

Quantum Etchells Tuning Guide

The following is our "quick set up guide". These are the essential numbers, which will allow you to get the most from your Quantum Etchells sails right out of the bag. Each Etchells tuning requirements will change slightly due to exact boat specs, team weight, mast characteristics, sail selection and prevailing conditions.

1. Rig Tuning

Mast – First clean your mast and carefully check to make sure your mast is straight before stepping mast into boat.

Spreaders – Permanently fix your spreaders exactly perpendicular to the mast. You can achieve this by using either epoxy or shives. The main thing is to make sure that your spreaders are not moving. This is the class rule and an important element of the tuning guide.

Mast Butt – Set your mast butt at 17'5.5" from the intersection of the deck/transom planes. This is a good starting point for wind strength of 8 knots. As a rule, moving the mast butt forward will primarily reduce mast prebend in the bottom half of the mast and increase forestay tension. Given that all boats are not exactly the same, be prepared to move you mast butt forward or aft to set-up the right balances between forestay tension and mast bend once you hit the water and as conditions changes. We recommend that you do this subtly rather than aggressively. To accommodate our new main luff curve and match the forestay sag, we recommend not moving the butt further forward then 17'6" and no further back then 17'5.25".

Rake – Before attaching your forestay, with no backstay tension, mark the forestay at the top of the gooseneck black band. Tighten the forestay by pulling backstay on and set your rake at 46.5" from the black band mark to the deck where the forestay enters the hull. You will want to experiment with longer rake measurements (or possibly shorter) for different conditions.

Upper Shrouds – Begin with uppers attached to position #2 on the chainplate and lowers at position #4. This is a typical chainplate setting for 0-12+ knots of true wind. In wind strength of 12-20+, we would recommend positions of #3 and #4 respectively. Tune the mast to be straight side-to-side using your jib halyard. Leaving the lowers loose and backstay just snug, tighten the uppers to 500 lbs (approx. 18 on the Loos PT-2). This is the proper upper shroud tension for 0-8+ knots of true wind. For 8-16+ knots, tighten shrouds equally to 600 lbs (approx. 20 on the Loos PT-2). For wind above 16 knots, tension shrouds equally to 700 lbs (approx. 22 on the Loos PT-2). Increasing upper shroud tension will stand your mast up and improve your ability to point in heavier air. Also, increasing upper shroud tension will increase the mast compression (it's bend characteristics) and forestay tension when backstay is applied.

Lower shrouds – Once the mast is straight and uppers are properly set, measure up the mast 24" from the top of the gooseneck black band and mark. Then measure across from that point

perpendicular to the mast between the lower shrouds. This measurement should start at 48" with weight and distance equally distributed from lower shroud to lower shroud. This should be the correct lower shroud tension for 0-8+ knots of true wind. You can confirm this by sighting up the mainsail groove while sailing upwind. There should be no more than 1" of side-to-side mast sag at the spreaders. In 8+ knots of true wind, the lowers should be adjusted on the water to reduce but not eliminate side-to-side sag. In 12+ knots, when you can no longer hike the boat flat and helm increases, increase lower shrouds so that the mast is straight side-to-side. Be aware that increasing lower shroud tension will reduce the power of the mainsail and the ability to point. You will need to be careful to strike the right balance for wind and sea conditions.

Backstay – Once you are on the water and racing, the backstay is the primary tool for depowering the whole sail plan. In 0-8 knots true, the backstay should just be snug. In more wind, you should adjust the backstay to help manage the power of the sail plan. When you can no longer hike the boat flat and develop excessive helm, tighten the backstay slightly. Increasing backstay tension will induce mast bend (flattening the main) and tightening the forestay (flattening the jib profile). The net effect to the sail plan will be to ease the helm and heel of the boat. However, backstay tension will also open both main and jib leeches affecting the ability to point. You will know you have too much backstay when your sail is "washed out" (very flat) and the mast is "overbending" (diagonal wrinkles on the mainsail from the mid mast to the clew). The backstay is a very important ongoing adjustment that needs to be used artfully to maximize speed and height. Off wind, the backstay should be eased to allow the mast to swing max. forward.

