



The little picture-book about constructing the Pocketship

Kermadec

2017-2018

This free booklet is a copy of the material on my blog concerning the construction of the CLC Pocketship *Kermadec* during 2017-18. Note that there are some minor changes and omissions from the original blog.

This particular example of a Pocketship has a few minor modifications and customisations. It might be a good idea to cross-reference things with the plans and the construction manual. Some of the comments, ideas and photos might help you to get a feel for what is involved in constructing a Pocketship. Please feel free to contact me with any questions or comments via the contact page on my website.

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#1

The first bit of PocketShip.

After drooling over the plans for a few days, I have cut up a piece of 19 mm x 140 mm x 1,800 mm pine and glued it back together again. After cleaning up, I have now a solid piece of 2-1/4 x 4-3/4 x 18 as required for the nose of the keel. Working in feet/inches and in meters/millimetres is 'interesting'.



#2

Another day of tinkering

Nothing to do? Well, why not make a tiller for the *Kermadec* ... so here is the glue-up: three thin slats (8mm) of Huon Pine laminated with a piece 3/4" Tassie Oak 'grafted' onto the business end, where the tiller will meet the rudder. I'll post a picture of the result, once this mess has all been cleaned up.



The nose-block has now rabbets – a straight forward exercise with the router.



#3

Cleaning up the tiller

After a couple of hours of attacking the tiller with a little hand plane and some sand paper, this is the result. Note that the hardwood end is still oversized, other than thickness, and it will be trimmed once the rudder has been made up.



The next image shows the piece of hardwood laminated with the Huon Pine. The Pine boards are about 8 mm thick. The 'cheeks' of the outer boards have been cut down with the router to 3 mm, and the piece of Tassie Oak has a tenon of 8 mm thickness. The tiller is 1" wide and tapers to 1" x 1" with all edges rounded over. The assembly seems very strong, and there is no flex in the tiller. Nevertheless, I might add a strip of glass tape to either side for the first 18" or so. The tiller will get a couple of coats of epoxy for now, and it will be finished with varnish later.



#4

Spending money

I have ordered the CNC cut plywood kit from Denman Marine in Kettering, and we picked over a pallet of Celery Top Pine for floor boards at one of the local timber suppliers. We selected about 40 m of 3" wide pieces, straight and free of major knots. The lengths vary from 2.8 m down to about 1.6 m. The timber will be dressed to 70 mm x 18 mm, and it should be ready mid next week. I will also pick up some more Celery Top pieces for the bow-sprit. Four 2-1/2" x 3/4" lengths glued up will be very strong indeed.

The floor boards will be 5 mm narrower than specified in the plan, but that will be fine. In fact, it might just work out, that the outside floorboards will end up full width with the appropriate adjustment of the gaps between the boards. We'll see ...

And ... 60 kg of clean(-ish) lead flashing will be waiting for me at the metal recycling yard in Hobart. This is destined for the keel and centre-board. If the melting down works out well, I will get some more lead later to cast ingots that fit into the spaces under the floor boards (another 100 kg ?). While I like the idea of using shot in bags as internal ballast, the only source of lead shot I could find was a bit too expensive (A\$4.00 / kg of dirty shot + A\$ 300.00 to get it to Hobart).

#6

Floor boards

There are now 43m of first grade Celery Top Pine (CTP) for Kermadec's floor sitting in the shed. Our selection of rough sawn lengths turned out to be rather nice (second picture). Not every board is clear, but there will be enough material to have the entire floor free of 'significant' knots. Any small knots will end up 'down the back', where they won't be seen. The CTP should change to a darker mellow honey colour very quickly.



#7

Synthetic rigging

I had a long conversation with a local sailmaker. Besides looking at ways to attach the sails to the spars (*track, hoops, robands, simple lacing, ...*), the question why the stays of the PocketShip are made from 4mm steel cable, and why the steel shouldn't be replaced by a 4mm line of Spectra (or Dyneema, or the like), was the most interesting. This material is stronger, lighter, cheaper, easier to handle, and it is soft (it will not wreck the paintwork). The idea of using thin 'plastic rope' instead of steel wire in boat rigging is actually not that strange. It has been used for years mainly on boats for racing, but the technology is equally suitable for other boats. It seems that tradition (?) often dictates what material goes where. I have heard that some sailing boats have masts made from aluminium nowadays.

#8

Pb (82), 60kg thereof

I have added the lead for the keel and the centreboard to my stash of goodies. The material (old flashing) is very clean (photo). It contains no foreign matter other than some traces of paint. That should do nicely for the cook-off. The scrap yard has been put on notice for another 100 kg of the same material for the internal ballast.



#10

The last of the timber

The last bits of timber for the boat are now sourced. The Celery Top for the sprit, gaff and boom has been cut to size and dressed. Today I also procured some Silver Wattle (*Acacia dealbata*) for cleats, blocking and the keel. This timber is not quite as dark as the better known Blackwood (*A. melanoxylon*). Wattle is a relatively lightweight hardwood and will certainly do better than pine. For the cleats, I ripped a few 2.6m lengths of 19 x 45 down to 19 x 24 with the circular saw, which went much better than I expected. The 19 x 19 'off cuts' are strong enough to be used as cleats in 'less critical' locations. Some cleats really only hold things in place while the epoxy fillets cure. The keel and the few pieces of 25 x 50 blocking that are required, can be made from some 19 x 45 (keel) and 25 x 25 (blocking).

Silver Wattle grows locally in abundance, and it is quite affordable. Clear, dry, fine-sawn Silver Wattle from the local saw mill turns out to be a lot less than the same size sticks of pine (*P. crapiata*) in the 'big store'.



Silver Wattle is actually very showy – people use to it make furniture. Unfortunately, none of it will be visible, at least not in a bright finish.

#11

Bow-sprit

Three 1" planks of Celery Top for Kermadec's bow-sprit are glued together. The middle piece of timber is shaped to final dimensions + 2mm. Once the epoxy has cured, I will take off the bulk of the waste with the power planer, and then use the sander for the last bit. Then I can think about the other taper ...



#12

Plywood is being cut

I picked up the Hoop Pine for the mast from Denman Marine in Kettering, and watched some of Kermadec's plywood (the forward sides) being cut. I will be picking up the lot next week. The Hoop Pine is just beautiful, not a single knot, straight grain – thanks John for picking and dressing it.



Meanwhile ... the bowsprit has been shaped and sanded. All done, except for the chamfering. I am waiting for my router bit to arrive. The first two sticks of 2-1/4 x 3/4 Celery Top for the boom are glued together. I am using 3 planks of 3/4", each with a scarf along the 3.6m length, and the scarfs are placed at a reasonable distance from each other.



Things are curing very slowly, because of the low temperatures. By tomorrow it should be ok to glue on the third bit.

Interestingly, the density of the Celery Top Pine for the boom is 740 kg/m^3 , the Hoop Pine for the mast is 612 kg/m^3 . These are the actual densities, determined using quite accurate scales. Both of the density values are approx. 10% higher than typically specified for these timbers. Celery Top may be a bit heavy to use for the gaff ...

#14

Long timbers

I have made some progress with the spars. The scarfs for the staves (Hoop Pine) of the mast are done. I was thinking about building a jig for the router, but in the end I cut the scarfs with a panel-saw and cleaned them up with a small block-plane. That took no more than a couple of hours. I won't glue these up until it gets a bit warmer.

The boom (on the right) is shaped and cleaned up. I had to fill a couple of dings and a small knot with epoxy. Once this has cured and has been sanded flush, I will round over the long edges with a 1/2" bit. I am still waiting for the chamfering bit to get the bow-sprit (2nd from right) finished.



#15

The 'flat-pack' is here

After a quick 2 hour round trip to Kettering, the cut sheets of plywood and an assortment of resin, hardener, cloth, and filler are in the shed. I will have to store all of these sheets standing on their long edge, leaning against a few lengths of 4x2. This gives me back some of the space, and it will be easier to get at a sheet of ply when needed.



#16

First glass

All flat bits for the keel and centre-board have been removed from their sheets of plywood. Using a small handsaw to cut the little tabs and a small sharp hand plane to clean up, made this an easy job. The keelson is glued up, and the panels for the centre-board trunk are glassed. Let's see how the West System 105/205 blend does in this weather (the temperature is currently about 10C, with steady rain).



While I was removing these pieces, I also attacked the parts for the cradle from that thick and heavy sheet of MDF. I won't have to lift that again!

#17

Centre-board case

The blocks for the centre-board case are in place. The verticals are laminated Tassie Oak and the 'dog leg' is made from laminated Wattle. I have also shaped the nose block, but the pointy peak in the front may be a bit too high. This will be fixed when dry fitting the keelson. Next to the nose is the finished block for the keel. The two bits of 3/4" Wattle glued together will be strong and will hold their shape. Lastly, the centre-board halves are joined and ready for some lead (no picture).



#18

Smelting lead

A few things were done today. The inside faces of the centre-board trunk had another coat of epoxy. I worked on the blocking for the keel, and I glued up a length of 3/4 x 5 for the rudder. The rudder parts are removed from the ply wood sheets and have been cleaned up. I will finish the rudder before the transom gets glued into the boat. This will allow me to mark the hole for the tiller on the boat, but I can cut and dress the opening while the transom is sitting flat on the bench. I might make up a little template and use the router for that.

I needed to establish whether our old camping cooker and a stainless steel pot would be up to the lead smelting task. And ... it is. Once there is a little puddle of lead, things get going alright. I had to cut bits of the lead flashing to fit into the pot, but that is easily done. After screwing a bit of ply to the underside of the centre-board and making sure the board is level, the whole thing was done in a single pour. The lead is fairly clean and there was only a little bit of dross – just some scum from the old paint floating on the surface. All that stuff stayed behind in the pot during the pour. The surfaces of the lead in the centre-board a remarkably smooth. Very little cleanup will be needed before the final covering of epoxy. For the keel, I will probably do the casting in 10-12 kg lots, which is just a bit more than today's test pour.



#19

Keel and rudder

After a cold start to the day (this is not icing sugar dusted over the landscape), I tinkered with a few bits and pieces. I shaped the bottom block for the rudder and also the tapered part of the block on top for the trailing edge. This is the lighter coloured piece of wood (Tassie Oak) under the 4×2 clamp. Tassie Oak is fine grained and it is easy to shape with a small hand plane, unlike the Wattle I used for the other blocks.

The rather big blocking for the rudder is all glued up now, and I should be ok to trim this to the right shape tomorrow.



I used up the left over glue to cover the lead on one side of the centre-board. The layer of epoxy is about 2mm thick. The mix was still sloppy enough to self-level.



I assembled the end of the keel and waterproofed the insides of the panels and blocking of the 'hollow' area. This is ready now for the entire keel to be put together. In a variation to the plans and following the photo in the manual (p. 36), I left the aft block 1/4" short of the top edge of the keel. That gives something to rest and glue the cap on later.

#20

Keel and rudder (2)

The pictures show today's progress. The rear 'hollow' section of the keel is glued up. I have heard a few stories about keels ending up out of proper alignment. So I decided to pop a string-line the full length along the underside of the keel. It is fixed between two little nails, one in the nose block, one in the aft block. This made it reasonably simple to get shims into place to get things straight, and it becomes immediately obvious if things have moved. Fortunately, the clamps have in enough reach so that they do not interfere with the line. I will leave it in place until the centre-board case and the second side have been added and everything is solid.

The other bit of work today was to get the big blocking of the rudder sorted – this took all of 5 minutes. I started with a straight router bit and a template guide to cut the blocking in three passes. This was followed by a flush-trim bit to zip off the last bit left behind by using the template guide. For the top bit of blocking, I will just glue in a scrap piece of 3/4" timber to sit along the pencil line. Once everything has cured, I will use the router again to make it 'fit'.



You can also see on the bench the centre-board with some epoxy covering the lead on the second side.

#21

Case closed

The centre-board case that is. The centre-board case, keel sides and nose block are now glued together. I used up 2 x 120 grams of epoxy to assemble the parts. After I made sure that everything lined up and shims were in place, I applied the goo and clamped the lot onto the workbench(es) with a 1" hardwood spacer in the centre-board case for each clamp. The string line shows that things are looking pretty straight. Tomorrow I will spend a bit of time cleaning up the squeeze-out, sanding things flush and running a 1/4" round-over bit over some of the edges. The manual suggests using a 1/2" bit on the lower edges of the keel, but that doesn't leave much along the centre-board case – there are only 15 mm of plywood (9 mm + 6 mm). I can always use a 3/8" or 1/2" bit later, if necessary – it will only take a minute.



#22

Keel again ...

The keel turned out to be dead straight. Today's job was to clean up the assembly. The removal of the squeeze-out at the top of the side panels along the centre-board was a bit tedious. The rest wasn't that bad, because everything can be done with the sander (and the router). The two rounded corners in the front of the centre-board needed some additional sanding by hand. Still a bit of sanding to do and the edges will need to be rounded over. However, the weather forecast for tomorrow promises cool, dry and sunny conditions – perfect for cooking up some lead.

The rest of the cleaning up can be done after the lead pour, and then this bit of furniture will be a lot more stable while working on it.



#23

Things are getting heavy

Putting the lead into the keel took a long time. I poured in batches of about 8 kilos (about a pint of liquid), because that is what the gas burner could deal with. I had to cut chunks off the lead flashing that would fit into the pot. A wooden spoon (a strip of plywood) was very handy to stir things around and remove the dross, although it got a bit shorter after each batch.

As you can see in one of the photos, I used a few 2x4s as blocks to keep things together. After every second pour, I moved the blocking upwards by an inch or two. This worked perfectly and everything is just fine. Unless someone will be dropping in a very large amount of molten metal, the recommended use of pavers, bricks, etc. is probably an overkill. However, please don't blame me if the 2x4s fail to work for you.



#24

Bits and pieces

A few different things got done today. The capping strip of the keel has been fitted and glued down. The rudder blade has been cleaned up and the 'wing' is attached. For the wing I used 4 SS screws and plenty of thick glue – and as angles go, this one is pretty right. Next I will glass the rudder blade just past the line where the cheeks go, so I can sand and feather in the glass. Then I will attach the cheeks, which need to have the bottom edges chamfered beforehand (otherwise a router bit with a bottom bearing won't work too well). And ... I prepared the bottom hull panels. The first one is glued and resting on the floor.



#25

Keelson

After cleaning up and levelling the cap of the keel, the fitting and fixing of the keelson was a straight forward exercise. Some strange clamping techniques ("clamp the clamp") were called for at the bow and the stern. The push down sticks make the thing look like some sort of submarine ...

Other than that, the second bottom panel has been joined and is curing on the floor. I also joined the cradle parts to pieces of 2x4. The two spacers (cut from MDF) are too flimsy. Instead, there will be a couple of 2x4 to which I can fix some wheels.



#26

Cradle

The cradle is done. The 4×2 spacers are bolted down with 8 good sized batten screws to take the weight of the boat. I might pop in another screw in each corner through the MDF into the face of the spacers. The casters, which keep the cradle about 4 mm above the floor, are each rated for 100 kg. I am sure this will do the job.

The keel is cleaned up and it had a quick coat of epoxy to protect the surfaces from dings and spills during the build.



#27

Floors and rudder

All the floors have been removed from their ply sheets and have been cleaned up. The cleats (from 1" x 3/4" *Wattle*) have been glued on. The rudder blade and 'wing' have been sanded and are ready for some glass (the cheeks will be attached afterwards).

