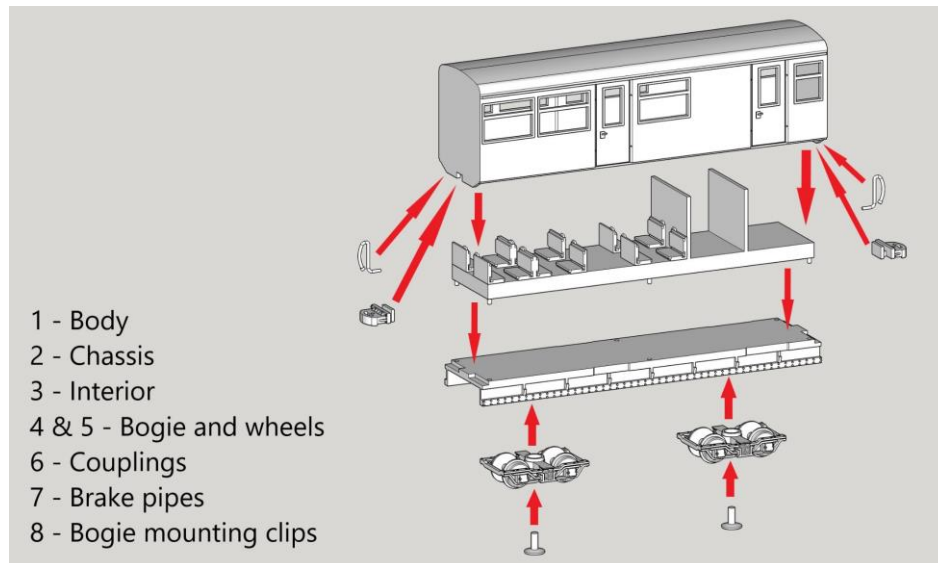


Indian Railways Narrow Gauge Luggage cum Brake Van



Darjeeling Himalayan Railway in OO9



Congratulations! You now own a unique Indian Railway model kit by Precision Model Works. We are so very happy that you chose to model something one of a kind and gave us the opportunity to help you make your dream model. Before you get started here are a few things that you should know.

Our models are 3D printed, in particular, resin 3D printed. As much as it looks just like any other plastic model kits, there are few nuances that you need to be aware of:

- Resin shrinks and expands during the printing and curing process. So, no matter how precise our designs are, mating parts might have slight differences in dimensions and tolerances. **You are expected to use a file and sand paper to prep your model wherever necessary.** We recommend a needle file set for rough adjustments and a 1000 grit sand paper for finishing.
- We use latest 3D printing technology to print in very high definition, but since 3D printing works in layers, it is impossible to avoid print lines and support marks in certain areas. While the support marks in our models are always in obscure places, **you might have to do very light sanding in some visible parts depending on your appetite of fit and finish.** We recommend at least 1000 grit sand paper, but 1500 grit will be better.
- Resin printed parts sands easier/faster than ABS. While it makes making models much easier, there is a risk that you might end up sanding too much. So, be gentle with your sanding and check the fit frequently.
- There is no alternate of a good primer! **We strongly recommend that you use a good primer, preferably airbrushed or spray painted on the model before you start painting.** A 24-hour minimum curing time should be given before painting.

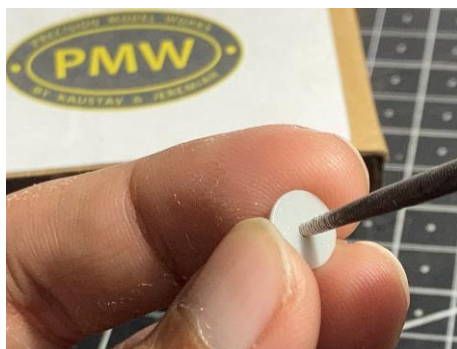


Figure 1

- **Superglue / CA glue works the best to fix components.** We recommend using the gel type ones which will give you a little more time to set things before the glue cures. Use an accelerator for situations that need faster curing. Moderation is key.

Key Assembly Instructions:

Only SELECT assembly instructions are provided. All photos below are of unpainted 3D printed parts, but you will have to paint the parts before assembly. You are expected to research the prototype for paint scheme and decal placements.

