

Notes from the Owners of Gray Pearl

American Tug 435

Dear Friends,

Welcome aboard Gray Pearl!

We are happy to share this jewel of the Salish Sea with you! We started this journey by taking classes and chartering with San Juan Sailing and Yachting (SJS/Y). That process turned our spark for cruising into our purchase of Gray Pearl in early 2023. We had spent a couple years looking at a variety of boat designs and kept coming back to our local La Conner, WA company – American Tug. Once we set foot on an American Tug 435 we were hooked and we think you will be as well. From her spacious staterooms, high visibility helm station and comfortable shared spaces we hope you will enjoy cruising on Gray Pearl as much as we do!



Our decision to purchase Gray Pearl and place her into charter with SJS/Y came down to our desire to further our own journey of cruising while balancing our busy work and family life! Our experience as SJS/Y students and charter customer was always top notch, and we hope to carry on those standards. We consider ourselves so lucky to live so close to one of the world's premiere cruising destinations, much of which we have yet to see ourselves, where each journey can be its own adventure! From the San Juan Islands at the doorstep of the harbor, to the Canadian waters and Southeast Alaska you will find this vessel ready and capable to take you on whichever journey you choose.

If you can think of anything...anything at all...that would make Gray Pearl more enjoyable for you, please let us know through San Juan Sailing and Yachting. We've tried not to overlook any detail in our effort to make her as comfortable and ready for your adventure as we could.

We wish you fair seas and wonderful memories. Thank you for being our guests!

Sincerely,

Jim and Melisa Nelson

Gray Pearl

AND JUST A REMINDER

These notes have been prepared to give the charter captain and crew a helpful resource of information. While the goal is to summarize information from multiple sources into a single item, this document does not pretend to be the ultimate authority on the equipment and systems on board. Consult the manuals provided by the various manufacturers. Further, the captain accepts and is the ultimate person responsible for the safety of the crew, passengers and the vessel. It is expected that he / she is qualified to operate a vessel the size, type and complexity of Gray Pearl and has become thoroughly familiar with her prior to leaving the dock. Good judgment and following all applicable laws during operations is fundamental to a safe and successful experience on board this vessel and in the maritime environment.

No warranties are expressed or implied by this document.

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SPECIFICATIONS AND VESSEL INFORMATION

Vessel Information:

Washington State Parks Annual Permit Decal – Located on the transom, port side.

U.S. Customs Re-Entry Decal – Located next to the entry door, starboard side.

Vessel Official Number – 1234476 (same number as shown on the Coast Guard Certificate of Documentation found in Section 5 Documentation of the Charter Guest Reference Manual (white binder). Gray Pearl’s number is located on the cabinet top in the pilot house on the port side and in the Lazarette in the port hatch on the forward wall. Look for 3” high characters.

Coast Guard Boarding Document – Refer to the Charter Guest Reference Manual (white binder), Section 5 Documentation. Explains what to expect if you are boarded by the Coast Guard and where to find the information/equipment they may ask to see as part of their safety inspection.

Specifications:

Year: 2011	Engine: Cummins QSC-550
Make/Model: American Tug 435	Fuel: (2 tanks) 320 US Gal each
LOA: 43’ 7”	Water: 210 US Gal
Beam: 15’ 10”	Holding: 60 US Gal
Draft: 4’ 10”	Heads: 2 – Toilet, Sink, Shower each
Displacement: 30,000 lbs. (Dry)	Electronics: Garmin

Staterooms: 2 Double	
Stateroom1:	Headroom: 6’-10”, Berth Dimensions: 78”L x 60”W (head), 78”x43” (feet)
Stateroom 2:	Headroom: 6’-4”, Berth Dimensions: 80”Lx60”W (head), 80”Lx60”W (feet)
Pull Out Settee:	Headroom: 6’-10”, Berth Dimensions: 72”Lx60”W (head), 72”Lx60”W (feet)
Salon Headrm:	6’-10”
Refrigerator:	19.5”Wx28”Hx20”D
Freezer:	19.5”Wx12”Hx20”D

Average Speed Below in Knots/Hour

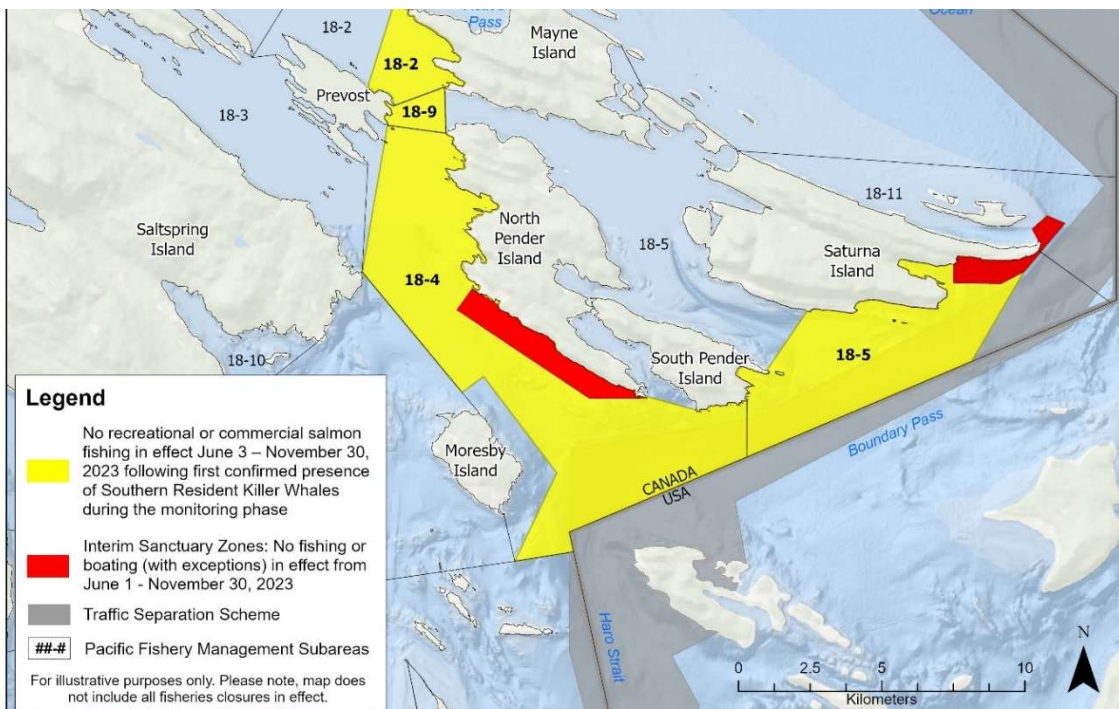
SEA TRIAL DATA - CUMMINS 550

RPM	AVG SPEED	GPH	% LOAD	NMPG	RANGE <small>10% RESERVE</small>
1000	5.9	1.1	24	5.36	3218
1200	6.85	2	29	3.43	2055
1400	7.675	3.2	27	2.40	1439
1600	8.4	4.7	24	1.79	1072
1800	8.9	6.4	26	1.39	834
2000	9.5	8.4	36	1.13	679
2200	10.25	11.4	43	0.90	539
2400	11.25	15.8	60	0.71	427
2600	12.95	19.6	71	0.66	396
2800	14.95	24.6	83	0.61	365
3000	17	28.6	93	0.59	357
3060	17.35	29.4	99	0.59	354

BEING WHALE WISE

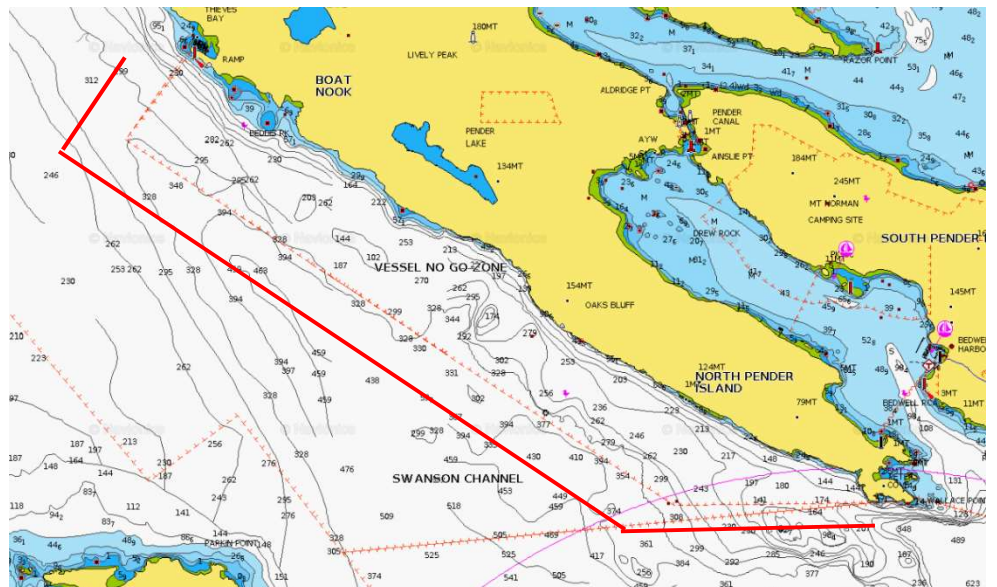
Our local Killer Whales are a wonderful part of the local family. But they are having a difficult time surviving due to declining salmon runs. These whales use echo location to find and catch their food. Therefore, noise pollution from boats and ships makes it harder for them to thrive. To decrease human impact both the Canadian and US governments have implemented rules. We provided you with a summary of these rules in the packet you received when you arrived and there is more information in section 10 of the white reference book onboard Gray Pearl. In general, stay at least 400 yds. away from the whales. Sometimes they come to you, if this happens shutdown the engine and turn off the instruments (assuming this is safe to do). They can hear the pings of the depth sounder – this is why we have you turn off the instruments.

In Canada they have gone a step further by creating some zones where boats are not allowed. This further improves the environment for the whales. The red areas in the diagram below show these zones.



And here is an example of what they look like on Gray Pearl's chart plotter(s). The red lines have been added to help point out the dashed lines, which are what you will see on the plotter.

Note this is just to the west of Bedwell Harbour, so on your way in or out of there be sure to avoid this area.



NUANCES AND NOTES

There are a few things about Gray Pearl that you may not be familiar with or that we wanted to call your attention to. These are the things that may require special attention or where it may be best to deviate from customary operating procedures. We have listed some here because we believe they will help you plan your charter.

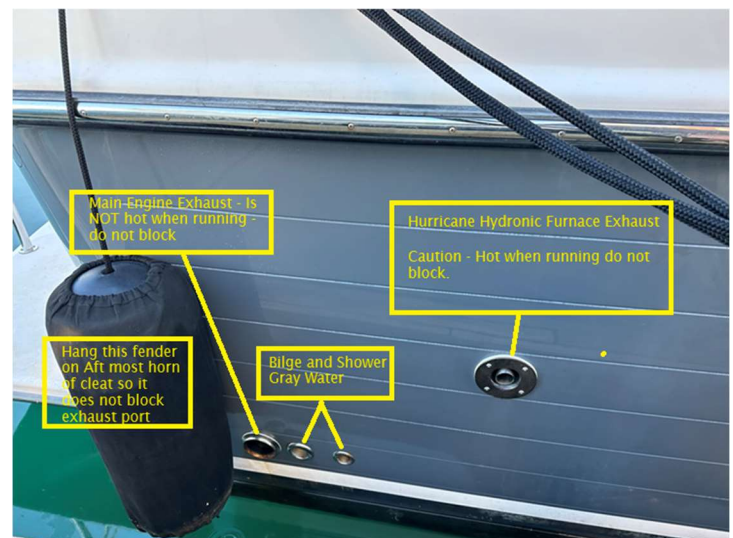
General Requests:

- Please bring a pair of "inside" shoes or slippers for use while inside and/or underway. Please be especially mindful after visiting one of the beautiful beaches, trails, or other coastal areas to take a minute to clean off your shoes as you re-board. There is a great handheld shower in the aft deck on the side of the propane locker to help rinse off!
- No smoking and No Pets please!
- Consider using soft sided luggage or duffel bags which help reduce the wear and tear as items are moved onto and through Gray Pearl.
- When you board – check the Eartec headset batteries and charge while on shore power so they are charged and ready when for you when you depart!
- When you board – check that Hot Water AC breaker is on so the water is hot (careful it gets hot!) when you need it. Water is not heated by only running the engine (see Water Heater section for more information).

Starboard Aft Fender Position/Starboard Exhaust Ports:

The starboard aft fender is in a short fender line that should be wrapped to the outside (aft) horn of the cleat so that it does not hang directly in front of the engine exhaust (the engine exhaust port is not hot) and bilge ports located on the exterior of the hull. See photo to the right.

The Hydronic Exhaust is hot when operating – do not block.



