Training Supplement

SCHOOL OF THE BOAT

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Apprentice Sea Scout

Requirements

1. Ideals
   a. Admission Ceremony
   b. Sea Promise, Oath, Law
   c. Courtesies Aboard
   d. Boarding Procedures
2. Active Membership
   a. Financial Obligations
   b. Sea Scout Uniform
   c. Active 3 Months
3. Leadership
   a. Ship Organization
   b. Officer Insignia
4. Swimming
   a. Swim Test
   b. Safe Swim Defense
5. Safety
   a. Life Jackets
   b. Visual Distress Signals
   c. Emergency Radio Call
   d. Tool Safety
6. Marlinspike – Knots
   a. Overhand
   b. Square
   c. Figure Eight
   d. Bowline
   e. Two Half Hitches
   f. Clove Hitch
   g. Sheet Bend
   h. Cleat Hitch
7. Boat Handling
   a. Parts of Boats
   b. Identify Boat Types
   c. Heaving Line
8. Service
   a. 8 Hrs of Ship Work
   b. 8 Hrs of Community Service
9. Skipper's Conference
10. Bridge of Review (Bo'sun)

Scouting Ideals

Scout Oath or Promise

On my honor I will do my best

To do my duty to God and my country and,

To obey the Scout Law,

To help other people at all times, and

To keep myself physically strong, mentally awake, and morally straight.

Scout Slogan

Do A Good Turn Daily

Scout Motto

Be Prepared

Scout Law

A Scout is trustworthy, loyal, helpful, friendly, courteous, kind, obedient, cheerful, thrifty, brave, clean, and reverent.

Sea Promise

As a Sea Scout I promise to do my best

To guard against water accidents,

To know the location and proper use of the lifesaving devices on every boat I board,

To be prepared to render aid to those in need, and

To let those less able come first."

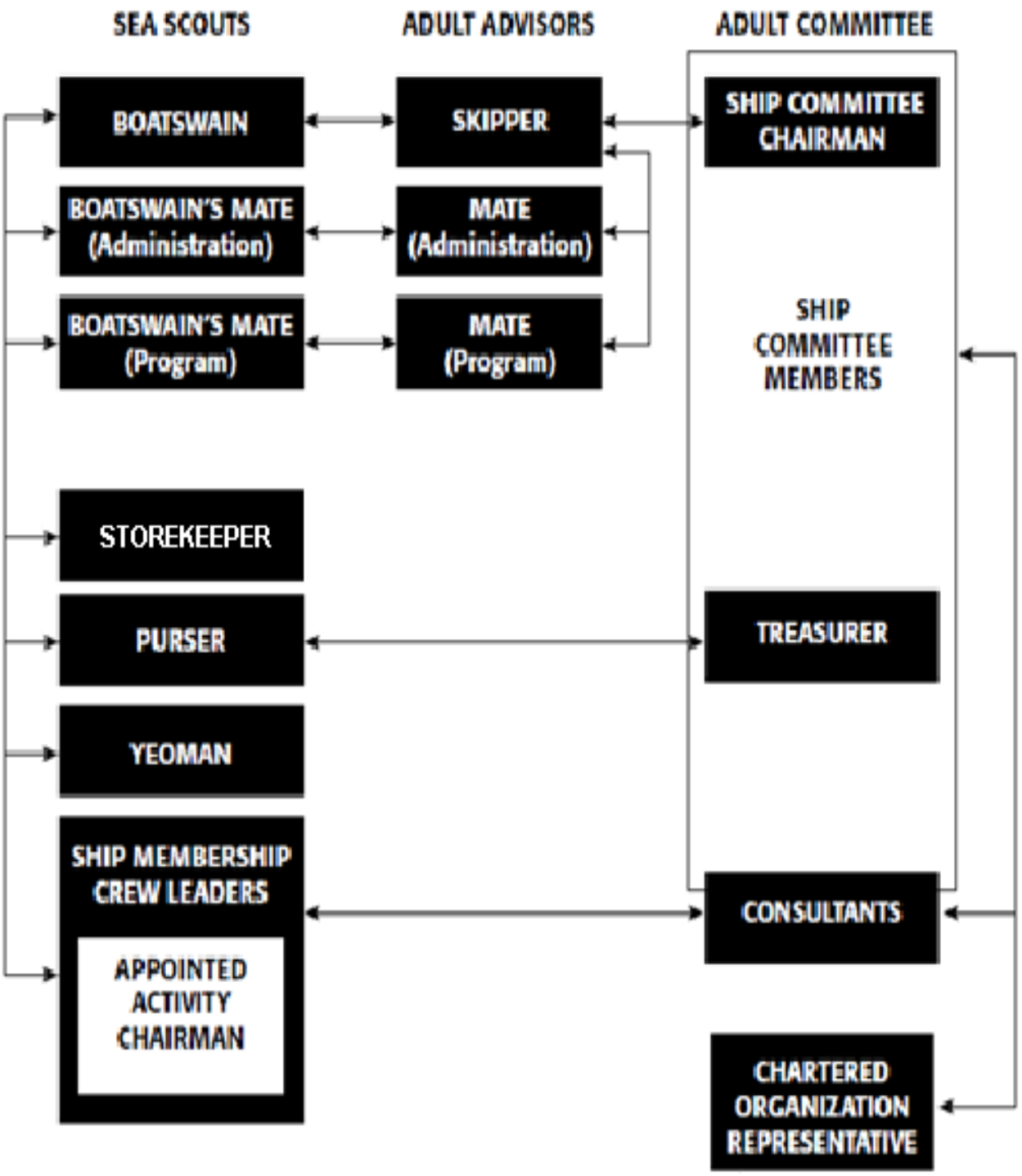
BSA Mission Statement

The mission of the Boy Scouts of America is to prepare young people to make ethical and moral choices over their lifetimes by instilling in them the values of the Scout Oath and L aw.

BSA Vision

The Boy Scouts of America will prepare every eligible youth in America to become a responsible, participating citizen and leader who is guided by the Scout Oath and Law.

Typical Ship Organization



Positions of Responsibility

Youth Positions

Adult Positions

Positions of Responsibility

- Boatswain
  - Plan and conduct regular quarterdeck meetings.
  - Give leadership to all ship meetings and activities.
  - Share responsibilities of leading the ship with the other officers.
  - Know the needs and interests of ship members.
  - Watch for individual ship members who may have problems, questions, or concerns.
  - Direct the development of your ship's operational plan.
  - Appoint ship members to serve as activity committee chairs.
- Boatswain's Mate for Administration
  - Take over for the ship's boatswain when necessary.
  - Give leadership to recruiting new members into the ship Follow up with ship members who seem to be losing interest in the ship.
  - Recognize the achievements of ship members.
  - Conduct opening and closing ceremonies for your ship.
- Boatswain's Mate for Program
  - Collect activity and meeting ideas from ship.
  - Maintain an activities file of programs, activities, projects, and trips.
  - Help ship's activity chairs plan and conduct successful activities.
- Yeoman
  - Keep minutes of quarterdeck and ship meetings.
  - Remind officers of assigned tasks.
  - Keep membership records for the ship.
  - Supervise ship's correspondence.
  - Keep all ship members informed about upcoming meetings, activities, and projects.

Positions of Responsibility

- Purser
  - Track income and expenditures of the ship with guidance from the adult committee treasurer.
  - With the help of your ship's Skipper and officers, set up a yearly budget.
  - Make regular treasury reports at ship's meetings.
  - Obtain approval from ship officers and Skipper for expenditures.
- Storekeeper
  - Procure and arrange equipment maintenance.
  - Track the coming and going of ship equipment.
  - Keep an inventory of equipment.
- Crew Leader
  - Maintain the morale and conduct of the crew.
  - Help train crew members.
  - Delegate responsibilities to crew members.
- Assistant Crew Leader
  - Take over for crew leader when necessary.
- Media Specialist
  - Maintain ship website.
  - Maintain ship social media.
  - Keep all ship members informed about upcoming meetings, activities, and projects.
  - Handle all publicity.

Ranks and Awards

Apprentice

Ordinary

Able

Quartermaster

Long Cruise

S.E.A.L.

Boardsailing BSA

Kayaking BSA

BSA Lifeguard

Mile Swim BSA

Scuba BSA

Snorkeling BSA

BSA Stand Up Paddleboarding

Whitewater Rafting

Uniform

Ship 1610 Hat

Dark Navy Shirt w/ Emblems

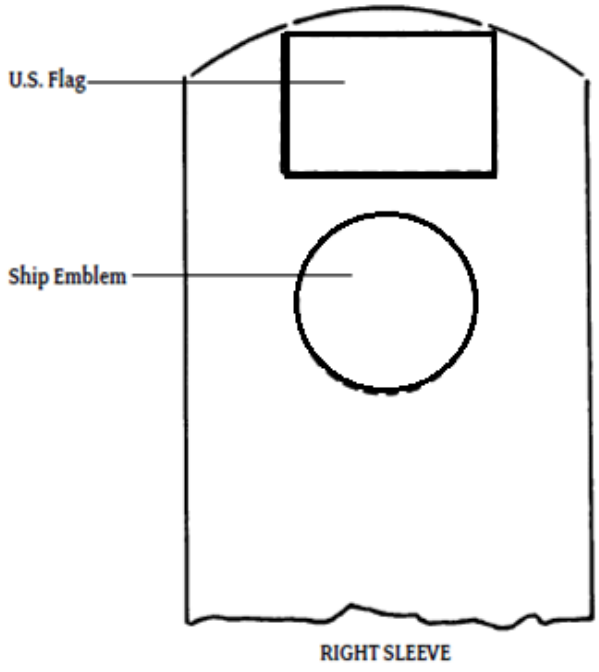
Black Belt w/ Silver Buckle

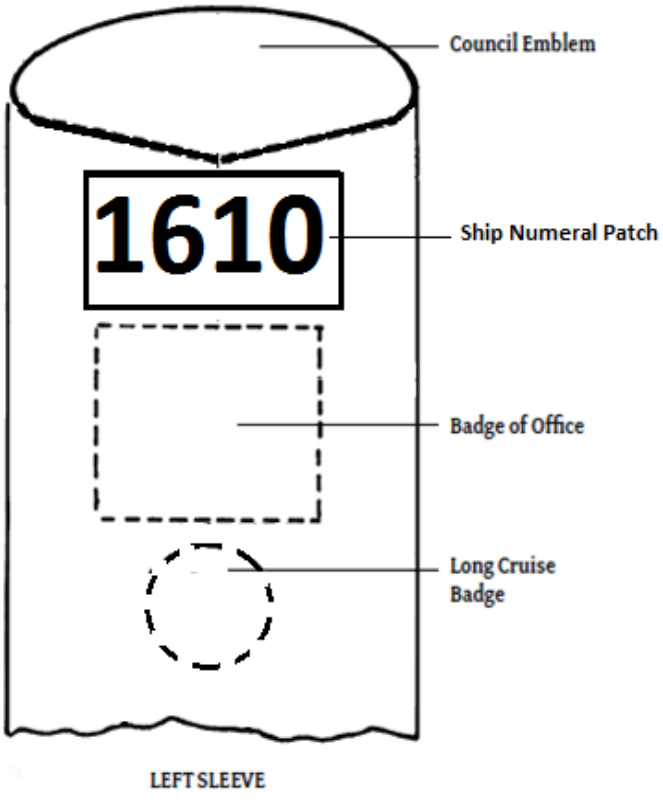
Dark Navy Pants or Shorts

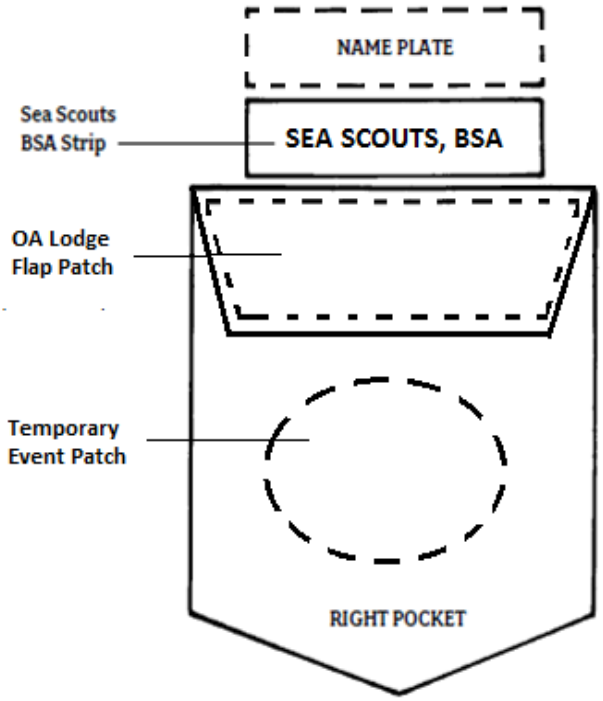
Black Shoes (Pants)
Boat Shoes (Shorts)

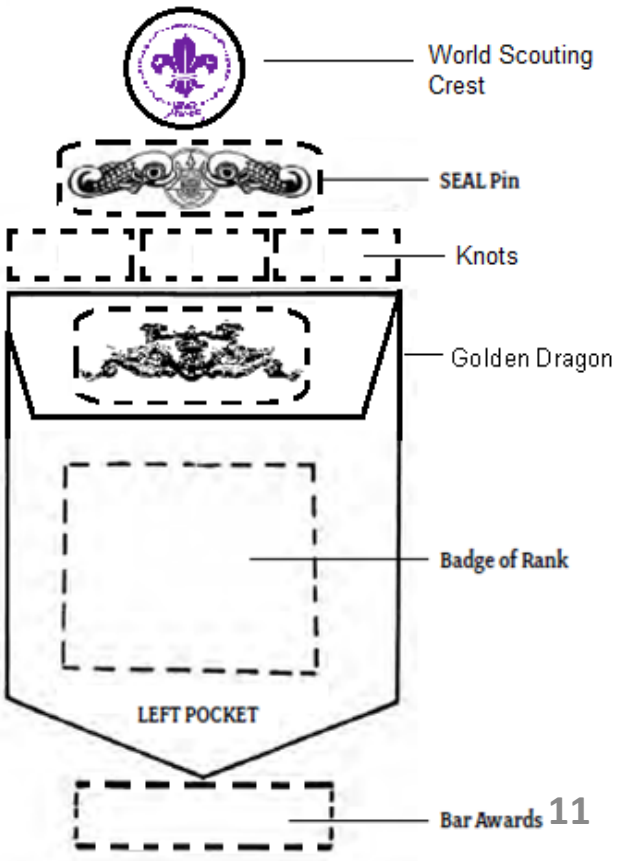
- Required Patches
  - Right Sleeve
    - US Flag
    - Ship Patch
  - Left Sleeve
    - Council Strip
    - 1610 Numbers
  - Right Front
    - Sea Scout Strip Patch or Embroidered Lettering
  - Left Front
    - World Scouting Emblem
- Other patches when earned
- See Placement Diagram

Patch Placement Diagram









General Safety Rules

1. Adults and youth shall obey the rules established by the BSA Youth Protection Policy.
2. No adult/youth, one-on-one situations. Ensure there is at least two adults with one youth or one adult with two youths.
3. Youths shall maintain a buddy system at all times. Buddies should not be more than 2 years apart in age.
4. Groups with fewer than two of the same gender are not allowed to leave direct adult supervision. That means no boy-girl pairings are allowed.
5. No tobacco, illicit drugs, alcohol, or firearms are allowed.
6. Always take precautions to avoid heat injury: sun block, sun glasses, hat, drink water.
7. Closed-toe shoes are required. Open toe sandals and flip flops are only for showers.
8. Nobody leaves the campsite or marina without specific permission from the Skipper.
9. No hazing, bullying, fighting, initiations, public displays of affection.
10. Use of electronic devices is limited. Only allowed during personal free time. Never while on watch, during instruction classes, or while chores and work is being performed.

Vessel Safety Rules

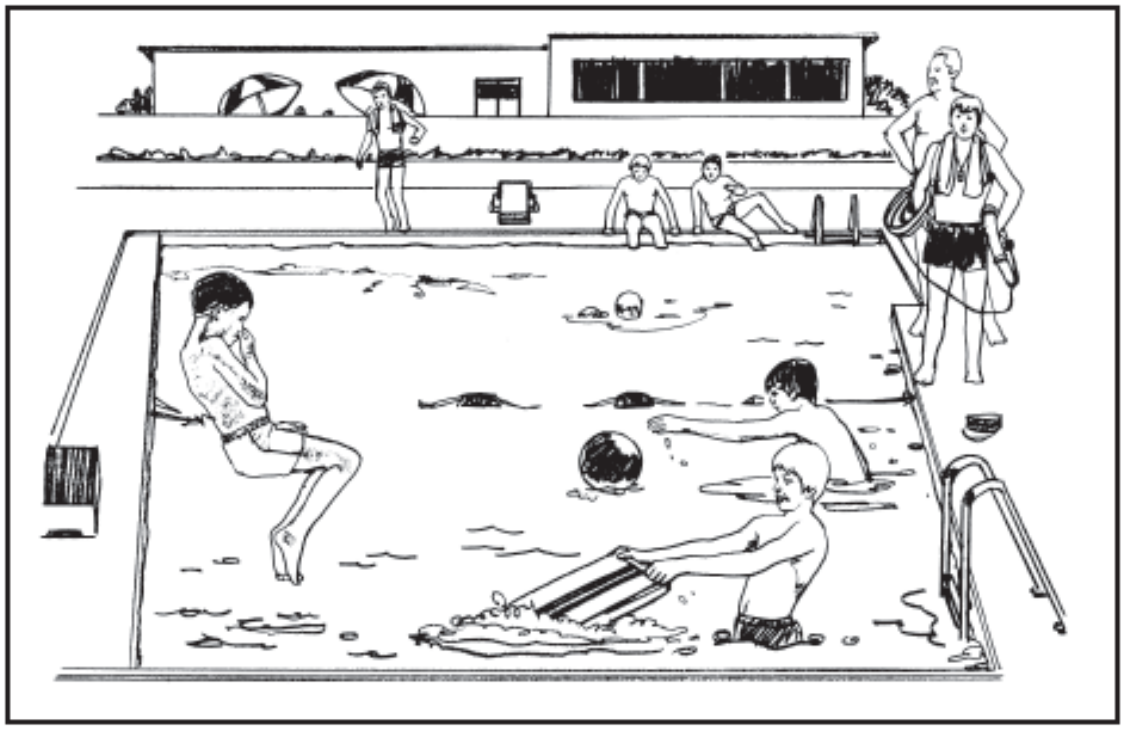
1. Before you even get on the boat, don't forget to file a float plan.
2. Before you leave the dock, make sure you have all the safety equipment required by law on board. USE A CHECKLIST
3. Stow everything properly. Make sure there are no tripping hazards on deck and down below.
4. Keep hands, feet, loose clothing, long hair, and jewelry away from winches. Braid the hair or tuck it under a hat, and leave the jewelry at home.
5. Know where you are and where you are going. Pay attention to posted signs and markers, and keep an eye on the weather.
6. Pack out what you pack in, and leave the water better than you found it.
7. Wear your life jacket!
8. Use jacklines and harnesses at night and in reduced visibility and in seas over 3 feet.
9. No fewer than four people: 1 adult, 1 additional experienced crew, and 2 additional crew, when using a large boat.
10. Going aloft or leaving the boat underway requires Skipper's permission.

Tool Safety

1. Tool use must be in accordance with the BSA Age Guidelines for Tool Use and Work at Elevations or Excavations https://filestore.scouting.org/filestore/healthsafety/pdf/680-028.pdf
2. 14 years old or over
    1. Pickaxe, Mattock, Posthole digger
    2. Wheel cart (1-, 2-, or 4-wheeled)
    3. Paint roller with extension pole
    4. Screwdriver (electric)
    5. Handheld sander (small)
    6. Cutting tools (e.g., Dremel®, small)
    7. Paint sprayer (small, less than 50 psi)
    8. Ladders up to 6 feet
3. 16 years old or over
    1. Residential lawn mower (self-propelled, riding)
    2. Commercial lawn mower (push, self-propelled, riding)
    3. Line trimmer (electric, gas-powered)
    4. Edger (electric, gas-powered)
    5. Leaf/grass blower (electric, gas-powered)
    6. Hedge trimmer (electric, gas-powered)
    7. Belt sander (electric, cordless)
    8. Pressure washer (>50 but <100 PSI)
4. 18 years old or over
    1. Circular, reciprocating, jig, or radial saw
    2. Band and scroll saws
    3. Router/planer
    4. Chain saws
    5. Log splitters
    6. Wood chippers
    7. Elevations above 6 feet

Safe Swim Defense

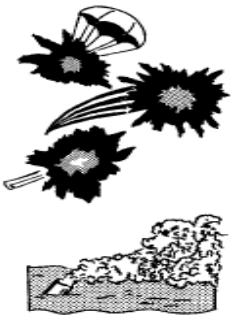
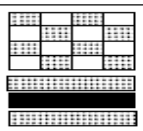
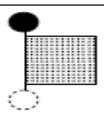
- Qualified Supervision
- Physical Fitness
- Safe Area
- Lifeguard on Duty
- Lookout on Duty
- Ability Groups
- Buddy System
- Discipline



Marine Distress Signals

- All boats used on coastal waters must be equipped with U.S.C.G. approved visual distress signals.
- Regulations prohibit display under any circumstances except during emergencies.
- No single device is ideal under all conditions or for all purposes.
- These boats are not required to carry day signals but must carry night signals when operating from sunset to sunrise:
  - Recreational boats less than 16 feet
  - Boats participating in organized events such as races, regattas, or marine parades.
  - Open sailboats less than 26 feet in length not equipped with propulsion machinery.
  - Manually propelled boats.

STANDARD MARINE DISTRESS SIGNALS
Search and Rescue

RADIO RADIOTELEPHONE CALL: Mayday GIVE: Name and position USE: 156.8 MHz—Channel 16; 2182 kHz; or use alarm signal CB: Ch 9	GMDSS (General Marine Distress Signaling System) Emergency position indicating radio beacon	**FLARES** TYPE A: Parachute rocket TYPE B: Multistar rocket TYPE C: Hand-held TYPE D: Buoyant or hand-held orange smoke	
CODE FLAGS N OVER C			
DISTRESS CLOTH		**FLASHLIGHT** (SOS) . . . — — — . . .	
SHAPES BALL over or under SQUARE		**ARM SIGNAL** Do not use near helicopter (different meaning)	
SOUND SIGNALS Continuous: Foghorn, bell, whistle One-minute Intervals: Gun or any explosive	 	**FLAME ON VESSEL** As from burning tar, oil in barrel, etc. **DYE MARKER**	 

VHF Radio Distress Calls

- Mayday : Distress- Loss of Life, serious illness or injury, or loss of the vessel is possible
- Pan Pan : Urgent – Safety of the vessel or person is in jeopardy. Loss of life or property is not likely, but help is needed.
- Security: Safety message – Used to report hazard to navigation, buoy off station, extreme weather, etc.

Marine Distress Communications Form

Instructions: Complete this form now (except for items 6 through 9) and post near your radiotelephone for use if you are in DISTRESS.

SPEAK: SLOWLY–CLEARLY–CALMLY

1. Make sure your radiotelephone is on.
2. Select either VHF channel 16 (156.8 MHz) or 2182 kHz.
3. Press microphone button and say: "MAYDAY–MAYDAY–MAYDAY."
4. SAY: "THIS IS _____ _____ _____.
   Your call sign/boat name repeated three times
5. SAY: "MAYDAY _____."
   Your boat name
6. Tell where you are (What navigational aids or landmarks are near?).
7. State the nature of your distress.
8. Give number of persons aboard and conditions of any injured.
9. Estimate present seaworthiness of your boat.
10. Briefly describe your boat: _____feet: _____; _____hull;
    Type Color
    _____ trim; _____ masts; _____
    Color Number Anything else you think will help rescuers find you
11. Say: "I WILL BE LISTENING ON **CHANNEL 16/2182**."
    Cross out one which does not apply
12. End message by saying: THIS IS _____ OVER."
    Your boat name and call sign
13. Release microphone button and listen; someone should answer.

