

THE EVEN KEEL

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changing keels **CHANGING GEARS**
by Steve Killing

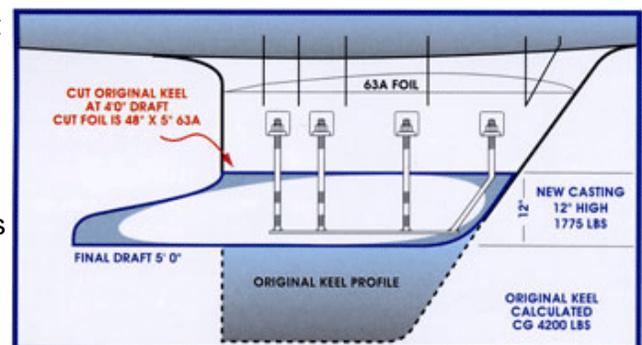
Racing boats and their owners tend to age rather gracefully. Often, it's a change in philosophy, not a decrease in performance, which starts a sailor thinking about new ways to use his yacht. From my perspective as a designer, I often talk to owners who decide that although they have enjoyed their dedicated years of racing, they have had enough of rounding up a crew for next Saturday's race and sitting on a cold wet windward rail. It is time to slow down and enjoy some cruising. The one thing that deters the transition from racing to a happy life cruising is that awkward lead keel that stretches seven and a half feet below the waterline.

Converting a deep draft keel to shoal draft is quite a do-able exercise. The two factors to keep in mind are the resultant area of the keel and its new centre of gravity. In a typical modification the lower 30 inches of the keel is removed and a new 12 inch deep bulb is cast with integral bolts to attach to the bottom of this stub. The final draft reduction is 18 inches. But the centre of gravity of that new bulb is significantly higher than the lead piece removed from the keel, so something must be done to maintain the sailing stability of the boat. There may even be a desire to increase the overall stability.

As an example the 34 foot racing keel illustrated here had an extra 400 pounds cast in the bulb resulting in an increase of 8 percent in stability combined with a reduction in draft of 17 inches. In this case the extra weight more than compensated for the raised centre of gravity. Before committing to a keel modification, think about the performance of your boat and its characteristics - would you like a more stable platform for cruising or is the boat too stable now? Would you rather have a lighter boat? It can all be done by adjusting the weight and location of the bulb.

The loss in effective lifting area of the keel can seldom be overcome during a draft reduction. And that means leeway will increase when sailing upwind - perhaps one or two degrees. That's not the end of the world, but you would certainly notice it if you were still racing. However, there is a gain. Along with the ability to sneak into those shallow anchorages, the speed downwind will often increase for there is less frictional drag with the shallower keel.

The lesson here is not to be intimidated by changing what seems like (and is) a major component of your boat. Although I would not recommend designing the change yourself unless you happen to be a yacht designer, each boat can be altered with very predictable results. I work with Mars Metal to modify many keels each year and the owners always end up smiling. Consider a keel change as a sensible way, not just to extend the life of your boat, but to transform it into a new yacht for a new phase of your life.



Steve Killing is a yacht designer living in Midland, Ontario who, when not drawing up new keels for us, is busy designing sailboats, classic mahogany runabouts, canoes and kayaks. He has recently completed the book "Yacht Design."

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