

FINNEY AND SMITH

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3mm SCALE ETCHED BRASS COACH KIT WITH WHITEMETAL FITTINGS GER/LNER/BR Wisbech and Upwell Tramway Coaches – One each of 4 wheel coach and bogie coach

Parts required to complete:

- brass wire (see instructions)
- wheels 8mm disc
- couplings
- paint and transfers
- plastic for roof/interior



Kit by arrangement with Danny Pinnock of D and S Models

GENERAL INSTRUCTIONS.

Please read this section carefully especially if this is your first etched kit. Many modellers fall shy of working in this medium, but once a few simple skills are acquired you will find the sky's the limit.

First, you are employing many of the skills the scratch builder uses, with the exception that most of the fretting out of the parts is done for you but some cutting and trimming of parts will become necessary from time to time. Where this is the case we have tried to highlight this in the instructions.

We have been constructing etched Brass kits for a number of years, so here is a list of tips hopefully, of some use to the novice and expert alike.

To cut parts from fret use jeweller's snips [The Acme railcutter {with orange handles} is ideal] for the large parts and a Stanley Knife and a piece of softwood for the small detail parts. [Although Jim likes softwood for 0, with our thinner frets, I prefer to cut using a craft knife, just past its prime, onto something quite firm, either a melamine offcut or a sheet of aluminium]. Remove the tabs and burrs using a sharp Swiss file. Generally, it is better to leave bits on the fret, near their identification, until you are ready for them, but a pot to keep small bits in when the phone rings is useful.

You will need a soldering iron of at least 40 Watts for 0 gauge. A Weller 40 Watt is ideal, a 25 Watt iron is adequate for 3 mm; Weller and Antex both do something suitable. Some people prefer a Resistance Soldering Unit [RSU] such as the London Road Models version [from Fourtrack models], which can make overlays, and very small parts using minute amounts of solder, easier to apply. A supply of square cornered brass lumps to lean/balance parts against is useful with an RSU. Don't take the probe off the brass until your foot is off the pedal unless you want very 'distressed' models.

145 solder (such as Carrs) which melts at 145 degrees C, and Carrs Green label Flux [weak phosphoric acid] is adequate; some people distort the etch using higher melting temperature flux cored electrical solder whereas others get away with it. Solder paint may also be found useful, and come in a selection of melting points, use the higher temperature ones first so that small details can be added later using the lower temperatures. Do not worry if you make a mistake, Brass (and Nickel Silver) is very forgiving, just unsolder, clean off parts and try again. A desoldering tool is useful here, a spring loaded piston in a metal cylinder that sucks melted solder away from the iron [avoid the cheap rubber bulb variant]. Remember you are not soldering electrical joints, first you run flux with an old brush onto area to be soldered then carry some solder on the iron to joint. Do not dwell iron to long on one spot otherwise the metal will distort, practise on some scrap first. A glass fibre brush available from draughtsman's shops or model suppliers should be used to burnish the metal along the joint and then with the aid of scrapers and sharp scalpel, remove solder afterwards. Beware that the brush sheds very irritating and invisible

glass splinters, clean them away as you go and keep them away from your finger tips.

Strapping and small details are best applied using solder paint. This can avoid clogging up plank detail etc. with solder. Apply a thin coat of solder paint to the back of the component, [Sometimes it helps to tin it by melting the solder at this stage and adding a little more before fixing to the kit] place in position and hold in place with a thin knife point. Run a little liquid flux along edge of component, and then apply clean iron with excess solder removed from tip [That's what the damp sponge on your soldering iron stand is for], to the top of the component until molten solder (not just the flux) is seen bubbling (or just peeping) from the edges.

Folds in Brass are usually made with half etched lines on the inside. You will need bending bars for long folds, but a good 3" smooth jawed vice and a pair of blunt nosed pliers {smooth jaws, not serrated for better grip} should suffice for most models. Sometimes, the bend is easier to form after running a craft knife along the inside of the fold's half etch, but don't go through. You need to decide whether to form rivets before bending if they will become unreachable, or leave until later to avoid flattening them in the bending process. You will find it easier to solder if you burnish the Brass with a fibre brush and keep iron bit clean.

Where you need to fit layers of Brass together referred to as laminating in the main instructions i.e.: coupling rods, you may find it easier to align the parts together (a rod through the hole helps), then carefully clamp in the jaws of a vice. [This is where the RSU is easier, at least in 3 mm]. Run solder around edges, then file and clean up. Some holes in such components may have shrunk so far that you would prefer to reinforce them with small brass washers such as 12/14/16 BA from Suppliers such as Eileen's Emporium.

