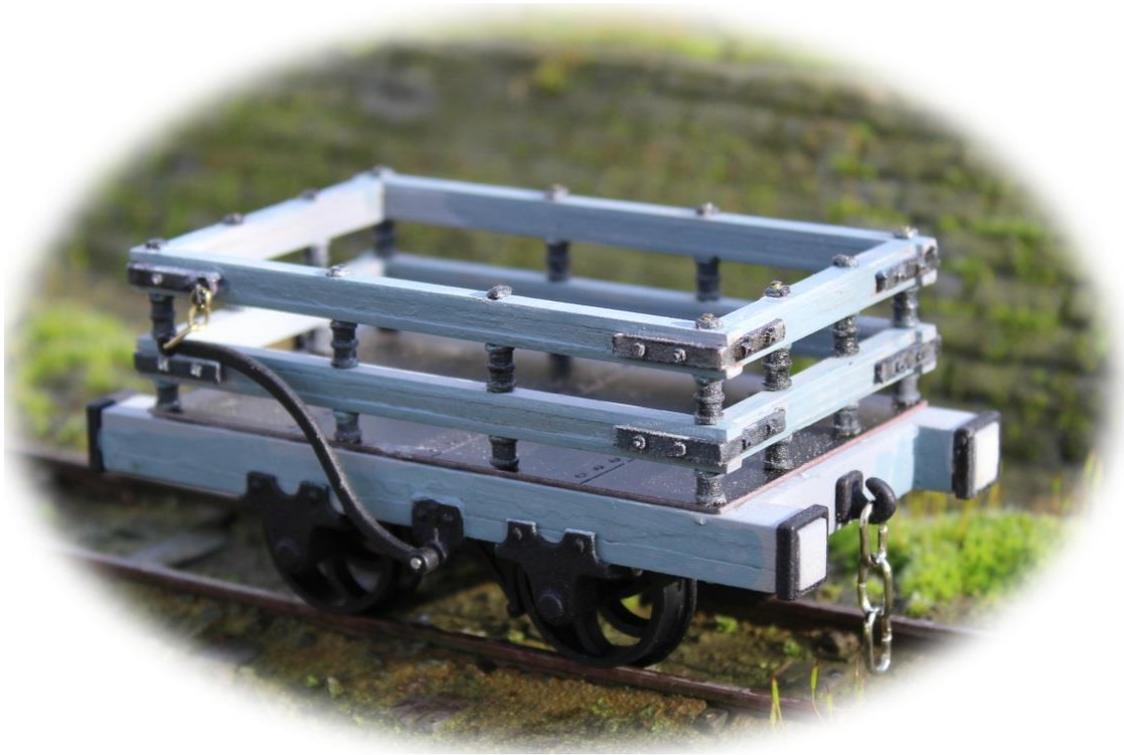
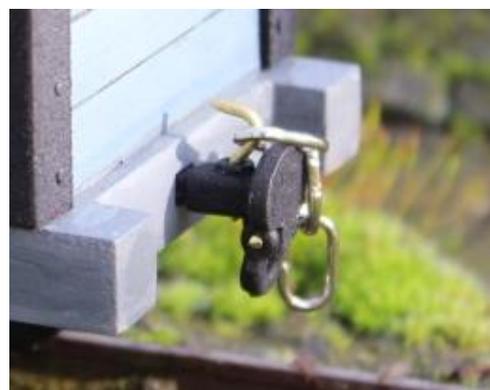


Talyllyn Railway Slate Wagon

This model is based on one of the two bar slate wagons used by the Talyllyn Railway in mid-wales, for the conveyance of slate down from the Bryneglwys slate quarries to Tywyn . About 100 of these wagons were originally built for the railway and in later years they were rebuilt with variations such as different wheels and the removal of their brake gear. As the slate traffic declined they were even used for carrying excess passengers (by adding simple benches) on busy passenger trains in the railways short tourist season.



A choice of couplings is included in this kit. You can either assemble the wagon with side “dumb buffers” and a central hook for a 3 link chain (see above) or if you prefer a centre buffer (for greater compatibility with the rest of your stock) , a pair of Penrhyn style wagon buffers are also included (see right).



General Assembly Instructions

Do take time to read through the instructions and understand how the parts fit together before reaching for the glue pot. **Pay particular attention to the orientation of the brake components**

Gluing

The MDF parts may be glued with PVA wood glue, Cyanoacrylate adhesive (super-glue) or epoxy resin (Araldite). Beware of vary cheap glues, their joints may fail! If you do use a “super-glue”, go for one which takes a few seconds to set rather than an instant “grab” one. This will give you a few seconds to adjust the parts position before it is too late.

