

## Ch. 9 Scarph Joints

Planks are glued together from three sections, aft, mid and forward. These sections should be marked with the plank number and AFT, MID or FWD before being removed from the kit sheets. It also helps to draw an arrow pointing towards the bow of the boat because the mid section is often similar at both ends. When marking the plywood, it is best to use Pencil. The marks made with marker pens can be difficult to obliterate when painting, especially with light colours.

The sections are joined with a scarph joint, which is a long tapering sloping surface. The scarph joints are 60mm wide. Traditional practice is that the scarphs have a ratio of 8:1, but this length will give a flat spot on the plank on an epoxy glued joint. A 60mm (6.5:1) scarph will curve the same as the rest of the plank.

Lay the plank set out with the ends overlapping and clearly mark the side that needs to be scarphed.

In the old days scarphs were rivetted and because the thin edges were weak, it was always done to have them facing aft on the outer face so that hitting anything when travelling forwards tended to close the scarph and not rip it open. Since these scarphs are going to be glued with epoxy and consequently at least as strong as the ply, it does not matter which way they face.



The thin edge is very fragile if you cut the scarph with a plane, and needs to be supported carefully. A simple jig can be made which has ends set to the 6.5:1 slope so that a router with an extended base can cut the scarph. It would be too much for the cutter to cut the scarph on one pass so the plank is advanced in 3 or 4 stages, cutting 2 or 3 mm each time. The last pass has the end of the plank lined up with the end of the jig.



The stripes of the layers of veneer in the ply are a guide to a flat scarph. You can assemble the scarphs as you glue the plank to the boat, and some builders have done this. It makes each bit easier to handle but in

my opinion this method has two problems. The first is that a flat scarph which blends in a fair curve with the rest of the plank, is harder to achieve,

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You can assemble the scarphs as you glue the plank to the boat, and some builders have done this. It makes each bit easier to handle but in my opinion this method has two problems. The first is that a flat scarph which blends in a fair curve with the rest of the plank, is harder to achieve,

and the second is that there is not guarantee that your port plank is the same shape as your starboard one.



To assemble the scarph it is good to practice the layout without glue first, so you have everything to hand when the glue is setting and the clock is ticking. The plank is assembled in its three sections on a flat surface with polythene or parcel tape under it to stop it sticking to the bench. Thin panel pins pushed into the lining-up holes already drilled in the plank have string stretched between them to make sure the plank is correctly in line. If you glue up the other plank which makes a pair, lying on top of the first, you can be sure both planks are the same shape. Just make sure there is enough polythene or parcel tape between them to keep them apart. On the top of the plank scarphs, a scrap piece of ply at least 120mm wide will spread the pressure of the clamps evenly. It is not necessary to apply a lot of pressure, just enough to close the joint.

The surface of the scarph joints need to be wetted out with neat epoxy (resin and hardener) and then left for a half hour or so for it to start setting before applying a thin layer of epoxy slightly thickened with microfibres. It should have the consistency of runny ketchup.

When the parts are joined, a little epoxy being squeezed out of the joint is a good thing. If there is no excess, it probably indicates that the joint is

glue starved and should be re-opened and some epoxy added.



When the joints set, the excess of squeezed out glue can be planed or sanded off, taking care not to remove wood. Be careful in handling the cured excess as this can be razor sharp.

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