



NORTH SAILS DETROIT

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SPREADERS

The first step in tuning the standing rigging is to shorten the spreaders to hold the shrouds no more than 25" from the mast (Class minimum). I have found some spreaders to be as long as 27". Any amount over the minimum is unacceptable if the Genoa or Jib needs to be trimmed hard in situations where pointing is essential.

The next step is to set your spreaders so that the sweep is 4" from the aft edge of the mast to a straight line between the spreader tips. Be sure that this line between the spreader tips is square to your mast step. To bend the spreaders, remove the spreader tubes. Put the retaining nut back on the bolt if removed so that the threads will not be damaged during the bending process. Slip a 3/4" section of tubing over the aluminum spreader bracket. Pull down gently on both sides. Put the spreaders back on and measure the bend. Repeat the process until a 4" sweep is achieved.

MAST RAKE

The San Juan 21 needs a considerable amount of mast rake to prevent leeward helm in light air. Adjust the forestay so that the mast has 9" to 10" of rake. This can be accomplished either on the trailer or in calm water with the keel down. In either case suspend a weight from the main halyard. If you are in the water, lower the keel and keep your body weight close to the hatch opening when measuring. Make pencil marks on the boom 10" and 12" aft of the aft face of the mast. Adjust the forestay until the main halyard hangs between the two pencil marks. If conditions are not desirable a second method of measuring rake is available. Attach a tape measure to the main halyard. Raise the halyard until it jams into the sheave. Cleat the halyard and measure the distance to the corner of the transom. This distance should be 28' 1". You should check the distance to both the port and starboard corner. Because the backstay is off center you will need to average the two measurements. Generally the distance to the starboard corner is approximately 1/2" shorter than to the port corner.

Now that the headstay is set to the correct length, tension the backstay until the slack is removed. Be careful not to tension the backstay enough to bend the mast.

SHROUD TENSION AND PRE-BEND

Tension the upper shrouds equally by counting turns to 750 pounds tension. If you don't have access to a tension gauge, tighten the shrouds until you have 3" of pre-bend. To measure pre-bend, run your main halyard down the back of the mast and measure the bend at the spreaders. Now tighten the lower shrouds equally until the pre-bend is reduced to 2". If your spreader sweep is greater than 4", your lower tension will have to be proportionally greater. If your spreaders are forward of 4", less lower tension will be needed.



MAST TUNING UNDER SAIL

Check for side bend on both tacks by sighting up the luff groove from the gooseneck. The mast should be straight sideways up to the hounds and fall off gently to leeward at the tip. Adjust the lowers accordingly, taking up on one side what you ease on the other.

Test for the location of fore-and-aft bend by hauling the backstay adjuster blocks down while sailing upwind in medium air. The main should blade out evenly from tack to head, indicating that the luff curve of the sail fits the assumed curve of the mast.

SAILING UPWIND

For starters set the genoa lead 13' 2" aft of tack fitting. To check this position while sailing, trim the genoa until it touches either the spreader tip or the shrouds at deck level. It should touch both at nearly the same time. If the leech touches the spreader before the foot touches the shroud, move the lead back one hole. As with most boats, you should be able to sail to windward with the leech approximately the same distance off both the chain plates and spreaders (a jib leech window in the luff of the main is helpful here). When in doubt, the leech should be farther from the spreader than the turnbuckle -- better to have too much twist than too little.

In light air (0 - 8 knots apparent) ease the backstay off entirely to encourage headstay sag. Play the mainsheet constantly; trim it until the top batten telltale stalls; ease it when the boat feels sluggish.

Set the genoa lead one hole forward to add foot depth and power in choppy water, and one hole aft to flatten the foot for smoother water. Play the genoa sheet to keep the leech 1 - 2" off the spreader in smooth water, 3 - 4" in a chop, and 7 - 8" in a heavy chop, twisting the sail when acceleration is the priority, and trimming it in smooth water when you dare to try to point. The helmsman and trimmer must coordinate their actions, concentrating on speed rather than pointing to win in light air. Never try to trim and point until the boat is moving at maximum speed. A lazy "S" course is the best way to go upwind on 0 - 8 knots.

