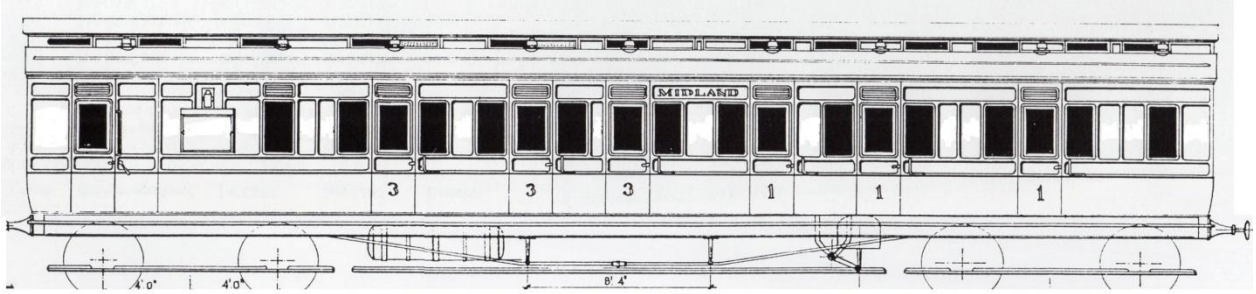
MIDLAND RAILWAY D470
54ft Corridor Clerestory – Brake Composite



HISTORY

40 vehicles to Lot number 569, drawing number 1848, diagram number D 470 were ordered in 1903. These carriages were 54 ft brake composites numbered 2829/63/64/90, 2902/09/37/43, 3661/65/67, 2807/18/70/87, 2906/17/40/44/62/63/81, 3658/60/71 and 3773 to 3783. Most of the vehicles were built in 1904 except from number 2807 onwaeds were not completed until 1905.

All of the vehicles were initially gas lit. Sometime after building, torpedo ventilators were added. By the early 1920s they would have been electrically lit, gas lamps were removed, torpedo ventilators centred over the compartments and battery boxes replaced the gas cylinders.

Most of the vehicles survived to become LMS property in 1923.

The parts included in this kit are to build one of the vehicles from lot, 569, 54 ft brake composite corridor carriage to drawing 1848, gas lit.

LIVERY

Body sides, clerestory sides and ends, Midland Lake. Mouldings on the sides and ends were black. Clerestory sides were originally lined, but later this was dropped. The mouldings on the body sides were lined each side with gold, before the turn of the century, however it was changed to yellow for non-passenger stock. Later still all non-gangwayed stock also had yellow lining. Gangwayed passenger stock always had gold lining in Midland ownership.

Solebars and headstocks were originally Midland Lake and lined in yellow. Between 1902 and 1914 this lining was dropped. From 1914 all below the body sides and ends became black. All below the solebars / headstocks was black with the exception of the wooden wheel centres which were sometimes painted Indian Red.

The roof was grey in service, often black up to the rainstrip on the lower roof of the clerestory coaches.

The Midland crest appeared twice on each side, this would not have been used on late repaints, although it is believed that it lasted longer than on ordinary service stock.

The LMS initially continued the livery of the Midland, however later repaints would have followed the simplified style outlined above.

Further information about liveries can be obtained from Essery & Jenkinson's book "Midland Carriages an Illustrated Review", which includes information about lettering positions and styles employed can be obtained from the Historical Model Railway Society.