- Familiarize yourself with the parts using the exploded diagram above.
- Check for fitment of all major parts before starting your assembly and gluing any parts. File /sand as necessary.
- For all handrail holes, make sure to drill the holes PRIOR to priming your model. These marks are very tiny and you might lose them if you don't drill the holes before applying the primer/paint.
- The wheels are a three-part design, you need to push the pointed /conical part of the axle through the central hole of the wheels. You need to file the hole as necessary using a micro-file (fig 1). You also need to file the part of the axle to remove any support burrs left on the print (fig 2) – make sure to move the axle in circular motion not to get a flat surface on it while filing.
- If you are making a model that will run on a layout, it is important to keep the wheel perfectly square with the axle for best performance on tracks. You might want to do some tests on a slightly inclined piece of track to ensure that the wheel rolls properly (fig3). **We highly recommend replacing the 3D printed wheels with metal model train wheels if you wish to run these on a layout frequently.**
- Once you are satisfied that the wheels are properly installed with the axle, use standard super glue /CA glue (not the gel type) to fix the wheels in place. Apply glue from the back of the wheel (fig 4).
- The bearings in the bogie have a slight cut underneath. Gently spread the part and push the conical part of the axle in the bearing hole. **Make sure to add a drop of plastic friendly light lubricating oil in each bearing to ensure smooth rolling of the wheels** (Fig 5).
- Before installing the bogies, ensure to clean the mounting hole using a uniform round file with diameter no more than 2mm (Fig 6 and 7).

