

Captain Jack Klang



Sailboat Docking, Maneuvering and Anchoring

Sailboat Docking, Maneuvering, and Anchoring

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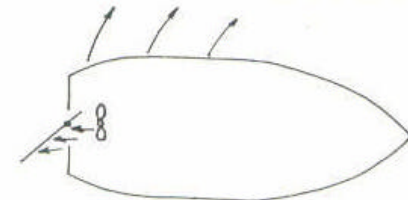
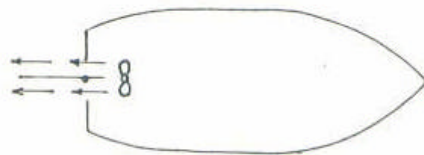
Chapter I – take the Helm



Rudder Action

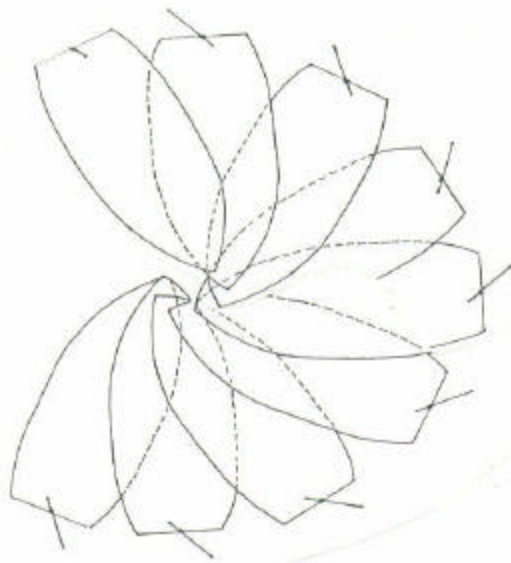
If boats moved across the water like cars move across land, steering would be easy. Stopping, backing and parking of sailboats would also be simple. The understanding of how your boat reacts to water pressure on its rudder will help you become a good boat handler under engine power.

Water, pushed by the propeller, passes evenly on each side of the rudder when your boat is steered straight. Turning occurs when you turn or pivot your rudder out of alignment. This causes more water pressure on one surface (side) of the rudder than on the other. The result is a sideways movement of the boat's *stern*. Soon the bow will be pointing in a new direction because of the stern movement.



Turning

Notice how a boat turns in a circle. The path of the bow will form a small circle while the stern swings in a large arc. On the water practice will familiarize you with the diameter of your boat's turn. You will need



to know this whenever you need to turn around in a narrow fairway.

Stopping

Knowing the distance needed to stop your boat will help you when docking or in the event of an emergency. Choose an area of open water to try this. Be sure to alert your crew so they can hold on.

Under power, bring your sailboat up to a cruising speed of about 6 mph. Rapidly reduce power, shift out of forward, wait 6 seconds then shift into reverse. (Do not shift from forward to reverse with greater than 700 engine RPMs)

In reverse gear advance your throttle until you have significant RPMs and observe

around you. Your boat will shudder as the propeller digs into the water. (It will be turning counterclockwise.) Note the swirls of water on either side of your boat.

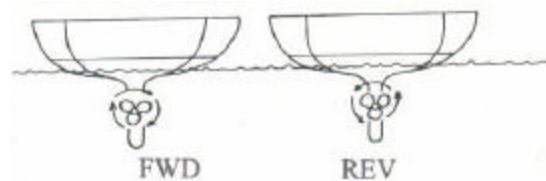
Search the water surface nearby for a floating leaf, twig, a bit of foam, or anything that can be used for a reference. See how weight and displacement affect the forward travel of your boat after attempting an emergency stop.

Prop Walk

Many sailors claim their boats simply refuse to back up in a straight line. I agree that sailboats are sometimes difficult to back. However with better understanding of the cause of their erratic behavior in reverse, improvements can be made.

A movement called *prop walk* is present in all boats when under propeller power. The effect is more noticeable when backing but also present when moving forward.

Propeller rotation when traveling forward is clockwise as observed from astern. Water is thrust aft, passing the rudder for steerage. In reverse gear, however, the rotation of the propeller is counterclockwise and water is thrust toward the bow of the boat. Without pressure (from water) on the sides of the rudder it has no effect on steering. Water rushing under the boat in the direction of the bow does not pass by the rudder and is



without direction. Without steerage, the suction created between the propeller (now turning in a counterclockwise direction) and the bottom of the boat causes a sideward movement of the boat toward port.



Marine engines (rotating clockwise in forward) cause all boats to have prop walk when backing. On the following pages you will learn several useful maneuvers using prop walk.

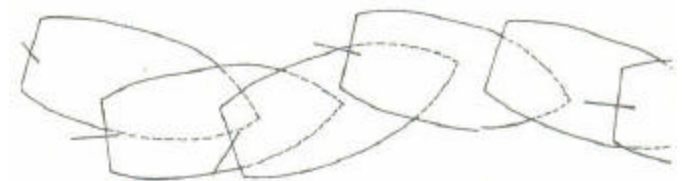
To back your boat in a relatively straight line you must first have enough room (distance) to move the weight of the boat aft. When your boat is moving backward, take the engine out of gear and coast. While coasting, the propeller is not turning and no suction or prop walk is created. Your rudder will now steer the boat.

Anxiety

It is common for every skipper to experience anxiety when entering a marina.

Whether this is your home base or if you are entering an unfamiliar marina, something might happen!

You might meet another boat exiting the marina. A boat might back out of a slip into your path. The wind might catch your boat and cause loss of control. Your engine might quit. All of these occurrences are very possible. Have an escape or alternate plan ready, just in case.



Chapter II – Entering a Marina

Do your homework in advance. Study boating guides that show aerial views of the marina. Prep your crew for the arrival with specific assignments. Everyone should be instructed not to fend off with his or her body. Boats are constructed with rub rails for this purpose. A 125-pound crewmember is no match for the heft of a 12,000-pound boat underway.

Some persons may be best suited to remain seated and out of the way. Others can be assigned to readying fenders or attaching dock lines. Probably the most important assignment is to stay out of the line of vision of the skipper. Never jump from the boat to the dock. Hang fenders only after the boat has come to a complete stop in the slip or alongside a pier.

