

Tuning The Rig

by Bill Shaw

The following generally applies to cruising boats where once the rig is set to maintain a straight mast, no further adjustment is necessary.

Preparation

Make sure:

- weights, sails, anchors, rodes, life rafts or dingys are in their normal place while sailing;
- all halyards are set up tight;
- fuel & water is either full or nearly empty;
- the main boom is secured so that it cannot move. Locate it on the boat's center line;
- bilges are pumped out.

In addition, the mainsail and jib can be in a sail bag located F&A where their cg is located.

Tuning the Rig

The objective is to adjust rigging so that the mast is straight under *most* conditions. Shrouds and stays need not be tensioned beyond this amount.

Step 1. Choose a day when wind is minimum and waves are small. Slack off the main halyard so that the mainsail shackle just clears the deck or cabin top. Measure the distance from the shackle to the after side of the mast and compare this with the number noted on the sail plan (most often found at the top of the mast on the drawing). If this dimension is missing, then a figure of 6" to 12" may be used. If the boat has a strong weather helm, the mast needs to be straightened up. If it has a lee helm, more rake is necessary. You should have a weather helm (not too much), at all times except in gusting conditions. Avoid too much weather helm—it slows the boat and when beating to windward, produces too much leeway. Under moderate conditions, the rudder angle should be about 3 degrees. As you see, this is an exercise in trial and error. Adding to the problem, adjustments of rake may make the headstay too tight or too slack. If either occurs, you need to match turn for turn. For example, if you slack the backstay 3 turns, then tighten the headstay 3 turns, etc. If possible, get a sailmaker to assist.

Step 2. Check that the mast is vertical. Again, using the main halyard as a measuring device, bring the main halyard shackle down to the deck at the upper shroud. Have someone cleat off the main halyard when the halyard is taut and the shackle is just touching the deck. Now toss the halyard over to the other side and without touching the cleated halyard, measure the distance from the bottom of the shackle to the deck. If the shackle touches the deck with ease, you will have to tighten the turnbuckle on the opposite side. You may have to do this several times until you get the same amount of tension on each side.

Step 3. Now it's time to go to sea and adjust the shrouds so that the mast will remain straight on both tacks under moderate conditions (8-12 kn. of wind). As you sight up the aft side of the mast, it should appear straight on either tack. If it falls off to leeward at the top of the mast, tighten the windward upper shroud. If the top hooks to windward then slack the windward upper

shroud. You may have to do this several times. Remember not to add *more* tension. If you tighten one shroud, then slack the other. Too much tension will cause the mast to bend.

Once you have a straight mast near the top, you may find it necessary to adjust the lower shrouds in a similar manner. When at rest the aft lowers should be quite slack and the forward lowers should be firm (but not overly so).

Step 4. The headstay sag should be done with your sailmaker on board. Designs which are raced, like the IOM or P30, really need an adjustable backstay with limits in order to avoid too much tension.