

Naples MYC Soling 1 Meter Basic Tuning Seminar

General

The “speed” aspect of racing is important, but not so important that you should focus constantly on it. Find settings that make the boat “go” in the conditions for the day, and that you can easily repeat, then **focus on good starts, and good tactics**. If, on a certain day, you seem “fast”- analyze the “why”, and then leave the boat set up as is until you are “slow” some other time.

- **“Starting settings: “**

Often tuning seminars start with “the numbers”- same as all sailing classes, so each boat one-design class (full scale and models) starts with a set of simplified rig positions that seem to work in most boats of that class. BUT- the starting numbers are what many tuning seminars consist of, but they can be misleading. These are **just a starting point**. You need to understand the principles behind the settings.

“The numbers” are most useful for a new boat (either a used boat bought from another party or a newly-built boat) when she hits the water for the first time. After that, the sailor needs to adjust HIS/HER boat to her unique needs and conditions of wind and water. Don’t think a standard set of numbers will automatically make you “fast”!!

Every boat is different; **WHY???**

- Keels even built by the same person, may have the keel, or the ballast within the keel located slightly differently- even a 1/4” further back or forward changes everything in the rig.
- A Soling 1 Meter w/ a keel weighing 7 lbs. will perform differently than one w/ 6.5 lbs. or one w/ 7.5 lbs.
- Each set of spars are different- if your boat’s mast has even a slight fore or aft bend- you have to correct for that with your setup.
- One boat may have her rudder in a slightly different location than “standard”. And a big one- each boat has her own center of mass- either more forward, or more aft. And there are other variables, as well.

For these reasons it usually takes a few outings to figure out how to set her up. Then, the “tune” needs to be changed for the conditions of wind and water each time you race, adjusting for the conditions THAT day.

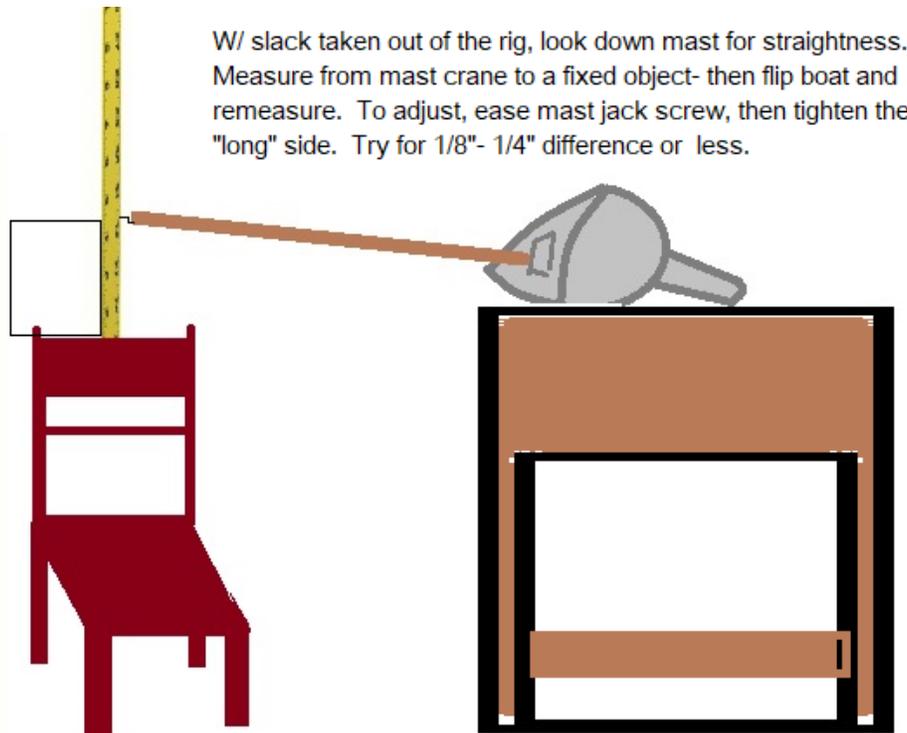
This is the problem with trying to race multiple boats in a class. If one tries to race two- three Solings, you will never be as fast as if you concentrated on ONE boat. Similar- if you have to tear your rig down each time you sail, you will get slightly different results each time. It is better to leave the boat “set up” having a starting point where it sailed pretty well the last time out. Then, if it seems slower the next time- change some things, ONE thing at a time.

| |
|--|
| <p>Exception: between outings, always loosen the vang, the backstay and the outhauls so as not to stretch your sails.</p> |
|--|

Tuning the Soling

MAST- make sure it is upright side to side, and straight. Adjust using either turnbuckles or your screw eyes (shorten or lengthen by turning- go to LONG screw eyes so you have more adjustment.)

