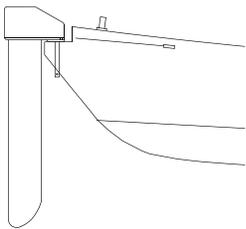


Queen Charlotte Rudder Installation

The following instructions will enable you to install an "over the center" rudder assembly on your Queen Charlotte Kayak. This particular rudder is designed to let you park the rudder on the top of the rear deck when it is not in use.

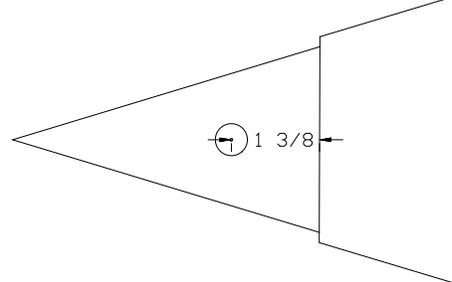
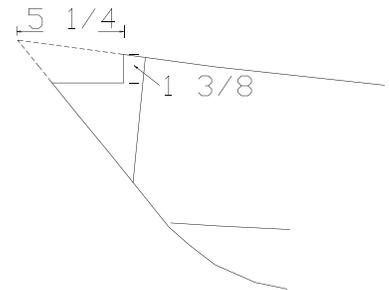


When it is down a little bit of the tip of the boat is cut off so that the blade will clear the end of the boat. The entire rudder assembly is mounted in a solid epoxy plug called an "end-pour". The rudder assembly swings from a stainless steel post that fits in a hole drilled down into the end-pour. All of this may not be clear to you right now, so read this entire set of instructions carefully and do not start until you can visualize the entire operation.

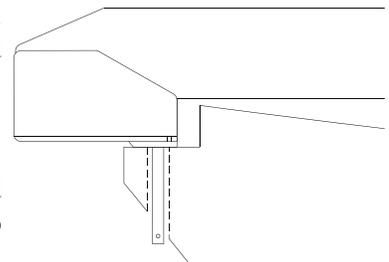


The first step in this procedure is to stand your boat up on its stern tip and lean it against the house. Mix up about 6 oz. of epoxy and wood flour. Stand on a step ladder, and looking down through the cockpit, pour the epoxy down into the end of the boat. Do this in the cool of the evening so that the epoxy does not get too hot and then let it set overnight. It may take an additional 3 ounce to create an end-pour

Cut a 5 1/4' notch out of the end of your boat that is 1 3/8" deep. Take a wood rasp (wood file) and level the surface of the cut. The next step is to fit the rudder post down into the end-pour. The trick to aligning the rudder assembly is to first drill a hole larger than the rudder post. Then set the rudder assembly down into this oversized hole. Get the entire assembly properly positioned and then fill the hole with epoxy.

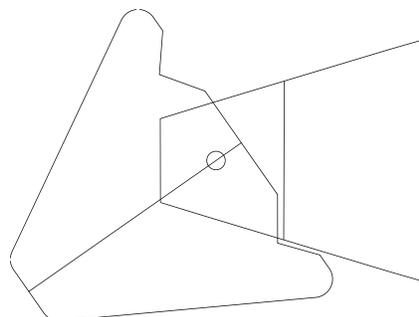


Drill a 1/2" hole 1 3/8" in front of the edge of the notch you cut. Rub some Vaseline over the stainless steel rudder post and over the bottom side of the assembly to keep the epoxy from bonding to the post. Set the rudder assembly down in the hole and tape the bottom around the shaft so that epoxy will not run out the bottom. Then fill a dental syringe with epoxy, lift the rudder assembly up a little and squeeze epoxy into the oversized hole. Fill the hole with epoxy.



Position the rudder and let it set overnight for the epoxy to harden.

Now, swing the rudder blade all the way down and mark where you need to cut the tip of the end of the boat off. Mark both sides and cut the tip off so the rudder can swing freely.



You will notice that the delta wings of the rudder assembly also hit the edges of the deck notch. Cut small triangles out of the aluminum wings so the rudder assembly can rotate about 40°.

When the rudder blade is pulled up, it parks on the deck in a small plastic V-shaped chock. Elevate the chock by cutting a small piece of plywood to fit under it, and glue the chock in the center of the rear deck. Position it so that the blade almost touches the bottom of the chock.

Remove the rudder assembly and file a small notch in the boat where the rudder post projects out the bottom. Clean up any excess epoxy that came out the bottom of the hole and insert the split ring in the bottom of the rudder post.