Call Ahead

Marina operators appreciate advance warning of your arrival. Usually they will not assign dockage until you enter the harbor. Hail the marina on VHF radiotelephone in advance of your actual arrival. They can also tell you when traffic in the marina is clear for your arrival.

Most marinas answer their telephone. Call them on your cell phone in order to keep VHF radio channels available for emergency traffic. The following information will be needed by the marina:

1. Your current location in relation to the marina.
2. Your estimated time of arrival (ETA)
3. The overall dimensions of your boat
 - a. Length including tender
 - b. Beam
 - c. Draft
 - d. Sail or Powerboat
4. The expected duration of your stay

Be sure to ask the marina staff for help if you will need assistance docking. Listen closely to their directions including the slip number. If you are unsure, ask information to be repeated.

Just before entering the marina from open water, check the wind direction and estimated velocity. Indicators are flags on poles in the marina and wind indicators on masts of moored sailboats. Offshore winds often change direction near shorelines.

Prepare for Landing

Now is the time to prepare your boat for docking. Do this before you enter the marina. You have more time to locate your dock lines and fenders while still in open water. Looking for dock lines and fenders when you are entering a slip is often too late. A crewmember obstructing the skipper's view while looking for lines can be dangerous. Plan and be ready.

You will need to attach four (4) dock lines and two midship spring lines. Fenders can be attached to lifelines or rails but should remain on deck. Deploy them when the boat has come to a stop in the slip or against the pier. The exception to this is when docking parallel to a concrete pier that has no spring pilings.

With lines ready on both port and starboard bow and stern, and a spring line on each side you can quickly react to assignment changes or unplanned behavior of your craft.

If fenders will be needed, the marina attendant should mention this during your radio communication. If he or she fails to mention fenders, ask if they will be needed.



Fenders should be positioned and attached at the expected proper height well before entering the harbor. They then should be flipped aboard and remain on the deck until the boat is in the slip and movement is stopped.

Fenders hanging over the side during the docking process are often pinched or caught between pilings. This usually results in damage to something other than the dock. The exception to this rule is when docking against a steel or cement breakwall that is not padded.

Listen closely to the information supplied by the marina staff following your request for transient dockage. Double check the dockage details by repeating them to the dock attendant.

Vocabulary of Docking Terms

Bow in – head into the slip bow first

Catwalk or finger dock – narrow dock along side of slip

Fairway or Channel – the water way or street for boats where slips are located

Fender or Bumper – a cushion to protect boat from contact with the dock

MedMoor (also referred to as stern to) Mediterranean style of docking with bow anchor in fairway and stern perpendicular to pier or quay.

Midship or Amidships – midway between bow and stern along side deck.

Pier or Quay- large permanent structure containing several slips

Prop Walk- movement to port while backing a sailboat

Rafting – double parking against another boat when no individual dockage available

Seawall- is usually a steel, concrete, or stone wall that buffers incoming seas. It is not designed for boat mooring.

Slip – boat parking space between finger docks

Stern To – back into the slip stern first

Tie up – will the boat tie on the port or starboard side when bow in

Chapter III - Docking

No wind and No Current

After receiving your slip assignment and directions from the marina staff or whenever you are returning to your seasonal slip, several judgments must be made.

Without brakes to stop your boat or tires to track in a straight path, your boat is free to move in any direction. Steerage is maintained only when water is thrust past your rudder. During the docking process speed is reduced to the minimum that is necessary for steerage.

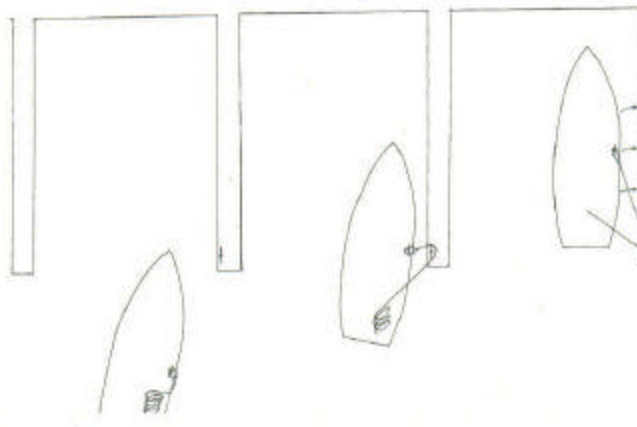
At slow speeds the effects of wind and current upon your boat are a major concern. When no wind and no current are present, docking is relatively simple. When these

elements are present they become the primary factor in the planning of a docking.

Make a slow and deliberate turn into the slip from the opposite side of the fairway. Using a Midship or Breast Spring line, drop a loop over the first cleat or piling as you enter the slip.

Hold the bitter end of the line and snub the line as slack is taken up by the forward progress of the boat. When the line tightens, the boat will move toward the finger dock and remain parallel.

Continue a forward propeller thrust from the engine and cleat or hold the spring line until additional dock lines are attached.



Three Cardinal Rules of Docking

1. Dock into the wind (or current).
2. Point your bow into the wind (or current) when docking.
3. If you cannot dock into the wind, change the wind or change your slip and obey rules 1 and 2.

Always Dock Into The Wind



When Wind and/or Current Are Present

The effect of wind or current differs with each boat. A vessel with high freeboard and cabins may be affected more by wind than a flush deck vessel. Current may effect a vessel with a full keel and heavy displacement more than that of light displacement and flush deck. However, the opposites may also be true.

The characteristics of each boat may vary. It is up to the judgment of the skipper to adjust to the elements. This skill comes with experience and practice to determine which element will affect his or her boat the most. If one force seems to be greater than the other, when both are present, base decisions on the stronger element.

Docking with the wind or current renders your helm useless unless you travel faster than the element. Without brakes it is dangerous to travel at this speed. Therefore docking with the wind you will be out of control.

Docking into or at an angle toward the wind allows you to balance the forward push of your engine against the backward (or slightly sideward) pressure of the wind.

Limit your boat's travel in one direction and use this to pivot

Because a boat floats freely in all directions try to limit its movement using a post, fender against the dock, or a spring line. This provides a pivot limiting travel in that direction.

