

Please Note: Turnbuckle Update!

The number of turnbuckle turns referenced in this Guide are for old style turnbuckles; the number of turns needed for new style turnbuckles to achieve the same tuning will be double what is listed:

Standard Turnbuckles = use # of turns in this Guide

New Turnbuckles = use twice the # of turns in this Guide

(Shroud tensions (measured by Loos Gauge) are the same for Standard and New Turnbuckles)

Mast Rake

Mast Rake dictates the amount of weather helm when sailing upwind. The J-105, being underpowered up to 10 knots, should be set up for as much rake as the class allows. The increased rake will induce weather helm, making the boat much more responsive and easier to drive in light to medium conditions. The three settings that determine mast rake are:

- *"J" measurement.* Your "J" measurement should be the Maximum that the class allows. 13' 6". You may have to customize your mast chocks to get maximum "J". We have found that most J-105's need to almost let the Spars lay against the aft partners at the deck to get to Maximum "J".

- *Mast Butt location:* Depending on how close you get your mast to maximum "J" at the deck determines exactly where the mast butt should be located. The mast butt should be set between 10 1/4 inches and 10 1/2 inches from the bulkhead behind the mast. Bulkhead position may vary from boat to boat. The easiest way to check mast butt position is to check your prebend with the forestay set at max class allowance. With normal shroud tension your spar should have zero prebend. If your spar has reverse bend then you have placed your butt position too far forward. If your spar has any prebend at all then you would want to move the butt forward until prebend disappears. Mast butt position is very critical and if you are not sure, please contact the Ullman Sails Loft.

- *Headstay length.* Set for maximum class allowed. 42.65'. Once your forestay is set, you need not adjust it further.

Shroud Tensions: (Use PS 10 Loos Red Gauge)

- Before setting shroud tension, it is very important that you make sure your spar is centered at the hounds. To center the spar first measure from the forestay pin back to a point on each side of the toe rail adjacent the spar and mark with permanent marker. Then attach a steel tape measure to the center Jib halyard. Raise the jib halyard a few feet and cleat. Then measure to each rail, adjusting each upper shroud until the measurement is the same on each side.

- Once the spar is centered, tighten the uppers to (30) on your Loos Gauge. Tighten Intermediate shrouds to (12). The lowers should be slack. (approx. "0" on the gauge). Your rig is now dock tuned for 0 to 8 knots. With the correct mast butt position, headstay length, "J" measurement, and shroud tensions, your J-105 will have the correct mast bend and forestay sag to accommodate your new set of Ullman Sails through a wide range of conditions.

· Adjusting shroud tensions for different conditions. Through years of testing and sail development, we have simplified J-105 rig tuning into an easy to understand guide that will help you get excellent performance out of your boat. However by studying the rationale behind our tuning, you will understand why we do it. This should help increase your performance even further.

Upper shrouds: Upper shroud tension controls forestay sag and mast tip leeward sag.

Lowers shrouds: Lower shroud tension controls leeward mast sag and to some extent, lower mast bend.

Intermediate shrouds: Intermediate shroud tension controls mid to upper mast leeward sag.

Backstay: Backstay tension controls mid to upper mast bend and forestay sag. (Tension)

Leeward mast sag

The J-105, being inherently under-powered below the 10-12 knot range, must be powered up every way possible in the lighter conditions. We have found that if tuned correctly, "Leeward Mast Sag" is a formidable weapon under 12 knots. Leeward mast sag has two important effects on the sail shape and the slot between your jib and mainsail. First, leeward mast sag will add luff curve to the mainsail, making a more powerful shape for the lighter conditions.

Secondly, and most important, leeward mast sag narrows the slot between the leech of the jib and luff of the main. This in turn increases the pressure between the main and jib which increases lift on the leech of the main. More lift. More power and speed. Leeward mast sag is very much like barber hauling the jib. To achieve the correct Leeward sag, you should sight up the mast slot while sailing up wind. Although the tuning guide chart will get you very close to the correct sag, the smoothness of the sag should be checked by eye.

A quarter turn off on the lower can make a difference in the smoothness of your mast sag. The leeward mast sag should be a smooth curve starting from the gooseneck and continuing to the hounds where the uppers and forestay attach to the spar.

U/S sails perform best with approx 1" 1/4" of leeward mast sag from 0-8 knots and 1/2" of sag from 8 to 15 knots. Once the boat starts to become overpowered, the spar should be tuned as straight athwart ship as possible, eliminating any leeward mast sag.

Mast Tip Sag / Forestay Sag

The upper shroud tensions will control head stay sag and mast tip sag through a wide range of wind conditions. (30) (loos gauge) on your upper shrouds will give you enough headstay sag to keep your Ullman Jib powerful in the 0-8 conditions. At the same time, (30) is just enough tension to keep the tip of the mast from falling to leeward. When your mast tip leans to leeward, you are essentially dumping wind from the top of the mainsail, which turns the power down in the mainsail. Mast tip sag under 12 knots is slow. Your

lowers and intermediates should be set for 1 1/4" of leeward mast sag. Approx. (12) on intermediates and -0 on lowers.

As the breeze builds to the 8-16 range, your jib will begin to become too round and full for optimum performance. You will also notice that your mast tip will begin to sag to leeward which is detrimental for the mainsail both in power and pointing. To compensate for the windier conditions, simply tighten your uppers to (41) (Loos Gauge). This tighter upper setting will once again give you the correct headstay sag and mast tip sag for optimum sail shape. Your lowers and intermediates should be set for 1/2" of leeward mast sag. Approx. (17) on the intermediates. (0) on the lowers.

Once the breeze has built to 17+ you will once again tighten the uppers to (51), giving you correct head stay sag and mast tip sag for optimum sail shape. At this point the lowers and intermediates should be set for zero mast sag. Approx (22) on the intermediates and (5)on the lowers.

Rig Tuning Synopsis: Simplicity is the key to maintain top boat speed in all wind strengths. U/S sail shapes have been developed to perform through the entire sailing wind range, while requiring very little changes in your rig. Three simple settings on your uppers, lowers, and intermediates with a total variance of two turns or less per shroud is all that is needed

Rig Tension Guide Using a Loos Gauge				
0-7 knots	Adjust	8-16 knots	Adjust	17+ knots
Uppers	+1.5 turn		+2 turn	
30		41		51
Inter-mediate	+.75 turn		+.75 turn	
12		17		22
Lowers	+.5 turn		+.5 turn	
-0		0		5
0-7 knots is "Base" setting; adjust tighter for more wind				

89 Sq. Meter Spinnaker Trim Guide

- We do not recommend using twings.
- Spinnaker halyard should be at the top of the mast at all times.
- Mark Halyard accordingly.
- Tack line should be trimmed from 1.5' to 4' from end of pole, depending on amount of breeze.
- When the breeze is above 10 knots, ease the tack line from the 1.5' mark until the luff of the sail starts to project to windward.
- If you ease the tack line more than this amount, the sail will become unstable.
- Generally speaking, the more wind and the flatter the water surface, the more you can ease the tack line.
- Leech and luff lines do not need adjustment for at least a half season of racing.

- Backstay completely loose.
- When sailing in chop, roll jib up tightly and cleat. Then pull jib sheets tight and cleat. This will keep the rig from bouncing around.
- Most 105s tend to keep their crew weight too far forward when sailing downwind in over 12 knots. Crew should sit just forward of cockpit.