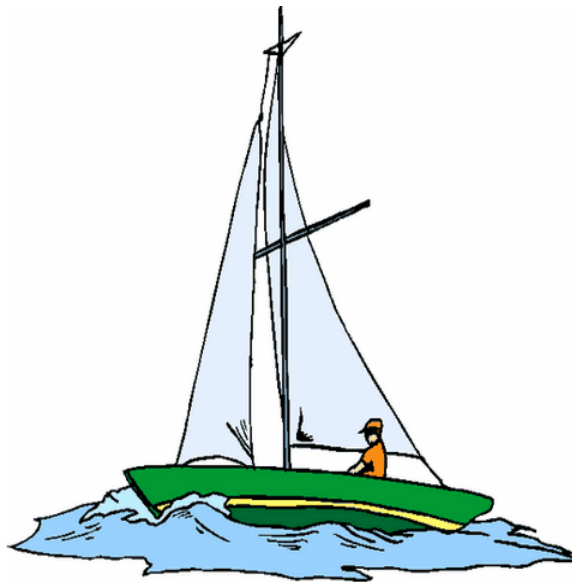


# Junior Program

## Advanced Helmsman Packet



REV: 6-29-2009

# Welcome to RPCS Junior Membership Program!

## *Introduction and Overview*

RPCS Junior Program is designed to bring sailing and sailing instruction to young people who have demonstrated an interest in becoming proficient sailors. The Junior Program operates from late June through mid – August, Monday through Friday from 9:00 – 4:00. The Junior Program (JP) is similar to the Camp in that there are lessons and other activities offered regularly. But the JP is DIFFERENT from Camp in several ways;

- Junior Program kids ARE NOT supervised all of the time. They are expected to be on time for classes, but other than that they may come and go as they please.

Junior Members have responsibilities and privileges relative to the level of certification they have achieved. Junior Program levels of certification are as follows;

- Mate (beginner level)
- Helmsman
- Advanced Helmsman

Junior Members who have earned their Helmsman certification are welcome at Regatta Point as long as they are sailing, learning about sailing or otherwise being productive. Junior Members who have earned Helmsman certification are allowed to sail at any time during JP hours (priority goes to JP Members) and also during Adult Program hours on a “boat available” (priority goes to AP Members) basis. Junior Members who have not earned their Helmsman certification should plan to be here during class time only.

All RPCS Childrens Programs operate under the principles of “Safety, Fun, and Learning”. “Safety” means that we will use the best waterfront practices at all times. Safety also means that we all work together to create an environment which allows everyone to feel safe. “Fun” enhances our learning environment and is therefore encouraged, fooling around is not safe in a waterfront environment and therefore not allowed. “Learning” reminds us that our primary purpose at RPCS is to learn about sailing. Ever Junior Member is expected to set and work toward learning goals.

It is every Junior Member’s responsibility to ensure that these principles are implemented at all times.

Field trips may be planned for Junior Members who have achieved Helmsman certification. Junior Members may also participate in racing, or apply for our Instructor in Training (IIT) Program. Many of our current instructors have come right out of the IIT Program.

Junior Members who are Helmsman may invite friends or family members to come and sail with advanced permission from JP Staff and a signed waiver.

Junior Members are expected to participate in fund raising activities.

## *Becoming a Junior Member*

You can be a Junior Member if you are 13 years old and a competent swimmer. Download the application from our website [www.regattapoint.org](http://www.regattapoint.org), fill it out and mail or bring it in. Junior Program rates are \$125 for each session or \$200 for the year.

*Classes, Clinics, and Certification Process*

Junior Members become certified in the following areas;

- Helmsman
- Escape
- Kayak
- Jib
- JY
- Daysailor
- Laser
- 420
- Catamaran
- Spinnaker
- Advanced Helmsman

Members who are not certified in a given boat or sail may sail in that boat or with that sail with a certified member only.

Certification is achieved as follows;

- Attend class on topic (clinic)
- Practice in class
- Log practice time (out of class)
- Take written test
- Take practical test

IIT's are available to coach Junior Members who have attended the clinic and need extra help.

*Class Schedule*

	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 – 11:00	Beginner	Beginner	Beginner	Beginner	Beginner
10:00 – 1:00	AdvBeg/ Helmsman	AdvBeg/ Helmsman	AdvBeg/ Helmsman	AdvBeg/ Helmsman	AdvBeg/ Helmsman
10:00 – 12:00	Intro to Racing	Intro to Racing	Advanced Racing	Advanced Racing	
1:00 – 3:00	Beginner	Beginner	Beginner	Beginner	Beginner
1:30 – 3:30	Advanced Helmsman	Advanced Helmsman	Advanced Helmsman	Advanced Helmsman	Advanced Helmsman
3:30 – 4:30		IIT	IIT		

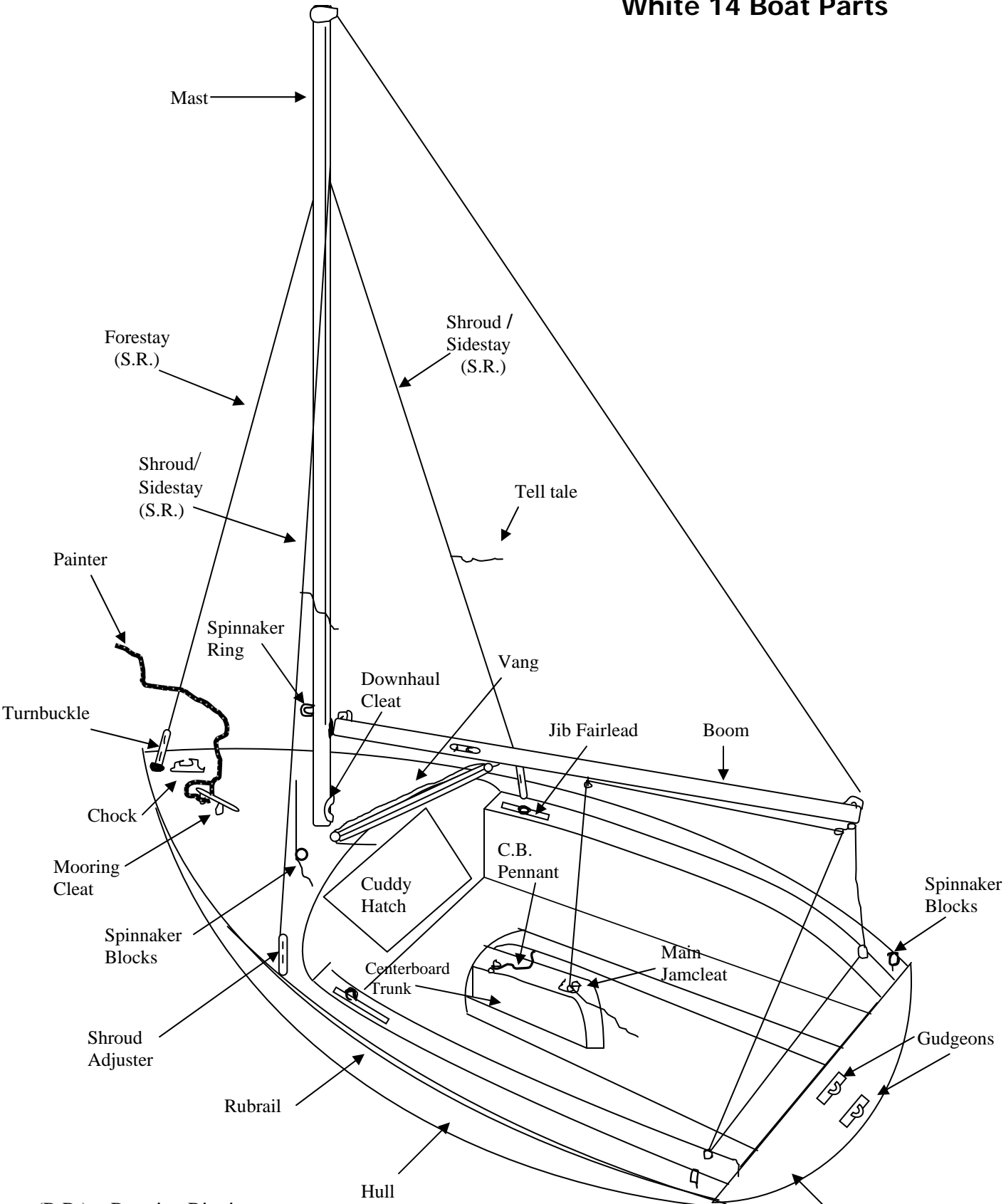
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# Junior Advanced Helmsman Syllabus

