

## Captain Baxter, 3D Print instructions



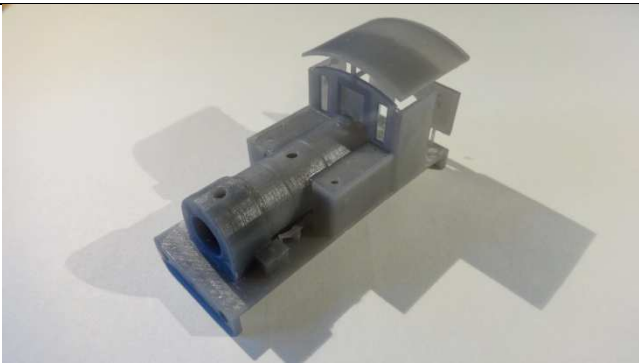
*Baxter prototype printed by Shapeways and a home 3D printer*

Thank you for purchasing the Captain Baxter 3D print, this will instruct you on how to put this model together, along with various parts, and tools needed. This model has been designed using the original scratch built model which I had built 4 years ago.

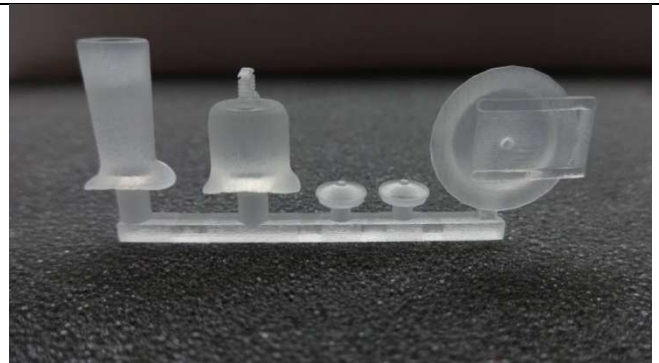
Firstly you will need both parts for this model, as well as a Hornby / Dapol LnY pug.



*(A donor Hornby / Dapol LnY pug required)*



Body print: <http://shpws.me/lqM8>



Detail Parts: <http://shpws.me/HoFv>

Both models come printed in Frosted Ultra Detail (FUD) which is a clear translucent plastic material. These parts will have been cleaned by Shapeways but may require another clean to remove the support material (Wax) these models are printed in, warm, soapy water and a tooth brush will be fine to clean the parts with.

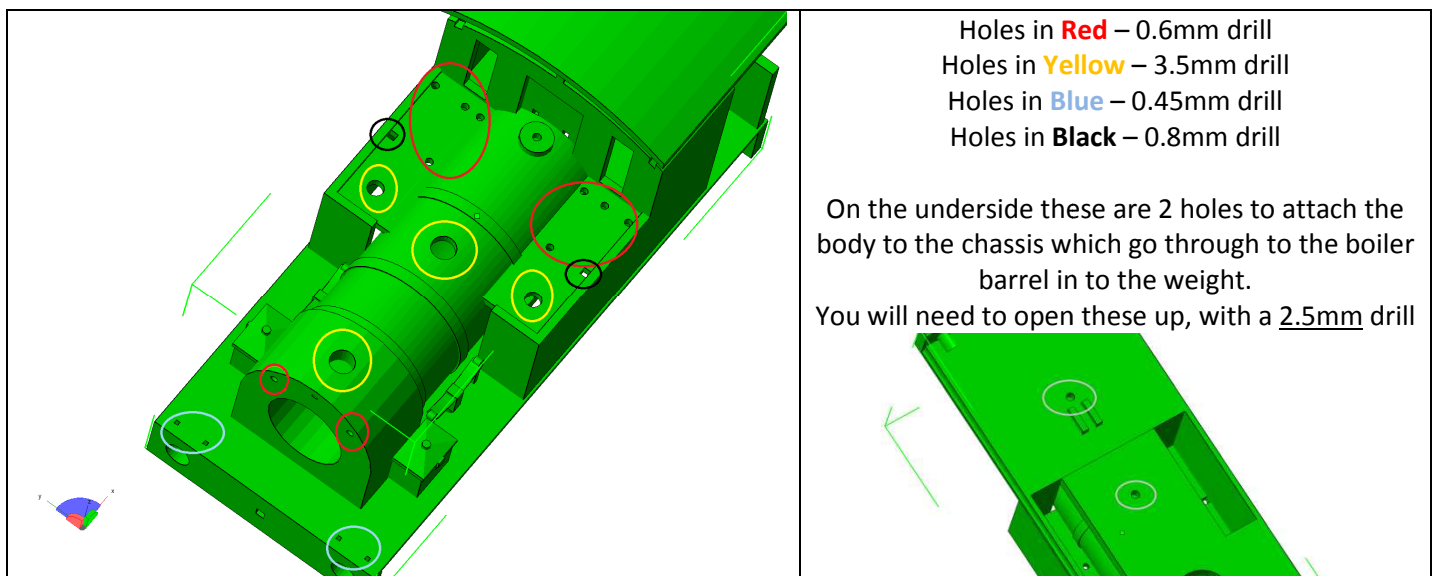
You will need some tools to build this model, as well as a number of detailing parts and components.

