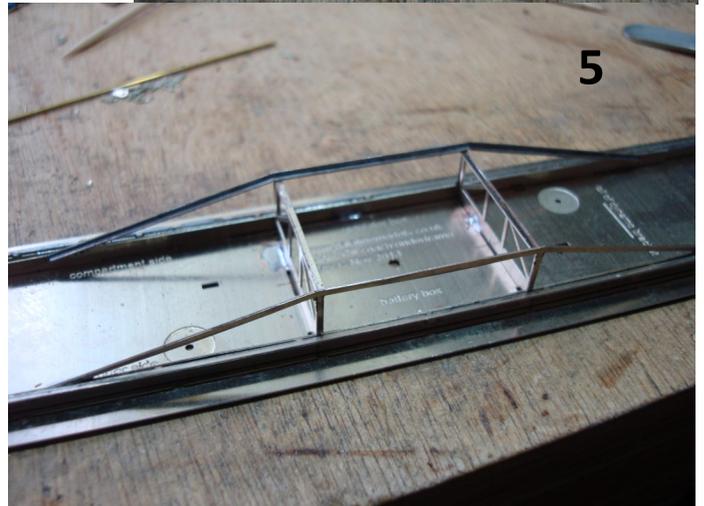
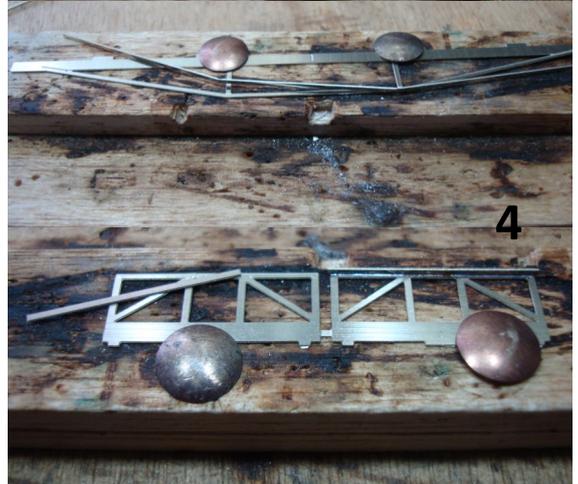


## Palatine Models LMS Coach Underframes

*These notes apply to both the 57ft and 60ft underframe etches.*

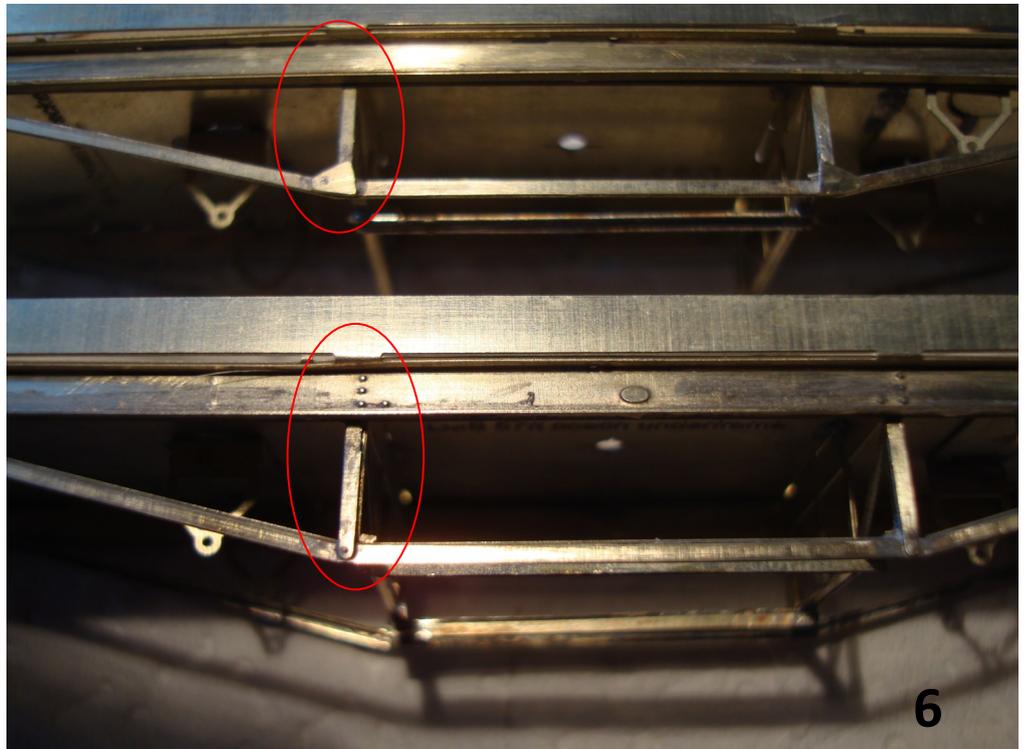
First you need to choose between the early rivetted or the later welded underframes. Parts are provided to make both versions. Secondly do not bend anything until advised.