Nylon and Acrylate parts (e.g. corner plates and buffer strapping) are best fixed with good quality Cyano/super glue. We recommend the “Haffix” brand as this does not seem to cause the white “frosting” that some brands are prone to.

Painting

This is very much a matter of personal choice. As MDF is used for some parts of this model it is highly recommended that all these parts are either painted or protected with acrylic varnish, especially if you like to run your trains on rainy days. MDF is very absorbent so you will need several coats of whatever you choose. Small tins of exterior wood stain/varnish in a variety of colours are available from your DIY chain store.

The body (which is laser cut from poplar plywood) is less critical and can be simply varnished or painted with a wide variety on acrylic or enamel modelling paints.

All the nylon detail parts come pre-stained in a deep black colour. You may paint these parts if you require with enamel or acrylic model paints. Note that the surface of the nylon is slightly porous so you may find you first coat soaks in quite a lot.

Tools

The following tools will be required:

- A sharp modelling knife or scalpel
- A small file, sand paper or an emery board “nail file”
- A small “Philips” screw driver, size 0
- A pair of needle nosed pliers

The following tools are recommended

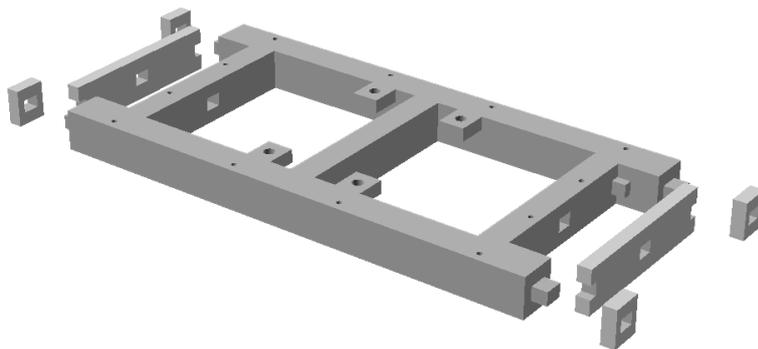
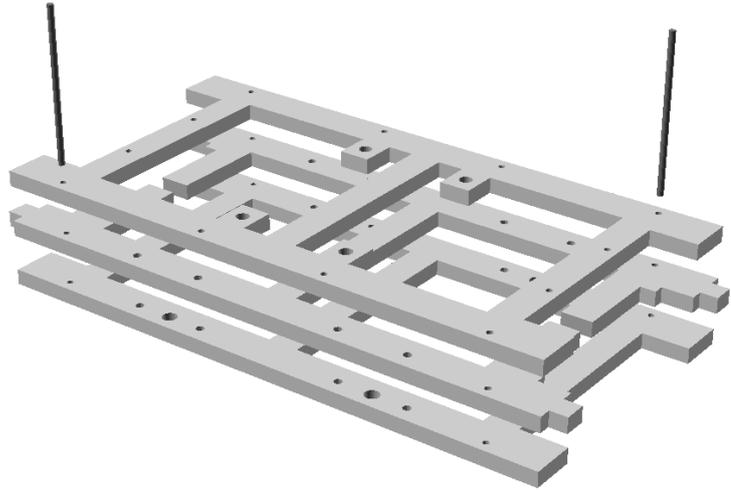
- A cutting matt
- A small steel ruler
- Some small clamps, bulldog clips or rubber bands
- Round and flat section “needle files”
- A metal working vice or a wood working vice
- A fine tipped black permanent marker pen.

Step 1 – Chassis

First cut four 36mm long bobbin support rods from the supplied brass rod.

PVA wood glue is recommended for this step or if you want to use a super-glue DON'T use an "instant grab type". Glue the 3 "chassis plates" together taking care to align the parts (temporarily inserting two of the bobbin support rods in opposite corners will help with this).

Note the sequence of axle box holes; small gab for buffer shank ; and brake shoe sockets of the three plates. Make sure the parts are squeezed together properly. Wipe out any glue that oozes into the body end locating holes and buffer shank holes.



Now glue the two buffer mounting plates of your choice (**see below**) onto the ends between the two sole bar extensions. Clamp the parts together with small modeller's clamps or bull dog clips while the glue sets.

If you are intending to use our hook and chain couplers, glue the 4 small sole bar extensions onto their locating lugs (the 3D printed buffer straps will glue around these later).

If you don't intend to fit the dumb buffers and straps (i.e. you plan to use the Penrhyn centre buffers), cut off the 4 locating pegs with a razor saw or junior hack saw.