Sanding the finger joints of the bottom panels took a while and it was tedious (no photo). Fortunately, there are only six of this kind of joint on the boat ...



#28

It is a boat now

After trimming the floor cleats, sanding and a first coat of epoxy, the keel was moved into the cradle (without ceremony).

The bottom panels are in place and (almost) completely stitched on to the keelson. To get the panels to join at the bow, I had to switch to some heavier wire, because the 1.2 mm stuff kept snapping. I wired a speed clamp across the top to pull the tops together and to bend the bow into the right shape. This clamp made the whole affair relatively easy. I also needed a little block to keep the edges of the panels aligned. These are just two small bits of timber and a wood screw to clamp the ply in between. To get things a bit more stable while I was wrestling with the bow, I drove four screws through the outer edge of the panels straight into the cradle. The panels are sitting flat against the cradle and the whole assembly is quite rigid. I will leave these screws in place for the time being, unless they cause things to misalign, when fitting sides, floors and bulkheads.



#29

Bulkheads

The bulkheads have been liberated from the sheets of plywood, and bulkhead 2 also has its third opening cut in. Through that opening will be a 'boxed in' shelf for storage and it will also house the extensive on-board electrics: 1 rotary switch for nav/anchor lights and a 12V power socket.

To make things look acceptable, I used a 3/16" rounding over bit on all openings in the bulkheads and floors, including the holes for the wiring and the limber holes.

All bulkheads have a first coat of epoxy on one side. Tomorrow I will tackle the transom – cut the hole for the tiller – and add the cleats to bulkheads 1 and 2. The floors had their second coating after a quick sanding down. The side panels are glued up and are curing flat on the ground.



#30

Sundries

Today's work included sanding the finger joints of the side panels. These panels are ready for some glass now.

I needed to modify bulkhead 1. The location of the opening for the inspection port would have interfered with the 'furniture' to be installed between bulkhead 1 and 2. Therefore I cut a new hole and used the cutout to plug the existing opening.

Floor number 4 has been fixed to the hull. I wired the outer ends to the panels and the cradle to square things up. Then I used some thin shims between the cradle and the panel to get the panel to sit flat against the underside of the floor. Keep in mind that 'floor' in PocketShip parlance is the kind of webbing that sits vertically on the bottom panels to support the floor boards (the photo shows floor 4, which is glued against the centre-board case, and floor 3, which is not fixed as yet).





#31

Floors and rudder

Floors 3 to 6 are now installed. The sticks of timber hold the floors vertical while the epoxy cures. All bulkheads have their first coat of epoxy on both sides.

The rudder blade has glass on one side. Because of the low temperature the epoxy is quite syrupy. It wets out the glass nevertheless with some persuasion. There is a forecast for some warmer weather (14° C) on Saturday and I will glass the side panels then. I might take the epoxy and hardener into the house overnight, to make it a bit easier to work with for the big glassing job.



#32

Side panels and rudder

The rudder blade is glassed on both sides, and the rudder cheeks are fixed. I ran the chamfer bit along the lower edges of the cheeks before gluing them on. A few clamps keep things in place. The second big job of the day was to glass the side panels. It took a while, because I only made 150 gram batches of epoxy. I started on the end of one panel and worked once around the table. I use old plastic cards (old library cards, expired credit cards, assorted membership cards, etc.) to spread the goo and to take off the excess later. These cards work perfectly and go into the bin afterwards. I am happy with the result – one or two spots where I will need a bit of extra sanding.



#33

Rudder done

The construction of the rudder is now complete. The blade has one filler coat and the cheeks have a single lick of epoxy as a protection from little dings. I will sand it one more time and I will give it another coat of epoxy just prior to painting/varnishing. I am quite pleased with the way it turned out. The blade and the wing will probably end up being painted in the same colour as the hull. I might finish the top part and the cheeks bright.

Other than that, I washed down all the bulkheads and the side panels to get rid of some amine blush. Tomorrow I will give all of them another coat of epoxy.



#34

Hull construction

The floors are 'spot-welded' and bulkheads 1, 2 and 7 are wired to the bottom panels. The bottom panels are joined and/or tacked to the keelson between bulkheads 1 and 7. There is a little bit more of cleaning up to do (sanding). After spot-welding the bulkheads (except B1 – that might need to be a bit flexible to get the shape of the bow right), I will put down the structural fillets for the floors. I think it will be a lot easier doing these fillets before the side panels go on. After that, a couple of 1/2" pieces of plywood as temporary floors will provide a solid platform to work on.



#35

Filleting

The first fillets are done. Applying the epoxy with a "pastry bag" (zip-lock sandwich bags with a corner cut off) works very well. I made a filleting tool out of a stainless steel paint scraper by cutting it into shape with a pair of snips and sanding the radius smooth. The radius needs to be increased somewhat so that the fillets become a little bit bigger. The existing fillets will be fine, but they definitely shouldn't be any smaller than that. All fillets within the cabin that are visible will be coloured with wood flour to make them a bit less conspicuous.



#36

A stitch in time

After washing off some amine blush and sanding, I stitched on the side panels. I started tack-welding the panels and bulkheads 7 and 8. There is a little bit more adjustment necessary at the bow, but things fit reasonably ok. And ... I made a mistake by gluing the outboard bottom ends of bulkhead 7 to the bottom panel. Fortunately I can get the little pull saw into there to cut that joint flush to the panel – should only take a couple of minutes. At least I didn't lay down nice fillets as well.



#37

Transom

The transom is glued in. Before the actual gluing, I fixed the transom with a few screws to the boat so that I could mark the cutout for the tiller. While back on the bench, I cut the hole with the jig-saw and then used the router to chamfer the inside edges. Then I applied plenty of goo and screwed the transom back to the boat. I must make sure to take the screws out before the epoxy fully cures ...

The other task was to get the bow sorted. The long fillet from the top of the side panels to the bottom of bulkhead 1 is done. The joint between the side panels and the bottom panels is tacked together. As you can see, there are still a few mini “screw-clamps” and some wires in there.



#38

Bow and bulkhead 7

After removing the last wires and clamps from the side panels at the bow, I completely filled the little gap between the side – and the bottom panels. Once this joint has been sanded smooth, I will put some glass tape over it and also the long fillet in the center. After that, I will put glass cloth down to cover the lot.

The second bit of activity ... I removed the waste from bulkhead 7 without too much trouble. Now I can install the blocking for the floorboards on bulkhead 7 and 8. The clamps just hold a length of 3/4" x 3/4" hardwood along the flimsy top of bulkhead 7 in order to protect from accidental damage.



#39

Hull cont.

A little progress today. I put strips of fibre-glass tape over the fillet between transom and side panel and put down the first bit of glass cloth on the bottom panels.

I fitted and glued down the cleats for the floor-boards onto bulkhead 7 and 8. Lastly, I got the long fillets done between the side- and bottom panels from bulkhead 8 forward to bulkhead 2.



#40

And ... more glass

Only a short session today. Fitting the lower breast hook was one of the things that are a bit scary. I shaped the edges to match (reasonably closely) the vertical angle of the side panels first. The tip of the breast hook was about 40mm away from the joint of the panels, before applying some persuasive force using the clamp. Every squeeze on the clamp closed the gap a little while spreading the panels outwards a bit. I had to apply some serious force and, judging by the noises, I expected the joint in the bow to give up ... but it didn't.

I also feathered the edges of the glass cloth that had been epoxied down yesterday, and I put down glass on the starboard side of the area forward of bulkhead 8.



#42

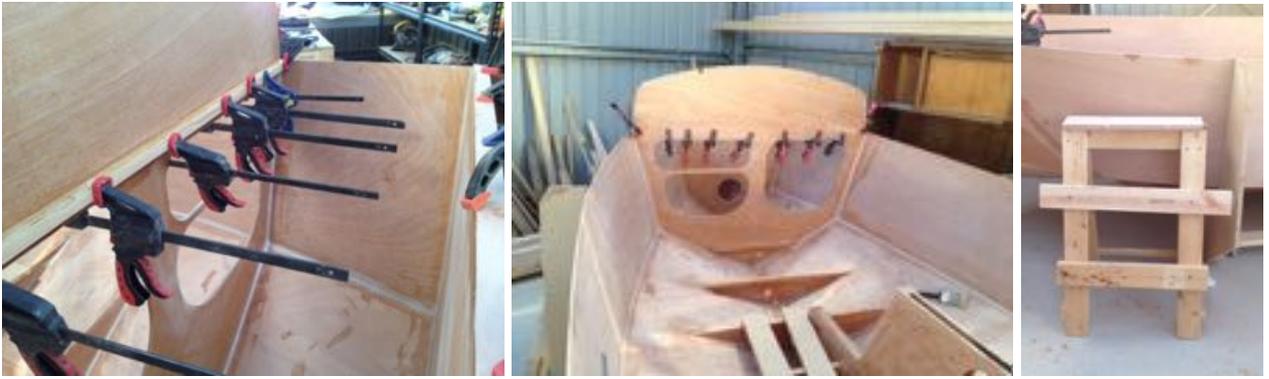
Bow, fillets and cleats

After putting glass tape over the fillets forward of bulkhead 1, I fixed the lower breasthook. Plenty of goo and three SS screws on either side will hold it in place.

The second task was to fix the cleat forward of bulkhead 2. The cleat on top of bulkhead 1 would have had only little contact with the deck. This is because the deck slopes and the top of the cleat does not. The side panels are also about 2 mm proud of bulkhead 1 (?). Therefore I fixed a packer (a strip of 6mm ply) on top of the bulkhead which I can quickly trim with a plane to get the height and slope correct. The deck will then be properly supported by that cleat.

Lastly, I finished the last of the fillets on bulkhead 1, 2 and floor 3. Access via the temporary 'ladder' works well enough to stay now permanently ...





#43

Sanding fillets ...

Sanding fillets is really good fun (for a very short while) ... and sanding inside the bow section, forward of bulkhead 1, is especially good fun (for a few nano-seconds). The power sander is useless in there, because it is all small curved surfaces and angles. This, of course, makes it even more fun. In fact, I will do some more tomorrow.

I also cleaned up the fillets in the sections fore and aft of bulkhead 2, and I put glass down on the port side of these sections.



#44

The fun continues

After another bout of sanding, the bow has its glass. Once this has cured, I'll give the entire area a quick sanding to rough up the surface and I will roll on a further coat of epoxy. It is really not the nicest bit of boat to work on/in ... I am glad I am not building a catamaran.

All cloth forward of floor 3 and aft of bulkhead 7 is now complete. Only 3 more sections to go!



#45

Furniture and deck cleats

I made the shelf forward of bulkhead 2. There will be a vertical piece of ply to box this in, from the shelf up to the forward deck. Inside the storage 'box' will be a small electrical panel on the port side, just behind the bulkhead. There will only be a 12V power socket, a USB charger and light switches. The picture shows why I relocated the cutout for the inspection plate in Bulkhead 1 earlier.

The section aft of bulkhead 8 has been sanded lightly and two filler coats of epoxy have been rolled on. I have noticed that it is better to leave epoxy cure for an extra day, before trying to sand it. It does not cure fully overnight in the current low temperatures.

The cleats for the forward deck are just 2 @ 1" strips of 6 mm waste ply. I will have to run the plane over the cleats to square things up, so that the deck will sit properly for the glue.



#46

Furniture and deck cleats (2)

Several little things got done today. I cut and installed the vertical panel for the "boxed in" storage compartment. The top edge needs planing down a tiny bit once things are cured, and the edge where the two panels meet needs to be rounded over.

All cleats for the forward deck are now cleaned, level and squared up. There are a couple of spots where I need to sand off a bit of epoxy squeeze-out underneath ... I obviously missed these during my usual post-glueing booger collection procedure.

The bow compartment had its final sanding and another coat of epoxy, and the area forward of bulkhead 2 had its first filler coat.

#47

Glass and first cockpit cleats

After sanding the fillets and cleaning up, I put down glass between floor 6 and bulkhead 7 on both sides. The other major job for today was to make up the two cleats along the side panels for the cockpit. It took quite some time planing the top face to square it up against the bulkheads and to get the ends to sit properly. The bottom edge is, of course, rounded over. The cleats are not glued in as yet. I will spend another few minutes to triple check that things line up, that is that the tops of the cleats and the tops of the bulkheads are all in one plane.



#48

Cleats

The long cleats along the sides are glued down, and I made and installed the cleats on bulkhead 8. I marked all positions for the cleats for the cockpit and the footwell side on the transom and the additional cleats for the lazarette floors. Floors in the lazarettes are an addition to the design. Each floor will be at the same level as the footwell sole, with a slight slope and a limber hole into the footwell at the transom. Any water that comes in through the hatches, or gets in from any wet gear, will safely drain into the footwell and then overboard. The area underneath the floors (and the footwell) will be packed with foam as per plan. This water tight compartment will also have a drain plug into the bilge. The hole for the plug in bulkhead 8 can be seen in the photo.

I also put glass down between the floors 5 and 6 on the port side.



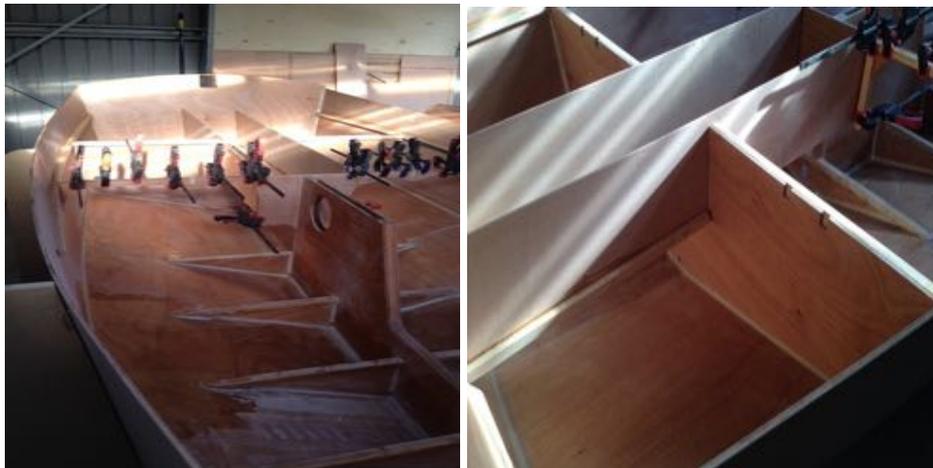
#49

Cleats (2)

I glassed the underside of the forward deck. This part won't be required for a few days, but it needs a few days to have things cured, sanded, filled, cured, sanded, ...

The section between floors 5 and 6 on the starboard side also has glass now.

The other thing for the day was to cut and glue the cleats for the footwell sides and some of the cleats of bulkhead 7. This includes the extra cleats on the footwell sides for the lazarette floors (between bulkhead 8 and the transom). The notches for the cleats in bulkhead 8 need to be opened up by 2 mm for the sides to fit. In the photo, the footwell sides sit on top of these notches – that is why they are 1" to high. It might not look that way, but the cleats on bulkhead 7 are at a right angle to each other.



#50

Cleats (3)

I was thinking about the floor boards and the removable sections. There many options and possibilities to consider. The plan is to have lift-out sections between bulkhead 8 and floor 6 for access to the drain plug in bulkhead 8 and some (limited) storage. From there will be lift-out sections (for ballast) to floor 4 , and then another lift-out section (for storage and battery) from there to bulkhead 2. The boards of these sections will butt against each other on the center of the floors, in line with the screws of the other boards. This arrangement should look OK.