Other useful tools include a good pair of tweezers, a pin vice with a selection of drills from 0.3 mm to 2 mm, a small sharp screwdriver, some very fine pointed nosed pliers and some Broaches. The Broaches are used to open up holes. For larger holes for bearings, some people prefer a reamer, but a broach that will go a little over 1/8" (~3.2 mm) is OK. All rivets are either left proud on a half etch (requiring no more effort) or half etched on the rear waiting to be pushed out by you. A rivetting tool is useful for consistent rivets {commercially available from London Road Models [very simple], Dick Ganderton [more sophisticated] and George Watts (GW Models) [Rather sophisticated, but could be useful if you want to do variants or things not available as kits]}, but some people manage with a blunt darning needle.

DO NOT rush the construction and clean up as you go. If you do not regularly wash your model the flux will soon turn everything Green, and if you try to glue any small parts they WON'T. In our kits all the White Metal castings can be glued if you desire. If using super glue use a good brand, and make sure surface to be glued is clean. It will help to polish castings with your glass fibre brush or an old suede brush

An alternative is to solder your White Metal castings together using Carrs 70 Red Label 70° Low Melting Point solder and flux. The iron should be run at a much lower heat so you do not melt the castings, this being achieved by using a domestic light dimmer switch, wired up the same as for a light, but substituting a plug and the iron for the light and lamp holder {I have a dimmer extension flex}. Experiment with adjusting the switch until you find the range of temperature at which the solder melts, but a scrap casting does not. (NOTE. as the iron is running on a lower voltage. it will take longer to heat up, so when you think the adjustment is correct, do check a few minutes later on another scrap casting to see that it doesn't melt). When attaching White Metal fittings to Brass, the surface of the Brass must be tinned with 145 solder, (or alternatively Carrs 188 solder paint), to allow the 70 solder to grip. The casting can then be soldered in place and fillets of 70 solder run into place with no risk of melting the casting.

Try to complete all time high temperature Brass soldering before you attach the delicate White Metal fittings!

REFERENCES:

The Kelvedon and Tollesbury Light Railway, N J Stapleton (Forge)
Wisbech and Upwell Tramway, Christ Hawkins and George Reeve (Wild Swan)
Wisbech and Upwell Tramway, EJS Gadsden, CFD Whethmath, J Strafford-Baker (Town & Country)
The Wisbech and Upwell Tramway Centenary Album, A C Ingram (Becknell)
Branch Line to Upwell, V Mitchell, K Smith, A C Ingram (Middleton Press)
Branch Line around Wisbech, V Mitchell, K Smith, A C Ingram (Middleton Press)
The Tollesbury Branch, P Paye (OPC) (best for photographs)

PROTOTYPE NOTES

The Wisbech and Upwell tramway opened in 1883. Built principally as a feeder line to convey the agricultural products of this fenland area to the main GER network it also provided a useful passenger service for the local inhabitants at a time when haste was of little consequence (top speed of the line being 12 mph). The line meandered along the roadside for some 4½ miles from Wisbech station to Upwell depot. The motive power being provided by enclosed steam tram engines until the advent of diesel power in 1952. In the face of increasing road completion the passenger services had been withdrawn in 1928. The non-standard coaching stock has always provoked great interest, the reduced floor height gave a somewhat squat appearance with the seating arranged along each side of an open saloon, access being provided by railed balconies at each end of the coach with steps leading down to rail level. Four wheel and bogie types were provided with composite and full third internal layouts. On withdrawal of passenger services the majority of this stock transferred to the Kelvedon and Tollesbury line where the last survivors, the bogie pair (No 7 and 8) were withdrawn from service in 1951. One of these No 7 starred in the film "The Titfield Thunderbolt", the body shell still exists and hopefully awaits restoration at Cottesmore in Rutland. No 8 was restored for preservation but scrapped in 1957.

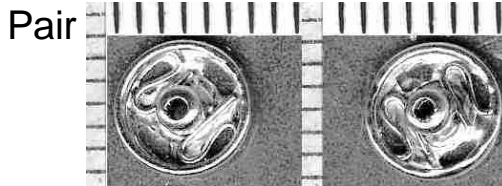
LIVERY - During the GER period before 1919 the livery was basically teak or coach brown, ironwork below solebar level being black including screw couplings, buffers and side chains if fitted. Lettering was light yellow shaded red arranged as per diagrams, Coat of Arms central in bottom panel, From 1919 until grouping maroon replaced teak brown on the GE, the lettering as before but abbreviated to GE, class letters all same height. For the LNER period the colour reverted to brown with LNER at LH end, running number at RH. The solebars were brown in this period. BR E prefix to numbers. (NB the E suffix that should have been added does not seem to have appeared).