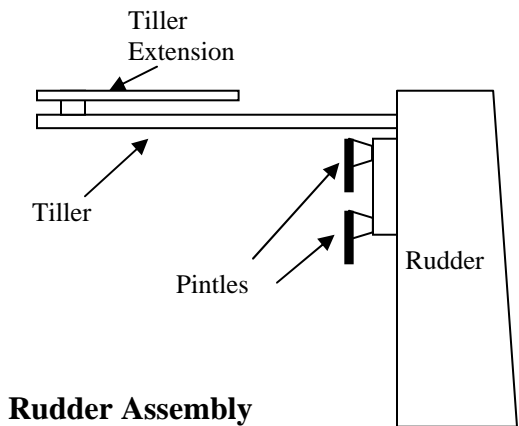
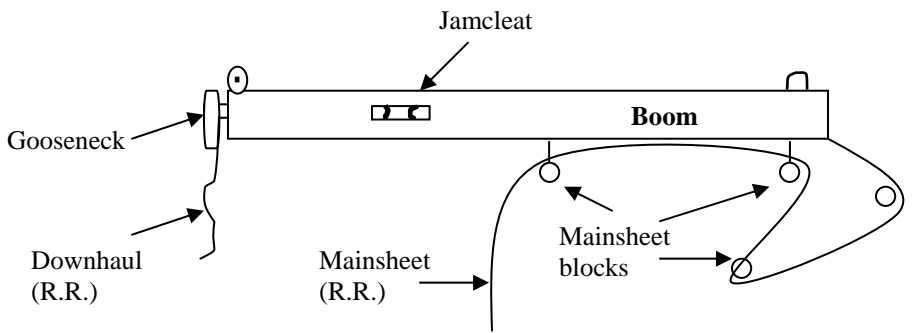
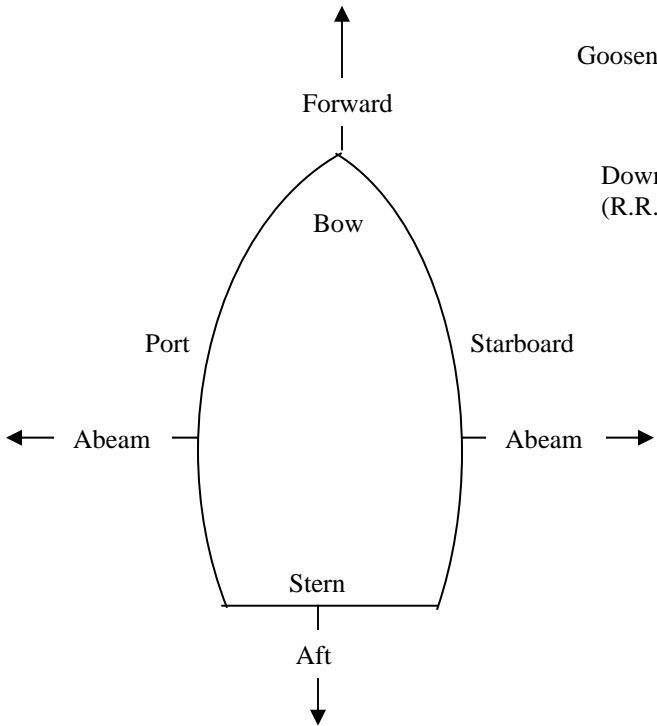
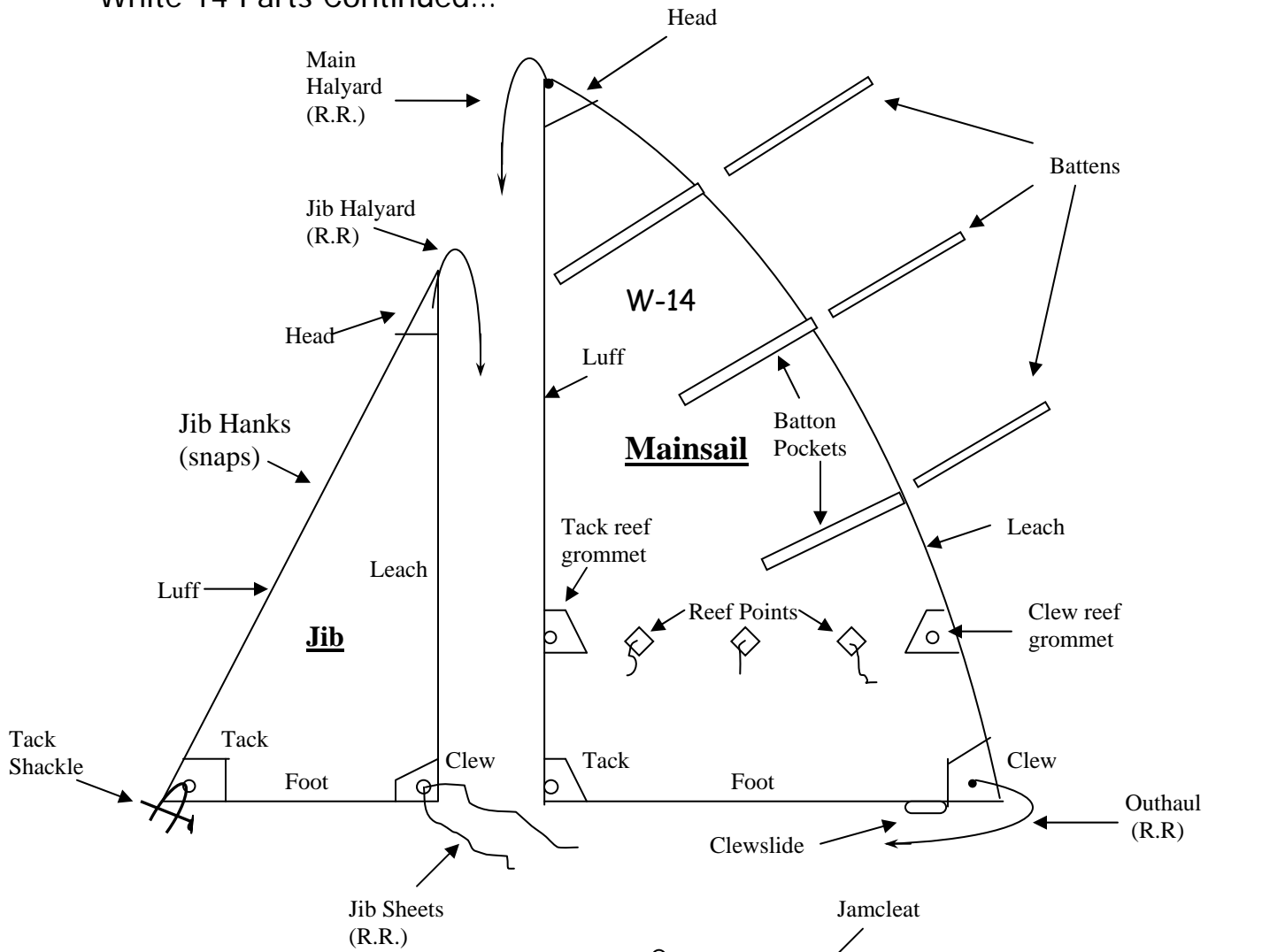
1. Parts:
  - a. Know all of the parts of a White 14 sloop and be able to identify all parts of the standing and running rigging.
  - b. Identify the types of anchor
  - c. Identify the types of boats
  