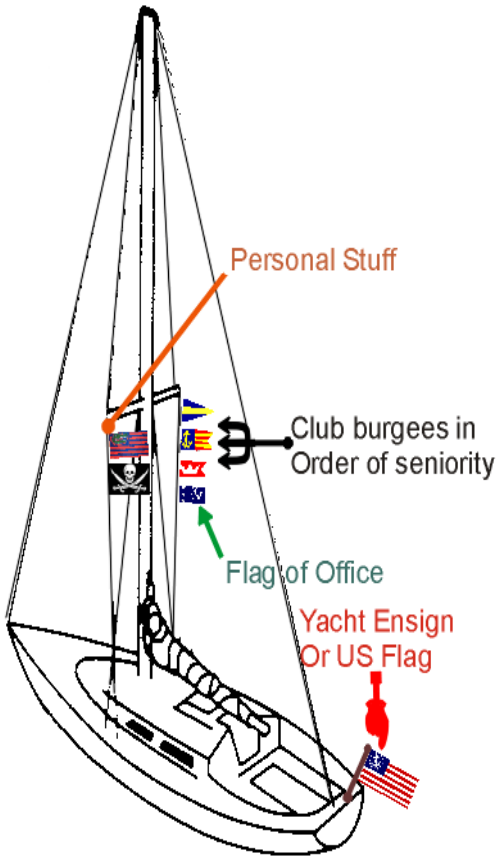
IF THEY DO NOT, REPEAT CALL, BEGINNING AT ITEM NO. 3 ABOVE.

If there is still no answer, switch to another channel and begin again.

Courtesies

- ***The Sea Scout Salute*** **-** Sea Scouts use the traditional military salute.
  - The salute should be executed from the position of attention.
  - The right hand is raised smartly until the tip of the forefinger touches the lower part of the headdress or forehead above and slightly to the right of the right eye.
  - The thumb and fingers are extended and joined, palm to the left, upper arm horizontal, forearm inclined at 45 degrees, and the hand and wrist are straight. At the same time turn your head toward the person saluted.
  - To complete the salute, drop the arm to its normal position by the side in one motion.
- ***The Sea Scout Handclasp*** **-** The Scout handshake is made with the hand nearest the heart and is offered as a token of friendship. Extend your left hand to another Scout and firmly grasp his left hand. Only use this handshake when both people are in uniform..
- ***Sea Scout Courtesy*** **-** The respect of the young for the old and the junior for the senior is expressed in many ways in Sea Scouts.
  - When several officers of various ranks are coming aboard a large ship from a small boat, the senior always leads from the small boat, followed by the juniors; when disembarking, the senior always gets into the small boat last.
  - Permission to come aboard is requested, and must be granted before boarding.
  - The most outstanding form of courtesy found in Sea Scouts is the use of the word “sir” or “ma’am.” A simple “yes” or “no” is not appropriate. You should respond with, “Yes, sir,” or “no, sir,” or “Aye, aye, sir,” or “ma’am.”
  - Sea Scouts are ladies and gentlemen, and courtesy is the outward expression of their character.
- ***The Boatswain’s Pipe*** **-** The boatswain’s pipe in the early days was known as the “whistle of command” and had its origin in the rowing galley of Grecian ships.
  - Used only by the boatswain and crew leaders. The Skipper or the mate issues orders verbally to the boatswain who, in turn, either uses a pipe or passes them on verbally to the crew leaders.
  - The crew leaders wear the boatswain’s pipe as an indication of their office and also to transmit orders to their crew.
  - The boatswain’s pipe is worn suspended on a white lanyard and carried in the pocket on the left-hand side.

Courtesies – Flags



1) **National Ensign:** When underway, fly the Ensign, (American flag), on a sloop-rigged sailboat is two-thirds of the way up the backstay or leach of the main. It is also an acceptable to have it displayed on a stern staff. When at anchor or in port, it is traditional for it to be displayed on a stern staff.
2) **US Yacht Ensign:** Originally, Federally documented vessels (USCG Documentation) flew the US Yacht Ensign in place of the American flag. Today, all recreational boats may fly it. Sea Scout vessels are not supposed to fly the US Yacht Ensign.
3) **Union Jack:** The Union Jack is customarily only flown on Sundays, Holidays, or occasions where a vessel would "Dress Ship." It's flown at a Jack-staff at the bow of a vessel.
4) **Starboard Spreader Halyard:** Private Signals should be flown at the masthead, but it is common practice to fly Sea Scout flag, yacht club burgees, flags of office, and signal flags from the starboard spreader halyard. If visiting a foreign country, the flag, or courtesy flag, of that nation should be the topmost flag on your starboard spreader halyard.
5) **Port Spreader Halyard:** Items such as state flag, crew identity flag, Pirate's flag, and brag flags, should be flown from the port spreader halyard.

Courtesies – Boarding A Vessel

Double Salute

- On all formal and official occasions, whenever Sea Scouts come aboard a Sea Scout ship or land ship, they perform two salutes. As they do this, they continue to carry out a custom of the sea that began centuries ago.
- History of Double Salute
  - In the early days of Christianity, it was the custom to place a statue of the Blessed Virgin or a crucifix on the mainmast of the vessel. Every seaman, upon coming aboard the ship, took off his hat or made the sign of the cross as a form of salute in the direction of the mainmast.
  - National flags became prominent in the 14th and 15th centuries. Ships of maritime nations soon began to fly their national ensign and requested that it be recognized also by the seamen. So the double salute became a universal rule as each seaman saluted both the mainmast and his national ensign when coming aboard.
- Honoring these traditions, Sea Scouts, immediately upon stepping aboard:
  - **First**, salute the center of the ship which is the traditional salute to God.
  - **Second**, then turn toward the flagstaff at the stern of the ship and perform the traditional salute to the ensign of our nation.
  - When going ashore or leaving a land ship, each person gives the double salute in reverse, first to the national ensign and then to the mainmast.

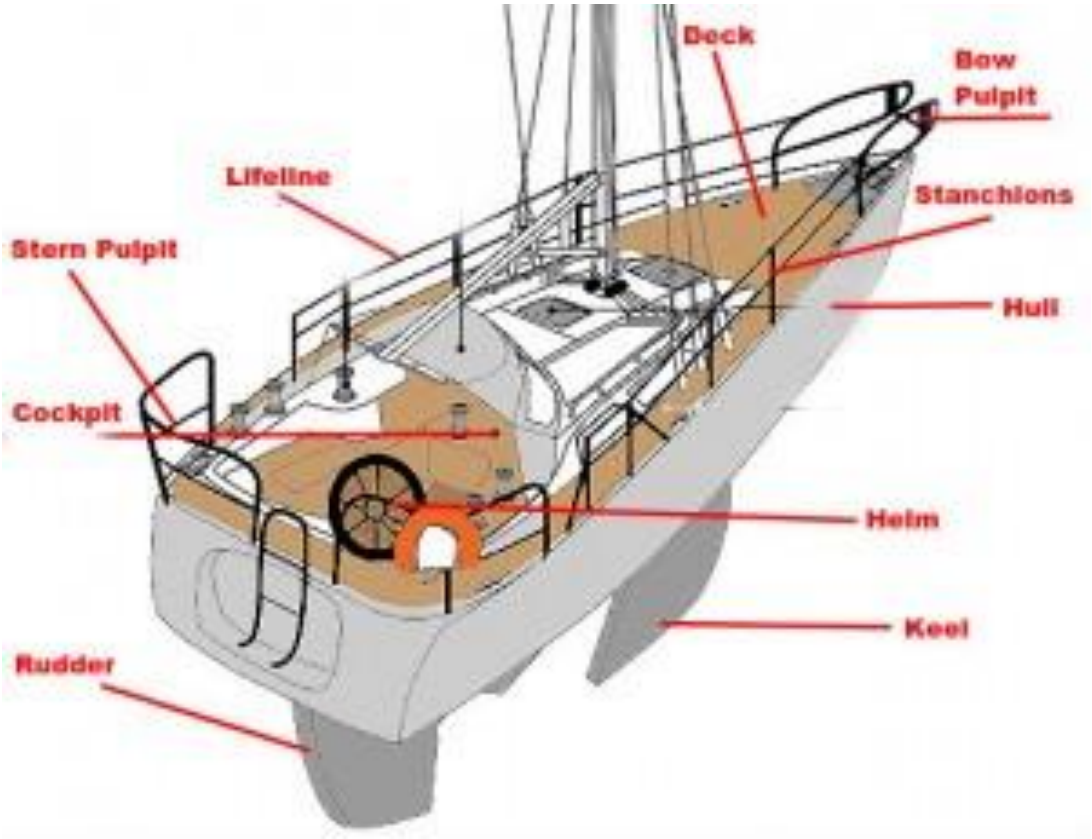
Piping the Side

- Centuries ago, when ships were under the command of dandies of the court rather than practical seamen, these worthies considered themselves too good to walk on board the ship or climb the gangway steps. Accordingly, a boatswain and a detail of side boys were assigned to hoist them onboard in a chair. The motions of the chair as it carefully lifted them and deposited them “all standing” on the quarterdeck were controlled by the boatswain’s pipe with the calls “hoist away,” “lower away,” and “secure.”
- Today, the term side boys is gender neutral, and the duties are not so rigorous. When the ship’s Skipper, other adult leaders, or dignitaries arrive at the ship for an official visit, honors are rendered.
- For a ship’s adult leaders, two side boys are posted. Council officials are recognized with four side boys, regional officials have six, and for national officials, eight side boys are required.

Personal Flotation Devices

Type	Description	Advantages	Disadvantages
Type I Off-Shore Life Jacket	Best for open, rough or remote water, where rescue may be slow in coming.	Floats you best. Turns most unconscious wearers face-up in water. Highly visible color.	Bulky
Type II Near Shore Life Jacket	Good for calm, inland water, where there is good chance of fast rescue.	Turns some unconscious wearers face-up in water. Less bulky, more comfortable than Type I PFD. Inexpensive.	Not for long hours in the water. Will not turn some unconscious wearers face-up in water.
Type III Flotation Aid	Good for calm, inland water, where there is a good chance of fast rescue.	Generally the most comfortable for wear. Freedom of movement for many active water sports. Many styles.	Wearer may have to tilt head back to avoid going face-down. Not for extended survival in rough water.
Type IV Throwable Device	Required equipment. Used to assist with crew overboard situations.	Can be thrown to someone. Good back-up to wearable PFDs. Some can be used as a seat cushion.	Not for unconscious persons. Not for non-swimmers or children. Not for many hours in rough water.
Type V Hybrid Device	Required to be worn to be counted as a regulation PFD. Counts for over 16.	Least bulky of all Types. High flotation when inflated. Good for continuous wear.	May not adequately float some wearers unless partially inflated. Requires active use and care of inflation chamber.

Parts of a Keelboat

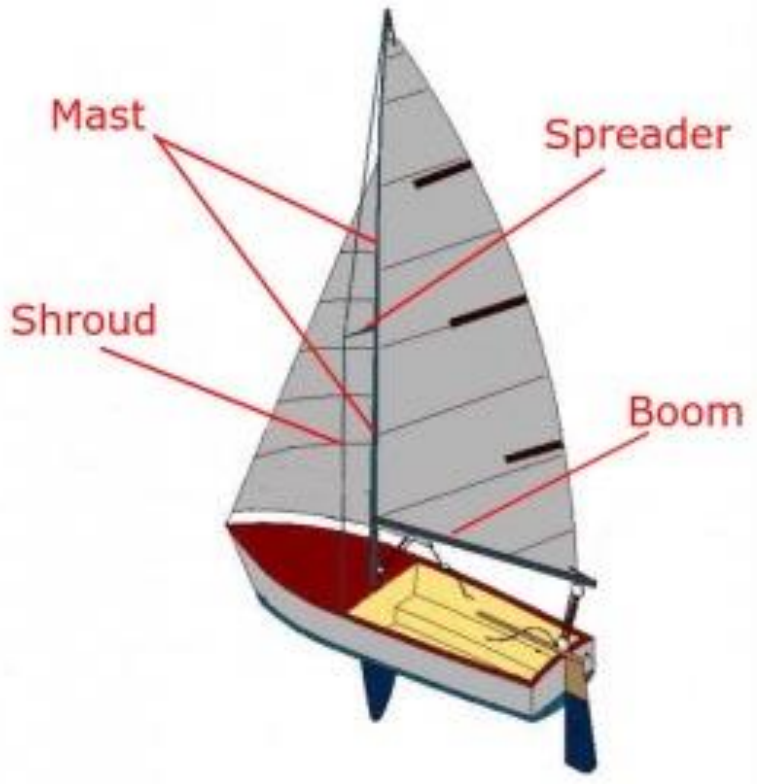


- **Port side** – This is the left side of the boat, when viewed from the back of the boat looking forward.
- **Starboard side** – This is the right side of the boat, when viewed from the back of the boat looking forward.
- **Stern** – This is the rear of the boat.
- **Bow** – This is the front of the boat.
- **Beam** – This is the widest point of the boat.
- **Length Overall (LOA)** – Length of the boat at its longest point.
- **Waterline Length (LWL)** – Length of hull at waterline.
- **Draft** – Deepest part of the boat.

Keelboat Terms

- **Cockpit** – This is the part of the boat where the crew sits when riding in the boat. This is usually in the rear of the boat but could be in the center, depending on the style of boat.
- **Rudder** – Located below the waterline and connected to the stern of the boat, this is used to make the boat turn. It is connected to either a steering wheel or a tiller. When the rudder is turned from side to side, it changes the angle that the water flows under the boat. This change in the direction of the water flow is what makes the boat turn.
- **Tiller** – This is usually a wooden lever or arm that is connected to the rudder and allows you to turn the boat.
- **Helm** – This is the area of the boat that the person who is piloting the boat is either sitting or standing.
- **Helmsman** – The person that is piloting the boat and at the helm.
- **Steering wheel** – This is connected to the rudder via cables or pulleys and is used in place of a tiller to steer the boat.
- **Hull** – This is the entire body of the boat.
- **Deck** – This is the flat surface on the top of the boat.
- **Keel** – This is a fin connected to the bottom of the sailboat. The keel is weighted and provides a counter-balance to the sail and the wind blowing against the sail. Without this keel, the boat would tip over when wind blew against it. The keel comes in many shapes and sizes and does several other important things to allow you to sail better, these will be covered in other posts.
- **Bow Pulpit** – This is the metal tubing that surrounds the bow (front) of the boat.
- **Stern Pulpit** – The metal tubing that surrounds the stern (rear) of the boat.
- **Lifeline** – A wire cable running from the bow pulpit to the stern pulpit and connected to the deck in several different locations. This is a safety feature designed to keep people from falling off the deck of a sailboat.
- **Stanchions** – Two foot tall metal tubing the is used to connect the lifeline to the deck.

Spars and Standing Rigging

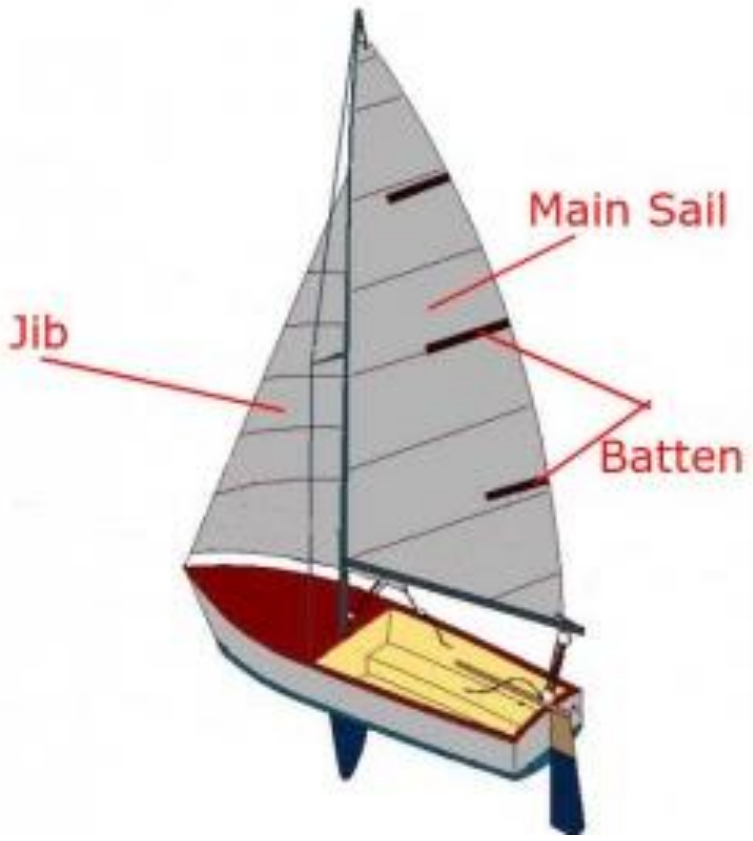


- **Mast** – This is the main part of the sailboat that makes it look like a sailboat and also pretty much everything else is attached to it.
- **Boom** – The horizontal beam that extends out from the mast towards the stern (rear) of the boat.
- **Standing Rigging** – In order for the mast and the boom to remain upright, something has to hold it up. This is what the standing rigging does. Many of the cables that you see on a sailboat are only there to help hold the mast up.
- **Shrouds** – These are the cables that run down the port (left) and starboard (right) side of the mast. These keep the mast from falling to the left or right. They are attached to the deck on the sides of the boat. Sometimes there are upper and lower shrouds, depending on the height of the mast.
- **Spreaders** – These are attached to the mast about halfway down and push the shrouds out further than they would be if they were attached straight down to the deck. This provides a more effective angle of support for the shroud.

More Standing Rigging

- **Chainplates** – These are plates on the deck that provide a great anchor for the shrouds, and stays, to attach too. Without these, it would be hard to attach a cable to the deck and it not get ripped out.
- **Backstay** – This is a wire cable that runs from the top of the mast to the stern (rear) of the boat. This keeps the mast from falling forward.
- **Forestay** (aka: **Headstay)** – This is a wire cable that runs from the top of the mast to the bow (front) of the boat. This keeps the mast from falling backwards.

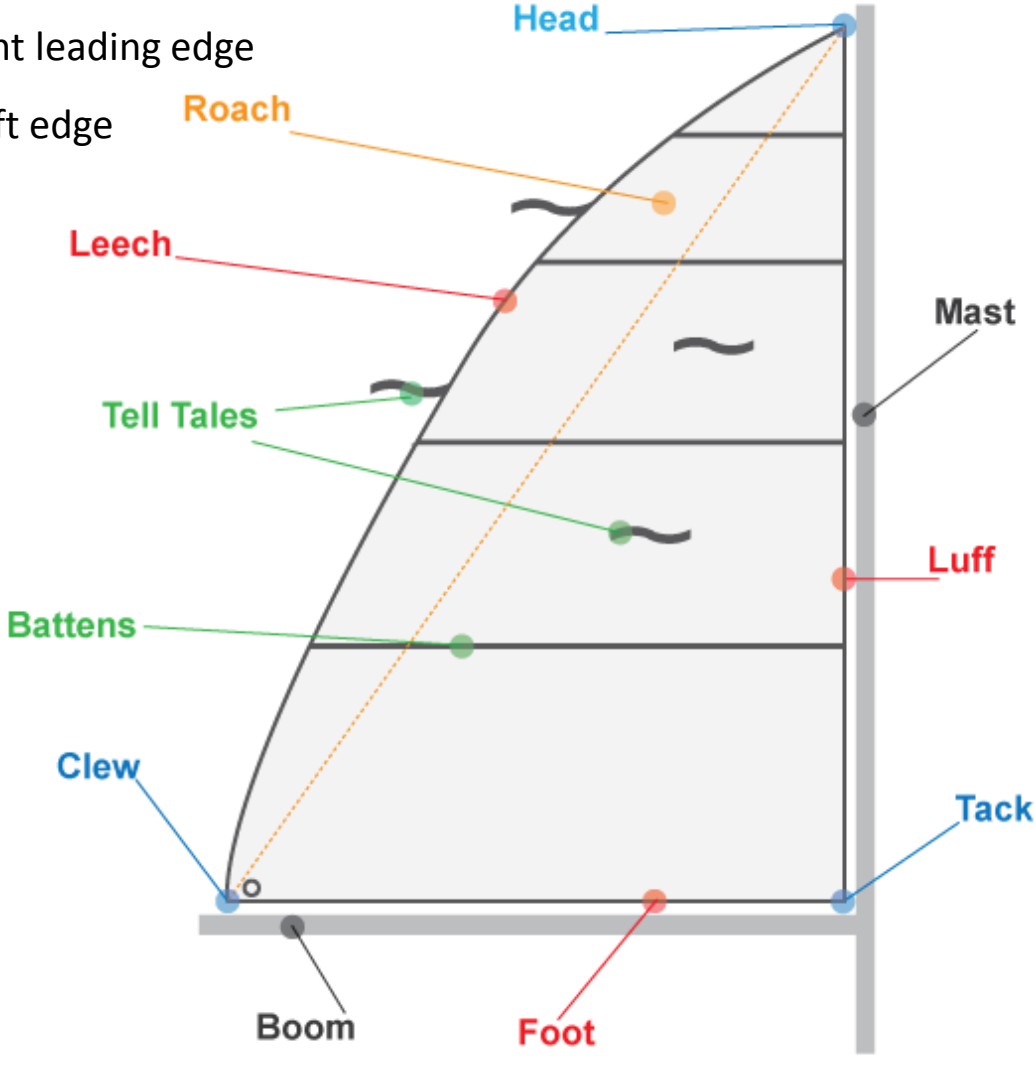
Sails



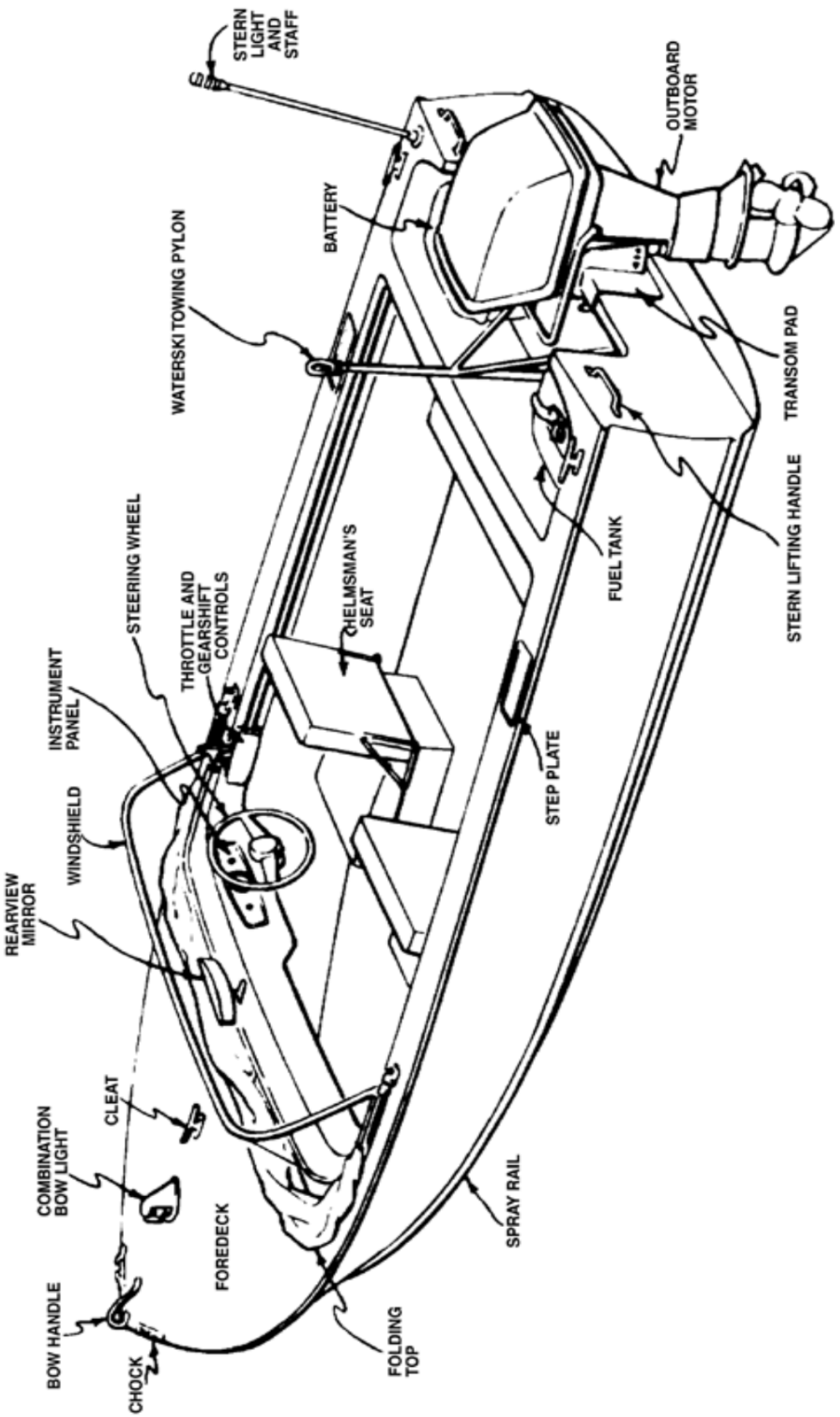
- **Mainsail** – This is the large sail that is attached to the mast and the boom. This sail is usually the first sail raised and does the majority of the work when sailing.
- **Batten** – These are either plastic, wood or possibly fiberglass. They are inserted into pockets on the mainsail and are used to help shape the sail. We will discuss why the shape of the sail is important in another post.
- **Jib** – This is a sail that is attached to the forestay (headstay). There are many different sizes of sails that can go on this forestay, depending on the type of sailing being done or the weather. This sail is a very important sail and used almost as much as the mainsail.