The section between floors 3 and 4 has glass on both sides, and there are some more cleats in various locations.



#51

Glass done!

The last of the glass of the lower hull between floors 4 and 5 is done. I also made the center floorboard on the port side. A few passes with a straight bit in the router and a fence (another couple of floorboards) worked out OK. I also made a short piece to get an idea how the 1/4" round-over on the floor boards will look like with a 3 mm spacing between boards.

The starboard center floorboard will be a copy (mirror image) using the router and a flush-trim bit – too easy.

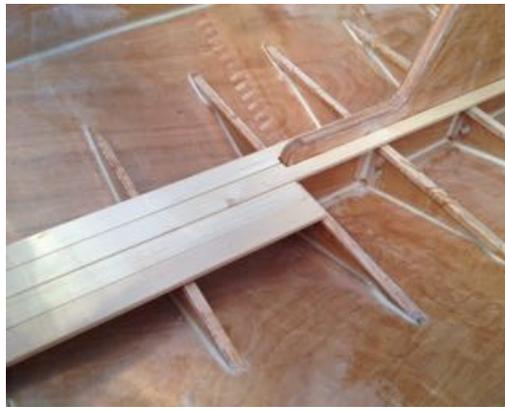


#52

Floorboards

A very short session today, because the weather is just too bad – cold, rainy and windy. Nevertheless, I made up the centre floorboard for the starboard side and three more boards for the forward lift-out sections. Two of these boards are on the bench. I had to apply a bit epoxy to a couple of small knots on the undersides. Celery Top Pine has this feature, whereby any dead, or almost dead knots, will loosen up and possibly fall out altogether. A bit of runny epoxy with a very small amount of wood flour for colouring takes care of these.

As a good estimate, I have spend 320 hours (~40 hrs / week) on the project so far. Keep in mind that I am not following the exact order of things as per manual. At this point, the bow sprit, boom, rudder and tiller are already completed (except prep for paint/varnish). Hmm ... Xmas lunch on the boat?



#53

Floorboards (2)

The 'straight' floorboards including all the boards for the lift-out sections are cut to size and all edges are rounded over. They have all been taken out since, and the bottom panels between bulkhead 2 and 8 were lightly sanded and a 'filler' coat of epoxy has been applied.



#54

Sanding ...

No pictures today ... I have sanded the bottom panels and put on another coat of epoxy. I cut some holes into the floorboards of the lift-out sections and joined short bits on two floor boards to make the full length of the cabin. The joints will be in the back so that they won't be noticed.

#55

Little progress

Yesterday, in preparation for fixing the floorboards, I had to adjust the height of floor 3 by about 4 mm. I just glued a strip of wood onto the top. Once I have cleaned this all up and it is painted, no-one will ever know. The white line is just a bit of masking tape. The bottom edge of the tape is the line where the floor boards (will) touch the bottom panel. The tape shows clearly that floor 3 was too low ... Once the clamps are off, I will adjust the tape.



#56

Floorboards ...

The boards for the six lift-out sections are now put together. The little sticks, which hold these boards together, are cut from a length of 1" x 3/4". I rounded the edges over before cutting the individual pieces. Then I clamped the sticks side by side as a 'block' onto the bench and ran the router over the edge of all the saw cuts. Then flipped each stick by 90° and repeated the process ... I expected that the little bits of timber would fly about the shop, but they all stayed put. The sticks are fixed to the boards with epoxy and SS screws.

The two centre boards are now screwed into position. Getting all the floor boards fixed will take a considerable amount of time.



#57

Floorboards (3)

Fitting and fixing floor boards is a slow process. You can see two of the specialised tools for this process. There are some cutting-edge high-tech nail spacers and the drill jig. This jig is just a piece of brass plate screwed to a bit of timber. The plate has 2 holes (3 mm) at the right spots to either mark or drill the holes in the floor boards.



#58

More floor boards

The weather has been quite miserable for the last two days – just too cold to be working in the shed. Today it is ok, so ...

Except for the outboard boards ('outboard boards'?) the timber has been fixed. The last boards will have to be a bit wider, otherwise I would have had two 3/4" strips at the sides. I thought about fixing strips with a few dowels to adjacent boards. That way I could have had the 3mm gap as well. However, it will be easier (?) and stronger with wider boards. I glued some bits together and once they are cured, I will fit them into the hull.



#59

Floor boards down

The outside boards are fitted, ready to be taken out again. There are a few little knots that need filling in with epoxy, but other than a light sanding, the boards are ready for a couple of coats of PU (external, matt finish). The footwell sides are not glued in. The next step is to prepare and paint the bilge and interior about half way up. Then the floorboards will be finished and screwed back into place. I don't like the #8 countersunk SS screws much. I will replace these with silicon-bronze #10 with raised heads aka *linsensenkopfschrauben* for those in the know!



#60

Sanding, sanding, sanding, ...

After removing the floor boards, I have sanded the entire inside, feathering in every fibreglass seam. I spent a considerable amount of time grinding and sanding the fillets around the limber holes using a Dremel tool. Then I gave the bottom panels their final coat of epoxy, which, of course, will need to be sanded again once the epoxy has cured.

In the first picture you can see a minor modification. I doubled the width of the cleat for the floor-boards on bulkhead 2. I don't like the look of the screws right near the edge of the floor-boards. This way, there is less worry about splitting the boards, and I will be able to drill and countersink the holes for the screws without any hassles during final installation of the floor-boards (all other holes are already drilled and countersunk).



#61

First paint

The first coat of primer has been applied between bulkhead 2 and bulkhead 8. After a second coat I will sand the lot with 180 grit before painting the area with two coats of top coat.

I also made and installed the box for the power panel. Once I have worked out the cable ducts to the starboard Dorade box and the battery compartment (The battery will live under the floor aft of bulkhead 2), I will prime and paint the area between bulkhead 1 and bulkhead 2.



#62

Back to work

After a few days of unfavourable weather conditions (rain, wind, snow, cold), it is now ok again to work in the shed. The footwell underside has a layer of glass, and the footwell sides have their first coat of epoxy. The box for the electrics has a couple of coats of epoxy inside and outside.

I made and installed a channel for the cable from the battery to the top of bulkhead 2. From there, the cable(s) will be fixed underneath the cleat for the forward deck – two pieces of thin flexible conduit will do the job.



#63

More primer

The storage area forward of bulkhead 2 and the floor received a second coat of primer. The parts for the footwell (floor and sides) had their second coat of epoxy. As a test, I coated the back of a floorboard (Celery Top Pine) with Exterior PU (clear, gloss). As you can see in the picture, the change of colour is quite pronounced when placed next to an untreated board. I will give it a quick sanding with #240 and another coat of PU. If that turns out ok, I will treat all the floorboards.



#64

Cleats for lazarette floors

In preparation for the installation of the footwell, lazarette floors and rear deck, I have now added most of the cleats in the stern section. There are still three more short cleats to be fixed to the transom, two uprights for the footwell sides and a short horizontal stick for the footwell floor.

The cleats at the transom are secured with epoxy and permanent SS screws. The others are glued in place and fixed with temporary screws through the side panels and bulkhead 8. The parts for the footwell are completed, but not glued in as yet.



#65

Paint and cleats

The weather is still pretty bad ... wet, cool and windy. Nevertheless, the cleats for the footwell and lazarette floors are complete. The area of the hull that will be underneath the footwell and the lazarettes, has its last coat of epoxy, and it is now ready to be enclosed. The parts of the side panels that will be difficult to paint once the rear deck is installed, have the first coat of primer.

Most of the floor boards have their first lot of polyurethane on one side. It will take a few sessions until the boards have had their two (or three) coats applied.



#66

Watching paint dry

After many short sessions, the floor boards are finished, and the bottom panels have their second lot of top coat. The floor boards took a lot of time to coat with PU ... the undersides and the edges have two coats, while the top has three coats. It took many hours for things to dry between applying each coat and before turning the boards over.

The bottom panels had two coats of primer and a quick sanding with #240. Then I applied two coats of oil based enamel (off-white) with a light sanding in between applying the top coats.

The next job will be the screwing down of the floor boards back into the boat.

#67

Milestone



#68

Footwell

The footwell is now glued in and the framing on the top edges of the footwell sides is attached. The two sticks of the framing between bulkhead 8 and the transom are fitted, but not glued down as yet. The lazarette floors have to go in first. I have drilled the drain holes for the lazarettes into the footwell sides.



#69

Rear framing

The framing for the cockpit deck is complete and the fillets inside the footwell are done. The next step is to clean up the part of the interior that will be covered by the 'lid'. A couple of joints need a bit of filler and there is some cleaning and sanding required, especially around bulkhead 7. I will also prime and paint this entire area before access becomes too difficult.



#70

Cockpit deck

The two large panels making up the cockpit deck have been dry-fitted and the undersides have been glassed and sanded. The panels are ready to be installed. The two lazarette floors are made from some 6 mm (scrap) ply and the undersides are glassed. I admit that this isn't the best looking plywood, but it will do the job with glass on top and bottom.

I have also started to liberate a few more components (seat-back frames, top side panels, ...) from their plywood sheets. The next job is to join, glass and sand the topside panels



#71

Paint and panels

The port-side lazarette floor is 'filleted' in. The other side has to wait, until I have packed some foam into the void. I have ordered four sheets of 1200 x 1200 x 50 EPS (that is 4' x 4' x 2" for the metrically challenged) from a nearby manufacturer, and I should get these in a week or so. Fortunately, this won't slow me down ... there are plenty of things to do.

The last bits of the area under the cockpit deck have a coat of paint. Once this has thoroughly dried, I will quickly sand it with #240 and put on another (final?) coat.

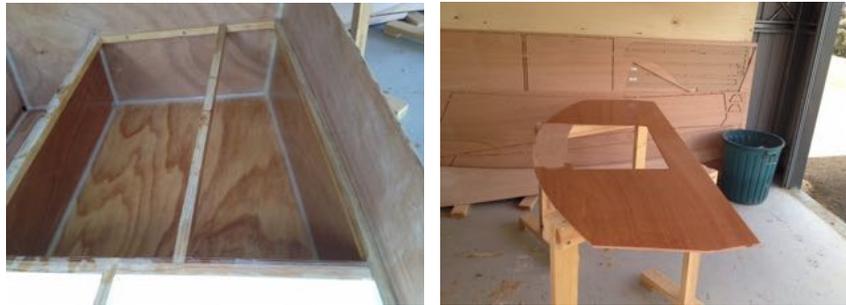
I also joined the top panels. Next task will be to glass the inside of these panels.

#72

Little things

The bad weather has returned with strong cold wind, rain and bits of snow. I cleaned up the joints of the top side panels. However I decided, after putting glass into the port-side lazarette, that it is just a bit too cold for 'broad acre' glassing of the big panels. The glass is wetting out ok, but there will be a lot of amine blush to deal with later. The weather will be right in a day or two.

Instead, I liberated a few more parts from the plywood sheets and gave the rear cabin panel a first coat of epoxy on what will be the inside of the cabin.



#73

Top side panels

The weather is still not the best – very windy, but the sun is out and the temperature in the shed is quite ok. The glass in the port lazarette is cleaned up, and I rolled on a coat of epoxy. The inside of the top side panels have some glass applied.

I also sanded the rear cabin wall that I coated with epoxy yesterday. As predicted, it needed a good washing down first. It will get another coat before installing.



#74

Panels ...

The top side panels and the panel for the rear of the cabin have their second coat of epoxy, and the backrest panels also have a coat of goo. The drain holes in the transom are done. I drilled small pilot holes

from the inside and then used a 20 mm hole-saw from the outside.



After giving the area underneath the cockpit deck a final coat of paint, I secured (dry) the panels with a few screws so that I can mark and cut the holes for the lazarette hatches *in situ*. The centrelines of the cleats and bulkheads are already marked on the panels for temporary screws later, when they will be glued down.



#75

A stitch in time ...

Three stitches actually. After sanding down the panels, I couldn't help but quickly stitch one of the panels to the hull. The top side panel is held by three stitches and the panel of the rear of the cabin is not secured at all (the clamp is only there to stop it from falling into the cabin, if disturbed). The seat back formers are only resting against the panels. I must have done something right earlier, because the fit of the top side panel is spot on. The perfect fit can be seen in the 2nd picture – there is no gap showing anywhere.

This is the first time that you get a sense of the space in the cabin. It feels bigger than I expected, but then again, there is no lid on the cabin as yet. There seems plenty of headroom when sitting inside.

For those who wonder about the gap between the cockpit deck panels, there will be a small removable access panel, probably held down by couple of neodym magnets.



#76

Cabin top

All of the boat's parts have now been liberated from the plywood sheets or, in the case of patterns, the sheet of MDF. I have joined the two halves of the cabin top with a strip of glass on the underside and also put down a first coat of epoxy.

The most time consuming task for today was to sand every bit of the storage area between bulkheads 1 and 2. This area now has a coat of primer and one coat of enamel (well, 1/2 a coat, after the sanding). Because of the shelf and the electrical box, there are so many inside corners and edges ... sanding this is only fun if you are a contortionist with a penchant for lots of white dust. I will definitely mask off the gluing areas of the underside of the forward deck, and I will prime and paint it before gluing the panel down.

#77

Sundries

Today a few little things got done. I cut some small cleats for the tops of the seat back frames. This will give me something to temporarily fix the top stringers and the seat back decks later on with temporary screws. The bottom stringers can be fixed to the cockpit deck to hold them in place. I might glue some small blocks about halfway down the edges of the frames to hold the seat back panels in place when they get installed.

I finished the joint of the cabin top panels with a wide strip of glass on the upper side. I don't think it will be necessary to glue down a butt block as well. With one layer of glass underneath and one layer on top, that joint will be very strong.

#78

Floaties and hatches

I stacked lots of foam into the bow and underneath the lazarettes, before closing both of these areas for good. For the forward deck I used a thicker no-drip epoxy mix for the joints that cover the storage area. This worked really well – there was obviously a bit of squeeze-out to collect, but no runs or drips. The forward deck is held in position with some 20 temporary screws until the epoxy cures.

The starboard lazarette floor is glued down, and the cut-outs for the lazarette hatches are done.



#79

Top side panel

The starboard lazarette is glassed and has two coats of epoxy. I have glued some cleats around the openings for the hatch covers. They may add some strength, but more importantly, I can use wood screws to fix the hatch covers. The alternative would have been using machine screws with washers and acorn nuts (aka dome nuts, blind nuts or cap nuts).

While the epoxy cured ... I stitched on the starboard top side panel. The edge of bulkhead 2 needed a bit of a bevel to seat the panel properly. It was easy enough to do. I removed a few stitches and widened the gap to get in there with the Dremel tool.





#80

Stitch and glue

Today the boat has changed its shape considerably. After gluing and screwing down the cockpit deck, I proceeded with stitching the port top side panel and the cabin rear panel into place (with only two punctures in the fingers). I had to shave off about 2 mm on both sides to fit the rear cabin panel. A few wires secured the bottom edge to the cockpit deck. Everything fitted together very nicely indeed and all glue-tacks are in place.

