

# Lady Georgia Operations Manual



August 1, 2025

## Welcome Aboard!

We are happy you have chosen “*Lady Georgia*” for your vacation. We are sure you will enjoy cruising the wonderful Islands of the Pacific Northwest.

We trust this manual will help you become familiar with the boat. If you have questions about the boat or about places to visit, please do not hesitate to ask any of the AYC staff.

# Table of Contents

Introduction .....	4
Overview .....	4
About this Operations Manual .....	5
Key Information .....	6
Overview .....	7
Interior Spaces .....	7
Appliances .....	8
Internet & Entertainment .....	8
Engines & Propulsion Systems .....	9
Electrical Systems .....	9
Domestic Water System .....	10
Wastewater System .....	11
Climate Control Systems .....	11
Navigation & Electronics .....	11
Dinghy .....	11
Checklists .....	12
Arriving at the Boat .....	12
Starting the Engines .....	13
Departing the Marina .....	15
Arriving at the Marina .....	16
Leaving the Boat .....	17
Internet .....	19
Winterization List .....	20
Winter Watch .....	21
Operational Notes .....	22
General Yacht Operation .....	22
Starting the Engines .....	22
Refueling/Fuel Use Monitoring While Cruising .....	23
Cruising .....	23
Engine Shutdown .....	23
Inspection Notes .....	24
Engines .....	24
Sea Strainers .....	25
Generators .....	25
System Information (Detailed) .....	26
Engines & Propulsion Systems .....	26
Electrical Systems .....	32
Domestic Water System .....	41
Wastewater Systems .....	46
Climate Control .....	49
Navigation & Electronics .....	51
Anchoring .....	53
Dinghy .....	55
Lighting .....	57
Appliances .....	58
Internet & Entertainment .....	60

Emergency Equipment and Operation .....	61
Federally-Required Safety Equipment .....	61
Signaling Equipment .....	62
Personal Safety Equipment .....	62
Top Issues & Tips .....	64
Overview .....	64
Operational Issues .....	64
Interior Issues .....	65
Tips .....	66
Fuel Curve .....	68
History .....	69
System Diagrams .....	70
Index .....	78

# Introduction

## Overview

Welcome Aboard! Every successful voyage begins and ends with proper planning. Familiarize yourself with the various systems outlined in this manual. This yacht has many features designed for your comfort, convenience and safety. Proper use and thoughtful care will ensure that your trip will be both safe and relaxing.

Lady Georgia is a 1996 Queenship, wide-body, cockpit, pilothouse motor yacht. The yacht is an unusually comfortable motor yacht. Although the yacht is 66' in length, the unique design of the interior space provides the feeling of a much larger yacht (according to previous charter clients).

Lady Georgia features a spacious salon, remodeled galley with full kitchen appliances, upgraded interiors, separate stairways to the berths for privacy, a large enclosed flybridge perfect for entertaining guests.

The systems include two powerful 800 hp engines, redundant generators, an efficient easy-to-use watermaker, a large dinghy with a 50 hp engine, and redundant high-speed internet using Starlink and T-Mobile 5G.

The yacht's interior is spacious, well-furnished, well-equipped, and comfortable throughout. The living areas of the boat have large windows for maximum viewing opportunities while underway or at the dock.

The yacht itself is a comfortable, stable, ocean-going vessel that has sailed throughout the San Juan Islands, well over a hundred times to Canada (Victoria, Gulf Islands, Desolation Sound, Prince Rupert, Echo Bay, Rivers Inlet, etc), twice to Mexico (Baja California), and once to Alaska (Inside Passage, Juneau, Sitka, Glacier Bay). It's a solid yacht that is sturdy in wind and waves.

# About this Operations Manual

**Overview:** Intended to familiarize you with the interior layout and the basic systems of the yacht. Its purpose is to describe what's on the yacht, not how to use it.

**Checklists:** Item lists for various operations that should be reviewed and confirmed one-by-one. Written by airplane pilots, they are intended to make sure that the specific items are completed and that nothing is skipped in the process.

**Operational Notes:** Recommendations for general yacht operation, starting the engines, fuel management, cruising and engine shutdown.

**Inspection Notes:** Recommendations for inspecting the engines, sea strainers and generators.

**Systems Information (Detailed):** Detailed descriptions and operational recommendations for the various systems on the yacht.

**Emergency Equipment & Operations:** Includes locations of federally required safety equipment, signaling equipment and personal safety equipment.

**Top Issues & Tips:** Be sure to read this section! Compilation of top issues that have caused problems in the past and suggestions for resolving them. Also contains tips learned from operating the yacht.

**Fuel Curve:** Provides approximate speed and fuel consumption for various RPM settings, based on owner tests.

**History:** Overview of the yacht construction and previous owners.

**Index:** Keywords and their page locations.

# Key Information

## Identification

Make	66' Queenship (1996)
Type	Wide-body pilothouse motor yacht
USCG Doc #	1039480
HIN	QCWFF001M94D

## Size & Weight

Length	66'
Beam	17' 10"
Draft	5' 6"
Weight	78,000 lbs. (39 tons)
Anchor	30 kg Bruce anchor with 450' of chain
Living Space	1,170 sf total, including 810sf inside (salon/galley/berths) & 360sf outside (cockpit/flybridge)

## Capacities

Fuel Tank	1,025 gallons
Water Tank	772 gallons (336 gallons each)
Water Maker	77 gallons/hour; 1,850 gallons/day (8.6 hours to fill tanks if empty)
Water Heater	30 gallons
Holding Tank	136 gallons (88 gallons in forward tank, 46 gallons in aft tank)

## Propulsion

Engines (2)	800 hp Caterpillar 3408 (D1)
Cruise Speed	1,000 rpm (9 knots, 10 g/hr) to 1,500 (12.7 knots, 26 g/hr)
Top Speed	2,200 rpm (22 knots, 84 g/hr)

## Dinghy

Make	14' Novurania (1998)
Motor	50 hp Honda (2005)
WA Reg #	WN 7070RH
Hull ID #	WNZ13345G898
Davit	1,500 lbs capacity

## Internet

SSID	Lady Georgia
Password	Queenship

## Nav PC & iPad

NavPC PIN	6600
iPad PIN	6600

# Overview

This section provides an overview of the various features and systems in the yacht. Detailed descriptions and schematics for the various systems are provided later in this document.

## Interior Spaces

**Spacious Layout:** The yacht was custom designed for a yacht broker in Seattle who optimized the layout to prioritize interior space. For example, the original purchaser eliminated exterior walk-arounds (ie, for fishing) in order to maximize the width of the salon, which is larger than the salons of much bigger yachts. He also wanted to create privacy between the owner's quarters (ie, the master berth) and the crew's quarters (ie, the forward suite), so he created separate stairwells into those areas. By combining the galley and the pilothouse, that space wasn't wasted by having them separated. The combo galley/pilothouse is highly functional for both uses and allows the owner to cook lunch while operating the yacht (among other things). The yacht broker knew the tradeoffs, and he made some very good choices that contributed to the attractiveness of this yacht for charters.

**Easy Access:** The access into the yacht is via the swim platform, level with the deck, and comfortably leads through the aft cockpit directly to the salon without stairs or ladders.

**Salon:** The yacht features a very large aft salon, which includes a contemporary dining table, reclining Stress-Less chairs, an office cabinet with printer, and a cocktail bar & sink. There is a large smart TV with various apps connected via Starlink and T-Mobile 5G wireless internet. The salon has a large, custom-built, "L" shaped couch that can be easily converted to a king-size bed for more sleeping capacity using the custom-sized ottoman.

**Flybridge:** There is a large enclosed flybridge accessible from either the aft cockpit ladder or via the two stairways on either side of the pilothouse. The forward portion of the flybridge is covered by a canvas top and is enclosable for the comfort of the yacht's captain and guests who seek shelter from wind and weather. The large boat deck located in the aft portion of the flybridge deck has a large seating area with tables and is where the BBQ, sink, and rigid inflatable dinghy is cradled. This spacious flybridge is one of the signature features of the yacht, and this is where the owners spend most of their time, including coffee in the morning, lunch, dinner, and drinks in the evening, all while taking in the views

**Master Stateroom:** Accessed via its own private staircase from the salon, this stateroom has a large king-size bed and its own separate head and shower. There are lots of drawers and two hanging closets in this stateroom for storage.

**Forward Suite:** Located in the bow of the yacht, the Forward Suite includes two staterooms. One stateroom features a large queen-size bed, and the other stateroom contains two bunk beds. Each of these staterooms has a lot of drawer storage. A large head with a glass-enclosed shower serves both of these staterooms, with access from both the Forward Stateroom and the hall. An Asko clothes washer and dryer are also located in this hall.

**Galley:** The well-equipped galley is located upstairs from the salon on the pilothouse level. It features a Subzero Refrigerator, range top, electric oven, convection microwave, Bosch dishwasher, disposal, compacter and a settee for three people.

**Cockpit & Swim Platform:** A pair of large sliding doors separates the main salon from the aft deck cockpit and swim platform. The aft deck is the location of the cockpit sink, icemaker, stairs to the flybridge and engine controls for docking. The swim platform provides the perfect dock for the dinghy while at anchor, providing easy level access.

## Appliances

### Kitchen:

- Refrigerator (Sub-Zero)
- Stovetop (GE)
- Range Oven (GE)
- Microwave - Convection (GE)
- Dishwasher (Bosche)
- Trash Compactor (GE)
- Toaster Oven
- Coffee Maker – combo drip & K-cup (Keurig)
- Garbage Disposal
- Hot Water Dispenser
- Blender

### Other:

- Washer (Asko)
- Dryer (Asko)
- Air Conditioner (Aqua Air)
- Diesel Heater (Webasto)
- Space Heaters

## Internet & Entertainment

**Network Equipment:** The yacht is equipped with strong local WiFi network connected to the internet via high-speed Starlink and T-Mobile 5G wireless services.

**Smart TVs:** She is equipped with smart TVs in the salon and on the flybridge with built-in apps such as YouTube TV, Amazon Video, Netflix, MLB TV, etc. Be prepared to use your own username and password since many of these applications require the account owner's mobile phone to be present for operation.

# Engines & Propulsion Systems

**Engines:** This yacht is powered by twin 800 hp Caterpillar 3408 diesel engines, renowned for their durability and performance in marine applications. Their design, which includes specialized camshafts and fuel pump calibrations for enhanced fuel delivery and timing in marine conditions, optimizes power output and ensures efficient operation.

**Engine Monitoring System (EMS):** This yacht is equipped with a Caterpillar Engine Monitoring System (EMS), which provides real-time monitoring and display of critical engine and transmission operating data. The system monitors engine RPM, oil pressure, coolant temperature, fuel consumption, and more. Visual and audible alerts notify the operator of any abnormal conditions or faults, allowing for timely identification and resolution of potential issues.

**Mathers Controls:** This yacht is equipped with a Mathers electronic propulsion control system, which provides precise and intuitive command of the engines and transmissions. It enables control from three separate stations, including the pilothouse, the flybridge, and the aft cockpit. These systems offer single-lever operation for each engine, enabling fingertip control of clutch direction and engine speed for seamless maneuvering.

**Engine Synchronization:** Enables the engines to operate at a synchronized RPM, creating a smoother and quieter ride by eliminating annoying "beats" or vibrations caused by slightly mismatched engine revolutions. This also contributes to optimal fuel efficiency and power delivery, as it helps prevent thrust asymmetry and keeps both engines working in unison.

**Bow Thrusters:** This yacht is equipped with an electric bow thruster, enhancing maneuverability at low speeds and in tight spaces. Like the Mathers Controls, the bow thrusters can be operated from any of the three stations. Note that bow thrusters are typically designed for short bursts of operation and should not be run continuously for extended periods.

**Stabilizer:** Unfortunately, the stabilizer is inoperative at this time. The system needs to be replaced at significant cost during a future haul-out.

## Electrical Systems

**Shore Power:** The shore power system powers onboard systems such as lights, refrigeration, air conditioning, battery chargers, and other AC-powered appliances without the need to run the main engines or generator. The system connects to shore power via a 50' retractable 50 amp power cord ("Glendenning") located in the aft cockpit. Additional accessories include a 30' foot extension cord and various adapters for 30A/50A combinations.

**20 kW Generator:** This yacht is equipped with a 20 kW Northern Lights marine diesel generator, designed for reliable and efficient AC power generation while at anchor or underway. It provides 83 amps, and ample power for onboard systems such as air conditioning, appliances, and electronics. Unlike the house batteries, the generator can power 220 volt loads such as the stovetop, washer/dryer and watermaker. This generator is occasionally used at the dock since it can deliver higher electrical output than the 50 amp shore system (which can occasionally trip the isolation breaker).

**12 kW Generator:** This yacht is also equipped with a 12 kW Northern Lights marine diesel generator. Although it's smaller, it still produces 50 amps with the added benefit of less noise and less fuel consumption. It also serves as a backup generator in case anything happens to the 20 kW generator.

**Inverter:** This yacht is equipped with a McCarron marine power inverter, which converts the yacht's 24V DC house battery power into 120V AC power, allowing for the use of standard household appliances and electronics when not connected to shore power or a generator. This provides onboard convenience, enabling operation of devices like microwaves, televisions, or to charge laptops and phones, particularly when cruising or at anchor away from a marina. At anchor in the evening, your neighbors will appreciate you using this silent inverter rather than the relatively noisy generator.

**Batteries:** There are a total of 24 batteries on the yacht, including 16 house batteries, 2 engine start batteries, 2 bow thruster batteries, 2 Mathers control batteries, 1 generator start battery, and 1 dinghy battery.

**Battery Chargers:** The yacht includes five systems to charge the yacht's batteries, including:

- **Alternator, Starboard Engine**, which charges house batteries.
- **Alternator, Port Engine**, which charges engine start batteries.
- **McCarron Inverter/Charger**, which charges house batteries.
- **Centaur Charger**, which normally charges engine start, bow thruster, and Mathers batteries, but provides backup charging for the house batteries based on the position of the selector switch.
- **Echo Trickle Charger**, which charges generator start batteries. This charger is powered by the house batteries, and only operates when the house batteries are fully charged.
- **Dinghy Charger**, a portable unit, located under the flybridge sink, for charging the dinghy battery.

**Emergency Parallel Switch:** The Emergency Parallel Switch provides a critical backup system, enabling you to temporarily combine the house and engine start battery banks. This allows you to utilize the power of the house batteries to start the engines in the event the dedicated engine start batteries become depleted or fails. This feature is intended for emergency use only to ensure you can get your engines running when needed.

**House Battery Monitor:** The LinkLITE House Battery Monitor provides critical information about your battery bank's status, acting much like a fuel gauge. It selectively displays important data such as voltage, charge and discharge current, consumed amp-hours, and remaining battery capacity. This allows you to effectively manage your battery bank and ensure optimal performance and longevity. .

**12V/24V DC System:** This yacht is equipped primarily with a 24V DC system, but also includes a 12V DC system for some equipment. Note that most of the interior lights are actually 12/24V AC (not DC) that are powered by "step-down transformers" from the 120V AC system. Most of the 12V DC devices, including the VFH Radios, AIS, etc are powered by a separate 12V converter, whose breaker is in the DC panel. This 12V converter breaker must be turned on, along with the individual device breakers, for those 12V devices to receive power.

## Domestic Water System

**Freshwater Tanks:** The yacht carries approximately 672 gallons of freshwater in two 338 gallon tanks in the lazarette.

**Water Heater:** The yacht has an electric water heater that runs off the 240V system. Its use requires either shore power or a running generator. While underway, the water is also heated by a circulation system using heat from the port engine.

**Watermaker:** The yacht has modern FCI Max-Q+ modular marine watermaker featuring Automated Pressure Control (APC) for effortless operation. It produces 77 gallons per hour (gph) or 1,850 gallons per day (gpd) of freshwater and is controlled by a touchscreen interface in the salon.

## Wastewater System

**Heads:** The yacht has 2 heads, each with a Royal Flush electric marine toilet from Headhunter. This system utilizes pressurized water to effectively macerate waste, eliminating the need for complicated mechanical sewage pumps within the toilet itself. This design contributes to easier installation, reduced noise during flushing, and increased reliability.

**Holding Tanks:** The Royal Flush toilets discharge to 2 black water holding tanks, one 46-gallon tank in the master berth and one 88 gallon tank in the forward bilge for a total of 134 gallons.

## Climate Control Systems

**Diesel Heater:** The yacht features a Webasto heater powered by diesel fuel for comfortable interior heating. The system has four fan units, located in the master berth, forward berth, salon and pilothouse. Each fan unit is independently controlled with its own thermostat and control settings.

**Electric Heaters:** Each of the main living areas has its own electric heater for use with either shore power or one of the generators.

**Air Conditioner:** The yacht includes an Aqua-Air marine air conditioner that can either cool or heat the air temperature inside the boat. Each room (salon, galley, master berth, forward berth) has its own thermostat panel that controls the temperature and fan speed, as well as the operating mode (cool, heat, fan only, or auto).

## Navigation & Electronics

**Navigation PC:** The ship's navigation PC includes the TimeZero navigation application. The navigation PC has monitors and wireless Bluetooth keyboards located at each helm.

**Navigation iPad:** Located at the flybridge helm, the dedicated Navigation iPad has multiple navigation and weather apps.

## Dinghy

The yacht includes a 14' Novurania dinghy with a 50 hp Honda outboard engine. The dinghy is stored on the aft flybridge deck, and is lowered to and raised from the water via a sturdy Davit system.

# Checklists

## Arriving at the Boat

### Salon

1. **Inverter Source Switch** – verify set to “Inverter” (set to “Shore Power” for winter watch only).
2. **AC panels** – turn on all breakers necessary for use.
3. **Heaters off** –turn off electric portable heaters if planning to use diesel heater.
4. **Window blinds** – open all.

### Pilothouse & Galley

1. **DC Panel** – turn on all breakers necessary for use.
2. **Side doors** – unlock.
3. **Window blinds** – open all.
4. **Space heater** – turn off heater located underneath left front windows (not used in summer).
5. **Refrigerator fan** – make sure it is turned on (switch on upper right side). Leave “on” when leaving boat.
6. **Refrigerator icemaker** – If not already in, put ice container into fridge (this activates the icemaker).

### Flybridge – Inside

1. **TV Remotes** – stowed in galley.
2. **Heaters** – stowed in galley.

### Master Berth

1. **Heaters off** – round heater in bathroom; space heater in master berth (not used in summer).

### Forward Berth Area

1. **Heaters off** – round heater in bunk berth & bathroom; space heater in VIP berth (not used in summer).

### Cockpit

1. **Water tank** – top off with water.
2. **Water hose** – connect hose between dock faucet and the hook-up port. Hose may be stored in locker on side of swim platform.
3. **Icemaker** – turn on, and empty tub. Use only when hooked to shore power.

### Lazarette

1. **Diesel heater** – turn push-pull switch on by pulling out switch on upper-right aft wall in lazarette (if planning to use).

### Engine Room

1. **Heater off** – turn off and unplug heater located in aisle of engine room (not used in summer).

# Preparing to Depart

## Trip Preparation

1. **Fuel** – verify diesel for the yacht, gasoline for the dinghy, and propane for the BBQ.
1. **Water tanks** – top off.
2. **Tides and weather** – check.

## General Preparation

1. **Breakers** – verify all breakers (AC & DC) required for operation and navigation are on.
2. **Generator** – start one, run with no load for 3 to 5 min, select with main power selector.
3. **Shore power** – retract cable (if at shore).
4. **Swim ladder** – remove fender.
5. **Portholes** – close all 10 portholes (master has 6, bunks have 1, VIP berth has 3).
6. **Drawers & doors** – secure all doors & drawers, including refrigerator hook.
7. **Dinghy** – uncover, put key in ignition, and verify strapped down.
8. **Anchor latch** – verify it is locked in place to keep anchor from dropping.
9. **Windshields** – remove canvas from pilothouse front windows.
10. **Flag & burgee** – deploy.

## Navigation Preparation

1. **Navigation equipment** – turn on, including both pilothouse and flybridge.
2. **Nav keyboard** – put at helm.
3. **Paper charts** – locate relevant charts and place at helm.
4. **VHF radios** – turn on channel 16, set squelch & volume.
5. **Route** – program desired route into navigation software.
6. **Log entry** – note start time, previous fuel usage on Flowscan gauges, and intended destination.

# Starting the Engines

## Engine Room Inspection

1. **Air compressor** – verify running and pressurized. It powers air doors and horn, and inflates dinghy.
2. **Air doors** – Open for engine room ventilation (switch in lazarette next to engine room door).
3. **Bilges** – check for water.
4. **Fuel quantity** – check level with sight tube, use yellow handle to equalize.
5. **Seacocks** – verify open for both engines and both generators.
6. **Sea strainer** – inspect units outboard of each engine.
7. **Freshwater coolant level** – inspect expansion tanks on top of engines forward. With engines cold, they will be very low.
8. **Fuel filter valves** – check yellow handles, verify fully horizontal.
9. **Oil** – check level (dipsticks are on the side of the engine, near the bottom center).
10. **Transmission oil** – check level.
11. **Generator oil** – check both.
12. **Belts, hoses and fuel lines** – check general condition.
13. **Engine room lights** – leave all on.
14. **Seal door** – secure all three latches on door to engine room.

## Engine Startup

1. **Breakers** – Verify all breakers (AC & DC) required for operation are on.
2. **Salon door** – Shut to prevent exhaust smoke from entering.
3. **Controls** – Neutralize throttle/gearshift controls.
4. **Start starboard engine** – Turn key to “run;” push in button on base of throttle controls to select. Turn key to “start” to start engine.
5. **RPM** – Verify idle speed is 600 RPM.
6. **Oil pressure** – Check.
7. **Start port engine** – Repeat steps 4-6 with port engine.
8. **Monitor** – Every 5 min, scan temperature gauges, voltmeter, oil pressure, transmission oil pressure, etc.
9. **Stabilize** – Avoid running the engines for less than 30 minutes.

