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THE SHRIKE III

the three parts Shrike

Introduction

A three parts Shrike is not something of a novelty in the Shrike universe. It has been done by many builders before. As such, the method described below does not entirely belong to me. I only put it on paper, in order to create a better documented source of inspiration for the builders willing to try it. The only contribution I may have, is that I simplified the process and adapted easy to find materials for it.

The method is a mixture between the process used by *CLC* (I can swear I saw a YouTube video somewhere) and the one described in the Shrike manual by Damian from Plymouth in Appendix A: Builder's tips, at page 48.

The difference is that I recessed all the connection points, I used no bolts glued to the bulkheads, gaskets or seals of any kind and despite the somehow less attractive looks, I obtained a simple and solid connection between the sections of the boat.

There was no noticeable decrease in performance on the water and the boat holds very well together even on rough seas. If you feel like, you can always mask the joints with tape in order to make the hull more streamlined, but it is not needed.

The pictures are taken while building a very light kayak. I added no reinforcements for the section joints, used only a minimum of epoxy and didn't tape the edges. I definitely wouldn't try my luck at rock

hopping or on white water, but if you feel like, there are adequate methods to create a stronger 3 parts hull.

In this writing, I isolated only what differs from the Shrike manual. When needed, I send the reader to the relevant sections of the book, underlining only what's different from it.

Advantages

Having a three parts kayak will offer some. First of all, you won't have to fight for the storage space of a 5m long boat. Just dismantle it and it will easily fit in a bedroom, corridor or elevator. If not carrying any passengers, it will also fit inside a hatchback car, eliminating the need for a roof rack. If you know the business and you're good at wrapping, your boat may also fit in an airliner (as sports items) and you can carry it with you around the world. If you have nothing else to do, it is also fun to dismantle it and play with all the sections on the water. One more advantage of the below described method is that you'll have no bolts protruding from the sections.