Eight vehicles were built as follows:

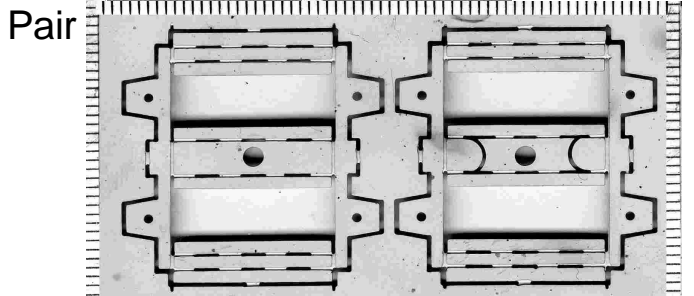
TYPE	DIA	GE	LNER	BR	BUILT	TO K & T	WITH DRAWN
4 wheel com	601	1	-	-	-	-	/28
4 wheel comp	601	2	60464	-	6/90	12/1/29	15/5/36
4 wheel third	601	3	60465	-	6/90	12/28	20/3/48
4 wheel third	601	4	60466	-	6/90	9/12/28	16/5/36
4 wheel comp	601	5	-	-	-	-	/28
4 wheel third	601	6	60463	-	7/84	9/12/28	16/5/36
Bogie composite	603	7	60461	E60461	9/84	30/9/28	1/10/51
Bogie third	603	8	60462	E60462	9/84	30/9/28	1/10/51

PARTS

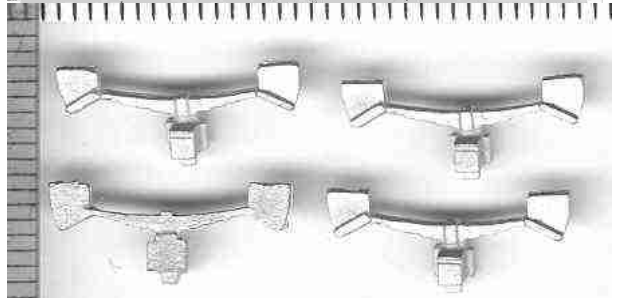
6 mm snap fasteners - Poppers
Bogie fasteners on W&U coach



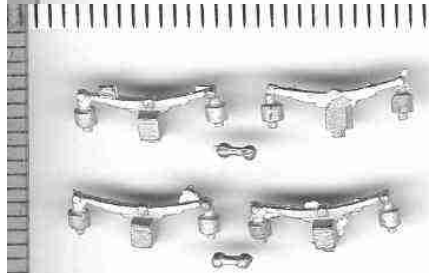
Etched W&U Bogie



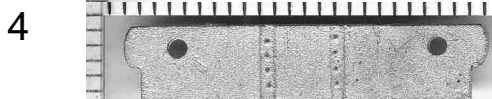
W&U 4 wheel coach axlebox & springs 4



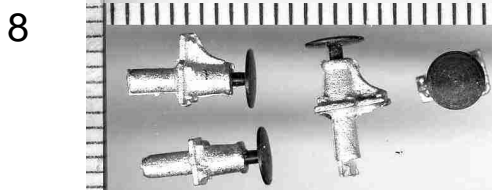
W&U bogie coach axlebox & springs,
including bolster 'dumb bell' spring 8+4



W&U buffer beam 4



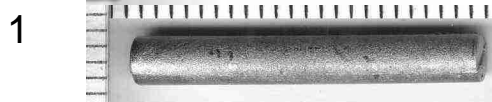
W&U coach buffers, deep web steel
head 8



