Dave Perry's "Full Throttle – How to Sail an Ideal 18 Fast"

Pequot Yacht Club
Notes from Dave's June 22, 2003, seminar at the Pequot Yacht Club

From Dave: These notes are intended to be helpful to Ideal 18 sailors. They do not represent a comprehensive guide to sailing Ideal 18's. They may be reprinted or otherwise distributed, but only for educational use.

Boat Set-up

Weight

- Try to minimize extra weight on board. It's important to pump all the water out of the bilge; at regattas take the sail covers and anything extra off the boat.
- Try to center the gear and crew weight on top of the keel. Anchor, sail covers, lunch, etc., as close to the keel as possible. If it's allowed, put the anchor in the bilge.
- Don't let stowed gear move to the bow – keep sail covers rolled tightly and stowed near the mast.
- Center crew weight over the keel as much as possible.

Set-up

- Take the topping lift off the back of the boom, lead it forward of the mast and attach it to the pole downhaul. Tighten the pole downhaul. (This assumes the pole downhaul will not be otherwise used; Dave does not use it.)
- At Pequot, the condition of the bottoms of all the boats is equal, and is not a factor to worry about. But at away regattas, you may want to clean the gunk off the bottom of the boat before sailing.
- Set up the mainsheet for 2:1 purchase until the wind is too heavy to trim the main, then go to 3:1. 2:1 purchase gives a better feel for pressure on the sail, and quicker easing and trimming which can be important while ducking, etc.
- In very light air, put the spinnaker pole under the deck to minimize windage and weight on the boom.

Full/Flat Sails

- A flatter sail means higher pointing but less power and acceleration.
- In flat water, use flat sails.
- Flat water, medium, heavy, and steady breezes would normally call for flatter sails.
- A fuller sail means more power and acceleration, more boat speed, but less pointing.
- Choppy conditions, puffy conditions, light air conditions would normally call for fuller sails.

Jib Trim

- Most important sail on a sailboat. It sets up the flow of wind for the main.
- Proper jib trim will have the curve of the leech parallel to the shape of the main.
- Proper jib trim for the conditions is called "max trim," and is the mode for maximum speed with highest pointing angle. Note the distance between turning block on jib traveller car and clew board when at max trim.
- In setting up trim, trim the jib first, then set up the main.
- Mechanisms for changing the shape of the jib are – jib Cunningham, jib sheet attachment on the clew board, jib sheet trim, and the leech line.

Jib Cunningham/Downhaul

- First check that the luff cloth tension is not too tight. At Pequot the luff tension is not set up to be adjustable. At regattas or on borrowed boats, first undo the luff tension cloth and reset so that tension is not too tight.

Leech Line

- Uncleat the leech line and shake loose. Readjust when out sailing if leech of jib is flapping or curling in.

Clew Board

- Almost always Dave and Betsy use the holes that are three, four and five from the top.
- The holes on the clew board work exactly like the outhaul on the main. They change the fullness of the bottom of the sail, and will affect the leech of the jib and how parallel it is to the main.
- The higher the jibsheet is attached to the clew board, the fuller the jib will be.
- The lower the jibsheet is attached to the clew board, the flatter the jib will be.
- The hole can be changed pretty easily during a race, if needed, when going downwind.

Jib Sheet Tension

- To determine max jib trim each time you go out, look at the leech up at spreader height.
- Imagine the wind molecules and where they would go if you could see them streaming off the leech of the sail. The wind at the spreader should be flowing off the jib straight back, parallel to the center of the boat. This is max jib trim for those conditions.
- If the molecule flow would go outside of the spreader, the jib is undertrimmed.
- If the molecule flow would go toward the main, the jib is overtrimmed.
- Max trim is different in every wind, and changing conditions may change max trim.
- In lighter wind, open the leech so that the wind has less resistance and can flow more easily over the sail.
- In heavy wind, jib can be flat as you don't need all the power.
- In slop or waves, open the leech for acceleration.
- As air lightens, the leech will naturally close – so be prepared to ease as needed to adjust shape.
- As air gets heavier, the leech will naturally open – so be prepared to trim as needed.
- Ideal 18 jib is a high aspect ratio jib – it is tall and thin – a very small adjustment will make a big difference in the shape of the sail.
- Adjustments are very small – a tad here and there.

