



# Dock Leader Manual

Written by E. Eric Matus

9/05/2022

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# Dock Leader Manual

This manual has been developed for volunteers who want to learn how to make the Participants experience the best right from the beginning and up to the end. The Dock Leader needs to know how to greet and organize the participants and volunteers, promote safety; and some basic seamanship from knot tying, rigging a Martin 16 and landing a Martin approaching the dock.

Each lesson can be accomplished in about 10 to 15 minutes. More experienced dock assistants will be able to complete several of the first lessons quickly. It is strongly suggested that all lessons be done in order. Each lesson has been developed to build on the seamanship (aka stevedore/longshoreman/dockworker) skills and vocabulary discussed in previous lessons.

We hope you enjoy your day on the docks (and possibly afloat), and find the practice seamanship skill lessons informative and worthwhile!

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# PART 1: DOCK LEADER BASICS

## 1 PARTS OF A DOCK

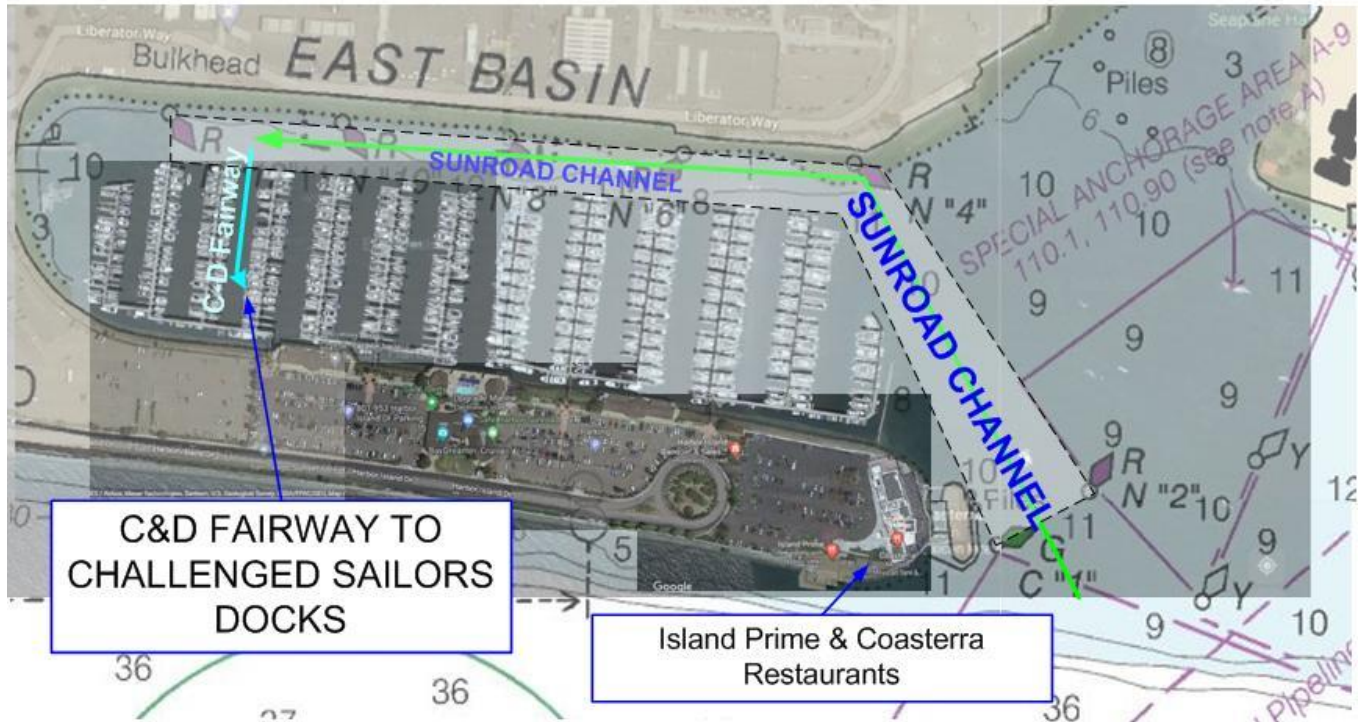
### 1.1 DOCK TERMINOLOGY ILLUSTRATED



***Parts of a Private Marina Floating Dock***

## 1.2 MARINA NAVIGATION: CHANNELS & FAIRWAYS

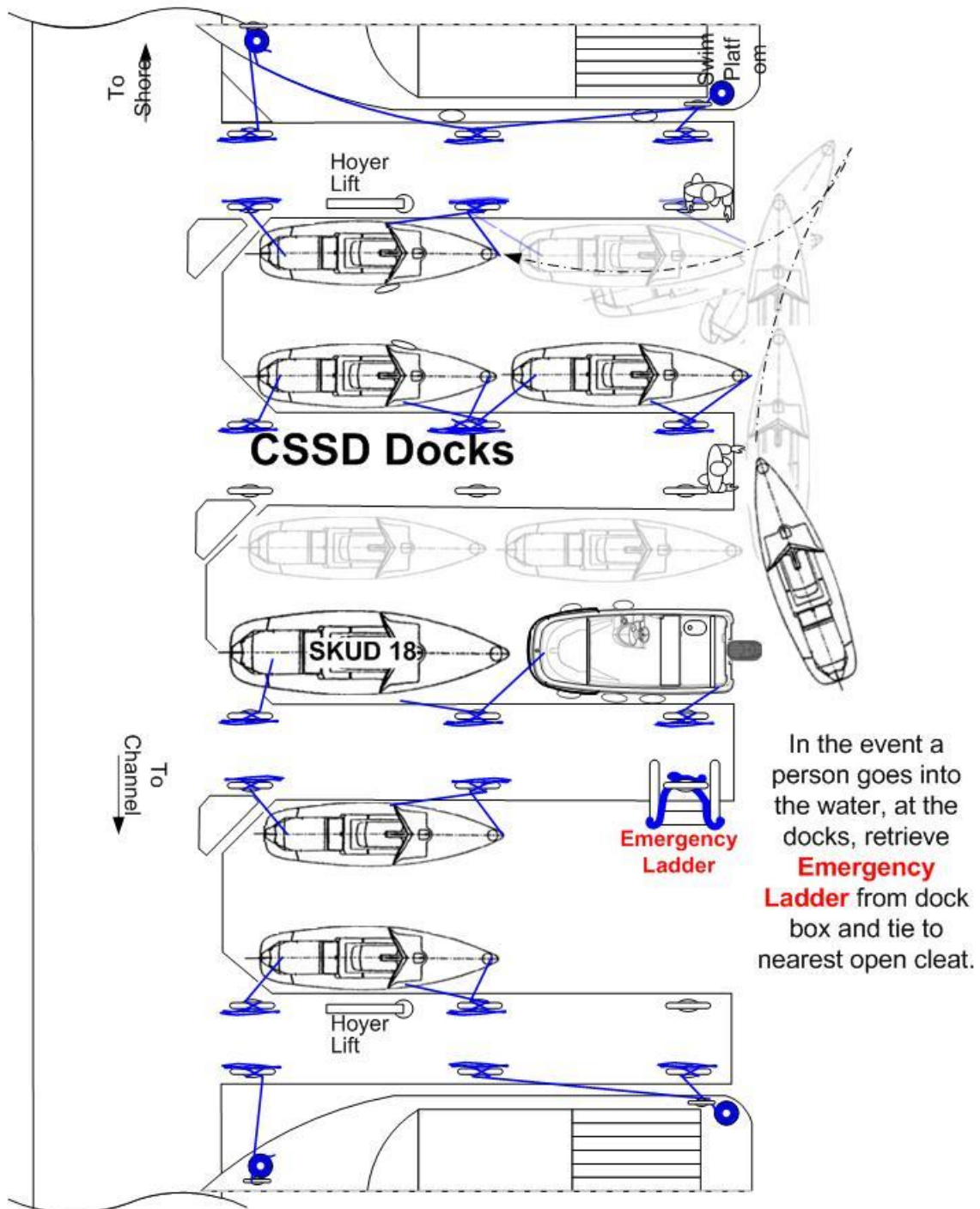
### Safe Harbor Sunroad Marina Channel





### 1.3 CHALLENGED SAILORS DOCKS AT SAFE HARBOR SUNROAD

**Caution:** Some boat's bows protrude into the dock space and can be walked into by people with vision problems or not paying attention.



## 1.4 DOCK TERMINOLOGY

### Parts of A Dock (See diagram):

**Boat Fender** - An air filled rubber device, in either a round or tubular shape, that hangs from the side of a boat to cushion it from impact while docked or parked next to another watercraft. It protects the boat and anything next to it from damage (similar to dock bumper).

**Buoy** - A floating device that's anchored to a lake or sea floor serving as a marker for boats.

**Channel** – The body of water that begins by the Coasterra Restaurant

**Cleat (boat cleat, dock cleat)** - A T-Shaped device, usually made of metal, that attaches to a surface for tying a rope down on one end to secure a boat or object on the other rope end.

**Decking** – The surface of the dock, which in Sunroad Marina is mostly concrete and some wood.

**Dock (boat dock, wet dock, pier, harbor, dock slip)** - A place where a boat is parked on water.

**Dock Bumper (dock fenders, dock edging, rub-rail, dock protection, dock cushion)** - A device made of plastic or vinyl used to reduce the impact of a boat hitting a boat dock while docking. It protects both the watercraft and the dock from damage.

