

Detailing of a  
Model Engineering Products. Bexhill  
Class 33 fibre glass body.

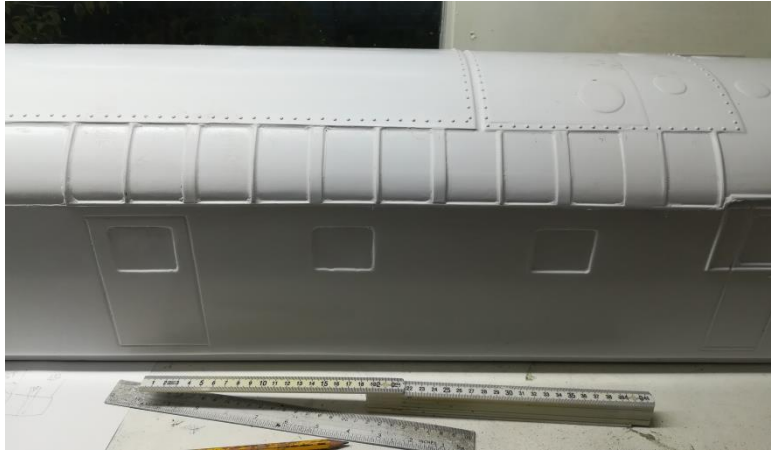


**CLASS 33.**

ONE PIECE FIBREGLASS BODY SHELL LASER CUT STEEL  
CHASSIS AND BOGIE SIDE FRAMES,  
LENGTH. 54"      WIDTH 9.5"

While my son enjoys driving my class 67 we decided to buy this kit for his 30<sup>th</sup> Birthday in September 2019.

When we picked the kit up, it was just a fibreglass body straight out of the mould and as it stood, for a stand-off look alike it would be ok to paint the windows and put some mesh over the top side grills and to cut out the top round fan and put some mesh in place.



However, that was a long time ago.....the story begins. I started to rub down the mould join lines around the body.

Then some more filling and rubbing down again and get the shape, particularly around the front to side corners.

I cut out the side windows and then drew up some window

frames in Autodesk Inventor CAD then 3D printed them.

Previously, I spent about 4 hours studying reviews of different printers and then bought a middle range and quality Anycube i3 Mega printer.

As the College where I work was now closed for the summer, I had some time on my hands so I decided to go all the way and cut out all the windows and grills on the roof and side.

Just the round fan grill on the top to do here, which I discovered was too far forward over the cab by 25mm so it had to be removed along with the 2 side panels and marked in the right place.



I started to look on the internet for photos of 33's for reference.

There seemed to be a lot of them but most were not big originals to see the details I was wanting.

Remembering Swanage railway had a blue one, we had a day out there on 31<sup>st</sup> December 2019.

Fortunately, there was also a green one as well and both inline together in the sidings just at the outward end of the station and viewable from the side road along the station and the bridge over the line so I got loads of side, top and front pictures along with some close ups with the telephoto lens, just what I needed.

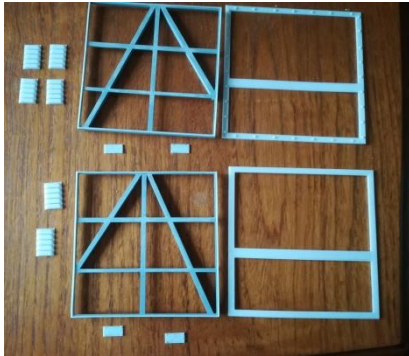


Here, a trial fit of the louvre vent I had drawn up and 3D printed before I make the other 21 !

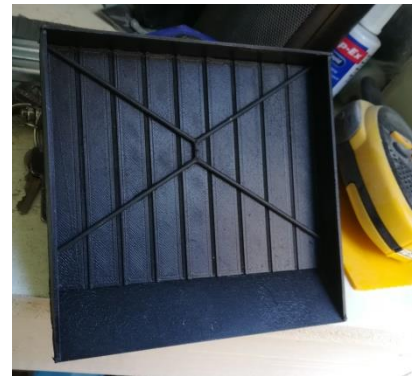
I had got the bug now for drawing up and printing all the parts.... I thought I would need to proceed.

This took a lot longer than I thought, as I had to discover how to do a lot of things in the CAD programme to get the shapes I needed.

Some of the parts I made in components such as the side radiator, framework and grills.



