Handrail design, lifebelts, mast stays

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Sundowner – 21

That last (?) big task is another 'mass manufacturing' exercise and involves making another very prominent feature of the boat: the railing around the whole hull.

This comprises 38 uprights with flanges to hold them to the deck, a ball shaped strengthener half way up pierced for a wire rope, and a dark wood varnished rail. This is continuous all around the deck, except for breaks with lift up portions opposite the wheelhouse doors for the gangplank/access from the dockside (that I will make continuous), and there are some complexities at the bow, stern and amidships where rails join together. The photo is not very good but shows features of one such upright.

It is one of those jobs that I need to break down into the component parts and decide how each will be made and what jointing methods to use as not only is it prominent, it will also be quite fragile – and vulnerable - at this scale. Here are my intentions having had much thought about it:

- The uprights will be 2mm (they seem to scale at more like 1.6mm) and I will make them from brass. I wanted to use stainless steel (in which case, a 1.6mm thickness would be OK) but following operations would be harder!
- The balls will be 4mm brass ball bearings (yes, you can get them!) suitably drilled for the uprights and soldered (probably soft soldered…watch this space) in place, then drilled 1mm for the wire rope. If the uprights were stainless steel, the balls would have to be silver soldered in place for strength, and I did not fancy my chances on making 38 1mm holes through the ball and upright in this case without drill breakages and stuck drill fragments, apart from the fact that a 1mm drill would significantly weaken the 1.5mm upright.

- The flanges will be brass parted off from round bar and soldered onto the uprights, easier to make than 38 brass discs cut from plate. Although the prototype then uses screws in these flanges, I will extend the upright to go into a hole in the deck.
- There will be a brass flat under the wooden rail for strength and to tie the uprights together that the uprights will screw into (ie a 2mm thread)
- The wooden rail will be steam bent to shape after milling a slot in the underside for the brass flat and epoxy glued onto it. It will be sanded and otherwise shaped etc after fitting.

For this sort of task, a jig or two will be essential and I will make something to try to ensure that the uprights are all the same, and drilling holes in the centre of a ball will be easy at least in location.

And that completes the plan, best laid for mice and men…

With the plan sorted, I had to order the bits…this was beyond my scrap bin or other stores and that is one reason why I left it to last. It was the same when I made steam engines: the expensive bit was the boiler, so I made that last and only after I had proved the chassis etc to work 'on air' before undertaking the king's ransom for copper and silver solder. Not that this cost on the same scale as a boiler of course! I *thought* I could easily buy all the bits: the 2mm brass round was 'OK' if you discount all the Ebay sellers who wanted £3 for 80mm of 2mm rod (!). Eventually 'Maccmodels' was able to oblige reasonably cheaply. They were also the only place I could find to sell me anything as a small flat in metre long quantities: I wanted 3/32" x 3/16" (or 2x5mm) brass flat. Gone are the days when this sort of size was a stock option at a supplier. So too seemingly was anything remotely like it in brass or stainless steel. I have had to break my rule and get mild steel, and the nearest I found was 1/16" x 1/4", again from Maccmodels (but I am told by them that 'they can't get it' and are presumably relying on stock). The brass balls were around 35p each (for 50, from a bearings Ebay supplier), not cheap, but again a lot better than some others on Ebay that were £4 each! Motto: shop around, have a scrap bin, and if you are a modeller and see some cheap small size material in a garage sale or anywhere else, buy it (but ideally to use, not to try to sell it on Ebay for £3 an inch!).

It will take a while for this lot to come, so I cast around for something on the dwindling list of fill in jobs. Lifebelts seemed a good idea: Sundowner has two. I raided the bin again and found some 12mm thick Tufnol that I used a while ago for loco brake blocks. This will turn up nicely and, as a bonus, should have the same 'tarred cloth' look as the life raft container I made earlier: just like I remember lifebelts anyway. The hole in the centre was made with a hole saw (I have a cheap set of plumbers hole saws for other things) and this could then be held in the lathe chuck to turn first one side then, after thinning it down, the other. The photo shows one turned up and the other waiting…

