

## Wooden Coal Tub

This model has been inspired by various on-line videos of a Taiwanese coal mine where these little tubs can be seen being hand shunted by a couple of local labourers into a wagon tippler and being hauled by a very Heath Robinson “locomotive”. However, the design is very generic and would have been easily built in your industrial line’s “works”.



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.

The MDF parts may be glued with PVA wood glue, Cyanoacrylate adhesive (super-glue) or epoxy resin (Araldite). Beware of very 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. strap plates and buffer strapping) are best fixed with good quality Cyano/super glue or aero modellers “canopy 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 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 of 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 your 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

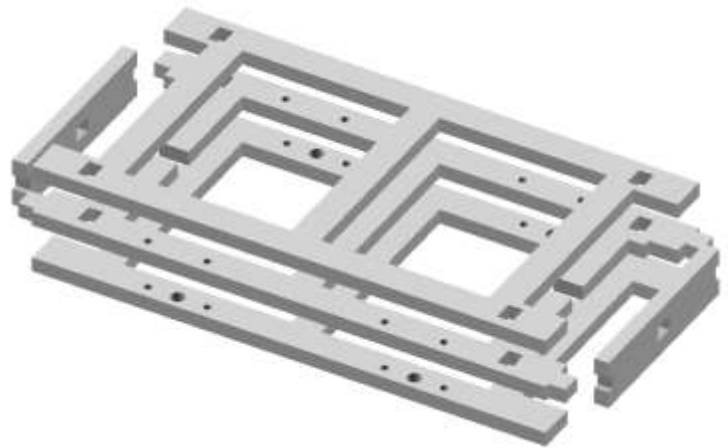
The following tools are recommended

- A cutting matt
- A small steel ruler
- A pair of needle nosed pliers
- 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

PVA wood glue is recommended for this step. Glue the 3 “chassis plates” together taking care to align the parts (the coupling mounting plates help with this). Make sure the parts are squeezed together properly.

Now glue the two coupling mounting plates of your choice (**see below**) onto the ends between the two sole bar extensions.

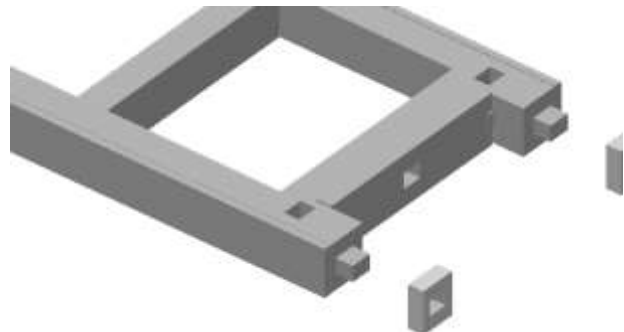


Clamp the parts together with small modeller’s clamps or bull dog clips. Wipe out any glue that oozes into the body end locating holes and buffer shank holes.

Once the glue has set, lightly sand the chassis sides to ensure you have a flat surface and then glue the two 1.5 mm plywood chassis overlays on. Once dry, sand any top or bottom lip off (*we have to cut these parts slightly tall to allow for the variations in MDF thickness*)

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.



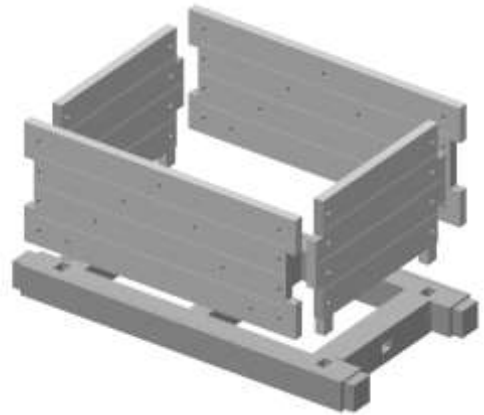
### Coupling choice

Three pairs of coupling 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 medium sized 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.*

