These instructions apply to the following carriages:

Lancashire and Yorkshire Railway
London Midland and Scottish
British Railways
Elliptical roofed carriages

Corridor
D84 6 compartment corridor brake composite carriage, 56'
D90 8 compartment corridor third carriage, 56'
D91 4 compartment corridor brake third carriage, 56'
D104 7 compartment corridor composite carriage, 56'
D105 5 compartment corridor brake third carriage, 56'
Non-corridor
D86 8 compartment non-corridor composite carriage, 54'
D87 8 compartment non-corridor lavatory composite carriage, 56'
D94 5 compartment non-corridor brake third carriage, 54'
D98 9 compartment non-corridor third carriage, 54'

Prototype Information

By Barry C Lane

The Lancashire & Yorkshire Railway introduced elliptical roof corridor coaches in 1906. The first orders placed were on November 7th of that year for 10 tri-composite brake corridor coaches (Diagram 84) and 90 non-corridor composites (Diagram 86). Previous arc roof carriages had two rows of large torpedo vents on the roof and the first of these new vehicles had the same size and arrangement (see end diagram A). Because this put the coaches foul of the Midland Railway loading gauge, (the brake compos being for through coach service) the arrangement was changed after 69 (D86) had entered service and many were never altered. The remaining diagram 86 carriages were fitted with smaller torpedo vents along the centre line of the roof, one on either side of the gas lamp at 21" spacing. The corridor composites retained the two rows of vents but were changed to the smaller pattern in due course. The original incandescent lamps had tall flues which were also reduced in height for all future coaches. All subsequent stock (except open saloons types) had the smaller vents and lamps along the centre line of the roof.

The stock was built to the extreme of the loading gauge with 9ft wide bodies. To avoid the guard's ducket exceeding the body width, it was made the same width but the van side was tapered inwards to allow a sighting along the train. The end windows of the van had a white panel in the centre where the tail light would be placed (end diagram B) after dark this being superseded by a fixed gas lamp on non-corridor stock from around 1910 (end diagram F). Corridor van ends had the white panel to the right (end diagram D).

From about 1910, the ends of carriages were built with three panel steel ends and the hand rails changed to straight rather than the curved pattern (F and G). The lower footboards were gradually dispensed with in the 1920s though a short board was retained on the bogie below the van ends.

All the stock covered in these kits were mounted on 8 ft wheelbase bogies. The first ones were the traditional type but new vehicles from 1908 and 1909 received the 'wide bearing' bogies with the leaf springs within the side frames. As the years went by, bogies were swapped about indiscriminately.

Almost all the stock was gas lit as built but conversion to electric lighting commenced about 1920 though the task was never completed. Vehicles built with electric lighting in 1918 had a simple sling to support the batteries but conversions received a substantial structure of angle iron for the battery boxes. These were placed either side probably, but not necessarily, centrally. On adoption of the Wolverton lighting

system by the LMS one battery box was used with a control box again probably but not necessarily situated centrally on the opposite side of the carriage. Much of the stock lasted to BR days; gas lit stock being the first to be withdrawn.

The first vehicles had wooden ends with strips of beading from buffer to roof level, but this was changed to sheeted metal ends having two vertical joints about 1910.

Many coaches were dual fitted for running onto the Caledonian and North Eastern Railways who used the Westinghouse brake system. Therefore, many vehicles, but not all, within a Diagram also had the Westinghouse brake but apart from the existence of the extra hoses on the ends of the coach, there was no outward sign of the extra system. It was well tucked up between the solebars out of normal sight. It is reasonable to say that some of every type of LYR carriage kits available in the 51L range would have been fitted with both braking systems, though the compartment stock would have fewer examples than the corridor stock which was planned to run through to distant destinations. For example, all the brake composites of Diagram 84 were dual fitted.

After Grouping, some of this stock saw service in other parts of the country, notably in Scotland as new LMS built carriages displaced the older LYR stock. Despite their age, when painted in LMS livery the LYR carriages were not unlike the late 1920s carriages built by the LMS. Possibly for this reason, many vehicles continued in service well in to the 1950s.

