

## Grange Farm Tipper Wagon



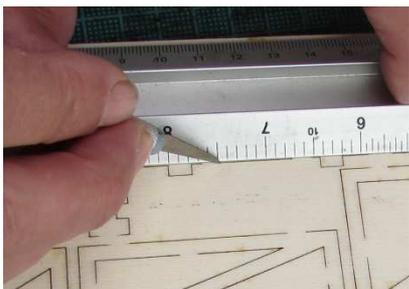
Side tipping or dumping wagons were extensively used by narrow gauge industrial railways and range in size from small hand propelled examples up to large wagons capable of carrying several tonnes hauled in long rakes by large locomotives (e.g. the Kettering furnaces railway).

This model is based on the side tipper wagons used at the grange farm ironstone quarry which was part of the Scaldwell ironstone railway system in Northamptonshire. This is a medium sized example which is big enough to be locomotive hauled but still noticeably smaller than a common carrier open wagon. The prototype was constructed with an oak inside frame and an elm planked body. The body “rocked” sideways on crescent shaped rockers and was retained in place by curved metal slots at each end.

### 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 in time! 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.

Metal parts (e.g. coupling hooks) are best fixed with Cyano/super glue.

## Painting

This is very much a matter of personal choice. As poplar plywood is used for the body, leaving the model mostly unpainted can be very attractive however if you plan to run your trains in all weathers, some form of protection (especially on the MDF parts) will be needed; a couple of coats of acrylic matt varnish from a “rattle can” is easy way of achieving this.

## Suggest Colour Scheme

Paint the “strapping strips”, corner plates, tilt plates and door latches with a dark grey acrylic paint (e.g. Tamiya) before you glue them to the body. Apply 2 or 3 thinned coats (tip use surgical spirit rather than Tamiya thinners to thin Tamiya paint), this should seal the MDF against moisture.

Stain the body parts before gluing together. With a cloth, lightly smear on wood dye bought from your DIY store. Go slowly as the very pale wood absorbs the colour quickly. Alternatively to achieve the silver grey look of weathered wood , stain with very weak mix of black india ink in surgical spirit applied with a small paint brush.

The chassis can be treated and protected with Exterior wood stain. Small tins in a variety of colours are available from your DIY chain store. Apply two to three coats with a small paint brush until you have an even colouring.

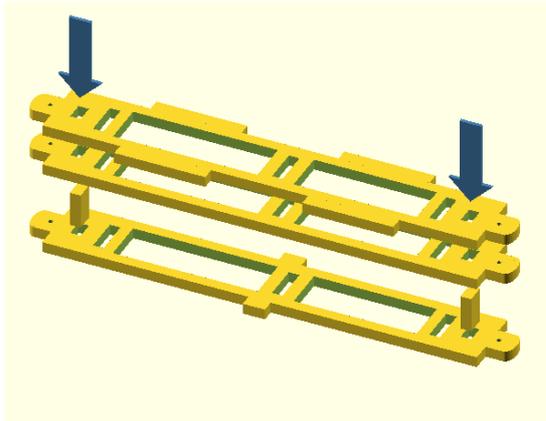
## Tools

The following tools will be required:

- A sharp modelling knife or scalpel
- 1.5 mm and 4mm drill bits
- A small file, sand paper or an emery board “nail file”

The following tools are recommended

- A cutting matt
- A small steel ruler
- Some small clamps, bulldog clips or rubber bands
- A round section “needle file”
- A metal working vice with smooth jaws or a wood working vice