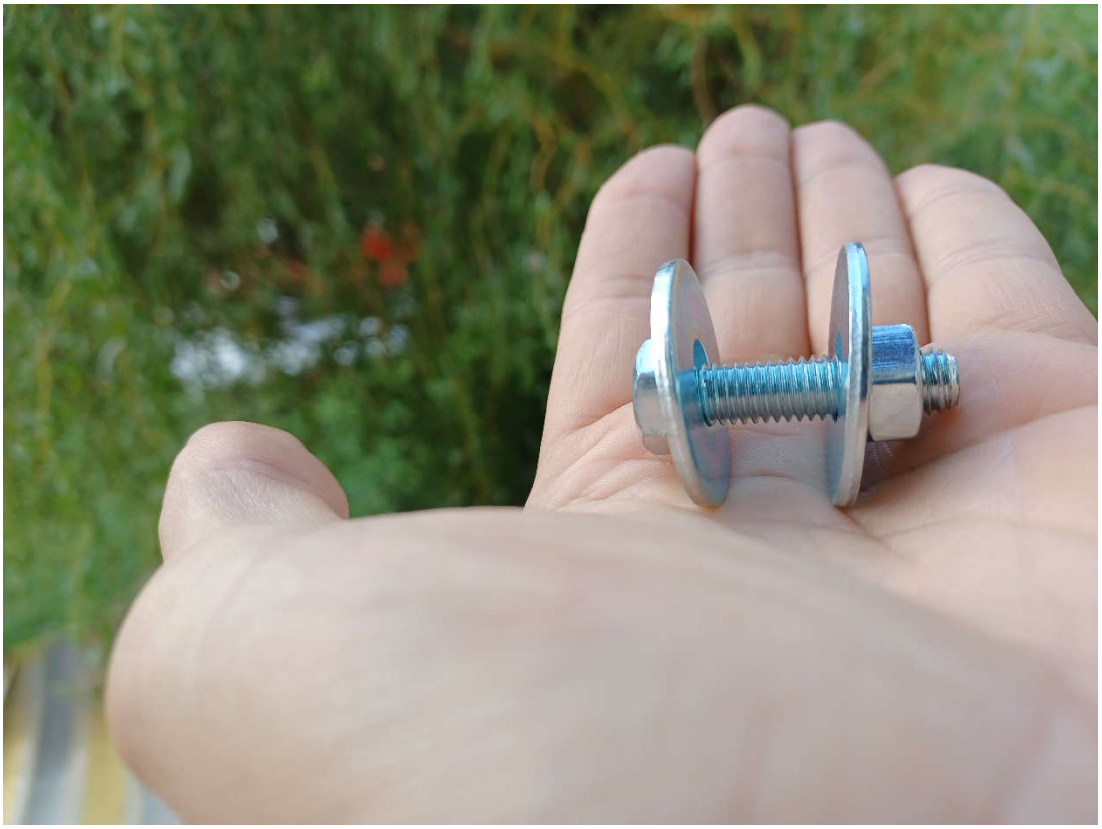
Disadvantages

There are a few of these too. You'll have more work to do, especially precision work, as all the planets (sections) will need to line up properly. Your boat will not be as solid as a one-piece hull, as the

screws will put pressure on the connecting points, hence some of the rough water pleasures will have to be eliminated. As said before, I wouldn't go rock hopping, or even surfing big breakers in such a kayak. For the same reason, refrain from lifting the boat by its ends, when full of water or heavy equipment.

Materials

I used M8 x 40mm normal stainless screws and the relevant nuts as joining bolts. I also used 10x30mm flat washers. You'll need 12 screws + nuts and 2 washers for each screw.



The method

More bulkheads than you think

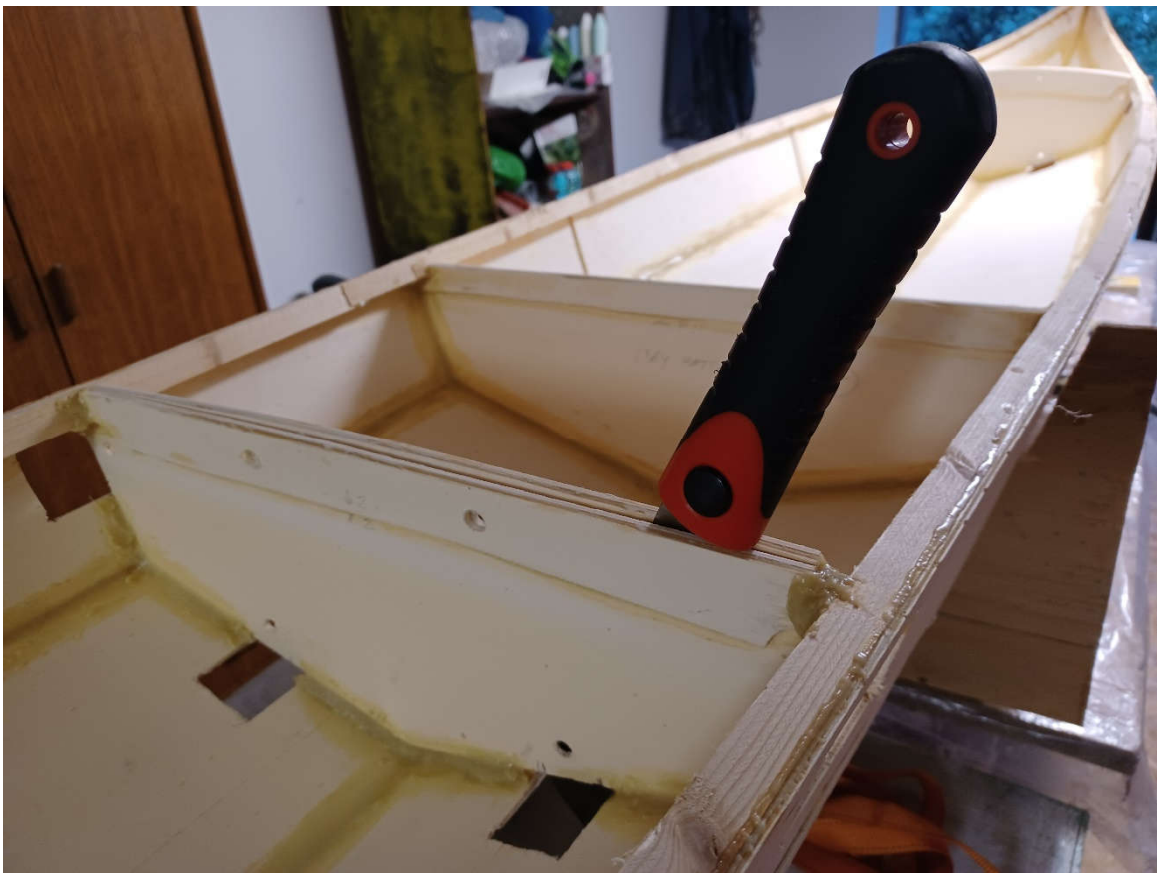
Start normally, following the master manual. Prepare your workshop, tools and materials as advised. Cut the ply strips, butt join or scarf them together and cut the inner and the outer molds. When cutting the bulkheads out, cut one more for the footrest and one more for the -345 position, which is the bulkhead ending the day use compartment. I chose this position (some builders use the -50 bulkhead) to split the boat, as it generates parts of a more equal length. The extra bulkheads will seal the obtained sections. Therefore, you'll use 2 bulkheads for the foot rest and 2 for the -345 position. After cutting them out, nicely place each pair on top of another and perfectly adjust their edges. Clamp them together as it will be easier to work simultaneously on both.

