



1001: BR (SR) 4 BIG - Class 420 / 422 Electric Multiple Unit Etched Overlays for 4 Vehicles (DTC x 2; MBS; TRB)

INSTRUCTIONS

Manufactured by:
Dart Castings, 17 Hurst Close, Staplehurst, Tonbridge, Kent, TN12 0BX
www.dartcastings.com

Scale Model for Adult Collectors

Made in England

Using The Sides

While originally intended as overlays to convert proprietary (rtr) Mk.1 coaches these etched sides can be used as the basis of scratch built models using components from the MJT Scale Components range or from other manufacturers.

Suitable rtr donor vehicles are currently available from Hornby and Bachman and second hand from Lima, Mainline and Replica Railways. One consideration when choosing a donor vehicle is whether it is the roof or floor that is moulded with the sides. Hornby coaches, for example, have detachable floors while Lima coaches have detachable roofs. The choice is very much a matter of preference for the modeller but worthy of some thought especially if it is intended to motorise one or more of the vehicles. In the case of the CIG and BIG units where the roof is 'profiled' into the cab end¹ this is a particular consideration. There will almost certainly be a join in the roof immediately behind the cab casting and this will be difficult to disguise if the roof is to be detachable. It is, of course, always possible and sometimes beneficial, to cut out the existing floor and replace it anyway.

The process of preparing the donor vehicle and attaching the etched sides is described in detail in various books

¹ Note: There is a natural division in the 4CIG/BIG where the roof meets the cab end. This is especially pronounced where a full yellow end meets the grey of the roof. Reference to photographs is recommended.

and magazines, notably *The 4mm Coach, Part One - First Principles and Basic Projects* by Stephen Williams (Wild Swan Publications 1994, ISBN 1 874103 127) and *Model Railways Illustrated Handbook No.8 – Detailing and Improving Ready to Run Coaches* by Tony Wright (Irwell Press 1996, ISBN 1 871608 52 X).

It is, however, worth outlining a few fundamentals. It is probably best to remove all the moulded detail from the coach side early on. Clearly the cosmetic sides will only attach properly to a smooth side and so it is necessary to remove all details such as door handles, hinges, etc. from the donor. This can be done with a scalpel and finished with abrasive paper to flatten the side completely and remove any paint. This does not have to be a work of art. If the scalpel slips and gouges the plastic side it will all be covered up in due course. Later in the process, removal of plastic around the windows will weaken the structure and so this particular bit of brutality is best carried out while the body is still relatively strong.

Also, while the structure has not been weakened, it is probably worth removing the roof detail. It is unlikely that the roof vents on the donor will be in the correct positions and, inexplicably, several proprietary Mk.1 coaches have transverse ribs on the roof. This is incorrect for any Mk.1 coach and the 'slam door' multiple units were no exception. Moulded filler pipes and rainstrips are also easier replaced than retained. Replacement ridged dome ventilators and Vent Axia cowls are available – MJT parts 2942 and 2932.

At this stage it is necessary to fit the replacement cab fronts (MJT part 1100). Precisely how this is done depends on the donor vehicle and whether the roof or floor is integral with the existing sides. Basically, however, the existing vehicle end should be cut off square with a razor saw. Apart from ensuring that the new end sits square on the end of the vehicle, it is important to ensure that the overall length is correct; there is a small rebate on the side of the MJT cab front in which the etched side can be located. The discarded plastic end can be used as a template for cutting internal partitions.

While the sides are still flat, and can be supported on a flat surface, it is worth checking that any etched holes are adequate to take the door handles, grabrails etc; assuming of course that you wish to fit them. Do not forget the grab rails that wrap round from the side on to the cab front on these units. If necessary, enlarge the holes with a very small broach or a No. 80 (0.35mm) drill.