**Dock Float (float drum)** - A roto-molded plastic tank, flat on all four sides and foam-filled, used as the foundation to build a floating boat dock.

**Dock Hardware (fasteners, connectors, brackets)** - Metal components used to construct and fortify a boat dock, commonly used in wooden dock frames.

**Dock Protection** – Made of various materials configured to cushion the impact of a boat's hull with the Dock.

**Dock Rollers (dock wheels)** - Plastic or rubber rolling devices that are attached to a shaft, and mounted on the corners of finger piers. When a boat rubs against the rollers while docking into a boat slip, the rollers will turn on the shaft and guide the boat into the slip.

**Fairway** – A narrow channel that extends between the rows of Finger Piers.

**Finger/Finger Piers** - Fingers are the two parts of the dock that are perpendicular to the main dock and create two decks on either side of your boat when it is moored.

**Flotation Supports** – Foam filled floats that support the Dock and keeps it above the water.

**Gangways and Ramps** – The Ramp handles the transition from land to Dock. It is designed to adjust its angle to accommodate tidal fluctuations.

**Gate & Fob Sensor** – The Security access from the parking lot to the Dock. The Gate has a lock that is opened with a coded RF Key Fob.

**Ladder (dock ladder, boat ladder)** - A marine ladder is used for a person to climb on to a boat dock or watercraft from a body of water. Sizes vary from 3-Steps to 7-Steps or more and are usually made of aluminum or stainless steel metal to prevent rusting.

**Life Ring** - A flotation device used for emergencies in the event someone falls overboard a boat, some are attached to a rope to pull people back to the boat.

**Mooring Snubber** - An elastic rubber device used to prevent a dock line from breaking due to heavy movement of a boat docked on water.

**Railings** – Metal tubes that run horizontally allowing the crew to use them to find balance.

**Slips** – The space between two finger piers allowing a boat to pull in between the fingers to berth.

**Solar Light (dock light)** - A lighting device powered by solar energy that's used as a marker for boats that are distant from a dock at night. Various other solar lights emit minimal light to make a dock path visible at night.

**Transition Plates** – Are metal plates that provide an intermediate surface for moving from the Dock to the Ramp.

**UHMW Rollers** - UHMW is an abbreviation for Ultra High Molecular Weight Polyethylene. It is an extremely tough form of plastic, useful in applications where high-impact protection of heavy objects (such as boats) is needed. UHMW rollers are designed to be used in boat dock roller assemblies.

## Sailboat/Sailing Terminology:

**Aft** Toward the stern

**Battens** Stiffeners (usually wood or fiberglass) in the leech

**Boom Vang** A line that puts downward tension on the boom and Leech of the sail

**Clew** Bottom back corner of the sail

**Cunningham** A line controlling tension along a sail's forward edge (luff)

**Ease** Let out a sheet

**Foot** Bottom edge of the sail

**Forestay** The cable that supports the mast from the bow (also known as a Headstay) when the Martin 16 Jib Stay is not hoisted

**Forward** Toward the bow

**Halyard** A line used to raise a sail

**Head down** To steer away from the wind direction

**Head** Top of the sail

**Head up** To steer toward the wind direction

**Jib** The sail between the forestay and the mast (also called a headsail)

**Jibe** To change direction by turning the boat's stern through the wind  
**Leech** Back edge of the sail  
**Leeward** Away from the wind  
**Luff** Front edge of the sail  
**Luffing** Fluttering or flapping of the sail  
**Mainsail** The sail attached to the mast and the boom  
**Outhaul** A line that pulls the clew (aft corner) of a sail toward the end of the boom  
**Port Tack** Sailing so the wind comes from the port side of the boat  
**Port** The left side of the boat when looking forward  
**Running Rigging** Lines that control and adjust sails  
**Sails (and their parts)** Air deflectors providing propulsion for sailboats  
**Sheet** A line used to adjust a sail against the force of the wind  
**Shrouds** Cables that support the mast from the sides of the boat  
**Spinnaker** A large balloon sail used when sailing on reaches and downwind  
**Spreaders** Horizontal spars that spread the shrouds away from the mast  
**Standing Rigging** Lines and spars that support the mast  
**Starboard Tack** Sailing so the wind comes from the starboard side of the boat  
**Starboard** The right side of the boat when looking forward  
**Tack** Front lower corner of the sail  
**Tacking** To change direction by turning the boat's bow through the wind (also known as coming about)  
**Telltails** Pieces of yarn or ribbon that show wind direction  
**Trim** Pull in a sheet  
**Windward** Toward the wind

## 1.5 BASIC RIGHT OF WAY RULES (AND COLLISION AVOIDANCE):

**Be courteous, and avoid possible collisions!**

**Port–Starboard rule:** Port-tack boat must keep clear of the starboard tack boat

**Windward-Leeward rule:** Windward boat must keep clear of a leeward boat on the same tack

**Clear astern - Clear ahead:** Overtaking boat must keep clear of a boat clear ahead, whether it is a sailboat or a powerboat

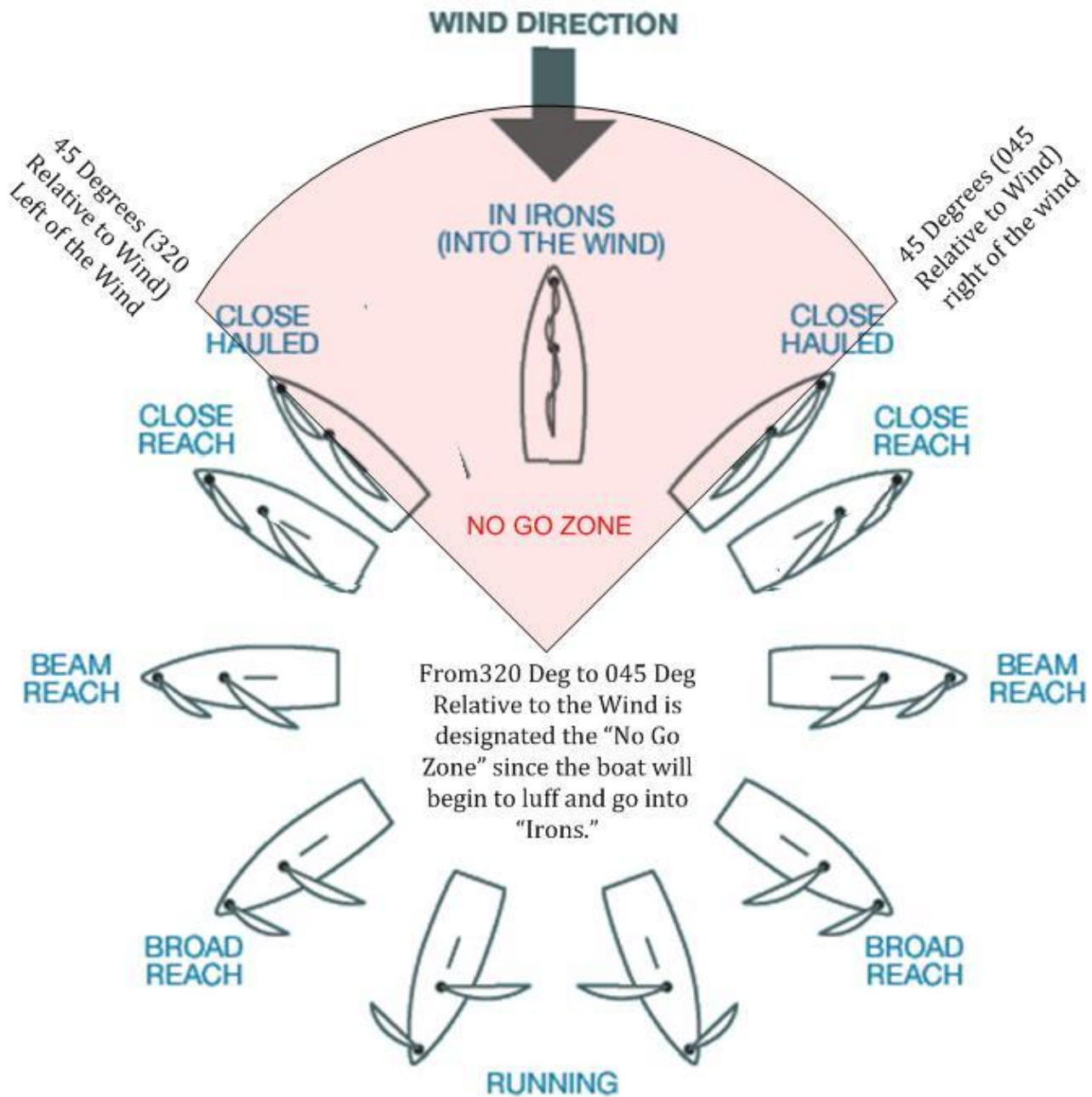
**The boat with the least maneuverability has right of way:** Usually boats under power need to keep clear of boats under sail. However, large naval or commercial ships have limited maneuverability, so smaller recreational boats need to keep clear of them. Also, small boats should give a large boat in a narrow channel adequate room to maneuver.

**Right and Left Drift:** Get used to observing boats that present a concern for possible collision and sighting their position relative to your boat. Keep checking occasionally if their relative position for right or left drift. If another vessel is on a **Constant Bearing with Decreasing Range (CBDR)** then a potential collision exists. This can be avoided by simply changing your course or heading to pass astern of the other vessel.

