

## J-105 RIG TUNE GUIDE

**1: 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:

**A: "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 mast lay against the aft partners at the deck to get to Maximum "J".

**B: 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<sup>1/4</sup> inches and 10<sup>1/2</sup> 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](#).

**C: Headstay length.** Set for maximum class tolerance (42.65'). Once your forestay is set, you need not adjust it further. Refer to class rule 7.4 under additional rules for measurement formula.

### **2: Shroud Tensions: (Use Red Model PS 10 Loos Gauge)**

**A:** 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.

**B:** Once the spar is centered, tighten the uppers to (28) on your Loos Gauge. Tighten the intermediate shrouds to (10). The lower shrouds 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.

**C: 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 at the spreaders 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)

### **3: Leeward Mast Sag through Lower and Intermediate shroud adjustment.**

The J-105, being inherently underpowered 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 More 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.

**Ullman 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 ships as possible, eliminating any leeward mast sag.

### **4: Mast Tip Sag and Forestay sag.**

The upper shroud tensions will control head stay sag and mast tip sag through a wide range of wind conditions. (28) (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, (28) 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. Approximately (10) on the intermediates and (0) on the 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. Approximately (17) on the intermediates and (0) on the lowers.

Once the breeze has built to 17+ knots, you will once again tighten the uppers to (51), to give you the 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. Approximately (22) on the intermediates and (5) on the lowers.

### **5: Rig Tuning Synopsis: Simplicity is the key to maintaining top boat speed in all wind strengths.**

**Ullman 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 you uppers, lowers, and intermediates with a total variance of two turns or less per shroud is all that is needed.

0-7 kts	Loos #		8-16 kts	Loos #		17 kts +	Loos
Uppers	28	Plus 1.5 full turn	41		Plus 2 full turn	51	
Intermediates	10	Plus .75 turn	17		Plus .75 turn	22	
Lowers	0	To .5 turn	0		Plus .5 turn	5	

Thank you for sailing with **Ullman Sails**!!



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Check out VRML pictures of J105 sails at [www.ullmansails.com](http://www.ullmansails.com)



# Ullman Sails J105 Trimming Guide



## Jib Trim Guide

- The starting placement for the jib leads using the **Ullman Sails** is with the pin in aft position on the jib car, 3 screws and plus one hole showing on the front of the track.
- Remove bottom shackle from the furler and attach tack directly to the furler. We also remove the shackle from between the halyard and the furler. We use small spectra line to lace halyard onto the furler. This helps reduce the spinnaker halyard snagging.
- Use the provided leech telltale to trim the jib. Trim the jib until this telltale just starts to flutter but not stall. This is max trim on the jib. At this time the center seam of the jib should be parallel to the centerline of the boat. The top of the jib should have a few degrees of twist outboard and the bottom of the jib should have the same amount of return (hook inboard) that the top is twisted out. Our simple rule ***“the leech telltale is for the trimmers and the luff telltales are for the driver.”***
- We recommend having inhaulers for the jib sheets. These are simple to rig and can gain a degree or two of point in flat water and medium breeze. By running the furler line to the starboard side you will have one cam cleat on each side that the inhaulers can be lead through. The forward end of the inhaulers leads forward under the handrail around the front of the mast, under opposite handrail, around jib sheet, and ties off to the upright of the handrail.
- We also recommend running the sheets directly to the winches from the lead blocks and not using the turning blocks on the rail. This requires a small piece of bungee cord tied to the dodger pad eye and a knot on the other wedged under the hinge side of the cockpit hatch to the lazeret. The jib sheet runs under the bungee and this keeps from getting over rides on the winch. The benefit to doing this is that the jib sheet will not get stepped on in roll tacks and is less likely to get fouled. You can also put marks on the jib sheets where it passes under the bungee for a base trim location.
- When the boat is up to full speed pull on the inhaulers to bring the top inboard until the leech points straight at the angle bend in the top spreader. When the boat slows the main trimmer can easily reach forward and release the inhauler while the crew hikes. This is most common when going through a series of waves or when approaching a crowded weather mark.

- Adjust the backstay to always have 6” of forestay sag. If you have your shrouds at the correct Loos gauge setting you will be able to control this easily with minimal backstay adjustment. ***Do not forget to adjust mainsheet tension every time you adjust the backstay!***



## Mainsail Trim Guide

- The main sail is a key ingredient in speed for the J105. The main trimmer should be the person on the boat that best understands boat speed and tactics along with a good working relationship with the driver.
- When the boat is up to speed in 0-7 knots the traveler will be above the weather seat in the cockpit with enough sheet on to make the top telltale stalling about 50% of the time. The outhaul in this breeze should be trimmed to allow about 2.5” between main and boom.
- In 7-12 knots the traveler should be even with the weather seat in the cockpit and the main should be trimmed using the second tell tale down from the top. This telltale should be stalling about 25% of the time. At this point the crew should be hiking the boat as flat as possible with legs out. The traveler should be played in the puffs and the outhaul needs to be on tight (If temporary pointing is needed the outhaul can be eased. This will slightly slow the boat but allow more point without completely changing gears).



