

ASYMMETRICAL TRIM GUIDE

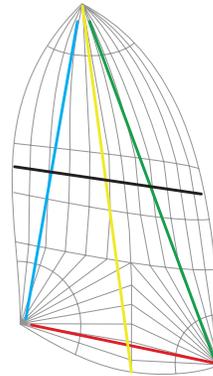


The fundamental principals of asymmetrical trim are outlined in this guide. For more detailed information, contact a Quantum Sails Consultant.



WHAT MAKES AN ASYMMETRICAL SPINNAKER DIFFERENT FROM A STANDARD SPINNAKER?

First, geometry. An Asymmetrical has a distinct luff and leech. The tack is always the tack, and both sheets are tied onto the same corner (clew), just like a genoa. Second, the cross-sectional shaping is asymmetrical, not uniform or semi-circular as it is with a symmetrical spinnaker. The position of maximum camber or draft is likely to be forward of 50 percent. An asymmetrical spinnaker typically has a rounder entry (luff) and flatter exit (leech). In general, these spinnakers are better reaching sails than conventional symmetrical spinnakers, though they can be designed for sailing at broad angles.



ASYMMETRICAL DEFINED

SF: Spinnaker Foot

SLU: Spinnaker Luff Length

SLE: Spinnaker Leech Length

SMG: Spinnaker Median Girth

AT WHAT WIND ANGLES CAN AN ASYMMETRICAL SPINNAKER BE CARRIED?

This is a function of design, materials, construction, and, ultimately, breeze velocity. The flatter, more genoa-like, and asymmetrical the spinnaker is, the closer to the wind it can be carried. More symmetrical, spinnaker-like shapes are used in larger, fuller sails to optimize them for broad reaching and running. The trick is to strike the right balance for the intended usage or to have several asymmetrical spinnakers with different purposes. The lighter the air, the closer to the wind you will be able to sail, regardless of the design. Angles as close as 50 degrees apparent are not uncommon in less than 9-10 knots of wind. The problem for most asymmetricals, particularly on conventional displacement monohulls, comes in at 10-14 knots of breeze when trying to sail at broader angles (more than 135 degrees apparent). At these angles and velocities, the sail has trouble being blanketed by the mainsail.

Modern asymmetricals tacked to the stem are designed to rotate area-to-weather of the centerline. This is the range when having

a spinnaker pole, and the ability to pull the tack-to-weather out from behind the mainsail, pays off. Like all spinnakers in more wind, asymmetrical spinnakers stay full and pressurized at broader and broader angles.

QUANTUM MAKES THREE BASIC ASYMMETRICAL SPINNAKER DESIGNS FOR CRUISING:

A0 - CLOSE REACHING

Small, genoa-like and optimized for light-to-medium-air close reaching. Useful in most conditions limiting the need for sail changes and allowing for tight reaching angles.

A2 - AP RUNNING

Designed as a light-to-moderate-air running sail.

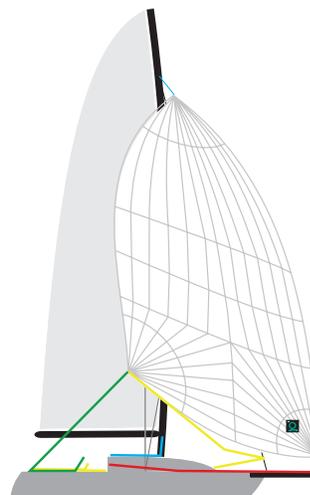
A3 - AP REACHING

Full-size reaching and all-purpose asymmetrical spinnaker. Ideal for broad-reaching angles.

WHAT EQUIPMENT DO I NEED?

- 1 Spinnaker halyard that is above the forestay.
- 2 Tackline led through a block mounted forward of the headstay and aft to convenient cleat.
- 3 Two sheets approximately twice the length of the boat led aft to blocks just forward of the stern pulpit.

If racing or simply optimizing performance at broad angles, a spinnaker pole and afterguy can be used to control the tack of the sail and allow it to be pulled aft at broader angles, just as with a conventional spinnaker. If using a pole, a tack downhaul (bobstay) will also need to be used.