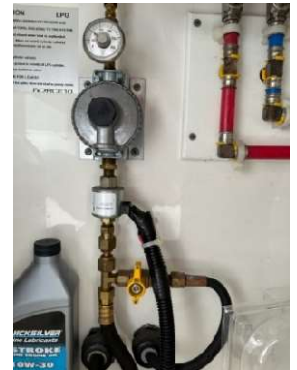


Pilothouse Sliding Doors: When the doors are opened fully, they lock into place so you can cruise with them open. To close these doors there is an unlock feature on the upper part of the door jamb that you slide down with your finger and then start to slide the door close which disengages the door from being locked in the open position.

VHF Radios(See VHF Radio Section): There are two VHF radios located at the helm station. One radio is located on the port side of the overhead with a microphone remoted directly below the radio to the port of the steering wheel. The second radio sits to the starboard of the wheel and has all the controls on the mic with a speaker that has the word "Garmin" on it on starboard side of the overhead.

On the port side, overhead Garmin radio, you can toggle to the weather band by pushing the volume/on/off button one time and this will toggle you to the weather band.

BBQ Grill: The propane supply to the BBQ grill needs to have the yellow handled inline valve opened in the propane locker and requires the solenoid to be activated at the unit located on wall next to the interior propane stove. This is a safety feature that provides redundant propane control. See picture to right (shown in the OFF position)



Fuel/Water Fill Location: The WATER and DIESEL fill locations are located on either rail near the aft deck. They are located right next to each other on each side – **it is vitally important not to confuse them!** Only open one tank at a time and only when you are ready to fill it with the correct fluid.

When filling Diesel (see details in notes) our practice is to first look at the cap with the rim marked Diesel and say out loud "Diesel" and then open the cap. When holding the Diesel fuel nozzle in hand look again at the cap rim that has the word Diesel on it and say "Filling Diesel, Diesel, Diesel" and then insert the nozzle in the marked Diesel fill hole and pump your fuel.

When filling Water (see details in the notes) we do the same process except say "Water" and "Filling Water, Water, Water".

Putting Water or Diesel in the wrong tank is a major issue and requires immediate and significant maintenance work. Fueling and Water tank filling will typically happen at the end of a long day or long trip when you are more fatigued – please recognize this and take appropriate precautions to make sure you are attentive to this activity. Thank you!

Window Shades/Covers

The salon and main stateroom have blinds that are two stages up and two stages down. Please move them in that manner rather than trying to move both stages up and down at the same time. The first pull down allows privacy and

allows light to pass through. The second stage is to darken the room. If the shades are slipping down on their own it typically means that the string needs to be tightened slightly, which can be done by taking some slack out of the bottom by winding it slightly. Conversely, if they are too tight to move the string may need to be loosened slightly.

There are interior snap on sun covers for the pilot house which are stored in the cabinet on the first stair landing on the starboard side. Please roll them up and store them there when not in use. There are two options for snap up covers for the rear salon door (one that will allow light and one that will darken the salon). Those two are stored rolled up in the cabinet on the port side of the salon just aft of the galley.

EMERGENCY/SAFETY EQUIPMENT

You are not likely to need many of these items but must know their location.

Bilge Pumps (3). Toggle switches are located in the pilothouse to the starboard side of the ship's wheel. During normal operation the switches are left in "AUTO" mode, **to the right**. Can be switched to "ON" for override mode if needed by switching to left. Note: can use shower sump pump in emergencies.

Carbon Monoxide Detectors. Bottom of the stairs outside in the hallway next to the lowest berth, Smoke/Carbon Monoxide on wall inside door of lowest berth, and a portable unit in the salon.

Fire Extinguishers (3):

- Mounted on helm seat base in pilot house.
- Mounted on side of stairs in the salon.
- Mounted in Main Stateroom hanging closet.

Fire Boy Manual/Automatic Fire Extinguishing System (Engine Room):

- Large extinguisher permanently mounted on port side of engine
- Manual activation pin located in pilot house being port seat.
 - For engine room fire – remove pin and pull red FIRE handle.
 - Shutdown engine, ventilation, and electrical systems.

First Aid Kit. Outboard port side flip-up step in the pilothouse.

Flare (Electronic) and Folded Plastic Distress Flag. In mesh bag under inboard port flip-up step in pilot house.

Flares (Pyrotechnic - 3). In mesh bag in under inboard port side flip-up step in pilot house.

Flashlights/Headlamp

- Flashlight 1: Navigation cabinet portside of pilot house
- Flashlight 2: Cabinet under TV
- Headlamp: Cabinet under TV

Searchlight. Navigation cabinet portside of pilot house



Horn, handheld. In mesh bag in under inboard port flip-up step in pilot house.

Lifesling, starboard upper deck rail. Please review the cartoons on the face of the case for procedures. The lanyard is secured to the boat so that tossing the floating harness allows it to tow behind the boat like a ski tow rope. Circling the person overboard will draw the recovery line near them.

PFDs, Inflatables (6). Located in the stateroom hanging lockers. NSO: please check for "green" visible at bottom of clear canister before each cruise. That verifies the auto-inflate function when immersed. We wear these at all times when working the deck and often in the cockpit.

PFDs, Foam Vest (4). Located in the stateroom hanging lockers (one in each and two extra in a bag under floor hatch in forward stateroom).

Propane Detector. The Trident propane detector and solenoid switch control panel is located on the wall next to the stove.

Throwable Floatation. In addition to the Lifesling we have two throwable cushions (One on aft wall in the salon, one next to port seat in the pilothouse).

Tapered Plug, Universal Foam Orange StaPlug. In mesh bag in under inboard port flip-up step in pilot house.

Tools. Engine room, bottom of stairs in main engine room hatch (under fuel filters).

Windlass Clutch Release/Tighten Handle. Behind the starboard seat, pilot house.

ANCHORS AND WINDLASS

Highlights

- Windlass raise/lower anchor foot pedals are located on the bow next to the windlass. **It is important to close the covers whenever you are putting any part of your body near the anchor chain and when you are done with what you are using the pedal for. It is easy to inadvertently step or kneel on a pedal when moving about or when you are positioning yourself to attach the bridle to the chain.**
- The windlass controller at the helm should not be used other than to verify approximate feet of rode deployed.
- Windlass breaker is in the forward stateroom on the side of bed near the floor, bow end of bed.
- The windlass clutch release/tighten tool (looks like a hollow pipe with a handle) is located behind the starboard seat in the pilot house. If the windlass slips when raising the anchor, the clutch may need to be tightened. In an emergency, if the anchor needs to be lowered quickly the clutch can be loosened. Keep enough tension on the clutch so the chain pays out at a controlled rate – keep an eye on the chain pile and be prepared to tighten the clutch if a knot of chain is pulled up.
- Primary Anchor: 275 feet of 5/16" of chain.

- Chain marking is 1 piece of yellow fabric woven in chain at 25' intervals and 1 piece of orange fabric woven at 200' and 250'. The placard is glued to the inside of the anchor locker door as a reminder.
- Please use the anchor bridle while setting the anchor and to hold the anchor. The bridle is stored in the bow locker with the secondary anchor (see photos to help making putting the Mantus bridle on the chain easier).
- There is a raw water washdown nozzle in the anchor cradle and a quick disconnect location for a hose to be attached. The nozzle looks like a pressure washer wand that is mounted in the anchor cradle. There is a diverter valve that is accessed in the anchor locker under the lip. The valve should be in-line with the hose going to the anchor wash nozzle. If you need to use the quick disconnect washdown hose, you will need to divert the water to that hose connection by closing the valve to the mounted washdown nozzle.
- Turn on the WASHDOWN breaker on the DC panel and you should see water spraying from the nozzle at the bow end of the anchor cradle directly on the anchor chain unless the valve has been turned to the quick disconnect hose washdown point. Please turn off the breaker when done.
- See SEAWATER WASHDOWN section below for more details and troubleshooting if needed.
- Secondary Anchor: Stored in the anchor locker on the bow.

Details

The scope normally used in the islands is 4 to 1, definitely not 7 to 1 (unless conditions call for it, i.e. sustained winds over 25 knots). Most of the anchorages are well protected and popular, so you will likely have someone anchored nearby. Most coves are 20'- 40' deep; so expect to pay out about 100'-180' of chain.

After you have paid out the suitable amount of chain **AND** attached the bridle, several minutes of idle reverse sets the anchor. You can increase rpm's as the situation dictates to set and test the set of your anchor. Also, the tides can change water depth up to 12' in the San Juans so be aware of where you are in the cycle when choosing an anchorage and deciding how much chain to put out.

To calculate rode we use – water depth + bow to water (approximately 9 feet)+ tide change range = X then X times desired scope (typically 4 in the San Juan Islands) = rode. (i.e. 20 depth + 9 feet bow to water + 7 feet of tide change = 36 ft. 36 x 4 = 144 feet of rode (or about 150 feet) for a 4:1.

Deploying the Anchor:

- Take your time scouting your anchoring area using visual examination and your sonar to determine your anchor location.
- Don your headsets and lifejackets
- Have a boat hook at bow – use the boat hook to hold the anchor away from the hull when deploying and retrieving.
- When you first lower the anchor over the roller it has a tendency to swing rapidly back towards the hull, using the hook helps to keep the anchor from hitting.
- Just as you are deploying your anchor the helmsperson can use the Garmin Chart plotter (or other app of your choice) to set an anchor drag alarm if you choose. Garmin instructions are:

1. Select **Settings > Alarms > Navigation > Anchor Drag**.
 2. Select **Alarm** to turn on the alarm.
 3. Select **Set Radius**, and select a distance on the chart.
 4. Select **Back**.
- As you are deploying your anchor ensure that the chain is traveling at an angle away from the boat to ensure you are laying a line versus a pile on the bottom. Be careful not to move at too much angle to avoid putting undo pressure on the windlass – typically idle reverse in an out of gear with thruster assistance to keep the bow lined up with the chain works for this purpose.
 - When you have completed laying the rode attach the bridle which is stored in the anchor locker. After the bridle is attached lower the chain until the bridle takes the load, which is indicated by chain between the windlass and the bridle hook going slack while one or both legs of the bridle become taut.
 - Attach 1 leg of bridle to bow cleat
 - Route the bridle outside of the vertical bow rail
 - Route bridle hook from outside the anchor shroud back over the anchor chain. You can hang hook out of the way over the bow rail as shown below until your rode is deployed
 - Route the other leg around outside of opposite bow rail and attach to the cleat
 - We attach at the cleat just after the first black rope protector on each leg to keep them similiar lengths. When deployed you will have a few feet of bridle in the water
 - Deploy anchor to desired depth, attach hook with hook end facing down the chain, flat side up and strapped. It will roll over roller when going down and back up





Place the hooks straight down over a chain link. Secure strap around chain and onto the numb on the hook. Flat side of the hook up on the top of chain.



Retrieving Anchor:

- Don lifejacket and headset
- Bring boat hook up to bow to assist keeping anchor from striking boat as it is raised to its storage location.
- Using pedal with arrow pointing in (towards) the boat to bring in the chain while watching the bridle hook. Bring the bridle hook over the first roller onto up onto the deck and **CLOSE the foot pedal** cover as it is easy to kneel on it when re-positioning to work on removing the bridle hook.
- Remove the bridle hook and hang out of the way or removed one leg of the bridle rope from the bow cleat and pass bridle around the rail legs to get it over to the attached side and place it on deck, out of the way but not next to edge where it could fall in.
- Re-open the pedal cover and retrieve the anchor using good communication with the skipper to avoid too much pressure on the windlass or running the chain too close to the hull as you retrieve. When you see the anchor - ready the boat hook to help hold the anchor of the hull as it is raised into the anchor cradle.
- Once the anchor is in the cradle attach the anchor snubber to the chain and the windlass cleat and let a small amount of chain back out to put the pressure on the snubber and off the windlass.



BARBECUE

Highlights

- Propane hose isolation (Shut-off) valve is in the propane tank locker. Look for yellow in line handle valve (photo in nuances section).
- BBQ propane hose is plumbed through the solenoid valve. Activate the solenoid on the panel on the wall next to the stove. Remember to deactivate the valve when you are done using propane.
- Please clean grill (using the brush stored in the propane locker) when finished cooking.

Details

To operate:

- Active the solenoid valve (furthest left button), which is located on the wall next to the stove in the salon.
- Turn on the BBQ propane hose in-line valve located in the propane tank locker (located in the aft deck).
- Depress the flame control regulator on the right side of the grill and turn to high setting and then activate the automatic spark button.
- As a courtesy to the next charter guest, please clean the BBQ grill with the wire brush.
- Turn off the regulator, in-line valve and propane solenoid when done cooking. Regulators often malfunction and don't close properly so it's important to turn off the solenoid and in-line valve too.