If the wind is blowing from your port side and you have a pivot point on your starboard, you can make docking much simpler. The wind will hold you against the pivot as you roll around the pivot using forward gear.

If it is impossible to use a pivot on the side opposite the wind, use a spring line on the same side as the wind.



Backing into a Slip

When the wind and dock assignment make docking downwind the only option, consider backing into the slip. Use prop walk to execute your turn and a breast line to align the boat once it is in the slip.

1. Steer parallel to adjacent slips on your *port side*.

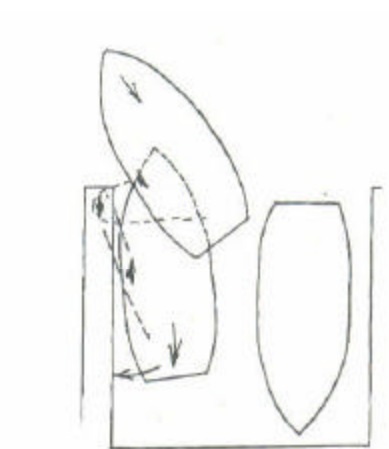
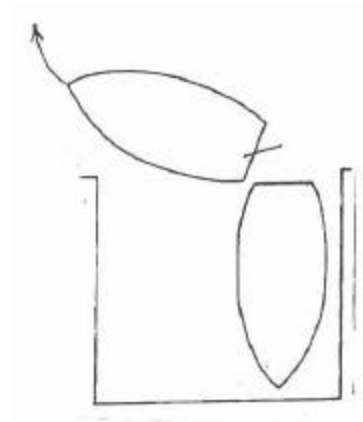
2. When your stern is almost clear of the finger dock or adjacent boat in the adjacent slip, turn sharply to starboard.

3. Reverse your engine to stop forward progress and idle in reverse to allow prop walk to move your stern into the slip.

4. Continue backing into the slip while looping a breast line (also known as a midship line) over the first cleat or post.

5. When the midship line tightens, your boat will move sideward toward the finger dock.

It will remain against the dock as long as the engine is in reverse and the line is in place.



Leaving a Slip

Leaving your slip will be relatively easy if your boat backs in a straight line. This occurs more often on fin keeled boats. The presence of wind also complicates the maneuver.

Wind or current will cause the bow to move sideways while the stern of the boat is moved to port from the effect of prop walk. Your departure plan should allow for these elements as well as a look out for boat traffic in the fairway you will be entering.

The proper sound signals for this maneuver are one prolonged whistle (I am leaving) and three short whistles (my engines are in reverse).

Plan your departure carefully after considering the effects of the elements. If wind is present your bow can be swung using wind pressure. If the direction of your bow movement is opposite of your intended course, see the following section about the use of a stern spring line.

If strong current is present in the fairway, your entire boat will be moved downstream,

usually broadside, or in the same position as our slip exit. This situation also requires the use of a stern spring line.

1. Check for fairway boat traffic.
2. Sound the proper whistle signals.
3. Cast off lines and reverse engine.

As your boat moves backward in reverse, prop walk will occur. Moving rapidly often is better than backing slowly. Once the boat is moving aft, take the engine out of reverse gear and continue coasting backward. You should now regain a degree of steerage control with the rudder.

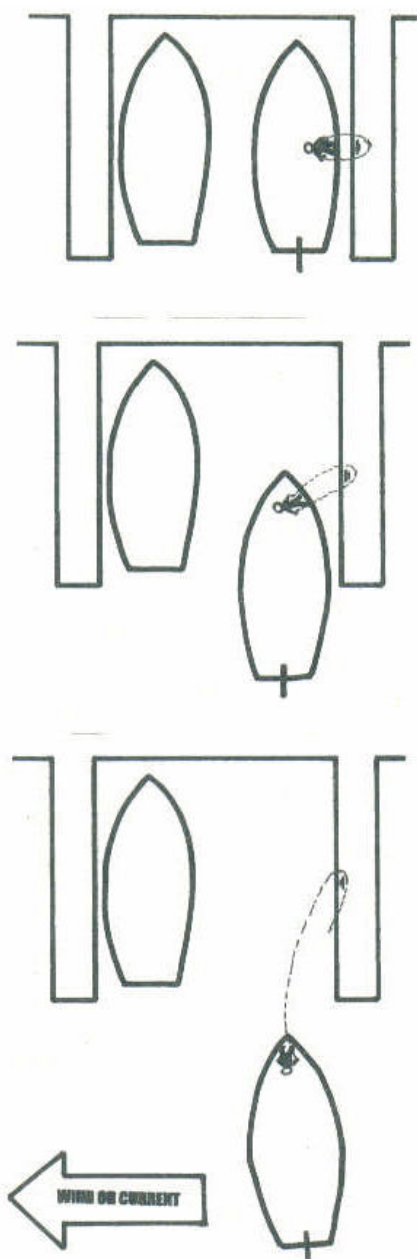
When the bow clears the finger dock and adjacent boat, check astern to determine the distance to boats docked on the opposite side of the fairway. Your experience and judgment will be valuable in determining how much farther your boat will coast after you shift into forward.

Shift to forward and apply significant power. Water pressure on the side of your rudder will quickly move the stern of your boat executing the desired turn toward the harbor mouth.

Controlling your boat when backing out of a slip in a crosswind.

We have all found ourselves trying to back out of a slip in a crosswind. Here is a simple way to accomplish a safe departure with help from one deck hand.

1. Run dock lines from your deck to posts or cleats on the windward side of the slip, then back to the boat.
2. Loop a line over a post or cleat on the windward side and back to the deck at midship.
3. Instruct your deckhand to hold both ends of the midship line and walk toward the bow as the boat moves backward. With both ends of the line in hand he or she can exert sideways pressure to keep the boat centered in the slip.
4. Check for fairway traffic and sound proper whistle signals.
5. Cast off all lines except the midship line on the windward side.
6. Shift into reverse and begin backing.
7. When the deckhand reaches the bow, and the boat is entering the fairway, call for one end of the final line to be cast off. It must now be quickly retrieved by the bitter end before the boat is shifted into forward.
8. You are now safely out of the slip and ready to head for open water.