**Avoiding Collisions: Telegraphing Your Intentions to Pass (Port or Starboard)** when approaching a vessel, that is nearly dead ahead, it is important to keep the bow of your boat to one side of the other vessel's bow. Avoid allowing your bow to wander to the right and left of the other vessel's bow since this will confuse that vessel's helms person or skipper as to your intentions. If the other vessel's skipper is experienced then they will keep their bow pointed to one side of your bow also 'telegraphing' their intention to pass to one side of your bow. If you find a vessel approaching that keeps veering right and left of your bow it may indicate they are inexperienced or distracted and you should make a course change to avoid passing close to the other vessel.

By determining early the **right of way** situations for the boats closest to your boat and monitoring their **course and drift** you can prevent situations that require you to make any drastic course changes to avoid a collision. **Telegraph your intentions** early with other boats coming towards your bow, and monitor the drift of boats closest to you. Always cross astern of large vessels that are working, must stay in a channel, especially ferries, harbor patrol boats, and vessels towing or fishing. Early monitoring and action will lead to an uneventful sail. Do not assume that as a sailboat you automatically have right-a-way over power boats. Know your right-a-way rules but know that the most important rule is "Avoid a collision."

## 2 POINTS OF SAIL



Modified by E. Matus from Dee Caffari "Points of Sail" [deecaffari.com](http://deecaffari.com). 2009  
[www.deecaffari.co.uk/en/did\\_you\\_know-edition\\_07.html](http://www.deecaffari.co.uk/en/did_you_know-edition_07.html)



## 2.1 IDENTIFYING WIND DIRECTION

It is necessary to understand where the wind is coming from, in order to know which direction to head docking boats, and how to trim their sails, to ensure you can catch the docking boat's Shroud. These are some ways to determine wind direction:

Look at flags blowing in the wind.

Look at the telltales on the shrouds or the sails.

See which direction the wind vanes on nearby sailboats are pointing.

Notice the direction that the waves or ripples from wind gusts are moving on the water.

See that anchored boats face into the wind if the current is weak. Feel the wind on your face, and notice how your hair blows. Notice how other sailboats have their sails trimmed.

When the mainsail **fully** luffs, the wind blows from the mast to the end of the boom (toward the clew).

If you luff your sails and turn your boat until the boom is along the centerline of your boat, your bow will be pointing into the wind.

### Practice:

Determine the wind direction while at the dock.

Then sail out into the bay, and again try to determine the wind direction.

### Remember:

**Windward** means toward the wind. **Leeward** means away from the wind.



### 3 MARTIN 16 CONTROLS

Martin 16 sailors sit on a seat facing forward and all controls and lines are led to the cockpit to allow sailing without having to leave the seat. The rudder is controlled with a joystick. There is a second seat behind the command seat for a passenger or instructor. With the keel extended the boat cannot be capsized.

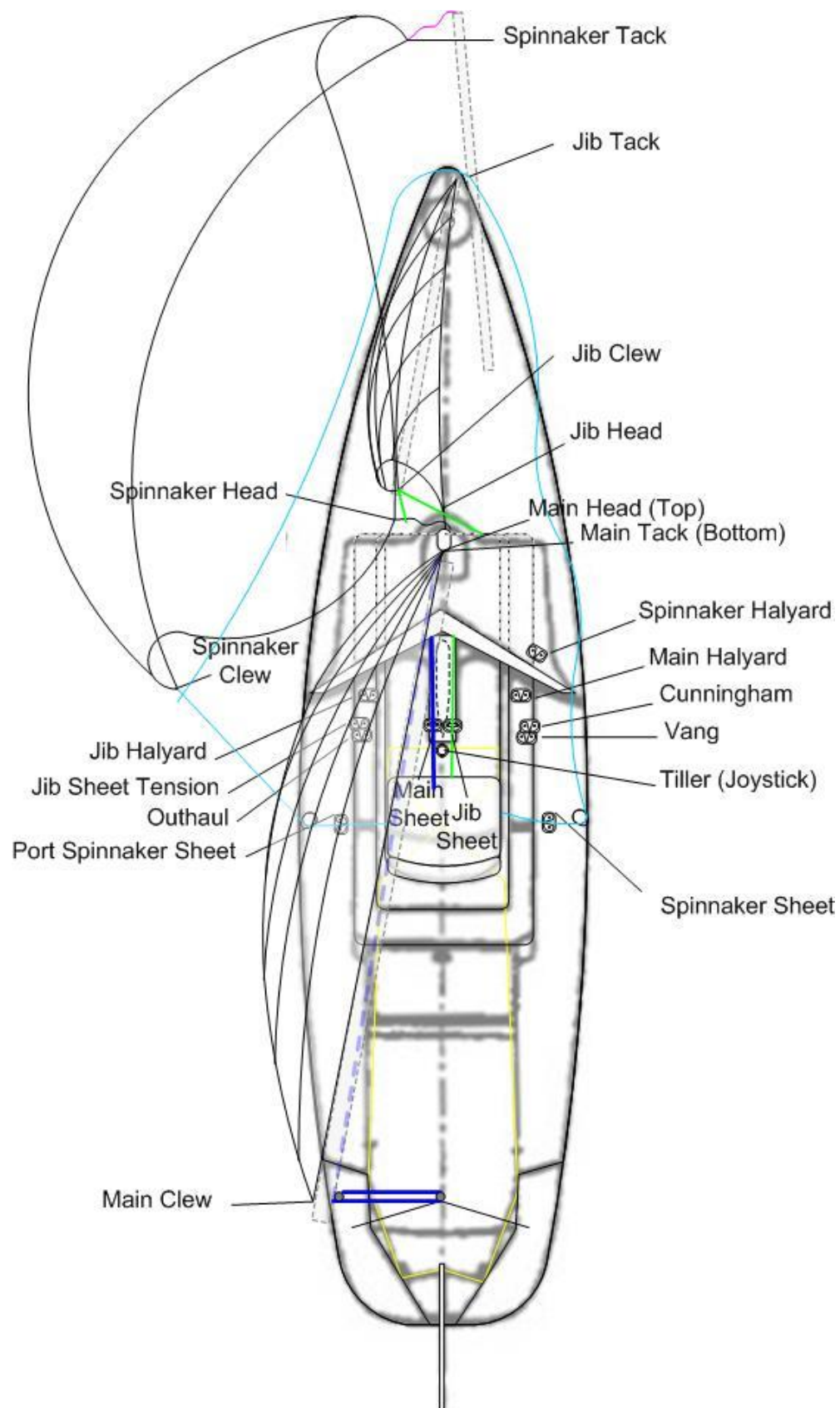
Once comfortably seated, the joystick tiller (to control the steering) and lines (to control the sails) are directly at hand making it possible to sail the boat independently without needing to change position. A second seat for an instructor or companion is located behind the sailor's seat.

Optional power-assist equipment can be added to the boat to allow individuals with weak arms to sail the boat using a joystick similar to those found on power wheelchairs. And for those who cannot move their arms at all the sip 'n puff system allows them to sail the boat using their breath! Even people on respirators can sail the Martin 16 independently!

The Martin 16 is controlled by a deep, spade rudder which provides positive control under all wind and sea conditions, with minimum pressure required to the helm. The helmsperson uses a "joystick" to control the boat, and the movement of the joystick is transferred to the rudder via zero-stretch, high strength control lines guided by low-friction ball-bearing pulleys.



On the next page all the running rigging controls are illustrated, showing how all sail controls are led to the cockpit in easy reach of the sailor.



