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OPERATING/MANEUVERING

BEFORE OPERATING

Navigation

Navigation is very important on the open seas. Information on how to navigate goes beyond the scope of this manual. The owner is encouraged to read *Chapman's Piloting and Seamanship* and obtain instruction regarding how to navigate his boat.

Charts

You can obtain charts of the waters in which you will be navigating from the National Ocean Survey, a branch of the National Oceanic and Atmospheric Administration in Washington D.C. The NOS offers a publication listing the charts you will need for your area; however, this listing may not include inland rivers. Charts of inland rivers are also available from the appropriate district office of the U.S. Army Corps of Engineers. Your dealer may also have charts of the waters in which you intend to cruise.

Keeping your charts up-to-date is a very important part of navigation. The Weekly Notice to Mariners available from the Defense Mapping agency or the U.S. Coast Guard is an excellent resource for updating charts.

Compass

Your compass is the most important piece of navigation equipment aboard your boat. To operate properly, the compass must be in an area free from local magnetic influences and electrical components.

Refer to your compass manufacturer's owner's guide and use a small, nonmagnetic screw driver to compensate your compass. We recommend having a professional compensate your compass.

Horn

If you are caught in fog or are navigating at night, your horn will tell other boaters where you are. Your boat's horn meets U.S. Coast Guard requirements.

Depth Sounder

Install a depth sounder aboard your boat. This can be an invaluable tool to insure that you do not get caught in waters too shallow for your boat. A depth sounder could also aid in navigation.

Speed Log

Keeping a speed log is essential when trying to determine your position over time. For your convenience, a speed log has been included at the back of this owner's guide. Use the information recorded on this log to plot your approximate position from a previous known position.

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Shallow Water Operation

Always pay attention to the depth of the waters in which you are cruising. Do not venture into waters which are too shallow for your boat's draft. Shallow water navigation can be very hazardous. If you do find yourself in shallow waters, reduce speed immediately. Consult nautical charts and try to ascertain your position. Try to plot a course out of the shallows through waters deep enough for your boat's draft.

If your boat runs aground, radio for help and wait until it arrives. Do not attempt to relaunch your boat. You may do serious damage to your hull or underwater gear.

Launching

Have a professional launch your boat. Your dealer employs experienced people to do this or he can recommend someone who can.

On The Boat

Every boat owner should know how to perform the following maneuvers competently. Do not attempt any of the following procedures or maneuvers without first receiving adequate training.

Loading

Have someone on the pier hand it to you after you have boarded the boat. Stow all items securely to prevent shifting while your boat is in motion.

If your boat is loaded near capacity, or if seas get rough, distribute the weight evenly and keep the load low. Don't make any abrupt changes in its distribution. Shift the load or move about only after stopping or slowing.

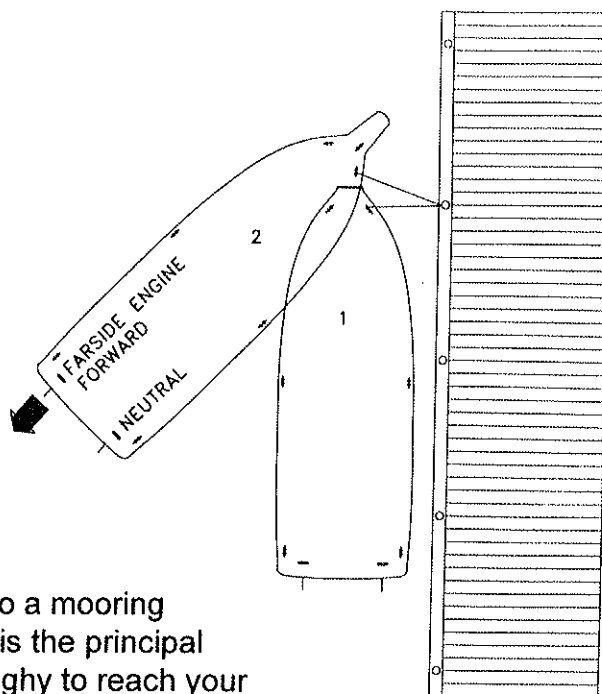
Docking and Casting Off

The following maneuvers can be hampered by the presence of wind and current. It is important to use the current by approaching or leaving with the current instead of fighting against it. Also, the operator should be sure to adequately fender his boat against collisions with docks or other boats.

