

Rudder Pedals

Why adjustable pedals are needed on a kayak that is only paddled by one person can be answered by the question, do you always wear the same footwear? Personally I often go bare foot, wear thin or thick soled shoes at other times. If for some reason you want to relax and stretch your legs for a while, this is also easy to do by simply releasing the webbing camlock and pushing the pedals forward.

The rudder pedals described are full-foot support, infinite position adjustment and with auto-adjusting rudder-lines. For those just wanting foot-braces, a single “pedal” is all that needs to be fitted and the hinge can also be omitted.

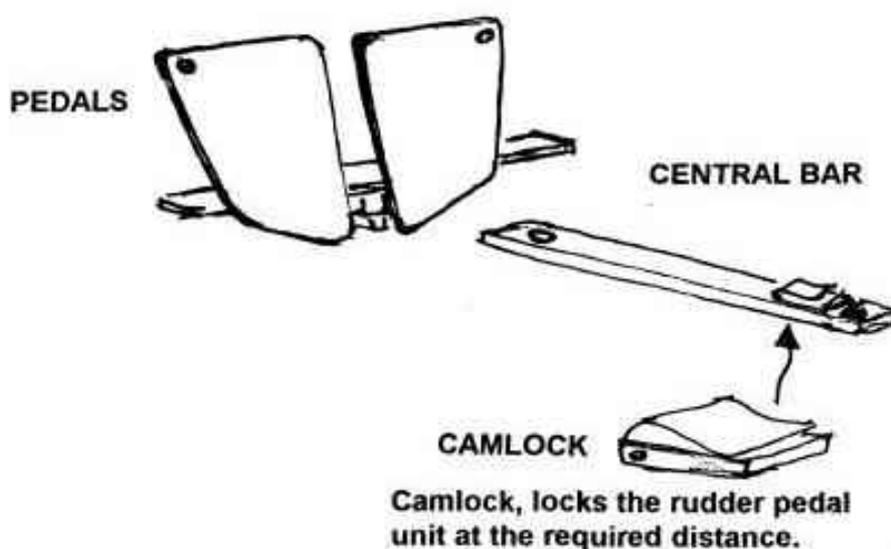


Fig 1. Pedals and bar they slide on.

The pedal unit slides on a central bar. There is a webbing strap from the camlock, under the cross platform and wrapped round over the top where it is fastened. The pedal unit is free to move on the bar, but its forward position is restrained by the webbing.

In the photo below the webbing is black. The green is a piece of tubing over the bar, fitted for comfort as the paddler's heels tend to rest against the bar. The screws that can be seen in the pedals hold the hinge blocks. It should be noted that the hinge position is about level with the ankle's pivot point. As the foot rotates about the ankle, the heel moves back. In this case the pedal follows the movement of the foot.

