42 GRAND COUPE

42 FLYBRIDGE

42 X0

42 FXO

REGAL 42 OWNER'S MANUAL

REGAL

MAY 2022 EDITION

Chapter 1
Introduction

Notes

CALIFORNIA PROPOSITION 65

Boats manufactured for use in California for model year 2018 and after meet the California EVAP Emissions regulation for spark-ignition marine watercraft. Boats meeting this requirement will have a label affixed near the helm.

⚠ WARNING

Operating, servicing and maintaining a recreational marine vessel can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, service your vessel in a well-ventilated area and wear gloves or wash your hands frequently when servicing this vessel. For more information go to: www.P65warnings.ca.gov/marine.

The fuel system in this boat complies with U.S. EPA mandated evaporative emission standards at time of manufacture using certified components.

MANUFACTURER'S WARRANTY COVERAGE

This evaporative emission control system is warranted for two years. If any evaporative emission-related part on your spark-ignition marine watercraft is defective, the part will be repaired by Regal Marine Industries, Inc.

OWNER'S MANUAL RESPONSIBILITIES

- Select Regal models are spark-ignition models.
- As the spark-ignition marine watercraft owner, you are responsible for the performance of the required maintenance listed in your owner's manual. Regal Marine Industries, Inc. recommends that you retain all receipts covering maintenance on your spark-ignition marine watercraft, but Regal Marine Industries, Inc. cannot deny warranty solely on the lack of receipts.
- As the owner, you should be aware that Regal Marine Industries, Inc. may deny you warranty coverage of your spark-ignition marine watercraft or a part has failed due to abuse, neglect, or improper maintenance or unapproved modifications.
- You are responsible for presenting your spark-ignition marine watercraft to a Regal Marine Industries, Inc. distribution center or a service center as soon as the problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days. If you have any questions regarding your warranty coverage, you should contact Regal Marine Industries, Inc. at 407-851-4360.

Welcome to Regal

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

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

Whether you're a veteran boater or a newcomer, we strongly urge you to read the Regal owner's manual thoroughly. Familiarize yourself with the various components of your vessel, 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, phone the Regal factory at 407-851-4360 or E-mail us at www.regalboats.com.

Again, thank you and welcome to the "World of Regal !"

Duane Kuck
President & CEO

Our Mission

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.

Owner's Manual Scope

The Regal 42 Owner's Manual is a model specific document being the 2nd segment of a 2 part manual series.

The General Vessel Information Manual is the 1st segment and is located on the Regal website. It is a prerequisite for the Regal 42 model specific manual. The General Vessel Information Manual addresses boating information, on board safety, and nautical rules of the road. Being a seasoned skipper or a newcomer, we strongly urge you to read and become familiar with both manuals.
The Regal 42 owner's manual includes specific information on the Grand Coupe and Flybridge models. Covered are boat systems, auxiliary equipment, vessel opearation, care/maintenance, storage/winterization, and troubleshooting tips along with technical data including drawings.
There may be instances where the IPS (Inboard Propulsion System) and outboard information is mixed. In some cases wording such as ***typical*** is used. In other cases the word ***outboard*** is used to differentiate products for the reader.

The Regal 42 owner's manual should not be thought of as a complete shop manual.
In addition, read and become familiar with the engine/propulsion and generator operator's manuals before operating the vessel. These manuals may a be paper document, DVD, or in other formats. Further detailed equipment and propulsion system information can be found in the owner's packet and on the internet.

Your authorized Regal dealer has received special factory training and their services should be employed to solve more technical problems. Call 407-851-4360 or refer to **regalboats.com** to find the closest authorized Regal dealership.

In keeping with its commitment to improvement, Regal Marine Industries, Inc. is continually upgrading the product line. Regal notes that all dimensions, specifications, drawings, models, standard and optional equipment are subject to change without notice at any time.

Table Of Contents

Chapter 2
Systems

Overview

The system chapter covers general operating information regarding on board equipment. Major systems covered are electrical, fuel, propulsion along with water and waste. Furthermore, supplementary system equipment information is found in this chapter and manual.

Note that *select equipment may be optional and not installed on your vessel.* Also, **select equipment, photos, and descriptions may be typical and may not be an exact representation of your on board equipment.**

Read and understand the equipment owner's manuals before attempting to operate any component as they provide detailed safety, operating, and troubleshooting procedures and information not covered in this manual.

WARNING

PREVENT INJURY, DEATH, AND/OR PROPERTY DAMAGE!
READ AND UNDERSTAND VESSEL EQUIPMENT OWNER'S MANUALS BEFORE ATTEMPTING TO OPERATE SYSTEM COMPONENTS.

Another technical information source is your authorized Regal dealer as they have received extensive training on Regal models and systems.

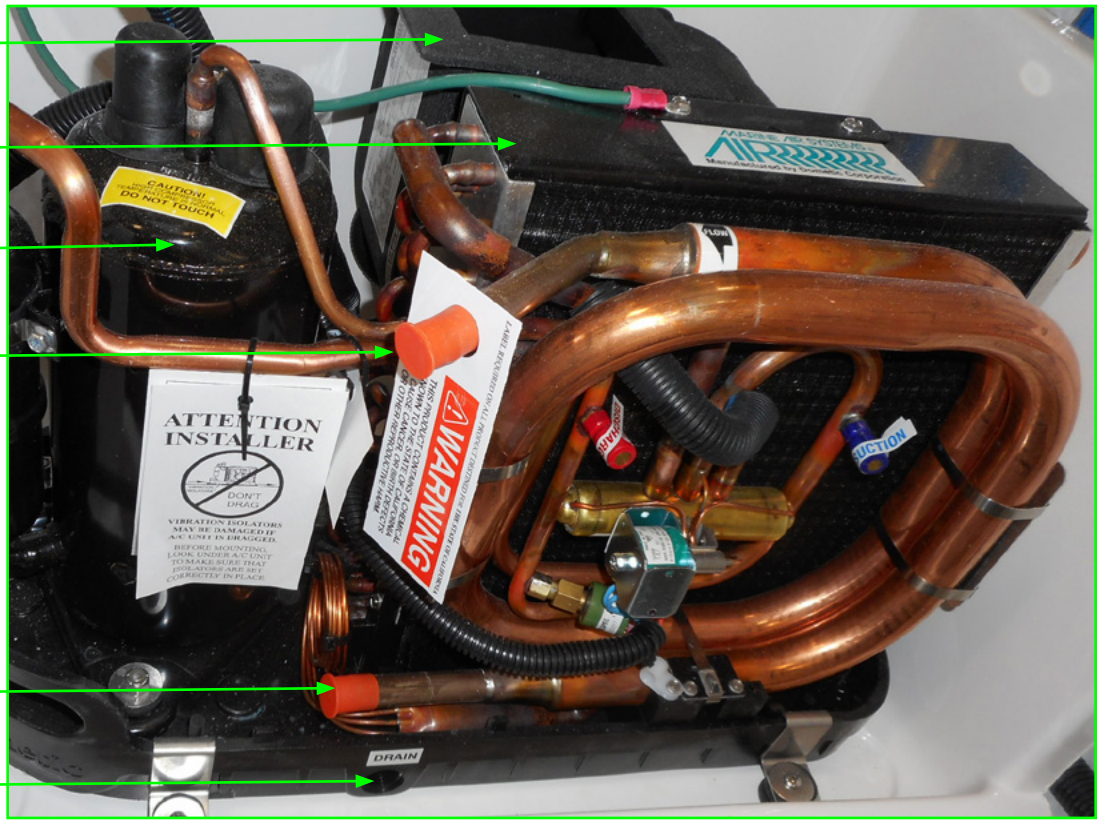
Air Conditioning

Currently the on board air conditioning system features 3 air conditioner units located to provide a balanced zone coverage. The system utilizes a single pump which delivers cooler seawater to each evaporator/condenser unit. The drain pan is a rust free molded composite. Residue water exits through the shower box. Warmer seawater exits the vessel overboard through a manifold and various thru-hull fittings. A vibration isolation system reduces noise. The sound cover provides up to 50% further noise reduction which amounts to 3-5 db's.

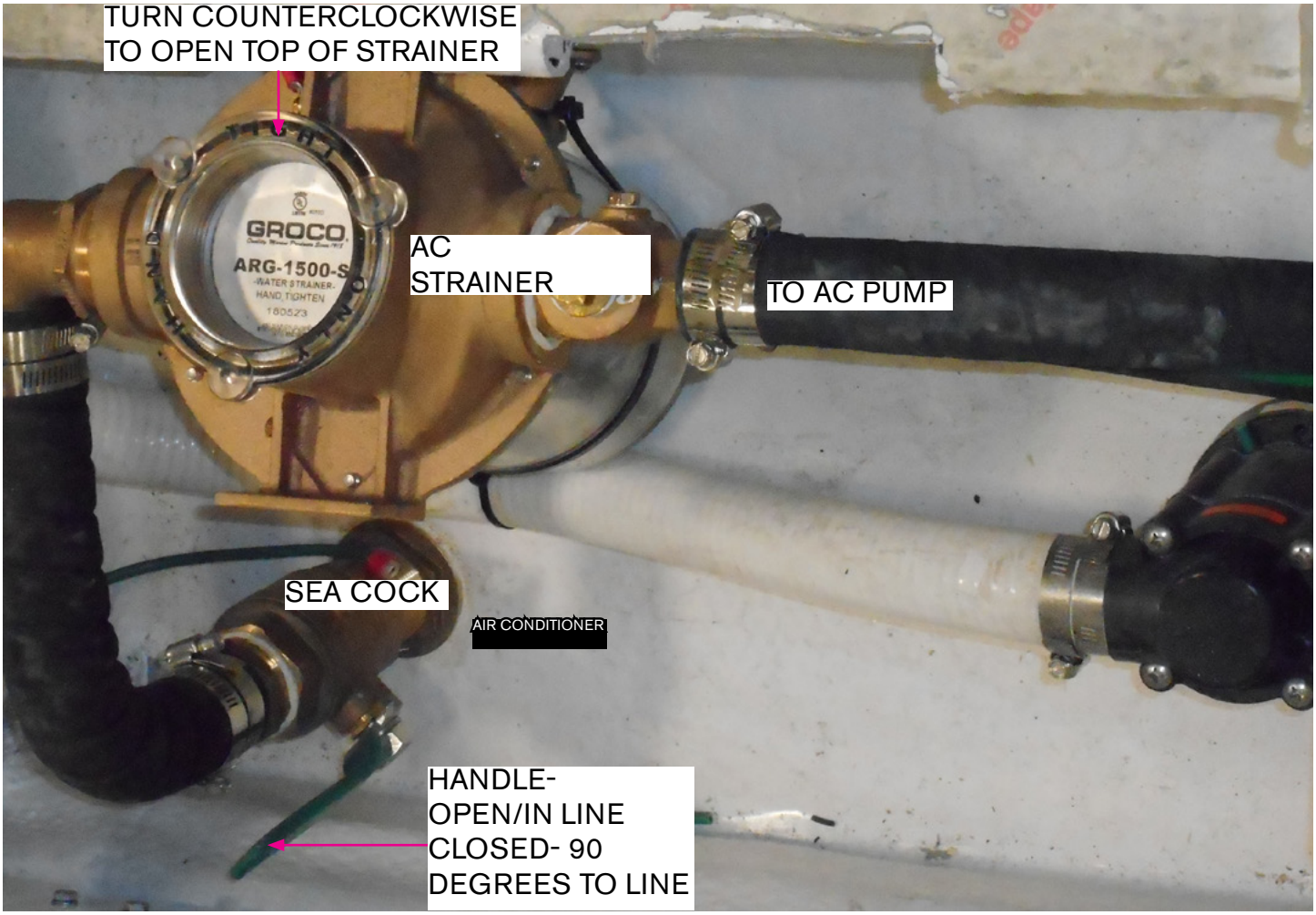
The evaporator/condenser unit incorporates a compressor to compact the environmentally safe R-410A refrigerant which is comprised of fluorinated greenhouse gases.

The control panels (thermostat) are located for complete zone comfort. A set of detailed control panel reference system codes is provided in the operationg manual for any service issues. A quick reference code system is located in chapter 10 of this manual.

TYPICAL AIR CONDITIONING EVAPORATOR/CONDENSER UNIT



AC Seacock/Strainer (Typical)

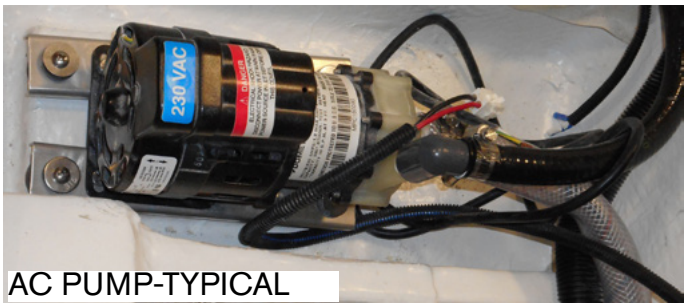


Located in the starboard bilge under an access cover is the air conditioner seacock and strainer. Always ensure the seacock handle is in-line with the hose indicating an “open” position before attempting to start the air conditioning system. This will permit seawater to circulate through the AC pump, manifold and air conditioning units.

The AC seacock is labeled close-by for easier identification. See photo above.

See the section in the following pages for air conditioner tips including cleaning the sea water strainer basket.

The 230 volt A/C pump is located in the bilge. It provides sea water to operate the 3 independent A/C units through a manifold in the starboard bilge. The AC pump sources water from a seacock/ strainer previously mentioned.

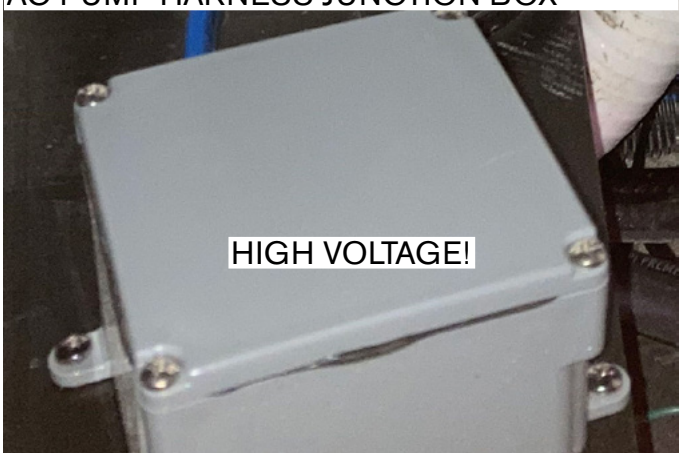


AC PUMP-TYPICAL

CAUTION

AVOID POSSIBLE AC PUMP FAILURE/
SYSTEM DAMAGE
DUE TO SYSTEM LOSING ITS PRIME
CAUSING THE AC PUMP TO QUIT
ON START-UP DUE TO A LACK OF WATER!
IF VESSEL IS HAULED OUT OF WATER
(EXCEPT FOR WINTERIZATION)
ENSURE THE AC SEACOCK HANDLE
IS TURNEDTO THE "OFF" POSITION
BEFORE LIFTING THE VESSEL.
REMEMBER TO TURN THE SEACOCK
HANDLE TO THE "ON" POSITION BEFORE
RE-STARTING THE AC SYSTEM.

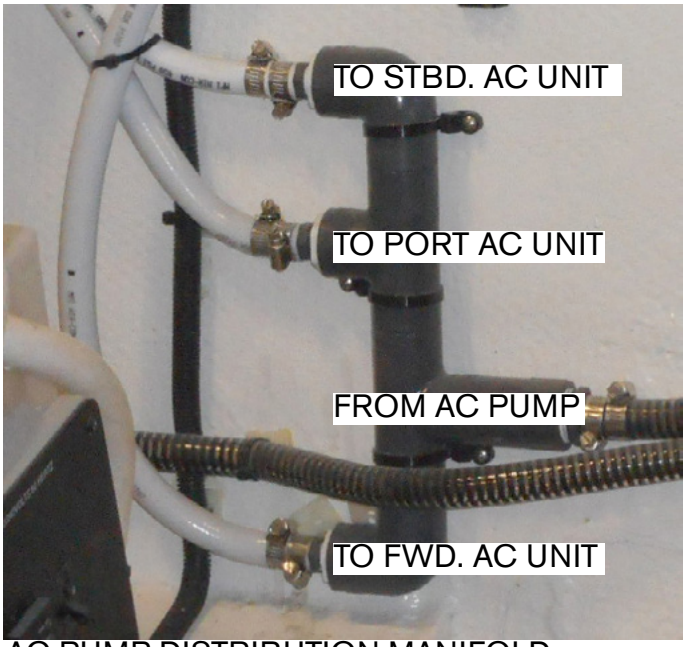
AC PUMP HARNESS JUNCTION BOX



WARNING

AVOID DEATH OR BODILY INJURY
DUE TO SHOCK!
AC PUMP LOCATED IN AFT BILGE IS
230 VOLTS AC CURRENT.
IF SERVICE IS REQUIRED CALL A
CERTIFIED MARINE ELECTRICIAN.

Seawater is drawn thru the seacock into the AC pump. From the AC pump seawater travels to the starboard bilge mounted manifold for distribution to the 3 air conditioner units. Note the manifold distribution description below of hose runs for service needs or troubleshooting.



AC PUMP DISTRIBUTION MANIFOLD

Note that all equipment, operation, specifications, wiring and or hose routing may be subject to change at anytime due to Regal's commitment to product improvement.

Reverse Heat

The air conditioning system feature a reverse heat cycle. This can be extremely valuable to boaters in colder climates especially for early spring and late fall cruising.

To accomplish reverse cycle heating, the R-410A refrigerant flows in the opposite direction through a reversing valve located on the evaporator/condenser unit. Heat is transferred from the seawater in the coil of the condenser to the R-410A refrigerant and then to the air as it is blown through the evaporator to the cabin.

Obviously, the temperature of the seawater will affect the air conditioner efficiency.

The temperature variance for cooling efficiency is:

Up to 90 Degrees F. (32.2 Degrees C.)

The temperature variance for heating efficiency is:

Down to 40 Degrees F. (4.4 Degrees C.)

Typical Air Conditioning System Operation

Below is a basic quick start-up checklist for the air conditioning system. For more in depth information, refer to the vendor operation manual.

Operations Quick Start-Up Checklist:

1. Check the AC seawater strainer for debris.

2. Make sure the AC seawater pump sea cock is opened completely (handle should be in-line pointing up).

3. Activate the desired air conditioner breaker on the boat's main AC control panel.

4. Check the hull side for a steady stream of seawater. Seeing water here is normal when the AC pump is running. If stream is diminished or no water emits from the fitting immediately turn the AC pump off and investigate the cause of the problem.

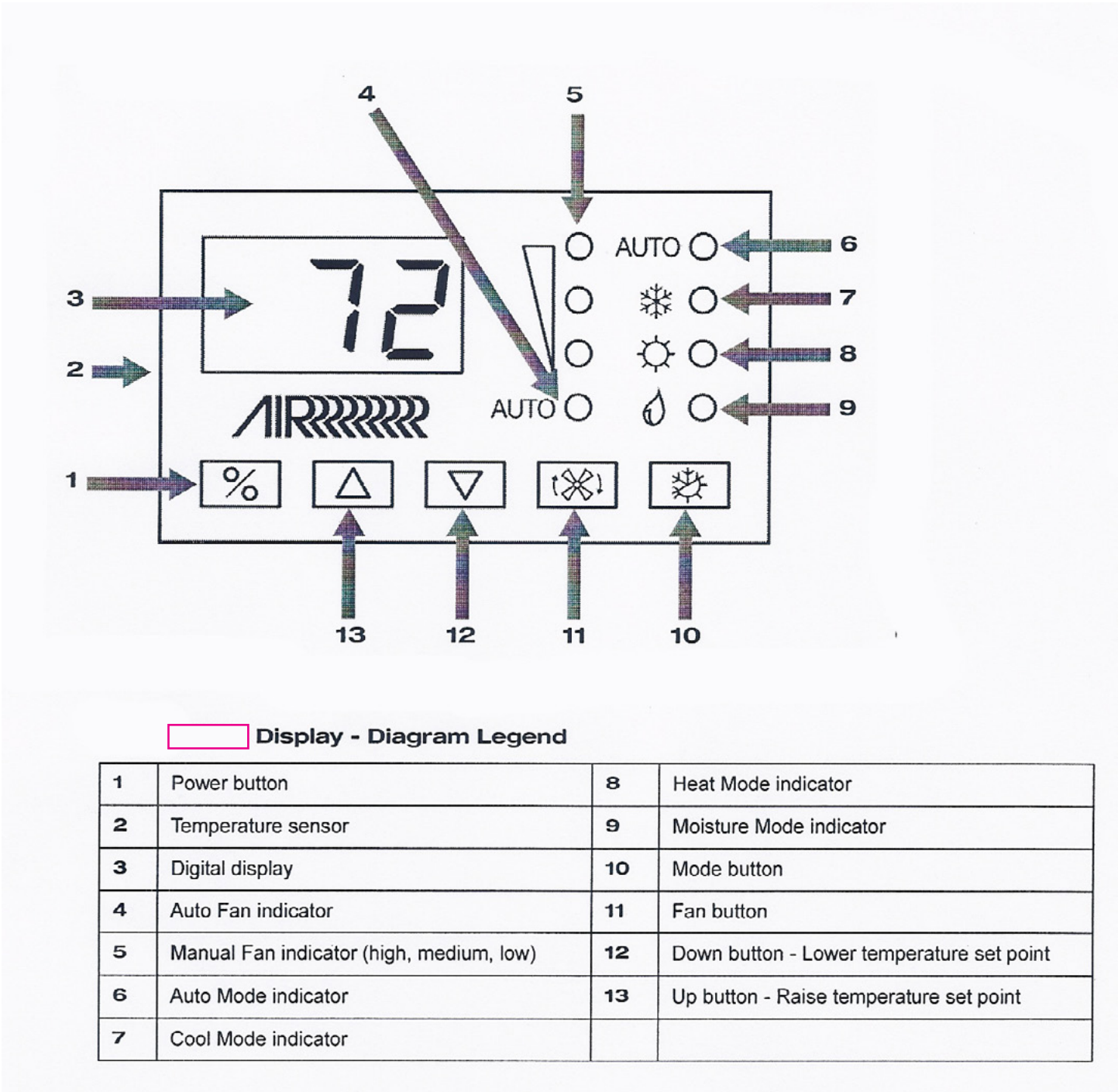
5. Press the thermostat Power button once to activate the air conditioning system. A blank screen displays when system is off and indicates present cabin temperature.

6. For cooling or heating press and release the Mode button until the desired LED is illuminated ie; automatic mode.

7. Press the Up or Down button to set the desired cabin temperature. To view the set point, momentarily press and release the Up or Down button.

8. Auto fan LED lights when Auto fan speed is selected.

Typical Air Conditioning Control Panel



Display - Diagram Legend

1	Power button	8	Heat Mode indicator
2	Temperature sensor	9	Moisture Mode indicator
3	Digital display	10	Mode button
4	Auto Fan indicator	11	Fan button
5	Manual Fan indicator (high, medium, low)	12	Down button - Lower temperature set point
6	Auto Mode indicator	13	Up button - Raise temperature set point
7	Cool Mode indicator		

Note: The AC display continually monitors the system components. Should a problem develop it sends a diagnostic code to the control (thermostat) display. Refer to the vendor air conditioning manual (troubleshooting section) to assist in identifying any problem.

Air Conditioner Tips

Seawater Strainer

The air conditioner seawater strainer is located in the bilge and should be cleaned periodically of debris which can inhibit or stop the fresh sea water supply. Always turn the sea cock handle to the off position (90 degrees to the hose fitting) before cleaning a seawater strainer.

Remove the basket by turning the plastic cap in a counterclockwise direction. Set the cap and the O ring aside. Pull the basket from the unit, rinse with water, air dry and reinstall. Sediment at the bottom can be removed by just turning the plug in a counterclockwise direction. Place a container under the strainer to catch the sediment. Coat the O rings with waterproof marine lubricant containing a silicone or teflon base. Reinstall O rings along with the plug and plastic cap. Rotate the seacock handle to the in-line position and check for leaks.
For location information see the photo shown earlier in this section.

Drain Pans

As noted on an earlier page the AC evaporator/ condenser features a 2" deep drain pan connected by a hose that runs to a shower box and eventually exits overboard. Periodically just like your home AC, the pan needs to be rinsed clean of debris and possible mold buld-up.
You can use a purchased product made specifically for cleaning AC units. Disconnect the outlet hose from the AC pan and install made up hose (5/8") that will catch the used solution to fill a small container. Dispose of the container in accordance with federal, state and local regulations. Pour the solution into the pan and allow time for it to drain. Reconnect the original drain pan hose when finished.

Condenser Coil Cleaning

Periodically the condenser coils are recommended to be cleaned. This procedure should be done by a professional since an acid solution must be used.

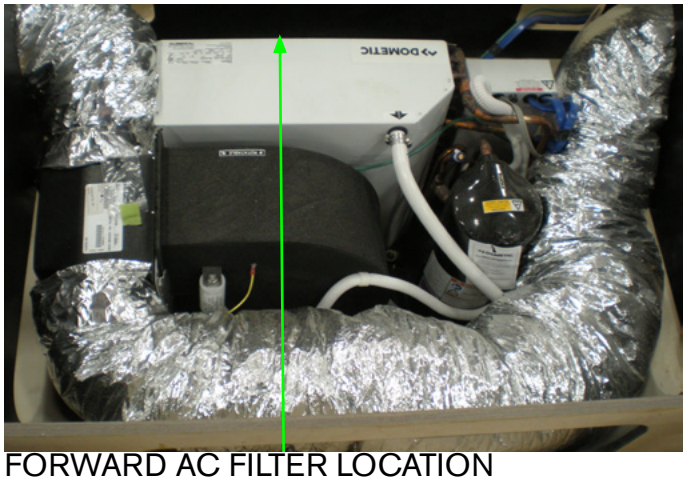
WARNING

PREVENT INJURY OR DEATH!
DISCONNECT
ALL ELECTRICAL POWER SOURCES
BEFORE ATTEMPTING
TO OPEN, REPAIR, OR REPLACE ANY
AIR CONDITIONER COMPONENTS.

Tips Regarding AC Filters

Normal air conditioner filter cleaning schedule is recommended not to exceed 500 hours. See the air conditioner operator's manual for detailed information.

1. To locate the ***forward air conditioner filter*** lift the access cover up under the forward berth mattress. The filter is located on the forward face of the evaporator. Remove filter from the unit.
Periodically wash the filter in clean, soapy water and air dry. Reinstall in the evaporator, close the cover board, and mattress.


FORWARD AC FILTER LOCATION

2. The ***salon port air conditioner filter*** is topically located aft of the port salon seat behind a return air grate. Access the 2 tabs at the top of the return air grate and rotate each tab to remove the grate cover. Lift the filter from behind the grate.
Follow the recommended cleaning steps as previously mentioned. Replace the filter in the grate cover, close the cover and rotate the tabs to lock grate in place. See the photo at top right.


PORT AC FILTER LOCATION / ROTATE TABS

3. The ***salon starboard air conditioner filter*** is typically located near the helm seat at the lower starboard coming panel behind a rectangular return air grate. See the photo below.
In a similar fashion as the port air conditioner access the 2 tabs at the top of the return air grate and rotate each tab to remove the grate cover. Lift the filter from behind the grate.
Follow the recommended cleaning steps as previously mentioned. Replace the filter in the grate cover, close the cover and rotate the tabs to lock grate in place.


STBD. AC FILTER LOCATION / ROTATE TABS

Tips Regarding AC Returns & Ducts

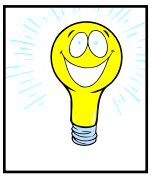
1. Never block off any AC return grille or duct. The unit will not operate properly without sufficient return air flow.

2. On select models the salon port and starboard air conditioners use the counter top back splash slots below the side windows for circulating air. Never block these slots as the AC system may not operate efficiently. See the photo below.

AC CIRCULATING SLOTS- BACK SPLASH

On select models adjustable air vents are found in various locations on board the vessel. Adjust the AC vent louvers as needed for the most comfortable air flow.

Possible Problems/Solutions



1. No or little water is noticed at the thru-hull fittings and a HPF fault code shows on the display which means the high pressure switch is open.

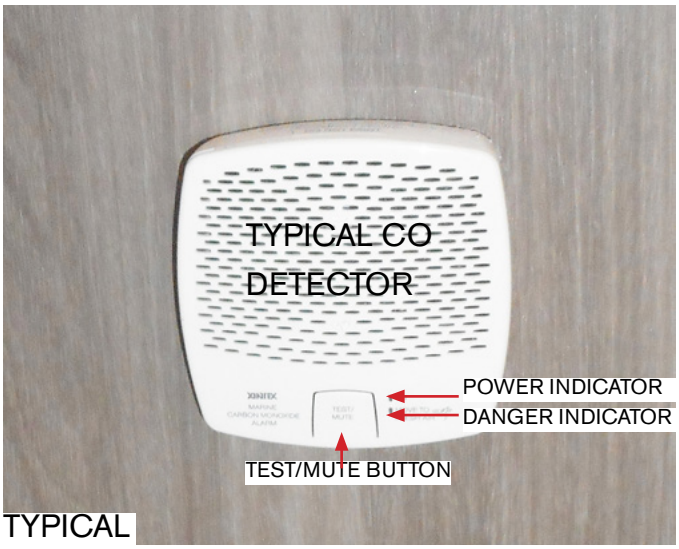
The strainer or intake hose may be clogged, sea cock may be closed, a hose may be collapsed or the AC pump may be defective.

2. Air conditioner will not start. Ensure the proper AC breaker is activated on the ship's main control panel.

3. No cooling or heating. Lower or raise set point on thermostat control to offset set point being satisfied. Check for obstructed seawater flow. Remove discharge side of pump hose to purge air (air-lock). Seawater temperature too high for cooling and too low for heating.

4. Fan coil is iced. Raise or lower control set point. Clean return air filter. Switch AC to heat until ice melts or as a last resort use a hair dryer to melt ice as needed.

CO (Carbon Monoxide) Detectors



TYPICAL

The most common forms of CO on board vessels are petrol engines/generators and if applicable, propane heating and cooking devices.

Note that even if your vessel's propulsion system is diesel based follow the CO precautions as the vessel moored next to you may be a CO poison contributor. Note on the main ship's panel there is a 2 step process required to deactivate the onboard CO detectors.

DANGER

CARBON MONOXIDE IS A TASTELESS, ODORLESS AND INVISIBLE GAS THAT CAN CAUSE DISCOMFORT, SEVERE ILLNESS, AND EVEN DEATH. EXERCISE CAUTION WHILE OPERATING GENERATOR OR ENGINES IN CONFINED SPACES OR AT DOCK SIDE. DO NOT ALLOW HULL EXHAUST OUTLETS TO BECOME BLOCKED OR EXHAUST FUMES CAN BECOME TRAPPED IN AND AROUND THE CONFINES OF YOUR BOAT. DURING IDLE AND SLOW CRUISE CONDITIONS, BILGE BLOWERS SHOULD BE USED.

CO (Carbon Monoxide) Detector Operation

The CO detector uses a mini computer to measure and accumulate CO levels. Using the principle of "time weighted averaging" the detector monitors CO concentrations, temperature, humidity and time to calculate COHb levels. To explain COHb, our bodies prefer to absorb CO to oxygen and COHb is the absorbed ratio stated in a percent.

If the detector senses high levels of CO the alarm will sound in a few minutes. If lower levels are sensed, the detector will accumulate the data and sound an alarm when the appropriate level is reached. Read and understand the CO owner's manual.

The CO circuitry works to its best performance when continually activated plus it accords advanced warning when entering an area high in CO.
The CO detectors operate using 12 volt DC power and over current protection inside the battery management panel.
The test cycle should be activated weekly. Simply press the button. Refer to the CO detectors owner's manual for an explanation of the test cycle indicators. Note that the green light will flash every 180 seconds which is normal.
For further information read the Regal General Vessel manual available at the Regal web-site.

NOTICE

CARBON MONOXIDE PRECAUTIONARY LABELS ARE LOCATED AT THE HELM, TRANSOM AND CABIN AREAS. ENSURE THAT ALL ABOARD READ AND UNDERSTAND THE SIGNS AND EFFECTS OF CARBON MONOXIDE (CO).

CO Detector Notes

1. The date of manufacture is embossed at the bottom of the detector. Replace unit after 7 years even though battery life is longer.

2. Test weekly. Clean face weekly. Do not use solvents.

3. When CO event occurs alarm beeps 4 times, 5 second pause. Repeats.

4. End of life cycle is 1 beep every 60 seconds. To deactivate unit at life's end hold button down for 1 minute. Red and green LED lite up. Press button 5 times. Red and green LED flash, horn beeps. Unit is deactivated.

5. The detector performs a self-diagnosis of critical components every 180 seconds. Should a major component fail the unit enters a fault in which both visual and audible indicators activate.

6. **If an alarm sounds move everyone to fresh air immediately. This indicates a rate of 10% COHb has been reached.** Call your emergency services. Do not re-enter the vessel until emergency personnel have arrived.

Your alarm reactivates within a 24 hour period Call a qualified technician to inspect the vessel. Note that the CO detector will clear when the CO concentration has dropped below 70 ppm (parts per million).

7. Avoid spraying cleaning liquids directly on the alarm.

8. Clean detector face weekly by wiping surface of alarm with clean soft lint free cloth.

Electrical System

Typical AC/DC Ship Panels & Auxiliary Displays

DC (Direct Current)

In this section, basic DC (direct current) and AC (alternating current) electrical systems are introduced. Select electrical components are reviewed along with their location and function within the electrical system.

There may be instances where the IPS (Inboard Propulsion System) and outboard information is mixed. In some cases wording such as ***typical*** is used. In other cases the word ***outboard*** is used to differentiate products for the reader.

For more complicated issues outside the scope of this manual contact your closet authorized Regal dealer. They have undergone extensive training on the Regal boat systems.

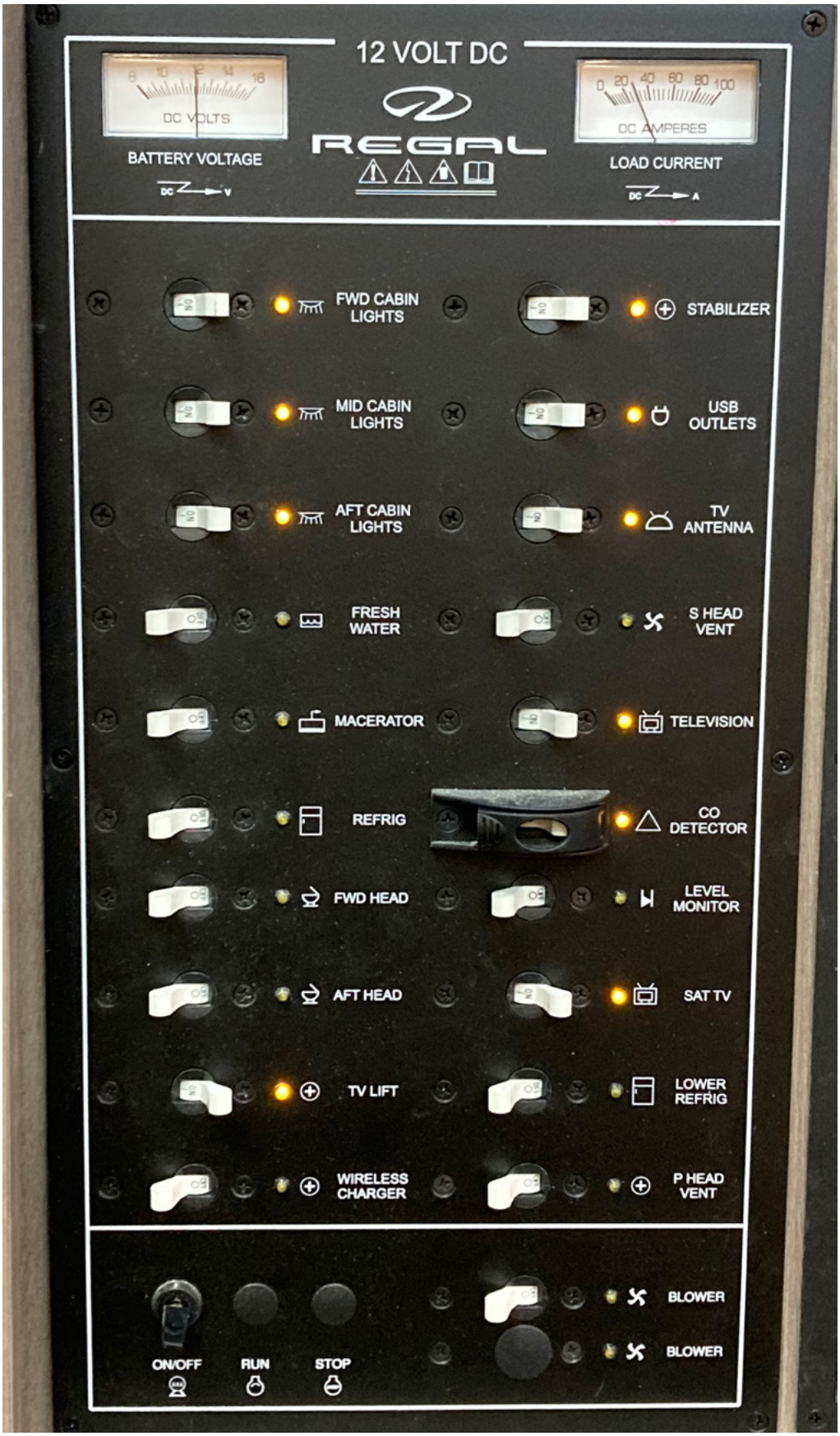
Be sure to read and follow any danger, warning, caution, or notice labels in reference to the vessel's electrical system or individual equipment components. Also, refer to the owner's packet for further product safety information or the internet.

Note: The electrical equipment shown in this manual and the actual component on your vessel may appear different as Regal is constantly updating components and processes as part of its on-going dedication to product improvement. Also, operating instructions may vary depending on the equipment as component vendors are constantly updating their applications.

WARNING

PREVENT SEVERE INJURY OR DEATH!
DISCONNECT
ALL ELECTRICAL POWER SOURCES
BEFORE ATTEMPTING
TO REPAIR OR REPLACE
ANY ELECTRICAL COMPONENT.

Main DC Panel Breaker Panel



Main DC Panel Breaker Panel Description

Note that breakers at the main DC breaker panel may change in the production cycle. Regal retains the right to improve or change the product at any time. *Select breakers control optional equipment which may not be installed on your vessel.*

Meters-

Battery Voltage- This meter measures the direct current battery voltage as taken from the house battery. With engines running battery voltage will increase indicating the charging system is performing properly.

Load Current- This meter measures the amount of DC current being used (amperage). Components using motors to do their job demand more amperage. This current is drawn from the battery reserve energy supply when engines are idle and of course is replenished with the engine charging system.

Breakers

Fwd Cabin Lights- This breaker controls the overhead, under counter and direct lighting in the forward stateroom, head, shower, atrium, and salon.

Mid Cabin Lights- This breaker controls the overhead, under counter and direct lighting in the main stateroom, head, shower, atrium, and salon.

Aft Cabin Lights- This breaker controls the overhead, under counter and direct lighting in the aft stateroom and cockpit (patio).

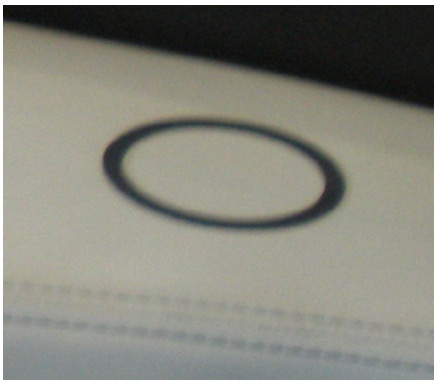
Fresh Water- This breaker controls the fresh water pressure pump which supplies water to faucets, wash down, transom shower and head.

Macerator- This breaker controls the waste pump. This pump grinds up waste before sending it up through the deck fitting during a pump-out procedure or through the bottom seacock. Be familiar with all dumping laws before performing an overboard discharge through the boat bottom. Note the caution label below the macerator display unit. Using the macerator is a two step process; the macerator display switch must be energized along with the macerator switch at the battery activation panel.

Refrigerator- This breaker controls the salon galley refrigerator.

Fwd. Head- This breaker controls the vacuum style head toilet motor and flushing components,

Aft. Head- If 2nd head installed this breaker controls the vacuum style head toilet motor and flushing components,



TV Lift- This breaker controls the up and down motion of salon TV located over stove area.

Wireless Charger- This breaker controls the phone charger located on the aft end of the helm starboard bolster elbow pad. Phone charges when laying flat.

Main DC Panel Breaker Panel Description Cont.

Stabilizer- This breaker controls the Seakeeper unit which offsets the wave action of the vessel.

USB Outlets- This breaker controls the USB outlets throughout the vessel which permit charging of phones and other mobile devices.

TV Antenna- This breaker controls low voltage components used with the on board short range television antenna for local channels only.

S Head Vent- This breaker controls the starboard head vent blower. This fan aids in the removal of odors.

Television- Currently not used. See entertainment breaker.

CO Detector- This breaker controls the CO detectors which monitor CO levels.

Level Monitor- This breaker controls the water/waste level monitor panel. This component provides the levels of the potable water tank and waste tank.

Sat. TV- This breaker controls low voltage components used with the KVH optional satellite TV system.

Lower Refrigerator- This breaker controls the lower cabin optional refrigerator.

P Head Vent- This breaker controls the optional port head vent blower used to remove head odors.

Additional Main Panel Controls

Blower- The blower breaker at the bottom of the main DC ship's panel is used only for starting and stopping the current Kohler generator.

For the current Fischer Panda generator use the panel above the salon ship's panel for starting and stopping the generator.

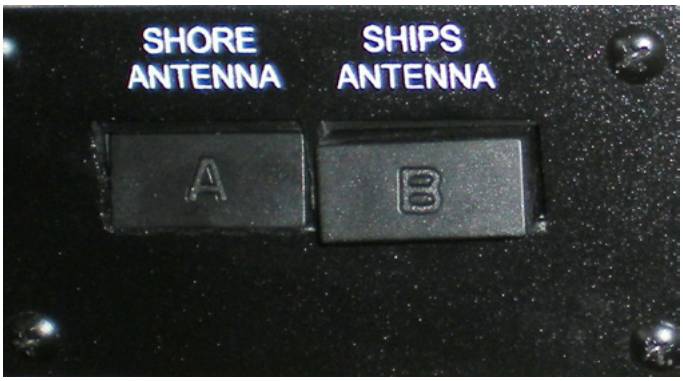
Additional Main Panel Controls Cont.

Antenna Switch- Depress the shore antenna switch (A) to amplify the HDTV signal when moored.

At shore antenna process ensure the ship's TV coaxial inlet on the transom and the marina dock coaxial inlets are connected. Press the shore antenna.

At sea, depress the ships antenna (B). See panel photo below.

Read additional information later in this chapter regarding the antenna swtch operation.



Waste Discharge Option- When the macerator panel knob is in the "OFF" position (arrow straight up) the waste discharge cycle is interrupted or locked out.

When macerator breaker is activated along with the panel display knob being rotated clockwise to the "ON" position and the red macerator button pressed at the battery activation panel the waste discharge pump is activated.

See the waste system information later in this chapter for further information.

Always ensure seacock is in open position prior to overboard discharging.

Understand all local, state, and federal legislation regarding the overboard discharging of waste before activating the pump-out cycle.

DC Switch Panels/Control Panels

Overview

This section explains the basic function of selected switch panels found throughout the vessel along with helm controls used for stern drive gas/diesel or outboard power options.
Note that various components highlighted may not be installed on your vessel as they may be options or may be part of another propulsion package .

In addition, refer to your component owner's manual for more detailed information or contact your closest authorized Regal dealer.

Helm Switch Panel (Typical)-Lower

Nav/Anc- This on/off/on switch controls the navigation light system used for night cruising and mooring. Depress upper portion of switch to activate navigation lights split on each side of the deck and all running light. Depress lower portion of switch activates all around light for at sea night mooring only.

Defrost- This switch controls power to the windshield blower/defroster unit. Note that windshield frost can develop in certain climatic areas and conditions. Operator must maintain clear visibility from the helm at all times.

Fwd Bilge- This switch activates the forward bilge pump which is located under the floor accessible at the aft stateroom floor. Periodically pull up on the float and listen for the pump to verify it is working properly.

Aft Bilge- This switch activates the aft bilge pump which is located in the center bilge near the front of the engine. Periodically pull up on the float and listen for the pump to verify it is working properly.

Helm Switch Panel (Typical)-Lower Cont.

Acc- This switch activates any acessory equipment that may be installed to the end user.

Panel Lights- This switch dims the instrument panel lights. Depress upper portion of switch to brighten panel lights; depress lower portion of switch to dim panel lights.

Windshield Wiper/Washer- These switches control power to the port and starboard windshield wiper units as well as wash functions. Each switch features several intermittent delay intervals ranging from 3-18 seconds that control the wiper speed so you can set the wipers for most weather and water conditions.
Also, the switch may feature an LED night light indicator. There is a push-to-wash button on the top portion of the switch.

Helm Switch Panel Typical)-Upper

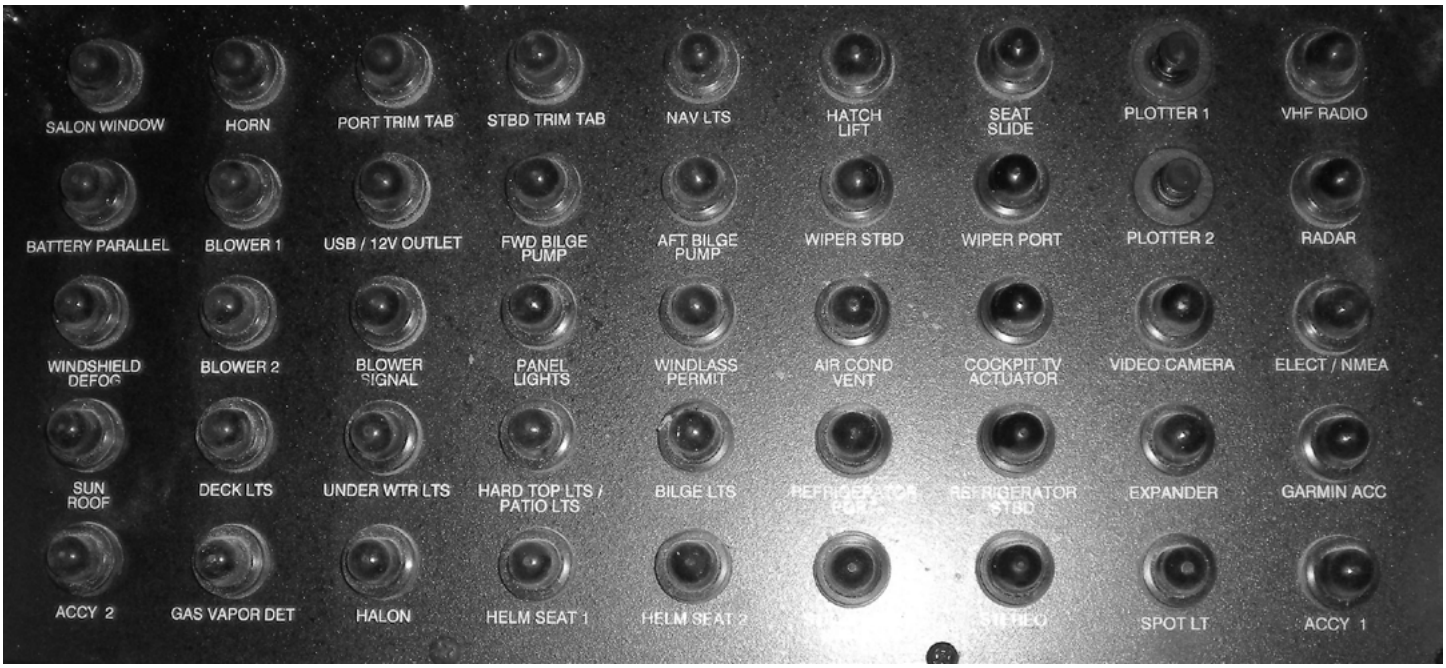
Helm Seat- This switch activates the up and down movement of the driver's seat. It adjusts for individual heights of the operator.

Windlass- This switch controls power to the windlass toggle switch panel located inside the forward starboard deck locker. This switch and the red on and off switch must be activated to operate the up and down deck foot petals.

Sun Roof- This switch controls the FRP hardtop sun roof. When the switch is depressed an actuator opens the roof. Be sure to close the sun roof completely when leaving the vessel.

Horn- This toggle switch controls the deck mounted horn. Depress upper portion of switch and hold down to sound horn blast. Use horn for overtaking, emergency signaling and at attended bridge sites.

DC Breaker Panel Description- (Starboard Helm Locker)



Overview- *Note that this panel may contain breakers for components which may not be installed on your vessel.* This DC breaker panel protects select vessel components. Should a breaker "pop" find the cause of the overload before resetting the breaker. Reset the breaker by depressing it until it clicks in place.To activate the plotter breakers push into place. To deactivate the breaker pull out.

SALON WINDOW- This breaker controls the salon aft window oening and closing cycle.

HORN- This 15 amp breaker controls the deck mounted horn used for signaling.

PORT TRIM TAB- This breaker controls the port trim tab cylinder circuitry mounted at the transom.

STBD TRIM TAB- This breaker controls the starboard trim tab cylinder circuitry mounted at the transom.

NAV LTS- This 10 amp breaker controls the port and starboard deck mounted navigation lights and all-around light.

HATCH LIFT- This breaker controls the hatch cylinder up and down motor circuitry.

SEAT SLIDE- This breaker controls the helm seat forward and aft circuitry.

PLOTTER 1- This push-pull breaker controls one of the helm mounted chart plotters.

BATTERY PARALLEL- This breaker controls the battery parallel circuit used for emergency starting.

BLOWER 1- This 15 amp breaker controls the blower located in the bilge.

USB/12 VOLT OUTLET- This breaker controls the USB type C connectors/12volt outlet on vessel.

DC Breaker Panel Description- Cont.

FWD BILGE PUMP- This 10 amp breaker controls the forward bilge pump located under the cabin access plate at the shower box.

AFT BILGE PUMP- This 10 amp breaker controls the aft bilge pump located in the aft center bilge.

SPOT LT- This 10 amp breaker controls the deck mounted search light.

WIPER STBD- This 15 amp breaker protects the starboard wiper motor and circuitry.

WIPER PORT- This 15 amp breaker protects the port wiper motor and circuitry.

PLOTTER 2- This 7.5 amp push-pull breaker controls one of the helm mounted chart plotters.

RADAR- This 15 amp breaker controls closed array radar circuitry.

WINDSHIELD DEFOG- This 15 amp breaker controls the windshield defroster blower component.

BLOWER 2- This 15 amp breaker controls one of the blowers in the bilge.

BLOWER SIGNAL- Currently not used.

PANEL LTS- This 5 amp breaker controls the integrated helm lights.

WINDLASS PERMIT- This 3 amp breaker controls the helm mounted windlass permit switch. This switch must be activated for the windlass to operate.

AIR COND VENT- This breaker controls the helm coaming panel powered vent.

COCKPIT TV ACTUATOR- This breaker controls the up and down cockpit television circuitry.

VIDEO CAMERA- Currently not used.

ELECT/NMEA- This 15 amp breaker controls the NMEA (National Marine Electronics Association) 2000 backbone circuit which permits the electronic components to communicate with one another.

SUNROOF- This 10 amp breaker controls the salon hardtop sun roof motor circuitry.

DECK LTS- This 10 amp breaker controls the cockpit lights.

UNDER WTR LTS- This 15 amp breaker controls the transom mounted underwater light circuit.

HARD TOP LTS/PATIO LTS- This 5 amp breaker controls the hardtop/patio lights.

BILGE LTS- This 10 amp breaker controls the bilge engine/storage light circuitry.

REFRIGERATOR PORT- This breaker controls the aft cockpit refrigerator.

DC Breaker Panel Description- Cont.

REFRIGERATOR STBD- This breaker controls the refreshment center refrigerator option.

EXPANDER- This breaker controls the audio extractor located behind the aft stateroom access cover. Expander permits audio signal for devices through the HDMI inlets. Signal travels out via the plotter circuitry.

GARMIN ACC- This 10 amp breaker controls Garmin related accessories.

ACCY 2- This 10 amp breaker is normally saved for adding aftermarket accessories. On select models this breaker could actually be controlling a component.

GAS VAPOR DETECTOR- This 3 amp breaker controls the gas vapor detector circuit. This system is not available on diesel models.

HALON- This 3 amp breaker protects the helm mounted fixed fire extinguisher system display circuit.

HELM SEAT 1- This breaker controls the helm seat up/down and forward/aft positioning.

STOVE LIMIT SWITCH- This breaker protects the port wiper motor and circuitry.

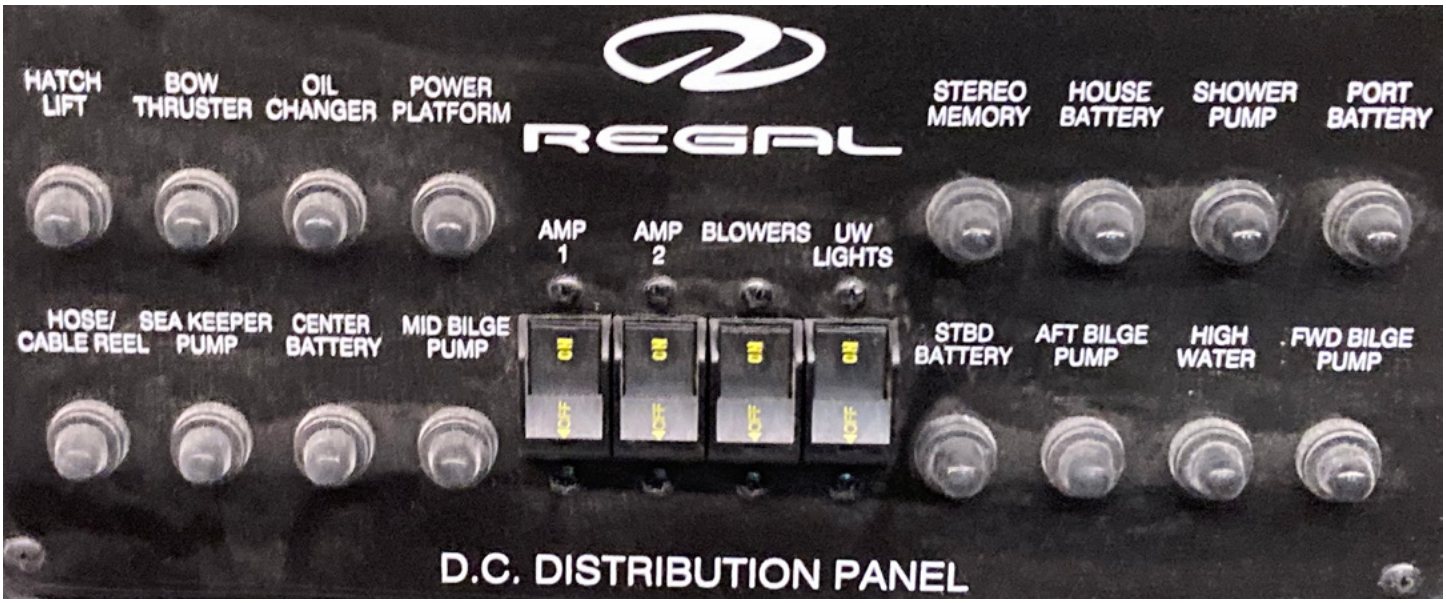
STEREO- This 10 amp fuse protects the stereo helm head unit circuitry. *Note that stereo amplifiers utilize their own breakers and or fuses.*

SPOT LT- This breaker controls the deck mounted spot light circuitry.

ACCY 1- This 10 amp breaker is normally saved for adding aftermarket accessories. On select models this breaker may be controlling a component.

NOTICE

BREAKER SIZE MAY CHANGE
DURING THE LIFE CYCLE OF BOAT MODELS.
ALWAYS CHECK BREAKER SIZE
AS STATED ON SHIP'S PANEL
FOR PROPER AMPACITY.
REPLACE WITH EXACT BREAKER TYPE/SIZE.



Overview- The DC distribution panel is located in the bilge at the fire wall and is accessible thru the patio engine/storage hatch. This breaker panel controls select DC main ship system components and/or wiring circuits. *Note that select components listed may not be installed on your vessel.*

HATCH LIFT- This breaker controls the aft hatch lift motor circuitry for bilge accessibility.

BOW THRUSTER- This breaker controls the optional thruster used for docking and maneuvering in tight areas.

OIL CHANGER- This breaker controls the engine oil changing system mounted in the bilge. Note that this system is not available on outboard vessels.

POWER PLATFORM- This breaker controls the aft mounted platform motor and circuitry available only with IPS propulsion.

STEREO MEMORY- This breaker controls the Fusion circuitry pre-sets. This protection preserves any pre-selected stations and programs intact even though the main battery switches are “off”.

HOUSE BATTERY- This breaker controls house battery switch activation panel circuitry and wiring.

SHOWER PUMP- This breaker controls the bilge pump located in the shower box accessible at the aft stateroom floor.

PORT BATTERY- This breaker controls port battery switch activation panel circuitry and wiring.

HOUSE CABLE REEL- This breaker controls the shore power cable system and reel wiring.

SEA KEEPER PUMP- This breaker controls the stabilizer sea water circulating pump.

CENTER BATTERY- This breaker controls center battery switch activation panel circuitry and wiring.

MID. BILGE PUMP- This breaker controls the bilge pump located under the aft stateroom floor.

STBD. BATTERY- This breaker controls starboard battery switch activation panel circuitry and wiring.

AFT BILGE PUMP- This breaker controls the aft bilge pump located under aft bilge center flooring.

HIGH WATER ALARM- This breaker controls the high water dash alarm circuitry and components which are located in the bilge. Should the alarm sound at the dash stop the vessel and the engines, turn on the bilge pumps, and check the sump for water.

FWD. BILGE PUMP- This breaker controls the forward bilge pump located near the shower box.

Center Breakers- D. C. Distribution Panel

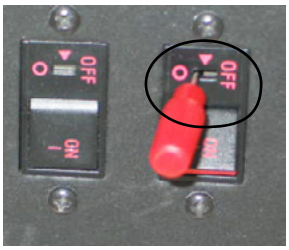
AMP 1- This breaker controls one of the Fusion entertainment system amplifiers.

AMP 2- This breaker controls one of the Fusion entertainment system amplifiers.

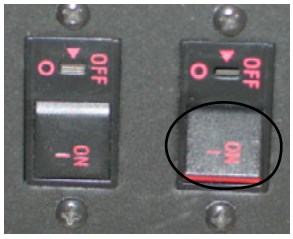
BLOWERS- This breaker controls the engine and generator blower circuitry.

UW LIGHTS- This breaker controls the underwater light circuitry.

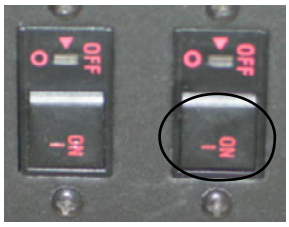
1. It is possible that one of the center D.C. distribution panel breakers may trip from long-term arcing and heat. These thermal breakers function like other breakers but may reset different due to a “soft trip” condition. To trip and reset this style of breaker do the following:



A. Take a small slotted screwdriver from your onboard tool kit and insert it in the breaker slot until it trips. You will hear a snapping type noise. See the illustration.



B. Notice that the breaker has pushed outward from its original flush position indicating the breaker has been tripped. See the illustration.



C. To reset the breaker use your finger to press the breaker down until it locks in the “on” position. You may hear a slight noise. This is normal. The icon light should be lighted after this procedure. See the illustration.

Note: Newer breakers may appear different but function is similar.

2. Breaker will not reset- Replace the breaker. Contact the nearest Regal yacht dealer for replacement parts.

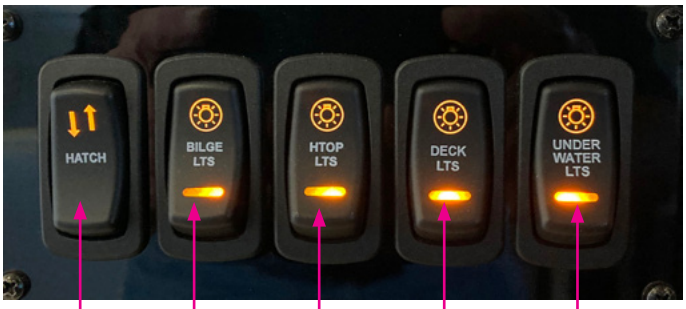
3. Breaker continues to “trip”. Check the affected equipment to determine if it is responsible for the excessive draw to trip the breaker. If the equipment is determined to be within specifications check for a “short” in the wiring circuit. Also, the breaker may be faulty. Contact the nearest Regal yacht dealer.

Note: It is possible under certain circumstances that a breaker may preform a “soft” trip on a circuit. The breaker may not appear to be in the tripped position but at this point current to dedicated component or sub system is interrupted.

In this situation insert a screwdriver blade into the breaker slot (A) until it fully trips the breaker. After determining the cause of the overload energize the circuit breaker.

See the previous page for a listing of the 4 center D. C. distribution breakers.

Patio Switch Panel



DC BILGE LIGHTING

DECK LIGHTING

HARD TOP LIGHTING

TRANSOM UNDER-WATER LIGHTING

ENGINE/ STORAGE UP-DOWN

Salon Switch Panel

SALON CEILING LIGHTING

SALON HALOGEN LIGHTING

LIGHTING AT LOWER DECK

* SELECT SWITCH FUNCTIONS MAY CHANGE OR VARY ON SELECT MODELS

Volvo Glass Cockpit IPS Propulsion Only

If installed, the “Glass Cockpit” system on your vessel features a plotter(s) integrating a single or dual screens.

This system offers one stop shopping for full overviews of navigation and IPS engine data. The “Glass Cockpit” monitors and controls all driver information including: navigation, engine data, and warning features in a single location.

The Glass Cockpit features:

- Multi-touch controls ie; (Pinch-to-Zoom)
- Both Blue Chart G2 and Lake Vu HD Maps
- 10 X per second position/heading refreshment
- View and control from smartphone or tablet
- Sleek flush mounting
- Integrated Glass Cockpit Owner’s Manual

Activating “Glass Cockpit” Plotter

To activate the Glass Cockpit plotter check the following:

1. Activate the “house” batteries from the battery management panel display located near the helm with 2 presses with e-key remote (Diesel).

2. Energize the glass cockpit plotter power button at the top of the unit. Make sure power button is depressed 3 seconds to power unit up.

Volvo Glass Cockpit Displays (Typical)

Below shown are samples of displays available from the Glass Cockpit home screen. Go to A/V, Gauges, Controls and choose one of the views. Note that we have listed displays that may be found under each view.
Note that your vessel may not include a number of these displays.

Engine View

Engine speed
Engine hours
Exhaust temperature, dry
Coolant temperature
Voltage
Oil pressure
Turbo pressure (Diesel)
Transmission oil pressure
Transmission oil temperature
Load percent (Engine torque)
Oil filter diff pressure

Vessel View

Active corrosion protection information
Depth with alarm
Fuel level
Fresh water
Boat speed
Power trim angle
Rudder angle
Water temperature

Battery View

Voltage

Fuel Economy View

Instant rate fuel
Average fuel rate
Time to empty
Instant fuel economy
Average fuel economy
Trip fuel economy
Distance to empty
Fuel level
Fuel Remaining

My View

Boat speed
Fuel level
Fuel feed pressure
Fresh water level
Seawater temperature
Seawater pressure
Rudder angle
Interceptor position
Low speed mode, slip rate
Propulsion speed
Trip fuel
Total fuel rate
Trip distance
Trip hours
Total fuel economy

For further information refer to your Volvo engine or “Glass Cockpit”operator’s manual.

DC Current

Your Regal boat uses 12 volt DC electricity otherwise known as direct current. It is called DC because it flows only one way in a circuit. Specifically to name a few, gauges, batteries, battery cables, engine electrical components, engine wiring harnesses, dash switches, selected lighting, shower sump, bilge pumps, and vacuum toilets are all components that commonly use DC systems.

In the domestic DC system the red wire is designated as the "hot" or conductor wire and the black wire is referred to as the ground wire. At times other current carrying wires are color coded such as blue to identify their use as a low voltage conductor. This is especially helpful in troubleshooting and adding additional equipment. Be sure to review the wiring schematics in the technical chapter.

Direct current is stored in the ship's batteries and produced through the engine stators or alternators while the engines are running or by the battery charger at dock side. The engines charge the batteries by sending current produced by the alternators through the system to the appropriate battery. Normal DC voltage is between 12 and 15 volts. Lower or higher readings could indicate a charging malfunction or a battery problem.

Note that current outboard stator output is typically 100 (5.6 L) amps at wide open throttle but can spike to 200 amps. The maximum current IPS alternator output is typically 105 amps. The port engine battery controls the port engine and forward bilge pump. The starboard engine battery controls the starboard engine and high water alarm. On outboards the center battery powers the center engine. The house battery(s) control a variety of onboard components and accessories.

Fuses

Various fuses and fuse blocks onboard use both MIDI and ATC fuses. These style fuses are used frequently in the global propulsion industry.

MIDI fuses are used for system equipment components requiring high amperage protection including the toilet (head), cabin main, and Fusion stereo amplifiers.

MIDI fuses feature the following:

1. Use tin-coated copper blades for best conductivity and corrosion resistance.
2. Has a clear window for the fuse element to be seen easily. Helps in locating a "blown" fuse.
3. Specs for high amperage capacity which is great for many of the vessel DC devices.

ATC fuses feature the following:

1. They are fast acting so when activated they will blow faster causing less damage to components.
2. They are used as standard protection in auto/truck industry.
3. Most are tin-plated blades for corrosion protection.

Note: When a fuse blows always determine the cause before replacing the fuse. Always use fuses of correct type and amperage. Identify fuse type and amperage at the metal ends of select fuses. Others are labelled to aid in replacement.

Note:The fuses mentioned are normally available at marinas, retail boating outlets, automotive suppliers, and authorized Regal dealers.

TYPICAL DC (12 VOLT) WIRING COLOR CODE & SIZES		
BLACK	16,14,12,10,8,6,4,2,2/0,40	GROUNDS
BLACK/WHITE	16	HALON INDICATOR
BLACK/YELLOW	10,16	GRD. DIESEL TRANSFER PUMP, MERC DIESEL STOP CIRCUIT
BLACK/WHITE	10	HALON MAIN GRD. FEED
BROWN/BLACK	10	MACERATOR, SUN ROOF
BROWN	10	SUN ROOF
BROWN	14	AFT BILGE PUMP-MANUAL
BROWN/WHITE	14	AFT BILGE PUMP-AUTO
BROWN/RED	14	FWD. BILGE PUMP-AUTO
BROWN/BLUE	14	FWD. BILGE PUMP-MANUAL
BROWN/PINK	16	CO DETECTOR
BROWN/BLACK	16	SHOWER SUMP PUMP
YELLOW	12,10	BLOWER
YELLOW/WHITE	16	HEAD VENT FAN MOTOR
YELLOW/BLACK	16	STEREO MEMORY
YELLOW/RED	14	ENGINE START CIRCUIT

Note: The list above applies to a number of domestic vessels. Vessel components/wiring specifications may change at any time and may vary depending on the vessel model and options aboard.

TYPICAL DC (12 VOLT) WIRING COLOR CODE & SIZES (CONTINUED)		
ORANGE	10,12	VACUUM TOILET, REFRIGERATOR, HATCH RAM
ORANGE	16	WIPER RUN
ORANGE/WHITE	16	WIPER PARK
ORANGE/BLACK	10,12,16	HORN, HATCH RAM
BLUE	14	INTERIOR LIGHTS, SWITCHED CIRCUIT
BLUE/RED	14	INTERIOR LIGHTS, CONSTANT HOT CIRCUIT
BLUE/BLACK	16	COCKPIT SOFT LIGHTS
BLUE/GREEN	16	INTERIOR SOFT LIGHTS
BLUE	10	CABIN LIGHT MAIN CIRCUIT FEED
GRAY	14	NAVIGATION LIGHTS, RUNNING, BOW, TRANSOM LIGHTS
GRAY/BLACK	14	NAVIGATION LIGHTS, AFT ANCHOR, MASTHEAD
GRAY/WHITE	14	NAVIGATION LIGHTS, MASTHEAD, FWD. RUNNING LIGHTS
RED	16	POSITIVE FEED- ELECTRONICS, GAS VAPOR DETECTOR, BREAKER TO DASH SWITCH FEEDS

Note: The list above applies to a number of domestic vessels. Vessel components/wiring may change at any time and may vary depending on the vessel model and options aboard.

TYPICAL DC (12 VOLT) WIRING COLOR CODE & SIZES (CONTINUED)		
RED/WHITE	16	WINDLASS CONTROL-DOWN
RED/BLACK	16	WINDLASS CONTROL-UP
RED/WHITE	14	BATTERY PARALLEL-LOAD
RED	14	POSITIVE FEED-ELECTRONICS
RED	12	POSITIVE FEED-ELECTRONICS
RED	10	POSITIVE FEED-AUTO PILOT
RED/VIOLET	10	FUEL TANK TRANSFER PUMP AMPLIFIER POWER
RED	8	POSITIVE FEED- MAIN ALTERNATOR CHARGE
RED	6	POSITIVE FEED- MAIN ALTERNATOR CHARGE
RED	4	POSITIVE FEED-MAIN
RED	2	POSITIVE FEED- MAIN STARTER, BATTERY, GENERATOR
RED	2/0	POSITIVE FEED- MAIN, STARTER, BATTERY
PURPLE	16	STBD. IGNITION, HOUR METER-WINDSHIELD VENT
PURPLE/WHITE	16	PORT IGNITION, HOUR METER, WINDSHIELD VENT
PINK	16	STBD. FUEL TANK SENDER
PINK/BLACK	16	PORT FUEL TANK SENDER
TAN/BLUE	16	ENGINE ALARM CIRCUIT
GREEN	16	TANK LEVEL MONITOR, SPOTLIGHT
GREEN	10	SPOTLIGHT
GREEN	8	BONDING

Note: The list above applies to a number of domestic vessels. Vessel components/wiring may change at any time and may vary depending on the vessel model and options aboard.

Batteries

All vessel DC equipment and specifications are subject to change at any time, as part of Regal's commitment to product improvement. Note that IPS and outboard vessels use a specific battery management panel consisting of a series of remote automatic battery switches and charging units.
See the technical chapter for more detailed information on battery placement.

Battery Terminology Descriptions

Group- Batteries are divided into groups which identify the height, length, and width of the battery type. This is useful information should a replacement battery become necessary.

Cold Cranking Amps (CCA)- This rating measures the cranking power of a full charged marine battery having the ability to start at 32 degrees F. Basically, the higher the rating the greater starting power of the battery.

Reserve Capacity (RC)- As usage on the boat increases so does the need for more reserve capacity. The reserve capacity represents the length of time in minutes a new fully charged battery can maintain the vessel's electrical needs without the engine running.

Note that all battery specifications, location and data is subject to change at any time.

Note that the 42 outboard vessel currently uses three 31 A series cranking batteries one for each engine.
The IPS system uses one 31A series battery for each engine. They feature wet cells and vent hydrogen gas through the top caps. As they are found in the bilge inside a vented battery box care must be taken to ensure ignition protection is followed at all times to prevent an explosion from hydrogen gas. Never use power tools, wet-dry vacuums or any type of component in the bilge that contain brushes as they give off sparks rotating around an armature when in use. Always vent the bilge by opening all hatches and energizing the blower.
Below are the basic battery specifications of Group 31 A batteries (engine cranking type).

BATTERY SPECIFICATIONS			
Battery Type	Group	CCA @32 Degrees F.	Reserve Capacity
Engine Cranking	31 A	1200	185 min.

Your vessel uses a 8 D deep cycle house battery to provide power to heavy duty DC user components that may be on board such as the windlass, toilet, and various motor driven components such as a power platform. The Seakeeper adds a 2nd 8 D battery to the vessel.

Below are the basic battery specifications of Group 8 D batteries (deep cycle).

BATTERY SPECIFICATIONS			
Battery Type	Group	CCA @32 Degrees F.	Reserve Capacity
House	8 D	1400	430 min.

Battery Problems/Solutions

1. Weak battery- This battery problem can be caused by low electrolyte cell levels. Warm, bilge/sump compartment temperatures will deteriorate a battery's life quicker by evaporating the water from the electrolyte, thus corroding and weakening the positive grids inside the battery.
With the house battery low electrolyte levels can be monitored by periodic inspection and filling as needed with distilled water. Boaters in higher climate areas with longer stretches of hot weather will need to check their batteries more often.

The engine cranking batteries require distilled water periodically. They do feature a different chemistry that does consume less water. Inside the cells as gases are released condensation is formed which aids in maintaining the cell electrolyte level. These batteries incorporate a deeper layer of electrolyte over the plates, but eventually it can run dry. On the 31 series engine cranking batteries keep all terminals clean, connections tight and your electrical system in top shape to extend battery life.

2. Dead Battery- Either the battery will not accept a charge, hold a charge or the charging system is not supplying current flow through the battery charging system and/or engine stators.
The battery charger output can be checked by monitoring the lights on the charger front face.
To begin check all battery post connections for tightness and corrosion.
With the engines running the displayed voltage of the port, center (outboard only), starboard and house battery(s) should be between 12.5 up to 14.6 volts.
If less than 12 volts check for voltage across the battery terminals.
If less than 12 volts on the house battery use a hydrometer to locate faulty cells in a flooded type battery.
On maintenance free batteries they can be removed from the vessel if necessary and trickle charged. If readings after charging are low replace the battery.

Note when replacing batteries always use the same battery type. For example, never mix lithium batteries with wet cell types.

OUTBOARD PANEL DISPLAY SHOWN

Battery Activation Panel Overview

Each button displays a continuous color ***only*** ***when the button is depressed.***

When a battery switch is depressed the switch will emit a blue color.

When an emergency battery parallel switch or macerator switch is depressed the switch will emit a red color.

Battery Activation Panel Button Functions

House Battery- This switch when depressed completes a circuit to the house batteries which includes both the house main and house accessory units. Current runs through both the house and house accessory automatic battery switches. *Note that both house batteries are group 8-D.*

Port Battery- This switch when depressed completes a circuit to the port engine battery through the port automatic battery switch on the battery board. This permits port engine starting.

Center Battery- (***Triple outboard vessels only***). This switch when depressed completes a circuit to the center engine battery through the center automatic battery switch.

Stbd. Battery- This switch when depressed completes a circuit to the starboard engine battery through the starboard automatic battery switch. This permits the starboard engine to be started.
Note that the engine battery type is a group A-31.

Macerator- If installed, this switch as shown on the previous page in a normal "off" position displays no colored ring.
Note that the macerator button is only active only with the overboard discharge option. It may be plugged on select display panels.
As part of the overboard discharge option remember that pumping waste overboard requires a 2 step process. After the key switch on the maerator panel is rotated clockwise to the "on" position the macerator button at the battery activation panel can be depressed to start the waste pumping process.
While the macerator pump is cycling the macerator panel button at the battery actication panel will display red.

Always ensure sea cock is in open position prior to overboard discharging.

Understand all local, state, and federal legislation regarding the overboard discharging of waste before activating the pump-out cycle.

Battery Activation Panel- Parallel Switches

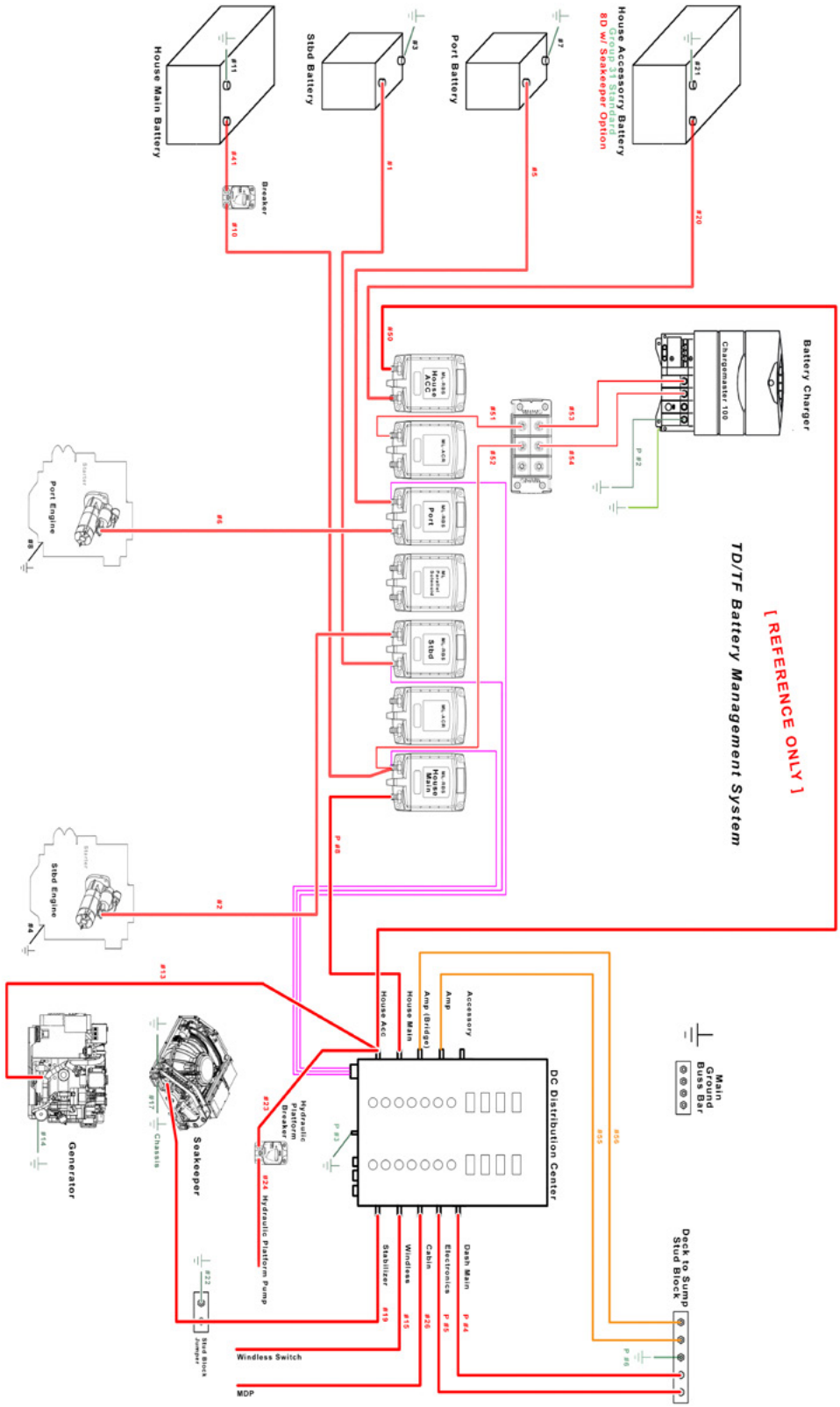
Read and understand the following label regarding the use of the battery parallel functions on the battery activation panel.

NOTICE

THE BATTERY PARALLEL FEATURES ON THIS VESSEL ARE INTENDED FOR EMERGENCY INTERMITTENT USE ONLY!
WHEN A PARALLEL FEATURE IS REQUIRED IT MAY INDICATE A SERVICE BATTERY IS NEAR THE END OF ITS USEFUL SERVICE LIFE.

Engine Parallel- This switch when depressed will parallel (combine) the port engine battery to the starboard engine battery for emergency intermittent use.

House Parallel- This switch when depressed will parallel (combine) the "house main" battery to the starboard engine battery.
In addition, it will parallel the "house accessory battery" to the port engine battery for emergency intermittent use.



Battery Management System Overview Grand Coupe-Fly IPS Propulsion

Battery Management System- General Notes

NOTICE

THERE ARE VARIOUS DIFFERENCES BETWEEN THE IPS AND OUTBOARD BATTERY MANAGEMENT PANEL COMPONENTS AND OPERATION. REFER TO THE APPROPRIATE DRAWINGS AND OPERATIONS FOR EACH SYSTEM AS REQUIRED.