The continuous footboards on carriage stock of the Edwardian period were reduced after 1920 to the suspended step between the bogies on the corridor stock. Only the end bogies under guards vans were supplied with a short step. The footboards (other than the solebar suspended full length step) were removed in the LMS days, though some remained until the end. The funnels and down pipes on the carriage ends were soon removed by the LMS and in much later years, even the wooden and metal sheeting on the sides was not renewed and thus revealed the boarding behind it.

Interiors had blue patterned upholstery in Firsts, green in Seconds (abolished in 1911) and dark red or patterned plum in Thirds. Walls above seats in 'compartment' carriages were white T & G boarding but the corridor stock had dyed baywood matchboard panels giving mid walnut or light oak colouring. Seat ends and surroundings in open centre corridor coaches were mahogany. The matchboard panels on the internal walls of the 'corridor' were finished in a shade referred to as 'sycamore' bordered with a deeper shade, walnut or mahogany. Ceilings in all varieties of carriage were white.

D84 **6 compartment brake composite corridor carriage (for 'through' services)**
Corridor brake composite 56'

First 10 ordered in 1906, nos 1060-1069 (entered service 1907) V/3/3/3/3/1/1/V
These had two rows of the older type torpedo vents and were immediately banned from service on "Scotch Lines and MR)."
Two built 1909 nos 356 and 357 as tri-composites V/3/3/2/2/1/1/V
Later lots added in 1910 and 1912 had the smaller pattern torpedo vents on the roof centre line. Nos 524-529 and 531-534. Nos 536 and 538 added in 1919 and 1921 replacing vehicles taken for ambulance trains in the war.

D86 **8 compartment composite carriage**
Non-corridor brake composite 54'

First orders for 90 (7/11/06) were 2/2/1/1/1/2/2 arrangement with large torpedo vents in two lines to either side of the gas lamps. 69 of the 90 were so built and banned from "Scotch lines and MR". Second class became third class by 1911. Six of the later ones were fitted with electric lighting. All built 1907/8 except No 827 added in 1911.
Sample numbers, 165, 207, 220, 225, 286/7. 310, 313, 345, 943-999, 1051-1059

D87 **8 compartment lavatory composite carriage**
Non-corridor bogie composite 56'

Ordered 7/11/06 entered service 1907, single central lavatory
10 built 2/2/1/1/L/1/1/2/2
Numbers 1070-1079

D90 **8 compartment corridor carriage**
Corridor third 56'

27 ordered 25/11/07 entered service 1908/9
Further vehicles added 1916 to 1919 for ambulance train replacements, had wide bearing bogies.
Sample numbers: 1303, 1304, 1306, 13087, 1309, 1311, 1332, 1419, 1422,

D91 **4 compartment corridor brake third carriage**
Corridor third brakes (four compartment) 56'

6 ordered 25/11/07 entered service 1908
4 added 1909 had wide bearing bogies and went into ambulance train '24' in 1915
4 built 1916 for ambulance train service
Sample nos: 1352, 1354/5/6/7/8/9 1860, 1862, 2389, 2396/7/8

D94 **5 compartment brake third carriage**
Non-corridor third brake 54'

First three entered service December 1908 No 1077, 2610, 1150
105 built in total with the last 50 coming from Metro C&W Ltd, Saltley in 1921 with detail differences and wide bearing bogies.
Sample numbers: 418, 1150, 1474, 1497, 2077, 2082/3, 2452, 2488, 2689, (one preserved)

D98 **9 compartment third carriage**
Non-corridor full third 54'

Eight compartment non-corridor.
Ordered 9/5/1908, numbers 1077, 2610, 1150

105 built in total, 1908 to 1918. (One built 10 compartments 60ft long.)
50 more added to stock in 1921 built by Metro C &W Ltd, Saltley having small detail differences but otherwise very much like the most recent examples built at Newton Heath.
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Early builds had curved hand rails on the ends and standard 8ft bogies but the hand rails fitted by 1910 would be straight and the wide bearing 8ft bogie was also fitted by that date.

Sample numbers:
2077, 2082/3., 24352, 2488, 1497, 2689
Metro C &W Ltd, Saltley built 1921 order numbers 3325 to 3364 inclusive.

