54 Voyager

Owner's Guide

CARVER

YACHTS

HIN: CDR_____

2012 Version 1

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Robert VanGrunsven
President

Congratulations and Welcome Aboard!

This Owner's Guide was designed to acquaint you with the safe, proper operation and maintenance of your new yacht and its systems. Your first duty as Captain of your new Carver yacht should be to read your Owner's Guide and all manufacturer-supplied operating and maintenance instructions found within your Owner's Information kit.

Be sure to mail in all manufacturer registrations and warranty cards to validate your Carver Yachts' and OEM warranties. These warranty cards have been assembled and are contained in the OEM information packets within your Owner's Information kit. Carver Yachts is proud to be supported by an exclusive network of experienced and knowledgeable dealers. If you have any questions regarding your new yacht including warranty please contact your selling dealer. Please read all of your warranties carefully and remember that your selling dealer is your point of contact for all questions and warranty issues.

If you're new to boating, learn the proper rules of seamanship to ensure the safety of your passengers. Refer to Chapman's Piloting, Seamanship and Small Boat Handling and attend a safe boating class offered by the U.S. Coast Guard Auxiliary, United States Power Squadron, or any enterprise experienced in conducting safe boating courses.

Thank you for choosing Carver Yachts. We're confident your new yacht will provide you and your family with years of enjoyable cruising.

Robert VanGrunsven
President

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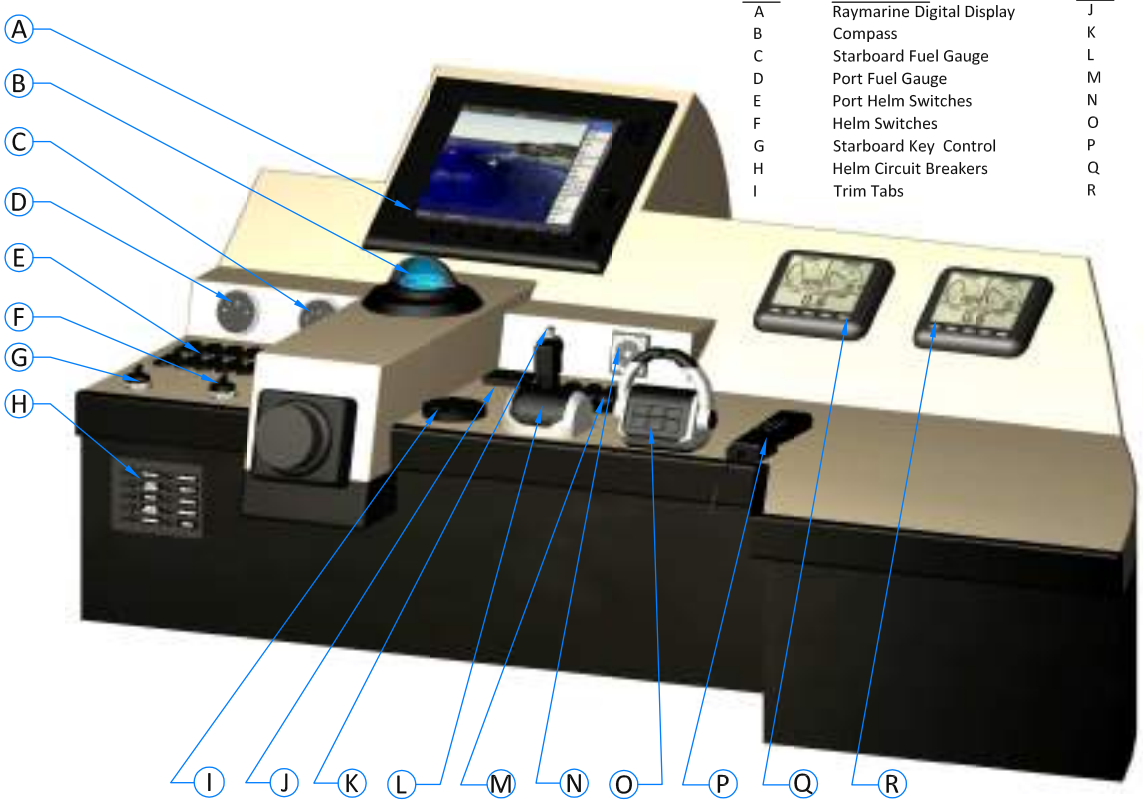
LOWER HELM COMPONENTS



ITEM	DESCRIPTION
A	Raymarine Digital Display
B	Compass
C	Starboard Fuel Gauge
D	Port Fuel Gauge
E	Port Helm Switches
F	Helm Switches
G	Starboard Key Control
H	Helm Circuit Breakers
I	Trim Tabs

ITEM	DESCRIPTION
J	Volvo Engine EVC Contrc
K	12 Volt DC Access
L	Thruster Control
M	Port Helm Switches
N	Rudder Angle Gauge
O	Shift Throttle Control
P	Raymarine Display Contr
Q	Port Volvo EVC Display
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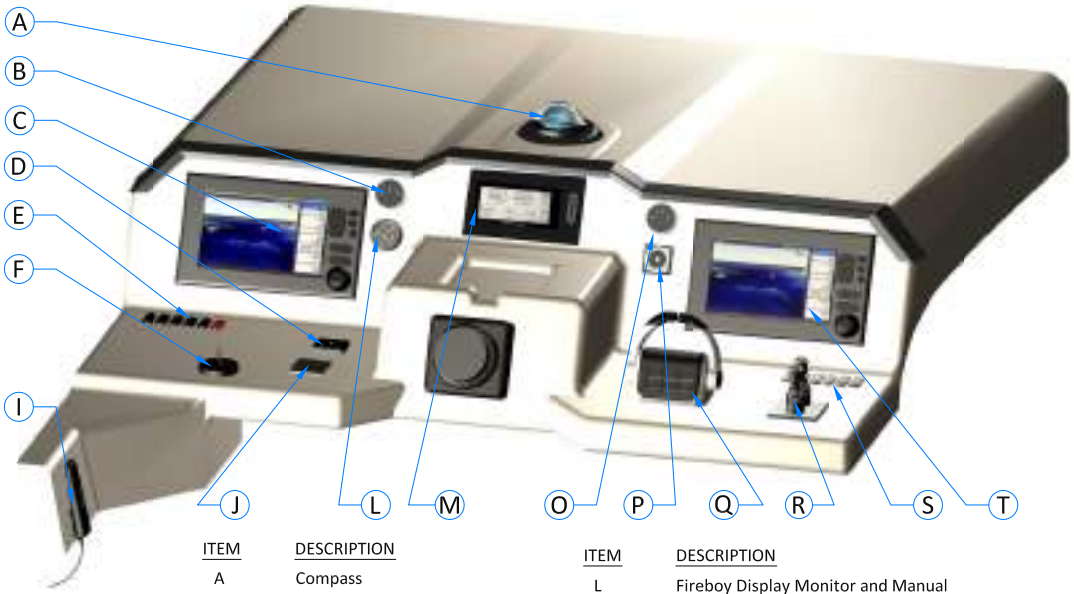
BRIDGE HELM COMPONENTS



ITEM	DESCRIPTION
A	Compass
B	Port Fuel Gauge
C	Port Raymarine Digital Display
D	Volvo EVC Panel Control
E	Port Helm Switches
F	Spotlight Control
H	Bridge Breaker Panel
I	Raymarine Display Controller
J	EVC-D Push Button Start

ITEM	DESCRIPTION
L	Fireboy Display Monitor and Manual Override
M	Volvo EVC Display Panel
O	Starboard Fuel Gauge
P	Rudder Angle Gauge
Q	Shift/Throttle Control
R	Bow Thruster
S	Starboard Helm Switches
T	Starboard Raymarine Digital Display

USING THE OWNER'S INFORMATION KIT

THE OWNER'S INFORMATION KIT CONTAINS:

Qty.	Item
1	Owner's Guide
(Varies)	OEM information

Please read the Owner's Guide and OEM (Original Equipment Manufacturer) **information carefully. Become familiar with the yacht, its components, and systems before attempting to operate.**

NOTE: The Owner's Information kit must be onboard when the yacht is in operation. If the yacht gets sold, the new owner must receive the Captains Kit.

OWNER'S GUIDE

The Owner's Guide purpose is to explain how to safely operate and maintain the yacht and it's various systems. The Owner's Information Kit also contains safety precautions and operation tips, as described below:

PRECAUTION	DESCRIPTION
DANGER	Describes a hazard that can cause death or severe injury if the instructions are ignored.
WARNING	Describes a hazard that can cause serious injury and/or property damage if the instructions are ignored.
CAUTION	Describes a hazard that can cause damage to the yacht or its components if the instructions are ignored.
NEVER	Describes a user based hazard that should NEVER be performed.
NOTE:	Provides important information that can help avoid problems.
A Tip From Carver!	Provides various tips to keep the yacht in top condition

Please obtain handling and operation experience before operating your new yacht. Gaining experience is important if this is your first yacht, or if changing to a type of yacht that is unfamiliar. Gaining experience is for your own comfort and safety. Your dealer, national sailing federation, or yacht club can advise local sea schools or competent instructors.

NOTE: Drawings and illustrations contained within this guide are included as graphic aids to assist in the general operation and maintenance of the yacht. The drawings and illustrations are used for graphic purposes only. The drawings do not include all of the details of each system, and the drawings are not to scale. Do not reference the drawings to order parts or to service the yacht. Contact an authorized Carver Dealer for parts or service required.

A Tip From Carver!

Many people within the Carver organization are avid boaters. Some of the experience gained during our years of boating are presented in this Owner's Guide. The information is presented under the heading, "A TIP FROM CARVER."

The information contained within the Owner's Guide is complete and accurate at the time the guide was printed. Carver Yachts reserves the right to change materials, part numbers, specifications, or system designs at any time without notice.

PRE-DELIVERY SERVICE RECORD

The Pre-Delivery Service Record, on the following page, must be completed and signed by your Carver Dealer before the yacht can be delivered. Your Carver Dealer will prepare the yacht for delivery in accordance with the procedures detailed within this document.

Make sure the Pre-Delivery Service Record and all OEM warranty cards have been completed and mailed to the companies listed. Make sure to retain a copy of the Pre-Delivery Service Record for your own reference.

WARRANTY REGISTRATION

Carver Yachts warrants every yacht the company manufactures, as explained in the Carver Limited Warranty. The owner's copy of the warranty is located in Section 9. Please review the warranty carefully.

The Warranty Registration on the following page is the first step in activating your Carver Yachts limited warranty. This document must be completed and signed by you and your Carver Dealer before taking delivery of the yacht. Failure to complete and register the Warranty Registration could void the Carver Yachts limited warranty. Your Carver Dealer will review the terms of the Carver Yachts warranty, and make sure the warranty is registered with Carver Yachts.

To ensure the warranty remains in effect during its lifetime, Carver Yachts, your Carver Dealer, and you (the owner) must each uphold specific responsibilities. The following responsibilities are described in Section 9.

At time of delivery, make a complete inspection of the yacht and its systems. Document any work that needs to be completed by the Dealer to meet the terms of your agreement.

Two cards are located at the end of the Preface. The cards are Second and Third Owner Registration Cards. Carver strongly recommends that the purchaser of a previously-owned Carver, register ownership with Carver Yachts.

CARVER BOAT CORPORATION
PO BOX 1010
PULASKI WI 54162-1010

CARVER BOAT CORPORATION
PO BOX 1010
PULASKI WI 54162-1010

THIRD OWNER REGISTRATION

Owner's Name: _____

Street Address: _____

City:_____ State: _____ Zip Code: _____

Telephone: (____) _____ Date of Purchase: _____

Purchased From:_____

Boat Hull Identification Number: CDR_____

Third Owner Registration does not extend, alter, or transfer the Carver Limited Warranty. Refer to the Carver Limited Warranty for details.

SECOND OWNER REGISTRATION

Owner's Name: _____

Street Address: _____

City:_____ State: _____ Zip Code: _____

Telephone: (____) _____ Date of Purchase: _____

Purchased From:_____

Boat Hull Identification Number: CDR_____

Second Owner Registration does not extend, alter, or transfer the Carver Limited Warranty. Refer to the Carver Limited Warranty for details.

BOATING SAFETY

BOATING SAFETY IS YOUR RESPONSIBILITY. Fully understand the operating procedures and safety precautions in the Owner's Information Kit and this Owner's Guide before operating the yacht. **SAFE BOATING IS NO ACCIDENT**.

SAFE OPERATION

Safe operation includes, but is not limited to, the following:

- Keep the boat and equipment in safe operating condition. Inspect the hull, engines, safety equipment, and all boating gear regularly.

  NOTE: Federal law requires the owner to provide and maintain safety equipment onboard. Consult the U.S. Coast Guard, state, and local regulations to ensure all required safety equipment is onboard. Additional equipment may be recommended for your safety and the safety of the passengers. Become aware of the safety equipment's availability and use.

- Use caution when fueling the boat. Understand the fuel tank's capacity, and fuel amount used when operating at frequently used engine speeds (RPMs).
- Make sure enough fuel is stored for cruising requirements. Know the tank's cruising radius and fuel tank range. Typical tank usage: 1/3 of the supply to reach the destination, 1/3 to return, and keep1/3 in reserve for changes in plans due to weather or other circumstances.
- **ALWAYS** keep fire extinguishing and lifesaving equipment onboard. The safety equipment must meet regulatory standards, and should be noticeable, accessible, and in proper operating condition. Passengers onboard should know of the equipment's location, and how to use each piece of equipment.
- Keep an eye on the weather. Be aware of possible changing conditions by checking local weather reports before departure. Monitor strong winds and electrical storms.
- Always keep accurate, updated charts of the areas chosen to cruise. Keep back up charts if a chart plotter is used.
- File a Float Plan with a family member, relative, friend, or other responsible person ashore before departure from port or harbor.
- Always practice safe boating, courtesy, and common sense.
- Instruct at least one passenger onboard with the boat's basic operation. The designated person can take over if the operator is unexpectedly, unable to maintain control.
- **DO NOT** allow passengers to ride anywhere other than designated seating areas.
- Ask all passengers to remain seated while the boat is in motion.
- **DO NOT** use the boarding platform or boarding ladder, while either of the engines are running. Both engines must be shut off.
- **Understand and obey the "Rules of the Road."** Always maintain complete control of the yacht.
- **DO NOT** overload or improperly load the boat. See Section 9: *Load Capacity,* for instructions on maximum capacity
- **DO NOT** travel faster than conditions warrant or beyond your abilities.
- **DO NOT** operate the boat in weather or sea conditions beyond your skill and experience.
- **DO NOT** operate the boat while under the influence of drugs and/or alcohol.
- **DO NOT** operate the boat if visually impaired.

ADVERSE CONDITIONS

WEATHER

All passengers should be aware of present weather conditions and the weather forecast at all times. Check the forecast before beginning a day of boating. However, be aware that weather conditions can change rapidly.

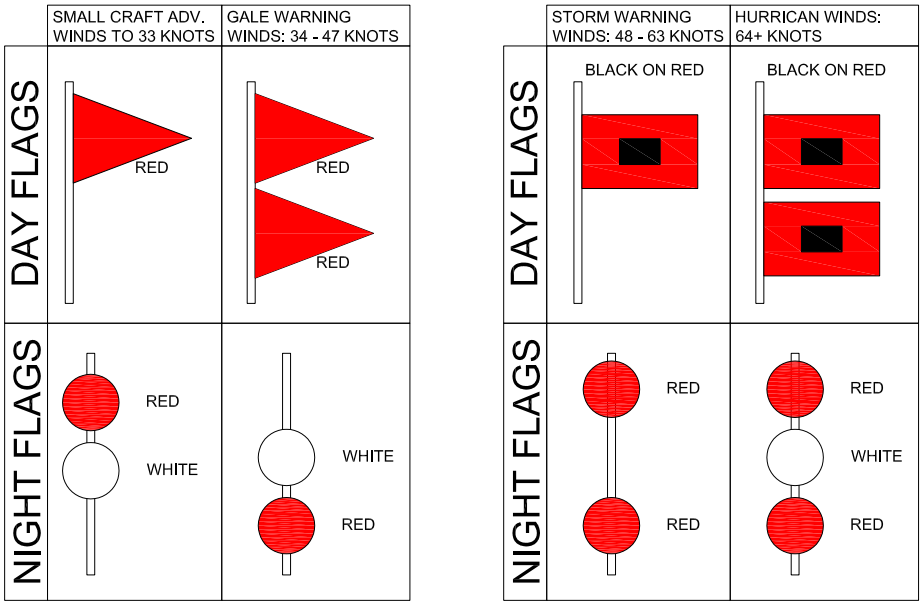
If a marine radio is onboard:

- Listen to the weather reports issued by the U.S. Coast Guard and other sources.

If a portable radio is onboard:

- Keep the radio tuned to a station broadcasting frequent weather reports. Many boating clubs fly weather signals; learn to recognize these signals.

WEATHER SIGNALS



STORM PREPARATION

Storms rarely appear without advance notice. If a storm is a possibility, keep a watch on the horizon, especially to the West, for the storm's approach. Watch for changes in wind direction or cloud formations. Understanding the weather conditions, and what to do when the weather takes a turn for the worse is important.

If a storm is approaching, the best course of action is to return to port. If unable to return, prepare to weather the storm. To do so:

- Close portlights, exterior doors and hatches and secure them. Stow all loose gear below deck, and tie down any gear on deck.
- Reduce speed as the seas build.
- Make sure all persons onboard are wearing the personal flotation devices.
- Drop a sea anchor over the stern to maintain the bow into the seas. If a sea anchor is unavailable, use a canvas bucket, tackle box, or other object that will replace the anchor.

FOG

Fog is a result of either warm-surface or cold-surface conditions. Periodically measure the air temperature and dew point temperature to determine the liability of fog formation. Fog is likely to develop if the difference between the air temperature and dew point temperature is small.

Remember the following guidelines:

- Head for shore at the first sign of fog, unless the yacht is well equipped with charts and navigational equipment and wait until conditions improve. If charts are available onboard: take bearings as fog sets in, mark the current position, and continue to log the course and speed.
- All persons onboard should put on their personal flotation devices.
- If sound equipment is installed, check soundings regularly and match the sounds with depths shown on the charts.
- Station a person forward in the boat as a lookout.
- Reduce speed. Periodically, stop the engines and listen for surrounding fog signals.
- Sound the horn or fog bell intermittently to warn others.
- Set anchor if there is doubt in continuing the cruise. Listen for other fog signals while continuing to sound the fog horn or bell.

EMERGENCY PROCEDURES

It is important to obtain training to handle any emergency that may arise. The following is **NOT** an exhaustive list of situations that may be encountered while boating.

FIRE

To help prevent a fire onboard the yacht:

- Keep the bilges clean and check for fuel vapors at regular intervals.

NEVER

- **NEVER FIT FREE-HANGING CURTAINS OR OTHER FABRICS NEAR, OR ABOVE THE STOVE TOP, OR OTHER HIGH-HEAT DEVICES.**
- **NEVER STORE MATERIALS OR EQUIPMENT OF ANY KIND IN THE ENGINE ROOM.**

DANGER

ANY FIRE ONBOARD THE BOAT IS SERIOUS. EXPLOSION IS POSSIBLE. DEVELOP A FIRE RESPONSE PLAN. RESPOND IMMEDIATELY.

EVERY BOATER SHOULD DEVELOP A FIRE RESPONSE PLAN. THE PLAN SHOULD DETERMINE:

- **THE TYPE OF FIRE (FUEL, ELECTRICAL, ETC.)**
- **WHERE THE TYPE OF FIRE, LISTED ABOVE, MIGHT BREAK OUT**
- **THE BEST WAY TO REACT.**

HAVE A PLAN. ASSIGN RESPONSIBILITIES TO OTHERS TO ALLOW QUICK DECISIONS AND REACTIONS.

NEVER

- **NEVER OBSTRUCT PASSAGE WAYS TO EXITS AND HATCHES.**
- **NEVER OBSTRUCT SAFETY CONTROLS, SUCH AS FUEL VALVES AND ELECTRICAL SYSTEM SWITCHES.**
- **NEVER OBSTRUCT PORTABLE FIRE EXTINGUISHERS IN LOCKERS.**
- **NEVER LEAVE THE BOAT UNATTENDED WHEN COOKING, OR WHEN HEATING APPLIANCES ARE IN USE.**
- **NEVER USE GAS LIGHTS IN THE BOAT.**
- **NEVER MODIFY ANY OF THE BOAT'S SYSTEMS, ESPECIALLY ELECTRICAL OR FUEL.**
- **NEVER FILL THE FUEL TANKS: WHEN MACHINERY IS RUNNING, WHEN COOKING, OR HEATING APPLIANCES ARE IN USE.**
- **NEVER SMOKE WHILE HANDLING FUEL.**

NOTE: Everyone onboard should know the fire extinguisher locations, and how to operate the extinguishers.

IN CASE OF FIRE

- Stop the engines immediately.
- Shut off the bilge blowers immediately if the fire is in the engine room.
- **DO NOT** open the hatch to the engine room. The fire will flare up if the fresh air supply increases suddenly.
- Keep the fire downwind if possible. Head into the wind if the fire is aft.
- Have all persons onboard put on their personal flotation devices.
- If the fire is accessible. **USE THE FIRE EXTINGUISHER**:
    1. Aim the fire extinguisher at the base of the flames
    2. Use a sweeping motion to put out the fire.

It is the owner and/or crew's decision to abandon the boat. If the decision is to abandon ship, **ALL** persons onboard should jump overboard, and swim to a safe distance away from the burning boat.

FLOODING

If water is leaking in the hull, and the boat is taking on water:

1. Turn on the bilge pumps.
2. Assign someone to bail out the bilge and investigate the cause of the flooding.
3. Attempt to repair the boat when the source of the leak is found.

Almost anything can be stuffed into the opening to stop the leaking temporarily. Leak plugging material will work better if applied from the exterior where water pressure can aid in stopping the leak. Station a crew member to hold the plug in place if the plug is applied from the inside. In all cases, assign a crew member or passenger to watch the plugged area and alert others if the plug fails.

SWAMPED OR CAPSIZED BOAT

IMMEDIATELY PUT ON A PERSONAL FLOTATION DEVICE, AND SET OFF A DISTRESS SIGNAL IF THE BOAT BECOMES SWAMPED OR CAPSIZED. Chances are good that a capsized boat will stay afloat. To ensure the safety of the crew and boat, it is important to:

- Stay with the boat, unless an emergency situation occurs.
- Do not leave the boat or try to swim to shore except under extreme conditions.
- Remember, a capsized boat is easier to see than a swimmer
- Remember, the shore may be further away than it appears.

To reduce the occurrence of a swamped or capsized boat:

1. Reduce headway and turn the boat slightly if water is coming over the bow.
2. Turn the boat so the bow is slightly off from meeting the waves head on.
3. Drop a sea anchor over the stern, and adjust the length of the line to hold the bow at the most favorable angle.

COLLISION

If a serious collision occurs, check everyone onboard for injuries, then inspect the entire boat to determine the extent of the damage.

- Prepare to help the other craft unless your boat or passengers are in danger.
- If the hull has been penetrated, prepare to plug the fracture once the colliding boats have been separated.
- Shore up the hole inside of the boat with a spare life jacket or bunk cushion.
- Trim weight, if possible, to get the hole above the water level during repairs.
- If the boat is in danger of sinking, have everyone onboard put on the personal flotation devices.
- If a radio is installed, immediately, contact the U.S. Coast Guard or other rescue authorities on VHF channel 16 or CB radio channel 22. (VHF channels 9 or 13 or a cellular phone in some states may be available).

RUNNING AGROUND

Excessive weight in the fore or aft sections of the boat will cause a trim change, and may yield greater draft than expected. Equip the boat with a quality depth-measuring instrument, and allow ample water below the hull while operating.

If the boat runs aground:

- Check everyone onboard for injuries
- Inspect the boat for damage.

If lightly grounded:

- Shift the weight of the passengers or gear to heel the boat while reversing engines.

If towing becomes necessary

- Use a commercial towing service.

NEVER

NEVER ATTACH A TOW LINE TO A SINGLE DECK CLEAT OR ANCHOR WINDLASS. The cleats and windlass are not designed to take the full load of the boat and may pull free from the deck, causing serious injury or property damage.

MAN OVERBOARD

In the event that someone falls overboard, understanding what to do is important. Emergency procedures are published in *Chapman Piloting* publications, and instruction is offered by the U.S. Coast Guard.

Hypothermia may be an immediate concern if a person falls overboard. Hypothermia occurs when a person's body loses heat faster than the body can replace it. The person will become exhausted or likely drown if not rescued in a timely manner. In general, the colder the water, the faster body's heat is lost. Personal flotation devices increase survival time because they provide insulation. To understand the survival time to water temperature ratio, see the "Water Survival Chart" below:

WATER SURVIVAL CHART

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

MEDICAL EMERGENCY

- No one should act as a doctor, if not properly trained.
- Someone onboard should know first aid. First aid training is available through your local Red Cross.
- Keep a fully stocked first aid kit onboard at all times.

EQUIPMENT FAILURE

- Steering, propulsion, and control failure can be prevented by having the boat maintained and checked periodically.
- Radio for help or signal with flags and wait for help if the systems fail.

RADIO COMMUNICATION (U.S. ONLY)

It is the boater's responsibility to obtain a radio operator's permit, and follow and understand proper rules and procedures. Private boats are not required to have a radio on board at all times. However, if a radio is available, it should be tuned to channel 16 unless it is being actively used. Channel 16 is the frequency for emergency calls or initial calls between boats. Once contact is established on channel 16, change the frequency to channel 22.

Additional information on radio communications can be found in *Chapman's Piloting* publications.

DISTRESS SIGNALS

The boat operator is required, by law, to lend assistance to a craft in distress. Assistance must be given as long as your life or boat is not put in harm's way in the process. In the United States, Good Samaritan laws protect the public from liability incurred while giving aid.

SAFETY EQUIPMENT

NOTE: Sections of this chapter titled: *Safety Equipment* and *Owner's Responsibilities* applies to US regulations ONLY - EXCLUDING: *Pre-departure Actions*

Federal Law requires boat owners to provide and maintain safety equipment onboard. Consult the US Coast Guard, State, and local

regulations to ensure that all the required safety equipment is onboard. It is the owner's responsibility to learn about additional recommended equipment before operating their yacht.

PERSONAL FLOTATION DEVICES (PFD'S)

- A minimum of one personal flotation device is required for each person onboard. The PFD must be U.S. Coast Guard-approved wearable (Type I, II, or III).
- The PFD's must be readily accessible and in serviceable condition.
- The PFD's must be of a suitable size for each person onboard.
- A minimum of three PFD's (two wearable and one throwable) are required regardless of the number of persons onboard.

PFD TYPE I, WEARABLE:

- Type I is the most effective life preserver for all waters when rescue may be delayed.
- Type I is designed to turn most unconscious or drowning people from a facedown position to a vertical or face-up position.

PFD TYPE II, WEARABLE:

- Type II is a near-shore buoyant vest. Type II is intended for calm inland waters when a quick rescue is anticipated.
- Type II turns the person to a face up position, but the turning action is not as evident as the Type I. Type II will not typically turn people over in the same manner as Type I.

PFD TYPE III, WEARABLE:

- Type III is classified as a flotation aid; however, the device **WILL NOT** turn a victim to a face-up position.
- Type III is frequently used in water sports, and SHOULD BE AVOIDED IN PERSONAL BOATING.

PFD TYPE IV, THROWABLE:

- At least one throwable Type IV PFD device is required onboard at all times.
- Type IV PFD does not strap to the user.
- Type IV PFD must be thrown to a person in the water and held by the user until rescued.
- The most common Type IV PFD's are buoyant cushions or ring buoys.
- Type IV PFD must be in serviceable condition and immediately available for use.

VISUAL DISTRESS SIGN

Visual distress signal equipment is required by the U.S. Coast Guard for all boats operating on U.S. coastal waters. Boats owned in the United States and operating on the high seas must also carry VDS equipment. The visual distress equipment signal must be readily accessible and in serviceable condition. Both pyrotechnic and non-pyrotechnic equipment must be U.S. Coast Guard approved. Both types of distress signal equipment can become ineffective with age. Replace the equipment before taking the yacht out if the equipment's usage date has expired.

Approved pyrotechnic equipment includes:

- Hand held or aerial red flares
- Hand held or floating orange smoke
- Launchers for aerial red meteors or parachute flares

Approved non-pyrotechnic equipment includes:

- Orange distress flag
- Dye markers
- Electric distress light.

No single signaling device is ideal under all conditions. Carrying a variety of visual distress signal equipment onboard is important. Select devices with packaging that children ONLY will find difficult to open, especially if children are onboard.

SOUND SIGNALING DEVICE

The boat must be equipped with an operable device that can produce a sound signal if conditions require.

Required sound devices include:

- One horn is standard on all Carver models.
- Boats longer than 39' 4", one bell and one whistle is required. The devices must meet the Inland Navigational Rules Act of 1980.
- For details on the appropriate signals, refer to the *Navigational Rules* published the U.S. Coast Guard, International-Inland.

RUNNING AND NAVIGATION LIGHTS

- Running and navigation lights must be turned on for safe operation after dark.
- Observe all navigation rules for meeting and passing.
- Do not run at high speeds during night operation.
- Always use common sense and good judgment while cruising at night.

RADAR REFLECTORS

Radar reflectors, if installed, should measure at least18"diagonally. The reflectors should be placed 12' above the waterline to ensure that other boats with radar reflectors have sight of your boat.

FIRE EXTINGUISHERS

Fire extinguishers must be approved by the U.S. Coast Guard. The U.S. Coast Guard classifies fire extinguishers by the type of fire the extinguisher can extinguish. The fire extinguisher classifications include: foam, carbon dioxide, chemical, and Halon. Below is the standard extinguishing equipment on the 420 SB:

Boats longer than 40' and shorter than 65': The 420 SB has a fixed fire extinguishing system approved by the U.S. Coast Guard, It is the owners responsibility to install either: Two Type B-I (or) one Type B-II extinguisher is on board.

All fire extinguishers should be mounted in a readily accessible location, away from the engine room. Everyone onboard should know the fire extinguisher locations, and how to operate the extinguishers.

If a charge indicator gauge is equipped on the fire extinguisher, cold or hot weather may affect the gauge reading. Consult the manufacturer's manual supplied with the fire extinguisher to determine the gauge accuracy.

Check and maintain the fire extinguishing equipment in accordance with the manufacturer's recommendations. Replace fire fighting equipment if expired or discharged. Replace with devices of identical or greater fire fighting capacity.

RECOMMENDED EQUIPMENT

In addition to the required equipment, Carver recommends carrying the following:

- Spare anchor
- Heaving line
- Fenders
- Flashlight
- Mirror
- Suntan lotion
- Spare propeller(s)
- Tool kit
- Ring buoy
- Navigational charts
- Mooring lines
- Binoculars
- Spare parts
- Spare pump

OWNER'S RESPONSIBILITIES

NOTE: Sections of this chapter titled: *Safety Equipment* and *Owner's Responsibilities* applies to US regulations ONLY - EXCLUDING: *Pre-departure Actions*

SAFE BOATING COURSES

Your local U.S. Coast Guard Auxiliary and the U.S. Power Squadrons offer comprehensive safe boating classes several times per year. Contact the Boat US Foundation at: 1-800-336-BOAT (2628) (or) in Virginia, at 1-800-245-BOAT (2628), or e-mail at: www.

The United States Inland Rules applies to all vessels inside the demarcation lines separating inland and international waters. The U.S. Coast Guard lists the traffic regulations in the *Navigational Rules, International-Inland* publication. A copy can be obtained from a local U.S. Coast Guard Unit or the United States Coast Guard Headquarters at: 1300 E. Street NW, Washington, D.C. 20226.

Other helpful publications available from the U.S. Coast Guard include:

- Aids to Navigation (U.S. Coast Guard pamphlet #123), publication explains the significance of various lights and buoys
- Boating Safety Training Manual
- Federal Requirements for Recreational Boats

Check with your local U.S. Coast Guard station, your Carver Dealer, or a local marina about navigational aids unique to your area.

DOCUMENTATION

A *Certificate of Number* is issued to a boat owner registered with the U.S. Coast Guard. The certificate must be onboard when the boat is in use. State registration is required. Check with the U.S. Coast Guard, or your state regulatory agency, to determine what other records are required onboard.

The following logs are strongly recommended to be maintained, in addition to the required documents. Log books are available from maritime supply stores. The recommended logs include:

- Navigation Log containing: engine speeds, compass courses, and time records is essential for both cruising and maintenance purposes.
- Radio Log: mandatory on vessels that are required to carry a radio. A radio log can be useful to record unusual events, especially for future litigation.
- Maintenance Log: used to track the type and frequency of maintenance procedures performed on the boat and the boat's systems. Refer to Section 7 for additional information on boat maintenance.
- An Engine/fuel Log: essential for calculating range and fuel requirements.
- GPS Log: used if a GPS is equipped onboard.

DRUGS AND ALCOHOL

Drugs and alcohol adversely affect a person's ability: to make sound judgments, react quickly, and operate a boat safely. As a responsible boater, it is strongly recommenced to refrain from using drugs or alcohol while operating the boat. Operating a motorized boat while under the influence of drugs or alcohol carries a significant penalty.

DISTRESS CALLS

If a ship-to-shore radio telephone is installed, heed storm warnings, and answer any distress calls from other boaters. The word "**MAYDAY**" spoken three times is the international signal of distress. Monitor marine radio channel 16 is reserved for emergency and safety messages. Channel 16 is also used to contact the U.S. Coast Guard or other boaters if there is trouble.

NEVER

NEVER SEND A "MAYDAY" MESSAGE UNLESS THERE IS A SERIOUS EMERGENCY AND IMMEDIATE ASSISTANCE IS REQUIRED.

VOLUNTARY INSPECTIONS

Courtesy inspections are offered by the U.S. Coast Guard Auxiliaries or State Boating Officials in many states to ensure that all boats comply with safety standards, and the required safety equipment is onboard. After a voluntary inspection, time is given to make corrections without prosecution. Check with the appropriate state agency or the U.S. Coast Guard Auxiliary for details.

BOATING ACCIDENTS

A vessel used for recreational purposes is required to file a report whenever:

- An accident results in loss of life or disappearance from a vessel
- An injury requiring medical treatment beyond first aid
- Property damage in excess of $200

- Complete loss of the vessel.

In cases of death and injury, reports must be submitted within 48 hours. All other cases, reports must be submitted within 10 days. Reports must be submitted in the state where the accident occurred.

BOATING REGULATIONS

It is the owner's responsibility to make sure that the boat is in compliance with all federal, state, and local regulations. Check with your local U.S. Coast Guard office for relevant federal regulations. Your state's Department of Natural Resources may have some publications available that deal with relevant state laws.

GARBAGE

Dumping garbage into the sea is a worldwide problem. U.S. Coast Guard regulations prohibit dumping plastic refuse and garbage mixed with plastic into any waters, and restrict the dumping of other forms of garbage. It is essential that all boaters help to clean our waterways by properly disposing of all garbage.

OIL

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

SEPTIC WASTE

U.S. inland and coastal waters, it is illegal to discharge septic waste directly overboard. If an overboard discharge is installed, check with a local U.S. Coast Guard office to be sure that compliance is met with federal regulations.

STATE AND LOCAL ORDINANCES

State or locality may have laws limiting: speed, noise, or the boat's wake. Check with the local harbor master if certain boating operations are restricted by local ordinances or state laws. Check with state and local authorities to confirm compliance with local regulations regarding: marine sanitation, noise, speed, and wake.

Pre-Departure Actions:

- Check the weather. Make sure conditions and seas will not be hazardous during your voyage.
- Make sure all safety equipment is onboard, accessible, and in good working condition.
- Check the bilge for fuel vapor or water. Ventilate or pump out the bilge as necessary.

- Make sure the horn, navigation equipment, and lights are working properly.
- Instruct guests and crew in safety and operational matters.
- Check engine oil, transmission oil, and coolant levels.
- After starting the engines, check:
  - The overboard flow of cooling water
  - Engine temperatures
  - Oil pressures
- Fill the fuel tanks as needed. Know the tank capacity, and fuel consumption at various RPM's. Know the tank's cruising radius and fuel tank range. Typical tank usage: 1/3 of the supply to reach the destination, 1/3 to return, and keep1/3 in reserve for changes in plans due to weather or other circumstances.
- Have a second person onboard capable of taking over operating the boat in case the operator are disabled.
- Before departing, inform a friend or relative of the intended cruising area, and the intended return time, so if delayed, the US Coast Guard can be contacted. Remember, to tell the contact person of your return to prevent false alarms. Do not file a float plan with the U.S. Coast Guard. The Coast Guard does not have the manpower to monitor all boats.
- Stow all loose gear securely. Fenders and docklines should be stowed immediately after getting underway.

CARBON MONOXIDE (CO) WARNINGS

CO detectors are standard on all Carver yachts. Have the detectors professionally calibrated at regular intervals.

CO2 Illustration: 1.1

DANGER

CARBON MONOXIDE (CO) IS A COLORLESS, ODORLESS, AND TASTELESS GAS EMITTED THROUGH ENGINE AND GENERATOR EXHAUST. PROLONGED EXPOSURE TO CO CAN RESULT IN UNCONSCIOUSNESS, BRAIN DAMAGE, AND DEATH.

CARBON MONOXIDE (CO) WILL CAUSE SERIOUS INJURY OR DEATH. STAY CLEAR FROM THE EXHAUST PORT WHEN THE ENGINE IS RUNNING.

PEOPLE SLEEPING ONBOARD CAN EASILY BE OVERCOME BY CARBON MONOXIDE. DO NOT SLEEP WHILE THE ENGINES OR GENERATORS ARE RUNNING.

CO2 Illustration: 1.2

PREVENTING CO EXPOSURE

Open a forward hatch, porthole, or window to help prevent the accumulation of CO in the cabin and enclosed exterior areas. Creating air circulation allows air to travel through the boat's interior. Have a trained marine technician inspect the exhaust systems when the yacht is in for service, or if a change in the sound of an engine or the generator is noticed. See CO Illustration above.

TO PREVENT SERIOUS INJURY OR DEATH BY ASPHYXIATION:

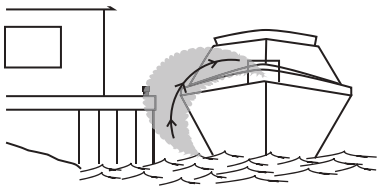
- Keep the engine room hatch closed when operating the engines and generator.
- Do not occupy aft lounging areas, including: the boarding platform or swimming near the engine or generator exhaust outlets while the engines or generator are running.
- Minimize the time spent getting underway; CO production is greater when the engines are cold.
- Maintain the propulsion and generator engines to optimize efficiency; which reduces CO emissions.

For additional information on carbon monoxide and boating, please contact marine organizations that produce safety publications.

For information on receiving a free VESSEL SAFETY CHECK, visit www.vesselsafetycheck.org or contact your local U.S. Coast Guard Auxiliary or United States Power Squadrons®.

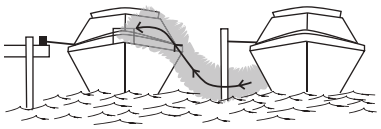
- U.S. Coast Guard Auxiliary: 1-800-368-5647 or on the Internet at: www.cgaux.org
- U.S. Power Squadrons: 1-888-FOR-USPS (1-888-367-8777) or on the Internet at: www.usps.org

The following chart displays possible situations where CO can accumulate. Become familiar with the following examples and the suggested precautions to help prevent CO2 poisoning.



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

WARNING:
Never operate the generator while the boat is moored against another boat, dock, or wall structure that could block the exhaust outlet.



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

WARNING:
Be alert for generator and engine exhaust from other vessels alongside your boat. Provide adequate ventilation.

The station wagon effect or back drafting can cause CO gas to accumulate inside the cabin, cockpit, and bridge areas when operating the boat at a high bow angle or with improper or heavy loading.

WARNING:
Provide adequate ventilation, redistribute the load or bring your boat out of high bow angle. Open forward hatch or window.

CO gas can accumulate in the cabin, cockpit and bridge areas when operating your boat at slow speeds or when the boat is stopped in the water. A tail wind can also increase accumulation (force of wind entering from aft section of yacht).

WARNING:
Provide adequate ventilation or slightly increase speed if possible. Open forward hatch or window.

The station wagon effect or back drafting can cause CO gas to accumulate inside the cabin, under protective weather coverings, cockpit, or bridge areas when the boat is underway.

WARNING:
Provide adequate ventilation when the canvas top, side or back curtains are in the closed, protective positions. Open forward hatch or window.

IDENTIFYING CO EXPOSURE

IN HIGH CONCENTRATIONS, CO CAN BE FATAL IN MINUTES. However, the effects of lower concentrations can also be lethal. Symptoms of exposure to CO are:

- Watering and itchy eyes
- Throbbing temples
- Inability to think coherently
- Ringing in the ears
- Headache
- Incoherence / slurred speech
- Flushed appearance
- Inattentiveness
- Loss of physical coordination
- Tightness across the chest
- Drowsiness
- Nausea
- Dizziness
- Vomiting
- Fatigue
- Collapse
- Convulsions

TREATING CO EXPOSURE

If suspected that someone is suffering from CO exposure, take the following actions immediately:

- Thoroughly ventilate the area if possible
- Evacuate the area and move the affected person(s) to a fresh air environment
- Administer oxygen, if available
- Get medical assistance
- Determine the probable source of the CO and correct the condition.

OTHER HEALTH AND SAFETY INFORMATION

WARNING

CANCER, BIRTH DEFECTS, AND OTHER REPRODUCTIVE HARM ARE KNOWN BY THE STATE OF CALIFORNIA TO BE CAUSED BY CHEMICALS EMITTED FROM ENGINE EXHAUST, ENGINE EXHAUST CONSTITUENTS, AND A VARIETY OF COMPONENTS.

CANCER, BIRTH DEFECTS, AND OTHER REPRODUCTIVE HARM ARE KNOWN BY THE STATE OF CALIFORNIA TO BE CAUSED BY CHEMICALS CONTAINED OR EMITTED BY OILS, FUELS, AND FLUIDS CONTAINED IN BOATS AS WELL AS WASTE PRODUCED BY COMPONENT WEAR.

CAUTION

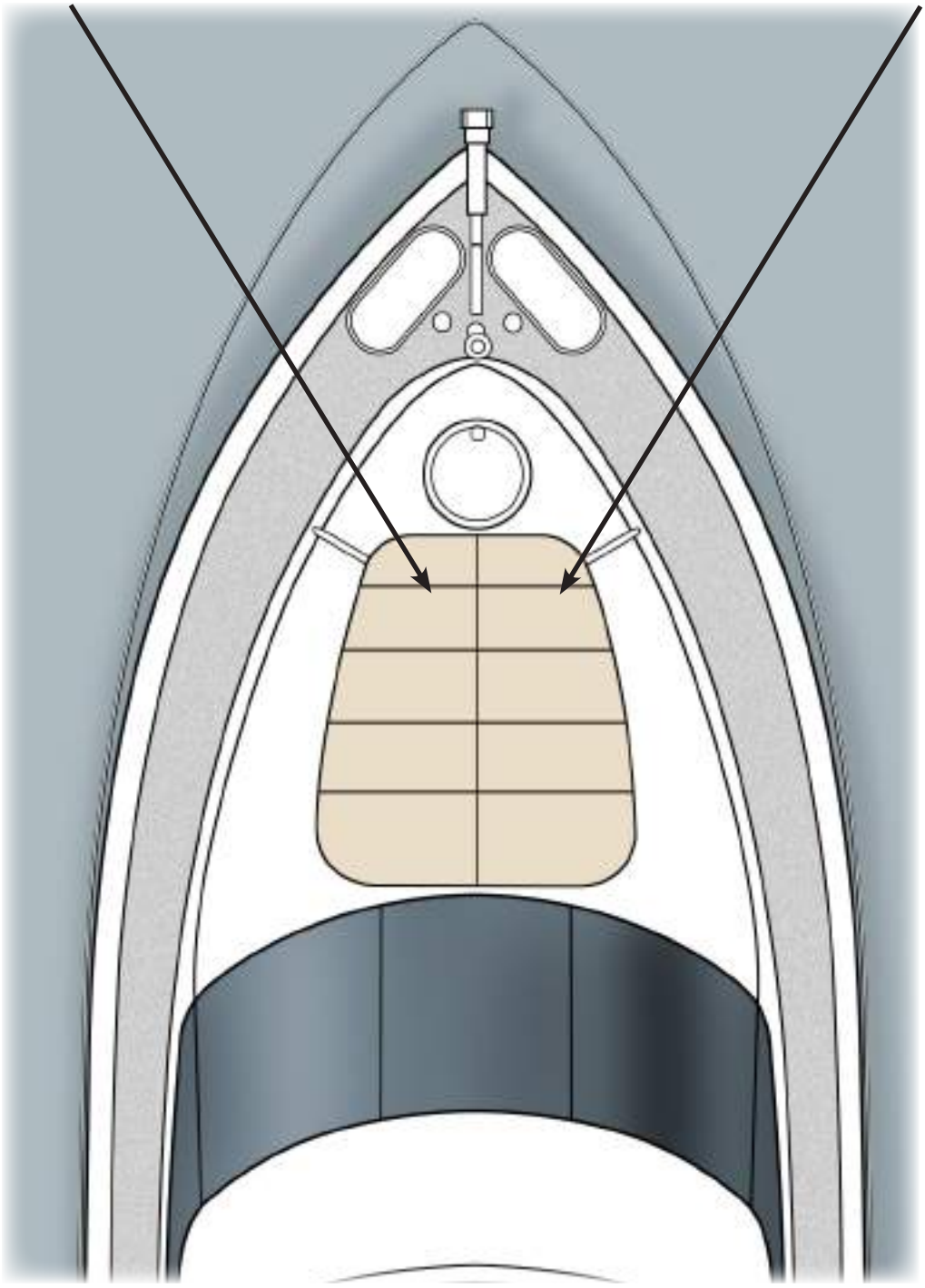
ALWAYS WASH YOUR HANDS, THOROUGHLY, WITH SOAP AND WATER TO PROTECT YOUR SKIN. BATTERY POSTS, TERMINALS, AND RELATED ACCESSORIES CONTAIN LEAD AND LEAD COMPOUNDS. WASH HANDS AFTER HANDLING. USED ENGINE OIL CONTAINS CHEMICALS THAT HAVE CAUSED CANCER IN LABORATORY ANIMALS.

