Trefor Quarries Breaker Wagon

This model is based on the wooden bodied wagons used at the Trefor granite quarries (originally spelt “Trevor”) on the Lleyn Peninsula of North Wales. The wagons were hand loaded with granite roadway “setts” at the cutting sheds on the various quarry levels. They were then taken by a series of rope worked inclines and locomotive haulage down to a crude jetty where the setts were hand loaded into beached ships.

General Assembly Instructions

Do take time to read through the instructions and understand how the parts fit together before reaching for the glue pot. Where ever possible parts have been designed to be symmetrical but occasionally parts have to be left or right handed so take care to follow the instructions carefully at these points.

Most parts are attached to their frets by small sections of half cuts. To remove parts either cut through the remaining material from the front with a thin sharp blade (e.g. a scalpel) on a cutting mat or turn the whole fret over and with the aid of a steel ruler aligned with the pieces side, cut lightly with a knife to break through the remaining wood.

DO NOT simply try and twist the parts out of the fret, there is a risk that the part may tear. The laser cutting process will leave a degree of edge discolouration. If you plan to leave you model unpainted now is the time to lightly sand the edges to remove this discolouration.

Gluing

Wood and 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 parts (e.g. corner plates and floor supports) are best fixed with Cyano/super glue.

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 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. We like to apply a light wood stain followed by a couple of light coats of modeller’s matt varnish from a small “rattle can”. However you may also apply a light coat of interior acrylic varnish (from a DIY store) applied with ¼inch brush.

Tools

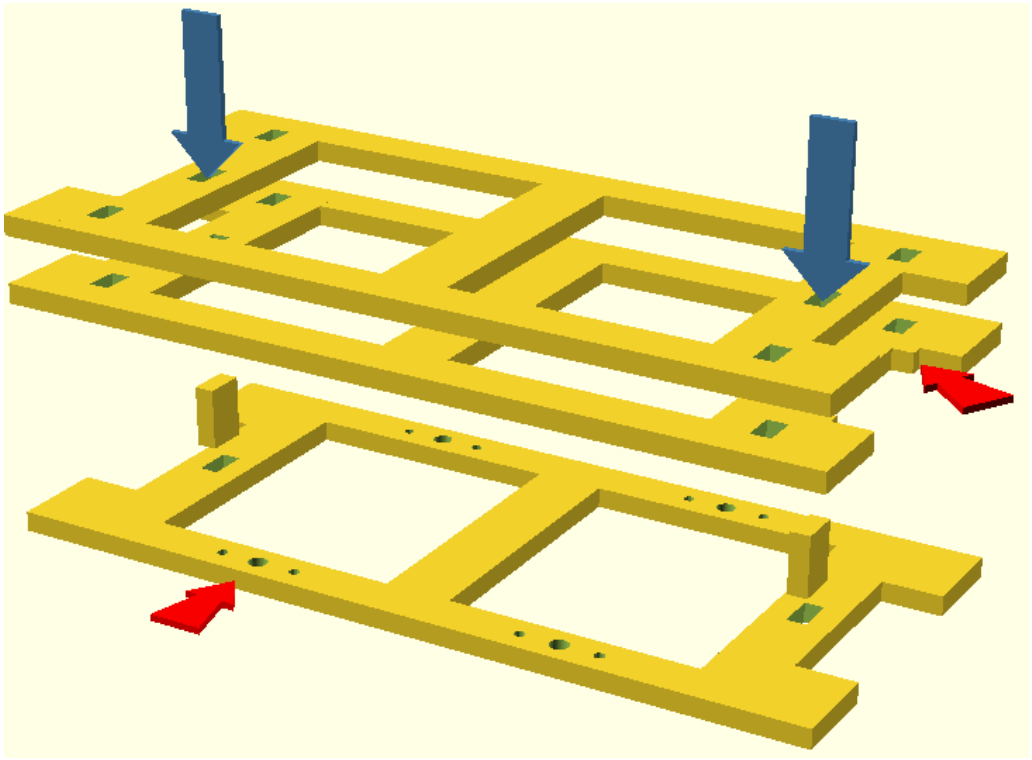
The following tools will be required:

