

Diagram 43 6-wheel break van

In Magazine 258 we announced that Brassmasters had produced a fret for converting the 4mm scale D&S Diagram 61 break van kit to the Diagram 43 version. Now DAVE CARTER has made one and here he explains how he did it...



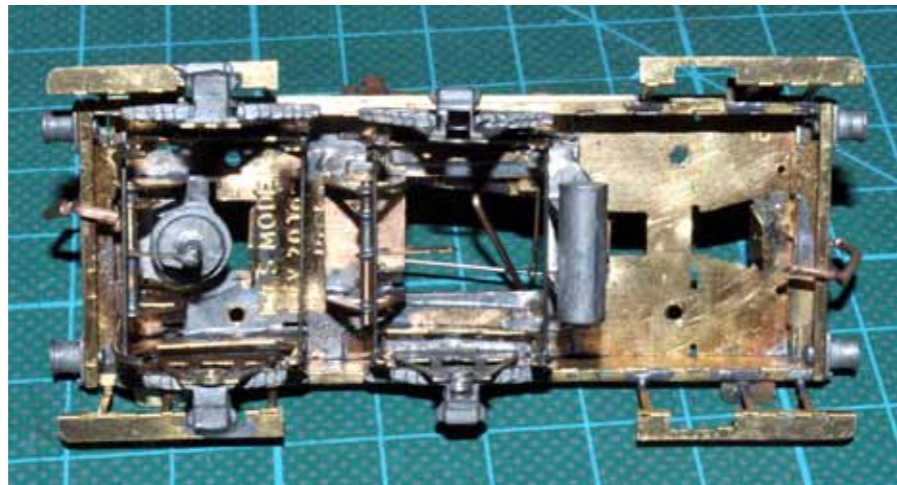
Some years ago, Dan Pinnock of D&S Kits produced a kit for the Diagram 61 4-wheel 20 ton break van, 280 of which were built between 1904 and 1914. The kit also enabled modellers to build the Diagram 61A of which 150 were built between 1914 and 1921. This is late in the day for many L&YR layouts. An earlier version was the Diagram 43 20 ton, 6-wheel break van of which 83 were built between 1900 and 1903. The Diagram 43 is structurally similar to the later builds with certain differences:-

- The step boards are in two pieces that only cover the outer wheels.
- The door into the cabin is central, not on the left hand side, as in Diagram 61.
- The roof end of the veranda is horizontal between end posts.
- The vacuum brake cylinder is mounted centrally, not outside the outer axle.
- The four side wooden doors were not fitted, a horizontal iron bar was provided.
- The horizontal handrail between the two vertical handrails was not fitted.
- Earlier examples had grease axle boxes.

I had a few D&S kits in stock and was pondering how to build the earlier version. A conversation with David Burton of the Brassmasters team resulted in a brass fret to cover the differences. Starting with the underframe (chassis is a French word for the underside of old cars), do as I say, not as I did! The moral

here is to read Noel's book, *Lancashire & Yorkshire Wagons, Volume 2* first, before jumping in at the deep end. The main difference is the centre axle: in the kit it has a sort of gravity arrangement to keep the wheels on the track. I slotted out the brass axleguard so the brass bearing could rise and fall under steel guitar wire spring pressure. The bearing was a plain bearing to take a 1.0mm diameter steel axle, this gives a degree of side play enabling the van to negotiate curves. (The men in white coats are never far behind P4 modellers). One outer axle is soldered to the underframe, the other end is

allowed to rock on a central pivot. Do not fit the cast white metal vacuum brake cylinder in the designed position; it should really be up in the cabin, above the van floor. If you study the drawings in Noel's book, the Brassmasters' fret provides extra brake linkage to model this area. In the kit is a cast white metal sand box for either end, but no mention of sand pipes. These curved down to drop sand onto the rails, increasing the stopping power of the van. To represent these pipes, 0.6mm (0.024 inch) brass wire was soldered to the floor at the fixed axle end and the rocking axleguard at the other end.



Underside of the assembled underframe.



The sub assemblies ready for painting.