Parts of a Mainsail

- Battens - Long thins strips of either fiberglass or wood used to support the sail
- Roach - Additional curved area on the leech provides extra power to a sail
- Clew - Bottom aft corner
- Tack – Bottom forward corner
- Head - The top corner
- Foot - Bottom edge
- Luff - Front leading edge
- Leech - Aft edge

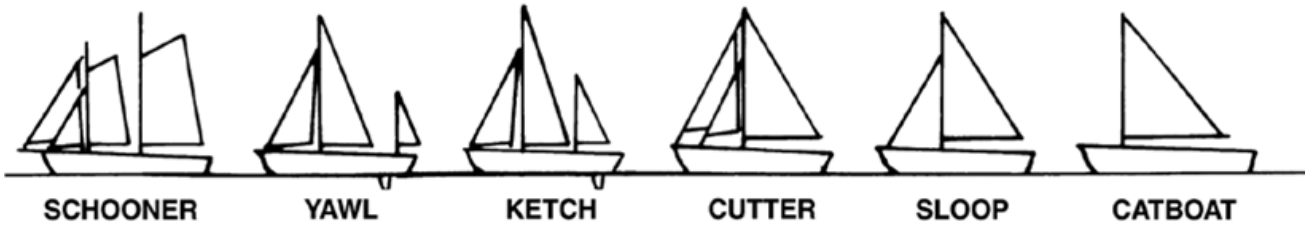


Parts of Outboard Runabout

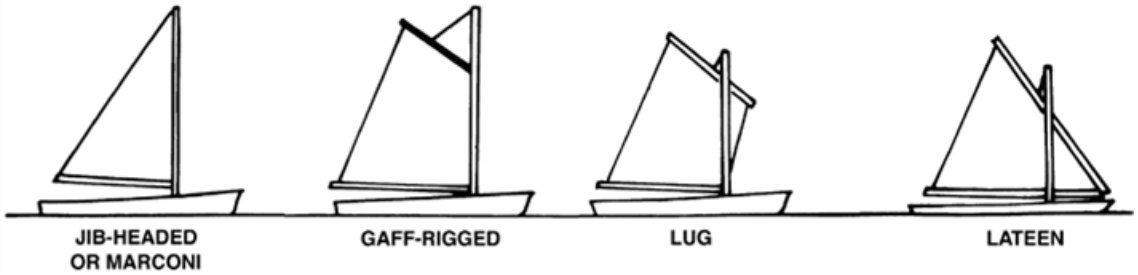


Identifying Boats

Types of Boats



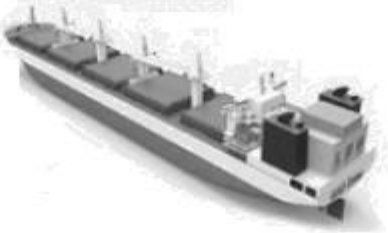
Types of Sail Rigs



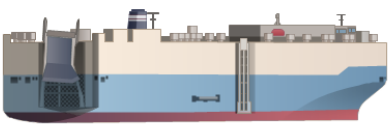
Commercial Ships

Container Ship

Bulk-Carrier



Car Carrier



General Cargo Ship

Oil/Chemical Tanker

Tug Boat

Knots

Overhand Knot

The overhand knot is the smallest and simplest of knots and the start of bigger ones. It can be an effective stopper, but will jam when pulled too tight. To make an overhand knot, make an overhand loop and pass the end under and up through the loop.

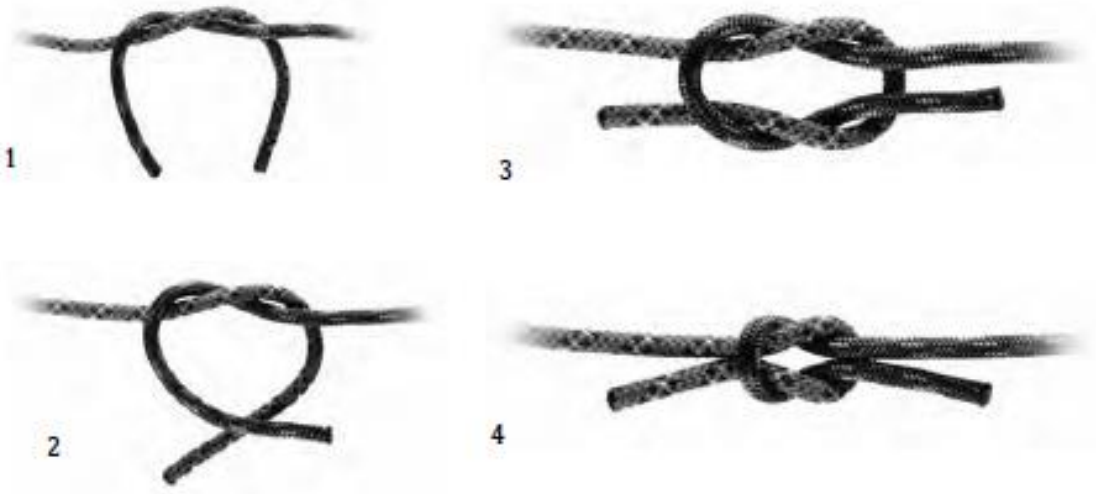
Figure Eight Knot

This knot is easily untied and gentle to fiber. It is the best knot for keeping a rope end from running through a fairlead or block. To make this knot, make an underhand loop; then bring the end around and over the standing part, under and up through the loop.

Knots

Reef or Square Knot

This knot is used to tie the reef points when reefing a sail. The knot is often tied as a slipped hitch to permit a rapid release. Never use this knot to join two lines. It would be unreliable. Unless this knot is tied carefully, you will come up with a worthless granny knot.



Bowline

This has been called the king of knots. Nothing can jam it. It will never slip if properly made. It can be tied in the hand and dropped over a cleat, bitt, or piling or formed around a mooring ring. To tie a bowline, make an overhand loop with the end held toward you, pass the end under and up through the loop, then behind the standing part and down through the loop again, adjust the bight carefully, and draw tight. This is a knot you can both trust and be proud of. By the way, the bowline as a knot has no particular connection with the bow line used to tie up the bow of your boat. The bowline was first described by Thomas Bowling. In use, "Bowling's knot" became the "bowline."

Knots

Two Half Hitches

This is a quick and very reliable knot employed when making lines fast at a mooring. To tie, make a half hitch and then add another next to it. Additional half hitches will add strength.

Sheet (Becket) Bend

This is used for securing a small rope to the bight of a larger rope. It is very much like the bowline, but uses two ropes rather than one. To tie a sheet bend, make an overhand loop with the end of one rope; pass the end of the other rope under and up through this loop, behind the first loop's standing part and down through the loop again.

Knots

Clove Hitch

The clove hitch is a simple, handy way to fasten a rope temporarily around a pile or spar. To tie a clove hitch, take a turn around the object, bringing the end of the rope over itself from below; then, take a second turn with the end under itself. This knot consists of two half hitches in opposite directions.

Cleat Hitch

This hitch is a turn secured to a cleat with figure eights and is locked in place with a half hitch.

Ordinary Sea Scout
Requirements

1.Ideals
- a. Sea Scout Emblem
- b. U.S. Flag History
- c. Flag Etiquette
- d. Living the Scout Oath & Law

2. Active Membership
- a. Active 3 Months as App.
- b. Recruiting

3. Leadership
- a. ILSS Training
- b. Quarterdeck Training
- c. Activity Chair

4. Swimming MB

5. Safety
- a. Safety Afloat
- b. Required Equipment
- c. W, Q, & Station Bill
- d. Drills
- e. Radio Equipment
- f. Routine Radio Calls
- g. Galley

6. Marlinspike
- a. Rope construction
- b. Knots:
  Stevedore, Double Bowline, Bowline on a Bight, Timber Hitch, Rolling Hitch, Marline Hitch, Midshipman's Hitch, Trucker's Hitch
- c. Securing Lines
- d. Whip and Seal Lines

7. Boat Handling
- a. Rigging, Spars, & Sails
- b. Rowing

8. Anchoring
- a. Anchor Parts
- b. Anchor Types
- c. Calculate Scope
- d. Set & Weigh Anchor

9. Navigation Rules
- a. Purpose
- b. Rule of Responsibility
- c. Stand-on & Give-way
- d. Vessel Priority
- e. Navigation Lights
- f. Sound Signals

10. Piloting & Navigation
- a. Latitude & Longitude
- b. Compass Conversions
- c. Measuring Speed
- d. 24-Hour Time
- e. UTC & Time Zones
- f. Dead Reckoning
- g. GPS Operation

11. Practical Deck Seamanship
- a. Watches & Bell Time
- b. Lookout Duties
- c. Relative Bearings
- d. Lookout Watch
- e. Helm Commands
- f. 3-Days Cruise Log

12. Environment
- a. Discharge Laws
- b. Aquatic Nuisance Species

13. Weather Reports

14. Cruising
- a. Plan & Take Overnight Cruise
- b. Helm Watch

15. Boater Safety Course

16. Service
- a. 8 Hrs of Ship Work
- b. 8 Hrs of Community Service

17. Electives (Do Any 3)

18. Skipper's Conference

19. Bridge of Review (Bo'sun)

Sea Scout Emblem

- In 1920, a young man had to be a First Class Scout to join Sea Scouts. As a result, the First Class anchor has been used in the Sea Scouting program for more than 90 years.
- The key component of the First Class anchor is the Scout universal emblem, a fleur-de-lis.
  - The three points signify the three points of the Scout Oath, duty to God and country, duty to others, and duty to self.
  - Like a compass, the center point always points north symbolizing a true course in life.
  - The eagle with the shield is the national emblem of the United States of America, and it represents freedom.
  - The scroll with the Scout Motto represents a Scout's smile and reminds us to "Be Prepared."
  - The knot attached to the bottom of the scroll is to remind you that, as a Sea Scout, you have promised to do a Good Turn daily.
  - The stars beneath the eagle's wings symbolize the ideals of truth and knowledge as guides in the night sky for finding our way. They reflect our nautical life and suggest a Scout's outdoor adventures.
- The anchor symbolizes Sea Scouts' maritime heritage.

History of U. S. Flag

We have all heard the story of George Washington, Betsy Ross, and the first American flag; however, there is no evidence to corroborate this story. We do know that the Grand Union flag flew over George Washington's headquarters outside Boston on January 1, 1776.

The Revolutionary War had started the year before, and the colonies needed a flag of their own. The Grand Union flag is often referred to as the first American flag; however, on **June 14, 1777**, several resolutions from the Marine Committee were passed by the Continental Congress. The resolution that established an official flag for the new nation was probably meant to define a naval ensign rather than a national flag, but the first flag act resolved, "That the flag of the United States be in a blue field, representing a new Constellation."

Many variations of the flag flew until 1818, when Congress established the number of stripes at seven red and six white and provided the addition of one star for each state. The current 50-star flag has flown since July 4, 1960, when Hawaii officially joined the union.

The flag of the United States, referred to in general as the American flag, is known to Sea Scouts as the national ensign.

Ever since John Paul Jones sailed the Ranger into Quiberon Bay in France to receive the first salute of the American flag by a foreign power, the U.S. Navy has referred to our flag as the national ensign. Sea Scouts honor this tradition.

Grand Union Flag 1775

First Flag 1777

Betsy Ross Flag 1776

Fifteen Star Flag 1795-1818

Serapis Flag 1779

Fifty Star Flag 1960-Present

Flag Etiquette

When to Display

- All national and state holidays, and on historic and special occasions.
- Half staff on Memorial Day until noon.
- On Land
  - Hoist the flag briskly in the morning, but not earlier than sunrise.
  - Lower it slowly in the evening, but not later than sunset.
- On Board
  - The ensign is raised at exactly 0800 when the ship is alongside or at anchor.
  - It is lowered (retired) at exactly sundown when the ship is at anchor or alongside.
  - When underway, the ensign is never lowered.
  - Sea Scouts often wear shorts or T-shirts when underway, but when raising or retiring the colors, more respectful clothing is required. A work uniform and baseball cap as cover is appropriate. It is also important that the color guard is trained by the boatswain's mate in advance so there is no fumbling or disrespect shown during this ceremony.

When Pledging Allegiance

An individual should stand at attention with their hand over their heart. If wearing a hat, it should be removed and placed over the left shoulder so that the hand is covering the heart. Persons in military uniforms or scouts in uniform should give the proper salute as they pledge allegiance.

Pledge of Allegiance

"I pledge allegiance to the flag of the United States of America, and to the republic for which it stands, one nation under God, indivisible, with liberty and justice for all."

Flag Etiquette

STANDARDS of RESPECT

The Flag Code, which formalizes and unifies the traditional ways in which we give respect to the flag, also contains specific instructions on how the flag is not to be used. They are:

- The flag should never be dipped to any person or thing. It is flown upside down only as a distress signal.
- The flag should not be used as a drapery, or for covering a speakers desk, draping a platform, or for any decoration in general. Bunting of blue, white and red stripes is available for these purposes. The blue stripe of the bunting should be on the top.
- The flag should never be used for any advertising purpose. It should not be embroidered, printed or otherwise impressed on such articles as cushions, handkerchiefs, napkins, boxes, or anything intended to be discarded after temporary use. Advertising signs should not be attached to the staff or halyard
- The flag should not be used as part of a costume or athletic uniform, except that a flag patch may be used on the uniform of military personnel, fireman, policeman and members of patriotic organizations.
- The flag should never have placed on it, or attached to it, any mark, insignia, letter, word, number, figure, or drawing of any kind.
- The flag should never be used as a receptacle for receiving, holding, carrying, or delivering anything.
- When the flag is lowered, no part of it should touch the ground or any other object; it should be received by waiting hands and arms. To store the flag it should be folded neatly and ceremoniously.

The flag should be cleaned and mended when necessary.

When a flag is so worn it is no longer fit to serve as a symbol of our country, it should be destroyed by burning in a dignified manner.

Flag Etiquette

Displaying the Flag Outdoors

When the flag is displayed from a staff projecting from a window, balcony, or a building, the union should be at the peak of the staff unless the flag is at half staff.

When it is displayed from the same flagpole with another flag - of a state, community, society or Scout unit - the flag of the United States must always be at the top except that the church pennant may be flown above the flag during church services for Navy personnel when conducted by a Naval chaplain on a ship at sea.

When the flag is displayed over a street, it should be hung vertically, with the union to the north or east. If the flag is suspended over a sidewalk, the flag's union should be farthest from the building.

When flown with flags of states, communities, or societies on separate flag poles which are of the same height and in a straight line, the flag of the United States is always placed in the position of honor - to its own right.

..The other flags may be smaller but none may be larger.
..No other flag ever should be placed above it.
..The flag of the United States is always the first flag raised and the last to be lowered.

When flown with the national banner of other countries, each flag must be displayed from a separate pole of the same height. Each flag should be the same size. They should be raised and lowered simultaneously. The flag of one nation may not be displayed above that of another nation.

Raising and Lowering the Flag

The flag should be raised briskly and lowered slowly and ceremoniously. Ordinarily it should be displayed only between sunrise and sunset. It should be illuminated if displayed at night.
The flag of the United States of America is saluted as it is hoisted and lowered. The salute is held until the flag is unsnapped from the halyard or through the last note of music, whichever is the longest.

Flag Etiquette

Displaying the Flag Indoors

When on display, the flag is accorded the place of honor, always positioned to its own right. Place it to the right of the speaker or staging area or sanctuary. Other flags should be to the left.

The flag of the United States of America should be at the center and at the highest point of the group when a number of flags of states, localities, or societies are grouped for display.

When one flag is used with the flag of the United States of America and the staffs are crossed, the flag of the United States is placed on its own right with its staff in front of the other flag.

When displaying the flag against a wall, vertically or horizontally, the flag's union (stars) should be at the top, to the flag's own right, and to the observer's left.

Parading and Saluting the Flag

When carried in a procession, the flag should be to the right of the marchers. When other flags are carried, the flag of the United States may be centered in front of the others or carried to their right. When the flag passes in a procession, or when it is hoisted or lowered, all should face the flag and salute.

The Flag in Mourning

To place the flag at half staff, hoist it to the peak for an instant and lower it to a position half way between the top and bottom of the staff. The flag is to be raised again to the peak for a moment before it is lowered. On Memorial Day the flag is displayed at half staff until noon and at full staff from noon to sunset.

The flag is to be flown at half staff in mourning for designated, principal government leaders and upon presidential or gubernatorial order.

When used to cover a casket, the flag should be placed with the union at the head and over the left shoulder. It should not be lowered into the grave.

How to Fold the U.S. Flag

Step 1
To properly fold the Flag, begin by holding it waist-high with another person so that its surface is parallel to the ground.

Step 2
Fold the lower half of the stripe section lengthwise over the field of stars, holding the bottom and top edges securely.

Step 3
Fold the flag again lengthwise with the blue field on the outside.

Step 4
Make a triangular fold by bringing the striped corner of the folded edge to meet the open (top) edge of the flag.

Step 5
Turn the outer (end) point inward, parallel to the open edge, to form a second triangle.

Step 6
The triangular folding is continued until the entire length of the flag is folded in this manner.

Step 7
When the flag is completely folded, only a triangular blue field of stars should be visible.

Sailing – Basic Watchstations

- Helm – Steer the vessel. Commands the crew. Navigates if there is no navigator.
- Foredeck – Bow lookout. Handles halyards. Sail handling during tacks & gybes.
- Mainsheet – Aft lookout. Trims the mainsail. Assist Foredeck when raising & lowering sails. Logkeeper if there is no navigator.
- Jibsheets
  - Working Jibsheet – Trims the jibsheet that's under tension.
  - Lazy Jibsheet – Tails the working jibsheet.
  - Roles reverse after a tack or gybe.
  - If shorthanded, Mainsheet doubles as Grinder.
- Navigator – Advises Helm on safe course. Keeps track of position. Logkeeper.

Sailing – Talk Like a Sailor

- Windward – Toward the wind.
- Leeward – Away from the wind.
- Tack – Turn the bow through the wind so that the direction from which the wind blows changes from one side to the other.
- Gybe – Turn the stern through the wind so that the direction from which the wind blows changes from one side to the other.
- Head Up – Steer closer to the wind.
- Fall Off – Steer further from the wind.
- To Weather – Steering the boat to windward, a.k.a. beating.
- Lift – A wind shift in your favor when beating; allows pointing closer to destination.
- Header – A wind shift not in your favor; requires falling off.
- Puff – A brief gust of wind.
- Lull – A brief lack of wind.
- Trim – Tighten a sheet.
- Ease – Loosen a sheet.

Sailing – Raising the Sails

1. Steer bow to wind, lower speed.
2. Loosen boom vang and main sheet.
3. Remove sail ties.
4. TIP: keep tension on main halyard to prevent wrapping around mast.
5. Raise mainsail.
6. Trim (tighten) main sheet.
7. Raise headsail, steer close hauled, trim working jib sheet.
8. Steer desired course and trim sails as needed.

Sailing – Tacking

1. Helm identifies a new aiming point for steering.
2. Helm announces, “Prepare to Tack”.
3. Mainsheet prepares traveler for shifting. Announce “Ready”.
4. Working Jibsheet uncleats and holds sheet. Announce “Ready”.
5. Lazy Jibsheet wraps sheet a few turns on winch. Announce “Ready”.
6. Helm announces, “Helm’s Alee” and shifts tiller for the maneuver.
7. When jib luffs, simultaneously:
    a. Working Jibsheet releases completely and grabs winch handle, now becomes Grinder.
    b. Lazy Jibsheet hauls on sheet. Grinder inserts winch handle and trims jib.
    c. Mainsheet shifts traveler.
    d. Foredeck untangles sheets or sails as necessary.
8. When boat reaches new course, Helm steadies. Crew trims sails for point of sail.

Sailing – Gybing

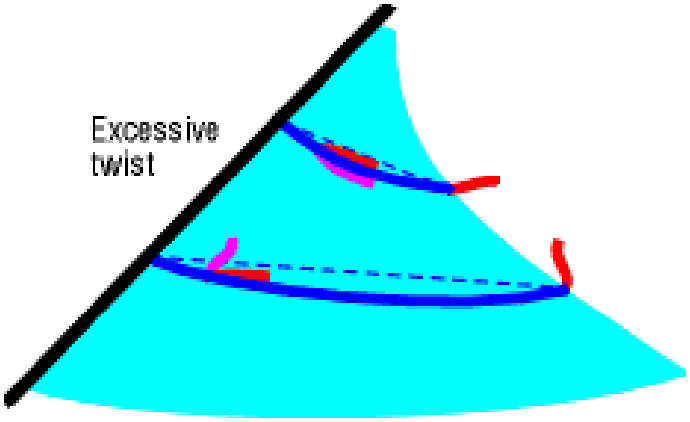
1. Helm identifies a new aiming point for steering.
2. Helm announces, “Prepare to Gybe”.
3. Mainsheet begins trimming mainsail to minimize boom crash. Announce “Ready”.
4. Working Jibsheet uncleats and holds sheet. Announce “Ready”.
5. Lazy Jibsheet wraps sheet a few turns on winch. Announce “Ready”.
6. Helm announces, “Gybing” and shifts tiller for the maneuver.
7. Simultaneously:
    a. Working Jibsheet releases completely and grabs winch handle, now becomes Grinder.
    b. Lazy Jibsheet hauls on sheet. Grinder inserts winch handle and trims jib.
    c. Foredeck untangles sheets or sails as necessary.
8. When boat reaches new course, Helm steadies. Crew trims sails for point of sail.

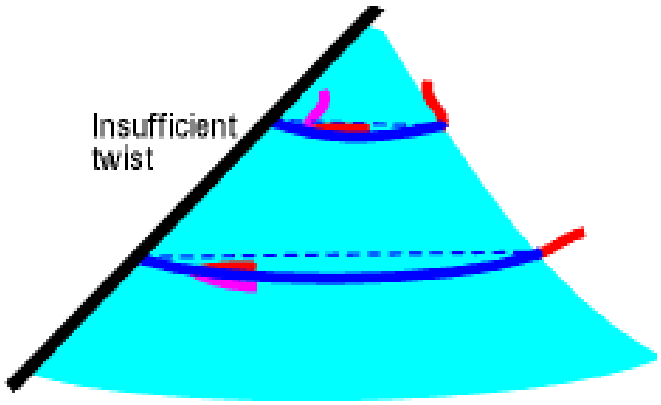
Sailing – Lowering Sails

1. Start engine.
2. Steer bow to wind, low speed.
3. Trim all sheets.
4. Lower headsail.
5. Lower mainsail.
6. Steer desired course on motor.