What I was not ready for was the amount of time it takes to print some of the parts, 5 for the radiator which was something like 13 ½ hours. (setting was on 0.1mm layering and 100% infill which could have been



reduced I suppose thus taking proportionally less time).

The one piece Battery and fuel tanks (2 of each) also took 19Hours to print.

My wife was not impressed as the printer was on the dining room table running for hours each day so I did relent and stopped printing after tea !

So, back to the workshop, more rubbing down and shaping. At the point of doing the join around the front, I became aware of the roughness and looking out of scale ribbing around the cab.



After referring to my photos; on the computer, I scaled the pictures up on the monitor to the size I had worked out and made measurements to check against the 1/10<sup>th</sup> scale body and found both the ribbing and guttering were grossly out of scale.

The solution for this was found during my making model buildings for railway layouts in that various readymade polystyrene strips, sheet and profiles are available from my local model shop.

A visit there found some half round for the hand rails and 'Z' section strips for the guttering to the scale I wanted and so bought and a job to be done later.



A view here of the 3D printed window frames flush fitted ready to take the glazing later on. The side window frames are made but as they are raised proud of the body work they will be fitted after it is painted as will the glazing.



One of the bits I found very hard to design was the cowl on the cab roof.

It has curves over the front and across the roof profile.

Once printed and glued on, it needed a bit of fettling and filling to make it fit and look ok.

Then the Network radio aerial (I think), I made this in two parts, the ground plane plinth was printed upside down to give a good flat face and a separate aerial.

At some previous point I drew and printed the round roof vents as these originally were just raised 'lumps' !



Also the roof fan mesh and grill are now in place. This was made in two parts, the outer ring with a recess for the wire mesh to sit in and the inner ring to cap the mesh.

These were originally made circular but when trial fitted I found they left a slight gap each side. I had to remake them slightly oval and approximately calculated the 3mm ovality for it to fit over the extra distance of the curved roof!

A day was spent printing the 42 clips for the roof, cleaning and then applying them to the panel the next day.

Each one needed to be cleaned up using a scalpel to scrape off the square edges and burrs from the printing and took about 2 minutes each.

There was an extra roof panel (black) missing from the original moulding so this has been put on using 1mm sheet polystyrene.

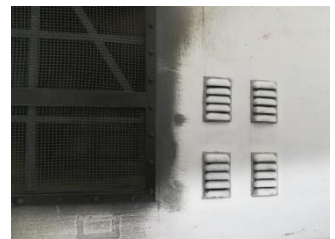


Looking at the pictures of original early 33's showed they had just a round exhaust hole on a covered square silencer box, which this body has moulded but the version I am doing has the exhaust box panelled over and the exhaust location has moved with its own Efflux box. This was drawn up in 3 parts, the curved bottom box to fit the roof profile with a flat top, the top part and grill.

Other bits that are ready are the main front and rear windows.



The cooling vents on each side are done and in position.





The front centre window has a blind route indicator box in it.  
This is all made in parts to fit in the window with two holes in the back piece ready for white LED's.  
The rear window on the real loco also has a blind but we will have a speedo unit mounted here.



So, after many an hour and still many to go this is the stage I am at with the body detailing .

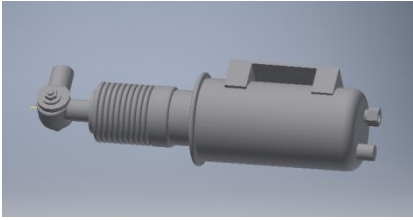


After many, many hours of rubbing down, filing and priming and more rubbing down, filling and....you get it, it was then ready to receive the colour scheme.

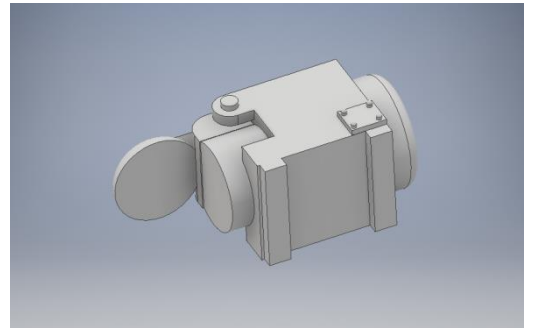


That's done.....now the buffer beam and bogies.....

Some CAD Drawings.

