

Stargazer

Tartan 395



Dear Charter Guests:

Welcome aboard Stargazer! Congratulations on selecting such an exceptional and storied yacht for your cruising adventure. Launched in 2019, Stargazer is hull #1 of the new Tartan 395. With her flag blue hull, teak toe rails and stainless steel portlights, Stargazer has the refined styling of a classic yacht. With her carbon fiber spars, solent rig and large sail area, she has clearly been designed for performance cruising and comfortable passage making.

Stargazer (originally named Aquazition) has been featured in many publications including the covers of both Cruising World (March 2019) and Sail Magazine (May 2019)! These articles may be found on the Tartan Yachts website. We purchased Stargazer in 2022 and moved her from the East Coast to the Pacific Northwest to begin the next chapter of her existence on the waters of the Salish Sea.

Before we placed Stargazer in charter service with San Juan Sailing, we were long time sailors, charter guests, and visitors to the San Juan Islands ourselves. When we finally decided to purchase a yacht of our own, we sought a high-quality design and build specification, coupled with all the benefits of modern technology and equipment. The result of that search is the Tartan 395 – a modern classic designed and built by Tim Jackett and his team at Tartan Yachts, right here in the United States. Nowadays it is hard to find new yachts being built with such craftsmanship and detail and it is downright rare to find such a yacht available for bareboat charter anywhere.

Stargazer has many features that make her the ideal yacht for exploring the San Juan Islands. Later in these notes you will read about her versatile solent rig (what Tartan refers to as the "Cruise Control Rig"), her hydronic heating, her spacious galley, and so forth. You'll also be able to learn more about her upgraded electrical system and various other technical investments that make her such a highly specified vessel.

We've made many wonderful cruising memories in the San Juan Island and north to Canada. It is our hope that you will enjoy this stunning yacht as much as we do. If you can think of anything that would make Stargazer more enjoyable for you or future charter guests, please inform the crew at San Juan Sailing. We have purchased, equipped, and outfitted Stargazer to be our home in the San Juan Islands and we hope that you will thoroughly enjoy your sailing adventures with her.

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

Sincerely,

Ian & Rebecca McAbeer

NH Marine, LLC

S/V Stargazer

512-497-1159

Table of Contents

1. Specifications and Vessel Information.....	4
2. Nuances.....	4
3. Emergency/Safety Equipment.....	6
4. Whale Wise Boating.....	7
5. Air Conditioning.....	8
6. Anchors and Windlass.....	9
7. Barbecue.....	12
8. Electrical, Batteries, Generator, Charging and Inverter.....	12
9. Berths and Bedding.....	19
10. Bilge Pumps.....	19
11. Bow Thruster.....	20
12. Dinghy and Outboard – Tender to Stargazer.....	21
13. Dodger, Bimini and Cockpit Enclosure.....	24
14. Electronics and Instruments.....	25
15. Engine.....	28
16. Entertainment Systems.....	33
17. Fuel.....	34
18. Heads and Holding Tanks.....	34
19. Heaters & Hot Water.....	37
20. Lighting.....	37
21. Refrigerator and Freezer.....	38
22. Sails and Rigging.....	38
23. Showers and Sumps.....	42
24. Spares and Tools.....	42
25. Storage.....	43
26. Stove, Oven & Microwave.....	44
27. Water.....	45

1. Specifications and Vessel Information

Vessel Information:

Washington State Parks Annual Permit Decal – Located on the cabin exterior, port side aft.

U.S. Customs Re-Entry Decal – Located on the aft side of the starboard helm binnacle.

Vessel Official Number - 1289934 (same number as shown on the Coast Guard Certificate of Documentation found in Section 5 Documentation of the Charter Guest Reference Manual (white binder)).

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:	2019	Engine:	Volvo Penta D2-40
Make/Model:	Tartan 395	Fuel:	40 US Gal
LOA:	39' 6"	Water:	100 US Gal
Beam:	12' 10"	Holding:	24 US Gal
Draft:	4' 10"	Head:	1 electric flush
Displacement:	17,000 lbs. (Dry)	Electronics:	Raymarine
Air Draft:	62' 7"		

Staterooms:	2 doubles, + salon converts to double bed (76" long)		
Stateroom 1:	Headroom: 6'-6", Berth Dimensions: 78" x 64"		
Stateroom 2:	Headroom: 6'-6", Berth Dimensions: 78" x 56"		
Salon Height:	7'-0"		
Refrigerators:	2 @ 18x12x15 inches	Freezer:	12x12x12 inches

2. Nuances

There are a few things about Stargazer that are unique to its design and original specifications. These are the things that may require special attention or where it may be best to deviate from customary operating procedures. A few of these nuances are "must haves" for your knowledge and to be followed in order to ensure the safety of the vessel and crew, whereas others are merely nice to know and will make your charter easier and more enjoyable.

Highly Important to the safety of crew and vessel

- **Mainsail Raising & Lowering:** Stargazer has a Forespar Leisure Furl In-Boom furling system and particular care and attention must be given to the process for raising, furling and reefing the mainsail. Specifically, you must have an 87-degree angle between the boom and the mast at any time you are raising or lowering the main halyard. **This angle is achieved through having slack (no tension) in the main sheet, boom vang, and topping lift set at the existing mark on the line.** If you do not maintain an 87-degree angle between boom and mast, the mainsail cannot be raised or lowered correctly and you may damage the sail as a result. This process will be described in detail in Section 22.

- **Dinghy Davits:** The dinghy davits have been recently installed and are a “work in progress.” The davits cannot be used while underway as the dinghy will swing from side to side. We are in the process of developing a permanent solution to this problem, but in the meantime we ask charter guests to tow the dinghy using the painter line.
- **Spinlock Throttle:** Stargazer has a Spinlock throttle for the engine control, which is different from most charter boats you have likely seen – there is no red button! There are two things that you must know about this throttle. First, in order to rev up the engine but **not** engage the transmission, you first push-in the center of the handle (it should move about half an inch) and then you can rev up the engine. Second, as this throttle was originally designed for racing sailboats, the entire throttle handle is designed to be removed just like a winch handle. While it is unlikely to happen by accident, it would be very concerning if the throttle were to come out unexpectedly! Removing the throttle is accomplished by rotating the small black tab at the fulcrum and then pulling the entire handle out of the socket. If it happens by accident, just rotate the black tab and put the handle back into the socket, just as you would with a winch handle.
- **Two headsails:** Also unlike most charter boats, Stargazer has a “Solent Rig” with two headsails – a jib and a genoa. If you are not familiar with this sort of rig, please sail with the self-tacking jib only. This will make your sailing experience easy and enjoyable. The genoa can be used for wider angle reaching in light air, if you wish to try sailing with it. But keep in mind that the genoa cannot be tacked or gybed. Instead you must furl the genoa first, then tack or gybe the boat as desired, then unfurl the genoa on the new side.