D104 **7 compartment corridor composite carriage**
Corridor composite 56' L/1/1/1/1/3/3/3/L

11 ordered 21/12/08 with wide bearing bogies from the start, into service 1909.
Sample no: 221/2, 226/7/8/9/230/2, 234, 247, 262
nb 232 destroyed in Low Moor fire 1916. No 518 built as a replacement.

D105 5 compartment corridor brake carriage
Corridor brake third (five compartments) 56'

24 ordered 21/12/08 entered service 1909/10

5 built 1918/9 to replace 3 lost in Low Moor fire 1916 and 2 taken into war service.
sample numbers 176, 420, 601, 604, 635, 992, 998, 1026, 1117, 1602, 1608, 2175, 2454, 2460

Numbering note:
Most of these vehicles were built to the 'Replacement Account' and thus were allotted random numbers. 'Capital Account' stock are identified by blocks of numbers as in diagram 87 in particular. Additional running numbers for all these vehicles will be found in L & Y Passenger Stock by R W Rush.

Livery
The LYR livery of deep tan upper parts and carmine lake below the window line level was finished with a fine orange line along the joining of the two colours and just above the inward step of the body. Below waist level All windows and doors were also bordered with the orange lining. Droplights were indian red. The beading around the glass in quarter lights was painted dark chocolate (not milk variety) which was also the colour of all the carriage ends. Underframes and all metal parts like steps , lamps, hand rails etc were black. Roofs were white when ex works but would reduce to a dirty grey within weeks of service. Gold transfers edged with white adorned the waste line with a 10" company crest below the LYR at one end and another below the running number at the other end.
The LMS adopted the Midland style livery from 1923 with upper sides lined out in panels even though the carriages were flush sided! In the 1930s third gave way to crimson with the three horizontal lines (two above the windows and one double line at waist level). The LMS livery carried on into BR days with only the addition of an M to precede the running number. The surviving corridor vehicles which went through the works in the 1950s received BR crimson/cream livery.

Additional comments from 51L
Rodding and emergency flag positions were present at one end of every vehicle and in the case of brakes at the opposite end to the brake end. The brakes only had steps on both sides of the non brake end. In contrast the non brake carriages had steps at the left hand side on both ends.

References

LYR Association, Flyer No1, 1989 *
LYR Association, Flyer No2, Spring 1990, P6-15*
Platform 59,P4 Lancashire and Yorkshire railway Society, ISSN 0143 8875
L & Y passenger stock, R W Rush, Oakwood Press, 1984
The Illustrated History of LMS standard coaching stock, Jenkinson, R Essery, OPC
Historic Carriage Drawings, Volume 2, LMS and Constituents, D Jenkinson, P112-115, Pendragon, 1988'*
'The Newcastle Train', Barry C Lane, P4-15, Platform, Journal No59, LYRS
L & Y Passenger Stock by R W Rush

*We recommend these references

Acknowledgements

51L would like to thank Barry C Lane for the prototype notes and assistance in answering our many queries. Naturally any errors our ours!

Required to complete
14mm steel disc wheels, 8 off
Paint
Transfers
Couplings

Construction notes

Please read these instructions with care before starting to build your model. The carriage kit consists of a fold up chassis either bolted or soldered to the body. The sides fit in between the ends. The roof is a fine grain timber supported on the sides by a 90 degree bend and seats in between the ends. A card roof covering is supplied to reproduce the felt covering used in carriage construction. The roof may be attached permanently to the body by glue, or by a variety of non permanent methods including bolts disguised as gas lamps, magnets etc.

Examine all the parts and familiarise yourself with their assembly. Flash from castings may be removed with a fine file or wet fine silicon carbide paper (1200 grit). There are a number of rivets to be formed. This is best done using a 'riveting' press but may be done satisfactorily using a blunt sewing pin and a lightweight hammer on a relatively hard surface. Assembly is best carried out using 144 degree solder for etched components or low melt 70 degree solder for white metal. When soldering white metal components to brass tin the brass first. An epoxy resin such as Araldite, or superglue may also be used. Evostick or similar impact adhesive is required to attach the roof covering to the timber.

