

Bring on the Breeze

by Greg Fisher

Sailboat racing has often been called a game of psychology, a game that the most confident and determined players will win. This is especially true in stronger winds, where a racer too timid to make the right move has no chance of winning, and will have a better chance of capsizing. Any sailor who has prepared himself and his equipment properly and has practiced enough to be confident, has as good a chance as anyone else on the race course. "Good psyche" is the ability to concentrate on the race and the conditions without being intimidated by them.

Often it is difficult to get your crew together to practice in heavy air, but as strange as it may seem, the skipper can learn a lot from sailing alone in a medium breeze. Practice without the jib, and sail through a series of tacks concentrating on foot placement so your feet hit the hiking straps properly after each tack. Once the skipper is comfortable, practicing with the crew will be more productive.

Set up a short windward-leeward practice course (200 yards long) and practice a series of tacks and jibes. Set goals for the team; perhaps five tacks and three jibes, and then increase the number of maneuvers as the team gets better. Keep the practice fun to promote the team spirit and camaraderie. Finally, it wouldn't hurt to capsize your boat (if it is self-rescuing!) to practice righting it quickly.

Pre-Race Preparation

Preparation for heavy-air sailing comes in two areas: physical endurance, and the condition of the equipment of the boat. Stay in shape with some sort of exercise program, concentration on your legs and arms. You certainly don't need to be Charles Atlas, but being exhausted during a race can lead to lapses in concentration. Being comfortable while hiking helps you keep your mind on the race, so adjust your hiking straps accordingly.

Your knees and lower back should form two nearly 90-degree turns, so you're literally hanging in the straps. Try to have them adjustable, so they can be changed as your body tires in one position.

It seems that for every hour of heavy-air racing the same amount of time needs to be spent on boat preparation. Check over all the important rigging that could fail and keep you from finishing the race. On our boat, we have a basic routine that we do before the start of every windy race. Each crew member knows the different fittings and areas of the boat that he is responsible for and checks them over thoroughly to be sure there won't be any failures. Too many races are lost because of equipment failures that could have been easily remedied before the race even started.

Upwind Sail Trim

In a big breeze the sails should be set as flat as possible, but not "flat as a board". A very flat sail robs the boat of the necessary power to accelerate through waves and puffs. More importantly, sails that are too flat make it difficult to balance the boat properly.

Since the jib is the leading edge of the sail plan, its shape affects the steering properties of the boat. Interestingly, the desired cross-sectional shape for the jib in heavy air is similar to the best light-air jib shape, although not quite as deep. The powerful entry and flat exit shape of the light-air jib works well in the breeze too. Since the boat is always being steered up, down, and around waves, and in and out of puffs, the forgiving shape of the full entry is important. It allows the sail to tolerate abrupt changes in wind speed and angle without stalling. A flat exit (open leech) depowers the jib, and is an "exhaust pipe"

that reduces the backwind on the mainsail as the wind blows out of the back of the jib and into the entry of the main.

Because of the increased loads on the sails as the wind builds, the draft, or deeper part of the sail, will want to move aft. Tension your halyard or jib cloth just enough to remove the wrinkles along the luff. In light air, err towards a looser setting on the luff, but in extremely heavy breezes, you should almost overtension the luff of the jib to hold the draft forward.

In light and medium conditions the jib lead should be positioned so the jib luff will break evenly from top to bottom for maximum power. In heavier air, move the jib lead aft so the top of the jib will break earlier. The lead-aft position develops a flat chord-depth shape. How far aft to move the lead depends on the wind strength and the design of the jib. Generally, set your heaviest-wind position so that the top telltale (nearly a quarter of the way down the luff from the head) will be just stalled (angled straight up of jib just breaking) when the lower telltale is streaming straight aft as the boat is slowly luffed into the wind.

In most cases it is best to leave the leads positioned in their standard "all around" athwartship position since the jib is already very flat in its bottom sections. The only exception would be when there is a great deal of chop and the boat's pointing capabilities are greatly reduced. In these conditions, it is helpful to move the leads outboard one to two inches. Don't trim the jib too tight in heavy air. Since the jib lead is moved aft, the top of the jib will be more open, or twisted, so overtrimming will close off the open leech and backwind the mainsail. Once set properly, the jib needs very little adjustment upwind in heavy air. Keep it in one position, and adjust the main for proper helm, balance and heel. The crew should never drop the jib sheet; a sudden gust of violent windshift and even a steering error could make it necessary to uncleat the jib quickly.

Mainsail trim has a big effect on the boat's power, heeling, helm balance, and pointing ability. Therefore, the skipper should be able to adjust the mainsheet or traveler quickly and easily from the hiked position.

The main cunningham is trimmed just like the cloth tension on the jib. Set the luff tension on the main to just barely remove the wrinkles, and be careful not to undertrim the cunningham. A loose cunningham allows the draft to move back in the main, which will tighten up the leech and increase the weather helm and heeling. Like the jib, the leech area of the mainsail should be open at the top, and flat at the bottom.