Helpful hints and other nuances to ensure your comfort:

- **Coffee!** – Stargazer has a **Nespresso Breville Original Line** coffee machine that can be used both on shore power but also through the 120 volt outlets while at anchor or underway! The coffee maker is stored in the starboard galley cabinet above the refrigerator (next to the microwave). You must purchase your own Nespresso Original Line pods (the small thimble shaped pods) if you wish to use the machine.
- **Heating & Air Conditioning:** Stargazer has both a newly installed hydronic heating system, which both heats the boat and provides hot water for showers, as well as air conditioning, filtered water, and many other comforts! These systems are described in detail in various sections of this document.
- **Stargazer has a single rudder:** It is likely that most of the sailboats you have chartered in the past are twin rudder, which means that water from the propellor does NOT flow directly over the rudders (because the twin rudders were positioned outboard of the propellor). Stargazer has a single rudder and therefore water from the propellor flows directly around the rudder itself. This changes the way the boat handles at slow speeds (such as maneuvering in and out of the marina). Please familiarize yourself with the vessel’s handling and feel free to practice docking and maneuvering in calm winds, away from other vessels, to familiarize yourself with how the boat will respond to various helm commands and engine controls. Of course, Stargazer also has a bow thruster to assist with your maneuvering as well.
- **Electric Winches:** The starboard cabin top winch and the two primary winches are electric and push-button operated, but we recommend that you handle the winches manually for the first couple of days to ensure that you understand the operation of the sails first. While electric winches offer convenience, they eliminate the natural feedback that you have while hoisting, trimming and furling the sails and you may not know if something is wrong (such as a line being caught or kinked) until it is too late and you have damaged the boat. By operating the winches manually at first, you will have the “feel” for the lines and the sails and will get familiar with the safe and comfortable operation of the rig.
- **Navigation Lights:** The navigation lights, anchor (steaming) light, foredeck light, and otherwise are controlled on the switch panel in the cockpit between the helm stations. There are no navigation light switches inside the boat. To have power at the cockpit sub-panel and use these lights, you must first turn on the “Deck” switch located at the main breaker panel at the nav station, and then turn on the lights on the sub-panel that you wish to use.

3. Emergency/Safety Equipment

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

Bilge Pump (Manual) and Handle. The manual bilge pump and handle is a single integrated unit located at the port helm station. Note: if water rises above floorboards, can use shower sump pumps also in emergency.

Carbon Monoxide Detectors. Located in the aft stateroom.

Cockpit Cushions. In case of Crew Overboard, throw anything that floats, quickly.

Emergency Tiller. Aluminum pipe and handle located in the port cockpit locker.

Fire Extinguishers (3): aft berth closet, main salon just forward of galley, forward V berth inside the closet.

First Aid Kit. In the head vanity cabinet.

Flare (Electronic) and Folded Plastic Distress Flag. In white mesh bag in sliding cabinet above port settee.

Flares (Pyrotechnic - 3). In white mesh bag in sliding cabinet above port settee.

Flashlights 1 & 2. Nav station drawers and mounted in companionway.

Flashlight 3 (Searchlight). Nav station bottom drawer.

Horn, handheld. In white mesh bag in sliding cabinet above port settee.

Lifesling: Starboard stern 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 (4). 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 Vests (2). Located in the stateroom hanging lockers.

Propane Detector. The propane detector and solenoid switch control panel is located on the starboard bulkhead over the refrigerator in the galley.

Radar Reflector (tube style). Located on the shrouds above first spreader.

Tapered Plug, Universal Foam Orange Sta-Plug. In white mesh bag in sliding cabinet above port settee.

Tools: Tool bag and socket sets located under aft berth mattress along with the majority of the engine spares and general spares.

Spares: Spares parts are located in two places: under the aft berth and behind the starboard settee cushions.

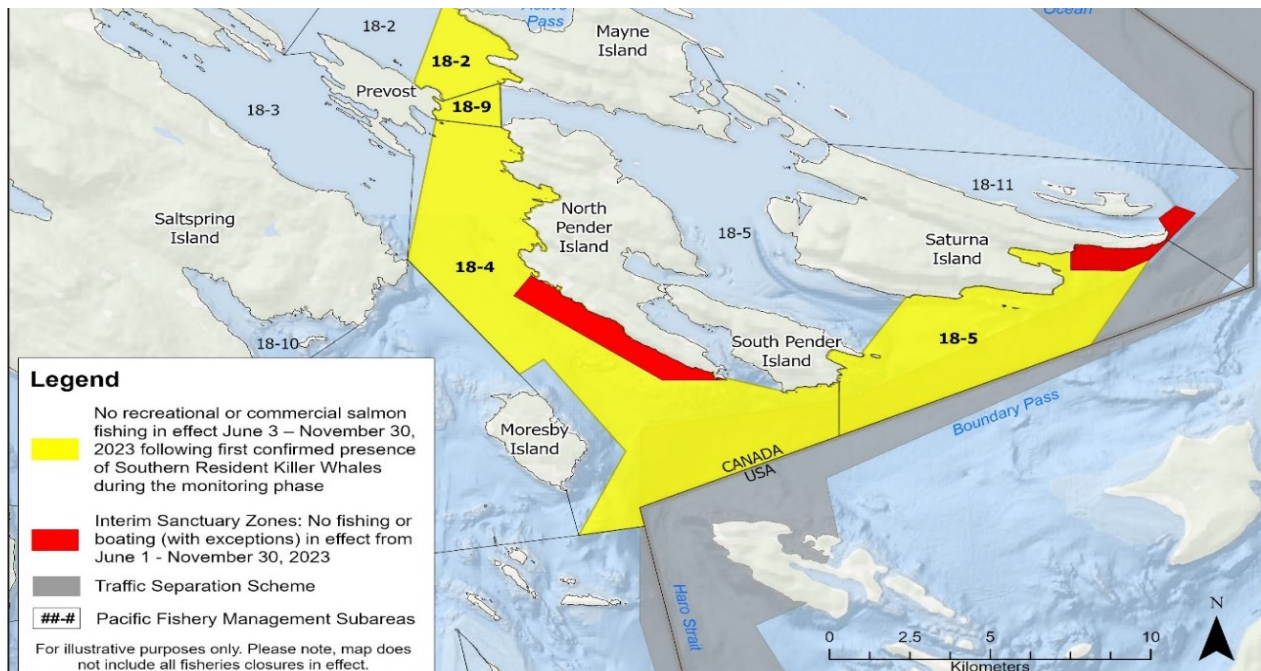
VHF Radios. Channel 16. VHF base unit at nav station and handheld at helm.

Windlass Clutch Release/Tighten tool (looks like a winch handle). Bow anchor locker, in holder.