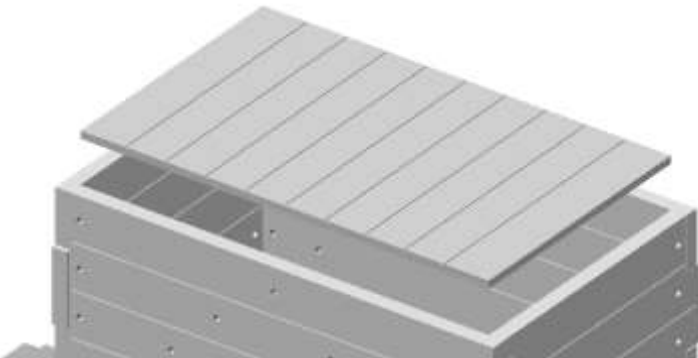
## Step 2 - Body

Separate the 4 body sides from their frets with a sharp knife. Glue the sides together, carefully fitting the locating lugs into their sockets in the chassis. Note the orientation of the rivet holes in the sides.

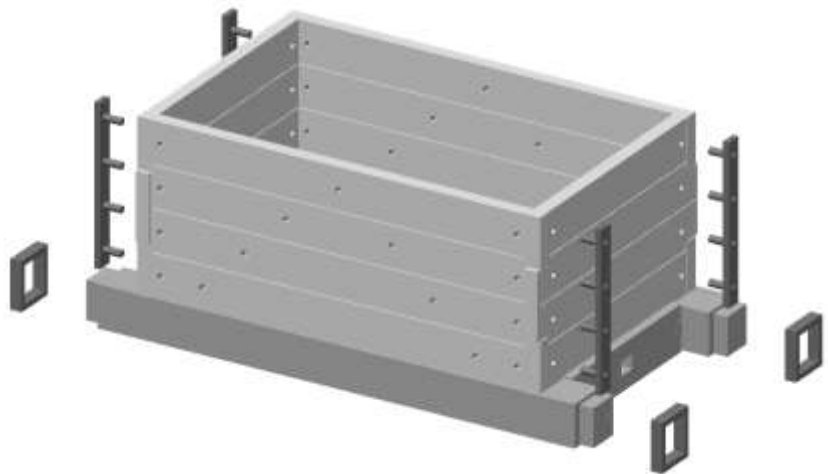


Now glue the 1.5 mm plywood floor in place.

*Now is a good time to paint the body in its main base colour.*



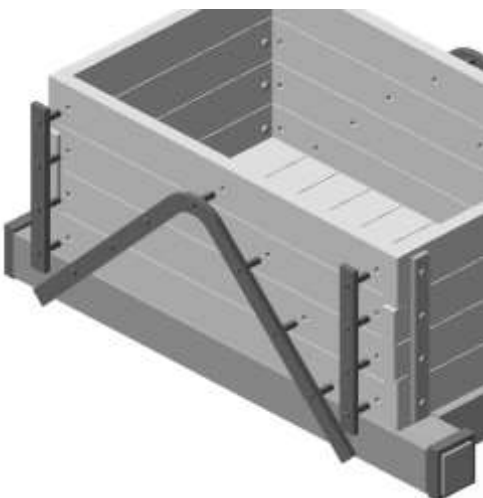
Separate the 3D printed rivet straps and buffer straps from each other by cutting off their little connecting sprues and trim off any sprue residue with a sharp knife. The little white spots left when you trim of the sprues are best "coloured in" with a black permanent marker pen.



Glue the eight corner rivet straps in place. Ensure the rivets push all the way through their locating holes and the plates are seated on the body sides. The rivets should protrude inside the body by about 1mm.