Parts list

Packet 1
Underframe castings
Vacuum cylinder 1 off
Levers 2 off
Gas tanks 2 off

Westinghouse cylinder
Westinghouse reservoir

Packet 2a
Inside bearing bogie
Axle boxes early pattern 8 off
Bolster springs 4 off

Packet 2b
Outside bearing bogie

Axle boxes later pattern 8 off
Outside dampers, 8 off
Inside dampers, 8 off
Spring casting 8 off
(Bolster springs, 4 off from above)

Packet 3
Fastenings
8BA nuts and bolts x 2
14BA nuts and bolts x 4

Roof materials
Timber roof section

Card covering material
Microstrip, 3 lengths

Packet 4
Roof castings
Torpedo vents, 20 off
Gas lamps, large 10 off
Gas lamps, small 5 off (corridor and non-corridor brakes)

Miscellaneous
Corridor connections, (corridor carriages only)

Packet 5
Set sprung round buffers
'Oval' buffer head etch

Interior items
Polystyrene strip 0.020 x 2
Glazing strip, 3 off
Seating

Etches, tissue paper
Sides, ends and corridor underframe
8' Bogie frames
8' bogie springing unit
0.3mm brass wire x1
0.5mm wire, x 1 brass
0.45mm wire, x 3 nickel silver

You are supplied with spare roof detailing components.

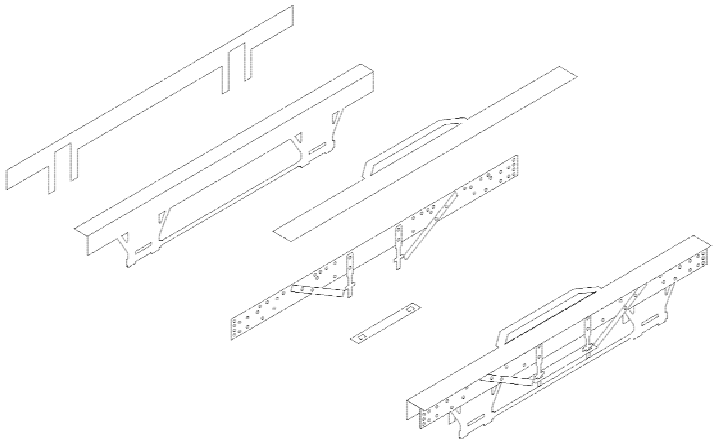
Underframe

Bogies

Assemble the Bill Bedford design bogie suspension units following the attached instruction sheet. The bogie frame end needs to be shortened if the early inside bearing type of bogie is chosen. This point is marked with a half etch line. Ensure the bogies are folded square and any solder on the bearing carriers removed. Particular care is required to ensure the brake shoe bar slots are not filled with solder when soldering the main frame. The brake shoes are not easy to see and many modellers may wish to not use them.

You are supplied with the early **traditional** inner bearing and later **wide bearing** pattern 8' bogie solebars. Considering the traditional pattern first. These should be removed from the fret and where required rivets formed. Bend the upper strip towards the detail to form the bulb iron effect. The solebar should now be attached to the bogie frame followed by the castings, these including spring, axlebox and damper. Ensure that the bearing carrier movement is not hindered, if required open out the hole at the rear of the axle box. The bolster spring will have to be placed at the centre of the bogie adjacent to the solebar. This component will be in line with the spring retainer plate and will need to be filled to fit.

Now, taking the later wide bearing pattern bogie solebar. Again remove from the fret, raise rivets and assemble following the sketch:

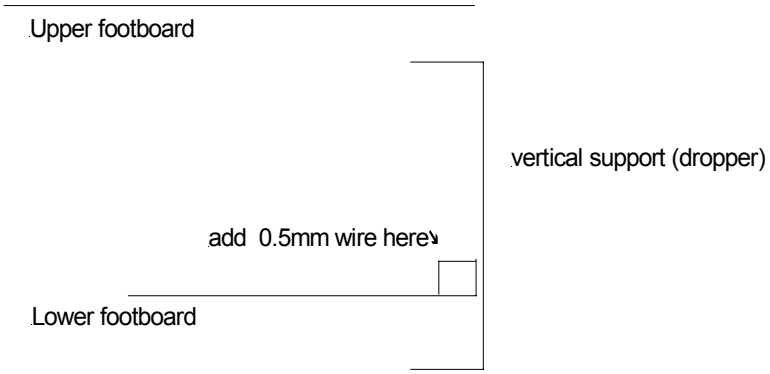


Attach bar between the queen posts. Again attach castings these are the separate spring dampers and axle boxes. The spring dampers should be 8mm either side of the axle. The axle box spring is just visible above the axle box and this is represented by a casting placed immediately behind the solebar. The solebar is now ready to be attached to the bogie. Lastly the bolster spring will have to be placed at the centre of the bogie adjacent to the solebar. This component will be in line with the Bedford spring centre stop and will need to be filled to fit and placed last.

