A tapered alloy windsurfer mast was used as a mandrel to build a carbon-fiber bowsprit for on-the-water furler testing. Forespar's aluminum sprit (right) is among several sprit options available off the shelf.

Test Offers a Chance to Preview Latest Bowsprit Options

Big bowsprits, massive sail area increases, and tricky sailing may go hand-in-hand with high-end race boats, but it's easy to overdo it. Many retrofits aimed at turning a non-sprit boat into a code-zero-wielding speedster also serve up new loads with an ability to cause things to break.

Take, for example, the sprit itself. It is usually an alloy or carbon-fiber tube section that handles compression loads better than bending moments. Unfortunately, many crews do not want to deal with the issue of a bobstay, so a significant bending load is placed on the tube where it contacts the mid-length bearing point. Regardless of whether it is supported in the hull or clamped to the deck, the surrounding structure as well as the sprit itself need to be able to handle all the resulting loads, and these loads can increase drastically as the relative wind angle decreases.

Although *Practical Sailor* Technical Editor Ralph Naranjo built a carbon-fiber sprit for our testing of the light-air sail furlers, testers did take a preliminary look at some aftermarket bowsprits. We will be reporting in more detail on these units in a future issue. The Forespar unit we tested, the Banana Sprit, combats bending loads by offering a short, 18-inch projection, and includes a built-in, load-abating flange on the underside of the alloy tube to reduce the effect of the bending moment. Selden has engineered several alloy tube options with both larger diameter and a wall shape to better handle bending loads. Other gear, like Forte's carbon-fiber sprits, place more plies of reinforcement in high-load areas, creating a light, stiff structure made to handle the bending moment. Carbon tubes are an elegant technology, but their cost can be prohibitive.

Early sprit manufacturers and sailmakers put too much emphasis on wind velocity and load calculations derived from a specific sail area and wind speed. Some failed to account for wave-induced loading associated with pitch, roll, yaw, and heave—motions that can momentarily double the force acting on the sprit. Add to this the effect of rooting the bow into a wave, or a wave breaking in the foot of the sail, and the horror stories about code zero misadventures grow exponentially.

As with a conventional spinnaker, there's a kid-with-the-hot-rod factor to contend with, and some manufacturers are adding "use responsibly" advice and wind range and angle limitations to their operator manuals.