<u>Main Trim</u>

- The sailmaker builds each sail to have max speed with the pocket (or draft) set up in one spot. Changing wind conditions and sail trim may move the pocket forward or back of that spot. It is the sailor's job to put the pocket in the same place (that the sailmaker intended). The adjustments are main halyard tension, outhaul, Cunningham, boom vang, and mainsheet trim. Different adjustments are needed under different conditions.
- The draft on the sail is the deepest point, and runs vertically about a third of the way back from the mast.
- You always want the narrowest slot between the main and jib possible. That's physics – wind will speed up going through a smaller space.

Main Halyard Tension

- Dave and Betsy raise the sail to the top and then let it down about a 1/2 an inch. This is because the headboard seems to distort the leech with the sail pulled up hard.

Outhaul

- Dave keeps the outhaul pretty tight. The fabric from the bottom seam down to the boom gives fullness for downwind. Dave flattens that out going upwind, usually sailing with a wrinkle going from the tack to the clew. Two wrinkles are too many – the outhaul is too tight at this point.

Cunningham

- Put enough Cunningham on to take out most the wrinkles – but leave tiny cat's paws along the mast.

Vang

- Dave and Betsy use no vang until they are both hiking. Before that they just take the slack out.
- The vang helps keep the boat flat, and helps keep power in the main when you ease in the puffs. When you ease the main without vang, the boom raises up, spilling power. When you ease the main with vang, the boom stays parallel to the water.
- How much vang? If you need to de-power, put on more outhaul, then as much vang as you need until you have the heel under control, then adjust the Cunningham to bring the draft back forward in the sail. How much vang will vary from boat to boat depending on crew weight, etc.
- The vang changes the draft of the sail a lot, and adds mast bend by pushing the mast forward when it is put on hard. You probably will need to adjust the Cunningham when you see new wrinkles along the mast after you add more vang.
- In very heavy wind, put vang on till you can't keep the boat flat, then ease the main in puffs. When you ease the main in puffs, leave max vang on.
- Don't ease the jib out when you ease the main in heavy air. Think of the jib as controlling forward motion and pointing, and the main controls heel.
- Absolutely let the vang off before the windward mark so that you can turn.

Mainsheet Trim

- The main controls the heel of the boat.
- Keep the angle of the forestay steady on the horizon by moving crew weight and hiking, mainsheet trim, and feathering (sailing up slightly above close-hauled momentarily so that maybe up to 6 inches of the front of the jib is luffing).
- The crew should be looking ahead for puffs and lulls and feed that information to the skipper so they anticipate and work to keep heel steady through changing conditions.
- When heeling too much is not a problem, Dave trims the main so that the top batten is streaming straight back.
- If the air is too heavy and sail trim, hiking, and feathering are not holding the boat flat, ease the main, even if the front third of the main is luffing.

Using Telltales and Windexes

- The worst thing on a sailboat is to sail upwind with the outside (leeward) telltale on the jib dropping, not streaming.
- Dave looks at the middle jib telltale most of the time, and sails with the inside (windward) one lifting 25-50% of the time. Outside telltale is always streaming. Sailing with the inside one lifting is right on the edge of perfect.
- Dave hardly ever looks at the telltales on the leech of the main. If the top telltale is drooping a lot, Dave will check if the combination of mainsheet and vang is too tight.
- Sailors who use the main telltales look for the top telltale to be dropping 25-40% of the time.
- Dave doesn't use his own windex. He uses his competitors' windexes to judge where their wind is so that he can get on their air.

Heel

- The most important determinant of speed is the angle of the boat to the wind.
- Sail with the boat as flat as possible in all conditions.
- Sail with no more than 10% heel.
- Think of the main as heel control.
- To control heel, set up sails for the conditions, then add hiking, then a combination of feathering and mainsheet ease to control heel.
- It's very important to keep the angle of heel constant.
- The crew and skipper should always be aware of the angle of the forestay on the horizon and work together to keep that angle steady.

