

## Snipe Tuning Guide

**The Mast:** The mast and its tuning are probably the single most important thing, to good consistent boat speed in a Snipe. Presently there are four "popular" masts in use, Cobra II, Sidewinder Sr., Proctor Miracle and Sidewinder Junior. The Cobra II and the Sidewinder fall into the "stiff" mast category and the Proctor Miracle and Sidewinder Junior are so called "soft" masts.

It is important to know that no two masts are exactly the same and each boat will need a little bit of fine tuning to get it's set up right. It is preferable to have adjustable spreaders (both length and angle) as you will generally want to make some adjustments as you get your boat up to speed.

On many masts especially the stiffer models, you may want to file down the forward part of the mast butt. This will help to induce pre-bend in the mast especially for light air.

**Boom and Pole Launcher:** Most boats now use the pole launcher system and we encourage you to use this system on your boat. It makes setting the pole much easier and faster taking it down a cinch. We find you can keep the pole up almost all the way to the mark with the launcher whereas with the standard pole system you need to take the pole down rather early to stow it before sailing upwind.

**Centerboard:** The class rules allow you to taper the edge of the boat to within 1" off the edge of the board. You should make sure your board is tapered on the front, bottom and aft edges. We suggest a "bullet" type shape for the leading edge and more of a "V" shape for the after edge of the board.

Be sure to rinse your board after sailing in saltwater and dry it completely. This will save it from becoming pitted with corrosion.

You may want to consider cutting out some of the board in the top of the board where it stays inside the boat when down all the way. This makes the board lighter and less work for the crew to lift. Overweight boats can shave off a few pounds here by cutting away some of the top of the board. Check the SCIRA rulebook for limitations on how much board can be cut out.

**Layout of Controls:** The layout of control lines is wide open on the Snipe. We suggest running most of the controls to the crew with the exception of the vang, and traveler. This allows the skipper to concentrate on driving especially at crowded mark roundings.

**The Crew:** Competitive crew weights range from 275 lbs. to 325lbs. Generally you can sail lighter in flat water than in rough water. Heavier crews will want to set their boats up for more power (see below) where lighter crews can set up with somewhat flatter sails.

## BASIC RIG SET UP

With the mast down, we want to adjust our spreader length and angle. These two things determine how much the mast will bend and how much power will be in the sails, and how easy the boat will be to power up in light air and depower in heavy air. Before stepping the mast check the following items:

**Spreader Length:** This dimension, measured from the side of the mast to where the shroud intersects the spreader. For most boats this length is 16 ¾" (42.5 cm). The length of the spreader affects the side-to-side bend of the mast primarily. After stepping the mast and going sailing you will want to sight up the front side of the mast and make sure it is straight side to side from the deck to the hounds. This is very important: if the mast is bending to leeward in the middle, shorten the spreaders until it is straight. If the mast bows to windward in the middle make the spreaders longer until the mast is straight.

**Spreader Angle:** The angle of the spreaders (tip to tip measurement) affects how much the maximum mast bend will be. Heavier crews will want a larger tip-to-tip measurement (stiffer mast) and lighter crews will want a smaller measurement (softer mast). The starting point for the adjustment on this setting is 30 11/16" (78

cm) measured from shroud to shroud with the spreaders pulled all the way back. In heavy air or with a heavier crew we move the spreaders forward so this measurement is 31 ½" (80 cm). In very light air to induce more bend in the mast we sometimes angle the spreaders back so the tip to tip is 29 15/16" ( 76 cm). Check to make sure that the sweep aft on each spreader is the same so that the mast bends consistently from side to side.

**Mast Butt Location:** You want to have your mast butt at the maximum legal forward position of 60" aft of the stem of the boat. The stem is defined as the intersection of the bow and the deck (a point on the deck slightly aft of the forward most part of the deck). Measure back from this point 60" and drop straight down and adjust so the center of the mast is at this location.