WARNING LABELS

Warning labels are posted throughout the yacht to protect everyone onboard, the boat, the boat's equipment, and any personal property onboard. It is important to read, understand, and obey all warning labels. Failure to obey a warning label may result in serious injury or damage to the boat, the boat's equipment, or any personal property on the boat.

WARNING

DO NOT SIT ON THE FORWARD SUNPAD WHILE THE YACHT IS IN MOTION. INJURY, FALLING OVERBOARD, OR LOSS OF BALANCE CAN OCCUR IF SITTING ON THE FORWARD SUNPAD WHILE THE YACHT IS IN MOTION.



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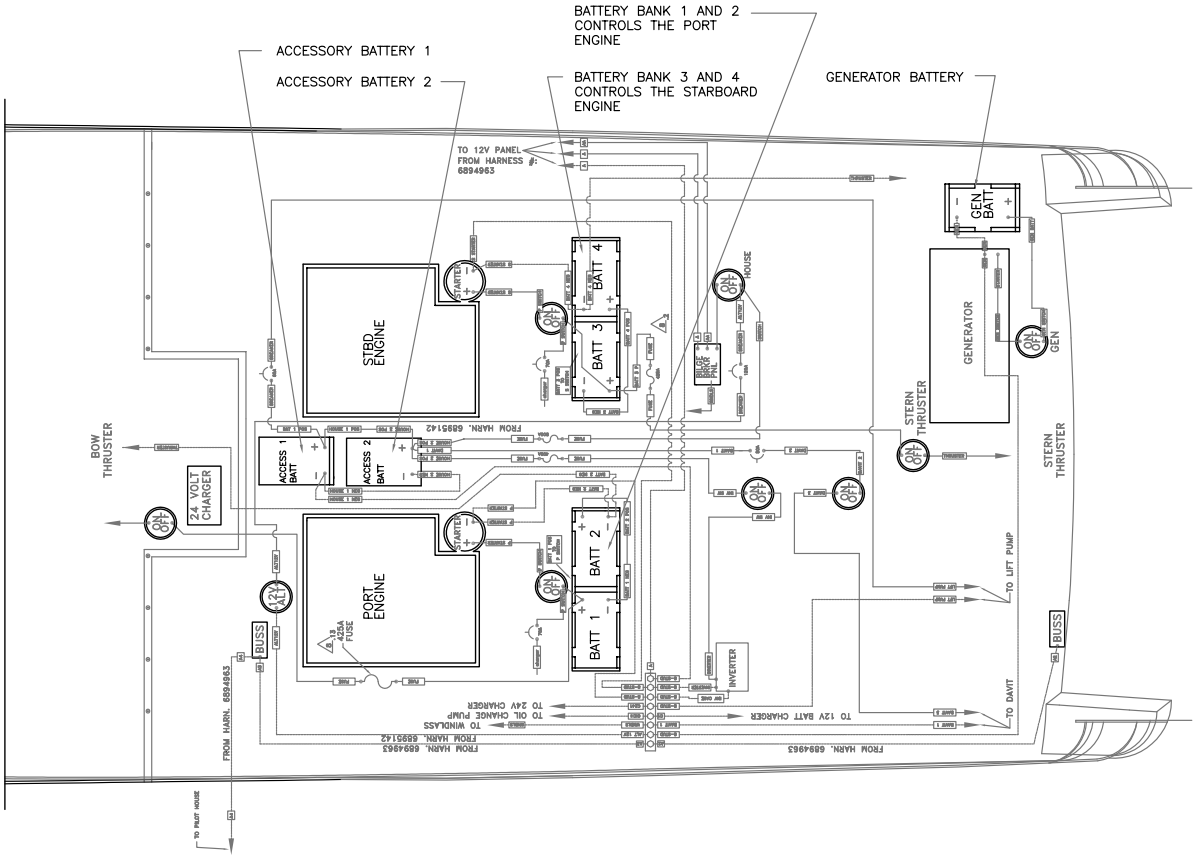
DC Electrical System

A 12-volt DC (Direct Current) electrical system has been equipped on the yacht. The DC system is a comprehensive system designed to meet present and future 12-volt electrical needs. Wire-runs and connections are positioned to prevent abrasion and exposure to moisture, as well as to remain accessible for inspection, repairs, and the addition of aftermarket electrical accessories.

Wires used throughout the DC electrical system are plastic coated and color-coded. Connections are made, using crimped connector points. The electrical system is virtually maintenance free, with only the batteries requiring periodic inspection and maintenance.



Battery Layout and Battery Wiring Layout - Hull

BATTERIES

The DC electrical system is divided into three areas, each powered by one or more, 12-volt batteries:

- Engine Batteries - Two 12 Volt batteries for each engine
- Accessory Batteries - Two 12-volt batteries located at each bank parallel connected to produce 12-volts
- Generator Battery - One 12-volt

ENGINE BATTERIES

Each propulsion engine has a designated pair of batteries. A master disconnect switch controls the Electricity from each battery to the battery's designated engine. The switches are located in the engine room, STBD aft bulkhead. Turn ON the master disconnect switches to provide electricity to the engines. (See next page for illustration)

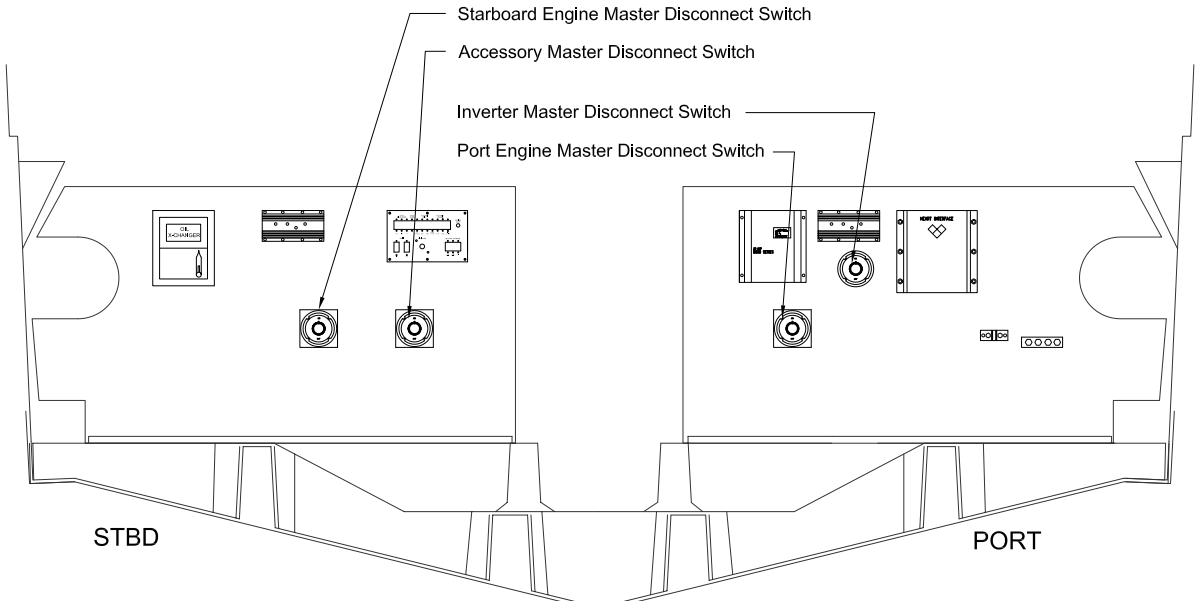
Each battery bank consists of:

- Two 12-volt batteries connected in a series to provide 24-volts DC to each engine. The 24-volt battery banks also supply 24-volt power to the bow and stern thrusters.
- Two 12 Volt batteries located at each Accessory Battery bank

Electricity from each battery bank to its designated engine and/or thrusters are controlled by a master disconnect switch. The switches

are located in the engine room, STBD aft bulkhead, just above the corresponding engine battery bank. To provide electricity to the engines, turn ON the master disconnect switches.

Refer to Section 9: *Engine Room* for the exact location of the engine batteries.



BOW AND STERN THRUSTER BATTERIES

The thrusters use the same batteries as the engines. The bow thruster is powered by the port engine batteries; the stern thruster is powered by the starboard engine batteries.

Electricity from each battery pair to the designated thruster is controlled by a master disconnect switch. The switches are located in the engine room near the base of the aft port and starboard bulkheads. Turn ON the thruster's master disconnect switch to provide electricity to each thruster.

ACCESSORY BATTERY BANK

The accessory equipment, controlled by the two DC circuit breaker panels (DC Control Center and Pilothouse Overhead Panel), is powered by a bank of two batteries, connected to provide 12-volts DC. The batteries are located in the engine room at the base of the aft bulkhead. (See previous page for battery detail)

Electricity from the batteries to the DC Main, Control Center is controlled by a master disconnect switch. The switch is located in the engine room on the aft bulkhead. Turn ON the master disconnect switch to provide electricity to the Safety Breaker Panel. Circuit breakers on the Safety Breaker Panel control the flow of electricity to the other DC circuit breaker panels.

Refer to Section 9: *Engine Room* for the exact location of the Accessory batteries.

GENERATOR BATTERIES

The generator has its own dedicated battery. Electricity from the battery to the generator starter is controlled by a master disconnect switch (same as the battery disconnect on Page 1). The switch is located in the engine room near the base of the aft starboard bulkhead. Turn ON the master disconnect switch to provide electricity to the generator starter.

Refer to Section 9: *Engine Room* for the exact location of the Generator battery and dedicated master disconnect switch.

Monitoring Battery Voltage Levels

A fully charged battery that has not been charged or discharged for at least two hours should indicate between 12.3 and 12.6 volts. A reading below this level indicates a fully charged battery.

ENGINE BATTERIES

The voltage level of each engine battery pair is determined by activating the battery's dedicated voltmeter. The voltmeters are located at each helm. For each engine, a single LCD display provides information on engine temperature, oil pressure, and battery voltage level. To activate each engine's voltmeter, turn the engine's ignition key one position to the right.

NOTE: It is not necessary to start the engine to activate the fuel gauge. Refer to the OEM information for details on operating the engines.

Gauge Panel needs to be cycled to voltmeters and the engines at idle to indicate a correct running volt.

DANGER

BEFORE STARTING THE ENGINES, FOLLOW THE PROCEDURES DESCRIBED IN SECTION 5. IMPROPERLY STARTING THE ENGINES CAN BE HAZARDOUS

ACCESSORY BATTERY BANK

The voltage level of the accessory batteries is determined by using the voltmeter located on DC Control Panel. The DC Control Center is located next to the stairway in the Salon.

TO ACTIVATE THE VOLTMETER:

1. Turn ON the Accessory battery bank master disconnect switch, located on the STBD Aft Bulkhead.
2. Switch ON the MAIN circuit breaker. Single circuit breaker located on the DC Main Control Center.
3. Switch ON the System DC Main circuit breaker on the DC Control Center.

Charging the Batteries

While the engines are running, the alternators generally supply enough power to replace the power used by the yacht's12-volt and 24-volt equipment.

The port engine is equipped with an alternator that charges the 12-volt accessory battery bank. Without the port engine running the 12-volt equipment will eventually drain the batteries being used.

IF THE BATTERIES GET DRAINED, either:

1. Start the port engine or use the onboard battery chargers to recharge the batteries.
2. If not connected to shore power, run the generator to activate the battery chargers.

NEVER

NEVER ALLOW THE YACHT'S BATTERIES TO BECOME COMPLETELY DISCHARGED. COMPLETELY DISCHARGING A BATTERY CAN DAMAGE IT SO THAT THE BATTERY CAN NO LONGER BE RECHARGED.

THE BATTERY CHARGER SHOULD ALWAYS BE OPERATING WHEN THE BOAT IS CONNECTED TO SHORE POWER. TURN ALL BATTERY MASTER DISCONNECT SWITCHES TO THE OFF POSITION IF THE BOAT IS LEFT FOR AN EXTENDED PERIOD OF TIME AND THE BOAT IS NOT CONNECTED TO SHORE POWER.

BATTERY CHARGERS

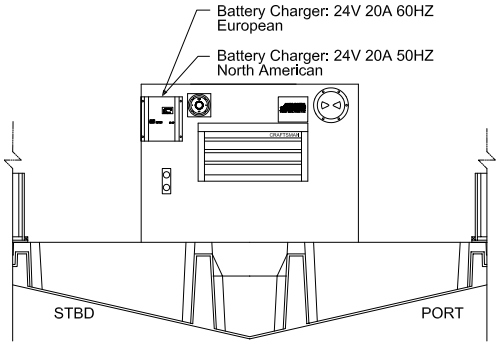
Two battery chargers are equipped onboard. (See next page for illustration)

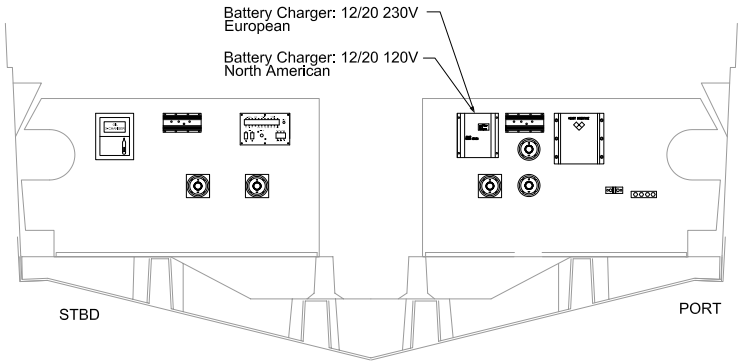
- A 100 amp battery charger monitors the voltage levels of the engine and house batteries
- A 20 amp battery charger monitors the generator battery

Both chargers are mounted on the Starboard DC Panel bulkheads in the Engine Room.

OPERATING THE BATTERY CHARGER:

1. Supply AC power to the boat, from either a shore power source or the onboard generator. Refer to Section 3: *Shore Power* and/or *Generator Power* for more information.
2. Switch the AC Main Circuit to proper power source and Battery Charger circuit breaker to ON, located on the AC Panel (Salon). Refer to Section 3: *AC Main Distribution Panel* for more information on the circuit breakers.





ENGINE/THRUSTER & GENERATOR BATTERY CHARGERS

The voltage level of the generator battery is monitored and maintained by a single battery charger. Additionally, when the generator is operating, its alternator maintains the voltage level of the generator battery.

OPERATING THE ENGINE/THRUSTER OR GENERATOR BATTERY CHARGERS:

1. Provide AC power to the yacht. Power should be generated from either the onboard generator or a shore power source. Refer to Section 3: *Shore Power* and/or *Generator Power* for more information.
2. Switch ON the Port Engine circuit breaker, Starboard Engine circuit breaker, and/or Generator circuit breaker, located on the DC Main Control Center, in the engine room on the starboard aft bulkhead. Refer to the DC Main Control Center portion of this section for more information on these circuit breakers.
3. Switch ON the engine and/or generator battery chargers circuit breakers, located next to the stairway in the salon. Refer to Section 3: *AC Control Center* for more information on this circuit breaker. The engine and generator battery chargers now automatically charge the engine and generator batteries when their voltage drops below a predetermined level.

The engine and generator battery chargers are located in the engine room on the port aft bulkhead. Refer to Section 9 - Engine Room for the exact location of the battery chargers.

ACCESSORY BATTERY CHARGER

The voltage levels of both accessory batteries are monitored and maintained by a single battery charger. The Accessory battery charger is located in the engine room on the port aft bulkhead. Refer to Section 9: *Engine Room* for the battery charger exact location

OPERATING THE BATTERY CHARGER:

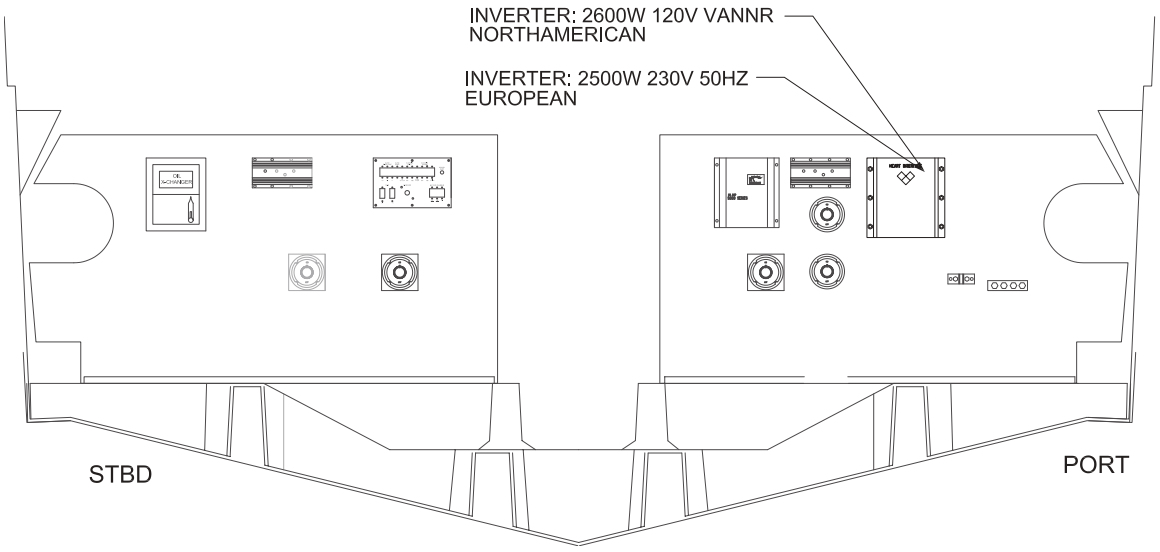
1. Provide AC power to the yacht. Power should be generated from either the onboard generator or a shore power source. Refer to Section 3: *Shore Power* and/or *Generator Power* for more information.
2. Switch ON the Inverter/Charger circuit breaker. The Inverter/Charger circuit breaker is on the AC Control Panel, located next to the stairway in the salon. Refer to Section 3: *AC Control Center* for more information on the Inverter/Charger circuit breaker. Once the breaker is ON the accessory battery charger will automatically charge the accessory batteries when the battery's voltage level drops below the manufacturer's specified level.

WARNING

THE MAIN SAFETY BATTERY SHUT OFF SWITCH MUST BE IN THE "ON" POSITION TO CHARGE THE 24-VOLT ACCESSORY BATTERY BANK. CONDITION APPLIES TO THE ACCESSORY BATTERY BANK ONLY. THE ACCESSORY SAFETY MAIN SWITCH IS LOCATED ON THE AC CONTROL PANEL NEXT TO THE STAIRWAY IN THE SALON..

Inverter

The Accessory battery charger is also an inverter. The inverter/battery charger is designed to convert DC electricity from the accessory batteries to AC electricity on a limited basis, aside from charging the accessory batteries. When AC power is not provided to the yacht, the inverter is designed to operate specific equipment onboard that requires AC electricity. The inverter is located in the engine room on the port aft bulkhead. Refer to Section 9: *Engine Room* for the exact location of the inverter.



The equipment that the inverter operates, includes:

- Salon entertainment center
- Galley refrigerator and freezer
- Optional bridge refrigerator or ice maker

OPERATING THE EQUIPMENT USING THE INVERTER:

3. Switch ON the inverter. The switch is located on the side of the inverter.
4. Switch ON the Inverter/Charger circuit breaker located on the AC Control Panel, next to the stairway in the salon. Refer to Section 3: *AC Control Center* for more information on this circuit breaker.
5. Switch "ON" the Entertainment Center Salon circuit breaker, Refrigerator/Freezer circuit breaker, and/or Exterior Refrigerator or Icemaker circuit breaker. Refer to Section 3: *AC Control Center* for more information on the circuit breakers.

   The activated equipment should now operate properly.

CAUTION

IF THE INVERTER SHOULD FAIL, THE INVERTER BYPASS SWITCH MUST BE TURNED FROM ITS NORMAL INVERT POSITION TO THE BYPASS POSITION. CONDITION APPLIES EVEN IF CONNECTED TO SHORE AC POWER OR IF THE GENERATOR IS BEING USED TO SUPPLY AC POWER TO THE REFRIGERATION AND ENTERTAINMENT EQUIPMENT.

NOTE: Using the inverter to power AC equipment will eventually discharge the Accessory batteries. The inverter auto matically shuts off if the battery voltage level decreases below 10.5 volts. If the inverter shuts off, any AC equip ment operating from the inverter also shuts off. Charge the batteries as described earlier in this section if the inverter and attributing equipment shuts off.

DANGER

DEATH OR SERIOUS INJURY FROM ELECTRICAL SHOCK MAY OCCUR BY FAILURE TO SWITCH "OFF" THE INVERTER ON/ OFF SWITCH BEFORE SERVICING THE DC OR AC ELECTRICAL SYSTEM. THE INVERTER SWITCH IS LOCATED ON THE INVERTER SIDE. DISCONNECT THE BATTERY LEADS TO THE INVERTER.

Battery Maintenance

DANGER

THE BATTERIES CONTAIN AN ACID CALLED ELECTROLYTE. WEAR GLOVES AND PROTECTIVE EYE WEAR WHEN WORK- ING ON AND AROUND THE BATTERIES. AVOID CAUSING DAMAGE THAT COULD SPILL ELECTROLYTE INTO THE ENGINE ROOM OR BILGE WHEN SERVICING THE BATTERIES. AVOID GETTING SALTWATER IN OR ON THE BATTERY. EITHER CONDITION CAN CREATE A POISONOUS GAS THAT IS HARMFUL IF INHALED.

IF THE BATTERY IS DAMAGED AND ELECTROLYTE GETS SPILLED:

1. Ventilate the area of the spill.
2. Neutralize the acid in the electrolyte by pouring baking soda on the spill.
3. Remove the neutralized electrolyte using a disposable rag or paper towel.
4. Replace damaged/leaking battery.

While the batteries are relatively maintenance-free, to increase the batteries effectiveness and life perform the following:

- Keep the batteries fully charged. Batteries that are kept fully or near fully charged last longer than batteries stored with a partial charge. The charge level of the batteries can be monitored using the voltmeters on the helm instrument panel (engine batteries) or tribulation panel (accessory batteries).
- Inspect the batteries at least once every 30 days for corrosion, loose wiring, dirt, etc.

WARNING

DISCONNECT THE BATTERIES BEFORE CLEANING.

- Periodically clean the battery terminals and cable connections. Remove any accumulation of dirt on the top of the battery case. Use a wire brush to clean the terminals. Coating the terminals with a terminal protecting product will help reduce corrosion that can form in these areas.
- Make sure the battery cables are securely attached to the terminal posts. Tighten the terminal nuts snugly using a torque wrench, to 20ft/lbs.
- Remove the batteries from the boat during periods of extended storage of extended storage in freezing climate areas. Store the batteries in a cool (above freezing temperature), dry area. All batteries lose some charge during storage, but the lower the temperature the less charge is lost. Avoid storing the batteries in a humid place.
- Check the battery charge level once every three months using a hydrometer or voltmeter. Charge the battery if the specific gravity of the battery is less than 1.225 or the voltage is less than 12.4 Volts. AVOID OVERCHARGING THE BATTERIES.
- Batteries are maintenance free. Electrolyte cannot be checked

Operating the 12V DC Equipment

Power to the yachts 12 Volt DC components is controlled by circuit breakers, and individual controls for each component.

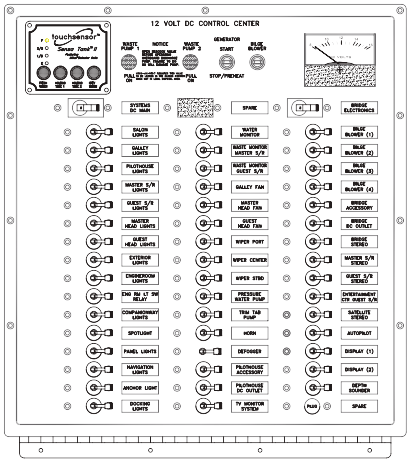
The boat contains two DC circuit breaker panels:

- DC Control Center (Engine Room)
- DC Control Panel (Salon)

The circuit breakers on the DC Control Center enables the user to control the DC components by switching the breakers ON or OFF. All of the circuit breakers protect the electrical system by automatically disconnecting the circuit from the power source in the event of a short or overload. Power is supplied to the circuit breaker panels by the accessory batteries.

Thermal circuit breakers are also installed in many circuits to provide added protection.

NOTE: If a circuit breaker location is labeled, but no circuit breaker is present, the component named on the label is an option that is not installed.



DC Control Panel

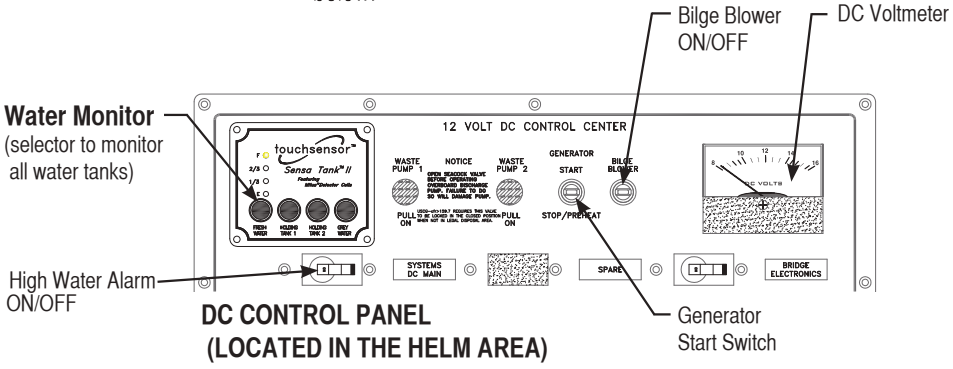
NEVER

NEVER RESET A BREAKER OR REPLACE A FUSE THAT HAS AUTOMATICALLY TRIPPED WITHOUT FIRST CORRECTING THE PROBLEM. FAILURE TO MAY NECESSARY CORRECTIONS MAY CREATE A DANGEROUS SITUATION.

PROVIDING POWER TO THE DC CONTROL PANEL:

1. Turn ON the Accessory battery bank master disconnect switch. The master disconnect switch is located in the engine room on the starboard aft bulkhead.
2. Switch ON the Main (single circuit breaker) located on the Safety Breaker Panel.

The DC Control Center contains the switches, gauges, and circuit breakers described below.



DC CONTROL PANEL (LOCATED IN THE HELM AREA)

AUTO PILOT (OPTION)

The Auto Pilot breaker controls the flow of electricity to the optional automatic piloting system. Switch the Auto Pilot breaker ON to supply power to the auto pilot. Refer to the OEM information for details on operating the auto pilot.

BILGE BLOWERS 1 - 4

The Bilge Blower breakers control the bilge blower switches located at the helm. The bilge blower breakers are located on the DC Control panel. Turn the bilge blower breakers ON to supply power to the switches. Use the switches to manually operate the bilge blowers. The bilge blowers also operate automatically when the starboard engine ignition switch is turned ON or the generator is running.

BRIDGE ACCESSORY

The Bridge Accessories breaker controls the flow of electricity to any aftermarket accessories installed at the pilothouse helm. Turn the breaker ON to activate the accessories. Refer to the accessories' manuals for information on operating the accessories.

BRIDGE VHF RADIO (OPTION)

The Bridge VHF Radio breaker controls the flow of electricity to the optional VHF radio at the bridge helm. Switch ON the Bridge VHF Radio breaker to supply power to the radio . Refer to the OEM information for details on operating the radio.

SAFETY SYSTEM

The safety systems include:

- High water alarm
- CO detectors in salon and staterooms
- Three automatic/manual bilge pumps, 2000 gpm each pump

The safety system circuit breakers should remain ON at all times due to the high level of importance the system holds.

IF A SAFETY SYSTEM CIRCUIT BREAKER TRIPS:

1. Immediately identify and correct the cause of the problem.
2. Reset the breaker.

CABLEMASTER (OPTION)

The Cablemaster breaker controls the optional Cablemaster motor and transom-mounted controls. Switch the Cablemaster breaker ON to supply power to the motor and controls. Refer to the vendor information for details on operating the Cablemaster. The Cablemaster breaker is located in the Starboard Aft Locker.

CHART PLOTTER (OPTION)

The Chart Plotter breaker controls the flow of electricity to the optional chart plotter system. Switch the Chart Plotter breaker ON to supply power to the system. Refer to the OEM information for details on operating the chart plotter.

DC MAIN - SYSTEM

The DC Main - System breaker controls the flow of electricity to all other circuit breakers on the DC panel. Switch the System DC Main breaker ON to supply power to the other circuit breakers. Switch the breaker OFF to cut off the power to the other breakers.

DC OUTLET BRIDGE

The DC Outlet Bridge breaker controls the flow of electricity to the 12-volt outlet located at the bridge helm. Various types of 12-volt equipment can be operated from the outlet, such as: a cellular phone, hand-held spotlight, and laptop computer. Switch the breaker ON to activate the outlet.

DC OUTLET PILOTHOUSE

The DC Outlet Pilothouse breaker controls the flow of electricity to the 12-volt outlet located at the pilothouse helm. A variety of types of 12-volt equipment can be operated from the outlet, such as: a cellular phone, spot light, and laptop computer. Switch the breaker ON to activate the outlet.

DEFOGGER

The Defogger breaker activates the defogger fans for the pilothouse helm windshields.

Turning the Fans ON:

1. Locate the DC Control Panel
2. Switch ON the Defogger circuit breaker
3. Press the Defogger switch to the UP position, located on the Lower Helm

DEPTH SOUNDER (OPTION)

This Depth Sounder breaker controls the flow of electricity to the optional depth sounder system. Switch the breaker ON to supply power to the depth sounder. Refer to the OEM information for details on operating the depth sounder.

ENTERTAINMENT CENTER CIRCUIT BREAKERS

The Entertainment Center circuit breakers controls various functions of the entertainment system associated with the entertainment center, including: Television, DVD Players, Speakers, etc.

FAN - CREW QUARTERS

The Fan Crew Quarters breaker controls the flow of electricity to the fresh air fan switch in the optional transom crew quarters. Turn the breaker ON to supply power to the switch.

FAN - GALLEY

This Fan Galley breaker controls the flow of electricity to the exhaust fan switch in the galley. Turn the breaker ON to supply power to the switch.

FAN - GUEST STATEROOM HEAD

The Fan Guest Stateroom Head breaker controls the flow of electricity to the exhaust fan switch in the starboard head. Turn the breaker ON to supply power to the switch.

FAN - MASTER STATEROOM HEAD

The Fan Master Stateroom Head breaker controls the flow of electricity to the exhaust fan switch in the port head. Turn the breaker ON to supply power to the switch.

GENERATOR

Use the Generator switch to start and stop the generator.

GPS (OPTION)

The GPS breaker controls the flow of electricity to the optional global positioning system. Turn the breaker ON to supply power to the system. Refer to the OEM information for details on operating the GPS.

GRAY WATER MONITOR (OPTION)

The Gray Water Monitor breaker controls the flow of electricity to the monitor for the optional gray water tank. Turn the breaker ON to supply power to the monitor.

HELM ACCESSORIES

The Helm Accessories breaker controls the flow of electricity to any aftermarket accessories installed at the flybridge helm. Turn the breaker ON to supply power to Helm Accessories. Refer to the accessories' manuals for information on operating the accessories.

LIGHTS - COMPANIONWAY

The Lights - Companionway breaker controls the flow of electricity to the companionway's light switch. Turn the breaker ON to supply power to the switch. The companionway lights illuminate the companionway leading from the pilothouse to the lower deck.

LIGHTS - CREW QUARTERS

The Lights - Crew Quarters breaker controls the flow of electricity to the light switch in the optional crew quarters. Turn the breaker ON to supply power to the switch.

LIGHTS - ENGINE ROOM

The Lights - Engine Room breaker controls the flow of electricity to the engine room's light switch. The switch is located in the starboard forward corner of the cockpit. A green light below the switch is illuminated when the engine room lights are on. Turn the breaker ON to supply power to the switch.

LIGHTS - EXTERIOR

The Lights - Exterior breaker controls the flow of electricity to the courtesy lights in the cockpit and flybridge. Turn the breaker ON to supply power to the lights.

LIGHTS - GALLEY

The Lights - Galley breaker controls the flow of electricity to the light switch in the galley. Turn the breaker ON to supply power to the switch.

LIGHTS - GUEST STATEROOM

The Lights - Guest Stateroom breaker controls the flow of electricity to the light switches in the forward and third staterooms. Turn the breaker ON to supply power to the switch.

LIGHTS - GUEST STATEROOM HEAD

The Lights - Guest Stateroom Head breaker controls the flow of electricity to the light switches in the starboard head. Turn the breaker ON to supply power to the switch.

LIGHTS - MASTER STATEROOM

The Lights - Master Stateroom breaker controls the flow of electricity to the light switches in the aft stateroom. Turn the breaker ON to supply power to the switch.

LIGHTS - MASTER STATEROOM HEAD

The Lights - Master Stateroom Head breaker controls the flow of electricity to the light switches in the port head. Turn the breaker ON to supply power to the switch.

LIGHTS - PILOTHOUSE

The Lights - Pilothouse breaker controls the flow of electricity to the light switch in the pilothouse. Turn the breaker ON to supply power to the switch.

LIGHTS - SALON

The Lights - Salon breaker controls the flow of electricity to the light switches in the salon. Turn the breaker ON to supply power to the switch. The salon light switches are controlled by microprocessor dimmers. If power to the lights is lost, turn the Lights - Salon circuit breaker OFF then back ON to reset the dimmers.

PILOTHOUSE VHF RADIO (OPTION)

The Pilothouse VHF Radio breaker controls the flow of electricity to the pilothouse helm's optional VHF radio. Turn the breaker ON to activate the VHF radio. Refer to the OEM information for details on operating the radio.

PRESSURE WATER PUMP (OPTION)

The Pressure Water Pump breaker controls the flow of electricity to the fresh water system's pressure water pump. Switch ON the breaker to activate the pressure water pump after the fresh water tanks are filled. Refer to Section 4: *Priming the Water System* for information on using the pressure water pump to fill and prime the water system.

RADAR (OPTION)

The Radar breaker controls the flow of electricity to the optional radar system. Switch ON the breaker to supply power to the radar. Refer to the OEM information for details on operating the radar.

RAY DATA REPEATER (OPTION)

The Ray Data Repeater breaker controls the flow of electricity to the optional data repeater system installed at the flybridge helm. Switch ON the breaker to supply power to this system. Before activating the data repeater, first activate the primary navigation equipment located at the pilothouse helm. Refer to the OEM information for details on operating the data repeater.

SHOWER SUMP - CREW QUARTERS (OPTION)

The Shower Sump - Crew Quarters breaker controls the flow of electricity to the sump pump in the optional transom crew quarters. Because the sump is located below the boat's water line, the sump pump is needed to pump shower and sink waste water overboard or into the optional grey water tank. The sump pump is activated automatically by a float switch whenever water within the sump rises above a predetermined level. Switch ON the breaker before using the shower or sink in the crew quarters.

SEAKEY® (OPTION)

The Seakey breaker controls the SeaKey telemetric equipment. The telemetric equipment is activated with a current service subscription. If a subscription is purchased, the breaker must be ON to provide electricity to the equipment. Refer to the OEM information for details on the SeaKey equipment.

SPOTLIGHT (OPTION)

The Spotlight breaker controls the flow of electricity to the spotlight located at the fore of the yacht. Turn ON the breaker to activate the spotlight. Refer to the OEM information for details on operating the spotlight.

STEREO (MASTER STATE ROOM AND GUEST STATEROOM)

The Master Stateroom Stereo breaker and Guest Stateroom breaker controls the flow of electricity to the optional stereo at each of the specified stateroom.

Switch ON the Master Stateroom Stereo breaker to supply power to the Master Stateroom stereo. Refer to the OEM information for details on operating the stereo.

Switch ON the Guest Stateroom Stereo breaker to supply power to the Guest Stateroom stereo. Refer to the OEM information for details on operating the stereo.

SATELLITE STEREO

The Satellite Stereo circuit breaker controls the flow of electricity to the satellite stereo located at the helm. Turn ON the breaker to activate the satellite stereo. Refer to the OEM information for details for operation.

TRIM TABS

The Trim Tabs breaker controls the flow of electricity to the trim tab controls at both helms. Trim tabs are used to improve the running angle of the yacht while underway. Switch ON the Trim Tabs breaker to activate the trim tab controls. Refer to Section 6: *Trim Tabs* for more information on using the trim tabs.

TRIM TAB PUMP

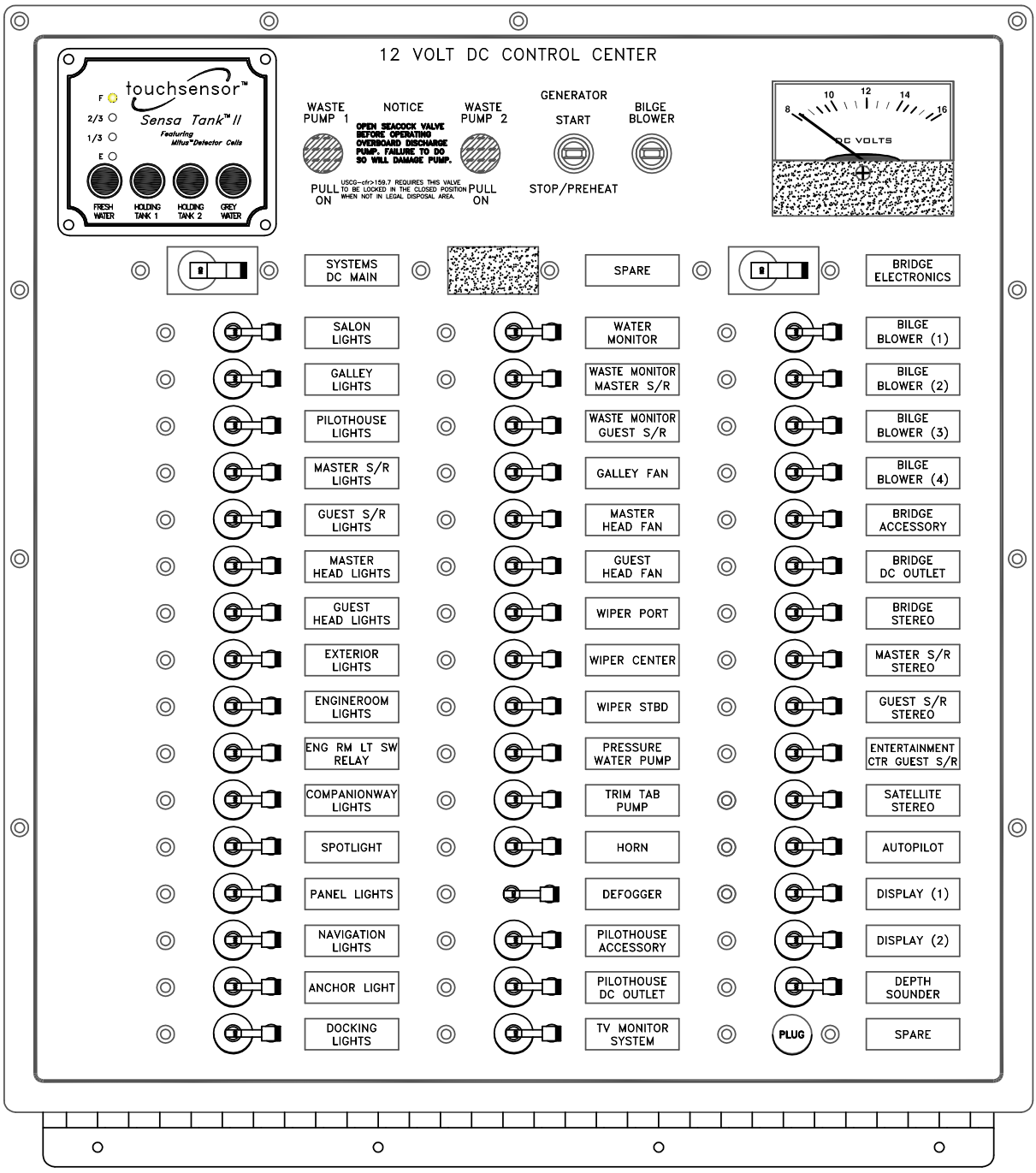
The Trim Tab Pump breaker controls the flow of electricity to the trim tab pump located. Turn ON the breaker to activate the trim tab pump . Refer to the OEM information for details on operating the trim tab pump.

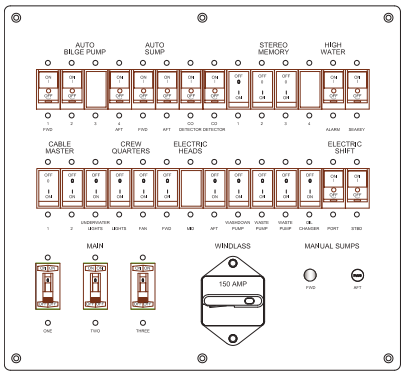
WASTE PUMP (OPTION)

The Waste Pump breaker controls the waste pump switch for the optional overboard discharge system. Use the waste pump to empty the waste tank directly overboard. The discharge switch is located in the Port Aft Locker.

WASHDOWN PUMP (OPTION)

The Washdown Pump breaker controls the optional transom raw water washdown pump. Switch the washdown pump breaker ON to activate the washdown pump. Turn the washdown pump off by switching the washdown pump breaker OFF when finished using the washdown. For information on using the washdown pump, refer to Section 4: *Raw Water Washdown*.





DC Control Center

The DC Control Center, located in the engine room on the starboard aft bulkhead, manages the power supply to various safety and other equipment. Refer to Section 9 - Engine Room for the exact location of the DC Control Center.

The DC Control Center circuit breakers should remain ON at all times because of the importance of the panel. If a circuit breaker trips, immediately identify and correct the cause of the problem, then reset the breaker.

Power is always provided to the Auto Bilge Pump, Auto Sump, CO Detector, Stereo Memory, Electric Shift, and Battery Charger circuit breakers on this panel. To provide power to the other circuit breakers, the Accessory battery bank master disconnect switch must be turned to the "ON" position. The Safety Breaker Panel contains the switches and circuit breakers described below.

AUTO BILGE PUMP; FORWARD, MID, AND AFT:

Each bilge pump is activated automatically by a float switch when water within the bilge rises to the manufacturers specifications. **The auto bilge pump breakers must be ON when the yacht is in the water**. See **DC Control Center** Illustration at the end of this section for the Auto Bilge Pump breaker location.

NOTE: Periodically test each bilge pump by operating the manual switch, or by placing two moist fingers on the two round raised areas located on the inside of the switch. The switch is located next to the pump. The pump should turn on after a few seconds of finger contact.

AUTO SUMP PUMP

Switch the Auto Sump Pump breaker ON before using any items on the yacht that drain into the sump. The sump pump is activated automatically by a float switch when water within the sump rises above a point where the water needs to be relocated. For a description of the sump system, refer to Section 4*: Gray Water*.