<u>Tools</u>	<u>Details</u>
<ul style="list-style-type: none"> <li>- Needle files</li> <li>- Drills (3.5mm, 2.5mm, 0.8mm, 0.6mm, 0.45mm)</li> <li>- Pozi Screwdrivers</li> <li>- Soldering iron</li> <li>- Cutters / Pliers</li> <li>- Super glue / gel</li> </ul>	<ul style="list-style-type: none"> <li>- Buffers (<i>Sprung Hornby *X6206 / Markits* M4buflocoBRstd</i>)</li> <li>- 0.8mm brass rod</li> <li>- 0.6mm copper wire</li> <li>- A whistle</li> <li>- 0.45 mm wire</li> <li>- Small Handrail knobs</li> <li>- Brass strip *Steps</li> </ul>

After cleaning your model, you are now ready to start the process of putting the model together; some of the holes for screws and parts may need opening up slightly to enable them to fit.

The chimney, dome, and tank filler caps require a 3mm drill bit to just open them up a touch. These parts can be secured in place with a touch of super glue.

For the pipe work in front of the cab again holes may need re drilling with a 0.6mm hole, and 0.8 holes for the cab supports.



Once all the holes have been opened up, it's now time to start putting the model together, or would that be taking it apart? Firstly remove the roof, and clean up any remaining parts of the sprue. Also remove the back of the cab which will allow you access to the boiler barrel to insert the weight.

The weight is from the L&Y pug body and will require some reshaping to allow it to fit in to the boiler barrel of the body.

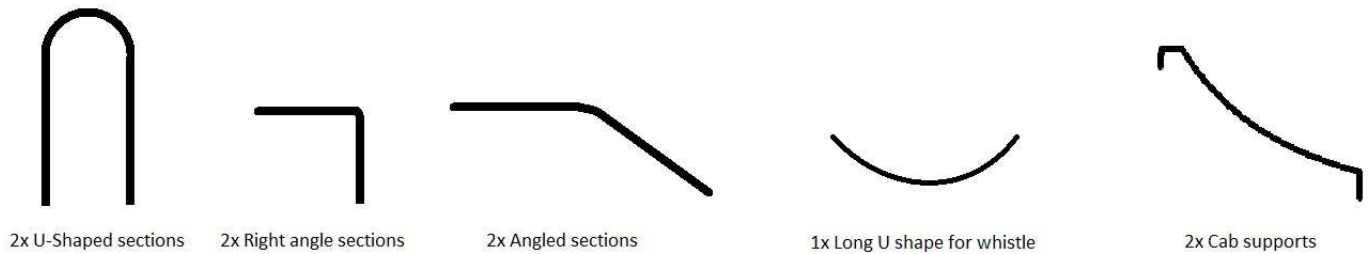
*If you don't have a body weight from a pug, then what I would suggest is drill the holes underneath with a slight smaller drill bit 2 – 2.2mm so the screw has something to bite in to. To add weight use Liquid gravity.*