BATTERIES, CHARGING AND INVERTER

Highlights

- Please keep batteries above 60% State of Charge (SOC) at all times. 100% fully charged (with all loads turned OFF – including the fridge and when not charging).
- When charging, battery voltage may read above 13.2 V.
- Ensure batteries are charging when connected to shore power – see details below in Battery Charging section.
- When underway the engine is automatically charging all batteries.
- At anchor, the house battery bank is ample enough to handle normal DC loads including lights, the fridge, diesel cabin heater and the entertainment system.
- Caution is needed when inverting and using 120V power. Only low draw (wattage) items like phone charging or computers. High wattage items like microwave oven and hair dryers should be used very sparingly or start the generator to support such heavy AC loads.

Details

BATTERIES:

Vessel name has the following battery groups on board:

- Engine start
- House, Stern thruster and Windlass

- Bow thruster

All batteries are charged automatically when the engine is running. When on shore power or generator please review the Battery Charger/Inverter section below.

Battery disconnect switches

The battery disconnect switches are remotely controlled using the three switches at the top of the electrical panel in the pilothouse. The port and starboard switches should remain in the ON position, they are the master ON/OFF connections for the start and house bank respectively. The center three position switch controls the combine function that joins the start and house battery banks. This should be left in the AUTO position for normal operations. In AUTO, the banks are combined whenever there is charging power sensed and separated when charging power is removed.



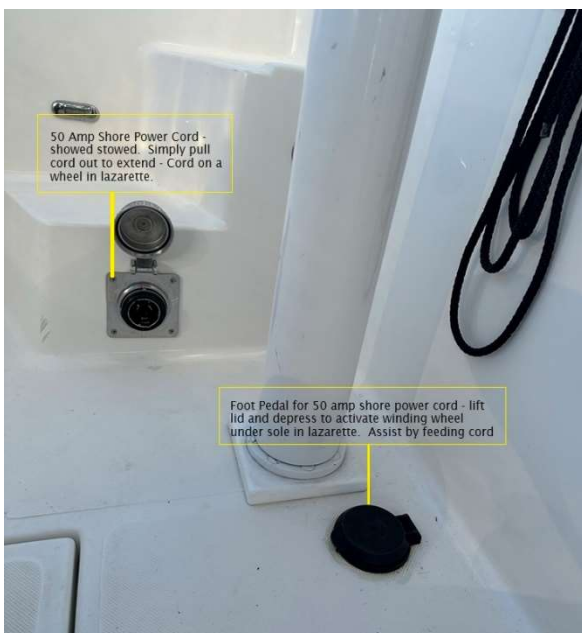
BATTERY CHARGER/INVERTER:

Gray Pearl has been equipped with a state-of-the-art Magnum Energy power management system which includes a charger and an inverter. The Magnum control panel is shown in the photo to the right. It is located above the counter to the left of the pilot house helm seat.



Charging – Shore Power

- Gray Pearl is equipped with a 50Amp shore power cord.



- The 50-amp light gray shore power cord plug end is located in the cockpit on the port side on the side of the steps, under a metal screw on cap (see photo to the right).
- The cord itself on a spool that is located in the port side of the lazarette.
- If the cord needs to be extended simply pull it from the plug end in the cockpit to the desired length.
- If the cord needs to be retracted there is a foot pedal located in the cockpit on the port side directly below the hooks on the wall. Raise the foot pedal cover to operate the foot pedal to wind the cord back onto the spool. It may be helpful to hand guide the cord back into the hole under the metal cover rather than rely solely on the automated spool.

- There is a 50Amp to 30Amp coupler and a 30-amp cord if the provided power is 30Amp. This is how you will find Gray Pearl is set up for shore power in her assigned slip.
- Ensure the SHORE POWER breaker located on the AC panel in the pilot house is OFF.
- Ensure the breaker located on the dock is OFF.
- Connect the shore power cord to the provided 30Amp or 50Amp plug on the dock.
- Flip ON the dock breaker.
- Flip ON the SHORE POWER breaker on the AC Panel.
- Flip ON the INVERTER breaker on the AC panel.
- Normally the Magnum panel will automatically start charging (after a 20 second startup) and indicate Bulk, Float or Absorb charging. If not, press the CHG button on the Magnum panel.

Charging – Engine

- All batteries are automatically charged when the engine is running.

Inverter

- If 120V AC power is needed for low wattage devices when shore power is not available, the Inverter can be turned ON by pushing the bottom left inverter button on the Magnum Energy unit (photo above).
- Gray Pearl has a house bank with 3 8D AGM batteries (735 amp hours) which provide significant battery resources for daily needs. However, you should monitor your rate of battery consumption as the inverter uses battery capacity more quickly than the items on the DC panel. Items like the microwave can be used briefly on the inverter. It is recommended to start the generator for extended use of multiple higher voltage items being used.
- The inverter only powers the top 7 breakers on the right side of the AC panel: 120V outlets, the MICROWAVE and the SSB breaker. See the Starlink section for a photo of AC breakers powered by the inverter.
- At the Magnum control panel, press the INVERTER button.
- On the AC panel, flip ON the appropriate breakers (outlet, microwave, SSB etc.)
- Please turn the inverter OFF by pushing the on/off button on the Magnum Control unit, lower left button, when not in use.

Victron – Battery Monitor

- The Victron Energy battery monitor is located on the port side of the pilothouse dash. It is not necessary to scroll through this unit, it displays the state of battery charge as a percentage. 100% is fully charged, please do not run the battery system down **below 55%** (This can significantly lower the life of these batteries). You can charge the batteries in three ways:
 - As you are operating the engine it is charging the batteries.
 - Connecting to shore power and ensuring that the Magnum system is on and charging (see BATTERY CHARGER/INVERTER) above.
 - When you run the generator and ensure the Magnum system is on and charging (see BATTERY CHARGING/INVERTER) above.

BERTHS AND BEDDING

Gray Pearl has two cabins with queen size beds, hanging lockers and several drawers and other storage areas. There are ample sources of lighting in each berth, with a master switch near the door and individual controls for reading lights.

There are DC powered USB plugs on either side of the bed in the main stateroom and two plugs on the side of the bed near the door in the forward stateroom. The 12 V DC OUTLET breaker on the DC panel must be turned on for these to work.

The lower cabin has a queen bed with entry from either side of the bed and built in tables with outlets and storage. The upper cabin has a queen bed, tapered at the bow, that rests against the port side with a hanging locker located at the bow end of the bed. There is abundant storage in cabinets, drawers and storage in a floor compartment for luggage or other items that don't need frequent access. This cabin has an entrance directly into the head. This head has a second door that leads into a hallway which serves those sleeping on the convertible settee.

SETTEE CONVERSION

The settee in the main salon converts into a bed (queen width 60" w x 72" l):

- a) Move the salon table out of the way.
- b) Remove the backrest cushion and lay flat on seat to avoid it slamming down when opening.
- c) Finger squeeze 2 latches under front of seat lip to release.
- d) Slide seat out to full extension. This does not take much effort, it should slide easily and come to stop when fully extended.
- e) Open the folding legs on both front corners – make sure legs are fully vertical to avoid collapse and possible damage.
- f) Place seatback cushion and narrow cushion into place.
- g) When closing move both the back cushions and place them on top of seat cushion or out of the way. Close the legs and slide seat back into place, it should move smoothly and easily. Listen for latches to click into place and replace cushions.



BILGE PUMPS

Highlights

- 3 bilge pumps
- Pump switches located on dashboard to the starboard side of the ship's wheel. These switches should be kept on AUTO unless manual override is needed. The auto position is toggled to the right.
- All pumps are wired directly to the batteries.
- If needed, the manual ON position is toggled all the way to the left.
- Toggle in the middle is "off" and should not be left in this position.
- Forward pump located under a floor hatch just outside the door in the main berth.
- The middle pump is in the engine room under the forward end of engine.
- The aft pump is located at the center forward end of the lazarette.



DEFROSTER/DEFOGGER

Gray Pearl is equipped with a DC powered fan that will blow circulated air over the pilothouse windows. To activate, turn on the Defroster breaker on the DC Panel. Then utilize the toggle switches at the left of the wheel to activate and deactivate the Defroster fan. **Note:** The fan will only activate when the engine ignition key is in the "ON" position.

DINGHY, KAYAKS, OUTBOARD AND HYDRAULIC CRANE

Highlights

- 2023 10' Highfield 310 FCT with 20hp Tohatsu outboard engine
- Danforth anchor and bungee to hold the dinghy when beaching if you are worried about tide changes.
- Hydraulic Crane for lowering and raising the dinghy.
- Wired Crane Control Head – Located in pilothouse under starboard flip up step.
- The crane is "hot-wired" there is NO crane breaker and there is no need to run the engine, generator or to be connected to shore power to operate the crane.



Lowering the Dinghy:

- **IMPORTANT** – Please familiarize yourself with **this entire section prior** to attempting to lift the dinghy and moving it. The hydraulic crane is powerful and can cause damage and/or serious injury if used inappropriately.
- Caution Notes:
 - As the dinghy is moving be mindful of the chocks which are a trip hazard once the dinghy is lifted.
 - Close the hatch when moving around the top deck.
 - Never get yourself between the crane and any object that you could be pinned by.
 - Never stand directly under the dinghy while it is suspended from the crane.
- Once on the top deck – **CLOSE THE LADDER HATCH!** You will be walking in this area while moving the dinghy so an open hatch is a fall danger.
- Ensure the dinghy plug is in (plug is on the stern of the dinghy directly behind a small bilge pump).
- Remove the dinghy ratchet straps on the underside of the dinghy (1 at the bow and 2 at the stern corners).
- Plug in the crane control head into the crane – plug located on port side of crane base. The control head is stored under the flip up step on the starboard seat of the pilothouse.



- Loosen the locking pin on the crane base (see -photo) – **IMPORTANT** – this pin will shear off if left in place and the crane is rotated! The pin does not remove from the base it unscrews several turns (**Expose at least 2 threads**). You can look under the base of the crane to see the tang that is depressed by the pin to make sure it is fully disengaged.



- The boom is stored partially extended (see pick to left).
- If it has been fully closed, extend while it sits horizontal by pulling out on the boom locking pin, extend the boom two clicks – you will see two holes exposed on the bottom of the boom.
- **NOTE:** The manual boom extension needs to be done while the boom is horizontal. The boom extension is heavy, and it will be very difficult to manually extend the boom with the boom raised even slightly.



- Unseat the hoist hook by sliding it towards the end of the boom, off the plastic piece affixed to the boom, from end of the boom so that the hook hangs freely.
- **IMPORTANT NOTE:** The boom should only be turned clockwise from its stowed position over the top deck, then rear deck and then over rear port side for lowering. When raising travel counterclockwise back on the same path to its stowed position. The boom will **NOT**

ever need to turn over the fixed rail on the top deck port side. **DO NOT rotate the boom 360 degrees** or the lines will twist possibly damaging the crane and making it inoperable.

- Remove the rail section on the aft port side of the deck by lifting it straight up. Set the rail aside and out of the way – typically near or on the pilot house.
- Using the control head - after verifying the locking pin on the base of the crane has been loosened (unscrewed) to expose at least two threads, lift the boom up until the gray marks on the boom align with the gray mark on the base. Leave the boom raised at least to this position or raise slightly higher if needed.



- Control Head Controls – BOOM has up / down arrows (blue) and left / right rotation arrows (yellow). Do not use the EXT buttons as this boom is manual extension. The WINCH, which is the cable with the hook, has up / down arrows (red).
- Rotate the boom clockwise over the top of the dinghy centering the hook over ring on the lifting harness attached to the dinghy. Lower the winch cable hook (NOT the boom) until the hook can be clipped onto the four-point harness ring attached to the dinghy. Raise or lower the boom to keep the winch cable as close to vertical over the harness as possible.
- Verify the dinghy retention straps have been removed from under the dinghy – this should have been done already, but please check.
- Hoist the dinghy by using the dinghy hoist cable leaving the boom at upright marks or slightly higher. Lift the dinghy until it is touching or nearly touching the boom. The dinghy should lift easily, if it is stuck double check that the retention straps holding the dinghy to the deck have been removed.
- Once the dinghy is raised, it is ok if it contacts and rests against the boom. Slowly start to move the boom in a clockwise direction towards the back of the vessel. Guide the stern of the dinghy from hitting the rail. If needed, you can raise the boom slightly to create more distance above the rail.
- The boat hook may be useful to manage the dinghy, especially in windy conditions. Be mindful of the lack of port/stern railing when you are moving the dinghy and lowering it into the water.
- Continue to swing the dinghy clockwise over the aft deck out over the port side. The crane operator can drop down the bow rope to the person on the aft deck. The assistant can then grasp the bow rope to help control the dinghy when it gets to the water and move to the swim step. The crane needs clearance on the port side to clear the boat, do not attempt to lower the dinghy directly to the stern. (Below you will see the kayaks can be lowered to stern due to their much narrower beam).
- Once the dinghy is on the port side of the boat lower the boom to almost horizontal to increase the distance between the dinghy and the boat.
- Using the WINCH to lower the boat to the water with the assistant helping to keep the dinghy from contacting the vessel.
- Once in the water, lower the hoist until the hook can be removed. We find it easiest to stand on the port corner of the swim step keep one hand on the railing while removing the hook. The crane operator can help my moving the crane over that corner of the swim step and lowering the cable to make it easier to manage.
- Once disconnected, raise the hook back up to the top of the crane leaving about 4 inches of cable hanging down. The winch will stop automatically at about that distance.
- Raise and rotate the boom **back along on the same path** it traveled and back to its original position. Lower the boom, to the bottom of its range, back its stored position, securing the hook on its mounting block on the boom.



