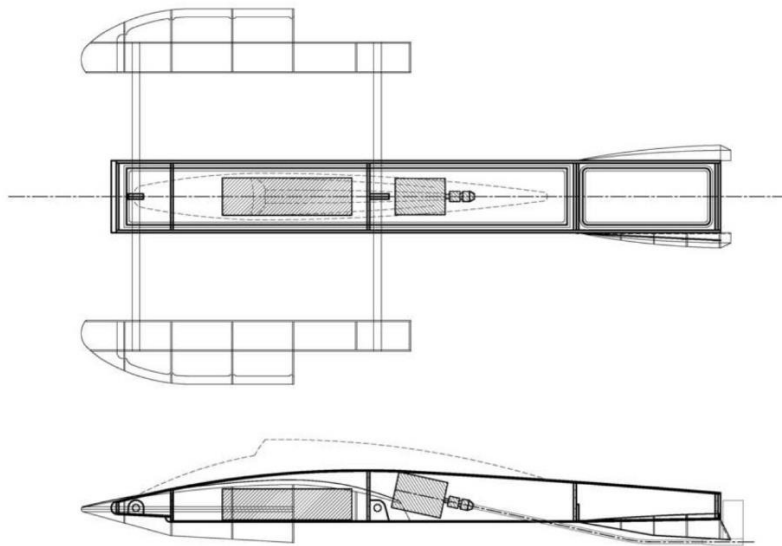


# ML BOATWORKS- RSX240,RSX310 and RSX380 Outrigger INSTRUCTION MANUAL

Thank you for your ML Boatworks purchase. You will find this quality kit will be extremely enjoyable to build, and if built properly, will give you years of enjoyment! This manual was made building the 31"- *RSX310*, however the 24"- *RSX240*, 31"- *RSX310* and 38"- *RSX380* hulls build in the same manor. While the 3 different hulls have obvious length differences, the center section width is adjusted independently in each kit as well. Even though this change is present, the placement of key parts and the structure of all 3 kits are pretty much the same, making this instruction manual cross over for all 3 kits with ease.



OK, let's get started. First, we need to focus on the tools and materials needed to build this kit. Below is a list of needed items.

- 1) A good, flat building surface with a minimum area of around 12" wide and 24" in length
- 2) Clamps and weights. I find that Harbor Freight has about the cheapest prices on clamps, and weights you can use about anything
- 3) Medium Set CA instant adhesive
- 4) An overall epoxy system capable of allowing enough time to coat relatively large areas, IE: Mas, West Systems, etc.
- 5) Sanding block or long sanding bar, 120 and 180 grit sandpaper. If you have access, a power disc sander is a great tool to have for the large areas
- 6) E-glass or Carbon fiber cloth. Used on the inside of the sponson ride surface or the engine well opening for added strength
- 7) Patience. Take your time, Review the parts, review the instructions, ASK Questions if you do not know where to proceed. That is what ML Boatworks is here for. My phone number is on the website, feel free to call or email!

### **Start of the Center Section Tub:**

First, you will want to start on the center tub.

When you remove your kit from the packaging, you will see a lot of laser cut wood parts, basswood sticks in 1/8", 3/16" or 1/4" sizes, and a fiberglass cowling. Review the photo below, and find all the parts in the picture, and lay them out so you can see your center tub parts (rear shoe parts will be shown later):



And its really as simple as taking the matching number on the frame, and locking it into the floor pan. Note, the transom and box should be done last, as they do not touch the flat board naturally. From frame 2 back to 1, it has a kick up, so take your time. And the front raised up 1/4" where the quarter round will go. Everything is so simple to figure out:



As you can see in the last pic, and this pic, you start lining the corners with 1/8" basswood sticks. I use a piece of angle aluminum along the outside of the tub to ensure the side plates stay in line with the floor pan from front to back.



