

CAL 20 SET UP GUIDE

Introduction

This guide is a collection of benchmarks that have worked for me. They are by no means facts etched in stone. Feel free to experiment and let me know of your results. Good luck, Kurt Mayol. 11/3/96

Rig Setup (please do the following in numerical order)

1. MAST STEP - Check that your mast step is on centerline and max. forward. The front edge of the mast should be as close to the deck-forestay intersection as the rules allow (7' 3.5"). Also, make sure that the back bottom edge of the mast butt is resting on your step. If the front is bearing, compressive load will reverse bend the lower part of our mast. Special Note: many of the standard Cal 20 mast steps have failed. You may want to replace the suspect aluminum casting with something stronger.

2. MAST BAND LOCATIONS - The distance from the deck to the bottom edge of the top band should be maximized (30" + 23' = 25' 6").

3. SPREADERS - Both spreaders should be minimum length (30"). I recommend swedging stops on each shroud so the spreaders are anchored at an angle that bisects the shroud (looking at the mast and spreader from the bow or stern). Jib trim marks on the spreaders are another good idea (16", 20", & 24" from mast to mark).

4. MAST RAKE - Set the backstay with just enough tension to straighten the forestay (zero mast bend). Then attach a tape to the main halyard and raise it to where your mainsail headboard would be even with the bottom edge of the top band. Now measure from the masthead to the center of the transom. If your top band is 25' 6" up from the deck, the rake dimension to the stern should be 28' 0" (note: If your band varies from 25'6", then adjust your target rake by the same amount).

5. UPPER SHROUDS - First, the backstay should still be "snug" (minimum to make the headstay straight). Now use the main halyard to measure to similar points on each rail from the masthead. Be sure to tension the shroud on the tape measure side so the opposite shroud is straight. Once the mast is centered, adjust each upper identically to get the following "tension" or "slop". At a point along one of the uppers 5' up off the deck, grab the shroud. You should be able to rotate the shroud in a 14" diameter circle (horizontally). Some people increase this deflection to 18" in overpowered conditions to make side bend zero).

6. LOWER SHROUDS - The lowers are never adjusted after set up. They restrict how far the mast can go forward when sailing downwind, and they also limit mid mast side sag to leeward when sailing upwind. While sailing up wind, sight up the front of your mast from the bottom band to top band in under-powered conditions (5 to 15 knots). For ocean sailing the middle of the mast should sag to leeward one mast width (2.5"). Reduce the side bend to 1.5" in flat water Special Note: many things factors can influence optimal side bend: crew weight, wind strength, sail cut, technique...

7. BACKSTAY - A minimum 8 to 1 purchase with enough throw to allow

both lowers to get tight downwind is all that is really needed from your backstay. Special Note: A knot limiting the backstay from easing too far, can keep the lowers from reverse bending and perhaps breaking your mast in big breeze downwind.

8. JUMPERS - You only want enough tension to straighten the jumper wires when the backstay is relaxed. Never reverse bend the top half of the mast by over-tensioning the jumpers.

Hull and Foil Setup

WEIGHT - All weight other than crew weight should be kept to a minimum. The class minimum of 2040 lbs. includes hull, deck, keel, spars (including pole), rudder, tiller, sling, running & standing rigging, safety equipment, and hatch & berth boards. Be sure to carefully read Article XV in the Bylaws so that you carry the proper ballast as close to center as the rules allow.

KEEL - Although many people have their keels professionally finished, it is entirely possible to do it yourself. A strong will combine with West System Epoxy, two-part epoxy paint primer, some good lung & eye protection, and a random orbital sander can perform miracles. First, all visible rust from the keel casting must be eliminated. Some people go so far as removing the keel from the boat then sand blasting. Once all the reddish brown rust is gone, prevent further rusting by sealing with plain epoxy. Next, fill all voids and low spots with a very thick blend of epoxy and micro-balloons (the brown stuff). You may have to epoxy and sand 4,5,7, or even 30 times. Before painting with epoxy primer the keel and bulb shapes should be 95% finished. Two or three thick coats of primer can handle the final fairing. When the entire keel is coated with primer progress from 100-grit dry to at least 400 wet. Use a sanding block! Finally, You may find it easier to keep your hull clean if you sand or polish with finer grits (800 – 1000), but I don't think the water knows the difference (Warning.... beading is slow). Special Note: Although no particular keel shapes have proven to be great all around performers, it's my feeling that fairness to the touch is of primary importance. Second comes shape. Maximum. thickness (1.5") positioned 40% - 50% back along the chord line is my preference. Give extra attention to the front 30% of the foil and hull. In section profile, the entry should have a 45-degree circular leading edge with a radius 1% of the chord length.