



**ROBALO**  
**BOATS**

*Owner's/Operator's Manual*

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# ROBALO

## OWNER'S/OPERATOR'S MANUAL

***P.O. Drawer 928  
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Nashville, GA 31639***

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This manual has been compiled to help you operate your boat with safety and pleasure. It contains details of the craft, typical equipment supplied or fitted, its systems and information on its operation and maintenance. Please read it carefully and familiarize yourself with your boat before using it.

If this is your first boat, or you are changing to a new type, for your own comfort and safety please ensure that you obtain handling and

operating experience before "assuming command" of the boat. Your dealer or national sailing federation or yacht club will be pleased to advise you of local sea schools or competent instructors.

***Please keep this manual in a secure place and hand it over to the new owner when you sell the craft.***

For a complete list of standard and optional features and equipment, consult your local Robalo dealer. Due to a policy of continual product improvement, specifications are subject to change without notice. The weights and volumes shown are estimated and can vary from boat to boat because of equipment, etc.

Robalo boats meet or exceed both NMMA and U.S. Coast Guard standards.

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# ROBALO BOATS OWNER'S MANUAL

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# INTRODUCTION

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## WELCOME ABOARD!

Congratulations!...

on your wise decision to purchase a Robalo boat. We welcome you to the family of thousands of other Robalo boat owners. Since your boat is a substantial investment, we are sure you selected your Robalo because of its value, style, comfort, and performance. This manual contains valuable information concerning your boat's operation, maintenance, and care plus tips on boating safety and seamanship.

## ABOUT THIS MANUAL

More and more people are joining the ranks of boat owners. This manual is written for the first-time boat owner or operator. Even if you are an experienced boater, you will find much valuable information regarding the safe operation and maintenance of your new Robalo boat. Keep this manual on your boat for ready reference.

Due to our policy of continuous product improvement, the illustrations used in this manual may not be identical to the components, controls, gauges, etc. on your boat, as they are intended to be representative reference views. Some controls, indicators, or information may be optional and not included on your craft.

The precautions in this manual can't and don't cover every boating situation. If a specific method or procedure is not covered, you must make sure that what you do is safe for you and others. Always use common sense when boating! Remember, too, that every safe boating excursion is a happy experience.

This manual is part of your boat's equipment. Keep it on board the boat at all times. If you transfer ownership of this boat to someone else, be sure to give this manual to the new owner.

Your owner's packet contains the manual for the boat you selected. Also in this packet are instruction manuals from the suppliers of standard and optional equipment for your boat. Examples of these manuals include the engine, electrical equipment, pumps, and cabin amenities. The suppliers of these products maintain their own manufacturer's warranty and service facilities. Be sure to fill out each warranty card and mail it to the manufacturer to validate the warranty. Record all information regarding these products on the "Boat Data Record." A copy of this form is near the end of this chapter under Logs & Records.

***Important: Keep the completed Boat Data Record in a safe place at home. Do not keep it aboard the boat.***

Read this manual as well as the manuals for the systems and components on your Robalo boat. They provide the information needed for safe operation and proper maintenance. The information in the manuals provided by the manufacturers takes precedence over any information in this manual if there is a conflict.

Following are summaries of each chapter in this manual:

### 1. Introduction

Included in this chapter is a summary of the manual plus general information about construction and standards, dealer and owner responsibilities, laws and regulations, logs and records, and the warranty for your boat.

### 2. Boating Safety

This chapter discusses potential hazards associated with boating, safety recommendations, safety information and practices, and water sports safety. It also discusses safety equipment needed to provide a safe operating environment.

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**Note:** For your safety, this manual has specific safety warnings and comments where appropriate. Be sure to read the entire manual.

### 3. Systems

Here you will find detailed information about the electrical and fuel systems needed to operate your boat. This chapter discusses the fresh water system and marine sanitation devices which make your boating experience more comfortable.

### 4. Components

Standard features and optional equipment for your Robalo boat are discussed in this chapter. In general, these pertain to equipment and amenities which make your boat a “home away from home.”

### 5. Underway

The intent of this chapter is to explain what you need to do before, during, and after your boating excursion to make it an enjoyable and safe experience.

### 6. Preventive Maintenance & Repairs

Preventive maintenance is the key to troublefree operation and helps protect your investment. This chapter explains what you should do to maintain your boat and how to make adjustments and repairs.

### 7. Troubleshooting

Every boater encounters an operating problem at one time or another. This chapter provides solutions to problems you can correct.

### 8. Interior & Exterior Care

This chapter tells you how to inspect, clean, and maintain your boat's interior and exterior.

### 9. Winterizing & Storage

What do you do when you need to winterize or store your boat for extended periods of time? This chapter provides the necessary information.

### 10. Nautical Glossary

The Nautical Glossary defines terms associated with your boat and terms you may encounter during your boating experience.

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## CONSTRUCTION & STANDARDS

All Robalo boats meet or exceed the construction standards set by the U.S. Coast Guard, the National Marine Manufacturers Association (NMMA), and the American Boat and Yacht Council (ABYC) concerning:

- Navigation lights
- Factory installed fuel systems
- Engine and fuel tank compartment ventilation
- Flotation
- Steering systems
- Backfire flame arresters

NMMA certification means that the boat complies with applicable federal regulations set forth by the U.S. Coast Guard. These regulations are based on American Boat and Yacht Council (ABYC) standards and recommended practices.

Most Robalo models can be certified to carry the CE mark. The CE mark certifies that the boat meets relevant parts of the European Directive for Recreational Craft 94/25/EC of the European Parliament, including the International Organization for Standards (ISO) and Recreational Marine Agreement Group (RMAG) guidelines in effect at the time of manufacture.

We recommend that you see your dealer if you wish to modify factory-installed equipment or add new equipment. Your dealer is qualified to make such modifications or additions without placing the

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safety or design integrity of your boat at risk and without invalidating the warranty.

Robalo builds exceptionally high quality boats. We offer numerous extras you won't see at a boat show. We've created a list for your review.

### **Gelcoat**

The advanced technology polyester we use offers superior weathering resistance to surface yellowing and chalking. It will also help protect and maintain the original glossy luster of your boat's finish. Robalo uses a premium quality gelcoat which offers improved flexibility over other gelcoats, minimizing the potential for cracking.

### **Resin**

It's an age-old problem. Water penetrates the gelcoat and blisters the bottom. The key is the resin. To cut costs, most use a general purpose resin. Robalo uses a premium quality resin in the hull skin coat of every boat in our line because of its superior bonding characteristics and exceptional flex.

### **Plywood**

To protect their wooden components from rot and deterioration, most boat builders dip their plywood parts in a vat of protective sealant. Unfortunately, this only offers very minimal protection for the outside plies. The plywood Robalo uses throughout our boats is pressure treated with a wood preservative and fungi inhibiting chemical before it is kiln dried.

### **Loom Wrap Wiring**

Attention to rigging detail is a Robalo hallmark. Instead of routing the engine wiring harness haphazardly in the bilge in black tape, we rely on automotive style flexguard loom that not only keeps things neat but also protects against abrasion.

### **Through Bolted Stainless Steel Cleats**

It's one of the most often used components on your boat, but most people think a cleat is a cleat, right? Wrong. Robalo's cleats are stainless steel so they won't corrode and so they won't twist. Also, ours are big enough to accept a full-sized looped line.

### **Heavy Duty Rub Rail**

A rub rail is supposed to protect your boat. Most don't because they're the wrong material. Robalo uses a heavy-duty rub rail that absorbs far more impact without denting.

### **Acrylic Tops**

Ours are acrylic because it's a superior material that won't crack, peel, or mildew. Further, our acrylic tops won't shrink or expand, which means they look and fit better in all weather conditions.

### **Stain Resistant Fabrics**

Accidents happen. Spilled drinks, wet bathing suits and soggy towels are a fact of life on a boat. All our cabin fabrics are stain resistant. Buyers can choose from a wide variety of colors. When it comes to interior fabrics, we have the one that's right for you.

### **Superior Plastics vs. Wood**

Robalo prides itself on building seats that are not only comfortable, but durable. We use plastic seats because they hold their shape and don't retain water, reducing the potential for foam deterioration.

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## Flotation Requirements

All Robalo boats meet or exceed U.S. Coast Guard requirements for flotation. All Robalo boats also meet or exceed U.S. Coast Guard requirements for the following:

- Engine and Fuel Tank Compartment Ventilation (requirements for flame arresting devices)
- Factory-Installed Fuel Systems
- Navigation Lights
- Steering System

## **RESPONSIBILITIES**

Robalo's quality service does not end when you buy one of our boats. Through our dealer network we do everything possible to ensure that you are satisfied with your purchase. Every Robalo dealer has a responsibility to you, the boater.

### **Dealer**

Dealer responsibilities include the following:

1. Discuss with you the terms of all warranties and stress the importance of registering warranties with the appropriate manufacturers.
2. Explain how you can obtain warranty service.
3. Complete new boat and pre-delivery inspection procedures. Sign the form to certify that all items were completed.

Your Robalo dealer can provide you with thorough instruction in the operation of your boat. Please feel free to ask for assistance.

### **Boat Owner**

Your responsibilities include the following:

1. Read this manual as well as all other manuals and information included in your owner's packet.
2. Schedule an appointment with your dealer to go over all warranties. After the appointment, complete the Robalo Boat limited warranty registration card in an envelope inside the Owner's Manual packet. Keep a record of the hull number for future reference.
3. Inspect the boat at the time of delivery to make sure all systems and components are operating properly. Robalo recommends that you refer to your engine warranty for initial inspection and service requirements.

The new boat and pre-delivery inspection form (found in your owner's manual) will help you as you inspect your new boat. After completing your inspection, sign the form to certify you have inspected the boat with your dealer.

4. Schedule an appointment with your dealer to go over the pre-delivery engine service record. Sign this record to indicate your dealer has explained this record to you.
5. Operate all equipment in accordance with the manufacturer's instructions.
6. Become familiar with all federal, state, and local laws affecting your boat and its operation.
7. Perform or provide for the appropriate periodic maintenance outlined in the manuals and service guides.



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## **LAWS AND REGULATIONS**

This section of the manual includes general information about government regulations. You, the boater, are responsible for complying with the requirements of federal, state, and local laws. If you have any questions, contact the U.S. Coast Guard or other appropriate authority.

### **Boat Registration**

Federal and state laws require that every boat having propulsion machinery of any type must be registered in the main state of usage. Registration numbers and validation stickers must be displayed on the boat according to regulations. The registration certificate must be carried on board when the boat is in use.

### **Safety Equipment**

The following equipment is required on all boats:

- Fire extinguishers
- Personal flotation devices (PFDs)
- Navigation lights
- Visual distress signals
- Sound signaling device

See Chapter 2 for more information about safety equipment.

### **Discharge of Oil**

The Federal Water Pollution Control Act prohibits the discharge of oil or oily waste into or upon the navigable waters of the United States or the waters of the contiguous zone if such discharge causes a film or sheen upon, or a discoloration of, the surface of the water or causes a sludge or emulsion beneath the surface of the water. Violators are subject to a penalty.

## **Disposal of Plastics & Other Garbage**

Plastic refuse dumped in the water can kill fish and marine wildlife and can foul vessel propellers and cooling water intakes. Other forms of waterborne garbage can litter beaches and cause illness. U.S. Coast Guard regulations therefore strictly prohibit dumping plastic refuse or other garbage mixed with plastic into the water anywhere. Further, the regulations restrict the dumping of other forms of garbage within 12 miles from shore on the east coast, and 9 miles from shore on the west coast.

Within 3 miles of shore and in U.S. lakes, rivers, bays and sounds, it is illegal to dump plastic, dunnage, lining, and packing materials that float; and any garbage except dishwater, gray water, and fresh fish parts.

Between 3 and 12 miles it is illegal to dump plastic, dunnage, lining, and packing materials that float; and any garbage not ground to less than one square inch.

Between 12 and 25 miles it is illegal to dump plastic, dunnage, and packing materials that float.

Beyond 25 miles it is illegal to dump plastic.

The U.S. Coast Guard has issued these regulations to implement Annex V of the International Convention for the Prevention of Pollution from Ships, 1973, commonly known as Annex V of the MARPOL (Marine Pollution) Treaty 73/78. They apply to all U.S. vessels wherever they operate (except waters under the exclusive jurisdiction of a state), and foreign vessels operating in U.S. waters out to and including the Exclusive Economic Zone (200 miles).

If your boat is 26 feet or more in length, the regulations require U.S. recreational boaters attach one or more Coast Guard Trash Dumping Restrictions placards to your boat. The placard warns against the discharge of plastic and other garbage within U.S. navigable waters and specifies discharge restrictions beyond the territorial sea (generally within 3 or more nautical miles of shore).

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The placard must also contain the warning that a person violating these requirements is liable for civil and criminal penalties. The placard must also state that local regulations may further restrict the discharge of garbage. You may purchase these placards from local marinas, boat dealers, or marine equipment suppliers.

The U.S. Coast Guard has also issued regulations requiring boats to have a sanitation system on board to control pollution. Wastes are to be stored in a holding tank or other device, such as a Porta-Potti, until the device can be pumped out or otherwise disposed of at a shore facility. Discharging this waste overboard is in most cases prohibited. Check with the Coast Guard regarding regulations in your area.

## **OWNER'S LOGS AND RECORDS**

At the end of this chapter are three forms which you will find very helpful.

Use the **Boat Data Record** to record all important information about your boat and the major components installed. After you have entered all the data, remove this form from your Owner's Manual and store in a safe place. **Do not** keep this form aboard your boat.

The **Travel Plan Log** provides a record of your destination, departure and return times, boat description, passenger list, and other information about the trip you have planned. At the bottom of the form is space for listing emergency telephone numbers in case your return is delayed past the expected time. It also has space for indicating information about the person filing this report. Leave the completed form ashore with a responsible person. We recommend you make several copies of this form each boating season to ensure an ample supply.

The **Fuel Usage Chart** is a handy way to record information covering engine hours, fuel consumption, miles traveled, as well as RPM (revolutions per minute), Average MPH (miles per hour), and GPH (gallons per hour).

## **WARRANTY POLICY TRANSFER**

Your Robalo boat is backed by a Limited Express Warranty. It is important that you are aware of its terms. If a problem arises with your Robalo boat as a result of workmanship or materials, contact your dealer as soon as possible to determine whether correcting the problem may be covered by the warranty. Please have your hull identification number and necessary model numbers on hand for the items that may need service or repair. Your hull identification number is below the rub rail on the starboard aft corner of your boat.

The Robalo Limited Warranty Policy may be transferred to subsequent owner(s) providing the Ownership Transfer Record (OTR) is completed and returned to the Robalo Customer Service Office. The OTR is located at the end of this chapter. Subsequent owner(s) will receive the balance of warranty available subject to a \$100.00 deductible per occurrence for claims filed in accordance with the Robalo Limited Warranty Policy. The Ownership Transfer fee is \$50.00 and should be submitted with the Ownership Transfer Record to the Robalo Customer Service Office.

**ROBALO BOATS LLC LIMITED WARRANTY**  
**2002 and subsequent Model Years**  
**P. O. Box 928**  
**Nashville, GA 31639**

To initiate and validate this Robalo Boats LLC Limited Warranty, the warranty registration card must be returned to Robalo within ten (10) days after purchase by the original retail purchaser.

**PART 1 – THE ONE YEAR LIMITED WARRANTY** - Subject to the limitations to coverage discussed below, for a period of ONE YEAR from the date of purchase, Robalo Boats LLC (Robalo) warrants that each new fiberglass boat manufactured by it is free from defects in material and workmanship. Notification of any claim of defect must be made in writing to Robalo within one year from date of original purchase. This Robalo One Year Limited Warranty is transferable by the owner only upon application to Robalo within 30 days of sale or transfer of boat and the payment of an administrative transfer fee.

**PART 2 – THE TEN YEAR STRUCTURAL HULL LIMITED WARRANTY** – Subject to the limitations to coverage discussed below, for a period of TEN YEARS from the date of purchase, Robalo warrants that each new fiberglass hull manufactured by it is free from structural defects. Notification of claim of defect must be made in writing to Robalo within ten years from date of original purchase. This warranty is limited to manufacturing defects that compromise the structural integrity of the hull. This Robalo Ten Year Structural Hull Limited Warranty is transferable by the owner only upon application to Robalo within 30 days of sale or transfer of boat and the payment of an administrative transfer fee.

**LIMITATIONS TO COVERAGE - THIS WARRANTY DOES NOT COVER:** (1) Engines, outdrives, controls, batteries, propellers, and other accessories or equipment which have been made by other manufacturers, whether subject to a separate warranty or not, by such other manufacturers; (2) Any failure or defect resulting from normal wear and tear, climatic conditions, use under conditions other than normal and the lack of proper maintenance; (3) Any boat which has been powered or loaded in excess of the manufacturer's maximum horsepower and/or capacity recommendations; (4) Any boat used for racing, rental or commercial purposes; (5) Any boat which has been subject to misuse, negligence, an accident, or structural modifications; (6) Plexiglass windscreen breakage; windshield breakage, windshield leakage, fuel gauges and fuel gauge systems, or fuel tanks; (7) Defects in paint or gelcoat finishes including blisters below the waterline, cracking, crazing, or minor discoloration; (8) Defects in upholstery, canvas, vinyl, and other materials; (9) Installation of engines, parts or accessories installed by anyone other than Robalo; and (10) Any boat owned by anyone other than the original retail purchaser except as noted in Part 2 above.

Robalo's obligation under this warranty is limited to the cost of repair of the warranted item or replacement thereof, at Robalo's option, when returned prepaid to Robalo or other point of repair authorized by Robalo. All costs of transportation to and from Robalo or an authorized point of repair shall be paid by the owner. To the extent allowed by law, Robalo is not liable for loss of use, loss of time, inconvenience, commercial loss or consequential damages.

Robalo reserves the right to make changes at any time, without notice, to make changes to or discontinue models and Robalo shall be under no obligation to equip or modify boats built prior to such changes.

**TO THE EXTENT ALLOWED BY LAW, THERE IS NO OTHER EXPRESS WARRANTY ON THIS BOAT AND ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS LIMITED TO A DURATION ONE YEAR.** No dealer or any other person is authorized to make on Robalo's behalf any other warranty other than those expressly set forth herein. In the event of any dispute arising concerning this warranty, Robalo reserves the right to have such dispute resolved by mediation or arbitration.

Robalo is a registered trademark of Robalo Boats LLC.

# BOAT DATA RECORD

## Purchase Dealership

Name \_\_\_\_\_ Sales Manager \_\_\_\_\_  
Address \_\_\_\_\_ Phone \_\_\_\_\_  
\_\_\_\_\_ Fax \_\_\_\_\_

## Service Dealership

Name \_\_\_\_\_ Service Manager \_\_\_\_\_  
Address \_\_\_\_\_ Phone \_\_\_\_\_  
\_\_\_\_\_ Fax \_\_\_\_\_

## General

Model Name \_\_\_\_\_ State of Registration \_\_\_\_\_  
Hull Identification Number \_\_\_\_\_  
Boat Name \_\_\_\_\_  
Hull Color(s) \_\_\_\_\_  
Length \_\_\_\_\_ Beam \_\_\_\_\_ Weight \_\_\_\_\_  
Draft (Drive Down) \_\_\_\_\_ Draft (Drive Up) \_\_\_\_\_  
Freeboard (Fore) \_\_\_\_\_ Freeboard (Aft) \_\_\_\_\_

## Engine

Manufacturer \_\_\_\_\_ Model Name/Number \_\_\_\_\_  
Oil Type/SAE \_\_\_\_\_ Quarts \_\_\_\_\_ Filter Type \_\_\_\_\_  
Serial Number \_\_\_\_\_

## Fuel System

Tank Capacity \_\_\_\_\_ Filter Type \_\_\_\_\_

## Fresh Water

Tank Capacity \_\_\_\_\_

## Propeller

Manufacturer \_\_\_\_\_ Pitch \_\_\_\_\_

## Battery

Manufacturer \_\_\_\_\_  
Model Number \_\_\_\_\_

## Radio

Manufacturer \_\_\_\_\_ Type \_\_\_\_\_

Model Number \_\_\_\_\_

Serial Number \_\_\_\_\_

## Key Numbers

Cabin \_\_\_\_\_

Glove Box \_\_\_\_\_

Ignition \_\_\_\_\_

• Design Category:      A      B      C      D  
(circle one)

• Maximum Rated Engine Power — kilowatts (horsepower)

• Unladen Weight — kilograms (pounds) \_\_\_\_\_

• Maximum Load:

Weight — kilograms (pounds) \_\_\_\_\_

Number of People \_\_\_\_\_

\_\_\_\_\_

[illegible][illegible]

# TRAVEL PLAN LOG

The boat listed below should return by:

\_\_\_\_\_ at the latest.

If it has not, please call the emergency numbers listed at the right.

Police

Coast Guard

Other Authority

Personal

## Trip Information

Departure Date/Time

Departure Location

Return Date/Time

Return Location

## Boat Description

Boat Name

Type

Registration Number

Manufacturer

Length

Hull Color

Deck (Color)

Cabin (Color)

Trim (Color)

Other Physical Characteristics

## Engine

Type

HP

Fuel Type

Fuel Capacity

## Safety & Emergency Equipment (YES/NO & NUMBER)

Life Jackets

Cushions

Distress Light

Flares

Smoke Signals

Flash Light

Mirror

Paddles

Anchor

Food

Water

Life Raft

## Radio

Onboard (Yes/No)

Type

Frequencies usually used or monitored

## Passenger List (Use Another Sheet If Necessary)

Full Name

Age/Sex

Phone Number

Complete Address

Full Name

Age/Sex

Phone Number

Complete Address

Full Name

Age/Sex

Phone Number

Complete Address

Full Name

Age/Sex

Phone Number

Complete Address

ALWAYS FILL THIS SHEET OUT COMPLETELY—IN AN EMERGENCY ALL INFORMATION MAY BE HELPFUL



# ROBALO

P.O. Box 928  
Industrial Park Blvd.  
Nashville, GA 31639

## OWNERSHIP TRANSFER RECORD

Please complete the following information and return to Robalo with the \$50.00 transfer fee and bill of sales within 30 days of transaction to transfer remaining warranty coverage. Certified checks or money orders should be made payable to Robalo Boats, Inc.

