

Houstoun Gate Locomotive Works Empire Coach Kit

It is suggested that you read these instructions through before commencing construction.



Empire Coach No1 (Photo courtesy of Peter K.)

This kit requires glue and paint to complete, along with a minimum of tools to assemble the kit. Sandpaper and sanding block plus some clamps, strong rubber bands and weights to hold parts in place while the glue dries.

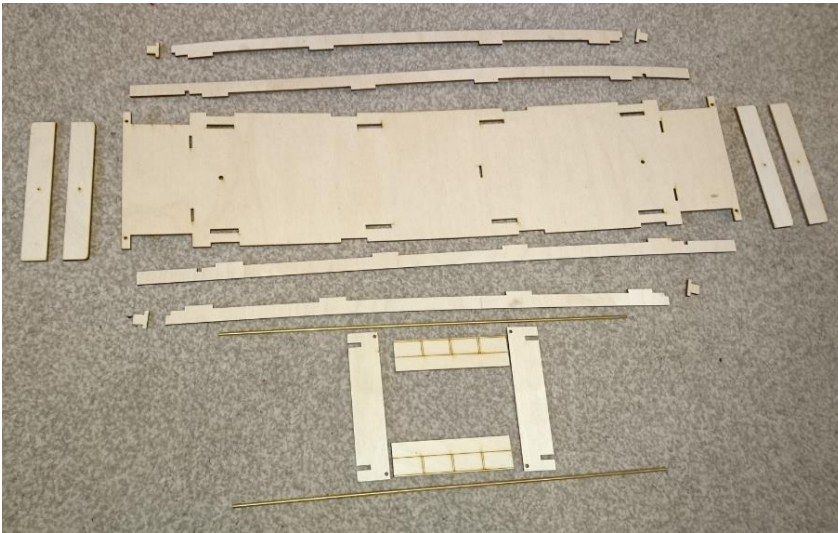
It can be assembled entirely with PVA (exterior type) or aliphatic resin type glue. Our favourite is Titebond III waterproof aliphatic. Excess glue can be wiped away with a damp rag. The model should be painted, stained or varnished before use.

It is a good idea to do a 'dry run' with parts to familiarise yourself with all items BEFORE gluing. This may lead you to consider whether to paint or stain items before assembly. This is especially important when staining because any glue on the surface will prevent the wood from taking the stain.

When sub-assemblies, such as a side, are completed, it is a good idea to lay them on a flat surface, held down with weights to eliminate any warping or twisting as the glue dries (See Note *).

**The layers of wood that make up plywood will, by the nature of how it is peeled from the log, try to return to its natural form and distort from flat. To overcome this HGLW kits are designed to form a monocoque shell that will eliminate bends or twists once the glue has dried.*

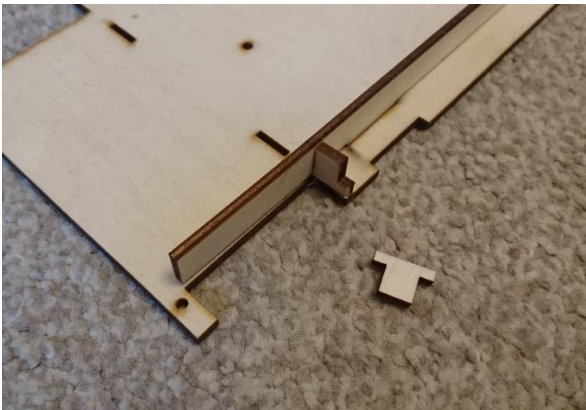
Coach Base.