BATTERY CHARGER

The battery charger breakers protect the circuitry between the engine/thruster battery charge rand the port engine battery/bow thruster and the starboard engine/stern thruster battery. The battery charger automatically charges the batteries when the breakers are ON, and the voltage level of one or more of the batteries decreases below the manufacturers specified level.

CO MONITOR

Carver has installed several carbon monoxide (CO) detectors for personal safety. The CO detectors continuously check the air in the cabin for the presence of carbon monoxide. The breakers must be ON for the CO detectors to operate.

WARNING

ALWAYS ACTIVATE THE CO DETECTORS WHEN THE ENGINES OR GENERATOR ARE RUNNING. CARBON MONOXIDE IS DANGEROUS.

FOR INFORMATION ON MINIMIZING, DETECTING, AND CONTROLLING CARBON MONOXIDE ACCUMULATION REFER TO SECTION 1: *CARBON MONOXIDE (CO) WARNINGS*.

The CO Detectors alert passengers to the presence of carbon monoxide in the cabin. The detectors emit a loud, high-pitched sound when activated. If the alarm sounds, determine the cause of the CO accumulation, and correct the problem immediately.

Test each unit on a weekly basis. Locate the test button on each CO detector. If suspected that the CO detector is faulty, have your dealer repair the detector or replace the detector immediately.

Refer to Section 1: Carbon Monoxide (CO) Warnings for more information on CO.

ELECTRIC HEADS - PORT AND STARBOARD

The Electric Head breaker controls the electric pump that flushes the toilet in the head. Switch the Electric Head breaker ON to enable the pump. Pressing the foot switch on the toilet then flushes the toilet. Refer to Section 4: *Toilets* and the OEM information for details on operating the toilet.

ELECTRIC SHIFT - PORT AND STARBOARD

The Electric Shift breakers control the flow of electricity to the electronic shift/throttle levers at both helms. The left shift/throttle lever controls the port engine; the right shift/throttle lever controls the starboard engine. Switch the breakers ON to activate the shift/throttle levers. Refer to Section 5: *Shift/Throttle* and the OEM information for details on operating the shift/throttle system

HIGH WATER ALARM

The High Water Alarm breaker controls the flow of electricity to the high bilge water alarm. For a description of the high bilge water alarm, refer to Section 4: *Bilge System*. The high water alarm breaker must be ON when the boat is in the water.

MAIN - ONE

The Main - One breaker protects the circuitry between the DC Control Center and the Accessory battery bank. The breaker must be ON to provide power to the DC Control Center.

MAIN - TWO

The Main - Two breaker helps protect the circuitry between the Pilothouse Overhead Panel and the Accessory battery bank. The breaker must be ON to provide power to the Pilothouse Overhead Panel.

MANUAL SUMP

Use the Manual Sump control to manually operate the sump pump. Pull the control out to turn ON the sump pump. Push the control in to turn OFF the pump. Use the control to drain the sump when not enough water is available to automatically activate the sump pump.

OIL CHANGER (OPTION)

The Oil Changer breaker controls the oil change system. The oil changing system is designed to assist in changing the propulsion engines and generator engine oil. Switch the breaker ON to enable the system.

The Oil Change System is located in the engine room, next to the starboard bulkhead. Refer to the OEM information for details on operating the system.

STEREO MEMORY

The Stereo Memory breakers control the stereo systems. The stereo memory breakers should always be ON to maintain the information programmed into the stereo's memory. The stereos will need to be reprogrammed if the stereo memory breaker is switched OFF.

Refer to the OEM information for details on programming the stereos.

VOLTMETER

The volt meter indicates the amount of voltage available from the Accessory battery bank. Refer to Monitoring Battery Voltage Levels earlier in this section for more information on the voltmeter.

WASTE MONITOR - GUEST STATEROOM (OPTION)

The Waste Monitor - Guest Stateroom breaker controls the flow of electricity to the starboard waste tank's optional monitor. The monitor, located in the guest stateroom head, indicates the amount of waste in the starboard waste tank. Switch the breaker ON to supply power to the monitor.

WASTE MONITOR - MASTER STATEROOM (OPTION)

The Waste Tank = Guest Stateroom breaker controls the flow of electricity to the port waste tank's optional monitor. The monitor,

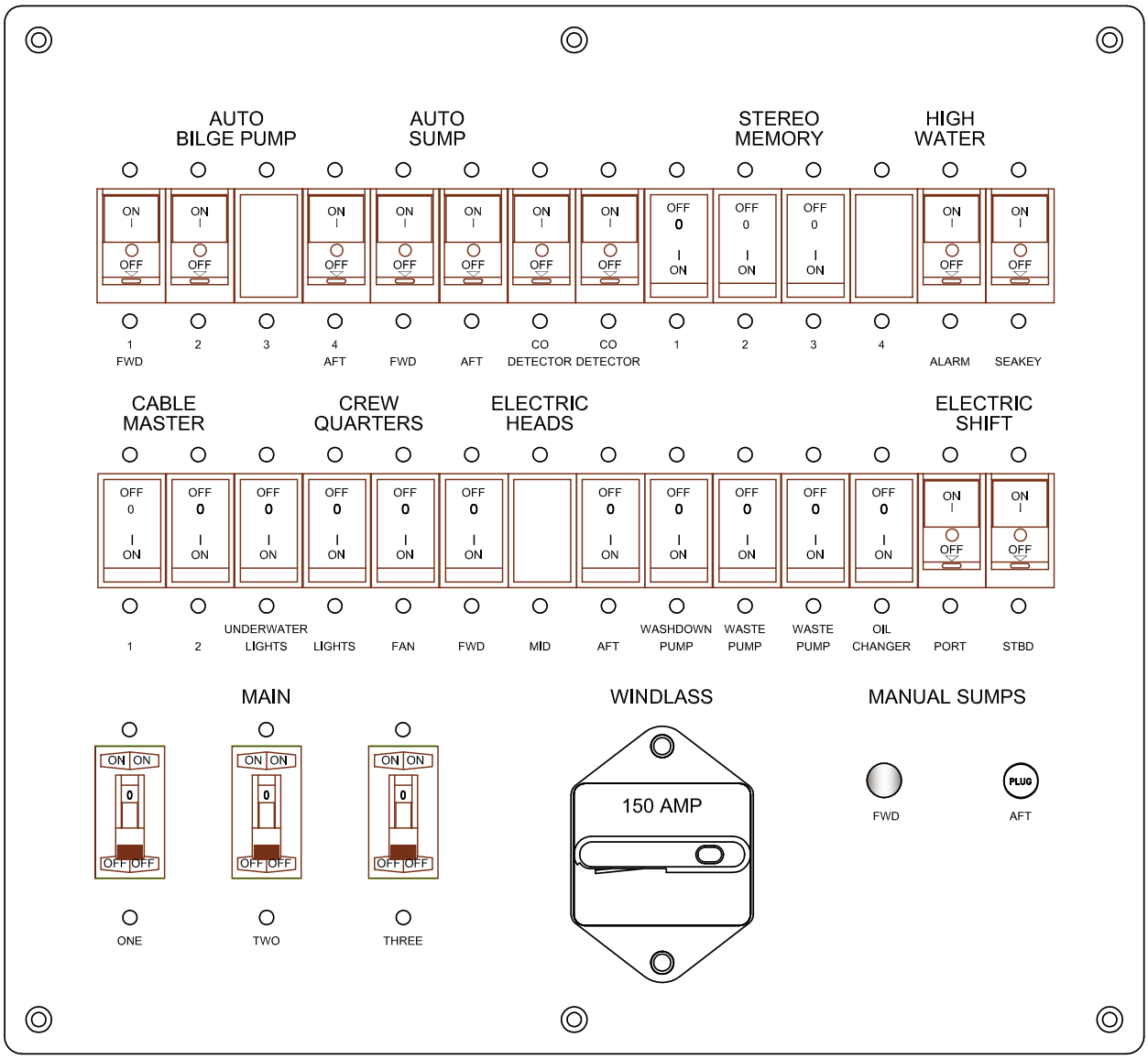
located in the master stateroom head, indicates the amount of waste in the port waste tank. Switch the breaker ON to supply power to the monitor.

WATER LEVEL GAUGE (OPTION)

This optional Water Level Gauge indicates the amount of water in the fresh water tanks. Switch the Water Monitor circuit breaker ON to activate the optional fresh water monitoring system.

WATER MONITOR (OPTION)

The Water Monitor breaker controls the flow of electricity to the optional fresh water monitoring system, including the water level gauge. To supply power to the system, switch this breaker “ON.”

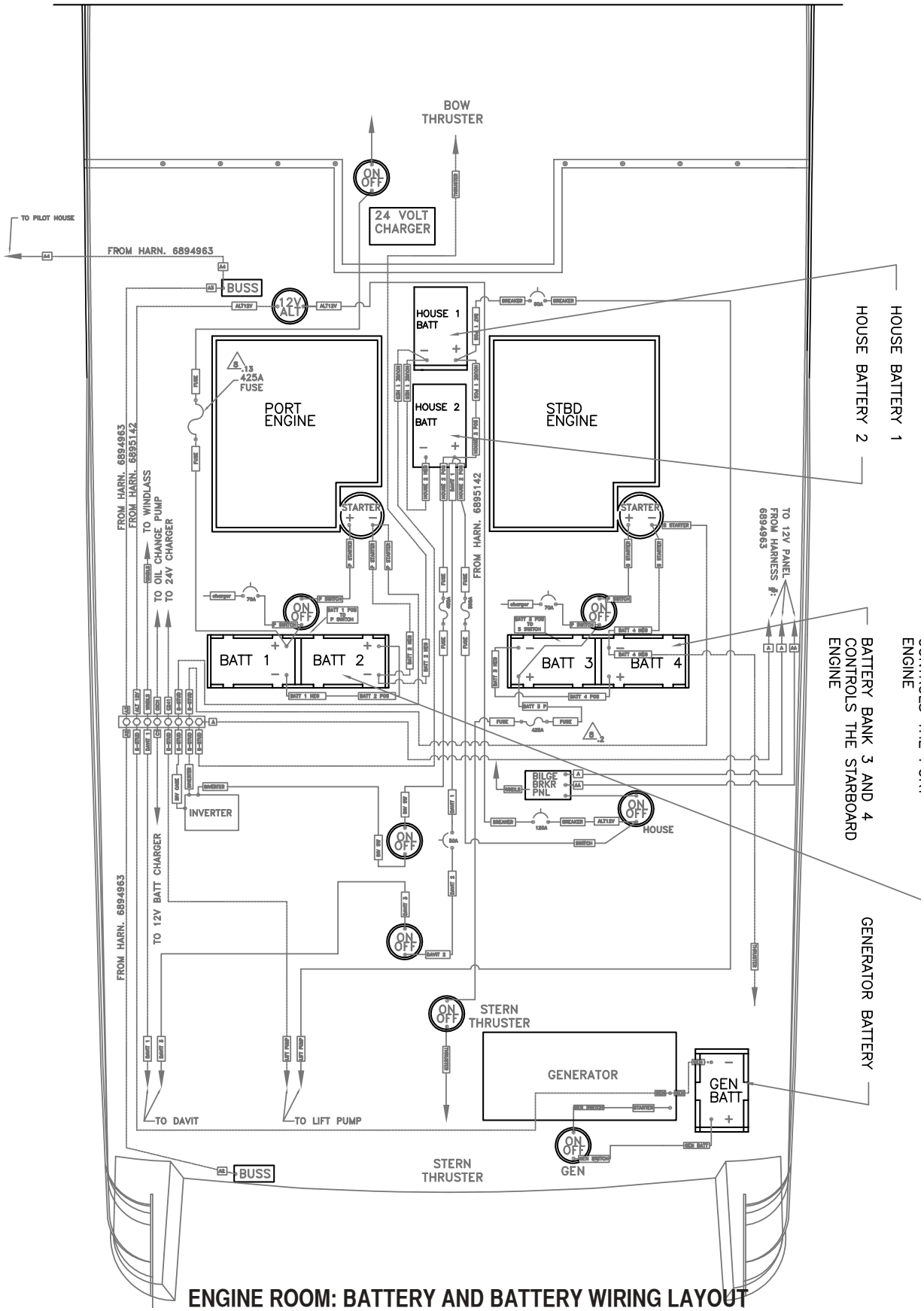


DC CONTROL CENTER

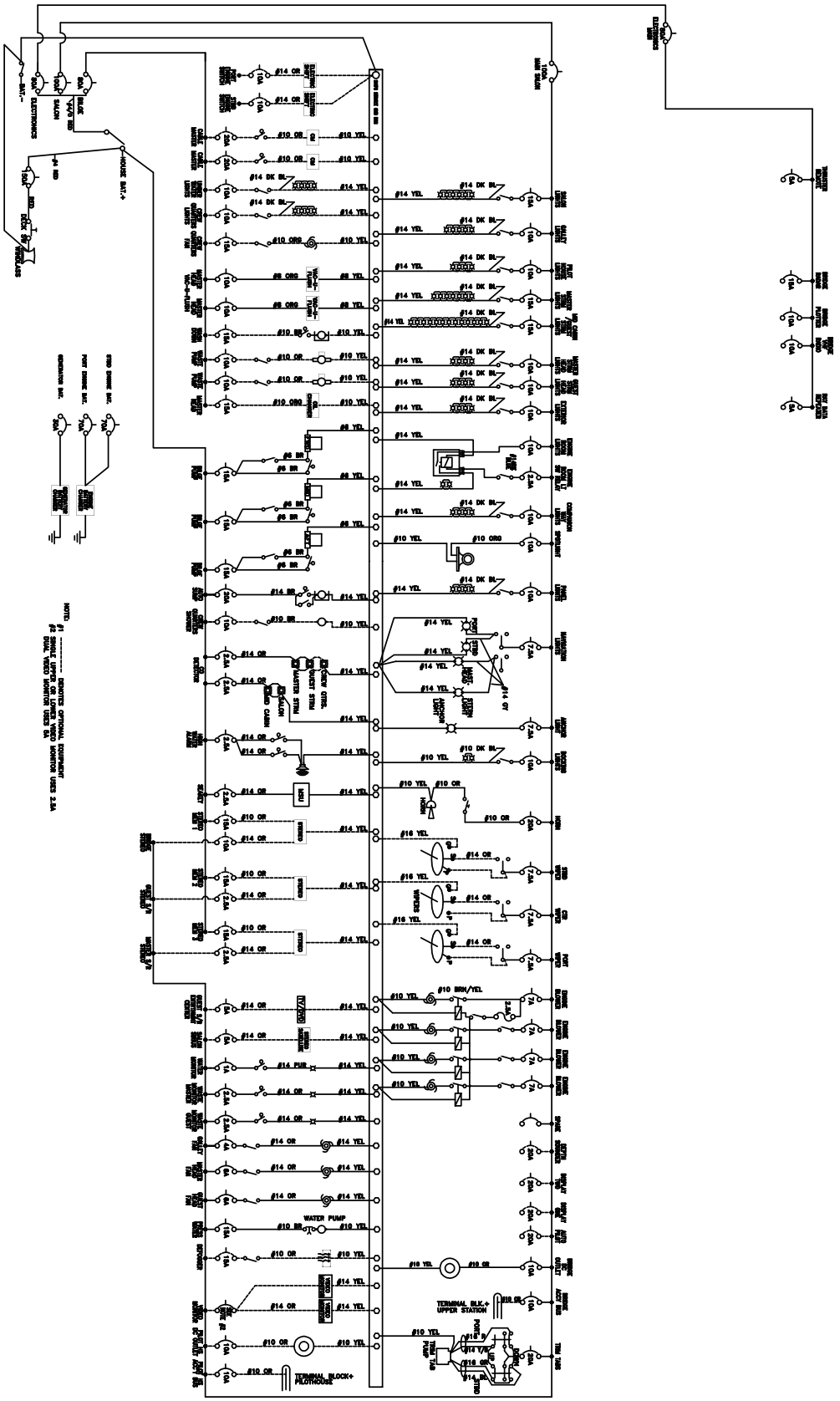
PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
12-VOLT EQUIPMENT DOES NOT FUNCTION.	Battery bank master disconnect switch is in the “OFF” position.	Turn the switch to the “ON” position.
	Main-One or Main-Two circuit breaker on the Safety Breaker Panel is “OFF.”	Turn both circuit breakers “ON.”
	System DC Main, Pilothouse DC Main or Electronics Main circuit breaker on the DC Control Center is “OFF.”	Turn the circuit breaker “ON.”
	Battery is weak or dead.	Start the engines or activate the appropriate battery charger.
INDIVIDUAL 12-VOLT COMPONENT DOES NOT FUNCTION.	Circuit breaker for that component is “OFF” or tripped.	Switch the circuit breaker for that component “ON.
	Battery is weak or dead.	Start the engines or activate the appropriate battery charger.
	A wire within the 12-volt system is loose or disconnected.	Locate and repair the wire.
CABIN LIGHTS DO NOT COME ON OR ARE DIM.	The appropriate circuit breaker(s) on the DC Control Center is “OFF.”	Switch circuit breaker(s) “ON.”
	Battery is weak or dead.	Start the engines or activate the engine/ accessory battery charger.
	One or more light bulbs are burned out.	Replace light bulb(s).
BATTERY DOES NOT HOLD A CHARGE.	Battery failed.	Replace with a new battery.
ENGINE IS RUNNING AND VOLTMETER DOES NOT INDICATE ADEQUATE VOLTAGE.	Engine alternator belt is loose.	Refer to engine OEM information to tighten the belt.

DC Electrical Problems, Cause, and Solution

(See next page for Engine Room Layout)



ENGINE ROOM: BATTERY AND BATTERY WIRING LAYOUT



DC WIRING SCHEMATIC

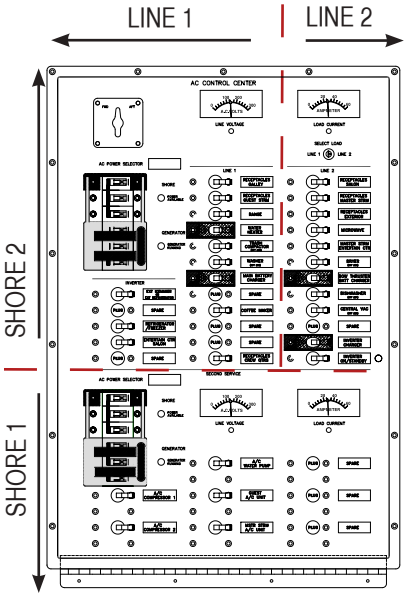
AC Electrical System

An AC (alternating current) electrical system is installed onboard. The power for the system is supplied by either a shore power source or the onboard generator. The Shore Power Connection Procedure and the Onboard Generator Procedure are explained later in this section.

The AC Control Panel is divided into two sections; the voltage and Hz varies depending on which part of the county the yacht is being shipped to. See below for description:

The AC Control Panel is broken up into two 50 amp sections (North American) or three 32 amp sections (European):

- NORTH AMERICA or the PACIFIC RIM: Shore 1 (120V/240V, 60Hz), Shore 2 (120V/240V, 60Hz), and an optional AC electrical system.
- EUROPE, RUSSIA, MIDDLE EAST, etc. Shore 1 (230V 50Hz) and Shore 2 (230V 50Hz) AC electrical system is divided into two circuits.



AC Main Circuit Panel (N. American):
Located in (Salon area)

System Organization

NORTH AMERICA/ PACIFIC RIM ELECTRICAL SYSTEM

SHORE 1

Line 1 (32 amp) circuit, located on the AC electrical system provides power to all of the AC components listed on the Line 1 column circuit breakers on the AC Control Center (located next to the stairway in the Salon). Line 1 is configured as 120/240 volts 60 Hz.

SHORE 2/AIR CONDITIONING CIRCUIT

Line 2 (32 amp) circuit, located on the AC electrical system provides power to all of the AC components listed on the Line 2 column of circuit breakers on the AC Control Center. Line 2 is configured as 120/240 volts 60 Hz.

EUROPEAN ELECTRICAL SYSTEM

SHORE 1

Shore 1 (50 amp) circuit on the AC electrical system provides power to all of the AC equipment except, the air conditioning system. Shore 1 is configured as 230 volts 50 Hertz.

SHORE 2/AIR CONDITIONING CIRCUIT

Shore 2 (50 amp) circuit, located on the AC electrical system provides power to all of the AC components listed on the Shore 2 column of circuit breakers on the AC Control Center. Shore 2 is configured as 230 volts 50 Hz.

WIRING SYSTEM

The AC electrical system uses four types of color-coded wires. The color coding is as follows:

BLACK WIRE (110 volt): Carries the current from the power source to the equipment or receptacle. Each black wire is connected to and protected by a circuit breaker installed on the AC Control Center.

RED WIRE (220 volt): Carries the current from the power source to the air conditioning system, grill, etc. Each red wire is con nected to and protected by a circuit breaker installed on the AC Control Center.

WHITE WIRE: Returns the current from the equipment or receptacle to the power source.

GREEN WIRE: Safety ground wire. During normal operation, the current does not flow through the ground wires.

Buss bars are used in the AC electrical system to help route and organize the wires. The system's white, or neutral, wires are connected together at buss bars. The ground wires are also connected together at a separate buss bar.

DANGER

DO NOT TOUCH THE BLACK, RED, OR WHITE WIRES WHILE THE AC ELECTRICAL SYSTEM IS CONNECTED TO A POWER SOURCE. EACH WIRE CARRIES ENOUGH CURRENT TO KILL OR CAUSE SERIOUS INJURY.

AC Power Sources

SHORE POWER

NOTE: Remove all perishables from the refrigerator if the boat is unoccupied for more than forty-eight hours. The shore power supply to the refrigerator may be interrupted and food may spoil.

A Tip From Carver!

Storing a bag of ice cubes in your refrigerator freezer section will help maintain the temperature if power is disconnected. Melted ice indicates a long period power loss, and all food should be considered spoiled.

CAUTION

DO NOT SUPPLY POWER TO THE WATER HEATER WHEN IT IS EMPTY. FIRE DAMAGE MAY RESULT IF THE HEATING ELEMENT IS DAMAGED.

SHORE POWER CONNECTION

SHORE POWER CONNECTION PROCESS:

STEP 1: Switch OFF the Water Heater circuit breaker on the AC Control Center, located next to the stairway in the salon. Do not switch the breaker on again until the fresh water system has been filled, pressurized, and primed.

STEP 2: Switch both Shore and Generator circuit breaker groups OFF on the AC Control Center.

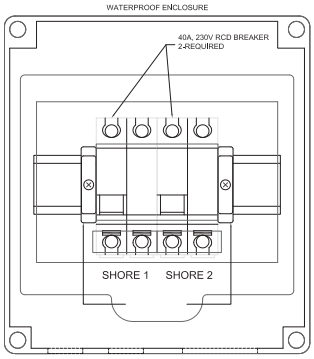
STEP 3: Switch OFF the AC Main circuit breaker group(s), located in the port transom storage locker.

DANGER

ELECTRICAL SHOCK RESULTING IN DEATH OR SERIOUS INJURY CAN INCUR BY USING A DAMAGED SHORE POWER CORD OR A CORD THAT IS NOT DESIGNED FOR ITS PURPOSE. THE SHORE POWER CORD MUST BE IN EXCELLENT CONDITION WITH NO CUTS, NICKS, OR ABRASIONS IN THE EXTERIOR PLASTIC COVER. THE CORD MUST BE SPECIFICALLY DESIGNED TO CONNECT THE BOAT TO A SHORE POWER SOURCE.

NOTE: Switch OFF the main circuit breakers before connecting to the shore power to prevent arching and burning of the shore power cord receptacles. Disconnecting will protect the electrical equipment on board from rapid ON/OFF current connections, which may occur during the connection process.

SHORE POWER CONNECTION PROCESS (Continued):



Shore Power Receptacle:
Port Transom

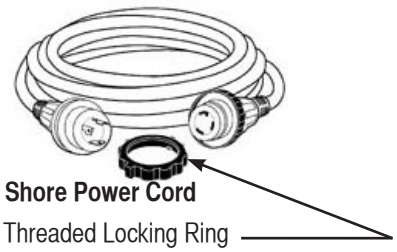
STEP 4: Locate the 50' shore power cord. Connect the female end of the cord to the boat's shore power receptacle.

STEP 5: Connect the female end of the cord(s) to the yacht's shore power receptacles(s). The receptacles(s) are located on the port transom. If the optional forward shore power receptacle(s) are equipped, they are located on the starboard forward side deck.

STEP 6: Secure the nonmetallic threaded locking ring to the boat's shore power receptacle. Securing, prevents the cord from being accidentally disconnected, and prevents arcing due to a gap between the cord plug and the receptacle.

DANGER

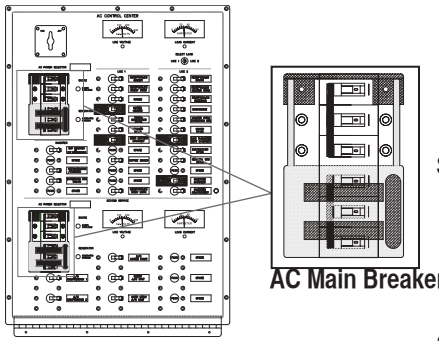
DO NOT HANG THE END OF THE SHORE POWER CORD INTO THE WATER. NEARBY SWIMMERS OR PASSENGERS CAN BE KILLED OR SERIOUSLY INJURED FROM THE SURROUNDING ELECTRICAL FIELD.



Shore Power Cord
Threaded Locking Ring

STEP 7: Unthread the access cap and lift cap up. Pay out cord as needed using the Cable Master Switch.

STEP 8: Switch the External Cord and Cablemaster circuit breaker OFF, installed in the source box at the shore power station (Starboard Aft Locker Location).



AC Main Breaker Group

AC Main Circuit Panel: Located in Salon area

STEP 9: Plug the male end of the shore power cord into the shore power source outlet.

STEP 10: Secure the nonmetallic threaded locking ring to the shore power source outlet. Securing the locking ring prevents the cord from being accidentally disconnected and from arcing due to a gap between the cord plug and the outlet.

STEP 11: Switch the shore power circuit breaker ON. Circuit breaker is installed in the shore power source box.

STEP 12: Switch the AC Main circuit breaker group ON, located on the AC Panel, next to the stairway in the Salon. The Green indicator light should be ON. If the green indicator light is NOT ON:

- Recheck all connections and check circuit breakers on Starboard side aft bulkhead near Cablemaster.
- Monitor voltmeter and ammeter while connected to shore power.

STEP 13: Turn the shore power receptacle selector switch (if equipped), to select the forward or aft shore power receptacle(s), selection depends on which item the shore power cord is connected to. The shore power cord receptacle is located on the upper left corner of the AC Control Center.

STEP 14: Switch ON the Shore Circuit Breaker group(s) on the AC Control Center. **If the POWER AVAILABLE indicator illuminates, power is available to the other circuit breakers on the AC Control Center**

STEP 15: A **Reverse Polarity Indicator**, located center, on the AC Control panel is equipped on most yachts shipped to Europe and surrounding regions. IF THE INDICATOR LIGHT ILLUMINATES, SWITCH THE SHORE CIRCUIT BREAKER GROUP **OFF**.

(Follow procedure below ONLY if REVERSE POLARITY INDICATOR LIGHT is illuminated)

EUROPE, GERMANY, OR ITALY SHIPPING LOCATION

1. Disconnect the shore power cord from the shore power source outlet
2. Rotate the cord's plug 180 degrees
3. Plug the cord into the outlet again.
4. Repeat connection procedure. **Power is available to the other circuit breakers on the AC Control Center if the Power Available indicator illuminates.**

NOTE: If the Reverse Polarity indicator illuminates again, disconnect the shore power cord. Notify marina management of the reverse polarity problem and use a different shore power source box.

ALL AREAS **EXCEPT**: Europe, Germany, or Italy. **(Follow procedure below ONLY if REVERSE POLARITY INDICATOR LIGHT is illumiated)**

1. Disconnect the shore power cord from the shore power source outlet.
2. Notify marina management of the reverse polarity problem and use a different shore power source box.

NOTE: **Power is available to the other circuit breakers on the AC Control Center if the Power Available indicator illuminates.**

STEP 16: Monitor the voltmeter and ammeter while the yacht is connected to the shore power source. The operation of the voltmeter is described later in this section.

DANGER

INJURY OR DEATH MAY OCCUR BY INCORRECTLY SERVICING THE AC ELECTRICAL SYSTEM. ONLY TRAINED PROFESSIONALS SHOULD SERVICE THE HIGH VOLTAGE AC ELECTRICAL SYSTEM.

ALWAYS DISCONNECT THE BOAT FROM THE SHORE POWER SOURCE, SHUT OFF THE GENERATOR, AND DISABLE THE INVERTER BEFORE ATTEMPTING TO SERVICE THE AC ELECTRICAL SYSTEM.

GENERATOR POWER

The onboard generator can be used to power the AC electrical system when a shore power source is not available. The generator is installed forward of the main engines and draws fuel from the center tank.

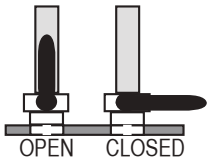
STARTING THE GENERATOR:

READ, UNDERSTAND, AND FOLLOW THE OEM (ORIGINAL EQUIPMENT MANUFACTURER) INFORMATION THAT DESCRIBES THE GENERATOR.

The generator starter is powered by a designated 12-volt battery. The generator battery is located with the engine batteries in the en-

gine room. Power to the generator from the battery is controlled by a master disconnect switch located on the engine room bulkhead. See **Gen. Battery Disconnect Detail (Engine Rm)**.

Strainer Detail



Seacock Detail

CAUTION

NEVER TURN OFF THE GENERATOR MASTER DISCONNECT SWITCH WHILE THE GENERATOR IS OPERATING. THE GENERATOR AND/OR ALTERNATOR WIRING CAN BE DAMAGED.

NOTE: The generator battery charger recharges the battery necessary. The Battery Charger circuit breaker on the AC Control Center must be ON for the charger to operate.

STARTING THE GENERATOR:

STEP 1: Turn the START switch to the ON position. The START switch is located on the upper left corner of the DC Panel.

STEP 2: Close the seacocks; remove and clean the strainer. The strainer is located in the center of the engine room, bilge area between the Racor fuel filters.

The generator engine uses a seawater cooling system. The cooling system includes a strainer that prevents debris in the seawater from entering the cooling system's water pump. Refer to Section 9: *Engine Room* for the exact location of the strainer

STEP 3: Reinstall the strainer.

If the strainer leaks when the seacock is opened; close the seacock, then check the strainer for correct installa tion.

A Tip From Carver!

Dedicating a 12-volt battery to the generator provides an important safety feature. A dedicated battery enables you to start the generator regardless of the condition of the propulsion engine batteries. If the batteries become discharged to the point where they are unable to start an engine: start the generator, then turn on the engine battery chargers. When the engine batteries are recharged to an adequate level, you can start the propulsion engines.

CAUTION

DO NOT OPERATE THE GENERATOR WHILE THE GENERATOR'S COOLING SYSTEM SEACOCK IS CLOSED. OPERATING THE GENERATOR WITH THE SEACOCKS CLOSED CAN DAMAGE THE SYSTEM.

STEP 4: Open the cooling system's seacock. The seacock is located FWD Engine Rm. Center. Refer to Section 9: *Engine Room* for the exact location of the seacock.

STEP 5: Switch ALL Bilge Blower circuit breakers ON, located on the DC Control Center.

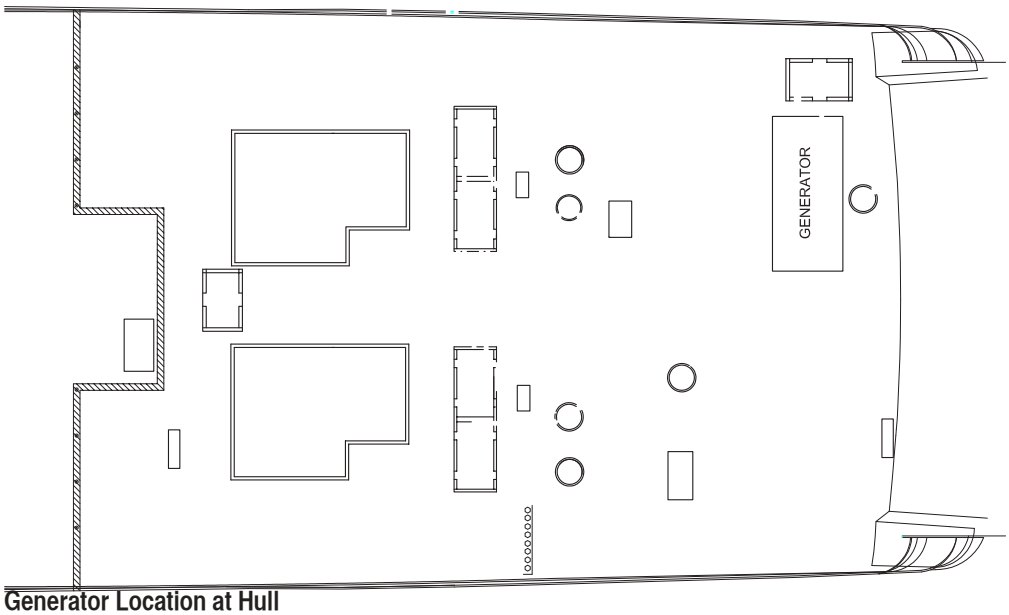
STEP 6: Turn the bilge blowers ON, using the blower switches on the DC Control Panel (Salon)

CAUTION

THE STARTER CAN BE DAMAGED BY HOLDING DOWN THE GENERATOR SWITCH IN THE START POSITION AFTER THE GENERATOR IS STARTED. THE GENERATOR START/STOP SWITCH IS SPRING ACTIVATED. RELEASE THE SWITCH FROM

THE START POSITION ONCE THE GENERATOR STARTS.

NEVER HOLD THE STOP/START SWITCH IN THE START POSITION FOR MORE THAN 10 SECONDS.



Generator Location at Hull

STEP 7: Press and hold the START switch until the generator starts. Release the switch once the generator starts.

STEP 8: Switch the Generator circuit breaker group ON, located on the AC Control Center, once the generator is running smoothly. The breaker group connects the AC electrical system to the generator output. Once the Generator Run ning indicator illuminates, power is available to the other circuit breakers on the AC Control Center.

STEP 9: To turn the generator OFF, push the STOP/START, switch to the STOP position. Turn the generator battery master disconnect switch to the **OFF** position if the generator is not going to be used for a few days.

STEP 10: Switch the Generator circuit breaker group **OFF,** located on the AC Control Center, to change the AC power source from the generator to shore power**.** Then connect to a shore power source as described earlier in this section.

DANGER

DO NOT INHALE GENERATOR EXHAUST. GENERATOR EXHAUST CONTAINS CARBON MONOXIDE, A POISONOUS GAS. REFER TO SECTION 1: *CARBON MONOXIDE WARNINGS* FOR MORE INFORMATION ON ENGINE EXHAUST AND CARBON MONOXIDE.

Operating the AC Equipment

Power to the AC components is controlled by circuit breakers, and individual controls for each component. The AC Control Panel is located next to the stairway in the Salon.

Two AC Circuit Breakers are available onboard:

- AC Main Circuit Breaker Group(s)
- AC Control Center

The electricity to the AC components and component controls can be controlled by switching the breakers ON or OFF. The breakers also protect the electrical system by automatically disconnecting the circuit from the power source in the event of a short or overload.

WARNING

NEVER RESET A BREAKER THAT HAS AUTOMATICALLY TRIPPED WITHOUT FIRST CORRECTING THE PROBLEM. FAILURE TO CORRECT THE PROBLEM MAY CREATE A DANGEROUS SITUATION.

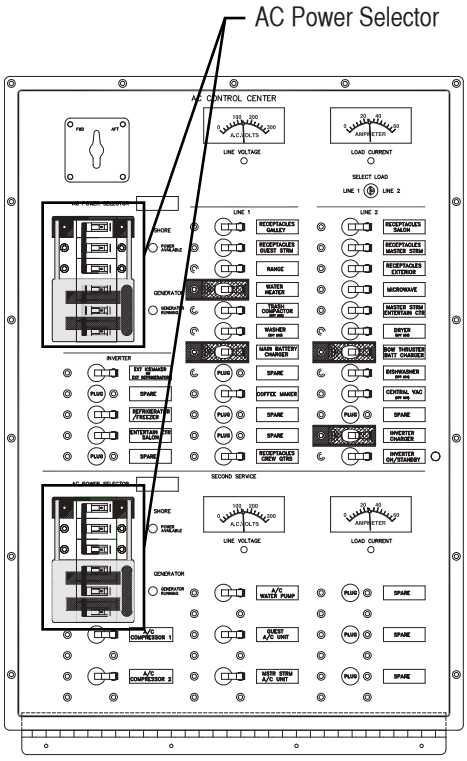
NOTE: A circuit breaker location may be labeled, but no circuit breaker is present. In this situation, the component named on the label is an option that is not installed on the purchased model.

AC MAIN CIRCUIT BREAKER GROUP(S)

The AC Power is routed through the AC Main circuit breaker group before entering the yacht. If the yacht was designed for use in Europe, a second AC Main circuit group is installed for the air conditioning. The circuit breaker group(s) are located in the Port transom storage locker. Power flows to the AC Control Center when the AC Main circuit breaker is ON.

WARNING

DO NOT OVERLOAD THE ELECTRICAL CIRCUITS. TURN OFF ALL DEVICES CONNECTED TO THE CIRCUIT, THEN SWITCH THE BREAKER ON AGAIN IF AN EXCESSIVE LOAD TRIPS A CIRCUIT BREAKER.



AC Control Panel

AC CONTROL PANEL

The AC Control Panel is located next to the stairway in the Salon. The AC Control Panel manages the power supply to all of AC equipment installed onboard.

To provide power to the panel, provide a power source to the yacht, either through a shore power connection or the generator

AC POWER SELECTOR

The AC Power Selector circuit breaker groups provides power to the other circuit breakers on the AC Control Panel. Each breaker group consists of either two breakers (Europe bound yachts) or three breakers (North America/Pacific Rim bound yachts) that operate together.

A sliding lockout plate prevents the Shore breaker group and Generator breaker group from switching ON at the same time. Slide the lockout plate to the position necessary to expose the chosen breaker group.

NORTH AMERICAN/PACIFIC RIM AC CONTROL CENTER:

- **SHORE**: Switch the Shore breaker group ON if a shore power source is used to provide electricity to the AC electri cal system.
- **GENERATOR**: Switch the Generator breaker group ON if the generator is used to provide electricity to the AC electrical system.

EUROPEAN AC CONTROL CENTER:

- **SHORE 1**: Switch the Shore 1 breaker group ON if a shore power source is used to provide electricity to the Line 1 circuit breakers.
- **GENERATOR (UPPER)**: Switch the Generator (Upper) breaker group ON if the generator is used to provide electricity to

the Line 1 circuit breakers.

- **SHORE 2**: Switch the Shore 2 breaker group ON if a shore power source is used to provide electricity to the Line 2 circuit breakers.
- **GENERATOR (LOWER)**: Switch the Generator (Lower) breaker group ON if the generator is used to provide electricity to the Line 2 circuit breakers.

AC CONTROL PANEL BREAKERS AND FUNCTIONS

Circuit breakers are labeled for each circuit purpose. There are four circuits with different breakers that cannot be turned off: Generator Battery Charger, Bow Thruster Battery Charger, and Inverter Charger. AC panel circuit breaker options vary per yacht model. Circuits may not be fully explained, for example: SAUNA circuit breaker (options) controls the team function in the shower/spa in the head.

INDICATOR LIGHTS

The indicator lights located on the front panel indicate that the generator is running or shore power is properly connected and available to the panel. The voltage display and ammeter display each read zero if the main breakers on the panel are OFF.

AMMETER - LOAD CURRENT

The ammeter indicates the amount of current drawn by the AC electrical equipment, as selected by the SELECT LOAD switch.

When either the Shore or Generator circuit breaker group is ON, ALL other breakers on the AC Control Center must be OFF. The voltmeter should between 110 and 120 volts, and the ammeter should read zero amps.

If the ammeter reading increases above zero amps as: the AC Control Panel circuit breakers are turned ON, the associated equipment is turned ON, or equipment plugged into the AC receptacles is turned ON.

AIR CONDITIONING SYSTEM WATER PUMP

The Air Conditioning System Water Pump breaker controls the flow of electricity to the water pump that supplies the air conditioning system with seawater. Switch the breaker ON to supply power to the water pump.

CAUTION

DO NOT SWITCH THE AIR CONDITIONING SYSTEM WATER PUMP BREAKER ON UNTIL AFTER THE SEACOCK SUPPLYING THE AIR CONDITIONING SYSTEM WITH SEAWATER HAS BEEN OPENED. REFER TO SECTION 4 - *AIR CONDITIONING SYSTEM* FOR MORE INFORMATION.

AIR CONDITIONING UNIT GUEST STATEROOM

The Air Conditioning Unit Guest Stateroom breaker controls the flow of electricity to the air conditioning unit that cools the forward stateroom, third stateroom, and starboard head. To supply power to the unit, switch the A/C System Water Pump breaker ON before switching the Air Conditioning Unit Guest Stateroom breaker ON.

CAUTION

DO NOT SWITCH THE AIR CONDITIONING UNIT GUEST STATEROOM BREAKER ON UNTIL AFTER THE SEACOCK SUPPLYING THE AIR CONDITIONING SYSTEM WITH SEAWATER HAS BEEN OPENED. REFER TO SECTION 4 - *AIR CONDITIONING SYSTEM* FOR MORE INFORMATION.

AIR CONDITIONING UNIT MASTER STATEROOM

The Air Conditioning Unit Master Stateroom breaker controls the flow of electricity to the air conditioning unit that cools the aft stateroom and port head. To supply power to the unit, switch the A/C System Water Pump breaker ON, before switching the Air Conditioning Unit Master Stateroom breaker ON.

CAUTION

DO NOT SWITCH THE AIR CONDITIONING UNIT MASTER STATEROOM BREAKER ON UNTIL AFTER THE SEACOCK SUPPLYING THE AIR CONDITIONING SYSTEM WITH SEAWATER HAS BEEN OPENED. REFER TO SECTION 4 - *AIR CONDITIONING SYSTEM* FOR MORE INFORMATION.

AIR CONDITIONING UNIT PILOTHOUSE

The Air Conditioning Unit Pilothouse breaker controls the flow of electricity to the air conditioning unit that cools the pilothouse. To supply power to the unit, switch the A/C System Water Pump breaker ON, before switching the Air Conditioning Unit Pilothouse breaker ON.

CAUTION

DO NOT SWITCH THE AIR CONDITIONING UNIT PILOTHOUSE BREAKER ON UNTIL AFTER THE SEACOCK SUPPLYING THE AIR CONDITIONING SYSTEM WITH SEAWATER HAS BEEN OPENED. REFER TO SECTION 4 - *AIR CONDITIONING SYSTEM* FOR MORE INFORMATION.

AIR CONDITIONING UNIT SALON

The Air Conditioning Unit Salon breaker controls the flow of electricity to the air conditioning unit that cools the salon and galley. To supply power to the unit, switch the A/C System Water Pump breaker ON, before switching the Air Conditioning Unit Salon breaker ON.

CAUTION

DO NOT SWITCH THE AIR CONDITIONING UNIT SALON BREAKER ON UNTIL AFTER THE SEACOCK SUPPLYING THE AIR CONDITIONING SYSTEM WITH SEAWATER HAS BEEN OPENED. REFER TO SECTION 4 - *AIR CONDITIONING SYSTEM* FOR MORE INFORMATION.

AMMETER - LOAD CURRENT

The ammeter indicates the amount of current being drawn from the AC electrical equipment, as selected by the Select Load switch, described later in this section.

The ammeter should read zero amps when the following items occur:

- Either the Shore or Generator circuit breaker group is ON
- All other breakers on the AC Control Center are OFF
- The voltmeter is reading between 210 and 240 volts.

The ammeter readings increase above zero amps as the circuit breakers, located on the AC Control Center, are switched ON and the associated equipment is turned ON, or the equipment plugged into the AC receptacles is turned ON. Refer to *Electrical Loads* later in this section for information on the AC electrical system load limits.

BOW THRUSTER BATTERY CHARGER

The Bow Thruster Battery Charger breaker controls the flow of electricity to the bow thruster battery charger. Switch the Bow Thruster Battery Charger breaker ON to supply power to the charger. The bow thruster battery charger is located in the Engine Room. Refer to the OEM information for details on operating the central vacuum system.

