

GENERAL INFORMATION FOR SENIOR SKIPPER CANDIDATES

In order to become a senior skipper, a CSC member must:

1. Hold the Junior Skipper rating
2. Have performed at least ten hours of work for the club
3. Pass a written test
4. Pass a practical sailing test in a dingy available to Junior Skippers
5. Pass a practical keelboat test.

The written test must be passed and work performed before the practical tests are given.

WRITTEN TEST: The chairman of the Rating Committee shall give and grade the written test. If a candidate fails the written test he shall not be permitted to repeat it until after two weeks have elapsed. The Senior Skipper Test covers the fundamental terminology and techniques of sailing at the level of Royce's Sailing Illustrated, as well as CSC regulations and procedures.

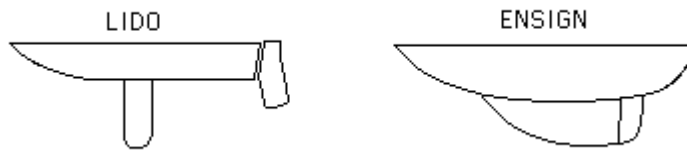
PRACTICAL TESTS: The practical tests may be given by any member of the Rating Committee. When giving the tests, the examiner may fail the candidate at any stage of the test. Passing both practical tests makes the candidate a Senior Skipper.

On a day when the wind clearly exceeds 15 knots, and with the examiner as observer, the candidate shall leave the dock and shall demonstrate proficiency in boat handling. At the discretion of the examiner the candidate may be required to perform any or all of the following tasks:

1. All maneuvers required on the Junior Skipper test
2. Sail under main alone, jib alone or bare poles (coming about or jibing as required by the examiner)
3. Dock the boat at a difficult and unaccustomed dock chosen by the examiner and leave said dock
4. Demonstrate knowledge of spinnaker use
5. Sail rudderless
6. Reef the main
7. Change headsails (keelboats only)
8. Single hand (dingy only)
9. Tie a bowline, round turn and two half hitches, sheet bend
10. Other reasonable tasks.

SAILING THE ENSIGN

The Ensign sails very differently from the Lido and other dinghies because of its keel.



The differences appear in basically 4 ways. First, in the Lido when the rudder is turned hard the centerboard acts as a pivot point and the boat can almost pivot. Therefore, the Lido is very easily maneuvered in tight quarters. The Ensign's keel, however, is a long flat surface which resists rotation, so the Ensign cannot maneuver nearly as easily. This is extremely important when sailing in traffic or when docking.

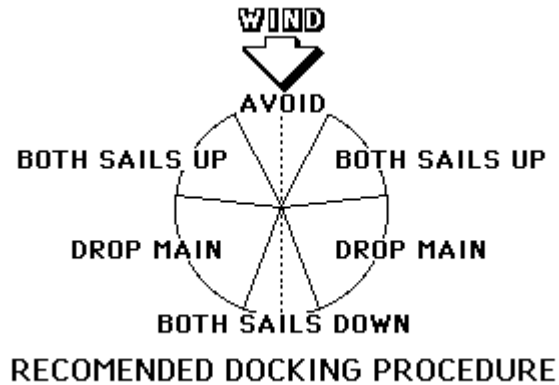
Second, the rudder on the Lido has both its leading and trailing edges free. Because of this, the rudder is almost as effective going backwards as going forwards, and sailing backwards is relatively easy. The Ensign rudder is free only on its trailing edge, with its leading edge blending right into the keel, so it is much less effective in turning the boat when going backwards than when going forward. For this reason it is very difficult to sail the Ensign backwards, as the slightest backwinding of the jib or other disturbance will greatly overpower the effects of the rudder. In general, it is always advisable to backwind the jib when leaving a windward dock or coming out of irons to avoid being accidentally turned the wrong way.

Third, the Lido's centerboard weighs very little and contributes almost nothing to the boat's momentum, so going into irons in a moderate wind will bring the boat to almost a dead stop. The Ensign's keel, on the other hand, weighs more than half a ton, so the Ensign will have considerable momentum when it is moving and cannot be stopped nearly as quickly. This must always be taken into account when docking the Ensign, as the boat will move a surprising distance even when brought in irons.