Note - The order of construction of this section is important to prevent difficulties fitting interlocking parts together



Take the floor and glue the two long inner frames in place. Ensure these frames are set at 90deg to the floor. (Top tip – Lego blocks make a great temporary set square for this)



Insert the step side 'tee pieces' into the long inner frames

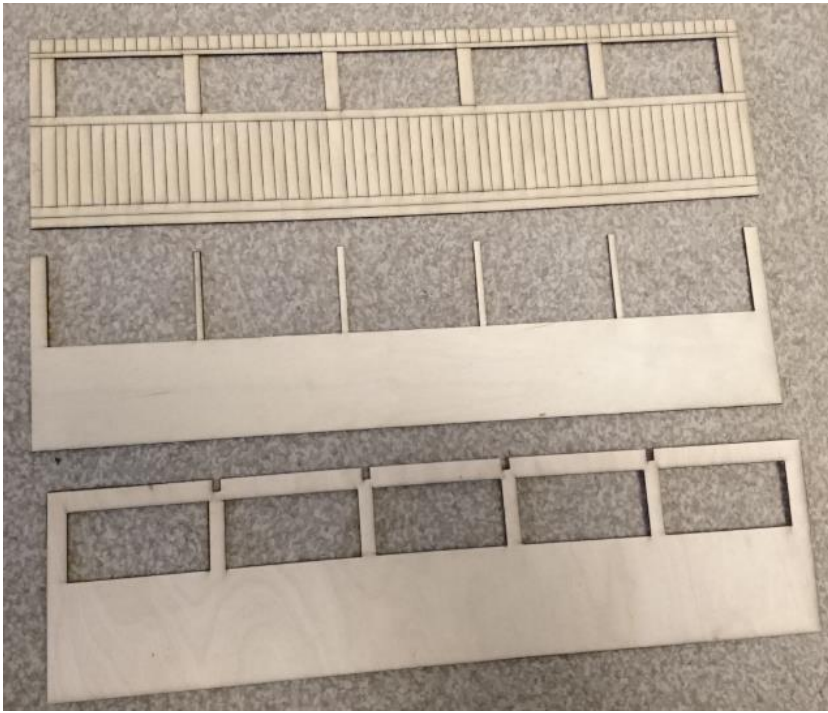


Glue the outer sole bars to the floor, again making sure everything is square

Now set aside the coach base assembly to dry, preferably weighted down on a flat surface to ensure that it does not warp or twist.

It is suggested that you do not fit the buffer-beams, end steps or battery box at this time. Leaving them off at this time allows you to keep the base flat while constructing the body of the coach.

Coach sides



Take one set of coach side parts consisting of outer, middle and inner panel. The outer panelled one is the longest, 3mm longer than the middle, which is itself 3mm longer than the inner. This is designed so that when assembled the end of each layer is 1.5mm shorter the previous layer which will create a strong lapped joint with the adjoining section.

Glue the inner and centre layers together, these will be flush at the top and bottom.



Next add the outer layer flush with the top of the other layers. The bottom of the outer layer is longer than the previous layers which will form a 'step' below the underframe on completion.

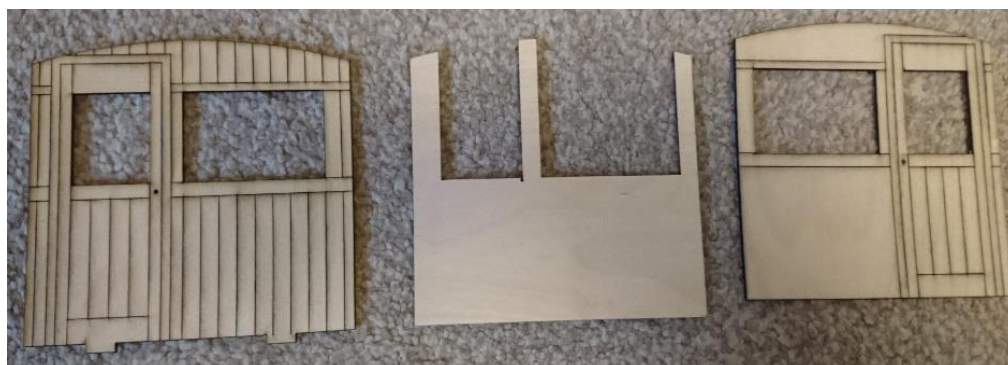
When assembling the coach sides ensure glue is kept clear of the recess for the glazing. A cocktail stick and tissues may be of use to clear any excess glue that oozes into the recess before it dries.