Removeable Dinghy Chocks on Top Deck:

- The dinghy chocks are easily removeable from their bases if you want to hang out on the top deck when the dinghy is in the water. Just lift the locking pin and slide the dinghy out of the base that is affixed to the deck.



- We place the chock stands forward on the floor of the top deck on either side of the curved base in the same configuration that they came from. We have the forward starboard stand placed all the way forward on the starboard side of the curved base with the aft starboard pad right behind it. (See photo) We do the same by taking the port forward stand to the port side of the curved base all the way forward against the cabin with aft port base right behind it. We place the tie down straps the same way. This keeps the stands out of the way while hanging out on the top deck but makes it easy to remember which pad is which when you are putting them back in place when you are ready to raise the dinghy.



- Please replace the aft/port corner rail that was removed to move the dinghy.
- Please be mindful that the bases that are affixed to the deck as well as the rings for the straps to secure the dinghy are still a trip hazard as they are raised slightly from the top deck. When moving about the top deck please be cautious of these trip hazards, the gap in the railings at the stern and keep the top deck access hatch closed.

Raising the dinghy to the top deck:

- Raise the engine on the dinghy at least halfway.
- Ensure that the chocks on the top deck are secured in place with the pad-oriented fore and aft. They are moveable and can spin to a side-to-side orientation which is incorrect.
- To replace the dinghy, reverse the process used to lower the dinghy and then carefully rotate the crane counterclockwise swinging the dinghy back onto the top deck.
- As the dinghy clears the top deck aft rail slowly lower it onto to the blocks mounted on the deck. As it lowers make sure the deck blocks are positioned to sit flat against the bottom of the dinghy rather than on edge or oriented side to side.
- Once the dinghy is secured back to the deck with the ratchet straps (1 at the bow and 2 on the stern), lower the engine onto the white piece of starboard fixed on the rail taking care to not have it resting against the deck of Gray Pearl. NOTE: The ratchet portion of the strap should be at the top of hook of each mounting point rather than the bottom to make it easier to tighten and loosen.



- Return crane to original position, making sure to secure the hook to the boom by sliding the hook block on the plastic block affixed to the boom and then securing the boom to the rail with the bungee.
- Retighten the boom locking pin by screwing the locking pin in just hand tight.



Starting the Outboard:

- Open the air valve on the fuel tank located under the bow seat, also look at fuel level.
- Turn on the battery – dial right under the helm seat.
- Lower the engine into the water.
- Connect the engine shut-off cord to your wrist or life jacket and snap the clip under the red kill switch. If the engine just cranks when starting, you likely have not clipped the snap clip under the kill switch – recheck.
- Turn the key on the dinghy to crank and start. If it doesn't start after several seconds of cranking, wait for a few seconds and crank again. You can use the lever behind the throttle to help idle the engine (similar to a choke) faster to warm up. Return the lever to the fully down position prior to engaging in forward or reverse.
- **IMPORTANT:** Once running - look for a stream of water coming out of the engine on the starboard side of the engine. If there is no flow of water shut off the engine and use your finger to run over the hole to see if there is an obstruction and re-try. If there is still no water after several seconds of running do not use the engine and call SJS/Y.
- To shut off the outboard, turn the ignition key off, then close the air intake valve on top of the gas tank if you are done using it for the day.

Beaching the Dinghy:

- The beaches here are often rocky and rough and tides vary widely. You may want to use the dinghy anchor and bungee to keep the dinghy offshore while exploring the beach unless the beach is sandy, and you have looked at the tides. Keep in mind tides, the below anchor buddy system will allow you to keep dinghy in the water off the beach and will avoid you having to drag the dinghy across the beach if the tide recedes. The dinghy is heavy so using the anchor buddy is highly recommended!



Two Options for using the anchor buddy system:

- Taking into account the bottom slope, depth, approach and tide status (incoming, outgoing etc.) select a position that will allow the dinghy to stay completely in the water during your stay.
- Ensure you clip the anchor carabiner to eyelet on the back of the transom – metal. Do NOT attach it to any metal D ring attached to the pontoon.
- Drop the anchor with the stretchy bungee anchor line attached at your desired holding position.
- Pay the stretching line out as you motor to the shore.

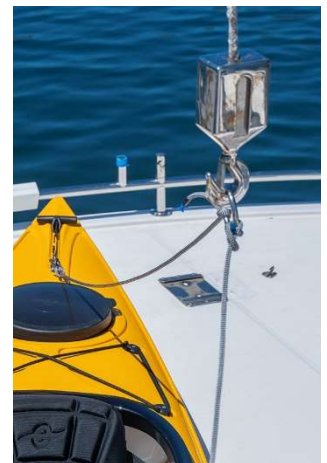
- Raise the motor as you approach the shore to avoid hitting the bottom with the prop.
- Tie the dinghy painter to a secure object or have the crew hold the painter.
- Pay out the painter letting the bungee pull the dinghy out into deeper water.
- Tie the dinghy painter to a secure object on shore.

OR

- You may also elect to reverse the process by first tying off to shore, using an oar to push yourself back out to drop to the anchor and then pulling yourself back in by the painter.
- When it is time to leave pull the boat into shore, the bungee line will stretch.

Raising and Lowering the Kayaks

- Get the kayak lifting bridle which is stored on the hooks under the port side lazarette lid. It has a metal ring with two small lines attached that both have carabiners on the end and a float.
- **Close the top hatch to avoid falling when you are moving on the top deck.**
- Loosen the straps on the kayak you are using (you can completely undo the straps or just loosen them significantly to slide the kayaks back). Be cautious when on top of the pilothouse as there are no rails.
- YOU MUST - Review the crane operation section above prior to using the crane.
- Lift the kayaks onto the back deck (or if the dinghy is still on the top deck, you can carefully set the kayak on top of the dinghy – 1 at a time). The kayaks have lifting handles on the front and back of each kayak.
- Attach the carabiners to the rings near the ends of each kayak on top.
- Remove the hook from the block on the end of the crane boom so it hangs freely.
- Raise the crane boom straight up to line up the marks on the boom and the crane.
- Rotate the boom CLOCKWISE over the top of the kayaks. NOTE: The crane will never need to pass over the fixed port side rail alongside it! The crane moves out CLOCKWISE and returns on the same path by turning COUNTERCLOCKWISE – **Never rotate the crane a full 360 degrees or more.**
- Lower the hoist cable until the large metal ring on the bridle can be easily attached to the hoist cable hook.
- Raise the hoist cable while keeping the kayak from swinging.
- Raise the kayak high enough to clear the back rail and dinghy if it is still attached. You may need to boom up once the hoist is raised as far as it will travel.
- Rotate the boom CLOCKWISE over the back of the boat. The boat hook may come in handy to keep the dinghy from swinging around – be mindful of the lack of railing from the top deck on the stern.
- Lower the boom until the kayak is hanging over the stern of the boat and clear of the swim step.
- Use the boom down to clear distance from the boat and the hoist down to lower the kayak to the water. It will be helpful to have your assistant move down to the swim step to help guide the kayak down.
- Secure the kayak to the boat with a rope and remove the bridle.
- To raise the kayak, reverse this process. Stow kayaks as you found them, by strapping them in place with the covers on and clipped.



Leaving the kayaks in the water

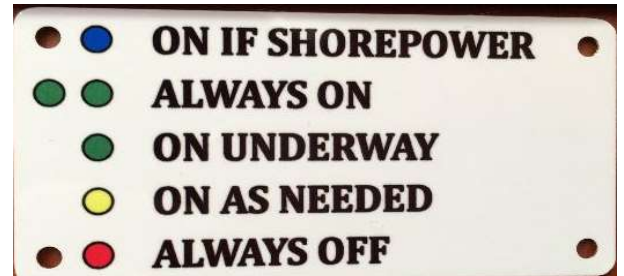
- The kayaks tend to want to nose under the swim step and bang around which is both noisy and if they are banging on the ladder can cause damage to the kayaks. To avoid this please use the large orange round ball fender (also a great roving fender) which is stored in the port side lazarette.
- That fender has a small shock (stretchy) cord with two small carabiners. Clip them to the small metal rings on the top bow of the kayaks with the large part of the fender sticking out in front like a big red nose. The fender has a long line attached to allow you to let the kayaks float back from the boat at your desired distance.



ELECTRICAL

Highlights

- The AC and DC panel breakers use the color dot convention shown on right:



- Main AC breaker/switch is located on the DC panel in nav station.
- There is a shore power breaker located in the rear port cabinet in the salon. This breaker is left in the ON position (Photo to right)
- The Outlets and Microwave breakers on the right section of the AC panel are powered by either Shore Power, Inverter, or the Generator.



Switches and Controls on the Electrical Panel

DC PANEL



AC Panel



- Shore Power:** All the AC breakers are on the bottom half of the panels. The SHORE AC main breaker should only be turned on after the shore power cord is attached to shore power. As indicated on the SHORE breaker switch it is capable of handling 50amp but will also handle 30 amp. The same breaker is used for both types of available shore power. When the AC panel is ON, a red LED light is illuminated on the panel and after a few seconds should indicate the voltage available from the Shore Power (see detail below). Please ensure that the switches for the AC items (water heater, battery charger, AC plugs) are turned OFF before connecting or disconnecting shore power.
 - The AC Panel has a rotary knob on the top that has L1, L2 and L1/L2. Each position shows the available voltage depending on the power source. It does not switch voltage – it just displays what the vessel is receiving.
 - 30amp shore power will provide 110v (approx) which you can see on L1 and L2.
 - 50-amp shore power will provide 110v which you can see on L1 and L2 and also will provide 220v (approx.) which you will can check on L1/L2.
 - The Generator provides the same power as 50amp shore power.
- Water Heater:** Activate the electric hot water heater, WATER HEATER switch on AC Panel, when you are on shore power or generator. Water is also being heated when the Hydronic Diesel heating system is operating. B
- Battery Charger:** Turn ON the INVERTER breaker on the AC Panel whenever you are connected to shore power or GENERATOR. It must be “ON” to charge the batteries while on shore power or on GENERATOR. When charging you will see the charger/inverter unit above the port side counter in the pilot house will show either BULK, ABSORB or FLOAT charging. If that display does not come up after a few seconds hit the on/off CHARGER button on the unit (second button from the bottom on the left side of the unit).
- AC Plugs:** Activate this switch to turn ON the AC electrical outlets located throughout the boat, operate the TV/DVD-Blu-ray entertainment system, etc.
- Bilge Pump:** Always leave the bilge pump setting in “Auto.” Test the pump daily by switching to manual and listening for the pump to run, then return it to the “Auto” setting.
- Water Pump:** If you don't hear the pump start when you turn it ON at the panel, it means that the system is at working pressure – you should hear the pump start again after you use some fresh water. Note: that the marine toilets use fresh water which does impact the freshwater supply. Showers and sinks in the heads use the fresh water supply, as does the cockpit shower.
- Cabin Lights:** This switch turns ON/OFF DC power to the lights located throughout the boat. It must be “ON” before you can turn on any lights on the boat.
- Fridge Unit:** We usually leave the fridge breakers “ON” at all times. If the house battery charge level drops to around 60% SOC on the Vitron, and you aren't planning to run the engine, connect to shore power, or to run the generator you can turn the fridge off. Your provisions should stay cold overnight.
- Navigation Instruments:** Turn this switch “ON” to activate the electronics, instrumentation, and multi-function display in the cockpit.



- **Anchor/Navigation Lights/Forward Deck Lights:** When anchored or mooring, turn on the Anchor Light at dusk (located at the top of the mast). When motoring in poor visibility conditions or night (Note: night passages must be pre-approved by SJS/Y), turn on the navigation lights. This is accomplished using the three-way switch. When going forward on the deck at night use the Forward Deck Light switch to illuminate the area. (see photo to the right).
- NOTE: The **NAVIGATION LIGHTS** breaker on the DC Panel must be turned on for the above switches to work.