I like to build models in sub-assemblies that are screwed together after painting is completed. Four 12 BA screws were used. 1.4mm holes were drilled, just inside the cabin brass walls. Bend up the van floor and clamp in correct position before drilling the holes; there is a better chance of things lining up that way. When the holes are drilled, fit 12 BA brass nuts and solder them in place. The rocking axleguard will cover the screw heads, so a clearance hole was drilled (3.0mm diameter) so the rocking guard could rock on its pivot and the body is removable without taking the axleguard out. The vacuum brake pipes at the headstocks were lost wax brass castings from London Road Models, soldered to the underframe. The pipe should be bent so it passes to the right hand side of the draw hook at both ends. The step boards have to be cut to make two short items. The steps are very delicate; the cut out to clear the axle box may have to be enlarged to allow the rocking end to move. This is certainly the case if the later and larger oil boxes are fitted. A folding bar was used to bend all the supports at the same time. When bent up, a resistance soldering iron was used to sweat them onto the solebar. The central cast white metal axle box has to be slotted to allow the bearing to move inside. 0.6mm diameter nickel silver wire was used to represent the brake stretchers, linking the brake blocks together. This also strengthens things a little, but have the wheels in place first,



Close up of the cast white metal verandah end prior to painting.

check that the blocks are in line with the wheel treads. The buffers supplied in the kit are the self-contained type. The heads were cut off and drilled out to take blackened steel heads and these being 2.45mm diameter didn't leave much white metal in the castings! Moral, read the book first. However, I now have a van with working spring buffers.

Starting now with the body, the veranda end needs a Plastikard infill to represent the horizontal roof edge. A brass template is in the fret to mark out and cut this part from 0.060 inch white styrene sheet. This was fixed in place with epoxy resin, a little more reliable than superglue. The Brassmasters cabin ends were replaced with the central door, a coach door handle was fitted. Tongues on the cabin ends engage with slots in the van floor, ensuring correct positioning. Take care to make sure that the ends are square to the floor. The brass sides are best riveted when flat, then clamp in a folding bar (with card to protect the rivets) and form the top flange; this is where the roof is glued onto, so get the angle right, check with one of the cabin ends. When satisfied with the bending process, sweat the two side window frames in place on the inside and the two vertical cover strips on the outside. The sides can be soldered in place. It is easier to drill holes for the hand rails and eyes for the doorway cross bars. To make the eyes 0.3mm brass wire was first annealed in a gas flame, this softens the metal so it will conform to the radius. Clamp the blunt end of a 0.5mm drill in the vice. Form a rough loop in the soft part of the wire, using two pliers, grip and pull the wire with the drill in the loop. The wire will close up to the drill; trim to suit, cut one end off, the other is in the drilled hole in the body or end castings.

When fitting the cast white metal veranda ends, fit the underframe and place the ends in position. Measure the gap at floor level and cut a piece of styrene to same size to help getting the ends absolutely vertical. This is trapped at the top above the windows under the roof. When soldering white metal to brass, first tin the brass with normal solder, clean both parts with a

fibre glass brush, cut a small piece of low melt solder, flood the joint with liquid Phosphoric acid flux. Drop the solder into the flux and place the soldering iron tip into the liquid flux, which will boil and melt the solder, which will now run neatly into the joint. Do not run the iron tip on the white metal casting, unless you want holes in it! The cast sides are also to be soldered up at the cant rail (horizontal member, just under the roof), pre-tin the brass with plenty of flux. Extra to the kit, a hand brake wheel and stove were made up from brass, Plastikard lockers, seats and desk were made and fitted after painting. When soldering, the flux forms into a messy gunge, Maplin's sell an aerosol flux remover which I find good for cleaning up after each session. The roof is supplied curved and cut to size. 0.020 inch square micro strip was curved and fixed in place with Mek Pak to represent the rain strips. A length of 1.5mm O/D brass tube and a 12 BA washer was used to make the stove pipe; the washer was soldered at an angle to set the pipe vertical, trimmed to length and glued in a 1.5mm hole over the stove. All the metal parts were given a session in an ultrasonic cleaner and dried with a hair drier before a coat of Halfords Red Oxide primer. They also do a plastic option too; this was used on the roof. A long time ago, possibly by John Hodgson, I was told that the Thornhill wagon shops turned vans out with red oxide roofs, so that's how they are. After the primer, a coat of Halfords Satin Black finished off the painting. Glazing was fixed in place using superglue. The seats and lockers were glued in with Evostick. Evostick was also used to glue the roof on, four rubber bands were used with a length of brass angle either side. This prevents the bands biting into the roof when softened with adhesive. The van was lettered using the PC/HMRS Sheet 17 *English Pre-Group Goods Wagons*. This sheet also has Goole, Wakefield, Brighouse, Horwich, Rose Grove brake van depot names.



Brake van interior showing the stove and brake wheel prior to painting.