Shows the mid rod support and sticks installed:



You can see the frame 2A and 2B in this pic, and more sticks. The frame 2A is just slightly higher than 2B along the bottom, this allows for you to bend the floor pan up toward the transom frames number 1. 2A is mainly just a floor support for the back floor pan.



Now, I started lining the top of the tub with basswood sticks, and you can see in the background, I have CA'ed the hatch liner to the hatch. This supports the cowling and rear hatch cover.



More upper sticks installed:



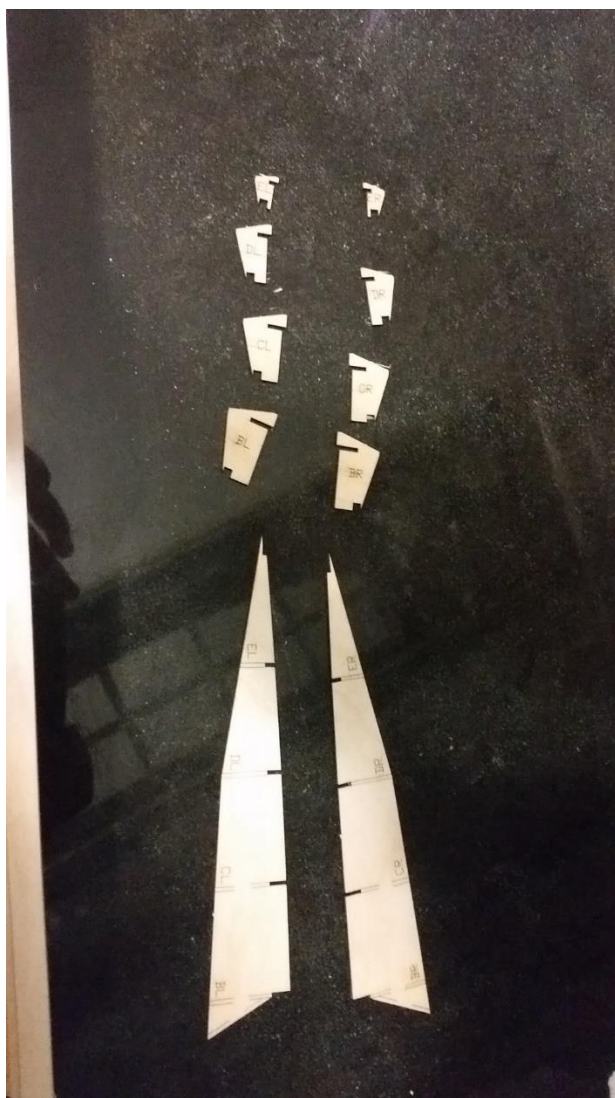
Now that all the upper basswood sticks are installed, its time to install the top deck sheeting. It almost interlocks against the basswood sticks and the hatch under liner. Dry fit it first, and make sure you are happy with fitment before gluing. Also, be sure to glue the cowling support rings that fit under the top deck. Just CA them to the



bottom of the top deck sheeting. This allows a recessed support for your cowling to lay on, keeping it flush with the top deck.

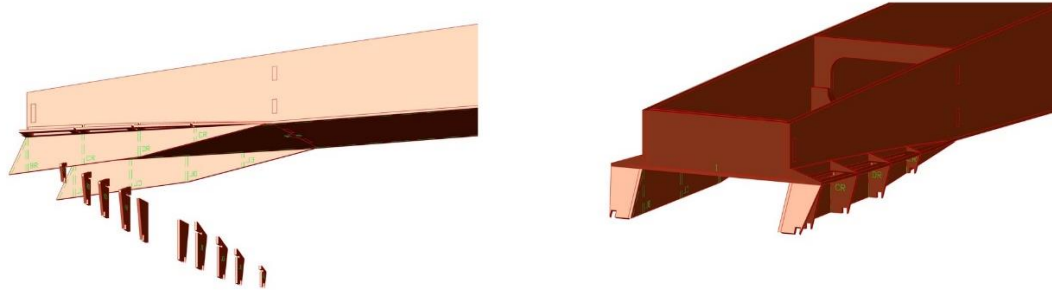


Now find your rear she frames...Here they are...I forgot the rear frame in this pic, but you will see it in another pic in a sec.