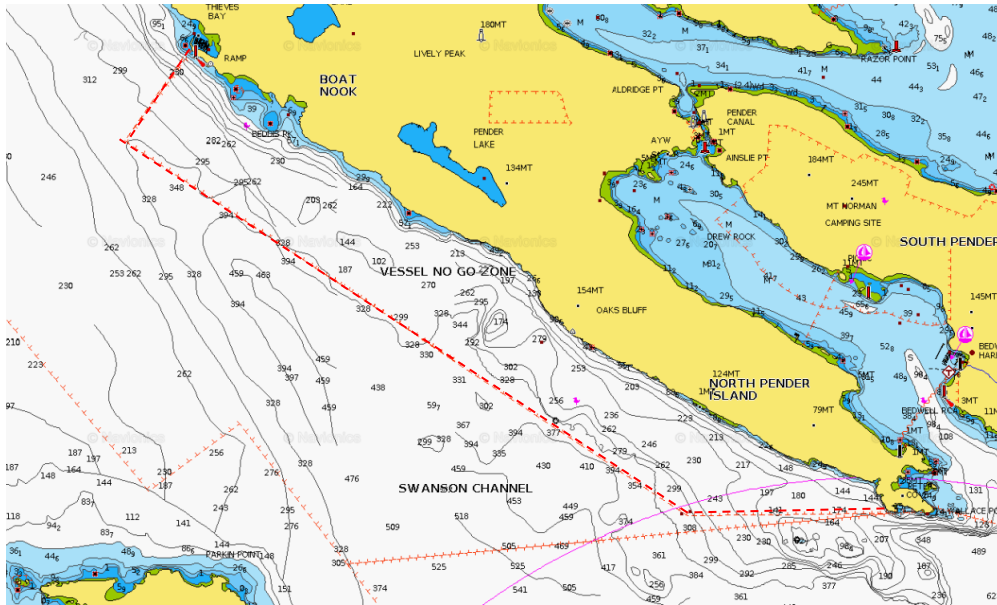
4. Whale Wise Boating

The local Killer Whales are a wonderful part of the experience of boating in the San Juan Islands, 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. In an effort to decrease human impact on the whales, both the Canadian and US governments have implemented new rules that boaters must follow. We provided you 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 Stargazer. 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.

The Canadian government has gone a step further by creating exclusionary zones where vessels are not allowed to transit at all. This further improves the environment for the whales. The red areas in the diagram below show these zones, which are near South Pender Island and Saturna Island. **If you violate these “no go” zones you may be financially responsible for fines of up to \$1,000,000!**



The following image is an example of what the whale exclusion zones look like on Stargazer's chart plotters. Note that one of these zones is just to the west of Bedwell Harbour.



Again, as the vessel charterer and operator, you are responsible for the safe and **legal** operation of Stargazer including compliance with all U.S. and Canadian laws. Neither the owners of the vessel (NH Marine, LLC) nor the charter operator (San Juan Sailing) will be financially responsible for a charter guest who violates the rules and regulations.

5. Air Conditioning

Highlights

- Equipped with Air Conditioning that can be powered from shore power or generation (not 12-volt DC)
- Temperature control zones in forward berth, main salon, and aft cabin

System overview: The air conditioning system not frequently needed in the Pacific Northwest, but there certainly are some days with low wind and high temperatures that make it nice to have. Important, air conditioning can only be operated when you are plugged into shore power or when running the generator (see Section 8: Electrical – for power management precautions).

To turn on the air conditioner, you must close 3 switches on the 120-volt AC panel at the main breaker panel: Air Conditioner Pump, Air Conditioner, and Air Conditioner 2. The pump will run to circulate cooling sea water through the two air conditioning units, #1 and #2. Simply close all three breakers to start the system.

There are three “zones” of temperature control: forward berth, main cabin, and aft berth. Each zone has a black Dometic controller and you can select the desired temperature for each zone. The units will cycle on and off as necessary to maintain the set control. The air conditioning pump will also cycle on and off as needed.

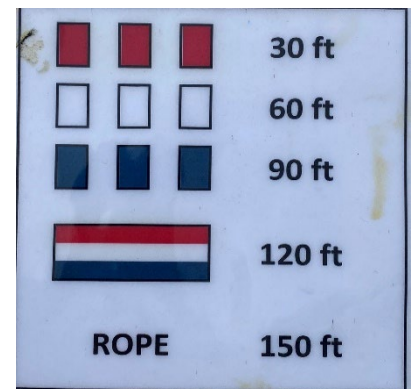
Turning Off: When you wish to turn off the air conditioning system, simply turn off the pump and both units at the breaker panel.

Heat Pump: Note that the system can also be used as a heat pump to warm the boat in the wintertime. However, we have installed a hydronic heating system (diesel heating) that works much better for this purpose. **We recommend using the diesel heating system (see Section 19) for heating the boat.**

6. Anchors and Windlass

Highlights

- 46# stainless steel Ultra Anchor and 150 feet of stainless steel chain
- Up/Down foot button controls on deck by the anchor locker.
- Windlass breaker switch is labeled and located on the DC panel at the nav station.
- Chain length markings as follows:
 - 30 Feet: Red Marking
 - 60 Feet: White Marking
 - 90 Feet: Blue Marking
 - 120 Feet: Red, White, and Blue Marking
 - 150 Feet: End of chain (additional 100 feet of rope)
- At 150 feet of chain, it will switch to a 100 feet nylon line. The placard show on the right is glued to the inside of the anchor locker door as a reminder.



Windlass clutch release/tighten tool (looks like a winch handle) is located inside the bow anchor locker on the starboard side in black plastic clips. 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.

The windlass gypsy is not designed to hold the boat while anchored, so please use the anchor snubber line with chain hook to hold the chain while anchored. Other guidelines to follow when operating the anchor:

- Please avoid chipping the bow with the anchor by using caution and slowly raising/lowering the anchor when it is out of the water.
- Turn ON the Anchor light overnight. Breaker switch is labeled and located on the DC panel at the nav station.
- Secondary/Spare anchor (Fortress) is stowed in the port cockpit locker.

Main anchor – 44 pound Lewmar Claw anchor mounted on the bow with 150 feet of 3/8” chain marked with red, white, and blue markings every 30 feet.

Snubber – Always use the short snubber line when underway to avoid the anchor chain slipping off the gypsy. When anchoring, use the white snubber line with the stainless steel hook to hold the load of the chain and anchor tied to a bow cleat.

Secondary –Lightweight aluminum Fortress anchor stowed in the starboard cockpit locker, with 30 feet of 5/16” chain and 150 feet rode.

To Deploy Main Anchor:

- 1) Please refer to navigation charts, cruising guides, and weather forecasts when choosing an appropriate anchorage in the San Juan Islands.
- 2) The windlass circuit breaker is located at the nav station and is labeled - verify that the breaker is closed.
- 3) Once an anchorage has been selected, calculate the maximum distance from the bow of the boat to the bottom of the water, adjusted for the maximum expected tidal height during your time at anchorage. This would be done by taking the current water depth, adding 5 feet for the vertical distance from the underwater transducer to the bow, and adding the projected increase in tide. So, if your instruments indicate a current water depth of 20 feet and you expect 3 more feet of tidal increase during your time at anchor, you would have $20 + 5 + 3 = 28$ total feet from bow to bottom at high tide.
- 4) Normal for the San Juan Islands is 4-to-1 scope, bow to bottom. So, using the example of 28 total feet calculated in the previous step you would have $28 \times 4 = 112$ feet of anchor chain that would need to be let out given your chosen anchorage.
- 5) To avoid hitting the hull when initially lowering the anchor, we do the following to prevent the anchor from swinging as it travels over the roller: Push the anchor forward keeping the shank *level* before gradually allowing the shank to rise as we ease it forward slowly into the hanging position (no swing!).
- 6) Next, lower the anchor to approximately the number of feet on the depth sounder so you know that the anchor is nearing the bottom.
- 7) Signal to the helmsman to put the engine in reverse idle now, while continuing to pay out anchor chain rode until you have reached the desire scope calculated previously. Do this allows the anchor chain to lay on the seabed as you idle astern, rather than falling onto itself in a pile at the bottom of the water.
- 8) Now that you have deployed the appropriate amount of chain, please secure the anchor snubber line BEFORE attempting to set the anchor in the seabed. This will ensure that you set the anchor you won't be putting all of the pressure on the anchor windless itself. The snubber line is the white braided line with stainless steel hook on the end of nylon rode. Secure the steel hook around one chain link and secure to either the port or starboard bow cleat. If you need to release all 150 feet of chain (anchoring in more than 37 feet of water depth) you can secure the anchor rode directly to a bow cleat and the snubber is no longer necessary.
- 9) Now that the snubber is in place and bearing the load of the anchor chain, you can “set” the anchor into the seabed. Do this by using astern engine power (idle astern or slightly more power) and pulling the anchor chain taught. If the anchor is set property, you should not feel any movement in the boat, nor any vibration in the chain. Next, line up objects on shore to determine if the anchor is holding, while staying in reverse at idle for about one minute. Assuming the anchor is holding you then place the throttle in neutral and allow the chain to settle.