<u>Current Owner</u>	<u>Transfer to</u>
<u>Address</u>	<u>Address</u>
<u>City, State, Zip</u>	<u>City, State, Zip</u>
<u>Hull identification number</u>	<u>Date of Sale</u>
<u>Signature</u>	<u>Signature</u>

Upon receipt of this transfer record the new owner shall receive the balance of available warranty initiated by the original purchaser. Subsequent owner(s) to the original purchaser shall be responsible for a \$100.00 deductible, per occurrence, for any claim filed in accordance with the Robalo Limited Warranty Policy.

Please refer to the Robalo Owners Manual for detailed provisions concerning the Robalo Limited and Structural Warranty Policies. Robalo Boats Inc. reserves the right to deny transfer of warranty to subsequent owners.

Questions concerning the Robalo Warranty Policy should be submitted in writing to the Robalo Customer Service Office, P.O. box 928, 300 Industrial Park, Nashville, GA 31639.

YOU are responsible for your safety and your boat, as well as the safety of passengers and other boaters.

## HAZARD COMMUNICATION

As you read this manual, please note the hazard warnings which alert you to safety precautions related to unsafe conditions or operating procedures. We have included these warnings because we are concerned about your safety and the safety of your passengers. Hazard statements generally have five parts:

1. The hazard symbol
2. A signal word which indicates the severity of the hazard
3. A concise description of the hazard
4. The results of ignoring the hazard
5. Steps for avoiding the hazard

The three signal words indicating the severity of the hazard are danger, warning, and caution. The meanings they convey are as follows:



**DANGER:** calls attention to immediate hazards that WILL result in severe personal injury or death.



**WARNING:** identifies hazards or unsafe practices that COULD result in severe personal injury or death.



**CAUTION:** indicates hazards or unsafe practices that COULD result in minor personal injury or product or property damage.

## OWNER ADVISORY STATEMENTS

Advisory statements alert you to conditions affecting equipment operation, maintenance, and servicing practices.

**Important:** *This is an advisory statement or procedure intended to prevent damage to the equipment or associated components.*

**Note:** This is a general advisory statement relating to equipment operation and maintenance procedures. Its intent is to call attention to information more important than normal text.

## SAFETY RECOMMENDATIONS

The popularity of boating and other water sports has grown tremendously in the past few years. Boating safety and the safety of your passengers are your responsibilities. You should fully understand and become familiar with the operating procedures and safety precautions in this manual and the other manuals in the owner's packet before you launch your Robalo boat.



Remember that along with the freedom and exhilaration of boating comes the responsibility that you have for the safety of your passengers and the other boaters who share the water with you. Throughout this manual specific precautions and symbols identify safety-related information. Be sure to pay close attention to them.

## Safe Operation

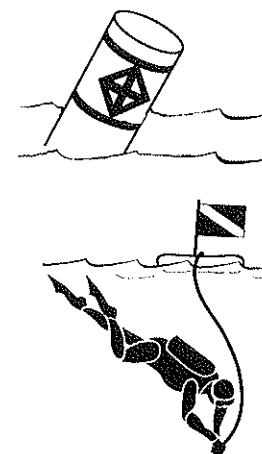
- Keep your boat and equipment in safe operating condition. Inspect the hull, engine(s), safety equipment, and all boating gear regularly.
- Be very careful when fueling your boat. Be sure you know the capacity of your boat's fuel tank and the amount of fuel you use when operating at frequently used engine speeds (RPMs). Ask your Robalo dealer about the capacity of your boat's fuel tank.
- Make sure you have enough fuel and outboard oil on board for anticipated cruising requirements. In general, use 1/3 of your supply to reach your destination and use 1/3 to return. Keep 1/3 in reserve for changes in your plans due to weather or other circumstances.
- Be sure lifesaving and fire extinguishing equipment is on board. This equipment must meet regulatory standards and it should be noticeable, accessible, and in safe operating condition. Your passengers should know where this equipment is and how to use it.
- Keep an eye on the weather. Be aware of possible changing conditions by checking local weather reports before your departure. Monitor strong winds and electrical storms closely.
- Always keep accurate, updated charts of the area on board your boat.
- Before you leave the port or harbor, file a Travel Plan with a family member, relative, friend, or other responsible person ashore.

- Always operate your boat with care, courtesy and common sense.
- Instruct at least one other passenger aboard in the basic operating procedures in handling your boat. This person can take over if you unexpectedly become unable to do so.
- Do not allow passengers to ride on parts of your boat other than designated seating areas.
- Ask all passengers to remain seated while the boat is in motion.
- Do not use the swim platform or boarding ladder while the engine or engines are running.
- Understand and obey the "Rules of the Road." Always maintain complete control of your boat.
- Do not overload or improperly load your boat.

The information on your boat's capacity plate does not override your responsibility for using common sense or sound judgment. Turbulent water and unfavorable weather conditions reduce the capacity of your boat.

## Swimming

1. Swim only in areas designated as safe for swimming. These are usually marked with a swim area buoy (see figure). Do not swim alone or at night.
2. Do not allow anyone near the propeller(s), even when the engine is off. Propeller blades can be sharp and can continue to turn even after the engine is off. Stay well away from areas marked by a diver down float (see figure).



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## Safe Boating Courses

Your local U.S. Coast Guard Auxiliary and the U.S. Power Squadrons offer comprehensive safe boating classes several times a year. You may contact the Boat/U.S. Foundation at 1-800-336-BOAT (2628), or in Virginia 1-800-245-BOAT (2628). For a course schedule in your area you may also contact your local U.S. Coast Guard Auxiliary or Power Squadron Flotilla for the time and place of their next scheduled class.

U.S. Coast Guard Website: [www.uscg.mil](http://www.uscg.mil)  
Power Squadron Website: [www.usps.org](http://www.usps.org)

## Voluntary Inspections

State boating officials in many states or the U.S. Coast Guard Auxiliaries offer courtesy inspections to check out your craft. They will check your boat for compliance with safety standards and required safety equipment. You may voluntarily consent to one of these inspections and you are allowed time to make corrections without prosecution. Check with the appropriate state agency or the Coast Guard Auxiliary for details.

## Rules of the Road

All responsible boaters comply with the "Rules of the Road," the marine traffic laws enforced by the U.S. Coast Guard. There are two sets of rules: the United States Inland Navigational Rules and the International Rules. The United States Inland Rules apply to all vessels inside the demarcation lines separating inland and international waters. The Coast Guard publishes the "Rules of the Road" in its publication "Navigational Rules, International-Inland." You can get a copy from your local U.S. Coast Guard Unit or the United States Coast Guard Headquarters, 1300 E. Street NW, Washington, D.C. 20226.

Other helpful publications available from the U.S. Coast Guard include "Aids to Navigation" (U.S. Coast Guard pamphlet #123), which explains the significance of various lights and buoys; the "Boating Safety Training Manual"; and "Federal Requirements For Recreational Boats." Check with your local Coast Guard station,

your Robalo dealer, or a local marina about navigational aids unique to your area.

U.S. Coast Guard Website: [www.uscg.mil](http://www.uscg.mil)  
California Coast Guard Website: [www.ccg-ggc.gc.ca](http://www.ccg-ggc.gc.ca)

If you have a marine radio telephone, heed storm warnings and answer any distress calls from other boats. The word "MAYDAY" spoken three times is the international signal of distress. Monitor marine radio channel 16 which is reserved for emergency and safety messages. You can also use this channel to contact the Coast Guard or other boaters if you have trouble.

***Important: Never send a "MAYDAY" message unless there is a serious emergency and you are in need of immediate assistance.***

## Warning Markers

Always check with local authorities concerning regional hazardous areas and how they are marked. Other considerations include:

- Boat operators must be able to recognize marine flag designs and respond accordingly.
- Caution should always be exercised relative to swimmers. Swimming areas may not always be marked.
- Navigation markers identify navigable routes and indicate water hazards. Boat operators should familiarize themselves with these important navigational tools and operate their boats accordingly.
- Be prepared to assist anyone flying a 'distress' flag as they are requesting immediate assistance.

## Drugs and Alcohol

Drugs and alcohol affect a person's ability to make sound judgments and react quickly. A responsible boater refrains from using drugs or alcohol while operating their boat. Operation of motorized vessels while under the influence carries a significant penalty. Drugs

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and alcohol decrease your reaction time, impair your judgement, and inhibit your ability to safely operate your boat.

## **SAFETY EQUIPMENT**

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***Important: Federal law requires you to provide and maintain safety equipment on your Robalo boat. As the boat owner, you are responsible for supplying all required safety equipment. Consult your Coast Guard, state, and local regulations to ensure your boat has all required safety equipment on board. Additional equipment may be recommended for your safety and that of your passengers. Make yourself aware of its availability and use.***

### **Personal Flotation Devices (PFDs)**

There must be one United States Coast Guard approved wearable personal flotation device of Type I, II, or III for each person on board or being towed on water skis, water sports tubes, kneeboards, etc. and one Type IV throwable device on board. The PFDs must be of a suitable size for each person aboard and must be in serviceable condition and readily accessible.

**PFD Type I, Wearable:** This off-shore life jacket has the greatest buoyancy. It is most effective for all waters where rescue may be delayed. Its design allows for turning most unconscious persons in the water from a face down position to a vertical or face-up position.

**PFD Type II, Wearable:** This near-shore buoyant vest provides less buoyancy than a Type I PFD. It is intended for calm inland water or waters where there is a chance of quick rescue. It turns its wearer to a face-up position as does the Type I PFD, but the turning action is not as pronounced as the Type I, and it will not turn as many persons under the same conditions as a Type I.

**PFD Type III, Wearable:** Classified as a flotation aid, this PFD allows wearers to place themselves in a vertical or face-up position in the water. Type III has the same minimum buoyancy as a Type II PFD. It has little or no turning ability. People participating in water sports often prefer this PFD because it intended for use in waters

where quick rescue is possible and it is generally the most comfortable for continuous wear.

**PFD Type IV, Throwable:** You must also have aboard at least one throwable PFD Type IV device. The Type IV device can be thrown to a person in the water and grasped and held by the user until rescued. The design does not allow it to be worn. The most common Type IV PFDs are buoyant cushions or ring buoys. This PFD must be immediately available for use and in serviceable condition.

**PFD Type V:** Must be worn to be effective. When inflated, it provides buoyancy equivalent to Type I, II, or III PFDs.

### **Fire Extinguishers**

As the boat owner, you are responsible for making sure you have the required number of fire extinguishers. Fire extinguishers must be approved by the U.S. Coast Guard.

Boats longer than 26 feet and shorter than 40 feet: Two Type B-1 or at least one Type B-2 portable hand extinguishers. If your boat has a fixed fire extinguishing system approved by the U.S. Coast Guard, one Type B-1 extinguisher is required.

Boats longer than 16 feet and shorter than 26 feet: At least one portable hand Type B-I fire extinguisher.

All fire extinguishers should be mounted in a readily accessible location away from the engine compartment. Everyone on board should know where the fire extinguishers are and how to operate them.

If your fire extinguisher has a charge indicator gauge, cold or hot weather may affect the gauge reading. Consult the instruction manual supplied with the fire extinguisher to determine the accuracy of the gauge.

### **Visual Distress Signals**

The U.S. Coast Guard requires all boats operating on U.S. coastal waters have visual distress signal equipment on board. In general,

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coastal waters include all waters except rivers, streams, and inland lakes. The Great Lakes are considered coastal waters as is a river mouth more than two miles wide. Boats owned in the United States and operating on the high seas must also carry visual distress signal equipment.

Visual distress equipment must be in serviceable condition and stowed in a readily accessible location. Equipment having a date showing useful service life must be within the specified usage date shown. Both pyrotechnic and non-pyrotechnic equipment must be U.S. Coast Guard approved.

Pyrotechnic U.S. Coast Guard approved visual distress signals and associated equipment include:

- Red flares, hand held or aerial
- Orange smoke, hand held or floating
- Launchers for aerial red meteors or parachute flares

Non-pyrotechnic equipment includes an orange distress flag and an S-O-S electric distress light.

No single signaling device is ideal under all conditions for all purposes. Consider carrying various types of equipment. Careful selection and proper stowage of visual distress equipment are very important. If young children are frequently aboard, you should select devices with packages which children, but not adults, will find difficult to open.

## **Sound Signaling Device**

Your Robalo boat must have a device that can produce a sound signal when conditions require. For boats over 26 feet, the device must be able to produce a two-second blast which can be heard a mile away. For boats less than 26 feet, it must be able to produce a two-second blast which can be heard one-half mile away. It can be a hand, mouth or power operated horn or whistle. Refer to the U.S. Coast Guard's publication "Navigational Rules, International-Inland" for details about the appropriate signals.

## **RUNNING AND NAVIGATION LIGHTS**

Your boat must have running and navigation lights for safe operation after dark. Observe all navigation rules for meeting and passing. Do not run at high speeds during night operation. Always use common sense and good judgment.

## **SAFETY AFLOAT**

Once your boat is launched and your excursion is underway, you need to be aware of your surroundings and how they may affect your safety and that of your passengers. There is no substitute for good judgment and common sense.

### **Weather**

Storms rarely appear without advance notice. Check the weather forecast before you begin a day of boating. Be aware, however, that weather conditions can change rapidly. If you have a marine radio, listen to the weather reports issued by the U.S. Coast Guard and others. If you have a portable radio, keep it tuned to a station broadcasting frequent weather reports. Many boating clubs fly weather signals. Learn to recognize these signals and listen to your local forecasts before leaving port.

Your surroundings can also be a good indicator of changing weather conditions. Watch for changes in wind direction or cloud formations. There is no substitute for a good understanding of weather conditions and what to do when the weather takes a turn for the worse.

### **Fog**

Fog is a result of either warm-surface or cold-surface conditions. You can judge the likelihood of fog formation by periodically measuring the air temperature and dew point temperature. If the difference between these two temperatures is small, fog is likely to develop. Remember the following guidelines:

- Turn on running lights.

- Unless your boat is well equipped with charts, head for shore at the first sign of fog and wait until conditions improve. If you have charts on board, take bearings as fog sets in, mark your position, and continue to log your course and speed.
- Make sure all persons on board have put on their personal floatation devices.
- If your boat has sounding equipment, take soundings regularly and match them with depths shown on your charts.
- Station a person forward in the boat as a lookout.
- Reduce your speed. From time to time, stop engine(s) and listen for other fog signals.
- Sound the horn or fog bell intermittently to warn others.
- If there is any doubt in continuing your excursion, anchor. Listen for other fog signals while continuing to sound your fog horn or bell.

## Storms

The present and forecasted weather conditions are a primary consideration, and the possibility of storms should always be a concern. If storms are a possibility, keep a watch on the horizon, especially to the west, for approaching storms. Monitor the weather forecast on a marine channel or local weather station. The best possible situation is to return to a safe port if time allows.

Other steps to follow to weather the storm include:

- Close and secure port holes. Stow all loose gear below deck and tie down any gear on deck.
- Reduce speed as the seas build. Make sure all persons on board have put on their personal floatation devices.

- Trail a sea anchor from the bow. If you do not have a sea anchor aboard, use a canvas bucket, tackle box, or other object that will work like a sea anchor.
- Radar reflectors (if installed on your boat) should be 18 inches diagonally. They should be placed as far above waterline as possible. Otherwise, a boat with radar may have trouble “seeing” your boat.

## Man Overboard

Should someone in the boat fall overboard:

- Act quickly—treat every situation as an emergency.
- Move throttle to idle position and yell “Man Overboard”.
- Immediately throw a Type IV PFD to the person in the water.
- Have someone in the boat assume responsibility for watching the person in the water and keep them in sight while the boat maneuvers back to them.
- Approach the person into the wind and waves. When alongside, put the engine in neutral and throw them a Type IV PFD with a line attached or extend an oar or boat hook.

## Fire

***Important: A fire aboard your boat is a serious emergency. You must act immediately!***

Every boater should develop a fire response plan to determine what kind of fire (fuel, electrical, etc.) might break out, where it might break out, and the best way to react. Having a plan and assigning responsibilities to others results in quicker decisions and quicker reactions.

***Important: Everyone on board should know where fire extinguishers are and how to operate them.***

Any fire requires stopping the engine(s) **immediately**. Then:

- **Do not open the hatch to the rigging compartment!** The fire will flare up if the fresh air supply increases suddenly.
- Keep the fire downwind if possible. If the fire is aft, head into the wind.
- Have all persons on board put on their personal floatation devices.
- If you can get at the fire, aim the fire extinguisher at the base of the flames and use a sweeping action to put out the fire.
- If the fire gets out of control, make a distress signal, and call for help on the radio.

Deciding whether to stay with the boat or abandon ship will be difficult. If the decision is to abandon ship, all persons on board should jump overboard and swim a safe distance away from the burning boat.

## **WARNING**

**WARNING:** Smoking, poor maintenance, or carelessness when refueling can cause hazardous conditions. Always follow proper refueling procedures for your boat.

### **Guidelines for Fire Prevention**

- Check the bilge for fuel leaks
- Check cleaning products for flammability
- Ventilate when cleaning or painting
- Disconnect electrical system from power source when performing any type of maintenance
- Use extra caution when using exposed flame around urethane foam
- Extinguish smoking materials carefully
- Ensure ventilation systems are not obstructed
- Use only approved marine cooking and heating systems
- Open flames demand constant attention

- Keep flammable materials in approved containers
- Replace circuit breaker fuse with one of the same amperage
- Electrical appliances must be within rated amperage of boat circuits
- A qualified marine electrician should service the electrical system

### **Flooding, Swamping or Capsized Boat**

Flooding or swamping is usually caused by the actions of an inattentive boat operator, or by hazardous weather or water conditions. To prevent boat flooding:

- Install drain plug before launching.
- Ensure proper bilge pump operation.
- Do not overload boat.
- Adjust boat speed and trim to match sea and weather conditions.
- Close all cabin hatches, doors, etc. while underway to prevent flooding due to heavy seas or rain. Ensure proper ventilation to avoid carbon monoxide poisoning. See carbon monoxide hazard information later in this chapter.
- When only using one anchor, it should be attached to the bow of the boat.
- When slowing down or moving in reverse do not allow wake or following seas to flood cockpit.

If your boat becomes swamped or capsizes, put on a PFD immediately and set off a distress signal. Chances are good that a capsized boat will stay afloat. For this reason, stay with the boat. Do not leave the boat or try to swim to shore except under extreme conditions. A capsized boat is easier to see than a swimmer, and the shore may be farther away than it appears.

More often than not, boats sink while docked. Any number of factors may contribute to these sinkings. There may have been a mechanical failure such as a failed bilge pump or an electrical problem such as a dead battery or tripped circuit breaker. Check your boat regularly if it is docked for an extended period of time to make sure everything is in order.

## Hypothermia

If a person falls overboard, hypothermia may be an immediate concern. Hypothermia means a person's body loses heat to the water faster than the body can replace it. If not rescued, the person will become exhausted or likely drown. In general, the colder the water, the shorter the time for survival. PFDs will increase survival time because they provide insulation.

Water Temperature (°F)	Exhaustion Unconsciousness	Expected Time of Survival
32.5	Under 15 min.	Under 15 to 45 min.
32.5-40	15-30 min.	30-90 min.
40-50	30-60 min.	1-3 hr
50-60	1-2 hr	1-6 hr
60-70	2-7 hr	2-40 hr
70-80	3-12 hr	3 hr-Indefinite
Over 80	Indefinite	Indefinite

## Collision

If a serious collision occurs, first check the persons on board for injuries. Then inspect the boat to determine the extent of damage.

- Prepare to help the other craft unless it places your passengers or boat in danger.
- If the bow of the other boat penetrated your boat's hull, prepare to plug the fracture once the boats are separated.
- Shore up the hole inside your boat with a spare life jacket or cushion.
- While plugging the hole, shift weight to get the hole above the water level.
- If your boat is in danger of sinking, have all persons put on their personal floatation devices.

- If your boat has a radio, contact the U.S. Coast Guard or other rescue authorities immediately (VHF channel 16 or 22 CB radio).

## Running Aground

If you run aground check everyone for injury and inspect damage to the boat and propeller(s). If possible, shift weight of passengers or gear to heel the boat while reversing engine(s). If towing becomes necessary, do not attach tow line to deck cleats. These are not designed to take full load of the boat. Robalo recommends using a commercial towing service.

### **WARNING**

**WARNING:** When towing another boat or having your boat towed, make sure the tow line is fastened securely to the bow or transom towing eyes. Never attach tow line to deck cleat or anchor windlass. Cleat or windlass may pull free from deck and cause serious personal injury or property damage.

## Carbon Monoxide Hazard During Operation

### **DANGER**

**DANGER:** Exhaust fumes from engines contain carbon monoxide. Boats with canvas deployed are more likely to collect exhaust fumes. Avoid brain damage or death from carbon monoxide. Keep cockpit and cabin areas well ventilated. Signs of exposure include nausea, dizziness, and drowsiness.

Carbon monoxide (CO) in the engine exhaust is a poisonous gas which is odorless, colorless, and heavier than air. Direct prolonged exposure can result in carbon monoxide poisoning which can be harmful and may be fatal.

