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LMS Passenger Brake Van (Stove R)

This document was written by 'The Wagon Man' and was written for the FMES on line readership. 'The Wagon Man' is a Committee Member of FMES and has as his speciality producing scratch-built models of Railway Wagons in 5-inch gauge. This series of Articles includes his personal perspective on this fascinating branch of the hobby.

Part 7.

1. The Model and its Exhibition Description Card of May 2016



The model represents an ex LMS 6 wheel Passenger Brake Van, the Stove R. They were to a Stanier design as part of the LMS Coaching Stock programme of the 1920s and 1930s. They were frequently at each end of the train - reputedly to give better protection in the event of a collision.

They were used all over the system, and with the replacement of Stanier coaching stock by BR Mk1 stock in the 1950s they were then used as fully fitted brake vans.

Some came to the Southern Region, and I have heard the story that they were to replace the SR Queen Mary 25T Brake Vans which had migrated to the Eastern Section of the Southern Region (shedded at Hither Green) after these had been air brake fitted for use with continental ferry stock from Europe.

If memory serves correctly, they were regularly used as the tail end of the express milk trains which ran until the mid 60s, delivering milk from Wincanton dairies to a large distribution depot at Clapham – one of the return services coming through Farnborough about mid-day, often with a Bulleid Pacific as motive power.

2. Supplementary Information

By courtesy of the LMS Society, I was able to obtain a copy of the Works Drawing General Assembly (GA). As I have said in a previous article, this was a mixed blessing (the drawing, not the LMS Society) in several ways. On the plus side, it was an accurate record of the vehicle as first designed, BUT obviously any changes could not be recorded on it. This resulted in considerable wasted time (see later).

On the minus side, it was littered with references to a multitude of smaller sub-assemblies by their own detail drawing numbers, and many of these are lost. The modeller can only rely on his own knowledge of the parent company practices (the GWR was hailed as the company that built a new locomotive with only six new drawings, the rest being standard assemblies and sub-assemblies, but in practice most of the big concerns were just as standardised).

TIP. There is only one really useful TIP. Collect as many images as you can, ideally dated to your own favourite period. Even then, it is highly desirable that at least two from different sources be used as your reference material. Beware also that the two sides may be different on the same vehicle (probably less likely for wagons than coaches or locomotives). This is a continuing ongoing task during the whole of the building period, and probably even longer. It is also great fun.

Body

The body is built from 6 mm MDF. In the full-size, the tumblehome (ie profile) is comparatively simple compared with later carriages on SR and BR in that it is only over the bottom 20% of the side, with none at the top. This lent itself to a simple planing/glasspapering exercise to achieve the desired effect, albeit requiring a lot of care to maintaining the profile over a big area, the body being approximately 900 mm overall.

Door lines used the trusty shaped scraper previously described, and the inside of the body was rebated locally to take the glazing, and give a more representative appearance of the full-size body thickness. There's always a BUT in these matters, which rears its head in door stops and lowest door hinges, which have to be taller to achieve support over the full height when opened. These features can all be seen in the photographs below.



Body Profile and End Steps, Handrail and Gangway.



"Post Electrification" End Detail

No, there is not an editorial error in including the RH photo above, which superficially appears to be identical to the one to its left. Having spent some considerable time and effort to produce the Ends, I discovered a photograph of the full-size after deployment to more general applications, including “under the wires” (Note the Electrification Flash). Because of safety implications, the Steps and Handrail were removed, and plated over. I have referred previously to the “how far do you go in changes if you get better information” situation. This was too far out for the period I like to model to be ignored, so I had to do the same thing, viz remove the original detailing and replace by the correct configuration. The only saving grace was that no change to the paintwork was involved.

As an aside, you will note that I refer to the Gangway - the correct terminology, although it is commonly referred to as a Corridor. A Corridor Coach is one with a corridor confined to that coach only, enabling access to the individual compartments therein. There is no through connection for passengers to an adjacent coach, unless they are both Gangwayed.

The Gangway



Gangway Body Fitting and Door.



The “Bellows”

In full-size there are two basic components forming the Gangway – one is attached to the Body proper, and the second, which I have christened the Bellows, is attached via a sprung suspension system to the Body. The whole assembly is to allow passengers to use the Gangway in safety when the carriages are rocking and rolling at speed.

In the model, the Fittings are a simple metalwork exercise. The Bellows are from wood, using a specially shaped cutter to give rounded crests and deep folds. It takes a second look to see that this is dummy. The Bellows fit into the Body Fitting and are non-functional, but robust!

There is also one other essential, the Door. This is to prevent access to adjacent non-gangwayed stock for obvious reasons of safety. Presumably this was one of the Guard’s many duties to check before the coach rake goes into a passenger service.