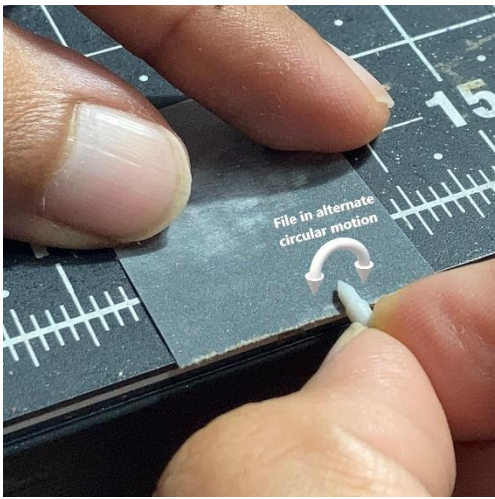


Figure 2



Figure 3



Figure 4

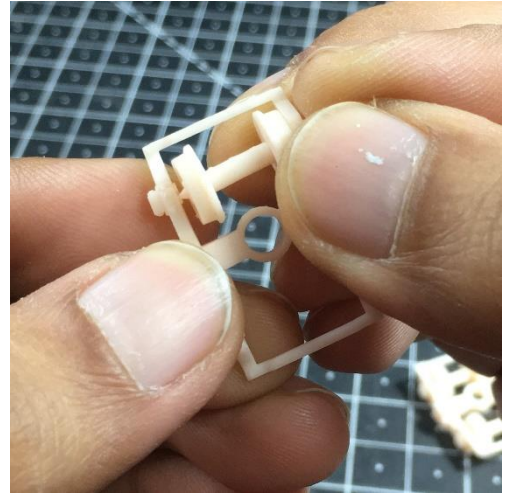


Figure 5



Figure 6



Figure 7

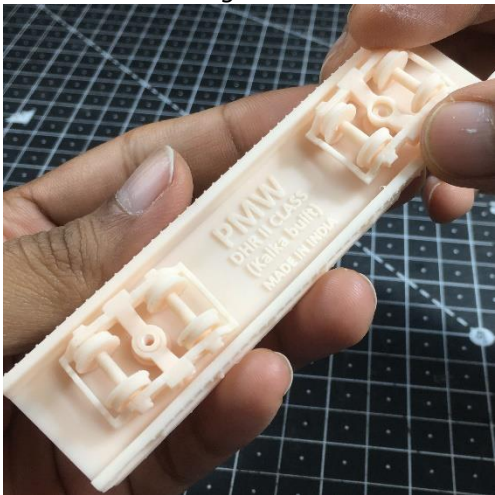


Figure 8

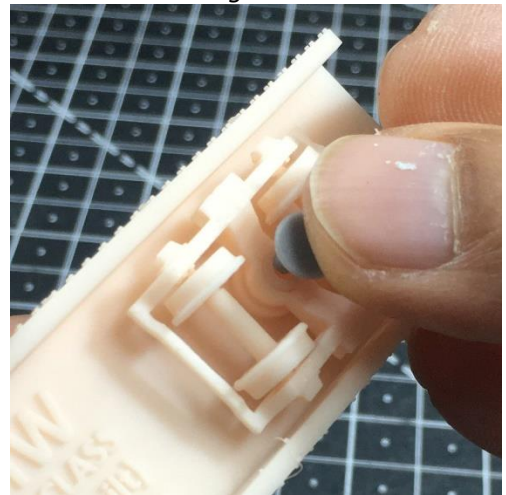


Figure 9

- Place the bogies on the mounting peg and then push the mounting clip in the hole. The clip should fit as 'friction fit' – meaning it will be tight enough to hold the bogie in place, but it you should be able to remove it also if needed (Fig 8 and 9). Note that you have to be careful in the filing process mentioned in the previous step, if you file more than what is needed, you the clip will be a loose fit and you will have to glue it permanently.
- The half relief interior is designed for you to be able to add weight to the rolling stock so that it runs well on the track (Fig 10). You can use any type of weight that fits underneath it – metal plates, lead balls or pellets, lead strips, or even washers – but make sure that the weights are glued down and evenly distributed along the length and width of the model.
- The interior has 6 alignment pins that fit inside 6 mounting holes on the chassis block (Fig 11). Apply glue on the contact surface and use these mounting holes to fix the interior permanently on the chassis block.
- Since the coaches have broad windows, the half-relief interior might be too visible to look unrealistic. To help disguise the raised floor we recommend the following (fig 12 and 13):
 - Paint the raised floor matte black - chalk paints are highly recommended (avoid gloss finish as much as possible).
 - Paint the interior walls of the shell same matte black as the raised floor.
 - Paint the seats and the roof in light blue or grey depending on the prototype you are building. If you wish to add sitting figures, you need to cut their legs right below the knee before you place them on the seats.



Figure 10

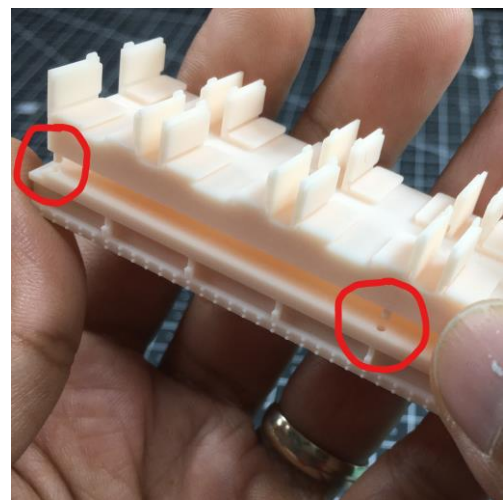


Figure 11



Figure 13



Figure 12



Figure 14

- If you wish to use the prototypical couplers provided in the kit to run your trains, then you need two U pins that look like stapler pins with their arms 6mm apart from each other (fig 14).
- You put one arm in the round hole of one coupler and the other arm in the curved cutout of the other coupler. You use the other pin to do the same for the other set of hole-cutout pair (fig 15).
- We have supplied a handrail making jig in the kit. These are the steps to use it:
 - Insert a 0.3 – 0.5mm wire in the hole in the jig.
 - Bend 90 degrees along the engraved line, press hard to make sure it's perfectly straight
 - Bend 90 degrees again at the edge, and cut at the bottom edge – Fig 16.
 - Trim the ends before fixing them to the corresponding section matching the handrail guide.
 - Use tiny drop of superglue on the tip and insert the ends to the holes on the models that you drilled earlier

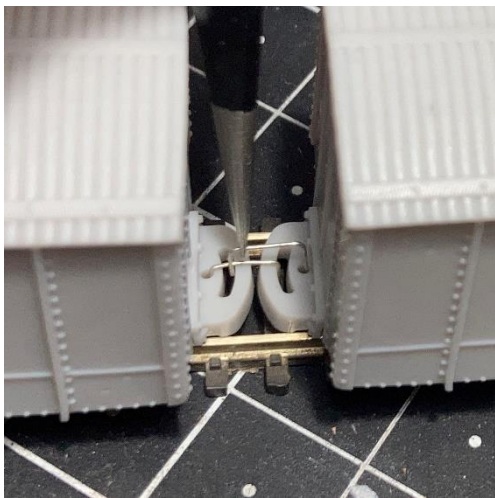


Figure 15

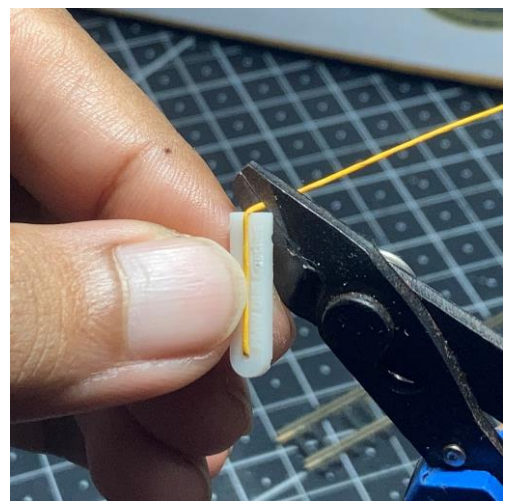


Figure 16