

A BASIC MANUAL FOR KEEL BOAT SAILING AT CSC



INTRODUCTION

So you've been messing about in Dinghies for a while and have your Junior rating and you feel it's time to start sailing on the keelboats. This is intended to be a guide to get you started and also as a reference as you go through some Wednesday night lessons or when getting private instruction. The material covered in this handout will continue to build on the basics learned in Dinghies with attention called to some of the big differences between the two. A keelboat is slower to respond, has a greater turning radius and, with a large mass, momentum will be a big factor in how the boat behaves. The fundamentals are not going to be covered here, as they are thoroughly discussed in the Colgate and other basic sailing books listed at the end of this manual. The most important skills to be learned are: the ability to recognize what the boat will be doing before it happens and planning maneuvers before executing them. Having a thorough understanding of basic sail mechanics will also be a good starting point for learning to sail keelboats.

Keelboats and dinghies are not mutually exclusive! It is important to continue practicing on the smaller boats for several reasons. A Junior can get all the tiller time he/she wants to practice universal techniques such as proper sail trim, man overboard (MOB) recovery, rear facing jibes, anchoring and circles. It is also worthwhile to learn to handle a dinghy when overpowered so when the wind jumps up to 30 knots you will still feel very comfortable.

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1. OPERATING RULES

1.1. Senior Keelboat Area

The most current definition of the senior keelboat area, as well as the list of privileges and responsibilities of senior and cruising skippers, is found in the CSC Operating Rules. The most recent operating rules are available online at http://www.cal-sailing.org/images/stories/files/club_docs/cscoperatingrulesrev010113.pdf.

2. SIGNING THE BOAT OUT / PUTTING THE BOAT AWAY CHECKLIST

2.1.1. Before Leaving Home

- Check weather (including recent rainfall and forecasts, 4 Possible Websites: OCSC, NOAA, WEATHER.COM, WUNDERGROUND)
- Check tides
- Check current
- Check wind is below 30 knots

2.1.2. At the Dock

- Assess observed weather. Can you sail safely with your crew?
- “Do Not Sail” status OK
- Look in the log to see if any recent entries give a clue as to problems you might expect
- Sign out the boat properly

2.1.3. On the Boat

- Winches, cam-cleats and tiller functional.
- No burrs, missing pins or slack in shrouds.
- Check under the floorboards for water. Bail if necessary.
- Anchor accessible and tied to mast base. Flukes moveable
- Bailing bucket accessible
- Paddles accessible

Signing the Boat Out / Putting the Boat Away Checklist

- Fire Extinguisher accessible, fully charged, not expired
- Look at the battery indicator lights (even if it's daytime it will remind you to hook up the charger when you're done) – RED means discharged. Also, see that the battery is securely strapped down.
- Running lights operational
- Set the VHS Radio to channel 16
- Check Fuel. If filling needed, take tank off the boat.
- No fuel fumes in lazarette
- Run motor, make sure water stream is visible
- Type IV Throwable PFD in cockpit
- Check that there is a storm jib and it's in good condition

2.1.4. Crew & Skipper

- Each crew wearing PFD
- 2 Flashlights (1 floating type)
- 3 Day/Night Flares, not expired
- Horn or sound signaling device
- Handheld VHF or cell phone

2.1.5. Upon Returning

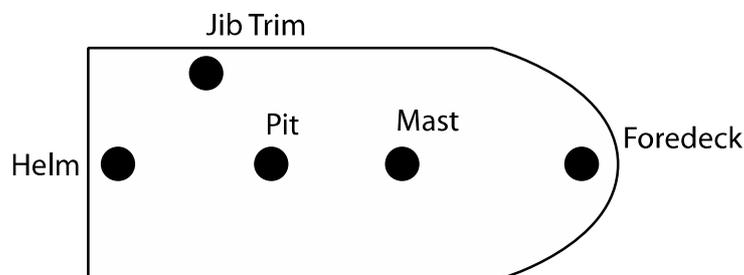
- Take down and stow jib – tack crinkle attached to bag's draw cord.
- Take down main
 - First release Main Sheet, Vang, Outhaul, Cunningham
 - Shake the reefs if reefed
 - Lower the main after the above is done
- Partially loosen backstays (Merits and Capri)
- Tie dock lines and spring lines
- Turn off lights and radio
- Retrieve gear from below deck
- Put away PFD's
- Close gas tank vent
- Coil halyards and mainsheet

- Make sure lines on mast are tight and not flopping
- Rinse boat, especially mast, shrouds, winches, motor, and all hardware. Pay attention to the gooseneck and all the hardware in that area.
- Install the main sail cover
- Plug in battery charger
- Close and lock cabin
- Sign-In at dock box

3. STANDARD CREW POSITIONS

Standard crew positions for 4 crew members + 1 skipper for racing and docking/departing are shown below. The skipper is likely at the helm but may not be. The jib trim crew is responsible for the jib and is seated on the leeward side. The mast crew and foredeck crew are responsible for lookout, jibing the spinnaker and changing the jib.

When departing, the skipper must be on the vessel. A crew member (such as pit) may be positioned on the dock to perform a departing maneuver outlined in the docking/departing section.



4. EQUIPMENT

This section describes the keelboats available to senior skippers at CSC, equipment onboard those boats, safety and maintenance of the equipment.

4.1. CSC Keelboats

CSC has six keelboats in its inventory. Specifications for these boats including LOA, beam and draft can be found in Appendix 1. It's a good idea to know the draft for each of these boats before taking them out.

Merit 25s

- Meritorious (bright yellow)
- Dr. Who (white)

Capri 25

- Pomodoro (red)

Commander (Pearson) 26

- Daisy (blue)
- Donald (green)
- Portugal Princess (yellow)

4.1.1. Maximum Crew Number and Weight Limits

Overloading a keelboat is a very bad idea. Our Commanders can carry up to 10 people, but only under ideal circumstances. Our Merit 25's and Capri 25 can carry no more than the lesser of 6 people or 900 pounds, and most often you'll find that even 5 people together exceed 900 pounds. Even these limits should be reduced in some circumstances. Fewer people should be carried if some are less agile and the wind is strong. With a less agile person aboard, reduce the sail area by reefing, and take someone who's extra agile and can help balance the boat.

Always remember that the skipper should be able to handle everyone aboard in case of a severe problem. It's a very bad idea to load 10 people aboard a Commander if you cannot handle them on a trip that extends near the Bay's many submerged rocks, like Berkeley Reef or Brooks Island. In case of a sinking, the skipper may need to make sure everyone is free of all the lines as the hull goes down, and the Commanders will sink fast due to their weight and uncored construction. The Merit 25's are lighter and have some resistance to sinking due to their cored hull and deck, but a sinking will still happen far too quickly to allow the skipper to attend to multiple, panicked crew. Our Capri 25 has secondary flotation that will keep it afloat even in a sinking, but it will be only awash, not sailable, and the skipper will have to keep everyone calm until help arrives.

The Merits and the Capri can be knocked down, especially by sailing with too much sail for the conditions. If the wind is strong enough and you think that there is a chance of knockdown, close the companionway to keep water from rushing into the hull. In the event of a knockdown, the skipper must be prepared to keep the crew from hanging onto the cabin top or rail, and to get their weight over towards the keel so that the keel can right the boat. Carrying 6 people and full sail in over 20 knots of wind is extremely unsafe, and will likely result in the kind of mishap best left to private boat-owners who can afford it. In strong wind, carry fewer crew, and limit your crew to people who are experienced in recovery after a knockdown. Never take extra, untrained people to provide “rail meat” when the Bay is covered with whitecaps; the club can’t afford a dismasting or sinking.

4.2. Safety

If you haven’t read ABC’s of California Boating Law, online at <http://www.dbw.ca.gov/Pubs/Abc/Default.aspx>

Please put this manual down and familiarize yourself with California Boating Law and US Coast Guard regulations. The information below is in addition to legal requirements and recommendations for important safety considerations, such as PFD’s, navigation rules, and navigation aids. The information below is also in addition to club Operating Rules, which can be read on-line at http://www.cal-sailing.org/images/stories/files/club_docs/cscoperatingrulesrev012110.pdf

4.2.1. Personal Flotation Devices and Appropriate Clothing

Keelboats can lull sailors into thinking they won’t get wet or go in the water as they might on a dinghy. Everyone aboard should know that this isn’t necessarily the case. Keelboat sailors should be prepared for the dowsing they can get aboard on a windy day, and for the possibility that they will go in the water by falling overboard, sinking, or knockdown. Good foul weather gear over synthetic clothing is the best choice for keelboats. Fleece and wool are also good on especially cold days. Personal flotation devices must be worn at all times on any CSC vessel. Auto-inflating personal flotation devices should not be worn without first-hand experience, there have been failures to inflate, and many of them will seriously impair the wearer’s mobility when they inflate.

4.2.2. Winch Safety

Winches have caused severe injuries, and skippers are responsible to ensure that everyone is aware of the danger and is operating the winches properly. Be sure to wrap line clockwise around winches. Be careful when clearing overrides. The

sheets wrapped around the winches are under great load, and they will rip out hair and crush fingers that get caught under the sheets. Hair should be kept tied up and under caps on anyone who is near the sheets where they enter the winches, and fingers should be kept away from everything but the tails of the sheets that exit the winches.

4.2.3. Dock Cleat Safety

The dock lines used to tie up keelboats are also under heavy loads and can crush fingers. Skippers should never allow anyone to tie up a boat without first making sure that they understand this risk. When tying up a keelboat, always keep your fingers far away from the part of the dock line that is contacting the cleat, so that your fingers don't get trapped between the line and the cleat. There is tons of force on the dock lines, and they can snap off fingertips.

4.2.4. Visual Distress Signals

CSC's keelboats carry inflatable orange flags as our primary daytime VDS's, and battery powered automatic SOS lights as our primary nighttime VDS's. There may be flares on board, but they are only there as secondary VDS's. Flares have killed at least one person in use, and can easily ignite gasoline during an emergency. Senior skippers are required to carry three (3) current (non-expired) day/night flares. Flares go out faster than you think so try to carry more than the minimum. It is recommended to carry a combination of parachute and handheld flares so that you can signal from a distance and within line of sight.

4.2.5. VHF Radio

CSC's keelboats carry VHF radios, which should be on and tuned to Channel 16 whenever the boat is underway. For non-emergency radio use, hail on 16 and switch to a non-emergency channel such as 68, 69, 71, 72.

4.2.6. Outboard Motors and Gasoline

CSC's keelboats carry outboard motors as backup to the sails. Always test the motors before sailing, to be sure that you can lower and start them quickly when needed. Never store gasoline or motors in the keelboat cabin space, only in the open cockpit or in the ventilated fuel storage compartments of the Commanders. No open flames anywhere within 10 feet of the motors or gasoline tanks. If you need to fill the tank, always take it off the boat first. Always have someone at the motor when it's running, particularly when someone is in the water during a rescue. If there's a person in the water, the person at the motor should shut the motor down immediately if the person in the water gets within 3' of the propeller.

4.3. Common Maintenance Issues

4.3.1. Standing Rigging

- Confirm that the shrouds are reasonably tight and have the same tension on both sides of mast
- Confirm that the forestay is reasonably tight (Understanding that the tension may vary with backstay adjustment)
- Tap on all shrouds and forestay and ensure that the origin of any rattle is OK.
- Check for broken strands of wire (meathooks) from the base, to as high as you can reach. If there are broken strands, the boat should be marked "do not sail" and the problem should be reported so that all of the shrouds rigged at the same time can be replaced because others may be at the end of their life.
- Check SWAGE (metal collar or tube at base of shroud). If any is cracked, it should get a "do not sail" sign until it is re-rigged.
- Check that cotter pins or bolts on turnbuckles are not corroded or cracked and in place.
- Avoid problems by hosing down with fresh water after every voyage.

