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WARRANTY

"All North American Yachts, Inc. warranties are LIMITED WARRANTIES within the meaning of Title I of the Federal Trade Commission Improvement Act."

MANUFACTURER'S WARRANTY AND DISCLAIMER

North American Yachts, Inc. warrants to the original purchaser only each new boat hull and deck to be free of defects in material and workmanship under normal use or service for a period of one year from the date of retail purchase from an authorized North American Yachts, Inc. dealer according to the following terms:

Any part of the boat manufactured by North American Yachts, Inc. and found in the reasonable judgment of North American Yachts, Inc. to be defective in material or workmanship will be repaired or replaced at North American Yachts, Inc.'s option by an authorized North American Yachts, Inc. dealer, or at the North American Yachts, Inc. factory without charge for parts and labor, provided the factory or an authorized North American Yachts, Inc. dealer is notified within 30 days of defect. Transportation expense of delivering the boat or part to the dealer or the North American Yachts, Inc. factory and the expense of returning the boat back to the owner will be paid for by the owner. Proof of purchase will be required to substantiate any warranty claim. All warranty work must be authorized by a North American Yachts, Inc. Factory Representative; and, only authorized North American Yachts, Inc. dealers or the factory can perform warranty work.

ITEMS NOT COVERED BY WARRANTY

This warranty does not apply to: (1) mast, engines, controls, batteries, or other equipment or accessories which are not manufactured by North American Yachts, Inc. and which carry their own individual manufacturer warranties; (2) machinery, equipment and accessories not factory installed; (3) gelcoat; (4) any North American Yacht which has been altered, subject to misuse, negligence or accident; (5) any North American Yacht used for commercial purposes. Upon request, North American Yachts, Inc. may provide special written warranty for specific commercial applications.

In addition, this warranty does not extend to repairs made necessary by normal wear, or, by the use of parts or accessories which in the reasonable judgment of North American Yachts, Inc. are either incompatible with the boat or adversely affect its operation, performance or durability.

Personal flotation devices should be carried for each passenger in accordance with the U.S. Coast Guard requirements.

NO OTHER WARRANTIES MADE: Liability Disclaimer

Repairs or replacements qualifying under this warranty will be performed in accordance with the terms stated herein. North American Yachts, Inc.'s responsibility in respect to claims is limited to making the required repairs or replacements, and no claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale of any boat.

North American Yachts, Inc. assumes no responsibility for loss of use of the boat, loss of time, inconvenience, or other damage, consequential or otherwise, including, but not limited to, expense for gasoline, expense of returning the boat to the dealer and expense of returning the boat back to the owner, removal of the motor from the boat and reinstallation, mechanic's travel time, in-end-out-of-water charges, telephone or telegram charges, trailering or towing charges, rental of another boat during the time warranty repairs are being performed, travel, lodging, loss or damage to personal property, or loss of revenue.

North American Yachts, Inc. reserves the right to change or improve the design of any boat without assuming any obligation to modify any boat previously manufactured.

ALL IMPLIED WARRANTIES ARE LIMITED IN DURATIDN TO THE DURATION OF THE ONE (1) YEAR WARRANTY PERIOD. ACCORDINGLY, ANY SUCH IMPLIED WARRANTIES INCLUDING MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE, ARE DISCLAIMED IN THEIR ENTIRETY AFTER THE EXPIRATION OF THE ONE (1) YEAR WARRANTY PERIOD. NORTH AMERICAN YACHTS, INC.'S OBLIGATION UNDER THIS WARRANTY IS STRICTLY AND EXCLUSIVELY LIMITED TO THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS, AND NORTH AMERICAN YACHTS, INC. DOES NOT ASSUME OR AUTHORIZE ANYONE TO ASSUME FOR THEM ANY OTHER OBLIGATION.

Some states do not allow limitations on how long an implied warranty lasts and some sates do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

The Warranty Validation Card must be signed by the owner and returned to North American Yachts, Inc. within fifteen (15) days after the original purchase. Failure to sign and return the card within the prescribed time will render your warranty null and void. Nothing herein shall be interpreted, however, as limiting North American Yachts, Inc.'s obligations under the Boat Safety Act of 1971 to correct defects which violate Coast Guard Safety Standards, Regulations, or which are determined to create a substantial risk of personal injury to the public.

SPECIAL NOTE: All boat manufacturers are required by Federal Law to notify first-time owners in the event any defect is discovered "which creates a substantial risk of personal injury to the public." Failure of the purchaser to return the boat warranty registration card will waive the right to notification of defect and repair at manufacturer's expense. In order that we can comply with the law if it becomes necessary, it is essential that your boat warranty registration card with the owner's name, address, and boat serial number be completed and mailed (Federal Boat Safety Act of 1971, Subsection 15b.)

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

This warranty applies only to boats sold in the United States and Canada.

In keeping with North American Yachts, Inc.'s policy of continuous improvement of all products, we reserve the right to change specifications and prices without notice.

(Detach on Dotted Line and Mail)

WARRANTY VALIDATION CARD

BOAT INFORMATION

Year Model Hull Identification No. Purchase Date

Owner's Name: _____

Street: _____

City: _____ State _____ Zip _____

I have read and retained a copy otthe manufacturer's warranty and disclaimer statement.

Signed: _____ Owner

NOTICE: Failure to return this warranty validation card may waive your right to notification of defect and repair at manufacturer's expense - the Federal Boat Safety Act of 1971 - Subsection 15 (b).

Dealer's Name _____
City, State _____

Where will boat be stored?
Trailer Dry Storage Fresh Water Salt Water!

Was North American Yacht received in good condition?
Yes No

NOTE: If you wish to write manufacturer about your boat, please address your letter as follows. including model and serial number:

North American Yachts, Inc., Service Department
P.O. Box 9447, Austin, Texas 78766

CONGRATULATIONS!

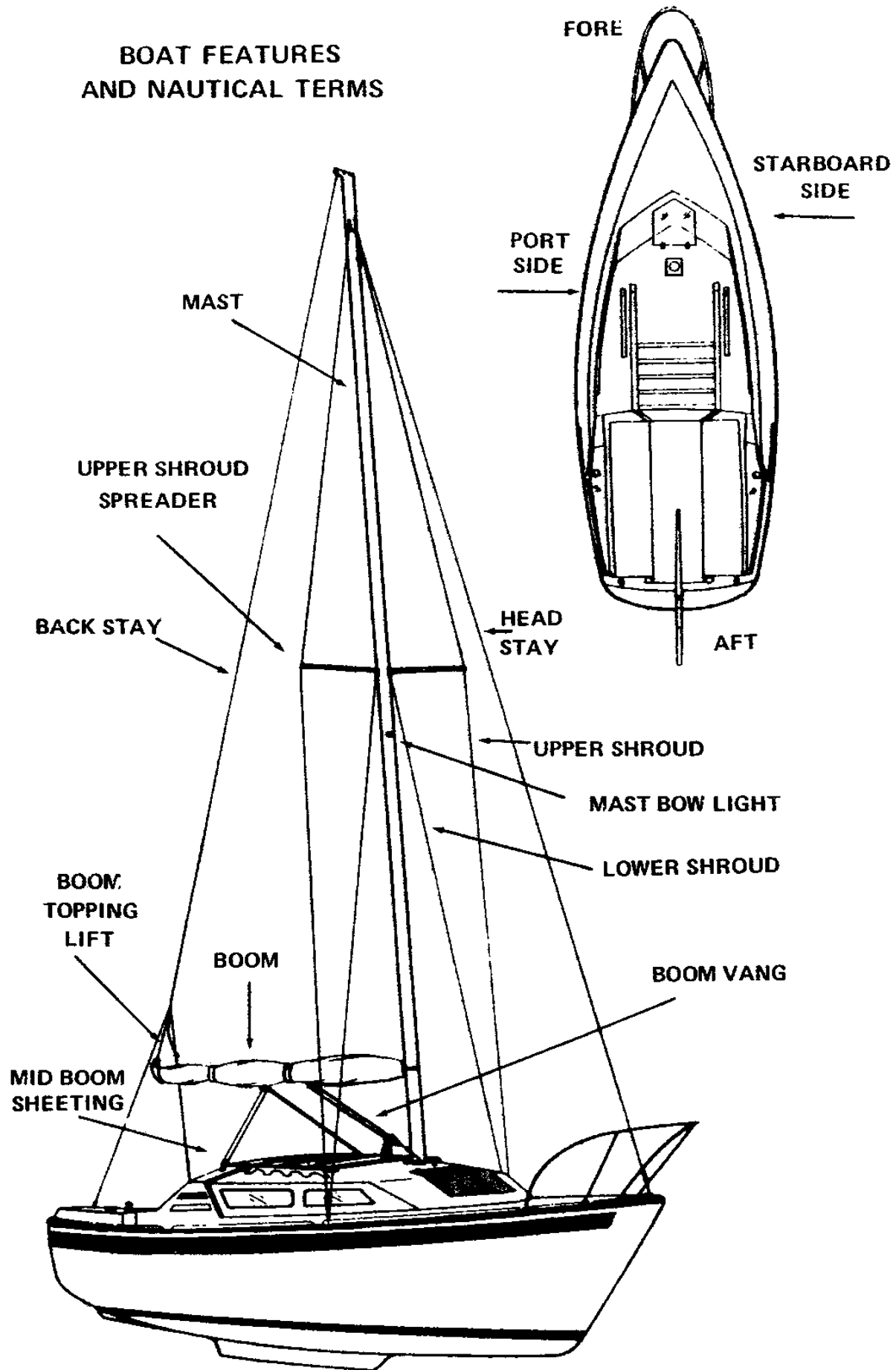
Welcome to the Glastron, Glastron/Carlson and North American fleets of satisfied owners. Your boat is designed, engineered tested and constructed to give you the most in performance and comfort with safety.