## Loading/Rigging/Launching Martin 16 Practice:

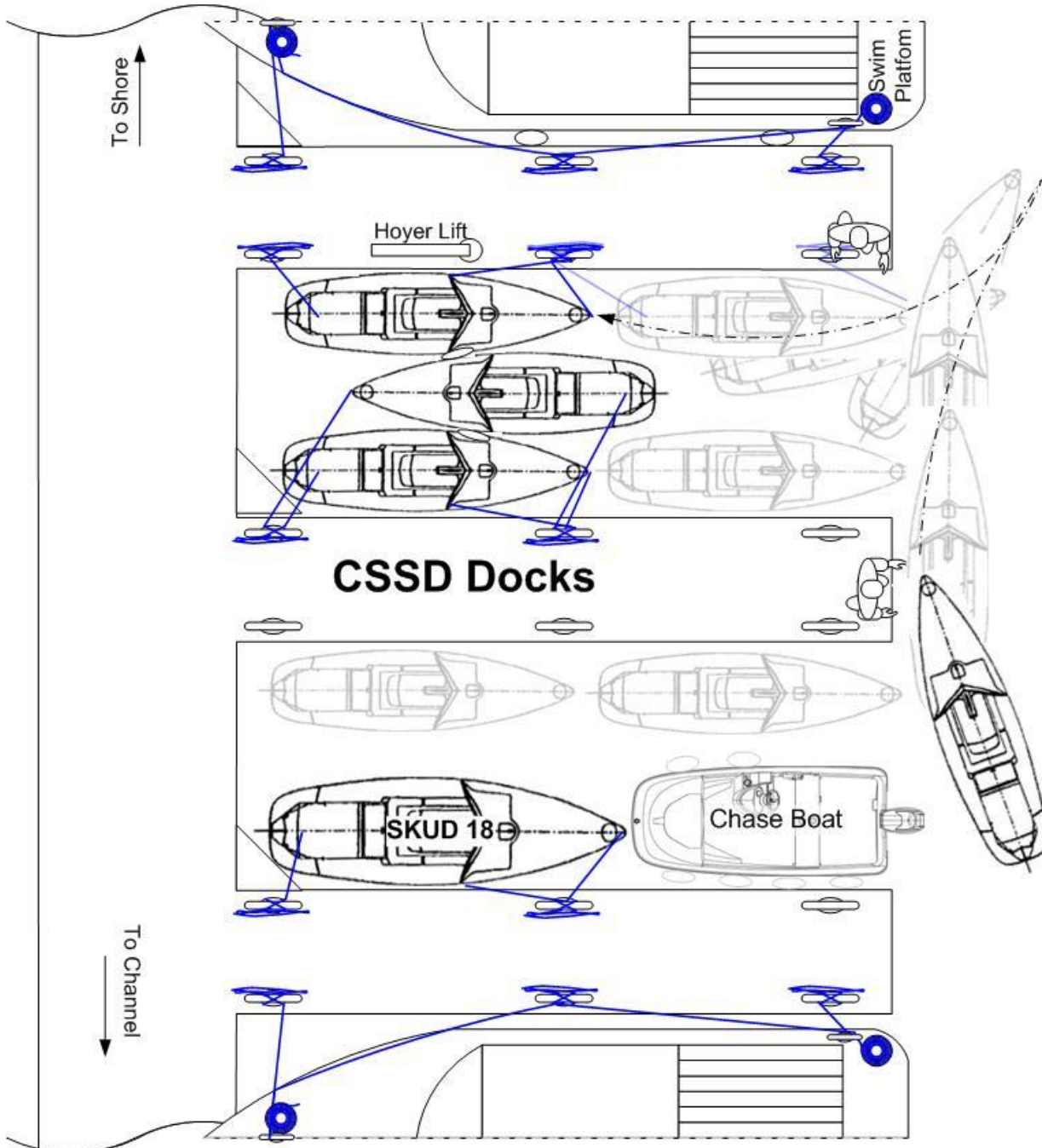
Start once on the dock after Dock Lead briefing:

- Brief should cover; Companion, Participants assignments, weather, winds, tides and times for High and Low Tides, issue Parking Passes, issue **Life Jackets** (and ensure they **are worn by all**), where the boats should sail and when they should return.
- Remind Companions that they need to stay close to their Participants
- Ensure each Participant and their Companion are assigned a 'working' boat.
- If anyone needs to be embarked with the Hoyer Lift ensure a qualified Hoyer Operator is present.
- Assemble the Sling (from dock box), Participant, Companion, and PAU Operator. While they prepare for the embarkation lift, double check that the Martin is tied tight against the dock at the point of the Participant's seat.
- Double check sling assembly is correct, Participant is relaxed/legs & arms are unimpinged, and the Hoyer Lift Operator is ready, and then begin the lift.
- Once the Participant is embarked and appears comfortable and at ease, then the Companion can rig the boat.
- Ensure all boats going out have radios, energized, on Ch 67, and remind all Companions to establish a Radio Check with the Chase Boat just prior to leaving the dock.
- Ensure all crew have life Jackets on, no items are being left on the dock, and wheelchairs/walkers are stowed out of the way and locked so they won't roll about.

The Dock Leader and Companions will work out who should go out first based on the need to use the Hoyer Lift (typically one or two boats). Once the slip with the Hoyer lift is clear then launch the Martin(s) with the PAU(s). Become familiar with the Hoyer Lift Manual either on the CSSD Web Site or at a link such as:

[https://www.cdss.ca.gov/agedblindddisabled/res/vptc2/4%20care%20for%20the%20caregiver/how\\_to\\_use\\_a\\_hoyer\\_lift.pdf](https://www.cdss.ca.gov/agedblindddisabled/res/vptc2/4%20care%20for%20the%20caregiver/how_to_use_a_hoyer_lift.pdf)

*Caution: Some boats' bow protrude into the dock space and can be walked into by people with vision problems or not paying attention.*



Challenged Sailors Docks at Safe Harbor Sunroad Harbor Island, San Diego CA

## **Catching/Disembarking/Derigging/Stowing Martin 16 Practice:**

Start, when on the dock and a boat is approaching, to do the following:

- A boat will radio that they are in the Channel near the fairway to the Challenged Sailors' Dock.
- Radio that you're ready and they may drop their main sail and proceed up the fairway.
- Stand at the end of the middle dock with an assistant on the end of the dock with the Hoyer Lift.
- Instruct the approaching boat to aim at your dock. It may be useful to extend your left hand out to provide a target for the docking boat to aim at.
- If the boat is coming too fast instruct the crew to let their jib out or use their paddle to slow the boat.
- If necessary guide the bow with the forestay past the dock then grab the shroud to stop the boat.
- At this point you can reach down and take the bow line with your left hand while holding the boat still with your right hand.
- Toss the bow line to the person on the dock to your left, then take the stern line to maneuver the boat's bow past the end of the dock's end where the person with the bow line is standing.
- Using the stern line guide the boat's stern into the slip and secure the boat at an available space.
- Cleat the boat's bow and stern lines, laying the excess line neatly along the dock edge .
- At this point this point the Companion can exit the boat and take over derigging then assisting the Participant out of the boat.
- Next let the Dock Leader know you're ready for the next boat.
- The Dock Leader (or Dock Assistant) will radio the next boat to lower their Main and come up the fairway under jib, paddle, or side towed by the Chase Boat.

The Dock Leader and Companions will work out who should come in first based on the need to use the Hoyer Lift (typically one or two boats). Once the slip with the Hoyer lift is full then begin to fill the other slip. Start by backing boats in keeping the slip on the end of the middle finger pier/dock clear.



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## 4 THE BASICS OF SEAMANSHIP (FOR LONGSHOREMEN)

### 4.1 DRESSING FOR HOT OR COLD

The essentials for what to wear sailing are most likely clothes you already have lying around at home, with a few important extras that you might want to consider making sailing a really enjoyable experience.

#### **Practice:**

We'll start with the miserable sailing gear and get to the fun stuff at the end! Although you don't want to consider that it might rain on your sailing adventure, you'll be even more upset if it comes and you aren't prepared.

Sailing only really happens when it's windy, and when it's windy you get cold, and when it's wet and windy you can get REALLY cold. Not great on a sailboat that doesn't have heating!

You want a really decent raincoat when you're sailing, so that if the worst does happen you can still enjoy it.

Get a waterproof jacket that's also wind breaker. Even when it isn't raining you can still get really cold when you're out sailing, and a wind breaker jacket can make all the difference. As someone who used to sniff at 'wind proof' gear, Experience has made me a convert, and I don't sail with anything less.

Make sure it also has a hood. You will be so thankful for that, especially if there is spray coming over the boat. No one wants cold seawater running down their back on a rainy day!

If you're sailing in the height of summer, a hat and sunglasses can provide grateful relief from the strong sunlight, in occasional spray or rain waterproof foul weather overalls might be a little overkill. Still grabbing a cheap pair of waterproof trousers is recommended, just in case. Sailing is so much more comfortable when you have the right clothes for it.

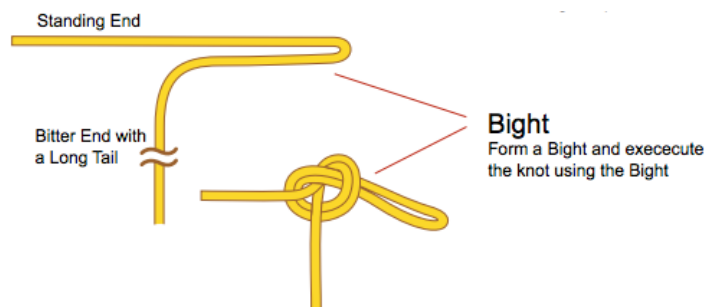
The best way to deal with the changing weather while you're sailing is to be prepared with lots of layers of sailing clothes. It can be bathing suit weather one minute and freezing cold the next.

Always bring a t-shirt, a long-sleeved top (preferably a thermal vest), a fleece top and then your raincoat that's windproof as your final layer. The fleece top is the perfect sort of layer for sailing as it's light and breathable, but will also keep you super warm.

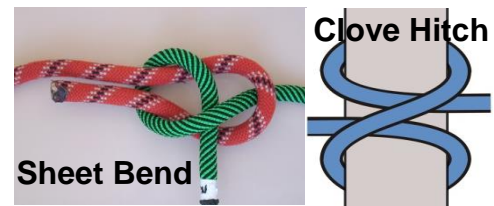
## 4.2 BASIC KNOTS

In order to understand an explanation on how to tie a knot some basic knot vocabulary is needed:

Line anatomy – Line typically has two ends the 'Standing Part' (or end) which is where the line is attached to a load (e.g., a boat) and the 'Bitter End' the free end that is not attached to a load. A 'bight' is formed when a line's "tail" is doubled over.

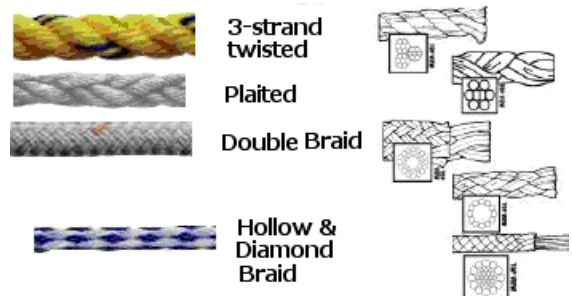


A 'Bend' generally refers to a knot used to tie two lines together, while a 'hitch' generally refers to tying a line to an object or to itself. However like English for every rule there're lots of exceptions.