Once the glue has set, lightly sand the edges of the "plates" that now form the sole bars and dumb buffers to remove any excess glue and to provide a good surface to paint or varnish.

Three pairs of buffer mounting plates are provided. **A pair with a square socket for the supplied hook and Penrhyn style centre buffers.** A pair with 2 holes 14mm apart for use with our bell mouth couplers (not supplied) and a plain pair for anything else we haven't thought of.

Now paint or varnish the complete chassis assembly to seal it against moisture.

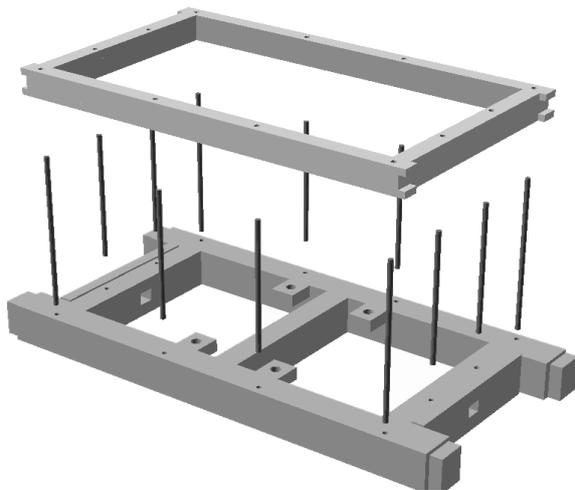
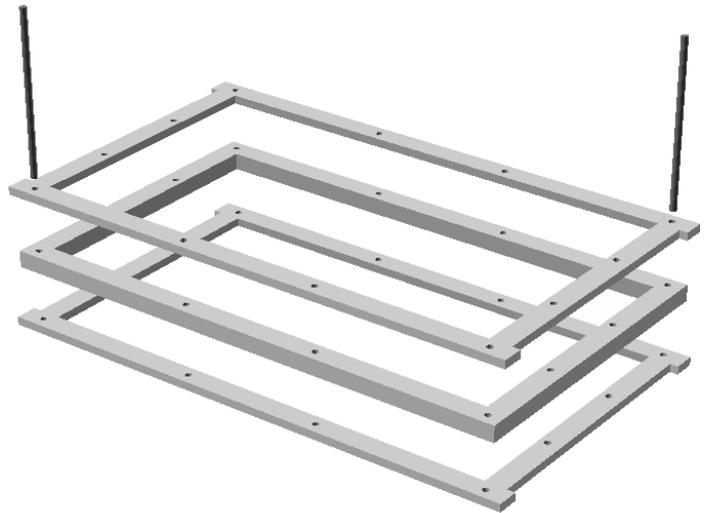
Step 2 - Body

Separate the four 1.5mm ply "slate bar rings" from their frets with a sharp knife. Also separate the two 3mm thick "slate bar rings"

Glue the slate bar rings together, i.e. two sandwiches of thin ; thick and thin rings. Again temporarily pushing bobbin support rods into 2 corners helps to align the parts. Clamp the rings together and poke a bobbin rod through each of the 12 rod holes to clear any glue that has oozed into them.

Once the glue is dry, "sand" off any join marks on the outside of the rings. In fact now is a good time to prime these two parts to reveal any imperfections. Repeat until you are happy you are going to get a good final paint coats

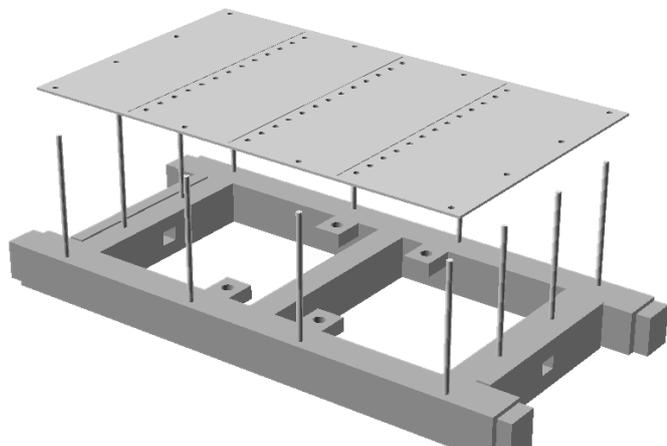
Don't file off the corner strap locating lugs though!



