

Basic Reaching

This article was written by David Stumbles.

It was extracted from the 1997 Paper Tiger Catamaran Tuning Manual.

By "reaching" I am referring to the four reaching legs of the course, which may vary from very tight to very broad. Some people seem to have trouble staying on the pace on reaches, but this is an area where improvement becomes obvious, because the complexities of "which side to go", like sailing upwind, are not there. So you have to be on the pace - there is nothing else to blame!

I have a basic set of rules that apply to the way I sail on reaches and the way I adjust my boat for the reach. In my view, reaches tend to fall into three categories:

- 1) **Tight reaches:** where you have to have the sail pulled in to a point where the boom is over the traveller in order to get the tell-tales on both sides of the sail to flow.
- 2) **Broad reaches:** from where the boom is just past the end of the traveller to well past the traveller, but to a point where the tell-tale on the windward stay is not pointing forward.
- 3) **Very broad reaches:** start to occur when the tell-tale on the windward stay starts to point more than about 5° to 10° forward. It is at this point that I reverse the mast, except in very strong winds. By reversing the mast, I mean easing the lower forestay and allowing the mast to pop back to windward in the centre. Some rig set-ups will require a pulling of the windward lower rear stay to make the mast pop back, while others will pop back as soon as the forestay is eased.

Before I explain how I sail each of these three types of reaches, remember that a single reaching leg may vary between two or all three of these reaching types simply because of wind shifts. It is also very important to try to sail straight to the next mark when on a reach. Always avoid going high (sailing above the "rhumb line") as this may seem fast at first, but you will lose ground as you bear away to the mark towards the end of that leg.

Tight Reaches

These are definitely my favourite, as in anything above 10 knots they are always a great ride. The instructions I have listed below are for sailing tight reaches when the wind is about 18 knots or less (maybe even as low as 12 knots when starting out). Anything above this and I find it is too windy to come in to make adjustments and you already have more than enough power for reaching, so the upwind setting is still fast. However, the traveller should always be adjusted to a point where it is underneath the boom when the tell-tales are flowing on both sides of the sail.

While the boom is over the traveller, the vang is purely a "mast rotation" device, as it is when sailing upwind. I find it is better to have quite a bit of rotation on the tight reaches, somewhere around 60° - 70° (from the centreline of the boat). This allows for better flow on the leeward side of the sail. I also like to ease the downhaul right off, but normally this won't go up far unless the vang is eased. So I dump the downhaul, then the vang, then adjust the vang back in to give me the desired rotation. I then tighten the main and re-adjust the traveller to the correct position.

If the boom is out towards the end of the traveller, I lift both centreboards and possibly the windward rudder blade. As the reach tightens and the boom comes in towards the centre (around two thirds out), I have the windward centreboard down. This is for two reasons: 1) you need some board to stop the boat sliding sideways as you get closer to the breeze and 2) you have to start

moving forward as the reach tightens, and the windward board will be in your way if you leave it up. I always leave the boards until last as I believe incorrect sail trim is slower than having the boards down (assuming your boards are well shaped).

I find a lot of beginner skippers tend not to use enough sheet tension on reaches. If it is a tight, windy reach, you can really give it a boot full of mainsheet, keeping the boom right down and the leech tight. Of course, it must be eased in big gusts. Keeping the windward hull just out of the water should be your aim. Having the hull in the water increases the wetted surface area of the boat, creating drag. Having the hull too high out of the water reduces effective sail area and reduces rudder effectiveness.

My usual procedure for rounding the windward mark and going on to a tight reach would be as follows:

- Start easing the main and the traveller as I round the windward mark.
- Move in and dump the vang, then dump the downhaul.
- Tighten vang to achieve desired rotation.
- Start to tighten main and lift leeward centreboard.
- Move out if breezy and adjust traveller accordingly.
- Lift windward board if required.
- Pay utmost attention to mainsheet trim and traveller position while reaching in an attempt to keep the tell-tales flowing. If the upper windward tell-tales are not flowing, generally more sheet tension is required. I always pay most attention to the tell-tales at the middle level of the sail, as they are an average of the sail and often the bottom ones are wet.
- Stay low on the reach, try to be inside at the gybe mark and enjoy the ride!

Broad Reaches

Once the boom is out past the traveller, the vang starts to behave like a monohull vang, ie. it is now used to control the twist in the sail by keeping the boom down to a position where you want it. On the tight reach, the mainsheet was doing this job. A lot of sailors tend to have the vang eased too much on broad reaches. I try to keep the boom nearly level with the deck, otherwise I find the sail twists off too much. Your mainsheet is now used to control lateral (in & out) position of the boom. So, in anything under about 18 knots, once I've eased the downhaul, I reef the vang back on hard.

Both centreboards should definitely be up and possibly the windward rudder. If it's windy, you'll have to sit back against the beam to prevent the boat from nosediving. If it's very windy, you'll probably need to have the end of the traveller between your legs and one cheek behind it. If it's really windy, get both cheeks behind the traveller and get ready to dump the main if it nose dives.

On these broad reaches, always aim to keep the telltales flowing and avoid the temptation to sail too high. Nine times out of ten, sailing too high will be a slower route down the reach. Aim to sail a straight line (especially if leading) or go a bit low at first to allow a better chance of getting on the inside at the gybe mark.

Very Broad Reaches

These will be sailed very much like a run. Once that windward telltale on the forestay starts to point forward (5° to 10° forward of perpendicular to the centreline of the boat), it is time to start reversing the mast. The lower forestay must first be eased and, if the mast hasn't already popped back, the rear windward lower should be given a pull back to assist the mast reversing. You will generally require a fair bit of vang tension to keep the rig reversed, however this is not always the case. You will have to test yours to see what works best.

A lower forestay that is adjustable from your normal position on the boat is a necessity, as leaning over the front of the boat to adjust it wrecks the boat trim and is a sure-fire way to nosedive. Above about 18-20 knots, I am reluctant to ease the lower forestay and reverse the mast, as there is a danger of bending or breaking the mast. What happens in strong winds is the pressure on the top of the reversed mast pushes the top forward and the lack of lower forestay tension allows the middle of the mast to move further back, resulting in excessive mast bend. This is accentuated if a nosedive occurs, as the top of the rig wants to keep going while the boat (and the bottom of the mast) are virtually stopped while buried in the water. I believe that if you are concerned about possible mast damage, don't reverse the mast. There is very little speed difference in strong winds between having it reversed or not. Remember, it's better to finish the race.

Light Wind General Rules

When the breeze is really light (0-6 knots), less vang tension is required on the broader reaches so as to avoid "hooking" the leech. Generally, less mainsheet tension is required on the tight reaches for the same reason. You should stay up against the front beam to keep the transoms out of the water, as this stops the back of the boat "sticking". Keep low on the boat (lie along it) and keep closer to the centreline of the boat. Avoid moving around too much and remember to drink plenty of water!

For assistance with your Paper Tiger Catamaran, or suggestions for this or other Guides, please contact the
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