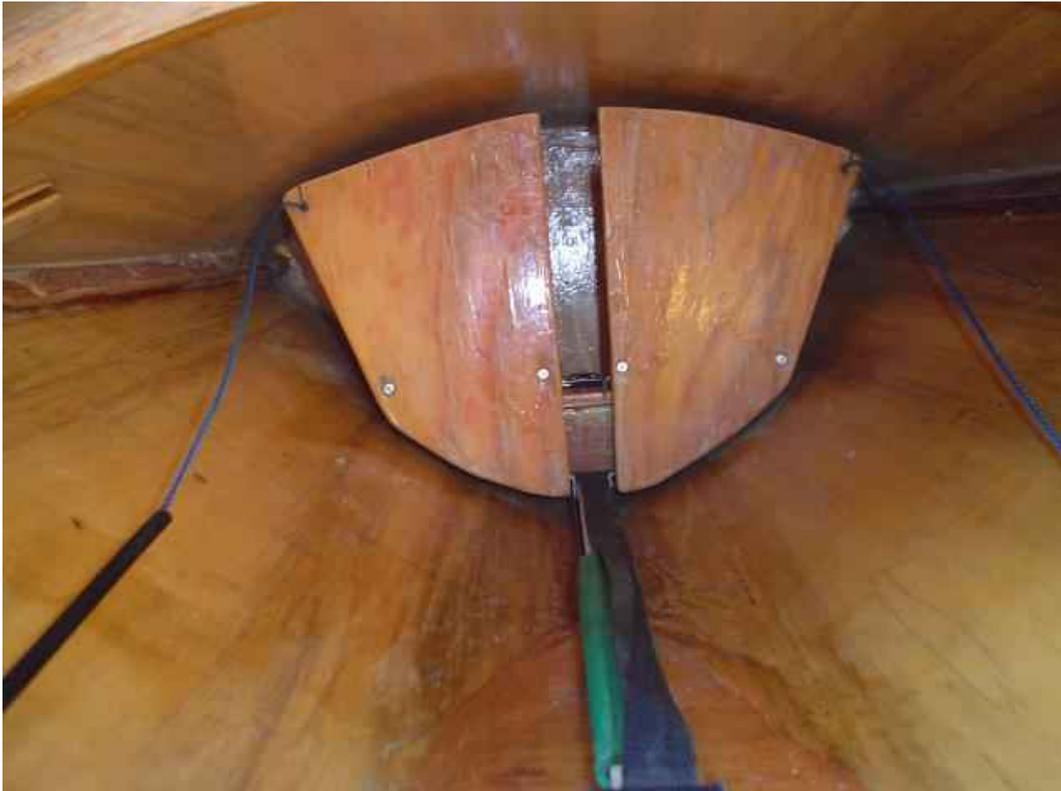


Fig 2. Pedal unit fitted into a kayak.



Fig 3. Left to right, pedal, platform with hinge pin, top-hat section to hold the platform on the bar under the platform and right pedal roughly in the position it will be mounted. Note the hinge pin is bent and fits into a hole in the platform. This is to stop it sliding out of the hinge blocks..



Fig 4. Another picture of the disassembled parts.

Though a metal top-hat section is shown for platform retention, wood could be used. All the wood materials were scrap. Lightening holes can be cut in the pedals and platform. If large holes are cut in the pedals, a thin cover of wood or plastic could be glued over them for comfort.

The next three pictures, Figs. 5, 6 & 7, show the pedal unit sitting on a bit of rough particle board – **ignore the board**.



Fig 5. Assembled looking at the front of the pedal unit. This shows the hinges and retaining strap. Ignore the second holes in the hinge blocks, only one 4 mm bolt is necessary.



Fig 6. This shows where the rudder line goes to, from where it exits the black tubing, round the hinge pin, up the front of the pedal and through the hole (slot) at the top. From there it goes aft to the rudder – bit of line shown dangling in this picture.



Fig 7. The rudder line can be fastened to the bar or taken back to another camlock to allow pedal angle adjustment. This unit had a front bolt to hold the bar.



Fig 8. Instead of a bolt as used in the unit above, bars now go into a wooden support mounted against the bulkhead. Seen here is the wooden fitting, bar and top-hat section.



Fig. 9 Complete unit from the paddlers view. Note second camlock for the rudder-lines which run under the bar to the front end of the bar then back through the platform tubes, round the hinge pin and out of the hole at the top of the pedals. The lines from the pedals are attached to the lines to the rudder by clips.

The cross platform shown fits a hardchine hull but if fitted to a flatter hull, the ends may need support blocks to stop it rocking. The blocks can be closed cell foam to allow for the change of shape of the hull as the platform moves.