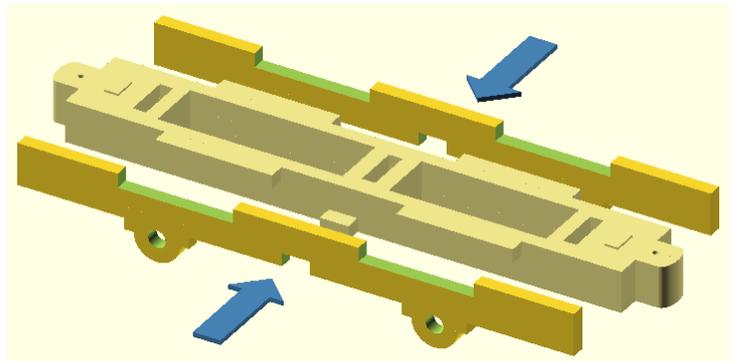


#### Step 1

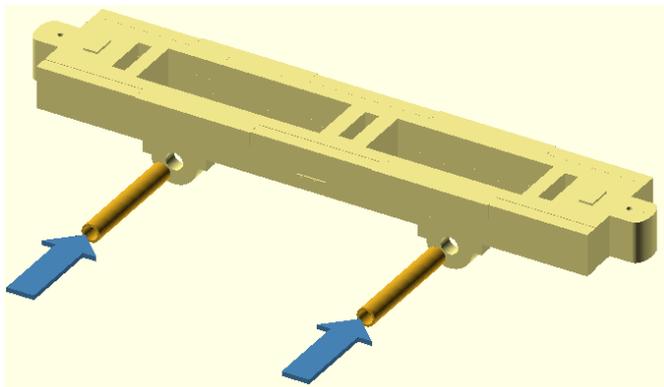
PVA wood glue is recommended for these 2 steps or if want to use a super-glue DON'T use an "instant grab type". Glue the 3 "chassis plates" together using the small rectangular locating pegs at each end. Note the sequence of centre tabbed, no tabbed and end tabbed plates and that the central beams and slots are slightly offset. Make sure the parts are squeezed together properly.

#### Step 2

Glue the two sole bars onto the sides. If any of the glue has oozed out from between the plates (especially in the cross member locating slots) clean it off now. The parts should fit together snugly but if necessary clamp the sides to the plates while the glue dries.



Once the glue is dry, lightly file the ends of the locating tabs to remove any remaining edge discolouration.



#### Step 3

Gently slide the 2 brass bearing tubes into their pedestals, the holes might need easing by "twiddling" a 4mm twist drill through the holes with your fingers. Align the tubes so that they project out about 1 mm each side (don't be tempted to file them flush). Once you are happy with the position fix in place with a few drops of super glue on the inside of the pedestals.

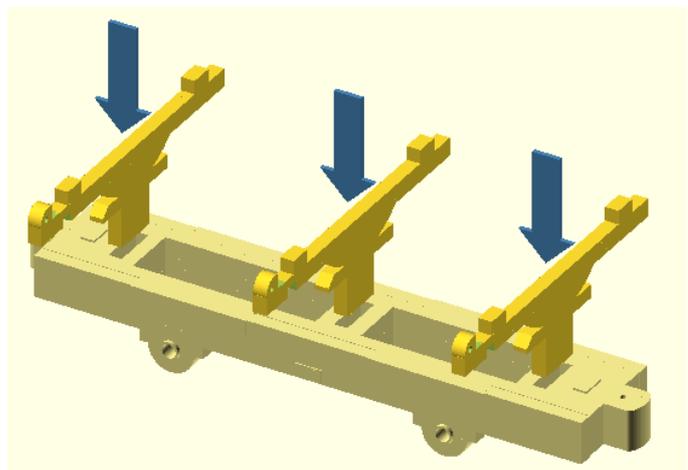
#### Step 4

Now glue the 3 cross members into their chassis slots. Make sure that the slightly longer chassis cut out is to the left and the small holes for the door hinge is to the front.

#### Tip

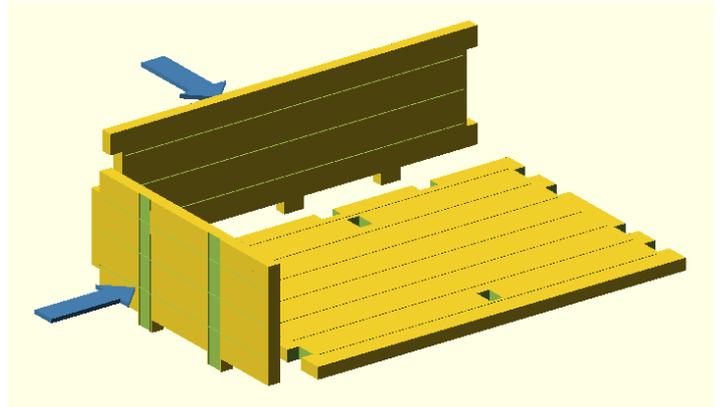
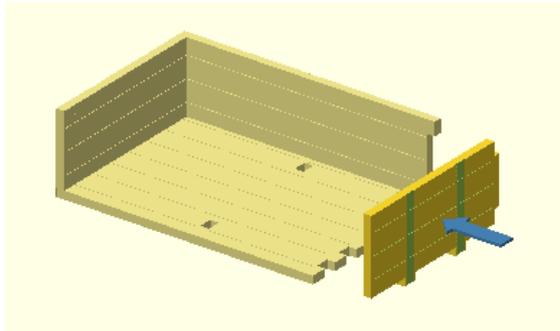
Temporarily fit (i.e. don't glue) the body floor onto the locating lugs on the cross members to ensure the cross members are aligned perfectly.

