

Avoiding Mast Damage

Warnings/Cautions

- When first learning to sail your Paper Tiger Catamaran, it is best to do so in the company of other sailors and a rescue craft. It is highly recommend that you join a local sailing club, especially one with Paper Tigers or other small catamarans. Nothing will help you more than having others who also sail these boats available to assist and answer your questions.
- The ideal wind strength in which to begin sailing your Paper Tiger is around 8-12 knots.

Definitions

Luff	The front edge/side of the sail.
Leech	The rear edge/side of the sail.
Foot	The bottom edge/side of the sail.
Mast Spanner	Pivoting arm joined to the bottom of the mast, to which the vang is attached. Also known as a "Vang Spanner".
Mainsheet	The rope used to control the position of the sail/boom.
Traveller	The adjustable 'car' that runs along the rear beam, to which the mainsheet is attached. Also known as the "Mainsheet Traveller".
Downhaul	The control system that runs between the Tack and the bottom of the mast to tension the Luff.
Vang	The control system that runs between the bottom of the mast and the boom (attaches about one quarter of the way along the boom from the mast). Also known as the "Boom Vang".
Lower	The stays/wires that are connected to the lower hound and run to the front of each
Forestays	hull. On modern Paper Tigers, these are adjustable while sailing.
Hound	Fitting located on the mast where the stay wires attach. Paper Tigers have two of these, one for the upper stays and one for the lower stays.

One of the things to be aware of with a Paper Tiger is that the rigs are very flexible and therefore need to be treated with a bit more respect than a lot of boats. Not being cautious with the rig, especially in the first few months (while still getting used to the boat), can result in a broken mast, which can be a real dampener for someone new to the class. Once you get through those early months, and get used to the boat, it is a lot easier to look after the mast.

The way to prevent mast damage is to be aware of what causes the problem. It usually happens on broad reaches and runs in strong winds. It is more likely when the bow is allowed to bury, but can happen without this. Usually, the bow is driven in a little and provides resistance, so the boat slows, but the mast is still under pressure and tries to keep going forward. If the lowers are loose, the top keeps going and the mast begins to bend in the middle. If the lowers are loose enough, the mast can break in the middle, or at least get a permanent bend.

While bent masts can usually be straightened (as long as they aren't kinked), it is not easy to do a good job of this and most masts will only handle being straightened a few times before failing completely. It is definitely best to avoid bending them in the first place.

To avoid damage to the mast, the adjustable front lowers should be tensioned. If your boat does not have adjustable front lower stays, initially it is better to set the tension on the beach, just in case, by having the stays so they are just firm. You should consider fitting the boat with adjustable front lowers at some point, especially if you are planning to race the boat.

For those with adjustable lowers, the usual setting is to make them taught when sailing upwind. A fair bit of mainsheet tension is used upwind in strong winds, and the mast is pushed forward (going upwind) as far as the rear lowers will allow it to. If you then tension the front lowers to just past snug at this point, that is a good safe setting for off-the-wind sailing in stronger winds. This prevents the middle of the mast coming backwards downwind, which in turn prevents the top of the mast going too far forward, therefore avoiding it bending too far or breaking.

In really strong winds, on a dead run, you can also actually pull a bit of mainsheet on. This tensions the leech, which provides additional support to the top of the mast. Just be careful not to pull it on too much, or you may encourage the boat to accidentally gybe, which could be very unpleasant in strong winds!

If you choose a sensible breeze (8-10 knots), you should have no dramas at all. Even up to 15 knots should be OK, but you must ensure, in your early days, that you have sufficient tension on the lowers. It is possible to over-tighten them, which can also put a mast at risk in very strong winds. However, something around the setting discussed above should be a very safe position, even for beginners.

The things to watch are:

- Lowers tight enough to ensure mast will not reverse on off-wind legs (note that when experienced, you will be seeking to get the mast reversed off the wind in most breezes except very strong, but until then, it is not worth risking the rig, as the speed difference is minimal). If you notice the lowers flap at all when going upwind, tighten them up until they don't.
- Watch the mast rotation upwind. The vang adjusts the rotation. It should be set so that it is approximately 45 degrees to the centreline of the boat. Too much rotation allows the boom to bend the mast sideways. In strong winds, with a lot of rotation, this could damage the mast, either kinking it or opening up the sail track. Once again, in a sensible breeze, there is nowhere near as much risk of this happening, but try to avoid too much rotation.
- Enough downhaul to just pull the wrinkles out of the luff is fine in most breezes.
- Don't let the vang off downwind in the early days. The vang on tight downwind will allow the leech to support the top of the mast in strong winds. If the breeze is OK, you can ease the downhaul and vang downwind, which will allow the sail to form a much better shape. You will certainly do this when you are used to the boat.
- Be precise with gybes in stronger winds (above 12 knots). Gybe while surfing a wave, as this is when the least pressure is on the sail. You can also assist the boom across by grabbing it or the whole mainsheet (all the vertical falls at the rear) and flinging it across as you change direction. Don't allow the sail to lag on the old side, as this will put undue strain on the mast once it does come across (with gusto).

Above all, don't let all of this put you off. They are robust boats and rigs if treated carefully. It is not common for people to break masts, but newcomers to the class are the ones most at risk.

As mentioned above, if you choose the right day, with a steady breeze of 8-10 knots (or less) and avoid shifty land breezes and other gusty winds and stronger breezes (over 12 knots) for your first handful of outings, you will be much more likely to protect the boat and enjoy your early Paper Tiger experience. If you get the opportunity to start sailing with other experienced Paper Tiger sailors, they can advise you on appropriate settings for the conditions of the day.

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