- 11) If stronger winds are forecast, we test with RPM at half the projected windspeed (1,000 rpm for winds to 20 knots; 1,500 rpm for 30 knots, etc), *after* setting snubber. Recheck that the anchor is holding by lining up shoreside objects and ensuring the vessel is remaining in a fixed location.
- 12) In storm conditions (or storm forecast), you can increase scope if there is adequate room to leeward.
- 13) The secondary anchor located in the port cockpit locker is available for additional holding power if a storm is anticipated, but best if set before the storm hits.
- 14) If anchored in a small cove, you may wish to deploy a line ashore. 200' floating polypropylene on a reel resides in the port cockpit locker.

To retrieve the anchor: Remember that the windless is to lift the vertical weight of the chain and anchor only – it is not used to “pull” the boat forward toward the anchor. If there is a strong wind or current that is pushing the boat away from the direction of the anchor, you will need to use the engine to slowly walk the boat toward the anchor at the same time that you are raising the chain with the windless. Follow these steps to weigh the anchor properly:

- 1) Start the engine
- 2) Raise and tie-open the anchor locker hatch cover so that you can observe the chain and markings while raising and lowering the anchor.
- 3) Depress the anchor “up” switch on deck next to the locker. When raising the anchor, always assure the chain is vertical during retrieval. This avoids either “towing” the boat or dragging the chain against the hull. Remember, if facing a breeze, engage forward gear as needed. But be careful not to overrun the anchor while doing this or you risk dragging chain against the hull and keel.
- 4) As the length of rode remaining approaches the water depth, stop if you hear the sound of the windlass slowing down – this means the anchor may be stuck. Sometimes a brief pause will cause the anchor to break free, given the 90-degree angle of pull. If not, try giving a brief pulse forward (2 seconds) on the throttle as this may cause the anchor to release from the seabed. You may then continue raising the chain.
- 5) When the anchor is just coming up above the water, pause for a moment and ensure that the anchor is oriented correctly so that it won't chip the hull on the way up. If not, the anchor may be swiveled into the correct orientation. We use the windlass to bring the anchor shank up and over the bow roller in one continuous motion, then nest the anchor by hand.
- 6) After nesting, with a *very slight slack in the chain*; we secure the anchor once again with the light snubber on the windlass-mounted cleat. The anchor chain is effectively snubbed all of the time except when you are actively lowering or raising the anchor. Otherwise the anchor should never be “un-snubbed” regardless of whether you are sailing, at anchor or at the marina.
- 7) Leave the windlass breaker "on" as this is a good practice in case you should ever need to execute an emergency anchor deployment.

7. Barbecue

Highlights

- Propane hose isolation (shut-off) valves are located in the propane tank locker inside the starboard lazarette (behind the helm). There are two propane tanks – one tank for the grill and one for the stove top and oven.
- BBQ propane hose is not plumbed through the solenoid valve.
- Please clean grill when finished cooking.

Details

To operate:

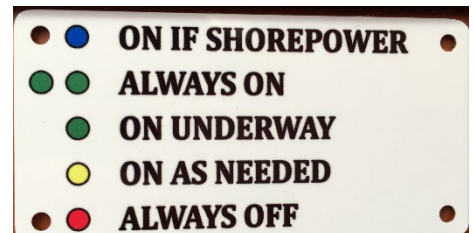
- Open the starboard lazarette – please be careful not to bump the hatch on the backstay's hydraulic cylinder!
- Take the hose and regulator from inside the starboard lazarette and connect it to the grill. You do this by lining up a small groove on the regulator, sliding it into the grill, then rotating the regulator clockwise so that it stays attached to the grill.
- Open the valve on the BBQ propane tank now but don't open the regulator until you are ready to light it.
- Grab a BBQ lighter (located in galley) and insert the end into the small hole in the BBQ below the grill until ½" from the burner.
- Depress and then rotate the regulator dial to one of the flame symbols to start the flow of propane to the grill. The propane should be flowing now and the grill should light.
- As a courtesy to the next charter guest, please clean the BBQ grill using the attached wire brush.
- **Turn off both the regulator and tank isolation valve when done cooking. Regulators often malfunction and don't close properly so it's important to always turn off the isolation valve too.**

8. Electrical, Batteries, Generator, Charging and Inverter

Stargazer has a modern electrical system and you should have no problems with its normal operation during your charter. However, there are a few things that you should know and keep in mind during your charter:

Highlights

- The AC and DC panel breakers use the color dot convention shown on right:
- Main AC breaker/switches are located on the right side of the distribution panel in nav station.
- Shore power breakers are located in the portside cockpit locker
- Main DC breaker located on the DC panel in nav station.
- The "Transfer" switch is used to connect the two separate 120 volt AC panels together so that one shore power cable (or the generator) can power both sets of switches.
- The Outlets, Microwave and TV breakers on the right section of the AC panel are powered by either Shore Power or the Inverter. If you use high wattage appliances (i.e., hair dryers, etc) from the outlets you will drain the batteries very rapidly.





Electrical System Overview

Stargazer has both a 120-volt AC electrical system and a 12-volt DC system. Each system will be described separately below.

120 Volt AC: The 120-volt AC system is represented by the two columns on the right side of the main breaker panel at the nav station. This power system is supplied by either shore power (one or two 30-amp cables) or the generator. Most cruising sailboats of this size will only have a single 30-amp shore power input, but Stargazer has two 30-amp inputs because of the higher level of systems and the potential to need two cables simultaneously. For example, if you were tied-up at a marina and using shore power to run Stargazer air conditioning systems, the electric hot water heater, and then you ran the microwave to heat something, you would likely exceed 30 amps of electricity because the microwave creates a large (albeit temporary) surge in electricity demand.

In practice, **we find that the use of the air conditioners will dictate whether or not Stargazer's electrical load will exceed 30 amps at any given point in time.** So we would advise the following set up:

Cool day (no air conditioning): connect a 30-amp shore power cable to "Shore 1" and use the "Transfer" switch on the breaker panel to connect Shore 1 and Shore 2. In this configuration you have a single shore power cable supplying power to both sections of the 120-volt AC system. You should be able to use everything on the boat (except the air conditioners) and not exceed 30 amps. The exception to this would be running multiple plug-in appliances at the same time. For example, if you ran the microwave, coffee maker, and someone used a hair dryer plugged into a receptacle at the same time, you would likely exceed 30 amps and trip the shore power breaker. So, please just be mindful of your usage of appliances.