I first slide my inside edge plate up through the floor pan slots. Be careful, the slots are tight, and thin. If you break one of the floor pan extensions free, dont panic, it is easy to reglue, and later epoxy solid. Just take your time!

I started with frame CR and CL to square up things:

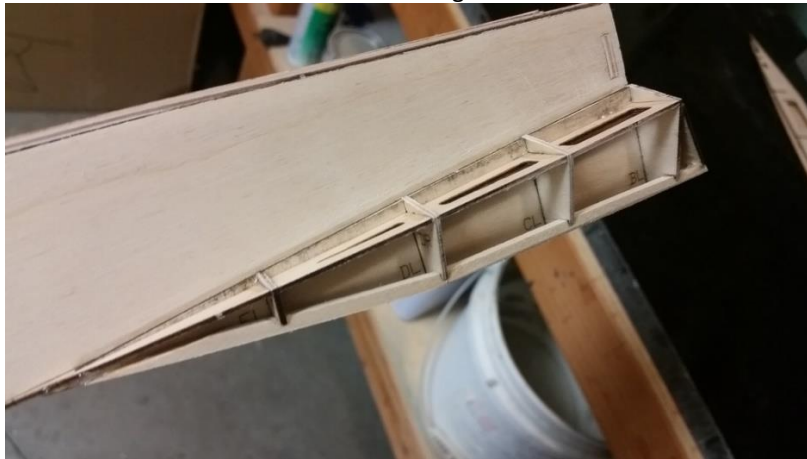




Now you can see all the frames are installed, and everything is CA'ed in to place. I again, used my angle aluminum along the inside edge to keep the ply square to the floor pan surface..very easy!



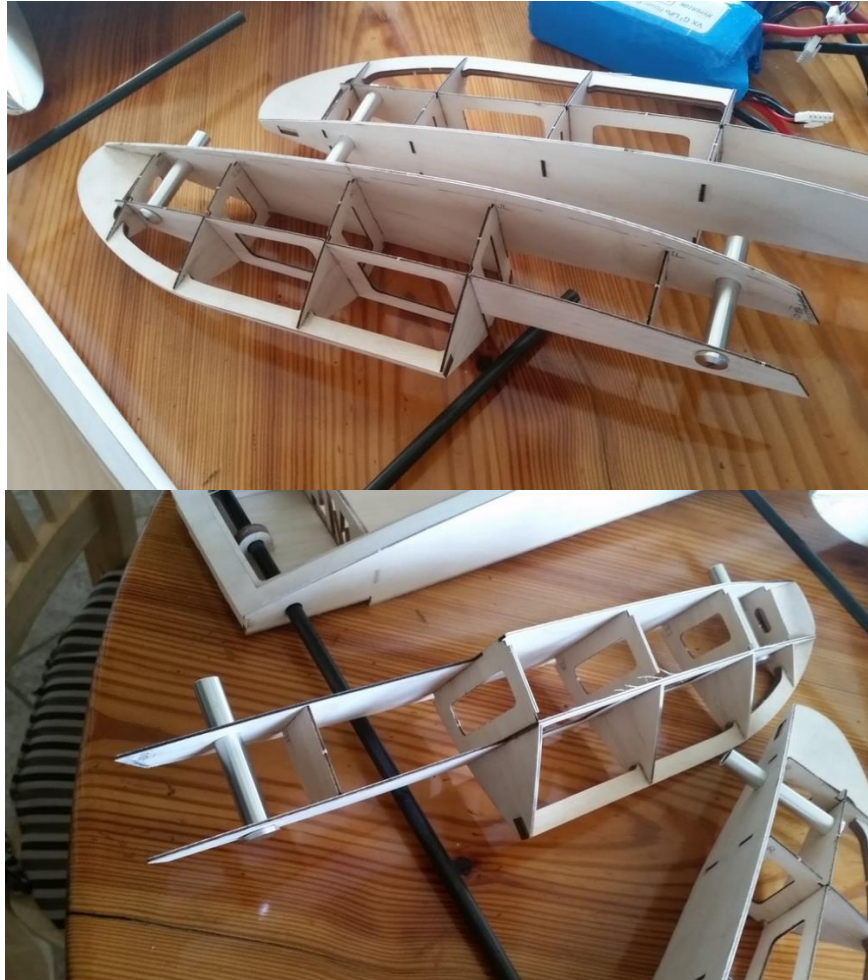
Another angle:

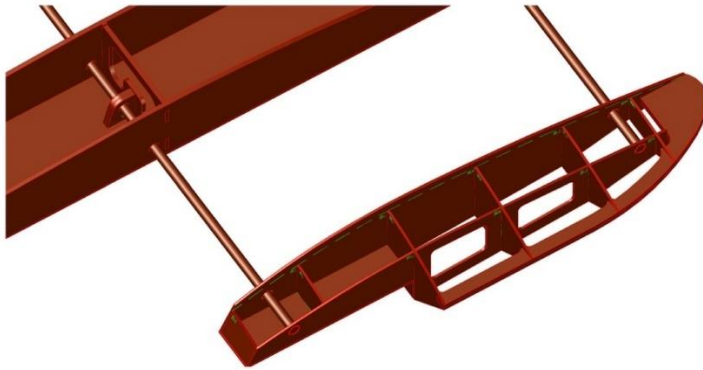


### **Stop work on the center section and Start on the Sponson build:**

Now, we will switch over to the sponsons. We will leave the tub alone for a little bit as when we come back to the tub, we will dry fit the hardware, and prepare it for some internal epoxying.

First, I dry fit the sponson frames, and inserted the Zippkits Long 5/16" rod supports. The frames all marked by frame number, and match the sponson inside edge, and the sponson shear. Frames marked "R" are used on the right side of the hull, or the "Starboard" side, and parts marked "L" will be used on the left side, or "Port" side. All 3 kits use the Zippkits rod supports, so check out their site for the rod supports, and their carbon fiber rods. Part numbers are listed further down this build thread.





In typical ML Boatworks fashion, the inside sponson top will stick up higher than the finished sponson top deck sheeting. Should help keep airflow on the sponson in the turns, and look really cool while doing it!



## **Hardware List:**

**NOTE, THIS LIST IS FOR THE RSX310..Rudder size for the RSX240 will be smaller, and Rudder size for the RSX380 will be the Speedmaster Sport 21. Flex cable size is based on your needs per hull layout. These are just typical guides below.**

**These can be found at [www.offshoreelectrics.com](http://www.offshoreelectrics.com)**

ros-spdr-005	Speedmaster Mini Rudder Assembly			
Rudder Style:	- Hydro Rudder 1.5" Setback			
ros-spds-005	Speedmaster Sport 20 Strut			
Strut Style:	- Round Bottom-spds-005-R-Hydro			-
ose-187L	OSE .187 cable system for 3/16" props			
aero-sts-187	STS 187 (Shaft Tube Seals)			
dh-ks-brass-tb	K & S Brass Tubing			
tubing size:	- pn#8132 : 9/32" Diameter			

**And 1/4" brass tube for the stuffing tube itself. The 9/32" tube above is for a doubler near the motor to add the shaft tube seal from Aeromarine, STS 187**

### **Boom tube collars and Boom Tubes Parts List:**

Also, I used these boom tubes from Zippkits:

[http://zippkits.com/~zippkits/index....roducts\\_id=304](http://zippkits.com/~zippkits/index....roducts_id=304)

And you can get the collars for the tube side from either zippkits, or mcmaster carr...

