

1 & 2 Compartment Inspection saloons

Introduction

Thank you for purchasing this kit, it is a project. The Inspection Saloons are challenging and hence rewarding kits, they take time and patience to get good results. They will require a degree of fettling due to the complex two dimensional shapes. Note that any misalignment at the early stage multiplies with each subsequent stage.

The model is formed up from multiple layers and parts, some of which are sandwiched, others are small and tricky or the position is not obvious. Preparation is therefore key, practice fitting is recommended! Note that some of the instructions are only relevant to some model versions.

Glue choice is therefore important as it gives you the opportunity to stop and reconsider, PVA is a slower but not as strong, it can be broken apart* with care if it has not cured too far, it can also be reinforced later on. Thick Cyanoacrylate (superglue) is stronger but cures much quicker, it is more difficult to break apart. Both glues have their place, if in doubt use PVA as it can always be reinforced later on.

The construction technique is similar to the other standard freelance Kits, therefore we would recommend that you build one of those before this one. The main practical difficulty with the kit is one of alignment and clamping. Practise as ever will pay dividends prior to final fixing, as often it is difficult to get sufficient clamps, clothes pegs, tape, string, etc. in place unless you have trial fitted them several times. Use the jigs provided, a flat surface and a square to test the alignment.

Light glueing one stage to test fit the next is also a good strategy as joints can easily be reinforced when the alignment is proven. Take your time, if in doubt, have a cup of tea, cogitate and try again, enjoy.

* The outer layers of the circular ends are made up of 0.4 mm aircraft ply, which will be discussed later. These layers cannot be easily parted without destruction,

CAD Cardboard Aided Design / Bending Techniques

The end layers are thin, 0.4 mm, they are fragile! They have been cut with the grain and are slightly oversized, as oversized is better than undersized if the alignment is not quite right as it is more easy to rectify, craft knife or sharp scissors. The material needs to be handled with extreme care, if may or may not bend to the required shape without snapping, every piece of ply being different, see bending below.

Experience shows that it will not do it many times, negating the ability to practise. Therefore, two sets of inner and outer layers of the rounded end have been supplied to aid the modeller. It is suggested that a light cardboard / paper template (CAD) is made from one of these layers and offered up to the structure prior to fitting as this gives more opportunity to fettle.

Therefore three different approaches exist:

1. Treating the each 'plank of the ply' as concertina cardboard, creating a hinge at each scorch mark but not parting each 'plank'
2. Try bending it to the form, 50% of snapping results in the piece breaking in two, otherwise it is weakly joined.
3. Cut each 'plank' individually and fit, which is fiddly.

Note that how you treat each surface, changes its length and therefore how it fits. Additional fillet pieces have therefore been supplied that can be used to cover naughty areas.

Painting Thoughts

Generally, it is best to paint first then fit. However, this is not practical for the entire model. The sides and blank end can be treated as you so wish, but the action of fitting an internal or external skin is likely to damage the finish as the ply is stretched or compressed. A hybrid approach is therefore suggested: fit, mask, paint.

Jigs - Your Reliable Friends

Fitters used to fettle, nuts and bolts used to be bespoke, mechanical contrivances used to be entirely innovative and cutting edge. However, not all were successful, unfortunately engineering is all about consistency, you can build ten or more examples and keep the final perfect one or perhaps you can follow a standardised method that takes the drudge and frustration out of construction.

Therefore the following jigs are included in the kit to aid the modeller:

1. Bottom Structural Assembly Jig for fitting the structural sides to the floor
2. Top Structural Assembly Jig for fitting the carriage ends and ensuring the carriage is square.
3. Gauge setting Jig to help align the chassis rails.
4. Handrail jig (part of the top jig)

The jigs are made of birch laserply and can be usually disposed of in garden waste where they will eventually compost. They also make good kindling, alternatively you can buy another kit!

Assembly

Having, read all the instructions, prepared the parts and trial fitted them the kit is finally ready for assembly. The following construction order is recommended:

First Sub-Assemblies

Windows: The windows are sandwiched between the outer layers of the sides when complete and cannot easily be removed, modified or painted once installed. Once the frames are finished (painted, stained, etc.) they can be glued with a tiny amount of Cyanoacrylate at the corners to the supplied clear sheeting. Once dry they can be cut out with a sharp pair of scissors.

Carriage Ends: The ends comprise of two layers, a structural inner layer that is also planked as part of the internal finish and an outer framed layer. These two layers should be glued together so that the planking is showing. Note that corridor ends have a window that needs to be included between the two layers.