The outhaul is perhaps the simplest adjustment on the boat. In heavy winds, pull it tight. If there is a question, pull it tighter. The lower quarter of the main, especially at the leech, should be as flat as possible in windy conditions.

The traveler is used to ease the mainsail off the centerline to decrease heeling and balance the helm. Good teamwork is helpful in playing the traveler. If the crew can call the puffs before they hit, the skipper can begin easing the traveler ahead of time so the helm is neutral when the puff arrives, and the boat can accelerate easily.

Upwind Boathandling

When steering upwind in heavy air, remember not to oversteer. Since the boat is going very fast, it takes less rudder to turn the boat, so you don't have to move the tiller very much.

In wavy conditions, make sure the boat is sailing through the waves with the least resistance. Steer higher when sailing up the face of the wave, and when on top, turn and steer lower down the backside of the

wave. Careful adjustment of the mainsheet through the wave pattern will help the boat head up and bear off smoothly. Trim the main tighter when heading up the wave, and ease it out when you bear off at the top of the wave.

In flat water, use the main to help work the boat closer to the wind. In a puff, try trimming the main in tighter, and pinch the boat, instead of easing the main out. This can gain some distance to weather; and works well when you are trying to make a mark or pinch off a competitor. When you do this, it is not unusual for nearly half the jib to be broken as the main does all the driving. Make sure to work up plenty of boatspeed before trying this.

Believe it or not, a roll tack will bring the boat through the wind the fastest and with the least loss of speed and the greatest safety. With the skipper and the crew hiking out to windward, the skipper slowly heads the boat up into the wind as he trims the mainsail tighter. When the jib breaks (and not before), the crew should release the jib sheet. At this moment the crew should begin to change sides. Once the sails begin to break, the skipper should increase the rate of turn. As the boat turns through the eye of the wind, the skipper and crew seat themselves quickly on the new windward side. As the jib starts coming in, the skipper eases the main (the amount depends on the amount of wind). It is not unusual to ease the main two to three feet in breezes over 18 knots. This mainsheet ease is not only important to keep the boat from becoming too overpowered after the sails fill, but also to help the boat bear off to its new course. If the main remains trimmed, the boat will try to round back up into the wind.

Downwind Sail Trim

Although large upwind speed differences can produce big gains, on a planing reach in a real blow you can make even greater gains. Speed is not the real key for excellent downwind performance: it's not always how fast you go, but how well you keep the boat under control that counts. Perfect helm balance is the most important factor to downwind control. The boat tends to build up excessive weather helm on the reaches just as it does when racing upwind. In order to bear off in a puff and accelerate, the helm must be kept neutral or the rudder will stall.

The main is the most important tool in controlling weather helm. If it is overtrimmed or too full, the boat will become overpowered and the helm will increase, so play the mainsheet constantly with the helm as a guide. In sudden puffs, the mainsheet ease will not be enough to get the main out far enough to balance the boat. Instead, when a big puff threatens to make the rudder stall and make the boat round up, release the vang completely. This makes the whole upper part of the main luff, and depowers it. The boom will rise up in the air: which keeps it out of the water if the boat heels over a lot.

The spinnaker and jib must be adjusted continuously to keep the boat balanced. If the jib is up and overtrimmed, it can easily backwind the main and throw the boat off balance. The spinnaker must be eased with every puff so the boat can bear off. An overtrimmed spinnaker can also load up the helm, and make it impossible to bear off and keep the boat under the sail plan. Sometimes it is difficult to determine when to set the spinnaker, or just play it safe with the jib. A good conservative rule of thumb is not to be the first one to set the spinnaker in marginal conditions. Be prepared, and if you see others start to gain with their spinnakers, then go for it. A lot depends on the particular boat you are sailing, and the size of the spinnaker. The spinnaker can always be dropped part way down the leg, and the boat headed up on a planing close reach to the mark.

In light and medium air it is always best to ease the cunningham and outhaul to make the mainsail as powerful as possible, but in very heavy winds the opposite is true. If the main is often luffing, there is no

sense in making it a powerful sail, so pull the outhaul and cunningham tight. A flatter sail won't luff as quickly, and creates less drag.

When racing downwind sit a little farther back in the boat to keep the rudder in the water and reduce weather helm. This allows the bow to lift, and the boat will jump up on a plane a little bit quicker. If the wind lightens, be sure to slide forward again so the transom doesn't drag. Use the flat wake as your guide; if you see bubbles coming out from behind the stern, move forward until the wake flattens out.

Finally, don't be afraid to pull the centerboard well up into the trunk to balance the helm. Sometimes it is necessary to pull the centerboard up nearly three quarters of the way to neutralize the helm on a close reach. Since the boat is going so fast, side slip is not nearly as great a problem as excessive weather helm. With the board up, the boat will bear off more easily and stay under control. Don't be afraid to bear off 40 to 50 degrees (or whatever it takes) to keep the boat under control in the wildest puffs.