- **Tank Monitor:** When you toggle this unit ON it starts with the WASTE tank. The only way to check the WASTE tank is to flip switch off and then back on and give the unit a few seconds to move the needle. The #1 button will not activate when pressed – it is the default start position for the indicator when going from OFF to ON.

You can then cycle through this Tank-Level Indicator by pushing each number to display the fuel gauge and water gauges. NOTE: The water tanks empty unevenly, this is normal. The accuracy of the fuel and water gauges can get questionable when they drop to $\frac{1}{4}$ full – at $\frac{1}{4}$ full it's time to find the fuel dock! We normally cruise with this unit OFF and check it as needed.



ELECTRONICS AND INSTRUMENTS

NOTE: Never rely upon your electronics! Good map skills and your observations are key to safe navigation. There are charts and navigation tools aboard Gray Pearl. However, you will find Gray Pearl with an exceptional suite of electronics which we hope will provide you with whatever information you would like to make your trip enjoyable!

NOTE: It is not necessary to shut down the electronics separately, we use the ELECTRONICS and AUTOPILOT breakers on the DC Panel to turn on and off the electronics package.

Gray Pearl Helm Station Electronics



Garmin 8616 Chart plotter Highlights:

- Gray Pearl is equipped with dual touchscreen Garmin 8616 chart plotters. The screens are powered by turning on the ELECTRONICS breaker on the DC panel. Turning on this breaker will start both chart plotters, the Garmin wind display, the Autopilot control head/display and the Garmin radio located overhead with the microphone remoted to the left of the ships wheel.
 - In the event any of these items do not come when ELECTRONICS breaker is turned on you should be able to press the power button on any of the units, located on the bottom right corner of each unit.
 - You will likely also hear the radar unit start to warm up, which sounds like humming from the top deck above the helm station. This is normal and only lasts about 30 seconds.
- Once powered the units will display the last format/setting used. To access the wide variety of options on the chart plotters press the Home button – shaped like a little house on the bottom middle of the touch screen and follow the onscreen options.
- Commonly used chart plotter selections and functions are detailed below.

- There are many online video tutorials/webinars put out by Garmin that you could view ahead of time or onboard if you have internet access (made easier with the Starlink system!)
- There is also an electronic user manual – Info > Scroll the items on the screen to Owners Manual > Open

Commonly Used Functions

Escaping Screens: To escape a screen or to return home look for a few options that may be present depending on which function you are in:

- Close X
- Back
- A backwards looping arrow
- Stop Panning – Specific to Charts when you are off looking at somewhere on the map and want to return having Gray Pearl in the center of the screen.

Zoom – The Charts screens are all pinch to zoom or they have a + and – sign on the right edge in the center of the side.

Home button – When you push the home button you will see the below categories from left to right along the bottom of the screen. You will also see the **SETTINGS** selector on the right of the screen.

- **Pinned** – When you touch Pinned it shows you the pinned settings if there are any and directions for the how to add and remove settings to pin it.
- **Navigation Charts** – When you push Charts it will pull up 4 options (Nav. Chart, Fishing Chart, 3D overlay, Radar Overlay).
 - **Nav. Chart** – This is the primary navigation reference chart. You can view it full screen or as part of a Combo (see below). We find it useful to have a full screen Nav chart up on one of the screens while cruising and have a sidebar display of information. If you want to change any of the displayed sidebar items, you can just touch and hold the item and the menu of available display item will pop up. Pick the item you want to replace the one you touched, and it will put that item in its place. Some useful options:
 - GPS Speed
 - GPS Heading (COG)
 - Arrival Time (if I set a destination)
 - Depth
 - Current Time
 - GPS Position
 - **Radar Overlay** – This will overlay the radar display on the navigation chart. On the upper left edge there is a Xmit On/Off button. You touch that button to turn the radar on and off. With the radar on you can still pinch to zoom.
 - **Chart Options:** On the bottom right corner of all the chart main screens you will see three dots with the word Options underneath. Selecting the Options button will pull options specific to the chart type you are on. To leave options click Close X on the bottom right corner.
 - **Stop Panning or Back Arrow:** As you are moving around the map looking at routes, scanning ahead or anytime you move the map there will either be a back arrow in upper left corner of the map or a box with the words Stop Panning in the bottom right. These will take you back to where Gray Pearl is on the center of the screen.
 - **Chart Orientation:** When you are on your chart screen you will see the Option button with three dots on the bottom right of the screen.

- Push the Options – this opens a screen on the right side.
- Push Chart Settings and at top of pop-up screen is Map Orientation – This allows you to select one of three modes:
 - Course Up – This is the programmed course you have set the vessel on by setting a waypoint and traveling to it.
 - Head Up – This is the heading of the vessel as you sit facing forward at the helm.
 - North Up - This is how most people read a paper map with it oriented as North up.
 - Which one is best? There is great debate on this – try Head up and North Up and see which works best for you. It may depend on what you are doing. We haven't found Course to be our favorite, but you can try that as well.
- **Course Over Ground (COG) and Heading Line:**
 - Options (far right of bottom toolbar) > Layers > My Vessel > Heading Line > Source > COG and Heading
- **Display Brightness:**
 - Home > Settings > System > Sounds and Display > Backlight
 - You can manually adjust the brightness by sliding the slider. To return to Auto just push the auto button.
- **Clear Pre-Existing Tracks:**
 - On the bottom right of the screen you will see the word Options with three dots.
 - Options > Layers > User > Tracks > Saved Tracks > use slider to turn them on or off.
- **Tides and Currents:**
 - Home Screen > Info button (to left of home button) > Several options to select include Tides and Currents buttons.
 - NOTE: Look at the station the info is being drawn from as there will be some slight variability based upon your distance from that station. But this info provides good overall situation awareness for Tides and Currents. For exact detail reference use the provided Tides and Currents books provided on Gray Pearl.
- **Screen Combo Options:**
 - From the Home screen you will see a COMBO button.
 - Scroll through available combos or create your own by clicking add combo. There are numerous options for how to split the screen that you can select from and then each square is activated by touch and hold, and a menu option will pop up for you to choose from.

A.I.S. (Automatic Identification System):

- **Highlights**
 - Gray Pearl transmits her position and data via an AIS signal as well as receives AIS signals from other vessels equipped with AIS transmitters (Commercial vessels are required to have AIS, recreational vessels are optional). Gray Pearl is transmitting her position full time (The AIS unit is wired directly to the batteries).
 - On most vessels the VHF base unit radio and must be ON to send and receive AIS data. Some vessels will have a separate AIS unit installed and wired to the batteries for full-time transmitting. The chart plotter is tied to the VHF radio or AIS Unit and shows the positions of vessels with AIS as triangles.
 - AIS information supplements marine radar, which continues to be the primary method of collision avoidance for water transport.

- AIS requires each vessel to have a 9-digit MMSI (Maritime Mobile Service Identity) number to transmit position and data. Gray Pearl's MMSI number is 367720980.

Garmin Wind Display

- The screen that comes up when the instruments are turned with the breaker is the one we use regularly. It shows wind direction/speed in the center with the four corners showing data for True Wind Direction, True Wind Speed (takes into account your moving speed), Actual Wind Angle and True Wind Angle (based on your movement or lack thereof).
- Gray Pearl has significant surface area above the waterline, the wind will affect docking and slow speed maneuvering so use this information along with your observations to plan your maneuvers.



Autopilot

- The autopilot display allows you to control boat by engaging the autopilot and using the push buttons to turn the boat by single degrees or by 10 degrees at a time. Those options will display when you push the engage button on the autopilot. You will see 10 degree and single degree options for both directions.
- The autopilot also shows your rudder angle along with bottom of the display (with an increasing green line to starboard as you turn to starboard or increasing red line to port as you turn to port). This indicator is very valuable when docking or in close quarter maneuvers.
- We recommend only using the heading hold or single leg autopilot rather than trying to plot an entire route and engaging autopilot to follow. There are too many hazards along your route to do this safely. You **MUST** always have a person in the pilothouse responsible for controlling Gray Pearl and for keeping watch for hazards.
- The autopilot **DOES** have SHADOW DRIVE which allows you to take control of the vessel by turning the wheel rapidly and decisively to avoid an obstacle such as a crab pot or a log. You will see "Shadowdrive" displayed on the bottom of the autopilot if you take control of the vessel without using the standby button. Gradual turning of the wheel will not engage SHADOW DRIVE, you must hit Standby to making gradual corrections manually or use the degree buttons to turn the boat.
- **When you complete a maneuver using SHADOW DRIVE the autopilot will reengage on whatever heading you quit steering on. It will not return to it's original course unless you were using autoroute.**



Cummins Vessel View

- The Cummins Vessel View will turn on when you turn the key to the ACC (accessory) position. You will see an OK on the upper left corner as you move the key to ON and pause for a few moments and then turn the key to start.
- The first screen on the Vessel View is what we use almost exclusively, unless we want to check engine hours then you can scroll the boat icon button on the right side of the unit. The first screen will show your RPM, GPM, Engine Water Temp, Oil Pressure, Voltage and GPH (Gallons Per Hour). When cruising near 8 knots you will typically see water temp in the area slightly over 160 after the engine has warmed up. Typical Water Temp 160-180 (when normal cruising 160-170). Typical Oil PSI 55 – 70.

AUTO ANCHOR CONTROL

- We ask that you do not utilize the auto anchor for any purpose other than to verify your rode approximation. The unit has an auto counter that approximates the amount of rode you have deployed. We find that typically that this count is approximated. However, removing the cover to see the number displayed helps when you're not sure if you put out 150 feet or 200 feet of rode, because you lost count of 25-foot markers!
- Using the Auto Anchor to deploy or retrieve is more likely to result in an anchor swinging to the hull or other issues, there is no substitute for having the anchor deployed from the bow with good signals to the captain to allow for effective anchor and rode management.

ENGINE

Highlights

- Main engine room access is through a large floor hatch in the salon.
- Secondary access through a smaller hatch in the salon next to the stairs. For safety reasons, please leave both hatches closed when underway or not in use.
- Our Maintenance Pros will check oil and coolant levels, belt tension and debris in raw water strainer weekly. Charter Guest is NOT required to perform these checks unless engine trouble alarm sounds. If on multiple week charter, then please check engine vitals weekly.
- Raw water strainer is in the engine room, forward end of engine directly under the smaller hatch in the salon.
- Left hand prop. Prop walk in reverse to is to **starboard**.
- Economy cruise is 7.65 kts @ 1400 RPM using approximately 3.2 gph (see chart on Page 3 for more details).



Details

Prep for Engine Start

- Check fuel tank levels on gauges located on port side dash. You can also check the sight tubes on both fuel tanks located in the engine room. The fuel tanks have a crossover valve that should be kept in the on position.
- Check around outside of vessel for loose lines in water.
- Close the salon door to keep engine exhaust out.



Starting

- Gearshift in neutral – Red light next to Neutral will be illuminated.
- Turn the ignition key to ON.
- Wait for the Vessel View display to boot up. When the vessel status in the lower left of the screen reads OK then start engine by turning the ignition key to the right.
- If you want to idle at a slightly higher rate for warm up, you can go into throttle only mode as follows:
 - Push Throttle Only Button on base of Gear Selector/Throttle. The red light next to NEUTRAL will start blinking.
 - Move throttle forward to increase RPM's.
 - When ready to re-engage transmission move lever to Neutral position and push Throttle Only button. The light next to NEUTRAL will go solid indicating normal operation.
- Please do not allow the engine to idle for extended periods as this will gunk up the cylinders. After starting, it is okay to depart from the dock or anchor at idle or low RPM (below 1,200). After 5 minutes underway at low RPM the engine is warmed up sufficiently to increase the load to cruising RPM if desired.



Shut Down

- a. Gear shift in neutral.
- b. Turn the ignition key to the OFF position (to the left) engine will shut down.

Engine overheat:

Normal engine temp is 160-180 degrees (Typically between 160 and 170). If the alarm sounds, or steam comes out the exhaust, the most likely cause is eelgrass plugging the raw water strainer, located at the forward port side of the engine, which you saw on your Daily Engine Inspection.

(Note: raw water impellers are replaced annually as part of preventive maintenance.)

If the engine overheats, you can also check the coolant level in the engine. Normally, the coolant level in the overflow plastic container is at are a couple inches above the "low" level when the engine is cold. If below the "low" level by more than a few inches, we add coolant from the cockpit lazarette, but not before.

Troubleshooting Engine Problems

Cummins engines are incredibly reliable, and you shouldn't have any problems on your voyage. Nevertheless, here is information on engine overheating.

Engine Overheating



If the engine overheat buzzer sounds while the engine is running, it's usually no more serious than eelgrass plugging up the raw water strainer, which is located under the smaller engine room hatch next to the stairs in the salon. The solution to this problem is prevention – keep an eye out for eelgrass mats, especially along those "soapy" looking tide and eddy lines in the water, and don't run over it. When eelgrass gets sucked into the engine cooling water intake, it collects in the raw water strainer.

