

Caley Coaches Ltd

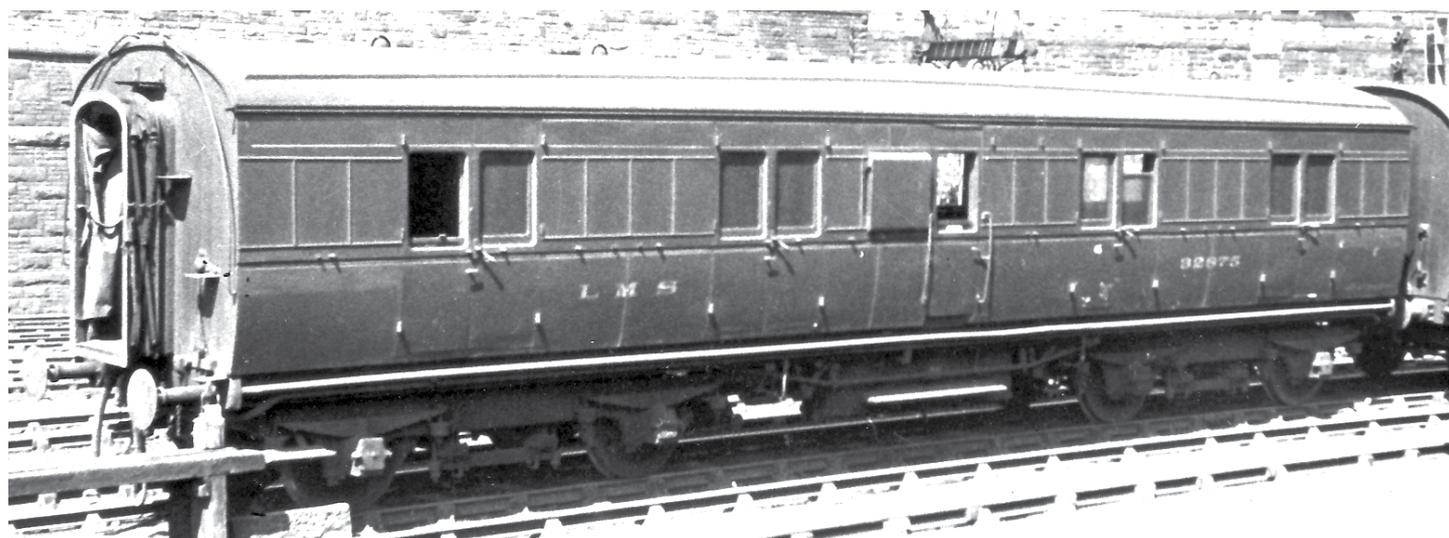
'True Line' kits in etched brass

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Caledonian Railway 50' Corridor Full Brake.

Building instructions for CC26.



342/6491/32875 in simple LMS livery
Collection of Jim Smellie.

Section 1 Prototype Notes

Built in 1914 to St. Rolox order number H321 these 6 vans were allocated to Diagram 98A and were very similar in appearance to contemporary coaching stock running on the then current 10' wheelbase bogies which interceded two distinct periods of 8' wheelbase bogies in the Caley although each was to the Fox's patent design – unlike some larger English concerns the Caledonian never designed its own system of bogies preferring to go for tried and trusted engineering. They were fitted with dual Westinghouse and Vacuum brake from new.

The vans lasted in revenue stock with little or no modification save for the disuse and eventual removal of the Westinghouse brake equipment (from the mid-1930s) until 1958 – some, like so many Caledonian coaches, may have suffered makeshift repairs to their coachwork in the form of matchboarding to replace what were panels but I have no evidence of this. The last survivor (44/6333/32871) had however been withdrawn from revenue in 1952 but survived in engineering stock until mid-1959.

Numbering

CR	1st LMS	2nd LMS	To traffic	Withdrawn	Notes
4	6304	32870	6/14	1/57	
44	6333	32871	6/14	1/52	To S.&T. Tool Van DM395039. Based at Tyldesley; Withdrawn 5/59.
84	6367	32872	6/14	12/55	

104	6380	32873	7/14	12/58
195	6452	32874	6/14	8/55
242	6491	32875	6/14	7/51

C.R. Livery

The Caledonian coach livery was purple brown with off-white panels at the waist level and above. Although these carriages do not have panel mouldings at the waist or eaves it was C.R. practice to paint the waist and eave panels to simulate mouldings. i.e. the edges of the waist and upper panels were painted purple brown and lined with a single yellow line at the junction with the white. The outside edges of the coach sides and bottom were given a thin red line. Lettering was gold, shaded to the right and below in red, with white highlights.

