batch of ten vehicles, number 8979-8988. There were nominally three more members of the type which returned from ambulance service after the grouping, but these had significant differences compared to the LNWR conversions.

In any case there appear to have been detail differences between the vehicles, for example, No.8981 had no roof ventilators, but some or all of the others had a double row of 14 hemispherical-pattern ventilators in the roof (not symmetrical when viewed in side elevation). All the vehicles were dual fitted with vacuum and Westinghouse brakes although the Westinghouse apparatus was removed from the mid-1930s. Lighting was on the Stone's system, that is, with one battery box mounted on each side with the dynamo positioned at the far end from the guard.

Numbering details of the 8979-88 batch are as follows:

| LNWR | NUMBER | LMS 1923 NUMBER | | LMS 1933 NUMBER |
|------|--------|-----------------|---------|-----------------|
| | 8979 | 2032 | (8/26) | 32757 |
| | 8980 | 2033 | (5/27) | 32758 |
| | 8981 | 2034 | (4/26) | 32731 |
| | 8982 | 2035 | (7/25) | 32752 |
| | 8983 | 2036 | (1/26) | 32753 |
| | 8984 | 2037 | (9/26) | 32754 |
| | 8983 | 2038 | (3/28) | 32759 |
| | 8986 | 2039 | (12/25) | 32760 |
| | 8987 | 2040 | (8/25) | 32753 |
| | 8988 | 2041 | (6/27) | 32756 |

Liveries are standard for the period. The dates for repainting and renumbering into LMS livery are shown. Withdrawals commenced in 1955 and the last, 32760, went in March 1959. In their later years these vans would have undergone various repairs and modifications to the panelling which only photographs can reveal.

General comments

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 days.

References

An Illustrated History of LNWR Coaches (including West Coast Joint Stock), D Jenkinson P65
 Selected LNWR Carriages, P Millard, LNWR Society
 LNWR Liveries, HMRS, Talbot, Millard Dow and Davies Chapter 6 , P86
 LNWR Great War Ambulance Trains, P Millard, LNWR Society
 Historic Carriage Drawings, volume 3, non passenger coaching stock P66
 British Railways Non-Passenger Rolling Stock, Railways in Profile Series G Gamble P16

Construction notes

Components list

Packet 1

Underframe castings

Packet 1C

Dynamo 1 off

Vacuum cylinder 2 off

Packet 1B

Westinghouse cylinder

Westinghouse reservoir

Packet 2

Bogie castings

Bogie side plates 4 off
(8' deep frame)

Bogie end plate 4 off

Packet 3

Investment castings

King posts 2 off

10 BA nuts and bolts x 2

12 BA nuts and bolts x 4

Packet 4

Roof castings

Hemispherical vents, 20 off

Duck boards, 2 off

Side lights, 2 off

Packet 5

Set Spencer buffers

Interior items

Polystyrene strip 0.030" x1

Polystyrene strip 0.020" x1

Glazing strip, 2 off

Roof materials

Aluminium roof

Microstrip, 2 lengths

Miscellaneous

0.5mm wire, x3

0.7mm wire, x0.5

(Note you should have spare ventilators.)

Underframe

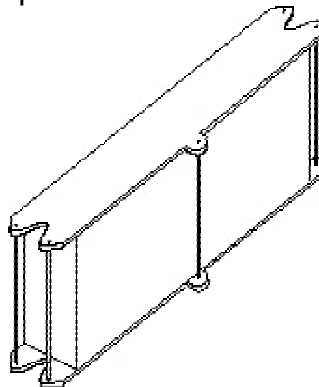
Cut or snip out floor from stepboards, place the stepboards carefully to one to side. Taking the floor, drill out the 4 end pilot holes to accommodate 10 BA bolts provided. Then drill out the 2 bogie centre pilot holes to accommodate the 10 BA bolts provided. Do not fold the vee hangers down yet. Punch out 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 to form the floor and solebar.

Taking the full length step boards, tin the inner face of one of the boards and then fold through 180 degrees with the flat etched tab to the inside. Supporting the step board in a vice run your soldering iron along the edge. Repeat this process for each full length stepboard and for the lower stepboards. If using glue, apply to the inner faces and fold the stepboards. The full length stepboards should now be fitted to the floor leaving 1mm of solebar showing below the stepboard.

Now fit the lost wax queen posts, 35mm apart, thread the wire through the holes in the king posts to form the trussing. Using the etched droppers fit the lower stepboards as shown in the drawing.

The Battery Boxes and Underframe Fittings

First taking the battery box upper and lower plates, two of each as these vehicles had a battery box mounted each side between the king posts, drill out the pilot holes to accept 0.4mm wire. Then carefully scribe a centre line on what will be the outer face of the battery box, use this as a guide when lining up with the lower and upper plates.