GENERAL

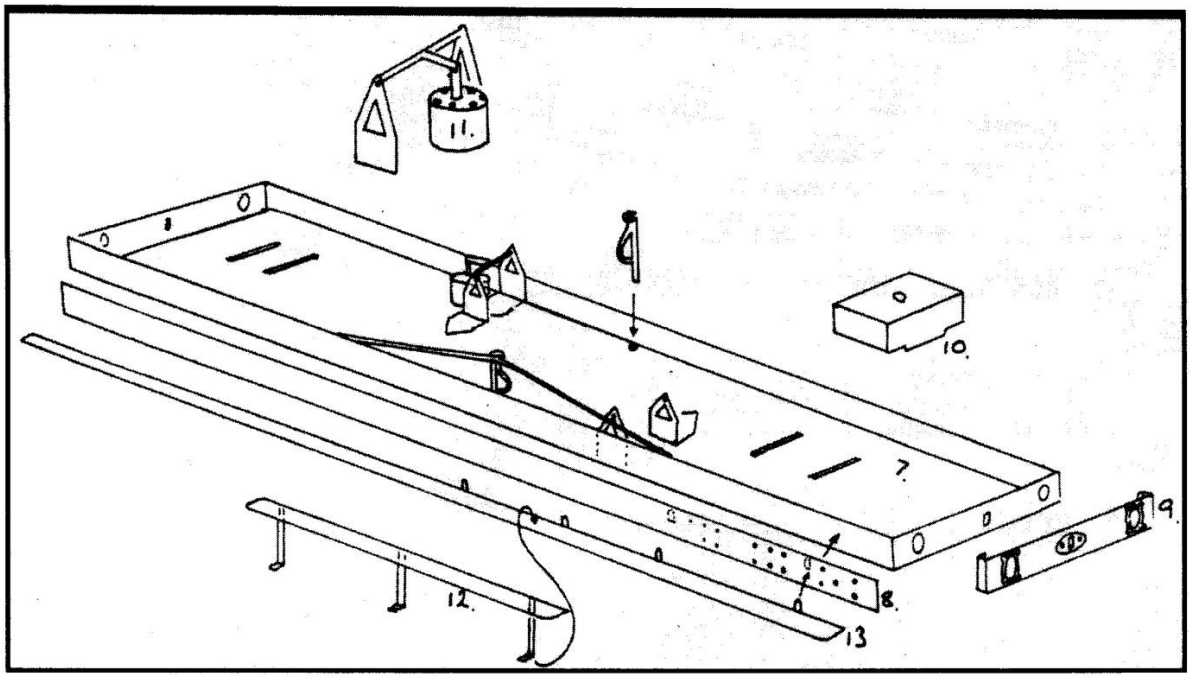
This kit is originally from the stable of Janick Models. It has been modified and upgraded and is continually being improved. Although it can be constructed with the body built on the chassis, it is recommended that the body and chassis are built separately. The two sub-assemblies can then be either glued or bolted together after painting.

Please read the instructions all the way through before commencing assembly and familiarise yourself with the accompanying diagrams.

Whilst every effort is made to ensure this kit leaves our premises in good condition and complete, occasionally errors do occur, in the event of complaint, please contact us at the address at the end of these instructions.

CONSTRUCTION

Chassis



A cast buffer beam is included in this kit, if you wish to use this then remove the etched buffer beam from the floor unit. The choice is left to the builder.

Fold up the floor unit (7) as in the diagram.

Solder the solebar overlays (8) in place noting that a round gas gauge is etched on this overlay and should appear above the centre line of the solebar when viewed with the chassis the right way up.

It the cast buffer beam is to be used solder this in position keeping it central and flush with the top of the chassis. If retaining the etched buffer beam take the buffer beam overlay (9) and fold in the ends as shown in the diagram and keep trying the holes for the buffers in line with those in the chassis but more important the overlay central and flush with the cjassis and solder in place.

Fold up the bogie mountings (10) (Do not use the one on the main chassis fret, a replacement is enclosed with the bogies).

Fold up the brackets for the brake operating shafts from the floor and insert brake actuating shaft into the holes in the brackets, this shaft if too long needs to be adjusted to fit nicely between the brackets with the central arm facing the buffer beam.

Take the cast vacuum cylinder (11) and position as shown in the diagram towards the buffer beam and solder to the floor and to the actuating arm. Now the actuating arm can be soldered to the brackets.

Depending which period you are modelling there were changes to the foot board arrangements. The LMS disposed of the lower footboards on the majority of coaches but it cannot be ascertained as to all coaches having them removed. The brake ends retained the footsteps below the axleboxes.

Fold up and fit the lower footboards (12) to the solebar.

Solder together the two halves of the upper footboards and fit to the solebar keeping the step located on the centre line of the solebar and central between the buffer beams.

Take the cast queen posts and solder to the floor and inside of the solebars keeping them central and vertical, the small notch at the top faces outwards.