Typical line types seen in boating are:

- 3-Strand used for dock lines and tow lines. It's the easiest to splice.
- Double Braid used for running rigging
- Plaited line is used for anchor rode.
- Hollow Braid is used with polypropylene life lines attached to Rescue Rings for throwing to persons in the water. Polypropylene will float making it easier to see in the water.



### Some Basic Knots:

1. **Figure Eight** – Sometimes referred to as a stopper knot, it makes a knot that won't slip out. Tied with a bight it also forms a secure, non-slip loop at the end of a rope. It's a common knot used by mountain climbers, but comes in handy for securing to a mooring.

<https://www.animatedknots.com/figure-8-knot>



2. **Square Knot** - Also called a reef knot, it's an ancient knot from old school mariners. It's a simple concept for securing a rope or



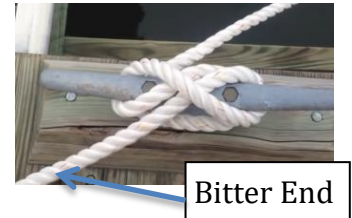
line around an object. It can also be used to join two ropes together. Put a bight in the second half of the square knot and you have a slipped reef knot.

<https://www.animatedknots.com/square-knot>

[https://www.youtube.com/watch?v=-EPGC\\_rp7tU&ab\\_channel=GuiadeN%C3%B3s-KnotsGuide](https://www.youtube.com/watch?v=-EPGC_rp7tU&ab_channel=GuiadeN%C3%B3s-KnotsGuide)

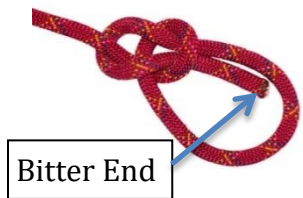
3. **Cleat Hitch** - Also referred to as a halyard knot. If you're working with a cleat, use a cleat hitch. It's a quick knot for securing your vessel/halyards, and it comes undone with ease. Easy on & off.

<https://www.animatedknots.com/cleat-hitch-knot-dock-line>



4. **Bowline** - A reliable choice that creates a fixed loop at the end of a line. It's a knot that won't jam and can be untied even under extreme tension. As long as it's under constant load the bowline won't slip, but under an intermittent load it can fail if the 'bitter end' is too short.

<https://www.animatedknots.com/bowline-knot>



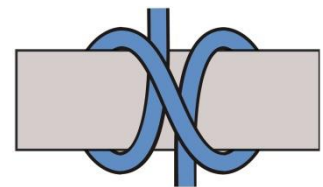
5. **Anchor Hitch** - Also called an anchor bend knot. If you don't use a chain and need to keep your anchor tethered to the anchor rode, this is the ideal choice. Once you've mastered it, it's a quick go-to choice.

<https://www.animatedknots.com/anchor-hitch-knot>



6. **Clove Hitch** - A quick temporary knot for tying moving objects to fixed ones or to secure fenders. Be careful, this knot can come undone if both objects aren't stable. A quick solution knot, made more permanent when finished with three half hitches.

<https://www.animatedknots.com/clove-hitch-knot-rope-end>



7. **Sheepshank** - A classic boating knot used to shorten a length of rope or take up slack. It's not a stable knot and will come undone under too much, or too little, load but it's a very handy for organizing and setting several lines you're working with.

<https://www.animatedknots.com/sheepshank-knot>



8. **Trucker's Hitch** - One of the most versatile knots there is, not just for boating but in many outdoor activities. Don't let the video intimidate you, it's quick and easy. It's a great knot for securing equipment into position and it utilizes a quick release to make unloading/changing out items efficient and simple. 1(a) Or some sailors have gone to the Alpine Butterfly Loop used the same way but much easier to untie after being under load.

<https://www.animatedknots.com/truckers-hitch-knot-quick-release>

<https://www.animatedknots.com/alpine-butterfly-loop-knot>



9. **Alpine Butterfly Knot** - The butterfly loop, also known as lineman's loop, butterfly knot, alpine butterfly knot, Swiss loop and lineman's rider, is a knot used to form a fixed loop in the middle of a rope. One advantage is it unties easily after a load than a slip knot when used in a truckers hitch.

<https://www.animatedknots.com/sheepshank-knot>



### 4.3 STOWING SAILS

On today's sailboats the sailor is handling a wide variety of sail materials from Dacron polyester with coatings to reduce porosity, improving performance, to Genoas made of a Mylar substrate supporting carbon fibers run along computer generated stress lines. All of these sail types are best preserved by stowing them away from the Sun's UV light, keeping them dry, and covered, to avoid collecting dust.

Something that sailors can do to maximize the life and performance of their sails is never to drag them across concrete, and never intentionally crease them. **AVOID BUNCHING OR FOLDING YOUR SAILS!** Sails will perform best and last the longest if they are rolled and not folded.

#### **Practice:**

When putting the Martin 16's sails away:

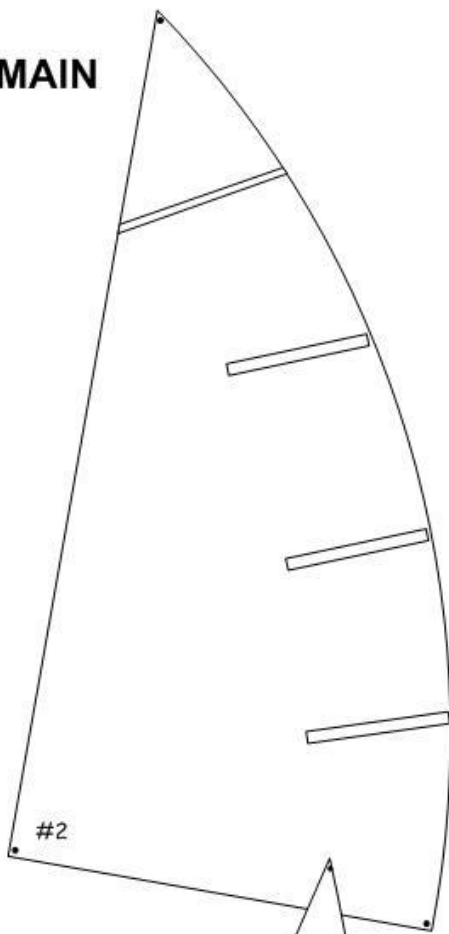
- Pull the head of the jib or main down to foot of the sail avoiding creasing the middle of the sail.
- Roll the sails loosely from its middle to the foot/head, a tube can be laid along the center of the Mainsail to facilitate rolling the sail being careful to keep the tube parallel to the battens. *(Why not roll from the foot to the head? You can, the only difference is the convenience of setting sail the next time boat is being rigged. When the sails are rolled from the middle then the head, tack, and clew can be attached without unrolling the sail. Once the halyard, tack, and clew are attached the sail can then be hoisted to unfurl it.)*
- Once both Main and Jib are rolled then put them together and slide them into the sail bag with the same number. All hulls, sails, and sail bags are numbered.

When you stow sails, they should not be set against or on anything that can corrode or rust as this can cause serious damage to a sail. **NEVER DRAG A SAIL ACROSS CONCRETE** since this can damage any coatings applied causing Dacron sails to become more porous allowing wind to go through the sail material rather than being deflected by the sail. Mylar sails are also sensitive to chafe causing damage to the high strength, low stretch fibers glued to the surface of the Mylar substrate. Stowed sails should be covered and protected from moisture, dust, chafe, and UV light.

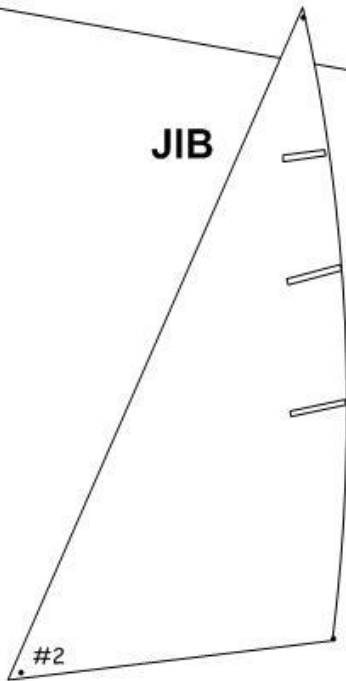
You will find that even on larger boats when sails are stowed, more and more they are being rolled and placed in long zippered sail bags, passed below, and placed in a bunk or on the floor to lay out with no folds. The only sails that are stowed in a bag in a wadded condition are spinnakers due to their large size and light material that does not lend itself to rolling (see illustration next).



