

REGAL



OWNER'S MANUAL

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Welcome To Regal

Dear Regal Owner,

I know I speak for everyone at Regal when I welcome you to the ever-growing family of Regal boat owners. You've chosen a craft that is recognized worldwide for its standard of excellence. Each step in construction has been carefully scrutinized to assure comfort, performance, reliability and safety for both your passengers and yourself.

Your boat is certified by the National Marine Manufacturers Association. It also complies with the applicable standards set by the United States Coast Guard and the American Boat and Yacht Council. Your Regal boat was built with the same attention to detail and quality of construction that we would expect in a boat we would purchase ourselves.

Whether you're a veteran boater or a newcomer, we strongly urge you to read this boat owner's manual thoroughly. Familiarize yourself with the various components of your boat, and heed the safety precautions noted herein.

If you have questions that are not covered in this manual, please consult your authorized Regal dealer for assistance or phone the Regal factory at 407-851-4360.

Thank you, and welcome to the "World of Regal!"

*Duane Kuck
President & CEO*



Mission Statement

With God's help
and a steadfast commitment to integrity,
we will develop a team
of exceptional people and relationships
to provide
exceptional customer satisfaction.



Introduction

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Introduction

Boating is becoming more popular every year. There are numerous types of recreational vessels on our waterways today involved in an every growing number of activities. Therefore, as a new boat owner it is of the highest priority to learn about general boating practices before operating your craft.

Your Regal dealer will answer many questions and provide valuable “hands on” information during the completion of the new boat delivery process. In addition, your dealer has received special factory training on the product line and his services should be employed to solve technical problems and periodic maintenance beyond the scope of this manual. Also, your Regal dealer carries a line of factory approved parts and accessories.

Your Regal dealer can provide information regarding national training organizations such as the U.S. Power Squadron and United States Coast Guard Auxiliary. Along with other organizations and literature, they can help build your “boating savvy” by developing the necessary skills and awareness to be a safe and competent skipper. Your local library can also help in providing recommended boating literature such as Chapman Piloting (Seamanship & Boat Handling by Elbert S. Maloney).

Remember, the waterways can change from normal to abnormal conditions in a heartbeat. Knowing how to react quickly comes from experience and knowledge which can be gained through boating education.

Welcome aboard!



Introduction

YOUR REGAL OWNER'S MANUAL

Your Regal owner's manual has been developed to assist you in operating your vessel with safety and pleasure. Be sure to fully read the contents before operating your craft. Your owner's manual has been divided into general chapters to assist you in becoming more knowledgeable with your Regal boat. The manual is formatted either as a CD or a memory card which the latter can be used with the Garmin chartplotter using 1 of the 2 card slots. The Garmin also features a touch control to magnify drawings. **In keeping with its commitment to continued improvement, Regal notes that all drawings, specifications, models, standard and optional equipment referred to in this manual are subject to change without notice.**

OWNER'S INFORMATION PACKET

Regal has provided an information pouch aboard the vessel. Read and become familiar with the materials. This packet contains valuable literature on your propulsion package, standard and optional equipment, systems and various care and cleaning instructions. Be sure to store the information pouch in a clean dry area for quick reference.



GENERAL INFORMATION

Hull Identification Number (HIN)

The United States Coast Guard has established a universal system of numerically identifying vessels by using a hull identification number or “HIN.” This number identifies your Regal boat model, hull number, month and year of manufacture.

The HIN consists of 12 alpha or numeric characters. Normally the HIN is located on the transom above the swim platform or can be found on the aft hullside near the rub rail.

It is recommended that you locate and write down the HIN for future reference. It can be especially useful when ordering parts from your Regal dealer. A second HIN number is found in a hidden location. This second HIN is useful to authorities if for example the boat is stolen and the original transom HIN is modified or eliminated.

Vessel Information Sheet

It is recommended that you fill out the information on the following page. It will supply vital statistics on your vessel. Make a copy of the data for safe keeping at home.

Vessel Float Plan

Fill out the float plan on the following page before departing. Leave it with a responsible person who will notify the United States Coast Guard or local law enforcement authorities if you do not return as planned. If you change your plans be sure to notify this person. Make copies of the float plan and use one each time you go boating. This will help people know where to find you should you not return on schedule. Do not file the float plan with the United States Coast Guard.



Introduction

VESSEL INFORMATION SHEET

Owner: _____

Address: _____

City & State: _____

Home Phone: _____ Business Phone: _____

In Case Of Emergency Notify: _____

Address: _____

City: _____ State: _____

Phone: _____

Insurance Agent Name: _____

Policy#: _____

USCG Phone: _____ Local Police: _____

Marina Phone: _____ Slip (Dock#): _____

Hull Serial #: RGM _____

Key #: _____ Engine Serial #: _____

Outboard Brand & HP: _____

Key #: _____ Cabin Door: (If Applicable) _____

Selling Dealer: _____

Address: _____

City & State: _____

Phone: _____

Servicing Dealer: _____

Address: _____

City & State: _____

Phone: _____



FLOAT PLAN

Owner: _____ Safety Equipment Aboard:

Address: _____ ☐ Life Jackets

City & State: _____ ☐ First Aid Kit

Telephone#: _____ ☐ Flares

Cell Phone#: _____ ☐ Flashlight

☐ VHF Radio

Person Filing Report: _____ ☐ Anchor

Name: _____ ☐ Compass

Home Telephone#: _____ ☐ Food

Cell Phone #: _____ ☐ Water

Make Of Boat: _____ Destination: _____

Registration#: _____ Leave From: _____

Length: _____ Time Left: _____

Boat Name: _____ Going To: _____

Gel Color: _____ Fuel Level: 1/4, 1/2, 3/4, F

Trim Color: _____ Est. Time Of Arrival: _____

Stern Drive/Outboard: _____

Hull I.D.#: _____ Return: _____

Fuel Capacity: _____ Est. Time of Arrival: _____

If not back by ____ o'clock
call Coast Guard

Other Information: _____

Name Of Person Aboard	Age	Address	Phone#
-----------------------	-----	---------	--------



LAUNCH & CRUISE CHECKLIST

- ☐ Obtain a current weather report.
- ☐ Inspect the hull and outboard propeller for damage.
- ☐ Check all electrical system switches for proper operation.
- ☐ If your boat has been in the water, run the bilge pump until the flow of water stops.
- ☐ If your boat has been out of the water, check to see that all bilge water has drained out. Install the drain plug.
- ☐ Check that all required safety equipment is on board and in good working condition.
- ☐ Check that all other equipment is on board such as mooring lines, first aid kit, tool kit and extra parts.
- ☐ Inspect fuel components, hoses and hardware including all filters for fuel leaks and overall tightness.
- ☐ Visually inspect engine for cracked hoses, defective belts, loose fasteners such as bolts, nuts and hose clamps.
- ☐ Check fuel level. Fuel tank should be filled to near full capacity.
- ☐ Make sure all navigation charts, equipment and vessel registration paperwork are onboard.
- ☐ Check operation of steering system, navigation lights and horn.
- ☐ Make sure passengers and crew know how to operate safety equipment and react to an emergency.
- ☐ File a float plan with a responsible party ashore.



SUGGESTED TOOLS, PARTS & GEAR

SUGGESTED TOOLS

Allen Wrenches
Jack Knife
Phillips Screwdriver Set
Slotted Screwdriver Set
Regular Pliers
Combination Wrench Set
Ratchet & Socket Set
Hammer
Wire Crimpers
Vise Grip Pliers
Floating Flashlight
Nut Driver Set
Oil Filter Wrench
Fuel Filter Wrench

SPARE PARTS

Fuel Filters
Spark Plugs
Water Pump Belt
Propellers
Alternator Belt
Anti-Siphon Set
Propeller Nut & Hardware
Penetrating Oil
Extra Light Bulbs
Extra Batteries
Duct Tape
Electrical Tape
Power Steering Fluid
Water Pump Impeller
Spare Keys On Floater

BASIC GEAR

Tie Lines
Mooring Lines
Dock Fenders
First Aid Kit
Boat Hook
Foul Weather Gear
VHF Radio, EPIRB, GPS, Cell Phone
Charts & Plotting Instruments
Emergency Water & Food
Bailer Or Hand Pump
Fire Extinguisher
Personal Flotation Devices
Anchor & Line
Life Raft



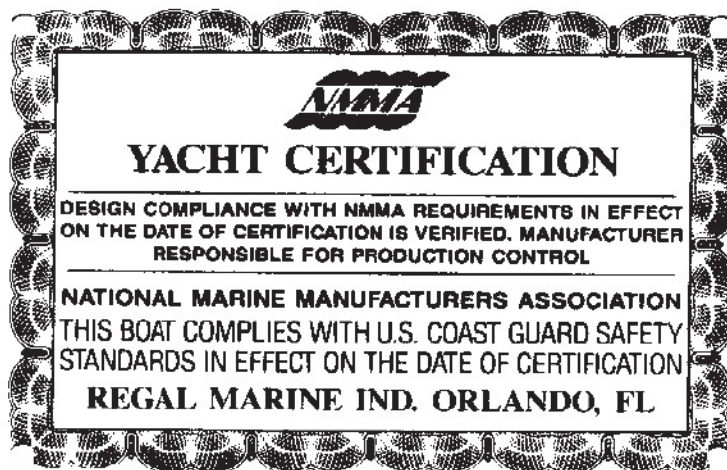
Introduction

ABYC Yacht Plate

Close to the helm on Regal boats **over 26' in length** is a NMMA yacht plate. A typical yacht plate for domestic vessels is shown below. This plate recognizes that your vessel was built to design compliance standards in effect on the date the certification was verified. The plate also states that your vessel complies with United States Coast Guard safety system standards in effect on the date of certification.

Note: Overloading, improper loading and weight distribution are well documented causes of accidents. Provide for an extra margin of safety in rough sea conditions.

TYPICAL EXAMPLE SHOWN





Owner's Registration & Systems Checklist

Please note that your Regal boat requires the proper registration by your authorized Regal dealer. To initiate your warranty the dealer must complete the owner's registration form and systems checklist at the time of delivery. The owner must sign the paperwork to acknowledge that the dealer has reviewed the boat systems and warranty provisions with the owner. The owner should keep the original paperwork that features a temporary warranty registration. A Regal express limited warranty certificate containing all relevant boat and engine serial numbers will be sent after the factory receives the paperwork.

Dealer's Responsibility

Your boat has undergone rigid quality assurance inspections before leaving the factory. However, your dealer has been trained to perform final pre-delivery checks and to service your Regal boat prior to your pick-up. Your dealer's responsibilities include:

A complete orientation in the operation of your Regal boat, including matters relating to the safe operation of your craft.

Completion and mailing of your boat registration warranty form to Regal.

Warranties, registration materials, owner's manual, operation, installation and maintenance instructions for all auxiliary equipment supplied with or installed on your Regal boat.



Owner's Responsibility

You are entitled to all the benefits and services outlined in your Regal boat warranty. However, you have certain responsibilities to ensure warranty satisfaction. These are:

To read the warranty materials and understand them fully.

To examine the boat in detail at the time of delivery.

Apply the following: boating rules and regulations, safety equipment, environmental regulations, accident reports and warranty regulations terms and conditions.

To read thoroughly all literature supplied with your boat, including this owner's manual and to follow the recommendations in the literature.

To return the boat after the recommended hours of engine operation for the proper dealer service inspections.

To provide proper maintenance and periodic servicing of your boat and equipment as set forth in the various manuals supplied.



RUNABOUTS and CUDDY NEW BOAT DELIVERY CHECKLIST

REGAL MARINE INDUSTRIES
2300 JETPORT DRIVE
ORLANDO, FLORIDA 32809
(407) 851-4360

OWNER REGISTRATION INFORMATION

NAME _____ DEALER _____
ADDRESS _____ HULL # _____
CITY _____ STATE _____ ZIP _____ MODEL _____
COUNTRY _____ PHONE # _____ EMAIL _____

INSTRUCTIONS: This checklist is designed to assist dealers in the delivery of a Regal Boat to a new owner. Review the location, operation and maintenance of each item noted below with the owner and acknowledge this by checking the appropriate boxes. Indicate if item is not applicable with "NA". This form must be completed and signed by the dealer's representative and the customer to acknowledge proper receipt of the boat. The warranty will not be activated until a fully completed and signed copy has been received by Regal Marine.

A. NEW BOAT INFORMATION

DEALER OWNER

1. Review Regal's warranty _____
2. Review Engine warranty _____
3. Review Regal's owner manual _____
4. Review owner's package _____
5. Review dealer's service procedures _____
6. Review owner's service responsibilities _____

D. INSTRUMENTATION

DEALER OWNER

1. Function of all gauges _____
2. Function of all switches _____
3. Throttle & shifter _____
4. Steering _____
5. Ignition _____
6. Operation of all optional electronics _____

B. CABIN (IF APP)

DEALER OWNER

1. Location of all storage areas _____
2. Cabin lighting _____
3. Deck hatch _____
4. Port hole _____
5. Carbon monoxide detector _____
6. Dinette table set up _____
7. Cabin cushions set up _____
8. Electrical panel _____
9. Toilet / head _____
10. Water system _____

E. ENGINE ROOM

DEALER OWNER

1. Engine fluid check _____
2. Trim pump location / fluid check _____
3. Battery I _____
4. Battery switch (may be in cockpit) _____
5. Bilge pump _____
6. Trim tab pump _____
7. Fire extinguisher _____
8. Blower _____

C. COCKPIT

DEALER OWNER

1. Swim ladder _____
2. Transom shower _____
3. Cockpit seating set up _____
4. Engine hatch operation _____
5. Cockpit storage areas _____
6. Refreshment center _____
7. Fishing package _____

F. CANVAS

DEALER OWNER

1. Canvas set up _____
2. Canvas storage _____
3. Canvas care and cleaning _____

L. CARE & CLEANING

DEALER OWNER

1. Vinyl uph. care & cleaning _____
2. Windshield care & cleaning _____
3. Gel coat care & cleaning _____
4. Stainless steel hardware care & cleaning _____
5. Toilet system care & cleaning _____

CAUTION: This checklist is only intended to provide a general overview and does not represent all information necessary for proper operation of the boat. It is very important that persons operating this boat study the various manuals and materials provided with the boat and follow the recommendations contained in these materials. They contain important information including cautions and warnings that are vital to safe and enjoyable operation of the vessel. It is the owner's responsibility to insure that anyone operating the boat has been properly trained.

We have completed a review and orientation of the boat and its systems. The boat is in order and functioning properly with the exception of any items specifically noted above. This confirms that owner has received a copy of the Regal Limited Lifetime Warranty and engine manufacturer's warranty and agrees to these warranty terms and conditions.

DEALER REPRESENTATIVE _____

DELIVERY DATE _____

OWNER _____

DATE _____



Introduction

REGAL MARINE INDUSTRIES, INC. LIFETIME PLUS LIMITED HULL WARRANTY

Welcome to the Worldwide Family of Regal Owners! We are very pleased that you have chosen a Regal Powerboat!

This document is your Warranty Registration Certificate and Statement of Warranty. Please check the registration information section for accuracy. If this information is not correct or if you change your address at some future date, please notify us at the following address: Regal Marine Industries, Inc. Attention: Warranty Registrations, 2300 Jetport Drive, Orlando, Florida 32809

Please read the warranty carefully. It contains important information on Regal's claims procedures and your rights and obligations under this warranty.

WHAT IS COVERED: This Limited Warranty applies only to Regal boats beginning with model year 2012.

LIFETIME LIMITED STRUCTURAL HULL WARRANTY: Regal Marine Industries, Inc. warrants to the original retail purchaser of this boat if purchased from an authorized Regal dealer that the selling dealer or Regal will repair or replace the fiberglass hull if it is found to be structurally defective in material or workmanship for as long as the *original* retail purchaser owns the boat. For purposes of this warranty, the hull is defined as the single fiberglass casting which rests on the water. This limited warranty is subject to all limitations and conditions explained below.

FIVE-YEAR TRANSFERABLE LIMITED STRUCTURAL HULL WARRANTY: In addition to the Lifetime Limited Structural Hull Warranty, Regal offers a Transferable Five-Year Limited Structural Hull Warranty. Under the Five-Year Transferable Limited Structural Hull Warranty, Regal will repair or replace the fiberglass hull if it is found to be structurally defective in material or workmanship within the first (5) years after the date of delivery to the original retail purchaser. Any remaining term of this Five-Year Limited Hull Warranty may be transferred to a second owner if within 60 days of purchase, the new owner registers the transfer with Regal and pays the established warranty transfer fee. Contact Regal Customer Service at the above address for details.

FIVE-YEAR LIMITED HULL BLISTER WARRANTY: Regal will Warrant to the original retail purchaser, any underwater gelcoated surfaces of the hull against laminate blisters which occur as a result of defects in material or workmanship within (5) years of the date of delivery, provided that the original factory gelcoat surface has not been altered. Alternation would include but is not limited to damage repair; excessive sanding, scraping, sandblasting; or from improper surface preparation for application of a marine barrier coating or bottom paint, any of which shall void this Five-Year Limited Hull Blister Warranty. Regal Marine shall repair or cause to be repaired any covered laminate blisters based on the following prorated schedule. Less than two (2) years from delivery date - 100%, Two (2) to three (3) years from delivery date - 75%, Three (3) to four (4) years from delivery date - 50%, Four (4) to five (5) years from delivery date - 25%.

Reimbursement shall be limited to one repair, not to exceed (\$80.00) dollars per foot of boat length prior to prorating. Regals prior authorization for the method and cost of repair, must be obtained before repairs are commenced. All costs to transport the boat for repairs are the responsibility of the owner.



LIMITED GENERAL WARRANTY: In addition to above hull warranties, Regal warrants to the original purchaser of this boat if purchased from an authorized dealer that the dealer or Regal will repair or replace any parts found to be defective in materials or workmanship for a period of one (1) year from the date of delivery, subject to all limitations and conditions contained herein.

LIMITED EXTERIOR FINISH WARRANTY: Regal warrants that the selling dealer or Regal will repair cosmetic defects in the exterior gelcoated finish including cracks or crazing reported to Regal within 90 days from the date of delivery to the original purchaser, subject to all limitations and conditions contained herein. All warranty work is to be performed at a Regal dealership or other location authorized by a Regal Customer Service Manager after it is established to Regal's satisfaction that there is a defect in material or workmanship.

REGISTRATION INFORMATION:

CUSTOMER OBLIGATIONS: The following are conditions precedent to the availability of any benefits under these limited warranties:

(a) The purchaser must sign and the dealer must submit to Regal the "OWNER REGISTRATION AND SYSTEMS CHECKLIST"

FORM within ten (10) days of the date of delivery and such information must be on file at Regal.

(b) The purchaser must first notify the dealer from whom the boat was purchased of any claim under this warranty within the applicable warranty period and within a reasonable period of time (not to exceed thirty (30) days) after the defect is or should have been discovered.

(c) Regal will not be responsible to repair or replace any part, (1) if the use of the boat is continued after the defect is or should have been discovered; and (2) if such continued use causes other or additional damage to the boat or component parts of the boat.

(d) Based on the dealer's knowledge of Regal's warranty policy and/or consultations with Regal, the dealer will accept the claim and arrange for appropriate repairs to be performed, or deny the claim if it is not within the warranty.

(e) The dealer will contact the Regal boat owner regarding instructions for delivery of boat or part for warranty repair if it is covered by the limited warranty.

ALL COSTS TO TRANSPORT THE BOAT FOR REPAIRS ARE THE RESPONSIBILITY OF THE OWNER;

(f) If the Regal boat owner believes a claim has been denied in error or the dealer has performed the warranty work in an

unsatisfactory manner, the owner must notify Regal's Customer Service Department in writing at the address listed for further consideration. Regal will then review the claim and take appropriate follow-up action.



Introduction

WARRANTY EXCEPTIONS: THIS LIMITED WARRANTY does not cover and the following are not warranted:

- (a) Engines, metal plating or finishes, windshield breakage, leakage, fading and deterioration of paints, canvas, upholstery and fabrics;
- (b) Gelcoat surfaces including, but not limited to, cracking, crazing, discoloration or blistering except as noted above;
- (c) Accessories and items which were not part of the boat when shipped from the Regal factory, and/or any damage caused thereby;
- (d) Damage caused by misuse, accident, galvanic corrosion, negligence, lack of proper maintenance, or improper trailering.
- (e) Any boat used for racing, or used for rental or commercial purposes;
- (f) Any boat operated contrary to any instructions furnished by Regal, or operated in violation of any federal, state, Coast Guard or other governmental agency laws, rules, or regulations;
- (g) The limited warranty is void if alterations have been made to the boat;
- (h) Transportation of boat or parts to and/or from the REGAL factory or service location;
- (i) Travel time or haul outs, loss of time or inconvenience;
- (j) Any published or announced catalog performance characteristics of speed, fuel and oil consumption, and static or dynamic transportation in the water;
- (k) Any boat that has been re-powered beyond Regal's power recommendations;
- (l) Boats damaged by accident and boats damaged while being loaded onto, transported upon or unloaded from trailers, cradles, or other devices used to place boats in water, remove boats from water or store or transport boats on or over land;
- (m) Water damage to, dry rot to, condensation to, or absorption by interior surfaces, wood structures or polyurethane foam; interior wood including, but not limited to, bleeding and/or discoloration as a result of condensation or moisture or water continually contacting the plywood causing staining to upholstery, carpet or other interior surfaces;
- (n) Costs or charges derived from inconveniences or loss of use, commercial or monetary loss due to time loss, and any other special, incidental or consequential damage of any kind or nature whatsoever.

NO WAIVER OF THESE TERMS: The terms, conditions, limitations and disclaimers contained herein cannot be waived except by the Customer Service Manager of Regal. Any such waiver must be in writing. Neither the dealer, nor the customer, nor any service, sales and/or warranty representative of Regal is authorized to waive and/or modify these conditions, limitations and/or disclaimers.

GENERAL PROVISIONS:

ALL GENERAL, SPECIAL, INDIRECT, INCIDENTAL AND/OR CONSEQUENTIAL DAMAGES ARE EXCLUDED FROM THIS WARRANTY AND ARE TOTALLY DISCLAIMED BY REGAL. IT IS THE INTEREST OF THE PARTIES THAT THE OWNER'S SOLE REMEDY IS THE REPAIR OR REPLACEMENT OF THE VESSEL OR ITS ALLEGEDLY DEFECTIVE COMPONENT PARTS AND THAT NO OTHER LEGAL OR EQUITABLE REMEDIES SHALL BE AVAILABLE TO SAID OWNER. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES SO THE FOREGOING MAY NOT APPLY TO YOU.



THIS IS A LIMITED WARRANTY; REGAL MAKES NO WARRANTY, OTHER THAN CONTAINED HEREIN; TO THE EXTENT ALLOWED BY LAW ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARISING IN STATE LAW ARE EXPRESSLY EXCLUDED TO THE EXTENT ALLOWED BY LAW. ANY IMPLIED WARRANTY OF MERCHANTABILITY IS LIMITED TO THE PERIOD OF THIS LIMITED WARRANTY. ALL OBLIGATIONS OF REGAL ARE SPECIFICALLY SET FORTH HEREIN. REGAL DOES NOT AUTHORIZE ANY PERSON OR DEALER TO ASSUME ANY LIABILITY IN CONNECTION WITH REGAL BOATS.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Regal's obligation with respect to this warranty is limited to making repairs to or replacing the defective parts and no claim for breach of warranty shall be cause for cancellation or rescission of the contract or sale for any boat manufactured by REGAL MARINE INDUSTRIES, INC.

Regal will discharge its obligations under this warranty as rapidly as possible, but cannot guarantee any specific completion date due to the different nature of claims which may be made and services which may be required. Regal reserves the right to change or improve the design of its boats without obligation to modify any boat previously manufactured. This limited warranty gives you specific legal rights, and you may also have other rights which may vary from state to state. Regal shall in no way be responsible for any repairs not **PRE-AUTHORIZED** by a Regal Customer Service Manager or repairs performed by a repair shop not **PRE- AUTHORIZED** by a Regal Customer Service Manager.



Safety On Board



Safety awareness can't be over emphasized. Safety on board needs to be the skipper's number one priority. In this manual you will find many safety precautions and symbols to identify safety related items. Heed all safety precaution information. Remember, the skipper is responsible for the safety of his passengers and crew.

SAFETY LABELS

Safety Precaution Definition

Safety precautions are stated as caution, warning and danger signal words. They are highlighted in this manual by font design and symbol usage. Also, a notice heading is included which provides operation and maintenance information but is not hazard-related.

Become familiar and understand all safety precaution labels!

	DANGER
IMMEDIATE HAZARDOUS SITUATION THAT IF NOT AVOIDED WILL RESULT IN DEATH OR SERIOUS INJURY!	
	WARNING
POTENTIONALLY HAZARDOUS SITUATION THAT, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY!	



CHAPTER 1



CAUTION

INDICATES A POTENTIALLY SITUATION OR UNSAFE PRACTICE THAT, IF NOT AVOIDED, MAY RESULT IN INJURY, PROPERTY AND OUR PRODUCT DAMAGE.



NOTICE

GENERAL OR SPECIFIC INFORMATION WHICH IS IMPORTANT TO CORRECT OPERATION OR MAINTENANCE, BUT IS NOT HAZARD RELATED.

Precautionary Labels

Read and understand all safety labels affixed to your Regal boat. Most of the safety labels are found close to the helm, aft cockpit and or swim platform. The location of the labels may vary by model and the label list does not cover everything! Use common sense to analyze the result of an action on board your vessel. **Always think safety first!**



NOTICE

DO NOT REMOVE OR COVER ANY PRECAUTIONARY LABELS. KEEP HARSH CHEMICALS AWAY FROM LABELS. IF A LABEL BECOMES ILLEGIBLE, CONTACT YOUR REGAL DEALER.



Safety On Board

GENERAL BOATING SAFETY

We understand that you are eager to use your Regal boat on the water. However, we strongly suggest that you thoroughly familiarize yourself and friends or members of your family with safe boating practices before setting out.

Remember, that along with the freedom and exhilaration of boating comes the responsibility that you have for the safety of your passengers and other boaters who share the water with you.

Boating regulations vary from state to state. Check with your local state and local authorities for the regulations pertaining to your area.

◆ Check with local weather stations, the U. S. Coast Guard, or weather station broadcasts for the latest conditions. Remember getting caught in severe weather is hazardous, Check weather conditions periodically while you are boating and before your outing. If you are forced to operate your boat in a storm condition, take common sense precautions; wear PFD's, store gear, reduce speed and head for safe refuge.

◆ It is best to avoid operating your boat in foggy weather. When fog sets in, take bearings, log courses and speeds. You are required to emit a five second blast from your horn or whistle once a minute. Also, have your passengers wear PFD's and observe for oncoming vessels.

◆ Operating in shallow water presents a number of hazards including sand bars and water levels influenced by tides. If the vessel strikes an underwater hazard, check for boat and engine damage. If the engine vibrates excessively after striking an underwater obstruction, it may indicate a damaged propeller. If you run aground, seek help by radio or flares.

◆ Make sure your boat and equipment are in top condition. Do this by frequently inspecting the hull, engine and gear.



CHAPTER 1

- ◆ You must provide a Coast Guard approved personal flotation device (PFD) for every person on board. These PFD's should be in good condition and easily accessible.
- ◆ Insist that non-swimmers and children on board wear a PFD at all times. Any time you encounter rough weather conditions, make sure everyone on board is wearing a PFD, including yourself. Instruct your passengers in how to put on their PFDs and be sure they know their storage location on the boat. Remember, in an emergency, a PFD that cannot be quickly located and worn is useless.
- ◆ Never allow anyone to sit anywhere on the boat not specifically designed as a seat. While underway, **ALWAYS** insist passengers remain seated.
- ◆ **Use maximum caution when fueling.** Never allow any smoke or flame nearby while you are fueling. **ALWAYS** check for fuel leaks and fumes when fueling is completed.



WARNING

USE OF ALCOHOL ENHANCED FUEL, OR A FUEL OTHER THAN GASOLINE, CAN LEAD TO DETERIORATION OF THE FUEL SYSTEM COMPONENTS. CAN RESULT IN FIRE AND POSSIBLE EXPLOSION!

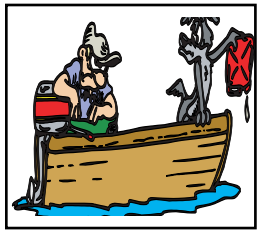


Safety On Board



◆ **Never drink and drive!** As captain, you are responsible for the safety of your passengers and yourself. Alcohol and boating can be a dangerous combination. **DO NOT** mix them. Alcohol impairs the boat operators ability to make conscious decisions and react to emergency situations quickly.

◆ **Never overload your boat!** An overloaded boat, or one with uneven weight distribution, can be difficult to steer.



◆ **Be certain there is enough fuel aboard for your cruising needs.** Include any reserve that might be needed should you change your plans due to weather or emergency. **Practice the “one-third rule:** (Use one-third of your fuel going out, one-third to return and keep one-third as a reserve).

◆ Check the weather before departure. Be particularly cautious of electrical storms and high winds.

◆ Have up-to-date charts aboard. You will need current charts of the area you’ll be cruising to stay on proper course. Charts can be obtained at your closest marine outlet or store or by contacting one of three federal government agencies.

◆ **File a float plan.** Leave details of your trip with someone responsible who will be remaining on shore. Include expected return, plus name and phone number of a contact person in case of emergency.

◆ Use care, courtesy and common sense when launching, docking or operating your boat.



CHAPTER 1

◆ **Learn and obey the “Rules of the Road”.** A copy of the “Rules of the Road” can be obtained from the U. S. Coast Guard Auxiliary or local Power Squadron.

◆ In case of emergency: Know the international distress signals if you have a VHF radio aboard. The spoken word **“MAYDAY”** is the international signal of distress and is for emergency use only. Under no circumstances should this word be used, unless there is danger at hand.

◆ Posted speed limits, swimming areas, “no wake” zones and other restrictions should be red-flagged. They are so noted for a reason. Sensible boat use plus courtesy fosters enjoyable and safe boating.

◆ It is your responsibility to stay abreast of all federal, state and local rules, as some laws or regulations may change or be different from state to state. Contact your local boating agencies for updated information.

◆ We can not stress safety enough! Remember, there are no brakes on your boat, and the water current and wind velocity all affect your ability to respond. The driver must use caution at all times to maintain control of his vessel and especially to maintain a safe distance from other boats and obstacles.

◆ **Always keep all safety gear in optimum condition.** Pay special attention to attached tags and plates indicating expiration dates on equipment such as fire extinguishers, and personal flotation devices. Encourage a periodic maintenance check on all safety equipment. Contact your Regal dealer or marine professional for more information.

◆ Inspect the fuel system before and after each fueling cycle for fuel leaks. Sniff bilge before outing for fuel leaks. In addition, inspect the entire fuel system at least once per year.



Safety On Board

REQUIRED SAFETY EQUIPMENT

Personal Flotation Devices



All personal flotation devices (PFD's) must be Coast Guard approved, in good working condition, and must be the correct size for the wearer. All PFD's must be readily accessible. This means being able to wear them in a reasonable amount of time

in case of an emergency (fire, boat sinking, etc.). They should not be stored or locked in closed areas. Also, make sure that all coverings are removed, such as plastic from any PFD's. Throwable devices such as a ring buoys need to be available for immediate deployment. A PFD should be worn at all times when your boat is operating on the water. A PFD may save your life, but it must be worn to do so.

As minimum U. S. Coast Guard requirements all recreational boats must carry one type I, II, III, or V PFD (wearable) for each person aboard. See the explanation following for each type. For type V to be counted they must be used according to the label instructions. In addition, all boats over 16' must carry one Type IV (throwable) PFD. Some states require that PFD's be worn by children of specific ages at all times. Check with state boating agencies for particular requirements in your state before taking children on the water.

Remember PFD's will not necessarily keep you from drowning, even though they are designed to keep a person from sinking. When purchasing PFD's make sure it safely fits the person wearing it. It is a good idea to test PFD's in a shallow pool before trying on the water. Refer to the USCG minimum equipment requirements at the end of this chapter. It is meant to be a guide only. Contact state and local agencies for additional equipment requirements. Remember as the captain of your vessel you are responsible for its safe operation.



CHAPTER 1

- **TYPE I-** Also known as an offshore jacket, it provides the most buoyancy. It is a PFD for all waters and is especially useful in rough waters where rescue may encompass additional time. It is designed to turn most unconscious users in the water to a face-up position. Type I PFD is available in adult & child sizes.
- **TYPE II-** Also known as near-shore buoyant vest, it is recommended for calm, inland water where rescue time will be minimal. It will turn some unconscious people face-up in the water but not as numerous as Type I. They are available in adult, medium child, along with infant and small child sizes.
- **TYPE III-** Known as a flotation aid it is good for calm, inland water or where there is a chance for quick rescue. It is designed so wearers can place themselves in a face-up position in the water. The wearer may have to tilt their head back to avoid turning facedown in the water.
- **TYPE IV-** Intended for calm, inland water with heavy vessel traffic, where help is constantly present. It is designed to be thrown into the water for someone to grab on to and held until rescued. It should *not* be worn. Type IV includes ring buoys, buoyant cushions, and horseshoe buoys.
- **TYPE V-** This is the least bulky of all PFD's. It contains a small amount of inherent buoyancy, and an inflatable chamber. It is rated even to a Type I, II, or III PFD (as noted on the jacket label) when inflated. Hybrid PFD's must be worn to be acceptable equipment.



Safety On Board

Maintaining your PFD's

A PFD is only useful if it's well maintained. Always be aware of PFD age since it has a life expectancy like any other piece of equipment.

- √ Do a periodic operation check of all PFD's in shallow water.
- √ Be sure to air dry all PFD's after each use. Store in a dry, easily accessible location.
- √ Check periodically for broken zippers, frayed webbing, water soaked kapok bags, missing straps, and sewing that is undone.
- √ Clean each PFD with mild soap and water only. Again, let dry sufficiently before storing.
- √ Keep PFD's out of grease and oil since they can deteriorate the jacket inner and outer materials.
- √ Check any kapok-bagged jackets by squeezing. If jacket loses air the bag is defective and the PFD should be thrown away.
- √ Grab the cover with the fingers. If the cover material rips, the PFD is rotted and should be thrown away.
- √ If the kapok bag is hard the PFD should be discarded.



CHAPTER 1

FIRE EXTINGUISHERS

General Information

Fire extinguishers are classified by a letter and numeric symbol. The letter references the type of fire the unit is designed to extinguish. For example, type B extinguishers commonly used on boats are designed to put out flammable liquids such as grease, oil and gasoline. The number indicates the general size of the extinguisher and minimum extinguishing agent weight.

FIRE EXTINGUISHER CONTENTS				
CLASS	FOAM IN GALS.	CO2 IN LBS.	DRY CHEM. IN LBS.	HALON IN LBS.
B-I	1.25	4	2	2.5
B-II	2.5	15	10	10

MINIMUM PORTABLE FIRE EXTINGUISHERS REQUIRED		
VESSEL LENGTH	NO FIXED SYSTEM	WITH FIXED SYSTEM
LESS THAN 26' 26' TO LESS THAN 40' 40' TO 65'	1 B-1 2 B-1 OR 1 B-II 3 B-1 OR 1 B-II	0 1 B-1 2 B-1 AND 1 B-1 OR 1 B-II



Safety On Board

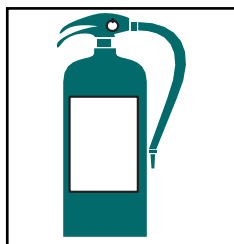
U. S. Coast Guard approved fire extinguishers are required on all Regal boats. Besides the minimum Coast Guard requirements always check state and local agencies for additional requirements and equipment. Coast Guard approved extinguishers are hand-portable, either B-I or B-II classification.

U. S. Coast Guard approved hand-portable and semi-portable extinguishers contain a metal plate that shows the manufacturer's name and extinguisher type, capacity and operating instructions. They have a special marine type mounting bracket which keeps the extinguisher solidly mounted until needed. The extinguisher needs to be mounted in a readily accessible location but one out of being bumped by people while underway. All approved extinguishers need to have an indication gauge.

USCG- Approved Fire Extinguisher Types & Features



The dry chemical agent is widely used because of its convenience and low cost. The extinguisher canister is filled with a white dry chemical powder along with a pressurized gas. It is a good idea to shake this type periodically because they tend to "pack" on the canister bottom.



The foam type uses a chemical foaming agent plus water and is best when used for fires involving flammable liquids- solvents, gasoline, oil, grease and various paints. It will work on fires involving rubber, plastics, cloth, wood, and paper. It leaves a messy residue. Not for electric fires.



The carbon dioxide unit uses CO₂ gas under high pressure, with a funnel discharge hose usually swivel mounted. This extinguisher leaves no residue and does not cause interior engine harm. To ensure workability, weigh the unit annually. A 10% max. weight variance is allowed.



CHAPTER 1

There are other types of liquefied gas used today as part of automatic extinguisher systems. They are colorless and odorless, heavier than air and sink to the lower bilge to extinguish fires. Since the year 2000 ingredients for have changed to a more environmental friendly formula. They are used in portable-hand units along with making up the majority of boat automatic fire extinguishing systems. The canister needs to be weighed once a year. Most brands feature a dash mount indicator. *Refer to the information regarding fire prevention in this manual.*

VISUAL DISTRESS SIGNALS

All vessels used on coastal waters, any of the Great Lakes, territorial seas, and those waters connected directly to them , up to point where a body of water is less than two miles wide, must have Coast Guard approved visual distress signals.

Pyrotechnic Devices

Pyrotechnic visual distress signals must be Coast Guard approved, be ready for service and must be readily accessible. They all display a marking which is the service life, which must not have expired. A minimum of 3 devices are required for day and 3 devices for night. Some devices meet both day and night requirements. Pyrotechnic devices should be stored in a cool, dry location. Most of these devices can be purchased in an highly visible (orange) watertight container. Types of Coast Guard approved pyrotechnic distress signals and associated devices are:

- Pyrotechnic red flares, hand- held or aerial type.
- Pyrotechnic orange smoke, hand-held or floating type.
- Launchers for parachute flares or aerial red meteors.



Safety On Board

All in all, each distress signal has certain pros and cons. There is no distress signal that is best under all situations. Pyrotechnics are recognized worldwide as superior distress signals. A downfall is they emit a very hot flame that can cause burns and or ignite flammable materials. Pistol launched and hand-held parachute flares operate consistent with firearms and therefore must be carefully handled. Check with local and state regulations since some of these device are considered firearms and are prohibited.

Non-Pyrotechnic Devices

Non-pyrotechnic devices must all be in serviceable condition, readily accessible, and must be certified by the manufacturer to comply with Coast Guard standards. They include:

- Orange distress flag.
- Electric distress flag.

The distress flag is for day use only. It must be 3 x 3 or larger with a black square and ball on an orange background. It can be spotted when attached to a boat hook, long fishing rod, or paddle with the person waving the flag back and forth overhead.

The electric distress flag is for night use only flashing the international SOS distress signal (... _ _ ...).

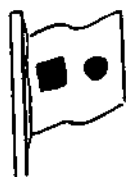
Under Inland Navigation Rules, a high intensity white light that flashes at regular intervals from 50-70 times per minute is considered a distress signal.

Remember that regulations prohibit the display of visual distress signals on the water under any circumstances except when assistance is required to prevent immediate or potential danger to passengers on a vessel.



CHAPTER 1

INTERNATIONAL DISTRESS SIGNALS



BLACK SQUARE
AND BALL ON
ORANGE
BACKGROUND



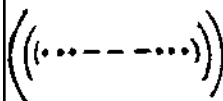
CODE FLAGS
NOVEMBER AND
CHARLIE



SQUARE
FLAG AND
BALL



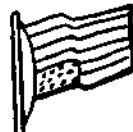
PERSON
WAVING
ARMS



MORSE
CODE
S.O.S.



"MAYDAY"
BY
RADIO



ENSIGN
UPSIDE
DOWN



PARACHUTE
RED
FLAG



RED METEOR
FLARES



SMOKE



FOG HORN
SOUNDED
CONTINUOUSLY



GUN FIRED
AT 1-MINUTE
INTERVALS



POSITION
INDICATING
RADIO BEACON



DYE MARKER
(ANY COLOR)

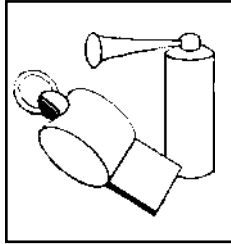


HAND-HELD
FLARE



Safety On Board

SOUND PRODUCING DEVICES



According to both Inland and International Rules, all boats **must** carry some way of producing an efficient sound signal. If your vessel is 12 meters (39' 4") or longer, a power whistle, power horn or bell must be carried. The bell must be 7 7/8" in diameter.

Boats less than 12 meters a horn or whistle is **recommended** to signal intentions or signal position. The sound signal made in all cases must be capable of a four or six second blast audible for one half mile. See the section discussing bridge and whistle signals for more information.

RADIO COMMUNICATIONS

VHF radios are used for distress and ship to shore and ship to ship communications today. Learn the specialized messages such as **Mayday, Mayday, Mayday** is only used when life or vessel is in imminent danger.

NAVIGATION LIGHTS

The U. S. Coast Guard requires recreational boats operating at night to display navigation lights between sunset and sunrise. Navigation lights help avoid collisions by improving the night visibility of vessels. Red and green directional lights, white stern lights, white masthead lights and white all-around lights must be displayed in specified positions, depending on boat size, and mode of operation. The configuration of visible lights tells and operator the size, direction of travel and means of propulsion (sail, power, rowing or at anchor) of another vessel. Larger boats are required to carry larger, brighter lights that are visible over longer distances.



CHAPTER 1

NAVIGATION LIGHT RULES

White Light Stern

Red Light Port (Left)

Green Light Starboard (Right)

Location of lights on vessel	Visible Range		Degrees of arc lights
	Less than 12 m.	12 m. but less than 20 m.	
Masthead	2	3	225°
All-round	2	2	360°
Side lights	1	2	112.5° each color
Stern light	2	2	135°

figure 1

figure 2

figure 3

figure 4

figure 5

figure 6

figure 7a

figure 7b

figure 7c

figure 7d

Boats less than 12 meters in length
Motorboats or sailboats using power: The lighting arrangements to figure 1, 2 or 3 may be used.
Sailboat using sails alone: The lighting arrangements in figure 4, 5 or 6 may be used.

Boats 12 meters but less than 20 meters in length
Motorboats or sailboats using power: The lighting arrangements to figure 1 or 2 may be used.
Sailboat using sails alone: The lighting arrangements in figure 4, 5 or 6 may be used.

Location of lights
Lights should be located as shown in the drawings.
The masthead light (forward white light in figures 1, 2 and 7d) must be at least one meter higher than the colored lights on a boat less than 12 meters in length and at least 2.5 meters above the gunwale on a boat 12 meters but less than 20 meters in length.

Exceptions
Motorboat or sailboat using power, built before December 24, 1980: The lighting arrangement in figure 1, 2 or 3 may be used. However, the arrangement in figure 3 is not acceptable on a boat that is 12 meters or longer on international waters.

Row Boats or Paddle Boats
One all-round white light ready to display in time to prevent a collision (figure 7 a or b).

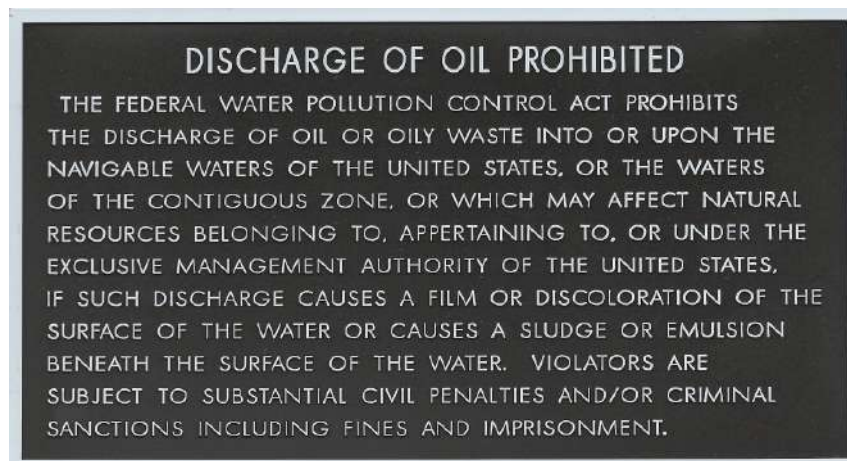
Great Lakes
Motorboat or sailboat using power on Great Lakes. The lighting arrangements in figure 7d may be used instead of the arrangements in figures 1 and 2.



Safety On Board

POLLUTION REGULATIONS

The Federal Water Pollution Control Act prohibits the discharge of oil or hazardous substances which may be harmful into U. S. navigable waters. *Vessels 26' and over* must display a placard at least 5" x 8", made of durable material, fixed in a conspicuous machinery space location, stating the following:



You must immediately notify the U. S. Coast Guard if your vessel discharges oil or hazardous substances in the water. Call toll free 800-424-8802. Report the following information: location, source, size, color, substances and time observed. The above placard is normally located in bilge.



CHAPTER 1

Garbage

The Act to Prevent Pollution from Ships places limitations on the discharge of garbage from vessels. It is illegal to dump plastic trash anywhere in the ocean or navigable waters of the United States. Also, it is illegal to discharge garbage in the navigable waters of the United States, including the Great Lakes. The discharge of other types of garbage is allowed outside certain specified distances from shore as determined by the nature of that garbage.

THE DISCHARGE OF PLASTIC OR GARBAGE WITH PLASTIC INTO ANY WATERS IS PROHIBITED. THE DISCHARGE OF ALL GARBAGE IS PROHIBITED IN THE NAVIGABLE WATERS OF THE UNITED STATES AND IN ALL OTHER WATERS, WITHIN THREE NAUTICAL MILES OF THE NEAREST LAND.		
THE DISCHARGE OF DUNNAGE, LINING, AND PACKING MATERIALS THAT FLOAT IS PROHIBITED WITHIN 25 NAUTICAL MILES FROM THE NEAREST LAND.	OTHER UNGROUND GARBAGE MAY BE DISCHARGED BEYOND 12 NAUTICAL MILES FROM THE NEAREST LAND.	OTHER GARBAGE GROUND TO LESS THAN ONE INCH MAY BE DISCHARGED BEYOND THREE NAUTICAL MILES FROM THE NEAREST LAND.
A PERSON WHO VIOLATES THE ABOVE REQUIREMENTS IS LIABLE FOR A CIVIL PENALTY OF UP TO \$25,000, A FINE OF UP TO \$50,000, AND IMPRISONMENT FOR UP TO FIVE YEARS FOR EACH VIOLATION, REGIONAL, STATE, AND LOCAL RESTRICTIONS ON GARBAGE DISCHARGES MAY ALSO APPLY.		



Safety On Board

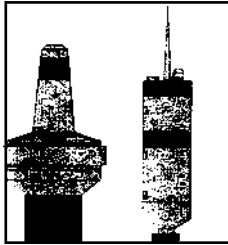
USCG Minimum Equipment Requirements for Recreational Vessels				
Boat Size in Feet	16'	26'	40'	65'
Personal Flotation Devices ¹	One Type I, II, III, or V per person		One Type I, II, III, or V per person plus one Type IV throwable	165"
Fire Extinguishers ²				
No Fixed System	One B-I, any type		One B-II or Two B-I	One or more B-II (vessels 0-50 tons gross) Two or more B-II (vessels 50-100 tons gross)
With Fixed System	No Portables Required		One B-I	
Visual Distress	Night signals required when operating at night		Minimum of three day-use and three night-use (or three day/night combination) pyrotechnic devices ⁵	
Signals	Horn or whistle recommended to signal intentions or signal position		One bell, and one whistle or horn required to signal intentions or position	
Sound Producing Devices	One CG-approved device on each carburetor of all gasoline-powered engines built after April 1940, except outboard motors			
Backfire Flame Arrestor	One CG-approved device on each carburetor of all gasoline-powered engines built after April 1940, except outboard motors			
Ventilation	CG standard system required on gasoline-powered vessels with enclosed engine compartments built after August 1980			
Navigation Lights				
Under Power ^{3,4}	Sidelights, Stern Light and Masthead ^{6,7}			
Under Sail	Sidelights and Stern Light ^{6,8}			
Rowing	Same as "Under Sail"			
At Anchor	All-round light, 2mm (at night) or black anchoring ball (during the day) when outside a designated anchorage			
Visibility Range	1mm Sidelights, 2mm all others		3mm Masthead, 2mm all others	5mm Masthead, 2mm all others
Pollution	"Honor system" (no plaques required)		5" x 8" Oil Discharge placard and 4" x 9" Waste Discharge placard	
Regulations	Vessels with installed toilet facilities must have an operable.		Vessels over 40' with a galley must have a Waste Management Plan	
Marine Sanitation	Vessels with installed toilet facilities must have an operable.		Type II or III MSD only	
Devices	CG-certified Type I, II or III Marine Sanitation Device (MSD) Subject to local laws!			
Navigation Rules	Familiarity with the Inland Navigation Rules required		The Inland Navigation Rules ("Rules of the Road") must be kept on board	
1. PFD's must be CG approved, wearable by the intended user and readily accessible				
2. Fire extinguishers required on boats with enclosed engine compartments (not outboards), enclosed living spaces or permanent fuel tanks.				
3. Sailboats operating under engine power are considered power driven and must follow the "Under Power" rules. During the day, motorsailing vessels are required to fly a motoring cone.				
4. Power-driven vessels under 23' and under 7 knots can substitute a white lantern or torch in place of the required lights.				
5. Non-pyrotechnic substitutes: 1 orange distress flag (day-use) and 1 electric SOS signal light (night-use).				
6. All boats under 65' can substitute a single bi-color light for sidelights.				
7. Boats under power under 40' can substitute a single all-round light for separate stern and masthead lights.				
8. Boats under sail under 40' can substitute a bi-color light for separate sidelights and stern light.				
Additions to these requirements are prescribed by some individual state laws. Check your state's Boating Safety Handbook for a complete list.				



CHAPTER 1

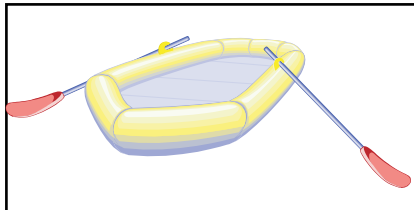
Communications

EPIRB



It is a good idea to carry communication gear such as a VHF-FM and/or HF transceivers set up for your operating area. Also, cell phones are useful in many coastal areas. Be sure to carry extra batteries. Also, mainly for offshore vessels, EPIRB's are designed to quickly and accurately alert rescue forces, indicate an accurate distress position, and guide units to the distress scene. These devices operate from satellite signals sent to a ground station where the signal is downloaded. The downside is that they are relatively expensive but they are reliable even when other communications have been exhausted.

Life Rafts



Inflatable life rafts are recommended for oceangoing and operating a vessel in a large body of water like the Great Lakes. They provide a shelter for extended periods. If used, make sure it is large enough for all aboard and contains the proper emergency equipment pack. Periodically find a professional to service the life raft. Store it on board in an area safe from sharp objects. Make sure the life raft is Coast Guard approved.

Remember the U. S. Coast Guard requirements are minimal standards. They are an excellent starting point. Check with local and state boating agencies for further required safety equipment. You are best prepared for emergencies by a well equipped vessel. Don't skimp when purchasing equipment for your boat!



Safety On Board

EXHAUST & CARBON MONOXIDE

Carbon monoxide (CO) in exhaust can be hazardous. It is important for you and your passengers to be aware of the potential safety hazard created by outboard engine exhaust gases. Familiarize yourself with the symptoms of carbon monoxide poisoning.

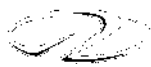
For safety sake avoid the following:

1. Do not allow the boat to remain stationary with the outboard engine idling for an extended period of time.
2. Do not disable the carbon monoxide alarms that come with your Regal boat. Test the unit in accordance with the alarm manufacturers instructions.
3. Do not operate the engine for extended periods of time while in a confined area or where exhaust outlets face a wall or bulkhead.
4. Do not operate the engine for an extended period of time with the canvas in the upright and installed position.
5. Have the outboard engine exhaust system periodically inspected when the boat is in for service.
6. Persons sleeping can easily be overcome by carbon monoxide without realizing it. Do not sleep on board while the engine is running or a neighboring boats engine is running.

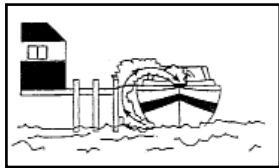


WARNING

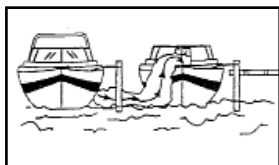
**AVOID SERIOUS INJURY OR DEATH FROM CO POISONING!
DO NOT OPERATE THE BOAT WITH PEOPLE HOLDING ON
TO THE SWIM PLATFORM WHILE IN THE WATER!**



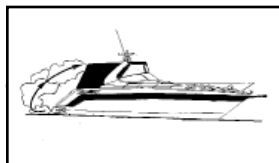
CHAPTER 1



Blockage of exhaust outlets can cause carbon monoxide to accumulate in the cabin and cockpit area even when the hatches, windows, portholes and doors are open.



Exhaust from another vessel alongside your boat, while docked or anchored, can emit poisonous CO gas inside the cabin and cockpit areas of your boat.



The “station wagon effect” or back drafting can cause CO gas to accumulate inside the cabin, cockpit or bridge areas when the boat is under-way, using protective weather coverings, high bow angle, improper or heavy loading, slow speeds, or when boat is at rest.

Typical Carbon Monoxide Label At Helm

⚠ WARNING	
	Carbon monoxide (CO) can cause brain damage or death.
	Engine and generator exhaust contains odorless and colorless carbon monoxide gas.
	Signs of carbon monoxide poisoning include nausea, headache, dizziness, drowsiness, and lack of consciousness.
	Get fresh air if anyone shows signs of carbon monoxide poisoning. See Owner's Manual for information regarding carbon monoxide poisoning.