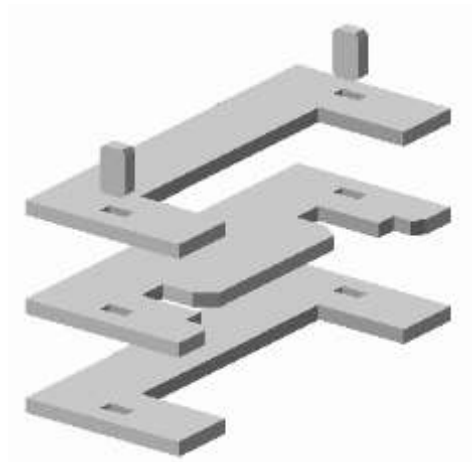
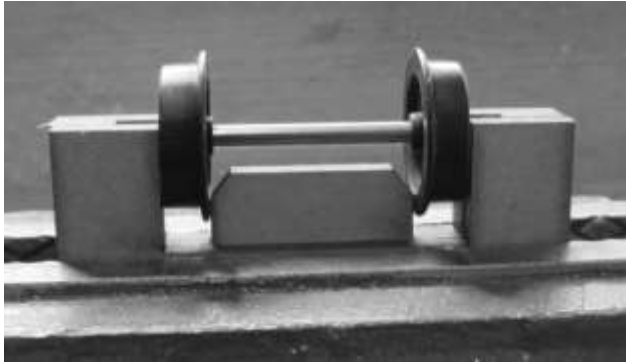
Glue the two "L shaped" side straps in place.

If required, glue the four buffer straps to the sole bar extensions.



### Step 3- Axle Assemblies

If you have the nylon wheel kit; glue the three parts of the wheel assembly jig together using two locating pegs to align them.

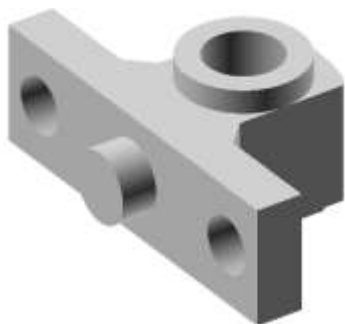


Once the glue is set, place the jig in your vice. Push a pair of wheels onto an axle and push them in from the ends about 6mm. Now

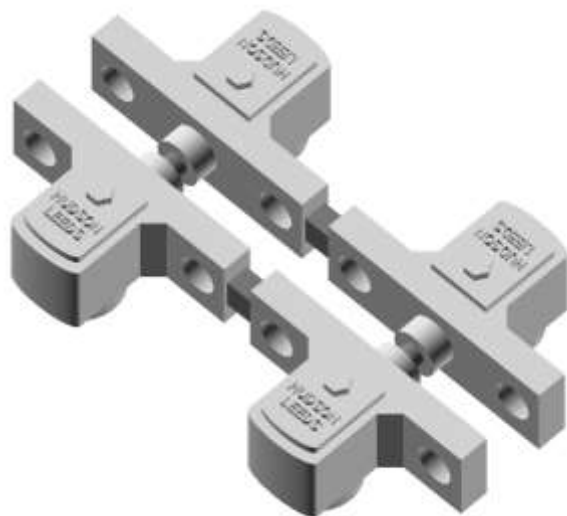
manoeuvre the complete assembly into the jig as shown, gently moving the wheels in and out until it fits nicely.