# Departing the Marina

## Station Activation & Verification

1. **Throttle controls** – activate the station you plan to operate (push button on base of throttle unit)
2. **Helm wheel** – center rudders.
3. **Trim tabs** – verify up.
4. **Lights** – turn on navigation lights (if needed).
5. **Transmission** – check forward and reverse while still tied to dock.
6. **Bow thruster** – verify operational.

## Lines & Crew

1. **Lines** – untie all except one bow, stern and spring (to prevent the boat from backing up into the dock).
2. **Crew check** – verify crew is ready to depart.

## Post-Marina Stop

1. **Prepare** – stop the boat when outside the marina and in a safe place.
2. **Lines & fenders** – stow and secure.
3. **Canvas** – verify everything is zipped and secure.
4. **Radar** – turn on.

# Arriving at the Marina

## Pre-Marina Stop

1. **Lines & fenders** – deploy; includes bow line tied off amidship with slip knot.
2. **Trim tabs** – up (hold for 5 seconds).
3. **Doors & panels** – open aft stairway hatch, side panel, cockpit door panel.
4. **Radar** – turn off.
5. **Transmission** – check forward and reverse.
6. **Bow thrusters** – verify operational.

## Post-Arrival

1. **Lines & fenders** – verify proper deployment.
2. **Shore power** – connect power cable and select as source in the AC panel.
3. **Generator** – turn off after 3 to 5 minutes of no-load, cool-off operation.
4. **Water tank** – top off.
5. **Water supply nozzle** – connect hose and pressurize to boat.
6. **Lights** – turn off navigation lights.
7. **VHF radios** – turn off.

# Leaving the Boat

## Cleanup

1. **Dishes** – wash and stow
2. **Beds** – wash or stow dirty sheets in bunk berth dirty cloths basket; replace with clean sheets
3. **Trash** – empty all, including compactor
4. **Vacuum** – all carpeted areas and galley floor

## Dock

1. **Boat position** – verify boat is correctly positioned (extra distance for winter).
2. **Dock lines & fenders** – verify all lines and fenders are secure.

## Engine Room

1. **General inspection** – look for anything unusual (oil, fuel, belts, etc.).
2. **Electric space heater** – plug in and turn on (winter only).
3. **Davit breaker** – switch to “off”.
4. **Air doors** – close using switch in lazarette, winter only. Leave air compressor on.
5. **Lights** – turn off both AC and DC lights.
6. **Engine room door** – close, including all three latches.

## Lazarette

1. **Diesel heater** – turn push-pull switch off.
2. **Lights** – turn off both AC and DC lights.

## Cockpit

1. **Water tank** – top off with water.
2. **Water hose** – stow in swim platform locker; put cap on water hook-up port.
3. **Icemaker** – turn off, and empty tub.
4. **Canvas** – verify that all is zipped and secure.

## Flybridge – Aft Deck

1. **Hatch** – close deck hatch between cockpit and flybridge.
2. **US Flag** – remove and stow in galley.
3. **Dinghy** – verify canvas cover is installed, and controller stowed under the flybridge sink.
4. **Deck chairs** – cover each with canvas cover.
5. **BBQ** – verify gas tank valves are off and tanks covered with plastic cover.
6. **Fenders** – verify lines are securely tied.

## Flybridge – Inside

1. **Canvas panels** – verify that all is zipped and secure.
2. **Trash cans** – empty.
3. **TV remotes** – remove and stow in galley.
4. **Heaters** – stow in galley.
5. **Instrument cover** – install (winter-only).
6. **Helm chairs** – cover with chair covers (winter-only).

## Foredeck

1. **Burgee** – secure with burgee sock and tie string.
2. **Anchor** – ensure latch is locked.
3. **Hose** – ensure anchor wash-down hose is stowed.
4. **Canvas** – ensure cover above deck cushions is secure.
5. **Windshield covers** – install and ensure all snaps in place.
6. **Lines** – verify dock lines are securely tied to cleats.
7. **Fenders** – verify lines are securely tied.
8. **Canvas panels** – verify that all are zipped and secure.

## Forward Berth Area

1. **Portholes** – close all “tightly,” including 1 in bunk berth, 2 in VIP berth, and 1 in VIP bathroom.
2. **Heaters on** – round heater in bunk berth & bathroom; space heater in forward berth (winter only).
3. **Lights** – turn all off.
4. **Washer & dryer** – verify off and empty (ie, no wet clothes).
5. **Doors & drawers** – open for ventilation (winter-only).

## Pilothouse & Galley

1. **Side doors** – lock.
2. **Window blinds** – close all.
3. **Space heater** – plug in and turn on underneath left front windows (winter only).
4. **Dishwasher** – verify off, empty if dishes are washed.
5. **Refrigerator fan** – leave “on” (switch on upper right side of wall above shelves).
6. **Engine keys** – remove and stow.
7. **Lights** – turn off all.
8. **DC Panel** – turn off all breakers except those labeled “leave on”.
9. **Refrigerator icemaker** – remove ice container from fridge (winter only; this de-activates the icemaker).

## Master Berth

1. **Portholes** – close all, including 4 in main room and 2 in bathroom.
2. **Heaters on** – round heater in bathroom; space heater in master berth (winter only).
3. **Lights** – turn all off.
4. **Doors & drawers** – open for ventilation.

## Salon

1. **Heaters on** – space heater below TV (speed = 1, temp=1/3<sup>rd</sup>).
2. **Lights** – turn all off.
3. **AC panels** – turn off all breakers except those labeled “leave on”.

## Final Check

1. **Salon door** – lock, stow key.
2. **Cockpit door** – close & latch, canvas zipped & secure.
3. **Visual check** – look at all lines, fenders, canvas, lights, etc one last time.

# Internet

## Connection Instructions

**Local WiFi** – connected to the internet via Starlink and T-Mobile 5G wireless internet.

- SSID: Lady Georgia
- Password: Queenship

## Printing

- HP Color LaserJet Pro MFP M281fdw
- If needed, download driver from internet

# Winterization List

1. **Water system** – remove dock hose. Turn off freshwater pump. Open all faucets on the boat to drain the water system, including sink & shower faucets in the master and forward berths, faucets in the kitchen, bar, cockpit & flybridge, and the hose faucets on the bow and under the cockpit sink.
2. **Cockpit icemaker** – close supply valve located underneath the bar sink on the upper right side. Remove the grill at the bottom of the icemaker, remove the water supply line, and replace the grill. Latch the icemaker door in a slightly open position to maintain ventilation.
3. **Cockpit sink faucet** – close supply valves located in compartment below the sink.
4. **Cockpit below-sink faucet** – close supply valves located in compartment below the sink.
5. **Flybridge sink** – close supply valves located in the ceiling. They are accessed by removing the ceiling panel in the salon above the reclining chair (ie, the ceiling panel between the chair and the wall chart that does not have a lighting fixture in it).
6. **Anchor washdown faucets (fresh & seawater)** – close supply valves located in the compartment behind the head (toilet) in the forward berth. Valves are on the starboard side of the hull.
7. **Engine room airdoors** – ensure that they are closed. Air compressor must be on while closing.
8. **Heaters** – put heaters in each room and set to lowest fan and temp settings.
9. **Canvas covers** – install canvas covers on the flybridge instrument panel, the three flybridge chairs, the two deck chairs, the dinghy and the winch.

# Winter Watch

## Systems

1. **Engines** – run for 30+ minutes (check oil & open airdoors first).
2. **Generators** – run for 30+ minutes.
3. **Water maker** – flush for 15+ minutes (from fresh tank to overboard).

## Things that Leak

1. **Bilges** – check.
2. **Bilge pumps** – check.
3. **Shafts & packing glands** – check.

## Interior

1. **Space heaters** – verify running and set correctly (fan speed = 1; temp level = 1/3<sup>rd</sup>).
2. **Portholes** – verify closed and not leaking.
3. **Blinds** – verify closed.

## Electrical

1. **Breakers** – turn all “off” except those labeled “leave on”.
2. **Battery** – check level on AC Panel.

## Exterior

1. **Canvas** – verify everything is fastened and zipped.
2. **Lines & fenders** – verify ties are secure, lines aren’t chafed, fenders inflated (compressor in lazarette).
3. **Boat position** – verify that the boat will not bump into rear dock if winds are strong.

## Close-up

1. **Airdoors** – closed (winter only).
2. **Ignition keys** – stowed in chart drawer to left of pilothouse helm.
3. **Blinds** – closed.
4. **Breakers** – turn off all breakers on the AC & DC panels except those labeled “leave on”.

# Operational Notes

## General Yacht Operation

Always operate the yacht from the helm station that provides sufficient visibility, given your course, speed and sea conditions. During docking maneuvers that may require backing, always have a lookout on the aft deck or at the aft edge of the flybridge to serve as an extra set of eyes for the helmsman from the pilothouse. It is best to center the wheel and use only the engine controls to maneuver the boat backwards or forwards, while docking at slow speeds. It is extremely important that the trim tabs be in the full “up” position (bow-up) whenever the boat is maneuvered in reverse for docking. The final part of backing into a dock can be accomplished using the cockpit control station, but always prepare to use another station for a “go-around”.

Make sure portholes are closed and dogged tight before getting underway. They will take in water and make a real mess.

If you are piloting the LADY GEORGIA, yourself, as opposed to being operated by a hired captain, be sure that you are fully briefed on the yacht’s many on-board systems to assure yourself and your crew that your cruise will be both safe and enjoyable.

## Starting the Engines

After your engine room check-over, you are ready to start the main engines.

Make sure that engine air doors are open.

Start the starboard engine first, then the port.

Make sure throttles/gearshift controls are in neutral. Turn ignition keys to the run position (alarms will sound). Push and hold the button on the vertical face of the throttle/ gearshift controls to make the red light shine flashing red (alarms will stop). While holding the button in, and with a red light flashing, advance the throttle slightly ahead of forward idle, and start the engine. Once the engine has started, move the throttle back to the “neutral” position.

Engines will smoke a little until they warm up, so keep the rear Salon sliding doors shut when starting and idling at dock.

In the unlikely event that the starting battery voltage appears to be weak, engage the start battery parallel switch on the lower left side of the main electrical panel in the salon. This parallels the two starting batteries to the house batteries for maximum starting power.

**EXTREMELY IMPORTANT:** The transmissions are slow to engage. In all cases, shift only at dead-idle engine speeds to avoid damage to transmissions.

**ALSO EXTREMELY IMPORTANT:** Check the proper operation of the transmissions and throttles BEFORE untying the boat from the dock.

Observe the readings on the temperature gauges, voltmeter, oil pressure and gear oil pressure gauges.

Start each engine independently and monitor each set of gauges.

The engine start batteries are located amidship in the fore of the engine room and are maintenance free.

## Refueling/Fuel Use Monitoring While Cruising

It is a good idea to refuel before the fuel levels in the tanks reach  $\frac{1}{4}$  full. One reason is that you are not searching for fuel with dangerously low tanks. Another reason is to prevent any sediment that may be floating in the fuel tanks from entering fuel lines and prematurely clogging the fuel filters. Stop the fueling operation immediately upon hearing a “gurgling noise” from the fuel fill port or a messy overflow will occur.

Fuel usage is monitored by fuel “Floscan” digital readouts on the flybridge. This system indicates fuel usage rates for both engines when cruising, and also totalizes all fuel used between refueling. Upon refueling to top off the fuel tank, reset the Floscan gauges to zero before leaving the fuel dock.

## Cruising

While under way, frequently monitor all gauges, including transmission (gear) oil pressure, as this is your best method of assessing the yacht’s performance.

LADY GEORGIA seems to cruise most comfortably at 1,100 to 1,400 RPM. This is not only a comfortable speed, but it is more efficient for fuel consumption than higher speeds.

The engines can be operated above 2100 RPM for only short bursts.

CRUISING NOTE: The large Caterpillar 800-HP engines are designed and prefer to be run at a medium to high RPM. If they run for long periods in the 1000/1200 RPM range, which is not much above idle, the engines can soot up with carbon deposits. If running in relatively low RPM mode for long periods of time, run the engines up to 1500/1600 RPM for approximately five to ten (5/10) minutes near the end of the cruising day to “blow” the soot and carbon deposits out of the engines.

## Engine Shutdown

Make sure that engines are at absolute dead idle speed. Use engine kill button, then turn off key. Repeat for the other engine.

# Inspection Notes

Before you operate the yacht for the day, do an inspection of the mechanical systems, most of which are found in the engine room. Any problem found is much easier to fix while securely tied up at a dock, or even at anchor, than it is while adrift, mid-channel, somewhere.

## Engines

The engine room has both 120V & 12V lights. The 120V breaker for the engine room is in the AC panel, which is found in the cabinet on the starboard side of the salon just forward of the wet bar. The 12V breaker is in the DC panel situated just to the right of the Pilothouse wheel. The actual light switches for the engine room are both immediately inside the engine room door to starboard. The switch just above them is for the engine room exhaust blowers via a breaker in the 120/240 panel.

Grab a flashlight (it will come in handy) and enter the engine room via the door via the door from the lazarette which is entered from a cockpit deck hatch. This hatch is hydraulically operated from a switch in the cabinet beneath the cockpit wet bar. It will also be smart to have a couple of paper towels in hand to wipe dipsticks clean.

Check to assure the engine room air inlet doors are open:

Toggle switches to control the engine air inlet doors are located high on the forward bulkhead of the Lazarette, just starboard of the engine room access door. Another set of engine air inlet door controls are located in the Pilothouse, in the lower most portion of the cabinet just to the port side of the helm wheel. The air inlet controls in the Pilothouse have a green indicator light confirming that the air inlet doors are closed, however, the port side green light is inoperational.

The air inlet doors operate on air pressure from the compressor, so the compressor must be running and pressurized in order for the doors to be closed (and kept closed) with the inlet air door toggle switches. However, the air inlet doors “open automatically” (fall open by gravity) anytime the compressor tank becomes unpressurized. The air inlet doors can be visually checked in the engine room by looking outboard of each engine. The air inlet doors are “open” when the relatively large air inlet doors are in the “down or horizontal” position. Due to the fact that the compressor will slowly bleed off pressure when the compressor breaker is turned off (during times of non-use), consideration should be given to propping the inlet doors in the closed position with a stick or rod during months of winter storage. Using this method, the inlet doors will not “fall open” when compressor pressure bleeds off. If the air inlet doors are “propped closed,” place a note to that effect in the Pilothouse near the engine start controls.

Check oil level in main engines. The dipsticks are located down low, near the center of the engines facing the centerline of boat.

Check transmission oil levels via dipsticks in transmissions. Transmissions take Delo 100 SAE oil...

Check: freshwater coolant level in expansion tanks on top of engines forward.

Check: bilges for water; general condition and tension of belts; hoses and fuel lines.

Check: That the fuel filter valves are set to full open (inboard of both engines; valve handle in line with fuel line) and that the correct filters are selected. These fuel filter valves are easily “bumped” by persons in the front section of the engine room and can easily and inadvertently be bumped to partial off or full off. Generally, run with the same set of filters all the time, thus saving the other set in pristine and clean condition in case the running set becomes clogged.

NOTE: The engine hour meters are attached to the top of the engines.

Add engine and transmission lubricants as necessary. All engines use Delo 400; preferably 15W-40 weight should be used.

*Routine Maintenance:*

- Change engine oil/filter:
- Change fuel oil filters:
- Change transmission oil/filter:

## Sea Strainers

Outboard of each main engine, mounted to the outboard stringer, is a large sea strainer. This is sometimes called a sea water filter. It is necessary to check periodically (certainly at least every morning) to make sure that there is nothing in these strainers which would, in any way, impede the normal flow of water to the engines. If a visual inspection shows seaweed or any marine growth or other foreign object(s) inside the glass, close the seacock at the water inlet in the hull, open the sea strainer and remove and clean the stainless steel strainer, which should remove foreign material. Carefully replace the strainer, making sure that it fits exactly in place as it was designed to fit. Then close the filter tightly and open the seacock before starting the engine. Being small and nimble helps do this job

## Generators

LADY GEORGIA has two generators: A 12 KW Northern Lights, in the engine room aft on the starboard side, and a 20KW Northern Lights, in the engine room aft on the starboard side. For most of your 120V requirements while cruising, the 12 KW will be sufficient. However, the 20 KW is best for house battery charging, oven and cooktop use, etc. If excessive space heaters are used or heating and air conditioners operated, the 20 KW will be necessary, and the bus can be split in the salon 120/240-Volt panel. The sea strainers for the 12 and 20KW Generator are located just below the units. A generator start battery switch is located just under the front edge of the Inverter mounting platform. This must be in the “on” position in order for start battery voltage to be available to the generator starters. Spare generator impellers are available in a box in the lazarette.

### 12 KW Northern Lights

- Check oil – dipstick is down low on engine, aft.
- Check freshwater coolant in expansion tank.
- Check sea-strainer for obvious obstructions.

*Routine Maintenance:* Change engine oil/filter:

### 20KW Northern Lights

- Check the oil level and coolant levels. Add either, as necessary.
- Check the sea-strainer.

*Routine Maintenance:* Change engine oil/filter:

# System Information (Detailed)

## Engines & Propulsion Systems

### Engines

This yacht is powered by twin 800 hp Caterpillar 3408B diesel engines, each with 597KW. The Port s/n is 8RG00189, and the starboard s/n is 8RG00190.

The Caterpillar 3408B marine engine operates as a turbocharged, aftercooled V8 diesel internal combustion engine that utilizes direct injection to convert fuel into mechanical power. Its operation is based on the four-stroke cycle, involving intake, compression, power, and exhaust strokes within each cylinder.

Air is drawn in and compressed, diesel fuel is directly injected and ignited by the high temperature of the compressed air, and the resulting combustion generates pressure that drives the piston, turning the crankshaft to produce power. The turbocharger forces more air into the cylinders, increasing combustion efficiency and power output, while the aftercooler cools this air to further enhance performance, enabling the 3408B to deliver its rated horsepower for yacht propulsion.

### Cooling System

In essence, the engine cooling system is a dual-circuit system that effectively manages engine temperature by using freshwater to absorb engine heat and seawater to cool the freshwater

#### Freshwater Circuit:

- Coolant (a mixture of freshwater and antifreeze) is circulated through the engine's internal passages, including the cylinder block and cylinder heads.
- As the coolant flows through the engine, it absorbs heat from hot components.
- A freshwater pump, gear-driven by the engine, is responsible for circulating the coolant throughout the system.
- A thermostat regulates the coolant's temperature. When the engine is cold, the thermostat remains closed, causing the coolant to circulate within a small loop to allow the engine to warm up quickly.
- Once the engine reaches its optimal operating temperature (usually between 180°F and 195°F), the thermostat opens, allowing the coolant to flow to the heat exchanger.
- After passing through the heat exchanger, the cooled freshwater coolant returns to the engine to repeat the heat absorption process.

#### Seawater Circuit:

- A separate raw water pump (impeller pump) draws in seawater from outside the vessel through a through-hull fitting.
- This seawater flows through a heat exchanger.

#### Heat Exchanger:

- The heat exchanger acts as a radiator, transferring heat from the hot freshwater coolant to the cooler seawater without mixing the two fluids.
- The heated seawater is then discharged overboard through the exhaust system.

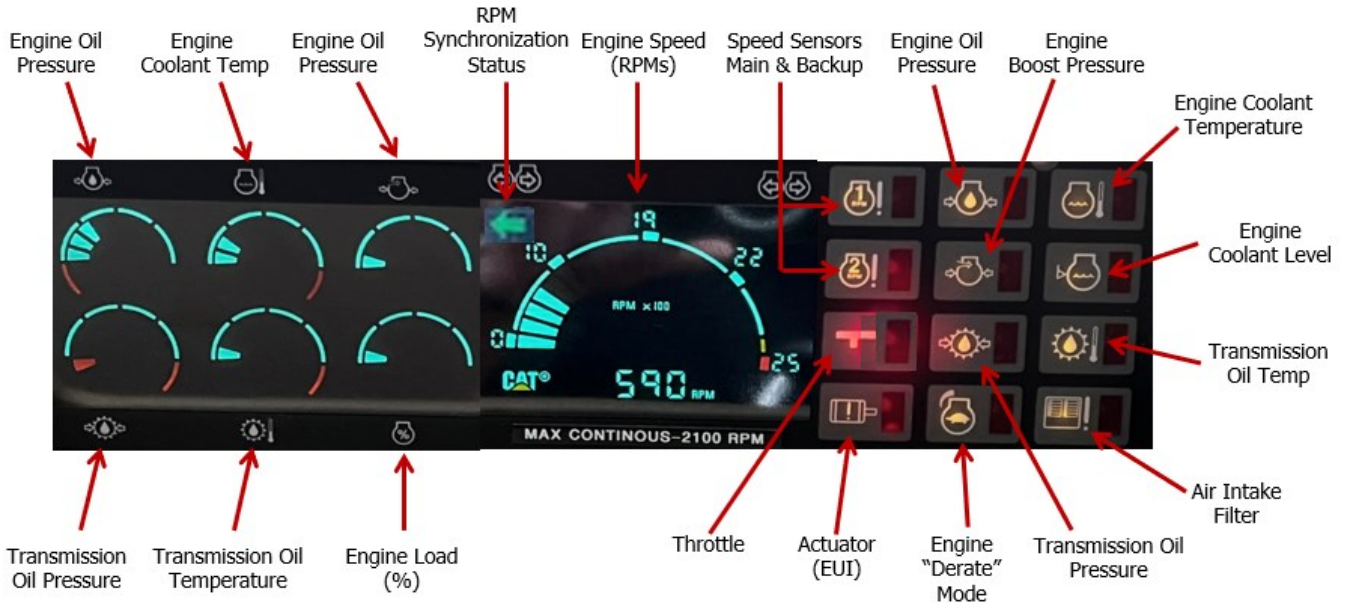
#### Additional Components:

- Expansion tank: A reservoir that holds excess coolant that expands as it heats up.
- Aftercooler: A heat exchanger that cools the turbocharger's compressed air charge.
- Oil cooler: Cools the engine's lubricating oil.