This completes the installation of the rudder assembly itself.

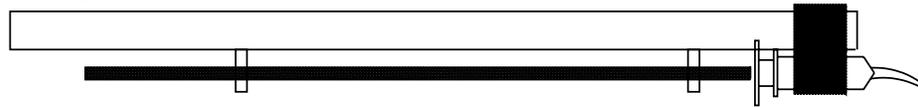
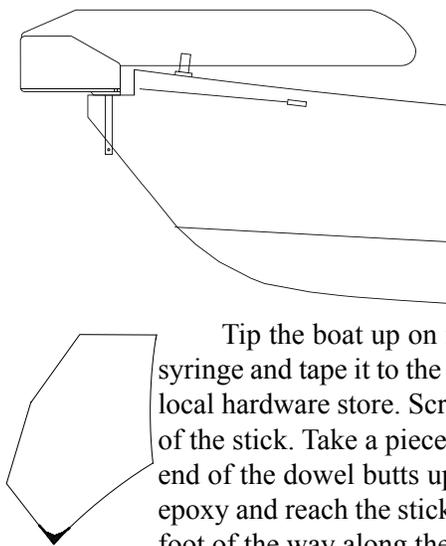
Install Cable Tubing:

The rudder assembly is connected to the foot pedals via stainless steel cables. The cables go through a plastic tube that is glued to the underside of the deck where the deck meets the sides. This keeps the rudder cables out of the way and protected from hanging up on camping gear you have stuffed in the boat.

First drill a 1/4" hole on either side of the boat that is 9" in front of the notch and 1 1/8" down from the sheer. Angle the drill bit parallel to the deck and towards the front of the boat. Insert the 1/4" plastic tubing that comes with the rudder through the hole and feed it through the hole until you have just 1" sticking out.

One inch of tubing is left sticking out so that as the tubing expands and contracts with temperature the tubing end will not be pulled through the hole and into the boat. Now you are going to push the tubing up into the corner on the deck and squeeze a little puddle of thickened epoxy over the tubing every 1 ft. distance to hold it up and out of the way.

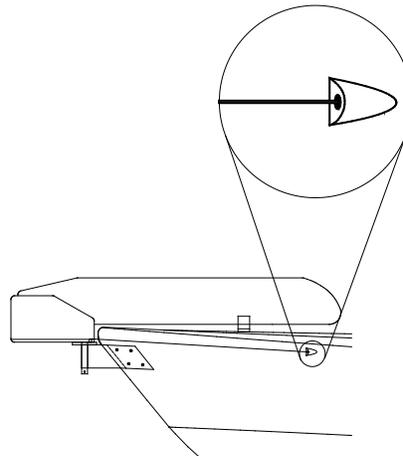
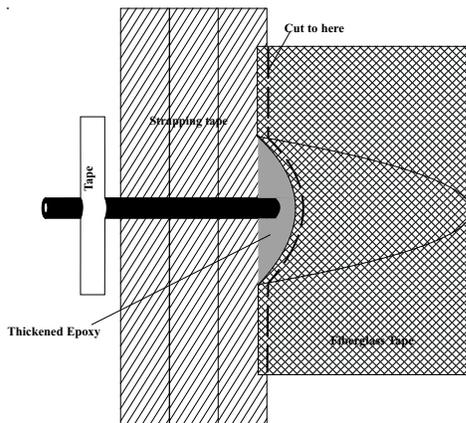
Tip the boat up on its sheer edge and prop it up so that it will stay there. Then take a dental syringe and tape it to the end of a 4' piece of scrap 1"x2". Then buy two 5 cent eye screws from the local hardware store. Screw one of them just behind the plunger and the other one at the other end of the stick. Take a piece of 1/4" wooden dowel and insert it through the two eye screws until one end of the dowel butts up against the plunger on the syringe. Then fill the syringe with thickened epoxy and reach the stick up into the boat and squeeze a little puddle of epoxy over the tube every foot of the way along the sheer line. Let one side harden and then do the other side.



Secure Ends of Cable

When you are all done, go back to the outside of the boat and epoxy a small piece of glass tape over 1" of the 3" end of the tubing that is sticking out of the boat. First lay some strapping tape or other plastic tape under the tube on the boat about one inch from the tube hole. Then tape the end of the tube to the boat to hold it positioned facing your rudder bracket. Thicken some epoxy to the consistency of peanut butter. Spread this under and around the tubing near the tube hole. Then press a piece of glass tape over it and wet it out. When this has hardened cut the end of the tubing and glass tape off at the line of strapping tape and remove the excess material and tape. This will leave a nice flush end.