I used the standard 3mm ply for the bulkheads. If you wish to obtain a stronger joint between the kayak sections, you can use stronger ply for the critical bulkheads. I wouldn't use anything thicker than 6mm though. Once reinforced in fiberglass or any other mesh, even the 3mm one will take the load pretty well.

You can continue normally after cutting and matching the bulkheads, temporary join the panels together, as instructed by the master manual, fit the hull between its molds and fit the internal ones. Do not fillet the joints yet, as there still is a bit of work to do with the bottom and the side panels.

More windows (aka holes) than you think

Still having the hull panels loosely wired, place the double bulkheads at their designated places and mark their exact positions. I placed one before the position marking line and one after, leaving enough space between the bulkheads to squeeze a saw blade between them. You can obtain that space fair and square by fitting a piece of cardboard between them, or a third "fake" 3mm bulkhead as a spacer. The thicker the spacer, the more inaccurate the lineup of the pieces will be later. However, if you'll position the bulkheads without any space between them, it will be very difficult to split the hull later, without damaging them.



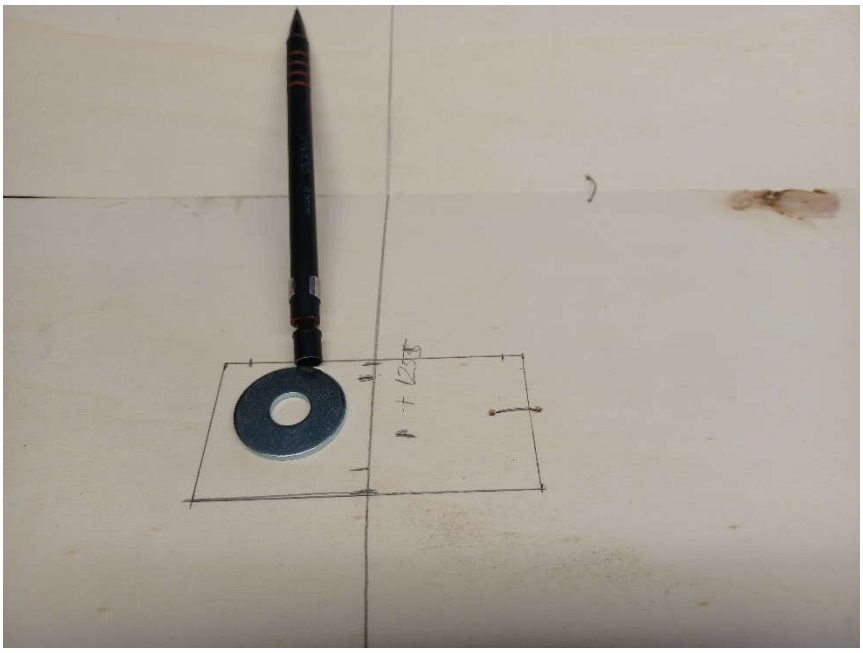
When inserting the spacer between the bulkheads, make sure you leave enough of it at the top to be able to grab and extract it.

