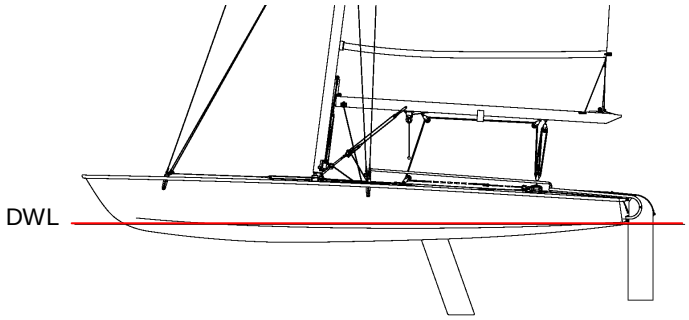
PAPER TIGER BASICS

SOME BOAT HANDLING TIPS WHICH MAY BE OF ASSISTANCE TO THE NOVICE WHEN RACING A PAPER TIGER

As confidence and experience are gained with time, a skipper may adopt variations to these basics which better suit their own boat handling style and performance.

WHERE TO SIT ON THE BOAT



It is desirable to keep the boat level (to the designed waterline level - DWL) at all times.

The hull's bows have a fairly sharp entry angle through the water at the designed waterline level but have a broader entry angle higher up the bows. Therefore, as the bows are pushed down below the DWL, there will be more resistance to forward motion.

The transoms are flat with sharp angles at their edges. Therefore, as the transoms are pushed down below the DWL (particularly at lower speeds), the turbulence caused by the water trying to fill the gap behind the transoms will cause drag.

A good guide to how the boat is sitting in the water is the flow of water off the transoms. There should desirably be a smooth and turbulence free wake left behind each hull.

The skippers body weight is critical to achieving a desirable boat trim. Because a light boat with a light skipper will sit higher in the water than a heavy boat with a heavy skipper, lightweight and heavyweight skippers may have to position themselves differently on a boat in the same weather conditions to achieve an optimal boat trim.

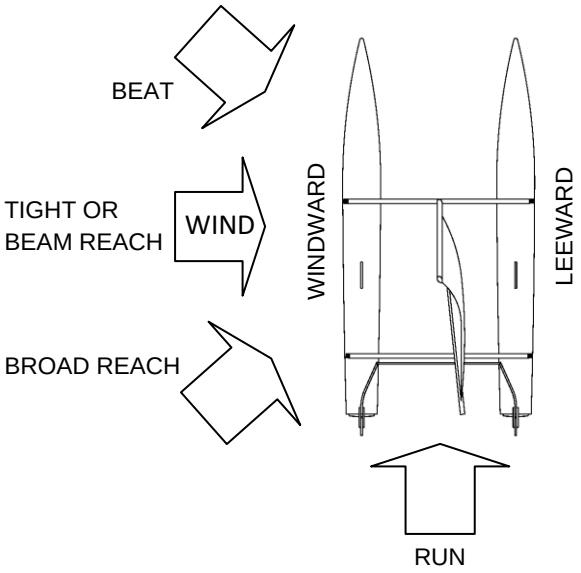
It is desirable to lift the windward hull JUST CLEAR of the water surface at all times to reduce drag. However, it is not possible to achieve this in all wind strengths and at all sailing angles. Sitting on the trampoline in lighter winds will help lift the hull, especially if the skipper is a lightweight on a light boat.

Upwind (on a beat) in flat water

- Skippers should move themselves fore or aft on the boat so that the boat sits true to its DWL. Their position on the boat may not need to change while on the one tack.

Upwind in stronger wind and choppy water

- Skippers should move themselves fore or aft on the boat so that the bows seldom dip under the waves. They may have to change their position a number of times while on one tack in gusty winds to achieve this.



WHERE TO SIT ON THE BOAT (cont.)

- If the bows never dip under the waves, the skipper is possibly sitting too far aft.

- If the bows frequently dip under the waves and solid water hits the forebeam, the skipper is probably sitting too far forward.

Across the wind (on a reach) and downwind (on a run) in light wind and flat water

- Skippers may need to sit nearer to the forebeam to achieve smooth flow off the transoms.

- Skippers may also need to sit or lie inboard on the trampoline to equalise the load on both hulls and thus smooth the flow off both transoms.

Across the wind and downwind in stronger wind and flat water

- Skippers may need to sit near or behind the rear beam to prevent the bows from being pushed under the water by the wind pressure (which may result in a cartwheel/capsize).

Across the wind and downwind in stronger wind and choppy water

- Skippers will most likely need to sit near or behind the rear beam to prevent the bows from being pushed under the water (which will very likely result in a cartwheel/capsize).

THE DAGGERBOARDS

The Paper Tiger has daggerboards, unlike many other small catamarans, to stop the boat sliding sideways due to sideways wind pressure on the sail when the boat is sailing upwind.

When the boat is sailing across the wind or downwind it does not need the daggerboards as much, if at all, as there is little if any sideways pressure on the boat from the sail.

Upwind under all wind and wave conditions

- Both daggerboards should be pushed all the way down.

Across the wind on a tight reach in light wind

- The daggerboard closest to the skipper should be pulled up, as it is not needed and is just creating drag. The daggerboard on the other hull should be left fully down.

Across the wind on a tight reach in stronger wind and all wave conditions

- The daggerboard closest to the skipper should be pulled up, as it is not needed. If wind gusts are pushing the bows under water, the daggerboard on the other hull may be pulled part way up until a more stable boat trim is achieved,.

Downwind on a broad reach or run in all wind strengths and wave conditions

- Both daggerboards should be pulled up as they are just creating drag.

THE MAST

The Paper Tiger has a bendy mast compared to other catamaran classes. This allows the mast to be bent to adjust the depth of the sail and thus the power that the sail develops in different wind strengths to suit different weight skippers. The stays control the amount the mast can bend.

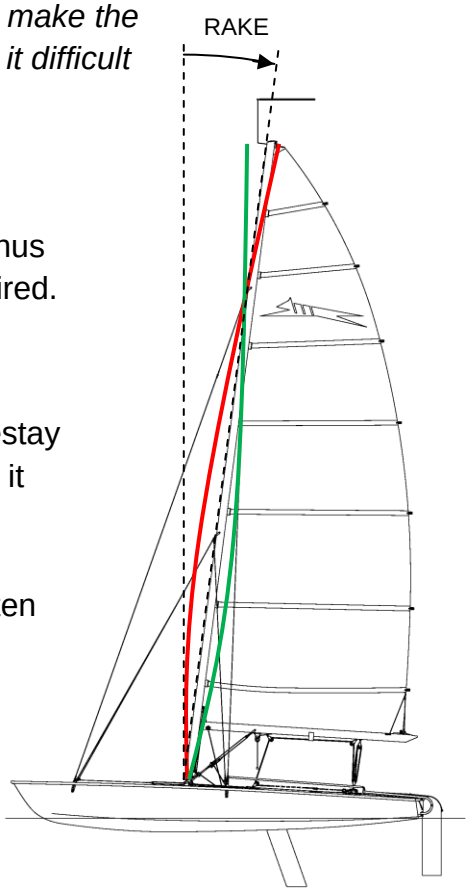
The desirable tension in all the upper stays and the lower back stays is related to the cut of the sail and the weight of the skipper. The strength of the wind can also be a consideration, but at the novice stage is it preferable to adopt a workable average. Advice on the appropriate setting is best sought from the sail maker and/or skippers of similar weight who are performing well with the same sail.

Only the lower forestay can be adjusted by the skipper while sailing to change the mast bend to suit the sailing conditions.

Raking the mast affects the balance of the boat's steering when sailing upwind. The appropriate mast rake is mainly determined by the size and backward rake of a boat's daggerboards. This may vary between boats and, therefore, so may the appropriate mast rake.

It is desirable to rake the mast towards the back of the boat just enough so that the boat will steer itself SLOWLY into the wind if the tiller is released when sailing on a beat (i.e. slight weather helm).

The skipper should feel a constant slight pull on the tiller when sailing upwind. Too much rake will increase the pull on the tiller. Too little rake will make the tiller push against the skipper or wander (leeward helm) and make it difficult to keep the boat on course.



Lower forestay upwind in flat water

- The lower forestay can be tightened to bend the mast and thus flatten the depth of, and adjust the power of, the sail as desired.

Lower forestay upwind in choppy water

- Once the mainsheet is at the desired tension, the lower forestay should be tightened just enough to support the mast so that it doesn't flex as the boat dips through the waves.

- In stronger winds the forestay can be tightened more to flatten and depower the sail as desired.

Lower forestay across the wind in light wind and flat water

- Tighten the forestay as desired to adjust the depth and power of the sail.

Lower forestay across the wind in stronger wind and all wave conditions

- Once the mainsheet is at the desired tension, the lower forestay should be tightened just enough to support the mast and stop it collapsing backwards in the middle in the event of a nosedive. It may be tightened further to adjust the depth and power of the sail.

THE MAST (cont.)

Lower forestay downwind (on a run) in flat water and light wind

- The lower forestay should be eased so that the mast can bend backwards in the middle (*may need a tug on the lower backstay*). This lets the sail sit squarer to the wind, presenting a bigger sail area. The forestay should then be tightened just enough to support the mast.

Lower forestay downwind in stronger wind and all wave conditions

- The forestay should be eased so that the mast is straight, then cleated so the forestay will keep the mast straight in the event of a nosedive.

TELLTALES

When sailing upwind, there is an ideal angle to steer the boat away from the direction that the wind is blowing to get to the windward mark in the fastest time. Pointing the boat too close into the wind (pinching) is slow. Pointing the boat too far away from the wind (footing off) feels faster but the boat travels further and takes longer to get to the mark.

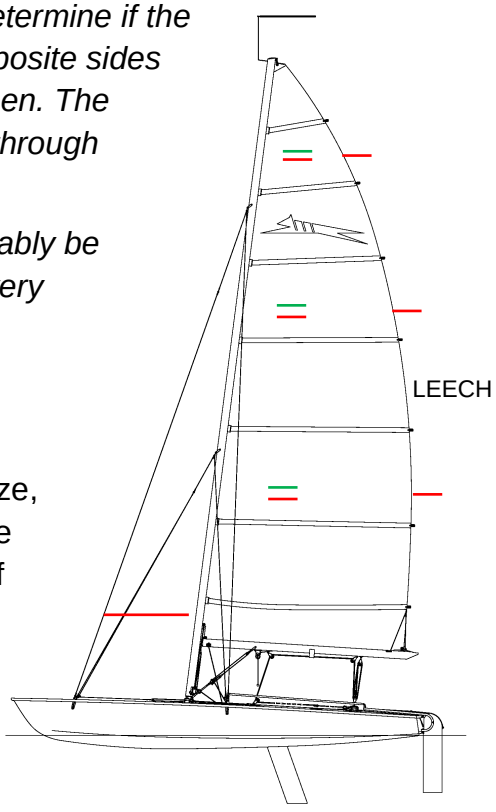
When sailing across the wind or downwind there is an ideal angle to set the sail to the wind to maximise speed.

Telltales (streamers attached to the stays and sails) provide a visible indication of where the invisible wind is coming from and how it is interacting with the sail.

Telltales made of video tape, attached 1 metre up from the deck on the upper forestays, and long enough to almost reach the mast, can be used to quickly determine an approximate course to steer upwind. Cassette tape gets tangled and breaks easily while being untangled.

Telltales made of ribbon on both sides of the sail, positioned 1/4 of the width of the sail back from the mast and at the leech, can be used to quickly determine if the wind is flowing smoothly across the sail. Locate the telltales on opposite sides of the sail at slightly different heights so that they can be clearly seen. The shadows of the telltales on the opposite side can usually be seen through the sail if the sail isn't fitted with clear windows.

The telltales on both sides of the sail and at the leech should desirably be flowing smoothly back along the sail in all conditions except on a very broad reach or a run.



Upwind in all conditions

- When the boat is pointing at the desirable angle to the breeze, the forestay telltale on the skipper's side should generally be pointing between the mast and up to 100mm to windward of the mast.

- If the forestay telltale is lifting further to windward of the mast, the boat will probably be pinching. If the telltale is dipping to leeward of the mast, the boat will be footing off.

TELLTALES upwind (cont.)

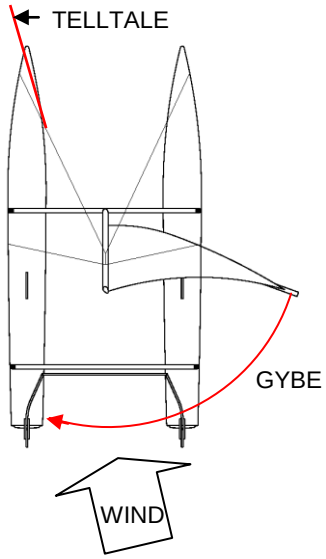
- If the windward side telltales are agitated, the mainsheet traveller may be set too far away from the centreline of the boat (*desirably 100-150mm in light to moderate wind, wider in stronger wind*), or the mainsheet may not be pulled on tight enough, or the sail may be set too full for the wind strength, or the boat may be pinching.

- If the leeward side telltales are agitated, the mainsheet traveller may be set too close to the centreline of the boat, or the mainsheet may be pulled on too tight, or the sail may be set too flat for the wind strength, or the boat may be footing off.

Across the wind in all conditions

- If the windward side telltales are agitated, the mainsheet may not be pulled in tight enough and/or the mainsheet traveller may not be pulled in far enough.

- If the leeward side telltales are agitated, the mainsheet may be pulled in too tight and/or the mainsheet traveller may be pulled in too far.



Downwind in all conditions

- The telltales on either side of the sail are unlikely to flow.

- Steering the boat so that the forestay telltale on the skipper's side is allowed to point to windward of the centreline of the boat could result in an unintended gybe, which may result in injury and/or capsize.

BOAT HANDLING

Tacking

- Turn the boat smoothly from one tack to the other. A short cord connected between the rear beam and the tiller bar can stop the rudders being turned too far, causing drag.

- The skipper shouldn't change sides on the boat until it is pointing directly into the wind.

- Quickly change hands on the tiller as the mainsheet traveller moves across the boat so that the boat is steered continuously until the sail fills on the new tack.

Mark rounding

- Turn the boat smoothly around the mark.

- At the wing mark or bottom mark in light to moderate wind, hold the boom to control it if it gybes across the boat. In stronger wind, holding onto the boom may not be advisable.

BOAT HANDLING mark rounding (cont.)

- When approaching the bottom mark of the course, it is desirable to have the boat prepared for the upwind leg just before the mark is rounded (i.e. leeward daggerboard at least pushed down and sail settings adjusted for upwind). Making these adjustments after rounding the mark can be harder and may slow the boat

General

- Ensure that there is a knot in the mainsheet that comes up against the pulley closest to the skipper to stop the boom from hitting the backstays when the mainsheet and mainsheet traveller are let all the way out. ***Failure to do this could result in damage to the mast during a gybe in stronger wind.***

- Ensure there is a knot in the mainsheet traveller rope to stop the traveller hitting the end stops on the traveller track. ***Failure to do this could result in loss of the end stop during a gybe in stronger wind.***

- Mark a black line around the mainsheet rope midway between the fore and aft mainsheet blocks on the boom while the sail is set up for beating. This can be used as a quick reference for selecting a desired mainsheet tension while sailing.

- Join the end of the mainsheet to the end of the mainsheet traveller control rope, or make it all from the one rope. This makes the traveller rope easy to reach at all times.

- The tiller extension should be a rigid tube (*aluminium or carbon fibre*). Bendy plastic tube can adversely affect steering, particularly in stronger wind.

- When the boom is above the mainsheet traveller track, use the mainsheet to control the sail's leech tension and the boom vang lever to control the rotation of the mast (*about 30 degrees to leeward of the boom is generally appropriate)*.

- When the boom is not above the traveller track, use the vang to control the leech tension. Adjusting mast rotation won't be possible unless the boat is fitted with separate vang and rotation controls.

Rudders

- Lifting the windward rudder will reduce drag without adversely affecting steerage of the boat. However, an efficient system to do this is vital.

- Trying to lower the rudder after tacking or gybing, because the skipper forgot to do beforehand, could slow the boat.

For further information on Paper Tiger operating systems, refer to the Australian Paper Tiger Catamaran Assn website and also past issues of the APT magazine via that site.