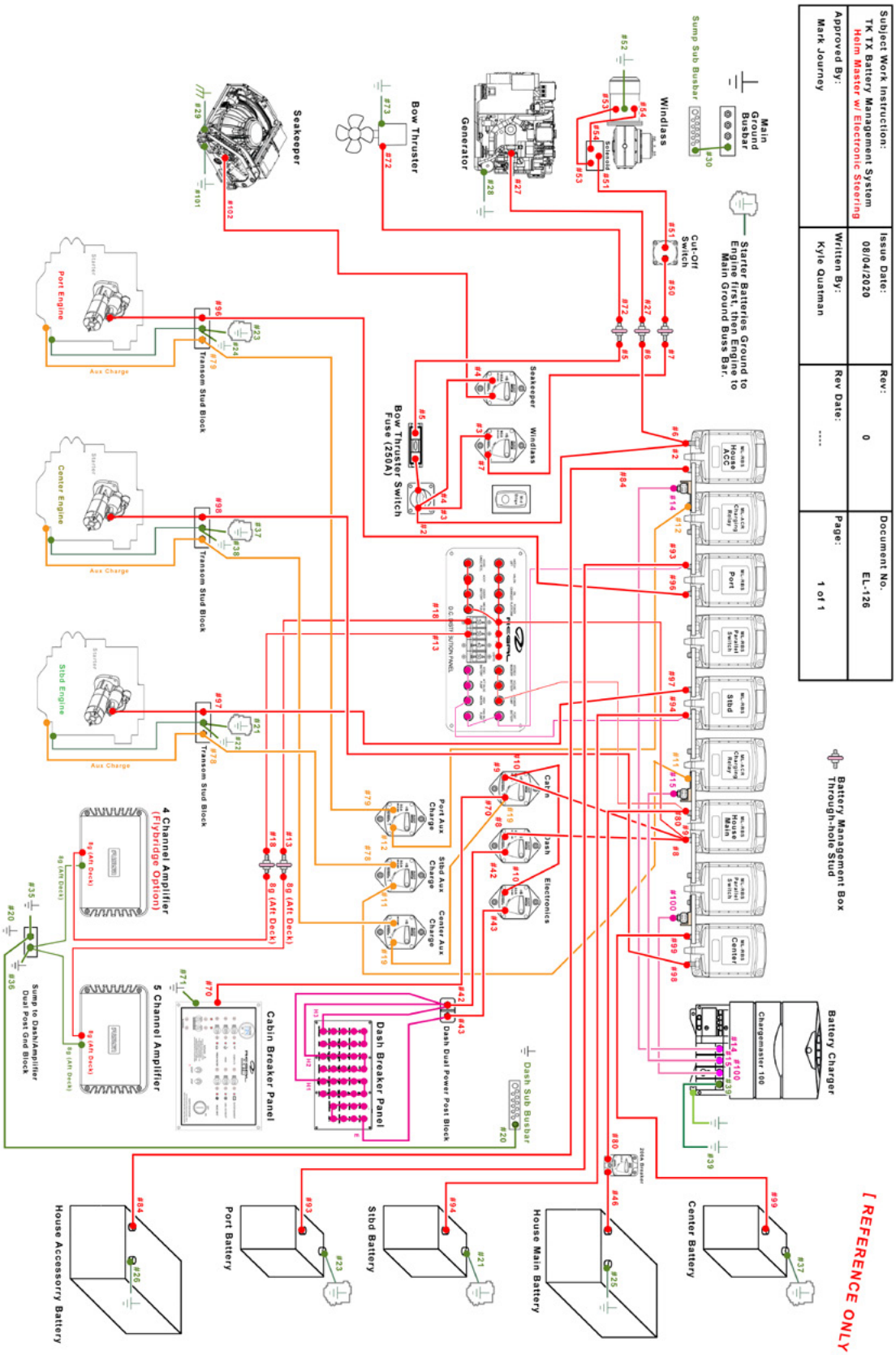
General Information- IPS Propulsion

The battery management panel is used on select vessels and features a set of remote battery switches which are connected through the battery activation panel. When activated by the battery activation switches individual engine cranking and house battery functions are energized. Also, battery parallel circuits are connected as the parallel buttons are activated on the battery activation panel. See the system drawing on the last page referencing an overview of the IPS battery management system.

Located on the bottom of remote battery switches are switch link plates which connect battery switches and assist in charging current bleeding through to all connected battery circuits.

The remote battery switch circuits are charged by the engine alternator system when the engines are running and by the battery charger when a shore power cord is connected from the vessel shore power inlet to a marina shore power supply center.

Remember that a remote battery automatic switch must be in the remote position to be operational. See the information provided on the remote battery switch operation page for further information or contact an authorized Regal dealer.



Battery Management System Overview Grand Coupe-Fly Outboard Propulsion

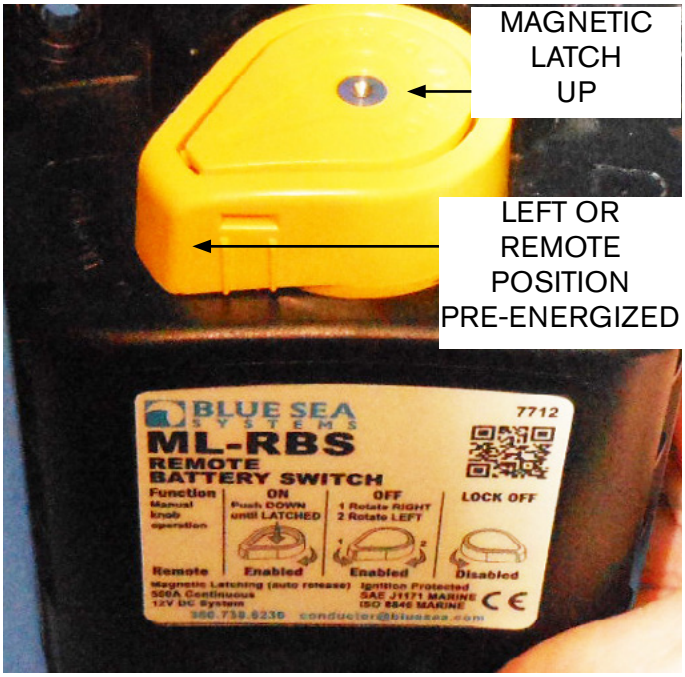
The battery management panel is used on outboard vessels and features a set of remote battery switches which are connected through the battery activation panel.

When activated by the battery activation switches individual engine cranking and house battery functions are energized. Also, battery parallel circuits are connected as the parallel buttons are activated on the battery activation panel. Notice on the drawing both ACR's (automatic charging relays) and a parallel switch are key players in the outboard propulsion battery charging process.
Note that the system includes Aux. charge wiring from each outboard.

Located on the bottom of remote battery switches are switch link plates which connect battery switches and assist in charging current bleeding through to all connected battery circuits.

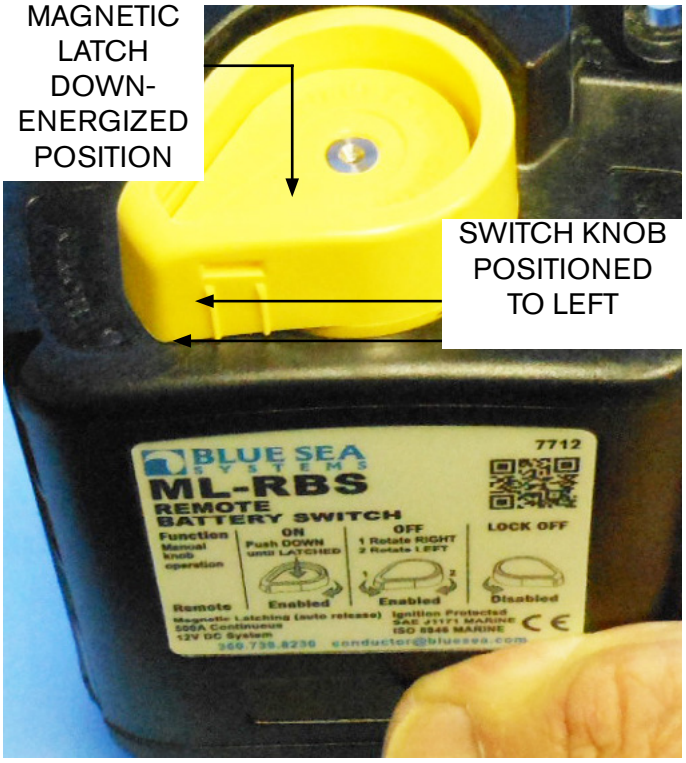
The remote battery switch circuits are charged by the outboard engine stator system when the engines are running and by the battery charger when a shore power cord is connected from the vessel shore power inlet to a marina shore power supply center.

Remember that a remote automatic battery switch must be in the remote position to be operational. See the information provided on the remote battery switch operation page for further information or contact an authorized Regal dealer.



1. Normal operation of the remote battery switch is completely to the left in the auto or “remote” position. Notice latch position is up (manually disengaged). To energize the house circuit press the appropriate switch at the battery activation panel. Once the switch is energized the magnetic latch will be pulled down in the energized position.

2. If the remote battery system fails for some reason the skipper can override the remote battery switch manually through the magnetic latch which is located on top of the switch. Just turn the switch to the left and push the magnetic latch down until it engages.



3. In the event of servicing the house battery components turn the remote battery switch to the **right** (Lock or Off Position). Pass a tie wrap through hole to secure the remote battery switch knob until servicing is complete.

Remote Battery Switches, Charging Functions, Battery Management

If a remote battery switch is positioned as shown below (straight out, OFF position) that particular battery or connected battery bank will be **inoperative**. This positioning could effect both starting and house battery circuitry. After sump maintenance or electrical repairs always check the battery switches to ensure switches are in “on” remote position.

2. When operating the optional Seakeeper (stabilizer) make sure to run generator to charge the house accessory battery.

3. Periodically check all battery hardware for tightness and ensure battery electrolyte is up to required cell levels. Use only distilled water for filling lead acid types of batteries. Wear proper eye wear and gloves when servicing battery systems. Read the maintenance chapter for more information.

4. Periodically check all battery bank hardware for tightness and corrosion. Maintain as needed.

5. **Always turn off the battery switches at the battery activation panel before leaving vessel.**

6. For safety sake, charge all batteries outside of the vessel to eliminate possible hydrogen gas build-up in the sump and sparks from battery charger/leads.

Typical Battery Charger

Current ***standard*** battery charger features 75 amp output and universal voltage for multiple battery circuits. The new electronic battery chargers are "smart". They will charge the batteries in 3 stages; bulk, absorption, and float formats. The charger is designated to get the maximum life out of your batteries, using micro computer controlled charging. It is recommended to keep the battery charger "on" at all times when AC power is available for maximum battery life.

We recommend checking battery water levels periodically. Fill batteries to specified levels using only distilled water. The charger is factory set to charge flooded lead acid batteries which are the most common type available. The charger can be reprogrammed to accept gel cell or AGM batteries. In the event the boat is switched over to different battery designs, it is important that all batteries are of the same type.

Note on vessels with optional Seakeeper aboard the battery charger increases to 75 amps along with another 8-D house battery to support electrical demands of Seakeeper stabilizer.

Remember, changing to a different battery type requires re-programming the charger. Do not mix different designed batteries because they need different charging rates and voltages.

During bulk charge the battery charger brings up the battery charge state quickly, as the battery nears fully charged, it switches over to absorption charge. Absorption charges at a lower rate than bulk, until the battery is just a few % away from full charge.

The battery charger display includes functional LED information for charge current, charge voltage, charge phase (bulk, absorption, float), battery content measurement and/or battery condition measurement as a % of Ah capacity.

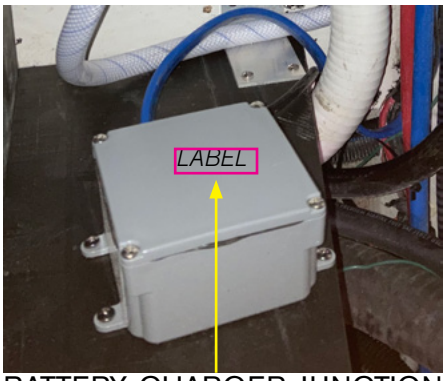
Read and understand the warning label below.

It is recommended that an ABYC certified electrical technician perform any repairs or service. Do not attempt to open the battery charger casing.
Refer to the vendor information for far more detailed instructions or contact your authorized Regal dealer.

WARNING

PREVENT INJURY, DEATH, AND/OR PROPERTY DAMAGE FROM HIGH VOLTAGE! DISCONNECT THE AC POWER SUPPLY BEFORE ATTEMPTING TO BEGIN ANY BATTERY CHARGER SERVICE WORK.

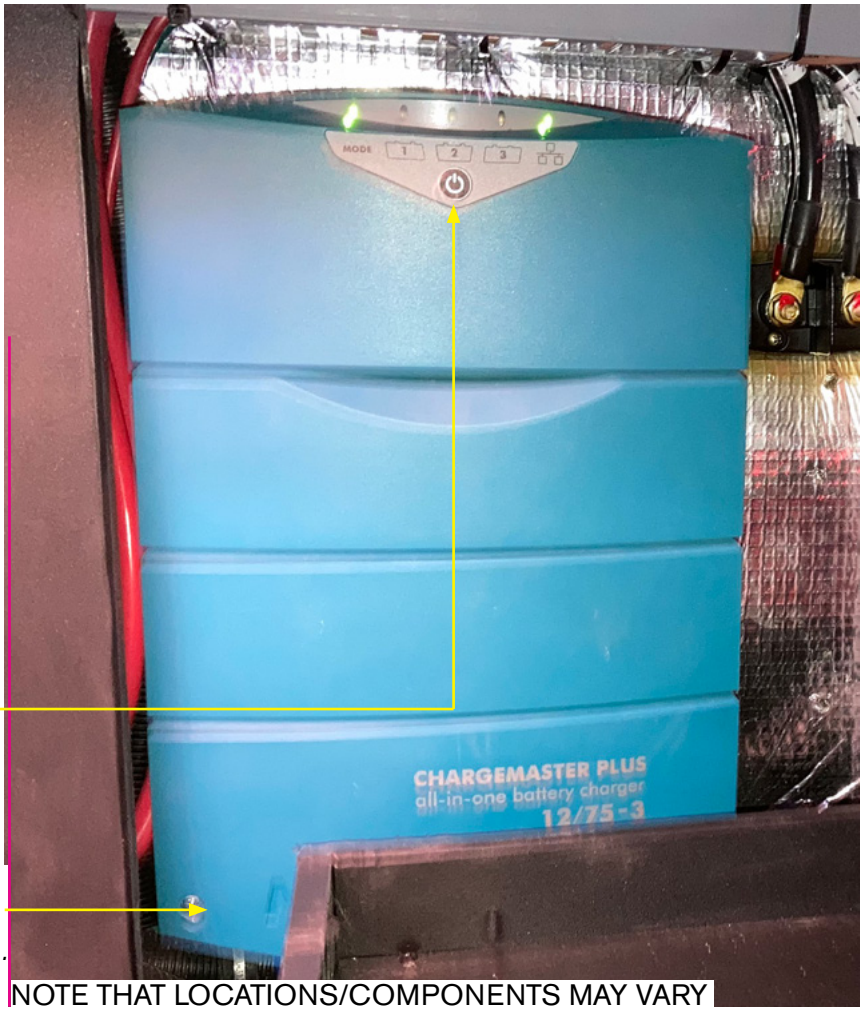
Standard Battery Charger Layout & Notes



BATTERY CHARGER JUNCTION (FEED) BOX-
SEE HIGH VOLTAGE WARNING LABEL ON THIS PAGE

BATTERY CHARGER SYSTEM/ STATUS DISPLAY
(SEE CHARGER USER MANUAL FOR MONITORING INSTRUCTIONS)

BATTERY CHARGER-
(NOTE THAT OPTIONAL 75 AMP O/B CHARGER SHOWN; STD. CHARGER AMPERAGE IS 50)



NOTE THAT LOCATIONS/COMPONENTS MAY VARY

The red wire from the battery charger breaker runs to the hot (positive) side of the group 8D house battery. If the breaker blows after determining the cause of the problem slide the handle up to the "on" position to reactivate the breaker. Periodically check all fasteners on the breaker and the battery for tightness. Reinstall any boots on the positive stud.

Note that a 150 amp breaker controls house battery circuit. A 2nd 150 amp breaker is added when the SeaKeeper option is installed.

Read and understand the following 240 volt warning at the battery charger junction box cover. Service only by a certified marine electrician.

WARNING

PREVENT INJURY, DEATH, AND/OR PROPERTY DAMAGE FROM HIGH VOLTAGE!
DISCONNECT SHORE POWER BEFORE SERVICING!

WARNING

PREVENT INJURY, DEATH, AND/OR PROPERTY DAMAGE FROM HIGH VOLTAGE!
SWITCHING THE CHARGEMASTER PLUS TO THE "STAND-BY" MODE DOES NOT CUT OFF THE CONNECTION TO THE BATTERIES OR THE AC SOURCE!
DISCONNECT SHORE POWER BEFORE SERVICING!

Typical Battery Charging Notes

Following are a few notes regarding the charging system components and battery charging instructions.

1. With the battery charger unplugged from shore power the battery charger is not generating any DC power. The charger breaker could trip if there was a short in the wires that run directly to the battery charger.
A primary cause of the breaker to "trip" would be if the positive and negative battery cables were reversed. The above situation could easily happen if someone was trying to "jump start" an engine with "jumper cables".
To a lesser degree should a wire delivering current from the battery charger chafe an internal fuse may "blow" and the battery charger would cease its charging operation. See your Regal dealer to order extra fuses for your charger.

2. If cruising and one of the engine cranking batteries is weak or "dead" and the engine will not crank depress the engine parallel button at the battery activation panel.

3. If cruising and one of the house batteries is weak or "dead" depress the house parallel button at the battery activation panel.

3A. If cruising start the on board generator to induce charging the battery system.

4. Always deactivate the ship's main AC/DC breakers when leaving the vessel for extended periods. Select breakers that control specific safety functions of the boat will operate as normal even with the battery management panel off such as the automatic bilge pumps and stereo memory circuits.

5. When leaving the vessel after connecting your dock side power cord turn the battery charger breaker at the ship's management panel to the "on" position. This will permit the battery charging system to energize the appropriate batteries as needed.

6. Always remove a battery from the vessel before using a trickle charger.

7. It is not recommended to jump start engines using booster or jumper cables as these cables can produce sparks in the bilge while hooking or unhooking them. Sparks could cause an explosion or fire in the bilge.

CAUTION

AVOID CHARGING SYSTEM DAMAGE
DUE TO REVERSED BATTERY CABLES!
REMEMBER RED TO POSITIVE AND BLACK
TO NEGATIVE WHEN CONNECTING
BATTERY CABLES.

AC Current

Overview

Alternating current sometimes called AC current is brought on board through the use of a dock-side (shore power) cord or produced on board through the generator. Just as a residential home uses 120/240 volts to run various household appliances and equipment the same holds true on your vessel.

With AC current electrons "cycle" in one direction a short distance and reverse themselves traveling in the opposite direction. This is how AC became known as alternating current. The rate that the current reverses itself is referred to as frequency. In the United States the alternating current frequency is 60 cycles per second. Overseas a 50 cycle frequency per second is standard. Component specifications must match the country's frequency.

Basic Electric Terms

Voltage is a measurement of the electrical potential that an electrical power source contains for doing some type of work for us. Think of it as electrical pressure. An example might be your boat's battery.

Amperage is a particular amount of electricity flowing through some part of a circuit. Think of it as the rate of electrical flow through your boat's wiring.

Resistance is measured in ohms and inhibits the electrical flow through a circuit. An example would possibly be an incandescent light bulb. The resistance in the light bulb element allows it to glow and brighten the cabin along with giving off heat.

It is important that you understand and respect the alternating current system used on board. **Be sure to read and follow any danger, warning, or caution labels in reference to the yacht's electrical system or individual equipment components.** Most of all, use common sense around electrical components!

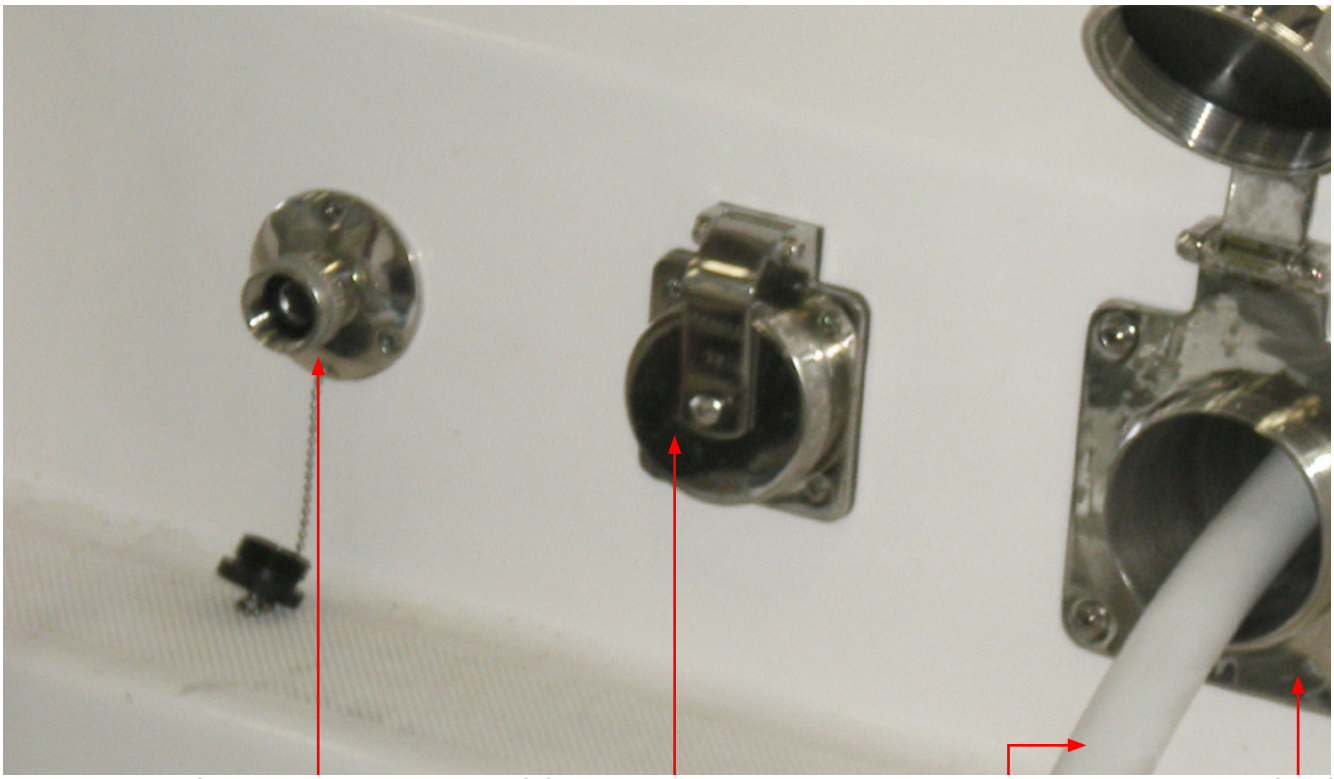
Dock Side Cord Usage

The dock side cord is the basic component used to deliver 50 amp service from the marina dock power box to the vessel itself. Before plugging in the dock side power cord check to see that all vessel AC breakers are off. This includes the incoming as well as both the main and equipment breakers at the AC ship's control panel.

The cord reel breaker must be activated. Pull sufficient cord out of the cord reel. When connecting the shore power cord be sure to twist the cord into the marina inlet 50 amp plug. This motion will lock the plug in the socket.

There may be several types of inlet plugs located at the marina dock power center. A 50 amp cord will not physically fit into a smaller (30) amp receptacle. Also, marina dock power centers normally have breakers that must be activated after installing the dock side cord. Make sure the dock side cord has enough slack to weather changing tides if applicable and at the same time does not come in contact with the water. Check with the marina dock master for more information on their shore power operation and requirements.

Note that before attempting to disconnect the shore power cord turn off all equipment and main AC breakers on the ship's main AC panel to prevent component/ system damage.



Overview

Typical 50 amp domestic shore power cords (dock side cords) including your shore cord reel contain four wires:

Red-ungrounded conductor containing 120 volts
Brown-ungrounded conductor containing 120 volts
Blue-neutral ungrounded conductor
Green-grounding conductor

Before plugging in the dock side power cord check to see that all vessel AC breakers are off. This includes the ELCI breakers as well as both the main and equipment breakers at the AC ship's control panel.

When connecting the shore power cord into the typical shore power station on shore twist the cord into the receptacle and turn clockwise until tight. This procedure ensures a waterproof and snug connection.

When not using the power cord energize the cord reel to remove slack and to position the power cord end inside the vessel shore power inlet. Turn the threaded cover clockwise until tight to ensure a watertight connection.

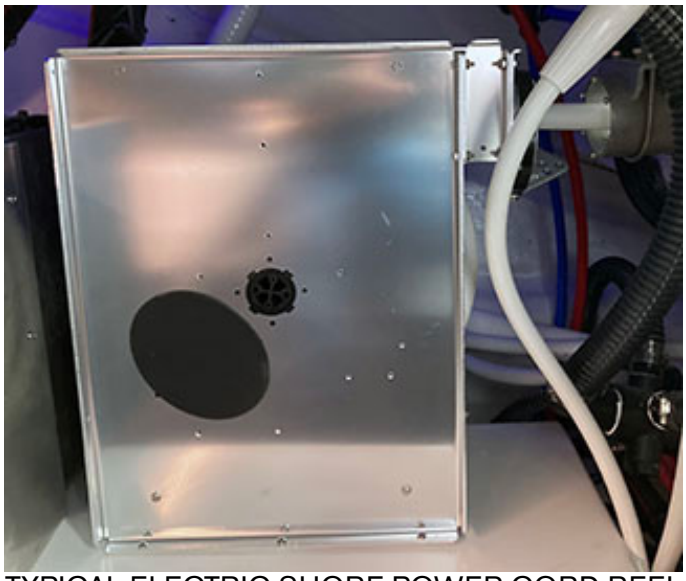
Electric Shore Power Cord Reel

Your yacht features a 240 volt capacity dock side cord reel and a DC powered cord reel retrieval system. The dockside cord is rated at 50 amps and is attached to a reel which releases the needed cord length when pulled out.

The power cord is accessible from the aft starboard swim platform and the reel itself is located in the aft bilge. The power cord retrieval is accomplished by activating a switch which powers a 12 volt DC motor.

The yacht end of the cord is directly wired into the cord reel. Therefore, there is nothing to be plugged into the yacht.

The cord male end must be plugged into the marina dock power center. Make sure you twist the cord end to lock it once in the power center 50 amp receptacle. *Allow ample cord length for tidal zones.*



TYPICAL ELECTRIC SHORE POWER CORD REEL VIEW FROM INSIDE SUMP

Operation

To activate the reel, press RELEASE once on switch to unlock reel before pulling cord.

Next, press RETRACT and hold switch to retrieve the cord inside the reel. While retrieving the cord, guide it as needed to eliminate the receptacle from water immersion which may lead to terminal corrosion.

Note that the DC motor is protected by an automatic reset thermal device. Should it activate due to a motor overheating situation the motor will return to normal operation once it cools down and the thermal device deactivates.

WARNING

PREVENT SEVERE INJURY OR DEATH!
ALTERNATING CURRENT (AC) CAN KILL YOU!
DISCONNECT
ALL ELECTRICAL POWER SOURCES
BEFORE ATTEMPTING TO REPAIR OR REPLACE
ANY ELECTRICAL COMPONENTS.

WARNING

PREVENT SEVERE INJURY OR DEATH!
NEVER USE EXTENSION CORDS
OR IMPROVISED CORDS
IN SHORE POWER/MARINE INLETS.
USE ONLY UL APPROVED MARINE SHORE
POWER CORDS MATCHING ORIGINAL WIRE
GAUGE AND AMPERAGE.

Tips- Marina Shore Power Stations

As you become a more experienced boater you may engage in longer cruises with over night stays. It is most frustrating after a day of hard boating to pull into a marina and find your shore power cord does not adapt to the marina shore power station.

TYPICAL MARINA SHORE POWER STATION

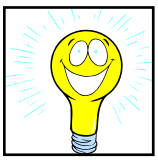
This may be especially true stopping at older marinas built before the 1978 National Electric Code was enacted for these facilities. Therefore, it is recommended that you purchase several shore power adapter cords to meet various marina plug footprints.

You may want to carry a 50 amp "Y" adapter cord for remote hook ups where only 30 amp service is available. This will permit you to connect 2 (30 amp) dock side cords to the adapter cord and run them to the 30 amp service at the marina power station.

A point to remember is that sometimes a chart plotter will provide local cruising information including marinas and facilities they offer but normally they do not provide the power voltage available at dock side. Call the marina harbor master for specific dock side voltage and services available at that site.

Note that with the above remote hook up selected high voltage circuits may not be available for use on board your vessel.

Shore Power Possible Problems/Solutions



1. After the dock side cord is connected to the marina dock power center and the AC ship's panel main shore power breaker is activated no voltage is shown on the main panel AC volt meter.

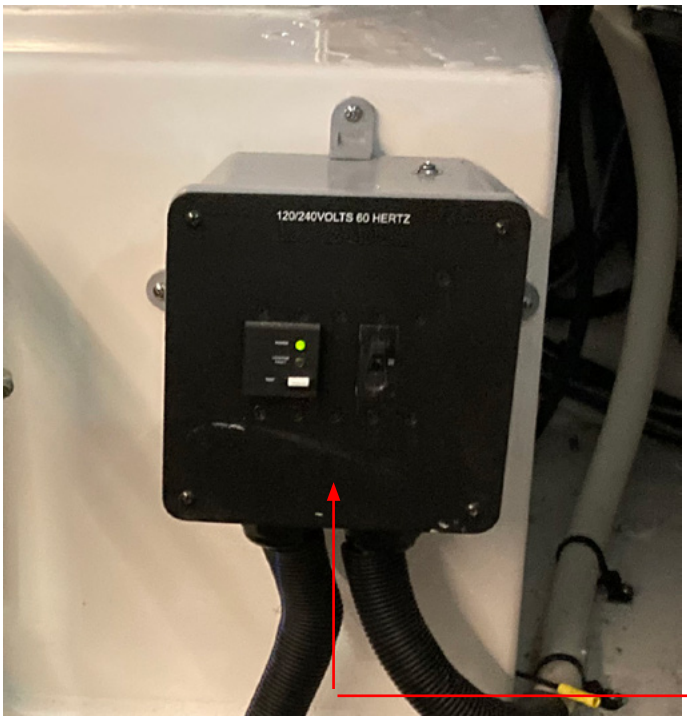
Check the breaker on the marina dock power center to ensure it is activated.

Check the ELCI breaker/voltage sensing device. The "power" icon should show green. If a leakage fault exists a "red" icon will light indicating the breaker is "tripped". If needed, use the test button to reset the breaker. Read the ELCI information following in this chapter.

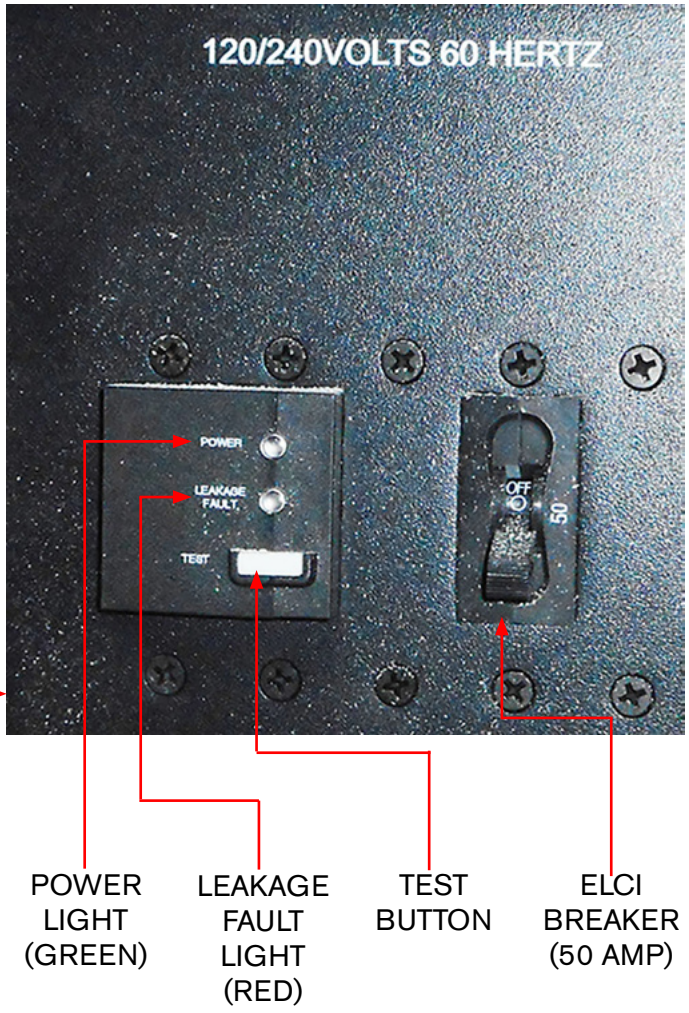
2. The marina dock power center lacks a 50 amp twist plug inlet.

Call the dock master or marina personnel. An adapter cord may be available from the dockage facility. NEVER IMPROVISE ANY TYPE OF CORD OR POWER INLET CHANGES!
Additional cord adapters can be found for purchase at retail boating outlets.

ELCI System- Typical



TYPICAL ELCI SYSTEM BREAKER BOX



ELCI System Overview

Once the shore power cord is attached to marina's dock side power the vessel dock side power cord inlet travels through the shore cord and terminates at a typical ELCI actuator enclosure (shown above).

Once through the ELCI AC power continues to the main AC ship's panel. The main ELCI breaker above features leakage fault technology. If the 50 amp ELCI breaker trips find the cause of the problem before resetting the breaker.

ELCI stands for "Equipment Leakage Circuit Interrupter". There are two potential failures in a boat's electrical system that can put people on or around a vessel at risk of lethal electrical shock.

In a properly functioning marine electrical system, the same amount of AC current flows in the hot and neutral wires.

However, should electricity "leak" from this intended path in these two wires to ground, this condition is referred to as a "ground fault". An example of this is an insulation failure in the wiring of an appliance.

Furthermore, a ground fault can occur when the grounding path is broke through a loose connection or broken wire. As an example a shore power ground wire may fail due to fatigue caused by constant motion and stress.

ELCI System Continued

Faulty grounds can go undetected; a simple continuity test may not reveal problems.
When these 2 conditions occur at the same time, it may produce tragic results. The combination of a “ground fault” and a faulty ground could result in the metal parts of the vessel and underwater gear to become energized.
If this condition exists, besides being a hazard to personnel on board there is increased danger to swimmers near the boat. The result could be shocking people on board and swimmers could receive a paralyzing dose of electricity and drown due to loss of muscle control.

An ELCI provides protection for the entire boat and features a trip threshold which provides ground fault protection for the entire shore power system beyond the ELCI.
The ELCI protection on individual shore power lines combined with GFCI’S will reduce the risk to those on the boat, dock, and in the water surrounding the vessel.

Another feature of the ELCI is a “leakage fault” detector located on the side of the ELCI breaker itself. The leakage fault feature detects a change in the neutral wire current.

Should the current change more than 30 Ma or about 1/3 of an amp the unit senses the difference and will “trip” the breaker causing the leakage fault LED to illuminate red. This clearly indicates that the trip occurred as a result of leakage. Before resetting the ELCI breaker determine the cause of the leakage fault.

A proper operating alternating current system will display a green illuminated LED at the “power” marked area of the ELCI.

Periodically test the ELCI by depressing the “test” button. The breaker should “trip” indicating the system is functioning properly. Simply reset the breaker. The leakage hazard helps prevent serious equipment damage and possible fire.

After the neutral and the 2-120 volt conductors exit the ELCI they run directly to the ship’s main AC control panel.

The ELCI can at times undergo a process called “nuisance tripping” which can cause a “tripped” breaker. This can be caused by overloads in the electrical draw or sometimes caused from unbalanced loads. One way to minimize the situation should it occur is to closely monitor the energized devices on the vessel which will assist in keeping the total amperage used to a minimum and the loads between panel legs more balanced.

ELCI Leakage Fault Detector LED Information

As a central segment of the ELCI system there are two LED lights with a “test” button located at the shore power inlet. With the breaker in the ‘on” position and the shore power cord connected these LED lights may show variations in color to provide system conditions.

ELCI LED indication as follows:

1. Green LED On- Red LED Off
Line voltage is present, the breaker is closed, and the device is protecting the circuits against over current and leakage current.

2. Green LED Off, Red LED On
The device has detected leakage current and has opened the circuit breaker.

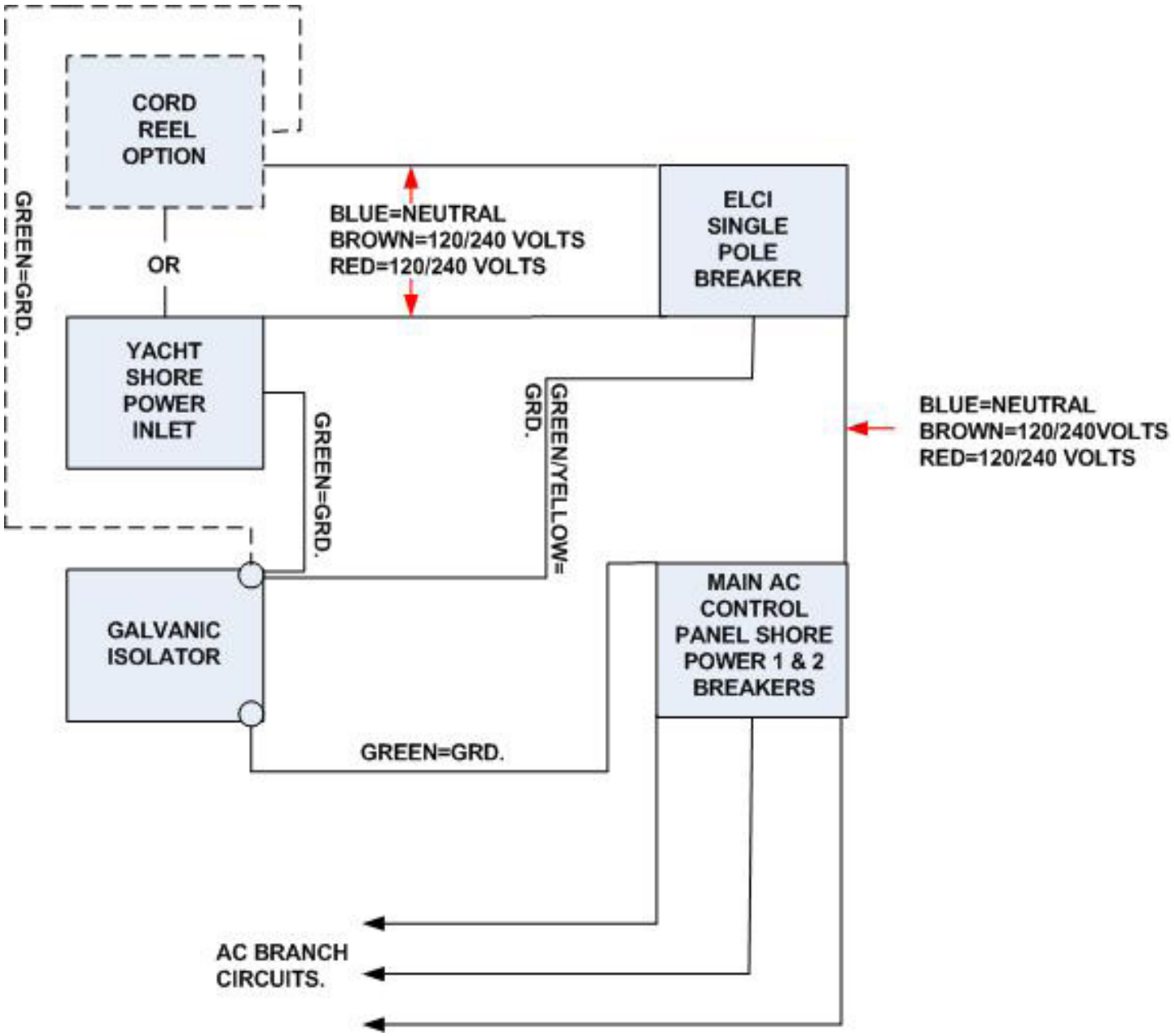
3. Green LED flashing, Red LED Off
The circuit breaker has opened due to over current or has been manually turned to the “off” position.

4. Green LED Off, Red LED Off
Line voltage is not present. Check cord connections and marina breaker for “on” position.

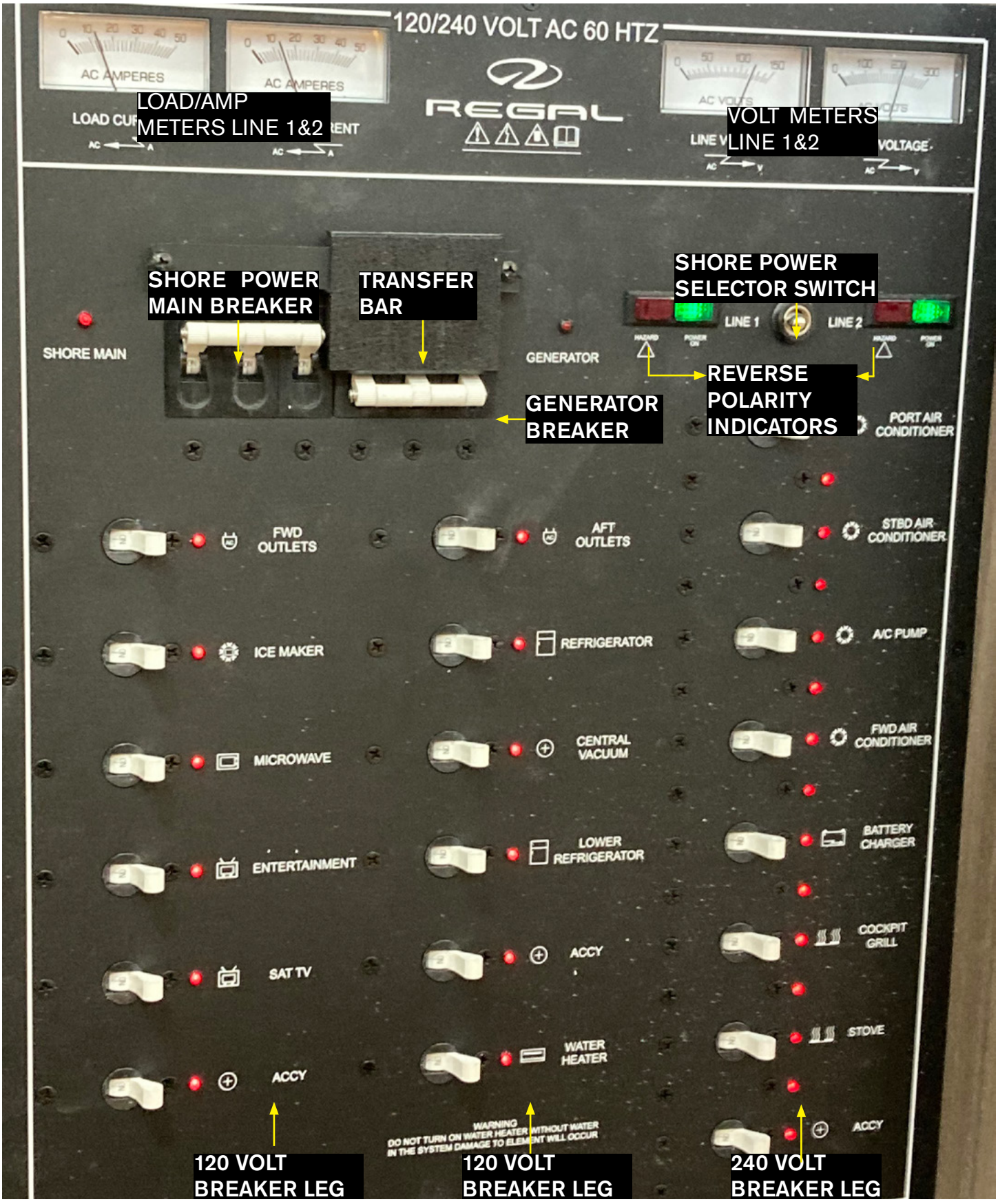
Note: Check circuit at least monthly by pushing in the white switch marked TEST. When depressed, the breaker should return to the reset position indicating the ELCI circuit is operating properly.

For further information on the ELCI PC-series refer to the Carling Technologies web-site.

TYPICAL AC ELCI CIRCUIT FLOW CHART



AC 120/240 Volt Ship's Panel (Typical)



AC 120/240 VOLT Ship's Panel Cont.

The typical AC (alternating current) ship's panel controls all high voltage components on your vessel. This panel features 120/240 volts AC at a frequency of 60 cycles. Downstream equipment is controlled by individual breakers using 120 or 240 volts depending on the component (See previous page). Voltage is supplied by either a 50 amp shore power cord (moored) or by generator (at sea). The panel features voltage and current displays for each line.

Reverse Polarity Indicator

After plugging the 50 amp shore cord into a marina receptacle and before activating the main breaker visually check for a green light at the ship's main panel reverse polarity indicator. The green light indicates there is no reverse polarity. If a red light appears on the reverse polarity indicator a hot wire and ground are probably reversed somewhere in the circuit from the dock to the main panel. *Note that the above situation will not show up in the ELCI circuit.*

In all cases do not activate the main panel breaker. Take immediate corrective action to find the cause of the reverse polarity situation. At this point, disconnect the shore power cord from the marina power center and call certified marine electrician.

50 Amp Main AC Panel Shore Power Breaker

As mentioned earlier, there are two main shore power 50 amp breakers on the ship's main AC panel. These single throw, triple pole main breakers control power to the 240 volt components and when activated deliver current by a system of sub breakers through a dedicated Line 1 and Line 2 of the panel which are the 120 volt components.

Before you activate or deactivate the main breaker make sure all sub breakers are in the "off" position. This prevents any excessive equipment motor draws and may eliminate any system arcing.

Assuming at this point that the dockside cord is connected and the reverse polarity indicator displays a green icon, activate the main shore breaker by flipping the single throw arm to the "on" position. 240 volts of AC electricity is now available. Note the other main breaker labeled generator is to be activated after the generator is started. See the generator breaker activation information.

At this point activate desired sub breakers. Always be conscious of the load current meter and the need to balance the shore power load where possible.

240 Volt Main Ship's Panel Breaker Description (Typical)

Port Air Conditioner- This 15 amp breaker controls the air conditioning unit located behind the salon refrigerator.

Stbd. Air Conditioner- This 15 amp fuse controls the air conditioning unit located behind the starboard aft seat panel.

Fwd. Air Conditioner- This 15 amp fuse controls the air conditioning unit located under the stairway.

AC Pump- This 15 amp breaker controls the air conditioning system pump located in the bilge. The pump supplies water to all air conditioning units on board. *NOTE THIS UNIT CARRIES HIGH VOLTAG!.*

Battery Charger- This 15 amp breaker controls the battery charger located in the bilge. It is recommended that when leaving the boat for extended periods this breaker be left energized in order to keep the ship's batteries in a charged condition (dock side cord must be hooked up).

Cockpit Grill- This 15 amp breaker controls the electric grill located in the outside patio area.

Stove- This 15 amp breaker controls the galley stove located in the salon area.

NOTICE

BREAKER SIZE MAY CHANGE
DURING THE PRODUCTION LIFE CYCLE
OF SELECT BOAT MODELS.
ALWAYS CHECK BREAKER SIZE
AS STATED ON SHIP'S PANEL
FOR PROPER AMPACITY.
ALWAYS REPLACE WITH EXACT BREAKER
TYPE AND SIZE.

120 Volt Main Ship's Panel Breaker Description (Typical)

NOTICE

BREAKER SIZE MAY CHANGE DURING THE PRODUCTION LIFE CYCLE OF SELECT BOAT MODELS. ALWAYS CHECK BREAKER SIZE AS STATED ON SHIP'S PANEL FOR PROPER AMPACITY. REPLACE WITH EXACT BREAKER TYPE AND SIZE.

FWD. Outlets- This 15 amp breaker controls various receptacles. They are all GFIC protected.

Icemaker- This 15 amp breaker controls the refrigerator located in the salon galley. Activate this breaker when at mooring or on generator power to keep the freezer portion of the refer activated.

Microwave- This 15 amp breaker controls the microwave located in the salon.

Entertainment- This 15 amp breaker controls all televisions and optional satellite TV receiver.

Sat TV- This 15 amp breaker controls the satellite television components.

USB Charger- This 10 amp breaker controls the phone/device charging system.

Aft Outlets- This 15 amp breaker controls various receptacles. They are all GFIC protected.

Refrigerator- This 15 amp breaker controls the refrigerator located in the main salon galley. Activate this breaker when at mooring or on generator power to keep the freezer portion of the refer activated.

Central Vacuum- This 15 amp breaker controls the vacuum located under the forward cabin storage.

Lower Refrigerator- This 15 amp breaker controls the refrigerator located in the lower galley. Activate this breaker when at mooring or on generator power to keep the freezer portion of the refrigerator activated. With a 2nd head this breaker is not used.

Washer/Dryer- This 15 amp breaker controls the washer-dryer circuitry.

Water Heater- This 15 amp breaker controls the hot water heater located in the bilge. *Never activate the breaker without water in the water heater tank as water heater element damage will occur.*

Accy- This 15 amp breaker currently is not used. When adding any AC accessory make sure the amperage is safely within the breaker limitations.

GFCI Outlet (Ground Fault Circuit Interrupter)

Sometimes current in a circuit escapes its normal route and finds a "ground fault". If that vehicle ends up to be your body and the current passes through your heart the results could be deadly. The outlet contacts close between 4 and 6 milliamperes.
A ground fault interrupter or GFCI senses the difference between the hot and neutral wire current before a fatal dose can be conducted and in a fraction of a second cuts the current.
The GFCI devices used in homes are normally not ignition protected and of the 15 or 20 amp variety. Your boat uses a 15 amp ignition protected GFCI. If installed in the sump the GFCI is ignition protected.

By using a GFCI as the first receptacle in an outlet circuit all the receptacles down stream on the same circuit are protected by the initial GFCI. This is accomplished by attaching the hot wires to the line terminal of the GFCI receptacle and the out-going hot wire to the load terminal. The neutral wires also use line and load terminals on the opposite side of the GFCI receptacle.

You can identify the GFCI primary receptacle by the test and reset breaker in the center of the device. Check the GFCI protection monthly. If a problem develops with the GFCI circuitry call a marine electrician to access the situation.
The GFCI outlets are especially useful when electrical equipment is employed such as a drill or in the head with the use of personal devices such as curlers and hair dryers. *Note to never use any electrical devices when puddling water is present to prevent a possible shock hazard.*
See the GFCI description on the following page.

The GFCI is programed to protect a person from line to ground shock hazards which could occur from various electrical devices operating off of the device or receptacles down stream. It does not prevent line to ground electric shock, but does cut down the exposure time to a fraction of a second before the device trips. It does not protect people against line to line or line to neutral faults. Also, it does not protect against short circuits or overloads; this is the circuit breakers job.

All GFCI's should be tested monthly to make sure they and the receptacles they protect "downstream" are protecting against ground-faults.

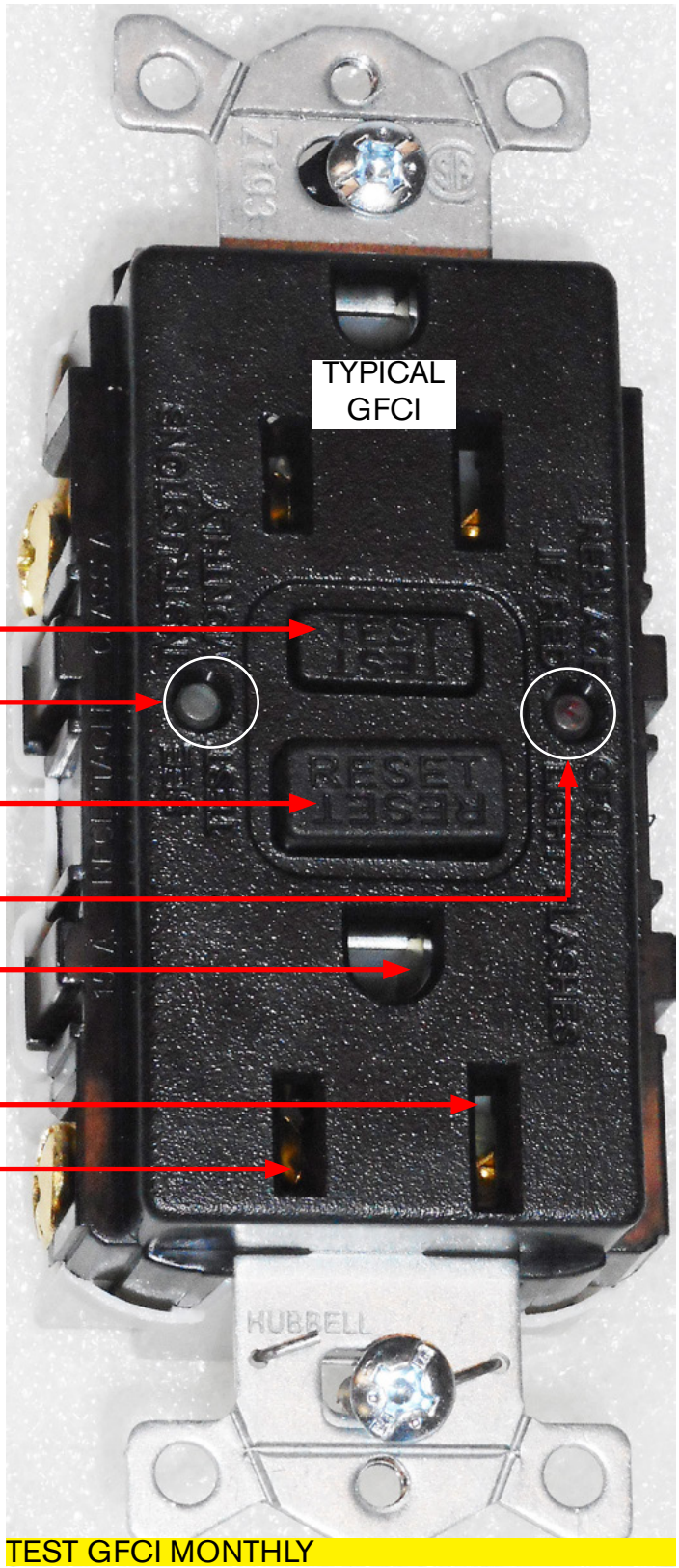
Note that typically there are 3 GFCI outlet circuits on a 42' Regal.

GFCI Outlet (Ground Fault Circuit Interrupter)

Newer style GFCI's must automatically monitor ground fault interrupting functionality every 3 hours or less. If the device can no longer provide GFCI protection, it must deny power and provide a visual indication that it can no longer provide protection.

Your boat uses a GFCI's featuring the following:

1. Power indicator (solid green)
2. Trip indicator (solid red)
3. "End of life" indicator (flashing red)



TEST GFCI MONTHLY

Normal operation when energized is for the Green LED to light as the outlet breaker is activated at the main AC ship's panel. If Red light flashes replace GFCI receptacle.

GFCI Outlet- Continued

Testing GFCI'S

To test a GFCI find a 120 volt night light or small lamp to plug into the GFCI outlet. Try it in another circuit first to make sure it lights.
After the lamp is plugged into the GFCI outlet the lamp should light. Now press the "test" button at the GFCI receptacle center. The GFCI's "reset" button should pop out and the lamp should go out. This means the GFCI itself is functioning properly. Press the "reset" button to restore power to the outlet. Test each GFCI circuit monthly.

You can use the lamp to check receptacles downstream from the GFCI. All receptacles should light the lamp and should go out when the "test" button is pressed.

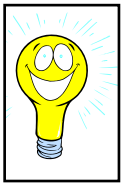
GFCI downstream receptacles can be tested with a plug-in type GFCI tester. This tester contains a GFCI test button which accomplishes the same thing as the GFCI receptacle built-in test button. The tester below displays a center and starboard icon reflecting a correctly polorized circuit.

TESTING GFCI DOWNSTREAM OUTLET

Ignition Protected Devices

Many electrical devices in everyday use tend to "arc" or spark when being used. These include motors, fans, switches, relays, etc.
Boats in general use many of these same devices but they are protected from any sparking that may cause the device to ignite with any vapors that are typically found in the engine room and/or fuel tank compartments.
When replacing any electrical device especially in the bilge or engine room make sure it is ignition protected. This means it has been tested and normally the device is stamped with a marking making it safe to use. Most automotive type devices are <u>not</u> ignition protected especially engine starters and alternators.

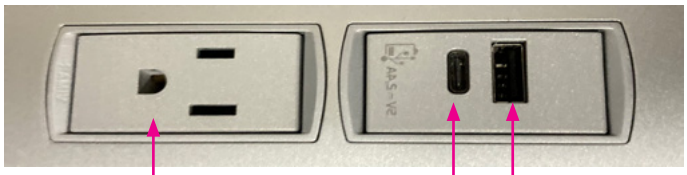
Possible Problems/solutions (GFCI's)



1. If the "reset" button does not pop out, the GFCI is probably defective and should be replaced.
2. If the "reset" button pops out one time but tends to stick the next the GFCI should be replaced.
3. The GFCI "reset" button pops out when something is turned on. This may indicate an internal wiring problem with the GFCI or there may be a ground-fault downstream.
4. The GFCI "reset" button is in the pressed position and nothing works. Check the appropriate breaker at the main ship's AC control panel to make sure it has not "tripped" or as been deactivated.

Typical Outlets

AC Outlet/ USB Charging Outlets



120 VOLT AC OUTLET

TYPE A USB PORT

TYPE C USB PORT

AC Outlet/Device Switch Panel-

CENTER PORTION CONTROLS DEVICE

Light Control/Dimmer Switch Panel

LIGHT CONTROL SWITCH W/ DIMMER

Galvanic Isolator (Typical)

As part of the AC boat circuitry the green ground wire takes a different path. It enters via the boat's shore power inlet and travels to a galvanic isolator via the ELCI located in the (sump) bilge.

A 60 amp (60 hertz) galvanic isolator for domestic use is connected in series with the AC grounding "green" wire. The purpose of the galvanic isolator is to isolate the boat's grounding system electrically from the dock and other vessels below 1.4 volts but to maintain a connection to the shore green ground at high voltage potentials. The low voltage isolation will prevent the vessel's zinc from protecting the underwater metal hardware on another vessel sharing the same AC common green ground wire. This eliminates the possibility of galvanic interaction from other boats on the same dock circuit and permits your anodes to protect your boat. The green ground or "bonding wire" runs from the boat's shore power inlet to a galvanic isolator stud. From the other stud of the galvanic isolator it runs to the AC ground buss located behind the AC main ship's control panel at the atrium stairway. Note that the stud nuts must be torqued and maintained at 8.8 inch pounds.
Since the galvanic isolator is not polarized either terminal can be used for the inlet or outlet side for the green grounding wire.

Precautions/Galvanic Isolator Warnings

Warning- It is extremely dangerous to swim or be present in the marina water due to potential AC current that may exist in the water. Take all necessary precautions as this may be life threatening.

Caution- This device does not provide a status monitor. Following a lightning strike this unit may not continue to provide galvanic isolation protection.

Warning: The fan will operate only when there is a fault to ground and the isolator is conducting current. If you notice the fan running immediately disconnect the shore power and contact a qualified marine electrician to isolate and repair the problem with the boat or the shore power connection. Remember, never cover the fan holes.

Caution: Never test the galvanic isolator. Troubleshooting the galvanic isolator shall be preformed by qualified personnel only. Contact your authorized Regal dealer for more information.

Note that the galvanic isolator may be mounted in the sump or in the aft stateroom depending on vessel model.

Electronics

Overview

Various electronics components may be installed on your vessel including HDTV television, satellite KVH system, stereo satellite tuner, VHF radio, HD closed radar system, satellite weather and autopilot.

Note select systems only are covered in this chapter.

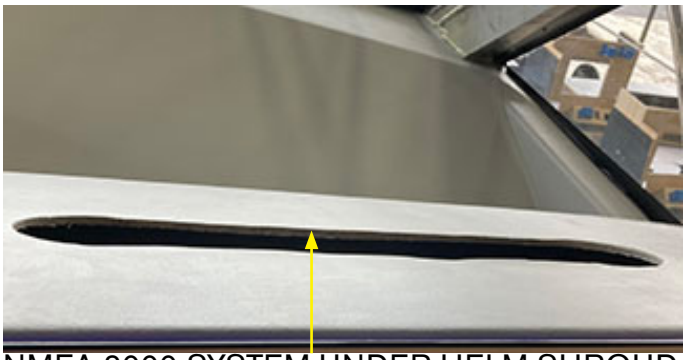
Each component utilizes individual operator's manuals. Refer to the appropriate electronic operator/owner's manual for detailed product information, maintenance and safety tips since the vast amount of information can not be covered here. Basic features and quick start information will be found in the following pages for each component. For technical service contact your closest Regal yacht dealer who has under gone intensified factory training on the Regal product line and has the tools and knowledge to maintain your yacht's systems and components,

Furthermore, the internet can help with questions on various components.

TYPICAL ELECTRONICS TOWER FLY

TYPICAL ELECTRONICS DISPLAY HARDTOP

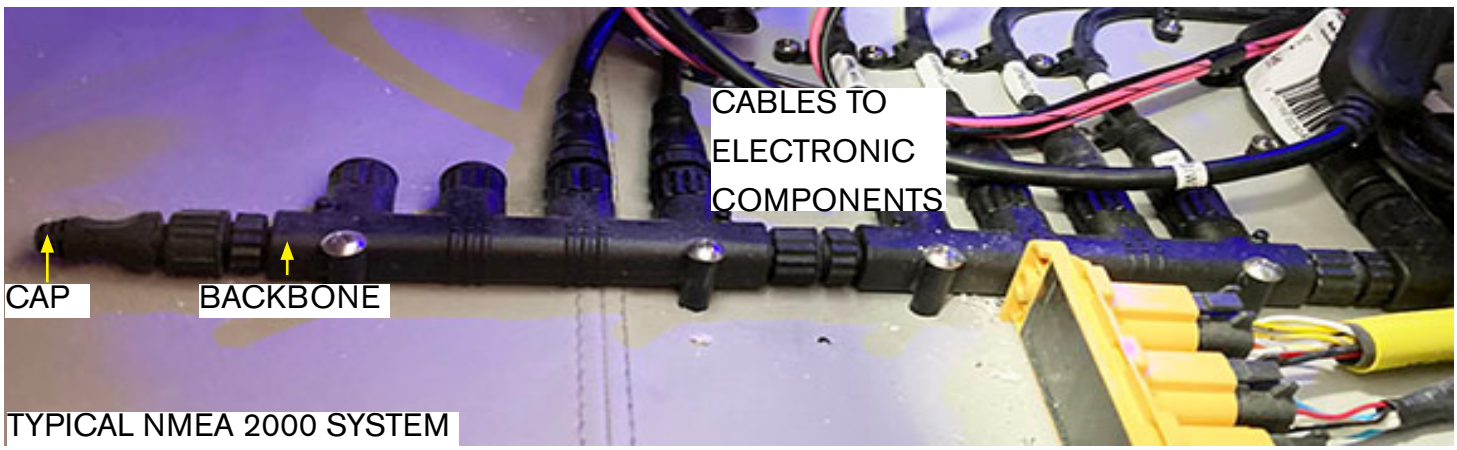
The NMEA 2000 is a communication system between electronic components. There is a main trunk called a “backbone” (See illustration). There is normally a NMEA backbone accessible beneath the top of the helm shroud cover. See photo. As electronic components are added to the system a cable is attached to the backbone from each component to permit communication to other equipment on the backbone. It is kind of like branches being connected to the trunk of a tree.


NMEA 2000 SYSTEM UNDER HELM SHROUD

There is a yellow cable attached to the center of the backbone that is the 12 volt power supply. When the electronics switch is activated the backbone is energized thru the yellow cable.

A typical feature using a NMEA 2000 network is the Fusion® entertainment media being accessible and controllable from the “Glass cockpit” chart plotter (outboards) system or Garmin plotter system (IPS).

Note that a terminator cap is installed at the end of a backbone.



TYPICAL NMEA 2000 SYSTEM

Radar

Overview

As optional equipment a 4KW (4000 watts) high definition radar dome is installed on a hard top mast. The mast also provides for a masthead/anchor light. The radar is very customer friendly. The radar features a narrow beam width which provides a high resolution image. Dual range operation provides a fully independent spilt-screen display of far and close radar views in full 8-bit color. See chart plotter manual for additional features.

Operation

To start up the radar do the following:

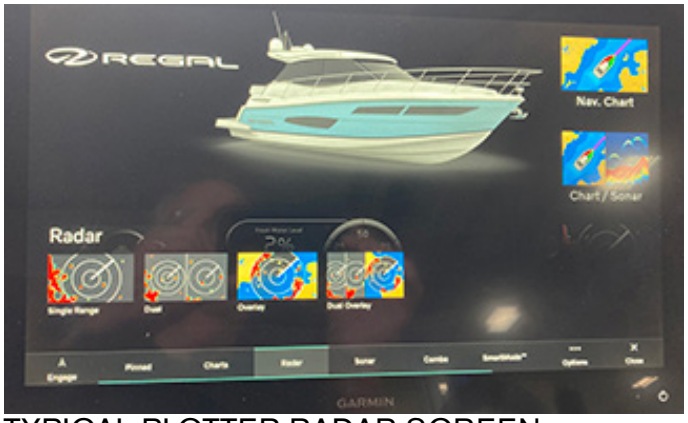
1. Ensure that the battery activation panel is energized.

2. Depress the power button on the chart plotter to energize the plotter.

3. Choose radar menu on the home screen. You can make it a favorite

4. Navigate to desired next menu buttons for more specific radar functions.

For additional information refer to the chart plotter manual, internet, or contact your closest Regal yacht dealer or marine professional. Be sure to read and understand all safety labels related to the radar. *Note that there are some great instructional web based videos that describe the radar screen functions.*



TYPICAL PLOTTER RADAR SCREEN

CAUTION

AVOID POSSIBLE EYE INJURY DUE TO ELECTROMAGNETIC ENERGY.
WHEN RADAR IS TRANSMITTING DO NOT LOOK DIRECTLY AT THE DOME WHEN AT CLOSE RANGE.

CAUTION

RADAR PRODUCTS EMIT ELECTROMAGNETIC ENERGY WHICH IS HARMFUL.
TURN THE UNIT OFF WHEN UNIT IS BEING SERVICED.

The Autopilot is a device that continously adjusts the steering on a vessel to maintain a constant heading. The system is normally programmable for both automatic and manual steering functions and patterns. It is popular by mariners who use it to navigate effortlessly in open water environments.

With IPS (Inboard Propulsion System) propulsion the autopilot is integrated into the “Glass Cockpit System”.

With outboard propulsion the autopilot system is integrated into the Yamaha Helm Master system.

Before using the autopilot system read and understand the appropriate operation manual based on vessel propulsion. Further information is available from your closest Regal yacht dealer, Yahama, or Volvo Penta.

Satellite Weather

This option provides peace of mind and safety by allowing the captain to access the latest weather information through satellite. The data can be viewed through the GPS/Plotter (option) at the helm or the on board television monitors.
The service provides comprehensive weather data and state-of-the-art forecasting including buoy reports, NEXRAD, lightning, water temperatures,wind and wave current conditions and forecast data. Access to SiriusXM stations may be available depending on the SiriusXM subscription chosen.
Subscribers can use the SIRIUS satellite footprint which blankets 48 contiguous states, most of Canada and Mexico; and waters extending hundreds of miles into the Atlantic and Pacific oceans, the Gulf of Mexico and Caribbean.

Sirius Marine Weather Activation

1. Power up the receiver by activating the power button on the GPS/Plotter.

2. Dial 1-800-869-5480 to activate the service. The customer normally carries out this operation.

3. Be prepared with your billing information, subscription preferences and the SIRIUS ID# for your receiver.

4. The SIRIUS ID# of your receiver will be viewable via the GPS/Plotter.

Sirius Marine Weather Information

The following information is for United States weather only. A different receiver must be used for worldwide weather.
The weather application superimposes historical, live and forecasted weather graphics and their associated weather data on the GPS/Plotter. All this information allows the skipper to determine the actual conditions in his vicinity or at another location. Weather forecasts and warnings, detailing current and preferred conditions are often updated. For types of warnings, watches and advisories, please refer to the NOAA website at www.nws.noaa.gov.

Operation

1. The Garmin receiver must be up and running. Also, it will not work in a covered boat house or dwelling.

2. The GPS/Plotter must be energized by depressing the plotter power button.

3. Once opened choose from the menu weather. Click into it and you can further select sub menus such as configure, then settings, and systems information and finally to each of the weather option menus such as forecasts, precipitation and fishing.

4. Under systems information you can check your subscription contents.

5. Use the cursor to move around the map and view different locations. Use touch screen for in and out.

6. For additional domestic Garmin service support information phone 1-800-800-1020.

Sirius XM Satellite Stereo

With the optional satellite antenna installed and an activated subscription you will be able to program and preset Sirius XM audio stations through the “glass cockpit” chart plotter or Garmin plotter.

Before the subscription can be activated you must have the radio ID on the rear of the Sirius XM tuner. For more information, call 1-866-635-2349 domestically.

Entertainment

Overview

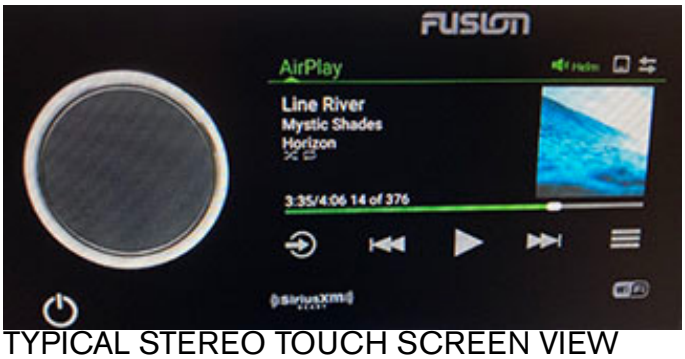
Your yacht features a variety of standard and optional components that provide both visual and audio entertainment.

Refer to the individual owner's manuals and the technical section (schematics) for further entertainment system information.

The generator (at sea) or the dockside cord (at mooring) must be activated/plugged in to supply AC voltage to the HDTV monitors and HDMI splitters.

Note as an integral part of product improvement that Regal Marine Industries, Inc. reserves the right to add, delete, or change both standard and optional components at anytime without notice.

Fusion Stereo System



TYPICAL STEREO TOUCH SCREEN VIEW

Regal 42' models feature Fusion stereo units delivering world class audio, sound control and integration.

The system utilizes multiple zones delivering and boosting high quality sound through a powerful amplifier system. The sound at individual zones is controlled through the plotter on outboard vessels and the "glass cockpit system" on IPS (Inboard Propulsion System) vessels.

The system integrates a touch screen one-piece glass display and digital signal processing (DSP) that expands the sound quality to another level by tuning yacht sound areas to individual speaker profiles and amplifiers.

Note that there are system features such as the Wi-Fi that are available but not used on board. They are part of after market options for the end user to individualize his sound system.

With Fusion link technology your yacht has been initialized by the factory with the DSP profile to provide a perfectly tuned entertainment on board-system.

Bottom line you can enjoy the music you desire to hear on the water customized for your ears and the environment.

Note that you can swipe the stereo head touchscreen screen, use the "glass cockpit" (IPS) or the Garmin plotter (outboards) for media menu source page system adjustments as both systems are similar. This is possible due to the NEMA 2000 communication system installed on your vessel. Also, you can listen to stereo audio over the salon television.

The chart plotter will automatically detect the media player. You can play media from sources connected to the media player and sources connected to the NMEA 2000 network. Refer to your chart plotter manual for additional information.The stereo unit features AM, FM, Bluetooth and USB connectivity supporting many media devices.

Fusion® Stereo Entertainment Cont.

System Start-Up Notes

Note that the IPS and Outboard plotter screen displays are slightly different. 42' outboard screen shots are used in this manual. One way to access select stereo system screens is to do the following:

1. Energize the battery activation panel which powers up the helm.

2. Activate the plotter power button.

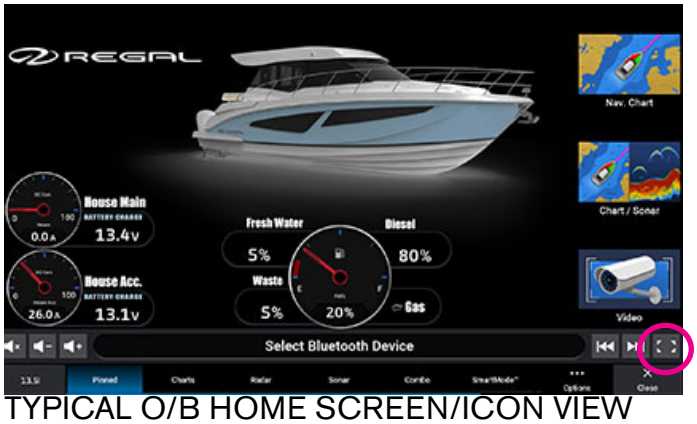
3. Choose the " Home" screen icon at the right side of the upper menu bar. See photo upper right.

4. From the "Home" screen choose "Vessel". See center photo.

5. From the "Vessel" page choose "Media". At this screen display make adjustments to change Fusion audio functions.

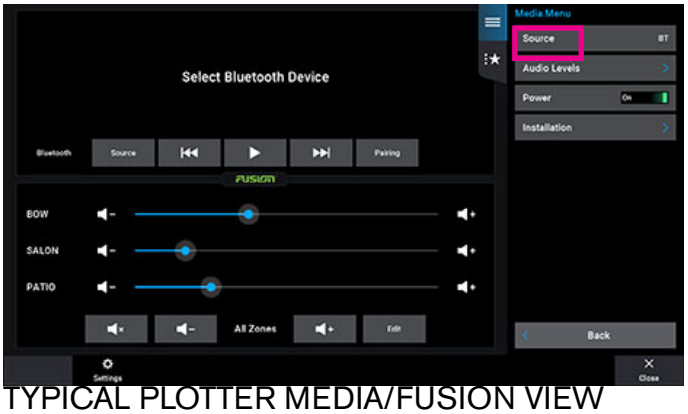
6. When "Source" is touched the screen will display all entertainment devices that can be controlled from the plotter.
Typical devices included are Bluetooth, Cockpit TV, AM, FM and AUX/PLOTTER.

Note that the IPS home screen always displays a media bar.
Note that stereo speaker audio is only available at the cockpit TV and controlled at the Cockpit TV source setting on the plotter.
Note that additional after-market devices can be added by plugging into the stereo head aft ports.



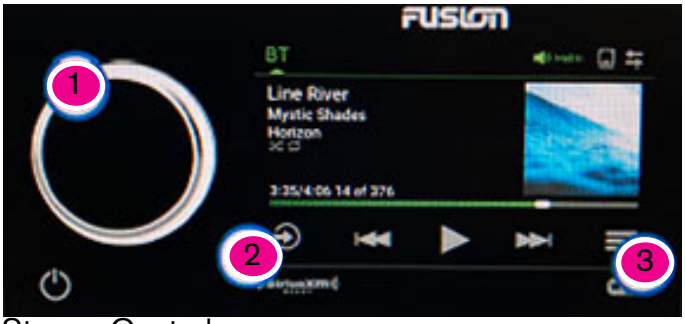
TYPICAL O/B HOME SCREEN/ICON VIEW

TYPICAL O/B VESSEL/MEDIA SCREEN VIEW



TYPICAL PLOTTER MEDIA/FUSION VIEW

Note to swipe "Options" on the menu bar to access "Settings" where select perimaters of each system can be modified.



Stereo Controls

Note that the stereo head unit start-up guide below can be used verses the plotter system to play music and to set up and monitor source devices.

Basic Start-Up

1	Dial	* Turn to adjust the volume
		▪ When adjusting volume, press to switch between zones. ▪ When adjusting volume, press & hold for at least 1 second to adjust the sub woofer levels. ▪ On a tabbed screen, press & hold for at least 1 second to switch the tab. ▪ Turn to move through the menus or adjust a setting. ▪ When in a menu, press to select the highlighted option.
2	Source Icon	▪ Press to change the source.
3	☰	▪ Select to open a menu for the current source. Not available on all sources.
	⚙	▪ Select to open the stereo settings menu
	⏻	▪ Press to turn on the stereo. Press to mute the stereo. Press and hold to turn off the stereo.

Playback Controls

⏸	* Select to pause media playback.
▷	▪ Select to play media or resume media playback.
⏮	▪ Select to skip to the previous track, when using an applicable source. ▪ AM, FM, or SiriusXM source. *Select to tune to previous station or preset. *Hold for faster tuning (manual mode only). ▪ DAB source: Select to return to previous DAB station in the ensemble. When you reach the beginning of the new ensemble, the stereo automatically changes to the last available station in the previous ensemble.
⏭	▪ Select to skip to the next track, when using an applicable track. ▪ AM, FM, or SiriusXM track. *Select to tune to the next station or preset. *Hold for faster tuning (Manual mode). ▪ DAB source: Select to advance to the next DAB station in the ensemble. When you reach the end of the current ensemble, the stereo automatically changes to the first available station in the next ensemble.
MA*	▪ On the AM, FM, or DAB source, select to cycle through the tuning modes (auto or manual) and presets (when 2 or more presets are saved). Press and hold to save the current station as a preset.

Playback Controls Cont.

+	▪ On the Aux or SPDIF source, select to increase the gain for the connected source.
-	▪ On the Aux or SPDIF source, select to decrease the gain tor the connected source.

For more detailed system operatng information refer to the Fusion® owner's manual.

Note that when stereo is deactivated the memory circuit saves stations and presets.

Entertainment- Television System (Typical)

TYPICAL SALON (COCKPIT) TELEVISION

System Overview/Pre-Operation Notes

This section describes the on board television system and basic components Contents may include options not installed on your vessel. Refer to the television and satellite TV operator's manuals for more detailed information or contact your closest authorized Regal dealer.

The on board television system currently features TV's in the forward stateroom, aft stateroom, and salon (cockpit TV). All television screens operate using 120 volts of AC current.

The television system can be operated from shore or at sea. Obviously increased signal strength and larger channel selection is available on vessels featuring an optional satellite TV system verses those relying only on a ship's TV antenna and booster.

Note that when the video plotter menu is selected Fusion audio is available at the salon TV.

Use the television component description and wiring guide on the following to orientate yourself to the television system.

As indicated on the system drawing there are HDMI inlets on the vessel for playing additional devices through after-market receivers. See the HDMI topic for further information.

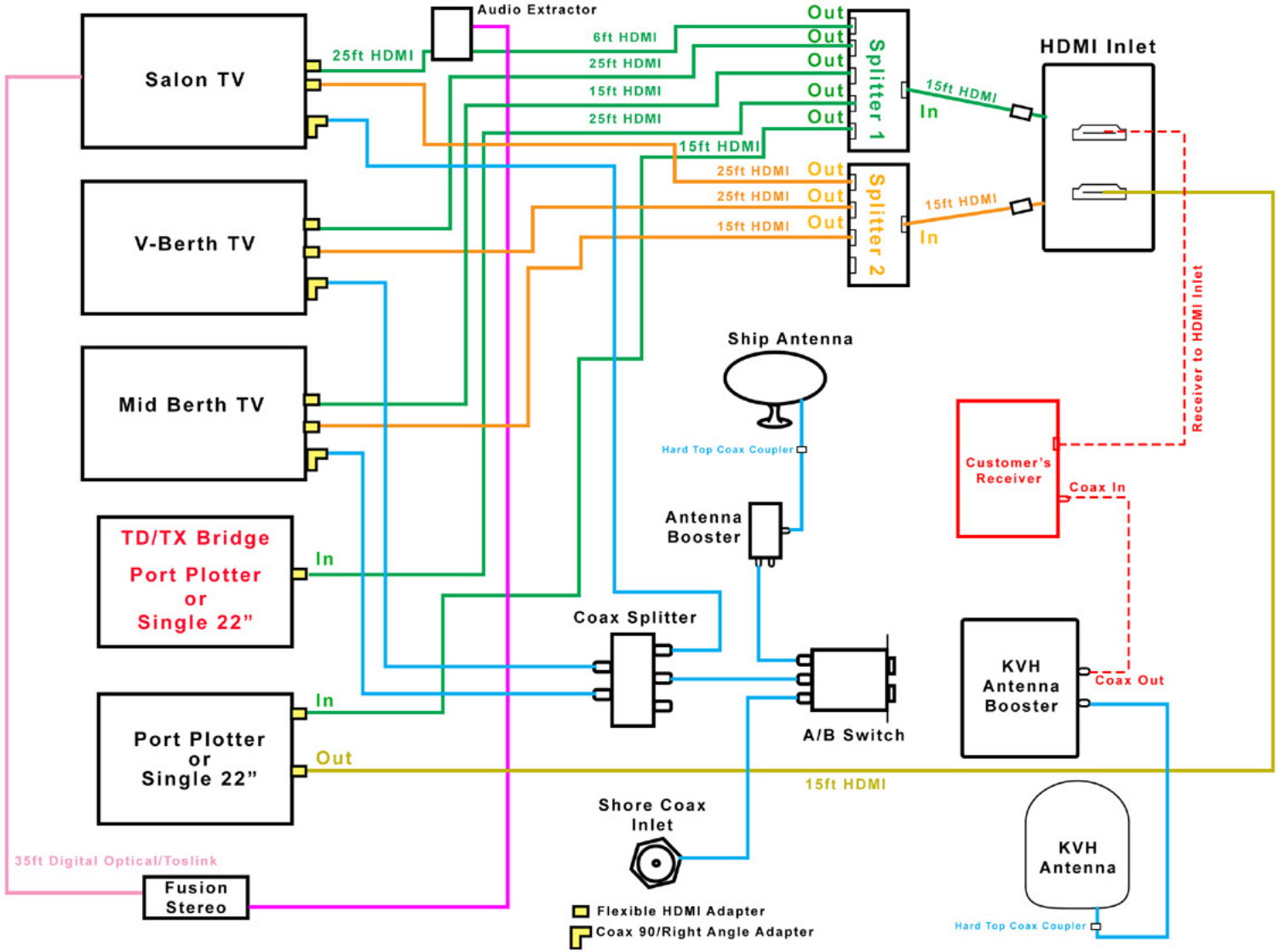
At the helm seat side locker a drawer is providec to house all remote controls that operate the televisions, windlass, search light and other devices.

DEVICE STORAGE @ HELM SEAT

Note that components, wiring, and specifications can change at any time as Regal updates a vessel during its production cycle.

