

# Snipe Fleet #001 Tuning and Racing Guide (2024 Edition)

Over the many decades since the launch of the first Snipe in 1931, the class has developed a highly refined and optimized sail plan, with many fine-tuning adjustments that can appear overwhelming to a new Snipe sailor. The purpose of this guide is to give beginning and intermediate sailors enough of the basics to get started and race competitively.

The large number of fine adjustments that can be made in the Snipe rig can be especially critical in coastal sailing, with long legs under relatively steady wind conditions. Very small, incremental adjustments to the rig can make enough difference in speed to win (or lose) a race.

Inland lake sailing typically involves highly variable wind conditions. The rig can be set for typical settings, suitable for a range of wind conditions. Inland races are more about assessing changes in wind patterns, maneuvering to take best advantage of each shift, and engaging the competing boats with appropriate tactics.

In the following sections, we suggest nominal settings, suitable for a wide range of typical racing conditions. The boat can be adjusted to these settings and left alone, while the new sailor gets up to speed on helmsmanship, trim, and tactics. Advanced sailors will want to consult sail-specific settings provided by each sailmaker. Alternatives may also be suggested.

## **1 Tuning Procedure**

The following procedure assumes that the boat is in good working condition, with the boat on a dolly, trailer, or davit, and the mast stepped.

The tuning steps should be done in the following order:

1. Spreader length.
2. Spreader angle.
3. Shroud attach points.
4. Initial mast rake adjustment.
5. Pre-bend and final mast rake adjustment.

## **2 Spreaders**

Spreader length and angle are critical to controlling mast bend under wind loads. Modern Snipe spreaders include both angle and length adjusters. Make sure the spreader length and angle adjustments are made symmetrically, to the same settings on each side.

### **2.1 Spreader Length**

- 2.1.1 Do this step prior to raising any sails.
- 2.1.2 Access the spreaders by any of the following:
  - A. Remove the mast and lay it down on top of the boat.
  - B. Tip the boat on its side, either on a dolly or trailer, or in the water next to the dock.
  - C. For a boat in a davit, lower the boat into the water and reach the spreaders from the walkway (if it's high enough above the water).
- 2.1.3 Measure the spreader length, using a tape measure, from the side of the mast to the shroud, at the point where it passes through the spreader.
- 2.1.4 Adjust the spreader length to **16 ¾"**.

### **2.2 Spreader angle**

- 2.2.1 If the mast is stepped, relax the mast fore and aft ram.
- 2.2.2 Pull the spreaders to their aftmost position. If the mast is stepped, this can be accomplished by pushing the mast forward until the

shrouds are taut.

2.2.3 Measure the distance from shroud to shroud at the point where the shrouds intersect the spreaders.

2.2.4 Adjust the spreader angle evenly on both sides until so that the shroud to shroud distance to **30 ¾"**. Some sailors find that 29-1/2" works well, which means a little more sideways bend in heavier air and a little bit of depowering. It also means that they can pinch the jib tighter before it hits the stay. Lighter combined weight crews (less than 300 pounds) should lean to the shorter distance and heavier combined weight crews to the longer distance.

### **3 Mast Rake and Prebend**

Mast rake is the fore and aft tilt of the mast. The rake adjustment is especially critical for going upwind, when the sails are trimmed close to the centerline, and the boat is subject to strong sideways forces.

If the rig is tilted to far forward, the wind forces the bow of the boat to leeward. To compensate, the helmsman must push the tiller to leeward, to keep the boat heading 45 degrees to the wind; this is called "lee helm." Conversely, if the sails are tilted too far aft, the back of the boat is pushed to leeward, and the helmsman must pull the boat to windward, resulting in "weather helm." Either of these conditions result in unnecessary drag from the rudder, slowing forward speed.

The goal of this adjustment is to get close to "neutral helm," so that the boat can sail upwind with the tiller and rudder centered. Maintaining neutral helm under way also requires that the boat is kept flat: with crew and skipper weight position adjustments, and hiking as needed. Under neutral helm, the skipper can keep the boat on course with minimal, fingertip forces on the tiller or hiking stick.

Mast pre-bend is an adjustment of the curvature of the mast, using the forces of the forestay, shrouds, and spreaders. Modern Snipe sails are designed for a specific curvature. Tuning at the dock provides an initial setting. The mast will bend further under way, bending more as wind speed increases. This helps flatten the sails under higher wind conditions.

### **3.1 Mast Position Setting**

- 3.1.1 The front of the mast at the deck should be between 59" and 60", as measured using a tape measure from the stem (front of bow where the hull meets the deck, disregarding the deck overhang). 59" is the minimum under the rules and most sailors seek to position as close to the minimum as possible.
- 3.1.2 If this distance is not in spec, adjust the mast step position, at the mast attach point on the floor under the deck, to bring the stem to mast distance to the proper range.

### **3.2 Shroud Attachment point and Adjusters**

- 3.2.1 The jib luff wire should be attached at the foremost location; the forestay can be attached farther back. We do this because the first hole is in the furthest forward legal position and we have found that the more forward the jib is set, the better the upwing performance.
- 3.2.2 Normally, the shrouds should be attached at the foremost loop or chain plate position. In medium to heavy air, it helps to move back 1 position. They are moved aft to help guard against the mast inverting on dead downwind runs when hit with a large puff.
- 3.2.3 Ideally, use fine scale adjusters, such as Sta-Masters, at the bottom of the shrouds. Small adjustments make a big difference in mast rake. The class rules allow you to make adjustments between races, but not during races.