Indications of excessive exposure to carbon monoxide concentrations may include nausea, dizziness and drowsiness. Carbon monoxide poisoning requires the operator's special and immediate attention! To prevent excess exposure and reduce the possibility of carbon monoxide accumulation in the cabin of the boat, ensure adequate ventilation by opening cabin hatches, cabin doors, cabin windows, and side windshield vents to increase air movement.

Some Robalo models are equipped with a CO detector. Follow the operating instructions supplied with the CO detector and test the unit to verify that it is functioning properly every time you use your boat.

The following illustrations show how carbon monoxide can possibly accumulate in your boat while at the dock or underway. Become familiar with these examples and their precautions to prevent dangerous accidents from occurring on your boat.

## **! DANGER**

**DANGER:** Blocked hull exhaust outlets near a pier, dock, sea wall bulkhead or any other means can cause excessive accumulation of poisonous carbon monoxide gas within the cabin areas. Make sure hull exhaust outlets are not blocked. See Figure 2.1.

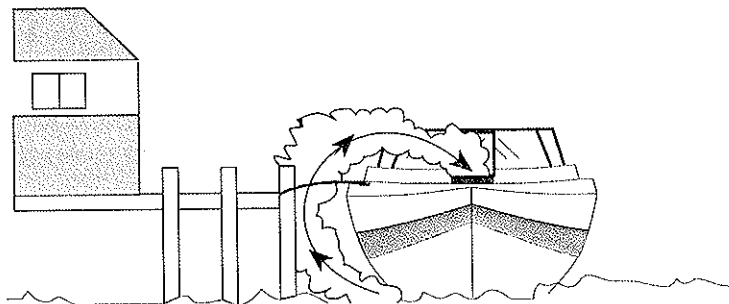


Figure 2.1 Running engine or generator in confined areas

## **! DANGER**

**DANGER:** Generator or hull exhaust from other vessels alongside your boat, while docked or anchored, can emit carbon monoxide and cause excessive accumulation within the cabin and cockpit areas. Be alert for generator exhaust from other vessels alongside. See Figure 2.2.

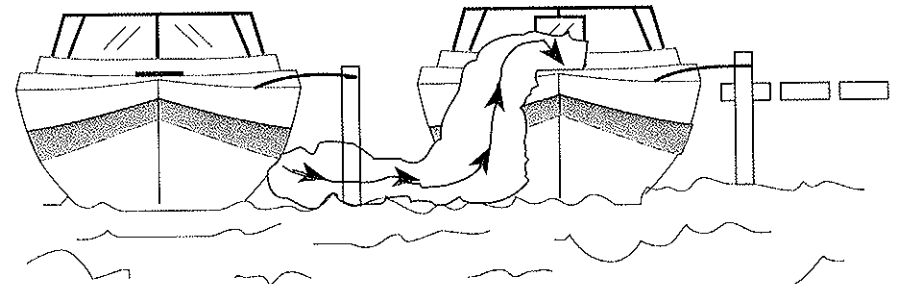


Figure 2.2 Exhaust Fumes from Vessel Alongside

## **! DANGER**

**DANGER:** Engine exhaust from your boat while underway can cause excessive accumulation of carbon monoxide within the cabin and cockpit areas when using protective weather coverings. Provide adequate ventilation when the canvas top, side curtains, and/or back curtains are closed. See Figure 2.3

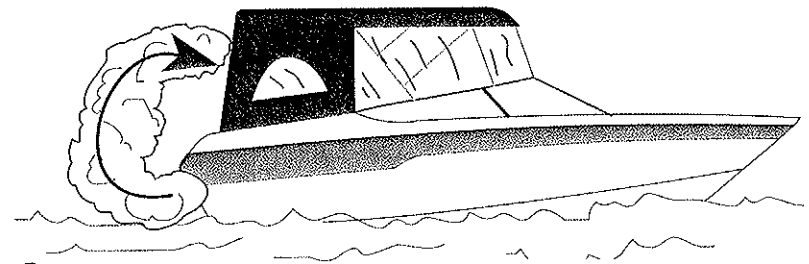


Figure 2.3 Exhaust Accumulation While Canvas is in Place

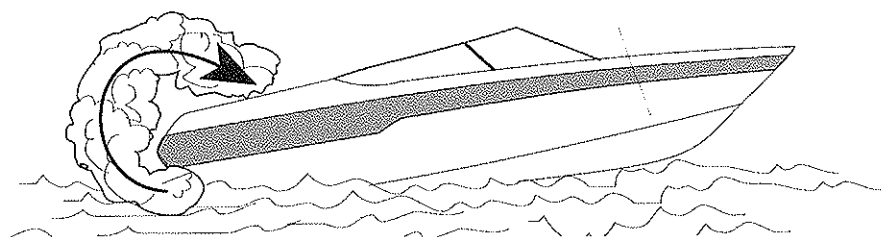


## ⚠ DANGER

**DANGER:** Engine exhaust from your boat while underway can cause excessive accumulation of carbon monoxide within cabin and cockpit areas or when operating boat with a high bow angle. Provide adequate ventilation, redistribute the load, or bring boat out of high bow angle. See Figure 2.4.

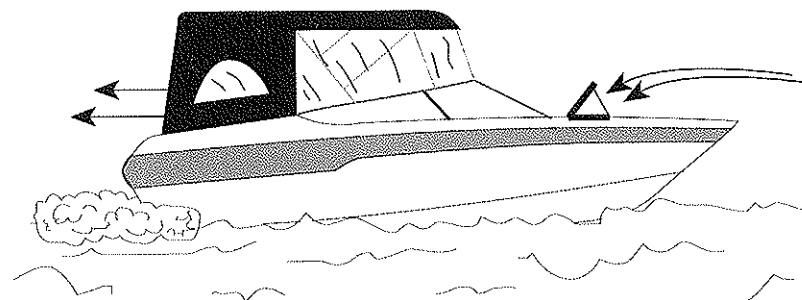
## ⚠ DANGER

**DANGER:** Engine exhaust from your boat while underway can cause excessive accumulation of carbon monoxide within the cabin and cockpit areas when operating at slow speed or stopped in the water. Tail wind can increase accumulation (force of wind entering from aft section of boat). Provide adequate ventilation or slightly increase speed if possible. See Figure 2.4.



**Figure 2.4 Exhaust Accumulation due to High Bow Angle or Slow Speed**

Ensure proper ventilation aboard your boat and be aware of the possibility of carbon monoxide poisoning (See Figure 2.5). Keep your boat in safe operating condition. Periodically inspect the hull, engine, and all other equipment.



**Figure 2.5 Desired Ventilation Through the Boat**

## Navigation Aids Chart

The Navigation Aids Chart (located at the end of this section) contains information about various signals, buoys, and warnings. Robalo recommends you participate in a safe boating course to learn more about navigating your boat safely.

## WATER SPORTS

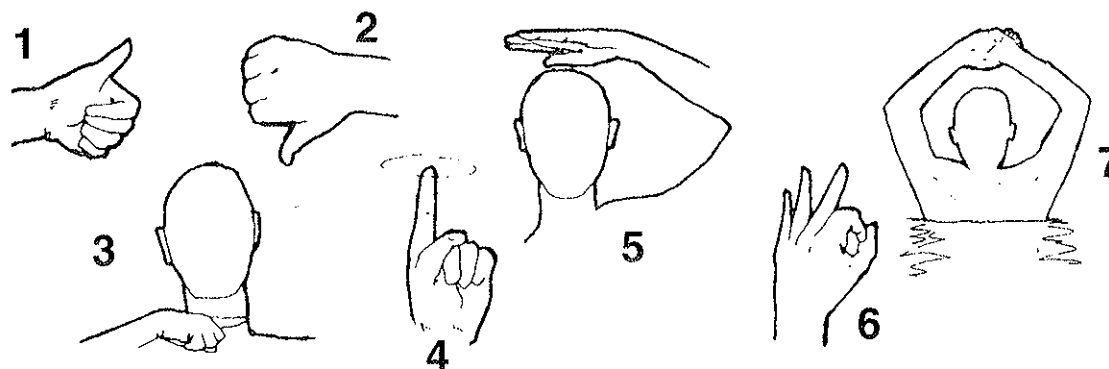
### ⚠ WARNING

**WARNING:** Death or serious poisoning can result from exposure to carbon monoxide from engine exhaust. Turn off gasoline-powered generators that exhaust at or near the water level when the swim platform on the stern is in use. Swimmers should not enter the cavity beneath the swim platform.

Water skiing and other water sports, such as kneeboarding and riding on inflatable towable devices, require an increased safety awareness by all the people involved.

**Important:** Remember that three people — not two — are required for safe water skiing: the boat operator, the skier, and an observer on the boat facing the skier. The observer relays signals from the skier to the operator. The operator can therefore give full attention to the operation of the boat and the waters ahead.

1. **Thumb Up:** Speed up the boat.
2. **Thumb Down:** Slow down the boat.
3. **Cut Motor/Stop:** Immediately stop boat. Slashing motion over neck (also used by driver or observer).
4. **Turn:** Turn the boat (also used by driver). Circle motion—arms overhead. Then point in desired direction.
5. **Return to Dock:** Pat on the head.
6. **OK:** Speed and boat path OK. Or, signals understood.
7. **I'm OK:** Skier OK after falling.



**Figure 2.6 AWSA Water Skiing Signals**

Figure 2.6 shows a set of hand signals recommended by the American Water Ski Association (AWSA). The skier, the observer, and the boat operator should know and understand these 7 simple signals.

Following these guidelines helps make water skiing a safe and enjoyable experience:

1. Water ski only in safe areas away from other boats and swimmers, out of channels, and in water free of underwater obstructions.
2. Make sure anyone who water skis is a competent swimmer.
3. Be sure the skier is wearing a proper flotation device. A properly designed ski vest will keep a stunned or unconscious person afloat.
4. Approach a skier in the water from the lee side, and be certain to stop your motor before coming close to the skier.
5. Give immediate attention to a fallen skier. He or she is vulnerable in the water alone and is difficult to see by other boaters.

For more information about water skiing, Please contact the American Water Ski Association, 799 Overlook Drive, Winter Haven, Florida 33884 (1-800-533-2972) or [www.usawaterski.org](http://www.usawaterski.org).

## ⚠ WARNING

**WARNING:** Serious injury may result from para-sailing, kiting, or similar water sports. Robalo Boats are not designed for towing para-sails, kites, or any other device designed to become airborne when towed behind a boat.

### Additional Equipment

You should consider having additional equipment on board to help make your boating experience safer and more enjoyable. Some examples include the following:

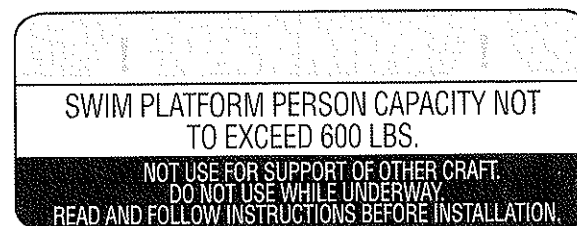
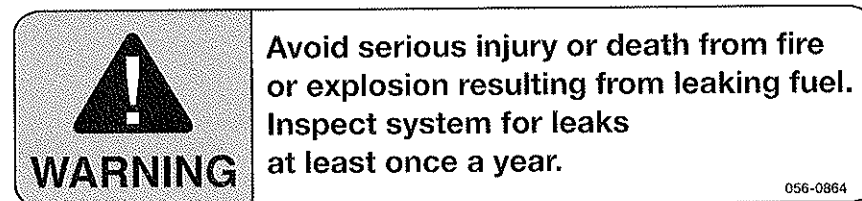
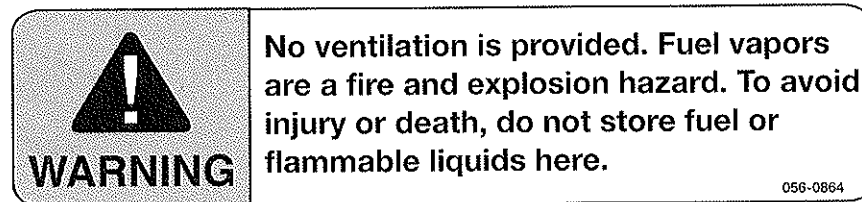
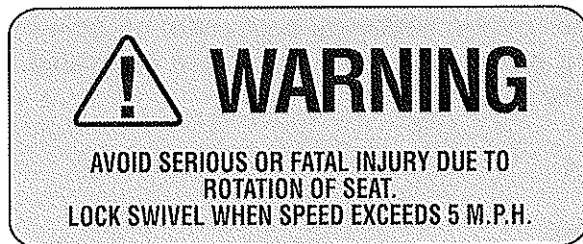
- Anchor and line
- Boat hook
- Bucket & sponge
- Commonly used spare parts

- Compass, navigation charts
- Distress signal kit
- Docking and towing lines
- Engine and accessory manuals
- Extra keys
- Fenders
- First aid kit
- Flashlight & extra batteries
- Fuses
- Manually operated bilge pump
- Owner's manual
- Paddle
- Replacement light bulbs
- Ship-to-shore radio
- Spare fuel and oil
- Spare propeller with fastening hardware
- Spare set of spark plugs and ignition parts
- Tool kit

## HAZARD COMMUNICATION LABELS

Some or all of the hazard communication labels shown on the following pages can be found in various locations on your boat. If your boat is missing any of these labels, notify your Robalo dealer for replacement.

**Note: Respective labels are determined by the standard and optional equipment actually installed on your boat upon delivery.**



RAW WATER INLET  
MARINE HEAD

CLOSE SEACOCK  
WHEN NOT IN USE

RAW WATER INLET  
GENERATOR

CLOSE SEACOCK  
WHEN NOT IN USE

RAW WATER INLET  
AIR CONDITIONER

CLOSE SEACOCK  
WHEN NOT IN USE

**⚠ WARNING ⚠**

OPEN DOORS MAY CAUSE  
DAMAGE TO BOAT, AND/OR  
PERSONAL INJURY

SECURE ALL DOORS WHEN UNDERWAY

**NOTICE**

SEE YOUR DEALER FOR  
OPTIONAL ANCHOR

**⚠ WARNING ⚠**

AN UNSECURED ITEM MAY  
SHIFT OR FALL CAUSING  
DAMAGE TO BOAT  
AND OR PERSONAL INJURY

SECURE OR STORE COFFEE POT BEFORE GETTING UNDERWAY

**NOTICE**

WHEN USING SHOWER TURN  
SUMP PUMP BREAKER ON. FORWARD  
BILGE AREA MAY FLOOD IF BREAKER  
IS NOT ON.

**⚠ WARNING ⚠**

NOT A STEP  
MAY BREAK CAUSING DAMAGE  
TO BOAT AND PERSONAL INJURY

DO NOT STEP ON DOOR

**NOTICE**

DO NOT USE OR DISPOSE OF PRODUCTS  
THAT CONTAIN CHLORINE IN THIS  
WASTE SYSTEM

**NOTICE**

SECURE WINDSHIELD DOOR WHEN  
UNDERWAY OR WHEN TRAILERING  
TO PREVENT ITEMS FROM  
BLOWING OUT.

**NOTICE**

MAIN SHORE POWER  
HOOK UP

**⚠ DANGER ⚠**

USING SKI EYE FOR TOWING, LIFTING,  
OR PARASAILING WILL RESULT IN  
DAMAGE TO BOAT AND SEVERE  
PERSONAL INJURY

USE ONLY TO PULL WATERSKIERERS

**NOTICE**

AIR CONDITIONER SHORE POWER  
HOOK UP

**⚠ WARNING ⚠**

LID MAY CLOSE SUDDENLY AND  
MAY CAUSE DAMAGE TO BOAT,  
AND OR PERSONAL INJURY

CHECK SURROUNDING AREA BEFORE CLOSING UP

**⚠ DANGER ⚠**

USING BOARDING LADDER WHILE  
ENGINE IS RUNNING CAN RESULT  
IN SEVERE PERSONAL INJURY

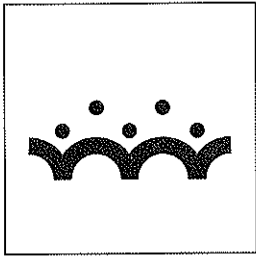
TURN OFF ENGINE BEFORE USING LADDER

**⚠ DANGER ⚠**

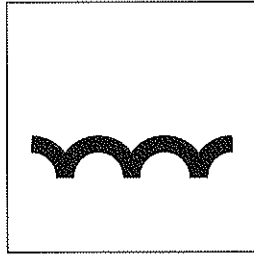
ANCHOR MAY MOVE  
CAUSING BOAT DAMAGE OR  
SEVERE PERSONAL INJURY

SECURE ANCHOR

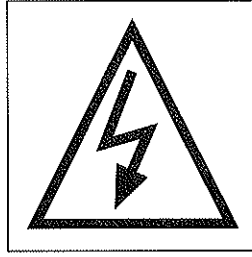
## INTERNATIONAL SYMBOLS



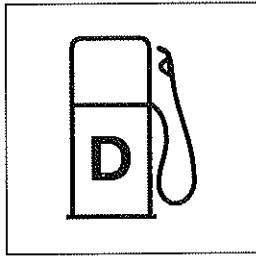
Waste Water Sewage



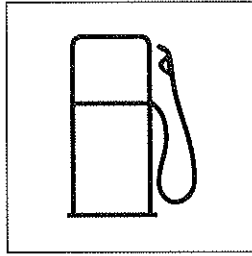
Fresh Water



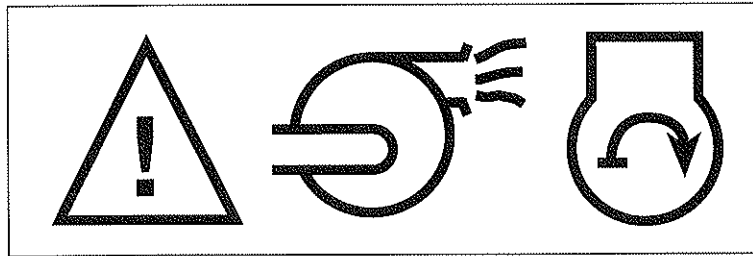
Electrical Hazard



Diesel



Fuel



Blower Warning

**CHECK FOR WATER  
ON SEAL BEFORE OPENING**

## BOATMAN'S CHECK LIST

For maximum enjoyment and safety, check each of these items BEFORE you start your engine:

- ✓ DRAIN PLUG (Securely in place?)
- ✓ LIFE-SAVING DEVICES (One for every person on board?)
- ✓ STEERING SYSTEM (Working smoothly and properly?)
- ✓ FUEL SYSTEM (Adequate fuel? Leaks? Fumes?)
- ✓ BATTERY (Fully charged? Cable terminals clean and tight?)
- ✓ ENGINE (In neutral?)
- ✓ CAPACITY PLATE (Are you overloaded or overpowered?)
- ✓ WEATHER CONDITIONS (Safe to go out?)
- ✓ ELECTRICAL EQUIPMENT (Lights, horn, pump, etc.?)
- ✓ EMERGENCY GEAR (Fire extinguisher, bailer, paddle, anchor & line, signalling device, tool kit, etc.?)



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It is illegal for any vessel to dump plastic trash anywhere in the ocean or navigable waters of the United States. Annex V of the MARPOL TREATY is an

International Law for a cleaner, safer marine environment. Violation of these requirements may result in civil penalty up to \$25,000, fine and imprisonment.



U.S. Lakes, Rivers, Bays, Sounds and 3 miles from shore  
**ILLEGAL TO DUMP**  
Plastic & Garbage  
Paper Metal  
Rags Crockery  
Glass Dunnage  
Food

3 to 12 miles



**ILLEGAL TO DUMP**  
Plastic  
Dunnage, lining & packing materials that float, also if not ground to less than one inch:  
Paper Crockery  
Rags Metal  
Glass Food

12 to 25 miles

**ILLEGAL TO DUMP**  
Plastic  
Dunnage, lining & packing materials that float



Outside 25 miles

**ILLEGAL TO DUMP**  
Plastic



State and local regulations may restrict the disposal of garbage.