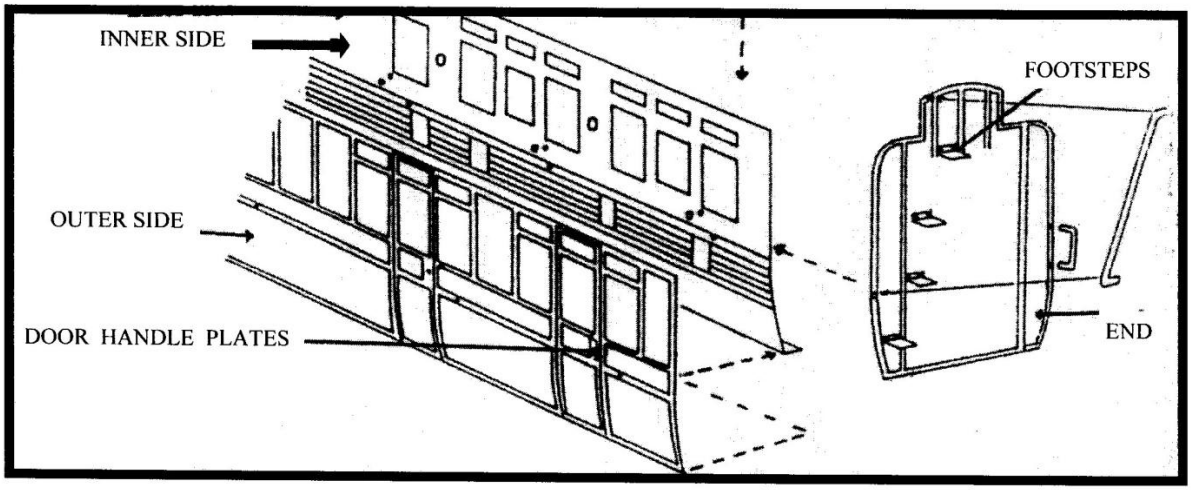
Using a piece of 0.7mm wire bend the truss rod to shape and fit into the notch in the top of the queen post and solder to the back of the solebar and the queen post.

The cast gas cylinders can now be fitted if building the earlier model if not fit the battery boxes for the electric lights, also there is a dynamo included which should be attached to the floor near to one of the bogies but care must be taken to ensure it does not foul the bogie.

Fit the buffers, vacuum and steam heating pipes to the buffer beams.

Make sure the couplings are a slide fit through the hole in the buffer beam as these can be fitted after painting.

Coach Body



It has been recommended by some modellers to remove the tabs on the inner sides prior to assembly as this may give a better appearance to the finished model but this procedure is entirely up to the individual builder.

Curve the tumblehome on the inner sides (1) and bend the bottom flanges at right angles to the coach side. Use the coach end to obtain the correct profile. When satisfied with the shape of the inner side, curve the outer side (2) to match the inner side. Clamp the inner and outer sides together (wooden sprung cloths pegs are ideal for this) and solder along the top edge and carefully through the window openings.

Solder the door handle plates in place and drill out the holes for the grab and door handles in the sides, see diagram. If you do not want to keep them in natural brass finish they can be soldered in place at this stage but alternatively they can be glued in after painting.

Fold over tabs at the ends of the sides if not removed.

Curve the tumblehome on the ends (3) and solder the ends to the sides making sure you keep them flush with the top and bottom and square to the sides. Make sure you are putting the ends on the correct end of the body side, especially if you are building a coach with a brake end; the end panel with slots for steps goes at the brake end.

Solder the steps into the slots on the end panel also bend the handrails from 0.7mm wire and solder these in place.

Fit the train alarm ears, train alarm piping and gas valve handle if gas lit.

If you are building an electrically converted version solder the louvered vents over the top windows above doors.

If building a brake coach, the guard ducket and lamp should be fitted, where shown on the drawing.

Most of these coaches appear to have outside steam pipes on the body ends. For these, drill a hole in the body end lower footstep (use the casting as a template for locating the holes). Fit the steam pipe casting to the body, and when the body and chassis have been joined together, the steam hose can be fitted.