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Leaving a Pier or Mooring

Getting underway from a pier is normally accomplished by taking in all lines except the bow spring. With a neutral rudder, power the boat forward using only the engine farthest from the pier. The boat will pivot around the bow spring line, moving the stern out and away from the pier. A fender should be placed between the bow and the pier to prevent scraping as the boat pivots about the bow spring. Once the stern is clear of boats and other obstructions, the bow spring is taken in and the boat is backed away.

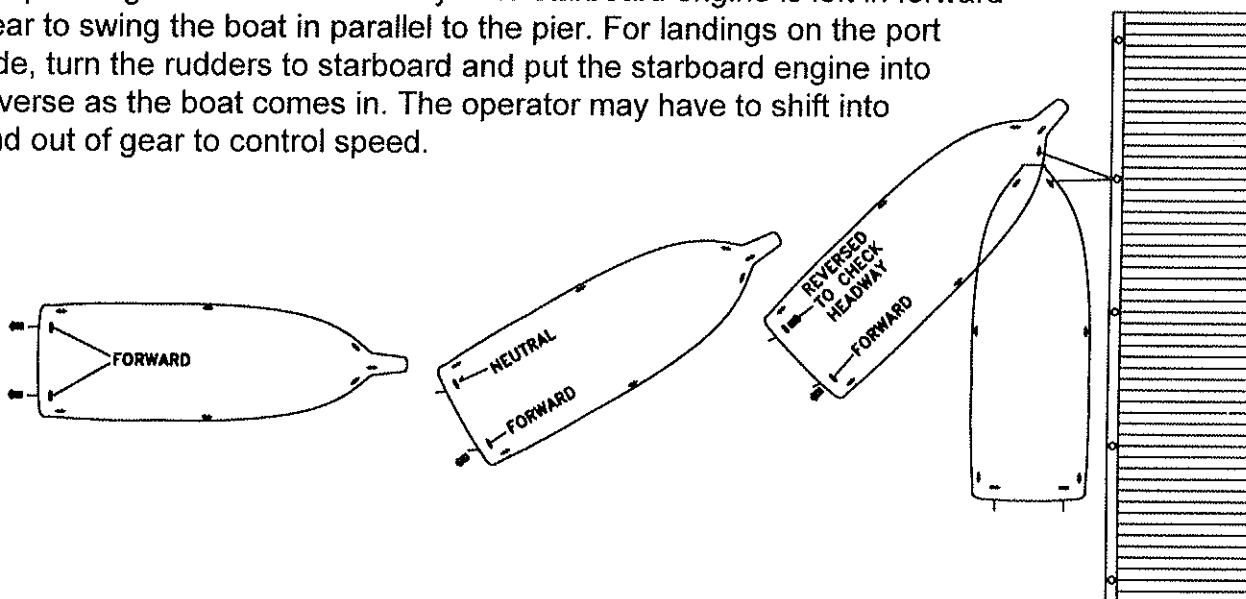


At marina anchorages, boats are often secured to a mooring buoy. Fouling your propeller with a mooring line is the principal hazard when leaving a mooring. If you use a dinghy to reach your boat, make sure the dinghy line does not foul the propeller.

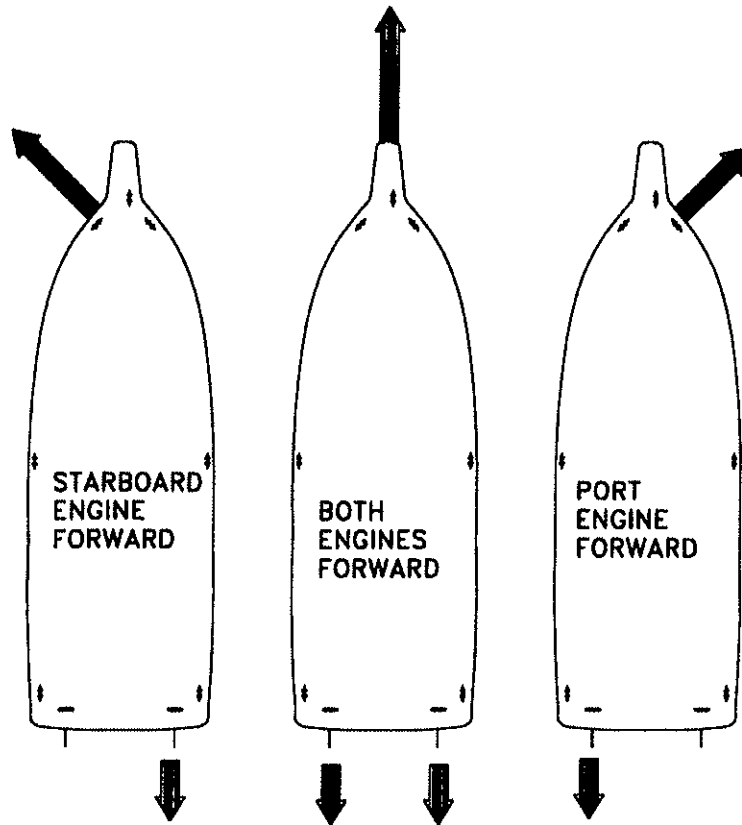
After getting aboard, start the engines and send someone forward to slacken the line. Release the line. In a river with current, the boat will gain headway with the current. After you are clear of the buoy, power the boat forward. In a calm bay, if there is neither wind nor current, back the boat away a few boat lengths. As you power forward, keep the buoy in sight and give it ample room until you are clear. Run slowly until you clear the anchorage to avoid creating a nuisance with your wake.

