

## Ch. 11 Outer stems and Keel

When all 6 planks are glued to each side of the boat, any excess planking projecting past the inner stem can be sawed and planed flush with the inner stem. If you have been paying attention to how much wood you took off the inner stem, the final surface should be 2 inches wide, or however wide you finished the outer stem.



The garboard (lowest) planks should also be planed to a 2 inch flat, for the keel to glue to.

The outer stem should be a good fit to the inner stem if you laminated it on top of the inner stem, and thickened to 2 inches wide. It is normal to thin the forward face of the outer stem to make the boat more streamlined, and the plans say 1 1/4 inches wide. Some builders leave the top of the stem full thickness to make a more robust section for hitting piers with.

This thinning is easier before the stem is glued to the boat.



After glueing the bottom end of the outer stem is cut and planed flat in line with the keel line, so that the keel can lie as one straight line. This is also tapered a bit so the bottom face is also 1 1/4 inches wide, again done more easily off the boat.



The outer stem's taper in width can be seen in this picture.



Since clamps can't be used here, temporary screws are needed to hold the keel on while the glue sets, removed afterwards, and the holes filled.

Final fairing takes the ends of the keel to a fair curve with the stems. It is customary to protect the keel with a keelstrap which traditionally was galvanised steel. We have found polypropylene or nylon 10mm thick to be a better bet as it slides more easily, can be faired by plane to the right width, and can be counterbored to allow the heads of the screws to be buried so they don't get rubbed off. It also does not corrode and is lighter than the metal. We bought a sheet and ripped strips off it with a table saw. The strap goes about a foot up each stem to protect the ends of the boat. Obviously the

keelstrap only goes on after the boat is painted, so all surfaces are protected.