STAR TUNING GUIDE

QUANTUMSAILS®
TO THE NEXT CHALLENGE.

STAR

Quantum Sails is pleased to share tuning tips and ideas from champion Star sailors. Our sails are constantly evolving to bring you the best experience when it comes to sailing the Star. This guide offers tuning and boat setup tips that can help you be at the leading edge of the fleet.

The Star is a challenging boat that is often overpowered. Knowing how to use the controls available to shape the mast for the conditions and manage power in the sail plan can be the difference between a satisfying day and a frustrating one. This guide will help you get the basic setup right. From there, fine tuning the rig for the day's conditions and your specific boat takes some experimenting. Good luck, and we hope to see you out there. Feel free to contact your local rep with any questions.

QUICK SETUP GUIDE

COMPONENT	SETTING
Intermediates	Set between 2⅞"-3" (7.3cm-7.6cm) A good start is 2 15/16" (7.5cm)
Spreaders	Medium to heavy air: 5" (12.7cm) Light air: 5¾" (14.7cm)
Shrouds	Uppers: 23-24 on the Pro Loos Gauge Lowers measured at 29" (73.5cm)
Mast butt	14' 9"-14' 11" (450cm-455cm) Older Folli's prefer the aft position Lillias, Mader, P-star, and newer Follis prefer the forward position
Rake	36.5"-37" (92.7cm-94cm) Longer for newer boats

PRELIMINARY MAST SETUP

MAST CHECK

Set the mast on two sawhorses. The sawhorses should support the mast at its base and right above the point where the intermediates attach to the mast to ensure that the mast stays stable and will have a repeatable bend when measuring intermediates.

FORESTAY

Connect the forestay and make sure that the rubber stopper is in and the connection point is taped so the forestay stays connected to the mast. Pull the forestay down along the front of the mast, and make a mark at the top of the black band. This will be useful later when tuning the rig.

INTERMEDIATES

To measure the intermediates before the spreaders are attached to the mast, pull the upper shrouds down along the front of the mast and make a mark at the end of the shroud with a permanent marker. Then pull the intermediates down and make another mark. The mark for the intermediate should be 2 15/16" (7.4cm) above the upper shroud mark; this is the recommended starting point but many sailors have found success in the range of 2 7/8"-3" (7.3cm-7.6cm).

Check the intermediates by pulling them down to the mark you made. If the intermediates are off the mark, tighten or loosen the locking nut to get them in the right spot. If you're sailing a new boat or one with new standing rigging, be sure to check them periodically as the wires may stretch over time.

PRELIMINARY MAST SETUP

ALTERNATE INTERMEDIATE MEASUREMENT USING THE SPRING SCALE

You can also set the intermediates using the spring scale method. The measurements are the same for this method, but the spring scale should have only 18 pounds of pressure. Either method works. Here is a helpful video explaining both methods.

PART 1 PART 2

SPREADER LENGTH

Next, connect the spreaders to the mast. Once these are installed, tie a small line or shock cord between the tips that is even with the shroud bolts and check the sweep of the spreaders. The measurement from the back of the mast to the line between the spreaders should be 5" (12.7cm).

Check that the spreaders are even with the same line from tip to tip and parallel to the top of the plug for your mast butt. You can check this by laying a batten on the plug for your mast butt and sighting the batten to the shock cord between the spreaders.

When you're on the water, a good method for checking whether your spreaders are even is by pushing the mast forward at the deck to bring the spreaders back to their stops. Check to see if they hit simultaneously. The spreader angle tends to move over time so check them periodically. If you're looking for more mast bend, especially in lighter air, push the spreader sweep back as far as or 5.75" (14.7cm) from the mast. At this setting, you'll need a little more lower backstay when the breeze comes up. Make sure to check that the spreaders are even after making any adjustment.

SHROUDS

Connect and tape the shrouds into place so that they stay attached to the mast when the mast is stepped. Make sure that anything sharp is properly taped to protect the sails.

BACKSTAYS

If you have a new mast, you need to cut the backstays. The goal is to get the backstays to a point where you can pull enough on when it gets windy and ease for speed in lighter air. We like to cut our backstays so that the distance from the top of the black band on the rig to the bearing point of the backstay is 6"-7½".

MAST TUNING, RIG UP

MAST STEP AND RAM

After stepping the mast, the mast butt location can be checked by measuring from the back of the mast, just above the butt casting, to the plane of the transom. To help you read the tape measure, we recommend putting a non-tapered, heavy top batten (comes with the sail) vertically against the transom.