This owner's - operator's manual will help you get the most pleasure and utility from your boat. It contains information about your equipment, operating procedures, performance, construction, safety requirements and suggestions for service and care.

EVERYONE WHO USES THIS BOAT SHOULD READ THIS MANUAL AND BE FAMILIAR WITH SAFETY AND CAUTION WARNINGS CONTAINED THEREIN.

Founded in 1956, Glastron Boat Company has recorded a remarkable continuing growth. Glastron has become the world's largest manufacturer of fiberglass pleasure boats under one brand name, with world-wide sales through over 1000 dealers in all states and 55 foreign countries, with factories in Spain, New Zealand, Venezuela, and Trinidad. Glastron Boat Plant area in Austin, Texas is now over 660,000 square feet with a total Austin employment of about 1200. In 1969 Glastron acquired Carlson boats in Anaheim, California to produce the Carlson high-performance fiberglass pleasure boats and certain Glastron models. And now a new home for North American Yachts, Inc.

BOAT FEATURES AND NAUTICAL TERMS



**RIGGING CHECKLIST
FOR THE NORTH AMERICAN 23**

- Mast
- Boom
- Mainsail and Battens
- Working Jib
- Running Rigging:
 - Main Halyard
 - Jib Halyard
 - Main Sheet
 - Jib Sheet (2 pieces)
- Standing Rigging:
 - Upper Shrouds (2 pieces)
 - lower Shrouds (2 pieces)
 - Backstay, Upper Section
 - Backstay, lower Section
 - Headstay
- Main Sheet System
 - Single Block with Becket
 - Fiddle Block with Cam Cleat *
 - Single Blocks (Mounted - 2 pieces) *
 - Jib Sheet Blocks (Mounted - 2 pieces) *
 - Winch Handle
 - Shackle for Jib Tack
 - Wire for Spreader Tips

* OPTIONAL

U.S. COAST GUARD REQUIREMENTS

NORTH AMERICAN YACHTS CO. HAS PROVIDED:

Navigation Lights: Complies with Coast Guard regulations for either inland or international waters depending on model. (If factory installed.)

YOU MUST PROVIDE:

Personal Flotation Devices: There must be at least one Coast Guard approved personal flotation device aboard for each person in the boat.

Registration: You must properly register your boat and display the proper registration numbers as required by Federal law.

State Laws: The state in which you operate your boat may have other requirements - check the laws.

YOU SHOULD PROVIDE:

Safety Kit: Carry a safety kit that includes distress signals, bilge pump, flashlight, first aid kit, hand tools, cotter pin, oar, anchor, and a tow line.

SPECIAL NOTE: All boat manufacturers are required by Federal law to notify first time owners in the event any defect is discovered "which creates a substantial risk of personal injury to the public:" FAILURE OF THE PURCHASER TO RETURN THE WARRANTY VALIDATION CARD WILL WAIVE THE RIGHT TO NOTIFICATION OF DEFECT AND REPAIR AT MANUFACTURER'S EXPENSE. In order that we can comply with the law if it becomes necessary, it is essential that your warranty validation card with the owner's name, address and hull serial number be completed and mailed (Federal Boat Safety Act of 1971, Subsection 15b.)

IMPORTANT: To validate the warranty on your boat, complete and mail the card from this manual within 15 days of purchase. It is pre-addressed and postage paid for your convenience.

Section I: Operation

CAPACITY

North American Yachts, Inc. does not release any model until the boat has met the most stringent of engineering tests to comply with safety specifications for boat capacity, compartment ventilation, navigation lights, flotation, steering and fuel systems, as applicable.

NOTE: The auxiliary motor bracket on this boat is designed for up to 10 H.P. Do not use a larger motor.

A. BEFORE LAUNCH

1. CAUTION: Make sure the hose is on the Seacock or that the valve is closed.
2. Inspect the hull for cleanliness or damage. A dirty hull lessens performance, and increases drag. There is a possibility that the gelcoat finish can "blister" and peel if boats are kept in the water continuously. (See "Care and Maintenance," Section III.)
3. Secure all accessories and loose equipment.
4. Check that boat is properly equipped with U.S. Coast Guard required and approved safety equipment.
You must have a U.S.C.G. approved personal flotation device for each person on board. Small children and non-swimmers should be required to wear a life vest at all times. Check the condition of the flotation devices.
5. Have an approved fire extinguisher aboard.
6. Lighting: Check for proper operation.
7. If you have an auxiliary motor, make sure that it is securely fastened to the bracket.

B. UNDERWAY (See Development of Boating Skills, page 18.)

1. Test steering for proper operation as you move slowly from dock.
2. Keep speed under control at all times. Respect the rights of others. Be courteous.
3. Trim boat by weight distribution.
4. Drive "defensively" as you should your car.
5. Remember - the privilege to use public water carries with it an obligation to helm your boat in a safe and courteous manner.

C. RIGGING PROCEDURE

The first step in rigging your boat is to make a quick run through of the equipment to see that it is all there.

The checklist of the rigging for the boat is on page seven of this manual. All the material required to sail the boat is included except tape or some other material to cover the spreader tips to prevent chafe.

Be sure to read Section IV, Part C. for proper care of your sails.

Set Up

Uncoil rigging, leaving tags on each piece to avoid confusion. Begin attaching rigging to mast. The lower shrouds connect to the tangs just below the spreader sockets. The spreaders should be inserted in their sockets and bolted in. The upper shrouds are installed to their tangs on either side of the mast just below the top of the mast. The headstay and backstay are installed.

The drawing on page 6 will serve to help the novice position each piece of rigging.

The halyards should be installed at this point. The main halyard is installed through the mast head, making sure that the rope is fed through from the aft side of the mast forward. Run the halyard through to the wire to the rope splice and tie to the cleat on the starboard side of the mast. The jib halyard is run through the block just underneath the headstay tang. It also is run through to the splice, and tied off to the cleat on the port side of the mast.

Position the mast on the cabin top. Attach the lower portions of the standing rigging except the headstay to their respective chainplates. Loosen all turnbuckles to their fully extended position. Remove the pins from the plate at the butt of the mast.

Raising the Mast

When all the rigging has been set out and attached as prescribed above, check to see that none of the rigging is tangled or twisted. Move the mast aft so that the aft hole in the mast step is lined up with the aft hole in the plate on the butt of the mast. Insert the proper pin (Note the two pins are of different diameters) in the hole and lock with its cotter pin.

Raise the mast to its vertical position. Attach the headstay to the forward hole in the headstay tang. Now insert the forward pin in the mast step and lock with its cotter pin.

When this is complete, begin tuning the rigging for best support and sailing performance. An explanation of tuning the mast follows later.

Completion of Rigging

The boom must be installed. The forward end of the boom or "gooseneck" bolts to the mast and the aft end of the boom is suspended from the snap

on the backstay pennant. The double block is next attached to the bale on the bottom of the boom which is over the other main sheet blocks. Its sheaves run across the boat. If you have end boom sheeting you will attach your fiddle block with cam cleat to the bridle provided on the transom. Then attach single block to end of boom where boom bail and/or topping lift bar (depending on boat model) are provided.

The main sheet is dead ended on top of the block on the starboard side of the companionway. It is led through the double block's aft sheave and down through the block on the port side of the cabin. Once again up through the double block and down through the block on the starboard side. Thence through the fairlead and cam cleat aft of the starboard block.

D. TUNING THE MAST

Final and accurate tuning of your mast should be done during or after sailing. However, it will be necessary and possibly sufficient to rough tune your mast on your trailer or in the water before sailing.

The mast may be brought to the straight position across the boat by applying equal tension on each upper shroud and insuring that equal amounts of thread show on each of the upper shroud turnbuckles. The pressure on these shrouds should be firm, but not straining. A possible guide would be to tighten the turnbuckles all you can by hand and then a turn or two more with a pair of pliers and a screwdriver. The shroud should deflect about three inches when pushed six feet above the deck. Again the shroud should be firm, but not too tight.

The lower shrouds should be set up in the same manner, checking along the mast track (back edge) and seeing that the mast remains straight.

The headstay and backstay are set up in the same manner except slightly more pressure than used for the upper shrouds. It is important to find a balance between having the head stay tight enough to keep the jib luff from falling off too much in a breeze, and excessive rigging load.

If the headstay and/or backstay are tightened for competition, we recommend loosening the rig after racing.

Final adjustment should be made while sailing in a 8-12 knot breeze. Observe bend in the mast, then tack and adjust the now loose shrouds to arrive at a straight mast when you tack back. Do not attempt to tighten the rigging on the windward or loaded side.

E. SETTING AND TRIMMING THE MAINSAIL

Your mainsail is designed to fit the special characteristics of your particular boat. Full consideration has been given to your boat's weight as well as mast and boom deflection, if any.

Your sail is designed so as to place the maximum draft (deepest portion) of the sail 40 to 50% aft of the luff, (leading edge.) The draft of your new main can be moved forward by INCREASING luff tension. Conversely, it will move aft if the luff is relaxed.

Below we have illustrated and cataloged the suggested luff tension for light, medium and heavy air.

Your main is equipped with a "Cunningham" grommet. This is placed nine to eighteen inches above the tack.

Suggested Luff Tension:

Wind	Tension:
0 - 10 Draft Placement:	Medium (Until wrinkles behind luff tape disappear) 40 - 45% aft.
10 - 15 Maintain Draft:	Firm (Cunningham 1/3 down) 40 - 45% aft.
15 - 20 Maintain Draft:	Maximum (Cunningham one-half to full down) 40 - 45% aft.

