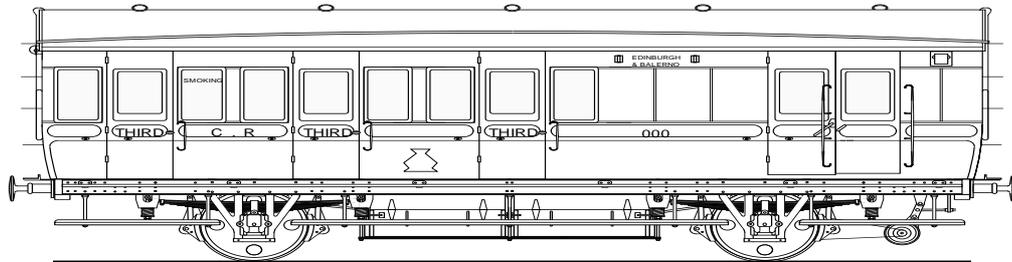


Caley Coaches

'True Line' kits in etched brass

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D3A 30'10" Brake Third Class Coach.

**Building Instructions for kits CC16
Caledonian Railway D3A 30'10"
Brake Third; 1921 Balerno Stock**

Section 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 but note that normally only complete frets of etchings are available.

N.B. Numbers following a part name are the quantity supplied; numbers preceding a part name are identification numbers which will be found on or along side the part on the etch.

1	Etched brass fret containing :-	
1	Body sides	2
1a	Passenger door grab handle	6
1b	Guard's door grab handle	2
1c	Side lamp base	2
1d	Side lamp outer	2
1e	Destination board bracket	4
1f	Guard's door catch handle (long)	2
1g	Guard's door catch handle (short)	2
2	Alarm Gear end	1
2b	Alarm gear box	1
2c	Alarm gear lugs	1
2d	End step	4
3	Ordinary end	1
3a	End step	4
4	Compartment bulkhead	3
5	Floor pan	1
5a	Battery box side/ends	2
5b	Battery box floor	2
6	Buffer beam	2
6a	Buffer beam steps	4
7	Buffer beam thickening pieces	4
8	Solebar step	2
9	Rocking "W" iron	1
10	Fixed "W" iron	1
11	Left lower step	2
12	Centre lower step	2
13	Right lower step	2
14	Brake gear "A" frame	2
15	Brake gear link (to 9)	1
16	Brake gear cross link	1
17	Brake gear link (to 10)	1
18	Westinghouse cylinder link	1
19	Hand brake link	1
20	Hand brake link	1
21	Hand brake link	1

2	Cast fittings :-		
	CC14/1 Axlebox		4
	CC14/2 Spring		4
	CC14/3 Buffer guide		4
	CC14/4 Combined Westinghouse cylinder and reservoir		1
	CC14/5 Westinghouse pipe		2
	CC14/6 Steam pipe		2
	CC14/7 Jumper cable		4
	CC14/8 Torpedo vent		6
	CC16/1 Dynamo	1	
3	Miscellaneous parts :-		
	0.45mm wire		2
	0.3mm wire		1
	8BA nut		4
	8BA bolt		4
	Buffer head		4
	Buffer spring		4
	Buffer bush		4
	Roof extrusion		1
	Glazing material		1
	Microstrip		2
	Seat		6
	Door "T" Handle		8
4	Printed matter :-		
	Prototype Notes		
	General Building Notes		
	CC16 Building Instructions (this document !)		