2. Jib Use: Show how to:
  - a. Rig a jib correctly, set luff tension properly, and adjust the sheet leads for wind conditions.
  - b. Back wind a jib to get out of stays and to assist in coming about in heavy weather.
  - c. Sail close hauled using a jib with and without luff telltales
  - d. Reach and run with a jib
  - e. Roll and furl a jib and main sail correctly
  - f. Demonstrate proper boat balance
  
3. Mooring: Demonstrate:
  - A. Bring a boat to a stop, in stays with the buoy at the bow and no further aft than the sidestays
  - B. Sail a keelboat into the dock and make fast
  
4. Keelboat Theory:
  - a. How keelboats differ in handling from centerboard board boats.
  - b. How to approach, board, and rig a moored boat
  - c. How to leave a mooring leaving the dinghy at the mooring
  - d. Demonstrate b & c using the O'Day 20
  
5. High Performance
  - a. Know how to rig and use the following:
    1. Cunningham
    2. Outhaul
    3. Boom Vang
    4. Compression Batten
  - b. Explain what is meant by planing and how to initiate planing
  - c. Know the life preserver rule
  - d. Know how to use suction bailers
  - e. Know how to rig
    1. JY 15
    2. 420
    3. Laser
    4. Force 5
    5. Catamaran
  - f. Capsize recovery
  
6. Line work:
  - a. Tie
    1. cloverhitch
    2. bowline with a bight
    3. buntline hitch
    4. Sheet bend
    5. anchor bend
  - b. Splice
    1. eye splice
    2. short splice
    3. back splice
    4. whip a line
  
7. Spinnaker Handling
  - a. Demonstrate how to pack, rig, set, jibe, and dowse a spinnaker
  - b. heave a weighted a line 40 feet, and return to a proper coil
  
8. Adv Helm Project Come up with an idea that makes the boathouse a better place. It must be something that you will take pride in accomplishing.