Landing at Pier

To land at a pier, the boat should come toward the pier at a right angle. If a starboard side landing is desired, place the rudders to port and reverse the port engine to check headway. The starboard engine is left in forward gear to swing the boat in parallel to the pier. For landings on the port side, turn the rudders to starboard and put the starboard engine into reverse as the boat comes in. The operator may have to shift into and out of gear to control speed.

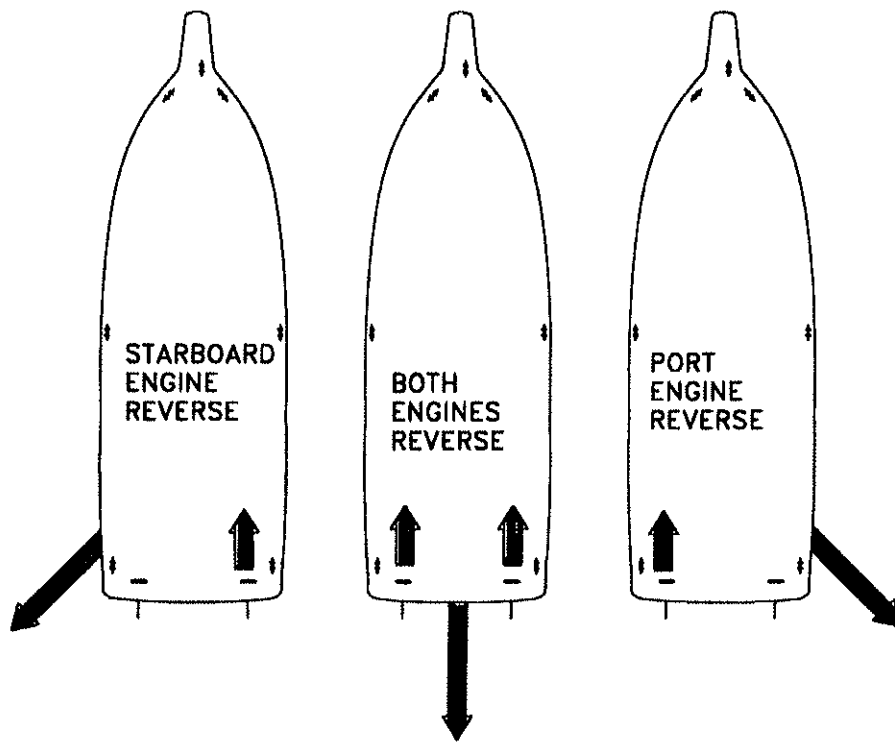


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Tracking Forward (props only)

Tracking Astern (props only)



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Picking up a Mooring

As you return to the anchorage, approach your mooring at slow speed. Take notice of how other boats are lying at their buoys. They are heading into the wind or current and your approach course should be roughly parallel to their heading. Stay clear of other moorings to avoid fouling them. If you tow your dinghy, station a crew member at the helm to keep the dinghy line from fouling the propeller.

Slip the clutch into neutral when you estimate that the boat's forward momentum will carry you up to the buoy. Station someone at the bow with a boat hook to pick up the pennant float. If you are about to overshoot your mark, check headway as the bow comes up to the buoy. If you fall short, a few short turns of the propeller should suffice. Keep the engine running until the pennant eye has been secured on the bitt or bow cleat.