To fit the body to the chassis it has been found best to drill holes through the lip on the bottom of the body side and the chassis keeping the body shell central about the chassis and flush with the buffer beams. These holes should be clearance on the size of screw used usually 8BA. Solder an 8BA nut over each hole on the body lip being careful not to let any solder creep into the threads. After painting the body and chassis can be screwed together using 8BA screws.

Interior

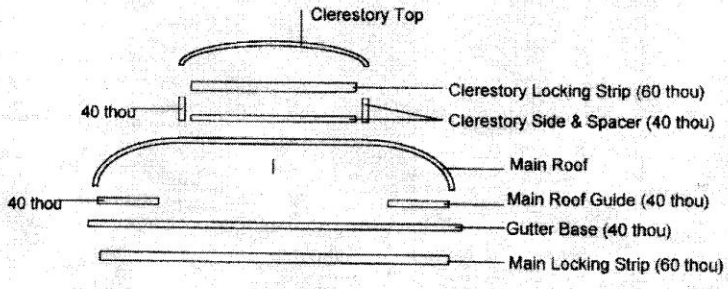
The glazing is best secured with double sided sticky tape as some adhesives send the glazing cloudy but this is only a recommendation and individual builders have their own preferences.

The seating supplied can be cut to suit and fixed into the coach after all painting has been done. The compartment layout can be seen in the sheet of diagrams enclosed.

Roof

Clerestory Roof

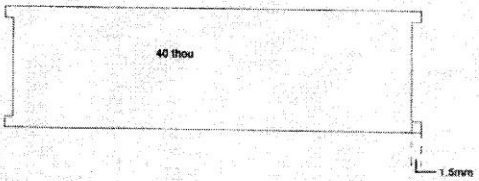
Instructions:-



1. Start with the Gutter Base:-

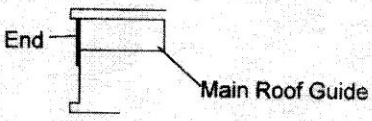
Length = Outside Length Of Coach + 2mm (1mm each end)
Width = Outside width of coach + 2mm (1mm gutter each side)
Cut out the area shown to fit around the coach ends leaving *an equal gutter overhang each side*

Make sure that the complete gutter base sits comfortably between the ends and is flat for the whole length of the coach.



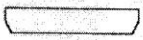
2. Main Roof Guide:-

Cut two strips of 40 thou @ 10mm wide.
Fit these to the gutter base while in position on coach.
They should sit between the ends, flush with the edge of the ends



3. Main Locking Strip

Cut 60 thou to sit between the coach sides and ends.
Shamfer the bottom edges of the locking strip.
Weld this to the bottom of the gutter base, centrally.

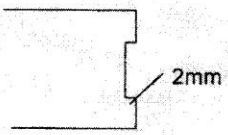


4. Main Roof

Offer the main roof onto the gutter base over the main roof guides.
Mark each corner and cut roof to length.
Clean up all edges and weld down to gutter base.

Make sure that this assembly is flat and leave to dry for 24 hours

Offer each end into the top of the coach and mark off the position of the recesses required
Cut this back by 2mm each end.
Trim and file this until roof sits in place.
It may be necessary to mark each end in some way to ensure that the roof fits the same way each time