Typical Carbon Monoxide Label At Transom


⚠ DANGER	
	Carbon monoxide (CO) can cause brain damage or death.
	Engine and generator exhaust contains odorless and colorless carbon monoxide gas.
	Carbon monoxide will be around the back of the boat when engines or generators are running.
	Move to fresh air, if you feel nausea, headache, dizziness, or drowsiness.

NW-208-05



Safety On Board

Typical Carbon Monoxide Label In Cabin/Head

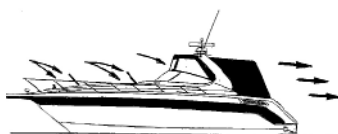
⚠ WARNING	
	Carbon monoxide (CO) can cause brain damage or death.
	Carbon monoxide can be present in the cabin.
	Signs of carbon monoxide poisoning include nausea, headache, dizziness, drowsiness, and lack of consciousness.
	Get fresh air if anyone shows signs of carbon monoxide poisoning.
	Get fresh air if carbon monoxide detector alarm sounds.
	Carbon monoxide detector must be functioning at all times.

In high concentrations, CO can be fatal in minutes. However, lower concentrations over an extended period of time can be just as lethal.

Symptoms of excessive exposure to carbon monoxide are:

- Dizziness
- Drowsiness
- Nausea
- Headache
- Ringing in the ears
- Throbbing temples
- Watery, itchy eyes
- Flushed appearance
- Inattentiveness
- Incoherence
- Fatigue or vomiting
- Convulsions

Carbon monoxide accumulation requires immediate attention! Thoroughly ventilate cabin and cockpit areas. Determine the probable source of the carbon monoxide and correct the condition immediately. Regal has installed CO detectors on your boat. Have these detectors professionally calibrated at regular intervals.



**DESIRED AIR FLOW
THROUGH BOAT**

To help prevent carbon monoxide accumulation, ventilate your cabin and cockpit while underway. Open a forward hatch, porthole or window to allow air to travel through the boat's interior. See the illustration below for desired air flow.



CHAPTER 1

BOATING UNDER THE INFLUENCE



WARNING

FEDERAL LAWS PROHIBIT OPERATING A VESSEL UNDER THE INFLUENCE OF ALCOHOL OR DRUGS. THESE LAWS ARE VIGOROUSLY ENFORCED BY ALL ENFORCEMENT AGENIES.

Operating a vessel while intoxicated became a specific federal offense effective in 1988. The ruling set federal standards for determining when an individual is intoxicated. If the blood alcohol content (BAC) is .10% (.08 in some states) or higher for operators of recreational vessels being used only for pleasure are subject to a civil penalty up to \$1,000 or criminal penalty up to \$5,000, one year imprisonment or both. In some states the fines and imprisonment may increase significantly. The effects of alcohol and drugs account for the highest single cause of marine accidents and deaths. Most deaths in boating accidents occur when someone falls into the water. Balance is one of the first things you lose when drinking alcohol or under the influence of drugs. The problem arises out of not knowing your balance is restricted.

Overall vision is reduced by alcohol especially at night, along with double or blurred vision. Peripheral vision is lessened which restricts seeing vessels or objects on the side. Also, color awareness decreases especially with red and green which happen to be the colors of boat navigation lights, buoys, and channel markers.

Alcohol will greatly increase your heat loss so it increases the effects of hypothermia. Finally, your ability to make correct judgements in emergency situations is greatly reduced. Alcohol takes away the brains ability to process information quickly and delays a persons reaction time. **Don't drink and drive!**



Safety On Board

Alcohol Myths And Facts

Myth: Beer is less intoxicating than other alcoholic beverages.

Fact: One 12 oz. can of beer has about the same amount of alcohol as a 5oz. glass of wine or a shot of liquor.

Myth: Black coffee, fresh air, and a shower will sober alcohol effects.

Fact: After consuming alcohol time is the only thing that will sober you up. Our bodies average burning 1 oz. of alcohol every hour. If a person is drunk, it will take about seven or more hours to sober up.

Myth: Telling if a person is too drunk to operate a vessel is easy.

Fact: Many experienced drinkers have learned to compensate for the visual effects of alcohol and can disguise their drunk condition.

Myth: You're the best person to judge if you are fit to operate a boat.

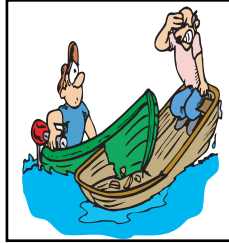
Fact: Judgement is one of the first elements you lose when drinking.

BLOOD ALCOHOL CONTENT CHART										
Body Weight In Pounds	Number of Drinks In A 2 Hour Period (12 oz. beer=5 oz. wine=1 oz. 80 proof liquor)									
100	1	2	3	4	5	6	7	8	9	
120	1	2	3	4	5	6	7	8	9	
140	1	2	3	4	5	6	7	8	9	
160	1	2	3	4	5	6	7	8	9	
180	1	2	3	4	5	6	7	8	9	
200	1	2	3	4	5	6	7	8	9	
220	1	2	3	4	5	6	7	8	9	
240	1	2	3	4	5	6	7	8	9	
BAC to .05%	— Be Careful- Loss of Judgement & Coordination									
BAC .05% to .10%	==== Abilities Impaired- Accident Chance Increased									
BAX. Over 10%	===== Do Not Operate A Boat- High Accident Risk									



CHAPTER 1

BOATING ACCIDENTS



The following is a list of common causes of boating accidents. Be aware of them and take the necessary steps to ensure that your crew and yourself are educated and prepared to act in an emergency.

- ◆ Mixing boating and alcohol. Remember the skipper is responsible for his boat and crew.
- ◆ Trying to reach the bow by the deck walk-around while the boat is moving too fast.
- ◆ Someone sitting on the bow, deck, or swim platform while underway.
- ◆ Choosing a boating outing day with inclement weather, especially with high winds and thunderstorms in the forecast or staying out when bad weather is approaching.
- ◆ Disembarking without checking all fluids or systems and especially fuel system components.
- ◆ Not monitoring the boating traffic or possible obstructions around you.
- ◆ Emergency communications equipment, signaling devices, and navigation lights not working.
- ◆ Improper boat handling especially high speed turns in rough water. Improper trim.
- ◆ Being too far from shore with inadequate fuel supply or navigational aids.



Safety On Board

- ◆ Passengers, especially children that are not wearing the proper life saving devices.
- ◆ Skipper or passengers not seated in the boat.
- ◆ Running a craft that is mechanically marginal.

Reporting Boating Accidents

According to the Federal Boat Safety Act of 1971 involving collision, accident or other casualty, the operator must make a formal report within 48 hours to the nearest state boating authority when the incident involves:

1. Death.
2. Injury requiring treatment other than first aid.
3. The disappearance of someone from a boat under death or injury circumstances.

A formal report must be made within 10 days for accidents involving more than \$500 damage or complete loss of vessel.

For information regarding accident reporting, please call:

Boating Safety Hotline at 800-368-5647.

Rendering Assistance

The operator of a vessel is obligated by law to provide assistance that can be provided safely to any individuals in dangerous situation on the waterways. The operator is subject to fine and or imprisonment for failure to do so. Move cautiously and think before acting.

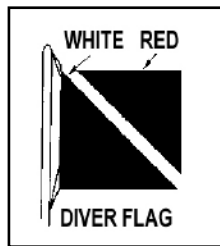


CHAPTER 1

WATER SPORTS

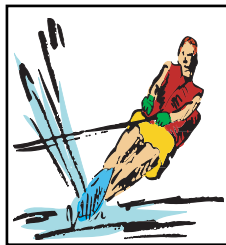
Besides learning the safety precautions for safe boating, as well as understanding and knowing required rules and regulations, you are obligated to be particularly careful around other water sportsman, such as scuba divers, water skiers, wakeboarders, and fisherman.

Skin & Scuba Divers



Whenever you see a “Diver Down” flag, maintain a distance of at least 100 feet on inland waters. In bays and open waters stay 300 feet away. The flag indicates a diver in the water. If a diver is operating from your boat, be certain to use this flag and post a lookout on board for a divers air bubbles. Sometimes divers stray from the flag area.

Water Skiers & Wakeboarders



For information on water skiing and how to get started, we recommend you contact the American Water Ski Association, P. O. Box 191, Winter Haven, Florida 33880. They offer pamphlets and instructional materials.

For wakeboarding information there are numerous training schools throughout the country along with instructional videos and the internet.



Safety On Board

General safety procedures for towing skiers and wakeboarders include the following:

- ◆ Know your hand signals and along with all your passengers.
- ◆ Do not allow non-swimmers to ski or wakeboard.
- ◆ Always have an observer on board whose sole job is to watch the skier/wakeboarder and communicate with the driver.
- ◆ If you plan to do a lot of skiing/wakeboarding, it is advisable to have a ski pylon and driver's rear view mirror installed.
- ◆ Acquaint yourself with the ski site before skiing/wakeboarding.
- ◆ Follow the speed limits and all posted signs- i.e. no wake, etc.
- ◆ Keep the boat away from swimmers or other people in the water.
- ◆ Avoid running near the shoreline or in heavily congested areas with skier/wakeboarder in tow.
- ◆ Do not allow skier/wakeboarder to spray fisherman or other parties.
- ◆ Keep the engine speed steady while towing a skier/wakeboarder.
- ◆ Make wide turns with skier/wakeboarder in tow.
- ◆ Instruct skier/wakeboarder in case of a fall to raise his ski in the air to ensure his visibility.
- ◆ Always turn your engine off when the skier/wakeboarder is near the platform or transom.
- ◆ If the skier falls, return promptly to retrieve him, circling wide from the starboard side, to bring his rope within easy grasp.



CHAPTER 1

Water Sport Tow Device

Your vessel may be equipped with a water sport tow device. This may be in the form of a stainless steel bar with an eyelet at the end for line placement or a roller type component attached to the Power Tower or hard top. Periodically check your tow line for abrasion.



WARNING

AVOID SERIOUS INJURY OR DEATH!
DO NOT USE WATER SPORT TOW DEVICE
FOR LIFTING OR PARASAILING.
THE FITTING COULD PULL OUT OF THE STRUCTURE.



Safety On Board

Swim Platform

WARNING!
MAXIMUM CAPACITY
OF SWIM PLATFORM
500 POUNDS
226 KG

On extended swim platforms you should make periodic inspections of the swim ladder and swim platform hardware to ensure that all connectors and fittings are tight and free from corrosion. Check the laminated fiberglass under platform supports for fatigue and cracks. Never run the boat with someone holding on to or standing/sitting on the platform. Use heed when operating the boat in reverse to insure that water does not accumulate excessively on the platform especially in rough seas or strong currents. Do not exceed the platform recommended maximum capacity **label!**



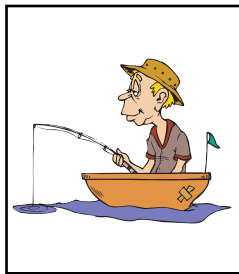
CHAPTER 1



WARNING

AVOID SERIOUS INJURY OR DEATH!
DO NOT OPERATE THE BOAT WITH PEOPLE IN THE WATER
OR ON TOP OR HOLDING ON TO THE SWIM PLATFORM
STRUCTURE OR HARDWARE.

Fishing



Most boaters fish from time to time. With the propulsion systems of today it is possible to fish in out-of-the-way places. When cruising, stay clear of fisherman. They may have lines or nets out which might be cut or get caught in your propeller if you come too close. Slow down when approaching fishing boats.

Do not return to cruising speed until the boats have been passed. If a fishing boat should be anchored, a large wake could flip or swamp the boat, upset fishing gear, pull the anchor loose from the bottom or worse yet cause someone to fall overboard.

When fishing from your boat, never anchor in shipping channel or tie up to any navigational aids. These must be kept clear of at all times. Be sure to carry a chart of the area and be on the lookout for shallow water and hidden obstructions. Pick up a local tidal chart if appropriate so you do not end up grounded.

Remember, the skipper is responsible for any damage caused by his wake. Use common sense and be a responsible captain!



WEATHER & WATER CONDITIONS

Before a boating outing check the weather conditions. As we all know the weather can change rapidly in many parts of the country. It does so sometimes without being predicted. NOAA weather radio reports are continuously available on designated frequencies installed on VHF radios and various handheld devices. Also, many local radio stations carry weather reports.

Cloud Formations

Clouds indicate the type of current weather and upcoming changes in the weather. Knowing the type of cloud formations can assist you in choosing the appropriate boating day or if already on the water will help you understand any upcoming weather changes

Flat clouds (stratus) normally indicate stable air. Cumulus clouds indicate unstable air. At times a “cotton ball” or cumulus cloud builds vertical height in the afternoon and the result is a thunderstorm with increased winds and waves; sometimes these storms are quite violent. You can find additional information on weather (meteorology) at your local library.



CHAPTER 1

Waves & Fog



As the wind blows across water waves are created. The stronger the wind and increased distance across the water enlarges the wave action.

Other factors that can cause problem situations for vessels are fog, currents, and tidal changes.

Fog can develop inland on clear, calm mornings. Coastal areas see large “blankets” of fog roll in and stay for extended time periods causing sometimes hazardous navigation conditions. If you are caught

in the fog, do not panic. Think of the best plan of action and proceed carefully. If you are limited in navigation equipment at the first sign of fog proceed to the nearest shoreline and wait until the fog lifts.

Boats equipped with navigation equipment, local waterway experience and charts should proceed to a safe harbor. Use extreme caution, signal as needed, and reduce to a speed where you can stop within half of your forward vision range.

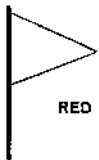
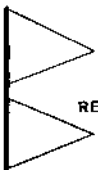






If foul weather catches you at sea do the following:

1. Slow down. Proceed with caution and put on your life vests.
2. Try to reach the nearest safe shoreline.
3. Navigate your vessel slowly into the waves at a 45 degree angle.
4. Passengers should sit low in the center of the vessel.
5. Monitor your bilge pump. Make sure sump stays free of water.
6. Secure loose gear. Make ready emergency equipment.
7. If the engine stops, throw the anchor over the bow. If needed use a sea anchor. Never anchor off the stern.



Safety On Board

Marine Weather Symbols

	SMALL CRAFT	GALE	STORM	HURRICANE
DAY FLAGS	 RED	 RED	 RED & BLACK	 RED & BLACK
NIGHT LIGHTS	 RED WHITE RED	 WHITE RED RED	 RED RED RED	 RED WHITE RED

Although the National Weather Service has discontinued the use of the day flags and night lights, many marinas and ports of call still display them.



Rules Of The Road

NAVIGATION RULES DEFINED



The Navigation Rules set forth actions to be followed by boats to avoid collision. They are referred to as the “Rules of the Road”. There are two main parts referred to as the inland and international rules. The inland rules apply to vessels operating inside the boundaries of the United States. The international rules referred to as 72 COLREGS apply to vessels operating on the high seas and all connected waters outside the established demarcation boundaries. Most navigational charts show the demarcation lines by red dotted lines and are published in the navigation rules. Remember to consult state and local agencies since areas such as “no wake zones”, swimming beaches, “diver down flag” and inland landlocked lakes fall under their jurisdiction. This section is only an introduction to the “rules of the road”. We strongly recommend additional training before getting behind the “wheel” of your boat.



WARNING

AVOID SERIOUS INJURY OR DEATH! FOLLOW THE
NAVIGATION “RULES OF THE ROAD”
TO PREVENT COLLISIONS.

You can order the Inland & International Navigation Rules from:
Superintendent of Documents
U. S. Government Printing Office
Washington, DC 20402
Telephone: (202-512-1800) Fax: (202-512-2250)



CHAPTER 2

NAVIGATION RULES

Right Of Way

1. Cross waves at right angles.
2. When caught in heavy water or squalls, head either directly into the waves or at a slight angle. Reduce speed, but maintain enough power to maneuver your boat safely.
3. Keep your speed under control. Respect the rights of other boaters engaged in all water sports. Give them a “wide berth”.
4. Whenever meeting a boat head on, keep to the right where possible.
5. When two boats cross, the boat to the right (starboard) has the right of way.
6. When overtaking or passing, the boat being passed has the right of way.

In general, boats with less maneuverability have right-of-way over more agile craft. The skipper must keep his craft clear of the following vessels:

- A vessel not under command or aground; due to their circumstances, these vessels have no maneuverability.
- A vessel restricted in its maneuverability; these vessels usually are performing work which limits their maneuverability such as surveying, dredging, laying pipe or cable, or servicing navigational markers among others.
- A vessel engaged in fishing; these include boats fishing with lines, trawls or nets, but not trolling lines.



Rules Of The Road

- Sailboats; they have the right-of-way over power boats. However, if a sailboat is using a prop to move forward, it is considered a powerboat even if the sails are up.
- Remember the unwritten “rule of tonnage”. Basically a smaller tonnage vessel should take every effort to avoid close quarters with a larger tonnage vessel. One way to accomplish this is to have a designated human lookout to “eyeball” the horizon for any developing collision course.
- Use defensive driving skills on the waterway just as you do on the roadway. The other vessel may not know the “rules of the road” Be alert and ready to take immediate action.
- If a collision course is unavoidable neither boat has the right of way. Both boats must react to avoid an accident according to the rules of the road.

Signals

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

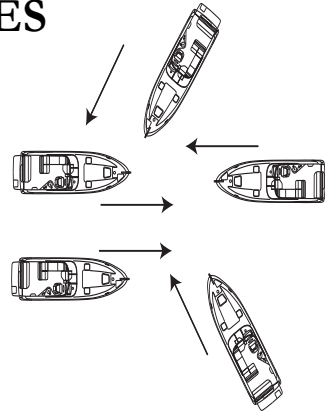
SOUND		VISUAL		DAY (Flag)	NIGHT (Lights)
VESSEL: Open	— ●	VESSEL: Open	□	↑	↑
BRIDGE: OK	— ●	VESSEL: OK	□	↓	↓
No	● ● ● ● ●	BRIDGE: OK	Same	or	Same
VESSEL: Replies:	● ● ● ● ●	No	◀ ◻ ▶		◀ ● ▶
RADIO: VHF CH. 13					



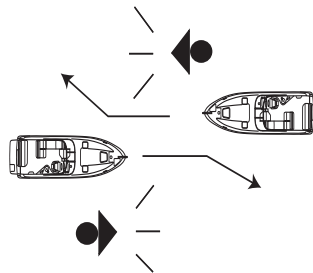
CHAPTER 2

NAVIGATION RULES

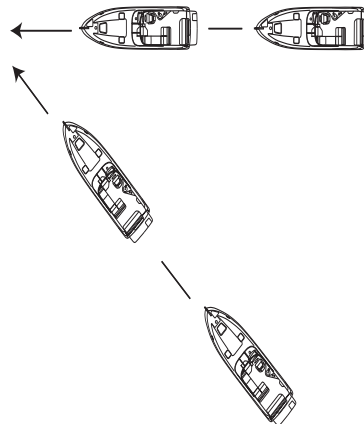
The Navigation Rules set forth 3 types of crossing situations- crossing, meeting, and overtaking. In each case, both boats are governed by special procedures.



In a head-on meeting, both vessels must sound a single blast to give way toward starboard and pass to port.



These rules appear when there is a risk of collision. In a crossing situation be aware of the other craft's position. For safety, there should be a noticeable change in the angle, bow or stern; a gradual change in position indicates possible danger.

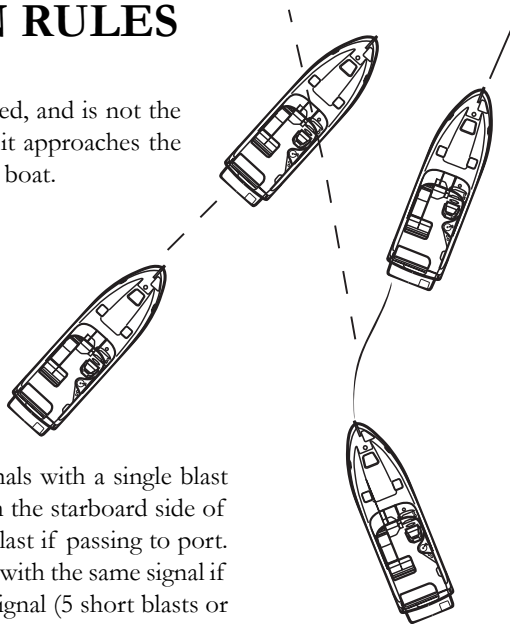




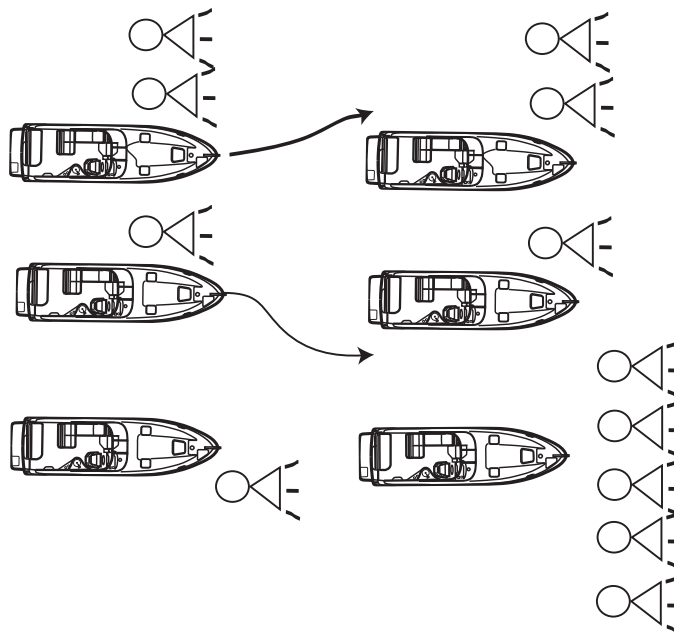
Rules Of The Road

NAVIGATION RULES

An overtaking boat is burdened, and is not the privileged craft, even though it approaches the danger zone of the overtaken boat.



The overtaking boat first signals with a single blast if that boat desires to pass on the starboard side of the boat ahead, or a double blast if passing to port. The overtaken craft responds with the same signal if it is safe, or with the danger signal (5 short blasts or more) if unsafe. The boat overtaking must not pass unless the appropriate signals are sounded.





CHAPTER 2

NAVIGATION AIDS

Navigation aids are placed along coasts and navigable waters as a guide for mariners in determining their position in reference to land and hidden danger. Each aid provides specific information. They form a continuous system of charted markers for accurate piloting on paper and on the water.

Nautical charts are provided by the National Ocean Service (NOS) and are distributed nationwide through marinas and outlet stores. These charts show the geography of the coast, water depth, landmarks, navigation aids (buoys and markers), marine hazards, and port facilities. Use only up-to-date charts for navigation. We recommend when purchasing a chart to look for the weather resistant ones.

Buoys provide a road map to keep the skipper on course and to avoid hazards. Buoys are identified by light, shape, color and in severe weather conditions by sound.

Buoys or beacons called lateral markers indicate the port and starboard sides of the waterway to be followed. U. S markers follow the buoy system known as Red Right Returning. When returning from sea or traveling upstream, the green markers are to port (on your left) and the red markers are to the starboard side (on your right). When traveling downstream or out to sea the marker color would be reversed. The Intercoastal waterway uses a different system of lateral markers for port and starboard. Before operating your vessel, learn to identify the various navigational aids such as lateral aids, mid-channel markers, information and regulatory markers.



NOTICE

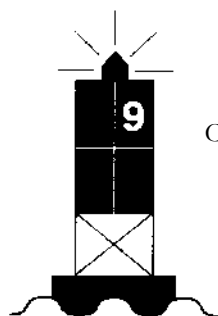
**SKIPPERS MUST NOT RELY ON BUOYS ALONE
TO MARK THEIR POSITION!
SEVERE WEATHER CONDITIONS
AND WAVE ACTION CAN ALTER A BUOYS POSITION.
NEVER TIE UP TO A BUOY.
IT IS ILLEGAL AND EXTREMELY DANGEROUS!**



Rules Of The Road

LATERAL AIDS

Port Side
Odd Numbers

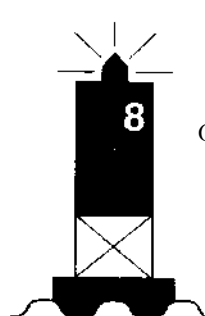


Lighted Buoy
(Green Light Only)

Chart Symbol

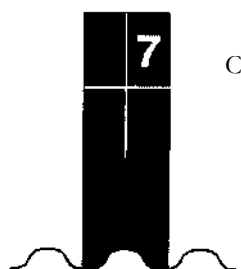


Starboard Side
Even Numbers



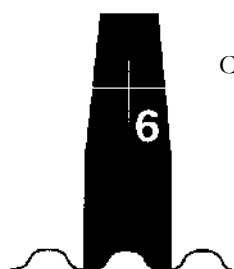
Lighted Buoy
(Red Light Only)

Chart Symbol



Can Buoy
(Unlighted)

Chart Symbol



Nun Buoy
(Unlighted)

Chart Symbol



Daymark

Chart Symbol



Daymark

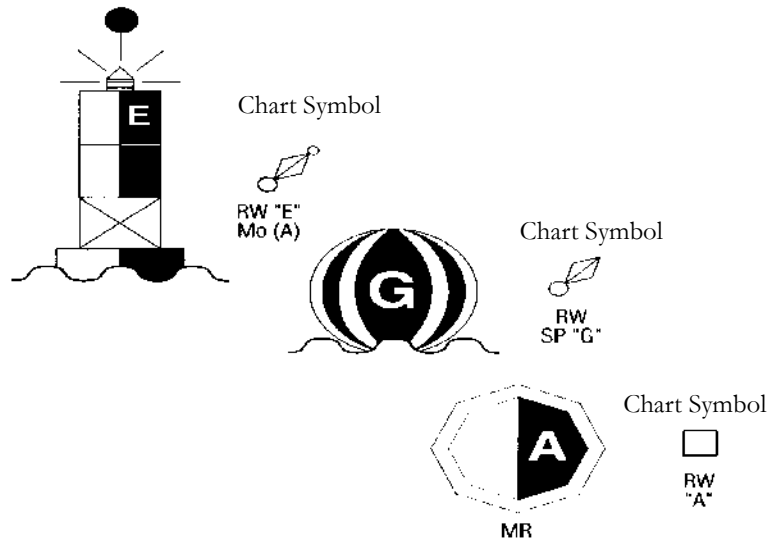
Chart Symbol





CHAPTER 2

MID-CHANNEL MARKERS



REGULATORY MARKERS



Diamond Shape
Danger Warning



Diamond Shape With Cross-
Boats Keep Out



Circle Marks Area Controlled
As Indicated



For showing information such
as locations, distances and
directions



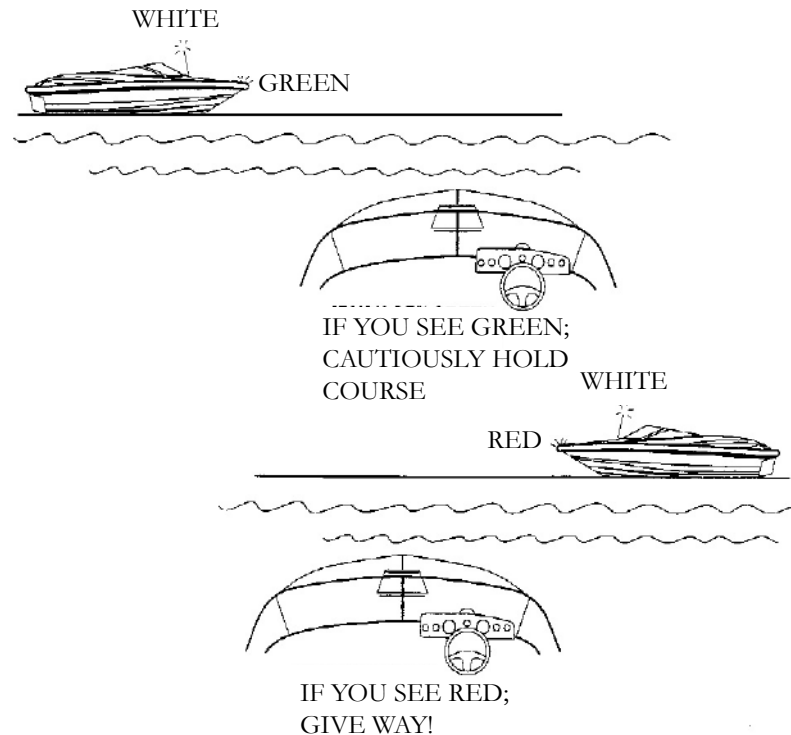
Rules Of The Road

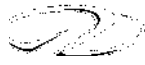
NIGHT RUNNING

Boats operating between sunset and sunrise (hours vary by state), or in conditions of reduced visibility, must use navigation lights. Nighttime operation, especially during bad weather and fog, can be dangerous. All Rules of the Road apply at night, but it is best to slow down and stay clear of all boats regardless of who has the right-of-way.

To see more easily at night, avoid bright lights when possible. Also, it is helpful to have a passenger keep watch for other boats, water hazards and navigational aids.

To determine the size, speed and direction of other vessels at night, you should use the running lights. A green light indicates starboard side, and a red light indicates port side. Generally, if you see a green light, you have the right-of-way. If you see a red light, give way to the other vessel.





CHAPTER 2

BRIDGE CLEARANCE

Be aware that your vessel requires a specified bridge clearance height. This height is a measured estimate from the waterline to the top of the highest object usually the sport arch, radar or the masthead light depending on what arch equipment is installed. All canvas should be in the stored position. The estimated height can change because of variances in the loaded condition of the vessel.

Consult the bridge clearance specifications located in Chapter 12). An easy way to measure bridge clearance is to have someone place a long straightedge such as a piece of wood at a 90 degree angle across the highest point of the boat with the boat in the water. Then with a tape rule measure the distance straight down (90 degrees) to the waterline. Take this measurement with the fuel and water tanks 1/2 full and only 1 person besides yourself on board. This will give you a safe measurement. As your boat is loaded down with people the bridge clearance may increase slightly.

Some bridges are tendered. Know and use the proper bridge signals when approaching these bridges (see bridge signals on page 2-3). You can also monitor and communicate on channel 13 of a VHF radio for bridge information in most domestic locals. Other bridges are marked with a clearance measurement and you are on your own. After determining your vessel will clear the bridge proceed with caution at a safe idle speed. Keep your eye on vessel traffic at all times in order to react quickly. Resume a safe speed once clear of the bridge structure and acknowledgment of clear visibility.

Use common sense regarding bridge clearance because bodily injury and property damage could result if a mishap occurs with a bridge structure.



Engine & Controls

OUTBOARD ENGINE BASICS



It is important that you read your outboard engine manual carefully and become completely familiar with the operation as well as necessary maintenance on the engine and propulsion systems. Pay careful attention to the sections on winterization if you live in freezing climates.

Extensive damage can result if proper winter storage is not followed in freezing climates. Contact your Regal dealer for information regarding technical issues and parts. Also, refer to the maintenance section of this manual.



WARNING

AVOID SERIOUS INJURY OR DEATH! READ ALL MANUFACTURER'S OUTBOARD ENGINE AND PROPULSION OWNER'S MANUALS BEFORE OPERATING YOUR VESSEL.

This chapter is intended to give general information about the location and function of typical outboard engine and controls. Control systems and engines may vary from model to model. Refer to the specific engine owner's manual for your equipment that would include the following information and much more in greater detail and accuracy.



CHAPTER 3



WARNING

AVOID SERIOUS INJURY OR DEATH! USE ONLY APPROVED MARINE REPLACEMENT PARTS THAT ARE IGNITION PROTECTED IN AND AROUND THE ENGINE COMPARTMENT.

Engines function is based from four principles; fuel, compression, ignition, and exhaust. The proper ratio of fuel and air must be drawn into the engine's cylinders in order to be compressed by the pistons and ignited by a spark the force of which pushes the piston back down, providing the energy used to turn your propeller, before the engine kicks into the exhaust stage where it expels the by-products. If any of these four functions fail, so does the engine itself.

Beyond these basic concepts of engine functionality include engine cooling, lubrication, and electrical systems. The specific details of these systems can be found in the outboard manufacturer's owner's manual for the specific engine option you chose on your Regal boat.

Engine Removal

In the event the outboard engine needs to be removed from the transom consult your Regal dealer. He has the factory trained knowledge and equipment to remove the engine safely and efficiently.

Engine Checklist Before Each Outing

Every engine option may require different checks before each use, but a general engine checklist is included here as a guide.

- Check crankcase engine and gearcase oil levels.
- Check steering fluid.



Engine & Controls

- Check power trim fluid.

At Helm/ Deck

- Check power trim for operation.
- Check control lever for operational defects. Check the clip and safety lanyard for functionality.
- Check gauges for accuracy.
- Check fuel level and ensure the level is sufficient for the trip with a reserve.

ENGINE COOLING SYSTEM

Your typical engine normally utilizes a raw water system for cooling the engine with intakes at the gearcase. It is important that this system continues to run unobstructed at all times to avoid hazardous situations and to ensure a safe voyage.

Raw water is drawn up into the outboard vertical driveshaft housing through pick-up feeds in the gearcase vicinity. Water passes through a powerhead thermostat which controls how much water circulates through the powerhead. The cool water absorbs heat produced by the engine, before being emitted via the coolant exhaust system.

There is a access hole on the port side of the powerhead which shows a visual stream of water at all times. If no water is visible with the engine running shut down the engine and investigate the problem. At times this relief hole can be plugged by debris.



CHAPTER 3

Impeller/ Water Pump

Periodically, the coolant system's impeller and water pump should be inspected for debris, damage or excessive wear due to use, water chemistry such as mineral and/or silt conditions. Damaged parts will affect the system's ability to function, and may cause engine overheating or damage. Contact your closest Regal dealer for more information and maintenance schedules of key outboard engine systems.

Thermostat

If the temperature gauge starts yielding abnormal readings, it may become necessary to look at or replace the powerhead thermostat after determining whether it is functioning properly. The thermostat reads the temperature of coolant and determines whether to open or close a valve to allow warm sea water to pass into the exhaust manifold. The thermostat may recirculate hot coolant for the purposes of reaching standard operating temperatures. If standard operating temperatures have been reached, the thermostat will open a valve and allow hot raw water to exit through the exhaust manifold. For more information read your outboard engine manual or contact the closest Regal dealer. Dealers have the necessary knowledge and tools to troubleshoot any engine related problems



WARNING

AVOID TOUCHING THE THERMOSTAT OR ITS COMPONENTS WHILE THE ENGINE IS ON / HOT. AVOID RUNNING THE ENGINE WITHOUT A FUNCTIONING THERMOSTAT, AS IT MAY OVERHEAT.



Freshwater Flushing Attachment

Your outboard features a fresh water flushing system. After linking up to a fresh water hose at the flush port, water can be pumped through the engine's raw water cooling system to flush out all salt and debris that may be left behind. Normally there is a hose thread fitting on the side of the engine. After the connection is opened a garden hose is connected to the fitting and the engine can be flushed. It is best to connect the flushing system up when the engine is warm since the thermostat is open at this time to allow water to circulate through the entire head rather than bypassing the cylinder head areas. *Do not run the engine while using the flushing system device as engine damage may occur.*

ENGINE ELECTRICAL SYSTEM

Your engine utilizes a great deal of electronic equipment. Some equipment sends signals between the engine and the Garmin, while other systems set off alarms, and still others are used by the engine to generate a spark and ignite the fuel. The battery switch controls electrical power distribution to the boat systems.

To regularly maintain your DC electrical system, inspect the battery charge before each trip. Test all gauges and control equipment prior to departure, and replace as necessary. Spark plugs should be replaced according to your engine owner's manual maintenance schedule.

Gauge Electrical Signals

Your outboard transmits signals through electrical harnesses to different components through the use of NMEA 2000 connections and a "backbone system". A standard Garmin plotter displays the engine functions. The fuel gauge and depth sounder use stand alone technology to display readings. Also, idiot lights are display tolerances that are classified as being abnormal.



CHAPTER 3

Alarms

When a malfunction with your outboard engine occurs, the Garmin plotter alerts the skipper of a problem. Common engine problems include overheating, low oil pressure, or a miscommunication with equipment. Learn the alarm systems that apply to your engine by consulting your engine owner's manual.



WARNING

AVOID OPERATION OF THE ENGINE AFTER AN ALARM HAS SOUNDED. USE OF THE ENGINE WITHOUT ADDRESSING THE PROBLEM MAY RESULT IN ENGINE DAMAGE OR FAILURE.

Spark Plugs

The spark plugs are the piece of equipment that help make ignition occur. As electrical potential builds on one side of the gap based upon the energy distributed by the distributor, the potential eventually grows large enough to cause the electric current to jump the gap on the spark plug. This spark is what ignites the compressed fuel generating a controlled explosion that will power the piston down and deliver power to the drive shaft.

Stator

Under normal circumstances, the starter battery would wear down after being used so often to generate a spark for the engine. This isn't an ideal setup because a strong battery is needed for continual operation. A weak battery does no good out on the water. The stator takes care of recharging the battery(ies).



Engine & Controls

However, in an effort to conserve battery life, the starter battery switch should still be turned off after every trip and turned on at the start of every trip. This limits the drain on the battery while the boat is not in use. The stator will only recharge the battery while the engine is running.

Fuses

Your engine also comes equipped with fuses that will burn out when engine components attempt to draw more power than the piece of equipment or wiring can handle. When the fuse blows, it breaks the circuit, and electricity stops flowing. Before replacing the fuse, investigate the cause of the problem, and why the equipment was overworked. Your outboard engine uses a helm mounted fuse box which is accessible by lifting the starboard bow backrest while others feature in-line fuses, while still others feature a mixture of both. Refer to your outboard engine owner's manual for complete details on your electrical system and the location of any engine mounted over current protection.

ENGINE EXHAUST SYSTEM

Your engine expels the by-products of the engine operation through an exhaust system, just like cars do. In boats however, this exhaust system mixes the debris left over after the power stroke of the engine with the hot water that is expelled after cooling the engine.

Basically the exhaust flows through the powerhead before expelling the exhaust through the vertical drive housing either just above the propeller, or through the prop shaft.



CHAPTER 3

ENGINE FUEL SYSTEM

All engines require a source of fuel in order to run. The fuel that an engine uses, is not only comprised of gasoline but also air. This mixture of gas and air are combined into a ratio, best suited for your engine and boat. If this system fails, the engine will have no fuel to compress and ignite. It is important to make sure your fuel system is functioning properly.



WARNING

GASOLINE VAPORS CAN EXPLODE. BEFORE STARTING THE ENGINE, CHECK COMPARTMENTS AND MOTOR WELL FOR GASOLINE LEAKS OR VAPORS.



WARNING

USE OF ALCOHOL ENHANCED FUEL, OR ANY FUEL OTHER THAN GASOLINE, CAN LEAD TO DETERIORATION OF THE FUEL SYSTEM COMPONENTS. THIS CAN RESULT IN FIRE AND POSSIBLE EXPLOSION.

Your typical factory installed fuel system is comprised of a fuel fill fitting marked “gas”, fuel tank, fuel hoses, fuel vents, anti-siphon valve, water separator filter, fuel gauge, and sender among other items.

You should understand the purposes of each of these components and discover their location by reading this manual along with the



Engine & Controls

outboard owner's manual so that you can fix a fuel system problem when the need arises out on the water. The pictures displayed in this section may not reflect your specific engine.

Fuel Fill Cap

The domestic installed fuel fill is labeled “gas” and is located along the starboard aft deck. When fueling it is important to keep the fill nozzle in contact with the fuel fill line since it decreases static electricity, which may spark and ignite gasoline vapors. Always use the recommended fuel octane rating as specified in your outboard engine owner's manual. Extinguish all flame producing agents before fueling. The fill cap leads to the anti-siphon valve and fuel tank. When finished fueling ensure that the gas cap ratchets shut which ensures that vapors are contained within the system.

Anti Siphon Valve

The anti-siphon valve at the base of the fuel feed line is pulled off its seat by fuel pump pressure as the engine is cranking or running. It forms a one-way fuel roadway by sealing off the fuel feed line from the fuel fitting. It prevents fuel from siphoning out of the tank in the event of a fuel line rupture, or disconnected fuel feed hose. It is an important safety item, so **DO NOT** remove the anti-siphon valve.



Fuel Vent

Fuel vents are often combined into the fuel fitting on the deck. Fuel tanks are vented overboard for the fumes to escape. While the tank



CHAPTER 3

is filled with fuel, air is displaced by the incoming fuel, and relieved through the fuel vent hose. When the fuel tank is near full, slow down or stop the nozzle flow to keep the fuel from splashing out the vent.

Fuel Hoses

Fuel hoses transport gasoline from one component to another. These hoses are required to be of certain diameters in order to comply with engineering and environmental standards. Hose clamps are often used to seal the hose to a fitting, and these connections should be checked regularly.

Fuel Pumps/ Filter

From the fuel tank, gasoline is moved from the tank to the engine by the pressure produced in fuel pumps. Fuel filters are not able to remove large amounts of water. If the fuel becomes contaminated with water, the water separator filter(s) must be replaced.

Fuel Sender & Gauge

A fuel sender on the fuel gauge uses a dipstick/float system to measure the amount of fuel left in the tank. This measurement generates a specific resistance value in an electronic circuit connected to the fuel gauge at the helm. As different fuel levels are reached, the resistance value in the circuit with the fuel gauge changes which is read by the fuel gauge and is converted to an approximate fuel level.

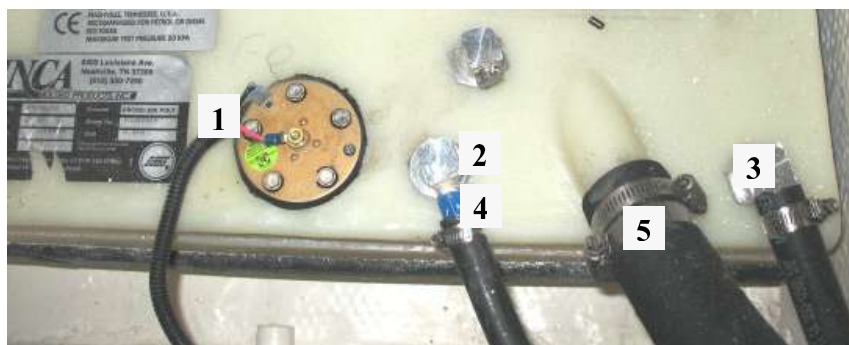
Fuel Tank

The fuel tank should be inspected for damage before each voyage. This should be done when you check the fuel lines for tightness



Engine & Controls

and leaks. Your Regal boat uses an aluminum or polyester fuel tank that has been tested several times along with other fuel system components for safety requirements and dependability in house, and they are inspected independently by National Marine Manufacturers Association personnel. Typical fuel tank shown below.



European Style Fuel Tank Shown

- | | |
|----------------------|-------------------|
| 1) Fuel Sender | 4) Fuel Feed Line |
| 2) Anti Siphon Valve | 5) Fuel Fill Line |
| 3) Fuel Vent Line | |

ENGINE LUBRICATION

Whenever two components rub together, friction causes wear on both components. To minimize the wear on your engine, a lubrication system has been put in place to help components slide next to each other easier. This is particularly important within the inner workings of an engine. It is important to ensure your lubrication system is working properly at all times.

Your Regal utilizes lubrication and fluids that need regular check ups. Refer to your outboard engine owner's manual for specific details regarding the proper maintenance procedure of your lubrication system.



CHAPTER 3

Note: Your outboard uses other lubricants in addition to engine oil such as power trim fluid and propshaft gearcase lubricants to reduce wear on moving components. These fluids should be checked according to the recommended maintenance procedures determined by the outboard manufacturer.

Engine Oil

The purpose of engine oil is to lubricate the internal components of the engine and ensure that parts that regularly move against each other have reduced friction to reduce wear and noise between components. An oil filter keeps metal particles and water out of the engine's interior.

Yamaha engines performing on regular oil should have the oil drained and replaced after the first 20 hours of operation or 3 months, and every 100 hours or at 1 year intervals thereafter.

Gearcase Oil

Gearcase oil keeps all the mechanical components of the propshaft gear assembly functioning optimally. It reduces friction in the gearcase as the gears revolve. Sometimes gearcase oil is called gear lubricant, as the oil essentially lubricates the gears inside the gear box. Gearcase oil should be inspected periodically according to factory maintenance schedules. Use outboard manufacturer's recommended oil.



Engine & Controls

Power Trim Fluid

Power trim fluid allows your outboard to trim up or down. This is particularly useful when trying to get your boat to plane where the hull is as much out of the water as physically possible, reducing friction, and improving ride performance. This power trim fluid is used in hydraulic rams that maneuver the outboard unit, and shouldn't need to be replaced very often, if at all.

Power trim fluid should be checked regularly, despite not requiring replacement unless something serious happens. Discoloration or water presence indicates a water leak in the stern drive. In that case, contact your Regal dealer. Use outboard manufacturer's recommended fluid.



CHAPTER 3

PROPELLERS



Regal has carefully tested and chosen the propellers to give your outboard boat the best possible performance based on the engine and propulsion package you choose. We have allowed for the additional weight in equipment that might be added to the boat. It is a good idea to carry a spare set of propellers and hand tools onboard, in order to handle emergency

propeller changes. Refer to the outboard manual for procedures, as the application is unique to the manufacturer. Call a marine professional or your Regal dealer for further information.



Engine & Controls

Propeller Checklist

At least twice a year, check the propeller for:

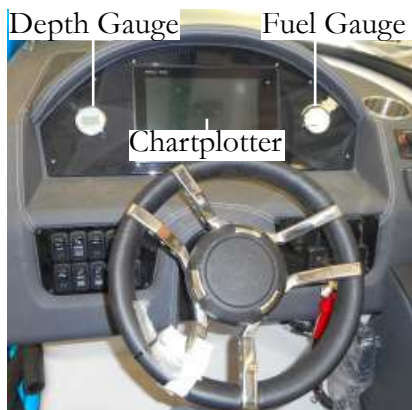
- Loose, missing, or corroded hardware.
- Nicks, dings, or missing propeller material
- Bent propeller blades.
- Objects wrapped around the prop such as fish line.
- Decomposing propeller blades (electrolysis symptom).
- If equipped, check the propeller rubber hub for slippage

Contact a propeller shop or your closest Regal dealer if any of the above symptoms exist. They have purchased special equipment to refurbish both stainless steel and aluminum propellers.



CHAPTER 3

ENGINE INSTRUMENTATION



The helm station is equipped with a fuel gauge and depth gauge along with the ability to monitor engine functions through the Garmin chartplotter unit. Close observation of the gauges may save the engine from damage. Gauges do however have some inaccuracy, so do not rely upon them fully.

Note that with the battery switches in the “off” position, there is no power to the dashboard, and the ignition switch will not function properly.

All electrical features are protected by a main battery management panel. A fuse for the stereo memory and the automatic bilge pump system are also located next to the battery switch. There is also a fuse block located on the engine. The dashboard switches also have individual fuses normally located on two fuse blocks in the forward starboard storage area directly in front of the helm. Should a fuse “blow” it is first necessary to figure out the reason and address the cause before resetting it. See the drawing chapter for fuse identification information.



Engine & Controls

Depth Gauge



The depth gauge indicates the water depth under the keel of the boat. It features a shallow water alarm to warn the skipper of hazardous situations. By monitoring the water depth, damage to props, and underwater hardware can be avoided. This gauge is connected to a transducer on the bottom of the hull, accessible through a removable plate in the ski locker.

Fuel Gauge



The fuel gauge indicates the level of fuel inside the fuel tank as sent by the fuel sender. It is a good idea to keep the fuel tank "topped off" when possible to reduce fuel vapors inside the tank. Do not run your fuel too low as this style gauge is not always accurate. Always allow for a "safety" factor.

Remember that the Garmin is not set up to monitor fuel tank levels. The dash gauge works independently of the Garmin engine functions.



CHAPTER 3

Garmin Engine Monitoring Display

A Garmin chartplotter is standard equipment on your Regal outboard. It features many GPS features along with the ability to monitor engine system functions including revolutions per minute (rpm's), GPS speed, voltage, fuel flow rate, trim, and temperature along with tracking engine hours.

Note that the Garmin and Fusion circuitry use individual sources to power up the system. **The key switch does not power up these 2 systems. Also, the depth and fuel gauge displays are independent of the Garmin engine displays.**

1. To power up the Garmin GPS press the on button located on the upper display.
2. The function AV/Gauges,Controls will appear as one of the choice boxes. Press the box. Another screen with engine will appear.
3. Press the engine box and the engine gauge displays will appear (oil pressure is engine code driven only); fuel level uses dash gauge to display fuel levels).





Engine & Controls

Main Switch Panel



Typical Panel

The main helm switch panel controls various vessel electrical components. The main battery switch must be activated for most of the switch functions to work except for the automatic side of the aft bilge pump. Below is a brief description of each switch. Note that select switches may represent optional equipment that is not installed on your vessel.

Horn

This momentary switch controls the electric bow horn located at the starboard bow area. Make sure the horn is tested before each outing as it can be valuable in navigation situations and can be used for bridge communications. Normally there is an adjustment screw on the horn top to alter the horn tone. Periodically inspect the horn hardware for tightness and polish the horn grill located on the outside hull side.



CHAPTER 3

Nav/Anc

This on/off/on switch energizes the center bow red/green navigation light and stern light as a standard configuration as the top portion of the switch is pressed. When the bottom portion of the switch is activated the stern light all-around portion illuminates.

On vessels with hard tops and Power Towers the masthead light takes the place of the stern light. Check navigation lights before each outing to ensure the bulbs are working properly and the wiring circuitry is delivering current to the light fixture.

Wiper

This switch controls the optional starboard windshield wiper. Do not run the wiper blade over dry glass as it can leave permanent scoring on the windshield. Periodically check the blade for wear.

Dock Lights

This switch activates the bow hullside mounted docking lights. They are useful maneuvering in night time docking opportunities and can be beneficial in night channel navigation and anchor retrieving.

Cockpit Lights

This switch controls the blue LED lighting which is normally found on vertical surfaces to aid in nighttime cockpit activity. They are especially useful to light stairways, deck walkways, and swim platforms.



Engine & Controls

Aft Bilge

This switch controls the bilge pump **manual** operation. The bilge pump is used to remove any accumulated bilge water. It sends the water through a hose and a hull fitting to the outside hull. Even with the switch in the off position the bilge pump will automatically activate through a float switch located near the pump itself. When excess water causes the float switch to rise the pump activates in the automatic position. When the pump is activated in the automatic position a red icon lights up on the switch bottom. Investigate the cause of the lighted icon as it indicates a leak.

Hatch



This switch controls the electric actuator located inside the aft hatch compartment. Should the batteries go dead, plug in a 3 prong grounded 14 gauge extension cord into the battery charger plug located under the starboard side seat next to the battery management panel. After a few minutes you should be able to raise the hatch with the extension cord still plugged into the plug.

Arch

This switch controls the Power Tower up and down movement which can be useful when navigating under a bridge or other overhead structure. Keep all body parts away from power tower as it is being lowered or extended up. Always travel on the highway with the Power Tower in the full up position along with all carpet and canvas stored in latched lockers.



CHAPTER 3

Underwater Lts

This switch controls the hull mounted underwater lights. If installed these blue LED lights illuminate the water around the aft sides and transom areas.

Fresh WTR

This switch energizes the on board fresh water system. It permits the water pump to transport fresh water from the water tank to any faucets or showers mounted aboard.

Other Vessel Switches

Windlass



If installed this optional switch activates the up and down movement of the anchor windlass. This switch is located at the bow anchor locker wall.

Seat Switches

If installed, there is a switch for controlling the up and down helm seat movement. Also, there may be a switch on the helm seat base for moving the helm seat forward and aft.

If installed, there is a switch for controlling the fore and aft movement of the aft seat.



Engine & Controls

ENGINE REMOTE CONTROL

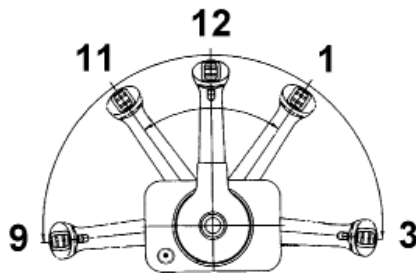


Dual Binnacle Control Shown

Single outboard vessels use a single binnacle control for shifting and throttle operations. The remote control handle controls forward, neutral, and reverse outboard shifting operations. Also, the control features power trim up and down functions. See the following page for component description and features.

Practice docking operations using the remote control in a controlled environment to learn the basic control functions. Twin engine binnacle control shown above.

CHAPTER 3



Profile Of Typical Single Engine Control Lever Showing Five Positions



Shown in neutral position with idle throttle control. This is the detented position for starting and stopping the engine(s). Pushing the detent button in and pushing the throttle handle forward will afford increased neutral rpm positioning.



Pushing the throttle control lever forward from the neutral 12 o'clock position to the 11 o'clock position will engage forward gear with minimal throttle. From the 11 o'clock position to the 9 o'clock position, the vessel is in forward gear with differing levels of throttle selections.



Pulling the throttle control lever back from the neutral 12 o'clock position to the 1 o'clock position will engage the reverse gear with minimal throttle. From the 1 o'clock position to the 3 o'clock position, the vessel is in reverse gear with differing levels of throttle selections.



Engine & Controls

As you shift from neutral to forward or reverse, push the neutral release button, this allows the control lever to come out of the indented position.

The control lever features a neutral safety switch which ensures the outboard engine and control are in the indented neutral position for starting the engine. You will hear a distinct sound and will feel the remote control's rotation lock once in the detent position. If you turn the key and press the start/stop button and the engine starter doesn't crank the engine, ensure the control lever is in the neutral position.