To clear eelgrass from the raw water strainer, stop the engine, close the thru hull for the strainer located below the strainer, twist off the clear screw-top, pull the filter and extract the eelgrass. Replace the lid and hand tighten by turning it clockwise until the lid is seated firmly on the rubber gasket. Don't over tighten as the lid can crack. Make sure the lid's threads are not crossed as this can give the appearance of a tightened lid but the gasket won't seal.

Important note: REOPEN THE THRU HULL (see photo to the right). Then restart the engine.

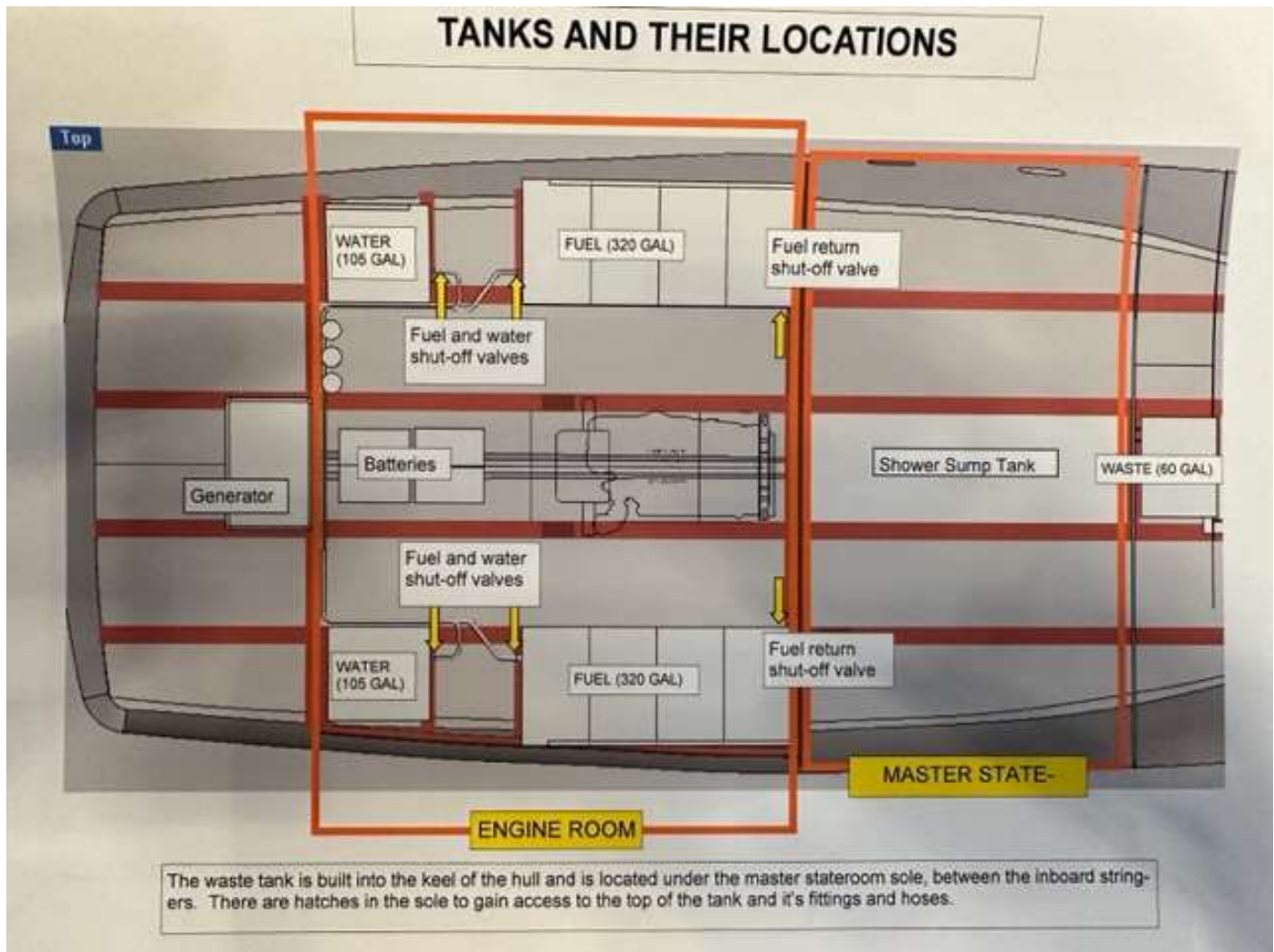


OPERATING TIP: Bottom line – you're on vacation! If the engine is giving you problems, call SJS for assistance. They have repair teams in the Islands to assist you.

ENTERTAINMENT SYSTEMS

- **FUSION audio system:** AM/FM radio with wi-fi and Bluetooth connective. Two speaker zones one in main cabin and one in the pilot house.
- **TV:** LG 27" Smart TV with wi-fi (connects to Starlink for TV and streaming when available).
- **Remote controls:** Remotes for the TV and video player are stored with the DVDs.

TANK LOCATIONS



FUEL

Highlights

- Vessel name has two fuel tanks which are cross connected via a crossover valve.
- The fuel tanks hold 320 gallons each.
- The fuel gauges are located in the pilothouse on the dashboard above the helm.
- Filler deck caps are on each side of the cockpit on the combing at the salon bulkhead marked **Diesel**. The tank vents are located on the exterior of the boat directly below the fills.

- Using the deck cap tool (located in the starboard side seat drawer in the pilot house). Open the cap which should pop up. Once are able use your hand to unscrew the cap fully. The caps are all attached with a chain, but care should be made to place cap on the boat rail rather than have it dangling.
- Each fuel tank has sight tubes, which need to be opened at the top and the bottom during fueling to see fill level. These sight tubes should be closed when fueling is completed and only opened if you need to visually verify tank levels. The tanks are designed to be leak-proof.
- Re-fueling: One person fueling and one person watching the sight gauges. When sight gauge reads just below full, slow down fuel fill. Continue filling, listen carefully, and stop filling when sight gauges are full (there is still some room in tank above sight gauges to prevent overfilling). The tank monitor gauge on the dash may not show full as there is room above the sight gauges in the tank. We only ask that you fill to the top of the sight gauges. You can also listen for the pitch rises as the tank gets close to full. Repeat for the other tank.
- **NOTE:** Only have one lid open at a time and ensure you double check the lid as the water fill is located right next to the Diesel fill.

Details

Fuel Filters

- Located in the engine room, on the aft wall of the engine room directly below the larger engine room hatch.
- Use one filter at a time leaving the second as a clean spare.
- Short, pointed end on the selector valve yellow handle points to the filter in use.
- The vacuum gauge between the filters indicates filter condition. When dial pointing in white zone, filter okay. When pointing in yellow, time to switch filters.
- During your check-in, please report if you switched filters.



GENERATOR

Gray Pearl has a 9KW Northern Lights generator.

- Located in the center of the lazarette forward of the rudder cover. The generator has a cover that can be removed by lifting the tabs on the upper face in the corners to expose the generator itself. The generator exhausts out of the port side near the stern, with the cooling water exiting just under the waterline – you may see some current or bubbles in that location.

Starting the Generator:

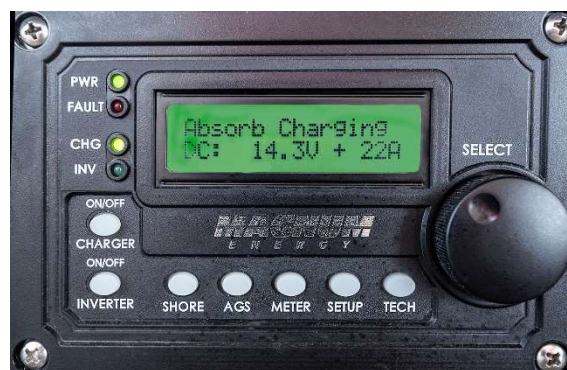
- At the AC panel, make sure the SHORE or if exposed the GENERATOR breakers are flipped OFF.

- The generator start/stop controls are located above the counter on the port side of the helm station.
- At the generator control panel, (inboard end of the Co-Helm bench, facing inboard top of stairs) push and hold the Preheat and Shutdown ByPass rocker switch to pre-heat the generator for 5 seconds. While continuing to hold down the pre-heat rocker switch, push the start button. The engine should start – release the start button while holding the pre-heat button down for another few seconds then release.
- Let the generator warm up for about two minutes, then at the AC control panel, move the sliding protector up – this protector will only slide up with the SHORE breaker OFF to allow access to the GENERATOR breaker. Once the protector and flip ON the generator power circuit breaker (See AC Panel Photo under Electrical). Then turn on AC systems as you would on shore power one system at a time. Monitor your current usage amp draw.
- It is important to let the generator warm up for several minutes if you are going to use the washer or dryer (See washer dryer section for direction).



Charging the Batteries:

- Turn on the INVERTER breaker on AC panel, if it is not already on.
- On the Magnum Energy Panel, located on dash panel on to the port side of the helm station, push the On/Off Charger button and the green CHG button above will turn green and the display screen will show a state of charge (Bulk, Absorb, Float).



Stopping the Generator:

- First remove loads by flipping OFF the individual AC breakers.
- Let the generator idle for 2 minutes before shutting it down.
- At the generator control panel, press and hold the bottom of the Generator Control switch (labeled "STOP") the generator shuts down.
- Then flip OFF the Generator breaker.

HEADS AND HOLDING TANKS

Highlights

- Only what has been eaten goes in the toilet.
- Both toilets are electric with freshwater flushing.
- Both toilets flush into one holding tank.

- There are no “Y” valves on Gray Pearl. Toilet waste always flushes into the holding tank.
- The holding tank level gauge is in the pilothouse on the portside dash. Switch the ON/OFF switch to ON to read level.
- The holding tank capacity is 60 gallons. Please empty it BEFORE it's full.
- Emptying the holding tank – see detailed instructions below.

Details

Please do not put anything in the toilet that has not been eaten. Experienced sailors deposit toilet paper in a wastebasket in Ziploc baggies, not down the toilet because paper tends to clog the hoses. The toilets are set to reduce excess use of water and excess water filling the waste tank. For liquid waste we typically avoid flushing the toilet every time.

For solid waste we recommend adding a bit of water to the toilet bowl by pressing the left button on the head control that looks like little waves before and after and then flushing the toilet. The added water allows for solid waste to travel through the system more effectively. Please remember to use the provided baggies for your used toilet paper.

San Juan Sailing staff will discuss holding tanks and pump outs on your arrival. Our one plea is this: please don't over fill the holding tank as leaking sewage is most unpleasant! Thank you.

Please note that in U.S. waters it is illegal to discharge holding tanks overboard. While in Canadian waters outside of bays and harbors overboard discharge is allowed.

Operating the Heads:

- The small panel located on the vanity face next to toilet has a green light in the center when powered. If the light is not on – check the DC Panel breaker to make sure the head breakers (one for each head) are on and the fresh water breaker is on.
- To flush push the button on the right of panel and release (do not hold down). You should see some water start to flow into the bowl and then the toilet will flush, and a small amount of water will refill. This is the low flow setting which we use exclusively to avoid filling the waste tank too quickly.
- On the forward head – if you notice that after flushing the water runs and there is a gurgling double flush or in the main stateroom head you see the bowl fill up part way with water rather than stopping at or slightly over the neck then the tank is in “high flow” mode which will fill your tanks more quickly. To toggle between these modes simply hold the flush button for about 8 seconds and you will see the green light in the middle of the small panel blink and the toilet will flush. These are the only two modes so just repeat to toggle back to the desired mode.
- After flushing in low flow mode - we add water manually after each use as the water barely fills the neck. Just push and hold the button on the left of the panel and water will flow until released. We fill the water up to the top of the neck after each flush - This step is important it helps reduce any odor seeping up from the tank.
- For solid waste you should add water some water to the bowl if it is low prior to using as needed.
- We typically do not flush liquid waste every time we use the head to conserve water and holding tank space. However, be mindful of the level of water in the bowl if you are going to start cruising and/or are in larger waves, to avoid having the bowls contents splash out.

No Flex: Each head has a container of No Flex in the cabinet. Please add one capful per day to each head being used to assist in processing the waste.

Emptying the Holding Tank:**There are two ways to empty the holding tank:**

1. Pump out at a Shore Facility.
2. Where legal, discharge overboard using the macerator pump.

Pumpout at Shore Facility or Pumpout Barge/Vessel

- Open the deck cap, located on the port side just forward of the pilot house door.
- If you dock on starboard side, please carry hose (don't drag) across the bow area, being careful not to step on the hatches. Do not put hose through the pilot house!
- Deck cap key located in pilothouse in drawer under starboard seat in the pilot house.