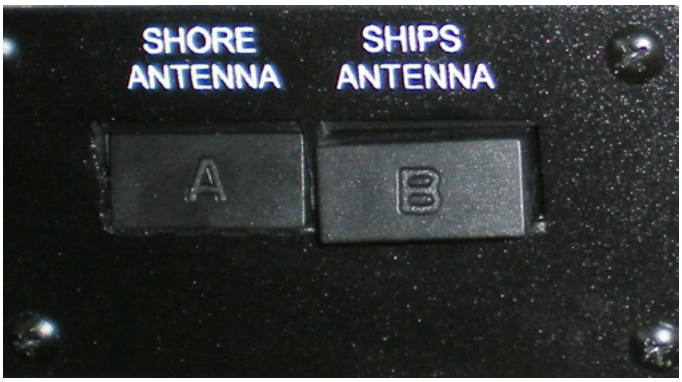
Subject Work Instruction:	Issue Date:	Rev:	Document No.
TD/TF/TK/TX TV System	10/14//2020	0	EL-151
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	01/21/2022	1 of 1

[REFERENCE ONLY]



TELEVISION SYSTEM COMPONENTS AND WIRING

Television Antenna Switch



The antenna switch features 2 buttons labeled A and B to choose the desired antenna signal source for vessels without satellite TV. The antenna switch is located above the atrium AC-DC panel.
Note: To activate the TV antenna follow the instructions below.

At Dockside- After the television coxial cable is connected to the vessel coxial receptacle and the marina dock box press the A antenna switch. At this point the marina TV signal is available to view available channels.

At Sea- Press the B antenna switch button to activate the ship's TV antenna and booster (Non SAT TV systems only).

To deactivate either antenna switch, push the switch down to disengage it.

When cruising you may encounter a marina without a suitable or no shore signal so your backup is to use the ship's antenna to view local television signals. This is more common with older marinas located off the more traveled waterways.

Note that the preceeding antenna activation steps only function after the vessel generator is started and the appropriate ship's panel breakers have benn activated.

Television System Operation- At Shore w/Sat TV

Since the television system requires 120 volts of AC current the 50 amp dockside cord must be plugged into a marina shore station for the television system to operate at a dockside environment.

Perform the following steps ***with Satellite TV on board*** to enjoy your favorite programs.

1. Prepare the main ship's panel for shore operation. Make sure all main and sub breakers are deactivated.

2. Plug the 50 amp dockside cord into the marina shore station. Position transfer bar at main ship's panel to right. Activate main shore power breaker at ship's main panel.

3. Activate the "Sat TV" breaker at the ship's panel which will power up the KVH satellite system, antenna and antenna amplifier (booster).

4. Activate the "Entertainment" breaker at the main ship's panel to supply AC current to each television set.

5. Use the plotter system and/or remote control to view and adjust individual television sets.

Television System Operation- At Sea w/Sat TV

Since the television system requires 120 volts of AC current the generator must be activated to operate the system away from shore power access.

Perform the following steps ***with Satellite TV on board*** to enjoy your favorite programs.

1. Prepare the main ship's panel for generator operation. Make sure all sub breakers are deactivated.

2. Start the generator. Slide transfer bar at main panel to left. Activate generator main breaker. Let generator idle for short period.

3. Activate the "Sat TV" breaker at the ship's panel which will power up the KVH satellite system, antenna and antenna amplifier (booster).

4. Activate the "Entertainment" breaker at the main ship's panel to supply AC current to each television set.

5. Use the remote control to adjust individual television sets.

Television System Operation- At Shore w/o Sat TV

Since the television system requires 120 volts of AC current the 50 amp dockside cord must be plugged into a marina shore station for the television system to operate at a dockside environment.

Perform the following steps for vesels ***without Satellite TV on board*** to enjoy your favorite programs.

1. Prepare the main ship's panel for generator operation. Ensure all sub breakers are deactivated.

2. Plug the 50 amp dockside cord into the marina shore station.

3. Insert and tighten coxial cable at coxial power inlet at starboard transom and marina shore station.This step will activate available shore television signal to individual television units once AC current and appropriate breakers are activated.

4. Position transfer bar at main ship's panel to right. Activate main shore power breaker at ship's main panel.

5. Activate the "Ships Antenna" button at the antenna display panel located above the atrium main ship's panel. This action will use the ship's short range antenna to locate available television station signals. Note that results will vary depending on distance from signals and atmospheric conditions.

6. Activate the "Entertainment" breaker at the main ship's panel to supply AC current to each television set. Use TV remote for fine tuning.

Television System Operation- At Sea w/o Sat TV

Since the television system requires 120 volts of AC current the generator must be activated to operate the system away from shore power access.

Perform the following steps for vesels ***without Satellite TV on board*** to enjoy your favorite programs.

1. Prepare the main ship's panel for generator operation. Make sure all sub breakers are deactivated.

2. Start the generator. Slide transfer bar at main panel to left. Activate generator main breaker. Let generator idle for short period.

3. Activate the "Ships Antenna" button at the antenna display panel located above the atrium main ship's panel. This action will use the ship's short range antenna to locate available television station signals. Note that results will vary depending on distance from signals and atmospheric conditions.

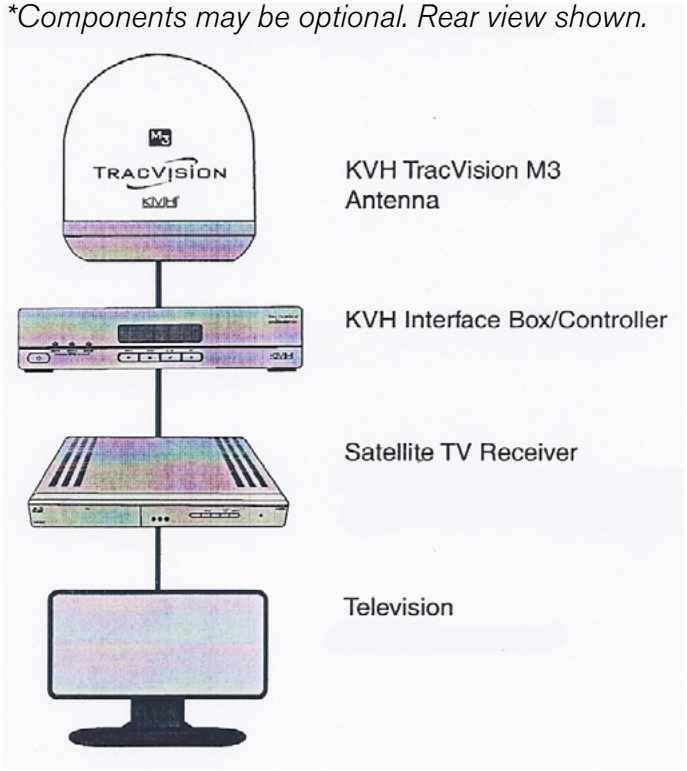
4. Activate the "Entertainment" breaker at the main ship's panel to supply AC current to the television sets.

5. Use the remote control to adjust individual television sets.

Satellite Television (KVH TracVision)

KVH. SATELLITE-ANTENNA PORT | OPT. RADAR | TV ANTENNA SIRIUS XM ANTENNA STBD.

**Components may be optional. Rear view shown.*



Overview

The optional KVH TV3 or 5 Series uses an antenna which extends service to cruising areas well offshore in North America.

Under the starboard “dummy” dome is the TV saucer-shaped antenna.

The KVH satellite breaker is controlled by Sat TV breaker at the ship’s main AC panel.

Satellite Television Components

If installed, the satellite television option typically features the ability to viewing hundreds of television channels using the vessel 120 volt HD televisions. Basically, the signal is transmitted through an antenna system installed on the hardtop which features a satellite tracking system that automatically finds the satellite for crystal-clear television reception. **To activate satellite television a subscription must be secured. Read notice below.**

NOTICE

SATELLITE TELEVISION REQUIRES SUBSCRIPTION TO OPERATE. CALL 1-800-970-9623 TO INITIATE SUBSCRIPTION. ONCE ENROLLED THE CORRECT REGIONAL RECEIVER WILL BE ISSUED TO YOU.

System Components-Antenna

The antenna uses modern technology to quickly acquire and track the correct satellite, switch between satellites, and send signals to the interface box. Internal gyros allow the antenna to track the satellite at all times, even with the vessel on the move!

Interface Box-Controller

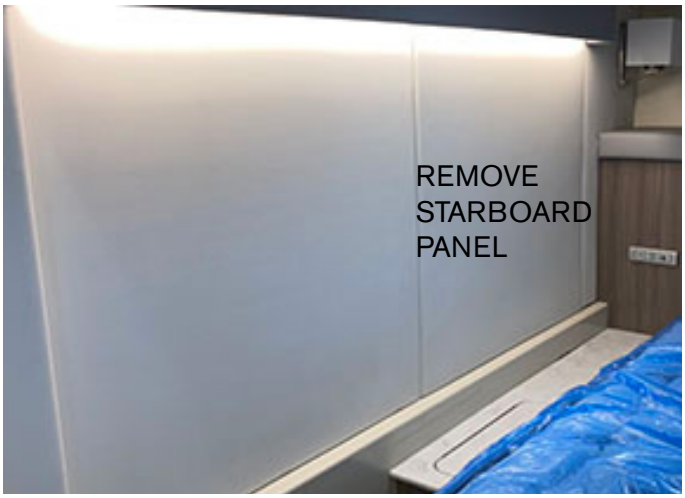
The interface box supplies power to the antenna system and delivers satellite TV signals to the satellite receiver. This component is also used to setup the LCD display.

Television System Notes

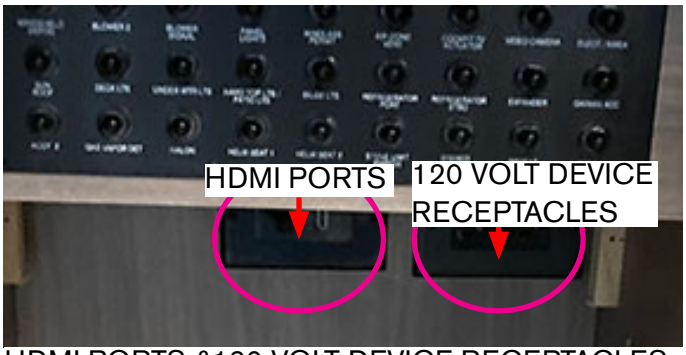
The on board television monitors deliver true HD (high definition) reception and are multi-functional with other entertainment components.

Use the remote controls to switch between devices/systems. HDMI 1 or 2 (depending on settings) is used to view the plotter information on the salon (cockpit) TV screen.

Note on the following page a service locker at the mid cabin forward bulkhead houses many of the entertainment components. To access the service locker pull on the right panel to release the latching clips. See the photo below.



HDMI Notes



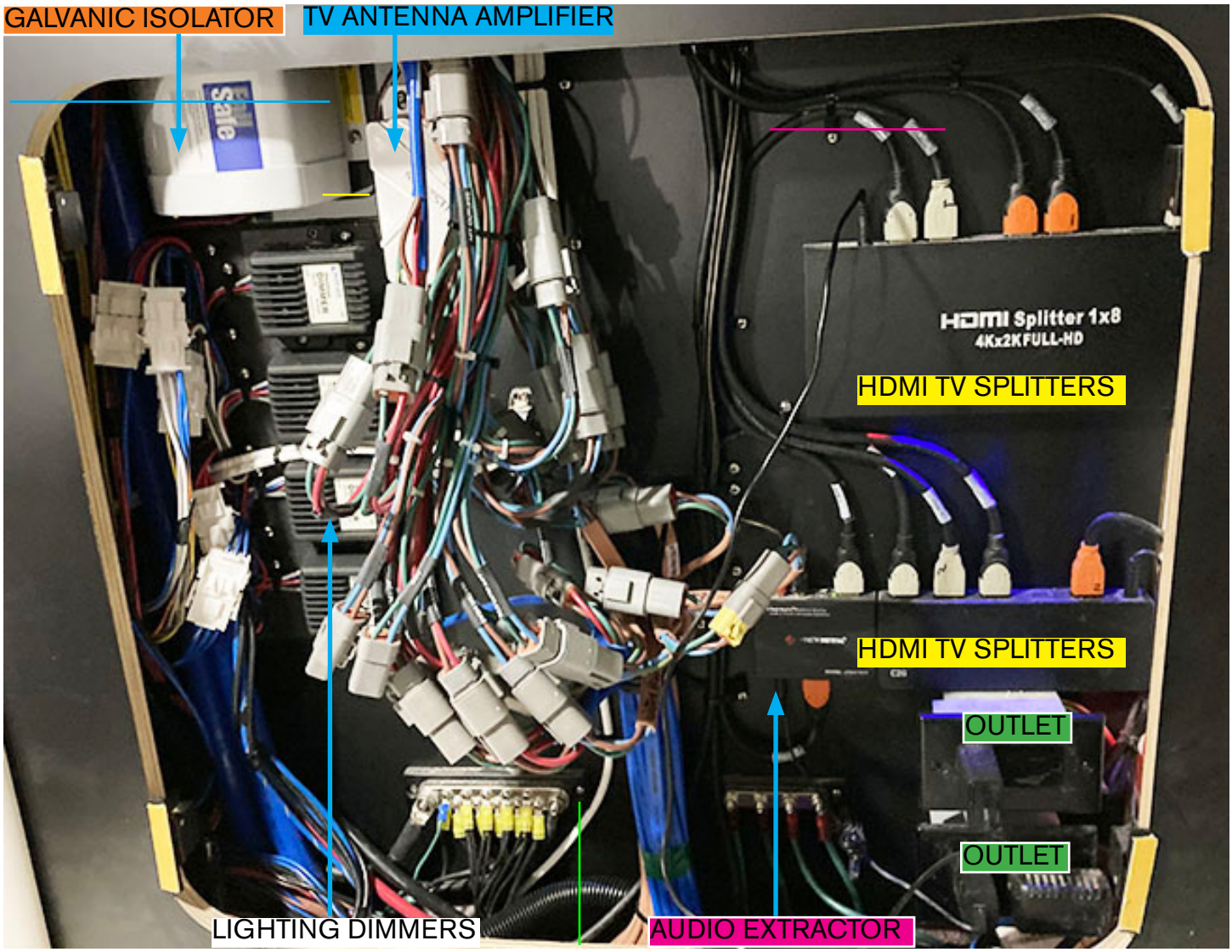
HDMI PORTS &120 VOLT DEVICE RECEPTACLES

Your Regal yacht features HDMI ports for select auxiliary devices such as gaming systems, fire sticks, movie players and computer devices.
The HDMI port is located at the aft end of the hull-side integrated helm locker just below the breaker panel. Also, there are is a duplex outlet for plugging in devices along with shelves for receiver components.
The receiver device HDMI cable is connected to the HDMI inlet to operate the device and typically is visble on the port plotter (the one that runs to the HDMI inlet) and/or single plotter system along with the salon (cockpit) TV.
Select HDMI devices may play on all plotters and television sets. Read and understand the statement below.

Note that there are entertainment copyright laws that may prevent your device from playing select media through the plotter or television system.

Note that the vessel must be connected to dockside power or generator for the HDMI inlets to function since they are energized by 120 volts of AC current.

Television-Typical HDTV Service Locker Components



WARNING

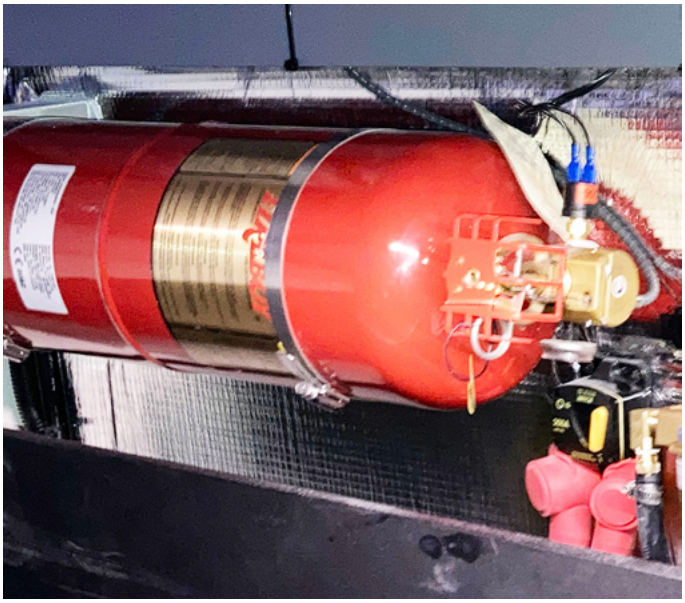
AVOID SERIOUS INJURY OR DEATH FROM HIGH VOLTAGE. DISCONNECT SHORE POWER CORD AND TURN OFF ALL ENGINES, GENERATOR & A/C BEFORE SERVICING COMPONENTS IN THE AFT STATEROOM TV LOCKER.

NOTICE

DO NOT STORE ITEMS IN ANY OF THE ONBOARD SERVICE LOCKERS DUE TO POSSIBILITY OF CONTACTING HIGH VOLTAGE AND EXCESSIVE HEAT!

Fire Protection

Automatic Fire Extinguishing System



Vessels offering generators use both a powered ventilation (blower) system and a fire extinguishing system in the sump capable of automatic and manual activation. The dash monitor utilizes an instrument display unit light that provides the operator with a system status of a charged or uncharged condition by an audible alarm and icons. With the ignition switch "on" and a no light condition it indicates that the system has been discharged.

RESET BUTTON

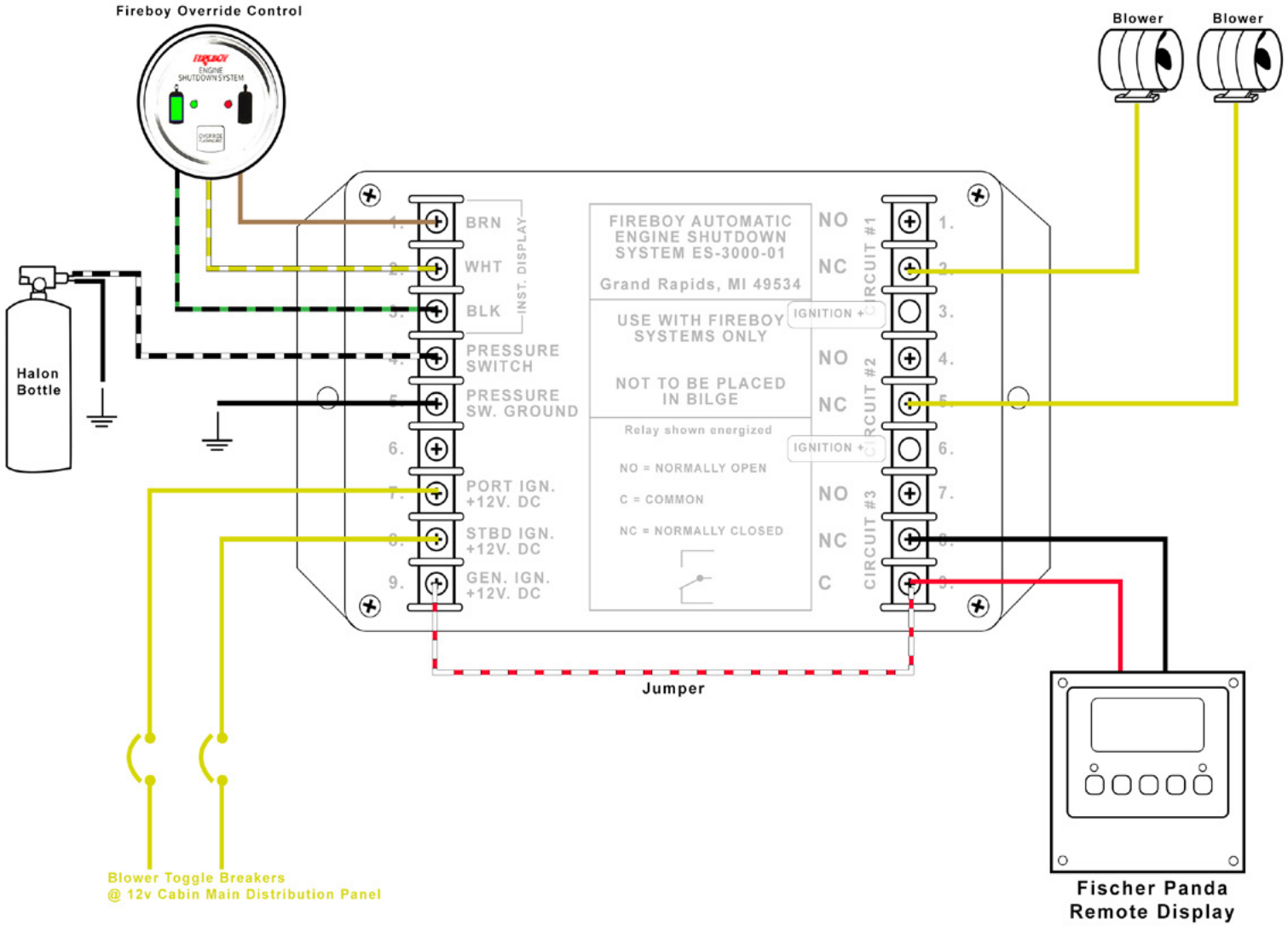
On select generators if the fire extinguishing system should discharge the ignition system will be instantaneously interrupted and the engines and/or generator will shut down. See the automatic fire extinguisher manual in the owner's packet and Halon shutdown drawings on the following page for additional details per propulsion/generator installed. The reset button at the helm gauge must be reset before engines and/or gen-set can be restarted.

If a fire has started in the engine compartment the system will automatically discharge or the operator can manually discharge the extinguisher. Find the system manual cable assembly located in the cockpit. To use the manual remote remove the safety pin from the "Fire T Handle" and pull firmly on the "Fire" handle which will activate the fire extinguisher unit in the engine compartment. A loud "rushing air" sound may be heard. Complete discharge will take several seconds. Keep the compartment closed for a period of time sufficient to permit the agent to soak all areas of the protected space. This allows hot metals and fuel time to cool. Refer to the automatic fire extinguisher owner's manual for additional information.

Note: The boat operator shall to educate the crew on fire protection and more specifically the automatic fire extinguishing system in the event that he becomes incapacitated. It is a good idea to practice by having a mock fire drill.

Subject Work Instruction:	Issue Date:	Rev:	Document No.
Diesel Shutdown Module Diesel Generator w/ Blower Pass-Through	07/21/2020	0	EL-143
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	----	1 of 1

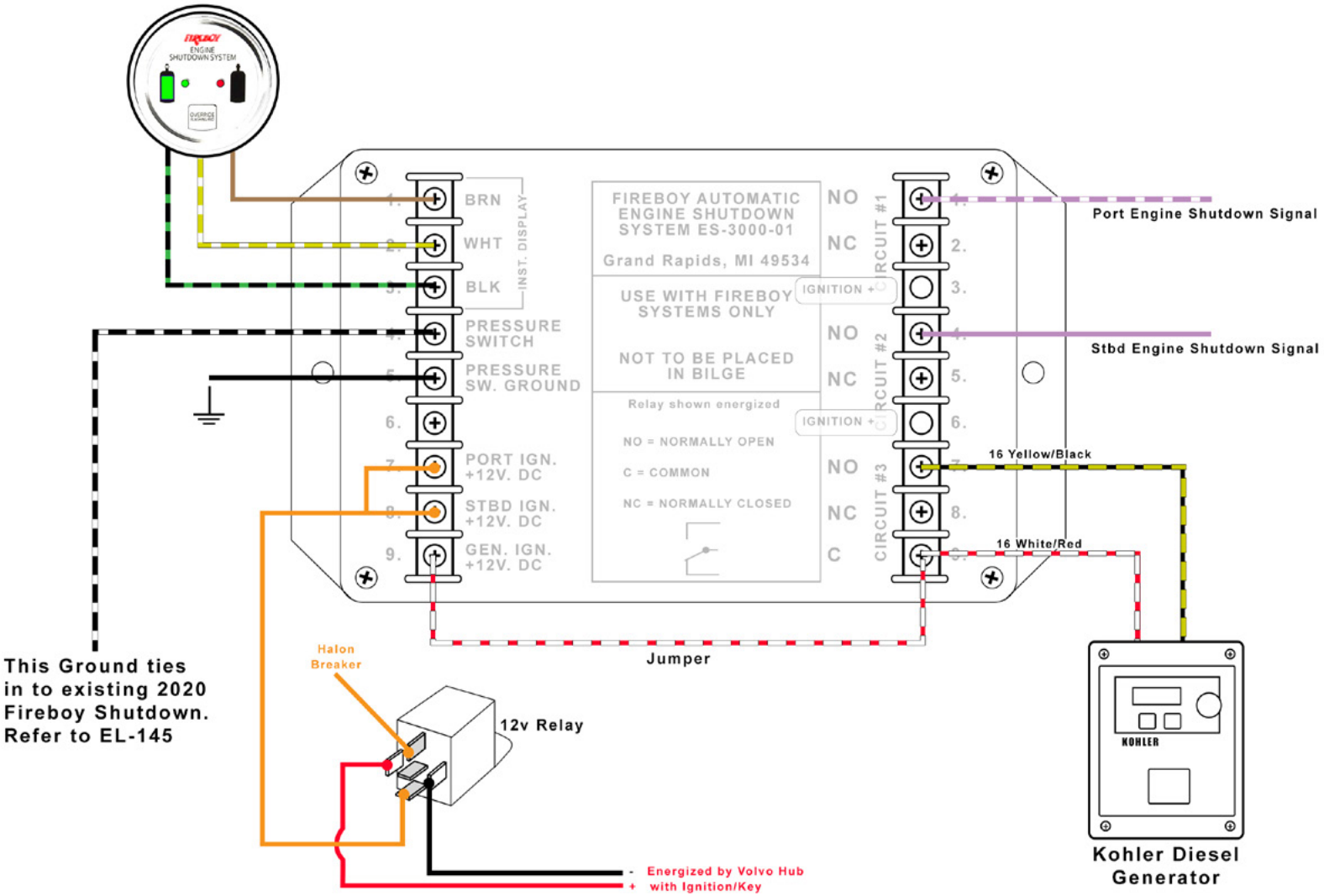
[REFERENCE ONLY]



AUTOMATIC FIRE EXTINGISHER SHUTDOWN SYSTEM W/ DIESEL FISCHER PANDA GENERATOR

Subject Work Instruction:	Issue Date:	Rev:	Document No.
Diesel Shutdown Module Diesel Generator w/ Diesel Engines	09/08/2020	0	EL-146
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	----	1 of 1

[REFERENCE ONLY]



AUTOMATIC FIRE EXTINGISHER SHUTDOWN SYSTEM W/ DIESEL KOHLER GENERATOR

Clean agent extinguishers are primarily for Class B and C fires; (gasoline is a flammable liquid under the Class B group). The extinguisher should be of the 5 lb. capacity and at least 2 are recommended based on the maximum capacity of the fuel tank onboard and the boat length. These extinguishers may be available from your dealer, marine speciality stores, or on the internet. It is recommended to carry extra portable fire extinguishers to backup the automatic fire extinguisher system since a fire could take place in an area outside of the sump/ machinery space.

As noted above a clean agent type of liquefied gas used today is FE-241. This gas is colorless and odorless, heavier than air and sinks to the lower parts of the sump to extinguish fires. Since the year 2000 ingredients have changed to a more environmental friendly formula (Chlorotetrafluoroethane or FE-241). FE-241 is used in portable-hand units.

The canister needs to be weighed once a year. Also, the canister is engraved with a date which is part of the canister life cycle. Refer to the information regarding fire prevention in this manual and on the internet. Normally the clean agent fire extinguishers cost more than powdered or CO2 extinguishers.

Check local, state, and federal requirements on the type and number of portable fire extinguishers for your vessel.

When adding to existing units, locate portable fire extinguishers where they can be quickly accessed in an emergency. Always inform your passengers of fire extinguisher location and usage.

Fresh (Potable) Water System

Overview

The fresh water supply on board is known as a potable (drinkable) water system. The system includes a fresh water tank/sender, manifold on/off valve, fresh water pressure pump/filter along with various hoses, connectors, city water pressure valve, faucets, and drains. We will review the basic system components.

Note that various components in the fresh water system require periodic maintenance to ensure the system continues to run effectively. Refer to the maintenance section and the various vendor instructions found in the owner's packet for further information.

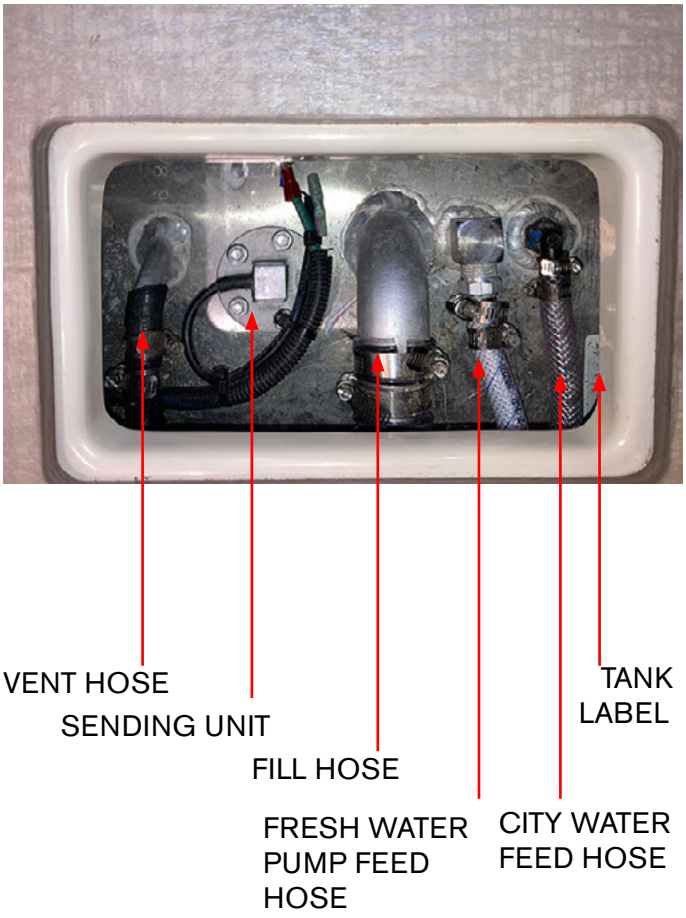
Fresh Water Tank (Potable)

Normally the fresh water tank is manufactured from aluminum for increased strength and longevity. The tank utilizes a sender which senses the tank water level and sends the level information to the appropriate plotter display.

Fresh Water Feed Hose

The fresh water feed hose runs from the fresh water tank to the fresh water pressure pump. It is a reinforced hose to prevent kinking.

FRESH WATER TANK DESCRIPTION- TYPICAL



Sending Unit

Note there is a fresh water sending unit located on the tank top. This sending unit measures the amount of available potable water and sends a signal to the "glass cockpit" or Garmin plotter.

This reading is approximate as there is a margin of error involved. Always check the plotter for fresh water levels before each outing. The above components are accessible by removing the floor plate close to the forward berth.

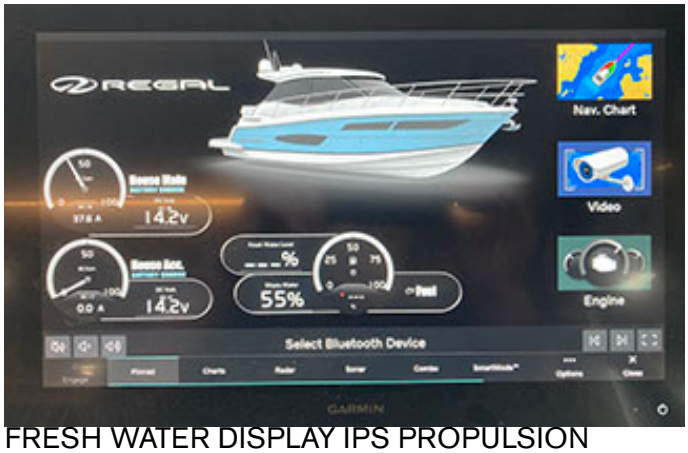
Fresh Water Tank (Fill Using Deck Water Fitting)

FRESH WATER FILL- TYPICAL DECK FITTING

The fresh water (potable) system features a starboard deck fitting/vent for filling the fresh water tank. Select a hose rated for fresh water (normally white verses green lawn/garden hose) to fill from a reliable source. Simply unscrew the fitting cap, insert hose, and turn on the fresh water source. When water begins to exit the hullside vent the fresh water tank is full.

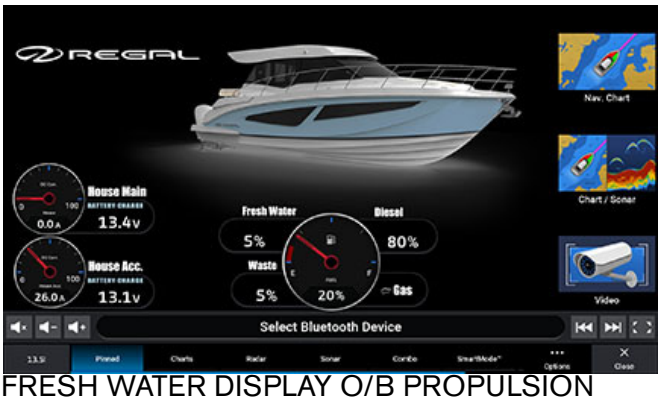
When reinstalling the water fill cap turn it until both blue marks line up which is completely closed and the best position to keep foreign debris out of the fresh water system. Check the plotter for fresh water tank capacity.

Note that capacity of the fresh water tank is approximate 73 gallons.



FRESH WATER DISPLAY IPS PROPULSION

The fresh water (potable) tank capacity is displayed on the Garmin plotter home page as a percentage filled. Note that IPS and outboard propulsion screens are similar.



FRESH WATER DISPLAY O/B PROPULSION

CITY WATER FITTING-TRANSOM LOCATION

The fresh water (potable) system features a transom city water fitting which can be used for filling the fresh water tank. Select a hose rated for fresh water (normally white verses garden hose green).

FRESH WATER VALVE LOCATED IN STBD. HEAD

The fresh water system valve (shown above in the closed position) is used to fill the potable (fresh water) tank ***only*** with the city water system connected. The valve is located inside the starboard head vanity cabinet. Rotate the fresh water valve to the “on”(horizonal) position to fill the water tank.

With your hose connected to the city water valve activate the dockside water source to fill the fresh (potable) water tank.

When the fresh water tank is full (water exiting deck vent) or shown as a “full” % display on the plotter disconnect the water supply and rotate the manifold valve to the “off” (vertical) position.

Note not to energize the fresh water pressure pump during the water tank fill procedure as system water may keep recirculating and the tank may not fill up.

Note that the city water valve protects the vessel water system by limiting incoming water pressure to 35 psi’s. High water pressure could damage water system components.

Fresh Water Pressure Pump (Typical)

Operation

The 12 volt fresh water pump supplies potable water to various vessel fresh water components. At the main DC panel a 15 amp breaker controls the fresh water system. Also, the transom shower, faucets, and any washdown components throughout the vessel are part of the fresh water system. The fresh water pressure pump is typically located in the bilge. The fresh water breaker switch must be activated for any of the above components to operate.

Periodically the water filter strainer located near the fresh water pump needs to be serviced. Inside the filter remove the screen, remove any debris and rinse off with fresh water. Reinstall screen, tighten filter and check for leaks.

Water pressure pumps use a switch which disengages the fresh water pump after it reaches a predetermined line pressure. If the fresh water pump continues to run continuously it may be a result of the following:

- A faulty internal pressure relief valve
- A faucet not turned off
- A broken line or loose line connection

It is recommended that the fresh water pressure pump switch be in the “off” position when leaving your boat to help prevent damage should a leak develop in the cold water system.

Fresh Water Wash Down

If installed at the starboard deck locker is a wash down faucet. The wash down system uses city water when at dock side or the fresh water pressure pump at sea.

Always try to find hose and connections such as a nozzle that use neoprene covers to provide protection from gel coat damage should the nozzle drop on the deck.

Select vessels feature a transom shower/washdown hose for rinising purposes especially useful for sand and debris removal when reboarding.

Fresh Water System- Sanitizing

It is recommended to sanitize your fresh water system at least annually or more often when odors are detected. Contact your closest Regal yacht dealer for more information. He has the tools and factory trained personnel to preform this procedure.

1. Flush entire system thoroughly by allowing potable water to flow through it.

2. Drain system completely including water heater.

3. Fill entire system with a chlorine solution having a strength of at least 100 parts per million, and allow to stand for (1) hour. Shorter periods will require greater concentrations of chlorine solutions. See the table.

TABLE I – CHLORINE CONCENTRATIONS

Amount of chlorine compound required for 100 ppm solution

Solution (Gallons)	Chlorinated Lime 25% (ounces)	High Test Calcium Hypochlorite 70% (ounces)	Liquid Sodium Hypochlorite 1% (quarts)
5	0.3	0.1	0.2
10	0.6	0.2	0.4
15	0.9	0.3	0.6
20	1.2	0.4	0.8
30	1.8	0.6	1.2
50	3.0	1.0	2.0
100	6.0	2.0	4.0

As a rule of thumb quick reference without the use of the table to reach the recommended proportions use a quarter cup of household bleach for every 15 gallons of water in the fresh water tank. Let water tank sit for 30 minutes for the bleach to mix with the water completely and thus be disinfected.

4. Drain chlorine solution from entire system.

5. Flush entire system thoroughly with potable water.

6. Fill system with potable water.

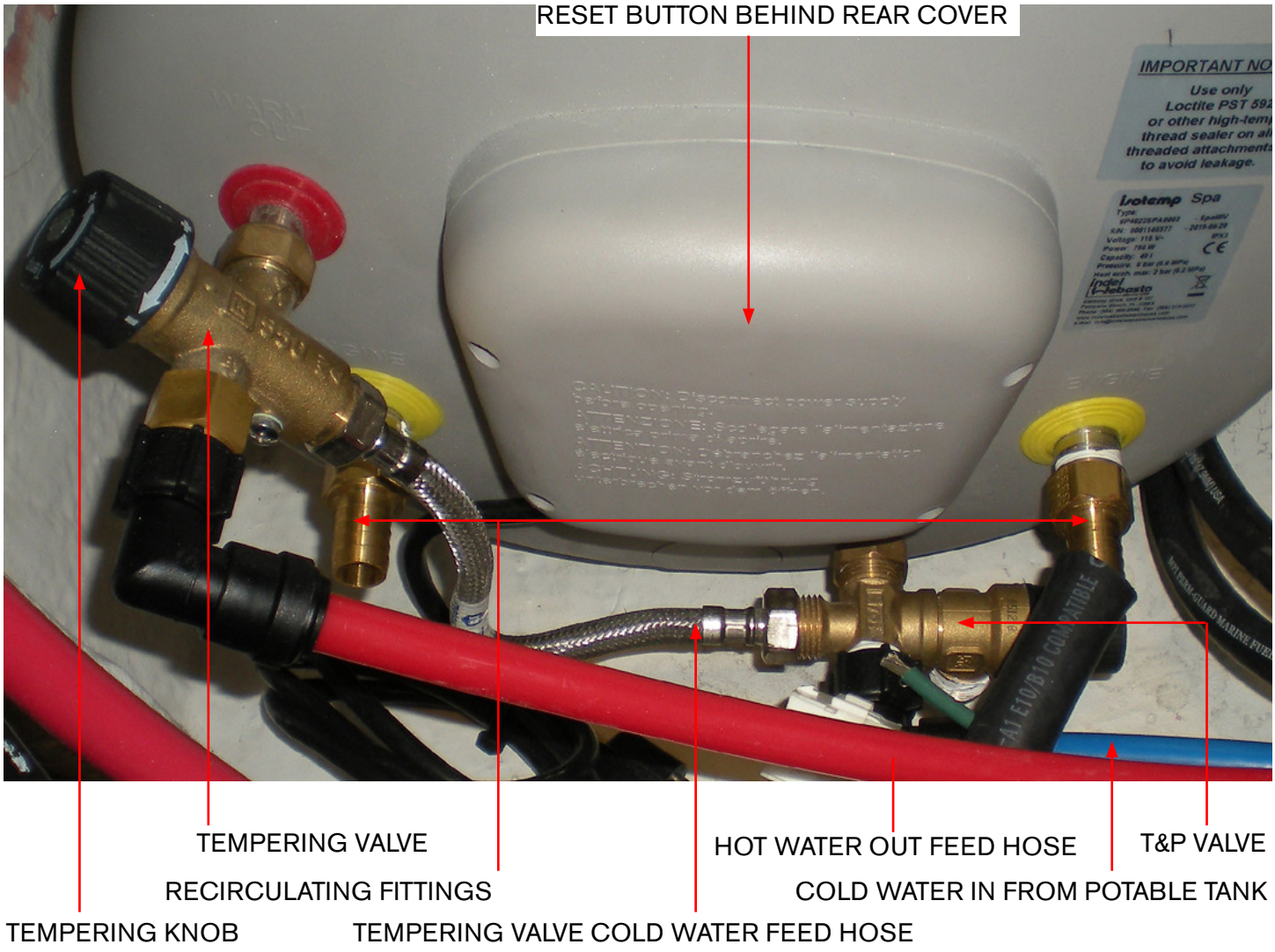
Winterizing Fresh Water System

Note that In freezing climates make sure the fresh water system is winterized to prevent damage to hoses and components.
Follow the instructions in the winterizing chapter depending on your system type or contact your closest Regal yacht dealer since only special alcohol based products like "Winter Ban" are approved to be used in the system.

DANGER

AVOID BODILY INJURY OR DEATH
DUE TO POISON!
NEVER USE AUTOMOTIVE TYPE ANTIFREEZE IN WATER SYSTEM SINCE IT IS POISONOUS TO THE HUMAN BODY!

Hot Water Heater (Typical)



Overview

The ship's water heater requires 120 Volts AC and the unit is located in the sump (bilge). It is a cylindrical shaped unit. The water heater breaker is located on the main ship's AC panel. The system typically features a10.5 gallon capacity. The unit draws cold water from the fresh water tank and is heated by using dock side power or by the generator at sea. *Note that the water heater does have a limited hot water capacity as conservation is needed onboard.*

Operation

The photo above displays key players in the operation cycle of the hot water heater.

The cold (blue) water line transports water from the fresh water tank to the aft tee on the water heater. Water runs through the tank via a tempering mechanism and exits the hot (red) line to the hot side of each sink and to the head shower mixing valve. *The recirculating fittings carry warm engine water to heat water heater at sea (Stern drive models only).*

The tempering valve is attached where the hot water exits the hot water heater for travel to the sinks and shower. You can identify the valve by the arrows on the top of the knob. Make a note of the tempering valve setting and make sure it does not change. The purpose of the tempering valve is to regulate the outgoing heated water to a maximum of 125 degrees. If the output water is of a higher temperature than specified the valve mixes cold water to decrease out going warm water to safe levels through the stainless steel mesh hose.

There is a heat element located inside the rear cover of the hot water heater. These components heat up the water inside the water heater. The element requires that it be immersed in water.
There is a T & P valve similar to home water heaters. If the temperature reaches a pre-determined point in the tank the valve will open and let the over heated water will be exited overboard.

The hot water heater features a 316 gauge stainless steel inner liner with two thermostats; a temperature thermostat and a safety thermostat designed to trip in the event the tank is run dry. Both thermostats can be reset. Furthermore, there is a safety valve for easy winterizing of the unit.
Note there is a red reset button behind the rear cover plate. Due to high voltage disconnect the dockside cord and turn off the water heater breaker before removing the rear cover. Remove the screws to reset the red button on the top of the thermostat. Make sure the cause of the thermostat overload has been idientified and repaired before resetting the thermosat button.
For more information refer to your water heater operator's manual.

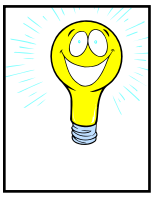
WARNING

PREVENT INJURY OR DEATH
FROM ELECTRIC SHOCK!
NEVER REMOVE THE REAR COVER.
CALL A SERVICE PROFESSIONAL
AS HIGH VOLTAGE IS PRESENT.

CAUTION

PREVENT HOT WATER HEATER DAMAGE!
NEVER ACTIVATE THE BREAKER
WHEN THE HOT WATER HEATER
IS NOT COMPLETELY FULL OR
THE ELEMENT MAY BE DAMAGED!

Fresh Water System-Helpful Hints



1. Fresh water pressure pump cycles on and off. Normally this type of action indicates a water leak in the system. Check all fresh water system related equipment on the deck, cabin, and engine compartment for leaks. Do not forget wash down equipment including spigots. Look for puddled or dripping water.

2. Using potable water system the water pressure is weak. Check the fresh water pressure pump filter for debris. Also, make sure the potable water tank level is sufficient at the monitor panel.

3. Water at sink or shower is hammering and has air bubbles in it. Check for air leaks in the system along with low water levels in the potable water tank.

4. Water is backing up in the shower. Find the shower sump pump. If it is full of water even when running there may be a clog at the pump screen.

5. There is no water at any of the fresh water related equipment such as faucets, showers and wash downs. Check to make sure the fresh water pressure pump breaker is activated. Also, check the fresh water monitor for tank levels.

6. The water system has a bad odor. Use the fresh water pressure pump to drain the fresh water system. Do not drink the water as it may be contaminated. Sanitize the water system.

7. No hot water. Check panel breaker. Check for popped tank element breaker. Reset as needed.

FUEL SYSTEM

Overview

Regal 42' models may feature diesel and/or gas fuel systems for propulsion.

The Volvo IPS (Inboard Propulsion System) models utilizes diesel fuel only for both engine propulsion and on board generator systems. The estimated diesel fuel tank capacity is 258 gallons.

The triple mounted Yamaha outboard models utilize gas for engine propulsion with an estimated fuel capacity of 500 gallons. A diesel generator and separate diesel fuel tank estimated at 40 gallons are featured on the outboard models.

WARNING

TO PREVENT POSSIBLE INJURY OR DEATH READ AND UNDERSTAND THE PROPULSION OPERATOR'S MANUAL BEFORE ATTEMPTING TO OPERATE THE VESSEL.

This manual covers the basic elements of the IPS and outboard fuel systems including the tank, filters, and other fuel related components in separate sections.

Contact your closest authorized yacht dealerfor further information. Dealers have undergone factory training related to on board systems and can be valuable "go to resources" for technical answers to fuel system problems.

IPS Propulsion- Diesel Fuel System (Typical)

Introduction- The diesel fuel system includes the fuel tank, fuel supply and return lines, fill and vent fittings along with fuel filters and the ventilation system.

In reference to diesel fuel today it is processed in a different manner than it was a few years ago. As a result it has become more unstable and the product shelf life has been shortened. A summary of so called diesel fuel "algae" along with its causes and effects will be outlined in this chapter.
As part of the Volvo product features the engines, EVC system and the transmissions are all protected by a fault handling system should a malfunction develop. A portion of this fault system is used to monitor the diesel fuel system.
Select codes warn the captain with a "buzzer" sound while others will display on the helm "glass cockpit" plotter display. The "pop-up" will alternate between the cause of the fault and a task to perform to aid in eliminating the situation.

Note that it is important to read and understand your Volvo propulsion owner's manual in order to react to a fault code should a malfunction display on the plotter display.


TYPICAL LARGE MARINA DIESEL FUEL DOCK

Diesel fuel properties have changed in recent years due to the way the product is processed today at the refineries. A couple of decades ago diesel fuel, gasoline, home heating oil among other distillation products were processed by heating the crude oil. At different boiling temperatures, various parts of the crude oil were evaporated then condensed sending the final products to storage tanks for distribution. The distillation process generally produced stable diesel fuel with a storage life of several months. Around 50% of the oil left over from the distillation process was designated as heavy fuel oil being used for ship's, power plants, and industrial products such as nylon, plastics, and asphalt.

Refining crude oil today has changed dramatically due to increased demand for the product. A process called "chemical cracking" has allowed the refiner to extract more of the lighter distillates from the crude oil leaving about 16% of the residual as heavy fuel oils. Lowering the diesel fuel sulphur levels due to environmental concerns has led to further fuel instability. Due to these newer methods of refining diesel fuel is far less stable than the older distillation process.

There are different theorems on defining fuel system "algae" and how it develops in the vessel's fuel tank. Algae is slang for the fungus that grows in fuel tanks.

One school of thought isolates two of the key fuel components. Asphaltites and paraffins in this premise begin to oxidize and re-polymerize forming clusters resulting in fuel tank "algae". As these clusters "grow" in size they cling themselves to tank walls and baffles.

Keeping tanks free from water, dirt and micro organisms is almost impossible, but luckily you can eliminate them before they reach the engine and fuel injectors through the use of primary and secondary fuel filters. Algae ends up in the fuel system once the boat is running which breaks up the tank "algae" and/or sludge into mini clusters. Others state that "algae" is formed when water condenses in the boat's fuel tank. Water can enter the vessel's fuel tank through the fuel pumping process at the fuel dock since their tank may already be contaminated with algae-micro organisms. Once inside the tank these algae-microscopic organisms from the plant kingdom are able to combine with water and diesel to form tank sludge.

When this condition is present in the marine diesel fuel system the fuel does not combust rapidly as it should resulting in a loss of engine efficiency.

Basically, with either school of thought this "algae" or fuel tank sludge is the result of aging diesel fuel. It can occur in as little as 60-90 days depending on the condition of the tanks and environment where the diesel fuel is stored.

Using diesel fuel in this condition may cause the following:

-
- Tank sludge-remove manually/chemically
- Dirty engine oil
- Shortened engine component life
- Smoke emitting from the engine exhaust system
- Carbon deposits in the engine
- Incomplete combustion
- Loss of power and performance
- Clogged primary and secondary fuel filters
- Malfunctioning fuel injectors

Solutions- Diesel Fuel Quality

As a Regal yacht owner you have a huge investment in your diesel propulsion system. Being the engines are a key component in the system, keeping the fuel system clean is a high priority.

Following are some solutions to help clean up a diesel fuel "algae" problem:

Periodically use a biocide to control microbial activity which can lead to more rapid formation or clustering of solids such as wax and asphalt. Remember that biocides do not prevent microbes from forming but aid in breaking up the clusters. If the vessel is to be stored for over 2 months pour biocide in the semi empty vessel fuel tank. Fill the fuel tank with fresh diesel fuel to prevent condensation build up. Run the boat for a short run to better mix the biocide inside the fuel tank and fuel system before storing the vessel.

1. Always make sure the fuel tank fill cap is securely tightened to prevent any water infusion.
2. Always buy diesel fuel from a marina or fuel dock that moves a large amount of fuel through the pumps. Ask how often the fuel dock pump filters are changed and if their diesel fuel is blended with a biocide. Always carry a couple of extra primary and secondary diesel fuel filters. Use exact replacements in order to match micron filtering capacity.
3. Figure on changing both primary and secondary fuel system filters more often due to today's diesel fuel shorter storage life.
4. Make sure to drain the 10 micron Racor water separator fuel filter and the engine secondary fuel filter before each outing. Look for sludge/water. Dispose of contaminated diesel fuel properly in approved containers. Do not drain diesel fuel in the bilge.
5. Never let diesel fuel remain in the boat's fuel tank for more than six months. The cetane value will drop which is its ability to ignite easily. Good grades of diesel support a cetane rating around 50. When the cetane level drops the engine is more difficult to start. The combustion process moves from a controlled burn to an explosion. Pump out the old diesel and replace with a fresh supply. Old diesel fuel creates more stress on engine parts and produces more noise than normal resulting in the trademark diesel clatter.

Pour a cetane booster and conditioner in the fuel tankwith the new batch of diesel fuel.

Note: In severe cases of "algae" the fuel tank may need to be pumped out. To remove the ability to generate new algae, the tank should be pressure washed which removes small deposits of "algae" from the baffle system and hard to reach areas. Add a biocide (not a conditioner) and then top off the tank.

Remember: LESS AIR MEANS LESS WATER AND LESS GROWTH!

Diesel Ventilation System- Typical

INTEGRATED VENT DUCTING SYSTEM- PORT SIDE SHOWN

Overview-

Diesel engines and generators require a continuous supply of fresh air in order to deliver peak horsepower and rpm. Because diesel fuel is far less likely to explode it does not require a blower system like gasoline powered vessels to evacuate dangerous fumes.

To deliver fresh air for the diesel engines a dual set of permanently mounted vents are integrated into the boat's deck on both port and starboard sides

When the engines are started fresh air is drawn through the vent system. As the demand for air increases in relationship to the engine revolutions per minute (rpm's) the engine induction system supplies the required additional air supply by inhaling more air through the vents.

Check the vents periodically for any obstructions or foreign objects such as nests or spider webs.

Note that if the propulsion system is running at a lower than normal cruising rpm or seems to lack power or the vessel is slow to plane check the fresh air supply to the engines including the engine air filters and ventilation system.

Note: Never make changes to a natural or powered ventilation system or obstruct any air intakes.

Glossary Of Diesel Fuel Properties

As a Regal yacht owner you have a huge investment in your diesel propulsion system. Diesel fuel is an ever changing commodity these days. This includes the process of refining diesel and regional differences nd seasonality effecting diesel additives. Therefore, the following information may be helpful in understanding the many aspects of diesel fuel commonality of product knowledge and language.

Cetane number- This is a measure of a diesel fuel's ability to ignite. An out of range cetane number will provide poor starting and increased hydrocarbon emissions.

Cetane index- This index is calculated from the distillation range and density of the fuel.

Density at 15 degrees C- Low density reduces engine power and increases fuel consumption To much density will increase engine power above safe limits.

Viscosity at 40 degrees C- Low viscosity reduces engine power and increases fuel consumption. Excess viscosity will lessen the fuel injection equipment durability.

Aromaticity- Excessive aromatic content will impair exhaust emission content especially particulates.

Oxidation stability- It is a measure of the chemical stability of the fuel, important for biodiesel blends in the 20-30% range.

Sulfur content- It is an inherent factor in fossil fuels. Too much sulfur content will impair the engine and exhaust after-treatment functions and emissions of sulfur oxides and particulates.

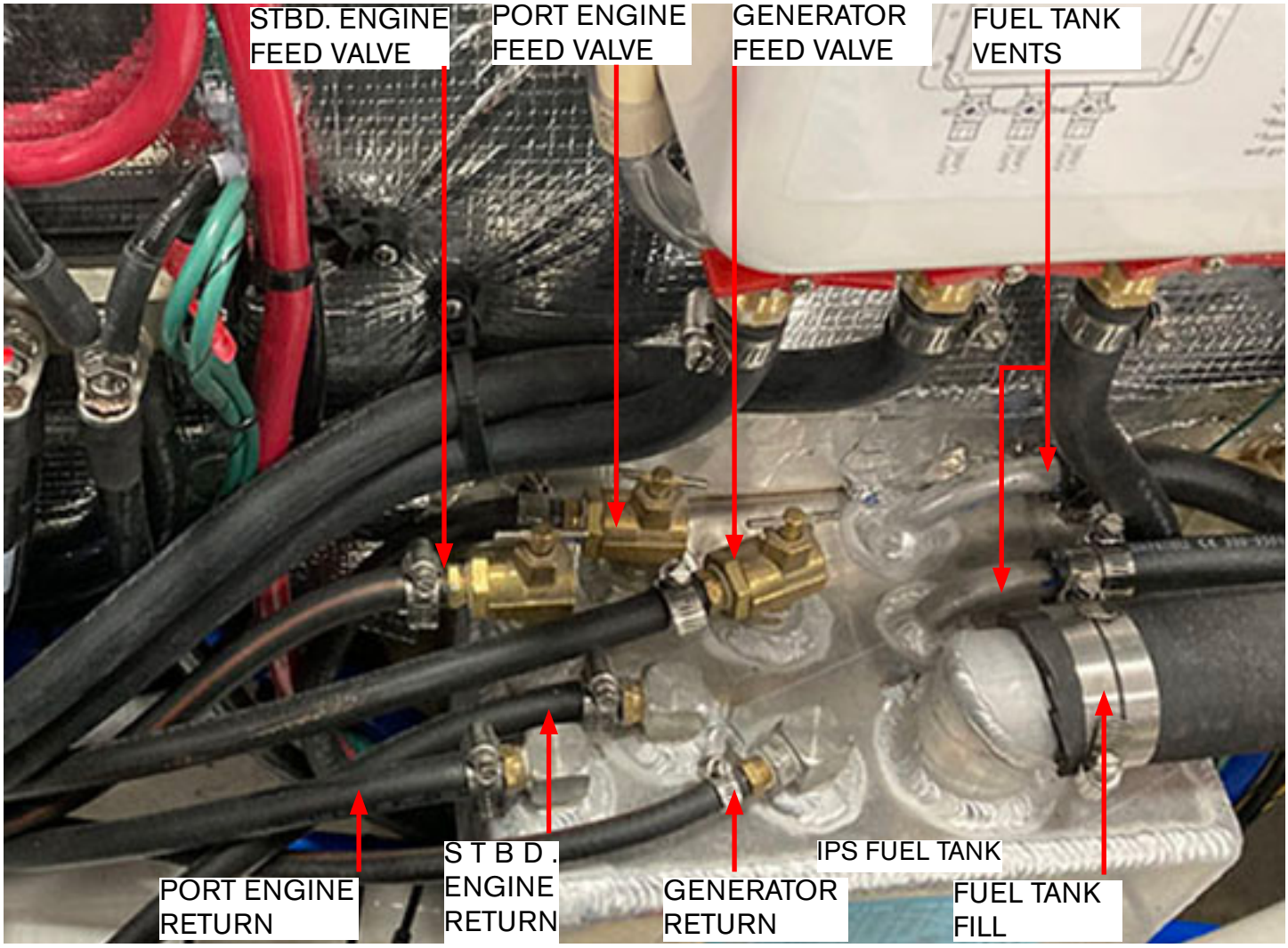
Water content- Too much water will cause wear on engine parts, particularly the fuel injection system and corrosion. Water can increase microbial fuel tank growth, which may result in clogging up the fuel filter.

Total contamination- Organic contaminants (fungi, bacteria, etc.) can lead to fuel filter clogging. Inorganic contaminants (dust, rust, sand) can cause severe damage to entire fuel injection system parts.

Cold flow properties- Cloud point is the temperature below which wax crystals begin to form in diesel fuel.
Cold filter plugging point- Lowest temperature at which the diesel fuel still passes through filters.
Pour point- Temperature below which the diesel fuel become semi solid and loses the ability to flow.

Flash point- It is a measure of a fuel flammability; not a measurement for engine operation. It is important for classification of fuels into hazard classes for insurance and transport.

IPS Diesel Fuel System Component Overview- Typical



Fuel Tank

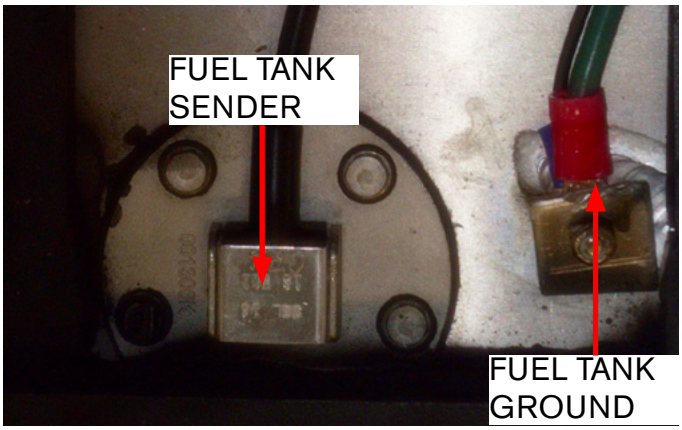
The IPS diesel fuel tank is located under the aft stateroom floor. The fuel tank features shut-off valves for both engines and generator lines. Note that the feed lines feature shut-off valves. The fuel tank connections are located at the starboard engine fire wall bulkhead for friendly inspection and service. Besides the feed side of the diesel fuel system is a set of return valves and hoses. Left over fuel returns to the fuel tank for future use.
Check critical fuel system components such as filters and their connections before each cruise.

Knowing the basic fuel flow pattern may be helpful as a troubleshooting tool. In the event of a fuel leak the valves can be turned to the “off” position. Read and understand the fuel system warning below!

WARNING

PREVENT INJURY, DEATH, AND/ OR PROPERTY DAMAGE!
INSPECT THE ENTIRE FUEL SYSTEM AT LEAST ONCE ANNUALLY FOR LEAKS, LOOSE CLAMPS, & FASTENERS.

Typical Fuel Sender



Placed at the top of the fuel tank is an electronic fuel sender. This device reads the amount of fuel remaining in the fuel tank and sends a signal to various displays including the fuel system display on the Garmin chart plotter(s).

Always use the one-third rule with diesel fuel. One-third for outbound cruising, one-third for inbound cruising, and the remaining one-third fuel supply for reserve.

Check the ground terminal at least twice yearly for tightness since a loose connection could result in erratic or no fuel reading.

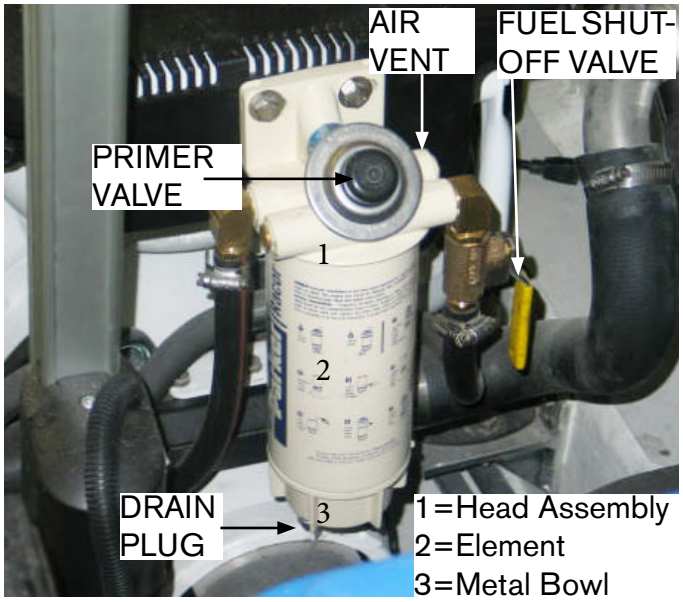
Typical Diesel Fuel Fill Fitting

Fuel tank fill fittings are normally located on the deck. They are marked diesel. Never pump gasoline in a fuel tank designated for diesel fuel. After fueling close the fitting tightly. Failure to secure the fuel fitting tightly may allow water to enter the fuel tank and eventually the engine fuel system. Periodically lubricate the fuel fitting O-ring by coating with clean diesel fuel. This will help keep the O-ring pliable and retain its sealing properties.

The fuel vent serves as a pressure relief for the diesel tank and is a safety overflow device. It has a screen inside which needs to be periodically cleaned. Insects can cause the vent to clog resulting in increased pressure in the fuel system especially noticeable when filling the fuel tank. In extreme clogging cases the fuel will emerge from the fill because the vent is not able to relieve the air in the fuel tank that is being replaced with diesel fuel.

IPS Diesel Primary Engine Filter System- Typical

Regal yachts feature a primary and secondary fuel filter system to provide maximum engine protection. Each engine offers an in-line primary 10 micron Racor water separator filter which is the first line of defense. In addition, Volvo provides a secondary filter mounted on each engine for enhanced protection from water, dirt/ “algae” micro organisms/clusters.



IPS RACOR WATER SEPARATOR DIESEL FILTER

To Drain Racor Primary Water Separator Filter

The Racor diesel fuel filter should be drained frequently and checked for water and other contaminants. Primary filter shown above. Drain as follows;

1. Place filter fuel valve in the “off” position which is perpendicular (90) degrees to the fuel lines. Failure to turn valve off may allow a continuous flow of fuel due to siphoning.
2. Place a suitable container below the filter bowl assembly to catch the contaminants.
3. Remove drain plug at the bottom of the filter bowl assembly. Drain the contaminants.
4. Replace the drain plug. See section on “priming.

Note to examine the diesel fuel in the drain container. Water is heavier than diesel fuel and will be noticed as a different color on the bottom. If water is present tilt the pan and any water will move on the bottom. In extremely humid conditions, the fuel system may require daily checks and draining of water.

ALWAYS CARRY EXTRA FUEL FILTERS AS EVEN ONE TANK OF CONTAMINATED FUEL CAN PLUG A FUEL FILTER. USE EXACT REPLACEMENTS ONLY.

To Prime Racor Primary Water Separator Filter

1. Loosen the air vent plug on the top right side of the fuel filter.
2. Operate the primer valve until diesel fuel emerges from the air vent plug free of air. In some cases, multiple pumping is required depending on the amount of air in the fuel system. Also, it is a good idea to prime the engine secondary filter as air could be trapped in the lines.
3. Close the air vent plug and tighten securely.
4. Start the engine and check for leaks. If the engine is difficult to start or is rough running check to see that all connections are tight and there are no kinked fuel lines.

To Replace Racor Primary Diesel Filter Element

1. Place a suitable container under the bowl to collect the contaminated material.
2. Turn off the fuel valve.
3. Spin the element and bowl off in a counterclockwise direction using the correct filter removal tool. You can purchase these at retail auto or marine outlets.
4. Remove the bowl from the element.
5. Clean the bowl O-ring gland and bowl sealing surface of dirt, debris or “algae”.
6. Lubricate a new O-ring and the element seal with fresh diesel fuel.
7. Place the new element seal into the element top with the bevel side up and the new O-ring into the bowl gland.
8. Firmly hand tighten the bowl onto the element. Now attach both onto the head by hand. DO NOT USE TOOLS TO TIGHTEN!
9. Prime the fuel system. Refer to the previous information.
10. Start the engine and check for leaks.

Notes- Element Replacement

Contamination level varies in fuels. As the fuel system slowly plugs the element fuel flow to the engine becomes increasingly restricted.
Replace the element every 500 hours, annually, or at the first sign of power loss or hard starting which ever comes first.

Secondary Engine Mounted Diesel Fuel Filter

To Drain, Prime Or Replace Secondary Fuel Filter Element

Refer to the Volvo Penta IPS operator manual for specific information. Read and understand the procedures before attempting to service the secondary engine mounted fuel filter.

Follow all safety requirements and environmental regulations when servicing the fuel system.

Possible Diesel Fuel Problems/Solutions

1. Engines are hard to start or rough running- This problem can be caused by air in the fuel system or a restriction in the fuel supply which causes a lean condition.
Check all fuel system lines, clamps, fittings and filters for tightness. Prime and bleed the fuel filters if necessary.

2. Fuel filter elements contain “algae” or exhibit a brown or black color and/or show water in the fuel system.
Check fuel tank for “algae” clusters. Fuel tank may require pumping out and a cleaning with a pressure washer or a biocide being added to “kill” existing organisms which may be caused by water in the fuel system and fuel tank. Replace all filter elements and top the tank with fresh diesel fuel. Prime and bleed the system. Run the engines and check for fuel leaks and restrictions along with the possibility of further contamination moving within the fuel system lines and/or components. It may be necessary to replace diesel fuel system filter elements several times to rid the system of contaminants.

3. The fuel tank reads low and the engines are running rough. The pick-up tubes in the diesel fuel tank have sucked up air instead of fuel. The air has meandered through the fuel lines, filters and is effecting the engine performance. Top off the fuel tank as soon as possible. Also, the fuel system must be bled and primed.
Another possible result of running with a near empty fuel tank is the same pick-up tubes sucking water into the fuel system. Remember water is heavier than diesel fuel and will hug the tank bottom or baffle areas. Take a sampling of diesel fuel to identify water in the fuel system.

4. Recommissioning after 6 months of winter storage with a full diesel fuel tank the engines are hard to start and exhibit a diesel clatter noise.
The diesel fuel in the tank may have deteriorated due to its age. The cetane value may have decreased causing more of an explosion inside the cylinder verses a controlled burn. To start with add a cetane booster and conditioner. If this fails take a sampling of diesel system fuel at the filters
to determine contamination levels.
As a last resort pump out the fuel tank and replace with fresh, clean diesel fuel.

Refer to your Volvo propulsion operator’s manual for further information.

Outboard Propulsion- Fuel System

Overview

Select Regal 42' models feature a Yamaha triple outboard propulsion system operating from a gasoline fuel source. The outboard engine gasoline fuel system features an estimated fuel capacity of 500 gallons.

The fuel system includes the fuel tank, fuel feed lines, fill and vent fittings, fuel filters, emission devices along with ventilation systems.

Note that the 42' outboard models feature a diesel fuel system for the generator. Refer to the previous pages for diesel fuel system as the water separator primary and secondary filter maintenance procedures are very similiar. For further fuel system information refer to your Fischer Panda generator operator's manual.

WARNING

TO PREVENT POSSIBLE INJURY OR DEATH READ AND UNDERSTAND THE PROPULSION OPERATOR'S MANUAL BEFORE ATTEMPTING TO OPERATE THE VESSEL.

Read and understand the following safety labels regarding the outboard propulsion gasoline fuel system.

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.

WARNING

GASOLINE VAPORS CAN EXPLODE!
BEFORE STARTING ENGINES
CHECK COMPARTMENTS AND MOTOR WELL FOR GASOLINE LEAKS OR VAPORS.

WARNING

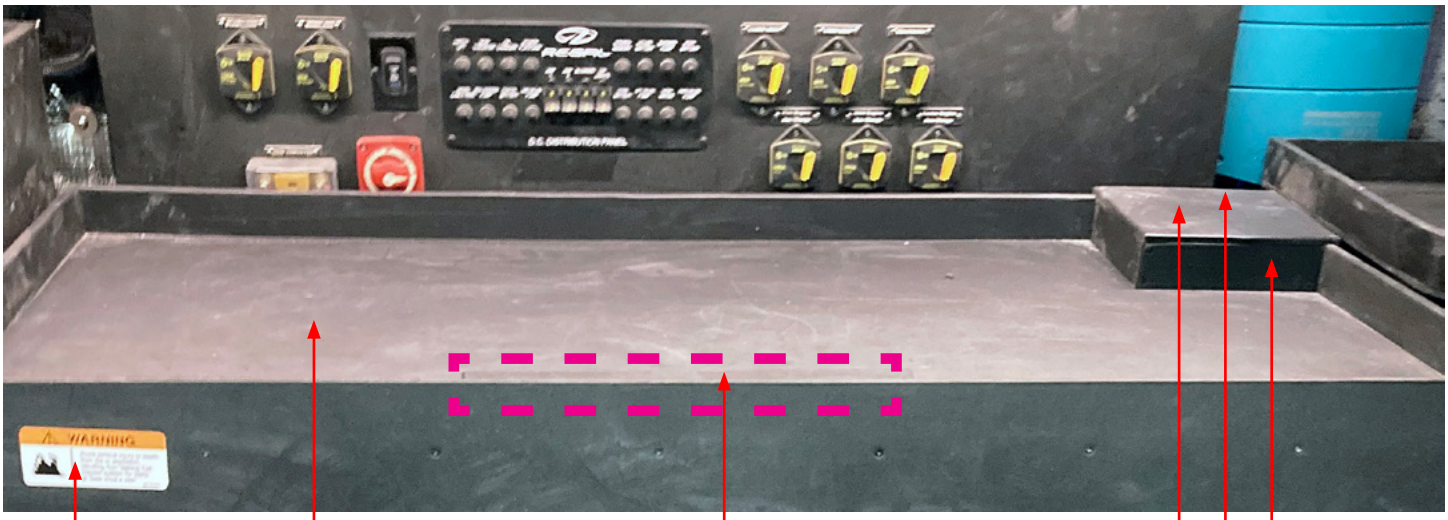
PREVENT INJURY OR DEATH
DUE TO FIRE OR EXPLOSION!
DO NOT STORE PORTABLE GASOLINE TANKS OR FLAMMABLE LIQUIDS ON BOARD.

Note that gasoline today is processed in a different manner than it was a few years ago. As a result it has become more unstable and the product shelf life has been shortened.

WARNING

AVOID SERIOUS INJURY OR DEATH FROM FIRE OR EXPLOSION, RESULTING FROM LEAKING FUEL. INSPECT SYSTEM FOR LEAKS AT LEAST ONCE A YEAR.

Outboard Gasoline Fuel System Component Overview- Typical



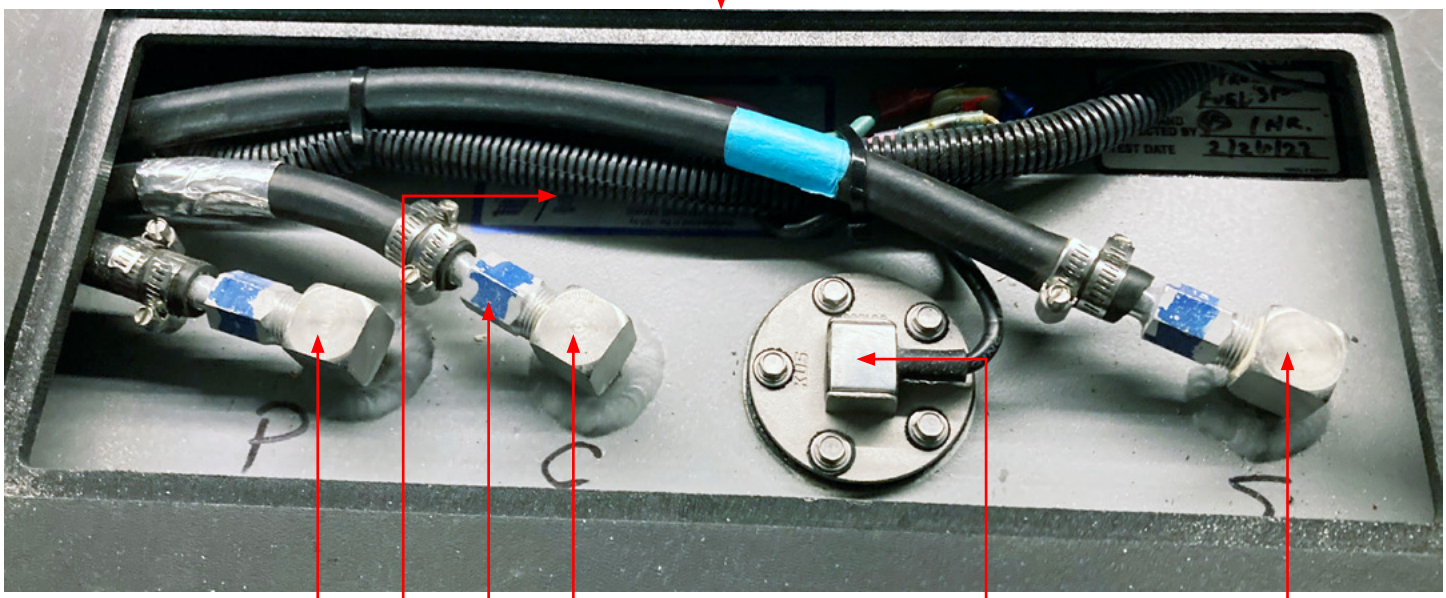
FUEL TANK COVER

ACCESS COVER

2 VENT HOSES

FILL HOSE

WARNING LABEL-FUEL STORAGE



TO PORT OUTBOARD

TO CENTER OUTBOARD

TO STARBOARD OUTBOARD

ANTI-SIPHON VALVE

TANK MANUFACTURER LABEL

SENDING UNIT

Fuel Tank

42' outboard models manufactured for *domestic* use are now required to be outfitted with an EPA compliant fuel system using an aluminum tank that passes a variety of tests. This system uses special valves and baffles located inside the aluminum fuel tank along with special hoses marked for low permeability. Furthermore, there are carbon canisters in-line with the vent hose which functions much like the one in an automobile by filtering gas fumes into the atmosphere.

These tanks are tested and inspected along with the complete fuel system several times for safety requirements and quality by the fuel tank supplier, in house personnel and independent inspections by National Marine Manufacturers Association personnel using ABYC standards.

NOTICE

DO NOT OVERFILL THE FUEL TANK! THIS HELPS AVOID ANY OVERBOARD SPILLS WHICH MAY HARM THE ENVIRONMENT.

Fuel Fill Fitting

COMBO FUEL FILL/ INTERNAL VENT

The fuel fill fitting is labeled "gas" and in addition displays the international symbol. When fueling the boat keep the fill nozzle in contact with the fuel fill pipe since it decreases effects of static electricity. Always use the recommended fuel octane rating as specified in your engine owner's manual.

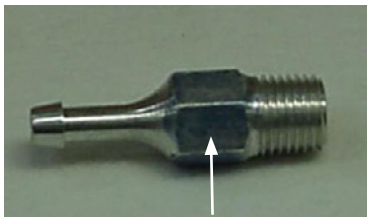
Currently, domestic EPA compliant fuel tanks vent fumes back into the fuel tank system. While the tank is filled, air displaced by the incoming fuel is vented through the fuel system charcoal canister. Your vessel uses a combo type (internal vented) fuel fill. Both the fuel fill and vent occupy the same cavity under a protective cover.

Fuel Vent Fitting

If fuel overflows through the vent the design forces it back into the fuel fill hose and tank. Be sure to tighten the fuel fill cap to prevent water and debris from entering the fill system. The red dots on the fitting and the cap must align which assures a watertight seal.

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. On select vessels not using an EPA fuel system there may be a separate vent fitting on the hull side. Periodically check this vent screen for debris and insect activity.

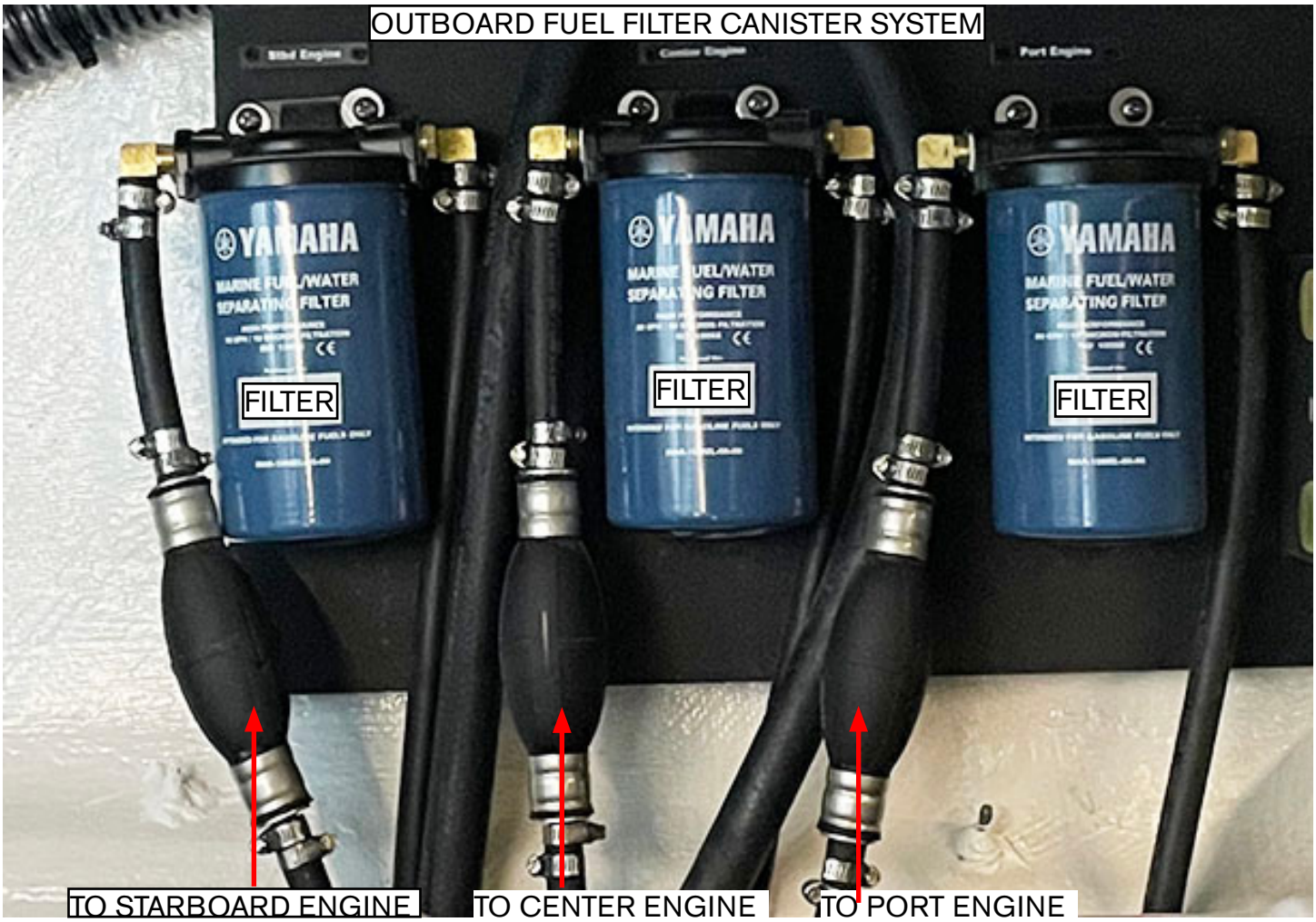
Anti-Siphon Valve


INTERNAL BALL/SPRING

The gasoline fuel tank feed line that runs from the fuel tank to each engine features an anti-siphon valve. See the fuel tank photo. 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. There is a ball and spring assembly inside the valve that is activated by fuel pump impulses. It allows a one-way fuel roadway to the engine or generator fuel system. It prevents fuel from siphoning out of the tank in the event of a fuel line rupture or disconnected fuel feed hose. When the engine fuel components stop the fuel from cycling the spring forces the ball against the valve opening to prohibit fuel flow.

Never remove an anti-siphon valve as it is a fuel system safety component. Also, never remove the ball and spring from the valve assembly. The anti-siphon valve requires no normal maintenance. Symptoms indicating possible valve problems may be fuel starvation at intermediate or high rpm or in extreme cases an engine that will not start. Contact your Regal dealer for further information.



Regal 42 outboard fuel systems feature an in-line 10 micron primary water separator filter for each outboard which is a spin on/off canister type similar to an automobile oil filter. Its main purpose is to trap small dirt particles and condensation (water) in fuel.