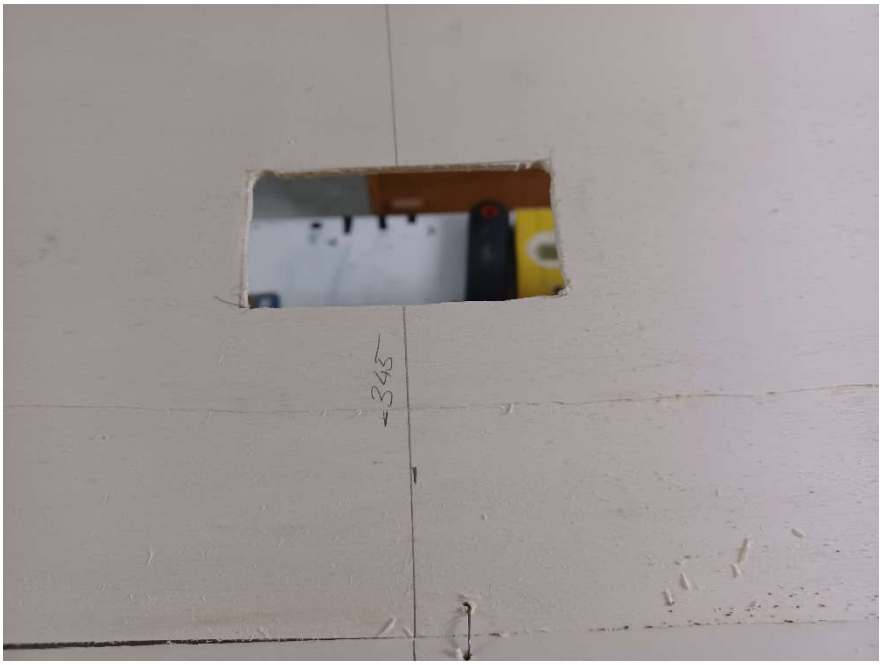
Mark the positions where your screws and washers will fit on the bulkheads. I used 6 connection points per each bulkhead. Some people use only 4, but I consider that 6 are stronger. You need to drill the holes for the screws through the bulkheads. Drill one hole at the middle of each side, taking into account the washer and also the desired freeboard. If you want to build a Rotator or to alter the freeboard, *adjust the bulkheads accordingly, before deciding the position of the lateral holes*. If using the standard bulkhead dimensions to measure the position of the holes, you'll have a surprise later, when shaving the top off, and the holes will be too close to the sheer clamps.

Screw the double bulkheads together, washers and all and place them inside the hull one more time. You can determine the general position of the access windows to the crews, by projecting the dimensions of the washers, which are the widest parts of the panels, on the hull. One window needs to encompass both ends of a screw (head and nut). *Do not dimension them firmly*. You'll need enough space to insert a spanner or your fingers in the obtained recessed space, not to mention, the screw also needs space to be inserted. I made my windows 8cm long in total (from one side to another) and 4cm wide. If you have beefy fingers, you can add more. Use the reference markings you projected on the panels as guidance when cutting the larger windows. *Make sure you keep the screw and the nut in the center of the*

hole and you have enough space for the washers to sit square and tight on the bulkheads. This is quite important, as they spread the efforts equally on the ply.

Once you plotted the openings, remove the hull panels from the molds and cut them out with a jigsaw or with a knife. If using the jigsaw, drill 8mm holes in the corners of the windows to be able to turn the blade of the jigsaw.





Put everything back together and fillet the joints and the bulkheads in place, following the standard manual. *Make sure to also tape the double bulkheads in place* (before taking this decision read the “laminating” subchapter below as there is also another way), as they will be subjected to some effort. *Make sure you don’t tape over the windows*. Keep the double bulkheads screwed together and the spacer between them, until the epoxy cures.

