



Cal 20 Tuning Guide



For any question you may have on tuning your Cal 20 for speed, contact our expert:

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The following tuning guide is meant to be a good starting point in setting up your rig and sails. We are trying to achieve a setup that is fast in all conditions. Your new North Sails are designed for all around sailing performance.

MAST RAKE

The Cal 20 sails best with one or two degrees aft mast rake. While the factory stepped the masts in different fore and aft positions, we still need some sort of reference starting point. First, check that the black bands are in the correct position on the mast. Make sure the top of the bottom band is 30 inches above the deck and that the top of the upper band is 23 feet above that. Step the mast and then slide a 5/16 slug into the main sail groove and raise a tape measure up 23 feet to the top band. Pull on just enough backstay to make the head stay snug and measure back to the top edge of the transom on the centerline of the boat. 28 feet seems to be a universally acceptable starting point for the rake. Sometimes a toggle must be added to the forestay to achieve this much rake. If your boat has consistently too much helm upwind, the rake should go probably forward.

SHROUD TENSION

One fairly unique feature of the Cal 20 is the lower shroud placement. Since they are well aft of the mast base, they have a huge effect not only upwind on the side bend of the mast, but downwind as well since they restrict how far forward the mast can go. With the backstay snug, I measure down from a fixed point on the backstay bridle to the top of the transom.

Then I let the backstay off and make sure that my measurement reference point on the backstay can rise up at least 18 inches. This seems to be far enough forward downwind to be fast. At this point the lower shrouds should be tight. If the mast won't go this far forward, the lowers must be eased and if the reference point goes past 18 inches, tighten the lowers till snug.

The next step is to make sure the mast is straight sideways. Mark your main halyard and swing it to a common reference point from one side of the hull to the other. Adjust the uppers shrouds so the measurement is even side to side.

The side shrouds are adjusted while sailing to windward. The mast should be straight in winds below 3 knots. From 5 knots up until the boat is overpowered, the mast should have a slight sag in the middle. Once overpowered (usually above 10-12 knots), the uppers should be eased to straighten the mast and help flatten the main. Sighting up the aft mast groove with sail pressure on the rig and making slight adjustments to the turnbuckles is the easiest way to obtain the results desired.

JUMPERS

Especially on larger, stiffer mast sections, the windward jumper should be loose when going upwind with no backstay on. The reason for this is that since the lower termination point of the jumper is at the spreaders, any tension on the jumper won't let the mast sag to leeward and will depower the main if too tight. As the mast bends fore and aft from the backstay tension in the windier conditions, the

jumper will start to take load and keep the tip from falling off too much.

BACKSTAY

The backstay should be tightened just enough to keep the headstay from bouncing too much. This requires constant attention. Too much backstay tension tends to bend the mast too much and open the main leech too much. A common symptom of too much backstay is not being able to point upwind. In puffy conditions it is best to play the backstay constantly to keep the boat both powered up in the lulls and flat in the puffs.

BOOM VANG

The boom vang bends the lower part of the mast allowing the main to be flattened. Once the boat is overpowered and you have to ease the mainsheet to keep the boat on it's feet, the vang must come on pretty hard upwind. Note: Remember to ease the boom vang after rounding the windward mark because considerable stress is put on the middle of the boom when the sheet tension is released.

LUFF TENSION

Both main and jib should have just enough tension to maintain maximum draft position as follows:

- Main** 50% aft of the mast
- Jib** 35% - 40% aft of the headstay

Don't over-stretch the sail! Too much luff tension moves the draft forward, which is very slow.

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BARBER HAULER – JIB SHEET

Probably the most controversial adjustment on a Cal 20 is the barber hauler or jib traveler positioning. We have prepared a chart to give you a good starting point for different wind and water conditions. The percentages relate to how far inboard from the outer rail to the hatch the positioning should be.

Wind	Water Conditions	Barber Hauler Position
0-5	smooth	90% inboard
0-5	rough	75% inboard
6-11	smooth	98% inboard
6-11	rough	85% inboard
12-15	smooth	95% inboard
12-15	rough	85% inboard
16-21	smooth	75% inboard
16-21	rough	50% inboard

REMEMBER

**When in doubt let it out.
Also, let it out if the back wind off
the jib is inverting the mainsail
upwind in heavier winds.**

MAINSHEET TENSION

Sheet the mainsail so that the top batten is parallel to the boom and the top telltale flowing nicely. Another good guide:

Very light winds

Boom is 3" in from corner of transom

Light to medium

Boom is 12" in from corner of transom

Medium to medium heavy

boom is 16" in from corner of transom

Be sure to watch that the leech is not hooking to windward due to excessive boom vang or mainsheet tension. Also, mainsheet must be eased when the boat heels more than 15 degrees. A Cal 20 must be sailed "on her feet".

Downwind Sail Trim

A few tips that will be helpful:

- >> Ease backstay and jib halyard so they match each other.
- >> Try to balance crew weight so there is a neutral helm.
- >> Watch that the boom vang is not on tight enough to hook the leech to windward.
- >> Keep crew weight as low as possible to avoid pitching from side to side.

Sail Care

Rolling your sails is very important, not just because they will last longer, but also to avoid getting permanent wrinkles. Rinse sails with tap water to remove salt and keep out of hot enclosed areas.

Thanks for buying North Sails and we hope that the above hints will help you win more races.

Contact North Sails

For tuning information and complete details on how to setup your Cal 20 sails contact the North Cal 20 experts listed on the cover of this guide.

Good Sailing!



NORTH SAILS ONE DESIGN QUALITY CONTROL CHECK

Cal 20

MAINSAIL		JIB		SPINNAKER	
Corners		Corners		Corners	
Cunningham		Leech Cords		Numbers	
Numbers		Luff Hanks		North Logo	
Battens		Foot Line		Bag	
Leech Telltale		Telltales			
Insignia		North Logo			
North Logo		Bag			
Bag					

Checked by: _____

Date: ____ / ____ / ____