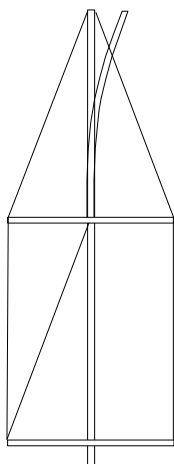


Basic Rig Tuning (Mast Adjustment)

Say the words “rig tuning” and most sailors assume you’re entering one of the most complicated areas of performance control. This is not the case. For any sailor—except those at the very top levels—rig tuning should be a fairly simple exercise. For the cruising sailor the goal is complete rig stability even in the wildest conditions.

In rig tuning, the racing sailor is seeking a mast that doesn’t bend sideways but bends fore and aft in a controlled manner. Later in the text we will go into one or two adjustments that the racing sailor might make for different conditions, but let’s start with the basics.

Figure 10a



Use upper shrouds to adjust top of mast.

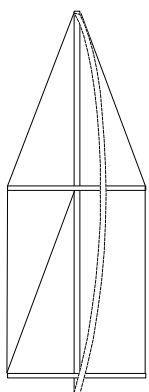
First, check that the mast is not leaning to one side. To do this, tighten all the shrouds by hand until they are just firm. Then hoist a tape measure (or use the main halyard itself) to measure down from the mast head (top) to the chain plates (where shrouds attach to deck). Compare one side to the other. If equal, this will tell you the top is in the middle of the boat. If not, adjust the relevant shroud to pull the top over.

The mast must, of course, be in the middle of the boat at the deck level. On most cruising boats the base position is permanently fixed, but double check just in case. Next, tighten both cap (upper) shrouds a few more turns, then move onto the lower shrouds. We will assume at this point that you have only one set of spreaders. Tighten the lower shrouds until they are just past firm.

At this point you are ready to go sailing. Sheet on the sails upwind in moderate air. Sight up the front face of the mast and look at what is happening to the top. If it appears to be standing up straight, then the cap (upper) shrouds are right. If it is leaning to leeward, the cap shrouds need to be tightened up. Tighten the leeward shroud first, then tack over to “unload” the rigging, and repeat the procedure on the other shroud. (figure 10a)

When the top looks right, move to the back face of the mast again and sight up. If the middle is sagging to leeward, the lower shroud needs to be wound up. If the middle section is being pulled to windward of the top, then the lower shroud needs to be eased off. (figure 10b)

Figure 10b



Use lower shrouds to adjust middle of mast.

In some configurations, two sets of spreaders are put on by the designer or builder to control the mast more accurately. The rig tuning procedures then get more complicated, but in principle the cap shrouds maintain tip control and the lower shrouds control overall side bend. All other shrouds are used to maintain a straight mast in local areas.

Some Race Adjustments

A racing sailor may find that his competitors are getting an edge by adjusting their rigging for different wind conditions. This particularly applies to fractional rigs which use only one set of swept back spreaders. In such a case, the standard procedure is to tighten the upper shrouds and loosen the lower shrouds for light or moderate wind, and reverse the procedure for heavy winds. A simpler approach is to get a shroud tension for the uppers which you are happy with, and then adjust only the lowers. Ease off some turns in light winds, add on a few in heavy winds.

Potential Problems

The main problem to watch for is excessive side bend or reverse bend fore and aft. We have already discussed side bend and how to deal with it. Once the rigging is set, it is necessary only to watch it carefully in heavy winds. Reverse bend is sometimes found in cruising boats where two sets of lower shrouds are used. When tuning is important to ensure that the forward shroud is a little tighter than the aft lower shroud. This will ensure that any bend in the mast means the middle is going forwards to bow. It is a perfectly safe procedure. Note that any bend where the middle of the mast moves towards the stern is dangerous.