If your crewman can not reach the pennant or if you overshoot, get clear and calmly try again.

Maneuvering

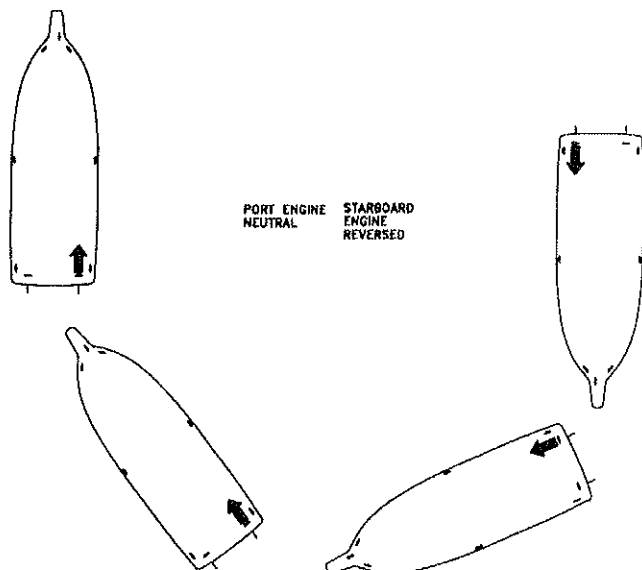
The propellers on your boat rotate in opposite directions. With only your port propeller rotating, your boat would track forward and to starboard in forward gear or backwards to port in reverse. With the starboard propeller rotating, your boat would track forward to port in forward gear or backwards to starboard in reverse. With both propellers rotating at the same speed and your rudder amidships, your boat will track straight forward.

During backing, your rudders are not as effective and the side force from the twin screws is used to steer the boat.

Maneuvering astern

Backing a boat may be necessary in a crowded marina. Your boats twin inboards allow the boat to track straight astern or to either side. When backing, be sure to keep your trim tabs up. To make a turn to port, shift the port engine to neutral. A starboard turn astern is made by shifting the starboard engine to neutral.

Check sternway (stop reverse motion) by shifting your engines to forward gear and throttling forward .



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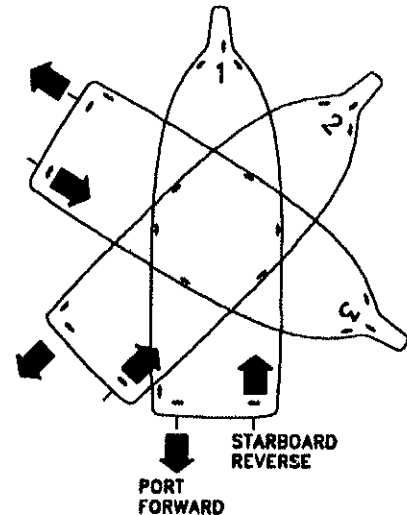
Full stern turns can be executed, but watch the bow. The bow cuts a much wider arc than the stern and collisions could occur in crowded areas.

Checking Headway

Stopping the boat's forward motion is referred to as checking headway. You should learn how to confidently stop your boat within any required distance. You can check headway by shifting engines to neutral and coming to a complete stop over a long distance, or reversing engines and stopping within a shorter distance.

Close quarters turn

To execute a close quarters turn, **check your headway** and shift one engine into reverse while shifting the other into a forward gear. As you advance the throttles, the opposing forces will cause the boat to pivot about a point centered between the propellers. You can assist the rate of turn by turning the rudders in the direction of the turn.



Anchoring

An anchor's holding power depends on its weight and the length of the anchor line. The most effective length is six to seven times the depth of the water you intend to anchor in. If the water is 10 feet deep, you should have 60-70 feet of anchor line.

Approach your selected anchor site from downwind and come to a dead stop over the spot where you want to drop anchor. Have a crew member lower the anchor. When the anchor hits bottom, reverse engines and slowly move the boat backwards to add length to the anchor line as the crew member keeps a slight tension on the line. When the proper length is out, the crew member can snub the line by winding it around the bow cleat. This should cause the anchor flukes to dig in and hold effectively.

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Check for anchor drag. Immediately after anchoring, observe shoreline landmarks. After thirty minutes, observe the landmarks again. If the points of reference have changed, reset your anchor.