Using a stern spring line to turn when backing out of a slip.

Whenever prop walk or wind pressure prevent you from heading in the desired direction after backing from a slip, use a spring line to control your turn.

To control the direction of your stern regardless of the wind pressure or whenever the space astern is too short for your turning radius, calls for a stern spring line.

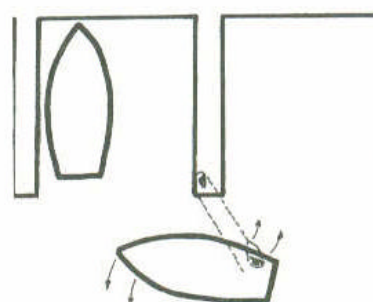
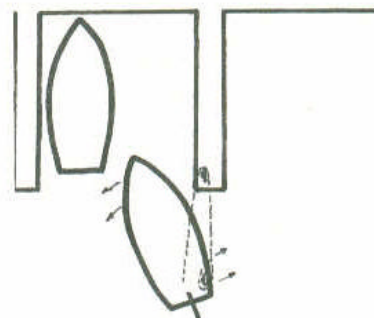
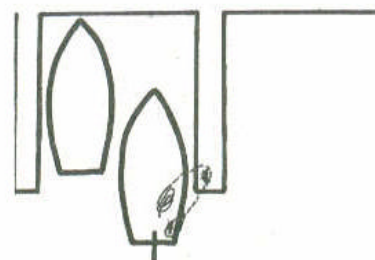
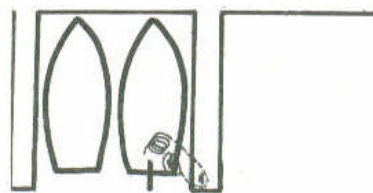
Before casting off any dock lines, attach a long spring line to your stern cleat on the side that you want the stern to favor. Run the line to the dock and back to the cockpit of your boat. Use a piling or cleat on the dock for a turning point.

With the bitter end in hand, reverse your engine and back into the fairway. When your bow clears the finger dock or boat (on the side opposite your pivot), snub the line from your position in the cockpit.

When the spring line tightens, your stern will remain on the arc created by the snubbed line. Continue backing until your bow swings in the opposite direction.

After clearing the dock or nearby boat, you will be heading down the fairway in the intended direction.

Lastly, cast off the bitter end of the spring line and retrieve it from the cleated end. With the entire line aboard, you are ready to head to sea.



Docking parallel to a pier or dock

Whenever it is possible, dock with your port side against the dock or pier. This allows the use of prop walk to move the stern of your boat against the dock.

This approach works well in the absence of wind and current influence. If, however the wind or current are a factor, make their influence paramount in your approach plan.

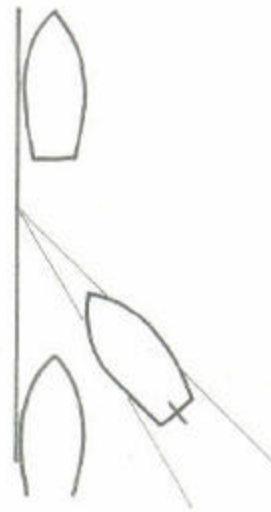
1. The proximity of other boats, wind, current, depth of water and the configuration of the facilities determine your approach angle. All of these can be overcome with little creativity, but the ideal approach angle is between thirty and forty-five degrees.

2. Slow your speed, but retain control of your steerage. Aim for a docking location that is approximately $\frac{1}{2}$ to $\frac{1}{3}$ of a boat length from the final destination of your bow. Steer close enough to the dock to pass or heave a bow line ashore.

3. Extend a bow line to someone ashore with directions to hold the line (do not fasten or pull). Shift into reverse and increase your throttle speed until the bow of your boat comes to a stop at the desired location. Slow your throttle speed to an idle to allow prop walk to move the stern against the dock. Too much speed will cause your boat to back up.

4. Secure bow and stern lines and at least one spring line. In tidal waters fasten spring lines fore and aft and ease the tension on the bow and stern dock lines. This allows vertical movement to accommodate tidal rise or fall.

1.



2.



3.



Parallel Docking with off shore wind

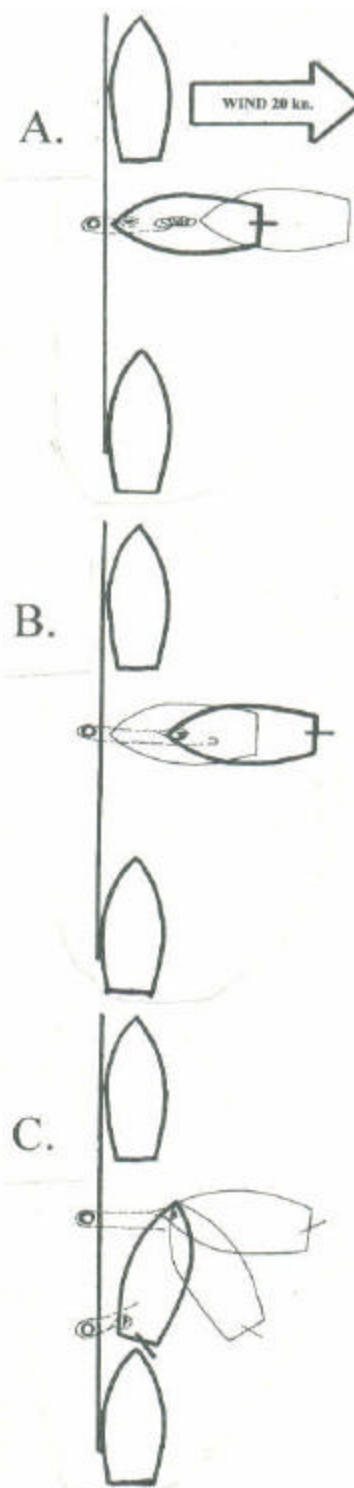
Docking in windy conditions is difficult for every skipper. When a strong wind is blowing directly offshore, you may need to try something different. Remember Rule #1 and #2? They say, “dock into the wind.” Let’s try a new and different way of docking parallel.