Discharging the Holding Tank Overboard

- Shut down the engine so you can hear the macerator pump running when you switch it on.
- Open the discharge hose (macerator) seacock located in the small low door inside the hanging locker of the main berth.
- Turn on the MACERATOR breaker on the DC panel.
- Find the "Poop Pump" key – stored in the drawer under the starboard seat in the pilothouse.
- Insert the key into the MACERATOR keyhole next to the engine ignition.
- Turn the key one click to the right, and the light will light, then turn the key one more click to the right and you'll hear the pump motors start – release the key and it will return to the middle position while the pump runs (like starting a car). The pitch will vary as it grinds and discharges the waste. When the tank is empty, the motor pitch will quickly rise as the pump sucks air. Usually takes 2-3mins at most. Less of course if the tank isn't full.
- Turn off the key by turning left.
- Turn off the macerator breaker.
- Close the discharge seacock.

HEADSETS (WIRELESS EARTEC)

Wireless Headsets

We have provided four Eartec wireless headsets that will allow the skipper and up to three crew members to communicate clearly and calmly during any close quarters maneuvering or other operations. Docking, anchoring, backing, all are so much easier and less stressful when the skipper and crew can communicate without seeing one another.

The headsets are kept in a soft-sided case in the drawer under the starboard seat in the pilothouse. We've added straps to each of them to wear around your neck in case they slip off – they do not float!

Three tips:

1) Power ON and OFF is turning the MAIN headset (marked on the battery case side of the headset) by clicking the sliding button to ON. To start the REMOTE headsets, push the power button and release on the side of the headsets, and it will turn blue. Wait a several seconds for the units to connect and then talk to each other on the headsets to verify they are working.

2) No matter how many headsets are in use, one of them must always be the 'Main' headset. It is labeled on the battery case side and acts as the hub for all the others to communicate together.

- Shut Down by sliding Main slider switch to OFF. For the remote headsets hold the blue lit power button down until it shuts off and then release. Then watch the button for at least 10 seconds to make sure it doesn't flash.

3) You can use the headsets for almost a week's worth of use before needing to recharge, it really depends on total usage time. We recommend that you recharge the batteries every 3-4 days when being used each day.

HURRICANE II FURNACE (HYDRONIC/FORCED AIR)

- The heating unit is located in the starboard side of the lazarette. The system exhausts out of the starboard side near the stern through a single port that is located about midpoint of the above the water line. This exhaust does get hot as the system is not water cooled – do not touch or rest anything against this exhaust port while in use or until it cools. This is not the set of three holes located near the waterline on the stern.

Highlights

- Hurricane Diesel fired furnace with hydronic/forced air system.
- Automatically heats the water in the domestic hot water tank when the system is on.
- The switch to activate the system is located on the aft wall of the salon. Switch to "BURNER ON" you should see a green light next to Burner illuminate. (Photo to Right)
- When on Shore Power you can supplement the burner by flipping on the FURNACE breaker on the AC panel. Then flip the ELECTRIC Switch to ON, you should see the green light next to Electric illuminate. This is optional as a supplement.
- This system has three zones each controlled by their own thermostat – Salon/Pilothouse (located at aft Salon wall), Main Berth, Guest Berth.



- To change temperature on a thermostat you will need to hold the sun or moon down while moving the arrows to the desired temperature.

If thermostat is not working due to low battery, use small Phillips tip from toolbox to loosen screw at bottom of the unit. Remove by tilting up from bottom, remove and replace two AA batteries and put unit back in place and gently re-tighten screw.

- To shutoff turn BURNER and ELECTRIC (if used) switches off. The unit will continue to run for some time as it cools down, this is normal.

- The diesel furnace is located under the starboard lazarette hatch. Be mindful not to put items in front of the furnace as there are on/off/reset buttons on the face that can be depressed by the items left in that area. If the unit is not operating, you can attempt to reset by pushing the reset button and then the on button.

ELECTRIC WALL HEAT UNITS

Highlights

- Three wall units (salon, main berth, forward guest head) are each operated by turning the white knob.
- Each unit has its own HEATER breaker on the AC Panel (top to bottom is front to back). These heaters can only be used on SHORE power or GENERATOR.
- **Be careful to not place items directly in front of/against the heaters** when operating them as they can overheat and cause a fire hazard.

LIGHTING

Highlights

- On the DC Panel flip on the MAIN CABIN LIGHTS breaker, this controls all lights on Gray Pearl.
- Lighting switches for the salon are on the aft wall, the starboard set of lights is the top button with the dimmer switch located directly below. The galley lights are located in the galley. The pilothouse lights are on the starboard side of the helm station.
- The lights on the stairs are on a motion sensor.
- Lighting switches are on cabinet faces or bulkheads in each living area. You can turn on/off the berth lights from each bed.
- There are lights in the salon and berth that are operated by the small switch on the bottom.

REFRIGERATOR, FREEZER AND ICE MAKER

Highlights

- Ideal thermostat setting is No. 5 on the dial located at the top back of the fridge.
- Circuit breaker/switches are located on the DC panel in the nav station. The top breaker is for the main galley refrigerator/freezer, the bottom breaker is for the small fridge located at the top of the stairs under the starboard pilot house seat.
- Check to be sure there is sufficient battery power to operate the refrigeration equipment all night. Usually there is.
- The ICE MAKER breaker is located on the AC Panel, flip to ON to make ice. This can only be used when on SHORE Power or Generator.

SHOWERS AND SUMPS

Highlights

- Flip ON the FRESH WATER, both HEAD breakers, and the SHOWER SUMP on the DC panel.
- Both showers drain into the same sump.
- Please try to aim the shower head away from the door to keep water from dripping onto the floor outside the shower. If some water does escape, please mop it up after showering.
- The shower sump pump can be used as a supplemental bilge pump in an emergency.

Details

There is also a freshwater sink/shower fixture in the cockpit. The sink is located under the lid on the top of the propane locker on the aft deck. The shower access hatch is located on the port side of the propane locker. This shower is useful for washing off shoes after returning from the beach.

SPARES AND TOOLS

Common spares: Location: Main engine room in bin under forward hatch.

Contents: oil absorbent pads, fuel filters, oil filter, impeller.

Small parts: Location: Main engine room center, strapped in front of engine. Clear box containing fuses, bbq regulator, bilge pump, float switch, misc hose clamps, safety wire, extra hose nozzle, misc screws and nuts etc.

Heavy Duty Spares: Main engine and Northern Lights Raw Water pump spares located under main stateroom mattress. Starter and Alternator spares are located under forward stateroom mattress. Fresh water pump spare located under forward stateroom mattress.

Tools: At the foot of the stairs under the main engine room hatch in the salon.

STARLINK WI-FI

Highlights: Starlink has been added to Gray Pearl, which provides Wi-Fi.

Wi-Fi Name: Gray Pearl

Wi-Fi Password: On label Inside of Charter Guest Reference Manual (White Binder)

Details: To power Starlink you will need to power the AC Panel via Shore Power, Generator or by using the Inverter. The top outlet breaker must be ON (see yellow box in picture on the right).

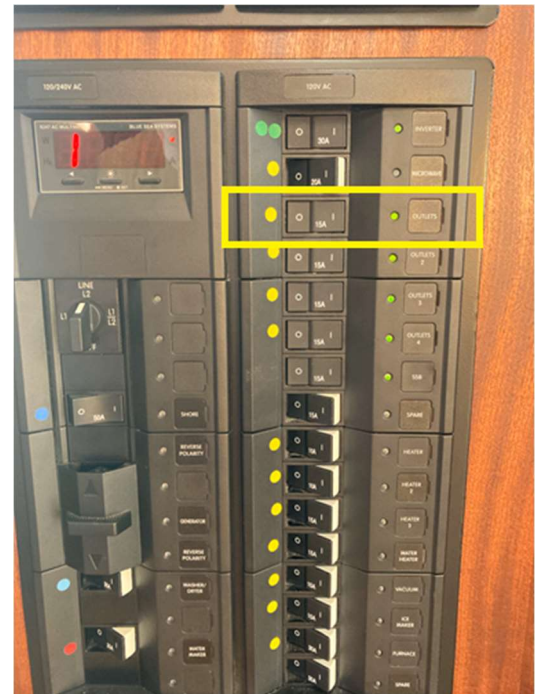
When Inverting: To use the Inverter when not on Shore Power or Generator, you must push the bottom left button on the Magnum control which is located on the port side of the dash. When you push the Inverter on/off you should see the inverter light on the control illuminate and the display will say inverting. Once you are inverting make sure the outlet breakers are turned on. Starlink is wired to the top outlet breaker.

Especially when Inverting - you can (and should) monitor the battery state of charge on the Victron battery monitor on the far-left dash panel to the port side of the helm station. Gray Pearl has a significant battery system, which will allow you to run Starlink and basic charging of cell phones, computers etc using the outlets throughout the day, however you should periodically monitor your state of charge and be mindful of your rate of battery consumption. You should shut off the inverter when you are going to bed and check your state of charge in the morning. If you are on anchor for extended periods of time and your state of charge is getting close to 60% you should run the generator and charge the batteries.

When you are running the engine, you can also run the inverter and still have enough power being generated to charge the batteries. The Starlink service package for Gray Pearl is advertised to provide service at **10 knots or less**. If you are cruising over 10 knots, which is not typical, please shut off the Starlink as this could potentially violate the service agreement for the Starlink Roam package that is being provided.

Once you have powered Starlink, it may take 15 minutes or longer to fully activate. During this time, you may hear and/or see the dish which is mounted on top of the pilothouse move as it seeks the best position for signal. You typically will see GrayPearl wi-fi available but without connection during this process.

Starlink Disclaimer: This is new technology and is being offered as “best effort” to provide wi-fi. The availability of service is not considered part of the expected charter package, which is one of the reasons why we are offering the service at no additional cost to the guest. If you have difficulties, you can contact SJS/Y but they may not be able to assist and will not send a technician to troubleshoot or repair the system if it is not operating correctly. You may attempt a re-boot of the system by shutting off the power for a few minutes and re-starting. Available bandwidth varies and ranges from very fast “streaming on multiple devices” to having service but not being able to “stream” on any device. We hope you enjoy this addition and appreciate feedback you have on it!



STORAGE

The amount of storage is one of the appealing factors of this model. We found these of greatest use:

Food:

- a) Salon cabinets on the aft port side and starboard forward next to the TV both offer plenty of storage. There is also a large available shelf above the pots and pans cupboard in the galley. There is also a great area of spices, can goods etc in the sliding door cabinet on the wall behind the stove.
- b) There are also drawers under the settee and on the starboard aft salon, though the stackable moveable seats usually sit there making this area typically used for items not accessed as frequently.

Clothes: Each stateroom has a hanging locker and several drawers that we find more than adequate.

Tools: In the engine room.

Fenders: We store a roving fender on the aft deck and one hanging in the anchor locker. For shorter journeys we pull the fenders up and lay them along the sides of the boat. If you want to put them away, you can store the four starboard fenders in the starboard side of the lazarette. It is best do this by standing in the lazarette and either grabbing the fenders off the aft deck and stacking them carefully to the starboard side being careful not to have them resting or next to the Hydronic heating unit which has buttons on the face that can shutoff or reset the unit. The remaining fenders can be stacked on lid covering the rudder making sure not to have the lines laying loose but rather coiled on top of the lid. You want to avoid having any lines being left loose that could slide under the rudder cover in heavy seas. The three port fenders can be stored in the port side of the lazarette making sure lines are not left to slide under the rudder cover.

Dock Lines: On the hooks on the aft deck or stored on the rails.

Cooking utensils: In the drawers in the galley.

STOVE, OVEN AND MICROWAVE

Highlights

- The stove/oven are propane-fired.
- The microwave oven is plugged into a 120V outlet, accessed behind the drawer on the port pilothouse seat.
- The propane solenoid switch is located on the wall next to the stove.
- There are two 5-gallon aluminum propane tanks in the cockpit propane locker on the aft deck.
- The San Juan Sailing staff checks these tanks weekly to assure that you don't run out. The tank on the starboard side is hooked up to the propane system. Though this should not happen - In the event the starboard tank runs out please shut off the tank valve on top. Unscrew the hose and switch the spare tank into that position,

moving the empty tank to the port side of the locker. Attach the hose hand tight to the new tank and open valve on top of the tank.

- For safety, we turn off the solenoid switch after stove use.
- Caution: propane is heavier than air. If leak is detected, extinguish all flames and open all hatches and doors.
- For the microwave, turn on the MICROWAVE breaker on the AC Panel. If not connected to shore power the microwave can be powered by the battery inverter. Please only use for short (2-3 minute) cooking times or you will rapidly drain the house batteries.

