Installing Rudder

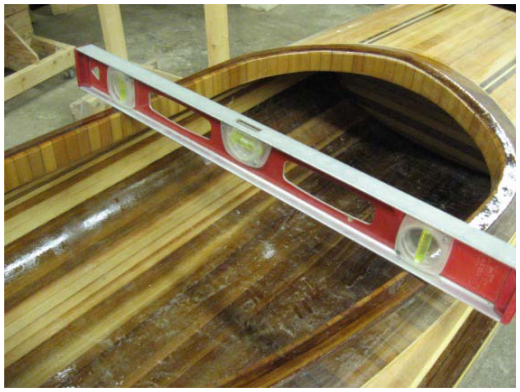
Photo #1


Photo #2


Photo #3

Before you begin

Adding a rudder is simple to most kayak designs. Things that need to be asked first are "does the kayak need a rudder and why?" or "What is the purpose of the rudder?" If it is to make the kayak go straight, a simple small skeg on the bottom of the boat at the stern may suffice. If you think the kayak needs a rudder to assist in turning, most kayaks turn better while they are in the leaned position, but maybe you are not comfortable with that idea.

Depending on the shape of the stern of your kayak, you may need to make some alterations. If the boat has a very square end with a vertical back, then you may be able to add the rudder without any modifications. If the kayak was built with internal and external stems, the rudder may be attached to that solid platform.

If the kayak has a sweeping and sloping keel line, you may need to cut off the end of the boat and add a solid block. This way the rudder has a solid platform on which it is attached. In all cases the rudder should be as close to the end of the boat as possible to increase the efficiency of the flow of water off the end of the boat and past the rudder. If the rudder is away from the end of the boat, water will create turbulence and cause the rudder to flutter.

The next thing to look at is what type of rudder will be attached. We supply and use a rudder made by Feathercraft Kayaks of Vancouver, B.C., Canada They have several types. The best for our wooden kayaks is the "end pour pin" model. They also sell the full cabling kit, although some modifications will need to be made as this kit is for their folding kayaks.

Cutting off end of boat

Start by leveling the boat's waterline to the floor. **(Photo #1)** Mark how much of the end of the boat needs to be cut off. Use a plumb line to mark a vertical line at this point on your boat. **(Photo #2)** Use a sharp razor pull saw to cut off the end of the boat. **(Photo #3)** It may be advisable to laminate several pieces of wood together with epoxy to build up the block that will be attached to the back of your boat. **(Photo #4)** If the grain runs the wrong

Photo #4

Photo #5

Photo #6

way in a single piece it may split. Mix up some epoxy and brush it on all mating surfaces and then thicken the rest with a high density epoxy filler and tape the block onto the end of your boat. **(Photo #5)** Once the epoxy has set, you can set about to shape the block to the kayak. **(Photo #6 - note in this photo, I have cut down so that the rudder sits lower to the deck)** The back end needs to be square vertical with a slight radius so that the rudder can turn without hitting the boat itself. Once you have the shape that you like, the block to boat joint should be re-enforced with several layers of fiberglass. Blend it all in and sand it smooth. **(Photo #7)**

Drilling for the rudder pin

Calculate how far from the end of your boat you need to drill so that the rudder has a good mounting base but still able to turn. Drill ever increasing sized holes until the rudder pin just slides in. You need to be sure you are drilling vertical. To test this, you can drill a small hole and then stick a long dowel in the hole and stand back to see if you are vertical. **(Photo #8)** The holes needs to be slightly bigger than the diameter of the rudder pin, since you need to seal the now bare wood with several coats of epoxy. Or you can drill a larger hole, fill it with epoxy and then drill the required size into the epoxy.

Once you have the rudder temporarily in place, it is time to calculate the cabling system.

Photo #7

Photo #8

Photo #9

Photo #10

Deck Parts

The cabling kit includes enough cable to run from the rudder to your foot pedals. You will have to calculate where on the back of your boat the cables will enter the boat. If they enter at a sharp angle, they may bind. If they enter at a long angle, things may get caught in them. On some boats it is more appropriate to have them enter on the side of the boat rather than the deck.

We make small blocks from solid wood and shape them. **(Photos #9-10)**. Pre drill the angled hole through the block now. The hole should be just big enough so that the cabling sleeve fits very tightly in the hole. Once they are attached to the boat, you can drill through your deck or hull using the pre-drilled block as a guide **(Photo #11)** and then seal up the bare wood with epoxy on a Q-tip.