## WARNING



**LEAKING FUEL IS A FIRE AND EXPLOSION HAZARD. INSPECT SYSTEM REGULARLY. EXAMINE FUEL SYSTEM FOR LEAKS OR CORROSION AT LEAST ANNUALLY.**

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## **DISCHARGE OF OIL PROHIBITED**

**THE FEDERAL WATER POLLUTION CONTROL ACT PROHIBITS THE DISCHARGE OF OIL OR OILY WASTE INTO OR UPON THE NAVIGABLE WATERS AND CONTIGUOUS ZONE OF THE UNITED STATES IF SUCH DISCHARGE CAUSES A FILM OR SHEEN UPON, OR DISCOLORATION OF, THE SURFACE OF THE WATER, OR CAUSES A SLUDGE OR EMULSION BENEATH THE SURFACE OF THE WATER.**

**VIOLATORS ARE SUBJECT TO  
A PENALTY OF \$25,000**

## **⚠ DANGER ⚠**

**CARBON MONOXIDE IS PRODUCED BY ALL GASOLINE ENGINES AND GENERATOR SETS. AVOID BRAIN DAMAGE OR DEATH FROM CARBON MONOXIDE. KEEP COCKPIT AND CABIN AREAS WELL VENTILATED. AVOID BLOCKAGE OF EXHAUST OUTLETS. SIGNS OF EXPOSURE INCLUDE NAUSEA, DIZZINESS, AND DROWSINESS. SEE BOAT OWNER'S MANUAL FOR MORE DETAILS.**

**USING BOARDING LADDER WHILE ENGINE IS RUNNING CAN RESULT IN SEVERE PERSONAL INJURY. TURN OFF ENGINE BEFORE USING LADDER**

## **⚠ WARNING ⚠**

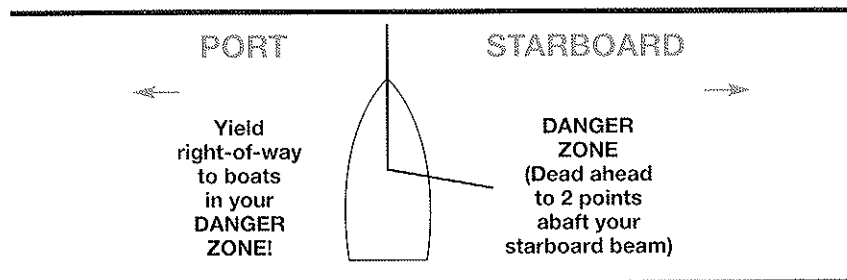
**THE OPERATOR OF THIS VESSEL IS RESPONSIBLE FOR THE ACTIONS OF PERSONS IN AND AROUND THIS VESSEL  
SAFETY IS THE OPERATORS RESPONSIBILITY**

**USING SWIM PLATFORM, FORWARD SUN PAD, OR SUN DECK WHILE BOAT IS UNDERWAY COULD RESULT IN SEVERE PERSONAL INJURY. STOP BOAT AND TURN OFF ENGINES BEFORE USING.**

# NAVIGATIONAL AIDS CHART

## REMEMBER THESE RULES

- OVERTAKING - PASSING:** Boat being passed has the right-of-way. **KEEP CLEAR.**
- MEETING HEAD ON:** Keep to the right.
- CROSSING:** Boat on right has the right-of-way. Slow down and permit boat 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 side
- THREE SHORT BLASTS:** Engine(s) in reverse
- FOUR OR MORE BLASTS:** Danger signal

## BRIDGE SIGNALS

SOUND	VISUAL	DAY (Flag)	NIGHT (Lights)
VESSEL: Open	VESSEL: Open	Same	Same
BRIDGE: OK	BRIDGE: OK	Same	Same
No	No	Same	Same
VESSEL: Replies:	No	Same	Same
<b>RADIO: VHF CH. 13</b>			

## STORM WARNINGS

<b>RED FLAG</b> Small craft (winds up to 33 knots)	<b>2 RED FLAGS</b> Gale (winds up to 47 knots)	<b>SQUARE RED FLAG BLACK BOX</b> (Storm)	<b>2 SQUARE RED FLAGS BLACK BOX</b> (Hurricane)

## LATERAL AIDS AS SEEN ENTERING FROM SEAWARD

### PORT SIDE

#### ODD NUMBERED AIDS

**GREEN LIGHT ONLY**

FLASHING

OCCULTING

QUICK FLASHING

ISOPHASE

### SAFE WATER

#### MID-CHANNELS OR FAIRWAYS

**NO NUMBERS-MAY BE LETTERED**

**WHITE LIGHT ONLY**

Mo(A)

**MORSE CODE**

**SPHERICAL**

**LIGHTED BUOY**

**CAN**

**SG**

**DAYMARK**

**PREFERRED CHANNEL**

**NO NUMBERS-MAY BE LETTERED**

**COMPOSITE GROUP FLASHING (2 + 1)**

### STARBOARD SIDE

#### EVEN NUMBERED AIDS

**RED LIGHT ONLY**

FLASHING

OCCULTING

QUICK FLASHING

ISOPHASE

**LIGHTED BUOY**

**CAN**

**SG**

**DAYMARK**

**LIGHTED BUOY**

**CAN**

**SG**

**DAYMARK**

**LIGHTED BUOY**

**CAN**

**SG**

**DAYMARK**

## ELECTRICAL SYSTEMS

Your Robalo boat has a 12 volt, direct current (DC) battery system.

### Safety Precautions

Follow these precautions when working with or on electrical systems or electrically powered equipment:

1. Shut off power supply before starting work.
2. Use insulated mats to prevent accidental grounding.
3. Make sure clothing is dry. Keep skin dry.
4. Remove all metal jewelry.

### 12 Volt DC Power

Batteries are the source of power for the 12 volt DC (direct current) electrical system. The batteries are charged through the engine-driven alternator. The voltmeter on the instrument panel in the dash shows the battery charging rate when the engine is running.

The negative terminal of each battery is connected to the grounding studs of the main engine(s). This type of negative ground system is the approved system for marine DC electrical systems. If you add additional equipment to your boat it must be adaptable to the negative ground system.

**NOTE: Power feeds for accessory equipment must NOT be taken from the voltmeter terminals. A fuse block near the helm has been provided with additional accessory hookups. Consult your Robalo dealer for additional DC power needs on your boat.**

## CAUTION

**CAUTION:** When adding electrical equipment, be careful not to overload the fuse block.

**Note: The appropriate fuse or circuit breaker must be used. Consult a qualified technician for proper fuse size.**

## WARNING

**WARNING:** Considerable care has been taken to design a safe electrical system to protect you from hazardous shocks. Always have a qualified technician make any modifications to the system.

### Battery

## DANGER

**DANGER: Do Not** disconnect or reconnect battery cables if gasoline fumes are present!

**Note: A dual battery system is standard equipment on some models, and an on/off switch on others.**

The battery installed in your boat by your Robalo dealer supplies your boat with DC current for lights, engine starting, and accessories. When the engine is running, the alternator supplies the power needed to keep the batteries charged. Lights and accessories draw power from the batteries.



## Battery Selector Switch

All models have a battery selector switch as standard equipment. If your boat has a battery selector switch, you will find it in the aft rigging area or in the console.

### On/Off Switch with One Battery

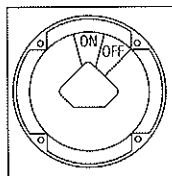
Models: R190.

This switch has two positions:

**OFF** Power supplied to automatic bilge pump, CO detector (if so equipped), stereo memory, and optional corrosion protection system.

**ON** Power supplied to entire boat

To start engine, place switch to ON position. Power is now supplied to your boat from the battery. Then start engine. Leave switch in this position to fully recharge battery.



**Note: If engine is off and you are using boat accessories, you need to start your engine occasionally to allow engine alternator to fully recharge battery. Otherwise you may drain battery and you will not have enough power to start engine.**

### Single Selector Switch with Two Batteries

A selector switch with two batteries is standard on some models.

This battery selector switch has four positions:

**OFF** Power supplied to automatic bilge pump, CO detector (if so equipped), stereo memory, and optional corrosion protection system.

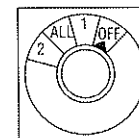
1. Use only Number 1 battery

**ALL** Use Number 1 and Number 2 batteries

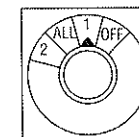
2. Use only Number 2 battery

Recommended settings are as follows:

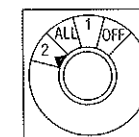
1. When boat is not in use or power is not required, turn the switch to OFF. The only power supplied at this setting is the automatic bilge pumps, carbon monoxide detector (if equipped), stereo memory, and optional corrosion protection system.



2. To start the engine, place switch in Number 1 position. With this setting, power will now be supplied to your boat from the Number 1 battery. This will allow the engine alternator to charge both batteries.



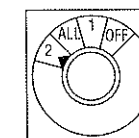
3. For cabin power with engine off, place the switch in the Number 2 position. Power will now be supplied to your boat from the Number 2 battery.



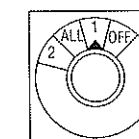
**Note: Robalo does not recommend leaving the switch in the ALL position when the engine is off. This will drain both batteries and you will not have a starting battery.**

4. If one battery is low, you still have the option of starting the engine from the other battery.

Example 1: If the Number 1 battery is low, place the switch in the Number 2 position. Then start the engine. Place switch in Number 1 position. This will allow the engine alternator to recharge both batteries.



Example 2: If the Number 2 battery is low, place the switch in the Number 1 position. Then start the engine. This will allow the engine alternator to recharge both batteries.



**Note:** When recharging a low battery, be sure to run the engine for a sufficient amount of time to fully recharge the battery.

**Note:** Robalo does not recommend any other settings than mentioned because of possible damage to batteries or engine alternator.

### AC/DC Converter and Battery Charger

Your Robalo boat may have an optional or standard battery charging system which may operate off of an extension cord or from the 120 or 220 volt AC power from shore power system. Turn the charger on at the main cabin electrical panel whenever your boat is connected to shore power to keep batteries fully charged. The AC-to-DC converting and charging system is fully automatic and permanently wired into the 12 volt DC system. If the monitored battery level drops under the full charge range, the charger automatically turns ON and restores the battery to FULL charge status. If the battery is deeply discharged, the charger will deliver full output. Output automatically decreases as the battery is charged. If the battery is fully charged, the charger provides a trickle charge as needed.

Before you connect an extension cord to the battery charger 120 volt power supply, secure the extension cord to the boat. Connecting the cord to the boat first will prevent dropping a "hot" cord into the water. When you leave the dock remove the cord from the dockside power source first. If you have any questions, contact your Robalo dealer.

### 120 or 220 Volt AC Power

The alternating current (AC) electrical system operates off a standard 30 amp 120 or 220 volt, 60 or 50 cycle shore power system. The main distribution panel is in the cabin area.

### Shore Power



**CAUTION:** To prevent damage to electrical system, never operate shore power system at low voltage.

Your Robalo boat has a single male receptacle outside on the deck for shore power connection. When not in use, a water-resistant cover protects the receptacle.

Before you connect your boat to shore power, turn off the main cabin circuit breakers. Attach the shore power cord to the boat first and turn clockwise to lock. Thread the locking ring on the inlet to secure the cord. Connecting the cord to the boat first will prevent dropping a "hot" cord into the water. (When you leave the dock, remove the cord from the dockside shore outlet first.) If you have any questions, contact your Robalo dealer. Always be sure when using a Y-adapter or connecting two power cords that any connections are clear of water standing on the dock from rain or the pedestal water outlet.

Make sure the dockside shore power breaker is OFF, then plug in the cord. Turn the dockside shore power breaker on. Immediately check the polarity light(s) on the main panel. If the REVERSED POLARITY light on the main cabin panel illuminates, **do not turn on the main cabin breaker.**



**CAUTION:** Electric shock is possible if you turn on main cabin breaker when reversed polarity is present.

Turn off the dockside shore power breaker and disconnect your shore power cord. Inform the marina manager of the problem. If the reverse polarity light does not illuminate, push the test button next to

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the light. If the light is functioning properly it will illuminate during this test and you are now assured that the polarity of your shore power connection is correct. At this point, turn on the main cabin AC circuit breaker(s). You may now use AC powered components on your boat.

***Important: Some equipment will not work or may be damaged if polarity is reversed. Damage caused by reversed polarity is not covered under your warranty. Be sure polarity is correct when you connect your boat to shore power.***

### Ground Fault Interrupter Outlet

The ground fault interrupter outlet provides protection against currents which can be dangerous even though they do not overload circuit breakers. These outlets which have a test and reset switch in the middle of the faceplate provide ground fault protection to the head and galley outlets on the boat. If there is a difference of more than 5 milliamperes, a safety switch trips in the outlet and interrupts the circuit. This protects the person who is operating the electrical equipment from serious electric shock or loss of life. The outlet may not eliminate the feeling of an electric shock, but it does open the circuit quickly enough to prevent injury to a person of normal health.

When the outlet's circuit breaker is tripped, you must push the RESET button. Check this outlet periodically by pushing the TEST button. Pushing the TEST button cuts power to the 120 and 220 volt outlets.

### General Electrical System Information

Electrical panel and shore power inlet wire connections may possibly loosen over time. Robalo recommends having your dealer check these connections at least annually, or if you are having any electrical system problem. *Due to potential electrical shock hazard, do not attempt this service procedure yourself.* Your dealer is trained to properly diagnose and correct electrical problems safely.

### Lighting

Lighting operates off the 12 volt DC system. Turn lights on or off at the main electrical panel in the cabin or at the light fixture. See your Robalo dealer for information regarding bulb replacement.

### Electrolysis

Electrolysis is the decomposition of metals exposed to an electric current. When your boat is connected to a shore power AC electrical system, it is also connected to an earth ground circuit. This circuit "grounds" all onboard metal parts to the earth on shore. Although it provides protection against hazardous shocks, it creates an electrolytic current which causes the decomposition of all submerged metal.

Sacrificial anodes installed by the dealer or the engine manufacturer protect submerged metal.

***Important: Check these anodes periodically and have them replaced as required. See your Robalo dealer for parts and service. Damage resulting from electrolytic corrosion is not covered by the Robalo Boat warranty.***

### FUEL SYSTEM

The internal fuel system on your Robalo boat meets all current Federal requirements. The fuel tank is forward of the aft bilge compartment under the cockpit floor. The fuel tank fill pipe is on the outside deck. The fuel tank vent allows air to escape as the tank is being filled and helps equalize tank pressure as temperatures change. The tank has an anti-siphon valve which keeps fuel from leaking into the boat in case of fuel line breaks.

Periodically check the condition of the fuel tank components. Fuel tank fittings are accessible through the inspection plate in the cockpit floor.

**Note:** The fuel fill cap has a built in tank ventilation feature. If you should need to replace the cap, see your dealer for the exact same cap to ensure proper fuel system operation.

## **FRESH WATER SYSTEM**

Some models have a non-pressurized water system as standard equipment and a pressurized system as optional. The fresh water system provides water from an onboard storage tank.

On some models, the fresh water tank is filled through the fill plate on the side of the deck. The vent allows air to enter and escape as water levels change. Fill the tank only with potable water. Using and refilling the tank frequently keeps drinking water fresh and clean.

### **Sanitizing the Fresh Water System**

Sanitize the fresh water system before you use it the first time, when you recommission your boat after winter storage, or when the system has not been in use for an extended period of time.

**Note:** Fresh water tank must be empty before beginning sanitizing process. Empty tank if necessary.

## **CAUTION**

**CAUTION:** Bleach causes eye and skin irritation. Notify all persons on board the fresh water system is being sanitized. Do not allow anyone to drink water from fresh water system while it is being sanitized. In case of body contact, follow directions on bleach container.

### **TO SANITIZE THE TANK:**

1. Pour 10 ounces of household bleach for every 10 gallons of capacity into the water tank.

2. Fill the water tank with fresh clean water.
3. Manually pump water throughout system.
4. When a steady stream of water is coming from the faucet, all air is out of the system. Turn switch OFF after closing faucets.
5. Allow treated water solution to remain in tank for 3 to 4 hours.
6. Turn on water pump switch and pump all treated water solution from tank and lines through all faucets.
7. Refill tank with fresh water and turn on pump to thoroughly flush entire system with fresh water after each sanitizing.

**Note:** If fresh water tastes like chlorine after sanitizing, pour a solution of 1 quart vinegar and 5 gallons of fresh water into the tank and allow solution to stand in tank for several days. Then drain entire system and flush with fresh water. Fill tank with fresh water.

### **INITIAL START-UP**

1. Fill fresh water system.
2. Manually pump water faucet until water is coming out faucet or if optional pressure water system, turn on water pump breaker.
3. Open galley faucet to allow air to escape.
4. Close faucet when steady flow of water appears.

### **Optional Water Pump and Filter**

Once the water pump switch is ON, the water pump supplies water under pressure to the fresh water system. The filter keeps particles from entering the pump reservoir. Check the filter periodically and clean if necessary. A clogged filter may result in low water pressure to the system.

Before servicing the filter, turn the water system breaker OFF and release pressure on the system by opening all faucets. To clean the filter, remove screen and rinse with clean water. Replace and make sure the O-ring is seated properly when installing the cover.

**Note: Refer to the water pump manual for detailed operation and maintenance procedures.**

### **Livewell Pump, Raw Water Pump and Filter**

Once the water pump switch is ON, the water pump supplies water under pressure to the raw water system. The filter keeps particles from entering the pump reservoir. Check the filter periodically and clean if necessary. A clogged filter may result in low water pressure to the system.

Before servicing the filter, turn the water system switch OFF. To clean the filter, remove screen and rinse with clean water. Replace and make sure the O-ring is seated properly when installing the cover.

**Note: Refer to the water pump manual for detailed operation and maintenance procedures.**

## **MARINE SANITATION DEVICES**



**WARNING: Explosion Hazard!** Waste in holding tank can form methane, an explosive gas. Keep vent open and clear of obstructions. Keep fire and flame away when maintaining sanitation system.

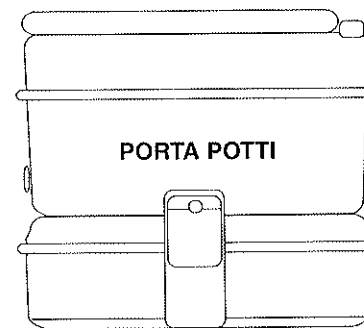
Standard and optional sanitation equipment varies with the boat model. These options include a Porta-Potti (Figure 3.1), or a porcelain head with holding tank (Figure 3.2), or a porcelain head with holding tank and macerator (Figure 3.3).

The marine sanitation device (MSD), or head, installed on your Robalo boat is similar to your home toilet. The major difference is that it is flushed with sea water using an electric pump or a manual pump. Also the tandem flushing system provides for sea water to be pumped in and waste water and material to be flushed out into a holding tank. The MSD seacock should only be opened when you wish to flush the head using sea water. It should be closed at all other times to avoid accidental boat flooding in the event of a hose or valve failure.

If you empty the holding tank overboard, the optional macerator grinds waste material into small particles as it empties the holding tank. The only time you will use the macerator is when you empty the holding tank overboard.

**Note: See the owner's manual supplied by the manufacturer for safety precautions and for detailed operation, maintenance, and winterizing procedures. The manual is in your owner's packet.**

The U.S. Coast Guard has also issued regulations requiring boats to have a sanitation system on board to control pollution. Wastes are to be stored in a holding tank or other device, such as a Porta-Potti, until the device can be pumped out and disposed of at a shore facility. Discharging this waste overboard is prohibited in most jurisdictions. Check with the Coast Guard regarding regulations in your area.



**Figure 3.1 Porta-Potti**

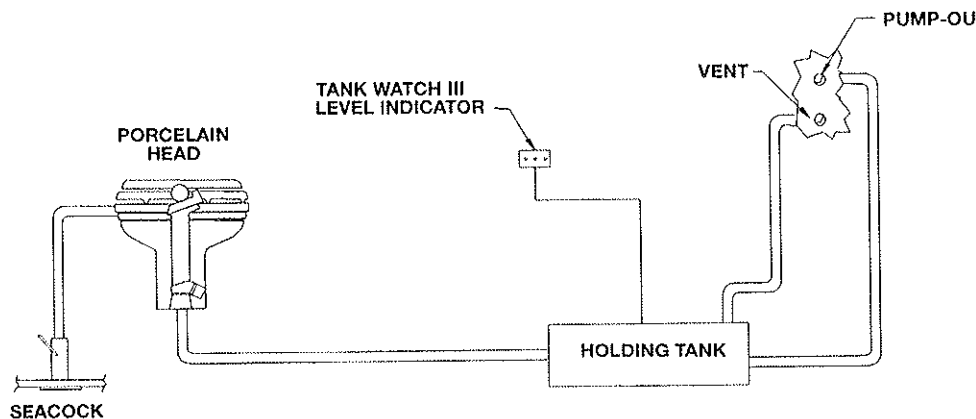


Figure 3.2 Pumpout Porcelain Head

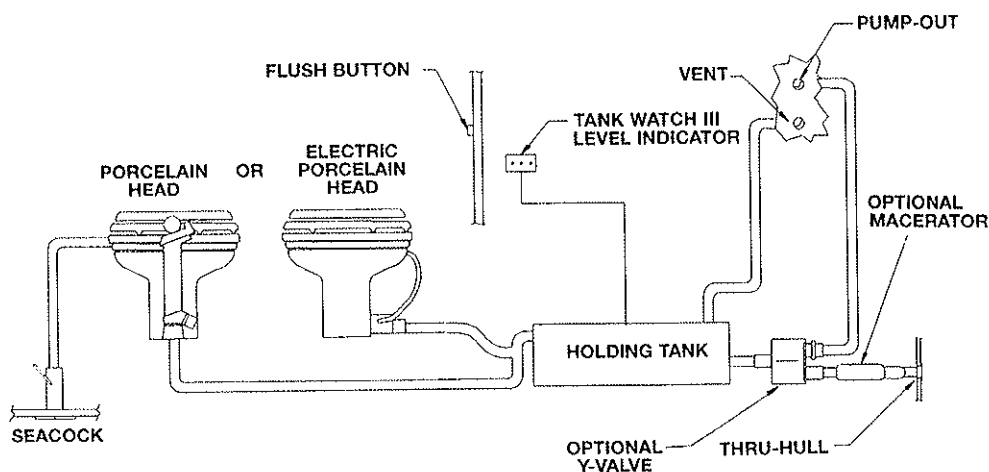


Figure 3.3 Pumpout Porcelain Head

## Holding Tank

Waste from the toilet is flushed to the holding tank. You can empty the holding tank using a dockside pumpout or, when permitted, through a macerator through hull fitting in the hull side.



**WARNING:** Waste in the holding tank can form methane, an explosive gas. Use suitable precautions when any maintenance is done to the sanitary system.

The holding tank is equipped with a waste tank level indicator in the head compartment. Check this regularly to see how full the tank is. When the tank is full, **do not use the head**. If the tank is overfilled, waste can plug the vent or cause the tank to rupture, allowing its contents to empty into the bilge. Checking the level regularly is time well spent.

To empty the holding tank, Robalo recommends using a dockside pumpout facility. Connect the hose from the pumpout facility to the fitting marked WASTE on the side deck.

When pumping out the holding tank, place the waste cap in a secure place. It is not attached by a lanyard to the through-deck fitting. If you drop it into the water or it falls overboard, you will probably not be able to retrieve it. Consider keeping an extra cap on board in case you drop one overboard. Flush the head several times to clean waste buildup out of the lines and rinse out the tank.

Flushing fresh water through the head is also a good idea if you will be leaving the boat for two or more days. Doing so will clear all waste from the lines into the holding tank. Waste in the lines tends to dry out. These hardened wastes may affect future operation because they make the inside diameter of the hose smaller.