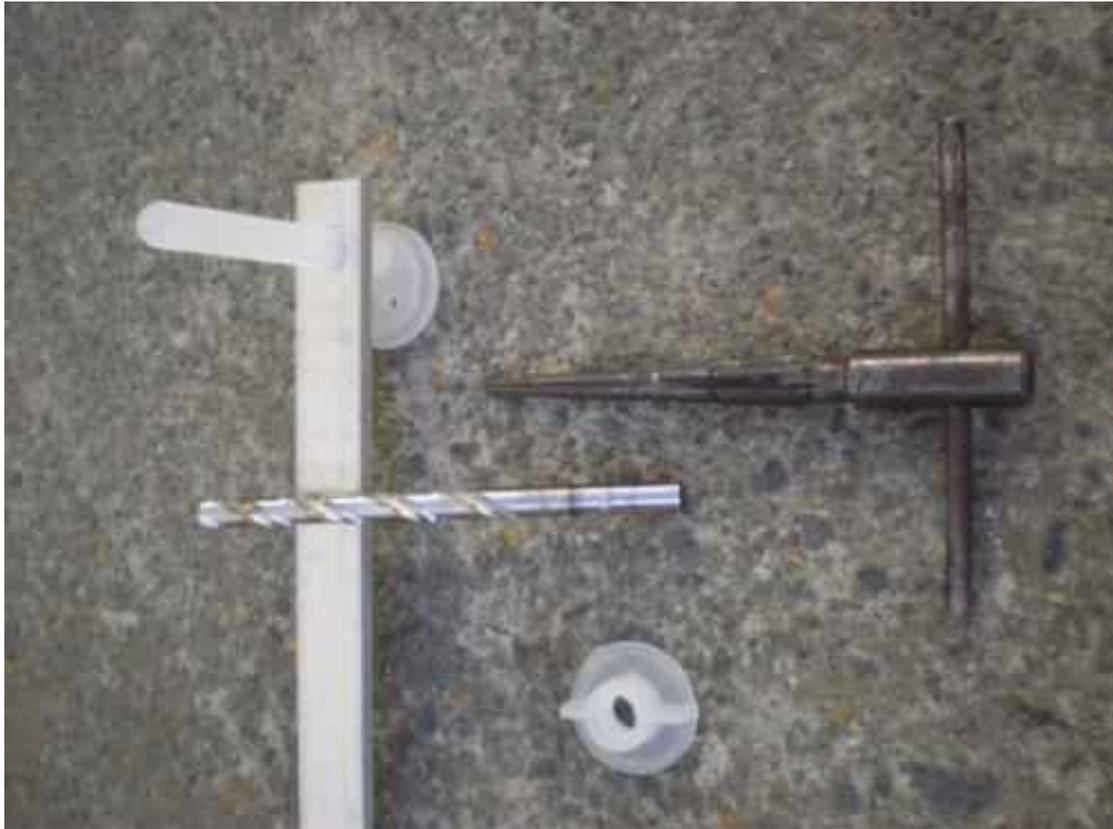


Fig. 10 Nylon bolt and nut. The bolt is epoxied to the hull. If your largest drill is too small a reamer can be used to enlarge it. Cut the excess length of plastic bolt off after fitting. The bolt is a toilet seat retaining bolt.

The nylon bolt is epoxied to the hull of a wooden or glass kayak. For a plastic hull, the bar could be attached to the front of the seat or replaced with an aluminium or plastic tube or a tube with a bar on top. The stress of the paddler pushing against the pedals would be taken by the seat and its attachment method. The forward end of the bar or tube could go into a block of wood or even hard foam plastic, glued to the fore bulkhead.

Rudder-lines

The secret of the auto-adjusting of the rudder-lines is the way they are strung. As shown in Fig. 5 & 6, the line goes round the hinge pin. **This is most important.** It is this geometry that allows the line to move the rudder but not move in the hole at the top of the pedal as the pedal is depressed.

The black tubing that the line goes through (just below the hinge pin) is just there to align it with the attachment point on the support bar, through the pedal platform mounting block. If the lines were to be taken straight from the hinge pin to the bulkhead, the tubing would not need to be used.

*Sandy Ferguson
SeaLand Publications*