CENTRAL VACUUM

The Central Vacuum breaker controls the flow of electricity to the optional central vacuum system. Switch the Central Vacuum breaker ON to supply power to the system. The central vacuum hose connections are located in the Port wall in the Salon. Refer to the OEM information for details on operating the central vacuum system.

COFFEE MAKER

The Coffee Maker breaker controls the flow of electricity to the coffee maker in the galley. Switch the breaker ON to supply power to the coffee maker. Refer to the OEM information for details on operating the coffee maker.

DISHWASHER

The Dishwasher breaker controls the flow of electricity to the galley's optional dishwasher. Switch the breaker ON to supply power to the dishwasher. Refer to the OEM information for details on operating the dishwasher.

DRYER

The Dryer breaker controls the flow of electricity to the optional clothes dryer located in the master stateroom. Switch the breaker ON to supply power to the dryer. Refer to the OEM information for details on operating the dryer.

ENGINE BATTERY CHARGER

The Engine Battery Charger breaker controls the flow of electricity to the battery charger that maintains the voltage levels in the engine and thruster batteries. Switch the breaker "ON" to supply power to the battery charger. The engine battery charger is located in the engine room on the port aft bulkhead. Refer to Section 9: *Engine Room* for the exact location of this battery charger. Refer to the OEM information for details on operating the battery charger.

ENTERTAINMENT CENTER - MASTER STATEROOM

The Entertainment Center - Master Stateroom breaker controls the flow of electricity to the optional entertainment center (TV, DVD, and stereo) in the aft stateroom. Switch the breaker "ON" to supply power to the entertainment center. Refer to the OEM information for details on operating the TV, DVD, and stereo.

ENTERTAINMENT CENTER - SALON

The Entertainment Center - Salon breaker controls the flow of electricity to the entertainment center (TV, DVD, and stereo) in the salon. Switch the breaker "ON" to supply power to the entertainment center. Refer to the OEM information for details on operating the TV, DVD, and stereo.

NOTE: The salon entertainment center can be operated from the 12-volt accessory battery bank when an AC power source is not available. Switch the Inverter/Charger breaker ON to do so.

GENERATOR BATTERY CHARGER

The Generator Battery Charger breaker controls the flow of electricity to the battery charger that maintains the voltage levels in the generator battery. Switch the breaker "ON" to supply power to the battery charger. The generator battery charger is located next to the generator. Refer to Section 9: *Engine Room* for the exact location of the battery charger. Refer to the OEM information for details on operating the battery charger.

GENERATOR RUNNING INDICATOR

The Generator Running Indicator light illuminates when the generator is operating. Switch the Generator circuit breaker group ON to provide the generator's output to the AC electrical system.

ICEMAKER OR EXTERIOR REFRIGERATOR

The Icemaker or Exterior Refrigerator breaker controls the flow of electricity to the optional icemaker or refrigerator located below the wet bar on the bridge. Switch the breaker ON to supply power to the icemaker or refrigerator. Refer to the OEM information for details on operating the icemaker or refrigerator.

NOTE: The icemaker or refrigerator can be operated from the 12-volt accessory battery bank when an AC power source is not available. Switch the Inverter/Charger breaker ON to do so.

INVERTER/CHARGER

The Inverter/Charger breaker controls the flow of electricity to the inverter/battery charger. Switch the breaker ON to supply power to the inverter/charger.

INVERTER MODE:

While in inverter mode, the inverter/charger converts 12-volt DC electricity to 120-volt AC electricity for use by the following:

- Salon entertainment center
- Galley refrigerator
- Freezer
- Optional bridge icemaker

BATTERY CHARGER MODE:

In battery charging mode, the inverter/charger maintains the voltage levels in the accessory battery bank.

The inverter/accessory battery charger is located in the engine room on the port aft bulkhead. Refer to Section 9 - Engine Room for the exact location of the inverter/battery charger. Refer to Section 2 - House Battery Charger and/or Inverter, and the OEM information for details on operating the inverter/battery charger.

MAIN BATTERY CHARGER

The Main Battery Charger breaker controls the flow of electricity to the main battery charger. Switch the breaker ON to supply power to the charger.

MICROWAVE

The Microwave breaker controls the flow of electricity to the galley's microwave. Switch the breaker ON to supply power to the microwave. Refer to the OEM information for details on operating the microwave.

POWER AVAILABLE INDICATOR

The Power Available Indicator light illuminates when the yacht is connected to a working shore power source. Switch the Shore circuit breaker group ON to provide power to the AC electrical system.

RANGE

The Range breaker controls the flow of electricity to the galley's range. Switch ON the breaker to supply power to the range. Refer to the OEM information for details on operating the range.

RECEPTACLES - CREW QUARTERS

The Receptacles - Crew Quarters breaker controls the flow of electricity to the receptacles in the optional crew quarters. Switch the breaker ON to supply power to the crew quarters receptacles. Use the receptacles the same as outlets are used in-home.

NOTE: The circuit's GFCI breaker may have tripped if the Receptacles - Crew Quarters circuit breaker is ON, but power is not available to the receptacles in this group. Refer to *Ground Fault Circuit Interrupters* later in this section for more information.

RECEPTACLES - EXTERIOR

The Receptacles - Exterior breaker controls the flow of electricity to the receptacles in the cockpit and on the flybridge. Switch the breaker ON to supply power to the exterior receptacles. Use the receptacles the same as outlets are used in-home.

NOTE: The circuit's GFCI breaker may have tripped if the Receptacles - Exterior circuit breaker is ON, but power is not available to the receptacles in this group. Refer to *Ground Fault Circuit Interrupters* later in this section for more information.

RECEPTACLES - GALLEY

The Receptacles - Galley breaker controls the flow of electricity to the receptacles in the galley. Switch the breaker "ON" to supply power to the galley receptacles. Use the receptacles the same as outlets are used in-home.

NOTE: The circuit's GFCI breaker may have tripped if the Receptacles - Galley circuit breaker is ON, but power is not available to the receptacles in this group. Refer to *Ground Fault Circuit Interrupters* later in this section for more information.

RECEPTACLES - GUEST STATEROOM

The Receptacles - Guest Stateroom breaker controls the flow of electricity to the receptacles in the forward stateroom, third stateroom, and starboard head. Switch the breaker "ON" to supply power to the Guest Stateroom receptacles. Use the receptacles the same as outlets are used in-home.

NOTE: The circuit's GFCI breaker may have tripped if the Receptacles - Guest Stateroom circuit breaker is ON, but power is not available to the receptacles in this group. Refer to *Ground Fault Circuit Interrupters* later in this section for more information.

RECEPTACLES - MASTER STATEROOM

The Receptacles - Master Stateroom breaker controls the flow of electricity to the receptacles in the aft stateroom and port head. Switch this breaker "ON" to supply power to the Master Stateroom receptacles. Use the receptacles the same as outlets are used in-home.

NOTE: The circuit's GFCI breaker may have tripped if the Receptacles - Master Stateroom circuit breaker is ON, but power is not available to the receptacles in this group. Refer to *Ground Fault Circuit Interrupters* later in this section for more information.

RECEPTACLES - SALON

The Receptacles - Salon breaker controls the flow of electricity to the receptacles in the salon and pilothouse. Switch the breaker ON to supply power to the Salon receptacles. Use the receptacles the same as outlets are used in-home.

NOTE: The circuit's GFCI breaker may have tripped if the Receptacles - Master Stateroom circuit breaker is ON, but power is not available to the receptacles in this group. Refer to *Ground Fault Circuit Interrupters* later in this section for more information.

REFRIGERATOR/FREEZER

The Refrigerator/Freezer breaker controls the flow of electricity to the galley's refrigerator and freezer. Switch the breaker ON to supply power to the refrigerator and freezer. Refer to the OEM information for details on operating the refrigerator and freezer.

NOTE: The refrigerator and freezer can be operated from the 12-volt accessory battery bank when an AC power source is not available. Switch the Inverter/Charger breaker ON to do so.

REVERSE POLARITY INDICATORS (EUROPE ONLY)

Reverse polarity occurs ONLY if the yacht was built for use in Europe.

CAUTION

IMMEDIATELY SWITCH THE SHORE 1 AND SHORE 2 CIRCUIT BREAKER GROUPS OFF IF REVERSE POLARITY OCCURS. REFER TO SHORE POWER EARLIER IN THIS SECTION FOR MORE INFORMATION.

The Line 1 and Line 2 circuits are designed to sense the voltage difference between the neutral and ground terminal blocks. If the shore power source is incorrectly wired so that the polarity is reversed, the red Reverse Polarity light in the shore power source box il-

luminates. If reverse polarity occurs while your boat is connected to shore power, the Reverse Polarity lights on the AC Control Center illuminate.

SELECT LOAD SWITCH

The Select Load Switch determines which Line (1 or 2) load is shown on the ammeter.

SELECT VOLTAGE SWITCH (EUROPE ONLY)

The Select Voltage Switch determines which AC electrical line is shown on the voltmeter. The switch is present ONLY on yachts built for use in Europe.

SHORE POWER RECEPTACLE SELECTOR SWITCH

Use the Shore Power Receptacle Selector Switch to select the shore power receptacle(s). Select either forward or aft, depending on the shore power cord(s) connection location.

Turn the switch to the OFF position if shore power is not being used. The switch is not available if the optional forward shore power receptacle(s) is not onboard.

SPARE(S)

The Spare breaker(s) are reserved for aftermarket accessories installed on the yacht.

VOLTMETER - LINE VOLTAGE

The voltmeter indicates the amount of voltage that is entering the AC electrical system.

The voltmeter should read between 210 and 240 volts when:

- The AC electrical system is connected to a shore power source or the generator
- The generator is running
- The main breakers are ON

CAUTION

DO NOT USE THE AC SYSTEM IF THE VOLTMETER READS 205 VOLTS OR LESS. USING THE EQUIPMENT ASSOCIATED WITH THE DC PANEL, AT BELOW LEVEL READINGS, WILL RESULT IN EQUIPMENT FAILURE OR MAIN BREAKER TO TRIP.

If the voltmeter reads 205 volts or less, perform one or both of the following:

- Contact the marina's management to identify and correct the shore power problem (or)
- Have a qualified technician service the generator.

NOTE: Boats operating on 210 volts: limits are 210-240 volts AC; no less than 200 volts.

No electricity is reaching the AC Control Center if the voltmeter reads zero voltage, and indicator lights are NOT illuminated.

If the GENERATOR is being used, make sure:

- The generator is operating properly
- The safety circuit breaker is ON, located on the generator control panel

If the SHORE POWER is being used, make sure:

- The shore power cord is properly attached to both: the yacht and the shore power source
- The circuit breaker at the shore power source box is ON
- The AC Main circuit breaker group is ON

If the voltmeter continues to read zero voltage, either have a qualified technician service the generator, or contact the marina's man-

agement to identify and correct a shore power problem. Have the system inspected by a qualified electrician if the problem appears to be in the AC electrical system.

WASHER

The Washer breaker controls the flow of electricity to the optional clothes washer located in the master stateroom. Switch the breaker ON to supply power to the washer. Refer to the OEM information for details on operating the washer.

WATER HEATER

The Water Heater breaker controls the flow of electricity to the water heater. The water heater supplies hot water to the fresh water system. Switch the Water Heater breaker ON to supply power to the water heater. The water heater is located in the engine room near the starboard forward bulkhead. Refer to Section 9: *Engine Room* for the exact location of the water heater. Refer to the OEM information for details on operating the water heater.

WARNING

DO NOT SUPPLY POWER TO THE WATER HEATER WHEN IT IS EMPTY. DOING SO MAY DAMAGE THE UNIT'S HEATING ELEMENT AND CAUSE A FIRE. REFER SECTION 4 - *FRESH WATER SYSTEM* TO FILL, PRESSURIZE, AND PRIME THE FRESH WATER SYSTEM BEFORE TURNING ON THE WATER HEATER.

WATER MAKER

The Water Maker breaker controls the flow of electricity to the optional water maker. Switch the breaker ON to supply power to the water maker. The water maker is located in the port aft bilge area. Refer to Section 9: *Engine Room* for the exact location of the water maker. Refer to Section 4: *Water Maker* and the OEM information for details on operating the water maker.

Ground Fault Circuit Interrupters

Each AC receptacle contains a Ground Fault Circuit Interrupter (GFCI). The GFCI measures both: the amount of current flowing to the circuit's receptacles, and the amount of current returning from the receptacles. The GFCI compares the two values once measured. If the values are not the same: the GFCI instantly trips, and shuts off power to the receptacles.

An electrical shock received through a standard receptacle will continue through a person's body and flow into any grounded object the person is touching or standing on. The GFCI, however, will immediately shut off power to the receptacle. Shutting off the power, limits the time the person being shocked, to a brief moment; significantly reducing injury to the person.

Ground Fault Circuit Interrupter (GFCI)

GFCI RECEPTACLE LOCATIONS

Five GFCI receptacles are installed onboard. Each receptacle protects a group of receptacles that can include both open outlets and outlets already in use for built-in equipment.

RESETTING AND TESTING GFCI'S

A Test Button and ON/OFF switch is mounted on each GFCI. Switch the ON/OFF switch to ON, to reset a GFCI that has tripped.

GFCI's have Test and Reset buttons located on the receptacles. Press the Reset button to reset the GFCI after it has tripped. Resetting a GFCI allows electricity to flow again to the receptacle.

Test each GFCI circuit once per week. To test the unit:

1. Press the Test button. If operating normally, it cuts the electricity to the recep tacle on the GFCI.
2. Plug a lamp or other AC powered device into the receptacle, and turn ON the

device. The device should NOT operate.

3. Press the Test button. **DO NOT** use the receptacle if the receptacle still has power. Contact a qualified electrician to make the appropriate repairs
4. Reset the GFCI to restore power to the receptacle.

DANGER

DEATH OR SERIOUS INJURY CAN OCCUR BY RECEIVING AN ELECTRICAL SHOCK FROM THE AC ELECTRICAL SYSTEM. SYSTEM INCLUDING THE GFCI RECEPTACLE. SEEK IMMEDIATE MEDICAL ATTENTION AFTER RECEIVING AN ELECTRICAL SHOCK.

DANGER

DO NOT USE A GFCI OR ANY RECEPTACLES ON A GFCI CIRCUIT IF POWER IS STILL AVAILABLE ON THAT CIRCUIT AFTER THE TEST BUTTON HAS BEEN PRESSED. CONTACT A QUALIFIED ELECTRICIAN TO MAKE APPROPRIATE REPAIRS.

ELECTRICAL LOADS

Be aware that each device exerts a "load" on the system when operating AC powered devices through the AC electrical system. The electrical load is equal to the amount of current (amps) that the device draws from the AC electrical system. The AC electrical system is designed with a maximum total load that the device can handle. Each LINE circuit has an electrical load capacity of 50 amps.

The breaker for the LINE circuit will trip if the total load on the circuit exceeds the circuit's capacity. Meaning that the devices operating from the circuit are drawing too much current.

WARNING

DO NOT OVERLOAD THE ELECTRICAL CIRCUITS. TURN OFF ALL DEVICES CONNECTED TO THE CIRCUIT, THEN SWITCH THE BREAKER BACK ON IF AN EXCESSIVE LOAD TRIPS A CIRCUIT BREAKER.

A list of common AC powered devices and the approximate maximum current that the devices draw while operating is shown in the chart below. If an AC-powered device is used that has an electric motor, such as a vacuum cleaner or electric drill, the device should have a "motor load plate" mounted on it. The motor load plate lists the current that the device draws while operating.

ELECTRICAL LOAD PER DEVICE

AC DEVICE	APPROXIMATE MAXIMUM CURRENT USED (AMPS)
Fan	0.7
Electric blanket	2.0
Television	2.7
Coffee maker	6.3
Battery charger	7.3
Toaster	10.5
Frying pan	12.3
Space heater	13.7
Refrigerator	1.5

As detailed above, appliances that use a motor or a heating element draw relatively large amounts of current. Exercise caution when using appliances such as: curling irons, toasters, coffee makers, hair dryers, food mixers or similar types of AC powered devices.

DO NOT use too many motor operated appliances at the same time.

BONDING SYSTEM

A comprehensive metallic bonding system that interconnects all underwater equipment and thru-hull fittings is equipped on each model. The bonding system ensures that all metallic equipment onboard, including the fittings, have at the same electrical potential. The bonding system minimizes corrosion of the underwater fittings caused by stray electrical currents.

Sacrificial zinc anodes is a component added in the bonding system in the drive units and the underwater portion of the boat's transom. The anodes corrode and deteriorate before the boat's underwater fittings. The anodes also provide a visual reference to the level of stray current that the yacht is exposed to.

The boat's 12 Volt DC electrical system, AC electrical system, and the batteries' negative leads are all connected to the bonding system through bus bars. The bus bars are located in the engine room and aft bilge area, and are connected to the transom-mounted zinc plate.

WARNING

DO NOT MODIFY THE YACHT'S BONDING SYSTEM. THE SYSTEM'S INTEGRITY IS WEAKENED BY MAKING MODIFICATIONS.

MONITOR THE CONDITION OF THE BOAT'S ZINC ANODES. REPLACE THE ZINC ANODES WHEN THEY HAVE DETERIORATED TO 50% OF THE ORIGINAL SIZE. DO NOT ALLOW THE ZINC ANODES TO COMPLETELY DETERIORATE. REFER TO SECTION 7: *MAINTENANCE SCHEDULE* FOR RECOMMENDED INSPECTION INTERVALS.

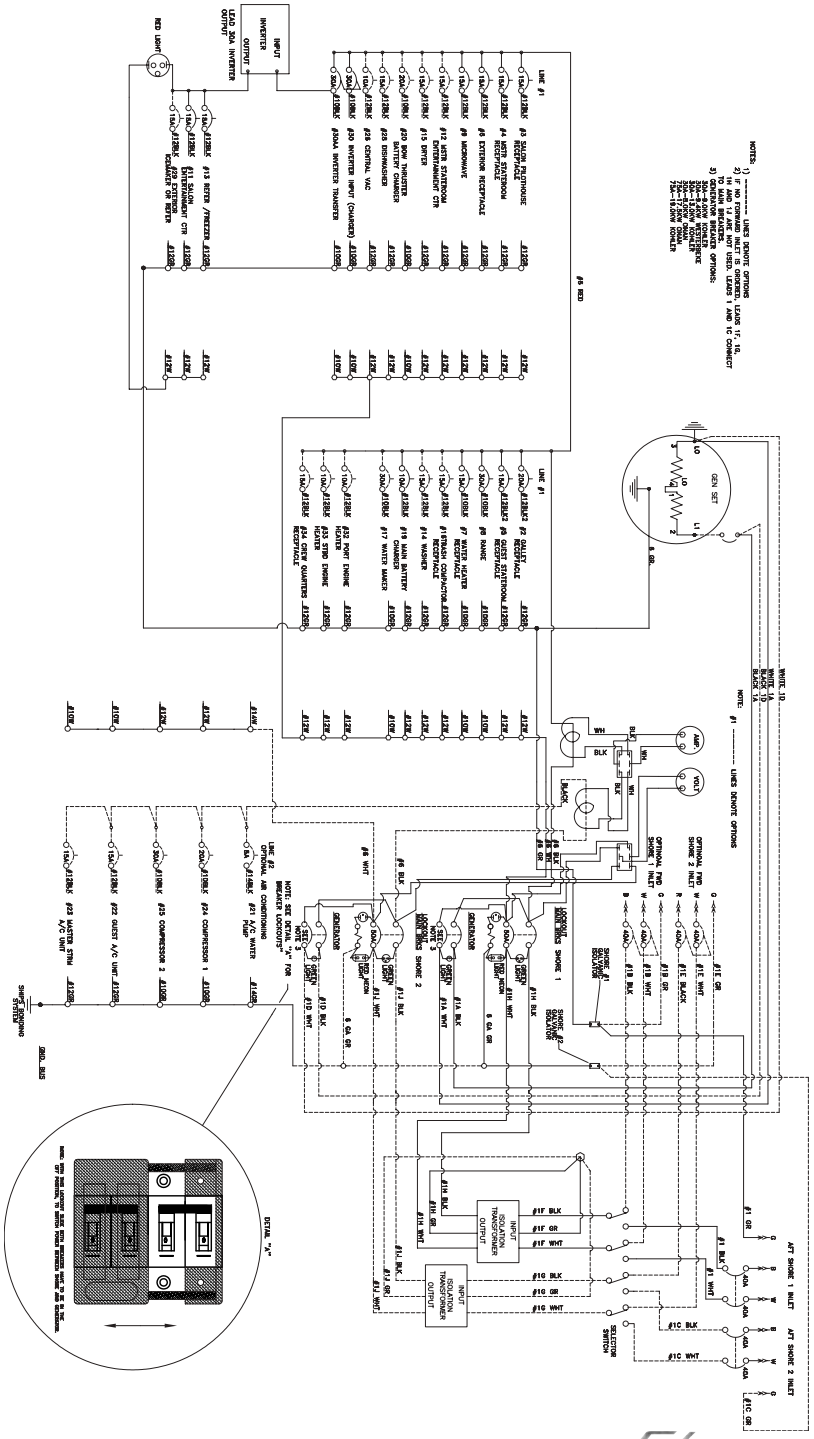
NOTE: Damage resulting from stray current or galvanic corrosion is NOT covered under the Carver limited warranty

AC POWER ISSUES

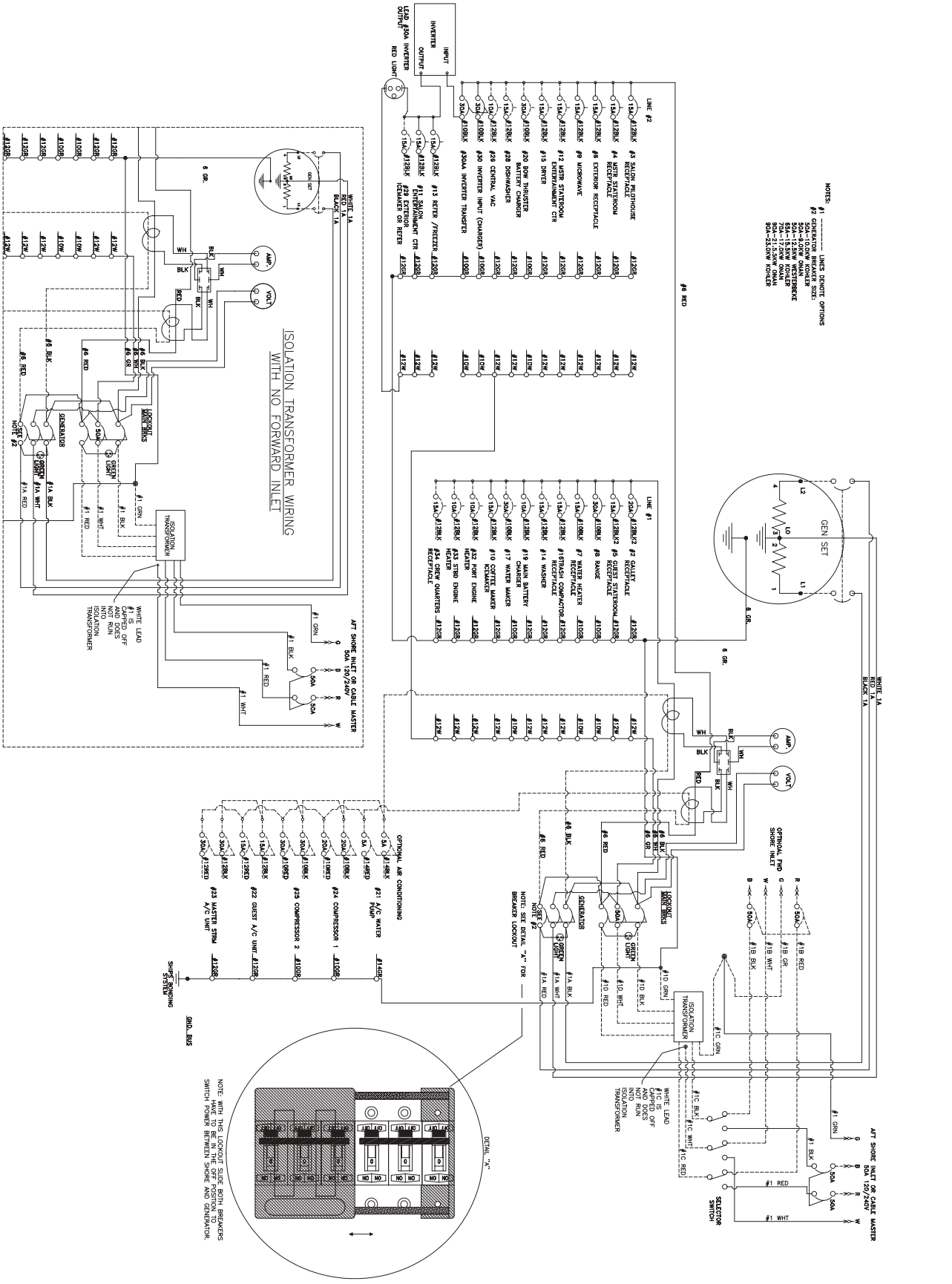
PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
VOLTMETER ON AC CONTROL PANEL READS ZERO	Shore power cored is not connected	Connect the shore power cord
	There is no power at the shore power source box	Contact marina management
	The breaker installed in the shore power source box is OFF	Switch ON the circuit breaker
	The AC MAIN circuit breaker group is OFF	Switch ON the circuit breaker group
	The appropriate Shore or Generator circuit breaker group on AC Control Panel is OFF	Switch ON the circuit breaker group
	The shore power cord failed	Replace the cord
	The generator ran out of fuel	Check the fuel level in the port fuel tank; refuel if necessary
	The safety circuit braker on the generator control panel is OFF	Switch ON the circuit breaker
	The generator failed	Contact a qualified electrician to make the appropriate repairs
	The voltmeter failed	Contact a qualified electrician to make the appropriate repairs
	The wire within the AC electrical system is loose or disconnected	Contact a qualified electrician to make the appropriate repairs

NO POWER AT THE RECEPTACLES, BUT THE VOLTMETER ON THE AC CONTROL PANEL INDICATES AN ADEQUATE VOLTAGE LEVEL	The receptacles breakers on the AC Control Panel are OFF	Switch ON the circuit breaker
	A GFCI has tripped	Locate the tripped GFCI and press the RESET button
THE SHORE #1 OR SHORE #2 MAIN CIRCUIT BREAKER ON THE AC CONTROL PANEL TRIPS IMMEDIATELEY AFTER BEING RESET	The circuit breaker has failed	Contact your Carver Dealer to have the circuit breaker replaced

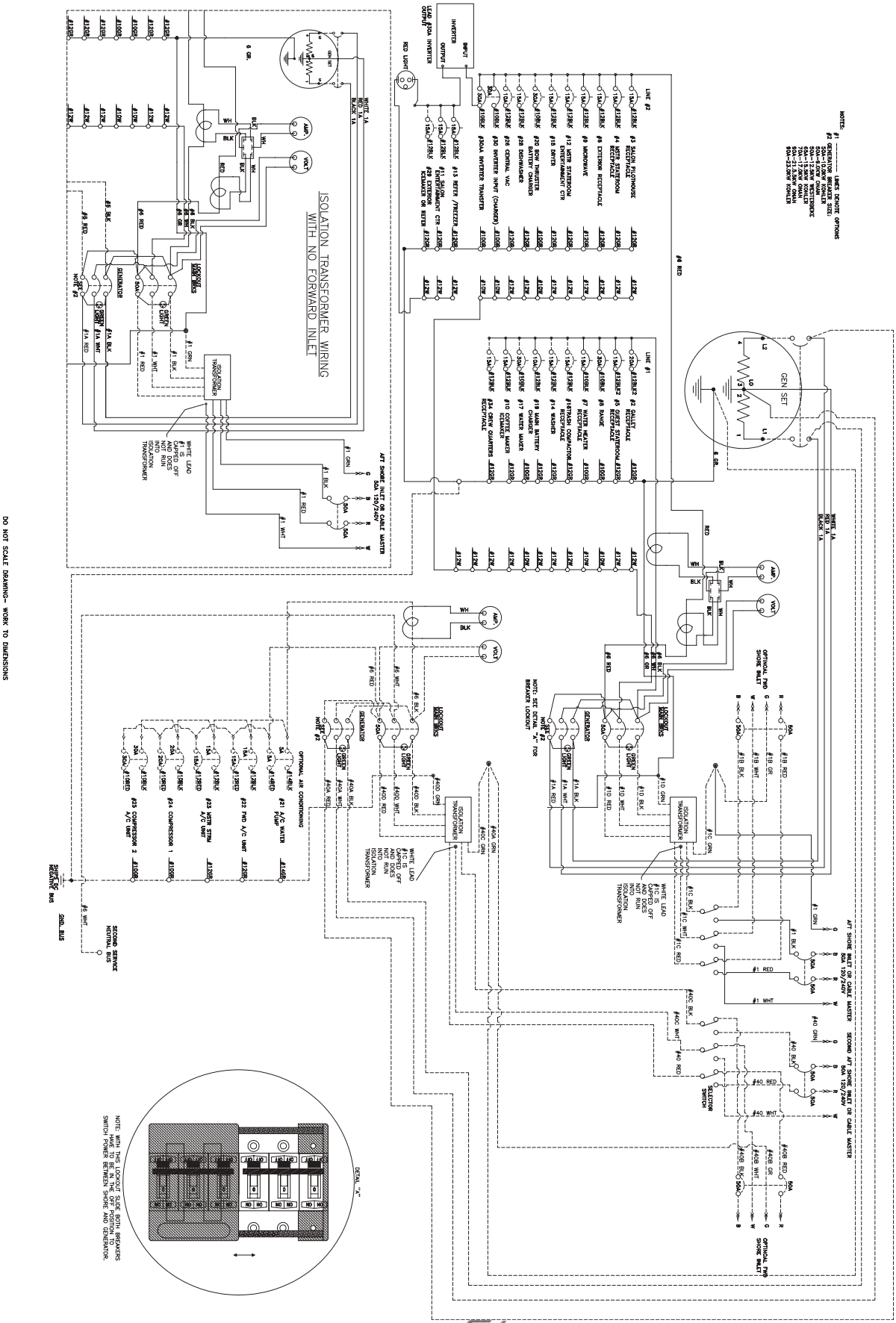
50 HZ Electrical Schematic



60 HZ ELECTRICAL SCHEMATIC



DUAL HZ ELECTRICAL SCHEMATIC



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AIR CONDITIONING SYSTEM

Section 4 applies only, to the Interior Air Conditioning System installed at the Carver Assembly Plant.

NOTE: An aftermarket air conditioning system may not operate as the system explained in this section.

The air conditioning system needs an AC power source to operate, supplied either by:

- Shore power or the generator
- Supply of water (either salt or fresh)

The factory-installed air conditioning system consists of four air conditioning units arranged in a split configuration. The condenser/compressor installed on each unit is located in the forward engine room. The condenser/compressor:

GALLEY AND SALON

24,000 BTU unit, located beneath the counter in the port aft corner of the salon.

PILOTHOUSE

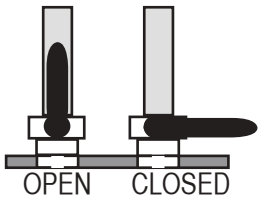
12,000 BTU unit, located beneath the port forward galley cabinet.

MASTER STATEROOM AND PORT HEAD

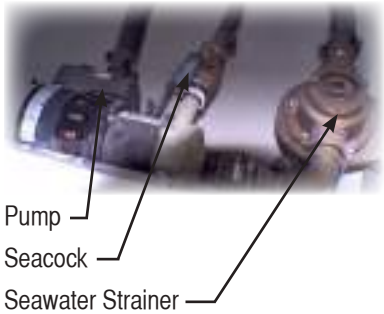
16,000 BTU unit, located in the aft corner locker

FORWARD STATEROOM, THIRD STATEROOM, AND STARBOARD HEAD

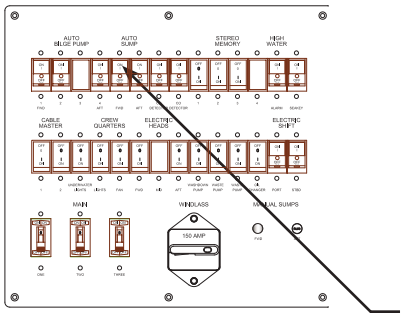
A 12,000 BTU unit, located beneath the forward stateroom berth



STEP 1 and 4: Seacock Detail



STEP 1: A/C Pump and Sea cock Detail (Typical) 54 V Similar



STEP 7: Auto Sump Circuit Breaker

PRODUCING HEAT

The air conditioning system produces heat when operated in reverse cycle mode. Reverse cycle operation is affected by the temperature of the seawater. The air conditioning system's ability to produce warm air decreases as seawater temperature decreases. Carver recommends not to operate the air conditioning system in reverse cycle mode when the seawater temperature is below 40°F.

POWERING THE AIR CONDITIONING

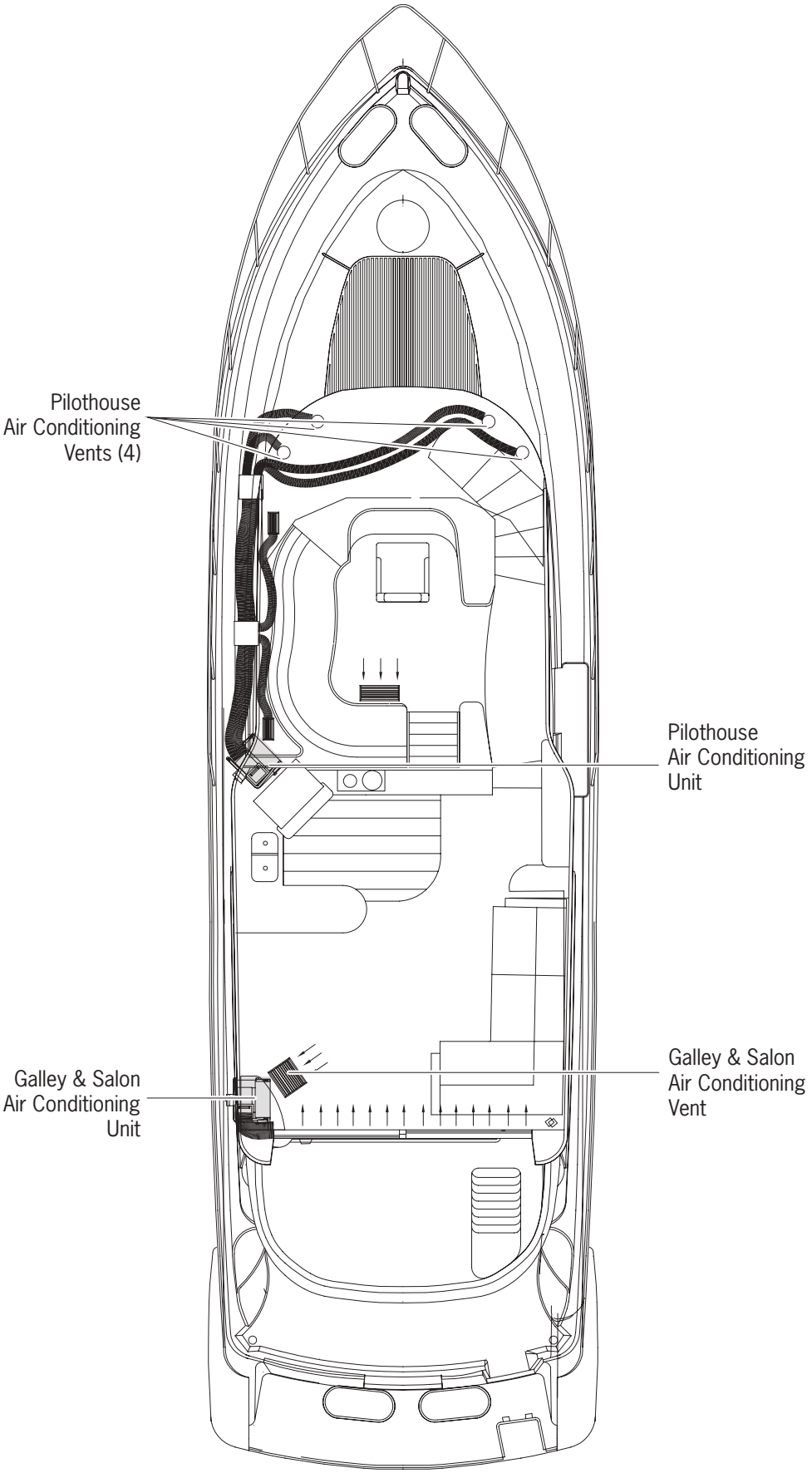
1. Close the air conditioning seacock.
2. Remove and clean the air conditioning system's seawater strainer. The strainer prevents debris in the seawater from entering the air conditioning system. The strainer is located in the engine room forward of the starboard engine.

CAUTION

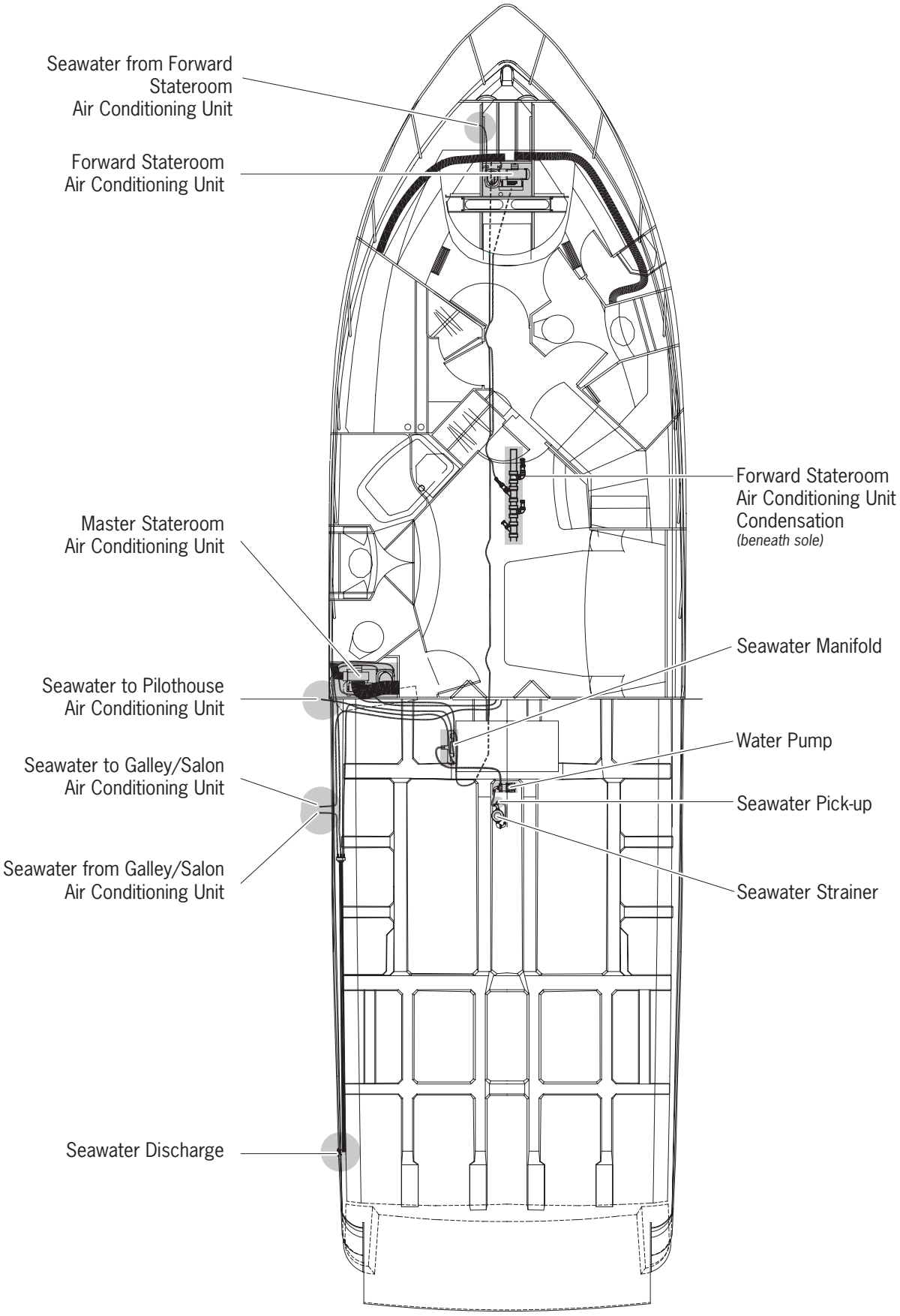
DO NOT SWITCH THE A/C SYSTEM WATER PUMP BREAKER ON UNTIL AFTER THE SEACOCKS SUPPLYING THE AIR CONDITIONING SYSTEM WITH SEAWATER HAVE BEEN OPENED. THE PUMP AND SEACOCKS ARE LOCATED IN THE ENGINE ROOM, FORWARD OF THE STARBOARD ENGINE.

3. Reinstall the seawater strainer. If the strainer leaks when the air conditioning seacock is opened, close the seacock, then check the strainer for correct installation.
4. Open the seacock. A single pump supplies the air conditioning units with seawater.
5. Supply AC power to the yacht. Refer to Section 3: *Shore Power* and/or *Generator Power* for instruction.
6. Switch ON the correct circuit breakers group (Shore power or generator) located on the AC Control Panel next to the stairway in the Salon.
7. Switch the Auto Sump circuit breaker to ON, located on the DC Control Center in Engine room aft bulkhead. Condensation from the air conditioning system drains into

AIR CONDITIONING SYSTEM - SALON DECK



AIR CONDITIONING SYSTEM - STATEROOM DECK



POWERING THE AIR CONDITIONING (Continued)

the sump, the circuit breaker must be ON while the air conditioning system is operating.

8. Switch ON the Air Conditioning System Water Pump circuit breaker, located on the AC Control Panel (Salon).
9. Switch the desired Air Conditioning Unit circuit breakers ON.
10. Verify that seawater is pumping through the air conditioning units. The seawater exits through the discharge thru-hull fittings on the side of the yacht.
11. Use the controls for each air conditioning unit to set the desired temperature. Refer to the OEM information for details on operating the air conditioning controls.

FRESH WATER SYSTEM

The fresh water system is divided between:

- Two 80-gallon fresh water tanks
- One 20 gallon heater

The water tanks are located on either side of the engine room. The water heater is located in the Starboard aft corner of the engine room.

NOTE: Thoroughly flush and sanitize the water system:

- Before initial use
- At least once each season
- Before flushing the system, Carver recommends seeing your local dealer

Refer to Section 9: *Engine Room* for the location of the water tanks and water heater

FILLING THE WATER TANK

The fresh water tank is filled through a deck fitting with a plate labeled WATER. The plate is located on the Starboard side deck amidships. See reference on next page.

