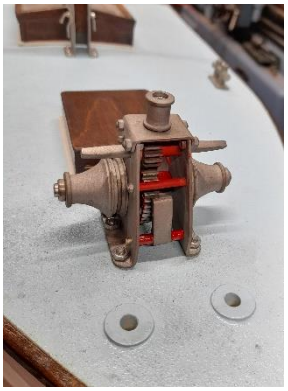
Making Portholes

This document was written by Paul Naylor and is published here for FMES online viewing, and was written during 2025.

Sundowner – 20

I made all of the bits of the anchor winch (that contributed to its looks anyway) and finished it with a mixture of sandblasted stainless steel and some red painted innards. It is mounted onto the deck via four glued in pieces of M3 studding and nuts and two dummy fixings: these were difficult to access under the windlass and I thought the four would be adequate to hold it all down. The holes to the chain locker have small loops of wire that the chain will be linked to in due course and painted black to try to give the impression of a dark and deep place to store chain. I can't say that making this was without frustrations! I made holes in the flanges for the chain locker in the wrong place and had to cut little pieces of stainless steel silver soldered in to fill up the holes: so that meant sandblasting it all again…the photo shows no chain yet, awaiting the anchors!



What next then? I still can't face the anchors decision, so it looks like I had better start on the portholes. Now this is a mass (in model terms anyway) manufacture job, and it makes sense to do them all at the same time… BUT I ought to make one to make sure that the process works OK. I have the material (see earlier), so on with the job. Turning the black PVC material to size is a fairly simple lathe job and PVC turns like cheese, so it is not challenging: my main thought apart from not wasting material is to try to get a reasonable finish on the visible surfaces as sanding or otherwise shaping this stuff with files does not leave a good finish. A sharp lathe tool and a final finishing cut are required. Finally, a sharp knife blade wielded around the edges (but out of the lathe) gets rid of strands of PVC and leaves a small bevel. There are three bits: the outer with a stepped hole for the perspex disc on the inside, then a 'washer' of PVC to hold the disc in. The prototype porthole worked fine. In fact, all the fits were slightly push fits and it all holds together without cement (although I will cement them together). I bet the rest (another 23) will not be as good…watch this space. Photos show the bits and the assembled porthole in situ (not glued in or together yet).

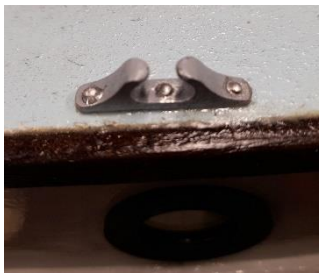
Well, that wasn't too bad! I completed the half day long job of turning nice round PVC bar stock (that I had to buy specially) mainly into swarf but buried within suitable pieces as the prototype. This was a turning job involving a large drill for the see through bit, a small boring tool for making the rebate onto which the 'glass' fits, a sharp cutting tool for the plain bits and parting tool for cutting things to length. I double checked the measurements before I parted the bits off the parent stock as there was no easy way to hold them to trim them afterwards. I had one failure where I missed off a final cut and parted it off prematurely. Clinging bits around the edges were removed with a scalpel blade and some risk to my fingers. The photo shows 23 lots of parts (one already finished): the white stuff is the way the Perspex discs were provided, with backing – which incidentally the removal of this from one 'glass' at a time was the single most frustrating bit! The result after cementing (the stuff that you use for fixing waste water pipes together, but using a smaller brush) was good: all bar one retaining ring 'snapped' into place – the PVC has some flexibility – that one was a little loose and relied on the cement. I managed not to get any of this solvent cement on the 'glass' or the outside surfaces. Now they are waiting to be fitted into the holes in the hull, and another chance to get glue (this time epoxy) on the visible bits! The photo shows half of them 'outside up' and the rest 'inside up'. For those interested in buying things like PVC and other plastics, I found my bits on Ebay sold as offcuts of miscellaneous sizes. I was able to choose two suitable bits for less than £15 delivered, although the larger one was 40mm for a finished outer diameter of 32mm and this accounted for a lot of the swarf! As an aside, I chose PVC because I knew cement would glue it together well, nylon (which is easier to find) does not take glue well.

The cement duly hard, I then had to epoxy glue them all in to the openings. Thanks to a bit of paint and resin buildup, I had to file the holes round again, but the new portholes all fitted snugly, and a ring of epoxy around the inside corner sufficed both to fix them and seal them into the hull. No glue made its way onto the visible surfaces, although a little got squeezed out

around the rim of the porthole. I found the best way to remove this was when it was wet and I used a pipe cleaner soaked in meths wiped around the rim, with any leftover cleaned off with a meths-damp tissue. Meths does seem to work to remove wet epoxy: important to do this now to avoid having to file off any surplus off afterwards. First photo is starboard side, second one is port: note teddy bear - in the 5th porthole from the bow. This is a printed black and white image screenshot from a web search suitably sized, painted and sealed with varnish stuck to the window inside with a little piece of sticky back clear plastic that the wife had: it's not just my scrap bin that gets raided!

As a fill in job before the next (and last?) big one, I made some brass contacts for the wheelhouse lights. These need to be able to allow the top and bottom halves of the wheelhouse to be separated, so a miniature plug and socket (a JR type RC connector, hiding behind the frame in the photo) was used to connect top to bottom, electrically speaking, and then sprung hard brass strips mating with brass pegs on the deck from which wires emerge eventually to be connected to a switch (accessible through a hatch opening) and battery. They work, but as they are not on show, not exactly a work of art! The photo shows the wheelhouse on its side resting on the deck opening for it.

On the subject of removeable hatches etc, in the 'old days', hatches were held in position with an elastic band from the keel inside to a hook on the underside of the hatch. This was required for boats that were fast and maneuverable…but Sundowner isn't going to be either of these, so I am expecting the hatches to stay in place on their own (they have at least 20mm of depth inside the deck) – time will tell.



Finally, this time, the four cleats I ordered came and after a little filing, drilling holes and trying to colour them to look like sand blasted stainless steel, I glued and pinned them down to the deck… they look a reasonable match for the real ones.