[http://zippkits.com/~zippkits/index....roducts\\_id=469](http://zippkits.com/~zippkits/index....roducts_id=469)

and from McMaster carr:

<http://www.mcmaster.com/#6157K32>

Part number:  
6157K32



Turn fin info:

I suggest talking to Bob Zola at Mojaracing Products. He carries a nice stainless turn fin. Use the sport 20 fin for the RSX310, and the sport 40 fin for the RSX380.

You will need to see if he can get the sport 12 fin for the RSX240 as well.

Once you have framed up your sponsons, you can begin gluing the various frames together while your sponson is clamped down to your flat building board. Do not do any gluing to any frame without it being on the building board and use squares to keep the frames at their correct 90 degree angles to the intersecting parts. Once all the frames are tacked in place, begin adding the basswood sticks in the allotted grooves. ***Keep your rod support aluminum ends installed at all times during this process. They are not removable, or installable beyond this point.*** They will start to look like this:





Then, with the sponson clamped down to your flat building board, you can next glue your outside non trip parts. You can also add the rear bottom sheeting of the "tear drop". It is the sheeting you see near my fingers in this pic:



After you have sanded the overhangs on your non trip flush to their frames, you can proceed adding the ride pads..Rear ride pad first, then the front. Be sure to leave a 1/16" overhang on the trailing edge of the rear ride pad:





Front ride pad added after the front edge of the rear ride pad has been sanded to a bevel, allowing the front pad to lay flush to the frames/sheeting:







At this point, your build will look a little like this:





The sponsons are now sheeted, all but the top being done. You will, at this time, want to start some hardware fitment. I started laying out my battery, motor/ and mount, and checked the boom tube fitment. You will see some brass dowels were added inside the tub. I will discuss those further in a bit. ***The booms are cut down to make a 14-7/8" spread from inside sponson edge to inside sponson edge. They will be slightly longer than this measurement, so be sure to add the additional length needed to have the 14 7/8" sponson inside to inside measurement!***



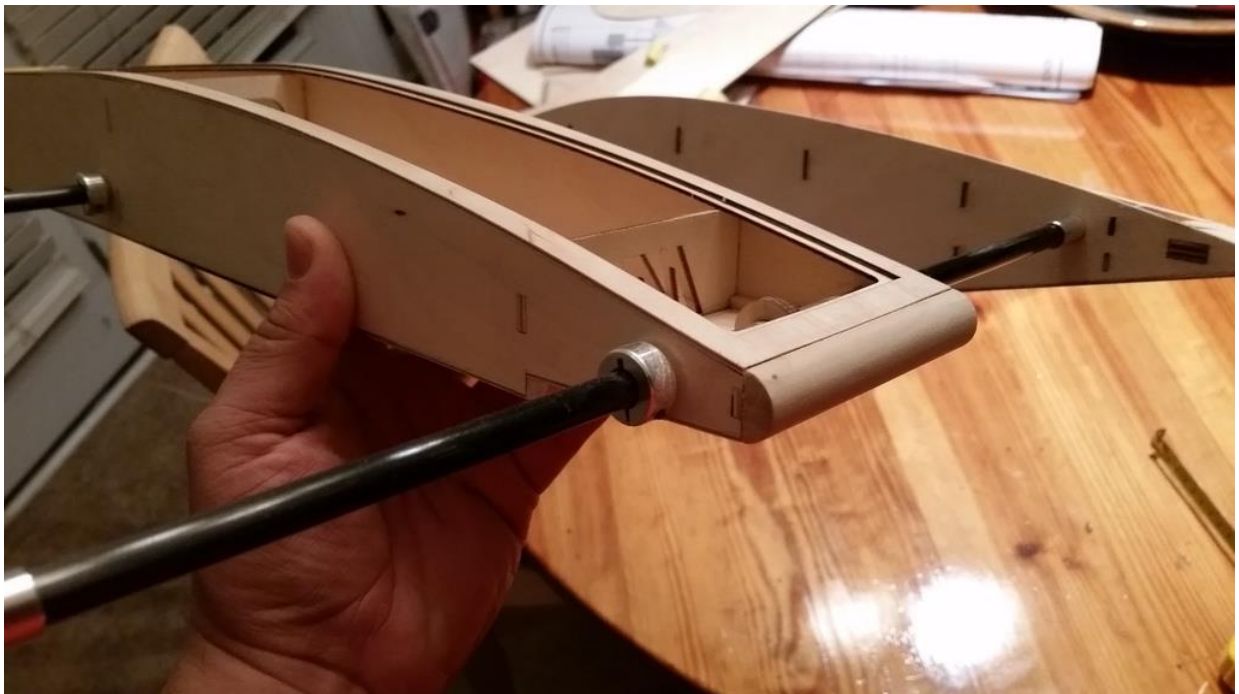
Here are the brass tubes added and glued in place. These support the boom tubes, and keep water out of the tub. They have an inside diameter of  $\frac{5}{16}$ ", so be sure buy the ones you need to fit your boom tube diameter.