- A sharp modelling knife or scalpel
- 2 mm drill bit
- A small file, sand paper or an emery board “nail file”
- A small “Philips” screw driver, size 0

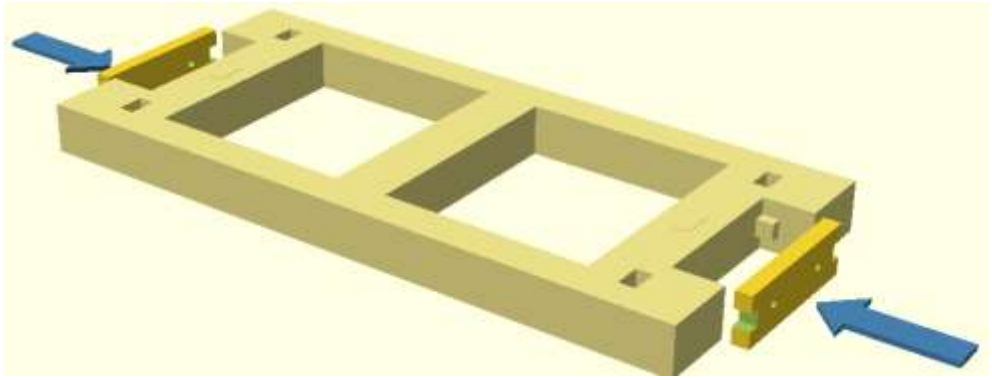
The following tools are recommended

- 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

Step 1 – Chassis



PVA wood glue is recommended for these steps or if you want to use a super-glue DON'T use an "instant grab type". Glue the 3 "chassis plates" together using the small rectangular locating pegs at each end. Note the sequence of axle box holes; small tab on "buffer"; and no tab of the three plates. Make sure the parts are squeezed together properly. Wipe out any glue that oozes into the body end locating holes.



Now glue the two buffer mounting plates onto the ends between the two dumb buffers.

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.

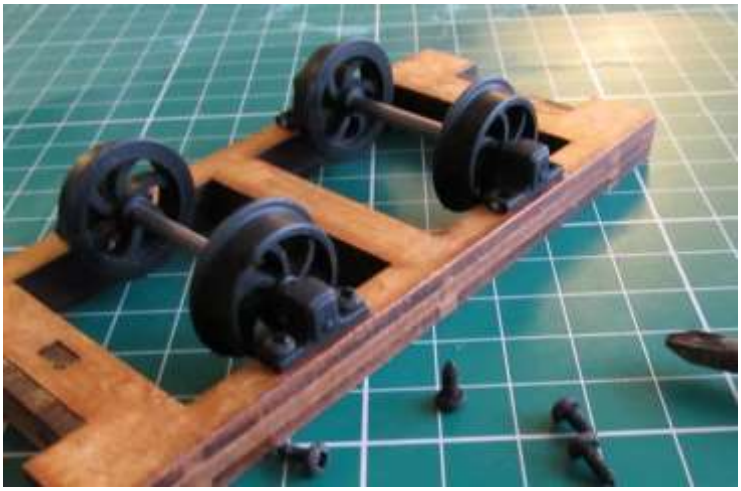
Now paint or varnish the complete chassis assembly to seal it against moisture.

Step 2 - Wheels

Place the supplied wheel setting 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 3 – Axle boxes

Cut the four 3D printed axle boxes from their connecting sprues.
N.B. don't trim off the round locating peg!