Foot or boom outhaul tension are adjusted to correspond to those of the luff, the harder the wind blows, the more tension should be applied. Try as closely as possible to match the foot tension to that of the luff. The actual mainsail hoisting procedure is as follows:

1. Hoist the main to the full up position on the mast.
2. Now set the luff tension, as described above to the wind velocity.
3. Tension the boom foot outhaul to match that of the luff.

IMPORTANT: Never tension the foot of the main sail before tensioning the luff. After sailing RELEASE the outhaul, give your sail a chance to relax. Remember, the luff is no longer under tension. Leaving the foot under tension causes unequal distortion.

F. TRIMMING THE MAINSAIL

Although much of all sail trim is done by "feel" rather than absolute, hard and fast rules, we have a few suggestions that we hope will get you started in the direction.

Trimming of the main is done with four basic controls:

1. Main Sheet
2. Main Boom Traveler
3. Boom Vang
4. Cunningham

Your boat may not have as standard a main boom traveler or boom vang. We suggest that you consider these options. Now on to trimming the main.

The most critical trim of your main occurs when going to windward. The place to look for proper trim is the leech (batten) area of your main. Overtrimming will show up in the leech area hooking to windward, i.e., causing excess drag and heeling moment because the air is trapped at the back of the sail causing the boat to heel. A loose or pumping leech indicates, conversely, that more trim is needed. The function described above is primarily that of the MAIN SHEET.

The MAIN BOOM TRAVELER, available on the fixed keel model, has the primary function of controlling the point of trim, inboard or outboard, at which the mainsheet trim block attaches to the boat. The MAIN BOOM TRAVELER should be used as follows:

Wind:

- 0 - 5 Set the main boom slightly to windward of the boat's centerline.
- 5 - 10 Set the main boom at the boat's centerline.
- 10 - 15 Set the Traveler to the full outboard position. This reduces heeling and allows the air to escape more freely from the leech area of the mainsail.
- 15 - 25 Set the Traveler one-half the distance between the centerline and the leeward aft corner of the boat.

The Boom Vang is used primarily when the mainsheet is eased and the end of the boom is no longer in a position where the Main Boom Traveler is effective, (the end of the boom now being far out over the rail.)

The Boom Vang which is attached to the base of the mast then up to the center of the boom by means of pulley arrangement provides mechanical advantage, then basically assumes the function of the Main Boom Traveler.

As the main boom is eased, the boom rises causing the upper part of the main to twist off to leeward rendering the top 1/3 of the main ineffective. The Boom Vang then hauls the boom down (not in) causing a uniform leech curve while making the upper leech once again, effective.

Tell tales located about 25% aft of the chord length along the luff of the main can also be most helpful. We suggest 3/8 inch streams about 7 inches long of lightweight nylon taped to each side of the sail. On the average 23-foot boat, three sets, about six feet above one another, should be ample. When going to windward with the main trimmed as previously described, if you are sailing too close to the wind, the windward tell tale will lift and flutter. Layoff a bit and the weather tell tale will flow aft again. Conversely, sailing too far off the wind will cause the leeward tell tale to flutter. Bring the boat up a bit and it will then flow aft.

If you master the above mainsail setting and trimming technique you will be well on your way toward the most effective use of your new main.

G. SETTING & TRIMMING GENOAS & JIBS

The procedure for setting the Genoa is quite similar to that of the main. Your Genoa is designed so as to place the maximum draft (deepest portion) of your Genoa -35 to 50% -aft of the luff, (leading edge.)

Because your Genoa is of the "stretchy" luff (no rigid wire) concept, the draft is very easily moved forward through the use of luff tension. Conversely, it moves aft when the tension is eased.

A suggested procedure for having the proper sail set at all times would be to set your Genoa up on a stay when the wind is 8 - 10 m.p.h.

Set the halyard tension so as to remove the HORIZONTAL wrinkles immediately behind the luff tape. Now look at your sail from the Windward bow sighting aft, the draft (deepest portion) should be 40% of the chord line (horizontal distance from leading to trailing edge of sail.) This, then, would be your light to medium luff tension position. Mark your halyard position with tape or magic marker.

Now increase the luff tension until a Vertical tension wrinkle develops immediately behind the luff tape. Ease off slightly until the wrinkle disappears. Look at your Genoa. The draft is now 35% aft. Mark your halyard. This, then, is the heavy air setting.

As you become more familiar with this procedure you will soon be able to "eyeball" the draft and be well on your way to obtaining optimum Genoa performance.

Trimming the Genoa

There are two basic considerations in Genoa trim. One, the movement of the jib leads fore and aft; two, the movement of the trim point in or out in relationship to the boat's centerline. (Many cruising boats do not have in- or out-board adjustments as is more prevalent on the smaller one-design sailboats.

First and foremost, the system for setting your jib lead position properly fore and aft is relatively easy.

Bring your boat on the wind. Trim your Genoa sheet in. Now bring your boat up into the wind very slowly. If the luff **breaks** first at the **upper** portion of the Genoa, the leads are **too far aft**. If the luff **breaks** first in the **lower** portion of the sail, the lead is **too far forward**. When your lead is properly located, the Genoa will break evenly along the entire length of the luff.

If the athwartship (in and outboard) position of the jib leads are adjustable we suggest light air settings of 8 to 9 degrees off centerline. Medium air settings of 9 to 11 degrees, heavy air settings of 11 degrees plus.

This in and outboard movement of the jib leads has one objective, and that is to accelerate the smooth flow of air aft over the leeward side of the main. The effect thereby created is known as the "slot effect." The lighter the wind, the more closed the slot should be made, causing a Venturi (squeezing) effect and accompanying acceleration of air aft. Conversely, as the wind increases, the slot is opened reducing the velocity and minimizing the tendency of backwinding (deflecting air) into the main.

Use of the "foot cord" is basically an "eyeball" function; The foot cord on your Genoa is readily adjustable by means of a mini "V" jamcleat affixed to the tack of the Genoa. The simple rule to follow in setting foot cord tension is to increase tension until the lower foot "stands up" in uniformity with the remainder of the Genoa.

As a general rule you will need more tension going upwind, easing off as you bear off the wind. It is normal to see a slight cupping or "end plate" effect in the lower two to four inches of the foot.

The use of tell tales on the Genoa luff are most helpful. These tell tales should be located at about one-third of the luff length intervals vertically and about 25% of the distance aft between the luff and leech.

The tell tales should be placed as a set, one each on the windward and leeward sides of the sail. If you are sailing too high the weather tell tale will flutter; too low and the leeward tell tale will flutter. Transparent circular tell tale windows may be installed for better tell tale visibility.

The working jib trim and sail set suggestions are identical to those of the Genoa. Foot cords, however, are not necessary in working jibs.

H. SETTING AND TRIMMING THE SPINNAKER

In order to properly analyze maximum spinnaker efficiency, we have broken the use of the chute into five categories:

Light Air Runs

On light air runs we suggest making the shape of your chute as full as possible. This is accomplished by lowering your spinnaker pole to the lowest position possible on the adjustable pole track. Ease the pole lift to allow the pole to set perpendicular to the mast. Lead your sheets farther forward. This will tend to put more tension on the leech of your spinnaker, taking the strain off the chute itself, which in turn makes the chute fuller and allows it more freedom to float in the lighter air. Light spinnaker sheets will also be of help. When at all possible strive to keep the tack and clew of the spinnaker flying at the same height. If the clew drops lower than the tack, lower the pole to compensate. If possible, when sailing dead downwind, heel your boat slightly to windward. This allows the chute to float out from behind the main making it considerably more efficient.

Light Air Reaching

The inboard pole end should now be in the middle position on your spinnaker pole track. Again, keep the clew and tack at equal height. The spinnaker pole should be at a precise perpendicular angle to the mast. Now ease the halyard slightly. This will ease the leech and flatten the spinnaker slightly, giving better efficiency particularly when the wind is slightly forward of abeam. A 10 degree angle of leeward heel will further aid in keeping your spinnaker full.

Heavy Air Running

You will find little if any, problem keeping the spinnaker drawing effectively downwind in moderate or heavy air. Keep your crew weight aft. This keeps the rudder functioning effectively. Do not allow your spinnaker to oscillate. This may be accomplished by moving your spinnaker sheet lead forward and/or easing the pole forward and simultaneously trimming the sheet.

In heavy following seas it may be impossible to eliminate oscillation, but the above procedure will help keep it under control.

Heavy Air Reaching

The secret to a power reach is to keep your boat on her feet. Keep the heeling angle at a minimum. Keep the crew weight aft for maximum rudder control and, above all, anticipate the puffs before they are on you. Concentrate on the wind 10 boat lengths abeam and astern of you. When you see a blast of wind off your stern quarter, do not wait until it hits you, causing you to heel, round up and lose control. Bear off before it reaches you. If it looks as though it may last more than a minute, guy the pole aft and ride it downwind. Keep your boat moving, maintain control and as the blast eases, let the pole forward and bring your boat back to its original heading. Remember, "Anticipate the puff before it reaches you."

Spinnaker work requires practice and the coordination of the helmsman and crew. It also provides some of sailing's most thrilling moments.

General Spinnaker Trimming

Almost constant attention is required if maximum efficiency is to be realized from your spinnaker. The luff must be under constant scrutiny and the sail trimmed on the verge of a break or curl.

Remember, whenever raising or lowering the spinnaker pole to adjust for varying wind conditions, as described above, the pole must be perpendicular (90 degrees horizontally to the mast.) Do not allow the pole to hike up or sag down.

In order to accomplish this, the pole lift and inboard spinnaker pole track setting must be raised and lowered simultaneously.

It is also of paramount importance to keep the clew and tack of the spinnaker flying at equal heights. This assures that your spinnaker is not being distorted and that the designed shape is being maintained.