RIGGING AN ASYMMETRICAL

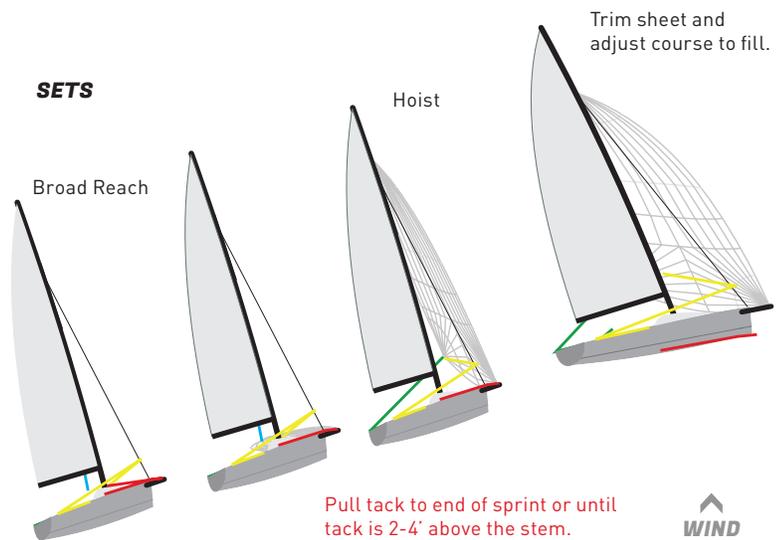
HALYARD: Attached to the head.

TACK LINE: Attached to the tack.

LEEWARD (Lazy) SHEET: Attached to the clew and led "outside all rigging" and aft-to-block on the quarter.

SETTING THE SPINNAKER

- Set on a broad reach where the mainsail will blanket the sail.
- Secure bag near the middle of the foredeck.
- Attach both sheets to the clew, leading the lazy sheet around in front of the headstay.
- Attach downhaul. If there is a bowsprit, lead the downhaul over the sheets (inside jibes). If there is no bowsprit, lead downhaul under sheets (outside jibes).
- Attach halyard, making sure it is outside and in front of the headstay.
- Pre-pull the downhaul so that the tack will be 3'-4' off the deck; pre-pull the clew back to the shrouds.
- Hoist rapidly.
- When the sail is fully hoisted, trim the sheet.



A SPINNAKER SOCK MAY BE USED TO KEEP THE SAIL FROM FILLING WHILE YOU HOIST. IF USING A SOCK, SECURE THE SOCK CONTROL LINES TO THE MAST AFTER HOISTING.

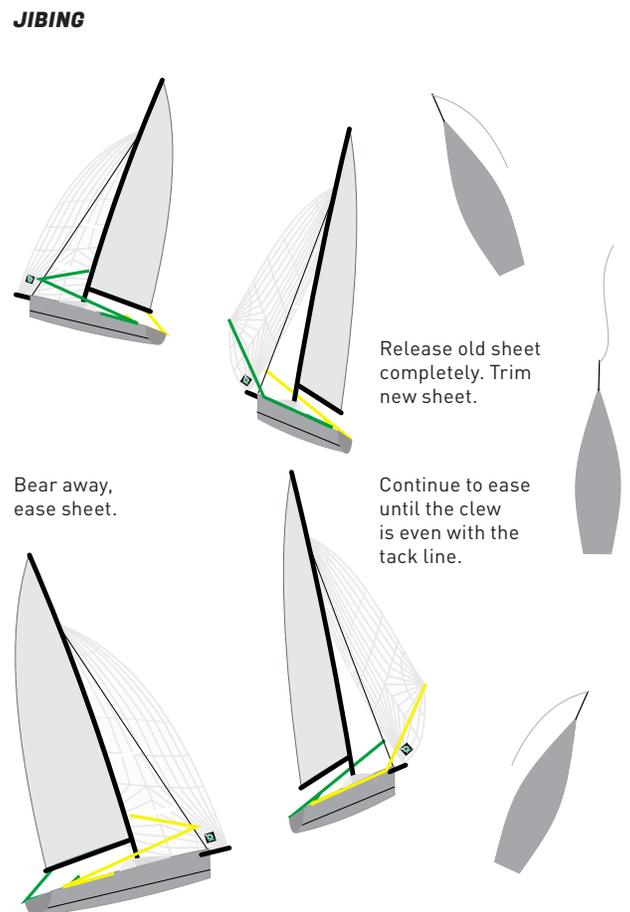
SAIL TRIM

Ease the sheet out until the sail luffs along the leading edge. Trim in just enough to stop luffing. A periodic curl is good; this indicates the sail is just on the edge of luff. As with all sails, over-trimming is the most common problem. When in doubt, let it out.