1. Select a target of a cleat or post approximately 1/3 of the vacant distance from the boat ahead. Steer directly toward that spot on the pier or dock stopping less than two feet away. Hold your boat in this position (directly into the wind) using engine power equal to the backward thrust of the wind. Fasten a long bow line to the deck cleat. Run it over the post or cleat and back to the boat.

2. Allow the boat to drift aft while paying out the bow line. When the distance from the bow to shore is equal or less than the distance to the desired bow location (when parallel docked) snub the bow line.

3. Drive forward slowly with the rudder turned into a sharp turn to starboard. The bow line should remain taught, held by wind pressure, while prop wash pushes your stern to port (and toward the dock).

4. When your stern is near the dock, drop a stern line over a cleat or post and dispatch line as the wind pushes your boat away from the dock. Snub the line when your boat is parallel to the dock, although several feet away. You now have two lines running from the boat to shore and back to the boat.

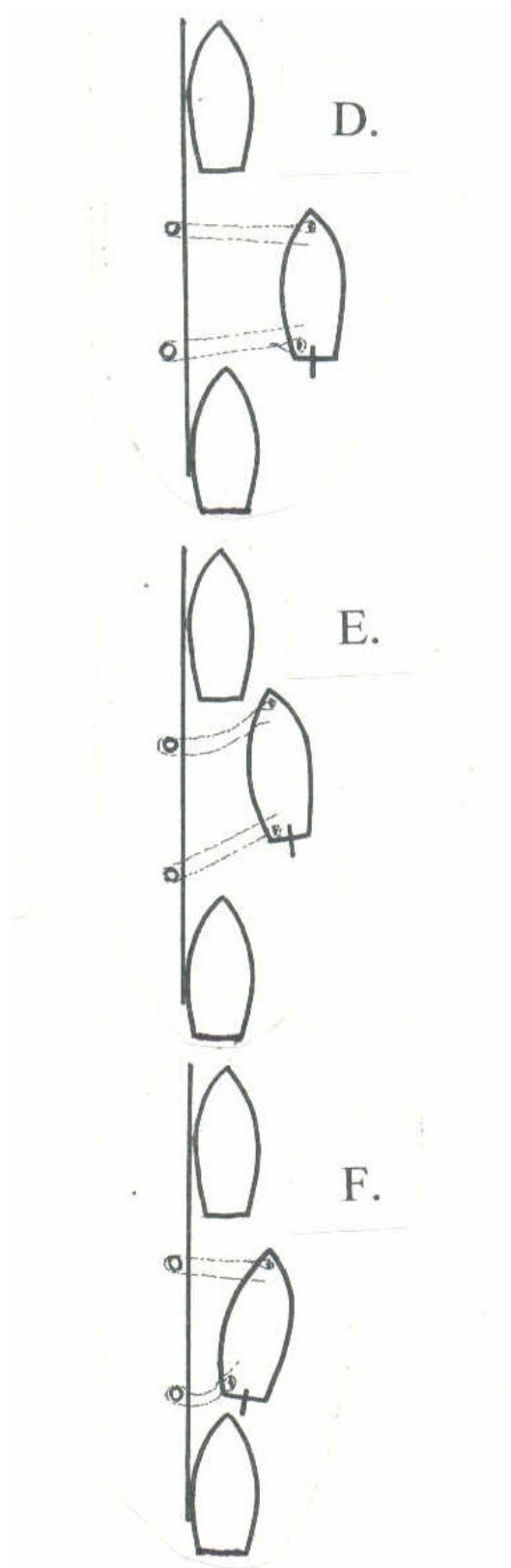


Parallel docking with offshore wind (continued)

5. Snub both lines and drive slowly forward. One of the dock lines will slack. As soon as slack occurs take up the slack and snub the line. The rudder should be straight forward.

6. Shift into reverse and back straight back. As slack in one of the dock lines occurs, take up the slack and snub the line again.

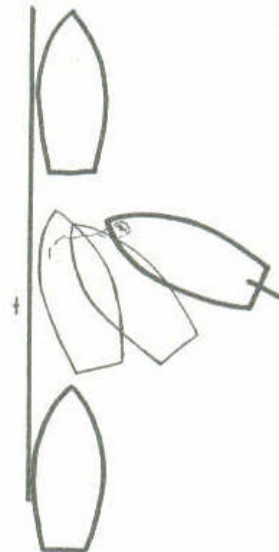
7. Continue driving back and forth while always taking up slack line. Soon your boat will have moved close enough to the dock to be secured.



Springing off a wall

There is only one easy and sure way to get away from a wall: *springing*. The use of a bow spring will move your stern safely into the fairway from a docked position with other boats fore and aft.

1. Attach a long spring line to your bow cleat and run the line to a cleat or post *on the dock* that is near the midship line of your boat. From there run the bitter end to your cockpit or helm position.
2. Protect your topsides with a large fender hung near the bow on the side nearest the dock or pier.
3. Check traffic in the fairway before casting off all lines except the bow spring line.
4. With the spring line snubbed and held tight, turn your rudder to head your boat toward the dock.
5. Shift into forward gear and idle against the spring line. Be sure to check the placement of the fender to protect your topsides.
6. Water thrust against your rudder will slowly move your stern away from the dock. Your bow will remain stationary while pivoting against the spring line.
7. When your stern is pointing to the center of the fairway, slip the bow spring line and retrieve it on board.
8. Back briskly into the center of the fairway. Backing slowly could cause prop walk to return your stern toward the dock.

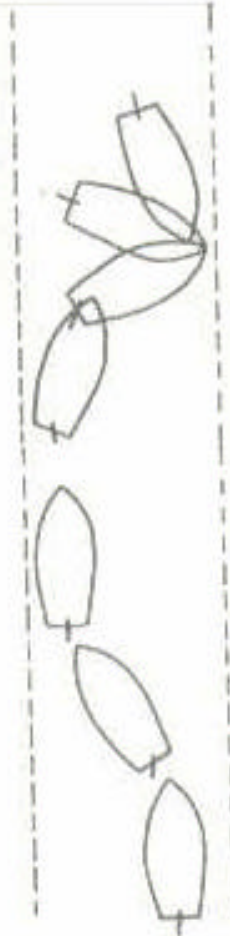


K-turn

The K turn

Use the K-Turn when the fairway is too narrow. Occasionally you will come to the dead end of a fairway without room enough to turn for your escape. Use prop walk and/or wind to turn your boat in its own length.