The company initials were placed on the waist to the left of the central door with the coach number to the right. The C.R. coat of arms would probably have been applied on the lower side panels on the centre line of the van.

When new the roofs were white. This, of course, would quickly weather to a grey/black in service. Underframes and bogies were black.

Fox's Transfers do a nice range of Caledonian transfers which are recommended.

LMS Livery

Soon after its inception the LMS adopted the old Midland colour of crimson-lake for its coach livery. All raised beadings were painted black and edged in a $\frac{3}{8}$ " pale yellow line. It is thought that the LMS carried on the C.R. tradition of painting on the panels at the waist and above the window line. Ends were crimson-lake with steps etc. picked out in black. Roofs were generally painted lead grey above the rainstrips and black between the rainstrips and cantrail but again this would soon assume an overall muddy grey colour in service.

The insignia was applied in gold leaf transfers with the letters LMS (3" high) in the waist panel as near to the coach centre line as possible. The coach number appeared twice in the waist panel towards each end of the coach. It is unlikely that the LMS emblem was used on these coaches.

The foregoing describes the initial LMS livery but many changes took place before the demise of the LMS and are tabulated below. Remember, however, that coaches were only due for repaint about every 7 years and that in the late 30's and during the war it was quite usual only to 'touch up and revarnish'. Therefore an individual coach would not sport every change and it is quite possible that some coaches ended the war still fully lined out.

1923-8	As described.
1928	LMS now placed towards the left-hand end and the number towards the right-hand end.
1933	Coaches renumbered using plain gold transfers. Roof colour specified as metallic aluminium.
1934	Full lining discontinued. Coaches lined with a single $\frac{1}{2}$ " yellow line just below the cantrail and $\frac{1}{2}$ " yellow line just above the top of the windows probably along the line of the beading. The waist beading would be painted black and edged with $\frac{1}{2}$ " yellow lines. Note that the yellow for both lining and insignia is now a chrome yellow.
1936	End colour specified as black.
1940	Form of the class designating 3 changed to a flat top version.

Wartime Roof colour specified as grey and lining discontinued.

1946 Simple lining reinstated but in straw yellow.

The HMRS market the excellent range of ex-P.C. Models LMS transfers which are recommended.

Reference: LMS Coaches, an illustrated history. Jenkinson & Essery (OPC, 1977)

BR Livery

It is thought that most of the coaches would have received the BR all over crimson livery, devoid of any lining. Roofs were grey, underframes and ends black.

The coach number appeared in small yellow letters and figures towards the right hand end of the coach. The guard's door was usually marked as such in small letters in the waist panel of the door.

Section 2 Building Instructions

Part 1. Parts list

Please check the contents of your kit and inform me of any shortages. If for any reason you wish to purchase parts separately, I can give you a quote for any part unless it is on an etched fret. Normally complete frets only are available.

N.B. Numbers in brackets following a part name are the quantity supplied when other than 1; numbers preceding a part name are identification numbers which will normally be found alongside the part on the etch.

- 1 Etched frets containing:-
 - 1 Sides, ends etc.
 - 2 Floorpan, solebars and corridor connections
 - 3 Guards lookouts
 - 4 Bogies

- 2 Cast fittings :-
 - CC26/1 LH axlebox and spring (x4),
 - CC26/2 RH axlebox and spring (x4),
 - CC26/3 Bogie bolster spring (x4),
 - CC26/4 Buffer stock (x4),
 - CC26/5 Havoc ventilator (x4),
 - CC26/6 Vacuum cylinder (x2),
 - CC26/7 Jumper cable (x4),
 - CC26/8 Dynamo,
 - CC26/9 Westinghouse cylinder and reservoir,
 - CC26/10 Steam pipe (x2),
 - CC26/11 Vacuum pipe (x2),
 - CC26/12 Westinghouse pipe (x2).