It is recommended to keep extra fuel filters on board along with a strap style filter wrench, catch container and clean cloths for emergencies. Never use automotive style fuel filters on your vessel. Dispose of all fuel residue materials in an environmentally safe fashion.

Read the following page for instructions to change the outboard primary fuel filter canisters.

These filters are available on-line, through marinas, retail marine outlets, or can be ordered through your closest Regal authorized dealer.

Fuel Filters Outboard- Replacing Primary

Periodically the in-line 10 micron outboard water separator filters require replacement.

Follow the instructions below to change fuel filters:

1. Place a catch container and clean cloths under the filter canister to catch fuel. Make sure the container has enough volume to catch fuel when poured from the canister to monitor fuel contents.

2. Insert the strap wrench around the canister. Tighten the strap and turn right to left to loosen the canister.

3. Pour the canister fuel contents into the catch container. Visually check for debris and more specifically for cloudy areas at the bottom since water is heavier than gasoline and will sink. It may appear as a bubble when catch container is moved.

4. Dispose of all fuel residue materials in an environmentally safe fashion.

5. Fill the new canister with fresh gasoline. Install by hand only until snug.

6. Pump the fuel line bulb until tight. This assists in removing any fuel line air pockets.

7. Run the blower for at least 4 minutes.

8. Start the engines & check for fuel leaks.

Fuel Filters Outboard- Secondary

In addition, secondary fuel filters are found on outboards under the motor shroud (cover) which should be serviced periodically per the outboard motor manufacturer's instructions.

OUTBOARD SECONDARY FUEL FILTER

Outboard Fuel System Charcoal Canisters

Regal 42' models with outboard gasoline propulsion are required to use charcoal canisters for tank vent systems. These canisters purify air exiting the vent hose to the atmosphere. The charcoal canisters do not require any service and are located in the sump.

TYPICAL OUTBOARD CANISTER SYSTEM

Outboard Fuel Line Primer Valve

A special low permeability bulb and hose is supplied by Yahama to feed the fuel from the tank to the outboard engine. Sometimes it is necessary to pump the gas line hose bulb before starting the engine.

Note that the fuel line bulb and hose for each engine is in the lazarette storage area connected to the outlet side of the fuel filter.


OUTBOARD HOSE/BULB

If the need arises to replace the fuel bulb be sure to turn the arrow imprinted on the bulb toward the engine side for correct fuel flow. See your Yahama outboard manual for more details.

Note that due to a possible fire or explosion danger never store flammable liquids and/or portable outboard fuel tanks in any on board storage compartment such as the bilge lazarette locker.

Gasoline Specifications/Octane Ratings:

Gasoline Requirements- Use premium non-leaded gasoline with the following minimum octane rating for Yamaha outboard engines:

▪ ***Minimum pump octane number (PON) is 89***.

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 premium unleaded gasoline blended with no more than 10% ethanol and that meets the minimum octane specification.

Do not use ethanol blends greater than 10% such as a newer blend for select motor vehicles called E-15 or E-85. Your marine engine may be damaged by more than 10% ethanol. A loss of performance may occur and the engine will not be covered by the engine manufacturer's warranty.

Refer to your outboard manufacturer's operation manual for additional information regarding the proper octane level for your outboard model. Using the wrong octane level may cause permanent engine damage such as piston detonation.

As an option contact your outboard manufacturer's hot line or text on the web with fuel related questions. Also, additional fuel system information may be found by contacting your closest Regal dealer. He has acquired special training on propulsion and vessel systems.

Generator-Typical

Overview

A diesel generator (gen-set) is featured to provide on board alternating current (AC) when the vessel is not connected to dock side power. Generator frequency known as hertz is domestically set at 60 while overseas countries normally require a setting of 50. As the generator reaches full rated no load output (amps) at 60 hertz it should display 120 volts. At 50 hertz it should display 240 volts.
The generator is located in the bilge (sump). The typical generator offers a removable sound enclosure shield which reduces noise and includes access features for remote starting, troubleshooting and routine maintenance schedules.

Refer to your generator operator's manual for detailed information as two diesel generator models are used depending on IPS (inboard propulsion system) or outboard propulsion.

Note that diesel generator models, specifications, and/or technical information may change at any time due to Regal's commitment to constant product improvement.

Generator Fuel System

The current IPS Kohler generator uses the same fuel tank as the engines. The outboard Fischer Panda generator uses a 38 gallon stand alone diesel fuel tank. The generator feed valve is typically marked for identification purposes.
Familiarize yourself with the location of all fuel tank components and valves.
Note that normally the generator feed and return use a 1/4" barb fitting located on the fuel tank. The fuel system features an in-line fuel filter located close to the generator. It's job is to keep fine particles and water out of the generator fuel system. Refer to the vendor information for periodic maintenance schedules. Clean fuel is the life line of generator performance.
Since water is heavier than fuel it will settle at the bottom of the water separator filter. Periodically check the filter for foreign debris and water in the fuel supply. To check the filter rotate the filter counterclockwise using an oil filter type wrench that fits on the bottom. Do not use a strap type wrench since it may distort or damage the filter housing.
Use an environmentally safe container to catch any contaminated fuel. Dispose of according to local, or state regulations.
When you empty the fuel filter canister note that any water in the fuel will gather at the bottom of the container since it is heavier than diesel and will appear as a different color and consistency and normally will move back and forth independently from the diesel mixture in the container.
After inspection spin on the filter by hand until tight. Start the generator and check for fuel/air leaks.
Also, there is a secondary fuel filter mounted at the generator unit. Refer to your generator operator's manual for further information.

Typical Generator Safety Labels

**Note that safety labels shown apply to both IPS and outboard propulsion generators*

DANGER

AVOID BODILY INJURY OR DEATH DUE TO GENERATOR HAZARDOUS VOLTAGE AND MOVING PARTS!
OPERATE GENERATOR ONLY WHEN ALL GUARDS AND ELECTRICAL PANELS ARE IN PLACE.

WARNING

TO PREVENT POSSIBLE INJURY OR DEATH DUE TO HOT COOLANT/STEAM!
ALWAYS STOP GENERATOR AND LET COOL BEFORE PERFORMING ANY COOLANT FUNCTIONS!

WARNING

TO PREVENT POSSIBLE INJURY OR DEATH READ AND UNDERSTAND ALL GENERATOR OPERATOR'S MANUAL SAFETY INSTRUCTIONS BEFORE OPERATING THE GENERATOR.

CAUTION

PREVENT HEARING LOSS DUE TO HIGH DECIBEL NOISE!
NEVER OPERATE GENERATOR WITH A FAULTY EXHAUST SYSTEM OR WITHOUT A MUFFLER

WARNING

TO PREVENT POSSIBLE INJURY OR DEATH DUE TO ACCIDENTAL STARTING!
ALWAYS DISCONNECT THE BATTERY CABLES BEFORE PERFORMING GENERATOR MAINTENANCE.

CAUTION

TO PREVENT GENERATOR/ ELECTRICAL SYSTEM DAMAGE
NEVER DEACTIVATE A BATTERY SWITCH AT THE BATTERY ACTIVATION PANEL WITH THE GENERATOR RUNNING

WARNING

TO PREVENT POSSIBLE INJURY OR DEATH DUE TO CARBON MONOXIDE
PERIODICALLY INSPECT THE GENERATOR EXHAUST SYSTEM.

Typical Pre-Start Generator Checklist

The following system components shall be checked before starting a generator

☑ Turn generator sea cock off. Check strainer for debris. *Turn generator sea cock **on** before starting it.*

☑ Ensure that all main panel and equipment breakers are off.

☑ Inspect the generator for fuel, oil, exhaust or water leaks.

☑ Check generator engine oil level. Top off with correct type and viscosity as required.

☑ Check coolant level at bilge recovery tank. Add factory recommended coolant as needed.

☑ Check the main fuel tank to ensure there is adequate gasoline for both the generator and the engines. Apply the one-third rule.

☑ Check for loose wires at the alternator.

☑ Check the batteries per generator manufacturer's recommendatons.

☑ Check drive belts for wear and proper tension per generator manufacturer's recommendations.

☑ Record the hour meter reading to meet maintenance scheduling.

☑ Check the blower for proper operation. Start & run at least 4 minutes before starting generator. Run blower continuously while generator is running.

Generator Seacock/Strainer (Typical)

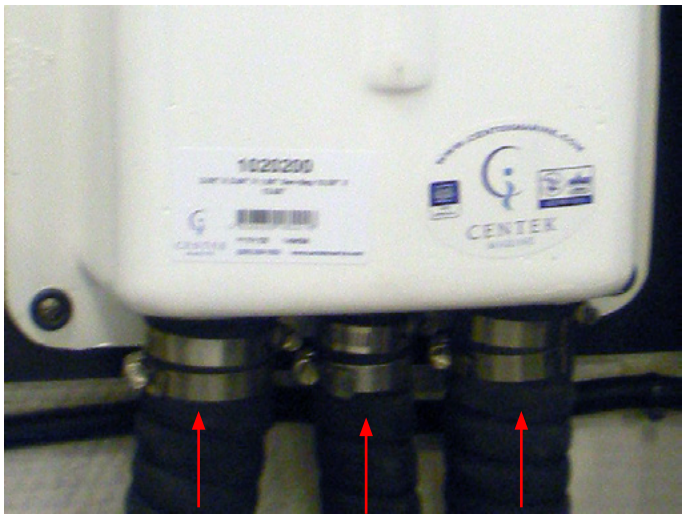
GENERATOR STRAINER

To service the generator strainer located in the bilge make sure the seacock handle is in the "off" position (90 degree angle to the hose). Turn the strainer top counterclockwise to access the basket, Pull the basket out and remove any debris. Reinstall basket and tighten strainer top. Set the sea cock handle to the "open" position.

Start generator and check for leaks.


REMOVING/CLEANING STRAINER BASKET

Generator Water Separator System (Typical)



The generator water separator system is mounted on the hull side. Both 42' diesel generators use similar basic water separator systems but differ in the muffler system.

See the descriptions of each system component above. Bottom line the system muffels the generator sound and exits exhaust safely overboard.

IPS Propulsion- Kohler Diesel Generator

Following are several general topics related to the current IPS propulsion based ***Kohler*** diesel generator. For more detailed information refer to the diesel generator operator's manual. ***Read and understand all safefy instructions before using the generator. See the warning label below.***

WARNING

TO PREVENT POSSIBLE INJURY OR DEATH READ AND UNDERSTAND ALL GENERATOR OPERATOR'S MANUAL SAFETY INSTRUCTIONS BEFORE OPERATING THE GENERATOR.

IPS Propulsion- Diesel Generator Starting Notes

The generator starting system uses the house accessory battery system. The generator is normally started at the ship's control panel located at the atrium but it can also be started using the remote instrument panel (advanced digital control) located at the generator itself. The latter is especially useful while maintenance is being conducted.

WARNING

TO PREVENT POSSIBLE GENERATOR DAMAGE ALL SHORE POWER BREAKERS AND AC SWITCHES MUST TO BE DEACTIVATED BEFORE STARTING OR STOPPING GENERATOR.

Starting Kohler Diesel Generator

1. Make sure the generator sea cock is open before starting generator. Failure to do so could result in damage to the sea water pump impeller or serious engine overheating damage.

2. Ensure that the ship's control panel breakers are in the "off" position.

12 VOLT DC PANEL

GENERATOR START-STOP SWITCH

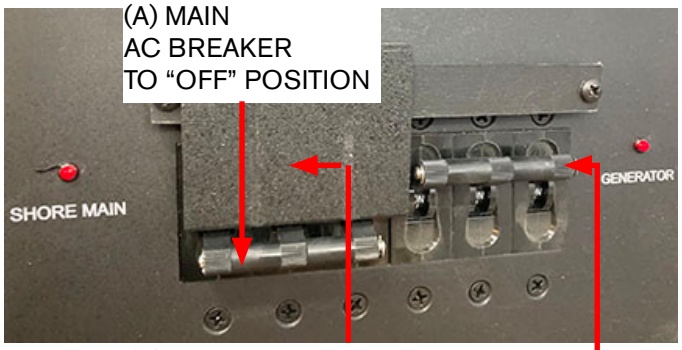
3. At the ship's 12 volt DC panel energize and hold the generator run switch. The generator will crank over for several cycles and start.

4. (A) Main shore breaker to the "OFF" position.

5. (B) Next, slide the (transfer bar) to the left.

6. (C) Activate the generator breaker to the "ON" position.

7. At this point AC voltage should display on the AC line voltage meter. Activate the desired AC (alternating current) equipment breakers.



(B) SLIDE TRANSFER BAR TO LEFT.

(C) GENERATOR BREAKER TO "ON" POSITION

9. Always balance the breaker usage on each leg when possible.

10. After starting always check for exhaust and fluid leakage.

If the engine fails to start after the first attempt, close the sea cock before starting the next attempt. Let the engine starter motor cool down for at least one minute before attempting to restart the generator. Failure to close the sea cock after 1st attempt may cause sea water to enter the exhaust piping, silencer and/or engine. A water filled exhaust piping and silencer may further hinder generator starting and cause sea water entry into the engine cylinders through the exhaust valve. Water ingested into the engine may cause serious engine damage which is not covered under warranty. Reopen sea cock before attempting to restart generator.

If water has entered the exhaust system, close the sea cock and drain the water from the exhaust system If excessive cranking is a continuing problem or the unit fails to start after 3 attempts have the generator checked by a professional.

Stopping Kohler Generator

To stop the generator follow these steps at the ship's main control panel:

1. Turn all AC (alternating current) equipment breakers to the "off" position.

2. Flip the 50 amp AC generator breaker to the "off" position. At this point, no AC line voltage will be displayed at the AC volt meter. Let the generator run for 5 minutes to cool down without a load.

3. Stop the generator by pressing down the "stop" switch on the ship's DC panel. Hold until the generator quits.

Note to always reference the generator operation manual for more detailed starting and stopping information.

Kohler Diesel Generator Fuel System Notes

KOHLER DIESEL PRIMARY IN-LINE WATER SEPARATOR FILTER

Diesel Fuel Filter System

The diesel generator fuel system is outfitted with a primary 10 micron in-line filter. This filter is the first line of defense for the generator. It removes water and solid containments from the fuel supply before they enter the generator. It is of the spin-on type similiar to oil filters.

Also, there is a secondary cartridge style fuel filter mounted on the generator itself. Refer to your generator owner's manual for secondary filter location and maintenance information.

It is recommended that you carry extra spin-on replacement filters along with a cartridge filter for the generator itself. Change filter components at least annually.

Normally accumulated water or debris in diesel fuel results in no or hard starting, rough idle, bogging down on acceleration or poor performance.

Water and debris are the worst enemies of the diesel fuel system.

Do not use a strap type wrench since it may distort or damage the filter housing. Use an environmentally safe container to catch any contaminated fuel. Dispose of according to local, or state regulations.

Carry extra water separator filters on board.

For further diesel generator technical information refer to your Kohler generator operator's manual.

Kohler Generator Exhaust System

The generator exhaust system features a integrated muffler system. Note for winterizing the muffler features a drain plug.Before departure always check the hose connections for signs of water and air leaks. Tighten hose clamps periodically as needed. After starting generator, check water flow at the discharge. See typical muffler below.

DISCHARGE FROM MUFFLER OUTLET OVERBOARD

DISCHARGE FROM GENERATOR TO MUFFLER

Outboard Propulsion- Fischer Panda Diesel Generator

OUTBOARD GEN-SET W/ SOUND SHIELD ENCLOSURE SHOWN

Following are several general topics related to the current 42" outboard propulsion based ***Fischer Panda*** diesel generator. For more detailed information refer to the diesel generator operator's manual. ***Read and understand all safefy instructions before using the generator. See the warning label below.***

WARNING

TO PREVENT POSSIBLE INJURY OR DEATH READ AND UNDERSTAND ALL GENERATOR OPERATOR'S MANUAL SAFETY INSTRUCTIONS BEFORE OPERATING THE GENERATOR.

Outboard Propulsion- Fischer Panda Diesel Generator Starting Notes

WARNING

TO PREVENT POSSIBLE GENERATOR DAMAGE ALL SHORE POWER BREAKERS AND AC SWITCHES MUST TO BE DEACTIVATED BEFORE STARTING OR STOPPING GENERATOR.

The generator starting system uses the house accessory battery system. The generator is started at the ship's control panel located at the atrium.

Starting Fischer Panda Diesel Generator

1. Make sure the generator sea cock is open before starting generator. Failure to do so could result in damage to the sea water pump impeller or serious engine overheating damage.

2. Check to ensure the fuel valve is in the “on” position.

3. Ensure that the ship’s control panel main breaker and sub breakers are in the “off” position.

4. Press “On/Off” button on generator control panel. *Note that the blower system at this point will be activated as it is a requirement on gasoline outboard models with fixed fire extinguisher systems.*

5. Press the “Start/Stop” button on the generator control panel.
Note if generator is cold the Start/Stop light will flash before starting.

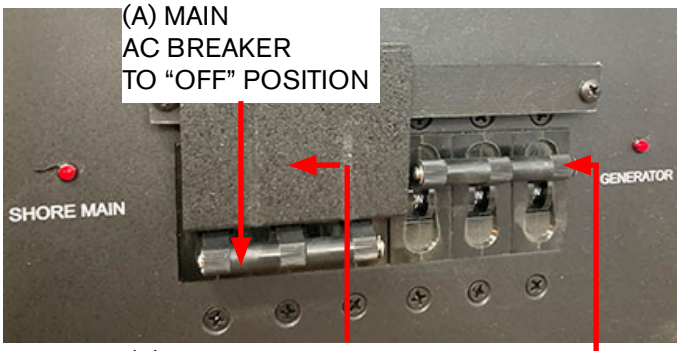
5. (A) Flip the main shore breaker to the “OFF” position. *See the illustration.*

6. (B) Next, slide the (transfer bar) to the left.

7. (C) Activate the generator breaker to the “ON” position.

8. At this point AC voltage should display on the AC line voltage meter. Activate the desired AC (alternating current) equipment breakers.

OUTBOARD GENERATOR CONTROL PANEL



(B) SLIDE TRANSFER BAR TO LEFT.

(C) GENERATOR BREAKER TO “ON” POSITION

Stopping Fischer Panda Diesel Generator

To stop the generator follow these steps at the ship's main breaker panel and generator control panel:

1. Turn all AC (alternating current) equipment breakers to the "off" position.

2. Flip the 50 amp AC generator breaker to the "off" position. At this point, no AC line voltage will be displayed at the AC volt meter. Let the generator run for 5 minutes to cool down without a load.

3. Stop the generator by pressing the "Run/Stop" switch on the generator control panel.

4. Press the "On/Off" button on the generator control panel to deactivate the device.

Note to always reference the generator operation manual for more detailed starting and stopping information.

Fischer Panda Diesel Generator Fuel System Notes

Diesel Fuel Filter System

TYPICAL FUEL FILTER

The diesel generator fuel system is outfitted with a primary in-line filter. This filter is the first line of defense for the generator. It removes water and solid containments from the fuel supply before they enter the generator. It is of the spin-on type similiar to oil filters.
Also, there is a secondary cartridge style fuel filter mounted on the generator itself.

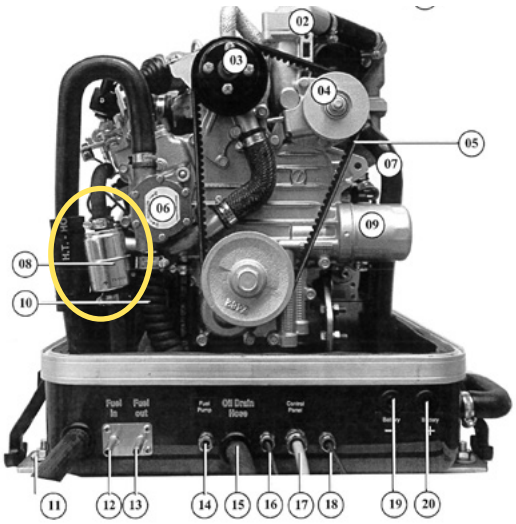
It is recommended that you carry extra spin-on replacement filters along with a cartridge filter for the generator itself. Change filter components at least annually.

Do not use a strap type wrench since it may distort or damage the filter housing. Use an environmentally safe container to catch any contaminated fuel. Dispose of according to local, or state regulations. Carry extra water separator filters on board.

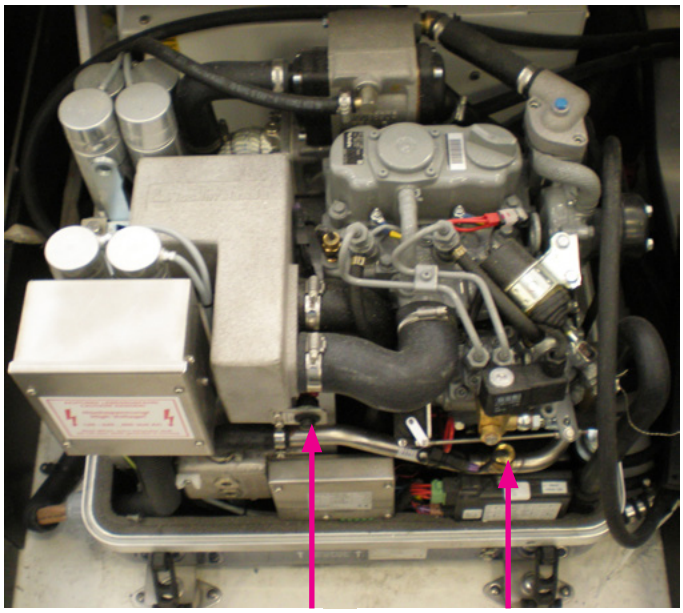
Normally accumulated water or debris in diesel fuel results in no or hard starting, rough idle, bogging down on acceleration or poor performance.
Water and debris are the worst enemies of the diesel fuel system.

For further diesel generator information refer to your diesel generator operator's manual in the owner's information satchel.

FISCHER PANDA SECONDARY FUEL FILTER



01. Ventilation screw thermostat housing
02. Thermostat housing with thermostat set
03. Pulley for internal cooling water pump
04. Pulley V-belt
05. V-belt
06. Raw water pump
07. Freshwater intake pipe
08. Fuel filter
09. Engine oil filter
10. Hose for raw water intake
11. Raw water inlet
12. Fuel intake connection
13. Fuel backflow connection
14. Passage for cable fuel pump
15. Oil drain hose
16. Cable for remote stop
17. Cabel for the control panel
18. Passage for fuel level switch
19. Passage for cable starter battery minus (-)
20. Passage for cable starter battery plus (+)



DIESEL GENERATOR BYPASS SWITCH

VENTILATION SCREW

A diesel bypass switch is used to purge air from the fuel system as needed ie; when primary or secondary filters are replaced. Press the bypass switch for 3-4 minutes. Loosen the ventilation screw at the fuel solenoid valve. As the screw is opened air is purged from system and along with fuel. Use a container to catch dripping fuel and dispose of in an evironmentally safe fashion.

Propulsion/ Helm Controls

Overview

Regal 42' models feature IPS diesel or outboard propulsion choices. They all feature four stroke technology. Engine four stroke function is based on the following principles; fuel, compression, ignition, and exhaust.

Note to learn more about engine functions, systems, and maintenance refer to the engine manufacturer's owner's manual before operating the vessel!
For more propulsion information contact your closest Regal yacht dealer. He has undergone more specific training on various propulsion systems.

WARNING

PREVENT INJURY OR DEATH!
READ AND UNDERSTAND
MANUFACTURER'S ENGINE/
PROPULSION OWNER'S
MANUALS BEFORE OPERATING
THE VESSEL.

WARNING

PREVENT INJURY OR DEATH!
READ ALL MANUFACTURER'S HELM
CONTROL MANUALS
BEFORE OPERATING THE VESSEL.

It is highly recommended that the operator of the craft share the owner's manual document location with the crew should they be required to access it for troubleshooting, etc. should the skipper be unable to assist in these needs.
Bottom line is be prepared!!!

WARNING

PREVENT INJURY OR DEATH!
READ AND UNDERSTAND
MANUFACTURER'S HELM CONTROL SYSTEM
OWNER'SMANUALS
BEFORE OPERATING THE VESSEL!

This section of the Regal 42' owners manual introduces helm controls for Volvo IPS diesel propelled vessels.
IPS typical helm controls are described along with their helm (dash) locations.

In addition, there is a brief section of helm engine starting systems along with remote control and joystick systems. All IPS Volvo helm controls are integrated into the "Glass Cockpit System" Garmin plotters.

Note that your vessel may not display every helm control device as select equipment is optional. Glass cockpit systems plotters may be single or dual displays.

Regal reserves the right to change components, systems, locations, and specifications at any time during a products production life cycle.

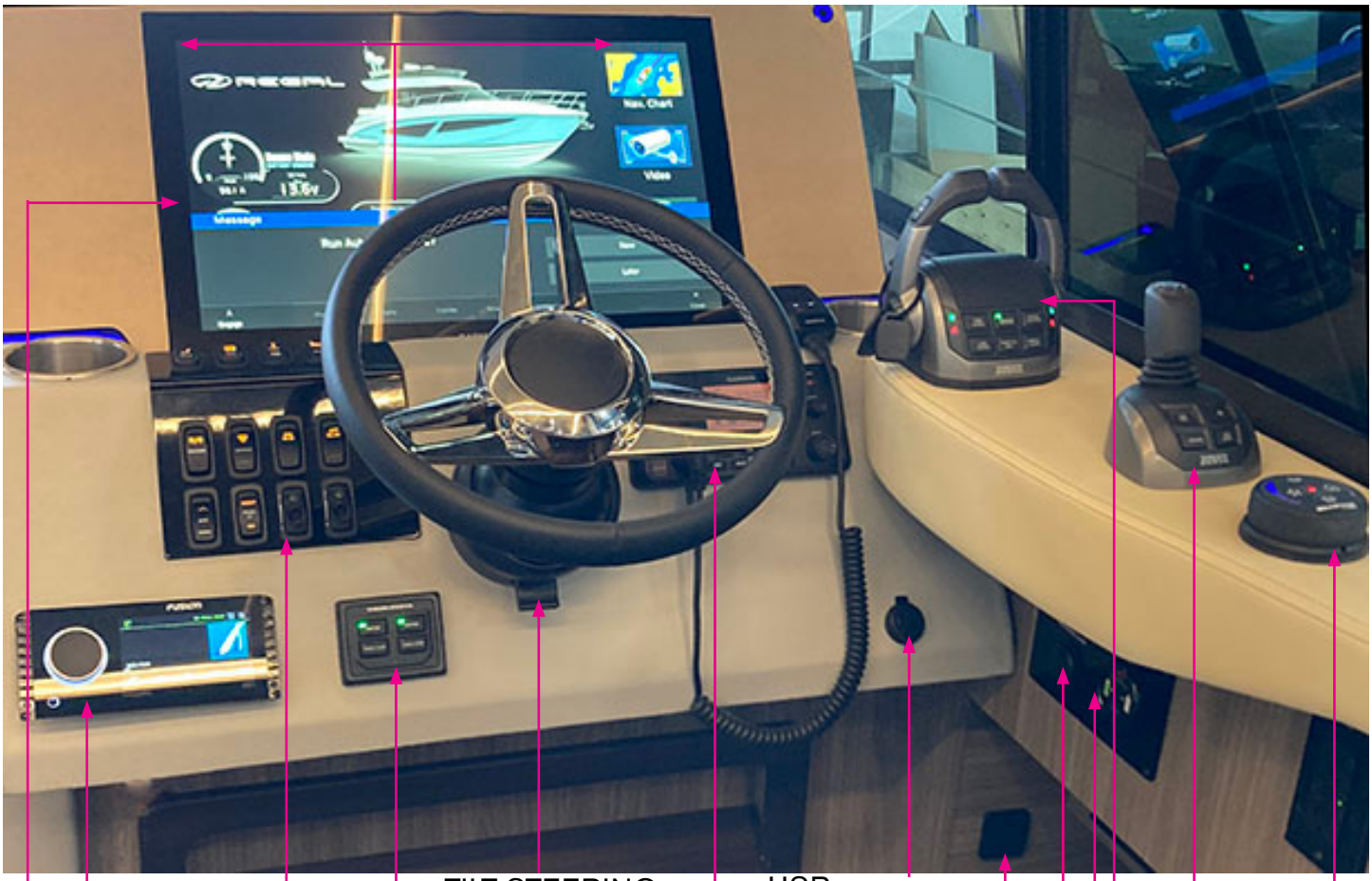
CAUTION

PRACTICE REMOTE CONTROL
SHIFTING IN A WATER
ENVIRONMENT WITHOUT HEAVY
BOAT TRAFFIC.

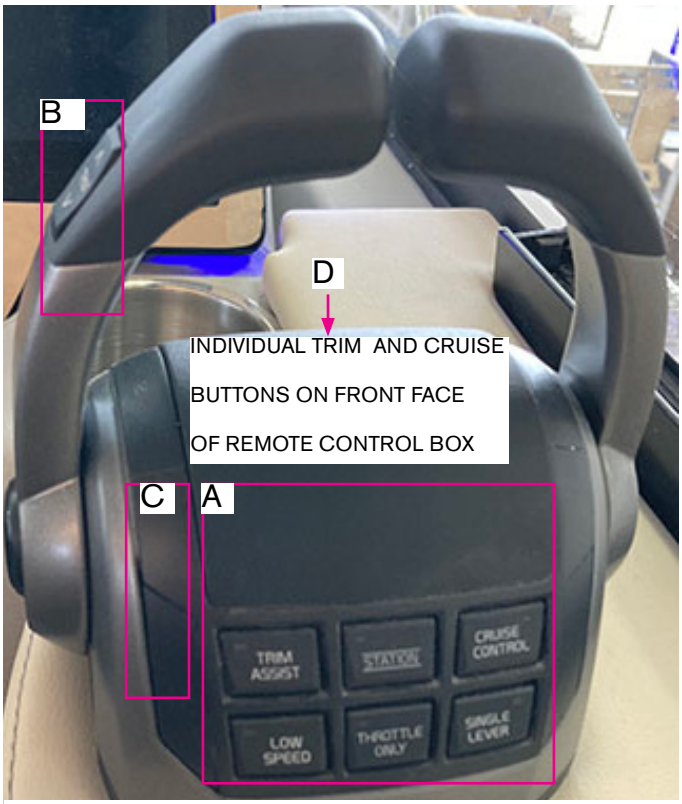
CAUTION

PRACTICE JOYSTICK DOCKING
AND MANEUVERING
IN A WATER ENVIRONMENT
WITHOUT HEAVY BOAT TRAFFIC.

IPS- Inboard Propulsion System- Typical Lower Helm Control Display



Note that select items above may be optional and not be installed on your vessel. Locations/Displays may vary. Note that dual display "Glass Cockpit" plotters may be installed on IPS models.



TYPICAL IPS REMOTE CONTROL

The following idisplays basic control functions:

At Zone A the following functions are indicated:

Trim Assist- The Power Trim Assistant button adjusts the trim angle automatically according to engine speed (rpm).

Station- This button is lighted when the helm station is activated.

Cruise Control- when this button is pressed it permits the operator to fine tune engine speed by increasing or decreasing engine rpm with the button on the forward side of the control.

Low Speed- This function reduces the low speed engine capability. Refer to IPS owner's manual.

Throttle Only button- when pressed it disconnects the shift function. At this point the control lever only effects the engine speed.

Single Engine- Pressing this button permits the operator to control both engines with one lever.

At Zone **B** the following function is indicated:

Trim- Pressing this button with twin engines permits the drives to be trimmed in or out as a synchronized unit.
Neutral position- This symbol shows that the engine and drive are not in gear. Note that a safety device keeps the control from starting in gear.

At Zone **C** the following function is indicated:

Warning triangle- This triangle lights up when a system fault is recognized. It will project on the side where the driveline with the problem exists.
If an emissions (MIL) light fault appears contact an authorized dealer.

At Zone **D** the following functions are indicated:

Trim PT- Pressing this button will trim only the port drive unit.

Trim SB- Pressing this button will trim only the starboard drive unit.

Cruise + or - Pressing this button will increase or decrease your crusing rpm's (revolutions per minute) by increments each time the upper or lower portion of the button is depressed in quick bursts.

IPS Diesel Engine System- Starting Information

Typical Volvo IPS E-Fob System

Your vessel features the Volvo E-key system. It features a E-key panel with dual ignition starting-stopping switches along with a sensor to unlock the system when a key fob is swiped at the panel.
When the ignition lock is activated a red light flashes under the symbol. To deactivate the ignition lock swipe or hold the key fob in front of the (o) symbol in the lower center of the E-key panel. A sound will be emitted as the system becomes unlocked and the red light goes out.

Once the ignition lock is deactivated pressing the IGNITION button will show a green light indicating that engine is ready to be started.

Note remote control must be in neutral to start engines as the unit integrates a safety interlock switch.

To start press the START/STOP button once for each engine.

Note that the vessel includes 2 key fobs. Additional key fobs up to 4 can be added. Refer to the Volvo operator's manual for further system information.

WARNING

AVOID POSSIBLE BODILY INJURY, DEATH
ANDOR PROPERTY DAMAGE!
ALWAYS REMOVE KEY FOBS
FROM THE IGNITION PANEL VICINITY
WHEN THE ENGINES
ARE NOT RUNNING.

Once the engines start use the “glass cockpit” engine data screen to verify engine functions.
Allow sufficient warm-up time for engines to reach normal engine temperature before disembarking on a cruise.

IPS (Volvo) Joystick

TYPICAL IPS JOYSTICK

The joystick is used to maneuver/dock the vessel. See the basic device information below:

DPS (dynamic positioning system) A button when pressed assists in maintaining a selected position and compass heading.
Note that your vessel may not have this feature installed.

Joysick Steering- B button is used to steer the vessel at any speed.

Docking Mode- C button is used to dock the vessel.
Note that when the docking mode is activated, engine speed (rpm) is limited and the vessel steering can only be accomplished through the joystick.

To activate the docking mode the following preconditions must be met:

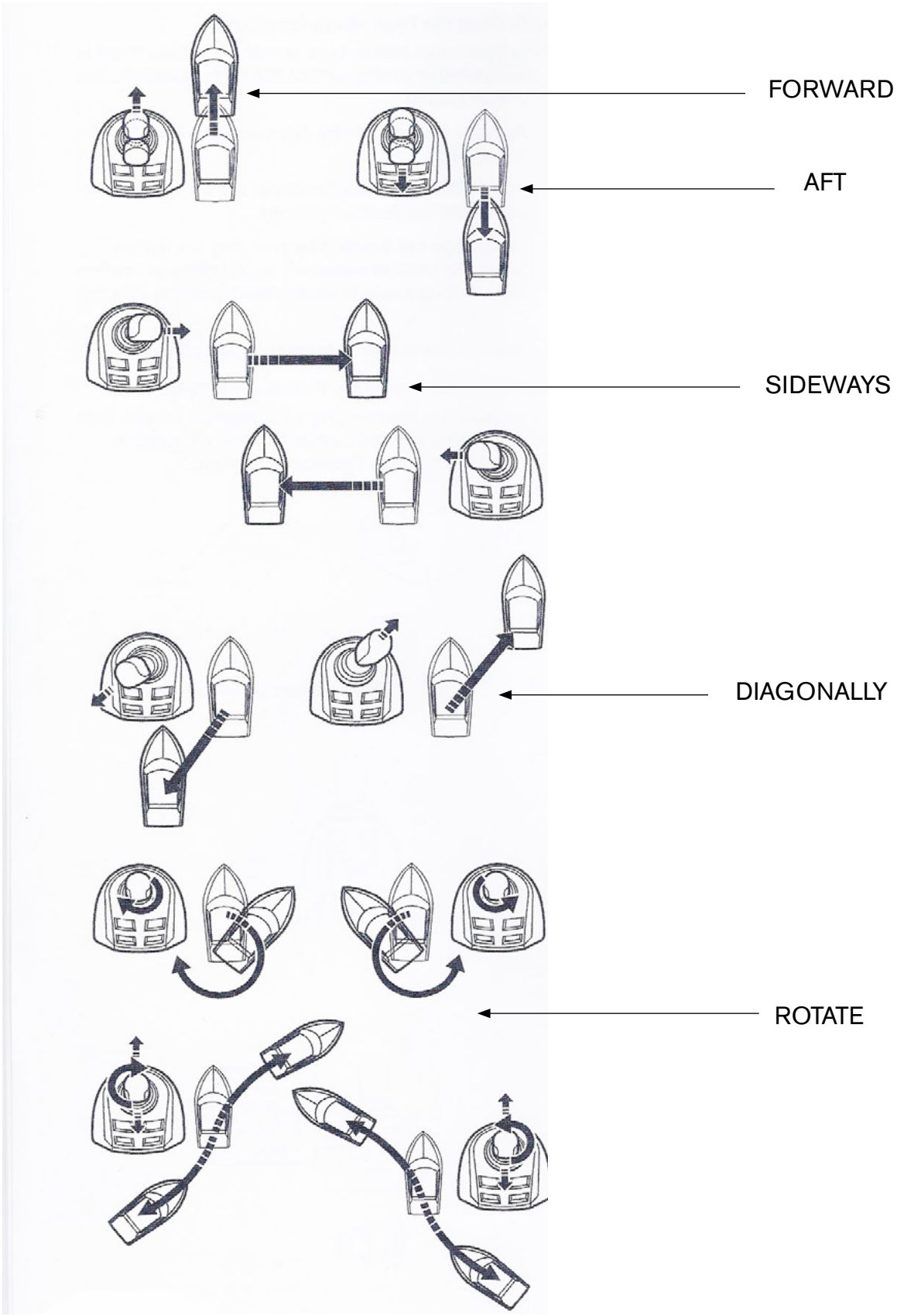
1. Both engines must be running.
2. Both remote control levers in neutral.
3. Helm station must be activated.
4. Joystick must be in center position.

Press the docking button to activate the docking mode. An audible signal will emit and indicate the docking mode is activated. The docking button light will be visible.
To deactivate the docking mode press the docking mode button. An audible signal will be emitted twice to indicate the docking mode is deactivated. The docking light will go out.

Note the docking mode will be activated if the remote controls are moved from the neutral position.

High Mode- D button is used to offset sea conditions such as a strong current or high wind. To use make sure the docking button is lighted. Activate high mode by pressing the high mode button on the lower right side of joystick. An audible signal indicates that high mode is activated and the button perimeter lights up. The high mode function can be deactivated by pressing the button again. An audible signal will sound twice to indicate the high mode is deactivated and the light will go out. At this point the joystick is in the docking mode.

IPS Joystick Functions



WARNING

PREVENT INJURY OR DEATH!
READ AND UNDERSTAND
MANUFACTURER'S HELM CONTROL SYSTEM
OWNER'S MANUALS
BEFORE OPERATING THE VESSEL!

This section of the Regal 42' owners manual introduces helm controls for Yamaha outboard propelled vessels.
Typical helm controls are described along with their helm (dash) locations.

In addition, there is a brief section of helm engine starting systems along with remote control and joystick systems. All Yamaha helm controls are integrated into the Garmin plotter system.

Note that your vessel may not display every helm control device as select equipment is optional. Garmin plotters may be single or dual displays.

Regal reserves the right to change components, systems, locations, and specifications at any time during a products production life cycle.

CAUTION

PRACTICE REMOTE CONTROL
SHIFTING IN A WATER
ENVIRONMENT WITHOUT HEAVY
BOAT TRAFFIC.

CAUTION

PRACTICE JOYSTICK DOCKING
AND MANEUVERING
IN A WATER ENVIRONMENT
WITHOUT HEAVY BOAT TRAFFIC.

Yamaha Outboard Propulsion System- Typical Helm Control Display

Note that select items above may be optional and not be installed on your vessel. Locations/Displays may vary. Note that dual display Garmin plotters may be installed on Yamaha models.

Yamaha Outboards- Starting Information Overview

Read and understand the following safety labels before attempting to start the outboard engines!

WARNING

AVOID A POSSIBLE ACCIDENT CAUSING INJURY, DEATH OR PROPERTY DAMAGE!
BEFORE STARTING ENGINE ENSURE THE BOAT IS SECURE TIGHTLY AT THE MOORING AND THERE ARE NO SWIMMERS IN THE AREA.

WARNING

AVOID A POSSIBLE ACCIDENT CAUSING INJURY, DEATH OR PROPERTY DAMAGE DUE TO A RUNAWAY VESSEL!
BEFORE STARTING ENGINE ENSURE THE SAFETY LANYARD IS ATTACHED TO AN ARM OR LEG AND/OR A SECURE PLACE ON YOUR CLOTHING.

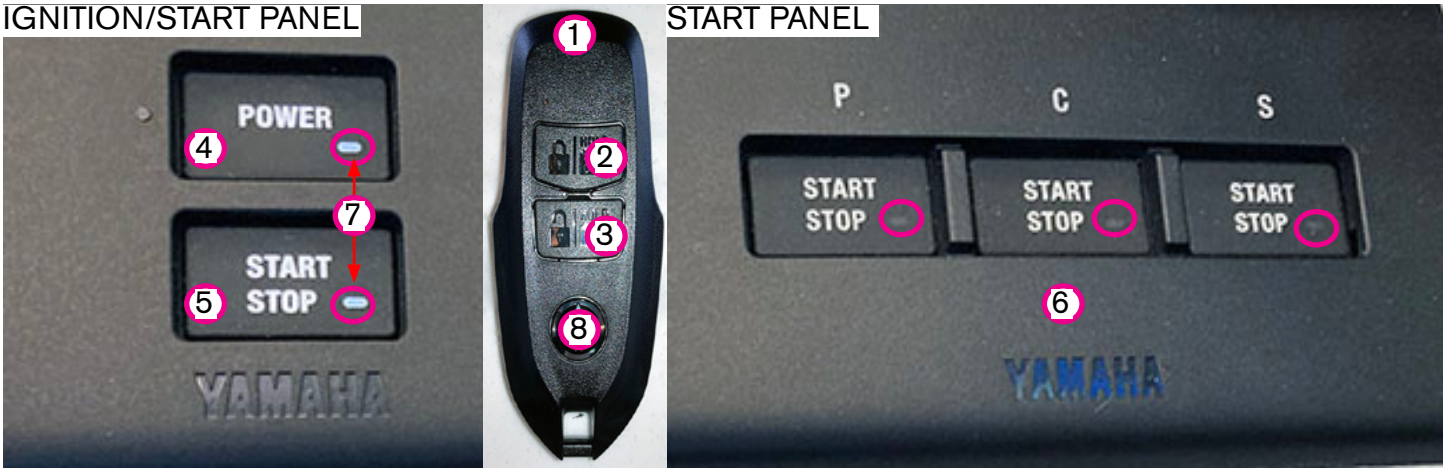
WARNING

AVOID A POSSIBLE ACCIDENT CAUSING INJURY, DEATH OR PROPERTY DAMAGE!
AVOID ACCIDENTALLY DISENGAGING THE SAFETY LANYARD WHILE UNDERWAY AS IT CAUSES LOSS OF STEERING CONTROL. ALSO, THE BOAT COULD SLOW QUICKLY CAUSING EQUIPMENT AND PASSENGERS TO BE THROWN FORWARD.

WARNING

AVOID POSSIBLE INJURY OR DEATH!
OUTBOARDS EMIT EXHAUST GASES WHICH CONTAIN CARBON MONOXIDE, A COLORLESS, ODORLESS GAS WHICH COULD CAUSE BRAIN DAMAGE OR DEATH WHEN INHALED.
KEEP ALL AREAS OF VESSEL WELL VENTILATED. KEEP PEOPLE OUT OF WATER WITH THE ENGINES RUNNING.
DO NOT IDLE ENGINES FOR EXTENDED PERIODS WHILE IN MOORING.

Ignition Panel-**Lower** Helm Station Overview (42' XO, 42 FXO Models)



1-KEY FOB
2-LOCK BUTTON
3-UNLOCK BUTTON
4-POWER BUTTON
5-START/STOP PANEL (AFFECTS ALL 3 O/B's)
6-START/STOP PANEL (AFFECTS INDIVIDUAL O/B's)
7-LED INDICATOR
8-REPLACABLE BATTERY (CR2025)

WARNING

PREVENT INJURY OR DEATH!
READ AND UNDERSTAND
MANUFACTURER'S ENGINE
PROPULSION OWNER'S
MANUALS BEFORE OPERATING
THE VESSEL.

Following is basic information and tips for starting engines from **lower** helm station outboard vessels.

For detailed information refer to the Yamaha owner's manual and/or contact your closest Regal yacht dealer.

Key Fob- This device is used to unlock the Y-COP theft deterrent system and the ignition panel. There a 2 key fobs programmed on your vessel. Up to 6 can be integrated into the Yamaha system. See your closest Regal yacht dealer for further details.

Key Fob Operation-

1. When the lock button is depressed one beep indicates the system is locked. Ignition panel is not energized.

2. When the unlock button is depressed two beeps indicate the system is unlocked. Ignition panel is energized.

The key fob integrates a proximity sensor which will automatically unlock the Y-COP system at a programmed distance from the helm.
It is recommended that the key fob be removed from vessel for extended periods of non-use. It would be the same as removing keys from the boat.

Yamaha Outboards- Starting Information **Lower** Station

Once the Y-COP system is unarmed the outboard engines can be started at the lower helm station ignition/start panels.

Refer to the illustration on the previous page:

1. Ensure the safety lanyard is securely latched at the panel and the clip is latched on a secure piece of clothing or a body limb. The lower station lanyard is found at the starhelm area just below the starboard coaming panel. See illustration at right.

2. Press the #4 POWER button to activate the ignition and start panels. The LED icons will display.

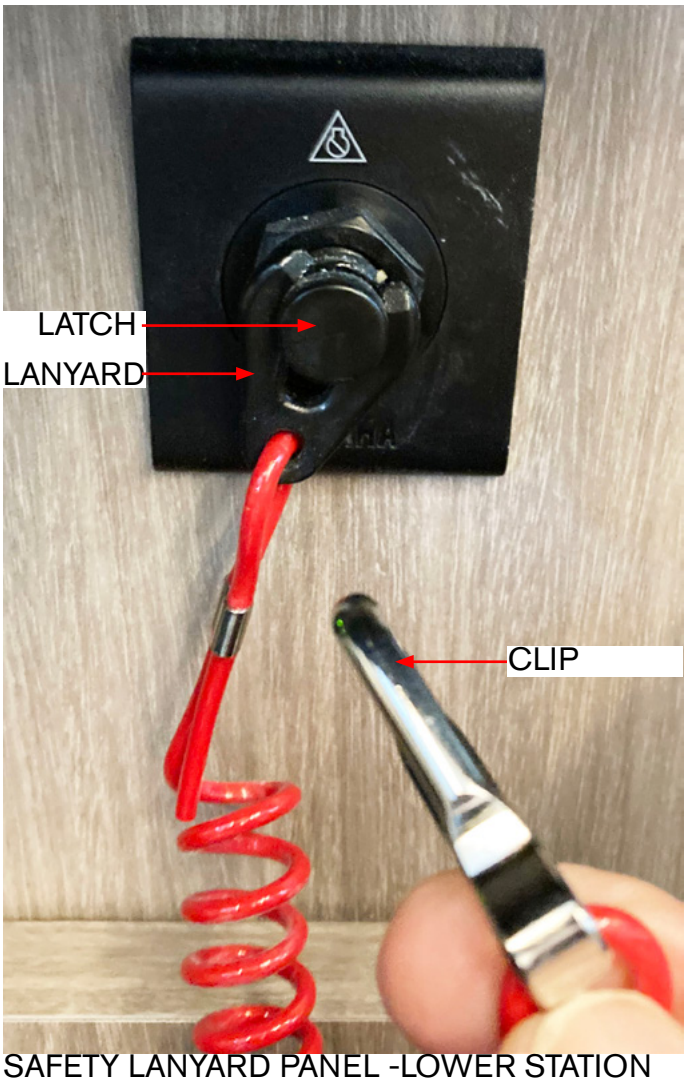
3. Press the #5 START button to start all 3 engines at the same time. The operator has the option to use the START buttons on the #6 panel to start engines individually.

The panel letter designators are:

P=port engine
C=center engine
S=starboard engine

4. Once engines are started, press the STATION remote control button to energize the lower station remote control for cruising operations.

5. It is recommended that the plotter be energized and the engine tab be displayed while the engines are warming up to monitor engine systems.



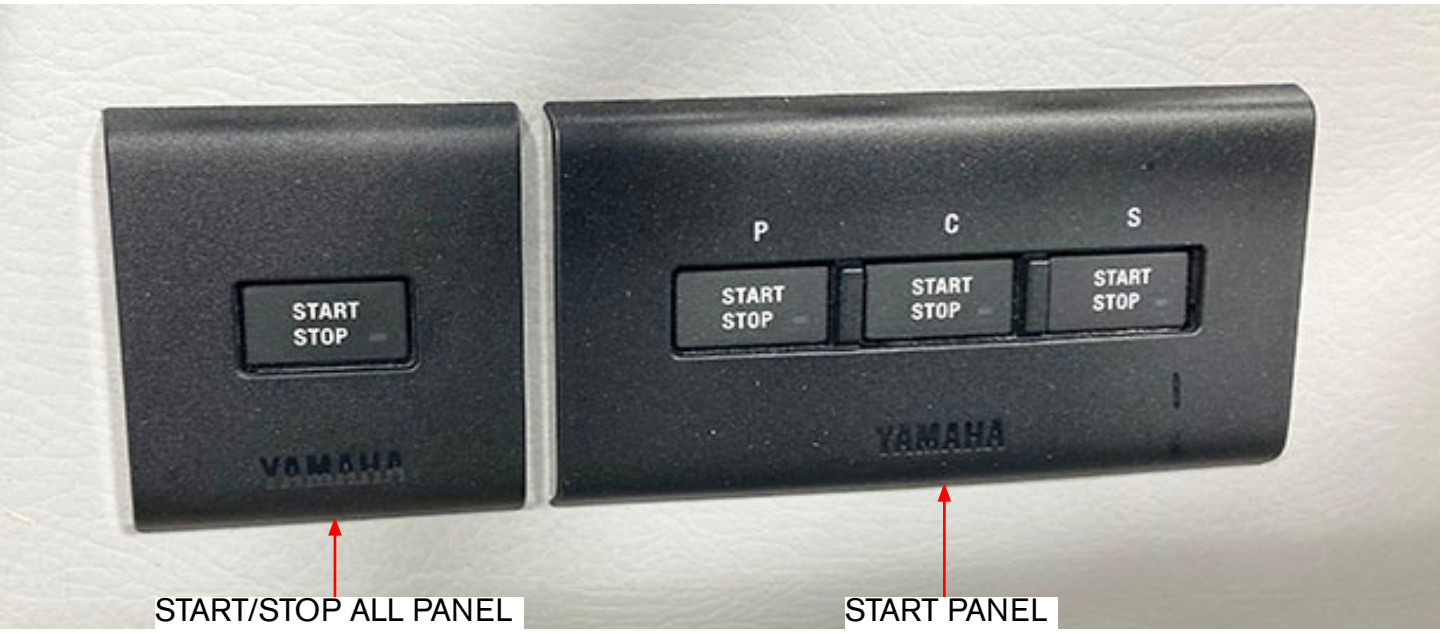
SAFETY LANYARD PANEL -LOWER STATION

Stopping Engines- Lower Station

1. To stop engines at the lower station make sure the control is in the neutral idle position before attempting to shut down the engine(s).

2. Press and hold the START/STOP button for each engine or press the START/STOP button on the ignition panel which will stop all 3 engines instantaneously.

Ignition Panel-**Upper** Outboard Helm Station Overview (42 FXO Model Only)



WARNING

PREVENT INJURY OR DEATH!
READ AND UNDERSTAND
MANUFACTURER'S ENGINE/
PROPULSION OWNER'S
MANUALS BEFORE OPERATING
THE VESSEL.

Following is basic information and tips for starting engines from **upper** station outboard vessels. For detailed information refer to the Yamaha owner's manual and/or contact your Regal yacht dealer.

Start outboard engines only in a well ventilated location to avoid CO buildup.
Make sure passengers and boat operator are seated with life jackets on and vessel load is balanced.

Upper Station Starting-

1. Ensure the safety lanyard is securely latched at the panel and the clip is latched on a secure piece of clothing or a body limb. The upper station lanyard is located at the helm area at the aft end of the arm rest.

2. Remember that the lower helm station is the primary station. The lower station ignition panel POWER button must be energized to enable starting the engines from the upper station panels.

3. That being said the lower STATION remote control button must be energized to navigate using the upper station remote control.
Once the engines are started from the upper station the STATION button is pressed for the upper station remote control to take over functions.

4. Press the START button on the start all panel to start all 3 engines at the same time. The operator has the option to use the START buttons on the right panel to start engines individually.

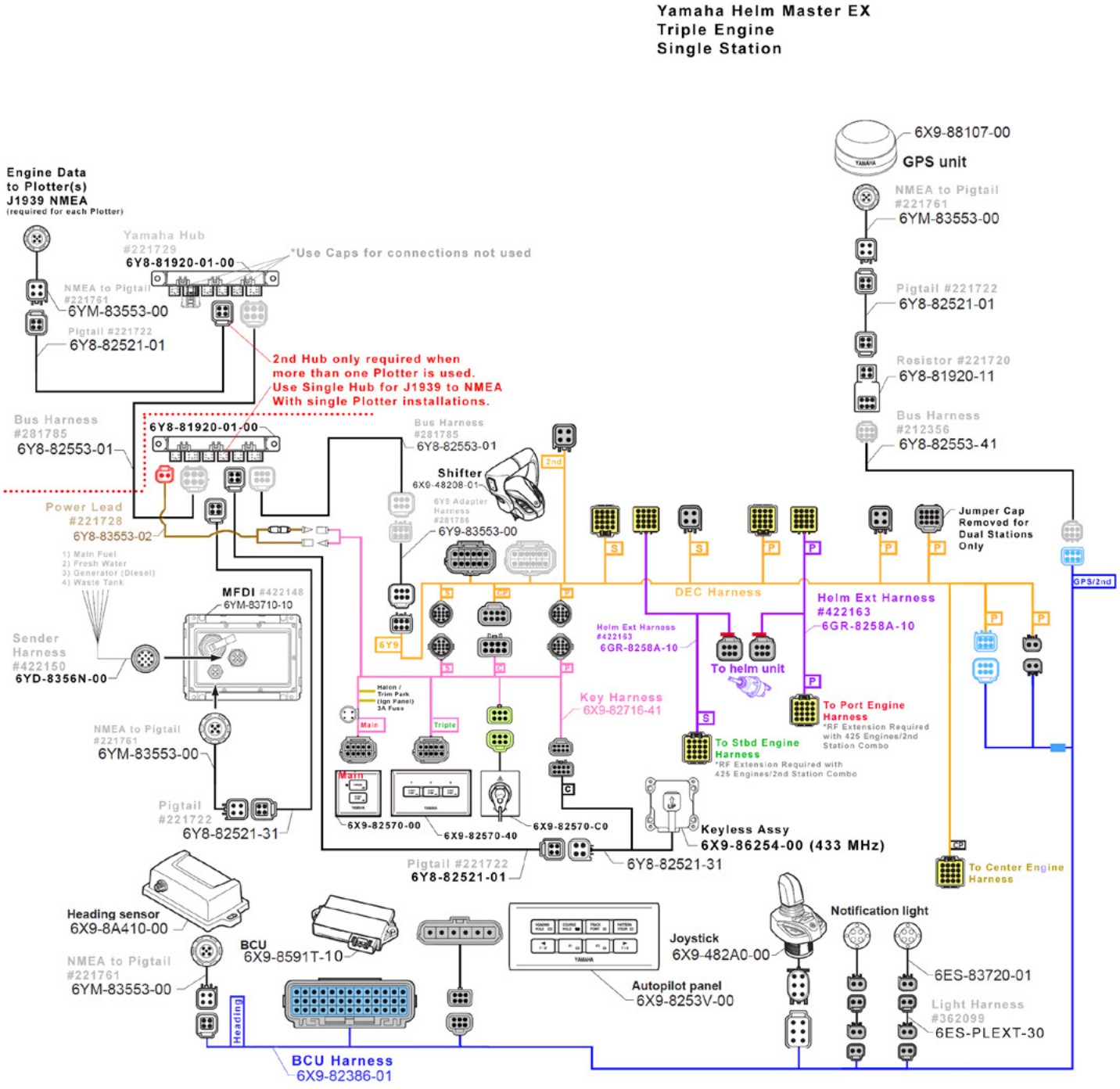
Stopping Engines- Upper Station

1. To stop engines at the upper station make sure the control is in the neutral idle position before attempting to shut down the engine(s).

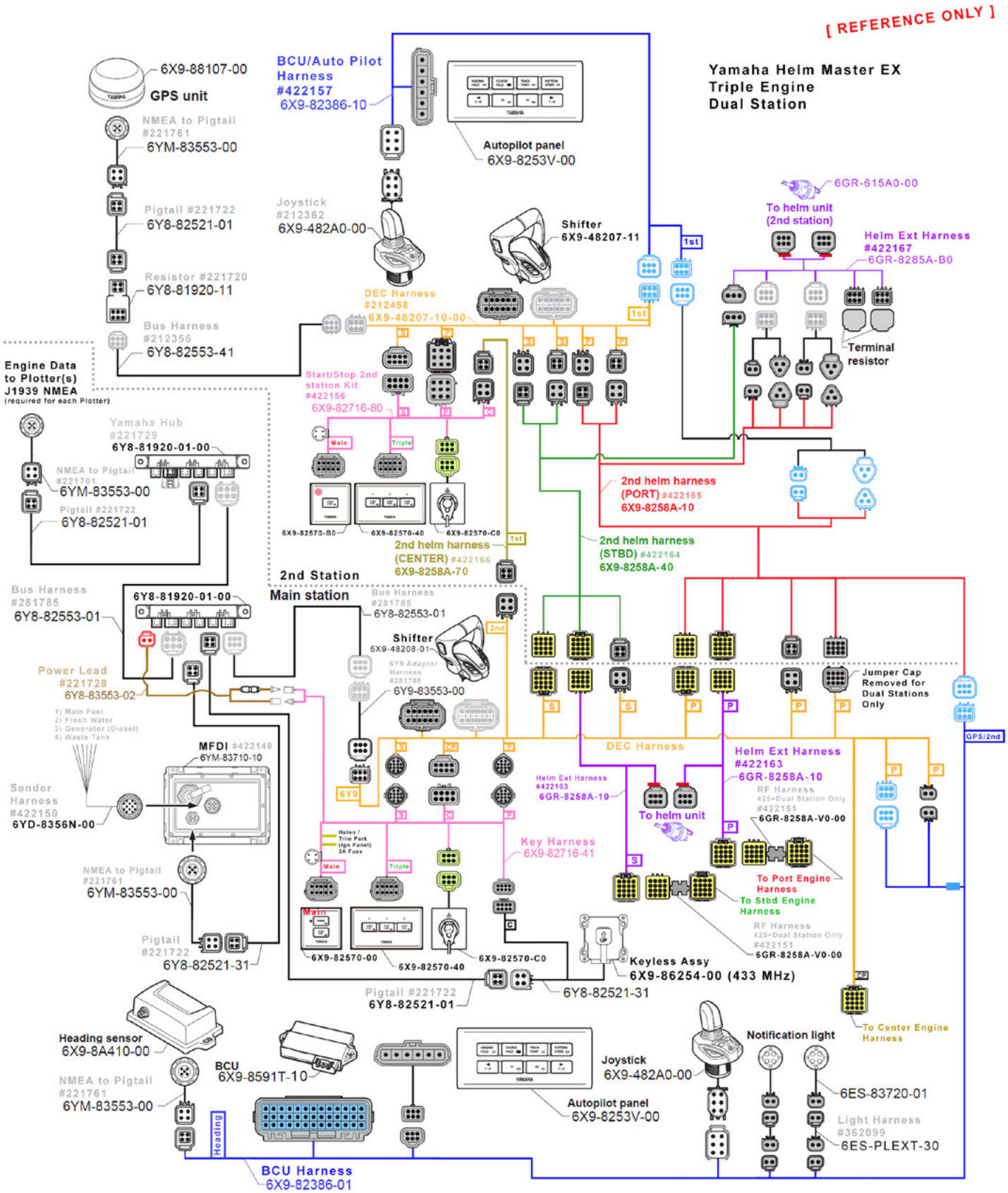
2.Press and hold the START/STOP button for each engine or press the STOP button on the START/STOP panel which will stop all 3 engines instantaneously.

YAMAHA HELM MASTER EX **SINGLE** STATION COMPONENT/WIRING OVERVIEW

[REFERENCE ONLY]



YAMAHA HELM MASTER EX **DUAL** STATION COMPONENT/WIRING OVERVIEW



Yamaha Remote Control- Features/Description

Read the following basic information covering shift/throttle controls. Read and understand all detailed operation and safety information found in the outboard owner's manual before using the (DEC) digital electronic control.

Note to practice docking operations with the remote control in a non-evasive environment to learn the basic control functions before cruising.

Overview

Triple outboard vessels feature a drive-by-wire twin binnacle digital electronic control (DEC) system for basic shifting and throttle operations. The remote control handles control forward, neutral, and reverse outboard shifting functions at the helm and at the upper station (Flybridge models).

The control handles can be used independently for maneuvering in tight quarters. The control features power trim up and down functions for each outboard. and an additional button set that controls all trim functions together.

In additon, there is an automatic RPM synchronization similar to an automobile cruise control system.

The DEC features an integrated redundancy system and a separate Electronic Control Unit (ECU) for each outboard.

Select autopilot functions such as course and heading hold along with navigation along waypoints may be available with the control.

In addition, the DEC control system provides full joystick maneuverability.

WARNING

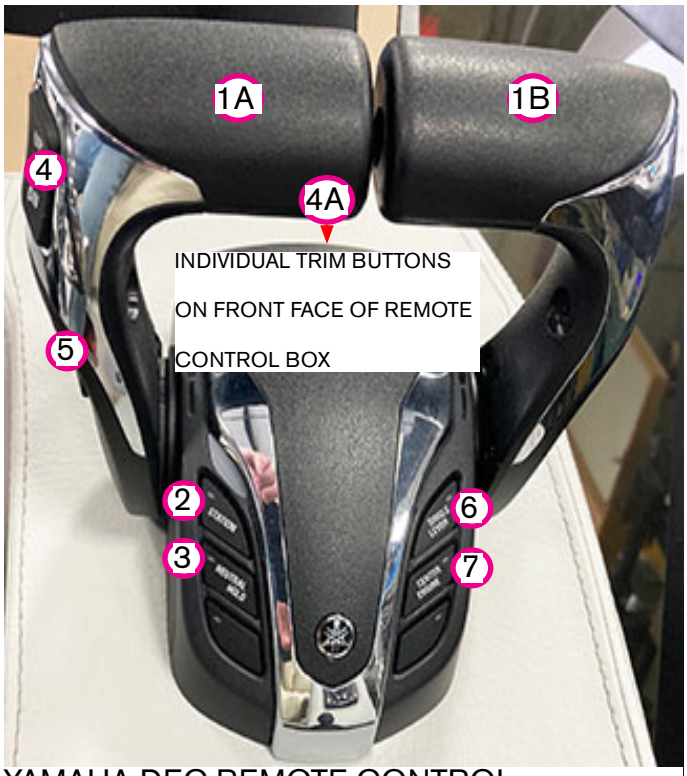
PREVENT INJURY OR DEATH!
READ AND UNDERSTAND
MANUFACTURER'S HELM CONTROL SYSTEM
OWNER'S MANUALS
BEFORE OPERATING THE VESSEL!

WARNING

AVOID A POSSIBLE ACCIDENT CAUSING INJURY, DEATH OR PROPERTY DAMAGE DUE TO EXCESSIVE TRIMMING UP OR DOWN! STEERING THE VESSEL AND BOAT INSTABILITY CAN INCREASE ACCIDENT POTENTIAL. IF CRAFT IS DIFFICULT TO STEER OR FEELS UNSTABLE SLOW DOWN AND READJUST THE TRIM ANGLE.

WARNING

AVOID POSSIBLE INJURY, DEATH OR PROPERTY DAMAGE!
BEFORE SHIFTING THE REMOTE CONTROL ENSURE THERE ARE NO PEOPLE OR OBSTACLES IN THE WATER NEAR THE VESSEL!



YAMAHA DEC REMOTE CONTROL

DEC Remote Control Description

Note this system information denotes lower station (Master station) functions.

Once the power button is depressed on the ignition panel and the engines are started the STATION control button (2) will illuminate blue indicating the control is ready for shift and throttle operation.
Note at this pont if a orange light there is a problem in the connection between the digital electronic control and the outboard unit. Contact your nearest authorized Yamaha outboard dealer or your closest Regal dealer.

1A/1B Control Levers-
The port lever (1A) controls shifting and throttle operations for the port and center outboard. The coresponding starboard lever (1B) controls shifting and throttle operations for the starboard outboard.

3. Neutral Hold-
This function will prevent a running engine from shifting into gear when the throttle lever is moved. This feature is especially valuable by allowing the engine to rev for additional charging if the batteries are low. This function will stay active until the button is pressed a second time which will deactivate the function.

4. Power Trim-
This function controls all trim operations for 3 engines simultaneously in a corresponding direction with the use of the up or down button. If all outboard units are equal in starting trim this may be a way to achieve a faster planing position.

DRIVER VIEWING DOWN

At the front face of the remote control (4 A) box are 3 trim switches. When individual buttons are depressed that engine alone responds to up/down trim functions. The individual trim switches can be used in conjunction with the plotter display to fine tune the vessel for the best ride in the conditions that currently exist on the water. Usually as the rpm increases on the plotter display the vessel moves to a “best ride” position of less drag, greater stability and efficiency. After practice the operator will be able to reach a desired planing position in a brief period of time.

5. Speed Control-

This function permits fine speed changes at 50 rpm increments. If you press the DOWN speed button .You will hear a beep and the LED indicator will light up. Now you can adjust your speed a total of 10 increments up or down. Note that the joystick can be used to adjust speed by bumping the joystick forward or reverse. In addition a pattern shift function permits operating under normal remote control speeds. Basically, trolling functions are enhanced with pattern shift.

6. Single Lever-

This function permits the driver to operate all the outboard throttle and shift by using just the port remote control lever. When in neutral press the single lever button and a warning beep will sound and a blue LED will illuminate. Move the starboard control lever back out of the way and control all of the engines using the port remote control lever.

7. Center Engine-

This function allows the use of the center engine only to power up the vessel through the port remote control lever. To end the single engine function move the lever back to neutral and then press the center engine button. A beep will sound and the LED indicator will go off indicating the return of normal control.

You may find that select docking situations may be easier with the use of the center engine only since the total thrust from one engine is lower.

Other DEC Notes-

Alert Indicator- This LED indicator at the top left of the remote control changes from blue to orange should a problem occur with the engine or remote control system. A beep will sound on and off repeatedly to alert the operator. Should it remain orange return to port and investigate the problem.

Remote Control Levers- The lever friction can be adjusted on the remote control to personal needs. Contact your closest Yamaha or authorized Regal dealer for any remote control adjustments.

Remote Control Detent- The remote control lever movement and click that is felt when the remote control is shifted can be adjusted to personal needs. Contact your closest Yamaha or authorized Regal dealer for any remote control adjustments.

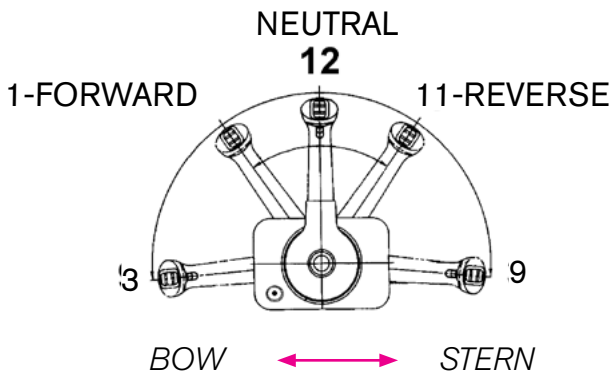
WARNING

AVOID A POSSIBLE ACCIDENT CAUSING INJURY, DEATH OR PROPERTY DAMAGE DUE TO A TOO LOOSE DETENT SETTING!

WARNING

AVOID A POSSIBLE ACCIDENT CAUSING INJURY, DEATH OR PROPERTY DAMAGE DUE TO TOO TIGHT DETENT SETTING! THIS CONDITION COULD INTERFERE WITH STEERING THE VESSEL.

Remote Control Shift/Throttle Functions- Typical



Profile Of Typical dual Engine Control Lever Showing Five Positions

The port lever controls shifting and throttle operations for the port and center outboard. The starboard lever controls shifting and throttle operations for the starboard outboard.

The neutral only switch can be used only when the control lever is in neutral. To use in neutral press and hold the switch while moving the throttle control forward. Release the switch when the control active indicator LED blinks blue. During this blinking time you can increase the engine idle either for faster or slower rpm. You can duplicate throttle only positions also in reverse.

When the above actions are completed and the control handle resumes the neutral position the active LED indicator light will remain blue. The control at this point is ready for shifting to forward or reverse gear positions.

Pushing the throttle control lever forward from the neutral 12 o'clock position to the 1 o'clock position will engage a forward gear detent with minimal throttle. From the 1 o'clock position to the 3 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 11 o'clock position will engage a reverse gear detent with minimal throttle. From the 11 o'clock position to the 9 o'clock position, the vessel is in reverse gear with differing levels of throttle selections.

Note the number 3 is a forward full throttle position. and the number 9 is a reverse full throttle position.

Remember that on dual station vessels the lower station must be active for the upper station to function

Refer to the Yamaha owner's manual or contact your closest Regal dealer for further remote control information.

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

WARNING

TO PREVENT BODILY INJURY OR DEATH! MAKE SURE THE COAST IS CLEAR OF ALL SWIMMERS OR OBSTACLES IN THE WATER BEFORE USING THE REMOTE CONTROL SHIFT FUNCTION!

WARNING

IF THE LANYARD IS IN THE “OFF” POSITION, THE ENGINE WILL CRANK OVER BUT WILL NOT START. ENSURE SAFETY LANYARD IS LATCHED SECURELY AT THE PANEL AND A

WARNING

LANYARD MUST BE ATTACHED TO THE OPERATOR WHILE THE ENGINE IS RUNNING. A QUALIFIED OPERATOR MUST BE IN CONTROL AT ALL TIMES. READ AND UNDERSTAND THE OWNER’S MANUAL BEFORE OPERATING VESSEL.

Joystick/Auto Pilot

Overview

The joystick permits full maneuverability of your vessel. The joystick handles shift, throttle and steering functions simultaneously. The joystick is spring loaded so it always returns to its home (center) position. When the joystick is active and in the home position the throttles are at idle and all engines are in neutral. *Note on dual station vessels the disabled station can only start and stop the engines.*

Start practicing joystick maneuvering in an open water environment before a longer cruise.

Joystick Description

YAMAHA JOYSTICK

Following is a basic description of joystick buttons. Refer to the joystick illustration on this page. See the following pages for operational tips and notes along with the Yamaha owner's manual.

1. **Joystick Handle-** When energized and moved toward the bow the vessel travels forward. When energized and moved toward the stern the vessel travels in reverse. The neutral center position is the home or start-up location.

When energized and twisted partially to starboard the vessel will travel in a starboard heading. When energized and twisted partially to port the vessel will travel in a port heading.

When energized and moved directly to the starboard or port direction the vessel will go sideways.

Note that the joystick is proportional and guided in each axis; the more joystick handle is moved the more throttle is applied.

2. **Joystick Mode-** This button when activated provides full maneuverability for the vessel for shift, throttle and steering operations. The engines must be started and the remote control in neutral to activate the joystick mode.

3. **Driftpoint Mode-** This button when activated automatically holds the heading of your vessel and allows it to drift naturally with the wind and current. Position your vessel where you want to start your drift and with your desired heading. With the engines in neutral press the Driftpoint button to start the drift process. If you twist the joysick handle you can change the vessel heading.

4. **Staypoint-** This button when activated will hold the position and heading of your vessel. Once the desired position is obtained shift the engines into neutral and press the staypoint button. The system will independently steer each engine and use various levels of throttle in both forward and reverse gears to keep the vessel position and heading. This function is extremely useful when waiting at a bridge or dock.
To exit from staypoint mode press the staypoint button or engage the throttles.

5. **Fishpoint-** This button when activated will automatically hold the position using minimal shift and throttle to reduce noise. The boat heading may change due to wind and current. Use the plotter to choose fishpoint bow or fishpoint stern. Once your vessel is over the desired spot shift the engines into neutral and press the fishpoint button. The fishpoint button LED will illuminate blue. The system will now steer and use the minimal throttle and shift to maintain the vessels bow or stern position while allowing the vessel heading to naturally change with position. Great for deep water fishing and in situations when you do not want to anchor the vessel.

6. Plus/Minus- This button is used in various modes to increase or decrease throttle and steering settings.

Joystick Basic Operation- Triple Engine Vessels

1. To use the joystick start the engines and leave the throttles in neutral.

2. To **enter** joystick mode press the joystick button. The function LED will illuminate blue when active.

3. Pressing the joystick slightly forward will engage forward gear on the engine. Pressing the joystick further forward will induce increased throttle positions. The same above procedure is also used for reverse postions.

4. Press the joystick in the direction you want the vessel to move for sideway movement.

5. If you ***twist*** the joystick while in the neutral position will cause the vessel to pivot around its center axis. Note that small joystick movements effect thrust and can produce very positive results.

6. Use the joystick for steering operations at slow speeds. While pressing the joystick forward twist the joystick to steer the vessel. Twisting a small amount will produce a small steering angle change. Twisting a large amount will produce a larger steering angle. If you hold the twist the engine will remain in that steering angle until the joystick is released. Releasing the joystick back to neutral position the engines will return to neutral with a straight ahead steering position.

7. While in joystick mode you have the choice of 5 choices in power levels. Level 1 is the least powerful and Level 5 is the most powerful. You can adjust power levels by pressing the + or - button. signs on the right side of the joystick to increase or decrease the power as needed. A confirmation is displayed on the plotter. Default thrust levels can be set on your plotter.

8. To **exit** the joystick mode press the joystick button or operate the remote control throttle levers.

9. Setpoints can be activated by pressing the appropriate joystick button. Basic setpoints are covered in the following pages.

Refer to the Yamaha owner's manual or contact your closest authorized Regal dealer for further joystick information.

Joystick Usage Tips

1. Remember that the control head must be active at the helm with the joystick and the remote control handles must be in neutral and idle.

2. There is a short shift delay integrated into the system when returning from any gear to neutral. This permits bumping the handle to get a bit more motion in the same direction without causing excessive engine shifting. This delay is gone if the action passes the home area in the opposite direction so you can if desired stop the boat immediately.

3. Plan out your joystick maneuvers before approaching the target; keep it simple and know the boat's limitations.

4. Make it clear to the system what your intentions are to be. Do not make slight movements off of the neutral position. For example: If you desire the vessel to move to starboard, move the joystick well along the starboard axis.

5. Moving the joystick control handle port/starboard, but will not steer the vessel (change heading) Rotating the handle steers and rotates the vessel.

6. It is recommended to return to the center position when switching between primary operational modes.

7. Always practice maneuvers in open water before attempting close quarters docking. This will enhance your understanding of the primary operational modes while underway.

WARNING

TO PREVENT BODILY INJURY OR DEATH! MAKE SURE THE COAST IS CLEAR OF ALL SWIMMERS OR OBSTACLES IN THE WATER BEFORE USING THE AUTO PILOT SYSTEM JOYSTICK OR CANTRAK DISPLAY.

WARNING

TO PREVENT BODILY INJURY OR DEATH! NEVER LEAVE THE HELM STATION UNATTENDED.

WARNING

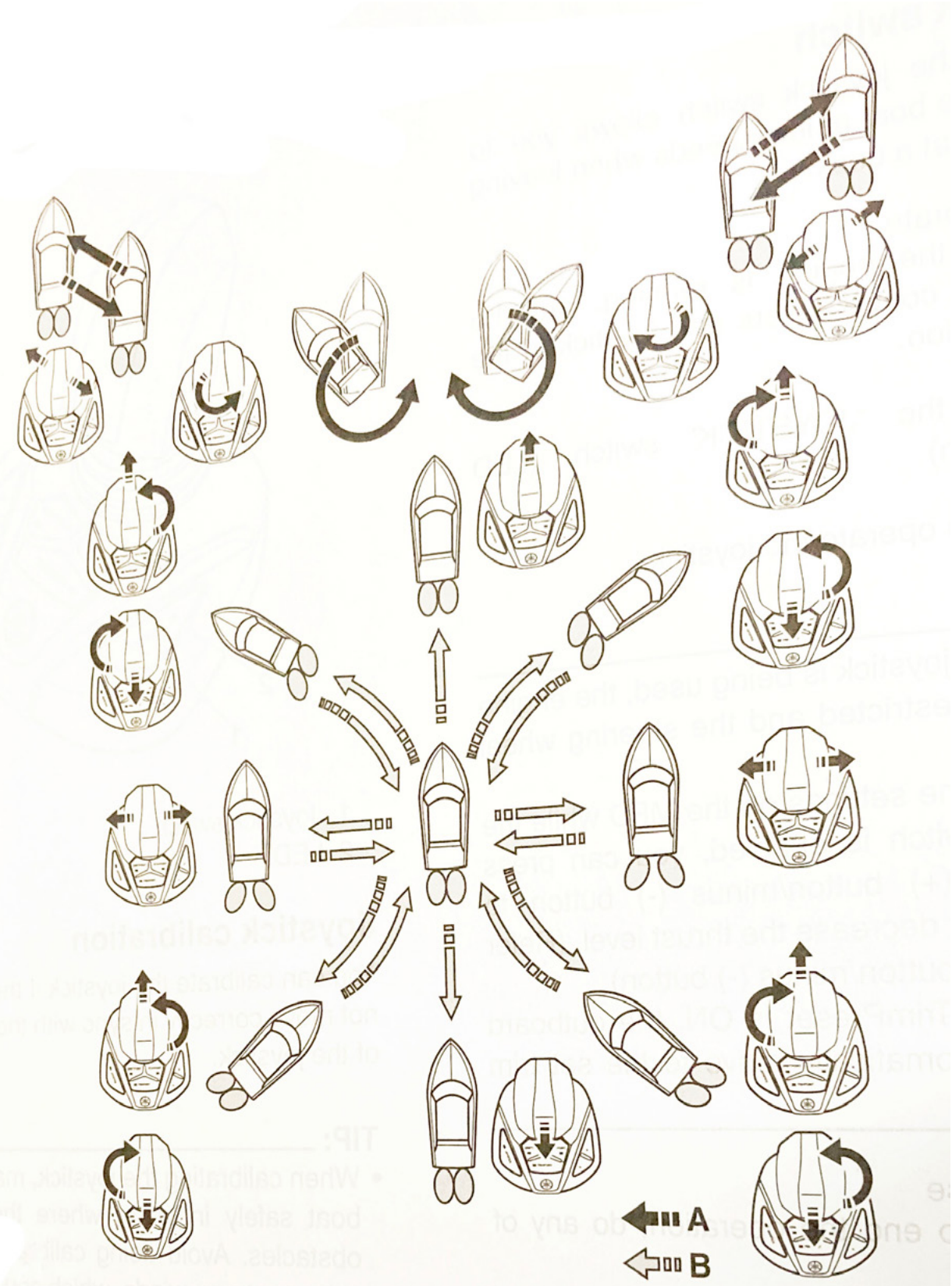
TO PREVENT BODILY INJURY OR DEATH! MAKE SURE ALL STEERING COMPONENTS ARE IN PROPER WORKING CONDITION BEFORE ENTERING THE WATERWAYS.

WARNING

TO PREVENT BODILY INJURY OR DEATH! ALWAYS READ AND UNDERSTAND THE AUTO PILOT OPERATION INSTRUCTIONS COMPLETELY BEFORE ENGAGING THE AUTO PILOT MODE.

8. Read and understand the joystick control system before attempting to use the components. Also be aware of all safety precautions and system safety labels as seen above and in the product literature.

Yamaha Outboard Joystick Functions



A= JOYSTICK OPERATION
B= VESSEL DIRECTION

Autopilot

Overview

The Yamaha Helm Master autopilot features 4 modes, and offers an automatic piloting system that assists with throttle and shifting operations for the vessel to obtain a desired heading or point.
The four autopilot modes are heading hold, course hold, track point, and pattern steer. *Note that the autopilot system assists with steering but the operator is responsible for the safe navigation of his vessel, and needs to constantly monitor his vessel while underway.*

This manual covers panel descriptions and basic autopilot operations. The Garmin plotter menus and tabs are used to display the autopilot information.

Read and understand all autopilot information before attempting to operate the autopilot system.
Refer to your Yamaha owner's manual for more detailed information or contact your closest Regal dealer.

Note that the autopilot will not function if there is no signal from the GPS antenna.

WARNING

TO PREVENT BODILY INJURY OR DEATH!
ENSURE THE COAST IS CLEAR OF
OBSTACLES IN THE WATER
AND SHALLOW WATER
ALONG THE CHOSEN ROUTE.

WARNING

TO PREVENT BODILY INJURY OR DEATH!
MAKE SURE THE OPERATOR REMAINS
AT THE HELM AND MONITORS
SURROUNDING CONDITIONS AS THE
AUTOPILOT SYSTEM DOES NOT
AVOID OBSTACLES OR STEER
THROUGH ALL WAVE CONDITIONS.

#6-F1 SWITCH (Disabled)
#7-F2 SWITCH (Disabled)

Autopilot Panel Feature Description/Operation

The Yamaha autopilot display panel features various operation menus that can be displayed on the Garmin plotter for customer friendly navigation. Refer to the illustration above for button designation.

HEADING HOLD- This autopilot mode (1) keeps the vessel moving in the direction of the bow at the time the button is actuated. After it is set, you can adjust to a desired direction. Note that the vessel direction is followed even if wind or current cause the vessel bow to swing from side to side.