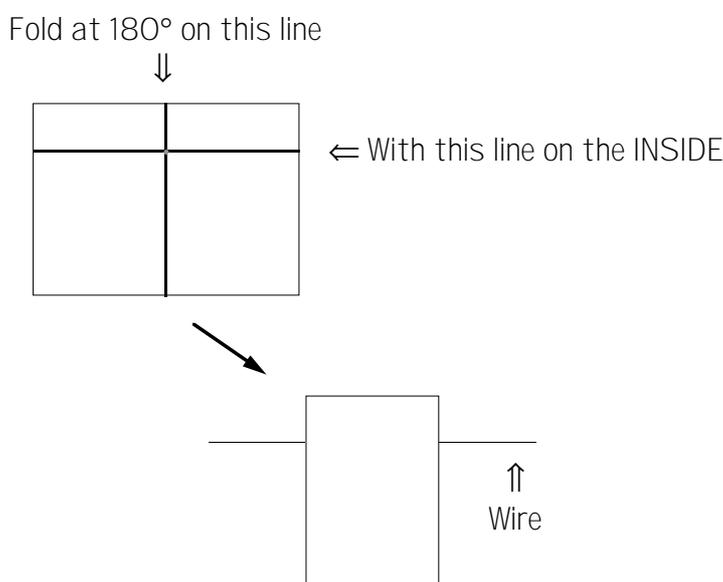
Section 2 General

- 2.1 Read the instructions and identify all the parts.
- 2.2 Always refer to a photograph of your chosen prototype as you build the model. Small differences did exist between superficially identical vehicles, especially as they got older.
- 2.3 Please study the General Building Notes if you are not familiar with etched brass kit construction in general and *Caley Coaches* products in particular.

Section 3 Body

- 3.1 Press out the door bump stops on the rear of the sides (part # 1) with a slightly blunt map-tack then form the tumbleholme in the lower body sides. Lay the bottom edge of the side (at the junction with the lower flange) on a 12" rule with the inside facing upwards. Take a length of central heating or similar pipe, lay it on the coach side at the waist and roll gently towards the bottom. This should produce a nice even tumbleholme.
- 3.2 Fold the bottom flange on each of the sides such that they are at right angles to the upper section of the sides.
- 3.3 Solder two nuts to the inside of each flange over the etched holes after opening out the holes to clear the bolts supplied.

- 3.4 Fold the alarm gear lugs on part #2c at right angles to the joining strap then fit to the inside of the end (part #2) after pressing out the bolt detail at the alarm box position.
- 3.5 Form the tubmleholme on the ends (parts #2 and #3) as described at step 3.1 — use the sides as a guide when doing this.
- 3.6 Solder an end to a side starting at the top and gently pulling the pieces into alignment at the bottom. Note that the ends fit inside the sides. Repeat with the other three side/end joins.
- 3.7 Fold up the end steps (parts #2d and #3b) and fit through the slots in the end, soldering in place on the inside.
- 3.8 Thread the alarm gear box (part #2b) onto a length of 0.3mm wire then fold along the central half etched line such that the wire sits in the hole formed. The sketch at the top of the following page should clarify this. Thread the ends of the wire into the alarm gear lugs, adjust the position of the box and then solder in place. Solder another length of 0.3mm wire to the bottom of the box leading to the bottom of the coach — leave overlong just now and trim back at the test assembly stage.



- 3.9 Tin the rear of the destination board brackets (part #1e) and sweat in place on the sides — the positions are marked by squares etched in the upper panels between the guard's door and the last compartment.
- 3.10 Fold the side lamp outer wrappers (part #1d) over a piece of wire and position the tabs in the slots of the bases (part #1c). Fit the tabs through the slots in the sides and solder in place from the inside. Tweak the outer wrapper to shape as shown in the scale drawing and then fill with solder.
- 3.11 Bend the jumper cables as required and fit to the holes in the ends.
- 3.12 Fit the compartment bulkheads (part #4) in place halfway along the panel between each pair of compartment windows — it is probably better to only solder these to the flanges at the bottom of the sides otherwise you can introduce a ripple in the sides.