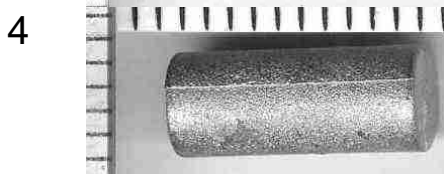
W&U coach lamp tops short 12

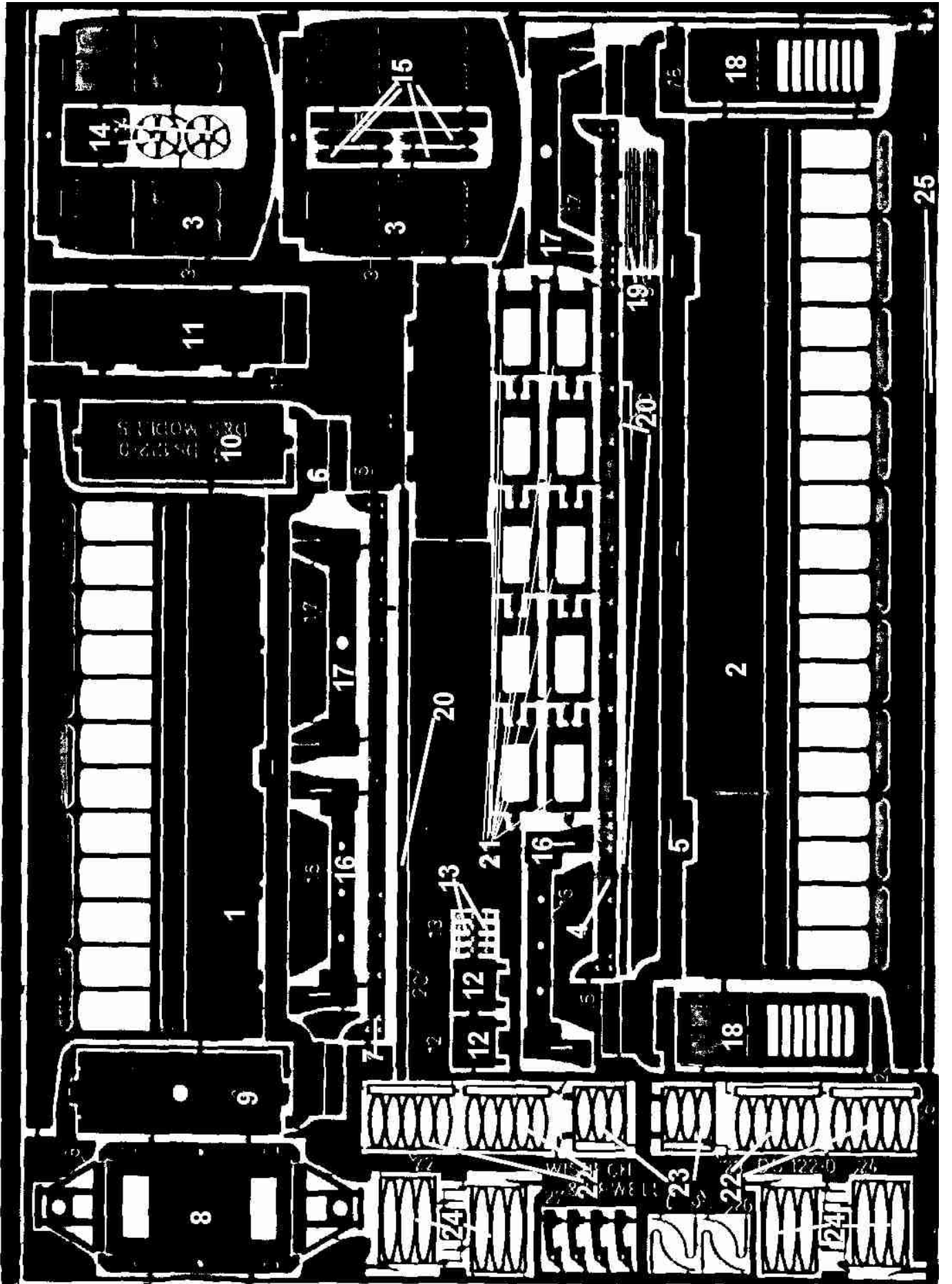


W&U tank long plain – bogie coach 1



W&U tank short plain – 4 wheel coach 4





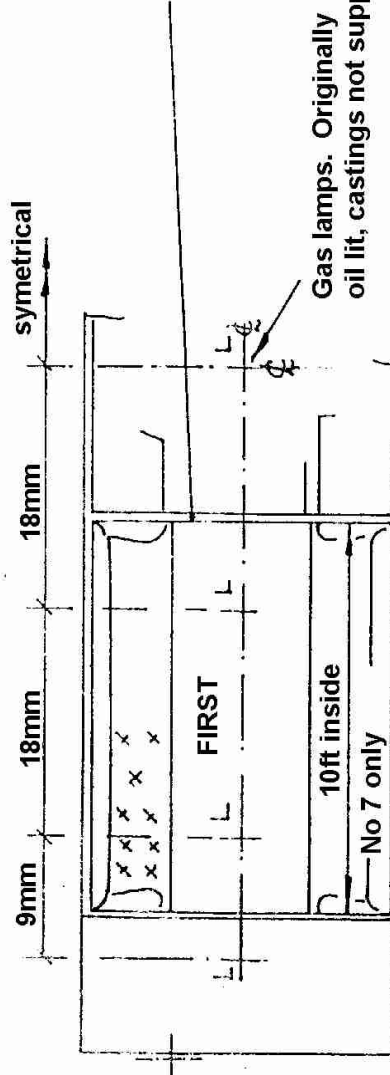
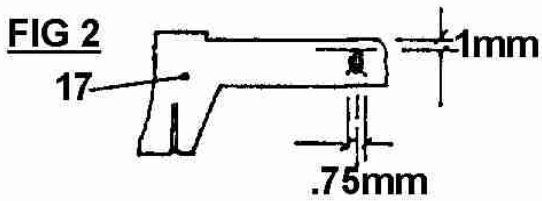
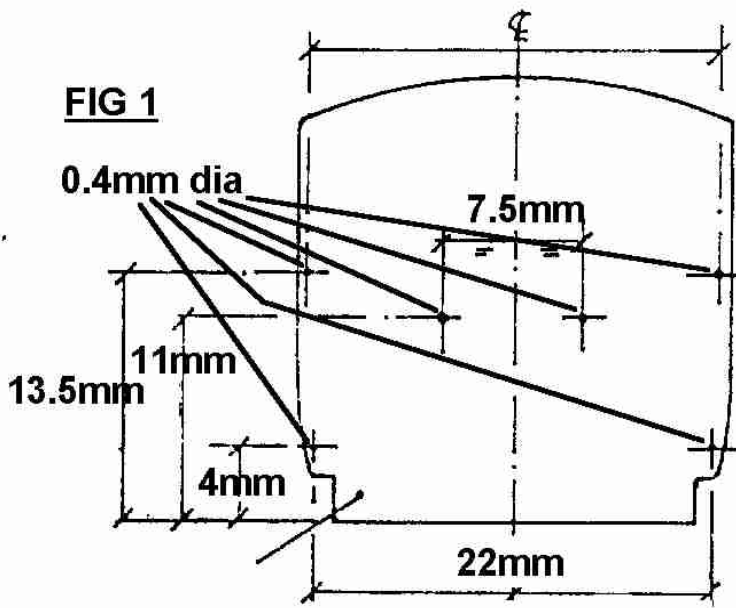
GENERAL ASSEMBLY INSTRUCTIONS

Identify the parts on the fret, clean with a glass fibre brush if necessary and open holes for handles etc. Remove parts with a small chisel backing the fret with a suitable flat surface. It is advisable to leave small details on the fret until required. All bends have an etched line on the inside unless stated otherwise, short bends can be accomplished with pliers but longer ones should have the weaker part held securely between straight edges. For most points solder is recommended, use 5 minute epoxy resins for fixing roof and similar items, cyno-acrylic quick setting for fixing strapping, handles etc, in all cases use dry run and tack joint techniques to check assembly