Basic Sail Trim – Telltales

- Only useful when sailing to weather.
- “When in doubt, let it out.”
- Mainsail telltale are located on leech of sail. Should flow smoothly aft, with occasional flicks to windward. Slacken mainsheet until smooth flow, then tighten an inch.
- Jib telltales are located on both sides of sail, near the luff, in several places. Identify them as windward, and leeward. Both telltales should stream back smoothly. Flicking up or down indicates stalling. If the windward telltale is flicking, tighten the sheet (or fall off). If the leeward telltale is flicking, loosen the sheet (or head up).
- Jib Traveler – Move traveler forward in light winds. Move aft in strong winds. Look for smooth flow on lower and upper jib telltales.





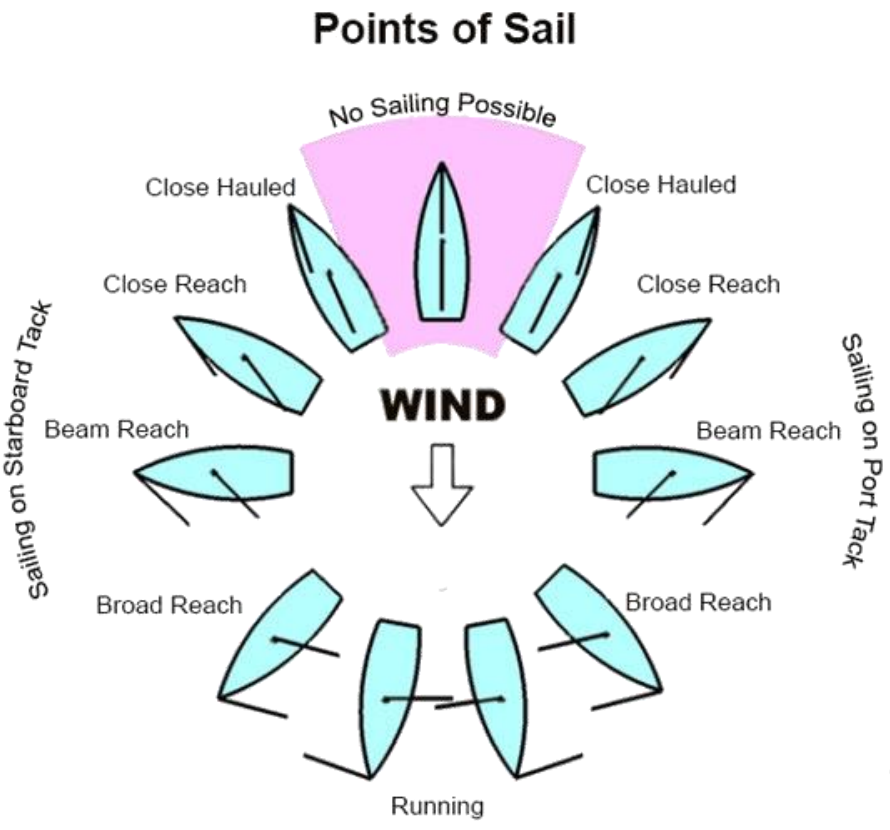
TRIMMED
CORRECTLY

LUFFING
(Pinched)
Trim Sheet
or Fall Off

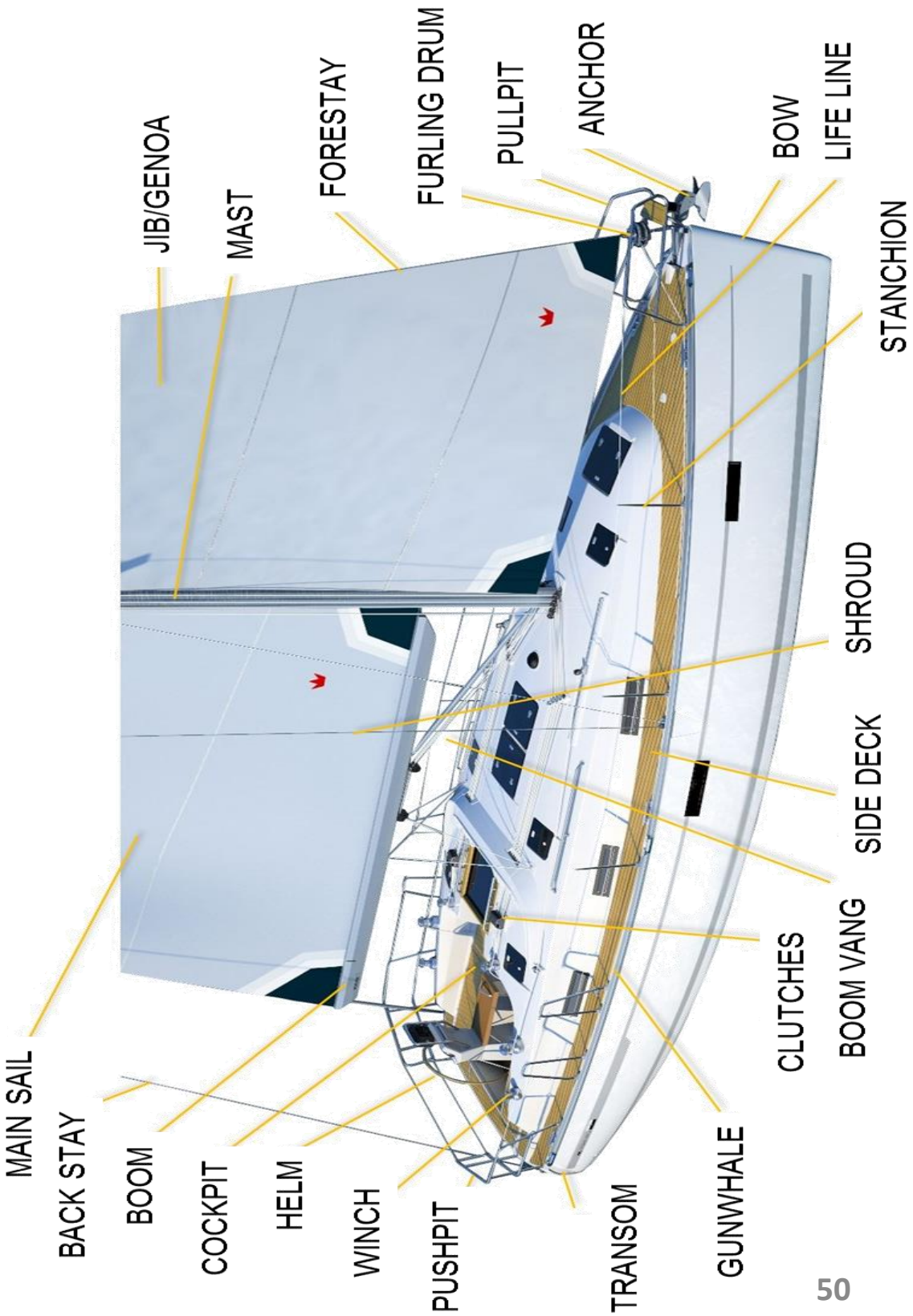
STALLED
Slacken Sheet
or Head Up

Basic Sail Trim – Points of Sail

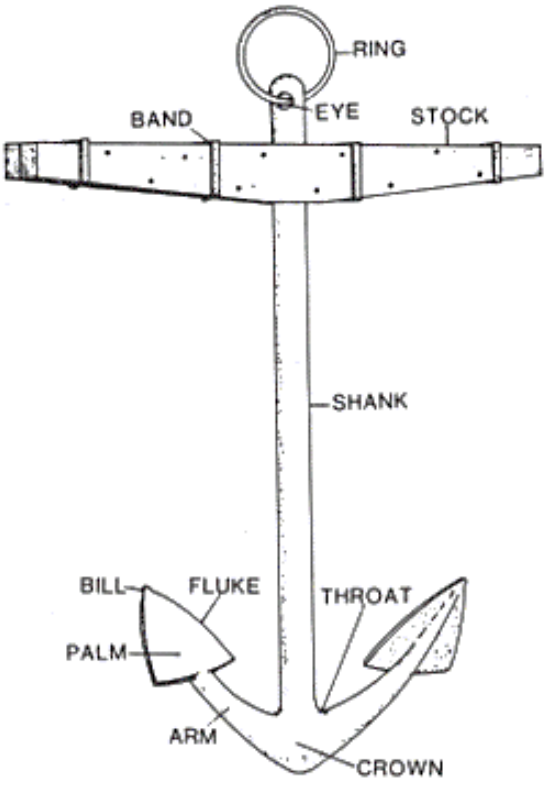
- Close Hauled – Sailing as close to the wind as possible (about 45 degrees). Sails are trimmed tight. Traveler positioned to windward to position boom at centerline. Helm must steer boat for wind to maintain propulsion. Movement is completely provided by lift in the sails.
- Close Reach – Between close hauled and beam reach. Movement provided by mostly lift with a little push. Mainsheet is slacked to position boom about 30 degrees from centerline, but use tell tales to adjust. Jib is slacked to provide event flow for both tell tales.
- Beam Reach – Wind is coming from the beam of the boat. Movement is about 50/50 push and lift. Boom is eased to about 45 degrees, but use tell tales to adjust. Jib is slacked to provide event flow for both tell tales.
- Broad Reach – Between bean reach and run. Movement provided by mostly push with a little lift. Mainsheet can be fully slackened. Jib is slackened to catch wind. Advise using whisker pole.
- Run – Sailing downwind. Movement provided by push only. Mainsheet can be fully slackened. Trim boom vang to maintain sail shape and boom tension. Jib is slackened to catch wind. Advise using whisker pole. Advise using wing-and-wing sail placement. Advise not sailing directly downwind to avoid accidental gybe. If must go downwind, consider using boom preventer.
- In Irons – A sailboat can't steer directly into the wind.

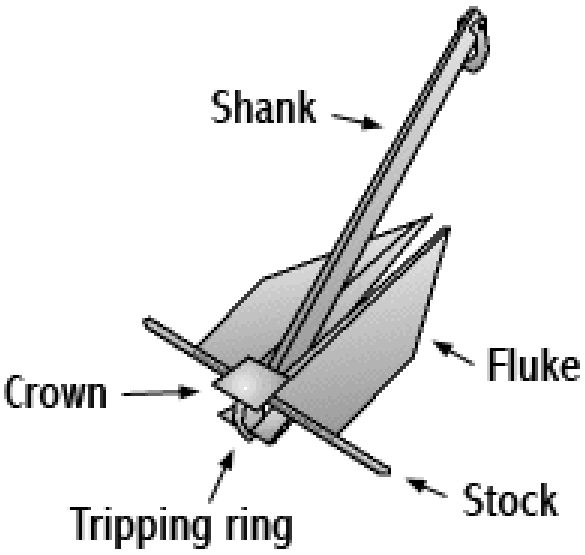


Parts of Cruising Sailboat



Parts of Anchor





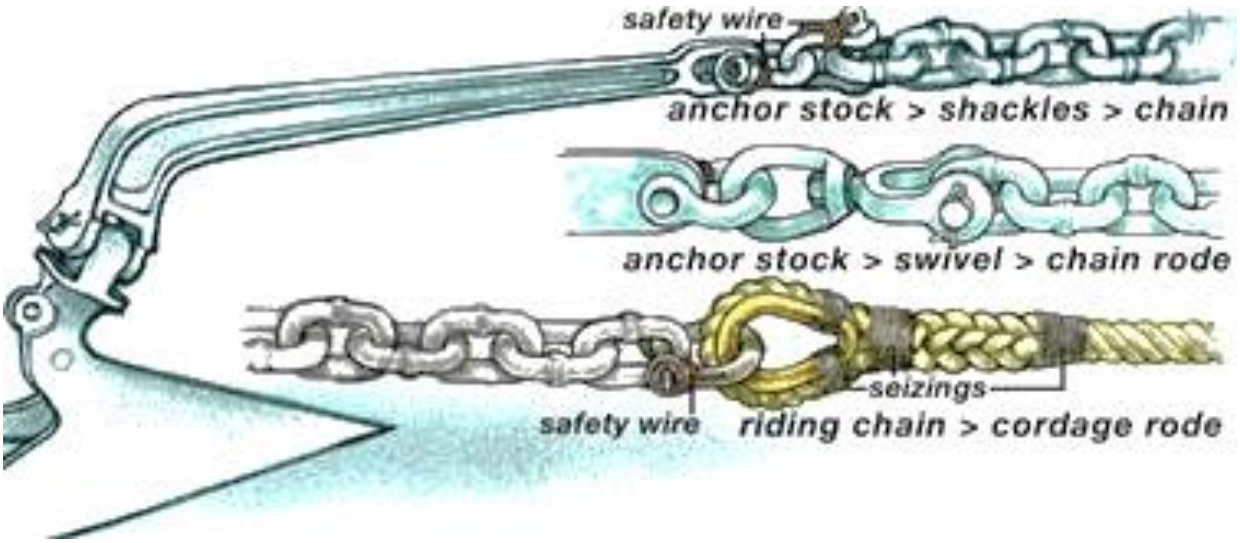
- **Arm-**Part of the anchor extending from the crown end of the shank and connecting to the palm.
- **Band-**Metal loop securing the two sections of the wooden stock together and to the shank.
- **Bill-**Very tip end of palm.
- **Crown-**The pointed end of the anchor which attaches the shank to the arms.
- **Eye-**Hole in the end of the shank through which the ring is attached.
- **Fluke-**The spade shaped appendage of the arm used for digging into the sea bed in order to secure the vessel.
- **Palm-**Flat upper most portion of the fluke.
- **Ring-**The working end of the anchor which rope or chain was attached to connect the anchor to the vessel.
- **Shank-**The vertical stem of the anchor.
- **Stock-**Cross bar of the anchor which turns the anchor into an attitude that enables the fluke to dig in to the sea bed.
- **Throat-**The curvature between the shank and the upward part of the arm.
- **Tripping Ring** –A ring attached to an optional tripping line: by pulling the tripping line, the anchor will break out.

Rode, Chain, and Attachment

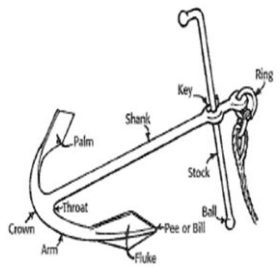
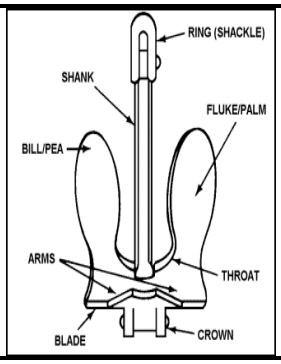
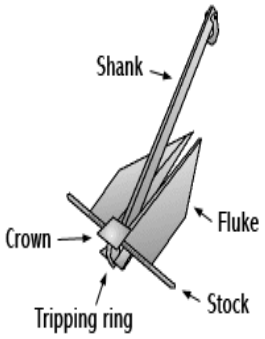
- Shackle
- Line
- Thimble
- Chain
- Safety Wire
- Swivel
- Seizing
- Splice
- Chafe

Tips:

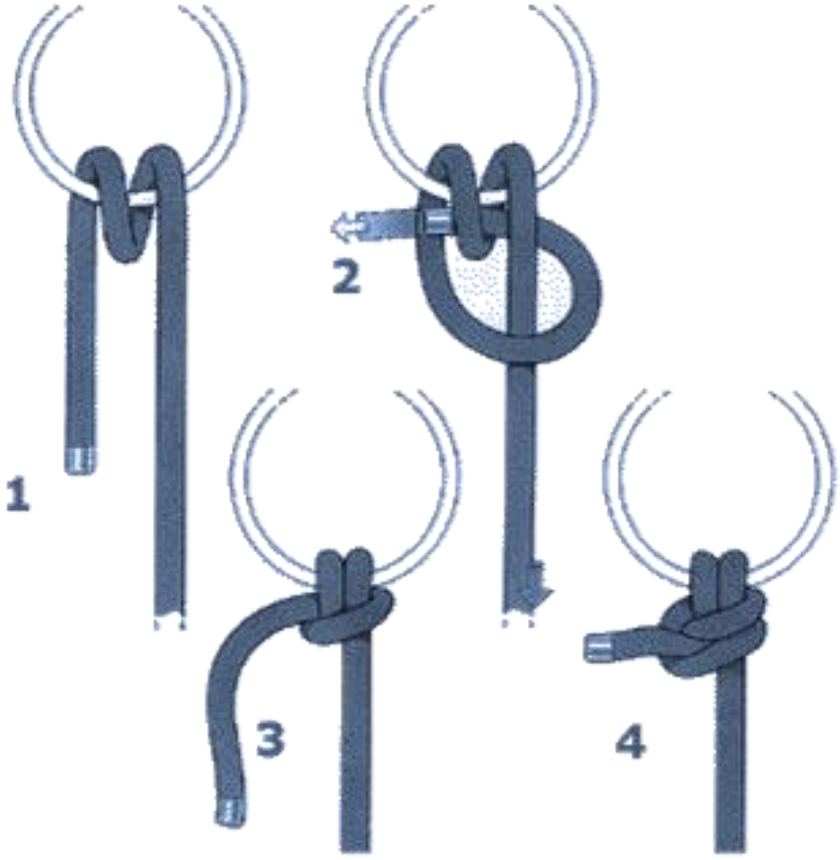
- Anchor – Shackle – Swivel – Shackle – Chain – Shackle – Thimble – Nylon Rode
- Chain length should equal boat length.
- Twisted Nylon line is superior to braided line for anchoring and dock lines because it stretches, thereby reducing the forces felt by the cleat.
- Safety wire keeps shackle from coming loose.
- Don't mix stainless fittings with galvanized.
- Store anchor on top of rode.



Types of Anchors

NAME	PICTURE	BOTTOMS	ADVANTAGES	DISADVANTAGES
Fisherman		Rocky Grassy	Easily stowed	Easily fouled
Navy		Muddy Grassy	Inexpensive	Very heavy
Fluke		Sandy Muddy	Inexpensive, lightweight, easily stowed	Not good for grassy, rocky, or hard bottom
Plow		All	Quick setting. Does not foul when boat shifts direction	Awkward to stow Expensive

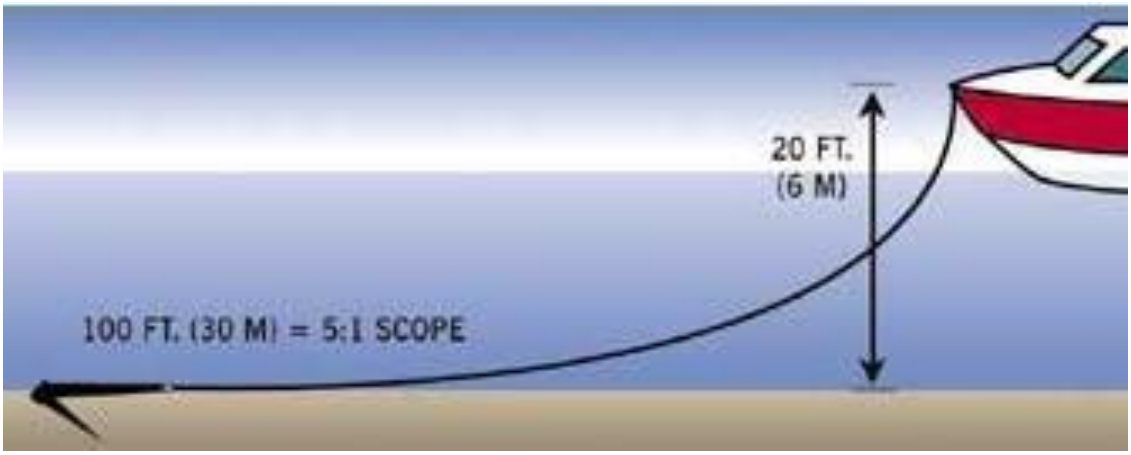
Anchor Hitch



- This knot holds well even when tension on the line is changing, like with an anchor.
- Option: Add an extra one or two half hitches or seize the tail to the standing end for additional security.

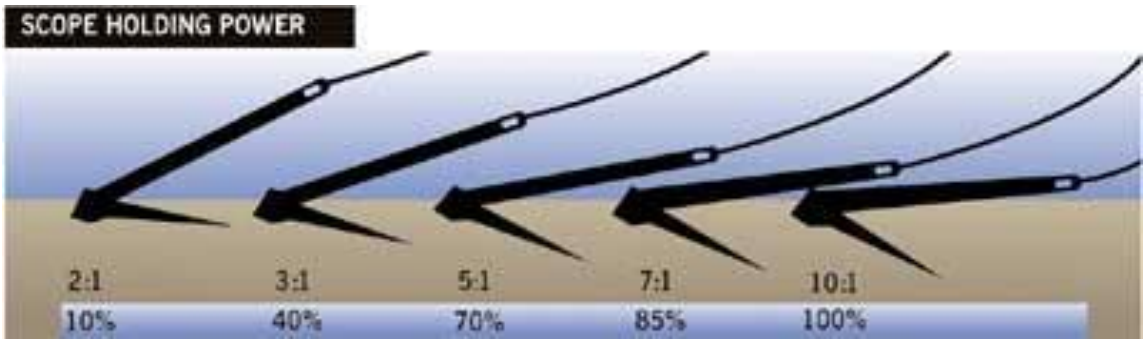
Scope

Scope is the length of anchor line (rode) relative to the distance from your boat's deck to the sea bottom.