### 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!**



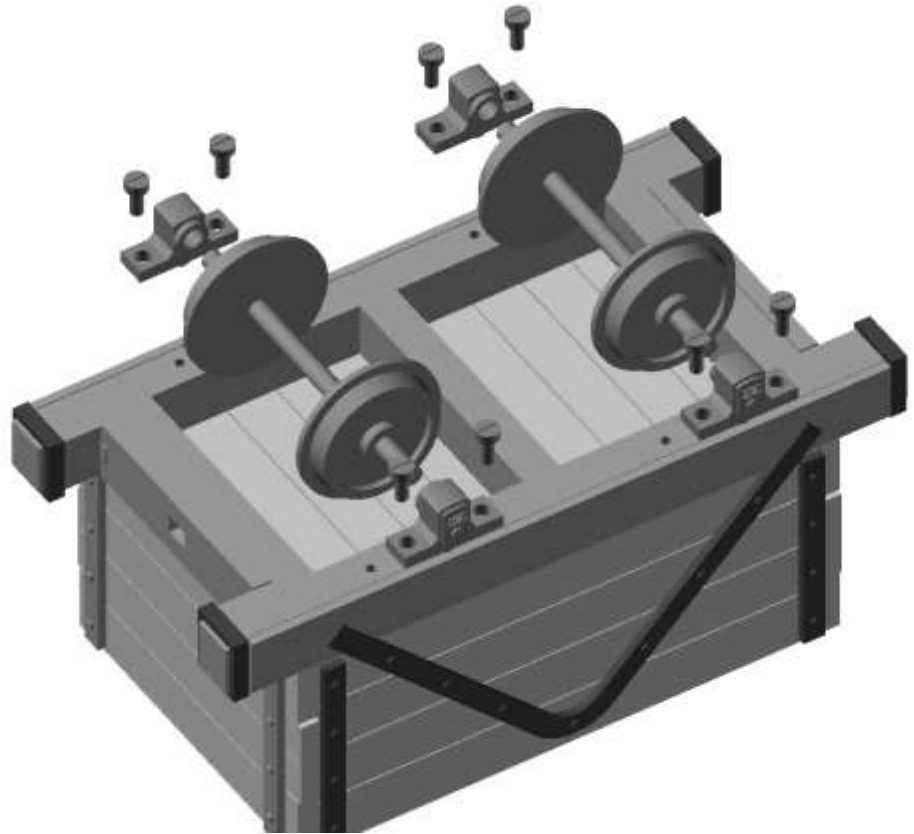
Clean out any printing dust in the axle holes by "twizzling" either a 2mm or 3mm drill bit (depending on axle size) in them.

## Step 5 – Wheels

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 axle.

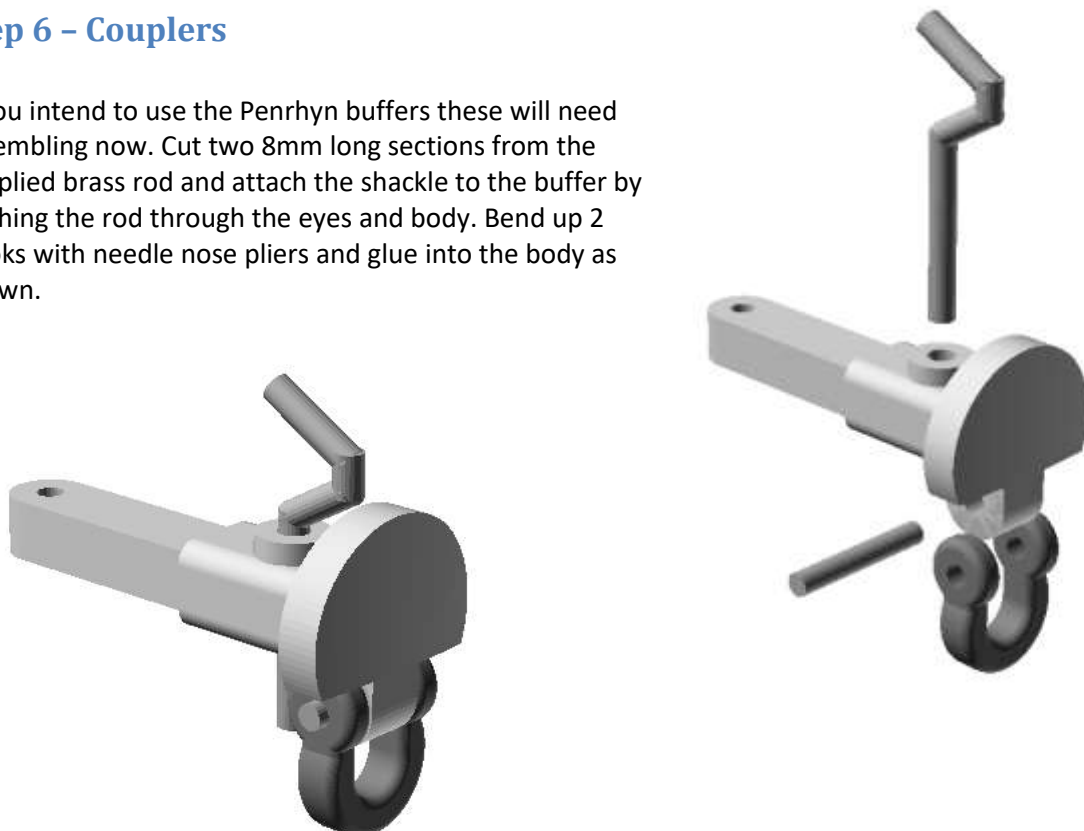
Before entering service, remember to oil the axle ends with a light lubricating oil (e.g., 3-in-1).