4.3.2. Running Rigging

- Check for signs of wear or fraying, especially halyards.
- It is much easier to replace a halyard while it is still intact. If not, you may be the one who gets hoisted to the top of the mast to replace it in a Bosun's Chair.

4.3.3. Shackles

- Check for signs of wear and confirm that pin is securely locked.

4.3.4. Hanks

- Check for free movement. Rinse with fresh water to keep free of salt buildup.

4.3.5. Winches

- Check for free movement and holding power.
- Need to be cleaned at least twice a year, best quarterly.
- Best preventive solution, Rinse with fresh water.

4.3.6. Bottom Jobs

- Fiberglass hulls need to be inspected periodically to check for problems, such as: scuffs, crazing, delamination and holes. Minor problems above the water can be repaired with a moderate amount of skill. Major problems will require the services of a boatyard.
- Another problem in the water is the buildup of organic material, such as plants, barnacles, etc. Two solutions are the use of a long handled brush to scrub the underwater surfaces from the dock, while another is the use of a plastic FLOSSING cloth that is placed under the hull and pulled back and forth to remove debris.

4.3.7. Sail Rips

- Note these as soon as they occur and try to repair with RIP STOP tape in light winds.
- There are now sail repair tags in a clear plastic box in the Keelboat Shed on a shelf right next to the workbench. When you have a torn sail please bring it into the Keelboat Shed, fill out a tag, tie it to the tack of the sail (facing up in the bag), and here is the really important part - let Sheldon Coad know about it. Just send him an e-mail at sjcoad@comcast.net.
- There are instructions on the plastic box as to how to fill out the repair tag. It is really dirt simple: date; sail type; boat it is from (particularly important if it is a keelboat sail); what and where the damage is; and your name. Then let Sheldon know about it. He can then see to it that it gets looked after either by our own member/sailmaker, Cynthia Wight, or via other options.
- Once repaired, the person returning the sail will note that the repair has been done, date it and sign on the back of the tag and let Sheldon know it is back. This is particularly important for keelboat sails as we do not have much in the way of spares.

4.3.8. Electrical

- Simple electrical repairs, such as burned out lights should be completed before taking the boat out. Spare bulbs are stored in the designated dock box.

4.3.9. Motor (manuals are in the clubhouse)

- Keep the transom clamp screws greased on all motors—skiff and keelboat motors

- Corrosion kills motor wiring—wash off salt accumulation with fresh water, dry with compressed air and spray down wiring with WD40 or silicone spray
- If a keelboat motor won't idle, remove and blow out the carb with compressed air, clean out fuel bowl, check fuel tank, line, and filter for water and dirt
- If keelboat motors won't start, open cover, use flat blade screwdriver to open drain screw bottom of carb to check that there's fuel in the bowl, remove sparkplug with 5/8" open end wrench, clean plug with wire brush, oil or grease threads, replace, and find someone to yank the rope harder and faster than you previously did.
- Straighten dinged props with hammer and file; if chunks are missing, replace prop.
- Change crankcase oil (when black, or at least twice a year) and gear oil (once a year).

4.4. Required US Coast Guard Equipment

3 Items already on boat: Certificate of Number, State Number, Certificate of Documentation

3 Items NOT required on our boats: 2 Ducts w/cowls for fuel ventilation, backflame arrestor (because we use outboard motor), marine sanitation device (since we do not have an installed toilet).

6 Items you MUST HAVE aboard a boat >16ft: Senior Vice President of FUN = SVPFUN

S = Sound device (air horn or athletic whistle)

V = Visual Distress Signal (3 handheld or floating flares and 1 electric distress light)

P = PFD's (one for each person, plus one throwable)

F = Fire Extinguisher

U = unknown (needed to fill in mnemonic)

N = Navigation Lights: Red/Green on Bow, White on Stern

4.5. Required CSC Equipment

1 Working VHF Radio or Cell Phone

Anchor, rode and paddles

Working Compass

Storm Jib (75%)

Bailing Bucket

2 Flashlights (at least one Floating)

Tools = FIKSWAP

F = First Aid Kit

I = ignore (needed for mnemonic)

K = Knife

S = Screwdriver

W = Wrench

A = and ignore (needed for mnemonic)

P = Pliers

NOTE on Radio: When you get on boat, turn on boat radio (CH 16). Turn on your personal radio (CH 16). Give your radio 2 quick clicks on the transmit button. You should hear 2 clicks on the boat radio. Avoids talking on the radio, but completes communications check.

5. MOTORS & MOTORING



5.1. Types of Motors at CSC

Daisy (blue Commander) Mercury 5 hp fourstroke

Donald (green Commander) Nissan 5 hp fourstroke

Pomodoro (Capri 25) Tohatsu 4 hp fourstroke

(note: the above motors are really all the same, a single cylinder fourstroke manufactured by Tohatsu)

Meritorious: Honda 5 hp fourstroke

Dr Who: Honda 5 hp fourstroke

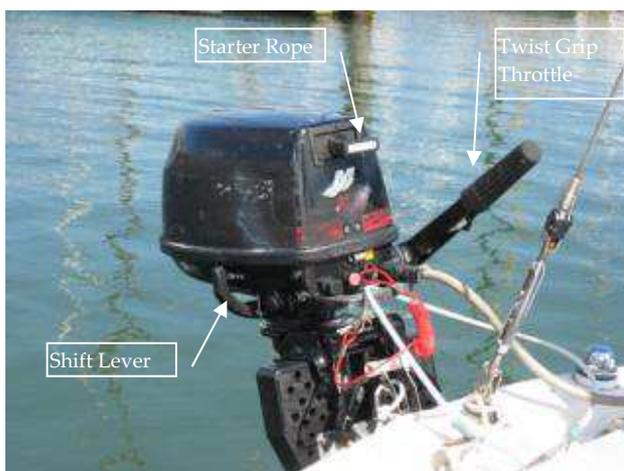


Figure 1 - A 5 H.P. Mercury

A 5 H.P. Mercury

The shift lever is on the starboard side.

The twist grip throttle is located on the steering arm.

The starter rope handle is sticking out from the top of the motor cover.

A 5 H.P. Mercury. The choke is the square knob just to the left of the pink button.

That pink button (originally red) is where the kill switch key must be slipped on for the motor to start and run.

To stop the engine either push in hard on the pink button, or pull the key off.

The small light between the kill switch and fuel line is an oil warning light. If it is lit continuously, with the engine running stop the motor immediately and check engine oil. It is likely low. However it is common for it to flicker on and off occasionally in actual use as the oil splashes around inside. The fuel delivery line plugs into the right of the low oil warning light.

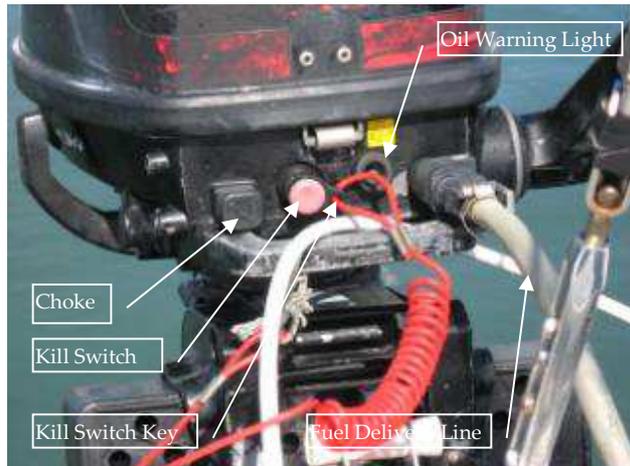


Figure 2 - Front view, 5 HP Mercury



Figure 3 - Rear View - Mercury 5 H.P.

The latch at the rear of the Mercury motors, which secures the engine cover.

A mercury with the engine cover removed. The oil dipstick is the yellow plastic knob on the side of the engine.



Figure 4 - A Mercury with the engine cover removed



Figure 5 - 5 H.P. Hondas on the Merits

The 5 H.P Hondas currently on Meritorious and Dr. Who (the Merits).

All the controls: shifter, choke, throttle, etc. on the Hondas, are in almost the same positions as on the Mercurys and the Tohatsu.

5.2. Pre-Sail Check

Check the fuel. Peer into the fuel tank and (on the Commanders) check the clear bowl of the fuel filter for water and crud—the most common cause of motors not idling properly. On all motors, check that the fuel line connector is solidly attached to the motor, when changing lines, clean out the end very carefully.

Don't use stale fuel—if in doubt, pour some into a clear container and look for telltale streaks and jelly-like blobs and grit that indicate varnish is forming. Gas

can go bad after two or three months—return extra fuel to the club, don't leave it on the keelboats.

How much gas do you need? Gas consumption at full throttle is about half a gallon per hour (gph) for the keelboat motors.

Check the crankcase oil before leaving the dock--open the top cover, pull out the dipstick, wipe and stick back in to check level of the crankcase oil, and if needed top up with four stroke outboard oil.

If a motor doesn't start, and doesn't run properly, take it to the motor locker at the back of the clubhouse yard and send an email to the motor chair. A motor carrier is available in the same area of the yard.

Before you remove or replace a keelboat motor, tie it to the boat so that you do not lose it if it falls off.

When replacing a motor be sure to attach the red kill switch lanyard to the boat.

5.3. Starting procedure

5.3.1. Cold Start Procedure

1. In general the warmer the ambient air temp, the easier it will be to start
2. Check gas line connection at engine. On tight? Any cracks?
3. Check the gas in the tank. Any water? Is it old?
4. Check the fuel filter on the transom if it has one. Any water?
5. Open the vent on the tank
6. Pump bulb until it is good and hard. Watch for any leaks.
7. Tilt engine down
8. Lower engine as far as possible so prop and lower end are well under water
9. Remove engine cover, check oil and look for anything amiss.
10. Make sure plug wire is properly attached and replace cover
11. Make sure transmission is in **Neutral**
12. **Make sure red kill switch key is in place**
13. Pull choke all the way out
14. Make sure throttle is all the way closed (clockwise) for the Mercurys and the Tohatsu, in the "Start" (triangle) position for the Hondas

(about ¼ open)

15. Align engine with direction you will be pulling
16. PLANT FEET WELL
17. ***Double check neutral setting***
18. Make sure pull arm/body path is clear
19. Pull out slowly until you feel the compression resistance.
20. Bend knees, especially the one nearest the engine.
21. Pull across you body. Right handers, your left leg should be closest to the engine. For lefty's, your right leg should be closest to the engine.
22. Pull like you ***really*** mean it and ***use you legs***. They add tremendous power with little effort. **USE NO MORE THAN 2 PULLS.**
23. ***Check for cooling water stream out the back. No stream? Shut engine down immediately.*** There is a clogged water port or an impeller problem. Try to clear the water port if you can with a wire. Otherwise do not use engine, note in Maintenance Log and report problem to the Motor Chair.
24. If cooling stream is OK, idle for a while then try ***very slowly*** pushing choke in. If engine stumbles quickly pull out choke and give it a little gas until it smoothes out again. It is not yet warmed up.
25. Warm it up for about ***3-5 Minutes*** or until it will run smoothly with the choke all the way in (off) before using in gear.
26. After the engine will idle reliably in neutral see if it will idle reliably ***in gear. This is the real test to see if it is ready to use.***

5.3.2. Differences between Mercurys and Hondas

For the Hondas:

- (1) They will not start in gear
- (2) In neutral and reverse they can only be revved about half speed. An interlock prevents any more.
- (3) You need to set the throttle to the START (triangle)

position (about ¼ throttle) for either a cold or warm start

5.3.3. Trouble Shooting

If it doesn't start with two pulls ---- **STOP** any more pulls with choke out risks flooding engine. **Four pulls or more is almost certain flooding.** Mercury manual says only two pulls maximum with choke out. Honda does not say anything but we will assume the same holds true for the Hondas as well.