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## Overboard discharge

***Important: Overboard discharge of untreated sewage within 12 miles of shore on the east coast and within 9 miles of shore on the west coast is prohibited by law. Check the local authorities for proper discharge procedures in your area. If your boat is going to be used on inland waters, have your dealer seal the overboard discharge portion of your waste system.***

If regulations permit, the macerator can be used to pump waste from the holding tank overboard. The MACERATOR circuit breaker at the battery selector switch panel protects the power supply to the macerator. The macerator pulls the waste from the holding tank, grinds the waste into small particles, and pumps the waste overboard through a hull discharge fitting above the water line.

Follow these procedures to operate the macerator:

1. Switch on the MACERATOR switch in the head compartment.
2. Allow the macerator to run until the holding tank is empty, but not longer. **Running the macerator when the tank is empty will cause damage to the pump.**
3. When you hear the pump speed up (indicates tank is empty), immediately turn the switch off.

**Note: If the macerator won't turn on, check the circuit breaker at the battery switch panel. If resetting the breaker doesn't allow the macerator to turn on, see your dealer to determine the cause of the problem.**

This chapter describes standard and optional components factory installed on our fishing boats. Depending on how your boat is equipped, it may or may not have all of the equipment described in this chapter.

Be sure to read all operation, maintenance, and safety information contained in each component's manual before operation. The manuals are in your owner's packet.

**Important:** *Adhere to all safety precautions in the manufacturer's literature when operating the components.*

**Note:** "Engine" in this Robalo manual means one or two engines depending on how your boat is equipped.

## WARNING

**WARNING:** When using electrical components, observe safety precautions to reduce the risk of fire, electrical shock, personal injury or damage to your boat and/or component.

## DASHBOARD AND INSTRUMENT PANEL

Instruments on the dashboard are important for monitoring the performance of your boat and alerting you to possible problems or causes of problems.

The **fuel gauge** indicates the approximate amount of fuel in your fuel tank. The reading is most accurate when your boat is operating at idle speed. Be aware that you should compare gauge readings with hours of use versus known fuel consumption because the gauge is only an approximate reading of the amount of fuel in your boat's tank.

The **voltmeter** indicates battery voltage. When the engine is running, the meter should read between 12 and 15 volts. A significantly lower reading may indicate a battery or alternator problem or a heavy drain on the battery. If the voltmeter needle moves back and forth in wide swings, the alternator may not be charging properly.

The **tachometer** indicates the operating speed of the engine in revolutions per minute (RPM). It does not indicate the speed of your boat moving through the water. Do not exceed the maximum full throttle RPMs stated in the engine operator's manual.

The **speedometer** indicates the speed your boat is crossing the water in miles per hour. Water pressure from a water pickup at the boat's stern is measured and converted into a reading on the speedometer.

The **compass** indicates the direction or heading in which your boat is traveling. Have the compass calibrated by an experienced technician. See the manufacturer's instruction manual for details about proper operation and maintenance.

## CAUTION

**CAUTION:** Compass reading may be erroneous if compensator is not properly adjusted. Always make a deviation table and use it when navigating with compass.

## HYDRAULIC STEERING SYSTEM

Your boat may have a hydraulic steering system. This system has two basic elements: helm pump and cylinder. The steering wheel is mounted to the shaft of the helm pump. Turning the steering wheel pumps hydraulic fluid to the steering cylinder. Extra hydraulic fluid



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prevents air from entering the system. A relief valve protects both the mechanical portion of the rudder (in case the rudder strikes a hard object) and the hydraulic system.

This is a manual system, not a power steering system. The effort required to turn the wheel will increase as the system is called on to exert more force on the rudder. At no time, should anyone expect this system to turn as easily as a car's power steering.

Check the level of hydraulic fluid in the helm regularly and replenish if necessary. All other maintenance should be performed by your dealer.

## **THROTTLE**

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### **CAUTION**

**CAUTION:** Acceleration at full throttle is not recommended for certain periods of the engine "break-in period." Refer to the engine owners manual for details.

The throttle controls the boat's speed and the direction the boat travels. If the throttle is in its center neutral position, the boat will not move forward or aft with the engine running. Moving the throttle forward from center moves the boat forward. Moving the throttle aft moves the boat backward. The speed at which the boat moves is directly related to how far the operator pushes the throttle.

**Note:** The throttle must be in its center neutral position before the engine will start. See your engine manufacturer's owner's manual for specific starting instructions.

## **CONTROLS**

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### **Steering**

Other than the common sense and good judgment of the operator, the steering system is the most important safety system on your boat. Factors requiring operator attention for safe steering include engine torque, trim tab settings, waves and speed.

### **POWER TRIM**

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The power trim system allows the operator to raise and lower the engine to adjust the drive angle while underway. It also allows the operator to raise and lower the engine for trailering, beaching, and operation in shallow water. Control your trim setting with the trim switch on the control handle. Section 5 discusses the importance of proper trim while operating your boat.

**Note:** Refer to your engine manufacturer's owner's manual for information concerning maintenance and operation.

### **STOVE**

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**Note:** Some boats may have an optional or standard butane stove. Please refer to your stove manual for proper usage, maintenance and caution statements.

**IMPORTANT:** *The operator's manual and safety instructions explain special safety precautions, maintenance, safety and proper operating procedures. Robalo Boats cannot overemphasize the importance of operating your stove safely. CAREFULLY READ and understand the instructions before operating the stove.*

### **WARNING**

**WARNING:** Stove flame consumes oxygen. Suffocation is possible. Ventilate cabin when using stove.

## **WARNING**

**WARNING:** Alcohol flame is invisible in sunlight. Fueling ignited burner can cause explosion. Do not light burner unless flame is extinguished and burner is cool. Carefully follow all instructions in stove owner's manual.

### **WATER HEATER**

The water heater, which runs on 120 or 220 volt AC power, has an ON/OFF switch at the main panel in the cabin area. A check valve in the water heater piping prevents hot water from washing back into the cold water source. A pressure relief valve prevents damage if pressure or temperature gets higher than safe settings. The thermostat on the water heater is preset and is not adjustable.

## **WARNING**

**WARNING:** Hydrogen gas may develop if you have not used heater for two weeks or more. Hydrogen gas is extremely flammable. Open hot water faucet at galley sink before you use any appliance connected to hot water system. Do not smoke or have open flame near open faucet.

**Note:** Refer to the water heater instruction manual for safety precautions and for detailed operation, maintenance, and winterizing instructions. In areas where frost is possible, the heater tank must be drained to prevent possible damage during winter storage.

Before turning on power to the water heater, be sure tank is full and water is covering the heating element. The heater tank must be kept full of water to avoid damage to the heating elements.

### **REFRIGERATOR**

The refrigerator/freezer is designed to operate on 120 or 220 volt AC and/or 12 volt DC power. When the 120 or 220 volt system is not operating, the refrigerator operates on 12 volts. A built-in relay automatically switches to the correct power. The AC control is an OFF/ON breaker switch at the main panel in the cabin. The unit also has a 10 amp direct current (DC) breaker on the battery switch panel in the engine compartment.

The power needed by the refrigerator exerts a continuous drain on the battery when it is powered by the 12 volt DC system. It can draw a 100 amp battery dead in a short period of time. To avoid excessive battery drain, keep the temperature control at a medium setting when air temperatures are in the 70° to 90° F range. If you plan an overnight trip and shore power is not available, run the generator or the engine occasionally to ensure your battery is charged.

**Note:** Refer to the refrigerator instruction manual for safety precautions and for detailed operation and maintenance instructions. The manual is in your owner's packet.

### **MICROWAVE OVEN (OPTIONAL)**

The microwave oven is controlled by an electronic touch control panel. The breaker at the main panel must be on in order to use the microwave. For a detailed description of the microwave oven features see the owner's manual supplied by the manufacturer.

## **CAUTION**

**CAUTION:** To reduce the risk of burns, electric shock, fire, injury to persons or exposure to excessive microwave energy, read ALL instructions before using the microwave oven. Be sure to secure turntable while underway to prevent damage to the unit.

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## BILGE PUMP

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The automatic electric bilge pump(s) removes water from the bilge area. If the pump motor runs but does not remove any water, the pump may be clogged. If there is no visible debris clogging the pump and water is still not being removed, check the discharge hose for kinks or obstruction. The bilge pump can also be operated in a manual mode by the switches on the main electrical panel.

**Note: The Federal Water Pollution Act prohibits the discharge of oil or oily waste into or upon the navigable waters and contiguous zones of the United States if such discharge causes a film or sheen upon, or discoloration of, the surface of the water, or causes a sludge or emulsion beneath the surface of the water. Violators are subject to a penalty.**

## RUNNING OR NAVIGATION LIGHTS

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If you operate your boat at night, the law requires you to turn your boat's running lights ON. Your Robalo boat has one white, one red (port), and one green (starboard) light. Check running lights periodically for proper operation. Check them before heading out after dusk.

There are various running light combinations for the types of vessels you may encounter while boating. You should learn to identify what these combinations are and the type of vessel they are associated with. Robalo recommends participation in a "safe boating" course to learn more about the various light combinations.

The running/navigation lights are controlled at the helm station by a three position rocker switch. This allows for selection of the mast (white) light ON when anchored or moored, or to have the mast (white), port (red) and starboard (green) lights all ON while underway.

## STEREO

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The stereo in your boat is equipped with an AM/FM radio and CD player. The stereo also has a digital clock and power antenna lead.

**Note: The above mentioned features may vary on some stereo models. See the manufacturer's owner's manual for detailed information about operation and complete list of features.**

This chapter discusses the operation of your boat from the beginning of a boating excursion to its end. We'd like to remind you to be kind to our environment while you're boating. Don't throw garbage and other refuse overboard. And do your best to keep harmful compounds like gasoline and antifreeze out of the water.

**Note:** The term "engine" in this chapter means one or two engines depending on how your boat is equipped.

**Note:** If your boat is equipped with a carbon monoxide detector, it should be tested to determine that it is functioning properly every time you use your boat.

## TRANSPORTING YOUR BOAT

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A correctly selected trailer supports your boat properly, makes towing safer, and makes unloading and loading in varying weather conditions easier.

**Important:** *Improper trailering is one of the major causes for damage to the hull. The warranty does not cover damage of this type.*

The type and size of the side supports, or pads, are very important. Side supports run lengthwise to the boat and parallel to the keel. Side supports should only be tight enough to keep the boat from leaning side to side. Any unnecessary pressure will damage the hull. Newer trailers have self-adjusting side supports and a bow pad that can be easily adjusted. These eliminate the need for manually adjusting side supports and keel rollers every time you load your boat. Your Robalo dealer can help you select the best trailer for your boat.

Inspect your trailer regularly to make sure the side supports are in good working condition. Check bolts securing rollers and supports from time to time to make sure they are tight.

The trailer should be designed and built to carry the full weight of your boat, engine, and gear while providing support for the hull. Be sure not to overload your trailer by loading the boat with excess baggage, camping equipment, etc. Check the certification label on the frame of the trailer. It is required to show the gross vehicle weight rating. Be sure the total weight of your boat, engine, fuel, gear, and trailer does not exceed this rating. Make sure your towing vehicle has a hitch appropriate for the rating.

Distributing the weight on the trailer is important. Place the heaviest items at the bottom of the boat over a roller or chock, and secure them to keep them from shifting.

Balancing the load on the trailer is also important. If too much weight rests on the hitch, the towing vehicle will oversteer, a condition that causes the front end of the vehicle to sway. Conversely, too little weight on the hitch causes the trailer to fishtail. In both cases, the vehicle will be difficult to handle and at higher speeds the swaying or fishtailing can become uncontrollable and result in personal injury and damage to the boat, trailer, or towing vehicle.

Weight on the hitch, or tongue weight, should be 5% to 10% of the total weight of the loaded trailer to avoid overloading the tow vehicle and to provide adequate pressure on the hitch ball. If the weight of the loaded trailer is 2000 pounds, the weight on the tongue should be between 100 and 200 pounds. A weight distributing hitch transfers portions of tongue weight to a point between the front and rear wheels of the towing vehicle and to the trailer wheels.

**Important:** *Bumper hitches are not safe and are illegal in many states.*

All trailers with a Gross Vehicle Weight Rating of 1500 pounds or greater are required by law to have brakes. (State laws may vary; be sure to check your state's requirements.) The brake system is usually completely self-contained on the trailer and no hook-up is required to

the towing vehicle. Brakes are either drum or disc type. They work the same way as the brakes on a standard passenger vehicle, but the method of applying the brakes is different. Your Robalo or trailer dealer can explain how the brakes on your trailer work.

Make sure your boat is secure before towing it.

- Close all windows, hatches, and doors.
- Store equipment to keep it from shifting or falling.
- Remove and store convertible top if your boat is so equipped.
- Use a second safety chain to secure your boat's bow to the trailer tongue. Tie down the stern to the trailer.



**WARNING:** Improper towing can result in an accident causing personal injury and equipment damage. Become familiar with towing instructions in owner's manuals and with warnings supplied with your trailer and towing vehicle.

Towing a boat requires extra caution by the vehicle's driver. Allow extra distance between vehicles. Obey speed limits. Some states have lower speed limits for vehicles with trailers. If you are traveling slower than other traffic, pull over when it is safe to do so and allow traffic to pass. As with all other aspects of owning and operating your boat, use common sense and good judgment.

If you do not have experience backing a trailer, practice before you get into a confined public or private launch site. Take your trailer to an open area and get accustomed to using it. If possible, take someone with you who knows how to back a trailer.

Steering a trailer while backing it up works the opposite of steering a car. If the trailer needs to go to the right, turn the steering wheel to

the left and vice versa. Inexperienced backers tend to turn the wheel too far. Do not oversteer. Turn the wheel gradually until you get the feel of safe backing.

## **LAUNCHING**

Here are some tips to remember when you are putting your Robalo boat in the water:

***Important: Before launching your boat, make sure the transom drain plug is installed. If it is not installed, the bilge could fill with water quickly.***

1. Before backing your boat onto the ramp:
  - Remove all tiedowns.
  - Store all loose gear properly.
  - Inventory your safety equipment.
  - Lock winch and trailer unit.
  - Tilt engine up to clear the ramp.
  - Disconnect trailer wiring from car to trailer.
2. Have someone at the ramp to give you directions. Back slowly down the ramp. Always remember to launch your boat at a right angle to the shore.
3. When the boat's transom is in several inches of water:
  - Stop towing vehicle with manual transmission in gear or automatic transmission in PARK. Remember to turn off engine and set the parking brake.
  - Disconnect launching cable.

- Attach bow line to the boat. To keep the boat from drifting away, the other end of the line needs to be held on shore.
- Move boat down the trailer and into the water.
- Tie boat to the pier.

4. Pull your vehicle away and park it.

**Important:** After each launching, monitor the bilge periodically to assure against abnormal water intake. Do not leave a new boat unattended for at least 8 hours after its initial launching. A forgotten plug, a loose through-hull fitting, or faulty valve can easily cause swamping.

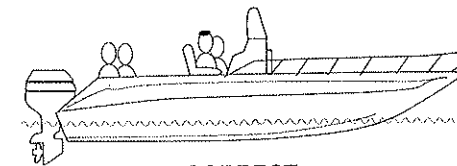
## LOADING YOUR BOAT

Larger pleasure boats remain stable under most operating conditions because of their beam, draft, and weight displacement. However, the U.S. Coast Guard does require that a capacity plate be affixed to all boats up to 20 feet long. This plate states the maximum load capacity. The plate shows persons and gear in pounds the boat will handle safely under normal conditions. The U.S. Coast Guard establishes these load capacity ratings. *Overloading and improper distribution of weight are significant causes of accidents. Keep weight below maximum limits for safety in turbulent water.*

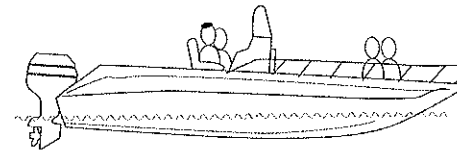
**Important:** The presence of the capacity plate does not relieve the boat operator from the responsibility of using common sense or sound judgement. Turbulent waters and adverse weather conditions reduce the maximum load capacity rating of the boat.

When loading your gear on board your boat, remember to distribute the load evenly, keep the load low and do not overload. Always step onto the boat, never jump! Have someone on the dock pass your gear aboard. Secure all gear firmly so that it will not move or interfere with operation of the boat.

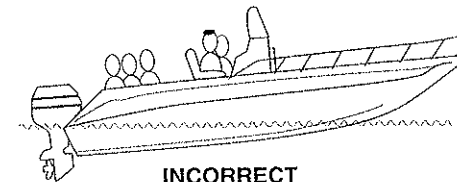
The way your passengers are seated and gear stowed in the boat affects your boat's performance. Passengers should board the boat one at a time and find a seat. Passengers should remain seated during loading of gear to maintain an even trim. Distribute your passengers and gear so that your boat is balanced side to side and front to rear (see Figure 5.1).



**CORRECT**  
Balanced load: gives maximum performance



**INCORRECT**  
Overload forward: causes boat to "plow"



**INCORRECT**  
Overload aft: causes boat to "porpoise"

**Figure 5.1 Boat Loading**

As the operator, you are responsible for the safety of your passengers.

- **Do not** allow passengers to ride on the bow with feet hanging over the side.
- **Do not** allow passengers to ride sitting on the stern or gunwales. Falling from moving boats is a major cause of fatal recreational boating accidents.

- **Do not** allow passengers to sit in the bow rider area (if so equipped) while underway if doing so will obscure the operator's vision.

A shift in passenger weight changes the planing angle of the hull or the thrust of the propeller. This has the same affect on the boat as if the angle of the drive unit were changed. Minor deficiencies in your boat's ride can be quickly corrected by shifting passengers or gear forward or aft. By taking a little extra time to carefully place such gear as coolers, water jugs, tackle box, anchor, and tools, you create a more desirable trim. On planing-type boats, utilize stern loading in order to slightly raise the bow.

## FUELING

Improper fueling procedures are the most common cause of boat fires.

### **DANGER**

**DANGER:** Fuel leaking from any part of the fuel system can lead to fire and explosion that can cause serious bodily injury or death. Inspect system before refueling.

### **WARNING**

**WARNING:** Do not smoke, extinguish all open flames, STOP engine and other devices that could cause sparks. Do not use electrical switches or accessories.

Before fueling your boat, check the entire fuel system for leaks. Check for weakening, hardening, swelling, or corrosion of fuel system components. These include the fuel tank, fuel lines and fittings, fuel filter, and carburetor. Any sign of leakage or deterioration requires immediate replacement before further engine operation.

### **WARNING**

**WARNING:** Fuels with alcohol or alcohol derivatives can lead to hazardous leaks, fire or explosion. Do not use this type of fuel.

Robalo Boats recommends using alcohol-free gasoline when possible because alcohol tends to destroy marine fuel system hoses and other components. If only gasoline containing alcohol is available or if you do not know whether the gasoline contains alcohol, inspect the fuel system for leaks and abnormalities more frequently.

### **DANGER**

**DANGER:** Fuel vapors are explosive and can become trapped within the lower portions of the boat. Close all hatches, windows, doors, and compartments while fueling your boat.

## Preliminary Procedures

1. Safely and securely moor your boat to the dock.
2. Turn off engine and all electrical equipment including lights, bilge pump, livewell, etc.
3. Extinguish all cigarettes, cigars, pipes, or other items that may produce a spark or flame.
4. Close all hatches, windows, doors, and compartments.
5. Make sure a fire extinguisher is readily available.

## Fueling Procedures

1. Always fuel in an area which has sufficient lighting. Gasoline spills are hard to see when lighting is poor or it is dark.

**Important:** When fueling or having someone else fuel your boat, be sure the waste or water fill caps are not mistaken for the fuel fill cap. Also, make sure a fishing rod holder is not mistaken for a fuel fill plate.

2. Your Robalo boat has fittings for filling the fuel tank. Remove fuel fill plate. Insert the fuel supply nozzle. Allow nozzle to stay in contact with fitting to prevent possible static-produced sparks.

**Note:** The fuel fill cap may have a built in tank ventilation feature. If you should need to replace the cap, see your dealer for the exact same cap to ensure proper fuel system operation.

3. After pumping approximately 5 gallons of fuel into tank, inspect bilge and fuel tank area for any signs of fuel leakage. Continue fueling if you do not detect any leaks or other problems.
4. Allow space at the top of the tank for thermal expansion. Do not overfill tank so that fuel comes out fuel tank vent.

**Note:** Do not over fill tank, causing fuel to spill onto water.

5. If fuel can not be pumped in at a reasonable rate, check for a plugged fuel vent plug or kink in the line.

## Post-Fueling Procedures

1. When you have finished fueling, replace fuel fill cap and wash off any fuel spillage around fuel fill area. Discard, in a safe place, any rags you may have used to wipe off fuel spills.
2. Open bilge compartment and all hatches, windows, doors and compartments closed during fueling. Inspect these areas for fuel fumes or fuel line leakage visually and by smelling. Check out any sign of fuel leakage or any indication of fumes and correct problem before starting the engine.

## OPERATING YOUR BOAT

### Starting the Engine

**Important:** Falls from moving boats are a major cause of fatal recreational boating accidents. Do not allow passengers to ride on the bow with feet hanging over the side or ride while sitting on the stern, gunwales, or seat backs. The Coast Guard considers these acts to be negligent or grossly negligent operation and prohibits them by law.



**DANGER: Carbon Monoxide Hazard!** A cold engine produces more carbon monoxide than a warm engine. Provide adequate ventilation in the cabin and cockpit to prevent exposure and reduce the possibility of carbon monoxide accumulation. Open all hatches, doors, windows, and side vents to increase air movement.