Your control lever also features a trim control switch. This switch allows the captain to set the trim for the drive from the helm either up or down to achieve a desired plane position. Refer to the vessel operations chapter for further information on trim angle.

Follow these points when shifting:

- **DO NOT** shift quickly from forward to reverse gear positions. Drive system damage may occur.
- **DO NOT** “pump” the throttle in neutral as it is normally not needed since today's engines use an enrichment valve system that requires very little starting throttle.
- **DO NOT** try to shift into forward or reverse gear at high rpm's. Personal injury, drive system, or property damage may result.
- Only use idle throttle positions when docking or maneuvering in tight quarters.



CHAPTER 3

- Wear your safety lanyard at all times.
- Never shift the controls with the engine not running. Control, linkage, and/or outboard drive gear damage may occur.
- For more information, read your outboard engine manufacturer's manual before operating the remote control.

Safety Lanyard (Interrupter Switch)

The safety lanyard (used on selected control levers) sometimes called an interrupter switch is attached to the operator and the remote control panel. Should the operator lose control of the vessel and become dislodged from his/her seat or fall overboard, the lanyard will shut the engine off.

Make sure the lanyard is installed to a part of clothing such as a belt or belt loop before operating the vessel. Flip the switch to the run position before starting the engine.



WARNING

INTERRUPTER SWITCH MUST BE ATTACHED TO THE OPERATOR WHILE THE ENGINE IS RUNNING. A QUALIFIED OPERATOR MUST BE IN CONTROL AT ALL TIMES. READ THE OWNER'S MANUAL BEFORE USE.

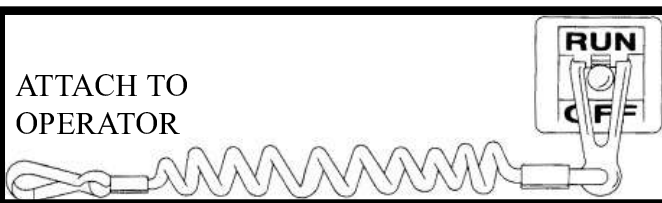


Engine & Controls



NOTICE

IF THE INTERRUPTER SWITCH IS IN THE "OFF" POSITION, THE ENGINE WILL CRANK OVER BUT WILL NOT START. ENSURE THE SAFETY LANYARD IS ATTACHED CORRECTLY AND SWITCHED TO THE "RUN" POSITION.



Typical Switch Shown Above



CHAPTER 3

ENGINE STEERING SYSTEM

Your outboard boat features as standard equipment an electronic helm “power steering” system. We will briefly describe the system and display various parts and their function. Overall this system lends itself to single and dual outboard installations well with an effortless “power steering” feel. In addition, this system features light friction at low speed and higher friction at higher speed to provide a higher degree of maneuverability. Furthermore, it can be programmed for toe-in and toe-out settings which provide optimum vessel performance.

Also, this system eliminates the need for a tie bar which normally is used in twin outboard installations.

The hardware at both the helm and engine must be checked regularly for tightness, lubrication, and leaks. Check the steering system for full steering to port and starboard before disembarking.

The main system components are the electronic helm, electrical connection board, hydraulic steering pump and “smart cylinder”. Note the adjacent drawing which shows normal system components. For service contact your closest authorized Regal dealer.

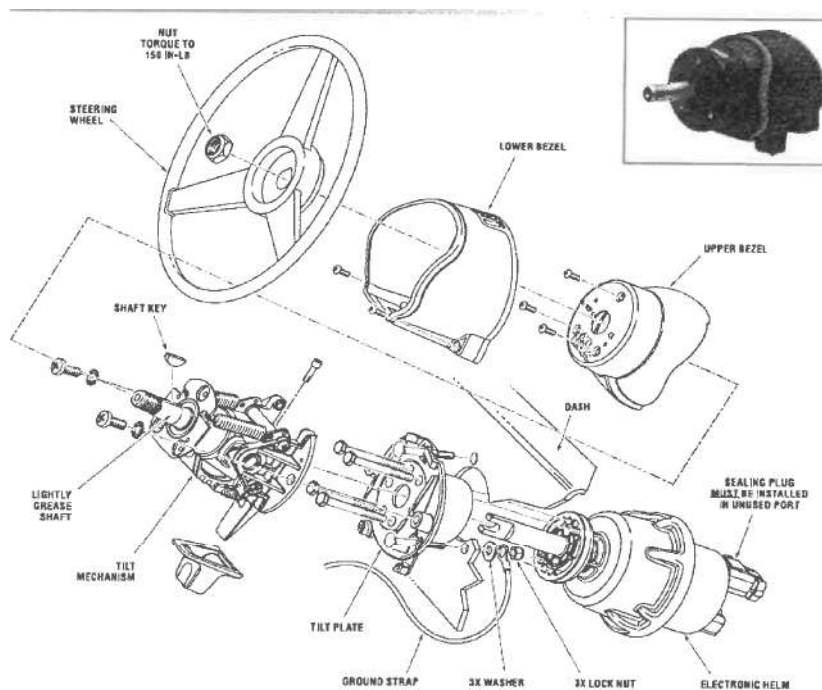




CHAPTER 3

Electronic Helm

The electronic helm features a sport steering wheel and several tilt positions for maximum control taking into account individual driver needs and body types. The steering wheel motion can be adjusted to various lock to lock turning positions, along with the ability to adjust wheel friction tension through the crusing rpm range to afford the greatest driver control and feel at the helm.

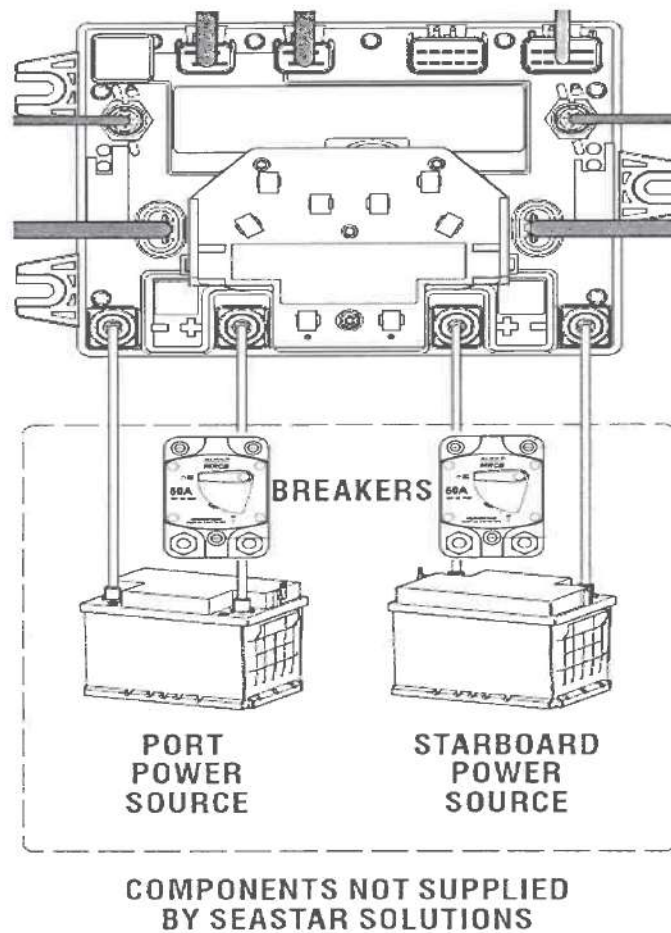




Engine & Controls

Power Steering Wiring

The electronic power steering is an on demand system using minimal power. The system uses two 60 amp breakers (one per starting battery) located near the battery source. The breakers are between each battery (twins) and the PCM mounting board. The illustration below shows a typical twin engine steering setup.



CHAPTER 3

Hydraulic Steering Pump



Located under the aft center cockpit storage compartment is the steering system hydraulic pump system. Each pump controls the port or starboard steering cylinder. The Optimus steering system uses the HA5482 EPS power steering fluid. Do not use any substitutions. It is a good idea to have extra fluid, funnel and cloth on board for emergency filling of the system. Also, note that there is a service valve located on each pump. It allows for manual realignment of the engines during service or a system fault. Use the decal information as needed for manual realignment situations. Engine(s) must not be running while performing these realignment procedures.





Smart Cylinder

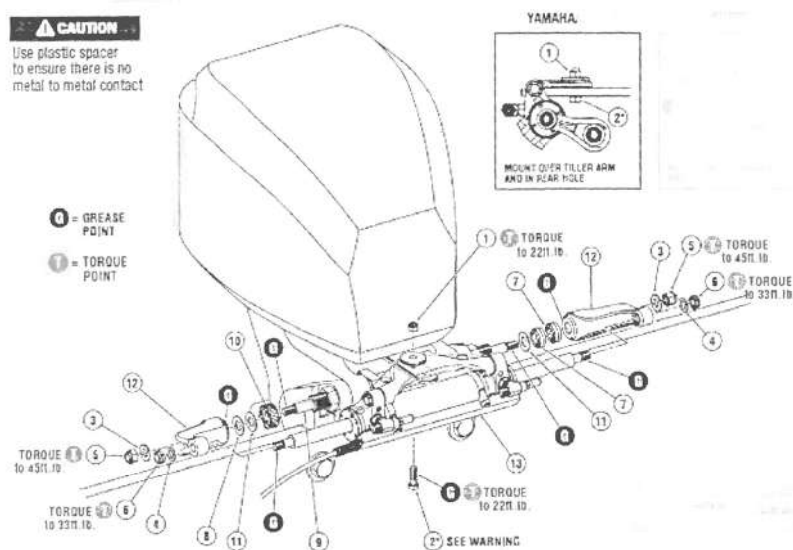
Located on the front of each engine is the steering smart cylinder. It is footprinted with redundant sensors to determine the steering response to the wheel movement. If one sensor should fail there are back-up ones on each cylinder. The stainless steel cylinder includes ORB fittings with bleeders to purge air as needed.



CHAPTER 3

Smart Cylinder Description

For information purposes components used in the smart cylinder are shown in the drawing. This illustration may be useful too for ordering needed parts as well as a troubleshooting breakout. Contact your closest Regal dealer to order parts.



ITEM	PART #	QTY	DESCRIPTION
*1	113529	1	Nut, 3/8" NF Nylok® SS
*2	113225	1	HHCS 3/8" UNJFX 1.35 HSS
3	731625	2	Washer, Flat, 7/16" SS
*4	731720	2	Nut, 7/16" NF Nylok® SS
5	202027	2	Washer, Flat, 1/2" SS
*6	192126	2	Nut, 1/2" NF Nylok® NI Plate Br
7	995876	2	Spacer, Thick
8	996689	1	Spacer, Thin

ITEM	PART #	QTY	DESCRIPTION
9	730229	1	Support Rod
10	828085	1	Adjusting Nut & Screw, SS, Teflon Coated
11	202300	2	Washer, Flat, 5/8" SS
12	839120	2	Support Brackets
13	907099	1	SmartCylinder (EC5310) or
	907033	1	SmartCylinder (EC6340)
14	728994	1	Spacer, Medium (some 1995 to 1998)
15	113350	1	HHCS 3/8" NF x 1-1/2" SS



Systems

BILGE/DRAINAGE

Regal boats are designed with a drainage system so water can be moved to the bilge from the deck where it can exit hull side via a manifold. It is important to keep all drains clear of debris so when a wave floods the deck of the boat, all water will leave in an effective manner.

Select vessels use drains that discharge overboard directly without the use of a hull side manifold system. Other vessels use a bilge pump in the sump that can pump water out through a hole located along the aft starboard hull side of your boat. The bilge pump is connected to a fuse located near the battery switch in the engine compartment and also to an automatic float switch placed directly forward of the bilge pump. The bilge pump receives power from your battery, and the automatic float switch is installed so that the bilge pump will automatically turn on as required. The circuit to the bilge pump receives battery power regardless of the state of your battery switch, so turning off the battery switch at the end of each voyage will not affect your boat's ability to pump water out of the bilge. A manual switch, operated from the dashboard however, requires the battery switch to be activated.

Monitor your bilge pump condition to keep your vessel from sinking due to taking on large amounts of water. Debris should be cleared from the impeller regularly. Inspect the condition of the impeller and replace the impeller as necessary. To gain access to the impeller, the pump must be disassembled from the bilge pump grate. Simply push the tabs of the grate inward towards the bilge pump, while simultaneously pulling up on the bilge pump. This locking mechanism functions much like a quick disconnect clip. If the fuse for your bilge



CHAPTER 4

pump “blows”, be sure to investigate why the bilge pump was drawing too much power. Likely causes of bilge pump malfunction are debris in the impeller, bad impeller, debris in the float switch, bad motor, or short circuit.



Typical Bilge Pump And Automatic Float Switch

ELECTRICAL

Your boat runs off direct current (DC), supplied by your battery. It is called direct current because the current flows one way in the circuit. The 12 volt DC batteries are located in the aft compartment below the cockpit on the port and starboard side.



Direct Current (12 Volt DC)

Storage batteries (sometimes called wet-lead cell batteries) furnish 12 volt electricity to boat components. Storage batteries use two dissimilar metals immersed in a liquid (acid) to carry current. The engines require large amounts of battery power for starting purposes. Check the maintenance chapter for battery information.

The marine battery is charged up by the outboard engine stator. The dash volt meter displays the battery voltage. If the volt meter shows below 12 volts, there could be a charging system malfunction. This condition needs to be addressed before the voyage and before the batteries become completely drained.

Your battery should be removed for proper winter storage. A battery not properly stored for winter or extended periods of latency may exhibit charging problems. See the storage and winterization chapter for battery storage information.

Wire Color Codes

Utilize the following typical table when looking at your electrical harnesses. Your boat may not feature all of these functions, as some are optional features, while others are not available on your model.

COLOR	GAUGE	FUNCTION
Black	16 to 4	All Grounds
Black / White	16	Halon Automatic Fire Extinguishing System
Blue	14	Interior Lights
Blue	10	Cabin Light Main Feed
Blue / White	16	Transom Courtesy Lights
Blue / White	14	Cockpit Lights
Brown	12	Water Pressure Pump
Brown	16	Aft Bilge Pump / Manual



CHAPTER 4

COLOR	GAUGE	FUNCTION
Brown	16	Fwd. Bilge Pump / Manual
Brown / Black	10	Overboard Discharge
Brown / Pink	16	Carbon Monoxide Detector
Brown / Red	16	Fwd. Auto Bilge Pump
Brown / White	16	Aft Auto Bilge Pump
Grey	16	Bow Navigation Lights
Grey / Black	16	Mast Light (Anchor Light)
Grey / White	16	Mast Light (Fwd. Running)
Green	16	Tank Level Monitor
Green	8	Bonding
Orange	16	Windshield Wiper / Run
Orange	12	Refrigerator, Hatch Run
Orange	10	Spotlight
Orange / Black	16	Horn
Orange / White	16	Windshield Wiper Park
Purple	16	Hour Meter
Red	16	Gas Vapor Detector, Stereo Remote, Breaker To Dash Feed Lines
Red	14	Positive Feed, Electronics
Red	8	Positive Feed, Alternator Charge
Red	8	Positive Feed, Alternator Charge
Red	4	Positive Feed
Red	2	Positive Feed, Starter Battery
Red	2/0	Main DC Panel Feed
Red	2/0	Battery Cable To Engine
Red / Black	16	Windlass Up
Red / White	16	Windlass Down
Yellow	10,12,14	Blower
Yellow / Black	10,16	Stereo Memory
Red / Black	16	Stereo, Regal Vue
Yellow / Red	14	Engine Cranking Circuit



The standard wire color, gauge size, and function shown is used throughout the marine industry. The chart is helpful in identifying wire circuitry during troubleshooting or the adding of marine accessories. **NEVER** replace a wire with a size other than shown in the chart. This practice could result in fire or component failure. Contact your Regal dealer for replacement wires and harnesses.

DC Switches

Switches located at the helm are part of your DC circuitry. Switches are in essence a break in the circuit from the battery to your electrical components. When the switch is turned on, a red icon shows activation. See chapter 3.

DC Circuit Protection

As part of the direct current circuitry there are 2 fuse boxes located



Typical Fuse Block Shown

behind the dash for overcurrent protection of select electrical components. If a fuse blows determine the cause of the overload before replacing the fuse and energizing the component. The fuse block shown below is a typical example of the footprint used on your vessel. Access to the fuse panels is found by removing the cover plate screws and cover plate located under the dash itself. Also, if further room is needed, the dash

panel itself can be unfastened.

In emergency situations, fuses installed in the fuse block for features that are not used on your model can be used as replacements when appropriately sized for the fuse you are replacing.



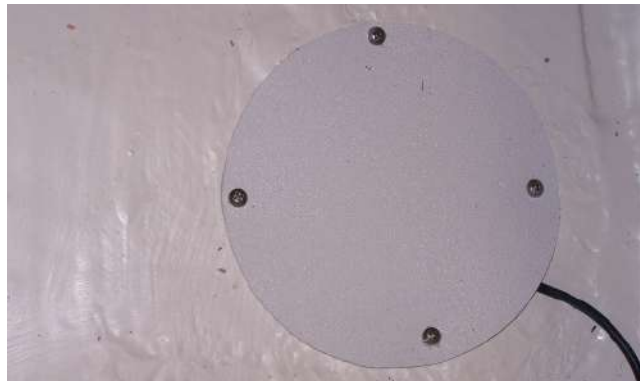
CHAPTER 4

FUSE BLOCK 1 FUNCTION	AMPS	TYPE	PLACE
HORN	15	FUSE	BLOCK
NAV LTS	10		
WIPER	10		
DOCKING LTS	15		
COCKPIT LTS	10		
BILGE PUMP	5		
HATCH LIFT	25		
UNDERWATER LTS	10		
FRESH WATER PUMP	7.5		
12 VOLT RECEPTACLE	15		
GARMIN	10		
ACCY 1	10		
ACCY 2	10		
FUSE BLOCK 2 FUNCTION	AMPS		
TRIM TABS	20		
WINDLASS	3		
FRIDGE	15		
HYDRA STEP			
SEAT UP AND DOWN	5		
SEAT FORE AND AFT	5		
EXHAUST	10		
COCKPIT HEATER	15		
STEREO	5		
LEVEL MONITOR	3		
HEAD LIGHT	5		
MACERATOR	10	↓	↓
HEAD PUMP	30		



Depth Sounder Transducer

Your transducer is a component mounted on the hull bottom that sends out sonar signals that rebound upon hitting the bottom of a lake or ocean. These signals are measured, and converted into a usable depth measurement displayed by the depth gauge at the helm. This system does not register signal deflections due to fish. Access to the transducer may be through an access plate in the ski locker. Select installations do not use the cover. Note that the transducer is a sealed, non-serviceable unit.





CHAPTER 4

Battery Switch(es)

All of your electrical systems onboard your Regal eventually connect with your battery. This is where electrical power originates. In order for any electrical system to receive power, with the exception of your automatic bilge pump function and stereo memory requires a battery switch(es) to be turned “ON”. The two excluded systems have a direct battery feed at all times without the use of the battery switches. The battery switches connect the battery to all deck and engine circuitry. It is important to turn your batteries “ON” before each trip, and “OFF” at the end of each cruise to avoid battery drain.

Never turn a battery switch to the “OFF” position when the outboard engine is running as stator or other electrical system damage will occur. Also, for extended non-use turn the battery switches to “OFF”.

The standard battery switch is located below the stbd aft side seat cushion. With the stereo performance package option normally a 40 amp breaker protects the amplifier. A 60 amp breaker protects the circuit wiring up to the helm.

The stereo memory and the bilge pump fuses are located near the battery switch box as reference below. The stereo memory fuse is 15 amps and the bilge pump fuse and automatic side of the bilge pump is 5 amps. These circuits will continue to function even with a battery switch in the “OFF” position. It is recommended to turn all battery switches to the “OFF” position when leaving the vessel for extended periods. See the equipment chapter for further information.

Note that the above information utilizes a “house” battery switch and an “engine” starting battery switch on your 29 OBX.



Battery Management Panel

The battery management panel is located under the starboard aft side seat against the hullside. Below is a description of the system and an operational footprint.

The following items are controlled by the port battery. They include the port battery charger, and the forward bilge pump.

The following items are controlled by the starboard engine battery. They include the aft bilge pump, shower sump pump, and starboard battery charger.

The following items are controlled by the house battery. They include the house battery charger, stereo memory, CO monitor, halon (automatic fire extinguishing system and accessory breakers.

Note that all items except the stereo amplifier, CO monitor, halon, and accessory breakers are constant hot circuits even with the appropriate battery switch off.

Note that the cabin main, dash main, windlass, port steering and starboard breakers are only on when the battery switch is turned to the on position.

The *engine* battery switch in an emergency start situation where there is low battery current can be turned to the yellowed portion of the switch and at that point the engine can be started by using back up house battery current.



CHAPTER 4





FUEL

Fuel System-General Information

Gasoline Requirements- Use non-leaded gasoline with the following minimum octane rating:

- Inside United States- See outboard manufacturer owner's manual since octane requirements are based on engine horsepower.
- Outside United States- See outboard manufacturer owner's manual since octane requirements are based on engine horsepower.

The use of leaded fuels can seriously damage the engine.

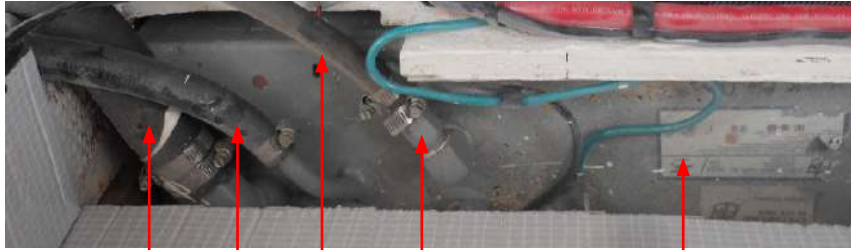
Gasoline in the United States and other areas is blended with 10% ethanol and is known as E-10 at the pumps. Marine engines used in your Regal boat may be operated with gasoline blended with no more than 10% ethanol and that meets the minimum octane specification. Ethanol in fuel is a strong cleaning solvent that can clean fuel system gum and varnish. As a trade off these released deposits can clogg fuel system parts such as filters and engine fuel injectors.

Do not use ethanol blends greater than 10% such as a newer blend for select motor vehicles called E-15. Your marine engine may be damaged by more than 10% ethanol. This type of fuel can cause a loss of performance, starting problems, serious fuel system and engine damage.



CHAPTER 4

TYPICAL EPA COMPLIANT FUEL TANK



FILL HOSE

VENT
HOSE

FEED HOSE

ANTI-SIPHON
VALVE

FUEL TANK LABEL



Fuel System

The fuel system consists of a fuel tank, fuel fill fittings, fuel hoses, fuel vents, anti-siphon valve, internal tank valves, fuel filter, fuel gauge and sender. Each one of these components plays an important role in providing an uninterrupted flow of fuel while operating your boat. Refer to the technical drawing section for system specifics.

Fuel Tank

Select overseas vessels use a polyster tank. *Boats manufactured for domestic use are now required to be EPA compliant and will be outfitted with an aluminum tank.* This system uses parts such as a valve located inside the fuel tank and can not be serviced. Also, there is a carbon canister which functions much like the one in an automobile located between the fuel tank and hull side vent. This canister under normal usage requires no service. These tanks are tested along with the complete fuel system for safety requirements and quality in house. Also, they are inspected independently by National Marine Manufacturers Association personnel.

Fuel Fill

The fuel fill fitting is labeled “gas” and in addition displays the international symbol (See the next page). When fueling the boat keep the fill nozzle in contact with the fuel fill pipe since it decreases static electricity. Always use the recommended fuel octane rating as specified in your engine owner’s manual.

Extinguish all flame producing agents before fueling!



CHAPTER 4

Fuel Vent

Currently, domestic EPA compliant fuel tanks vent fumes back into the fuel tank system. While the tank is filled, air displaced by the incoming fuel is vented through the fuel system charcoal canister.



COMBO FUEL FILL W/ INTERNAL VENT

Your vessel uses a combo type (internal vented) fuel fill. Both the fuel fill and vent occupy the same cavity under a protective cover. If fuel overflows through the vent the design forces it back into the fuel fill hose and tank.

A seasoned skipper will hear a distinct sound as the tank nears the

“top out” or full mode and may see fuel overflowing back into the fuel hose through the vent. **DO NOT OVERFILL THE TANK.** This helps avoid any overboard spills which harm the environment. There is a key that fits the fuel fill. Use it to secure the fitting from leaking fuel. Store the key in a safe place so it can be easily found for fueling. Check the vent fill screen periodically for debris.

Anti-Siphon Valve

The fuel tank feed line uses an anti-siphon valve. The valve is threaded into the fuel tank fitting at the feed line. The valve is pulled off its seat by fuel pump pressure as the engine is cranking or running. It allows a one-way fuel roadway to the engine fuel pump. It prevents fuel from siphoning out of the tank in the event of a fuel line rupture or disconnected fuel feed hose. Never remove an anti-siphon valve as it is a fuel system safety component. Clean or replace a clogged or stuck anti-siphon valve. Contact your closest Regal dealer or marine professional for more information.



Fuel Gauge & Sender

The dash fuel gauge is only an indication of the on board fuel supply. They are not exact reading instruments. Therefore, use the one third rule discussed earlier for monitoring your fuel supply. *There are not many filling stations on the open waterways!* The gas sender located in the fuel tank uses a float system which sends a signal to the dash fuel gauge as to the fuel tank level.

Fuel Filters



Fuel filters are installed on each outboard engine under the motor shroud (cover) which should be serviced per outboard motor manufacturer. Also, Regal installs for each outboard an in-line 10 micron water separator filter which is a spin on type similar to an automobile oil filter. Its main purpose is to trap dirt particles and condensation in fuel. It is a good idea to keep an extra fuel filter on board along with a filter wrench, catch container and clean rags for emergencies. Never use automotive style fuel filters on your vessel. Dispose of all fuel residue materials in an environmentally safe fashion. In-line water separator filter shown above..

CHAPTER 4

FRESH WATER

WATER FILL



Your vessel may be equipped with a fresh water supply system. It consists of a water tank, fill fitting, sink, drain hose, faucet and transom shower. Water is supplied by a fresh water pressure pump.

A water fill fitting is normally located on the deck area. It features an internal vent. When the water tank reaches full capacity water will be seen cycling from the vent into the fill hose. To energize the system there is a dash switch marked fresh water pump. When activated the switch sends power to the pressure pump which supplies fresh water.

When the water supply line is full a pressure valve switch releases and the fresh water pump stops.

We recommend turning the water pressure switch “off” when the vessel is left for extended periods.



For initial filling of the water system and winterizing refer to the operation and maintenance sections. The master on-off fresh water system switch is located at the head 12 volt manual. Pull

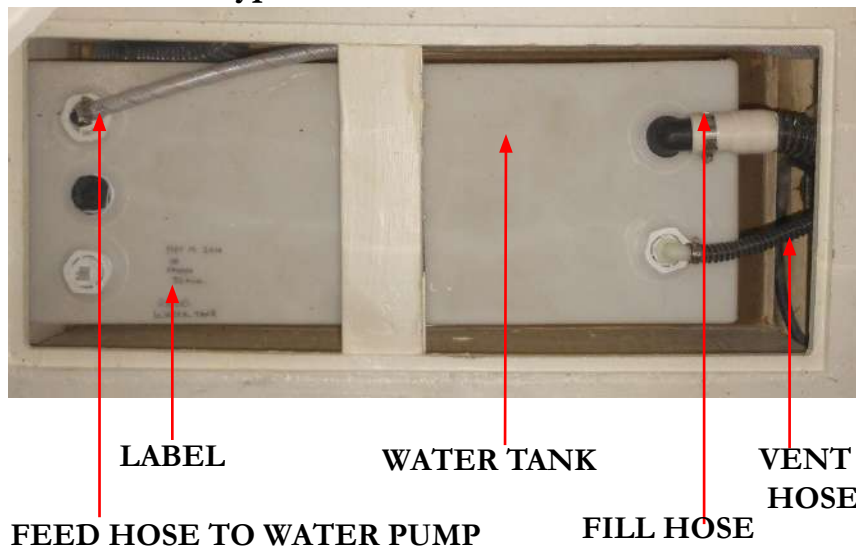
switch out to activate fresh water system. Push switch in to deactivate the fresh water system. Note that this switch utilizes a built in circuit breaker. Should it “pop” determine the cause and reset the breaker. Note that select breakers on the 12 volt panel may be for options.



FRESH
WATER
SWITCH/
BREAKER



Typical Fresh Water Tank



These are the main fresh water system components. The fill is located at the port front bow. The water tank itself is found amidships at the helm walk-thru to the bow. It is beneath the cockpit floor. Periodically check hose clamps for tightness.

Note that **if** the fresh water pump continues to run now and then without the head faucet or transom shower/washdown being activated it may be a sign of a system leak. Check all system hoses and clamps for proper tightness.



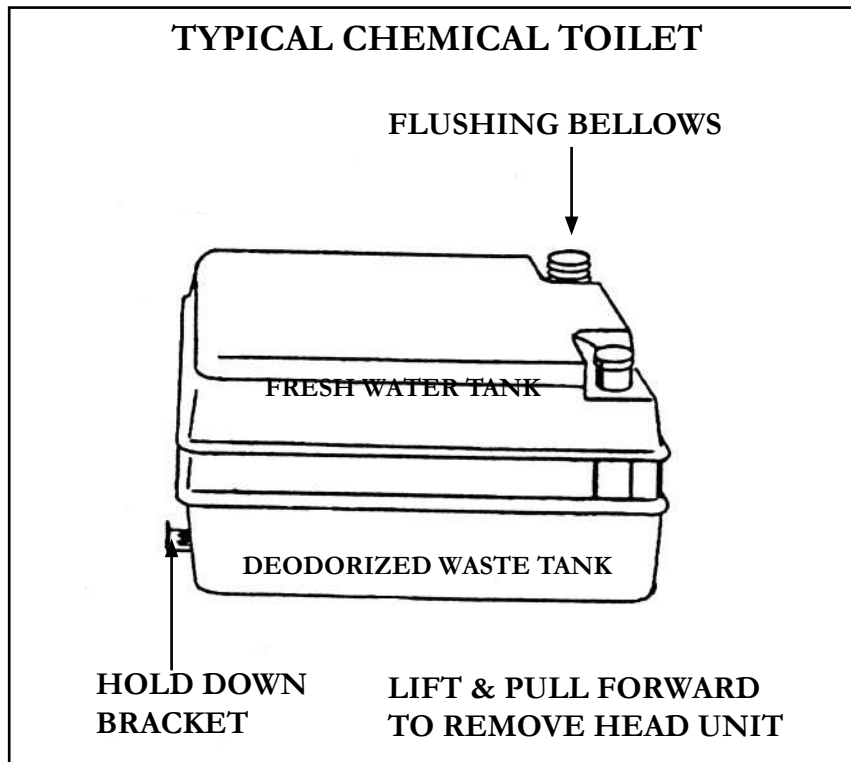
CHAPTER 4

WASTE

Chemical Toilet

As standard equipment is a self-contained sanitation device known as a chemical toilet or portable head which features an upper fresh water tank and a lower deodorized tank. These two components can be separated for waste disposal, cleaning and refilling. The lower tank contains a capacity gauge. Before each outing check the waste level since it is illegal to dump waste within and extending out to the United States territorial limit.

For more information, review the vendor manual supplied in the owner's information packet or visit their on-line web-site.





Vessel Operation



This chapter explores the many facets of running your vessel from casting off to docking and handling emergencies. We cover the basics but suggest you read other information on the chapter topics. Also, become familiar with your engine owner's manual since many of the items discussed here are found there in more detail.

GETTING UNDERWAY

Pre-Departure Questionnaire

- Have all fluid levels been topped off?
- Is the fuel tank full?
- Is all safety equipment accounted for and easily accessible?
- Are navigation lights and horn operating properly?
- Is the bilge free of water and does the bilge pump operate?
- Is the outboard engine and propeller in good working condition?
- Is the drain plug in place ?
- Have all passengers been briefed on emergency procedures and seated for departure? Is the boat load balanced?



CHAPTER 5

- Is the operator sober, alert and ready to skipper the vessel?
- Have all passengers been fitted for life jackets?
- Has a float plan been filed and left with a competent person?
- Has the bilge been sniffed and the fuel system leak checked?
- Are the seacocks open (if applicable)?
- Is all communication equipment in good operating condition?
- Has a second person been briefed on operational procedures should the skipper become disabled?
- Are all gauges and electrical switches functioning properly?
- Has weather information been gathered and analyzed?

Underway Questionnaire

- After casting off have all dock lines and fenders been stowed?
- Are all passengers seated and all transom doors closed?
- As skipper are you monitoring the dash gauges and or Garmin plotter for changes?
- As skipper are you on the lookout for changing weather?
- Is the remote control safety lanyard tightly secured to your belt or clothing?





Vessel Operation

Disembarking Questionnaire

- Have you removed the keys from the ignition and secured them?
- Have all systems been checked for leaks?
- Has the battery switch been turned to the “off” position?
- Are all seacocks closed (if applicable)?
- Has the fuel tank been filled enough to prevent condensation?
- Is the vessel properly tied and covered with equipment stored?

FUELING

	DANGER
<p>AVOID SERIOUS INJURY OR DEATH! GASOLINE IS HIGHLY FLAMMABLE AND EXPLOSIVE MATERIAL. PRACTICE “NO SMOKING” AND EXTINGUISH ALL FLAMMABLE MATERIALS WITHIN 75 FEET OF THE FUEL DOCK</p>	

	NOTICE
<p>AVOID SERIOUS INJURY OR DEATH FROM FIRE OR EXPLOSION RESULTING FROM LEAKING FUEL! INSPECT ENTIRE FUEL SYSTEM AT LEAST ONCE A YEAR!</p>	



CHAPTER 5



CAUTION

SINCE GASOLINE IS AVAILABLE IN SEVERAL GRADES INCLUDING ETHENOL AND VARIOUS OCTANE LEVELS, REFER TO THE OUTBOARD ENGINE MANUFACTURER'S OWNER'S MANUAL FOR THE CORRECT GAS TYPE/GRADE. USING THE IMPROPER OCTANE LEVEL OR THE WRONG GASOLINE TYPE CAN CAUSE ENGINE DAMAGE AND VOID THE WARRANTY!

Before Fueling

- ☒ Make sure a working fire extinguisher is available.
- ☒ Stop engines and any device that can cause a spark.
- ☒ Disembark all passengers and crew not needed for fueling.
- ☒ Fuel if possible during the daylight hours.
- ☒ Check to ensure nobody is smoking in the boat or near the fueling dock.
- ☒ Close all portholes, hatches and doors to keep vapors from blowing aboard and settling in the bilge.
- ☒ Tie up your boat securely at the fuel dock.
- ☒ Identify the fuel fill. Unfortunately, people have mistakenly filled the water or waste with fuel.
- ☒ Visually inspect all fuel system components before each filling.
- ☒ Avoid using fuels with E-15 alcohol additives. It can attack fuel system parts along with hoses and cause deterioration.



Vessel Operation

During Fueling

- ☑ Keep the fuel nozzle in contact with the fuel fill to guard against static sparks. The fuel fill pipe is grounded through the fuel system wiring to protect against static electricity.
- ☑ Avoid overfilling the fuel tank. Leave room for expansion. Also, if fuel exits the fuel vent indicating the tank is full, this situation is dangerous and unfriendly to the environment.
- ☑ Avoid spilling any fuel. Clean up any fuel accidentally spilled with a clean rag and dispose of it on shore.

After Fueling

- ☑ Close all fuel fill openings tightly. Use a fuel key if needed.
- ☑ Open all portholes, hatches and doors if applicable.
- ☑ Sniff in the bilge and engine area for gas fumes. If fumes are detected continue to let the area ventilate until the odor is gone. Look for any traces of fuel droplets or spillage. **Do not start the engine(s), smoke or run any electrical components until the fumes can no longer be detected.**



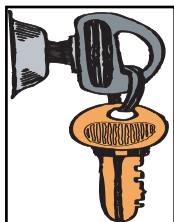
DANGER

AVOID SERIOUS INJURY OR DEATH!
THE OPERATOR OF THE CRAFT MUST HAVE
COMPLETE CONTROL OF THE HELM STEERING
STATION WHILE THE VESSEL IS MOVING.
NEVER LEAVE THE HELM STATION UNATTENDED
WHILE THE VESSEL IS MOVING!



CHAPTER 5

STARTING & STOPPING



The following general information covers basic starting and stopping your outboard engine(s). Read and understand all information on remote controls, fueling and operational procedures. Pay particular attention to all labels. **Refer to the outboard engine owner's manual for in-depth propulsion system starting information.**

Starting Guidelines



R e v i e w the engine manufacturer's owner's manual before attempting to start the engine(s). Ensure that all canvas is removed and stored. Set the

battery switch(es) to the "on" position. Start engine only in a well ventilated location to avoid CO buildup.

Set the remote control handle in the neutral position. Advance the neutral throttle position as instructed in the engine owner's manual. Connect the safety lanyard to a belt or secure to clothing such as a pants belt loop. Keep passengers seated and away from controls.

For starting **single** Yamaha outboards turn the ignition key to the right start momentary position. You will hear the starter cranking over the engine. When the engine starts release the key switch. It will automatically align itself in the run position (ignition). To stop the engine once started turn the key to the "off" position.



Vessel Operation

Advance the remote control in the neutral throttle position as recommended in the engine manual but do not race the remote control in the neutral position.

For starting **twin or dual** Yamaha outboards position the key switch to the right ignition position or the engine will not start. Press the start/stop button.

You will hear the starter cranking over the engine. When started, release the button. To stop the engine press and hold the start/stop button or turn the ignition key to the “off” position.

Note that both single and dual Yamaha outboards can be stopped by pulling the lanyard off of the engine shut-off switch. *Make sure the control is in the neutral idle position before attempting to shut down the engine(s).*



CAUTION

AVOID ENGINE DAMAGE!
CHECK THE ENGINE OIL LEVEL BEFORE STARTING.
IF LOW ADD THE APPROPRIATE OIL TYPE AND QUANTITY.

Typical Shifting Guidelines

Before shifting into reverse or forward gear positions make sure the coast is clear. When shifting to either gear from neutral make sure the throttle is in the idle position. Allow your vessel to lose all headway before shifting into reverse or forward gear. Practice shifting! You will become more familiar with the procedure and self-confidence will build especially in tight docking situations. Stay alert at all times!



CHAPTER 5

Stopping

Before stopping the engine make sure it is in neutral and at idle speed. After an outing let the engine cool down at idle speeds for a few minutes before turning the ignition off. Unless an emergency do not use the safety lanyard to stop the engine. Above all, use common sense.

STEERING

Your outboard utilizes an electronic helm which affords an effortless power steering feel. The helm features lighter system friction at lower speeds and increased friction at higher speeds. The electronic helm footprint eliminates the need for hydraulic fluid at the dash.

Check the steering system for full steering port and starboard before disembarking. Refer to the steering manufacturer's literature in the owner's pouch and the maintenance chapter for more information.



WARNING

AVOID SERIOUS INJURY!
LOOSENING OR LOSS OF ONE OR MORE FASTENERS
MAY CAUSE FAILURE OF THE STEERING SYSTEM.
PERIODICALLY INSPECT THE STEERING SYSTEM
INCLUDING ANY HYDRAULIC AND ELECTRICAL COMPONENTS.
IF APPLICABLE, ADD SPECIFIED OIL TO SYSTEM.



FENDERS

Fender Usage

Fenders are normally made of a rubberized plastic and are usually filled with air. Most have a fitting like a basketball so they can be inflated or deflated. Fenders are available in a wide range of sizes and shapes to fit both small and large vessels. Fenders are normally designated in inches. They are used between piers, docks, sea walls and the boat. They protect the top sides of the boat from rubbing against rough objects. Most fenders have eyes of attachment which allow a line to be inserted vertically or horizontally. This will permit the fender to be tied off to fit a variety of marina, dock and tidal situations. Be sure the fender is correct for the vessel size. It is a good idea to carry extra fenders but half a dozen is normally an acceptable number. Remember to store fenders on board so they can be easily accessed. Some people incorrectly call fenders “bumpers”.

Note that optional fender clips are available for your vessel.

Fender Types

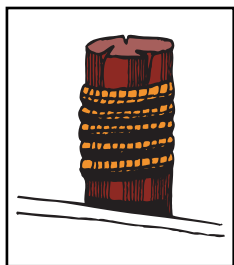


There is a variety of fender styles and types, each selected for specified uses. When choosing fenders, contact a marine dealer or supply house. Explain how you moor and use your vessel so they can recommend the best fender type for you. We suggest the type with a fill plug so you can inflate them with a hand pump like the ones used for bicycles.



CHAPTER 5

DOCK LINE BASICS



Most skippers use dock line terminology fairly loose but there is more to the basics than just bow or stern lines. There are several lines that can be secured to the bow and stern and depending on their direction and use, can be called other names. Remember that “forward” and “aft” refer to the direction that a spring line runs from the vessel, and not where it is secured on board.

Bow & Stern Lines

There is only one true bow line. It is secured to the forward cleat and run forward along the dock to prevent the vessel from moving to the stern. The stern line leads from a rear cleat to a piling or cleat on the dock astern of the vessel. This line keeps the boat from moving ahead. For small vessels these are the only lines needed for normal wind and current conditions. If located in a tidal environment, keep slack in the lines.

Breast Lines

These lines are attached to the bow and stern that lead to nearly right angles from the center of the vessel to the dock. They help keep larger vessels from moving away from the dock, or are pulled in to help people board the vessel. Larger vessels may use bow or quarter breast lines.

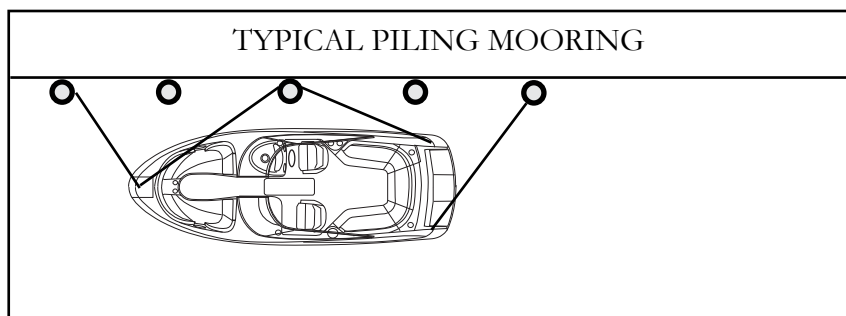
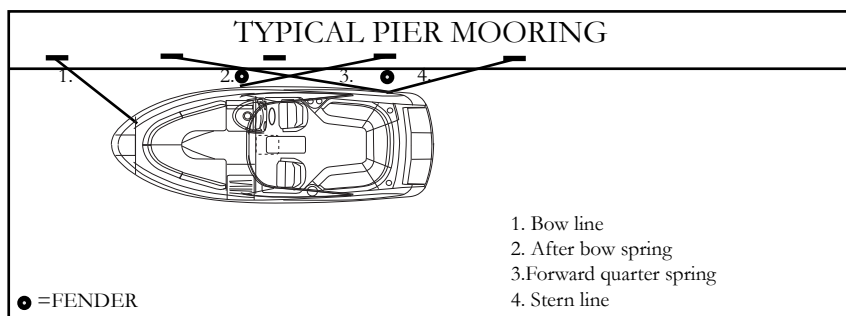
Spring Lines

Most small boats use two spring lines although it is possible to have four. They are called the after bow spring and forward quarter spring.



Vessel Operation

Bow springs are secured at the vessels bow area. Forward spring lines lead forward from the boat to the dock and control movement toward the stern. After springs stem aft from the vessel, and stop movement ahead. Spring lines are used to prevent movement in a berth, ahead or astern. They are really useful in controlling the effects of a real active tidal surge. Spring lines are useful where fenders need to be kept in place against piles.



Boat Mooring

Most boats can be secured to a dock using four lines. The after bow spring is crossed with the forward quarter spring and secured to individual dock cleats or pilings. This ensures longer springs and can be snugged up tighter for more efficient tidal control. Remember, if you only have one piling available, position the vessel so this point is opposite admidships. Run both spring lines to it. These lines will be shorter but still useful.



CHAPTER 5

The bow and stern lines should be relatively at a 45 degree angle with the dock. The stern line can be attached to the near-shore quarter cleat, but will work more efficiently to the offshore quarter cleat. The longer line will allow the boat flow with the tide with less time checking the vessel.

Dock Line Sizing

Most dock lines today are made of nylon, either of twisted rope or braided core and cover. The most often used material is nylon because of its stretching abilities absorbing shock loads. It is chafe resistant for extended life and is easier on bare hands.

The line's size varies with the vessel. Normally, a vessel in the 20' to 40' boats will use 1/2" diameter nylon lines. Larger yachts use 5/8" and 3/4" diameter nylon lines. Smaller boats can use 3/8" nylon lines.

Dock lines need to have the strength to hold the vessel and have enough density to resist chafing. They shouldn't be too heavy that they lose their shock-absorbing capabilities. Use the right size line for the vessel since a line too large for the boat will pull hard against the vessel since it won't be forced to stretch. If the line is too small for the vessel, there is no margin for wear and chafe when under strain.

Securing Lines

When mooring your boat, make sure the dock lines are secured at both ends. Depending on your situation you may need to loop the eye splice of the dock line around a piling. Sometimes the mooring line will lead down sharply from the piling to the deck cleat. Loop the eye splice around the piling twice to keep it from being pulled up off the pile. Pull the line through the looped eye if the mooring line is too small to go around the piling twice or too small to fit over once.

If you must drop a line over a piling that already holds another boat's line, run the eye of the line up through the first eye from below, then loop it over the pile. This will allow either line to be removed without disturbing the other. If another line is dropped over yours, simply



Vessel Operation

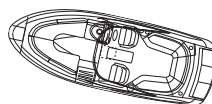
reverse the process. Secure a little slack in the other dock line, then slip your eye up through its loop and over the top of the pile. Your line can be dropped through the other eye.

When debarking from a dock, it is easier to release the line from a cleat or piling, from on board the boat, as soon as you leave the dock. Loop a long line around the cleat or pier and leading both ends on board you can release the line easily. Slip one end around the cleat or pile, the pull it back on board. Release the line without the eye splice, so it will run freely from around the pile without hanging up on the splice.

STEPS TO DOCKING

Single outboard powered boats are fairly easy to back up and maneuver with a little knowledge and docking practice. One of the most important aspects of the process is to keep your calm in the wake of a busy marina. Basically, the reversing propeller is turned in the direction you want to go by using the wheel.

Some boats tend to be influenced by the wind. When backing down in a crosswind, allow room to maneuver and watch the bow. Try not to overreact or get excited, but use your knowledge and experience. If the wind begins to swing the bow, you need to stop backing, turn the wheel to port and go forward to straighten the boat. Use a quick burst of power but not too much to knock your crew off balance.

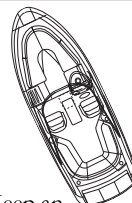


A. Stop the boat by shifting in reverse. Put the wheel over to the port and begin backing in. Slow down your speed by momentarily shifting into reverse.

*** Control in reverse idle position, Outdrive to port.**

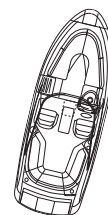


CHAPTER 5



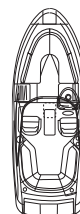
B. Continue backing up the boat with the wheel hard to port. Keep an eye on the bow, and begin to straighten the wheel as the boat enters the slip.

*** Control in reverse idle position, Outdrive to port.**



C. Center the wheel to align the boat parallel with the dock. If the stern is too far from the dock, shift to neutral, then put the wheel hard over to port and then go forward a second or two.

*** Control in neutral idle position. Drive centered.**



D. When the boat is completely into the dock, stop stern movement by shifting into forward. Put the wheel to port to kick the stern over close to the dock if necessary. Shift into neutral and tie up the boat.

*** Control in forward idle position. Drive to port.**



OUTBOARD MANEUVERING

Single outboard boats do not have rudders. The boat uses a steering system that directs the propeller thrust, by turning the outboard drive unit where the propeller is mounted. Twin outboards may use remote control options along with the steering wheel to maneuver especially in docking opportunities. Single outboard instructions are offered here. Directing propeller energy (thrust) makes slower speed maneuvering easier. The propeller discharge current is turned from one side to the other which results in turning forces. Rudder boats need water to flow by the rudder to be efficient. Outboard units are designed to have reduced shaft angle, so the propeller does not produce as much unequal blade thrust and resistance. Large horsepower outboard boats do produce more thrust and steering torque but your vessel has the advantage of assisted power steering. Below is some basic information on how outboard boats handle in normal conditions.

Gathering Headway

When a outboard drive is not moving forward or reverse in the water and the propeller is not turning, (shift in neutral) the boat will not react to the helm steering wheel.

As soon as the vessel is shifted into forward gear the propellers action creates a discharge motion and generates energy in the form of thrust. If the outboard drive is centered, the discharge motion is directed straight back causing the vessel to advance forward.

You may notice that if you advance the throttle quickly in initial take-off (make sure you have a firm grip on the wheel), the boat has a tendency to pull the stern of the vessel to starboard. There is a trim tab (also serves as a sacrificial anode) located on the outboard drive housing. This trim tab helps compensate for the low speed steering torque. Once the boat increases headway and the propeller is operating in a faster water flow this torque effect decreases.

Sometimes the trim tab may need adjustment. Contact your Regal dealer for further information or consult your engine manufacturer's manual.



CHAPTER 5

Turning

Once the boat has gathered headway, with the boat planing at the correct bow angle and the outboard drive unit and helm straight the boat tends to stay on a uniform course heading. To assure the boat trim angle is correct use the chartpotter screen trim gauge as a guide while activating the trim button on the remote control panel.

When the helm wheel is turned to the right or starboard, the drive unit is turned in the same direction. The propeller's discharge force is directed to starboard forcing the boats stern to port. Water flowing past the hull strikes the stern drive gear housing in its starboard side, creating additional turning torque. The stern starts a move to port, forcing the bow to starboard.

If the helm is turned to the left or port the drive turns to port, the stern of the boat goes starboard as the bow turns to port.

As the vessel operator gains experience, he will better gauge each maneuver and speed situation. In this way he will understand the handling characteristics of his boat. He needs to keep the safety of his passengers in the highest priority.

Backing Down

If your boat has the steering wheel and outboard drive straight with the control in reverse, the stern will be pushed a bit to port by the reversing propeller thrust. This tendency to back to port can be eliminated by turning the outboard drive to starboard.

When the vessel begins to gather speed to stern, the water passing by the lower gearcase housing will continue to increase steering torque. If the helm wheel is turned to starboard, and will direct the propeller thrust to port, tracking the stern to starboard.

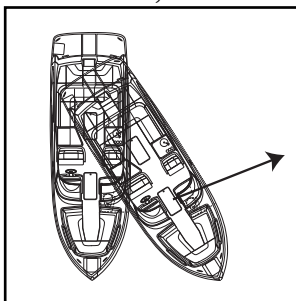
Wind and current will affect how a vessel backs. Outboard drive boats tend to be light displacements and when backing down in a strong crosswind, the bow will tend to fall toward the windward. This may cause steering problems.



Vessel Operation

Once increased headway is gathered in reverse gear, the force of the lower hull moving through the water is enough to track straight. When backing, the stern will lead as it heads to port or starboard, before the vessel actually starts to turn.

When the control is put in forward gear position, the stern is pushed to starboard; the amount of push depends on the hull design and the amount of throttle advance. See illustration.



Stopping

Remember that your boat does not have any brakes. It uses reverse thrust from the propeller to stop. If the vessel has headway, with the helm and propeller in reverse the propeller thrust is directed backwards, past

the lower gearcase of the stern drive.

Depending on how far the throttle is advanced, the discharged thrust may not be strong enough to reverse the water flowing by the gearcase. As the power is increased, the propeller thrust becomes strong enough to stop the flow of water past the lower unit, and, as the throttle is advanced it reverses its flow more completely.

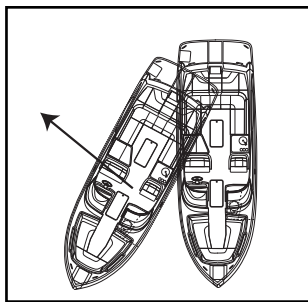
When water is flowing past the gearcase, steering torque is increased, but when the thrust stops the water flow, the boat will not respond to the helm. This is a short lived event and is overcome quickly when the water again flows past the gearcase. Furthermore, added to the energy of the water hitting the lower gear case, the propeller thrust is directed by turning the stern drive, which can add to the steering torque.

The prop tends to throw the stern to port. This is why experienced skippers undertake a port side landing when wind and current conditions permit. They allow the prop to move the stern to port toward the dock. With a forward motion when the helm wheel is turned hard to one side, the vessel pivots around a point about 1/3 its length abaft to stern. See illustration.



CHAPTER 5

TRIM ANGLE



Single or twin outboard boats have the ability to angle in or out their drive unit in relationship to the transom. This is accomplished by hydraulic shocks located on the lower unit housing along with an electrical sender unit that reads the drive angle and sends information to the chartplotter showing a reading.

Purpose Of Power Trim

The purpose of the power trim/tilt is to enable the operator to change the angle of the outboard drive while at the helm. Changing the angle of the drive or “trimming” provides the following benefits:

1. Improves acceleration onto a plane.
2. Maintains boat on plane at reduced throttle settings.
3. Increases fuel economy.
4. Provides smoother ride in choppy water.
5. Increases top speed.



Vessel Operation

In short, it is a way of fine-tuning the ride of your boat and will enable you to get the most efficient and comfortable ride possible, whatever the conditions.