Next: Double-check everything above, especially kill switch and fuel delivery. Air leaks are the second most common problem.

Go to Warm Start procedure - Push choke all the way in, on both Mercurys and Hondas, open throttle very slightly (counter clockwise) to hot start position (triangle), Try strong pull again. 1-4 times. If you get a "pop", keep pulling, --- harder!

If no start - Common problems – air leak someplace. Check all lines again.

Clogged filter? Disconnect filter on engine and blow it out (backwards). (Now you have an air leak for sure.) This means more bulb pumping and several hot start pulls to get a start.

Check transom fuel/water separator again.

Pull spark plug – see if it is flooded. If plug is wet, it is. If so, make sure choke is pushed all the way in, throttle is wide open (counter clockwise). Make 6 or 8 easy pulls to just move air through cylinder, not to start. Wait – ideally 20 minutes but at least 5 – 10, *leaving throttle wide open and plug out.* Reinstall plug. Try warm starting procedure again.

5.3.4. Warm Start Procedure

Note that the motor should still be warm 5-10 minutes after previous use. Twenty minutes after use it will probably be cold.

1. Push choke all the way in. You only need the choke for a cold engine.
2. Crack throttle slightly (on Mercurys to the warm start triangle).
Hondas should always have their throttles at "Start" position for either cold or warm starts.
3. Check that the tank vent is open and engine in is neutral
4. Pull as if you really mean business. (See steps 13 – 18 above.)
5. Let the motor thoroughly warm up before relying on it.

NOTE: The biggest single mistake that most people make initially is simply not pulling hard or fast enough. This applies especially to the Mercurys. You *must be ferocious* with them. This is not an exaggeration.

5.4. Shutdown procedure

Shut off keelboat motors by pushing the red button that the red lanyard attaches to. Don't yank the lanyard off.

5.5. Gas and Oil

Gas for all the motors is regular (87 octane) unleaded. Gas is kept in the motor locker in the yard, in 5-gallon red-orange containers. Also in the motor locker are crankcase and gear oil.

If we're outa gas, remember—

1. Keep receipt from gas station for reimbursement (write name on receipt, fill out form in clubhouse)
2. Close all vents on tanks before transporting, pickup truck best, tarp in trunk.

Gas goes bad after a couple of months because it contains oxygenators (an anti-smog additive) that cause the hydrocarbons to chain up into clots of varnish that clog the carburetors. You can add gas preservative, but these tend to attack the seals of the carburetor, so the best plan is to not leave gas around where it will go bad (for example, in the lazarette of a Commander over the winter) but take it back to the club to be used in the skiff—we use about a gallon a day in summer, a quarter of that in winter.

Check the fuel containers for water, since water in gas leads to crap in carb, the major source of motor problems at CSC. Set the tank outdoors in strong light, take off the cap and peer into the lowest point of the tank. Water shows up as a pool of brownish sludge at the bottom. If the tank has water in it, don't use it! Water in tanks can be removed by siphoning it out of the bottom of the tank, using an Arkansas credit card (siphon with rubber bulb). Or pour it into a clean bucket, let it settle, and then pour the top part back into the tank, then throw away the water that's pooled at the bottom of the bucket.

Watch out for dirt in the fuel line connector that attaches to the motor. Dirt can cause leaks that will make the motor suck air and die. Dirt in the connector can be flushed out with gas by pushing in the pin inside the connector with a key, and squeezing the rubber bulb. Also, watch out for failing or broken O-rings in

the connector. Spare connectors are in the motor locker, or can be easily bought from Wet Marine.

When carrying gas in a car or storing it in the yard, close all the vents on the tanks (but don't close the vents immediately after filling them at the station—gasoline contains plenty of dissolved gases that boil off when the gas is poured, and the pressure can cause a leak that will stink up your car!).

Crankcase oil is "4 stroke outboard motor oil". Gear oil is 80/90 weight, 90 weight, hypoid, etc. marked as suitable for modern outboard engines.

6. AT THE DOCK

Before departing or docking handle crew assignment and briefing. Make sure everyone understands that as the skipper you are in charge of the boat. In addition ensure that every crew member can perform their tasks safely and communicate properly. There have been situations where costly accidents would have been avoided simply by proper communication. One crew can be assigned the task of fending off pilings and other boats with paddles or a boat hook (don't use bare hands). Assign lookouts for boat traffic coming up or down the lanes. Assign crew to trim the sails.

It's important when docking to have a plan. Specifically, **have a plan A and plan B** going into the dock, **have a bail-out point**, and **prioritize**. Prioritize life over property and more expensive property over less expensive property. It's far easier to replace a fender than a dock box and easier to replace a dock box than a finger caught in between the boat and dock. There is never a rush to dock and it's ok to take some practice docks in the turning basin. The geography and features of the area can shift the wind in less than 10 ft. As you are practicing, consider your approach and what your point of no return is. Have a plan A and plan B before the point of no return. If events do not play out according to plan A, then shift to plan B rather than putting yourself in a position of having to improvise and making the outcome worse.

After the bail out point, your options are usually to scull or use the rudder to brake (which only works when the boat has sufficient steerage). Heading down the J Dock fairway might be another option, but that disappears very quickly as an option - usually at the bail out point. Make the decision to bail out early rather than later.

A good technique to avoid hitting other boats is to back the jib. It pushes the bow away from the backed direction and can be used to rapidly avoid motors sticking out or other boats.

The relative weight of the boats can make a difference. The much lighter Merits and the Catalina Capri will be blown off a good docking course in less wind than the Commanders.

Wind direction, shifts, gusts, current, other boats, and relative slip positions all combine to make each and every docking and departing unique. Outlined below are a several docking options. Clearly, docking a different boat in a different slip may cause the skipper to have to do something different. That's ok. The best way to get better at docking and departing is to do it, not read about it.

For the purposes of the docking procedures, we will assume that the cardinal points are rotated West about 20 degrees to make them parallel to the docks, in consequence all the CSC slips will face to the assumed due East, and the assumed North and South will be abeam of the boats as they are tied up in the slips.

6.1. Docking and departing

6.1.1. Upwind docking

The first example is a typical upwind dock, into a slip (J-dock, for instance). At point 1 you are bringing the boat in on a broad reach to get downwind of the docks just enough for an easy close reach in. At point 2, the boat is turned sharply into the wind to slow the boat way down and also to confirm your estimate of the wind's direction. From here on into the dock it should be a straight shot, *slowsailing* in before turning into the slip. Be sure to range at this point to be sure the boat's course does not change – leeway made while *slowsailing* will set you downwind, making it harder to sail in on a close reach.

If you find that at point 2 the boat is too far downwind, immediately sheet back in and sail upwind until it is possible to close reach as in point 3. On the other hand, if, at point 2 you turn toward the dock and find you are not luffing, indicating that you are too far upwind, then fall off very hard to a run and then repeat the turn up into the wind for another go at the approach. The key here is to check right away that you can luff as well as your ability to power up - while there is still room for corrections.

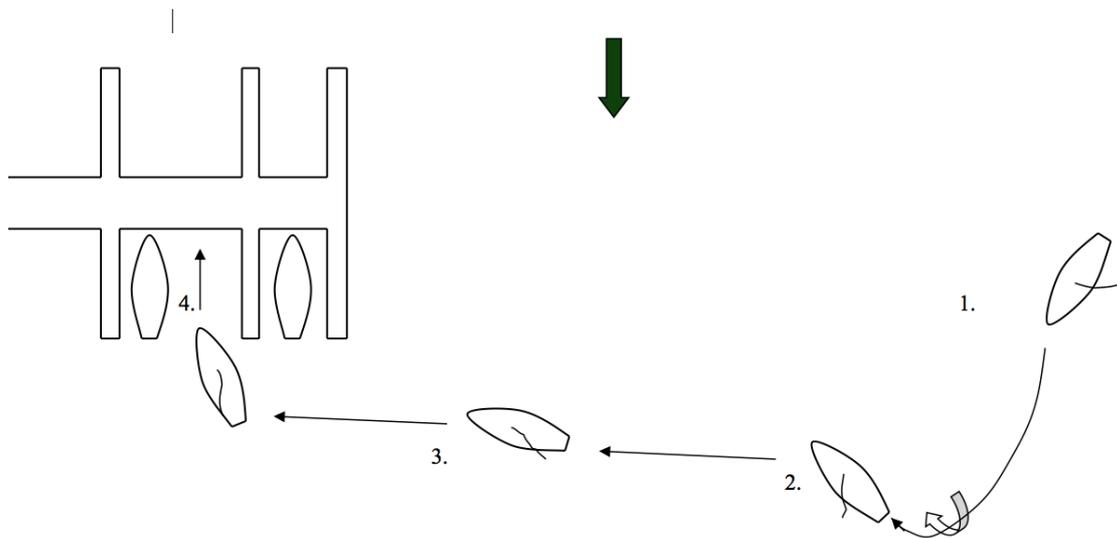


Figure 1. West wind docking (upwind slip)

Note: In most of the following diagrams I have used a curly arrow to indicate a sharp turn into the wind for a quick decrease in boat speed, followed by falling back off onto a close reach to continue slow sailing.

6.1.2. Upwind departure

The upwind departure is straightforward. Both sails can be raised while the boat is in the slip pointing upwind. When ready, slowly back out and hold off at the end of the dock. The stern can be rotated clockwise by backwinding the main and the bow is then cast off with either a gentle push or backwinding/sheeting tightly of the jib. Important point is to have the main sheet totally free so the boat does not begin to head up before you're clear of the neighbor's sterns. This can be a problem when the helmsperson backwinds the main too much and turns the boat almost beam to the wind. This can be avoided by only backing the main enough to fill a backwinded jib, which, will pull the bow off the wind and away from the docks before the main catches and the boat begins to sail forward. Backwinding the jib is very effective at pulling the bow off the wind without rotating the stern back into the dock, which is the typical result of a hard push on the bow.