1. Prepare the solebars. Fold the angles using either a Hold and Fold or 2 lengths of stripwood in a vice. Fill the bend joint using solder flooded into the joint from the **outside** of the bend. Use plenty of flux. If you are making a rivetted underframe attach the rivet overlays to the angle noting that the slope to the rivet pattern runs to the bottom of the channel. If you are making a welded underframe you do not need any overlays. At this stage it is well worth finding out exactly where the footboards are going to be and drill the 0.5mm holes for them whilst the solebars are flat (use the jig on the etch frame to make sure they are all at the same height). It is a real pain doing it later, don't ask how I know!
2. Solder the solebars to the floor. Note that the letters on the back of the solebar need to match the letters on the floor. Ensure the solebar is vertical and tack into position.
3. Fold up the buffer beams. Solder the buffer beam overlays onto the buffer beams followed by the coupling hook overlays. The top will protrude above the floor.
4. Take the truss rod frame and solder the inside angle into the slot. Solder the inside angle to the truss rod cross braces.
5. Tack truss rods into place aligning the centring marks on the floor with the centring marks on the back of the truss rod frame. Put the cross truss rod braces in position and check for square. When everything is square tack into position checking again before finally soldering the truss frame into position. If you are making a rivetted underframe make sure that the rivets line up with the vertical struts on the truss frame and that the ends of the truss frame lines up with the sloping rivets on the solebar.
6. If you are making a rivetted underframe solder the vertical truss rod overlays in position. If you are making a welded underframe solder the truss angle strengthening plates in position.
7. Fold up the V hangers. Strengthen the corners with a fillet of solder. Ensure the holes will take a 1mm rod. Bend the outside part of the V hanger as per the prototype to assist in placing it in position. If making a rivetted underframe make sure the rivets on the solebar line up with the V hanger before soldering into position.
8. Insert 1mm wire (not supplied) into the V hanger placing the brake pull rod lever and the vacuum cylinder levers onto the wire before placing into position. The vacuum cylinder levers need bending prior to placement.
9. Solder coupling hooks together and fit into the buffer beams.
10. Fold up end stepboards and solder in position, adjust if



necessary.

11. Using 1mm angle (not supplied) or extra 1mm strips from fret fix battery box support 6mm from outside truss angle. Add regulator box support 4mm from outside truss angle noting that the vertical part of the angle faces the outside on the regulator box support angle. Fix regulator box support in place.
12. Finally fold up the coach body locating flanges if required or remove them according to your preference.
13. Once you have married your coach body to the underframe fix the solebar stepboards in place. A 0.45mm wire soldered into the hole you made in stage 1 is used to hold them in place. For full length stepboards use the sides of the etch frame and trim to length. File the end recess using the short stepboards as a pattern.