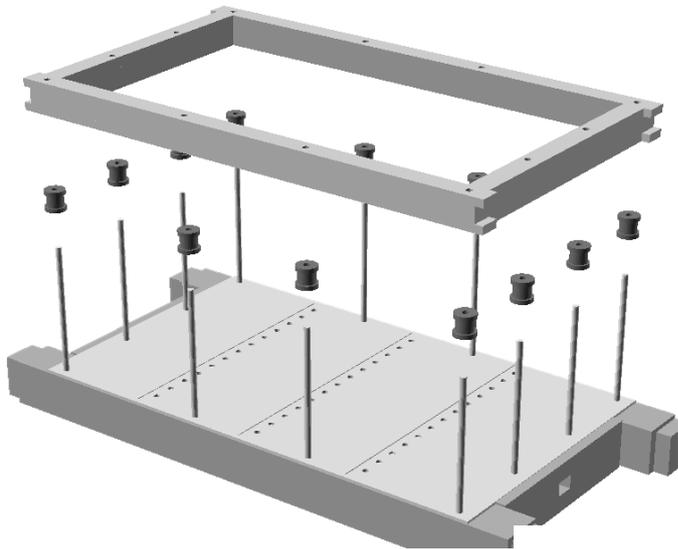
Cut eight 30mm long bobbin support rods from the supplied brass rod.

Now glue the four 36mm rods in the corner holes and the eight 30mm rods in the remaining holes. Temporarily pushing one of the "body rings" onto the top of the rods helps to keep them all square.

Now glue the plastic floor in place.



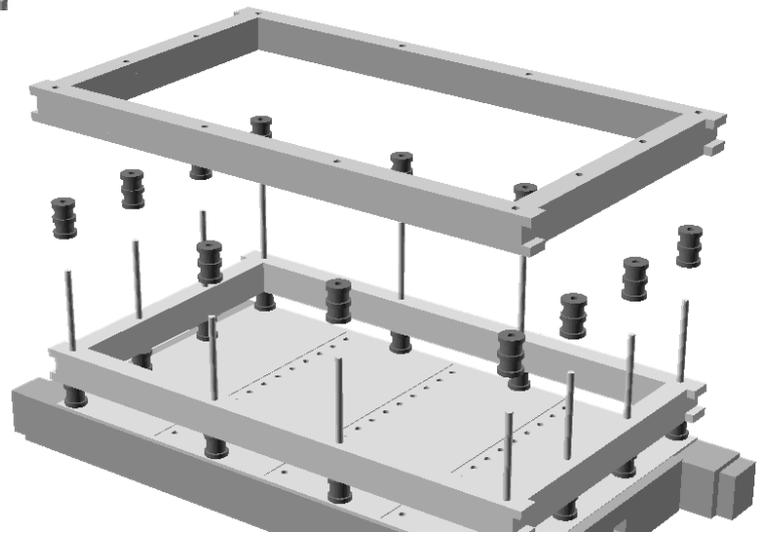
Separate the 3D printed corner straps, buffer straps and bobbins from each other by cutting off their little connecting sprues and trim off any sprue residue with a sharp knife. *(For the time being leave the strip of tiny top-nutts in one piece)*. The little white spots left when you trim of the sprues are best "coloured in" with a black permanent marker pen.



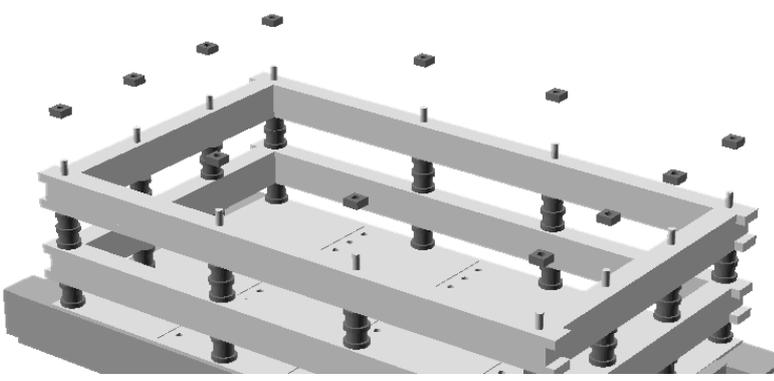
The bobbins will need their centre holes clearing of printing dust by poking through with some of the remaining brass rod or a 1mm drill bit