Before tacking the seat back frames into place, I clamped a length of timber athwartship over the tops of the frames and pulled them slightly together so that the frames planted their 'feet' firmly on the ground (deck). This way I did not need any blocks, screws and whatnot to keep them lined up while the epoxy is curing.

Now there are miles of fillets to do ...



#81

Fillets and tape

After putting in the fillet between deck and cabin rear, it is ok now to walk all over the deck. The fillet has one layer of biaxial fibreglass tape, which I applied before the fillet cured. I made a super runny mix and used a paint brush to wet out the tape. I have sanded the edges with #80 and I will apply another coat of epoxy before the entire area gets covered with cloth later.

The joints between the side panels in the cockpit also have some biaxial tape applied and the seat frame supports have a coat of epoxy. I painted the supports with the left-over epoxy after wetting out the short lengths of tape.

The edges of the lazarette cut-outs are trimmed flush with the supports underneath and rounded over with a 1/8" bit. The edges between cockpit deck and footwell are also trimmed.

The outside of the top side panels will be finished bright. To protect these panels from dings and scratches, I rolled on a coat of epoxy.



#82

Fillets, fillets, fillets, ...

The fillets around the cockpit deck and forward deck are done. I made several 180 g batches of goo during the process. Glass has been applied to the forward deck. I decided to put the glass down before installing the sheer-clamps. It is easier to do at this point because the fabric can be trimmed along the top

edge after the epoxy has cured. The little bit of fuzz will be sanded off tomorrow. The small white patch in the corner of the forward deck is a pool of thickened epoxy. The drain hole through the side panel will be drilled right in the corner at a very shallow angle so that the bottom edge of the hole will be about 2 mm lower than the surface of the deck.

The taped joints between the side panels have been sanded and feathered in. The port side joints and seat back frames had their final coat of epoxy. All holes from the temporary screws in the decks are filled and sanded.



#83

Sheer-clamps and Dorade boxes

The areas behind the seat-backs, which will be filled with foam, will end up fully enclosed. All surfaces must be coated in epoxy to make things waterproof beforehand. I applied the first coat of epoxy in these parts of the deck. The aft section (storage) between the solid support and the transom will get a layer of glass on the 'floor' once the bottom stringer is installed. Although there will be a drain hole in the seat-back, water may pool in there. A glassed floor will be a waterproof 'tray' – just in case.

The Dorade boxes are installed, the drain holes are drilled and all fillets have been applied. I installed the boxes before worrying about the sheer clamps – the manual suggests to do it the other way round.

Cutting, fitting and fixing the forward sheer-clamps – only the port side is glued in – was a stressful job. Given that much of the cross section of these timbers will be whittled away to get the right shape for the cabin roof, I have decided that lengths of hard wood (Tasmanian Oak) will be needed to give the necessary strength. This, of course, means that I had to persuade the sticks of 1" x 3/4" to follow the curve of the top side panel. The question was, what would give way in the process: the sheer-clamps, the joint between top panel and the rear cabin, the joint between Dorade box and forward deck, or the joint between the top side panels at the bow. Given that the latter is the joint with the least amount of glue, I installed a 2 mm 'safety wire' beforehand (see photo). This wire will stay put until the upper breast hook is glued and screwed in. There was a bit of squeaking and creaking, but all the joints proved to be strong enough.



#84

Carlings and breasthook

First thing this morning I glued down the starboard sheer-clamp with some fairly thick mix to prevent runs and drips into the cabin. While the epoxy was curing, I installed the carlings for the cabin roof. I found two beautiful sticks of 19 x 38 (1/4" x 1-1/2") Silver Wattle in my stash of goodies. I rounded over the bottoms with a 1/4" bit. Obviously, I had to enlarge the notches in bulkhead 2 to allow for the slightly oversize timbers. I made the cutouts to fit the profile of the carlings with the Dremel tool and they turned out to fit nicely. The other ends were cut to match the angle of the rear cabin and secured with a couple of 1-1/2" SS screws, which are countersunk and completely embedded in goo.

Next I bevelled the two lower rails for the seat-backs. This exercise took about 15 minutes with a little handplane. These stringers (and the others) are made from clean Tasmanian Oak, and they bend nicely into shape with little risk of snapping in half. The aft ends needed a bit of clamping down, as you can see in one of the photos.

After lunch the epoxy of the sheer-clamp had cured enough to take all the clamps off. I rounded over the aft edges, top and bottom, of the upper breasthook. I secured it with a big clamp, and drilled and countersunk holes for six 1-1/2" SS screws. The breasthook is permanently installed with the screws and some thickened epoxy, with a bit of wood flour for colour. The visible ugly dark patch is just some of the tinted squeeze-out which I managed to spread around when I was trying to scoop it up with a paint scraper. The sander will take care of that ...



#85

Stringers and things

I installed the top outboard stringers of the seat-backs and the little blocks at the rear of the top panels. The best material at hand for these gadgets was a 42 mm thick off-cut of Celery Top, which I liberated some time ago from the waste bin of my favourite timber supplier – I knew it would come in handy one day.

A bit of glass (off-cuts again) will protect and water-proof the floor of the rear section of the seat-back (i.e. storage compartment). While things were curing ... I made up and installed the reinforcement blocks and inside cleats for the Dorade boxes.



#86

Let there be light ...

The holes for the deadlights are cut out and this changed the look of the boat quite a lot. The top inboard rails for the seat-backs are glued in, and the reinforcement blocks for the mooring cleats are somewhere amongst these clamps ...

I washed and sanded the inside of the back rest panels and glued down the reinforcements for the openings of the stowage area.



#87

Transom skirt

The last of the cleats for the seat-backs are done and I glued in another reinforcement block on each side. I might need some more fittings there for the mainsheet. The cut-outs for the storage in the seat-backs took a few minutes. Using the template guide in the router I cut the holes first with a straight bit. Then I trimmed the little bits that were left by the template guide using a top bearing bit and treated all edges with 1/8" round-over bit to finish the job. The seat-backs need a bit more trimming before they get glued in.

The transom skirt is fixed to the boat with a little bead of epoxy on both sides. The boat looks a bit more 'complete' with the rudder and tiller propped up against the transom.



#88

Cabin progress

The framework for the seat-backs is all squared up and waterproofed – ready for the foam to go in and the panels to be installed. I also drilled holes for drain plugs on both sides into the seat-back supports at station 8. Not that there should be any water ever, but at least it is possible to check that there really isn't ...

All the fillets in the cabin are now in place and the seam between the side panels is taped. The first of the curved cleats that will carry the cabin roof is also glued in. These cleats are cut with the jig-saw from 3/4" Tasmanian Oak.



#89

Seat-backs

After I stuffed the seat-backs with foam, I glued in the seat-back panels. Once the epoxy had cured, I trimmed the top of the panels with a (modified) tenon-saw to 1/8". Some time ago I removed the back (aka spline) of the saw – it is only the blade and the handle. This blade is somewhat flexible, sharp and has a thin kerf. Without the back I can make long cuts in plywood. For the last bit of the tops of the panels I used some #80 in the ROS.

The two small panels resting across the boat are the seat-back tops with their first coat of epoxy.

I also added two more of the curved cleats in the cabin.



#90

Seat back tops

The port side seat-back top is glued down and trimmed. With a bottom bearing flush cutter bit in the router, the trimming took only a minute and the process yielded quite a bit of sawdust. I took off the last mm with the sander. The starboard top is fixed and the epoxy is curing ...

The last two curved cleats in the cabin are in place and I started to get some of the bevels of the cleats into shape.



#91

Miles of fillets

All the fillets of the seat-backs and the transom skirt are done. With two batches of 180g and one lot of 72g of peanut butter the job was done. I was lucky to get the fingers dipped in meth, methylated spirits that is, at the fillets just at the right time to smooth things out. The amount of sanding this afternoon was minimal.

I started to clean-up and to sand the inside of the cabin ready for priming and a coat of paint before the roof goes on.



#92

Transom skirt trim

The 'fussy bit of trim' (so the hand-book says) for the transom skirt is glued on. The second strip of timber on top required some advanced clamping to get the end sitting properly. The clamp only holds the plank of wood so that it rests just on the rear corner of the trim. The sheet of lead (~15kg) provides the 'clamping'-force and keeps the contraption in place.

The cabin roof has its second coat of epoxy on the underside, and the framework for the roof is all bevelled and ready to go.



#93

Dry-fitting the roof

The trim on the transom skirt is finished. I think it looks quite attractive, although it is not exactly the same section as specified on the plan. I dry-fitted the cabin roof and to make things ‘fair’, I had to take about 1/8” off the forward corners of the Dorade boxes. Without doing that, the roof wanted to lift at bulkhead 2, and when forcing the roof down, the plywood would be in a compound bend. It would look hideous ...

The second photo shows the butt block being glued to the top of the cabin roof. The underside has been sanded and is ready to go.

I also spent some more time cleaning up, i.e. sanding, on the inside of the cabin. One of the jobs was to fill the inside joint between the deck and rear cabin panel with epoxy and to round it over. I might glue some glass tape over it – this joint needs to be strong.



#94

Milestone: Cabin roof

A milestone in the building process: the cabin roof is glued down. While I was doing the last dry-fit, I ran a pencil around the underside of the roof panel to mark the exact edges, and also marked the position of bulkhead 2 and the top rails on the top of the roof. Back on the bench, I buzzed off all of the waste with the jig-saw about 1/8” outside the pencil line.

After masking all faces of the cleats inside the cabin, I applied generously a non-drip mix of epoxy to the tops of all cleats. Standing inside the companion way, it was actually quite easy to put the roof into place. If you grab the roof by the forward edge of the cut-out it is nicely balanced and easily lowered onto the top rails. Keeping the fore-and-aft edges of the cut-out lined up with the top rails and getting the forward edge lined up with the 20-1/2” marks on the rails was not too difficult. Once the panel sat in place, I

placed a few clamps along the roof inside the companion way to stop it from moving about. One clamp each between roof and the deadlight cut-outs, and a clamp on either side between roof and the sheer-clamps in front of the Dorade boxes made things bend as required. After that, I drove temporary screws every 4 – 5" into all of the cleats, starting at the top and ending along the sheer-clamps.

Running a paint scraper along all edges on the inside and the outside to collect the squeeze-out took a minute. I also removed all of the masking tape from the inside cleats before the epoxy started to set.



#95

Rounding over

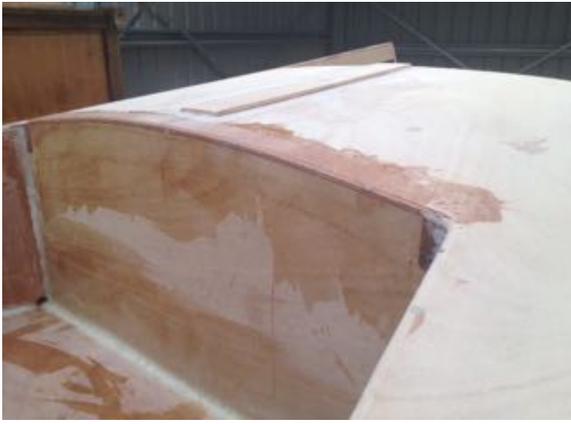
After filling all the screw holes, I started to trim and to round over the cabin roof and the seat-back tops. The sander with #40 and then #120 makes things easy along the long edges. The areas where the seat-back tops meet the roof and the “transom skirt trim” required a lot of time – fiddly stuff. A quick going over everything by hand with #240 finished the job.



#96

Glassing the cockpit

The cleanup and rounding over of the cabin roof is complete. I glued some biaxial glass tape over the roof/bulkhead 2 joint to give it more strength before the glass goes on top (maybe 2 layers of glass). Because the fabric in the cockpit extends over the seat-backs down to the side panels for about 4", I had to use first a bit of coloured epoxy as filler in some parts of the seam between the bottom and the top side panels. After sanding this joint, I was able to wet down a length of glass on either side of the cockpit.



#97

More glass

I managed to get a bit more glass into the cockpit and onto the cabin roof. Besides the foot well, there are two small areas on either side of the companion-way and the centre section of the roof to do. Before I can continue with that, I will first need to clean up the edges of the fresh glass ... tomorrow, after the epoxy has cured.



#98

More glass (2)

I finished glassing the rear cabin wall and feathered the seams where any glass overlaps. There were a few runs and drips which I sanded off in the process. In order to get the last bit of fibre glass on the roof to sit properly, I applied a fillet around the butt block. Tomorrow I can hit the top edges of the 'block' (it is only 6 mm ply) with the sander and feather it in. The glass will then lay down nicely over the top of the block.

To those who wonder about the pink tape hanging from the rafter, I offer a quick explanation. When 'someone' walks in the boat, the head occasionally makes contact with this bit of steel. This has two consequences: firstly, there is every time an utterance of fairly rude words like 'oh bother'. Secondly, over time this beam will wear down and there is a good chance that it may fail altogether – with serious

consequences. As a measure to protect the beam and therefore the structural integrity of the shed, I tied a bit of high-viz tape to the zone of impact.



#99

Companionway

I fitted the 1/2" x 1" sticks to the cabin top around the companionway cut-out. The inside flange on the aft cabin panel is also glued down. Because people will stand on this piece of plywood, some reinforcement might be a good idea. So, I applied some fibreglass tape to the flange before installing it. This tape is now sandwiched between the flange and the panel.



#100

Companionway (2)

While the epoxy of the first 'filler'-coat was curing, I made some of the timber bits for the sea-hood. The strangely shaped piece of Tasmanian Oak is the doubler/reinforcement necessary for a removable tabernacle – this piece is actually symmetrical in real life.

The hardwood block, which is glued to the transom skirt and trim, will be used to secure the ratchet block of the mainsheet. The idea is that the mainsheet runs from the becket of a block at the boom down to a single block on the bridle and then up and through the block at the boom. From there the sheet will run down to the centre of the transom to the ratchet block and into the cockpit. This arrangement will give a 3:1 advantage and 2/3 of the load will be carried by the bridle. The main part of the cockpit will be free of any obstructions ...



#101

Bowsprit and filler coat

I lightly sanded the first filler coat on the cabin roof, top-side panels inside and out, etc. and rolled on another (thin) coat of epoxy.

While the epoxy cured ... I rounded over and chamfered the bowsprit. For those who have not done that, make a note on your plans: the forward measurement of the chamfer location is given on the plan as 31-1/2" or 927.1 mm. That is not even close, because 31-1/2" is only 800 mm. I picked it up in time because I measure everything twice, first in mm and then feet or whatever is alternatively specified in the plans and the manual. As we know, there are also a few little 'translation' issues in the manual. If in doubt, work with the values given in inches: it would be very difficult, for example, to 'un-chamfer' the bowsprit.



#102

The sandman



#103

Rub rails and a bit of glass

I attached the 'first instalment' of the rub rails on both sides. These rails will be growing a bit over the next few days as additional strips of timber are glued on. The second task was to glass the outsides of the top panels forward of the cabin. The fabric extends to the inboard edges of the sheer-clamps.



#104

Rub rails (2)

The glass, which I glued down yesterday, is cleaned up and the seams are feathered in. The filler coat will have to wait until I have enough area for a proper batch of soupy epoxy. The port rub rail had some more timber glued on. The additional sticks for the starboard rail are also ready to be installed.



#105

Rub rails (3) and bow sprit

In order to check out how the boat looks with its bow sprit, I had to swing the boat around in the shed. Having wheels on the cradle made it an easy job, once the workbench was out of the way – which doesn't have wheels.

