

## Tuning a New Star Mast



Over the last few years I have had the chance to rig quite a few new masts. A few times it has been for a new boat, a few times because of a new model mast, but also a few to many times, replacing a broken mast. Fortunately today the new masts come pretty ready to go. The mast manufactures also provide great instructions. This is my checklist I go through when installing a new mast.

If the mast isn't already cut to length that is the first step. You need to know the point B measurement for your boat. Point B controls the height of the mast. This point on the mast must be at the height of the shear. The measurement is from the bearing point of the bottom of the mast to the shearline. Your point B may be on your measurement certificate but if it isn't the log describes how to measure it. Use this measurement by measuring down from the punch mark on the mast and make a mark on the mast, which will be the bearing point of the mast on the step. Subtract for the butt plug length and cut off the extra mast. Be very careful to make sure an accurate cut is made by wrapping a piece of paper around the mast. After installing the plug check to make sure it's square in all directions.

All wires are already finished except the backstays. You will need to cut the lower and upper to length for your particular backstay system. I like to make them as long as possible to make it easy to reach and to reduce the windage. I have found that with my system I make the lower 9" longer than the band at the boom and the upper 10 shorter than the band.

If you have the intermediates at the spreader tips they now need to be adjusted before attaching them to the spreaders. Pull the upper shroud down along the front of the mast and mark the inside bearing point on the mast. Measure down from this point  $2 \frac{15}{16}$ " (75mm) and make another mark. Now pull the intermediates down and adjust so that the inside bearing point is in line with this mark. Make sure you tighten the locking nut.

After installing the spreaders tie some twine or shockcord tightly between the tips (right around the shrouds) and measure to the back of the mast checking the sweep of the spreaders. This normally comes at 5" now and I think this works fine. At this point I also make sure that the line from tip to tip is perpendicular to the side of the mast butt plug. This can be checked by using a level or you can line up a batten on the butt plug and check to see if it's in line with the twine between the spreader tips. I found with my last few masts that these measurements have been perfect from the factory.

Put a jib trim mark on the spreaders 18" out from the side of the mast. I use a felt tip pen or tape to put a 1" band around the spreader. Just put the mark on the bottom of the spreader if you only want to see it from your boat and if you want it seen from off the boat also put it around the top. I find that in most conditions the jib leech will line up with this mark.



Before standing up the mast check the screws at the jib box, wipe the wires off and tie on the shockcord to keep the backstays from catching the spreader tips. After the mast goes in lay it forward and hook up the headstay and slide on the lower and upper shrouds. I have found that if the uppers are tight enough that they just barely slide on with the mast forward this is about the right tension. If the uppers are too tight then the mast will have too much pre-bend in light air and the spreaders will pop forward too quickly when sailing on a broad reach. If they are too loose then the whole rig will not be upright in the boat. The lowers should be fairly loose and then tuned on the water. Now hook up and set the backstays. Put on enough forward lever to pop the mast in a positive bend and check that the lower backstays are loose and that the upper backstays have the same amount of tension. Then by using a tape measure hooked on the main halyard measure down to the chine to see that the mast is centered and also check the mast at the partner. I think it's best to have at least 1/8" of space on both sides of the mast.

The tuning of the lowers will be done on the water as well as the intermediates if they come down to the deck. With intermediates at the spreader tips if you feel that the intermediates need adjusting then do that when you return to the shore. It also is a good idea to check them again, as they tend to set in after the first sail anyway.

Mark Reynolds