Hot Day (you will be running air conditioning): If you will be at dock and using the air conditioner, there is a good chance you will exceed 30 amps of power demand. In this case, you have a few options to choose from:

- a) Use two 30-amp shore power cables (Shore 1 and Shore 2). You could connect two separate shore power cables to Shore 1 and Shore 2 each. Do not use the Transfer switch in this case. However, In many marinas you will find that you only have access to a single 30-amp shore power connection on the pedestal, rendering this option unavailable.
- b) Run the generator to power Shore 1 and use the shore power cable to power Shore 2. In this case you are running some systems on the generator and the other systems on a single shore power cable. Personally, we (the owners) never run the generator in a marina because of the noise and smell of exhaust. But, this is an option to you as a charter guest.
- c) Manage power demand to less than 30 amps at all times. **This is our preferred choice and the way we operate Stargazer.** Remember, the large draws of power are air conditioning, hot water heater, and intermittent loads such as microwave, coffee maker, and any appliance that is plugged into a receptacle (hair drier, etc). So, if we need to run the hot water heater for showers and the air con for cool air, we will be careful to avoid using any plug-in appliances include coffee maker and microwave. We will also turn off the hot water heater when it's not needed. This may seem like an inconvenience, but we find it preferable to running a noisy generator and emitting diesel exhaust around the marina and potentially irritating your neighbors.

Resetting a Tripped Breaker: What happens if you exceed 30-amps and trip the shore power breaker? This is no big deal, you'll need to reset the shore power breaker. First make sure that you turn off some of the loads on the panel (water heater, air con) before you reset the shore power breaker. Next, proceeds to the port cockpit locker, open the hatch, and look inside toward the forward end of the locker. You will see the two shore power breakers and you simply reset the one that tripped due to overload. Now you can return to the electrical distribution panel and add back the loads (heater or air con) but be careful not to overload the system once again.

12-volt DC Electrical System: The three panels on the left side of the breaker panel represent the 12-volt DC electrical system on Stargazer and this is where most of the marine systems are powered including the head, water pump, bilge pump, all lighting, etc. Note that the Starlink satellite internet is also powered from this 12-volt DC system. Here are a some helpful hints to note about the 12-volt DC system:

- **Water Heater:** Activate the electric hot water heater when you are on shore power if you need more hot water (When not on shore power, you must use the diesel heating system for hot water)
- **Battery Charger 2:** The main battery charger operates automatically when connected to shore power, or running the engine or generator. The switch for Battery Charger 2 is only to be used if the primary battery charger has failed.
- **AC Plugs:** There are two switches to power the AC outlets. Activate these switches to turn ON the AC electrical outlets located throughout the boat.
- **Bilge Pump:** Always leave the bilge pump setting in "Off" except in emergencies when the float switch has failed and you need to force the bilge pump to run. The bilge pump will run automatically even when turned off at the panel. Please visually inspect the bilge daily to ensure that the pump is operating normally.
- **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 domestic water and therefore excessive flushing will reduce your water supply. Showers and sinks in the head use the fresh water supply, as does the stern cockpit shower.

- **Blower:** The engine blower fan may be used to pull excessive heat from the engine space, but generally should not be necessary during routine operation of the vessel in the cooler waters of the pacific northwest.

OPERATING TIP: When underway and if no one is below decks, we turn the water pump OFF.

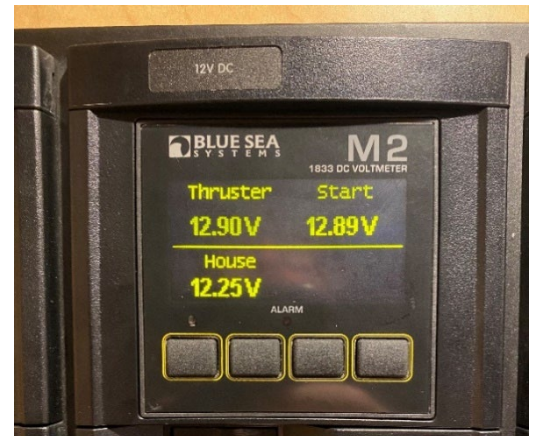
- **Cabin Lights:** This switch turns ON/OFF DC power to the LED lights located throughout the boat. It must be “ON” before you can turn on the individual lights on the boat. Please note that most of the lights have individual switches at the fixtures themselves and there are switches for each of the cabins as well as the main salon.
- **Fridge Unit:** We usually leave the fridge switch “ON” whenever we’re on the boat. This switch powers both the upper and lower refrigerator drawers. If the house battery charge level drops to near 12V and you aren’t planning to run the engine/ connect to shore power, turn the fridge off. Your provisions will stay cold overnight.
- **Navigation Instruments:** Turn this switch “ON” to activate the Raymarine electronics, instrumentation, and multi-function display at both the nav station as well as the helm station in the cockpit. This switch also provides power to the depth sounder and knotmeter. However, you must separately turn on the switches for AIS, VHF, Autopilot and Radar (if desired). The AIS switch also provides the data connection from the nav station master display to the helm station display. As a general approach we always turn on the AIS, VHF and Autopilot in addition to the sailing instruments when we are preparing to depart for a day of sailing.
- **Anchor, Steaming and Deck Foredeck Lights:** You must turn on the “Deck” switch at the nav station and this will power up the small electrical panel (see picture) in the cockpit where you can control the navigation lights. When anchored or mooring, turn on the Anchor Light at dusk (located at the top of the mast). When motoring at night, turn on the mast-mounted Steaming Light. Turn on the deck Foredeck Light if you must go forward on deck at night.
- **Nav Light:** Notice that the Nav Light is a three-position switch and is off when positioned in the middle position.



- **50% Output:** This switch on the deck panel controls the electrical output created by the alternator and used for charging the batteries. Please leave the switch in the up position (50% output) while motoring and during normal operation. Switching to 100% output (down position) should only be done when you are stationary (anchor, mooring, etc) and you are using the main engine to charge the batteries and you have revved up the engine while not in gear. This will allow you to charge the batteries faster and thus run the engine less.

Batteries: It is critically important to maintain a proper “state of charge” for Stargazer’s batteries. The working range of the batteries is from 12.2 volts (depleted) to approximately 13.0 volts (fully charged). When any of the vessel’s DC batteries fall below 12.2 volts it must be recharged right away, or the batteries may be permanently damaged.

The preferred way of examining the batteries is with the “State of Charge” reading under the “Favs” button on the Magnum Energy panel. Charter guests should check this each night before bed (when not on shore power) and run the engine if the reading is below 60%. **You should have an 80% state of charge before going to bed each night.**



Other Highlights:

- When charging, battery voltage will read *above* 13V.
- 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, you may use the generator to charge the batteries as needed, and also to run high power drawing items such as the vessel’s air conditioner, or high-power appliances such as a coffee maker, hair dryer, etc.
- While at anchor and not running the generator, the 120-volt outlets should only be used for low power consumption devices such as laptop computers, charging phones, etc. High power appliances such as hair dryers will rapidly deplete the house batteries.
- **Never turn off the batteries for the Engine or the House while the engine is running.** When the engine is running, the alternator is rotating and it must have batteries that can be connected to accept the charging voltage from the alternator, otherwise the diodes on the alternator may be damaged.
- You may leave the generator battery turned off unless you are planning to start the generator.