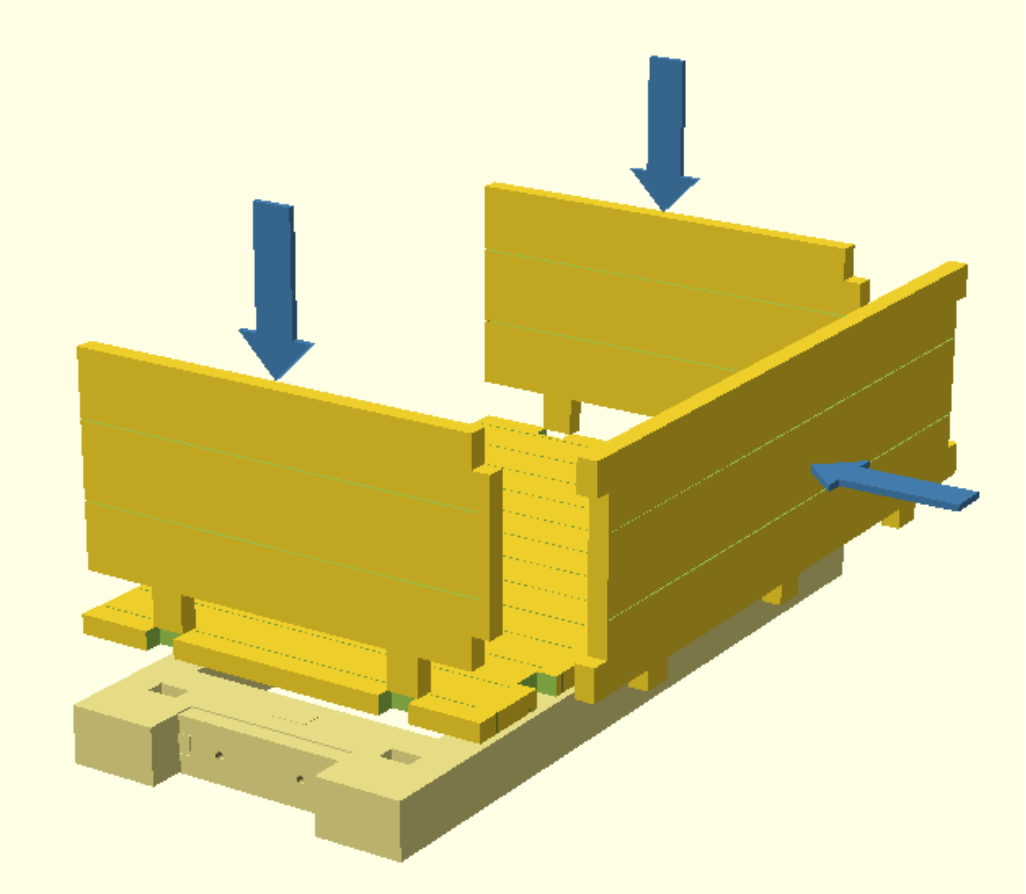


It is suggested that you chemically blacken (e.g. Carr's Metal Black) the 8 screws that fix the axle boxes in place. If not, you can always but a touch of matt black enamel paint on the screw heads later on.

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.

Step 4 – Body



Glue one body end and the body side to the floor. Now glue the other end onto the assembly. Finally glue the body onto the chassis. The locating pegs on the body ends should locate in the sockets in the chassis.

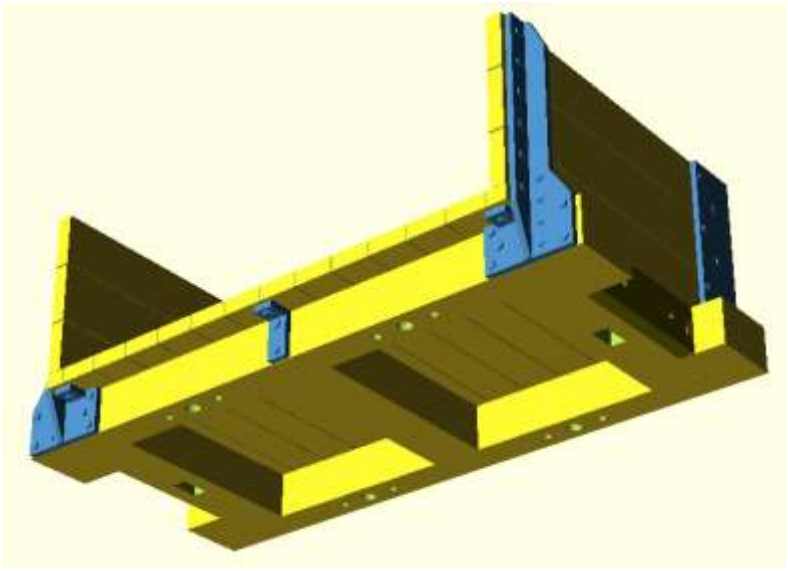
Lightly clamp or slip on a rubber band or two. The kit includes a temporary jig to slip over the body ends as shown in the photo, to stop the ends bowing in whilst the glue is setting.