Recommended Scope

- Lunch – 5:1
- Overnight – 7:1
- Storm – 10:1



Anchoring Guide

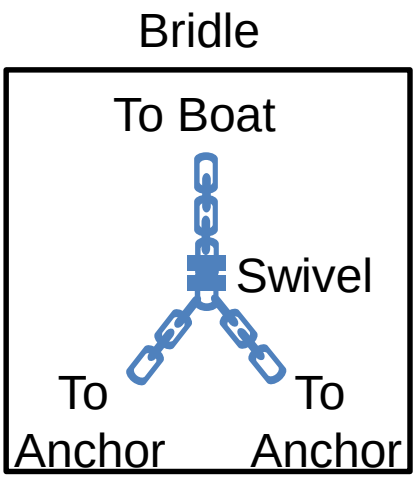
- Proper ground tackle means:
  - Right anchor, adequate chain, braided nylon rode, joined with thimble and shackle
- Determine holding requirements
  - For 25 ft boat, given wind/current:
    - 15 kts 125 lbs horizontal load
    - 30 kts 490 lbs horizontal load
  - As wind doubles, load quadruples
- Use adequate scope
  - Lunch hook – 5:1
  - Overnight – 7:1
  - Storm – 10:1
- Set anchor watch and/or anchor alarm
  - Take fix when set, after 5 minutes, at each tide cycle

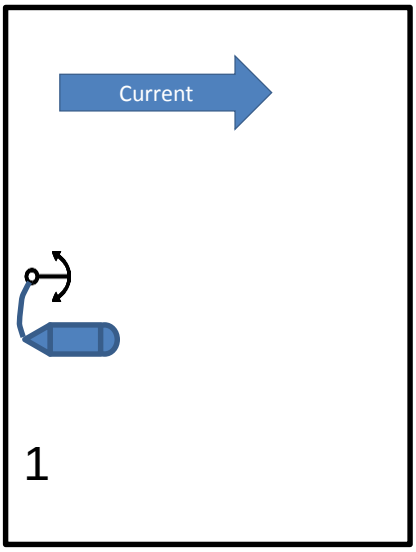
Horizontal Load

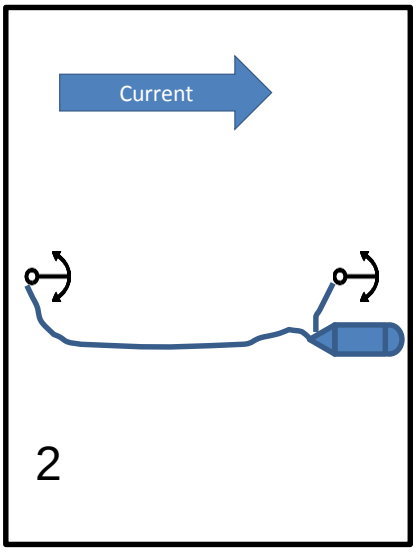
WIND SPEED	BOAT LENGTH in FEET				
	20ft	25ft	30ft	35ft	40ft
15 kts	90	125	175	225	300
30 kts	360	490	700	900	1,200
42 kts	720	980	1,400	1,800	2,400
60 kts	1,440	1,960	2,800	3,600	4,800

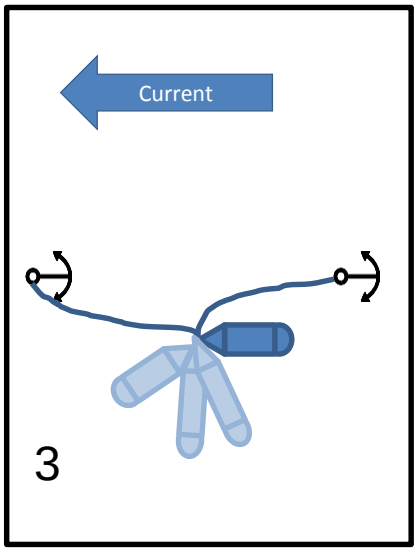
Bahamian Mooring

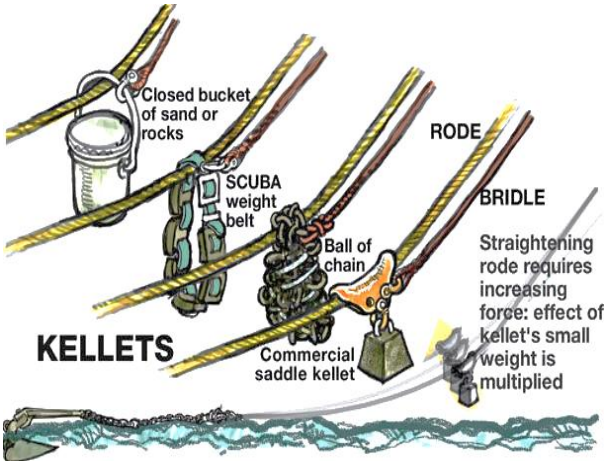
- Good for shifting currents
  - One anchor upstream
  - One anchor downstream
  - Both attached to bow
- To avoid snags on keel
  - Bridle rodes together
  - Kellet to hold rodes below keel





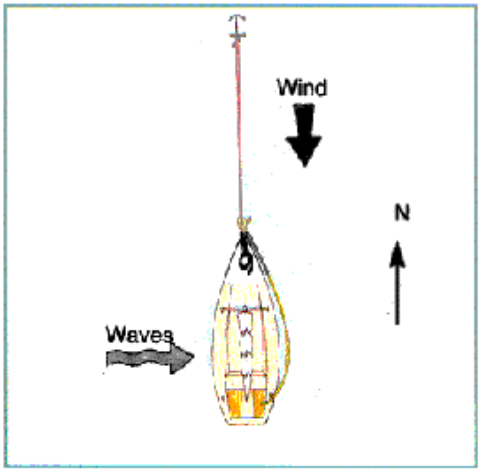




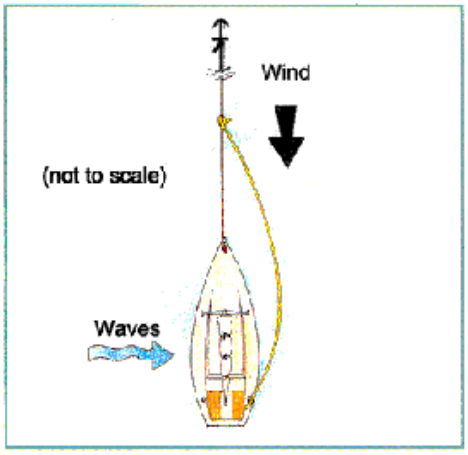


Springing the Rode

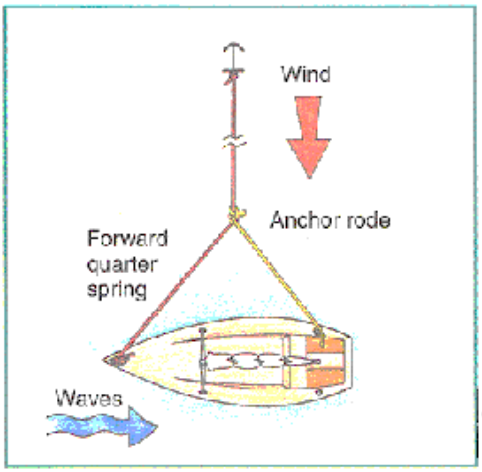
- Reduces boat surging when waves are broad



Attach spring line to anchor rode using roving hitch



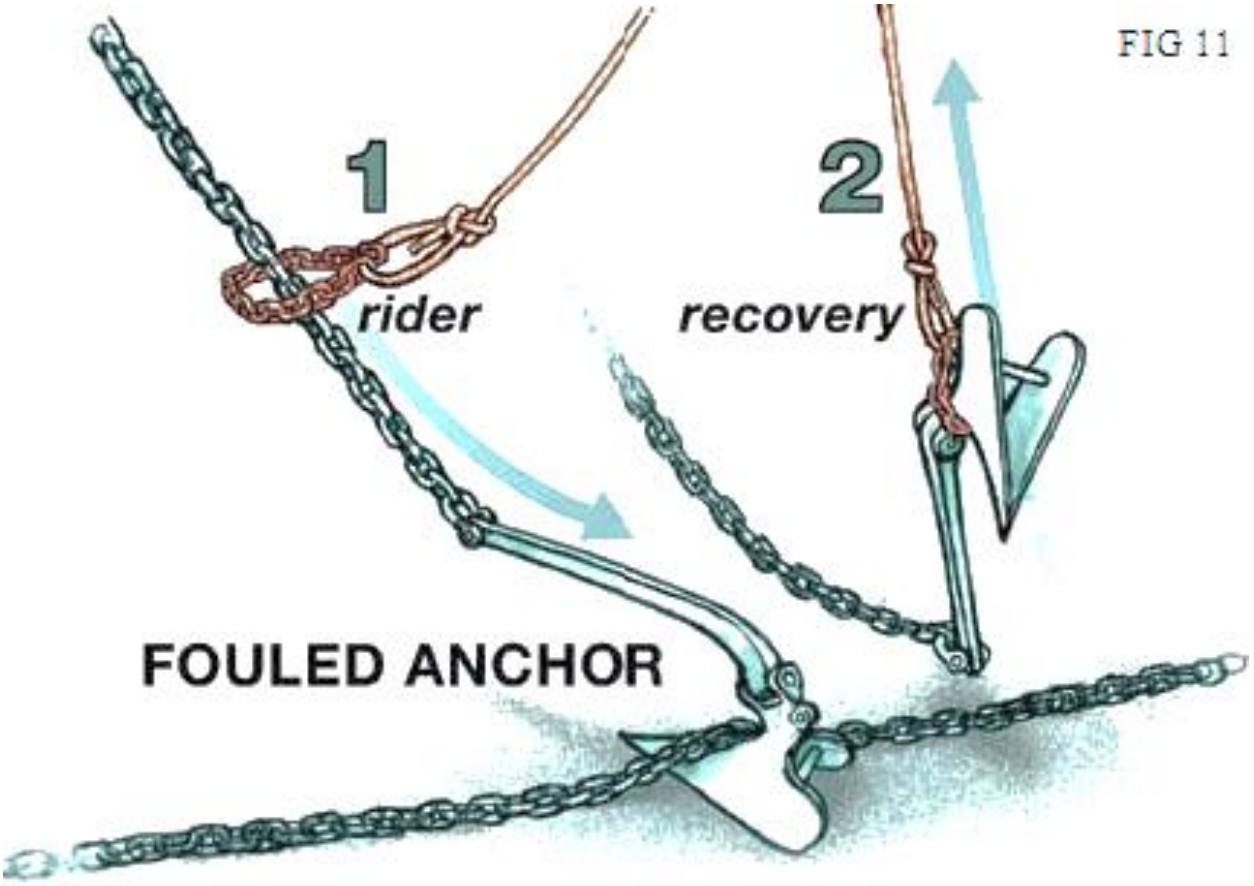
Pay out additional anchor rode



Take up spring line until bow (or stern) faces the wind

Stuck/Fouled Anchor Recovery

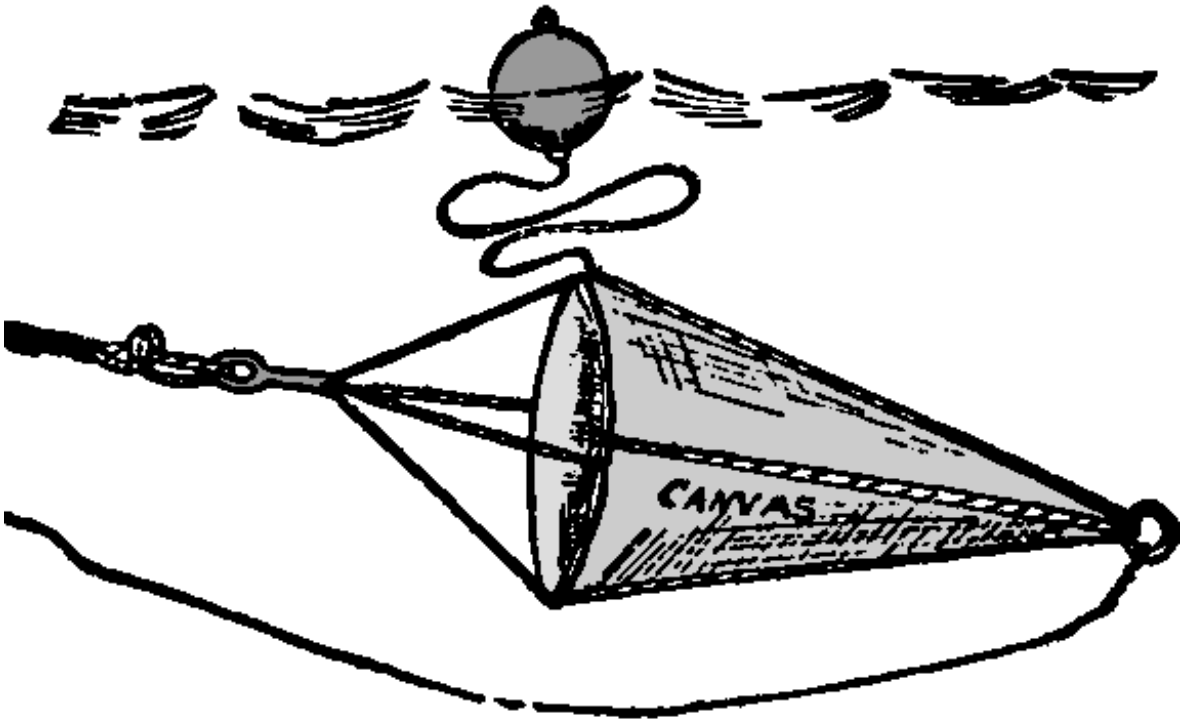
Using a rider (or tripping ring) to recover a fouled anchor



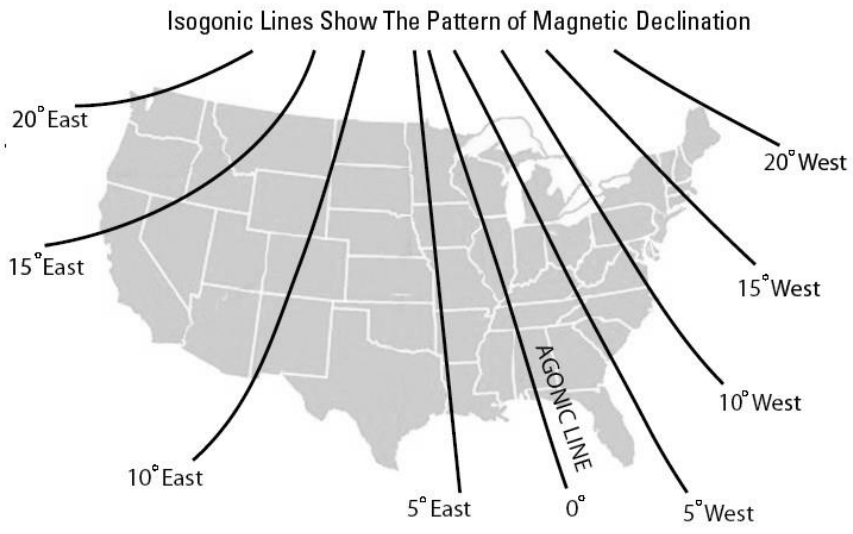
Sea Anchor

- Good for stabilizing boat in heavy weather
- Keeps bow pointed into wind/waves
- Anchors to the sea, not the sea floor
- Also known as:
  - Drift
  - Sock
  - Drogue

By attaching the sea anchor to a bridle running from bow to stern, the boat can be held at any angle relative to the wind



Compass Correction



Variation: The difference between the Geographic North Pole and the Magnetic North Pole. Changes in different locations. Listed on chart.

Deviation: Distortion of magnetic field due to nearby metal (e.g. engine). Changes with boat's heading. Must be determined experimentally for each boat by "swinging the compass".

Example 1: Going from True to Magnetic, add westerly variation.

Example 2: Going from Magnetic to True, subtract westerly variation.

→ aW

T – V – M – D – C

- T rue
- V ariation
- M agnetic
- D eviation
- C ompass
- add West (variation)

Mnemonic

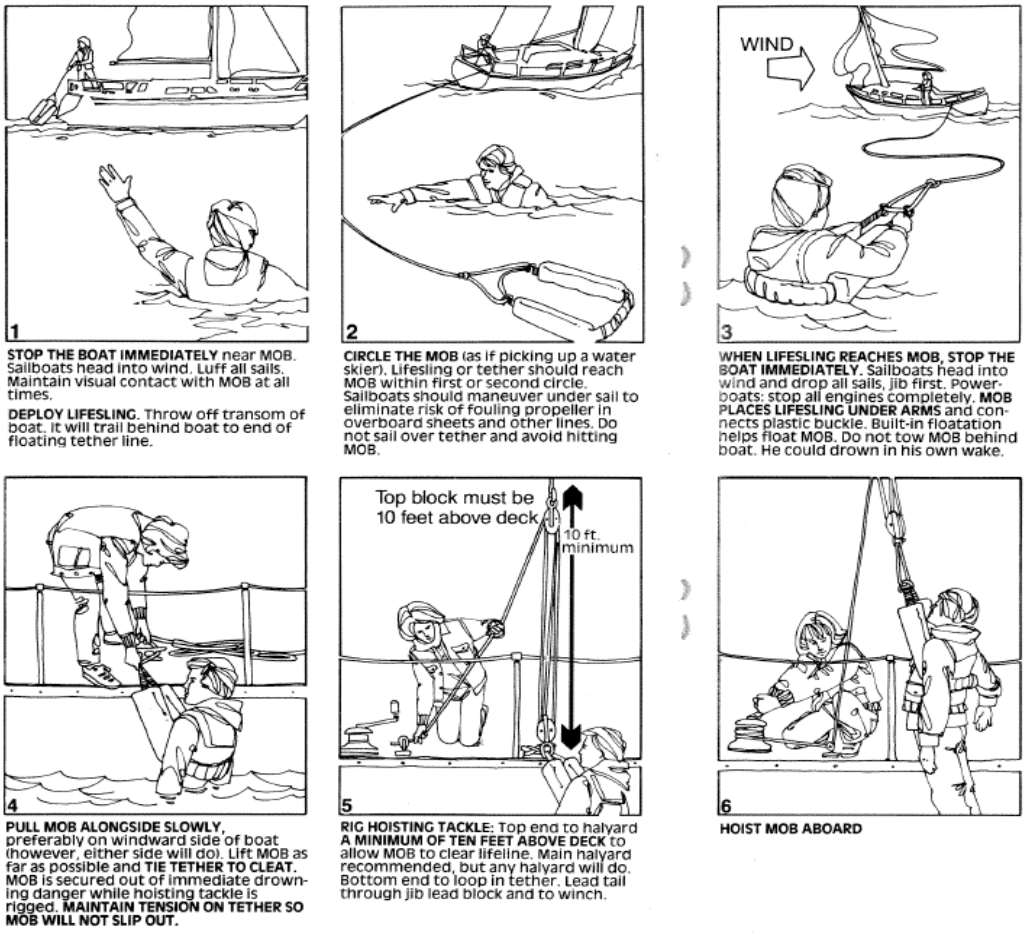
- T ele
- V ision
- M akes
- D ull
- C hildren
- a lways W atch

Example Station Bill

Station bill assigns responsibilities to the various crew members for each major casualty. Whether assigned by billet or by name, the crew must become familiar with their responsibility when a casualty occurs.

	Fire	**Collision/Flooding**	**Abandon ship**
Crew Leader	Fight the fire	Check under cockpit seats for flooding/leaks	Bring flashlight and signal box to cockpit
Navigator	Note position, transmit MAYDAY	Check main cabin for flooding/leaks (include lockers under seats and quarter berths)	Note position and transmit MAYDAY
Chop	Gather rest of fire extinguishers	Check head area lockers and bow compartment for flooding/leads	Bring water and 1st aid kit to cockpit
Deck	Fill water bucket with sea water	Break out emergency bilge pump	Prep and load dinghy and oars

Crew Overboard (COB)



1
STOP THE BOAT IMMEDIATELY near MOB. Sailboats head into wind. Luff all sails. Maintain visual contact with MOB at all times.

DEPLOY LIFESLING. Throw off transom of boat. It will trail behind boat to end of floating tether line.

2
CIRCLE THE MOB (as if picking up a water skier). Lifesling or tether should reach MOB within first or second circle. Sailboats should maneuver under sail to eliminate risk of fouling propeller in overboard sheets and other lines. Do not sail over tether and avoid hitting MOB.

3
WHEN LIFESLING REACHES MOB, STOP THE BOAT IMMEDIATELY. Sailboats head into wind and drop all sails, jib first. Powerboats: stop all engines completely. **MOB PLACES LIFESLING UNDER ARMS** and connects plastic buckle. Built-in floatation helps float MOB. Do not tow MOB behind boat. He could drown in his own wake.

4
PULL MOB ALONGSIDE SLOWLY, preferably on windward side of boat (however, either side will do). Lift MOB as far as possible and **TIE TETHER TO CLEAT.** MOB is secured out of immediate drowning danger while hoisting tackle is rigged. **MAINTAIN TENSION ON TETHER SO MOB WILL NOT SLIP OUT.**

5
RIG HOISTING TACKLE: Top end to halyard **A MINIMUM OF TEN FEET ABOVE DECK** to allow MOB to clear lifeline. Main halyard recommended, but any halyard will do. Bottom end to loop in tether. Lead tail through jib lead block and to winch.

6
HOIST MOB ABOARD

1. Witness calls alarm and keeps COB in sight.
2. All hands on deck and put on PFDs.
3. Helm – Quick Stop
4. Deploy Lifesling.
5. Mark “MOB” on chart plotter.
6. Circle boat around COB.
7. Lifesling reaches COB – Stop boat, douse jib.
8. Pull COB to boat.
9. COB alert – Bring to swim ladder and come aboard.
10. Else, cleat COB out of water, rig halyard to hoist aboard.
11. MAYDAY if crew loses sight of COB.

VHF Radio Calls

Distress Call Procedure

1. Switch to Channel 16
2. Repeat “Mayday” 3x
3. Repeat Name of Boat 3x
4. Present Location
5. Nature of Emergency
6. Number of People Onboard
7. Type of Assistance Needed
8. Radio Channel Monitored

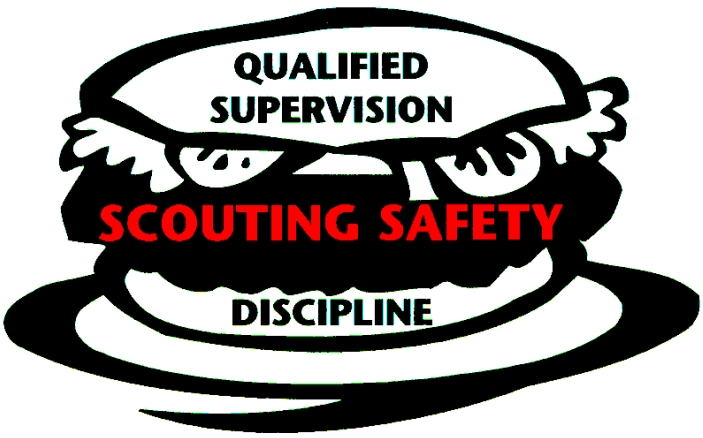
Wait 3 minutes for response before repeating message.

- Types of Emergency Calls
  - Mayday: Lives at Risk
  - Pan Pan: Boat Problem
  - Security: Information
- Useful VHF Channels
  - 09: Normal Calling
  - 13: Ships/Bridges/Locks
  - 16: Emergency/Hailing
  - 22A: Coast Guard
  - 68, 69, 71, 72: Working
- Routine Calls
  1. Hail on Channel 16
  2. Switch to Ch 68, 69, 71, or 72
  3. Return to monitor Ch 16

Safety Afloat

- Qualified Supervision
- Physical Fitness
- Swimming Ability
- PFD
- Buddy System
- Skill Proficiency
- Planning
- Equipment
- Discipline

THE SANDWICH PRINCIPLE



Required Equipment

Equipment	Requirement	<16	16<26	26<40	40<65
Certificate of Number	All undocumented vessels equipped with propulsion machinery must be state registered Certificate of Number must be on board when the vessel is in use.	X	X	X	X
State Numbering	(a) Plain block letters/numbers, not less than 3 inches in height, must be affixed on each side of the forward half of the vessel, in a contrasting color to the background, and read from left to right (b) State validation sticker(s) must be affixed within 6 inches of the registration number Note: check with your local boating agency for specific state requirements	X	X	X	X
Certificate of Documentation	Applies only to "Documented" vessels: (a) Original and current certificate must be on board (b) Vessel name/hailing port must be marked on exterior part of hull in letters not less than 4 inches in height (c) Official Number must be permanently affixed on interior structure in numbers not less than 3 inches in height		X	X	X
Life Jackets	(a) One Type I, II, III, or V wearable life jacket for each person (b) In addition, must carry one Type IV throwable device	X	X X	X X	X X
Visual Distress Signals (VDS)	(a) One electric distress light, or three combination day/night red flares Note: only required to be carried on board when the vessel is operating between sunset and sunrise (b) Three combination day/night red flares – hand-held, meteor, or parachute-type, or one orange distress flag, or one electric distress light, or three hand-held or floating orange smoke signals and one electric distress light	X X	X	X	X
Fire Ext.	(a) One B-I (when enclosed compartment) (b) One B-II or two B-I Note: fixed system equals one B-I (c) One B-II and one B-I, or three B-I Note: fixed system equals one B-I	X	X	X	X
Ventilation	(a) All vessels built after April 25, 1940 that are gasoline-fueled with enclosed engine and/or fuel tank compartments must have natural ventilation (at least two ducts fitted with cowls) (b) In addition, a vessel built after July 31, 1980 must have a rated power exhaust blower	X	X	X	X

Required Equipment (cont.)

Equipment	Requirement	<16	16<26	26<40	40<65
Sound Producing Devices	(a) A vessel of less than 39 4 feet (12 meters) must, at a minimum, have some means of making an efficient sound signal – i e , handheld air horn, athletic whistle . A human voice/sound is not acceptable. (b) A vessel 39 4 feet (12 meters) or greater, must have a sound-signaling appliance capable of producing an efficient sound signal, audible for 1/2 mile, with a 4- to 6-second duration	X	X	X X	 X
Backfire Flame Arrestor	Required on gasoline engines installed after April 25, 1940, except outboard motors	X	X	X	X
Navigational Lights	Required to be displayed from sunset to sunrise and in areas of restricted visibility	X	X	X	X
Oil Pollution Placard	(a) Placard must be at least 5 by 8 inches and made of durable material (b) Placard must be posted in each machinery space or at the bilge control station			X	X
Garbage Placard	(a) Placard must be at least 4 by 9 inches and made of durable material (b) Displayed in a conspicuous place notifying all on board of the discharge restrictions			X	X
Marine Sanitation Devices	If there is an installed toilet, the vessel must have an operable MSD Type I, II, or III	X	X	X	X
Navigation Rules	The operator of a vessel 39 4 feet (12 meters) or greater while operating on U S inland waters must have on board a copy of these rules			X	X

Knots

Rolling Hitch

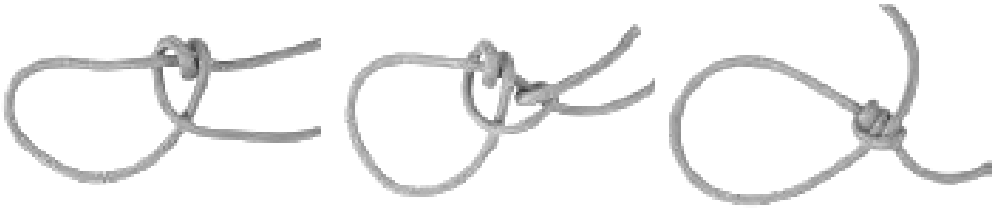
This is a very effective hitch when a pull is to be resisted along the length of a spar. However, it is only effective for a steady pull. Slacking and jerking are liable to loosen it.