Battery Systems & Details

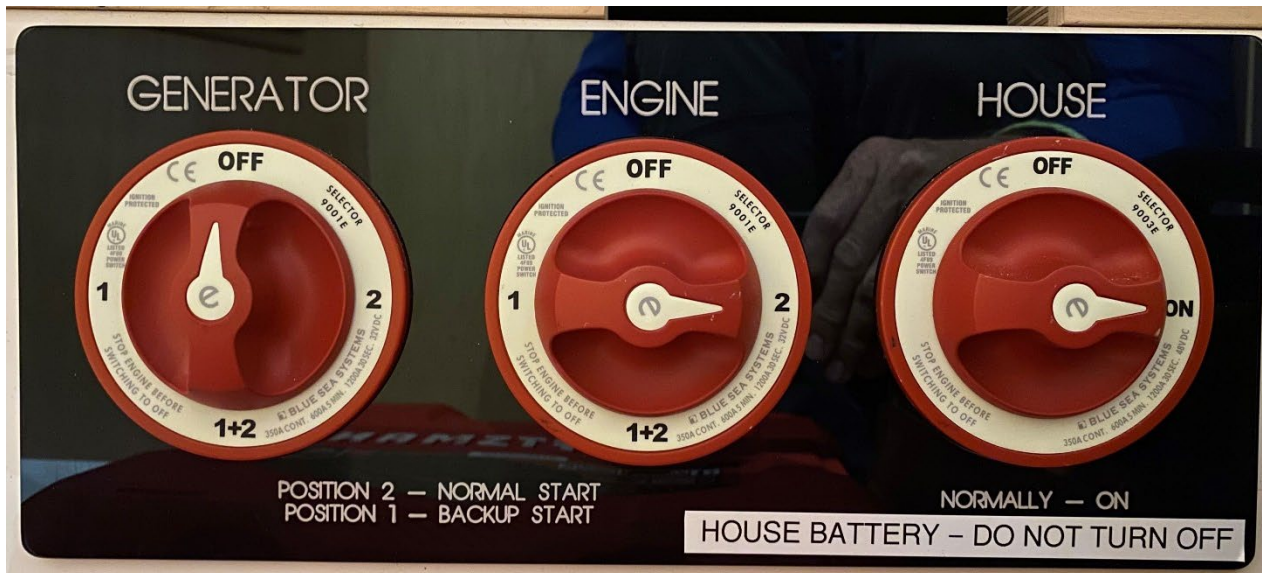
There are three separate 12V DC power systems onboard the vessel:

- **Engine & Generator:** 1 AGM battery located under the aft berth.
- **House:** 6 AGM batteries located under the aft berth.

- **Windlass & Bow Thruster:** 1 AGM battery located under the forward v-berth.

All batteries are charged automatically when connected to shore power or while the engine is running. In the event of failure of the primary battery charger, there is a back-up battery charger that may be used. However, if you are having a problem and the primary battery charger has failed please contact San Juan Sailing immediately.

Battery Disconnect Switches



Normal Conditions: Generator in the No. 2 position (**different from what is shown in picture!**), Engine in “No. 2” position, and House in the “On” position.

- If you attempt to start the Engine or Generator and find that the starter battery is depleted, turn the respective selector switch (engine or generator) to the No. 1 position and re-attempt to start the equipment. When selecting position No. 1 you are using the House batteries as a back-up power source to start the Engine or Generator.
- After the engine or generator has started, turn the respective selector switch to the No. 1+2 position for at least 1 hour. Do this will charge both sets of batteries simultaneously.
- After running the engine at cruise RPM for at least 1 hr, turn off the engine and try to restart with the selector switch in the normal No. 2 position. If it restarts using the start battery with no hesitation then you are good to go! If the engine won't start or the start battery is slow cranking, there may be a problem with the start battery or the battery charger. In this instance please contact the SJS office right away.

Generator

Stargazer has a generator located in the port cockpit locker under a white fiberglass cover. The generator draws diesel from the same fuel tank as the auxiliary engine and has its own filters located in the engine compartment. The generator may be used to charge the batteries and provide power for high-usage 120 volt A/C items when you are not connected to shore power.

Starting & Stopping the Generator: Remember that the generator is only to be used for providing power and charging the batteries when you are **NOT** connected to shore power.

To start the generator and provide power to the vessel do the following:

1. Visually inspect the raw water strainer for the generator in the port cockpit locker
2. Verify the generator's battery selector switch (aft cabin) to the start position 2
3. At the generator control at the navigation station, press and hold the switch in the "preheat" position continuously for 12-15 seconds. There is no visual verification of pre-heating.
4. Press the switch to "Start" and hold for a few seconds until the generator comes up to speed.
5. Close the generator power supply switch on the top right of the breaker panel at the nav station. The generator is now supplying 120 volt A/C power to the boat and you can charge the batteries and otherwise operate the vessel as if you were on shore power (including running the air conditioners).

CHARGING/INVERTING

Stargazer has been equipped with a Magnum Energy power management system, which includes a charger and two inverters. The Magnum control panel is shown in the photo to the right. It is located next to the AC/DC breaker panels at the navigation station.

Charging – Shore Power

- Connect the 30 Amp shore power cord to the SHORE 1 receptacle on the port side of the boat.
- Flip ON the SHORE 1 AC breaker on the AC panel.
- Verify that you DO NOT have reverse polarity indicated on the 120 Volt Panel
- Flip ON the TRANSFER breaker on the Shore 2 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 & Generator

- All batteries are automatically being charged when the engine is running.
- When connected to shorepower all batteries are automatically being charged
- There is a back-up battery charger that may be used in an emergency when you have experienced a failure of the main charger (highly unlikely). If you believe that you have experienced such a failure please contact San Juan Sailing immediately.

Inverter

- When shore power is not available (anchorage, mooring, underway, etc) the Inverter will provide 120 Volt A/C power to the outlets as well as the microwave and TV. You may use the outlets to power low-wattage devices for short periods of time, including charging cables, PCs, etc.
- You should not need to turn on the Inverter, simply make sure that you have selected the appropriate breakers on the 120 V panel for microwave, TV, and outlets. If the inverter does not appear to be working you can press the "on" button in the lower left hand corner to turn it on.

BOW THRUSTER:

The bow thruster has its own battery and battery switch, located in the forward cabin along the port side. Under normal circumstances you don't need to do anything with this system. See Section 11, Bow Thruster, below for detailed description of using the bow thruster and how to reset if the primary circuit breaker trips.

9. Berths and Bedding

Stargazer has two cabins with queen size beds, hanging lockers and storage areas. There are ample sources of lighting in each berth, with a master switch near the door and individual controls for reading lights. All hatches come equipped with sliding pull-out covers and sliding pull-out screens. Furthermore, the portlights have white “black out” shades that can be affixed with Velcro. This is very helpful when sleeping in the San Juan Islands in the summertime when there are long periods of daylight.