# White 14 Boat Parts

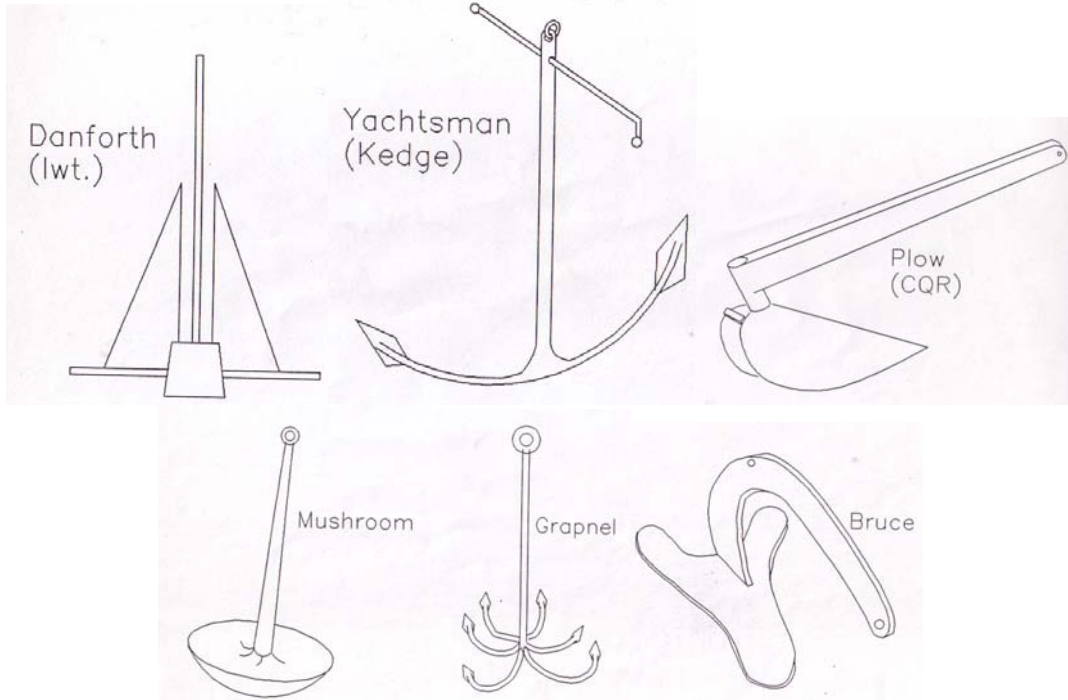


(R.R.) = Running Rigging  
 (S.R.) = Standing Rigging

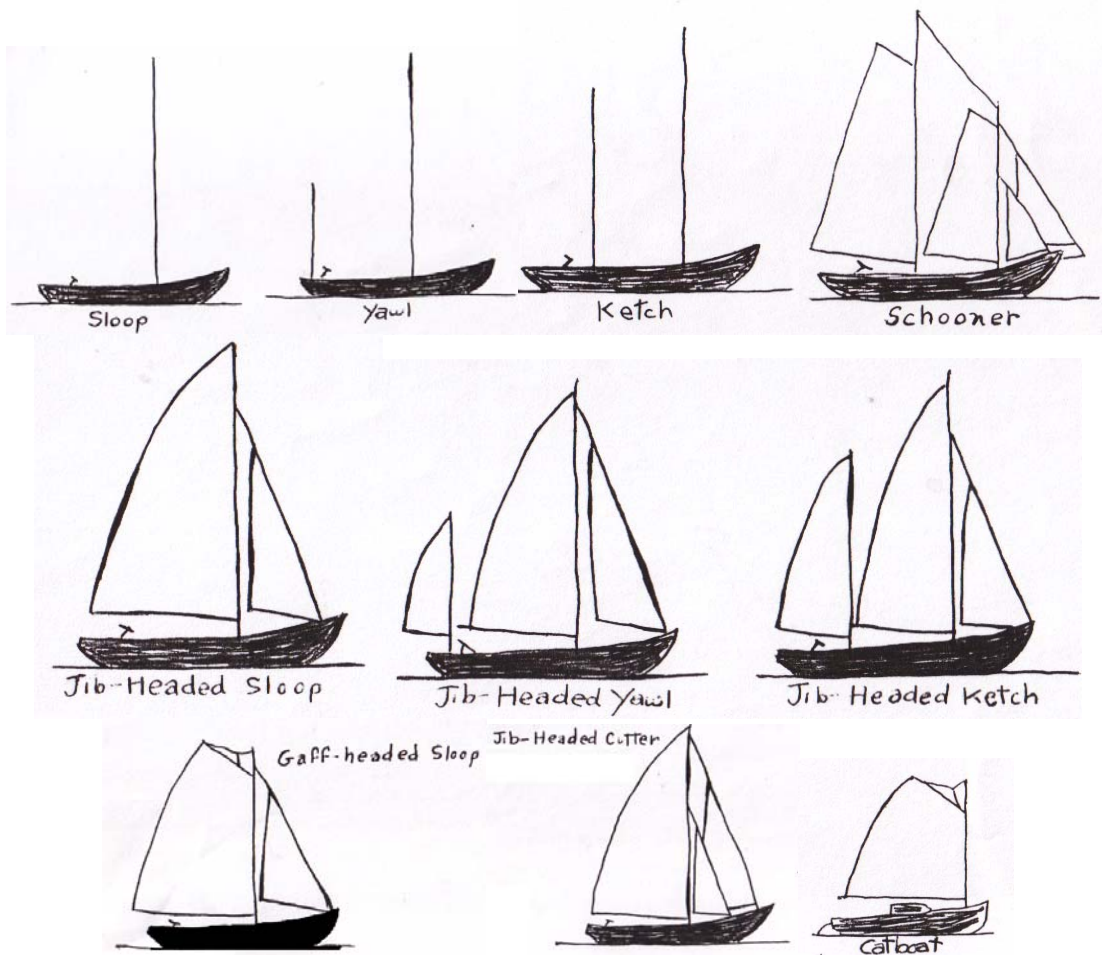
White 14 Parts Continued...



## Types of Anchors

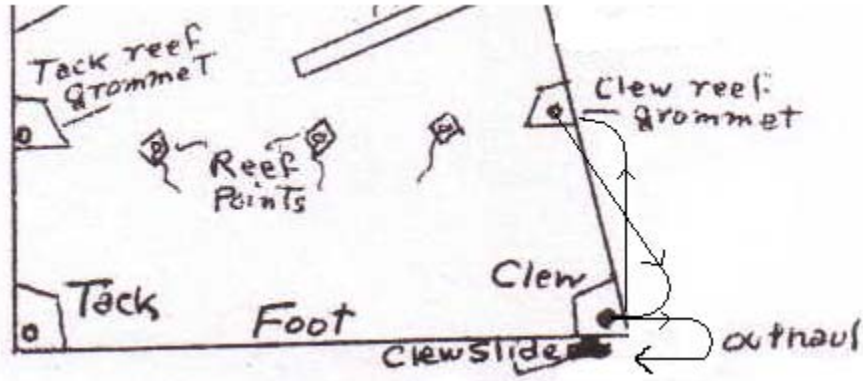


## Boat Identification



## White 14 Sailing

- Main Reefing –
- 1.) attach the tack reef grommet
  - 2.) leaving the clew slide in the boom, loop the outhaul through around the clew reef grommet back to the clew and to the outhaul pulley, ( see picture )
  - 3.) attach in the normal fashion
  - 4.) roll up the excess sail and tie the reef lines around with square knots



- Main Furling –
- 1.) pull down the sail, leaving the foot attached
  - 2.) attach the main halyard to the end of the boom
  - 3.) roll the sail from the head down to the foot
  - 4.) wrap the main sheet around the sail and boom using half hitches

- Jib Furling -
- 1.) leaving the sail up and sheets attached, roll sail from the leach into the luff ( see picture to the left )
  - 2.) disconnect the bottom hank from the forestay, twist it around the rolled sail and reattach it to the forestay