**Forestay:** Check your forestay so that it is maximum allowable length (mast not touching back of partners). You will want to attached a piece of lightweight shockcord 15" up the forestay and tie it to the bow or stem fitting to keep the forestay snug when the jib is up. This will keep the whisker pole from catching during jibes downwind.

**Mast butt angle:** Check the bottom of the mast and make sure it is cut off perfectly square. Any deviance from this can cause the mast to not develop prebend or develop too much. If you later find the mast does not develop enough prebend, file the front of the mast step casting to allow the mast to rock forward and bend more.

**Shroud attachment locations:** For most boats position the shrouds at the maximum forward location of 70" aft of the stem. This will help the main go out further downwind and increase projected sail area. If you are having trouble developing enough power move the shrouds back slightly which will make the mast somewhat stiffer. See figure 1.

**Jib Tack Location:** Position the jib tack at its maximum forward position 11" back from stem. This helps make the sail plan longer and opens up the slot between the main and jib. See figure 2.

### **Mast Rake Settings:**

We use three mast rake settings depending on the conditions for light, medium and heavy air. All settings start with a "first rake" where the rig is just leaning forward against the shrouds and then finish with a tensioned rake where the jib halyard is pulled on to sailing tension.

To start attach a 25' tape measure to your main halyard and pull all the way to the top and lock the halyard in position.

Below is a chart of the three different settings we use. All measure to the top of the transom.

Wind	Mast Rake	Tension*
0-8	21' 7"	18
9-15	21' 5"	20
15-22	21' 4"	22

\* PT-1 Tension Gauge

It is very important to use a Holt Allen staggered hole style shroud adjuster or Sta-Masters to have fine enough increments on your shroud tensions.

- Now sight up the backside of the mast and make sure the mast is perfectly straight side to side. If it is not you will need to remove shims from one side and add to the other to make the mast straight. The mast should be shimmed snugly side to side at the deck (yet still able to move freely fore and aft).
- As a last step, we want to mark the "neutral" position of the mast. With the pusher/puller off and the mast taking its natural position make a mark on the side of the mast at the deck and a corresponding mark on the deck of the boat. Mark both sides of the mast so you can see it on both tacks. Now make marks on the deck 1/4" in front of this mark and 1/4" in back. If you feel you have an extra bendy mast (Sidewinder Jr.) make the aft mark 3/8" behind the neutral position. See figure 4.

Now you are set up to go sailing in moderate breeze. The first thing to do when you go sailing is to check the mast bend side to side. Sight up the front of the mast on both tacks and make sure the mast is straight from the deck to the hounds. If it sags to leeward shorten the spreaders. If it pops to windward lengthen them. This is critical to good boat speed.

With the boat hiked flat you want to have an absolutely neutral helm in the boat. You should just need finger tip pressure to hold the tiller. If the boat has lee helm rake the mast back. If it has weather helm rake the mast further forward.

## MAIN TRIM

Your North Snipe Main comes set up for a tack line to hold it in place at the mast. Using a low stretch small diameter line tie the tack of the sail so the edge of the sail is about 3/8" aft of the backside of the mast. Do not tie the tack right to the mast as this will keep the tack from rotating downwind and make the sail full in the bottom.

**Mainsheet:** The mainsheet is the throttle on a Snipe and must be adjusted regularly to keep the boat going at top speed. The idea is to keep the top batten on the main parallel to the boom at all time and in under 7 knots of wind have the top telltale flying 70% of the time. If the telltale flies constantly the main is too loose. If it stalls all the time it is too tight. Trimming the main is a constant exercise in easing and trimming as the wind increases and eases.

In above 7-10 knots of wind the top telltale will fly all the time and the top batten should be trimmed parallel to the boom.

**Cunningham:** The main cunningham controls the fore and aft position of the draft in the sail. Keep it loose until you begin to be overpowered and then tighten it to open the leech of the main by moving the draft forward in the sail.

**Outhaul:** In all but the very lightest conditions the outhaul should be tight when sailing upwind. Downwind let it off about 2-3" to make the bottom of the main more powerful and to open up the shelf foot in the bottom of the sail.