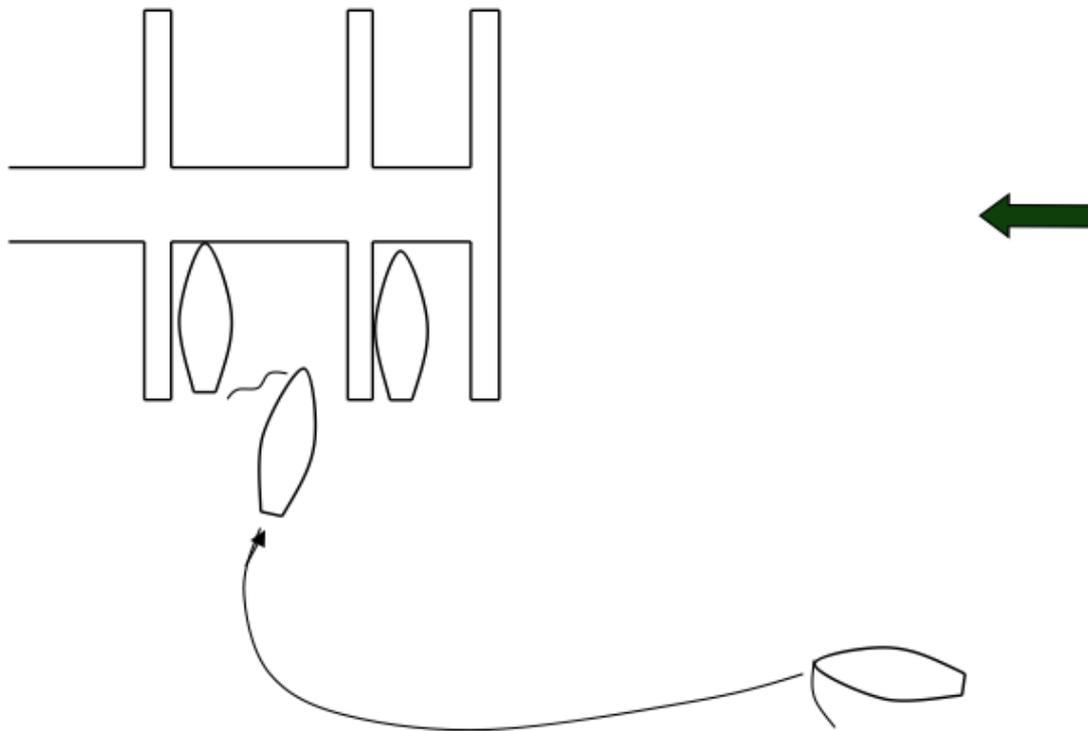


Figure 2. Northwest wind (crosswind docking)

6.1.3. Crosswind docking

For WNW and NW we can assume that everything is pretty much as it was for a West wind but just rotate course diagrams 45 to 90 degrees counterclockwise as shown in Figure 2. Always sail based on the true wind that is observed at your current location and in the vicinity of where you will finish your docking. Look carefully to the small ripples on the surface of the water as they tell of the wind in the present. Masthead windvanes and flags are helpful too. Do not make it a habit to plan your arrivals and departures from fixed landmarks like "I always turn in one boatlength east of the big black boat"

When the wind turns southerly, the docking situation changes completely. It is no longer possible to close reach in on a starboard tack; you will be heading straight into the wind. However, it is possible to sail (some tacking may be required) on up past the houseboats to the east and south, towards the pumpout docks. See figure 3. This allows you to position the boat well upwind, turn around and gather some speed off the wind and then head up just to leeward of the pilings, hopefully now on a close reach (possibly under jib alone). I do not

show the curly arrow as on other examples which I have been using to indicate a rather hard turn into the wind to reduce speed fast. It may be that on this docking it is desirable to carry more speed and momentum into the approach in case you find the boat on a higher course than a close reach. In heavy winds (which Southerly storm winds can be) you will need this extra speed to make it to the dock and to oppose the tendency for the bow and boat to get blown downwind as soon as way is lost.

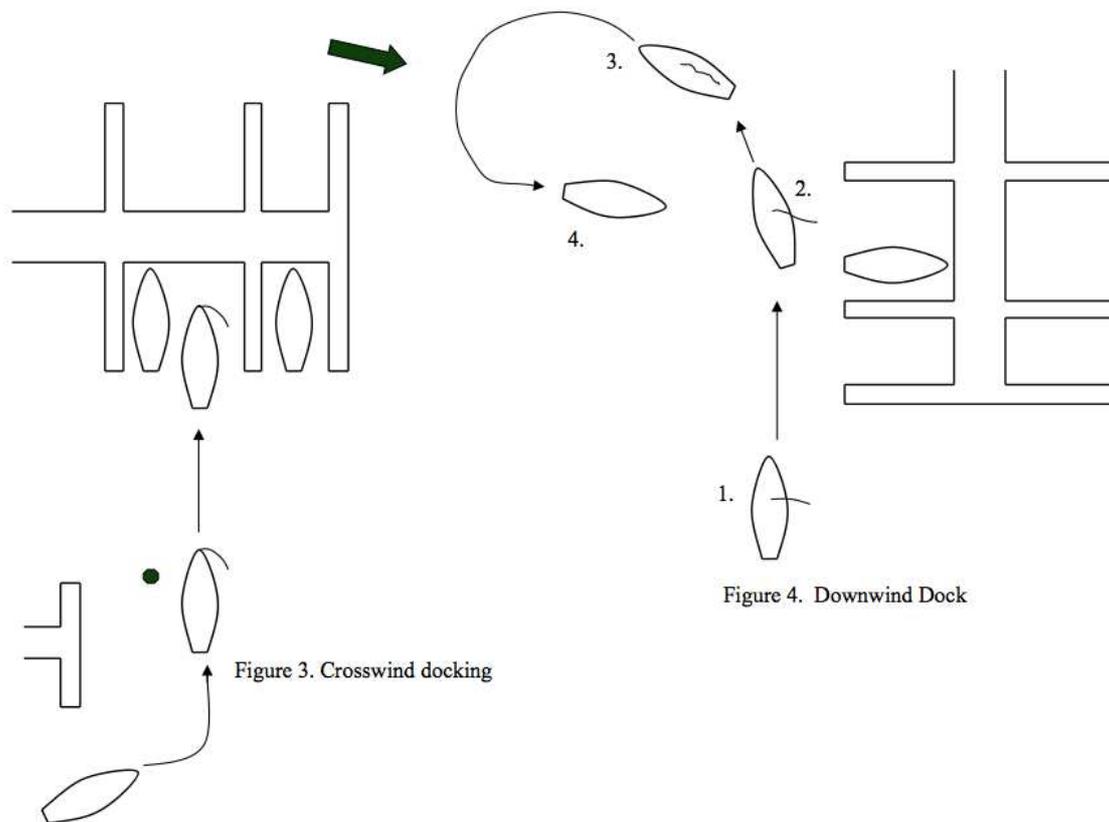
If the wind is strong enough it can blow the bow downwind almost no matter what if you do not have serious boat speed already. Hence in some wind situations, it may well be that the only safe move is to motor in or out. This cross wind docking scenario can also be difficult in lighter wind when using big jibs (130). There is much area in the flogging jib that can pull the boat away from a docking on an upwind finger.

Beam reaching into a slot (crosswind docking: Figure 5.[and the figure needs a caption]) could have many variations such as maybe having to sail upwind or downwind into a narrow fairway before turning into your dock or just approaching straight from a beam reach course. For slips, as opposed to long empty docks, you will have to have at least the main down when entering. Plan when this will happen, prepare your crew for their tasks and make sure that the remaining distance can be easily and safely sailed with jib only or no sails at all. Notice that the boat is heading in slightly into the wind. This is to compensate for the tendency of the bow to be blown off the wind against the inside boat.

6.1.4. Crosswind departure

In a north wind departure scenario, a stern tie method can be very handy once the boat is headed up wind, but before departure. However, it requires that the path ahead and behind is relatively clear at the dock and that you can tie the boat up fore and aft at the ends of the fingers.

If you had to depart from this dock shown in Figure 2. (like J-dock in a north wind) you would need to exercise good judgment. Either you would turn the boat completely around in the slip and then leave under jib alone or you would have to take the boat out of the slip and hold it off the sterns of other boats while raising the main (not that easy if wind is slightly pinning the boat against the docks as in a NNE). If leaving under jib alone it is important to have had some experience with this type of sailing before casting off and hoping for the best.



6.1.5. Downwind docking

The downwind docking is shown here to illustrate that many times it is necessary to sail into the channel with both sails up for close reaches or even close hauled. Well before position 1 the crew should be thoroughly briefed on what will be done and the following preparations made: halyards flaked and ready to run free; vang and outhaul are both eased; fenders are out; and sail ties are ready to keep the main from crowding the cockpit. Once the boat is passing the desired downwind slip a slow 270° turn is made into the wind during which your crew has been instructed to expeditiously lower all sails at point 3. You can choose to lower the jib or not depending on the wind speed and variability. At this point you should be directly upwind of the slip and turning in for a nose first landing, checking speed, if need be, with alternating tiller shifts. This technique is worth a mention. It works best if the tiller is brought hard over on one side, held for several seconds and then put hard over to the other side. Sometimes you will favor, and hence hold the tiller a bit longer, on the side which turns you more into line with your docking. But please do not scull the tiller as this will only increase speed!

6.2. Other departing/docking maneuvers

6.2.1. Boom push

When you are docked and a light wind is coming one point off the bow on the opposite side of the dock, you can depart using a boom push. Let out the main sheet and allow the boom to swing over the dock. One crew pushes boom in such a way that the boat tacks and heads off. Another crew must fend off the stern of the boat as it rotates into the dock. Be aware that the boat may fail to tack if the wind is too strong or more than one point off the bow.

6.3. Docking Pitfalls

There seem to be some common situations that can most often lead to a less than ideal docking (or, worse, a crashing). The first is to begin an approach too far downwind. This may appear harmless or even conservative as you will have less speed and more room to head up and shoot the wind. However, most often what happens is that people try to slow sail on nearly a close hauled course. The boat continues to make leeway, lose speed and slides further downwind of the dock. At this point you have neither the speed to make the dock nor tack and you haven't the room to fall off and accelerate or jibe. You will haplessly drift sideways onto whatever boat or object that lies below your leeward rail and then continue to be pinned against it while you figure out what to do. By staying more upwind on your approach you *may* carry more speed but at least you will have the option to tack and try again. Or, if noticed early, you can fall off hard and then head in on a close reach having shed much of the unwanted speed as well.

I find that not paying attention is another great way to do a lousy docking. This happens in two ways. The first is when you are not ranging as you approach a dock. If the set up looks good you should quickly lock in on that course and not get off the track. The second way people lose focus is by taking their sights off the dock to deal with tillers, sheets, fenders, or other things that can and should be done by crew. Tiller and sheets should be handled strictly by feel so that the eyes can remain focused on where the boat is going and how much speed and distance remain.

You must know and plan for the course that the boat will be on when you make your final approach to the dock. If the dock is straight upwind consider how long the boat will glide before stopping, what will the wind speed be pushing against your forward motion (remember that sheltered upwind docks will have very little wind on the final approach). Whenever possible slow sail, close

reaching, until you are right at the dock and then turn upwind and in. Do not shoot into the wind at high speeds and expect to come to a stop.

7. SAILING THE KEELBOAT

The top priority when sailing a keelboat is to have the boat under control in an efficient and safe manner. Efficiency means that you are sailing with the least effort of your crew, expending the least amount of energy to get where you're going with a boat that has its sail trim and weight balanced for optimal performance. Safety has everything to do with judgment and good planning as well as the ability to recognize and react to situations before they become hazardous to the crew or property. Lastly, comes the issue of being in control. This does not mean you have to be stoically cool (I highly recommend that you be excited about sailing and show it). This does not mean you need to be like a military General in ordering about your crew. It means that you know what the boat is doing, where the boat is going and why it is behaving the way it is at all times. Two very good examples of this are: awareness of the dangers of sailing *by the lee* and being caught without speed/control and not enough room to sail away.

Let's begin the discussion of efficiency as it relates to **light-wind sailing**. In order to be in control of the boat you must get it moving, preferably forward, with some sort of speed. You will want to make the most of any wind to acquire and maintain forward speed. In light winds a boat will accelerate and maintain speed best on a beam reach or higher (close reach or close hauled) due to the fact that *apparent wind* will increase as you gain boat speed. Do not point too high or trim sails too close until steady forward progress is being made and then only do so slowly and with very gentle tiller and sail trim movements.