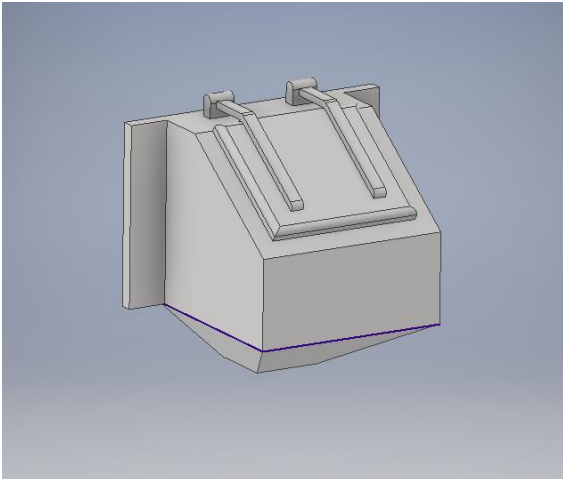


Brake cylinder unit – made from 6 parts.

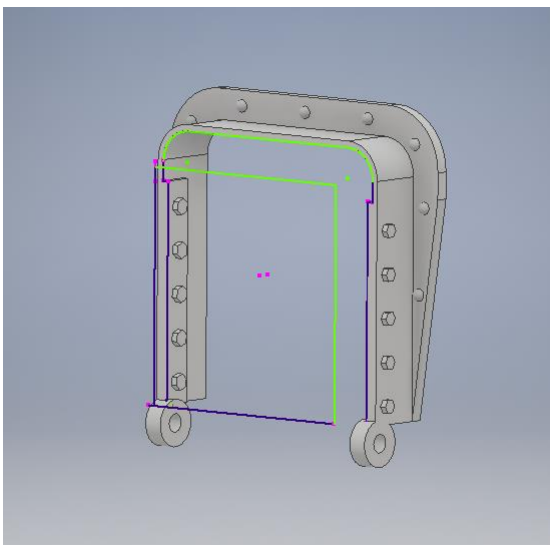
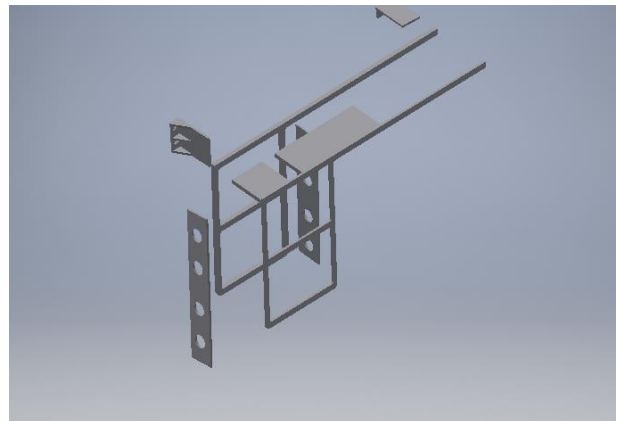


Electrical socket for buffer beam.

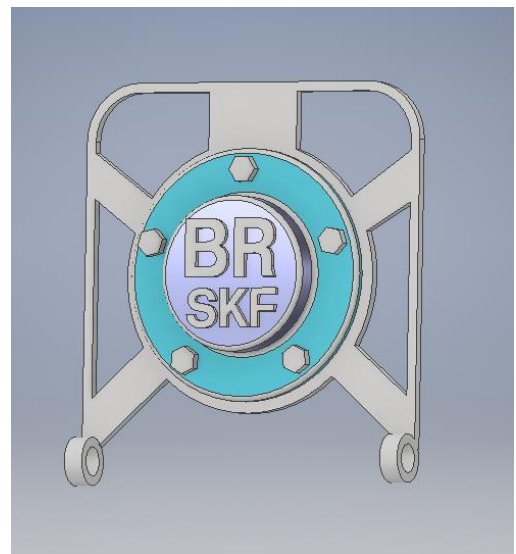
Sand box from 2 parts



Cab step components ...the top, mid and lower steps are made from 1mm thick 'checker plate' plastic card.



Axle fixed casting



Moving Axle casting



One of the completed bogies  
(3D printed cosmetic springs and wire for piping)



Completed ' front End'  
All 3d printed except for the hook and link and buffers.  
Hand railing made from  
'plastistruct ' 1/2 round plastic strip and 3d printed stand offs.

4 Parts make the wipers.  
(2 arms, blade and cab mounting)



Buffer beam detail (all 3d printed except the ' hook and link' and buffers).