**Boom Vang:** The boom vang is used to hold the boom down when the mainsheet is eased and to bend the mast and depower the main in a breeze. We leave the vang completely slack until we are hiking hard. Then we take the slack out of it so that when a puff hits we can ease the boom slightly with out losing leech tension. As the breeze picks up more we will pull the mast back to the aft mark at the deck and trim the vang harder. This bends the mast and flattens the main and lets us play the mainsheet in the puffs with out loosing main leech or jib luff tension.

Downwind, you want to use the vang to keep the top batten parallel to the boom. Ease the vang substantially before reaching the weather mark to make sure you don't break your boom in a breeze. In some conditions, mostly light air and flat water, the vang can be quite loose with the top batten outside of parallel, which allows you to sail a bit by the lee. In heavy air this makes the boat unstable and can result in

the dreaded "death roll".

**Traveler:** In most conditions, even heavy air, the trend lately is to keep the traveler in the middle of the boat. Make sure your mainsheet bridle is set up so the "y" of it goes slightly inside the boom. This will keep the boom centered in light air without putting too much tension on the leech of the main.

As the breeze builds and the boat gets overpowered you may find it helpful to drop traveler until the helm of the boat is neutral and the boat is flat.

Others will find vang sheeting preferable. With vang sheeting you tighten the vang to keep the boom down and the tension on the leech when the mainsheet is eased. Make sure to have the mast back at the aft mark when vang sheeting to keep the jib's luff tight.

**Pusher/Puller:** The mast pusher/puller controls the bend in the lower part of the mast and has big effect on rig tension. In light air (crew inside the boat) we push the mast forward to the forward deck mark. This bends the mast and opens the leech of the main. It also sags the jib luff giving you more power for light air.

As soon as the crew and skipper are sitting on the windward side of the boat we move the mast back to the neutral mark to power up the sails. As the breeze builds, we will pull the mast back more at the deck to counteract the forces of the vang.

A note on soft vs. stiff masts: As the breeze really builds (15+ knots) softer mast owners will want to keep the mast back at the aft mark. This is because the forces of the vang cause the softer masts to really bend down low and the mast must be held back at the deck to keep the softer masts from over bending.

Stiffer mast owners will want to let the mast go back forward to the neutral mark when the breeze builds. The stiffer masts do not bend as much down low and need to be let back forward as the breeze builds to help depower the main.

## **JIB TRIM**

**Sheet:** To help judge the trim of the jib your North Snipe jib has a leech telltale sewn on it 1/3 of the way down the leech. The sail also comes with a trim stripe on the clew. To start set the jib lead so that the sheet is lined up with the trim line on the clew of the jib. From there you will want to fine-tune the lead so that the telltales on the luff of the jib break evenly (watch through spreader window). Move the lead forward if the top luffs first. Move the lead back if the bottom luffs first.

After getting the lead position correct, we want to trim the jib in so that the telltale on the leech is just on the verge of stalling. You will need to adjust the tension on the jib sheet constantly as the wind builds and eases to keep the telltale just on the edge of stalling.

You may also want to make a mark on each side of the splash rail 15" out from the centerline of the boat. The foot of the jib will fall in this vicinity upwind and this mark can be used as a reference point for jib trim.

**Jib Cloth:** The jib cloth tension should be tightened just enough so that there are always very slight wrinkles in the luff of the sail. In very heavy wind you will want to add tension and make the luff of the jib smooth to open the leech of the sail.

**Jib Halyard:** Be sure your jib halyard has at least 10-12" of throw in it. You will also want to make sure that the halyard is clearly marked at the up position so you can easily get the halyard set in the correct position at mark roundings.

Dead downwind let the halyard all the way off to project the jib as far to windward as possible. When reaching with the pole up you will find it fast to tighten the jib halyard 1/3 to 1/2 the way to tighten the luff of

the sail and make the sail more powerful and easier to steer to.