1. Turn your boat sharply to **Starboard** and bring it to a stop before hitting a boat or dock on the starboard side of the fairway.
2. After stopping your boat (using reverse), allow your engine to idle in reverse to take advantage of prop walk. It will move your stern to port.
3. Idle in reverse slow enough to create prop walk but no backing. If your boat backs you could collide with boats behind you. Your boat will pivot in place while the stern swings.
4. You will have completed a 180-degree turn and be heading from your previous direction.
5. Shift into forward and proceed.



Chapter IV - Anchoring

Night at Anchor

Some of our most beautiful cruising memories have occurred while spending a night at anchor. We enjoy quiet evenings, with star filled skies. To us, this is the epitome of a cruising life style. We certainly don't want a rude awakening due to an anchor that was improperly placed or not securely set.

No one wants to be awakened in the night by the nudge of the keel kissing the sand bottom. Even more frightening is the possibility of a meeting between the fiberglass hulls and the concrete and steel of a pier. After a day of sailing I want nothing more than a good night of sleep.

Using the proper Ground Tackle

Do your homework to learn the advantages and disadvantages of each type of anchor. Read charts suggesting proper anchors and lines to use. For extra peace of mind, I always choose bigger anchors and stronger line, just to be sure.

I try to find anchorages where I am protected from wave action and boat traffic. I use a CQR® plow or Danforth® anchor most of the time when anchoring in mud or sand. If I suspect the bottom has weeds, gravel, coral, or rocks I seek another location.

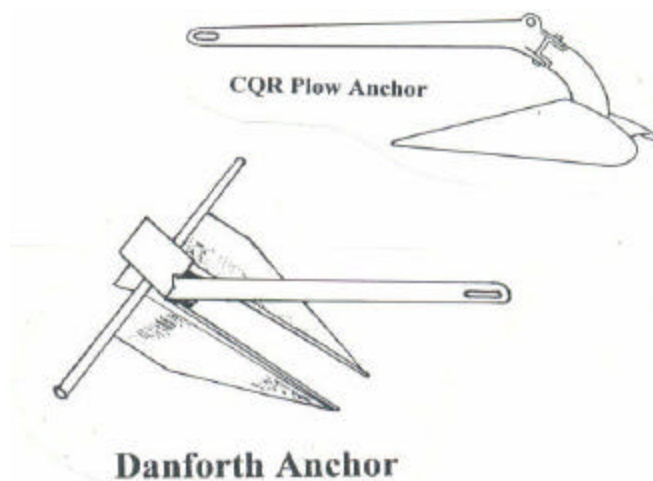
The design or style of the anchor should match the material on the bottom of the lake. Tests research has proven that some anchors best in weeds.

In addition to the bottom material, where and how you store your anchor on board is also a concern. A large, heavy, anchor with the cabin sole. If, because of size or shape, your anchor cannot be lifted from its storage area for deployment off the bow, it is also useless.

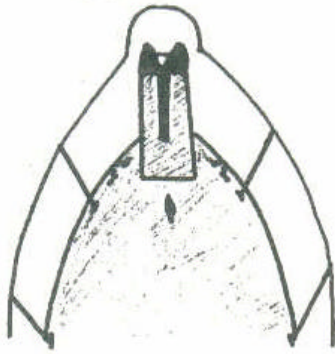
The most popular designs are the CQR® plow and the Danforth®. Each has advantages and disadvantages raising the question, "Why not have one of each?" "Precisely, my dear Watson," as Sherlock Holmes would have said.

The CQR® plow works well in weeds, and resets itself if it becomes dislodged. However, it is difficult to store unless mounted on a bow platform ready for deployment.

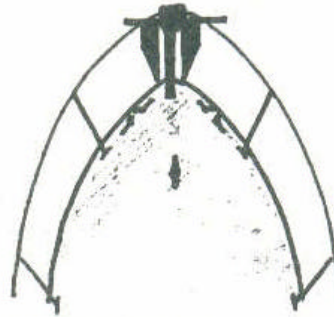
The Danforth® type anchor is the most popular style because it stores easily and holds well for its size and weight. It holds well in sand or mud and does a reasonable job in weeds, gravel and small rocks.



CQR Plow Anchor



Danforth Anchor



Anchor Rode

The anchor rode is the line between the anchor and the deck of your boat. When selecting the proper materials for your rode, equipment catalogs base their recommendations upon the weight of your boat. The rode includes chain, nylon line, and assorted swivels, shackles, and thimbles.

Selecting the correct rode is a combination of considerations. I will use my own as an example. My boat is a 1966 *Chris-Craft* 30-foot sloop. Our displacement is about 12,000 pounds. I sail in fresh water only.

My primary anchor is a 20-pound CQR ® plow anchor that is mounted on a bowsprit with a roller. The first 50 feet of my rode is chain, followed by a swivel and 250 feet of 5/8 inch three strand nylon line.

All line-(rope)-to-metal-connections are spliced over thimbles and attached with shackles and safety wires securing the pins. I have spliced a thimble on each end of the 250 feet of line. This allows me to switch ends (of the line) occasionally, if wear appears.

My secondary anchor is a very large Danforth® with similar rode. In addition I carry a 35-pound NorthHill® anchor for storm use. It is also equipped with chain and rode. All three anchors are ready for deployment and easily accessible.

Anchoring Techniques and Practices

Your anchoring techniques are just as important as the size or design of your anchor. While you are at anchor the wind may shift directions several times. Anchoring just off shore may give waves little fetch to build in size with an offshore wind. If, however, the wind comes across open water, waves will build in size. Now being just off of a lee shore is discomforting.

Quiet bays and coves located out of the traffic pattern can often be found along bends in rivers or tucked behind small islands. The quiet water begs your investigation.