I. REEFING THE GENOA

Many people confuse roller furling as a means of reefing. True, some reduction in sail area may be effected through the use of roller furling gear but generally a Genoa will not trim properly when a substantial amount of sail is furled.

Genoa reefing is a means of reducing sail area and at the same time providing proper sheeting angle for an efficient sail shape. Basically the principle for Genoa reefing is the same as Jiffy Reefing on the mainsail. A set of reef points including a secondary tack and clew cringle is installed in the Genoa. As the wind increases the halyard is eased and the reef tack is lowered to the reef position. The sheet is then attached to the reef clew fitting. The excess sail area at the foot is then furled and tied.

Two important considerations on the furling Genoa are: one, the Genoa must be somewhat heavier, (one ounce) than the standard Genoa, because it will be used in heavier wind ranges when reefed; two, a reefing Genoa will reduce your headsail area by a maximum of 20%, i.e., 150% Genoa reduces to 130%. So, when you plan to install reefing in your Genoa keep in mind you will need heavier sail cloth and that the maximum reduction of area will be 20%.

How To Install a Jiffy Genoa Reef

1. Install a pad eye on the deck (port side) as close as possible to your regular jib tack fitting.
2. Attach a line to the pad eye and pass it through the Genoa tack reef cringle. (Make sure this line is twice the height of the reef plus 3 feet.)
3. Install a block (starboard side) as close as possible to the regular Jib tack fitting.
4. Lead the reefing line previously passed through the reef down and aft through the block.
5. Install a small cleat about one foot aft of the block. This cleat then becomes the point at which the tack reef line is secured.

The above gear will allow the quick reef to be taken while fully under way. If an extra jib sheet is available, it is possible to "pre-sheet" the jib, making the jib Reefing a simple instant procedure.

J. POP TOP OPERATING INSTRUCTIONS

Procedure For Lifting Top

1. Unlatch two side latch locks at middle on each side of top section.
2. Slide main hatch half-way forward.
3. Lift top from inside the cabin. Push straight up from middle of pop top. (do not lift on hatch.) It will swivel forward and cradle the mast as it moves up.
4. Wrap strap around mast and attach strap to hook provided on pop top.

Procedure For Closing Pop Top

Reverse the above procedure, following several precautions:

1. Have a firm grip with an upward force, before attempting to let the top down from inside the cabin.
2. Be sure the mast door is closing properly to allow correct closing and sealing.

CAUTION:

1. Do not allow fingers or hands near the contact edges between top and deck when raising or lowering the top.
2. Always attach safety hook to mast when the top is in open position.
3. Always have a firm grip on top when opening or closing. The pop top has considerable weight, and therefore care must be taken when raising or lowering it.
4. Do not lift top by the main sliding hatch. The main hatch was not designed to lift the top.
5. Always close the top during high winds or rough conditions.
6. Do not sail while pop top is in an up position.

Section II: Boating Skills

Development of boating skill will depend on practice, study and observation. The skillful boat operator will learn to sense when in the interest of safety a change of speed or course is necessary. He will gradually gain an instinctive touch in protecting his boat from strain, stress and avoiding possible hazardous situations.

Until you are capable of knowledgeable weather forecasting, get in the habit of checking your local newspaper, radio and TV broadcasts, consulting operators of local marinas or placing a call to the nearest Coast Guard Station or airfield to get up-to-date information on marine weather forecasts.

Small Craft Warnings

If small craft warnings are broadcast for the boating area, or if storm warning signals are displayed, don't go boating just because the sky seems clear. Learn to respect the weather and its consequences.

Water Surfaces Give Clues to Depth

Make it a practice to study the water ahead. Deeper water is usually darker in color and shallow water is lighter.

Ripples will build up more easily in a light breeze on water flowing over shallows than it will in deep water. Usually, disturbed water marks the location of underwater obstacles.

In navigable rivers, deeper water will be found on the outside of bends. At curved sections, mud and sand bars are more likely to build up on the inside curves.

A. BASIC RULES

Knowing the "Rules of the Road" (see back cover) is a legal requirement of all boatmen. "Rules" are a combination of common sense principles blended with courtesy. Courtesy involves a recognition of the other fellow's rights, comfort and safety.

Speed limit signs are usually found at or near boat anchorage or swimming areas.

You are expected to keep clear of boatmen engaged in fishing or swimming.

Avoiding persons engaged in water skiing or scuba diving is of prime importance.

The privilege to use public waters carries with it an obligation to operate your boat in a safe and courteous manner.

A cardinal principle of boating requires that you be ready at all times to render assistance to other craft in need of aid.

If your passengers decide to swim, take a personal inventory from time to time. Use the "buddy system" with passengers paired off, each responsible for the other. Don't let swimmers stray too far.

CAUTION! Swim only in known waters, when the boat is securely anchored. Keep one person, who understands the operation of the boat, on board at all times.

It is good practice to tell some responsible persons where you are going and when you expect to return (both night and day.)

U. S. Coast Guard Publications

You are invited to write to the U.S. Coast Guard for information relative to boating safety. It is suggested that you indicate your particular interest in

- Taking a safe boating/seamanship course
- Applying for home study "Skipper's Course"
- Information on Federal equipment requirements
- General safe boating literature

Address your inquiry to the Coast Guard Office nearest you.

B. CHARTS

When the boatman leaves areas marked with buoys and cruises into unfamiliar areas, a chart is a necessity. A chart is a mariner's road map. It can help you reach a destination without jeopardizing your boat and passengers.

Most marine supply stores carry a full complement of the government charts, tables, light lists and piloting guides needed to navigate local waters. If you find that the store is out of stock, however, or if you require charts or other publications for distant areas, you can obtain the necessary materials by writing directly to the appropriate issuing office, as listed below:

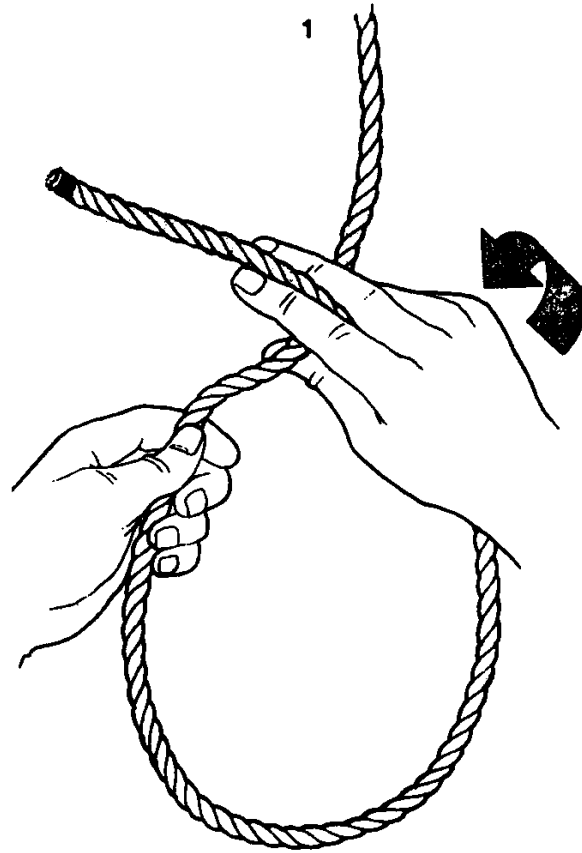
1. National Ocean Survey, Distribution Division, C44, 6501 Lafayette Avenue, Riverdale, Maryland 20840. Telephone (301) 436-6990. Publishes charts for all U.S. coastal areas, the Great Lakes, sections of major rivers, Coast Pilots, tide tables, tidal current tables, tidal current charts, Chart No.1, Catalogues of NOS charts. Distributes Notice to Mariners.
2. Defense Mapping Agency Depot, 5801 Tabot Avenue, Philadelphia Pennsylvania 19120. Telephone: (215) 697-4262. Issues charts of foreign waters, a chart catalogue and Notice to Mariners. Distributes Chart No. 1.
3. U.S. Army Corps of Engineers. The district office in each state issues charts and chart lists for inland lakes and waterways.
4. Lake Survey Center, 630 Federal Building, Detroit, Michigan 48226. Publishes charts of the Great Lakes and connecting rivers, lake Champlain and New York State Canals, and a chart catalogue.
5. Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Distributes light lists.
6. Hydrographic Chart Distribution, Canadian Hydrographic Service, Surveys and Mapping Building, 615 Booth Street, Ottawa, Ontario, Canada. Distributes Canadian charts and marine publications.