I took all the temporary screws out of the rub rails and shaped the rails at the bow and at the stern.

I spent about an hour or so sanding around the cleats and carlings in the cabin, which is a boring, fiddly and time-consuming job.



#106

Cabin

After some more sanding inside the cabin, I installed the reinforcement for the (removable?) tabernacle on to bulkhead 2. This is a 3/4" thick piece of Tasmanian Oak, glued down and held in place with a dozen temporary screws driven in from the front.



#107

Footwell glass

After replenishing my exhausted stock of fibreglass fabric, I can now finish the last bits of the upper hull. After sticking some glass into the footwell today, there is only the top of the cabin and down the forward part of bulkhead 2 to go.

#108

Sanding and glassing

After cleaning up the footwell, I glassed the top of the cabin and the forward face of bulkhead 2. While I was sanding and fairing the overlaps in the footwell, I discovered two small air bubbles, where the glass

had lifted off the bottom fillet. I have sanded these bubbles out, and I will fill them with a bit of thickened epoxy before “filling the weave”.



#109

A short session

I quickly sanded the edges of the glass on top of the cabin, the forward part of bulkhead 2 and the outsides of the Dorade boxes. The top side panels forward of the cabin are also done and dusted (literally).

The story will continue in a few days ...



#110

You've got to be fast

At higher temperatures – yes, it can be warm in Tasmania – things happen very quickly. While filling the fabric on top of the cabin and other areas, one small batch of epoxy “got away” from me and the cup and the spoon melted. I think I will continue with this tomorrow morning, when the shed and the ingredients are a bit cooler.



#111

Progress?

Today's pictures look just like the last lot. However, it took some doing to get there (again). First I sanded the entire cockpit floor, footwell and cabin roof with #80 and #120. Then I removed a great amount of dust. Because I like sanding and dusting, I rolled on a fresh coat of epoxy over the entire cockpit, forward side panels and cabin roof. Once the epoxy has cured, it should easily provide another couple of hours of entertainment.

The forward deck and the upper side panels will also get another coat – yay.



#112

Sea-hood

After a bout of sanding some areas of the upper hull, I made and assembled more parts for the sea-hood. All of these parts are cut with the jigsaw from 3/4" Tasmanian Oak. The grooves for the slide were easily done with the router. The sea-hood, once it is finished, will not be attached to the boat until the underside of the boat is done.



#113

Sea-hood (2)

The cleat for the sea-hood top is made and glued to the plywood top. The manual refers to this cleat as a 'trim', but it really gives the panel its shape and strength. I propped a bit of timber underneath the other end to (possibly) pre-warp the top.

The other pictures illustrate the amount of manual sanding that is required to deal with all the corners, edges and other details. The good news: there is still plenty left to be sanded ...



#114

Sea-hood (3)

I glued the top onto the sea-hood last night. First thing today I cut the parts for the slide frame. The forward and aft curved pieces needed a bit of trimming to fit the companionway cutout – the patterns for the parts were about 1/4" too wide (or, the companion way cutout is 1/4" too narrow). After checking that things are square and don't bind anywhere, I glued the frame for the slide together, fixing things with a few SS screws. In the photo the slide frame sits on a couple of spacers, which are a bit too high. Once the slide rides with its rails in the grooves, it will be about 1/4" lower. Since the photo was taken, the slide frame has been faired and the plywood top of the slide is glued down.

The sea-hood itself is pretty much cleaned up, except for some screw-holes that need to be filled. I have already put some fillets down on the inside, ready for painting with epoxy.



#115

Sea-hood (4)

The sea-hood and slide turn out to be a sizeable project in itself. After filling all holes from the temporary screws, I made the curved bit of timber that sits on top of the slide (aka 'the handle') and glued it down. These little bits of timber with beveled curves take a lot of time to make and fit properly. After that I cleaned up and rounded over all edges on the sea-hood.

This afternoon I sanded and rounded over the edges of the slide. Both items are now glassed. The handle of the slide has not been shaped and profiled as yet, because I am 'sanded out' for today.



#117

More sanding

The sea-hood and slide have their first filler coat on the outside and have been prepared for one more coat of epoxy. The undersides of the hood and slide have all fillets applied and the fillets have been cleaned up.

The upper hull is almost done now – just a bit more detailing around the sheer-clamps and the Dorade boxes is required. Using terms like 'prepared', 'cleaned up' and 'detailing' makes things sound a bit more exciting than 'sanding', doesn't it?



#118

Sea-hood, rudder and tabernacle

The sea-hood and the rudder are now ready for installation, painting and/or varnishing, which won't be happening for some time.

I made the (removable) tabernacle from 3/4" stock, Tasmanian Oak for the sides and Celery-top Pine for the rear board. The manual suggest that 3/4" is the minimum thickness for the sides (using Pine, Fir, etc.), but Tassie Oak will have more strength without any real weight penalty. I used Celery-top for the rear bit of timber, because I had a suitably sized piece in my stash. There are 4 SS screws on both sides, which will be completely embedded in epoxy. The spacers under the clamps ensure that things remain square while the glue cures.



#120

Mast staves

Today I glued the scarf-joints of the staves for the mast. These timbers (Hoop Pine) have been sitting in the shed for the last 5 months. They lost a bit of weight while drying out. One has a slight twist, but I don't think it will become an issue. I cleaned the glue lines in the tabernacle and covered the screws heads with epoxy. These screws are deeply countersunk so that the heads are about 2 mm below the surface.



#121

Turtled

Six people, three bottles of red wine, (some) coffee and the boat is upside down. Note: the boat is not upside down because of the booze, it's the other way round. The turning-over went without any problems. We moved the boat on its wheels out of the shed, partially demolished the cradle and rolled the ship on its side. Then, after lifting off the rest of the cradle, turned the boat onto its back and lugged it back into the shed. This entire process took 10 mins ...



#122

Cleaning up, filling gaps

After cleaning up the underside of the rub-rails, I feathered some of the glass on the lower side panels. This is the glass of the upper sides that continues for a few inches over the joints of the side panels (underneath the rails). I filled the gaps between the side panels and the bottom panels with thickened epoxy. These gaps are there because the panels meet at an angle with their inboard edges (once wired) together.

The joints where the bottom panels (and the keelson) meet are roughly sanded and filled with epoxy. Much of the epoxy will be removed again when things get rounded over and faired. The rear of the keel needed a thin shim (plywood) to make things flush with the transom – an exercise in ‘making it look pretty’.



#123

Hull

The bow has glass tape glued down and the edges of the tape have been feathered. I rolled on another thin coat of epoxy.

The chines and the edges of the transom are rounded over, and I applied a smallish fillet along the rub-rails. These fillets and the rails have been sanded and coated with another thin layer of epoxy afterwards.

#124

Big fillets, centre-board

The cutting of the groove in the leading edge of the centre-board took only a few minutes. I clamped the centre-board vertically against the workbench and ran the router with a straight bit along the edge. Then I filled the groove with thickened epoxy. While the epoxy cured, I laid down the two long fillets along the keel.



To shape the centre-board's leading and trailing edge, I started off with a sharp hand planer followed by the ROS with #40 grit. The leading edge and the bottom should now be sufficiently protected against unwanted contact with stuff that is not water.



#126

Hull, centre-board

Both sides of the centre-board are now glassed. I applied a bit of tape along the edge of the keel's nose down (up?) onto the keelson. This area will also get two layers of cloth, which should provide sufficient strength. The hull, except for that little bit of tape, is now ready for the glass. All edges are rounded over, all the holes from temporary screws (and a couple of little dings) are filled and sanded, and there are no more splinters and other things that could snag the cloth.



#127

Cabin

While the boat is upside down, some of the work inside the cabin is now a bit easier. The boat rests with the cabin top on some 2" foam. Underneath the transom are a couple of blocks to level the boat. While it is the ideal height to work on the outside, access to the interior is somewhat 'challenging'. Once inside, it is quite ok to work on various bits and pieces. Some of the things I have done so far, include putting glass tape along the cockpit-deck / cabin-rear joint, some fillets inside the forward storage area around the forward deck, and cleaning (sanding) around the carlings and cleats. All of these jobs would be so much harder with the boat the right way up.

There is quite a list of things to do inside the boat: sanding, priming and painting ...



#128

Transom, mast staves

The transom is glassed. The fabric goes for about 5" around the edges onto the bottom and side panels. The glass on the panels will be fitted to wrap around the edges onto the transom. These double layers of glass will strengthen the boat and will also help to protect the edges from damage.



While the epoxy cured, I cut and trimmed the fore and aft staves for the mast. I drew a centreline on one of the timbers (Hoop Pine) and marked the outline of the taper as per plan. After ripping off the waste with a hand saw, I used a hand plane to take off the rest down to the mark (note the wood shavings on the

floor). Using the first stave as a template, I marked the second length of timber and shaped it in the same way. In the end I clamped the two staves together and used the sander with #40 grit to get the final shape and smooth out things. The staves are about 16' 6" and will be trimmed after the mast has been glued together.

I thought about using either the circular saw or the jig-saw to remove the waste, but I couldn't think of a clever way to secure these timbers onto the workbench and trestles. Any clamps would have been in the way of the saw, and I didn't want to drill countersunk holes in the staves to screw them down. Besides, using a hand saw and a hand planer is a good cardio exercise ...



#129

Hull, mast staves (2)

After marking, I shaped the side mast staves, using the circular saw to cut off the waste. Once cut, the two staves were clamped together and finished using the hand planer and the ROS. The next exercise will be to cut the rabbets – probably with the router.

I put the glass on the starboard side panel. I trimmed the fabric to reach over the chine and the transom by about 4". Up front, the glass reaches over/around the bow.



#131

Hull, centre-board

The underside of the hull forward of the keel has an additional layer of glass. This part of the boat is the most likely bit to make contact with floating debris and submerged objects. The underwater part of the bow will have 3 layers of glass plus tape on the joint along center line.

The holes for the pin and the pennant of the centre-board are filled with epoxy, ready to be drilled out again. The edges have another thick layer of epoxy to ensure that the end-grain of the plywood is sufficiently protected against any ingress of water. After sanding these edges, I will roll on another coat of epoxy over the entire centre-board. This will then be sanded smooth – up to 240# grit.

#132

Last glass, grab-rails

The last bits of fibreglass cloth are wetted out – yay! The centre-board and the inside of the tabernacle have some more epoxy.

I also made some grab rails from 3/4" Tassie Oak. Unlike my previous attempt, which transmogrified into a small amount of firewood, the rails turned out quite nicely. The method of making these I got from some website, which I can't find again. It goes like this: Start with a piece of timber (1100 mm) as wide as twice the rail's height (120 mm) and mark the center line. Mark the location of the feet and the centres of the circles (75 mm) on the centre line. With the hole saw cut the holes and mark the waste between the holes. After cutting out the waste with the jig-saw, the piece of timber has 3 long holes in it. Then cut along the centre line (4 cuts) and you have two grab rails. Cut the radii at the ends, trim with the ROS and round over the edges with the router. A bit of sanding by hand – done.



#133

Filling the weave

Quite a bit of work, but not much visible change ... Yesterday, after feathering and cleaning up all edges of the fibreglass fabric, I gave the bottom panels and the transom a coat of epoxy. This morning I gave these areas a quick sanding with #80 and I rolled another coat of epoxy onto the bottom panels, the topsides and the transom. There will be plenty more sanding and lots more epoxy ...

#134

Filling the weave (2), mast staves

After sanding the lower hull (bottom panels, top sides and transom) with #80, I applied the 2nd 'filler' coat of epoxy to the bottom panels and the transom. The sanding took about 4 hours yesterday.

I finally cut the rabbets (aka *rebates*) in the mast staves. I used a 8 mm straight bit in the router set to a depth of 9 mm. Three passes along each edge made it a straight forward job in the end, with the guide (fence) set in increments of about 6 mm for each pass. This was a scary thing to do nevertheless. Wrecking one of the staves would have been a bad thing – making a new staff would be a lot of work and \$\$\$. In one of the photos you can see a scarf. The scarf in the other staff is about 2' further towards the top.



#135

Mast

After dry fitting the staves, the mast is now partially glued up. The back rests level on a few blocks and shims, and the sides are glued to the back and clamped. The forward staff of the mast is put on top to make sure that everything stays square while the epoxy is curing. The mast is clamped onto the workbench/trestle at the ends and about halfway up. Before tightening the clamp in the middle, I used a string line to make sure that the assembly is straight. Unfortunately, I can't remove any squeeze-out on the inside while the epoxy is still 'green'. Depending on how much there is, I might just leave it in there (nobody will ever know). The ends of the mast will have to be cleaned up nevertheless, because any squeeze-out would interfere with the 'filler'-blocks that will be glued in.



#136

Mast (2)

First I removed the 'lid' of the mast. I might mention here, that a couple of small drips of epoxy in the wrong place are not a good thing, when trying to remove the forward stave after gluing up the sides and the aft stave.

For the solid plugs at both ends of the mast I did not have enough Hoop Pine left. For the top I found a piece of Sassafras (*Atherosperma moschatum*), not the North American *Sassafras albidum*, which was once used for treating Syphilis and Gonorrhoea, but I digress ... The big end of the mast I filled with some bits of Tassie Oak – I found some clean material that was fairly lightweight. I wrapped some blocks in cling film for clamping things down.



#138

Gaff jaws

I have glued three bits of 6 mm ply together, with fibreglass fabric between the laminations. The gaff will be epoxied into the long square slot (1" wide). There will be a through-bolted double eye bolt/nut combo at the marked spot for the sail's throat and the throat halyard. Additionally there will be a couple of holes in the ends of the jaws for a parrel-line.

The inside of the jaws will be lined with leather to protect the mast. The area of the mast where the gaff will normally sit will get a layer of fibreglass for further protection of the mast against dings and chafe.



#139

Cabin (cont.)

After sanding the taped joint between the deck and the rear cabin panel, I cleaned up all the squeeze-out from the bulkheads and cleats on the underside of the deck. Access to the area is quite ok, so dusting, hoovering and rolling on a first coat of primer did not take much time. Everything will get two coats of primer and two coats of 'proper' paint, with a light sanding between each coat.



#140

Spars, topsides

The mast, boom and sprit are rounded over and sanded, ready for some epoxy. Yesterday I spent about four hours sanding the topsides, keel and transom with #80 grit. Today, the keel and the topsides had another coat of epoxy. All parts of the lower hull have now at least two 'filler'-coats, and all edges have at least 3 coats of epoxy. Once the shiny bits have been sanded, I will decide whether I will roll on another coat over the entire lower hull ...



#141

Spars

After sanding one of the topsides, which took about 2 hours, I rolled on a coat of epoxy to some surfaces of the spars. The colours of the Hoop Pine for the mast, and the Celery Top for the sprit and the boom, have come out beautifully. The difference in colour between the species is less than the variation of colours within the Celery Top Pine. The gaff will be made from a single piece of King Billy Pine (*Athrotaxis selaginoides*). Its colour will (should) not be that different. It is probably a good thing that the spars, despite being made from very different species with different properties, have a 'uniform' appearance.



#142

Gaff

My local timber supplier provided me with a beautiful piece of King Billy Pine (*Athrotaxis selaginoides*) for the gaff. Note that King Billy Pine is not a pine, in the same way that Hoop Pine, Celery Top Pine and Huon Pine aren't pines either. Early settlers decided that anything resembling timber from a pine should be called a 'pine' – and if it looks like wood from an oak, it should be called an 'oak', as in Tasmanian Oak, which is a species of Eucalypt. Which species of Eucalypt it actually is, depends on where you are in Australia and who you are talking to.