Use Of Power Trim

The power trim is normally used prior to accelerating onto a plane, after reaching the desired RPM or boat speed and when there is a change in water or boating conditions. Position passengers and equipment in the boat so that the weight is balanced correctly fore and aft as well as side to side. Trimming will not compensate for an unbalanced load. To operate the trim, push the switch until the desired bow position is reached. The trim may be operated at any boat speed or at rest. Avoid operating the trim system when running in reverse. Observe the trim/tilt gauge which indicates the boat's bow position achieved by the trim angle of the vertical drive unit. "Bow-Up" corresponds to the upper portion of the trim range on the gauge while "Bow Down" corresponds to the lower portion of the trim range on the gauge.

To determine the proper trim angle, experiment a little until you are familiar with the changes in your boat. The vessel will be properly trimmed when the trim angle provides the best boat performance for the particular operating conditions. A trim position that provides a balanced steering load is desirable.

To familiarize yourself with the power trim, make test runs at slower speeds and at various trim positions to see the effect of trimming. Note the time it takes for the boat to plane. If available, view the chartplotter screen tachometer and speedometer readings as well as the ride action of the boat.



CHAPTER 5

Operation In “Bow Up” Position

The “Bow Up” or out position is normally used for cruising, running with a choppy wave condition, or running at full speed. Excessive “bow up” trim will cause propeller ventilation resulting in propeller slippage. Use caution when operating in rough water or crossing another boat’s wake. Excessive “bow up” trim may result in the boat’s bow rising rapidly, creating a hazardous condition.

Operation In “Bow Down” Position

The “Bow Down” or in position is normally used for acceleration onto a plane, operating at slow planning speeds, and running against a choppy wave condition. It is also used when pulling water skiers, tubers, kneeboarders, etc. In this position the boats’ bow will want to go deeper into the water. If the boat is operated at high speed and/or against high waves, the bow of the boat will plow into the water.

Operation In “Level” Position

In normal running conditions, distribute passengers and gear so boat is level. At or below cruising speeds, trim the vessel for optimum performance. The trim gauge will show somewhere in the center of the gauge. This position will also enhance running visibility and overall stability. Again, each outing provides different wave, load and running conditions. Be prepared to make trim changes as needed.



Vessel Operation



CAUTION

THE BOAT TRIM SHOULD BE ADJUSTED TO PROVIDE BALANCED STEERING AS SOON AS POSSIBLE EACH TIME YOU GET UNDERWAY. SOME BOAT/ENGINE/ PROPELLER COMBINATIONS MAY CREATE BOAT INSTABILITY AND/OR HIGH STEERING TORQUE WHEN OPERATED AT OR NEAR THE LIMITS OF THE “BOW UP” OR “BOW DOWN” POSITIONS. BOAT STABILITY AND STEERING TORQUE CAN ALSO VARY DUE TO CHANGING WATER CONDITIONS. IF YOU EXPERIENCE BOAT INSTABILITY OR HIGH STEERING TORQUE SEE YOUR AUTHORIZED REGAL DEALER.

Shallow Water Operation

Operating your vessel in shallow water presents various hazards. You are more apt to hit a submerged object such as a rock, sand bar, stump coral, or other unmarked objects.

Pay close attention to your charts for descriptions of any shallow areas along with marked submerged objects. Always post a lookout when operating in shallow water. Trim your outdrive up as needed to provide adequate draft. Set the alarm on your depth sounder and travel at a speed that will keep the boat level in these shallow areas.

If your boat strikes a submerged object stop immediately and check for hull, outboard drive and propeller damage.

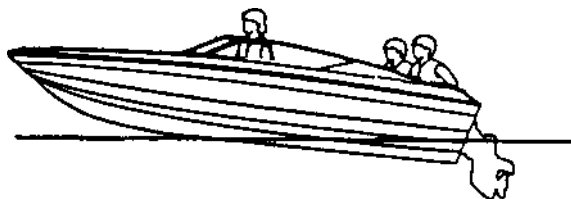


CHAPTER 5

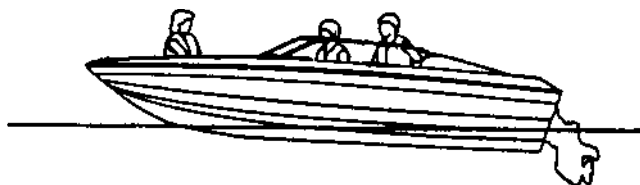
TRIMMED “TO FAR IN” POSITION



TRIMMED “TOO FAR OUT” POSITION



WELL TRIMMED “LEVEL” POSITION



Typical Examples (Stern drive shown)



ANCHORING



Selecting the correct anchor is an important decision. The anchor style in part depends on the usage and boat type. Regal boats designate an anchor type and or model. Some models incorporate chain, line with an optional windlass. Contact an authorized Regal dealer for more information.

Anchoring is easier with another person on board.

First be certain that the line for the anchor is properly attached, to avoid losing the anchor and anchor line overboard.

For most anchors to perform more efficiently, you should attach 3 to 6 feet of chain. The chain will stand up to the abrasion of sand, rock, or mud on the bottom much better than a nylon line. It should be galvanized to reduce corrosion. Next, attach a length of nylon line to the other end of the chain.

The nylon will stretch under a heavy strain cushioning the impact of waves or wind on both the boat and the anchor.

To anchor, select a well protected area, preferably with a flat bottom. Contrary to modern belief, you do not throw the anchor over while the boat is making headway, or moving forward. In fact, the bow of the boat should be brought slowly backward, while easing the anchor slowly over the side of the boat until it hits the bottom. To “snub the line” means to stop its outward “pay” or movement. Usually the length of anchor line used should be 5 to 10 times the depth of the water.

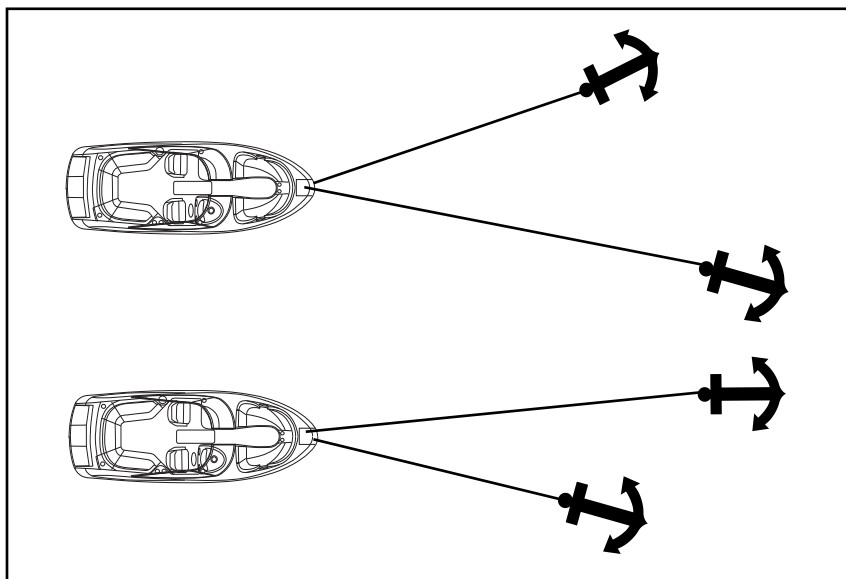
After you have anchored, check your position with landmarks if possible. You need to continue to monitor these landmarks to make sure you are not drifting. Since anchoring can also be an emergency procedure, the anchor and line should be readily accessible.

For increased holding power in windy conditions, two anchors are sometimes set. If your primary anchor drags, you can run out your secondary anchor without picking up the primary one. The important thing is to lay them out at an angle. When setting two anchors, make sure they are fastened to separate rodes or cleats. This is done in case you need to adjust one later so the line is accessible.



CHAPTER 5

If two anchors are used ahead of a boat, make sure to set the rodes at an angle to reduce the chances of tangeling as the boat moves in wind and current. See the above illustration.



TOWING

In case you find yourself aground or in need of a tow, or should you want to tow another vessel, keep in mind that you **never use deck hardware or cleats to secure lines for towing!**

Deck hardware is intended for mooring and anchoring, and is not designed to withstand the strain and pull of towing. Rather than tie the line to your cleats on deck, it is suggested that you tie a bridle by passing a line completely around the hull of your boat to avoid damage.

When towing, always stand clear of a taut line, as any type of line breaking under stress can be extremely dangerous. The preferred line for towing is double-braided nylon, as it has sufficient elasticity to cushion shock loads. Move slowly and cautiously.



Vessel Operation

Law Of Salvage

The Admiralty law sometimes referred to as the salvage law was founded primarily on English law fundamentals and basically says that a vessel distressed, in danger of flounder, if rendered assistance from a towing company or private agency, can be forced to relinquish a portion of the vessels' worth for the assistance received.



NOTICE

IN THE EVENT YOUR VESSEL IS IN DISTRESS,
PRIOR TO ALLOWING ANY TOWING COMPANY OR
PRIVATE AGENCY THE RIGHT TO PASS A LINE TO
YOUR VESSEL, BE SURE TO ESTABLISH THAT YOU
DO NOT AGREE TO ANY SALVAGE RIGHTS.

ESTABLISH WITH THE CAPTAIN OR OPERATOR
THAT YOU WISH TO BE ASSISTED IN A CONTRACT BASIS
AND ESTABLISH A PRICE.

OF COURSE IN CERTAIN SITUATIONS, YOU MAY
NOT HAVE THIS OPTION.

USE YOUR BEST JUDGEMENT!



CHAPTER 5



DANGER

AVOID SERIOUS INJURY OR DEATH!
DO NOT USE DECK HARDWARE INCLUDING
CLEATS FOR TOWING!

Knots

Knots are useful in docking, towing and other emergency situations. Learning to tie knots requires practice. As they say “Practice makes perfect”. Some of the knots used in boating are the square, bowline, anchor bend, clove hitch, figure eight and half hitch. There are several periodicals available that explain various knots and how to tie them effectively. An experienced skipper will know the basic nautical knots and will use them when on the water. Take the time to know the basic knots.

**Figure 8 Knot
Tied To Cleat**



A useful knot to learn for general docking is the figure eight with one end reversed. By turning the free end of the line back under, the knot can be released without disturbing the boat. After some practice one person can secure a vessel easily to a dock or pier in a variety of weather conditions. This knot normally is used to tie the bow and stern. Then the vessel can further be fastened by tying the spring line in the figure eight knot. Wrap it around the cleat 2 or 3 times.



EMERGENCIES

Always be ready to help others on the water if possible, but do not take any unnecessary risks. Use equipment to save a life, but do not risk a life to save equipment. Consult earlier information in this manual concerning accidents, etc. Also, read other literature concerning on the water emergencies. Be alert and prepared!

Fire

Fire aboard a vessel can spread quickly and can cause tremendous alarm among everyone. Most fires can be prevented by keeping the bilge free from oil and debris. Keep all equipment stowed and maintained in working order. Carry a backup fire extinguisher on board. If something becomes a possible fire hazard, remove that possibility at once.

Never use water on gasoline, oil or electrical fires. When you dump water on an electrical fire you can be shocked since water conducts electricity.

Follow these instructions if a fire breaks out:

- A. Fit everyone aboard with a life jacket. Turn off the ignition.
- B. Try to keep the fire downwind. If the fire is to the stern, head the bow toward the wind. If forward, put the stern to the wind.
- C. If the engine should catch fire, shut off the fuel supply. Usually there is a fuel tank access that you can crimp the fuel feed line.
- D. Use a hand fire extinguisher. Make sure to point it at the base of the flames. Use short bursts and sweep the extinguisher side to side.

Remember : (4 lb. extinguisher discharges in 20 seconds)

These actions help prevent the fire from spreading to other parts of the boat. You can extinguish fires quickly if you act swiftly. Have a plan of action in motion in case a fire breaks out.



CHAPTER 5

FIRST AID

Knowing first aid can save lives. A first aid kit and the ability to use it are important ingredients for the safety of a skipper's passengers, crew and vessel. Having confidence and competence in handling medical emergencies on board is a must for the skipper. Invest your time in a first aid course available at the American Red Cross.

CPR (Basic Life Support)

If someone is seriously injured have someone call for help while the injured person is being attended.

Check for possible danger signs; loss of breathing, unconsciousness, severe bleeding and heartbeat. If you determine the individual is not breathing or unconscious place the victim on their back on a hard surface and do the following:

1. If unconscious, open the airway. Neck lift, head lift or chin head lift.
2. If not breathing, begin artificial breathing. Pinch the nose. Give 4 quick breaths. If airway is blocked, try back blows, abdominal or chest thrusts and finger probe until airway is open.
3. Check for pulse. Begin artificial circulation. Depress sternum 2". 15 compressions rate 80 per minute. 2 quick breaths. Continue uninterrupted until advanced medical support is available.

Follow up immediately with medical authorities!



HYPOTHERMIA

Hypothermia is a condition where the body temperature decreases because the body can't generate enough heat to maintain its normal temperature. It can be serious and usually occurs where victims have been immersed in water (under 68 degrees) for extended periods of time. If you encounter a possible hypothermia victim call for help on the radio and get the person out of the water.

Symptoms are:

1. Shivering that if condition is advanced may stop.
2. Confusion, clumsiness or slurred speech.
3. Rigid muscles.
4. Semiconscious to unconscious.

Treat hypothermia by the following:

- ☐ Remove wet clothing.
- ☐ Monitor the victim's pulse and breathing.
- ☐ Rapidly apply heat to the body core by using blankets, naked bodies or warm water.
- ☐ Do not give the person any food or drink.
- ☐ Do not warm the arms and legs. Warming of these extremities can be fatal.

Follow up immediately with medical authorities!



CHAPTER 5

ENVIRONMENTAL AWARENESS

There are numerous vessels operating on our waterways on a daily basis. Each boat has an impact on our environment. Boat operation habits, marine sanitation, and maintenance all play a role in a delicate battle to keep the ecosystem clean. Each of us has a role in doing our part as an environmentally conscious skipper to conserve our waterways.

The National Marine Manufacturer's Association lists their top ten of Eco-Boating Practices as follows:

1. Observe all regulatory agency policies regarding marine toilets.
2. If equipped with a holding tank, use marina pump-out facilities.
3. If used, make sure bottom paints are legal and ecosystem friendly.
4. Use only biodegradable cleaning agents.
5. Dispose of all garbage and litter on shore properly, not on the water.
6. Don't top off fuel tanks. Leave expansion room. Clean up spills.
7. Watch your wake and propeller wash.
8. Make sure your engines are well tuned and maintained.
9. Control your bilge water.
10. When fishing, practice the "catch and release" principle.

Follow these basic practices when on the waterways. Treat the environment in a way that you would like to be treated.



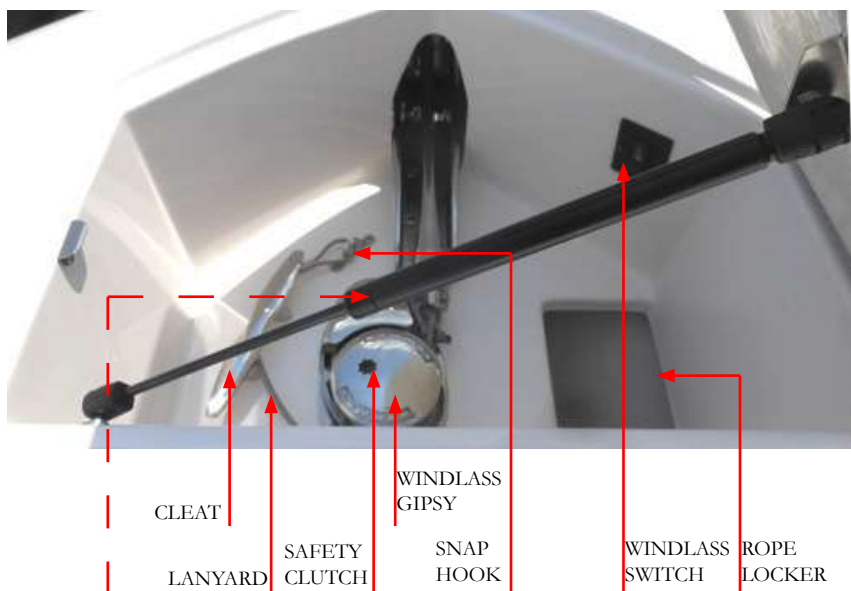
Equipment Operation

This chapter will assist the boat operator in understanding selected standard and optional equipment components on the vessel. *Select equipment described may not be installed on your boat or the pictorials may not exactly resemble equipment on your craft.* Remember, Regal is constantly improving its product line and therefore may make changes in vendor parts and specifications without notice. For detailed information on equipment, please refer to the owner's information packet.



CHAPTER 6

ANCHOR WINDLASS





Equipment Operation

Overview



If installed the windlass features a stainless steel polished “claw” style anchor complete with swivel. This anchor has high holding power in most seabeds.

A momentary windlass rocker switch located at the anchor locker controls the lowering and retrieving of the anchor through the windlass. A 50 amp breaker for windlass overcurrent protection is located at the

battery management panel (See illustration in this chapter).

There is a lanyard with a snap hook to add holding power when the anchor is in the stored position.

The cleat is for tying off the anchor rode rather than maintaining constant pressure on the windlass itself.

Note: Never use the windlass to break the anchor free from the bottom. This may cause excessive strain on the windlass motor and or hardware.



WARNING

AVOID SERIOUS INJURY!
ENSURE THAT ALL BODY PARTS AND CLOTHING
ARE KEPT CLEAR OF THE ANCHOR RODE
AND WINDLASS DURING OPERATION.



WARNING

AVOID SERIOUS INJURY!
DO NOT “PAY OUT” THE ANCHOR UNTIL IT IS
DETERMINED THAT THERE ARE NO SWIMMERS
OR DIVERS NEAR THE AREA.



CHAPTER 6

Windlass Operation- Introduction

The windlass normally comes outfitted with a rode using 100' of 1/2" nylon rope along with 10' of galvanized chain. The chain is connected to the anchor shank which is next to the anchor. The chain acts as a safety margin to protect the rope rode from being damaged by sharp seabed objects such as coral that might sever the rope if it was next to the anchor. If needed for harsh sea bottoms the rode can be converted over to 100' of 6 mm galvanized chain with a small length of rope at the top for tying off the rode to a cleat.

The safety clutch is used to "pay out the windlass chain or to retrieve the anchor "rode". There is a handle in the anchor locker that inserts into the gypsy drive cap located on top of the windlass framework.

With the handle inserted in the cap, turn the handle *clockwise* which grips the "gypsy", locks it and **tightens the clutch**. Remove the handle and store it after usage.

To **loosen the clutch** with the handle inserted in the cap, turn the handle *counterclockwise* which will free up the "gypsy" from the drive train. Remove the handle and store it.

Before attempting to "pay out" the anchor **ensure that the fail safe pawl is disengaged from the gypsy and held clear of it by the fail safe lever**. See windlass owner's manual for further information.

Be sure to pull the safety pin from the anchor shank before using the system. *The anchor will not pay out with this pin inserted.* This pin should be reinstalled after each anchor retrieval.



Equipment Operation

Paying Out Anchor Using Gravity

To let out the anchor release any anchor locks, insert the clutch handle into the gipsy drive cap and turn it in a clockwise direction to tighten the clutch. When in a safe mode, pull back on the clutch until the anchor and rode begin to pay out. Control the rate of anchor descent by pushing the clutch lever forward. When the desired rode is paid out, tighten the gipsy drive cap.

Paying Out Anchor Using Power

Make sure any anchor locks are disengaged and the pin through the anchor shank is pulled along with the lanyard hook. Stand clear of all windlass components when paying out.

Using the windlass momentary switch, press and hold the lower portion of the switch. When the proper ratio of anchor rode is paid out disengage the switch and tie off the rode to a cleat since it is not recommended to let the windlass mechanism be the only source holding the rode to the anchor on the sea bottom. Also, do not use the fail safe pawl to hold the anchor load as windlass damage could occur.

Hauling In Anchor- Manual Recovery

Insert clutch handle into the gipsy drive cap and turn clockwise until anchor is fully returned to the bow roller.

Hauling In Anchor Using Power

When anchor rode is safe to haul in use the windlass momentary switch to haul in the anchor rode. Press and hold the upper portion of the switch until the anchor is returned to the bow roller position.

The fail safe pawl does not need to be disengaged during retrieval as it will act as a ratchet. When the anchor has been retrieved in the bow roller position the fail safe pawl should be left engaged in the gipsy to prevent accidental activation of the windlass while underway.



CHAPTER 6

Also, reinstall the pin through the anchor shank and the lanyard hook. Note that the fail safe pawl does not need to be disengaged from the gipsy before the anchor can be paid out again.

Windlass Safety Tips

1. Read the windlass owner's manual.
2. Keep all body parts and clothing away from an activated windlass.
3. Do not exceed the maximum load designated by specifications.
4. Always tie off the anchor rode to the designated cleat.
5. Do not use the windlass to pull or tow another vessel.
6. Always shut off windlass breaker or main battery switch before servicing the component.
7. Always use engine power to gain headway before retrieving anchor.
8. Always look for swimmers or divers before deploying anchor.
9. Always secure rode/anchor while cruising or pulling vessel on highway.
10. Use authorized vendor replacement parts only.
11. Contact your closest Regal dealer for technical information or servicing.



Equipment Operation

Windlass Operating Tips

It is recommended that during the paying out process the engine be run to stern before full scope is reached. This will help prevent the rode from being tangled in the anchor on the sea bottom.

It is recommended that during the retrieval process use the engine to gather headway. Do not let the vessel sit directly on top or over the area where the anchor lies because the chain rode could damage the hull topside.

As the anchor raises toward the scuff plate area, retrieve the last few feet very carefully to eliminate any hull damage.

Once the anchor is retrieved, check to ensure the fail safe pawl is engaged in the gypsy which will help prevent accidental activation.



CHAPTER 6

AUTOMATIC FIRE EXTINGUISHER

Optional Automatic Fire Extinguisher

As an option the automatic fire extinguisher is mounted in the aft storage compartment. It uses sensors to automatically discharge when a fire occurs, although it can be manually discharged. Upon actuation, you may hear a sound similar to that of a small firearm, followed by a rushing air sound. A charged system shows a light at the dash indicator, while a discharged system shows no light at the indicator - refill accordingly.

Automatic activation will occur at different times depending on the severity of the fire picked up by sensors. **WHEN THE FIRE EXTINGUISHER IS ACTIVATED, IMMEDIATELY SHUT DOWN ALL ENGINES, POWERED VENTILATION (BLOWER), ELECTRICAL SYSTEMS, AND EXTINGUISH ALL SMOKING MATERIALS. DO NOT OPEN THE ENGINE COMPARTMENT UNTIL A SUITABLE AMOUNT OF TIME HAS PASSED SINCE THE EXTINGUISHER STOPPED DISCHARGING.** Opening the aft compartment prematurely may cause a reflash as air is allowed to fill the compartment. When opening the aft compartment hatch have a hand-held extinguisher ready in case of reflash. Be cautious of hot metal when investigating the cause of the fire.

If a fire has started in the aft compartment, **DO NOT** wait for the automatic fire extinguisher system to engage. Locate the fire extinguisher manual discharge lever after closing the aft compartment, and turning off any electronic equipment. Remove the safety pin from the “T” handle, and pull firmly to release.



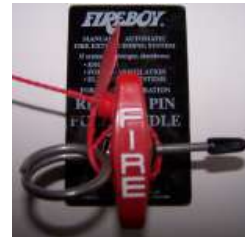
Equipment Operation

For safety information, refer to your fire extinguisher label. General safety requirements are described in the safety on board chapter of this manual. For system information, refer to the automatic fire extinguisher manufacturers manual.



WARNING

AVOID SERIOUS INJURY OR DEATH! DO NOT BREATHE FUMES OR VAPORS CAUSED BY AN EXTINGUISHING AGENT. VAPORS ARE HAZARDOUS AND TOXIC.



Typical Dashboard Automatic Extinguishing System Light

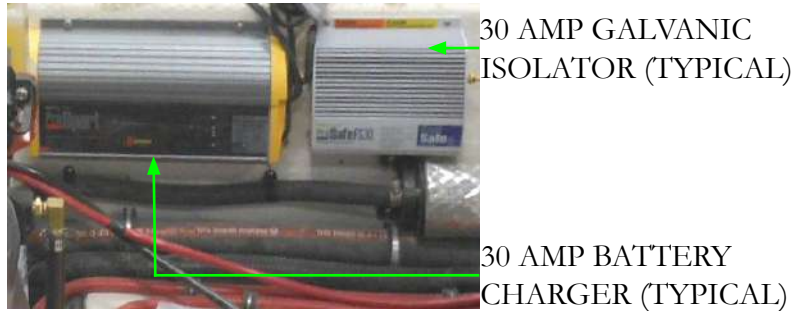
Typical Mounted Automatic Fire Extinguisher

Typical Manual Discharge Pin For Automatic Fire Extinguisher



CHAPTER 6

BATTERY CHARGER



Overview

An optional 30 amp battery charger may be installed on your vessel. It features digital microprocessor charging technology, 15 amp grounded receptacle and a galvanic isolator. Other features include digital bank trouble indicators, monthly storage reconditioning mode and digital LED display (LED's for operation status and trouble-shooting). Use the battery charging system at dockside by plugging in an approved extension cord as indicated in the next page warning. The available current will be able to support on board components such as cockpit refrigerator, stereo system, cockpit heater along with any electronics including gaming devices.

Role Of Galvanic Isolator

The galvanic isolator is 30 amps and it is part of the battery charger option. Technically speaking the galvanic isolator blocks DC current flow on the grounding circuit (in the case of the 29 OBX it would involve the green ground wire/round connector on a 3 prong extension cord; male end). The system minimizes the possibility of electrocution.



Equipment Operation

RECEPTACLE FOR SHORE EXTENSION CORD



As soon as this extension cord circuit is activated it is also connected to the dock and all the other boats around you. Your boat is now part of a larger electrical system (Galvanic cell).

Bottom line is that the zinc anodes on your vessel and drive may erode at a much faster rate due to stray current in the water. Zinc is more sacrificial than many other metals used on boats such as stainless steel.

At the end of the day,

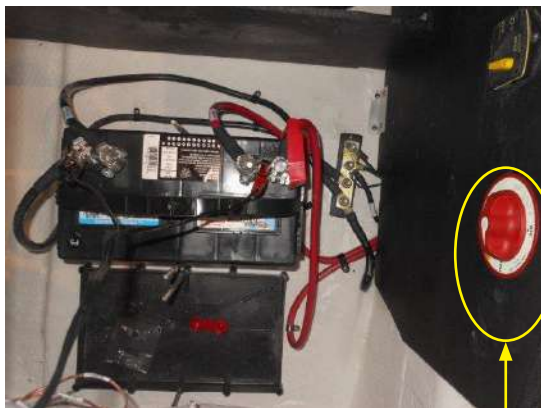
you want your underwater metals protected, and you want your zincs to erode at a predictable rate for ease of maintenance.

With the galvanic isolator installed as part of your battery charger option, it effectively isolates your boat from others around you (blocking any damaging DC flow) while still maintaining the integrity of the shore power safety ground (extension cord plugged into dockside). The galvanic isolator is the best way to prevent damage to vital metal parts on your vessel.



CHAPTER 6

BATTERY SWITCH



Typical Dual Battery Switch

Your vessel utilizes a battery switch system which will permit the use of dual batteries along with an automatic charging relay.

There is a separate engine starting and “house” battery. With this style switch, the operator simply turns

the knob to the “on” position before starting the engine and the system energizes the engine starting battery. For emergency starting if the battery switch is turned to the “combine batteries” position both the house and engine batteries are activated to start the engine. There is a dual battery automatic charging relay located on the the aft side of the battery switch bulkhead. Its purpose is the distribute a charge to either battery as needed to keep them in a peak charge condition.

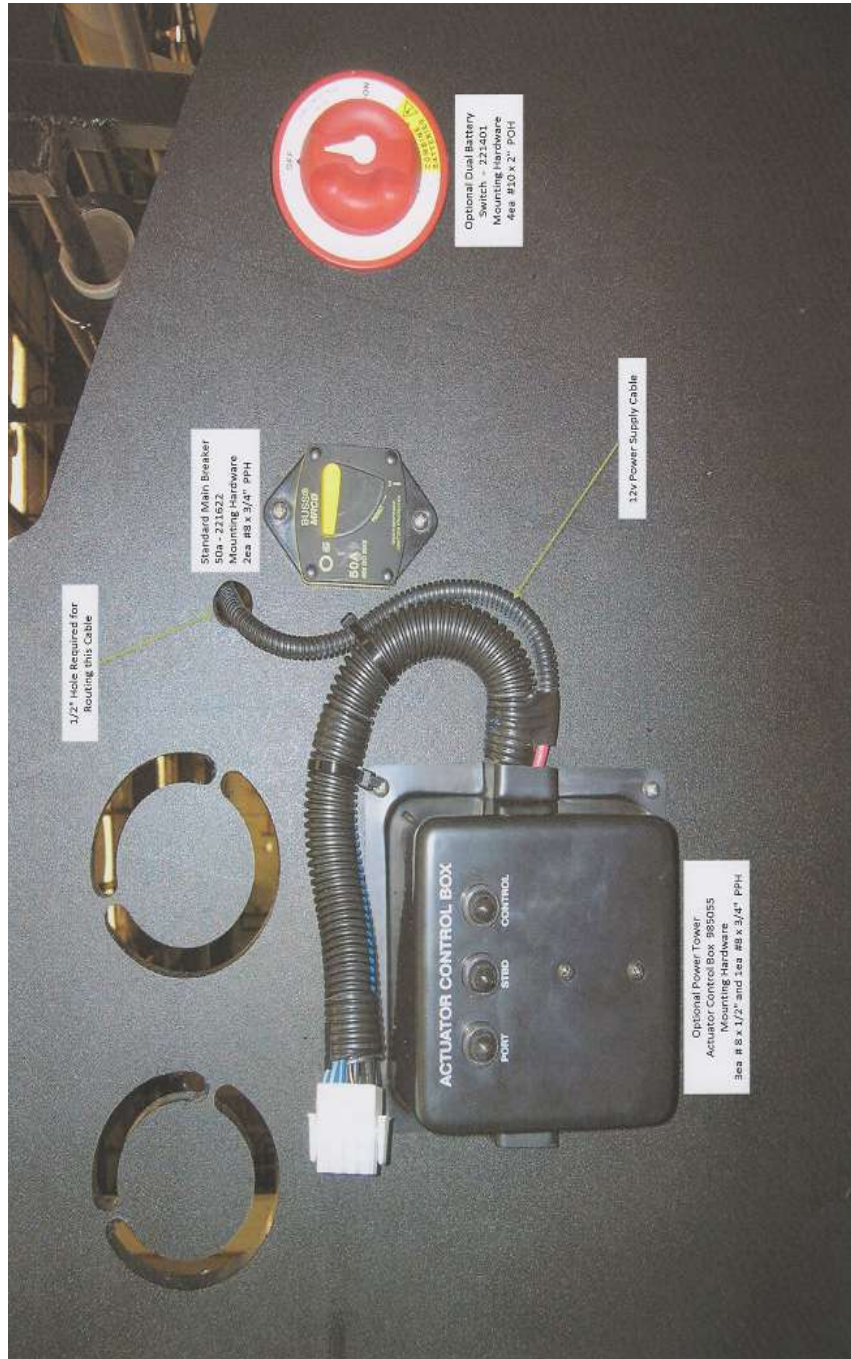
As part of this system is a 50 amp main breaker to protect the wire circuitry. Should the breaker “trip” find the source of the malfunction before resetting the circuit breaker. Make sure the knob is fully de-tented when selecting the “on” or “off” functions. Again, remember to deactivate the battery switch upon leaving the vessel.

Note that in the “ON” position the switch cranks the outboard engine for starting purposes through the helm key switch system.

Note: There is an expanded battery switch system for dual outboard installations verses the single outboard component addressed above.



Equipment Operation

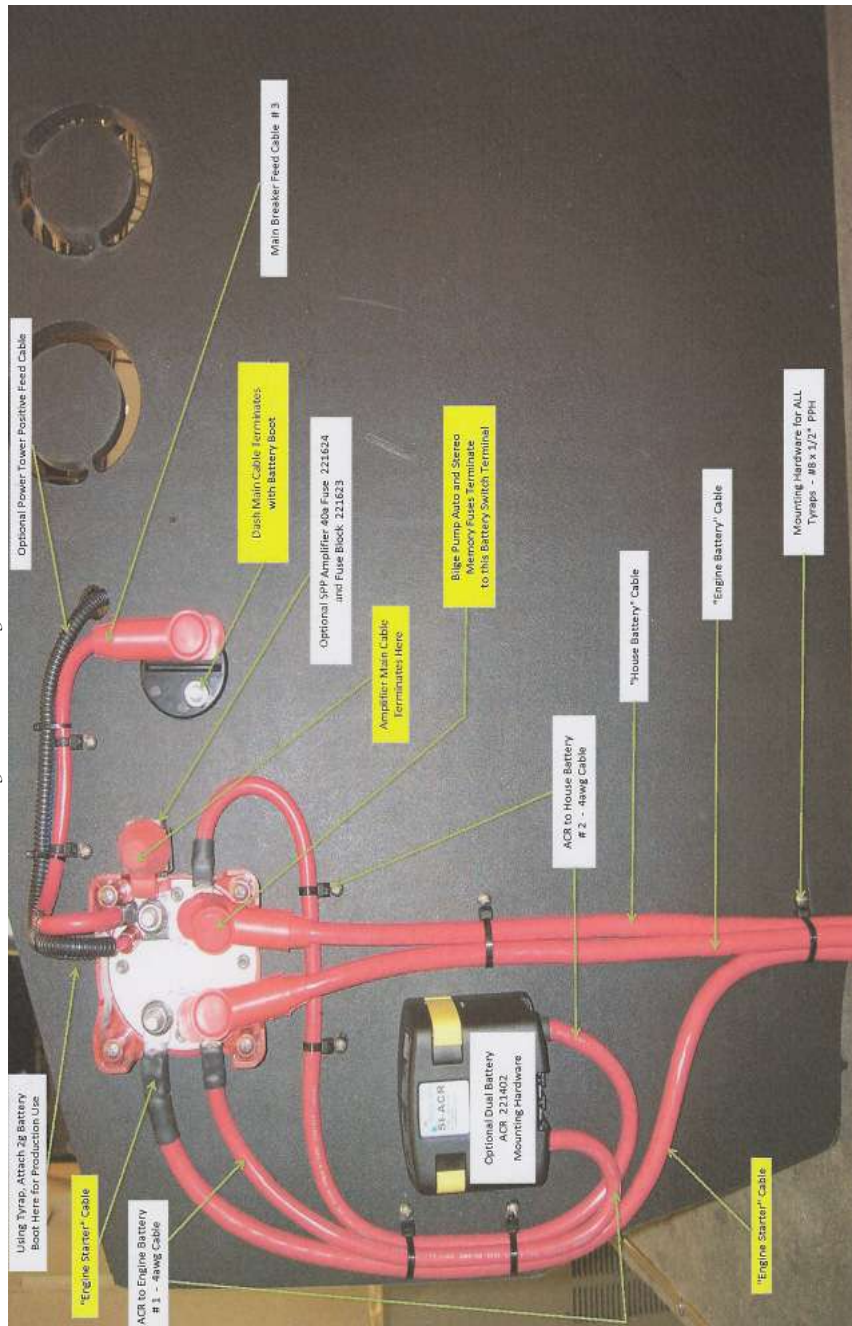


Typical Dual Battery Switch Circuitry- Front View



CHAPTER 6

Dual Battery Switch Circuitry-Rear View





BOARD RACKS



Optional board racks attach to the Power Tower. Pull up on the latch to move the board rack body. It will reach a detent and lock. Use the bungee cord to hold the boards in the slots.



CHAPTER 6

BOW FILLER CUSHION



To use the bow filler cushion locate the support bars found under the bow cushions. One is longer than the other. Make sure both bars are seated in the liner detents (Typical bow seating shown).



Place cushion on bars. Make sure the cushion is completely seated on the bars before attempting to occupy the bow cushions.

Typical Bow Filler Cushion Shown



Equipment Operation

BOW THRUSTER

General Safety Notices:



1. Be sure to read and understand the safety information and all thruster operation information before attempting to use the thruster system.

2. Do not operate the bow thruster system close to swimmers as a high powered suction is produced at the propellers.

3. Make sure the propeller lock nut is torqued to the required foot pound specification.

Using The Thruster:

To use the thruster first make sure the battery switch is activated.

As part of the thruster system there is a joystick on the helm. The thruster will assist in slow speed maneuvering especially around a dock or close mooring situations. It operates similar to an gaming or marine engine joystick.

To activate the joystick, push and hold the black button. The red icon will illuminate.

Never run the thruster dry; it will weld the relay contacts as it becomes a generator in spool down.

Do not make quick changes from one direction to the other direction, or it will damage the unit.

The minimum running voltage for the thruster is 10.5 volts; therefore the outboard engine(s) should be running to maintain this voltage requirement.

There is an in-line ANL fast activation fuse for overcurrent protection behind the thruster switch panel.



CHAPTER 6

BOW WALK-THRU DOORS



Optional walk-through bow doors are great in foul weather. With the tonneau (bow) cover in place, simply open the doors and pull across the bow opening. Secure latch.

To store, fold against the walk-thru and secure the folding latch.



Note there is a starboard side storage drawer along with a hide-away trash receptacle. Periodically wipe the plexiglas doors with fresh soapy water and rinse dry. Do not use any harsh chemicals such as cleanser or ammonia based products on the doors as damage will occur.



Equipment Operation

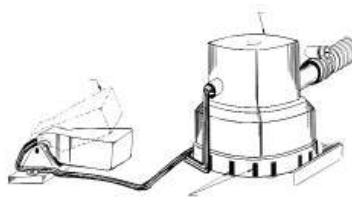
BILGE PUMP

Before each outing, check the operation of the bilge pump, automatic switch, and manual switch. The bilge pump should automatically activate when water reaches a pre-determined height in the engine compartment. Test the bilge pump manually at the dashboard with the switch. Periodically check for bilge debris around the grates of both the bilge pump and automatic switch, and also bilge pump impeller.

The automatic mode for your bilge pump works similarly to the manual method. Both methods control the bilge pump by a switch, but the automatic mode utilizes a float switch. Float switches have a float that sits at water level, and when the float reaches a certain height, it trips the switch and activates the bilge pump.

Periodically you may need to disassemble the bilge pump from the grate in order to clean or access the inner mechanisms. To remove the bilge pump, utilize the quick disconnect tabs on either side of the bilge pump, squeezing them like a backpack clip while pulling up on the pump.

For switch control location, refer to the engine and controls chapter. For bilge and drainage system information and electrical system information, refer to the systems chapter. Refer to the vessel operations chapter for pre-departure use.



Typical Bilge Pump And Automatic Switch Diagram



CHAPTER 6

CANVAS

The optional cockpit cover normally snaps to the deck. The cockpit cover is meant to protect the entire boat from weather elements, and is not used for towing purposes. The same is true for the bow cover. The bow cover protects the bow of the boat from weather and snaps to the deck. Likewise, the bow cover should not be used for towing.

To install a typical bow/cockpit cover:

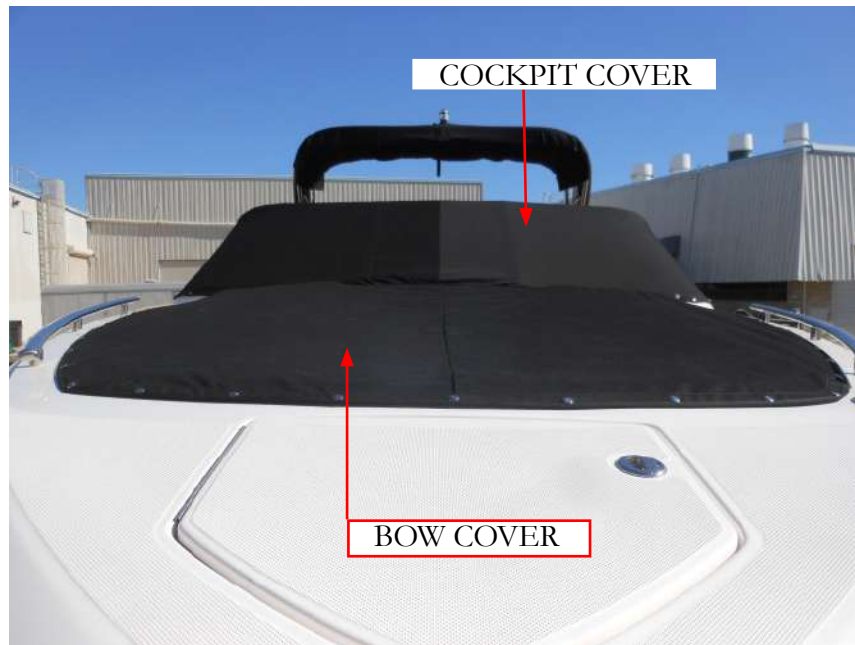
First note that on the bow end of the cockpit cover, there is a velcro strip used to attach to an optional bow cover. This strip can be used to align the covers with your boat. Simply align the Velcro edge with the windshield.

Ensure the center windshield is in the closed position. Start snapping the cover to the deck by use of the eyelet snaps, starting at the bow and working aft.

Notice in the middle underside of your cover, you may find an area of reinforced canvas with an eyelet snap. This snap connects to a cockpit cover pole. This pole is adjustable, and by opening the lock, the pole can telescope out to the desired length. This pole should push the canvas up when standing straight up on its rubber enclosed foot. The purpose here is to prevent the pooling of water.



Equipment Operation



TYPICAL COCKPIT/TONNEAU (BOW) COVER

Note: Before towing roll-up the cockpit cover and bow cover. Store them in a locker to prevent it from blowing out of the vessel. Do not yank on the snaps when removing canvas pieces.



CHAPTER 6

CANVAS-TRAVEL COVER

▲ WARNING: To prevent damage to your boat and/or cover please read and understand instructions before attempting to use cover.

It features:

1. **ON SOME MODELS:** A special anti-pooling system is included to prevent large puddles from ruining your cover.
2. The SurLast® all-weather fabric was chosen to allow stability, water repellency and breathe-ability.
3. The Vacu-Hold™ system allows trailering at highway speeds (65 mph) without billowing or buffeting.
4. The new ratchet and drawstrap type attachment will allow easy, tight and secure installation.

CARE, WARRANTY AND INSTALLATION INSTRUCTIONS

Hint-To properly install ratchet strap system.

1. Pull the webbing through the channeled ratchet cylinder and tension while ratcheting to "start" the webbing.
2. Tension the ratchet with about 5 lbs. of pressure (pinky finger). Pull the sides of the cover to even the webbing throughout. Re-tension about 5 lbs. (the ratchet should be tight on the side of the boat lever, perpendicular to the hull).
3. Crank the ratchet approximately 5 full additional times to add tension (based on an 18' boat).
4. Check boat webbing for tension during stops while trailering. (webbing may stretch during first installation and use CHECK OFTEN)

▲ WARNING: Readjust and retighten the cover after trailering and before storage. To prevent pooling do not allow snow and ice to accumulate on the cover. Never trailer at speeds above the speed limit.

CARE INSTRUCTIONS- Wash with warm soapy water (while installed if possible) and allow to air dry. For stubborn stains, mild detergent is recommended.

Storing the boat in constant direct sunlight will shorten the life of the cover and the components used to construct it. We recommend storing the boat in a location that exposes it to some sun and also shades it throughout the day. Preferably morning sun and afternoon shade.

WARRANTY- This cover includes a two-year warranty from date of purchase against any defects in material or workmanship. If you incur any problems or have any comments please contact your dealer or call Commercial Sewing Customer Service directly at (850) 482-5509.

PROPER INSTALLATION-

A. Pooling System Installation:

Note:

Install anti-pooling system as per illustration putting the front webbing to the cleats, standing pole upright. Pull the other two webbing straps to the two rear cleats. Tighten adjustable buckle strap, until the pole stands upright.

B. Proper Cover Installation:

- Place cover on boat starting at front, use cleats as buttons to keep cover in place, work toward back over pooling system until back cleats are "buttoned" in place.
- Maneuver in place until cover fits over gunwale. Check the symmetry. Connect the confidence straps through the openings on the swim platform to the "U" bolts. Disconnect velcro wrap around ratchet. Begin ratcheting by unzipping ratchet pocket(s) and pulling ratchet(s) handle in right-to-left motion until zippered ratchet pocket no longer sags but rests against the hull.
- Pull on webbing to even the tension around the cover and again tighten the ratchet until it does not sag but rests against the boat. Tighten ratchet four to five more times. The ratchet should be very hard to pull with your pinky finger. Zip ratchet pocket closed and connect velcro wrap around ratchet pocket. **On some models:** Connect the rear strap tiedowns in the back of the boat.

Note: Proper installation and operation of this cover requires that it be very tight at the gunwale. Retighten as necessary before, after and during stops while trailering. **BE SURE** cover is installed below gunwale before final ratchet adjustment. ZIP ratchet pocket closed for final installation.

▲ Warning: Zippered ratchet mechanism should be hand tightened only. Do not pry or attempt to operate ratchet mechanism with any type of tool.

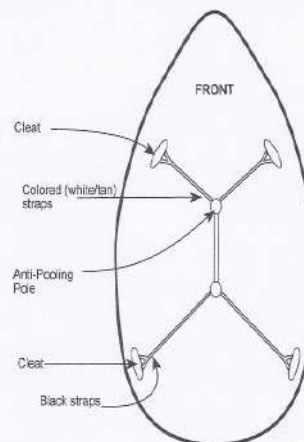
REMOVAL-

- Disconnect velcro wrap & zip open ratchet pocket.
- Follow instructions on ratchet label to release pressure.
- Once pressure is released pull out webbing to allow simple future installation, then close handle and ZIP POCKET closed (this is important to prevent damage in future installation).
- Disconnect holddown straps. Remove and fold cover working from rear to front.

ANTI-POOLING POLE STORAGE-

- Disconnect anti-pooling pole from either the front (colored webbing) or back.
- After disconnecting collapse poles by pushing buttons and telescoping them down.
- Wrap webbing around poles.

ISBLANKMOORINGIRO





Equipment Operation



TYPICAL TRAVEL/STORAGE COVER



RATCHET STRAP

Ensure the ratchet strap is tight and the velcro flap is closed on the travel cover before pulling boat at highway speeds. Tie cover securely to bow and stern eyes. Do not exceed manufacturer's miles per hour speed limit. Once on the road periodically pull over and check cover, ratchet strap and pertinent hardware for tightness. Note that select covers use dual aft straps.



CHAPTER 6

CANVAS-POWER TOWER

The bimini/sunshade provides partial sun protection for the helm and companion cockpit area.

For trailering and storage purposes, the bimini/sunshade must be rolled up and stored in the boot.

The sunshade assembly must be collapsed back against the tower and clipped around the tower with the quick release clips. This is also how the sunshade should be stored with speeds exceeding 35 miles per hour. Be aware of potential carbon monoxide buildup while the sunshade is in use. Always store bimini/sunshade in the boot before any highway towing.



Typical Bimini Top/ Sunshade With Power Tower



Equipment Operation

CHARTPLOTTER



A Garmin 10" chartplotter is standard equipment on your Regal 29 OBX. It features many GPS functions along with the ability to monitor engine system functions including revolutions per minute (rpm's), GPS speed, voltage, fuel flow rate, trim, and temperature along with tracking engine hours.

Note that the Garmin and Fusion circuitry use individual sources to power up each system. **The key switch does not power up these components. Also, note that the depth and fuel gauge displays are independent of the Garmin engine displays.**

Chartplotter Quick Start:

1. To power up the Garmin GPS press the "on" button located at the upper chartplotter display.
2. Load chart flash card into slot behind door. Second slot can be used for Regal owners manual SD flash card if available.
3. Let cards load into chartplotter memory. May take a few seconds.
4. After cards are loaded a message is shown. Select I agree to move forward in the display mode.
5. Select the HOME menu. Choices will be Favorites, Charts, Sonar, Radar, or AV (Gauges and Controls).

Note: Soft keys on the bottom row change as the menu changes.

6. Refer to the Garmin Owner's Manual for more detailed information.



CHAPTER 6

COCKPIT CARPET-TYPICAL

If installed, cockpit carpet features a forty ounce weight with a heavy duty backing. As required, snaps are installed.

Note: Before towing roll-up the cockpit carpet and store it in a locker to prevent it from blowing out of the vessel. Do not yank on the carpet to remove it.



Typical Vessel With Cockpit Carpet



Equipment Operation

COCKPIT SEAGRASS MAT



If installed, cockpit seagrass mats feature urethane backing for marine environments. The mats provide style, comfort and durability as well as additional protection in environments where microbes are a concern.

Chilewich® products contain Microban®. This antimicrobial protection inhibits the growth of stain and odor-causing bacteria, mold

and mildew for the product's life.

When storing your seagrass mats, always roll with the face of product out with the backing facing in. Do not fold or crease as the backing may split. Vacuum or hose off for regular cleaning. Dry face up or hang. Do not machine wash. Matting may be cleaned with a mild detergent and a sponge. Rinse with fresh water.



Note: Before towing roll-up the cockpit seagrass mat and store it in a locker to prevent it from blowing out of the vessel. Do not yank on the product to remove it.



CHAPTER 6

COCKPIT FLEXITEEK



Flexiteek decking is available on selected models. It features significant advantages over similar wood products. It is made from synthetics. Color is as natural as timber and uniform through the entire thickness adding to its appeal. It sands like wood resulting in a natural wood look and feel. It provides superior grip making it great for boating in general and water sports.

It is stain resistant with most

stains washing away with soap and water.

The product is UV resistant. Gentle sanding removes most marks on the decking with a minimum of product loss.

Flexiteek may be installed on cockpit sole as shown above and/or on the swim platform.



Equipment Operation

COCKPIT TABLE-TYPICAL



COCKPIT TABLE STORED

As an option, a teak cockpit table may be found in a cockpit storage locker. When using the table ensure the table pedestal leg is installed in the receiver securely. Pull the latch pin and hold until the table pedestal leg

slides in the receiver sleeve. Then release the latch pin. When installed, there are normally table receivers located in select cockpit areas. Periodically lubricate the latch pins with a silicone lube spray.



BOW LOCATION



RECEIVER



COCKPIT LOCATION



STERN LOCATION



CHAPTER 6

DEPTH GAUGE/SOUNDER

In theory the depth gauge picks up a bottom signal sent through a transducer to the helm gauge unit which is converted to readings in feet, meters, or fathoms, and displayed on the gauge. The unit features shallow or deep water alarms, both of the audio and visual type, and keel offset.

Operation

The depth finder will display depths of 2-199 feet, 1-92 meters, or 1-54 fathoms. To accommodate greater depths to be displayed in the feet mode (ft), the depth sounder will automatically change to the fathoms (f) mode and continue to display depths to around 54 fathoms. When the depth becomes larger than 200 feet, the display will return to the feet mode. Limits on depth will vary depending on transducers and bottom conditions.

If the reading is less than 19.9 feet, meters, or fathoms, 1/10th increments will be displayed. If the reading is more than 19.9 feet, all readings will be in whole numbers.

The depth finder features an audible and LCD displayed depth alarm with adjustable shallow and deep limits and a depth below keel offset feature. These settings once made are stored in memory and will remain, even if the battery is not connected.



Equipment Operation

POWER ON

When the helm is powered up by the key switch, 12 volt DC energy is available at the depth gauge along with the remained of the instrument cluster. You do not need to press the “ON/OFF MODE” keypad.

The LCD will illuminate showing the depth and the type of units selected; feet (FT), meters (M), or fathoms (F). To deactivate the depth sounder, hold the “ON/OFF MODE” keypad for 4 seconds. Pressing the “ON/OFF MODE” keypad again, reactivates the unit.

DEPTH ALARM SHALLOW MODE

If you press the “ON/OFF MODE” keypad again, the shallow depth alarm setting is displayed. This is the shallowest water that will energize the alarm. Press and hold the up or down arrow keypads to adjust the reading to the desired depth.

DEPTH ALARM DEEP MODE

By pressing the “ON/OFF MODE” keypad again, the deep depth alarm setting is displayed. This is the deepest water that will energize the alarm. Press and hold the up or down arrow keypads to adjust the reading to the desired depth.

When the shallow depth setting is read by the depth finder, the “SH” will flash on the LCD and the audible alarm will sound in a rapid sequence. When the deep depth setting is read by the transducer, the “DP” will flash on the LCD and the audible alarm will sound at two beeps per second.



CHAPTER 6

UNITS

Pressing the “ON/OFF MODE” keypad again displays the units mode “UN”. Press either the up or down arrow keypads to set the units to feet (FT), meters (M), or fathoms (F). Once these units are set, they will remain the same for all modes. By pressing the “ON/OFF MODE” keypad again, the depth finder will return to the normal operations screen.



NOTICE

AVOID EQUIPMENT DAMAGE! THE TRANSDUCER IS A SEALED UNIT. DO NOT ATTEMPT TO OPEN IT, SINCE IT IS NOT SERVICEABLE.

To fully deactivate the alarm, reset it to zero. Pressing the “ON/OFF MODE” keypad temporarily deactivates the alarm. To reactivate, press the “ON/OFF MODE” keypad until the depth reading appears.

KEEL OFFSET

By pressing the “ON/OFF MODE” keypad again, the alarm will display the keel offset setting “KL”. It can be set so the depth finder shows the depth below the transducer, or the depth under the keel. Press the up or down arrow keypads to adjust the reading to the desired depth no further than 19.9 feet.

An example would be if the keel bottom is 3 feet below the transducer, and you desire the depth sounder to read the depth below the keel, the keel offset display should be adjusted to 3.0 FT.

Once the keel offset is programmed, the shallow and deep water alarms will be energized by the depth under the keel.