Fourth, a centerboard boat's stability decreases as it heels, because its center of gravity is above the water line. A keelboat's center of gravity is below the waterline and remains so as the boat heels, so it is inherently stable and becomes more stable as the heel increases. For this reason, an Ensign can be sailed at angles which would cause a Lido to capsize. A keelboat cannot capsize, but it can be knocked down by a gust of wind, in which case it will right itself as soon as the sails are released. If an Ensign fills with water, however, it might sink, so it is a good idea to have someone bail if the water in the bilge reaches the floorboards, especially in rough weather.

DOCKING

An Ensign weighs much more than a Lido and therefore has much more momentum, so when docking the Ensign you must give the boat more room to slow down. The best way to dock is to end up head-to-wind at the dock with all sails up if at all possible. Docking this way is easiest when you let the jib luff and slowly sail in on the main alone, maintaining only enough speed to keep control. If it is not possible to luff the main completely it will be necessary to drop the main before docking and reach in slowly on the jib alone, letting the jib luff for the last few boat lengths to slow down. Remember that you'll have to turn head-to-wind to drop the main, so do it where there is room to head up and then fall off safely (backwind the jib to guarantee falling off the right way). Be careful not to pull the jib in too tightly on your final reach or you might fall off and miss the dock.



When docking in tight quarters watch out for spars from nearby boats. Consider the effects of tides; for example, do not tie up a boat with her bow under a fixed dock, as a high tide may bring her forestay hard up against it. Use fenders effectively and tie the boat tightly so the fenders are under constant pressure. Use a spring line.

MISCELLANEOUS

A sailboat is most unstable when sailing off the wind, on a run or extremely broad reach. On such a point, waves, especially on the boat's quarter, will try to swing the boat around, creating the danger of an accidental jibe or a broach. This is further aggravated when flying a spinnaker.

To avoid an accidental jibe, watch the telltales to be sure the boat is not by-the-lee. The telltales on the shrouds are strongly affected by wind spilling off the main when off the wind, so use the telltale on the backstay.

A broach causes the boat to head up and heel over sharply. The boat can be knocked down and can take in a lot of water over the side, especially when flying a spinnaker. Should you feel the boat start heeling to leeward and heading up, try to fall off to bring it back upright. Should the boat broach, release all sheets and bail out any water taken in.

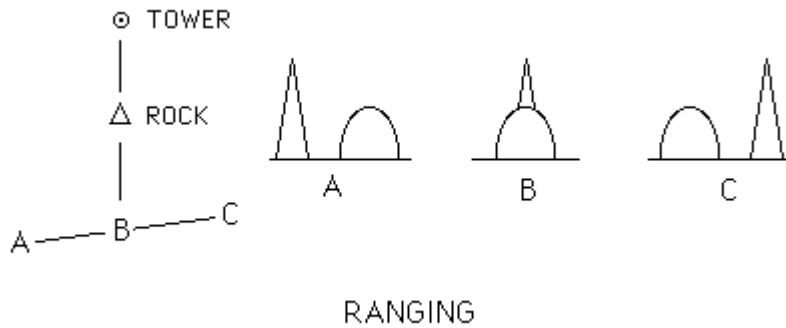
In general and especially when flying a spinnaker, try not to overcompensate for wave action, as you could get into a power roll, heeling back and forth. Should this occur, hold the tiller still until the roll subsides. It is better to undercorrect than to risk overcorrecting. Remember that the Ensign takes a second or two to respond to the helm, so anticipate, and give the boat time to answer.

When sailing on the wind into heavy waves you will probably get wet. Water breaks over the bow and forward gunwales as the boat falls off one wave and crashes into the next. The best way to avoid this crash and the water it brings is to fall off to a smaller angle to the crest of the wave so that the boat slides smoothly down the wave. In practice, as the boat climbs the wave, start to fall off so the boat slides down the other side at a good angle and then head up to your course until the next wave. You will end up sailing a zig-zag course and your arm will get tired, but you and your crew should get less wet.

CURRENTS AND WAVE ACTION

The Senior Day-sailing areas have been designed to minimize the effects of tide currents, but there are still some currents in the areas and they occasionally can be significant. The most common effect of current is to make the boat go in some direction other than where the bow is pointing. It is often necessary to know the exact course the boat is sailing, for example when sailing the Ensign through the break in the pier. An effective technique for finding the course the boat actually is sailing is ranging.

A range consists of a line passing through two objects. When you are on a range, the objects defining the range appear one behind the other. As long as the objects are aligned you are somewhere on that range. If the objects seem to move with respect to each other you are on a course crossing the range.