As the wind reaches 8 knots apparent, concentrate more on pointing rather than boatspeed. Pull the backstay adjuster about 4" down to make the genoa entry finer for pointing. Trim the main sheet until the top batten is tighter than parallel with the boom and the top batten telltale is stalled most of the time. Trimmed properly, the leech will appear to be closed down quite firmly. The out-haul should be eased 2 - 3" from the black band, and the cunningham tensioned enough to barely remove wrinkles along the luff, keeping the draft at the mid-point. If the wind is up and down, ease the cunningham and ignore the wrinkles along the luff, i.e., "trim for the lulls". Heel the boat 5 - 10 degrees, and keep the crew forward of the companionway entrance to encourage helm.



In medium air (8 - 18 knots apparent), trim the genoa in to less than 2" off the spreader, being careful not to punch the spreader tip through the sail in a lull. Tension the sheet to keep the top batten parallel to the boom and the telltale mostly stalled. When trimming the main heels the boat past 15 degrees, cleat the mainsheet and adjust the backstay only. Trimming the backstay bends the mast, which in turn twists and flattens the main, depowers the upper sections and relieves windward helm. Feather the boat to windward whenever boat speed allows. Once the backstay is tight, continue to depower by pulling the vang tight. The forward pressure of the vang into the gooseneck induces low bend, which flattens the foot and opens up the lower leech.

In heavy air (20 knots +), you should change down to the 100% jib. Though you should always switch to the 100% jib before reefing the main, the change down point depends upon crew weight and sea conditions. In very smooth water or with a light crew, the hull is easily driven. Switch to the jib as early as 18 knots apparent to speed up your tacks and reduce backwind. In normal and rough water when you need the extra power hang on to the genoa up to 23 knots -- as long as possible -- flogging the main in the puffs and trimming it in the lulls.

Set the lead position for the 100% jib by observing the telltales. At the bottom of the jib's range they should all break evenly.

In heavier air, move the lead aft two holes at the most to flatten the foot, twist off the top sections and reduce heel.

Upwind, the key indicators of a well sailed SJ 21 are its angle of heel and rudder angle. The boat is happiest when it is heeled to 15 degrees. Measure heel with an inexpensive clinometer bolted to the front end of the cockpit where the helmsman and trimmer can both see it. Don't bother trying to estimate your angle of heel -- it's nearly impossible without a clinometer. The amount of windward helm should be noticeable but not overpowering, allowing the boat to round up over a wave on its own without much encouragement from the helmsman. The leech of the mainsail acts like a trim tab to control heel and helm. It is controlled primarily by the sheet in light to medium air, and by the vang in heavy air.

SAILING DOWNWIND

In light wind never bury the transom. The helmsman should sit forward with the crew aft of the mast but forward of the companionway entrance. As the breeze increases, the weight can be shifted aft somewhat, but not much. There's no need to concentrate the crew at the stern, as you would on many larger boats. Keep the angle of heel under 15 degrees as always. At approximately 80 degrees apparent wind angle, the spinnaker and the genoa break even on speed; stick with the genoa for closer angles. Aft of abeam, fly the spinnaker in strong winds, but organize the crew to stay on the rail and flatten the boat. If conditions warrant the jib it can usually be flown under the chute downwind, but don't fly the genoa and chute simultaneously.



The SJ 21 wants to be tacked downwind in all but surfing conditions. The apparent wind angle varies from 120 degrees in the lightest zephyrs to 170 degrees just before surfing. Bear off more in wavy conditions than in smooth water. Waves narrow the optimal jibing angle by carrying you dead downwind faster than usual.

With this advice, we've covered all of the essential settings for going fast. Now it's up to you to steer well, play the sheets and WIN!