- 3 Miscellaneous parts :-
 - Buffers heads (x4),
 - Buffers springs (x4),
 - 0.45mm wire (x6),
 - 20thou plastic strip (x2),
 - Press studs (x2),
 - Extruded aluminium roof section,

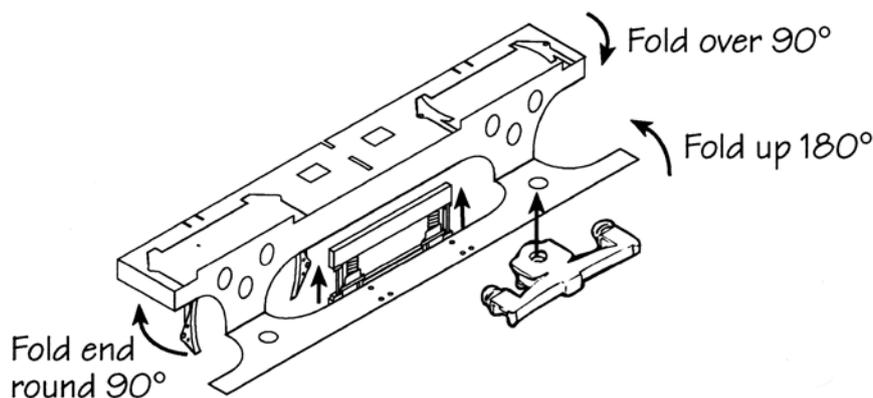
Turned and milled brass door handles (x10),
Glazing material.

4 Printed matter :-

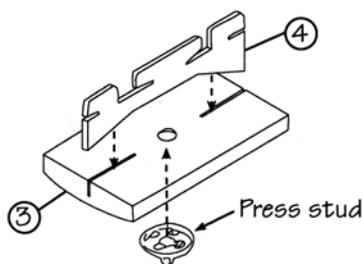
General building notes,
4mm scale coach drawing,
CC26 building instructions (this document !)

Part 2. Bogies

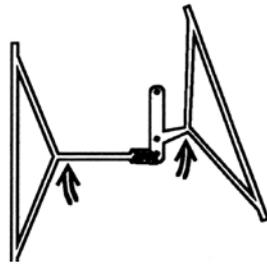
- 2.1 Please study the General Building Notes if you are not familiar with etched brass kit construction in general and *Caley Coaches Ltd* products in particular.
- 2.2 Punch out the rivets in the mainframes, parts (1) and (2) from behind then fold the upright of the frames down at 90° with respect to the centre section. Reinforce the inside of the fold with a fillet of solder.
- 2.3 Tin the inner faces (i.e. the side with no writing) of the main frames and fold up using the bearing holes to ensure alignment and sweat them together.
- 2.4 Fold round the ends of the frames slotting them into the small tabs on the centre section then solder in place.



- 2.5 Remove the two large "glue lands" which project down from the centre of the frame as these are not required for fixing the supplied bolster casting.
- 2.6 Fold down the brake shoes from the frame then solder the wheel bearings in place and add the axlebox and bolster castings. Note that the axlebox castings are handed with the hanger with the triangular plate going towards the ends of the bogies.
- 2.7 On the faces where the two halves of the mainframe, come together, there are travel limiter tabs, fold the two which protrude on one frame up a few degrees and fold the corresponding tabs (which do not protrude) on the other half down a few degrees.



- 2.8 Fold up the bolster plate (3) reinforcing the folds with solder then add the rocking knife-edge (4) locating the two triangular shaped tabs into the slot in (3). Take care to ensure that parts (3) and (4) end up perpendicular to each other. Solder the male half of a press stud into the recess inside the box of (3).
- 2.9 Fold up the bearing plate (5) reinforcing the folds with solder, solder the female half of a press stud into the recess and put aside (safely!) for use when building the coach underframe.
- 2.10 Assemble the mainframes (1) and (2) onto the knife-edge of the bolster plate assembly. Simply drop the mainframes over the knife-edge and secure each by twisting one of the tabs which now protrude through the mainframe over a few degrees. If there is too much slop, solder a small piece of scrap brass to the inside of each mainframe to double its thickness and take up the slack. The other tabs are spare in case you ever need to dismantle the bogie.
- 2.11 Insert the wheelsets and check the basic running of the bogie. Note that the wheelsets are about to be locked in place therefore take care to thoroughly clean and dry the assemblies once you have finished to prevent any danger of rust.
- 2.12 Fold up the brake gear A frames as shown below and spring into place between the brake blocks, the long arm pointing up towards the coach floor - on the prototype the brake operating rods would secure to these. Secure by soldering to one brake block either side, say top left and bottom right — if you solder them on each corner the free movement of the compensation is liable to be hindered.



