# Ultimate 20 Tuning Guide

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# Ultimate 20 Tuning Guide

This Tuning Guide has been developed by Brad Boston of Doyle Boston Sailmakers. While this is only a guide and should be used as a reference tool, it reflects the tuning and sailing techniques used by Brad to win the last 2 North American Championships and numerous other Ultimate 20 regattas in the last 3 years. We encourage your comments back about things that work for you. We will try them out and they may just end up being in the next version of the guide.

**Off the water preparation**

In order to win races on the water, you must first start with solid preparation before the boat even hits the water. Pay attention to details like making sure that all your halyards, sheets, and blocks run free and with a minimum amount of friction. I am fanatical about the bottom. The class does not allow wet sanding the hull, however, that does not mean that other steps cannot be taken. I am a firm believer in Teflon polish for the hull. Before every regatta, we apply a coat of Teflon to the entire hull. This takes a little time but the end result is worth the time.

**Rig**

The mast should be clean with all sharp edges taped. We Teflon the mast to ensure that it is clean. We tape around the spreader ends to protect the main sail when going down wind. You can put a small piece of shock cord in front of the mast connected to both lower shrouds, one foot below the spreaders. This will prevent the spinnaker halyard from getting caught on a set.

**Deck**

Make sure that the spinnaker pole extends and retracts easily. (It is a good thing to use Teflon polish occasionally). Mark every line on the boat to reference a good basic setting. This allows you to always find that trim position that was fast. You don't always need to be exactly on your mark, but notice where the mark is compared to the cleat. You should also drill more holes in your jib track so it can be adjusted for fine-tuning.

**Tuning the Rig**

We recommend that you sail as close to max rake as possible. To center the rig in the boat, hoist a metal tape measure to the top of the main halyard and lock it in. Measure down to the same spot on the chainplates on each side of the boat. Tighten or loosen the upper shrouds till this number is the same on both sides. Now tighten the lower shrouds until the middle of the mast is in column with the top of the mast. Set the rig tension to a base setting. This should be good from 7 – 12 knots.

**Tension settings -** *Loos Tuning Gauge Model A*

***Base Setting 7 – 12 knots***
Upper Shrouds: 25
Lower Shrouds: 14

***Light Air 0 – 6 knots***
Upper Shrouds: 20
Lower Shrouds: 8

***Moderate Air 12 – 15 knots***
Upper Shrouds: 30
Lower Shrouds: 20

***Heavy Air: 16+ knots***
Upper Shrouds: 35
Lower Shrouds: 26

## Sail Trim

Once your boat is set up to the numbers above, there are three major sail adjustments that will affect your boat speed more than any other while sailing up wind: Mainsheet, Boom Vang, and Traveler. How you use each of the three in various conditions will dramatically affect the result of the day.

## Main Sail

The mainsail on the U20 is the main power of the boat and it requires constant attention. The Mainsheet is what we call our gas pedal, but it does not mean the harder that you pull, the faster you will go.

## Light Air

In light air, trim the main so that the top batten is parallel to the boom or just a little more open. If the boat slows in any way, try easing the sheet a little. It is easy to over trim in light air. At this point the traveler should be 12 – 14" above the centerline so that with the mainsheet eased off, the boom is still around centerline. This keeps the main working efficiently and the boat still pointing. As the wind starts picking up, lower the traveler down to about 6" above centerline and pull a little mainsheet on. The Outhaul should be eased off 2" from the band.

## Medium Air

Now the boat is really powered up and going fast to weather. We need to make sure that we keep our speed up to get through the chop. The mainsheet should be pretty tight to minimize the forestay sag. The upper batten should be parallel or just pointing to windward. This means the traveler is now really important and should be adjusted constantly. At this point one of your crew should be calling puffs. Just as a puff hits, drop the traveler as much as needed to make sure that the boat is flat going through the water. Once the boat is flat and the puff is gone, pull the traveler back up. In this breeze the Traveler should be around centerline. In this wind, it is really helpful to play the Boom Vang a lot. Similar to working the traveler when the puff hits, have your crew, hike as hard as they can and pull on a fair amount of boom vang. When the puff goes away ease it so that the main powers up again. The Outhaul should be tight.

## Heavy Air

These are the conditions that are the hardest for most people because we just don't sail in them as much as we should. Once again it is important to sail as flat as possible with maximum speed. Be very careful not to point (or pinch) to high into the wind. The traveler should be just below centerline with as much vang on as possible. The mainsheet should be eased a couple of inches, so that the upper portion of the sail twists off. It is important that the crew hike as hard as they can, allowing you to use more mainsheet tension. It is VERY IMPORTANT to let the boom vang off before rounding the weather mark. If it is not released, it puts too much added stress to the lower portion of the mast, which may result in some kind of breakdown. The outhaul should be on as hard as possible.


## Cunningham

The Cunningham controls the fore and aft position of the mainsail draft. In light air, the Cunningham should be off so that there are wrinkles in the luff. In medium air, the wrinkles should be just gone. When sailing in heavy air you should not have any wrinkles what-so-ever (the luff should be tight).