Timber Hitch

The timber hitch is useful when lowering or hoisting a spar or pole. To tie, pass the rope around the spar and take a turn on the standing part: twist the end back on itself for at least three turns, following the lay of the rope. Adding a half hitch enables one to tow a spar end first on a straight course.

Midshipman's (Taut-Line) Hitch

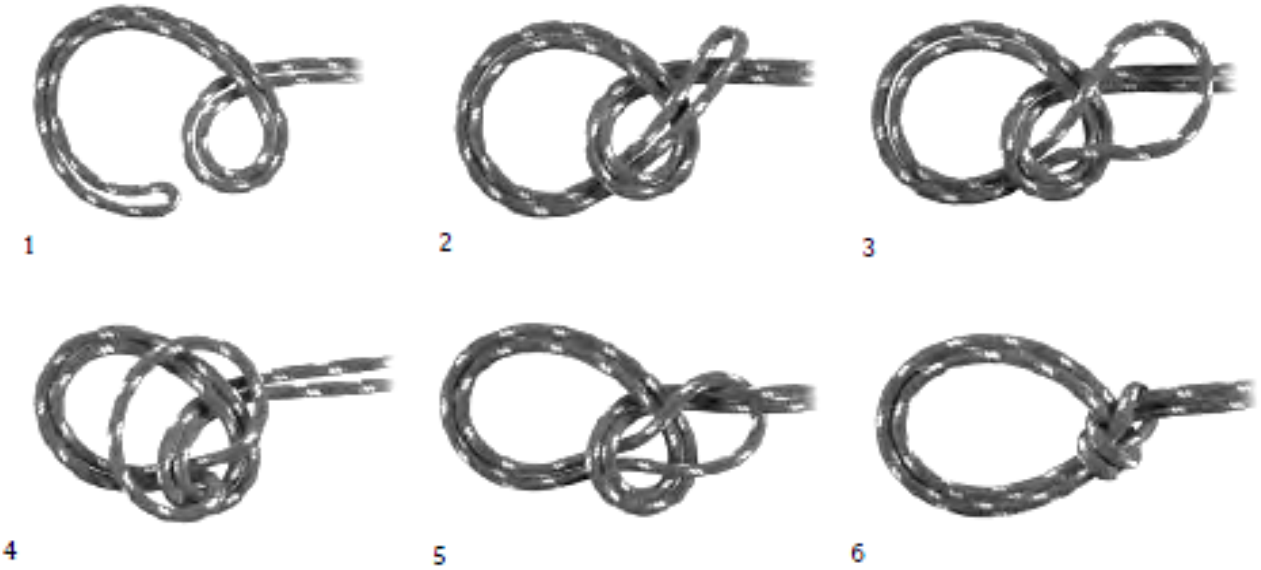
This hitch is used to keep a line taut. It is similar to two half hitches with the first half hitch doubled. It is easy to untie if the second half hitch is slippery. Frequently used for tent guy lines.



Knots

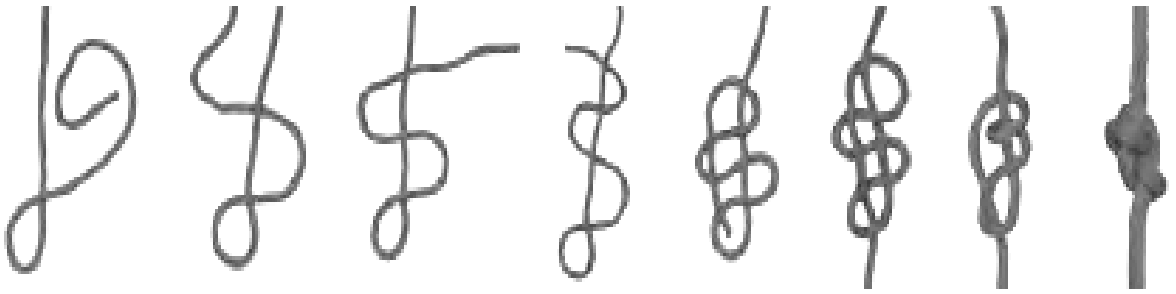
Bowline on a Bight

The bowline on a bight increases the strength of a bowline and makes several loops for various purposes. It is formed in the same way as a bowline using the bight instead of the end, the parts being double. When the bight is brought up through the gooseneck, it is passed down around the loop and up behind the standing part. The illustration shows this.



Stevedore's Knot

The stevedore's knot is used to prevent the end of a fall from running through the large swallow of a cargo block. Make a bight in the end of the rope and then wrap the working end once around the standing part. Make a half turn and take it back up to the top of the knot. Tuck the end up through the top loop, and tighten the knot.



Knots

French (Double) Bowline

The French bowline provides two nonslip loops used for hoisting, lowering, etc. To tie this knot, start with an overhand loop as on a regular bowline, but pass the end through twice to form two larger loops; finish as on a regular bowline by passing the line behind the standing part and down through the original loop.

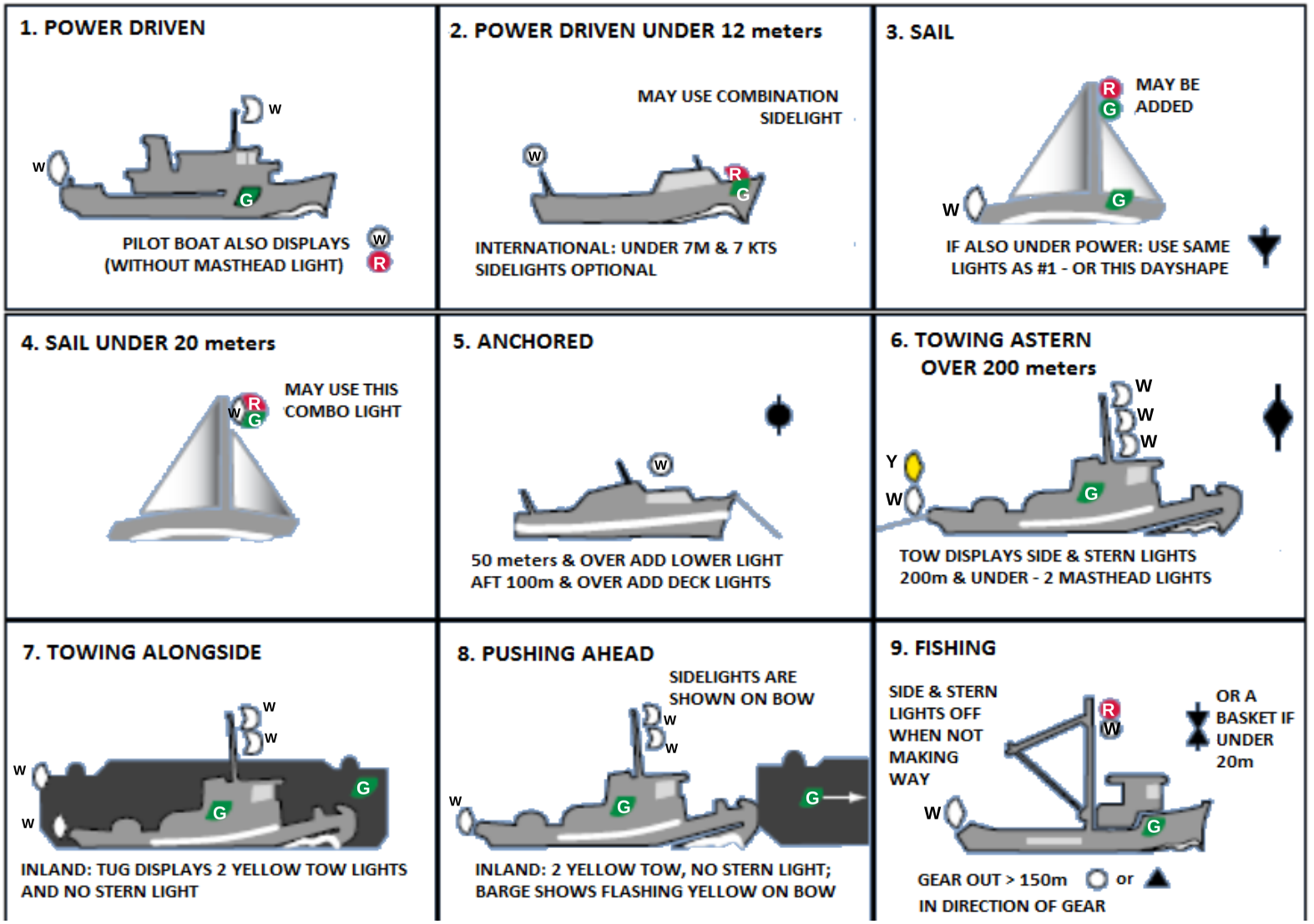
Marline Hitch

This is a very simple hitch, used in lashing hammocks, marling down canvas chafing gear on large ropes, etc. It is often made wrong. The ends of the rope, coming out of the hitch, should always come out from underneath.

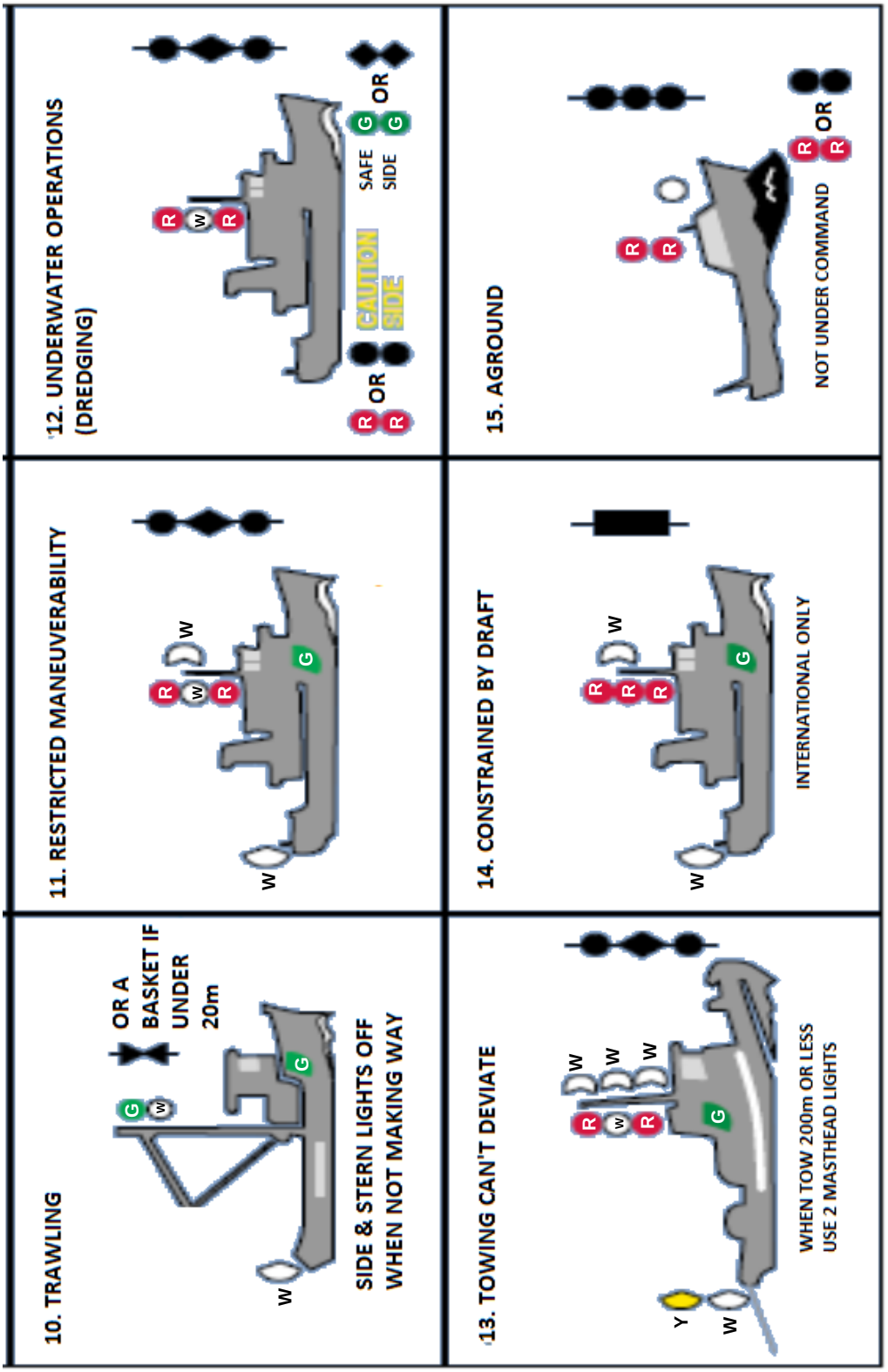
Able Sea Scout Requirements

1. Ideals
    a. Lead 2 Ceremonies
    b. Maritime History Essay
2. Active Membership
    a. Active 6 Months as Ord.
    b. Youth Presentation
3. Leadership
    a. Elected Office OR
    b. Chair 2 More Activities
4. Lifesaving MB
5. Safety
    a. Safety Checklist
    b. Fire Prevention
    c. Fire Classes
    d. Extinguish Fires
    e. Fire Safety Inspection
    f. First Aid Certification
    g. CPR Certification
6. Marlinspike
    a. Splices & Sewn Whipping
        i. Short Splice
        ii. Eye Splice
        iii. End Splice
        iv. Long Spice
        v. Sewn Whipping
    b. Seams & Grommet
    c. Block & Tackle
7. Boat Handling
    a. Motor Boating
    b. Docking
8. Anchoring
    a. Types of Rode
    b. Parts of Rode
    c. Marking Rode
    d. Anchor Watch
    e. Windlass
9. Navigation Rules
    a. Working Knowledge
    b. Special Lights & Shapes
    c. ATONS
    d. Charts
10. Piloting & Navigation
    a. 3-Day Deck Log
    b. Lay & Execute DR
    c. Fix Position
    d. Dbl Ang on Bow, Danger Ang
    e. GPS Waypoints, MOB
    f. Radar Fix
    g. References
11. Practical Deck Seamanship
    a. Maintenance Safety
    b. Hand Tools
    c. Sailboat Hardware
    d. Painting
    e. Hull & Deck Repair
12. Environment
    a. Chemical Disposal
    b. Garbage Disposal
    c. Endangered Species Rep.
13. Weather Instruments
14. Long Cruise Award
15. Electives (Do 4 Level 2 or Higher)

Lights and Shapes



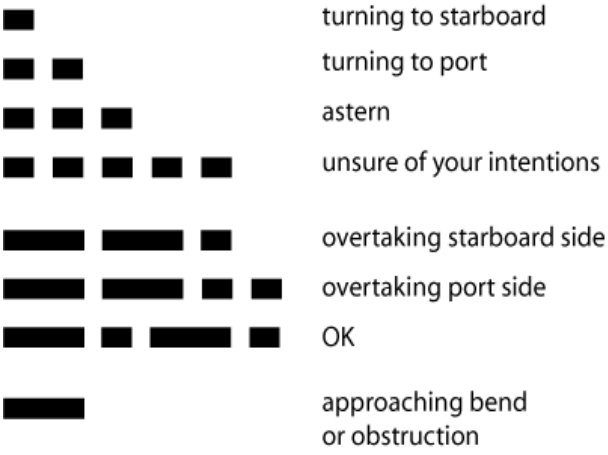
Lights and Shapes (Cont)



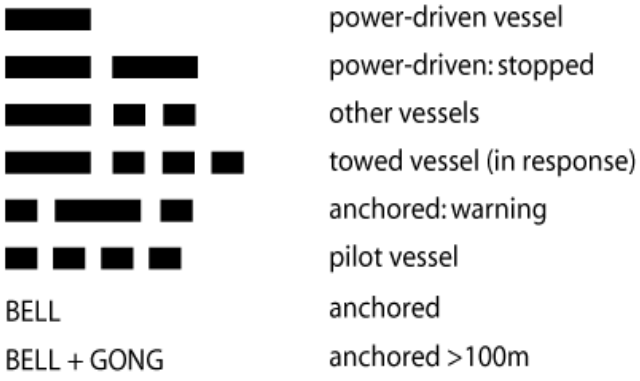
Special Lights, Shapes, and Sounds

	NIGHT	DAY
Ship **NOT UNDER COMMAND.** Due to unusual circumstances the ship is out off control.	Two 360-degree red lights displayed in a vertical line.*	Two black balls displayed in a vertical line.
Ship **RESTRICTED IN ABILITY TO MANEUVER.** Ship cannot maneuver due to the type of work being performed aboard such as diver down or dredging.	Three 360-degree red over white over red lights displayed in a vertical line.*	Black ball over black diamond over black ball displayed in a vertical line.
Vessel **CONSTRAINED BY DRAFT.** Vessel cannot maneuver out of the channel due to draft.	Three 360-degree red lights displayed in a vertical line.*	Black cylinder in rigging.
FISHING. Boats fishing with nets and trawling (dragging nets).	360-degree green light over white light.	Two black cones apex to apex.
NOT TRAWLING. Boat fishing other than trawling.	360-degree red light over white light.	Two black cones apex to apex; if less than 20 meters may display basket in rigging.
SAILING VESSELS UNDER POWER.	Light prescribed for power-driven vessel.	Conical shape in rigging with apex pointing down.

SIGNALLING

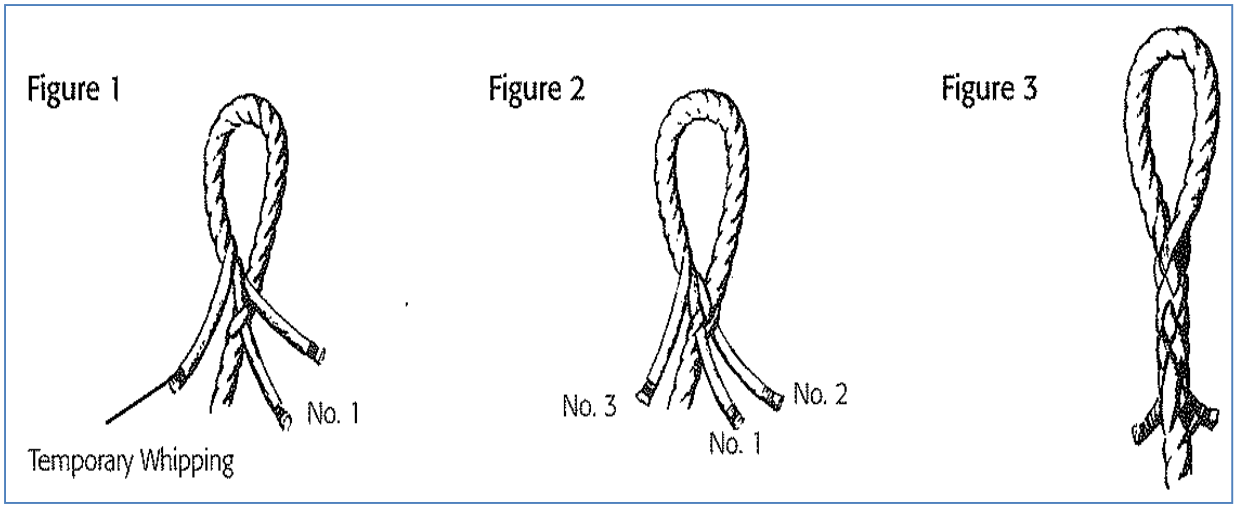


FOG

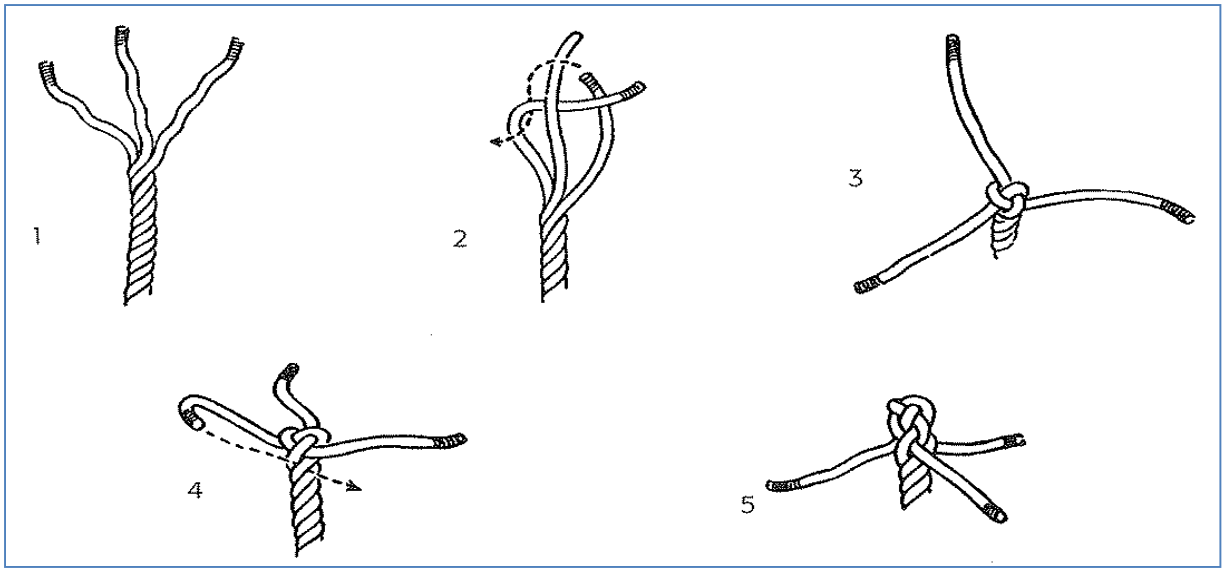


Splicing (Eye and Back)

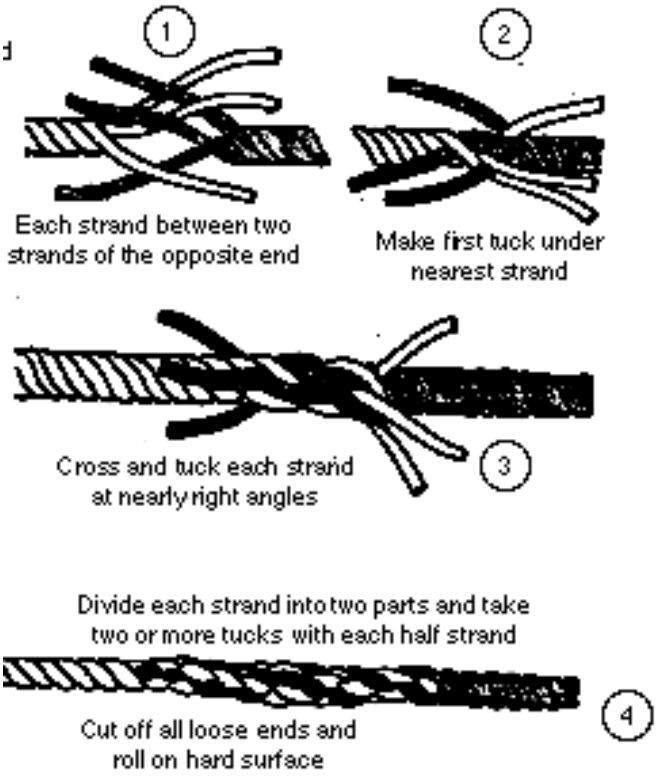
Eye Splice



Back (End) Splice

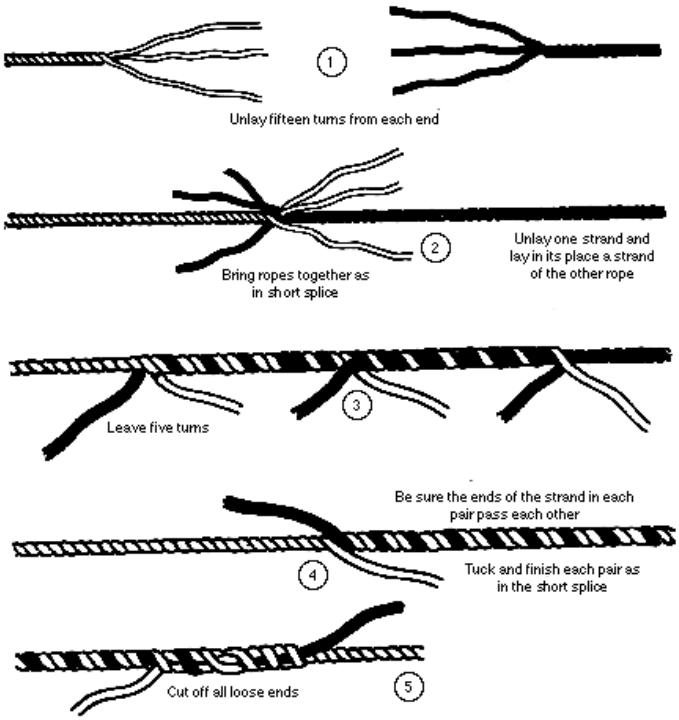


Splicing (Short and Long)



