

J-30 Tuning Guide

Mast Tuning

The objective of our tuning system is to maintain consistent pre-bend in all conditions. This will enable you to have the greatest range of headstay tension possible, while insuring that the mainsail luff curve fits the mast bend characteristics. This tuning system is not unique, but common on any fractionally rigged boat with swept-back spreaders, but no running backstays. The mainsail luff curve must be designed with the minimum pre-bend approach to rig tuning in mind, or else the sail may be too full in its lower sections. The J-30 relies on tight shrouds with nearly equal tension on uppers and lowers to minimize headstay sag.

- 1) Forestay length should be set to the class maximum: 35' 10 1/2" pin to deck centerline at the sheer-line. This means that the maximum luff length (measured using a tape measure on the uppermost genoa halyard hoisted all the way up, down to the bearing surface of the tack horn) will be approximately 35' 2". The turnbuckle will probably be at its maximum extension.
- 2) Remove partner blocks and center mast with upper shrouds. Use the main halyard to equi-distant points on either rail as a guide. Take-up on the lowers just enough to keep the lower mast in column with the top (hand tight).
- 3) The mast step should be maximum forward (so that the forward edge of the mast is 25mm aft of the forward vertical face of the molded step in the sole liner. Block mast in front, pushing it as far aft as possible in the partners. This will reduce pre-bend in the lower mast sections.
- 4) Adjust wooden blocks so as to fit snugly on either side of the mast partners. Shimming and/or planing may be necessary, as there is a good chance that the mast will not be perfectly centered in the partners.
- 5) Take-up the backstay turnbuckles evenly, (you will probably have to bottom them out), until the twin bridle blocks come to rest just below the connector plate where the split backstays join. With proper tension, the backstay adjuster should spring to this point when the backstay is released. Usually, you have to shorten the primary backstay wire 3-5" to be able to get it tight enough.
- 6) Tension the uppers and lowers gradually and evenly (counting turns as you go), until there are approximately 1800 lbs. On each, as measured with a Loos tension gauge. Start with the uppers, adding just enough tension on the lowers to keep the mast in column as the uppers get tight. Put final tension on the uppers with backstay fully on. Release backstay, and put final tension on the lowers. As you tension the lowers the pre-bend will be reduced (they pull back on the center of the mast). Tighten until pre-bend is no more than 2-3".
- 7) Upper and lower tension should now be close to even. This should leave you with about 2" of pre-bend (it probably looks like more, but you can measure it by putting the mainsail halyard against the back side of the mast, and subtracting 2" from what you see). Tighten the lowers to reduce pre-bend (make mainsail fuller), let off to increase, (flatten mainsail). Conditions and mainsail shape will dictate the correct amount of pre-bend.

Simply stated, the tighter the overall rig tension, the greater the headstay tension; as long as the tension is nearly equal on uppers and lowers. In lighter air, when more sag is desirable, ease both shrouds slightly, and ease the lower shrouds more than the uppers to allow for more pre-bend. In heavier air, use more tension (2000 lbs) on both; the lowers should be as tight or tighter than the uppers to reduce pre-bend.

J-30 Upwind Sail Trim

As a first step, mark all control lines (halyards, sheets, genoa tracks, backstay, outhaul), in order to be able to duplicate settings from race to race, or leg to leg; and also to know exactly how the boat was set up when you found yourself going fast! Do not be afraid to vary settings. The numbers are a guide, not the law. Sail trim is always dynamic, and you must be shifting gears constantly. Keep an open mind.

Mainsail

- Check to make sure that each batten is positioned squarely in the pocket, tapered end in first. If you have two or more full-length battens in your sail, see that the battens are square in their inboard end fittings, and tension via outboard-end control system just enough to pull cloth smooth and tight along the length of the batten.

-Use the top hole in the tack pin fitting.

-If you have a flattening reef lead it from the sheave, up through the grommet, and back down to the extreme outboard end of the boom. Slip it under the clevis pin where the topping lift attaches, and dead-end with a figure eight or double overhand. The newest mainsails have flattening reefs.

-Make sure that the sail is fully hoisted. When the head is at the black band, the luff should be smooth, with just the beginning of horizontal wrinkles in the lower sections of the luff.

Mainsheet

THE MOST IMPORTANT CONTROL! Trim the mainsheet hard enough to make the top batten parallel to the boom. You can check this by sighting from underneath the boom on a vertical plane. The top telltale should be stalling periodically.

In smooth water and high pointing conditions, trim slightly harder to cock the top batten slightly to weather. (This should stall the top telltale). If the mainsheet is too tight, the boat will point well but slow down. Anytime you need to accelerate, or whenever the air is light or the water choppy, the top batten should twist off slightly from the normal position, and all the telltales should flow. Remember: SPEED FIRST, THEN POINTING.