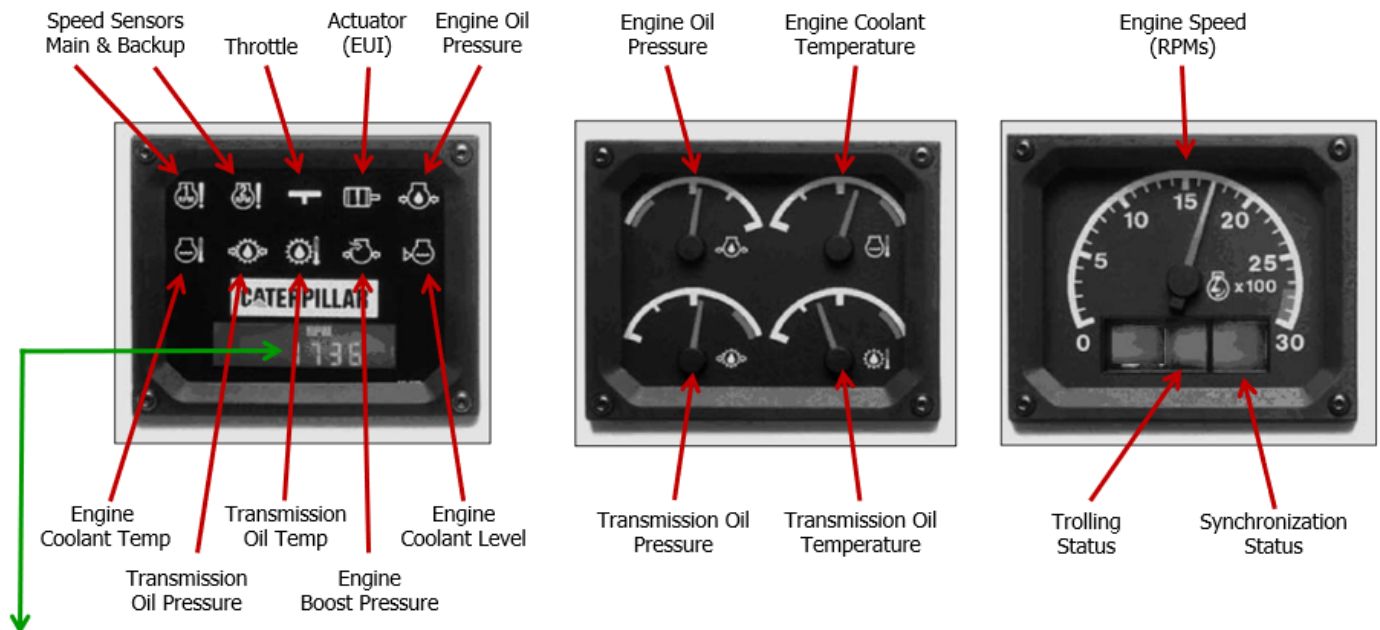
## Engine Monitoring System:

The Engine Monitoring System (EMS) displays a variety of parameters for the engine and the transmission that are provided by the engine's Electronic Control Module (ECM). The information is transmitted over the network to the EMS display module via the Cat Data Link. The network for the Cat Data Link consists of twisted pair wiring. All of the operating parameters and the diagnostics information for the engine are communicated over that network.

### Pilothouse EMS Display



### Flybridge EMS Display



**LED Display:** Engine Speed, Engine Hours, Engine Oil Pressure, Engine Coolant Temp  
Transmission Oil Temp, Transmission Oil Pressure, Fuel Rate, Percent Load

**Notes:**

- The engines won't run without the EMS. In event that the Engine Start battery that powers the EMS drains or fails, the engines will quit (if running) or won't start (if off). To temporarily restore power to the EMS, use the "house battery parallel switch" on the AC breaker panel to temporarily enable the house batteries provide backup power to the EMS.
- The "Engine Coolant Temp" alarm generates an audible sound to alert you that the engine is overheating. Shut down the engine immediately. Often, this is caused by an airlock in the freshwater cooling system that can be quickly resolved by adding water to the freshwater system. Connect a hose to the faucet below the cockpit sink and connect the other end of the hose to the freshwater cooling system intake fitting at the forward port corner of each engine. The intake for the starboard engine is accessed from the walkway between the two engines. However, access for the port engine is near the port wall of the engine room and requires you to go around the forward part of the engine. Run the hose for 5 minutes, and then you should be able to restart the engine. Note that I typically fill this up at the beginning of each trip prior to starting the engines.
- On rare occasions, the Speed Sensor or Throttle will alarm. To resolve, try increasing the throttle to a high RPM for 1-2 seconds.
- Most of the other alarms are self-explanatory, but the Actuator (EUI) alarm indicates a problem with the fuel system. Possible causes include the actuator itself (fuel injection), wires, or low fuel pressure.
- Each helm has a "Scroll" button that cycles through the data shown on the LED display of the EMS.

## Mathers Controls:

The Mathers control system controls the engine speed (RPMs) and transmission. There are 3 separate Mathers control stations on the yacht, including the pilothouse, flybridge, and aft cockpit.

The key components of the Mathers system include Control Heads at the 3 stations, a Processor (often called an Actuator) located in the engine room, and the necessary cabling to connect these components. The Control Heads serve as the operator interface, allowing for single-lever control of both engine speed and direction (forward/reverse/neutral). The Processor (in the engine room) receives signals from the Control Heads and translates them into commands that actuate the engines and transmissions.

To activate a specific Control Head for operation, push and hold in the button on the vertical face of the throttle/ gearshift controls until the light turns red. This is required prior to engine start (alarms will sound until activated) or when changing operator locations (ie, from pilothouse to flybridge).

The button can be used to increase engine RPMs in neutral. Start in neutral, hold the button in, and advance the throttle forward of the idle position.

**Notes:**

- There is a 1-2 second delay from the time that you select the transmission (forward or reverse) to the time that the transmission actually becomes engaged. Be patient, and always keep the transmission speed at low idle until it engages to avoid damage to the transmission.
- Always check proper operation of the Mathers Controls (forward, reverse, speed, etc) separately for each engine before untying from the dock or raising the anchor.
- If the dedicated Mathers batteries fail, the Mathers Controls won't work. This is particularly troubling if you are underway. To temporarily restore power to the Mathers system, use the "house battery parallel switch" on the AC breaker panel to temporarily enable the house batteries provide backup power to the Mathers system.

## Engine Synchronization:

The EMS provides the ability to synchronize the RPMs of the twin engine, creating a smoother and quieter ride by eliminating annoying "beats" or vibrations caused by slightly mismatched engine revolutions.

To activate, use the Mathers control to put both engines in forward idle (approx 600RPMs) and press the rocker switch at the helm of either the pilothouse or flybridge.

Upon successful activation, an arrow will appear in the LED display of the monitor for the starboard engine that points to the port engine. This indicates that the starboard engine will automatically match the RPMs of the port engine.

As a reminder that the engines are synchronized, it is recommended that you keep the starboard Mathers control in forward idle, and use the port Mathers control to set the desired RPMs (ie, 1,200).

To deactivate Engine Synchronization, return both Mathers controls to the forward idle position and press the Synch rocker switch at the helm. Confirm that the synch status arrow is gone, and confirm that each Mathers control independently controls engine RPMs.

### Notes:

- Always remember to deactivate Engine Synch prior to entering a marina. Otherwise, you will not be able to steer the boat at low speeds using the separate engines (ie, when the rudder is ineffective).



Synchronization Status

## Propellers

Two Osborne 3531 propellers built by Osborne Propellers ([www.osbornepropellers.com](http://www.osbornepropellers.com)).

## Bow Thruster

The bow thruster motor and batteries are located in the VIP bilge. The bow thruster can be operated from all three control stations through a breaker in the 12/24 VDC panel. It is quite powerful and should be operated in medium short bursts.

### Notes:

- Do not use more than 20-30 seconds at a time. Excessive continuous use will overheat the motor, trip the high-heat protector, and possibly damage the unit.
- Always test the bow thruster at the dock or at anchor to ensure it is operating properly.
- The bow thruster is in the forward berth, which is accessed via the floor hatch in the forward hallway.

## Stabilizer

Unfortunately, the stabilizer is inoperative at this time. The system needs to be replaced at significant cost during a future haul-out.

## Fuel System

There is a single 1,025 gallon tank on board which supplies fuel to the main engines, the two generators and the diesel furnace. The fuel filler caps are located on either side of the yacht, on the stairs near the pilothouse doors. The overflow is located on the hull below the port fuel filler cap.

The quantity of fuel left in the tank can be determined using the “sight tube” on the forward wall of the engine room – use the yellow lever at the bottom of the sight tube to equalize the pressure to obtain a proper reading. Additionally, there is a “fuel totalizer” described below that tracks usage based on fuel flow.

In the unlikely event that you should run a fuel tank dry or air enters the fuel system by some other means, the engine will not re-fire or run until the air is purged from the system to that engine. It will be necessary to, first of all, find the source of the air and solve that problem. Each unit has a hand pump to purge the system and prime the engine.

Each engine, including the two generators, has a Racor primary fuel filter. If it should become necessary to change fuel filters due to contaminated fuel, it will also be necessary to bleed all air out of the fuel system to enable that engine to start and run. For the main engines, it will be necessary to utilize the priming pumps described above.

Also, in each case, there is a quarter-turn fuel shutoff valve ahead of the filter. If the tank being utilized has sufficient fuel in it, you should be able to gravity-fill the fuel filters by opening the quarter-turn valves (which must be open to allow fuel to flow through the filters) ahead of the fuel filters and allowing fuel to flow into the filters until completely full. Allow all air to bleed out through the bleed plug in the top of the filter top before tightening it.

### Notes:

- Never let the tank run lower than 25% full. This helps minimize contamination issues and fuel emergencies
- Never fill the tank to be 100% full. Otherwise, fuel will overflow through the fuel vent on the side of the boat and into the water. This pollutes the water and is a serious offense in Washington State under both state and federal law with fines up to \$10K. You are held responsible, regardless of fault or cause.
- Be aware that the generators consume fuel separately from the main engines. At full loads, the 20KW generator consumes approx 1.7 gph (gal per hour), and the 12KW generator consumes approx 1.2 gph.

## Fuel Totalizer

The Flowscan fuel totalizer is located on the flybridge helm. It is an electronic system that provides accurate, real-time data on the yacht's fuel consumption. Rather than relying on potentially inaccurate tank gauges, it utilizes electronic sensors to measure fuel flow to the engine, allowing you to track exactly how much fuel has been used and optimize your cruising range and fuel efficiency.



### Notes:

- Reset the fuel totalizer after refueling and before leaving the fuel dock.
- To reset, hold the left switch to the right for about 10 seconds until the display starts to flash and the display shows "0.0".
- The other two switches select between displaying fuel consumption in GPH (gal/hr) or MPG (nm/gal).
- It's recommended to take a picture of the display at the beginning and at the end of your cruise.

## Engine Room Air Doors

The engine room inlet air doors provide fresh outside air crucial for engine combustion and cooling the engine room itself by helping dissipate heat. These doors are a key part of the yacht's ventilation system.

The controls for the air doors are located in the lazarette on the starboard side of the engine room door, above the starboard water tank. The air doors operate using compressed air from the air compressor, so ensure that the air compressor breaker is turned on in the AC breaker panel.

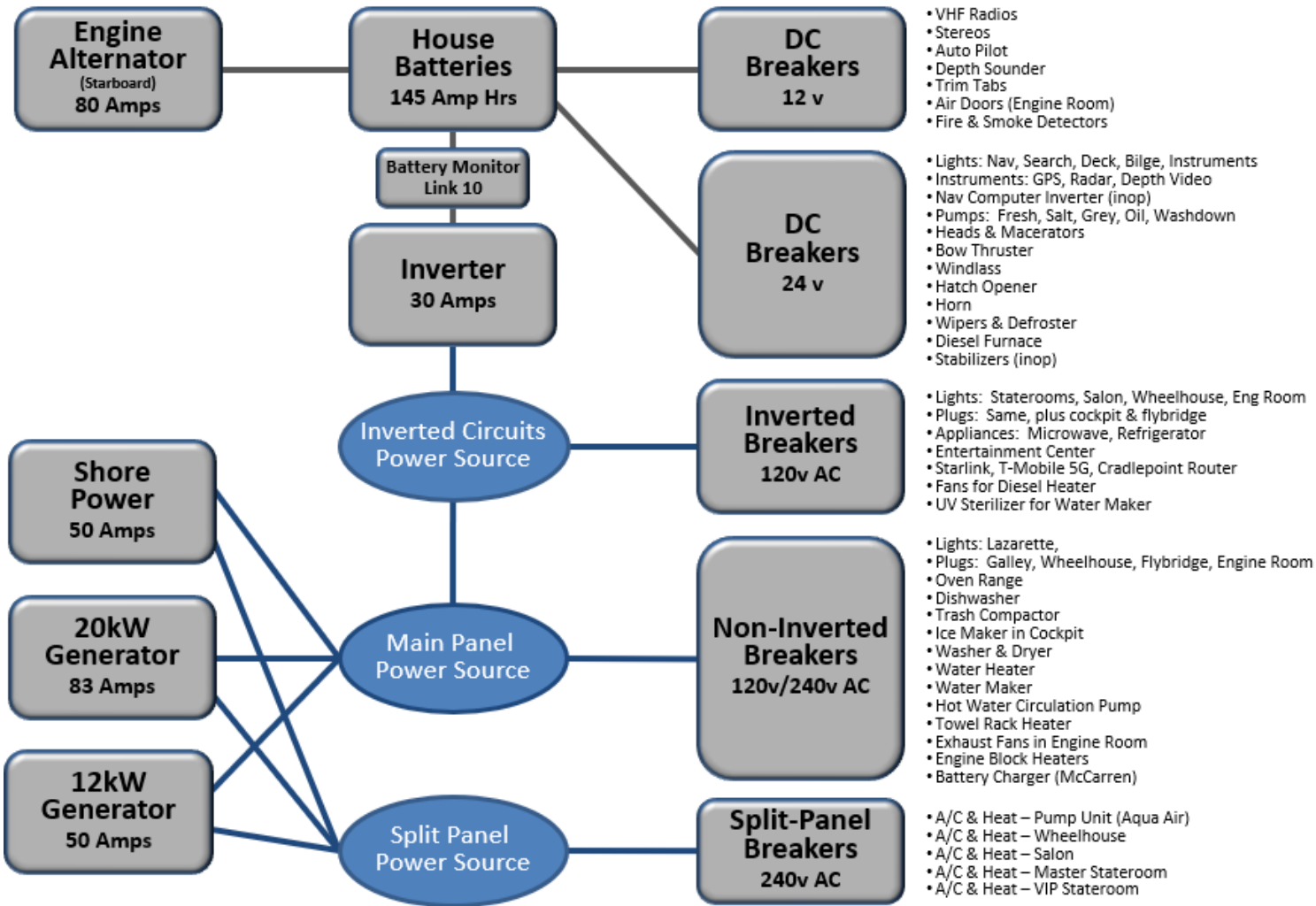
### Notes:

- Ensure "Eng Room Air Doors" breaker is on in the DC breaker panel
- Ensure "air compressor" breaker is on in the AC breaker panel
- Ensure that the on/off lever on the air compressor (in the lazarette) is "on".

# Electrical Systems

## Overview

The electrical system has three subsystems: 240 volt AC, 120 volt AC and 12/24 volt DC. The yacht's potential to consume electricity can exceed dock's capacity to provide it. When a particular electrical device or circuit is not needed, be sure the device and the circuit are turned off.



## Shore Power

The shore power inlet is located in the cockpit amidship. The cable is for 50 amp 120/240 volt AC. If this is not available, there are other cable options available in the cockpit locker under the cockpit settee.

The main shore power breaker is located on the aft bulkhead of the lazarette. Note that the shore power is often inadequate to supply the boats electrical needs, especially after a period of heavy house battery usage. If you don't reduce electrical loads it will trip the shore power breaker (aft bulkhead of lazarette). This situation lasts a few hours while the batteries recharge.

If this happens, you have two options: use a generator (best) or turn off the hot water heater, range, oven and dryer and washer (doesn't always work). Once the batteries get charged, shore power will usually then be adequate.

At some locations shore power is just bad (low voltage). It won't run some loads like the hot water heater or the reverse cycle heat. But you may not notice this right away. Or it simply keeps tripping the breaker/breakers. In this case, the use of a generator is your only option.

The electric shore power Glendenning cable reel operates from a switch in the cockpit and has a breaker in the engine room starboard aft bulkhead. Make sure shore power cap is "locked" in the up position. Don't let the shore power cap touch or crimp the cable.

### Notes:

- High electrical loads can often trip the shore power breaker located on the aft wall in the lazarette.
- If this happens, consider temporarily using a generator until electrical load is reduced.
- High electrical loads include the oven, dryer, blow dryers, water heater, electrical heaters, etc.

# Generators

## Overview

- There are two generators located in the engine room of the yacht.
- The **20KW Northern Lights generator** is located just inside the engine room on the port side and is capable of providing 83 amps to the electrical system.
- The **12KW Northern Lights generator** is located just inside the engine room on the starboard side and is capable of providing 50 amps to the electrical system.
- The controls for both generators are located in the salon on the right side of the 120/240V electrical panel.
- Additionally, there are controls for each generator in the engine room. The controls for the 20kw generator are on the generator itself. The controls on the 12kw generator itself are inoperative, but functioning controls are located on a separate unit mounted on the engine room rear bulkhead.
- The start battery for both generators is inboard just below the 12kw generator. It is maintenance free.

## Notes

- **Starting:** Before starting the generator, make sure it has no load on it. Allow it to warm up for approximately three to five minutes before adding any load. Do this by making sure the rotary source power selector is not set to the generator being started.
- **Remove heavy loads:** Turn off heavy-load circuit breakers before engaging load to the generator, then add load back as necessary.
- **30-min minimum:** Unless it has already warmed up, never run the generator for less than 30 minutes.
- **Shutdown:** Before shutting down the generator, remove all electrical load from the generator. Allow it to run for three to five minutes without load before shutting it off. This allows the generator to cool off properly.
- **Air Conditioner:** Use the 20KW generator to power the air conditioner. There's not enough load capacity from the 12KW generator or even shore power. Prior to turning on any of the air conditioner breakers, change the "split panel source" to 20KW generator.

## Operating Checklist

- To start either generator, verify that the main source selector is not set to the generator being started, and press the "Pre-Heat" rocker switch and hold it for 10 to 20 seconds. After 10 to 20 seconds, and while continuing to hold the pre-heat switch, press the "Start/Stop" toggle to engage the generator starter. The generator will begin to crank over.
- When the engine begins to run, release the "Start" switch while continuing to hold the "pre-heat" switch for another 5-10 seconds before releasing it. If the light on the start switch stays on, the generator is running.
- After a 3-5 minute warm-up, turn the AC main source selector switch to the generator just started (ie, the "12kw" "or 20kw" position). The voltmeters in the panel will register at 240 volts.
- Slowly begin to switch on desired circuits beginning with the main breakers for each circuit set.
- To turn off the generator, reverse start-up process. Remember that before shutting down the generator, remove all electrical load from the generator and let it run for at least 5 minutes to cool down.
- After removing all electrical load, and after the 5 minute cool down period, push the generator "Start/Stop" downward until engine completely dies.
- Note that the 20kw generator is able to heat hot water for the domestic water supply when it is running.

## 20KW Generator

### System Information

- Manufacturer: Northern Lights
- Model: PXG-307
- Serial Number: GT 7944
- Install Date: 3/1/97
- Maint Contact: Northern Lights, 4420 14th Avenue N.W. Seattle, WA 98107, (206) 789-3880

### Specs

- Power: 240 volts (single phase).
- Power Draw: 83 amps
- Manufacturer: Northern Lights

## 12KW Generator

### System Information

- Manufacturer: Northern Lights
- Model: M843N
- Serial Number:
- Install Date:

### Specs

- Power: 240 volts (single phase).
- Power Draw: 50 amps
- Manufacturer: Northern Lights

### Maintenance

- Manufacturer: Northern Lights

## Electrical Panels and Generator Controls

The main 12/24 volt DC electrical panel is in the pilothouse starboard side cabinet. The 120/240 volt AC panel is in the starboard side of the salon with uses identified at the individual switches. The 120/240 panel also has remote controls for both generators. The battery distribution panel is located on the port aft engine room bulkhead.

Note that there is a separate galley electrical subpanel located under the galley counter just to the starboard side of the oven.

## Electrical Source Selectors; 120/240-Volt Panel

The right side panel of the 120/240-volt panel in the main Salon contains three (3) rotary switches:

**Main Electrical Source Switch:** This is centered in the middle of the panel, and switches between generators, shore power, and “0” which is batteries and inverter. Note that the inverter will normally function in inverting mode when shore power or generator power is removed, regardless of the setting of the switch. As a result, this switch does not have to be set to the “0” position for proper inverter operation.

**Inverted Breakers Source Switch:** This is located on the lower left side of the switch panel, and selects either the “main power source” or the “inverter” to power the inverted breakers. This should always be left in the “Inv (Auto) position. In this position, the inverter will automatically switch from its inverting cycle when shore/generator power is removed, and back to the charging cycle when shore/generator power is again restored. In the event of an inverter failure, this switch can be switched to the “shore/generator” position to power the inverted circuits.

**Split Panel Breakers Source Switch:** This is located just below the main rotary source switch, and determines the “source” power for the upper-most twelve breakers on the left column of the two column breaker panel. This allows the 120/240-volt panel to be “split” between two different power sources. These “split” breakers include five 240-volt breakers that control the seawater source Air Chiller and Air Conditioning/Heating Systems, plus a couple of 120-volt breakers at the top of the column. This rotary switch enables selection of split-panel source power to be selected from “shore”, “12kV generator”, “20kV generator”, or “off”.

Note that the split-panel operation provides significant flexibility for operating with heavy electrical loads. The air conditioners draw significant power, and could easily overload either the shore power or either generator, especially if other heavy-amp boat electrical systems are being used.