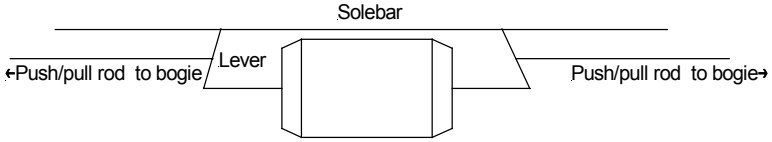
Chassis

See attached drawing. Remove the floor plate (**1**) from the fret and fold up the solebars support plate. Fold the bolsters (**2**) to a U shape (there is no need to solder these folds), solder a 8BA nut to the inside of the bolster. (This may be done by cleaning the nut and bolster contact points with a glass fibre brush and holding the nut in place using the screw. Ensure the screw thread is not grease free perhaps by adding a thick oil.) Solder the bolster in place. Remove the headstocks (**3**) and support plate (**4**) from the fret and produce rivets on the support plate. Tin both surfaces and solder together. Tin coupling hook pocket (**5**) and solder in place. (Before attaching to underframe it may be best to bore the buffer holes in the headstocks to take the buffers. The nominal diameter of the buffer shank is 2mm.) Attach to underframe position using locating tab on support plate. Attach buffer housings in place so the rear slot is in the vertical position. Support the buffer head in a pin vice and file the head surface flat prior to soldering into the front plate. Ensure the tabs are removed. Use a suitable flux for steel and ensure the finished buffer heads are carefully cleaned to remove acidic fluxes. Put to one side for fitting later see Finishing.

Attach solebars (**6**) onto the support plate. Rivets at the solebar ends require forming and the solebar may need trimming to length. Attach queen posts (**7**) to floor plate and thread nickel-silver wire. This should be from the inside of one bogie bolster to the next. Prepare the footboard assembly, firstly the upper board (**8**); prepare rivets in and the bend attachment tags by 90 degrees. The lower board (**9**) should have a section of 0.5mm wire attached to the rear. The footboard vertical supports (**10**) should be bent to a **U** shape and should be soldered on the lower surface of each footboard. The footboard assembly should now be attached to the solebar working from the tab at one end. A short footplate (**11**) is available for the bogie at the brake end.



Add bogies to chassis and attach with a 8BA screw. The ride height may need adjusting probably by 0.5mm, if so add a shim from the suspension fret above the bogie. The rail height to buffer centre should be 14mm.
Attach the vacuum cylinder to the centre of the carriage with the lever at 10 degrees pointing towards the cylinder. A section of 0.5mm brass wire may be attached from the lever midpoint to the bogie. A slight gap between the solebar and the cylinder should be apparent.



Attach the gas tanks in place these are found in various places depending on the carriage; they could be at the centre or at one end but most often at one end. In the case of brakes beneath the brake end. In either instance they would be either side of the centre line between the underframe longitudinal member and the solebar. There should be clear daylight between tank and solebar, but again the height of gas tanks varied see photographs.

Battery boxes may be fitted these are usually at the carriage centre, one either side in place of gas tanks. Battery boxes were supported by substantial steel structure and there is a need to study photographs, as there were many variations. Boxes were 8' in length 10 1/2" wide and 1' 10" high with approximately 6" of daylight between box and solebar. Later conversions were undertaken using the Wolverton single battery box system in which case a control box is required. This was usually fitted on the opposite side of the carriage. Control boxes may be obtained fro 51L.

For carriage working on Westinghouse lines the Westinghouse cylinder and reservoir should be fitted. These components are fitted to the floor at the centre of the carriage equispaced between the longitudinal chassis frame member and the solebar. The reservoir was adjacent to the solebar and the cylinder next to the frame. As viewed from the side the cylinder actuator push rod was in line with the push/pull rod to the bogie. The reservoir body was probably just visible.

