

Your new Doyle mainsail is designed and engineered to be easy to set and trim. Fundamental principles of mainsail trim are outlined in this guide.

Mast Tune

To achieve the best performance, your mast needs to be tuned correctly. The three major steps are:

1. set the right amount of pre-bend
2. insure athwartships straightness
3. establish the correct amount of rake

Talk to your Doyle sail consultant for mast tuning advice.

Mainsheet and Vang: (Leech) Tension

The mainsheet is the most important single sail trim control on the boat – easing enables the boat to bear off, trimming forces the boat up into the wind. Second, the mainsheet controls the angle of attack (the sail's angle to the wind). Basic trim is achieved by simply easing the sail until it luffs, and trimming just enough to fill the sail. Be sure to ease far enough when off the wind. Many sailors over trim. It's okay for the sail to go out perpendicular to the boat on a run (providing it's not luffing), as long as the vang is on to keep the sail from wrapping around the spreader.

Up wind, the mainsheet has another critical function. It controls leech tension. Trimming the sheet when the boom is over the boat, pulls down on the leech, tightening it and removing twist. Trim the sheet until the top batten is parallel to, or pointing on the same direction as the boom. The sail's top telltale will be on the verge of stall, disappearing occasionally behind the leech. The stronger the breeze the harder you'll have to trim. If you trim too hard, the top batten will poke to windward. In light air, ease the sheet until the top telltale flows, but be careful not to give away the whole sail (no more than 20% of the sail should be lightly backwinding). It may not be possible to get the top telltale flowing.

There are exceptions to the golden rule of keeping the top batten parallel to the boom. In light air, or when acceleration is critical (out of tacks, in lumpy seas, etc.) ease the mainsheet

for extra twist. Also, when overpowered, or when in breezy, choppy conditions, use more twist than normal. In flat water, with good boat speed, pointing can be increased by over tensioning until the top batten pokes slightly to weather of the centerline.

Boom Vang

The vang takes over the job of tensioning the mainsail leech from the sheet, once the boom is eased outboard. Tighten until the top batten is parallel or until the top telltale just begins to stall.

Mast Bend

Mast bend, achieved with backstay and/or babystay tension, flattens (depowers) the upper 2/3 of the mainsail. Bending the mast also opens the leech and moves the draft aft. So, when adding bend, you probably need to tension the mainsheet to tighten the leech, and use Cunningham or halyard tension to pull the draft forward. When straightening the mast for more fullness (power), ease the mainsheet and luff tension. As a rule of thumb, the harder it blows, the more mast bend is needed. Super light air is somewhat an exception. Bend is needed to open the leech and to keep the main from having too deep an entry. A properly designed main should "blade out" or become practically board flat when the mast is fully bent. Use the following table as a guide to setting mast bend upwind:

Kts	0-4	5-10	11-14	15-18	18+
Bend	25%	25%	50%	80%	100%

Off the wind, use a straight mast for maximum power.

Outhaul

This flattens the lower third of the mainsail. Use some outhaul when sailing upwind, even in light air. Ease fully off the wind only. Outhaul is applied much like the backstay to depower and reduce backwinding as the breeze increases. Upwind the outhaul can be set in three basic positions:

- Light Air -- outhaul eased, shelf partially opened
- Medium-Heavy Air -- outhaul tight, shelf closed
- Heavy Air: Outhaul tight, foot super flat

For extra power in light spots, out of tacks, in waves, etc. ease the outhaul slightly.

Luff Tension: Cunningham & Halyard

Cunningham, halyard and gooseneck downhauls tension the luff, pulling cloth (camber) forward in the sail. The golden rule: tension luff just enough to smooth out horizontal wrinkles. As the breeze increases, luff tension should also increase. Mast bend will also require an increase in luff tension. It is usually better to under do, rather than overdo luff tension, particularly in light to moderate air.

Traveler

The traveler controls the mainsail's angle to the wind when beating and helm balance in moderate to heavy air. For maximum power and pointing ability the boom should be on or very close to the centerline when sailing upwind. Set the leech tension with the mainsheet and/or boom vang first, then center the boom with the traveler to control helm. There are telltales on the leech. The main should be trimmed so the upper one stalls only occasionally.

Mainsail Care

- Do not over tension the halyard.
- Flake the mainsail before bagging or putting on the boom cover. Do not stuff. Do not store wet for extended periods.
- Rinse with fresh water periodically to remove salt and heavy dirt.
- Do not leave the mainsail in the sun unnecessarily. A boom cover will extend the life of your sail significantly.
- Have your sailmaker periodically inspect your mainsail for areas of chafe and wear. Preventative maintenance will also extend the life of your mainsail.

For more detailed information specific to your sailboat, talk to your Doyle sail consultant.





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Mainsail Trim Guide