If you purchased the rudder kit, it came with a small "V" shaped block that is used to hold the rudder in the center position when not in use. On most boats, you will have to build up some height for this block with some wood. Epoxy to the deck. **(Photo #12)** Or you can make the whole stay out of wood and discard the plastic one. **(Photo #13)** Seal everything with epoxy.

Photo #11

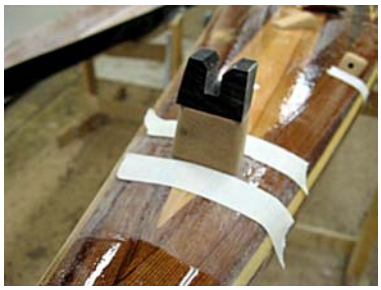

Photo #12

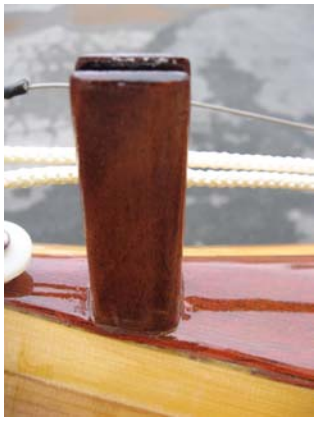

Photo #13

Photo #14

Foot Pedals and Cabling

Install your foot pedals so that you have enough room for your feet to slide. We like to have the center of the foot pedal in the proper location, so that someone shorter or taller can adjust and use the boat as well. Refer to the "How To" page on our web site for "Attaching Simple Foot Pedals". (We use Sea Dog foot pedals) You are now ready to attach the rudder and cabling. Place rudder pin in hole and mark where you need to drill into your block of wood or stem for the small screw and plastic washer that holds the rudder down.

Cut your cabling to length (give yourself extra length for now) Make a small loop in one end of each cable and crimp and then slide on a small piece of heat shrink over the crimp and shrink with a heat gun or torch. **(Photo #15)** Attach to rudder with screws provided. Slide your plastic sleeves from the outside through your block into the boat, through a hole drilled in your bulkheads and into the cockpit. Leave excess length inside cockpit for now. Trim flush with rear block and then slide the cabling from rudder through the sleeves. **(Photo #16 & 17)**

To hold the cabling sleeve inside the boat, make two or three small blocks of wood, seal with epoxy and glue them to the insides of your boat with epoxy placed around sheer line. One should be inside cockpit. Attach the cabling sleeve to these blocks of wood with small cabling stays. They can be purchased at most hardware stores in the wiring section. **(Photo #18)**

Adjusting Straps

So that the rudder cable length can be adjusted for different leg lengths, you will need to make some straps with buckles attached. **(Photo #19) See Cabling Diagram file** One end of the strap is attached to the cabling coming from the rudder; the other end is attached to a small piece of cabling attached to the rudder foot pedal. Calculate the length of the straps and cut cabling to length. It is

Photo #15

Photo #16

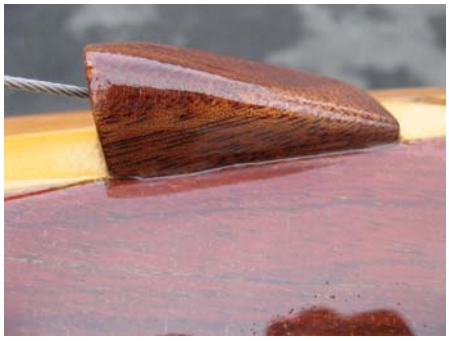

Photo #17

Photo #18

best to error on the side of caution at this point and cut too long. You can always shorten the cabling. Be sure to slide your heat shrink on cabling before crimping any loops to strapping or foot pedals.

Seal any bare wood with epoxy and/or marine sealant.

The line that raises and lowers the rudder also needs to be brought to the side of the cockpit. It should pass through some sort of loop so that it is not loose on your deck. This can be dangerous in rescue attempts. At the cockpit end, you can add a fairlead to hold the line or guide it. The end of the line has a short bungie which has a hook on it. The bungie is used to keep the line taught and ends at some sort of deck loop. **(Photo #20)**

Photo #19

Photo #20