Carriage body

Sides

Lancashire and Yorkshire Railway carriage stock had several distinctive features common to all types of corridor and non-corridor vehicles excluding the panelled types. The most characteristic was the inward step of the body side and the narrowing of the body at the guards ends to allow the ducket a sight along the train without making it wider than the body width which was built to the full width of the loading gauge anyway. The brake side should be eased in so the ducket is in line with the side. We suggest that in the case of brake ends the lower part of the body work (the inward step) is cut with a very fine fret saw in line with the easing in point. This will enable the side to be eased inwards cleanly over the body width without causing a kink on producing the tumbleholme. After formation of the tumbleholme this saw cut must be filled with 0.5mm brass wire, soldered and the joint cleaned up.

Prior to forming the tumbleholme some preparatory work is required and this probably best done with the sides flat. Firstly bore out the holes (0.45mm) for the door handles and the grab irons. We recommend use of Exactoscale door handles but etched ones may be considered satisfactory. The door handle and

upper grab iron handle holes are etched but require boring out. However the lower grab iron hole are not present and a hole needs to be bored some 3.75 mm directly beneath the upper one. This lower hole should be in the lower section of body work. In the case of the Diagram 84 the holes for the brake van waist hand rails also need boring. These should be in line with the upper grab rail hole and should extend from the brake doors to just beyond the lavatory or corridor window. If the carriage is to be lined we suggest grab irons, door handles and brake van waist hand rails are fitted after painting.

The tumbleholme may be formed by gently pressing against a rounded surface perhaps a kitchen work top for example. Use the end as a guide for the profile. Fold the side along the length to form the roof and underframe support.

The beading around each window is flush with the side however various strips of horizontal beading need to be added between the windows, 0.33mm wire is supplied for this purpose. Fit the vents above the passenger doors and the longer ones above the toilet windows. Next fit the door hinges. In common with other carriages with a tumbleholme the lower door hinges were a dominant feature of LYR carriages when viewed from the end. The stub end of the lower door hinge should inserted from behind and soldered in place. Such is the size of the upper and middle door hinges that they are best represented by fine wire or left off altogether and the hole filled with solder.

In the case of brake carriages attach the ducket. This is folded up to form a three sided box which is held in place on the sides using tabs. **It is essential that these tabs should not be removed.** Solder in place.

Ends

Solder the body/underframe bracket (**12** from the underframe fret) onto the ends. Ensure this bracket is centrally placed. Steps are to be found on the fret and should be inserted into the slots present in the end and soldered in place. At one end add emergency rodding this should be produced from supplied brass wire following the attached drawing. Note: the rodding was only on one end of the carriage in the case of brakes at the non brake end.

Handrails were present adjacent to the steps and holes are require to be bored out to 0.4mm. These are pip marked on the rear of the end. The hand rail should be either curved for carriages built before 1910 or straight thereafter the upper point of insertion in the body being 3mm further from the centre line. It is suggested that the hand rails are produced from nickel-silver wire and soldered in place after the body is assembled. In addition at this stage you may wish to add the funnels and down pipes these can be fabricated from scrap brass and wire.

In the case of the brake end solder the window lights in position centrally around each window. The D94 has choice of ends allowing either the timber panelled or sheet metal versions to be built.

You should now have a set of sides and ends ready for assembly. The ends fit in between the sides and they should now be assembled together remembering, in the case of brakes, to put the end with steps at the opposite end to the brake van end!

Bring chassis and body together. These may be soldered or screwed, however we recommend that if the body is soldered to the chassis screws are used initially for your convenience. You will find the end bracket screws will mate up with holes in the floor but you will need to bore two holes in the chassis floor to match those in the centre of the carriage. The position of the screw holes in the sides is variable we suggest these holes are ignored. If holes are required in the carriage centre area we suggest drilling away from both the solebar and vacuum cylinder.

Roof

Your carriage is supplied with a fine grain timber roof which will require covering with either drafting film or thin card. The timber intended to fit between the ends and on the horizontal fold of the sides, it may require packing to bring up to the level of the ends and/or slightly sanding down. The card covering is best attached using a contact adhesive such as Evostick.