Mast blocks – Mast blocks can be used to alter mast bend characteristics, particularly during a race when wind conditions change. We would recommend beginning with your mast blocks all in front of the mast. In lighter air, you may want to experiment with up to 1" of mast blocks behind the mast. This will help to "prebend" your mast and flatten your mainsail and slide draft aft to an optimum light air shape. A similar effect could be achieved by slightly pulling the mast butt back while leaving the mast blocks in place. In heavier air, you will want to be careful with blocks behind the mast, as they will contribute to "overbending" the mast and "washing out" the mainsail. When you see overbend wrinkles (from the bottom half of your mast to the main clew), you should move mast blocks in front of the mast again. A similar effect can be achieved by pushing your mast butt forward. There is a complicated relationship between "mast" adjustments to your blocks and butt and the rig set up of forestay, shroud and backstay tensions. There are also ancillary effects to all the associated sail trim adjustments discussed in this guide. We would recommend minimizing the mast butt and block adjustments initially but encourage experimentation to learn how the matrix of rig adjustments affects your rig and sail plan.

2. Mainsail Trim

Mainsheet - The top batten should line up with the boom and top leech tickler should fly in most conditions. You can sheet as hard as will allow the top leech tickler to continue to fly. In lighter air and very flat water you can allow a maximum 50% stall on the top leech tickler. However, in any sort of chop, make sure the top tickler is flying most of the time. Have a reference point with a mark on the mainsheet or judge the distance off the deck and experiment with boats around

you until you get a good feel where the right point is. Change trim as conditions or your steering changes.

Traveller – In conjunction with the mainsheet tension, the traveller effects both boom position and leech twist. Generally, we would try and sail with our boom on centerline all the time. In lighter 0-8+ knots true, you will want to sail with a higher traveler (not more than 8" above center) and looser mainsheet to induce twist (power) and keep the top leech tickler flying. As the wind increases beyond 8-16+ knots, you will be able to use less traveller (in conjunction with more main sheet) to keep the boom on the centerline, straighten the leech and keep the top leech tickler flying. This will help pointing ability. In 16+ knots, you may need to ease traveller further to leeward (but not below 4" below center) to help depower the sail plan.

Boom vang - Upwind the vang is not very useful in 0-16+ knots true. Above 16 true you may want to use the vang to help pointing ability if your traveller is 4" below center, backstay is at maximum allowable tension and you still have to ease mainsheet to manage heel and helm. Otherwise, the vang should be set for reaching and running so the top batten is in line with the boom. You should use reference marks where possible.

Outhaul - The outhaul has a small range of adjustment when sailing upwind. However, make sure it is easy to adjust if necessary. The main outhaul should be pulled close to the band in wind 12+ knots true. In lighter air, ease 1" or in very choppy conditions, a little more. Off the wind, ease to add fullness but not so as to give away projected sail area. You should use reference marks where possible.

Cunningham – The cunningham shouldn't be necessary from 0-8+ knots of true wind. Above 8 knots, you may use the cunningham to pull draft forward, slightly open the leech and slightly ease helm, as necessary.

3. Jib Trim

Jib Shape - In most conditions, the jib luff ticklers should break evenly top to bottom. Set your sheeting angle to accommodate this. Also, in most conditions, sheet as hard upwind as will allow the top leech tickler to fly. Similar to the mainsail trim, in flat sea conditions, you will be able to stall the leech some to improve pointing. With the **FLJ** (light jib), this sail is great between 0-12 knots of wind. There are two sets of luff snaps; the short snaps are for most conditions. In light air and extreme lump, we would recommend the long snaps for more power. In the case of the **FMJ-10** (medium jib), there are also two sets of luff snaps available. Using the long snaps makes the jib quite full and more powerful. This configuration should be used anytime above 10 to 16+ of true wind. At some point above 16 knots we would recommend the short snaps to reduce this jib's fullness and help depower the sail. The **FHJ** is a specialty sail intended for breeze above 20 knots only. This sail is quite flat and twisty but same trim rules apply.

Jib tack - Set halyard so jib is as low as possible. Adjust the jib tack while sailing to accommodate 6" of luff wrinkle in 0-8+ knots of true wind, 3" of wrinkle in 8-16+ and minimal wrinkle in 16+ knots.

4. Spinnaker Trim

Pole Position – As the spinnaker is launched the pole needs to be positioned perpendicular to the expected apparent wind angle. Once pole and guy are set, sheet hard to fill the spinnaker. With spinnaker filled, adjust the inboard pole height on the mast and the uphaul/downhaul on the pole so that the pole is parallel to the water and the spinnaker clews are level. Be aware that the pole height position will change with wind strength. To induce maximum projected area always error on the side of the pole being slightly lower than the sheet. In lighter air be careful not to choke the spinnaker by pulling the pole too far back. As apparent wind strength increases, you can afford to move the pole forward by pulling back the pole position and working the boat lower.

This performance tuning guide was produced by Paul Sustronk of Quantum Toronto. Please do not hesitate to contact with one of our Etchells specialists to find out what would work best for you.

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