When finished, I painted them primer then white paint all over, then made some water slide transfers to add the name and port. Water slide transfers are becoming much harder to find, however you can make your own assuming you have access to a computer and printer. You can buy 'water slide decal paper': I got mine (ages ago, because you don't use much) from 'Crafty Computer Paper'. It is supplied in packs A4 in size and is of two varieties: clear or white transfer material (not the backing paper, that is white), the point of this comes later. You compose the image you want to make a transfer from using a handy computer

application (I used ‘Word’ because it has a ‘ruler’ along the edge to guide the size), either colour or black and white (assuming you have a colour printer). You will have access to many fonts and their sizes, you can copy images if you want, and by copying and saving as an ‘object’ you can then vary the size of the whole composition to what you want. Most of the ones I did are small, so I put them in places (eg top left!) to conserve decal paper when you print them on it. When you print them (and let the ink dry properly), you then spray them with a couple of coats of clear lacquer to seal them and, when that is dry, you can cut them out and apply in the traditional manner. If you cut them out before spraying them, you can preserve decal paper (I even sellotaped scraps of it in the right place on a sheet of plain A4 for small jobs). The rub is that your printer will probably not have a great density of ink and I found that any transfers required made using clear decal paper for applying to a dark surface will not show up, so this is where you have to use the white decal paper…and have the issue of cutting the transfers out so that the white background will not show. Here, the background is white so clear decal paper works fine. In the photo, it looks white, but that is the removeable paper not the material the transfer is printed on. Note that, in hindsight, I should have used the computer to arrange the letters in a circle (sometimes I find ‘Powerpoint’ is a good tool for this sort of thing if you do not have design packages) to save cutting out and arranging individual letters…too late now! Make sure that you seal the transfers with varnish. The remaining work was painting the red bands and adding a ‘rope’ around the outside using knots and superglue.

A few other fill-in jobs came to mind during this wait for materials. One was trying to decide about the anchors… well I wedged the anchors into their holes for a few days while I walked past it and looked. The result was to adopt these anchors and fit them then they are off my mind. Since they are held on only by the chain, and this is removeable, I can retain my options for the future. One end of each anchor chain is held onto the fixed in loops of wire I added to the anchor winch (these are well hidden really under the windlass drums, and mimic the opening to the chain locker below. I realised then that I could not easily add the anchors on the other end and expect the chain to appear tight, so I had to add some elasticity. Since the anchor attachment is inside the pipe in the bows, I could add tension springs between each anchor and it’s chain that would remain hidden in the pipe. This was done from my ‘bin of old springs’ and it works well except that the springs are not stainless steel so I need to watch that the anchors do not go overboard one day: although that would mean I had to replace them of course.

Another small job was the mast heads and making a mounting for attaching both the rigging wires and also a pulley in the very top for hoisting a flag – and in earlier days, presumably the sails. The rigging loops comprised a piece of brass tubing to fit snugly over the mast near the top, with three flanges with holes in for attaching the wires. Each mast has three flanges, but not at the same angles. Since I turned the tube to size from a piece of brass and the flanges silver soldered on, I made them so that I had to tap them into place on the slightly tapering masts, then epoxy them in situ. To avoid a mess, I used a trick I had adopted on a few occasions: if you put the epoxy glue where you want it as a ‘lump’, and then heat it up slightly (eg by using a heat gun), it goes very runny and ‘leaks’ into cracks. If you heat it too much of course it boils, burns or dries out. This meant that I did not need to apply the epoxy prior to tapping the tube in place and thus smearing it all over the

mast. I used this once to seal a loco tender after riveting it together: I did not want to heat it for solder as I was afraid it would distort the nice flat sides. Mind you, it used a lot of epoxy!

The mast heads themselves were made from a short piece of turned/shaped/dyed and varnished hardwood to match the mast with holes in the end to pass ‘rope’ (but no pulley: I did not think the wood of the mast head would stand hollowing out for it), with M3 studding epoxied into the other end to mate with the M3 bush I glued into the mast head earlier. In hindsight, the separate mast head bit was an unnecessary addition, I should have simply made the mast in one piece. The top has holes in it to allow a ‘rope’ to go up, over and down the mast (but no pulley). I also made the forward mast stay fixings from bits of stainless: they have a hoop at the deck edge for the stay and a long strap extending down the hull… under the dark wood trim where I had not made a hole for it. Mine are each therefore two pieces, one with a hook on the deck, and one below the trim.