The magician’s split

This may be something you may not like. Do you remember the magic trick, when the magician cuts the woman in the box in half? You’ll be the magician, but don’t put anyone in the kayak. After the fillets are cured and the hull holds together nicely, starting to look like a boat, remove the screws and your spacers (if you used any) from between the double bulkheads and using a thin bladed saw, cut the hull in the desired parts. Do your best to cut as straight as possible, *by sneaking the blade between the double bulkheads* (it would be a funny disaster to make the cut someplace else). You can keep the hull as a whole as well and make the split later, but you’ll find out how easy it is to work with 3 parts less than 2m in length, especially if you don’t have a large shop.

After you finished wiping your tears, or the maleficent laugh, you can sandpaper the outside of the freshly split bulkheads until everything matches perfectly. You can check this by screwing the parts back together, *but use great caution as the assembly will be quite fragile at this stage.*

Laminating and glassing the inside

Following the Shrike manual, you can proceed with the internal lamination of the hull. There are several options here. One of them is to follow the standard procedure, as described in the manual. In this case, dress the cockpit section on the inside with the desired mesh, making sure to cover also the inside of the foot bulkhead. When the epoxy is hard enough, cut around the windows of the foot bulkhead with a box opener, in order to remove the mesh. If you'll dress the bulkhead this way, you may delete the taping operation, as it will make spreading the mesh easier.

The -345 bulkhead and the double of the foot bulkhead may be dealt with in two ways. Either you cover their inner faces with the mesh *before* having them filleted in place and in this case, it will be much easier to laminate them. You can simply spread them on your workbench, laminate the inner face of both, then perfectly trim the excess mesh when the epoxy is cured. You can place them inside the hull, then fillet and tape them in place. It is mandatory to have them dressed with the mesh, as this will provide the needed strength for the joins. *Without the mesh the plywood is too weak to take the loads.*

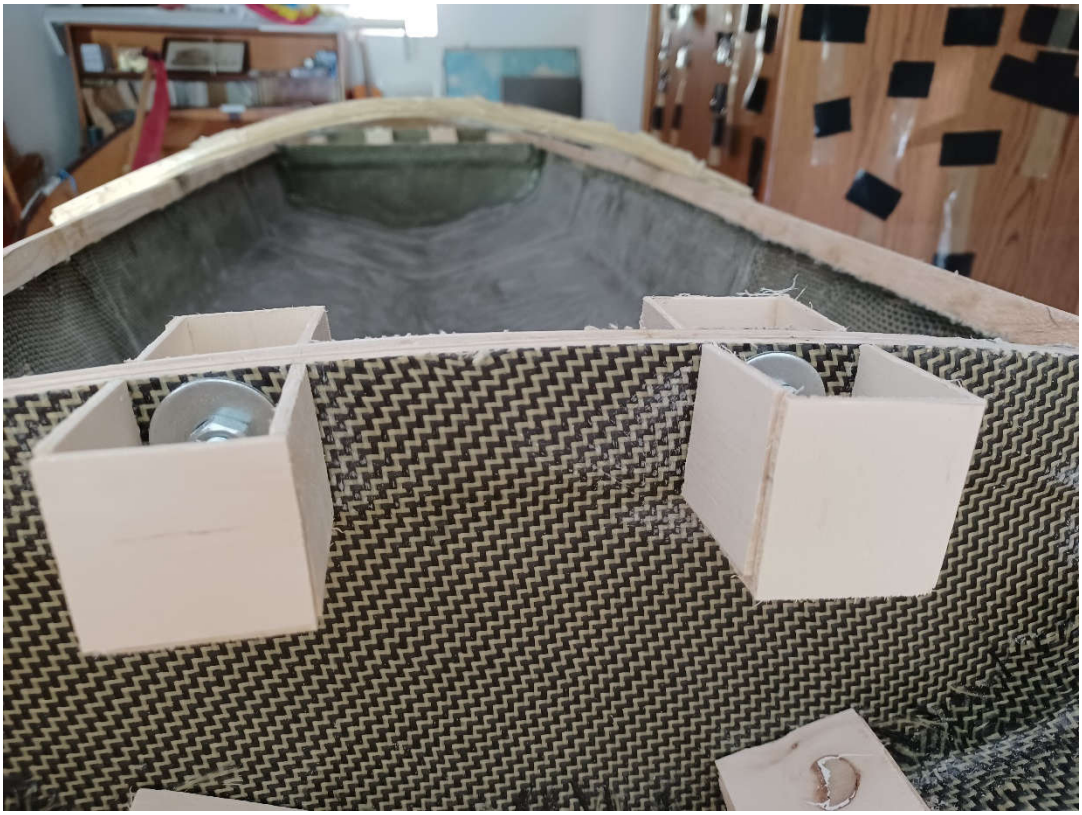
The second way of doing it is to add the mesh on the inside faces after filleting the bulkheads in place. Make sure you'll use the mesh in this case, also as a tape, and its edges extend around 3cm around and outside the bulkhead.