Details

Lighting a Stove Burner:

- Make sure the propane tank valve is open on top of the tank and the solenoid valve switch is on.
- Turn the desired burner on by pushing in and turning to the left (you should hear hissing) to the light (flame symbol), while holding the button in - click the red lighting button, it should spark and light.
- If the ignitor is not working, use a BBQ lighter located in the top drawer next to the stove. Note that if the BBQ lighter won't light you don't need a flame...just the spark.
- After the burner lights, hold the knob in for a few seconds to heat the safety "thermocouple", then release.
- Turn the knob to the desired heat level.

Lighting the Oven Burner (Bake):

- Make sure the propane tank hand valve is open and the solenoid valve switch is on.
- Open the oven door and using a flashlight locate the burner pilot at the bottom right side of the oven.
- Push the oven temperature knob in and turn to 300 degrees. While holding the button in click the red lighting button it should spark and light the flame.
- If the ignitor is not working, use a BBQ lighter located in the top drawer next to the stove. Note that if the BBQ lighter won't light you don't need a flame...just the spark.
- After the burner lights, hold the knob in for a few seconds to heat the safety "thermocouple", then release.
- Turn the knob to the desired heat level.



Lighting the Oven Burner (Broil):

- Make sure the propane tank hand valve is open and the solenoid valve switch is on.
- Open the oven door and using a flashlight locate the burner pilot at the top of the oven.
- Push the oven temperature knob in and turn RIGHT around to the first circle – broil symbol. While holding the button in click the red lighting button it should spark and light the flame.
- If the ignitor is not working, use a BBQ lighter located in the top drawer next to the stove. Note that if the BBQ lighter won't light you don't need a flame...just the spark.
- After the burner lights, hold the knob in for a few seconds to heat the safety "thermocouple", then release.
- When using the broiler actively monitor your progress to prevent burning your food as broiling usually only take a minute or a few minutes to achieve desired result.

Microwave Oven:

- Located in the galley above the refrigerator.
- Make sure the MICROWAVE breaker on the AC electrical panel is ON.
- If not connected to shore power the microwave can be powered by the battery inverter. Please only use for short (2-3 minute) cook times or you will rapidly drain the house batteries. See Section 6, Batteries/Charging/Inverter for instructions on how to use the inverter.

THRUSTERS (BOW AND STERN)

Highlights – Please read prior to use

- **CAUTION:** Prior to use familiarize yourself with the range of motion of these knobs by gently pushing the knob both directions to their stop. Pushing too firmly at the stop limits could break the knobs at their base which can only be fixed by replacing the entire unit.
- These are variable speed thrusters meaning the more the knob is pushed to each side the more power that will be applied.
- To activate: Press and hold both ON buttons until the green light turns on.
- The thruster controller will turn off after several minutes of inactivity.
- Thrusters should only be used in short (3-6 second) bursts or will overheat and drain the batteries.
- Though highly unlikely if either thruster gets stuck ON - The bow thruster emergency stop is in the forward stateroom under the lip of the floor hatch. Big red button. Push the button to stop in the event the thruster gets stuck on. The Stern thruster shutoff is located under the lip on the starboard Lazarette hatch on the aft deck.
- This system has a dock hold feature that can be used to “hold” the boat against the dock while tying lines. Use the plus button pointing in the direction you want to hold (typically starboard side). You can add input by hitting plus button again or reduce by hitting minus button. Shut off by hitting minus until it stops or hit the off button on the unit.
- When the unit is active, there is also a remote – stored in the drawer under the starboard seat in the pilothouse which can be used to run the thrusters.
- **SAFETY REMINDER:** It's difficult for people holding lines on the dock to stop the momentum of a heavy cruising power boat. It's also a bad idea to use dock lines on a cleat to stop movement; this can result in a sudden swing of the boat and damage to cleats, boat, and/or dock. And please, no crew should jump to the dock. If you can't step off calmly, back-up and try again.
- When coming into our docks in strong winds, or if you'd just like a little assistance on arrival, hail “San Juan Sailing” on **VHF Channel 80** or call them on the phone. They'll be glad to offer some coaching and/or catch your lines. In fact, most marinas in the Islands will help you if you hail them and ask for assistance. Asking for docking assistance is a sign of smart seamanship.
- **SAFETY REMINDER** –Whenever you are departing or arriving at the dock have a crew member designated as the “**roving fender**” teammate. If you are going to accidentally “touch” a boat or other object, lower the fender to the point of contact.

VHF RADIOS

Highlights:

Highlights: Gray Pearl is equipped with two VHF Radios.

- One radio control head is located on the overhead port side of the helm station. The microphone for that radio is remoted to the left (port) of the ships wheel.
 - This radio is powered by turning on the ELECTRONICS breaker.
- The other radio control head is on the microphone located to the right (starboard) of the ships wheel. This radio has a speaker that is remoted to the overhead starboard side of the helm station. The speaker is a gray box that says "Garmin" on it and has a signal volume on/off dial.
 - This radio is powered by the VHF Breaker and should come on when that breaker is turned on. If not, turn it on by pressing the Pwr.
- We recommend leaving one radio on Channel 16 to monitor for emergency communications or for you to use in the event of an emergency and using the other radio for ship to ship/ship to shore or weather stations as needed.

On both radios:

- Silencing a DSC Alarm – When another boat (or the Coast Guard) press the DSC button on a radio it sounds an alarm on all boats in the area. To silence this alarm, press any key on the radio.
- Changing from High to Low transmit power – Press the HI/LO button select 1W (low power) or 25W (hi power) on the soft keys.
- To quickly get to channel 16 – tap the red 16/9 button (upper right). Holding it in for a second will take you to channel 9.
- Accessing the weather channels (WX) – Pressing the large channel select button (lower right) will toggle between weather channels and normal channels.
- Adjusting Volume and Squelch
 - Press the Vol/Sq knob to toggle from setting squelch to volume. Turn same knob to adjust either.
 - There are sperate volume and squelch knobs on this radio.
- Changing between International & U.S. channel – Press the MENU key, on the soft keys Select CHANNEL then FREQUENCY BAND, Use the Channel knob to select USA, INTERNATIONAL, or CANADA. The radios should be left in USA mode.
- How to set up and use Channel Scanning
 - To setup the channels to be scanned press the Scan soft key, then use the large knob to select the channel to be saved and press the Save soft key. Repeat this for all channels desired. Pressing the Save button on a channel already saved will remove it from the saved list. Saved channels have a * on the screen when they are selected.
- To start scanning press the Saved soft key. To get back to where the Scan soft key is on the screen press the Clear button. To restart scanning after transmitting it is necessary to press the Scan and then Saved soft keys again.
- Gray Pearl has 1 Newer VHF units (port overhead) that has adopted the latest channel numbering system – many of the familiar 2-digit channel numbers like 79 & 80 have changed to 4-digits with the first two digits being

10, (1079 & 1080). Refer to the new listing in the Charter Guest Reference Manual binder on board, section 7, VHF Procedures/Weather Reporting.

WASH DOWN (SEA WATER)

There is an automatic nozzle for the anchor washdown, similar to a pressure washer wand that is mounted pointed directly at the anchor chain on the bow of the boat.

There is also a seawater deck wash down access port at the bow on the port side of the windlass for cleanup of the area or in the event the anchor wash nozzle is not working. The green hose (in a bucket in the lazarette with a blue quick disconnect fitting on one end and a spray nozzle on the other).

There is an additional seawater washdown connection in the cockpit on the port side (just above the shore power cord).

To utilize the Sea/Salt Water washdown system:

- Turn on the SEAWATER WASHDOWN breaker on the DC panel. Seawater should spray out of the fixed nozzle and directly onto the anchor chain as it is retrieved. Anchor chains should be sprayed off as they are retrieved so that mud and other debris wash back into the sea and not onto the deck or in the chain locker.
- If the water does not spray automatically after about 10 seconds shutoff the breaker and troubleshoot:
 - If there is no water flow, check to see that the seawater seacock thru hull, located in the port side of the engine room between the fuel and water tanks is OPEN. This should be kept in the OPEN position.
 - Ensure the diverter valve is turned to allow water to the nozzle. The diverter valve is located inside the anchor locker up under the lip almost directly below the pedal for windlass. The valve takes some effort to turn, but if it will not rotate there may be pressure in the line. Use the quick disconnect fitting on the washdown hose in the wash down port to the port of the windlass. As you twist those in you should feel a pressure release or see some water come up. You should then be able to turn the diverter valve more easily.
- If you want to use either washdown hose connection - Turn the diverter valve from the anchor wash down wand to the hose connection for the quick disconnect. Plug in and twist the hose CONNECTOR FITTING into the seawater access port. (DO THIS FIRST BEFORE TURNING ON PUMP AT DC CONTROL PANEL, or else it may be very difficult to install fitting).
- Turn on the breaker and hose will have water pressure.

Note: For the hose verify that the blue wash down adapter is twisted fully into the access port. This fitting will be more difficult to install if you turned the pump on before installing the fitting and fully seating it into the deck fitting with a quarter twist.

WASHER/DRYER UNIT

Located in closet in the forward stateroom. 50-amp Shore power or generator is required.

- 50amp shore or Generator
- If using Generator, recommend timing load to do underway to avoid having to run generator for a long period of time when anchored or at the dock.
- If you want to verify that you have 220v available you can turn the AC Panel Switch to L1/L2 via the small rotary dial at the top of the AC Panel. This will allow you to verify that there is 220v (approx.) available via either a 50amp shore power connection or via the generator. This display shows available power, it does not "switch" power on or off.
- You should see voltage increase to 220 or higher.
- Let Generator run for several minutes prior to using washer or dryer.
- Turn ON WASHER/DRYER Breaker on AC Panel.
- Keep loads on the small side. The unit cannot efficiently dry large loads.
- Plan on air drying anything that is bulky.
- DO NOT start a wash cycle and then leave the boat. Monitor for potential water leak.

WATER HEATER

Gray Pearl is equipped with an 11-gallon water heater. When the water has been heated please take caution as it can be quite hot! We have found that when hot we are able to take several short showers without running out of hot water.

Gray Pearl **DOES NOT** produce hot water by just running the engine. When you board Gray Pearl and are hooked up to shore power, we suggest checking to make sure the WATER HEATER breaker is turned on. Once the water is heated it will stay warm for quite some time so starting off your voyage with the water heated up should suffice for at least the first day.

How to make hot water:

- a) Connected to shore power or running Generator with the WATER HEATER breaker on the AC panel flipped on. Once you have the water heated up you should have enough hot water to last you for some time depending on how much you are using it. You can run the generator while underway if you need to heat more water or want to ensure you have hot water for the day/night. If you find yourself out of hot water give the water heater at least 30 minutes when on to get water up to temperature.

AND/OR

- b) Activate the Hydronic Heating System (See Hurricane Hydronic Heater Section): The heating system will heat the hot water tank while operating. See the section on the Hurricane Hydronic Heating system operation. Running this system will heat the hot water tank.

WATER (POTABLE)

Highlights

- The white potable water hoses (1 new hose and 1 spare) are located on the starboard side of the lazarette. Please only use these hoses for filling potable water. Do not use them for any other purpose, there are green spiral hoses for seawater washdown and dock hoses or a black collapsible hose for flushing water into the waste tank.
- The water pump breaker is located on the DC panel. Please turn this breaker off when on deck or away from the boat. The pump will burn up if air gets into the pump due to an empty/nearly empty tank or a broken line/loose hose fitting.
- There are water fill locations for two water tanks on each side of the rail just alongside the aft area of the salon. **Only open one tank at a time and double check that the lid is for WATER. Do not fill WATER and DIESEL at the same time to avoid cross contamination!**
- There is a blue filter with a strap on it that should be attached to the white potable water hose – both stored the lazarette on the starboard side. The strap can be used to secure the filter to the boat rail and then the clear hose placed in the water fill hole. The filter has a valve that can be turned on and off to start/stop the flow of water into the tank.
- Use the deck key to loosen lid (about a quarter turn and it should pop up). Use deck key or hand to unscrew lid. The lid should have a chain attached, please lay the lid on the rail so it does not dangle.
- Deck key for water fill deck caps located in pilothouse, drawer under the starboard pilothouse seat.
- There are sight gauges in the engine room for the water tanks. You also check the level on the tank gauge in the pilot house. Turn on the switch and select the desired tank to read level. As tank gets full you should hear a pitch change out of the vent directly below the fill location. Water will come out of the vent when full. Replace the lid and tighten it back in place with deck key.



Fresh Water Shower in Cockpit

If not already on, flip on the FRESH WATER breaker on the DC Panel.

WINDSHIELD WIPERS, WASHER

The wipers are variable control and can be operated individually or in combination.

To Operate:

- Turn ON the WIPER breaker at the DC panel.
- Using the wiper control panel at the helm, the left button turns ON the wipers and toggles thru various speeds.
- The center button selects other wipers.
- The RIGHT button will spray all 3 windshields with fresh water then activate all 3 wipers for 4 wipes and stop (similar to your car).



We hope this information helps. Have a great time!!