



## Cal 20 Tuning Guide

### Mast Preparation

Measure your mast and place the class mast bands at the highest allowable points. The top edge of the lower mast band is 30 inches above the deck and the bottom edge of the upper mast band is 23 feet from the top edge of the lower mast band. Place the mast step on the centerline of the boat and as far forward as per class rules, 7 feet 3 1/2 inches from the stem fitting. Set the length of the spreaders at 30 inches, measured from the side of the mast to the center of the shroud and spreader intersection.

### Tuning the Rig

Once you have stepped the mast, pull on enough backstay to straighten the forestay. The mast should be straight fore and aft and the forestay just taught. Hoist a tape measure on the main halyard until the end of the tape is inline with the bottom edge of the upper mast band. To do this accurately, attach a 5/16 inch mainsail slug slide to the tape measure and sliding it in the mainsail luff groove up the mast. Measure the rake from the top edge of the transom on the centerline of the boat. This measurement should be 28 feet.

After setting the rake, measure to a common point on both deck rails to center the mast tip in the boat. To center the mast tip, adjust the upper shrouds so the tape measure distance is the same on both sides of the boat. To set the upper shroud tensions, grab the shroud with your hand 5 feet above the chain plates. Push the shroud to the mast and measure this distance from the shroud to the side of the mast. Then pull the shroud outboard away from the mast and measure this distance the same way. The difference of the shroud deflection should be 14 inches for an all-purpose setting and 18 inches in heavy air.

The lower shrouds restrict how far the mast can rake forward when sailing downwind. They also control the amount of leeward mid-mast sag when sailing upwind. These lower shrouds are never adjusted after they are properly set. With the upper shrouds set at the 14 inches of deflection, sight up the back of the mast on the windward side while sailing upwind in underpowered conditions (5-15 knots). The middle of the mast should sag to leeward 1-2 inches. Use the same method in heavy air with the 18 inches of upper shroud deflection and set the lower shrouds so there is no leeward mast sag.

The jumper shrouds control the fore and aft bend in the top of the mast. Set the jumper tension so the top of the mast is straight fore and aft. Another option is to set the jumpers so the mast tip can bend 2 1/2 - 3 inches with 300 lbs. of backstay tension. The backstay needs a minimum of an 8:1 purchase and enough throw to allow the masthead to swing through a 24-30 inch arc from upwind to downwind. Tie a stopper knot in the backstay control line to prevent the mast from inverting and breaking when sailing downwind in heavy air.