Now set the coach sides aside to dry, preferably weighted down on a flat surface to ensure that it does not warp or twist

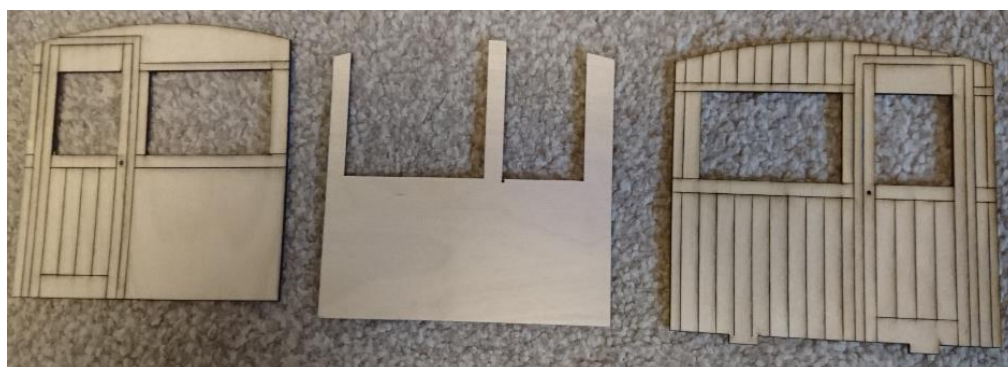
Repeat these steps for the second side of the coach.

Coach partition and ends

Each side, partition and end comprises of three parts, an outer, middle and inner



End one parts



End two parts



Centre partition parts

Ensure you have the correct parts for each of the ends and for the centre partition. For the ends the outer layer is planked, the inner layer is not planked, except for the door etch and the centre layer has no etching at all.

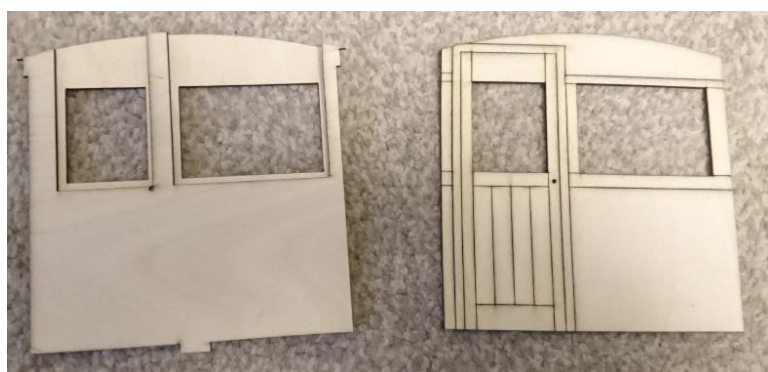


Photo of partially assembled centre partition

Again, when assembling the ends and central partition ensure glue is kept clear of the recess for the glazing. A cocktail stick and tissues may be of use to clear any excess glue that oozes

into the recess before it dries.

Erecting the coach body.



Once the subassemblies have dried fit the two ends and the central partition in place, ensuring they are vertical and glue the sides in place. Use blocks or right-angles to make sure everything is square and use elastic bands or clamps to hold everything in place until the glue has set.



Fit the roof beams in place and again use elastic bands or clamps to hold these in place until the glue has set.



There are three types of beading included in the kit. Use glue sparingly to attach these to the coach side to minimise any glue spreading onto the sides of the coach. Remove any overspill with a damp cloth before it dries. Apply the broad 'double plank' to the bottom of the coach side. Apply the broad single plank at the bottom of the window and the single narrow plank to the top of the windows.