The next task is to 'roll' the tumblehome into the coach side. On the BR Mk 1 vehicles this was a (distinctive) continuous and even curve from floor to roof (solebar to cantrail). While rolling machines are available (from GW Models for example) this can be done using a length of (preferably metal) dowel – anything between about 15 and 30 mm diameter - rolled vertically across the back of the coach side while it is resting on a resilient surface; like the back of a mouse mat. This is best done a little at a time offering the etched side to the coach body each time until an exact fit is achieved.

With the etched sides held temporarily in place on the donor vehicle the positions of the new window openings should be marked. The etched side can be used like a stencil. It is also necessary to mark the positions where the door handles and grab rails will protrude through the back of the etched sides. Small holes will need to be cut (drilled) in the plastic sides of the donor sufficient to accommodate not only the handle or grab rail itself but also the solder or glue used to hold it in place. Clearly material from the donor should be removed from behind and around the positions of the new windows such that they are not obstructed and room is left for the glazing and its fitting arrangements. Exactly how this is done depends on the donor (is the roof or floor integral with the sides?), the chosen method of attaching the glazing and how confident the modeller is when working with the weakened structure. Safest, for strength, is to retain as much of the original donor side as possible. Faster, would be to remove the whole of the side above the waist leaving a few millimetres (as much as possible) at each end and along the cantrail as location and fixing points. Obviously there are a range of intermediate alternatives.

At this stage the door handles, hinges, etc. can be fitted. MJT part 2930 provides a selection. They should be inserted in the relevant holes and soldered or glued on the back of the side.

The sides can now be attached to the donor using a two part epoxy adhesive. If the glazing is simply to be glued this might be easier before assembly. Some modellers prefer to paint the sides, particularly complex or lined liveries, while they can still be laid out more or less flat. The vehicle can now be reassembled. Positions for replacement roof vents are shown on the plan and if required a replacement roof is available MJT part 2970

The Class 420 and 421 4BIG and 4CIGs

The first batch of 4BIG (Buffet Intermediate Guard) and 4CIG (Corridor Intermediate Guard) units appeared in 1964 and 1965 to replace the Maunsell designed 6PUL and 6PAN units on the Brighton line. Typically they would run with two 4CIG units providing a buffet car in a 12 car rake. The second batch was introduced in the early 1970s to replace the 4COR and 4RES units on the Portsmouth route. They continued without major changes to their

external appearance until the end of 'slam door' operation on the southern electrified network region in 2005. During their long careers they units operated over much of the central and western divisions of the southern region. Latterly several buffet cars were taken out of use, removed or even replaced with TSs and the units were reclassified as class 421s (CIG/COP). Along with most of the EMUs built by BR in the 50s, 60s and early 70s they were based on the standard BR Mk.1 coach. Breaking with previous practice, the guard's / van accommodation, the power bogies and traction equipment were all on an intermediate car, the MBS, rather than being at the ends of the unit.

To cope with the heavy crush loads encountered on commuter routes the units were equipped with a strengthened version of the BR B4 bogie, designated B5 To minimise the risk of 'gapping' the current collector shoes were retained on shoe beams at the outer ends on the unit. The motor bogies on the original batch were the standard BR Mk.4 pattern (MJT part 1105 / 1106) while later batches were equipped with the Mk.6 pattern (the same as the power bogies on the Class 73 locomotive).

Several books on the subject of southern region multiple units and the electrified network are available and much detail is contained therein. Among these are: *Southern Electric* by John Glover (Ian Allen 2001, ISBN 0 71102807 9), *British Rail Fleet Survey, Part 10 Third Rail DC Electric Multiple Units* by Brian Haresnape and Alec Swain (Ian Allen 1989, ISBN 0 71101760 3) and *Slam Doors on the Southern* by Michael Welch (Capital Transport 2005, ISBN 1 85414296 8).

Numbering

TOPS code	Unit No.	Introduced	Note
420/1	7031 - 7048	1964/65	
420/2	7049- 7058	1970/72	
422/1	2101 - 2112	1988	1 2
422/2	2203 – 2210	1988	1 2

Note 1 – Became 422 after facelift.