### Pipework

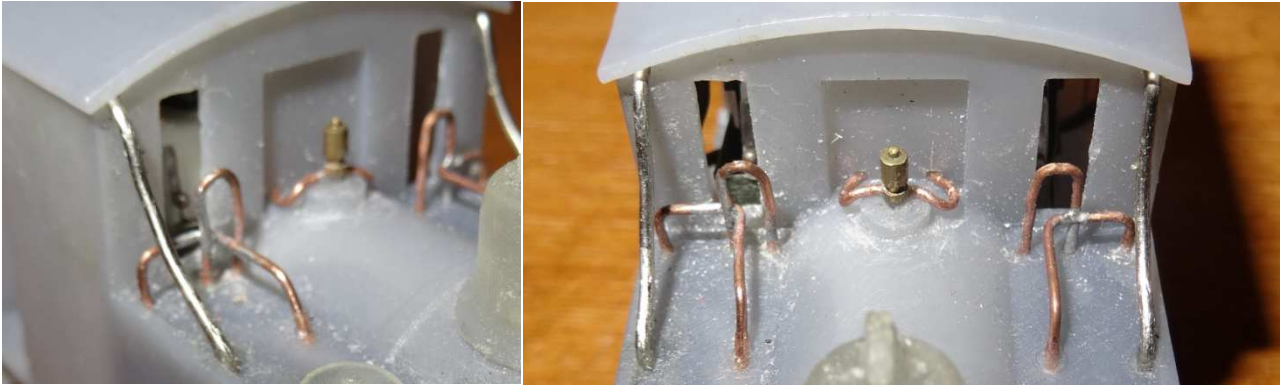
**There is quite a bit of pipe work around the front of the cab. If you wish to add this to your model then follow the instructions below.**

**You will need 0.6mm copper wire, you can find this in Hobbycraft or online jewellery shops, and should only cost £2 - 3.**

The copper wire is 0.6 mm thick, and is very easy to bend in to shape using hand tools like blind pliers, You can quite easily solder parts together. You will require 2x U shaped sections, 2x right angle sections, and then 2x angled sections.



*(Pipe work and cab supports 0.6mm copper wire for pipes, 0.8mm brass rod for cab supports)*



*(Finished pipe work and cab supports)*

Once you are happy with these pipe sections, leave these for fitting towards the end of the build to allow for painting and finishing. You can purchase old turned brass whistles from eBay or from Markits.

#### **- The Front end -**

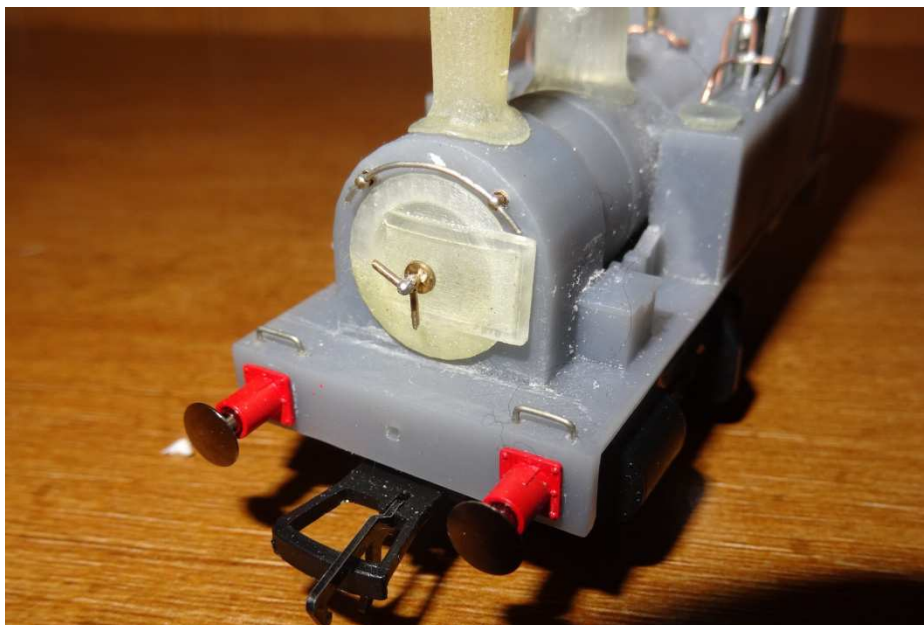
On the front end on the smoke-box first, a small curved piece of hand rail is needed, you will require some hand small rail knobs and some 0.45mm nickel silver wire, you can acquire these from all good model rail suppliers, I recommend Nairnshire modelling supplies.