Begin your anchoring process by checking water depths and the bottom material. Use navigation charts then investigate on your own to confirm the information. Charted depths may be shown in feet or fathoms on U.S. charts. On foreign charts, meters and tenths of meters are used. The unit of measurement used will be indicated along with a scale of distances on small-scale and harbor charts

Symbols indicating the bottom material will be abbreviated for sand, mud, clay, rocks, gravel, coral, silt, or other materials. They will be printed on the chart in their location. Most anchors hold well in mud, clay or sand. Other bottom materials make holding more precarious.

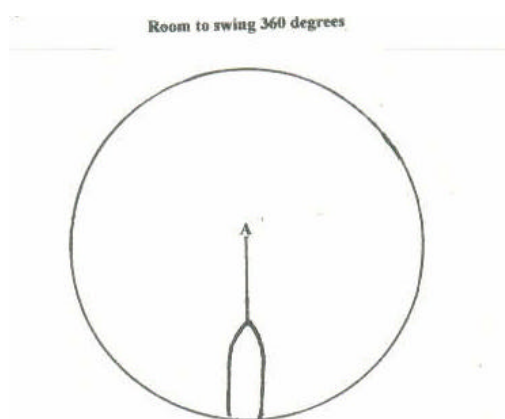
Step-by-step anchoring

1. Visually scan the surface of the water.

The best visibility for scanning the water is when the sun is high and behind you. When your look into the sun the reflection created on the surface will hide color changes and irregular water patterns on the surface. These are often indications of shallow water or the presence of underwater obstructions not appearing on your chart.

2. Use your depth sounder.

Predetermine the water depth that will allow you the scope (ratio) you prefer. Slowly motor in a circle the size of the maximum swing you expect when anchored. If the water depth remains constant or nearly constant (25 ft., 25 ft., 24 ft., 25ft. etc) it is likely that the bottom material is sand or mud.



If you observe fluctuation in the depth it indicates an irregular bottom surface. This could be rocks or debris. If one side of the circle is deep and the other side is shallow, you can be assured that a wind shift in the middle of the night will swing your anchored boat into the shallow water.

3. Lowering Your Anchor

Select your location and motor to the center of the circle you have surveyed.

Point your bow into the wind and bring your boat to a stop. Lower your anchor over a bow roller paying out chain and line by hand until you reach the bottom. Take care that the rode doesn't get away from you and run free.

4. **Use hand signals,** to direct the helm person to slowly reverse the boat as you pay out the remaining chain followed by the nylon line. When you have reached a 3-to-1 ratio (the distance from the anchor to the boat is 3 times the distance from your deck to the bottom of the bay), apply slight pressure on the line with your hands as you continue to back away.

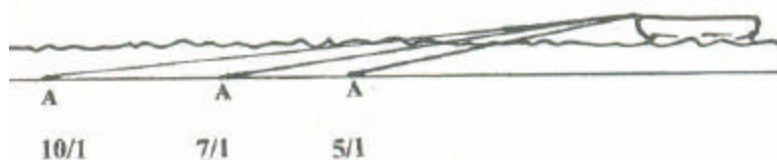
5. Test the set.

Apply a slight pressure with your hands, hoping to find resistance as the anchor digs in. Vibration and little resistance, indicates that your anchor is skidding across a hard surface or through grass. Try again or anchor elsewhere.

When your rode (ratio) is 5-to-1, snub the line around a deck cleat. The helm person can now reverse hard to set the anchor.

6. Proper Scope

As the scope increases, so does the holding power of the anchor. For a short "lunch stop" a scope of 3-to-1 is sufficient. For an overnight stay, the scope of 5-to-1 is needed. If the wind picks up, increase to 7-to-1. For open water or storm conditions, use 10-to-1.



Anchorage with Restricted Swing Area

The Bahaman Moor is popular in the Caribbean where the presence of coral limits the amount clear area for placing your anchor and the space needed for your boat to swing at anchor. Set two anchors at 180 degrees apart on either side of the bow. Attach both rodes to your bow cleats. This restricts your boat to pivot while your stern can swing in a 360-degree circle.

The Bahaman Moor is also used in rivers and tidal areas where current reverses in direction. Place one anchor up stream and the other down stream. Both anchor lines are attached at the bow. Current from direction #1 holds the first anchor while anchor #2 has no tension. When the current flow changes direction, anchor #2 becomes the primary anchor and anchor #1 has no tension. Your boat rotates over the anchor line as it swings 180 degrees to always point the bow up stream.