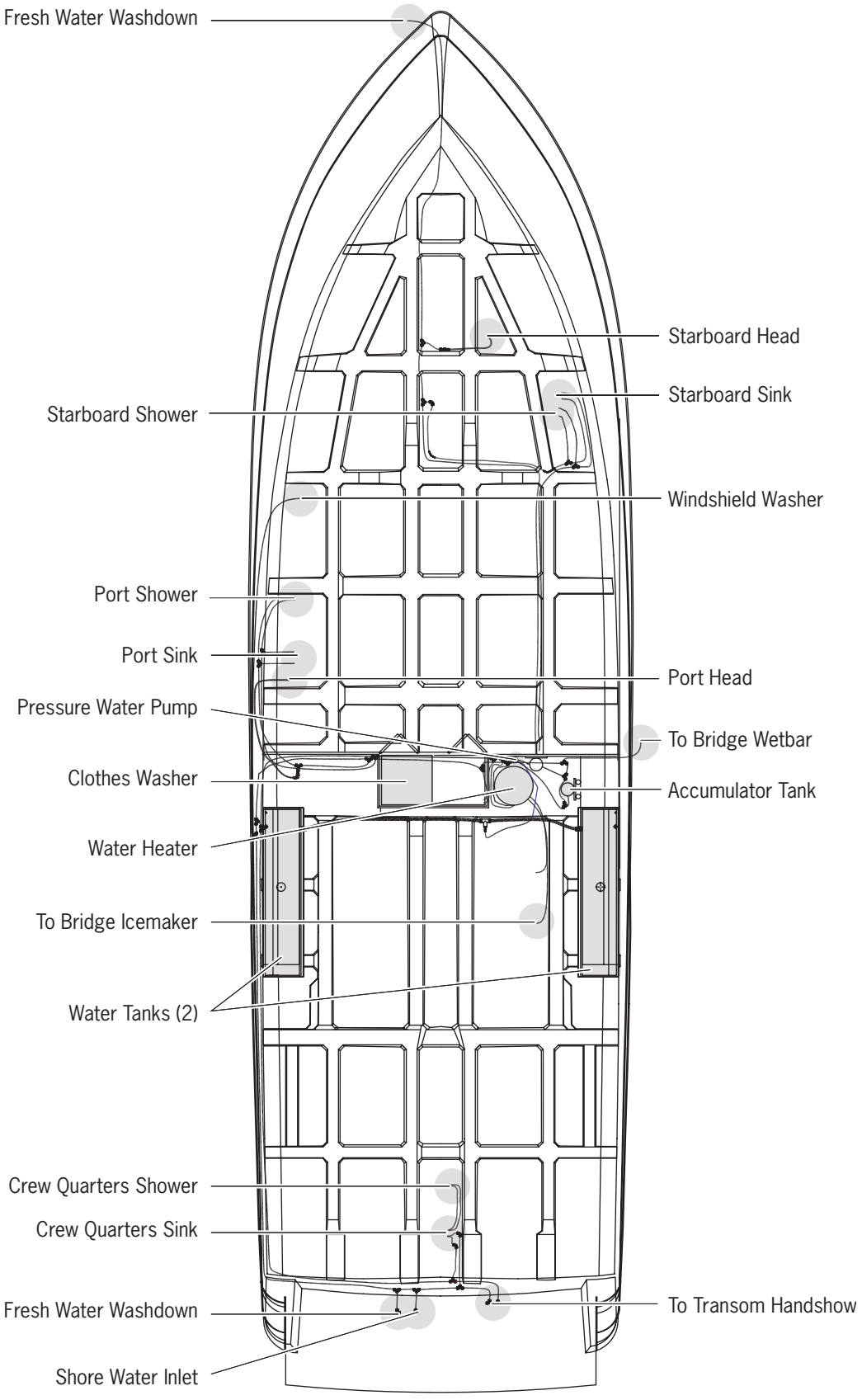
CAUTION

DO NOT OVERFILL THE WATER TANK, NOR LEAVE THE FILL HOSE UNATTENDED WHILE THE TANK IS BEING FILLED. OVERFILLING COULD RUPTURE THE TANK.

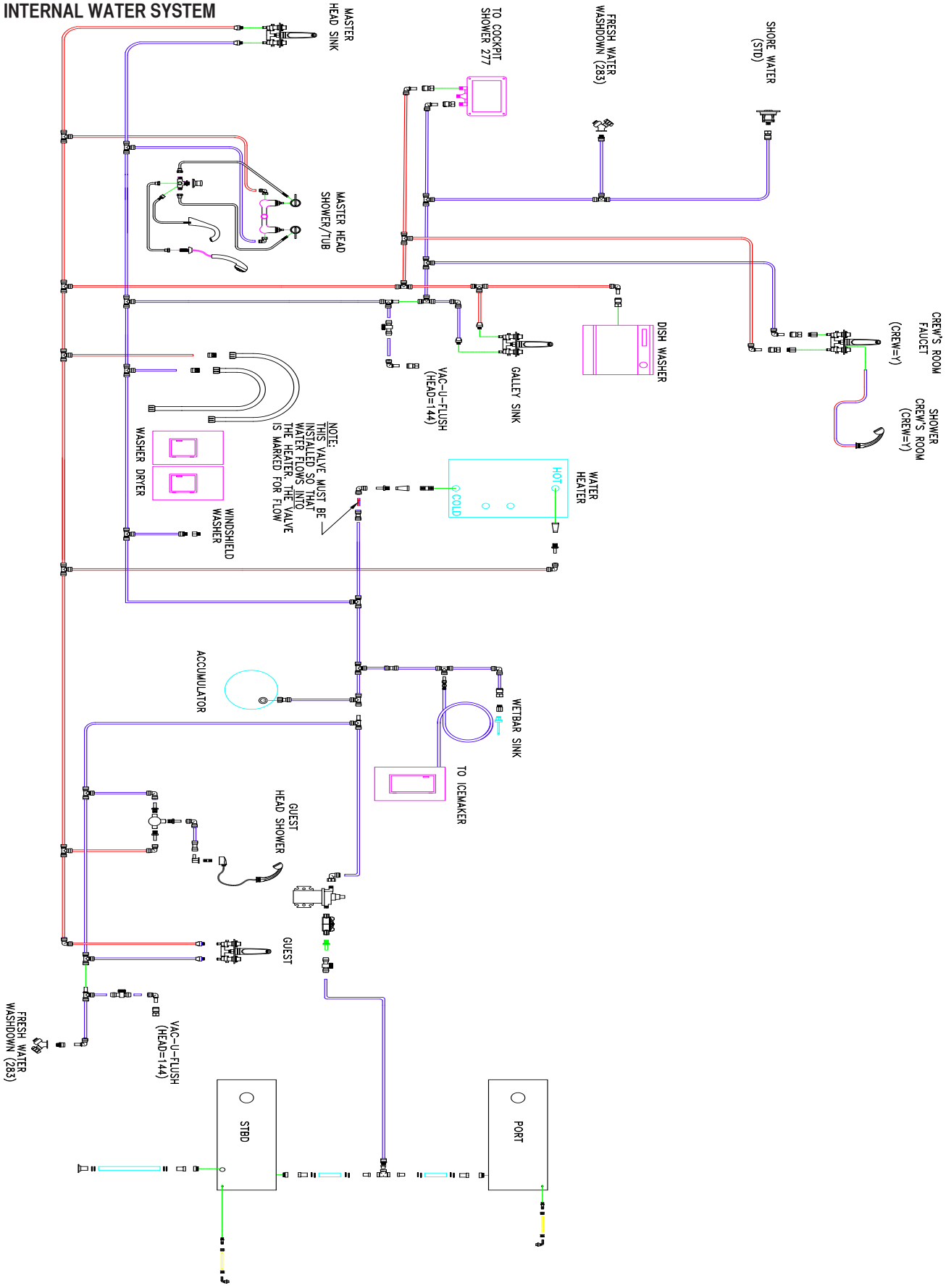
NOTE: Supply only clean, fresh, water into the water tank. The tank is full when water is discharged from the water tank vent. The vent is located in the hull, outboard of the WATER deck fitting.

(See next page for Freshwater System Engineering Schematic)

FRESHWATER SYSTEM ENGINEERING SCHEMATIC

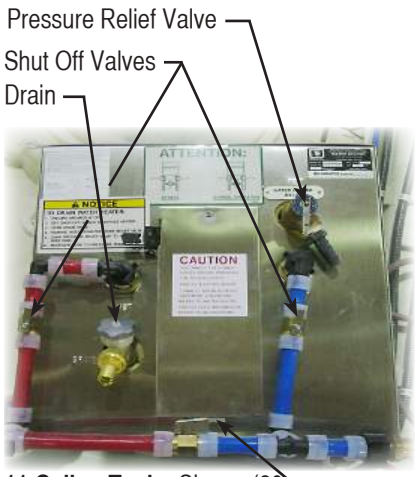


INTERNAL WATER SYSTEM



PRESSURIZING AND PRIMING THE WATER SYSTEM

Pressurize and prime the water system, ONLY after the fresh water tank is full. To pressurize and prime the water system:



11 Gallon Tank - Shown (20 gallon similar)

1. Verify that the DC Control Panel (Helm) has power
2. Switch ON the Auto Sump circuit breaker, located on the DC Control Center (Engine room, aft bulkhead).
3. Open the hot and cold shut-off valves on hot water tank and close the bypass valve.
4. Partially open all cold water faucets, including: transom hand shower faucets and bow and transom fresh water washdown faucets.
5. Supply AC power to the yacht. Refer to Section 3: *Shore Power* or *Generator Power* for instruction.
6. Switch the Pressure Water Pump circuit breaker ON, located on the DC Control Panel, next to the stairway in the salon. Turning the Pressure Water Pump breaker ON, activates the pressure water pump and pressurizes the water system. The fresh water system is primed when all of the air is purged from the system's pipes and hoses.
7. Monitor each sink tap and shower head starting from the boat's aft.
8. Close the cold water faucet for the tap or shower head when a steady stream of water flows from the tap or shower head
9. Open the hot water faucet (the washdowns supply only cold water).
10. Again, close the hot water faucet for the tap or shower head when a steady stream of water flows from the tap or shower head.
    - The water system is primed when all systems are complete.
11. Add water to the fresh water tank to replace the water used in previous steps.

    The pressure water pump automatically shuts off when water pressure within the system increases to the manufacturers specifications. Priming the system also fills and maintains the water level within the water heater.

USING THE WATER SYSTEM

The freshwater system is designed to operate the same as an in=home water system. Open a faucet to receive fresh water after filling, pressurizing, and priming the fresh water system. The pressure in the system decreases as water draws from the system. The pressure water pump automatically turns on and increases the pressure when pressure decreases. The automated system ensures a steady flow of water any time a faucet is opened.

Occasionally, re-priming may be necessary for a recently filled system or a system that has not been used for a while. Re-priming is normal, and is caused by an accumulation of air bubbles at the pressure water pump. To re-prime the fresh water system, repeat the steps under: Pressurizing and Priming the Water System.

A Tip From Carver!

Switch the Pressure Water Pump circuit breaker OFF if your boat will be left unattended for at least a few days. If the breaker is left ON, pressure in the fresh water system may fall, and cause the water pressure pump to engage. The batteries could discharge if the breaker is frequently left ON.

WATER HEATER

Operating the Water Heater: (See Illustration above)

1. Fill, pressurize, and prime the fresh water system. The process automatically fills the water heater.
2. Supply AC power to the yacht. Refer to Section 3: *Shore Power* or *Generator Power* for instruction.
3. Locate the AC Control Panel :
   a. Switch ON the Main Breaker circuit breaker

CAUTION

DO NOT SUPPLY POWER TO THE WATER HEATER WHEN IT IS EMPTY. DAMAGE MAY OCCUR TO THE HEATING ELEMENT. FILL, PRESSURIZE, AND PRIME THE FRESH WATER SYSTEM BEFORE TURNING ON THE WATER HEATER, AS DESCRIBED IN: *FILLING THE WATER TANK* AND *PRESSURIZING AND PRIMING THE WATER SYSTEM* AS DESCRIBED IN SECTION 4.

A Tip From Carver

To obtain the most consistent shower temperature: turn on the cold water faucet fully, then slowly turn on the hot water faucet until the water flowing from the shower head is at the desired temperature. This method keeps the pressure water pump running and eliminates widely fluctuating water temperatures.

SHOWERS AND SINKS

SHOWER

A shower is installed in each of the Head Rooms.

SINK

A sink is installed in each of the Head Rooms, Galley, and the Flybridge Wet Bar.

Used (gray) water from the sinks and showers drain into a sump. The sump is located below the yacht's waterline. A pump is needed to drain the sump and discharge its water overboard or into an optional gray water holding tank.

The sump pump operates automatically when water in the sump rises above the pump's manufactured level. The automatic operation occurs only when the Auto Sump circuit breaker is ON, located on the DC Control Center in the Engine Room, aft bulkhead.

NOTE: Make sure the circuit breaker is ON before using the showers or sinks. The sump pump can not operate if the Auto Sump circuit breaker is OFF.

TRANSOM HAND SHOWER

The transom hand shower supplies warm, fresh water after swimming or before entering the salon. The hand shower is especially useful when the yacht is operated in salt water. The hand shower is an integral part of the yachts fresh water system. Simply, turn on the faucet and adjust for the desired water temperature. The hand shower and mixing valve is located on the transom Port side.

FRESH WATER WASHDOWNS

The optional bow and transom fresh water washdowns supplies water from the fresh water tank to washdown and clean the yacht. The fresh water washdown is, especially, useful if the yacht is operated in salt water.

A Tip From Carver!

The fresh water washdown system draws water from the boat's fresh water tanks. The amount of fresh water in the water tanks is quickly reduced by prolonged use of the washdown system.

USING THE FRESH WATER WASHDOWNS:

1. Locate the bow and transom mounted hose fittings. The bow mounted fitting is located on the fore deck next to the anchor guide (Port side). The transom mounted fitting is located in the starboard aft access door for shore power/water.
2. Attach one end of an appropriately sized nylon water hose to the fitting of choice.
3. Attach a nozzle to the other end of the hose.
4. Open the faucet at the base of the hose fitting to supply water to the hose.

NOTE: The Raw Water Wash Down System is an available option. The hose fittings are side-by-side and clearly marked . A

tank and pressure water pump; water does not fill into the tank. The deck plate labeled WATER is the only way to fill the fresh water tank.

Switch OFF the Pressure Water Pump circuit breaker, located on the DC Control Panel (Helm) when connecting to shore water.

CAUTION

DO NOT LEAVE THE YACHT UNATTENDED WHILE CONNECTED TO SHORE WATER. WATER MAY DEVELOP ONBOARD IF A WATER LINE LEAKS.

Connecting to shore water:

1. Locate the shore water fitting labeled SHORE WATER, located in the starboard aft access door for shore power/water.
2. Attach one end of a water hose to the shore water fitting.
3. Attach opposite end of the hose to the dock side water tap.
4. Close all sink and shower faucets.
5. Provide power to the circuit breakers for the Auto sump.
6. Turn dock side water tap ON.

SEA WATER WASHDOWNS

The optional bow and transom sea water washdowns is designed to use seawater to washdown and clean the boat. (See next page for illustration)

USING THE SEA WATER WASHDOWNS:

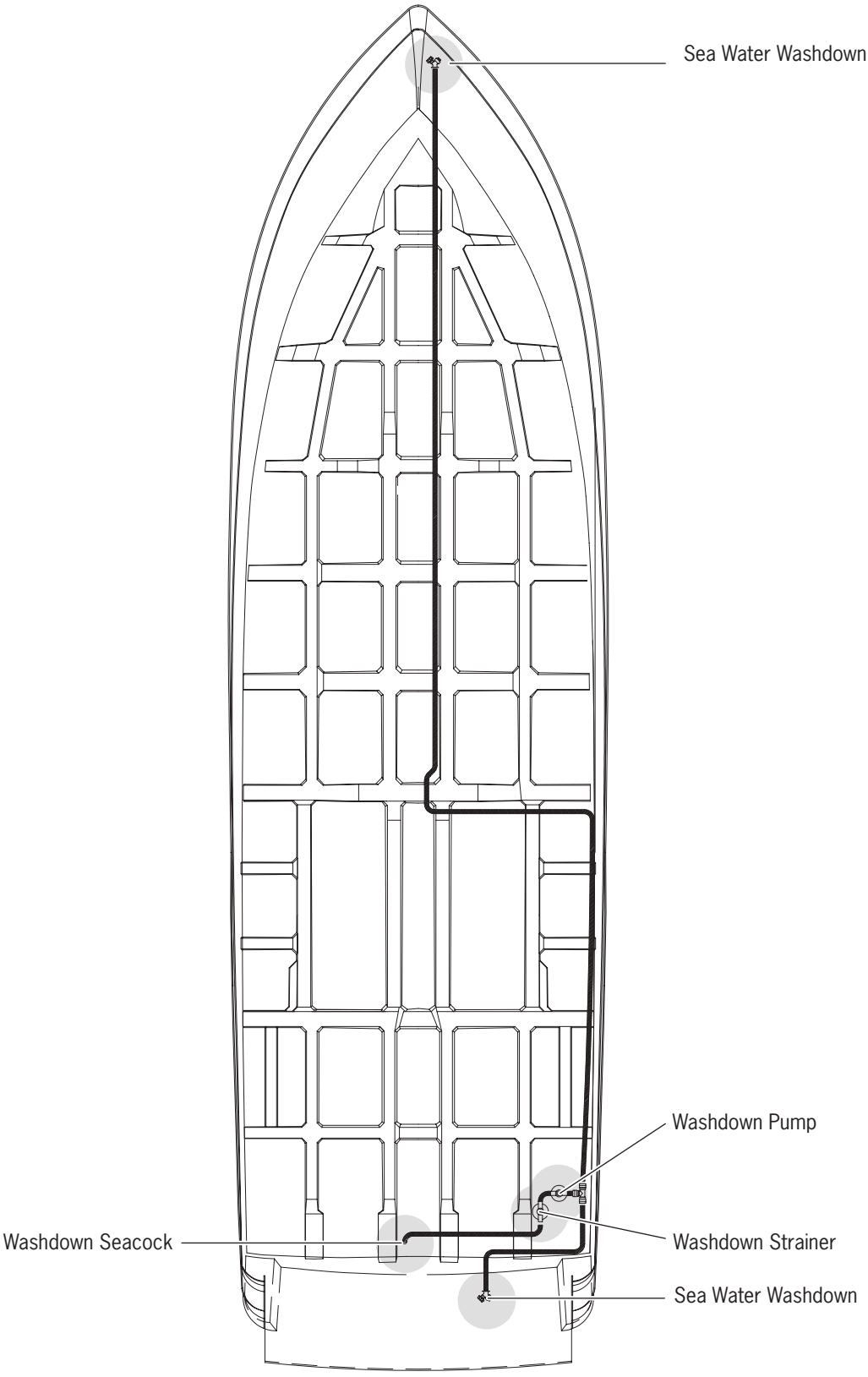
1. Locate the bow and transom-mounted hose fittings. The bow-mounted fitting is located in the port bow locker. The transom-mounted fitting is located in the starboard transom locker.
2. Attach one end of an appropriately sized garden hose to the hose fitting you wish to use.
3. Attach a nozzle to the other end of the hose. The best type of nozzle to use is the “pistol grip” type that can be opened and closed by squeezing your hand.
4. Make sure the sea water washdown seacock is closed. Remove and clean the sea water washdown system’s seawater strainer. The strainer prevents debris in the seawater from entering the washdown pump. The strainer is located in the starboard aft bilge area. Refer to Section 9 - Engine Room for the exact location of the strainer.
5. Reinstall the seawater strainer. If the strainer leaks when the sea water washdown seacock is opened, close the seacock, then check the strainer for correct installation.
6. Open the seacock that supplies seawater to the sea water washdown pump. The seacock is located aft of the starboard engine. Refer to Section 9 - Engine Room for the exact location of the seacock.
7. Turn the accessory battery bank master disconnect switch to the ON position.
8. Switch the Main - One circuit breaker on the Safety Breaker Panel ON.

CAUTION

DO NOT OPERATE THE WASHDOWN PUMP WHEN THE SEACOCK THAT SUPPLIES SEAWATER TO THE WASHDOWN SYSTEM IS CLOSED. OPERATING THE PUMP WITH NO SEAWATER CAN DAMAGE IT.

9. On the DC Control Center, switch the System DC Main circuit breaker “ON,” then switch the Washdown Pump circuit breaker “ON.” This activates the boat’s sea water washdown pump.
10. The sea water washdown pump, when activated, creates pressure in the sea water washdown system. When the hose nozzle is closed, water pressure within the system increases to a predetermined point at which the pump automatically shuts off.

decreases to the manufacturer's specified level, the pump automatically turns on and increases the pressure. This ensures a steady flow of water any time you use the sea water washdown.



SEAWATER WASHDOWN

When the hose nozzle is open, releasing water from the system, the pressure in the system decreases. When the pressure

SHORE WATER

An optional shore water fitting is installed that allows the fresh water system to draw water from a land water source while the yacht is docked. Water is NOT drawing from the onboard water tanks while shore water is being used.

NOTE: Connecting to shore water bypasses the boat's fresh water tanks and pressure water pump; the water tanks do not get filled. Filling the fresh water tanks through the deck plate labeled WATER is the ONLY way to fill the tanks.

Switch OFF the Pressure Pump circuit breaker while connected to shore water. The breaker is located on the DC Control Center.

To connect to shore water:

1. Locate the shore water fitting, labeled SHORE WATER, located in the starboard transom locker. Refer to Section 9 - Deck Plates for the exact location of this fitting.
2. Attach one end of a garden hose to the shore water fitting.
3. Attach the opposite end of the garden hose to the dockside water tap.
4. Close all sink and shower faucets.
5. Switch ON the Auto Sump circuit breaker, located on the DC MAIN Control Center.
6. Turn ON the dockside water tap.

CAUTION

DO NOT LEAVE THE YACHT UNATTENDED WHILE CONNECTED TO SHORE WATER. AN UNLIMITED AMOUNT OF WATER COULD ACCRUE ONBOARD IF A LEAK OCCURS. DISCONNECT THE SHORE WATER HOSE WHILE THE YACHTS IS UNATTENDED.

WATER MAKER

The optional water maker purifies seawater (fresh or salt) to replenish the fresh water supply when fresh water is unavailable. The water maker is located in the port aft bilge area. (See next page for Illustration)

USING THE WATER MAKER:

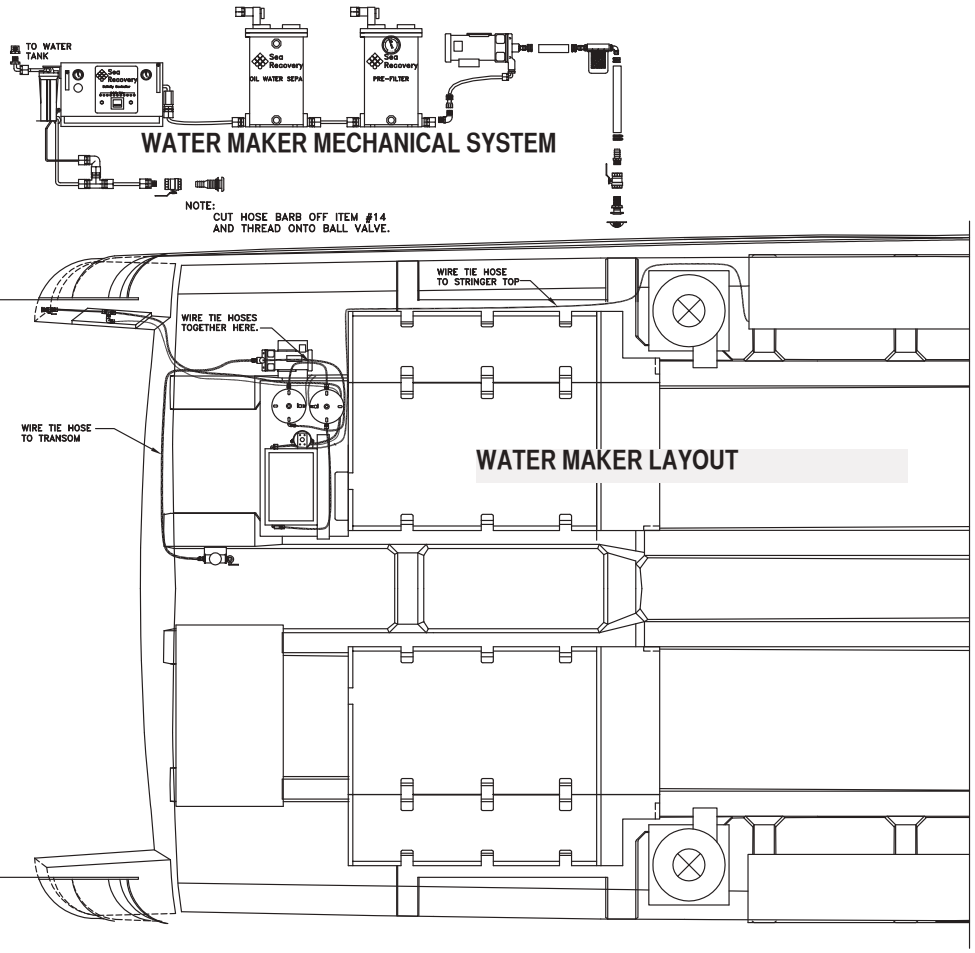
1. Close the Water Maker Seacock, if not already done.
2. Remove and clean the water maker's seawater strainer. The strainer prevents debris in the seawater from entering the water maker. The strainer is located near the water maker.
3. Reinstall the seawater strainer. If the strainer leaks when the water maker seacock is opened, close the seacock, then check the strainer for correct installation.
4. Open the seacock supplying seawater to the water maker. The seacock is located near the strainer.
5. Supply AC power the yacht. Refer to Section 3: *Shore Power* and/or *Generator Power* for instruction.
6. If SHORE POWER is used, switch the Shore circuit breaker group ON, located on the AC Control Panel, next to the stairway in the Salon.

6a. If GENERATOR POWER is used, switch the Generator circuit breaker group ON, located on the AC Control Panel, next to the stairway in the Salon.

Do not operate the water maker's water pump when the seacock supplying seawater to the system is closed. Operating the pump without seawater can damage the pump.

7. Switch the Water Maker circuit breaker ON, located on the AC Control Panel, next to the stairway in the Salon. Refer to the

OEM information for details on operating the water maker.



BILGE SYSTEM

DOMESTIC

Three automatic bilge pumps are standard in the Carver for the U.S.

INTERNATIONAL MARKET

Five automatic bilge pumps are standard in the Carver for the International Market.

Water Sensor

High Water Alarm Sensor

Typical Aft Bilge Pump - 54 Voyager Bilge Similar

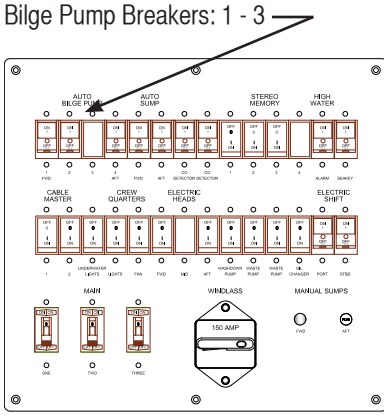
The bilge is the lowest point in the interior of the hull. Any water that accumulates in the hull will relocate to the bilge. Each bilge pump can remove up to 2000 gallons of water per hour. The bilges include:

- **Forward Bilge Pump:** located beneath the hatch in the master stateroom.
- **Amidships Bilge Pump:** located forward of the engines. An additional hand bilge pump is equipped on yachts shipped to Europe.
- **Aft Bilge Pump:** located in the aft bilge area at the stern.

NOTE: Wipe up any oil that may have accumulated in the bilges before operating the bilge pumps. Pumping oil overboard contributes to water pollution, and is in violation of the Federal Water Pollution Control Act. Violators are subject to a substantial penalty.

CAUTION

NEVER STORE ITEMS IN THE BILGES. STORING LOOSE ITEMS IN THE BILGES MAY DAMAGE THE PUMPS, PIPES, OR OTHER COMPONENTS ESSENTIAL FOR

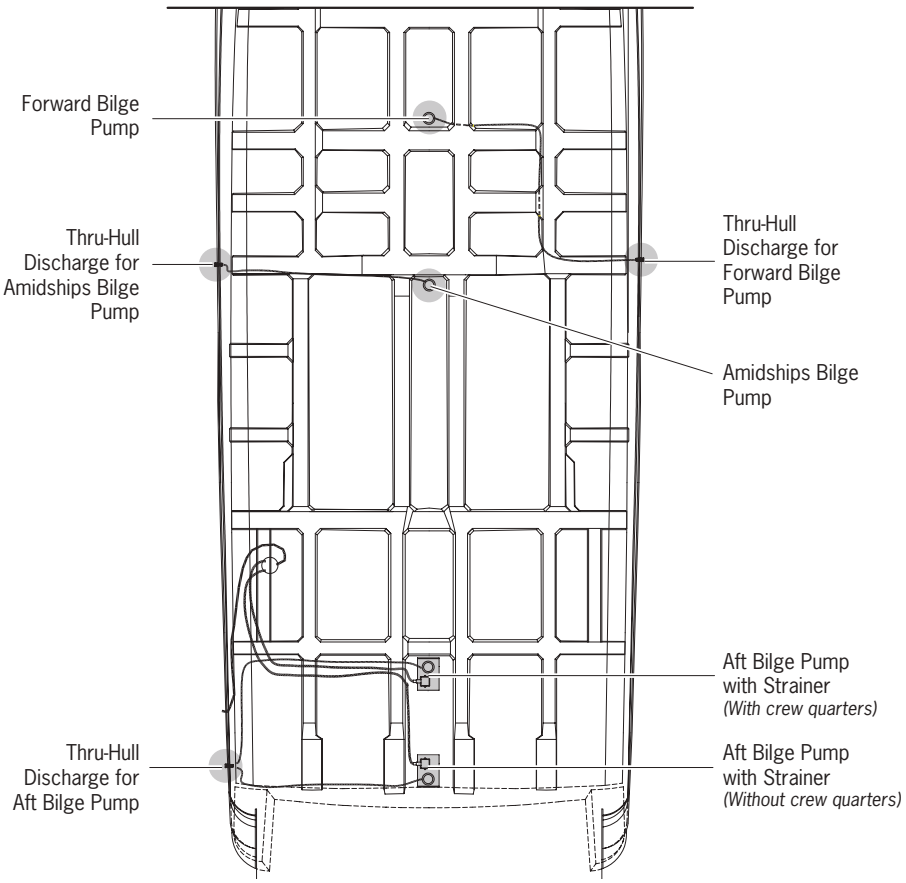


DC Control Center (Engine Rm.)

PROPER OPERATION.

THE WATER IN THE BILGES MUST BE DRAINED BEFORE STORING FOR THE WINTER IF THE YACHT IS KEPT IN A CLIMATE WITH BELOW FREEZING TEMPERATURES.

FROZEN WATER IN THE BILGES MAY CAUSE SEVERE DAMAGE TO THE YACHT AND ITS COMPONENTS. REFER TO SECTION 8: *BILGES* FOR MORE INFORMATION ON WINTERIZING THE BILGES.



BILGE SYSTEM LAYOUT (ENGINE RM.)

BILGE PUMP OPERATION

Each automatic bilge pump can be operated either automatically or manually. The bilge pumps remove nearly all the water that collects in the bilges. Use a sponge and bucket to remove the small amount of water that remains to completely dry the bilges.

Two high water sensors are equipped on the yacht. The sensors detect high bilge water, and an alarm sounds if detected. The most likely causes of high bilge water are:

- A hull breach
- Faulty bilge pump
- Faulty seacock/hose.

NOTE: The High Water Alarm circuit breaker on the DC Panel (Engine Room) must be ON at all times, so that the alarm will sound if high water is detected in the bilge.

AUTOMATIC OPERATION

An electronic water sensor switch is built-in to each automatic bilge pump. The sensor switch automatically turns the pump on when bilge water rises to a calculated level. To operate the bilge pumps in AUTOMATIC mode:

1. Provide power to the circuit breakers on the DC Center in the Engine Room aft bulkhead.
2. Switch the Bilge Pump circuit breakers ON, located on that same panel.
3. Test each sensor switch by pressing the two indents on the side of the switch for 4 seconds which should turn the bilge pump on.

NOTE: Periodically testing each sensor is important.

MANUAL OPERATION

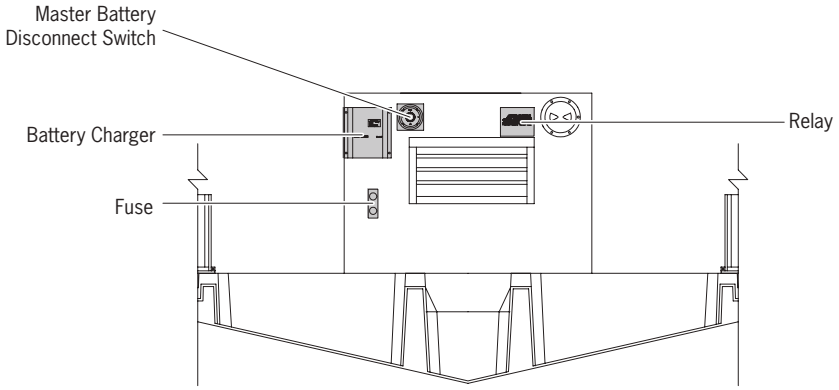
MANUALLY operating the automatic bilge pumps:

1. Turn ON the accessory battery bank master disconnect switch.
2. Turn ON the two individual Main circuit breakers labeled ONE and MAIN.
3. On the DC Control Center:
   - 3a. Switch ON the system DC Main circuit breaker.
   - 3b. Switch ON the Pilothouse DC Main circuit breaker.

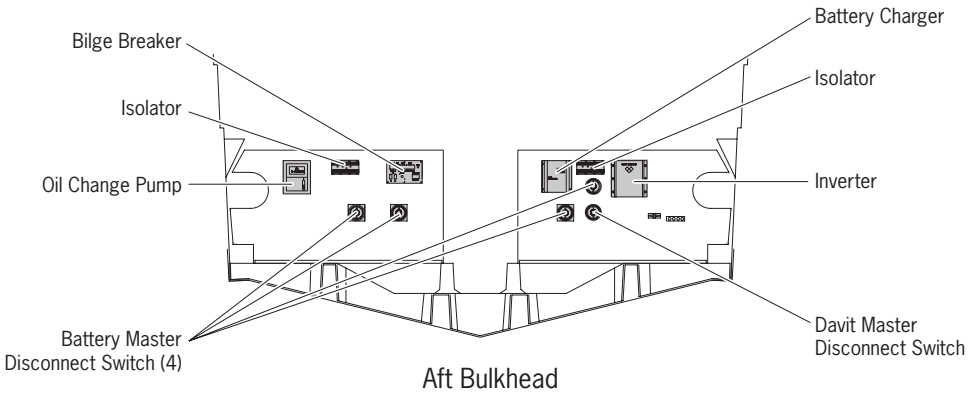
CAUTION

TURN OFF THE BILGE PUMP WHEN THE WATER DECREASES TO A LEVEL THAT PUMP CAN NO LONGER OPERATE. CAUTION IS ONLY NECESSARY IN MANUAL MODE. ALLOWING THE PUMP TO OPERATE WITHOUT WATER CAN DAMAGE THE PUMP

4. Press the Forward, Mid, and Aft Bilge Pump switches to the up position to activate the pumps. The switches are located on the Pilothouse Helm.



Forward Bulkhead



Aft Bulkhead

A Tip From Carver!

A small amount of water always collects in your yachts's bilge. The water is usually not enough to activate the automatic switch on the bilge pump. While underway, use the helm switches to manually turn the bilge pumps on, and let the pumps run for 30 seconds to one minute. When your boat is on plane, water in the bilge flows to the stern, where the aft bilge pump is located. The amidships bilge pumps are near the lowest point in the hull.

HULL DRAIN

One hull drain is equipped on the yacht. The drain allows water to drain from the bilges while the yacht is in dry storage. The yacht and cradle should be positioned to allow water to flow toward the hull drain. The drain is located in the transom in the deepest portion of the hull's "V."

The hull drain will drain water only from the bilge area aft of the forward engine bulkhead. If there is a collection of water forward of the engine room bulkhead, it must be pumped out.

CAUTION

SECURELY TIGHTEN THE DRAIN PLUG INTO THE HULL DRAIN BEFORE LAUNCHING.

A Tip From Carver!

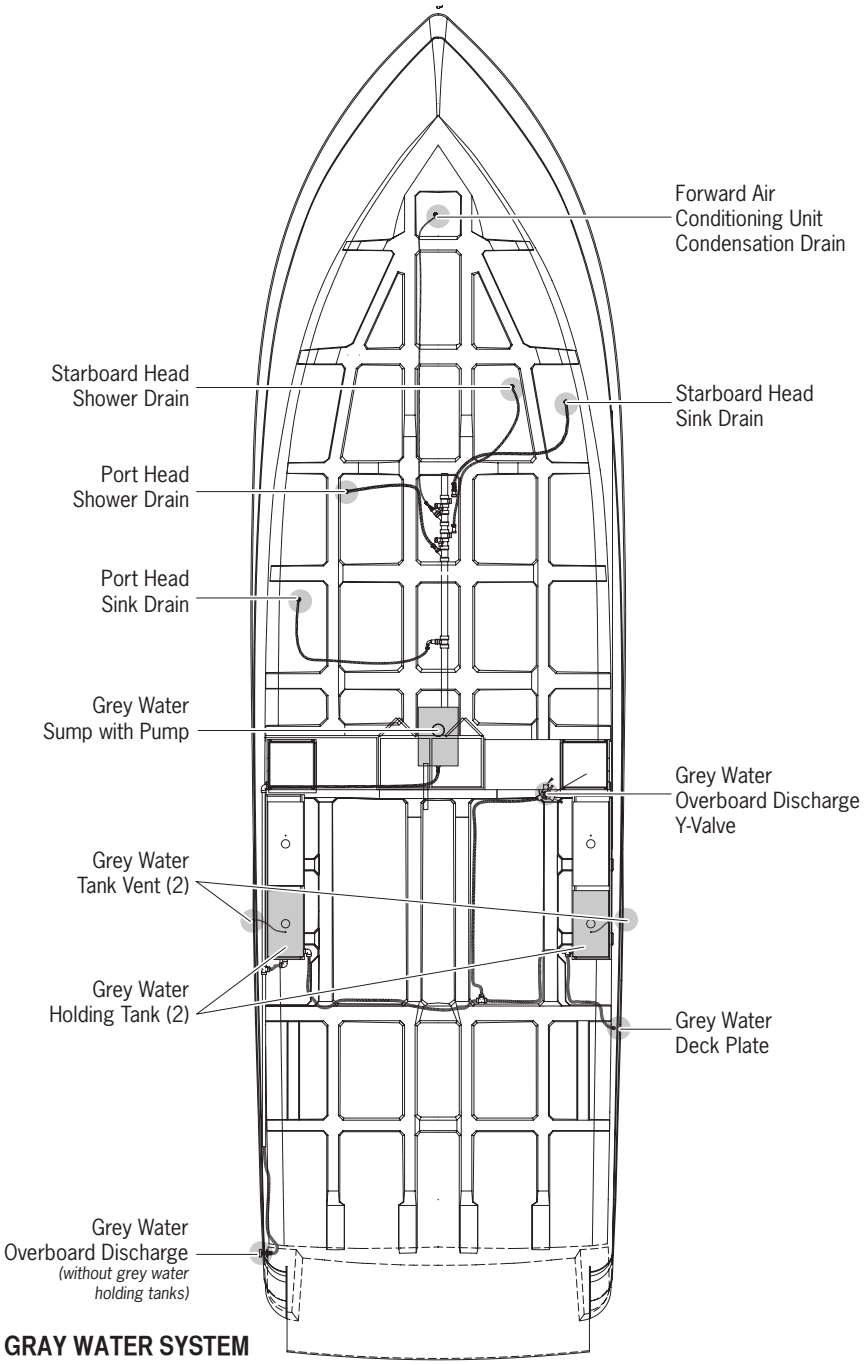
Coat the threads of the hull drain plug with waterproof grease before you install the ;lug into the hull drain fitting. This makes it easier to remove the plug at a later date.

GRAY WATER SYSTEM

Yachts equipped with a Gray Water System are designed to have the sinks and shower drain into the Sump, water drainage is pumped to the Gray Water tank. Once the gray water tank is full, the tank can be emptied at dock side with the procedure described on the next page, titled: *Emptying The Waste/Gray Water Tank*.

The gray water tank is comprised of two separate tanks connected by a hose. Gravity forces the gray water from one tank to the other tank through the hose, and equalizes the gray water in each tank. One tank is located on each side of the hull, aft of the fresh water tanks. See *Dockside Discharge* or *Overboard Discharge* in this section for emptying the tanks.

NOTE: **DISCHARGING WASTE OVER BOARD IS ILLEGAL IN MANY AREAS OF THE UNITED STATES. It is everyone's responsibility to comply with all applicable federal, state, and local laws when using the overboard discharge system. Discharging waste overboard in restricted areas will result in significant penalties.**



GRAY WATER SYSTEM

SANITATION SYSTEM

VACUUM TOILETS

Operating the vacuum flush system:

1. Turn ON the accessory battery master disconnect switch.
2. Make sure the Electric Head circuit breaker is ON, located on the DC Control Center Engine Room Aft Bulkhead.
3. Check the level indicated on the Tank Monitor located on the DC Panel, next to the stairway in the Salon.

   3a. Empty the waste tank if the indicator shows a reading of at least 3/4 full. (See *Emptying The Waste/Gray Water Tank* procedure on the next page)

   NOTE: A **WARNING** light in the Head Room will illuminate when the waste tank is 3/4 full. If the red indicator is

not lit, proceed to next step.

4. Press the foot pedal at the base of the toilet to flush.

   NOTE: Raise up the flush foot pedal for additional water in the tank for flushing.

5. If the toilet bowl is dry, water can be added to the bowl by lifting up on the foot pedal. Lifting the pedal adds water without flushing.

The vacuum system may gradually lose vacuum pressure over time.
When pressure in the system drops below a predetermined level, the vacuum pump engages automatically to bring vacuum pressure back to the optimum level.

NOTE: To eliminate the toilet vacuum pump noise, temporarily shut the pump off by using the Toilet switch. The switch is located on the Port Bulkhead. Placing the switch in the OFF position shuts off the toilet's vacuum pump.

CAUTION

IF THE WASTE SYSTEM IS NOT GOING TO BE USED FOR TWO OR MORE WEEKS, FLUSH TWO TO THREE GALLONS OF FRESH WATER THROUGH EACH HEAD. DOING SO WILL FLUSH THE WASTE IN THE HOSES TO THE TANKS. REMOVING THE WASTE FROM THE HOSES WILL DECREASE ODORS ONBOARD.

EMPTYING THE WASTE TANK AND GRAY WATER TANK

The sanitation system contains two polyethylene waste tanks. The port tank is located in the port forward corner of the engine room; the starboard tank is located in the starboard forward corner of the engine room. Refer to Section 9: *Engine Room* for the exact location of the tanks. The two methods of disposing of waste are described below. Use waste tank deodorizer inside the waste tanks between pump-outs.

DOCKSIDE DISCHARGE

Using the dockside discharge method, waste is flushed from the heads to the waste tanks and stored until the waste is transferred to a dockside pumpout station.

To empty the tanks:

1. Locate a dockside pumpout station.
2. Remove the two waste deck plates using the Waste Tank Deck Key supplied. See below for name and location of each plate:
   2a. WASTE Tank Plate: located on the PORT side aft corner
   2b. WATER Waste Deck Plate: located PORT walkway amidships
3. Attach the pumpout vacuum hose to the WASTE deck fitting. Make sure to have a secure connection between the transfer hose and the deck fitting.
4. Activate the pumpout vacuum. The pumpout vacuum transfers onboard waste to the dockside holding station.
5. Flush the waste tank(s), after all waste is removed by:
   5a. Pour several gallons of fresh water through the WASTE deck fitting.
   5b. Reattach the vacuum hose to the deck fitting, and activate the pumpout vacuum to remove the fresh water and any remaining waste.
6. Replace the deck plate(s).
7. Remove the starboard waste tank deck plate labeled WASTE using the supplied removal tool. The WASTE plate is located on the starboard side deck just forward of the fresh water deck plate. Refer to Section 9: *Deck Plates* for the exact location of the plate.
8. Repeat steps 3, 4, 5, and 6 for the starboard waste tank.

A Tip From Carver!

The WASTE deck plate is not connected to the fitting and DOES NOT FLOAT. Be careful not to drop the deck plate when removing. You can order a replacement from your Carver Dealer if you do lose the plate. WASTE deck plates are

dropped overboard frequently enough that we suggest you carry an extra plate in your onboard spare parts kit.

OVERBOARD DISCHARGE

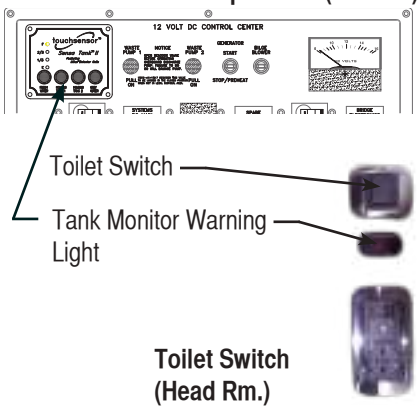
Discharging gray water overboard is against the law in some areas of the United States. It is the boater's responsibility to maintain compliance with all applicable federal, state, and local laws when using the overboard discharge system. Significant penalties result for discharging waste overboard.

It is legal to discharge waste from the waste tanks into the sea in certain coastal areas of the world. For this reason, Carver offers an optional overboard discharge system on boats that are exported or used in the coastal areas of the United States.

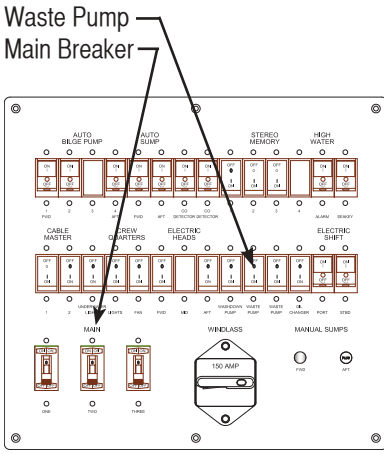
With the overboard discharge system, waste is flushed from the toilets to the waste storage tank. In locations that overboard discharge is legal, the tanks can be discharged directly overboard.