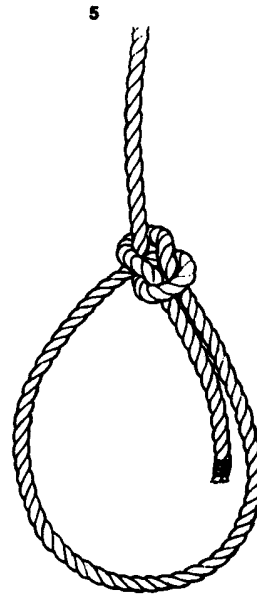
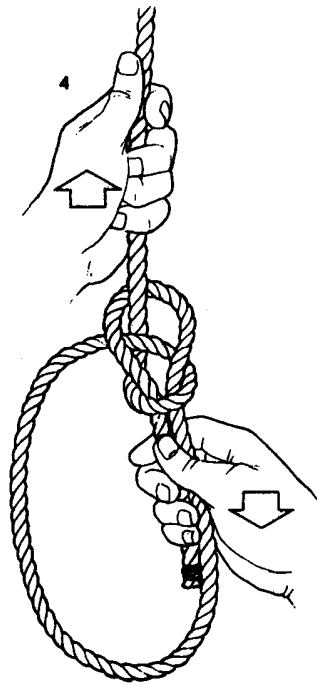
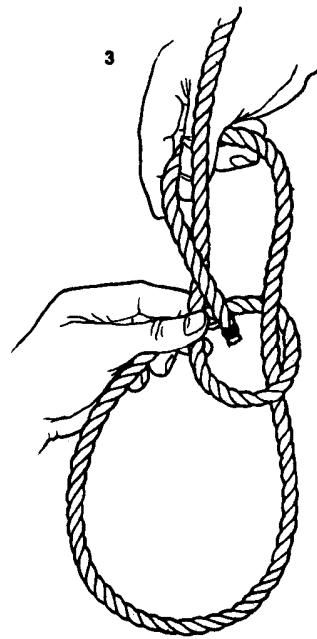
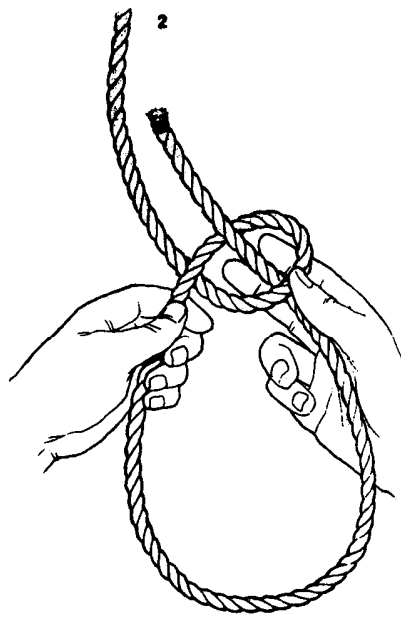
C. TYING A BOWLINE

The bowline is the seaman's most reliable and useful knot. A quick, strong method of making an eye in a line, the bowline never slips or jams. It can be tied in the end of a line or in the middle, with one loop or two, depending on the situation. In fact, if a sailor were able to learn only four knots in his life, this should be one of them. (The others are the square, the half hitch and the figure eight.) The bowline is the knot used with your jib sheet.

Here is the simplest and most reliable method for tying the basic bowline in a line's end:

1. Form an overhand loop, holding the junction firmly between the thumb and fingers of your right hand.





2. Turn your right hand over, palm up, to form a smaller loop with the working end sticking up through it.

3. Hold the loop in your left hand and use the right hand to lead the working end around behind the standing part, then forward and down through the small loop.

4. The working end should finish inside the big loop, parallel to the right side. Pull down the working end and the right side of the big loop with one hand, and pull the standing part with the other to draw up the knot.

5. The finished knot will look like figure 5.

D. ACCESSORY EQUIPMENT REQUIRED

No boat should be operated without a complete complement of accessory equipment. The U.S. Coast Guard requires that each boat, depending upon size, carry certain approved safety accessories. Other law enforcement agencies - state, county or municipal - impose similar equipment requirements that do not fall under Coast Guard jurisdiction.

Personal Flotation Device

All boats must be equipped with a U.S.C.G. approved personal flotation device for each person on board the boat. Buoyant vests are most highly recommended.

CAUTION: Small children and non-swimmers should be required to wear them at all times. All persons aboard should have a flotation device readily available when there is a threat of a storm or when navigating on dangerously rough water.

NOTE: All personal flotation devices must be tagged or marked with a U.S. Coast Guard approval number.

Navigation lights

Depending on the model, North American Yachts come equipped with navigation lights to conform to either international or inland lighting rules as required by the Coast Guard.

Under inland rules a boat is required to show a combination red and green light forward when underway from sunset to sunrise. This combination light must be visible from a distance of one mile. A white light visible 360 degrees for two miles must be displayed aft. This white light must be displayed when anchored or rowing at night.

NOTE: The above regulations are duplicated by many state boating laws specifying required equipment for state and local waters not under federal jurisdiction.

Some local laws require additional equipment. It is important that you obtain a copy of local laws.

E. RECOMMENDED ADDITIONAL GEAR

Important both to safety and convenience are the following items:

Basic Gear

Suitable anchor and anchor line	Flares
Tow line	Bilge pump and bailer
2 lightweight fenders	Oar or paddle
2 mooring lines	Boat Hook
Flashlight	Navigation Gear:
spare fuses	Compass
First Aid Kit	Parallel rulers
Sunburn lotion	Dividers
Portable searchlight	Charts of the area

Basic Tools

Screw driver	Pliers
Adjustable wrench	Knife
Hammer	Roll of soft wire
Electrician's tape	

Extended Cruising

Auxiliary motor	Fuses, Spare battery
Spare light bulbs	Extra sheets
Spark plugs for auxiliary	Spare pull cord for auxiliary

Check with your dealer and other experienced sailors for advice on additional equipment.

NOTE: If you carry fuel for an auxiliary motor, you should carry a fire extinguisher. However due to the danger of toxic fumes, vaporizing liquid extinguishers are not recommended. Dry chemical, carbon dioxide or foam extinguishers are best.

F. WHAT SAIL TO ADD FIRST

In all probability your boat is standard equipped with a main and working jib or lapper. We have listed below in order of importance the additional sails you might consider:

1. No. 1 Genoa (150% - 170%) *
2. 3/4 oz. all purpose spinnaker
3. No. 2 Genoa (130% - 170%) *
4. Drifter Reacher (150%. 170%) *
5. Close Reaching Spinnaker
6. Heavy Genoa (150%)
7. Spinnaker Staysail - Big Boy
8. .05 oz. Spinnaker
9. Storm Jib
10. Genoa Staysail
11. No. 3 Genoa (110% - 120%) *

Sails 1,4, and 9 are suggested for cruising or occasional racing.

*We suggest as a general rule, 150% Genoas; however, for boats racing under the M.O.R.C rule and boats of older design (5 years or more) with smaller "J" measurements, a 170% may be preferable.

G. WHAT ABOUT CLOTH WEIGHT

The cloth weight for a given sail is predetermined by the sail type, i.e., the Genoa, main, etc., total sail area, size of boat and last but not least the wind range the sail will most frequently be used in.

Cloth weight, in itself, is only half the factor in determining that your new sail will perform as designed.

Through the use of the Scott Tensile Tester we have arrived at what we consider the best stretch ratio for a given sail. Keep in mind that stretch ratios differ greatly within identical cloth weights, i.e., a high aspect ratio mainsail, (3 x 1) requires greater stability along the leech area of the sail. Whereas a 150 Genoa requires an entirely different stretch ratio of 1 x 1 because the trim angle (strain) on the Genoa is evenly distributed and the sail itself is virtually an equilateral triangle.

With the above in mind we believe you will understand when we say "Cloth weight alone doth not a good sail make."

Last but not least is the consideration of cloth finish. Only the finest leading suppliers of sail cloth are considered in the manufacture of these sails. We demand a tightly woven high count cloth. We do, however, have the availability of using soft, medium or firm finished sail cloth.

We have listed below the suggested use for each finish:

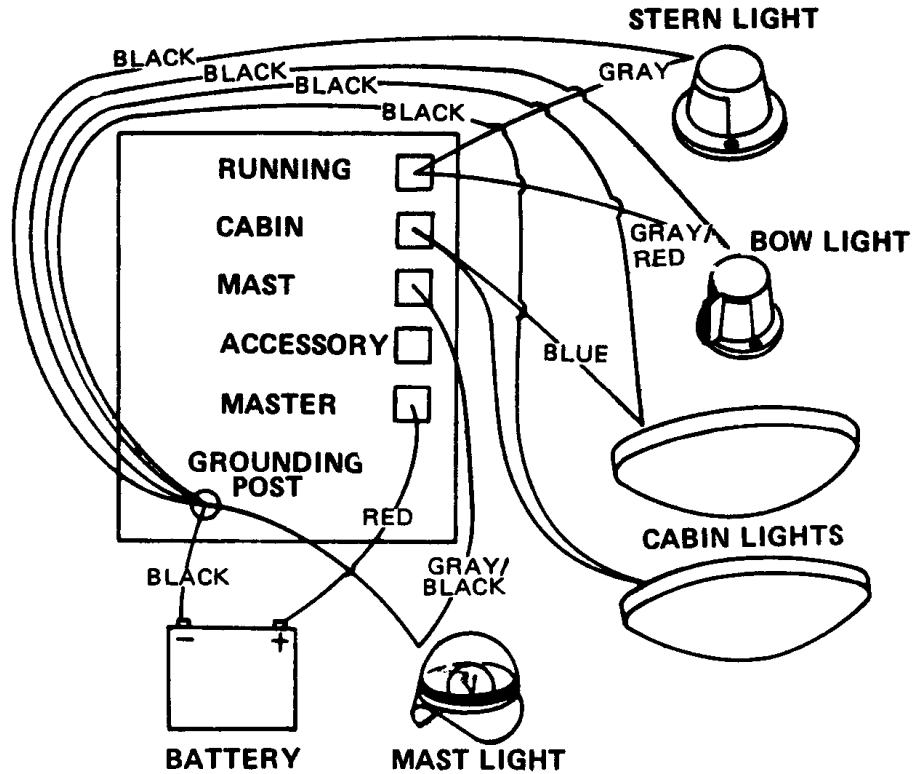
- Soft Finish: Large sails or on a cruising boat where stowage and ease of handling are a consideration.

- Medium: For the cruiser-racer, really, the best of both worlds. Takes up more space and is slightly harder to handle but has a better shape retention than the softer finish.

- Firm: "Bullet proof" should only be considered on smaller one-design racing machines where stowage and deck handling are not a consideration.

Section III: Wiring

North American Yachts are wired for 12 volts direct current, and all wiring is color-coded as indicated on this wiring schematic.



