

## Trefor Quarries Flat Wagon

This model is very loosely based on the wooden flat wagons used at the Trefor granite quarries (originally spelt "Trevor") on Lley Peninsula of north west Wales. The prototype was in fact two foot gauge but the model has been increased in length and width to make it suitable for 45mm gauge track.



### 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

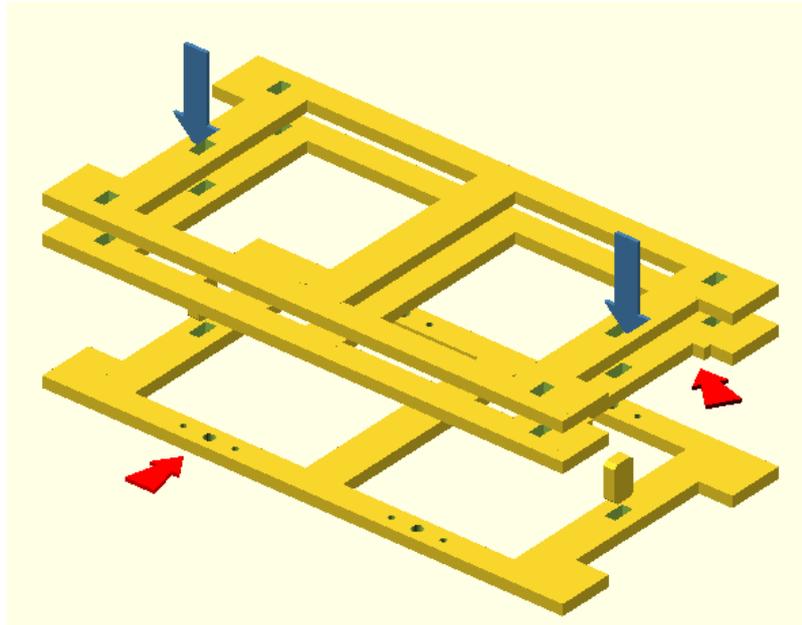
The following tools will be required:

- 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

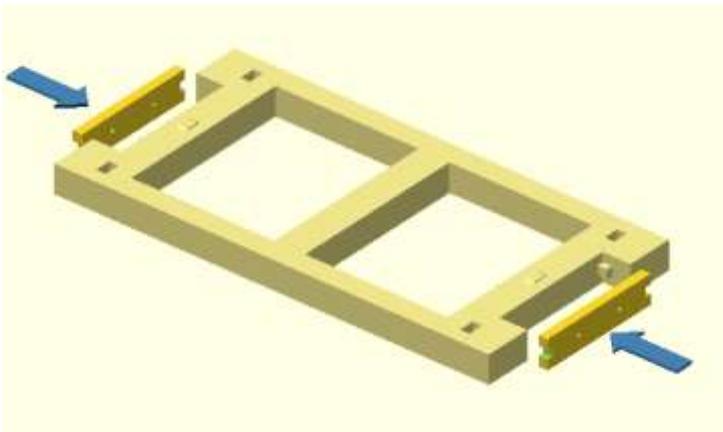
The following tools are recommended

- 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 of your choice (**see below**) 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.

Three pairs of buffer mounting plates are provided. **A pair with 2 holes 16 mm apart for use with the supplied bell-mouth couplers.** A pair with holes 20mm apart for use with Accucraft chopper couplers (not supplied) and a pair with a single pilot hole for single bolt mounting buffers.

Also provided are 4 rectangles to increase the length of the dumb buffers if you want to model a more prototypical dumb buffer and hook arrangement.

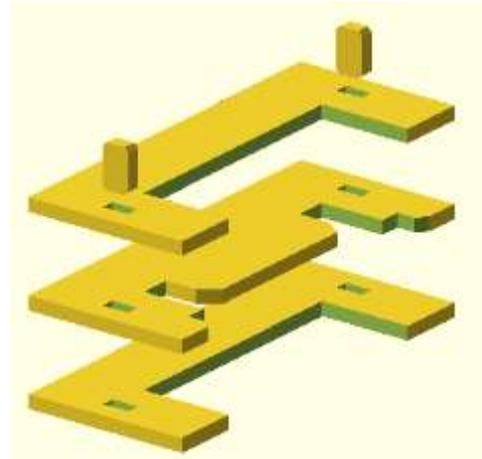
*Now paint or varnish the complete chassis assembly to seal it against moisture.*

## Step 2 – Wheels

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



moving the wheels in and out until it fits nicely.



