

Rebel Tuning Guide

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North Sails RESOURCES

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Congratulations on purchasing a new Rebel sails. We are confident you will find superior speed over all conditions. Time has been spent to insure that not only are your sails fast, but that they are also easy to handle and trim.

The following measurements are those we have found to be the fastest for your new North sails. After experimenting you may find slightly different settings may mean even better boat speed for you and your style of sailing. If you have any questions or problems, please don't hesitate to call. We are anxious to help you go faster and win races!

Adjustments on shore

MAST BUTT PLACEMENT

Place the butt of your mast between 54" and 55" when measured from the stern (excluding the molding) to the center of the mast step.

MAST RAKE

To measure the mast rake, hoist a 50' tape on the main halyard and measure the distance to the intersection of the transom and the back deck. Without the jib up and the rig leaning back on the forestay the measurement should be 26'. Now grab the forestay and pull the rig forward until the shrouds are just taut. The rake measurement should become 26' 3".

Sailing with the jib up and the rig set properly, your boom should be just about parallel to the deck in an 8 to 10 mph breeze. (Please see "Rig Tension" for the rake measurement after the jib is up.)

RIG TENSION

We have found that the Rebel performs best in moderate to heavy winds with the rig set up fairly tight. After hoisting the jib, tension the jib halyard so that the rake is pulled up to 26' 1" – 2". In very heavy winds (15 to 18 mph), it is advantageous to pull the rig up as far as 26' 3" – 4" to help minimize luff sag that can develop and make the jib too full. In lighter winds, set your jib halyard so that the rake measurement 26' 1"- 2".

As you tune your Rebel you will note that with the jib up, the forestay is always quite slack. This will put all the load on the luff wire of your jib. Your North jib is built with 3/32" 1X9 stainless steel wire, and is designed to withstand the loads of the entire Rebel rig. We feel your boat will perform better if you allow the rig to take this load. If you feel your jib halyard tensioning devices are not able to tension your jib halyard as suggested in the tuning guide, set your aft rake (the rake measurement taken when the mast is leaning back on the forestay) at 26' 1"-2". This way your rig will be set properly for all conditions.

DIAMOND TENSION

There has been a tendency over the past few years to set the diamond tension on the Rebel mast extremely tight. While this is perhaps beneficial in helping to control sidebend in the mast, it also greatly reduces fore and aft bend. In fact, in some masts it has been shown that excessive diamond tension can induce negative prebend. Obviously, negative prebend (where the mast bend is reversed with the middle of the mast going aft and the tip of the mast going forward) can be very slow as it will make the main much fuller than it is designed.

We suggest loosening the diamonds on your mast slightly so that when sailing upwind in an 8-10 mph breeze and sighting up the back of the mast, the slot appears very straight. When the diamonds are too loose the mast will sag to leeward in the middle. The diamonds should be just loose enough that the windward diamond wire should almost (but not quite) go slack when sailing upwind in an 8-10 mph breeze. Again, if the diamonds are too loose the windward diamond wire will actually go slack and the mast will sag to leeward in the middle. If, when sailing upwind in these conditions on both diamond wires seems nearly equal we suggest experimenting with loosening the diamond wire slightly.

JIB LEADS

Your new North jib has a "trim line" in pencil which runs from the clew grommet of the jib out into the body of the sail approximately 18". This line is inscribed on your jib to aid you in setting your jib leads correctly in the fore and aft position. In moderate winds, you should set your leads so that the jib sheet is an extension of that line to the deck of your boat. In lighter winds, or in medium winds with heavy chop, set your lead position so that the jib sheet is angled slightly forward of the trim line. This should place your jib leads forward of the moderate wind spot about 1". In medium to heavy winds in flat water, or very heavy winds, place your jib lead so that jib sheet angles aft the trim line. This will place your jib lead 1" to 2" aft of the moderate wind/perfect extension setting.

As for the jib leads side to side, on new boats we suggest setting your lead positions so they are 3' 6" apart when measured from bearing surface to bearing surface. This will place your leads on the inside edge of the seat. On older boats, place your leads as far inboard on the deck as possible. Even better, place them on a wood block so they are even closer together.

CENTERBOARD LEADING AND TRAILING EDGE TAPERS

We suggest that your board be tapered the full class maximum on both the leading and trailing edges. The trailing edge should come to a 1/16" squared-off edge. The leading edge should be a parabolic shape, coming to a near point, but carrying its roundness much farther forward than on trailing edge. A well-shaped centerboard can mean a great deal to the upwind speed of your Rebel in all conditions.

RUDDER SHAPING AND ANGLE

Like the centerboard, the rudder should be shaped to a 1 1/6" squared-off edge at the trailing edge, and to a parabolic, perhaps somewhat blunter than the centerboard, leading edge. There is no maximum on tapers, so a good faired- out rudder would help a great deal. The new rules allow the Rebel rudder to be angled straight up and down parallel to the transom. We suggest positioning your rudder so it is very close to this measurement, or at the most cocked up 15 degrees.