The following information is only a general guide. Chapter 3 has specific starting instructions for boats with battery selector switches. Detailed instructions are also in the engine owner's manual. Be sure to read and follow all of those instructions.

1. Secure boat to the dock or mooring slip before attempting to start engine. Keep boat secure until engine is running and warmed up.
2. Check lubricating fluid levels. Check fuel supply and outboard oil to make sure you have enough fuel for your planned excursion.
3. Make sure the throttle is in the neutral position.
4. Start the engine. Refer to your engine owner's manual for recommended procedures for break-in, service, and other related operation.



5. Turn ignition key to START, pressing choke if required. Release key and allow to return to RUN after engine starts. If engine fails to start, wait one minute. Move throttle only once to maximum position then back to the neutral position. Try to start engine again.

**Note:** Transmission must be in neutral position before engine will turn over.

**Important:** Do not operate starter continuously for more than 15 seconds without pausing. Allow starter to cool at least three minutes between start attempts.

6. Warm up a cold engine by running it at fast idle speed (as recommended in engine manual) approximately one to two minutes.

## Leaving the Dock

After the engine has warmed up, you are ready to leave the dock. Before you cast off, check all gauges for proper readings. Check the operation of the steering by turning the steering wheel to full port and to full starboard while observing engine movement. Check that charging system is working properly. Check again for fuel and oil leaks.

When you are sure your boat is ready, check wind, tide, current or other forces that will affect the way you maneuver your boat away from the dock. The cast off mooring lines and stow fenders.

Shift your boat's engine into forward or reverse depending on whether you want to move the bow or the stern away from the dock first. Move the throttle lever to neutral position. Then push forward quickly and firmly to shift into forward gear or backward to shift to reverse. Your engine should be running at a slow speed as you move away from the dock. If you move the bow out first, watch that the swim platform does not swing into the dock or a piling.

## Getting Up To Cruising Speed

After slowly motoring from the dock area to open water, you can safely accelerate to cruising speed. Advance throttle to setting which provides your desired engine speed (RPMs). As you move the throttle forward, engine RPMs increase, and your boat moves faster through the water.

**Important:** Acceleration at full throttle is not recommended during the engine "break-in period." This "break-in period" coincides with the engine "20-hour check-up." Do not attempt full throttle acceleration during the first 20 hours of operation.

When you throttle up and accelerate, your boat increases the trim angle and causes the boat to ride bow-high. From a maximum angle, the boat levels out to its planing attitude as you continue to accelerate. See Figure 5.2.

The maximum angle is commonly known as the "hump." You should get over the hump as quickly as possible because visibility, handling, and performance are limited until you do. Only a few seconds at full throttle should be needed; however, the way your boat is loaded, the wind, and sea conditions affect the time required. When the boat gets over the hump, it reaches its planing attitude. Then, accelerate until your boat reaches a comfortable plane and then throttle down to cruising speed. This also provides for better fuel efficiency.

When maneuvering at low speeds you can reverse (move throttle forward or aft) the shift mechanism. This will react in a braking action.

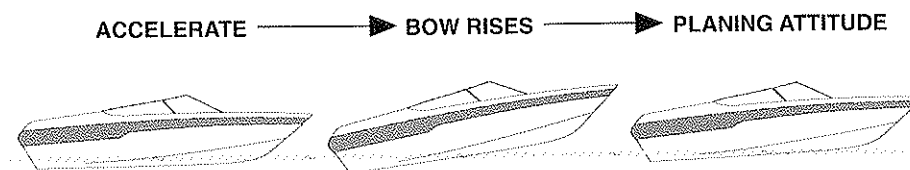


Figure 5.2 Boat Acceleration and Attitude

## CAUTION

**CAUTION:** When shifting between forward and reverse, always pause in neutral for a few seconds before reversing the rotation of the propeller. This will prevent unnecessary damage to the drive system.

## CAUTION

**CAUTION:** High speed acceleration in reverse can create a wake that could wash over the transom and flood the boat.

### Steering Your Boat

**Watch the stern when you turn!** Steering a boat can be compared to driving a car on slippery or icy pavement. **Be cautious always.** When you turn the wheel, the stern responds first by swinging out in the opposite direction of the bow. When you are trying to avoid an object in the water, this swing could turn out to be critical.

Always give yourself plenty of room to make a turn. You also should slow the speed of your boat while turning. Never make sharp, fast turns as this could cause loss of control. Remember that your passengers should be seated whenever you're underway.

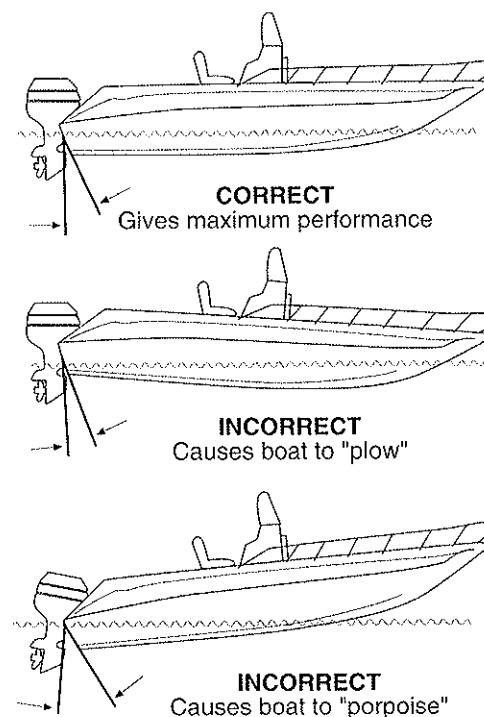
### Trimming Your Boat

Trim refers to the way a boat floats on the water. Your boat will work best when it is trimmed to run at an angle between 3 to 5 degrees to the water. You can trim your boat by shifting gear or passengers or, if your boat is so equipped, by adjusting the drive unit angle or the trim tabs.

### Power Trim

The operator can adjust his craft to the ideal boat angle for load and water conditions by trimming the engine (see Figure 5.3). The power trim system allows the operator to adjust the engine angle while underway by changing the angle of the engine in relation to the boat's transom. It also allows the operator to raise and lower the drive for trailering, beaching, launching, or operating in shallow water.

**Note:** Refer to your engine owner's manual regarding the operation of the power trim controls installed on your boat.



**Figure 5.3** Trimming the Drive Angle

## Drive Angle

The drive angle of the boat is the relationship between propeller thrust to the planing surface of the hull's bottom. You can improve the performance of the same boat under varying conditions by adjusting the drive angle.

Moving the drive unit angle towards its innermost adjustment brings the propeller in as close as possible to the transom. The angle of the propeller causes an upward thrust which pushes the boat's bow downward as shown on Figure 5.3.

By gradually shifting the drive unit from its innermost adjustment towards the outermost adjustment, the propeller thrust pushes in a downward motion. This motion, the opposite of that shown in Figure 5.3, tends to lift the bow.

After reaching plane, under certain load conditions, your boat could have a tendency to bury its forward V-ed section. The boat will begin to plow and lose speed. If the water is choppy the boat will yaw. A boat will spin out if its bow is excessively buried. The only way to correct this situation is to increase the angle and swing the drive unit outward.

If the drive unit is angled out too far, your loaded boat will be sluggish in coming to plane. Once on plane, your boat will tend to porpoise. To correct this motion, move the propeller inward to decrease the angle between the drive shaft and the transom.

## WARNING

**WARNING:** Excessive trim decreases maneuverability, changes steering characteristics, and may cause "porpoising" (bow oscillates up and down) or "chine walking" (rocking side to side). Use power trim with care.

Very often, the optimum drive unit angle setting for the highest speed while carrying a light load will be just short of the porpoise point. However, such a setting is unsuitable when you have a heavy load or are pulling skiers. By reducing the drive angle, you will find it easier to maneuver the boat and to pull skiers to the surface.

## Trim Tabs

Trim tabs also help the operator trim the boat. Trim tabs are mounted on the port and starboard transom below the water line. The operator can control the trim tabs at the helm with rocker switches. (See Figure 5.4.) Pushing the switch activates the system which moves its tab up or down.

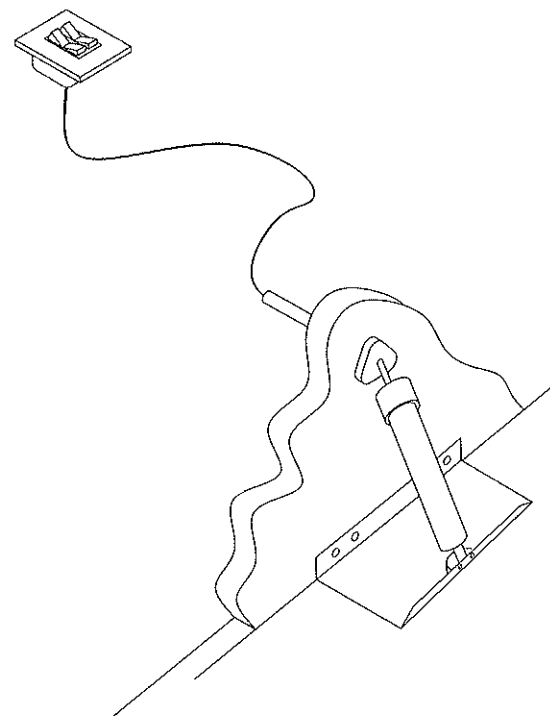
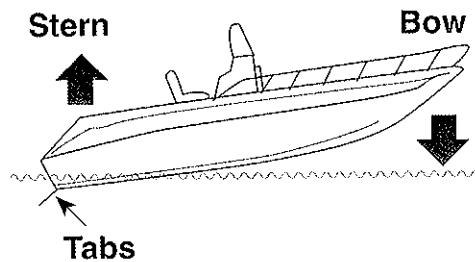


Figure 5.4 Trim Tab and Switch

If the trim tabs are angled down, they cut into the water as it passes under the hull to force the stern up and the bow down (see Figure 5.5). Trim tabs also compensate for uneven loads in the boat by allowing the operator to trim up one side of the boat or the other.

**Tabs extended, water passes under hull, hits tabs and forces stern up and bow down.**



**Figure 5.5 Trim Tab Operation**

## Stopping Your Boat



**WARNING:** Check behind you before coming OFF plane. Many accidents occur each year as a result of a driver coming off plane while being followed by a boat that is unable to slow down in time to avoid collision.

A boat has no brakes. Stop the boat by allowing it to slow down to less than 5 miles per hour and then putting the engine in reverse. Slowly increasing reverse power will allow you to stop the boat in a short distance. Remember that a boat does not respond to steering in reverse as well as it does when going forward.

## Additional Underway Information

- Always be aware of local laws on noise limits. Noise means engine noise, radio noise or even yelling by people on your boat. Good seamanship demands that you operate your boat quietly so as not to infringe on the rights of others.
- You are responsible for any damage or injury caused by your boat's wake. Observe no wake speed zone warnings. Operate your boat with regard for the safety of other boats and people in your boating area.
- Keep your engine well tuned to decrease exhaust hydrocarbon emissions that pollute the air and water.

## ANCHORING YOUR BOAT

Anchoring is necessary if you stop for recreation or an emergency. Practice anchoring techniques to make sure you know what to do when an emergency occurs. The size and weight of your boat govern the weight of the anchor and the diameter of the anchor line. Your Robalo dealer can help you select the proper anchoring equipment for your boat.

Use a burying anchor, such as a Danforth or plow anchor, which grips into the bottom and holds your boat secure. Holding power should be more important than weight. For anchoring in relatively quiet waters, you can use a mushroom anchor as an alternative.

The length of the anchor line should be six to eight times the depth of the water to ensure that the anchor bites into the bottom. The bottom end of the anchor line should be galvanized chain which holds up well as the line moves back and forth on the bottom. The rest of the line should be nylon anchor line which stretches to soften the impact of wind and waves on your boat.

Following are general guidelines for anchoring your boat:



**WARNING:** Keep anchor secure while underway to prevent damage or injury if boat's attitude changes suddenly. If your boat has a power winch, do not use it as the primary source for securing anchor or anchor line. See the power winch instruction manual for details about proper operation and maintenance.

- Secure the anchor line to the bow eye or deck cleat. Do not tie line to hardware not designed to support this stress.
- Use two or more anchors if anchoring overnight or extended periods of time. Otherwise, make sure your boat has enough space to swing full circle in case of shifting winds.
- Keep the anchor and line in an area where it will be readily available in an emergency.

## Dropping Anchor

1. Have a crew member carefully lower anchor, keeping a slight tension on the line as the anchor drops. Maintain tension after the anchor reaches the bottom. Simply throwing the anchor overboard usually fouls the line and requires starting over.
2. Maneuver the boat backwards slowly until the proper length of line is run out.
3. Fasten the anchor line around the bow eye or deck cleat. Anchor flukes should dig into bottom and hold boat in position.
4. Check shoreline landmarks at the time anchor is dropped and check again 30 minutes later. If position has changed, anchor is dragging and must be reset.

## Weighing Anchor

Weighing, or pulling in the anchor, requires moving the boat in the direction of the anchor and pulling in the anchor as the boat moves. For this reason, the engines should be running. When the line is vertical, pull up firmly on the anchor line to free the flukes from the bottom. If the anchor remains stuck, feed out a few feet of line and attach it to the bow cleat. Maneuver the boat around the anchor, keeping the line taut, until you find an angle that will pull the anchor free.

## Docking Your Boat

***Important: When operating or docking in close quarters, maneuver your boat at idle speed. Proceed with caution in congested areas.***

As you approach the dock or other mooring area, slow down your boat in time to allow your wake to subside before it reaches other boats or docks. As you get close to the dock, check for wind or currents, and allow them to carry the boat toward the dock if you can. When approaching, check that lines are attached to the cleats on the mooring side and that fenders are lowered on that side. Be sure fenders are at the proper height. If you can, have one person at the stern and one person at the bow, each with a boot hook and a mooring line attached to a cleat. Never approach a dock at a speed at which you would not want to bump the dock.

To dock a boat to the starboard side:

1. Approach at an angle approximately 45 degrees to the dock.
2. When the bow is within a few feet of the dock, bring the stern alongside the dock by turning hard to port.
3. Turn to starboard and, at idle speed, put the engine in reverse to bring the stern closer to the dock.

Reverse these steps to dock to the port side.

## MOORING YOUR BOAT

When attaching mooring lines to deck cleats on your boat, make a loop in one end of the mooring line. Then, pass it through the hole in the base of the deck cleat. Next, pass the loop back over the deck cleat. The mooring line can now safely be used to secure your boat. Mooring lines may remain attached to the cleats on your boat while underway. The lines must be coiled and placed where they cannot get tangled in deck gear or the propellers.

When you tie up, run the mooring line from your boat around the dock cleat and then back to your boat. This enables you to untie the mooring line without leaving your boat. Just throw off one end of the mooring line and then bring the entire length of mooring line back into the boat. (See Figure 5.6.)

## SHUTTING DOWN THE ENGINE

Following are general instructions for engine shutdown. Refer to your engine owner's manual for specific instructions.

1. Allow engine to idle so engine cools gradually.
2. Turn engine off.

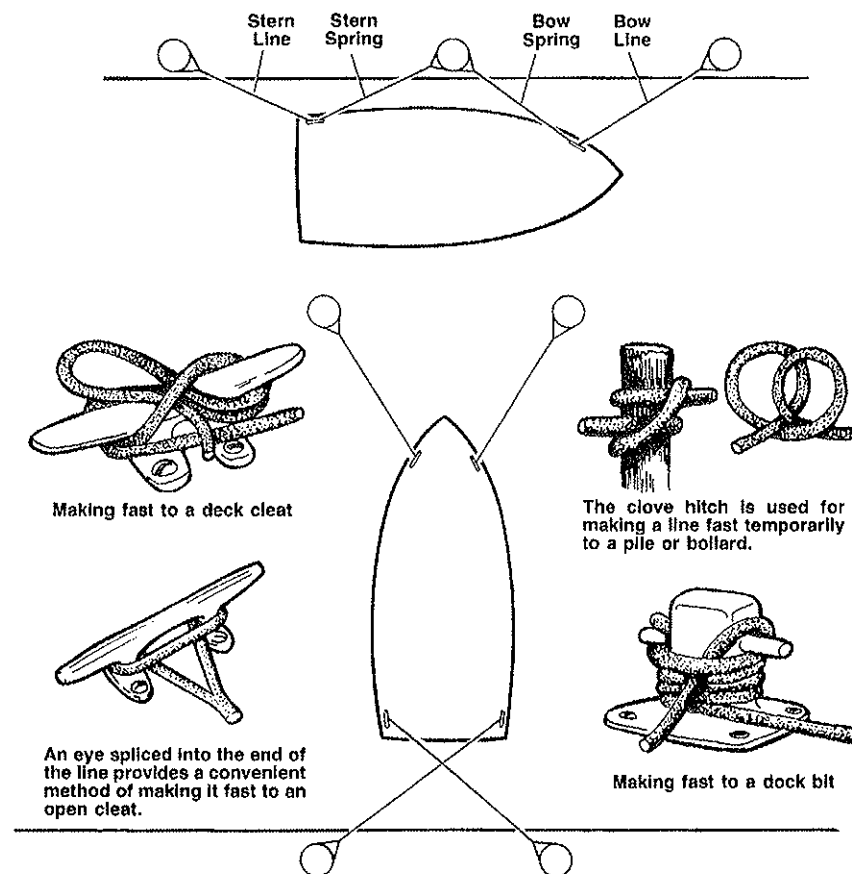


Figure 5.6 Mooring Lines

**Note:** Manila rope, the standard for many years is not as strong as some ropes made of synthetic materials. For mooring, its ability to stretch is an advantage, but it tends to shrink whenever it gets wet. Nylon rope is strong and elastic. Because of its elasticity, it works well for mooring lines and anchor lines. Rope made of high tensile strength polyester fibers like Dacron™ is just about as strong as nylon rope, but it does not stretch. Kevlar rope is strong and does not stretch, but it is quite expensive. Polypropylene rope tends to deteriorate rapidly when it is exposed to sun light. Because it floats, it is well-suited for use as a tow rope for water skiing. Use for other nautical purposes is not recommended.

Do not attempt any repairs on your boat unless qualified to do so. Only use approved marine replacement parts available from your Robalo dealer. Robalo recommends having an authorized Robalo dealer do your maintenance and repair work. Your dealer is qualified to make repairs or modifications to your boat in such a manner as to not compromise safety, design integrity, or warranty coverage. This chapter includes information you can use to do general maintenance and repair. If you choose to do your boat's maintenance and repairs, always refer to the product manuals for detailed information.

## ENGINE

Refer to the engine owner's manual for detailed information about engine maintenance and repair. That manual has a maintenance and service schedule for the engine on your boat.

### Checking the Oil (On 4-Stroke Models)

**NOTE:** During the engine 10-hour break-in period, or as recommended by the engine manufacturer, Robalo recommends that you check the oil level every two hours.

To check the oil:

1. Make sure boat is in the water and engine is stopped.
2. Put the outboard motor in an upright position (not tilted).
3. If engine is warm, let it cool for ten minutes to allow oil to drain back into the engine oil pan. This will make the check more accurate.
4. Pull engine oil dipstick out of its sleeve, wipe clean, and push dipstick back into the sleeve. Make certain the dipstick is pushed all the way back in.

5. Pull dipstick out again and check oil level on dipstick. The oil level must be between the ADD and FULL marks on the dipstick.
6. If oil level is at or below the ADD mark you must add oil.
7. Push dipstick back down into the sleeve. Be sure it is all the way in and properly seated.

### Adding Oil

To add oil:

1. Remove oil fill cap.
2. Add oil as required to raise the oil level up between the ADD and FULL marks on the dipstick. Do not overfill.
3. Check oil level after adding oil.

**NOTE:** Robalo Boats recommends that you use a funnel when you add oil to prevent spillage and to help keep your engine free of surface grime and dirt.

**Important:** *The Federal Water Pollution Control Act prohibits the discharge of oil or oily waste into or upon the navigable waters of the United States or the waters of the contiguous zone if such discharge causes a film or sheen upon or a discoloration of the surface of the water or causes a sludge or emulsion beneath the surface of the water. Violators are subject to a penalty.*

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## Fuel Filter



**WARNING:** Gasoline vapor explodes easily. Explosion is likely to cause fire and may burn you and damage your boat. Always STOP engine and do not smoke or allow open flames in area when changing filter.

Refer to your engine owner's manual for detailed information about checking and maintaining the fuel filter.

The engine exhaust system removes harmful gas created by the engine during combustion. Inspect the system for leaks before each use of the boat. Make sure all hose clamps and connections are tight and there are no cracks in any exhaust system component that would allow carbon monoxide gases to escape.

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## TUNE-UP

Tune-ups at recommended intervals keep your engine in top-notch operating condition and help assure the highest possible performance from your engine.

Refer to your engine owner's manual for detailed information.

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## FUEL SYSTEM

This information describes the fuel system excluding the engine. The fuel system provides a clean, continuous supply of fuel to the engine, in addition to helping prevent possible fire and explosion. All fuel systems installed at the Robalo factory meet federal requirements.

**Note:** Refer to your engine owner's manual for detailed information about checking and maintaining the fuel system.

The fuel system must be inspected frequently and maintained regularly. Check for leaks and/or vapors and repair any problems **immediately**. Keep fuel tank filled during the boating season to prevent moisture from condensing in the tank.

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## MONTHLY INSPECTION

**Note:** A trained marine mechanic should replace parts or repair the fuel system. See your Robalo dealer for parts and repair.

1. Starting at the fuel tank, check the entire fuel system for leaks or vapors.
2. Check fuel lines and hoses for wear, kinks, cracks, or deterioration.
3. Inspect fuel line fittings, carburetor, and fuel pump to make sure mounting brackets are tight.
4. Check fuel ventilation ducts and clamps for wear or damage.
5. Check fuel tank vent screens (located outside of hull) for any obstruction.