If you have a new boat, start with the builder's suggested mast step location.

- On the older Follis, the standard location is 14' 9¼" (450cm) from the transom-deck intersection to the center of the aft mast step bolt.
- On the newer Follis, Lillia, P-star and Mader, the mast step location will be more forward, up to 14' 11" (455cm).

Pull on enough ram so that the mast pops forward into a positive bend position and then take the ram completely off. If the ram is still on when you're measuring the shroud tension, the rig will be incorrectly tensioned.

SHROUD POSITION

The lower shrouds should be set in line with the front of the mast. Attach the upper shrouds to the deck in equal positions on each side.

RAKE

To measure the rake, start with the tape measure at the bottom of the forestay where it goes through the deck, and measure up to the mark you made when the rig was down. On a longer forestay, the number you are looking for is 36" (94cm). To adjust your rake, use the stay master under the deck or the purchase at the back of the barney post.

BACKSTAY

Take your backstays, set them in the upwind position, and pull on the purchase evenly so that each has 5 units of tension on the PT-1 Loos Gauge. This is the best starting point to move on to tuning the shroud tension.

SHROUDS

Check your upper shrouds. Tighten or loosen them until they read 24 units of tension on the PT-1 Loos Gauge. This is the tension you want for medium breeze conditions of 8-12 knots. In lighter breezes, 23 units of tension allows the mast and sails to retain more power. In a stronger breeze, 25 units of tension will help reduce the power of the boat and increase the level of control.

For the lowers, measure from the top of the band at the gooseneck up the mast 36" (91.5cm) and make a mark. From this mark, measure from shroud to shroud, which should measure 29" (73.5cm). Adjust the turnbuckles if necessary. Another way to quickly measure tension is to hand-tighten the lower shrouds fully and then back off 1.5 turns. Lower shrouds can be adjusted for power needs; pull them on for less power and off to increase power.

Setting shroud tension be difficult to understand at first. To reinforce our points visually, be sure to watch the tuning videos in the link above.

RUNNER TIPS

USING THE RUNNER WHILE RACING

In light air under 6 knots and with the crew on the deck, you are most likely wanting to go fast forward. Only a touch of lower runner needs to be used, it is easier for the top batten to be hooked because of the weight of the boom so there is no need for the upper to be on.

In 6 to 8 knots of air and with the crew beginning to hike harder, the goal is to have the top batten parallel to the boom or 5˚ open with about 3" of lower runner on. This will help to round out the mainsail behind the mast at the spreader window, which helps the boat to go faster with the increase in breeze velocity. Speed and power will lead to better height on the racecourse. By pulling on a little runner, the sail plan has the ability to deliver the ideal speed around the course.

Once the skipper and crew are fully hiked, the next step is to make an adjustment to increase speed forward while maintaining height. Do this by flattening the mainsail with a firm mainsheet, taking a bit off the lower runner, and adding more twist. The upper backstay can slowly be added now to keep the forestay tighter in the developing chop. Often you will see diagonal wrinkles across the window; this is typically a fast forward mode. If the mainsail is smooth over the windows and there is no wrinkle across the vertical seam, you will likely be high and slow.

When the wind gets to 18+ knots, pull firm on the cunningham to bring the draft forward. The rake may be eased to help induce more twist. The upper is pulled hard, and the lower is pulled firm to keep the sail from luffing in the puffs. The goal at this wind range is to give the driver the most balance and control possible.

The exact mainsail shape and boat setup is different for each condition, so it's best for a racer is to get to the course early for speed testing with other boats to find the best setup for each day.

TRIM GUIDE

MAINSAIL

The mainsheet control is the most important control on the boat. The mainsheet is something you should be adjusting constantly whenever there is a change in wind velocity and water conditions and based on the mode of the boat or when making a maneuver. Be sure to experiment to find that right degree of trim for the day.

OUTHAUL

The outhaul should have a range of adjustments from the foot of the sail touching the boom to about 8" off the boom for downwind. This will give you a range for any condition and point of sail. The best guide for the outhaul upwind is from 0-4 knots; the outhaul should be snug to the boom. when you're in 6-8 knots of air and trying to generate power to hike against, ease your outhaul up to 1½". In over 10 knots of air, tighten the outhaul to flatten the sail and reduce power.

Downwind, the outhaul should be eased to make the sail full. Ease it so that the shelf foot opens.