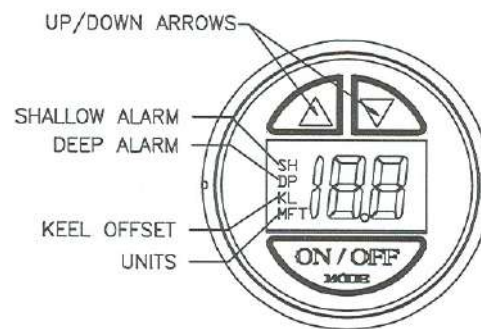


Equipment Operation



WARNING

AVOID INJURY OR DEATH! THE DEPTH SOUNDER IS NOT TO BE USED FOR NAVIGATION OR AS A DEVICE TO AVOID GROUNDING. USE CAUTION WHEN OPERATING IN SHALLOW AREAS AND MAINTAIN A VERY SLOW SPEED. BE AWARE THAT WATER DEPTHS MAY CHANGE TOO QUICKLY FOR YOU TO REACT AND AVOID GROUNDING!



Depth Gauge With Functions



CHAPTER 6

DOCKING LIGHTS



If installed, docking lights are integrated into the hull. They are very useful for night mooring approaches and maneuvering. To operate turn on the helm switch marked “docking lights”.

It is recommended not to use the docking lights while navigating in open water at night since the illumination could cause a glare on the bow navigation light possibly causing visibility problems. There is a dedicated “docking light” switch near the helm.



Equipment Operation

DRAIN PLUG

Your boat is equipped with a drain plug centrally located on the transom below deck level. Make sure it is installed tightly before launching. Tighten with a small amount of machine torque but do not overtighten it as the thread material is nylon and can be stripped. Do not use your fingers alone to tighten it. After your outing, while the boat is angled on the ramp, remove the drain plug to eliminate any bilge water accumulation. If the water stream is diminished, check for foreign objects stuck in the drain hole. Pull the drain plug if dry storing the boat for extended periods, especially in colder climates. Refer to the vessel operation chapter for pre-departure use. Refer to the storage and winterization chapter for storage information. Review the trailering section for pre-launch and post-trip instructions.



CHAPTER 6

GRILL

If installed the marine gas grill uses small bottles of propane as a fuel source. Grill receivers may be located on the aft swim platform area and this is the only approved location for grilling. **Read and understand all instructions before using the grill. Make sure grill is mounted securely before using. Let grill cool down before storing unit.**

Gas Grill- Barbecue Safety Instructions

1. The unit is designed to cook food like meat, fish or vegetables. Do not use it for any other purpose since it could be dangerous.
2. Do not operate the barbecue in rough seas or while under power.
3. Do not use burning type charcoal briquettes or volcanic stones.
4. Never light the barbecue with the lid closed.
5. Never grill with the canvas in the up position to help prevent CO poisoning. Read and understand warning label on next page.
6. Keep combustible material away from the barbecue.
7. Keep children away from hot barbecue parts.
8. Do not store propane bottles on board the vessel.
9. Let the unit cool down before attempting to store the grill.
10. Always change propane tank away from any ignition source.
11. Do not tamper or modify any parts adjusted or sealed by the manufacturer. Check often for leaks, corrosion and wear.



Equipment Operation



Typical Grill Installation

13. When installing a propane bottle make sure it is screwed into the grill receptacle tightly. Use a spray bottle with soapy water to check for leaks. See the information on gas leaks.

14. Never try to adjust the regulator. It is factory set for best operation.

15. Use common sense around the grill. A portable fire extinguisher shall be readily available.

17. **Never leave the grill operating unless an adult is supervising the device.**



WARNING

OPEN FLAME COOKING APPLIANCES CONSUME OXYGEN
AND PRODUCE CARBON MONOXIDE.
TO AVOID ASPHYXIATION, OR INJURY OR DEATH
FROM EXPOSURE TO CARBON MONOXIDE,
MAINTAIN OPEN VENTILATION
WHEN USING THESE APPLIANCES.
DO NOT USE THIS APPLIANCE
FOR COMFORT HEATING.



CHAPTER 6

Typical Gas Grill-Operating Instructions

- A universal mount is required to attach the grill to the deck fitting.
- Fit the grill-mount assembly to the grill and into the deck fitting. Make sure the grill is positioned securely.
- Screw on the propane bottle.
- With a long match or propane starter apply flame to the burner. Always apply the flame to the burner before turning on the gas.
- The control knob now can be turned to start the grill.



WARNING

GASOLINE VAPORS ARE EXPLOSIVE!
OPEN FLAME APPLIANCES CAN IGNITE GASOLINE VAPORS.
TO AVOID INJURY OR DEATH FROM EXPLOSION OR FIRE,
TURN OFF ALL OPEN FLAME DEVICES.



Equipment Operation

- Turn the grill on high. Make sure there is heat coming from the unit. If after 10 seconds the burner has not ignited or your flame has gone out turn the unit off and wait 1 minute for the propane to dissipate.
- Once lit, adjust the flame to the desired temperature. No preheating time is necessary.
- Do not leave the grill operating unattended.
- After cooking , shut off the grill and allow the unit to cool.
- After cooling, wipe up any grease build-up. Clean after every use to keep the grill operating correctly. Dispose of greasy cloths properly.
- Do not store grill until unit is completely cooled down as a fire could develop.



CHAPTER 6

GAS VAPOR DETECTOR

If equipped, a gas vapor detector is a state of the art fume monitoring and alarm system. It is a highly effective detector of compartment gasoline fumes from unburned hydrocarbons emitted from faulty exhaust systems and hydrogen battery vapors.

The unit operates with a head unit at the helm, a sensor located in the bilge installed just above the normal accumulation of oily bilge water. A .5 amp buss fuse (for over current protection) is located behind the helm head unit.

Operation

The display panel at the helm features 3 windows. The left window is a green power on indicator. The right window is an opening for the Var-a-Brite light intensity detector. The center window is the red warning indicator.

To check for fumes, turn the ignition key to the “on” position. The green power on LED will illuminate and the red warning LED may light momentarily to indicate a warm-up period for the sensor. The alarm horn will not sound during this period.

If a vapor build-up reaches 10-20% of lower explosion limit the red warning LED will light indicating a detection of fumes. Should this condition last for longer than 10 seconds, the alarm horn will sound.

The alarm will continue as long as vapors are present. The alarm horn may be silenced by pressing the “mute” switch; the Red warning light will remain on until the vapor problem has been resolved.

NOTE: THE PROBLEM SHOULD NEVER BE CONSIDERED CORRECTED UNTIL RED WARNING LIGHT IS OUT.



Equipment Operation

If the red LED begins to glow softly and or intermittently, it is an indication that the gasoline vapor build-up is beginning to occur and you can anticipate a full alarm momentarily. Immediately have all passengers and crew exit the passenger compartment. If an explosion or fire should occur, the probability of injury will be greatly reduced if no one is in a confined area of the vessel.

IN THE EVENT OF AN ALARM:

NOTE: IT IS IMPORTANT TO UNDERSTAND THAT AN ALARM WOULD NOT OCCUR UNLESS A PROBLEM EXISTED. CAREFULLY CHECK ALL FUEL LINES, GAS LINES, AND ANY OTHER POTENTIAL SOURCES OF GAS LEAKS.

Testing System



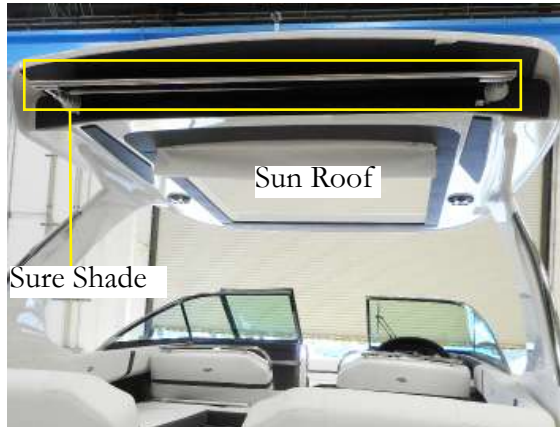
The head unit can be tested for electrical continuity by pressing the “Test” switch. The Red LED will come on. The light will glow as long as the switch is held down. If the test switch is held down longer than 10 seconds the horn will sound and the “MUTE” switch must be pushed to silence the horn.

Unplug the sensor wire from the helm display head while the unit is powered up. The Red LED will illuminate and within 10-15 seconds the alarm horn will sound. If warning Red LED fails to come on & horn fails to sound, remove display head & return to factory for repair.



CHAPTER 6

HARD TOP



If installed, the hard top features a center soft sun roof with a built-in Sure Shade. The hard top may also include 2 speakers and a LED accent lighting system.

To use the Sure Shade simply pull on the ratcheted framework and it will roll out to the amount of shade desired. After use, push the Sure Shade framework evenly in until it ratches in a locked position.

Note: THE SURE SHADE IS TO BE USED ONLY WHEN THE VESSEL IS MOORED OF NOT MAKING HEADWAY. DO NOT USE THE COMPONENT WHEN THE BOAT IS IN MOTION.



Pull Down To Release Top

To open the sunshade simply pull down on the black strap to release the soft top from the latched position and pull the strap forward until the top is in the full open position.



Equipment Operation

HORN



A switch at the helm controls the audible horn signal installed on your vessel. Be sure to test the horn before each outing and learn the horn and bridge signals by reviewing the rules of the road chapter. Hold the button in as needed for on-going signals.



CHAPTER 6

INFLATER/AIR COMPRESSOR



If installed, an inflater/air compressor is useful for inflating a number of items including beach balls, toys and tow components such as tubes. To use, plug the receptacle into the 12 volt helm accessory outlet and use the proper inflater fitting. Note that a typical inflater shown here.



Equipment Operation

POWER TOWER



As an option the Power Tower hinges forward for tight overhead clearances such as bridges and restricted storage situations.

The tower features a fiberglass framework with overhead lights, all around navigation light and/or ski pylon.

For highway towing the Power Tower shall be upright and all canvas stowed in their dedicated boots. All attached canvas and bow hardware shall be checked for tightness before and after towing. Cockpit carpet shall be rolled up and stored in a dedicated cockpit dry floor locker.

Note that the Power Tower may have a full enclosure available as an option. Be sure to roll and not fold any canvas pieces that may be part of this package since the clear window style pieces may be damaged when folded.



CHAPTER 6



Bimini Top/Sunshade
Zipped In Boot

Typical Power Tower Canvas Shown In Booted Cruise Position



Typical Power Tower Shown In (Bridge) Full Forward Position



Equipment Operation



CAUTION

WHEN OPERATING WAKESPORT TOWER
KEEP ALL BODY PARTS CLEAR
OF TOWER HINGE MECHANISMS.



CHAPTER 6

The Power Tower can be hinged forward for clearance purposes. Normally one of the switches at the helm area is designated as arch or tower. It connects to a lift motor and a set of hydraulic rams that raise or lower the Power Tower when the switch is activated.

Make sure the operator and all aboard read and understand the above warning. Before energizing the arch switch. Explain to all passengers that they must maintain a safe distance from the tower hinge mechanisms located at the base of the power tower on the deck. As the operator energizes the switch to hinge the tower forward visually monitor the port and starboard deck to ensure all passengers body parts are clear of the hinge mechanism. This same procedure applies for lowering the mechanism to the original position.



The Power Tower features an actuator control box. This component is located in the aft starboard storage compartment under the hatch area. The unit provides over current protection through a set of breakers on the face of the actuator box. Facing the box the left reset breaker protects the port power tower lift actuator. The center reset breaker protects the starboard power tower

lift actuator.

The far right breaker protects the entire circuit wiring. If the Power Tower fails to raise check the box for an “open” breaker. Always find the cause of an open breaker situation before resetting the device.



REAR VIEW MIRROR

As an option a rearview mirror is available. It attaches to the windshield and provides increased visibility aft especially useful during water sports activities. Be sure to fasten the mirror tightly so it stays in place when encountering waves, wakes and maneuvering in busy waterways.

Note: The mirror does not replace the need for an observer during water sports. Periodically clean the mirror surface with fresh water and wipe dry. Do not use harsh chemicals on the mirror glass or cleaners containing ammonia.



CHAPTER 6

SEATS, STORAGE HATCH

Helm Seat



Helm Seat Bolster



The helm (captain's) seat features forward and aft movement and a bolster seat to permit higher visibility for docking and maneuvering in idle throttle positions.

To adjust the seat forward or backward, simply press the switch control arrow position toward the bow or the switch control arrow toward the stern.

To utilize the bolster cushion, simply grab the front of the cushion and pull it up.

To adjust the optional helm seat height up, simply push the up arrow control until the

desired height is reached. To lower the seat height, simply push the down arrow switch bottom until the desired height is reached.



Equipment Operation

Dual Aft Cockpit Seating



Your vessel features dual aft seats with the ability to move forward or backward up to 12" with the use of a standard switch mounted at the walk thru area. This feature permits additional cockpit space while entertaining at the dock or anchored.

To extend the cockpit seating aft simply press the rear of the switch arrow.

To reposition the seat to the

bow, press the forward side of the arrowed switch.



Aft Seat Control



CHAPTER 6

Aft Dual Cockpit Seating (continued)

Besides being able to move the aft seats forward or backward these seats are extremely versatile since they can face forward, aft or can be used as a reclining lounge seat.



To change either of the aft seats to a different footprint requires you to use the pull latch located at the front of each seat.



This illustration shows the seat backrest in the forward facing position. If the seat is in the lounge or aft facing position simply pull the latch and position the backrest to the rear. You will hear it as it latches in place.



This illustration shows the seat backrest in the aft facing position. If the seat is in the lounge or forward facing position simply pull the latch and position the backrest to the rear. You will hear it as it latches in place.



Equipment Operation

Aft Dual Cockpit Seating (continued)



The photo displays the aft seat in the lounge position. Pull the latch and the backrest toward the bow to gain the lounge seat configuration.

Note: All seats need to be positioned with the backrest toward the stern and in a locked position before the captain starts to gain

forward headway speed. Also, people shall remain in their seats while the vessel is moving. It is recommended that life jackets be worn at all times.



CHAPTER 6

STORAGE



Under the center aft hatch is a huge storage area for equipment and other cargo. Do not store any combustibles in any of the on board compartments as they can explode or start a fire. Use common sense when prepping for your cruise. Always try to balance the passenger load and supplies carried and stored on board.



Note that in the event of battery failure the aft hatch compartment can be opened by an emergency harness. Simply plug in the harness male end into the dash 12 volt receptacle. Hook up a battery to the harness eye-

lets observing red for positive and black for negative. At this point activate the hatch switch to open the compartment.



Equipment Operation

Floor Locker



Your Regal is equipped with a floor locker which is used to store equipment such as skis, wakeboards, or larger aqua toys. To open your floor locker, pop the ring up, rotate the handle 180 degrees, and pull up on it. Your floor locker opens with the assist of a hydraulic ram. Your floor locker contains its own drain and allows access to the transducer for removal. Also, there is a special material

called spaghetti mat that wicks water which may aid against mildew. **DO NOT** open the floor locker while underway. Ensure the floor locker is in the locked position after use.

Bow Storage



For further storage locations, your boat is equipped with bow storage. The starboard storage locker in front of the helm also features select electronic components such as a base speaker if the SPP package is present.

Side Cockpit Seat Storage

Additional storage can be found under the cockpit side seat cushions. Fenders and safety gear can be stored in a readily available condition.



CHAPTER 6

SPORTS TOW

A water sports tow is located on Power Tower models. Always appoint a person to keep their “eye out” for the tow line when the vessel is running to prevent the line from being tangled in an object such as the outboard propellers.

Optional hard top models at the time of manual printing do not offer a water tow option.



Equipment Operation

STEREO- TYPICAL



Regal boats feature Fusion® marine stereo audio systems. Fusion stereo systems are designed and engineered to perform to the highest standards in the harsh marine environment. The head units feature easy to read displays and use oversized

rubber buttons and controls for easier operation on a moving vessel. All components including the speakers comply with the international IP waterproof standards. Selected optional system components include an amplifier and additional speakers.

The unit features a UNI-DOCK for safe charging and playback of the latest Apple iOS and MTP Android/Windows media devices. Also, the unit features Bluetooth A2DP audio streaming capabilities, Pandora radio and NMEA 2000 conductivity.

The system utilizes a 15 amp automotive style fuse located behind the stereo head unit.

See the amplifier and remote information for vessels equipped with the optional stereo performance package and remote controls.



CHAPTER 6

STEREO- PERFORMANCE PACKAGE



The stereo performance package features extra speakers including a sub-woofer and a 2 channel amplifier to provide leading edge performance in sound and power. The simplicity of design contributes to low distortion and high efficiency. Normally the amp is located under the starboard helm or may be in the

cockpit refreshment center. The circuit is protected by twin 25 amp automobile type fuses. It is a good idea to carry extra fuses which are available at local marine or automotive stores. The amplifier does not require any type of maintenance other than periodic checking of the wiring connectors for tightness. Contact your closest Regal dealer for additional information.

Vessels with the optional Power Tower speakers use an additional 4 channel amplifier.



TYPICAL REMOTE
CONTROL.

As part of the Fusion high performance package the remote control is normally mounted at the transom area which makes it easier to use during water activities.

It is a plug and play device and uses the same function buttons and rotary encoder as the helm head unit. It features the ability to select various speaker zones on the vessel. Refer to following pages and/or the Fusion owner's manual for more detailed information.



Equipment Operation

SWIM PLATFORM/LADDER

Swim Platform

The swim platform is connected to the transom of your boat by hardware that should be periodically inspected for tightness. **NEVER** exceed the maximum weight for your swim platform as described on a label near the swim ladder.



WARNING

AVOID SERIOUS INJURY OR DEATH! DO NOT OPERATE THE ENGINES WITH PEOPLE ON TOP OR HOLDING ONTO THE SWIM PLATFORM OR HARDWARE.

Swim Ladder



Utilize the aft swim ladder for entering and exiting the water. Use the appropriate hand rails and ladder rungs. Be sure all body parts are clear of the ladder when folding the ladder up or down. Keep body parts away from the hinged and sliding parts. Read and adhere to any written warnings posted on the dash or swim platform regarding ladder load limits.



CHAPTER 6

SEADECK®

As an option SeaDeck® is featured on select vessel swim platform and walk through areas. The non-skid, closed cell material is derived from UV protected non-absorbent foam. You will find the product easy to clean with a high stain resistance.

Other features include noise reduction, great traction even when wet, body comfort when standing, walking or leaning on the swim platform .

To clean small dirt particles first try soap, hot water and a stiff brush. For surface dirt and footprints use glass cleaner and a clean rag.

If a more thorough cleaning is needed you may use bleach, 409, Simple Green or Soft Scrub. Stay away from using any acid base cleaners.



Equipment Operation

TOILET

If installed, before each outing make sure the chemical toilet is filled with the proper chemicals, paper is available, and the holding tank is empty.



To fill the toilet follow the manufacturer's recommendations for mixing the solution. Use the fill to pour in the deodorant chemical and water. By pushing down on the bellows the chemical mix is released to rinse and help flush the toilet bowl. When the flush valve is pulled forward the toilet bowl waste water empties into the holding tank. Close the flush valve after

each use.

The chemical toilet features a holding tank level indicator. When full the lower holding tank must be emptied by first separating it from the upper toilet bowl assembly. Before proceeding, ensure the flush valve is completely closed. Find the latches that allow the 2 units to be separated. Once separated, find an environmentally friendly facility to dispose of the waste.



CHAPTER 6

Toilet-Chemical/Pump Out Fittings



As an option select toilet systems feature a deck fitting that permits a marina or waste station to pump out the vessel holding tank. A hose attachment screws into the deck fitting and removes the waste in the vessel toilet holding tank when a land pump is activated. The pump-out fittings eliminate the need to remove the

holding tank manually from the vessel.

After the pump-out procedure rinse the waste hose briefly to eliminate a build-up of debris and odor before closing the pump-out deck fitting. Refurbish the holding tank chemical per the manufacturer's directions immediately after the pump-out procedure. For extended cruising, carry extra holding tank chemical and paper recommended by the manufacturer since household varieties are not usually "friendly" to the environment.

As part of your pre-cruise inspection monitor the chemical toilet by reading the monitor indicator level located on the toilet holding tank.



Equipment Operation

Toilet-Electric



A suction style flush electric toilet is available on your vessel as optional equipment. This toilet operates in a different way from other marine toilets. The system uses around 16 ounces per liquid or solid flush which is a substantial water savings over other systems.

The toilet is connected to a pressurized fresh water supply tank or to a water strainer and intake seacock. An electrically controlled in-line solenoid valve lets fresh water into the toilet bowl. This unit is outfitted with special valving which prevents the possible contamination of the potable water system. The main components are:

Fresh Water Storage Tank- This tank delivers the needed water to the toilet for flushing purposes when connected to a fresh water pump.

Holding Tank- Unit features polyethylene composition. A deodorant additive is required to keep the holding tank odor-free. The holding tank is connected to a deck fitting for pump-out purposes.

Head Wall Switch- Used to flush waste into the holding tank from the toilet. Normally these switches feature economizer cycles.

Fresh Water & Waste Monitor- Select vessels offer a monitor panel to display the fresh water and waste level.

Overboard Discharge Pump- An optional pump sometimes called a macerator which vacates waste through the deck waste fitting when a pump out is used. A waste seacock may be installed through the hull as auxiliary equipment (only used beyond the 3 mile limit in the USA in International waters).

Discharge Check Valve- Ensures a one-way route for waste to holding tank.



CHAPTER 6

The system uses a combination of suction and water flow from the fresh water tank to clear the head of waste.

The system components including the hose are formulated for the transfer of sanitary waste only. Do not allow the following items in the system: Strong acid or caustics such as drain openers, petroleum solvents or fuels, alcohol based products such as antifreeze and pine oil products along with sanitary napkins and baby diapers.

To operate the head;

1. Activate the pressurized fresh water system switch found on the head 12 volt panel by pulling out on the device. The fresh water tank is the water source for the system. See the illustration on the next page.
2. Next, activate the switch located at the head wall to flush liquid or solid waste. The system requires more water for solid over liquid waste. Note the switch control below.
3. Adding water to the toilet is recommended before flushing solid



TYPICAL HEAD WALL SWITCH

waste. Simply press the “add water” button and hold for 1 second. Approximately 17 ounces of water is added to the bowl. There are system electronics that prevent overfill of the bowl.

The flush button is recommended for flushing liquid

waste since it saves water and fills up the holding tank at a slower rate. To empty the bowl without adding water or starting a flush sequence, push and hold both buttons together until the bowl contents are discharged. Pushing either button at this point returns toilet flushing to normal operation.



Equipment Operation

The holding tank level needs to be monitored periodically for content fullness. Do not operate the waste system when the holding tank is full. Before venturing out on a cruise it is a good idea to have the holding tank pumped out. Normally when the waste tank is overfull it may clog the charcoal vent line filter.

Since a small amount of water usually remains in the holding tank it is a good idea to rinse the tank especially after cleaning. Add water to the toilet bowl along with 8 ounces of manufacturer's tank deodorant and cleaner until the discharge is clear. Do not use chlorine based or caustic cleaners along with drain openers as damage to the seals and hoses may occur.

Rinsing the pump-out hose at the deck fitting with a bit of fresh water should be done after the marina pump-out equipment hose is removed. This prevents a build up of particles and tissue on the waste hose.



TO CHANGE FILTER, UNSCREW UNIONS

On electric toilet installations a waste filter is connected between the overboard hull vent and the waste tank. It eliminates the majority of the ingredients that cause waste system odor. It is recommended that this filter be changed once per year. Refer to the toilet operation manual for further information.

CHAPTER 6

Toilet-Electric w/Overboard Discharge Pump



Federal regulations prohibit pumping waste overboard within the territorial limits of the United States. Check with authorities regarding specific laws and regulations before attempting to pump waste overboard.

1. Locate the seacock. Remove the locking mechanism from the seacock and turn the valve to the “open” position by aligning the seacock handle with the valve.



2. The overboard pump uses an enhanced monitor panel with a built-in key switch located in the head compartment. To activate the macerator pump turn the switch on and completely to the right. At this point the macerator pump will sound starting the pump out process. It will be required to hold the switch to the right until the tank is emptied. Once empty return the key switch to the “off” position. Have someone monitor the waste tank level visually during the pump out process. Avoid running the discharge pump “dry”.



Equipment Operation

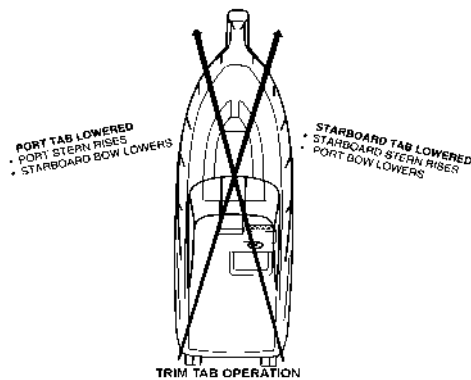
TRIM TABS



TRIM TAB SWITCH



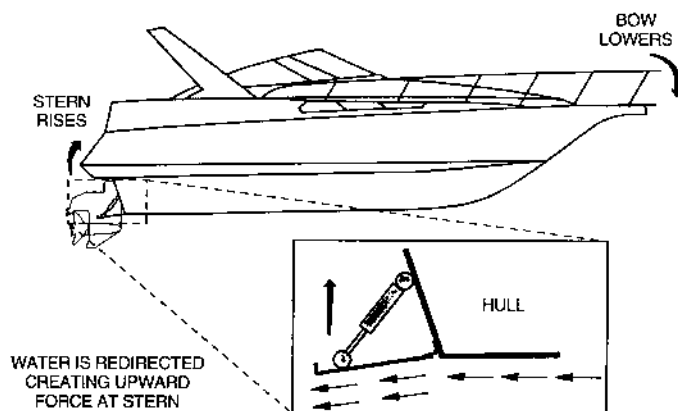
If installed, trim tabs are located on the lower hull of the transom. Water is deflected and redirected as the trim tabs are raised and lowered from the starboard helm located trim tab switch. This change in water flow creates upper pressure under the tabs, and raises the stern. When the stern rises, the bow is lowered. Lowering the port tab will cause the port stern to rise, making the starboard bow lower. Lowering the starboard tab will cause the starboard stern to rise, making the port bow lower. The pressure originates from a pump and valve system at the aft bilge.



Using trim tabs in conjunction with the power trim will compensate for uneven weight distribution, listing, water conditions, and other factors that cause inefficient operation. Remember, that trim tabs are trimming the hull while power trim is trimming the outboard(s) drives.



CHAPTER 6



Obtaining A Trimmed Position

Your vessel will reach a planing position at a specific speed. This speed is determined by bottom design, weight distribution, water conditions, and on board equipment. As the throttle is advanced the stern squats and the bow rises initially. The trim tabs allow your boat to plane at a slower speed than natural conditions allow.

In short bursts both trim tab rocker switches are pushed simultaneously in the “bow down” position which causes the trim tabs to move down. As the boat breaks over the bow high attitude the boat speed accelerates and visibility increases.

If the boat is over-trimmed, it will plow the bow and the boat will lose maneuverability. If this occurs, simply short burst the “bow up” trim tab rocker switches simultaneously.

In the “learning curve” process, press the tab switches in half second bursts. You will notice a slight delay from the time the switches are pushed until the boat reacts depending on vessel speed. You will know after awhile the optimum planing angle and speed.

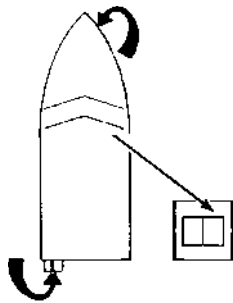
When running in heavy seas press the “bow down” position which will assist the vessel to cut through the waves. This will produce a drier and more comfortable ride. In a following sea run the tabs in a fully retracted angle for maximum outboard drive response.



Equipment Operation

Sometimes you can watch the bow spray or stern wake and the rooster tail (mound of water produced by outboards). In a bow up position the spray is far aft to the hull, the wake is high and the rooster tail is high. When trimmed or in the bow down position, the bow spray is farther forward, the wake and rooster tail are smaller, and positioned further behind the vessel. Also, when trimmed you will notice that tachometers show an increase in rpm's.

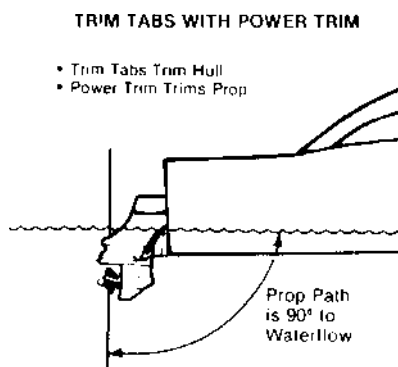
Rectifying A List



Your vessel can use the trim tabs to rectify a list. The trim tabs adjust the boat's attitude in the direction the helm rocker switch is pushed.

If the port bow is high, push the left-hand "bow down" direction on the dash rocker and the port bow will lower. If the starboard bow is high, push the right-hand "bow down" direction and the starboard bow is lowered.

Using Outboard Power Trim With Trim Tabs



Adjust the trim tabs to achieve a planing attitude. Use the power trim to position the prop path parallel to the water flow. At this point the trim tabs may need a fine adjustment.

One advantage of the trim tab system is that they allow trimming of the hull while the power trim results in trimming the props.

Note: Illustrations show stern drives vs. outboard drive units.



CHAPTER 6

Porpoising

Porpoising is a running condition where the bow “bounces” up and down similar to a porpoise’s swimming motion. This condition is normally caused by the trim being too far “up” as indicated on the trim gauge. Press “bow down” in one-half second bursts and the porpoising should recede and the vessel speed should increase. Only a small amount of “bow down tab” is normally necessary to make the vessel bow actually go down.

Trim Tab Indicators



Optional trim tab indicators feature port and starboard icons. As the tabs move up or down through the activation of the switches, indicators illuminate the appropriate directional lighting icons. It eliminates the task of constantly trying to figure out the tab position. Makes it easy to reset the tabs for a balanced initial “down” or “in” take-off position. By monitoring the icon position the operator can help eliminate an over tabbed position that can cause porpoising and other unsafe bow positions.



Equipment Operation

UNDERWATER LIGHTING



As an option light bars w/ LED bulbs make up the underwater lighting system. The lights are located on the transom and in addition to the port and starboard hull sides. There is a dash switch for energizing the lights.



CHAPTER 6

WINDSHIELD



The center windshield shall be closed and locked when the boat is making headway. Make sure both locking latches are firmly seated in a horizontal position against the windshield framework. Magnets will secure the center windshield when open in a mooring or anchored environment.



Equipment Operation

WINDSHIELD WIPER



An optional driver side windshield wiper may be installed on your vessel. This wiper features a panagraphic design which keeps constant pressure on the wiper blade to ensure a more efficient removal of water on each sweep. Note that windshield damage may result if the wiper blade is run over a dry windshield. Periodically check the wiper blade for excessive wear and replace the wiper blade as needed. It is always a good idea in rain prone environments to store an extra wiper blade on board.

Cosmetic Care & Maintenance

COSMETIC CARE



This section covers the care and maintenance of your Regal boat. Many cosmetic care topics including exterior hardware, upholstery, fiberglass and canvas are covered along with major equipment and systems. Refer to the owner's information packet and the appropriate outboard engine manufacturer's manuals for further detailed instructions.

Upholstery

Cockpit and interior vinyl require periodic cleaning to maintain a neat appearance and to prevent the build up of dirt, mildew and contaminants that may stain and reduce the vinyl life if they are not removed. The frequency of cleaning depends on the amount of use and conditions to which the vinyl is subjected.

Most common stains can be cleaned using warm, soapy water and clear rinses. Scrubbing with a soft bristle brush will help loosen soiled material from embossed surfaces and under welting. If the stains are not removed with the above method use a mild cleaner such as Fantastic. This cleaner should be used only as needed and not the normal means.

With more stubborn stains, rubbing alcohol or mineral spirits may be tried cautiously. Widespread solvent use can severely damage or discolor vinyl. Try to remove stains immediately before they have a chance to penetrate the surface of the vinyl.



CHAPTER 7

Powdered abrasives, steel wool, or industrial strength cleaners are not recommended for cleaning our vinyl. Lacquer solvents will cause immediate damage. Dilute chlorine bleach before using. Do not wax the vinyl as it may cause cracking. Always wear protective gloves and make sure there is sufficient ventilation when cleaning vinyl. Wear eye protection.

Remember that suntan oil will damage vinyl. Use suntan lotion instead of suntan oil. Exposure to the sun is a natural enemy of vinyl upholstery. Keep the vessel covered with a cockpit cover when not in use.

Cockpit Carpet

Use approved cleaners on carpet. Always try on a test area first. Many spots and spills can be removed using a cleaner combined with a clean, white terry towel. Try not to soak an area excessively and do not use solvents because most interior carpet is rubber backed and glued in place. Solvents and abrasives will break down the backing and fibers.

Note: Always roll up cockpit carpet before towing your boat.

Store carpet in a locker.

Plastics

Use plastic cleaners and polishes recommended for marine use only. Use proper applicators. Read all instructions carefully. Test the product in a small area first. Use a soft rag and always rinse the surface with water. Ammonia based cleaners and abrasives will damage plastic parts.



NOTICE

AVOID CLEANING PLASTIC SURFACES WITH A DRY CLOTH OR GLASS CLEANING SOLUTIONS CONTAINING AMMONIA. NEVER USE SOLVENTS OR WIPE WITH ABRASIVES.




Cosmetic Care & Maintenance

Interior Fabrics

Clean flat good interior fabrics with dry cleaning fluid style cleaners approved for use with soft fabrics. Allow adequate ventilation and follow the label instructions carefully. Use a soft cleanser with feldspar to clean stubborn marks or stains on wallpaper. Normal interior vinyl such as used on the headliner on cruisers and head clean up with a mild soap and water solution. Rinse immediately with clean water and wipe dry. Always test an area with a cleaner before applying it to a larger area.

Fiberglass & Gelcoat

**DANGER**

AVOID SERIOUS INJURY!
WAXED GELCOAT SURFACES CAN BE VERY SLIPPERY!
DO NOT WAX NORMALLY USED AREAS OF THE DECK,
LINER, OR GUNWALES.
DO NOT WAX ANY TEXTURED OR NONSKID SURFACES
SUCH AS FLOORS, WALKWAYS, STEPS, LADDERS OR
SWIM PLATFORMS
WEAR NON-SLIP FOOTWEAR WHEN WALKING
ON VESSEL SURFACES.

Routine maintenance is the only practical way to keep the surface of your boat looking shiny and new. Most objects left outdoors will gradually deteriorate from exposure to the sun, water, dust and pollution. Such outdoor exposure can cause your boat's gelcoated surface to change or fade. Darker colors tend to fade more rapidly than lighter colors because they absorb more of the sun's rays (ultraviolet and infrared). Basic maintenance includes monthly washing of the boat's surface to remove normal accumulation of soil and stain.



CHAPTER 7

Use a mild detergent such as dishwasher powder or liquid. Do not use automatic dishwasher detergent. Avoid any kind of alkaline cleaners such as trisodium phosphate (TSP), abrasives, bleaches and ammonia. For best results use cleaners that are recommended for fiberglass.



NOTICE

WIRE BRUSHES, SCOURING PADS, OR OTHER
ABRASIVE TYPE MATERIALS AND SOLUTIONS
SHOULD NEVER BE USED ON THE HULL
OR DECK OF YOUR VESSEL.
THEY CREATE SMALL SCRATCH MARKS
THAT WILL COLLECT MARINE GROWTH
AND OTHER FOREIGN MATERIALS.

It is recommended that you wax the gelcoat surface twice yearly to prevent loss of gloss and to protect the finish. Use only waxes for fiberglass and follow the label instructions. Apply a 3' x 3' section at a time using clean applicator cloths or a buffing bonnet. When a haze develops, use a power buffer at low speeds (1200-2000 rpm) to remove the haze. Keep the buffer moving to avoid heat buildup. The power buffer is very efficient at removing contaminants from gelcoat. Never wax gelcoat in the direct sun.

When the washing and waxing as recommended does not restore the shine it may be necessary to use a fine rubbing compound. Do not apply rubbing compound in direct sunlight. A power buffer at low speed does an excellent job to remove impurities from the gel coat that cause dulling. Use light pressure and keep the buffer moving. Re-wax after compounding to buff the surface.

“Hairline cracks” or “spider webbing” could develop in the gelcoat surface of a hull or deck. This can be caused by impact or other factors. Small air pockets or gouges may also occur through **normal** wear.



Cosmetic Care & Maintenance

These do not affect the strength of the hull or deck and can be repaired by yourself, a marine professional or a Regal dealer.

The affected area should be chipped or sanded away and a thin layer of color matched gelcoat applied. This layer is then sanded smooth and buffed to its original luster.

Most minor scratches, nicks, and dents can be removed by compounding the surface. Marine type compounds can be found at most auto body supply stores. Specify a number 25 which is a coarser compound up to a number 55 being less coarse. Various glazes and polishes are available as needed. Ask your marine professional or Regal dealer for more information. Fiberglass hulls are strong but they can be damaged. A fiberglass hull has virtually no internal stresses. Thus when a part is broken or punctured, the rest of the hull retains its original shape. A severe blow will either be absorbed or result in a definite localized break. A break of this nature should be checked and repaired by a marine professional or a Regal dealer.

Minor Repairs

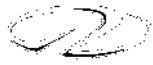
You will need the following materials for minor repairs:

- Gelcoat
- Clear Liquid Catalyst
- Putty Knife
- Razor Blade
- Fine Sandpaper (400,600,1000)
- Wax Paper (to cover repair area)



DANGER

AVOID BODILY INJURY!
GELCOAT AND FIBERGLASS RESIN ARE FLAMMABLE!
WORK IN A WELL VENTILATED AREA FREE
FROM OPEN FLAMES. DO NOT SMOKE.



CHAPTER 7

For minor repairs refer to the following procedure:

1. Clean the area to be repaired and get rid of any wax or grease residues.
2. Clean out scratches, chips, and nicks.
3. Sand area to be repaired so gelcoat will bond.
4. In a separate container, measure only the amount of gelcoat you will need. Mix a ratio of 2% ratio of catalyst to the amount of gelcoat being used (a spoonful of gelcoat will require only a drop or two of catalyst). Do not pour any unused portions of the gelcoat/catalyst mixture back into either original container.
5. Apply gelcoat to area leaving a slight lift above the surface.
6. Cover the area with wax paper. It will help the mixture to set up faster.
7. Remove wax paper and shave off any extra gel coat with a razor blade.
8. After the area is shaved smooth, start with the 400, 600, and finally 1000 grit sand papers.
9. Buff the area with compound, polish and a finish wax. You may notice a difference between the repaired area and the original finish due to the natural weathering process.

Canvas

Boat canvas is in most cases subjected to more severe punishment than practically any other type of material. Moisture, dirt and chemicals from industrial fallout, heat, ultraviolet rays and salt water are all factors which accelerate the deterioration of your boat canvas.



Cosmetic Care & Maintenance

These elements can cause serious damage if left unchecked.

The boat top and other canvas supplied on your Regal boat are manufactured from top quality materials to provide you with years of trouble free service. The following information on the care, cleaning and proper storage of the fabrics and fasteners that make up your marine canvas is being provided to help you maintain the appearance and ease of operation.

Sunbrella is used on most Regal tops, aft curtains, camper enclosures, bow tonneaus and cockpit covers. Sunbrella is a woven fabric made from 100% solution dyed acrylic fiber. It is color fast and will withstand long term exposure to the sun (ultraviolet rays) without excessive fading.

Sunbrella is a woven fabric. Even though it is treated with water repellency some “misting” through the fabric is typical. With new canvas, the greatest potential for leakage is through the sewn seams. Because Sunbrella and the long term thread used is synthetic, the holes created by sewing will not swell up and seal when exposed to water as cotton does. Usually the movement of the fabric in use will move the fibers enough to seal the holes. You may apply Apseal or Uniseal to the seams to speed up this process.

When the canvas is new, the fit will normally be tight. It is designed this way because Sunbrella stretches as it ages. The initial tight fit allows for a suitable fit for the life of the canvas. The Sunbrella fit will vary slightly in the heat, cold, and rain.

Sunbrella Cleaning Instructions

Sunbrella canvas should be cleaned regularly before substances such as dirt, roof particles, etc., are allowed to accumulate on and become embedded in the fabric. The fabric can be cleaned without being removed from the boat. Simply brush off any loose dirt, hose down, and clean with a mild solution of natural soap in lukewarm water. Rinse thoroughly to remove soap. **DO NOT USE DETERGENTS!** Allow to air dry.

For heavily soiled fabric, remove the top from the frame.



CHAPTER 7

Soak the fabric in a solution that has been mixed to the following proportions.: 1/2 cup of bleach and 1/4 cup of Ivory or Lux soap (liquid or soap) per each gallon of lukewarm water. Allow the fabric to soak until the bleach has killed the mildew and the stains can be brushed out with a common kitchen scrub brush. Rinse the fabric thoroughly in cold water to remove all the soap. This may require several rinsings. Incomplete rinsing can cause deterioration of sewing threads and prohibit the fabric from being properly retreated. Allow the fabric to dry completely. **DO NOT STEAM PRESS OR DRY IN AN ELECTRIC OR GAS DRYER!** Excessive heat can damage and shrink the fabric since it is heat sensitive.

This method of cleaning may remove part of the water and stain repellent that was applied to the fabric during its manufacture. It is recommended to retreat with such water repellency products as Apsel and Uniseal. We do not recommend any wax based treatments such as Thompson's Water Seal or any of the silicone products such as SC-15 or Aqua-Tite. Wax based products prevent the fabric from breathing, and encourage mildew growth while the silicone products interact with the original fluorocarbon finish and seem to cause a rapid loss of water repellency.

Clear Vinyl, Zipper & Snap Care

Never store canvas wet or in an unventilated, moist area. Always roll the canvas instead of folding. This is of particular importance on side curtains or any other part with the clear vinyl "glass". Roll the top carefully around the bows and cover with the storage boot provided.

The clear vinyl "glass" used in side curtains, aft curtains, visors, and camper enclosures is very susceptible to heat and cold. Keep vinyl curtains from touching metal tubing to minimize burning the vinyl.

If the boat is stored with top, side curtains and aft curtain in place, heat build up inside the boat may discolor the vinyl.

To clean the clear "vinyl" glass, use a solution of Ivory or Lux soap, liquid or flakes, and lukewarm water. Allow to air dry. Never use any



Cosmetic Care & Maintenance

type of abrasive cleaner as it will scratch the “vinyl” glass. There are many cleaners and scratch removers on the market specifically for clear vinyl. Handle the clear curtains carefully. They are soft and prone to scratching.

Canvas parts are designed with zippers. When zippers are new they can be a little difficult to use. Zip carefully without forcing the zipper or the material. They will loosen with use. A zipper lubricant may be used to help new zippers as well as maintaining used ones. The most vulnerable part of the zipper is the starts. Use care when beginning to close the zipper.

Canvas snap fasteners should be unsnapped as close to the button as possible. Never remove canvas by pulling roughly on the edge of the material. This can damage the canvas as well as the fasteners. Use petroleum jelly on snaps to keep them from developing corrosion especially in harsh environments.

Metal

Keep all stainless steel and other metal parts rinsed and wiped dry. To maintain their finish annually polish the stainless steel and other bright works at least annually. Use commercially available metal products and read the labels carefully before use. Refer to the flyer in the owners information pouch. Most marinas and boating retail outlets carry metal care products.

Hull Bottom

Never use wire brushes or highly abrasive scouring pads on your hull bottom. It could damage the gel coat surface or the bottom paint. The bottom of your boat needs to be clean since the build up of natural coatings from water or marine life can potentially create drag and affect your boat's performance. Contact a marine professional or Regal dealer for more information.



CHAPTER 7

FREQUENT STAINS/CLEAN-UP STEPS	1	2	3
Coffee, Tea, Chocolate.....	B		
Permanent Marker*.....	E	B	C
Household Dirt.....	A	B	
Grease.....	D	B	
Ketchup, Tomato Products.....	A	B	
Latex Paint.....	A	B	
Oil Base Paint.....	D	B	
Mustard.....	A	B	C
Suntan Oil.....	A	B	
Asphalt/Road Tar.....	D	B	
Crayon.....	D	B	
Engine Oil.....	B		
Spray Paint.....	B		
Chewing Gum.....	D	A	
Shoe Polish*.....	D	B	
Ballpoint Pen*.....	E	B	A
Lipstick.....	A	B	
Eyeshadow.....	E	B	
Mildew*.....	C	B	A
Wet Leaves *.....	C	B	A

A= Soft brush; warm soapy water/rinse/ dry

B= Fantastik cleaner

C= One tablespoon ammonia, 1/4 cup of hydrogen peroxide, 3/4 cup of warm water/ rinse/dry

D= Scrape off residue (use ice to lift gum)

E= Denatured alcohol/rinse/dry

* These products contain dyes which leave permanent stains.



Cosmetic Care & Maintenance

MAINTENANCE

Propellers



Out-of-balance or nicked propellers will effect performance or cause vibration. Damaged props should be replaced, but those that are chipped or bent can usually be reconditioned by a marine dealer or a propeller repair facility. When cruising, consider carrying a spare set

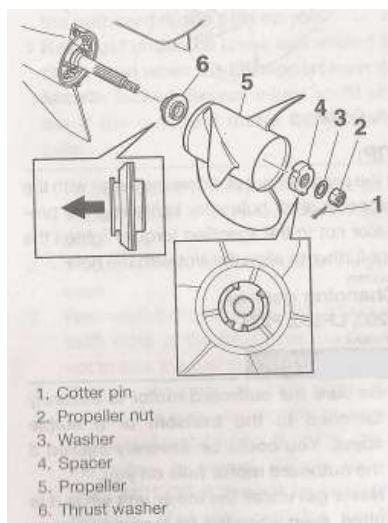
of props on board because many marinas do not carry a full inventory of replacement propellers. Also, carry an extra set of prop hardware. Refer to the outboard manufacturer's engine manual for appropriate propeller replacement.

Be sure to make a note of the propeller diameter and pitch while the vessel is in dry dock. They are pressed into the prop for easy reading. In an emergency a stainless propeller blade may be straightened by laying the propeller blade on a 2 x 4 and hammering the bent portion of the blade until straight.

It is advantageous to carry the needed tools to change propellers including pliers to pull cotter key and deep socket and ratchet to remove the propeller shaft nut. See the appropriate outboard manufacturer's owner's manual for further information.



CHAPTER 7



Removing the propeller- Before removing the propeller make sure the remote control is in neutral and the ignition keys are removed to prevent the outboard engine starting and possibly causing bodily injury. Always wear gloves when removing or installing propellers since the component blades are very sharp.

1. Use pliers to straighten the cotter key which will permit it to be pulled through the propshaft.

2. Do not use your hand to hold the propeller while removing the nut.

3. Wedge a 2 x 4 between the skeg and the propeller. Then use a deep socket and ratchet to remove the propeller nut.

4. Next, remove the washer and spacer. Remove the propeller. Remove thrust washer and see note below.

Note: Check the propshaft seal behind the propeller for fish line and debris that could cut the propshaft seal.

Installing propeller- Before installing parts back on to the propshaft make sure you lubricate the propshaft with the recommended lube.

1. Install the thrust washer on the propshaft first as indicated in the illustration above. Then install the propeller.

2. Align the spacer protrusions with the cutouts of the propeller.



Cosmetic Care & Maintenance

3. Install the spacer, washer, and propeller nut. Tighten the propeller nut to 40 foot pounds with a torque wrench.

4. Next, line up the protrusions on the spacer with the cut outs on the prop itself.

5. Align the propeller nut slot with the propshaft hole.

6. Install a new cotter key and carefully bend the cotter pin ends over .

Note: Using an old cotter key increases the chances of the propeller working itself off the shaft since the cotter pin ends become stressed and weak after being bent over and constant engine vibration weakens the cotter key ends.

Note: If the propshaft nut does not line up to insert the cotter key, tighten the nut to the point where it does line up with the propshaft.



CHAPTER 7

Steering



Your boat uses a power steering system.

Refer to the manufacturer's outboard engine manual in the owner's pouch for additional information about maintenance procedures including adding fluid and bleeding the system. See the photo above for bleed valve locations. There is a fill valve at the helm. Be sure to use the

recommended lubricant to fill the power steering system. As needed, bleed the system to purge trapped air.



Cosmetic Care & Maintenance

Battery



Frequently check your battery terminals for corrosion build-up. If you find a greenish, powdery substance, remove the cable connections and clean both the both the terminals and the connectors with a wire brush. When the cleaning is finished reconnect the battery cables and coat the terminal with an approved grease or petroleum jelly

to help prevent further corrosion. Check the electrolyte level at least every 30 days, more often in hot weather. The level should be maintained between the top of the battery plates and the bottom of the fill cap opening. Add distilled water as needed after charging the batteries or periodically as needed. Do not overfill because sulfuric acid could run over and cause burns or an explosion.

Batteries should be charged outside the boat. Do not smoke or bring flames near a battery that is being or has recently been charged. The hydrogen gas generated by battery charging is highly explosive.

Set batteries on a block of wood rather than concrete since this procedure will help the batteries from losing their charge.

Do not allow a metal object or loose wires to spark across battery posts while working close to the battery. Contact across terminals will cause a short circuit and personal injury may result.

Tighten all battery connectors securely. Check their tightness by pulling on the connectors. They should not move from their tightened position. Be sure to reinstall the positive boot over the battery terminal after tightening the battery post connection. While using the boat, use the volt meter to monitor the charge level of the battery. Monitor the charge with the engines turned off (static condition).

The engine alternators recharge the batteries. A fully charged battery will indicate between 12.3 and 12.6 volts on the voltmeter. Readings below this could indicate a dead battery cell or a charging system malfunction which should be checked by a marine professional.



CHAPTER 7



WARNING

AVOID SERIOUS INJURY!
BATTERIES CONTAIN SULFURIC ACID (POISON)
WHICH ALSO CAN CAUSE BURNS.
AVOID CONTACT WITH THE SKIN, EYES, AND CLOTHING.
IF CONTACTED, FLUSH WITH WATER AT LEAST 15
MINUTES. IF SWALLOWED, DRINK LARGE AMOUNTS
OF WATER, OR MILK. FOLLOW UP WITH MILK OF
MAGNESIA, BEATEN EGG, OR VEGETABLE OIL.
GET MEDICAL ATTENTION IMMEDIATELY!



WARNING

AVOID SERIOUS INJURY!
WEAR GOGGLES, RUBBER GLOVES AND A PROTECTIVE
APRON WHEN WORKING WITH A BATTERY.
BATTERY ELECTROLYTE CAUSES SEVERE EYE DAMAGE
AND SKIN BURNS.
IN CASE OF SPILLAGE, WASH AREA WITH
A SOLUTION OF BAKING SODA AND WATER.



Cosmetic Care & Maintenance

Remote Control



Check the helm control box and the cable attachment at the engine for tightness and shifting without binding. Shift and throttle controls at both the engine and helm areas must be checked on a periodic basis. At the engine end, make sure all control cable hardware is tight and control cable brackets are secure. An application of silicone spray on the cable ends periodically will keep control cables working freely and

fight corrosion. At the helm end check to make sure the control box hardware is tightly secured. Contact a marine professional or Regal dealer for further assistance.



CHAPTER 7

Seating



Care of the seating includes periodic cleaning with products which are non-corrosive and are recommended for vinyl. Select seats use rams and hardware which needs to be periodically checked for tightness.



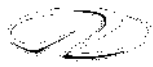
Cosmetic Care & Maintenance

Bilge Pump



The bilge pump features an automatic float switch. Periodically check for foreign materials stuck in the strainer area or discharge hose. Check all clamps and electrical connections for tightness. A quick check of the bilge pump automatic float switch is afforded by lifting up on the automatic float and listening

for the pump operating. Look around the float area for foreign debris and remove as necessary.



CHAPTER 7

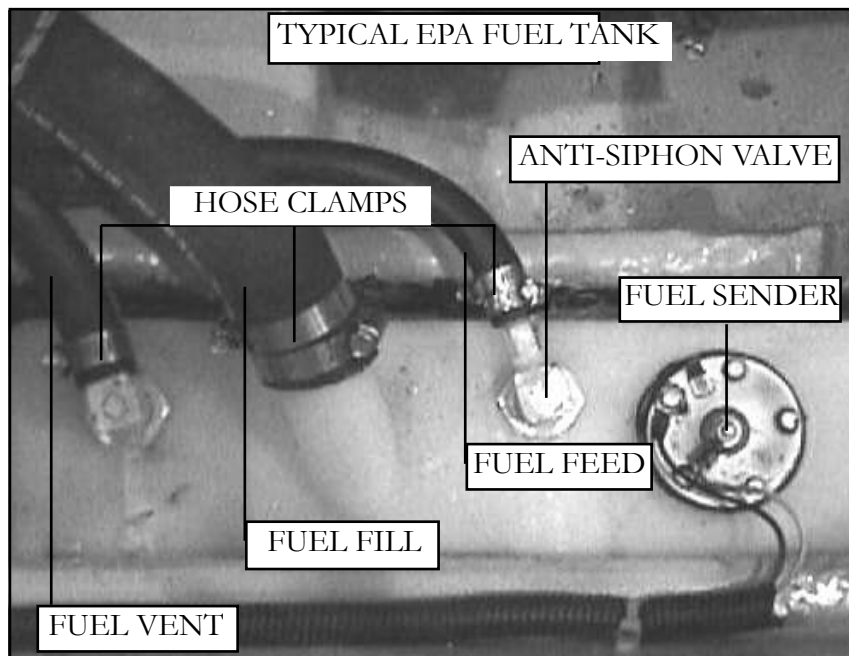
Fuel System

At least annually inspect all fuel system components for loose clamps at the vent, fill and feed locations. Examine each hose for signs of deterioration and leakage. Check the fuel sender for loose bolts, nuts, and leaks at all areas of contact. Also, inspect the fuel tank for signs of leakage or abrasion. Tighten all components as needed.