Note 2 – 8 units were reclassified as 421/5 (4CIG - 1392/99), the buffet cars replaced with spare TSOs from 4CEPs. 11 units (believed to include all the 422/2s) had the buffet cars removed and were reclassified 421/7 (3COP - 1401/11) in 1997/98.

Livery

Given the number of permutations of body and end colour it is recommended that reference is made to photographs of the type or actual unit you want to model.

The 420/1s were introduced during the southern region 'green' era while the 420/2s originally appeared in all over blue. Examples of the 4BIG could therefore be found in: all over Green, all over rail blue, Rail blue/ grey, London and South East 'Jaffa Cake' and Network South East (including the South West Trains variant). All units were withdrawn by 1999. When new the cab fronts were green with a yellow rectangle covering the lower half of the door in the corridor connection. All over yellow ends were the norm with the all over blue livery and its successors up and including the NSE livery. Some of the NSE liveried units had the end painted black above the line of the top of the corridor connection. In later guises, the black area had extended to the line of the bottom of the cab window.

To Complete the Unit You Will Need

Donor Vehicles (as discussed in text)
 MJT 1100 Cab Fronts for CIG, BIG, VEP, TC
 MJT2930 BR Door Handles
 MJT2943 BR Scalloped Dome Ventilators
 MJT2932 Vent Axia cowls for Catering vehicles
 MJT1105 or 1106 Mk.4 Power Bogie
 Underframe Details (from Southern Pride)

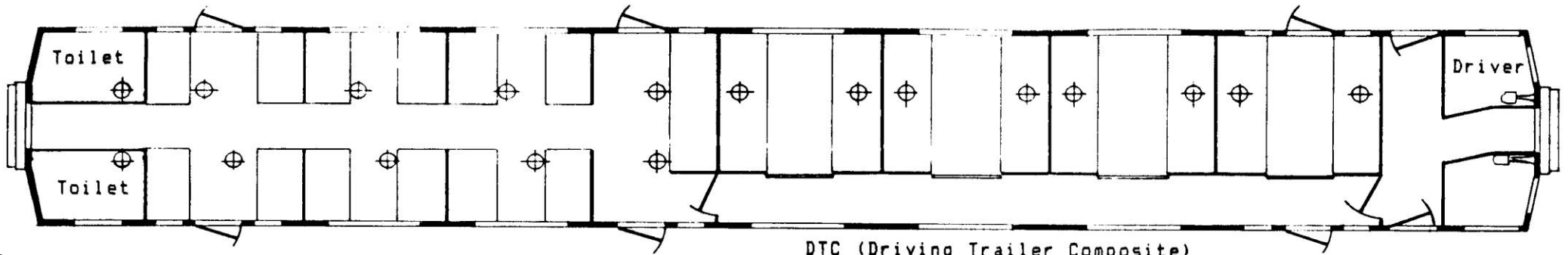
And You Might Consider

MJT2970 Aluminium Roof – BR Profile
 MJT2239 BR B4/5 Cosmetic Bogie Sides
 MJT2225 Carriage Compensation Units
 Lima / Hornby Class 73 (spares) for Mk.6 power bogies
 Kaydee No.16 working buck eye coupler to replace the casting supplied with the cab front and allow automatic coupling between units.

If using a Lima donor, adding rainstrips made from styrene strip to improve the appearance of roof.

