

# How to remodel a Swan 44 to improve performance

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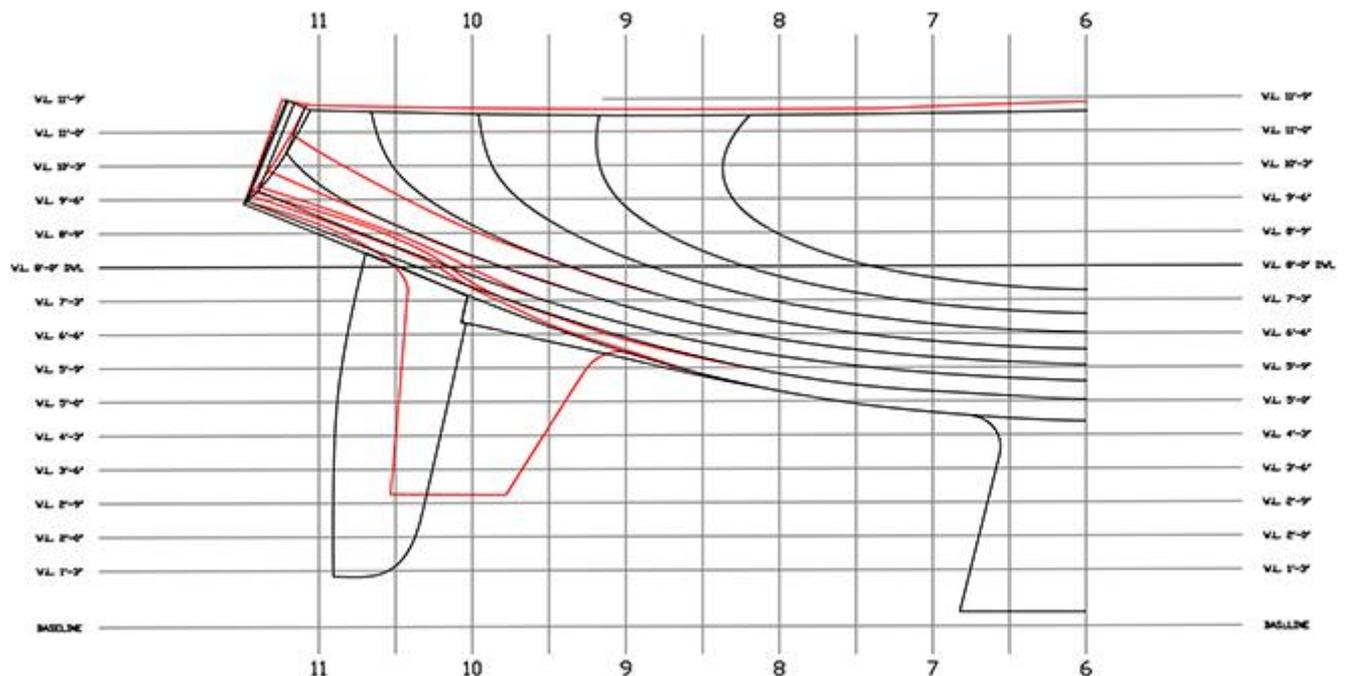
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**A Swan 44 owner spent £150,000 changing the boat's hull and rudder shape to make her handle better**

The problem was the design of the aft sections of *Rosy Pelican*'s hull around the rudder and skeg.

She was launched in 1972 and the International Offshore Rule (IOR) then in force encouraged designers to draw race boats whose beams tapered towards the waterline, with narrow sterns and long overhangs fore and aft.



The scale of the job is clear from these line drawings, showing the old hull in red and new in black

The Swan 44's narrow counter stern, small rudder and skeg created a boat that was fast upwind and skittish downwind, especially in quartering seas, and liable to broaching. Owner Nick Millard says: "Eighty per cent of the handling problems were due to the size of the rudder."



Rosy Pelican before the works

"The original design was drawn for the IOR rule, which meant not a lot of buoyancy aft. We wanted to lower the hull angle for better hydrodynamics and a cleaner exit," explained Brendan Abbott, who managed the project at Sparkman & Stephens.

Nick specified instead a new, deeper spade rudder protected by a short skeg.



Shipwrights used templates from the line plan to build up and fair the hull

At Hamble Yacht Services Refit and Repair the aft half of the hull was sandblasted back to the fibreglass. The new design called for it to be built up along half its length. From just a dab of fairing compound at the keel, by the time they got onto the counter stern, it was necessary to use 5in of foam to bulk out the hull, covered with layers of glass and epoxy for strength.

The surface area of the rudder has doubled, but the loss of the skeg means the overall wetted surface hasn't increased. Under the original S&S design, the skeg served little purpose, as it didn't support the rudder. Nonetheless, forces in the new spade rudder will be significantly higher, so the bearings and the rudder stock had to be beefed up as well.



And after the works, with a new paint job on the hull, too, plus new spars  
The result is very elegant, with its deep semi-balanced rudder blade. More importantly, races during the summer have shown that she is far more stable than she was. “If you look at the new transom, she’s very similar to the Morris Yachts with a straight run-in and broader on the transom,” says Nick. “She’s got all the windward performance you get on a narrow, deep boat, and is stable – safe downwind.”



Races through the summer, including in the Royal Yacht Squadron's Bicentenary Regatta, have seen the boat before better