You will require 0.6mm for the handrail knobs, and a spot of super glue to fix them.

You will require a 0.45mm drill for the hand rails above the buffers highlighted on page 1, this will be just the nickel silver wire bent in to shape and a small drop of glue to secure them.

The smoke-box door requires a door handle you can acquire these from Mainly Trains, I buy from here as you get 2 for the price of 1, and they always come in handy for detailing projects.

The holes in the buffer beam have been designed for Markits BR sprung buffers, you can also use similar buffers from Hornby spares X6206 which will require a small amount of modification to fit.



You can fabricate front and rear steps from brass strip about 2.5mm wide.

**- The chassis -**

***Important***

*The rear of the chassis requires shortening, which pushes the body shell forwards, 1 – 2 mm needs to be removed from the rear of the chassis to ensure the motor / worm engages with the gear. The coupling may require the coupling to be repositioned and glued to the chassis. Do this modification first before mounting the body to the chassis.*

The cylinders are cut from their mounting and glued to the side of the chassis and leaving the mounting block in situ so it could hold the body on when it was reintroduced to the chassis. The wheels and motion were put back on to check if this would all work and the motion was still smooth and no sticking



*Chassis of the pug, Dismantled.*



*The cylinders cut from their base.*



*Cylinders there then glued to the chassis.*

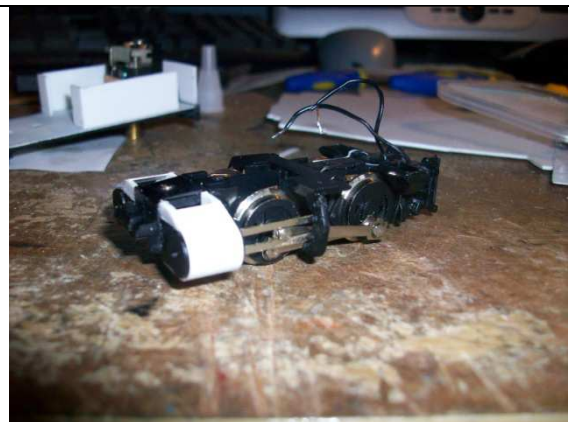
Work could then start on the main shape of the engine again work started on the cylinders to begin with. At the top of the cylinders the slope down to the bottom and curve around the cylinder. This was achieved with plasticard, 2 rectangle sections were cut out and placed on top of the cylinder and left to dry.

Once these were secure a slope could be filed or cut in to them making the slope. Once this was done, a thin piece of plasticard was cut to size and using Superglue I glued the whole cylinder and the 2 pieces of plasticard on the top of the cylinder. The thin plasticard was carefully positioned and stuck in place. This was done on both cylinders.

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*The frame work made up with plasticard, 30/000 with thinner card wrapped around, 10/000 was used for this.*



*Another view of the re-modelled cylinders. This was glued together using superglue.*

**- Steps -**

The steps on the original were constructed with plasticard but can be done with some brass strip which is 2.5 - 3mm wide, which can be bent in to shape and glued in to place under the running plate.

- Painting -

Once you are happy, you can now progress on to the painting stages. I would suggest another clean / degrease prior to going further. I would recommend Halfords Grey primer as a base coat, Baxter is of course red, I will leave which red up to you. The loco is lined out in black and off white lining which has a hint of red in it. You can do this quite easily by watering down or thinning down the paint and applying a light coat to the white lining.