To Set Heading Hold Operation:

1. Keep the desired heading and speed.
2. Press the HEADING HOLD button.
3. The button LED indicator will illuminate and the mode is activated.

At this point the steering is locked and the vessel will move forward toward the bow. The speed and heading are maintained at the time the heading hold button is activated.

To Leave Heading Hold:

1. Press the HEADING HOLD button (1).
2. Use the steering wheel to maneuver the vessel.
3. Place the remote control levers in neutral.

To Adjust Heading:

1. With a short burst, press the arrow switch (5) to adjust your desired heading by1 degree increments to port.
Likewise with a short burst press the arrow switch (8) to adjust your desired heading by 1 degree increments to starboard.
Note that the operator can use the joystick to adjust headings by a short burst twist of the joystick handle.

1. With a long burst, press the arrow switch (5) to adjust your desired heading by 5 degree increments to port.
Likewise with a long burst press the arrow switch (8) to adjust your desired heading by 5 degree increments to starboard.
Note that the operator can use the joystick to adjust headings by a long burst twist of the joystick handle.

COURSE HOLD- This autopilot mode (2) keeps the vessel moving on the vector (data describing where a vessel is located and how it is moving) at the time of setting. After setting, the desired direction can be adjusted. Basically once a hypothetical destination is set, and the course is maintained along a programmed direction compensators are inserted for the effects of wind and current conditions.
Note that this function will not be active if the vessel is rotating, or strong wind and currents are causing sideway movement.

To Set Course Hold Operation:

1. Keep the desired speed and vector data.
2. Press the COURSE HOLD button.
3. The button LED indicator will illuminate and the mode is activated.

At this point the steering is locked and the vessel will move on the vector.

To Leave Course Hold:

1. Press the COURSE HOLD button (2) or use the steering wheel to maneuver the vessel or place the remote control levers in NEUTRAL

To Adjust Heading:

1. With a short burst, press the arrow switch (5) to adjust your desired heading by 1 degree increments to port.
Likewise with a short burst press the arrow switch (8) to adjust your desired heading by 1 degree increments to starboard.
Note that the operator can use the joystick to adjust headings by a short burst twist of the joystick handle.

1. With a long burst, press the arrow switch (5) to adjust your desired heading by 5 degree increments to port.
Likewise with a long burst press the arrow switch (8) to adjust your desired heading by 5 degree increments to starboard.
Note that the operator can use the joystick to adjust headings by a long burst twist of the joystick handle.

TRACK POINT- This autopilot mode (3) keeps the vessel moving along transit (set) points displayed on the Garmin plotter. Depending on the settings, the vessel can slow down and stop when it reaches the final destination. You can change it to a preset mode after the vessel stops.
Note that if a destination route is not set, TRACK POINT can not be activated. *In select cases this mode may not be able to follow routes due to their set perameters or the vessel's speed.*

To Set Track Point Operation:

1. Set the route on the Garmin plotter.
2. Position the remote control levers for FORWARD.
3. Press the TRACK POINT button (3).
4. The button LED indicator will illuminate and the mode is activated.

To Leave Track Point:

1. Press the TRACK POINT button (3) or use the steering wheel to maneuver the vessel.

PATTERN STEER- This autopilot mode (4) permits steering the vessel along a pattern programmed by the Garmin plotter. Remember to use pattern steer the plotter must be set to the desired steering and directional pattern. See the Garmin plotter manual for setting these parameters.

To Set Pattern Steer:

1. Use the Garmin plotter to set the mode.
2. Position the remote control levers for FORWARD.
3. With a long burst of 3 seconds, press the PATTERN STEER button (4).
4. The button LED indicator will illuminate and the mode is activated.

To Leave Pattern Steer do one of the following:

1. Press the PATTERN STEER button (4).
2. Use the steering wheel to maneuver the vessel.
3. Position the remote control levers to NEUTRAL.

Trim Tabs

TYPICAL TRIM TAB W/ ANODE

If installed, trim tabs are located on the lower outside hull section 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.

When used with the engine power trim a fine tuned ride can be achieved. The trim tabs 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 drive units.

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.

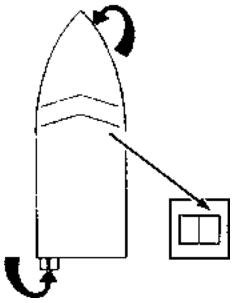
If the boat is over-trimmed, it will plow the bow and the boat will lose maneuverability. If this occurs, simply short burst the “bow up” trim tab rocker switches simultaneously.

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 drive response. Sometimes with outboard propulsion especially you can watch the bow spray or stern wake and the rooster tail (mound of water produced by propellers). 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 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.

TYPICAL TRIM TAB DISPLAY

The indicator lights display the relative position of both port and starboard tabs at all times. The system features NMEA 2000 compatibility.

FAV1/2- This feature let you store the running angles you prefer. Simply press the button and hold to set/save the desired angle. Then touch the button desired to activate. Note there are 2 angle favorites.

ALL UP/ALL DOWN- This feature automatically retracts the cylinders when ignition is turned off.

Waste System (Typical)

Overview

This section covers the main components of the standard waste system. Note that your vessel may have other components that are not covered in this section. Refer to the vendor owner's manual located in the owner's information package or your closest Regal dealer for details regarding optional equipment.

The main standard components of the waste system are the toilet, holding tank along with all hoses, fasteners and sea cocks. We will explore each in this section.The waste water system holding tank on your vessel is located in the sump.

The waste system features a pump-out fitting mounted on the deck labeled waste. Be sure to rotate the waste fitting to its locked position after the pump-out is completed. The waste tank can be pumped out at select marinas featuring pump-out stations . Normally a hose is attached to the deck waste fitting and the tank waste is then pumped into a dock side facility storage container.

After the pump out procedure it is always a great idea to use a garden hose to rinse the pump out hose before recapping the waste fitting.

This will help keep residue from building up in the inside of the waste hose.

IPS GLASS COCKPIT DISPLAY-WASTE LEVEL

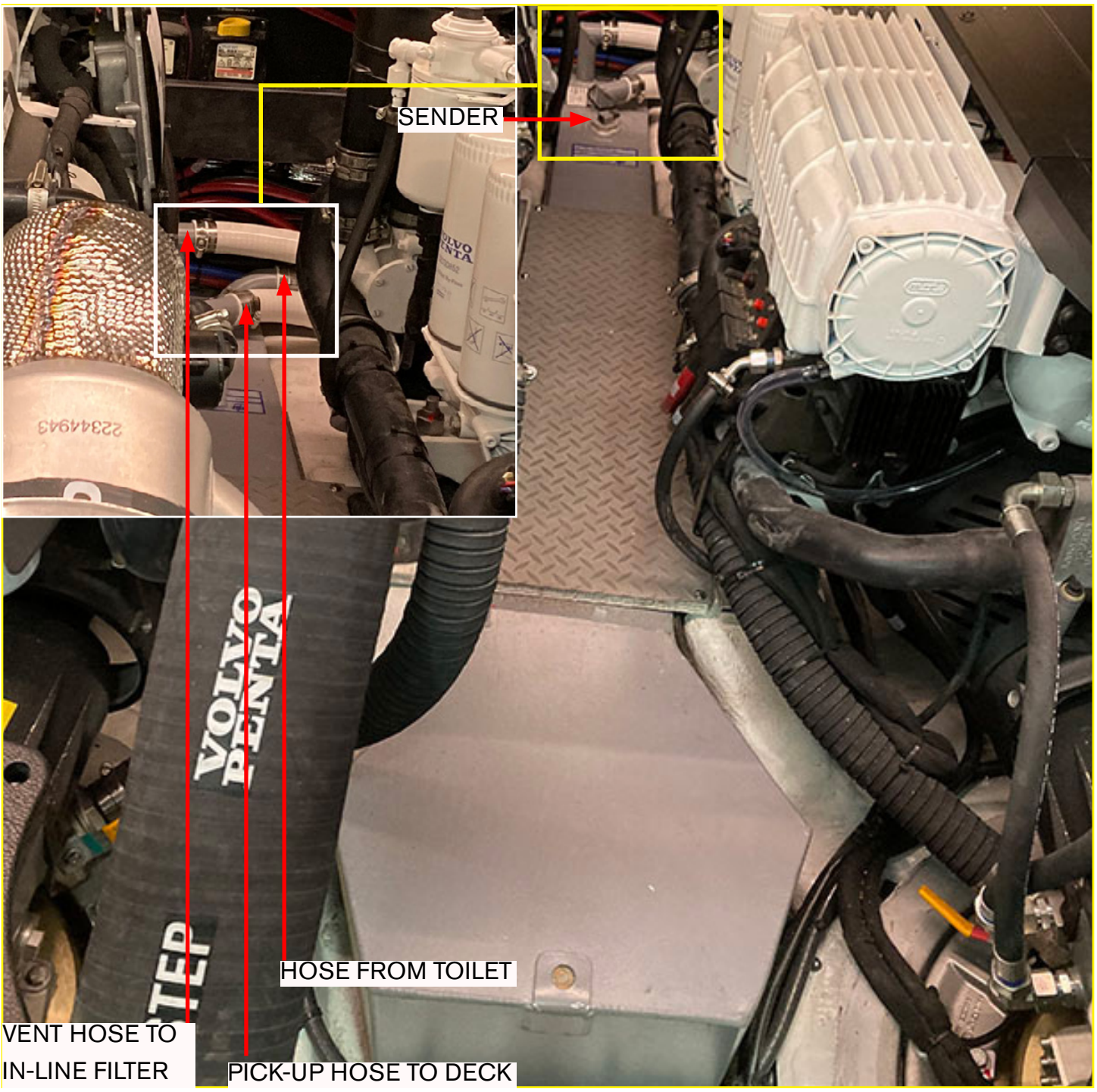
OUTBOARD GARMIN DISPLAY-WASTE LEVEL

Note to use the plotter or "glass cockpit" displays to check the waste tank black water level.

It will help you determine when to pump out the waste holding tank. It is recommended to check levels before each cruise.

Note with the overboard discharge option and depending on dumping laws waste can be pumped through the hull bottom via an overboard discharge (macerator) type pump.

IPS Waste Tank Description-Typical

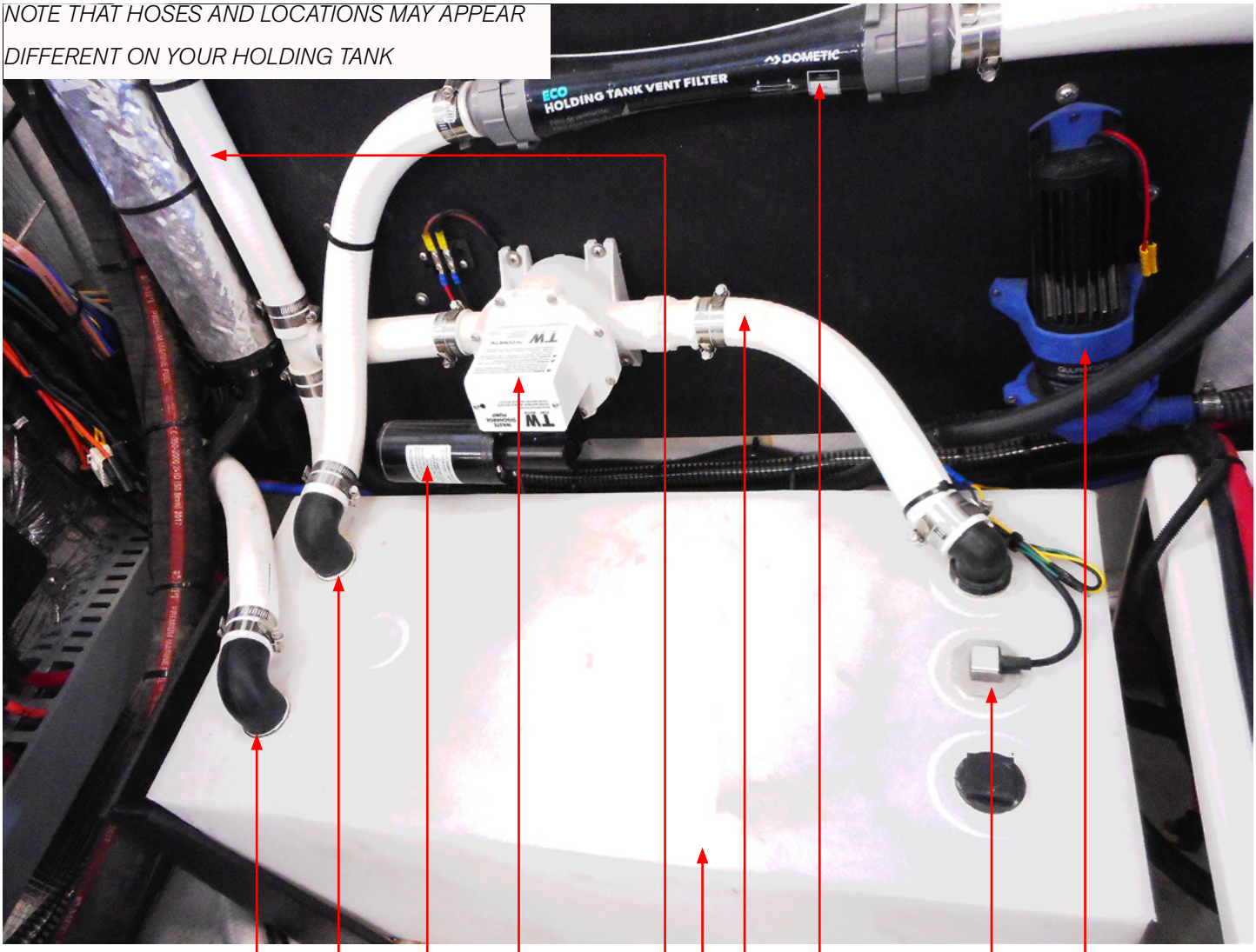


The 42' IPS vessels feature an aluminum waste holding tank of approximately 33 U. S. gallons. The tank footprint promotes a service anti-skid walk-way over the tank top and customer friendly hoses and fasteners for periodic maintenance.

Note to monitor the waste tank level from the "glass cockpit" plotter home page. The sender shown above communicates tank waste levels with the plotter. Always check the waste tank level before a cruise as a pump-out may be in order.

Outboard Waste Tank Description-Typical

NOTE THAT HOSES AND LOCATIONS MAY APPEAR DIFFERENT ON YOUR HOLDING TANK



HOSE FROM TOILET

VENT HOSE

MACERATOR OPTION

OVERBOARD DISCHARGE PUMP OPTION

HOSE TO DECK FITTING FOR PUMP-OUT

WASTE TANK- APPROXIMATELY 29 GALLON CAPACITY

HOSE TO PUMP OUT/ OPT. OVERBOARD DISCHARGE

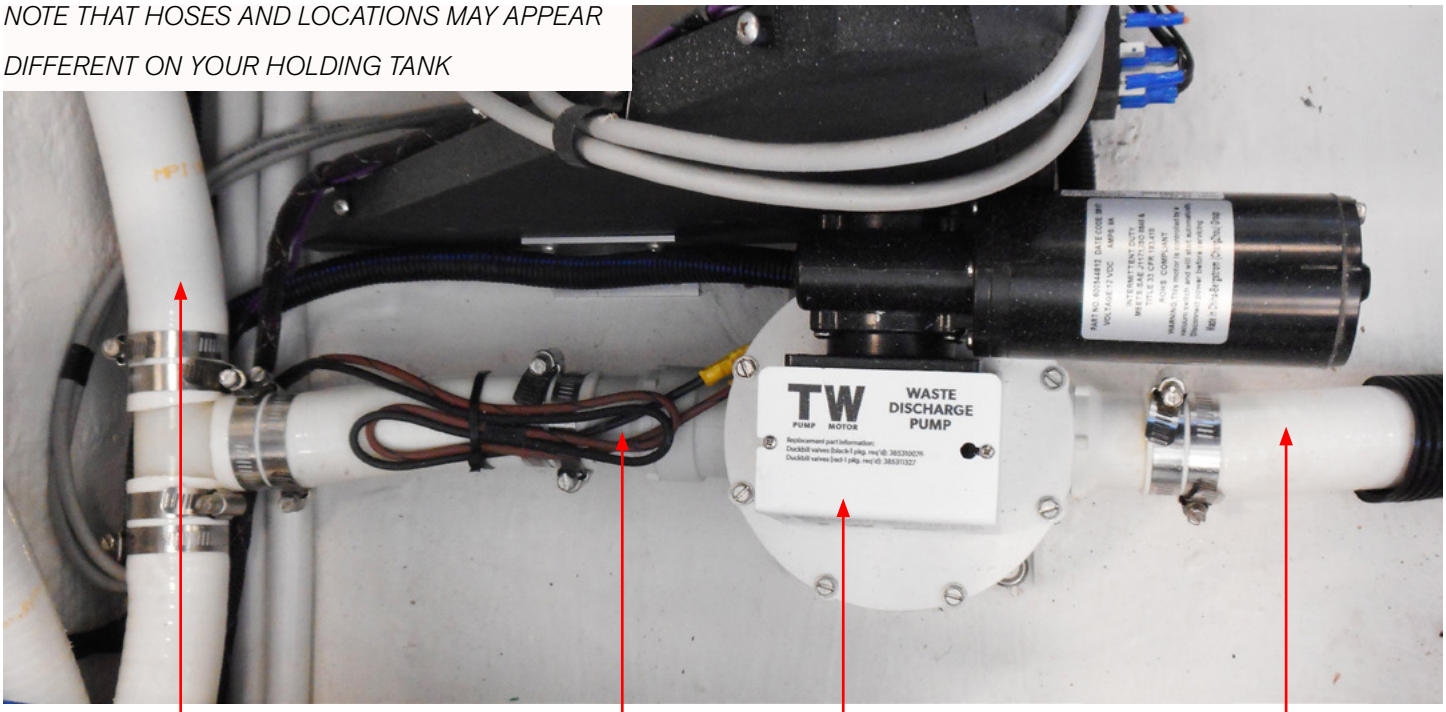
SENDER- INFO TO PLOTTER

WASTE SYSTEM FILTER

HOSE IN/OUT & PUMP FOR SHOWER BOX

Overboard Discharge System- Typical

NOTE THAT HOSES AND LOCATIONS MAY APPEAR DIFFERENT ON YOUR HOLDING TANK



HOSE-TANK TO PUMP OUT

HOSE TO OVERBOARD DISCHARGE PUMP

MACERATOR DISCHARGE PUMP OPTION

HOSE TO SEA COCK

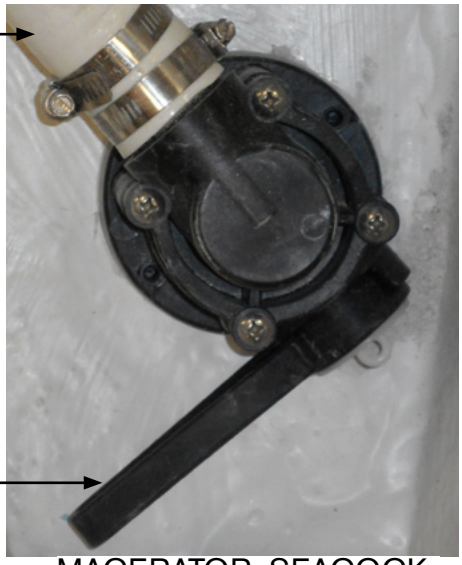
Overboard Discharge Operation Notes

As an **option** the vessel may be outfitted with an overboard discharge system with macerator. This system will discharge waste through a seacock located in the sump at the hull bottom.
Before attempting to activate the oveboard discharge process **always determine you can legally pump overboard. Investigate all applicable national, state, county, and local laws.**

Note that pumping vessel waste overboard is permitted outside the United States territorial 3 mile limit.

After pumping check the plotter to verify the waste (holding) tank is empty.

HOSE FROM MACERATOR



SEA COCK HANDLE IN CLOSED POSITION

MACERATOR SEACOCK THROUGH HULL BOTTOM

Overboard Discharge Operation

Follow the procedure outlined below for overboard discharge:

1. Rotate the seacock handle to the open position after removing the tie wrap. At this point the handle should be lined up with the hose.

2. At the main ship's DC panel activate the macerator breaker.

3. At the main ship's panel locate the macerator panel. Note that the straight up and down knob position is "off'. Turn the knob to the right which is its "on" position. See the photo.

Note the caution label indicating the waste seacock must be in the open position before tank is discharged.

4. Press the macerator button at the battery activation panel to start overboard discharge.
The macerator button in a normal "off" position displays no colored ring.
While the macerator pump is cycling the macerator panel button at the battery actication panel will display red.

Note that the macerator button is only active only with the overboard discharge option. It may be plugged on select display panels.

The macerator (overboard discharge pump) grinds up the waste and sends it through the hull bottom via the *open* macerator sea cock.
After pumping check the plotter to verify the waste (holding) tank is empty.

After pumping out, the sea cock handle must be turned to the closed or "off" position and tie wrapped.

Check for all local and state laws regarding pumping overboard domestically before attempting to open the sea cock as there may be stiff fines for pumping illegally. It is legal to pump overboard outside the United States 3 mile limit.

Periodically check all system hose clamps for tightness, hoses for cuts/abrasion and that all components are fastened securely.

Waste Vent Filter-Typical

The waste (holding) tank filter is in-line between the holding tank vent and an overboard fitting. As the holding tank fills up with waste it gives off odors. The vent filter breaks down the odors as they exit.

The waste filter is “customer friendly” as it is designed with a union at each end for changing out the cartridge filter. The unions unscrew counter clockwise for serviceability. It is recommended to change the filter yearly, normally at the end of your boating season. Mark the change date on the filter or on your vessel maintenance calendar.

It is recommended to carry an extra filter on board. For further information on availability contact your closest Regal dealer or maine retail outlet.

Typical Head (Toilet) System

The onboard style head system features a vacuum type toilet. The system features minimal water requirements, easy maintenance, quick cleaning and a user friendly wall switch.

The toilet is powered by 12 volt DC current and is controlled by a breaker located at the main ship's DC panel.

Under normal conditions, the head system operates from the onboard freshwater tank. If dock side water is being used the toilets still draw water from the freshwater tank.

Note that vessels with the 2nd portside head option uses a tee fitting to connect to the main head drain system.

Note that the overboard discharge system is optional equipment on the Regal 42 models.

A Few Notations About Marine Toilets

Only human waste and toilet paper should be put in the toilet. Never flush foreign materials such as paper towels, pre-moistened wipes, condoms, feminine hygiene products, dental floss or household garbage down the toilet.

- Always disconnect the dock side water system if boat is left unattended to avoid property damage due to leakage.
- Refill the toilet as soon as possible after emptying the bowl to prevent objectionable odors.
- Use only RV-Marine toilet tissues that disintegrate rapidly. Do not use household type tissues.
- If repairs are needed, use only a trained and qualified marine technician or electrician.

VACUUM STYLE TOILET | TRIPLE SWITCH PANEL | TOILET FLUSH SWITCH

Operating Vacuum Style Toilet

To use toilet first make sure the 12 volt DC breaker is activated at the main panel. Remember even though you are using dock side water the heads draw water via the fresh water system through the potable water tank.

The wall control switch is used to add water to the bowl and to flush the toilet. Select cycle information is noted here. For more complete information, refer to the toilet vendor information located in the information packet.

1. To add water (est. 17 ounces each cycle) to the bowl press the add water button momentarily and release. The system prevents overfilling the bowl.

2. To flush the bowl press the flush button momentarily and release. The attached bowl motor will macerate the waste and flush it. The cycle ends with a small amount of water being added to the bowl to help prevent odors. This completes the minimal water usage flush cycle.

Wall Control Panel Blue Backlighting Description:

- The holding tank icon in the lower right hand corner of the control panel is not lighted. Toilet system is off or not receiving power.
- The holding tank icon is normally green. This means the holding tank is less than full.
- The holding tank icon is red. The holding tank is full or near full with the flush lockout (prevents Flush operation when holding tank is full) activated.
- Tank icon flashes.
- Sleep mode (non-use for 8 hours) causes the lights to go out. Pushing the fill or flush button momentarily will return lighting cycle.

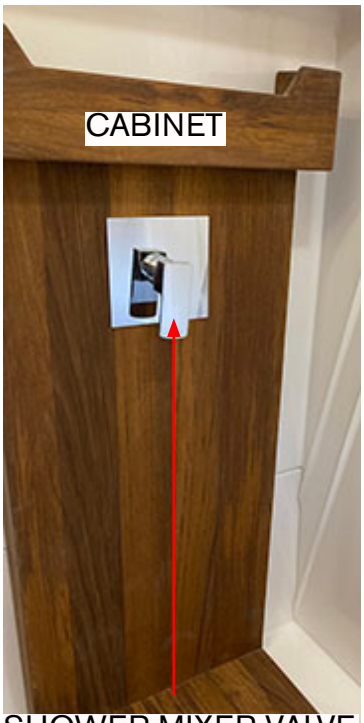
Single Flush Override of Flush Lockout

1. If the holding tank is full the flush lockout cycle will not allow the bowl to be flushed and the flush button will be lighted red.
2. For emergency use only the flush button can be held for 8 seconds and a flush will occur. This can be accomplished because the full sensor connected to the holding tank is usually placed a bit below the actual full capacity of the tank. Flushing more than 5 times using the override feature may force waste into plumbing system. Regal is not responsible for damage to equipment, injury or death due to overflow of waste when flush lockout is overridden.

CAUTION

POSSIBLE OVERFLOWING
OF THE WASTE HOLDING TANK
CAN OCCUR DUE TO USING
THE SINGLE FLUSH OVER-RIDE FUNCTION.
FOR EMERGENCY USE ONLY.

Shower/Head Information



SHOWER MIXER VALVE

The shower cabinet features a teak hardwood with a seat. The mixer valve operates similar to home units.

It is recommended to move the mixer valve to the proper position and turning on the water for the personal temperature desired before entering the shower. Note that unlike showering at home the vessel is limited in available hot water and water conservation is recommended.

SHOWERDRAIN ACCESS

The shower pan features a removable teak floor insert. Under the insert is the shower strainer/drain.

To remove the insert, lift on the upper ends as it is secured with a velcro type adhesive.

At this point you can clean the shower floor and strainer of debris. Reinstall the teak panel to align with the adhesive strips. Periodically clean the shower drain as hair and soap residues tend to clog it. Note to never pour drain cleaners in the drain as the tubing could be damaged and leaks may develop.

The head/shower features a 3 switch panel. Note that when activated a blue icon is lighted.

Typically, their function is as follows:

1. Power vent controls the head fan.

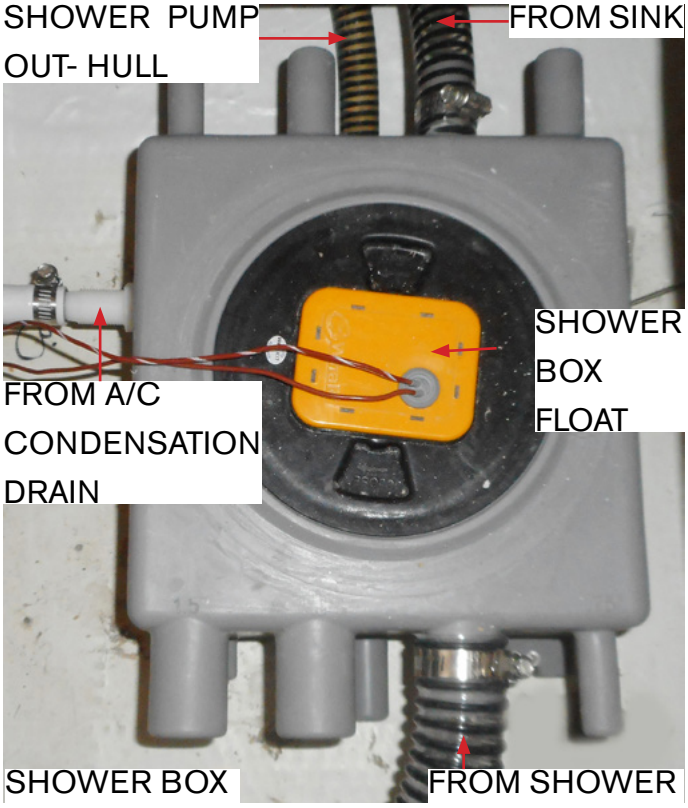
2. Indirect light switch controls the LED accent lighting.

3. Overhead light switch controls the LED ceiling fixture lighting.

HEAD CABINET- WATER SYSTEM MANIFOLD

To access the fresh water system manifold remove the 2 screws inside the top ledge of the teak cabinet. *Note the red hoses are designated hot water and the blue hoses are designated cold water.*

Shower Collection Box- Typical



The shower box is a collection and distribution point for the majority of the water used in the vessel's sinks, shower, and A/C system. The shower box is normally located under the aft stateroom floor access. This used water is pumped overboard traveling from the shower box to a hull side fitting. Periodically check the shower pump inside the shower box for debris buildup at pump grate.

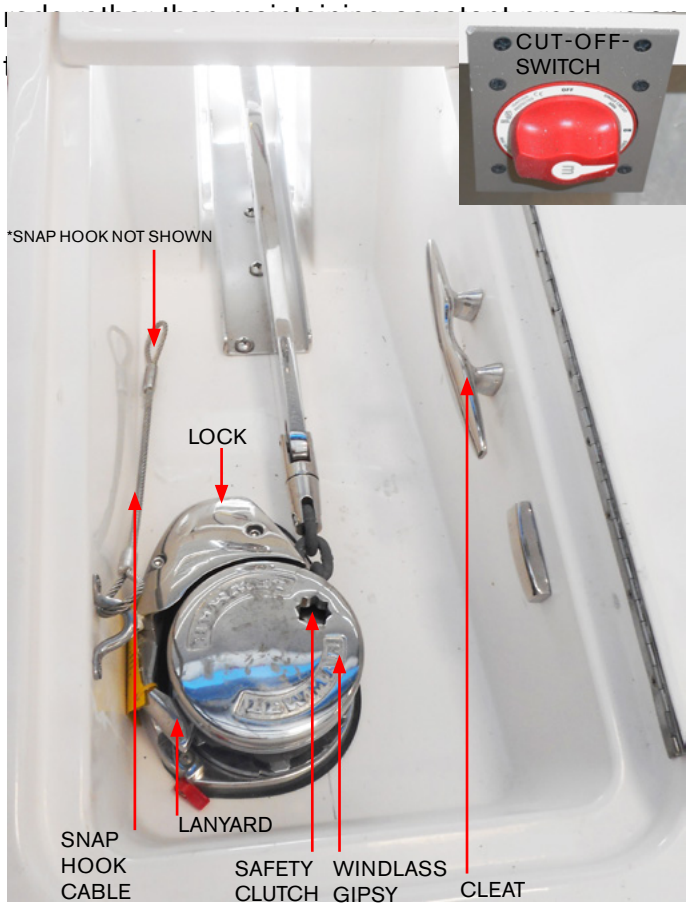
As the shower pump fills the float switch shown above activates a pump which sends the gray water to the holding tank (gray water option vessel only) or overboard on all other vessels.

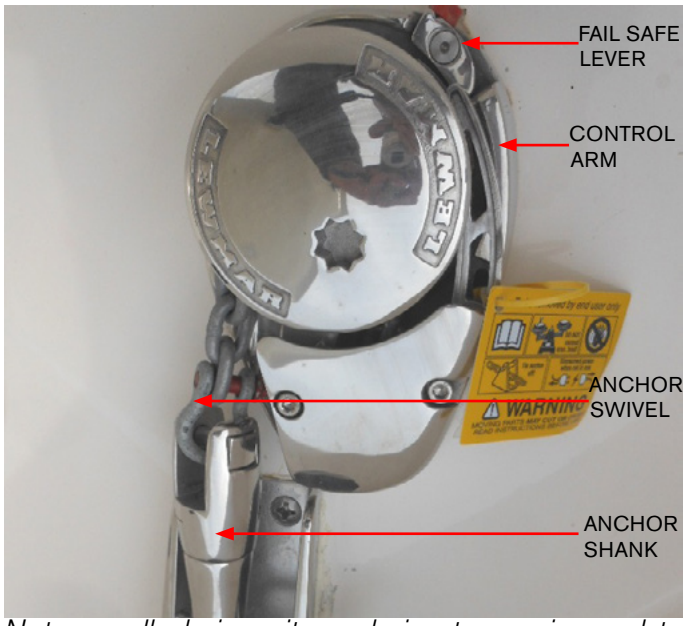
Overview- Anchor Windlass

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

Foot petals or a remote control the lowering and retrieving of the anchor through the windlass .

A breaker for windlass over current protection is located at the DC distribution panel. There is a lanyard with a snap hook to add holding power when the anchor is in the stored position. On rope/chain combo units the cleat is for tying off the anchor





Note on all chain units a chain stopper is used to remove the load on the windlass. (Not shown)

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.

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 such as the lanyard hook. Stand clear of all windlass components when paying out. Activate the deck locker cut-out switch to energize the dash switch, foot petals or optional remote to pay anchor out.

WARNING

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

Using Anchor Windlass

The windlass may be outfitted with a rode using 100' of 1/2" nylon rope along with 10' of galvanized chain or all 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.

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 "gipsy",

REMOTE CONTROL

When the proper ratio of anchor rode is paid out disengage the dash switch or foot petal 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 (Chain stop accomplishes this on all chain units). 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 retrieve activate the windlass cut-out switch in the starboard deck locker. Next, use the windlass dash switch or deck foot petal to haul in the anchor rode.

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. Note that the fail safe pawl does not need to be disengaged from the gipsy before the anchor can be paid out again.

It is recommended that during the paying out process the engines 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 gipsy which will help prevent accidental activation.

WARNING

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

The windlass remote receiver shown above left is normally located at the bow end of the helm seat hull side locker. This device communicates with the windlass remote control.

There is a switch that controls the up and down windlass operation as directed by operating the up and down deck foot petals and/or the windlass remote if installed. It is known as a dual direction solenoid switch. Periodically check the switch for tight connections. If the windlass does not move up or down it may be a defective solenoid switch or wiring defects in the circuit. See the photo below.

WINDLASS SOLENOID SWITCH

Windlass Safety Tips

1. Read and understand the windlass owner's manual found in the owner's information packet.

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 activation panel 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.

Chapter 3
Vessel Operation

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?

▪ Are the engines and propellers in good working condition?

▪ Is the hull drain plug in place (dry dock storage) ?

▪ Have all passengers been briefed on emergency procedures and seated for departure? Is the boat load balanced?

▪ 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 component person?

▪ Has the bilge been sniffed and the fuel system leak checked?

▪ Are sea cocks 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 displays 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 doors closed and latched?

▪ As skipper are you monitoring the dash displays and/or plotter(s) 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?

Disembarking Questionnaire

Are all key fobs secured and stored securely?

- Have all systems been checked for leaks?

- Has the battery activation panel been turned to the “off” position?

- Are all sea cocks closed (if applicable)?

- Has the fuel tank been filled enough to prevent condensation?

- Is the vessel properly tied and covered with equipment stored?

Fueling- Diesel & Outboard Warnings

DANGER

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

WARNING

AVOID INJURY OR DEATH FROM FIRE
OR EXPLOSION
RESULTING FROM LEAKING FUEL!
INSPECT ENTIRE FUEL SYSTEM AT
LEAST ONCE PER YEAR.

WARNING

SINCE GASOLINE IS AVAILABLE
IN SEVERAL GRADES
INCLUDING ETHANOL 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- Gasoline

- 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.

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 accidently spilled with a clean rag and dispose of it on shore.

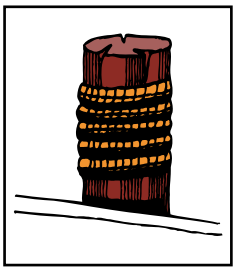
After Fueling

▪ 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.

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 runs 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.

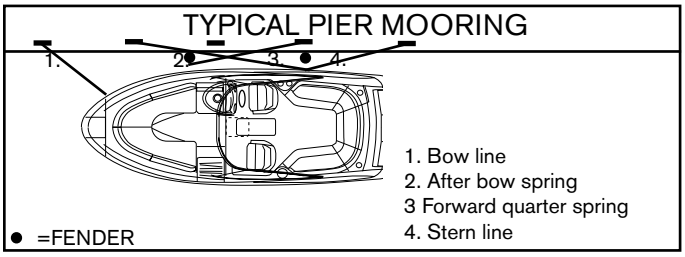
Breast Lines

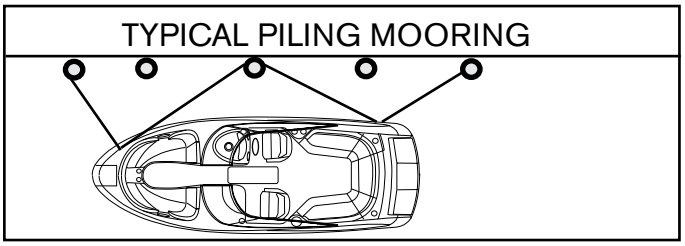
These lines are attached to the bow and stern that lead to nearly right angles from the center of the vessel to the dock. They help keep larger vessels from moving away from the dock, or are pulled in to help people board the vessel. Larger vessels may use bow or quarter breast lines.

Spring Lines

Most boats use two spring lines although it is possible to have four. They are called the after bow spring and forward quarter spring.
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 Docking/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 amidships. Run both spring lines to it. These lines will be shorter but still useful. 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 to 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 Dock 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 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.

Fenders

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.

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.

Maneuvering

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. Drive units are designed to have reduced shaft angle, so the propeller does not produce as much unequal blade thrust and resistance. Large horsepower boats do produce more thrust and steering torque but your vessel has the advantage of power steering.

Below is some basic information on how boats handle in normal conditions.

Gathering Headway

When a vessel 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 propeller action creates a discharge motion and generates energy in the form of thrust. If the 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. On select units there is a trim tab (also serves as a sacrificial anode) located on drive housings. 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.

Contact your Regal dealer for further information or consult your engine manufacturer's manual.

Turning

Once the boat has gathered headway, with the boat planing at the correct bow angle and the 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 chart plotter screen trim gauge as a guide while activating the trim button on the remote control panel or use the favorite buttons with auto tab systems if installed.

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 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 drive to starboard.

When the vessel begins to gather speed to stern, the water passing by the lower gear case 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. Select drive units 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. Use remote controls and/or joystick on IPS and outboard models to maneuver in these situations.

Stopping

Remember that your boat does not have any brakes. It uses reverse thrust from the propellers to stop. If the vessel has headway, with the helm and propeller in reverse the propeller thrust is directed backwards, past the lower gear case. Depending on how far the throttle is advanced, the discharged thrust may not be strong enough to reverse the water flowing by the gear case. 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 gear case, 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 gear case. Furthermore, added to the energy of the water hitting the lower gear case, the propeller thrust is directed by turning the drive unit 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.

Again, make use of the joystick on IPS and outboard models.

Power Trim/Trim Tabs

IPS and outboard models have the ability to angle in or out their drive unit.

Purpose of Power Trim

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

l. 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.

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

With IPS and outboard models you can use individual engine trim buttons or synchronize dual or triple propulsion with all units to responding together by using the remote control.

Using 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.

If installed use the auto tab favorite buttons to save a desired 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 in a traffic free environment make test runs at slower speeds and at various trim positions to see and feel the effects of trimming. Note the time it takes for the boat to plane. View the chart plotter screen, tachometer, and speedometer plotter readings as well as the ride action of the boat.

Operation In “Bow Up”

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

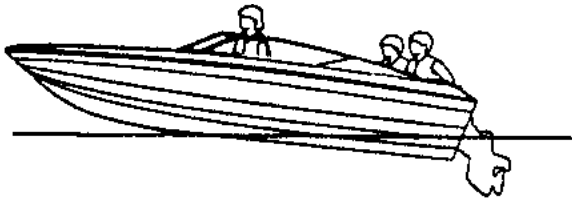
The “Bow Down” or in position is normally used for acceleration onto a plane, operating at slow planning speeds, and running against a choppy wave condition. It is also used when pulling water skiers, tubers, knee boarders, etc. In this position the boats’ bow will want to go deeper into the water. If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

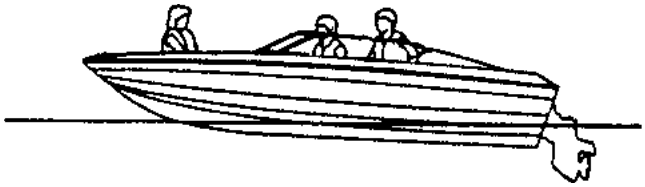
In normal running conditions, distribute passengers and gear so boat is level. At or below cruising speeds, trim the vessel for optimum performance. The trim gauge will show somewhere in the center of the gauge. This position will also enhance running visibility and overall stability. Again, each outing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

TRIMMED “TO FAR IN” POSITION

TRIMMED “TOO FAR OUT” POSITION



WELL TRIMMED “LEVEL” POSITION



Typical Examples (Stern drive shown here)

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 drive 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, drive and propeller damage.

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 determined by boat size and windlass model. Some models incorporate chain, line or a combination depending on the option installled. 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.

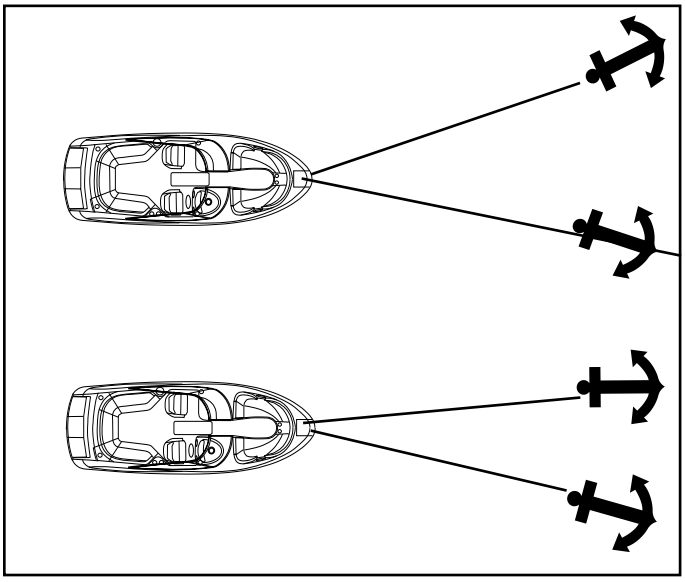
The nylon will stretch under a heavy strain cushioning the impact of waves or wind on both the boat and the anchor.

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



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 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!

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.

WARNING

AVOID 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!

Fires

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 engines.

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 the automatic fire extinguisher system will activate. Keep engine hatch down to assist in the fire being extingished due to a lack of oxygen. Be prepared to evacuate passengers from the vessel.

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.

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 skippers' 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!

Environmental Awareness

There are numerous vessels operating on our waterways on a daily basis. Each boat has as 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 a 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 liter 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. Practice the "catch and release" principle.

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

Chapter 4
Auxiliary Equipment Operation

Overview

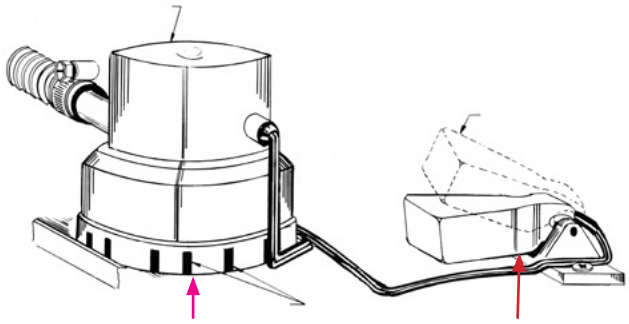
This chapter will assist the boat operator in understanding selected standard and optional equipment components on the vessel. *Select equipment described may not be installed on your boat or the pictorials may not exactly resemble components on your craft.* Remember, Regal is constantly improving its product line and will make changes in vendors, parts, and specifications without notice.

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.



TYPICAL BILGE PUMP WITH AUTO SWITCH

Bow Thruster- Typical

General Safety Notices:


BUTTON

1. Be sure to read and understand the safety instructions and all thruster operation information before attempting to use the thruster system. Refer to the thruster manufacturer's owner's manual for more detailed information.

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. See photo at right.

Thruster Usage

To use the thruster first make sure the component is activated. In the sump there is a on/off battery type switch in-line with the thruster power cable feed. Rotate the switch to the "ON" position.

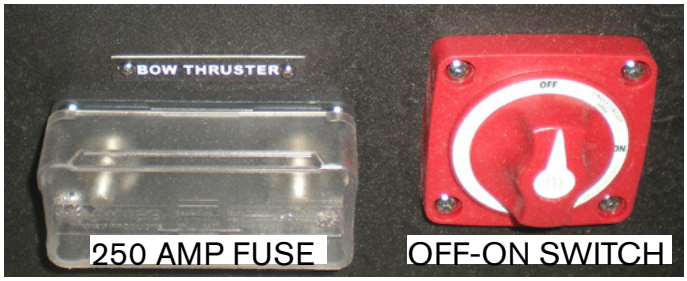
Note the joystick on the helm. The thruster will assist in slow speed maneuvering especially around a dock or close mooring situations. It operates similar to a gaming or marine propulsion type joystick.
Make sure the helm joystick switch is energized as the black button needs to be depressed and held as a **long burst.** The red icon will illuminate.
Never run the thruster dry; it may 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 engine(s) should be running to maintain this voltage requirement.


THRUSTER PROP AT HULL

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

Note that the block style fuse is rated at 250 amps is controlled by the house accessory battery and located in the bilge compartment on the battery management panel.



Should the thruster motor ever become unable to srop its motion turn the red off-on swtch "OFF" to deactivate the thruster system.

Patio Doors

The patio entrance doors are a double slider type design with heavy mechanical joints for added strength. The aluminum frame is typically finished in a weather resistant polyester powder coating. The tinted door surface is a high impact tempered glass.

Note that when underway always ensure the companionway door is closed and latched. When moored ensure that if the door is left open that the latch is flipped across the track to prevent the door from closing. Latch the door by moving the latch under the strike plate to the up position.

Patio Blinds

Designer patio blinds are standard equipment on your yacht. They are integrated into the patio doors for ease of use and function similar to residential type integated door blinds. Operate the blinds up and down using the control bar.

It is recommended while cruising the blinds be in the full up position to promote optimum aft visibility.

Canvas- Transom Seats

As an option covers are available for the transom seats. The covers provide protection from the elements and are easy to install. See the care chapter for cleaning information on vinyl and canvas.

TYPICAL

Windshield Privacy Cover

The privacy cover provides protection from the bright sun's rays along with staring eyes.

TYPICAL

Canvas- Palm Beach Enclosure

As an option this cover protects the entire cockpit from the elements. Light weight and easy to install to the hardtop and fasteners as you progress down to the cockpit decking.

TYPICAL

Foredeck Sunpad Cabana Cover

This option provides shade while enjoying the view from the sundeck. The stainless steel framwork installs easy and latches on each side. Ensure the framework and canvas is stowed while cruising and periodically rinse off the structure especially the framework in highly salty environments.

Cockpit Grill (Typical)

Be sure to read the grill manual to become acquainted with all the safety features and proper modes of operation before attempting to use the grill. To use the cockpit electric grill you must activate the dedicated breaker on the ship's main panel. You must either be on dock side power or have the generator running as the grill operates at 120 volts.

Next, locate the grill controller on the face of the cabinet. Push the center button to activate the grill. Change the grilling temperature by using the plus or the minus buttons on the grill control. Read the grill owner's manual for further information.

Always have a fire extinguisher handy. Should there be an emergency situation close the cover. Power to the grill will be shut down at this point. After grilling be sure to let the element cool before installing the cover.

There is a safety shut-down switch located at the grill top left side which appears as a magnetic disc. It operates through magnetic induction which means with the top in the down position there is no power to the grill controller and it can not be turned on until the top is lifted to its raised position. See the limit switch circuitry drawing in the stove section.

Note that the grill top is non-removable.

Inside the grill cabinet is a limit switch junction box. This device will shut the grill down if it overheats.

CAUTION

AVOID POSSIBLE FIRE HAZARD!
CLEAN DRIP TRAY AFTER EACH USE.

CAUTION

AVOID POSSIBLE INJURY
DUE TO HOT COOKING POTS/PANS
NEVER USE THE GRILL
WHILE THE VESSEL IS MOVING!

Cockpit Grill- 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 grill in rough seas or high winds.

3. Do not add burning type charcoal briquettes or volcanic stones to the unit.

4. Never operate the grill while making headway (under engine power).

5. Never grill with any canvas in the up position since smoke and odors from cooking could infiltrate the canvas fabric over time.

6. Keep combustible materials away from the grill.

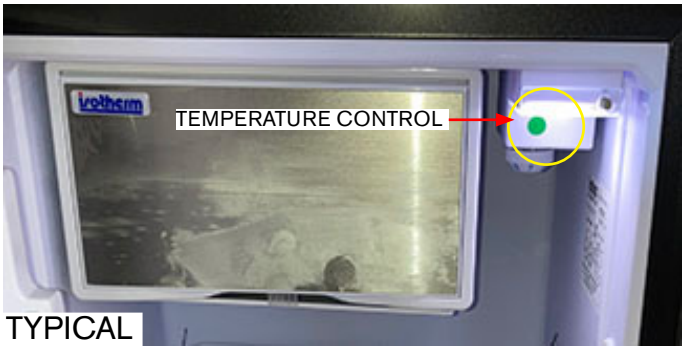
7. Keep children away from a hot grill surface.

8. Let the unit cool down before attempting to cover it.

9. Keep the grill covered when not being used.

Cockpit/Patio Refrigerator (Typical)

If installed, the cockpit patio refrigerator provides chilled and frozen storage areas for food and beverage . It features a brushed 316 grade stainless finish steel door and LED lighting and easy to use thermostat.



TYPICAL

The unit operates at 12 volts DC voltage and draws approximately 6 amps along with requiring a minimum of 10.9 volts.

Using Thermostat Control

Note the thermostat (temperature control) in the above illustration.

This device sets the refrigerator temperature and includes a power shut-off function when turned counterclockwise to the end position. To adjust the temperature, turn the thermostat clockwise in order to reach the recommended 5-6 degrees Centigrade or 41 degrees Fahrenheit. The cockpit refrigerator uses a 15 amp fuse for over current protection located at the ship's DC panel. When leaving the vessel with goods in the refrigerator make sure the battery charger is on and the dock side cord energized to prevent spoilage.

Usage Recommendations

- If possible, the refrigerator should be turned on for about 6 hours prior to filling food items.
- Frequent opening of the refrigerator door will result in greater consumption.
- Ensure that nothing blocks the refrigerator vent.
- Keep the inside of the refrigerator clean and dry.
- Keep the surface of the door clean and dry.
- The unit has been designed with a product lock protection in the event of low battery voltage. In the event of a compressor block, follow the instruction in the manufacturer's owner's manual or contact a marine technician.
- Note that the compressor can operate up to angles of 30 degrees; greater angles can cause damage to the compressor.
- Note that the unit contains refrigerant type 134 A. In the event of a loss of refrigerant contact a qualified certified technician.
- Periodically clean the condenser unit behind the refrigerator. Dust or vacuum the fan from any dust or lint debris.
- See the manufacturer's owner's manual for defrosting instructions.
- Consult the manufacturer's owner's manual for any troubleshooting information or contact your closest Regal dealer.

Cockpit/Bridge Refrigerator

If installed the bridge refrigerator features a pull-out drawer for quick access to food and beverages and a stainless steel insulated door.
The thermostat once set maintains a constant temperature. The thermostat includes a power shut-off function when turned counterclockwise to the end position. To adjust the temperature, turn the thermostat clockwise in order to reach the recommended 5-6 degrees Centigrade or 41 degrees Fahrenheit.
When leaving the vessel with goods in the refrigerator make sure the battery charger is on and the dock side cord energized to prevent spoilage.

Cockpit Sea-grass Mating

If installed, cockpit sea grass 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 sea grass 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. Do not pull on material when removing from cockpit, but rather lift the snap instead to disengage.

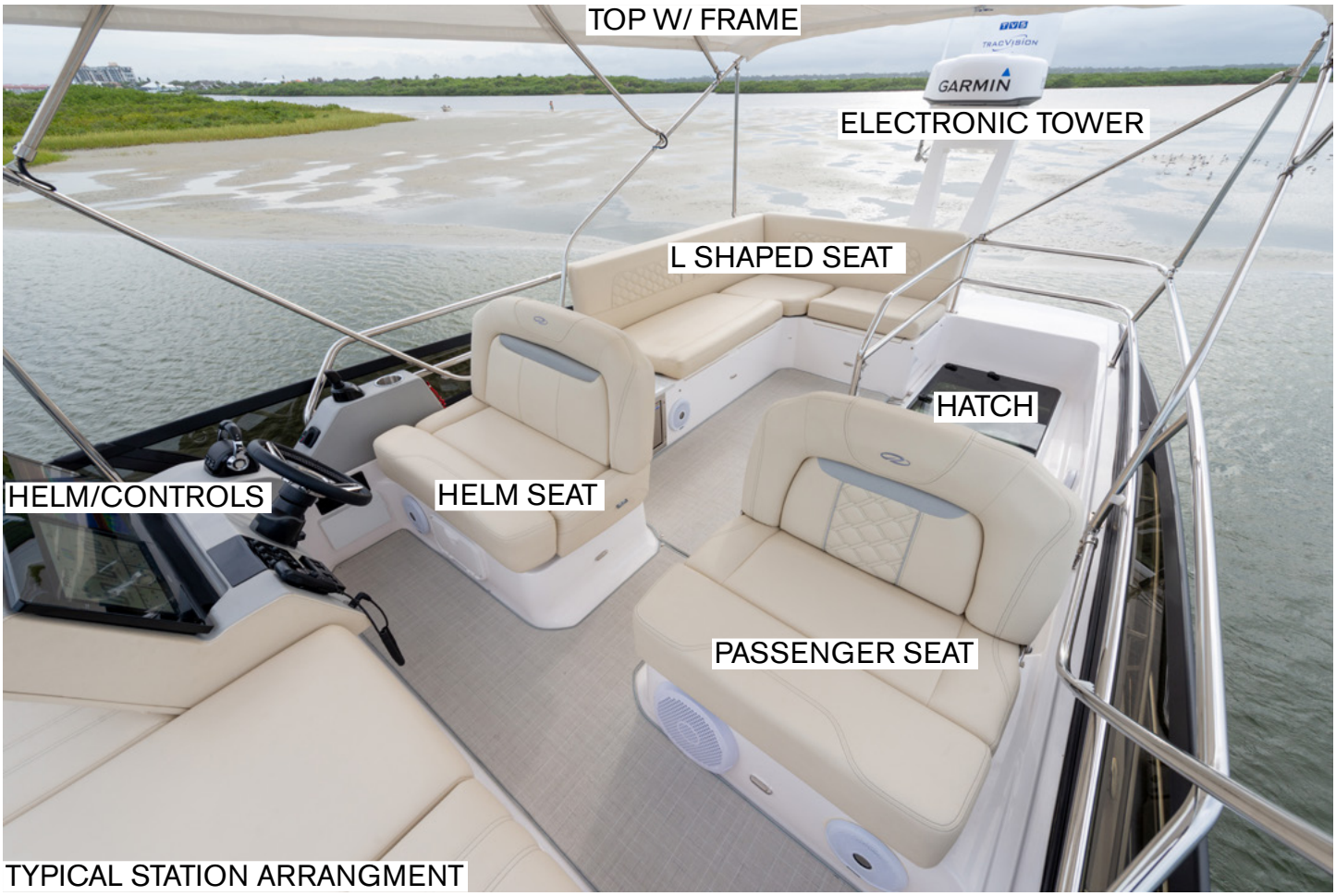
Fender Clips

The fender clip option features receivers integrated into the vessel hull side and quick release pins. The quick release pins attach to fenders with lines so they are ready to deploy as needed. When the vessel approaches a mooring the quick release pin with fender is attached to the receiver and pushed into place. This will help protect the boat from dock “rash” which could damage the rub rail or gel coat. When leaving the dock the pins feature a quick release mechanism which detach easily.

FENDER CLIP RECEIVER

FENDER CLIP RELEASE PIN

FENDER CLIP COMPLETE



TYPICAL STATION ARRANGMENT

This section is related to the 42' Flybridge models only. Basic equipment and seating layouts are described with an emphasis on operation of above equipment and devices. A majority of the equipment followslower station equipment principles and operation procedures.

Note to read and understand your propulsion manual before attempting to operate any flybridge related equipment and propulsion controls.

Note that select items shown may be optional and not be installed on your vessel. Locations/Displays may vary.

TYPICAL STATION ARRANGMENT
OUTBOARD VERSION SHOWN

NOTE YAMAHA JOYSTICK/
NOT SHOWN

WARNING

PREVENT INJURY OR DEATH!
READ AND UNDERSTAND
MANUFACTURER'S HELM CONTROL SYSTEM
OWNER'S MANUALS
BEFORE OPERATING THE VESSEL!

NOTICE

LOWER STATION ENGINE CONTROLS MUST BE FIRST ACTIVATED TO USE THE UPPER STATION ENGINE CONTROLS.

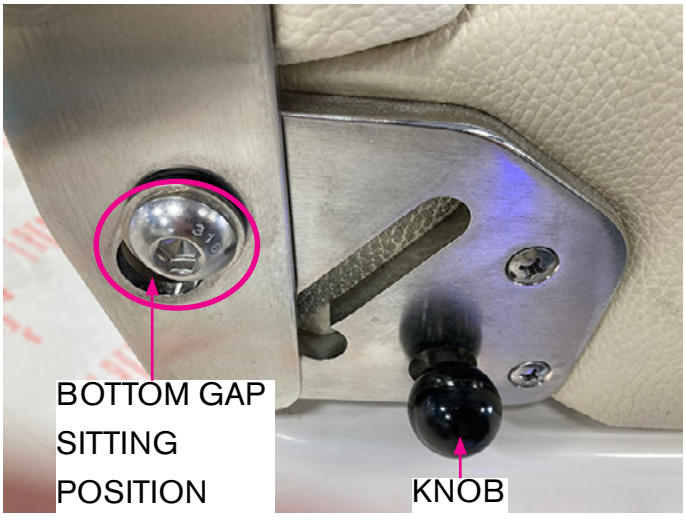
Helm Seat

The helm seat features an adjustable bar located on the front to permit fore and aft seat movement. Pull the bar up while moving the seat back or forth with your body to a a desired detented position.

In addition, the seat footprint feature a front riser section. Pull up and to the stern to use. This extra space permits additional stand up space for maneuvering and cruising needs. When used as a seat riser the increased elevation is custome friendly for close quarter docking and visibility inside ports and marinas.

Passenger Seat

The passenger seat features an adjustable mechanism on the inside section of the seat. This permits the seat to change to a laydown position. For a laydown position pull on the knob. While holding the knob pull up on the seat back to release the seat back to laydown. The spacing gap at this point will disappear on the bottom. Pull on the seat back and it will laydown.



L-Shaped Seating

Flybridge models feature aft L-shaped seating. Select cushions are removable to provide extra storage for your cruising needs. Periodically clean the vinyl. See the care chapter for further information.

The optional flybridge dinette table can be installed in the floor receiver and the seat area becomes an eating area. The table and mounting hardware are located under the seat cushions.

Hatch/Bridge Rail Chain

All 42' flybridge models feature a hatch at the stairway area. Keep the hatch closed at all times the flybridge is occupied.

Also, make sure the bridge rail chain is latched when the vessel is in motion. See the photo. Never step on the hatch as it will not support live load weights.

Always maintain a balanced flybridge passenger load and ensure everyone wears life jacket while cruising. Younger children shall wear life jackets at all times while on board the vessel.

WARNING

PREVENT POSSIBLE INJURY OR DEATH
FROM FALLING!
KEEP THE STAIRWAY HATCH
CLOSED AT ALL TIMES
THE VESSEL IS OCCUPIED!

WARNING

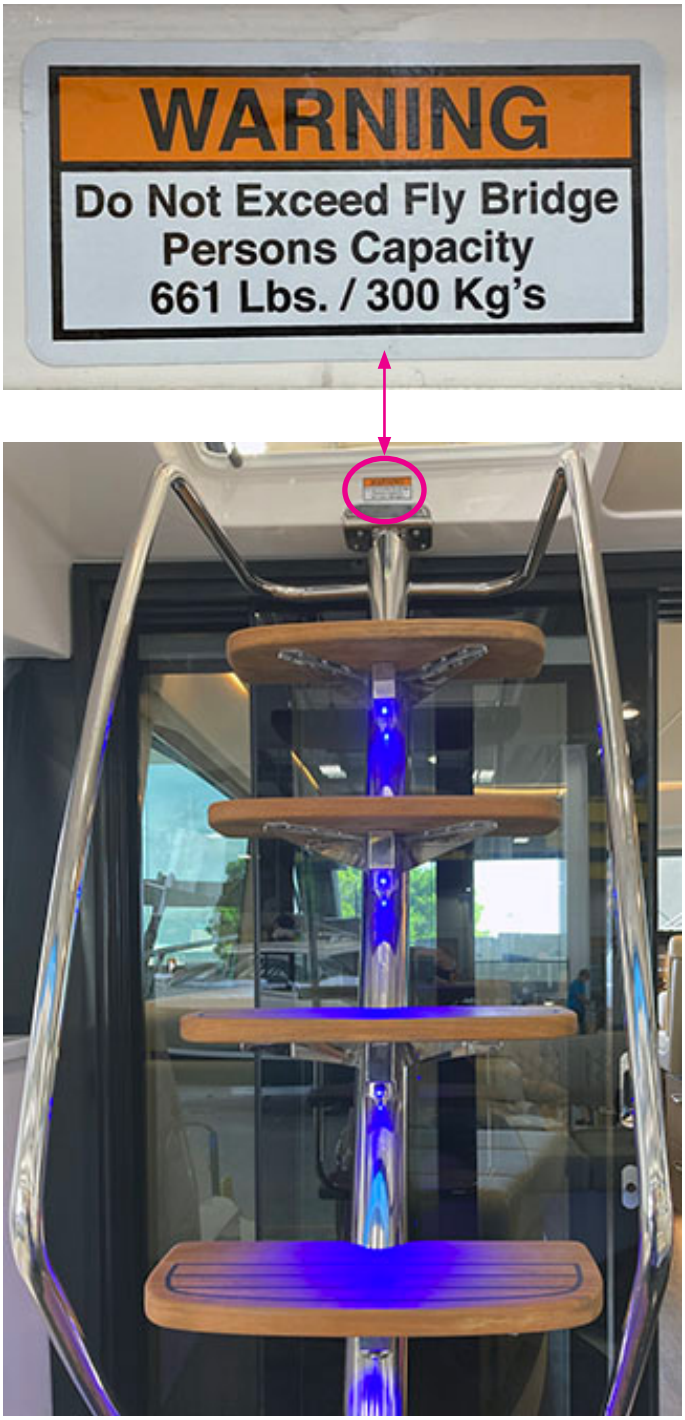
PREVENT POSSIBLE INJURY OR DEATH
FROM FALLING!
KEEP BRIDGE ENTRY CHAIN
LATCHED WHEN VESSEL IS IN MOTION!

WARNING

PREVENT POSSIBLE INJURY OR DEATH!
NEVER STAND ON THE CLOSED
FLYBRIDGE STAIRWAY HATCH!

Flybridge Stairway

All 42’ flybridge models feature a stairway to access the upper deck accomodations. The typical stairway features wide teak treads and a handrail to provide safe access to and from the bridge area. The stairway footprint includes LED lighting for evening use.



Read and understand the flybridge persons capacity label. Never exceed the capacity limits as the vessel could become unstable from an overloaded bridge.

Always use the stairway handrail system when entering or exiting the bridge. When carrying items up and down the stairway maintain a 3 point position to avoid falls. Never walk backwards up or down the stairway. Keep treads clean from foreign debris which could cause a slippery surface condition.

Periodically use appropriate teak cleaning products on the treads and a stainless steel cleaner on the railing system.

Seakeeper (Typical)

If installed, the Seakeeper uses gyroscopic principles to reduce boat motions in waves and wakes independent of boat speeds. A typical unit consists of a Gyro assembly, a CAN communications cable, and a helm display.

If installed, the Seakeeper is located under the aft cockpit of your vessel. The unit's cycling is controlled by an electronic controller and a hydraulic brake throughout each roll cycle as to supply maximum anti-roll torque and limits mechanical contact with the hard stops that limit the gimbal angle travel.

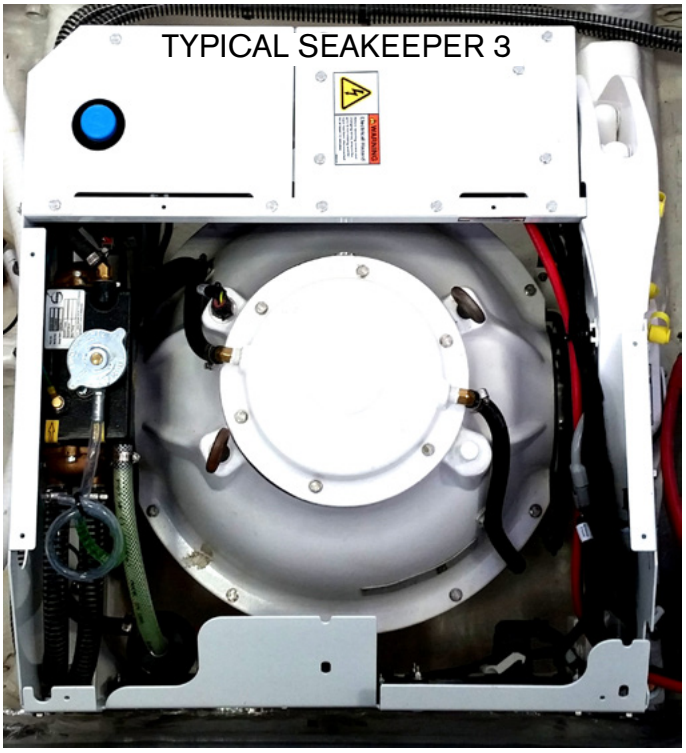
The Seakeeper operates from DC (direct current) and the unit is part of the house battery accessory circuitry;there is one 8-D battery dedicated to the optional Seakeeper. Read & understand Seakeeper operator's manual before operating unit.

Seakeeper Display

The display located at the main ship's panel enclosure is used to start, operate, monitor and shutdown the Seakeeper. Sensors, alarms, and shutdowns are provided to allow unattended operation. The display provides information in the event of an alarm. Select alarms can cause the process to stop & start unit to a coast down cycle.

HOME SCREEN SHOWING POWER SWITCH W/TOUCH CONTROL

TYPICAL SEAKEEPER 3



WARNING

AVOID SERIOUS INJURY!
ENSURE THAT ALL BODY PARTS & CLOTHING ARE KEPT CLEAR OF THE SEAKEEPER WHILE IT IS CYCLING.

WARNING

AVOID SERIOUS INJURY!
DO NOT REMOVE THE COVERS FROM THE UNIT OR CONTACT ANY PARTS WHILE THE UNIT IS PRECESSING. MAINTENANCE SHOULD NOT BE DONE UNLESS THE SEAKEEPER IS LOCKED AND FLYWHEEL HAS STOPPED SPINNING.

With DC power activated the Seakeeper display will energize and a home screen will appear. Here the ON/OFF touch screen button will appear grey (OFF). Once the button is pressed it will change to blue (ON) and menu button is used.

When the menu button is pressed, a menu bar will appear or disappear at the screen bottom. The menu bar is used to navigate between pages. Refer to the Seakeeper operation manual for further information regarding the display, operation, and understanding the alarm screens.

In the bilge mounted close to the optional Seakeeper unit is a water pump. It is a diaphragm type and it supplies sea water to the Seakeeper unit. *Note that an overheating fault on the display may indicate a water pump problem.*

The Seakeeper uses a stand alone seacock. Periodically clean the basket of debris. Always check for leaks when servicing the seacock unit.

Also, specifications, troubleshooting, winterization, warranty, and periodic maintenance requirements are found in the Seakeeper operation manual.

Search Light (Typical)

The spotlight feature a 20,000 candle power light beam which can penetrate up to over 1/2 a mile in ideal conditions. The 2 speed searchlight provides up to 370° horizontal rotation and up to 135° vertical tilt with a dash mounted fingertip control pad. The bulb provides superior light penetration. Included is a protective lens cover.

Note that the searchlight is a radio transmitter and operates at 433 Mhz. When the light is activated, the internally mounted antenna sends out radio frequency (RF) energy. Note that it is possible that this component could affect other electronic equipment. Refer to operator's manual for possible solutions should this occur.

Operation-

1. Using the dash mounted remote control, activate the unit on by depressing the on/off button.

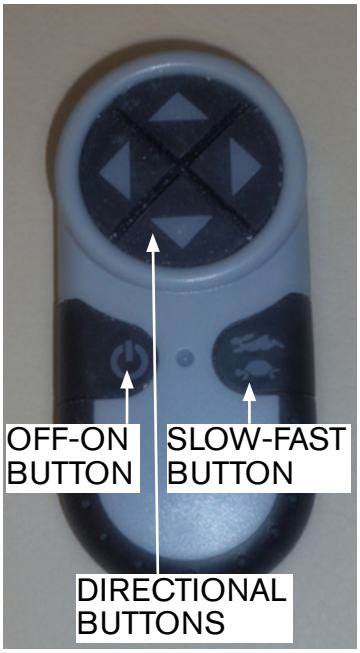
2. Using the same dash mounted remote control rotate your light to the desired location.

3. The light speed can be controlled by depressing the fast/slow button one time and by depressing it again to restore the original speed.

4. The light should not be turned on when the snap on lens is attached. The hard wired dash control will be backlit when the bulb is illuminated.

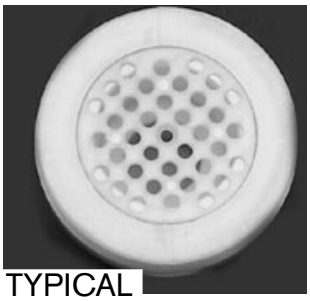
The dedicated circuit is uses a 10 amp breaker on the power side for over current protection.

The unit uses a Phillips 9011 bulb replaceable from Golight, Inc. at 800-557-0098.



REMOTE CONTROL PAD

Scupper Drains


TYPICAL

The cockpit scupper drain system includes several drains which can remove cockpit and recess water dumping it overboard at the port and starboard transom outlets. These drains are connected by a hose system that runs from the drain under the deck and above the headliner to the transom outlet. These drains feature a removable top screen which can be cleaned and reinstalled as needed. Periodically check these scupper drains for debris.

In addition to the cockpit drains there is a trough with a stainless grate located aft of the patio door track and on flybridge models an additional grate found at the bridge upper landing. Use a slotted screwdriver to remove the grate for accessing the trough drain hole(s). Periodically clean any accumulated debris from the trough/drains. A brisk rinising with a hose will remove debris and any built up trough mildew.
See photo at right of typical grate cover locations.


FLYBRIDGE GRATE SYSTEM


PATIO GRATE SYSTEM

Sun Lounge (Typical)

The foredeck sun lounge features the utmost versatility as a flat sun lounge, angled head rest position, and as a seat with backrest. See the photos below for select position alternatives.

TYPICAL
Note optional cabana top in cruise position.

ADJUSTABLE SUNPAD SEATING AFT

ADJUSTABLE SUNPAD SEATING FORWARD

WARNING

AVOID DEATH OR SERIOUS INJURY
FROM FALLING OVERBOARD!
DO NOT OCCUPY THE SUN LOUNGE WHEN
THE VESSEL IS MAKING HEADWAY.

NOTICE

WITH INCLEMENT WEATHER
IT IS RECOMMENDED TO REMOVE THE SUN
LOUNGE CUSHIONS
AND STORE THEM BELOW DECK TO AVOID
CUSHIONS FROM BEING LOST AT SEA
OR DAMAGED.

The sun roof features a fiberglass frame and the ability to open and close with an electric worm gear drive mechanism. At the helm switch panel a sun roof switch controls the sun roof open and close cycle. Press the top portion of the switch to open the roof; press the bottom portion to close the roof. The switch is controlled by a breaker located at the helm seat gunnel locker.

The sun roof slides on a track. The sun roof is fully sealed with a gasket to resist leaks. Read and understand the label to the right.

WARNING

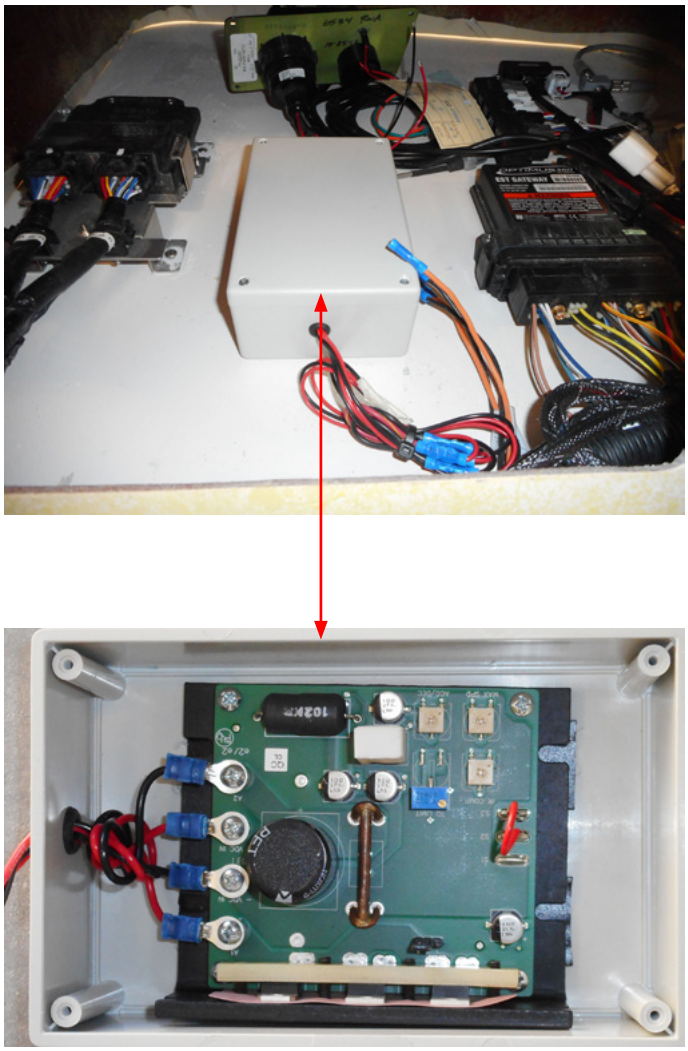
AVOID BODILY INJURY!
KEEP BODY PARTS CLEAR OF SUN ROOF DURING OPENING AND CLOSING OPERATIONS.

When leaving the boat unattended for extended periods of time be sure to completely close the sun roof.

WARNING

AVOID BODILY INJURY OR DEATH
DUE TO FALLING!
NEVER STAND ON TOP OF THE SUN ROOF
OR THE HARD TOP STRUCTURE.

The sun roof features a control box to set the sun roof opening and closing speed along with its actual closing position limits. This box shown below is found behind the helm at the electronics access located in front of the plotters.



The system is part of the DC low voltage on board circuitry. Should service be needed to the sun roof system contact your closest Regal yacht dealer for more information. They have the training know how along with the tools to tackle system components.

WARNING

AVOID BODILY INJURY
DUE TO CRUSHED LIMBS!
KEEP ALL BODY PARTS CLEAR OF SUN
ROOF WHEN ACTIVATED.

Stove-Cook top

Overview

The electric stove (cook top) on your vessel will afford you years of service. Read and understand the information here and in your cook top owner's manual. Pay close attention to all safety instructions.

The cook top features 240 volts of AC electricity for faster cooking using less amperage similar to a home unit. It is controlled by a breaker at the main ship's AC panel located behind the atrium stairway cabinet doors.

The unit features dual burners which fit most pans. Also, the smooth ceramic glass is easy to maintain. The unit operates by a touch control system. Hot surface indicator lights illuminate when the cooking surface is active for safety. Includes an integrated shut-off timer.

Read and understand all safety notices and labels regarding the operation of your stove before attempting to use the unit.

Refer to your stove manual for more detailed operation and maintenance tips for the cook top.

WARNING

AVOID BODILY INJURY
DUE TO HOT STOVE SURFACES!
KEEP ALL BODY PARTS CLEAR OF STOVE
ALLOW SUFFICIENT COOL DOWN TIME
BEFORE ATTACHING COVER.

The cook top features a limit switch installed in the lower storage track just forward of the starboard patio doors.

The cook top will not operate until the cook top cover is installed on the track and covers the limit switch.

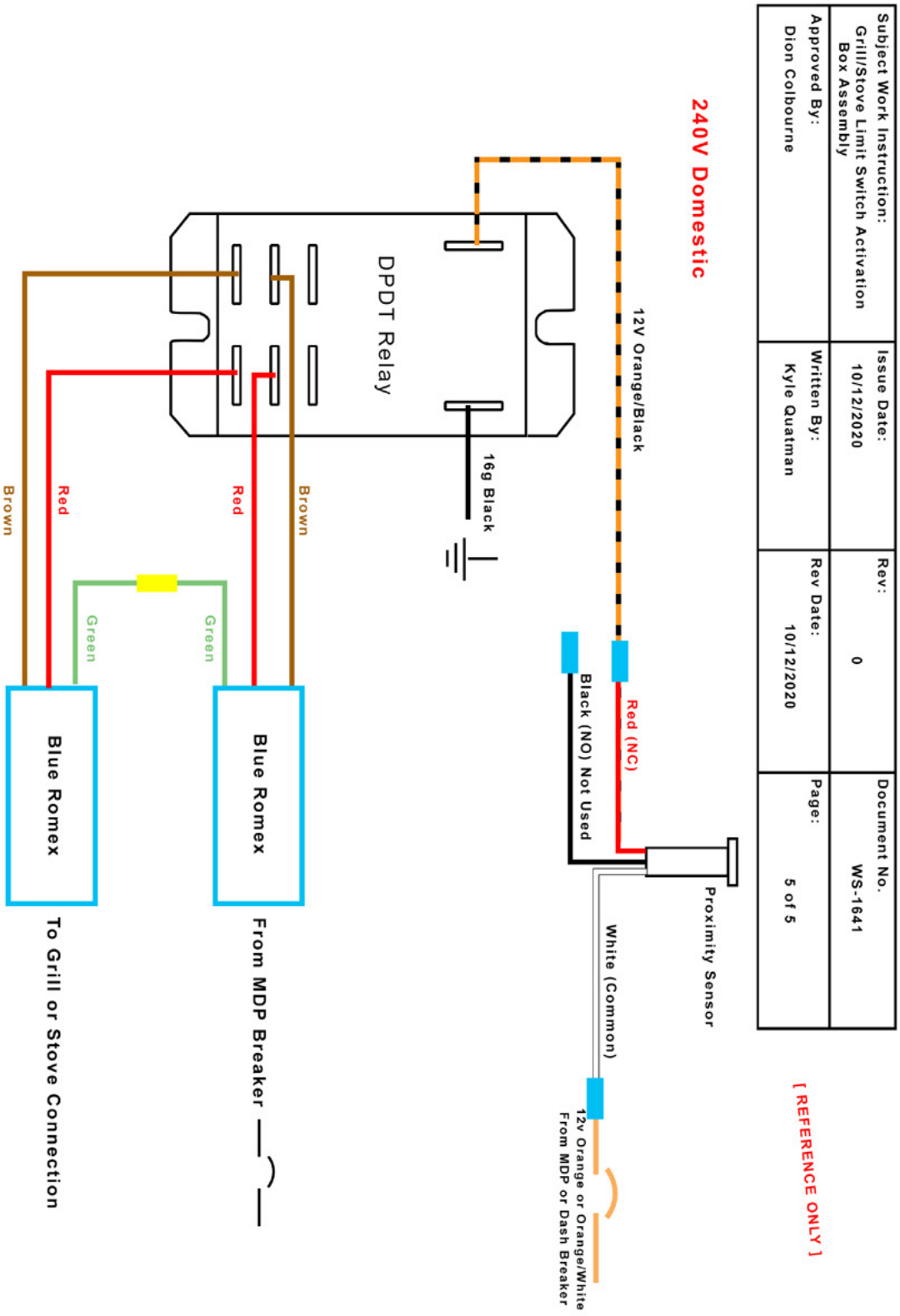
At this point power will be available to the cook top surface units.

Shown is the cook top circuit limit switch control box. It is normally located inside the lower cook top cabinet. No periodic maintenance required but access to it is best gained by removal of cook top.

Refer to the drawing of the limit switch system used for the stove and patio grill.