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## LOWER DRIVE UNIT (O/B)

Refer to the engine owner's manual for recommended frequency for checking drive unit and its oil.



**CAUTION:** Hot oil in operating drive unit can burn you. Do not remove oil vent plug immediately after using boat. Hot oil expands and flows rapidly from vent plug opening if oil vent plug is removed.



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## PROPELLER

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**NOTE:** Refer to the propeller manufacturer's manual for installation, removal, and further detailed information.

The propeller shipped with your boat is the size Robalo recommends for the best overall performance. However, factors such as altitude, temperature, load, bottom growth, and propeller condition can affect your boat's performance. Consult your Robalo dealer regarding your specific performance requirements.

Periodically check propeller for excessive wear and damage. Repair or replace, if required.

### Steering System

Your boat has a hydraulic steering system, it needs periodic maintenance to be trouble free and safe. Regular checks of the complete system are essential.

Lubricate, inspect, and maintain system regularly.

1. Rinse off your steering cylinder thoroughly with fresh, clean water after each use.
2. Remove, clean and grease the support rod annually with quality marine grease.
3. Check the steering fluid level in the helm.
4. Replace any hoses showing signs of wear and remove the cause or re-route hoses.
5. Check fittings and seal locations for leaks, damage, and service as necessary

Consult your Robalo dealer regarding all repairs or replacement parts.

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## BILGE

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### Inspection

Check the bilge before you use your boat—every time! A small amount of water in the bilge is normal and not a cause for concern. If the amount of water is excessive, check for water leaks. Repair leaks immediately.

If the bilge is ever filled with fuel or oil, check engine, hoses, fuel tank(s), etc. for leaks. Repair immediately.

***Important: Pumping fuel or oil overboard into the water violates the Federal Clean Water Act. Pump into suitable container and dispose of properly.***

### Cleaning

Run bilge until pump is dry. Remove all sand, silt, dirt, or foreign material. Make sure all limber holes are open and strainers are clean. Use bilge cleaner to remove any obvious oil stains.



**WARNING:** Gasoline or vapors in bilge can explode. Remove all sources of ignition. Do not start engine, repair immediately.

***Important: Never use any flammable solvents for cleaning the bilge. Check with your Robalo dealer for recommended cleaners.***

# TROUBLESHOOTING

7

The troubleshooting procedures listed in this chapter are designed to correct minor malfunctions for engine performance issues. Troubleshooting is a process of elimination. The troubleshooting chart displays areas that could be at fault and are presented in the order of probable occurrence.

Use good common sense and always refer to the manufacturer's Engine Owner/Service Manual. If the malfunction(s) appears too complicated or unsafe, contact your Robalo dealer. If underway, and contacting your Robalo dealer is not practical, contact the local marina for information regarding available marine mechanic service.

## CAUTION


**CAUTION:** Disconnect battery cables before performing all inspections, checks, and repairs to avoid possible personal injury and damage to equipment.

PROBLEM	CAUSE	SOLUTION
Engine will not crank (Ignition system)	<ol style="list-style-type: none"><li>1. Ignition fuse tripped</li><li>2. Neutral safety switch not making proper contact</li><li>3. Throttle lever in wrong position</li><li>4. Loose wire in starting circuit</li><li>5. Ignition switch defective</li><li>6. Defective solenoid</li><li>7. Dead battery</li><li>8. Spark plug(s) fouled or broken</li><li>9. Battery switch in wrong position</li></ol>	<ol style="list-style-type: none"><li>1. Replace fuse on engine.</li><li>2. Have your Robalo dealer inspect throttle assembly.</li><li>3. Check position of throttle lever, ensure it's in the "neutral" position.</li><li>4. Tighten all wiring connections.</li><li>5. Test switch continuity. Replace switch as required.</li><li>6. Replace solenoid.</li><li>7. Recharge or replace battery.</li><li>8. Clean, adjust gap, or replace.</li><li>9. Turn selector switch to battery on position.</li></ol>

PROBLEM	CAUSE	SOLUTION
Engine will not crank (Ignition system) cont.	10. Hydrostatic lock	10. Remove spark plugs and crank engine. If engine cranks, it indicates that water is getting into the cylinders from the exhaust system or from a possible gasket leak. If water gets into the engine through the exhaust line, it indicates improper draining of exhaust system. Contact your Robalo dealer or a qualified marine mechanic to correct problem.
Engine cranks but will not start (Fuel system)	<ol style="list-style-type: none"> <li>1. Lack of fuel</li> <li>2. Improper starting procedure</li> <li>3. Clogged fuel filter</li> <li>4. No fuel reaching carburetor (providing all fuel valves are open)</li> <li>5. Engine flooded</li> <li>6. Contaminated fuel</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean fuel filter, check fuel level; check anti-syphon valve, if equipped.</li> <li>2. See Engine Owner/Service Manual to review starting procedure.</li> <li>3. Check and replace fuel filter.</li> <li>4. Check fuel pump, fuel pump filter, carburetor fuel filter, and fuel tank line for cracked flanges or restricted fittings.</li> <li>5. Do not attempt to start engine for at least 5 minutes. For hot engine, fully advance throttle, (make sure throttle lever is in neutral) and crank engine.</li> <li>6. Inspect for water or other contaminants in fuel. If contaminated, drain tank and flush with fresh fuel.</li> </ol>
Low cranking speed	<ol style="list-style-type: none"> <li>1. Loose or dirty electrical connections or damaged wiring</li> <li>2. Bad battery</li> <li>3. Engine oil too heavy for prevailing temperatures</li> </ol>	<ol style="list-style-type: none"> <li>1. Check all related electrical connections and wires.</li> <li>2. Test battery (See Engine Owner/Service Manual).</li> <li>3. Drain oil and refill with correct grade and viscosity oil (See Engine Owner/Service Manual).</li> </ol>

PROBLEM	CAUSE	SOLUTION
Starter will not crank engine(s)	<ol style="list-style-type: none"> <li>1. Discharged battery</li> <li>2. Corroded battery cables</li> <li>3. Loose connection in starting circuit</li> <li>4. Defective starter switch</li> <li>5. Starter motor brushes dirty</li> <li>6. Jammed "starter drive"</li> </ol>	<ol style="list-style-type: none"> <li>1. Charge battery.</li> <li>2. Clean battery terminals.</li> <li>3. Check and tighten all connections.</li> <li>4. Replace switch.</li> <li>5. Clean or replace brushes.</li> <li>6. Loosen starter motor, then free stuck gear.</li> </ol>
Poor acceleration	<ol style="list-style-type: none"> <li>1. Accelerating pump</li> <li>2. Throttle not fully open</li> <li>3. Ignition or carburizing</li> <li>4. Air intake obstructed</li> <li>5. Engine overheating</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace.</li> <li>2. Inspect cable and linkages for binding, obstructions, or loose fasteners.</li> <li>3. Service ignition system and carburetor.</li> <li>4. Check air intake.</li> <li>5. Check engine temperature (See Engine Owner/Service Manual).</li> </ol>
Engine runs but misfiring	<ol style="list-style-type: none"> <li>1. Improper timing</li> <li>2. Fouled spark plug(s)</li> <li>3. Wet spark plug wires</li> <li>4. Loose ignition wires</li> <li>5. Defective fuel pump</li> <li>6. Partially clogged fuel filter</li> <li>7. Incorrect carburetor mixture</li> <li>8. Contaminated fuel</li> </ol>	<ol style="list-style-type: none"> <li>1. Check timing and adjust as required (See Engine Owner/Service Manual).</li> <li>2. Remove, clean, or replace.</li> <li>3. Wipe dry, inspect and replace damaged wires.</li> <li>4. Inspect all wire connections.</li> <li>5. Repair or replace as required.</li> <li>6. Clean or replace fuel filter.</li> <li>7. See Engine Owner/Service Manual for proper carburetor adjustment.</li> <li>8. Drain fuel tank, flush clean and replace fuel filter.</li> </ol>
Excessive fuel consumption	<ol style="list-style-type: none"> <li>1. Faulty fuel pump</li> <li>2. Spark plugs bad or set improperly</li> <li>3. Incorrect timing</li> <li>4. Choke not properly adjusted</li> <li>5. Float level too high</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair or replace as required.</li> <li>2. Clean and set or replace spark plugs</li> <li>3. Time engine.</li> <li>4. Adjust choke as required.</li> <li>5. Reset float level as required (See Engine Owner/Service Manual).</li> </ol>

PROBLEM	CAUSE	SOLUTION
Blue exhaust smoke	<ol style="list-style-type: none"> <li>1. Lube level too high</li> <li>2. Oil too thin</li> <li>3. Oil overheated</li> </ol>	<ol style="list-style-type: none"> <li>1. Drain off excessive oil.</li> <li>2. Drain and replace oil (See Engine Owner/Service Manual).</li> <li>3. Check cooling system.</li> </ol>
Black or Gray exhaust smoke	<ol style="list-style-type: none"> <li>1. Fuel mixture too rich</li> <li>2. Choke stuck</li> <li>3. Poor carburetor setting</li> <li>4. Carburetor fuel level too high</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust carburetor.</li> <li>2. Lubricate and adjust.</li> <li>3. Readjust carburetor (See Engine Owner/Service Manual).</li> <li>4. Adjust float in carburetor.</li> </ol>
White exhaust smoke	<ol style="list-style-type: none"> <li>1. Engine misfiring</li> <li>2. Spark plugs dirty or not gapped correctly</li> </ol>	<ol style="list-style-type: none"> <li>1. See Engine Owner/Service Manual.</li> <li>2. Clean, adjust gap, or replace.</li> </ol>
Low oil pressure	<ol style="list-style-type: none"> <li>1. Insufficient oil in crankcase</li> <li>2. Excessive oil in crankcase</li> <li>3. Diluted or improper grade and viscosity oil</li> <li>4. Oil leak in pressure line</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and add correct grade and viscosity oil. Visually check engine for leaks.</li> <li>2. Check and remove required amount of oil. Check for cause of excessive oil (improper filling, bad fuel pump, etc.).</li> <li>3. Change oil and oil filter; be sure to use the correct grade and viscosity oil.</li> <li>4. Inspect all oil lines and tighten all connections as necessary.</li> </ol>
No oil pressure	<ol style="list-style-type: none"> <li>1. Defective gauge, gauge tube, or oil line</li> <li>2. No oil in engine</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace gauge, or tube, and tighten or replace line as necessary.</li> <li>2. Fill with proper grade and viscosity oil (See Engine Owner/Service Manual).</li> </ol>
High oil pressure	<ol style="list-style-type: none"> <li>1. Too heavy grade of oil</li> <li>2. Dirt or obstruction in oil line</li> </ol>	<ol style="list-style-type: none"> <li>1. Drain oil and replace with proper grade (See Engine Owner/Service Manual).</li> <li>2. Drain and clear oil system. Check for bent or flattened oil lines and replace as required.</li> </ol>

PROBLEM	CAUSE	SOLUTION
Knocking or pinging	<ol style="list-style-type: none"> <li>1. Incorrect type fuel</li> <li>2. Incorrect timing</li> <li>3. Pre-ignition</li> <li>4. Overheated engine</li> <li>5. Cooling system trouble</li> </ol>	<ol style="list-style-type: none"> <li>1. Drain tank and replace with proper fuel.</li> <li>2. Time engine (See Engine Owner/Service Manual).</li> <li>3. Clean or replace spark plugs; check engine timing.</li> <li>4. Check engine cooling system.</li> <li>5. Check water intake for blockage.</li> </ol>
Rough running	<ol style="list-style-type: none"> <li>1. Choke not operating</li> <li>2. Faulty fuel pump</li> <li>3. Idle speed too low</li> <li>4. Faulty ignition system components</li> <li>5. Clogged fuel filter</li> <li>6. Contaminated fuel</li> <li>7. Kinked or clogged fuel lines, or fuel tank vent line</li> <li>8. Air intake obstructed</li> </ol>	<ol style="list-style-type: none"> <li>1. Check choke linkages for binding or obstruction.</li> <li>2. Refer to Engine Owner/Service Manual for fuel pump testing procedures.</li> <li>3. Check idle speed and adjust.</li> <li>4. Service ignition system (See Engine Owner/Service Manual).</li> <li>5. Replace fuel filter.</li> <li>6. Inspect fuel for water or other contaminants. If contaminated, drain tank and flush with fresh fuel.</li> <li>7. Use compressed air, at not more than 20 psi, to blow-out obstruction. Replace line if kinked.</li> <li>8. Check air intake.</li> </ol> <div data-bbox="1493 1005 1902 1109" style="border: 1px solid black; padding: 5px; margin: 10px 0;">  <b>WARNING</b> </div> <p><b>WARNING:</b> Wear protective eye wear when performing compressed air cleaning.</p>

PROBLEM	CAUSE	SOLUTION
Engine overheating	<ol style="list-style-type: none"> <li>1. Bad sending or receiving unit</li> <li>2. Loose wiring connections at sending or receiving unit</li> <li>3. Worn or broken impeller in sea water pump</li> <li>4. Clogged oil cooler</li> <li>5. Exhaust lines plugged</li> <li>6. Ignition timing late</li> <li>7. Choke valve stuck closed</li> <li>8. Restricted water intake</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace unit(s).</li> <li>2. Tighten all connections.</li> <li>3. Replace impeller.</li> <li>4. Remove obstruction.</li> <li>5. Remove obstruction.</li> <li>6. Time engine.</li> <li>7. Free choke valve movement.</li> <li>8. Clean water intake.</li> </ol>
Sludge in oil	<ol style="list-style-type: none"> <li>1. Infrequent oil changes</li> <li>2. Dirty oil filter</li> </ol>	<ol style="list-style-type: none"> <li>1. Drain and refill with proper grade and viscosity oil.</li> <li>2. Replace oil filter.</li> </ol>
Poor Performance	<ol style="list-style-type: none"> <li>1. Damaged or improper propeller</li> <li>2. Excessive water in bilge area</li> <li>3. Boat overloaded or improper distribution of load</li> <li>4. Fouled or damaged hull bottom</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect propeller and replace if required.</li> <li>2. Pump out bilge area. Inspect for causes related to excess water.</li> <li>3. Reduce load or redistribute load.</li> <li>4. Inspect, clean, or repair as required.</li> </ol>
Vibration	<ol style="list-style-type: none"> <li>1. Loose engine mounting bolts</li> <li>2. Damaged propeller shaft</li> <li>3. Propeller bent or pitch out of true</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect and tighten as required.</li> <li>2. Replace shaft.</li> <li>3. Inspect propeller and replace as required.</li> </ol>

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# INTERIOR AND EXTERIOR CARE

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The following information will help you keep the interior and exterior of your boat in tip-top shape. If you need more specific information, contact your Robalo dealer.

**Note:** Before you use a particular cleaning solution or method, test the material to be cleaned in a hidden or inconspicuous area for possible adverse reactions. Use cleaning agents sparingly. Never discharge cleaning solutions into the waterways. Do not use products containing phosphates, chlorine, solvents, or nonbiodegradable or petroleum based products.

## FIBERGLASS AND GELCOAT

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The hull and deck are made of fiberglass. The outer layer of the hull and deck is a color pigmented polyester resin, called gelcoat. Gelcoat is highly resistant to scratches that occur during normal boat use. Nevertheless, during the life of your boat, some damage to the gelcoat is bound to occur.

### Gelcoat Maintenance

To remove and prevent the buildup of most salt, soil, and grime, clean the hull and deck regularly with household detergent and water.

**Note:** Make sure household detergent does not contain ammonia or chlorine. Because ammoniate or abrasive cleaners dull and discolor the gelcoat surface, they are not recommended for routine maintenance.

Gelcoat surfaces are very resistant to deep stains. To remove minor stains, wash the affected area with a soft cloth and household detergent. Then rinse thoroughly with clear water. If deep stains do occur, use a special fiberglass cleaner and stain remover.

Waxing the gelcoat surface regularly will help prevent soiling and preserve its luster. Robalo recommends a fiberglass wax that fills the gelcoat pores. Chemicals in fiberglass wax screen out harmful ultraviolet rays that cause fading of the gelcoat color.



**CAUTION:** Waxed gelcoat is slippery. Falls causing bodily injury or falls overboard are possible. Never wax deck surfaces that require sure footing.

## Repairing Gelcoat Damage

### Minor Scratches

Repair minor scratches with automotive rubbing compound or polishing wax. Follow the manufacturer's instructions. Although the scratches may not disappear completely, they should not be as noticeable. Apply rubbing compound or polishing wax to a damp, soft cloth. Rub the gelcoat surface with the damp, soft cloth in a circular motion.

### Chips, Hairline Cracks, and Small Patches

Your Robalo dealer has qualified personnel capable of making this type of repair.

Robalo uses the finest gelcoats and resins available to prevent gelcoat crazing and hairline cracks. Over time your boat *may* develop slight hairline cracks in the outermost gelcoat layer. These usually do not damage the structure of your boat or affect its integrity.



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## HULL BOTTOM MAINTENANCE

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If your boat will be in water continuously for the majority of the boating season, Robalo recommends sealing the hull bottom with a high quality barrier coating. Repairing water blister damage is not covered under the Robalo Boat Warranty. Your Robalo dealer can recommend the best barrier coating product for your boat.

Never use wire brushes, scouring pads, or other abrasive materials or solutions on the bottom surface of your boat. They cause small scratch marks that will collect dirt, silt, sand, marine growth and other foreign materials.

Keep the hull bottom of your boat clean. Checking it regularly for any signs of excessive wear or damage. Make needed repairs to the hull bottom as soon as possible. Accumulation of natural coatings from water and marine growth can create drag and limit the efficiency of your boat.

### BOTTOM PAINT (ANTI-FOULING)

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***Important: Consult your Robalo dealer for recommended bottom paints and local laws that govern your area. Many states regulate the chemical content of bottom paints to meet environmental standards and regulations.***

Anti-fouling bottom paint is designed to prevent marine growth by dissolving slowly. As a result, the bottom of your boat will usually need painting after the boating season. Some variables to consider when selecting a protective bottom paint are the water temperature, water pollution, salinity, current, and organic matter in the water. To protect and repaint the boat bottom, perform the following:

- Remove boat from water once a year. Scrub bottom with a soap and water solution and a bristled brush.

**Note: Repainting the bottom is not necessary each time the bottom is scrubbed, as long as no bare areas are visible in the bottom paint.**

- Sand entire bottom surface of the boat.
- Fair (smooth out) all rough areas as required.
- Clean bottom surface to remove all dust and foreign materials.
- Make sure bottom surface is completely dry.
- Apply new coat of bottom paint.

Allow new bottom paint to dry 24 to 36 hours. Never attempt to haul, paint, and launch on the same day.

## DECK HARDWARE AND FITTINGS

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**Note: Always follow the manufacturer's recommendations (found in your owner's packet) for cleaning and maintaining deck hardware and fittings. These recommendations include the proper cleaning methods and cleaning agents.**

### Inspection

Inspect hardware and fittings to make sure they are tight. All screws, bolts, clamps, cleats, etc., should be secure.

### Cleaning and Care

- Always clean stainless steel frequently with soap and water. Any cleaner safe for glass is usually safe for stainless steel.
- Always remove rust spots as soon as possible with a brass, silver, or chrome cleaner. Irreversible pitting will develop under rust that remains on stainless steel for any period of time.
- Always use a cleaner, like a good car wax, for added beauty and protection.
- Never use coarse abrasives like sandpaper or steel wool on stainless steel. These may actually cause rusting.

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- Never clean with mineral acids or bleaches.
  - Never leave stainless steel in contact with iron, steel, or other metals which cause contamination leading to rust or corrosion.

## **WINDSHIELD AND PORTHOLES**

Clean windshield safety glass with a glass cleaner or ammonia water; then rinse with plenty of clear water.

***Important: Solvents can penetrate glass or porthole surfaces and cause hazing. Hazing obstructs visibility. Never use acetone, benzine, carbon tetrachloride, lacquer thinner, or similar solvents to clean glass or portholes.***

The canvas or weather covering windows are made of a synthetic material. Wash any Plexiglass, clear vinyl or other synthetic materials with a mild detergent or dishwashing liquid and water solution, then rinse with plenty of clear water.

When stowing plastic or vinyl windows, be sure they are dry. Make sure the vinyl is rolled and not folded or creased. Store them in a bag that will breathe.

## **CARPET**

After a boating excursion, allow carpet to dry completely in the sun to prevent mildew.

Vacuum carpeting frequently. Clean up spills as quickly as possible. Remove spots before they dry. Clean indoor/outdoor carpet with a mild detergent or dishwashing liquid and warm water solution and a scrub brush. After cleaning, thoroughly rinse carpet with clear water. Your owner's packet has more detailed information provided by the manufacturer. Follow the manufacturer's recommendations for cleaning and stain removal.

## **SEAT COVERINGS AND VINYL**

Because seat coverings and trim are made of expandable vinyl, extreme temperatures have little effect on them.

**Note: Follow the manufacturer's recommendations (found in your owner's packet) for cleaning and seat covering and removing stains. These recommendations include the proper cleaning methods and cleaning agents.**

### **Care**

Place removable exterior cushions inside the boat when they are not in use.

### **Cleaning**

Remove stains as soon as possible to eliminate any possible reaction between the staining agent and the vinyl. Wipe away dirt and smudges with mild soap and warm water. If additional cleaning is required, scrub with a soft bristle brush to remove dirt from textured patterns. Dry with a soft, lint-free cloth or towel.

For more difficult stains, use a stronger detergent. Follow manufacturer's instructions closely. Never use steel wool or powdered abrasive cleaners. They will mar the surface and leave an unsightly appearance.

To store cushions onboard boat for winter or extended periods of time, open zippers and elevate cover away from foam padding. Place a small rounded object (for example, a plastic bowl) inside to allow for air circulation.