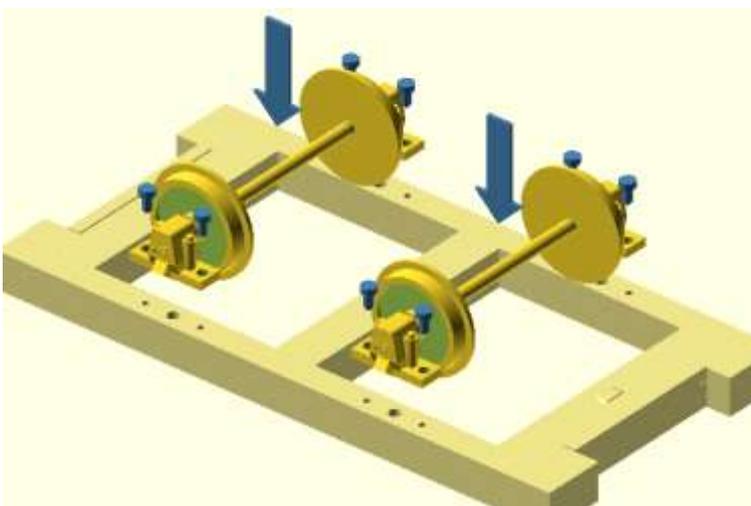
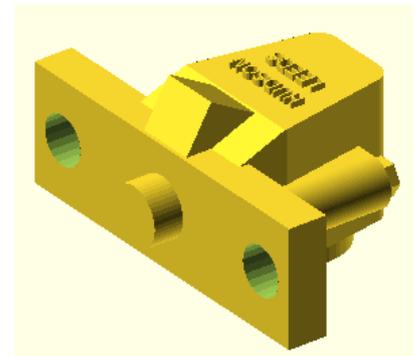
Once the glue is set, place jig in your vice. Push a pair of wheels onto an axle and push them in from the ends about 6mm. Now manoeuvre the complete assembly into the jig as shown, gently

## 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.



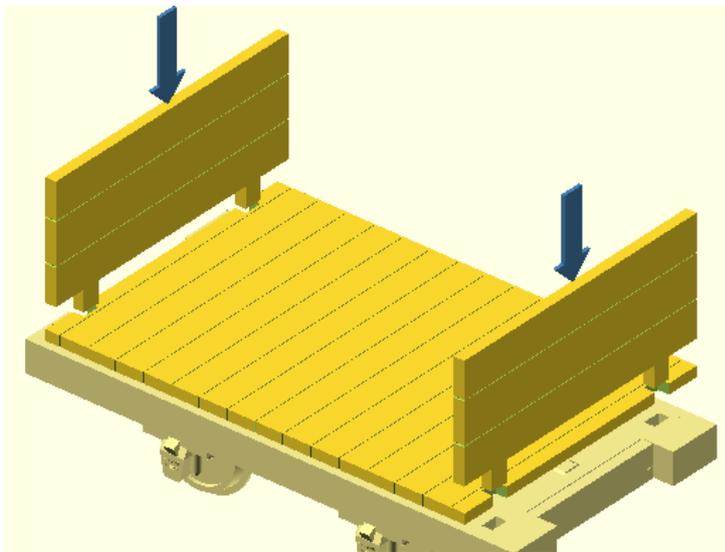
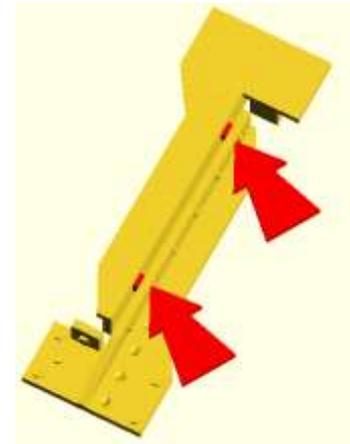
Place a pair of axle boxes onto a wheel set and fit the two locating pegs into their holes in the chassis. Now secure in place with 4 of the self tapping screws.

Repeat for the other end.

#### Step 4 – Body

Separate the 3D printed corner stanchions from each other by cutting off their little connecting sprues and trim off any sprue residue with a sharp knife so you have a flat surface to glue to the wagon body.