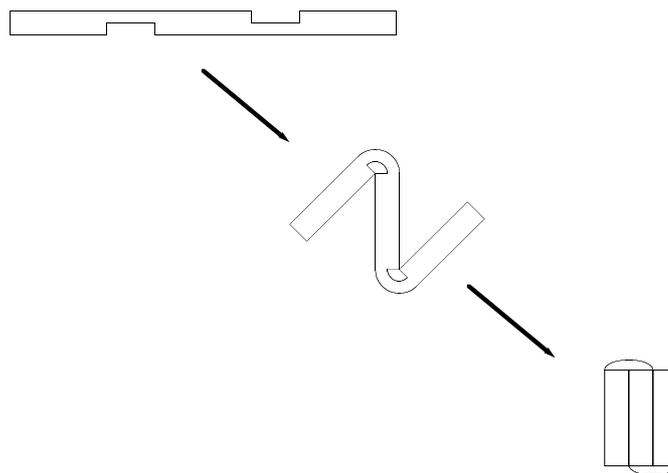
Section 4 Roof

- 4.1 Trim the roof extrusion to length then file away the lower flange at either end so that the roof can fit over the ends.
- 4.2 Using the scale drawing in the prototype notes, drill holes in the roof for the ventilators and fit by gluing.

- 4.3 Mark the position of the rainstrip on the roof and glue Microstrip in place. Self-adhesive car lining tape could be used if preferred.
- 4.4 At each end drill a 0.5mm diameter hole to accept the end of the handrail wire.

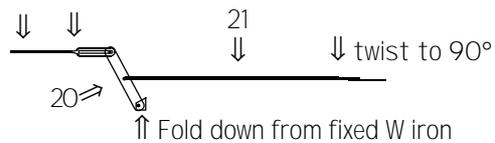
Section 5 Underframe

- 5.1 Press out the myriad of bolt detail on the solebars of floor pan unit (part #5) then fold the solebars at 90° to the floor. Fold out the lower flange from the solebar.
- 5.2 Fold the buffer beams down then fold the lamp irons and body fixing lugs forward.
- 5.3 Fold the rocking W-iron support and brake link supports down from the floor. Reinforce the folds with a fillet of solder.
- 5.4 Press out the bolt detail on the buffer beam overlays (part #6) then solder in place sliding them over the lamp irons and body fixing lugs.
- 5.5 The buffer beams on these coaches were quite substantial but also had rounded ends so on the model they are thickened up by soldering a “concertina” to the rear. Fold up part #7 with each of the half etched link pieces on the inside, solder together then file of any protruding tags — the sketch below should make this clear. Now solder to the rear of the buffer beams taking care to align the rounded edge with the rounded edge of the buffer beam.

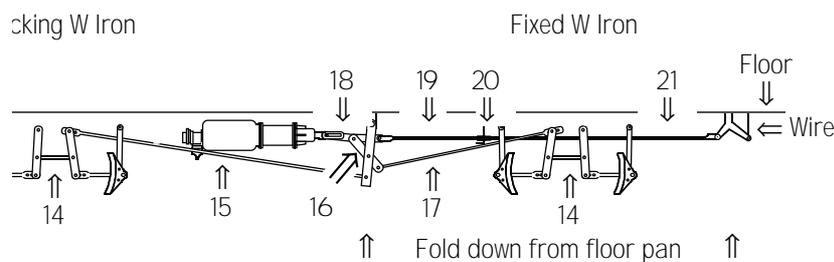


- 5.6 The solebar step (part #8) locates in a series of holes in the solebar. Position each step in place and fix by soldering from the inside of the solebar.
- 5.7 The lower steps are probably best tackled now before everything gets too cluttered. Fold up the toe-boards and hangers on each step (parts #11-13) then solder in place using the half-etched markers on the inside of the solebar to locate them. Note that part #11 and #13 are handed!
- 5.8 Press out the bolt detail on the rocking W-iron (part #9) then fold the lower straps back at 180° such that they end up on the outside of the W-iron.
- 5.9 Fold up down the strengthening ribs on either side of the W-iron then fold down the actual W-iron pieces and the brake hangers. Reinforce the folds with fillets of solder.
- 5.10 Tin the inside of the brake shoe detail pieces, fold over on top of the brake hangers and sweat together.
- 5.11 Solder bearings into the holes in the cast springs, opening out the holes as required. Now fit the springs to the INSIDE of the W-irons aligning on the bearing holes. Fit the axleboxes to the outside over the bearing holes.