If you can find two objects which don't seem to be moving with respect to each other your course is along their range and you are sailing straight towards them or away from them. Therefore, if you want to sail to a specific object, set a course which makes that object remain stationary with respect to the background and you will sail there directly. Ranging will also tell you if you are on a collision course with an object or another boat.

SPINNAKER USAGE

The purpose of this section is to introduce and familiarize the reader with the rudiments of spinnaker usage and its related terminology. Obviously, not all can be learned from words; therefore, you are encouraged to observe and practice with skippers experienced in handling spinnakers. Whatever happens, don't be discouraged - spinnaker handling is probably the most challenging aspect of keel boat sailing.

GLOSSARY

Spinnaker - a triangular balloon shaped foresail used for reaching and running.

Spinnaker halyard - like other halyards it raises the sail.

Topping lift - raises spinnaker pole.

Foreguy or downguy - prevents spinnaker pole from raising too high.

Spinnaker sheets - lines (2) which adjust the orientation of the foot of the spinnaker.

Afterguy or guy - the windward spinnaker sheet is also called the guy because it functions to harness both the sail and the spinnaker pole, whereas the leeward sheet controls the leeward clew of the sail only, much as the leeward sheet of a jib.

Spinnaker pole - holds the foot to windward.

Spinnaker blocks - located aft of the tiller on the Ensigns. Spinnaker sheets are run through them to the winches.

OPERATION

The following explanations are for the Ensigns. The 470, 505, Rhodes 19 and Lido theory and method are so similar as to not justify separate treatment. It should also be noted that these explanations represent only one of several ways to perform the tasks. There are probably as many methods as there are skippers.

I. Launching the Spinnaker.

The first step is to determine which side you want to set the spinnaker on (i.e. your intended course) so you can place pole, guy, and sheet accordingly. For example, if you wish to broad reach on port tack, then pole and guy will be on the port side and sheet and halyard on starboard. Take the guy around the spinnaker block, outside the jib sheet, shrouds, and jib (if up), and attach to the forestay. Next similarly run spinnaker sheet around spinnaker block; then take it to the forestay outside everything and attach to forestay or guy. Attach the spinnaker turtle bag, which should be packed with the three corners showing (see folding the spinnaker below), to the forestay. To the respective corners attach the spinnaker halyard, guy, and sheet. Insure that the halyard and sheets will not cross when raising the spinnaker.

Take the pole from the cockpit to the foredeck. Attach topping lift to pole bridle. Plunger pins must face up. Attach foreguy to remaining pole bridle. Attach one end of the pole to the ring on the mast and the other end to the guy. When not in use, topping lift is attached to mast ring and foreguy is near the block on the foredeck.

Raise the pole to horizontal position with the topping lift.

The sail is now ready to be raised. As one crew member raises the halyard, another pulls guy to windward until windward clew of sail is windward of forestay and against the outboard end of the pole. Guy slides through the pole fitting until it reaches the knot where the guy is attached to the clew of the sail. As the sail fills, the pressure on the pole allows the guy to control the pole.

Now sheet in the leeward sheet, which has been allowed to be slack. Adjust the sheet so windward leech is full without reverse curve or spillage.

With the sail set, think of it as a big jib. When you fall off, ease the sheet but in addition bring in the guy. Conversely, when heading up bring in on the sheet and ease the guy.

II. Folding (packing) the Spinnaker.

In order for the spinnaker to be properly launched, it must not be twisted or tangled. To insure that the spinnaker is not twisted it is necessary to make sure the foot and both leeches are all free of each other. One way of doing this is as follows: One person sits with the spinnaker bag in lap, locates both clews, and sits on them. He then gathers the foot, making sure that it is free of the rest of the spinnaker. The foot is then stuffed into the bag and the leeches are gathered, again making sure they are free of the rest of the spinnaker. At this point it helps to have a second person gather one of the leeches. While holding the leeches so they don't tangle, the spinnaker is then stuffed into the bag (it's usually best to put the leeches on top) leaving the head and both clews out. For a larger spinnaker (especially if only one person is packing) it may be necessary to stuff the middle of the spinnaker into the bag first, then recheck the leeches before stuffing them into the bag.

III. Jibing

The spinnaker pole has two plunger pull lines which unsnap the pole from the mast eye and the guy for the "end to end" jibing method. First pull plunger at mast end. Move pole across the boat and secure end to new guy. Release the pole from the old guy (now the sheet). Push the pole out and fit the end into the mast eye. The main may be jibed as soon as the new guy is secured but it is usually better to wait until the pole is reattached to the mast eye. During a jibe the crew must be alert to prevent the spinnaker from wrapping on the forestay.