Here is the way to accurately measure mast vertical centering **taking into account the keel**- most keels are not mounted exactly vertical!!



Recheck periodically. Amazingly, EVERY time we do this, one or more boats' masts are 3-4 even 5 inches off being aligned with the keel.

Balance

All of the rig settings are supposed to lead to a boat that is balanced, has the right amount of power in the sails, and is fast on all legs, with power located so it is not rounding up (weather helm), not rounding down (lee helm) and is controllable off the wind.

A "balanced" boat will track well, tack well, and require minimal rudder input to sail a straight course. Terms:

"**Twitchey**"- the boat seems to want to dart right and left, and readily gets into irons. It's hard to steer a straight course.

"**Weather helm**"- boats rounds up toward head to wind in less than about 6 boat lengths.

"**Lee helm**"- boat turns away from the wind (at all).

OK, OK, but what are the rig starting points?? THE NUMBERS

Start with the “nominal” settings that other Soling sailors have discovered “work”.

Mast rake- measure from the stem to the jib stay position on the mast.

48-3/4”

Mainsail Twist (Boom Vang) - ease the trim, then lifting the mainsail boom by hand, measure the mainsail leech distance off center (backstay) at the deepest point.

3”

Jib twist- set backstay so that the curve of the jib matches mainsail curve. The leeches of the main and jib should be even width top to bottom.

Mainsail chord- measure from center of mainsail boom to deepest belly.*
Adjusts FOOT of the sail. More “chord”= more power.

1-3/4”

Jib chord- measure from center of mainsail boom to deepest belly).*
Adjusts FOOT of the sail. More “chord”= more power.

1-5/8”

Main Boom off center (close hauled)- turn on transmitter and boat, trim in then measure from center of boom at tip to centerline of deck.

2-1/2”

Jib Boom off center (close hauled)- turn on transmitter and boat, trim in then measure from center of boom at tip to centerline of deck) This should be an angle of about 13- 14 degrees.

2”

***Most S1M sailors use these in the reverse of what I have in jib and main draft**- most set more draft in the mainsail than the jib. I’m weird. I do the opposite to eliminate weather helm. Try these and then reversing these- see what works for YOU.

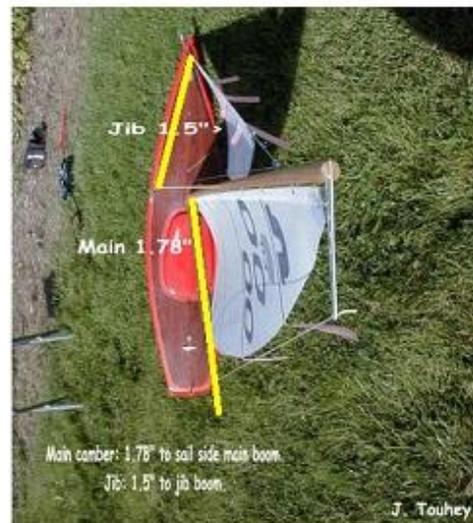
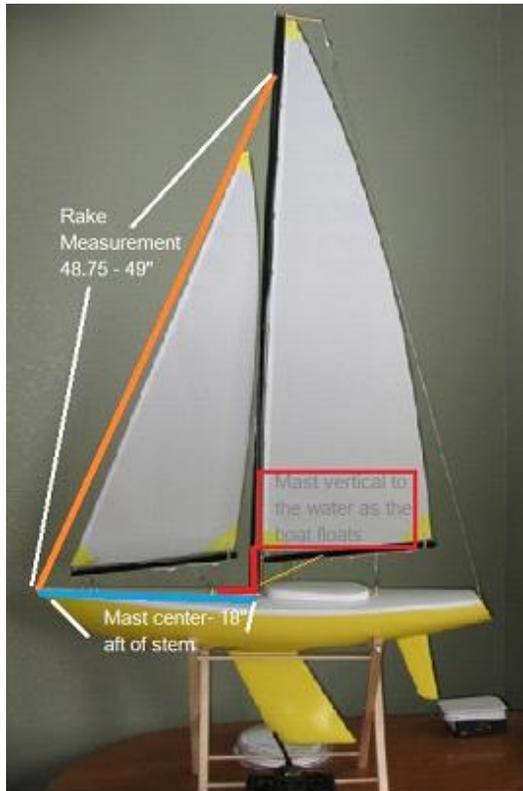


A pretty-well tuned Soling. Note the curves of the mainsail leech and the jib leech- they closely match. The mainsail boom is pointed *juuuust* inside the aft deck corner, and the jib boom juuuust inside the shroud. Note the sails have a fair amount of twist- the leeches are “open” for power.