GRILL & STOVE LIMIT SWITCH ACTIVATION BOX

Subject Work Instruction: Grill/Stove Limit Switch Activation Box Assembly	Issue Date: 10/12/2020	Rev: 0	Document No. WS-1641
Approved By: Dion Colbourne	Written By: Kyle Quatman	Rev Date: 10/12/2020	Page: 5 of 5



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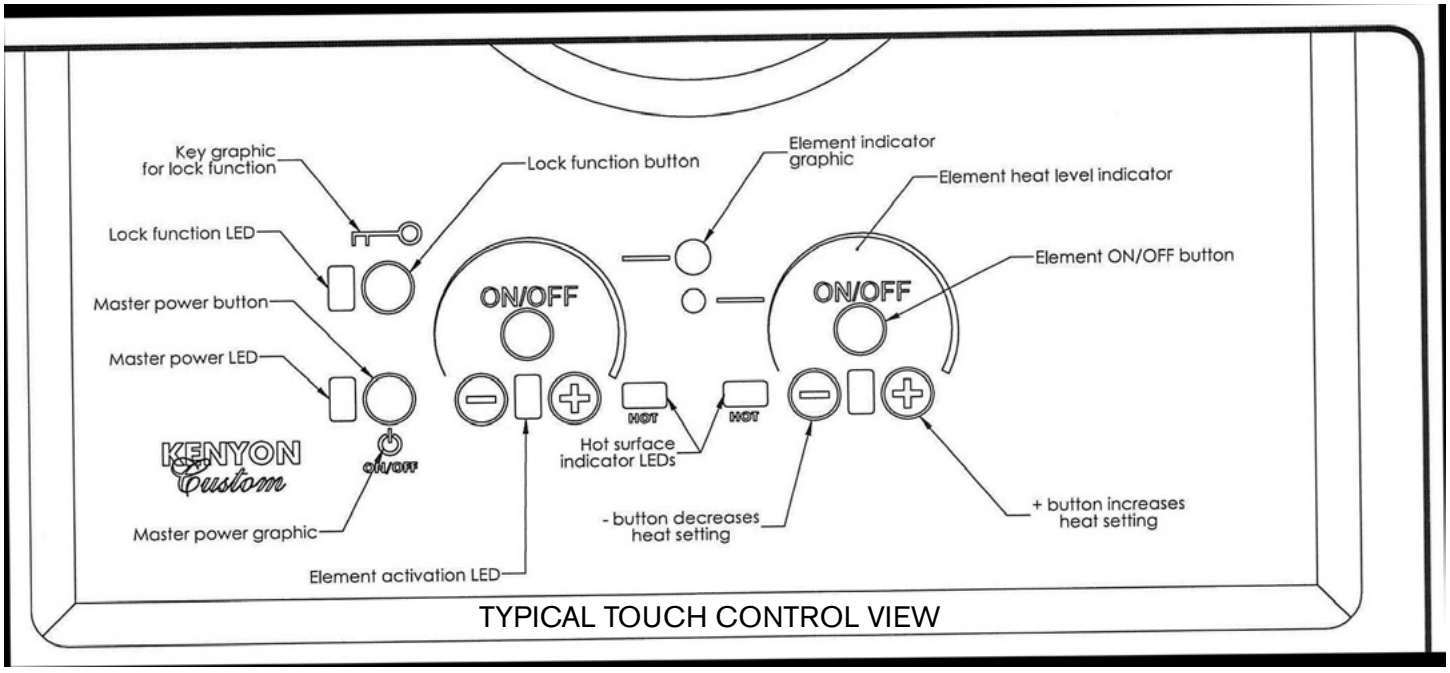


TYPICAL TOUCH CONTROL VIEW

Operation

If this is the first time use make sure the plastic film covering the cook top has been removed and the recommended cleaner is used to coat the surface. Refer to cook top manual.

As a quick start for the stove do the following and refer to the diagram above as needed.

1. Energize the stove breaker at the ship's main AC panel.
2. Remove the cover from the cook top and insert it into the cabinet track next to the starboard patio doors. Make sure the cover encapsulates the limit switch. See the last page. Power is now available at the cook top master control if the lock feature is off.

Note that there is a lock feature that may or may not of been energized. Make sure the key graphic is not lighted. If the light is energized, press the lock function button and hold for 3 seconds. A beep will be heard and the light next to the key graphic will go out. The cook top master power is ready to operate.

3. Next, the cook top uses a 2 step on, and 1 step off for safety reasons, requiring at least 2 different touches of the controls to activate the element, but only one touch to deactivate an element or the entire unit.
4. To activate a heating element (burner) the master power must be energized by placing and holding a finger over the circular area next to the master power graphic. An audible beep will be heard and a light next to the master power graphic will be illuminated. Next, the desired element must be turned on, by placing a finger over the circular area marked ON/OFF for that element. An audible beep will sound and the light will be illuminated.

At this point a heat level is chosen by holding a finger over the circular areas marked with a + or -. Touching the + will set the level from settings 1 thru 8 with a beep and corresponding number of lights illuminated. Touching the - first will set the level from settings from 8 to 1 with a beep and the corresponding number of lights illuminated. When the desired heat level is obtained, remove the finger and cook top remains at that temperature.

If an element is activated, but no heat level chosen, the element will automatically turn off in 10 seconds.
To change the heat level place finger on + or - graphic of desired element to change heat level incrementally up or down.
To activate an element, touch circular area marked ON/OFF to turn the element off. Furthermore, the master power ON/OFF can be touched and the entire cook top can be deactivated.
A hot surface indicator light will illuminate when an element is energized and has been energized for enough time to produce unsafe to touch temperatures of the cooling surface. The light will remain illuminated until the surface is cool.
To power off both elements at the same time, touch the circular area next to the master power ON/OFF graphic. This can be done without deactivation of the elements if any are in operation, and is an important safety feature allowing the operator a "one touch off" in case of emergencies. All functions will no longer operate until the master power is turned on again.

NOTICE

THE COOK TOP FEATURES A THERMAL CUT-OUT. IF THE TEMPERATURE OF AN ELEMENT REACHES AN UNSAFE LEVEL THE THERMAL CUT-OUT WILL OPEN AND POWER TO THE ELEMENT WILL BE TURNED OFF. WHEN THE ELEMENT HAS COOLED TO A SAFE TEMPERATURE THE POWER WILL BE RESTORED AUTOMATICALLY.

CAUTION

AVOID POSSIBLE FIRE HAZARD!
DO NOT STORE ITEMS ON THE STOVE TO PROTECT ITEMS FROM MELTING SHOULD THE STOVE BE TURNED ON INADVERTENTLY.

Stove (Cook top)- Safety/Use Tips

1. Never use the stove for warming or heating salon.
2. Do not leave children alone or unsupervised in the salon with the stove in operation.
3. Wear garments that are not loose as they have less chance to ignite.
4. Flammable products are not to be stored on board the vessel especially not in stove cabinets or on salon counter tops.
5. Keep flammable materials away from stove.
6. Do not use stove when vessel is making headway.
7. Always have a dry chemical or foam type fire extinguisher on hand. Do not use water to put out a grease fire.
8. Use dry pot holders only as damp ones may cause burns from steam.
9. Never cook on a broken cook top. Do not use stove until the unit/glass top is replaced. Turn the stove breaker off at the ship's main AC panel.
10. Clean stove top only when it has cooled down.
11. Pan size; shoot for pan that is twice burner size to prevent pan from spilling or moving off stove top.
12. Never leave cook top unattended when cooking. Boiled over grease may ignite.
13. Used only approved glazed utensils for cook tops.
14. Turn all utensil handles inward and do not extend them over adjacent surface units.
15. Do not use aluminum foil on cook top surface.
16. Cookware should be dry.
17. Never touch surface units or areas close to the burners.
18. Never store items on the cook top when not in use.
19. Wait until all surface units are cool before reinstalling the cover.

Swim Platform/Ladder

Overview

The swim platform is an FRP (fiberglass reinforced product) component with an anti-skid surface. The swim platform and ladder provide a safe haven to disembark to a dock or for the latter to enter or exit the water. Always use the ladder hand hold when entering or exiting the water to prevent possible injuries from falling or from sharp objects such as propellers and drive units. Never enter or exit the water with the engines running. If installed do not exceed swim platform safe weight limits.

Do not dive from the swim platform. Read and understand any safety labels regarding the swim platform/ladder.

WARNING

AVOID INJURY OR DEATH
FROM DROWNING DUE TO CO POISONING!
NEVER HANG FROM OR ENTER
UNDER THE SWIM PLATFORM
STRUCTURE OR APPROACH THE SWIM
PLATFORM/LADDER WITH ANY ENGINE
OR GENERATOR RUNNING.

WARNING

AVOID INJURY FROM FALLING!
WHEN USING THE LADDER WHILE
ENTERING OR EXITING FROM THE WATER
ALWAYS USE THE HAND HOLD.

Note that select swim platforms may include Regal logos etched "footballs" which are inset into the swim platform surface. They assist in releasing into the atmosphere any CO contaminated air from engine exhaust that may be trapped under the platform structure. Ensure they are always open thus enabling them to release any accumulated exhaust into the atmosphere.
Note not to sit on the swim platform with the engines running to avoid the possible effects of possible CO poisoning. Remember carbon monoxide is odorless and tasteless and is known as the silent killer!

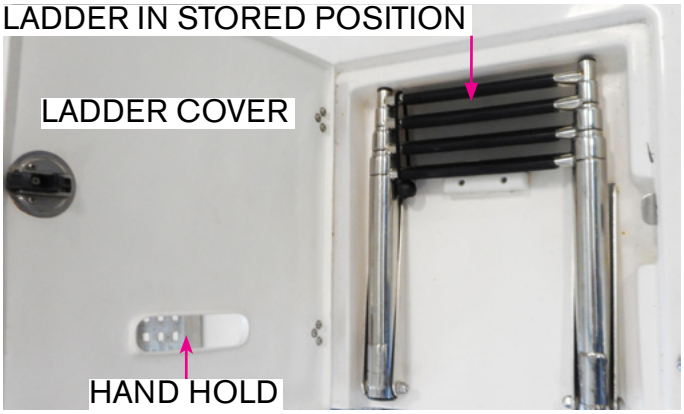
Additional Swim Platform Tips

If installed, never use cleats for hauling the vessel in or out of the water. Use proper located and sized straps.
Contact your closest authorized Regal dealer.

Never wrap lifting straps around the swim platform to lift the vessel. Use designated hull lift locations.
Contact your closest authorized Regal dealer.

Periodically check all swim platform parts for tightness and possible corrosion especially in high salanity environments.

Swim Platform/Ladder Usage Tips



TYPICAL

1. Always keep the swim platform free of any objects. Never store items on the platform as they could cause falling incidents or objects such as lines may become caught in the engine propellers.

2. Always keep the transom door leading to the swim platform latched except when using door. Read the transom door information in the following pages.

3. Always fold up the swim ladder and close the ladder cover when finished using it.

4. Never leave the ladder down when the boat is under power.

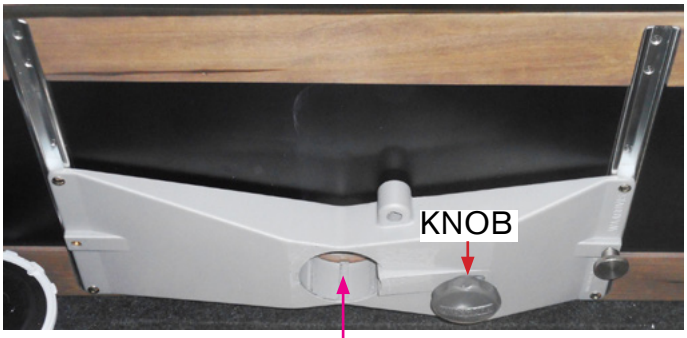
5. When opening or closing the ladder framework be careful to keep limbs and fingers free of moving parts.

6. Periodically check all ladder parts for tightness and corrosion.

Table (Typical)

The table features teak a hardwood known for beauty and durability. Typically the table and select hardware is stored under the seating.

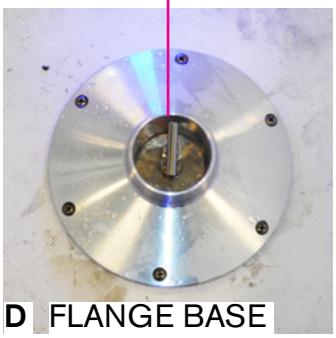
Note that your hardware may appear different and may be found in alternate locations.



A

B

C



D FLANGE BASE

FLANGE

Setting Up Teak Table

1. Remove the table from its storage area.
2. Find the flange base.
3. Unscrew the flange base center hold down mechanism and the entire unit will free itself.
4 Center the flange base over the floor base (B) and line up the center holes. Normally there is a floor base in the patio (aft cockpit) and in the salon. Screw the hold down T handle mechanism clockwise until tight.
5. Find the table leg.
6. With the table turned over loosen the knob on the table support.
7. Insert the leg into the table support. Tighten the knob until secured.
8. Lift the table and leg assembly up and insert into the flange base. Wiggle the sides of the table as needed until the leg is completely down.
9. To disassemble the table reverse the process.

Note that it is recommended that the table assembly be stored before making a major cruise into rougher seas or other adverse weather conditions.

TYPICAL TEAK AFT COCKPIT OR FLYBRIDGE TABLE

TYPICAL

To open or close the transom boarding door pull up on the framework at the top rail of the door. Swing door to a detent which will afford an open or closed position. Push down to latch in a detented position. See the photo above and to the right.

Note the door features a space underneath which provides room for water to escape the cockpit in rough seas or heavy rain activity.

Read and understand the safety labels shown. While underway and even in mooring to prevent anyone from falling overboard always latch the transom door.

TRANSOM DOOR WARNING LABEL

WARNING

AVOID INJURY OR DEATH
FROM FALLING OVERBOARD!
THE TRANSOM DOOR MUST BE CLOSED
AND LATCHED WHEN ENGINE IS RUNNING.

Vacuum Cleaner System- Central

The vacuum system is located in the forward stateroom near the berth. Included is a netted bag of hoses and various vacuum attachments normally stored in the forward berth area.

Safety Warnings

1. This is a dry vacuum system. Do not use on wet surfaces.

2. Never operate the vacuum without filters and bags in place.

3. Use careful monitoring when children are around. Do not let the vacuum cleaner be used as a toy.

4. Do not try to repair the vacuum as the unit is sealed. Return the unit to InterVac or an authorized repair center for proper repairs.

5. Use only as described in this manual. Use only factory attachments and bags.

6. Do not use with any blocked openings. When the secondary filter becomes dirty, rinse in warm water or replace the filter. Filters must be completely dry before using.

7. Never drop or put any object into any opening.

8. Turn off the accessory breaker at the ship's AC panel to deactivate the vacuum cleaner.

9. Keep all body parts and clothing away from any moving parts.

10. Do not pick up anything that is burning or smoking such as cigarettes, matches, hot ashes or sharp objects. Do not use without dust bag or filters in place.

11. Do not attempt to operate the unit with a wet hose.

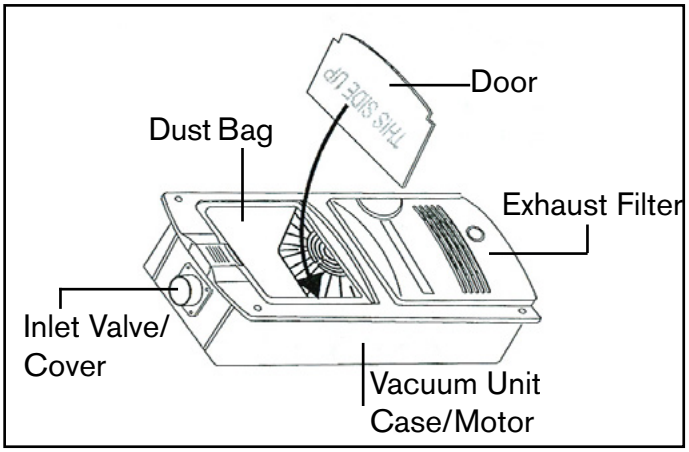
12. Do not store objects close to the vacuum unit.

13. Do not pick up flammable or combustible liquids such as gasoline, or use in areas where they might be present such as the bilge.

14. Do not step on the hose, nozzles or pull hard on the hose.

Operation

1. To operate the vacuum energize the appropriate accessory breaker at the main ship's main AC panel.

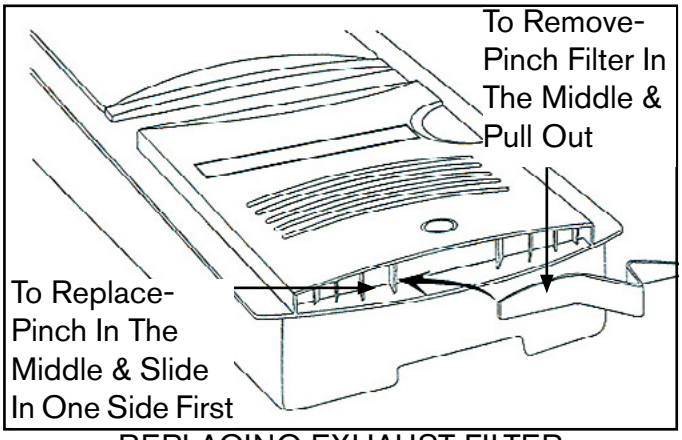


2. Lift the inlet cover on the vacuum unit.

3. Insert the hose cuff (one with the metal band) with a slight twist and the vacuum cleaner should start.

4. To remove, turn hose in either direction while pulling the hose toward you and the vacuum cleaner will stop.

INSERT HOSE CUFF HERE



REPLACING EXHAUST FILTER

If The Motor Stops Suddenly:

1. The most common cause is a clogged hose. Try to unclog the hose with a long object or by shaking the hose until the debris falls out.

2. The bag is overfilled and fine dust has clogged the bag.

3. The vacuum cleaning tools are clogged.

4. The motor (exhaust) filter is dirty and should be cleaned or replaced.

5. While the vacuum cleaner is being used keep the berth open to provide additional air to the unit. This will help the unit from shutting down.

Note if the motor stops the thermal protector on the unit will reset automatically after about 1/2 hour. This is normal for the vacuum cleaner.

HULL LED UNDERWATER LIGHT SYSTEM

If installed lighting fixtures w/ blue LED clusters normally make up the underwater lighting system. The lights may be located on the transom along with the port and starboard hull sides. There is a patio switch for energizing the lights and a breaker at the helm area to protect the system.

These lights operate around 4500 (daylight category) on the Kelvin scale and provide maximum lumens, long life, and low operating temperatures.

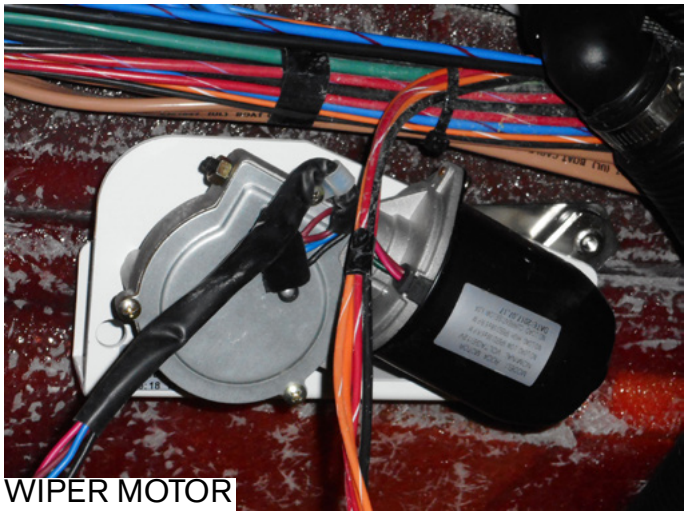
Windshield Wipers/Washer System

Port and starboard windshield wipers feature a planographic design which keeps constant pressure on the wiper blade to ensure a more efficient removal of water on each sweep. The wipers also feature a washer system.

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 as needed. It is always a good idea in rain prone environments to store extra wiper blades on board.

Refer to the systems chapter for additional information.


WIPER MOTOR


WIPER WASHER

Note that the windshield wiper motor and the wiper washer unit are accessible thru the whisper wall ceiling fabric. Contact your closest Regal yacht dealer for additional information since special tools and knowledge may be required.


TYPICAL WIPER WASHER

Chapter 5
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 select equipment and systems. Refer to the owner's information packet and the appropriate manufacturer's engine/ propulsion manuals for further detailed instructions. Also, contact your closest authorized Regal dealer.

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.

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.

Plastic

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.

Acrylics

The transom door on select models is one item made from a heavy acrylic material. Use warm water and a couple drops of mild detergent, The cleaning rag should be lint free and thoroughly rinsed. Do not substitute paper towels, which could lead to fine scratching of the surface. With the right cleaning materials, you can easily remove most dust and grime without creating an additional static discharge.

Do not use an abrasive or scouring pad. Acrylic must not be exposed to organic, oil-based solvents. This includes:

- Acetone/nail polish remover
- Paint thinner or comparable
- Benzene
- Rubbing, denatured, or other alcohol-based solutions
- Carbon tetrachloride

For scratches and other marks that do not respond to basic cleaning, polishing is the way to renew your acrylic. Again, use a soft, lint-free cloth. You can hand polish or use a polishing machine.
Apply the polish in a snake like or S pattern across the surface first horizontally and then vertically. Smaller polish jobs can use an L shape followed by a circular motion. If you are still not able to remove the blemish the scratch is probably too deep. In these situations, the only recourse is an incremental wet sanding, finishing with an #800 grit abrasive, and another coat of polish. After polishing any residual product remaining should be removed.

NOTICE

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

Cockpit Sea-Grass Mating

If installed, cockpit sea grass 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 sea grass 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. Do not pull on material when removing from cockpit, but rather lift the snap instead to disengage.

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.

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.

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 gel coated 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. 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. THEY CREATE SMALL SCRATCHES THAT COLLECT MARINE GROWTH.

It is recommended that you wax the gel coat 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 gel coat. Never wax in 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.

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 gel coat 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:

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

DANGER

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

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 gel coat will bond.

4. In a separate container, measure only the amount of gel coat you will need. Mix a ratio of 2% catalyst to the amount of gel coat being used (a spoonful of gel coat will require only a drop or two of catalyst). Do not pour any unused portions of the gel coat/catalyst mixture back into either original container.

5. Apply gel coat 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.

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!

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. 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.

General Canvas Cleaning Information

Soak the canvas 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 Apseal 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 finish and may cause a 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 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 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.

WARNING

PREVENT POSSIBLE INJURY OR DEATH! READ ALL MANUFACTURER'S SAFETY INFORMATION, ENGINE AND PROPULSION OWNER'S MANUALS BEFORE PERFORMING ANY MAINTENANCE FUNCTIONS.

Overview

This section addresses basic maintenance of Regal on board systems. It is not to be thought of as a workshop or repair manual.

Refer to your engine and propulsion manuals for detailed maintenance procedures along with periodic maintenance schedules.

Contact your closest authorized Regal dealer or marine professional for more technical information since they have the training and tools to handle more advanced engine and propulsion issues.

Furtherome, you may find the internet beneficial in troubleshooting named equipment on board your vessel. Many of our product vendor web-sites feature troubleshooting and technical assistance including chat sessions.

Propellers

Out-of-balance and 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 your manufacturer's engine manual for appropriate propeller replacement or contact your closest authorized Regal dealer.

On IPS and Yamaha models 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.

Also, note that select propellers feature a rubber hub pressed into the center propeller that includes the hole for the prop shaft to slide through. Sometimes as a result of impact the rubber hub becomes damaged and the propeller will not let the boat perform to the rated revolutions per minute (rpm).

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.


TYPICAL 8D BATTERY

The batteries are located in the bilge (sump). 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 and a paste made from baking soda to neutralize any acid. When the cleaning is finished reconnect the battery cables and coat the terminal with a dielectric 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 only as needed to flooded electrolyte batteries after charging the batteries or periodically as needed. Do not overfill because sulfuric acid could run over and cause burns or 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. Charge flooded electrolyte batteries to 13.4 volts and 13 volts for AGM batteries.

Do not allow a metal object such as a wrench 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. Always recover positive posts with red “boot”.

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, refer to 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.

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 FOR 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/SKIN BURNS. IN CASE OF SPILLAGE, WASH AREA WITH A SOLUTION OF BAKING SODA AND WATER.

Remote Control

Check the helm control box and make sure there is no roughness or tightness when shifting. Also, check to make sure the control box hardware is tightly secured. The shifting is done by a process called “fly by wire” Being the engines use electronics to shift it should be effortless. An application of silicone spray on the handles will help fight any corrosion. Remember there are no actual mechanical shift and throttle control cables on your vessel. There is a friction control which may be altered to personal needs. Refer to your engine/ propulsion manual or contact your closest Regal dealer for further assistance on remote control adjustments.

Seating

Care of your 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. See the cleaning vinyl for more information. Periodically check all seat hardware to ensure a good working condition and make sure all moving parts are properly lubricated and all fasteners are securely fastened.

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 DUE TO FIRE OR EXPLOSION RESULTING FROM LEAKING FUEL!
INSPECT ENTIRE FUEL SYSTEM AT LEAST ONCE PER YEAR.

Stereo

The Fusion® stereo head unit requires little maintenance. Never discharge water directly at the stereo unit. Possible damage may result.
Periodically wipe the display surface with a screen saver to remove foreign debris.
For further information, refer to your stereo owner's manual located in the owner's packet.

Galvanic Corrosion/Stray Current

Metal parts attached to or under the hull can be subjected to two basic styles of electrolysis: galvanic corrosion and stray current corrosion. Both can damage the 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 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).

CORROSION TABLE	
Gold	Least Active
Stainless Steel	
Bronze	
Copper	
Brass	
Steel	
Aluminum	
Zinc	
Magnesium	Most Active

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 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 drive unit to their boat via the green grounding shore power lead. Your 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.
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 drive. With leads attached to a digital multimeter 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. Periodically visually check the galvanic integrity of your vessel. Raise the drives on outboard models and inspect anodes/parts for signs of galvanic corrosion, stray current corrosion or loose fasteners. On IPS models hoist the vessel and check underwater hardware. 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 sea cocks, 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.

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 dock side cord partially submerged.

GALVANIC/STRAY CURRENT CORROSION	
Cause/Observed Condition	Corrective Action
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 ground. Scrape anode.

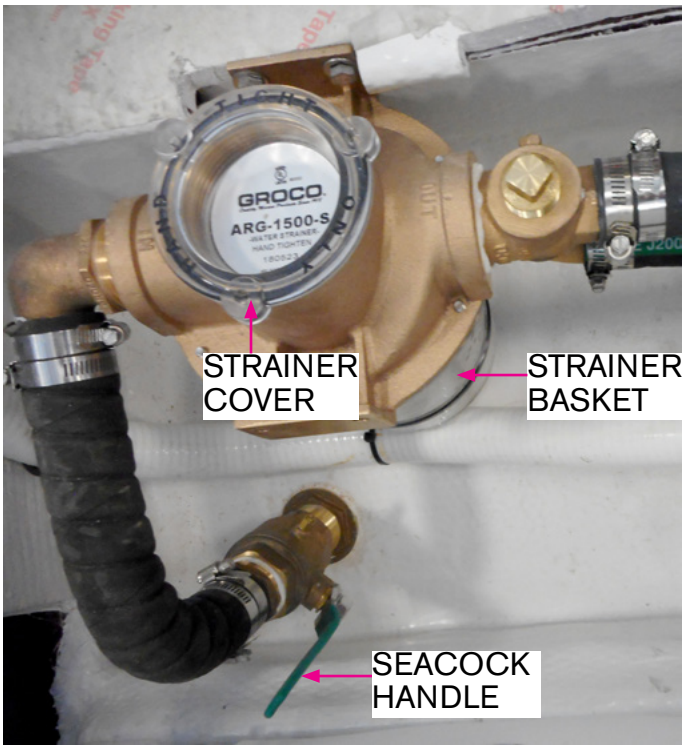
Ventilation System

With IPS models large amounts of air are required to perform the combustion process. The higher the revolutions per minute of the engine the more air is required to meet the demand. Since diesels compress the air at a much higher ratio than similar gasoline models that require a spark in the process the chance of explosion or fire is much lower with diesel power. Therefore, it is not necessary to force the exhaust from the sump with a powered ventilation system like the gas engine.

IPS vessels exhaust large amounts of incoming air by mixing it through the combustion process and by forcing the air through the engine exhaust system into the water. The same deck cowlings are used to funnel incoming air for combustion. The remaining air exits through the cowlings into the atmosphere. This “breathing cycle” occurs naturally within the diesel with more oxygen being required as throttle speeds are increased.

As part of vessel maintenance, ensure the cowlings are free of debris including animal nests such as wasps and birds. Never modify or obstruct any part of the natural or if installed power ventilation systems.

Sea Water Strainer- (Typical)



Before servicing a sea water strainer make sure the appropriate seacock has been closed to prevent water entering the boat. Remove the strainer by turning counter-clockwise. Then grasp the strainer handle and lift out the strainer basket. If possible blow out the strainer basket with compressed air or use a metal type brush to remove any accumulated material from the screening material.

Check all parts for wear and possible leaks including any gasket surfaces. Do not overtighten the strainer hold down cover which could cause strainer body damage especially on the newer plastic versions. Use original replacement marine parts only. After all parts are reassembled open the seacock and check for leaks.

Once per month open and close the seacock handle several times as this will guard against the seacock sticking in an open or closed position due to corrosion.

Chapter 6
Troubleshooting

Overview

The following basic diagnostic information will assist you in identifying minor electrical, fuel, and mechanical problems. Select items listed require technical training and tools only available at a Regal dealer or a marine professionsl.

Additional assistance is available by referring to the appropriate engine and propulsion manufacturer's owner's manual which is recommended to be stored at a on board location for quick access when a situation develops.

Furthermore, contact your closest authorized Regal dealer or marine professional for more detailed information. Remember that sometimes a problem can be solved by performing a logical sequence of elimination and/or root cause techniques. Many times it is the simple things that are overlooked in troubleshooting procedures.

Note that select information found in the section may not be applicable to your vessel as that particular system or equipment may not be installed on your vessel. System components, specifications, and troubleshooting techniques may change at anytime during the production life cycle of your vessel.

Note that the diagnostic charts may not differ between IPS and outboard engines or propulsion systems.

WARNING

AVOID SERIOUS INJURY OR DEATH!
BEFORE PERFORMING ANY MAINTENANCE WORK, TURN OFF THE BATTERY ACTIVATION PANEL AND LOCK THE IGNITION SYSTEM WITH THE KEY FOB.

WARNING

AVOID SERIOUS INJURY OR DEATH!
USE ONLY APPROVED MARINE REPLACEMENT PARTS THAT ARE IGNITION PROTECTED.

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 - defective oil filter Defective thermostat. Faulty temperature sender.
Starter Will Not Crank	Battery weak or dead Starter defective Battery activation panel deactivated Remote control not in neutral Defective start panel button
Excessive Steering Play	IPS system low on power steering fluid Mechanical linkage parts-loose connection

ENGINE DIAGNOSTIC CHART

Problem	Possible Cause
No Power To Helm	Battery activation panel deactivated Batteries are weak or dead. Main breaker tripped Loose connection
Engine Cranks But Will Not Start	Fuel flow obstructed/water in fuel Low battery voltage Engine ignition system malfunction No fuel in tank Lanyard not attached
Hard Starting	Vacuum In Fuel System Ejectors- no pop-off pressure Air or water in fuel lines Debris in fuel/clogged fuel filter
Engine Idles/ Runs Rough	Old fuel Engine idle too low Fuel contaminated/ clogged anti-siphon valve (fuel tank)

ENGINE DIAGNOSTIC CHART

Problem	Possible Cause
Power Loss	Damaged propeller Improper trim angle Fuel system malfunction Ignition system malfunction Hull bottom fouled with debris Excess water in bilge (leak) Burnt engine valve Low octane fuel Engine cooling system malfunction Vessel overloaded
Excessive Vibration	Damaged propeller Bent propeller shaft Bent vertical drive shaft Loose/broken motor mount Steering pivot loose or damaged Debris caught on propeller Ignition malfunction Motor mount bolts loose (transom) outboards Damaged drive cavitation plate Boat bottom damaged

ENGINE DIAGNOSTIC CHART

Problem	Possible Cause
Buzzer Sounds/Icon Lights	Cooling system malfunction Engine oil level low or incorrect type Electrical/fuel malfunction Oil feed pump malfunction

IPS Diesel Engine Troubleshooting Aid

The list below shows selected possible causes of engine malfunctions and is numbered to aid in Volvo diesel engine troubleshooting procedures. Obviously this list does not cover every possible engine symptom or related cause. For additional assistance consult your diesel engine operator's manual or contact your closest Regal dealer as they have factory training and the needed tools for more complex engine repair and diagnostics.

Engine Symptoms and Possible Related Causes

Engine starter motor spins slowly or not at all	1, 2, 3, 24
Engine will not start	3, 4, 5, 6, 7, 24
Engine starts but will not stay running	6, 7, 24
Engine hard to start	4, 5, 6, 7
Engine not reaching correct rpm at full throttle	5, 6, 7, 8, 9, 10, 11, 15, 18, 19, 20 21, 24
Engine has knocking sound	4, 5, 6, 7
Engine not running smoothly	4, 5, 6, 7, 10, 11, 15, 18, 19, 20, 21, 24
Engine has a vibration	15, 16
Engine has high diesel fuel consumption	8, 9, 10, 12, 15, 21
Engine exhaust is black	10
Engine exhaust is blue or white	12, 21, 22
Engine exhibits low oil pressure	13, 14
Engine exhibits too high of a coolant temperature	17, 18, 19, 20, 21
Engine charging system exhibits no or low charge	2, 23

1. Low or dead engine starting battery
2. Battery cables corroded or loose
3. Faulty relay or fuse/breaker tripped
4. Insufficient fuel supply
5. Clogged fuel filter
6. Water or debris in fuel filter
7. Fuel system lines leaking
8. Boat overloaded or water in bilge
9. Propeller corroded
10. Insufficient air for engine to breathe properly
11. Too high a coolant temperature
12. Too low a coolant temperature
13. Insufficient engine oil level
14. Oil filter obstructed/sender faulty
15. Propeller damaged or wrong one
16. Engine mounts loose or broken
17. Insufficient engine coolant
18. Obstructed seawater intake, line, or filter
19. Circulation pump belt slipping
20. Faulty water pump impeller
21. Faulty engine thermostat
22. Engine oil level excessively high
23. Alternator belt slipping/loose
24. Stored diagnostic fault codes/read by service tech only

DC ELECTRICAL SYSTEM DIAGNOSTIC CHART

Problem	Possible Cause
No 12 Volt Power At Battery	Charging system inoperative Weak or dead battery Battery cables loose/disconnected Battery terminals or cables corroded
Battery Not Charging While Engine Is Running	Faulty stator/alternator Faulty circuit wiring
Battery Will Not Hold Charge	Faulty/old battery Loose battery cables Corroded battery terminals
12 Volt Equipment Not Working	Fuse blown-Take time to investigate why the equipment was drawing too much current or why it had a short circuit. Weak or dead battery if all 12 volt equipment fails to function. Corroded/loose wire connection Internal equipment short/failure

AC ELECTRICAL SYSTEM DIAGNOSTIC CHART

Problem	Possible Cause
No Voltage At Main AC Panel	Ships dockside cord not plugged in Marina dockside breaker tripped ELCI breaker tripped Faulty dockside power cord or plug
AC Panel Indicates Reverse Polarity	Dock side wires reversed at marina power supply.
No Voltage At GFCI outlets	GFCI outlet tripped (reset) Outlet breaker off at AC main ship's panel Unplug faulty equipment-short
Main AC Panel Breakers Trip When All Equipment Is Energized	Turn off equipment as needed to balance load on shore 1 and shore 2

Chapter 7
Storage & Winterization

Overview

Select basic 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 sachet.

Special winterization procedures are necessary for the boat, components and systems. Use the enclosed checklists to help you identify areas of concern and maintenance.

Contact an authorized Regal dealer or marine professional for further information regarding storage/maintenance procedures as vessel equipment and systems may be damaged due to freezing weather. Also, more specific information can be found in the engine/propulsion manufacturers operation manual.

Note that all recommendations and instructions may not apply to your particular model.

WARNING

AVOID SERIOUS INJURY OR DEATH
DUE TO FIRE AND EXPLOSION!
DO NOT FILL FUEL TANK TO RATED
CAPACITY. LEAVE ROOM FOR EXPANSION.

NOTICE

REMOVE BATTERIES WHEN VESSEL
IS IN LONG PERIODS OF STORAGE
ESPECIALLY IN COLD CLIMATES
BATTERIES CAN FREEZE AND POSSIBLY
LOSE ELECTROLYTE.

NOTICE

AVOID SERIOUS ENGINE DAMAGE! USE
ONLY FACTORY APPROVED PRODUCTS
FOR ENGINE AND DRIVE DURING STORAGE
PERIODS.

NOTICE

AVOID HULL BOTTOM DAMAGE!
NEVER BLOCK UP THE BOAT BOTTOM AS
DAMAGE TO THE HULL MAY RESULT AND IS
NOT COVERED BY REGAL WARRANTY.

Decommissioning Checklist

Engine Winterization/Maintenance

▪ Run engines. 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 engine manufacturer's owners manual. Contact your closest authorized Regal dealer.

▪ Check engine hoses, clamps, and system wiring for loose connections, abrasion, and corrosion.

▪ Spray all exterior parts with a rust preventative.

▪ Perform maintenance as referenced in your engine/ propulsion manufacturer's owners manual. Contact your Regal dealer.

▪ Remove propellers. Refurbish as needed at a propeller repair station.

▪ After cleaning use touch up paint on drive unit as needed.

▪ Apply coat of wax to exterior drive parts.

Boat

- Check hull bottom for any fiberglass damage.

- After cleaning apply a coat of wax to hull and deck surfaces.

- Remove batteries. 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 proper blocking.

- 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 technical section drawing.

- Pour a pint of 50/50 antifreeze into bilge pump.

NOTICE

NEVER BLOCK UP BOAT HULL BOTTOM!
MAY CAUSE STRUCTURAL DAMAGE
TO THE HULL.
STORE ON AN APPROVED CRADLE
OR TRAILER
THAT ADEQUATELY SUPPORTS THE HULL.
DAMAGE CAUSED BY BLOCKING HULL
BOTTOM IS NOT COVERED
BY REGAL WARRANTY.

Typical Fresh Water System

1. Activate the fresh water pump switch.

2. Open all faucets including transom shower 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. Put 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

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.

NOTICE

AVOID VESSEL AND/OR OUTBOARD ENGINE DAMAGE! CONTACT A MARINE PROFESSIONAL FOR WINTERIZATION ASSISTANCE. DAMAGE CAUSED BY IMPROPER WINTERIZATION IS NOT COVERED BY THE VESSEL OR ENGINE MANUFACTURER.

DANGER

AVOID BODILY INJURY OR DEATH DUE TO POISON! NEVER USE AUTOMOTIVE TYPE ANTIFREEZE IN A WATER SYSTEM SINCE IT IS POISONOUS TO THE HUMAN BODY!

Recommissioning Checklist

Engine

▪ Check all components per engine manufacturer's owner's manual especially fluid levels.

▪ Strart engines and 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, gauges and systems for proper operation.

Chapter 8
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

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).

Gunwale: rail or upper edge of the side of the boat

Head: toilet

Hull: the part of the hull from the deck down

IPS: Inboard propulsion system used by Volvo

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

Index

Note that select items shown in the index are optional and may not be installed on your vessel.

Chapter 9
Technical/Drawings

Notice

The following technical information and drawings can be an aid in troubleshooting electrical, mechanical, and system problems along with the charts located in the troubleshooting chapter.

Note that all product specifications, drawings, standard and optional equipment including locations, systems, along with technical information is subject to change without notice during the producton life cycle of a vessel.

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.

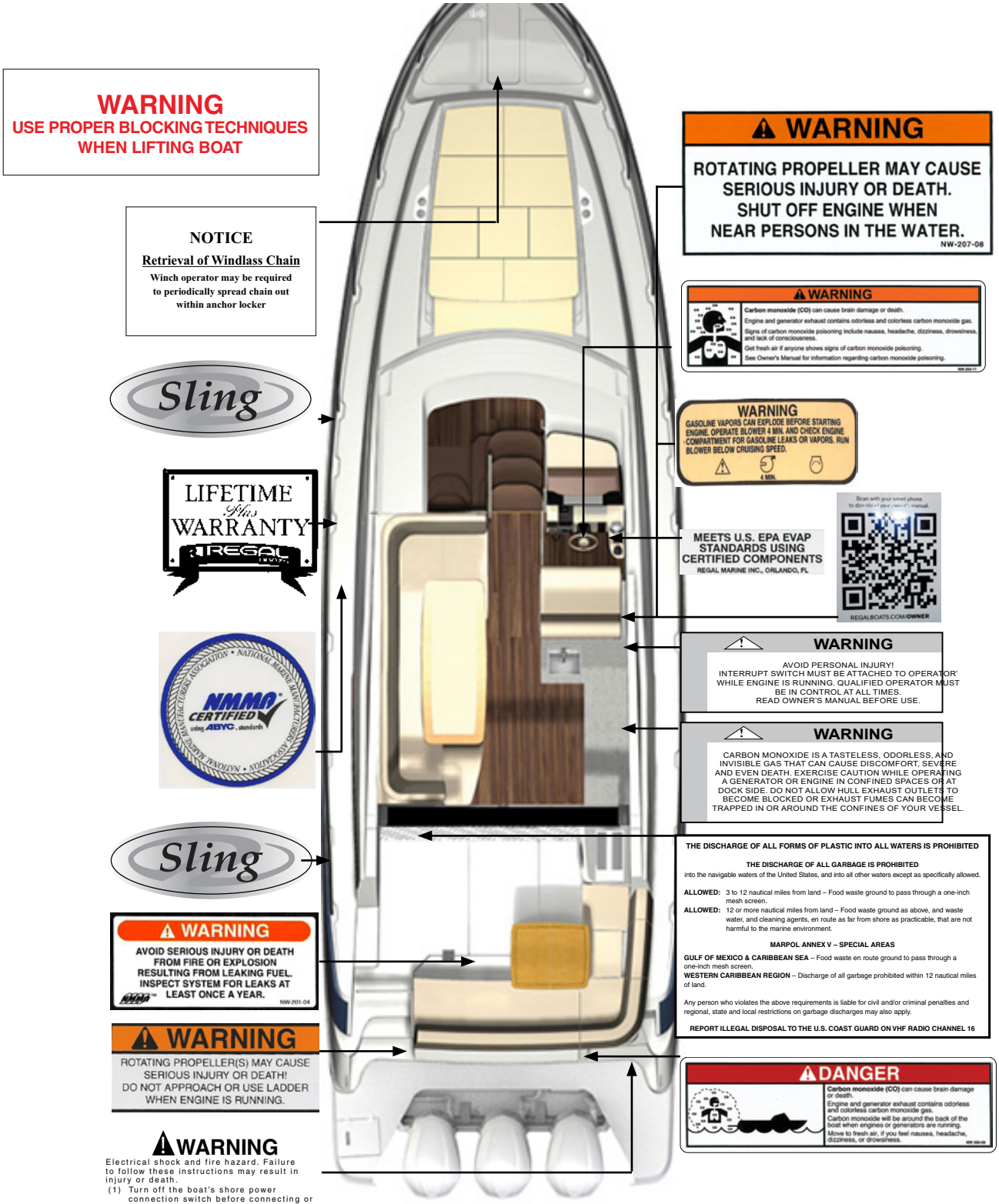
Your Regal dealer has received special factory training on the entire product line and his services should be employed to solve technical problems.

Note that drawing titles may use the model designatior or the standard configuration numbers as follows:
42 Grand Coupe (TF), 42 Fly/Flybridge (TD), 42 FXO (TX), or 42 XO (TK).

Notice

THE FOLLOWING DRAWINGS ARE COMMON TO ALL GRAND COUPE & FLYBRIDGE MODELS

TYPICAL LABELS & LOCATIONS

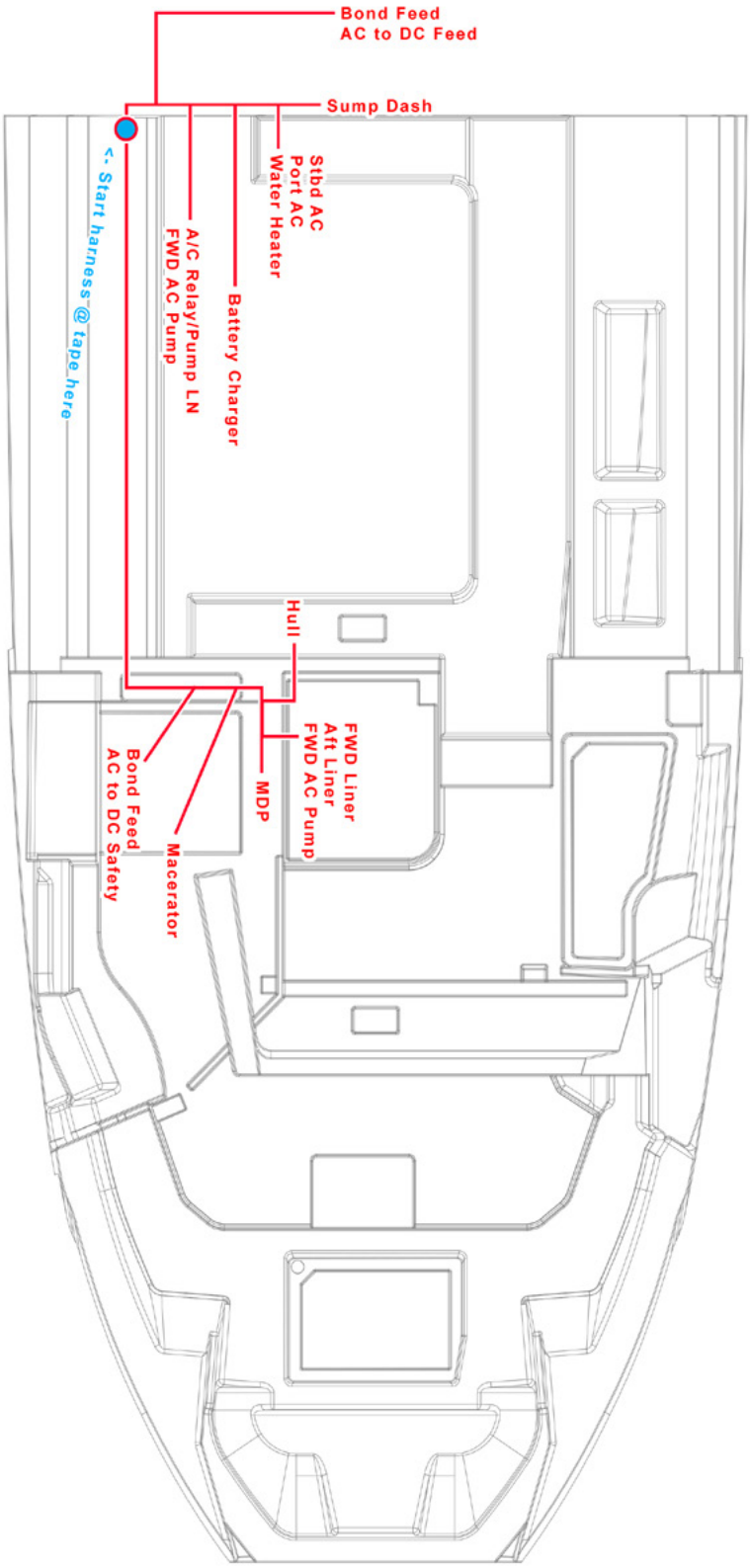


42 XO MODEL SHOWN

Note on the above drawing that label locations and actual label information varies by model and locations can change at any time. Read & understand the safety labels found in the General Vessel Information Manual at the Regal web-site and on your craft before attempting to operate the vessel.

MAIN SHIP'S CONTROL PANEL HARNESS

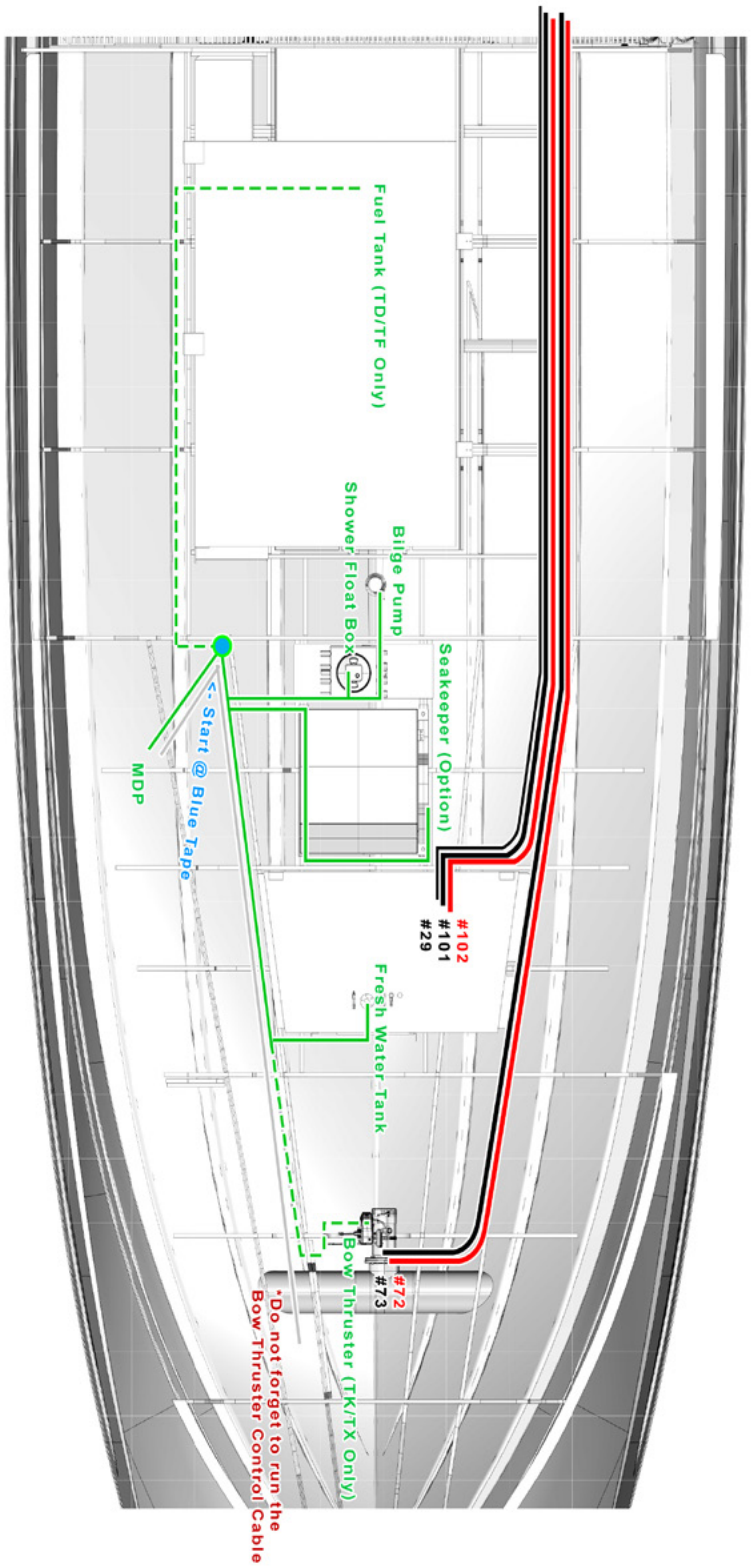
Subject Work Instruction:	Issue Date:	Rev:	Document No.
TD TF TK TX Sump MDP Harness	01/28/2021	0	EL-160
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	----	1 of 1



[REFERENCE ONLY]

HULL HARNESS

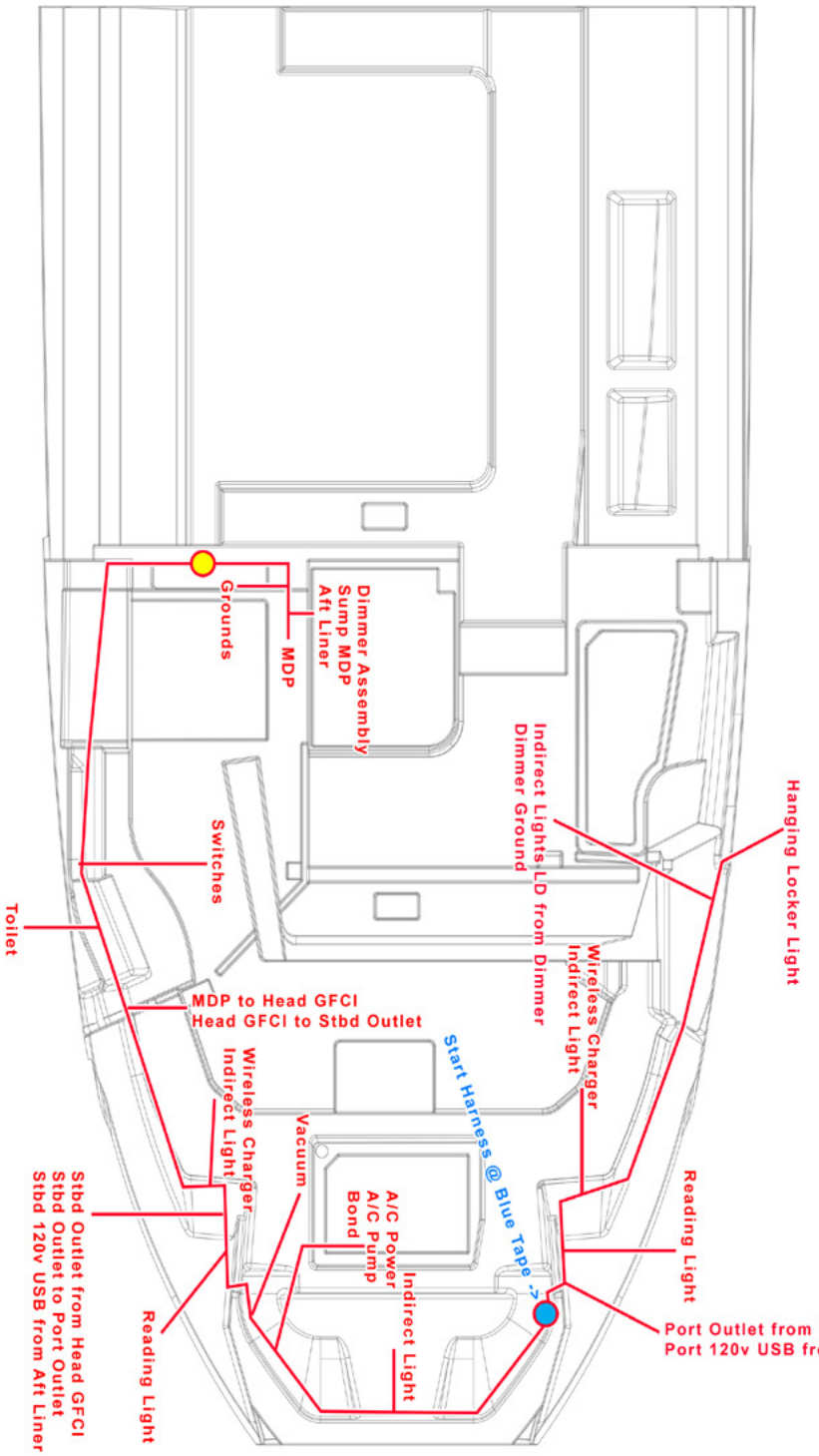
Subject Work Instruction:	Issue Date:	Rev:	Document No.
TD TF TK TX Hull Harness	01/28/2021	0	EL-169
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	----	1 of 1



[REFERENCE ONLY]

FORWARD LINER HARNESS

Subject Work Instruction:	Issue Date:	Rev:	Document No.
TD TF TK TX FWD Liner Harness	01/28/2021	0	EL-161
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	----	1 of 1

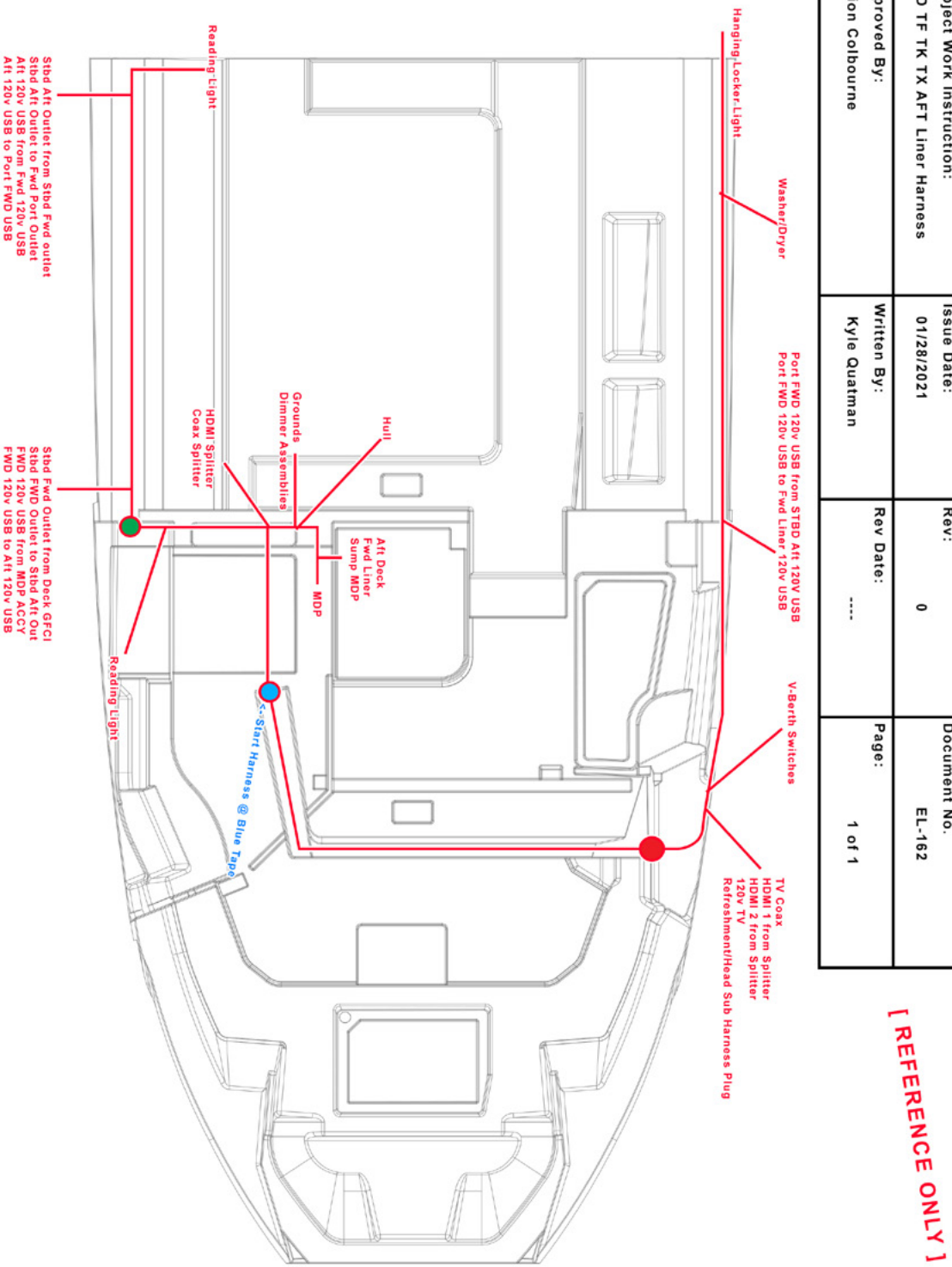


[REFERENCE ONLY]

AFT LINER HARNESS

Subject Work Instruction:	Issue Date:	Rev:	Document No.
TD TF TK TX AFT Liner Harness	01/28/2021	0	EL-162
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	----	1 of 1

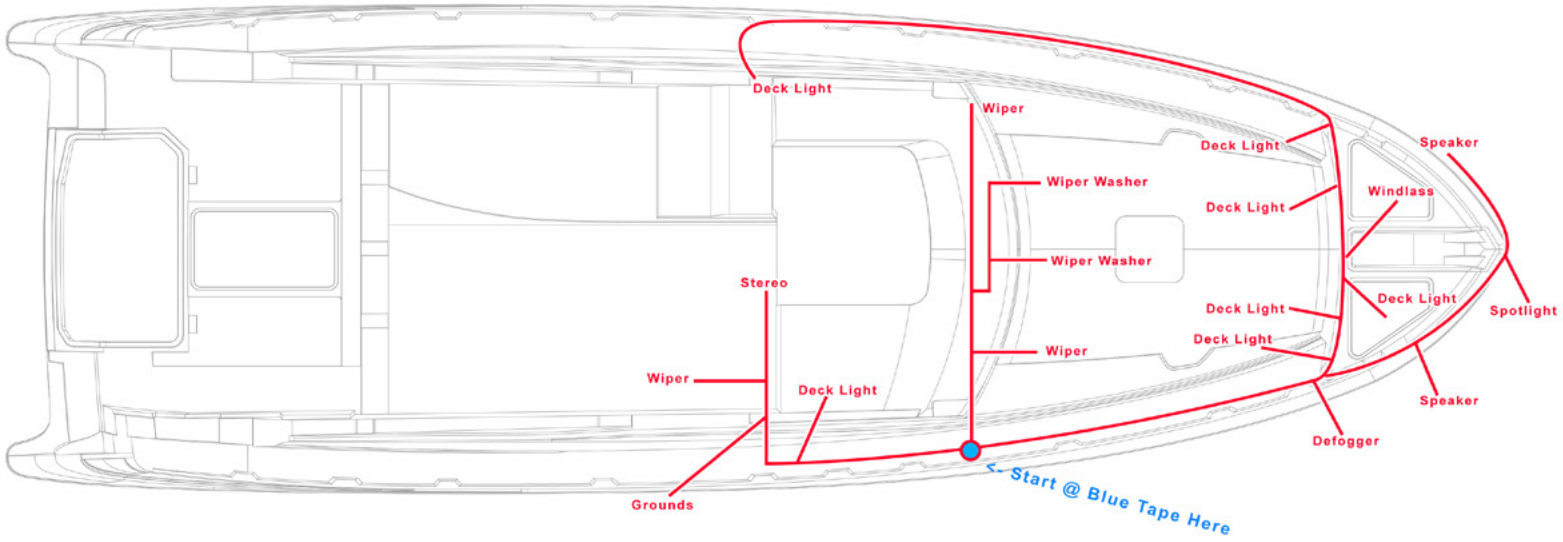
[REFERENCE ONLY]



FORWARD DECK HARNESS

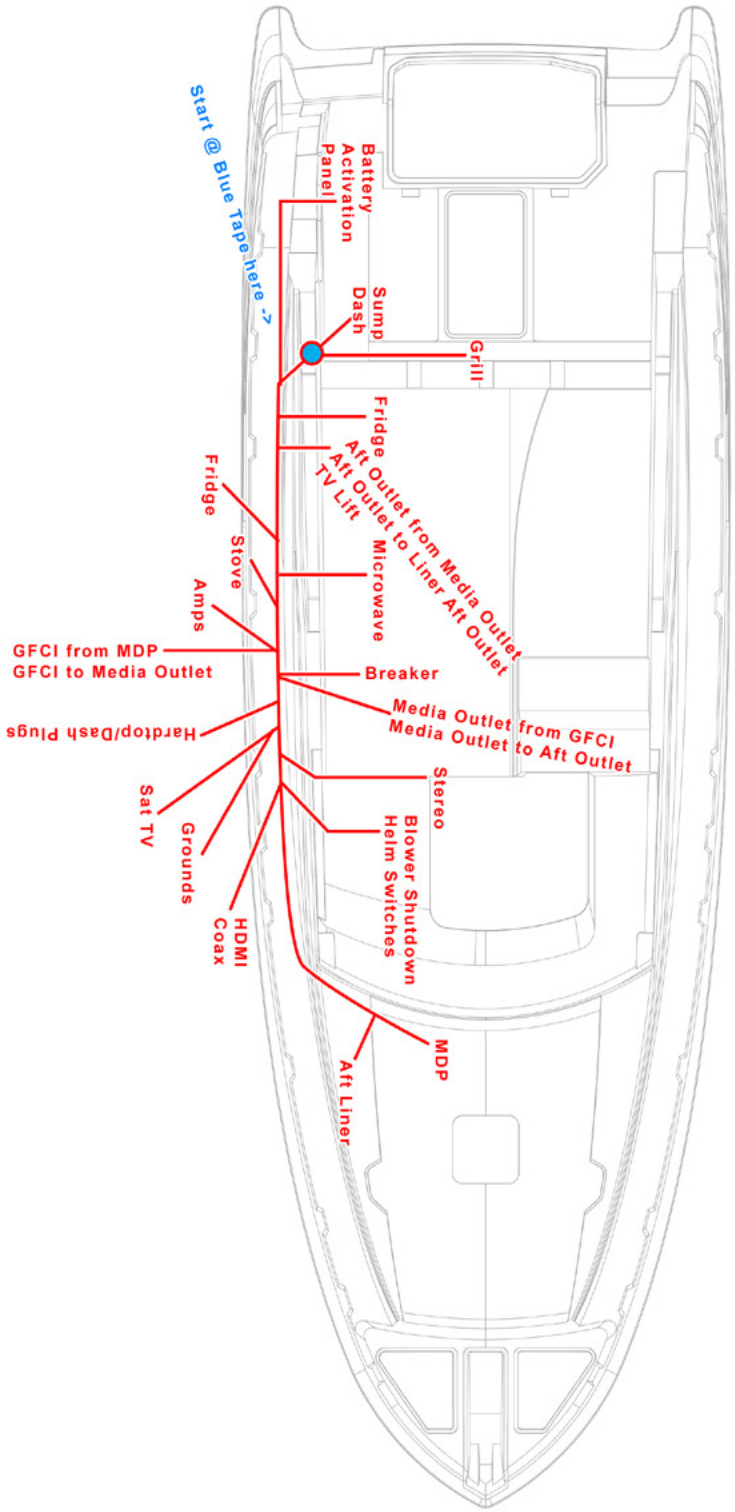
Subject Work Instruction:	Issue Date:	Rev:	Document No.
TD TF TK TX Fwd Deck Harness	01/28/2021	0	EL-164
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	----	1 of 1

[REFERENCE ONLY]



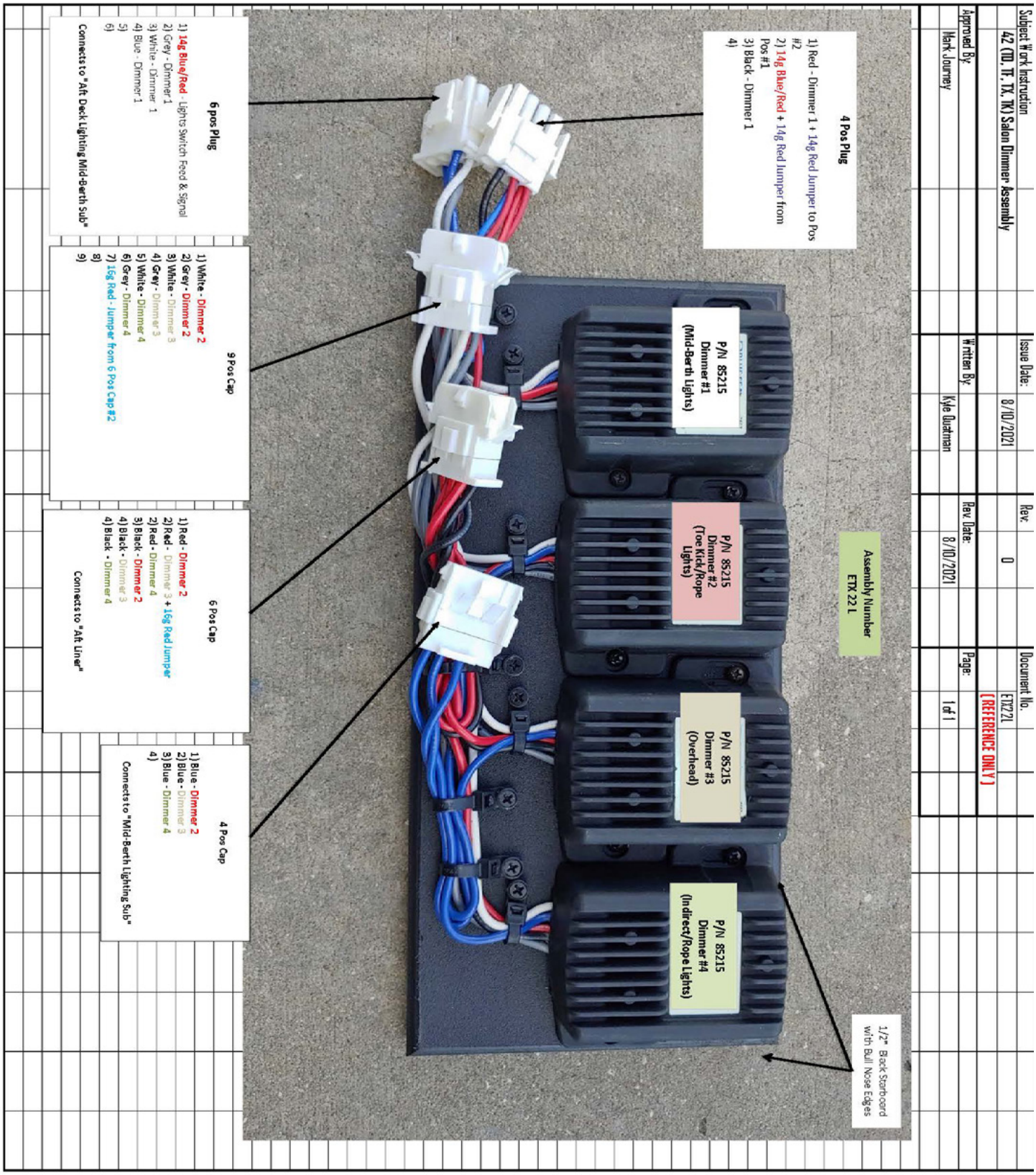
AFT DECK HARNESS

Subject Work Instruction:	Issue Date:	Rev:	Document No.
TD TF TK TX Aft Deck Harness	01/28/2021	0	EL-170
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	----	1 of 1



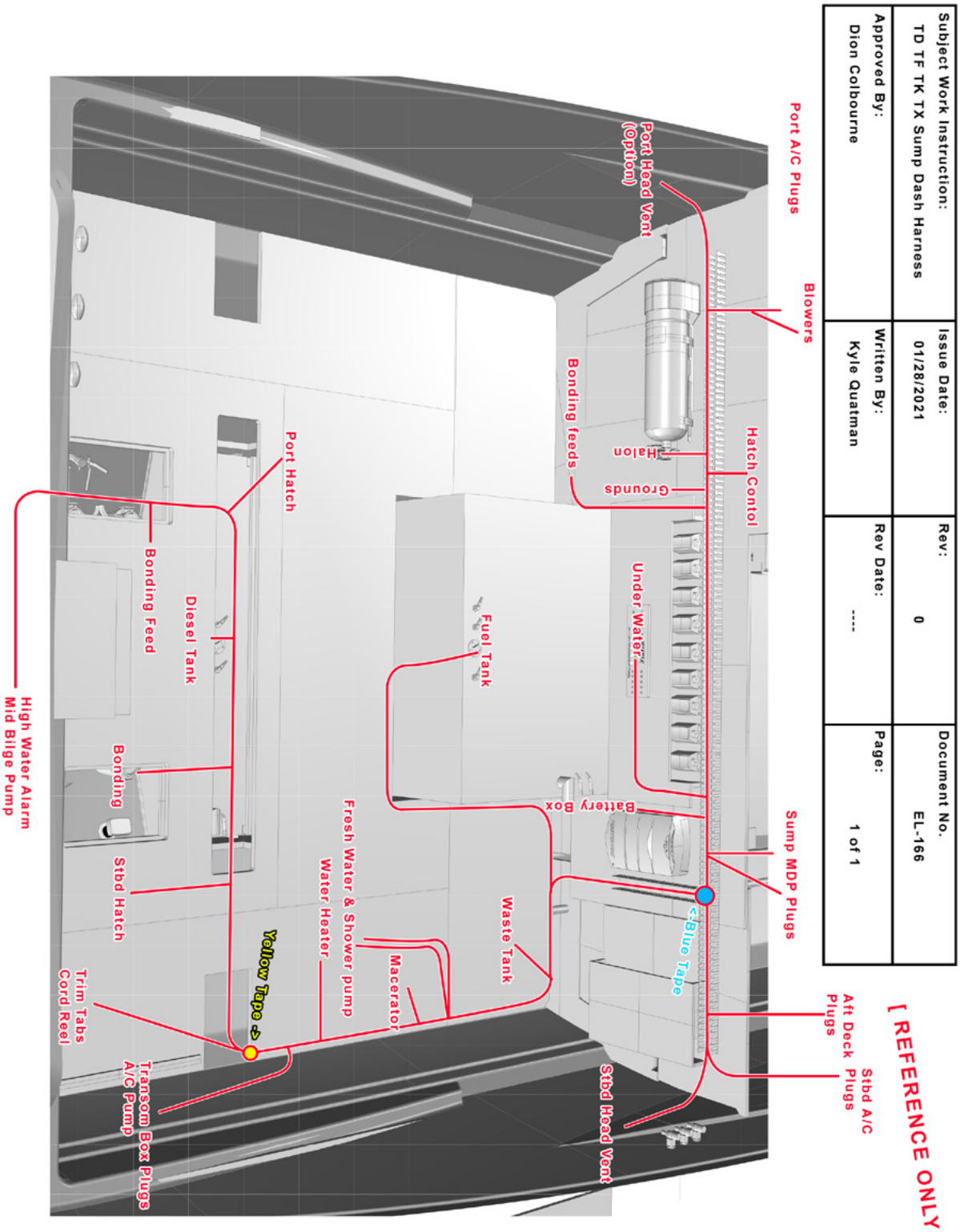
[REFERENCE ONLY]

SALON DIMMER SYSTEM



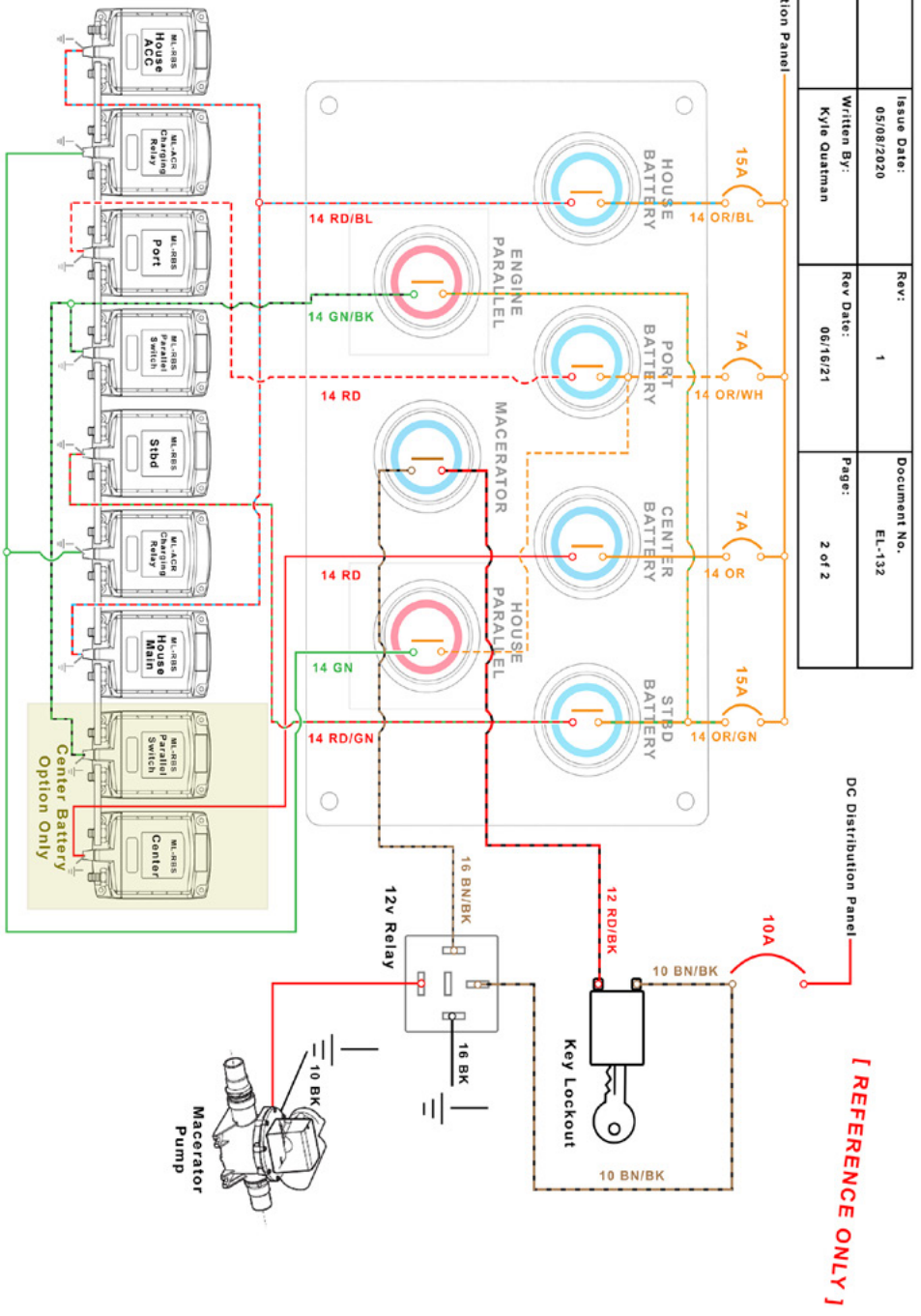
SUMP DASH HARNESS

Subject Work Instruction:	Issue Date:	Rev:	Document No.
TD TF TK TX Sump Dash Harness	01/28/2021	0	EL-166
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	----	1 of 1



BATTERY ACTIVATION PANEL 1

Subject Work Instruction: Battery Activation Panel	Issue Date: 05/08/2020	Rev: 1	Document No. EL-132
Approved By: Mark Journey	Written By: Kyle Quatman	Rev Date: 06/16/21	Page: 2 of 2

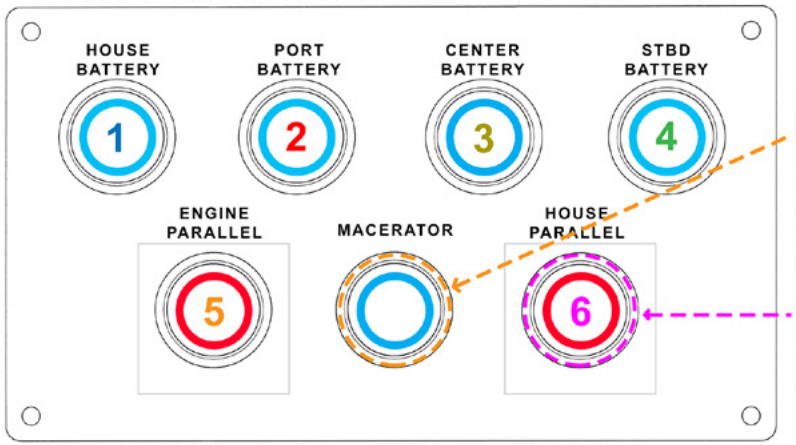


BATTERY ACTIVATION PANEL 2

Subject Work Instruction:	Issue Date:	Rev:	Document No.
Battery Activation Panel	05/08/2020	1	EL-132
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Mark Journey	Kyle Quatman	06/16/21	1 of 2

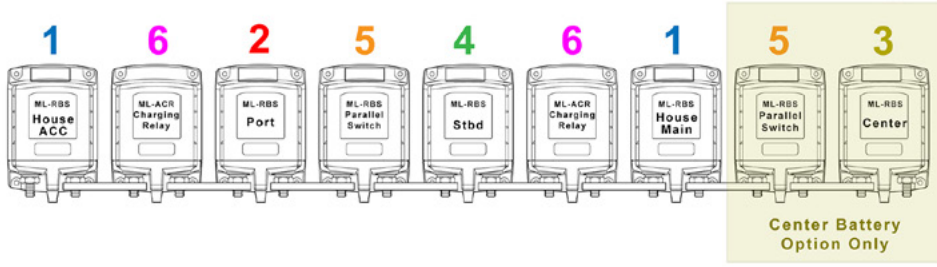
[REFERENCE ONLY]

*Panels May Vary. Center Battery and Macerator not available on all models.

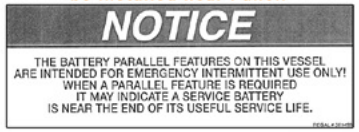


*Note: The Macerator is required to have a Key Lockout by ABYC. This is located around the MDP Panel. Once the key has been turned to the ON position this button will function as normal.