Note that your boat's standard harness is protected by a master fuse. This is a 10 or 15 amp fuse and replacement should be made only with a fuse of the same rating. If accessory electrical equipment is installed, each item should be separately fused with proper size fuse and not more than 5 amps of combined electrical load should be attached to boat's installed wiring harness. If additional current capacity is required, a separate fused circuit of proper sized wire should be added from battery to device.

An accessory switch panel is provided for such equipment as external lights, navigation instruments, bilge pump, and other accessories if installed.

Section IV: Maintenance

A. FIBERGLASS CONSTRUCTION

North American Yachts, Inc. hulls are constructed of hand-worked laminates of fiberglass reinforced polyester. While hand laminating is the most expensive type of fiberglass construction, we feel that it is essential to guarantee uniform construction and the best possible strength to weight ratio for your boat hull.

Glass fibers reinforce polyester resin much like steel reinforcing rods in concrete. These fibers are manufactured in three basic forms. Fiberglass cloth is much like the material in a shirt, enlarged several times. Fiberglass mat is made of short fibers pressed together into a thick sheet. Fiberglass roving is similar to fiberglass cloth but woven with much heavier "threads."

Your boat is manufactured using a combination of these three reinforcement materials. The exterior finish of your boat is gelcoat. Even though gelcoat is the finish on the outside of the boat, it is the first material applied to the mold in the manufacturing process.

The gelcoat material used is the best and most advanced that research and industry has to offer. However, it is possible that boats which are stored in the water continuously can develop small blisters in the gel coat. If you plan to store your boat in the water, we recommend a coating of antifouling paint be applied for long lasting protection. Water blistering is a common characteristic of the gelcoat surface of fiberglass laminates continuously exposed to water and will not affect the strength of your hull. Hull surface maintenance can be reduced by storing your boat out of the water.

Small hair line cracks, called gelcoat crazing, may occur occasionally in the gelcoat surface at points of impact or points of high stress. Since the gelcoat is not a structural part of your boat this will in no way affect the performance, strength or quality.

Repair

Fiberglass, as tough as it is, can be scratched, scarred or even penetrated by hard contact with sharp objects such as spikes or jagged rocks.

Touching up scratches or blemishes is easy to do. Your dealer carries a gelcoat putty kit, color matched to your boat. Full instructions are included with each kit. If your dealer is temporarily out of the kit, he can get one for you from the factory.

B. MAINTAINING HULL FINISH

We recommend that you give your boat a coat of wax and keep the hull clean at all times. A waxed boat is easier to clean and the wax serves as a protective coating to your hardware and gelcoat finishes.

Wash your boat regularly with fresh water after use in salt water. Salt crystals will not damage your gelcoat finish but can dull the appearance. Should dirt or salt build up in the grooves or molded-in-non-skid surfaces, they can be removed with soap, water and a good brush.

If left in the water continually, (particularly in salt water) hulls are subject to many types of marine growth. These growths add weight, reduce maximum speed, and in general limit the operating efficiency of your hull. Ask your dealer to recommend an antifouling paint which is best for your area.

A good wax coating on a hull that does not have antifouling paint can make cleaning a much easier task.

We recommend that you coat your vinyl upholstery with a good grade upholstery wax. These waxes will also serve as a cleaner for soiled areas on your vinyl. The use of harsh detergents can eventually damage the threads on your vinyl upholstery parts.

Remember, when a prospective buyer looks at a used boat, he always notes the condition of the seats, vinyl and hardware as well as the finish of the hull. Keeping your boat in good condition will keep the value at its peak.

C. CARE OF SAILS

A paramount rule in making your sails live a long life is to never use a sail in wind ranges heavier than they have been designed for. Most mains and working jibs will take virtually any blast you can throw at them. Headsails, however, are a different story. Make yourself aware of each headsail's maximum design limits and stick to them.

Do not leave your sails luff for extended periods of time, i.e., under power lower your sails. Luffing causes the sail fibers to chafe and break down, drastically shortening sail life.

We recommend, whenever possible, that sails be folded. We realize that this is not always possible. Rather than stuffing a wet sail in a bag we suggest the alternative, (on a cruising boat) of spreading it loosely on the cabin floor just before securing the boat after a day's sail.

When the mainsail is left furled on the boom remember to ease the outhaul. This gives the foot the same chance to relax as the hoist. This prevents permanent distortion.

Keep your sails clean. The most frequent cause of dirty sails is dirty rigging. Industrial dirt seems to be magnetized by stainless steel shrouds. Send someone aloft periodically, with a soft cloth to wipe down the shrouds.

When sailing in salt water a fresh water rinse of your sails, whenever possible, is in order. The crystalline salt has a detrimental abrasive effect on sail cloth. You will also find your sails will dry faster minus a coating of salt.

After a few seasons of use you may deem it necessary to give your sails a bath. We know of no laundering procedure that will return your sails to their original look. It is possible, however, to improve your sails' general appearance by washing them in mild detergent in warm water. Spot removal is accomplished by using a soft bristled scrub brush. Make sure all the detergents are removed with a thorough rinse. Do not wash in a machine. The family bathtub is far preferable. (Your sail will love it; your wife may not.)

Dry your sails if possible, in bright sunlight. The sun's rays will contribute a bit of natural bleaching.

Spot Removal

Oil or Grease: Use commercial cleaning solvent. If a yellow stain develops, bleach with oxalic acid and rinse thoroughly.

Rust: Soak stained area in hot or warm solution of two parts hydrochloric acid per 100 parts water and rinse thoroughly.

An ounce of prevention is worth a pound of cure. Check your sails regularly for wear, particularly at the points of stress. Make sure you have your rigging properly taped to prevent sail damage. Remember, sails are like people:

1. Keep them clean
2. Keep them dry.
3. Give them a physical once a year.

Section V: Trailering

With a modern easy-to-launch-and-load trailer, you don't need access to private water frontage or an unlimited budget to spend on mooring facilities in order to enjoy sports afloat. You can store your North American in your garage or back yard.

A. CHOOSE YOUR TRAILER WITH CARE

We strongly recommend that you don't try to shave your boating budget by buying the cheapest trailer available. Trailer builders are constantly improving their products - using better metals, wheels, bearings - and standardizing on many components to relieve spare parts problems. But remember that a breakdown hundreds of miles from home may prove expensive. A trailer that is not properly mated to your boat can cause distortion or damage to the hull that may detract from its performance and prove expensive to correct.

If you expect to use a trailer merely to haul your boat to and from a permanent mooring, a mediocre piece of equipment may fill the bill. But, if you plan to store your boat for lengthy periods on the trailer and expect to travel long distances over the highways, be particular.

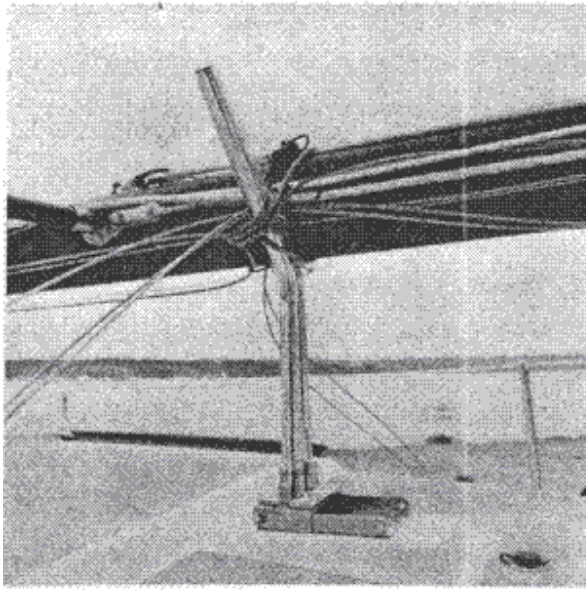
CAUTION: Buy only a trailer that is tagged with a specific maximum load capacity. This is a static load and represents the maximum number of pounds the trailer is designed to support at rest. This load capacity includes the weight of the boat, auxiliary motor if any, and accessory gear. Don't exceed it.

Don't merely guess at the weight. Drive an unloaded trailer to a railway, freight or lumber yard platform scale. Weigh the trailer. Then load boat, auxiliary motor and gear - be sure to fill the auxiliary motor's fuel tank - and weigh again.

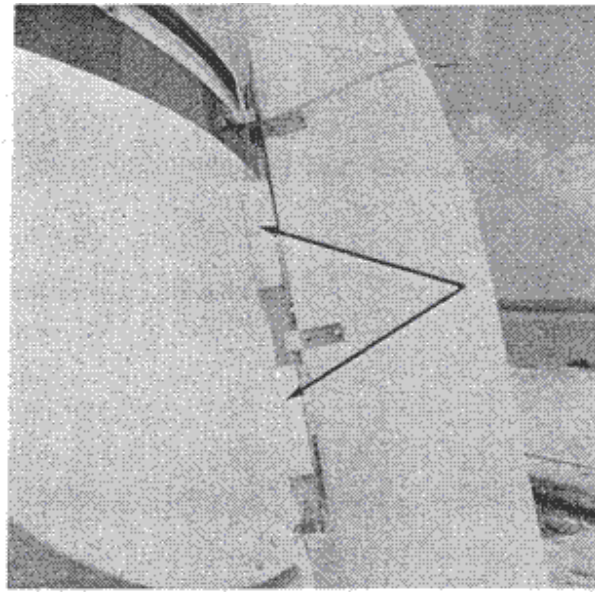
NOTICE: A copy of the latest Digest of State Boat Trailer Laws may be obtained free by writing the Boating Industry Association, 401 North Michigan Avenue, Chicago, Illinois 60611. This complete report will tell which states require licenses, fees involved and where to apply, trailer lighting requirements, safety chain and brake requirements, maximum trailer speeds and other miscellaneous laws that may affect your trailboat travel.