The luff tension may be slightly tight, I like “speed wrinkles”- about 1/2” long *horizontal* wrinkles at the luff of both sails. You would certainly not want to tension up the vang or backstay much beyond this in the light air. In lighter air- loosen things up a bit.

BALANCE- is what all this is trying to achieve. A balanced boat will track without a lot of rudder input. Many sailors will tell you they like just a little weather helm, enough so the boat will go to weather with slight “bumps” of the thumb to the right stick keeping it on course.

Others will set a boat up so it will drive to windward with NO stick, which will allow them to watch the competition and plan tactics. The sailor who has a little weather helm will likely point higher than the hands-off sailor.



Adjust for YOUR boat. Using the nominal settings, see how your boat performs. If you feel it is not performing, make ONE change at a time, and after each change that does not work, put it back to nominal.

- Check your rudder- make sure the boat is doing the same thing on BOTH tacks. A visual check on shore will not set your rudder exactly straight.
- Go out and go straight downwind, wing on wing (jib opposite mainsail). If the boat veers one way or another use trim on radio to adjust your rudder until it tracks straight.
- IF your boat is out of balance, AND you have done all the above in recent history, then make some adjustments, using the table below. ONE at a time then test.

Troubleshooting: all of these assume you have set the boat up as above.

| Problem | Prob. Cause | Moves: | More... |
|---|---|---|--|
| <p>You need to be aware of the backstay.</p> <p>It is the single most important part of tuning- if your boat lacks speed or acceleration- it might be the backstay.</p> | <p>Too tight = no speed, or acceleration.</p> <p>Too loose in heavy air and the boat rounds up uncontrollably.</p> | <ol style="list-style-type: none"> Set the backstay per procedure in Power up the jib- add 1/4" more draft by easing the outhaul. | <ol style="list-style-type: none"> Depower the mainsail- add a couple of turns to the vang Remove about 1/4" draft from the main using the outhaul. |
| Excess weather helm, both tacks | <ol style="list-style-type: none"> Make sure the rudder is centered. Power is set majority to the mainsail | <ol style="list-style-type: none"> Make sure the jib and mainsail are trimmed in as recommended- jib/ inside shroud and main / at transom corner. Power up the jib- add 1/4" more draft by easing the outhaul. | <ol style="list-style-type: none"> Depower the mainsail- add a couple of turns to the vang Remove about 1/4" draft from the main using the outhaul. |
| Boat rounds up violently out of control off the wind. | <ol style="list-style-type: none"> The mainsail is overpowered. Probably too much "twist". | <ol style="list-style-type: none"> Two turns on the vang. Don't let the main out so far- let it out only until the UPPER leech is at 90 degrees to the mast. | Remove about 1/4" draft from the main using the outhaul. |
| <p>Boat is "twitchy"- hard to steer a straight course</p> <p>Goes into irons readily.</p> | A sailboat has a "groove"- a variation of angles to the wind through which it will sail efficiently. The flatter the sails are AT THE LUFF the narrower is the groove. | <p>A fatter leading edge on the jib will increase the width of the groove.</p> <p>Maybe a flat jib will drive at 43- 44 degrees, and a fat jib will drive at 44 – 47 degrees of angle to the wind.</p> | <p>Power up the jib- add 1/4" more draft by easing the outhaul.</p> <p>Then another 1/4" if it needs it to correct the problem.</p> <p>You will give up some pointing ability, but you will also be going faster upwind.</p> |
| Performs well- BUT goes into irons readily in stronger winds (12-14) | You are steering through tacks incorrectly. | <p>When you want to tack, first ease the sails and bear off slightly- 2 degrees or so- then turn your rudder only about 1/2.</p> <p>Trim in as the boat comes to head to wind, and when the sails break- ease them off 100% as the nose comes thru the wind and you steer hard to the other tack.</p> | Then trim in gradually and smoothly on the new tack. |