As the breeze picks up you will find it necessary to use quite a bit of mainsheet tension to keep the top batten from falling off. In very strong, puffy, conditions, strap the vang on hard to assist the mainsheet. (This is referred to as "vang sheeting"). This will enable you to play the mainsheet and the traveler in the puffs to keep the boat on its feet.

Traveler

The traveler has two functions: to control the boom's (and the sail's) angle to the wind, and to steer the boat; controlling helm and heeling in the puffs and lulls. The boom should be set on centerline for maximum power and pointing, as long as helm and heeling are under control- usually up to about 12-14 apparent. This means that the traveler car will be set to windward of the centerline in light to moderate conditions, gradually dropping as breeze and mainsheet tension increase. It is the position of the boom that counts, not the traveler car.

As the breeze increases drop the traveler to keep helm and heeling under control. In moderate conditions, you will be able to play the traveler to keep helm and heeling under control. In moderate conditions, you will be able to play the traveler (up in the lulls, down in the puffs) to keep the boat on its feet.

The lower the traveler the faster you will sail. Try to sail with as little helm (traveler down) as possible, while maintaining pointing. With the traveler up you will get plenty of feel (what we call "training wheels"), but you need to be careful of slowing down.

Outhaul/ Flattening Reef

The outhaul and flattening reef (really a "super" outhaul) control the fullness or power in the lower third of the sail. Upwind the shelf or "twist" foot in the mainsail should never be fully open. Upwind the bottom of the main should always be flatter than the top. As a guide, you can use the following procedure to set your outhaul/flattener controls:

- 1) Pull the outhaul on as hard as it can go and cleat it. (Cloth will be gathered in a tight crease along the boom). Put a mark on the line just in front of the cleat, and a corresponding mark on the boom (#1) to line it up with. This is your maximum position.
- 2) Ease the outhaul so that the foot is fully open, but not so far that it is bunching or forming vertical wrinkles along the boom. Mark the boom directly above the mark you put on the outhaul control line (#4). This is your minimum outhaul position, used only when sailing off the wind.
- 3) Put two additional marks on the boom, spaced evenly between the maximum and minimum marks, and label them #2 and #3. For different wind strengths, the line reference mark will correspond to the marks on the boom as follows:

Outhaul Guide

Apparent Wind	Outhaul
0-7	#3 (eased)
8-13	#2 (tighter)
14-18	#1 (max tight)
18 +	Flattening Reef

As the breeze dies, or when you need extra power to sail through the waves, the outhaul can be eased slightly from normal settings. In puffs or smooth water, it can be tightened. Notice that the minimum position (or fullest) is never used upwind. This position is for reaching and off the wind work only.

Cunningham

The Cunningham, along with the main halyard provides luff tension, which controls the fore and aft position of the camber in the sail. A good rule is to use just enough luff tension (main halyard first, till the black band is reached, then Cunningham), to smooth the horizontal wrinkles out of the luff of the sail. Leaving a few wrinkles in the bottom of the sail is fine. This should keep the maximum camber at or just forward of 45% in the sail.

As the breeze increases, you will need more Cunningham. Whenever you add backstay, you will probably need more Cunningham. Smooth all the wrinkles out only in windier conditions. As your main gets older it may need more luff tension to keep the draft far enough forward.

Boom Vang

Upwind, the vang assists the mainsheet in pulling down on the boom and providing mainsail leech tension. Use no vang up to about 10-12 apparent. From this point snug the vang up, gradually tightening it as the breeze increases. By the time you get to 18 apparent it should be very tight. In a breeze, vang tension will help bend the mast down low, and will allow you to play the mainsheet in the strong puffs (vang sheeting), as described above. The only exception to this technique occurs in very choppy conditions, when extra twist (less vang), may be faster.

Backstay

As the wind increases above 7 apparent, tighten the backstay correspondingly. Backstay tension does two things. First, as the mast bends the upper two-thirds of the mainsail flattens and the leech opens up- both of which relieve helm and heeling. Second, increased backstay makes the headstay tighter, flattening the headsail and opening the leech up- increasing pointing ability and reducing heel.

Since adjusting the backstay has a large and immediate effect on mainsail leech tension, mainsheet tension should be adjusted at the same time. More mainsheet as you add backstay, less as you ease. Next adjust the traveler accordingly, and check the Cunningham. It is a continuous loop, with each control affecting the other.

Backing minimum backstay tension when the blocks are at rest below the split backstay connector plate, and maximum tension when the blocks are level with the stern pulpit, you can use the following percentages as a guide.

Backstay Guide

Apparent Wind	Backstay
0-7	min.
8-10	25%
11-14	50%
15-18	75%
18+	max.

Genoa Trim

Which sail to use?

The J-30 is a relatively underpowered boat for its displacement and wetted surface. The boat will carry its class 163% genoa up to about 20 apparent. In the heat of the battle J-30 sailors have been known to carry the #1 in even more breeze than that; though for the sake of the sail's shape this practice should not be encouraged. Obviously, the heavier the crew, the more wind you will be able to carry the big genoa in. We sail with either a gargantuan five, or amore normal six or seven. Maximum legal all-up crew weight is 1400 lbs. This much weight will not hurt in light air- it may even help-, as long as it is kept in the right place.

