



Ensign Tuning Guide



Quantum Sail Design Group has used our years of experience building and racing Ensign sails to develop a fast set of class sails geared toward performance in all racing conditions. Together with the industry's most rigorous quality standards for cloth selection, cutting accuracy, and craftsmanship, we have created a unique combination of speed, quality, and long-lasting performance sails.

We hope this guide will help you take your Ensign campaign all the way to the Grand Prix level. We believe that a successful racing campaign is a combination of many elements. While one of the most dramatic improvements to any Ensign is a new suit of Quantum sails, we cannot over emphasize the importance of raising the level of all the other components of your campaign to that of your new Quantum sails.

Before Your Boat Hits the Water

Clean and sand your bottom to 400 g finish, flattening any bumps. It is important to make sure to keep your bilge as dry as possible at all times, especially before the boat is put away for the offseason. There is a fiberglass shell surrounding the lead ballast of your keel. Water will seep into this area and contract and expand in the heat or freezing cold, cracking the shell. Cracks in the outer shell create drag. Large cracks are potentially dangerous and should be fixed at a professional boat shop.

The other major reason for meticulous water concern is that the boats are constructed with a large amount of Balsa wood. Although lightweight, Balsa absorbs water quickly—like a sponge—and will cause rot, especially in the deck and cabinhouse.

The Rudder

The Ensign rules state the rudder specifications thoroughly. Before glassing the rudder, please consult your rule book. We prefer the fiberglass rudders over wood ones for better performance. Fiberglass is easier to fair to the rules and will not absorb water as easily.

Rigging

We recommend your set up your **headstay** close to the Ensign class maximum length (26' 3 3/4"). **The best all-purpose length is 26'3"**. This allows you to set up the rig with the proper rake and prebend required for Quantum Ensign sails. Refer to our Trim/Tuning Chart for specifics on the shroud tensions. (below)

Mast Butt

The mast butt is located at the heart of rig tuning. Because mast step locations vary from boat to boat, we do not have a concrete measurement for where your own butt should be located.

What you want to look for is 1 ½ – 2" of prebend in the mast when the uppers and forward lower shrouds are tensioned properly (~40/40 units) with the rig centered and the backstay hooked up and

reading 0-5 units of measure on the tuning gauge (using the gauge on the forestay). We usually recommend shimming your mast forward at the deck if there is room to do so. If you have less than 2" of prebend, un-screw the shrouds and move the butt slightly aft, or slightly forward if the mast has too much bend. Re-tension the rig.

This is an important step. If you are not confident with the prebend amount, repeat these steps until you see this 2" of prebend. See the chart included (last page) to help locate your mast butt in the proper position.

Upwind Sailing

Get the crew dialed into the trim/tuning chart. By changing gears in the varying conditions, big gains can be made. The sails are very versatile. In the lulls, move trim to the lower breeze settings in the main and genoa. In the puffs, trim the genoa and main for speed. If over-powered, ease the traveler down to flatten the boat and relieve weather helm.

The Quantum mainsail gives lots of kick for pointing. By bringing the top batten to parallel then to windward a few degrees, the boat will point 3-6° higher. When the boat slows, change from "point" to "speed" mode by easing the mainsheet and bringing the traveler up, keeping the boom in centerline of the boat. This versatility in the main lets you squeeze off competition behind you while not getting sucked in to competition in front of you.

The mainsail needs the sheet to be eased hard to fall off at the weather mark and during "ducking" other boats on the beat.

Set up the genoa leads for the prevailing breeze then play the sheet through the puffs and lulls. Have the crew sit forward and to leeward in light air. Move them to the benches as the boat speeds up around 7 knots and more. In lighter air, the genoa will be about 3" off the spreader and just touching the shrouds at the foot. As the wind builds, the foot should be pulled in tighter and still about 2 – 3" off the spreader. You will want to move the genoa lead car aft as the wind builds. This will aid in twisting the genoa and de-powering.

Downwind Sailing

Try to keep the top batten parallel to the boom by adjusting the vang. In reaching under genoa, allow the main to twist similar to the genoa's leech. Trim the pole just aft of square to the apparent wind in light/medium and medium/heavy breezes. In light air, square the pole to 90°. In drifters, try the pole just forward of square.

The spinnaker should be flown with the clews relatively even, to have the guy slightly higher by 2 – 3". The chute performs best with a 4 – 6" curl in the windward leech shoulder. When reaching hard, try pulling the pole down more. This will pull the draft of the chute forward and aid in turning the symmetric spinnaker into more of an asymmetric.

Heel the boat to weather when running dead downwind in a moderate breeze. In lighter wind, heel the boat according to the helm feel—usually flat to slight leeward heel.

Try to steer the boat with the crew weight instead of the rudder. You want to minimize the water flow disturbance past the rudder, minimizing drag. Move the crew to weather to go down or fall off, and

move the crew to leeward to come up. Crew weight is most effective moving around in the middle and forward of the companionway.

Overall

Good luck, and feel free to contact us with any questions and input. We realize that boats can be setup quite differently, so we have endeavored to provide simple, general numbers for you to shoot for. Have a great season!

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ENSIGN Trim & Tuning Chart

“Loos Gauge” 91-model A (call if you need one)

Windspeed	0 - 6	6 - 12	10 - 15	15 +
Controls				
Fore Lowers	38	40	40	40
Aft Lowers	24	24	27	27
Uppers	40	40	42	44
Backstay/Fore stay	5-15	15-30	35	40
Outhaul	1” eased	Tight	Tight	Max
Main Vang	None/snug	Snug	Medium	Heavy
Main Leech	10° open	Parallel	Parallel to 10° closed	Parallel to 10° closed
Main C-Ham	None	Slight Wrinkles	Smooth	Smooth
Headstay	26’ 3”	Same	Same	Same
Genoa Car Position	Car Forward ½ “	Car Center	Car Back ½ ” - 1”	Car Back 2”
Luff Telltales	Even Break	Even Break	Even to Top 1 st	Top 1 st always

***NOTE- The stays are 5/32” diameter, and we use “Loos Gauge” 91-model A (not B)



- A. Forestay Pin to Upper (Side) Stay Pin
B. Upper Stay Pin to Backstay Pin
C. Backstay Pin to Aft Face of Mast at Deck Level
D. Backstay Pin to Aft Face of Mast at Mast Butt
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- A1. 8.2'
A2. 8.2'
B1. 14.35'
B2. 14.35'
C. 14.03'
D. 14.30'