*Now's a good time to paint the completed chassis!*



#### Step 5

Glue one body end and the fixed body side to the floor. Either PVA or superglue works well here. Note that the engraved bands (to locate the rivet straps) should be on the outside; the two small rectangular holes in the floor should be slightly to the right of center

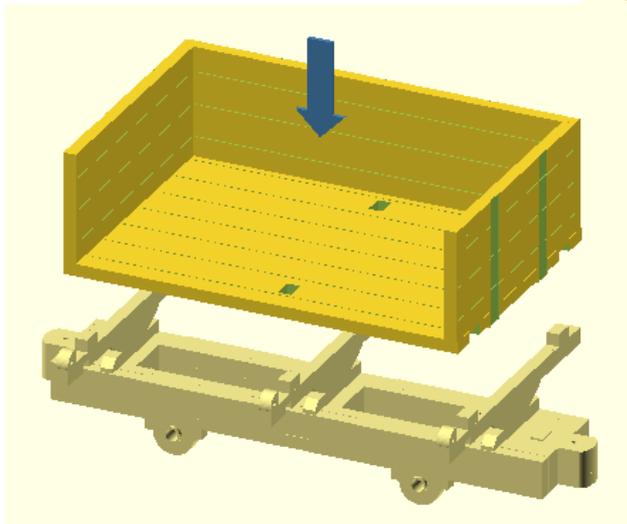
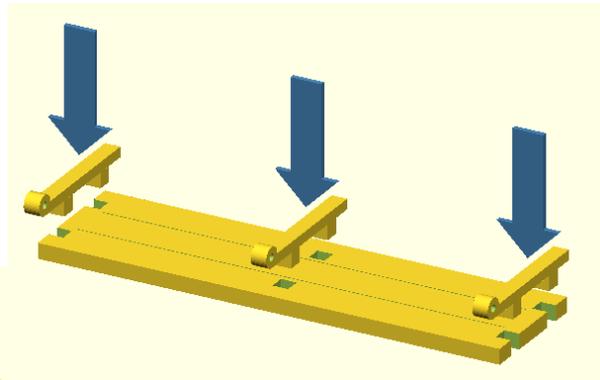


#### Step 6

Glue the other body end onto the body assembly.

#### Step 7

Glue the three hinge plates to the door.