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.

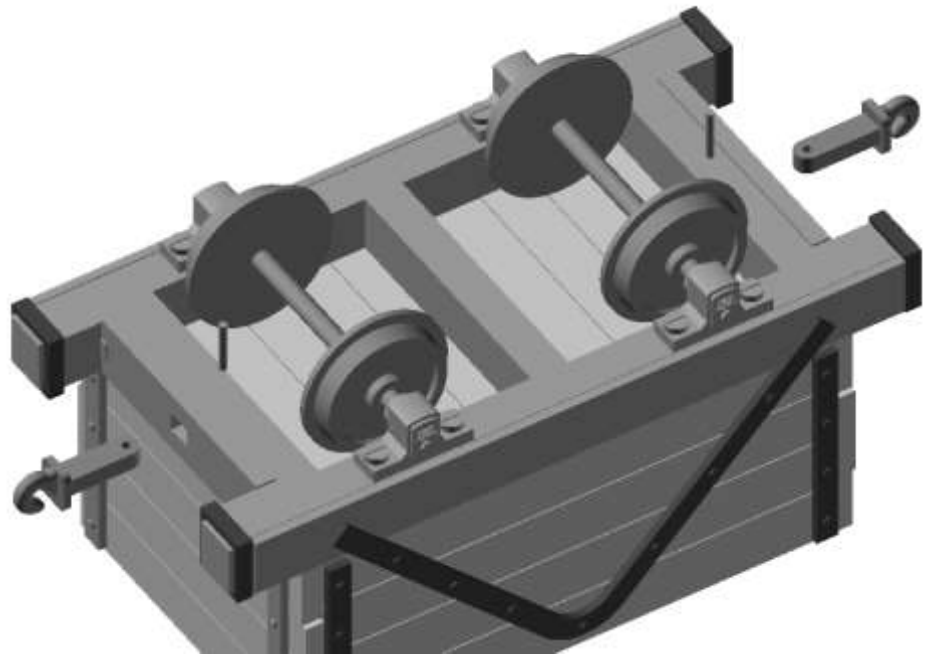
## Step 6 – Couplers

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



**Job Done!**

## Parts List

<b>Part</b>	<b>Material</b>	<b>Quantity</b>	
Body side fret	3mm ply	1	
Body floor	1.5mm ply	1	
Sole bar overlays	1.5mm ply	2	
Chassis plate A	3mm MDF	1	
Chassis plate B	3mm MDF	1	
Chassis plate C	3mm MDF	1	
Wheel setter (Nylon wheel version only)	3mm MDF	1	
<i>Details Bag</i>			
Body strapping set	Black nylon	2	
Coupler set	Black nylon	1	
Dumb buffer strap set	Black nylon	1	
Axle box set	Black nylon	2	
M2 Self tapping screws	Black steel	8	
1.2mm dia rod (75mm long)	Brass rod	1	
Coupling chain (3 link)	Nickle/brass plated	2	
Binnie 20mm disk wheels	Black nylon	4	
52mm axles	3mm dia rod	2	
<b>or</b>			
20mm dia steel wheels		2 axles	