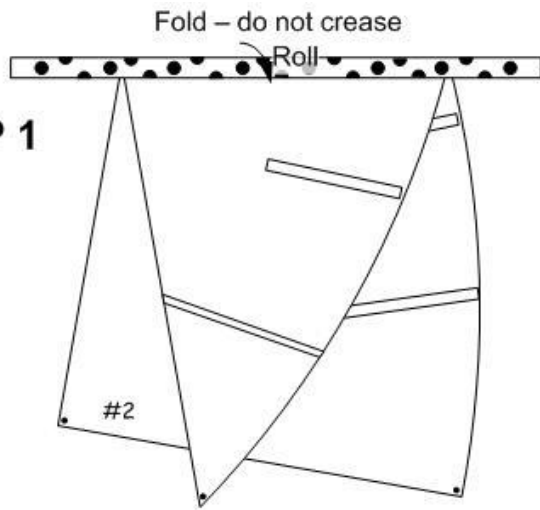
**MAIN**



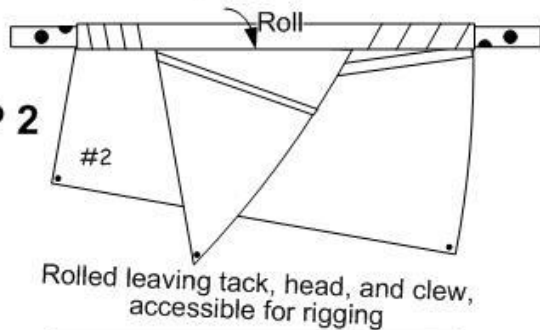
**JIB**



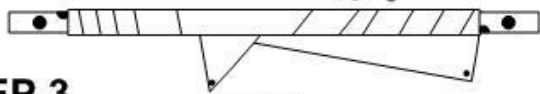
**STEP 1**



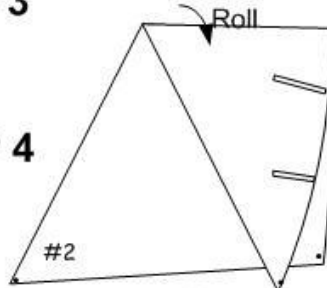
**STEP 2**



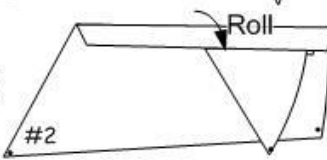
**STEP 3**



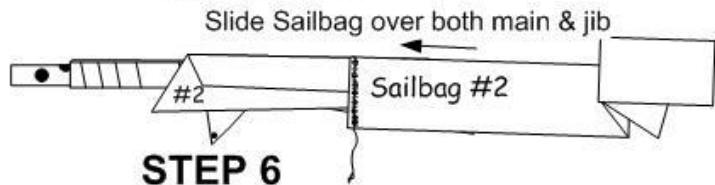
**STEP 4**



**STEP 5**



**STEP 6**



## 5 ENVIRONMENT

### 5.1 WEATHER

Excerpt from:

#### ***5 Things to Consider Regarding Weather***

#### ***BY: ASA LEARN TO SAIL, SAILBOATS, WEATHER***

At the core of all we do as sailors is one thing – weather. It's is our engine, our bliss or our most frightening adversary. Let's start with the basic ideas surrounding weather. Here's a little list of things to think about as it pertains to weather.

#### **Check the Weather**

The first thing to always remember is to simply check the marine weather forecast before leaving the dock. Of course, this is obvious, but so many sailors look out the window, see the sun, raise the main and off they go. The VHF has a dedicated channel that continually plays the weather forecast, and you can find National Oceanic and Atmospheric Administration (NOAA) local predictions for your area on the Web.

#### **Watch the Waves**

The behavior of the waves will tell a sailor quite a bit. Not all of us have anemometers but we all can keep our eyes on what's happening with wave action and understand how much wind is present. Knowing the speed of the wind is important in determining the proper sail trim. Here's what to look for:

5-knots of wind create small wavelets in the water.

10-knots of wind scattered whitecaps appear.

15-knots the wind forms significant waves – many of them with breaking tops.

20-knots the wind begins to kick up spray and life on the water can get a bit more intense.

And, don't forget another source for waves, Power Boat Wakes, Be Aware and Take on Wakes at a 45 degree Angle!

#### **Dress for Success**

Always keep or bring clothing that accommodates a change in weather. Dress in layers, it's easy to look outside, in El Cajon, see a burning sun and forget that the Marine Layer can have San Diego Bay socked in with clouds. Being underdressed can compromise the mission. Have the right clothes and keep them on hand so your day on the water is comfortable!

To read more: <https://asa.com/news/2021/03/30/5-things-to-consider-regarding-weather/>

## 5.2 OFFSHORE AND ONSHORE WINDS

A sea breeze or onshore breeze is any wind that blows from a large body of water toward or onto a landmass; it develops due to differences in air pressure created by the differing heat capacities of water and dry land. As such, sea breezes are more localized than prevailing winds. Because land heats up much faster than water under solar radiation, a sea breeze is a common occurrence along coasts after sunrise. By contrast, a land breeze or offshore breeze is the reverse effect: dry land also cools more quickly than water and, after sunset, a sea breeze dissipates and the wind instead flows from the land towards the sea. Sea breezes and land breezes are both important factors in coastal regions' prevailing winds.



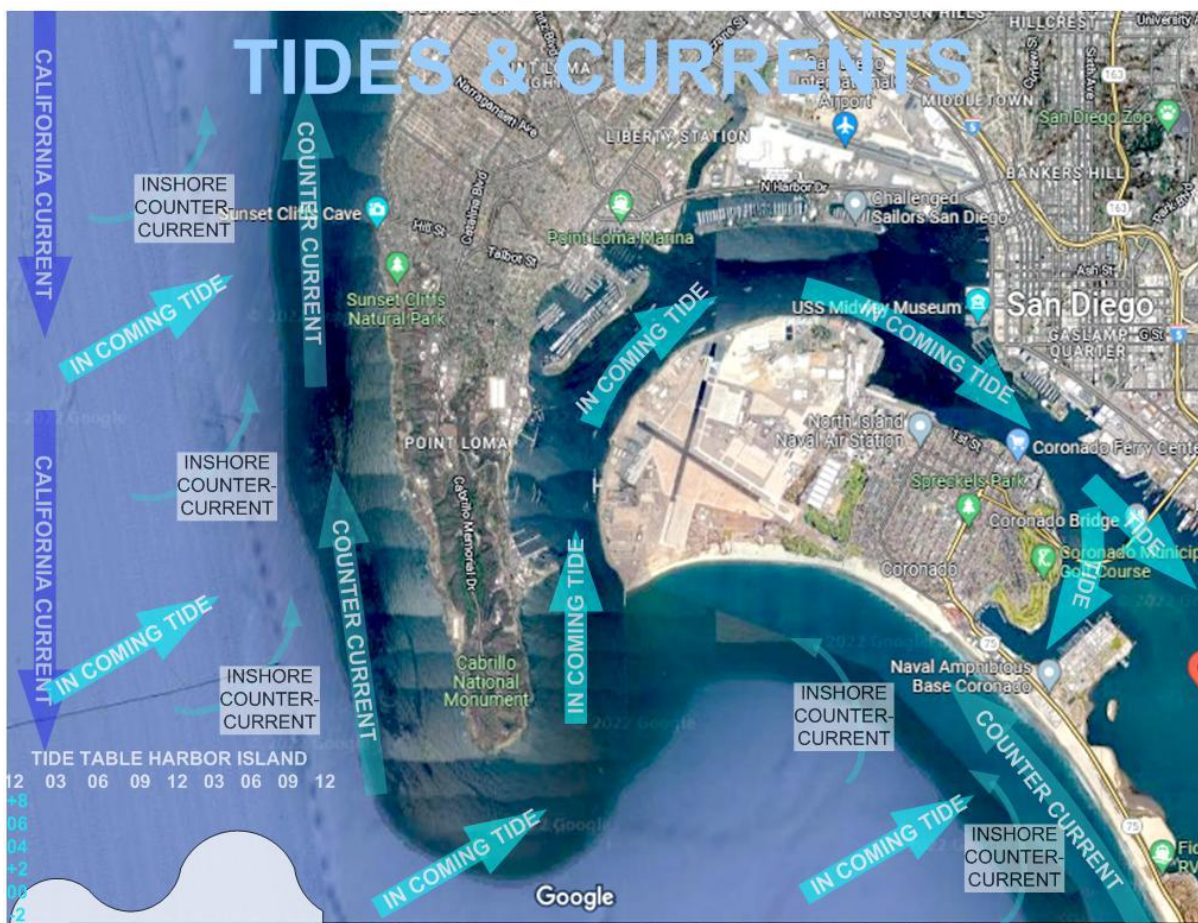


### 5.3 TIDES AND CURRENTS

In San Diego the Tides occur in a semi-diurnal cycle (twice a day) occasionally causing 'King Tide' currents up to 3 knots to flow in and out of San Diego Bay. Offshore the California Current transits from north to south at roughly .68 mph with diurnal fluctuations due to the tides. In addition there is a California Inshore Counter Current that moves north. These currents are responsible over centuries for the formation of the Silver Strand enclosing San Diego Harbor with sediments primarily from the Tijuana River.

Due to a strong north to south average wind circulating along the coast of California combined with the Earth's Coriolis affect causes an upwelling current that brings nutrient rich water from the deep ocean to the surface along the California Coast. This is why the Gray Whales follow the Coastline to their breeding grounds along the Baja Peninsula rather than take the shorter direct route from their feeding grounds in Alaska.

The California Current and prevailing winds from the North contribute to a prolific yacht delivery business on the West Coast. Yacht owners enjoying sailing south downwind and down current but prefer to hire Captains to return their yachts north to their homeports.