When it comes to tacking in light winds the importance of maintaining forward and windward speed cannot be over emphasized. This should be accomplished using the following techniques. Always begin the tack sailing in a straight line from the most windward point of sail that can be made without *luffing or pinching!* This means keeping the sails full and the course straight right up until you begin the tack. The turn should then be initiated with additional crew weight to the leeward side and just the bare minimum amount of tiller. Slowly complete the turn, being careful not to over-steer, while insuring that the jib does not backwind and that both main and jib are not overtrimmed on the new tack. Once on the new tack, increase speed and pointing as was mentioned earlier

trying to keep sail trim, tiller movements and weight distribution as steady as possible.

This leads into the next related topic, which is probably one of the most important sailing concepts I can think of and that is **boatspeed**. I see more people getting nervous when a boat is screaming towards the docks and yet there seems to be no concern when the boat is slowing down. It should be just the opposite! More speed equals more control. Typically, the critical element of speed is accelerating quickly in tight quarters while trying to get upwind. It is essential to recognize that sailing upwind, while making minimal leeway, requires forward speed to generate hydrodynamic lift from the keel and rudder. Short tacking upwind in a narrow channel is the proving ground for keeping a keelboat moving at safe speeds (read: the most speed you can get!) So, for initial acceleration, don't try to point too high or trim sails in too hard until the boat starts moving forward. Then begin to head up and sheet in. I know this may get redundant but keep your tiller as steady and centered as can be so that the boat will continue to gain and maintain forward speed.

7.1. Loss of Speed

Now, the flipside to boatspeed is a complete lack thereof, or in other words "being dead in the water" or losing way. A loss of speed usually results from stalling, luffing, using too much tiller and inefficient boat/sail trim angles. However, please note that whenever you slowsail to a dock or MOB recovery you are deliberately losing boatspeed and the potential exists to lose control as well. When all speed is lost stop jerking the tiller because it won't do you a bit of good. Use backwinding techniques to get the boat in position to sail again. If you are stopped in irons (straight into the wind) back the jib on the side which will push the bow into clear, unobstructed water. You will need to get the boat back up to speed and this requires room! Pushing the mainsail out and against the wind will usually swing the stern in the opposite direction from where the boom is held out- except when the wind is strong and has already begun to swing your bow as it wants to. Quick note on safety. At the first sign that you may be running out of speed (due to luffing, wind shifts, not completing a tack or being stalled) quickly choose the actions which will put the boat on the tack with the most clear distance to leeward. If you hesitate and try to get back to a close hauled course only to head up again and tack you will almost surely have lost the speed needed to complete a tack and then you will be at the mercy of the wind. Don't be concerned that you didn't call out "hard a lee". However, if room allows, quickly fall off and regain speed.

7.2. Slowing and Stopping

All right, we have discussed acceleration and what to do when you have no speed, now the final aspect is how to deliberately slow the boat down in the most effective manner. This skill is essential for docking, emergencies and senior tests. I would generally recognize the following methods for slowing down. Which one(s) you choose will depend on the situation at hand.

- Slowsailing on a close reach with main and jib in a controlled luff.
- Luff up quickly into the wind until most speed has been lost.
- Alternate the tiller between hard over to port and then hard over to starboard.
- Backwinding the mainsail.
- Drop all sails to the deck and allow the wind and water to slow you down.
- Motoring in reverse when you have an auxiliary.

With a boat already moving at or close to hull speed, the fastest way to slow down is to turn the boat through the largest angle possible and end up pointing above a beam reach with the sails luffing. In this case we're talking about spinning the boat hard with excessive tiller- precisely the things that are inefficient for acceleration. When maximum braking power is called for, backwinding the main will help considerably. *Slowsailing* on a close reach will eventually slow the boat down but avoid too much because of excessive flogging. Also, if leeway is not taken into account, the desired destination will become more and more of a beat and pinching, with no speed or power, will be the result. When stopping a boat that has already entered a slip use docklines snubbed (wrapped once, so that you can ease the boat to a stop) around dockcleats. Don't snub hard all at once or the cleat could rip out of the dock and remember to have fenders out, as the boat will rotate in toward the side of the dock. A better method of stopping the boat in a slip is to use a breastline attached near the center of the boat.

7.3. Leeway

This is subtle, but important. When sailing on a reach or higher, a boat will almost certainly be making some *leeway*. An experienced sailor usually has a good sense when the boat is making excessive leeway though. The first thing to try is just simply focusing straight ahead as you sail upwind. You should notice that the boat is slightly slipping to leeward. Next, look for fixed objects ashore that can be used for ranging. *Ranging* is the practice of lining up (in the direction you are heading) two objects, one nearer and the other in the background. For

example, a mast of a boat and a tree in the distance. If they appear to stay in line then your course is continuing in the direction of the ranges. If one appears to be moving relative to the other, then your boat is getting off your intended course (note: it helps if you decide on a destination/dock/buoy/person overboard etc. before you pick out range objects).

When a keelboat has lost speed or is going through the arduous task of accelerating, particularly sailing upwind, it is most susceptible to leeway. The obvious remedy for leeway is to sail a course slightly higher than where you intend to go. This is especially true when slowsailing in heavy winds. When close hauled and sailing into a channel always stay on the upwind side to allow for leeway (and windshifts). Remember, when a boat is making excessive leeway the underwater appendages are stalled and you must regain forward speed to regain control. This means that you must fall off the wind a bit so make sure you've given yourself some room!

What to do in **heavy wind**. Other than reducing sail area (*reefing*), you should be doing things exactly as when the wind is more moderate but be aware of some key differences.

- Acceleration and maneuverability become easier with more wind however, things start to happen a lot quicker so be alert.
- The effect of windage on the boat will be more pronounced causing more leeway and more forces on the bow if you're not in control or heeled over too far.
- Rudderless sailing and jib alone sailing are generally easier in high wind but pointing becomes more difficult. Be aware of where you need or want to go!
- Large gusts, especially with a boat that is not up to speed yet, can push you downwind into unfavorable spots in a hurry. Time departures and other tricky maneuvers to avoid the strongest gusts.

It seems to be easier to accelerate but you will notice that the boat still will want to make leeway before heading up and as speed picks up you will run out of room that much quicker. Again, I am trying to stress that you should always try to get as much forward speed before heading up too high or tacking. In high winds when you begin to slow down for docking there will be a much more pronounced effect of the wind blowing your bow away from the wind. This will require you to keep more speed and point high enough to overcome these forces. Hopefully you will find that you do not need to slow sail for great distances when docking as losing speed becomes easier with the boat heading up into a strong wind.

Be aware of the strong increase in *weather helm* (the condition where the boat tries to round up into the wind due to more force aft of the center of lateral resistance). Also, avoid the tendency to spill wind by heading up sharply. Both of these things will cause luffing. This, combined with the high wind of the gust, will cause the boat to lose speed very quickly. Instead, try sheeting out a bit or heading up just enough to almost luff. Due to increased forces on the bow it will help to use more tiller when tacking to make sure that the boat will get through the wind. Finally, avoid *lee shores* and lee docks by keeping as safe a distance upwind of them as is practical.

A sailboat is most unstable when sailing off the wind, on a run or extreme 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 boat 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 zigzag course and your arm will get tired, but you and your crew should get less wet.

7.4. Jib alone sailing

Jib alone sailing can be very boring and frustrating and make a student feel like they are wasting their time but I assure you it is an exercise that is highly

instructive and will make you a much better helmsperson. Just as in light wind sailing, it is important to have the boat begin to move forward with some speed before sheeting the jib in tighter and heading up higher. You should be able to sail a fairly respectable close reach and complete tacks if energy is conserved and crew weight is used to help steer, avoiding overuse of the tiller.

7.5. Circles

To me, a good circle is one where the boat is as close to the mark as you can be while still sailing efficiently on all points of sail- no pinching, spinning, gliding, sliding, oversheeting or luffing! At first this will typically mean that bigger circles are made. For steady control I prefer to see students sheeting in and out through the traveler block and steadying the tiller with the hip.

7.6. Person overboard recoveries

Have a thorough grasp of time, course, and distance relationships. The initial course the boat is on when the person goes over as well as how quickly tacks and course changes are made will have a big impact on the success of the recovery. The two primary objectives of this maneuver are: a foolproof way of accurately returning to the exact spot where a crew went over and being at a controlled speed to grab and retrieve the person. A broad reach of ten boat lengths is used so that after tacking the POB should be dead ahead on a close reach, opposite course. However, will two boats be in the same spot after broad reaching ten lengths if one started out close hauled and the other was on a run?

For this standard figure eight return I have found that a quick and decisive course change to broad reach followed by a moderately quick tack puts you in a good position to return on a close reach. In heavy wind and chop it usually helps to then point a few degrees higher than the POB while approaching slow sailing. Quicker recoveries can be achieved by understanding that sailing further off the wind and tacking sooner (and quickly) can put your boat in the same position just a little closer.

As soon as you tack and begin to approach decide if the course is a solid close reach and adjust as soon as possible if not. When the course appears to be more close hauled do not start slow sailing - especially in strong winds and chop! Sheet in hard and sail upwind of POB until you're able to close reach. If you find that you are too high and your main is not luffing, fall off sharply and head up when it feels like you will be on a close reach. Always account for leeway while slow sailing. The number one mistake I've seen new sailors make is to slowly but steadily drop to leeward of their POB only to arrive just an arm length away but have no ability to get directly upwind to grab it. Err on the upwind side.

In larger boats, it may be more difficult to let sails in or out if one of the crew is overboard. Also in a larger boat it is harder to keep track of the man because the boat moves faster and can get pretty far from the man quickly especially at night. An alternate procedure that can be used is the "quick stop" method. The quick stop keeps the boat close to the man and requires less sail handling. This is done by immediately heading up without adjusting sails when the man falls over. Continue to head up, allowing the jib to backwind. Allow the boat to tack (the jib may be released at this point) and notice where the man is relative to the wind. You may be able to simply drift into the man at this point or if he's too much downwind, fall off quickly, jibe, and head up with sails luffing. It does take a little practice to come up alongside the person but you should be able to easily get close enough to throw a line. It is important when using this method to keep the boat turning so the boat doesn't have time to build up speed.

Jibe returns are another great alternative to retrieve quicker and stay closer – something that makes sense in fog or night sailing. Assuming that your sailing upwind, the jibe return needs to be done fairly quickly and/or without spending a lot of time sailing dead downwind during the jibe. A variation, which can provide a bit more time to prepare and focus, is to fall off more to a beam reach for a few (4-5?) boat lengths and then do your flying jibe. A jibe return is not, however, recommended when the boat is already on a course below a beam reach unless you compensate by first heading up. This tends to throw off the process and I think it is far easier to just tack back.

Picking up- which side are you more comfortable with? Which side do you have better visibility on? Which side makes more sense on a case by case basis? Once you may be a little low and heading up for a windward pickup makes more sense or maybe you're a little too high and you might try heaving to and drifting down to the POB. Either way think about having some lines rigged to facilitate getting the person back on board and clearly let your crew know which side you have elected to pick up on. In the last few seconds do not take your eyes off the person and watch for rolling waves that will set you off course. If you opt for the leeward pickup you might want to consider bringing the jib over to backwind and heaving to just before making your pickup. Another benefit of this is that the jib sheet is not mercilessly flogging those on board attempting to help in the recovery.