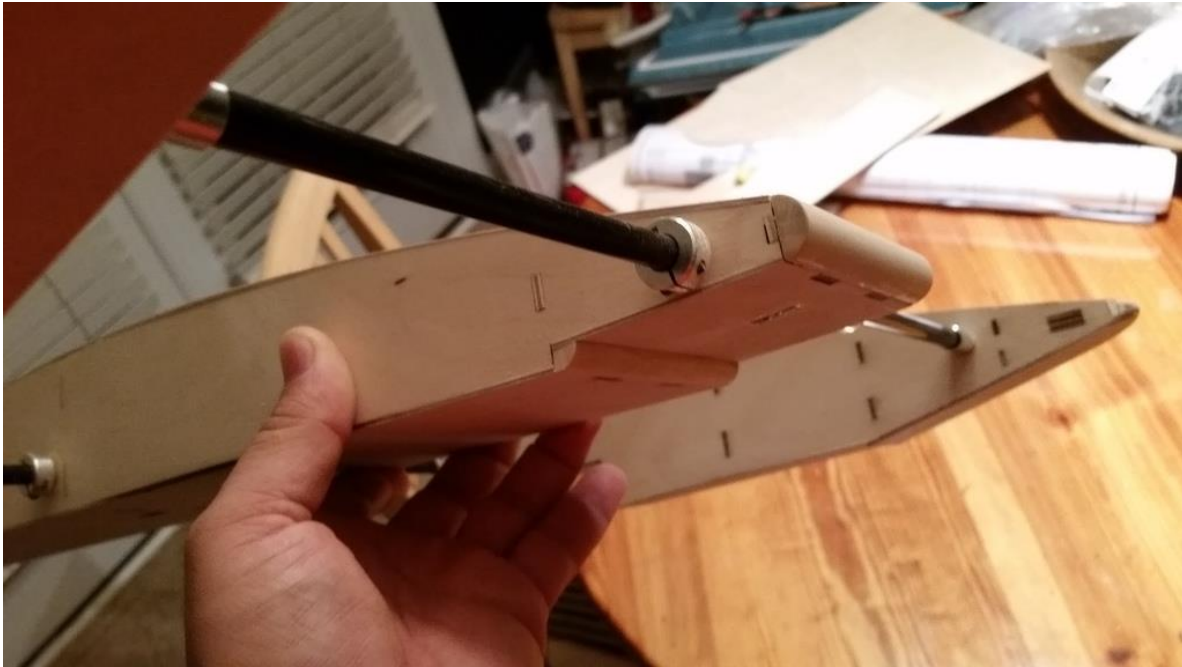






Now you can add your front nosing, and quarter round parts to the center tub:





Now, start drilling holes for your transom hardware:



Another tub view:



Now it is time to begin some epoxy work. First, epoxy the inside of the rear shoes:

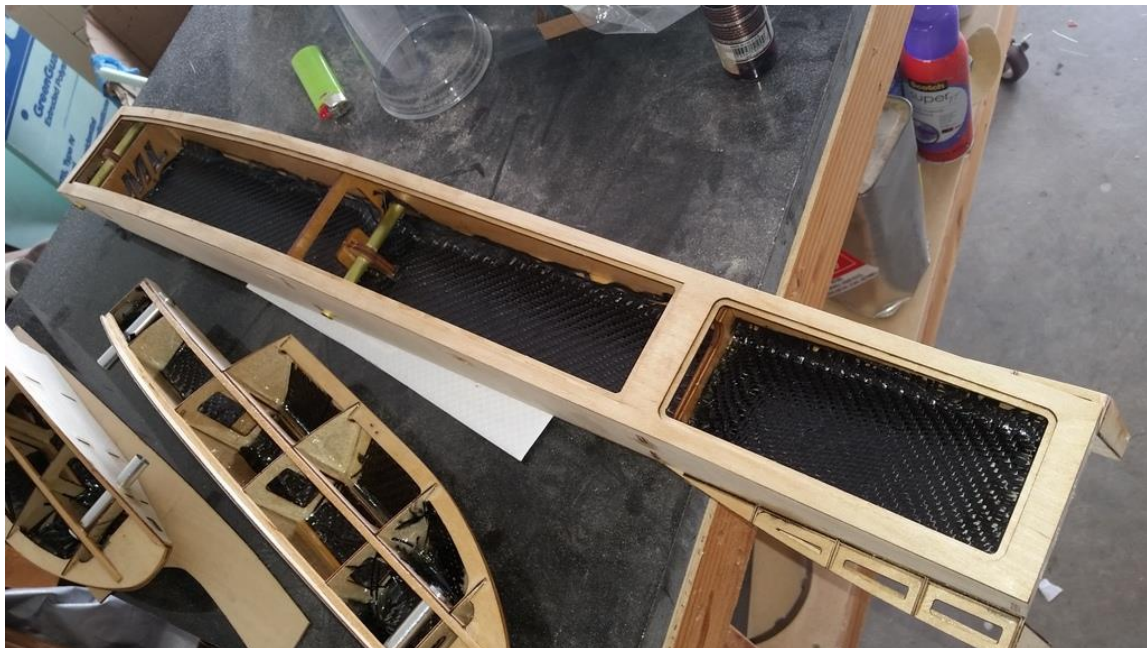




Next, add some aluminum, or hardwood block where you mount the turn fin. The leading edge of the fin, will be at the trailing edge of the sponson ride pad. You will mount any backing material like aluminum, or hardwood inside the sponson in that area. Then drill and tap, or add threaded inserts to the sponson so the fin has a place to mount:



Once the turn fin mount is figured out, you can add cloth, or carbon fiber to the inside of your center tube, and sponsons to add strength, and epoxy everything on the inside:



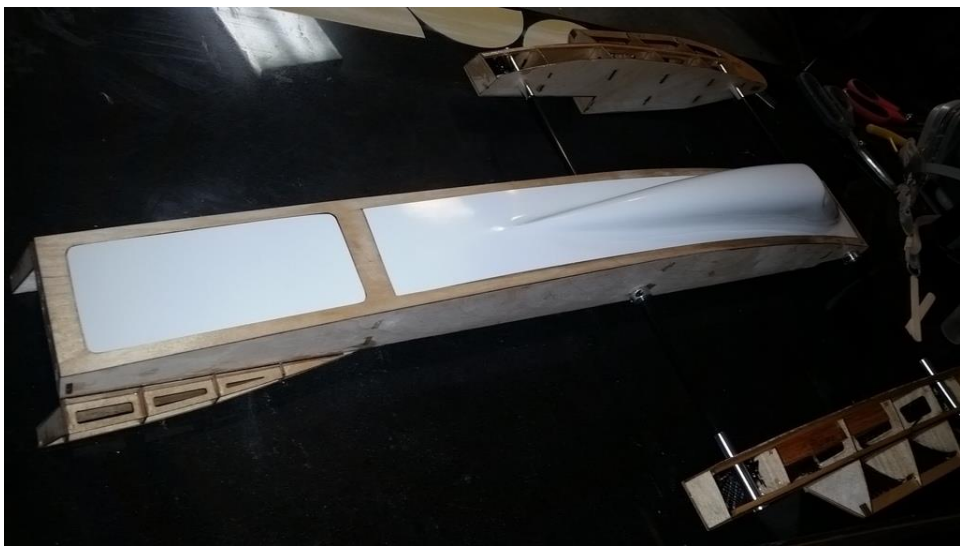
As you can see, I added a hardwood block, and threaded inserts inside my sponson for the turn fin:



Next, feel free to trim your canopy and rear hatch like so:







Now you can drill the slot for your stuffing tube. I like to use the following method for an exact location:





Now, find the included 1/32" sheet of plywood, and sheet your rear sponson shoes. The ply is so thin, you can use a razor blade to trim it down, then sand it flush:











Now, the final building step, add your top deck sheeting. Use the following pics as examples of how to add it. Epoxy this part on, do not just CA it. Once installed, there is no way to access the back side like the rest of the build, so epoxying it is necessary for a permanent bond. That is what makes this the hardest part of the build:





Pull the tape, and sand the edges!



Now, pull all your hardware, and epoxy the exterior of your kit:







Next, it is time to drill and add screws to the rod supports so that the carbon rods will stay in place. I like to clamp the sponsons on to the tub/ boom tubs, so that it does shift outward, creating the wrong drill location:





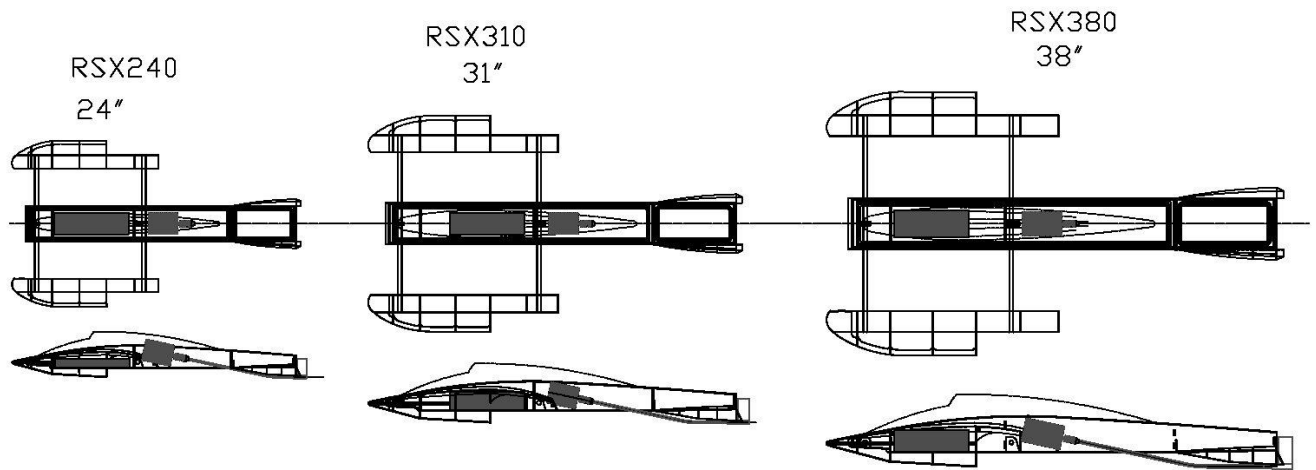


While you can run your hull with just epoxy exterior, I strongly suggest a nice paint job to protect the hull. Plus, it looks nice!





**All three hulls:**



## Framing layout:

