

## Catalina 22 Champ John Allen's

# Speed Secrets

*(Editor's Note: John Allen has proven himself to be one of AYC's best sailors, so we asked him to write up some observations and suggestions about how to go fast on the desert. Here are what he calls some "chunterings" about sailing in Arizona. "Some are well-known," he writes, "so skip the bits you know! Skip can skip it all.")*

**By John D. Allen**

Catalina 22 #6081, Laser #128429

### Usual Mistakes We All Make

**S**ailing too high, "pinching" upwind, and sailing too low when off-wind is often a natural trap. The Catalina 22, like most, likes it lower downwind when over 10 knots and of course lower upwind when light. Know your racing polar plots for different winds.

Don't follow the sheep. It might be the best favored starting position and favored side of the course, but if everyone is there, then it may no longer be favored! I see too many sails bending and reducing wind speed, and apparent direction.

### Watch the Tell Tales

It's important to keep the 150% Genoa driving unless the wind is shifty and puffy. Always head a little lower than your nearest rivals.

Watch the tell tails. It's easy to over-trim sails in a Laser. Learn from Mike Hester: "if in doubt let it out." A sail slightly luffing is easier to trim than a stalled sail — and more forgiving.

In a heavy breeze, Dumping the main, luffing and keeping the yacht flat and driving on the more efficient Genoa/foresail is always more efficient than full to near full sails. Trim back on in the lulls. Leeway is



*Sailing too high and "pinching" is a natural trap. (All photos by Chris Tingom.)*



*Minimize weather helm (and drag) by using crew weight to keep the hull flat.*

***"Keep the 150% Genoa driving unless the wind is shifty and puffy. Always head a little lower than your nearest rivals."***

the killer in a heavy breeze. The keel must always be kept near its most efficient position.

On the Catalina for the 110% or blade jib, less sail area is far better if the sail can be drawn in on a short foot to a closer angle to the centerline. 6081 has a blade jib some 10 sq ft less in area than some I've seen, yet its short foot permits it to sit inside the lower forward shrouds on cabin tracks.

### Avoid Drag

As we all know, *EVERY* time you move the tiller, you effect a drag on the blade, so use weight movement to steer the boat whenever possible. Even the Catalina 22 will steer nicely with crew weight movement. On a light wind day, try removing your rudder and sail without it.

Reaching on triangles with the 22, a heavy hull also likes a flat balance. The 22 has naturally heavy weather

helm on all points of sail, so minimize weather helm (and drag), use crew weight to keep the hull flat or slightly to windward.

### Laser Trim

With the Laser, as ever, it is natural to over sheet and head too high upon the start gun. Always free the sheet in light to medium conditions, head a hair lower if you can hold the power: The extra speed will negate the lower heading, unless air is filling in from windward. You'll also clear the packs wind-bending influence.

In heavy breeze, use maximum vang and block-to-block sheet to flatten the main nicely, pinch to wind and *NEVER* ease sheet or vang. Easing in a gust simply fattens the chord of the mainsail, making more power. To handle gusts, pinch and flatten the hull, even to windward if possible, then bear off slightly before the

## Speed (Continued)

gust hits for maximum power. Pinch up until you have to ease mainsheet in a breeze if not gusty.

### Understanding the Centerboard

Mike Hester is the local master of this approach with the Laser. With his characteristic understatement, Mike has taught many of us rookie AZ Lasers many tricks of the trade, such as heeling the hull to windward upwind.

Windward heel and its induced lee helm is weird to the senses but it's fast. Picture a well-practiced windsurfer's stance and mast position. Water is forced up the lee side of the Laser's centerboard, where the hull acts like a foil end-plate, reducing high- to low-pressure vortices slipping from high to low sides of the plate. As we all know, reducing pressure escape increases lift.

Windward heel also causes the flexi-mast to present itself to the airflow in a similar, more-efficient fashion — more upright because it bends off to leeward in anything above a flat calm breeze. The rig then tends to straighten up in a puff instead of falling off to leeward, reducing air vortices.

Contrary heeling to leeward "feels" faster especially when wind is light, and it is the right thing to do in a zero-patchy drifter, but in reality max lift is always when the boat is heeled to windward or as near upright as possible as wind increases.

### Off the Wind

In a Laser when you're off-wind in a drifter or light air, it's sometimes faster to have the centerboard lowered when running, even all the way! When a slight wind hits the center of effort of the sail, it often moves the flat-hulled Laser in a direction you didn't want to go. If you have the board down when the wind hits, the hull grips, and the slight off-vector movement is captured and energy focused in the direction you meant to travel. It's of-



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*Forget about how the hull looks and whether it has infinite smoothness. It has little effect on your speed.*

***"It's generally far more profitable to 'externalize' and watch the wind than to obsess about boat details."***



*Catalina 22 competitor Tom Ohlin trimming weather helm on a windy day.*

ten not apparent to the helmsman, but sensitivity to leeway movements are often seen from the shore, not from the helm. It's easy to overestimate the amount of drag from the lowered centerboard and not realize how it captures energy, especially with near-to-flat hull shapes.

In patchy drifter conditions I rarely raise the centerboard off wind — maybe 2/3rds down if light gusts are hitting. You'll be creating extra water drag on the board *but* you'll be gaining more by minimizing leeway movement and translating that movement into forward movement.

Of course even slight body movements can affect Laser speed, especially if the centerboard is lowered or half lowered.

### The Hull

Forget about looks and infinite smoothness — it has a marginal effect. Overall weight in keelboats has little effect, too. (Though looking at some of the Catalina 22 National Championship boats, I saw some with ratchet blocks instead of Genoa winches for the sole reason of weight saving! That's extreme!

It's generally far more profitable to "externalize" and watch the wind than to obsess about boat details.

This is also true of traveler usage on the Catalina 22. I've simply tied off the traveler in the central position. The C22 main is small and short windward legs often dictate that it's better to go for a smooth, slow tack and "eyes out of the boat" than reaching back and messing with traveler adjustments after tacking.

On the C22 (and any foil) thinner keel chord better. The first third of the leading edge produces the most lift. Make sure the leading edge is smooth and consistent.

# A Closing Flourish of Speed Secrets

A keel bound in fiberglass “sheaves” fattened up, look smooth (and are smooth) but results in a wider chord, making it less lift efficient.

Under-deck shroud ties to bulkheads help transmit energy into power instead of deforming the deck. They can be removed for cruising.

## A Closing Flourish of Speed Tips

■ I’ve gleaned from George’s son, Greg that flatter sails in drifter conditions reduce “stalling” and maximize exposed sail area.

■ Roll-tacking, as we all know, is critical in a Laser.

■ Ensure that the tiller is a tight fit into the rudder head stock. *Zero “slop”* is critical for confident control especially when the breeze is up.

■ Running by the lee off-wind is fast. Running by the lee *and* heel to windward is even faster, because the vortices run up the leech and are minimized. Running by the lee often presents the leech as the “luff” to the wind, so the leech is more efficient than the mast-luff cross section for cleaner air flow across the sail.

■ Running by the lee and “scallop” downwind in the Laser is a fast technique. We’ll leave the advanced stuff to greater talents such as Greg.

■ Of course, composite sail advantages are obvious, since they hold their shape. Flat, unstretched sails are fast and minimizing weight aloft adds to boat speed. Dacron sails for lighter air are softer, fuller and generally more



*Mast rake is essential in medium to heavy air. Leeches free more easily.*

controllable for drifter/light stuff.

■ I know we all know this: In light air *very* slow tacks are always fastest. Momentum can carry you through to leeward and ahead of a boat tacking on your air if they tack quickly in a light drifter.

■ Mast rake is essential in a medium to strong breeze — main *and* Genoa leeches free more easily and fast “twist” develops. More upright rigs do not free the leech so easily when close-hauled and they can be overpowered even in medium breeze.



*Unstretched, flat sails are fast*

■ Of course the more overpowered the boat is, the more weather helm it has, and mast-rake affects weather helm. Since center-of-effort is further to the stern of the center-of-lateral-resistance, the advantage comes from sail twist, which lowers the center of effort of the sails and somewhat negates the weather helm induced by the mast rake (compared to weather helm produced by a more balanced yet overpowered upright rig).

■ Being more upright in light air is good, but I think more rake on the C22 works well upwind — even if the wind is light and if the back lowers are not too tight. Then the rig will compete with more upright rigs for the downwind run.