On the inside of the tubing, angle it down the side of the boat from the sheer towards the foot pedals and glue this end to the inside of the boat with some thickened epoxy and glass tape. Secure the tube with strapping tape to help hold it in place while you do the epoxy work. Cut the end of the plastic tubing 12" from the aluminum rudder control track.



Changing Standard Keepers Footbraces to Rudder Pedals:

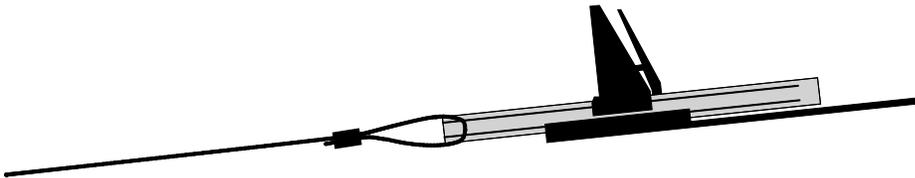
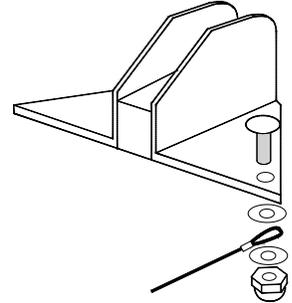
If you have installed the black plastic, Keepers Footbraces in your kayak, remove them. Slide the rail and footpad into the black anodized aluminum rudder control track that came with your rudder assembly. Make sure the Keepers rail and footpad travels freely in the black aluminum control track.

Put the small "O" rings over the 1/4" x 20 x 1/2" coarse-thread ss screws (these are not the same screws that held the keepers in place) and screw the black aluminum rudder control track into the holes that are already in your boat.

Attach Rudder Cables:

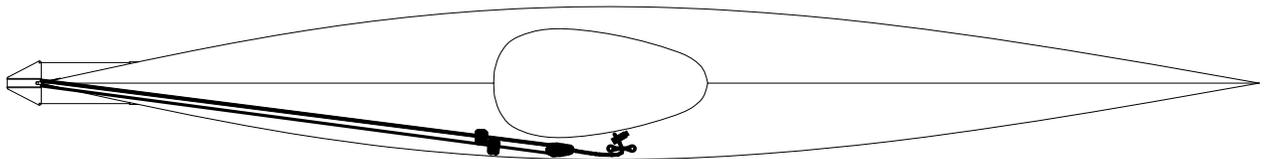
Feed the stainless steel rudder cable through the aft end of the plastic tubing. Attach the aft end of the stainless cable to the rudder assembly using the machine screws, washers, and nuts provided.

Swing the rudder blade up and park it in the chock on the rear deck. Next, slip a swage over the bow end of the rudder cable, then loop the cable through the rear screw hole in the black plastic Keepers rail and back through the swage. Adjust the ss cables so that the plastic Keepers rails are in the same position as the aluminum tracks and crimp the swages. Adjustment for different leg lengths can be made by clicking the footpad along the adjustment track.



Fasten Rudder Liftline:

Pull the lift line forward towards the cockpit as shown. Using the padeye mark the forward position of the bungee at the end of the lift line loop on your deck. Drill holes through the deck at the side of the cockpit and attach the cable anchor padeye to the deck with 1/2", #8 screws and nuts. Remember to epoxy saturate any endgrain that is created. Tension is then applied to the liftline by adjusting the knot on the liftline. The rudder blade is raised or lowered by pulling the rearmost knot.



Parts List

- 1 Rudder assembly with lift lines
- 2 aluminum foot control tracks
- 4 1/4" x 20 x 1/2" Coarse-tread ss truss-head screws for aluminum control track
- 1 Rudder blade chock
- 2 3/8" #8 pan head wood screws of rudder blade chock
- 2 Stainless steel (SS) rudder cables
- 2 5/8" 10-32 ss pan head screws to attach rudder cables to rudder delta
- 2 10-32 nuts to attach rudder cables to rudder delta
- 4 #10 washers to attach rudder cables to rudder delta
- 2 Cable swages to fasten rudder cables to footbraces
- 2 Poly rudder cable tubing
- 1 nylon pad eye to anchor lift line
- 2 1/2" 8-32 SS flat head screws and nuts for pad eye
- 1 ss split ring to lock rudder pivot pin