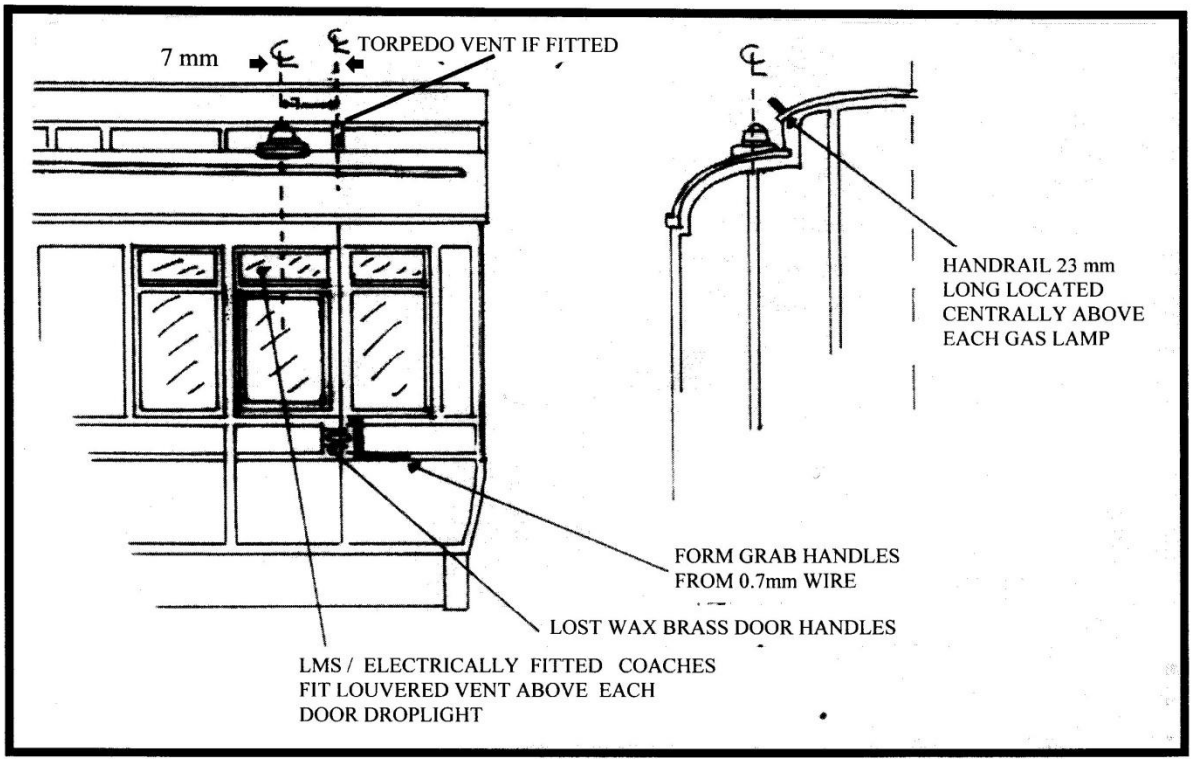
5. Clerestory Top

Cut 40 thou to 27mm wide and weld centrally to the top of the main roof.
Cut two strips of 40 thou (approx 4mm) and weld upright against clerestory spacer.
Check that these strips do protrude above the coach ends.
Cut clerestory locking strip to 27mm from 60 thou. Cut clerestory top roof to length.
File the top edge of the locking strip and weld centrally to the inside of the clerestory roof
Allow this to dry for a few hours before welding in place between the clerestory sides.
The width of 27mm should give sufficient recess to fit the etched overlay (after painting)

When welding is referred to it means using a liquid adhesive such as MEK PAK (Slaters brand name) which contains METHYL ETHYL KETONE.

To finish the roof mark the positions of the lamps and vents and using either “super glue” or epoxy resin fit the white metal castings in place. The rain strips can be made from wire but plastic strip is better.

Drill the holes for the grab handles centrally above each gas lamp and make the handles out of wire and glue in place as shown on the diagram.



Wayoh Bogies

As an improvement the original kits the white metal bogies have been replaced with Wayoh bogies.

Wayoh bogie kits have been designed to allow easy assembly using basic hand tools.

Identify from the list below, all the parts provided BEFORE you commence assembly and study the exploded diagram, which shows the various etched parts in their ready to assemble form. Cut parts from the fret and form as shown. The assembly order detailed in the instruction sheet is suggested but can be varied if necessary. We recommend you run a fillet of solder inside the folds of the etched parts to give strength and prevent sagging during use.

Clean off any remaining flash from the resin castings and mark out and drill the axle boxes to give a clearance hole as necessary so that the castings fit over the brass bearings.

Parts List

2 x Brass pivot studs
2 x 4BA steel washers
8 x 10BA Brass screws
8 x Brass axle bearings
2 x Etched frets for 2 bogies
2 x 4BA steel nuts
4 x No 16 split rivets
8 x 10BA Brass nuts
8 x Brass washers
4 x Resin side castings

Assembly

Solder centre stud 1 to part 2.

Solder parts 2 and 3 together and attach to underside of coach floor.
Make sure the half etch is on the underside of part 3.

Solder rubbing plate 4 to part 5.