The #2 (140%) genoa is useful in a narrow range from 17 to 26 apparent. In our opinion this is an under-utilized sail. With a reefed mainsail and #2 the boat is surprisingly effective- even though this defies convention given the boat's fractional rig. The added power of the #2 will help drive through waves and chop.

Normally however, we would recommend switching to the #3 (105%), over 24 apparent. The perennial J-30 question concerns which combination is better; a full main and a #3, or reefed main and a #2. There is less difference than you think, and much relates to personal sailing style. If the water is smooth or there are big even swells, use the #3. For the short lumpy stuff, try the #2 and a reef. Above 26 apparent definitely calls for the #3. Over 33 apparent, use a reef and a #3. One possible sign of being underpowered is if you find that you have speed with your competitors, but can't seem to point quite as well. This is particularly true when using the #3 against boats with a #2.

Halyard (Luff) Tension

The golden rule- use just enough halyard to smooth the horizontal wrinkles out of the luff of the sail. You will need more tension with more breeze. It's better to have too little luff tension than too much. Start with wrinkles, then just barely smooth them out. In smooth water, leave a few wrinkles for finer entry and better pointing.

Lead Position

The sheet lead should be set so that the sheet applies roughly equal tension to leech and foot.

The standard method of determining lead position is to head up slowly and watch the sail luff. It should luff relatively evenly along its length. The top will break slightly before the bottom! If the top breaks too early, move the lead forward. With the lead in the correct position, the sail will be roughly the same distance off the spreader tip, as it is off the shrouds at the chainplates (maybe a little closer at the bottom). This should be the median lead position. It should be adjusted as you move from the bottom to the top of the sail's wind range. Move the lead aft to depower (top of the range), forward to power up (bottom of range). Basically as it gets windier and you sheet in, the lead will move aft. Decreasing velocity will require a sheet ease and lead forward. In order to fine tune your lead position you will need to drill extra holes in the track, midway between the factory holes. Use 6 holes, spaced approximately 2" apart to cover the whole range of a genoa. The holes are numbered appropriately: 1-6, with 1 being forward, and 3 being the median setting.

Better to have the lead too far aft than too far forward. A rule of thumb is that whenever you need to drop the mainsail traveler to keep the boat on its feet, move the jib lead aft. If you have excessive backwinding, and you have flattened your main, move the lead aft.

Sheet Tension

The genoa sheet is the gas pedal and must be played constantly, easing to accelerate, trimming to point. The sheet tension will vary with every change in velocity. Use the distance off the spreader tip as a guide. (see the table below for approximate distances) After about 14-16 apparent, if the breeze is fairly steady, move your trimmer up to the weather rail. Their weight is worth .1 of a knot. They can dive down and make adjustments for the big changes. REMEMBER: SPEED FIRST, THEN POINTING.

Genoa Trim Summary

Apparent Wind	Lead	Sheet	Luff Tension
0-3	1	8-12"	smooth
4-7	2	3-5"	smooth/slight wrinkles
8-13	3	1-3"	slight wrinkles
14-17	4	1-4"	smooth
18+	5-6	4-10"	smooth

Use just enough leech cord to take the flutter out of the leech.

Weight Placement

Crew placement on the J-30 reflects two design characteristics of the boat. First the keel is small for its sail area. Second, the boat tends to sit down in the stern, a problem compounded by the fact that maximum beam (wetted surface) is carried well aft. This means you have to work on keeping crew weight well forward in most conditions. There is a natural tendency to congregate in the cockpit which must be discouraged. (There are some boat control system changes which can really help. Give us a call and we'll be happy to go over some of the standard modifications).

In light air, upwind and down, the crew should be up by the shrouds, or huddled at the base of the mast. Heel the boat as much as possible. If you have a particularly dedicated crew, send all but the primary trimmer down below. It makes a remarkable difference. As the breeze increases the crew can gradually move up to the rail and aft to the point of maximum beam. The only time you need to move aft is on tight spinnaker or jib reaches, when you are at maximum heel or beginning to get overpowered.

From experience you will find that the boat like to be sailed as flat as possible. Translated, this means as flat (or with a little feel to the helm) as the driver can stand and still keep the boat in the groove. This will keep the small keel in the water and doing its job. The boat will get a mushy-almost slow-feeling just as it really gets hooked up. Sometimes, if you have it going, you can sail virtually upright even in light air. This should be your goal. Careful, as soon as you feel slow, put the heel back on. Make sure the boat is well heeled out of tacks and through waves.

A well-trained crew will react to changes in velocity and the fell of the boat automatically. Moving to leeward and forward if the breeze dies or the boat feels slow, and back up to weather when the boat heels over, or when the driver gets dialed up. The helmsperson should constantly communicate, and let everybody know how much heel the boat needs.