Once dried trim to length and apply lengths of the remaining beading strips to the ends of the passenger compartment. With sandpaper or a small file carefully round off the edges where the sides meet the end.

The beading is designed to ensure that all woodwork has any visible grain running in the correct direction. This is most important if you are going for a 'varnished woodwork' style.

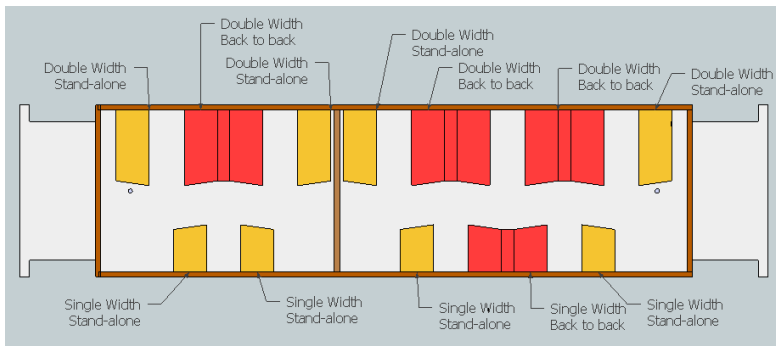


Next glue the two halves of the buffer beam together and clamp.



Once dry attach to the ends of the coach base (With the rounded corners at the bottom) and attach the thin ply coach step strips.

Coach Interior.



This is a suggested seating layout, however the seating can be laid out in whatever configuration you choose to suit your passenger needs.

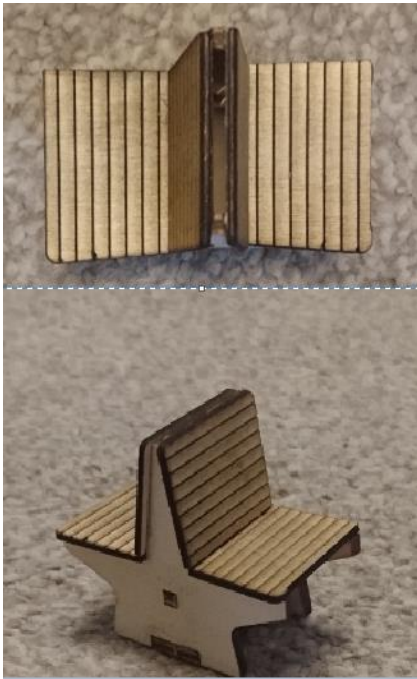
Seats are available as single width or double width and either back to back or stand-alone.



Glue the base support and stretcher in place on each of the sets of seats.

Pay attention to getting the correct stretcher and base to match the type of seat being assembled.

It is useful to keep the frame upright between blocks until the glue has set.



Once the seat frame has dried add the seat base
Followed by the seat back to complete the seat.

Note, the seat base is wider at the front of the seat than the back and the side that slopes is the aisle side of the seat. The flat side is the wall side.

Glue the seats to the floor and coach side to your desired configuration.

Door handles should be fitted at this stage-- formed from brass wire, shaped then carefully fitted into holes drilled in the doors, inner and outer.

Coach Glazing

The glazing may now be slotted into the window frames. Remember to remove the protective plastic film from both sides of the acrylic before fitting. The glazing is supplied cut to size, but if you experience difficulty slotting them in you may have some residual glue overspill from assembling the coach sides. Lightly sand the edges of the glazing if required. A nail file or emery board can be useful to sand the inside of the slot if residual glue is present.

Coach Roof



The roof is supplied as a single sheet of ply with etched lines on the inside face with markings to indicate where to glue the six roof beams that give the roof its shape

Start with the middle beams and work towards the ends gluing the beams to the roof and clamping in place until the glue sets.