Carriage Structure & Jigs

The floor sits inside the side walls and the square compartment end, the horizontal lines on the structural inner layer marks the position of the floor. The side walls are flush with the bottom of the floor. The floor planking should face into the vehicle.

Three jigs are provided to assist, in building the model structure, two bottom jigs and a top jigs. The jigs are purposefully tight to provide some temporary structural support and ensure the structure is square. As plywood is a natural material of a nominal thickness the jigs may require a little easing with sandpaper.

Each bottom jig is in two parts and just slots together. The jigs allow for the glueing up of both structural sides to the floor, which sits between the sides, they are the correct height off the surface to allow for the attachment of the structural ends.



The top jig is used when attaching the ends to ensure that sides are the correct distance apart and square. Be careful not to glue the jigs on.

It is Important that the body is square and true otherwise it will not ride well on the track when finished. When dry/set carefully remove the jigs before adding the final outer walls.

Tips:

1. It is sometimes better to build the structure before painting or staining the floor or underside, particularly in the longer 3 compartment coaches, as perfectly flat straight floor can banana, if so wet, clamp/weight flat, allow to fully dry and try again.

2. If the body is not square and you have use PVA, it is better to break it apart carefully, with a sharp craft knife and try again, see above.
3. Gluing up the sides and ends, applying light pressure with camps is ideal

Underframe

With the square compartment end and structural sides fitted now is a good time to fit the chassis rails and other chassis end, as this adds stability to the model. The chassis rails are handed, use the gauge setting jig to space them apart and add then rounded end chassis cross member. The front coupling and chassis extension pieces can be be left until later.

Outer Layers

The next stage is to add the two outer side layers, note that the 2 compartment sides are handed, the 1 compartment ones are not, make sure that all the windows and doors line up. The floor is notched to take the sides which also cover the square end. Use a window frame for example to check that they are in the correct position.

Inspection End Construction Instructions

Test fit the inner carriage skins to the structure, note that the 2 compartment sides are handed, the 1 compartment ones are not, make sure that all the windows and doors line up. It can be fitted now if wished but may be best left out until the

outside has been fully painted to reduce the risk of overspray etc.

Tip:

Sometimes the carriage walls have a tendency to bend inwards, this is normally corrected by fitting the roof supports. At this stage it may be worth dry fitting the internal layers and end roof support to ensure that the end is square and make it easier to build the rounded end.

Having built the square end of the carriage the rounded end can be built. Taking the two 1.5 mm notched end posts glue them to the end of the structural layer and inside of the outer layers. The 3 mm offset between the two side layers should allow the notches insides to line up with the edge.

The notches locate the four structural arches that make up the rounded end, two above and below the window. In the middle of the arch a longer notched post fits down the centreline, this can be left out if required so that the end window is a single opening. The inner and outer skins once glued onto the frame are quite strong.

The central post flat end points outwards and the notches inwards. The arches are marked with the location. Slightly round the outside edge of the central post before fitting as it will be visible. Note it is best to leave the central post loose at this stage until the skins have been fitted. In a perfect world the gap between the two side skins is 1.5 mm the thickness of the central post. If the central post is left out

this gap can be filled with a handmade plank above and below the window. If the gap is too small the skins can be trimmed or the central post lightly sanded, if it is bigger then using the additional pieces provided small fillets can be made, or a little filler (caulk) could be used.

Start at the bottom and glue the arches in place. The first one should fit flush with the edge of the floor. Note that the different thicknesses between the side skins (1.5 mm) and rounded end skins (0.4 mm). The arches should therefore overlap slightly the side skins so that the finished surfaces remain flush. Make sure that all of the arches are square in all planes. Allow to dry before adding the outside skins.

The outside skins are very delicate, handed and made in two parts that meet in the middle. They have been scorched to allow for bending, see guidance on bending / breaking above.

Starting with the bottom one, it is best to fit them from the sides working towards the middle where the loose or no central post is located. Trial fit first as some minor trimming may be needed where the wrapper meets the carriage sides. The bottom skin should run flush with the window and floor. The top skin should be flush with the window and cantilever upwards.

Tip:

Once the external skins are fitted and finished it is a good time to paint the exterior before fitting the glazing and inner skins.

The glazing can now be fitted in one piece all the way around the inside with a little glue. It should overlap the structure on all edges and will be hidden under the internal skin. It first needs to be cut to size, 151 mm long by 46 mm high, test out with a scrap of paper first, the overlaps should be approximately 3 mm all around. Fitting from the centre outwards seems to be the best method, by gluing the centre only letting it dry and then doing a bit more.