**Jib Trim**

The jib sheet should be adjusted each time conditions change going up wind. When coming out of a tack, the sheet should be eased about 2 – 3" so the sail is full and the top of the jib has airflow. Once the boat is up to speed, finish the rest of the trim. This will help the boat to point higher. When sailing up wind, and you see some bigger waves coming, ease the sheet to power up the sail, don't trim in until the boat is back up to speed. In 4-7 knots of breeze, the top telltale on the leech should always fly straight back. At 8-14 knots the leech telltale should be flying about 50% of the time. In any wind above 15 knots, the leech telltale should also be flying straight back. Set the jib leads so the top luff telltales are breaking slightly ahead of the others. In light air move the leads forward about 2 – 3" and ease the sheet a little to provide twist and power. In medium air, set the leads so the leech is even from top to bottom and the jib is sheeted pretty hard. In heavy air, move the leads aft 2-3" and sheet hard to flatten the foot and twist off the upper leech.

If you get hit with a really big puff that makes you flog the mainsail, you will need to ease the jib a little bit or the boat will sail sideways. It does not have to be much. Just a couple inches of sheet ease will help the boat maintain its forward motion.

**Jib Luff Tension**

This controls the fore and aft position of the draft. Be careful not to over- tighten the luff because it might not allow you to point as high.
*Light Air* -Slight wrinkles
*Medium Air* -Slight to no wrinkles
*Heavy Air* -No wrinkles at all

**Spinnaker Trim**

The spinnaker halyard should always go to the top of the mast. This keeps the head much more stable. The tack line in light and heavy air should be tight to the pole. In medium air the tack of the sail should be eased 2' to 3' to help the sail rotate to windward, this will allow you to sail lower angles. The spinnaker sheet should be adjusted constantly. It is good to keep about 6" of curl in the luff. Be very careful not to over trim the sheet because it is slow. When in doubt, LET IT OUT!

**Helpful Hints**

When going up wind it, is a good idea for the bowman to call wind and waves for the helmsman. This makes it easier for the helmsman to focus on making the boat go fast without having to look around everywhere. The middle person should be focusing on boat speed. This means that he is always watching the other boats to see how your speed is in relation to the other boats.

At mark roundings the whole crew should communicate with each other so that there is no confusion as to what maneuvers are going to be done. At the weather mark, we like to keep the weight as high as possible to keep the boat flat. The middle person pulls the pole out and gets the spinnaker ready to launch. He cleats the spin sheet at the marked position so that the sail fills when it gets pulled up. This will allow the boat to accelerate. At the set, we pre-feed the tack line around the shrouds by about 2 feet. If you go much further than that you run the risk of dragging it in the water. As you are ready to round the mark, the boom vang, the jib, and mainsheet should be eased off a little. The middle person now pulls up the spin halyard followed by, or at the same time as, the bow person pulling out the tack line. Then the middle person should reach for the spin sheet. At this time the bow person should be rolling up the jib and doing a quick clean up so that all the maneuvers will go smoothly down wind. Now the person that is not flying the spinnaker should be looking around making sure you are sailing in the most amount of breeze and in the right direction. When approaching the leeward mark, the crew should talk and have a plan as to how it will be rounded. (Are there other boats that you have to deal with or is there a gate?).

*Getting ready for the hoist with weight on the high side.*

When rounding the leeward mark, we unroll the Jib, let off the tack line, pull in the clew with your hands, and let the halyard down. At this time the middle person is cleaning everything up as fast as they can, while the bow person is hiking hard helping with the jib. Shortly after the rounding, you need to check and make sure that the Boom Vang is set properly, and you are going fast. There are a lot of times that we will round leeward marks and not clean up for several minutes. This allows the crew to hike as hard as they can to establish good position with other boats. When we are settled in the crew will then clean up quickly.

**Sail Care**

It is very important to the longevity of your sails that you take good care of them. After each time you sail in salt water you should rinse them off with fresh water and let them dry off before storing them. You should not hang the sails on your rig if there is any wind. This would let them flog in the wind and take precious life out of your sails life. When putting them away make sure that you roll them up carefully and store them in the appropriate bags when they are dry. We also recommend that when rolling your jib up, make sure you are careful and do it in a way that there are no wrinkles in it.

I hope that these hints are very helpful to allow you to get to the next step in your sailing goals. Just remember that practice always makes you better. If you have even the smallest question please call or email us and we will be glad to help you out.

We would like to thank Charley Smart for his help putting together the tuning guide. We would also like to thank Jan Smart and Jerry Hollerman for their pictures.

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# DOYLE BOSTON SAILMAKERS U20 TUNING GUIDE

| | **Light Air**<br>***0-6 knots*** | **Normal**<br>***7-11 knots*** | **Moderate**<br>***12-15 knot*** | **Heavy Air**<br>***16+ knots*** |
|---|---|---|---|---|
| **Rig** | Loos # 20 | Loos # 25 | Loos # 30 | Loos # 35 |
| | Loos # 8 | Loos # 14 | Loos # 20 | Loos # 26 |
| **Traveler** | Traveler 14"above center | 3"-6" above center | Centerline | 3" below Center |
| | | | | |
| **Main Twist** | Top Batten parallel | Top pointing to windward | Windward to parallel | Top Twisted off |
| | | | | |
| **Vang** | None | None | Vang pulled on 4"-6" | Max Vang |
| | | | | |
| ***Outhaul*** | Eased off 2" | Eased off 1" | Snug | On as Hard as possible |
| | | | | |
| **Jib Halyard** | Slight wrinkles | Slight Wrinkles | No Wrinkles | No Wrinkles |

*Loos Tuning Gauge Model A*