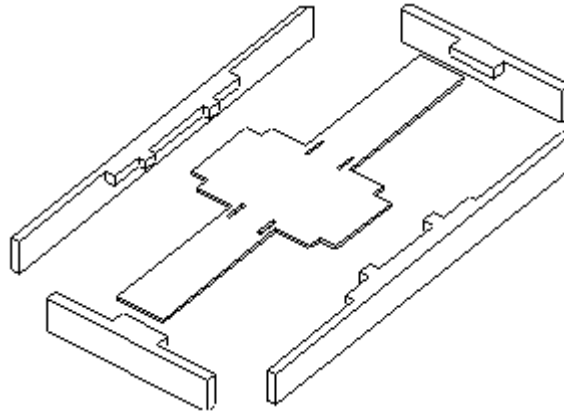


Fold the two ends to 90 degrees on the plate which will represent the sides and front of the battery box, place in position on the lower plate with the scribed centre line in line with the centre hole. Then repeat this for the top plate then thread the wire through the holes and secure with solder, trim leaving about 0.5mm showing proud at the base. Repeat for the second battery box. The batteries should be placed on the floor either side of the king posts.

The cast dynamo should be fitted near the bogie some 16mm (4') from the axle centre line and 3mm from the carriage centre line. Fold the vee hangers down and thread wire through the holes and through the etched linkage components, the hole in the floor next to the vee hangers gives the position of each vacuum brake cylinder. For dual braked carriages, castings are provided for the Westinghouse system in addition to the vacuum system. The brake reservoir should be fitted transversely opposite the dynamo so that the far end is 14.5mm (3' 71/2") from the carriage centre line. The pump should be on the centre line of the carriage some 9mm (2' 2") away from the mid point way from the brake end.

Bogies

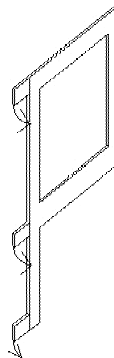
Clean any flash from the bogie sides and transom castings. Cut the brass stretchers and radius plates out from the etch. Drill out the pilot holes to accept 10BA bolt, which you should now solder into place on the carriage floor in readiness to accept the bogie.



Solder the two radius plates in the slots on the brass stretcher. Then solder the transom ends in place. Drill out the pre-marked axle centres on the cast side frames. Solder one side frame to the brass stretcher, fit bearings and wheels to choice and solder the other cast side in place.

Carriage sides

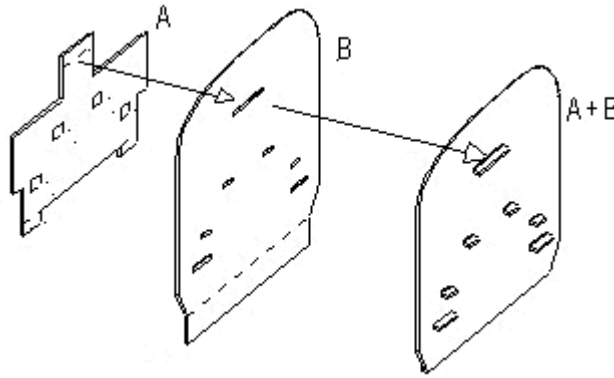
Carefully remove the carriage side from the fret. Take care to form the tumblehome curve below the waistline by forming it around a half inch tube or a suitably profiled piece of wooden skirting board, the amount of curve is shown by the carriage end.



Now 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. This also applies to the hinges without droplights for the doors without windows in the van section of the carriage.

Carriage ends

Carefully remove carriage ends, part 5, part 5a and both component parts number 7. Drill out the pilot holes for the end hand rails and grab rails on each end. Fold down part 5 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.



Secure with solder or glue. Fold part 5a to form the wings to support the sides at the other end of the carriage by folding to 90 degrees. Secure with solder or glue. Avoid covering the holes you have already prepared for the grab rails.

Before folding parts 7 mark centres to line up with the holes at each end of the carriage floor, drill to accommodate 10BA bolts, now fold to make a three sided box and solder 10BA bolts in place. Solder parts 7 to each end leaving clearance for the polystyrene floor.

Solder or glue the carriage ends to the sides, ensure squareness, tack solder then when satisfied run solder into each corner joint. Fit handrails and grab rails to the ends. Leave fitting grab rails along the waistline until after lining. Carefully cut the door ventilators and fit into the small panel on the eaves panel of each door. Fit any door furniture after painting. Trial fit the body, adjust if required, by slightly enlarging the holes in the brass floor.

Roof

Cut the aluminium roof to length, trim the corners of the flange to clear the ends. Mark the roof centre line and the positions of all roof detail. Fit ventilators in pairs 2' from the centre line as required. The cast roof duckboards should be fitted on the centre line at each end of the carriage. Roof grab rails should be fitted at the steps end, either side of the duckboard, form from 0.5mm wire.

The roof may be glued on to the body of the carriage or alternatively held by screws.

Interior fittings

The 0.30" polystyrene floor must be cut to length and two holes drilled at either end to clear the 10BA bolts. Fit glazing after painting. The glazing is a PVC based material and will not be attacked by common solvents.

Gangway connections

Assemble gangway connections following attached instructions. It is suggested that the gangway connections are attached after painting and lettering.

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 the 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 lemons 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 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.

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.

London Midland and Scottish lettering and lining

Prior to the close of 1934 early 1934 all carriages were lined in Midland 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 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.

We suggest the following Precision Paints:

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

British Railways

Those gangwayed carriages which were repainted by BR were painted crimson and cream (blood and custard) and were lined. It is suggested that suitable photographs are examined as only some stock was repainted at all!

We suggest the following Precision Paints:

| | |
|----------------------|------|
| Carriage crimson red | P116 |
| Carriage cream | P117 |
| Roof grey | P131 |

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