Do not laminate the external faces of the bulkheads yet. You will do it after installing the decks, in order to also have the edges of the decks covered with the mesh.

Talking about the mesh, you can use the recommended 200-300 g/m fiberglass cloth, the thicker the better. I used carbon-kebab, sorry Kevlar, but only for the looks of it. I am pretty convinced the normal fiberglass would do an equally good job at a lesser financial expense.

Building 24 little houses for only 12 little piggies

This is an annoying and time-consuming operation. You need to cut and fit no less than 128 little pieces of plywood in order to build the 24 little cubicles housing each screw's end on the inside of the hull. As such, the water will not get inside the hull and you'll obtain your recessed connection points. The little cubicles will have to be built around the edges of the windows. Make sure you leave no open spaces as an invitation for the water to get in.



In order to ease your work a bit, cut long strips of ply, 4cm wide (or according to the dimensions of your windows) and cut the needed pieces from them. Work your way around each and single washer. Make sure you epoxy (with thickened epoxy) each piece properly as it will be difficult to source out and fix leaks later. *Leave the top boxes without the "roof", as the decks will be their roof.*

After completing all of the boxes and having them securely epoxied in place you can complete the interior according to the manual.

Adding the decks

There are a few particularities here which diverge from the manual. Before starting with the decks, you'll need to put the hull together. It may be possible to cover each hull section at a time, but I cannot endorse this idea as I didn't try it.

After connecting the hull parts, follow the manual until the point you will have to epoxy the decks in place indefinitely. There is an extra operation needed before doing so. You need to cut the top windows into the decks. It looks like an intricate operation but it is not. Just cover the top edges of the top houses in fresh paint, then dry fit the decks one more time. You should obtain the shape of the openings on the inside face of the deck panels. Cut it open, then fit the decks with epoxy, making sure there is a perfect, watertight fit on top of the windows.

The magician's split reloaded

After the decks are fully cured and the boat looks like a charming kayak again, take your saw blade, remove the screws (or keep them in place if you want to destroy the saw blade) sneak it between the proper bulkheads and split the deck in the already known parts.

After doing this, you can finally dress the outside faces of the bulkheads with the mesh. Re-drill the connecting holes after the epoxy has set on the mesh, epoxy also the inside edges of the holes, or use small copper or stainless tubes of the same diameter as the screws to protect the ply from being abraded by the screws.

Sand and fair the obtained recessed connection points, so they will not look too rough. Epoxy them also on the outside in order to improve their watertightness.

Just follow the manual from now on, as the operations needed for the 3 parts Shrike are done. You can keep the sections apart when laminating the exterior and this will enable you to laminate all the sides in one go (the sections can stand vertically on the ground). However, put them back together when painting a continuous pattern on the hull.

Stronger joints

You can obtain a stronger joint if using thicker ply for the double bulkheads, strengthening their sides with extra ply (in the same fashion as for the tops) or gluing pieces of stronger wood on the sides of the bulkheads. As such, you can drill the holes through the wood and the ply. Even so, the boat will still break easier than a one-piece hull when overloaded. I didn't do a stress test, but using only the 3mm ply properly glassed or kebabbed, will generate a strong enough hull to be used for normal paddling conditions.

The kayak in the pictures came out at 12.3 kilos. When dismantled, the sections weigh almost nothing. Compare this now, with a 30 kilos plastic monster…

More pictures