WARNING

AVOID SERIOUS INJURY OR DEATH
FROM EXPLOSION OR FIRE
RESULTING FROM LEAKING FUEL!
INSPECT ENTIRE FUEL SYSTEM
AT LEAST ONCE PER YEAR.



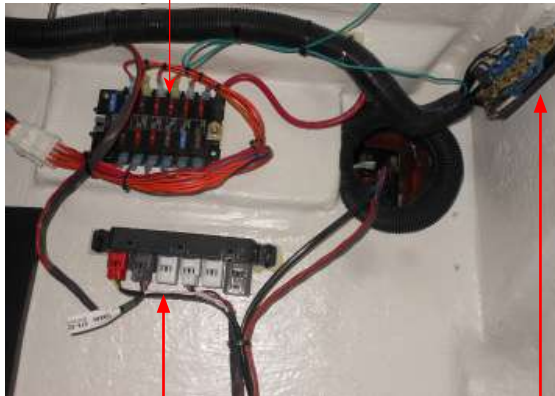


Cosmetic Care & Maintenance

Fuse Panel, Helm Wiring, Ground Bus

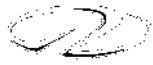
The fuse panel is located under the dash area. Fuses are of the automotive type and can be obtained at most auto aftermarket stores or your closest authorized Regal dealer who can order it as a designated fuse pack. It is recommended that you carry on board all the different amperages. When a fuse “blows” determine the cause before replacing the fuse. Never replace with a higher amperage fuse since the equipment, wiring or even worse a fire could develop due to an overload. Periodically check all under helm connections on the fuse block, network hub and ground buss bar.

TYPICAL HELM FUSE PANEL



OUTBOARD NETWORK HUB

GROUND BUSS
BAR



CHAPTER 7

Stereo



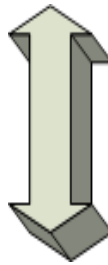
The Fusion® stereo head unit requires little maintenance. When washing the cockpit, do not discharge water directly at the stereo unit. Possible damage may

result. As with any CD unit clean your CD's to keep them from skipping. This process also aids in keeping dust out of the unit. For further information, refer to your stereo owner's manual located in the owner's packet.



Cosmetic Care & Maintenance

Galvanic/Stray Current Corrosion

CORROSION TABLE	
Gold	<div>Least Active</div>  <div>Most Active</div>
Stainless Steel	
Bronze	
Copper	
Brass	
Steel	
Aluminum	
Zinc	
Magnesium	

Metal parts underwater can be subjected to two basic styles of electrolysis: galvanic corrosion and stray current corrosion. Both can damage the outboard drive, propeller, underwater parts, boat and motor if not correctly monitored (testing at 2 week intervals) and avoided.

Galvanic corrosion is an electrochemical reaction between two or more metals. Drive systems consist of several different metals. Some are more active than others.

Galvanic corrosion of the more chemically active metals can occur whenever two or more dissimilar metals that are “grounded” (connected by actually touching each other, or through a wire or metal part) are immersed in a conductive solution (any material that can conduct electricity). Anything but pure water is conductive. Saltwater, fresh water with a high mineral content and polluted freshwater are highly conductive. Conductivity increases with temperature. That is why Florida boats experience more corrosion than boats in Maine.

Specifically look at a typical outboard marine drive unit with a stainless steel propeller. The aluminum is the more chemically active metal (called the anode) and the stainless steel propeller is the less chemically active metal (called the cathode).



CHAPTER 7

Typically electrons flow from the anode (the aluminum drive unit), via the external conducting path to the cathode (stainless steel propeller). If there is a very large anode connected to a small cathode, the anode will corrode very slowly. If a very large cathode is connected to a small anode, the anode will corrode very quickly. Obviously, if you do not control galvanic corrosion, over time the aluminum will corrode away.

The first sign of galvanic corrosion is paint blistering (starting on sharp edges) below the water line- a white powdery substance forms on the exposed metal areas. As the corrosion advances, the exposed metal will become deeply pitted as the metal is actually eaten away.

Another condition which will increase galvanic corrosion is the removal or reduction in surface area of the sacrificial anodes. Never add aftermarket products that are connected to the engine ground such as stainless steel steering aids and trim planes.

Zinc connected to aluminum will form a corrosion cell but the aluminum (drive) becomes the cathode and the zinc (anode) corrodes.

Even though your boat may not have shore power aboard current from nearby vessels with shore power can produce stray current galvanic corrosion. Stray current corrosion occurs when metal with an electrical current flowing into it is immersed in water that is grounded (lake, ocean, pond). The current can leave the metal and flow through the water to ground. This will cause rapid corrosion of the metal at the point where the current leaves.

When a vessel nearby is plugged into shore power, they can potentially tie your outboard drive unit to their boat via the green grounding shore power lead. Your outboard drive unit could be the receiving end of a large galvanic cell (a battery) interconnected with nearby vessels or even through the marina's metal structures via their electrical system.



Cosmetic Care & Maintenance

The vessel should be tested every couple of weeks to determine the integrity of the anode protection system. Another way to test the system is to measure the hull potential. This is accomplished by immersing a reference electrode, usually a silver/silver chloride into the water about six inches behind the outboard drive. With leads attached to a digital multi-meter the hull potential is read on the DC scale and compared to recommended specifications for the water body type. See the owner's information vendor packet for more information or contact your nearest authorized Regal dealer.

Tips To Aid In Maintaining Galvanic Integrity

1. *Test the galvanic integrity of your vessel every 2 weeks.* Raise the drive and inspect anodes/parts for signs of galvanic corrosion, stray current corrosion or loose fasteners. *Contact your closest Regal dealer/ marine professional where signs of galvanic corrosion exist.*
2. Never paint over anodes as they will become inoperative. Always leave at least one inch between bottom paint and any underwater fitting such as seacocks, swim platform stanchions and all drive and propulsion related underwater parts.
3. Periodically remove vessel from water and clean/pressure wash all outboard, anode and hull bottom areas to remove growth.
4. Ensure vessel is using the correct anode metal for the body of water that it is moored. See the outboard engine manufacturer's manual for more information or contact an authorized dealer.
5. Ensure that the drive is completely "in" down to provide more complete anode protection when vessel is moored.
6. Do not attempt to use magnesium anodes in saltwater. They will provide over protection.



CHAPTER 7

7. If marina moored, contact appropriate personnel if signs of galvanic corrosion appear on your drive system. Ask them to check for stray electrical current which may be originating from a nearby vessel's faulty DC wiring or from a marina pier, piling or dock carrying leaking marina ground wiring such as a dockside cord partially submerged.

GALVANIC/STRAY CURRENT CORROSION	
<i>Cause/Observed Condition</i>	<i>Corrective Action</i>
Sacrificial anodes consumed	Replace anodes when 30% consumed
Sacrificial anodes not grounded to drive	Remove anodes, clean contact surface, reinstall, check for continuity
Loss of continuity between underwater parts & ground	Provide good ground connections
Nearby vessel with stray current	Contact appropriate personnel Remove your vessel from water
Paint on drive heavily worn, exposing more metal	Prime and repaint or install additional anodes
Sacrificial anodes painted	Remove paint or replace anodes
Drive tilted/anodes out of water	Leave drive down, install additional anodes below water
Power trim cylinders only corroded	Provide a good ground to drive, all parts must be grounded
Corrosion in area of exhaust outlets	Remove deposits
Corrosion occurring after vessel is removed from saltwater	Wash exterior and flush interior with freshwater
Stainless steel parts corroding	Clean parts, remove foreign material, ensure continuity
Underwater drive parts corroded, sacrificial anodes OK	Oxide film on anode (fresh water only) Replace anode Poor grd. Remove/scrape anode



Cosmetic Care & Maintenance

Zinc Anodes

Sacrificial zinc anodes are located on the outboard drive housing, trim cylinders and/or prop shaft to protect softer metals exposed to the water. Electrolysis attacks the least noble metals first. Because zinc is a less noble metal, it will decompose before other metals. Check these zinc anodes periodically and have them replaced when they are 30% consumed. Notwithstanding, zinc is the most popular metal used to protect parts that are exposed to saltwater, freshwater or brackish water. See the photos below for anode location on your outboard.



Zinc anodes in brackish or salt water need to be checked more frequently. If the anodes seem to be requiring frequent replacement there may be a boat leaking DC current into the water taxing the anodes. This is especially possible around a marina environment. Contact a marine

professional who can measure the galvanic activity with a special electrode and electric VOA meter. Refer to the engine manufacturer's manual for exact anode location and detailed information.



Inspect the ground leads for tightness if attached.

Parts damage due to galvanic or stray current corrosion is not covered under warranty.



CHAPTER 7

Outboard Engine Maintenance

A select portion of maintenance items are covered in this chapter. Since advanced ignition and fuel injection systems are used on outboard engines along with special factory training and tools it is best to contact your Regal dealer for more of the detailed service procedures.



DANGER

AVOID ENGINE DAMAGE!
FOLLOW ALL BREAK-IN PROCEDURES
AS RECOMMENDED BY THE ENGINE
MANUFACTURER. FAILURE TO FOLLOW THE
BREAK-IN PROCEDURE MAY VOID
THE OUTBOARD ENGINE WARRANTY!



CAUTION

AVOID ENGINE DAMAGE!
DO NOT RUN ENGINE AT A CONSTANT RPM
FOR PROLONGED PERIODS OF TIME DURING
BREAK-IN PERIOD. CHECK ENGINE OIL OFTEN.



CAUTION

AVOID ENGINE DAMAGE!
DO NOT RUN ENGINE OUT OF WATER UNLESS
YOU USE AN OPTIONAL FLUSHETTE.
FOLLOW MANUFACTURER'S ATTACHING AND
RUNNING INSTRUCTIONS.



Cosmetic Care & Maintenance

Fuses- Electric Cover



As part of Yamaha outboards under the motor shroud (engine cover) on the port side of the outboard engine is an electrical cover. Inside this cover is a variety of fuses protecting various engine components. There are also extra fuses stored along with a fuse puller. For further information, refer to the manufacturer's outboard engine manual.



CHAPTER 7

Checking Fuel System Water Separator Filter



Periodically before embarking on a cruise check the fuel filters. A 10 micron in-line water separator filter for each engine is installed in the aft bilge. Use an oil spanner type wrench and turn the filter counterclockwise to remove the element. With a clean pan empty the filter contents into the pan. Water in fuel tends to hug the bottom and will show a different color than the fuel. At least yearly or on an as needed basis replace the filter element. Fill the element up with fresh unleaded fuel of the

correct octane rating and turn it clockwise until tight. Finish tightening with the spanner wrench. As always check for leaks before starting the engine.

It is a great idea to keep extra filter elements on board in protective wrap for emergency use.



Cosmetic Care & Maintenance

Checking Engine Mounted Fuel Filter



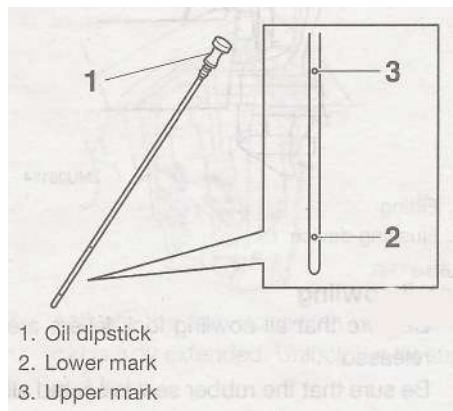
As part of select outboards under the motor shroud (engine cover) on the lower port side of the outboard engine is a fuel filter. Periodically check to ensure the fuel filter is clean and free of water. When reinstalling the filter tighten to manufacturer's specifications. Check for leaks after starting the engine. For more information refer to the

outboard manufacturer's owners manual or contact a Regal dealer or marine professional.



CHAPTER 7

Checking Engine Crankcase Oil



Your Yamaha outboard features 4 cycle engine operation. Unlike 2 cycle outboards which mix gas with oil technology, the 4 cycle engine uses crankcase 4 cycle oil to lubricate internal moving parts. This operation is similar to automobile engine technology.

As part of this process, there is a dipstick placed in the crankcase to offer periodic

checking of engine crankcase oil.

To check the crankcase oil do the following:

1. Ensure the outboard is setting in a flat vertical position or the dipstick may not display an accurate oil level.
2. Remove the crankcase oil dipstick and wipe it clean.
3. Reinstall the crankcase oil dipstick completely into the hole. Remove it again.
4. The oil level should be between the upper and lower dipstick holes. As needed add the manufacturer's recommended oil or contact your closest dealer especially if the oil is contaminated with water which will show a milky color verses a clear look. Refer to the outboard manufacturer's owners manual for oil changing maintenance schedules.



Cosmetic Care & Maintenance

Checking/Filling Crankcase Oil- (Continued)



When adding crankcase oil be sure to utilize the manufacturer's recommended type and viscosity. For changing crankcase oil contact your closest Regal dealer for additional information since they have the special tools and knowledge

for these maintenance procedures.



CHAPTER 7

Flushing Device



Your Yamaha outboard features a flushing device which when connected to a garden hose circulates fresh water through the engine to purge unwanted debris such as found in salty, brackish, and silty water.

To use open the flushing device by turning it counterclockwise.

Notice there is a

garden hose bib thread. Attach the male end of a garden hose to the fitting and tighten it. Make sure the fitting does not leak as the powerhead could overheat and cause internal damage. It is best to perform this flushing procedure with the engine still warm from a cruise as the thermostat will be open and will permit more efficient water circulation. Turn on the fresh water supply. When flushing completed remove the garden hose from the fitting and reattach the hose connections and of course check for tightness.

Note: Do not start engine during this procedure as overheating and possible engine damage may occur.



Cosmetic Care & Maintenance

Notes



Troubleshooting

The following diagnostic information will assist you in identifying minor electrical, fuel, and mechanical problems. Some of the items listed require technical training and tools. Additional assistance is available in the outboard engine manufacturer's owner's manual. Also, you can contact your closest Regal dealer or marine professional for more information. Sometimes a problem can be solved by performing a logical sequence of elimination and/or root cause techniques.



WARNING

PREVENT INJURY OR DEATH! USE ONLY APPROVED MARINE REPLACEMENT PARTS THAT ARE IGNITION PROTECTED.



WARNING

PREVENT INJURY OR DEATH! BEFORE PERFORMING ANY MAINTENANCE WORK, TURN OFF THE BATTERY SWITCH AND REMOVE THE IGNITION KEY FROM THE SWITCH.



CHAPTER 8

OUTBOARD ENGINE DIAGNOSTIC CHART	
Problem	Possible Cause
Engine Overheating	Water pick-up feeds are blocked by debris Cooling system leak Impeller is worn or blocked by debris Propeller is over propped for the circumstances, causing the engine to work extra hard Debris in oil is holding heat more than normal - bad oil filter Defective thermostat.
Starter Will Not Crank	Battery weak or dead Starter defective Fuse for electric start relay blown Control not in neutral Lanyard not connected to remote control
Excessive Steering Play	Air in steering lines (Bleed) System low on steering fluid Mechanical parts-loose connection



OUTBOARD ENGINE DIAGNOSTIC CHART	
Problem	Possible Cause
No Power To Dash	Battery switch turned off Battery is weak or dead. Main breaker tripped
Engine Cranks But Will Not Start	Fuel flow obstructed Low battery voltage Engine ignition system malfunction Water in fuel Fuel filter clogged Lanyard not attached Fuel Pump Faulty
Hard Starting	Flooded Engine Fuel lines obstructed Water in fuel Debris in fuel/clogged fuel filter
Engine Idles/ Runs Rough	Old fuel Faulty spark plugs Water or debris in fuel



CHAPTER 8

OUTBOARD ENGINE DIAGNOSTIC CHART	
Problem	Possible Cause
Power Loss	Damaged propeller Improper trim angle Spark plugs fouled Fuel system malfunction Boat bottom fouled with debris
Excessive Vibration	Damaged propeller Damaged propeller shaft Loose motor mount bolt Steering pivot loose or damaged Debris caught on propeller Ignition malfunction Motor mount bolts loose
Buzzer Sounds/Icon Lights	Cooling system malfunction Engine oil level low or incorrect type Wrong spark plug heat range Oil feed/injection pump malfunction



CONTROL SYSTEM DIAGNOSTIC CHART	
Problem	Possible Cause
No Reading On Gauge or Gauge Is Inaccurate	Faulty gauge Faulty wiring to gauge Faulty sender
Gauge Reads Erratic	Loose ground or hot wire connection
Control Lever Stiff / Inoperative / Stalls When Shifting	Shift system bushings and seals broken Kinked, broken, damaged cable Friction brake is too tight and must be loosened Control box jammed
Depth Gauge Inaccurate	Blocked transducer sight hole Bad gauge Bad transducer
Outboard Trim Not Functioning	Bad motor in trim control unit Faulty wiring Water in power trim fluid
Steering System Not Functioning	Uneven load Air in steering system Lack of power steering fluid Broken mechanical components



CHAPTER 8

ELECTRICAL SYSTEM DIAGNOSTIC CHART	
Problem	Possible Cause
No 12 Volt Power At Battery	Battery switch turned off Weak or dead battery Battery cables loose/disconnected
Battery Not Charging While Engine Is Running	Faulty stator Faulty circuit wiring
Battery Will Not Hold Charge	Faulty / old battery Loose/corroded battery cables Corroded battery terminals
12 Volt Equipment Not Working	Fuse blown - investigate why the equipment was drawing too much current or why it had a short circuit. Check fuses in fuse block and under the engine shroud Weak or dead battery if all 12volt equipment fails to function Corroded / loose wire connection Internal equipment short / failure



BILGE & DRAINAGE SYSTEM DIAGNOSTIC CHART	
Problem	Possible Cause
Bilge Pump Not Functioning Automatically	Float switch jammed - check for debris Automatic bilge pump fuse blown - investigate why the equipment was drawing too much current or why it had a short circuit Battery connection corroded Impeller is damaged or blocked by debris Bad bilge pump motor Bilge pump discharge hose blocked
Bilge Pump Not Functioning Manually	Battery switch turned off Bilge pump dashboard fuse blown - investigate why the equipment was drawing too much current or why it had a short circuit Battery connection corroded Bad bilge pump switch Impeller is damaged or blocked by debris Bad bilge pump motor Bilge pump discharge hose blocked



CHAPTER 8

STEREO DIAGNOSTIC CHART	
Problem	Possible Cause
No Power At Stereo	Battery switch turned off Fuse is blown - investigate why the equipment was drawing too much current or why it had a short circuit. Check ignition panel breaker, memory fuse in engine compartment, memory fuse underneath dash, and ignition protection fuse underneath dash Water in unit
Stereo Will Not Play	Water in unit Radio Signal Unavailable Bad antenna Mode selection isn't correct
Stereo Memory Lost	Stereo memory fuse in engine compartment or underneath dash is blown - investigate why the equipment was drawing too much current or why it had a circuit short
No Output Sound / Volume Is Low/ Sound Is Distorted	Balance and max volume settings are limiting the speaker volume - adjust zone settings and setup settings Rotary encoder malfunction Loose speaker wire Water in speakers
Added Performance Package Speakers Working Only	Amplifier fuse blown - investigate why the equipment was drawing too much current or why it had a circuit short



Troubleshooting

STEREO DIAGNOSTIC CHART	
Problem	Possible Cause
	Standard zone max volume settings are low Loose speaker wire connections Water in cockpit speakers
Standard Speakers Working Only	Added speaker zone max volume settings are low Loose speaker wire connection Water in bow speakers
iPod Not Working	iPod not plugged in properly using appropriate sleeves iPod mode not selected Internal iPod problem
LCD Screen Not Displaying	Water in unit



CHAPTER 8

TYPICAL AUDIBLE ALARMS

It is important to read the outboard engine owner's manual to diagnose engine alarms, faults and icons lighting up. Depending on the propulsion package installed, alarm/buzzer sounds can vary.

The engine sounds an alarm/icon lights in the case of one of the following causes:

- Low Oil Pressure
- Engine Overheating

POSSIBLE CAUSES MAY INCLUDE:

1. Cooling system clogged
2. Engine crankcase oil low
3. Wrong engine crankcase oil
4. Clogged oil filter
5. Injection pump malfunction
6. Water pump or thermostat defective
7. Boat load improperly distributed
8. Spark plugs defective



Storage & Winterization

Storage procedures are outlined in this chapter. These are **general guidelines** to follow before longer periods such as over the winter in colder climates. Be sure to familiarize yourself with all relevant information in the owner's pouch. Special winterization procedures are necessary for the boat equipment and systems. Use the enclosed checklists to help you identify areas of concern and maintenance. Call a Regal dealer or marine professional for further information regarding storage/maintenance procedures. Also, more specific information can be found in the outboard engine manufacturers owners manual..



WARNING

EXPLOSION, FIRE AND POLLUTION HAZARD!
DO NOT FILL FUEL TANK TO RATED CAPACITY.
LEAVE ROOM FOR EXPANSION!



NOTICE

REMOVE BATTERY(IES) WHEN VESSEL
IS IN LONG PERIODS OF STORAGE.



NOTICE

AVOID SERIOUS OUTBOARD ENGINE DAMAGE!
USE ONLY FACTORY APPROVED PRODUCTS FOR OUTBOARD
ENGINE AND DRIVE DURING STORAGE PERIODS.



CHAPTER 9

DECOMISSIONING CHECKLIST

ENGINE

- ☐ Run engine. Pour approved fuel stabilizer/conditioner in the fuel tank. Allow time for it to circulate through the fuel system.
- ☐ Change all engine fluids as referenced in the outboard engine manufacturer's owners manual. Contact a Regal dealer.
- ☐ Check outboard engine hoses, clamps, and system wiring for loose connections, abrasion, and corrosion.
- ☐ Spray all exterior parts with a rust preventative.

OUTBOARD UNIT

- ☐ Perform maintenance as referenced in the outboard manufacturer's owners manual. Contact your Regal dealer.
- ☐ Remove propeller. Refurbish as needed.
- ☐ After cleaning use touch up paint on unit as needed.
- ☐ Apply coat of wax to outboard shroud and exterior parts.

BOAT

- ☐ Check hull bottom for any fiberglass damage.
- ☐ After cleaning apply a coat of wax to hull and deck surfaces.
- ☐ Pour a pint of 50/50 antifreeze into bilge pump.
- ☐ *Never block up boat bottom. May cause structural damage.*



Storage & Winterization

- ☐ Remove battery. Use a trickle charger as needed.
- ☐ Remove all loose gear and electronics from boat. Inspect all equipment for wear and damage. Store in a clean, dry environment.
- ☐ Remove drain plug. Clean drain plug hole of debris as needed. Enclose drain plug in plastic bag and tie to steering wheel.
- ☐ Make sure bow is higher than stern to permit proper drainage.
- ☐ Clean all upholstery and store so it breathes.
- ☐ Conduct a visual inspection to ensure boat is balanced properly on the trailer, cradle or blocks.
- ☐ Cover boat with appropriate cover. Tie down for protection from rain, snow and/or wind. Prop up cover to provide proper ventilation. Do not cover up the fuel vents.
- ☐ Drain the fresh water system per instructions in this chapter.
- ☐ Use sling locations for lifting boat via Chapter 12 drawing.

TRAILER

- ☐ Repack all wheel bearings per manufacturer's specifications.
- ☐ Check all trailer parts for excessive wear. Replace/refurbish as needed.
- ☐ Use touch up paint on trailer as needed.
- ☐ Lubricate all moving parts as needed.
- ☐ Check all lighting and brakes (if applicable).



CHAPTER 9

TYPICAL FRESH WATER SYSTEM

1. Activate the fresh water pump switch.
2. Open all faucets including transom shower (if equipped) and allow tank to empty.
3. Drain the water tank. Shut off fresh water pump switch.
4. Mix nontoxic antifreeze with water in accordance with the manufacturer's recommendations. (Available at marina & RV stores)
5. Pour solution into the fresh water tank.
6. Turn on fresh water pump switch.
7. Open water faucet and purge until a steady stream of nontoxic antifreeze flows from the faucet. If equipped, do the same to the transom shower. Turn the fresh water switch to the "off" position.

WASTE SYSTEM

1. With **chemical** heads, make sure to dump both upper and lower tanks. Rinse well with fresh water. Sanitize chemical head as needed.
2. With **electric** head, pump out holding tank. Add nontoxic antifreeze to toilet and holding tank. Pump from toilet to holding tank to eliminate any water remaining in supply lines.



DANGER

AVOID VESSEL AND ENGINE DAMAGE!
CONTACT A MARINE PROFESSIONAL FOR WINTERIZATION
ASSISTANCE .DAMAGE CAUSED BY IMPROPER WINTERIZATION
IS NOT COVERED BY OUTBOARD MANUFACTURER
OR REGAL WARRANTY.



Storage & Winterization

RECOMMISSIONING CHECKLIST

ENGINE

- ☐ Check all components per outboard engine manufacturer's owner's manual especially fluid levels.
- ☐ Run engine on "ear muffs" (flushette) before launching. Check for fuel, exhaust, oil, and water leaks.

BOAT

- ☐ Install drain plug.
- ☐ Install battery and tighten all terminals.
- ☐ Check all equipment, switches, alarms, gauges and breakers for proper operation.
- ☐ Add necessary chemicals and water to **chemical** head.
- ☐ Add water to fresh water tank. Turn on faucet to purge tank. Refill water tank.
- ☐ Make sure all safety gear is on board and in excellent working condition.
- ☐ After launching, check controls and gauges for proper operation.

TRAILER

- ☐ Make sure all equipment is in excellent working condition.



CHAPTER 9

Notes



Trailer

This chapter covers trailering/towing basics including equipment, maintenance, and techniques of using a trailer. *Check with state and local agencies for detailed information on required equipment, safety issues, and licensing.*

BEFORE TOWING

Before towing your boat, be sure to check the air pressure of your tires for the recommended inflation rating. Also, be certain that your tow vehicle is in good working order.

Install bimini top in its boot before towing. Also, remove and store cockpit and bow cover. Store cockpit carpet along with cockpit/mooring/bow covers in ski locker.

This can make it especially difficult to drive safely, as the hitch may be in danger of striking the road. Also, this situation can be caused by worn vehicle rear shock absorbers. One option is to install a set of air shocks which will assist in supporting the load. As a rule of thumb 5 to 7 percent of the total trailer load should be on the trailer tongue. Check all lights to ensure they all work properly. You may find it helpful at ask someone to check your turn signals, brake lights, and towing lights while you remain in the vehicle. Be certain that the trailer winch cable is securely attached to the boat's bow eye and the cable lock is engaged. Make sure the bow of the boat is snug against the bow stop at the winch stand.

It is a good idea to tie another line or secure an extra cable to the winch stand and boat bow eye as a backup system.

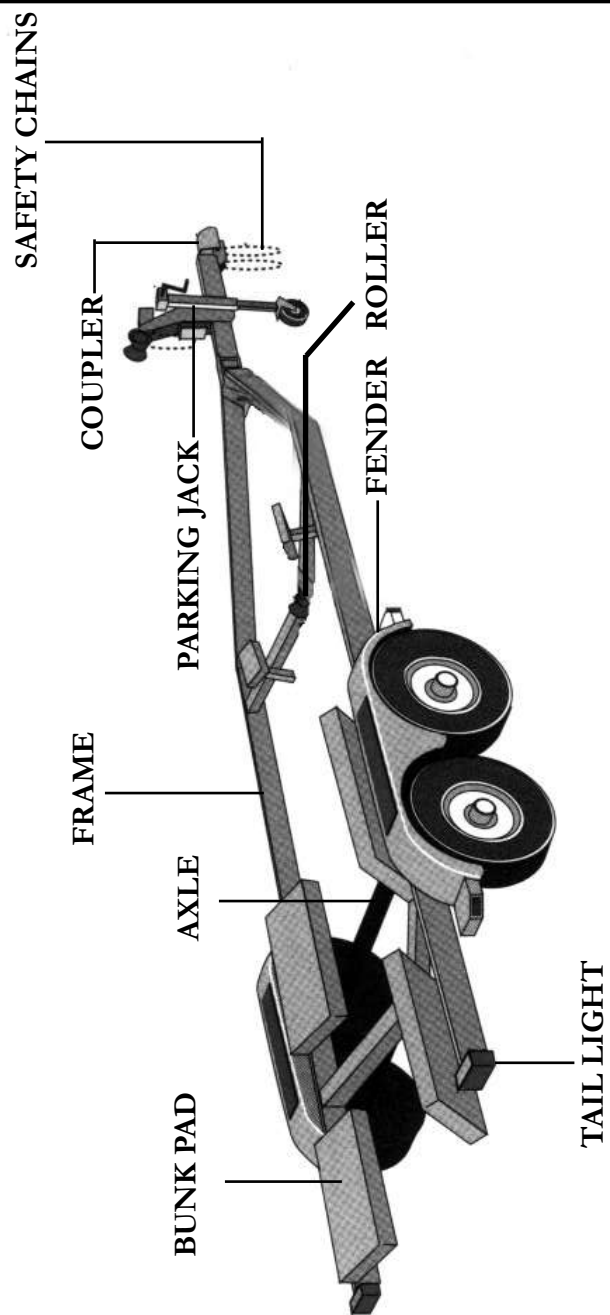
Be certain that your trailer is of rated capacity for the size and weight of your boat, including the weight for all fuel, water and gear. Your authorized Regal dealer can advise you on the proper trailer capacity and tongue weight (the weight exerted on the rear of your vehicle).

Never use a bumper mounted trailer hitch. Always use a bolted or



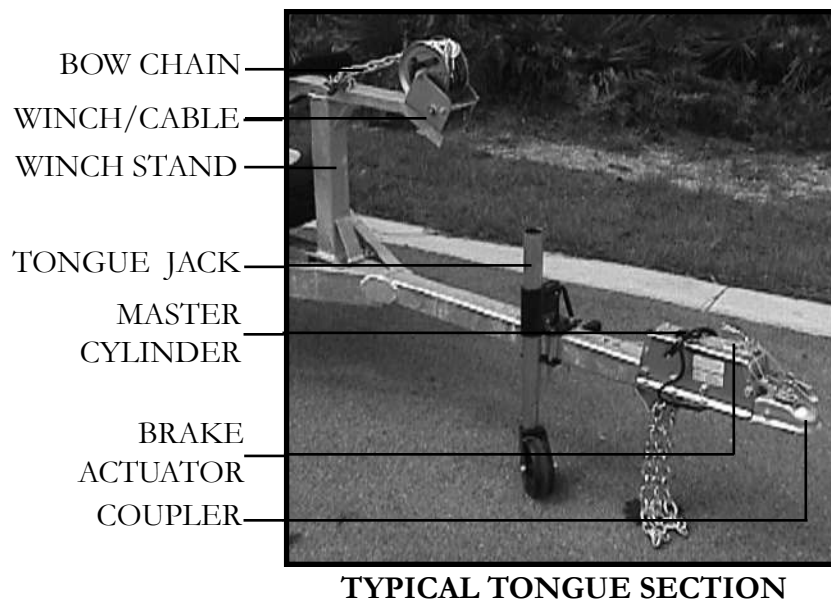
CHAPTER 10

TRAILER TERMINOLOGY



TYPICAL TRAILER SHOWN

Trailer





CHAPTER 10

welded frame-mounted hitch, class 2 or 3. Consult your Regal dealer for more information.

Should your trailer be equipped with surge brakes, that is brakes on the trailer that cut in with a very slight delay when your brakes are applied, be sure to follow recommended service and maintenance instructions. Be sure that the trailer master cylinder is filled with the recommended fluid before towing your boat. Inspect the trailer brake lines for any leakage. Also, if you notice brake fluid on the inside of the tires, you may have a wheel cylinder leaking. Consult a professional.

Never place your hands between the trailer hitch coupling and the hitch ball on your towing vehicle while hooking up. Be sure the tongue jack is in the full up position before departure. Be certain safety chains are crisscrossed and secured; do not allow them to drag on the road.

Be sure to buy a suitable set of tie downs which can be attached to the boats' stern eyes and the eyelets provided on most trailers. Tighten them securely and neatly fold up the extra strap material and secure it with tape so it doesn't loosen and dangle on the road.

Check the trailer lug nuts for the proper torque. Use a foot pound wrench and torque in a star sequence to the correct poundage as recommended by the trailer manufacturer. Torque the lug nuts at half the poundage on all nuts. Then set the torque wrench to the full poundage and fasten to the last foot poundage figure.

Check the trailer tires often for voids, excessive wear or out of round tire conditions. If the trailer seems to vibrate you may have a bad tire or one that is unbalanced. These wheels can be rebalanced at most automotive or tire shops. Never pull a boat on a patched tire. Buy a spare tire and wheel including a hub and wheel bearing assembly. Mount it on the trailer for speedy installation should a blow out occur.

Check the trailer harness often for signs of fraying. Check the harness connector for corrosion. Make sure the trailer harness when connected to the trailer has enough slack for turning

Check the wheel bearings for wear periodically by a professional. On most trailers, there is a zerk fitting on the wheel hub to add the proper lubricant to the wheel bearing with a grease gun. These wheel bearing waterproof covers for the bearings can be purchased at retail outlets.

SPARE PARTS CHECKLIST

Longer towing trips increase the need for special preparations. Sometimes these extended trips cover areas where it is difficult in locating repair parts due to a breakdown. Following is a checklist of recommended items to add a safety net to your trip.

Trailer-

1. Trailer tire jack
2. Spare hub assembly including wheel bearings
3. Spare tire
4. Lug wrench
5. Jack stand
6. 12 volt air compressor- found at automotive box stores
7. Spare bearing protector
8. Extra tie-down straps
9. Trailer light bulbs
10. Brake pads and brake fluid
11. Grease gun

Tow Vehicle-

1. Tool kit including necessary ratchet and sockets
2. Jumper cables
3. Extra fuses
4. Engine oil
5. Transmission fluid
6. Wheel chocks
7. Highway flares
8. 12 volt spotlight- type that plugs into 12 volt accessory outlet
9. Flashlight & spare batteries
10. Waterless hand cleaner and rags
11. Electrical connectors and crimpers
12. Low voltage electrical tester



CHAPTER 10

Be sure everything is secured in the boat and canvas is down in the towing position with the bimini stored in the boot. Tilt the stern drive up to clear the road and any bumps that might occur while in transit.

DRIVING

Practice maneuvering the vehicle and trailer in a large, empty parking lot or open space. If you practice slowly and cautiously, you will soon develop a feel for maneuvering the trailer .

Test your vehicle and trailer brakes before departure along with the lights. Pack a tool kit with extra bulbs, fuses and fluids.

Drive as smoothly as possible, anticipating your stops and giving yourself plenty of room for turning and stopping. Avoid any quick turns or sudden jerks of the steering wheel.

Remember to maintain safe speed limits. It takes longer to stop your loaded boat. Allow enough room to the front in bad weather.

Keep an eye on your rig through the rear view and side mirrors. If your rear view mirror is obstructed, purchase a set of side mirrors that extend out over the side of the vehicle for increased visibility. In addition, it is a good idea to install a set of round mirrors to the side mirrors as they help identify blind spots.

Plan to stop periodically on your way to check the trailer hitch for tightness, harness connector, tires and wheel bearings. Also, check to make sure the load is balanced.

LAUNCHING

Serious accidents can occur at the launching ramp. Therefore, it is imperative you be alert and attentive during launching and docking activities. Study the ramp area and surrounding water for any potential hazards, such as a short ramp or one with a drop off at the end. If you are uncertain of the conditions, ask someone else who has just used the ramp if there are any peculiarities to the area.

Install the drain plug. Attach 2 lines, one each at the bow and stern, to control your boat once it is off the trailer. If you need additional fenders to keep the sides of the boat from banging against the ramp walls, use those as well.

Unhook the stern tie-downs and the winch line to the bow. Unplug the trailer harness connector so the hot trailer light bulbs won't blow out when they come in contact with water.

When backing in, have someone assist, giving the palms up stop signal when the boat is in deep enough water to float off, or when the rear wheels of your vehicle approach the water's edge.

After your boat is floating freely, position it clear of the trailer before pulling out of the water. If there is no one to help you, secure one of the lines you've attached from the boat to the dock and use the other line to pull the boat off trailer. The process is easier with 2 people.



CAUTION

AVOID LOSING VEHICLE TRACTION!
DO NOT ALLOW REAR WHEELS TO ENCOUNTER
SAND OR SLIPPERY CONCRETE CONDITIONS.



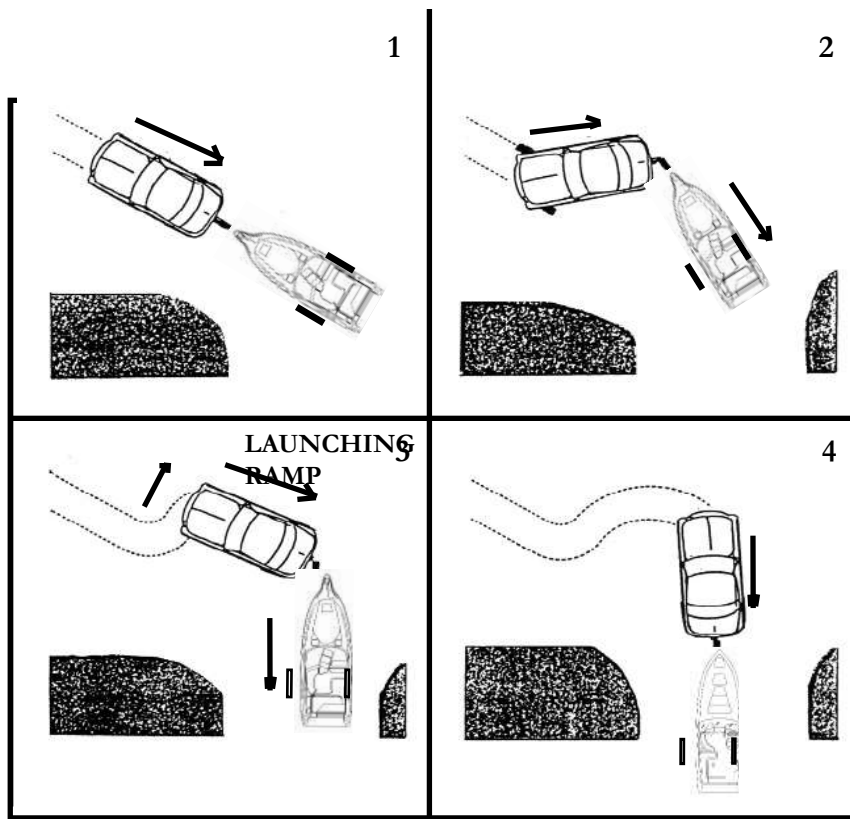
DANGER

AVOID SERIOUS INJURY!
BOAT RAMPS ARE VERY SLIPPERY.
DO NOT ATTEMPT TO WALK OR STAND
ON AN ANGLED BOAT RAMP.



CHAPTER 10

BACKING A TRAILER



A trailer backs in a direction opposite to an automobile. In 1, driver swings the rig near the launching ramp. In 2, the driver cuts the vehicle toward the driveway. In 3, the driver cuts the vehicle wheels to the left and then backs into the ramp as the trailer moves to the right. In 4, the driver straightens the vehicle wheels to follow the trailer as it backs down the ramp.



NOTICE

ALLOW TRAILER WHEEL BEARINGS AND LIGHTS
TO COOL BEFORE SUBMERGING.

LOADING



Typical Vessel Shown

The most important thing to remember when pulling your boat out of the water is that often the ramp will be crowded. As you approach the ramp, make a visual inspection of the traffic and people, both at the ramp and all around you. This is an important time to use

caution, courtesy, and common sense. While you may feel it's your next turn, another boater may not be as courteous. Don't insist on your rightful place in line; it could lead to disastrous consequences in the confines of a crowded boat ramp. If there is any perceived danger, stand off until you can safely approach the ramp.

Back your trailer down to the water's edge. At this point it is a good idea to let a sufficient amount of line out of the winch to reach the bow eye. Make sure you disconnect the trailer harness to keep the bulbs from blowing out due to them being subjected to the cold water.

On roller or bunk style trailers back up until the aft roller is just at the water level. This allows you to hook up the winch cable and to start cranking the boat on to the trailer properly. This method gives you a good starting point and helps keep the boat centered on the trailer as it is reloaded. It may be necessary to further back the trailer into the water. This permits cranking the boat easier on to the trailer.

Once the boat is positioned correctly on the trailer have someone hook up the winch cable hook to the bow eye. Also, this will help keep the boat bow against the trailer roller. Shut down the engine and run the outboard drive(s) up to clear the ramp and any effects of trailer up and down movement while on the highway.

With the bow snug against the roller, start to crank the boat up on to the trailer. Make sure the hull bottom or keel stays in the center of each roller as it is being cranked on the trailer. **Double check** to ensure the hitch is locked tight on the vehicle ball.



CHAPTER 10

Make sure the boat is covered properly and all loose gear is stowed. On bunk style trailers, watch the bunks to make sure the boat is centered as they usually do not touch any rollers other than the aft one because the boat weight is being supported more by the bunks as it is cranked onto the trailer. Stop cranking the winch when the boat bow contacts the bow roller. Be sure the winch is in the locked position. Stand back and visually check to see that the boat is centered on the trailer. After pulling your boat away from the ramp, be sure to go through all the checks involved before departure. Reinstall the harness connector and check the lights, brakes, safety chain, winch, hitch, and tie downs. Remove the drain plug to exit any excess water in the bilge. Reinstall the hull drain plug and tighten it. For longer storage periods remove the drain plug and keep in a plastic bag tied to the steering wheel.



WARNING

AVOID PERSONAL INJURY!
DO NOT LET ANYONE STAND NEAR THE WINCH OR CABLE!
ALWAYS STAND TO THE SIDE OF THE WINCH WHEN CRANKING
THE VESSEL ON TO THE TRAILER
AS THE WINCH CABLE COULD BREAK !



CAUTION

HULL BOTTOM DAMAGE COULD RESULT
FROM THE BOAT NOT BEING POSITIONED
ON THE ROLLERS BUT RESTING
ON THE TRAILER FRAME.
AVOID BACKING TRAILER TOO FAR INTO THE WATER.



Glossary & Index

Below is a brief list of nautical terminology. For more detailed glossaries we recommend you check your local library, book retailer, marine store or internet.

GLOSSARY

Abeam: at right angles to the fore and aft line and off the boat

Aboard: on or in the boat

Above: the part of the boat on a vessel which is above the interior of the boat

Aft, After:: aft is the boat section toward the stern or back of the boat

Amidships: toward the center of the boat from either side to side or rear to front

Beam: the width of a boat at its widest part

Bilge: the lower interior of the hull of the boat

Bitter end: the end of a line also the end of an anchor line

Bow: the front, or forward part of the boat

Bulkhead: the vertical partition or wall of a boat



CHAPTER 11

Cast off: to let go or release

Chine: the line fore and aft formed by the intersection of the side and bottom of the boat

Chock: deck fitting used to secure or guide anchor or tie lines

Cleat: deck fitting with protruding arms around which lines are secured

Cockpit: the seating space used to accommodate passengers

Cuddy: a small cabin in the fore part of the boat

Deck: the open flooring surface on which crew and passengers walk

Draft: the depth from the waterline of the boat to the lowest part of the boat, which indicates how much water is required to float the boat

FasTrac- a proven hull bottom design which incorporates a full, mid-beam step that reduces drag by forcing air under the hull to decrease drag and friction.

Fathom: a measurement of depth; one fathom equals six feet

Fender: a cushion hung from the side of a boat to prevent it from rubbing against a dock or against other boats

Fend off: to push off to avoid sharp contact with dock or other vessel

Fore: the part of the boat toward the bow or front

Freeboard: the height of the top side from the waterline to the deck at its shortest point (The distance from sheer or gunwale to the water).

Glossary & Index

Gunwale: rail or upper edge of the side of the boat

Head: toilet

Hull: the part of the hull from the deck down

Keel: the lowest point of a boat; the backbone of the vessel

Knots: a measurement of speed indicating nautical miles per hour

Lee: the side opposite that from which the wind is blowing; the side sheltered from the wind

Leeward: the direction toward which the wind is blowing

PFD: personal flotation device; required for each person aboard

Port: the left side of the boat when facing forward (an easy way to remember the difference between “port” and “starboard” is that both “port” and “left” have four letters)

Shank: the main body of an anchor

Sheer: the curve of the boat’s deck from fore to aft when seen from the side

Starboard: the right side of the boat when facing forward

Stern: the aft end of the boat

Stern drive: an inboard/outboard (I/O) unit

Stringer: strengthening integral unit fastened from fore to aft inside the hull and fiberglass encapsulated for added strength: much like the skeleton system of our body



CHAPTER 11

Top off: to fill up a tank

Transom: the vertical part of the stern

Trim: the boat's balance when properly loaded

Wake: the path of a boat left astern in the water

Windward: the direction from which the wind blows; opposite of leeward

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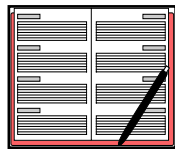
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Technical Information

NOTICE



The following technical information and drawings can be an aid in troubleshooting electrical and mechanical problems along with the charts located in the troubleshooting chapter.

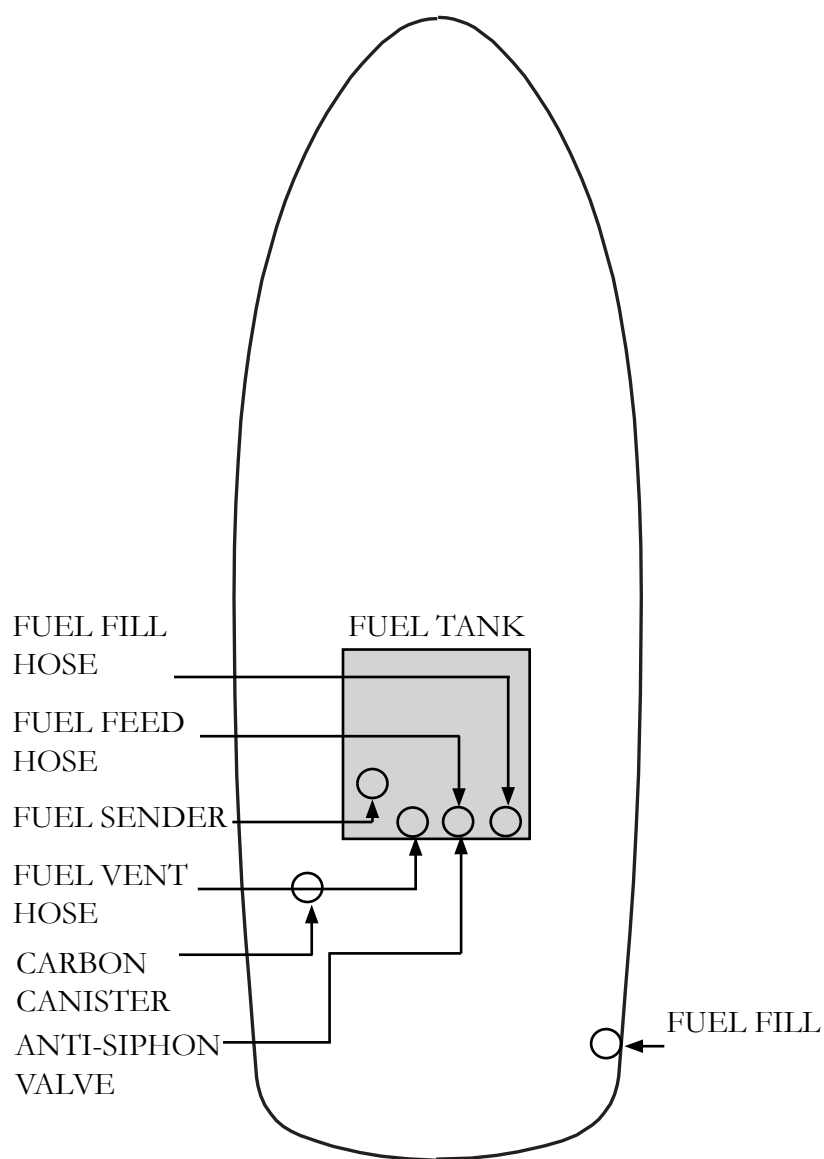
Note that all product specifications, models, standard and optional equipment, systems, along with the technical information is subject to change without notice.

For more information contact your nearest authorized Regal dealer. For the location of your nearest authorized dealer call 407-851-4360. or visit the web-site at www.RegalBoats.com.

Your Regal dealer has received special factory training on the entire product line and his services should be employed to solve technical problems.