When weighing or pulling in your anchor, pull the line in until the anchor line is vertical. When the line is taut, a hard tug will pull the anchor's shank up. If the anchor is stuck, wrap some of the line around a bow cleat and keep tension on the line. The boat's momentum may free the anchor. If there is a swell, wind the line around a bow cleat when the bow drops into a wave trough. As the bow lifts, it may free the anchor. If neither of these methods works, pay out a few feet of line, secure it around the bow cleat, and maneuver around the anchor. Keep the line tight until you find the angle that will pull the anchor loose.

An electric windlass simplifies the above procedures. Follow the above procedures and use the windlass control at the helm to drop anchor. To relieve strain on the windlass, hooks called *devil's claws* engage the chain when the anchor is down.

If you intend to stay at anchor over night or if you anchor your boat close to another structure, consider dropping another anchor from the stern. This will prevent your boat from swinging around if the winds or currents shift.

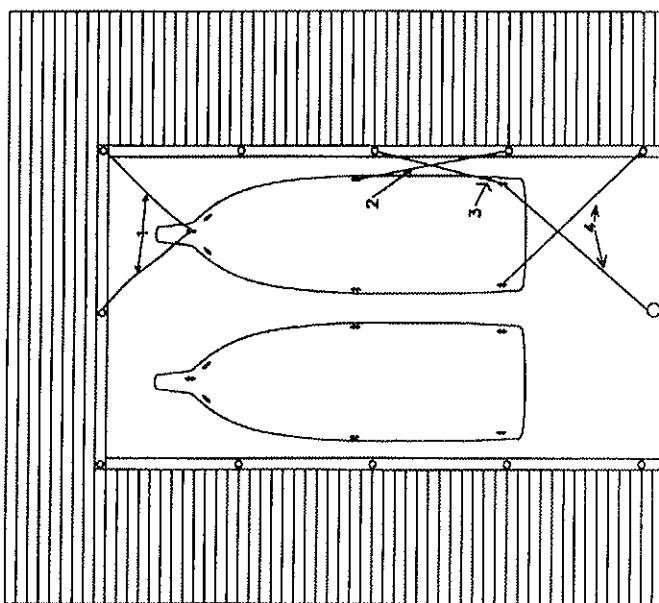
In a strong blow, you may need two anchors also. If you drop your spare anchor, make sure the two anchors are laid out at an angle. If both anchors are set in-line, a dragging anchor may cut a trough for the other to follow.

Stern Anchors

In some anchorages, boats lie to anchors bow and stern. To get these anchors down, let the bow anchor go first and drop back on an extra long scope (15-18 times the depth). Drop the stern anchor and adjust the scope on both as necessary.

Mooring Lines

The owner should familiarize himself with mooring line terminology and their use. If necessary, obtain training dealing with mooring your boat. Learn how to tie the various knots used in seamanship and when to use them. Boats which are not tied up correctly can suffer serious damage. The following information serves only as a guide to mooring your boat.



Mooring Illustration

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The mooring illustration demonstrates possible docking lines for a small vessel include the (1) bow line, (2) after bow spring, (3) after quarter spring and (4) stern lines. Of the two dockings shown, the boat on the bottom is used when docking your boat in an alongside berth. The top docking is used when tying up at four corners of the boat.

The two spring lines are crossed and running to separate deck cleats. If possible, the stern line should be run to the off shore quarter cleat. Spring lines are useful in preventing undesired movement ahead or astern in a berth; They also keep a moored vessel in position when there is a significant rise or fall in tide.

Towing

Always offer assistance to a vessel in distress. However, towing a capsized boat or a boat with a damaged hull is not recommended. In these situations, lend aid to the occupants and call the proper authorities. Remember, you are obligated to lend aid to any person in distress, but not to the vessel. If you believe your vessel can not tow the vehicle in distress, do not attempt it. One disabled boat is better than two.

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GETTING UNDERWAY

It takes training and experience to become an "expert yachtsman." Reading and understanding this Owner's Guide is only part of the knowledge you'll need to operate a boat safely and skillfully.

Carver Owners have a wide range of abilities, from seasoned yachtsman with years of experience to absolute beginners with a new-found love for the water. Be honest with yourself in appraising your level of skill.