For reaching, tighten the downhaul and lower the tack to pulpit height to minimize luff sag. This will pull the camber (draft) forward and open the leech. The tighter the downhaul, the more genoa-like the shape will be. Though it is a function of breeze velocity and the design range of the sail, you can use most asymmetrical spinnakers in light winds, close to 50 degrees apparent wind angle. For running and broad reaching, ease the downhaul, allowing the tack to float up 4'-6' off the deck. This will allow the sail to lift up and the luff to rotate out to weather away from the blanketing effect of the mainsail. It will also create a more spinnaker-like, symmetrical shape.

If using a spinnaker pole to control the tack, set the pole just above the pulpit for close reaching. Gradually bring the pole aft, keeping it perpendicular to the apparent wind angle, just as with asymmetrical sail, and raising it gradually to keep the tack approximately level with the clew.

Another useful technique at broader angles is to twing or move the sheet lead forward (see diagram). This keeps the clew from rising up and dumping off the leech, making the sail more symmetrical and powerful. How deep and broad an angle you can sail is largely a function of breeze velocity. The lighter the air, the higher the angle and closer to the wind you will need to sail to keep the asymmetrical full and pulling. To find the optimum angle for a given breeze velocity, start with sail full and pulling and bear off slowly until the clew begins to droop and the sheet begins to lose pressure, then head back up until the sail is solid and fully pressurized. This magic edge changes with velocity. You will be able to sail lower angles in the puffs but will have to head up in the lulls.



JIBES

Asymmetrical spinnakers are jibed, not tacked. Start with sail fully loaded. Bear off slowly, easing the sheet as smooth and fast as you can without collapsing the sail. The trick is to use the sheet pressure to get the sail out in front of the boat. If the sail is not eased out before the boat gets downwind, it will collapse and fall into the headstay. As the boat passes through dead downwind, release the old sheet completely and take up on the new sheet. The sail is jibed outside and in front of the headstay when the tack is set on the stem. If you have a long enough

bowsprit, you can jibe inside the tack downhaul. No matter which system you use, turn from a broad reach to a broad reach slowly but smoothly. Do not stop in the middle of the turn or you will encourage the sail to get wrapped around the headstay. Make sure the clew has reached the headstay and is pulled around to the new side before completing the turn. The lighter the air, the higher the reaching angle you will need to sail, both at the outset and as you exit the jibe. In very light air, you may have to physically help the sail around the headstay.

TAKE DOWNS

- 1 Bear off to a broad reach (10-20 degrees up from a dead run is best).
- 2 Grab the lazy sheet just in front of the main boom.
- 3 Release the downhaul or the active sheet completely and gather the sail behind the mainsail using the lazy sheet.
- 4 Ease the halyard as fast as the sail can be gathered.
- 5 Stuff the sail down the companionway or forward hatch as you gather. Putting the sail in the bag later is easier than trying to do it on deck if there is a lot of breeze. A spinnaker sock can be pulled down first over the sail to keep it from blowing out of control while being gathered. Release the sheet, pull down the sock, and then gather the sail.

Racing take-downs can be done in two other variations. One option is a weather take-down where the lazy or a special take-down line is led around the headstay. The sheet is released and the sail is pulled around the headstay-to-weather and gathered. Another option is the envelope drop, which works with loose-footed mainsails only. Here, the lazy sheet is brought completely around to the leeward side and led through the foot of the mainsail. The tack is released completely and the sail is gathered through the foot of the mainsail and down the main companionway hatch. This type of take-down is particularly effective in windy situations on bigger boats.

TAKE DOWNS