## White 14 Sailing – Jib Usage

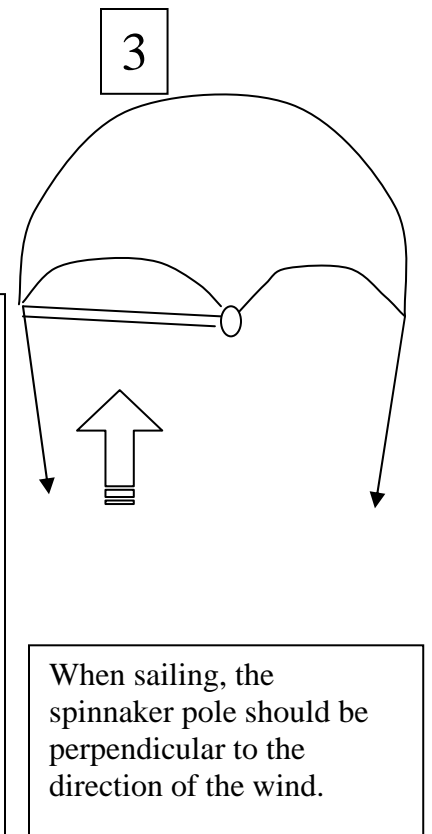
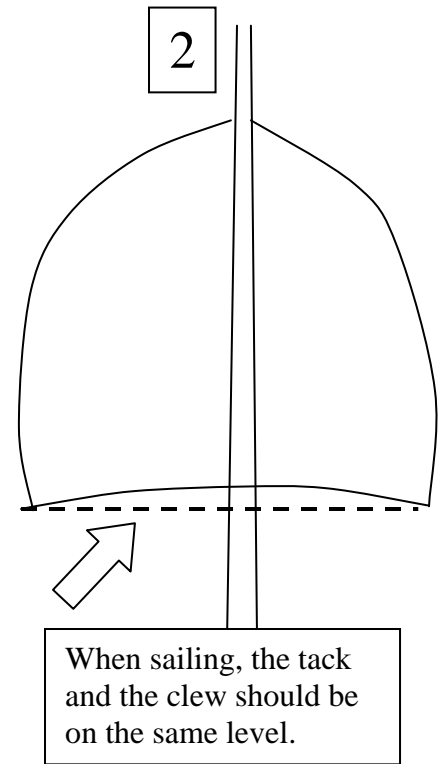
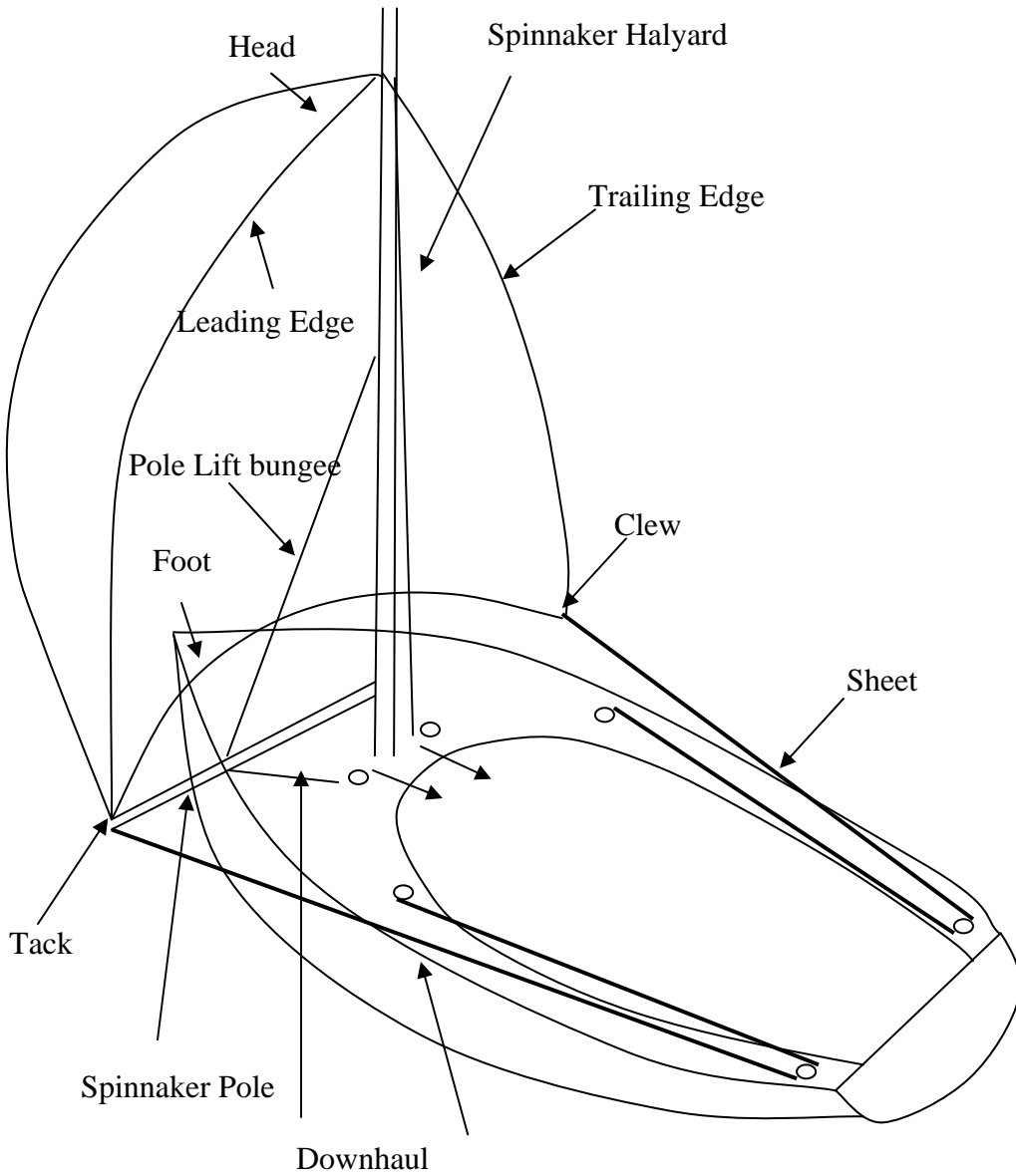
As the crew:

1. you must keep the jib from luffing by the constantly tweaking the curve of the sail by either pulling in or letting out using the sheets.
2. you should also note that the jib should never be pulled so tight that the sail becomes flat. There should even be a slight foil when sailing close hauled.
3. The crew should also notice the telltales located on the windward and leeward sides. If the jib is set correctly they are both streamlined. If the windward tale is fluttering up hall in on the jib sheets. If the leeward is fluttering let the jib out.
4. When tacking, the crew should backwind the sail to aid in bringing the bow through the wind.

As the skipper:

1. Use a tiller extension. This enables the skipper to the jib luff telltales.
2. When sailing wing-on-wing, keep the jib on the windward side of the main. The skipper should hold out the jib sheet outside of the side stays while the crew holds the boom out.

# Spinnaker Theory



**Rigging** – run the sheets outside of everything and into the lee of the mainsail. Make sure the spinnaker halyard is not tangled. Store the sail in the spinnaker bucket and ensure there are no tangles or twists.

**Setting** – Hoist the spinnaker under the mainsail as you bear off onto a reach or run.

**Sailing** – Make the pole perpendicular to the wind using the guy; let the sheet out until the trailing edge begins the curl over then pull it in until it stops. Use the pole downhaul to raise or lower the pole ensuring the clews are at the same level.

**Jibing** – unhook the pole from the mast and hook it to the sheet; jib the main then disconnect the pole from the old guy and attach it to the mast. Readjust the spinnaker

**Takedown** – grab hold of the sheet, let go of the guy and grab the two clews finally release the halyard and pack the sail back into the launching bucket.

# Boat Balance Theory

## *Lee Helm and Weather Helm*

CE = Center of Effort

CLR = Center of Lateral Resistance

CE or Center of Effort is the point where wind forces are centered in the sails.

CLR or Center of Lateral Resistance is the point on the hull where the forces directed to the side of the hull are centered.

These points are not fixed or stationary but keep moving. Their movements depend on the position of the sails, strength of the wind, forces of waves and direction of sailing.

When the CE and CLR are in a theoretical line, working in harmony, a craft is in balance.

When the CE is forward of the CLR a craft will have a lee helm. There is a turning moment away from the wind. When the CE is aft of the CLR a craft will have a weather helm. There is a turning moment toward the wind. The further the CE and CLR are apart, the greater the helm and stronger the turning moment.