| | | | |
|---|---|---|---|
| <p>Really heavy air- around 18 - 20 MPH.</p> | <p>Get ready to have some fun!!</p> | <p>Move jib in 1" closer than normal, and let mainsail out 1" more than normal. DON'T over flatten the sails (like you would on some boats)</p> | <p>Tighten vang so there is no vertical play with mainsheet tensioned. BUT no mast bend either!</p> <p>Rounding weather marks – make a more gradual turn from a beat, to a reach to a run.</p> |
| <p>Really light air- 0- 3</p> | <p>Ugh.</p> | <p>Move the jib AND mainsail booms out 1", AND flatten both sails by about 1/2".</p> <p>Ease vang completely.</p> <p>Ease backstay almost completely</p> <p>All moves have to be very gradual.</p> <p>Be patient.</p> | <p>Steer VERY carefully. All rudder moves have to be very gradual, and try not to turn the rudder "hard" at all. Use the sails to help you steer- if you want to bear off, ease the sails as you apply soft rudder.</p> <p>If you want to come up, fall off/ease sails for a little speed, then gradually come up as you bring the sails n.</p> <p>Sail towards patches of wind. When you get in one follow it, and stay in it.</p> |
| <p>If the boat seems "slow" relative to others (side by side close and in identical wind conditions)-</p> | <p>Sails are likely too flat.</p> <p>The S1M rig is underpowered for the weight of the boat.</p> <p>Sails might be over-trimmed</p> | <p>Add 1'4" draft (chord) to BOTH mainsail and jib booms.</p> <p>Ease the sails out 1' or so and see if you go faster.</p> <p>Ease backstay AND vang to add power.</p> | <p>DON'T PINCH!! Steer a couple of degrees further off the wind.</p> |

- Repeat settings once you have what appears to be good speed and balanced performance. **Put numbers or marks on the deck** for bowsie settings etc, to help you repeat settings. **Keep records** about what works in various conditions. Light- Medium- Heavy air
- **Boat Handling:** The Soling 1 Meter is a keelboat. It accelerates slowly, tacks slowly, and stalls through the tacks. It's heavy (for a model yacht) and weighs 1-1/2 to 2 times what other 1-meter boats (IOM, US One Meter, ODOM etc.) weigh, but with the SAME sail area (600 in²). It has flat panel sails. The trick in all conditions is to get it going and KEEP it going.

- So:
 - Don't pinch. The Soling One Meter's sails have NO built-in shape, and need to be drawing all the time. "IF in doubt- ease them out."
 - Try not to overuse the rudder. It stalls the boat. Use the "soft" settings on the radio for the rudder, especially once you have started.
 - Try to tack a minimal number of times.
 - Look for clear air- ANY boats in your immediate vicinity can only slow you down.
 - Fall off slightly to build speed just before you tack.
 - If you are approaching a mark, and just can't quite lay the mark, try "shooting" it rather than doing two tacks. The Soling, at its weight, has more momentum and therefore a reasonable ability to coast, so try and keep your speed up rather than pinching.

Soling 1 Meter Tuning Record

| Adjustment | Control | How To Measure | "Nominal" Settings | Wyatt | Date | Date | Date |
|----------------------------|------------------------|--|-------------------------|-------------------------|------|------|------|
| Mast Position | Mast hole | Forward, middle | middle | Middle | | | |
| Jib swivel Position | Swivel to deck | Forward, middle | Middle or front | Forward | | | |
| Mast Rake | Jib Halyard | Jib halyard fitting to stem | 48-3/4" | 49" | | | |
| Mainsail Draft | Main Outhaul | Mainsail boom C/L to deepest draft | 1-5/8" | 1-1/2" | | | |
| Jib Draft | Jib Outhaul | Jib boom C/L to deepest draft | 1-3/4" | 1-3/4" | | | |
| Main Close Hauled | Mainsail sheet deadend | Center of mainsail boom to deck | 2-1/4" | 2-1/4" | | | |
| Jib Close Hauled | Mainsail sheet deadend | Center of jib boom to deck | 3-1/4" | 3-1/4" | | | |
| Mainsail Twist | Boom Vang | Ease Mainsheet, lift boom @ center, measure deepest point of leech to backstay | 3-1/2" | 3" | | | |
| Jib Twist | Backstay deflection | | 2-1/2" TO 3-1/2" | 2-1/2" TO 3-1/2" | | | |
| Jib Cloth Tension | Uphaul | "slip" up/ down | 1/4" | 1/4" | | | |
| Mainsail Cloth | Downhaul | slip up/ down | 1/4" | 1/4" | | | |