- 2.13 Add the 8 safety loops over the flats of the A frames locating them into the slots in the centre section of the bogie frames prior to soldering.
- 2.14 Finally add steps as appropriate to your coach. For the long steps under the brake ends first fold up and solder in place the lower step then add the upper step into its legs.

Part 3. Floorpan and Underframe

- 3.1 Identify and remove the main floor unit (1) from the fret.
- 3.2 Fold up the long flange at each side to which the lower body will later be attached. Use one of the interior bulkheads as a guide to the angle of the fold.
- 3.3 Take the solebars (2) and fold to “L” shapes, locate the tabs into the slots in the floor and solder in place.
- 3.4 Press out the rivet detail on the fixing brackets of the solebar footsteps (3) and fold up the brackets and locate the solebar footstep tabs into the slots in the solebars, brackets to the top of the step. Solder in place.
- 3.5 Solder the bogie mounting plates into slots in the floor. Fold down the motion limiter tabs on one bogie only by a few degrees — these are finally adjusted when the coach is ready for a test run.
- 3.6 Fold down the locating plates for the outer ends of the truss rods from the floor.

- 3.7 Fold up and fit it the central steps (7) as shown in the general arrangement drawing, the legs going behind the solebar.
- 3.8 Fold the sides of the battery boxes (4) round by 90° and fit the boxes to the floor. Solder the battery box bottom (5) in place then, using 0.45mm wire, fit the five brace rods between the floor and the battery box base.
- 3.9 Take the queenposts (6) and fold over the locating plates at the outer edges by 90°. Solder one location plate into the recess in the solebar aligning the outer faces.

Queenposts

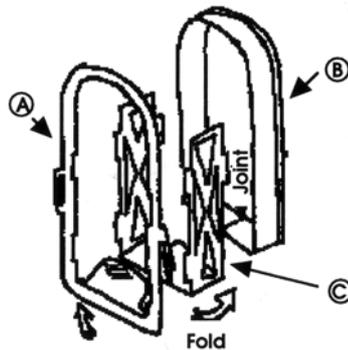


- 3.10 Take two lengths of 0.45mm wire and form the truss rods — use the scale drawing to get the angle of the outer sections correct but measure the width over the queenposts on your coach to get the length for the central section. Leave the outer ends slightly over long for now.
- 3.11 Slip the outer ends of the truss rods into their locating lugs then wrap the queenposts round the rods and solder their other location plate into the recess in the solebar behind the first location plate. Adjust the truss rods as required then solder to the queenposts and the outer lugs, trimming off any excess length once you have done so.
- 3.12 If you are building a Westinghouse fitted coach assemble the two part casting as follows :-
 - a) Remove the base frame from the sprue and drill the previously centred mounting hole on the frame cross piece $\frac{1}{32}$ ".
 - b) Pass the peg on the reservoir into the hole and solder together.
 - c) Solder the (dummy) mounting brackets of the cylinder to the 'L' pieces of the frame.
 - d) Cut the reservoir and cylinder away from the sprue.Solder to the floor of the coach in the indicated position, the larger reservoir goes nearest the solebar.
- 3.13 Fold up and fit the two sets of 'V' hangers and cylinders in the positions indicated on the underframe making the operating rod from wire. Part 22 is the operating lever.
- 3.14 Fit the dynamo in the indicated position.

Part 4. Ends.

- 4.1 Each end is assembled from two layers (9 & 10 and 11 & 12). On each inner end bend the lampirons and steps (11 only) forward at 90° such that they will pass through the slots in the corresponding outer end. On the outer ends press out the rivet detail from behind. Tin the outside of the inner ends and the inside of the outer ends.
- 4.2 Fit the outer ends over all the projections and sweat to the inner ends. Take care to leave the small slots near the base of the ends clear.