The piece of timber for the gaff is milled from a plank of the last batch of King Billy available from the supplier. The timber is straight grained without any faults, and it is well seasoned – in fact, this lot has been sitting in storage for over 20 years.

As the timber was already dressed to the right dimensions (1" x 3"), I only needed to cut the shape according to the template. I used the hand-saw, a small block plane and some 80# sandpaper to get the shape right. A quick buzz along the edges with a 1/2" round-over bit and a quick sanding with 180# finished the job.

I will take off a bit more material from the jaws to make them look a bit less 'chunky', before gluing them permanently to the gaff. The tips will be more rounded, and the sides will be a bit more streamlined.



#143

Spars, hull

We have the perfect weather today for some “broad acre” epoxy work: sunny, calm, very dry air, around 23° C (~74° F). I don't think that there will be any issue with amine blush. So, I rolled and tipped a coat of epoxy onto the entire lower hull. That was the easy part ... now I will have to sand this all over again.

All spars had their first coat of epoxy and have been lightly sanded, ready for their second coat. I also did a bit more priming and painting on the inside.

#144

centre-board installed

After some serious sanding of the hull in the last couple of days, I installed the centre-board. I used a piece of fibreglass rod as the ‘hinge’ pin instead of a steel bolt. This rod is a bit larger in diameter (10 mm) than a steel pin/bolt as per manual. These rods are ‘normally’ used as outriggers on wooden posts for electric fences. I usually drill an undersized hole into the post and then use a hammer to drive them home – I have never broken one in the process. This short pin is very strong, and it won't rust.

Once the glue has cured, I can sand the two areas flush where the pin is fixed on either side of the keel. After that, the hull will be ready to paint ...

#145

Ready for paint

After sanding a few little spots here and there, I masked off the transom and the underside of the rub-rails. The paint will cover the edges around the transom and will extend about 5 mm onto the transom. I will mask off the boot stripe on the transom once the waterline and the boot stripe are marked on the hull. The transom itself will be finished bright.

The rudder blade has the first coat of primer.



#146

Hull primed

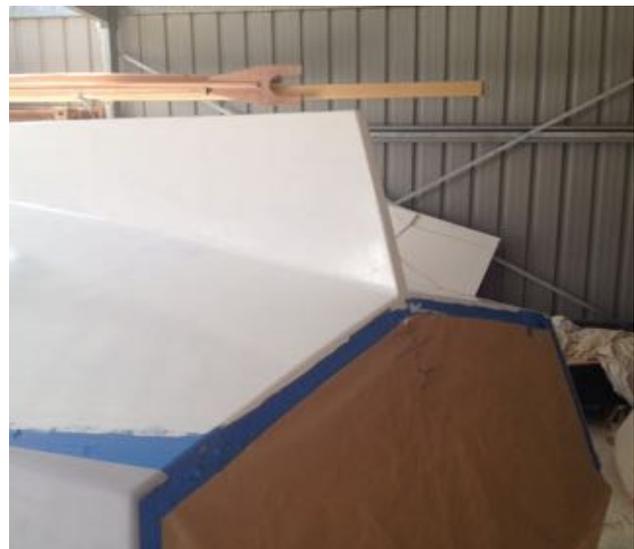
The hull has its first coat of primer. There will be a second coat of this grey marine primer after a quick sanding with 120#. However, it will take 24 hours before this stuff is ready to sand. Given that the boat will not live in the water, there is no need for any anti-fouling paint.



#147

Paint

After lightly sanding the second coat of primer yesterday, I marked and taped the water-line. Today I applied the first coat of white enamel to the area below the water-line. I will give this a quick treatment with some 240# grit tomorrow, provided the paint has dried properly. I will roll on the second coat after that.



#148

Paint (2), spars

The hull has its second coat of paint below the water-line, and the rudder blade is painted as well. The rudder will have a coloured stripe matching the boot stripe on the hull. The exact dimensions of the boot stripe aren't decided as yet, but a stripe that is 1/2" wide and 1" above the waterline should look about right.

While the paint was drying, I gave the mast and boom another coat of epoxy.



#149



#150

Paint (blue 2)

The 2nd coat of blue is done. The next job will be masking the boot stripe and applying two coats of white paint. Although the stripe looks white, it is only covered in grey primer. The transom will be left without any paint – just a coat or three of glossy clear marine polyurethane.



#151

Lower hull painting done

The lower hull is now painted. A couple of people (followers) asked what kinds of paint I am using. So here are details ...

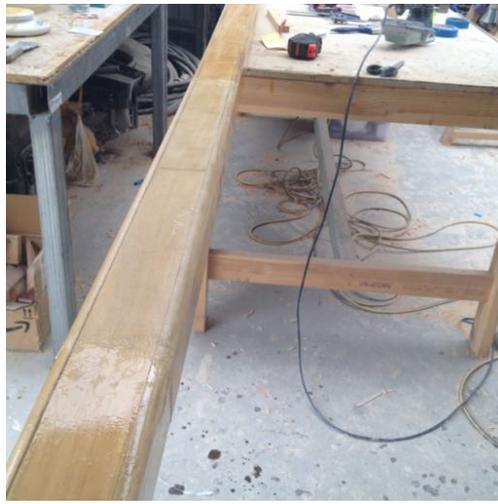
The outside has been primed with two coats of grey *Altex* marine primer, followed by two coats of *Norglass* polyurethane gloss premium enamel (*Admiralty Blue* and *White*). On the inside I used oil-based house paints (*Accént*). One coat of white acrylic primer and two coats of semi-gloss enamel (*Antique White*). All bright timber will have 3+ coats of marine grade gloss polyurethane (*Cabot's*) on top of 2+ coats of epoxy. #152

Cabin, mast, hood and things

While the boat is waiting to be turned over again, I am working on various things. I painted some more inside the cabin and applied a couple of coats of PU onto the transom. The undersides of the sea-hood and slide are primed.

I have taken the cradle apart, and I have used the timber to build a couple of padded supports to secure the boat once it has been turned. The boat will be sitting on its keel on top of some bits of foam. I might have to make another pair of these supports – we'll see.

To protect the mast from scrapes and dings from the gaff-jaws, I applied a layer of glass around the mast where the gaff will be positioned under 'normal' sailing conditions. I covered the mast for two feet (9' to 11' from the bottom). The inside of the gaff-jaws will be padded with leather to reduce wear and tear (and noise).



#153

Right way up

With the help from a few friendly neighbours, the boat is now sitting on its keel. Some leftover foam under the keel and the padded supports keep the boat sufficiently stable to work on.

I cleaned up all drips and runs of epoxy along the top of the rub-rails and the transom skirt. These drips and runs got there when I was glassing the topsides. For the glamour shot, I temporarily arranged the tabernacle, sea-hood and bow-sprit.



#154

Fitting grab-rails

Fitting the grab-rails calls for some 'advanced' clamping. One strap and a block give the rail the necessary bend, while the clamps and the second strap keep the rail in position. Before glueing the rail down, I chamfered the 'feet' to match the angle of the cabin roof. Once the epoxy has cured, I will apply small fillets around the feet for added strength and appearance.



#155

Grab-rails, dead light flanges

The grab-rail on the port side is also glued down. I have decided to put the flanges for the dead-lights on the outside of the boat. Now I am not sure whether to put flanges on the inside as well. I have already made a set of four, but the 'glass' could be fixed just with bolts as per plan.

The holes for the cabin butterfly vents are drilled into the Dorade boxes. I will need to install some little insect screens into the vents, because I am sure it is only a matter of time until someone (e.g. *Delena cancerides*) will move into the Dorade box 'apartments'. A few prospective tenants are already hanging around in the shed.



#156

Tabernacle

I painted the underside of the sea-hood and the part of the cabin roof that will become inaccessible under the hood with PU. The starboard deadlight flanges are glued on.

Because the tabernacle needs to be removable (the shed door is too low), I decided to make a couple of support brackets for it. The photo shows the plywood pattern for these pieces. I will make the brackets out of 3/4" Tasmanian Oak. They will be glued and screwed to the bulkhead to give a snug fit for the tabernacle. The tabernacle will be fixed with through bolts, large washers and wing-nuts (?) to the bulkhead and the doubler inside the cabin. A single bolt will hold the tabernacle and the bow-sprit in the brackets. With the hole in the right place and some careful rounding over of the tabernacle forward lower corners, the tabernacle will rotate forward, once the through-bolts have been removed.



#157

Tabernacle, sea-hood

The two 'brackets' for the removable tabernacle are ready to be installed. A steel pin will keep the bow-sprit in place. Although the pin will go through the tabernacle, (at least) four steel bolts through the bulkhead and inside doubler will secure the tabernacle to the boat. The sea-hood is glued down, and I will put some fillets around the inside and outside, once the epoxy has cured.



#158

Vents, tabernacle, ...

I have glued the tabernacle support brackets into position, and I have put fillets around the sea-hood (outside and inside) and the 'feet' of the grab-rails.

The openings of the cowl-vents through the cabin roof are a bit too small (4") to get proper access to the Dorade boxes. In order to gain easy access to the boxes for maintenance, I made a couple of simple support plates for the cowl-vents. These plates cover 6" opening in the cabin roof and will be fixed with a few M4 screws and t-nuts in the roof.



#159

Starting the fit-out

Before painting the inside, I will drill as many holes for the hardware as possible. If it becomes necessary to 'undo' a hole, it can be done without having to worry too much. The inside of the holes will be coated with epoxy and it is nice to be able to sand things flush without destroying the paint job.

The pictures show some of my little deviations from the plans:

The layout of the hardware on the cabin roof is somewhat different from that suggested in the manual. The throat- and peek-halyard will be double cleated. While the cam cleats will take the strain, the horn cleats, slightly off the cams' centres, will guard against accidental release of the halyards. It does not take much to release a line from a cam cleat, and there will be a gaff and a lot of sail aloft. The cam cleats for jib sheets are at the rear edge of the roof. The fairleads for the jib (maybe blocks) will be at the position indicated in the manual.

Any shackles attached to chainplates (tang) would foul on the toe-rails (grab-rails), so I made a couple of 3/4" shims from very hard wood to place under the chainplates. There will be four bolts with large washers (instead of two bolts and a backing plate).



#160

Centreboard lift

I have glued a small slotted hardwood block into the top of the centreboard box. At the end of the slot is a shallow countersunk area for a knot in the pendant to sit in. This knot is just far enough from the top of the centreboard to slip the knot into position. Once in position, the centreboard hangs on the pendant (4mm Spectra line). The other end of the line is fixed to the underside of the cover at a distance of 28" from the knot (not shown in photo). The plywood cover strip (lid) has a hardwood backing, and the cover is used as a handle to lift/lower the centreboard. The lid itself holds the centreboard in the down position.

In the up-position the line is stored on top of the centreboard, and the lid sits flush with the deck. This arrangement has no pulley, or any line and cleat in the cockpit.



#161

Sea-hood, storage floor

The runners for the sea-hood slide are installed, and the slide moves without binding. I was still not happy with the location of the battery. The boat will have minimal electrics, i.e. running lights, anchor light and some cabin light (all LEDs < 2W each). The lot has a combined power consumption of less than 10W (i.e. < 1A at 12V). A rechargeable battery pack of 20Ah will do the job (for a couple of nights anyway). Such a small battery doesn't need a battery box. So, I fitted floorboards in the storage area between bulkhead 1 and 2 with a removable section in the centre. The battery pack will be secured underneath and a cable channel runs behind bulkhead 2.

That leaves the immediate area in the bilge aft of bulkhead 2 to store bits and pieces.



#162

Cabin interior

The last areas of the cabin have their first coat of primer, after masking off all the cleats and carlins. I might finish the cabin roof bright, but I am not sure. I also taped the inside doubler around the companion way, which will be varnished on the in- and outside.

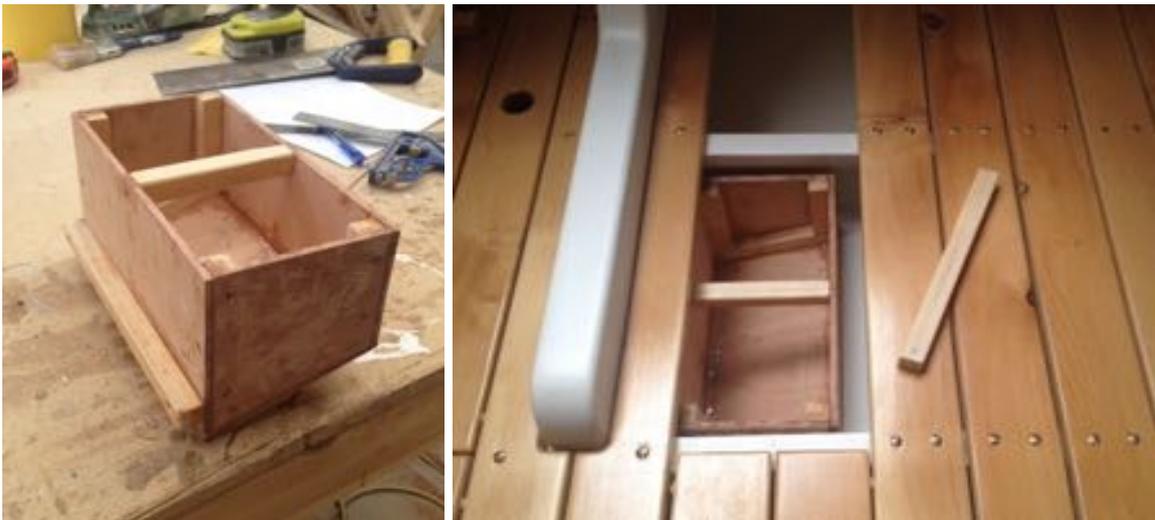


#163

Ballast box

As ballast in the bilge I would have liked bags of shot, but I can't get hold of any recycled pellets at a reasonable price. As the previous lead casting exercise was very successful, I have decided to built four containers to cast lead into. Each of the boxes will hold about 25kg when half full. The box hasn't been cleaned up yet, but they will work out nicely. The box's section is that of the underfloor area. The cleat on the back stops the box sliding all the way against the centre-board case. That keeps the bilge clear. The box fits just through the opening in the floor boards. It can be shifted aft to sit under the cleat for the floor boards. Given the tight fit of the box through the opening in the floor, there is little chance for it to come out of its place, even if the boat has been turtled. To make absolutely sure, I will bolt a second longer stick on top of the 'handle' of the box in such a way that the stick can be rotated 90 degrees to lock the box under the floor boards (last photo).

Update: A fellow Pocketship builder/owner pointed out, that it might be necessary to shift the ballast further forward (between floors 2 and 4) to balance the boat properly (thanks Craig). I will adjust the shape of the other boxes so that they will fit in any of the under-floor compartments.



#164

Rudder hinge

The local engineering company had a ~1m length of 12mm rod of SS (316) in their stash, which suits perfectly as part of the rudder-hinge-pin-assembly. Cutting 100mm off with the angle grinder was easy. Drilling two holes (4mm) for the split rings with a hand held power drill was, shall we say, an 'interesting' thing to do. Smoothing out the ends of the rod with a file was rather tedious. I drilled slightly undersized holes into the rudder and filled the holes with runny epoxy. While screwing the eye bolts in, I added drops of epoxy as 'lubrication' onto the threads. When the epoxy has cured, I will mark the locations of the eyebolts on the transom, using the rudder for proper alignment.