### Notes:

- When using shore power for the main circuits with high electrical load, be prepared that the isolation power transformer may trip and would need to be reset by flipping the breaker on the upper aft wall of the lazarette.
- To operate the air conditioning while at the dock, select shore power for the main circuits and use one of the generators to power the air conditioning via the split panel breaker source switch. Alternatively, you can use a generator for the main circuits and shore power for the air conditioning.
- To operate the air conditioning while cruising, consider using both generators – one for the main circuits, and the other for the air conditioning via the split panel breaker source switch. This would only be necessary if you were running high electrical loads on the main circuits.

## Inverter

The McCarron inverter runs the 120V AC circuits when shore power is unavailable and the generators are off. Circuits powered by the Inverter include the 6 lower-left and the 12 lower-right circuit breakers on the AC panel. These inverter-powered circuit breakers are labeled as such. Note that the inverter will not power 240v circuits.

The Inverter powers the power strips for the galley coffee pot, espresso maker, and television, so coffee can be made the night before for auto-brew in the morning, etc.

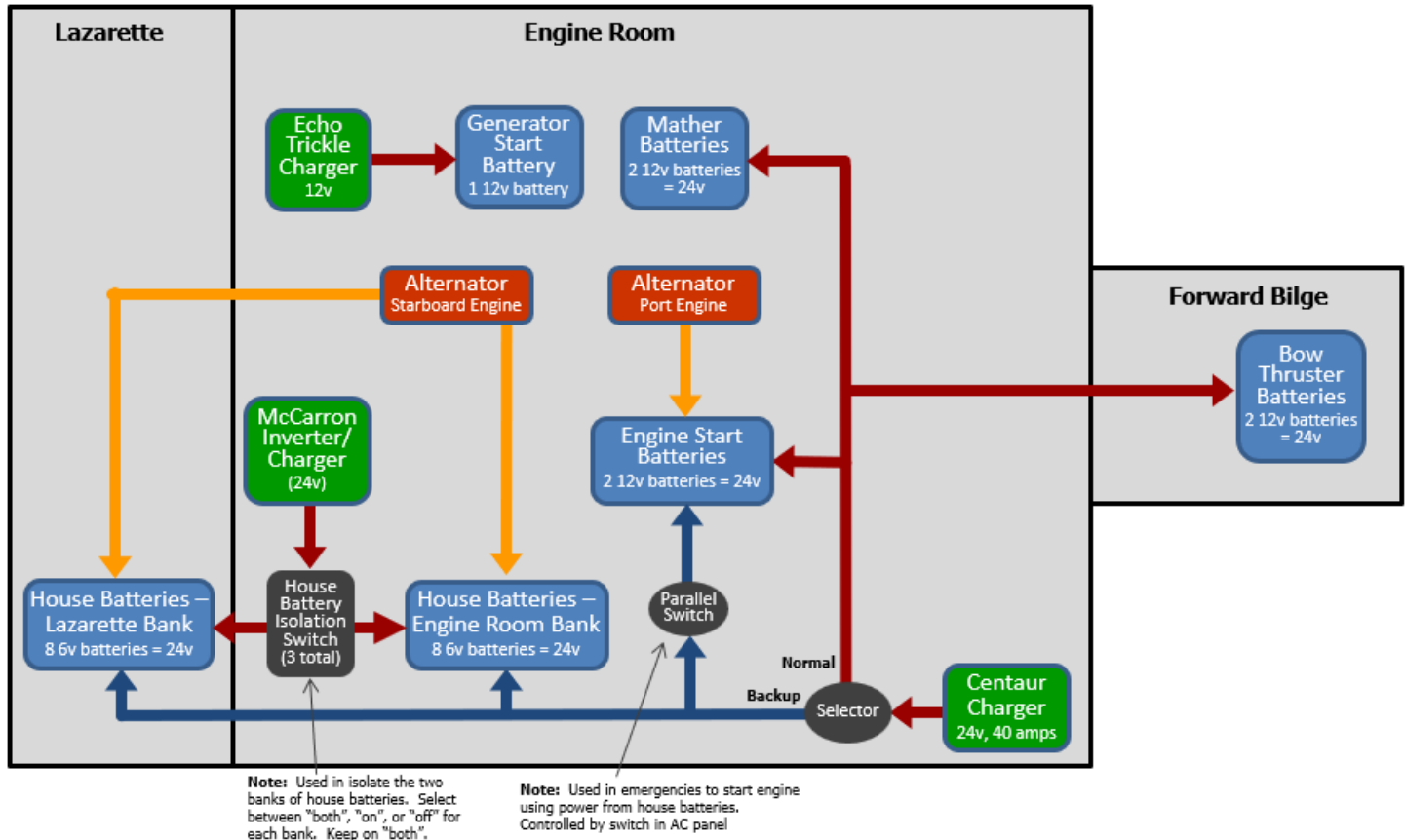
Recharge with shore power or either generator, as necessary. The large house batteries are charged by the starboard engine alternator when the starboard engine is running. Additionally, the Centaur charger can be used as a backup charger for the house batteries by switching the labeled selector switch accordingly.

Typically, running a generator while cruising is not required unless needed for house battery charging or high load kitchen appliance use.

### Notes:

- Use caution while powering circuits via the Inverter as it could quickly discharge the sixteen house batteries. Turn off all unnecessary circuits and lights when not in use.
- When running the inverter using house batteries overnight, reduce electrical loads as much as possible.
- If the house batteries discharge below 50%, the inverter will disconnect and no longer power the inverted circuits including the refrigerator. For that reason, it's advisable to run a generator as needed to keep house batteries charged as necessary when shore power is unavailable.
- Avoid running generators throughout the evening to be respectful to neighbors. Turn them off if possible, in the evening after high load kitchen appliances are no longer in use.
- After using the inverter overnight at anchor (for silence), use a generator in the morning to power heavy loads and to recharge the house batteries.
- When running the generator for house battery recharging, it's a great time to turn on the water maker if there's room for additional freshwater in the tanks.

## Batteries



There are 24 batteries on the boat. Periodically check water level in all batteries that are not maintenance free.

**House Batteries (16):** There are sixteen 6-volt house batteries. Eight batteries are located outboard of the starboard main engine, and eight batteries are located underneath a cover on the starboard side of the lazarette. The sixteen house batteries are wired in series and parallel (4 groups of 4 batteries each) to provide 24V house voltage. These can be isolated to either the 2 groups in the engine room or the two groups in the lazarette using the labeled switch.

**Starting Batteries (2):** There are two “engine start” batteries in the engine room between the two main engines at the forward engine room bulkhead. These two 12V batteries are in series to provide 24V.

**Bow Thruster Batteries (2):** There are two “bow thruster” batteries located in the forward bilge, which is accessed through a hatch in the floor of the forward hallway. These two 12V batteries are in series to provide 24V.

**Mather Backup Batteries (2):** There are two batteries located outboard of the port main engine. These are the primary batteries for the Mather system, which controls the engine transmissions and throttles. These two 12V batteries are in series to provide 24V.

**Generator Start Battery (1):** There is one 12-volt battery in front of and below the 12KW generator. This single battery is the “start” battery for both the 12KW and the 20KW generators. A generator start battery switch is located just above the start battery (just under the Inverter mounting platform). This switch must be in the “on” position for start battery power to be available to the generators.

**Dinghy Battery (1):** Located under the dinghy seat. A portable charger is located under the flybridge sink.

## Battery Switches

The battery switches are located on a white electrical box in the engine room aft bulkhead, starboard side. There are three battery switches, two on the port side of the box, and one on the starboard side. Leave these switches on “both” at all times.

## Battery Chargers

**McCarron Inverter/Charger:** The Inverter also serves as a house battery charger if a power source is available to it (shore power, either generator running, etc.). With a power source, the Inverter charges the 16 house batteries. If the house batteries are low, the Inverter will draw significant amperage while it is recharging the house batteries. Once the house batteries are fully charged, the charging amperage drops off and then becomes available for other boat electrical needs.

**Centaur Charger:** This provides a 24V 40 amp charge to the engine start, bow thruster, and the Mathers batteries. It is located outboard of the starboard engine, just forward of the starboard engine.

This charger has a dedicated circuit breaker on the charger itself, and also a dedicated circuit breaker in the 120/240-Volt panel in the Salon. Before starting main engines, verify that this battery charger is operational.

**Echo Charger:** This charges the generator start battery with a “trickle” charge when the house batteries are at or near full charge. It is located under the 12KW generator. There is a breaker in the 120/240-Volt panel for this battery that must be “on” for the generator start battery to charge.

### Notes:

- In the event the charging function of the Inverter fails, thus making it impossible to recharge house batteries from the Inverter, the Centaur charger can be used to recharge the house batteries. A switch is located in the lower right portion of the AC electrical panel. Turn this switch “on” to use the Centaur battery charger to charge house batteries. The Centaur battery charger is not nearly as powerful as the Inverter for charging house batteries. As a result, use of the Centaur battery charger to charge house batteries will take considerable time.

## Emergency Parallel Switch

There is a “start battery parallel switch” on the lower left side of the AC electrical panel in the salon. This switch “parallels” the start and house batteries for engine start in case the start battery drains or fails. This switch should normally be turned “off”.

### Notes:

- The engines will shut down if the engine start batteries become discharged. This could create a dangerous situation if it happens suddenly while cruising. To restore engine power, switch the emergency parallel switch to power the engines from the house batteries.
- The reason the engines shut down is that they will not run without power to the Engine Monitoring System (ESM). Power to the ESM is normally provided by the engine start batteries.
- Warning signs that the engine start batteries are discharging include erratic behavior of the EMS displays & gauges, dimming of the EMS displays & gauges, erratic control of the throttles and transmissions.

## LinkLITE House Battery Monitor

A LinkLITE house battery monitor is located on lower right side of the AC Panel in the salon. This monitors the voltage, current amp draw, total amps drawn, and percentage of charge remaining for the house batteries.

This monitor should be viewed often when operating on house batteries, so that the state of charge, remaining charge, and instant battery drawdown amperage of the house batteries can be known frequently. Monitoring of instant drawdown amperage is helpful in managing loads while on the house batteries, especially in setting practical and allowable loads before retiring for the night.

### Notes:

- The LinkLITE should be synchronized on a regular basis to ensure proper readings. Once the house batteries are fully charged, press and hold the left and right buttons at the same time for 3 seconds. The LinkLITE should then read 100%.

## 12V/24V DC System

The 12V/24V DC system powers many of the systems on the yacht, including bilge pumps, water pumps, electric toilets, navigation lights, electronics, etc. Most of the systems are 24V, but there are some systems that are 12V.

The large 24V house battery bank on the starboard side of the lazarette and engine room powers the 12V and 24V systems. It is also the power source for the main inverter when it is in inverting mode. The house bank of batteries is charged by the main Inverter when in charge mode utilizing shore power, generators and/or the starboard engine alternator when the engine is running.

Most of the 12V systems are powered by a 24V to 12V converter whose breaker is in the DC panel. There is also a 12V breaker panel under the pilothouse helm in the console cabinet (port side – white with six breakers). It powers the waste tank level system, the sonar and some flybridge electronics.

The main DC electrical panel is located just to the right of the pilothouse wheel. Use only the circuit needed while keeping the others off. There are sufficient lights and other 12V/24V devices to significantly draw down the house batteries of power if they were left on during a long evening.

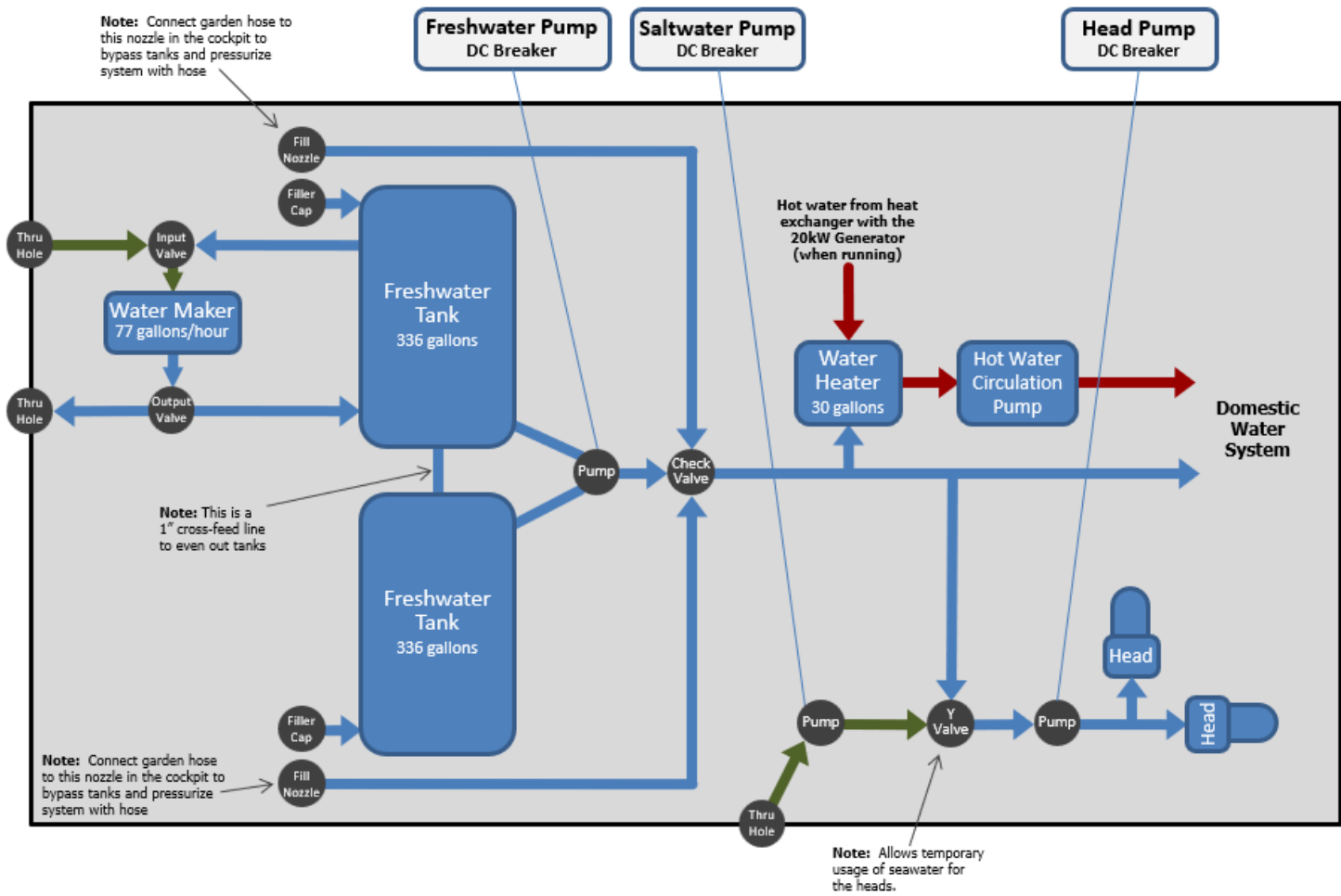
Note that most interior lights are AC-powered, not DC-powered. They are powered by several 120V AC to 12V/24V AC step-down transformers. Breakers for the 120V to 12/24V step-down transformers are in the AC breaker panel in the main salon.

### Notes:

- The 12V converter breaker in the DC panel must be on to power the VHF radios, stereos, autopilot, depth sounder, trim tabs, engine-room air doors, and the built-in fire/smoke detectors.

# Domestic Water System

## Overview



## Freshwater Tanks

The yacht carries approximately 672 gallons of freshwater in two 338 gallon tanks in the lazarette. Great care should always be taken to protect the quality of the water in this tank. Always use a hose that is known to be clean to fill the water tank.

The filler caps are located on the port and starboard side of the yacht in the cockpit. Both tanks fill from either filler. A site glass is located on each tank. At about 5 inches from the bottom the system will lose pressure.

The two freshwater tanks are interconnected with a 1-inch crossover water line. However, this crossover line cannot keep up with a dock water hose filling one or the other water tanks. Therefore, after filling one tank, check the level of the other tank. It may be necessary; in fact, it is likely that the other tank will also require topping off with the dock hose.

To bypass the freshwater tanks, connect a dock hose to one of the two hose connections adjacent to the water filler caps. This enables the dock hose to pressurize the domestic system without requiring the freshwater pump to be on.

### Notes:

- When using the dock hose to pressurize the freshwater system, turn the freshwater pump off. Otherwise, the system may slightly drain the freshwater tanks
- Never fill both the fuel and freshwater tanks at the same time. Many unfortunate boat owners have made this mistake and accidentally pumped fuel into the domestic water system. Be very careful to get the water in the water tank, and the fuel in the fuel tank. Fuel in the water tank is impossible to remove from the tank and plumbing, and will necessitate the removal and replacement of the entire domestic water system, including all tanks, pumps and plumbing.
- If the freshwater tanks run dry, the freshwater pump will continuously cycle and should be turned off. Once the freshwater tanks are refilled, either from the dock hose or the watermaker, the freshwater pump will need to be bled to remove the air lock. This can be done by untightening the clamp on the pump inlet hose until water comes out the hose.

## Water Heater

The electric water heater runs off the 240V system. Its use requires either shore power or a running generator. The circuit breaker is on the AC panel.

The port engine circulates hot coolant water through coils in water heater while cruising, but is not very effective in maintaining hot water.

### Notes:

- **EXTREMELY IMPORTANT:** Turn off the breaker to the water heater if the freshwater tanks are very low or dry, or the freshwater pump fails to pressurize the system. The water heater's electric element may burn up if the tank is drained of all water.
- The water heater draws approximately 20 amps when heating water, particularly after using the showers, dishwasher or clothes washer. This electrical load leaves little available for other boat electrical systems, especially if using other high-load appliances such as the stove, oven, washer, dryer or dishwasher.
- If adequate power is not available (lazarette main breaker tripping off, etc), consideration might be given to temporarily turning off the water heater breaker until other electrical uses have been reduced. Alternately, you can simply stop using other high load appliances until the water heater has fully heated its water.

# Watermaker

## Overview

- The watermaker is located in the lazarette and operates via the panel in the salon next to the sliding entrance doors.

## Basic Operation

- The Low Pressure Pump (LPP) pumps sea/lake water from outside the boat through a sea cock and strainer, and into the Pre-Filter.
- The High Pressure Pump (HPP) pumps sea/lake water from the Pre-Filter to the Vessel Set.
- The freshwater emerging from the Vessel Set is pumped into the ship's main Product Water Tank.
- The freshwater from the ship's water tank is pumped through the ultraviolet Post Treatment system to either the boat's freshwater system or back through the watermaker system for the Freshwater Flush
- The brine water emerging from the Vessel Set is pumped overboard through the Brine Discharge Fitting above sea level.

## Notes

- The freshwater tanks hold 672 gallons (338 gallons each). It requires 8.6 hours to fill the tanks if empty.
- The system has Automatic Pressure Control (APC), so pressure adjustments are not required.
- The total cost of the system was approx \$20K.
- The system is programmed to perform a Freshwater Flush every week for 7 minutes. This is very important to extend the life of the system and its components.
- The Freshwater Flush requires that the breakers are on, and sufficient water is in the freshwater tanks.
- System must be protected from freezing. Run a space heater in the lazarette during the winter.

## Maintenance Requirements

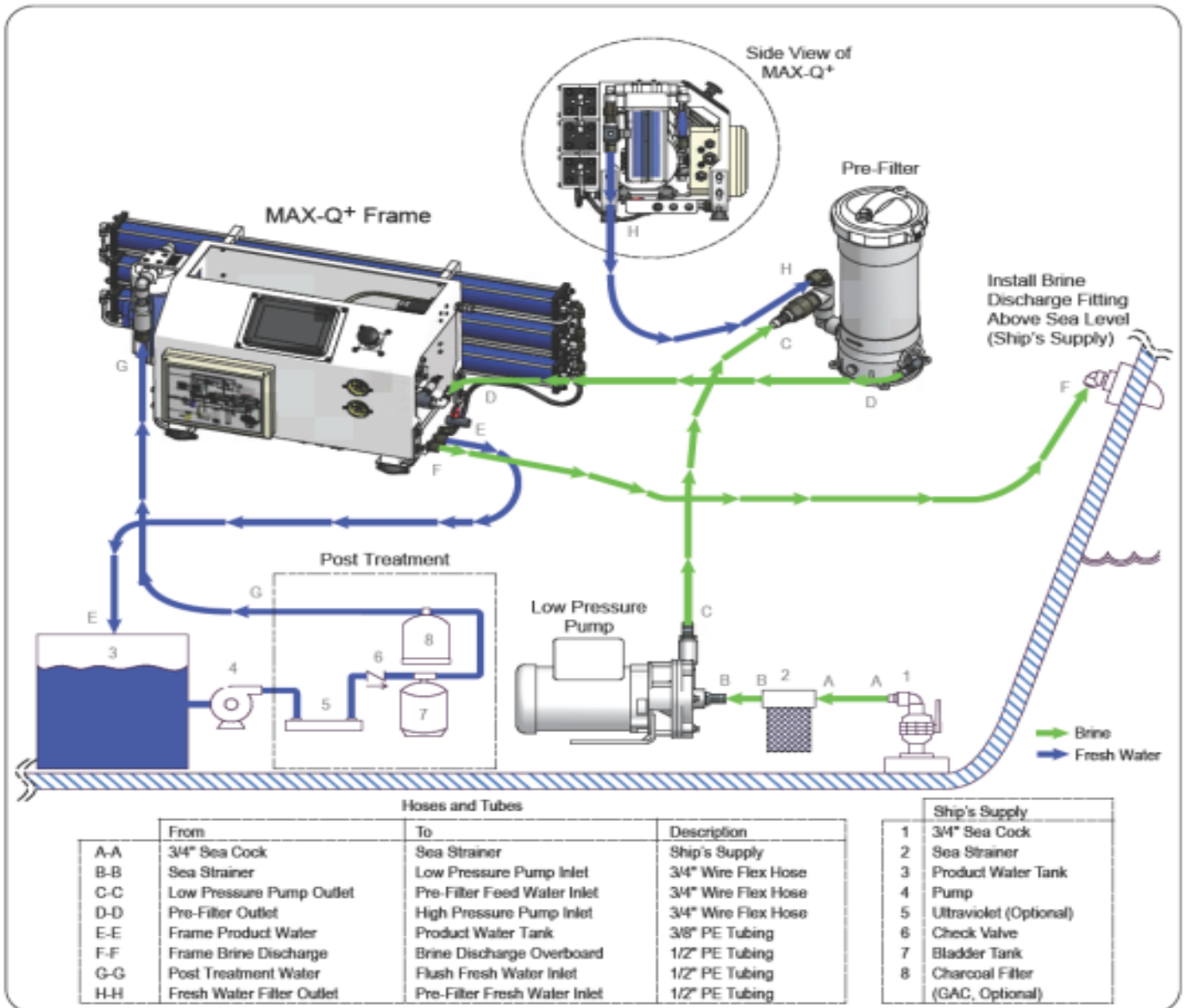
- Sea Strainer – inspect & clean screen & housing every 100 hours.
- Pre-Filter – replace when indicated on the control panel (when low pressure reaches 5-7 PSI). The FCI cartridge part # is 20-2261.
- Freshwater Filter – replace when indicated on the control panel (every 3 months).
- High Pressure Pump Oil – change oil when indicated on the control panel (every 500 hours).
- The thru-hull, seacock and strainer are located below the port freshwater tank.
- Membrane – rated for 3 years (2016 -> 2019), but will last longer with regular freshwater flushes.
- Pumps – service LPP & HPP seals every 1,000 hours, and HPP valves every 1,500 hours

## System Information

- Manufacturer: FCI Watermakers
- Contact Info: 801.906.8840 fciwatermakers.com (owner: Scott McQuirie)
- Model: MQM1826+APC
- Serial Number: 4498
- Date of Manuf: 3/23/2016
- Install Date: 2016, by Dennis Knoch
- Maint Contact: TBD

## Specs

- Production Rate: 1.3 gallons/minute which is 78 gallons/hr or 1,850 gallons/day.
- Power: volts (single phase).
- Power Draw: TBD



### Component Locations

- The thru-hull, seacock and strainer are located below the port freshwater tank.
- The Low Pressure Pump is located in the aft port corner.
- The Pre-Filter is located just aft of the port freshwater tank.
- The High Pressure Pump is located just aft of the Pre-Filter.
- The Vessel Set is located just aft of the High Pressure Pump underneath the shelf that was built to cover it.
- The Ultraviolet Sterilizer Unit is located on the aft wall.
- The Freshwater Filter is located next to the port freshwater tank near the control panel.
- It does not appear that the system was installed with the optional Media Filter.