## 5.4 AIDS TO NAVIGATION

Refer to: <https://pacificarea.uscg.mil/Our-Organization/District-13/District-Staff/-dpw/-paton/>

## 5.5 CHARTS

Navigation Charts are something every sailor ought to be familiar with. If you own your own keelboat and plan to sail outside of your local sailing area, or want to know more about the area that you currently sail in then a local chart is essential. A Chart Book can be purchased that covers the local area and has the charts bound for convenient use. There are many symbols and abbreviations on a chart and getting familiar with some of them is important. The comprehensive reference is called Chart One and can be found at this link online

(<https://msi.nga.mil/api/publications/download?key=16694005/SFH00000/ChartNo1.pdf&type=view>). However charts will have applicable symbols and abbreviations printed on the chart for the area the chart covers. NOAA now offers custom printed charts with an application produced by ESRI.

CSSD sails in an area confined enough and with adequate visibility that a chart is not required.



## 6 SAFETY

### 6.1 COLD AND HEAT EFFECTS

#### ***An excerpt from an article in Sailing World***

#### **Sailing, Body Heat Regulation - Spinal Cord Injury**

**by Lynn Fitzpatrick on 11 Oct 2007**

A normal, healthy human is able to maintain a constant body temperature of approximately 98.6F despite the temperature of the environment.

As we saw in this week's Chicago Marathon, even an elite athlete's body can overheat to the point of no return. Barely functioning body heat regulation for a sailor with a spinal cord injury is a consequence that many able-bodied people don't think about.

Most people with complete spinal cord injuries do not sweat below the level of the injury. This means that they need to monitor and control their environmental conditions.

If you remember your science class on cold blooded animals, you'll remember that these animals have an inside body temperature that is controlled by the outside temperature of the environment.

Blood vessels do not dilate and contract appropriately to enable the person with a spinal cord injury to cool down or conserve heat in the same manner of the rest of us. The nerves that used to allow messages to fire back and forth telling blood vessels to dilate or constrict, are damaged and interrupted.

A comfortable range for many of our sailors with spinal cord injuries is 70-80° Fahrenheit.(21-27 centigrade.)

Once the outside temperature rises above 90° Fahrenheit (32 degrees centigrade), especially when the humidity is high, the body temperature will begin to rise and they will develop elevated body temperatures. Loss of energy and general malaise are symptoms that if left untreated may lead to heat stroke. Likewise, in cold conditions, they have a tendency to become hypothermic.

Many of our sailors with spinal cord injuries know their 'safe window' in terms of their exposure at different temperatures and humidity levels and team mates and coaches have to pay close attention to symptoms and comfort levels.

As this week's US Olympic and Paralympic Sailing Trials go on, the physical and psychological demands of a long regatta will affect everyone differently.

All of us must appreciate the added demands on our sailors with spinal cord and other injuries as they race for the opportunity to represent their countries US in Qingdao, China next year where the hot Qingdao Tiger roars through the end of August and then it starts to cool down.



## 6.2 ELECTRICAL

### ***An excerpt from a BoatUS article***

<https://www.boatus.com/expert-advice/expert-advice-archive/2015/july/power-line-hazards>

According to the U.S. Coast Guard, should your boat come in contact with a power line, don't jump into the water. The electrical charge may pass through your boat and electrify the surrounding water. The safest approach is to stay in the boat and avoid touching anything metal. Leave the boat only after it has moved away from the line.

It's not just on the water where power lines can be dangerous. BoatUS claim files show that other boats have hit power lines while at launch ramps. A few years ago a Seaworthy editor was pulling his 22-foot sailboat out of a boat ramp at a small lake in Washington state after a sail with his family. He brought the boat to the staging area to lower the mast and prep the boat for the road when he was startled to hear what sounded like angry bees near the top of his mast. The sound it turned out was not from angry bees, but an angry high-voltage line that was not far from the top of the boat's aluminum mast. The boat was quickly moved away from the power line and the mast lowered. If anyone had been touching the mast and the electricity jumped from the line, they could have been electrocuted. The small-boat ramp was not designed with sailboats in mind; a boat with even a slightly taller mast could have created a disaster.

Look up and carefully scan the area for power lines before raising your mast — and don't forget to check again as you bring the boat out of the water. Older launch ramps are more likely to have low power lines that can snag an unwary sailor.

Apply the same rules used at home for internal electrical systems on boats. Turn off the circuit if you plan on working on an electrical circuit.

For boats large enough to “Bond” the mast, rigging, lifelines, motor, and electrical system ground should be tied to an external zinc electrode. Do not tie hot AC return or even a DC return to the Zinc since it is possible to electrify the water immediately around the boat making it dangerous for swimmers. Bonding the boat's metal to an external zinc can reduce electrolysis of certain metals onboard as well as direct a lightning strike's current to the water via the zinc electrode.

To complete connections between these components for the purpose of bonding, the conductors should be a minimum of #8 AWG. If doing double duty as a lightning-protection system, they must be a minimum of #6 AWG.

*Overhead wires are not a concern at CSSD's current location. However, when handling the Martin 16s at host locations caution must be exercised to be safe.*

### 6.3 GROUNDING

No, this is not referring to electricity rather the contact of your keel to the bottom. Do not test the depth beyond narrow channel markers by sailing past the line of buoys. In the channel leading to the CSSD docks the shore side beyond the buoys has a steel barrier and rocks just beneath the water. This barrier does not show until a very low tide.

Be wary of lee shored any change in water color should be met with suspicion and the prudent skipper will turn away towards deep water!

Due to the small size of our Martin 16s we do not carry anchors and our purpose does not include stopping anywhere but at our home docks so our participants and volunteers should focus on sailing the boats in deep water away from the shorelines.



## 6.4 ANCHORING

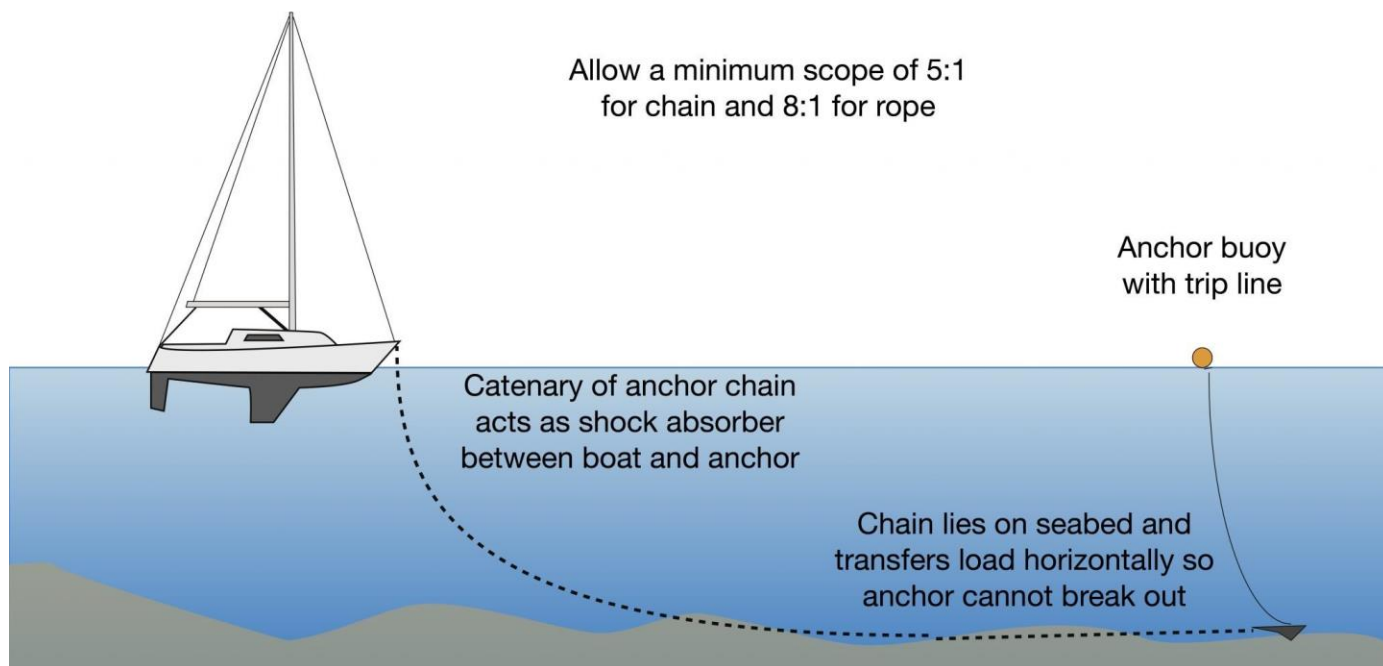
After the boats are launched you may find yourself as crew on the Chase Boat, and need to anchor. You will find the anchor in the plastic Milk Crate and it will have limited effective depth, perhaps 20 feet. For a temporary anchoring, say as Race Committee, you'll need about 60 feet of rode plus the chain and anchor for 3 to 1 scope. If there's a current, choppy conditions, or strong wind you may need more scope, 100' for 5 to 1, or optimally 8:1 scope if there's that much (160' for 20' of depth) 'rode' onboard. Remember to count freeboard into depth.

Once the anchor is dropped and the boat is backed up some distance, then wait until the end of the rode is reached and the anchor starts to set. Put your hand on the 'rode' outside the boat and feel as the anchor digs in and sets. If you feel movement then your anchor is not setting and you may need more rode. I suggest paying out rode in one depth increment at a time (e.g., 20 feet for 20 foot depth) then feeling the rode to see if the anchor sets.