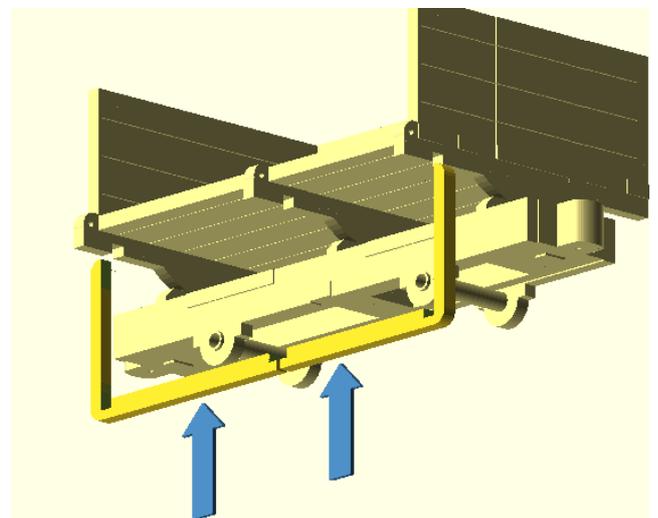


#### Step 8

Glue the body to the chassis cross members

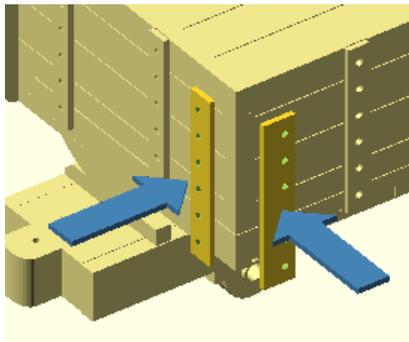
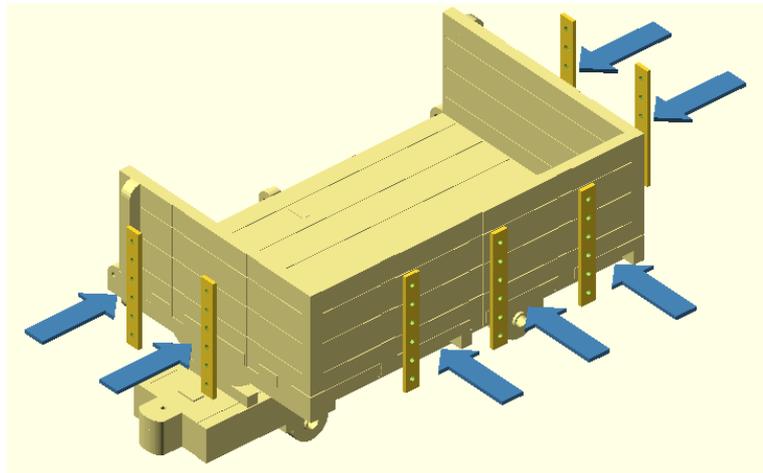
#### Step 9

Glue the two side braces to the bottom of the body floor and the outside of the body-ends, locating in the cut outs in the cross members. NB One side brace is slightly longer to allow for the central member's slight offset. If you are using PVA glue you will need some small clamps to hold the pieces while the glue sets.



### Step 10

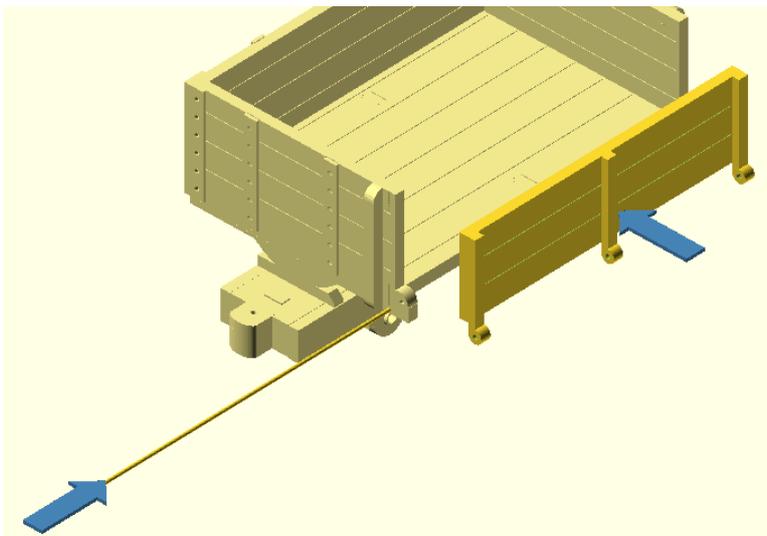
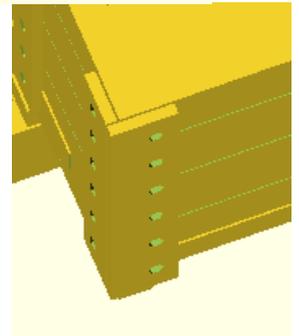
Glue the 7 thin (4mm) strapping strips into the engraved recesses in the body sides.



### Step 11

Glue a medium (5mm) strapping strip to a body end so its outer edge is aligned to the body side. Ensure the line of rivet heads is away from the corner. Now glue a large (6mm) strapping strip on the body side so it overlaps the 5mm strip on the body end.

Repeat for the other body corner.



### Step 12

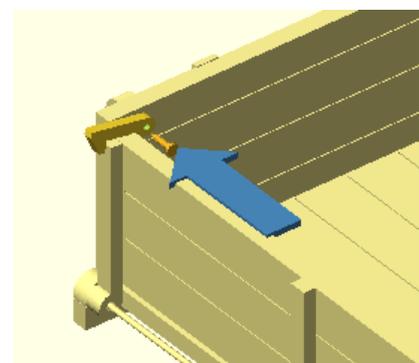
Locate the door hinges between the hinge holes on the chassis. Slide the long steel rod through all 6 holes. Fix in place with 2 small drops of super glue on the outer ends of the rod.