### **3.3 Initial Mast Rake Adjustment**

- 3.3.1 Do this step prior to raising any sails.
- 3.3.2 Ensure that the mast fore and aft pullers are relaxed.
- 3.3.3 Attach the end of a 25 ft. tape measure to the bottom of the main halyard shackle, using a piece of wire or a cable tie, tape, etc. The tape should be attached so that it measures from the top of the clevis pin on the shackle.
- 3.3.4 Raise the main halyard all the way to the top, and secure the lower part of the halyard to its peg on the mast.

- 3.3.5 Have a helper push forward on the mast, just enough to tension the shrouds. Alternatively, apply tension by pulling on the forestay.
- 3.3.6 Carry the tape back to the transom and pull it tight to measure the distance from the top of the mast to the top of the transom. This is the mast rake measurement. On boats with a transom cutout for the rudder, measure just to the side of the cutout.
- 3.3.7 Adjust the shroud lengths evenly on each side, to achieve an initial mast rake of **21 ft. 1 in.** This is a good first approximation, but does not have to be exact. Anything between 20 ft 11" and 21' 3" is fine.

#### **3.4 Rake and Prebend Adjustment for 10-15 mph Wind**

- 3.4.1 Loosen mast aft and mast forward.
- 3.4.2 Raise Jib.
- 3.4.3 Hook the tape in the main halyard and raise the halyard. The tape should be attached so that it measures from the clevis pin (0" at top of clevis pin).
- 3.4.4 Lock the main halyard wire on the setting hook and put a piece of tape over it to hold in place when the halyard is slack.
- 3.4.5 Put the stay masters in the first hole aft from front.
- 3.4.6 Attach the LOOS gauge to one of the shrouds.
- 3.4.7 Pull jib halyard to get 20 on the Loos gauge:
  - A. Pull the spring on the gauge past 20 (or other desired target).
  - B. Slowly release tension on the jib halyard until the LOOS gauge reads 20 (or other desired target).
- 3.4.8 Adjust mast rake:
  - A. Pull medium pressure on the tape to take out any sag and read the distance.
  - B. Adjust Staymasters (or other shroud adjustment fitting) so that the tape reads 21' 5-1/2" to the center of the back of the transom.

- C. Both shrouds should be same length and have the same Staymaster reading.
- D. If the tape reading is too long, then both the Staymasters need to be tightened.
- E. If the tape reading is too short, then loosen both Staymasters.

- 3.4.9 Write down the Staymasters final setting.
- 3.4.10 Double check the prebend by holding the tape to the sail track at the gooseneck. Look up at spreader and you should see 1 to 1.25" of space between sail track and tape.
- 3.4.11 With the mast fore and aft pullers still completely loose, make a vertical mark on each side of the mast at its fore/aft center point. Make a corresponding horizontal mark on the deck on each side of the mast. As you get more experienced in boat speed techniques you will be using these marks as you just adjust the fore and aft pullers for more power out of your sails for different wind and wave conditions.

### 3.5 Settings for General Wind Conditions

- 3.5.1 Mast Rake and shroud attach points and traveler

Wind, mph	Mask Rake Tape Measure, ft.-in.	LOOS gauge setting	Shroud attach points	Traveler
5-10	21'-6-1/2"	18	First hole	None
10-15	21'-5-1/2"	20	First hole	None
15-20	21'-4-1/2"	22	Second hole	3"-6"
>20	21'-4"	22	Second hole	6"-12"

- 3.5.2 Jib Fairleads
  - A. 7-17 mph jib block 88" from jib stay clevis pin at bow
  - B. 0-7 and over 17 mph move jib block aft 1"

C. Up to 15 mph, leave the fairleads as close to centerline as possible. Over 15 mph, ease the fairleads outboard up to 2" in order to better punch through the waves (which you might have to do in bay and ocean racing before having to do so in lake racing).

### 3.5.3 Two sets of sails

Each boat should have one at least one set of regatta sails and one set of practice sails. The jibs on both sets should be measured. If you go to a regatta where sail measurement is required, get both sets measured in. The practice sails will be used for most practice sailing and for regattas where the winds are over 20 mph with higher gusts. The regatta sails will be competitive for 15-20 regattas if properly cared for, not creased, and not allowed to flap extensively in high winds. If not in a regatta, you should only use them for pre-regatta side-by-side sailing tuning with another boat to make sure you are getting the shape and speed you want from your settings. When you get new regatta sails, move your current set to practice status and donate your practice set to the fleet.

### 3.5.4 Tuning marks

A. On each jib write down (with a marker) in the toe the Staymaster setting for each wind range. Some sailors also write these setting on the clew of each jib.

B. On the mast mark a line for the top of the "S" hook (or some other significant point) on the jib halyard for each of the wind settings. You will find that at least two different wind settings will wind up with the same mast mark. If your jib stays are different lengths for the two different jibs you will have two sets of marks on the mast. It's a good idea to use the same color marker for the mast markings and the jib toe markings.

C. Mark the 88" setting for the jib fairleads.

D. On the splash rail make a longitudinal mark on each side exactly 16" from the center of the mast. This is the point to which the jib should be taken in after each tack where the bottom seam is just over the mark. From there you can start making small adjustments for different wind and wave conditions.

E. When going upwind with the jib seam over the 16" mark, use a marking pen to mark a 1/4" band around the jib sheet just where it exits the clam cleat.