To take up the anchor, take in the rode pulling/motoring the boat forward until the rode is vertical. If the anchor is free then haul it in rinsing it a few times before bringing onboard. If the anchor isn't free then run the rode around the bow cleat and take the slack out letting the bobbing of the boat break it free and once free haul it in, rinsing before bringing aboard.

If the anchor feels caught on something ease a few feet of rode and cleat it off then motor in a circle. The rotating orientation should free the flukes from whatever it's caught on, then haul it up. The best practice is to attach a Trip Line to the crown of the anchor.

If your engine stops and will not start, lower the anchor to avoid grounding, then radio for assistance.



## 6.5 EQUIPMENT LIST

### Required by Law:














- Life Jackets
- Navigation Lights (night use only)
- Sound Signaling Devices
- Visual Distress Signals (Coastal Waters Only)
- Throwable Type IV Life Preserver (boat cushion)

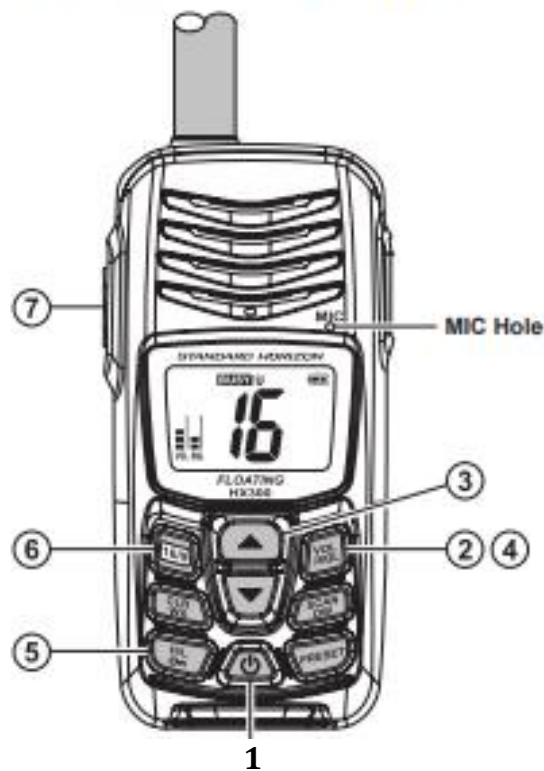
### Recommended:

- Cellphone
- VHF Radio
- Sunscreen
- Foul Weather Jacket
- First Aid Kit
- Water
- Sweet Snack
- Knife
- Spare light line
- Flashlight

## QUICK REFERENCE GUIDE

This transceiver is equipped with the E2O (Easy-To-Operate) system. You can do the basic operation in numerical order of the illustration below.

- ① Press and hold the  key to turn on or off the radio.
- ② Press the  key ("VOL" indicator blinks), then press the  /  key to adjust the speaker audio volume.
- ③ Press the  /  key to select the operating channel.
- ④ Press the  key two times ("SQL" indicator blinks), then press the  key to squelch or press the  key to un-squelch the radio.
- ⑤ Press the  key to toggle the transmit power between High (5W) and Low (1W).
- ⑥ Press the  key briefly to recall channel 16.  
Press and hold the  key for two seconds to recall channel 9.  
Press the  key again to revert to the last selected channel.
- ⑦ Place your mouth about 1 inch (2.5 cm) away from MIC hole and speak in a normal voice level while pressing the **PTT** switch.



## 6.7 FIRST AID

When sailing as a Companion or Participant, you will be exposed to the elements wind, water, and sun. These elements create conditions that are called 'exposure' and lead to taxing of the body's regulatory systems. This can lead to exhaustion, hypothermia, or hyperthermia.

Both Companions and Participants should be aware of their limitations and when its apparent the limits are getting close, it's time to go back to the dock. Don't forget it takes time to return to the East end of Harbor Island, reach the channel entrance, and sail up the channel and fairway to reach the dock.

Once it's evident that the Participant is experiencing being chilled, or overheated begin to treat immediately with what's at hand. Heaving to can be done in order to don a jacket or remove a layer (and immediately don the lifejacket again) should be done. If that resolves the problem and the participant decides to continue to sail, the Companion should insist that the Participant sail in the vicinity of Harbor Island's East End. If the Participant begins to experience symptoms of exposure again then it's time to head in. Contact the Chase Boat on VHF that you're heading back to the dock. The CB will follow you up the channel to ensure safe passage to the Dock. If Dock Support is available the CB will then head back out to continue escorting the other Martin 16s out, or if no Dock Support is standing by, the CB will act as Dock Support until its determined that the Participant is fine or receiving the assistance needed.

Other aid that can be rendered on the water is providing water to anyone that is dehydrated, application of sunblock, and putting band aids on cuts. If more serious problems present themselves don't hesitate to use the VHF to notify the Chase Boat. If it's possible to sail back safely then do so, otherwise arrange to be towed. If the problem is extreme then use Channel 16 to notify the Coast Guard.

An excellent and well-illustrated First Aid Manual can be found at this link:

[https://www.redcross.org/content/dam/redcross/atg/PDFs/Take\\_a\\_Class/FA\\_CPR\\_AED\\_PM\\_sample\\_chapter.pdf](https://www.redcross.org/content/dam/redcross/atg/PDFs/Take_a_Class/FA_CPR_AED_PM_sample_chapter.pdf)



## 6.8 SIGNALING HELP

First thing you can do on the Martin 16 is to call the Chase Boat on the VHF Radio. If that doesn't work you can signal for help by lowering your mainsail. This will make you less visible at a distance but once the Chase Boat sees you they will come over to determine why your sail is down. Next try calling the Dock Leader on your cellphone. If none of these methods work, you can dial 911 and explain your predicament and they will either send the Harbor Patrol or the Coast Guard.

If the Chase Boat is within view but not answering your radio call you can simply raise your arms and begin to wave them slowly overhead, which is an international sign of distress. You may attract a boat that is not affiliated with Challenged Sailors San Diego. If the situation is dire enough then allow them to render assistance or attempt to call for assistance.

### **U.S. Coast Guard-approved pyrotechnic Visual Distress Signals include:**

- Pyrotechnic red flares, hand-held or aerial
- Pyrotechnic orange smoke, hand-held or floating
- Launchers for aerial red meteors or parachute flares

### **US Coast Guard approved non-pyrotechnic Visual Distress Signals:**

Must be in serviceable condition, readily accessible, and certified by the manufacturer as complying with U.S. Coast Guard requirements.

#### **Orange Distress Flag**

- Used as a day signal only. Must be at least 3 x 3 feet with a black circle and square on an orange background. Must be marked U.S. Coast Guard approved.
- Most visible when attached and waved on a paddle or boat hook, or flown from a mast.
- May be incorporated into devices such as balloons, kites, or floating streamers.

#### **Electric Distress Light**

- Acceptable for night use only
- Automatically flashes the international SOS distress signal ( ...---... )
- Must be marked with an indication that it meets U.S. Coast Guard requirements.

### **VHF Radio:**


In emergency situations there are three phrases that you might hear on a VHF radio:

**MAYDAY** - distress signal requires the most urgent response. This signal is only to be used when a person or boat is threatened by grave or imminent danger, and requires assistance.

**PAN-PAN** - (pronounced pahn-pahn) used to signal urgent information, like when someone has fallen overboard, or a boat is drifting into shore or a busy shipping channel. If your emergency isn't immediately life threatening, say Pan-Pan instead of Mayday,

**SECURITE** - (pronounced sea-cur-i-tay) is the safety signal. This is used to transmit information about the safety of navigation.

## 7 DOCK LEAD CHECK-OUT LIST

<b>CSSD DOCK LEAD CHECK-OUT</b>		
<b>DATE:</b>		
<b>CANDIDATE DOCK LEAD:</b>		
<b>CHECKOUT BY:</b>		
<b><u>ACTIVITY</u></b>	<b><u>P/F</u></b>	<b><u>COMMENTS</u></b>
<b><u>DEMONSTRATE KNOWLEDGE</u></b>		
1. Check Weather, Wind, and Tide and include in Presail Brief.		
2. Ensure all Participants have adequate assistance for their needs.		
3. Ensure everyone is wearing a life jacket prior to going down to the Docks.		
4. Ensure CBO hands out parking passes to participants.		
5. Provide document of sailors assigned to each Martin before they leave dock. (give this to the Chase Boat Operator)		
6. Obtain a VHF Radio ensure all boat companions, obtain and return VHF Radios for their boats.		
7. Check all radios and request all Companions perform a radio check in with the CB as they leave dock.		
8. Ensure that all boats are correctly rigged before launching.		
9. Ensure everyone is safely boarded and oversee Hoyer Lift Operation.		
10. Oversee the safe return of all boats to the dock.		
11. Oversee secure docking and stowing of all boats and their sails.		
12. Log any maintenance requirements in the Dock Lead Log.		
13. Oversee PAU deployment, stowing and return to Locker.		
14. Ensure all CSSD equipment is properly stowed in the boats, dock boxes, and Locker as appropriate.		
15. Ensure Locker is locked before leaving.		
<b><u>ADMINISTRATIVE &amp; MISC</u></b>		
Sign CSSD waiver		
Discuss & explain what to do in emergency situation		
General discussion & comments		