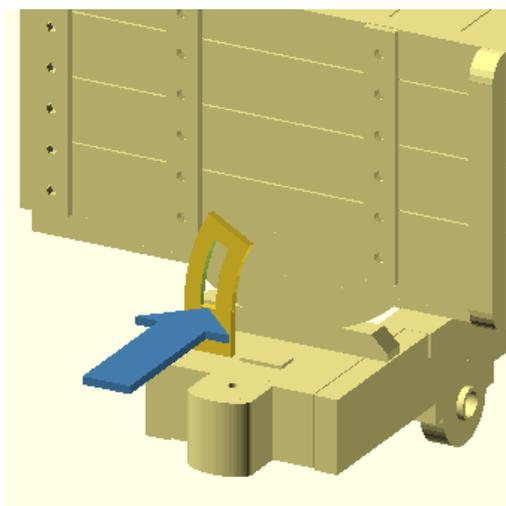
### Step 13

If you wish to have a working door, fix one of the door latches with one of the small brass nails provided through the eye into the tiny locating hole in the corner of the body end. Press the nail in gently to avoid splitting the top of the side brace.

Alternatively you can simply glue the latch and door in place if you want the door permanently closed.

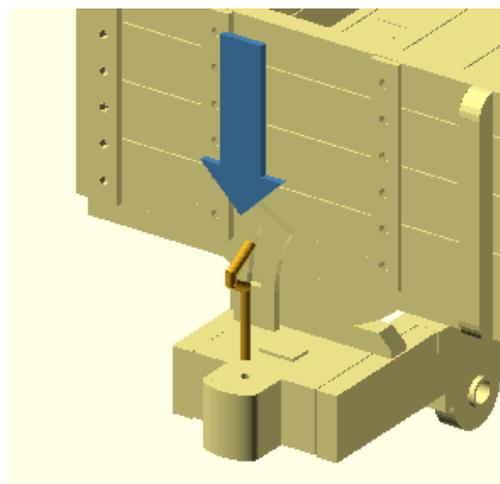
Repeat for the other body end.





#### Step 14

Glue one of the “tilt plates” to the body end with its foot resting of the chassis top. Repeat for the other end noting that both plates should be leaning towards the door.



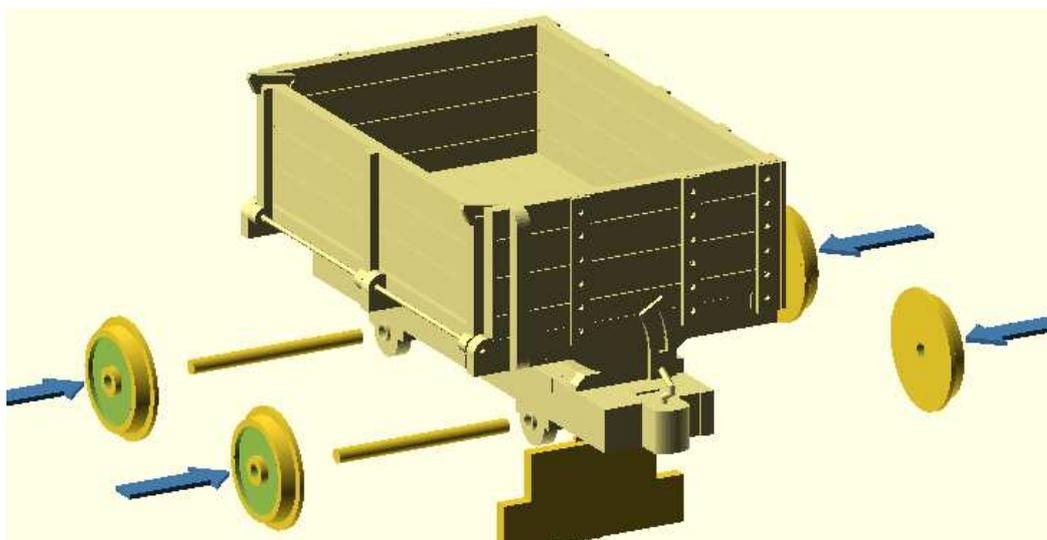
#### Step 15

Super glue a coupling hook into the hole in the dumb buffer. (You will probably have to clean out the hole first by “twiddling” a 1.5 mm twist drill through it). Repeat at the other end.

#### Step 16

Finally push one wheel onto an axle, pass the axle through a bearing tube in the chassis and fit another wheel to the other end. Gently squeeze the two wheels together in smooth jawed vice until the “back to back” distance is 28 mm. NB a back to back gauge is provided in the kit to help get this right.

Repeat for other axle



Job Done!