## **CANVAS (WEATHER COVERINGS)**

The canvas, or weather coverings, are 100% acrylic yarn. Besides its resistance to mildew, rot and weather, canvas also resists industrial pollutants and the effects of ultraviolet light from the sun.

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## Care

- Keep the top up when boat is not in use or when it's raining. Never trailer your boat with the canvas up. None of the canvas or covers supplied with your boat were designed for the stress of highway speed trailering, and to do so may damage the canvas.
- Keep canvas clean. Acrylic fabric will not support mildew growth, but dirt and dust on the canvas will.
- Lubricate zippers with paraffin and snaps with petroleum jelly.
- If canvas or seams leak, apply a light coating of a fluorocarbon based water repellent, or "303 High Tech Fabric Guard," available at most marine dealers.
- Allow all canvas to air dry before storing. Never store canvas damp or wet. Provide proper ventilation to limit the possibility of mildew.
- Avoid mooring under trees.
- Do not tow your boat with the top in the raised position.
- Be careful not to scratch clear vinyl windows. Dry well before stowing. When stowing clear vinyl, make sure the vinyl is rolled and not creased.

## Cleaning

- Wet down all canvas material. Scrub with a soft bristle brush and a solution of mild soap and water. Never use a detergent or bleach on your canvas.
- Brush or sweep the underside of the top. Spray with Lysol or other disinfectant to prevent mildew.

## CABIN CUSHIONS, SIDE CURTAINS, AND FABRICS

Clean interior cabin cushions with a foam type cleaner. Follow all instructions as recommended by the product manufacturer. Dry clean All side curtains & fabrics, other than vinyl.

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# WINTERIZING AND STORAGE

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This chapter tells you how to winterize and store your Robalo boat in regions where temperatures fall below freezing. If you keep your boat in an area not requiring winter storage, Robalo recommends you perform an annual inspection, similar to the preparation for storage as indicated in this chapter. With proper care, you will have many years of enjoyable boating with your Robalo boat.

## LIFTING THE BOAT

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**WARNING:** Lift slings may slip on the hull and result in serious injury or death from dropped load. Exercise extreme caution if in the vicinity of such activity. If possible, slings should be tied together before lifting.

Unless your boat is trailerable, have your dealer or qualified marina personnel lift your boat out of the water for you. Each boat has main frame components designed to support the boat when it is being lifted out of the water. Severe gelcoat crazing or more serious hull damage can occur if the lifting slings exert pressure on the gunwales. Flat, wide belting-type slings should be used. Don't use cable-type slings. The spreader bar at each sling should be as long as the distance across the widest point the sling surrounds.

- Never hoist the boat with more than a minimal amount of water in the bilge.
- Before lifting the boat, empty fuel and water tanks, especially if they have large capacities.
- Do not use deck cleats or bow or stern eyes for lifting the boat.

- Be sure boat remains level while being lifted to avoid sling movement or boat damage.
- If using any boat lifting device other than slings, position lifting device so as not to put pressure on any underwater hull component including trim tabs.

## Cradle

A cradle is the ideal support for your boat whenever it is not in the water. Properly designed and located, the cradle will support the boat under the main frames. Support at these points is essential for preventing damage to the hull. Purchase a cradle from your dealer to ensure that your boat has the correct support.

## DRY STORAGE PREPARATION

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**Note:** Refer to Chapter 8, Interior and Exterior Care, for specific cleaning solutions and procedures.

## Deck

- Wash the deck and walkway surfaces.
- Clean all deck hardware, and apply a coat of rust inhibitor.
- Clean the indoor/outdoor carpet.

## Hull

- Scrape off any barnacles or crusted marine growth.
- Scrub hull thoroughly to remove marine growth, scum and loose bottom paint.

- Inspect underwater gear and propeller for excessive wear or damage.
- Apply fresh coat of bottom paint.
- Remove hull drain plug; store it in a safe place. Allow bilge water to drain, raise bow of boat during period of storage.

## General Housekeeping

- Scrub boat interior including all cabinets and drawers.
- Remove all cushions, mattresses, curtains, blankets and sheets, pillows, towels and linens, clothing, and any other items that can hold moisture and cause mildew.

**Note: Leave mattresses and cushions onboard only if you can prop them up so air can circulate around them.**

- Make sure cabin is well ventilated.
- Check for adequate air circulation around life jackets and other safety equipment left onboard.
- Clean and dry bilge. Remove any materials such as rags, sponges, or other cleaning material.
- Weather permitting, open all doors, hatches, portals, and windows to air out the interior for a day or two.
- If covering boat while in storage, use a cover constructed of fabric that allows for plenty of ventilation.

## SYSTEMS AND COMPONENTS

In regions where temperatures fall below freezing, winterization of the systems and components is necessary. Failure to do so will seriously damage them. They include, but are not limited to: generator, air conditioner, strainers, hot water heater, sump pump, Porta-Potti,

head, holding tank, water tank, sewer system, and water systems. Refer to the owner's manual for each component or system listed above for detailed information on winterization.

**Note: Robalo strongly recommends having a qualified dealer perform winterization procedures for your boat.**

## ENGINE

**Important: In regions where temperatures fall below freezing, winterizing your engine may be necessary. Failure to do so will seriously damage the engine. Refer to your engine owner's manual for detailed winterization information.**

Change engine oil before storing your boat. Refer to the instructions in your engine owner's manual.

## FUEL SYSTEM

Add a gasoline stabilizer solution to the fuel tank. Follow the product manufacturer's recommended procedure.

## BATTERY

Remove battery from boat and store battery in a cool dry place away from freezing temperatures.



**WARNING:** Battery electrolyte can cause severe eye damage and burn your skin. Wear goggles, rubber gloves and a protective apron when working with battery. If electrolyte spills, wash area with a solution of baking soda and water.

- Cover battery terminals with rubber or plastic caps to prevent accidental contact between battery posts and metal objects.

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- Clean outside battery case, terminals, and battery clamps with a baking soda and water solution. Do not allow solution to enter battery cells.
  - Clean battery posts and clamps with fine grit emery cloth. Use a light sanding motion when cleaning.
  - Apply a light coat of petroleum jelly to cover end of battery cables.
  - Recharge battery monthly or trickle charge continuously while battery is stored.

## **RECOMMISSIONING**

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**NOTE: For detailed information on recommissioning your boat's systems and equipment, refer to the owner's manual for each system or component.**

1. Inspect, visually and by smelling, the fuel system and all associated components for proper connections, wear, leaks, or other damage and needed repair.

***Important: Inspection of the fuel system at recommissioning is very important. We cannot overemphasize our concern for your safety.***

2. Clean battery terminal posts with wire brush or steel wool before reinstallation.
3. Check charge on battery. Recharge or replace if necessary.
4. Inspect all battery wiring. Repair or replace if necessary.
5. Attach battery cables, and tighten cable clamps.
6. Apply petroleum jelly or marine grade grease on battery posts and clamps to eliminate air pockets and possible acid buildups.

7. Reinstall hull drain plug after coating threads with petroleum jelly.
8. Clean bilge area.
9. Inspect all wiring for fraying, wear, loose connections, or other damage. Repair or replace if necessary.
10. Test operation of navigation lights and other lighting onboard. Inspect all switches, controls, and other related equipment for proper operation. Repair or replace as necessary.
11. Inspect all life jackets, anchor lines, and other safety equipment for proper operation and physical condition. Repair or replace if necessary.

# NAUTICAL GLOSSARY

10

<b>Abaft</b>	Toward the stern.
<b>Abeam</b>	Amidships, at a right angle to the keel.
<b>Aboard</b>	On, in, or into a boat.
<b>ABYC</b>	American Boat and Yacht Council, Inc., the organization that sets voluntary safety and construction standards for small craft in the USA.
<b>Adrift</b>	Without motive power and without anchor or mooring.
<b>Afloat</b>	On the water.
<b>Aft</b>	Describing the after section of a vessel, or things to the rear of amidships and near the stern.
<b>Aground</b>	Touching bottom.
<b>Amidships</b>	In the center, the center portion of a vessel.
<b>Anchor</b>	A forging or casting shaped to grip the sea bottom and, by means of a cable or rope, hold a boat in a desired position.
<b>Anchorage</b>	A customary, suitable and (usually) designated harbor area in which vessels may anchor.
<b>Astern</b>	Toward the stern. An object that is aft of a boat is said to be astern of the boat.
<b>Athwart</b>	Across.

<b>Aweigh</b>	Off the bottom, said of an anchor.
<b>Aye</b>	Yes, while aboard a boat or ship. Means "I understand."
<b>Bail</b>	To remove water from a boat by pump or bailer.
<b>Ballast</b>	Heavy material such as iron, lead, or stone placed in the bottom of the vessel.
<b>Beacon</b>	A post or buoy placed over a shoal or bank to warn vessels, also a signal mark on land.
<b>Beam</b>	Imaginary line amidships at right angles to keel of vessel. Also vessel's maximum width.
<b>Bearing</b>	The direction or point of the compass in which an object is seen.
<b>Belay</b>	To make fast to a cleat or belaying pin; to cancel an order.
<b>Below</b>	Beneath, or under, the deck. One goes below when going down into the cabin.
<b>Bend</b>	To fasten by means of a bend or knot.
<b>Berth</b>	A position, as a place to sleep or in which a vessel maybe made fast; a margin of safety, as "a wide berth."
<b>Bilge</b>	The lower internal part of a boat's hull.
<b>Bollard</b>	A strong post for holding lines fast.

<b>Bow</b>	The forward part or front of the boat.
<b>Breakers</b>	Waves cresting as they reach shallow water, as at or on a beach.
<b>Breakwater</b>	A structure, usually stone or concrete, built to create a harbor or improve an existing one.
<b>Bulkhead</b>	Vertical partition in a boat.
<b>Burdened Vessel</b>	Former term for the vessel which must stay clear of vessels with the right-of-way.
<b>Caulking</b>	Forcing filler material into the seams of the planks in a boat's deck or sides, to make them watertight.
<b>Camber</b>	The arch of a deck, sloping downward from the center toward the sides.
<b>Capsize</b>	To turn over.
<b>Carburetor Backfire Flame Arrestor</b>	Required equipment on all motorboats except outboards and diesels. Reduces chance of fire caused by backfires in internal combustion engines.
<b>Cardinal Points</b>	The four main points of a compass; north, east, south, and west.
<b>Ceiling</b>	The inside lining of the hull.
<b>Certificate</b>	Government paper, such as a boat's license.
<b>Chart</b>	A map of a body of water that contains piloting information.

<b>Chine</b>	The intersection of sides and bottom of a boat.
<b>Cleat</b>	A piece of wood or metal with projecting ends to which lines are made fast.
<b>Clinker</b>	A method of planking in which the lower edge of each strake overlaps the upper edge of the strake next below. (Also called lapstrake.)
<b>Coaming</b>	A raised edge, as around part or all of a cockpit, that prevents seawater from entering the boat.
<b>Coast Guard</b>	The federal marine law enforcement and rescue agency in the US.
<b>Cockpit</b>	A well or sunken space in the afterdeck of a small boat for the use of the helmsman and crew.
<b>Companionway</b>	A hatch or entrance, from deck to cabin.
<b>Compass</b>	The instrument which shows the heading of a vessel.
<b>Cowls</b>	Hooded openings used for ventilation.
<b>Cradle</b>	A frame used to support a vessel on land.
<b>Current</b>	The movement of the water in a horizontal direction.
<b>Deadrise</b>	The rise of the bottom of a midships frame from the keel to the bilge.
<b>Deck</b>	Any permanent covering over a compartment.
<b>Deep-six</b>	To discard or throw overboard.



<b>Depth Sounder</b>	An electronic depth-finding instrument, measuring the time a sound wave takes to go from the vessel to the bottom and return, then displaying the result in feet, fathoms, or meters.
<b>Dinghy</b>	A small, open boat.
<b>Displacement Hull</b>	Type of hull that plows through the water even when more power is added.
<b>Dock</b>	An enclosed or nearly enclosed water area; all the port installations; a place where vessels can moor, as a pier, wharf, or floating dock.
<b>Documented Vessel</b>	Vessel registered with the U.S. Coast Guard.
<b>Dolphin</b>	A small group of piles, in the water, generally used for mooring or as a channel marker.
<b>Draft</b>	The depth of the vessel below the water line, measured vertically to the lowest part of the hull.
<b>Dunnage</b>	Mats, boughs, pieces of wood, or other loose materials placed under or among goods carried as cargo in the hold of a ship to keep them dry and to prevent their motion and chafing; cushioning or padding used in a shipping container to protect fragile articles against shock and breakage; baggage or personal effects.
<b>Ebb</b>	An outgoing tide.
<b>Estuary</b>	An inlet or arm of the sea.

<b>Fathom</b>	Six feet.
<b>Fenders</b>	Objects placed along the side of the boat to protect the hull from damage.
<b>Flare</b>	The outward spread of the boat's sides from the waterline to the rail at the bow. Also, a pyrotechnic signalling device that can indicate distress.
<b>Fore</b>	Used to distinguish the forward part of a boat or things forward of amidships. It is the opposite of aft or after.
<b>Forward</b>	Toward the bow.
<b>Frame</b>	Ribs of the hull, extending from the keel to the highest continuous deck.
<b>Freeboard</b>	The vertical distance measured on a boat's side from the waterline to the gunwale.
<b>Galley</b>	The kitchen area of a boat.
<b>Gimbals</b>	Swivels used to keep equipment level.
<b>Give-Way Vessel</b>	The one which must stay clear of vessels which have the right-of-way.
<b>Grab Rail</b>	A convenient grip, on a cabin top or along a companion ladder.
<b>Gunwale</b>	The upper edge of a boat's side. (pronounced gunnel.)
<b>Harbor</b>	A safe anchorage, protected from most storms; may be natural or man-made, with breakwaters and jetties; a place for docking and loading.

<b>Hatch</b>	An opening in a boat's deck for persons or cargo to go below.
<b>Head</b>	A marine toilet.
<b>Headway</b>	Forward motion of a vessel through the water.
<b>Helm</b>	The wheel or tiller by which a ship is steered.
<b>Holding Tank</b>	Storage tank for sewage, so that it will not be pumped overboard into the water.
<b>Hull</b>	The body of a boat.
<b>Hypothermia</b>	A physical condition where the body loses heat faster than it can produce it.
<b>Inboard</b>	More toward the center of a vessel; inside; a motor fitted inside the boat.
<b>Inland Rules</b>	Rules of the road that apply to vessel operation in harbors and certain rivers, lakes, and inland waterways.
<b>Intracoastal Waterways</b>	ICW: bays, rivers and canals along the coasts (such as Atlantic and Gulf of Mexico coasts), connected so that vessels may travel without going into the open sea.
<b>Jetty</b>	A structure, usually masonry, projecting out from the shore; a jetty may protect a harbor entrance.
<b>Keel</b>	The permanently positioned, fore-and-aft backbone member of a boat's hull.
<b>Knot</b>	To bend a line. Also, a unit of speed equal to one nautical mile (6,076.10 feet) an hour.

<b>Launch</b>	(1) To put a vessel into the water; (2) a small open powerboat, mainly used for transportation between a vessel and shore.
<b>Lee</b>	The side opposite to that from which the wind blows.
<b>Leeward</b>	Situated on the side turned away from the wind. (Opposite of windward.)
<b>Leeway</b>	The amount a boat is carried sideways by the wind's force or current.
<b>List</b>	(1) A continuous leaning to one side, often caused by an imbalance in stowage or a leak into one compartment; (2) A light list is a printed listing of aids to navigation, in geographical order, or inclining of a vessel toward the side.
<b>LOA</b>	Length over all; the maximum length of a vessel's hull, excluding projecting spars or rudder.
<b>Locker</b>	A storage place, a closet.
<b>Log</b>	A record or diary of a vessel's journey.
<b>Lubber's Line</b>	A mark or permanent line on a compass that shows the course of the boat.
<b>Making Way</b>	Making progress through the water.
<b>Marina</b>	A place, essentially a dock area, where small recreational craft are kept; usually floats or piers, as well as service facilities, are available.

<b>MAYDAY</b>	A radio distress call, from the french m'aidez (help me); SOS in Morse Code.
<b>Mooring</b>	Commonly, the anchor chain, buoy, pennant, etc., by which a boat is permanently anchored in one location.
<b>Motor</b>	A source of mechanical power.
<b>Motorboat</b>	Any watercraft 65 feet or less in length propelled by machinery, whether or not such machinery is the principal source of propulsion.
<b>Navigation</b>	The art of conducting a ship from port to port.
<b>Nautical Mile</b>	6076.12 feet, or 1852 meters, an international standard; the geographical mile, the length of one minute of latitude at the equator, is 6087.20 feet.
<b>Nun Buoy</b>	A conical, red buoy bearing an even number and marking the starboard side of a channel from seaward.
<b>Oar</b>	A long, wooden instrument with a flat blade at one end, used for propelling a boat.
<b>Outboard</b>	(1) a propulsion unit for boats, attached at the transom; includes motor, driveshaft, and propeller; fuel tank and battery may be integral or installed separately in the boat; (2) outside or away from a vessel's hull; opposite of inboard.
<b>Outdrive</b>	A propulsion system for boats, with an inboard motor operating an exterior drive, with driveshaft, gears, and propeller; also called stern-drive and inboard/outboard.

<b>Overall Length</b>	The extreme length of a vessel, excluding spars or rigging fittings. See LOA.
<b>Painter</b>	A rope attached to the bow of a boat for making it fast.
<b>PFD</b>	Personal Flotation Device.
<b>Pier</b>	A structure, usually wood or masonry, extending into the water, used as a landing place for boats and ships.
<b>Pile</b>	A vertical wooden or concrete pole, driven into the bottom; may be a support for a pier or floats; also used for mooring.
<b>Piling</b>	A structure of piles.
<b>Pitch</b>	(1) The up and down movement as the bow and stern rise and fall due to wave action; (2) The theoretical distance advanced by a propeller in one revolution.
<b>Planing Hull</b>	Type of hull that is shaped to lift out of the water at high speed and ride on the surface.
<b>Port</b>	The left side of a boat when you are facing the bow, also a destination or harbor.
<b>Privileged Vessel</b>	Former term for the vessel with the right-of-way.
<b>Propeller</b>	Wheel or screw. Mechanism that pushes water aft to propel the boat.
<b>Rigging</b>	The general term for all lines(ropes) of a vessel.

<b>Roll</b>	The sideward motion of a boat caused by wind or waves.
<b>Rules of the Road</b>	The nautical traffic rules for preventing collisions on the water.
<b>Scope</b>	The length of the anchor rope or chain. 6 to 1 scope means that the length of the anchor rope from the boat to the anchor is 6 times the depth of the water.
<b>Scupper</b>	A hole allowing water to run off the deck.
<b>Sea Anchor</b>	A floating canvas cone, held open by wire rings, with an opening in the smaller end, and a rope bridle at the larger end attached to a line leading to the vessel; used in storm conditions to (a) keep the bow of the boat to the wind, and (b) slow downwind drift of the boat.
<b>Seacock</b>	A through-hull valve, a shut-off on a plumbing or drain pipe between the vessel's interior and the sea.
<b>Slip</b>	(1) a berth for a boat between two piers or floats; (2) The percentage difference between the theoretical and the actual distance that a propeller advances when turning in water under load.
<b>Sole</b>	The cabin or cockpit floor.
<b>Spar Buoy</b>	A channel marker that looks like a tall, slender pole.
<b>Stand-On Vessel</b>	The vessel with the right-of-way.
<b>Starboard</b>	The right side of a boat when you are facing the bow.

<b>Stern</b>	The after end or back of the boat.
<b>Stow</b>	To store items neatly and securely.
<b>Strake</b>	Planks running fore and aft on the outside of a vessel.
<b>Taffrail</b>	The rail around a boat's stern.
<b>Tide</b>	The alternate rise and fall of waters caused by the gravitational attraction of moon or sun.
<b>Topsides</b>	(1) The sides of a vessel above the waterline; (2) On deck as opposed to below deck.
<b>Transom</b>	The transverse planking which forms the afterend of a small, square-ended boat. (Outboard motors are usually attached to a transom.)
<b>Trim</b>	To arrange weights in a vessel in such a manner as to obtain desired draft at bow and stern.
<b>Trimaran</b>	Boat with three hulls, the center one is the largest.
<b>Unbend</b>	To cast-off or untie.
<b>Underway</b>	Vessel in motion, i.e., when not moored, at anchor or aground.
<b>USPS</b>	United States Power Squadron, a private membership organization that specializes in boating education and good boating practices.

<b>Vessel</b>	Every kind of watercraft, other than a sea-plane on the water, capable of being used as a means of transportation on water.
<b>VHF Radio</b>	A Very High Frequency electronic communications and direction finding system.
<b>Wake</b>	Moving waves, created by vessel motion. Track or path that a boat leaves behind it, when moving across the water.
<b>Wash</b>	The loose or broken water left behind a vessel as it moves along; the surging action of waves.
<b>Waterline</b>	The intersection of a vessel's hull and the water's surface; the line separating the bottom paint and the topsides.
<b>Way</b>	Movement of a vessel through the water. Technically it is underway when not at anchor, aground, or made fast to the shore. The common usage is interpreted as progress through the water. Headway when going forward and Sternway when it is going backwards.
<b>Well</b>	Area at the rear of a boat where the motor may be located.
<b>Wharf</b>	A structure, parallel to the shore, for docking vessels.
<b>Wheel</b>	(1) The steering wheel; (2) the propeller.
<b>Whistle Signal</b>	A standard communication signal between boats, to indicate change of course, danger, or other situations.

<b>Windward</b>	Situated on the side closest to the wind. (Opposite of leeward.)
<b>Yaw</b>	To swing or steer off course, as when running with a quartering sea.



# ROBALO

## BOATS

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