IV. Taking down a Spinnaker

Change course to blanket the spinnaker behind the main or jib. Allow the guy to run free and gather the foot of the sail behind the main (the halyard may be eased slightly to help). Let the halyard out as fast as the crew can gather the sail into the cockpit. Don't let the spinnaker drag in the water as it can be very difficult to retrieve.

V. Miscellaneous

The spinnaker often gets wrapped on the forestay. There are three ways to get it off short of lowering the sail. First head up and see if it will clear itself (this only works if there's only one wrap, otherwise it could make it worse). Second, fall off, sailing slightly by the lee, so the spinnaker is blanketed by the main and tug on the sheet and guy (not too hard or you will rip the sail). Head up as soon as the spinnaker is free or it might wrap again. Third, send a crew member to the foredeck to unravel it (this may require you to lower the sail part way).

Do you set the jib too? This depends on conditions and course. Jibs are more useful on beam reaches and beamy broad reaches generally than on a very broad reach or run. In very light winds, never set the jib with the spinnaker because the former merely competes with the latter and though carrying more sail, you actually go slower.

Spinnakers are great fun, but they are also large powerful sails and must be respected as such. They can be used safely on the Ensign in winds to 15 knots by experienced crew. Inexperienced crew are likely to broach in this wind. It is wise to have experienced crew aboard if you wish to fly spinnaker in winds over 10 knots.

A broach is when the boat heels excessively such that the boat will alter course of its own accord. In extreme cases the skipper is unable to control the boat without proper action from the crew. If the broach is severe enough, the Ensign may take on water and possibly sink. Depending on the course, the boat may broach to windward or to leeward (defined by which way the boat heels). Of the two, a broach to windward

is more dangerous since the boat will fall off and may accidentally jibe. The spinnaker pole can also go in the water, causing it to break.

A broach to windward usually occurs when the boat is on a run with the spinnaker out to windward. If the boat starts to broach to windward, head up slightly. If that doesn't work, ease the guy forward and pull the sheet in. This moves the spinnaker toward the center of the boat, reducing the pull on the mast to windward.

A broach to leeward usually occurs when the boat is on a beam reach or beamy broad reach. If the boat starts to broach to leeward, fall off. It may help to ease the sheet slightly and bring the pole back. You should also let the main out and release the boomvang to reduce the force on the main. If the skipper is unable to get the boat to fall off, the spinnaker sheet must be pulled in to pull the bow downwind.

With practice and experience, the spinnaker is not difficult in theory or operation. It is a skill worth knowing, but in stronger winds one must remember that it is a fast, powerful sail. Pious exhortations to intrepidity are no substitute for training and skill. Skippers not wholly familiar with its operation are urged to be respectful of the sail's power.

RUDDERLESS SAILING

Sailing without a rudder is not as difficult as one may think. It does not involve any magical acrobatics, but only a good knowledge of the various components that give a sailboat its forward motion and steerage control.

The sails are the greatest turning factor, with or without the rudder. As the wind increases, this becomes more easily apparent. (you may not realize this until you try to fall off a close hauled course without easing the main) In lighter wind the rudder is more dominant, but it should not be considered the "steering wheel". The absence of the rudder necessitates the use of two other factors in addition to the sails, the position of the centerboard and the heeling angle. Chapter 10 in "Basic Sailing" by George, has an excellent discussion of these factors determining weather and lee helm.

In this section light winds are 5 to 10 knots, moderate winds 10 to 15 knots, and heavy winds above 15 knots. It is very difficult to sail rudderless in less than 5 knots because there is not sufficient force from the wind to offset the momentum of the boat once it starts to turn. In winds over 20 knots the waves make sailing rudderless more difficult.

The centerboard, when down, acts as approximately the center of lateral resistance to the water. It is more or less the pivot point around which the boat turns. (this is not technically accurate, but it is much easier to picture the boat pivoting around the centerboard than around a theoretical point which is difficult to determine) The further aft the board is swung the further aft is the pivot point, hence the more the bow will tend to turn away from the wind. Moving the board forward increases the tendency of the boat to swing into the wind. Also, by moving the board aft, its area is diminished so that the boat will make more leeway and will be harder to head up. This is not as important as the position of the pivot point. Generally speaking the board should be placed approximately halfway when starting to sail rudderless.

