**Notes on LMS D1890 Brake Van (1:32)**

This design is not fully finished so please accept there may be some experimentation to do. The following seemed to work best for me, printing on a Prusa i3 printer. This is a big model, it only just fits on the Prusa bed and I had problems with warping and adhesion at the ends, perhaps because of uneven bed heating. Good luck - please feed back any problems found.

The underframe should be printed right way up without supports

The floor was printed upside down. The Z height has to be right – if too low the planking grooves disappear.

The buffer stocks were designed for home-turned buffers with thicker shanks as the prototype had much meatier buffers than a normal wagon.

The body incorporates the veranda sides, except for the veranda roof frames. It will need supports for the ducket cut-out and windows. The windows have slots for strips of glazing material – suggest you paint the ends and fit the glazing before fitting the veranda roof frames. Printing the corner posts is challenging as they can brake off very easily as they are printed vertically. There are little pegs which fit into holes in the veranda roof frames – these will need opening out a bit. I would get the glazing in and the roof frames glues on as quickly as possible. Once the top is in place these posts are a lot less vulnerable. I printed the veranda roof frames right way up with a small amount of support under the unsupported arch. For each frame there is a small fixing strip which needs to be glued on and then screwed into the corresponding hole in the cabin sides.

I have not set out to model the interior as I reckon it is almost impossible to see on the model. There is a substantial brace which holds the duckets in place. These were roughly shaped like the seats which the guard could sit in to use the lookouts – I think. They help keep the body rigid and prevent the duckets from being pushed in when picking up the van. There is a top piece – not sure this is really necessary.

Surprisingly the roof printed quite well upright and in one piece. Obviously it needs supports for the veranda ends. These need quite a bit of cleaning up, but luckily the underside of the veranda roofs are very difficult to see. The top of the roof will needs some sanding and filling because of stepping towards the centre. I used a short section of brass tube to represent the stove chimney.

I printed the duckets on a resin printer, upright, using additional superimposed squares at the back as a raft I don’t know how well they will print on a filament printer. There are slots for the glazing material.

The “W irons” were solid on the prototype – presumably to increase weight. Having one of them rocking is probably more important on a long wheelbase wagon like this. They have holes for either 8x3mm or SR2-5 ZZ Ball Bearings - 1/8x5/16x9/64 - which will take Slater’s wheelsets.

There were two levels of step on each side. A full length lower one and two short, higher ones. These can be printed on their backs. They are attached to supports made from brass strip with right angle bends made by half filing through, bending, then soldering (preferably silver soldering) them solid. There are supposed to be appropriate holes for these strips to be glued into but this is one of the areas which was not entirely finished.

There were a number of handrails – I have left holes to attach ones made of wire – but I haven’t tried fitting these yet.

There are slots for standard 3 link couplings. I haven’t modelled the brake gear, ironically for a brake van it is not very prominent.