TYPICAL DOMESTIC COMPLIANT FUEL SYSTEM

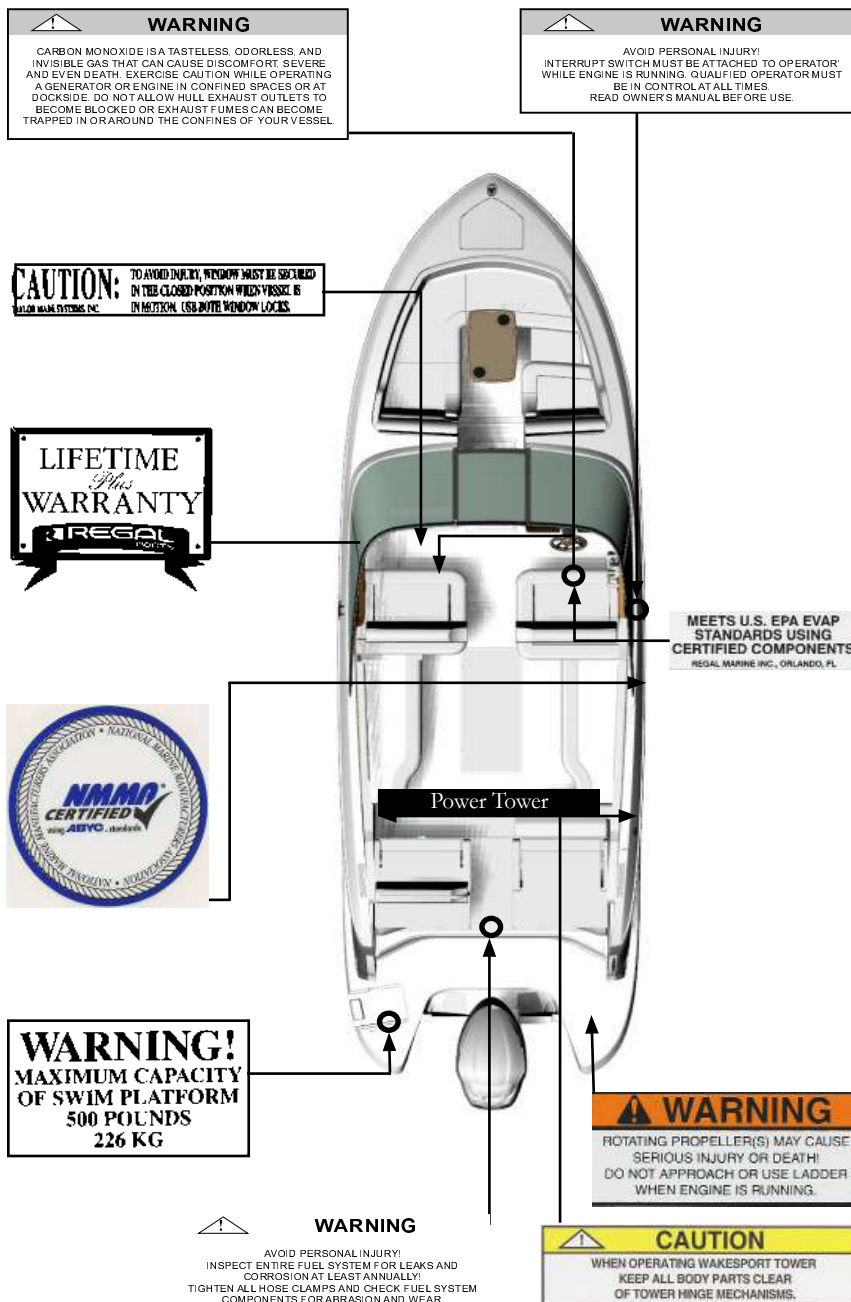


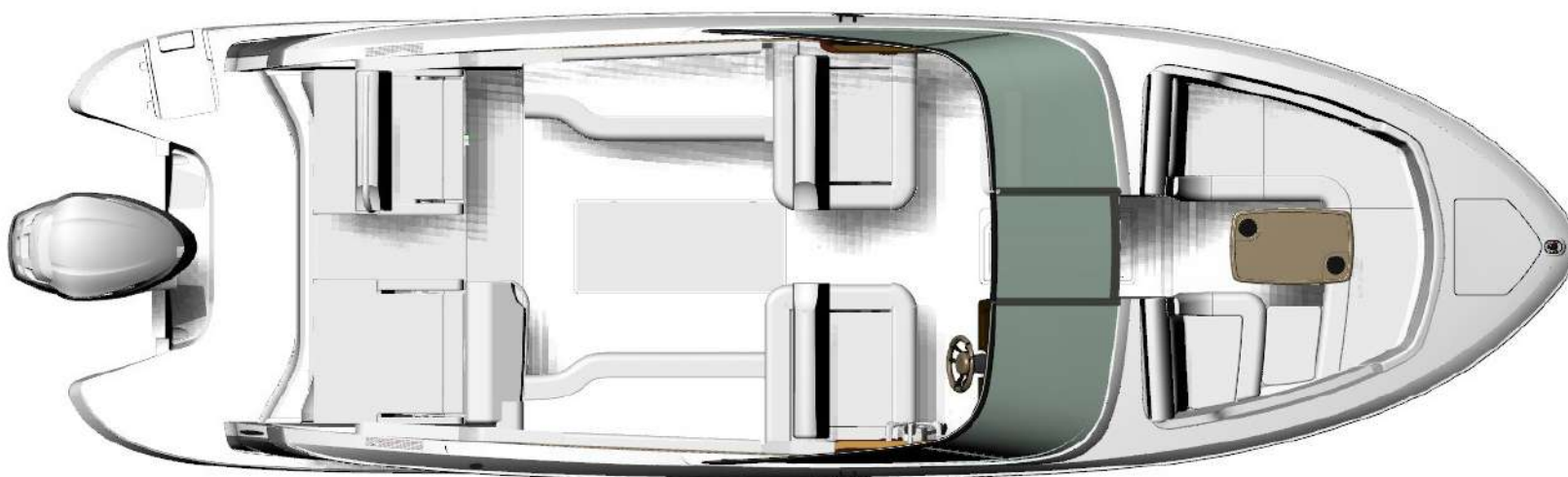
SINGLE OR TWIN OUTBOARD(S)



Technical Information


TYPICAL LABELS & LOCATIONS

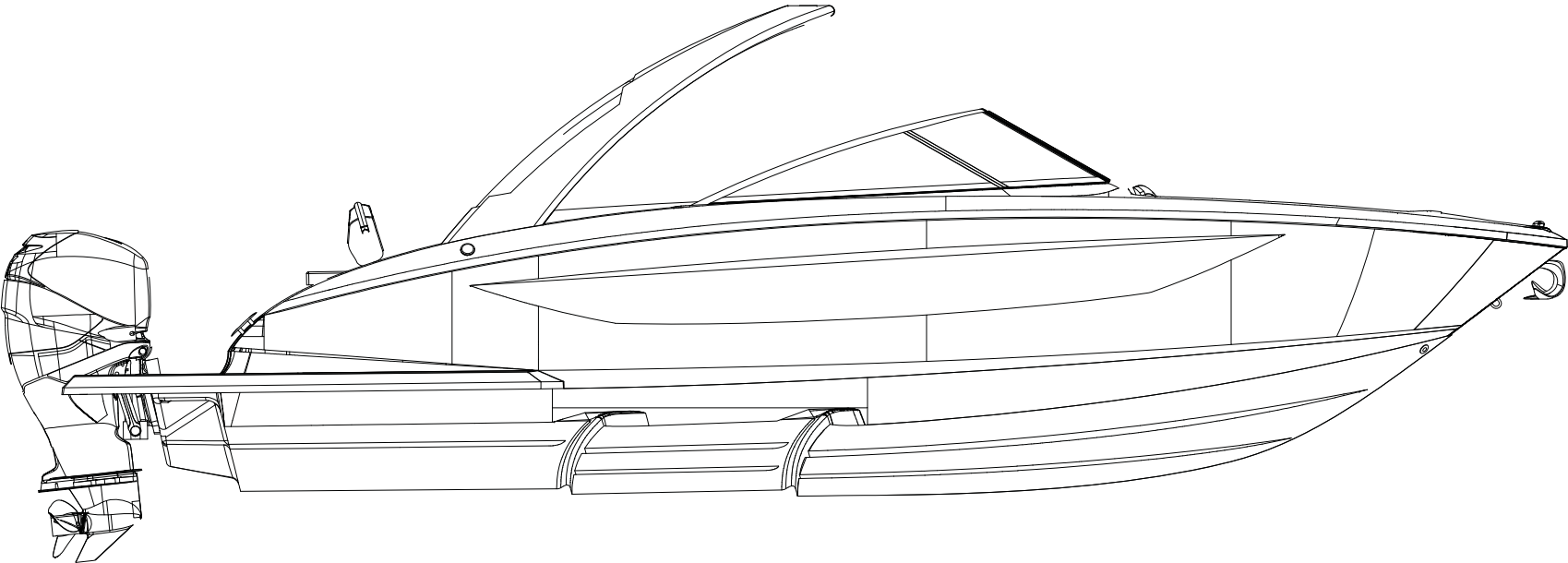





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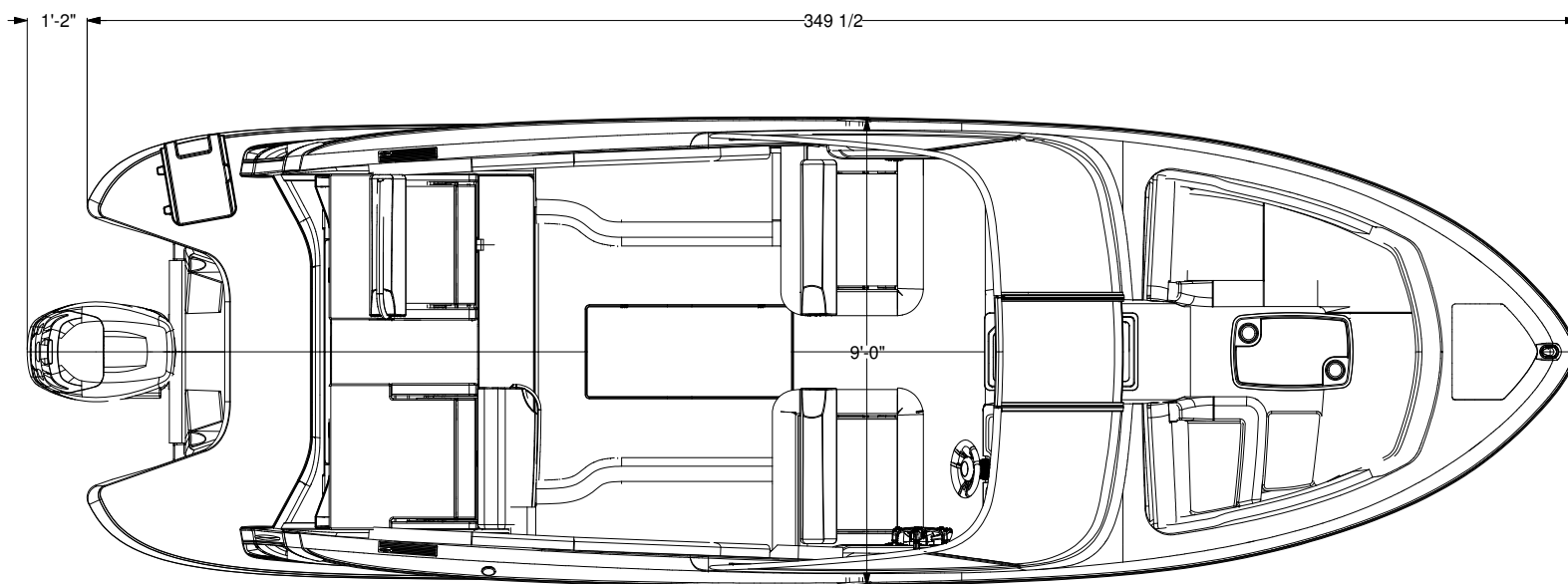
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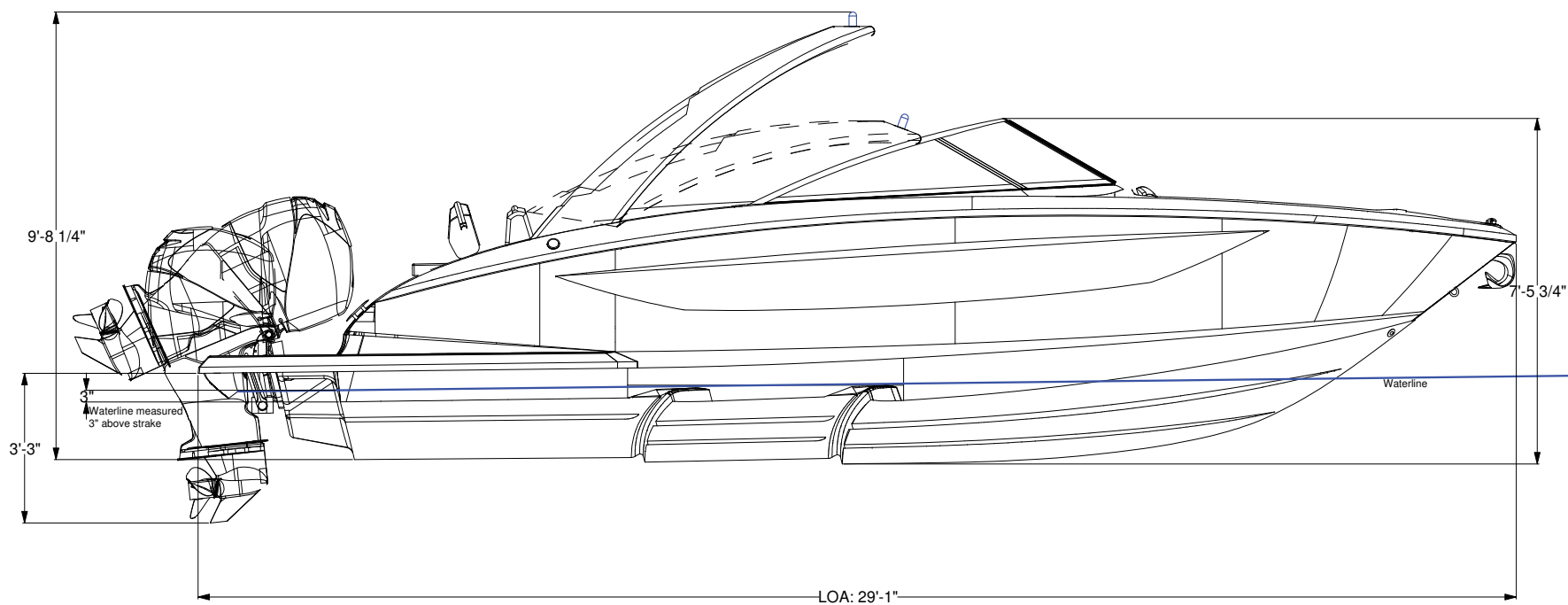
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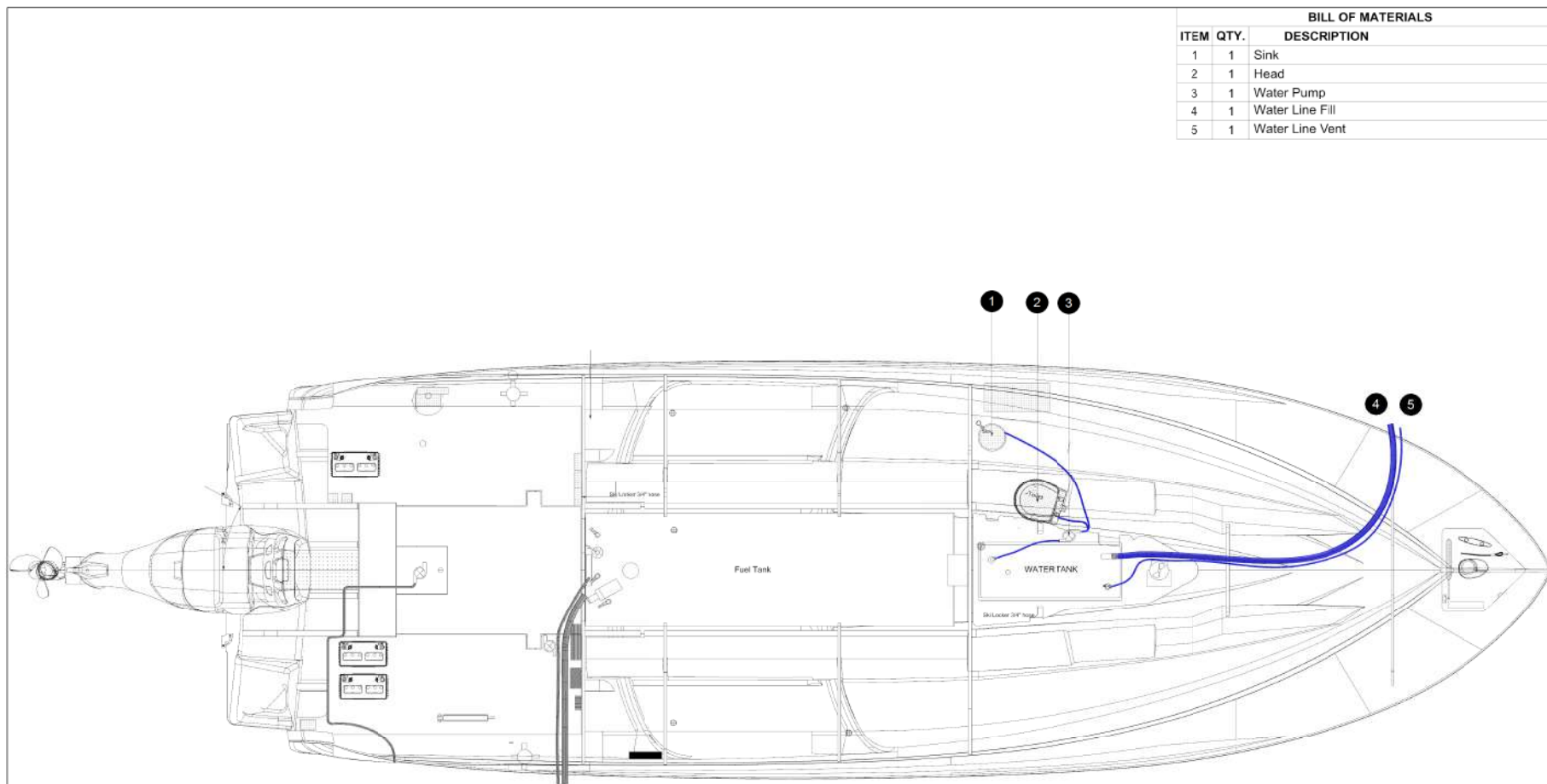


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KN	GN	5


Technical Information



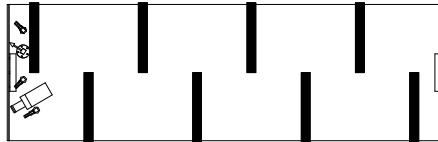
BILL OF MATERIALS		
ITEM	QTY.	DESCRIPTION
1	1	Sink
2	1	Head
3	1	Water Pump
4	1	Water Line Fill
5	1	Water Line Vent

REFERENCE ONLY

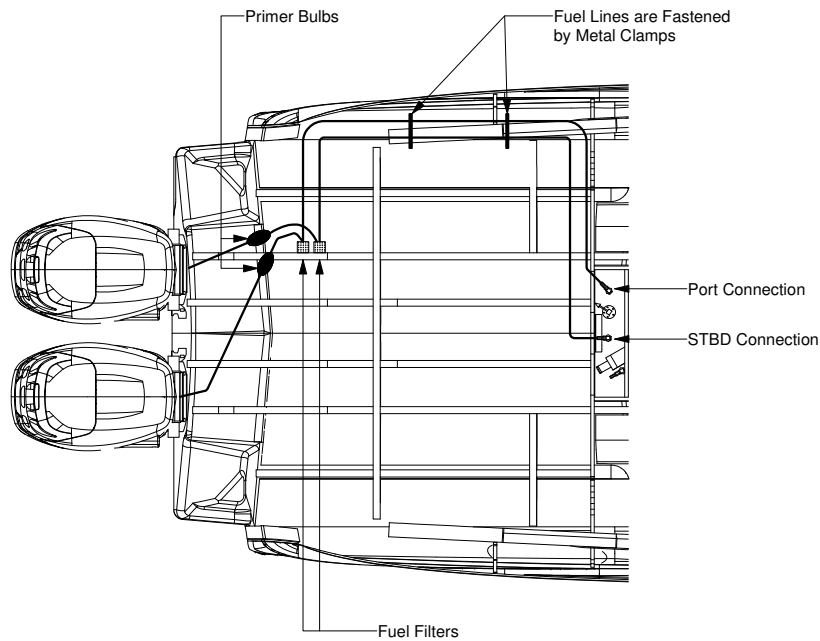
PROPRIETARY AND CONFIDENTIAL:
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 REGAL MARINE INDUSTRIES 2300 ATLANTIC DRIVE OPALEND, FLORIDA 32069 TEL: (407) 661-4360		
ALL RIGHTS RESERVED		
DRAWING TITLE: 29 OBX (WM) Water Line Routing		
DATE: 2/11/2016	REVISION: 0	PAGE: 1 OF 1
DRAWN BY: CVL	APPROVED BY: MW	DWG. NO.: MWM23D

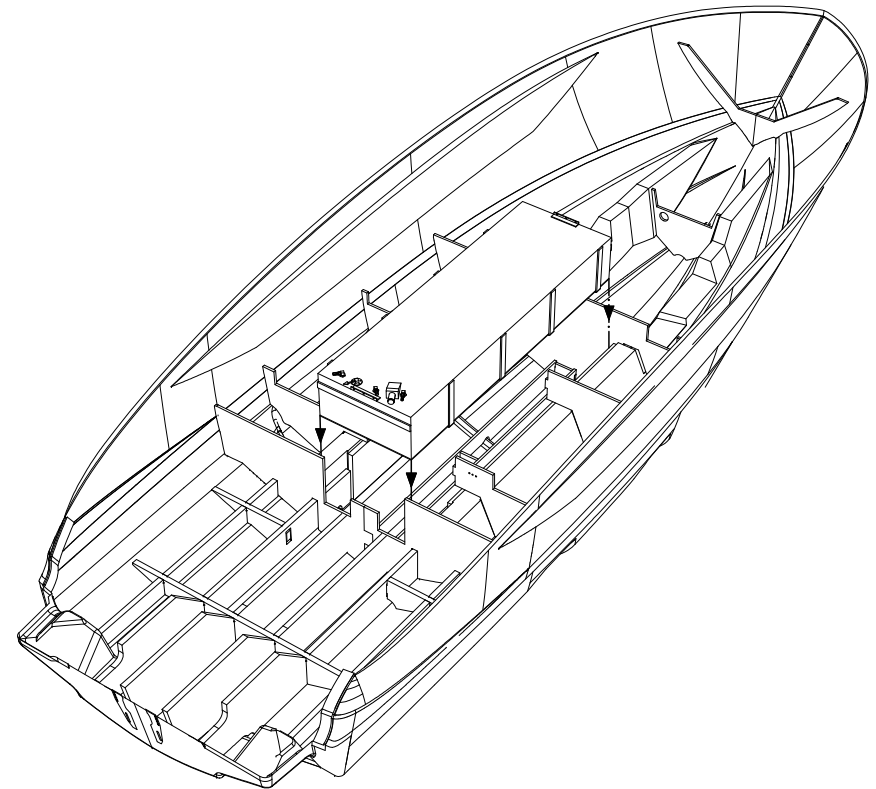
Fuel Tank Bumper Foam Locations



The foam strips are applied in a staggered manner so that any water under the tank can drain



Note: Fuel tank is thru-bolted in the forward and aft bulkheads.
No Mounting Brackets on the sides.

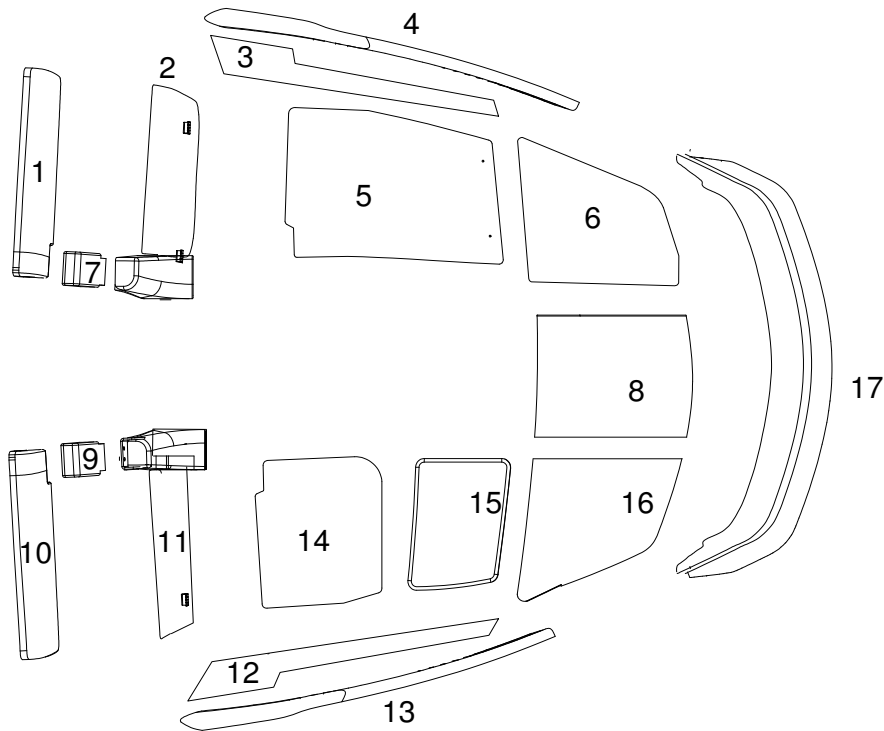


REFERENCE ONLY

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 REGAL MARINE INDUSTRIES <small>2500 AIRPORT DRIVE ORLANDO, FLORIDA 32839 TEL (407) 881-4380</small>			ALL RIGHTS RESERVED
DRAWING TITLE 29 OBX (WM) Fuel Tank Installation			
DATE 2/11/2016	REVISION 0	PAGE 1 OF 1	
DRAWN BY: KN	APPROVED BY: Dion C.	DWG. NO.: MWM23E	

Technical Information

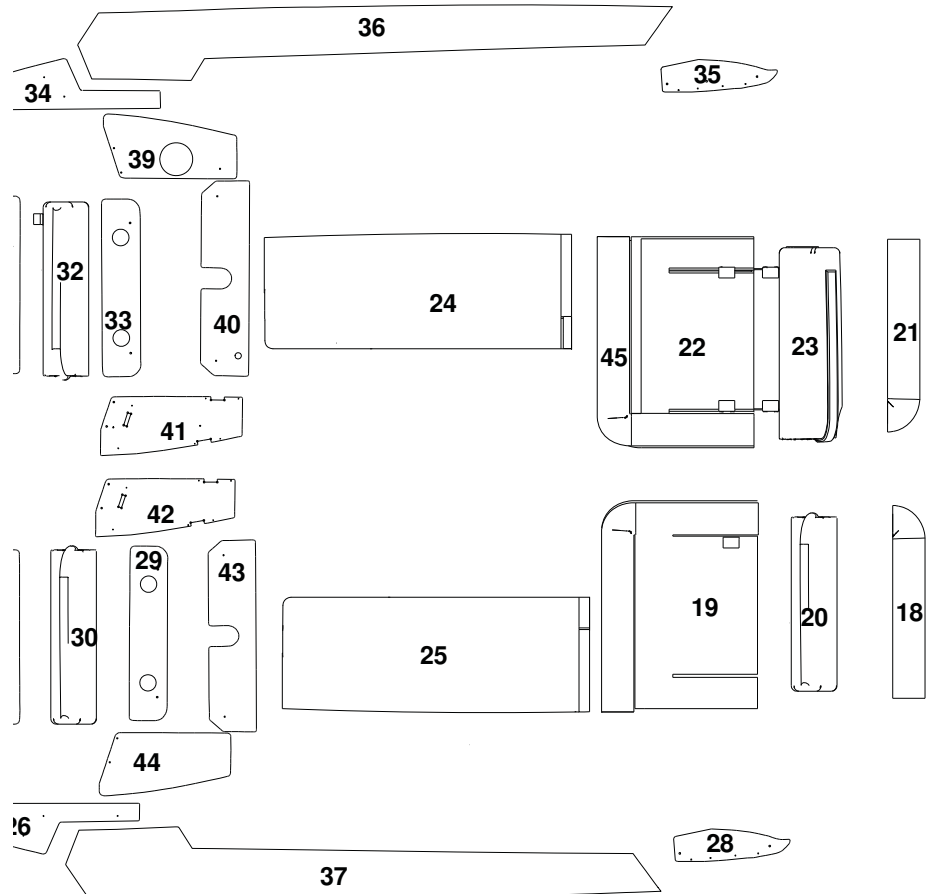


BILL OF MATERIALS				
Part Number	ITEM #	QTY.	Name	Notes
UWM06A	1	-	BOW PORT AFT BACKREST	-
UWM06B	2	-	BOW PORT CENTER LOWER BACKREST	-
UWM06C	3	-	BOW PORT OUTBOARD LOWER BACKREST	-
UWM06E	4	-	BOW PORT SIDE COAMING	-
UWM06F	5	-	BOW PORT AFT CUSHION	-
UWM06G	6	-	BOW PORT FWD CUSHION	-
UWM06H	7	-	BOW PORT ARMREST	-
UWM06J	8	-	BOW CENTER FWD CUSHION	-
UWM06K	9	-	BOW STB ARMREST	-
UWM06L	10	-	BOW STB AFT BACKREST	-
UWM06M	11	-	BOW STB CENTER LOWER BACKREST	-
UWM06N	12	-	BOW OUTBOARD STB LOWER BACKREST	-
UWM06Q	13	-	BOW STB SIDE COAMING	-
UWM06R	14	-	BOW STB AFT CUSHION	-
UWM06S	15	-	BOW STB FILLER CUSHION	-
UWM06T	16	-	BOW STB FWD CUSHION	-
UWM06U	17	-	BOW CENTER FWD BACKREST	-
UWM06V	18	-	BOW STBD SPEAKER TUB	-
UWM06W	19	-	BOW PORT SPEAKER TUB	-


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DRAWING TITLE:			
29 OBX (WM) Upholstery Identifier/BOW			
DATE:	REVISION:	PAGE:	
2/11/2016	0	1 OF 2	
DRAWN BY:	APPROVED BY:	DWG. NO.:	
KN	Ozzie S.	UWM25X	

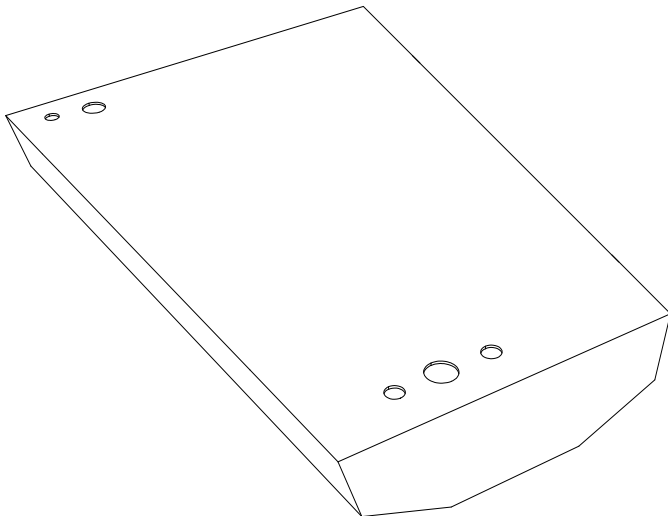
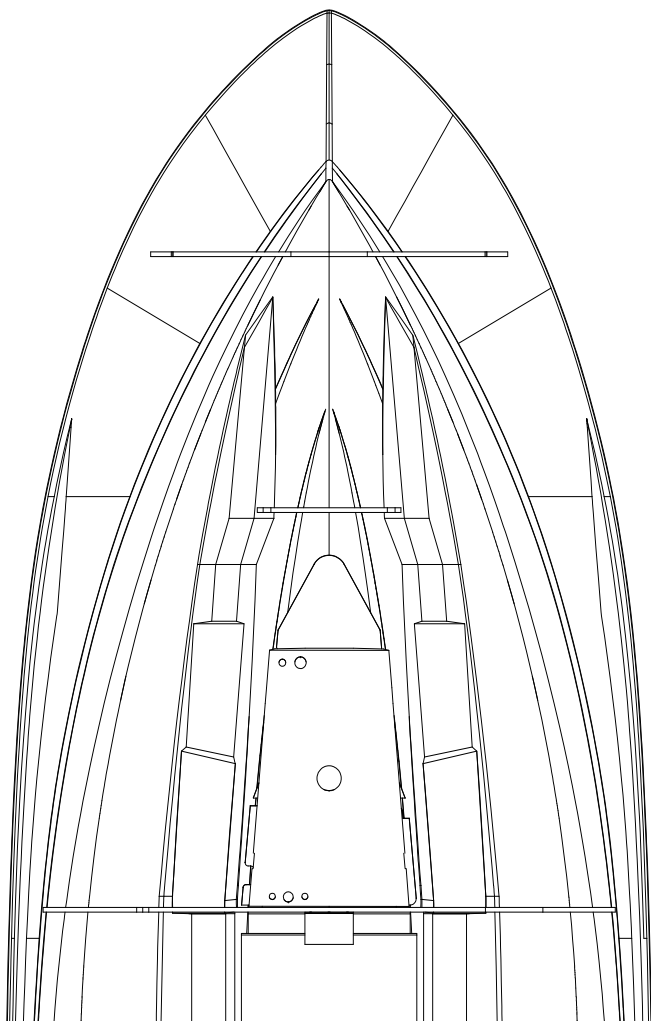
Technical Information



UWM14B	22	-	COMPANION CENTER CUSHION	-
UWM14C	23	-	COMPANION FLIP FLOP BACKREST	-
UWM15A	24	-	COCKPIT PORT CENTER CUSHION	-
UWM15B	25	-	COCKPIT STB CENTER CUSHION	-
UWM15D	26	-	COCKPIT STB AFT COAMING PANEL	-
UWM15F	27	-	ENGINE HATCH STB AFT CUSHION	-
UWM15G	28	-	COCKPIT STB FWD COAMING PANEL	-
UWM15H	29	-	ENGINE HATCH STB FWD CUSHION	-
UWM15J	30	-	ENGINE HATCH STB BACKREST	-
UWM15L	31	-	ENGINE HATCH PORT AFT CUSHION	-
UWM15M	32	-	ENGINE HATCH PORT BACKREST	-
UWM15P	33	-	ENGINE HATCH PORT FWD CUSHION	-
UWM15Q	34	-	COCKPIT PORT AFT COAMING PANEL	-
UWM15R	35	-	COCKPIT PORT FWD COAMING PANEL	-
UWM15X	36	-	COCKPIT PORT MID COAMING PANEL	-
UWM15Y	37	-	COCKPIT STB MID COAMING PANEL	-
UWM15Z	38	-	TRANSOM FILLER CUSHION	-
UWM15C	39	-	ENGINE HATCH PORT OB PANEL	-
UWM15E	40	-	ENGINE HATCH PORT FWD PANEL	-
UWM15N	41	-	ENGINE HATCH PORT IB PANEL	-
UWM15T	42	-	ENGINE HATCH STBD IB PANEL	-
UWM15K	43	-	ENGINE HATCH STBD FWD PANEL	-
UWM15U	44	-	ENGINE HATCH STBD OB PANEL	-
UWM14F	45	-	COMPANION AFT CUSHION	-
UWM13F	46	-	DASH BROW	-


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DRAWING TITLE:			
29 OBX (WM)Upholstery Identifier/CKPT			
DATE:	2/11/2016	REVISION:	0
DRAWN BY:	KN	APPROVED BY:	Ozzie S.
		PAGE:	2 OF 2
		DWG. NO.:	UWM25X

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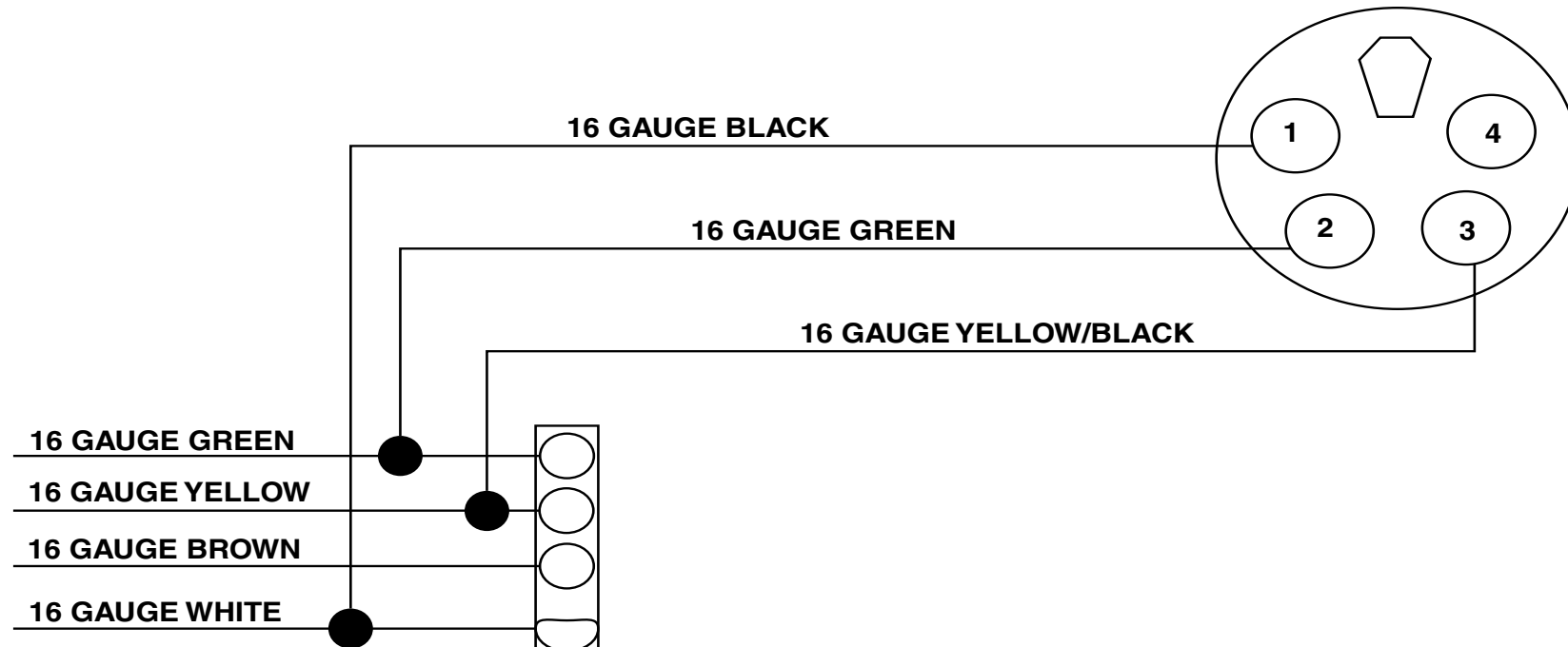


REFERENCE ONLY

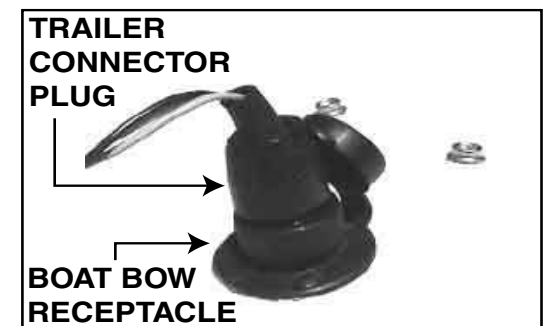
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DRAWING TITLE: 29 OBX (WM) Water Tank Installation		
DATE: 2/11/2016	REVISION: 0	PAGE: 1 OF 1
DRAWN BY: KN	APPROVED BY: MW	DWG. NO.: MWM23B

**TRAILER CONNECTOR PLUG INSERTS
INTO BOAT BOW RECEPTACLE**

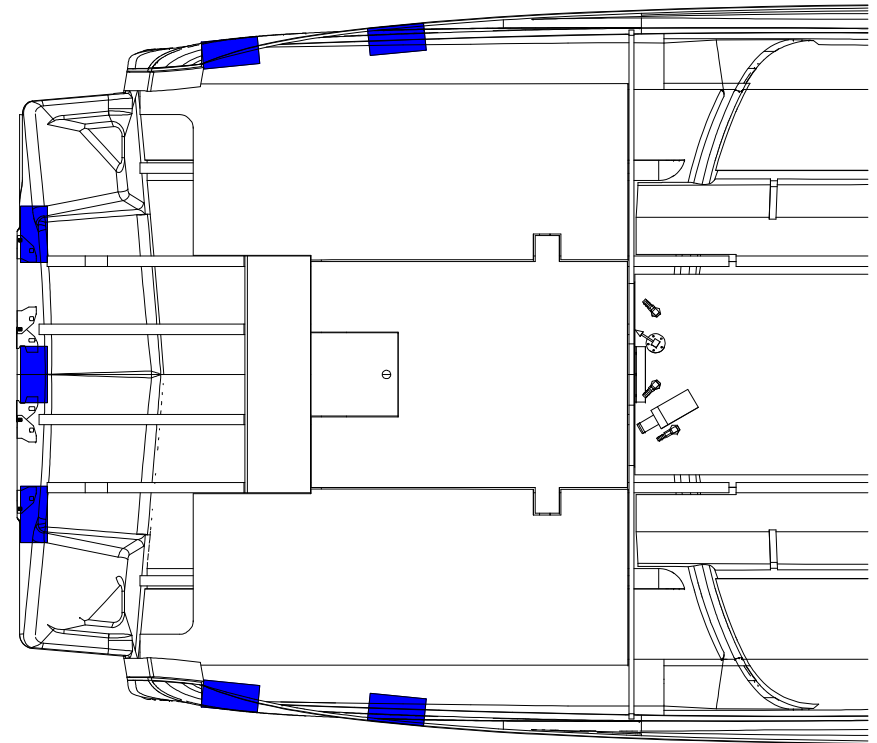


TYPICAL TRAILER PLUG



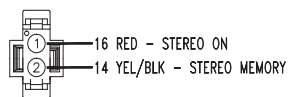
Technical Information

Note: Locate per Splash



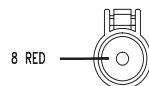
Technical Information

STEREO HARNESS - SOCKETS



2 WAY PLUG MNL II
54-0202-036 (770017-1)

HEAD POWER - SOCKET



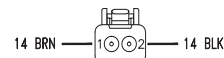
1WAY DEUTSCH 8-10 DTHD PLUG
CONNECTOR 54-0102-019 (DTHD-06-1-8-S)

HEAD GRND - PIN



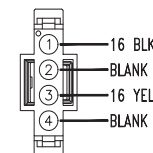
1WAY DEUTSCH 8-10 DTHD RECPT
CONNECTOR 54-0101-026 (DTHD-04-1-8-P)

FRESH WTR PUMP



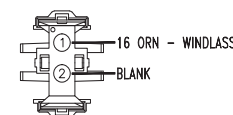
2WAY DEUTSCH DT PLUG
CONNECTOR 54-0202-042 (DT06-2S)
LOCKING WEDGE 54-0201-043 (W2S)

TANK LEVEL MONITOR - SOCKETS



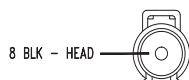
4 WAY PLUG MNL II
54-0402-017 (770019-1)

WINDLASS - PINS



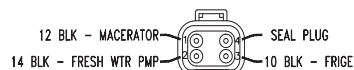
2 WAY CAP MNL II
54-0201-036 (770024-1)

HULL 1 - PIN



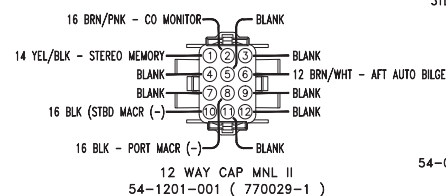
1WAY DEUTSCH 8-10 DTHD RECPT
CONNECTOR 54-0101-026 (DTHD-04-1-8-P)

HULL 2 - RECEPT WITH PINS

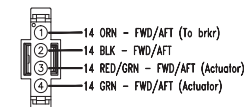


4WAY DEUTSCH DTP RECEPTACLE
CONNECTOR 54-0402-021 (DTP04-4P)
LOCKING WEDGE 54-0402-022 (WP4P)

TO BATTERY SWP - PINS

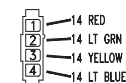


STBD SEAT F/A - SOCKETS



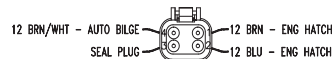
4 WAY PLUG MNL II
54-0402-017 (770019-1)

TRIM TAB PUMP



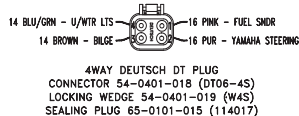
4 WAY PLUG HOUSING
COMMERCIAL MNL w/SOCKETS
CONNECTOR 54-0402-008
(1-480424-0)

TO HULL



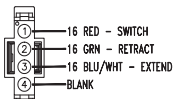
4WAY DEUTSCH DTP PLUG
CONNECTOR 54-0401-030 (DTP06-4S)
LOCKING WEDGE 54-0401-029 (WP4S)

TO HULL HARNESS



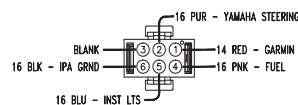
4WAY DEUTSCH DT PLUG
CONNECTOR 54-0401-018 (DT06-4S)
LOCKING WEDGE 54-0401-019 (W4S)
SEALING PLUG 65-0101-015 (114017)

TOWER ACTUATOR BOX - SOCKETS



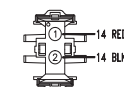
4 WAY PLUG MNL II
54-0402-017 (770019-1)

TO IPA (W/ SOC)



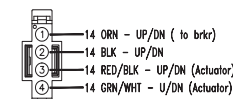
6 WAY PLUG MNL II
54-0602-007 (770020-1)

12V RECEPT - PINS



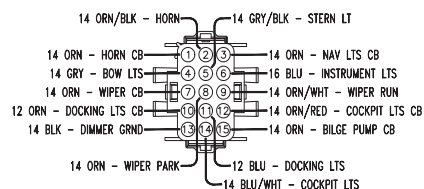
2 WAY CAP MNL II
54-0201-036 (770024-1)

STBD SEAT U/D - SOCKETS



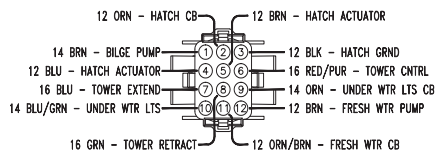
4 WAY PLUG MNL II
54-0402-017 (770019-1)

CAP WITH PINS



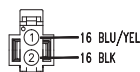
15 WAY CAP MNL II
54-1501-001 (770030-1)

CAP WITH PINS



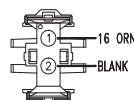
12 WAY CAP MNL II
54-1201-001 (770020-1)

SPEAKER LTS - SOCKETS



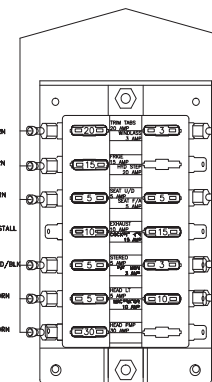
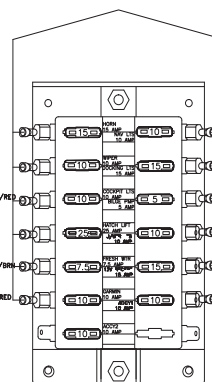
2 WAY PLUG MNL II
54-0202-036 (770017-1)

WINDLASS - PIN

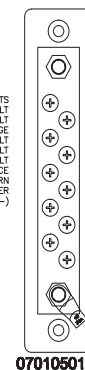


2 WAY CAP MNL II
54-0201-036 (770024-1)

- 1 HORN 15
- 2 NAV LTS 10
- 3 WIPER 10
- 4 DOCKING LTS 15
- 5 COCKPIT LTS 10
- 6 BILGE PUMP 5
- 7 HATCH LIFT 25
- 8 UNDER WTR LTS 10
- 9 FRESH WTR PUMP 7.5
- 10 12V RECEPT 15
- 11 GARMIN 10
- 12 ACCY1 10
- 13 ACCY2 10



- 1 TRIM TABS 20
- 2 WINDLASS 3
- 3 FRIGE 15
- 4 HYDRA STEP BLANK
- 5 SEAT U/D 5
- 6 SEAT F/A 5
- 7 EXHAUST 10
- 8 COCKPIT HEATER 15
- 9 STEREO 5
- 10 LEVEL MONITOR 3
- 11 HEAD LT 5
- 12 MACERATOR 10
- 13 HEAD PUMP 30



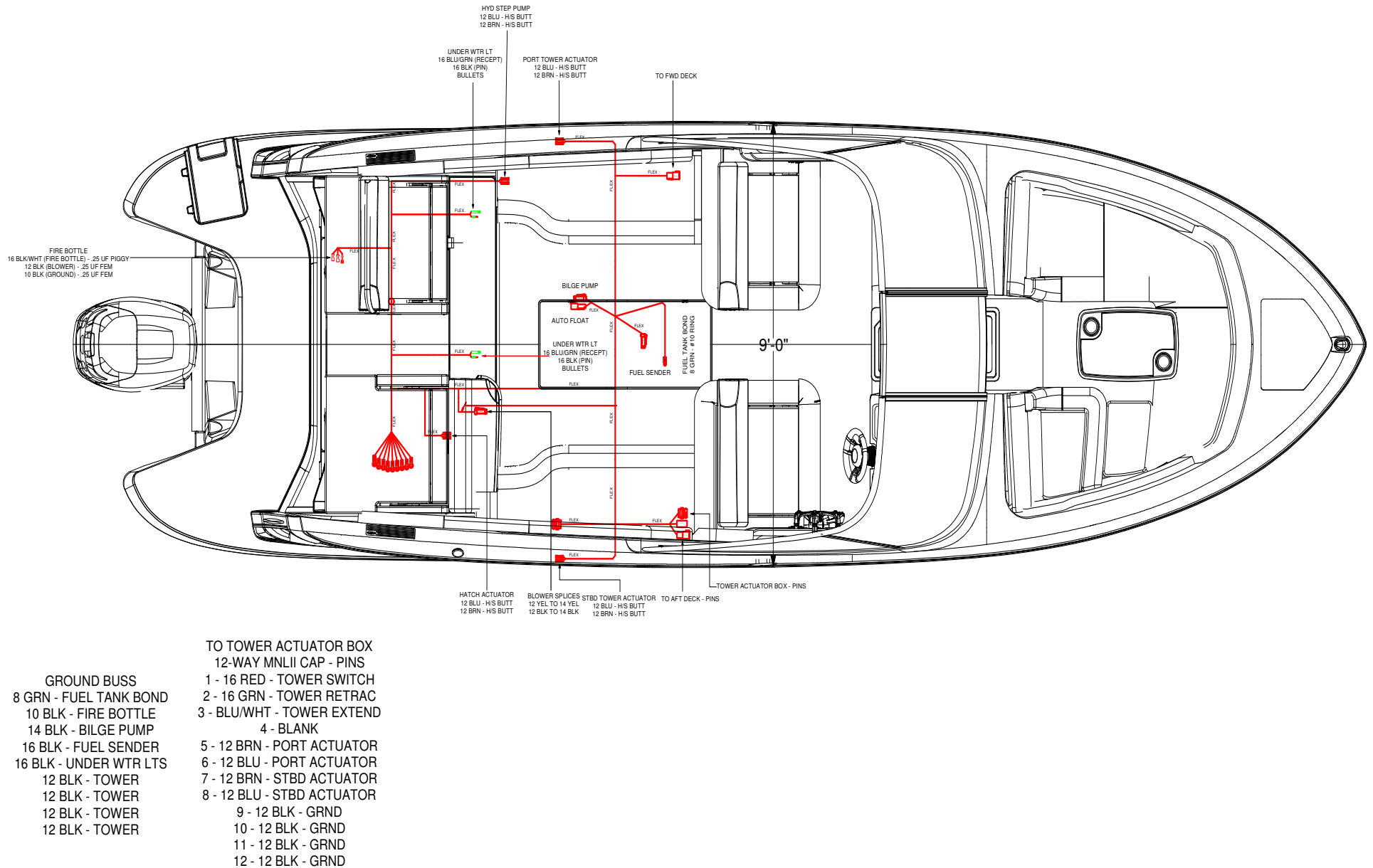
070105016

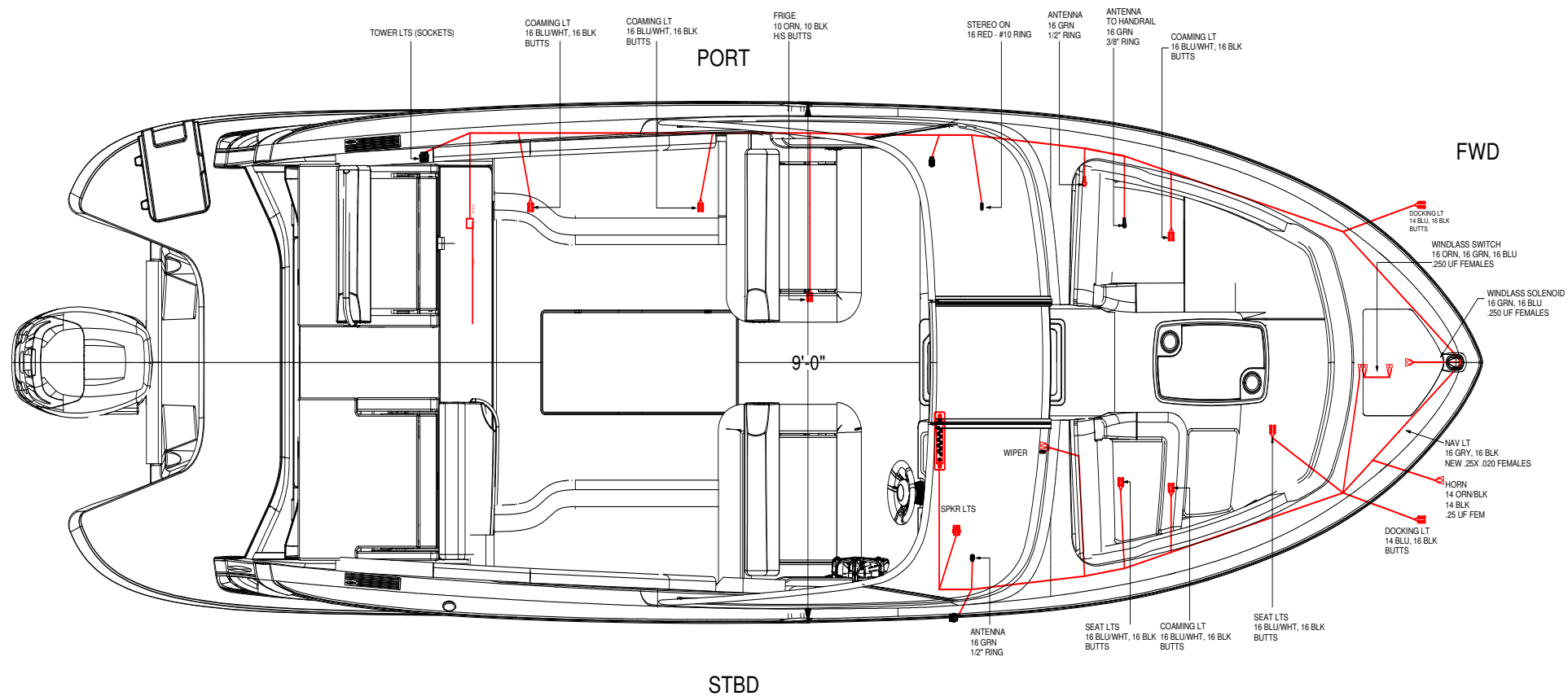
- 16 BLK - TOWER LTS
- 14 BLK - ANCHOR LT
- 16 BLK - HEAD LT
- 16 BLK - IPA
- 12 BLK - HATCH
- 14 BLK - DIMMER
- 14 BLK - SEAT SWITCHES
- 14 BLK - STBD LTS SPLICE
- 16 BLK - VSR
- 14 BLK - HATCH SEAT
- 16 BLK - STBD MACR (-)