6

7



*This was a test etch, the circular vac cylinder locator has been moved now!*



10

*Completed underframes showing regulator box support platform in place.*

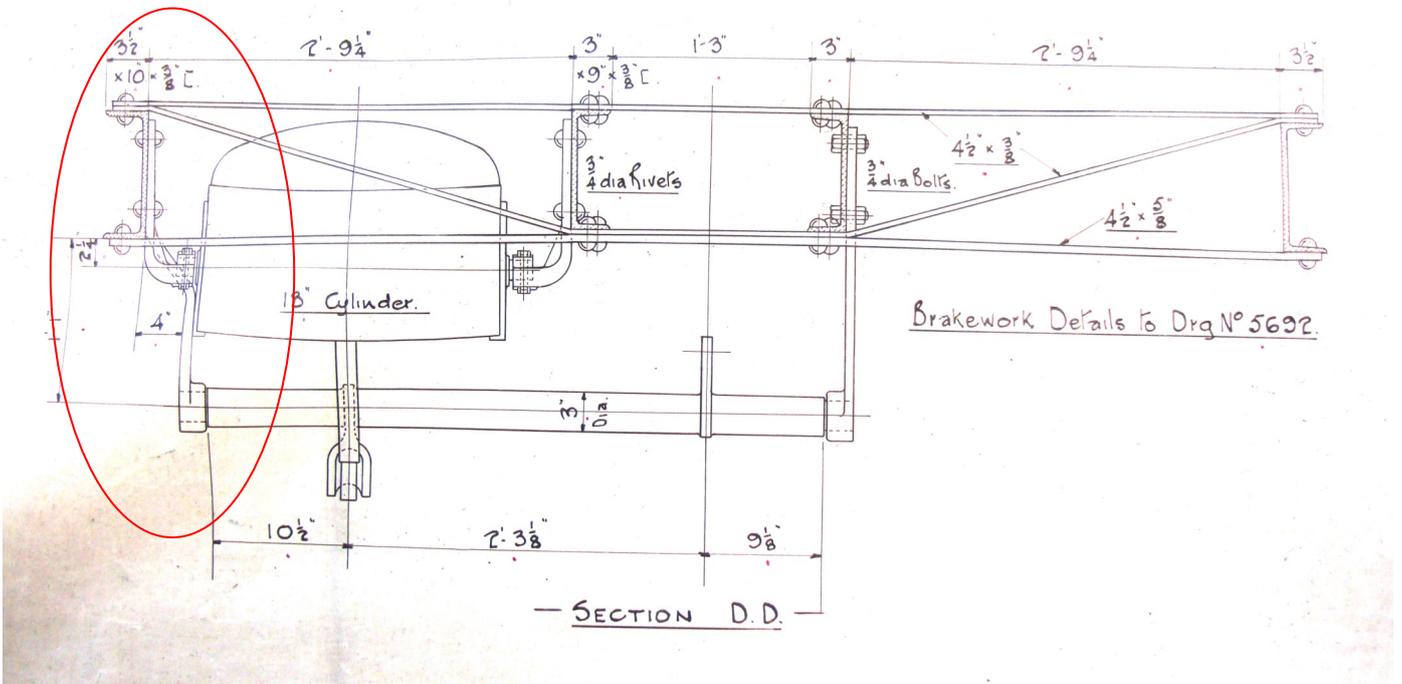


**Additional notes for LMS underframes.**

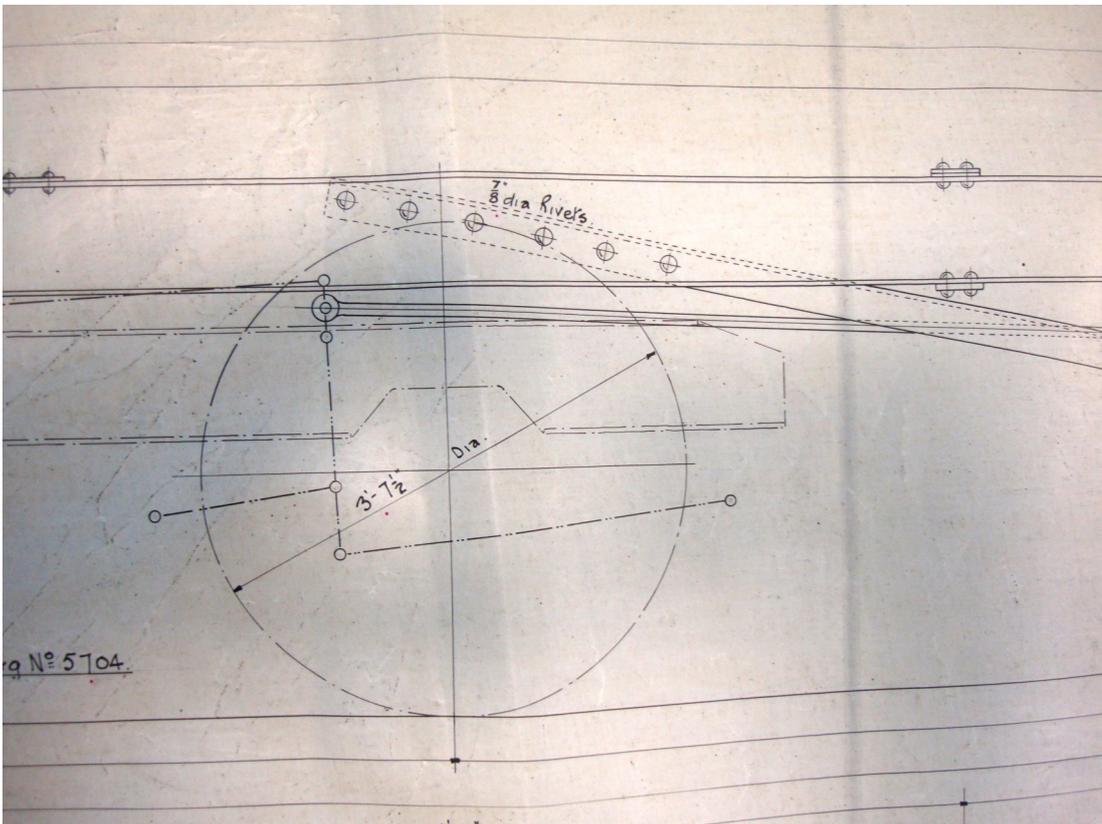
These underframes were designed using the official LMS drawings now held at York Railway Museum. The drawings used were:

**57ft:** Derby drawing 5673 dated October 1923 for rivetted underframe details, Derby drawing D13/3030 dated August 1938 for welded underframe.

**60ft:** Derby drawing 11/190 dated 19 June 1928 for rivetted underframe details, Derby drawing D13/3029 dated August 1938 for welded underframe.



Extract from LMS drawing 11/190 showing V hanger bend locating to solebar.



Extract from LMS drawing 11/190 showing rivet slope on solebar.