B. PROPER MAST TRAILERING

When trailering your boat any long distance, it is highly recommended that you purchase a mast trailering support system from your local North American dealer. This system will properly support your mast and will keep your mast from abrading the outer finish on your boat by keeping it off the top sides of your boat.



Proper Mast Support



Proper Rudder Trailering

C. TRAILER BALANCE IMPORTANT

Sway in boat trailers is usually caused by a tail heavy load. Smooth trailing calls for a 60 - 75 pound minimum downward pressure on the tongue. If your trailer sways, shift movable gear forward in the boat.

Sway may also be caused by an overly heavy load in the towing car. Helper springs will keep the rear of the automobile higher by compensating for added gear and trailer tongue weight.

Non-adjustable metal helper springs will prevent the towing car's rear from dipping. Pneumatic "air-lift" springs offer the added advantage of flexibility of support to meet varying load requirements, and when deflated will prevent rough rides when your automobile is not being used for towing.

D. HOW TO RIG AND MAINTAIN YOUR TRAILER

All modern boat trailers are fitted with adjustable supporting rollers and/or bunk pads. For the protection of your boat, be certain these supports conform to the hull's design. To maintain the curvature of your boat, the bunks should run longitudinally and your boat's keel should be supporting 95% of the boat's weight. The bunks must conform to the contour of the bottom of the boat. Once adjusted, you need not alter them again.

Tie-downs should be drawn snugly so that on rough roads the boat and its gear load remain in constant contact with trailer bed and hull supports. We recommend carrying one extra mounted and inflated tire. Inflate trailer tires to recommended pressures, which are usually double or more than that recommended for automobile tire pressures.

Trailer wheel bearings should be greased every 2,000 miles or after use in salt water. After launching, particularly from a sandy beach or in salt water areas, flush the wheel hubs and underbody of the trailer with fresh water.

For safety, install side view mirrors on your car, since the loaded trailer may obscure your vision in the regular rear view mirror. Auto supply stores and marine dealers carry telescoping side view mirrors that may be extended when trailering.

E. TIPS ON BOAT LAUNCHING

With a present day trailer fitted with heavy duty geared retrieving winch and roller supports, you will find that handling even a 23-footer is no chore. However, since many launching ramps are rather steep, we would suggest that you carry a set of wheel chocks in your boat or towing car. Don't depend on finding stones, bricks or blocks of wood at the launching ramp.

A pair of wedge shaped wood sections fitted with a short length of chain or a lanyard will eliminate the need to crawl under the car to pull the chocks free.

If you plan to trailer to unfamiliar areas, you may find that two sections of heavy duty mesh wire, four to five feet in length and a foot wide, will prevent your car from bogging down in sandy or muddy areas. Some trail-boatmen install clamp-on bumper hitches to their front bumpers. If the ground near the launching area isn't firm, uncouple and switch the boat trailer from the rear to front hitch. Then push the trailer from your car's front end to the water's edge while the car's rear wheels remain on solid ground.

If you own one of the larger North Americans, we recommend a folding wheel dolly under the tongue of the trailer.

Where launching ramps are steep, the trailer may be disconnected and rolled into position at the ramp with the aid of a dolly wheel. A spare section of cable with eye splices fitted with "S" hooks provides a simple means to lower a trailer down a steep grade to the water while controlling it by the car's own power.

Those who often launch from sandy beaches have learned that a portable pressurized tank-tire pump is convenient. Deflating automobile and trailer tires to approximately half their normal pressure will prevent them from bogging down. The air tank accessory will save the back and arm strain of hand pumping and will eliminate even short distance travel to the nearest service station on under-inflated tires.

Periodically lubricate winch bearing surfaces, rollers, components of the ball and socket coupler and other swiveling or hinged components such as rear cradle linkage.

F. STORING YOUR BOAT ON A TRAILER

There is no one right way to store a boat. Water offers the perfect cradling to prevent boat distortions, but mooring afloat has the drawback of exposure. When mooring at home, with the boat on the trailer, keep your rig in a protected location, shaded and preferably under cover. Remove wet gear from the boat. Loosen tie-down lines. Be certain that the trailer bed offers good support at the keel. Protect boat from corrosive elements or salt atmosphere and periodically wash down boat.

Remember that interior vinyls, even though very durable, can be damaged by exposure to extreme weather conditions.

Plexiglas windows should be flushed with fresh water and soap, dried with a chamois and covered from direct sunlight. For off-season trailer storage, jack the trailer axles so the wheels are free of the ground, then put cement blocks or some other chocking material under the trailer axle so the wheels don't rest in mud, damp grass, snow or ice.

Use a Sturdy Frame Hitch

We strongly recommend, even for short distance trailing, that you fit the towing car with a frame-type hitch, bolted or welded securely to your car's frame.

CAUTION: Check the ball hitch for secure latching before towing trailer from parked position.

Many modern automobiles are built with very lightweight frame material. Consult your marine dealer or local mechanic and follow his advice if he recommends having additional stressing metal added for greater security. A modest-priced welding job will assure you that your trailer won't break free due to a faulty hitch and damage your boating equipment or cause property or personal damage. While not required in all states, it is just plain good practice to have a heavy duty safety chain on your trailer capable of withstanding loads of three times the gross weight of the trailer.

CAUTION: Know and comply with state trailer laws within the area you are towing your boat. These laws vary widely from state to state.

Section VI: Warranty

All North American Yachts, Inc. warranties are LIMITED WARRANTIES within the meaning of Title I of the Federal Trade Commission Improvement Act.

MANUFACTURER'S WARRANTY AND DISCLAIMER

North American Yachts, Inc. warrants to the original purchaser only each new boat hull and deck to be free of defects in material and workmanship under normal use or service for a period of one year from the date of retail purchase from an authorized North American Yachts, Inc. dealer according to the following terms:

Any part of the boat manufactured by North American Yachts, Inc. and found in the reasonable judgment of North American Yachts, Inc. to be defective in material or workmanship will be repaired or replaced at North American Yachts, Inc.'s option by an authorized North American Yachts, Inc. dealer, or at the North American Yachts, Inc. factory without charge for parts and labor, provided the factory or an authorized North American Yachts, Inc. dealer is notified within 30 days of defect. Transportation expense of delivering the boat or part to the dealer or the North American Yachts, Inc. factory and the expense of returning the boat back to the owner will be paid for by the owner. Proof of purchase will be required to substantiate any warranty claim. All warranty work must be authorized by a North American Yachts, Inc. Factory Representative; and only authorized North American Yachts, Inc. dealers or the factory can perform warranty work.

ITEMS NOT COVERED BY WARRANTY

This warranty does not apply to: (1) mast, engines, controls, batteries, or other equipment or accessories which are not manufactured by North American Yachts, Inc. and which carry their own individual manufacturer warranties; (2) machinery, equipment and accessories not factory installed (3) gelcoat; (4) any North American Yacht which has been subject to misuse, negligence or accident; (5) any North American Yacht used for commercial purposes. Upon request, North American Yachts, Inc. may provide special written warranty for specific commercial applications.

In addition, this warranty does not extend to repairs made necessary by normal wear, or by the use of parts or accessories which in the reasonable judgment of North American Yachts, Inc. are either incompatible with the boat or adversely affect its operation, performance or durability. Personal flotation devices should be carried for each passenger in accordance with the U.S. Coast Guard requirements.

NO OTHER WARRANTIES MADE: Liability Disclaimer

Repairs or replacements qualifying under this warranty will be performed in accordance with the terms stated herein. North American Yachts, Inc.'s responsibility in respect to claims is limited to making the required repairs or replacements, and no claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale of any boat.

North American Yachts, Inc. assumes no responsibility for loss of use of the boat, loss of time, inconvenience, or other damage, consequential or otherwise, including, but not limited to, expense for gasoline, expense of returning the boat to the dealer and expense of returning the boat back to owner, removal of the motor from a boat and reinstallation, mechanic's travel time. in-and-out-of-water charges, telephone or telegram charges, trailering or towing charges, rental of another boat during the time warranty repairs are being performed, travel, lodging, loss or damage to personal property, or loss of revenue.

North American Yachts, Inc. reserves the right to change or improve the design of any boat without assuming any obligation to modify any boat previously manufactured.

ALL IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE ONE (1) YEAR WARRANTY PERIOD. ACCORDINGLY, ANY SUCH IMPLIED WARRANTIES INCLUDING MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE, ARE DISCLAIMED IN THEIR ENTIRETY AFTER THE EXPIRATION OF THE ONE (1) YEAR WARRANTY PERIOD. NORTH AMERICAN YACHTS, INC.'S OBLIGATION UNDER THIS WARRANTY IS STRICTLY AND EXCLUSIVELY LIMITED TO THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS, AND NORTH AMERICAN YACHTS, INC. DOES NOT ASSUME OR AUTHORIZE ANYONE TO ASSUME FOR THEM ANY OTHER OBLIGATION.

Some states do not allow limitations on how long an implied warranty lasts and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

The Warranty Validation Card must be signed by the owner and returned to North American Yachts, Inc. within fifteen (15) days after the original purchase. Failure to sign and return the card within the prescribed time will render your warranty null and void. Nothing herein shall be interpreted, however, as limiting North American Yachts, Inc.'s obligations under the Boat Safety Act of 1971 to correct defects which violate Coast Guard Safety Standards, Regulations, or which are determined to create a substantial risk of personal injury to the public.

SPECIAL NOTE: All boat manufacturers are required by Federal Law to notify first-time owners in the event any defect is discovered "which creates a substantial risk of personal injury to the public." Failure of the purchaser to return the boat warranty registration card will waive the right to notification of defect and repair at manufacturer's expense. In order that we can comply with the law if it becomes necessary, it is essential that your boat warranty registration card with the owner's name, address, and boat serial number be completed and mailed (Federal Boat Safety Act of 1971, Subsection 15b.)