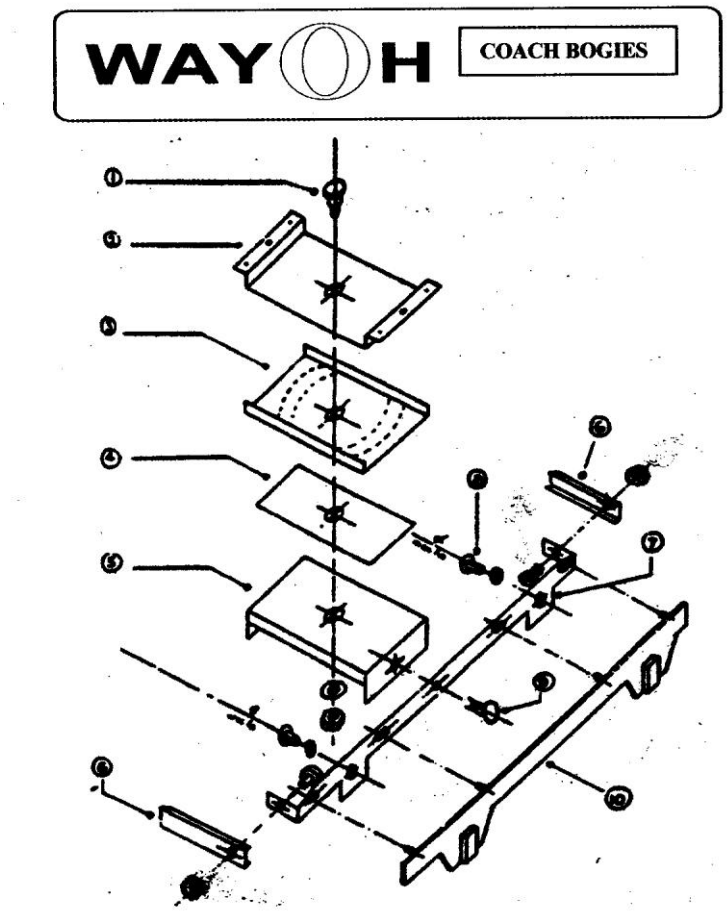
Fold ends tabs of side frames 7 inwards and add a filet of solder.

Solder brass axle bearings 8 to side frames 7. Note: Brass washers can be fitted to the axle bearings to reduce side play if required.

Attach side frames 7 to bolster 5 using rivets 9.

Fit the resin side overlays part 10 using 2-part epoxy or your preferred adhesive.

Fit wheel sets into bearings and secure end stretchers 6 with brass screws and nuts, you may prefer to solder the screws into the returns of the brass side frames. Do not over tighten the nuts, the bogie frame should flex slightly. When you are satisfied the bogie is free running, a touch of solder will secure the nut to the screw.



