



1004: BR (SR) 4 TC - Class 491 / 438 Trailer Unit Etched Overlays for 4 Vehicles (DTS x 2; TBS; TFK)

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. In the case of the 4TC 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 and magazines, notably *The 4mm Coach, Part One - First*

¹ Note: There is a natural division in the 4TC 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.

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 scalloped dome ventilators are available – MJT part 2943.

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 (3.5mm) 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 or 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. Also, 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 491/438 4TCs

The 34 4TC (Trailer Control) units appeared in 1966 to cover fast services on the newly electrified Bournemouth route. Following various experiments it was decided that the 12 car formations on this route would consist of a high power 'tractor' unit (4REP) at the London end and two unpowered 4 car (4TC) units at the country end. The TCs would be pushed to Bournemouth and pulled back. The line onward from Bournemouth to Weymouth was

not electrified at this stage. The 4TCs were therefore detached at Bournemouth and hauled onward usually by a Class 33/1 diesel electric locomotive. The 33/1s were themselves equipped for 'push – pull' working and so the train could be propelled from Weymouth with the locomotive at the back and the driver in the cab of the leading TC. On arrival at Bournemouth the TC would again be attached to a 4REP to be hauled back to London.

To a large extent the 4TCs were conversions from locomotive hauled Mk.1 rolling stock. The DTSs for example were open seconds with the lavatories at one end taken out and a driving cab substituted. Clearly these units were very versatile and could go anywhere provided that they were coupled to a suitably equipped (class 33/1 or class 73 locomotive). They even appeared on the London Underground system hauled by, among others, Metropolitan No.12 'Sarah Siddons' built in 1921.

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.

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
491	401 - 428	1966	
492	301 - 303	1966	1
491	429 – 431	1974	1
491	432 - 434	1974	
438	8001 – 8034	1988	2

Note 1 – These three units started life as 3 car 3TC units; additional TFKs were added in 1974 to make them uniform with other 4TCs

Note 2 – All units designated class 438 and renumbered

Toward the end of their lives some 4TCs were augmented to 5 cars with an additional buffet car from a 4REP – 5TCB – or in one case a trailer first – 5TCT / 1801

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.

These units were introduced during the southern region all over blue era and subsequently could be seen in Rail blue/grey and Network South East red white and blue. When new the cab fronts were blue with a yellow rectangle covering the lower half of the door in the corridor connection. All over yellow ends soon became the norm. Following withdrawal, one unit remained in service with London Underground in all over Metropolitan Railway Maroon livery.

To Complete the Unit You Will Need

Donor Vehicles (as discussed in text)

MJT 1100 Cab Fronts for CIG, BIG, VEP, TC (1)

MJT2930 BR Door Handles (3)

MJT2943 BR Scalloped Dome Ventilators (2)

And You Might Consider

MJT2970 Aluminium Roof – BR Profile (4)

MJT2239 BR B4/5 Cosmetic Bogie Sides (4)

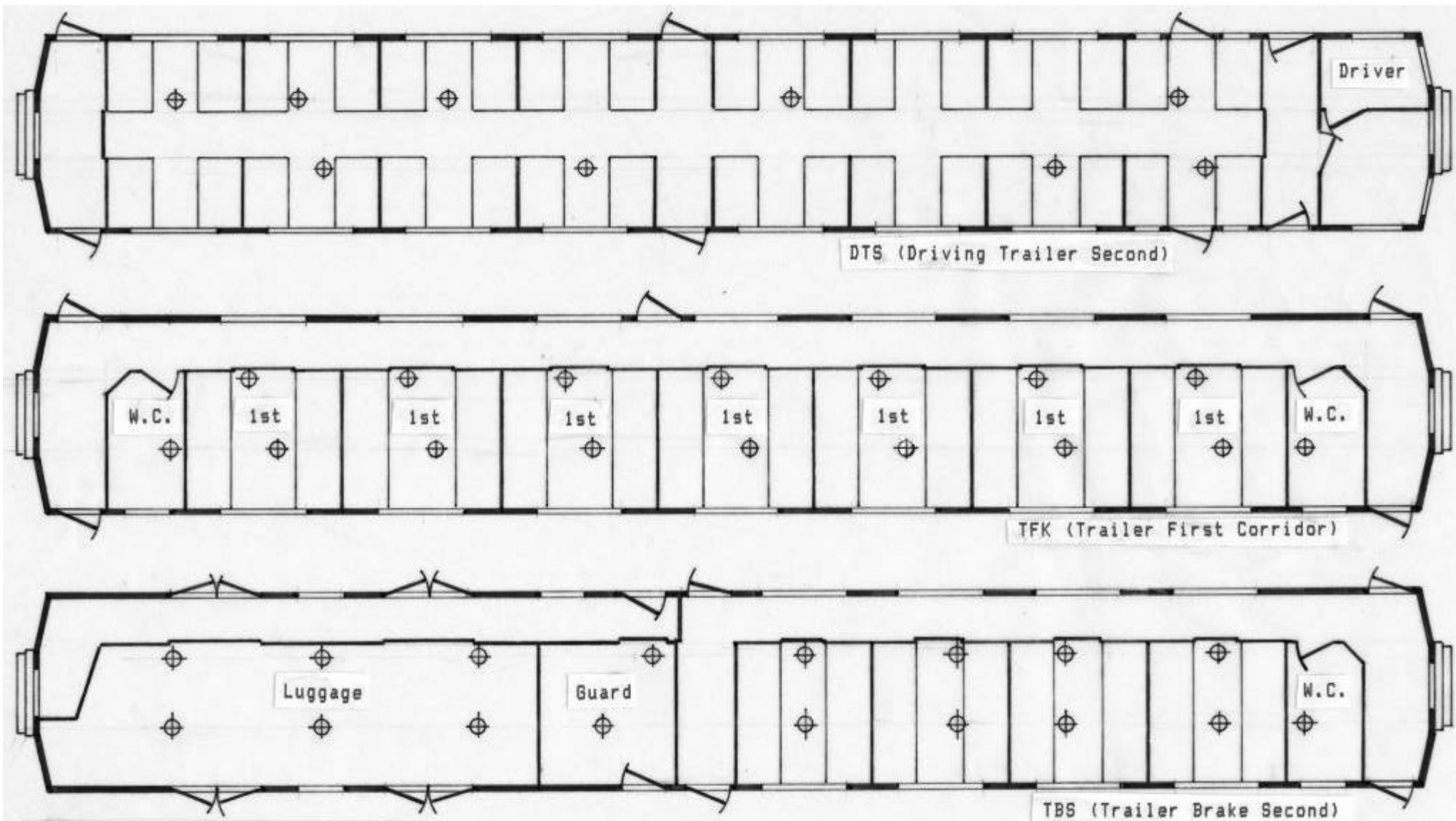
MJT2223 Carriage Compensation Units (4)

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

As well as 8 sides (to make 4 vehicles) the pack should contain two small frets with windscreen wipers and various grabrails for the driver's and guard's doors. This fret also carries the long horizontal grabrails that wrap round on to the cab fronts on the DTCs.



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