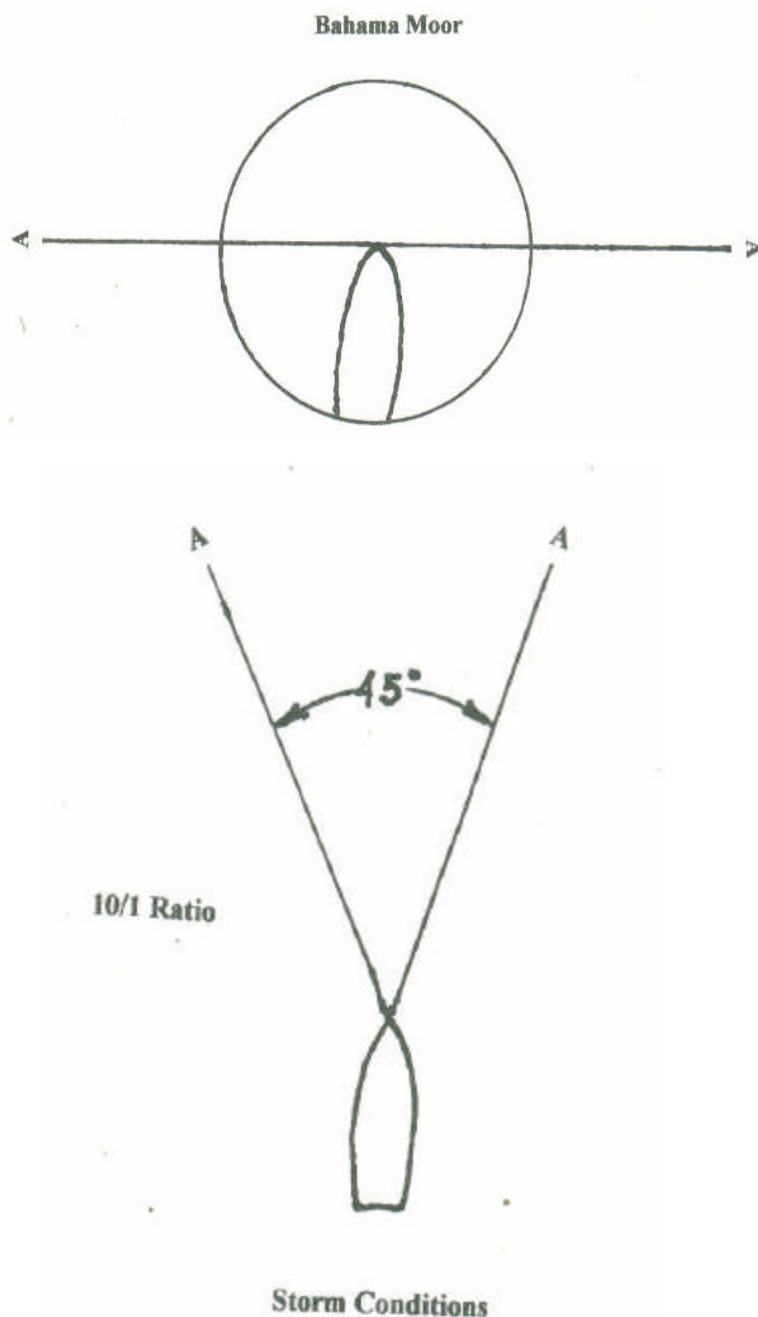
Hurricane /Storm Anchoring

True hurricanes occur only in tropical waters. Their development is monitored closely by weather agencies and radio broadcasts warn of hurricane development. Boaters are alerted well in advance. The best and safest plan is to move your boat to an inland location or hurricane hole.

Much research has been done and many volumes have been written of how to anchor to best protect your boat in a hurricane. No one has yet out smarted Mother Nature. Move your boat to a safe location.

To anchor in a storm or blow, less than a hurricane, your boat will be more secure with two anchors set apart at a 45-degree angle. Each anchor should have a 10-to-1 scope. This anchoring pattern will become unsafe during wind shifts. A 90-degree (or more) wind shift will permit the anchor rode

of one anchor to pass over the second anchor. It is then possible to unseat the second anchor.



Set a float to mark your anchor

Before deploying your anchor, prepare and launch a float with a trip line to mark your anchor's position. Use the depth information from your sounder to measure enough polypropylene line to extend from your anchor to the surface. Add an additional five feet. Tie an empty plastic jug to one end and the head of your anchor to the other end. Empty laundry soap containers work well and are brightly colored.

Launch the float before lowering your anchor. When your anchor is set you will now have a brightly colored float directly above the position of your anchor.

Marking the location of your anchor will divert other boats from anchoring across your anchor line or from allowing their anchored boat to drift back over your anchor. Other boats will also avoid passing between your bow and the float.

Retrieve your anchor in the usual way and when it is aboard retrieve your float and store it until needed.

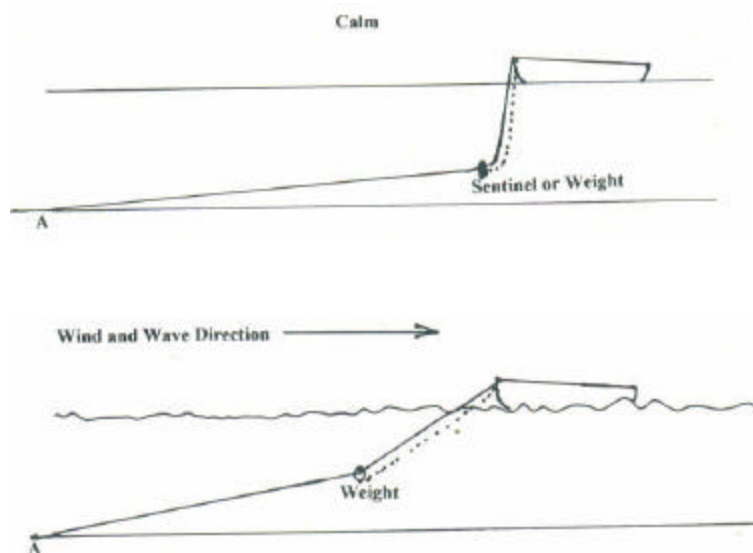
An added benefit occurs if your anchor becomes snagged. Simply retrieve your anchor using the trip line on the float. It will remove your anchor from the direction opposite of your anchor line.

Add shock absorbers to your anchor line

Once you are anchored, the process of moving to a new location to avoid wave action is a bother. If the wave action is not too severe, try adding a sentinel to your anchor rode.

1. Attach a snatch block over your anchor rode without retrieving your primary anchor and starting over. Next, secure a counter weight to the snatch block with an attached retrieving line. The counter weight can be a small mushroom anchor or a lead ball used when fishing.

2. The counter weight will ride down the anchor rode toward the bottom. Stop it short of the bottom and secure the retrieving line to a cleat on deck.





Jack Klang

USCG Master License for Sail and Power

Thousands of miles under sail and years of cruising have become the basis for many of Jack Klang's seminars and publications. He has experienced a direct lightning strike, a fire on board, sinking, groundings, and many ferocious Great Lakes storms.

In 1989 he received the *US Yacht Racing Union* rescuer Medal for three separate open water rescues that saved six lives.

He has been boating for all of his life. It is no wonder that his first summer job, at age twelve, was at a boat yard. At age 18 he earned his first captains license. He has taught sailing, skippered large schooners, delivered boats and with his wife, Marilyn, they have logged over 30,000 sailing miles aboard their 1966 *Chris-Craft* sloop.

Now the retired educator has more time to cruise, write, and share his knowledge with others. "I never stop learning," says Klang, a cruising consultant for Quantum Sail Design Group.

He is in demand as a speaker, captain, and seminar presenter. "I enjoy sharing my experiences and knowledge with other sailors, just as my teachers shared with me."

Questions and comments may be addressed to captjack@quantumsails.com.