## 89Mtr2 Spinnaker Trim Guide

- We do not recommend using twings for the spinnaker.
- Spinnaker halyard should be set 1' from top of mast when sailing in smooth water and higher wind speeds. The halyard should be at max. height when sailing in light air and/or waves.
- Mark Halyard accordingly.
- Tack line should be trimmed from tight to 3’ from end of pole, depending on amount of breeze. Remember to pull tight again for gybing.
  - \*When the breeze is above 7 knots ease the tack line off of the pole. If the tack moves up or to weather, allow the tack to float 1.5’ above pole. When wind is 10 kts. and above, ease the tack line as much as 3’. If spinnaker gets hard to trim or tack moves to

leeward, pull tack line back on.  
tack line more than this amount, the sail will become

\*If you ease the  
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 (Remember to close the release valve and pump once to put oil on top of cylinder).
- 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 J-105s tend to keep their crew weight too far forward when sailing downwind in over 12 knots. If waves come near the gunwale at the bow move the crew weight aft of shrouds near the backside of cabin just forward of the cockpit.

**Thank you for sailing with Ullman Sails!! We are committed to helping you win.**

# Downwind Maneuvers and Tips

## **Spinnaker Sets:**

1. Hook up tackline (tack), sheet (clew), and halyard (head) to the correct corners of spinnaker.

*\*Note: If gybing “inside”: hook up the spinnaker halyard with the spinnaker sheet on the inside. If gybing “outside”: hook up the spinnaker halyard with the spinnaker sheet on the outside.*

2. Prepare both spinnaker sheets and set up on cabin top secondary winches.

*\*Note: If the weather sheet is not released on set, the sail can not be trimmed or if set up for outside gybes, the weather sheet will tear and split the luff of the spinnaker.*

3. Pull the tackline out to pre-marked position for hoisting.

*\*Note: The tack of the spinnaker will deploy to the end of the pole when the pole is set at the mark rounding .*

4. Skipper calls for “hoist” and the mast person jumps the halyard, the pit person tails the halyard and the cockpit crew pulls the pole out to a pre-set mark.

*\*Note: The skipper should steer down 10+ degrees to help fill the spinnaker; the spinnaker trimmer will usually trim the sail hard to help fill it and immediately letting the sheet out aggressively to not choke the chute!*

5. Furl the headsail.

*\*Note: The more wind, the less critical it is to get the jib furled after hoisting. In high winds, get the boat in control first!*

6. Check for full halyard hoist and tackline and pole are at proper settings.

7. Release backstay tension and to get mast straight

*\*Note: Pull on the jib sheets tight to take up the bounce and steady the rig. Or putting up a staysail in PHRF races will also pull the rig tight.*

8. Ease cunningham completely and outhaul enough to let the lens foot drop next to the boom.

## **Light Air Trim (1-9 knots TWS):**

1. Put crew weight forward and to leeward near the shrouds.

*\*Note: This will help keep the boat in good balance and let the boat accelerate in puffs. But as puffs hit, try to keep the boat from heeling excessively by moving some crew weight to the weather rail.*

2. The tack line should be kept tight to the end of the pole.

*\*Note: Do not let the tackline loose until you are trying to sail deeper angles when the wind speed and boat speed are higher.*

3. The trimmer and helmsperson constantly talk about pressure on the spinnaker sheet and boat speed.

*\*Note: The trimmer tells the helmsperson to steer down when pressure on the sheet is good and as the pressure drops, head up slightly before the speed drops.*

4. The spinnaker sheet should be let out to have the luff curl about 1-1.5 head panels 50-75% of the time.

*\*Note: If the sheet is not eased, the spinnaker will not curl and will stay "over trimmed" behind the main in dirty air.*

5. The main should be trimmed out until it luffs slightly, then trim back in about one foot of sheet.

*\*Note: Off the wind, the best rule is to play the boom vang to keep the upper middle batten parallel to the boom. If the upper middle batten is "opened" and pointing to leeward of the boom angle, tighten the vang. If the upper middle batten is "hooked" and pointing to weather of the boom angle, loosen the vang.*

## **Moderate Air Trim (10-18 knots TWS):**

1. Crew weight needs to stay forward of the cockpit, on the weather side.

*\*Note: Weight to weather will help rotate the spinnaker around from behind the main and fly in clean air.*

2. The tack line should be let out 2-4 feet from the end of the pole.

3. The trimmer and helmsperson constantly talk about pressure on the spinnaker sheet, boat speed and steering down in the puffs.