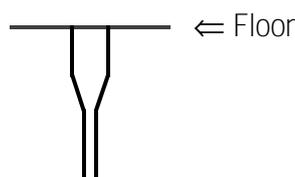
- 5.12 Fit the rocking W-iron assembly over the support on the floor unit and retain in place by gently twisting the central tabs a few degrees away from the centre.
- 5.13 Repeat steps 5.8 to 5.11 for the fixed W-iron (part #10). Note that the strengthening ribs (which also act as spacers on this part) fold in the opposite direction to the W-irons and brakes.
- 5.14 Fit the tabs of the fixed W-iron assembly into the slots in the floor and solder in place.
- 5.15 Fit the Westinghouse cylinder casting to the floor — there is a locating hole about half way between the centre and the rocking W-iron.
- 5.16 The brake gear fits together as shown in the following sketch.



Plan of handbrake links viewed from below



- 5.17 Twist the “A” of the A-frames (part #14) at 90° with respect to the central section then fit the ends of the As into the holes in the brake hangers. Check carefully against the sketch as you do so — these parts are handed and the link with the most inclination away from vertical goes at the inside at both ends.
- 5.18 At this stage it has to be said that the battery boxes obscure most of the brake gear links so you might want to skip some of the following steps — its up to you.
- 5.19 Fold the central supports which fold down from the floor as shown in the sketch.



- 5.20 Fit the long brake gear link (part #15) between the lower hole on the central support and the top hole on the inner line of the A-frame at the rocking W-iron.
- 5.21 I have found that the easiest way to fit parts #16-18 is to solder them into a lazy Z (The sketch above is to scale and can be used to get the angles correct) then to fit the assembly in place.
- 5.22 Fold over the end of the support piece on the fixed W iron and solder part #20 to it at the angle indicated in the plan above aligning the rear hole with the hole in the support.
- 5.23 Twist the end of part #21 at 90° as shown and solder to the middle of part #20 and the hand-brake link which folds down from the floor below the guard's compartment.
- 5.24 Twist part #19 as shown and solder to the front hole of part #20 and part #18.
- 5.25 Fit wire handles to the battery box fronts (part #5a) then fold round the sides. Fit the tabs into the slots in the floor and solder in place.
- 5.26 Fit the battery box bases (part #5b) to the battery boxes then fit the brace rods from wire — two at each end, one at the front middle and one at the rear middle (if you really insist!)
- 5.27 Solder the dynamo to the floor.
- 5.28 Fit the Westinghouse and steam pipes to the buffer beams.
- 5.29 Drill out the buffer stocks to accept the turned heads, fit bushes to the rear of the holes and then solder in place on the buffer beams.
- 5.30 Trial fit the body and underframe opening out the bolt holes in the floor as required. Fold up the lamp irons using a piece of scrap brass as a spacer and fold up the body fixing lugs.
- 5.31 Fit the buffer beam steps in place on their supports, level with the steps on the body ends.
- 5.32 Now dismantle the body from the underframe ready for painting etc.

Section 6 Final Assembly

- 6.1 Thoroughly clean the body and underframe to remove all trace of flux etc.
- 6.2 Paint, line and letter according to your chosen period.
- 6.3 Paint the seats and glue in place on the compartment bulkheads.
- 6.4 Fit the door "T" and grab handles (part # 1a) using a tiny amount of glue (a cocktail stick is good for applying it) so that you don't damage the paintwork.
- 6.5 Fit the guard's door grab handles (part #1b) and latches (parts #1f and #1g) as indicated on the scale drawing.
- 6.6 Fold up the end grab handles from wire and fit.
- 6.7 Glaze the windows and then fit the roof — you should find that it will stay in place of its own accord but a spot of glue on the flanges may help.
- 6.8 Make up the end handrail from wire and fit locating the top end in the hole previously drilled in the roof.
- 6.9 Fit the sprung buffer heads — a thickish piece of plasticard with a notch cut in it slipped between the rear of the buffer head and the stock makes a useful jig to ensure that all the heads project by the same amount.
- 6.10 Mate body and chassis using the supplied bolts.
- 6.11 Fit couplings of choice and your coach is now ready for service.