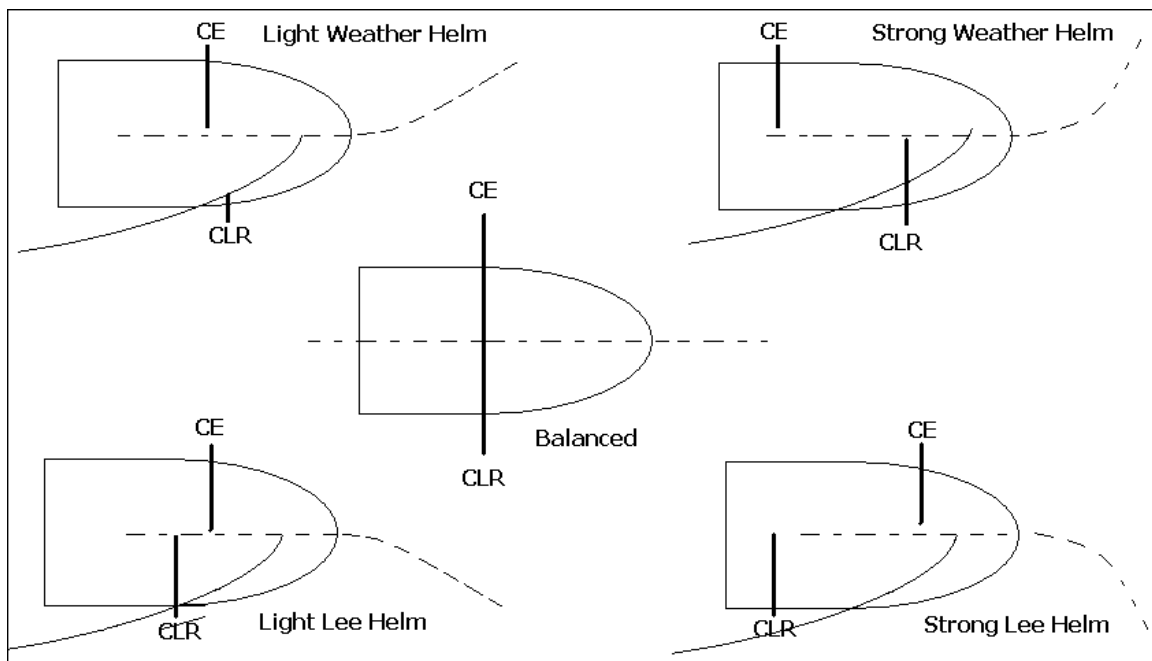


Diagram above illustrates the principle involved then the CE shift relative the position of the CLR. Naturally, there could never be such wide discrepancies between the two points in practice. For purposes of illustration, the differences have been greatly exaggerated. As CE shifts further aft, the stronger the weather helm. As CE moves forward, ahead of the CLR, we get lee helm. The center illustration shows a theoretically balanced condition.

## *Balance*

Heeling the boat to leeward will cause the boat to head up into the wind. Heeling the boat to windward will cause the boat to bear off the wind. This is a great way to keep your speed up in light air by not using your rudder.

If there is enough wind for your boat to heel, then keep it flat. If there is not enough wind to heel the boat then heel it to leeward.

When sailing upwind the weight of the sailor should be together and forward by the side stay. As you bear off the wind, keeping the boat flat, balanced, and prevent the transom from dragging in the water will become the priority. If you are planning or flying a spinnaker then shift the weight back to avoid plowing the bow.

# High Performance Theory

## Definitions:

Displacement Boats: Boats which, when moving, push the water aside and under the boat.

Planing Boats: Boats which can be made to lift up on the top of the water and plane or slide over the surface.

## Differences between Displacement and Planing Boats:

A displacement boat of the same size and crew capacity will be heavier than a planing hull.

The ratio of sail area to overall weight will be higher in a planing hull than for a displacement boat.

Daysailer	<u>Sail 100 sq. ft.</u> Hull wt. 500 lbs.	Ratio 1:5
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Force 5	<u>Sail 90 sq. ft.</u> Hull wt. 125 lbs.	Ratio 2:3
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The ratio of crew weight to overall weight will be higher in a high performance planing hull than a displacement boat.

Displacement	<u>125 lb. crew</u> 500 lb. boat	Ratio 1:4
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Force 5	<u>125 lb. crew</u> 125 lb. boat	Ratio 1:1
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## Sail controls:

Boom Vang: A block and tackle arrangement between the boom and the base of the mast. The boom vang prevents the boom from lifting and is used to control the twisting of the upper parts of the sail.

Outhaul: Pulls the foot of the sail aft and controls the draft or depth of the curvature of the sail.

Cunningham: A line rigged through the luff of the mainsail to pull extra sail cloth down and forward. The Cunningham controls the location of the point of deepest draft and center of effort forward and reduces weather helm.

Jib Tack Downhaul: A line attached to the tack of a loose luff jib to act as a downhaul or Cunningham. Controls curvature of the jib. (Or luff control)

## To Initiate Planing:

On a Beam Reach: When puff hits, keep boat hiked flat, slide weight aft and bear off sharply. Pumping the sail helps.

On a Broad Reach: When puff hits, keep boat hiked flat, slide weight aft and trim in sharply. Pumping the sail helps.

Life Preserver Rule: Life jackets must be worn while sailing Force 5's, Laser, Finn, Dinghy and windsurfers.

Capsize Recovery: bail out quickly as soon as boat flips, get onto the board if possible or into the water if not. If not hang on the high side as this will turtle the boat. Get on the board and back out on it. Don't jump on it. Try to bring your boat upright into the wind.

## Capsize Recovery

A small boat is said to capsize when it rolls over upside down or on its side with its mast and sails in the water. Turtling is a type of capsizing but only refers to the turning of the boat completely upside down with its sails and mast pointing vertically toward the sea bottom. Capsizes usually occur when a sudden gust of wind catches the skipper and crew off guard. For this reason, one should always have control of the main sheet to quickly let out and depower the mainsail.

Remember the following safety rules:

- #1. Never swim toward shore. It looks closer than you think and you may not make it.
- #2. Always stay with the boat.
- #3. Do not swim under the sails or hull.
- #4. Upon entering the boat after it has come upright, be sure to duck to avoid the swinging boom.

There are several methods of righting a capsized boat. The **Scoop Recovery Method** can be used for righting a boat when sailed by two or more people. The boat often capsizes toward the leeward side and both the skipper and the crew end up in the water. One sailor supports the mast to keep the boat from turtling. The other sailor maneuvers around the boat (not under the hull) and climbs on the centerboard. The sailor in the water grabs on to a stationary object in the boat's cockpit. The sailor on the centerboard leans back and starts to right the boat. If more righting leverage is needed, a jib sheet may be used to lean farther out on the centerboard. The sailor in the water is scooped into the cockpit and helps stabilize the boat as it is righted. As the sailors enter the cockpit they should duck to avoid getting hit by the boom. The sheet of the mainsheet and jib should be loose and the sails allowed to luff so they will not recapsize the boat while it is righting.