Coach Balcony Ends

3D printed metal ends (For Wooden and Brass ends see below)



Glue the two halves of the two end roof beams back to back so that a pocket is formed to fit the top of the 3D printed metal balcony end



Insert the 3D printed metal balcony ends into the holes at the end of the coach base above the buffer beams. Ensure the bottom rail goes all the way to the floor of the coach base.



Once the glue has dried fit the end roof beam to the top of the metal end. (Tip - If you want the roof to be removable glue the metal end into the floor, but leave the top beam a friction fit to the top of the metal end.)

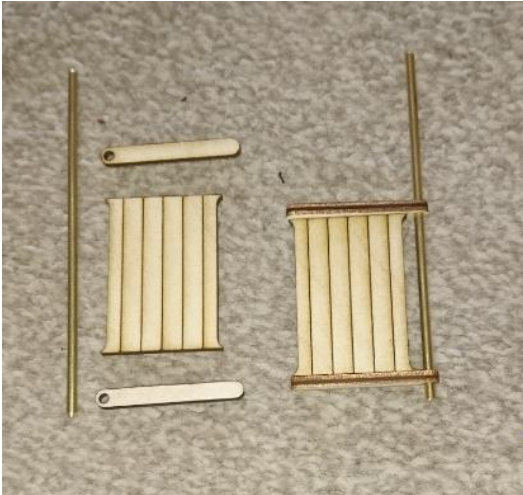


Glue the end roof beams flush to the end of the coach roof and clamp in place until the glue dries.

Coach Balcony Ends Wooden and Brass ends



Glue the two halves of the two end roof beams back to back so that a pocket is formed to fit the top of the brass uprights



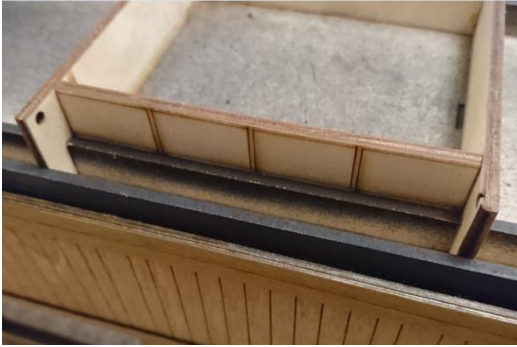
Thread two horizontal beams onto the upright brass and glue the wooden end parts with the planking facing outward.

Ensure you make two left handed and two right handed ends. Do not glue the Brass uprights into the holes on the horizontal beams



Insert the brass rods into the holes at the end of the coach floor and glue the bottom of the balcony ends to the coach floor. Add the roof end beams to the top of the uprights.

Coach Underframe



Mount one side of the services box to the inside of the inner frame centred half way along the coach (you can measure this or count the planks).
Glue the ends of the box at 90 degrees to this across the coach and finally glue the opposite side of the services box to the inner frame. Set aside to allow the whole assembly to dry.

While this is drying take a piece of the 2.5mm brass rod and measure to its centre approximately 152.5mm from either end, then using pliers bend the rod 10 degree 45mm each side of the rod centre. You can use the image below to check the angle.



Insert the bent rod into the hole in the services box, the rod is springy enough to allow this.



Once mounted centrally in the services box rotate the rod and spring it into the channel between the inner and outer frames.



The space inside the services box could easily be used for coach lighting batteries etc.

Congratulations! The coach kit is now complete.

Note - Couplings/Buffers are not supplied in the kit due to the wide variety and style of coupling in use across the narrow gauge world. However centre hook dumb buffers are stocked in our shop, other types are available from the popular narrow gauge suppliers.

Likewise bogies are not included in the kit, but suitable ones in either 32mm or 45mm gauge are available in our shop or through other model suppliers.

If you would like to send pictures of your finished kit to us at **pictures@hglw.co.uk** we love to share them on our website **www.hglw.co.uk** or Facebook page **www.facebook.com/hglocoworks**

We hope you enjoy your kit, but if you have any problem with construction email our technical help line at **techhelp@hglw.co.uk**