## Checklist: Watermaker Operation (Seawater to Freshwater tank)

1. **Power source** – ensure active generator or shore power.
1. **240V breaker** – turn on “Water Maker” (upper right of AC panel).
2. **120V breaker** – turn on “UV Water Maker UV Sterilizer” (middle right of AC panel).
3. **Input valve** – set to “saltwater” (located under port water tank).
4. **Output valve** – set to “freshwater tank” (located next to diesel heater).
5. **Start**– push start button on control panel.
6. **Note:** When on anchor and using generator in the morning to re-charge house batteries, always run watermaker to take advantage of power while charging batteries.

## Checklist: Freshwater Flush

1. **Power source** – ensure active generator or shore power.
2. **240V breaker** – turn on “Water Maker” (upper right of AC panel).
3. **Input valve** – set to “freshwater tank” (located under port water tank).
4. **Output valve** – set to “overboard” (located next to diesel heater).
5. **Start**– select FWF on control panel.
6. **Duration** – control unit will control automatically.

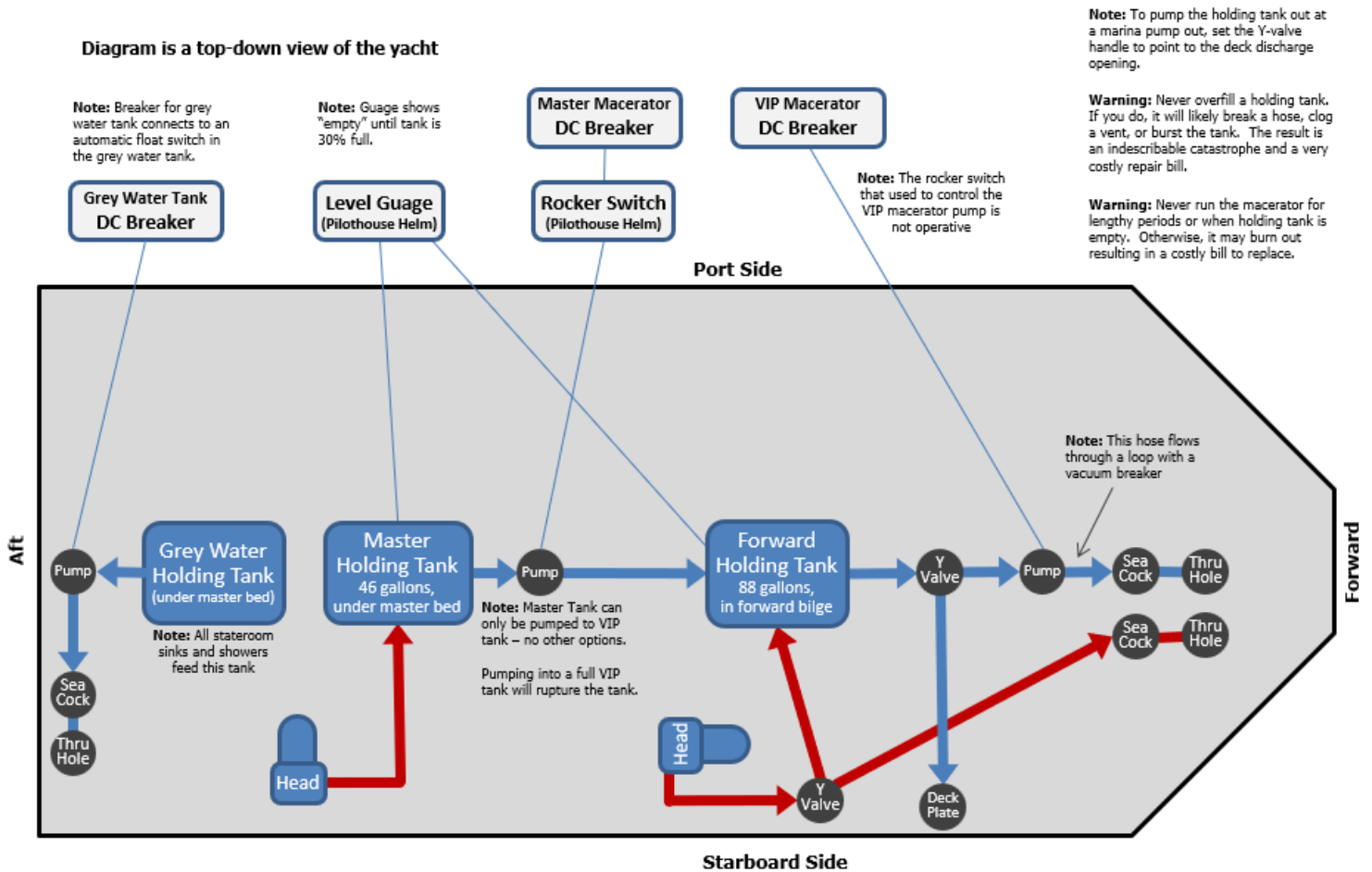
## Reminders

1. **Power source** – operation requires active generator or shore power
2. **Pressure limit** – automatically controlled.
3. **Freshwater production** – 78 g/hr, 1,850 g/day. If at anchor, run during day with generator.
4. **Freshwater tank overflow** – ok (but not recommended) to pump into a full freshwater tank since it has an overflow valve.
5. **72-hour flush requirement** – must perform a freshwater flush within 72 hours of desalination usage.
6. **30-day flush requirement** – must perform a freshwater flush within 30 days of last freshwater flush.

# Wastewater Systems

## Overview

Diagram is a top-down view of the yacht



## Heads (Toilets)

This yacht has two heads, each with an electric Royal Flush toilet. These toilets flush using a high pressure water venturi jet located in the bottom of the toilet bowl. A dedicated high pressure water pump (45 to 50 psi) for the toilets is located under the metal floor plates in the lazarette, amidship and toward the aft end of the lazarette.

It is critical that every member of the crew be informed regarding the proper use of marine toilets. Marine heads are not at all like your toilet at home. NEVER dispose of paper towels, tampons, Kleenex, sanitary napkins, household toilet tissue, undigested food, etc., in marine toilets.

In the event of seasickness, DO NOT USE THE MARINE TOILETS. Over the rail is a better choice. The valves, openings and pumps are extremely small and will clog if overloaded. A clogged toilet can be very expensive to repair, leave a huge mess and potentially ruin a vacation.

In nearly all cases, the problems that occur with a marine head are due entirely to misuse by the operator. Sea-going plumbers are very expensive, so heed the above cautions and avoid the cost and aggravation associated with a plugged or broken head. To aid in clearing a stopped-up toilet, there is a plunger behind the VIP Stateroom toilet, and a snake behind the toilet in the Master Stateroom. A few

strokes with the plunger usually does the job. If not, the snake might be used to free up the plugged area. If needed, remove the cleanout cap.

The toilet is activated by a small silver button on the left rear. The button moves only slightly. If the toilet doesn't flush check the circuit breakers and the freshwater tanks.

This toilet is operated by a high pressure and high velocity water jet venturi located in the bottom of the bowl, which is the sound you hear when you push the flush button. It also empties the bowl almost instantly. There is a valve in the compartment behind the toilets. It is adjusted to a mid-position. In one extreme position it is all flush and no water. In the other it is all water and no flush. The mid position is to balance these functions. Sometimes it needs a slight adjustment.

To ensure trouble-free operation of these marine heads, use only dissolving marine toilet tissue. Nothing else will work. Yes, it's more expensive than regular tissue, but in the long run, it's cheap.

**Notes:**

- If a toilet is backing up or not flushing properly, check to see if its holding tank is full. Many times, that is the problem, especially in the Master Stateroom head.
- The electric toilets (head) are powered by a breaker in the DC panel and also requires the freshwater pump breaker to be turned on.
- Royal Flush heads normally use fresh/domestic water. The freshwater tank must be adequately full and the freshwater pump breaker must also be on.
- The toilets can be operated with seawater if freshwater is not available, or in very short supply. To do so, switch the 3-way valve located on the hull on the port side of the Lazarette and turn on the breaker for the saltwater pump in the DC panel. This should only be used temporarily while cruising, since salt water in the black water tanks over the long term can cause issues.

## Holding Tanks

The Royal Flush toilets discharge to 2 black water holding tanks, one 46-gallon tank located under the master stateroom bed (for the master stateroom toilet), and another 88 gallon tank located in the forward bilge under the forward suite hallway.

The master stateroom tank is emptied by transferring its contents to the forward tank using a dedicated macerator pump located next to the master stateroom tank. The master stateroom macerator pump is powered by a breaker in the DC panel in the pilothouse, AND, a rocker switch on the pilothouse panel. It's very important that there's enough room in the forward tank to allow for the transfer. Otherwise, the forward tank may rupture.

The forward tank is normally emptied at a pumpout facility or by a pumpout boat via the waste suction fitting on the deck starboard of the pilothouse. If both the forward and master tanks are full, pump-out the forward tank first, then transfer the master tank contents to the forward tank, then re-pump-out the forward tank.

In certain areas allowed by law (US 3-mile distance, Canada, etc), the forward tank can be pumped overboard via a valve in the forward bilge. Change the valve from "D" (for deck) to "O" (for overboard), and turn on the breaker in the DC panel for forward macerator pump. The master tank can't be pumped overboard directly, so once the forward tank is empty, transfer the master tank contents to the forward tank and pump-out the forward tank again. The valve should be returned to "O" before returning to areas where overboard pump-outs are prohibited.

The tank level indicator for the 2 tanks is located on the port side wall of the pilothouse console. The rocker switch below it turns it on for readings (which take a few seconds). Each gauge reads empty until the tank is 25-30% full.

**Notes:**

- The DC breaker for the master macerator pump should always be off when not in use. Otherwise, the master rocker switch might be accidentally activated, which could inadvertently transfer the master tank contents to the forward tank and potentially rupture the forward tank.
- A spare macerator pump is stored in the forward bilge under the forward hallway. This spare macerator pump can be used as a replacement for either the forward or master macerator pump as needed in case of a pump failure.
- The rocker switch on the pilothouse console labeled “black water” (now says “inop”) is inoperative and does nothing.

NOTE: The forward tank in the forward bilge is approximately twice the volume as the master tank. Therefore, if the master tank is full, and if the forward tank is empty, the entire contents of the master tank can be transferred to the forward tank filling it only approximately half full. However, great care should be taken to NEVER OVERFILL THE FORWARD TANK, as the tank or plumbing and fittings could rupture, causing an incredible and expensive mess in the forward bilge.

PROPER MANAGEMENT OF BLACK WATER TANK LEVELS AND MANAGED DISCHARGE OF THE TANKS IS CRITICAL. Never pump the master tank to the forward tank when the forward tank gauge reads anything over 0%. Remember that the forward tank gauge reads empty until it is 25-30% full

NO MATTER WHAT, ALWAYS MAKE SURE THAT THERE IS ADEQUATE ROOM IN THE FORWARD TANK WHEN PUMPING FROM THE MASTER TANK. IF THE FORWARD MASERATOR PUMP DISCHARGING OVERBOARD WERE TO FAIL WHILE ALSO PUMPING FROM THE MASTER TANK, ASSURE THAT THERE IS ALWAYS ROOM IN THE VIP TANK FOR THE ENTIRE CONTENTS OF THE MASTER TANK, EVEN IF THE FORWARD TANK'S MASTERATOR PUMP WERE TO FAIL WHILE PUMPING OVERBOARD.

## More on the Holding Tanks

IMPORTANT: You must be mindful of the extent of your crew's use of the holding tank. NEVER overfill the holding tank. It is possible to break a hose, clog a vent or burst the tank if it is used when it is full. The result is an indescribable catastrophe and a very costly repair bill.

Pumping out the tank is done in one of two ways. There is a deck pump-out, starboard side, for use with marina pump-out or the forward tank macerator pump-out. However, valves in the forward bilge must be properly positioned for pump out.

NEVER run macerator for lengthy periods or when holding tank is empty so as to prevent burn out. This is another costly problem that can be avoided by heeding the cautions.

To pump the holding tank out at a marina pump out, via the deck discharge suction opening, the Y VALVE MUST BE SET TO THAT POSITION. The Y-valve is located in the forward bilge under the forward hallway. The deck suction opening appears to be similar to the fuel and water fill openings but is clearly identified as “WASTE”.

**BE SURE you are familiar with applicable laws concerning the use of holding tanks and dumping of sewage overboard.** In almost all legal applications, it is required that the heads empty directly into the holding tank and that the holding tank be emptied either at a shore-side pump out facility or in open waters, offshore.

# Climate Control

## Diesel Heater

There is a separate diesel fueled furnace located in the lazarette. Turn it on with the switch (pull the button out) on the aft bulkhead of the lazarette near the furnace. The furnace breaker is in the 12/24VDC pilothouse panel, but don't use this breaker to turn the diesel heater "off" until it has stopped running (it must go through its "cool down" cycle before being turned off with this breaker). Adjust the various Honeywell thermostats in each zone (Master berth, Forward berth, pilothouse, salon). This system does a nice job unless it is really cold.

### Notes:

- Check fluid level for diesel fired furnace beneath settee on port side of Pilothouse. This tank should be filled about  $\frac{3}{4}$  full, and must be checked for proper fluid level every three or four days of usage.
- The exhaust outlet is on the aft port outside of the yacht. Do not allow the dinghy anywhere near this exhaust outlet since the extremely hot air could destroy the dinghy.

## Electric Heaters

Additionally, there are small electric heaters in the Master and Forward staterooms. These should not be used when the boat is powered by the inverter and the house batteries.

## Air Conditioner

### Overview

- The Aqua-Air marine air conditioner can either cool or heat the air temperature inside the boat. Each room (salon, galley, master berth, VIP berth) has its own thermostat panel that needs to be turned on to control the temperature and fan speed, as well as the operating mode (cool, heat, fan only, or auto).

### Basic Operation

- The system pumps seawater through an exchange unit.
- The exchange unit cools internally circulated coolant to each of the four zones.

### Notes

- The system uses a lot of electrical power and can easily overload both shore power as well as the 12KW generator.
- Initially use the 20KW generator to bring down the internal boat temperatures to acceptable levels.
- After that, you can experiment with combinations of the 12KW generator and/or shore power if you're able to lower the power demand from other high-draw systems in the boat (water heater, range oven, recharging the inverter batteries, etc).

### Operating Checklist

- Freshwater Tank – make sure there's enough water in the tank and that the system is pressurized.
- Thru-Hull Valve – open valve located in the engine room just outside of the port engine.
- Unit Switch – located in engine room; set to "off".
- 20KW Generator – power on
- AC Breakers – turn on breakers for the Aqua Air Heat Pump Unit and for each desired room (salon, galley, master berth and VIP berth).
- Thermostat – for each room, set mode to "cool", set temp with "up" or "down", set fan to "9"
- Unit Switches – located in engine room; set to "on" and select either "cool" or "heat".
- Gate Valve – open to allow tank freshwater to enter the chillwater system.

- Air Bleeder – open on the highest fan coil to allow air to escape from the system while water fills the system.
- Pressure Gauge – confirm 12-15 PSI.
- Note: when finished, close thru-hole valve and set unit to “off” (as a reminder that the valve is closed).

#### **System Information**

- Manufacturer: Aqua-Air
- Contact Info:
- Model:
- Serial Number:
- Date of Manuf:
- Install Date:
- Maint Contact: TBD

#### **Specs**

- Power: 220 volts (single phase).
- Power Draw: TBD

# Navigation & Electronics

## Navigation iPad

The Navigation iPad is stored on the counter just to port of the pilothouse helm, and it is installed on the flybridge helm.

## Navigation PC

The Navigation computer is located in a cabinet just to port of the pilothouse helm. The navigation PC features the TimeZero marine navigation software. It includes GPS and the most recent, high-tech, electronic chart-reading software with 3D bathymetric charts. This system makes trip planning and point-and-click navigation very straightforward and easy.

The displays at the pilothouse helm are duplicated at the control station on the flybridge, where it can be run remotely via the wireless keyboard and mouse.

## Wireless Keyboards

There are two wireless Bluetooth keyboards – one for the pilothouse, and one for the flybridge. In order to provide good Bluetooth signal strength to the flybridge, we disabled the native Bluetooth in the PC and added a more powerful Bluetooth transceiver via USB. This unit is located inside the Pilothouse console at the end of a 6' USB extension cord located inside the forward portion of the Pilothouse console.

The keyboards must be fully charged to operate. They also must be set to Bluetooth mode by selecting "Function-Tab so that the green indicator light at the top of the mousepad is on. To save power, the keyboards frequently enter "sleep-mode" - press the shift key to wake up the keyboard.

## GPS

The primary GPS source for the Navigation PC is a GPS puck located inside the canopy behind the pilothouse monitors.

The GPS is considered a navigational aid. Use it, but do not rely solely on it. The compass, charts, dividers, etc. are considered safe and accurate secondary navigational tools. You must be continuously aware of your appropriate position, course and speed using all available navigational tools, including the charts. Electrical problems can render electronic aids unreliable or inoperable. It is your duty, as captain, to know exactly where you are at all times when underway. Never set any portable electronic items such as radios near the magnetic compass. This may "throw" the compass well off the mark and can send you in the wrong direction.

## Autopilot

**WARNING: If the autopilot is engaged, the helmsman should never leave the helm station.** When the boat is underway, vigilance must be maintained regarding the condition of the sea ahead. Collision with floating debris such as logs and deadheads can be very damaging to the boat's props, shafts and rudders as well as to the hull.

The Robertson autopilot controls are quite self-explanatory. Press the appropriate button on the Robertson controls on the panel immediately forward of the pilothouse or flybridge helm wheel to activate the various functions. The autopilot maintains an assigned heading. The ability for the autopilot to follow a route from the Navigation PC is currently inoperative.

## Radars

There are two radar systems a Furuno 48-mile in the Pilothouse, and a Furuno-64 mile system on the Flybridge.

## Depth Sounder

The yacht has three separate depth finder/fish finder sonars.

- 1) The **Link system** unit reads depth, speed (poor accuracy), water temperature and relative wind speed and direction. It has display units in four locations: the pilothouse console, the flybridge consoles, the master stateroom, and the VIP stateroom. It is turned on by the depth sounder breaker in the 12/24V panel.
- 2) The **Furuno FCV 582** unit on the pilothouse console is a color recording depth finder with a variety of capabilities.
- 3) The **American Pioneer fish finder sonar** unit on the pilothouse console just forward of the autopilot controls. It utilizes one or more of the computer monitors to show a large variety of data displays. The monitors are selected from a switch located on the left side of the pilothouse helm as well as on the flybridge console. We strongly recommend you at the manual to really appreciate this unit's capabilities.

## Search Light

The search light is operated from the flybridge console via a breaker in the DC panel. It can be directed in "pan and tilt" mode with a toggle post. "S" and "F" indicate spot or flood.

# Anchoring

## Windlass

The primary on/off breaker is located on the DC panel in the Pilothouse.