Clean off any glue that oozes out of the joints and allow the glue to dry.

Once dry; paint, stain or varnish the body as you see fit.

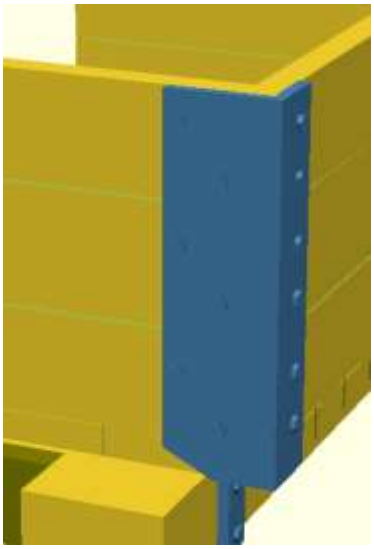
Step 5 – Body work details
Separate the 3D printed parts from their connecting sprues and trim off any sprue residue. Wherever possible the parts have been connected on surfaces that are glued to the body.

The printing process may leave a powdery residue. This is best brushed off with a cheap (clean ☺) tooth brush.



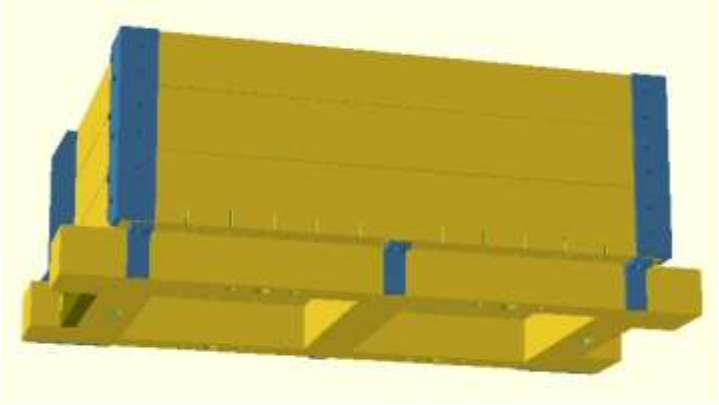
Glue the two “edge supports” either side of the opening as shown. A good quality super glue works well for this.

Glue a floor support angle in the middle of the sole bar as shown.



On the other side of the wagon glue the corners plates. Note the chamfer is at the bottom just above the dumb buffer.

Glue three floor support angles onto the sole bar as shown. (NB the kit includes a couple of spares)



Step 6 – Couplings

The prototype actually had dumb buffers and hook and chain couplings. However to make this model more usable with the majority of SM32 locomotives, the kit comes supplied with 3D printed, sintered nylon bell mouth couplers similar to those as supplied by Hudsons of Leeds ; Ornstein and Koppel etc.

The pair of couplers comes with a pair of “T pins” and a link bar. You will probably need to clean out the pin’s hole with a 2mm drill bit after “de-spruing” the parts .

The modeller has the choice of using this coupling in a prototypical manner; i.e. keeping the link engaged in one buffer and sliding the t-pin in and out of the other (tweezers recommended) to couple the wagons together.

Alternatively dispense with the link bar and permanently glue the t-pins in place. The small coupling chain may then be slipped over the T-pins to couple in a more conventional garden railway like manner.

Either way, fix the two couplers onto the wagon ends with four self-tapping screws. Again it is suggested you chemically blacken these or use some matt black enamel paint on the screw heads.

Put a spot of lubricating oil on each axle end before the wagon enters service

Job Done!