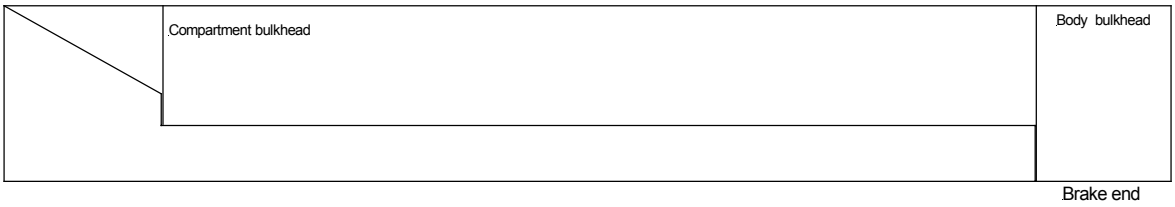
It is suggested that the roof may be either held in place by screws or a magnet. This can be achieved by attaching two sections of brass across the body, soldered to the underside of the horizontal fold, in line with the centre of two compartments The screw head can be disguised using a gas lamp. If magnets are used these should be embedded in either the roof or attached to the cross member. A section of shim steel will be required on the opposite surface. In either case the corridor will need to be inserted into the carriage prior to attaching the cross members.

Roof details should now be added. Gas lamps should be added along the carriage centre line over the centre of each compartment. For most carriages (except some early D84, and D86) a torpedo vent should be placed 10.5" (3.5mm) either side of the lamp again along the carriage centre line. For earlier carriages large torpedo vents should be placed 23", (7.75 mm) from the lamp across the carriage. Gas lamps should also be placed centrally over the brake compartment again on the carriage centre line. Small gas lamps should be placed centrally over lavatories and in the case of corridor carriages small gas lamps should be placed at intervals along the corridor. Gas piping should now be added. See attached drawing sheet for details. Add rain strips from microstrip. In LYR days these were over each door in addition to along the carriage length. In later days rain strips were often along the carriage length only.

Interior

a) Corridor carriages

Prepare the corridor connection following the attached sketch. Interior corridor sides should be fitted with the doors perfectly in line with the exterior doors. Bend as shown in the diagram noting that bulkheads are only supplied for the ends. The internal doors between the 1st and 2nd class sections is provided in the form of double etchings which form both sides of the door. It is suggested that they are painted and then the glazing material sandwiched between. Holes are present for door furniture if required and to support the corridor hand rail. This item is best added in nickel silver wire. The corridor etching for the D90 (full third) has been made in two sections with a door between the two, this is not required on this vehicle and the door should be cut off and the sides butt joined together. Use the compartment bulkhead as a template to prepare compartment walls from 0.020" plastic. Added seating as required.



b)Non-corridor carriages

Full interior detail may now be added if desired. Cut compartment walls from 0.020" plastic and prepare seating from supplied mouldings.

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.

To prepare the buffers place a spring on the buffer head tail end and insert into the housing. Ensure the buffer head springs and returns smoothly. Align the head and bend the tail through 90 degrees so that it runs in the slot.

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 LYR, 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 Lancashire and Yorkshire Railway used a painting cycle of 5 to 6 years and so the LYR 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.

Lancashire and Yorkshire Railway
The LYR marked every compartment door with a 1st or 3rd designations. The Transfers were gold leaf characters with a very fine red line and a thicker white outer line. The company letters LYR appeared near the left hand end and the running number in the equivalent position at the other end. Below each of these was a transfer of the company 'crest with the tan garter.

The following Precision Paints are suggested:

Carriage plum	P554
Carriage roof white	P976
Lining cream	P556
Carriage tan	P555

For transfers use either HMRS sheet 19 or the 51L Lancashire and Yorkshire Railway carriage transfer sheet.

London Midland and Scottish Carriage livery
At first the LMS painted the carriages in panelled style like Midland panelled stock. The fact that the LYR stock was smooth made no difference. The panel lining ignored the beading that was already there. The later Stonier style with lines on the waist and cant rail lasted until withdrawal. There is ample evidence of some LYR stock not being repainted until the 1930's although it is true to say that this stock was amongst the first to appear in LMS crimson where used on cross country expresses.

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 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.

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 repainted by BR were painted crimson and cream (blood and custard) and were lined. Non corridor carriages repainted by BR painted maroon and were not 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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