*\*Note: TWA can be 140-150 degrees depending on sea conditions.*

4. If the spinnaker becomes unstable, steer up about 5-10 degrees and do not sheet the spinnaker tight.

*\*Note: Trimming the spinnaker tight or steering off will cause the spinnaker to collapse behind the main and will take a drastic turn up to fill again.*

5. The spinnaker sheet should be let out to have the luff curl about 1-2 head panels 75% of the time.

*\*Note: If the sheet is not eased, the spinnaker will not curl and will stay "over trimmed" behind the main in dirty air.*

6. The main should be trimmed out until the luff gets a slight back wind, or the pressure on the helm eases up.

*\*Note: Off the wind, the best rule is to play the boom vang to keep the upper middle batten parallel to the boom. If the upper middle batten is "opened" and pointing to leeward of the boom angle, tighten the vang. If the upper middle batten is "hooked" and pointing to weather of the boom angle, loosen the vang.*

### **Heavy Air Trim (18+ knots TWS):**

1. Crew weight needs to stay on the weather side and move back slightly to keep the bow from dipping.

*\*Note: Weight to weather will help rotate the spinnaker from behind the main and fly in clean air.*

2. The crew should start to help call "puffs" while the trimmer and helmsperson constantly talk about boat speed and wind angle.

*\*Note: TWA can be 150-165 degrees if sea conditions allow it..*

3. If the spinnaker becomes unstable, steer up about 10-15 degrees and do not sheet the spinnaker tighter to stabilize it.

*\*Note: Trimming the spinnaker too tight or heading off will cause the spinnaker to collapse behind the main and take a drastic turn up to fill again.*

4. The spinnaker sheet should be let out to let the luff curl about 1.5 – 2 head panels 75% of the time.

*\*Note: If the sheet is not eased, the spinnaker will not curl and will stay "over trimmed" behind the main in dirty air.*

5. The main should be trimmed out all the way until the sail is against the shrouds, or until it begins to luff.

*\*Note: Off the wind, the best rule is to play the boom vang to keep the upper middle batten parallel to the boom. If the upper middle batten is "opened" and pointing to leeward of the boom angle, tighten the vang. If the upper middle batten is "hooked" and pointing to weather of the boom angle, loosen the vang.*

## **Inside Gybing:**

1. Typically this technique is used in low to moderate wind strength.

*\*Note: Inside gybes usually take large angles to fill the sail and build speed on the new gybe angle.*

2. Important to remember: **gybe the spinnaker first** and **then turn the boat**.

*\*Note: If you turn the boat before the sail is trimmed to the new leeward side, the spinnaker will fill through the fortriangle and slow you down immediately. Normally to correct this, you have to gybe back to the original gybe.*

3. Always keep the tackline tight, then loosen it after the spinnaker fills if desired.

## **Light Air:**

1. Clear the new spinnaker sheet from the headstay and furling gear in the bow.

*\*Note: If the sheet is not clear forward, the spinnaker sheet will never clear around the headstay.*

2. In light air, the trimmer must let the sheet go (about 10-15 feet) very quickly to let the clew and leech blow away from the rig before the helmsperson bears away into the gybe.

*\*Note: If the helm is turned before the sail is cleared away from the rig, the spinnaker will get caught on the leeward upper spreader and stop the boat. If the sail is stuck, first try lowering the halyard some to clear it, if it will not come off, then gybe back to the original gybe.*

3. Turn the helm down about 15-20 degrees and then straighten out until the clew of the spinnaker is trimmed past the headstay and to the new leeward shroud.

*\*Note: With more practice, this maneuver will become very smooth without much loss in speed.*

4. Pull the new sheet as quickly as possible (after the sail is let out 10-15 feet on the leeward side) to trim it to the new side.

*\*Note: A forward crew can help grab the sail around the headstay and run it aft and make this gybe transition much faster and smoother for the trimmers.*

5. Once the sail is trimmed to the new side, the helmsperson turns sharply up to the new wind angle and course.

*\*Note: The trimmer and helmsperson should be actively discussing if the angle is “too hot” or “too cold” when finishing the gybe.*

6. If the sail is trimmed tight and the luff will still not fly correctly (collapsed), pull down sharply on the clew to “snap” the luff open to fly and trim properly.