CUNNINGHAM

The trick with the cunningham is not to overuse it. Leave some horizontal wrinkles in the main in conditions under 8 knots. Leaving these wrinkles gives the main the power it needs to get through the softer air. As the wind increases, use the cunningham to balance the boat. If the boat feels slow, ease the cunningham to return the power to the mainsail. On the downwinds, the cunningham should come off completely.

BACKSTAYS

The Star has upper and lower backstays. The upper is attached to the same spot as the headstay and helps tighten your forestay and depower your main, while the lower controls mast bend below the spreaders. Both backstays change the amount of headstay sag. In light air under 6 knots, the backstays should be off or just snug. In over 6 knots of wind, the lower backstay should be loose or about 1" from slack. When the crew is just over the side, you want to pull on more lower backstay to generate more power. When it's windy, you'll want to ease the lower backstay to go faster forward. Tighten as needed to keep height and the main quiet in the biggest breeze. The lower backstay also controls the headstay sag and the slot between the jib and the mainsail. To reduce power in the sails, pull on more lowers, and to increase power, ease off the lower backstay.

The upper backstay controls the upper part of the mainsail. This control is best used when the boat is overpowered. When the wind comes up, the lower is the first backstay to go on. When you need more balance or the boat is overpowered, the upper comes on to help flatten the boat. A tighter backstay will help the boat go lower and faster in heavy air, and a looser backstay will tend to make the boat point higher with less speed.

When reaching, the backstays should be eased to make the mast vertical to reduce the helm.

When running, both backstays should be eased so that the mast can go forward. In light breeze, the backstay should be fully eased so the mast can get as far forward as possible. In heavy air, the backstay should be eased, but be careful not to go too far forward (more than 15"-20") or the boat may become unstable.

The crew should check the leech at the top batten to make sure it is not too tight. We define too tight as when the leech doesn't move or is very tight. You will find that you need very little vang on a run. The rule is the same as trimming the leech upwind: Keep the aft end of the top batten parallel to the boom or looser.

TRIM GUIDE

MAST FORWARD ADJUSTMENT AT DECK

When reaching, use only enough forward lever to keep the mast from reversing. The less bend, the more powerful the rig. The crew should check the mast to make sure that it is straight. Set up the forward adjustment so it just barely goes loose when sailing upwind in light air. This keeps the mast from reversing on a reach without having to pull any forward puller on.

When running, pull on the forward puller until the mast is straight or slightly inverted. A good way to judge whether you have the right amount of forward puller on is to look at the windward spreader. The spreader should come straight out from the mast. It may swing slightly forward in the puffs and swing aft in the light spots, but normally it's straight out.

SLIDING MAST BUTT

Many boats use a sliding mast butt that allows the mast step to slide aft and ease the shrouds when running. This keeps the leeward spreader from cutting into the main and reduces tension on the leeward upper. When using the sliding mast butt, move the aft pin back in light air. Remember to move it forward one or two holes in the breeze. By doing this, the mast butt is always touching both the mast partner and the aft bolt at the mast step, keeping the mast locked in place when it's forward for the run.

JIB

Start by pulling in the jib until the leech lines up with the mark on the spreader. This is where the jib should be 95 percent of time when sailing upwind. If your boat does not have a mark, you should make one that is 18" (458mm) from the side of the mast on both spreaders. The jib sheet should be played almost as much as the mainsheet. The best way to look at the effects of control lines on the jib is to sit to leeward while sailing upwind, sight up the leech of the jib, and make the adjustment. Witness what it does to the sail. The upwind sail shape you want is a matching shape on the main leech and the jib leech. A match means your sails are working as efficiently as possible.

JIB HALYARD

The jib halyard determines the height of the jib off the deck of the boat. The recommended height is about 1" (25mm) off the deck. This height is a good starting point and should be adjusted to fit the needs of your boat. The goal is to get the jib low enough to where, at maximum trim and with the leech well inside the spreader mark when the jib sheet is two blocked. This method of sailing is just to check if your halyard is in the right spot, not how you should sail upwind.

TRIM GUIDE

JIB LEAD POSITION

After jib sheet tension, the lead position fore and aft is the most important adjustment. For the fore and aft setting, you should have some fullness in the foot with the mid batten pointing straight back. If the foot vibrates or flaps, it's too tight, and the lead needs to go forward. The lead usually ends up at about 86½" (2200mm) from the headstay, but this will vary depending on the boat and how high off the deck the jib is set. Start with the jib sheet at a 45°-50° angle off the deck. The sheet angle will be more vertical, up to 75° in light air to make the sail fuller.