#165

Synthetic shrouds

The photo shows the shrouds made from 4mm Dyneema SK 75. I spliced an eye in each end. The splices are of the self-locking Brummel kind, because Dyneema is extremely slippery (a 'long-burial' splice won't hold). The ends will attach to the pad-eyes (mast head) and to the steel rings with a 'cow-hitch' (think luggage-tags). The shrouds weigh 22 grams each.

I will use the same material for the bob-stay and the fore-stay. This stay will not be loaded heavily, and it will be rigged in lieu of the spinnaker halyard as a 'safety' backup for the jib halyard. One end of the stay will be permanently attached to the top of the mast, the other will be shackled to the bow-sprit whenever the mast is upright. This will make un/furling the jib a bit easier, because the luff can be eased a touch.

My very first soft-shackle isn't the prettiest, but I am sure that they will get better once I made a few in various sizes. This shackle is under load 4" long, weighs 3 grams, and doesn't scratch the paint work.



#166

Rudder and inspection plates

The inspection plates for the centre-board case and bulkhead 1 are installed. The rudder hinge is completed. The tiller can be moved fully to either side, until touching the back rests. The tiller remains clear of the transom at full deflection.



#167

Companion-way step

There are a few little things that need to be installed inside the cabin before the final coat of paint. The first piece of furniture is a step in the companion-way. The support strut is a piece of oak and the step is a piece of plywood – it is the centres of one of the flanges for the cutout in the seat backs. The step has glass on top, and it is fixed to the support with a couple of countersunk SS screws and epoxy, of course. The step will have two thin strips of Celery Top to match the floorboards.



#168

Fitting out

I made a couple of shims/wedges for the nav-lights and glued them down. These wedges are necessary for the lights not to be cross-eyed. I also drilled holes for the wiring into the bottom of the Dorade boxes. On the port side the hole goes straight into the electrical box, and on the starboard side the hole comes into the cabin just forward of the top cleat on bulkhead 2. The wire will run along this cleat to the electrical box containing the switch panel. This box has now a ‘power point’ installed. The spare spot in the panel will be occupied by a battery monitor.

The companion-way step has ‘floor-boards’.



#169

Fitting out (2)

I made two decorative little pieces for the butterfly vents on the Dorade boxes. The rings are cut from 1/4" thick Myrtle, or Southern Beech, (*Lophozonia cunninghamii* prev. *Nothofagus c.*), which is a very hard and fine-grained timber.

The inside of the cabin is ready for the last application of paint with the roller. I lightly sanded everything and painted all the edges with a brush.



#170

Cabin, hood, rudder

The cabin is painted and the masking tape has been removed. I needed to put a bit of epoxy around the cut-out of the ventilation openings, hence the new bits of blue tape. The rudder has a first coat of shiny stuff.

I am modifying the sea-hood slide by glueing a little lip to the underside of the aft face. This lip will cover the top 1" in order to keep the rain out, so goes the theory.



#172

Bow eye

Installing the bow eye is another one of those ‘interesting’ tasks. The legs of the u-bolt needed to be shortened, because they were far too long to use a socket wrench, which is the only tool that can be used to tighten things up. Once the bolt was ready to install, I filled the holes with epoxy and also added epoxy as I inserted the u-bolt into the hull.

Working through the access hatch in bulkhead 1 is ok, because you can reach in and do things and you can see what is going on. Unfortunately these things are not possible at the same time. Working blindly with a socket wrench at odd angles, while every thing is covered with sticky epoxy ... arghhh.

In the photo you can also see the pile of lead for the internal ballast (~ 100kg). This is a mixture of new pipes and old roof flashing. The flashing is very clean, with only a few spots of paint.



#173

Fitting out (3)

Rather than running the cable for the stern light through the existing and rather large holes in the floor supports, I have drilled a small hole in every floor as close as possible to the port side. Therefore, the thin cable for the LED light won't be in the way of ballast boxes and other things stored in the bilge. The cables for the navigation lights leave the Dorade boxes through little blocks glued down and smothered in epoxy. These will be watertight.

I made a little handhold to operate the sea hood slide from the inside.

The two plywood ‘kits’ for the last two ballast boxes are cut. The boxes will fit the shape of the spaces between bulkhead 2 and floor 3 (or between floors 3 and 4). They will be assembled so that one is the mirror image of the other, i.e. one for the port- and one for the starboard side.

I drilled and filled the holes for the pad-eyes on the bow sprit. I drilled the holes 1 mm oversized and filled them with runny epoxy. After a few minutes, I let the epoxy drain out. Now the holes are nicely coated inside, and are at the right size for the 4 mm bolts.



#174

Little things

After I drilled the holes for the pad-eyes in the bow sprit, I discovered that the bottom slot in the furling drum (Barton) is too narrow for the eye. Rather than finding a smaller pad-eye or some other fitting, I took a file and modified the pad-eye. I relieved the sides of the loop by about a millimetre on both sides. This was certainly less of a hassle than trying to 'move' the holes in the sprit for some different fitting. The starboard forward ballast box is ready for some lead. After the modifications, the sea-hood slide had some epoxy where necessary.



#175

Boom crutch

The boom crutch, which will only be in place while the boat is on the trailer, is a laminated post made from a couple of lengths of 19 x 42 Tassie Oak. On top of the post is a short crossbar with two little uprights on either end. In the photo, the crutch is held upright by a piece of rope going through the holes for the bridle. I will attach two lengths of Dyneema to the top of the crutch. There will be spliced eyes in the ends to be hooked over the mooring cleats. The length of these lines has to be exactly right so that they are taut when the bottom of the post is moved into position. There will be a 'mechanism' to stop the post from sliding within the foot well.

Note that in the picture, the mast is sitting on some brackets at the shed wall – it is nowhere near the boat.



#176

Bits and pieces

I have made a small mounting block for the stern-light. The butterfly vents are installed inside the cabin. I have decided to put a layer of glass on the sides of the tabernacle.

The installation of electrics progresses, and the 'home-grown' GPS unit is coming along. It works fine, but I need to build a little housing for the small display. The rest of the electronics will live inside the box for the main switch-panel. The unit gives speed, track, time and the distance/bearing to the nearest two of a few pre-programmed fixes.

#177

Progress ...

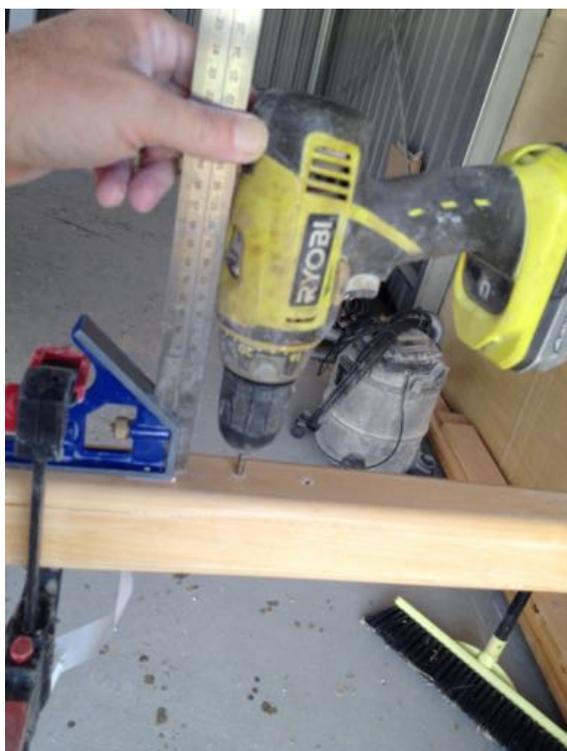
I am making some progress, although I did not spend a lot of time in the shed in the last two weeks. The hole in the mast for the pivot bolt is drilled and filled, and the spars had some more PU varnish. The boxes for the ballast are now completed and ready for some lead.

#178

Drilling, bobstay

Drilling the holes for the bolts on the mast head was less of a problem than expected. The pairs of pad-eyes for the shrouds and the forestay/topping-lift/peak-halyard will be fixed with through-bolts. Therefore the 5mm holes have to be straight and in line to match the holes in the pad-eyes. I don't have a drill press, so I clamped a set-square onto the mast as an alignment tool to guide the drill along the steel edge. This worked out fine and the all the holes turned out nice and square (?) ... you know what I mean.

The bobstay is made from 6 mm Dyneema with self-locking Brummel splices in both ends. The pad-eye at the bow-sprit is spliced into the line and the bottom end is a simple loop with a shackle. I was planning to use 4 mm line for the bobstay, which would have been strong enough, but it just didn't look right.



#179

Lead ballast

The first of the four ballast boxes has been filled with 24 kg (53 lbs) of lead. Smelting this amount of lead was a slow and tedious exercise using my hi-tech smelter. I lined the bottom of the box with a double layer of aluminium foil before the first pour, because I was worried that the hot metal might just soften the epoxy and make its way out.



#180

Lead ballast (2)

It took only about 2 hours to fill the second box with lead. For obvious reasons, I am doing this kind of work *al fresco*. Unfortunately, the wind has now become a bit too *fresco* and this makes things very difficult to heat up. I will wait until tomorrow to do the next box.



#181

Lead ballast (3)

The third ballast box is filled. This is one of the two forward boxes to fit fore or aft of floor 3.

As the lead cools down, it shrinks a bit and leaves a small gap (~2 mm) all around. I poured a batch of 180 grams of runny epoxy on top to fill these gaps and to cover the surface of the lead. The two boxes that have been 'treated' with epoxy fit into the compartments fore or aft of floor 5.



#182

Primer

After finishing the ballast boxes and after a bit of of dusting, I have rolled on a coat of primer on various parts of the boat. The transom, footwell and seats will be done after the last of the 'wood work' has been completed. The topsides, sea-hood, transom trim and grabrails will be finished bright, the parts that have been (and will be) primed will be painted white.



#183

Varnish

The first coat of varnish, i.e. glossy exterior marine grade PU, has been applied to the cabin roof, sea-hood and slide. The Tasmanian Oak (*E. obliqua*) comes up quite nicely, and the timber matches the plywood panels very well. Some of the customisations can also be seen in the photos:

The doubler on bulkhead 2, which is already drilled for the bolts for the removable tabernacle. The blind nuts on the Dorade boxes to screw down the cover plates with the air vents. The butterfly vents inside the cabin.



#185

Fitting out (cont.)

Before I continue to apply paint and varnish, I will be drilling all the holes for the fasteners for all cleats, lights, eyes and so on. There should be no need to drill through painted surfaces later. It will also be easier to patch a hole, if one ends up in the wrong spot.

I also started to make up a floor for the footwell from some 12mm (1/2") Tassie Oak. The slots are 10mm (3/8") wide and about 150mm (6") long. It will have three sticks, about 1/4" thick and 1" wide, running fore and aft on the underside. This will let any water drain out.



#186

Footwell floor

The weather is somewhat miserable today ... I glued up the floor for the footwell and got out of the shed. I had to use various clamping techniques to make sure that everything is squeezed together and that the floor stays flat. A double layer of plastic wrap will prevent the whole thing from sticking to the bench.



#187

Footwell floor (2)

After fitting and cleaning up (sanding) the footwell floor, I ran the router with a 1/8" round-over bit along all edges, including the slots, on both sides. Then I gave the entire thing a quick sanding with #180 grit, using small strips of sandpaper in the slots. The first coat of epoxy has been applied.



#188

Hardware, rigging

After sanding the footwell floor, I glued on the 'feet' on the underside.

The goose-neck is attached to the tabernacle with four SS screws (c/s on the back of the tabernacle). The hardware of the bowsprit is installed. I used pieces of 5mm threaded rod from 304, cut to size *in situ*. I installed the pad-eyes with washers and nuts, and I cut the rod with a hacksaw afterwards. Then I used a file and the Dremel tool to remove any burrs. The bob-stay is very tight. To attach the D-shackle at the bow-eye, I have to use the sprit as a monkey-bar during the process.

I made up the jib-sheets from soft 10mm braided polyester rope. The 15' sheets have an eye spliced into one end and will be attached to the jib with a soft-shackle. The other ends of the sheets are whipped and 'singed' to stop them from fraying.

#189

Boom crutch

The support bracket for the boom crutch is installed. The bracket, a piece of 19mm (3/4") hardwood, is fixed to the boat with epoxy fillets. Once the bracket has a couple of coats of epoxy, it will be primed and painted.

I have cut a notch into the aft end of the 'drop-in' footwell floor to stop the crutch from moving about. While at anchor or docked, the stick will stay put when the main sheet is sufficiently tightened. For trailering, the top of the stick will be secured (tied down) with lengths of line running to the mooring cleats.





#190

More hardware

The chainplates for the shrouds are fixed with four M6 SS bolts, large washers and dome nuts inside the cabin. The bow sprit is attached to the tabernacle and the support brackets with a length of M8 threaded SS rod with washers and wing nuts on both ends.

I had to rethink the way the cover plates for the air-scoops are fixed to the boat. The first idea was to attach the scoops permanently to the covers, and then use some bolts to secure the lot to the boat. Because the cabin roof isn't flat, the ply covers did not sit nicely when screwed down. So ... I opened up the mounting holes for the scoops in the covers and inserted blind nuts. Then I glued down the covers. Now I will have to 'camouflage' the original mounting holes in the covers.

I fixed a pad-eye to the underside of the boom and tied a piece of line around the tabernacle. The hole in the boom for the gooseneck pin is still oversized, because it hasn't been treated with epoxy. Without the sail (under tension), there is nothing to stop the boom from sliding aft and dropping onto the cabin roof. A permanent soft-shackle will secure the boom with or without the main sail. I might install another pad-eye on the tabernacle, if I can't attach the soft shackle on the gooseneck fitting properly.



#191

Boom crutch, painting

After sanding the bracket for the boom crutch, I put down a coat of primer onto the bracket and the transom. The areas around the air scoops, where I sanded off the paint to glue down the cover plates, are also fixed up.

With the lazarette lids in place, the cockpit looks really clean and roomy.



#192

Gaff

I have sanded all of the cockpit area with #180 and cleaned up all of the dust. Then I rolled on the second coat of primer.

While the paint was drying ... I made up the two cheeks for the gaff from some 19 mm Tasmanian Oak and fitted them to the gaff with epoxy and three SS screws each. The curved bit between in the centre was made some time ago. It is laminated with three 9 mm layers of ply and fibre glass in between. This whole assembly needs to be cleaned up and treated with epoxy, before the gaff gets a few coats of varnish.





#193

Primer complete, tabernacle

The cockpit, cabin roof and foredeck have had their second coat of primer.

I cut the bolt for the top of the tabernacle from 10 mm threaded rod. The tabernacle was sitting rather snug in the support brackets. I needed to sand a bit of the faces of the brackets and the tabernacle (all up about 2 mm) so that I can get some paint on the brackets. Now I will have to re-coat these areas with a bit of epoxy first.



#194

Main-sheet setup

I have added some hardware for the main-sheet to the boom and the transom. The boom is kept in place by a topping lift to the roof of the shed. The sheet is attached to the boom, runs down to a block on the bridle, then up to a block on the boom, and down to a ratchet block on the transom. This setup gives a 3:1 advantage. The SS loops on the underside of the boom only stop the sheet and the block from sliding.

