

# THE UK-HALSEY CODE ZERO: THE DISTANCE RACING WEAPON FOR CLOSE REACHING.



The Code Zero is a cross between a genoa and an asymmetrical spinnaker that is used for sailing close to the wind in light air. These sails are a must for distance races. Being nearly twice the size of a light No. 1 Genoa and made of much lighter weight material, a Code Zero will fill in the faintest of zephyrs. The greatest beneficiaries of these sails are modern boats that do not have overlapping headsails because Code Zeros have more than three times the sail area of a non-overlapping genoa.

The rulemakers know that a genoa is the most powerful sail for upwind work; therefore, the greater the genoa area, the higher a boat's rating will be. Under the current design formulas, it pays to have large fractional mainsails and non-overlapping headsails. The Achilles heel in this trade off is the boat's performance in light air upwind and when close reaching.

Creative sailmakers got around this conundrum by coming up with the Code Zero. The sail is designed for very close reaching, but it gets around the rating penalties for big genoas by measuring in as a spinnaker. A spinnaker is defined by the rules as having a mid girth measurement that's at least 75% of the foot length — any smaller and the rule would call the sail a genoa. Because the sails have a wider mid girth and a positive roach, they have nearly twice the area of a light No. 1 genoa with an LP of 150% and they are nearly 300% bigger than a non overlapping genoa.

Code Zeros can be tacked to the bow, or flown off of the spinnaker pole. They are sheeted with a spinnaker sheet and get fine tuned with a tweaker.

The design of the Code Zero has changed greatly since it was first used on EF LANGUAGE in the Whitbread Round the World Race in the late 1990s. Gone are the days of bar tight half-yard tension in an attempt to get a straight luff. (Some sailors put so much tension on the hal-



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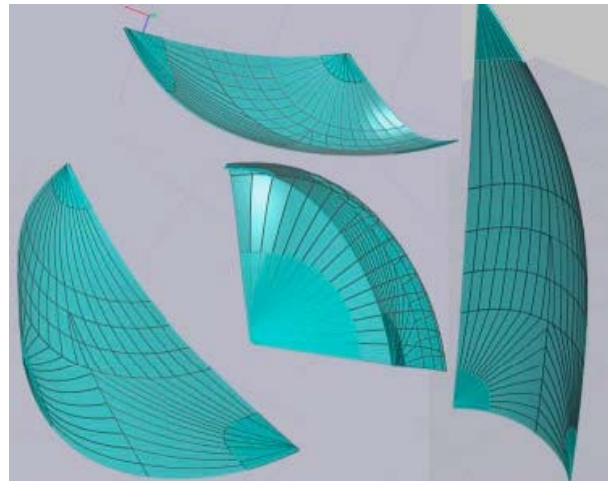
yard that they broke their masts, which were not designed for the forward loads.) Instead, Code Zero designs today have luff round that gives the sail a wider wind range and makes them easier to trim. With luff round (roach on the leading edge), the sail has a flatter entry when the halyard is eased. When reaching you can tighten the halyard to make the luff round curl into a knuckle in the front of the sail, which makes the sail more powerful. The picture at the top right illustrates the Code Zero in reaching mode with a knuckle toward the luff. Modern Code Zeros can be used from 40°-120° apparent angle.

Having the ability to create a knuckle in the front of the sail is critical to a well-designed sail. We have tested sails without a knuckle and they proved to be starved for power and hard to trim.

Along with the addition of luff round, the sails are now designed fuller than in the past; the amount of depth in the sail is critical to its flying shape. Without enough depth, the leech of the sail will flap. The camber on most designs is around 21.6 % - 25.2 %. The draft position is normally around 38-41% aft of the luff.

The illustration on the right shows the sail shape and design, including the projected luff on the bottom left hand corner - which is critical to the overall flying shape. Without the looser luff, there would not be enough load on the leach to hold up the roach.

Set up the Code Zero just like an asymmetrical spinnaker: The tack can be made to the bow, or put out to the end of the spinnaker pole. When hoisting the sail, always use double the amount of rubber bands or yarn to secure the sail. Spinnakers don't need to be banded as much because the apparent wind decreases when you turn downwind to hoist them. Adjusting the halyard to get the luff to project forward is the key to setting it, but using the tack line is also useful in this case; the problem with this is the tack tends to drift to leeward of the boat losing control of the sail and pointing; easing the halyard is a lot more effective at getting the luff to project forward, the luff length is normally the same as the forestay length, so easing it up on the tack line or down on the halyard by one foot, will give you instant luff round.



The spinnaker sheet just needs to be worked as a normal spinnaker sheet, but when trimming the sail less movement is better than excessive trimming. This keeps the sail more stable and develops more power.

When in full upwind mode, the halyard needs to be taken back on, until it's tight. Normally setting the tweeker at half height to the clew of the Code Zero, about a 45 degree sheet angle is needed for full upwind mode, this angle helps pass the sheet load up the leech of the sail, keeping it more stable. Most Code Zeros will start to curl in at this point, the trick to this is easing the tweeker up until you have the least amount of return in the sail, when sailing upwind. See photos below.



Having the knuckle in the front of the sail makes it easier for the driver to sail with the apparent wind angle without crashing out with the sail in light air. This apparent wind angle is both good and bad, it is great for building speed and power, but it also decreases pointing ability. To increase pointing ability you need to burn off this apparent wind angle by luffing up more or slowing the boat down a little, normally with the knuckle in the luff of the sail this is done automatically for you, as the knuckle will roll back and then flip out again. As the sail is trimmed in all the way, the driver can follow this easily as the trimmer is doing nothing as it is just sheeted home all the way.



When the Code Zero is sheeted in tight, steer just as you would with a genoa — sail to the the tell tales. When the boat slows, fall off slightly until the boatspeed builds to about one knot above the wind speed. The highest these sails can be carried is 40 – 45 degrees apparent wind angle, but the boat will be a lot faster at slightly wider wind angles.

#### TRIMMING TIPS

**Upwind Settings (wind angle 40-45° apparent):** Tack line tight, tweaker on so that the angle of the spinnaker sheet off the deck is 45°. Once the sail is drawing, ease the halyard down until the luff load eases enough to project, or ease the cunningham on the tack, until the luff starts to get wrinkles.

**Reaching Settings (wind angle 50-80° apparent):** Halyard up all the way, tack line eased, sheet angle about 30 degrees, cunningham on, luff projecting forward, draft forward, some twist in the leech.

**Blast Reaching Settings (wind angle 90-110° apparent):** Tack eased, halyard tight, sheet eased, no tweaker.

If you have a furling Code Zero, remember to tighten the halyard when furling the sail; the furling unit will not work properly without a lot of load on the bearings on the furling unit. (See picture at bottom right.)