The settee on the starboard side of the main salon converts into a full-size bed (pictured to the right):

- a) Lift up the gray cushion from the starboard side
- b) Slide the wooden board inward to form the base of the bed.
- c) Place the mattress insert (located in the aft stateroom) on top of the board
- d) Complete the bed as desired with pillows, linens, etc



10. Bilge Pumps

Highlights

- **Bilge pump switch = normal position is off.** The primary electric bilge pump will operate automatically while the electric bilge pump is turned off at the navigation station. **The bilge pump switch should only be turned on if the float switch has failed and you need to manually empty to bilge.** Do not leave the switch on because the bilge pump will run continuously and never turn off.
- Emergency Bilge Pump (manually operated): located at the port helm seat. The pump cover plate doubles as the pump handle.
- Electric Bilge Pump: Has an automatic float switch. The pump is located under floorboard in the sole of the salon near the galley. Check the strainer on the pump inlet for any clogging debris and remove if needed.
- Note that the kitchen sink drains overboard and the shower drains to a separate sump with its own sump pump overboard. None of these freshwater appliances drain to the bilge.
- Please visually inspect the bilge each day, which is accessed by lifting the floorboard aft of the main salon table.

Details

1. Emergency Hand Bilge Pump – This hand operated pump is located at the port helm station and the oval shaped pump cover is also the pump handle.

2. Electric Bilge Pump – Has an automatic float switch. Note: the circuit breaker labeled “Bilge pump” *must be “off” at all times during normal operation of the bilge pump.* **The bilge pump will operate automatically even while the switch is turned off.** The bilge pump is under the floor boards on the boat centerline in the salon. If pump fails to empty bilge please check the strainer and clean out any debris.

11. Bow Thruster

Highlights

- Ensure that the battery selector switch (forward cabin, port side) is turned on. Two blinking orange lights at the bow thruster joystick will illuminate when power is turned on.
- Activate the bow thruster controller at the starboard helm by pressing and holding the power button for 2 seconds – you will see two orange lights illuminate solid when the bow thruster is on and ready. You will also hear a periodic audible “beep” that will continue after activation.
- Use the bow thruster minimally, in short bursts of 3-5 seconds. Continual use will overheat the thruster. It will shut down and not restart until cool, which could take 10 to 15 minutes.
- Most of the vessel maneuvering should be done using the engine and rudder. The thruster is meant to be used for small corrections during your final approach into the slip or emergency situations to keep from hitting another vessel or dock.
- Remember, when you thrust the bow in one direction, the stern of the boat will move in the opposite direction and could hit something (such as another boat)!



Details

The bow thruster sounds a beep and shows **two solid orange lights** (see image with two orange lights) to let you know that it is active and ready for use. **The thruster will shut itself off automatically after 5 minutes of inactivity.** Just before shutdown, you will hear 1 long beep and the thruster will now be turned off. Most of the vessel maneuvering should be done using the engine and rudder only. The thruster is meant to be used for small corrections during your final approach into the slip or emergency situations to keep from hitting another vessel or dock.

There is no circuit breaker for the bow thruster. There are in-line fuses on the electric bow thruster motor and in the forward stateroom.

Caution: the bow thruster is very powerful, designed to push into a 30 knot sidewind. It will rotate the boat on its keel and can swing the stern sharply into the dock. Please position a crew with fender between stern and dock when departing and arriving until you get a feel for it.

12. Dinghy and Outboard – Tender to Stargazer

Highlights

- 10' fiberglass hulled West Marine hypalon dinghy (2023), 2.3hp Honda outboard.
- **Tow the dinghy 6' off stern using the port side cleat** (the side away from the diesel exhaust). Use a proper cleat hitch and for peace of mind tie off the painter's bitter end to base of the stern pulpit. In very rough conditions, towing the dinghy from the low side makes it unlikely the dinghy will flip in the wind and waves.
- Please don't tow with outboard attached to dinghy or leave on the dinghy overnight.
- Inflatable tube air pump – located in the port cockpit locker.
- Inflatable tube patch kit – located with the general spares underneath the aft berth – box is labeled
- The 2.3hp Honda outboard is air cooled 4-stroke and takes straight gas.
- The spare 1-1/4 gallon red gas can is filled 2/3 full (for expansion in hot weather) by San Juan Sailing staff. We will top it off when you return the boat, no charge. We stow it in the dinghy, tied to the transom. **For safety, please never store gasoline in any compartment on board Stargazer.**



Details

Towing the Dinghy

Always remove the outboard motor from the dinghy before towing and mount it in place on the starboard side. Always leave the **red** spare gas can for the outboard engine in the dinghy, tied off to the transom. Towing works best when the dinghy is brought close to the boat with 4-5 feet of painter line between the stern and the towing bridle of the dinghy. This lifts the bow of the dinghy slightly out of the water and reduces drag. To keep the dinghy away from engine exhaust, tie the painter off at the port stern cleat with a standard cleat knot, then attach the bitter end to the stern rail using a rolling hitch or similar secure knot.

OPERATING TIP: Leave the self-bailing valve (located in the stern) open when towing to let any accumulated water drain out. *But don't forget to close the valve when you are ready to use the dinghy!*

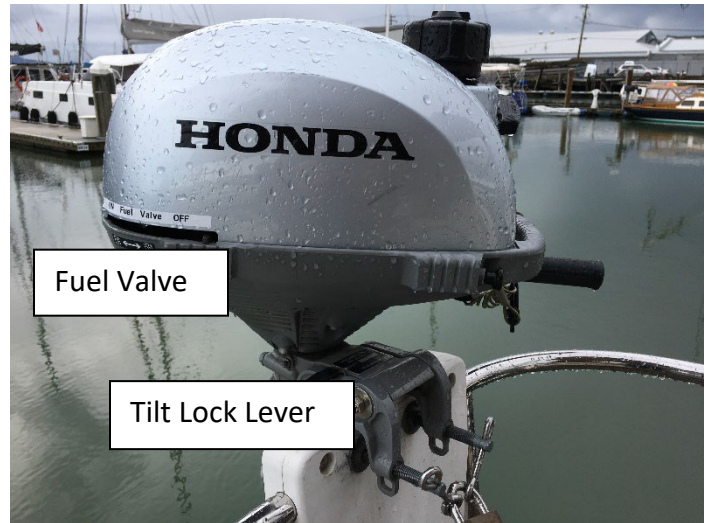
Preparing the Outboard

1. Unlock the outboard (combination is listed on your charter packet) and reattach the lock nearby on the stern rail.
2. Carefully loosen the mounting screws on the outboard bracket keeping one hand on the outboard handle at all times or tie the motor off to a dock line attached to Stargazer.

- Transferring the outboard to the dinghy is a 2-person job. Have one crew member in the dinghy to receive the outboard from another crew member on deck to remove the outboard from its mount and lower it down into the dinghy. Although the outboard is relatively light, it should be handled carefully, and if dropped it would fall into the water and promptly sink!