The Shakedown Cruise

Before taking your boat on its first outing, be sure that the following tasks have been completed:

- 1) Dealer has completed Pre-Delivery commissioning. This inspection has been documented on the Pre-Delivery Service Document and has been signed by the dealer and the owner.
- 2) ALL warranty registration cards have been completed and mailed.
- 3) You have read and understand The Carver Owner's Guide and all other literature pertaining to your boat's systems.
- 4) Safety equipment onboard your boat is in compliance with Federal and local regulations.
- 5) Your boat has been documented or registered and displays the appropriate identification on the hull.
- 6) A representative from your Carver Dealer has reviewed the operation of the boat and its systems with you and answered your questions.

If possible, pick a calm day for your first outing. The shakedown cruise with a new boat is not the best time to bring friends or guests along. Entertaining guests will distract you from the real purpose of the cruise, which is to familiarize yourself with your new boat. Bring only those people (spouse and children) who will make up your regular crew. Invite the sales person who sold you the boat or a member of your Carver Dealer's service staff along for the ride.

Carry a pad and pencil with you during this first outing. Write down any questions that come to mind during the cruise so you can discuss them with your dealer.

Follow the procedures outlined at the beginning of this section for fueling and starting the boat's engines.

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This may be the first time you have been in total command of your new boat. Proceed slowly. Have fun but remember that the objective of the cruise is to learn more about how your boat operates and handles. Operate at different RPM settings. Try different trim angles. Monitor the gauges. Practice backing down and turning slow speed tight corners that simulate docking maneuvers. Write down any questions you may have so you can review these items with your dealer when you return to the dock.

Operating at Planing Speed

The 500 Cockpit utilizes a "planing" hull. Planing hulls skim "over" the water rather than "through" the water. To do this, however, they first have to reach a certain hull speed, called "planing speed."

When you first accelerate from a dead stop, the trim angle of the boat will increase and cause the bow of the boat to rise and the stern of the boat to drop. Continue to accelerate and the boat will eventually achieve plane and the bow will slowly drop to a more level attitude.

CAUTION

It is important to get on plane as soon as possible and avoid speeds that cause the boat to plow through the water with the boat in a bow high attitude. A bow high attitude will obstruct your vision and limit your handling and performance capabilities.

Once the boat is on plane, you can back the throttles off to a point where the hull is still planing and the engines are operating at a fuel efficient speed. In boats equipped with gasoline engines, efficient cruise speed is between 3000 and 3400 RPMs.

Trim Tabs

Your boat is equipped with a set of electric / hydraulic trim tabs. Trim tabs allow you to trim the boat to adjust for variables such as load, passengers, seas or wind. Under normal conditions the 500 Cockpit will not need adjustments to the trim tabs to achieve plane. Use the tabs at planing speeds to make minor adjustments in the fore and aft and beam to beam angle of the boat.

Use the trim tabs in the following way:

- 1) Turn the 12 volt circuit breaker labeled TRIM TABS to the "ON" position.
- 2) The trim tab control is mounted at the boat's helm console. The control has two rocker switches. The port switch corresponds to the port tab and the starboard switch to the starboard tab. The control is labeled "BOW UP" and "BOW DOWN." Before advancing the throttles, depress both switches on the BOW UP side for 5 seconds. This lifts the tabs to the full "up" position.

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- 3) Advance the throttles to bring the boat on plane. Adjust engine RPM for cruising speed.
- 4) Use the trim tabs individually to make beam to beam adjustments. If the majority of your passengers are sitting on the port side, you may find that the starboard side of your boat is riding higher than the port. Push the BOW DOWN side of the starboard trim tab control switch for a ONE-HALF SECOND interval. Continue to adjust in half second intervals until the desired trim angle is achieved.

If your passengers decide to shift to the other side of the boat level your boat by pressing the BOW UP side of the starboard trim tab control for a few seconds. This neutralizes your prior adjustment. Next, press the BOW DOWN side of the port tab control switch to adjust the trim of the boat.

- 5) Trim tab switches can be used together to bring the bow of the boat to a lower attitude. This adjustment is often used when running into choppy seas. Bringing the bow down uses the sharper part of the boats "V" hull to break through waves. Press both BOW DOWN switches together at HALF-SECOND intervals to bring the bow down. Be careful when making bow down adjustments. Excessive bow down trim can cause considerable bow spray hampering visibility and reduced control of your boat.

CAUTION

DO NOT OVERTRIM. Make your adjustments in HALF-SECOND intervals and allow the boat to adjust to trim tab input. Over-trimming could cause the bow to veer and may lead to loss of control.

ALWAYS reset the tabs to the BOW UP position BEFORE advancing throttles to achieve plane. Initial acceleration with lowered tabs could lead to a loss of control.