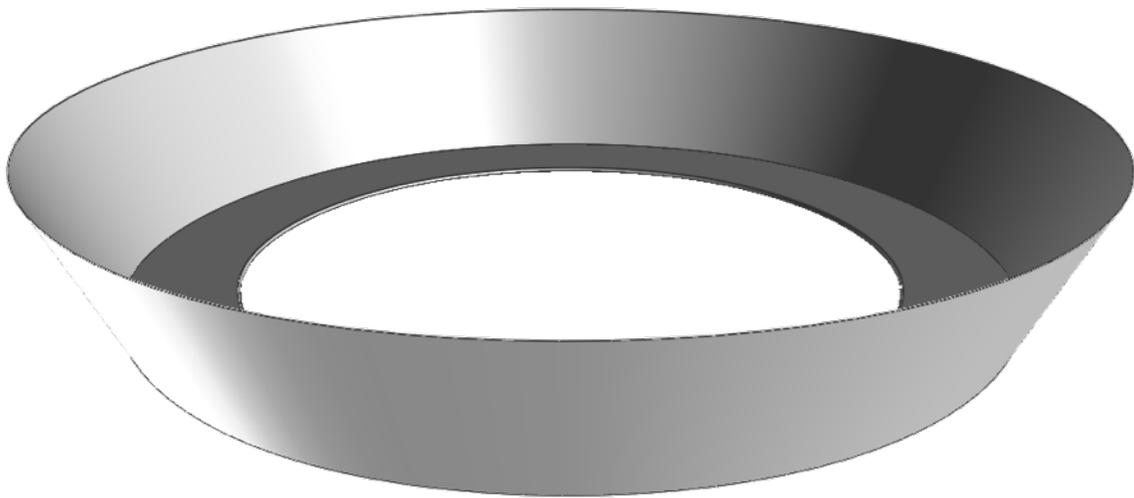

HATCH RECESSES

Assembly Manual Stitch & Glue Plans



Contents

Introduction	3
Cutting Out the Parts	3
Assembling the Recess	4
Fit the Recess Into the Deck	5
Trim the Recess to the Opening	6
Bond in Place	6
Fiberglass the Exterior	7
Strip Kayaks	7
Stitch & Glue Kayaks	7
Deck Plates: Double Drill Bolt Holes	8
Installation of Hatches and Deck Plates	8

Introduction

This manual will help you build your stitch & glue hatch recesses. Construction will be easier if you read through this manual a few times before starting construction to familiarize yourself with the components and construction steps. If you encounter any technical questions while building the kayak please feel free to send us an email at any time: info@clearstreamwatercraft.com You can also try to reach us by telephone at 603.449.2654. Being a part-time operation, we do not maintain regular office hours.

The manual was written to cover all sizes of the hatch recesses including the Beckson 6", Beckson 8", Kajak-Sport Round 24 and Kajak-Sport 42/30 Oval hatches. The basic build method is the same.

They are designed for installation in either cedar strip-built or plywood stitch & glue construction. They are easiest to incorporate into a build before the deck is bonded to the hull. On a strip-built kayak it's best to install the recesses after the deck exterior and interior have both been fiberglassed. On a stitch & glue kayak the recess is usually fitted after the interior deck fiberglass has been laminated and before it is permanently bonded to the hull.

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This manual was written by CSCWC.

Cutting Out the Parts

The parts for the hatch recesses are cut from quality okoume plywood. While the flat bottom portion can be cut from either 3mm or 4mm plywood, the curved risers should only be cut from 3mm or thinner stock. In order to make the curve it needs to be of good stock.

1. Print out your plans full-size. The plans are 24"x18" (architectural "C" size). This can be done on a wide-format printer or by using the "Poster" option on Adobe Acrobat.
2. Using spray glue, bond the paper directly to your plywood. A light mist of glue on one side is all that is required. Be careful aligning your paper with your surface. You usually only have one shot at getting it in the right location!

WARNING: Note the direction of the plywood grain and align it with that shown on the plans. The riser pieces MUST be cut with the grain running across the THINNEST portion of the parts.