A method that might work well in dark, foggy or high seas conditions is to quickly beam reach for 2-3 boat lengths after POB goes in and then immediately heave to and drift right back to pick up. I find this works better than the quick heave to as that method will sometimes put you too far upwind with the only

way to get back a fast, deep broad reach, sometimes turning into the classic wing on wing run!

A man overboard recovery at night is much more difficult than during the day. You must stay close to the man and have someone with a flashlight shine it at the man so you can spot him. If a floating flashlight is available it's best to throw it at the person in the water. This will make it much easier to spot him. The person watching must keep their eyes on the man at all times. If the traditional method of sailing away and coming back is used, it is important to perform the maneuvers as close to the man as practical. One of the difficulties often encountered is not knowing the wind direction so you can sail off on a broad reach. The quick stop method has the advantage of keeping the boat closer to the man so you are less likely to lose him. Also exact knowledge of the wind direction is less of a factor.

Let me try and sum it all up because in order to master this technique just memorizing rote methods sometimes doesn't work and you'll need to make judgements and adjustments. First of all, try to sit down at a table and make some sketches of typical courses for every possible scenario. Next, draw a line through a point that represents the POB at right angles to the wind; this is the dividing line between being upwind or downwind of the person. Try to keep in mind that your approach should always end up being just below this line on a close reach. There is almost never a good reason to get too far upwind or downwind of this line in practice. This means that no matter what other foolish things you do while returning to a POB, needlessly sailing upwind or downwind should not be one of them. When all other logic fails you, just stick to beam reaches! Furthermore, if the first attempt is not successful, do not try to take shortcuts on the second attempt; if there was a shortcut I would have told you to do it the first time.

7.7. Night Sailing

Sailing at night is different from sailing during the day. It is more difficult to tell the wind direction, especially on a moonless night. The telltales and sails are harder to see and a slight luffing of the sails may be hard to detect unless the wind is strong. You may shine a flashlight on the sails periodically to see if they are luffing so you must rely more on the feel of the boat than on visual clues. Familiar landmarks appear very different at night. Details seen during the day disappear and are replaced by patterns of lights. An important example of this is the entrance to the marina, which can be difficult for the novice to spot amongst the background lights. The cement breakwater has two flashing lights, while the rock breakwater has three. The marina entrance itself has two flashing lights that

are higher and usually lost in the glare of the parking lot lights. The breakwater lights are from north to south:

- northeast end of concrete breakwater 4 second flashing red
- southwest end of concrete breakwater 4 second flashing green
- north end of rock breakwater 2.5 second flashing red
- center of rock breakwater quick flashing white
- south end of rock breakwater quick flashing green

Other hazards to watch for are:

- "D" mark -Flashing green near the pier
- Berkeley pier - fishing pier is well lit but only a dim red flashing light at the end lights the rest. There is no safe passage through except at the end of the lit fishing portion.
- Berkeley "reef" - green flashing light north of marina
- Olympic circle buoys - unlit

7.8. Anchoring

The keelboat is slightly more difficult to anchor than the dinghy since the keelboat can't be sailed backwards with any degree of control. The procedure is the same as the dinghy, except the anchor should be let go just as the boat loses forward speed. The keelboat will be more stable at anchor with sails down, especially the jib. An alternate method for anchoring is to lead the anchor line (and anchor) forward to the bow chock then around the outside of the shrouds to the stern. Sail upwind of the desired spot, lower the main and sail down wind, luffing the jib. Drop the anchor over the stern and let out enough line to set the anchor. Snub the line around a cleat to set the anchor. When the anchor is set, lower the jib and release the line from the stern allowing the boat to swing around.

If you expect to leave the boat anchored for a while (like overnight), it may be desirable to set out two anchors to help keep the boat from dragging. If your anchor line is long enough, this is easy. Simply let out the line to the end and drop the second anchor off the stern. Pull in on the first anchor and set the second anchor by giving it a smooth but firm tug. Be sure to allow enough slack in the lines for the tide to come up. If the main anchor line isn't long enough, you should set the second anchor using a dinghy.

Some of the key points to anchoring are:

- Know the depth and let out plenty of scope, typically 5:1 or more.
- Under sail you will need to back down by sailing downwind, usually with jib only or bare poles if wind is strong, and paying out scope from bow (over side) or stern.
- “Set” the anchor by snubbing easy at first and then hard to kill all boat speed and spin the boat back around head into the wind.

7.9. Reefing

Single-handed reefing can probably be done by one of two ways. For the purposes of a test we’re going to assume that your crew is completely incompetent. After easing the outhaul and completely slacking the vang, heave to and reef the main. You might experience some difficulty in getting the reefing clew tight down to the boom if the main isn’t completely luffing. This method would also be inappropriate near the sea wall or pier. The second method is to sail tillerless. It should be possible to get the boat balanced without tending the tiller while you reef. Since you’ll want the main to be fully luffing try countering the tendency of the jib to push the bow off the wind with a weight induced leeward heel to head the boat up. To speed things up a bit I like to take the end of any convenient line and use it to measure the distance between tacks. Then by using the same distance from the cleat you can let out just the right amount of halyard, cleat it off and then go up to pull it down and attach the cunningham. Sweat your reefing outhaul to get it tight down to the boom, cleat it, sheet in the main and then go back and clean up halyards, vang, cunningham and reef knots.

7.10. Spinnaker Usage

The purpose of this section is to introduce and familiarize students 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 keelboat sailing.

7.10.1. 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 the *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 crewmember raises the halyard, another pulls *guy* to windward until windward corner 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*.

7.10.2. 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.

7.10.3. 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.

7.10.4. 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.

7.10.5. 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 crewmember 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. Experienced crew can use them safely on the keelboats in winds to 15 knots. Inexperienced crews 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 boat 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 boom vang 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. Skippers not wholly familiar with its operation are urged to be respectful of the sail's power.

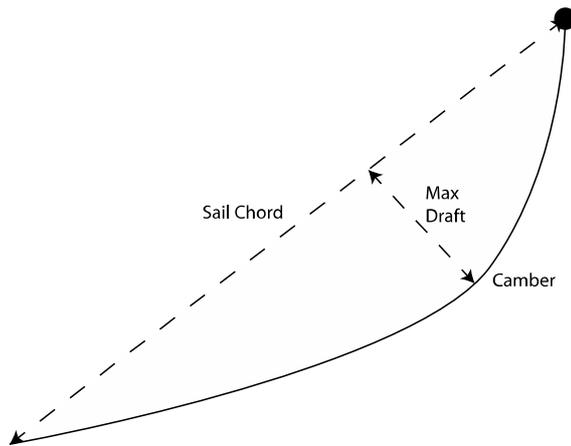
8. ADVANCED SAILING PHYSICS

To systematically trim the sails on our keelboats shape the jib before the main sail. Then adjust, in the following order, the cunningham, outhaul and boom vang. You can use the acronym COB to remember the order. Then use the feel of the tiller as a meter of how the boat is balanced. This is a very brief discussion. For more details on sail trim, see [How to Trim Sails: Dinghies to Offshore Cruisers](#) by Peter Schweer. For details on spinnaker handling, see Colgate.

On your own boat when racing the same course with the same crew, you can make marks on the boat for where the lines go in certain conditions. For example, in wind X the red mark goes to #4.

8.1. Adjusting Draft

Maximum draft generates lift more or less effectively.



Easing the boom vang does nothing to the draft; it increases the twist only. Easing the vang also allows the top part of the sail to luff. Change the draft twist to change the helm balance.

8.2. Sail Foil

In weather helm, the rudder foil generates windward lift.

Generally, we want to move the draft forward in the sail foil. A high aspect ratio sail foil provides more lift. A low aspect ratio sail foil is more forgiving.

If not steering with the rudder, easing the main moves the COE forward and will make the boat fall off.

The outhaul controls draft near the bottom of the sail.

The traveler adjusts the angle of attack, fine tunes where the sail luffs or not.

When racing, try to keep the boom on the center of the boat.

8.2.1. Cunningham

The Cunningham is used to pull the maximum draft of the sail forward.

Controls for luff: Cunningham, halyard. Controls for foot: outhaul. Controls for leech: vang, main sheet (not the traveler).

8.3. Mast Bend

Bending the mast flattens the sail and moves the draft further aft. Less draft depowers the sail. Less camber depowers the sail. In high winds, too much power overstresses the rigging because the hull speed cannot be exceeded.

Tightening the boom vang puts bend in the bottom part of the mast. Tightening the main sheet puts bend in the top part of the mast.

Unbending the mast may cause forestay (headstay) sag. Tighten the forestay to reduce the sag and flatten the sail by pulling the sail cloth.

8.4. Recommended Heel

The recommended heel for the Merit is 15deg and 20-25deg for the Commanders. You can bend the mast to depower the sail.

8.5. Boat Speed

The boat speeds are 6-8kts. In the bay, the breeze is on average 10kts.

8.6. Weather Helm

Helm balance tells me whether I get the best power & speed or not. The boat speaks to me through the tiller.

9. TIDES & NAVIGATION

9.1. Tide Rule of 12

1 st Hour	1/12
2 nd Hour	2/12
3 rd Hour	3/12
4 th Hour	3/12
5 th Hour	2/12
6 th Hour	1/12

The change in tide is not equal across the 12 hour cycle. It moves slowly in the first hour and then changes faster until the 5th hour. Then shows to the peak/trough. Each six hours follows the same cycle.

9.2. Common Hazards in Senior Keelboat Area

- Leeward of the Berkeley pier. The current can push you into the pier on a light wind day.
- Melting snow in the spring comes down and adds to the normal tidal flow out of the north bay.
- Racers sailing around Olympic circle.
- Wind comes in ahead of fog in the evening. But when the wind hits the Berkeley hills it bounces back and neutralizes the westerly wind.
- After a big rain, the current in the bay changes due to flow out to ocean.

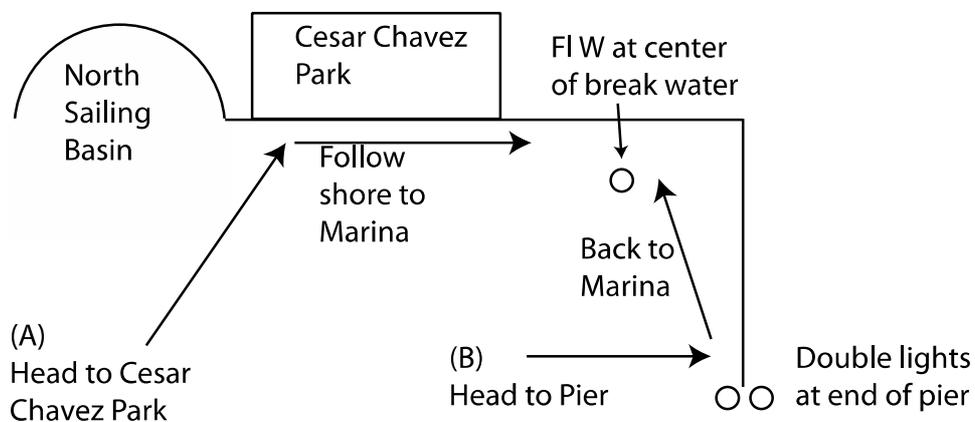
9.3. Piloting & Ranging

- Ranging: select 2 stationary objects in line on the horizon and see if they are moving or rotating with respect to one another. You can use this when docking to line up your approach.
- Waves always break parallel to a beach. If you see the waves change direction abruptly, you may be approaching a shore.
- Waves break when the water gets shallow and can be used to find a position on a chart based on water depth.
- Drift: look behind the boat at the wake. The wake will shift due to the current flow.