If overboard discharge is not legal at your location, either wait until an area is reached where it is legal, or use a dock side pumpout station to empty the waste tanks.

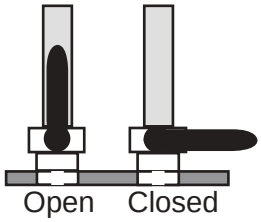
DC Control Panel - Top shown (at Helm)



Toilet Switch (Head Rm.)



STEP 4 and STEP 5: DC Control Center (Engine Rm.)



General Seacock Open/Closed Position

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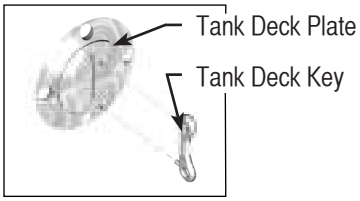
1. Open the overboard discharge seacock located at the transom bilge area. Refer to Section 9: *Engine Room* for the exact location of the seacock.
2. Turn the waste tank selector Y-valve and gray water tank selector Y-valve to the gray water tank position. The Y-valves are located in the engine room on the starboard forward bulkhead. Refer to Section 9: *Engine Room* for the exact location of the Y-valves.
3. Turn ON the accessory battery bank master disconnect switch.
4. Switch ON the MAIN circuit breaker, located on the Safety Breaker Panel.
5. Switch ON the WASTE PUMP circuit breaker located on the DC Control Center
6. Turn ON the Overboard Discharge Pump Switch. The switch is located near the overboard discharge seacock. The switch activates the overboard discharge pump, and pumps the waste overboard. Refer to Section 9: *Engine Room* for the exact location of the seacock.

CAUTION

TURN THE OVERBOARD DISCHARGE PUMP OFF WHEN THE WASTE TANK IS EMPTIED. THE PUMP CAN BE DAMAGED BY CONTINUING OPERATION WHEN THE WASTE TANK IS EMPTY.

7. Turn OFF the overboard discharge pump switch after all waste is pumped overboard.
8. Remove the waste tank deck plate labeled, WASTE using the waste tank deck key supplied.
9. Flush the waste tank by pouring 2 to 3 gallons of fresh water through the WASTE deck fitting.
10. Reactivate the overboard discharge pump and remove the fresh water and any remaining waste.
11. Turn OFF the pump, once complete.
12. Replace the WASTE deck plate.
13. Turn the waste tank selector Y-valve to the starboard waste tank position.
14. Repeat steps 6 and 7 for the starboard waste tank.



WATER Plate (PORT Location)
Waste Plate (Aft PORT Location)

15. Remove the starboard waste tank deck plate labeled WASTE using the removal tool supplied with the yacht. The WASTE plate is located on the starboard side deck, forward of the port waste tank deck plate. Refer to Section 9: *Deck Plates* for the exact location of this plate.
16. Flush the waste tank by pouring a few gallons of fresh water through the WASTE deck fitting.
17. Reactivate the waste pump to remove the fresh water and any remaining waste.
18. Turn the waste pump switch OFF.
19. Replace the WASTE deck plate.
20. Close the overboard discharge seacock.
21. Switch OFF the Waste Pump circuit breaker, located on the DC Control Center in the Engine Room.

RAW WATER WASHDOWNS

The optional bow and transom raw water washdowns enable uses seawater to washdown and clean the boat.

USING THE RAW WATER WASHDOWNS:

1. Locate the bow and transom mounted hose fittings. Each location is as follows:
   - The bow-mounted fitting: Located on the fore deck starboard of the anchor guide plate.
   - The transom-mounted fitting: Located in the starboard aft access door for shore power/water.
2. Attach one end of an appropriately sized nylon water hose (with nozzle) to the hose fitting of choice.
3. Make sure the raw water seacock is closed, remove and clean the raw water filter.
4. Reinstall the seawater filter and open the seacock. If the filter leaks when the seacock is opened, close the seacock and check the filter for the correct installation.
5. Open the seacock to supply the seawater to the washdown pump.
6. Switch ON the Washdown Pump Circuit Breaker located on the circuit breaker on the DC Control Panel in the Engine Rm.

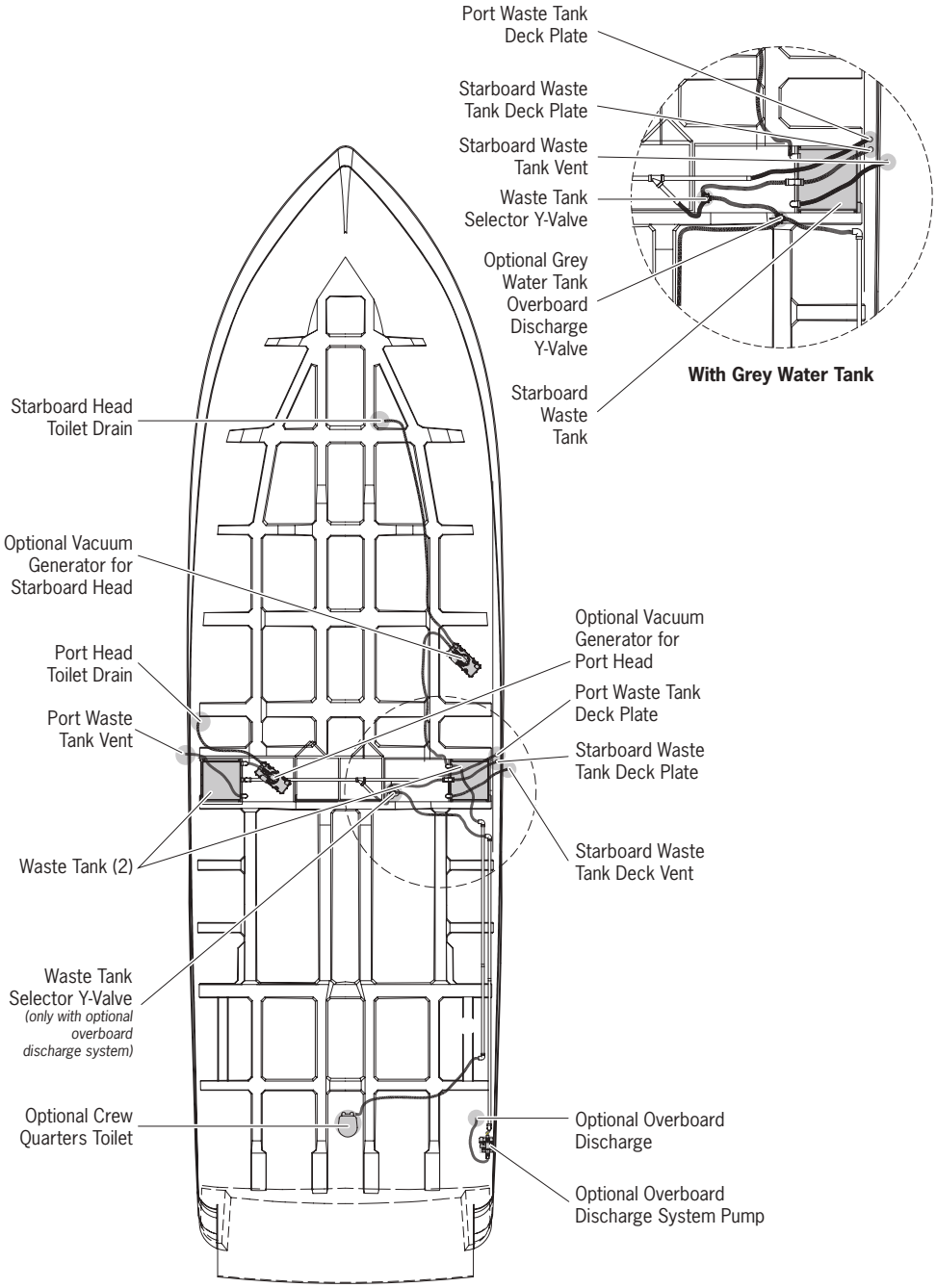
CAUTION

DO NOT OPERATE THE WASHDOWN PUMP WHEN THE SEACOCK SUPPLYING SEAWATER TO THE WASHDOWN SYSTEM IS CLOSED. THE PUMP CAN BE DAMAGED BY CONTINUING OPERATION WITHOUT SEAWATER.

The raw water washdown pump, when activated, creates pressure in the raw water washdown system. When the hose nozzle is closed, water pressure within the system increases to a predetermined point, once reached, the pump automatically shuts off. When the hose nozzle is open, releasing water from the system, the pressure in the system decreases. When the pressure decreases to a predetermined point, the pump automatically turn on and increases the pressure. The system settings ensure a steady flow of water every time the raw water washdown is used.

TRANSOM LEDGE/AFT BILGE AREA

The valves located along the transom ledge in the bilge area are all to be placed in the OPEN position. The valve open position allows water to drain from the air conditioning units, water heater, aft bilge pump, and cockpit areas. Close the valves while the yacht is stored for the winter.



RAW WATER/WASTE ILLUSTRATION

PROPULSION

Section 5 provides a general overview of the propulsion system and operation. For a detailed explanation of the engines, engine operation, and engine maintenance; refer to the OEM information provided with the boat.

FUEL SYSTEM DIESEL

Each diesel propulsion engine onboard is plumbed to the fuel tank located on the same side as the engine. The diesel propulsion system uses fuel supply and return lines:

- The supply lines feed fuel to the engine
- The return lines transfer fuel not burned by the engine back to the fuel tank.
- The generator draws fuel from the starboard fuel tank only.

CAUTION

BEFORE USING ETHANOL-BLENDED GASOLINE, CARVER RECOMMENDS CONTACTING THE ENGINE MANUFACTURER TO ENSURE DAMAGE WILL NOT OCCUR TO THE ENGINE.

FUEL TANKS

A maximum of 800 gallons of fuel, in two 400 gallon tanks, can be held onboard. The fuel tanks are located on the starboard and port sides of the engine room. The fuel system meets or exceeds the standards set by the U.S. Coast Guard, National Marine Manufacturers Association (NMMA), and the American Boat and Yacht Council at the current time when the yacht was built. Each fuel tank has passed rigorous tests performed by the tank manufacturer. The entire fuel system has passed Carver's pressure testing and inspection. Your Carver Dealer also makes a full inspection of the fuel system before the yacht is delivered. An entry on the Carver Pre-Delivery Service Record verifies the dealer's completion of the inspection.

CAUTION

CORROSION CAN OCCUR IN TANKS OVER TIME. WATER CONDENSES INSIDE THE FUEL TANKS, ESPECIALLY IN HUMID REGIONS. WATER CAN REACT WITH THE FUEL IN THE TANKS TO CREATE A MIXTURE THAT CAN CORRODE THE TANK'S INSIDE. TO AVOID TANK CORROSION:

- **USE THE FUEL IN THE FUEL TANKS AS OFTEN AND AS COMPLETELY AS POSSIBLE.**
- **KEEP THE TANKS FULL OF FUEL WHEN STORED OR USED INFREQUENTLY.**
- **DO NOT PUT ALCOHOL-BASED FUELS IN THE TANKS.**
- **CHECK THE RACOR FUEL FILTER BOWLS FOR WATER ACCUMULATION ON A REGULAR BASIS.**

FUEL SHUT-OFF VALVES

Fuel supply shut-off valves are located on top of the fuel tanks, near the aft inboard corner. THE VALVES MUST BE OPEN WHEN OPERATING THE ENGINES.

FUEL TANK VENTS

Each fuel tank is vented overboard. As the fuel tanks get filled, air is displaced from inside the tanks, and escapes through the vents. However, when the engines are running, air enters the fuel tanks through the vents to displace the fuel being used.

FUEL TRANSFER SYSTEM

The fuel levels in the tanks may become unequal during refueling, and while the generator is drawing fuel ONLY from the starboard fuel tank. If the fuel levels become unequal:

1. Open the fuel valves on top of the tanks
2. Operate the fuel transfer pump from the helm, and observe the fuel gauges to determine when the fuel levels are equal.

3. Turn OFF transfer pump and close the valves.

NOTE: The fuel gauges are active when the ignition switches to the engines are ON.

- Port engine = Port fuel gauge and Starboard
- Engine = Starboard fuel gauge.

WARNING

ALWAYS CLOSE BOTH FUEL EQUALIZATION VALVES WHEN THE VALVES ARE NOT IN USE. FUEL COULD SPILL INTO THE ENGINE ROOM IF ONE OF THE VALVES DEVELOP A LEAK.

The fuel transfer switch is a two position switch, and will transfer fuel from one tank to the other depending on the switch position.

ENGINE ROOM VENTILATION

The engine room is equipped with a ventilation system that consists of intake ducts, exhaust ducts, and bilge blowers. The ventilation system is designed to remove fuel vapor and excess heat from the engine room. The bilge blowers operate when the engines are running, as long as the four Bilge Blower circuit breakers are ON. The bilge blower circuit breakers are located on the DC Control Panel, next to the stairway in the Salon.

The engine room ventilation system must be kept in proper operating condition. To maintain the ventilation system:

- Inspect the intake and exhaust ducts regularly to keep free of obstructions, make sure the ducts have not collapsed or torn.
- Inspect the blowers to ensure they are operating properly.
- Replace worn components with new components of the same type.

COOLING SYSTEM DIESEL

Each propulsion engine has a closed cooling system that removes heat from the engine and the exhaust system. Closed systems use a freshwater/antifreeze mixture to cool the engine. The coolant mixture runs through a heat exchanger that transfers the heat to seawater taken in through a seacock for each engine.

Make sure that a sufficient level of coolant mixture is kept in each system. **Open the cooling system seacocks before starting the engines.** The inlet seacocks for each engine are located on the IPS drives. If unsure of the cooling system type installed, contact your Carver Dealer.

Both open and closed cooling systems require seawater to function. Before each cruise, make sure the cooling system seacocks are closed. Also, make sure the strainers are free of seaweed and other debris. The strainers are located near the seacocks.

Open the cooling system seacocks before starting the engines. The seacock for each engine's cooling system is located forward center of the Engine Room. Refer to Section 9: *Engine Room* for the exact location of the seacocks and seacock strainers. If a closed system is installed, make sure that a sufficient level of coolant is in the system.

WARNING

SERIOUS DAMAGE TO THE ENGINE AND RELATED SYSTEMS CAN INCUR BY RUNNING AN ENGINE WITH AN INADEQUATE SUPPLY OF ANTIFREEZE, OR OBSTRUCTED SEAWATER PICKUPS OR STRAINERS

After starting the engines, check the engine exhaust outlets. Refer to Section 9: *Thru-Hull Fittings* for the location of the engine exhaust outlets. If water is not being ejected from the outlets:

- Immediately shut down the engines.
- Determine why seawater is not being pumped through the system.
- Have the problem corrected before restarting the engines.

The cooling system may need to be repaired if an above normal temperature registers on the engine temperature gauge. If the engine

temperature quickly rises, IMMEDIATELY shut OFF the affected engine, and have the cooling system inspected and repaired.

EXHAUST SYSTEM - DIESEL

The exhaust system for each engine consists of an exhaust manifold, exhaust piping, and the exhaust hoses used to vent the exhaust to the atmosphere. Carbon monoxide may escape and endanger everyone on board if the exhaust system contains leaks or obstructions, or has any other problem that prevents it from venting exhaust properly. Check the exhaust system regularly for proper operation. Change in engine noise could indicate an exhaust system problem, and should immediately be investigated.

FIRE SUPPRESSION SYSTEM

Typical Fire Suppression Tank (54 V Similar)

An automatic fire suppression system is installed in the engine room. The suppression system chemical tank is located forward of the port fuel tank. The system provides extra security in the event of an engine room fire. Refer to the OEM information for details on operating the fire suppression system. The system can also be activated manually by using a release control located at the helm.

WARNING

IMMEDIATELY EVACUATE THE ENGINE ROOM AND THE AFT BILGE AREA IF THE FIRE SUPPRESSION SYSTEM IS ACTIVATED. ASPHYXIATION CAN RESULT IF THE FIRE SUPPRESSION SYSTEM CHEMICALS ARE INHALED.

IMMEDIATELY VENTILATE THE ENGINE ROOM WITH FRESH AIR ONCE THE FIRE IS EXTINGUISHED AND THE SYSTEM IS DEACTIVATED.

The fire suppression system monitor is wired to an ignition switch. The monitor light should be ON when the ignition switch is turned ON. The monitor is installed below the helm controls.

The suppression system contains an engine shut-off circuit. The engines automatically shut off when the system is activate for safety reasons. DO NOT attempt to restart the engines until the fire is out, and any damage to the engines and fuel system has been repaired. The override switch, located on the system monitor, resets the engine shut-off circuit after the system has been activated, allowing the engines to be restarted.

New components that have the same designation or equivalent technical and fire-resistance capabilities must be used when performing maintenance on the fire suppression system.

ENGINE GAUGES

A Volvo Penta EVC display system on the instrument panel is equipped on the helm. The display panel monitors and displays the operation and condition of the propulsion systems while underway. The side of the instrument panel that the gauges are displayed on (port or starboard) determines the engine side that is in use. Become familiarized with the gauges before starting the engines for the first time.

The Volvo Penta EVC system display is an instrument that displays operating information about the engine and allows the user to communicate with the engine electrical system. Operation information is shown on the LCD display. The driver can select the display mode on the display panel with the aid of the five buttons on the front of the panel.

The four buttons to the left are used to display operating information in different ways. The button at the furthest right is used to adjust the display contrast and to access the configuration menu.

For a complete explanation of the panel and operations refer to the Volvo Penta operation manual found in the information supplied with the boat.

FUEL GAUGES - INDIVIDUAL ANALOG GAUGES

The fuel gauges display the approximate amount of fuel in the fuel tanks. The gauges are not calibrated, and should not be regarded as an accurate method of measuring the amount of fuel in the tanks. Both fuel gauges remain OFF until the ignition switch for the port engine is turned to the ON position.

OIL PRESSURE GAUGE - LCD DISPLAY

The oil pressure gauge displays the pressure within the engine's lubrication system. The oil pressure reading changes as the engine speed changes. However, a noticeable decrease (either sudden or gradual) in the engine's oil pressure while the boat is maintaining a constant speed may indicate one of the following:

- An oil pump failure
- A leak in the lubrication system
- Excessive engine wear

Each engine is equipped with a pressure alarm. The alarm sounds when each of the following occurs:

- The pressure in the lubrication system decreases below the manufacturers specified level.
- The engine is started
- When the ignition switch is "ON" and the engine is not running.

In each of the above situations, the engine does not yet have adequate oil pressure; the alarm is silenced as soon as the oil pressure increases to within the normal operating range. Refer to the engine OEM information for the normal operating range. However, check the oil pressure gauges if the alarm sounds after the engine has been running for a while, or if the alarm is not silenced within 15 seconds after starting the engine. If either gauge indicates abnormally low oil pressure, immediately shut down the affected engine.

It is important to visually monitor both oil pressure gauges while running the engines even with the low oil pressure alarms installed. If a pressure gauge indicates low oil pressure, immediately shut down the affected engine.

The engine manufacturer has established a minimum oil pressure rating for the engines, as listed in the engine OEM information. To avoid damaging the engines, shut each engine down if the oil pressure is below the minimum rating.

TACHOMETER - LCD DISPLAY

The tachometer displays the speed of the engine in revolutions per minute (RPMs). This is not the boat's speed over the water or the speed of propeller rotation.

The engine manufacturer has established a maximum RPM rating for the engines, as listed in the engine OEM information. DO NOT exceed the maximum RPM. Doing so could damage the engines.

TEMPERATURE GAUGE - LCD DISPLAY

The temperature gauge displays the temperature of the coolant in the engine's cooling system. Every engine is designed to operate within a specific temperature range. Refer to the engine OEM information for the normal operating range. A sudden increase in the temperature gauge reading could indicate that the cooling water intake system has become blocked, a water intake hose has failed, or the coolant system's water pump has malfunctioned.

Each engine is equipped with a temperature alarm. The alarm sounds when the temperature of the engine's coolant increases to OEM's specified level. If the alarm sounds, immediately shut down the affected engine.

It is important to visually monitor both temperature gauges while running the engines, even with high temperature alarms installed. Immediately shut down the affected engine if a temperature gauge indicates excessive engine temperature.

The engine manufacturer has established a maximum coolant temperature rating for the engines, as listed in the engine OEM information. DO NOT exceed the maximum coolant temperature, doing so could damage the engines.

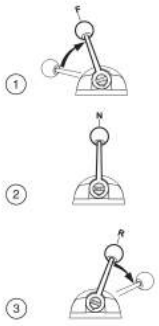
VOLTMETER - LCD DISPLAY

The voltmeter displays the amount of charge in the engine's battery. Each engine battery has its own voltmeter. As a battery is used, the voltage decreases and the amount is indicated on the voltmeter. Refer Section 2: *Monitoring Battery Voltage Levels* for additional information on the engine battery voltmeters.

GAUGE MAINTENANCE

The gauges on the helm instrument panel should be protected from the sun and weather when not in use. The gauges are NOT waterproof. Protecting the gauges from the elements prolongs their life.

NOTE: Condensation can form behind the glass bezel on some gauges. The condensation does not mean the gauge is defective. The Carver Limited Warranty does not cover the replacement of gauges that are cosmetically affected by condensation.



Shift-Throttle Lever Positioning

HELM CONTROLS

The helm controls allow the operative to engage with the engine activity, control the boat's speed, engine RPMs, and control the boats direction.

SHIFT-THROTTLE LEVERS

Two shift-throttle levers allows the operative to shift the engines from, neutral to forward or neutral to reverse, to control the engines' RPM's. See below for lever position guide:

1. **Above Neutral Position**: Shifts the engines to forward and increases the RPM levels
2. **Center Position**: The engines remain in neutral at their lowest RPM levels.
3. **Below Neutral Position**: Shifts the engines to reverse and increases the RPM level

The shift/throttle levers are located on the starboard side of the steering wheel. The outboard lever controls the starboard engine, and the inboard lever controls the port engine. The engines can be shifted/throttled independently to improve maneuverability in tight quarters.

NOTE: Carver recommends operating the engines at the same speed while cruising. Doing so, reduces engine noise, engine vibration, and improves engine efficiency.

ENGINE SYNCHRONIZER

The engines are equipped with an automatic synchronization system.

NOTE: Refer to the OEM information for details on operating the engine synchronizer

SHIFT-THROTTLE, ENGINE INTERFACE, EVC CONTROL PANEL

SHIFT-THROTTLE AND ENGINE INTERFACE

The shift-throttle levers are connected to the engines by an electronic control system (Engine Interface). The function of the Shift-throttle levers is to control the engine speed.

EVC CONTROL PANEL

The EVC control panel is designed to allow the shift function to be disengaged.

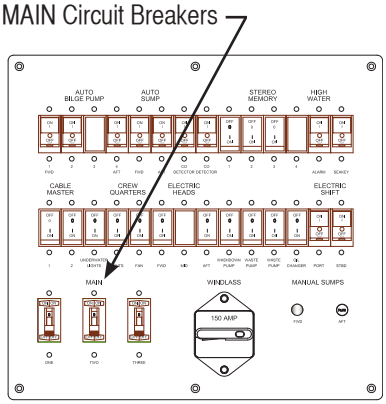
NOTE: Refer to the OEM information for details on the shift-throttle control system.

WARNING

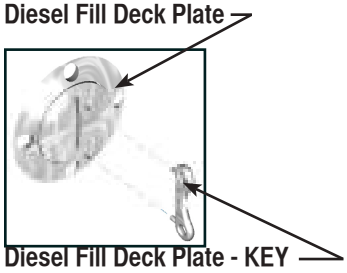
A GREAT RISK OF PERSONAL INJURY, OR PASSENGERS FALLING OR BEING THROWN OVERBOARD IS POSSIBLE WHILE OPERATING IN FULL LOCK. FULL LOCK DRIVING AT HIGH SPEED WILL MAKE THE BOAT TURN STRONGLY. WARN EVERYONE BEFORE MAKING EMERGENCY MANEUVERS.

PREPARING FOR CRUISING

Follow the steps below to safely fuel the boat and operate the engines.



DC Main Control Center



FUELING

1. Securely moor the yacht.
2. Close all portholes, windows, hatches and doors.
3. Turn OFF all devices that use electricity to operate or create electricity.
4. Extinguish all open flames and smoking material on the yacht and in the area around the fuel dock.
5. Turn OFF all battery master disconnect switches.
6. Have all passengers evacuate the yacht.
7. Estimate the amount of stored fuel is necessary.
8. Select the fuel tank to be fueled first.
9. Remove the appropriate DIESEL fill deck plate using the deck plate key supplied with the yacht. The deck plates are located on either side of the transom.

WARNING

AVOID SPILLING FUEL ON THE GELCOAT AND PAINTED SURFACES OF THE YACHT. FUEL CAN STAIN THE GELCOAT, PAINT, AND HULL ACCENT STRIPES (IF APPLIED).

WARNING

KEEP THE FUEL HOSE NOZZLE IN CONSTANT CONTACT WITH THE METAL FUEL FILL FITTING WHILE FUELING. CONSTANT CONTACT IS A SAFEGUARD AGAINST FUEL EXPLOSION CAUSED BY STATIC SPARKS.

CAUTION

USE THE CORRECT FUEL FOR THE ENGINES. REFER TO THE OEM INFORMATION FOR THE RECOMMENDED FUEL TYPE.

NOTE: The fuel tanks are designed to accept fuel at a maximum rate of 9 gallons per minute (GPM) when the tank is between 25% and 75% full. The pressure inside the tank must not exceed 4 psi during fueling. Many marine fuel pumps can deliver fuel at rates up to 35 GPM. A high fueling rate should **NEVER** be used, a high rate could damage the fuel system.

10. Decrease the fueling rate when fueling a tank that is either nearly empty or nearly full. Decreasing the rate helps prevent fuel surge when the tank is empty, and back up and spillage when the tank is full.
11. Begin pumping fuel at a rate of no more that 9 GPM into the fuel tank. When the tank is close to full, slow the fuel rate to less than 9 GPM.
12. Monitor the fuel tank air vents. Stop filling when the sound of the air exiting the fuel tank vents changes during the filling process. The sound will change significantly once the tank if full.
13. Replace the DIESEL fill deck plate.
14. To fuel the next fuel tank, repeat steps 9 - 12.
15. Wipe up all spilled fuel after each tank is filled.

(See next page for *Operating the Engines)*

OPERATING THE ENGINES

PRE START CHECK-LIST

1. Read and understand the Owner's Guide and all OEM information.
2. Check both fuel gauges to verify that the yacht is sufficiently fueled for the trip.
3. Inspect the engine room:
   a. Check fuel system for any signs of leakage.
   b. Check the bilge water level.
   c. Check for oil in the bilge.
   d. Check the crank case oil level in each engine.
   e. Make an overall inspection of the engine room for signs of potential problems.
   f. Follow all maintenance instructions as detailed in Section 7: *Maintenance*.
4. Turn ON the master disconnect switches for both engine battery pairs and the accessory batteries. (See previous page for Illustration)
5. Locate the DC Control Center (Engine Room):
   a. Switch ON the MAIN circuit breakers, labeled: ONE & MAIN
   b. Verify that all of the Safety circuit breakers are ON.
   c. If needed, switch ON the Sump circuit breakers.
6. Locate the DC Control Center (Helm):
   a. Switch ON the DC Main circuit breaker.
   b. Switch ON the Bilge Blower circuit breakers. (Make sure the four Bilge Blower circuit breakers are ON, located on the DC Control Panel next to the stairway in the Salon.)
   c. Switch ON the Bridge Electronics circuit breaker if navigation equipment is installed at the helm.
   d. Switch ON any other circuit breakers for equipment that may be needed.
7. Verify that the navigation equipment circuit breakers in use are ON, breakers are located on the Bridge Breaker Panel.
8. Verify that all safety gear is onboard, and in proper operating condition. Make sure all safety equipment is carried onboard, required by Federal, State, and local regulations.
9. Verify that an adequate supply of fresh water is onboard.
10. Check the level of waste in the waste tanks, empty the waste if necessary. Refer to Section 4: *Emptying the Waste Tanks*.
11. Disconnect and store the shore power cord and shore water hose.

STARTING THE ENGINES

Refer to the OEM information for details on using the engine controls.

1. Open the cooling system seacocks for both engines.
2. Move both shift/throttle levers to neutral. (See Shift/Throttle Illustration on P. 6)
3. Select the desired engine to start first. **NEVER** start both engines at the same

WARNING

DO NOT HOLD THE IGNITION KEY IN THE START POSITION FOR MORE THAN 10 SECONDS. THE IGNITION SWITCH IS SPRING ACTIVATED. RELEASE THE IGNITION KEY AS SOON AS THE ENGINE STARTS. FAILURE TO RELEASE THE KEY MAY DAMAGE THE STARTER. IF THE ENGINE DOES NOT START WITHIN 10 SECONDS, RELEASE THE IGNITION KEY, AND TRY STARTING THE ENGINE AGAIN.

4. Turn the ignition switch clockwise to the start position. The engine should crank and start within 10 seconds. It is normal for the oil pressure alarm to sound for a few seconds after the engine has started. The alarm will silence once the oil pressure

increases to normal operating range.

The engine may run rough if started while cold. Advance the engine's throttle lever slightly to keep it running.

NOTE: The electronic control system has a Shift/Cancel feature that allows the throttle to advance without engaging the shift. Refer to the OEM information for details on this feature.

5. Start the next engine, same as the first when the first engine is idling smoothly.

ONCE THE ENGINES HAVE STARTED

1. Check the engine gauges. Verify that all readings on the helm are within the normal range.
2. Verify that water is pumping through each of the engine's exhaust ports. The exhaust ports are located near the transom. Refer to Section 9: *Thru-Hull Fittings,* for the exact location of the exhaust ports.
   2a. Turn the affected engine off if water is not being pumped out.
   2b. Identify and correct the cause of the problem before restarting the engine.

WARNING

KEEP OUT OF THE ENGINE ROOM WHILE ONE OR BOTH ENGINES ARE OPERATING. THE ENGINE ROOM CONTAINS MOVING, HOT MACHINERY.

3. Allow the engines to warm up until the temperature gauges begin moving up before engaging drives.
4. Make sure all navigation systems are operating properly.
5. Periodically perform a visual inspection of the engine room while underway.

IMPORTANT: FUEL GAUGES

Carver recommends monitoring and logging the amount of fuel added to each tank at fill up during the initial usage of the yacht. Compare the fuel usage to the fuel gauge indication at the time of fill up. The comparison should be made at least three (3) times:

- 1/4 to full
- 1/2 to full
- 3/4 to full

A fourth check should be performed If a safe condition is available that will allow the engines to run to near empty.

The readings will provide a better indication of the amount of fuel in the tanks in comparison to the fuel gauges. The readings provide security, and keeps the fuel tanks from being depleted. Carver recommends starting all cruises with full tanks, especially cruises that take up at least 1/2 of the total tank capacity before coming to the next fuel station.

LAUNCHING THE YACHT

Have a professional launch the yacht. Your dealer can either provide experienced people or recommend someone to launch.

NAVIGATION

Understanding navigation is very important when out on the open seas. Instructions on navigation are beyond the scope of this guide. Reading *Chapman's Piloting and Seamanship,* to obtain instruction regarding navigation is encouraged by Carver.

CHARTS

Water charts are available from the National Ocean Survey (NOS), a branch of the National Oceanic and Atmospheric Administration, Washington D.C. The NOS offers publications, listing the charts needed for local areas; however, inland rivers may not be included on the listing. Inland river charts are available from the U.S. Army Corps of Engineers district office. Your dealer may also have local water charts.

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

COMPASS

The compass is the most important piece of navigation equipment onboard. To properly operate, the compass must be free of interference from local magnetic influences and electrical components. Refer to the OEM information for details on using and maintaining the compass. Carver recommends having the compass compensated professionally when necessary.

HORN

Use the horn to alert other boaters of your presence when operating at night or in fog. The horn meets U.S. Coast Guard standards.

DEPTH SOUNDER

An optional depth sounder can aid to avoid entering shallow waters and can aid in navigation.

SHALLOW WATER OPERATION

Always pay attention to water depth while cruising. Shallow water navigation can be very hazardous. Avoid waters that are too shallow for the yacht's draft.

Navigating out of shallow waters:

1. Reduce speed immediately if crossing into shallow waters.
2. Consult nautical charts to determine the yacht's position.
3. Try to plot a course out of the shallows through waters deep enough for the yacht's draft.
4. Radio for help and wait until help arrives if the yacht runs aground. Do not attempt to relaunch the yacht. Serious damage may incur to the hull or underwater gear.

CONTROLLING THE YACHT

Every yacht owner should know how to perform the following procedures competently. Do not attempt the following procedures without first receiving appropriate training.

LOADING

When loading items onto the yacht, have someone on the pier hand the items on deck once boarded. Stow all items securely to prevent them from shifting once in motion. Distribute the weight evenly and keep the load low if the yacht is loaded near capacity or if seas get rough. DO NOT make abrupt changes in load distribution. Shift the load or move about only after stopping or slowing the yacht.

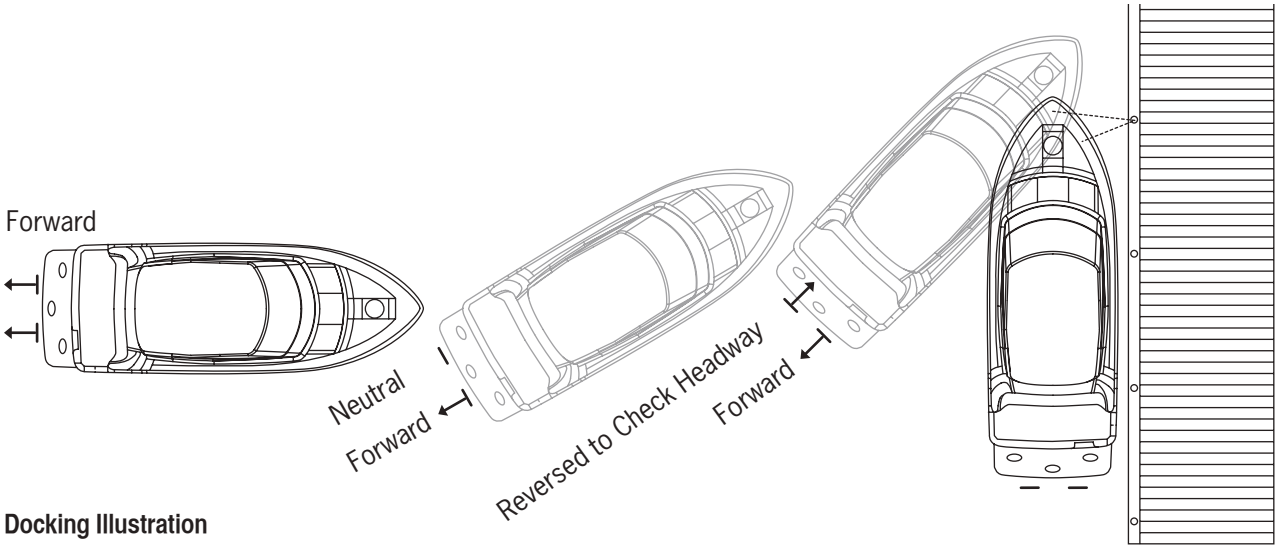
CASTING OFF AND DOCKING

Docking and casting off can be hampered by wind and current. It is important to use the current by approaching or leaving with the current instead of fighting against it. Also, the operator should adequately fender the yacht against collisions with docks or other boats.

If a dinghy is used to reach the yacht, make sure the dinghy line does not foul the propeller. Start the engines after getting onboard, and send someone forward to slacken the line. Release the line.

In a river with current, the yacht will gain headway with the current. Power the yacht forward after clearing the buoy.

In a calm bay with neither wind nor current, back the yacht away a few yacht lengths. Powering forward, keep the buoy in sight, and give it ample room until clear. Run slowly until the anchorage has been cleared to avoid creating a nuisance with the yacht's wake.



Docking Illustration

LEAVING A PIER OR MOORING

Getting underway from a pier is accomplished by performing the following:

1. Take in all lines EXCEPT the bow spring.
2. Power the boat forward, with a neutral rudder, using ONLY the engine farthest from the pier. The yacht will pivot around the bow spring line, moving the stern out and away from the pier.
3. Place a fender between the bow and the pier to prevent scraping as the yacht pivots about the bow spring.
4. Take the bow spring in and back the boat away, once the stern is clear of boats and other obstructions, .

Boats are often secured to a mooring buoy at marina anchorages. Fouling the propeller with a mooring line is the principal hazard when leaving a mooring.

If a dinghy is used to reach the boat, follow this procedure get underway:

1. Make sure the dinghy line does not foul the propeller.
2. Start the engines after getting onboard.
3. Send someone forward to slacken the line.
4. Release the line.

CONTINUE WITH THIS PROCEDURE IF IN A RIVER WITH CURRENT:

5a. Power the boat forward after the buoy has been cleared.

CONTINUE WITH THIS PROCEDURE IF IN A CALM BAY (IF THERE IS NEITHER WIND NOR CURRENT):

5b. Back the boat away a few boat lengths.

6. Keep the buoy in sight, as the yacht is powered forward, and give the buoy ample room until clear.

7. Run slowly until the anchorage has been cleared to avoid creating a nuisance with your wake.

LANDING AT A PIER

Approach the pier at a right angle to land at a pier.

STARBOARD LANDING

1. Place the rudders to port and reverse the port engine to check headway.
2. Leave the starboard engine in forward gear to swing the boat parallel to the pier.

PORT LANDING

Turn the rudders to starboard, and put the starboard engine into reverse as the boat comes in. If necessary, shift in and out of gear to control the boat's speed.

PICKING UP, OR MOORING

1. Approach the mooring at slow speed.
2. Take note of how other yachts are moored. The approaching course should be roughly parallel to the others heading if they are heading into the wind or water current.
3. Stay clear of other moorings to avoid fouling them.
4. If a dinghy is being towed, station a crew member at the helm to keep the dinghy line from fouling the propeller.
5. Shift the engines into neutral when estimated that the yacht's forward momentum will carry the boat to the buoy.
6. Station someone at the bow with a yacht hook to pick up the pennant float.

If your mark is about to be overshot:

7a. Check headway as the bow comes up to the buoy.

If you fall short of your mark:

7b. A few turns of the propeller should get the yacht to the buoy. Keep the engine running until the pennant eye has been secured on the bitt or bow cleat.

8. Get clear and calmly try again if passengers can not reach the pennant or if you overshoot.

MANEUVERING

The yacht's propellers rotate in opposite directions. Depending on which propeller is rotating, the yacht will track in different directions.

PORT PROPELLER ROTATING ONLY:

The yacht tracks forward and to starboard in forward gear and to port in reverse gear.

STARBOARD PROPELLER ROTATING ONLY:

The yacht tracks forward and to port in forward gear and to starboard in reverse gear.

BOTH PROPELLERS ROTATING AT THE SAME SPEED:

The rudders amidships and the engines in forward gear, the yacht will track straight forward.

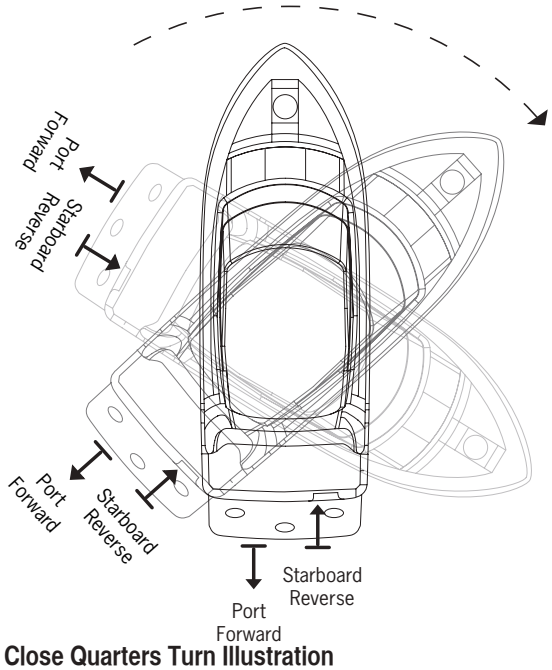
MOVING BACKWARD:

The yacht's rudders are not as effective; the side force from the propellers is used to steer the boat.

MANEUVERING ASTERN

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

Check sternway (stop reverse motion) by shifting the engines to forward gear and throttling forward. Full stern turns can be executed, but watch the bow. The bow cuts a much wider arc than the stern and collisions could occur in crowded areas.

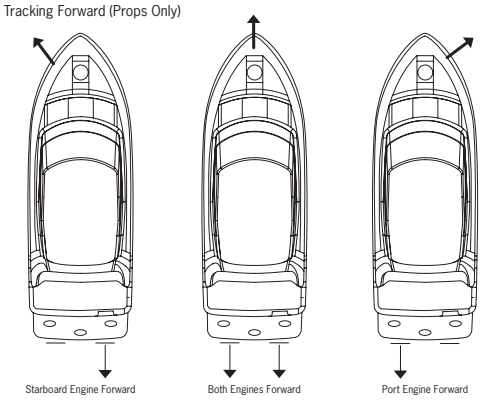


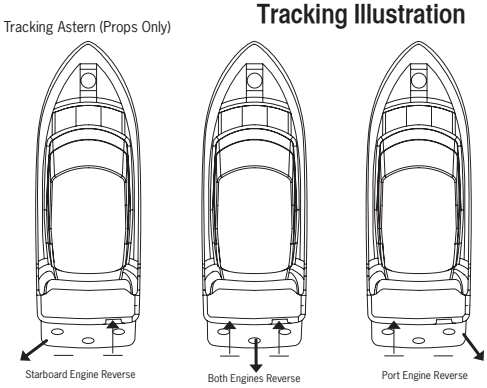
Close Quarters Turn Illustration

CLOSE QUARTERS TURNS

Executing a close quarters turn:

1. Check your headway
2. Shift one engine into reverse while shifting the other into forward gear. As you advance the throttles, the opposing forces cause the boat to pivot about a point centered between the propellers.
3. Turn the rudders in the direction of the turn to assist the rate of turn.





Tracking Illustration

CHECKING HEADWAY

Stopping the yacht's forward motion is referred to as "checking headway". It is important learn how to confidently stop the yacht within any required distance.

Check headway by shifting the engines to neutral and coming to a complete stop over a long distance, or by reversing the engines and stopping within a shorter distance.

TOWING

ALWAYS offer assistance to a vessel in distress. However, towing a capsized yacht or a yacht with a damaged hull is not recommended. Lend aid to the occupants, and call the proper authorities when towing is required. Remember, ALL BOATERS ARE OBLIGATED TO LEND AID TO ANY PERSON IN DISTRESS, BUT NOT TO THE VESSEL. **DO NOT ATTEMPT TO TOW A DISABLED BOAT.** One disabled yacht is better than two.

ANCHORING

The anchor's holding power depends on the anchor's weight and the anchor line length. The most effective anchor line length is six to seven times the depth of the water. For example, if the water is 10 feet deep, the anchor line length should be 60-70 feet.

DROPPING THE ANCHOR

To drop the anchor:

1. Approach the selected anchor site from downwind.
2. Come to a complete stop over the desired anchor drop spot. The anchor can be lowered from either the helm or from the bow with foot switches. To activate the foot switch at the bow, simply lift the cover.

3. Reverse the engines and slowly move the yacht backward to pay out more anchor line when the anchor hits bottom. The anchor flukes will dig in when the anchor is at the appropriately set.
4. Check for anchor drag, immediately after anchoring. Observe the shoreline landmarks.
5. Observe the landmarks again after thirty minutes.
6. Reset the anchor if the points of reference have changed.

DANGER

DO NOT DEPEND ON THE WINDLASS AS A FINAL ANCHORING RODE SECURING METHOD. THE WINDLASS IS NOT DESIGNED TO HOLD THE WEIGHT OF THE YACHT. DAMAGE TO THE WINDLASS IS LIKELY IF USING AS A SECURING METHOD.

WEIGHING IN

When weighing (pulling in) the anchor:

1. Weigh in the rode until vertical.
2. When the rode is taut, give a hard tug to pull the anchor's shank up.
   - 2a. If the anchor is stuck, wrap some of the rode around a bow cleat and keep tension on the rode. The boat's momentum may free the anchor.
   - 2b. If there is a swell, wind the rode around a bow cleat when the bow drops into a wave trough. As the bow lifts, it may free the anchor.
   - 2c. If neither 2a nor 2b methods works:
     - 2c01. Pay out a few feet of rode
     - 2c02. Secure the rode around the bow cleat, and maneuver around the anchor.
     - 2c03. Keep the rode tight until you find the angle that pulls the anchor loose.

