Single-Line Jib Halyard System

Rule 51: Jib Luff Wire/ Line: The jib must have a wire or a fiber line (excluding PBO and Carbon) attached to the luff while racing.

The International Snipe Class recently changed rule 51, to allow the use of synthetic rope in the place of a traditional jib luff wire. Under the new rule, it is possible to replace two pieces within the system (the traditional jib luff wire and an internal jib halyard assembly) with one continuous low-stretch line that runs throughout both your jib, and your internal jib halyard system. This is a great opportunity to re-examine what is really going on within the jib halyard system and make improvements where possible.
Modern, low-stretch line is lighter and more flexible than wire, which means that using line results in less weight aloft. .

LINE

Because Carbon and PBO are not allowed, there are only two fibers available that have low enough stretch for this application. These are Vectran and Dyneema. The breaking strength for wire and rope of the same diameter is similar but you will want to use a larger size of line. 3/16" (5mm) diameter will minimize, the elastic properties of the fibers because we are working at a low percentage of breaking strength.

Vectran is an extremely strong fiber that a lot of big boats use to replace wire. It is a little heavier than Dyneema, but does not "creep" as much. Creep is an elongation that occurs at a static load (not often found while we are sailing). Vectran is also one of the easier lines to splice, so if you are a do-it-yourselfer, this is a great choice. Unfortunately, it does not do well in the sun, and should be put under a cover after sailing

Dyneema (also known as Spectra) comes in a few different versions. SK-60 is the most common version, but is also the least high performance of the Dyneema family. It is not suitable for our jib halyard/ luff rope. SK-75 is a mid-level version that will work. Some manufacturers blend SK-75 with Vectran to take advantage of both fibers properties. This is also suitable. The highest performance of the Dyneema family is SK-78. This is the lightest, strongest fiber that we are allowed to use. Dyneema does better with UV light.

Vectran has performed well on our test luff ropes. No matter which line you choose, you'll want to consider pre-stretching your halyard. This can be done with a block and tackle on a work bench, or with a winch on your friend's big boat.

	Jib Luff wire	Sidewinder Jib Halyard	Vectran	Dyneema SK 75	Dyneema SK 78
Size	3/32 1x19	1/8 7 x19	3/16 12 strand	3/16 12 strand	3/16 12 strand
Strength in lbs	1200	2000	5500	5400	5400

RIGGING

If you are eliminating a wire jib halyard at this time, you'll want to reduce areas of possible chafe. Make sure the jib halyard exit is smooth and free of burs. Also, examine your jib halyard sheave. If it is worn on the sides, or built only for wire, now may be a good time to replace it.

The Simple Jib luff rope/wire method: If you only want to replace your removable jib wire with a removable jib rope, splice two loops into a piece of line, and make the loops the same distance apart as the old wire. There will be some initial elongation in the system as the splices settle, so make it about 1"(3cm) shorter.

The complex jib luff rope/wire method: A single piece of line can replace the traditional jib halyard AND jib-wire luff assembly. To do this, you need to first decide how to attach the rope to the head grommet on the jib. Splicing a loop in the line creates the starting point for your system, as well as a loop for the shackle that attaches the head of your jib to the halyard (figure 1).

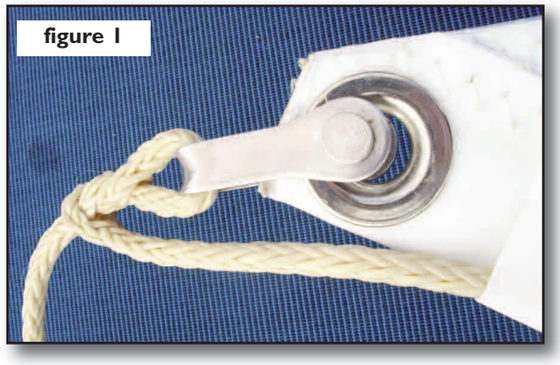
figure 1

Since the shackle at the head of the sail is the anchor of your system, you will also need an adjustment at the bottom of the jib-rope, where it attaches to the bow, to maintain correct height of the jib off the deck. To achieve this, use a small pin adjuster, like many boats already have. The pin adjuster will set your jib at the correct height off the deck and maintain the jib sheeting angle (figure 2).


figure 2

Another alternative is to anchor the system at the bow, and control the height of the jib with a short halyard at the head. This is how Szabo is doing his. It allows changing the height of the jib off the deck without having to change the jib halyard mark on the mast or your shroud adjusters. Bury a small piece of spectra inside the halyard and use this short line to adjust the height of the jib off the deck.

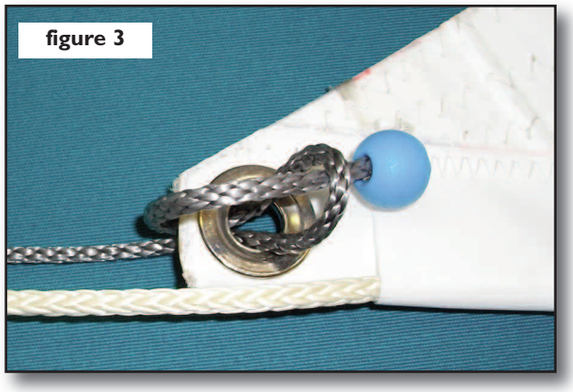
figure 3

To maintain repeatability with this option, attach a ball on the tail. This enables the passage of a loop of the tail through the head grommet, which will cinch tight against the stopper (figure 3). The length of the Spectra tail (halyard) can be changed by moving the knot at the other end. To keep this from moving under load, it is a good idea to tie a stopper knot where it exits the assembly (figure 4). Rigging tape can be used to secure the tail and keep it from flapping around.

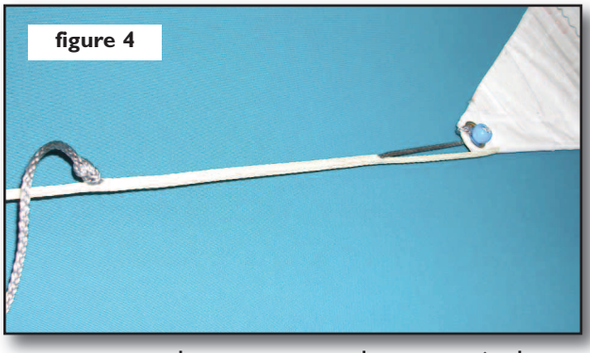
figure 4

Regardless of which way you choose to set your boat up, the crucial measurement is the distance from the jib tack to the deck. With the jib cloth pulled snug, this distance should be 3-3.5" (8-9cm)

The new rule will likely not change the way the Snipe is sailed. In fact, it may create more problems initially as the splices settle in. Racing will still be close, this is just one more way to try and squeeze out that extra inch or two on the race course.

I look forward to seeing what you come up with for your system at the next regatta. Happy Sailing!

Eric Heim

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