2 BLK - J* RING

FUSE BLOCK OVERVIEW

Technical Information

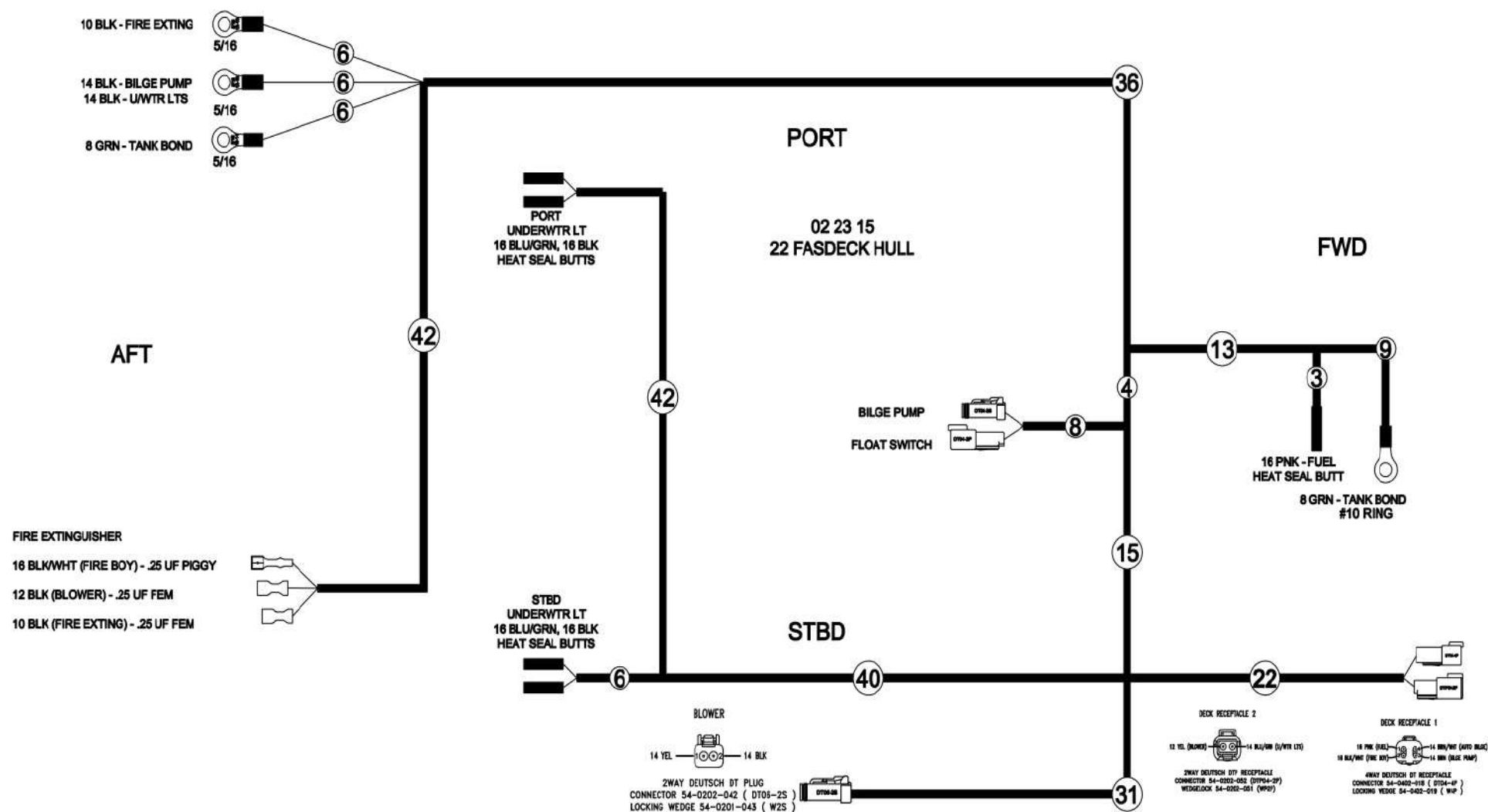




FORWARD DECK HARNESS RUNS

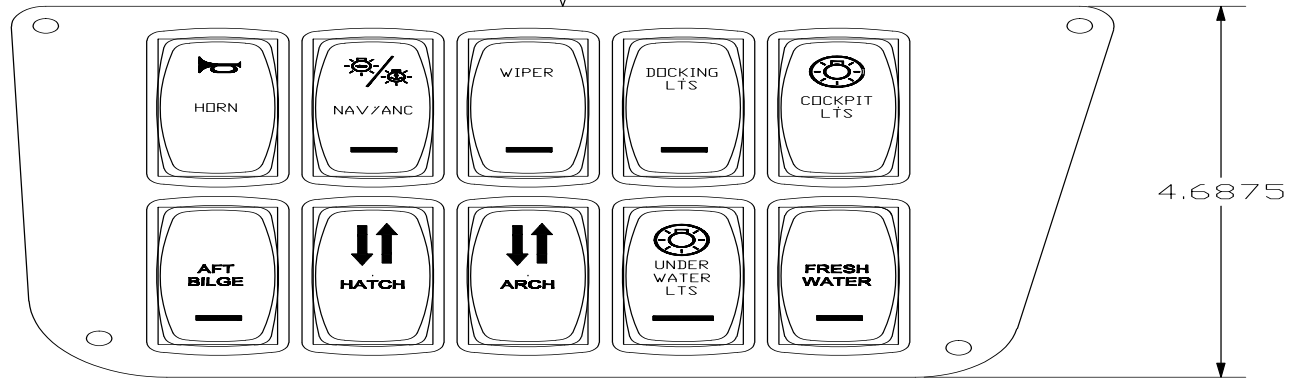
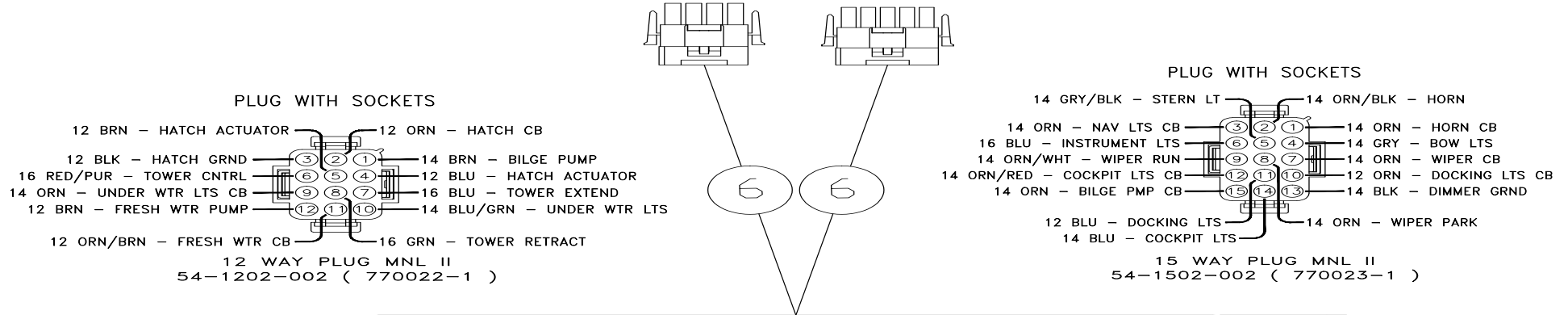
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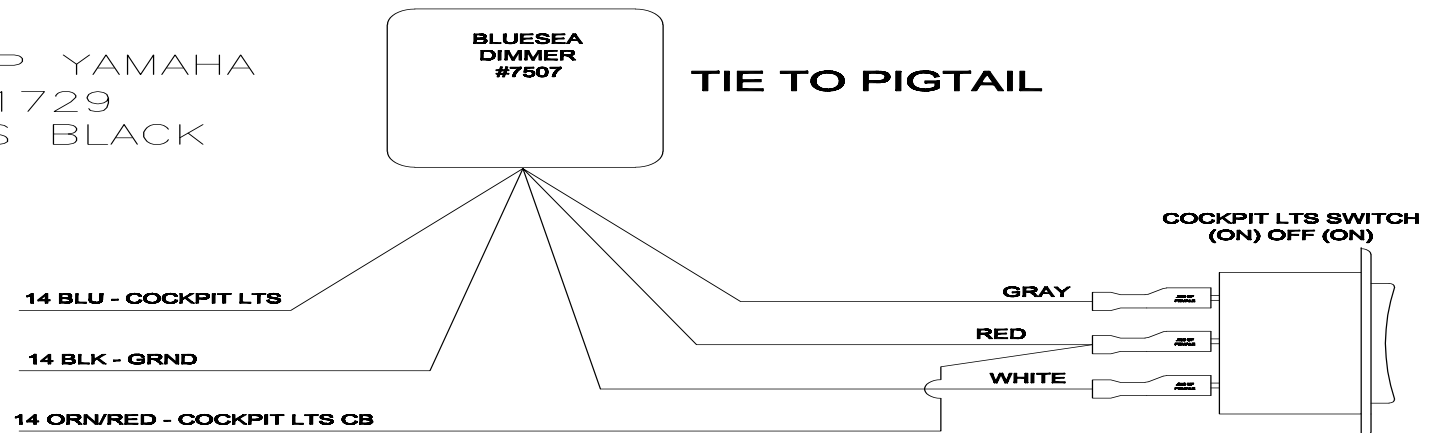


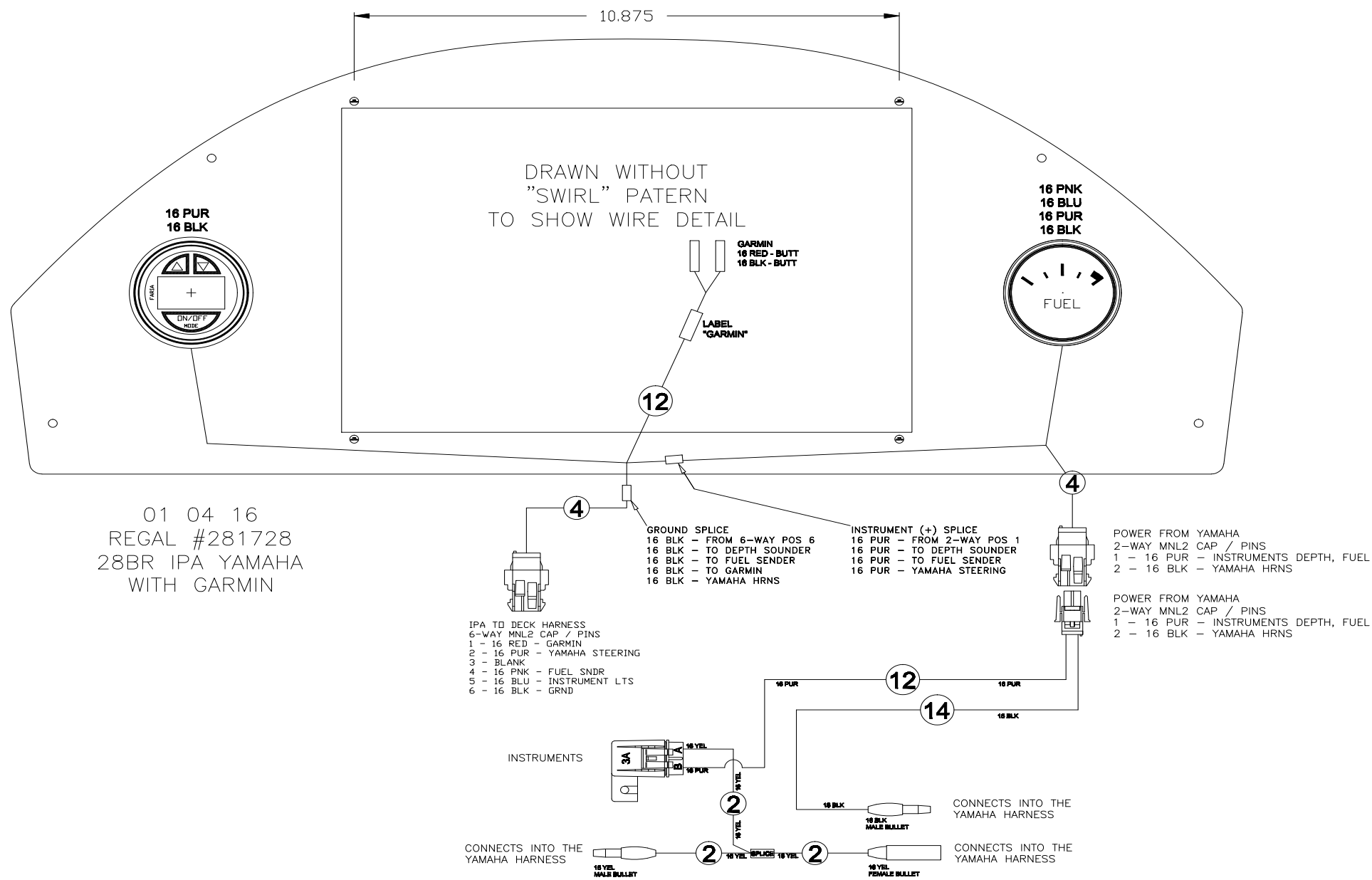
TYPICAL HULL HARNESS BREAKOUT

Technical Information



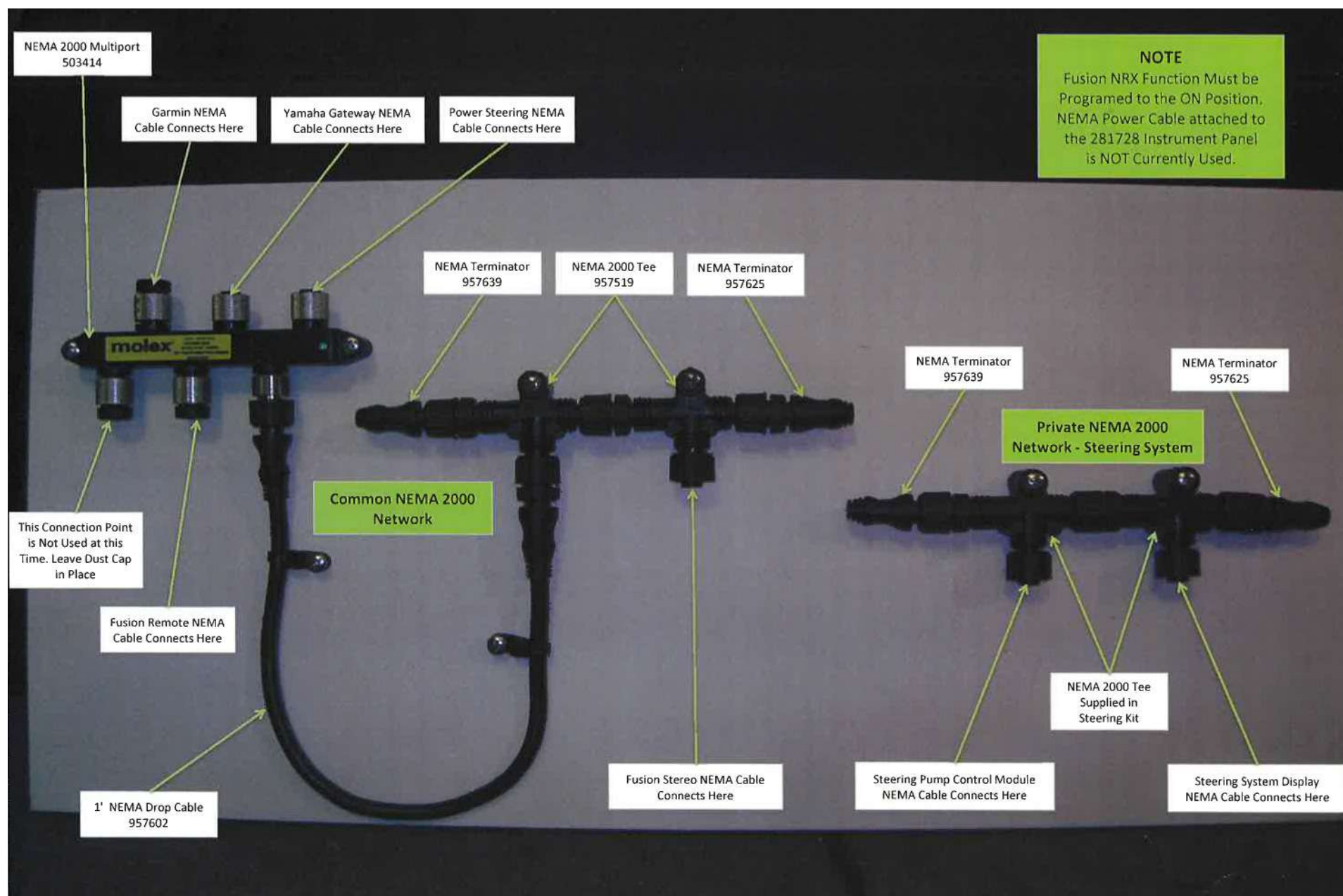
290BX HELM SWP YAMAHA
REGAL #281729
PAINT - GLOSS BLACK

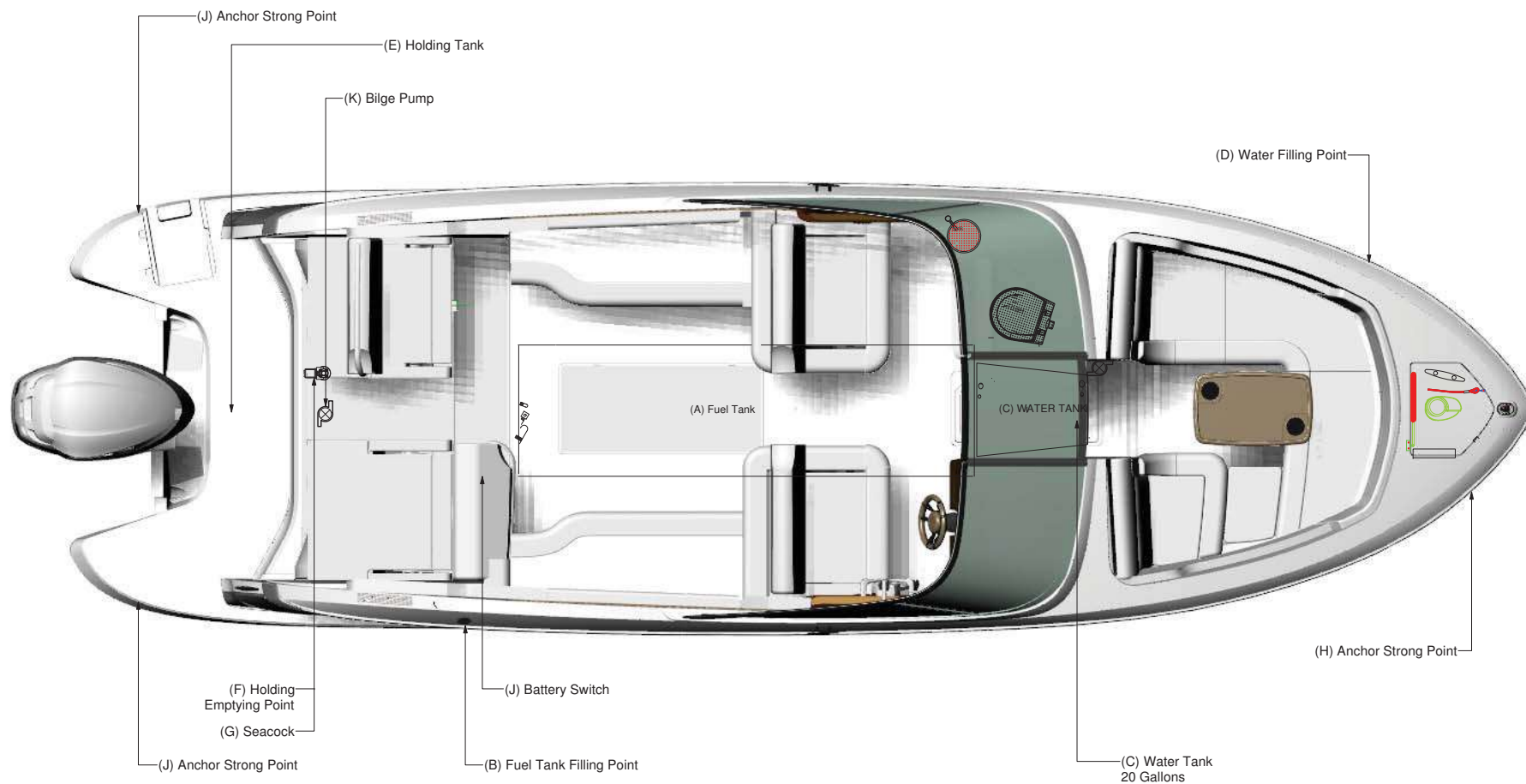




TYPICAL DASH/CHARTPLOTTER BREAKOUT

Technical Information






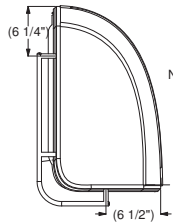
KEY

- | | |
|-----------------------------|------------------------|
| A. FUEL TANK | H. ANCHOR STRONG POINT |
| B. FUEL TANK FILLING POINT | I. TOWING STRONG POINT |
| C. WATER TANK | J. BATTERY SWITCH |
| D. WATER TANK FILLING POINT | K. BILGE PUMP |
| E. HOLDING TANK | |
| F. HOLDING EMPTYING POINT | |
| G. SEACOCKS | |

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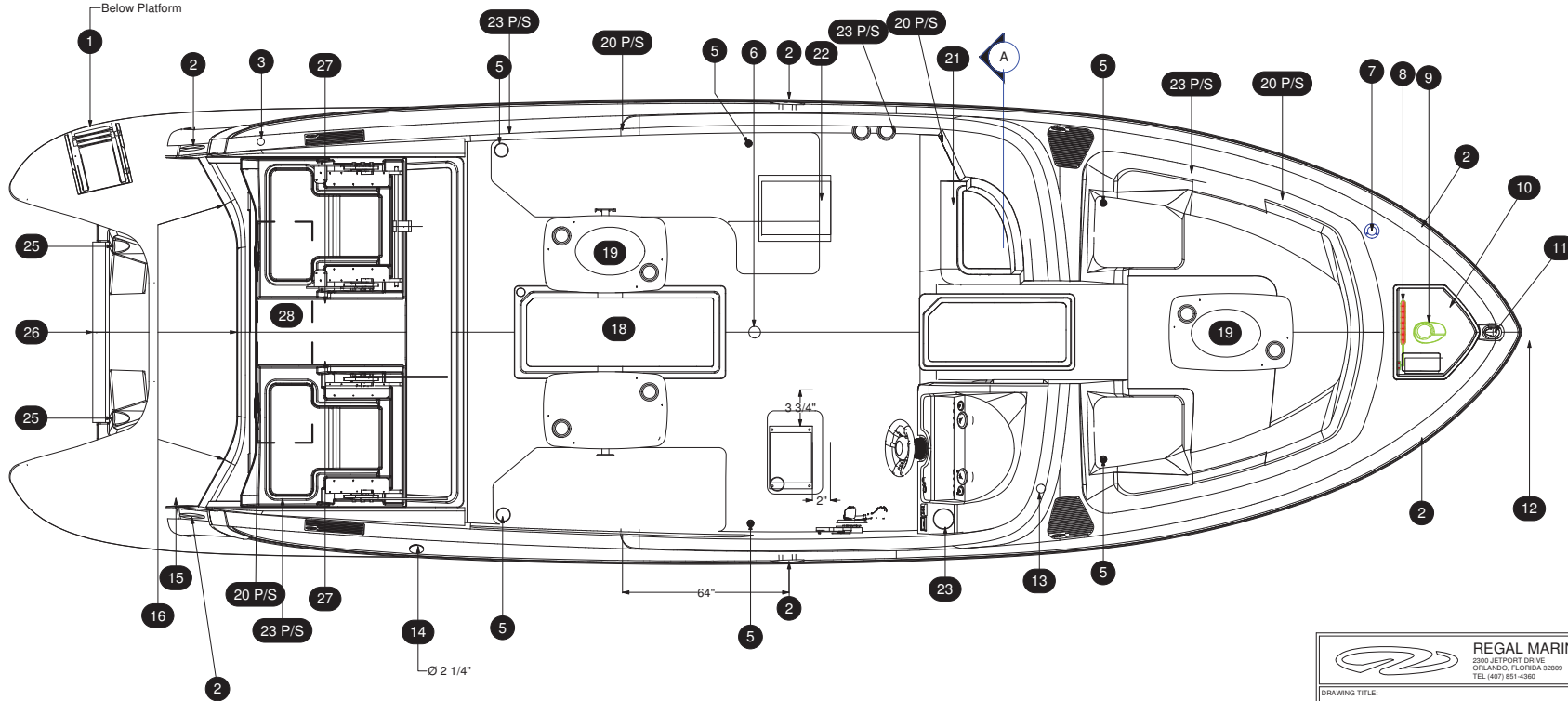
 REGAL MARINE 2300 JETPORT DRIVE ORLANDO, FLORIDA 32809 TEL (407) 851-4360		
DRAWING TITLE:		
29 OBX WM Component		
DATE:	REVISION:	PAGE
2/11/2016	0	
DRAWN BY:	APPROVED BY:	DWG
CVL	DR	

Detail A




Note: Grab Rail is 3 1/4\"/>

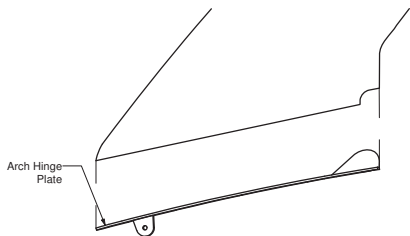
BILL OF MATERIALS			BILL OF MATERIALS			BILL OF MATERIALS		
ITEM	QTY.	DESCRIPTION	ITEM	QTY.	DESCRIPTION	ITEM	QTY.	DESCRIPTION
1	1	Telescoping Ladder	11	1	Flipping Nav. Light	21	1	Head Door Grab Rail
2	6	Cleats	12	1	Anchor	22	1	Fridge
3	1	Flag Post Mount	13	1	Perfect Pass Antenna	23	15	Cup Holders
4	1	-	14	1	Fuel Fill (Dia: 2 1/4\")	24	1	Standard Navigation Light
5	6	Drains	15	1	Trim Controls	25	1	Sump Drains
6	1	Standard Mast Light	16	3	Swim Platform Lights (Dia: 3/4\")	26	1	Transom Cap
7	1	Water Fill (Dia: 1 7/8\")	17	1	Grab Rail	27	1	Cockpit Lights
8	1	Gas Ram	18	1	Storage Locker	28	1	Aft Storage Locker
9	1	Windlass (Option)	19	1	Removable Table			
10	1	Anchor Cleat	20	8	Speakers			



NOTE: Stern cleats will have backing plate to allow for lifting

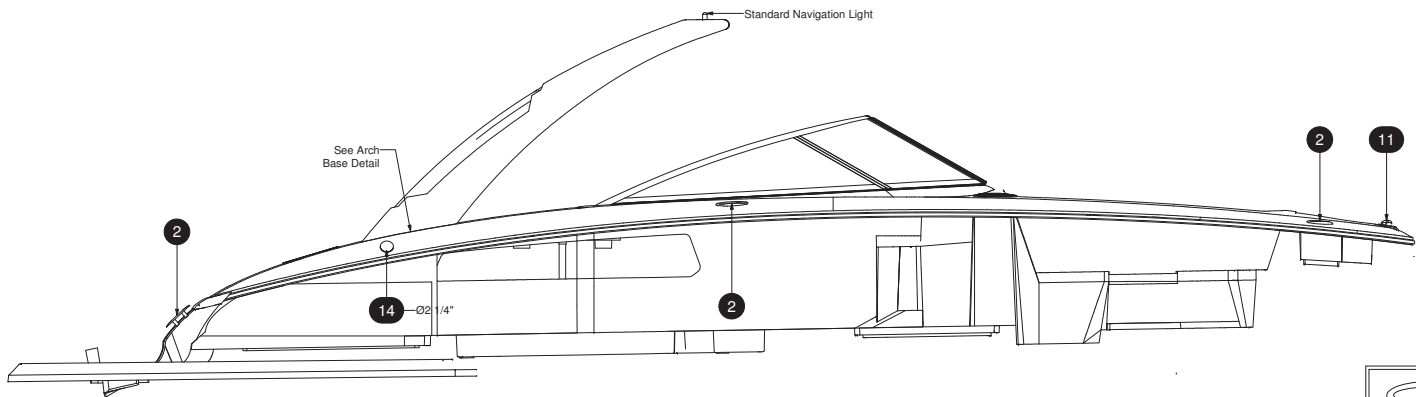
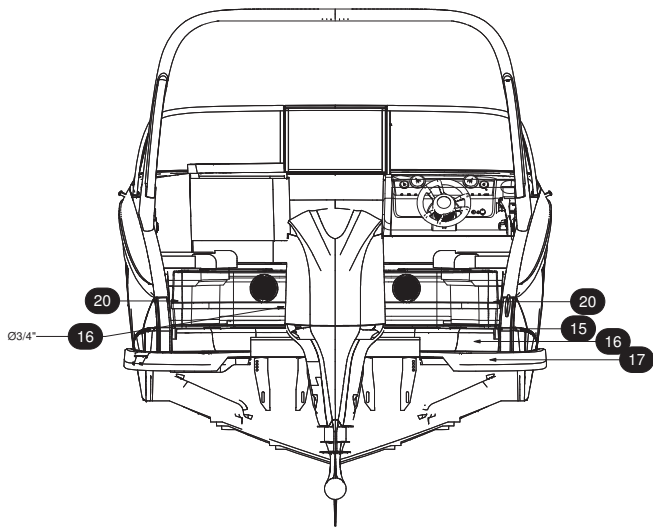
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 REGAL MARINE INDUSTRIES 2300 JETPORT DRIVE ORLANDO, FLORIDA 32809 TEL 407 851-4360 ALL RIGHTS RESERVED		
DRAWING TITLE:		
29 OBX (WM) Deck Hardware		
DATE:	REVISION:	PAGE:
2/11/2016	B	1 OF 2
DRAWN BY:	APPROVED BY:	DWG. NO.:
CVL	MW	13




Starboard Arch Base

Port Side Opposite Hand



BILL OF MATERIALS		
ITEM	QTY.	DESCRIPTION
2	6	Cleats
11	1	Flipping Navigation Light
14	1	Fuel Fill (Dia: 2 1/4")
15	1	Trim Controls
16	1	Swim Platform Lights (Dia: 3/4")
17	1	Grab Rail
20	8	Speakers

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DRAWING TITLE: 29 OBX (WM) Deck Hardware		
DATE: 2/11/2016	REVISION: B	PAGE: 2 OF 2
DRAWN BY: CVL	APPROVED BY: MW	DWG. NO.: 13

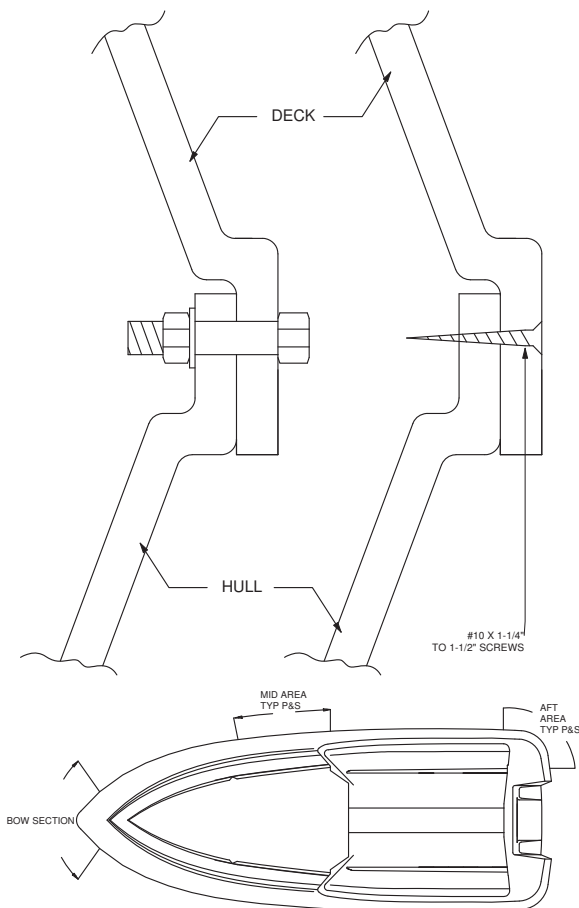
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NOTES:

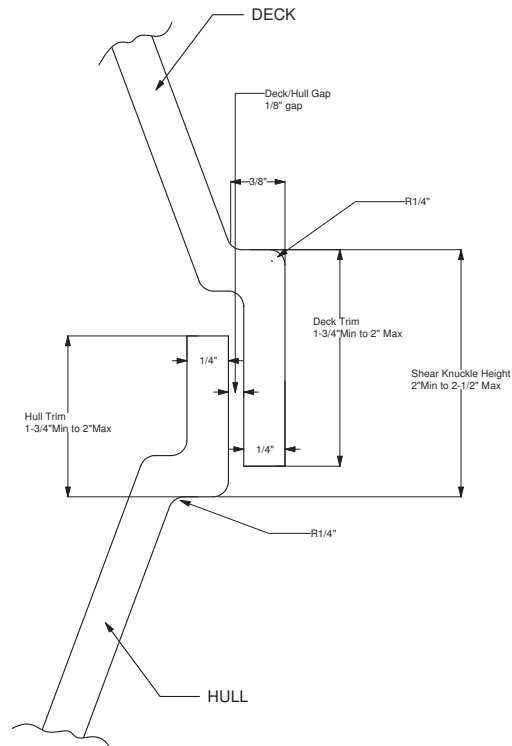
1. THRU BOLT IN ENGINE COMPARTMENT, ANCHOR LOCKER AND IN ANY OTHER ACCESSIBLE LOCATIONS, OR UNLESS SPECIFIED.
2. SCREW TOGETHER REMAINING LOCATIONS EVERY 6 TO 8 INCHES.
3. SEAL HULL DECK SHEER AS APECIFIED ON WS047

SEE NOTE 1

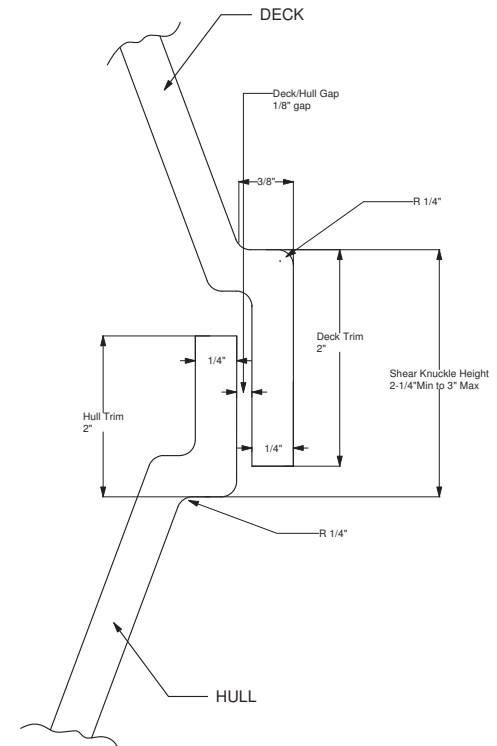
SEE NOTE 2




Boats 19'-27'



Boats 28'-46'

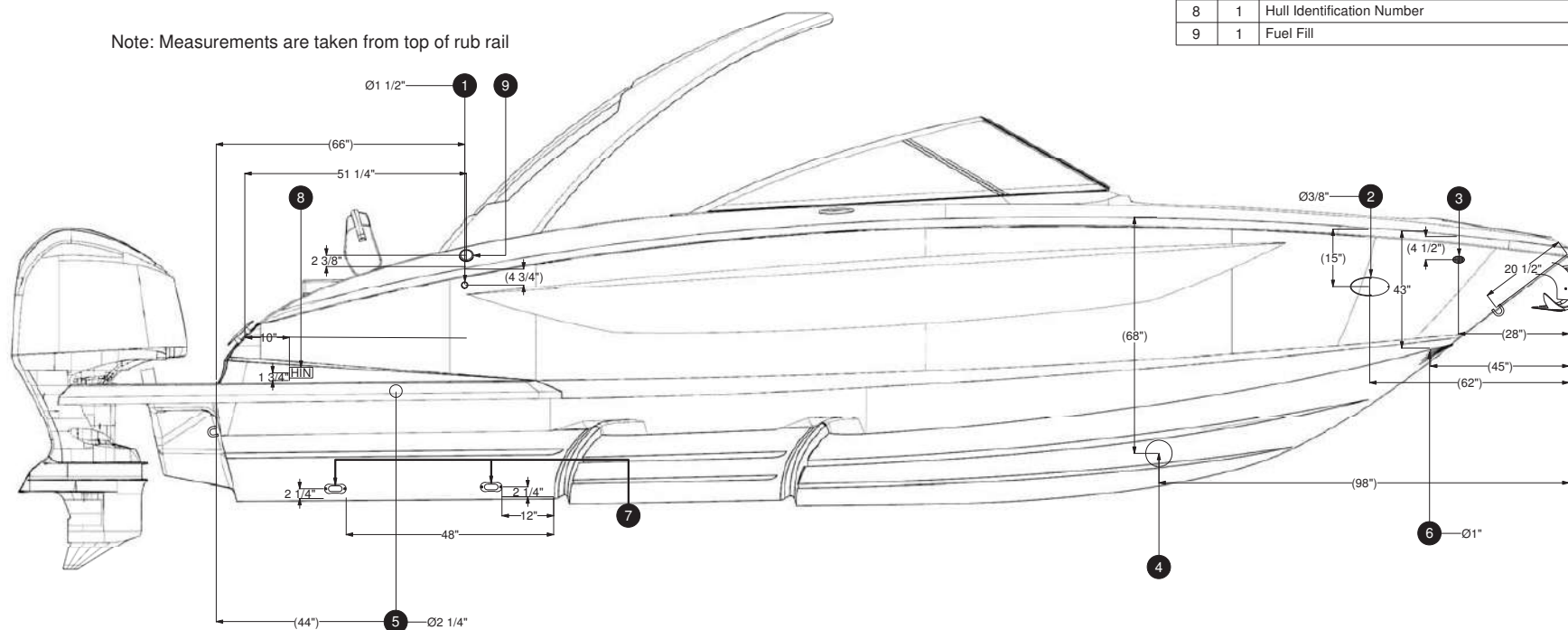


 REGAL MARINE INDUSTRIES 2380 JETPORT DRIVE ORLANDO, FLORIDA 32809 TEL (407) 851-4360			ALL RIGHTS RESERVED
DRAWING TITLE:			
29 OBX WM Hull Deck/Join Detail			
DATE:	REVISION:	PAGE:	
2/11/2016	0	1 OF 1	
DRAWN BY:	APPROVED BY:	DWG. NO.:	
KN	GN	12	

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STBD View

Note: Measurements are taken from top of rub rail



BILL OF MATERIALS

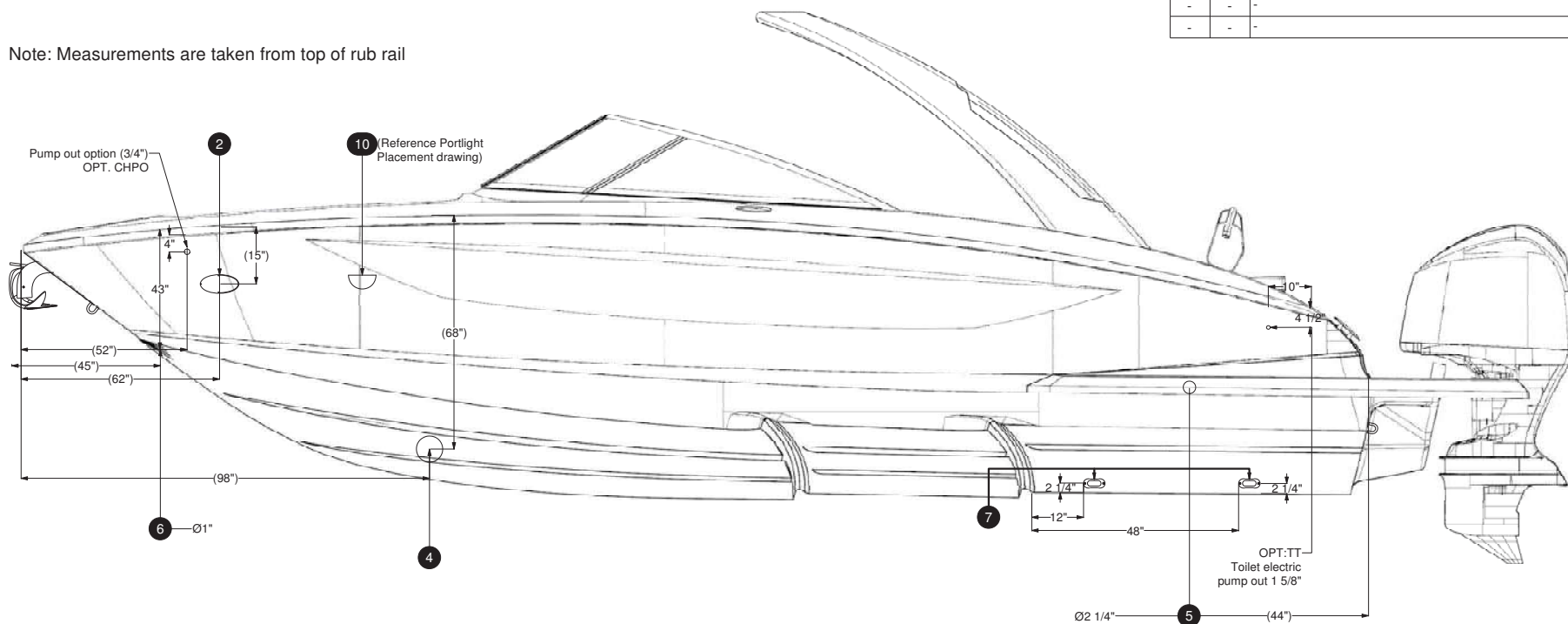
ITEM	QTY.	DESCRIPTION
1	1	Fuel Vent (1 3/4")
2	2	Docking Lights (3/4")
3	1	Horn (Splash Only)
4	1	Bow Thruster
5	2	Multiport Drain (2 1/4")
6	1	Anchor Locker Drain (3/4")
7	7	Underwater Lights
8	1	Hull Identification Number
9	1	Fuel Fill

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DRAWING TITLE:		
29 OBX (WM) Hull Hardware		
DATE:	REVISION:	PAGE:
2/11/2016	0	1 OF 3
DRAWN BY:	APPROVED BY:	DWG. NO.:
CVL	MW	6


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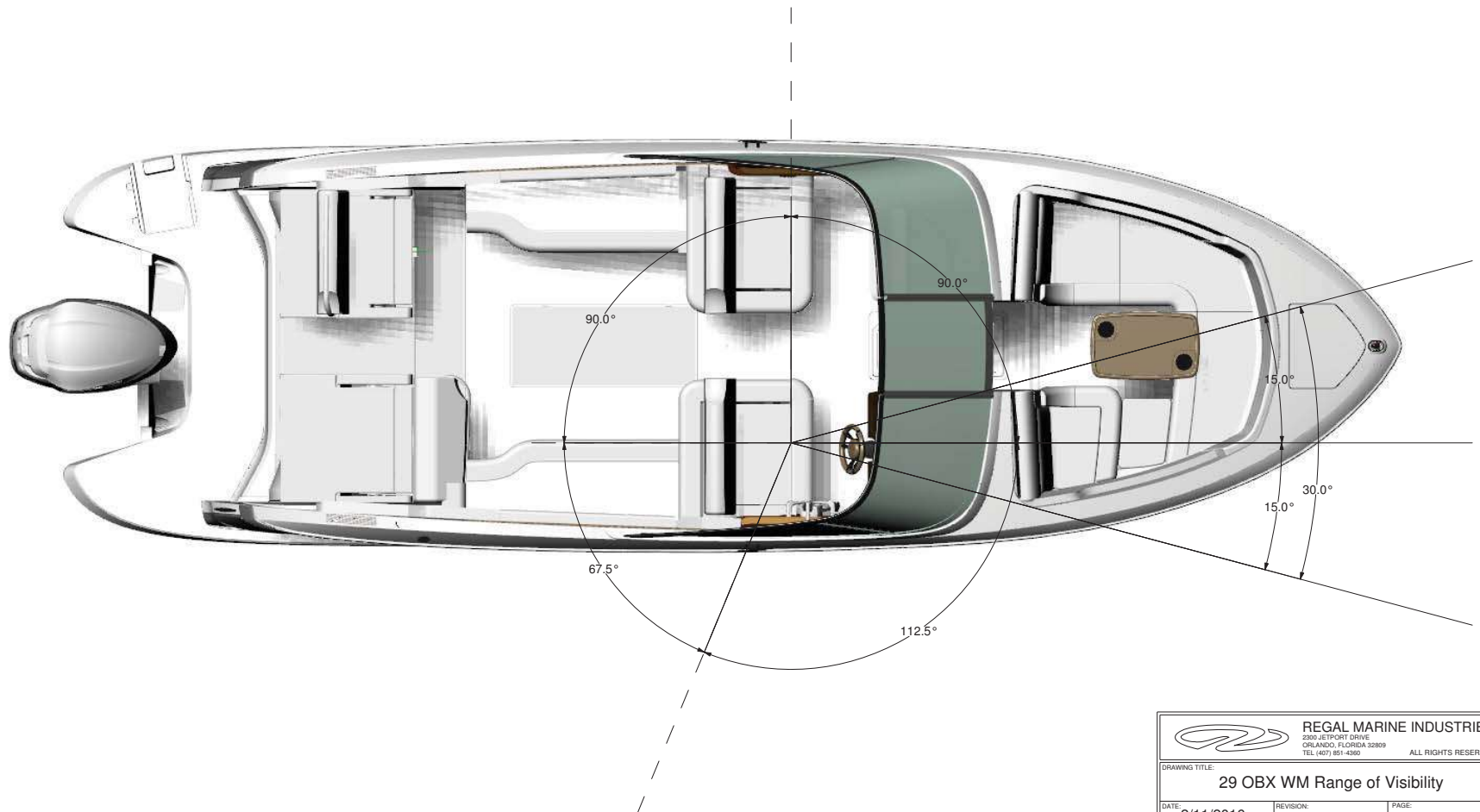
BILL OF MATERIALS		
ITEM	QTY.	DESCRIPTION
10	1	Portlight/ Head Window
11	2	Trailer Eye Brackets
12	2	Trim Tabs
13	1	Drain
-	-	-
-	-	-
-	-	-

Note: Measurements are taken from top of rub rail




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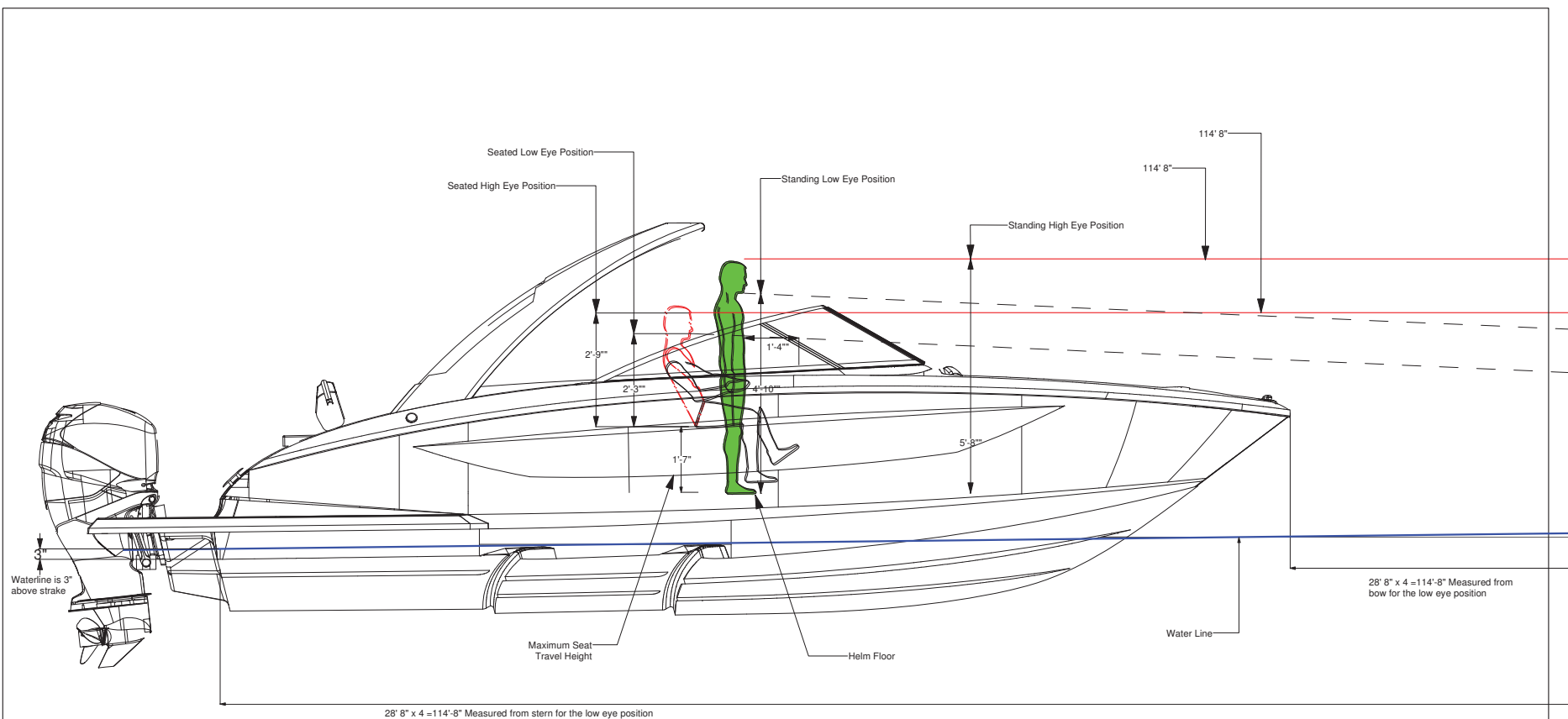
	REGAL MARINE INDUSTRIES 2300 JETPORT DRIVE OAKLAND, FL 32654 32009 TEL (407) 851-4360			ALL RIGHTS RESERVED
	DRAWING TITLE: <h1>29 OBX (WM) Hull Hardware</h1>			
DATE: 2/11/2016	REVISION: 0	PAGE: 2 OF 3		
DRAWN BY: CVL	APPROVED BY: MW	DWG. NO.: 6		




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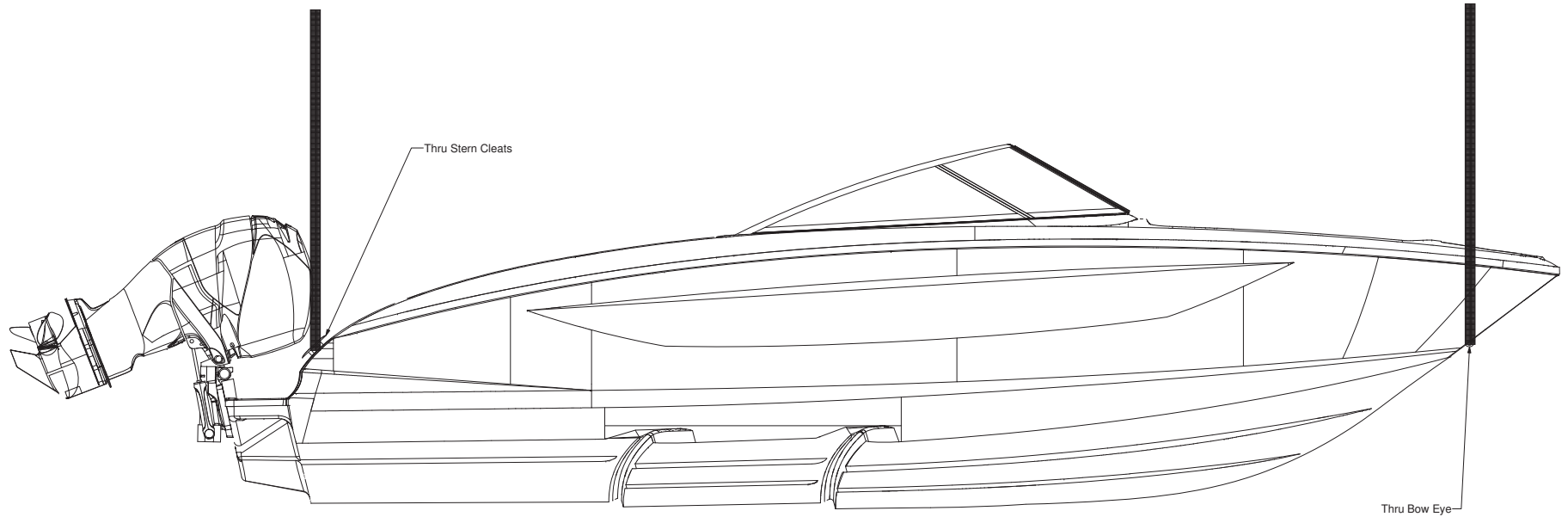
 REGAL MARINE INDUSTRIES 2300 JETPORT DRIVE ORLANDO, FLORIDA 32809 TEL (407) 851-4360			ALL RIGHTS RESERVED
DRAWING TITLE:			
29 OBX WM Range of Visibility			
DATE:	2/11/2016	REVISION:	0
DRAWN BY:	CVL	APPROVED BY:	DR
PAGE:	1 OF 1	DWG. NO.:	14

Technical Information




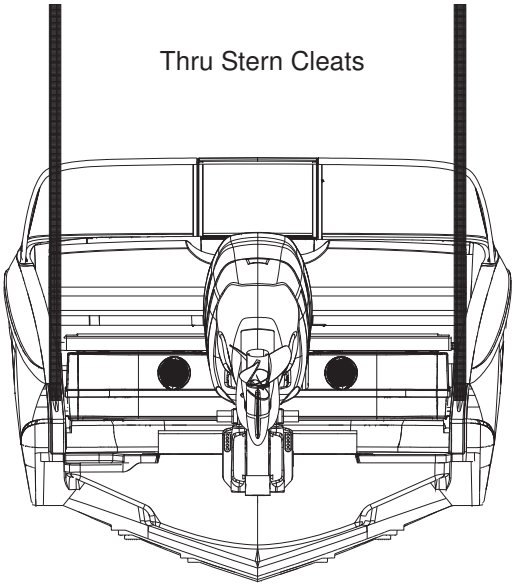
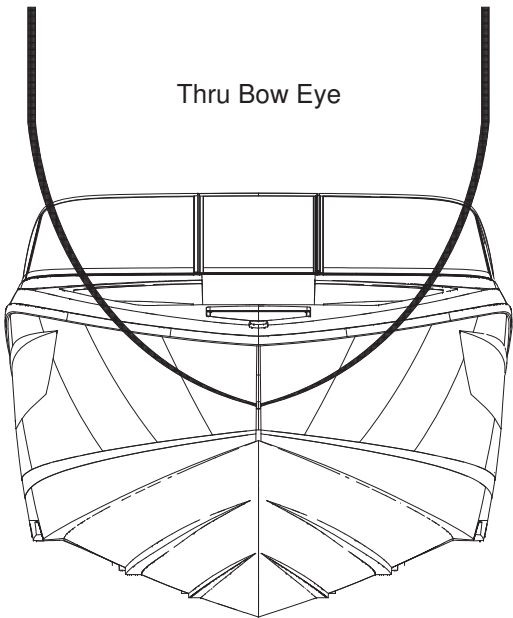
 REGAL MARINE INDUSTRIES 2300 AIRPORT DRIVE ORLANDO, FLORIDA 32809 TEL (407) 851-4360		
ALL RIGHTS RESERVED		
DRAWING TITLE: 29 OBX WM Field of Vision From Helm		
DATE: 2/11/2016	REVISION: 0	PAGE: 1 OF 1
DRAWN BY: CVL	APPROVED BY: GN	DWG. NO.: 15

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DRAWING TITLE		
29 OBX (WM) Sling Locations		
DATE: 2/11/2016	REVISION: 0	PAGE: 1 OF 2
DRAWN BY: KN	APPROVED BY: DR	DWG. NO.: 16



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DRAWING TITLE: 29 OBX (WM) Sling Locations			
DATE: 2/11/2016	REVISION: 0	PAGE: 2 OF 2	
DRAWN BY: KN	APPROVED BY: DR	DWG. NO.: 16	