3. Cut out the parts using a fine-toothed saw in your jig saw. Cut just shy of the lines and then sand to them.

WARNING: The parts, especially the puzzle joints, need to be very precise!!

4. After cutting out the parts, simply peel off the paper templates.

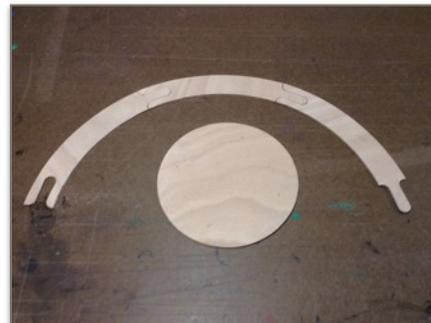
Assembling the Recess

The oval and round recesses are made the same way.

TIP: The recess takes some time to make. Combine some of the steps with other stages of the build. They can be made at any time.

1. Press fit the riser segments together into a flat chain. Adjust the joints as needed so they are tight.
2. Place packing tape on one entire side of the chain, from one end to the other. Flip and super glue each joint.

TIP: The tape helps reinforce the ring during the bending step, coming up next. For extra security you can also laminate one side of the entire chain with a continuous piece of fiberglass. If you fiberglass the ring, peel off the tape after it has cured. The fiberglass will be on the outside of the recess.
3. Now the fun part... Take the two ends of the riser and bring them together making a round, angled ring. Make sure the packing tape or fiberglass is on the outside of the riser. Hold the pieces together with a couple of spring clamps. A couple of staples can also be used.
4. Super glue this joint thoroughly.
5. Fit the donut (the mounting plate itself) into the bottom of the riser. Take the ring and insert it into the bottom of the riser. It may need some sanding to fit.
6. Super glue or hot glue it to the riser.



- Place a fillet of thickened epoxy between the riser and the bottom.

OPTION: You can laminate the side of the hatch recess that will be OUTSIDE the kayak with a layer of glass. This will give the recess a lot of strength while you fit it to the deck.



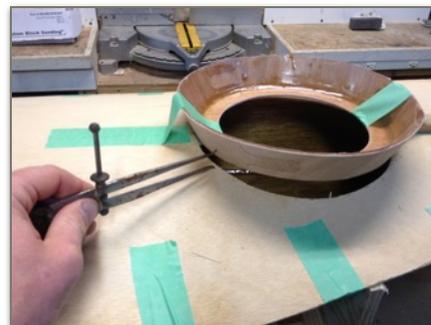
- When the fillet/glass has cured, trim the glass and cut an opening for your deck plate.

There! You have a recess. It's extra tall to allow fitting into virtually any deck.



Fit the Recess Into the Deck

- After the epoxy has thoroughly cured, set the assembled deck back in place on the hull. Temporarily tape/clamp in place.
- First, locate on the outside of the deck where you want the hatch to ultimately lie. Make sure the recess will not interfere with any bulkheads or deck outfitting.
- Now lay the recess on the deck and hold in place with masking tape.
- Go to both sides and record the distance from the recess floor to the sides of the deck. It should be the same. Adjust the recess side-to-side if there is a deviation. This is the finished depth of the recess. The idea is to get the recess level across and front to rear and for the outside corners of the recess floor to contact the deck. The floor of the recess can be lower than the sides of the deck sides but this will cause water to accumulate.
- Take a compass or pair of dividers and set it about a 1/8" less than the measurement in 1.4. This will give some room for adjustment.
- Now scribe the deck to the recess. Start at one of the high points of the deck. Hold the compass vertically on its side. The point of the compass should contact the recess and the pencil on the deck. Now trace the outline of the recess to the deck. You should have an oval-shape penciled onto the deck. This will be your rough opening.



7. Cut out the opening in the deck with a jigsaw.



1. Place the recess in the opening. It should fit much closer to the deck. Repeat steps 1.4 through 1.7 enlarging the opening by cutting and/or sanding away the deck until the recess fully contacts the edges of the deck. The edges of the opening should be square to the recess for future bonding. When happy place the recess in the opening, aligning your marks and hold it in place with some tape.