*\*Note: The crew that helps the sail around the headstay and runs the clew back is typically the best person for this adjustment.*

7. The main can be trimmed in and held momentarily centerline (until the spinnaker fills) and then trimmed out.

## Moderate Air:

1. Clear the new spinnaker sheet from the headstay and furling gear in the bow.

*\*Note: If the sheet is not clear forward, the spinnaker sheet will never clear around the headstay. Always keep*

2. In moderate air, the trimmer must let the sheet go quickly to the headstay and not let the clew go forward of the headstay until the new sheet is trimmed tight to pull the clew around.

*\*Note: If the old sheet is let out with the clew forward of the headstay, the spinnaker will usually twist and wrap on itself! Big problem!*

3. Turn the helm down about 20-25 degrees and then straighten out until the clew of the spinnaker is trimmed past the headstay and to the new leeward shroud.

*\*Note: With more practice, this maneuver will become very smooth without much loss in speed.*

4. Pull the new sheet as quickly as possible (remembering not to let the clew get forward of the headstay) and trim it to the new side.

*\*Note: A forward crew can help grab the sail around the headstay and run it aft and make this gybe transition much faster and smoother for the trimmers.*

5. Once the sail is trimmed to the new side, the helmsperson turns smoothly up to the new wind angle and course.

*\*Note: The trimmer and helmsperson should be actively discussing if the angle is “too hot” or “too cold” when finishing the gybe for good VMG.*

6. The trimmer should immediately trim the spinnaker out after the gybe. The boat should balance itself out flat and accelerate fast out of the maneuver.

*\*Note: Inside gybing tends to “oversheet” the sail to gybe it and make it fill on the new side, thus making the trimmer trim a lot of sheet.*

7. The main can be trimmed in and held momentarily centerline (until the spinnaker fills) and then trimmed out

## Outside Gybing:

1. Typically this technique is used in moderate to high wind strength.

*\*Note: Biggest benefit is no crewmembers leave the cockpit for this maneuver. Outside gybes usually take small turning angles to fill the sail and build speed on the new gybe angle.*

2. Important to remember: **turn the boat first** and **then gybe the spinnaker**.

*\*Note: To work properly, the clew has to blow past the headstay and spinnaker luff and be trimmed when the boat is heading slightly by the lee.*

3. Always keep the tackline tight, then loosen it after the spinnaker fills if desired.

### **Moderate/HeavyAir:**

1. Make sure the new spinnaker sheet is on top of the pole/bowstick.

*\*Note: If the sheet is not on top of the pole/bowstick, the spinnaker sheet will never clear from under the pole and the sail will usually twist and wrap.*

2. In moderate/heavy air, the trimmer must trim the sheet out as far as possible without the sail collapsing. As the boat turns to gybe blow the spinnaker sheet as the boat passes through dead-down wind.

*\*Note: If the old sheet is not let out with the clew forward of the spinnaker luff, the spinnaker will usually twist and wrap on itself! Big problem!*

3. Turn the helm down to sail slightly by the lee (170-175 TWA) on the new gybe and straighten out until the clew of the spinnaker is trimmed past the spinnaker luff and trimmed to the new side (momentarily wing-on wing).

*\*Note: With more practice, this maneuver will become very smooth without much loss in speed.*

4. Opposite of an inside gybe, the trimmer should have to trim in the spinnaker slightly as the boat accelerates out of the gybe.

*\*Note: Remember, no crew should have to leave the cockpit for this maneuver, it is very safe for that reason.*

5. Once the sail is trimmed to the new side, the helmsperson turns smoothly up to the new wind angle and course.

*\*Note: The trimmer and helmsperson should be actively discussing if the angle is “too hot” or “too cold” when finishing the gybe for good VMG.*

6. Do not gybe main until the spinnaker is completely in front of the boat and is being trimmed on the new side (preferred technique in high winds because the boat maintains control).

*\*Note: Because the boat and wind angle is slightly by the lee when gybing, the boom will come across very fast.*

### **Helpful Hints:**

#### **Bow:**

*\*If gybing “inside”: hook up the spinnaker halyard with the spinnaker sheet on the inside. If gybing “outside”: hook up the spinnaker halyard with the spinnaker sheet on the outside.*

*\*Hoist the spinnakers from the forward hatch with a “hatch bag” for easy hoisting.*

## **Helm:**

*\*If the spinnaker collapses in light air, steer off 5-15 degrees and pull the spinnaker sheet to help fill the spinnaker again, then come back up for speed and pressure after the spinnaker fills.*

*\*If the spinnaker collapses in moderate to heavy air, steer up 10-15 degrees and slightly pull the spinnaker sheet to fill the spinnaker again, then steer down to normal wind angle and sheet pressure.*

## **Notes:**