Short Splice

- Joins 2 lines
- Compact
- Easy to tie in new line
- Too bulky for blocks

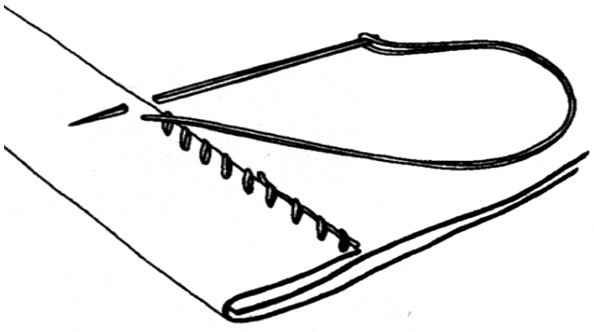


Long Splice

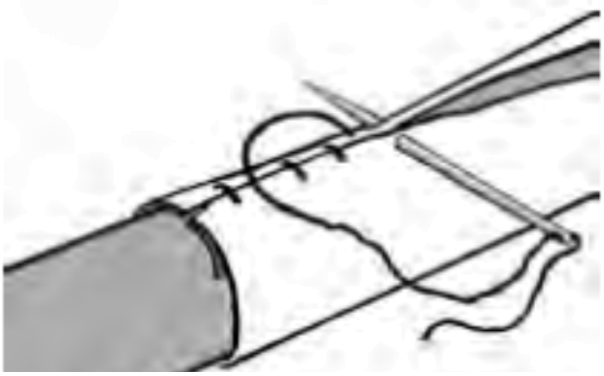
- Joins 2 lines
- Requires large length
- Tricky to tie
- Slim enough for blocks

Sail Repair

Flat Seam Stitch

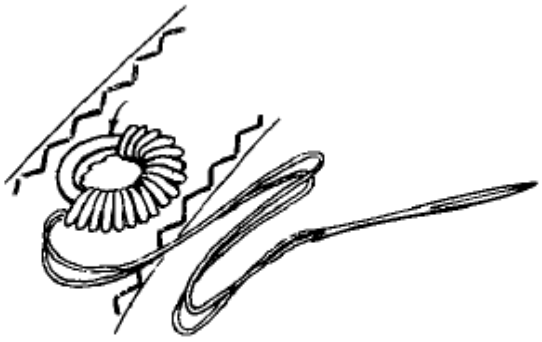


Round Seam Stitch

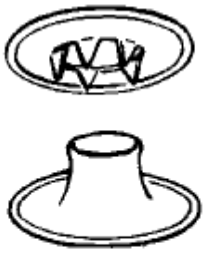


Grommet

Spliced Rope Grommet



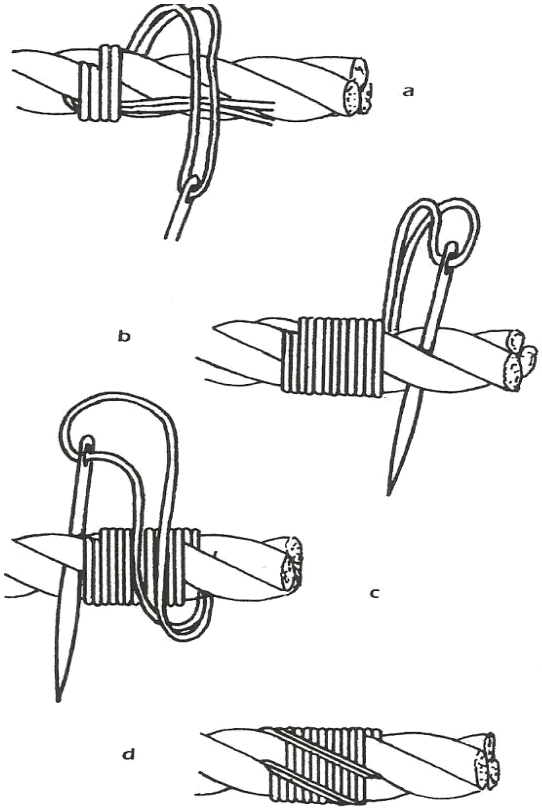
Metal Grommet Ring



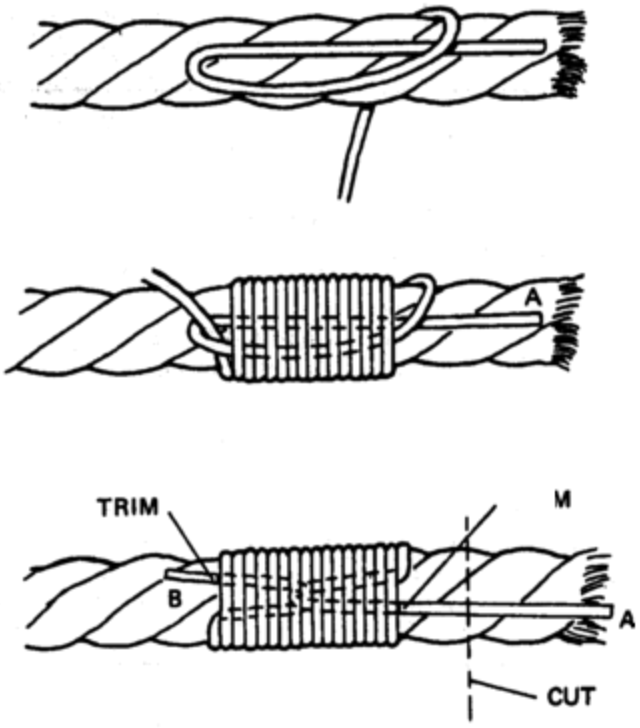
Toothed Metal Grommet

Sail Repair

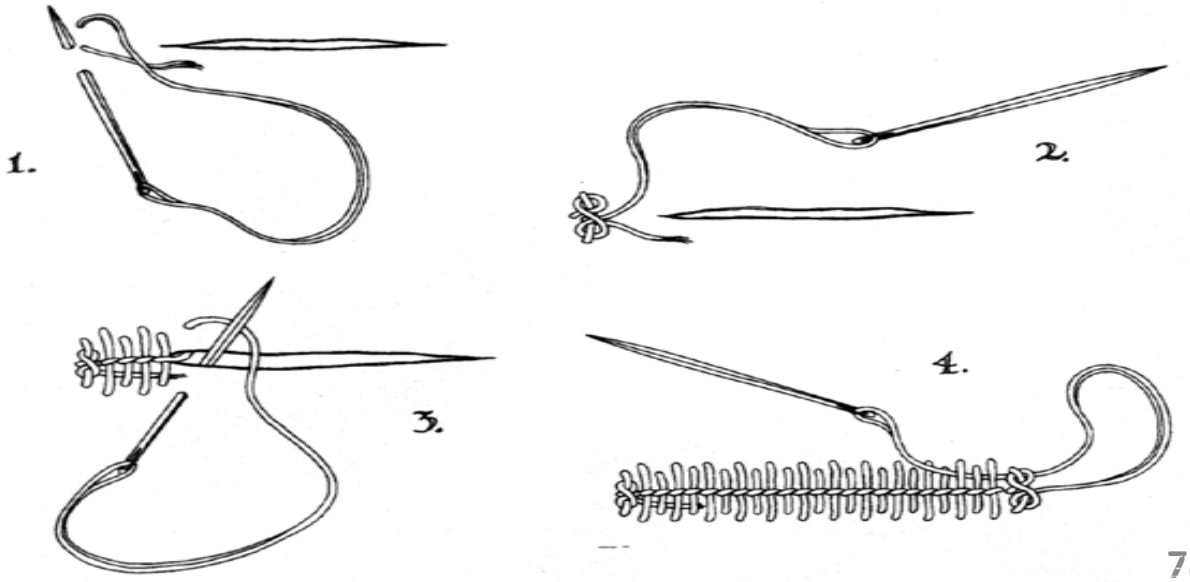
Sewn Whipping



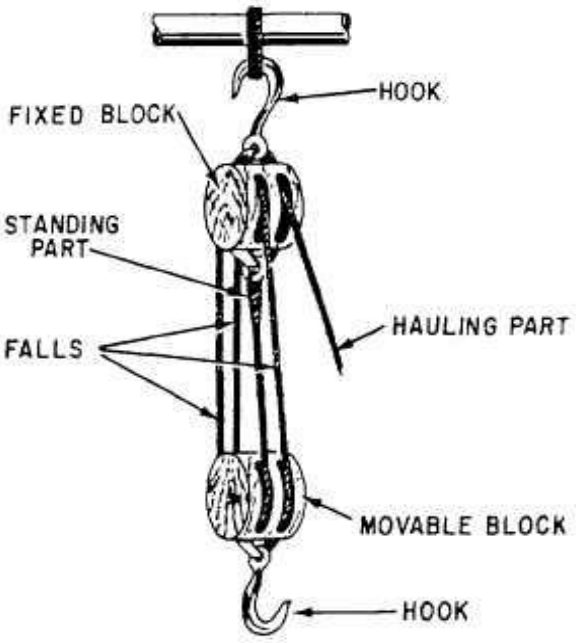
Regular Whipping

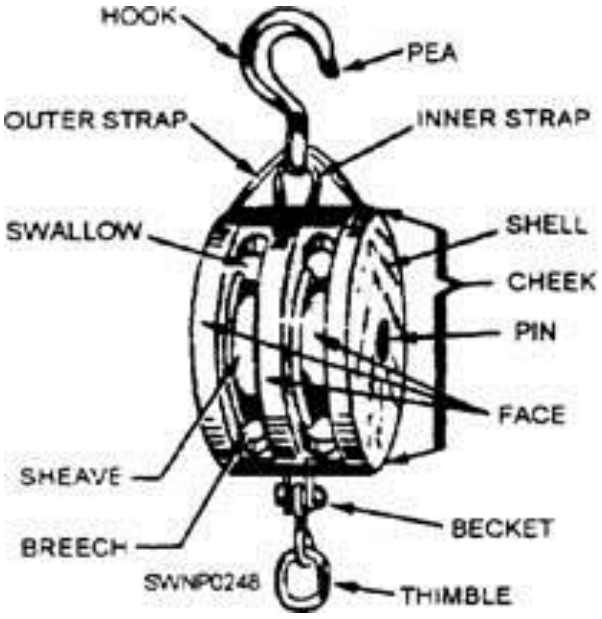


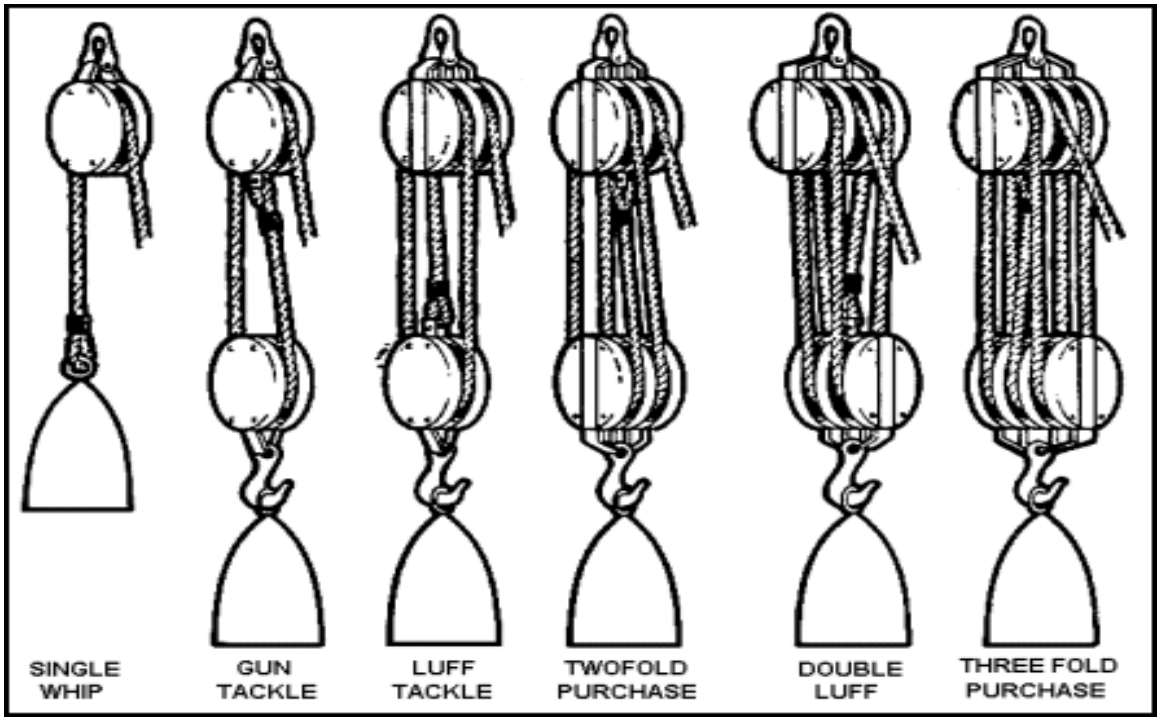
Herringbone Stitch



Block and Tackle







The mechanical advantage of a tackle is determined by counting the number of parts of the falls at the movable block.

Log Keeping – General

- SHIP'S DECK LOG.
- Probably the most important log you will be maintaining is the ship's deck log. The ship's deck log is a complete daily record, by watches, of every circumstance and occurrence of importance or interest about the crew and the operation and safety of the ship. A ship's deck log has both historical importance and legal standing. It may be used at times in maritime and civil courts. In an incident involving the ship, the log may be the only available evidence upon which to base a legal decision. The Junior Officer of the Watch (JOOW) keeps the ship's deck log.
- Entries in the ship's deck log should be handwritten with a black ballpoint pen. Entries must be neat and legible. Use only standard nautical phraseology. Because the log may be used as evidence in legal proceeding, erasures are not permitted. If you make a mistake, draw a single line through the original entry (so that it remains legible), insert the correct entry, and place your initials in the left margin. The log is signed at the end of each watch by the JOOW. The name of the JOOW also must be printed beneath the signature.
- In keeping the log, remember two important points: (1) All entries must be clear, concise, and accurate; and (2) every entry must be preceded by the time of its occurrence or when the information becomes known.
- In some instances, the skipper will tell you what to note and when; but normally you are expected to make proper, standard entries on your own without being told. If you are in doubt as to whether or not an entry should be made, check with the skipper. The overall responsibility for the deck log belongs to the JOOW. JOOWs must sign the deck log at the end of their watch to show relief of the watch and validity of entries.

Log Keeping – Entries

- The following are a few of the entries that are always recorded:

1. Injuries, accidents, and casualties
2. Visits by guests and law enforcement
3. Arrivals and departures of the skipper
4. Incidents
5. Drills held
6. Observance of sunrise and sunset
7. Special reports made to the JOOW
8. Equipment casualties
9. Watch changes (relief of watches)
10. Absentees

- Each day underway the watchstander having the midwatch (or the first watch of the day) or the crew leader enters the status and location. Subsequent watches make the entry “moored as before” or whatever is appropriate.
- The following sample entries are provided as guidance for making entries in the log. They are not all-inclusive, nor are they in the only acceptable style. Any entry that is complete, accurate, clear, and in standard phraseology is acceptable. Remember one important thing about the log—you can put too little in the log but never too much.

Log Keeping – General Examples

MIDNIGHT WATCH ENTRY

0000 Underway from Fort Monroe to Baltimore. Sailing with engine secured, running on main with 1st reef and 150% Genoa furled to 100%. Steering course 000T at position N37°-57.5' W076°-09.0' approx. 2NM south of the entrance to the Potomac River. Winds are 13 KT from the SE. Vessel is making 5.5 KT SOG.

0000 Moored stern-to on starboard side at Cape Charles City Harbor Slip B-16 with standard mooring lines. Receiving shore power from a single 30A 120V service.

INITIALLY SETTING AND SECURING THE WATCH

1315 \Name of watchstander\ has assumed the watch to make preparations for getting underway.

1721 Vessel secured. Secured the watch. \Signature\

WATCH RELIEF

1400 Properly relieved by \name of relief\. \Signature\

1400 Relieved the watch, conditions as before.

INCIDENTS

1155 S/V EXCALIBUR (VA 1190 ST), in coming alongside to port, carried away the port flag halyard when tangled in her spreaders. No personnel casualties or serious damage to either vessel. Captain John Smith, 2541 Maple Ave., Deltaville, VA exchanged contact info with Skipper.

1602 Grounded softly on right side of channel 100 ft north of G "3" motoring at 2 KT inbound to Deltaville marina on Jackson Creek. Steered left and momentum carried vessel back into channel.

DRILLS

1005 Held abandon ship drill.

1045 Secured from abandon ship drill.

INTERESTING OBSERVATIONS

1525 Observed hovercraft operations on Fort Story beach.

1600 Sighted surfaced submarine north of Little Creek entrance, inbound to NOB Norfolk.

1625 Sighted pod of about 100 dolphins in vicinity of buoy HC. Several approached the vessel within 5 ft, providing a fascinating display.

Log Keeping – Anchor Watch

ANCHOR WATCH

1945	Set the anchor Willoughby Bay, Norfolk, VA, position: N36°-57.5’ W076°-17’ in 12 feet of water, 13-pound danforth, with 140 ft of ½-inch nylon 3-braid and 20 ft of 3/8-inch chain to the starboard cleat on the following anchorage bearings: Tall Flag Pole at 010M; Norfolk Boat Channel Q G “9” at 280M.
2000	\Name of watchstander\ set the continuous anchor watch. GPS Position: N36°-57.5’ W076°-17’.
2025	Marked sundown, energized and verified anchor light. GPS Position: N36°-57.5’ W076°-17’.
2300	Properly relieved by \name of relief\. \Signature\
2300	Relieved the anchor watch. GPS Position: N36°-57.5’ W076°-17’.
0000	Anchored in Willoughby Bay, Norfolk, VA, position: N36°-57.5’ W076°-17’ in 12 feet of water, 13-pound danforth, with 140 ft of ½-inch nylon 3-braid and 20 ft of 3/8-inch chain to the starboard cleat on the following anchorage bearings: Tall Flag Pole at 010M; Norfolk Boat Channel Q G “9” at 280M. Anchor light on. On duty anchor watch \name of watchstander \.

Log Keeping – Navigation Examples

TIME ZONE CHANGE

0201 Set clocks ahead 1 hour to conform to Eastern Daylight Savings time.

GETTING UNDER WAY

0650 Commenced preparations for getting underway.

0715 Started engine, run hours at 459.6.

0730 Stationed the maneuvering watch.

0735 Underway. Maneuvered various courses and speeds to conform to the channel.

0740 Passed Cape Charles entrance light “1CC” on port beam.

0745 Head to wind, engine slowed to idle, raised sails. Ordered course 220M for Ft. Monroe, beam reach on starboard tack.

0750 Secured engine, run hours at 460.2.

0751 Secured the maneuvering watch.

ENTERING HARBOR

0551 Passed Ambrose Lightship abeam to port, distance1000 yards.

0554 Stationed maneuvering. Skipper (conning).

0600 Commenced maneuvering while conforming to Cape Charles Entrance Channel.

0650 Passed lighted buoy No. 12 abeam to starboard.

0706 Maneuvering to go alongside the pier.

0715 Moored port side to Slip A23, stern-to, at Cape Charles Town Harbor, with standard mooring lines.

SIGHTING AIDS TO NAVIGATION

0102 Sighted Cape Henry Light bearing 225 true, distance about 20 miles.

0157 Passed Cape Henry Light abeam to starboard, distance 7.3 miles.

0300 Cape Henry Light passed from view bearing 315 true, distance about 20 miles.

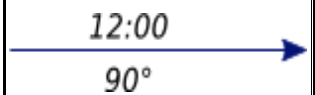
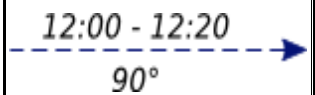
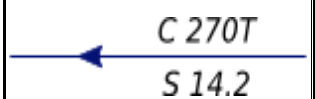
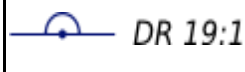
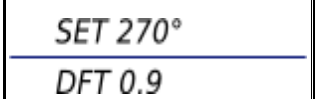
SEA/WEATHER

1130 Visibility decreased to 1 mile because of fog. Commenced sounding fog signals, energized and verified steaming navigation lights. Stationed extra lookout. Rigged jack line on port side, PFDs, harnesses, and lanyards for topside watches. Winds southeast 15 knots. Sea southeast 3 feet and increasing.

1212 Visibility increased to 5 miles. Ceased sounding fog signals, secured navigation lights.

Charting and Plotting

International Symbols

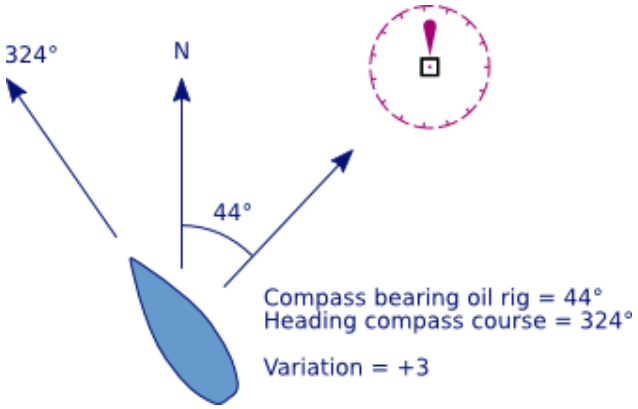
International notation conventions for plotting in the chart			
Fix		LOP	
Running Fix		LOP advanced	
Estimated Position		Course & Speed	
Dead Reckoning		Set & Drift	
Electronic Fix (GPS)			
Electronic Fix (Radar)			

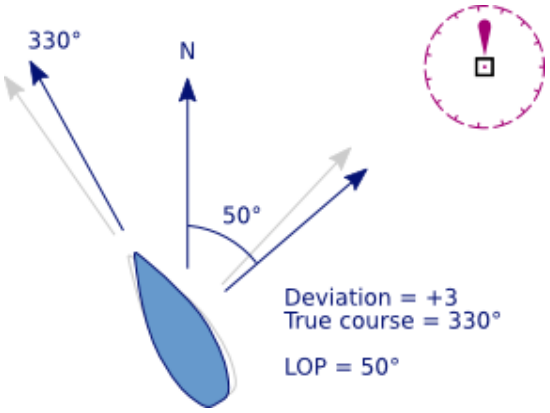
Plotting should be done with a soft pencil. Moreover, avoid drawing lines through the chart symbols. This is to prevent damage to the chart when you have to erase the construction.