In the **Walkover Method** of recovery a sailor quickly swings over the side of the boat onto the centerboard before the boat starts to capsize. He can then lean backwards and as the boat rights itself he can quickly get back into the cockpit.

# Keelboat Theory

1. Difference between Keelboats and Centerboarders
  - A. The below water fin area of a keelboat is fixed and the fin of the centerboard boat is retractable. There are keelboats with retractable fins in the keel called swing keels.
  - B. The keelboat is much heavier than the same sized centerboard boat.
  - C. Because of the weight difference, a keelboat tends to glide or "carry" further when put into stays or the sails slacked off, therefore allowances must be made for this when landing, picking up a mooring or tacking.
  - D. Because most keelboats have a longer waterline length and are heavier, they tend to lose speed when they are turned too sharply. Maneuvers are carried out more slowly with a keelboat. You must plan accordingly.
2. Rigging and getting underway from a mooring.
  - A. Load dinghy correctly, get in and push off correctly, row out to the boat on the mooring using proper techniques (feathering your oars).
  - B. Approach moored boat from astern at an angle and come up alongside the cockpit area heading into the wind. Ship inboard oar and rowlock before touching.
  - C. Unload all sails and gear into the cockpit, get aboard and drop the dinghy off the stern of the keelboat, securing it so that it will not bang up the boat.
  - D. Inspect and bail the boat, bend on all sails and raise sails from the stern to bow (main then jib) so the boat will weathervane on the mooring. Make sure that all sheets are completely free (sometimes, in crowded areas the jib or jenny is not raised until you are clear of the mooring and underway).
  - E. Decide which tack you are going to leave the mooring on.
  - F. If the dinghy is to remain on the mooring, bring it up alongside the boat and secure it to the mooring on what is going to be your windward side as you leave the mooring.
  - G. To leave the mooring on the desired tack, backwind the main to what will be your leeward side to swing the boat on the mooring, pull forward on the mooring bringing it along your windward side to give you some headway and let go of the mooring pennant. Make sure that the dinghy painter is not fouled in any gear on the boat.
3. Picking up a mooring
  - A. Approach the mooring close hauled aiming at a spot a couple of boat lengths directly downwind from the mooring and turn into stays to "shoot" into the wind and come to a dead stop with the mooring alongside and in the forward third of the boat, between bow and sidestays. Lower jib before approaching so that the crew can work on the deck and to prevent fouling the jenny.
  - B. When reach in a crosswind, pick a spot a boat length or two downwind from the mooring and turn sharply into the wind to come to a stop as above.

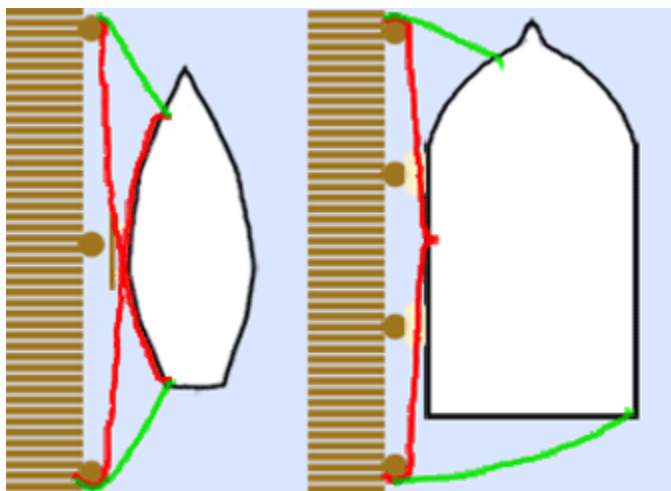
# Docking & Rafting

## *Making Fast*

Use spring lines to prevent fore and aft motion, and long bow and stern lines to prevent the boat swinging in and out. It also helps to attach dock lines to cleats or pilings that are at the same level as the cleats on the boat at mid tide, if this is possible.

Once a boat is pulled in alongside a dock and some temporary lines are run to keep it from getting away, the first decision to be made is which piling(s) the boat will lie against. This will depend on the spacing of the pilings and the shape of the boat. If pilings are widely spaced and the hull is curved inward at the bow and stern, as in most sailboats, it may be best to set the boat to ride against one piling amidships. If pilings are spaced more closely, it is usually better to plan on having the boat ride against two or more pilings, each insulated from the hull by a fender or fender-board set. The first diagram below illustrates two possible scenarios.

The boats are held in place by long spring lines. In the case of the sailboat in the diagram, there is no midship cleat, so spring lines are run from a bow cleat leading aft to a piling adjacent to the stern, and from a stern cleat leading forward to a piling adjacent to the bow. The powerboat in the diagram has a midship cleat, and spring lines can be run forward and aft from that cleat to pilings off the bow and stern of the boat.



### *Using one piling or two:*

The sailboat (left) lies against one piling. The sailboat has no midship cleat, so spring lines are run from a bow cleat leading aft and from a stern cleat leading forward.

The powerboat (right) lies against two pilings, and has a midship cleat. Spring lines are run fore and aft from that cleat to pilings off the bow and stern.

A boat with properly tied spring lines, and one with improperly tied spring lines:

A boat with properly tied springlines at low tide and high tide. The lines are attached to the piling at the level of the boat during a medium tide, so that they rise up to the boat for high tides and fall down to it for low tides.

## *Controlling Fore and Aft Movement of the boat*

These lines will prevent the boat from moving forward or aft, keeping the fenders (which are hung from stanchions or lifelines on most boats) in place between the pilings and the boats. As the tide goes up and down, the long spring lines can remain fairly tight, since their angle to the dock (and consequently their length) will not change significantly.

The two spring lines (shown in red in the picture) do a great job of preventing the boat from sliding forward and aft along the dock, but they do next to nothing to prevent the bow and stern from swinging in and out. To do that, it is necessary to attach bow and stern lines, and those lines should also be run as long as possible, to pilings set far forward and astern of the boat. With short bow or stern lines attached to nearby pilings, the tidal changes will result in too much slack at high tides, and/or the boat hanging from taut lines at low tides.

## Corinthian Spirit

### Corinthian Behavior Expected of an “Experienced” Sailor

Sailors are on their own once they are finished with their instruction. They must consolidate all their previous learning materials and sailing skills and move into the world of sailing. Their behavior with other sailors and future guests/crew should follow the accepted code of ethics known as the Corinthian Spirit. This theme is what experienced sailors strive constantly to attain so they can keep things in proper perspective.

