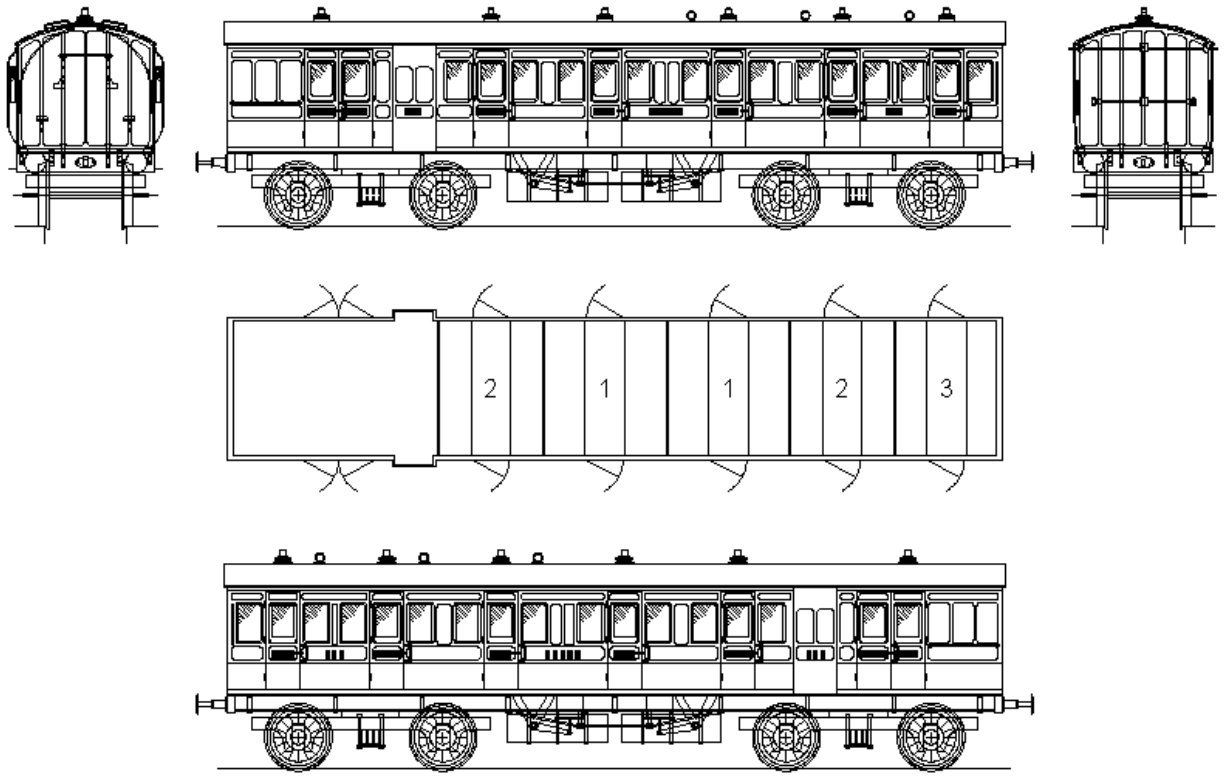
The Fareham Carriage Works Designs

By Tony Armstrong

L & S W R

L&SWR Carriage Assembly – Gauge 3



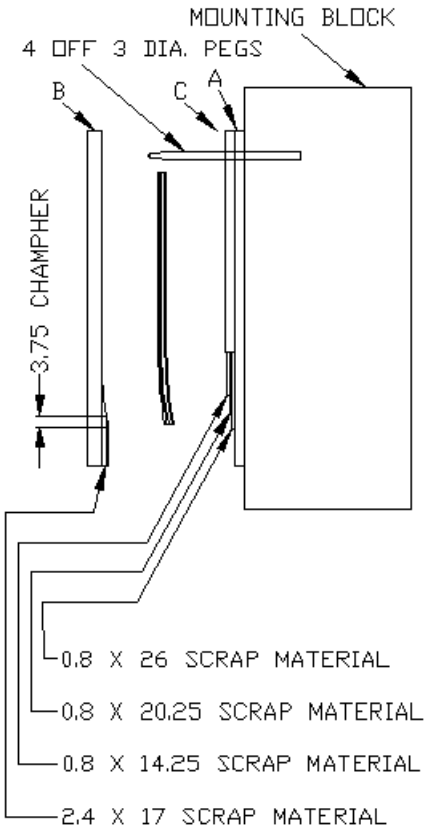
The ‘Fareham Carriage Works’ designs are not kits: they are the plywood components necessary to build the bodies and under-frames of a vehicle. The designs are exactly as supplied to Tony Armstrong who created them to take the hard work out of scratch building carriages. They are not particularly difficult to assemble, but you need to be familiar with the type of vehicle to work out what some components are and how to assemble them. They are not like an Airfix kit where everything is numbered, and has ‘Noddy’ notes telling you exactly how to build it. Please note that some fitting/adjustment may be required during assembly – you can’t just put the bits in a bag, give it a good shake, with the hope it will put itself together!