Charting and Plotting

Line of Position

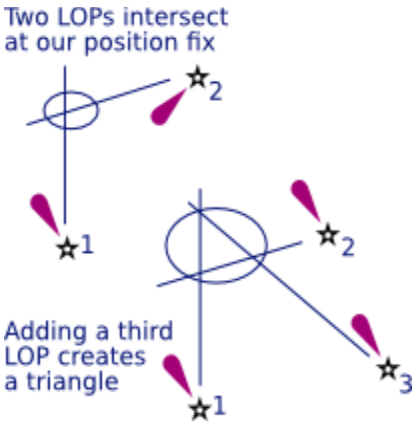
A true bearing to a fixed landmark is a Line of Position (LOP). Using a hand compass provides us with a compass bearing that first needs correction for variation before plotting a LOP in the chart as a true bearing. The boat's position is somewhere along this line.

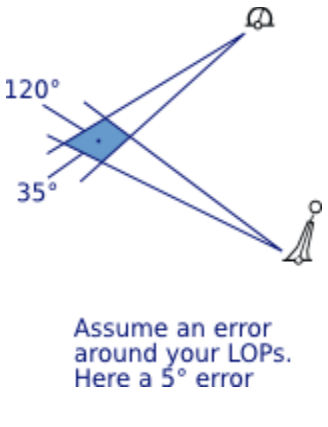


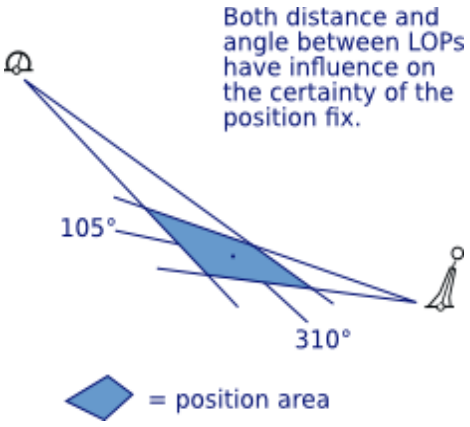


Visual Position Fix

If two LOPs intersect, we can construct a position fix: the ship's position on the earth. Often however, a triangle occurs when a third LOP is added in the construction. This indicates that there are errors involved in at least one of the bearings taken. In practice, we should consider each LOP as the average bearing in a wider sector of for instance 10°. The optimum angular spread is 90° (two objects) or 120° (three objects). Moreover, bearings on distant objects bring about more uncertainty in our position fix as the sector widens. Finally, if moving fast you should not put any time between the bearings.





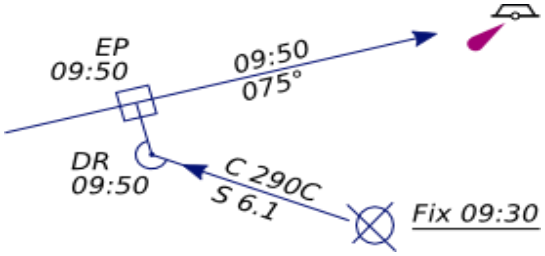


Charting and Plotting

Estimated Position

It is sometimes impossible to obtain more than one LOP at a time. To determine the ship's position with one aid to navigation we can use a running fix. However if a running fix is not possible, we can determine an estimated position.

An estimated position is based upon whatever incomplete navigational information is available, such as a single LOP, a series of depth measurements correlated to charted depths, or a visual observation of the surroundings.



In the example we see an estimated position constructed using a single LOP and the ship's dead reckoning position (DR). This is done by drawing a line from the DR position at the time of the LOP perpendicular to the LOP. An EP is denoted by a square instead of an ellipse.

Danger Angle (a.k.a. Danger Bearing)

The maximum or minimum angle between two points on a chart, as observed from a craft, indicating the limit of safe approach to an off-lying danger. Also known as danger bearing. A danger angle is a convenient way to keep clear of hidden dangers such as shoals, reef, wrecks, etc. without frequent fixes or reliance on dead reckoning alone.

As illustrated above, draw a line from some prominent landmark well ahead to as to clear all dangers and notes its direction by compass rose.

Take frequent bearings on the landmark as your vessel proceeds. As long as the bearings are greater than (to the right of) the dotted lines' bearings, your ship is to the left and safe side of the danger bearing.

The illustration is for dangers on the starboard side. For dangers on the port side, draw the danger line as described above. As your vessel proceeds, take frequent bearings to the landmark. As long as long as the bearings are to the left of the danger bearing, then your ship is to the right and safe side of the danger.

Charting and Plotting

Running Fix

Under some circumstances, such as low visibility, only one line of position can be obtained at a time. In this event, a line of position obtained at an earlier time may be advanced to the time of the later LOP. These two LOPs should not be parallel to each other; remember that the optimal angular spread is 90°. The position obtained is termed a running fix because the ship has “run” a certain distance during the time interval between the two LOPs.

To use the LOP obtained at an earlier time, we must advance it to the time of the second LOP. This is done by using the dead reckoning plot. First, we measure the distance between the two DR positions and draw a construction line, which is parallel to a line connecting the two DR positions. Note that if there are no intervening course changes between the two DR positions, it's easiest just to use the course line itself as the construction line. Now, using the parallel rulers we advance the first LOP along this construction line over the distance we measured. Et voilá, the intersection is our Rfix. If there is an intervening course change, it appears to make our problem harder. Not so! The only DR positions that matter are the two corresponding with the LOPs.

Guidelines for advancing a LOP:

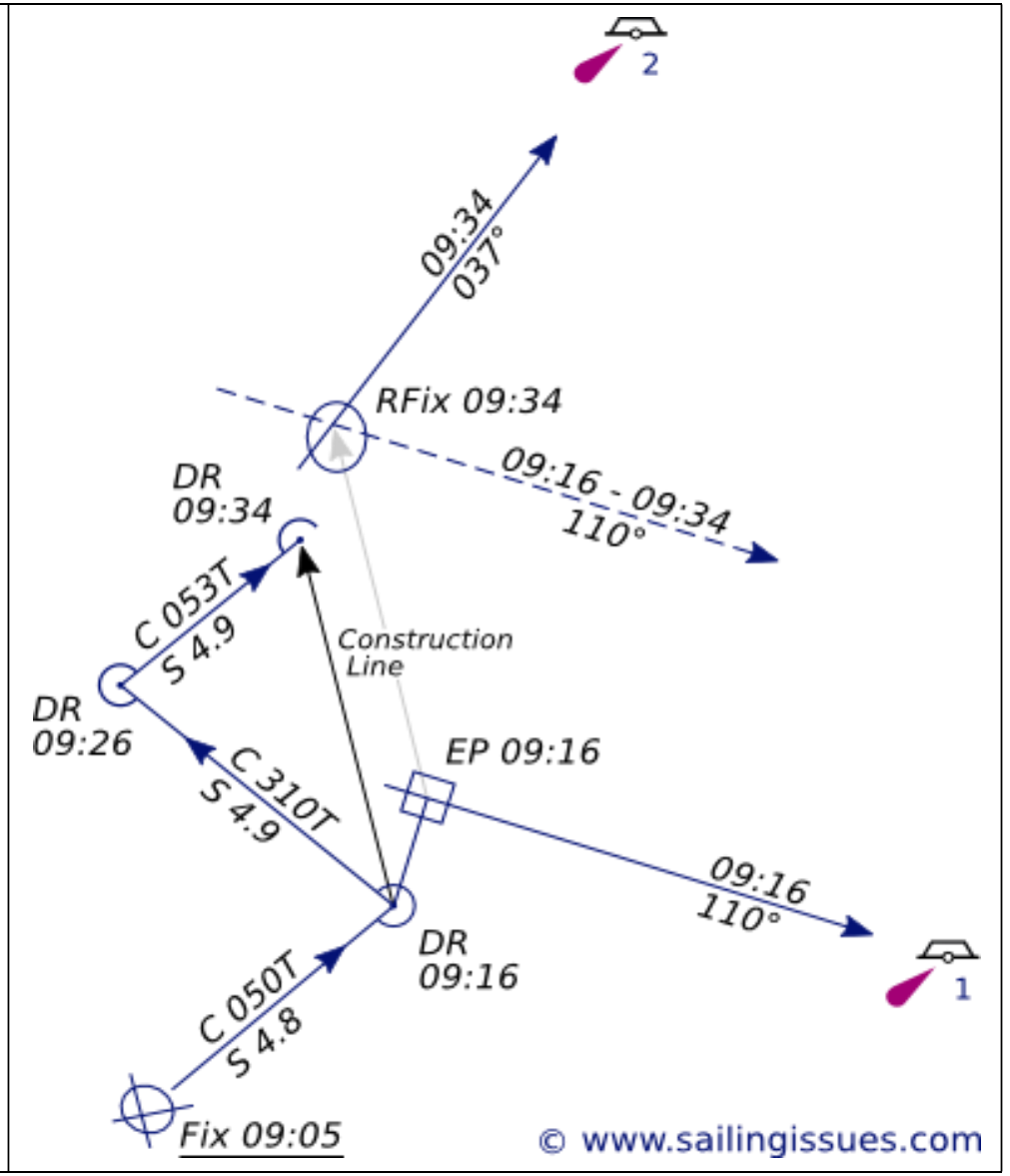
- The distance: equal to the distance between the two corresponding DR positions.
- The direction: equal to the direction between the two corresponding DR positions.
- Draw the advanced LOP with a dotted line and mark with both times.
- Label the Running Fix with an ellipse and "RFix" without underlining.

Charting and Plotting

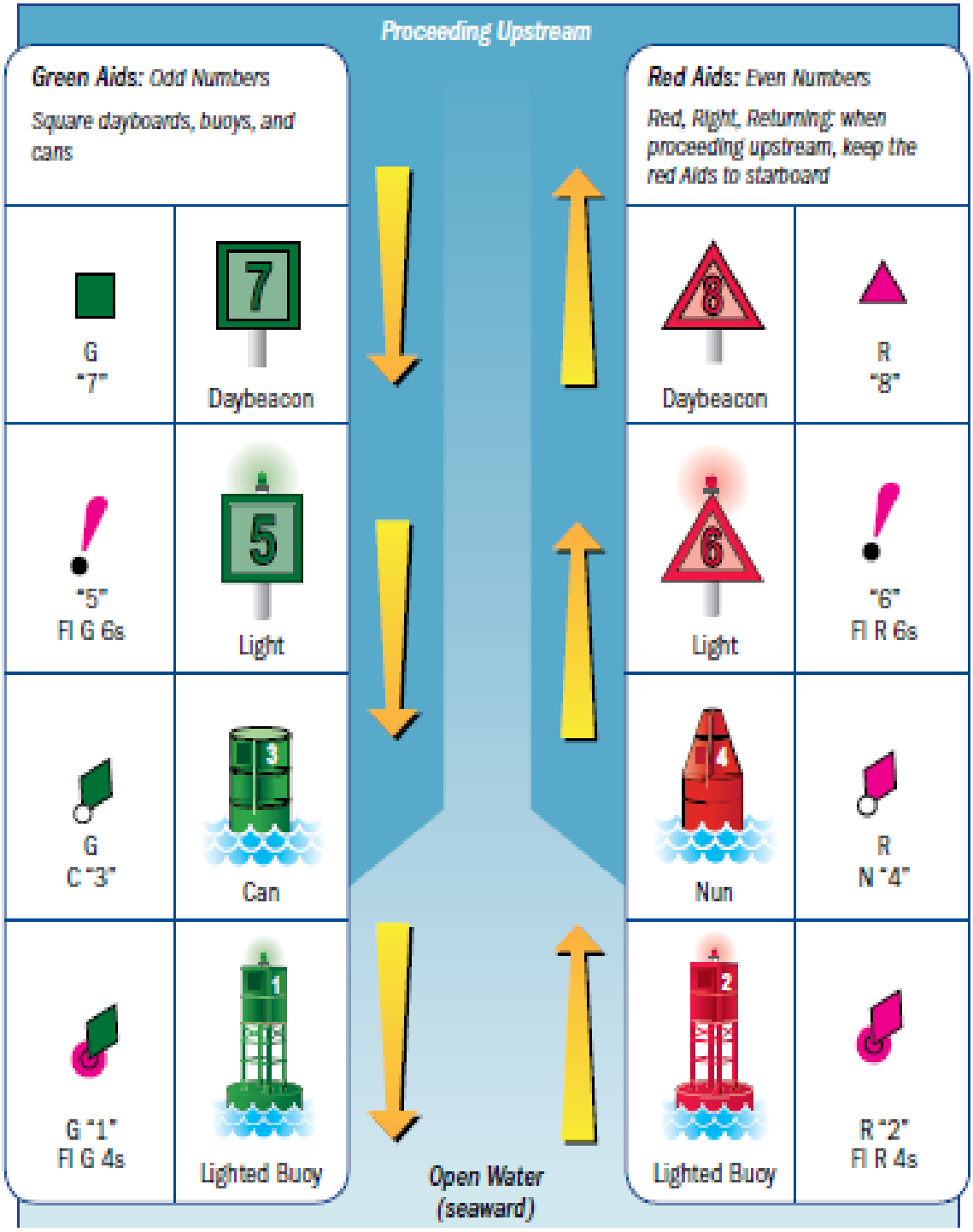
09:16 We obtain a single LOP on LANBY 1 and plot a corresponding (same time) dead reckoning position. The estimated position is constructed by drawing the shortest line between the DR and the LOP: perpendicular.

09:26 No LOPs at all. We tack and plot a DR position.

09:34 We obtain a LOP on LANBY 2. To use the first LOP we advance it over a construction line between the two corresponding DR positions. We use both its direction & distance.

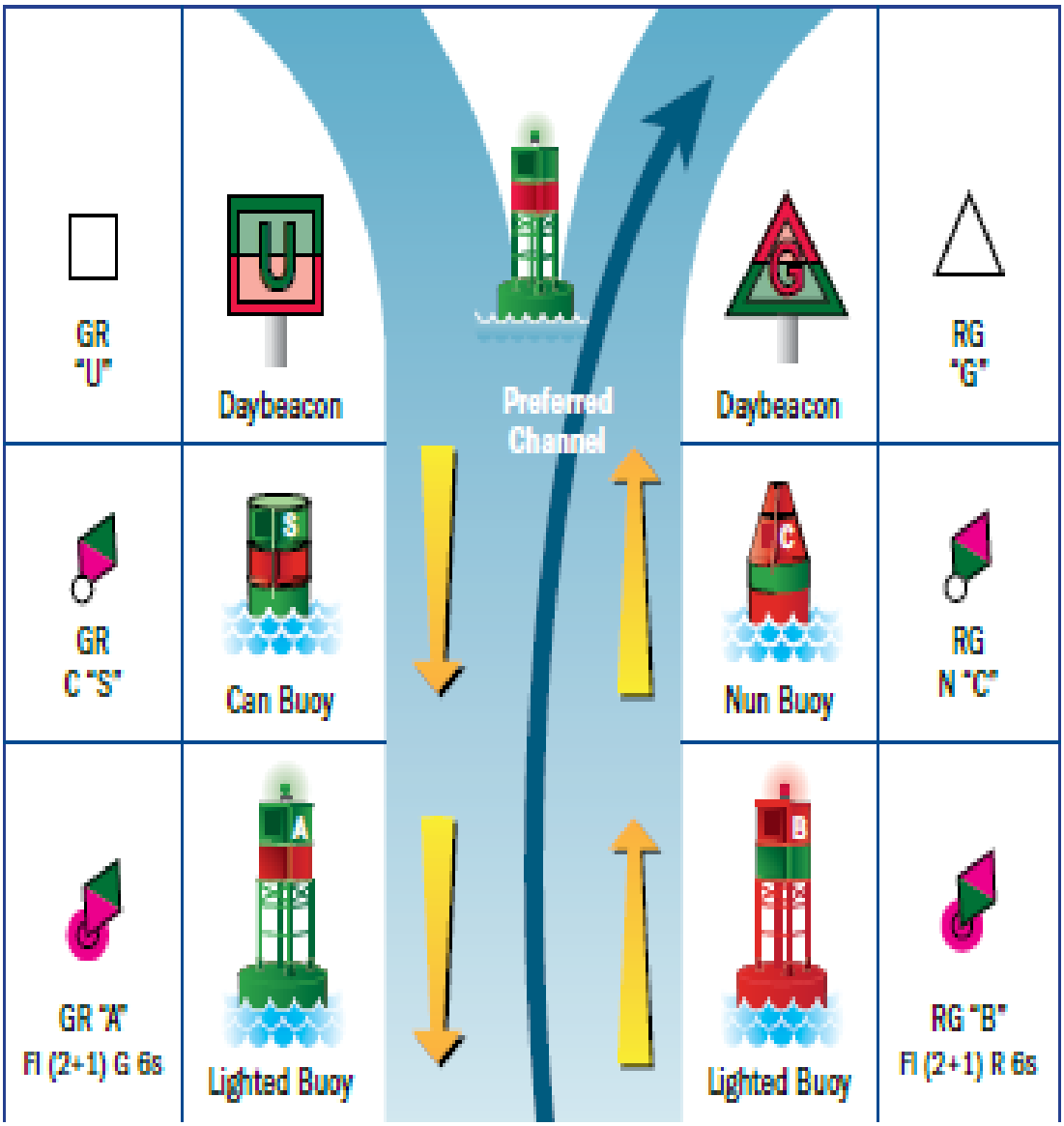


Aids to Navigation



Aids to Navigation

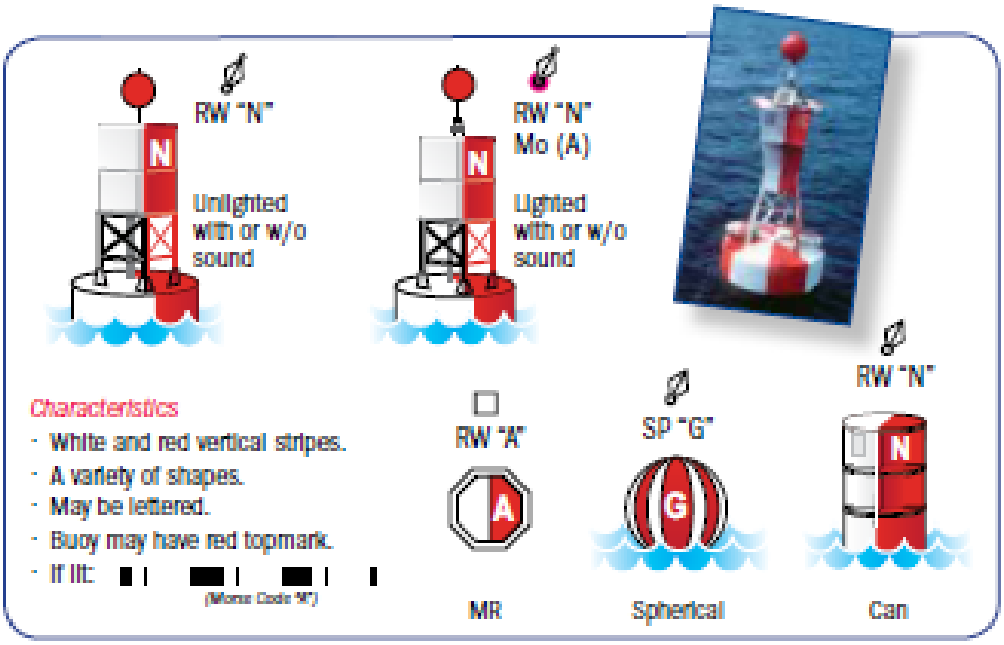
Preferred Channel Aids



Aids to Navigation

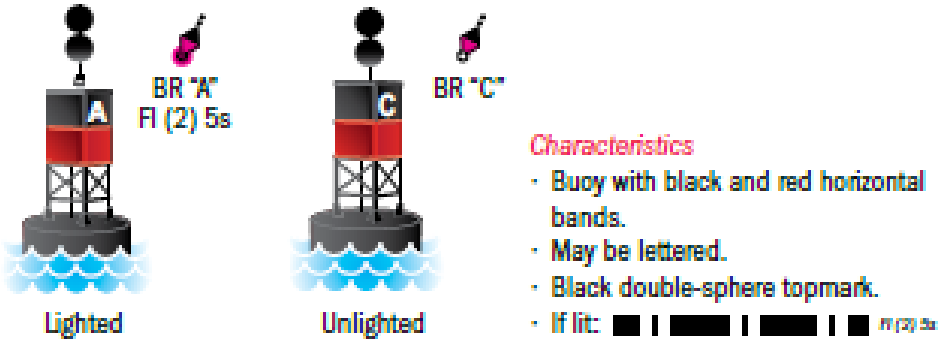
Safe Water Marks

These Aids are used to mark fairways, mid-channels, and offshore approach points. They have unobstructed water on all sides. A buoy, lighted or unlighted, may show a red topmark. An appropriate nautical chart must be consulted to determine exact position.

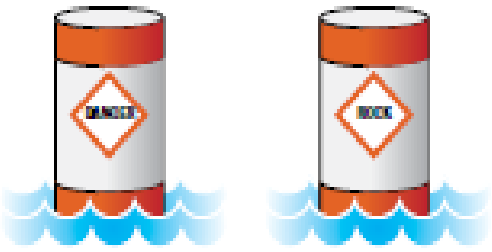
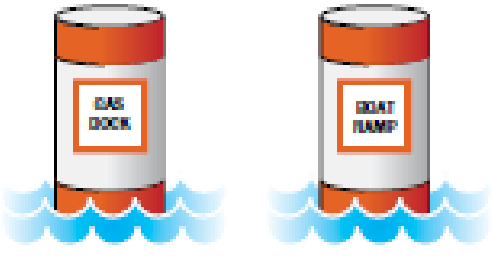


Isolated Danger Marks

These Aids indicate an isolated danger that may be passed on all sides. Use caution when approaching.



Aids to Navigation

Symbol	Meaning	Examples
	**Danger** A diamond shape alerts boaters to hazards	
	**Restricted Operations** Marks with a circle indicate areas with regulated operations	
	**Exclusion** A diamond shape with a cross means boats are prohibited from the area	
	**Information** Marks with a square provide helpful information such as directions, distances, and locations	

Aids to Navigation

Illustration	Chart Abbreviation	Type/Description
	F	**Fixed** Shines continuously and steadily; no dark phase.
	Fl	**Flashing** The light goes on at regular intervals; the duration of the light phases are less than the duration of the dark phases.
	Fl (2)	**Group Flashing** Groups of two flashes that are repeated several times a minute.
	Fl (2+1)	**Composite Group Flashing** A group of two flashes followed by a single flash, the entirety repeated several times a minute.
	Iso	**Isophase** All durations of light and dark are equal.
	Mo (A)	**Morse Code** Short ("dots") and long ("dashes") flashes of light are used to represent Morse code; usually flashes the letter "A."
	Oc	**Occulting** The light goes on at regular intervals; the duration of the light phases is greater than the duration of the dark phases.
	Q	**Quick (Flashing)** Very rapid flashing (more than 60 flashes a minute).

Quartermaster Sea Scout

1. Ideals
    a. Sea Promise Discussion
    b. Program Analysis
2. Active Membership
    a. Active 6 Months as Able
    b. Adult Presentation
3. Leadership
    a. Project
    b. Elected Office
    c. Command Cruise or SEAL
    d. Organize & Run ILSS
4. Lifeguard Certification
5. Safety
    a. Heavy Weather
    b. Reduced Visibility
    c. Teach Safety
        i. Apprentice (5a)
        ii. Ordinary (5abc)
6. Marlinspike
    a. Teach Marlinspike
        i. Apprentice
        ii. Ordinary
        iii. Able
    b. Braided Line Eye Splice
7. Boat Handling
    a. Mooring Buoy
    b. Springing In and Out
    c. Teach Boat Handling
        i. Ordinary
        ii. Able
8. Anchoring
    a. Teach Anchoring
        i. Ordinary
        ii. Able
    b. Anchor Methods
    c. Command Anchoring
9. Navigation Rules
    a. Teach Ordinary
    b. Teach Able (9bc)
10. Piloting & Navigation
    a. Teach Piloting
        i. Ordinary
        ii. Able
    b. Fix in Limited Visibility
    c. Create & Take GPS Route
11. Weather
    a. Teach Weather
        i. Ordinary
        ii. Able
    b. Weather Forecasting
12. Environment
    a. MSD & Sewage Laws
    b. Gray Water
    c. Aquatic Env. Report
13. Electives (Do 4 Level 3)