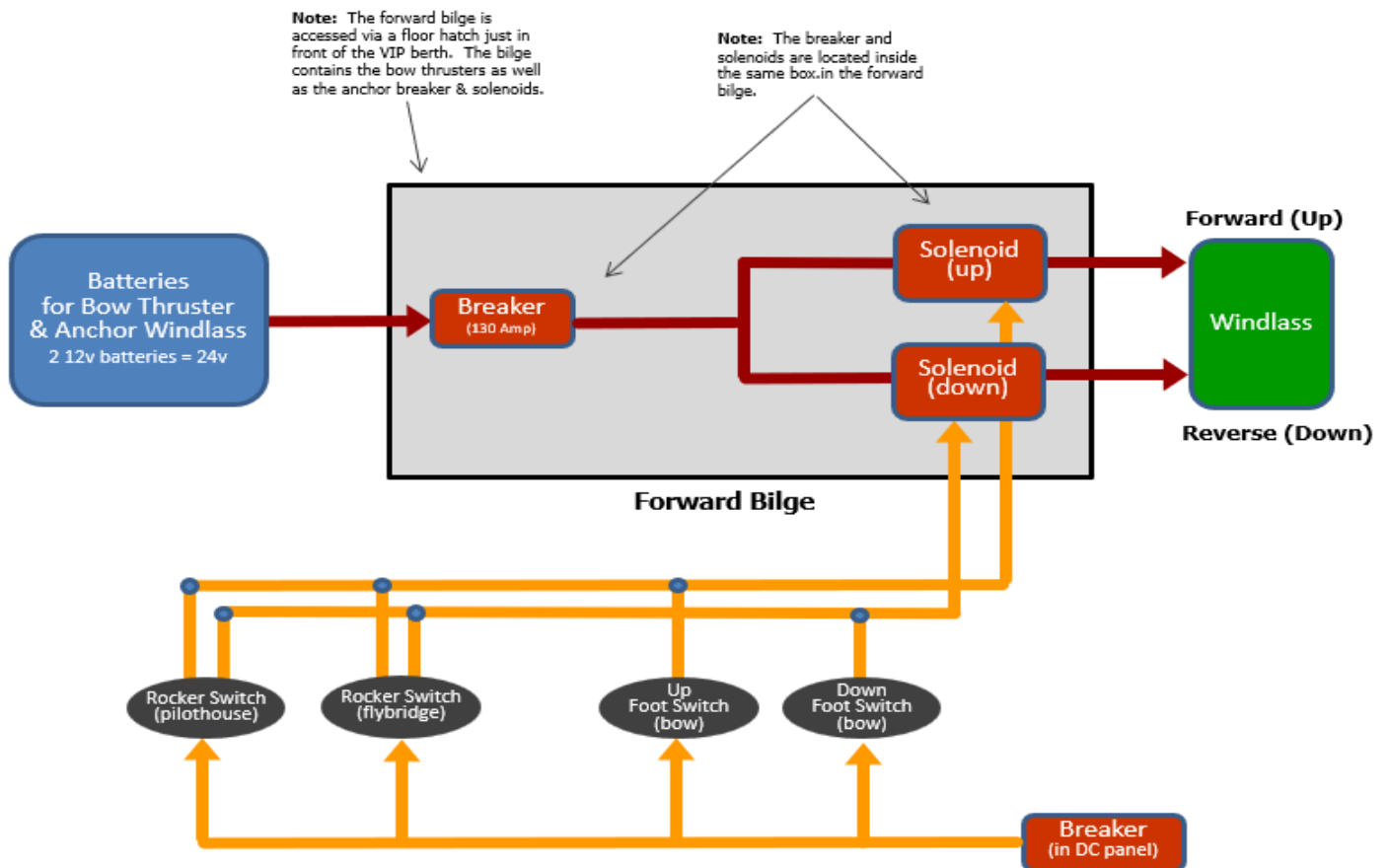
There are a pair of foot switches on the forward deck, adjacent to the windlass motor. One is for paying out chain and the other is for retrieving chain. There is a safety lock to flip onto the chain roller to prevent it from running out accidentally and preserve the windlass bearings. Be careful to keep fingers, toes and other appendages away from the chain and wildcat when windlass is operating.

The windlass can also be operated by rocker switches from the flybridge or the pilothouse. However, no matter which station is used for anchoring or retrieval, the safety lock must be disengaged from the anchor chain and reengaged when retrieved.

NOTE: Never overload the windlass when retrieving the anchor. The windless should run relatively free without strain. Never use the windless to “pull” the boat up over the anchor, and never use the windless to “break” the anchor free from the bottom if it is stuck.

There is a hand crank/clutch wrench for the windlass located in the port or starboard fender locker just aft of the windlass. The windlass has many features and modes of operation. If you’re not familiar with them read the manual in the salon file drawer.

**Routine maintenance:** Grease the main bearing through a grease fitting at the base of the windlass drum: Bi-monthly. Keep deck components clean with CRC 3097 or WD40.



## Notes on Anchoring

SAFETY NOTE – IMPORTANT: Immediately following anchoring, deploy the swim step ladder. Deploying and retrieving the dingy, and transiting in and out of the dingy, has significant potential for a “man overboard” situation. It is virtually impossible for a person to pull themselves out of the water and up on the swim step without the swim step ladder deployed. If alone with no help, an accidental man overboard situation could be fatal.

IMPORTANT NOTE: DON’T FORGET TO RETRIEVE THE SWIM STEP LADDER BEFORE HAULING ANCHOR. IT IS VERY EASY TO FORGET.

IMPORTANT NOTE: NEVER DEPLOY A CRAB TRAPS OR SIMILAR DEVICE DIRECTLY FROM THE BOAT. THE LINE WILL ALMOST CERTAINLY FOWL IN THE RUDDER/PROPS. ALWAYS DEPLOY CRAB TRAPS FROM THE DINGY, FAR ENOUGH FROM THE BOAT SO THAT A 360-DEGREE SWING ON ANCHOR WILL NOT INTERSECT THE TRAPS.

IMPORTANT NOTE: DO NOT FORGET TO TURN ON THE ANCHOR LIGHT AS DUSK APPROACHES. TURN ON NAVIGATION LIGHT BREAKER IN DC panel IN PILOTHOUSE; TURN ON ANCHORE LIGHT ROCKER SWITCH IN PILOTHOUSE; THEN SET ROCKER SWITCH ON FLYBRIDGE TO THE “ANCHOR LIGHT” POSITION. VERIFY THAT ONLY THE ANCHOR LIGHT IS “ON,” AND THAT THE NAVIGATION LIGHTS ARE “OFF.” TURN ANCHOR LIGHT OFF FIRST THING IN THE MORNING.

## Setting the Anchor

Always use proper anchoring procedures when anchoring.

Bring boat to a complete stop before lowering anchor. To be safe, let out approximately five feet of chain for every foot of depth. A total length of 450 feet of anchor chain rode is available for anchoring. It is not recommended that the entire length of the available rode be paid out, although this can be done if needed. Try to leave at least some rode in the locker. In most cases, only a portion of the available rode chain is required for proper anchoring.

Back the boat down on your anchor using the engines and “stretch” the chain to make certain that the anchor will hold. This is called, “setting the anchor”. Use a small amount of reverse power to assure that the anchor is set. If set, the bow should dip down ever so slightly when the anchor rode stretches out.

Monitor yacht’s position periodically after setting anchor to see that anchor remains set. This is important if it becomes windy or there is a current. Under storm or extremely windy conditions a “periodic” or possibly even a “continuous” night watch may be necessary.

There is a 400’ line in a box in the lazarette and a bagged spare anchor located behind the forward port side corner of the 20KW generator that can be used as a spare anchor, stern anchor or shore tie if needed or desired.

## Retrieving the Anchor

It is recommended that the anchor rode chain be continuously washed with freshwater while the anchor is being retrieved, if there is a surplus supply of freshwater. Washing the anchor rode chain with freshwater can use a significant amount of the freshwater supply. Make sure adequate freshwater is available for this and other uses. Be conservative with the wash. The objective is to wash the anchor rode chain only enough to flush the salt water. While weighing anchor, be sure to **have both engines running**. A water hose for anchor and anchor road chain wash down is stored in the forward starboard locker. It is permissible to use salt water for anchor chain wash while retrieving the anchor to preserve freshwater.

Retrieve the anchor as the boat moves forward with the engines. Move the yacht forward to a position approximately over the anchor. This will make it relatively easy to break the anchor free from the bottom. Never “tow” the boat forward using the windlass. Once the bow is directly over the set anchor, lock the anchor windless spindle with the chuck, and move the boat slowly forward to break the anchor free.

When retrieving the anchor, care should be taken that the anchor does not swing into the bow and that the shank is guided over pulpit rollers. Stop the windlass immediately if that is not the case. From that point, slowly retrieve the anchor to its nesting position (anchor flukes facing down). Fairly often, the anchor will try to nestle with the flukes in the up position. If this occurs, work the anchor in and out a few times until the anchor flips over into the flukes down position. If forced up with the flukes in the up position, the anchor may jam in anchor channel, and such jamming is very difficult to reverse. This is the correct time to wash the mud from the anchor, the chain and then, from the deck. This can be done with fresh or salt water. Be sure the saltwater pump is turned on in the DC panel in the Pilothouse if you intend to use salt water for washdown. A hose is stowed in the fender lockers on the forward deck for anchor rode chain and anchor washdown. Keep this hose separate from hoses used for freshwater filling of the water tanks.

There is a second emergency use anchor on the port side of the engine room, adjacent to the forward outside corner of the 20KW generator.

**\*NOTE:** Anchor rode color code: It is posted on a placard in the bow.

## Swim Ladder

LADY GEORGIA comes equipped with swim ladder mounted to the swim platform. Always remove the protective fender when leaving the dock for cruising. This bottom portion of the latter swings down and into the water when slightly pulled from its holding brackets. Do not operate the boat with the bottom portion of the ladder in the down position.

## Dinghy

### Lowering and Raising

The davit, used to lift the dinghy, is designed to lift just the dinghy not extra people or cargo which can overload and damage it.

The control cable is stored in the locker below the flybridge wet bar and plugs in the davit boom arm. Hydraulic oil is stored in the boat deck cooler and fills via a cover in the top of the boom. Don't overfill – have the boom fully down and the cable fully retracted when filing.

Make sure dinghy bridle is securely fastened to dinghy. This is a 3-point hookup.

Operate davit windlass with plug-in remote control. BE SURE to check and see that the davit wire rope (cable) rides in the center of the davit arm sheave located at the end of the davit arm.

**IMPORTANT:** It is best to use two people to lower or raise dinghy – one person on flybridge deck and one ready to guide the dinghy past the house and hull by standing by on the lower aft deck, portside, taking great care to never get one's body between the two boats or under the dinghy which is being lowered or raised.

Be sure to have a line attached to the dinghy's bow prior to lifting or lowering it. This will be needed to keep the dinghy aimed in the correct direction during lifting or lowering and to secure it to the yacht prior to releasing the lifting bridle.

The Davit breaker is located on the engine room starboard aft white electric panel on the starboard side of the aft engine room bulkhead.

## Dinghy Use

Prime the fuel line by squeezing the bulb in the fuel line and choke engine when starting cold. The choke is manually controlled by a pull knob on the starboard side of the motor. Make sure engine controls are in neutral when starting, and that the high idle lever is in the up position. Keep the dingy three bladders fully inflated when in use. A foot pump is stored in the dingy that works surprisingly fast and easily. Dingy spares and parts are stored in the boat deck cooler, including spark plugs, battery charger and a patch kit...

The dingy uses regular unleaded without any oil mixed in.

Life jackets for the operator and passengers should be considered standard equipment. It is especially important to have them on children to prevent injury or worse. In fact, THE LAW REQUIRES IT.

**Routine maintenance:** Lubricate steering shaft at shaft motor as necessary with marine grease.

## Covering the Dinghy

Try to avoid putting the cover on the dinghy when it is wet. To put the engine cover on while the dinghy up on the deck, raise the engine and tilt the propeller towards you. This will make it easier to slip the cover over the end of the prop.

# Lighting

## Salon

Salon lights are controlled from three locations:

- A small white remote control
- Push button switch mounted on the wall above the salon mirrored cabinets
- Push-button switch mounted inside the printer cabinet in the salon on the upper-back wall.

## Galley / Pilothouse

Most of the pilothouse overhead lights are controlled from the switches near the stairs and near the starboard side door. Small lights over the galley table are controlled by a rheostat push button near the pilothouse port door.

## Flybridge

Most of the flybridge overhead lights are controlled from the switches near the flybridge helm.

# Appliances

## Refrigerator

The galley refrigerator is a Sub-Zero 511 built-in model. Controls for both the refrigerator and the freezer are located in the main compartment. The freezer has an icemaker that is automatically activated when the ice tray is installed. To deactivate the icemaker, simply remove the ice tray from the freezer.

If the icemaker is not working, be sure the water supply valve (below the fridge) is turned on. It is also possible that the water supply line to the fridge is frozen. To thaw, remove the freezer drawer and put one of the portable electric heaters on the floor of the freezer, pointed at the icemaker. Run for about an hour.

The refrigerator is designed to extract moisture from the air inside the refrigerator using a condensation removal system. This pulls the moisture from the fridge and drips it into a fiberglass pan below the fridge, behind the removable wooden vent.

There are two refrigerator fans below the fridge which draws in air through the bottom vents, over a heating element. This airflow is intended to evaporate and remove any moisture in the pan below the fridge. To prevent the pan from overflowing with water, it is important to run the refrigerator fan continuously whenever possible. The switch is located high up on the wall to the right side of the fridge. These fans are operated with a "timer" located above the refrigerator. Normal operation is to set the timer to turn the fans "on" for twelve hours per day, from 8:00am to 8:00pm. This avoids noise from the fans during the night, which can be heard in the master stateroom.

In the event of a water leak, be sure to turn off the water supply valve below the fridge.

## Washer and Dryer

The laundry units are located in a cabinet in the forward hall. Don't overload the washer and make sure nothing is caught in the door when you close it, or it will leak and make a big mess. These are very high quality Asko machines, and use very little soap. It uses lots of freshwater and heats its own water. However, it is recommended that wash be done using the "cold water" setting. The dryer requires lots of 220 volt AC power. The lint screen is located on the inside of the door, and should be cleaned after every use.

NOTE: The washer & dryer, especially the dryer, use significant amounts of electrical power. To avoid tripping the boat main shore power breaker in the lazarette when on shore power, or overloading a generator, other high load systems, such as stovetop and oven, may need to be turned off while using the washer/dryer.

You must push one of the two left hand buttons for the washer to run.

## Barbeque

The BBQ is propane fueled. The knob is full open pointing toward the port side and adjusts lower as you move it toward the bow. It's off in other positions. You must turn on the propane tank to use the BBQ and turn it off when finished. The BBQ is very sensitive to wind especially during the heat up period. Listen and look for the flame. Keep the door to the cabinet open when using the BBQ and make sure all gas has dissipated when re-lighting the unit.

NOTE: NEVER fully close the fiberglass door under to the BBQ when it is lit for proper ventilation under the barbeque. Always use the stainless steel mettle lid stored next to the BBQ. Never set the mettle lid on the deck when it is hot. It will melt the deck coatings. When using the mettle lid, it seems best to offset it a

couple of inches to the left, leaving approximately two inches of grill exposed on the right. This seems to help keep the BBQ lit, and it preheats better.

## **Air Compressor**

The air compressor is used for the ship's horn and to operate the engine room engine air inlet doors. The engine room engine inlet air doors are "held up" in the "closed" position using air pressure. However, if the compressor is turned off and the pressure bleeds off, the engine inlet air doors will reopen by gravity once air pressure is lost. An air hose and air chuck are also available in the lazarette for any other purpose.

NOTE: Always turn the air compressor breaker in the AC panel in the Salon to "on" before leaving the dock or anchorage. If the air compressor is not turned on and pressurized, the ship's horn will not operate and thus not available when needed in an emergency situation. If running on house battery power only, proper operation of the ship's horn may be limited or non-existent.

# Internet & Entertainment

## Starlink (satellite)

In order for the TV to receive the signal from the satellite receiver, the DVD player needs to be turned on. The DVD player is located in the right-hand mirrored salon cabinet behind the dining room table.

Also verify that the DirecTV unit and the satellite tracking system are both on.

## T-Mobile (mobile 5G wireless)

Make sure that the breaker for “Instruments” in the DC breaker panel is turned “on.”

## Cradlepoint Router

The Cradlepoint router combines the internet sources from Starlink and T-Mobile and converts it to the local WiFi network.

# Emergency Equipment and Operation

LADY GEORGIA has a variety of emergency equipment and abilities. This paragraph is only intended to be a brief and partial summary of them.

## Federally Required Safety Equipment

### Overview

The US Coast Guard publishes “A Boater’s Guide to the Federal Requirements for Recreational Boats”. The list below was created from this publication.

### Coast Guard Boarding

The US Coast Guard can and will board vessels on a regular basis as a safety check to verify compliance with these regulations. If this happens to you, please provide them with this section as it explains where everything is located.

### Documentation & Registration

The yacht is a “documented vessel” with the US Coast Guard with a documentation number of 1039480. The Certificate of Documentation is located in the Lady Georgia Documentation Binder in the drawer just left of the pilothouse helm. The documentation number is displayed in the lazarette on the starboard wall. The Hull ID is QCWFF001M94D.

Documented vessels are required to display their ship name and hailing port on the hull. This yacht is labeled with “Lady Georgia, Boise Idaho” on the stern of the vessel.

The vessel is registered with the State of Washington under its document number. The registration is located in the Lady Georgia Documentation Binder in the drawer just left of the pilothouse helm. The annual decals are located on the starboard and port windows of the pilothouse.

The dinghy is registered with the State of Washington under the registration number WN-7070RH. The Hull ID is WNZ13345G898. Note that the old Hull ID was PKD10762J98. The old HID placards were removed, and the new Hull placards were installed on the stern of the hull as well as inside the compartment underneath the midship seats. The registration is located in the compartment underneath the helm. A copy of the registration is located in the Lady Georgia Documentation Binder.

### Life Jackets

All recreational vessels must carry one wearable life jacket for each person on board. Vessels over 16 feet must also carry one throwable (Type IV) device.

The vessel’s main life jackets are located in the flybridge in the compartments underneath the starboard seats. Additional life jackets are located in the dinghy and just inside the salon door. For larger groups of people, additional lifejackets are stored in the bunk berth and should be brought up to the flybridge for easy access.

Note that children under 13 years of age are required to wear a life jacket at all times unless they are either below deck or within an enclosed cabin. The children must wear life jackets that are approved for their specific weight category (ie, less than 30 lbs, 30-50 lbs, less than 50 lbs, or 50-90 lbs).

There are 2 throwable life rings – one on the aft deck and one in the cockpit.

## Fire Extinguishers

Lady Georgia carries several manual and automatic fire extinguishers. The engine room and lazarette have automatic/manual fire extinguishers. Hand operated extinguishers are located in marked cabinets around the yacht. Location of fire extinguishers is indicated by “red Labeling” on cabinet doors.

The dinghy also carries a fire extinguisher.

USCG requires either 1) one B-II and one B-I, or 2) three B-1 fire extinguishers.

## Signaling Equipment

**Visual Distress Signals** Required to carry. A full set is located on the ship and the dinghy.

**Handheld Radios:** These radios can be useful in certain emergency situations.

**Hailing System:** The hailing system is built into the pilothouse VHF radio (review VHF manual for operation).

**Foghorn System:** An automatic foghorn system is built into the pilothouse VHF radio. The system will sound 2 blasts every 3 minutes (review VHF manual for operation).

**Ship’s Horn:** It is good to understand the meaning of various horn signals. For example, 5 blasts indicate an imminent collision. This system uses air from the air compressor to operate the dampers. Ensure that the breaker on the 120/240 panel is on and that 120AC is available to charge the air compressor

**Ship’s Bell:** Stored in the lower cabinet just left of the pilothouse helm.

**Ship’s Whistle:** Located in the pilothouse chart drawer and on the tender and on many of the life jackets.

**Portable Air Horn:** In the cabinet of the pilothouse port side cabinet.

**Flares and Flare Guns:** This equipment is found located in an orange cylindrical container in the salon wet bar cabinet below the wet bar sink. A similar kit is located in the Dinghy.

**Distress Flag:** Located in the tender flare kit.

## Personal Safety Equipment

**First Aid Kits:** One is located in the forward starboard cabinets in the salon. A more complete kit is under the rear cushion of the sofa in the salon.

**Life Raft:** Located on the boat deck is a 6 person life raft. The tender can also act as a very effective life raft.

**Life Jackets:** Numerous life jackets (approximately 30) are on board the LADY GEORGIA. They are located in the flybridge wet bar cabinet and beneath the starboard side flybridge settee. A couple of spare life jackets are also located in the forward Dinghy locker.

**Life Rings:** Located on the cockpit bulkhead and on the starboard rail of the aft flybridge.

**Man Overboard LifeSling:** Located on the starboard side rail of the aft flybridge and secured to the boat. It may also prove effective to learn the Williamson man overboard procedure. Use Davit cable winch to lift disabled or heavy persons out of the water onto the swim platform.

**Man Overboard Position:** The location can be marked and remembered by the GPS by clicking on the MOB icon on the TimeZero navigation screen.

**Coldwater Immersion Suits:** Four are located beneath the port side settee on the flybridge. Extra large adult (1); large adult (2); and small adult (1).

**Emergency EPIRB Beacon:** Can be found at the rear centerline of the aft portion of flybridge below the railing. Will auto deploy and turn on if immersed, but also can be manually removed and taken with in the Dinghy or Life Raft.

**Foul Weather Gear:** In the master and VIP stateroom closets.

# Top Issues & Tips

## Overview

This section is a collection of items that have been discovered via direct experience by either the owners or various charter clients. It's recommended that you read this section prior to your cruise so that these issues are in the back of your mind. These are listed in order of frequency and importance.

## Operational Issues

**Power outage while at shore:** Caused by excessive electrical load tripping the breaker. Reset the breaker, which is located inside the lazarette on the top of the stern wall, just right of center. Or reset the breaker at the shore power podium.

**Fuel tanks overflow when refueling:** It's very important that you don't allow this to happen. Do not fill the fuel tanks above the level visible in the sight-tube located in the engine room. It's better to be 50 gallons below full than it is to be subject to federal fines and liability from contaminating freshwater and seawater with fuel.

**Engine overheats and sounds alarm:** Occasionally, the freshwater coolant side of the engine heat exchange will develop an air lock that prevents the cooling water from circulating and causes the engine to overheat. This triggers an overtemperature alarm that sounds at the pilothouse helm. It can happen to either the starboard or port engine, but so far it has never affected both engines at the same time.

Shut down the engine, and refill the coolant system for 5 minutes using the garden hose under the cockpit sink. Connect one end to the faucet under the cockpit sink, and the other end to the intake coupling on the port-forward corner of each engine. See detailed description in the propulsion section of this ops manual.