The heeling angle of the boat is critical to its steerage, as much with the rudder as without. As the heeling angle increases, the force on the sails moves to leeward of the pivot point, causing the boat to head up. This is most obvious in a puff that heels the boat suddenly. Without a rudder this force is utilized as the primary means of turning the boat to weather. The heeling angle is chiefly controlled by the mainsail, except when broad reaching or running, when the movable ballast (people) plays the biggest role. In light winds the main does not produce enough force to heel the boat so the crew will have to shift to leeward to prevent the boat from falling off. In heavy wind the main can easily produce too much heel so that it must be partially luffed. Also the crew should hike out to help counteract the force of the main. The most effective position for live ballast is the point of maximum beam. (on a Lido this is just aft of the shrouds) The crew should be quick to shift inboard as the boat flattens out because heeling to windward causes the boat to fall off (the force on the sails moves to weather of the pivot point). For good control it is usually desirable to maintain about 10 to 20 degrees heeling angle. This should increase when sailing to weather and decrease when sailing downwind. If the wind is very strong, it may be desirable to reef the main if it is causing excessive heel.

The jib exerts its force well forward of the pivot point; it tends to make the bow turn away from the wind. The main is the opposite; it causes the boat to head up. (generally the main creates weather helm by heeling the boat but on a run it is evident that the mainsail causes weather helm without heeling the boat) Generally the jib should be trimmed first. If the wind is light, it may be necessary to trim both sails at the same time; in heavier wind the jib will cause the boat to heel. The main can then be trimmed and the crew hike out. As the main exerts the greater force of the two sails, it is easier to steer by adjusting the main than by playing the jib. When running the main should be all the way out, the boat being steered by the trim of the jib and shifting of weight.

The trick is to coordinate all this when you're in the boat. Before removing the rudder, trim the centerboard to about the halfway position. After removing the rudder (and securing rudder and tiller to the boat), let

both the main and jib luff while keeping your weight centered in the boat. The centerboard should then be adjusted so the boat sails on about a beam reach (be sure to allow the boat to settle on a course after adjusting the centerboard). You should be able to make the boat head up or fall off by adjusting the jib or main. Pull the jib in, the boat should fall off. Start pulling in the main until you are on your desired course. If the wind is heavy you should hike out as you pull the main in to counteract the heel. When sailing close hauled don't try to sail too close to the wind, if the jib backwinds, you will come about. Try to steer a straight line by making small adjustments in the mainsheet. If a puff hits and the boat starts to head up ease the main a foot or two. If the boat starts to fall off, start to bring the main back in. Try to tack or jibe before you need to since you may not make it the first time. If you find yourself getting close to the lee shore it is best to put the rudder back in and sail away from the shore.

In lighter wind, sheet in the main as you sheet in the jib, and try to keep the boat on a beam reach until you feel that you're "steering" with the main. Remember that a small amount of heel is desirable; if there is not enough wind to heel the boat sufficiently (so that it rounds up gradually, but can be checked by hiking out) you must shift your weight to leeward.

One of the biggest problems for the beginner occurs when the boat starts to spin circles. If this happens, let both sails luff and balance your weight. The boat should settle on a beam reaching course as when you first adjusted the centerboard. If the boat doesn't settle on a beam reach (due perhaps to a change in wind speed), the center board must be readjusted. When the boat is on a beam reach, slowly sheet in the sails. If the boat tends to go to leeward first, pull the main in more as you pull the jib in. If it heads up initially, use less main and more jib. If you find the boat comes about too readily and is difficult to jibe, move the centerboard aft slightly. If the boat tends to fall off suddenly, move the centerboard forward.

If you wish to come about, it is necessary to sheet the main in, the heeling and the force on the main should bring you about. If a good wind is blowing, let the jib backwind until the bow of the boat is well past the eye of the wind; then release it quickly and sheet it in on the other tack immediately. While you are sheeting in the jib you must ease the main to keep from coming about again. You may find (especially when single handed) that it is necessary to return to the beam reach position briefly to give yourself time to sheet the jib in. In lighter wind you may find it easier to shift your weight to leeward and release the jib in order to tack.

Beam reaching is fairly easy in moderate wind. Ease the main out until the boat turns to a beam reach, then ease the jib to the desired position and adjust your weight to keep the boat on course.