- When you see the lights at the Berkeley marina emerge from the horizon, you can calculate how far you are from the marina.
- Collision course: use a point on the boat (winch or shroud) to range a distant boat to find if you are on a collision course. If the boat doesn't move relative to the object, you are on a collision course.

9.4. Heading into the Marina

It is useful to bear off the point you're trying to aim for so that you know which direction to turn to find the point you're aiming for.



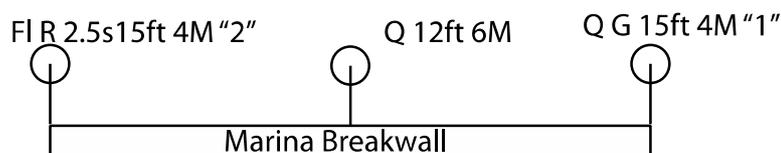
10. RULES OF THE ROAD

The rules of the road (US Coast Guard, [Navigation Rules International – Inland](http://www.navcen.uscg.gov/?pageName=navRulesContent)) are US law and you can be fined for violating them. The important ones for us are: (<http://www.navcen.uscg.gov/?pageName=navRulesContent>).

- (3) Definition of engaged in fishing
- (5) Maintain a proper lookout
- (6) Travel at a safe speed
- (7) Avoid collisions
- (8) Take positive corrective maneuvering action in proper time
- (13) Port tack gives way to starboard tack
- (18) Sailboat have right of way over motor boats, but must give way to vessels constrained by draft, engaged in fishing, or not under command
- (25) Keelboats need to have a mast light and port/starboard lights
- (30) Use all around light when anchored
- (33) Have the required equipment listed in the appropriate section of this manual
- (35) Sound signals
 - One short blast when going around a corner
 - One long blast when backing up
 - Limited visibility: long-short-short every 2 minutes
 - At anchor: short-long-short every 1 minute

11. AIDS TO NAVIGATION (ATONS)

These are the important ATONs for the Marina entrance, on the rip-rap wall in front of the entrance – as viewed from water level looking east. There is a concrete wall to the north, oriented SW (marked by FL G 4s 14ft 5M “3”) to NE (marked by FL R 4s 14ft 4M “4”) and marina entrance lights behind the breakwalls. See NOAA Chart 18649 for details.



The Berkeley reef ATON is: Fl G 2.5s 3M "1".

The "D" marker for the Olympic circle is: Fl G 4s 15ft 4M "3"

The outer end of the Berkeley pier is marked with: FL R 4s 15ft 4M "2"

12. VHF RADIO COMMUNICATION

Channel 16 is reserved for emergencies and *establishing* communication from vessel to vessel.

To hail another vessel (fill in bracketed nouns)

Listen to the channel before talking to determine if anyone else is talking or an emergency is going on. Don't interrupt emergency traffic (unless you have another emergency).

1. "[Other boat name] this is [Your boat name]." If channel is not loud and clear, say "[Other boat name] [Other boat name] [Other boat name] this is [Your boat name] [Your boat name] [Your boat name]."
2. Wait for reply. If no reply, try again in 2 minutes.
3. When other boat replies. "[Other boat name] switch 69 over." Say the number of the channel as two distinct numbers. e.g. six nine. Use channels listed in the back of your tide book to recreational vessel traffic.

It's important to do your communication efficiently. Think about what you want to say before you press the talk button.

If you have an emergency, the coast guard will ask you

- Who are you?
- Where are you?
- How many people are on board?
- Are they wearing PFDs?

What is the nature of your distress?

13. GLOSSARY

apparent wind. The direction of the wind felt on a moving boat. For you scientific types it is the vector combination of the wind due to boat speed and true wind.

by the lee. When sailing on a run and the wind direction is beginning to get on the same side of the boat as the boom you are sailing by the lee. The risk of an accidental jibe is high. Jibe or head up at once and keep all heads down.

CLR. Center of lateral resistance. The point on the boat hull where the sum of all the forces applied to all the hull components, including the keel and the rudder, are applied.

COE. Center of effort. The point on the boat's sail plan where the sum of all the forces applied to all the boat topsides, rigging, and sail plan components, are applied.

foreguy or downguy. prevents *spinnaker pole* from raising too high.

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

lee helm. The boat feels as if it wants to fall off down the wind and compensating action by the tiller is required to go straight. The opposite is weather helm.

lee shore. That shore being buffeted by onshore winds. From the boat it is the shore directly downwind of your boat. Always give wide berth to lee shores and anchor if unable to sail away.

leeway. Difference between where you're pointing and where you're going. Due to the side forces on boat and rig not in balance with resistive forces of hull, keel and rudder. Most noticeable at slow speeds when the keel is stalled.

luffing or pinching. If the sails are fluttering along the luff (leading edge of sail), you are luffing and must sheet in more. If already sheeted in tight, the boat is sailing too high into the wind (pinching), and you must fall off to a close hauled course.

reefing. When the wind builds and you begin to notice lots of *weather helm*, you need to reduce sail area. If you start with the maximum sail area, I would first change from a Genoa jib to a working jib, or 110%. After that, it is time to take your first reef in the mainsail (note: Merits have only one reef point, while the Commanders have two). When this becomes too much to handle, again, change to small/er/est headsails. Finally, consider storm jib alone and if God forbid that is too much go bare poles.

Sheet. a line used to control the movable corner(s) (clews) of a sail.

slowsailing. Technique, where, on a close reach, you ease sails sufficiently to keep steady, controlled but quite slow boat speed. It is critical to maintain close reach course, typically by pointing a bit higher than what you're aiming for to account for leeway.

spinnaker. a triangular balloon shaped foresail used for reaching and running. It is rigged with a *spinnaker halyard*, the *spinnaker blocks*, a *spinnaker sheet*, a *spinnaker pole*, a *guy* or *afterguy*, a *topping lift*, and a *foreguy* or *downguy*.

spinnaker blocks. There are two of these, located aft of the tiller. *Spinnaker sheet* and *guy* are run through them to the winches.

spinnaker halyard. like other halyards it raises the sail.

spinnaker pole. holds the foot corner to windward.

spinnaker sheet. line that adjust the orientation of the leeward corner of the foot of the *spinnaker*. On small yachts such as the CSC keelboats it is interchangeable with the *guy* when the *spinnaker pole* is moved from one corner of the *spinnaker* to the other

topping lift. Raises the *spinnaker pole*.

weather helm. The boat feels as if it wants to head up into the wind and compensating action by the tiller is required to go straight. The opposite is lee helm.

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15. APPENDIX 1 – BOAT SPECIFICATIONS

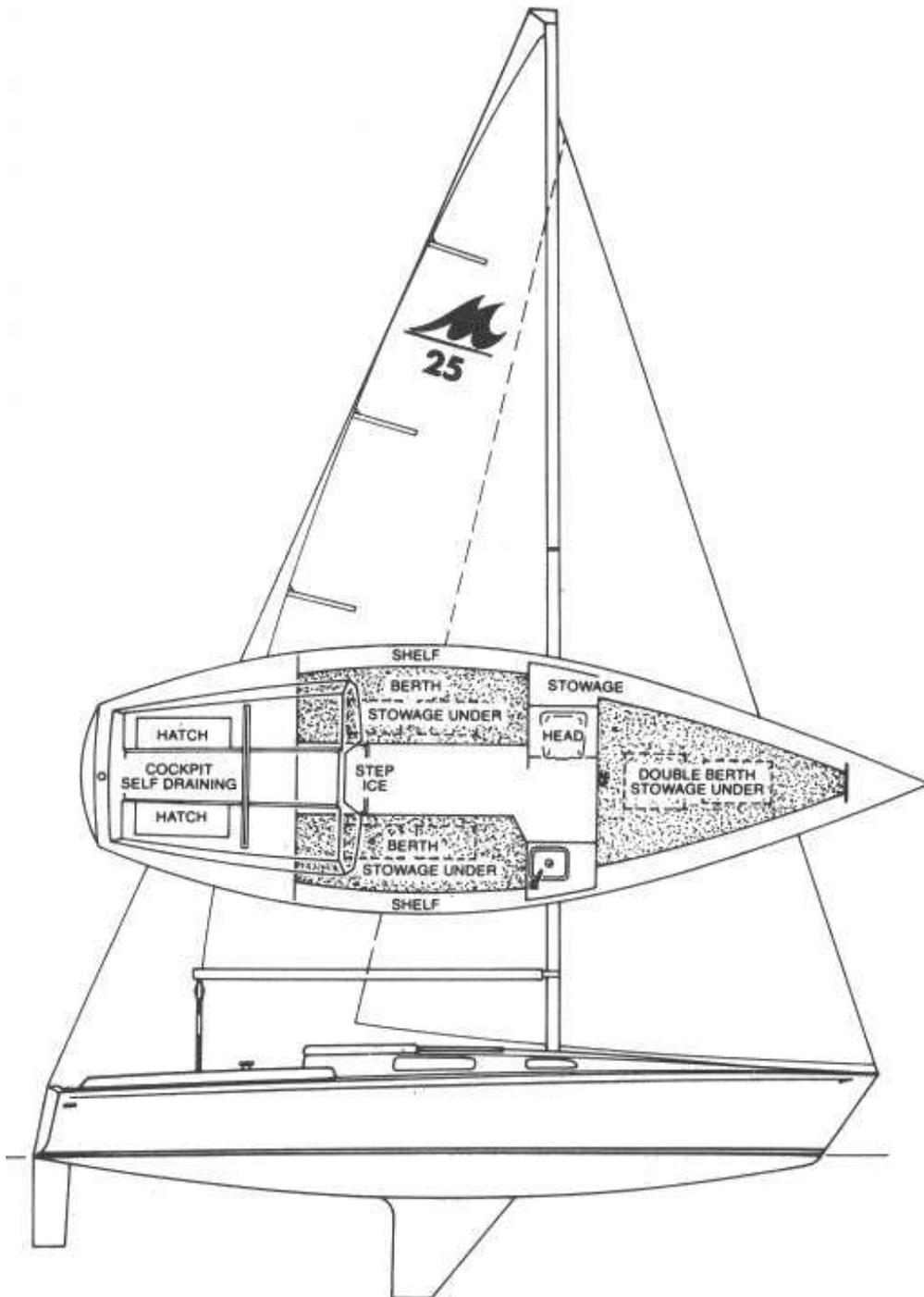
15.1. Pearson Commander 26



Appendix 1 – Boat Specifications

Hull Type:	Long Keel		Rig Type:	Masthead Sloop	
LOA:	26.00' / 7.92m		LWL:	18.50' / 5.64m	
Beam:	8.00' / 2.44m		Listed SA:	311 ft ² / 28.89 m ²	
Draft (max.)	3.70' / 1.13m		Draft (min.)		
Disp.	5400 lbs./ 2449 kgs.		Ballast:	2500 lbs. / 1134 kgs.	
SA/Disp.:	16.21	Bal./Disp.:	46.30%	Disp./Len.:	380.74
Designer:	Carl Alberg				
Builder:	Pearson Yachts (USA)				
Construct.:	FG		Bal. type:		
First Built:	1965	Last Built:	1967	# Built:	310
RIG DIMENSIONS KEY					
I:	31.50' / 9.60m		J:	9.50' / 2.90m	
P:	27.00' / 8.23m		E:	11.90' / 3.63m	
PY:			EY:		
SPL:			ISP:		
SA(Fore.):	149.63 ft ² / 13.90 m ²		SA(Main):	160.65 ft ² / 14.92 m ²	
Total(calc.)SA:	310.28 ft ² / 28.82 m ²		DL ratio:	380.74	
SA/Disp:	16.18	Est. Forestay Len.:	32.90' / 10.03m		
BUILDERS (past & present)					
More about & boats built by:			Pearson Yachts		
DESIGNER					
More about & boats designed by:			Carl Alberg		
SEE ALSO:					
Related Boat:			ARIEL 26 (PEARSON)		
NOTES					
<p>Same hull as Pearson ARIEL but with a longer cockpit and shorter coachroof. The designer (Carl Alberg) owned a COMMANDER himself, in his later years. An Atomic 4 inboard was available as an option. Standard boat has an outboard well.</p>					