TRAVELLER/BRIDLE MAINSHEET HEIGHT

The traveller on the Rebel, like on most boats, is an important adjustment. Perhaps one of the most important adjustments to the traveller is that the height of the traveler be as high as possible. It should be set so that the V (the very top of the bridle running from the mainsheet sheeting to the back of the boom) should be nearly "two-blocked" in medium heavy winds. The closer you have the bridle to the mainsheet block, the better the boat will perform in light to moderate winds. It is as though we are pulling the traveller completely to windward for those conditions and pulling all from the windward side, it will then be much easier to trim the mainsail correctly and keep the boom closer to centerline.

On new boats the measurement from the seat to the top of the block if we have a double purchase at the end of the boom, should be 2' 1". This should bring the mainsheet bridle within 2" of being two-blocked in medium to heavy winds.

We suggest using the single purchase at the back as it allows you to make the traveller/bridle even higher, and the double purchase in the center of the boat near the mainsheet cleat.

Introduced in 1993 a mainsheet bridle where the legs of the traveller are actually sewn into the mainsheet. Several sailors have experimented with this and this actually makes the bridle height much less critical. It allows you to carry the traveler/ bridle height a little bit higher because the two legs of the bridle will actually be sucked up into the mainsheet block when the main is trimmed hard in a breeze. This is an excellent traveler/mainsheet system for the Rebel and we strongly suggest giving it some consideration.

Sailing Adjustments

MAIN AND JIB CUNNINGHAM

For both the main and the jib, never pull tighter than just to barely remove the wrinkles. It is best to leave just a hint of horizontal wrinkles from the luff of your main and jib to be sure you don't have them pulled too tight.

OUTHAUL

Pull the outhaul to within ½" to 1" of the band except in very light or choppy conditions, or downwind when extra power is desirable. In these conditions it's advantageous to ease the outhaul 2" to 3". When the outhaul is pulled out tight, you will notice a crease just above the boom, which is normal. This crease represents the extra fullness designed into the sail for power when the outhaul is eased.

JIB SHEET TRIM

Unfortunately there is no easy guide for jib trim. We are looking for a parallel slot between the exit of the jib and the entry of the main. The guide that has been used with some success is that of imagining a batten on the jib at mid-leech. This batten should be set parallel to the centerline of the boat, which makes the upper leech of the jib twist outboard slightly and the lower leech twist inboard. It seems that 90% of boatspeed problems are due to faulty jib sheet trim.

MAINSHEET AND TRAVELER

The mainsheet should be pulled tight enough so that the upper batten is parallel to the boom when looking up the sail from underneath the boom.. In light winds, it is impossible to keep the upper batten from hooking slightly to weather because of the boom weight hanging down the leech of the sail. In these conditions, we suggest easing the sheet out so that the boom is approximately over the corner of the transom, and the upper batten will then become more or less aligned with the centerline of the boom.

Please do not get this guide confused with the guide for most other conditions where the upper batten is set parallel to the boom. In choppy conditions, ease your mainsheet approximately 6" to open the upper batten slightly out past parallel to the boom.

It has been found that the traveler is not as effective in depowering the boat in heavy air as is easing the mainsheet out. However, before easing the mainsheet it is important that the boomvang be applied quite heavily to keep the boom down.

This allows the mainsheet to act more like a traveler, allowing the boom to travel in and out sideways rather than up and down. The boomvang is helpful because it helps bend the mast and flatten the sail out in heavy air due to increased pressure forward on the boom into the mast.

BOOMVANG

When sailing downwind the vang should be set so that the upper batten is parallel to the boom.

Upwind in a breeze, we set the vang to keep the upper batten parallel to the boom when we ease the sheet in puffs. This will mean a heavy amount of vang tension and will allow the mainsheet to act like a traveler, the boom will just move sideways rather than up and down.

JIB HALYARD TENSION DOWNWIND WITH WHISKER POLE

If your boat is setup with an adjustable jib halyard, it is best to ease the halyard when sailing downwind with the pole up so that the luff of the jib will sag and allow the jib to perform even better.

Imagine the leech of the jib becoming the luff and vice versa as we put the pole up. We suggest pulling the pole back as far as you can when the halyard is eased off slightly, so that the jib will almost break like a spinnaker, that is, the leech (new luff) will almost become unstable. Always be sure to ease off your jib cloth tension (jib Cunningham) downwind, to allow the draft to move back in the sail, and not to hook the luff when the pole is up.

Sail care

Your North Sails are constructed out of the best materials on the market today. We make sure of this by testing every roll of cloth we use. Through proper care and maintenance your sails will give you the performance you have come to expect from a North Sail.

The most important factor for a long life for your sails is to watch them for signs of wear and tear in high load and chafe areas. Be sure to wash the sails off with fresh water and dry the sails thoroughly before storing. A dry, mild climate is best.

Excessive heat can cause sails to shrink. It is best to roll the mainsail and jib.

Class Experts

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