ELECTRIC WINDLASS

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

ADDITIONAL ANCHORAGE AND ANCHORAGE PROBLEMS

If intending to stay at anchor overnight or if anchored close to another structure, consider dropping another anchor from the stern. Additional anchorage prevents the yacht from swinging around if the wind or current shifts.

Paying out a few feet of line, and maneuvering around the anchor may be necessary if the anchor is stuck when weighing in. Keep the line tight until the correct angle is found that pulls the anchor loose.

If a swell occurs, hold the anchor chain in a vertical position and let a wave trough lift the bow.

Consider dropping another anchor from the stern if planning to stay at anchor overnight or if anchored close to another structure. Dropping a second anchor prevents the yacht from swinging around if the wind or current shifts.

Anchoring may be required in strong wind. If the spare anchor is dropped, make sure the two anchors are laid out at an angle. A trough may set for the second anchor if both anchors are set in-line and one of them drags.

WARNING

BE AWARE OF CARBON MONOXIDE (CO) POISONING WHILE ANCHORING. REFER TO SECTION 1: *YACHTING SAFETY* FOR DETAILED SAFETY PRECAUTIONS.

STERN ANCHORS

It may be necessary to use both, bow and stern anchors at the same time during anchorages. To drop both anchors:

1. Drop the bow anchor.
2. Pay out extra anchor line (15-18 times the depth).
3. Drop the stern anchor and adjust the length of line payed out on both anchors as necessary.

MOORING LINES

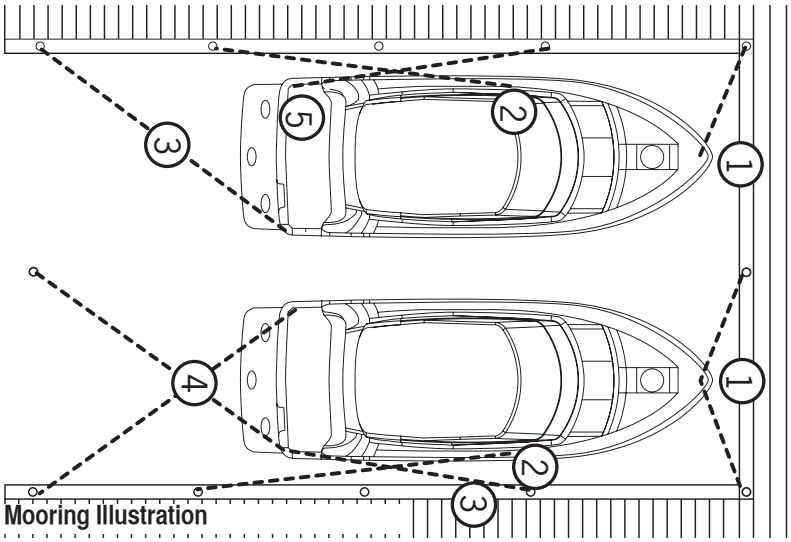
Become familiarized with mooring line terminology and mooring line use. Obtain training on mooring if necessary. Learn how and when to tie the various knots used in seamanship. Yachts that are not moored correctly can suffer and cause serious damage. The following information serves only as a guide to mooring the yacht.

The mooring illustration below demonstrates possible mooring lines for a small vessel. The lines include:

The **TOP** (Example 1) docking illustration shows how to tie up when docking in an alongside berth.

The **BOTTOM** (Example 2) docking illustration is used when tying up at four corners of the yacht.

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



Mooring Illustration

GETTING UNDERWAY

Becoming an “expert yachtsman” requires training and experience. Reading and understanding the provided information in this Owner’s Guide provides only part of the knowledge needed to operate a yacht safely and skillfully.

Carver owners have a wide range of abilities, from seasoned yachtsmen with years of experience to absolute beginners with a newfound love for the water. Be honest with appraising your level of skill.

SHAKEDOWN CRUISE

Make sure that the following tasks have been completed before taking your first cruise:

1. Your Carver Dealer has completed Pre-Delivery commissioning. The inspection is documented on the Pre-Delivery Service Document and is signed by the dealer.
2. All warranty registration cards have been completed and mailed.
3. The Owner’s Guide and all OEM information has been read and understood.
4. The safety equipment onboard is in compliance with federal, state, and local regulations.
5. The yacht has been documented or registered, and displays the appropriate identification on the hull.
6. A representative from your Carver Dealer has reviewed the operation of the yacht and its systems, and answered all of your questions to your satisfaction.

Pick a calm day for the first outing if possible. The shakedown cruise with a new yacht is not the best time to bring friends or guests along. Entertaining guests can be a distraction from the real purpose of the cruise, which is to become familiar with the yacht. ONLY bring people (spouse and children) who will be part of the regular crew. Invite the sales person who sold the yacht, or a member of your Carver Dealer's service staff along for the ride.

Carry a pad and pencil during the first outing. Write down any questions that come to mind during the cruise. Discuss the issues with your dealer. Follow the procedures outlined at the beginning of this section for fueling and starting the yacht's engines.

Items to perform on the first outing:

- Proceed slowly.
- Have fun but remember that the objective of the cruise. The objective is to learn how the yacht operates and handles.
- Operate the engines at different RPMs.
- Try different trim angles.
- Monitor the gauges.
- Practice backing down and turning slow speed tight corners.
- Above all become familiar with the IPS Drive System.

OPERATING AT PLANING SPEED

The yacht is equipped a "planing" hull. A planing hull skims over the water rather than through it. Planing is performed by first reaching a certain speed, called planing speed.

The trim angle of the yacht increases, when accelerating from a dead stop, causing the bow to rise and the stern to drop. The yacht eventually achieves plane, if acceleration continues, which means the bow slowly drops to a more level attitude.

CAUTION

GET ON PLANE AS SOON AS POSSIBLE. AVOID SPEEDS THAT CAUSE THE YACHT TO PLOW THROUGH THE WATER WHILE IN A BOW-HIGH ATTITUDE. A BOW-HIGH ALTITUDE OBSTRUCTS VISION AND LIMITS THE YACHT'S HANDLING AND PERFORMANCE CAPABILITIES.

Once on plane, back the throttles off to a point where the hull is still planing but the engines are operating at a fuel-efficient speed.

TRIM TABS

A trim system is designed into the operational controls. Trim tabs help the yacht get on plane by allowing the operator to adjust the attitude of the yacht for variables such as: load, passengers, seas or wind. Use the tabs at planing speeds to make minor adjustments in the fore-to-aft and beam-to-beam angle of the yacht.

Using the trim tabs:

1. Turn ON the accessory battery bank master disconnect switch.
2. Switch ON the MAIN (Single circuit breaker), DC Main, Control Center.
3. Switch the System DC Main circuit breaker ON, located on the DC Control Panel, next to the stairway in the Salon.
4. Switch ON the Trim Tabs circuit breaker. A set of trim tabs controls are located at either helm. The controls consist of two switches. The port switch controls the starboard tab; the starboard switch controls the port tab. Each switch is labeled "BOW UP" and "BOW DOWN."
5. Press both switches on the "BOW UP" side for 5 seconds before advancing the throttles. Pressing both switches lifts the trim tabs to the full "up" position.
6. Advance the throttles to bring the boat on plane.
7. Adjust the engine RPMs for cruising speed.

CAUTION

DO NOT OVERTRIM THE YACHT. OVER-TRIMMING CAN CAUSE THE BOW TO VEER AND MAY LEAD TO LOSS OF CON-

TROL. PRESS THE CONTROL SWITCHES FOR ONE-HALF SECOND AT A TIME, THEN ALLOW THE YACHT TO RESPOND WHEN ADJUSTING THE TRIM TABS. CONTINUE TO ADJUST THE TRIM TABS UNTIL THE YACHT IS AT THE DESIRED TRIM ANGLE.

CAUTION

PUT THE TRIM TABS IN THE FULL "BOW UP" POSITION WHEN THE SEAS ARE AT ANY ANGLE TO THE BOAT'S STERN. DO NOT CHANGE THE TRIM TABS' POSITION UNTIL THE SEAS ARE NO LONGER AT THE STERN.

8. The trim tab switches can be used together to bring the bow of the boat to a lower attitude. This adjustment is often used when running into choppy seas. Bringing the bow down uses the sharper part of the boats "V" hull to break through waves. Use the "BOW DOWN" side of both trim tab switches simultaneously to adjust the trim. Be careful when making bow down adjustments. Excessive bow down trim can cause considerable bow spray which hampers visibility and reduces control of your boat.

LEVELING THE YACHT WITH THE TRIM TABS

Use the trim tabs individually to make beam-to-beam adjustments. If the majority of the onboard passengers are sitting on the port side, the starboard side of the yacht should be riding higher than the port side. Use the "BOW DOWN" side of the starboard trim tab switch to adjust the trim.

If the passengers decide to shift to the other side of the boat, level the boat by pressing the "BOW UP" side of the starboard trim tab switch for a few seconds. This undoes your previous adjustment. Then, use the "BOW DOWN" side of the port trim tab switch to adjust the trim.

Maintenance Schedule

The maintenance activities and the intervals listed on the following pages are provided as guidelines only. The ideal maintenance activities and maintenance schedule depend on the components installed on the yacht, and the manner and environment in which the yacht is used. The more frequently the yacht is used, the more maintenance that needs to be performed. If the yacht is used in salt water, more maintenance is required, especially on the exterior.

For maintenance instructions on many of the yacht's components, refer to the OEM information. Maintenance activities are divided into four types:

TYPE A MAINTENANCE

Perform Type A maintenance:

- 48 hours after first launching the yacht
- 48 hours after launching, following a period of onshore storage.

TYPE B MAINTENANCE

Perform Type B maintenance after the engines have operated for 25 hours following launching, whether the yacht is new or coming out of onshore storage.

TYPE C MAINTENANCE

Perform Type C maintenance semiannually, or after the engines have operated for 100 hours, whichever comes first.

TYPE D MAINTENANCE

Perform Type D maintenance annually, or after the engines have operated for 200 hours, whichever comes first.

MAINTENANCE LOG

Use a maintenance log to keep a record of the maintenance activities performed on the yacht. The log should list both the activities described in the following charts, and the maintenance activities for the OEM equipment as recommended in the OEM information. MAKE COPIES OF THE LOG AND KEEP THE COPY IN A SAFE PLACE.

	TYPE A	TYPE B	TYPE C	TYPE D
ENGINES AND DRIVE SYSTEM				
Perform maintenance as outlined in the engine OEM information.	Refer to OEM Information	Refer to OEM Information	Refer to OEM Information	Refer to OEM Information
Inspect water intake hoses and connections.		X	X	X
Inspect exhaust system hoses and connections.	X	X	X	X
Check prop for balance and nicks.				X
Check strut bearings.			X	X
Check rudder alignment.			X	X
Check all thru-hull fittings.			X	X
Inspect engine seals.	X	X	X	X
Check engine alignment.	X	X	X	X
Spray ignition switch with contact cleaner.			X	X
Tighten engine mounts.		X		X
Check fire suppression chemical tank.			X	X
CONTROL SYSTEM				
Make any necessary throttle and shift adjustments.		X	X	X

STEERING SYSTEM	TYPE A	TYPE B	TYPE C	TYPE D
Inspect linkage and connections.		X		X
Inspect hydraulic fluid levels.	X	X	X	X
Inspect rudder seals.	X	X	X	X
Inspect tiller tie bar linkage		X	X	X
Inspect trim tab reservoir		X	X	X
ELECTRICAL SYSTEM				
Inspect and clean batteries.		X	X	X
Check battery fluid levels.		X	X	X
Check operation of all 12-volt equipment.	X	X	X	X
Check operation of all AC equipment.		X	X	X
Inspect shore power cords.		X	X	X
Inspect generator water intake and discharge.		X	X	X
Inspect zincs anodes.	*	*	*	*
Perform generator maintenance.	Refer to OEM Information	Refer to OEM Information	Refer to OEM Information	Refer to OEM Information
FUEL SYSTEM				
Replace engine fuel filters.	Refer to OEM Information	Refer to OEM Information	Refer to OEM Information	Refer to OEM Information
Inspect for fuel leaks.	X	X	X	X
Inspect fuel lines for signs of chafe.		X	X	X
FRESH WATER SYSTEM				
Flush water tank and system.			X	X
Clean in-line water filter.			X	X
FIBERGLASS / WOODWORK				
Clean fiberglass.		**	X	X
Wax hull and all non-tread areas.		**	X	X
Repair chipped fiberglass.				X
Clean interior woodwork.				X
INTERIOR				
Perform maintenance on the head.	Refer to OEM Information	Refer to OEM Information	Refer to OEM Information	Refer to OEM Information
Inspect thru-hull fittings.	X	X	X	X
Clean refrigerator/freezer.			X	X
Clean range and microwave oven.			X	X
Lubricate door hinges and locks.			X	X
Clean vinyl fabrics and wall coverings.			X	X
Spot clean woven fabrics.				X
Spot clean carpet.				X
EXTERIOR				
Check compass for magnetic deviation.			X	X
Check Trim Tab system for leaks.		X	X	X

**Inspect the zinc anodes at least once every two weeks. Check with local marina or consult other local yacht owners to determine the average life expectancy of the yacht's zinc anodes. If a rapid deterioration of the zinc anodes is noticed, have a professional yacht corrosion specialist check: the yacht, local seawater, and dock.

** Owner is recommended to clean and wax fiberglass on a regular basis (monthly) but not as part of a 25 hour check by dealer

EXTERIOR (CONTINUED)	TYPE A	TYPE B	TYPE C	TYPE D
Clean Plexiglas surfaces				X
Lubricate hinges, latches, and locks			X	X
Wash weather covers				X
BILGE SYSTEM				
Check hull drain plug	X	X		
Check and test bilge pumps	X	X	X	X
Inspect sump pump(s)			X	X
Check and test bilge blowers	Each time before starting engine	Each time before starting engine	Each time before starting engine	Each time before starting engine

**Inspect the zinc anodes at least once every two weeks. Check with local marina or consult other local yacht owners to determine the average life expectancy of the yacht's zinc anodes. If a rapid deterioration of the zinc anodes is noticed, have a professional yacht corrosion specialist check: the yacht, local seawater, and dock.

** Owner is recommended to clean and wax fiberglass on a regular basis (monthly) but not as part of a 25 hour check by dealer

EXTERIOR MAINTENANCE

The *Exterior Maintenance* section explains how to maintain various materials located on the cabin exterior, and how to help keep the yacht looking new.

FIBERGLASS SURFACES

The exterior fiberglass surfaces are coated with a protective layer of gelcoat. Gelcoat forms a hard, smooth and durable surface. Gelcoat contains microscopic pores that can, over time, collect dirt and discolor if the gelcoat is not kept clean.

CAUTION

DO NOT USE ABRASIVE CLEANERS WHEN WASHING THE YACHT. ABRASIVE CLEANERS SCRATCH AND DULL THE GELCOAT.

WASH THE YACHT WITH FRESH WATER AFTER EACH OUTING TO HELP KEEP THE GELCOAT CLEAN. IF THE YACHT IS OPERATED IN SALT WATER:

- **WASH AT LEAST ONCE EVERY WEEK, EVEN IF THE YACHT HASN'T BEEN USED SINCE THE LAST WASHING.**
- **PERIODICALLY WASH WITH A SOLUTION OF FRESH WATER AND MILD SOAP.**
- **USE A SPONGE TO WASH SMOOTH SURFACES AND A STIFF NYLON OR NATURAL BRISTLE BRUSH TO WASH NONSKID SURFACES.**

WARNING

DO NOT WAX THE NONSKID SURFACES. WAXING MAKES THE NONSKID SURFACES SLIPPERY AND DANGEROUS TO WALK ON.

WAX ALL NON-TREAD AREAS AT LEAST ONCE PER SEASON. USE A HIGH QUALITY, NON-YELLOWING, MARINE WAX. WAXING PROVIDES A SHINY SURFACE AND SEALS THE PORES IN THE GELCOAT, MAKING IT EASIER TO KEEP CLEAN.

CAUTION

FREQUENT AND CONTINUED USE OF ABRASIVE POLISHING COMPOUNDS, EVENTUALLY ERODES THE GELCOAT.

FIBERGLASS SURFACES (Continued)

Gelcoat eventually dulls with age, much like the paint on a car. Restore the gelcoat's luster using an electric buffer and a very fine grade polishing compound. Ask your Carver Dealer what brand and grade of polish to use.

Gelcoat stress cracks are common on all fiberglass yachts. The majority of stress cracks are cosmetic and limited to the gelcoat surface only. Gelcoat stress cracks are rarely an indication of structural problems. Contact your Carver dealer if stress cracks are found.

NOTE: The repair of cosmetic (non-structural) gelcoat stress cracks is not included under the terms of the Carver Limited Warranty.

GELCOAT REPAIR

Minor gelcoat nicks and cosmetic scratches are not difficult to repair, nor do either require the use of special or unique tools. Visually satisfying repairs takes little effort. Repairs to fiberglass laminates or structural fiberglass components are best left to the experienced technicians at your Carver Dealer.

A gelcoat repair kit is available from your Carver Dealer (Carver part number **82036-03**). The kit includes: color matched gel, gel hardener, and detailed instructions on making gelcoat repairs.

GELCOAT BLISTERS

Fiberglass is a durable and economical material, however; it is not indestructible. Blistering is the most problem associated with fiberglass. The blisters generally form in the gelcoat or in the outer most layer of laminate. The blisters can range in size from microscopic to two inches or larger in diameter.

The fiberglass blister's appearance does not indicate structural problems or faulty hull lamination. Gelcoat blisters form resulting from a natural process, and are quite common. Contact your Carver Dealer if blisters are discovered on the underwater portion of the hull.

HULL BOTTOM

The underwater portion of the hull is coated with a high-quality, factory-applied coat of anti-fouling bottom paint. The paint is applied after the hull has been carefully prepared. The paint has a high copper content and anti-fouling elements that retard the growth of marine life on the bottom of the hull. The anti-fouling elements in the paint have a limited life span, usually from one to three years, depending on how and where the yacht is used.

Inspect the hull bottom once a year. Repaint the hull if gelcoat is showing through the bottom paint. Use a paint that is compatible with the factory-applied paint. Failure to do so can void the bottom paint warranty. Also make sure the paint is formulated for the type of water the yacht is operated in. See your Carver Dealer for assistance in selecting an appropriate bottom paint.

To prepare the hull bottom for painting:

1. Lightly sand the existing paint with 80 grit to 100 grit sandpaper.
2. Remove all dirt and sanding residue from the hull.
3. Apply the new paint using a sprayer. Using a sprayer applies the smoothest coating and the best hull efficiency.
4. Allow the first coat to dry before proceeding if a second coat will be applied.

UNDERWATER METAL COMPONENTS

The hull's underwater portion has been carefully prepared, primed, and coated with a high-quality, anti-fouling bottom paint at the factory. However, the underwater metal components, including the shafts, struts, propellers, trim tabs and thru-hull fittings, were NOT primed or painted at the factory.

The owner is responsible for priming and painting ALL underwater metal components. Use a high-quality primer and anti-fouling paint. Reprime and repaint the components when bare metal is visible.

NOTE: Painting the propellers requires special care to attain a smooth surface. A rough surface on the propellers will seriously affect the yacht's performance.

Contact your Carver Dealer's Service Department if additional information is needed on priming and painting the underwater metal components.

CAULKING AND SEALANTS

Deck fittings, rail bases, windows, and all underwater fittings have been sealed with the finest quality sealants. The sealants, however, do not last indefinitely. The working action of the yacht, and the expansion and contraction caused by variations in outside temperature, eventually break down the sealant.

Fittings that have begun to leak must be resealed. Remove the fitting and clean the old sealant from both mating surfaces. Reseal the fitting using the sealant recommended by your Carver Dealer.

STAINLESS STEEL RAILS AND HARDWARE

Stainless steel is NOT rust-resistant nor is it stain-resistant. When left in contact with the marine environment stainless steel DOES rust and corrode. Proper care helps keep the stainless fittings on the yacht looking bright and shiny.

Clean the stainless steel rails and fittings after each outing with either soap and water or glass cleaner.

If the yacht is used in salt water, clean the rails and fittings at least once every week, even if the yacht hasn't been used since the last cleaning.

If rust appears on the metal, remove it immediately with 3M Metal Restorer (Carver part number 051131). Failure remove rust leads to irreversible pitting. Use brass, silver, or chrome polish to remove rust on stainless steel. Wax the stainless fittings and rails to help protect both surfaces from the elements and keep them looking their best.

Use the same wax on the fiberglass surfaces of the yacht.

NEVER

- **NEVER USE SANDPAPER, STEEL WOOL, OR OTHER ABRASIVES TO CLEAN STAINLESS STEEL FITTINGS OR RAILS.**
- **NEVER USE MINERAL ACIDS OR BLEACH TO CLEAN STAINLESS STEEL.**
- **NEVER LET STAINLESS STEEL COME INTO PROLONGED CONTACT WITH IRON, STEEL, OR OTHER METALS PROLONGED CONTACT COULD CAUSE CONTAMINATION LEADING TO RUST OR CORROSION.**

DECORATIVE STRIPING TAPE

A variety of decorative stripes are applied to exterior of the yacht. Striping tapes are custom-made to Carver's color and size specifications. Replacement striping tape is only available through Carver Dealers. To remove a damaged section of tape, heat the area with a hair dryer. Heating with a hair dryer softens the adhesive, and makes the tape easier to remove. Use acetone to remove the adhesive residue.

CAUTION

AVOID SPILLING FUEL ON THE STRIPING TAPE WHILE FUELING. FUEL DAMAGES THE STRIPING TAPE.

HATCHES AND WINDOWS

The hatch frames are fabricated from aluminum or stainless steel. Some frames are painted with enamel. To clean both the painted

and unpainted frames, use a sponge dipped in a solution of fresh water and mild soap. Do not use a brush or abrasive cleaner as they can scratch the painted frame surfaces, damaging the appearance.

The cabin windows are made from tempered glass. Clean them with a soft cloth and glass cleaner. The bridge wind screen is made from formed Plexiglas. Clean it with a solution of fresh water and mild soap.

EXTERIOR VINYL UPHOLSTERY

Refer to the OEM information for details on cleaning the exterior vinyl upholstery.

Avoid saturating the exterior cushions with water. To enhance the appearance of the exterior cushions and upholstery, occasionally treat each item with an approved vinyl protectant.

CAUTION

IF DR. VINYL HAS BEEN USED TO REPAIR DAMAGED UPHOLSTERY, DO NOT USE THE FOLLOWING CLEANERS ON THE REPAIRED AREA. FURTHER DAMAGE WILL INCUR:

- **DENATURED ALCOHOL**
- **3M CITRUS CLEANER**
- **AMMONIA AND HYDROGEN PEROXIDE**

EXTERIOR CARPET

Rinse the bridge and deck carpet with fresh water when cleaning the other portions of the yacht's exterior. If the exterior carpet becomes soiled, remove the carpet from the yacht, and wash the carpet with hot water and any brand of carpet detergent suitable for hot water extraction.

To remove stains from the carpet, refer to the carpet OEM information.

CANVAS

WHITE VINYL

White exterior enclosures are made from vinyl coated materials. Clean the enclosures with a sponge dipped in a solution of fresh water and mild soap. To remove heavy dirt, use a vinyl cleaner. Treat the vinyl with a vinyl protectant twice each season.

SUNBRELLA

Colored canvas enclosures are made from Sunbrella fabric. The fabric should be cleaned regularly before dirt accumulates and becomes embedded. The fabric can be cleaned without removing from the stainless steel bow supports. Refer to the OEM information for details on cleaning the Sunbrella fabric.

CAUTION

FABRIC MUST BE COMPLETELY DRY BEFORE STORAGE. MOISTURE ON STORED FABRIC CAN CAUSE THE GLASS TO CLOUD, AND THE FABRIC AND THREAD TO BREAK DOWN.

PREPARING THE FABRIC FOR STORAGE:

1. Thoroughly air dry the fabric.
2. If possible, store the fabric in a flat position (avoid rolling the fabric).
3. Avoid storing the fabric with the zipper(s) exposed to eliminate imprints into the next curtain.
4. Place the fabric in a dry, ventilated area.

When removing the fabric from storage, check for cloudy glass and zipper imprints. In most cases, both can be removed by hanging

the fabric in the sun.

EXTERIOR WOOD TABLE

Exterior wood tables need regular care and maintenance. There is no warranty coverage provided by Carver Yachts or the vender of Carver once the table is exposed to daily temperature changes. Daily temperature changes affects wood when it naturally expands and contracts.

HIGH GLOSS FINISH TABLE

The exterior high gloss table is a custom ordered table that is requested by the dealer when the boat is ordered. The exterior high gloss table comes without a warranty because it is used on the exterior of the boat.

HIGH GLOSS CARE

The high gloss table should be cleaned weekly with non abrasive soap and water. Carver recommends using 3M Perfect It Polish. The polish should be applied with a soft polishing pad to remove minor scratches and to protect the surface. When the table is not in use, it should be kept covered with a water resistant breathable cover.

TEAK TABLE

A teak table should be oiled monthly to keep the wood from drying out. When the table is not in use, it should be kept covered with a water resistant breathable cover to protect it from the elements.

The exterior teak table is an optional item; the warranty period for the table is the same as the yacht's limited warranty period. The warranty period for both items start from the date of delivery to the original owner.

FINISH REPAIR PROCEDURES

The following process is only a repair procedure. Items repaired may not be restored to their original pristine condition. The process will allow damaged areas to be repaired with amazing results.

WOOD FINISH BUFFING PROCEDURE

1. Clean surface with 3M cloths (3M #23589).
2. Identify the problem area and the sand affected area with 1200, 1500 & 2000 grit sandpaper.
3. Clean area with alcohol, and confirm that area is ready to be buffed, if not, repeat steps 1 - 3
4. Buff with a small amount of 3M Extra Cut Compound using the 3M 'Perfect It' Buffing Pad #05737 (White Color).
5. Apply a small amount of 3M 'Finesse It' Final Finish Compound using the 3M 'Perfect It' Buffing Pad #05725 (Black/Grey Color).
6. Repeat if necessary, if swirl marks appear.
7. Clean up area with 3M cloths (3M #23589) and 3M 'Clean and Shine'.

REMOVING DENTS IN WOOD FINISH

1. Apply water to the wood using a wet rag.
2. Apply heat to the wood, using either an iron or a hand steamer.
3. Sand area with 400 grit sandpaper.
4. Replace color with Triclad Water Base Stain 13-9810. Be careful not to get the material outside of the sanded area (doing so will result in a dark ring around the patch).
5. Apply Poly Sealer TH-20: 3 to 4 coats with a paintbrush
   - Allow 15 minutes between coats
   - Allow 2 hours to dry.
6. Apply Poly Topcoat SC-4185: 3 to 4 coats with a paintbrush.
   - Allow 15 minutes between coats

- Allow at least 8 hours to dry.

7. Level patch with a razor blade and sand with 1200, 1500 and 2000 grit sandpaper, following buffing procedure on the previous page.

FILLING DENTS IN WOOD FINISH

1. Locate the correct Burn Sticks color to match finished wood.
2. Apply Burn in Balm around area of patch to protect wood from heat.
3. Melt material into dented or chipped area.
4. Level the patched area with an iron and remove any excess Burn Stick material.
5. Scuff area with 600 grit sandpaper.
6. Apply Poly Sealer TH-20 over affected area: 3 to 4 coats with a paintbrush.
   - Allow 15 minutes between coats
   - Allow at least 8 hours to dry.
7. Level patch with a razor blade, and sand with 1200, 1500 & 2000 grit sandpaper, following buffing procedure on the previous page.

REPAIRS FOR SURFACE DAMAGE OF TOPCOAT/SEALER

1. Apply Butyl Acetone to soften the material.
2. Remove white scratch mark with razor blade.
3. Scuff affected area, and sand with 600 grit sandpaper.
4. Apply Poly Sealer TH-20 to fill patch: 3 to 4 coats with a paintbrush
   - Allow 15 minutes between coats to dry, then sand with 600 grit sandpaper.
5. Apply Poly Topcoat SC-4185 to patch: 3 to 4 coats with a paintbrush
   - Allow 15 minutes between coats.
6. Let patch dry for at least 8 hours.
7. Level patch with a razor blade, then sand with 1200, 1500 and 2000 grit sandpaper, following buffing procedure on previous page.

REPAIRS FOR MAJOR DAMAGE THAT AFFECT WOOD COLOR

1. Remove all damaged areas, sand with 400 grit sandpaper until damage is gone.
2. Replace color to patched area:
   3a. Brush on color Triclad Water Base Stain 13-9810
   3b. Dab to blend out, be careful not to go outside the patching area (going outside may cause dark rings around the patch area).
3. Replace Poly Sealer TH-20: 3 to 4 coats with a paintbrush
   - Allow 15 minutes between coats
   - Allow 2 hours to dry.
   - Sand with 600 grit sandpaper.
4. Replace Poly Topcoat SC-4185: 3 to 4 coats with a paintbrush:
   - Allow 15 minutes between coats
   - Allow at least 8 hours to dry
5. Level patch with a razor blade, then sand with 1200, 1500 and 200 grit sandpaper, following buffing procedure.

MATERIAL LIST

PART NUMBER	MATERIAL
8103261	Triclad Water Base Stain 13-9810
8103203	Poly Topcoat SC-4185
8103210	Poly Sealer TH-20
8103213	Butyl Acetone
8103214	Polyurethane Sealer Spray Catalyst
8103211	Toner Catalyst TH-720
8103212	Topcoat Catalyst TH-2537
8697610	400 Grit Sanding Disk
8697229	600 Grit Sanding Disk
8697188	800 Grit Sanding Disk
8697618	1200 Grit Sanding Disk
8601218	1500 Grit Sanding Disk
8697496	15 Micron Polishing Disk
----	Burn in Balm from Mohawk
----	Burn Sticks from Mohawk
8601207	3M Extra Cut Compound (1st Buff)
8619411	3M Finesse It Final Finish Compound (Final Buff)
----	3M Perfect It Buffing Pad #05737 (White Color)
----	3M Perfect It Buffing Pad #05725 (Black/Grey Color)

INTERIOR MAINTENANCE

Ventilating the cabin as often as possible is one of the best ways to maintain the yacht's interior. DO NOT allow moisture to accumulate in the yacht's interior. Moisture leads to a damp, musty environment, which encourages mildew growth.

WOODWORK

Solid hardwood and hardwood veneer is used throughout the interior of the yacht. Treat the woodwork with special care. Dust it on a regular basis using 3M Clean and Shine and a soft rag.

NEVER

NEVER USE WAX-BASED FURNITURE POLISH OR CLEANER CONTAINING ABRASIVES.

NEVER LAY WET OR DAMP TOWELS OR CLOTHING ON OR AGAINST THE FINISHED HARDWOOD SURFACES.

The interior woodwork has been finished at the factory with a special industrial/commercial grade finish. If any of the woodwork needs to be refinished, contact your Carver Dealer to order the appropriate product. Follow the manufacturer's instructions on the product package when applying the finish.

HIGH PRESSURE LAMINATE

High Pressure Laminate (HPL) is used on many of the cabinet faces and counter tops. HPL is very durable and easy to clean. Clean the laminated surfaces with a cleaner made for use on household counter tops. Avoid using the counter tops as cutting surfaces. The HPL surfaces can permanently be scratched.

FABRICS

The yacht interior fabrics include: drapes, pillow shams, bed spreads, woven headliners, and sofa and chair coverings. Some fabrics have been treated with a stain protector. All fabrics require periodic cleaning. For best results, dry clean the fabrics.

For furniture upholstered in Ultraleather, refer to the OEM information for details on cleaning the material.

CARPET

The interior carpet has been treated with a stain protector; however, the carpet still needs periodic cleaning. Care for the carpet in the yacht the same as carpeting is cared for at home. Vacuum often, and shampoo as needed using carpet shampoo.

New carpet sheds, and needs to be vacuumed frequently. Shedding is normal, and will stop after a few weeks.

INTERIOR FIBERGLASS

Some interior components are made of gelcoated fiberglass, such as the shower stalls and stateroom berth platforms. Interior fiberglass can be cleaned with standard household cleaners intended for cleaning fiberglass. Many types of cleaners are marketed as "tub and tile" cleaners. DO NOT use abrasive cleaners on the interior fiberglass surfaces. Abrasive cleaners scratch and dull the shiny gelcoat surface.

PLEXIGLASS

The shower door, mirrored face of the head medicine cabinets, and other areas of the yacht are mode of Plexiglas. Clean Plexiglas surfaces with a solution of fresh water and mild liquid detergent. Remove fine scratches with a fine automotive acrylic rubbing and polishing compound.

CAUTION

DO NOT USE GLASS CLEANERS, ABRASIVE CLEANERS, OR AROMATIC SOLVENTS ON PLEXIGLAS. ABRASIVE CLEANERS ETCHES THE PLEXIGLAS.

MECHANICAL SYSTEMS

Mechanical Systems explains how to maintain the yacht's propulsion, electrical, fresh water, bilge and sanitation systems.

ENGINES/GENERATOR

Refer to the engine and generator OEM information for instructions on maintaining the yacht's engines and generator.

As an option, a seawater strainer may be installed in the water intake lines for each engine and the generator. At least once every 30 days, close the seawater seacocks, then open and clean the strainers. Refer to Section 9: *Hatches* and/or *Engine Room* for the exact location of the strainers.

Inspect the strainers more frequently if the yacht is operated in dirty waters or areas with a high degree of aquatic vegetation. A clogged strainer restricts the intake of seawater which can cause the affected engine or the generator to overheat.

THRU-HULL VALVES

Inspect the thru-hull valves on a monthly basis. Items to inspect are as follows:

- Make sure the connections between the hose and the valve are tight.
- Look for water leaks around the area where the valve and hull meet.
- Every 30 days, open and close each valve two or three times. Turning, guards against the valve seizing in the open or closed position.

- Make sure the valve handle is securely fastened. Tighten any loose handles. Refer to Section 9: *Thru-Hull Fittings* for the location of the thru-hull valves.

PROPELLER SHAFT SEALS

The propeller shaft extends through a shaft seal which is a watertight fitting. Check the shaft seal every month for leakage; contact your Carver Dealer if signs of leakage are found.

DANGER

KEEP OUT OF THE ENGINE ROOM WHILE ONE OR BOTH ENGINES ARE OPERATING. THE ENGINE ROOM CONTAINS MOVING, HOT MACHINERY. CHECK THAT THE ENGINES ARE OFF BEFORE INSPECTING THE PROPELLER SHAFT SEALS.

PROPS

Inspect the props often. Keep a swim mask in the yacht to inspect the props while swimming. Out-of-balance or damaged props can diminish the yacht's performance by reducing speed, causing steering problems, and creating vibrations. Vibrations can lead to drive train damage.

Have the propellers balanced by an established propeller repair shop at least once a year. Repair or replace damaged props.

DANGER

WEAR GLOVES WHEN HANDLING THE PROPELLER. THE PROPELLER BLADES ARE SHARP.

A Tip From Carver!

Consider purchasing and carrying a spare set of props onboard. Many marine dealers do not carry a full inventory of replacement propellers . A spare set allows your vacation or cruise to continue in the event that the primary set of props are damaged.

STRUTS

Propeller shaft struts require very little maintenance. Within each strut is a cutlass bearing that provides a smooth surface for the shaft to rotate. The cutlass bearings occasionally need to be replaced. However, bearing replacement is required more often if the yacht is used in sand or within other abrasive materials. Have a marine technician inspect the strut bearings when the boat is pulled. Replace the bearings as recommended.

DC ELECTRICAL SYSTEM

Poor battery maintenance causes the majority of difficulties with the 12-volt DC electrical system. The factory-installed batteries should function normally for several years if properly maintained. The heavy-duty batteries can be discharged and recharged repeatedly without damaging them; however, completely discharging or overcharging a battery can shorten its life span.

To maximize the useful life of the batteries:

- Use the voltmeters to frequently monitor the voltage level of each battery or battery bank while the engines are running and the yacht is used.
- Monitor the charge level with the engines turned off (static condition).
- Recharge the batteries, when not fully charged, using the onboard battery charger or the engine alternators. Refer to Section 2: *Charging the Batteries* for more information. When the battery bank is fully charged, the voltmeter reads between 12.3 and 12.6 volts.
- Do not store partially charged batteries. Recharge each battery, if necessary. Check the voltage level every 30 days while the battery is in storage. Recharge if the voltage reads 12.3 or below.

WARNING

ELECTRICAL SHOCK MAY OCCUR IF THE BATTERIES ARE NOT DISCONNECTED DURING MAINTENANCE OF THE DC ELECTRICAL SYSTEM.

DC ELECTRICAL SYSTEM (Continued)

Inspect the batteries every month.

- Clean corrosion that has developed on the battery terminals.
- Spray terminal protector on the terminals and battery cable eye connectors.
- Make sure the battery cables are securely fastened to the terminals.
- Tighten the nuts only slightly beyond finger tight with a wrench.

Spray the connections for the bridge instruments and switches with an electrical connection protector every six months.

FRESH WATER SYSTEM

Flush and sanitize the fresh water system at least once every season.

- Flushing involves draining all water from the system.
- Sanitizing involves using a commercially-made fresh water tank sanitizing liquid that is available at many marine supply stores.

SHOWER

The water flow from a shower head may become restricted due to the accumulation of sediment in the shower head. Remove the head and rinse with clean water if water flow is restricted. If necessary, clean the discharge holes with a narrow wire.

WATER TAPS

Periodically remove and clean the filter screens from the sinks' water taps. Rinse the screens with clean water. If necessary, clean the screens with a narrow wire. A buildup of debris in the filter screens can block the water flow enough to cause the pressure water pump to repeatedly cycle on and off.

SUMP

Clean the sump and sump filter frequently. Hair, dirt, and soap scum collects in the sump, and if not removed, eventually can clog the sump pump or sump hoses. An infrequently used sump will promote bacteria growth in the sump. Bacteria growth will promote odors. In addition to keeping the sumps flushed clean, it is a good idea to add waste tank deodorant to the sump when used infrequently. The deodorant can easily be flushed down any of the drains that empty into it.

PRESSURE WATER PUMP

An in-line filter is installed near the pressure water pump. Clean the filter once a month. Refer to Section 4: *Fresh Water System* for a diagram of the exact location of the pump and filter.

WATER TANK VENT SCREEN

A fresh water tank vent is installed through the hull, above the fresh water tank fill plate. A screen is applied over the vent's opening to prevent dirt and insects from entering the fresh water tank. Clean the vent screen once every six months or twice a season.

BILGE SYSTEM

Keeping the bilges clean is important. A dirty bilge leads to clogged bilge pumps and unpleasant odors in the cabin. Keeping the bilges dry helps reduce moisture in the cabin. Tips to keep the bilge system clean:

- Periodically inspect and clean each bilge pump's strainer. The strainers prevent dirt and debris from clogging the bilge pump intakes. Refer to Section 9: *Engine Room* and/or Section 4: *Bilge System* diagram for the exact location of the bilge pumps.
- Frequently check the operation of each bilge pump float switch to ensure that it is operating properly.
- Clean the bilge pumps twice a season by wiping dirt or oil from their exterior surfaces.

WINTERIZATION - STORAGE

The yacht must be properly "winterized" before storing for an extended period of time, while temperatures could fall below freezing. Winterizing the yacht consists of removing all water from its various systems. Water left on board could cause extensive damage to the yacht and internal systems.

Carver recommends hiring a professional to perform the winterization of the yacht. Carver also recommends storing the yacht in a dry, out-of-water, storage. Some winterizing procedures can be performed only, with the boat is out of the water. Dry storage also provides the opportunity to thoroughly inspect the hull and underwater components for maintenance needs.

LIFTING

Hire an experienced professional to lift the boat from the water. The individual should have the proper equipment and training in lifting yachts. The boat's hull must be properly supported during the lifting operation to avoid serious and permanent hull deformation.

CAUTION

DO NOT PLACE A LIFTING STRAP AROUND THE BOAT'S IPS DRIVES OR OTHER UNDERWATER COMPONENTS.

USE APPROVED LIFTING STRAPS. "SLING" TAGS ARE LOCATED ON THE SIDE DECK OF THE BOAT. THE SIDE DECK IS THE ONLY LOCATION THAT LIFTING STRAPS SHOULD BE PLACED FOR LIFTING.

WARNING

NEVER GO UNDER THE BOAT WHEN IT IS SUSPENDED IN A LIFT.

BLOCKING

The hull must be properly blocked to avoid damage when storing the boat in dry storage. To block, either use a cradle or blocking supports.

If using a cradle, the forward end of the cradle should be slightly elevated to position the boat in a bow-high attitude. The elevated position allows water in the bilges to flow to the back of the aft bilge and drain through the hull drain.

All of the blocking supports should be setup to prevent the boat from shifting while in storage. The major portion of the boat's weight should rest on keel blocks. Side supports should be used to stabilize the yacht ONLY. A MINIMUM of four keel blocks should be used.

WINTERIZATION - SYSTEMS

CAUTION

THE YACHT MUST BE PROPERLY WINTERIZED BEFORE STORAGE. FAILURE TO WINTERIZE THE BOAT COULD DAMAGE THE PIPES, VALVES, FAUCETS, TANKS, HOT WATER HEATER, AND OTHER COMPONENTS.

ENGINES

Refer to the OEM information for details on winterizing the engines.

GENERATOR

Refer to the OEM information for details on winterizing the generator.

MARINE SATCOM UNIT (MSU) STORAGE

If an MSU is equipped on the yacht, during off-season storage, the MSU unit should be deactivated. The MSU should be turned OFF during winter storage.

CAUTION

REMOVE THE INTERNAL BATTERY TO PREVENT FREEZE DAMAGE IF THE BOAT IS NOT STORED IN A HEATED FACILITY. REFER TO THE OEM INFORMATION FOR REMOVAL PROCEDURES.

AIR CONDITIONING SYSTEM

Refer to the OEM information for details on winterizing the air conditioning system. Carver Yachts winterizes the air condition system in-house. Carver recommends having a qualified marina winterize the air conditioning system

FRESH WATER SYSTEM

Refer to Section 4: *Fresh Water System* for a description of the boat's fresh water system.

CAUTION

DRAIN THE ENTIRE SYSTEM, INCLUDING THE WATER HEATER, WHEN WINTERIZING THE FRESH WATER SYSTEM.

DRAINING THE SYSTEM

1. Switch OFF the Water Heater circuit breaker, located on the AC Control Panel, next to the stairway in the Salon.

CAUTION

DO NOT SUPPLY POWER TO THE WATER HEATER WHEN EMPTY. DAMAGE MAY INCUR TO THE UNIT'S HEATING ELEMENT.

2. Locate the Safety Breaker Panel:
   - 2a. Turn ON the Accessory Battery master disconnect switch.
   - 2b. Switch ON the MAIN circuit breaker.
   - 2c. Turn ON the Shower Sump circuit breaker
3. Locate the DC Control Panel:
   - 3a. Switch ON the SYSTEM DC MAIN circuit breaker
   - 3b. Switch ON the Pressure Water Pump circuit breaker
4. Open ALL sink and shower faucets, including the faucets for the transom hand shower and bow and transom fresh water washdowns.
5. Switch OFF the Pressure Water Pump circuit breaker when water is no longer draining from the sink taps, shower heads, or fresh water washdowns.
6. Drain the water heater. Refer to the OEM information for details on draining the water heater.

WINTERIZING THE SYSTEM

1. Pour 25 gallons of nontoxic recreational vehicle antifreeze into the fresh water tank.

NOTE: Additional antifreeze may need to be added to the fresh water tank if the fresh water system loses pressure during the winterization procedure.

CAUTION

DAMAGE CAN INCUR TO THE FRESH WATER SYSTEM BY USING THE WRONG TYPE OF ANTIFREEZE. USE A NONTOXIC, NON-ALCOHOL, RV-TYPE (PINK) ANTIFREEZE. DAMAGE RESULTING FROM USING THE INCORRECT ANTIFREEZE IS NOT INCLUDED UNDER THE TERMS OF THE CARVER LIMITED WARRANTY.