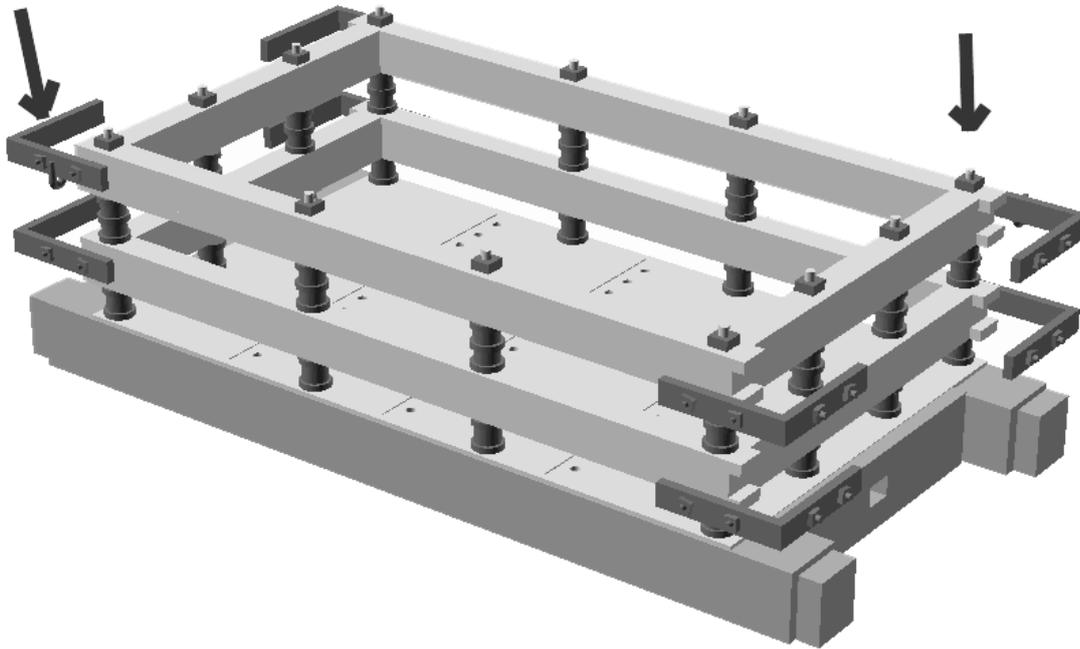
Push 12 **short** bobbins down the rods to the floor. (Yes we have deliberately provided extra bobbins in the kit). Put a spot off glue on the top of each short bobbin and then pus a slate bar ring down the rods to rest on the top of the bobbins.

Now push 12 **long** bobbins onto the rods followed by the top slate bar ring.

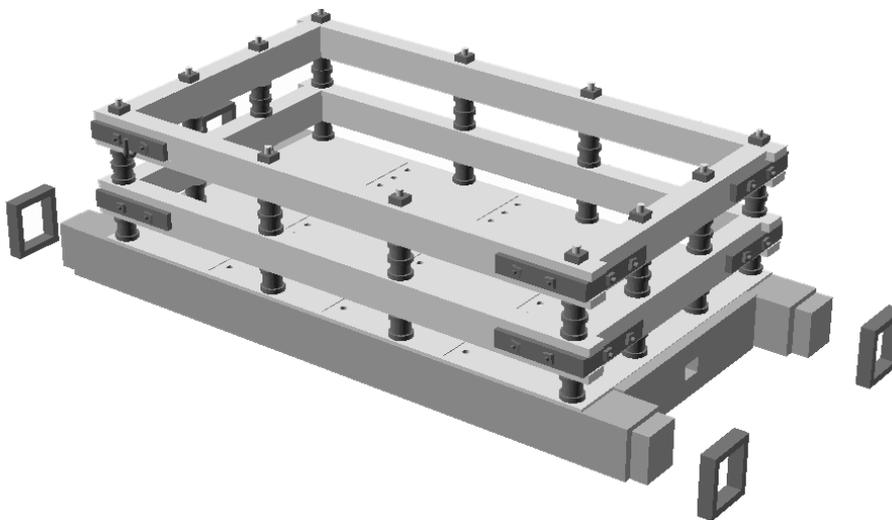


Next fit the "top nuts" to the top of the rods. Put a drop of super glue on the rod, push the end "nut" of the strip onto the rod. Once the super glue has set cut the tiny connecting sprue with the tip of a sharp scalpel and move onto the next nut . Again we have supplied extra nuts in the kit (I'm sure there is a joke there).