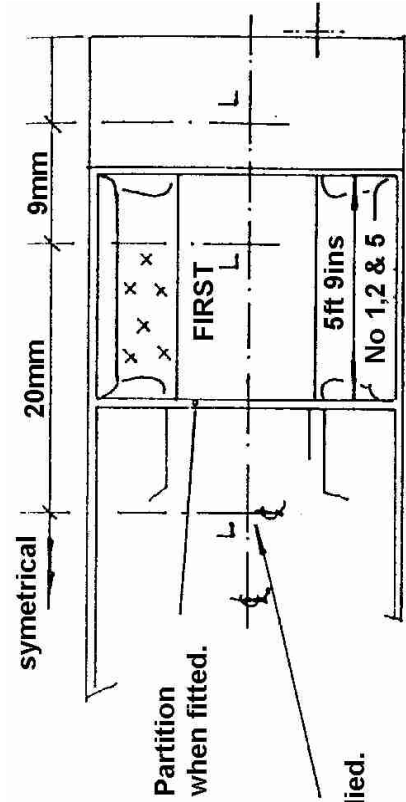
ASSEMBLY

1. Sides (part 1 for 4 wheel, part 2 for bogie). Bend the top flange inwards to match the roof angle. Form a smooth tumblehome on the lower side using a rod of slightly smaller than the finished radius. Take care not to over bend at the lower etched panel line. Bend lower flange inwards square to upper side, check profile against end (3).
2. Ends (3). Mark out ends and drill handrail holes Fig 1.
3. Assemble body by tacking one end to one side, repeat for the other pair and bring together to form body shell, check assembly for squareness and run solder into corner seams. Note ends fit between sides. Seam up balcony roof. Bend to stiffen.
4. Step end (17). Take one step end and elongate hole upwards as per fig 2, use this part for one end of the four wheel coach. Bend up steps on parts (6) and (11), then cut pieces from strip adjacent to part 25 and fit to underside of step projections to simulate treads. Radius off front edge.
5. 4 wheeler - W-Irons (8). Bend up and remove projecting end lugs from one unit. Fit brake shoes (27) inner slot for 12mm gauge, outer for 14.2mm gauge.
6. Bogie. Fold up bogie support (9) and fit one half of press-stud over hole.
7. Assemble balconies in the following sequence; Attach step sides (17) centrally to ends, recessed upper edge level with bottom of doorway. Tack solebars (5) (6) locating by slot in lower side flange and step ends (17). Fit platform (11) locating by doorway and tags, slightly angle on assembly to pass over end projection fit step ends (16).
7. 4 wheel coach - Turn upside down and fit fixed W-Iron between solebars. Locate position from slots in lower flange, at pivot end file clearance in flange for W-Iron (length to outer slots). Pass pivot rod through holes in fixed W-Iron, spacer tubes (see diagram) and body end. Check wheel centres and fix using tubes to locate position.
8. Complete basic assembly by fitting solebar overlays (Part 7 for 4 wheel, part 4 for bogie).
9. Saloon end handrails.
10. Doors (18). If fitting slightly open clean off one half etched edge.

- 11 Fit ventilators (Part 19 for 4 wheel, part 15 for bogie).
- 12 Fit lower side strips (Part 20 for 4 wheel, part 25 for bogie).
- 13 Fit wire or plastic rod beading to etched grooves in side.
- 14 Fit tanks under end platforms locating from (16). Clean off projecting tags.
- 15 Drill buffer beams cast upper face to take end posts.
- 16 Fit buffer beam together with buffers (web down).
- 17 Carefully mark out hole positions in upper side flanges to coincide with outer buff beam holes. Drill through.
- 18 The assembly can now be painted and interior fitted if required.
- 19 Cut and fit floor.
- 20 Fit window frames (21), use half-etched tags to locate glazing.
- 21 Fit compartment and seats if required.
- 22 Mark upper side flanges, widths to be 8 mm and 0.75 mm (2 off/coach).
- 23 Insert corner end posts in buffer beam and through upper flange holes. Secure and trim to length.
Carefully detach side gates (24) R & LH. Trim latch length to drawing and fit in position shown. Latch end abuts to body and rests on handrail, lower hinge on buffer beam (trim length to face of this), and ensure gate is vertical. When secure fit roof to body and then solvent fix longer sub roof to this. Inner end posts can now be fitted between buffer beam and roof against this sub roof edge. Check for vertical and trap top ends with small sub roof. Notch this for location if necessary.
- 24 Detach fixed railings (22) and trim to 8.25mm long. Don't lose top rail. Fit these between end pillars at height set by lower hinge. Fit top rail at height set by top hinge. The end gates (23) can now be fitted centrally on outer face of inner posts.
- 25 Detach gangplank (12) bending lugs at approximately 50° to give raised position.
- 26 Fit to buffer beam and detail with straps (13).
- 27 Carefully fit handrails (26) to inner posts.
- 28 Cut brake shaft to length, fit handwheel (14) and fit assembly to buffer beam.
- 29 Add bearings and axleguards to four-wheel coach irons, clear spring shackles as necessary.
- 30 Bogie coach - Fold up etched bogies. Add castings and fix to coach with press studs supplied..



BOGIE COACHES
 No 7 - composite (10 - 1st & 22 3rd)
 No 8 - third (34 - 3rd)
 Fit gas tank centrally behind solebar.
 One side only, drill floor to suit.



FOUR WHEEL STOCK
 No 1,2 & 5 - composite (6 - 1st & 14 3rd)
 No 3,4 & 6 - third (22 - 3rd)