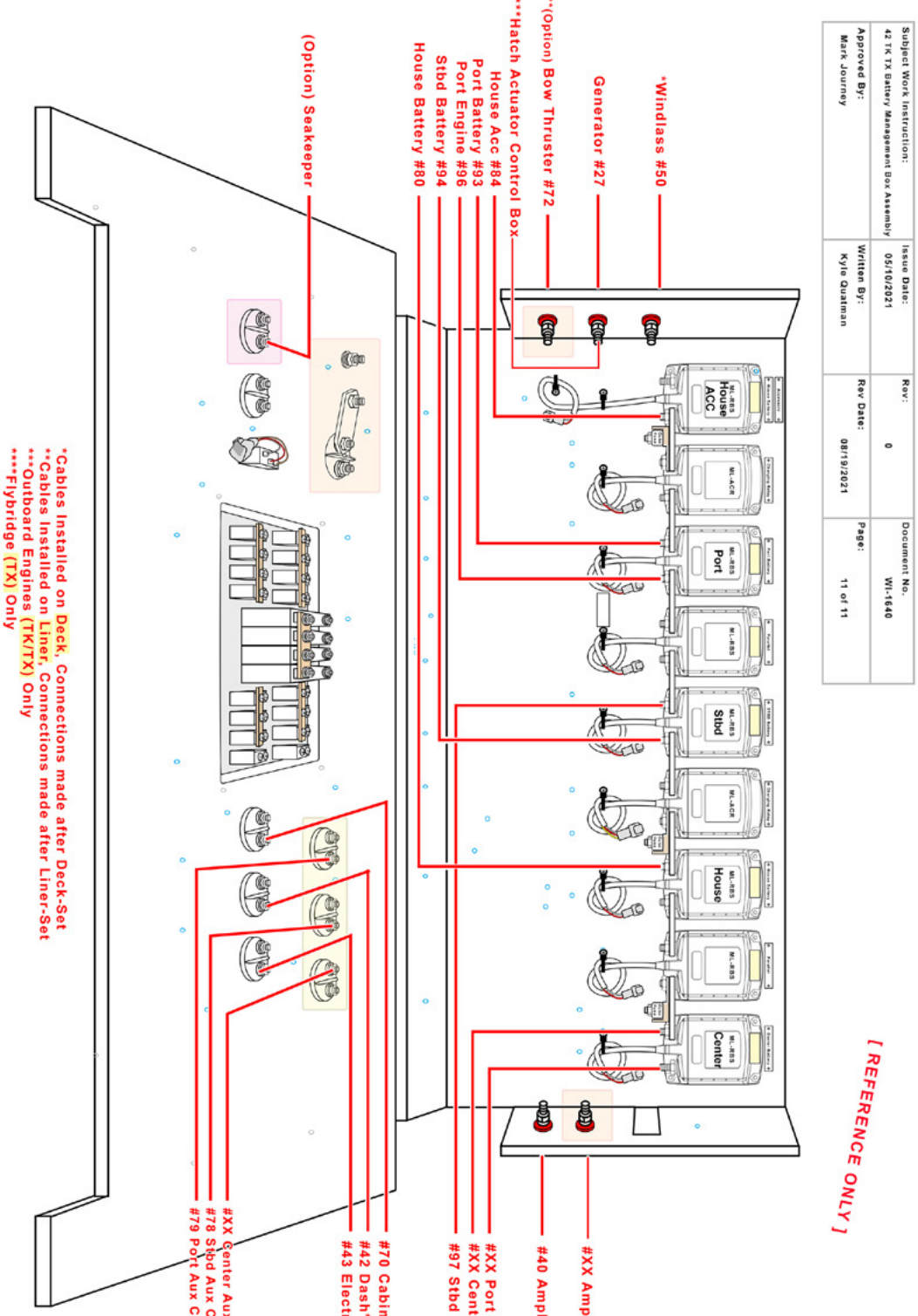
**Note: This Switch is intended to manually activate two ACR's (Automatic Charging Relay), being used as a parallel device between the House Main Battery and the Stbd Engine Battery as well as a parallel between the House Accessory Battery and the Port Engine. This is for emergency power to the two House Banks. If the Battery Charger or Port and Stbd Engine is running, these ACR's will detect a charge and will be automatically activated and can not be turned ON or OFF with this button. However, The Indicator light will continue to light up Blue if pushed to the ON position. When the ACR no longer detects a charge, it will be automatically deactivated and this button will then resume its function as a manual switch for the ACR.



Notice Sticker is Required to be installed near Panel.



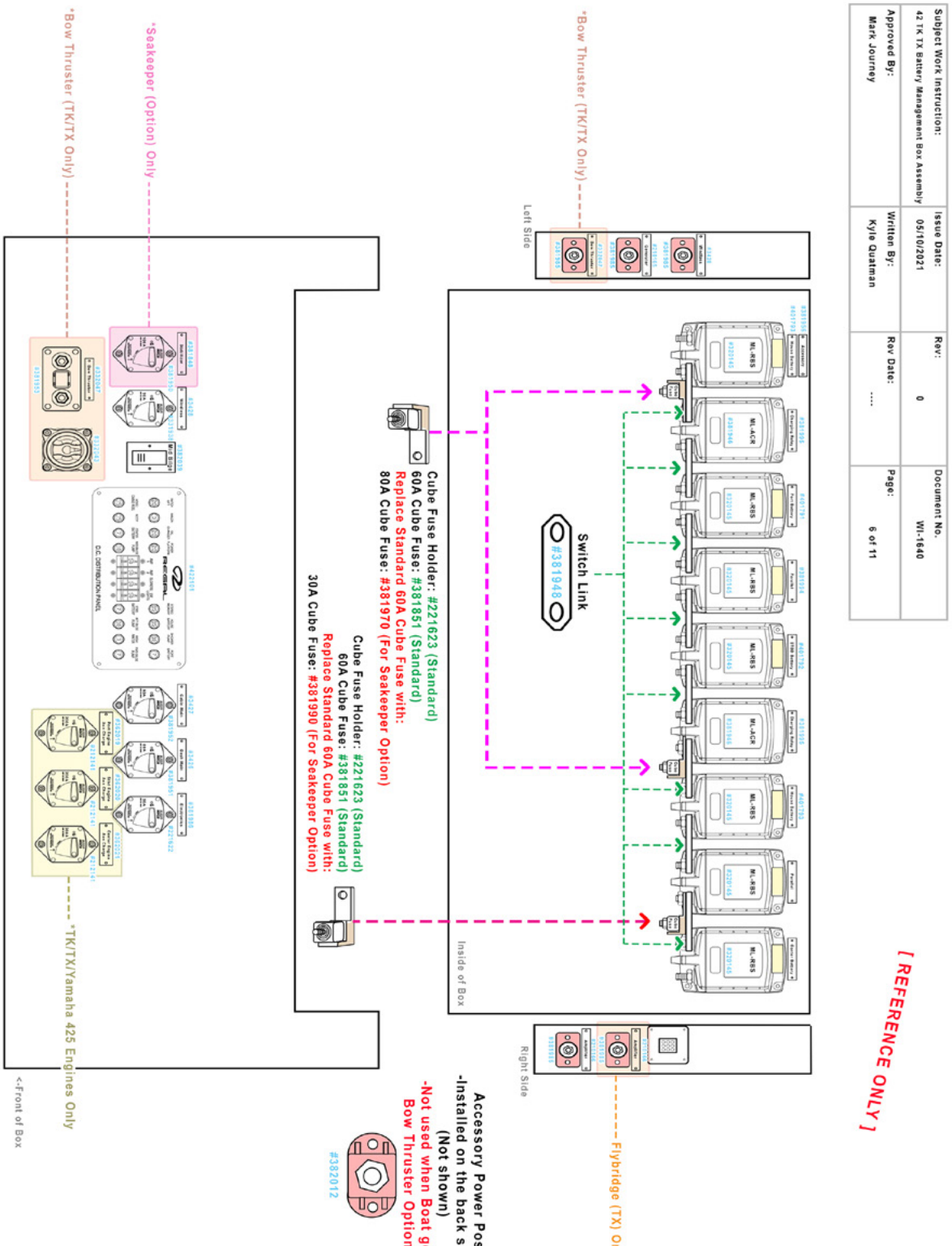
BATTERY MANAGEMENT PANEL OVERVIEW



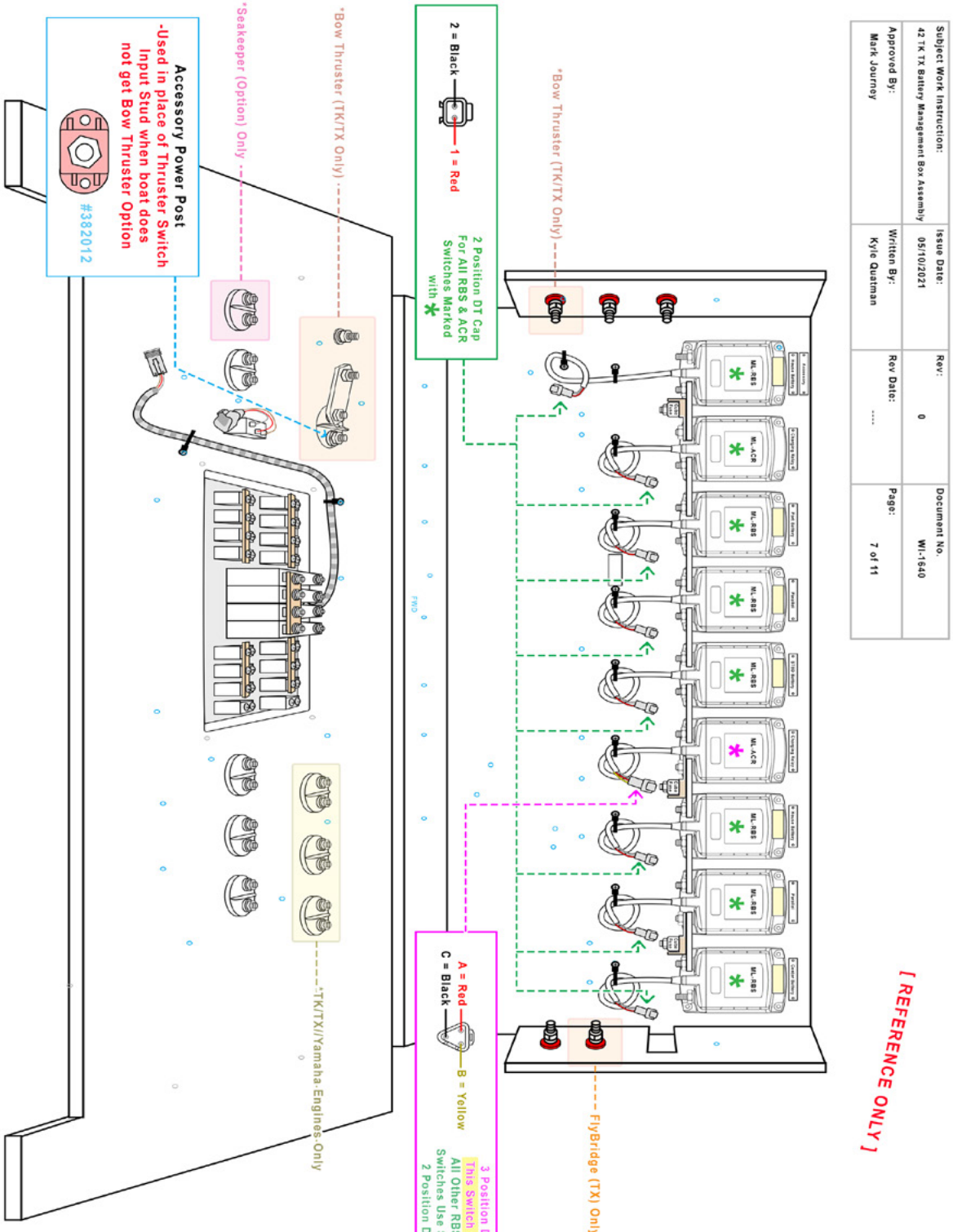
[REFERENCE ONLY]

BATTERY MANAGEMENT PANEL 1

Subject Work Instruction:	Issue Date:	Rev:	Document No.
42 TK TX Battery Management Box Assembly	05/10/2021	0	WI-1640
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Mark Journey	Kyle Quatman	....	6 of 11

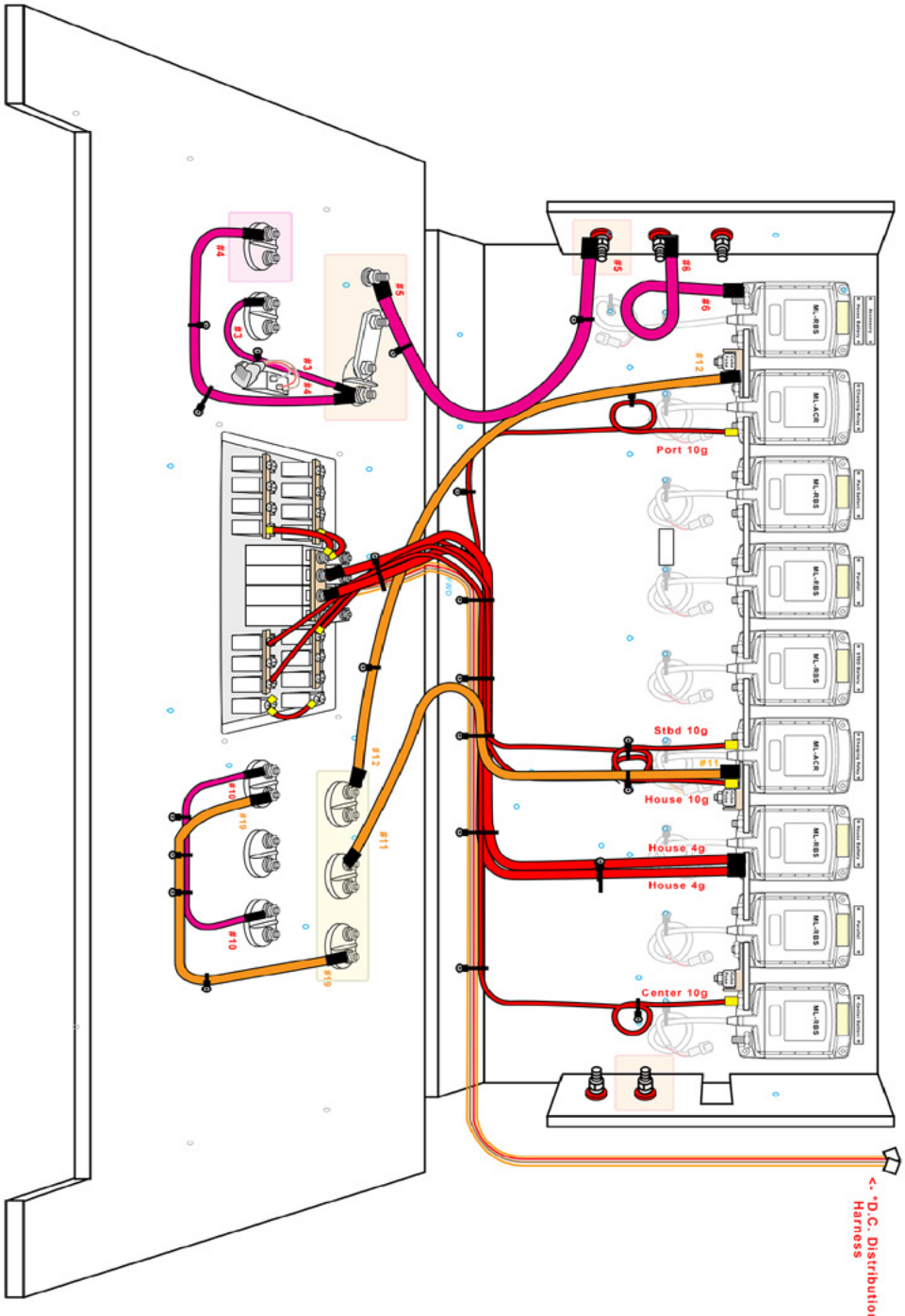


BATTERY MANAGEMENT PANEL 2



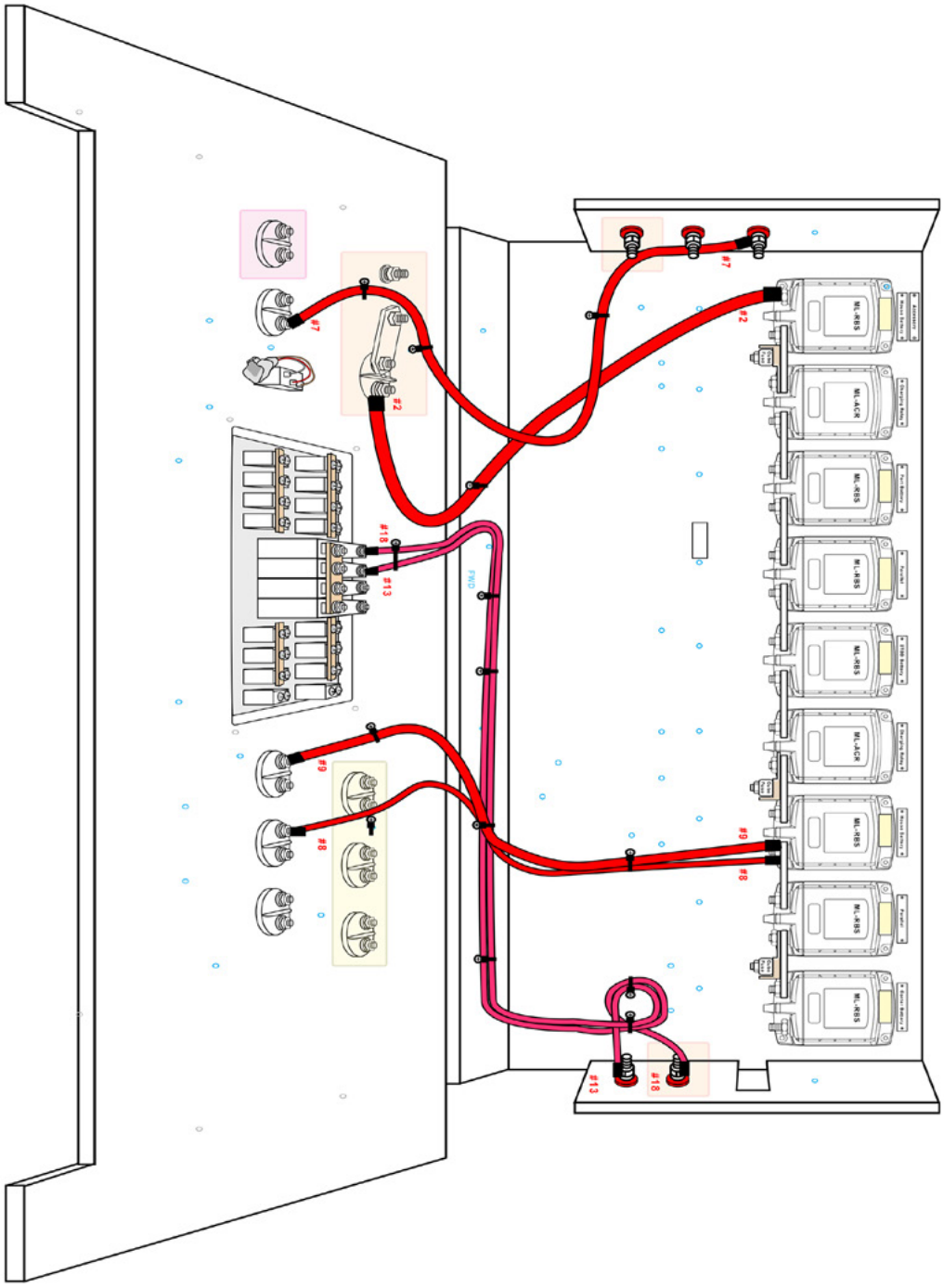
BATTERY MANAGEMENT PANEL 3

Subject Work Instruction:	Issue Date:	Rev:	Document No.
42 TK TX Battery Management Box Assembly	05/10/2021	0	WI-1640
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Mark Journey	Kyle Quatman	08/13/2021	8 of 11



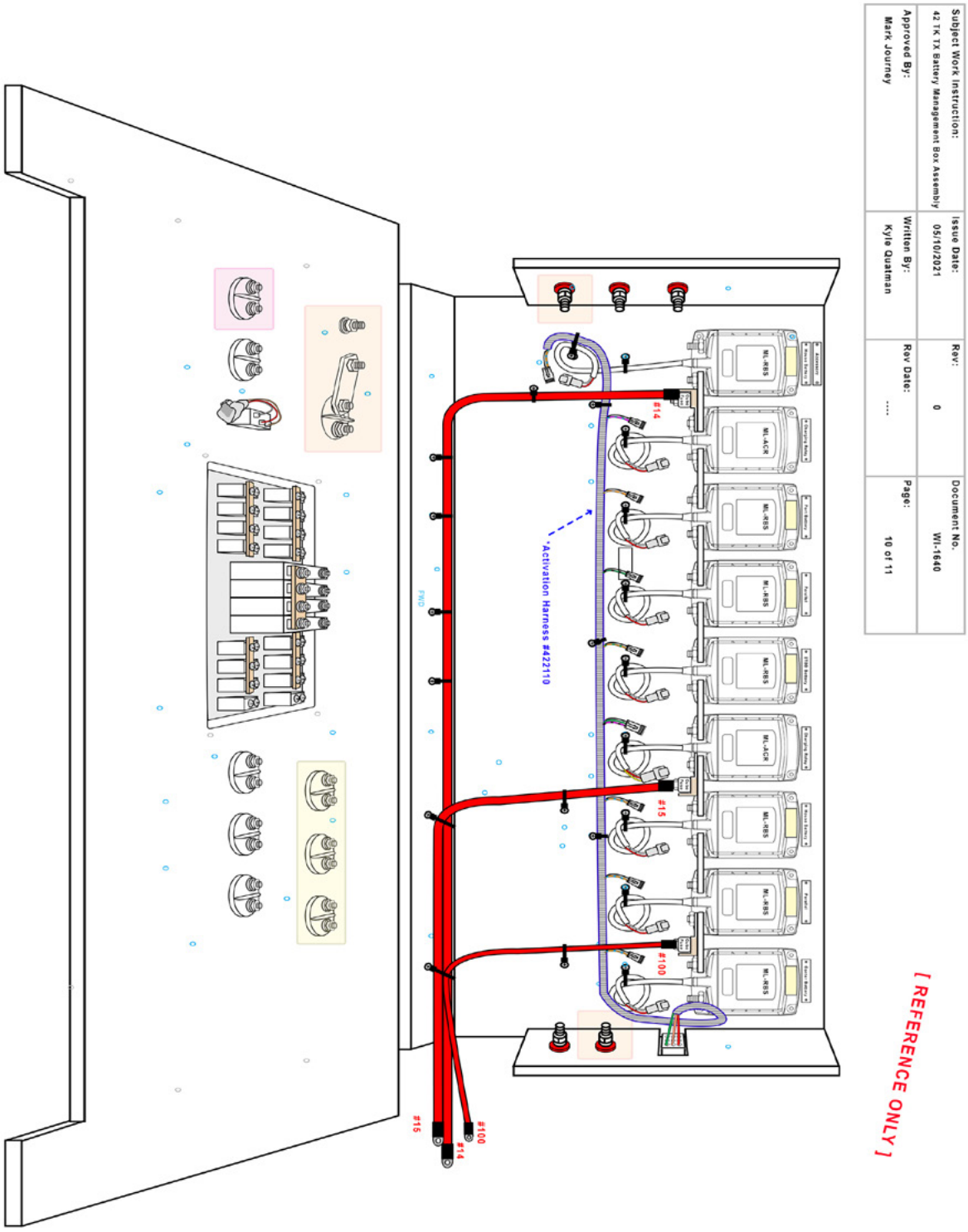
BATTERY MANAGEMENT PANEL 4

Subject Work Instruction:	Issue Date:	Rev:	Document No.
42 TK TX Battery Management Box Assembly	05/10/2021	0	WI-1640
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Mark Journey	Kyle Quatman	08/19/2021	9 of 11



[REFERENCE ONLY]

BATTERY MANAGEMENT PANEL 5

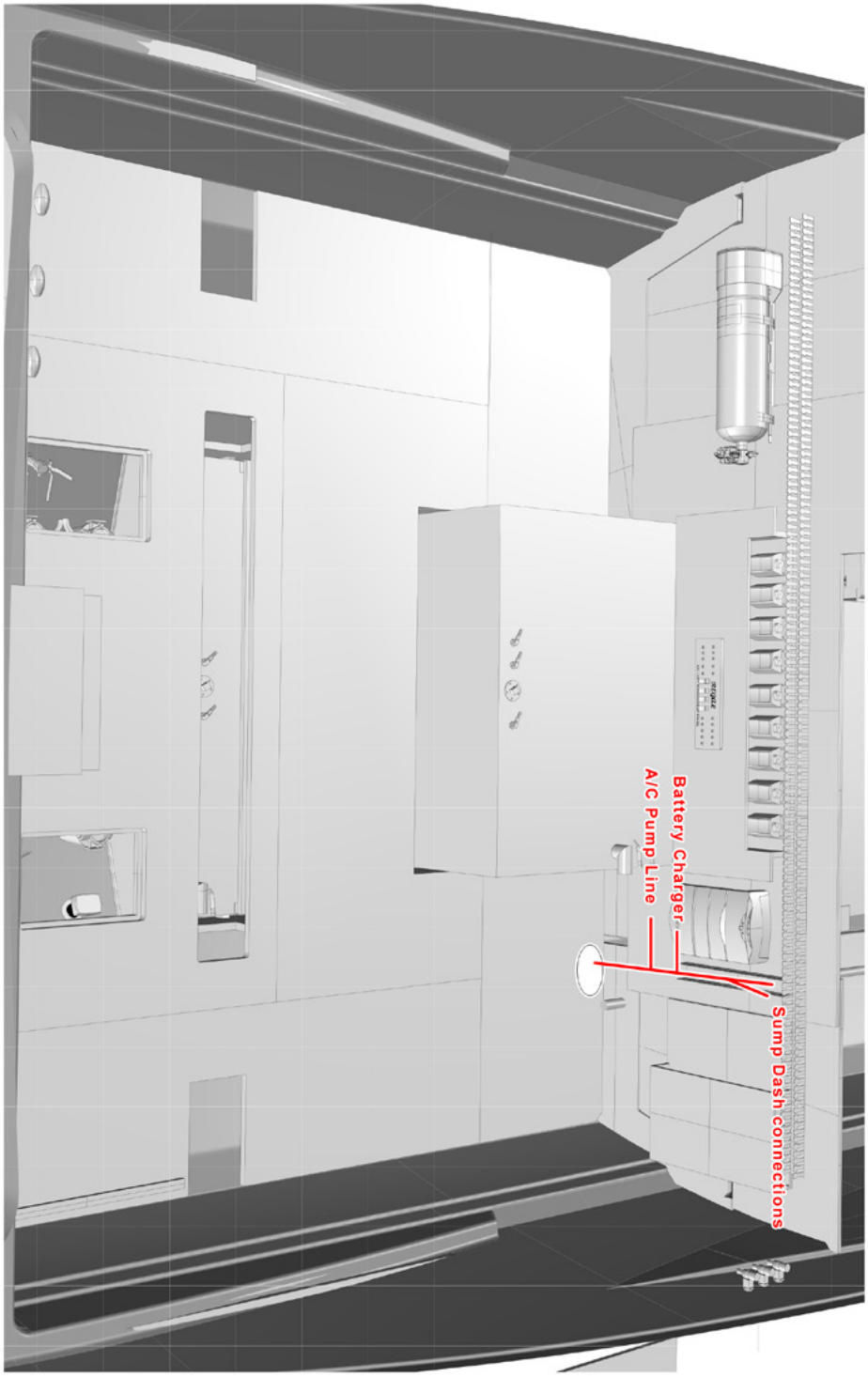


THE FOLLOWING DRAWINGS COVER
42 XO & 42 FXO (OUTBOARD) MODELS ONLY

NOTE THAT SELECT DRAWINGS MAY DISPLAY ILLUSTRATIONS FOR FXO FLYBRIDGE (TX) MODELS ONLY. THESE APPLY TO BOTH XO (TX) AND FXO (TK) MODELS.

OUTBOARD SUMP TO MDP (MAIN DISTRIBUTION PANEL) HARNESS

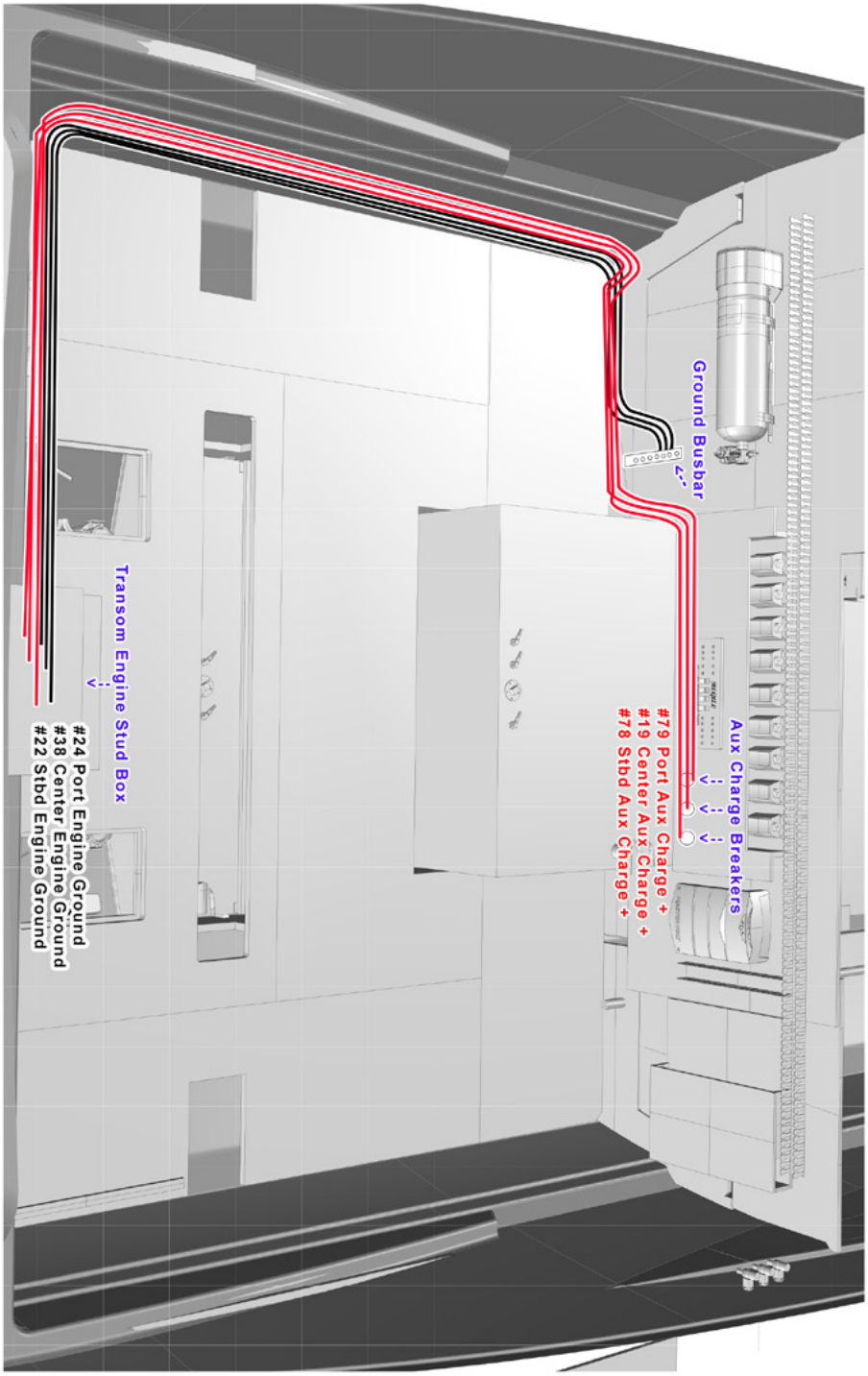
Subject Work Instruction:	Issue Date:	Rev:	Document No.
TK TX Sump to MDP Harness	01/28/2021	0	EL-168
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	----	1 of 1



[REFERENCE ONLY]

OUTBOARD SUMP BATTERY CABLES 1

Subject Work Instruction:	Issue Date:	Rev:	Document No.
TK TX Sump Battery Cables	01/28/2021	0	EL-167
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	----	1 of 3

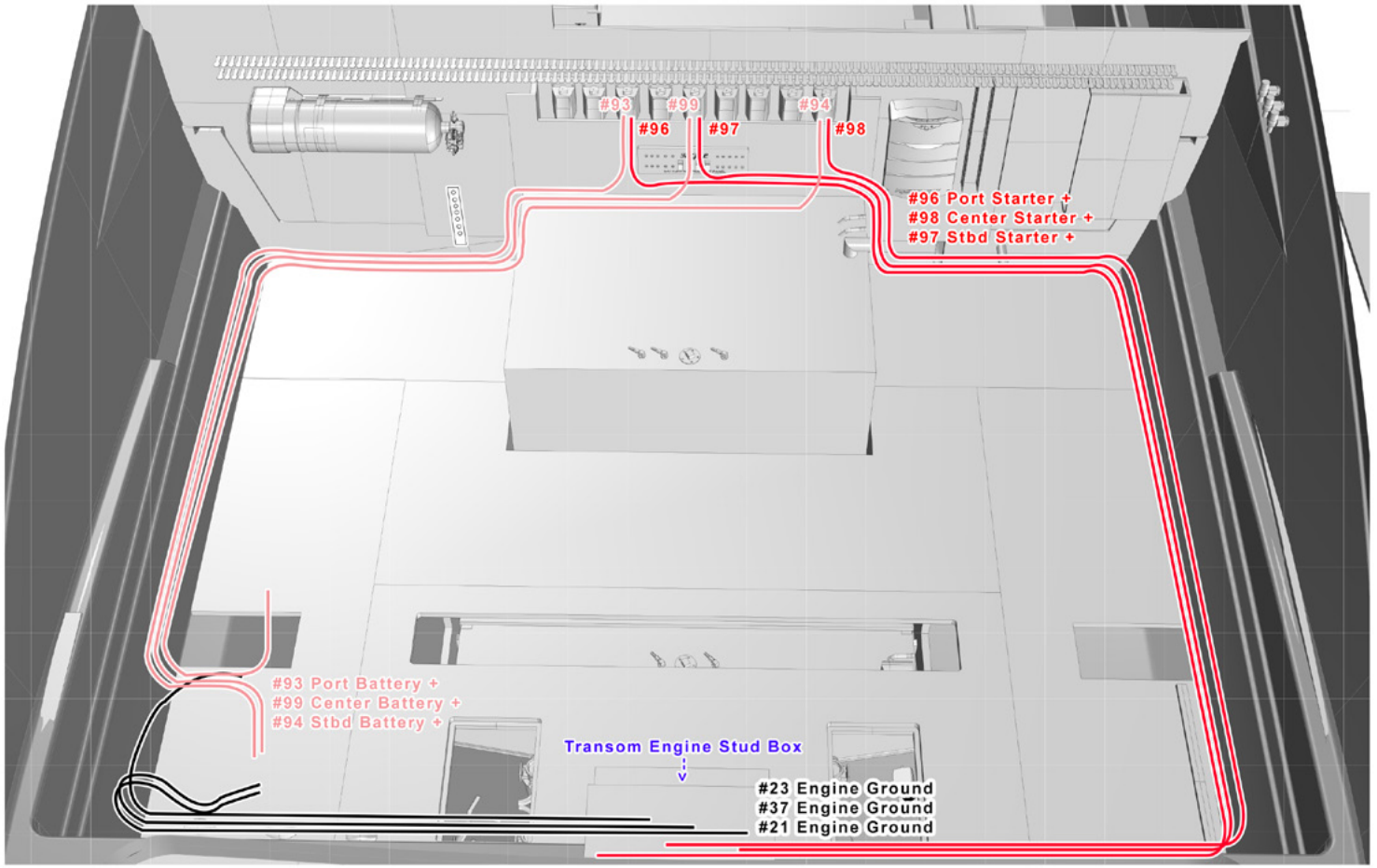


[REFERENCE ONLY]

Subject Work Instruction:	Issue Date:	Rev:	Document No.
TK TX Sump Battery Cables	01/28/2021	0	EL-167
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	----	2 of 3

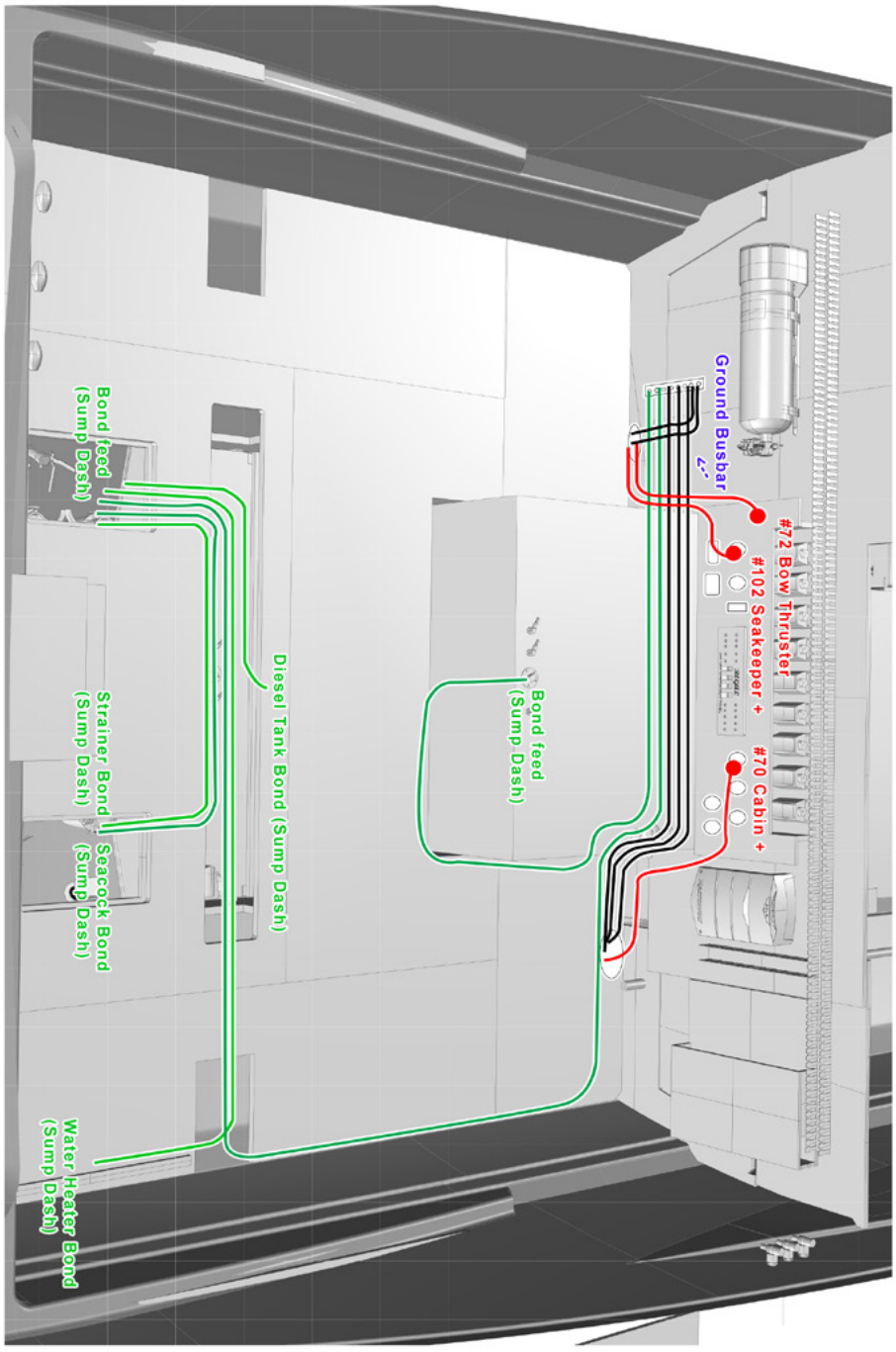
[REFERENCE ONLY]

OUTBOARD SUMP BATTERY CABLES 2



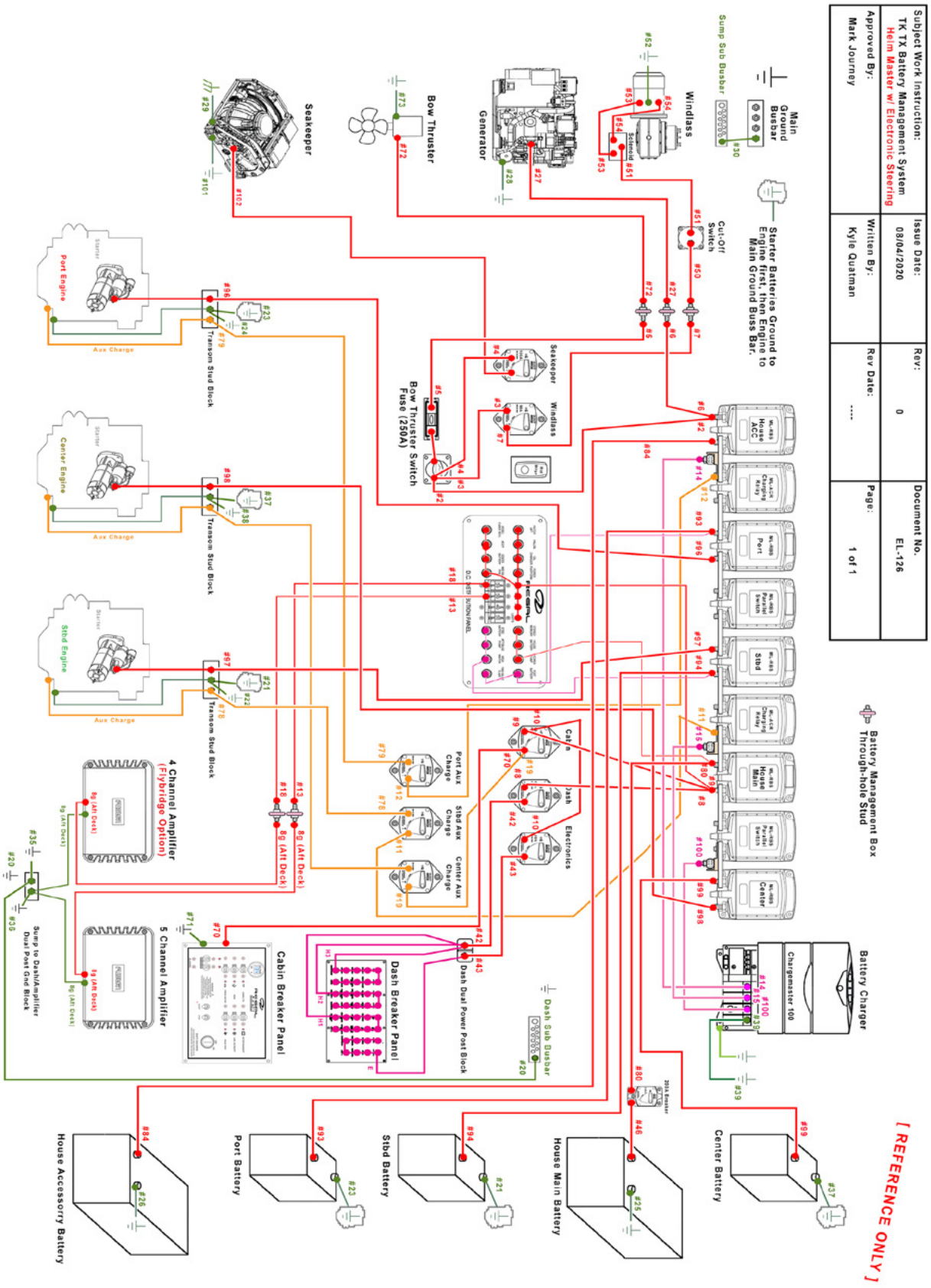
OUTBOARD SUMP BATTERY CABLES 3

Subject Work Instruction:	Issue Date:	Rev:	Document No.
TK TX Sump Battery Cables	01/28/2021	0	EL-167
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	----	3 of 3



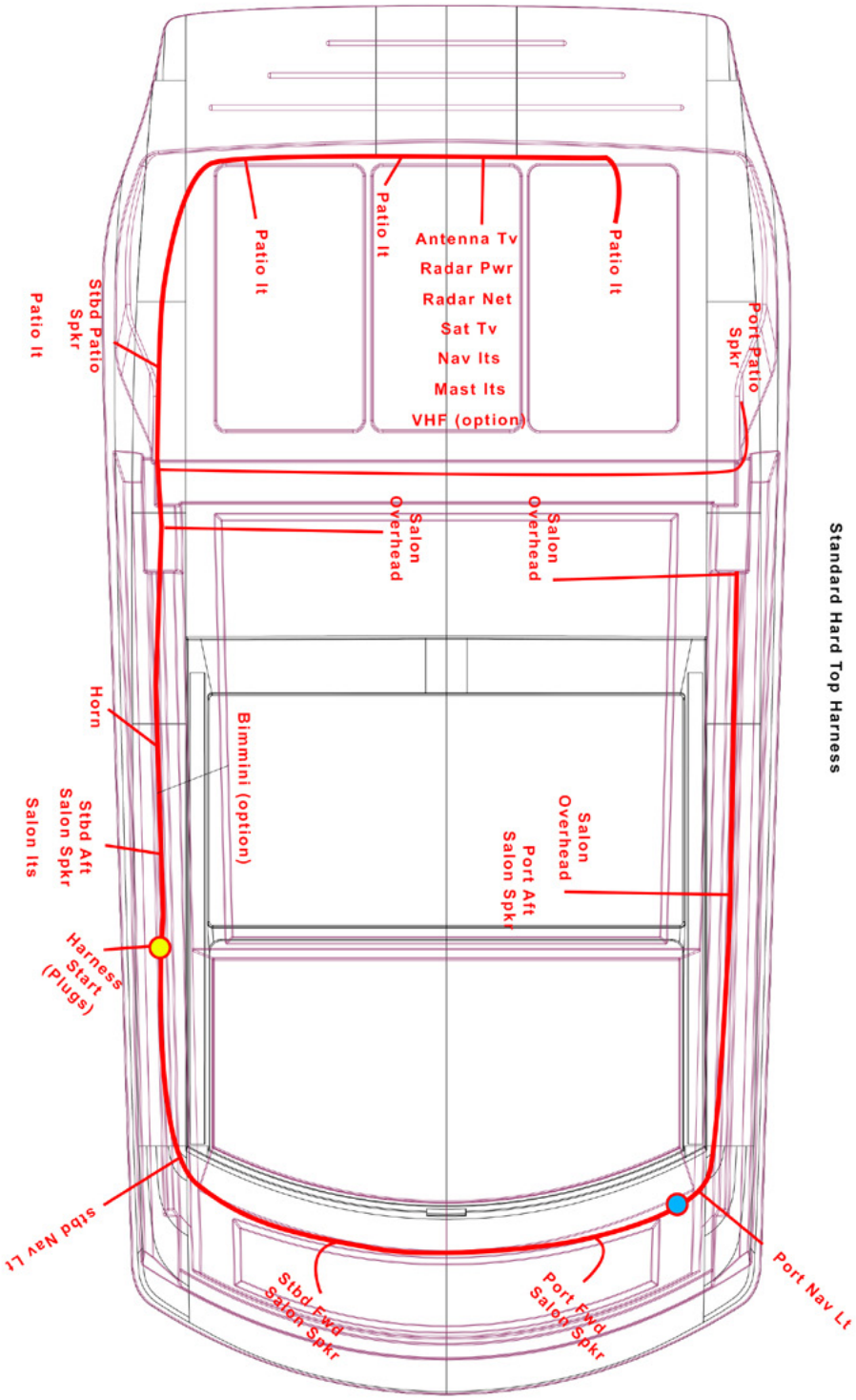
[REFERENCE ONLY]

OUTBOARD BATTERY MANAGEMENT SYSTEM



OUTBOARD HARDTOP HARNESS 1

Subject Work Instruction:	Issue Date:	Rev:	Document No.
TD TF TK TX Hard Top Harness	01/28/2021	0	EL-171
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	----	1 of 2

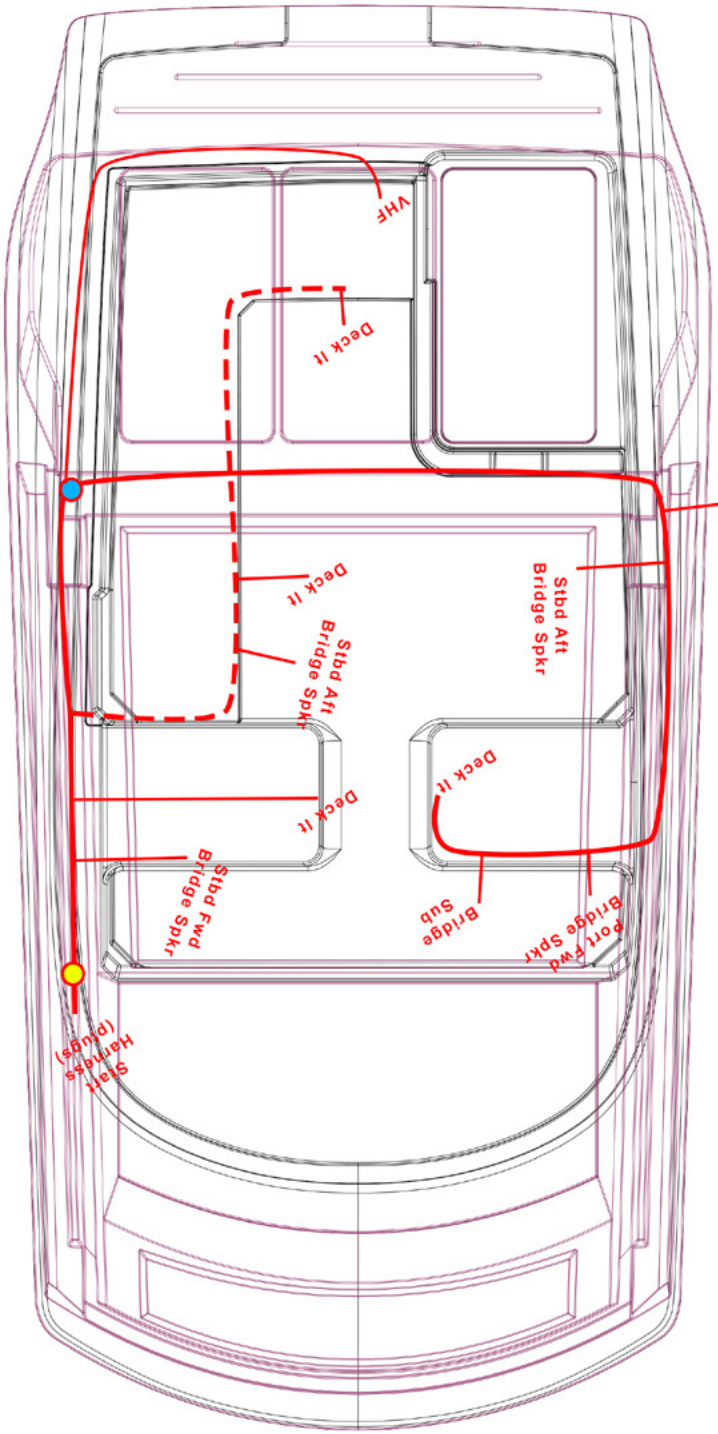


Standard Hard Top Harness

[REFERENCE ONLY]

OUTBOARD HARDTOP HARNESS 2

Subject Work Instruction:	Issue Date:	Rev:	Document No.
TD TX Bridge Harness	01/28/2021	0	EL-171
Approved By:	**Written By:**	**Rev Date:**	**Page:**
Dion Colbourne	Kyle Quatman	----	2 of 2

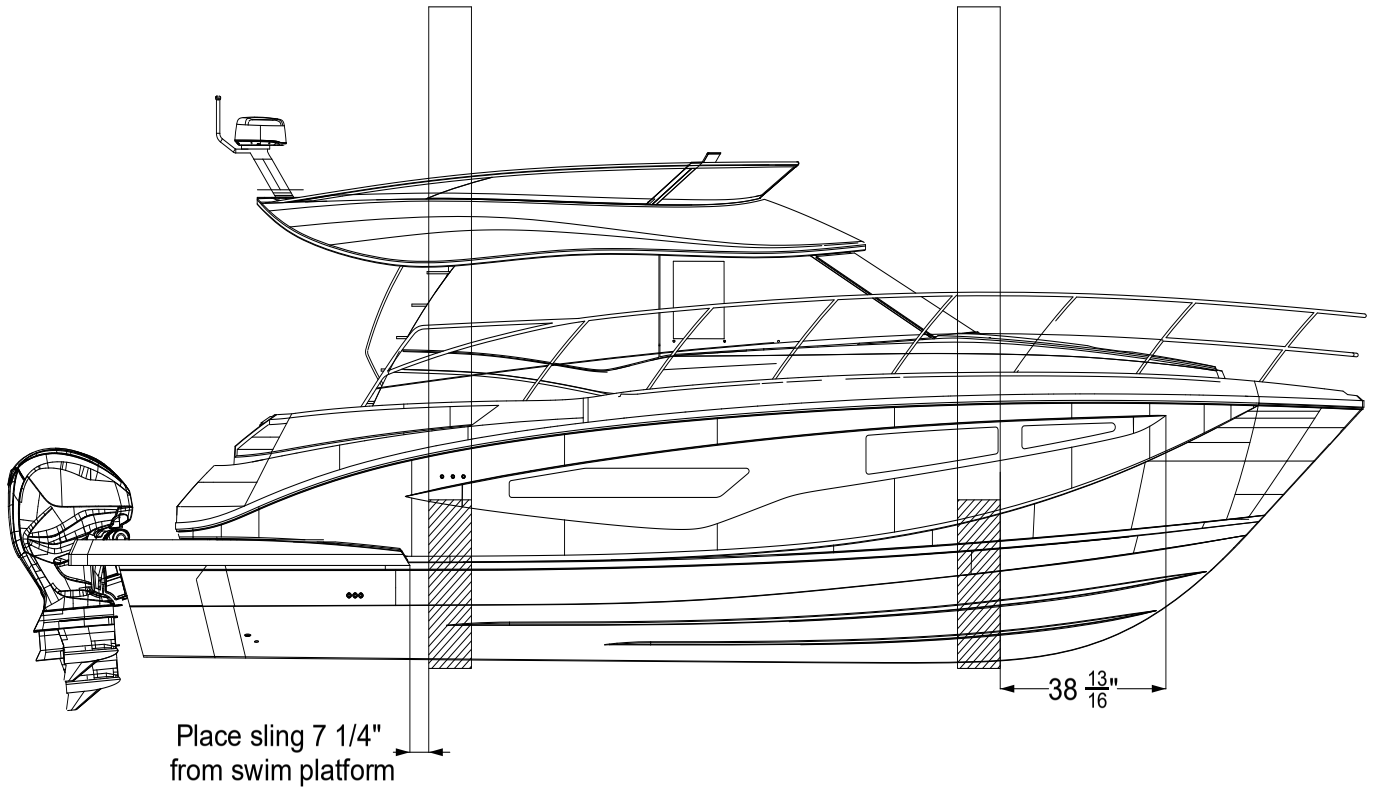


Bridge Harness

[REFERENCE ONLY]

OUTBOARD SLING LOCATIONS

42 XO & FXO (TX) Sling Locations

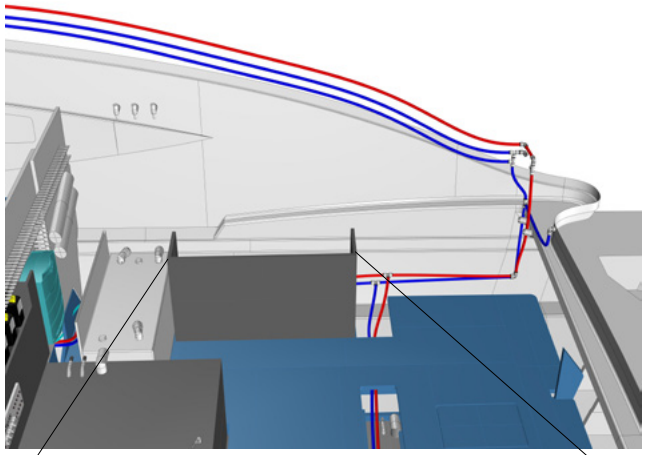


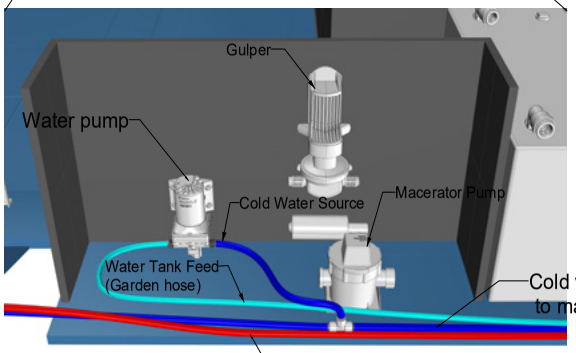
REFERENCE ONLY

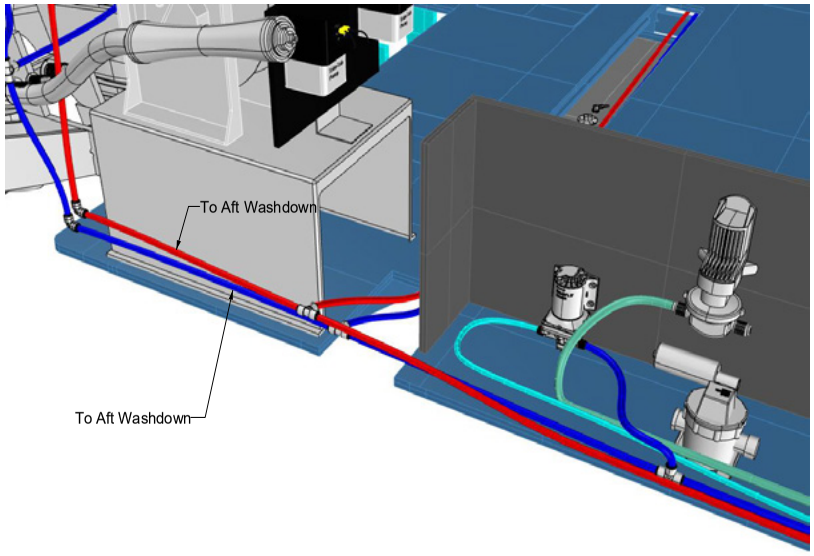
REGAL MARINE INDUSTRIES
2300 JETPORT DRIVE
ORLANDO, FLORIDA 32809
TEL (407) 851-4360

DRAWING TITLE:		
42 XO & FXO (TX) Sling Locations		
DATE: 6/18/2021	REVISION: -	PAGE: 1 OF 1
DRAWN BY: LMS	APPROVED BY: -	DWG. NO.: -

42 XO & FXO (TX) Water Tank Routings





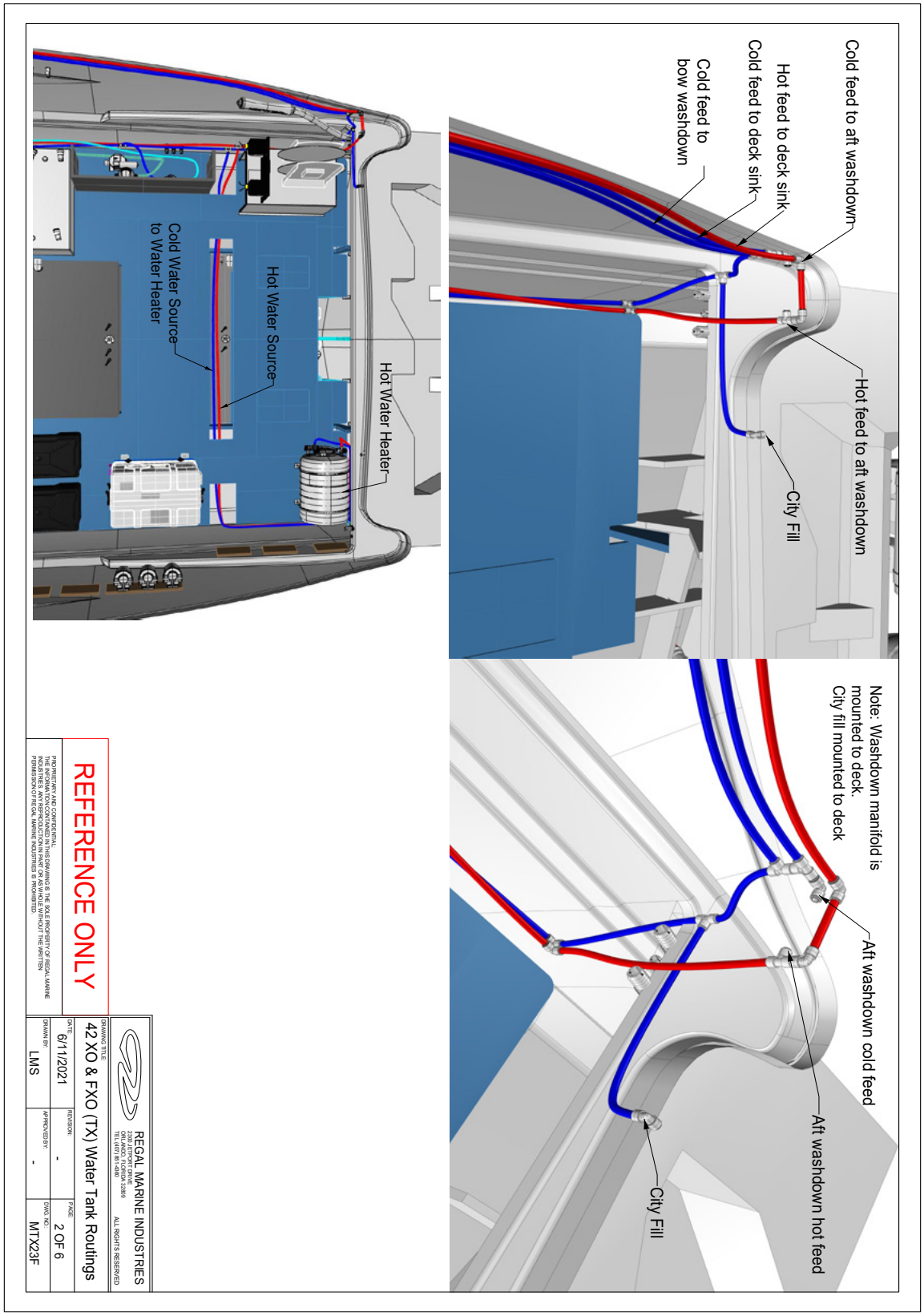


REFERENCE ONLY

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

DRAWING TITLE: 42 XO & FXO (TX) Water Tank Routings		
DATE: 6/11/2021	REVISION: -	PAGE: 1 OF 6
DRAWN BY: LMS	APPROVED BY: -	DWG. NO.: MTX23F

OUTBOARD FRESH WATER SYSTEM ROUTING 2



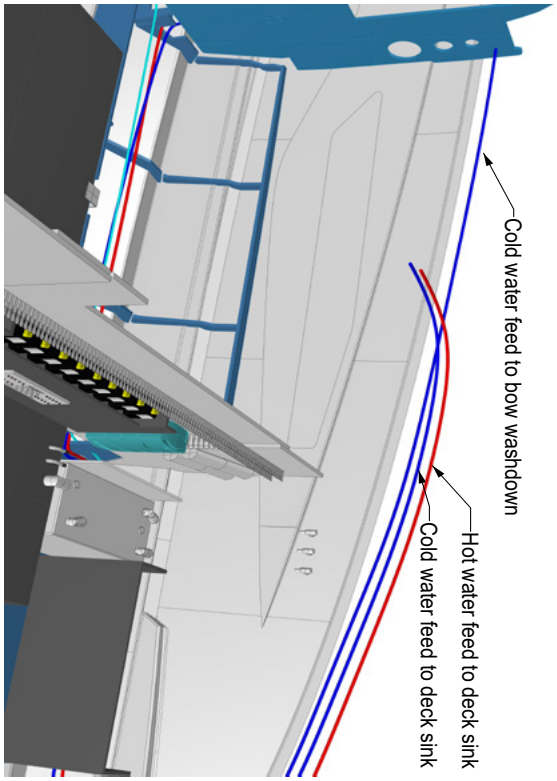
REFERENCE ONLY

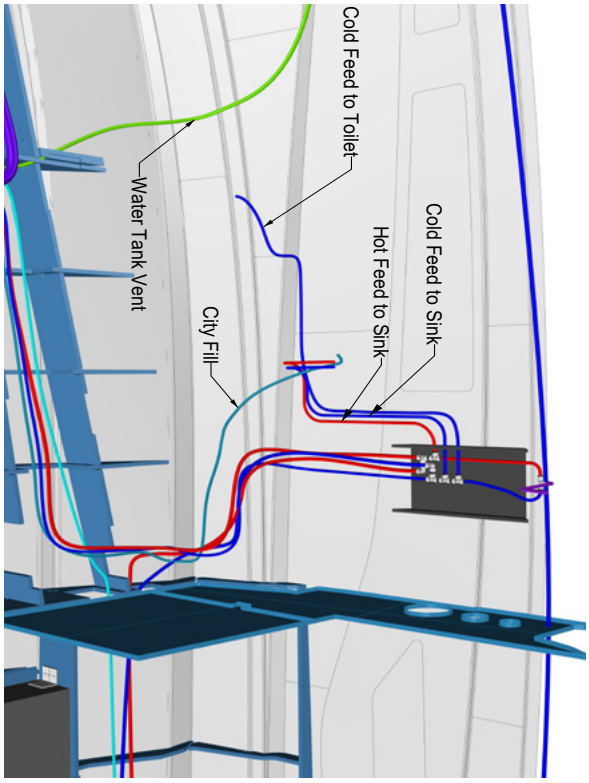
REGAL MARINE INDUSTRIES
2300 JETPORT DRIVE
ORLANDO, FLORIDA 32809
TEL (407) 851-4160

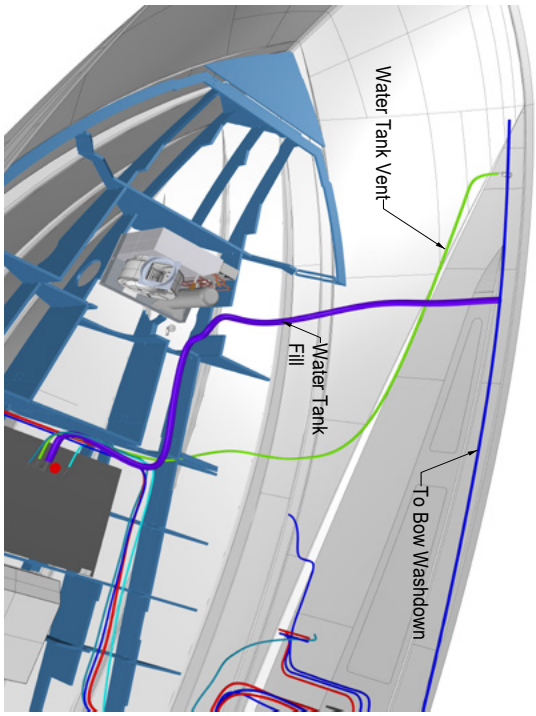
DRAWING TITLE: 42 XO & FXO (TX) Water Tank Routings

DATE	REVISION	PAGE
6/11/2021	-	2 OF 6
DRAWN BY	APPROVED BY	DWG. NO.
LMS	-	MTX23F

OUTBOARD FRESH WATER SYSTEM ROUTING 3







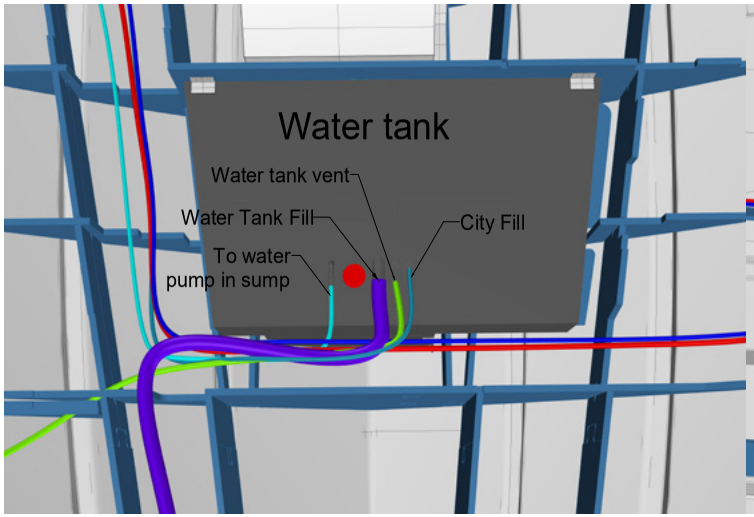
REFERENCE ONLY

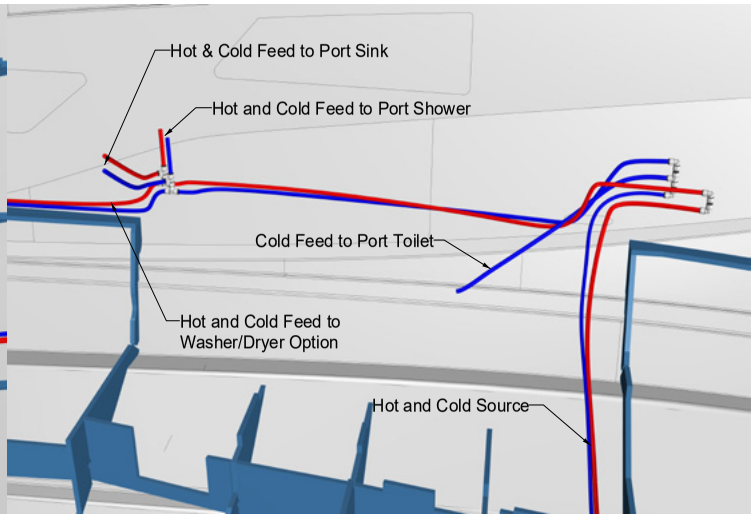
REGAL MARINE INDUSTRIES
2300 INDUSTRIAL BOULEVARD
ORLANDO, FLORIDA 32809
TEL (407) 851-4160

DRAWING TITLE: 42 XO & FXO (TX) Water Tank Routings

DATE:	REVISION:	PAGE:
6/11/2021	-	3 OF 6
DRAWN BY:	APPROVED BY:	DWG NO:
LMS	-	MTX23F

OUTBOARD FRESH WATER SYSTEM ROUTING 4





Water tank Capacity:
Approx. 73 Gallons

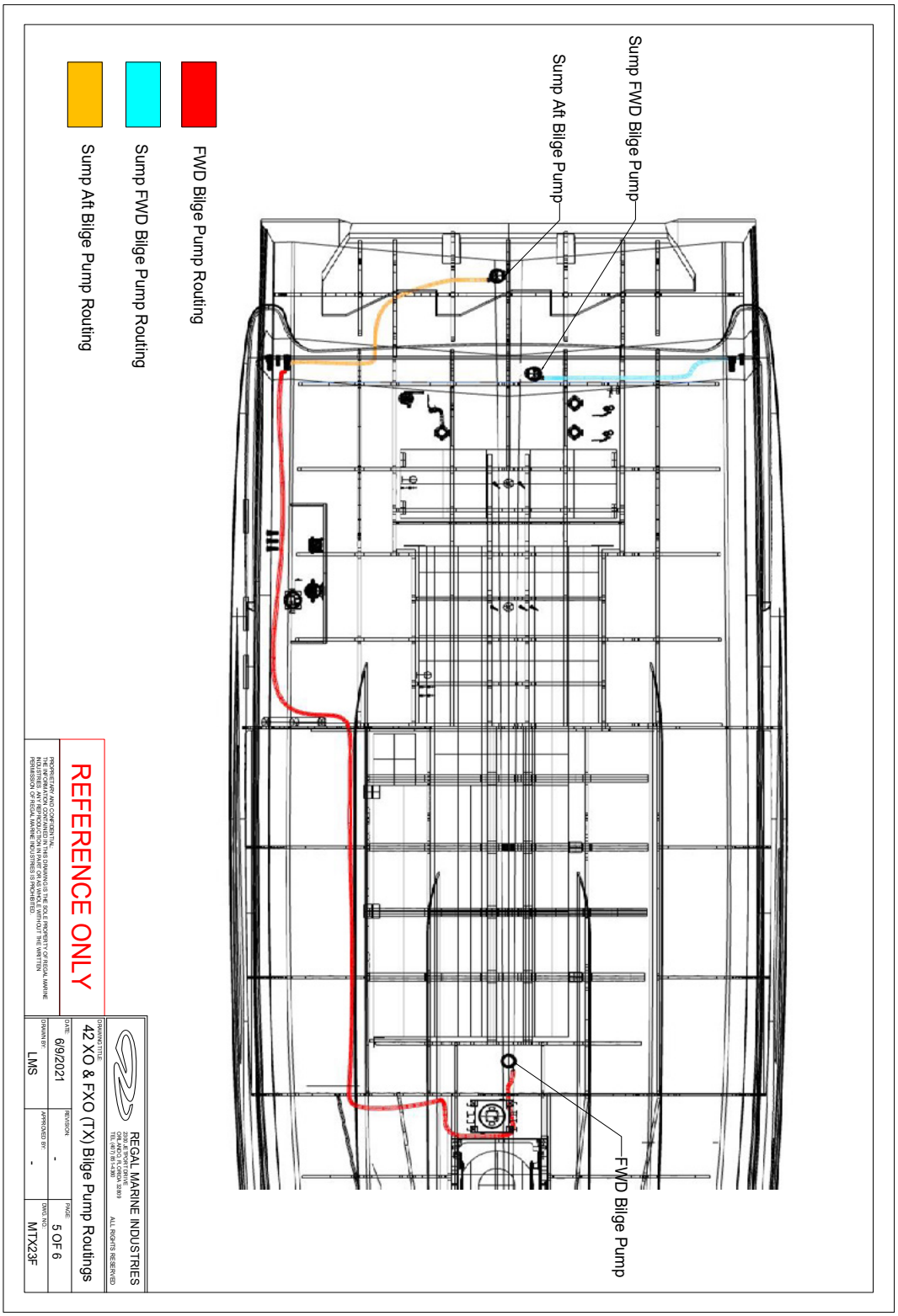
REFERENCE ONLY

REGAL MARINE INDUSTRIES
2300 JETPORT DRIVE
ORLANDO, FLORIDA 32809
TEL (407) 851-4860

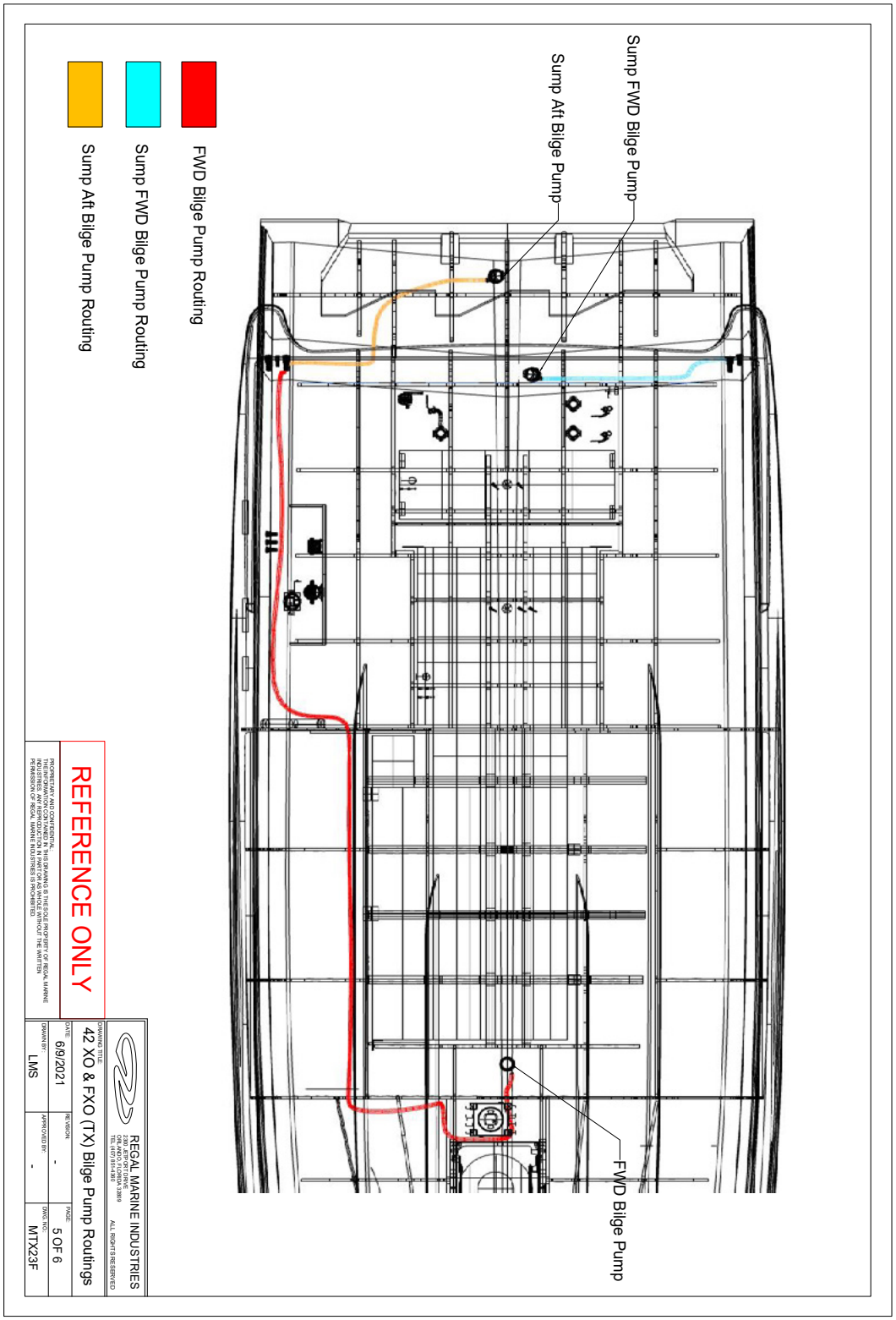
DRAWING TITLE: 42 XO & FXO (TX) Water Tank Routings

DATE:	REVISION:	PAGE:
6/11/2021	-	4 OF 6
DRAWN BY:	APPROVED BY:	DWG. NO.:
LMS	-	MTX23F

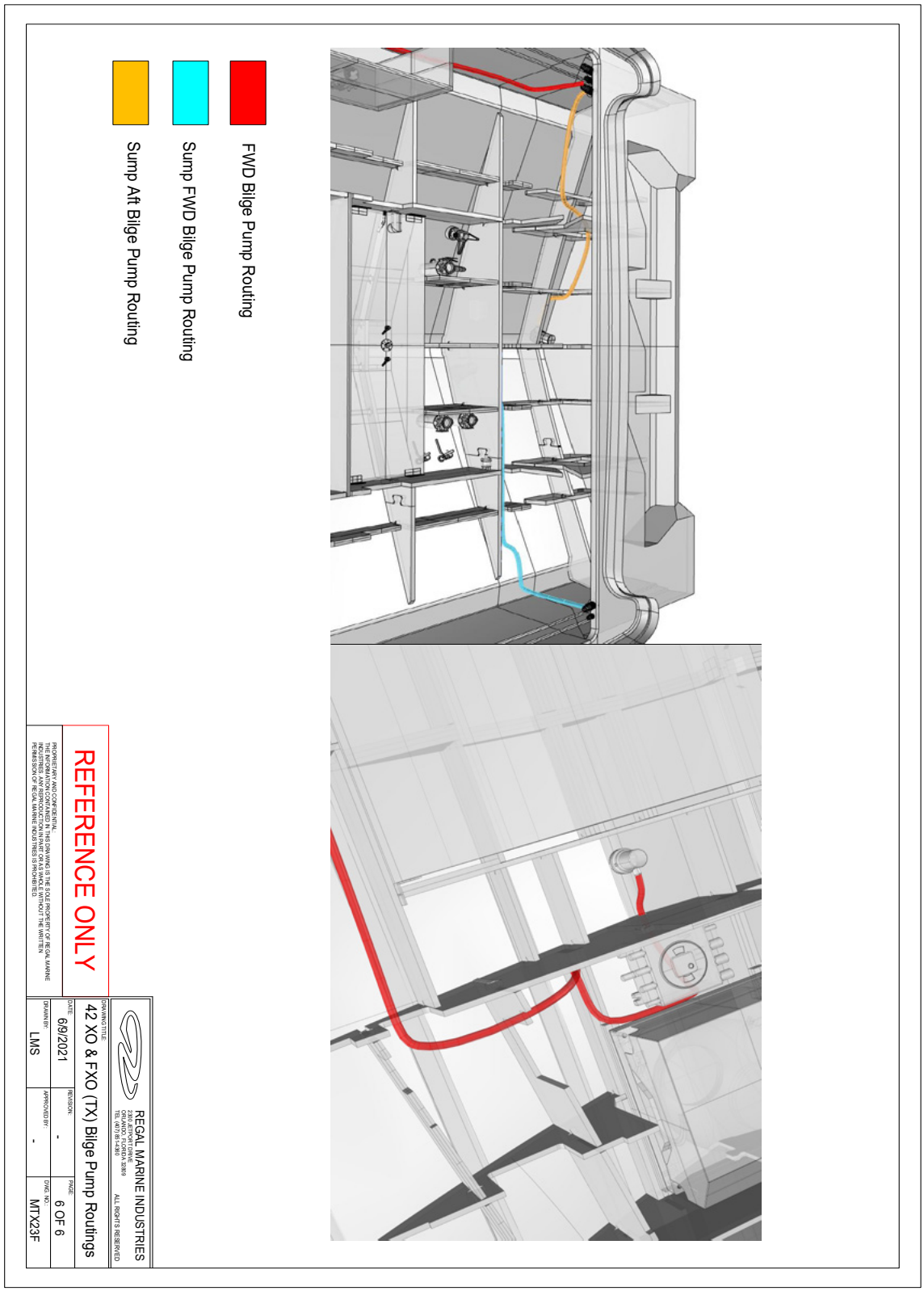
OUTBOARD FRESH WATER SYSTEM ROUTING 5



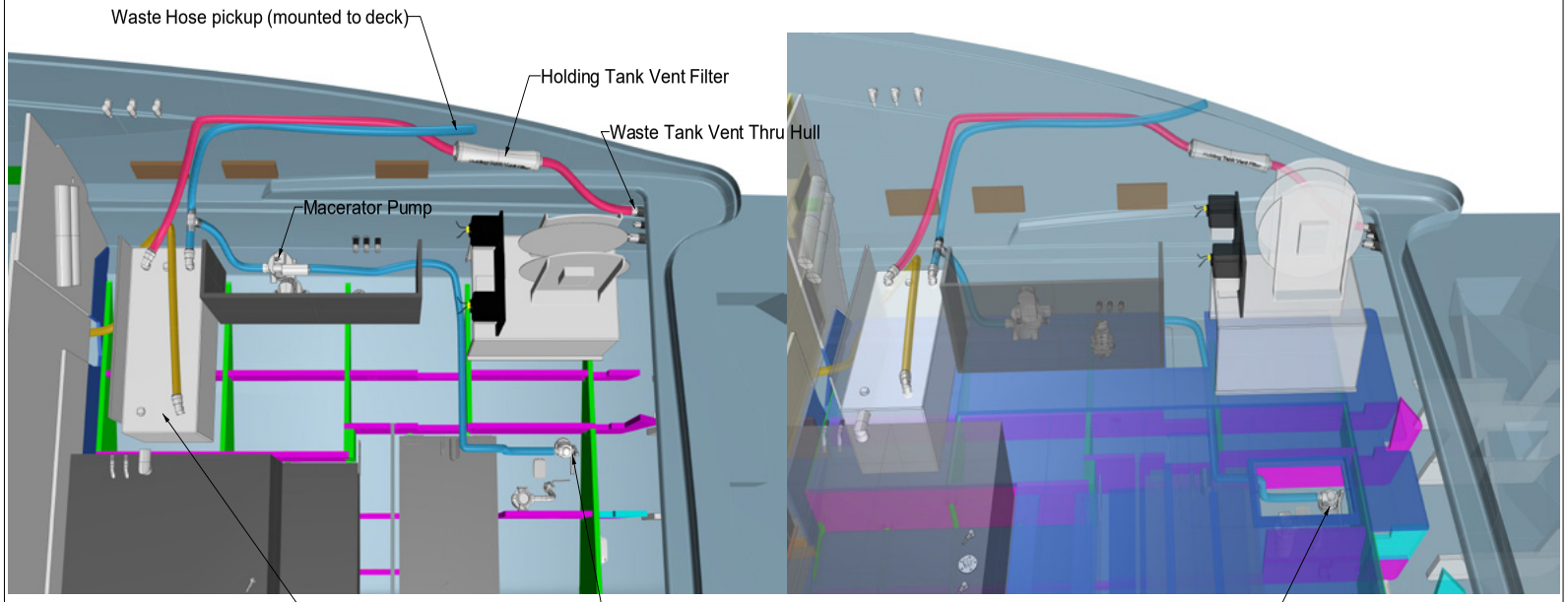
OUTBOARD BILGE PUMP SYSTEM ROUTING



OUTBOARD BILGE PUMP SYSTEM ROUTING 2



42 XO & FXO (TX) Waste Tank Routings



Waste Tank Vent
Hose Ø: 1 1/2"