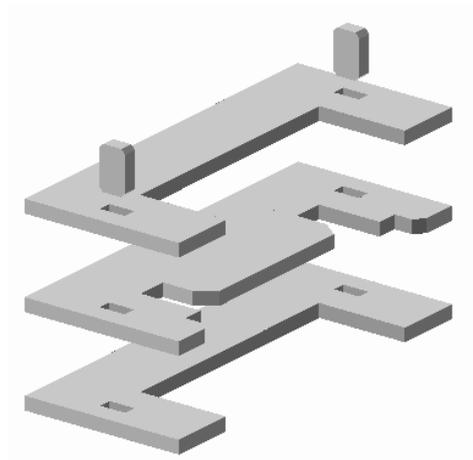
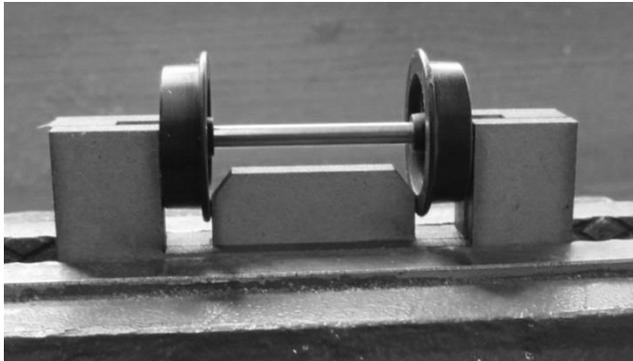
Glue the eight corner plates and in place on the slate bars. **Note that two of the corners have tiny hooks moulded on them for the brake lever chain. These go in the top corners as shown**



If you are using the dumb side buffers then glue their straps in place now

Step 3- Axle Assemblies

Glue the three parts of the wheel assembly jig together using two locating pegs to align them.

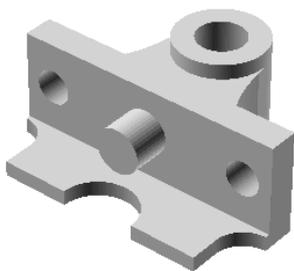


Once the glue is set, place the jig in your vice. Push a pair of wheels onto an axle and push them in from the ends about 6mm. Now

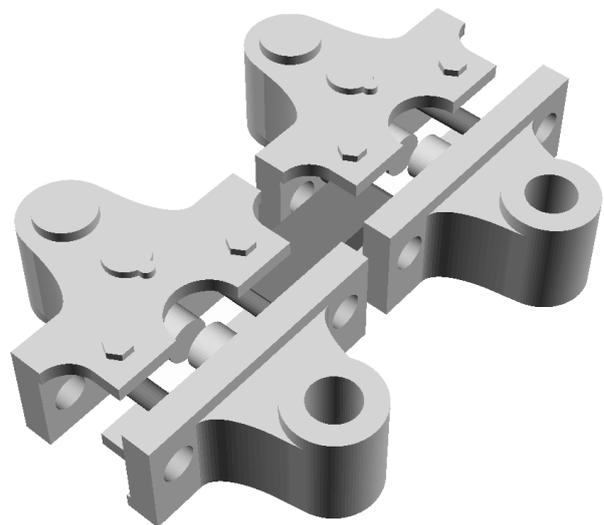
manoeuvre the complete assembly into the jig as shown, gently moving the wheels in and out until it fits nicely.

Step 4 - Axle boxes

Cut the four 3D printed axle boxes from their connecting sprues (the dark grey bits in the picture to the right).



N.B. don't trim off the round locating peg!

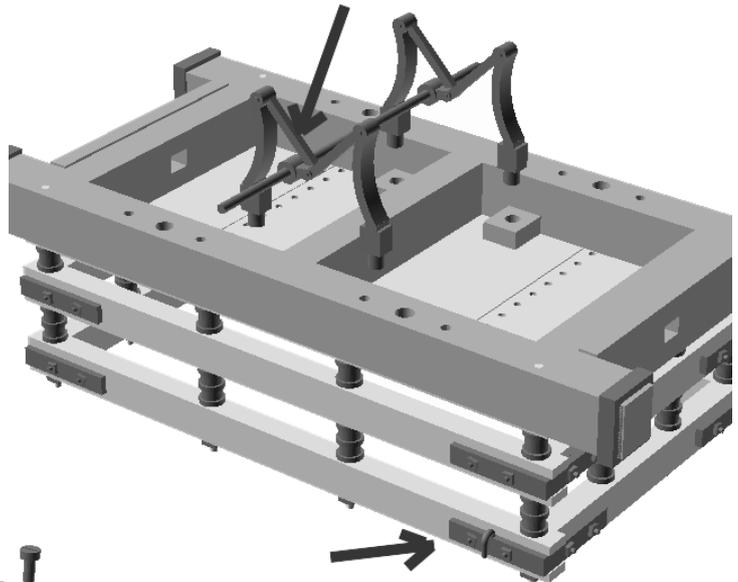


Clean out any printing dust in the axle holes by "twizzling" a 3mm drill bit in them