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

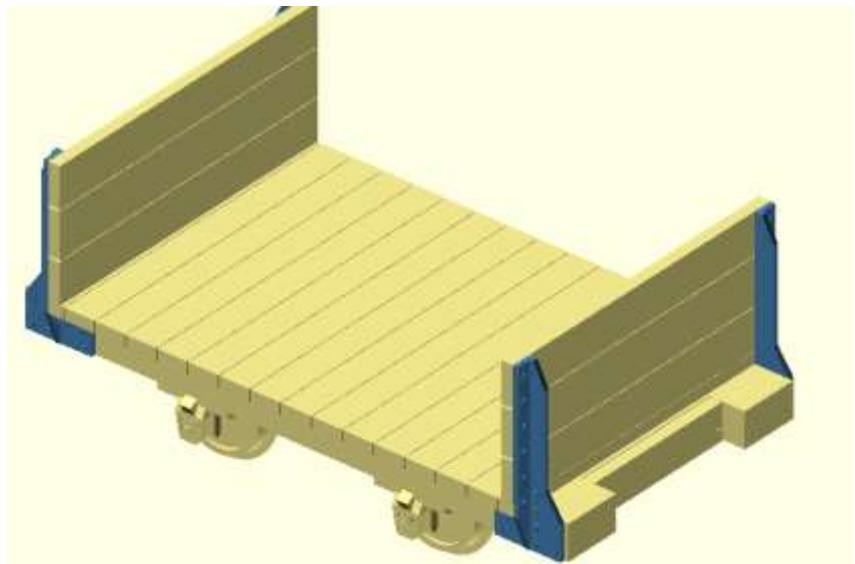


Glue floor to the chassis (PVA glue recommended) and then the body ends through the notches on the floor ends into the locating sockets in the chassis.

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

Now super-glue the four corner stanchions in place. Doing this will brace the two ends and ensure that they are perpendicular to the floor.

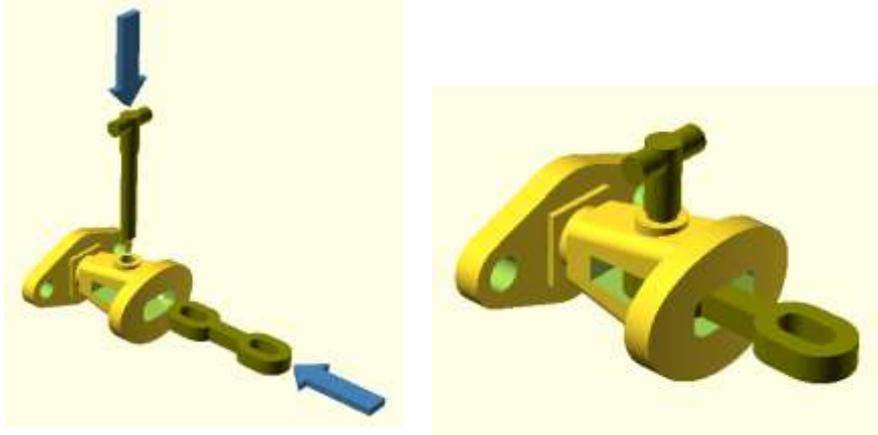
Once dry; paint, stain or varnish the body as you see fit.



## Step 6 – Couplings

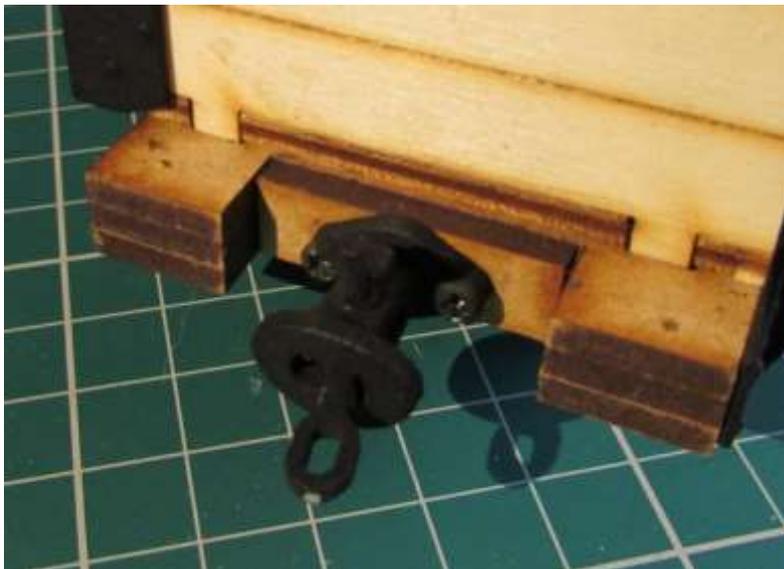
The prototype actually had dumb buffers and hook and chain couplings. However to make this model more usable with the majority of G scale locomotives, the kit comes supplied with 3D printed, sintered nylon bell mouth couplers as supplied by Hudsons of Leeds ; Ornstein and Koppel etc.

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.

**Job Done!**