Trim the Recess to the Opening

1. With the recess in place, lay a pencil flat on the deck and trace the perimeter of the opening on to the underside of the recess. A white pencil shows up the best on the carbon. You want to have the line at least a 1/16" higher than the deck. You'll sand this flush to the deck after it's bonded in place.
2. Remove the recess from the deck and trim with a jigsaw.

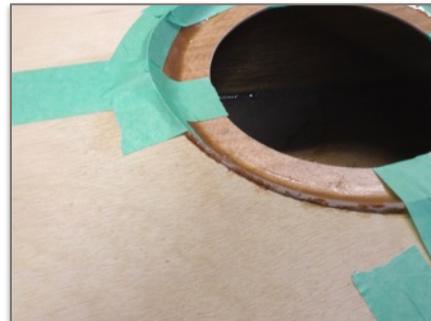


Bond in Place

1. Place the recess in the opening one final time, making sure the recess fits exactly how you want it. If it doesn't fit just right go back and correct it. It's better for the recess to sit too low than to have an unsightly gap or be off at a weird angle.
2. Tack it in place on the outside with some super glue. You can also see some strips of masking tape or a few beads of hot-glue. The recess cannot move out of alignment for the next steps.



- Cover the outside joint with masking tape. If any epoxy leaks through the joint between the recess and the deck it will help prevent drips on the deck and make clean-up easier.
- Flip the deck over.



- Sand approximately 1" of the deck around the circumference of the hatch with some P80 grit paper. Remove the sanding dust with a vacuum.
- Brush on some neat (i.e. un-thickened) epoxy into the gap between the deck and the recess. A very small bit of seepage through the joint is desired.



- Place a fillet of thickened epoxy between the sides of the recess and the deck.
- While the fillet is wet, laminate at least one layer of 4oz fiberglass over the joint.



Fiberglass the Exterior

A layer of fiberglass will tie the exterior of the recess into the deck.

Strip Kayaks

The deck exterior and interior have usually both been fiberglassed at this point. You just need to tie the recess into the deck fiberglass.

- Sand the hatch recess flush with the deck. Round over the recess/deck edge slightly.
- Fiberglass the entire recess with some fiberglass. If you have already fiberglassed the exterior of the recess you can just reinforce the joint with a 2" (50 mm) wide strip of bias-cut glass.

Stitch & Glue Kayaks

The recess is usually fitted before the deck exterior is fiberglassed. The same steps above are followed.

OPTION: For a high-tech look consider laminating the exterior of the recess with carbon fiber. Twill weave will conform to the curves easier than plain weave carbon.

Deck Plates: Double Drill Bolt Holes

For the best long term performance of the deck, any holes used to mount the deck plates should be double drilled. Doing so seals the plywood from water infiltration.

TIP: This step is not required for the Kajak-Sport plastic rims as they are glued to the recess.

1. Check the openings for the deck plates. Test fit the rings in the openings. Adjust them as needed. When you're satisfied place the rings in the openings in their final alignment.
2. Mark the bolt locations on the deck with a pencil or marker and set the deck plates aside for later installation.
3. Drill out each location with a drill bit 4-6mm larger than the bolt. Clamp a piece of scrap wood to the outside to help prevent blowouts in the plywood.
4. At each hole location place a piece of packing tape on the exterior. This will create a dam.
5. Coat the edges of each hole with clear epoxy.
6. Mix up some thickened epoxy and trowel it into each hole. Use a squeegee to level them off.
7. When cured place the deck plate back in the opening aligning the bolt holes with your new plugs of epoxy.
8. Mark the bolt holts and redrill to the correct size.



Installation of Hatches and Deck Plates

When it comes time (eg. after varnishing the deck) bond the plastic rings for rubber lids to the deck recess with thickened epoxy or a sealant like 3M 5200. Kajak-Sport recommends Sikaflex-221.

Most manufactures recommend that deck plates be bedded in silicone though. Don't over tighten the bolts. You want the caulk bedding to be about a millimeter (1/16") thick. Thoroughly clean up any caulk that has squeezed out.

TIP: It's a great idea to tether the lids to the kayak. I bond pad-eyes to the interior of the hold and each lid. Some 3mm cord makes a nice leash.