This main-sheet setup keeps the cockpit clear and allows to easily hold the main sheet and the tiller in one hand, even through a tack. I have not made up my mind, whether the bridle is the way to go with a gaff rig. Most of the old gaff cutters have horses instead of bridles, which has the opposite effect when

sheeting in. Pulling the main close to the centreline, without a gaff vang in place, will introduce a lot of twist in the sail. A horse will reduce the twist, much like having the traveller of a boat on the leeward side. While having more tension on the leech and therefore a flatter sail, it won't allow bringing the boom close in ... This can all be checked 'empirically' on the water, by attaching the 'bridle-block' temporarily to the leeward mooring cleat. We'll see what works better.

In the photos, the bridle and the main-sheet are just bits of 6 mm cheap line and will be substituted with 'proper' double braided rope (6 mm / 10 mm). The bits of blue tape on top of the boom, are markers for the location of the clew(s) for fixing the cheek blocks for the outhaul and the reefing lines.



#195

Hardware and wiring

Fitting out continues. The LED navigation lights are wired up. The inspection plates on the centre-board trunk have been bedded down with marine sealant and some (very short) SS wood screws.

The turning blocks for the halyards have been installed. The sides of the tabernacle are only 19 mm (3/4") thick, and using 15 mm screws to hold these blocks in place seemed a bit 'puny'. Because half of the total force on the halyards will try to rip these screws out of the timber, I have made up a small doubler of hardwood and glued it onto the tabernacle with epoxy. The saddles are now fixed with 5 mm x 30 mm SS screws and a dab of marine sealant under the saddles to keep things dry.



#196

Deadlights

I have made and dry-fitted the deadlights. These have been cut with the jig-saw from A4 size sheets of 6 mm acrylic. You can make two from each A4 piece – just. I used the pre-drilled holes in the flanges as guides to drill the holes through the acrylic. SS c/s screws with small washers and dome nuts on the inside look quite ok. I will mask off the parts of the acrylic that are covered by the flanges, and I will apply some white paint before the final install with marine sealant (white). The flanges will also receive a couple of coats of varnish beforehand.

Now that all holes for cleats, fairleads and blocks are drilled, I have started to prepare for the big paint job — hence the blue tape everywhere.



#197

Varnish, paint and bolts

The gaff and foot-well floor received another coat of varnish after a light sanding. The cabin tops had the first coat of enamel. I have decided to paint the cockpit, cabin tops and fore-deck separately, rather than doing it all as one big job.

The holes for the bolts to attach the removable tabernacle are re-drilled and counter-sunk, after having filled the holes with epoxy some time ago. These four 8 mm bolts, the inside doubler and the 'brackets' on the outside of the bulkhead, will hold things in place.

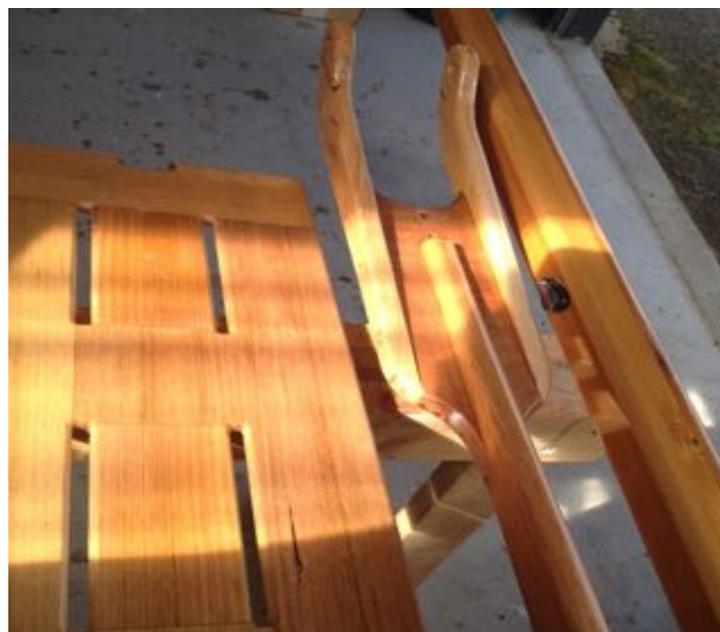


#199

Spars

The boom has had the last coat of varnish and the hardware has been installed. Two cheek blocks and two cleats for the reefing lines are on the starboard side. The block, cleat and a saddle for the outhaul are on the port side. Additionally there is a pad-eye for the topping lift, and a pad-eye for a soft-shackle to ensure that the boom doesn't slide off the goose-neck.

The footwell floor has had the final coat of varnish (PU), and the gaff is finished except for the block for the peak halyard. This block will be attached with a loop of Dyneema around the gaff. A small saddle on the underside of the gaff will keep this loop from sliding along.



#200

Masthead

The hardware on the masthead is attached. The pad-eyes are fixed with lengths of M5 316 threaded rod with washers and nuts on both sides. The jib halyard is attached with an endless loop (doubled up) of Dyneema around the mast. A pad-eye on the back of the mast holds the loop in position. This pad-eye, attached with 5 x 25 mm SS wood screws will also be used to attach the topping lift.

The shrouds will be attached with Dyneema loops around the mast and each rove through both pad-eyes. This way, there will be no force trying to rip the pad-eyes off the mast.



#202

Paint and hardware (2)

The hardware installation on the cabin roof has been completed. Now I am waiting for a good day to do the final coat of paint on the fore-deck and in the cockpit. All the edges under the transom skirt and the forward rails are already done.

I have masked the outside of each dead-light with clear film, cut a circle, and removed the outer bit. I used some of the interior paint to cover this area and the outside edge. Once installed, the white area, when viewed from the inside, will be behind the glass and cover the flange. The glass will be bedded down with a small bead of white marine adhesive around the inside edge of the flange. Once the bolts and acorn nuts are in place it should look quite ok.

#203

Paint and lazarette hatches

The cockpit and foredeck had their final coat of paint. The transom will get one more quick coat, after the engine bracket has been installed. Note, that the plain nut for the rudder on the transom will be replaced with a shiny large washer and acorn nut.

The lazarette hatch covers have been installed with a bead of sealant around the cut-out and a dab of sealant with every SS screw. The forward mooring cleats and chocks (fairleads) are bolted in. Now I have

to wait for the paint to fully dry ...



#206

Washboards

The plywood retainers for the washboards have been installed, and they are ready for a bit of varnish. The washboards are glassed on both sides, but they will need sanding and another coat of epoxy on both sides.

The lip on the aft underside of the sea-hood slide will help to keep rain water out of the boat.



#207

Varnish

All parts that need to have varnish applied, had at least 2 coats of PU (including the spars).

Things that need to be done:

One more coat of paint in the cockpit and a little bit of electrical work. I am still not sure how to mount the outboard motor. This decision will be made next week, when I have the engine (Honda BF2.3) to evaluate clearances, etc. The options are either to modify the transom, or, to attach the motor to a bracket. The first option keeps a lot of weight further forward, but it doesn't look that nice. The second option leaves the transom intact, but doesn't look good either.

Once the boat is out of the shed (i.e. on the trailer) it will take a couple of hours to do the final rigging and to bend on the sails ... I am getting there.



#208

Outboard engine

After 'due consideration' of all the possibilities re the motor installation, I made a cutout in the transom. The advantages of installing the shiny new Honda 2.3 in this way, instead of using some sort of bracket, are:

- the weight is further forward
- easy access to engine controls (tiller, choke, etc. are actually inside the boat)
- easy to refuel
- cheap

On the down side, the solution doesn't look good. Then again, having the motor hanging off a bracket doesn't look that good either. I have glued (and screwed) a 3/4" hardwood block to the back of the transom already, and there will be a 1/4" hard-wood doubler around the cutout on the inside of the boat as well. This should give the entire area enough strength. I will have to take a bit more wood and paint off, before glueing the doubler down.

The prop clears the rudder at full deflection, and when the motor is tilted up, the prop will be well clear of the water.

#209

Outboard engine (2)

I have made the inside doubler for the transom cut-out from a piece of 1/4" myrtle, aka Southern Beech (*Nothofagus cunninghamii*), which is very fine grained and quite hard. It has been glued down with plenty of epoxy.

Once the doubler has been cleaned up, all parts will get a few coats of clear epoxy and varnish.



#210

Outboard engine (3)

The transom cutout is now cleaned up. The engine will live on the transom pretty much all the time, and there will be an attachment point to secure the motor to the boat. A decent sized pad-eye and a Dyneema soft shackle should do the trick. I will put a small patch of rubber over the edge so that the clamps of the motor don't crush the epoxy and the timber.



#215

Rigging hardware

All the pad-eyes, cleats and fairleads have been installed. All these items are bedded down with marine sealant, and all the screws have been 'dipped' in sealant to keep things dry. The horn cleat on the starboard side of the tabernacle is for the topping lift.

All lines required to reduce sail (topping lift, throat- and peek halyards, reefing lines) will be within reach standing in the cabin, while on the starboard side of the boom. The reefing hook has not been installed as yet. It will be a simple hook on the tabernacle beneath the gooseneck to attach 'flying' reefing cringles in the luff (just simple loops of spectra).

#216

Finally some room in the shed

The boat has been moved onto its trailer. Thanks to Susan, Allin and Lenny, the procedure went relatively smoothly. A couple of small scratches, which are easily touched up, occurred when the bow needed to be lifted onto the rails (bunks).

The trailer setup is pretty good. The bowsprit and the bob stay can stay in place while the boat is trailered. The roller under the bow needs to be modified, because it does not reach high enough to support the boat. In the photo the roller is in the lowest position, but fully up it still is about 2" too low.



#217

Mast raised

The mast has been raised. It needs a bit of rake, so there will be a small block of wood in the tabernacle. The forestay is simply running from the bowsprit through a block at the masthead down to the tabernacle. Even without any purchase, it is easy to haul up the mast for the last bit with this line.

The 'plastic' shrouds (Dyneema) ended up having the correct length. There is a distance of ~ 8" between the SS rings at the bottom of the shrouds and the shackles on the chain plates. The lashings in between consist of 6 turns of 4 mm Dyneema. That attachment has a breaking strength > 15 t despite the sharp turns.

The boom crutch (post) works fine. The main sheet is cleated down with a bit of tension on the mooring cleat and holds everything in place. The mast will be tied to the boom with a couple of bits of rope for trailering.

It is very windy today. I will have to delay bending on the sails until tomorrow.



#218

Running rigging

Setting up the running rigging was 'interesting'. I started with the jib. The length of the luff-wire, the height of the furler, the top block, the swivel and the shackle added up to 2" more than they should be. To make it work, I doubled up on the soft shackle (to make it shorter), removed the swivel and used a swivel block instead. With a bit of mast rake, everything works fine. The little Barton furler works very well, even without a dedicated swivel up top. The mainsail halyards did not cause any problems at all. The topping lift is yet to be installed ... I ran out of line.

I screwed a couple of jamming cleats (for the jib halyard and the stay) onto the bottom of the mast. The control lines on the cabin roof are jib sheet (10 mm white/black) and furler (4 mm spectra red) on the port side, and throat (6 mm white/blue), peak (6 mm white/red and jib sheet on the starboard side).

It is very windy here, so I will have to wait bending on the main sail.



#219

Bending on the mainsail

After installing the topping lift, I laced the mainsail to the gaff. The luff is fixed to the mast with individual ties. They don't seem to bind when raising or lowering the sail. I will make up some proper ties to replace the ugly (wrong colour) temporary ones with some really slippery line (Nylon?). The outhaul is working fine, and the reefing lines need to be installed. I am getting there ...



#220

She floats ...

Getting the boat off and onto the trailer was pretty straight forward. A blustery day with plenty of gusts (20 kts+) from every direction made this first outing an 'interesting' event. With a full main she was a handful. A couple of times she got the better of us, and we rounded up. With minimal ballast (60 kg) the boat is still safe – this is reassuring. We will have another go in more favourable conditions (and more ballast) ... maybe tomorrow.

Most importantly, the rigging stayed in one piece, and the bilges stayed dry. I am sure I will enjoy this ...



#221

Little mods

I added two little blocks of wood to the side of the mast. They will stop the robands (slippery Dyneema loops) sliding onto the tabernacle and getting mauled in the 'hinge', when the mast is getting lowered (or raised). In the first photo the robands are not attached, because the wood blocks weren't dry.

The main sheet bridle hooked up on the engine a few times. I have removed the bridle and attached the block to the transom, as a quick fix. If need be, I will drill a couple of new holes a few inches further forward and reinstall a bridle.

The boat now has the full complement of ballast.



#222

Centreboard fix

During the first 'sea-trial' the centreboard did not fully extend. Because my centreboard case is open at the top, I could quickly establish that it was not binding anywhere on the sides. You can see 'daylight' between the board and the case, and the inspection ports do not interfere.



My only explanation for the issue is that the geometry was not quite right. That is, either the holes for the pivot in the keel and/or the location of hole in the centreboard were not in the right position (e.g. the pivot was not in the centre of the arc of the trailing edge). That could cause the trailing edge of the board to make contact with the rear of the centreboard case. This is not something that can be easily tested earlier while the boat is upside down in the shed (or on the trailer).

Some time back when I was building the keel, I noticed that the position of the pre-drilled holes were way off. At the time, I filled and drilled a new hole to match the one that 'made sense'.



However, it seems that this hole (or the predrilled hole in the centreboard) was also not where it needed to be.

Fortunately, I can get to these bits while the boat is on the trailer. This was the procedure to (hopefully) fix it:

- drill out the pin and drop the centreboard.
- wrap credit cards in cling film and wedge them between keel and centreboard to cover the holes on the inside of the centreboard case.
- fill all holes with thickened epoxy.
- clean up and re-drill the holes in the keel.
- position the centreboard and support it with wooden blocks. A wedge between the trailing edge of the centreboard and the back of the centreboard case kept the board as far forward as it can go.
- mark the new position for the pin on the centreboard.



- fill and drill the new hole
- re-assemble

The centreboard has essentially shifted more than 1/2" forward (and 1/8" higher) inside the case. The first photo shows the bigger gap between the rear of the case and the trailing edge of the centreboard. The additional clearance will hopefully allow the board to swing freely through the case.

I installed temporarily a piece of 8mm SS threaded rod with two nuts on either side. If it all works satisfactorily on the water, I'll cut the rod to the correct length and 'bury' it in epoxy. A lick of paint will finish the job. The bare patches on the keel are only missing primer and paint. The glass and epoxy are perfectly fine.



#223

Sea-trials 2 and 3

We had the boat out on the river in winds from 2 – 12 kts. The centre-board deployed as it should, and the boat behaved well on all points of sail. A few little things needed attention:

Running the mainsheet off a ratchet block on the transom works extremely well. Because of the extremely low loads, I can keep the tiller and the mainsheet in one hand. Nevertheless, I made and installed a little jam-cleat on the tiller, which takes care of the mainsheet (for use in favourable conditions only).

A few times while tacking, the jib sheets snagged underneath the cleats for the jib/stay halyards. A saddle on the sprit with a piece of line (red) to the top cleat will keep things clear.

I have moved some of the ballast further forward, because the boat was squatting. Now there are ~40 kg aft of bulkhead 2 and ~50kg aft of floor 4.



This is the end.