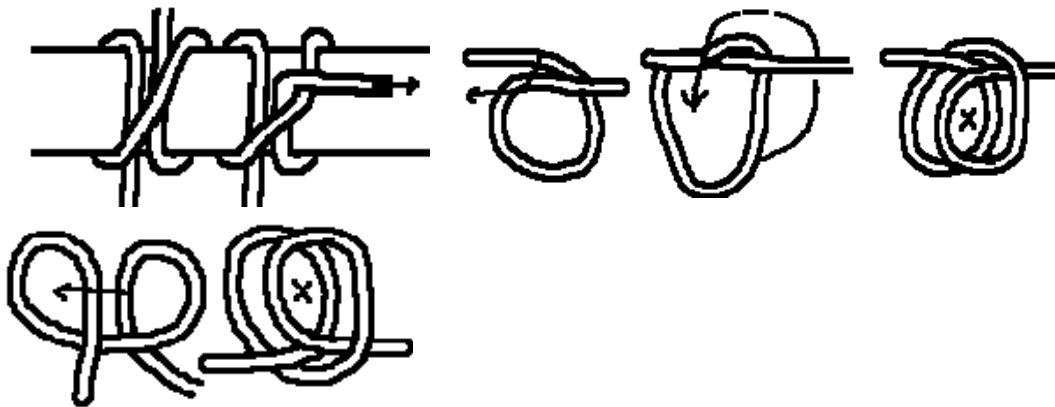
Corinthian sailing traditions, passed down through the years, have formed the foundation of the sport. Unlike soccer where there is an official in a black and white striped jersey, sailing is a self-policing activity. In the Racing Rules of Sailing it says:

“Competitors in the sport of sailing are governed by a body of rules that they are expected to follow and enforce. A fundamental principle of sportsmanship is that when competitors break a rule they will promptly take a penalty or retire.”

### Marlinspike Seamanship

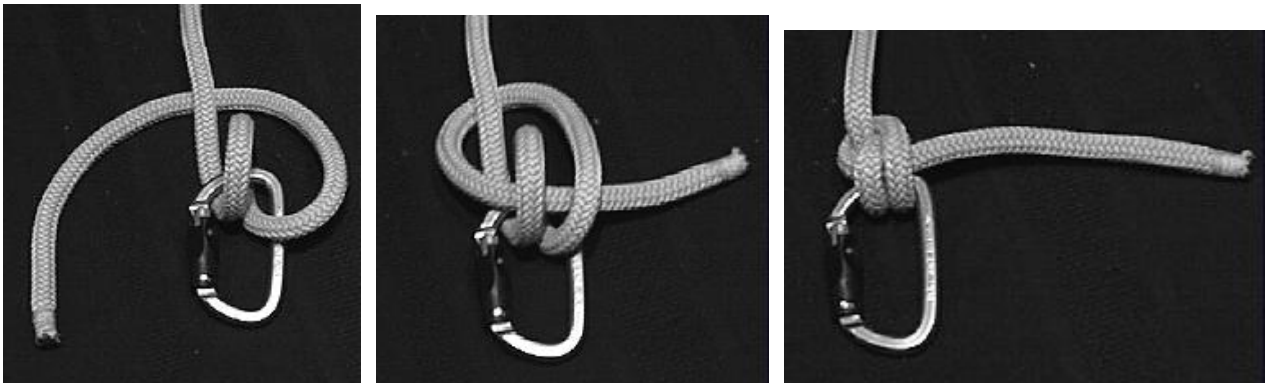
#### Knots

*Clovehitch* – use to secure lines on round objects and tie off tillers

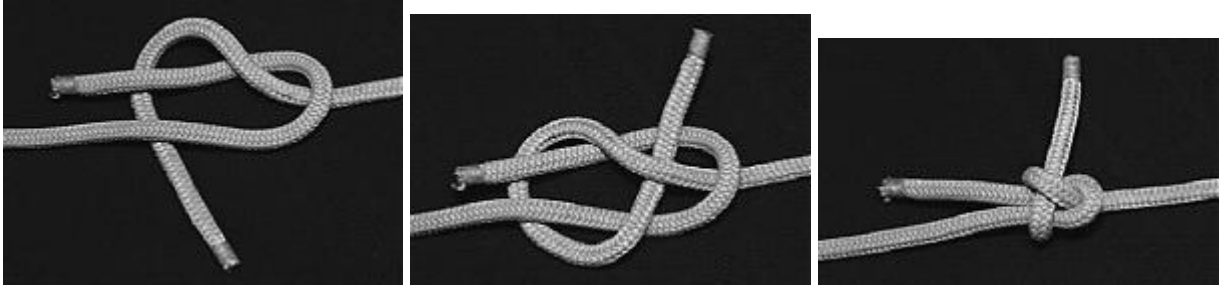


*Bowline with a bight* – used when wanting to work with only a section of a line to make fast to a dock ( No diagram provided)

*Anchor Bend* - used to attach a rope to a carabineer or ring. The knot is a constrictor that over time become difficult to take off



*Sheet bend* – used to tie two lines together of different diameters. The bigger line should be the loop while the running end should be the smaller size.



*Buntline hitch* - useful for attaching lines to rings, eyes, posts, rods, and railings where a compact and secure knot is required



### Splicing Resource

The website [http://www.neropes.com/SplGuide\\_CategoryLanding3Braid.aspx](http://www.neropes.com/SplGuide_CategoryLanding3Braid.aspx) is one of the best website for three braids laid line splicing. You want to study the eye splice, short splice, and back splice.

## Testing Procedure

W14 Sailing	High Performance	Keelboat		Marlinspike Seamanship	
Parts of the white 14	High Performance Theory	Keelboat Theory	Spinnaker Theory	<i>Knots</i>	<i>Splicing</i>
Reefing, Main & Jib Furling	Capsize recovery	Dinghy Handling	Spinnaker Usage	Clovehitch	
Jib Usage	JY15 Rigging	Mooring & Docking		Bowline with a bight	
Boat Balance Theory	420 Rigging	O'Day 20 "Manchester" useage		Anchor Bend	
	Laser Rigging	Keelboat Rafting		Sheetbend	
	Catamaran Rigging			Buntline Hitch	
				Eye Splice	
				Back Splice	
				Short Splice	
				Whipping	
				Heaving	
					<b>Advanced Helmsman Project</b>

You will work towards your Advanced Helmsman by taking tests to demonstrate an understanding of the material. Some tests will require you to demonstrate a skill perfectly while others require a score of 80% or better. The tests are administered by a junior program instructor. All tests will require you to study and practice.

There is an order to taking the tests. You must first learn about a subject area in a clinic, then practice on your own. When you are ready to test, you will begin with a written test then the practical. The tests begin at the White 14 parts and working right as displayed on the chart above. Once you have passed a test, you may start on the next test to the right. You can work on your Marlinspike Seamanship testing and advanced helmsman project at any time.

If you do not make a standard, you can try a test again on the next day after studying or practicing.

It takes approximately 2 years on average for a junior member to earn their advanced helmsman.

### Advanced Helmsman Project

The idea of the advanced helmsman project is to make a small part of the club better. The project should focus on something that you take pride in completing. Years from when you completed the project, you should expect to be able to come back to the club and see your handy work in some fashion.

You should run your idea for your project by John or Casey. Some examples of things students have done are as follows:

- Points of sail magnets
- Teaching aid boats
- Knot board
- Race challenge board