Step 5 – Brake Gear and Wheels

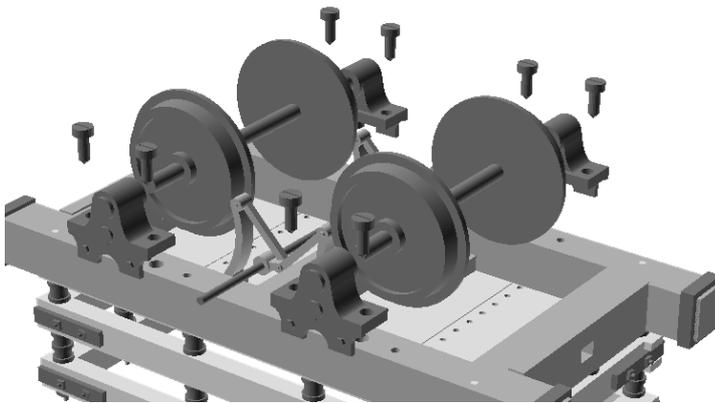
Thread the steel brake rod through the 2 holes in the 2 brake shoe pairs and glue the brake shoes into the chassis locating sockets. But don't glue the brake rod yet

Note the orientation of the brake hook on the top slate bar and the offset of the brake rod. I.e, the rod has to be away from the hook



Place a pair of axle boxes onto an wheel set and fit the two locating pegs into their holes in the chassis. Now secure in place with 4 of the self tapping screws.

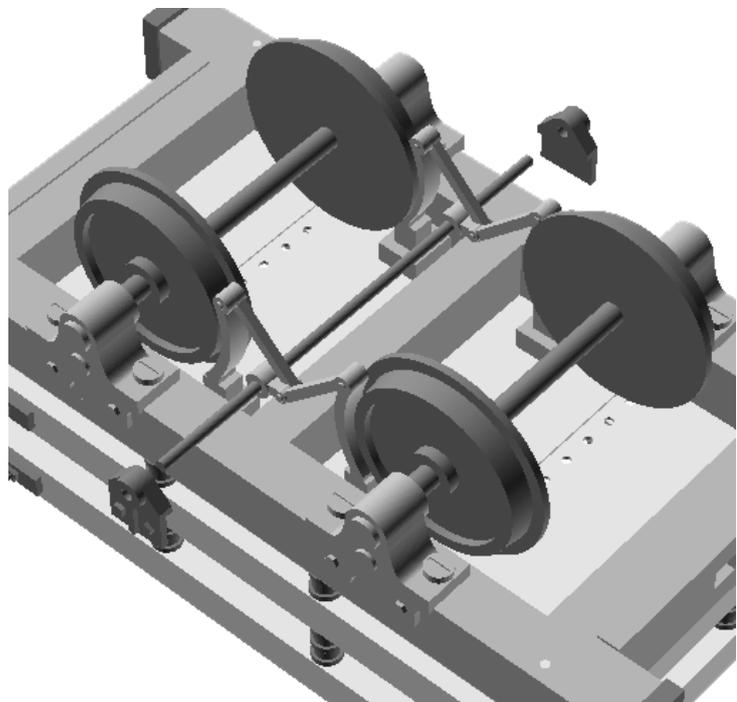
Repeat for the other end.



Before entering service, remember to oil the axle ends with a light lubricating oil (e.g. 3-in-1).

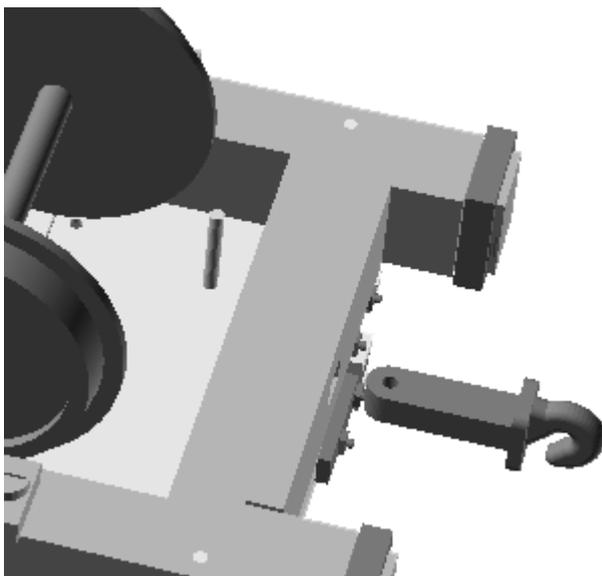
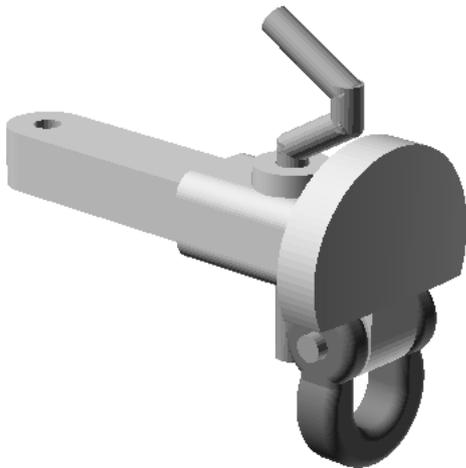
Now thread the 2 brake rod support plates onto the rod ends and glue to the chassis. The brake rod should be flush with the plate on the "non handle" side and protrude about 5mm on the handle side