To help with detailing your carriages I would recommend you obtain a copy of L.S.W.R. CARRIAGES, Volumes 1, 1838 - 1900 by G R Weddell. To help with construction you might also read ‘An L&SWR train to Lyme Regis’ published in the NL&J commencing issue 265.

Construction

Here are some notes to help you with assembly. All other L&SWR carriage follows the same construction principle.

Laser cut components are available for an assembly/lamination jig, together with roof mould. Assemble a jig to be used for laminating the sides onto a thick flat block (I used a 40mm work surface off cut): you will need to cut from scrap material a piece of 0.8mm ply 20.5 X 300 and a piece of 1.5mm ply 12 X 300, together with making four 2mm diameter location pins.

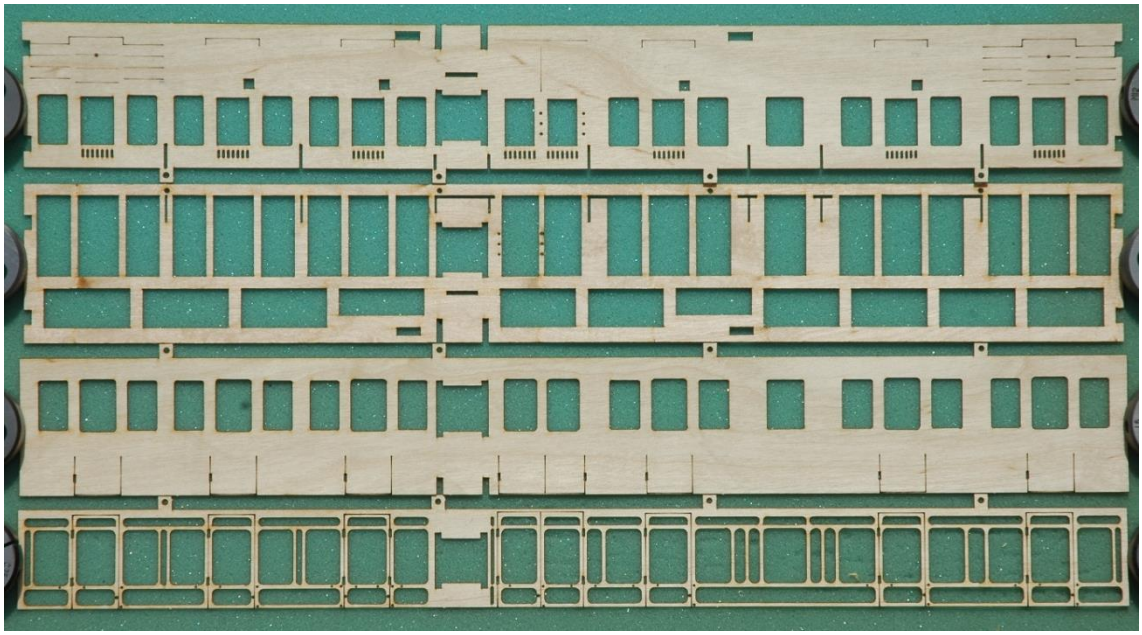


Body Assembly

Identify and remove from the ply sheets the eight carriage side components for one vehicle at a time.

Before assembly, stain, paint and varnish the inside of the vehicle as required:

I found it quite easy to assemble something the wrong way up: so for each vehicle make two piles of side components, with the outside mouldings scoring facing upwards, the external skin door mouldings facing up, on top of that the core and finally the inner skin with scoring facing down.



45ft brake composite laminates

Position the inside skin, score lines down, onto the pins of the jig.

Apply slow setting cyanoacrylate to the appropriate side of the 0.8mm core, drop the core onto the pins of the jig, drop the clamp plate over the pins and clamp everything together. I use a 12” woodworking vice.

When the cyanoacrylate has set take the jig apart, apply slow setting cyanoacrylate to the face of the core and place the outer skin (score lines facing) over the pins and clamp together.

Bond the mouldings to the outside of the carriage sides.

Fit the strip of moulding along the lower edge of each side with the score line to the bottom.

Stain interior door frames as required and bond to the inside of the carriage.

It is much easier to work on the carriage sides while in the flat, so decorate the interior of the carriage sides as required.