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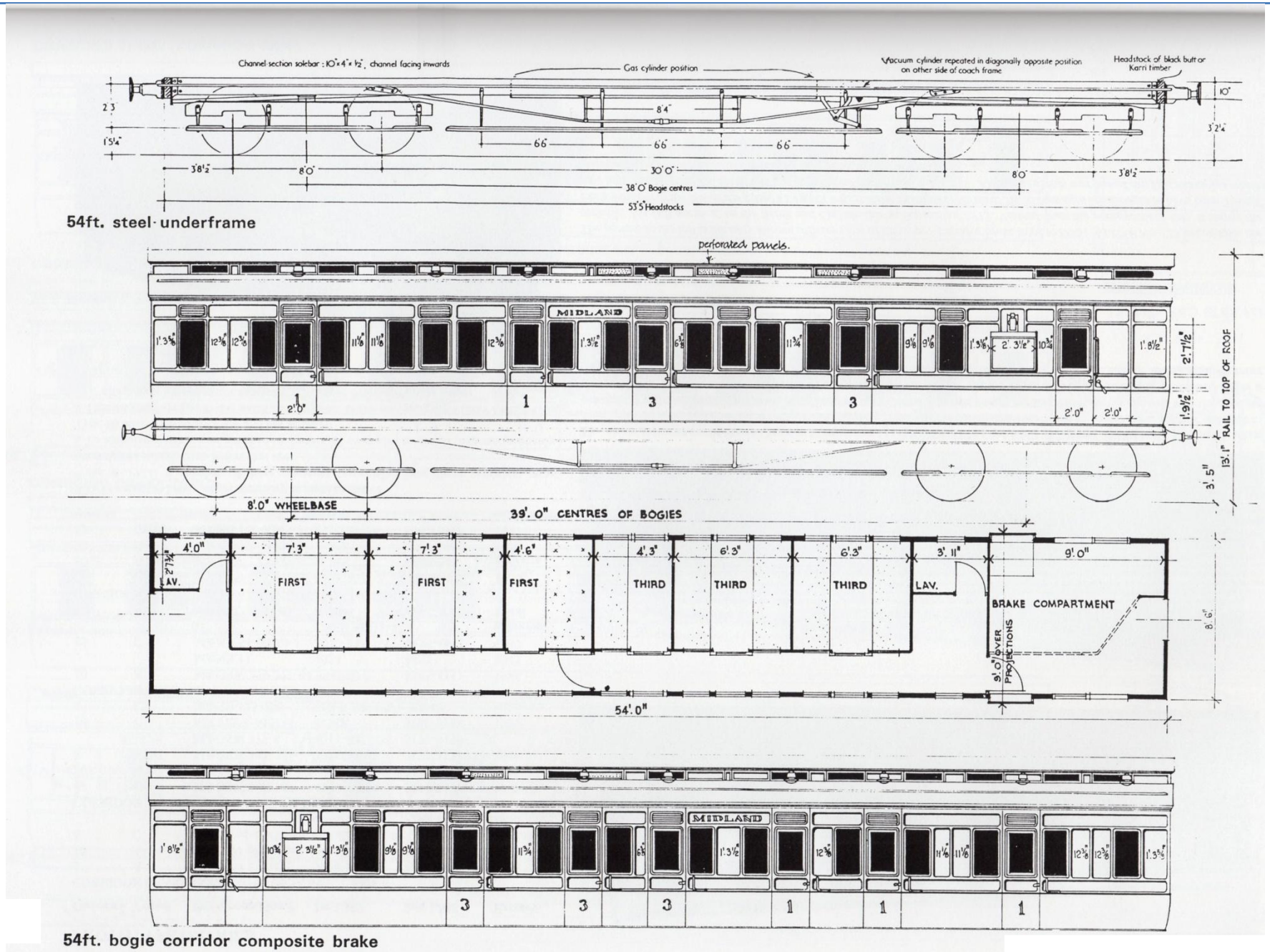
Channel section solebar : 10"×4"×½", channel facing inwards
Gas cylinder position
Vacuum cylinder repeated in diagonally opposite position on other side of coach frame
Headstock of black butt or Karri timber
10"
3'2¼"
2 3
1'5¼"
3'8½"
8'0"
8'4"
6'6"
6'6"
6'6"
30'0"
8'0"
3'8½"
38'0" Bogie centres
53'5" Headstocks
54ft. steel underframe
perforated panels.
MIDLAND
1'3⅜"
12⅜"
12⅜"
11⅛"
11⅛"
12⅜"
1'3½"
6⅝"
11¾"
9⅛"
9⅛"
1'5⅛"
2'3½"
10¾"
1'8½"
2'0"
1
3
3
2'0"
2'0"
2'7½"
1'9½"
13'1" RAIL TO TOP OF ROOF
3'5"
8'0" WHEELBASE
39'0" CENTRES OF BOGIES
4'0"
2'7¾"
LAV.
7'3"
FIRST
7'3"
FIRST
4'6"
FIRST
4'3"
THIRD
6'3"
THIRD
6'3"
THIRD
3'11"
LAV.
9'0"
BRAKE COMPARTMENT
9'0" OVER PROJECTIONS
8'6"
54'0"
MIDLAND
1'8½"
10¾"
2'3½"
1'3½"
9⅛"
9⅛"
11¾"
6⅝"
1'3½"
12⅜"
11⅛"
11⅛"
12⅜"
12⅜"
1'3⅝"
3
3
3
1
1
1
54ft. bogie corridor composite brake