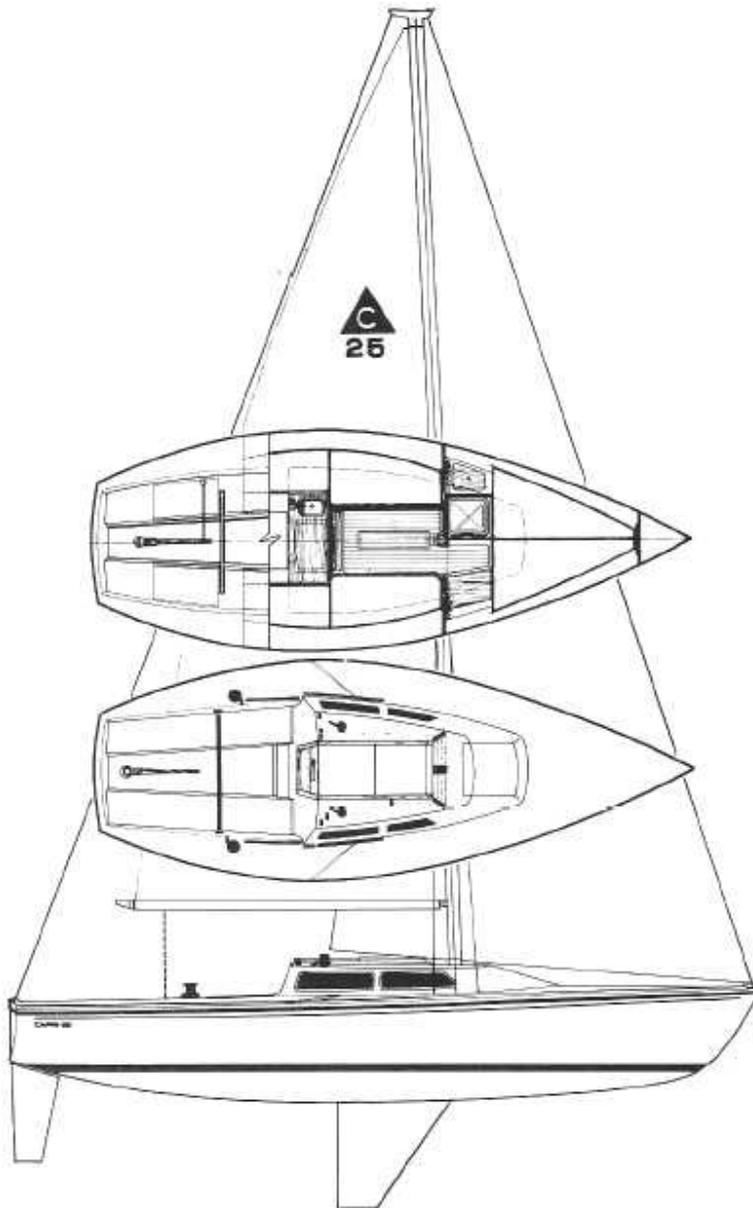
15.2.Merit 25



Appendix 1 – Boat Specifications

Hull Type:	Fin w/spade rudder		Rig Type:	Fractional Sloop	
LOA:	24.50' / 7.47m		LWL:	20.00' / 6.10m	
Beam:	8.00' / 2.44m		Listed SA:	277 ft ² / 25.73 m ²	
Draft (max.):	4.00' / 1.22m		Draft (min.):		
Disp.	2900 lbs./ 1315 kgs.		Ballast:	1950 lbs. / 885 kgs.	
SA/Disp.:	21.85	Bal./Disp.:	67.30%	Disp./Len.:	161.83
Designer:	Paul Yates				
Builder:	Merit Marine Inc.				
Construct.:	FG		Bal. type:		
First Built:	1978	Last Built:		# Built:	780
RIG DIMENSIONS KEY					
I:	28.75' / 8.76m		J:	9.66' / 2.94m	
P:	28.00' / 8.53m		E:	9.75' / 2.97m	
PY:			EY:		
SPL:			ISP:		
SA(Fore.):	138.86 ft ² / 12.90 m ²		SA(Main):	136.50 ft ² / 12.68 m ²	
Total(calc.)SA:	275.36 ft ² / 25.58 m ²		DL ratio:	161.83	
SA/Disp:	21.72	Est. Forestay Len.:	30.33' / 9.24m		
BUILDERS (past & present)					
More about & boats built by:			Merit Marine Inc.		
DESIGNER					
More about & boats designed by:			Paul Yates		

15.3. Capri 25



Appendix 1 – Boat Specifications

Hull Type:	Fin w/spade rudder		Rig Type:	Masthead Sloop	
LOA:	24.58' / 7.49m		LWL:	19.16' / 5.84m	
Beam:	9.16' / 2.79m		Listed SA:	276 ft ² / 25.64 m ²	
Draft (max.)	4.20' / 1.28m		Draft (min.)		
Disp.	2950 lbs./ 1338 kgs.		Ballast:	900 lbs. / 408 kgs.	
SA/Disp.:	21.52	Bal./Disp.:	30.49%	Disp./Len.:	187.24
Designer:					
Builder:	Catalina Yachts (USA)				
Construct.:	FG		Bal. type:	Lead	
First Built:	1986	Last Built:		# Built:	
RIG DIMENSIONS KEY					
I:	30.75' / 9.37m		J:	9.83' / 3.00m	
P:	26.50' / 8.08m		E:	9.50' / 2.90m	
PY:			EY:		
SPL:			ISP:		
SA(Fore.):	151.14 ft ² / 14.04 m ²		SA(Main):	125.88 ft ² / 11.69 m ²	
Total(calc.)SA:	277.01 ft ² / 25.73 m ²		DL ratio:	187.24	
SA/Disp:	21.60	Est. Forestay Len.:	32.28' / 9.84m		
BUILDERS (past & present)					
More about & boats built by:			Catalina Yachts		
RELATED LINKS					
Catalina 25, 250, Capri 25 International Assoc.			www.catalina-capri-25s.org		

16. APPENDIX 2 – WHAT IF SITUATIONS

CSC Senior Study Group. Catastrophe/What If session, March 6, 2012

with Cruising Skippers David Fraser, Caryl Woulfe, Mark Playsted

E1: DOUBLE NIGHTMARE: You're sailing in the Marina. A shroud breaks just as a Horrible Hornblower steamer pulls out and heads for you. It's 10 meters away, coming fast. Doesn't see you. What should you do?

E2: JIB GRANNIES: You're using the 150 Genoa. The wind picks up suddenly. It's choppy as hell. It's time for the 75. But you're on Daisy (no lifelines). It's Open House. Crew is kids and grandmothers. Nobody knows squat about sailing. Gotta change the jib. Should you go up to the foredeck while granny sails? Or send her up? What to do?

E3: LIGHTS OUT: You're night sailing in the Senior area. It's pitch black and there is no moon. Your lights go out; electricity has failed. There's traffic. You wish you had listened to Caryl. What do you do?

[DENIZENS OF THE DEEP: You're sailing at night. It's a sliver of a moon. Suddenly, hideous tentacles reach into the boat, plucking your first mate out of the cockpit. It'sit's a Prehistoric Giant Squid, the size of Albany. What do you do?]

E4: UTTER DISMASTER: You're sailing a Bahia at the far edge of the Sr. area. A bad combination of wind and waves leaves you dismasted... 5 feet above the deck. How do you handle this? What if the mast shears off AT the deck? What's the self-rescue procedure?

S1: DOCK TROUBLE 1: You (name of David) misjudge the wind. Full sails, missed docking. It's 15kt from the NW and your 26' Commander is speeding down the fairway toward the parking lot. What's up?

DOCK TROUBLE 2: You tell dock crew: Wait till I tell you to cast off. They hear "cast off" and do so. Boat spins, swinging toward the (expensive) boats across the fairway. Sails are untrimmed, nobody's ready. You have about 5 seconds. Can you avoid disaster?

S2: LOOK OUT!: Opposite tacks. Other skipper is an idiot, knows no rules. Collision imminent. You both turn to avoid it.... toward each other. What are the best nautical words to express the moment? What to do?

S3: FOG OVER BERKELEY, AND IT'S NOT COMING FROM PETER: You're out in the Circle, fog rolls in, cutting off the Berkeley hills. You can't see a thing and you need to get back to the marina. Your GPS is dead. How would you get back to the marina safely? How should you warn other boats nearby of your presence?

S4: NEPTUNE'S PISSED, PART 1A: You're south of the pier near all those barges. A serious wind shoots in, going from 14 kts to 27 in a couple of minutes. What are 3 indicators that you should have reefed (other than crew screaming at you)? How to return safely?

1B: What if you are in a dinghy? What are your options regarding equipment? Crew?

P1: “SKIPPER, I DON’T FEEL SO GOOD”: You’re far from land. How would you handle (1) Seasickness/vomiting? (2) a Major Medical Emergency?

P2: MOB RULE: Give solutions for (1) skipper O.B. (2) crew O.B., in high winds. What should you tell a totally novice crew just in case you take a dunk?

Now: they’re unconscious and 300 pounds. How do you get them in safely?

P3: ASSHOLE ALERT: You’re returning from Angel Is., working on Cruising Skipper. Your supervisor’s in the other boat but you got separated, they’re out of sight. How would you handle (1) someone acting like a jerk upsetting the passengers? (2) a real nasty drunk aboard?

Also: how do you manage someone who insists on giving orders to crew while you’re teaching?

P4: PREPARE TO BE BOARDED: You're about to be boarded by 1) the Coast Guard. What equipment & information should you have? Where is it located? 2) Same question but it's aliens from the planet Abplanalp.

O1: DISEMPOWERED: You're motoring 3 miles from Berkeley, no wind. The Iron Donkey conks out. It's too far to paddle a Commander. What's up?

ALSO: You're returning close-hauled through the South entrance to the Marina. The wind dies. Sails are slack. You're sliding toward the rocks N of Skates. The motor jams, won't go down. Ideas?

O2: NEPTUNE'S PISSED PART 2A: Wind is increasing past 30 kts. You're in the Circle w/ a boatful of scared people. Despite reefing, your sails are blown out. What can you do to get home safely? On a N wind? West? South? Oh, yes, your motor is busted.

PART 2B: You're flying a kite and something goes wrong. Now your kite is dragging and the boat is broaching. It's like the America's Cup trials. How can you avoid disaster?

O3: FAR OUT: You're skipping a Bahia way way out, running the gennaker. First you capsize with the thing dragging in the water. Then you find you can't get the centerboard down to right the boat. You call for Mark ... no answer. What's up?

O4: MIERDA HAPPENS: Give solutions: Your rudder breaks? Your tiller breaks? Your main halyard breaks? Your keel breaks off? Your coffee cup breaks?