

Ensign Tuning Guide



Quantum Sails has used our years of experience building and racing with Ensign sails to develop a fast set of class sails, geared for performance in all racing conditions. Together with the industry's most rigorous quality standards of 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 600 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 respectively, cracking the shell. Cracks in the outer shell are slow, creating drag. Large cracks are potentially dangerous and should be brought to the attention of 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 aid in rot, especially in the deck and cabinhouse.

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). Get the mast centered in the boat by getting the upper and forward lower shrouds all hand tight and using halyard to measure side to side. Make adjustments as needed to make sure mast is straight and top is centered.

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.

MAST BUTT

Where the mast butt is located is at the heart of rig tuning. Because mast step and mast partner locations vary from boat to boat, we do not have a concrete measurement of where your own butt should be located but we do have some measurements you can take as a reference to get close (on last page). What you want to look for is 1.5" of prebend in the mast when the uppers and forward lower shrouds are tensioned properly (~38/35 units) with the rig centered and the backstay hooked up and reading 0-5 units on the tuning gauge (using the gauge on the forestay)(or less than 0 if on the backstay when you have a furling unit with a foil and no wire to get to). Some mast partner holes are larger than the mast so you may need to shim the mast forward or aft to help get proper base setting mast bend. This is an important step and if you are not confident with the prebend amount repeat these steps until you see this 1.5" of pre-bend. I usually just sight up the mast when looking for this

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, and move the genoa car back slightly to de-power. Playing the backstay in changing wind is where the biggest gains can be made.

The Quantum mainsail gives lots of kick for pointing. By bringing the top batten to windward a few degrees, the boat will point 3-4° higher. When the boat slows in speed, change from “point” back 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 is very desirable for squeezing off competition and not getting sucked in to competition in front or to leeward of you.

Set up the genoa leads for the prevailing breeze and then play the sheet through the puffs and lulls. Have the crew sit forward and to leeward in light air. Then move them to the benches as the boat speeds up around 7 knots of wind 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 build the foot should be pulled in tighter and the leech still about 2-3" off the spreader. You will want to move the genoa lead car aft as the wind builds and this will aid in twisting the genoa and de-powering.

Halyard tension is very critical to proper genoa trim. We always suggest a looser-than-you-think setting. Look for scallops, crows feet, or speed wrinkles coming out of the hanks for the genoa. Ultimately you need to train your eyes to keep the draft of the sail at about 35-40% aft in the sail. We almost always have speed wrinkles in the sail and in light air even a droop or sag in between hanks is best.

Play the backstay if you are set up to do it. Looser-than-you-think backstay / extra headstay sag is nice pre-start to keep the boat moving fast, then right into standard settings and more of a vmg/point mode right after the start. More backstay in puffs, less in lulls etc. And every time you are adjusting the backstay the halyard tension on the genoa should, in theory, be adjusted for optimum gains.

Downwind Sailing

Try to keep the top batten parallel to the boom by adjusting the vang. With Spinnaker up trim the pole just aft of square to the apparent wind in light/medium and medium to 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 having the guy slightly higher by 2-3". The chute performs best when there is almost a 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 slightly 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 downwind. 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.





Ensign Trim & Tuning Chart

"LOOS GAUGE" 91-MODEL A // PT-1

Windspeed	0 - 6	6 - 12	10 -15	15 +
CONTROLS	91A // PT-1	91A // PT-1	91A // PT-1	91A // PT-1
FORE LOWERS	35 // 25	35 // 25	38 // 29	40 // 31
UPPER SHROUDS	36 // 28	38 // 29	40 // 31	42 // 33
AFT LOWERS	24 // 19	24 // 19	27 // 20	27 // 20
FORESTAY	5-10 // 5-8	15-25 // 12-19	30-35 // 22-27	40 // 31
BACKSTAY	0 // 0	0-12 // 0-8	20-25 // 17-19	30 // 22
OUTHHAUL	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
HALYARD TENSION	Loose*	Loose/mod*	Moderate*	Heavy*
GENOA CAR POSITION	Car Forward ½"	Car Center	Car Back ½ - 1"	Car Back 2"
LUFF TELLTALES	Even Break	Even Break	Even to Top 1st	Top 1st always

NOTES:

This chart shows tuning numbers for both styles of loos gauge

* Halyard Tension is hard to measure or gauge. Knowing the shape of the sail is the best gauge. See above notes on halyard tension.

•The stays are 5/32" diameter, use "Loos Gauge" 91-model A or PT1



Ensign Diagram

- 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 14.25'
B2 14.35'
C 14.03'
D 14.30'