Also included in the kit are a couple of tyre weights. If you feel you need extra weight and plan to run the wagon empty, then fix these weights in the centre of the underfloor cavities now.



Step 6 – Couplers

If you intend to use the Penrhyn buffers these will need assembling now. Cut two 8mm long sections from the supplied brass rod and attach the shackle to the buffer by pushing the rod through the eyes and body. Bend up 2 hooks with needle nose pliers and glue into the body as shown.

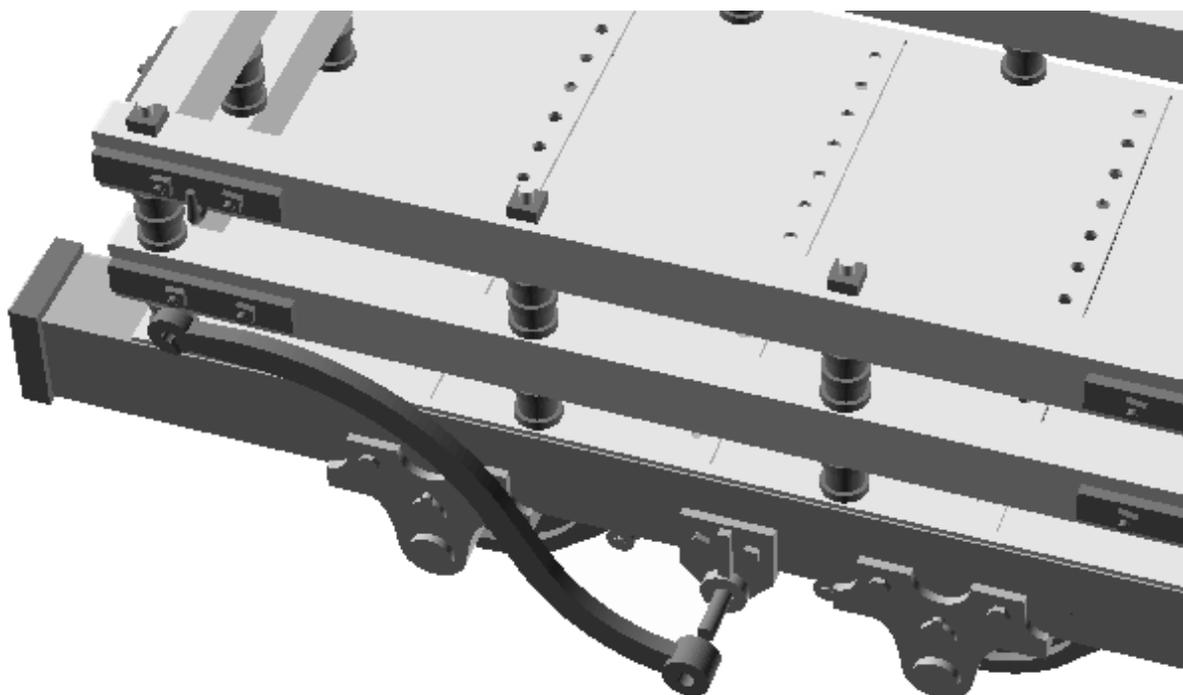


Now push the hook or buffer shank through the rectangular socket in the buffer beam and push a small (6mm) section of brass rod through the hole to fix in place.

Repeat for the other end

Step 7 – Brake Handle

Remove one of the tiny hooks from the brake set sprue and glue into the locating hole in the body top.



Included in the kit is a short length of fine chain. Cut either 2 or 4 links from this and push one end link through the split ring at the end of the brake handle and then seal with a spot of glue and dab of paint.

Push the rod end of the handle on to the brake rod and then loop the other chain end over the little hook.

Alternatively bend up a simple link from an office staple!

When you are happy with the position of everything now fix the brake parts in place with super glue.

Job Done!