Picture: 1 Compartment, showing front glazing fitted with loose internal round skin, with each 'plank' bent waiting to be fitted. Side inner skins and vents fitted.

If you have not fitted the inner side skins and windows now is a good time to fit them. The windows and glazing should

be fitted next, glazing inside window frame outside. They are a tight fit so that they cannot move out of alignment.

Tip:

A partially open window can be created by cutting off the bottom of the frame and glazing so that it appears to have been dropped into the door.

Vents are supplied to be fitted above the doors, internally and externally, these can be fitted before or after the fixing of the surfaces depending upon the finishes.

The inner skins of the carriage can now be fitted, don't forget to fit the windows in the carriage sides. The inner skins are slightly shorter (0.5 mm) than the outer skins so that they are easier to fit and hide any potential misalignments.

Finally a 3 mm wide by 40 mm high, 0.4 mm thick capping can be glued over the inside of the central support of the observation windows to complete the interior skins.

Chairs / Benches

Each chair is made up of six pieces, these should be suitably sanded before assembly. The chair backs and seats are the same, but the chair seats should be fitted first with the backs on top afterwards. The chair frames should sit at the outer edges to allow the fitting of the arms. Clothes pegs are ideal to keep the parts together whilst they dry.

Once assembled the chairs can be fitted into the carriage with a little glue on the legs, the exact alignment is left to the modeller.

If a non-corridor end is fitted then a bench is provided for that end of the carriage. It is made the same way as the chairs but has no arms but also has a central support.

Round Nose Coupling

Two 3mm extension pieces connect the coupling eye to the chassis cross piece and chassis rails. The coupling eye is formed of a 3mm structural piece that just sits on the underside of the floor and a 1.5 mm thick spacer to move the coupling beyond the thin round nose. Ensure that the holes in the coupling eye pieces line up.

Inspection Roof

A fixed roof can be glued and clamped in the usual way. A removable roof is a real challenge as the curved end intersects with the curved roof reducing its width, curvature and hence structural form. The inner leaf of the front nose should be 1 mm lower than the outer leaf so that it does not interfere and leave a gap. The front upper cantilevered skins can be quite fragile so be careful not to crush them when fitting the roof.

Door Handles

The door handles are T-shaped and are made out of split cotter pins and cocktail sticks which are easy to replace if damaged. To make them thread the cocktail stick through the split pins so that they are 6 to 8 mm apart, when happy cut the cocktail stick. Round the cut ends with sandpaper, cut the split pins to length with a sharp pair of side cutters.

The door handles can be fitted in two different ways, the main difference is if they show on the inside of the carriage. If you do not want them to show drill the locating holes for them before fitting the inner leafs of the carriage or don't drill all the way through. Cut the split cotter pins to suit, finish and fit. Sufficient, pins and cocktail sticks have been supplied to make some spares.

The suggested location of each handle is marked on right hand side of each door as a single dot. Door hinges are on the left hand side of the doors. The handle holes are not drilled in case the modeller chooses to use different handles. The required drill size is 1.6 mm for the handles provided. Fix with a little glue.

Hand rails

The hand rails run up the right hand side of the doors, these are made from the copper wire provided, which needs to be formed into a U shape, 18 mm across. A hand rail jig is provided in the top jig used earlier. A hole can be found 18 mm from one end, thread the wire through the hole and bend over 90 degrees and then over the end a further 90 degrees to form a U shape. Use a pair of pliers to tweak if

necessary. Ensure that all the handrails are consistent. Cut the U shape to length.

Two holes now need to be drilled to the right of the door on the door frame using a 1.3 mm drill. The first hole goes in the corner of the window/side frame. Using the hand rail as a template, make the second hole, vertically below and drill. Fit the handrails with a small drop of glue.

Wheels & Axle boxes

The axle-boxes should be attached to the chassis members using cyanoacrylate glue or similar for strength. The wheels are adjustable on the axles. Locations for the axle boxes are marked with rivet detail.

Finishing Touches

Couplings can now be fitted through the holes in the ends. The running boards can be fitted using the brackets supplied to the underside of the carriage floor.

Completion

Time to oil up the axles and set off on a test run. Enjoy.

Recommended Tools List

- Sharp craft knife and cutting board/mat
- Various grades of sandpaper / emery paper
- Steel rule

- Needle files
- Micro drills
- Clamps, clothes pegs, small weights, etc.
- Decorators tape
- Pencil
- Square
- Long nose pliers
- Side cutters
- Tweezers

More resources are available on the www.platewaymodels.co.uk website.

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