**EMS displays flicker and both engines eventually quit:** This has only happened once, but it's caused when the "engine start" batteries discharge or fail. These batteries also power the Engine Monitoring System (EMS). The engines require the EMS system to be operational, or else they will stop running (or won't start).

This issue could happen if the engines start batteries fail or are discharged. It could also happen if there's a problem with the Centaur battery charger that charges the engine start batteries (along with the Mathers and bow thruster batteries). To resolve temporarily, change the "emergency parallel switch" on the AC panel in the salon to "parallel" which enables the engine start (and Mathers & bow thruster) batteries to be powered in parallel by the house batteries.

**Bow thrusters become ineffective:** The top cause for this is that the over-temperature cutoff protection engages after running the bow thrusters too long. Avoid running the bow thrusters for more than 20 seconds at a time. If the protection system engages, it should automatically disengage after 5-10 minutes.

Other issues that can cause this situation are if the bow thruster battery discharges or fails, or if there's a problem with the Centaur battery charger that charges the bow thruster batteries, the engine start batteries and the Mathers batteries. To resolve temporarily, change the "emergency parallel switch" on the AC panel in the salon to "parallel" which enables the bow thruster (and Mathers & engine start) batteries to be powered in parallel by the house batteries.

**Helm wheel, rudder and autopilot doesn't work:** This can also happen if the desired autopilot station isn't "activated" by pressing the "active" button on the Robertson control station. Since there are 3 stations, this activation is required to tell the Robertson system which station has control. Always verify operation from the station you plan to use before leaving the dock or leaving anchor by making sure the rudder indicator responds to changes you make with the wheel. Otherwise, you could find yourself in an uncontrolled drift.

**Mathers Controls (transmission & throttle) stop working:** This is rare, but can be caused by the discharge/failure of the 2 Mathers batteries located on the port side of the port engine. To fix temporarily, change the "emergency parallel switch" on the AC panel in the salon to "parallel" which enables the Mathers system to be powered by the house batteries.

This can also happen if the desired Mathers control station isn't "activated" by pressing the button at the base of the Mathers controls until the red light turns on. Since there are 3 stations, this activation is required to tell the Mathers system which station has control. Always verify operation of the Mathers controls from the station you plan to use before leaving the dock or leaving anchor. Otherwise, you could find yourself in an uncontrolled drift.

**Transmission select has long delay:** This is normal for this system – it takes 2-3 seconds from the time that you put the Mathers selector in gear and when the gear actually engages.

**Engine RPM Synch doesn't disengage:** The synch rocker switch doesn't always disengage when selected at high RPM. Bring both the starboard and port throttle controls to idle (not neutral) and the synch function should disengage at the RPM speed.

**Ships horn doesn't work:** Verify that the air compressor is on since it is required to operate the ships horn.

**Engine air doors won't open or close:** Verify that the air compressor is on since it is required to operate the engine air doors. Also verify that the 12V converter breaker is on in the DC breaker panel.

**Anchor chain doesn't feed into anchor locker:** This has only happened once, but it's caused by the anchor chain stacking up incorrectly in the anchor locker. Access the anchor locker using the hatch behind the mirror on the forward wall of the forward berth. Re-arrange the anchor chain by spreading it out so that it doesn't block the intake.

**Dinghy melts and sinks:** Avoid this if possible by making sure the dinghy is nowhere close to the diesel heater exhaust outlet on the aft-port side of the boat.

**VHF radio and AIS doesn't work:** These 12V devices require that the breaker in the DC panel for the 12V converter is turned on.

## Interior Issues

**Toilets won't flush:** Verify that the breaker labeled "Head" is turned on in the DC breaker panel. Also, if the holding tank is full or the freshwater tank is empty, the toilets won't flush. Pumpout holding tank, or replenish water supply, or switch toilets to use salt water.

**Shower water is scalding:** This is initially caused by a combination of high water heater temperature (to maximize hot water availability) and the hot water circulator (keeps hot water close to faucets and ready for use). When showering, start the hot water valve on the cool side and turn to the hot side as needed.

**Freshwater system stops working:** Verify the breaker in the DC panel for the freshwater pump is in the “on” position. Then, check the level of the freshwater tanks using both the gauge in the salon near the door and physically check the level of the freshwater tanks using the sight tubes attached to each tank in the lazarette.

If the tanks are empty, it’s likely that the freshwater pump is spinning uncontrollably in air and that it will quickly burn out. Immediately turn off the freshwater pump breaker in the DC panel, and refill the freshwater tank from shore water or from the water maker. Once the tanks have water, freshwater pump likely won’t work until you bleed the air out of the system by loosening the water hose attached to the pump’s intake until gravity-fed water seeps out. Once that happens, you can turn the DC breaker back on.

**Galley appliances and outlets stop working:** There is a separate electrical subpanel for the galley located in the cabinet under the counter just to the starboard side of the oven.

**Water under the fridge:** There are 2 fans at the base of the refrigerator that help evaporate water produced by fridge condensation. If these fans are not running, water can build up under the fridge and spill over onto the galley floor. The switch for these fans are located on the top of the wall on the right side of the fridge. Verify that this switch always remains in the “on” position.

## Tips

**Stovetop lock:** The stovetop should always be locked when not in use. Hold button down to lock.

**Forward berth hatch:** When guests are staying in the forward berth, consider rolling up the canvas on the bow. This enables guests to open the hatch for ventilation (if needed) and provides the ability to use it as an emergency escape.

**Portholes:** Feel free to open portholes as needed for ventilation, but be sure to close them tightly prior to cruising.

**Cockpit and flybridge panels:** The rear cockpit and flybridge features glass-like panels that are made of Eisenglass. Feel free to open them for ventilation, but be very careful during strong winds. If the wind is strong, either due to weather or when underway, the panels can get away from you and can easily be cracked or destroyed. They are expensive (about \$1,000 each), so consider using another person to hold it while you zip or unzip the panels.

**BBQ use:** Unzip all of the Eisenglass panels on the starboard side and slide them left to the port side. Consider doing the same with the panels on the port side for ventilation and to provide easier access to the flybridge sink. When lighting the BBQ using the ignitor switch, keep all body parts away from the grill since it may flare up. When using the BBQ, always keep the cabinet door open for ventilation and to keep the inside of the door from melting. There is a heat-proof mat stored underneath the BBQ which can be put on the deck and used to place the BBQ lid when hot. The twin propane tanks have a valve that can be used to select either tank as a source. Locate the fire extinguisher in the cabinet beneath the BBQ and be prepared to use it if necessary. We’ve never had problems, but a fire at sea will ruin your day.

**Flybridge sun shades:** There are two sun shades located behind the flybridge seats. They attach to the metal support structure of the flybridge canopy, and are useful when at dock or at anchor to provide shade when the sun is low.

**Dinghy operation:** Be sure to put the key in the dinghy before lowering it. There's a boathook stored in the dinghy that should be extended and used to keep the dinghy straight when raising or lowering. Be sure to securely tie the dinghy to the yacht before disconnecting it from the winch.

When the dinghy is in the water, close the rear guardrail line for safety. To unlatch the rail, slide the screwhead backwards until the latch releases. It's recommended that you practice this before attaching it in place so that you don't get stuck by not being able to open it.

Also, it's recommended to remove the 4 dinghy supports and store them out of the way so that they're not a tripping hazard.

**Dinghy inflation:** The hose on the air compressor in the lazarette is long enough to reach the dinghy on the deck. There's a special coupling and valve under the flybridge sink that connects the air compressor hose and the 3 dinghy inflation ports. Be careful to only partially open the valve. The connector was designed so that the coupler's hose will detach from the dinghy if there's too much pressure.

**Swim ladder:** Whenever at dock or anchor, it's recommended to deploy the swim ladder in case anyone accidentally falls in the water. It's normally located in the lazarette.

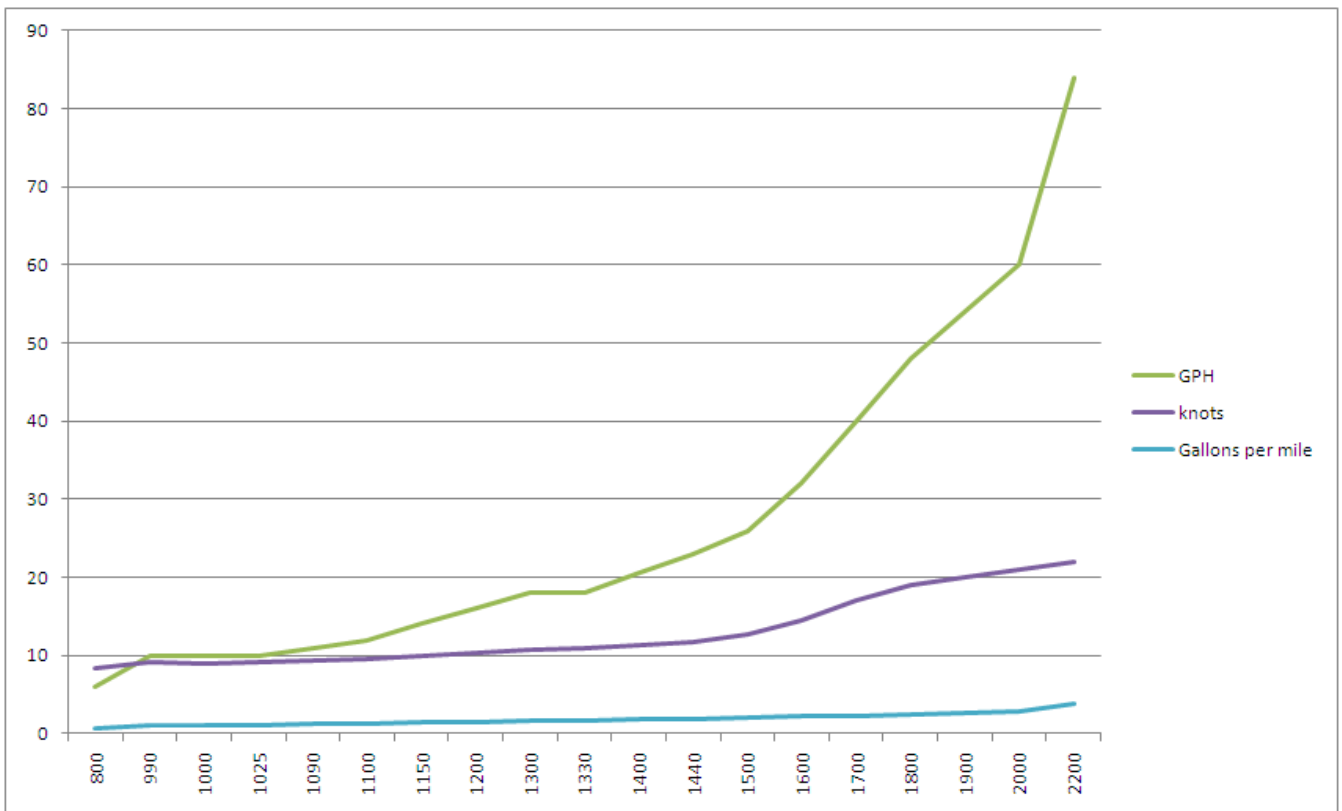
**Flybridge table:** There are inserts located to the side of the flybridge seats that enable you to bridge the 2 flybridge tables into one large table. There are 3 inserts – one for the table, one for the seat bench, and one for the seat back. There are 2 cushions behind the flybridge seats for the bench and back. Extra chairs are located behind the seats and can be used for seating at the table on the opposite side of the benches. To create room for those seats, turn the 3 flybridge captains chairs around and slide the seats back.

**Using the salon couch as a bed:** The ottoman was designed to enable a full king-sized bed in the salon. After removing the seat back cushions, it easily fits 2 adults. It also fits 3 children when they are perpendicular to the centerline. The mattress pad is rolled up behind the main salon recliner, and the sheets and pillows are either in the salon or in the bunkbed room closet.

# Fuel Curve

All numbers are approximate based on owner tests.

RPM	Speed	Fuel (g/hr)	Gallons/Mile	Time (hrs) to go 30 miles	Cost (at \$3/g)
800	8.4	6	0.7	3.6	64
900	8.7	8	0.9	3.5	84
1,000	9.0	10	1.1	3.3	99
1,100	9.5	12	1.3	3.2	114
1,200	10.3	16	1.6	2.9	140
1,300	10.8	18	1.7	2.8	151
1,400	11.4	21	1.8	2.6	163
1,500	12.7	26	2.1	2.4	184
1,600	14.5	32	2.2	2.1	199
1,700	17.1	40	2.3	1.8	210
1,800	19.0	48	2.5	1.6	227
1,900	20.0	54	2.7	1.5	243
2,000	21.0	60	2.9	1.4	257
2,100	21.5	70	3.3	1.4	294
2,200	22.0	84	3.8	1.4	344



# History

The yacht was constructed in Maple Ridge, BC Canada by the Queenship Corporation. The yacht was started in 1994, finished in 1995, and commissioned in 1996.

The yacht was built to spec for the original owner, who owned a yacht brokerage company. The original name of the yacht was ***Lady of the "C"***.

The yacht was subsequently purchase by the daughter of a successful Seattle real estate developer. The yacht was re-christened ***Radiant Lady***. She used a hired captain, and sailed the yacht down the Pacific coast to Baja California at least twice. She placed a baby grand piano in the salon, and was known to hostess some fabulous events.

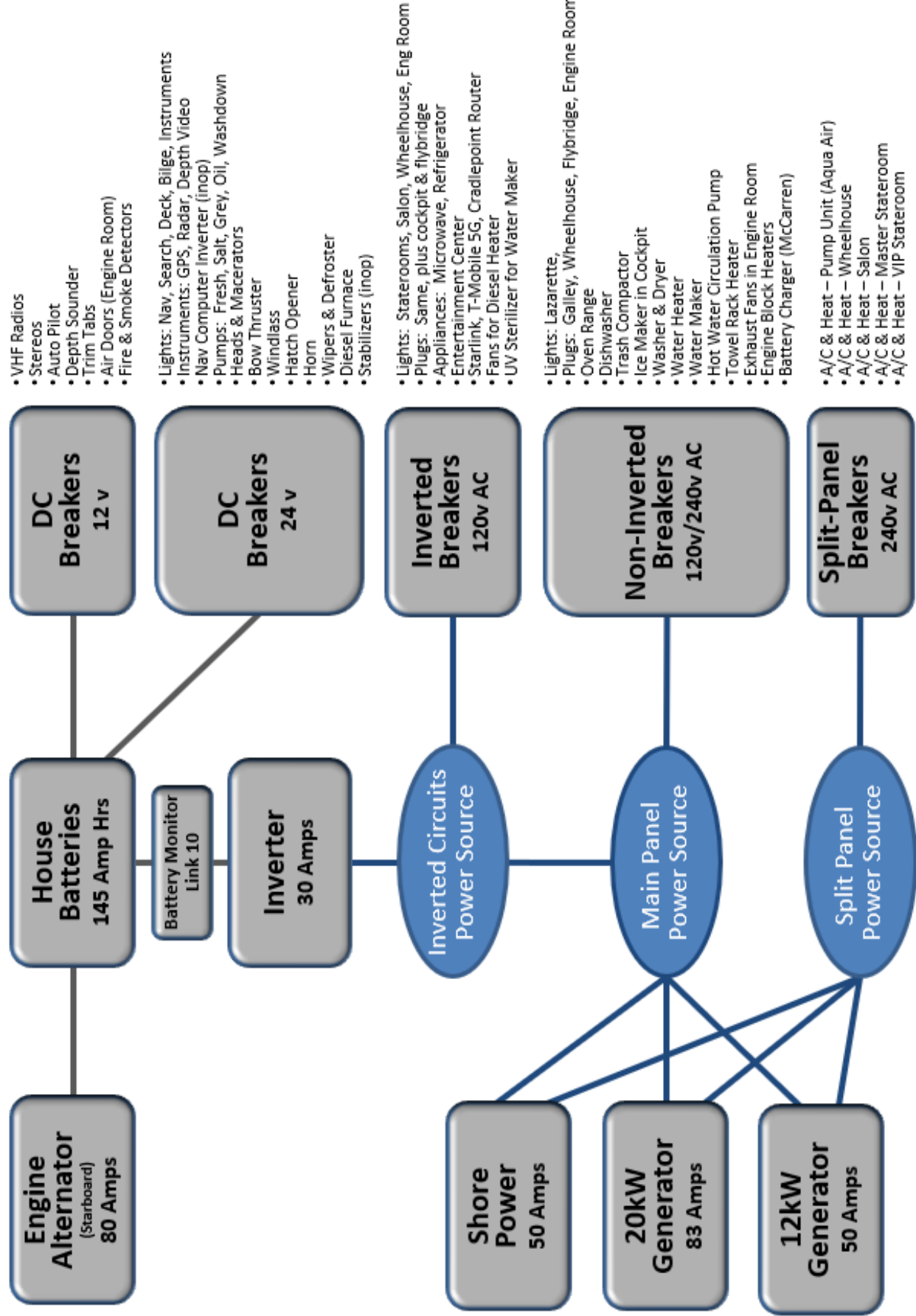
The third owner was a real estate developer from Denver, CO. He would fly his twin-engine plane out to Anacortes to enjoy the boat with his wife and grown sons. During his ownership, the boat was also the top yacht in the Anacortes Yacht Charter fleet.

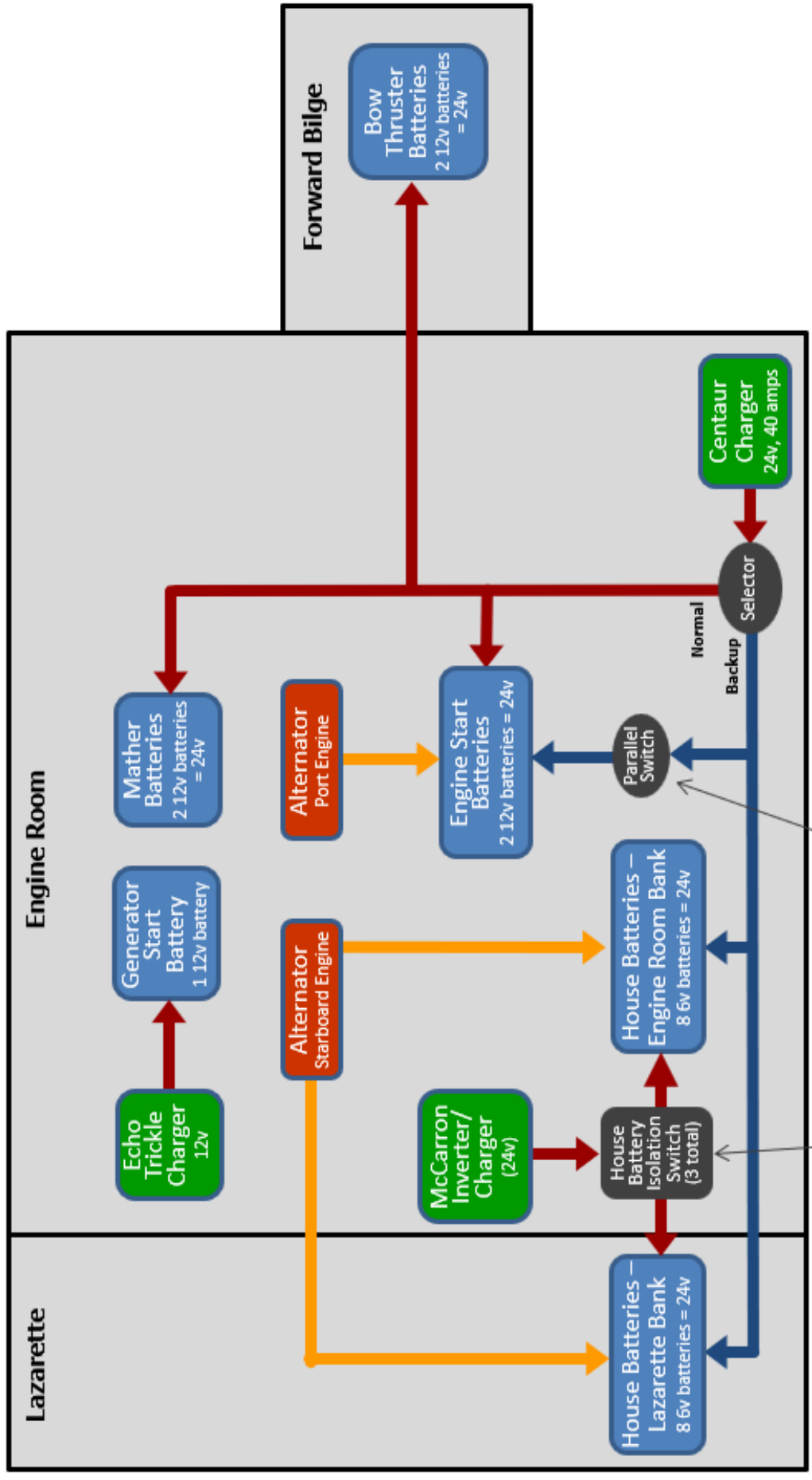
H2 Charters, LLC, owned by Steve, Georgia, Ken and Lori Hosac, purchased her in 2008 and re-christened her "***Lady Georgia***," named after Steve's wife, Georgia. The yacht was moved from Anacortes to Lake Union in Seattle in 2019.

Ken and Lori Hosac purchased all of Steve & Georgia's shares of H2 Charters in 2021.

# System Diagrams

This section contains full-size images of the system diagrams shown earlier in this manual.





**Note:** Used in emergencies to start engine using power from house batteries. Controlled by switch in AC panel

**Note:** Used to isolate the two banks of house batteries. Select between "both", "on", or "off" for each bank. Keep on "both".