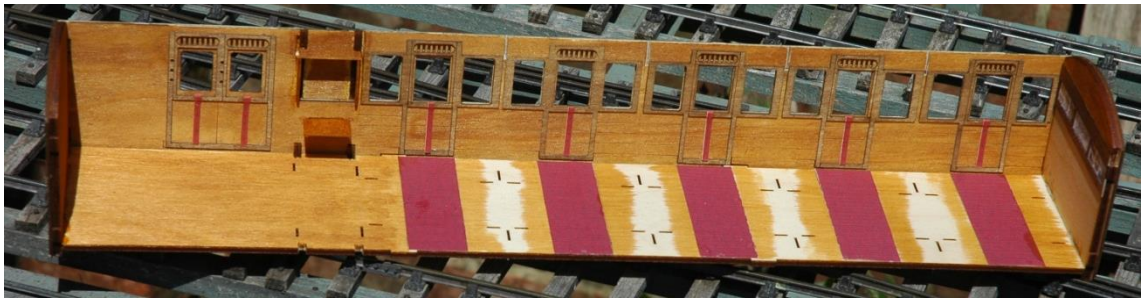
45ft brake composite interior

Similarly, detail the exterior: fit door ventilators, door hinges (billeted from 1mm plastic rod) and fit the door buffers. I glue the wooden buffer base to the beading using a pin to locate it over the hole in the moulding. I then bond a 0,6 diameter wire into the hole, cut off and trim to length. It is also a good idea to drill door handle and commode handle holes at this stage.
If building a brake carriage assemble the ducket sides from three laminates. The middle laminate has a larger window aperture to accept glazing. Note the score lines across the top and bottom of the inside of the window. Do not bond this part to the first layer because you will be removing it before bonding the third layer in place. Assemble the ducket sides to the body, mould the skin into place and fit the overlay.
When detailing is complete the tabs and strip along the top edge of the body side can be removed.

You might find an X on major components: these either face down or in the same direction axially along the length of the vehicle.
Remove the floor and end panels from the 3mm plywood sheet, together with the 0.8mm end panel overlay, partitions and picture frames from the ply sheets.
Fit the picture frame overlays to the compartment partitions and appropriate end panels, stain and decorate as required, by fitting warning signs, map and pictures as required.

Partition with picture frames

Clean-up all side, end and floor component joints and trial assemble the body – the sides can be held in place with elastic bands at the ends if necessary.
Take the body apart, decorate the floor as required (X facing down), and bond the ends to the floor ensuring they are square.
Bond the sides of the carriage to the floor and ends.



42ft brake third body partially assembled

Bond the 0.8mm end overlays in place and sand off any of the side that extends beyond the end panels.
Any slight gap between the end panel profile and the sides can be filled as required.
Bond the beading to the end panels.
Fit the compartment partition, seat supports and decorated seat cushions. Profiled seat backs are not included. I cut and profile my own, but balsa aircraft wing trailing edge could be used.

48ft lavatory brake tri composite before painting

Make and fit communication equipment, handrail and steps to the ends of the carriage.

Communications, steps and handrail

Roof Assembly

Assemble the roof mould.

Sand the edge of the roof ring beam so that it fits snugly into the carriage body (X facing down).

Bond the roof beams to the ring beam, and check the ring beam still fits the body – sand as required.

Fit the first roof skin to the tabs on the beams (X facing down), then bond the roof to the beams and clamp into the roof mould.

Using location pegs fitted through the holes in the first roof skin, bond the second skin in place (X facing down).

Fit the gutter strips. ventilators, gas lamps, gas pipe pads and pipes.

Gas lamp and pipework

Paint and lacquer the roof and body to suit.

Fit door handle, commode handles, end steps, region transfers, compartment classification and lacquer.

Glaze the windows and fit droplights (some partially open).

45ft brake tri composite from the train to Lyme Regis set

Under-frame Assembly:

Laminate the solebars and headstocks.

Fit the dummy footboard angle bracket supports, position as shown on the general arrangement drawing – fine dressmakers pins can be used to represent coach bolt heads.

Fit the drawhooks plates and buffer shanks.

Make and fit queen posts and tie bars.

Glue the solebars to the under-frame base board.

Glue the headstocks to the solebars and fit buffer shanks, steps, lamp irons etc.

Typical L&SWR underframe

Paint the underframe as required.

Paint or stain and fit the footboards.

Fit buffers, drawhooks, gas tanks, vacuum cylinder and running gear of your choice.

The 42ft L&SWR arc roof brake third carriage

The 45ft L&SWR arc roof brake composite carriage

Guard's compartment end of the 42ft brake third carriage

Communication end of the 45ft brake composite carriage