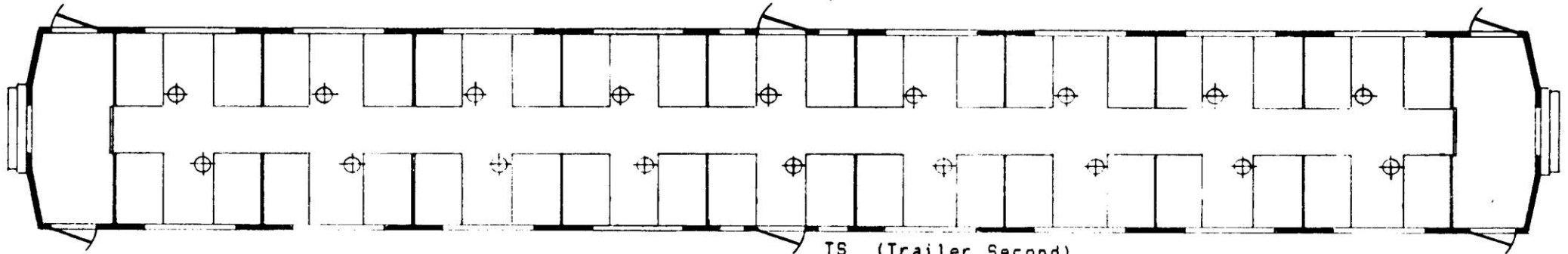
Contents of Pack

8 sides (to make 4 vehicles)
 2 frets with windscreen wipers and various grabrails.



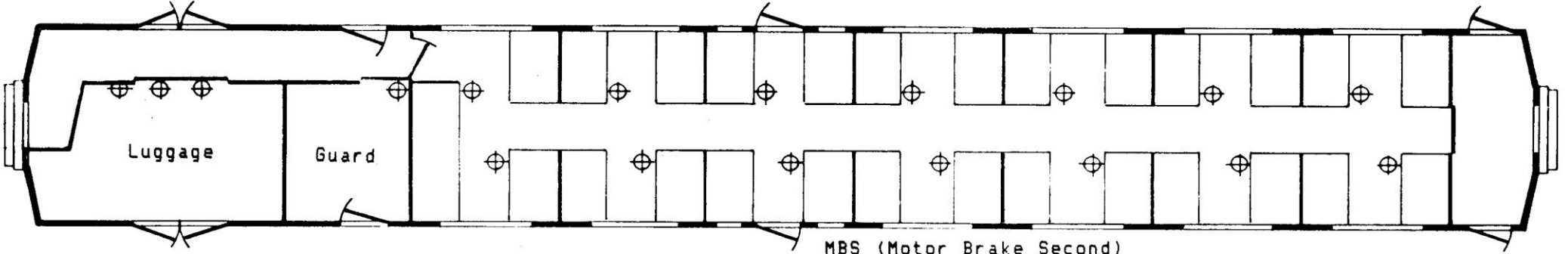
DTC (Driving Trailer Composite)

© DART CASTINGS 2008

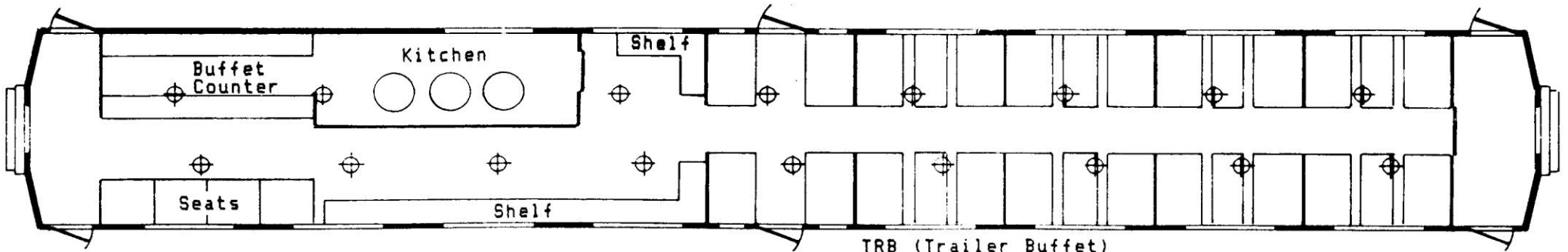


TS (Trailer Second)

100mm = 7,600mm / 24'11" Scale 1:76



MBS (Motor Brake Second)



TRB (Trailer Buffet)