Tacking

- Turn relatively slowly in the beginning while coming head to wind.
- When luffing, steer faster through the tack. This is the slowest point of the tack, as the sails are luffing and the wind is blowing on the bow of the boat, so go quickly through this part.
- Turn relatively slowly at the end of the tack.
- Finish your tack a few degrees below close hauled course, for acceleration. Ease the jib 1" and the main 2-3" until you feel the momentum and speed will allow max trim and sailing angle, then slowly head back up to close hauled and go to max trim.
- Come out of the tack flat, especially in medium to heavy air. It's important that the waterflow reattaches to the keel as quickly as possible. This propels the boat forward and facilitates lift.

Speed References

- Speed = Maximum lift in keel.
- Momentum = Speed.
- Height = progress toward the wind.
- Speed = speed through the water.
- VMG = Velocity Made Good. The best combination of speed and height possible under current conditions.
- Sailboats move on the same principles as airplanes. An airplane won't take off (lift) until the plane is going at a certain minimum speed. Same with sails and keels, so always try to keep up the momentum (speed), especially in light air.
- Once you have momentum you can work on the pointing angle.
- Keep momentum maxed always.
- While sailing, use the system of crew identifying your own boat's tracking through the water in relation to other boats referencing speed and height. For instance, if you are moving faster in a straightline and moving more to windward compared to another boat on your same tack going upwind, the crew would tell the skipper "higher and faster." If you are sailing equal speed and parallel to another boat the crew would tell the skipper "equal, equal." If you are moving more to leeward and going the same speed as other boats the crew would say " lower and equal." This way the skipper and crew can identify how they are sailing and adjust if needed.
- If you are not going as fast or as high as other boats, first solve the speed problem, then solve the height problem.
- How to judge relative boat speed to a boat converging on the other tack? Take a visual on land – if you are seeing more land appearing in front of his boat, you will cross him, if you see land disappearing from in front of his boat, he will cross you. The sight lines are changing as you both move through the water. If the land stays pretty much the same, you are equal and would hit each other.

Downwind Speed

- There can be greater speed differentials downwind than upwind, as there is such a bigger choice of course to get to the leeward mark.
- Finding the fast angles downwind is what separates the better sailors going downwind.
- General rule: always sail deep at first and see if you can maintain speed and position. If others are going higher and faster than you, then head up.
- Dead downwind is the slowest point of sail and is often too slow in Ideal 18s. The heavier the wind, the deeper you can sail.
- Use the telltales on the shrouds going downwind, keeping the wind just off the quarter is often fastest. Just keep trying till you find the angle that feels fast.

Spinnaker Work

Sets…

- Put the pole up before the windward mark if possible (even when tacking around the mark)
- Set the spinnaker out of the spinnaker turtle
- We often furl the jib as we round the windward mark, then hoist; it makes the spinnaker pop full and allows the forward crew to hoist and then immediately cleat the guy and begin trimming the sheet
- The skipper pulls the guy back on the set; the sheet has all the slack out of it and is cleated for the set.

Gybes…

- The skipper trims the sheet and guy through the gybe (tiller between the legs or using the legs to push the tiller while rotating the spinnaker. The skipper tries to sit to leeward after the boom comes over
- The forward crew pulls the new twing on, releases the old twing and then throws the boom over (gybes the boom). The crew then stands on the windward side of the boat and switches the pole over.
- In very light air, the crew can pop the pole off the mast before throwing the boom to help the skipper do the big rotation needed in light air.

Drops…

- Coil the spinnaker halyard down the run.
- Unfurl the jib (be sure both jib sheets are cleated as the sheet is a continuous piece of line)
- Take the pole off and store on the boom (hopefully the boat has boom ears on both sides of the boom; otherwise put the pole down below under the deck). Beware trying to put the pole on the leeward side of the boom as too often it gets put outside the lower shroud which will lead to bending or breaking the pole on the gybe, or worse
- The crew grabs the foot and releases the sheets and halyard and gathers the chute into the turtle.
- The crew trims the jib around the mark (skipper trims the mainsheet).