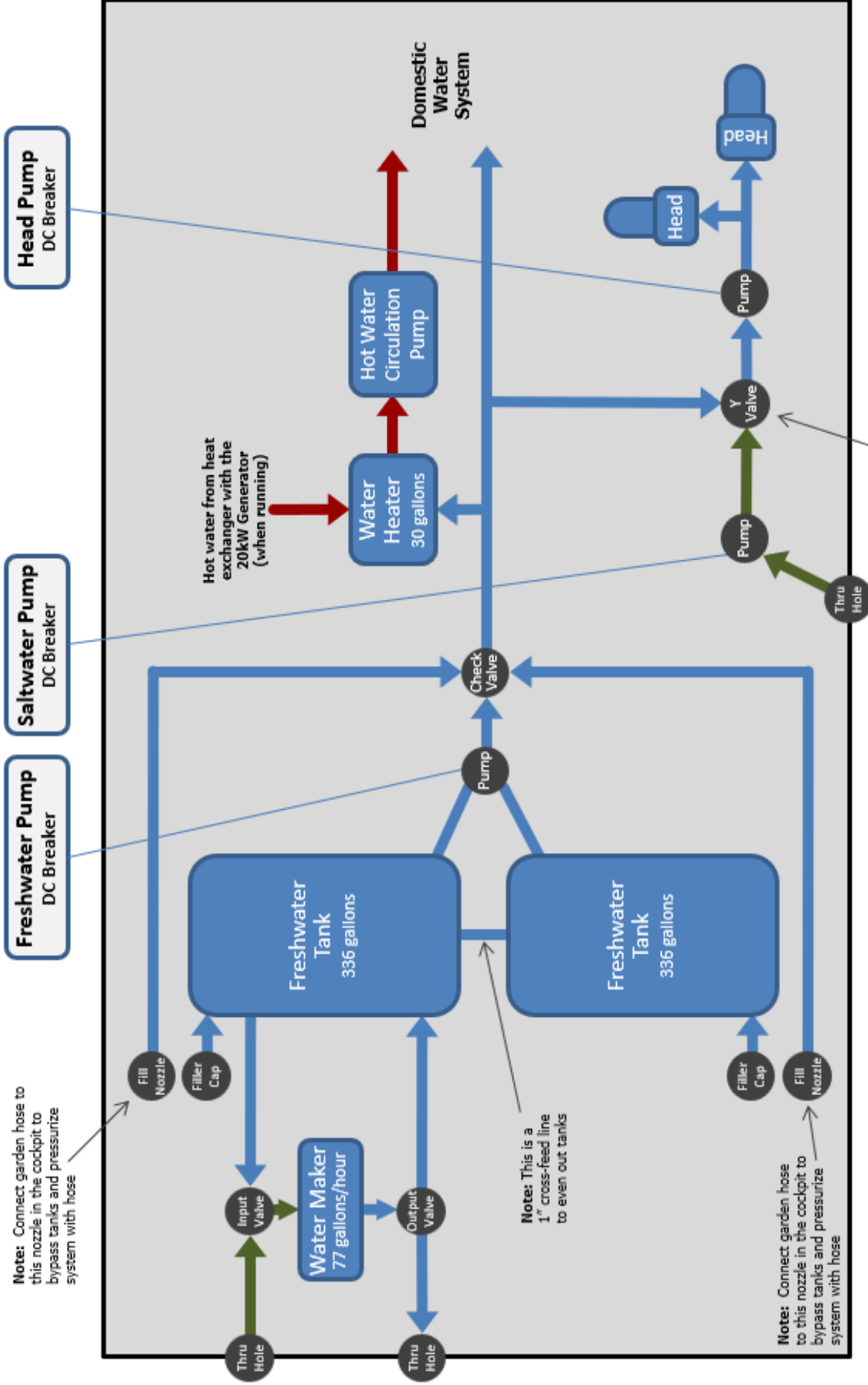


Diagram is a top-down view of the yacht

Note: Breaker for grey water tank connects to an automatic float switch in the grey water tank.

Grey Water Tank DC Breaker

Note: Gauge shows "empty" until tank is 30% full.

Level Gauge (Pilothouse Helm)

Master Macerator DC Breaker

Rocker Switch (Pilothouse Helm)

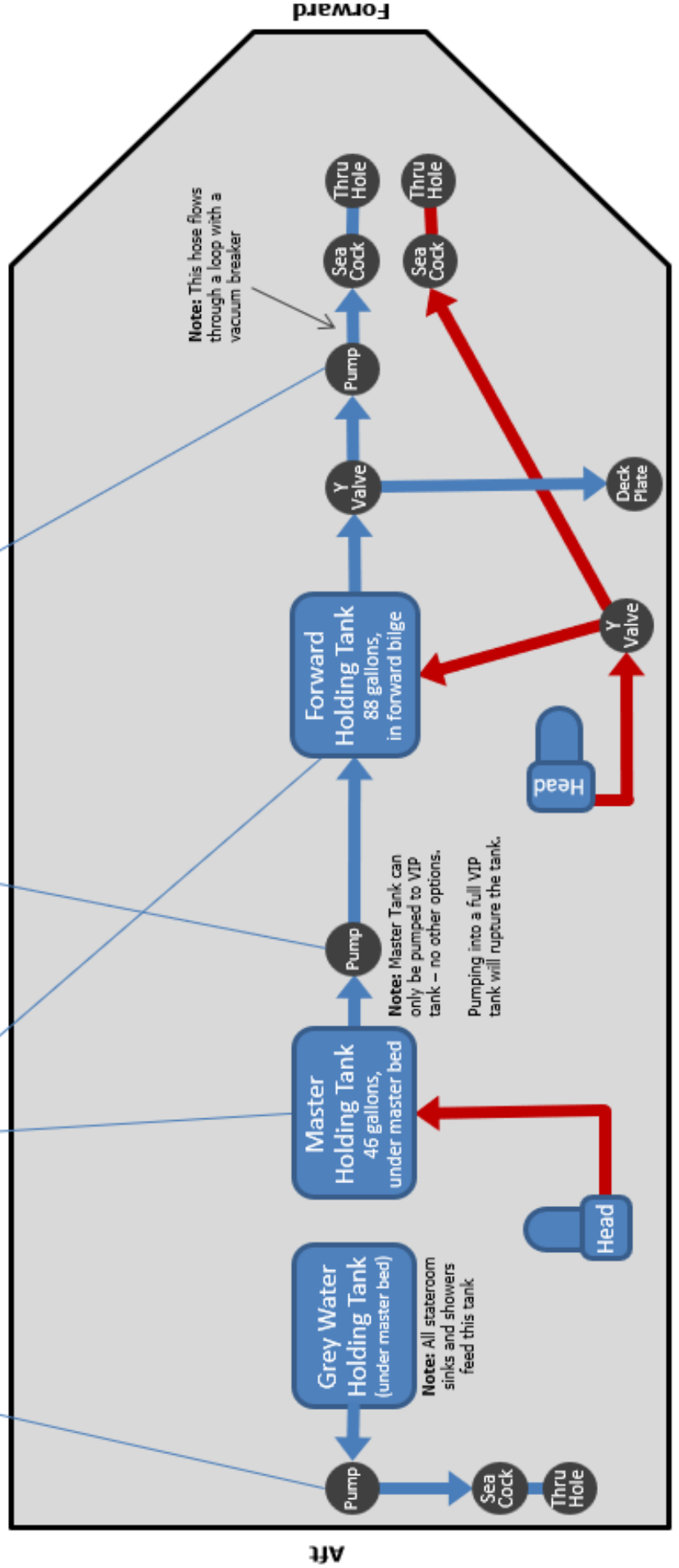
VIP Macerator DC Breaker

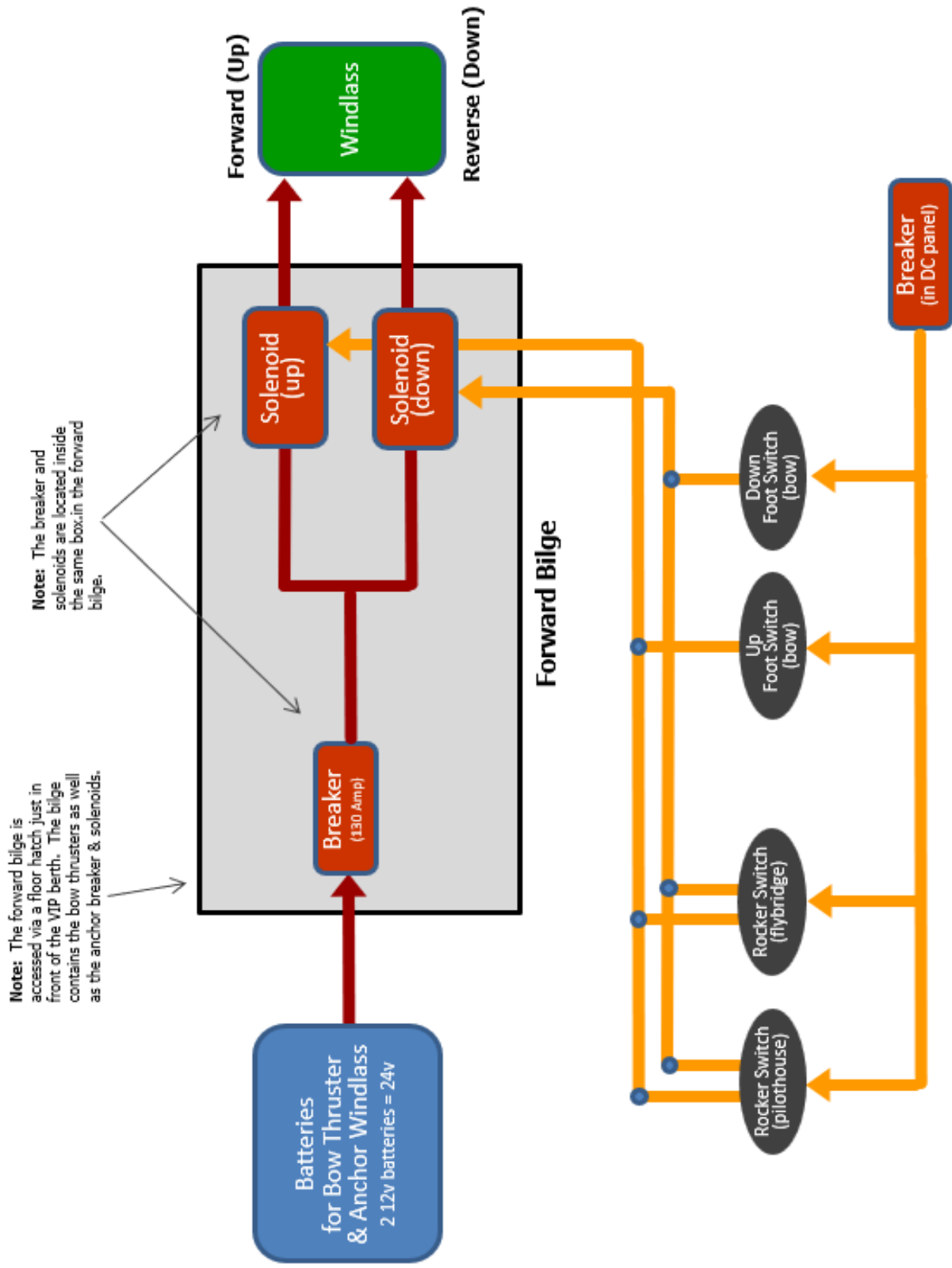
Note: The rocker switch that used to control the VIP macerator pump is not operative

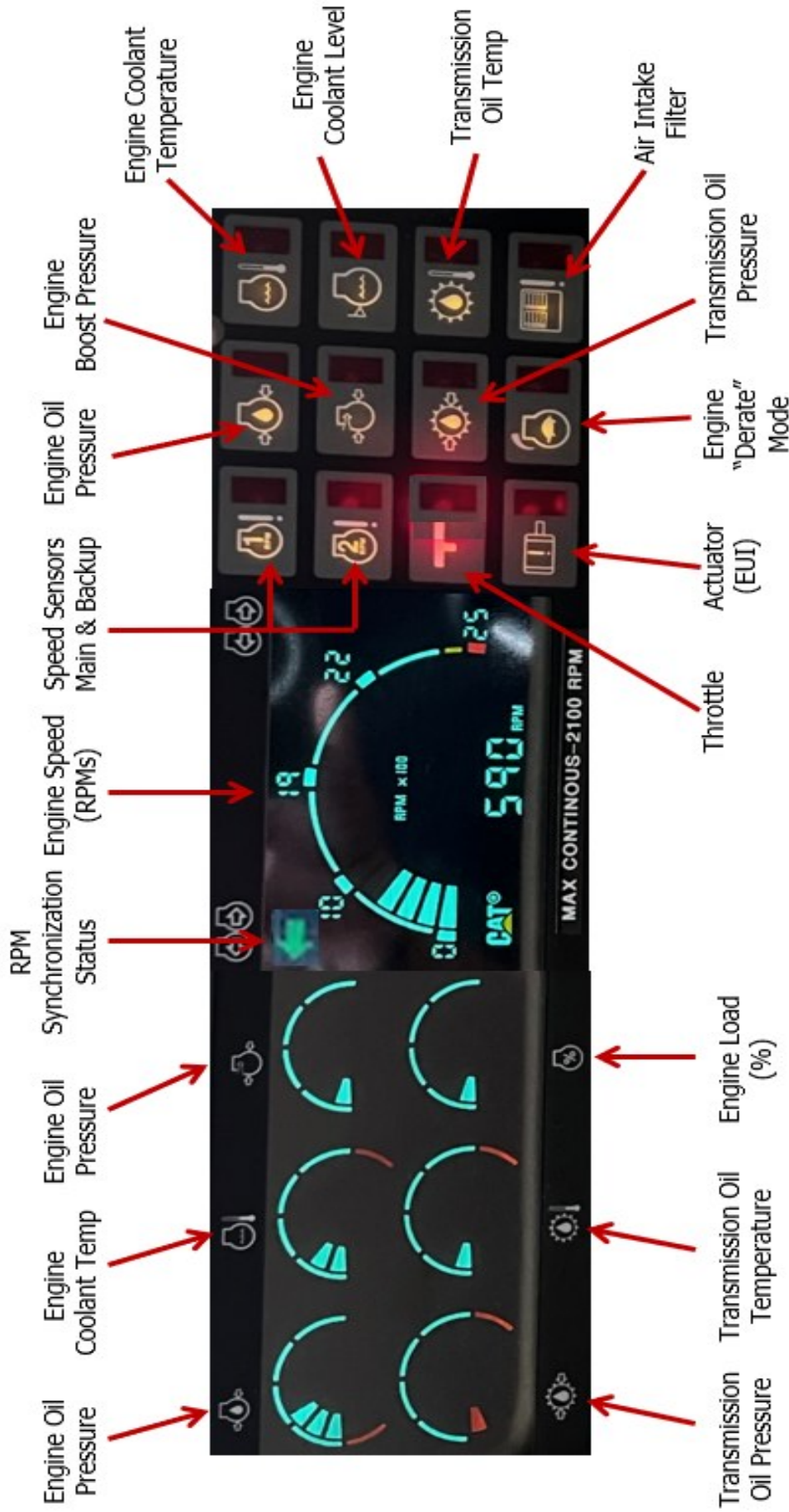
Note: To pump the holding tank out at a marina pump out, set the Y-valve handle to point to the deck discharge opening.

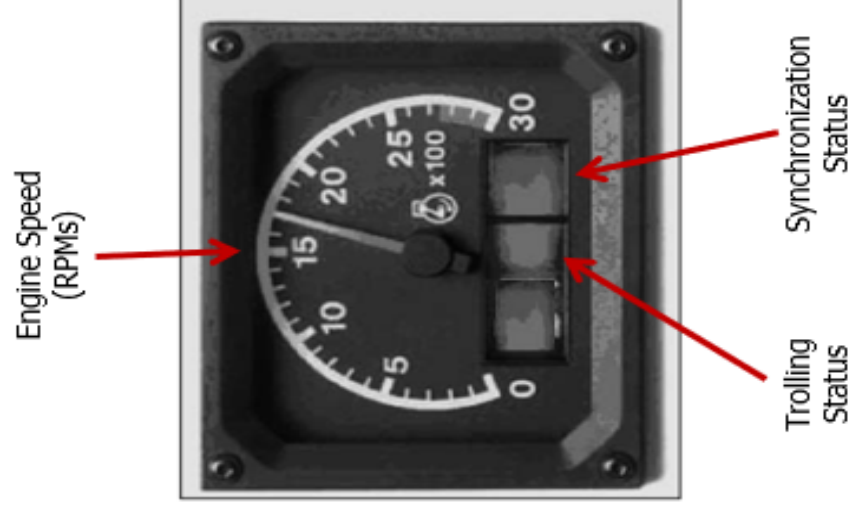
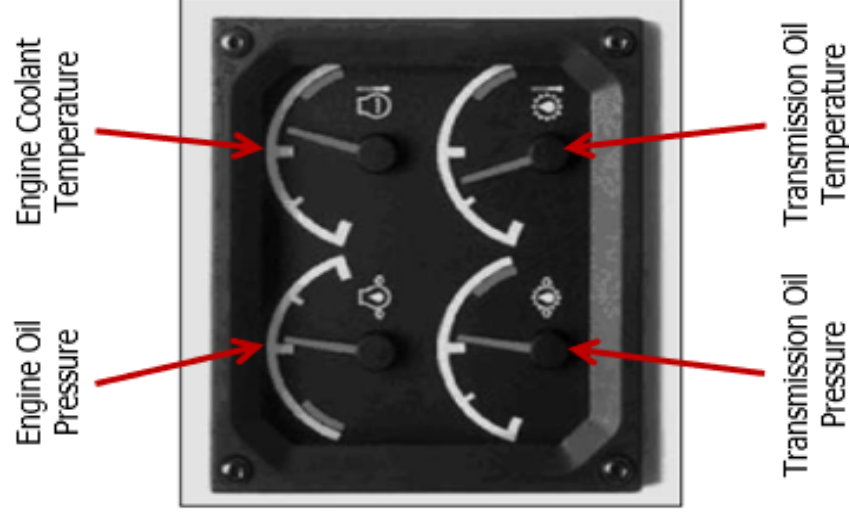
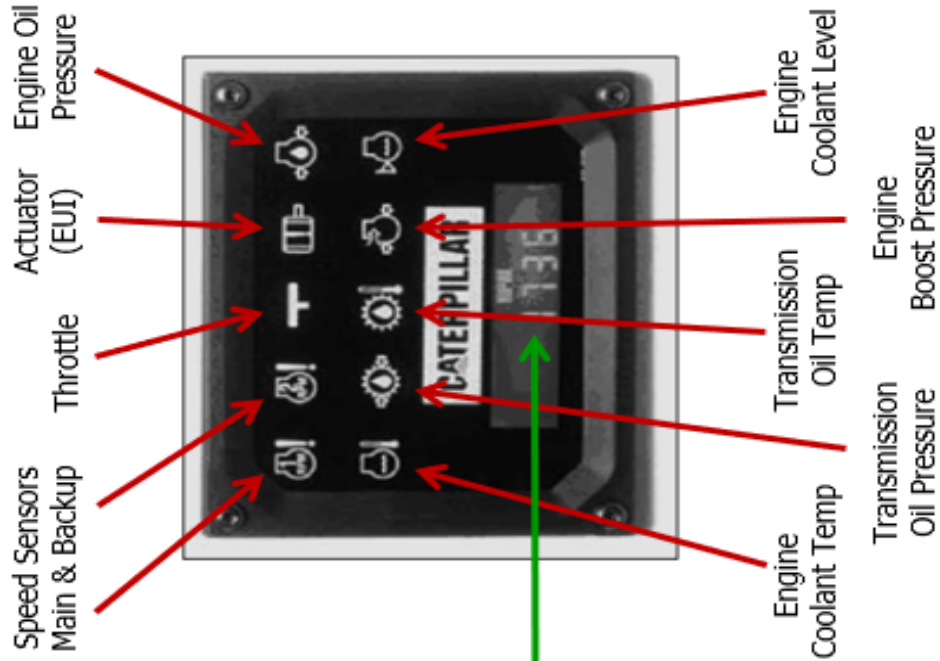
Warning: Never overfill a holding tank. If you do, it will likely break a hose, clog a vent, or burst the tank. The result is an indescribable catastrophe and a very costly repair bill.

Warning: Never run the macerator for lengthy periods or when holding tank is empty. Otherwise, it may burn out resulting in a costly bill to replace.









**LED Display:** Engine Speed, Engine Hours, Engine Oil Pressure, Engine Coolant Temp, Transmission Oil Temp, Transmission Oil Pressure, Fuel Rate, Percent Load

# Index

12/24 Volt System, 40  
Air Compressor System, 59  
Air Conditioner, 49  
Anchoring, 53  
Autopilot, 51  
Barbeque, 58  
Battery Chargers, 39  
Battery Monitor, 40  
Battery Parallel Switches, 39  
Battery Switches, 39  
Bow Thruster, 29  
Cruising, 23  
Depth Sounder, 52  
Diesel Heater, 49  
Dinghy Operation, 55  
Distress flag, 62  
Dryer, 58  
Electric Heaters, 49  
Electrical Panels, 35  
Electrical Source Selectors, 36  
Emergency beacon, 63  
Engine Room Inspection, 14  
Engine Shutdown, 23  
Engine Startup, 14  
First Aid kits:, 62  
flare guns, 62  
Flares, 62  
Fog horn system, 62  
Foul weather gear, 63  
Fresh-Water Tanks, 42  
Fuel System, 30, 31  
Generator, 20-KW, 34  
Generators, 25  
GPS, 51  
Hailing system, 62  
Handheld radios, 62  
History, 67  
Holding Tank, 46  
immersion suits, 63  
Internet, 19  
Inverter, 37  
Life jackets, 62  
Life raft, 62  
Life ring, 62  
Man overboard kit, 63  
Man overboard position, 63  
Marine Heads, 46  
Navionics Package, 52  
Portable air horn, 62  
Printing, 19  
Refueling, 23  
Sea Strainers, 25  
Search Light, 52  
Ship's bell, 62  
Ship's horn, 62  
Ship's whistle, 62  
Shore Power, 33  
Stabilizer, 29  
Starting the Engines, 22  
Swim Ladder, 55  
Troubleshooting, 64  
Washer, 58  
Water Heater, 42  
Water Maker, 43  
Windlass, 53  
Winter Watch, 21  
Winterization List, 20