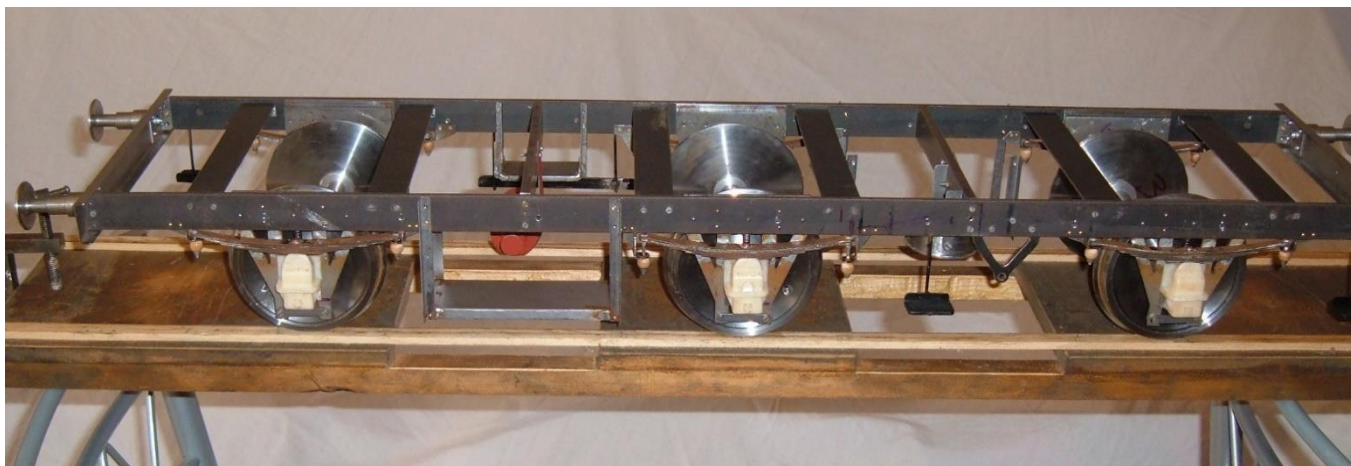
Underframes

After the marathon (and some new techniques) of the Body, the Underframes are a simple metalwork exercise as has been described previously. The Works GA was invaluable in this respect, and followed closely, other than compromises driven by modelling requirements. There’s just a lot of it! The photograph overleaf shows the partially completed Underframes.

The open framework under the frames is to accommodate the Battery Boxes and Electrical Control equipment. The Dynamo is in place, and the (dummy) Springing is also fitted.

The dummy Vacuum Brake Cylinder and Weigh Shaft are also in place.

Finally, the embryonic Buffer Beam has been fitted temporarily.



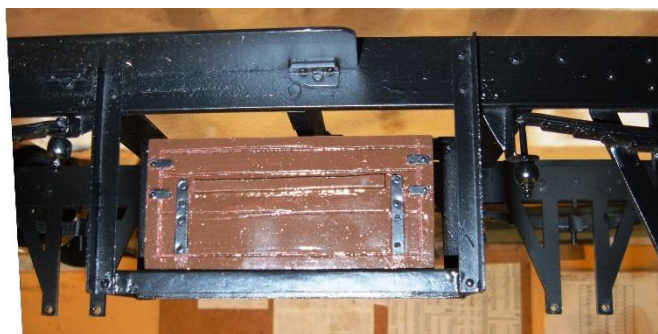
Partially Assembled Frames (~ 900 mm oal)

Some Underframe Details.

With regard to the Battery Box and the Electrical Control Box, fitted on the other side, the GA only gives details of the support framework. The items themselves had to be modelled from photographs.

The photograph is of the Battery Box, which is a wooden block plus appliques of metal and card.

Battery and Electrical Control Boxes



Dynamo and Drive



The GA was more helpful here in that it showed the dynamo outline and position and gives overall dimensions.

One important detail has been omitted from the GA however. The Dynamo is positioned between a pair of wheels, but the axle that the pulley is on is not shown. Is the Dynamo driven by an outer pair of wheels or the centre one? I assumed the outer one on the basis that the centre axle would have side-play to accommodate curved track. Logical, but not verified. Does anybody out there know?