For an inboard/outboard location, the jib cars should be set at 14" (356mm) from the center line. Unless you are over standing the weather mark or sailing in puffy conditions over 22 knots (when you would move the lead outboard), these leads do not need to change from inboard to outboard.

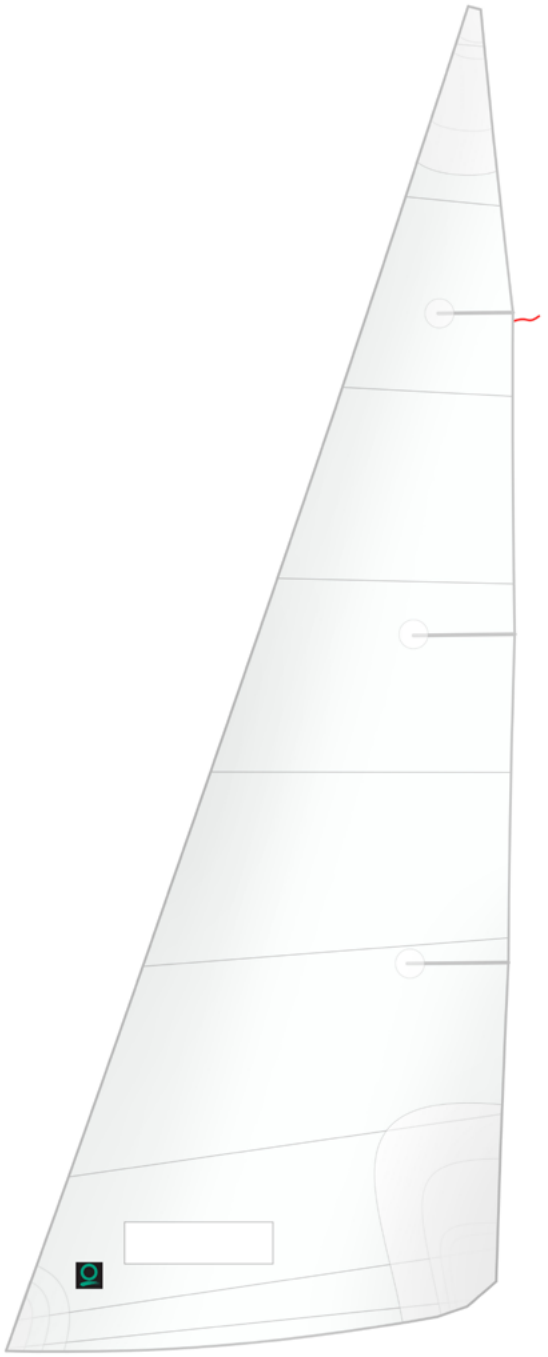
Downwind, the jib halyard should be raised so that the head of the jib is 12"-18" away from the jib halyard sheave. This allows the boat to have the maximum sail speed off the wind. Be sure to let the jib halyard back down before you get to the bottom mark.

JIB TACK DOWNHAUL

Just enough tension to take out the wrinkles is the fastest setting for this control line. When the breeze decreases, be sure to ease the line, and if you see wrinkles starting to appear, pull on the line until they disappear.

BACKSTAYS AND JIB RELATIONSHIP

The backstays affect the jib by changing the headstay sag. Pulling on both the upper and lower backstays will decrease sag and flatten the jib. The mainsheet will also pull back on the rig and affect the headstay sag. Keep in mind that the backstay and jib halyard have a symbiotic relationship: When one comes on, the other should be pulled on; if one is let off, the other should be left off, too.



QUANTUM CLASS EXPERTS

We hoped you enjoyed this Star tuning guide and learned a thing or two. Like all tuning guides, the techniques, numbers, and settings shared here are just that: guides, not gospel. They have been developed to help you find the sweet spots and get you in the right range. Superior athletes in every sport often have slightly different styles or techniques that work for them. Remember that trim is dynamic. You can't just set it and go. Learn what tuning and trim controls do by watching how they affect the sails. Then you'll know how to react and make changes in response to your performance at any moment.

Quantum's class experts are your support team, providing you with real-time tuning data, sail trim, sailing technique, mast setup, and tips. We're here to help you enjoy your Star. If you have any questions, be sure to call.

We'll see you out on the racecourse. Have fun!

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