

Cargo Proa Prototype

Building Blog



APRIL 2021#1

A couple of short weeks has slowed progress on the boat. The top and bottom sections of the middle 12m of the lee hull and the 13 bulkheads to go in it have been infused. Not without some dramas, but nothing we couldn't fix, even if it meant removing a bag, doing some table work and replacing the bag. Frustrating when you realize it has to be done, gratifying when you turn the pump on afterwards and see the pressure drop. 12m/40' long x 900 mm / 36" wide and 10 layers of 400 gsm / 12 oz was a bit of a challenge for our pumps, but doing it in stages made (most of) it easy. Bulkheads go in when we are back in the shed, followed by the sides (2 more 12m lengths) and that is the end of the big structural infusions. Then we level up a bit of space outside, move the hull out and put the beams in so we can finish all the jobs that couldn't be done until we knew where everything went. While we wait for resin to

cure, or when it rains, we start on the rigs. Telescoping wings require a lot of thought about what to do when. At the moment, the order is the top (in one piece), middle and bottom tubes in 2 halves, neither of which can be joined until the bearings and controls are fitted. Once this is done, the bottom wing section is attached, followed by the middle and top, each one using the previous one as a mould. Then repeat for the second rig.

Rob R has made the rudder sleeves. Once he adds the tow, we can see if the proposed mounting and steering works. They will be the simplest rudders since steering paddles if they do.

I put some more shelves in the windward hull to stiffen it up and provide some space for stuff. Used offcuts of f/glass which is of marginal stiffness for a shelf, but has stiffened the hull panel noticeably.

We finished the main part of the beams. Some things we will do differently next time, but they appear to be pretty good. Carbon pultrusions are definitely the easy way to build them. The struts will be built and attached to them as part of the assembly.



APRIL 2021#2

2 weeks ago: A 4 day week on my own. Not much to show, but the tender bridgedeck is painted and the bottoms have 2 coats of copper powder in epoxy on them. Looks a lot nicer and the copper/epoxy was much easier to apply than either the System Three product (very thick) and Coppercoat (very thin). The 2 x 12m lee hull mid section sides are complete and the big infusions are now finished. Definitely a milestone. We tried some different layouts, using spiral around the edges of the infusion to help with resin flow. Some unexpected results, but it worked better than rope as it did not fill up with resin. After a bit of a shake to remove any big lumps of cured resin, the spiral can be used again. Once we attach the sides and install the mast steps, for which we need to build a couple of short mast sections and make them round, the table will

be available for the mast sections.

Last week, from Rassy:

After a long week of lifting, shifting, sliding and fitting the side and deck pieces, the bottom and sides of LW hull mid section were bonded together on Friday afternoon. A lot of care was taken to get the sides perpendicular to the bottom. Trimming the bulkheads and cutting in stringer gaps was the big job and as was expected it took more than one go. In the end the result was pretty good considering the table surface we are working on is far from perfect. Next week we are expecting to complete the hull build by getting the bulkheads coved and glassed to the sides, and the deck bonded on.

Rob has been putting a lot of thought and experimentation into how to fit the mast bearings, which will be the next job on the list.

We also had an interesting interlude during the week when Alison gave us a guided tour of the property to check out possible launch sites. There is interesting history all about us here, and it's a little sad to see all the relics and deteriorating buildings of a bygone era. end quote.

We are not allowed to launch directly into the river, so we are contemplating using a creek on the site. There are some interesting challenges, among them the narrowness, twists and turns, an old weir which needs removing and barely enough space at the mouth to assemble the boat. We will be checking it out at high and low tides this week to see if the effort involved outweighs the bureaucracy and expense of trucking it to a site further down the river and assembling it there. Both Rassy and I see the creek launch as a fun challenge, so there will need to be some compelling reasons to hire a truck.





APRIL 2021#3

Yesterday I tried a 4 kw EClass Outboards <https://eclassoutboards.com.au> electric motor on my 3m/10 hp alloy dinghy with a grubby bottom. It performed the same as the 6 hp petrol outboard I usually use and was lot easier to use. No priming, pulling or stalling. Both engines almost get the boat planing with me sitting in the middle. Then we tried the 6 kw which was more powerful, as expected, but with nothing to compare it to, there is not much to say. Battery use for both was low given most of the testing was WOT.

The following day tried the 12 kw on a 5m/15' inflatable. Serious grunt! If you weren't holding on, the acceleration would throw you. The performance dropped significantly as the inflatable leaked which may have been comparable with the drag of the cargo proa. Battery usage was high after a couple of WOT runs. These outboards are standard ICE frames and drive trains with the petrol part removed and a 96V motor installed. This is probably the best way to remove 2 strokes from remote Pacific communities and may also be a good solution for the cargo ferry, although there are some politics which need sorting out first. The main takeaways are the lack of mess, ease of use and the need for a lot of batteries or solar panels if the boat is going to operate under power for any length of time, which the cargo proa hopefully won't.