In a lighter wind the problem when reaching is acquiring a sudden lee helm, falling off and jibing. This will occur if the wind drops suddenly, the crew hikes the boat too flat after a puff, or there is too little steerage way to maintain a light weather helm that can be controlled by hiking out or by letting out the mainsheet. The only remedy is to jump to leeward quickly, thereby heeling the boat enough to increase weather helm. Depending on the wind strength and boat speed, it may be necessary to jump back to weather after a moment to avoid tacking. Try to balance the weight at the proper athwartships position that will result in a slight heeling angle. Remember the faster you are going (due to increased wind velocity) the quicker the boat will turn.

In stronger winds it may be desirable to move the centerboard back slightly when reaching, to maintain a reaching course and still utilize some mainsail area. This will, however make it difficult to head up so you need to remember to readjust the centerboard when you want to head up. Moving the centerboard back also reduces it's area, which reduces the boat's tendency to spin.

Agility is very helpful when broad reaching or running. (it is actually very difficult to stay on a dead run for any length of time if there are waves.) The mainsheet is not held in the hand as it should be all the way out and is not trimmed until you want to change course. Make sure there is a knot in the end of the sheet before letting it go. Again the position of your weight that results in maximum efficiency is pretty well forward. There are only two problems that occur, the boat spends most of the time trying to head up and the rest of the time trying to fall off and jibe. It is necessary to keep the boat flat or heeled slightly to weather to

counter act weather helm. Your course will be more stable if the centerboard is most of the way up since this reduces weather helm. The jib should not be trimmed flat when the wind is aft since this reduces its efficiency greatly. It is most powerful when wung out, but this may be difficult. The major steerage factor is heel angle, controlled by weight. You should sit in a position where you can move quickly toward either side to keep the boat on course. You should try to avoid rocking the boat side to side to steer a straight line.

Heeling to leeward is normal, heeling to windward is unusual. If you don't carry it to an extreme, heeling to weather is desirable when broad reaching and necessary when running to counteract the effect of the main. It brings the center of effort of the mainsail closer to the centerline of the boat which increases steerage stability. Due to wave action however, it creates the danger of capsizing to windward, with an accidental jibe. It is almost impossible to capsize to weather if you're single handed, unless you're very heavy. The main danger, therefore is the accidental jibe. which will cause you to be sitting on the lee side and possibly capsize the boat. Don't worry too much about jibing accidentally when on a run, since it is possible to sail 10 to 15 degrees by the lee without jibing as long as the wind is steady.

Jibing is the most difficult single task of rudderless sailing, except in light wind. The boat must be by the lee before you try to jibe. Then quickly bring the boom across and let it out on the other side. The trick is getting the main over without having the boat have a chance to turn much either way. Be sure to take up some of the force of the jibe so as not to damage the boat. You also need to get to the new windward side or the boat will round up sharply and tack.

There are two ways of getting the rudder back in. One is to anchor, the rudder can then be put in as you would at the dock. The other, more difficult, way is to allow the sails to luff, which should cause the boat to sail slowly on a beam reach. The rudder can be put in by holding it along the forward edge with one hand above the pintles and the other hand below the pintles. The rudder can then be guided into place without damaging the pintles or gudgeons. Don't attempt to control the whole rudder, only the forward edge.

Because it is difficult to slow the boat down and still maintain steerage, docking rudderless is only allowed in very limited circumstances (like if the tiller breaks). If you have to dock without a rudder and you aren't yet skilled in rudderless sailing, the best thing to do is to use the paddle to help steer the boat. This is done by putting the paddle through the tiller cutout under the traveler. You can then steer by levering the paddle against the side of the cutout.

Rudderless sailing the Ensign (more accurately called tillerless sailing) is somewhat different than in the Lido. The main differences are that the rudder is not actually removed and the keel cannot be adjusted as can the Lido centerboard. Because the Ensign has a long keel it will tend to sail a straighter course than a Lido. Since the Ensign also weighs much more than a Lido this makes it much more difficult to influence by moving crew weight. These factors mean that it is easier to sail an Ensign upwind or on a beam reach, but it is more difficult to sail on a broad reach or a run. The most effective means of sailing downwind is to have a crew member (preferably someone experienced) stand up near the shrouds and lean out. The best sail combination for "rudderless" sailing the Ensign in moderate to heavy wind is reefed main and 110. In less wind you need more sail area to control the boat and in very heavy wind the smaller jib is enough. The additional momentum and long keel cause the Ensign to respond more slowly than a Lido so you need to make small adjustments and plan your maneuvers well in advance.