2. Close all faucets.
3. Switch ON the Pressure Water Pump circuit breaker located on the DC Control Panel next to the stairway in the Salon.
4. If the optional gray water holding system is **NOT** supplied on the boat, place a large bucket under the gray water and sump discharge fittings. The bucket catches the antifreeze pumped out described in STEP 5. Refer to Section 9: *Thru-Hull Fittings* for the exact location of the fitting.
5. Open the galley sink cold water faucet. When a steady stream of antifreeze is flowing from the tap, close the faucet.

   TRANSOM HAND SHOWER, BOW AND TRANSOM FRESH WATER WASHDOWNS ONLY:

   5a. Place the shower head in a bucket before turning on the shower faucet. The bucket catches the antifreeze, so the antifreeze can be reused.

   5b. Remove the hose(s) from the fresh water washdown fittings.

   5c. Place a bucket under the washdown fittings to catch the antifreeze, so the antifreeze can be reused.

   5d. Open the washdown faucets. Once a steady stream of antifreeze is flowing from the fittings, close the faucets.
6. Repeat Step 5 for the galley hot water faucet, each cold and hot water faucet on the boat, and the windshield washer.

   NOTE: STEP 6 EXCLUDES: Transom Hand Shower and Bow and Transom Fresh Water Wash Downs.

7. If the optional gray water holding system is **NOT** supplied on the boat, pour one quart of antifreeze into the shower and each sink drain. Refer to Section 8: *Gray Water Holding System* for the exact location of the fitting. **ONCE THE YACHT IS REMOVED FROM STORAGE AND PREPARED TO USE AGAIN**
8. Flush the entire fresh water system with fresh water when the yacht is removed from storage and prepared to use it again. Nontoxic antifreeze is colored; the water system is adequately flushed when uncolored water flows from all of the faucets and shower heads. The water tank may need to be filled more than once to flush the system.

RAW WATER WASHDOWNS

The yacht should be removed from the water before performing the Raw Water Washdown procedure on the optional bow and transom raw water washdowns.

Refer to Section 4: *Raw Water Washdowns* for a description of the raw water washdown system.

RAW WATER WASHDOWN PROCEDURE:

1. Close the seacock that supplies the raw water washdown pump with seawater.
2. Disconnect the end of the hose attached to the washdown side of the seacock.

WARNING

DAMAGE CAN INCUR TO THE FRESH WATER SYSTEM BY USING THE WRONG TYPE OF ANTIFREEZE. USE A NONTOXIC, NON-ALCOHOL, RV-TYPE (PINK) ANTIFREEZE. DAMAGE RESULTING FROM USING THE INCORRECT ANTIFREEZE IS NOT INCLUDED UNDER THE TERMS OF THE CARVER LIMITED WARRANTY.

3. Place the disconnected hose end into a bucket containing about a gallon of nontoxic recreational vehicle antifreeze.
4. Connect short hoses to the bow and transom raw water washdown fittings and open valves.
5. Place a bucket under the hoses to catch the antifreeze, so the antifreeze can be reused.
6. Locate the Safety Breaker Panel:
   6a. Turn ON the Accessory Battery master disconnect switch
   6b. Switch ON the MAIN circuit breaker
7. Locate the DC Control Center:
   7a. Switch ON the MAIN circuit breaker
   7b. Switch ON the Washdown Pump circuit breaker
3. Switch ON the Washdown Pump circuit breaker located on the DC Control Center, located in the Engine Room, aft bulkhead.
4. Once a steady stream of antifreeze flows from the washdown fittings, switch OFF the Washdown Pump circuit breaker.
5. Disconnect the hoses to the washdown fittings and close valves.
6. Reconnect the hose that was disconnected in STEP 2.

BILGE

Refer to Section 4: *Bilge System*, for a description of the bilge system.

Bilge drainage procedure:

1. Open the hull drain. Leave the drain open while the boat is in storage.
2. Remove all water from the bilge.
3. Clean the bilge as described in Section 7: *Bilge System*.

SANITATION SYSTEM

Pull the yacht from the water before performing the Standard Sanitation System procedure. Refer to the OEM information for more information on winterizing the sanitation system.

Refer to Section 4: *Sanitation System* for a description of the sanitation system.

STANDARD SANITATION SYSTEM

1. Empty the waste tanks as described in Section 4: *Emptying the Waste Tanks*. Remove as much of the fresh water used in flushing the tanks as possible.
2. If the toilet uses seawater to flush, follow steps a - d below; otherwise, proceed to step 3.
   a. Close the seacock that supplies seawater to the toilet.
   b. Disconnect the toilet seawater hose from the seacock.
   c. Flush the toilet until all water is drained from the seawater hose.
   d. Reconnect the seawater hose to the seacock. Leave the seacock closed.

WARNING

DAMAGE CAN INCUR TO THE FRESH WATER SYSTEM BY USING THE WRONG TYPE OF ANTIFREEZE. USE A NONTOXIC, NON-ALCOHOL, RV-TYPE (PINK) ANTIFREEZE. DAMAGE RESULTING FROM USING THE INCORRECT ANTIFREEZE IS NOT INCLUDED UNDER THE TERMS OF THE CARVER LIMITED WARRANTY.

3. Flush 4 gallons of nontoxic recreational vehicle antifreeze through the toilet. Keep the antifreeze in the waste tanks while the boat is in storage.
4. When removing the boat from storage and preparing for use the boat again:
   4a. Flush 5 gallons of fresh water through each toilet.

4b. Empty the waste tanks as described in Section 4: *Emptying the Waste Tanks*.

4c. If the toilet uses seawater to flush, open the seacock supplying seawater to the toilet.

4d. Flush the toilet a few times to prime the sanitation system.

4e. Charge the waste tanks by adding deodorizer. Use the brand of deodorizer recommended by your Carver Dealer.

OVERBOARD DISCHARGE SYSTEM

1. Empty the waste tanks as described in Section 4: *Emptying the Waste Tanks*.
2. Remove as much of the fresh water as possible used in flushing the tanks.
3. If the toilet uses seawater to flush, follow steps a - d below; otherwise, proceed to step 3.
   a. Close the seacock that supplies seawater to the toilet.
   b. Disconnect the toilet seawater hose from the seacock.
   c. Flush the toilet until all water is drained from the seawater hose.
   d. Reconnect the seawater hose to the seacock. Leave the seacock closed.

WARNING

DAMAGE CAN INCUR TO THE FRESH WATER SYSTEM BY USING THE WRONG TYPE OF ANTIFREEZE. USE A NONTOXIC, NON-ALCOHOL, RV-TYPE (PINK) ANTIFREEZE. DAMAGE RESULTING FROM USING THE INCORRECT ANTIFREEZE IS NOT INCLUDED UNDER THE TERMS OF THE CARVER LIMITED WARRANTY.

4. Flush 10 gallons of nontoxic recreational vehicle antifreeze through the toilet.
5. Under the yacht, place a large bucket under the overboard discharge fitting to collect the antifreeze that will pump out in next steps of this procedure. Refer to Section 9: *Thru-Hull Fittings* for the exact location of the overboard discharge fitting.
6. Open the overboard discharge seacock.
7. If the optional gray water holding system is installed: turn the Y-Valve to select the waste tank.
8. Locate the Safety Breaker Panel:
   8a. Turn ON the Accessory Battery master disconnect switch/
   8b. Switch ON the MAIN circuit breaker.
9. Locate the DC Control Panel, next to the stairway in the Salon:
   9a. Switch ON the SYSTEMS DC MAIN circuit breaker
   9b. Switch ON the Waste Pump circuit breaker
10. Turn ON the overboard discharge pump switch.
11. Once a steady stream of antifreeze flows from the overboard discharge fitting, turn OFF the overboard discharge pump switch.
12. Close the overboard discharge seacock.
13. Switch OFF the Waste Pump circuit breaker, located on the DC Control Panel.
14. When removing the yacht from storage and preparing for use again:
    14a. Flush 5 gallons of fresh water through each toilet.
    14b. Empty the waste tanks as described in Section 4: *Emptying the Waste Tanks*.
    14c. If the toilet uses seawater to flush, open the seacock supplying seawater to the toilet. Flush the toilet a few times to prime the sanitation system.
    14d. Charge the waste tanks by adding deodorizer. Use the brand of deodorizer recommended by your Carver Dealer.

GRAY WATER HOLDING SYSTEM

Before performing the optional grey water holding system procedure, the boat should be pulled from the water. Winterize the gray water holding system only after the fresh water system has been winterized.

There are two types of gray water holding systems: the Standard System and the Overboard Discharge System.

STANDARD GRAY WATER TANK SYSTEM

1. Empty the gray water tank as described in Section 4: *Gray Water Holding System*. Remove as much of the fresh water used in flushing the tank as possible.
2. Verify that the Shower Sump circuit breaker is ON, located on the Safety Breaker Panel

WARNING

DAMAGE CAN INCUR TO THE FRESH WATER SYSTEM BY USING THE WRONG TYPE OF ANTIFREEZE. USE A NONTOXIC, NON-ALCOHOL, RV-TYPE (PINK) ANTIFREEZE. DAMAGE RESULTING FROM USING THE INCORRECT ANTIFREEZE IS NOT INCLUDED UNDER THE TERMS OF THE CARVER LIMITED WARRANTY.

3. Pour 3 gallons of nontoxic recreational vehicle antifreeze through each shower and sink drain.

ONCE THE YACHT IS REMOVED FROM STORAGE AND PREPARED FOR USE AGAIN:

4. Pour 5 gallons of fresh water through each shower and sink drain.
5. Empty the gray water tank as described in Section 4: *Gray Water Holding System*.
6. Charge the gray water tank by adding deodorizer. Use the brand of deodorizer recommended by your Carver Dealer.

OVERBOARD DISCHARGE SYSTEM

1. Empty the gray water tanks as described in Section 4: *Gray Water Holding System.* Remove as much of the fresh water used in flushing the tanks as possible.
2. Locate the Safety Breaker Panel:
   - 2a. Turn ON the Accessory Battery master disconnect switch
   - 2b. Switch ON the MAIN circuit breaker.
   - 2c. Verify that Shower Sump circuit breaker is ON.

CAUTION

DAMAGE CAN INCUR TO THE FRESH WATER SYSTEM BY USING THE WRONG TYPE OF ANTIFREEZE. USE A NONTOXIC, NON-ALCOHOL, RV-TYPE (PINK) ANTIFREEZE. DAMAGE RESULTING FROM USING THE INCORRECT ANTIFREEZE IS NOT INCLUDED UNDER THE TERMS OF THE CARVER LIMITED WARRANTY.

3. Pour 3 gallons of nontoxic recreational vehicle antifreeze through each shower and sink drain.
4. Place a large bucket under the gray water overboard discharge fitting to collect antifreeze pumped out. Refer to Section 9: *Thru-Hull Fittings,* for the exact location of the overboard discharge fitting.
5. Open the grey water overboard discharge seacock.
6. Turn the Y-valve to select the gray water tanks.
7. On the DC Control Center:
   - 7a. Switch ON the Main circuit breaker.
   - 7a. Switch ON the Waste Pump circuit breaker.
8. Turn ON the overboard discharge pump switch.
9. Turn the overboard discharge pump switch OFF when a steady stream of antifreeze flows from the overboard discharge fitting.
10. Close the overboard discharge seacock.
11. Switch OFF the Waste Pump circuit breaker.

WHEN THE YACHT IS REMOVED FROM STORAGE AND PREPARED FOR USE AGAIN:

12. Flush and pump out the grey water tanks to remove the antifreeze.

EXTERIOR

As part of the winterization of the yacht, there are a variety of items checked and completed to the yacht's exterior prior to storage. Carver has created a check list as follows:

- Wash the exterior of the boat, particularly the underwater portions.
- Remove as much aquatic growth as possible while wet. Dried growth it is more difficult to remove.
- Check the zinc sacrificial anodes for deterioration.
- Have the zincs replaced before spring launch if signs of deterioration show
- Check stainless steel rails and fittings for signs of rust.
- Remove rust prior to winter lay-up. Inspect the underwater portions of the hull.
- Review anything that looks out of the ordinary with your Carver Dealer.

INTERIOR

As part of the winterization of the yacht, there are a variety of items checked and completed to the yacht's interior prior to storage. Carver has created a check list as follows:

- Air out cushions until completely dry. Storing damp cushions leads to mildew.
- Position the cushions to allow air to circulate around them.
- Purchase and position moisture accumulators throughout the yacht. The moisture accumulators help reduce the amount of moisture that accumulates during storage.
- Remove item that could spoil or freeze while the yacht is stored.
- Remove all dried food. Food attracts mice and insects.

STORAGE

Carver recommends storing the yacht in dry storage to maximize protection.

DRY STORAGE

Protecting the boat from the elements during winter storage is advised. Have a local marina shrink wrap the yacht, or have a winter storage cover made. Occasionally check on the boat while in storage to make sure that it is in good condition.

OUTSIDE STORAGE

Properly support a storage cover and secure the cover over the yacht. Do not secure the cover too tightly. Allow adequate ventilation to protect against dry rot. Do not store the boat in a damp storage enclosure. Purchase and position moisture accumulators between the shrink-wrap and the boat's enclosures to help prevent moisture from accumulating. Excessive dampness can lead to mildew, electrical problems, corrosion and dry rot.

NOTE: If the Hull drain plug is removed for storage make sure to install plug prior to launch.

WET STORAGE

Wet storage procedures vary from region to region. Consult your Carver Dealer before preparing to leave the boat in the water over the winter.

(See next page for Spring Recommissioning Checklist)

SPRING RECOMMISSIONING CHECKLIST

Before launching for the first time of the season, complete the following checklist. (See next page for list.)

HULL

- ☐ Fill gelcoat nicks and gouges
- ☐ Inspect props, struts, rudders
- ☐ Inspect thru-hull fittings
- ☐ Apply new antifouling bottom paint or touch up failing areas
- ☐ Buff out minor hull scratches
- ☐ Remove dirt, stains
- ☐ Apply wax

DECK AND CABIN

- ☐ Inspect hatches and windows for leaks
- ☐ Wax non-walk surfaces

ENGINES

- ☐ Follow manufacturer's recommissioning guidelines
- ☐ Inspect belts, hoses
- ☐ Tune-up engines
- ☐ Replace fuel filters

ELECTRICAL SYSTEM

- ☐ Check battery water level
- ☐ Charge batteries
- ☐ Inspect connections for corrosion

PLUMBING

- ☐ Purge fresh water system of antifreeze
- ☐ Replace Sealand vent filters.
- ☐ Inspect seacocks
- ☐ Inspect heads
- ☐ Chemically charge waste and grey water tanks
- ☐ Fill fresh water tank

SAFETY EQUIPMENT

- ☐ Inspect PFDs
- ☐ Replace old distress signals
- ☐ Inspect fire extinguishers
- ☐ Inspect, test bilge pumps
- ☐ Inspect mooring lines, fenders
- ☐ Test, recalibrate and/or replace CO detectors

AFTER LAUNCH

- ☐ Check for engine cooling water flow
- ☐ Check propeller shaft alignment
- ☐ Check propeller shaft seals
- ☐ Check crankcase (boat must be in-water)
- ☐ Check transmission oil levels
- ☐ Have compass professionally calibrated
- ☐ Inspect thru-hulls, exhaust, etc.

WARRANTY INFORMATION

Carver Yachts warrants every boat we manufacture, explained in the Carver Limited Warranty. A copy of the warranty is located at the end of this section. Please review the warranty carefully.

To ensure that the warranty remains in effect during its lifetime, Carver Yachts, your Carver Dealer, and you (the owner) all must uphold specific responsibilities. Carver's responsibilities are described in the Carver Limited Warranty.

CARVER DEALER'S RESPONSIBILITIES

WARRANTY INFORMATION

Your Carver Dealer will review the terms of the warranty and make certain the warranty is registered with Carver. Your Dealer will also give instruction on how to obtain warranty service.

PRE-DELIVERY SERVICE PROCEDURE

Your Carver Dealer will prepare the yacht for delivery in accordance with the procedures detailed on the Pre-Delivery Service Record. Your dealer will sign the Pre-Delivery Service Record and provide a copy.

Registration is required for the yacht and its engines by the Federal Safe Boating Act of 1971. Your Carver Dealer will complete and mail the engine warranty cards as part of the Pre-Delivery Service procedure.

BOAT AND SYSTEMS REVIEW

A representative from your Carver Dealer will review the operation of the yacht and its systems.

OWNER'S RESPONSIBILITIES

PRE-DELIVERY SERVICE RECORD

Verify that the yacht's pre-delivery service record has been completed and mailed to Carver. The pre-delivery service record is located in the Preface of this guide. Review the Pre-Delivery Service procedure with your dealer. Read the Pre-Delivery Service Record. Sign a copy of the Pre-Delivery Service Record and retain a copy for your records.

OEM COMPONENTS

Many of the OEM components installed in the yacht are warranted by their manufacturers. Complete and mail all OEM warranty cards to activate the manufacturers warranties. The warranty card for each component warranted is located with the OEM information. Many of the OEMs also have programs designed to resolve problems experienced with their products. Your Carver Dealer can assist in gaining access to the programs.

NOTE: All warranty cards must be completed and forwarded to the appropriate company within 5 days of the yacht's delivery.

DELIVERY

Make a complete inspection of the yacht and its systems at the time of delivery. Document work that needs to be completed by the dealer to meet the terms of agreement.

OWNER'S INFORMATION KIT

Read, understand, and follow the instructions provided in the Owner's Guide, and all other guides and manuals supplied with the yacht, including all OEM information.

Contact your Carver Dealer if any questions regarding warranty responsibilities arise.

OBTAINING WARRANTY SERVICE

The following requirements must be met before warranty work can be performed on the yacht.

1. Registration of the yacht with Carver Yachts is required. Register by completing, and submitting the Pre-Delivery Service Record to Carver Yachts, P.O. Box 1010, Pulaski, WI 54162-1010.
2. Pre-Delivery Service must be completed by your Carver Dealer. Information about the Pre-Delivery Service can be found in the preface of this manual. The Pre-Delivery Service Record must be signed by both the dealer and the owner.

NOTE: ONLY your Carver Dealer is authorized to approve warranty work. Your Carver Dealer must be contacted first if warranty service is needed. There are no exceptions to this policy.

Your Carver Dealer has knowledgeable professionals who are familiar with Carver Yachts, and are capable of providing the highest level of service. The Carver Dealer's service personnel will communicate with Carver Yachts to ensure fast and satisfactory solutions to any problem will be addressed.

SECOND & THIRD OWNER REGISTRATION

A "Second Owner Registration" card and "Third Owner Registration" card are located in the Preface of this Owner's Guide. The purchaser of a previously owned Carver yacht should complete the appropriate card, and mail it as soon as taking title of the yacht.

Registration of a previously owned Carver yacht does not extend or in any way modify the boat's original limited warranty. However, purchasers of a previously owned Carver boat should register the yacht, so if necessary, Carver can contact the current owner.

HULL IDENTIFICATION NUMBER

The U.S. Coast Guard has established an identification system which assigns a unique hull identification number (HIN) to each boat. The HIN consists of 12 alphanumeric characters which provide coded information about the boat.

Provide your Carver Dealer with the yacht's HIN when contacting for parts or service.

OEM's

Contact your Carver Dealer first when information is needed about a system or component on the yacht. If your Dealer is unable to provide the information, contact the manufacturer (OEM) of the system or component. Refer to the OEM information for telephone numbers and addresses.

Be ready to provide the component's Serial Number when contacting an OEM for information. A Serial Number Record Sheet is provided separately in the manual. Use the provided sheet as a convenient location to record the serial numbers of the yachts OEM components.

SPECIFICATIONS

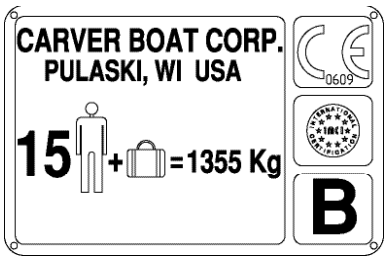
The specifications listed below are based on a standard model with no options installed. Some options may change the listed specifications.

LOA (with platform) . . . . . 53'9" (16.4 m)

Beam . . . . . 15'04" (4.7 m)

Bridge Clearance (waterline to arch - est) . . . . . .19-0" (5.8 m)
Cabin Headroom . . . . . 6'5" (2 m)
Draft. . . . . 43" (1.09 m)
Fuel System. . . . . .300 U.S. gals. (1136 liters)
Holding Tank . . . . . .45 U.S. gals. (170 liters)
Water System . . . . . .140 U.S. gals. (530 liters)
Weight (estimated, with fuel and water) . . . . . 30,78512 lbs. (13964 kg)
Sleeps 4

LOAD CAPACITY



INTERNATIONAL MODEL

The certification plate is located near the helm if an International model has been purchased. The certification plate indicates the maximum weight and capacity the yacht is designed for under calm sea conditions. The number of individuals on board must be reduced if the weather is poor and water is rough.

DOMESTIC MODEL

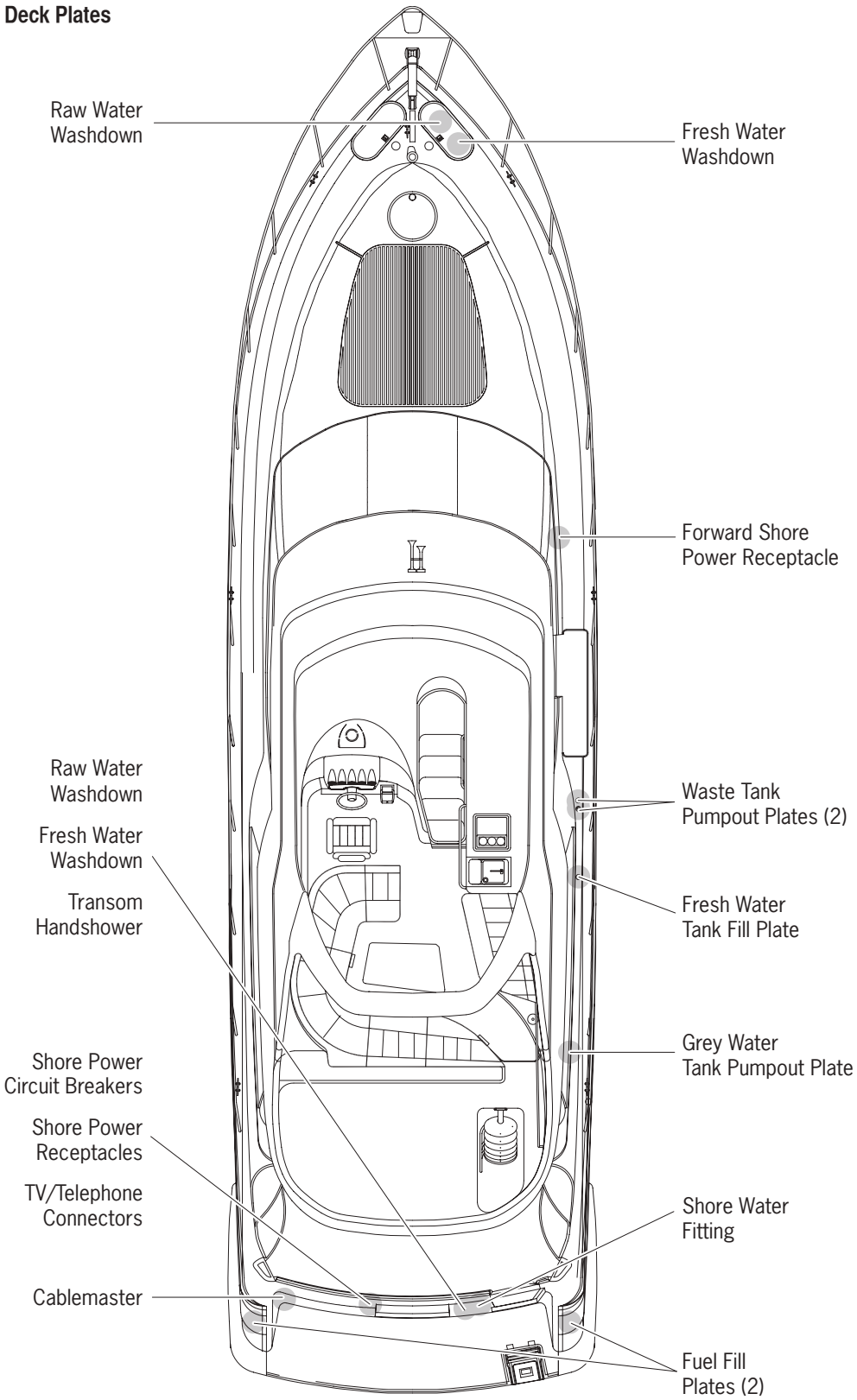
It its the Captain's responsibility to maintain a safe capacity if a domestic model has been purchased.

DANGER

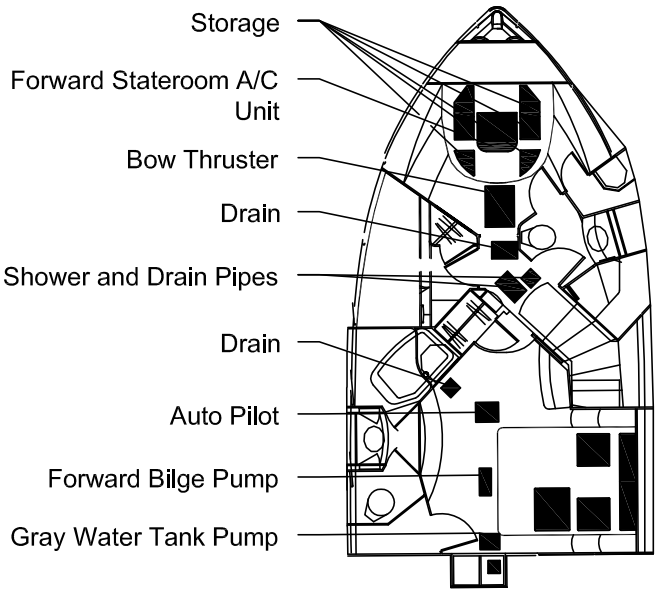
DO NOT EXCEED THE LOAD CAPACITIES STATED. THE INFORMATION ON THE CERTIFICATION PLATE DOES NOT RELIEVE THE OPERATOR FROM RESPONSIBILITY. USE COMMON SENSE AND SOUND JUDGEMENT WHEN PLACING EQUIPMENT AND/OR PASSENGERS IN THE YACHT.

Carver Yachts, LLC is a continuous improvement manufacturer. Carver may change product specifications, features, options and prices at any time including changes during the model year, without prior notification or obligation to other Carver yachts. Carver makes no warranty or representation to performance or fuel range of an individual yacht due to the many factors that may affect the performance obtained.

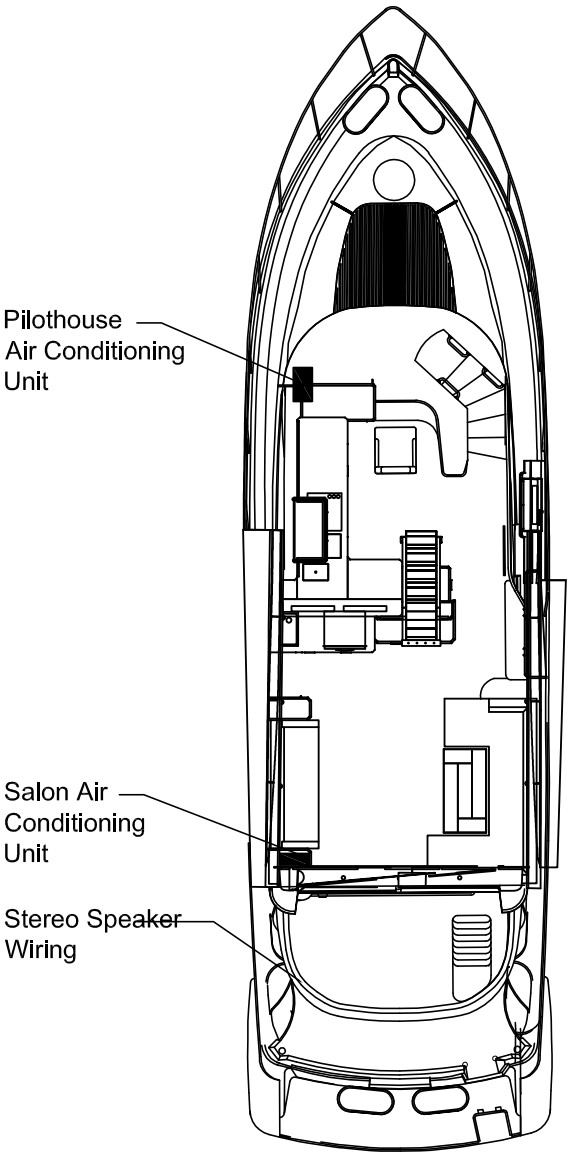
Deck Plates



Hatches

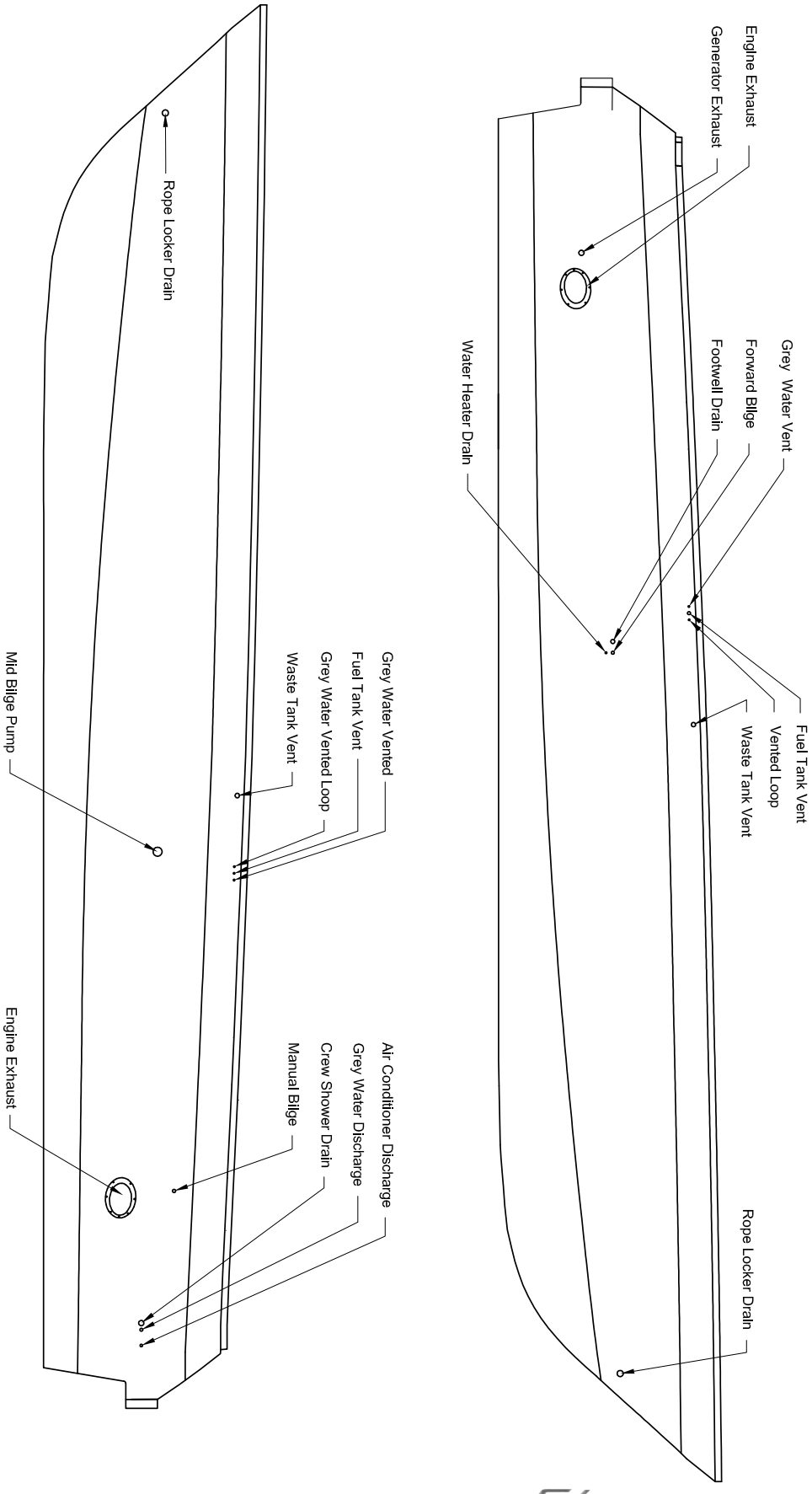


LOWER LEVEL HATCHES

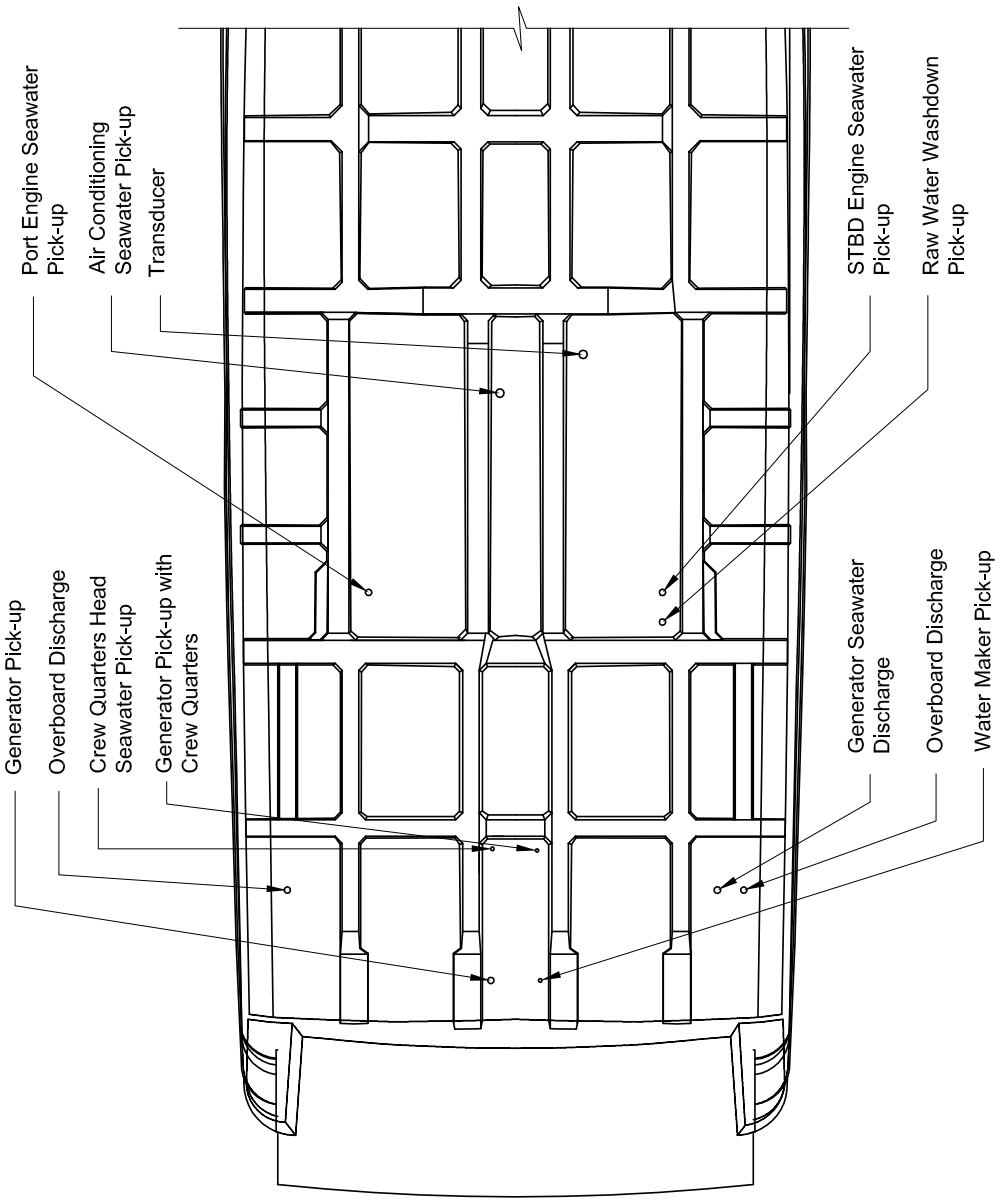


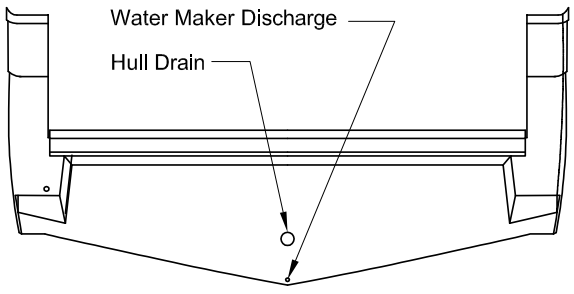
MAIN LEVEL HATCHES

Thru-Hull Fittings at Sides

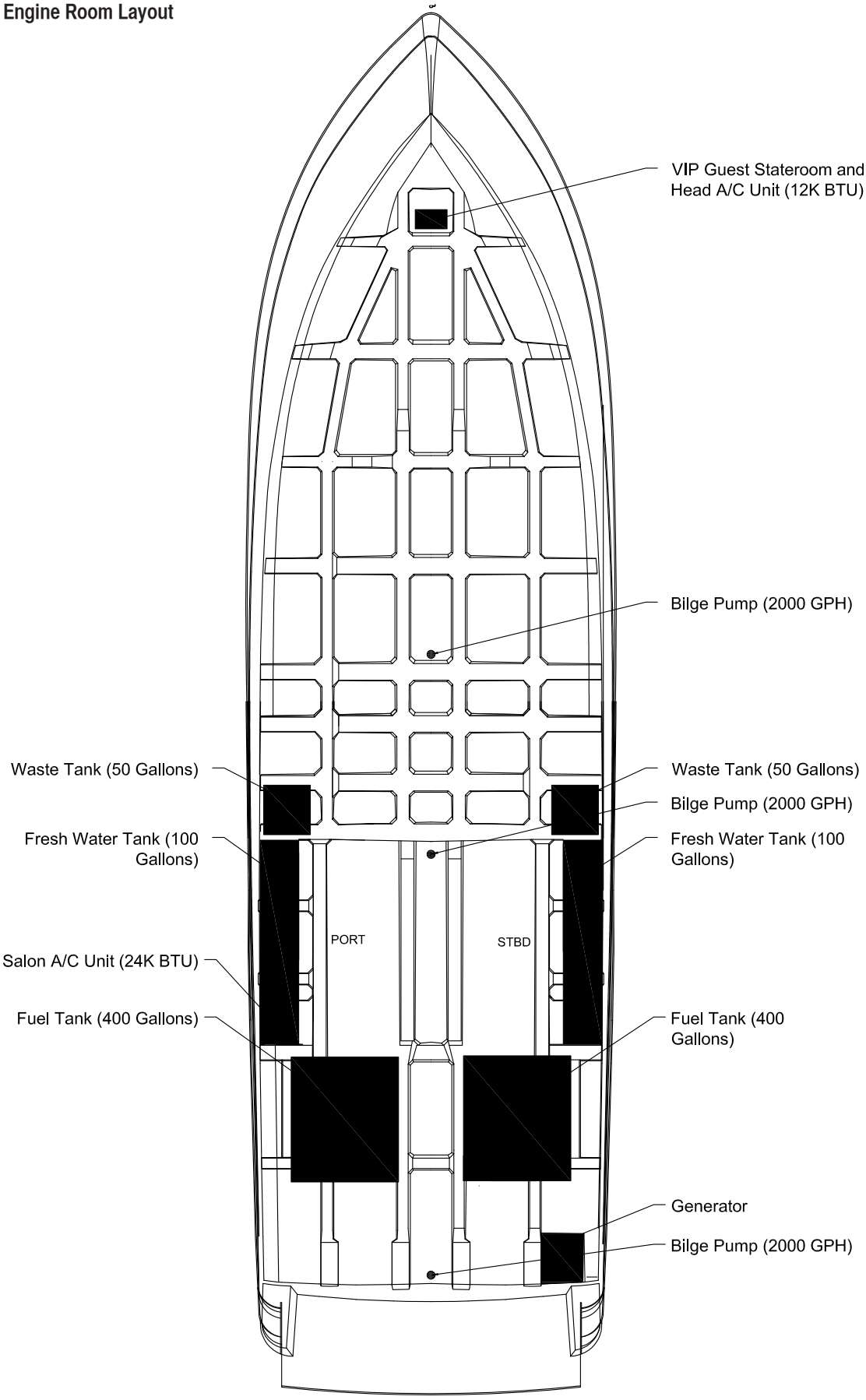


Thru-Hull Fittings at Hull





Engine Room Layout



BILL OF MATERIALS

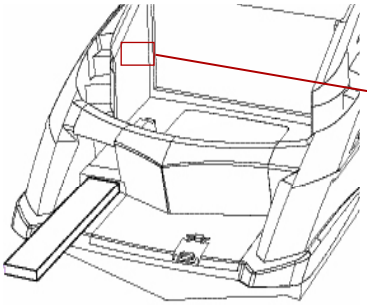
CARVER LIMITED WARRANTY

PASSERELLE

The extendable gangplank is hidden under the decking at the Starboard entrance gate. The system is a battery operated, hydraulic mechanism. The controls are mounted on the bulkhead in the aft port side of the boat. The hydraulic unit located is in the engine room (Starboard side aft of the water heater). Circuit breaker is on DC Control Center (Engine Room).

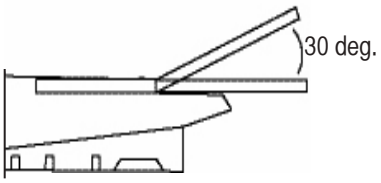
The passerelle is designed to ease boarding when tides affect the height of the boat to the dock. The passerelle is designed to rotate upward in an approximate 30 degree angle to accommodate most tidal conditions (See detail below).

Passerelle: Shown Fully Extended

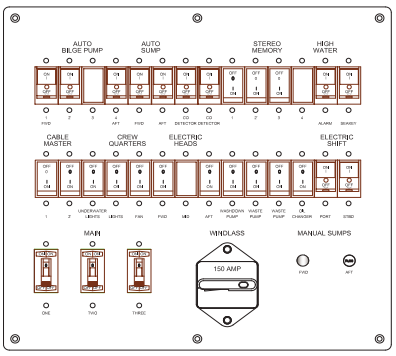


Passerelle Control Location

Passerelle Switches



Passerelle Mounting Location and Range



DC Control Center

Passerelle Hydraulic Unit

TRANSOM CAPSTAN

Mounted on the Port aft section of the boat is a capstan drive unit. To operate, supply DC power to the unit from a circuit breaker in the DC Control Center: *Engine Room*.

The Capstan switch is mounted in the floor near the unit. Lift the protective cap and use foot to operate.

Capstan

Capstan Footswitch

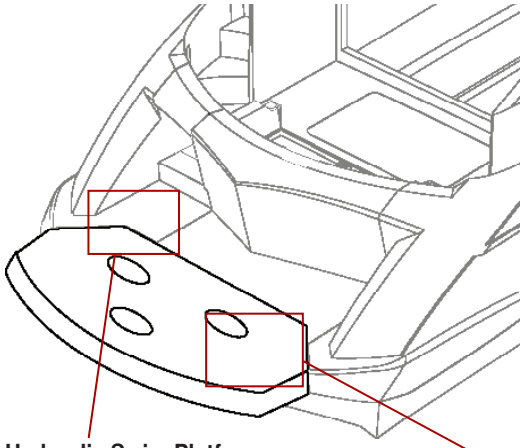
HYDRAULIC SWIM PLATFORM

A hydraulic option is designed on the transom swim platform to allow the platform to lower toward the surface of the water and raise to level deck height. The control is mounted inside of the storage area, located on the port aft deck. The hydraulic pump is located in the Starboard aft bilge.

Power is supplied through a circuit breaker in the DC Control panel, located in the engine room. A safety latch keeps the swim platform at even deck height when not in use. The latch is released when the control is used to lower the platform. A slight delay occurs when the platform lowers as the hydraulic system raises the locking latch before lowering can begin.

WARNING

DO NOT EXCEED THE 800 LB. MAXIMUM LIFT CAPACITY FOR THE SWIM PLATFORM. THE SWIM PLATFORM IS NOT DESIGNED USED TO LIFT PEOPLE. ALL PERSONS MUST BE CLEAR WHILE RAISING AND LOWERING THE PLATFORM DUE TO THE PINCH POINT WHERE THE PLATFORM MEETS THE HULL.



Hydraulic Swim Platform

Hydraulic Pump (Engine Rm. Bilge Area

Swim Platform Hinge System