Toilet to Waste Tank
Hose Ø: 1 1/2"

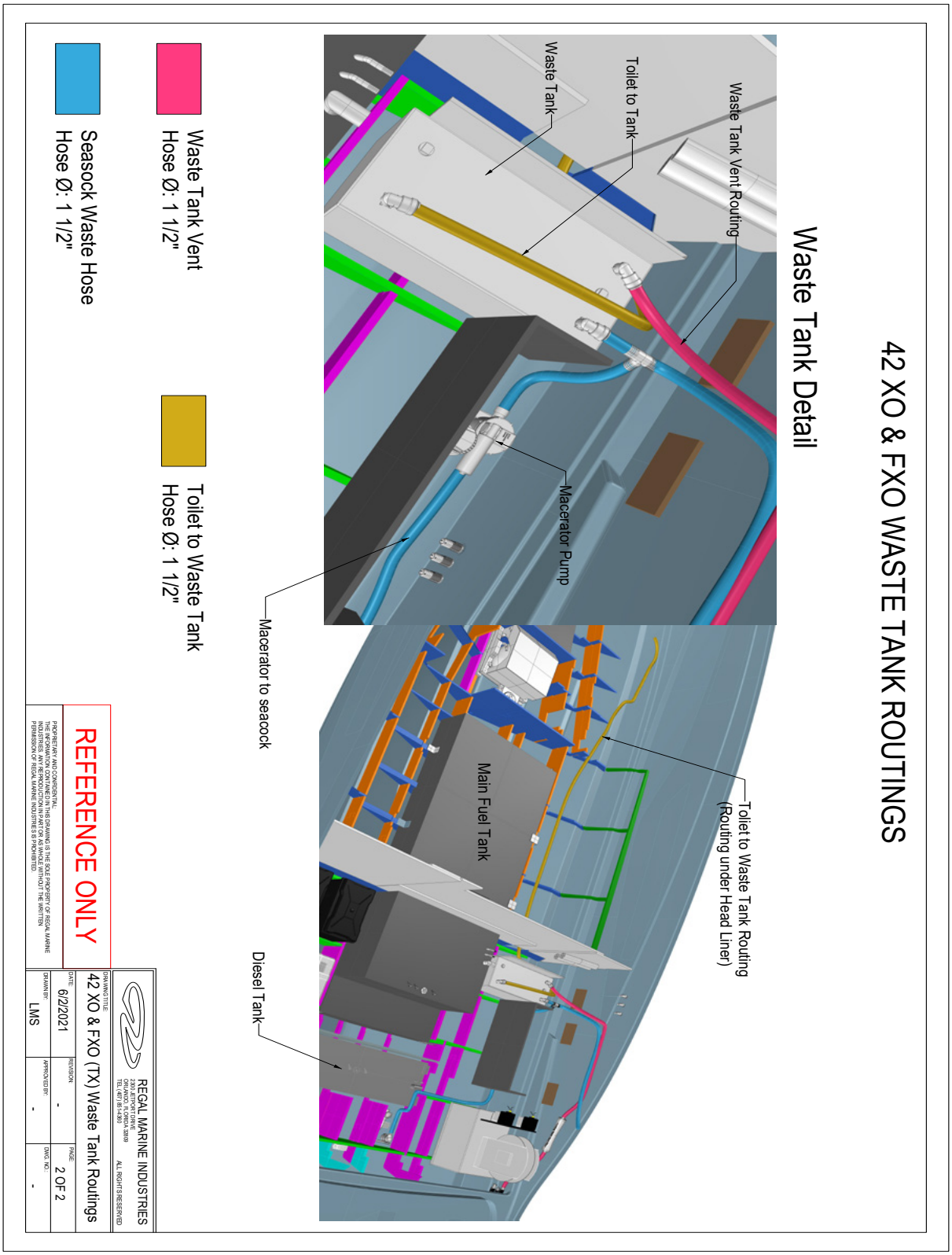
Seasock Waste Hose
Hose Ø: 1 1/2"

REFERENCE ONLY

REGAL MARINE INDUSTRIES
2300 JETPORT DRIVE
ORLANDO, FLORIDA 32809
TEL (407) 851-4900

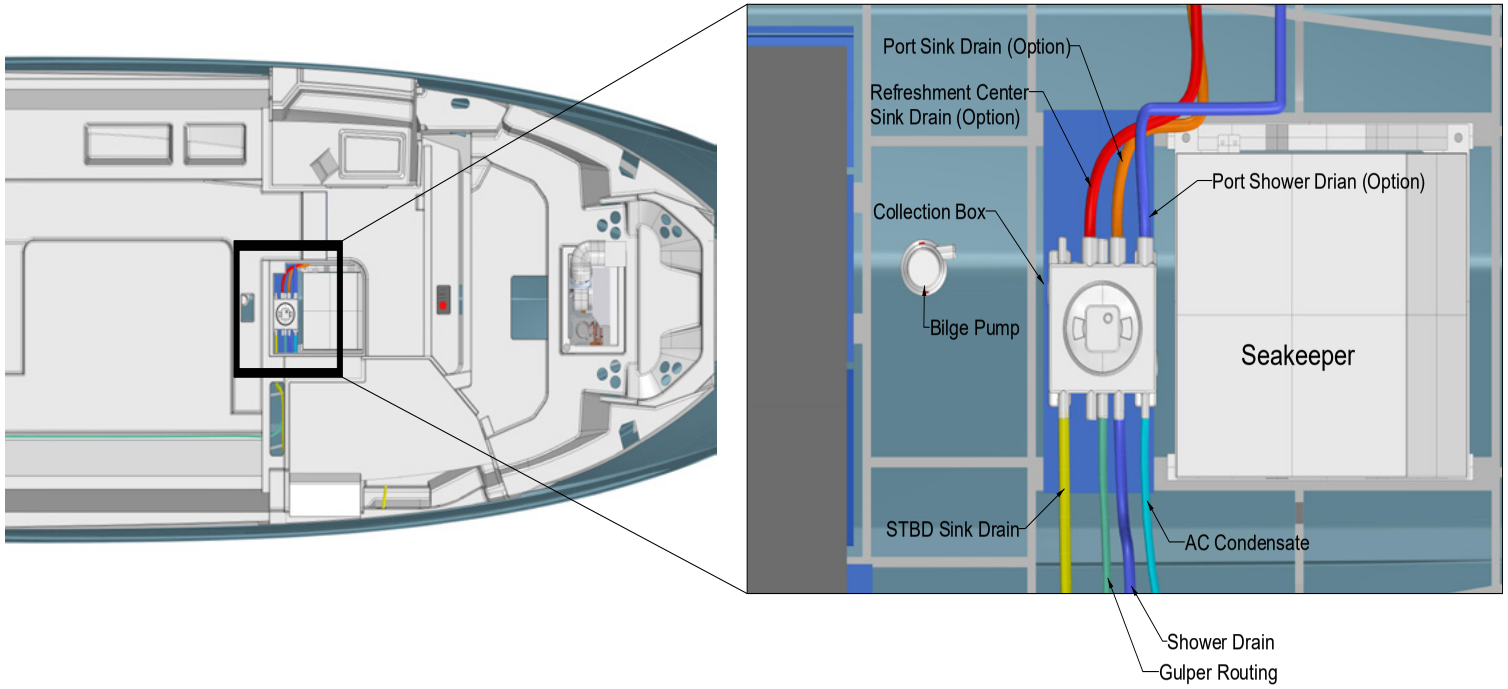
DRAWING TITLE: 42 XO & FXO (TX) Waste Tank Routings		
DATE: 6/2/2021	REVISION: -	PAGE: 1 OF 2
DRAWN BY: LMS	APPROVED BY: -	DWG. NO.: MTX23D

OUTBOARD WASTE SYSTEM ROUTING 2



OUTBOARD WASTE COLLECTION BOX ROUTING

42 XO & FXO (TX) Collection Box Routings



STBD Sink Drain
Hose Ø: 1"

AC Condensate
Hose Ø: 3/4"

Shower Drain
Hose Ø: 1"

Refreshment Center Sink Drain Option
Hose Ø: 1"

Gulper Routing
Hose Ø: 3/4"

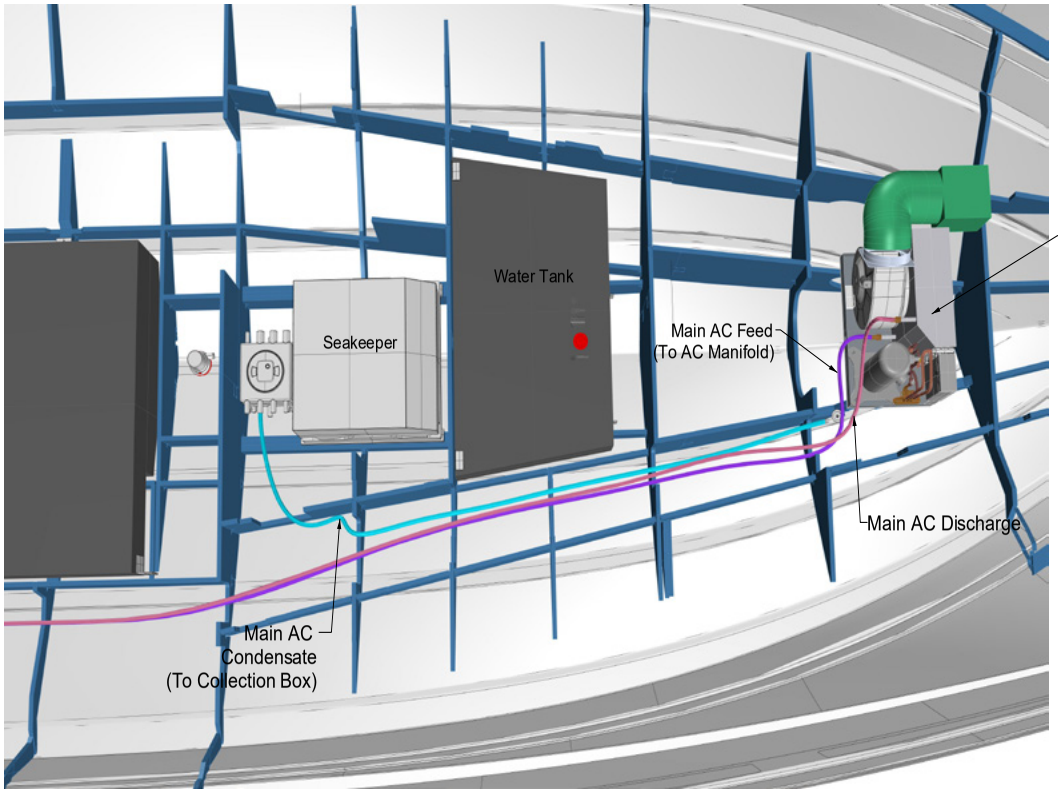
PORT Sink Drain Option
Hose Ø: 1"

REFERENCE ONLY

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

DRAWING TITLE:		
42 XO & FXO (TX) Collection Box Routings		
DATE: 6/2/2021	REVISION: -	PAGE: 1 OF 4
DRAWN BY: LMS	APPROVED BY: -	DWG. NO.: MTX23H

42 XO & FXO (TX) AC Hose Routings



***Note: All AC Routings Have Hose Size of 5/8" Except fo Strainer Routing

Main AC Discharge	STBD AC Discharge	Port AC Discharge	AC Strainer Routing Hose Size: Ø 1"
Main AC Feed	STBD AC Feed	Main AC Feed	
Main AC Condensate	AC to Deck	AC Pump Feed	

REFERENCE ONLY

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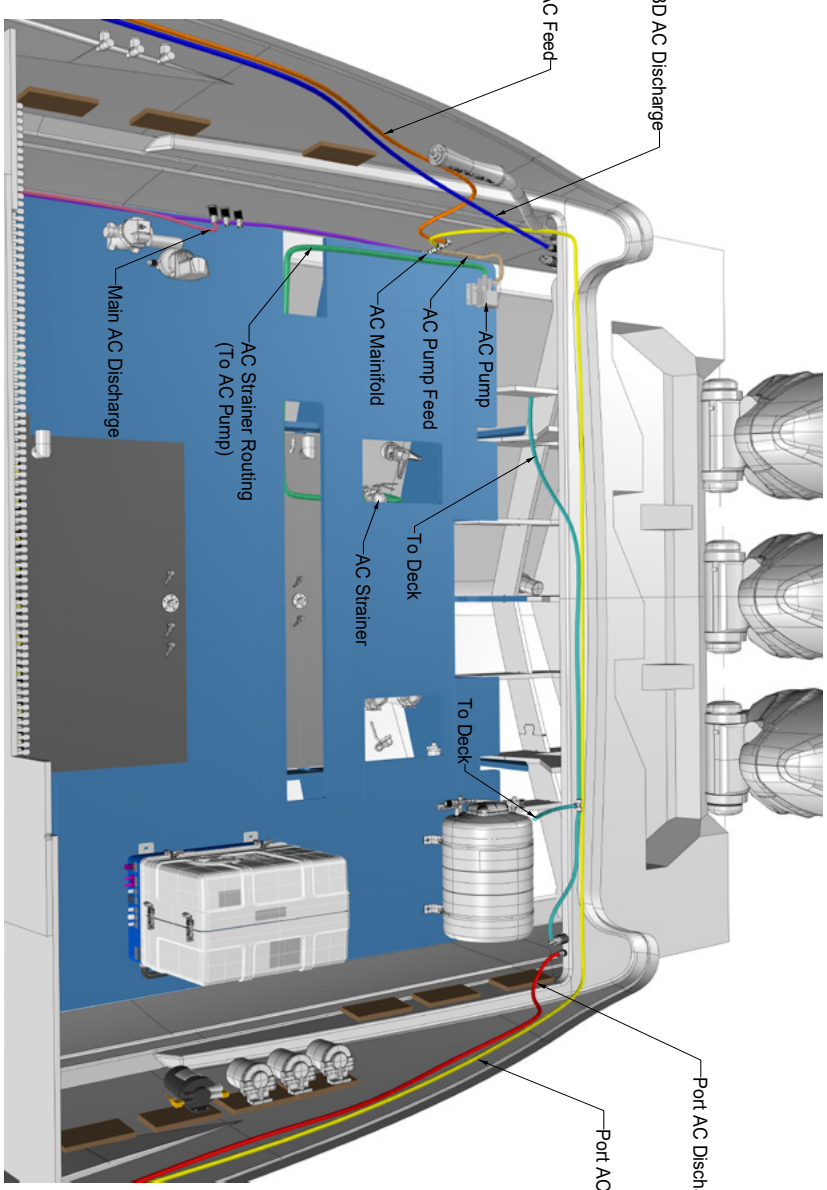
2300 JETPORT DRIVE
ORLANDO, FLORIDA 32809
TEL (407) 851-4360

DRAWING TITLE:		
42 XO & FXO (TX) AC Hose Routings		
DATE: 6/11/2021	REVISION: -	PAGE: 1 Of 4
DRAWN BY: LMS	APPROVED BY: -	DWG. NO.: MTX23J

OUTBOARD AC HOSE ROUTING 2



***Note: All AC Routings Have Hose Size of 5/8" Except fo Strainer Routing

Main AC Discharge
Main AC Feed
Main AC Condensate
STBD AC Discharge
STBD AC Feed
AC to Deck
Port AC Discharge
Main AC Feed
AC Pump Feed
AC Strainer Routing
Hose Size: Ø 1"

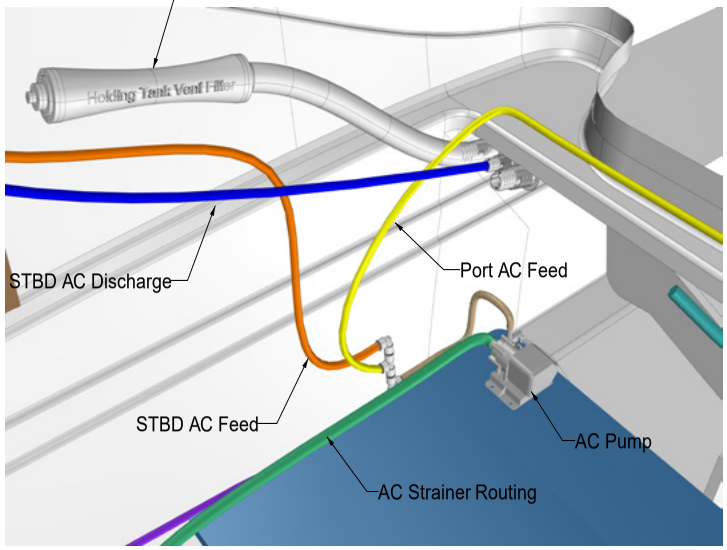
REFERENCE ONLY

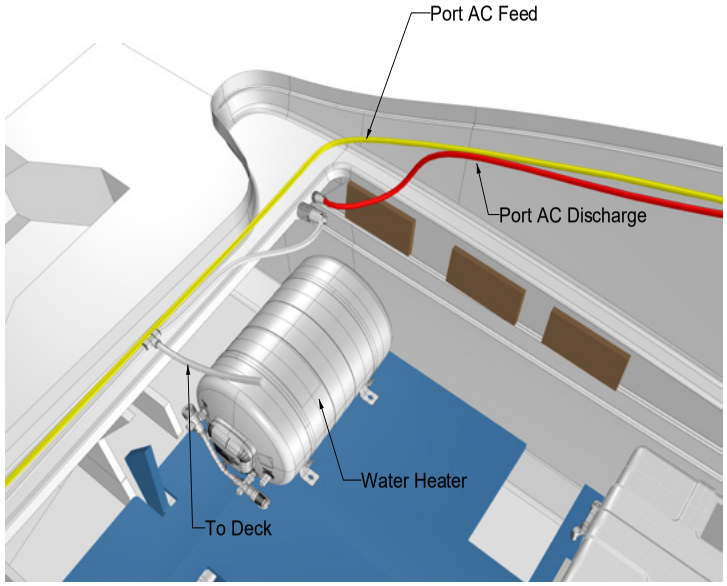
REGAL MARINE INDUSTRIES
2300 JETPORT DRIVE
ORLANDO, FLORIDA 32809
TEL (407) 851-4160

DRAWING TITLE
42 XO & FXO (TX) AC Hose Routings

DATE	REVISION	PAGE
6/11/2021	-	2 OF 4
DRAWN BY:	APPROVED BY:	DWG NO.
LMS	-	MTX23J

OUTBOARD AC HOSE ROUTING 3





***Note: All AC Routings Have Hose Size of 5/8" Except fo Strainer Routing

Main AC Discharge	STBD AC Discharge	Port AC Discharge	AC Strainer Routing Hose Size: Ø 1"
Main AC Feed	STBD AC Feed	Main AC Feed	
Main AC Condensate	AC to Deck	AC Pump Feed	

REFERENCE ONLY

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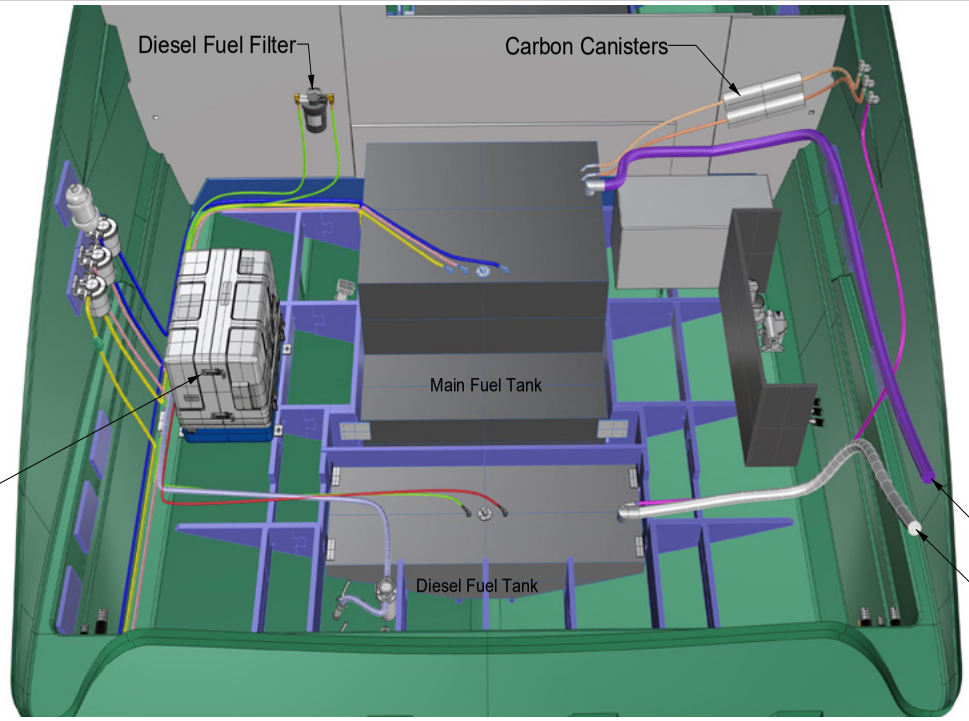
DRAWING TITLE:		
42 XO & FXO (TX) AC Hose Routings		
DATE: 6/11/2021	REVISION: -	PAGE: 3 OF 4
DRAWN BY: LMS	APPROVED BY: -	DWG. NO.: MTX23J

OUTBOARD FUEL SYSTEM ROUTING



- Main Tank Fill Hose Size: Ø 2"
- Diesel Tank Fill Hose Size: Ø 2"
- Fuel Tank Vent 1 Hose Size: Ø 5/8"
- STBD Engine Main Tank Feed Hose Size: Ø 3/8"
- Diesel Feed Hose Size: Ø 3/8"
- Fuel Tank Vent 2 Hose Size: Ø 5/8"
- Center Engine Main Tank Feed Hose Size: Ø 3/8"
- Diesel Return Hose Size: Ø 3/8"
- Diesel Fuel Tank Vent Hose Size: Ø 5/8"
- Port Engine Main Tank Feed Hose Size: Ø 3/8"
- Diesel Strainer Feed Hose Size: Ø 1/2"

REFERENCE ONLY

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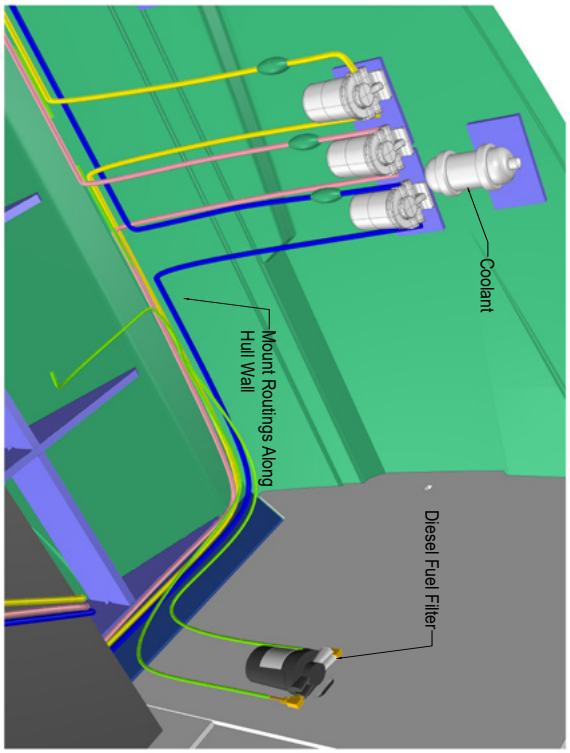
2300 JETPORT DRIVE
ORLANDO, FLORIDA 32809
TEL (407) 851-4380

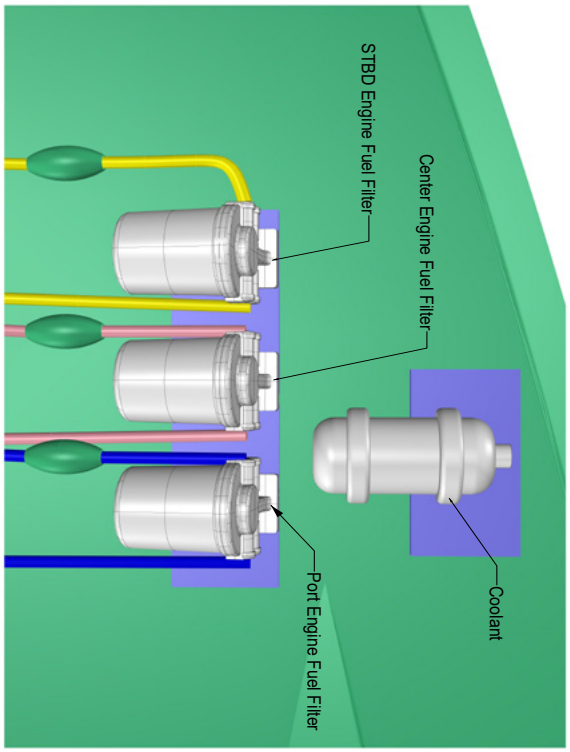
DRAWING TITLE: 42 XO & FXO (TX) Fuel Tank Routings

DATE:	REVISION:	PAGE:
6/2/2021	-	6 OF 8
DRAWN BY:	APPROVED BY:	DWG. NO.:
LMS	-	MTX23C

OUTBOARD FUEL FILTER SYSTEM

Fuel Filter Detail





- Main Tank Fill Hose Size: Ø 2"
- Diesel Tank Fill Hose Size: Ø 2"
- Fuel Tank Vent 1 Hose Size: Ø 5/8"
- STBD Engine Main Tank Feed Hose Size: Ø 3/8"
- Diesel Feed Hose Size: Ø 3/8"
- Fuel Tank Vent 2 Hose Size: Ø 5/8"
- Center Engine Main Tank Feed Hose Size: Ø 3/8"
- Diesel Return Hose Size: Ø 3/8"
- Diesel Fuel Tank Vent Hose Size: Ø 5/8"
- Port Engine Main Tank Feed Hose Size: Ø 3/8"
- Diesel Strainer Feed Hose Size: Ø 1/2"

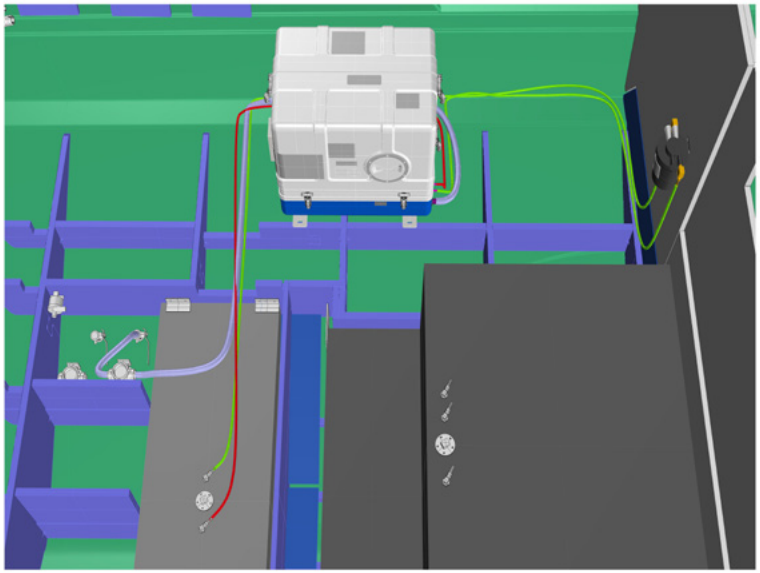
REFERENCE ONLY

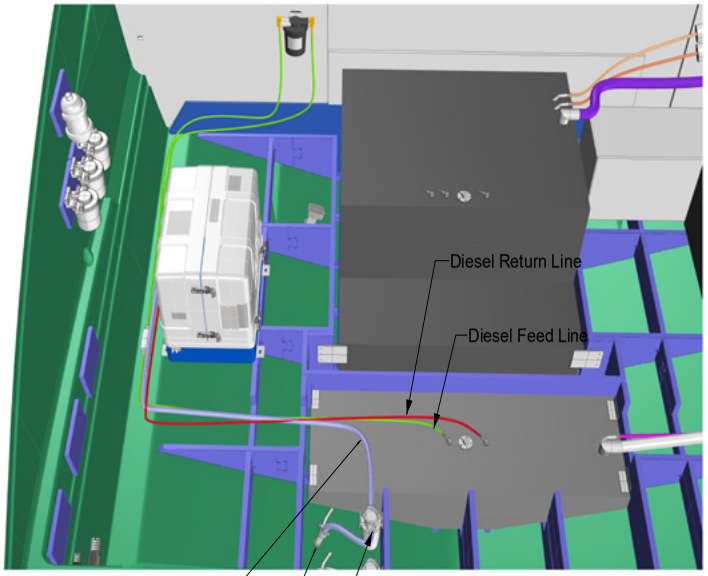
REGAL MARINE INDUSTRIES
2300 JETPORT DRIVE
ORLANDO, FLORIDA 32809
TEL (407) 851-4360

DRAWING TITLE: 42 XO & FXO (TX) Fuel Tank Routings

DATE	REVISION	PAGE
6/2/2021	-	7 OF 8
DRAWN BY:	APPROVED BY:	DWG. NO.
LMS	-	MTX23C

OUTBOARD GENERATOR FUEL SYSTEM ROUTING





- Main Tank Fill — Hose Size: Ø 2"
- Diesel Tank Fill — Hose Size: Ø 2"
- Fuel Tank Vent 1 — Hose Size: Ø 5/8"
- STBD Engine Main Tank Feed — Hose Size: Ø 3/8"
- Diesel Feed — Hose Size: Ø 3/8"
- Fuel Tank Vent 2 — Hose Size: Ø 5/8"
- Center Engine Main Tank Feed — Hose Size: Ø 3/8"
- Diesel Return — Hose Size: Ø 3/8"
- Diesel Fuel Tank Vent — Hose Size: Ø 5/8"
- Port Engine Main Tank Feed — Hose Size: Ø 3/8"
- Diesel Strainer Feed — Hose Size: Ø 1/2"

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2300 JETPORT DRIVE
ORLANDO, FLORIDA 32809
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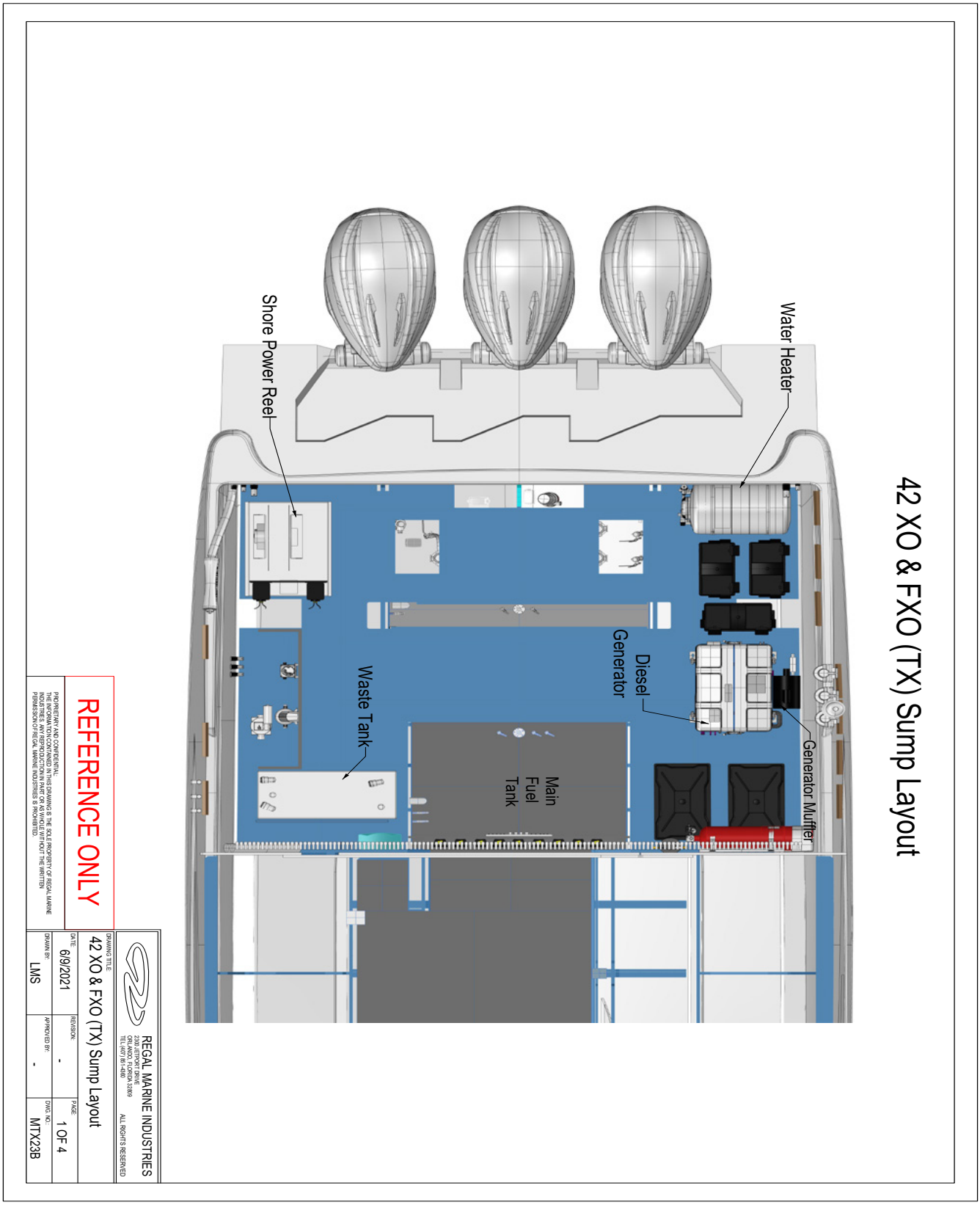
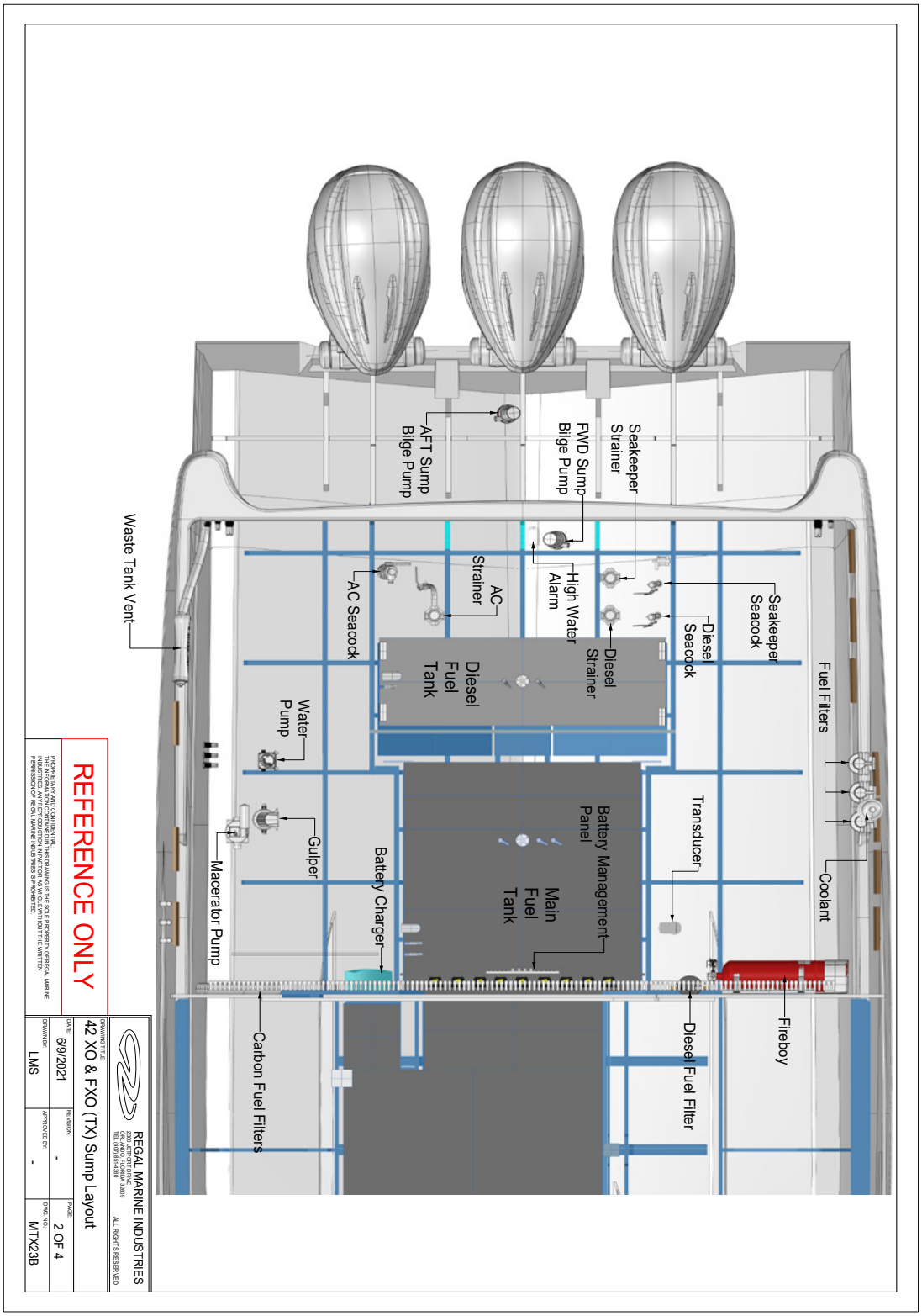
DRAWING TITLE:		
42 XO & FXO (TX) Fuel Tank Routings		
DATE: 6/2/2021	REVISION: -	PAGE: 8 OF 8
DRAWN BY: LMS	APPROVED BY: -	DWG. NO.: MTX23C

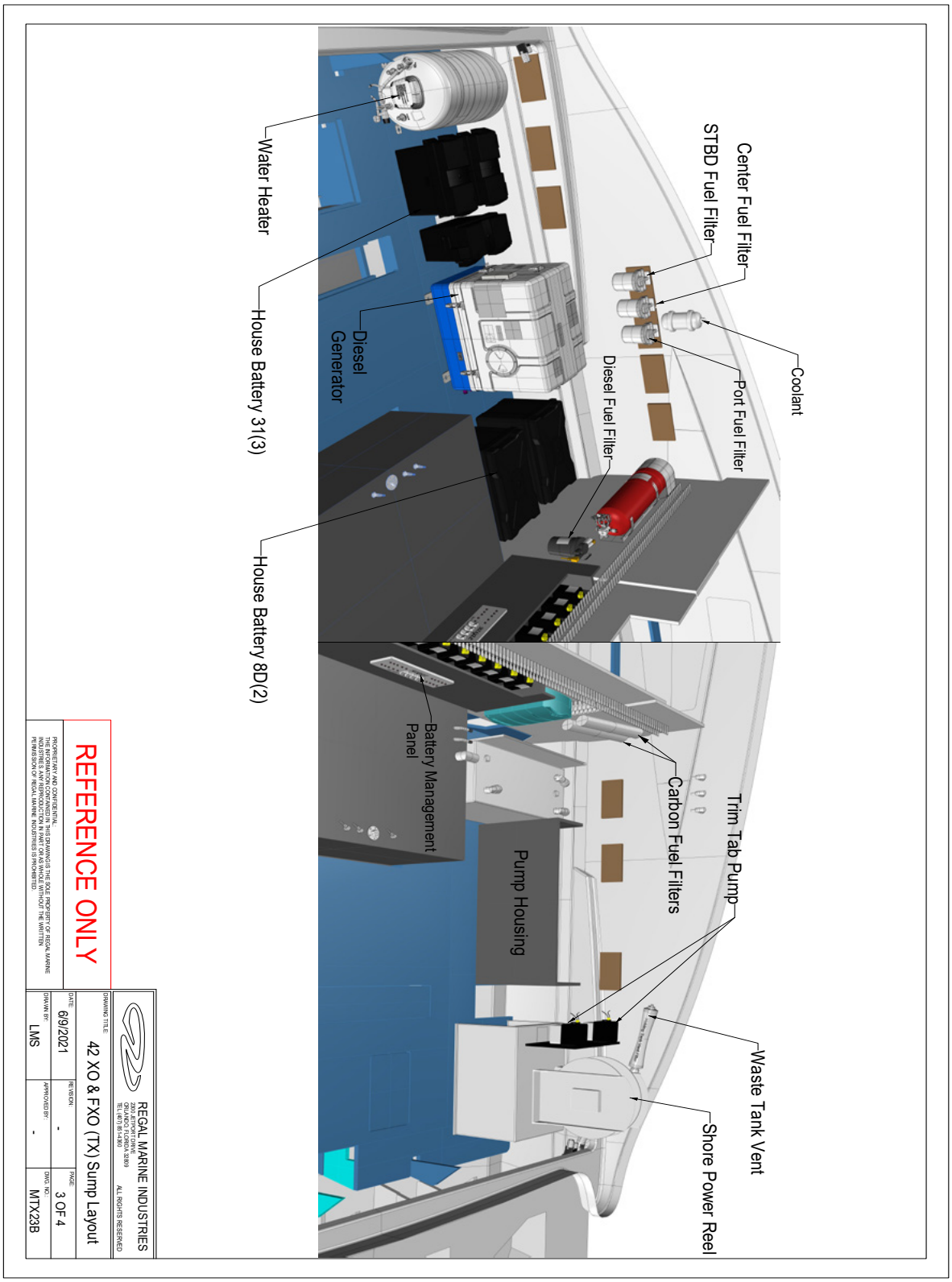
OUTBOARD SUMP (BILGE) LAYOUT



OUTBOARD SUMP (BILGE) LAYOUT 2



OUTBOARD SUMP (BILGE) LAYOUT 3



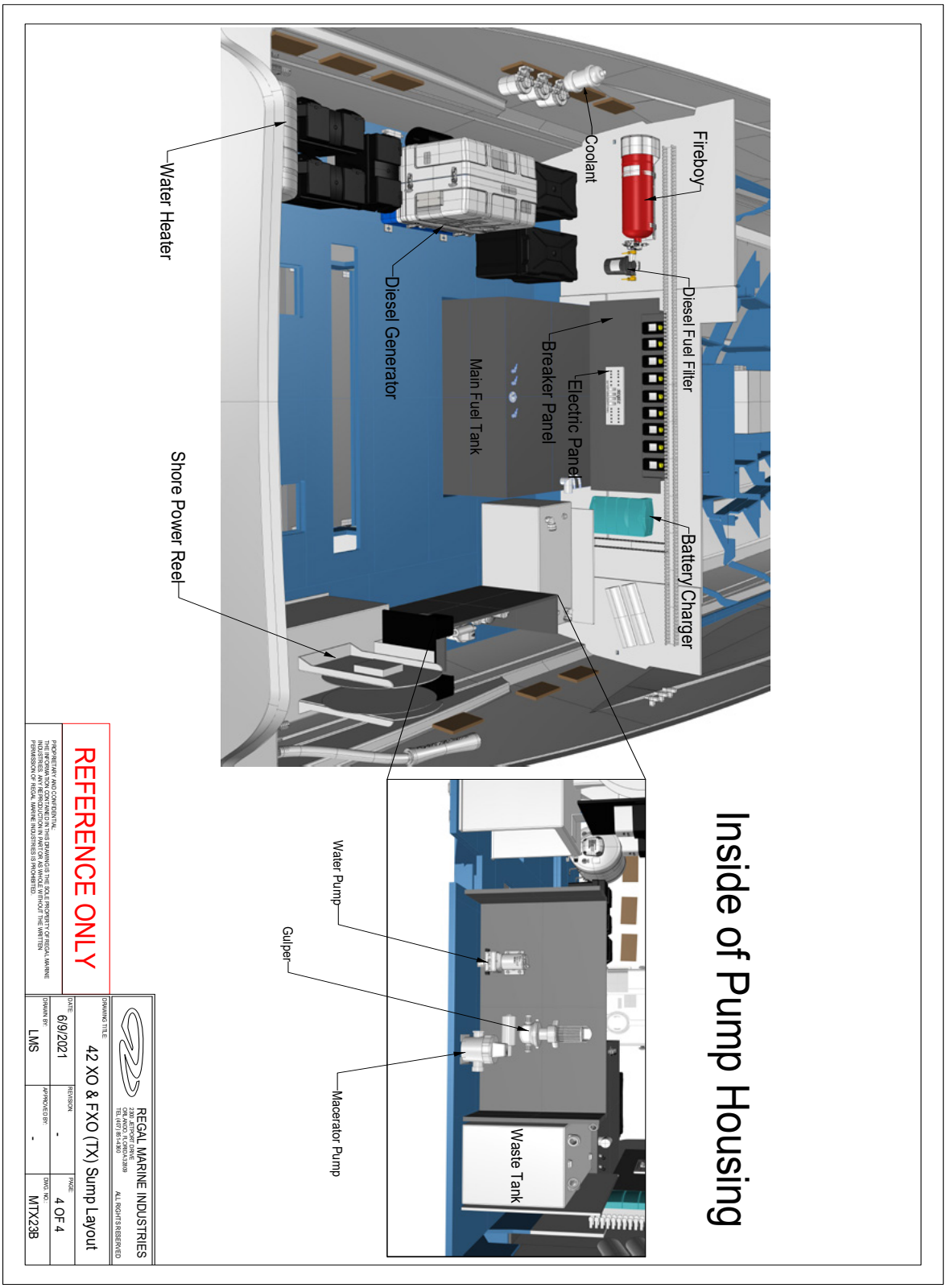
REFERENCE ONLY

REGAL MARINE INDUSTRIES
2300 JETPORT DRIVE
ORLANDO, FLORIDA 32809
TEL: (407) 851-4860

DRAWING TITLE: 42 XO & FXO (TX) Sump Layout

DATE	REVISION	PAGE
6/9/2021	-	3 OF 4
DRAWN BY	APPROVED BY	DWG. NO.
LMS	-	MTX23B

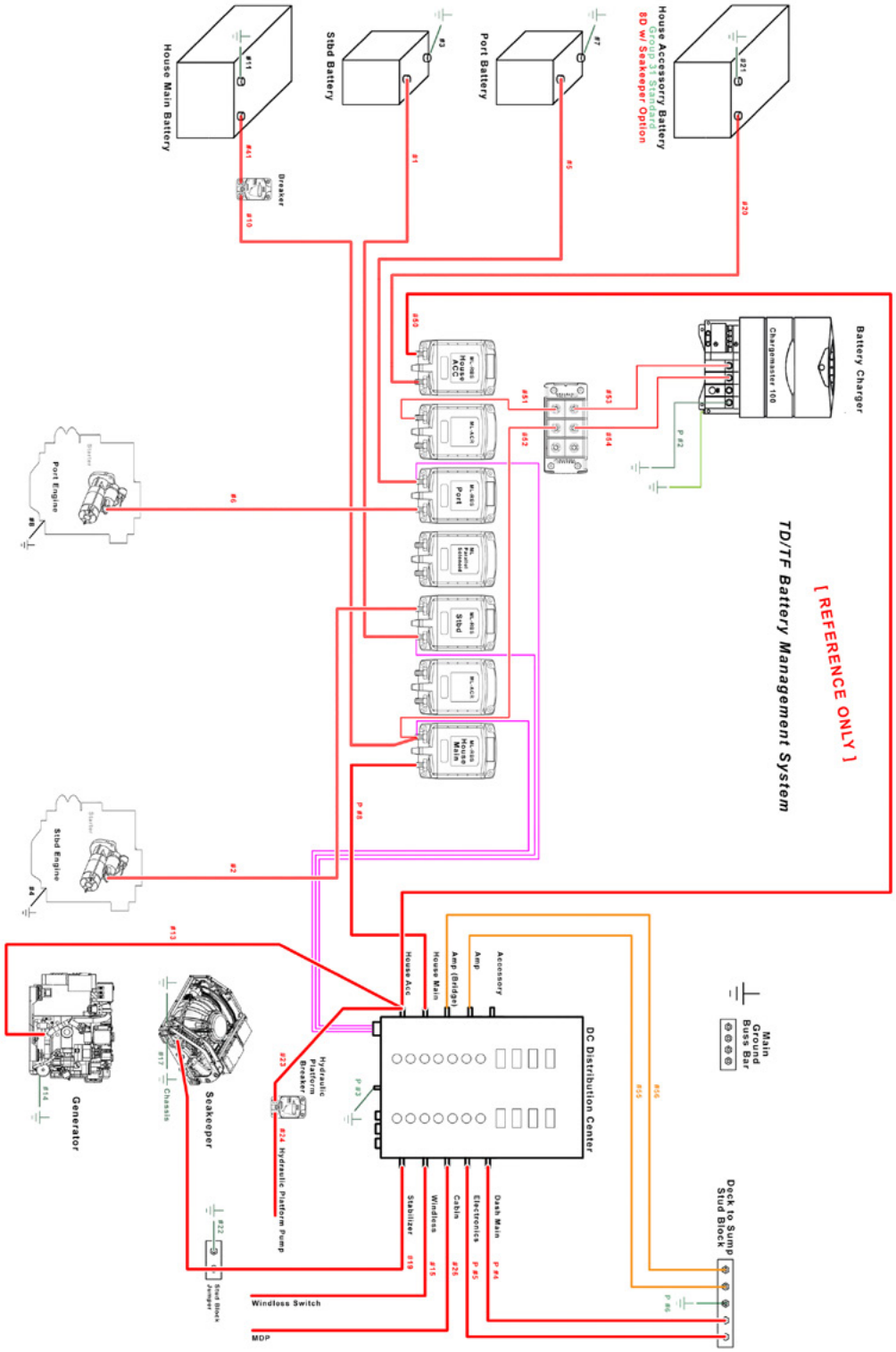
OUTBOARD SUMP (BILGE) LAYOUT 4



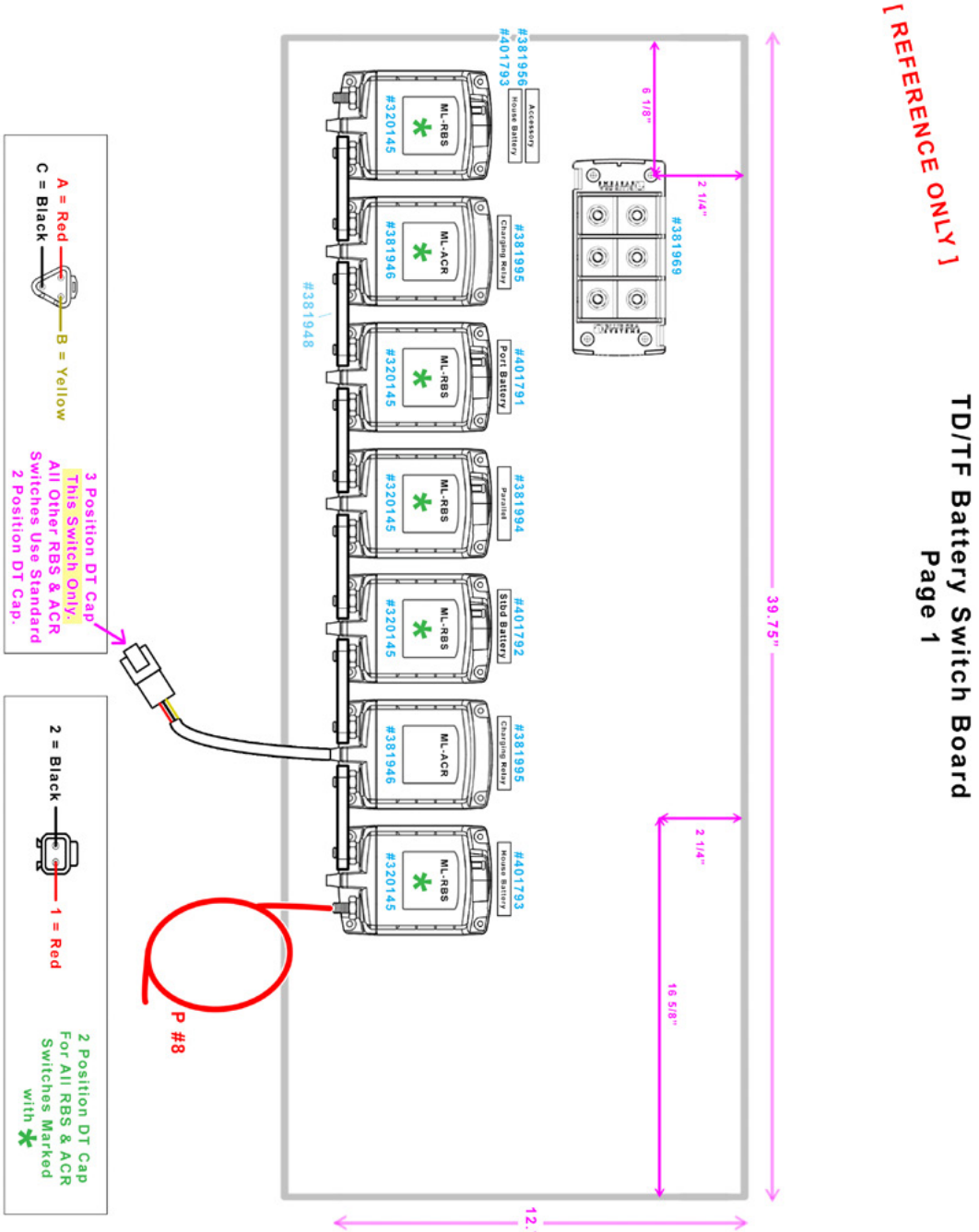
Notice

THE FOLLOWING DRAWINGS COVER
42 IPS GRAND COUPE & 42 IPS FLYBRIDGE_MODELS ONLY

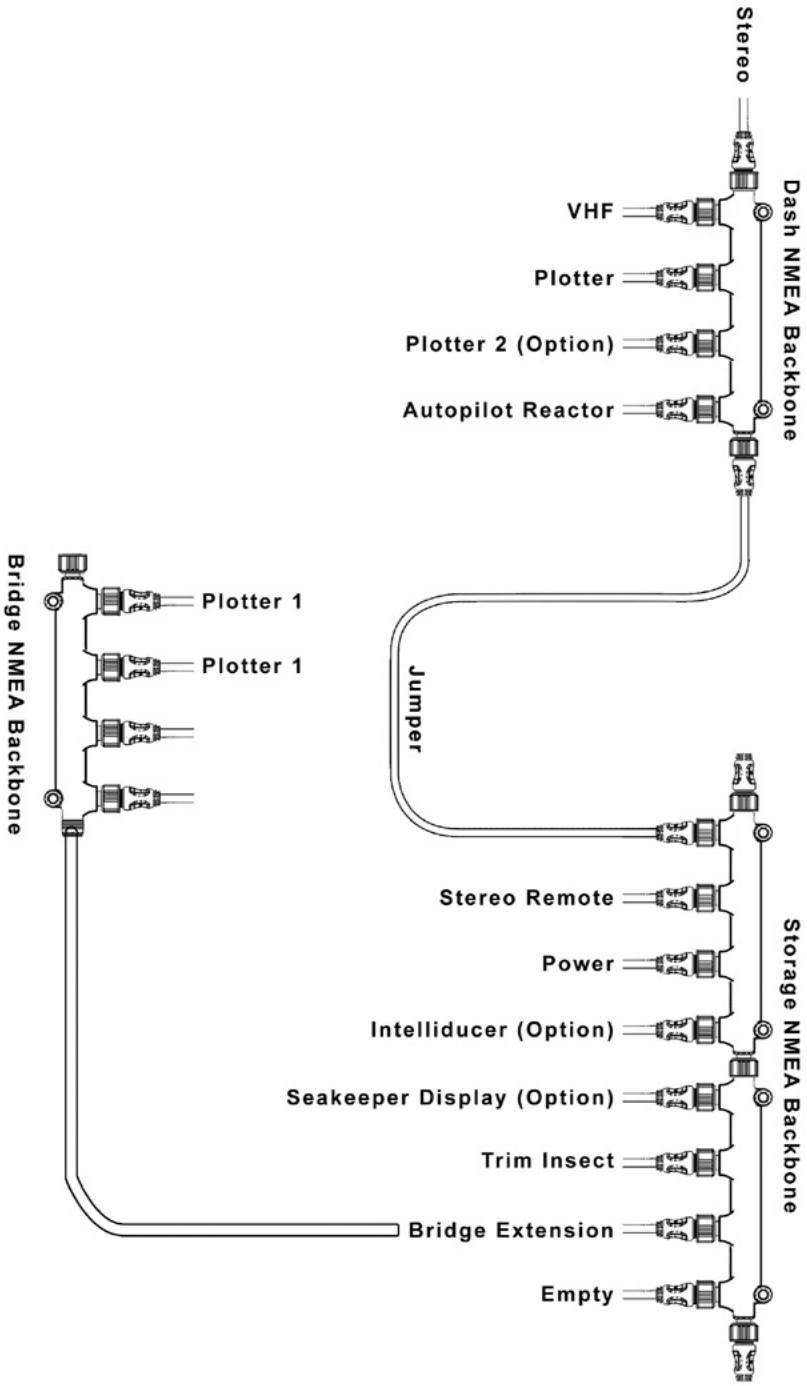
BATTERY MANAGEMENT SYSTEM OVERVIEW



BATTERY SWITCH PANEL 1



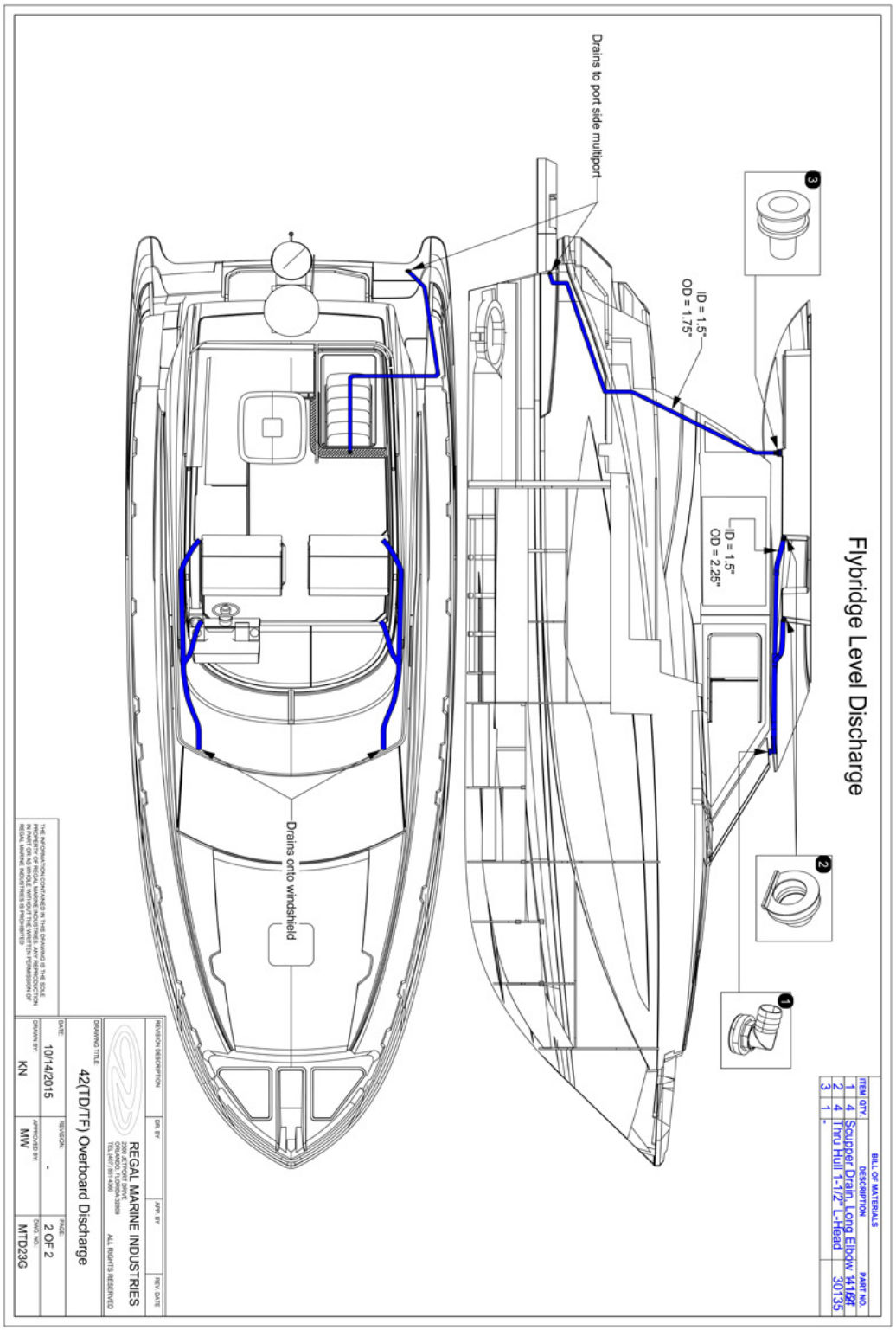
TYPICAL NMEA SYSTEM OVERVIEW



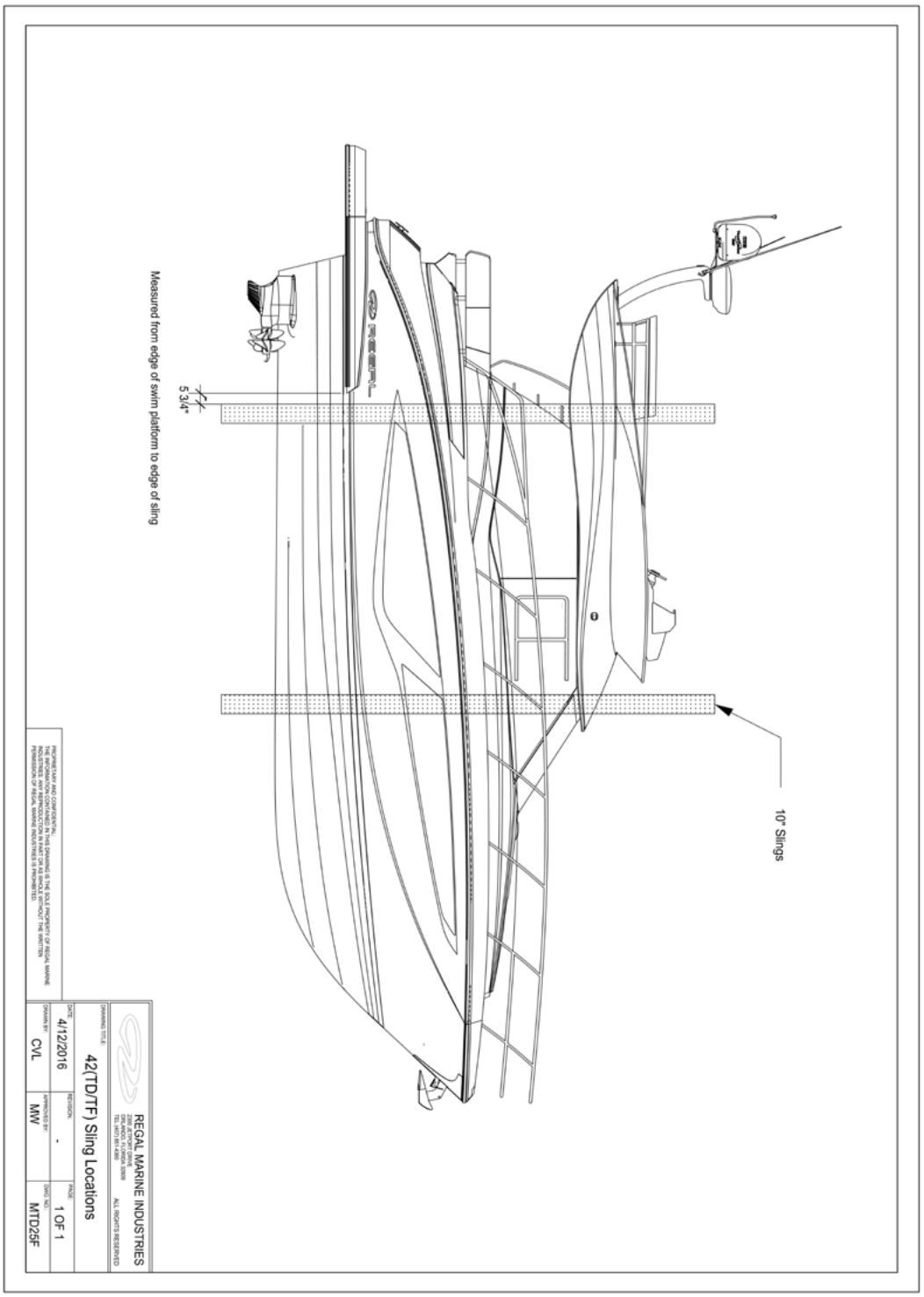
TD/TF Volvo NMEA Network

[REFERENCE ONLY]

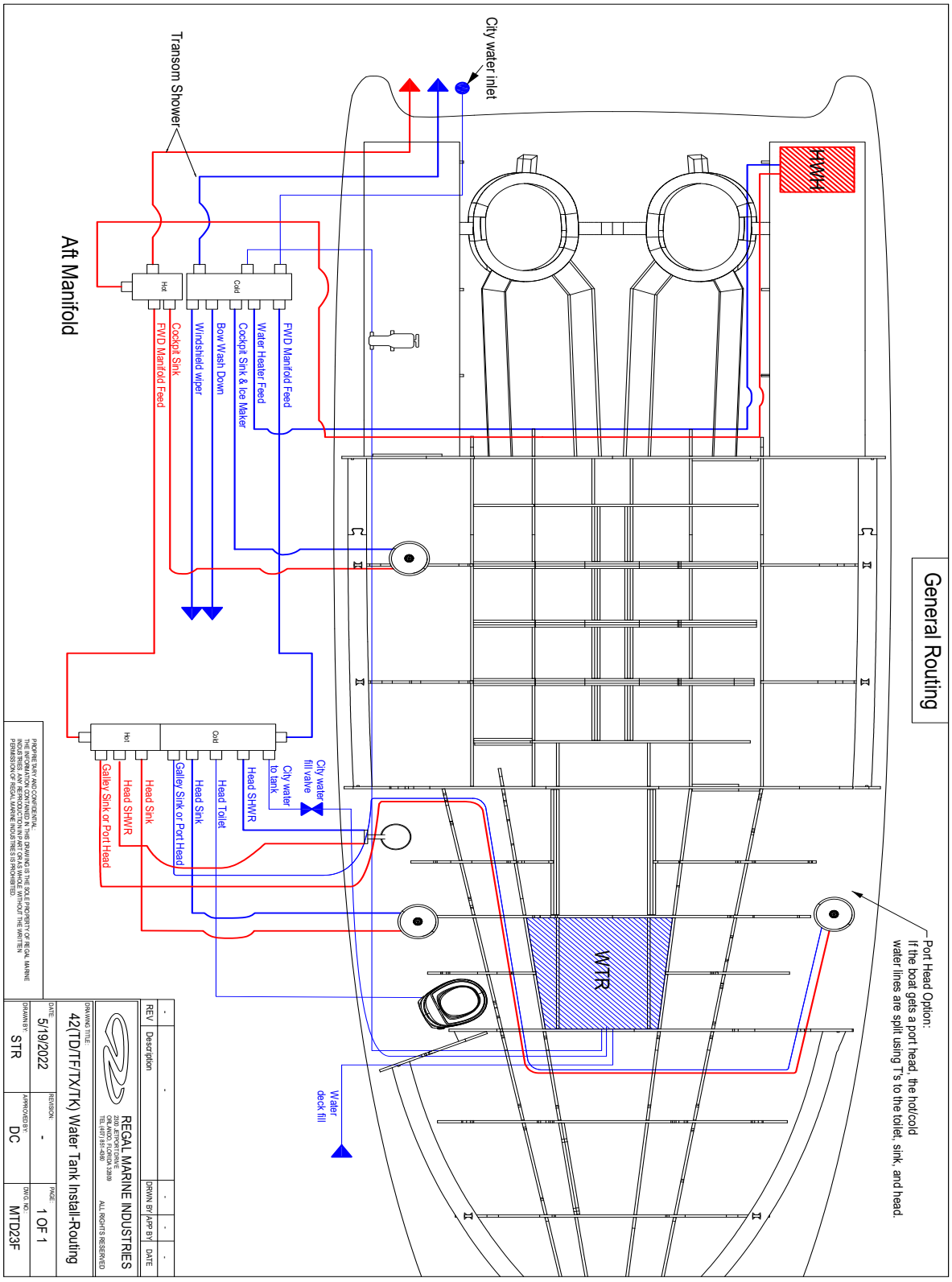
OVERBOARD DISCHARGE SYSTEM (FLYBRIDGE-TD ONLY)



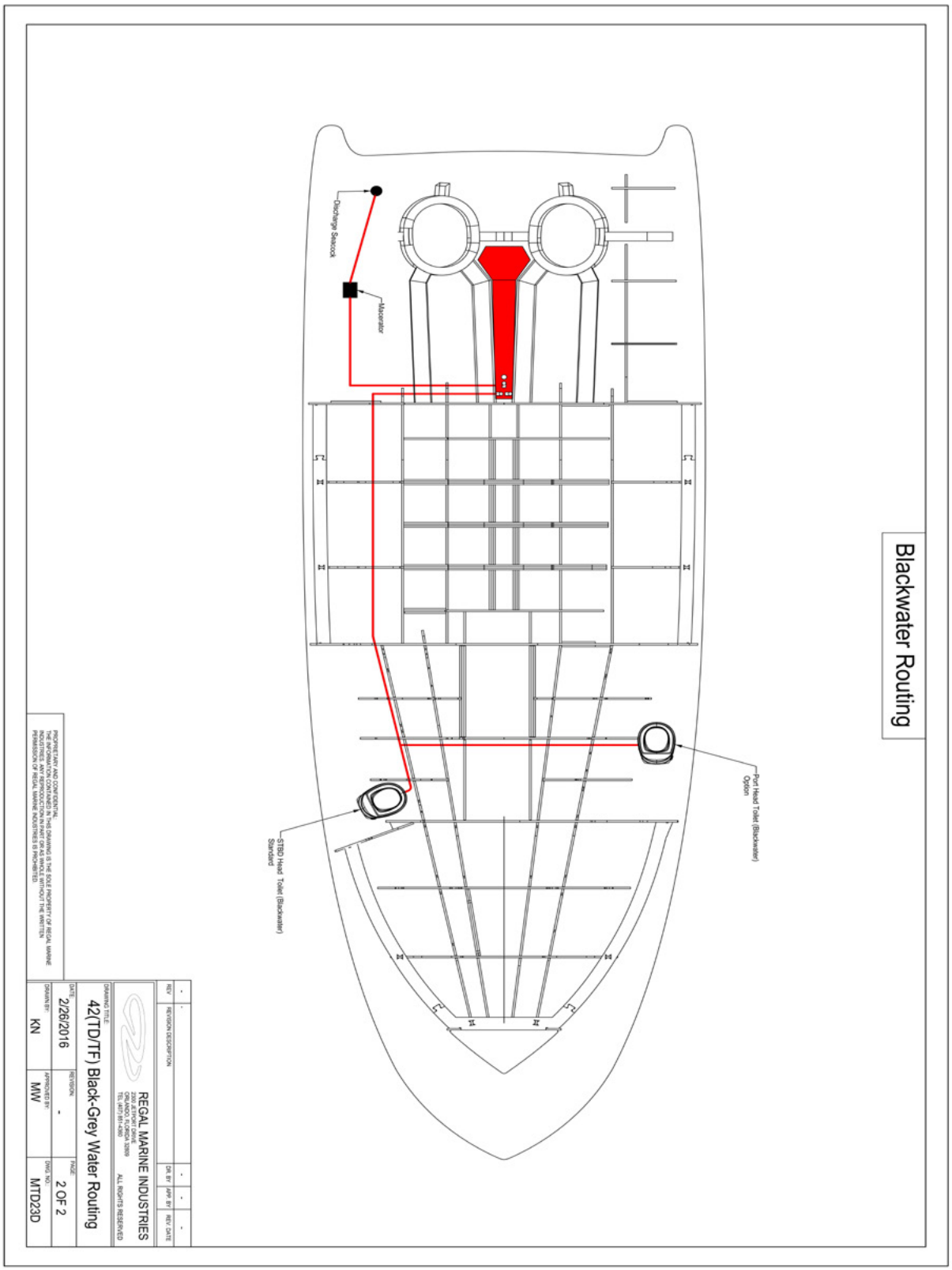
SLING LOCATIONS



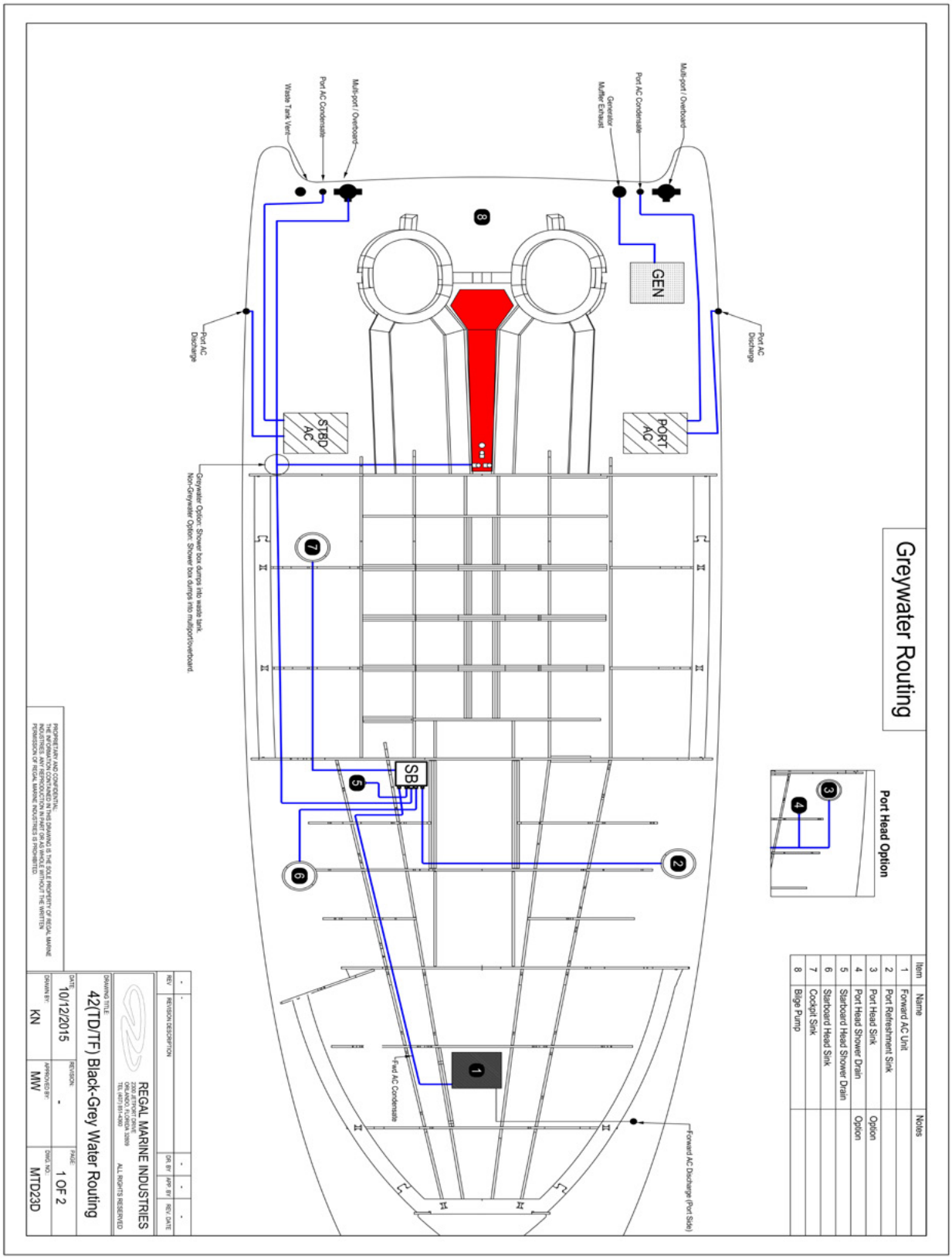
FRESH WATER SYSTEM ROUTING



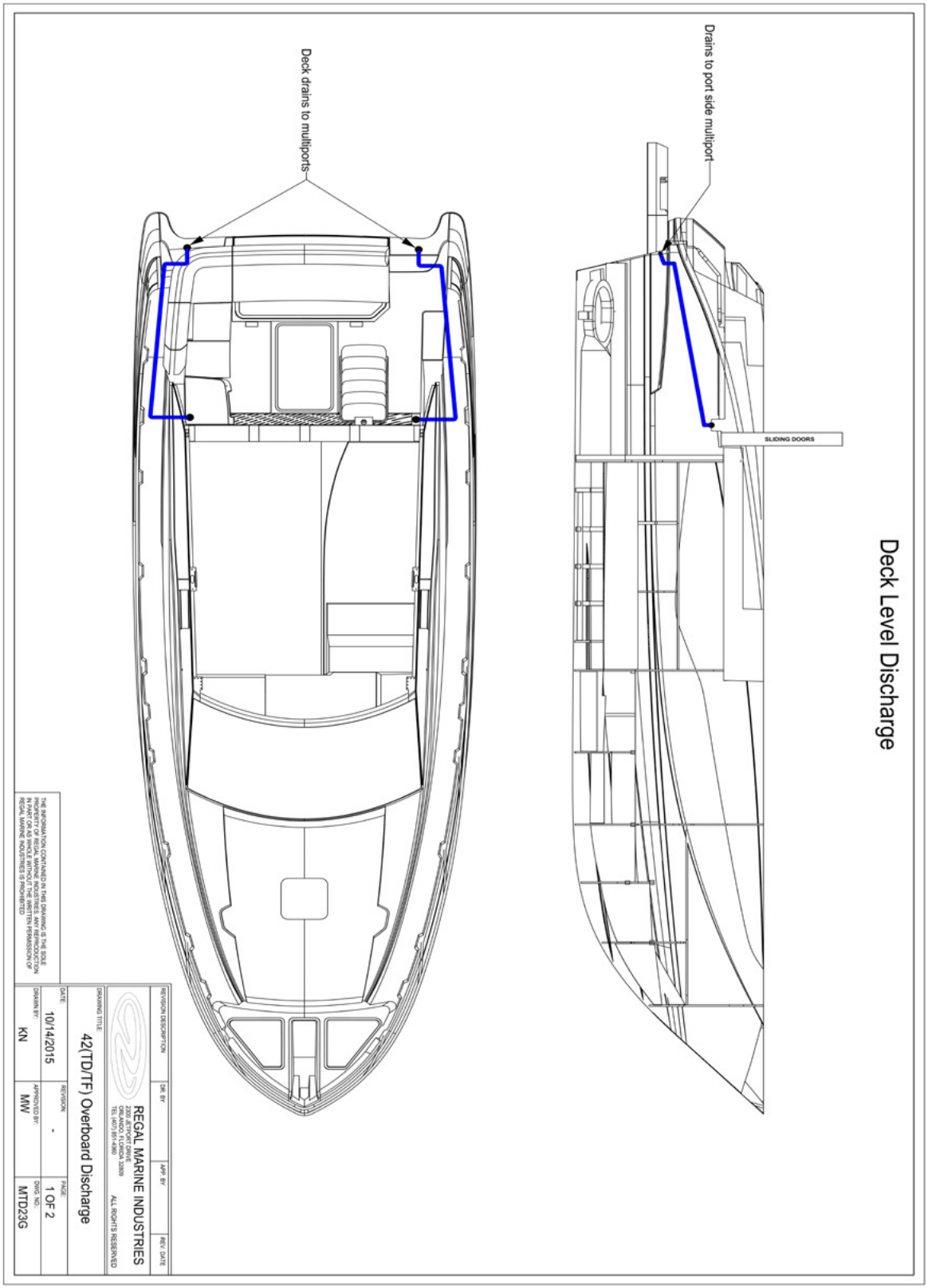
BLACK WATER SYSTEM ROUTING



GREY WATER SYSTEM ROUTING-OPTION



DECK LEVEL OVERBOARD DISCHARGE SYSTEM



FUEL SYSTEM ROUTING