



7 STAGES OF BUILDING A PILOT CUTTER

Stage 4 Constructing the deck

With carlins, coamings, and custom-made cast bronze fittings. By Nigel Sharp

The first stage of the deck construction was to fit the oak deck beams. While the camber of the deck was nothing like as pronounced as the curve of the hull frames, it was still advantageous to be able to select the timber for each beam so that the grain followed the shape of the camber as closely as possible.

Once the beams were cut to shape, they were fastened to the beam shelf with 1/2in diameter copper rivets. Substantial oak lodging knees were then fitted in the angles between most of the deck beams and the top plank, with spacers filling the space above the beam shelf.

Carlins

Next to be fitted were the fore-and-aft carlins between the beams wherever openings in the deck such as hatches and the cockpit were to be created. The fairness of the whole deck structure was then checked with long battens, and hand planes were used to make small adjustments. Upstands were fitted onto the inboard faces of the beams and carlins, wherever deck hatches would later be fitted.



Two views of the ply sub-deck. Would the old boatbuilders have used ply if they could? Probably – it helps stiffen and waterproof the boat

Sub-deck

Cockwells believes in fitting a plywood sub-deck in its pilot cutters and this is a major difference to the way in which the 1904 *Peggy* and other boats of her era were built. It will be an enormous advantage – partly in the way that it makes the whole boat considerably stiffer and stronger, and partly because it will considerably reduce the risk of water ingress. Both of these factors will help to prolong the boat's life greatly. The boatbuilders of a century ago

didn't have plywood, but it seems highly likely that they would have used it if it had been available to them.

For additional strength, the plywood was fitted in two layers. The first layer (15mm) was initially dry-fitted to a line within 7in (180mm) of the outside of the boat, to allow for later fitting of the covering board.

The sheets were then removed, and a series of fore-and-aft v-grooves were routed into the underside face to match the seams in the teak planking which would later be laid. This exact replication involves considerable thought and planning, and perhaps for that reason is unusual. In fact it is not uncommon to see straight fore-and-aft v-grooves on the underside of a deck, while the planking above is actually swept parallel to the covering board.

The undersides of the sheets were then painted, although not in the areas that would be glued to the top faces of the deck beams and carlins. These had been carefully marked during the initial dry-fitting of the ply and then masked up to ensure thorough adhesion of the epoxy. When this first layer had been finally fitted, the second layer was

Deckbeams, thwartships, and carlins, fore-and-aft around cut-out areas



Above: The teak deck, with mast aperture, skylight frame, hatch, coamings and bulwarks



Left: Fitting the covering board

added - with the joins between the ply sheets carefully avoiding the joins in the first layer which lined up with beams and carlins - and also glued with epoxy.

The whole of the plywood deck, with particular attention to the end-grain edges, was then sealed with a thin layer of fibreglass roving and epoxy resin.

Covering boards

Next, the iroko covering board - 38mm (1½in) thick to match the combined thickness of the ply and the laid teak deck - was fitted around the outside of the sub-deck. Before it was finally fixed, the square holes and seams for the bulwark stanchions were cut into it.

Teak deck

The teak decking was fitted in straight fore-and-aft planks, as was the tradition on the pilot cutters, and a rebate was machined in one edge of each plank for the seams. The easiest way to hold the planks in place while the epoxy glue cured would have been to screw them to the sub-deck and then glue dowels over the heads of the

screws. However, no fastenings were used at all - weights were used instead - for two reasons. All laid decks experience wear over time, and the effective life of a deck which is screwed down is considerably reduced as the dowels will disappear and expose the screw heads long before there is a problem with the decking itself. Also, having hundreds of screws penetrating the glass/epoxy layer and ply sub-deck could just be inviting future problems in terms of water ingress.



The cockpit, with its coamings

Once all the teak was laid, the seams were neatly raked out to remove any epoxy which had squeezed out and to ensure they were of a uniform 5mm width. They were then primed and caulked with Sikaflex 290DC.

Hatches and skylights

While all this work was being carried out, the deck hatches were under construction on the bench. These consisted of a skylight over the owner's cabin aft, the companionway hatch combined with the saloon skylight, and the forehatch. They were built in iroko, to traditional construction and styling with dovetail joints and brass round bar to protect the glass in the skylights. As soon as the decking was laid, the lower edges of these three hatches were spiled and trimmed to match the camber and sheer, and they were then fixed around the previously-fitted upstands.

Cockpit coamings

After discussions regarding various ways of building the cockpit, Lance, the owner, chose to have the cockpit coaming enclosing a large area, primarily to give a more secure



Far left: Preparing the teak deck



Left: Frame for deck prism



Left: Aft corner of bulwark

feeling when moving between the cockpit well and the companionway at sea. The coamings were made from solid iroko 3in (75mm) thick at their base with angled inboard faces for leaning comfort. They were fitted to the aft corners of the companionway hatch at their forward ends.

Bulwark stanchions

Meanwhile, other members of the team were busy bolting the bulwark stanchions to the hull planking, and then fitting the bulwark planking and the iroko capping rail.

Ten coats of Coelan Boat Coating (a long-lasting polyurethane based liquid polymer which Lance preferred to conventional varnish) were then applied to all the external iroko.

Custom-made deck fittings

A few of the deck fittings were available from suppliers such as Davey and Co, Classic Marine and Toplicht. However, many of them had to be custom-made - some in fabricated bronze or stainless steel and some in cast bronze.

Cockwells has plenty of experience in the processes necessary to achieve the latter. First of all, drawings were produced so that timber patterns could be made - replicating the fittings but slightly larger to allow for the shrinkage that occurs during the casting process. The patterns were then sent to Bristol Foundry which created sand moulds, into which the molten bronze was poured. When they had cooled, the rough castings were

returned to Falmouth, where they were polished to produce a smooth, shiny surface, and machined as necessary. In some cases this machining process just consisted of drilling and countersinking for the fastenings. In other cases it was more involved - the boom crutch, for

instance, consisted of a U-shaped top fitting which had to be machined to match the bronze tube which supported it, which in turn had to fit into three separate bases, each of which had to have flanges at different angles to match the deck camber where they were positioned.

Some fittings, such as the chainplates for instance, needed to be of stainless steel and Lance and Cockwells agreed that these would not look the part if they were bright polished. A dull mill finish however would replicate the traditional look of galvanising without the disadvantage of rust steaks appearing should the coating become damaged, so this was decided upon.

The detail of some of the deck fittings will be discussed along with the rig in Part 6. 🌐

In the meantime, next month, it will be time to look at the interior and the systems.

Caulking the teak deck with Sikaflex



The companionway hatch and saloon skylight being made up 'on the bench'