- 4.3 Use a thin piece of scrap brass as a spacer and fold the lamp irons up parallel to the body.
- 4.4 Bend the side location tabs to the rear.
- 4.5 Fit the cast jumper cables, two to each end locating the casting in the etched holes bending the cable parts clear of the body to allow this.
- 4.6 Fit the handrails on the end without steps.
- 4.7 Drill two 0.45mm holes to take the lower ends of the handrails on the ends with steps. The upper end of these handrails locate on the roof and so are among the last parts fitted.
- 4.8 Fit the ends to the underframe (taking care to get the handing correct) by passing them over the projecting lugs on the underframe. Secure temporarily by folding up the lugs parallel to the body.
- 4.9 Make up the corridor connections using the parts from the subsidiary etch and not those on the main etch (17->20), as shown in the sketch. Orientation of the front plate (A) is important, fold the chequer plate down to the inside of the front plate. Shape part B using A as a guide and solder the three large tabs on C on to it after trimming the bottom to suit. A fits onto the small tabs on B as shown.



Part 5. Sides and Roof

- 5.1 Take the sides (8) and form the tumbleholme in the lower body sides. Lay the bottom edge of the side on the edge of a 12" rule with the inside facing up, take a length of central heating or similar pipe and lay it on the coach side and roll gently from the waist towards the bottom. This should produce a nice even tumbleholme.
- 5.2 The door hinges are formed by folding the little strips (Part 21, used in two part segments) into a double thickness (half-etch to inside), inserting into the slots (3 per door) and soldering in place. Align the hinges such that their outer edges form a vertical line — i.e. the bottom hinge sticks out more. Dress the inside of the lower sides flush such that there are no protrusions which will foul on the long flanges of the underframe.
- 5.3 The sides now require beading using wire. One day multi-layer etching will be an economic reality but for now this is the best way and it is fairly easy (if a little time consuming) once you get going. First thoroughly tin some 0.45mm wire and cut into small lengths to fit between each of the windows. Lay in place in the etched groove, flux then apply a dry soldering iron until the solder runs, remove the heat and allow to cool without moving the work.
- 5.4 The vertical beading should be formed in the same way.
- 5.5 Fold up the three layer guards lookouts (small separate fret) and seam solder together. Dress top and bottom to form a gentle radius. Tin the inside then apply flux and solder in place on each side through the etched hole.

- 5.6 Make up the lamp holder which fits above the lookout by wrapping part 14 round a short piece of brass rod and passing the outer tabs into the slots in the base (13) and soldering centrally to the side.
- 5.7 Depending on your painting and lining methods you might like to solder the door T and grab handles in place now. This makes the coach trickier to paint but it is more secure than gluing them on after painting.
- 5.8 Tin the long flanges on the underframe then take one side, noting orientation, and solder one edge to an end, adjusting the end until vertical.
- 5.9 Solder the other edge of the side to the other end, adjusting as required then tack the side to the underframe flange. Only a few tacks are required — there is no need to try to solder the two together all the way along and something is bound to fall off if you try.
- 5.10 Repeat 5.8 and 5.9 with the other side. You will not be able to adjust the ends this time but they should be in alignment.
- 5.11 Solder the inside of the ends firmly to the underframe.
- 5.12 Take the roof and file small recesses in the flange which sits inside the body to clear the ends. Check the fit of the roof. If necessary dress the tops of the ends with a file, until a good fit is achieved.
- 5.13 Using the G.A. as a guide, drill holes in the roof for the ventilators (on the centre line) and fit by gluing.
- 5.14 Mark the position of the rainstrip on the roof and glue 0.020" x 0.020" plasticard strip in place. Car lining tape could be used if preferred.
- 5.15 At the step end of the roof drill two 0.45mm holes for the handrails.
- 5.16 Fit the buffers, steam heat and brake pipes to the coach ends. The screw link couplings should now be fitted if required.

Part 6. Final Assembly

- 6.1 Paint body, underframe and roof according to period, line and letter.
- 6.2 Fit the door and grab handles as indicated on the drawing if you have not already soldered these in place. Parts 15 are the door lever handles while parts 16 are the grab handles for the central single door.
- 6.3 Glaze the windows using the supplied clear plastic sheet.
- 6.4 The roof need not be glued to the body unless desired as it should spring into place.
- 6.5 Fit the handrails at the step end of the coach.
- 6.6 Reattach the bogies then test run the coach. Adjust the limiter tabs on one of the bogie bolsters until there is minimal side-to-side rock between the coach body and bogie — leave the other end free to rock to achieve three point suspension.

Other items in the Caley Coaches Ltd range

Caley Coaches Ltd now produces a wide range of kits and accessories exclusively for modellers of the Caledonian Railway and its successors. Please see the web site at **www.caley.com**