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

This warranty applies only to boats sold in the United States and Canada. In keeping with North American Yachts, Inc.'s policy of continuous improvement of all products, we reserve the right to change specifications and prices without notice.

WARRANTY CLAIMS

To make a claim under warranty, contact the authorized North American Yachts, Inc. dealer from whom the boat was originally purchased, or the nearest authorized North American Yachts, Inc. dealer. Remember, your boat must be delivered to an authorized North American Yachts, Inc. dealer within the warranty period, and all warranty work must be performed by an authorized North American Yachts, Inc. dealer. Any repairs to be performed after the warranty period must first be approved in writing by the North American Yachts, Inc. Service Department. Proof of purchase will be required by the North American Yachts, Inc. dealer to substantiate any warranty claim.

EXAMPLES OF ITEMS NOT COVERED BY WARRANTY:

Provisions of the warranty will not apply to:

Normal service requirements arising during the warranty period.

Normal service work over and above the repair and replacement of defective parts.

Boats subject to misuse, neglect, negligence, accident, or used for racing purposes.

Boats that have been altered or modified so as to adversely affect their operation, performance or durability or to change their intended use.

Repairs made necessary by the use of parts or accessories which are either incompatible with the boat or adversely affect its operation, performance or durability.

Boats not operated or maintained in accordance with the instructions in the North American Yachts, Inc. Owner's-Operator's Manual.

Expense of returning the boat to the dealer and expense of returning the boat back to the owner, removal of the motor from a boat and reinstallation, repairman's travel time, and in-and-out-of-water charges.

This warranty applies only to the original retail purchaser.

OWNER'S OBLIGATION AND RESPONSIBILITY

Normal maintenance service and replacement of service items are the responsibility of the owner and as such are not considered defects in material or workmanship within the terms of the warranty. Individual operating habits and usage contribute to the need for maintenance service. To assist you in obtaining maximum service and satisfaction from your new North American Yacht the principal service and replacement items are described as follows:

PROPER MAINTENANCE AND CARE: See your North American Yachts, Inc. dealer for proper maintenance and care of your boat. Proper maintenance. and care will assist in keeping your overall operating cost at a minimum.

BOAT MAINTENANCE: (See Boat Owner's Manual)

PROPER TRAILERING, CRADLING & MOORING

CAUTIONS SUMMARIZED

The purpose of the warning and caution notices is to attract the operator's attention to possible dangers. Each deserves the operator's special attention and understanding. Safety warnings do not by themselves eliminate any danger, and the warnings they give are not substitutes for proper accident prevention measures.

WARNING: If you carry an auxiliary engine, see its operator's manual for additional safety warnings.

CAUTION: Provide a U.S.C.G. approved personal flotation device for each person aboard your boat.

CAUTION: Provide a dry chemical, carbon dioxide or foam fire extinguisher for your boat. Avoid vaporizing liquid type extinguishers which may cause harmful fumes.

CAUTION: Display running lights between sunset and sunrise.

CAUTION: Know and comply with state trailering laws within any state where you may tow your boat.

WARNING: Before launching check to see that hose is on seacock and/or that valve is closed.

NOTE: The auxiliary motor bracket on this boat is designed for up to 10 H.P. Do not use a larger motor.

CAUTION: Observe the following cautions when using the Pop Top.

1. Do not allow fingers or hands near the contact edges between top and deck when raising or lowering the top.
2. Always attach safety hook to mast when the top is in open position.
3. Always have a firm grip on top when opening or closing. The pop top has considerable weight, and therefore care must be taken when raising or lowering it.
4. Do not lift top by the main sliding hatch. The main hatch was not designed to lift top.
5. Always close the top during high winds or rough conditions.
6. Do not sail while pop top is in an up position.

GLOSSARY

- Battens:** Flexible strips of wood or fiberglass placed in a sail to help the leech retain its' proper shape.
- Becket:** A loop, eye or grommet; the eye in the strap of a block to which a line can be attached.
- Belay:** To secure a line, usually to a cleat.
- Block:** A wood or metal shell enclosing one or more sheaves, through which lines are led.
- Boom Vang:** A single line - usually wire - or a block and tackle commonly used to hold down the boom while reaching or running.
- Bow:** The forward part of the boat. (The word prow, cherished by poets, describes a ship's ornamented stem and is otherwise avoided by seamen.
- Buoy:** A floating aid to navigation used to mark the navigable limits of channels, indicate hazards, define anchorages, post local regulations, etc.
- Car:** A metal fitting that slides on a track and to which blocks are attached.
- Chafing gear:** A covering put around a short section of line to reduce wear, or on the rigging to protect the sails.
- Chain plate:** A narrow metal plate attached to the hull as a fastening point for shrouds and stays.
- Cleat:** A metal or wood fitting with two projecting horns fastened to some part of the boat, to which a line is belayed.
- Clew:** The lower, after corner of a sail, where the foot meets the leech.
- Cringle:** A circular eye, often formed by a metal ring, grommet or piece of rope worked into the: eye, set in the corners or on the edges of a sail and used for fastening the sail to spars or running rigging.
- Downhaul:** A length of wire or line that pulls down the tack of the sailor the foremost end of the boom to tighten the lugg.
- Fairlead:** A metal, plastic or wooden eye - usually attached to a deck - that guides a line in a desired direction.
- Foot:** The bottom edge of a sail.
- Freeboard:** The vertical' distance measured on the boat's side from the waterline to the deck.
- Genoa:** A large headsail set on the headstay and overlapping the mainsail.
- Halyard:** A line to hoist and lower a sail.
- Head:** The top corner of a triangular sail. Also, a seagoing lavatory.
- Helm:** The device, usually a tiller or wheel, connected to the rudder, by which a boat is steered.
- Jibe:** To turn a boat's stern through the wind so that the sails swing from one side of the boat to the other, putting the boat on another tack.

Lee Helm: The tendency of a boat to steer off or away from the wind, usually due to an improperly balanced sail plan.

Life lines: Safety lines and guardrails rigged around a boat's deck to prevent the crew from being washed overboard.

Limber Holes: Notches cut into a boat's frames near the keel to allow bilge water to run to the lowest point in the hull.

Luff: The leading edge of a sail; the fluttering of a sail when the boat is pointed too close to the wind or the sail is let out too far.

Mainsail: The sail set on the after side of the mainmast, usually the biggest working sail; often called simply the main.

Mayday: An international radiotelephone signal word (from m'aider, French for "help me") used as a distress call.

Mooring: A fixed anchor or weight by which a boat is kept at a permanent berth; the place in which a boat can be moored.

Outhaul: A fitting on the boom to which the sail's clew is attached, and by means of which the foot of the sail is stretched out along the boom.

Port: The left side of a boat, looking forward.

Purchase: A tackle, usually permanently rigged, and used most often for mainsheets

Quarter: Either side of a boat's stern; to sail with the wind on the quarter.

Reef: To reduce sail area without removing the sail entirely, by partially lowering the sail and securing loose fabric along the foot of the sail on the boom with lines called reef points.

Rigging: The lines or wires fitted to spars and sails for support and control. Standing rigging is made up of the fixed shrouds and stays that provide lateral and longitudinal support to the spars. Running rigging comprises the halyards, sheets, tackles, outhauls, and downhauls to put up, take down and adjust sail.

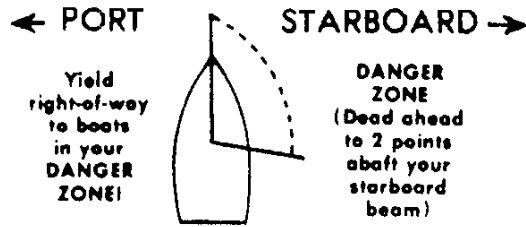
Sea Anchor: A bulky device, frequently a conical canvas bag, thrown overboard and dragged astern to hold a boat's bow into the wind and sea.

Seacock: A shutoff valve attached to through-hull wipes.

Shackle: A U-shaped metal fitting with across pin or clevis pin that fits across the opening of the U as a closure.

Starboard: The right side of a boat, looking forward.

Tack: Noun - the lower forward corner of a sail. Verb - to alter a boat's course through the eye of the wind so that the wind blows on the other side of the boat.



REMEMBER THESE RULES

1. OVERTAKING-PASSING: Boat being passed has the right-of-way. KEEP CLEAR.
2. MEETING HEAD ON: Keep to the right.
3. CROSSING: Boat on right has the right-of-way. Slow down and permit him to pass.

WHISTLE SIGNALS

ONE LONG BLAST: Warning signal (Coming out of slip)

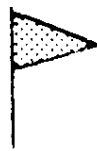
ONE SHORT BLAST: Pass on my port side

TWO SHORT BLASTS: Pass on my starboard

THREE SHORT BLASTS: Engines in reverse

FOUR OR MORE BLASTS: Danger signal

STORM WARNINGS



RED FLAG
Small craft
(winds to 38 mph)



2 RED FLAGS
Gale
(up to 54 mph)



SQUARE RED FLAG BLACK BOX
(whole gale)



2 SQUARE RED FLAGS BLACK BOX
(Hurricane)

CHANNEL BUOY GUIDE

Entering port or going upstream

PORT SIDE

Color: Black
odd numbers



Lighted



Can



Spar



Unlighted Bell



Unlighted Whistle

MID-CHANNEL

Color: Black & White
no numbers



Lighted



Can



Spar



Nun

JUNCTION

Red and Black
Lighted



Can



Spar



Nun

STARBOARD

Color: Red
even numbers



Lighted



Spar



Nun



Unlighted Bell



Unlighted Whistle