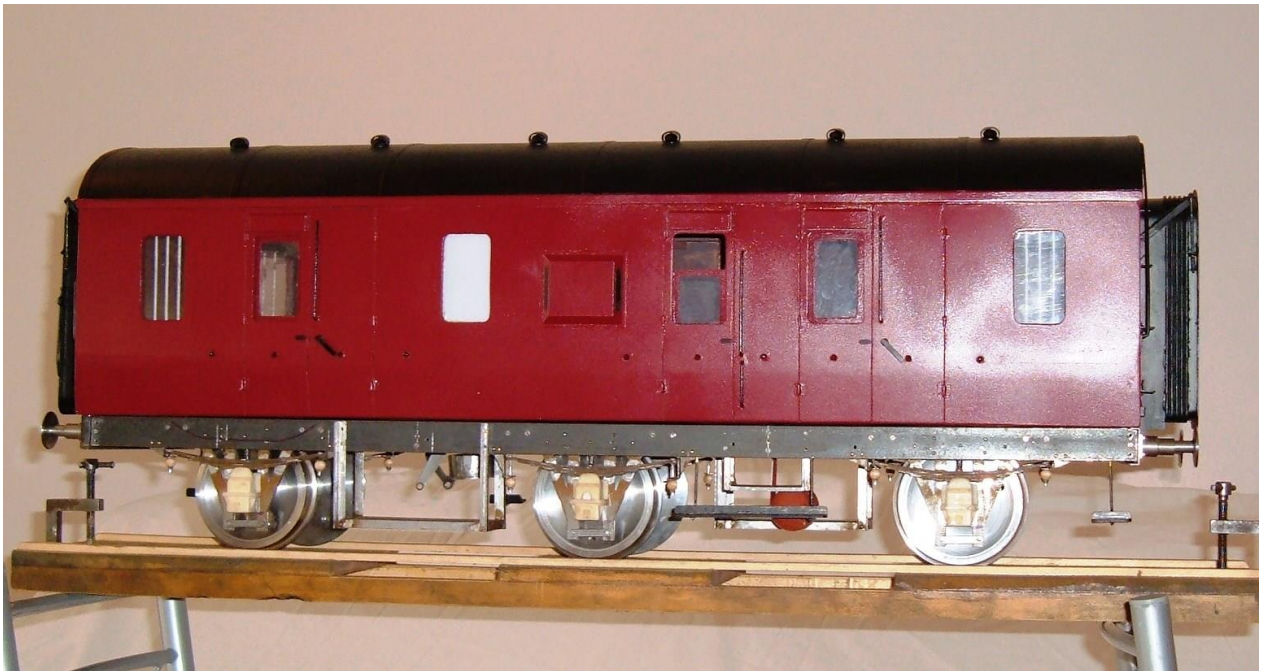
In the model the Pulley is split, so this could be corrected fairly easily.

Vacuum Cylinder

The Photograph shows the dummy Vacuum Brake Cylinder and Weighshaft. It is a simple metalworking task, other than Rolling the Cylinder body



The Braking arrangements will be dealt with next, but at this stage I carried out a trial amalgamation of Body and Underframes, to confirm that the two fitted together with no interference problems. It was also getting heavy – some 15 kg when completed, and very impressive!



Trial Amalgamation of Body and Underframes

Side-play Considerations and the Brakes.

Although I am not averse to unconventional building techniques, I like to make haste slowly when it comes to new ground. Such was the case here, it being the first six-wheel wagon that I had undertaken. I felt (and still do) that the outer axles should not have side-play to prevent crabbing of the vehicle and that the centre axle should accommodate the amount of side-play needed for the minimum track radius it might encounter. I know now from the second six-wheel wagon that I built, a milk tanker (to be described in a later article) that I overegged this by a considerable amount, only a few mm actually being required.

The biggest problem resulting from the side-play came from the alignment/suspension of the Brake Blocks and the operating links. It was not apparent from the GA how the braking system was configured. With great reluctance, I decided to fit dummy (non-operating) brake gear, the only model on which I have used this subterfuge. I know better now.



Dummy Brake Sub-assembly



Sub-assembly fitted to Frames.

Challenges

It may be a surprise that in practice there are very few new techniques and innovation in this carriage which would be beyond the capability of the less experienced modeller – it's just that there's a lot of it, and it is definitely not the first scratch build to cut your teeth on. The major problem was in the research and very limited full-size information other than one in service on the Bluebell Railway. This is largely as the original, but it has had detailed modifications to suit its new life style.

Mid Term Review

I have now covered 7 out of 15 (plus one more currently in build) of the wagons and carriages that I built over the period January 2013 to May 2016, and it seems a reasonable time to review the principal lessons learnt then. These were, in no significant order: -

- Scratch-building is not a black art, and requires (initially at least) only moderate skills.
- Practice may not make perfection, but it does go a long way towards it. This came home to me when I was writing this article. I modestly believe that the series so far has demonstrated that my own skills improved and the later products were considerably better than the earlier ones. It is for you to decide.
- Research is the most fascinating, important part of the job. It probably occupies a third of the total build time.
- Join a club, get a Mentor. Talk with other people by all means, but beware that they will likely give you different answers. They will probably be just as sound, but will reflect their method of working which may/will be different. You will have to decide which answer you like based on your own favourite methods.
- Take and keep notes and photographs – they will be useful in future for this and later models, if only to record why something you tried earlier did not work.

Principal Reference Sources

- 1 Correspondence with the LMS Society
- 2 The LMS Society Website
- 3 LMS Works GA. Obtained from the LMS Society.
- 4 The Bluebell Railway Website

Time for a Break

Nobody has yet said it, but I sense that the reader will notice several topics have not been addressed in this series so far. This was deliberate since they related to matters general to all scratch-building. As intimated previously, General Supplements would be produced on an occasional basis, and the first of these, Supplement 1, will take a very top-level view of two inter-related topics: -

- Imperial vs Metric
- Tools and Machinery

Normal Service will be resumed with Article W8, an SR 15T Ballast Wagon (Ling)

3. Wider Participation

As was intimated in the Introduction to the series this Section is for your feedback, experiences, what gave you the most satisfaction and anything else to help and encourage the next generation of model engineers of whatever discipline.

We would be extremely interested to receive your reactions and suggestions regarding this Series. Please submit them via info@fmes.org.uk There is no closing date for submissions.

Many thanks in advance.

The Wagon Man

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