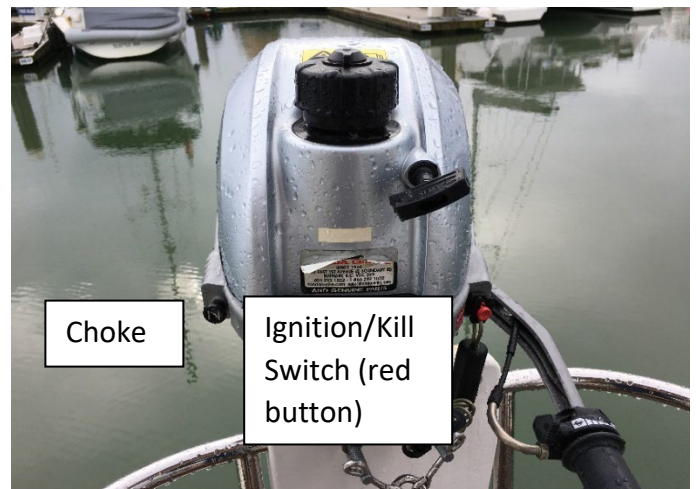
Starting the Outboard in 6 steps

- Open the fuel valve by pushing the fuel valve lever (starboard aft corner of the outboard) aft to the ON position.
- Pull the choke all the way out (starboard forward corner of the outboard).
- Open the air vent on the top of the fuel cap (top of outboard) by turning the indicator half way between ON and OFF. We have discovered that turning the indicator all the way to ON will sometimes cause the valve to close.
- Make sure the black U-shaped kill clip (attached to the red or gray lanyard) is clipped into the red shut-off knob (port forward corner of the outboard).
- Turn the throttle handle to the start position. There is a friction thumb screw that can be tightened to hold the throttle in the start position.
- NOTE:** The motor has a centrifugal clutch (no gear shift) – the propeller will spin when the RPM is above idle. Please make sure the dinghy is securely tied to Stargazer as the dinghy will surge forward when the motor first starts up at the starting RPM, then will stop when you turn the throttle back to idle RPM after warmed up (about 10 seconds).
- Pull the starter cord quickly then repeat a few times if needed until the motor starts. (You shouldn't have to pull it more than 5 times.)
- Slowly push the choke back in shortly after the engine starts (after about 5 or 10 seconds). If the motor starts to run rough then ease the choke back out for another 5 seconds and then try pushing back in. Turn the throttle back to idle.



Fuel Valve

Tilt Lock Lever



Choke

Ignition/Kill
Switch (red
button)

While Outboard Is Running

- Keep the red lanyard kill clip connected to your belt or PFD while operating.
- The motor has a centrifugal clutch (no gear shift) – the propeller will spin when the RPM is above idle - just throttle up to go forward and throttle down to stop. If you want to go in reverse just swivel the outboard around 180 degrees and throttle up. There is no gear shift.
- Note that you will only have steerage when the propeller is driving the boat (throttle above idle RPM).

Arriving at the Beach

1. Before you hit the beach and while still in a few feet of water, stop the motor by pushing in the red shut-off knob (where the kill clip is clipped in) or just pull the red lanyard until the clip pops off. Close the fuel valve and vent lever (**the motor will leak fuel when tilted if these are not closed**). Also, the carburetor will be flooded making it hard to restart the motor).
2. Tilt the motor out of the water by pulling the motor head forward until it stops – you should here a “click” as the tilt support locks in place. Note that the motor is held in the lowered position by friction from a large rubber clip that grips the shaft. Very little force is needed to pull the motor shaft out of the clip.
3. To tilt the outboard back in the water, first pull on the motor head slightly to take the strain off the tilt lock then release the tilt lock by lifting up the black handled lever below the motor head on the starboard side of the shaft.
4. Please do not drag the dinghy up the beach over sharp rocks and barnacles.
5. Secure the painter to ensure the dinghy doesn't float away on a rising tide.

When The Outboard Is Not In Use

1. Put the outboard back on the outboard mount on Stargazer's stern rail and tighten both bracket screws.
2. Put the combination lock back on the bracket screws.
3. Close the fuel valve and fuel cap vent.
4. Put the blue Honda cover back on the motor head.

Outboard Troubleshooting

- If the motor won't start, review steps 1-8 above to make sure you've correctly done all 8 steps.
- A faulty Spark Plug is often the problem. All parts and tools for the dinghy (including a spare spark plug and spark plug wrench) is located in the appropriately labeled box underneath the aft berth. There is a blue “Honda Outboard Tools” kit containing a spare spark plug and spark plug wrench in the “Engine Spares” box. If you use the spare spark plug, notify your check-in skipper upon your return so a new one can be placed aboard for future guests.
- If the motor is running fine and suddenly quits, then it is likely that the fuel cap vent is closed.
- If the motor is running fine but the propeller won't spin with the RPM above idle then the shear pin is probably broken. Put the motor back on the stern rail bracket, take the cotter pin out to remove the propeller and replace the broken shear pin. A spare pin is located in the forward underside the motor head.

Inflating the Dinghy

If the dinghy needs inflation, the foot pump is in the bow locker of the dinghy itself! The dinghy has three (3) baffles, each with an inflation valve located on the inside of the boat, plus an inflatable keel. The keel's inflation valve is in an opening in the bow floor board. Use the **black** adapter to inflate the main baffles. Use the **grey** adapter to inflate the keel.

The foot pump is held closed with a locking clasp. Release the clasp, insert the appropriate inflation nozzle onto the valve and give a ¼ turn to lock it in place. Inflate the baffle or keel with the foot pump until it is firm. When done, carefully detach the inflation hose. If the valve is still open, press it once to close it.

If you need to make a repair, the repair kit and instructions can be found in the tools and spare parts storage compartment located under the aft berth.

13. Dodger, Bimini and Cockpit Enclosure

Our dodger, bimini and enclosure panels can enclose the entire cockpit. We usually sail with the side panels removed, and only put them on when we need the extra space outside during inclement weather during the spring and fall months. If you wish to use the fully cockpit enclosure please notify SJS during your booking. Refer to Section 10 for more information about the cockpit enclosure.

The Dodger-to-Bimini overhead connector piece can be removed (un-zipped). The rest of the dodger and the bimini stays in place.

TIP: Enclosure panels are stored rolled up in a cardboard tube. When not in use, store enclosure panels rolled, never folded, and never with anything on top to weigh them down. Creasing the panels will damage the windows. At the end of your charter please roll side panels together and ask SJS where to store them.

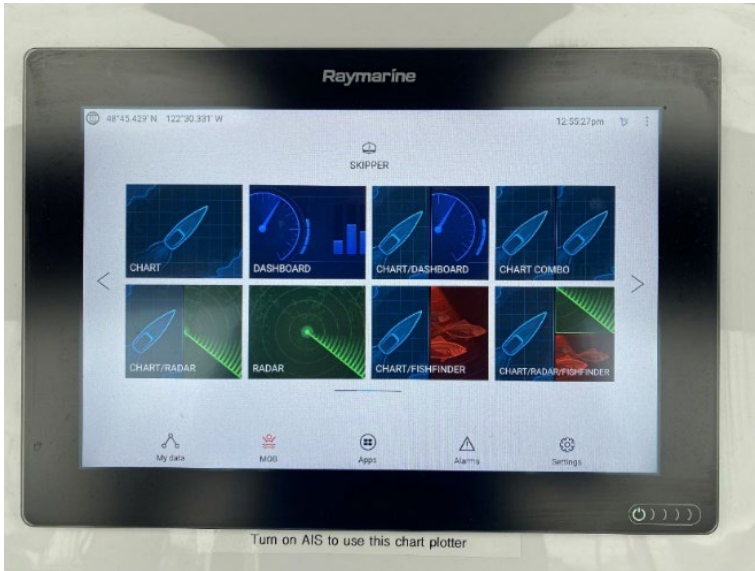
TIP: The plastic windows in the panels are vulnerable to scratching from dirt and salt crystals. When salt spray dries on the plastic, tiny salt deposits are left behind and tend to obscure your vision. Please avoid directly touching the plastic with a damp rag or sponge. Salt does dissolve in water, but not as fast as you might think. The salt crystals remain un-dissolved for several seconds. It's like rubbing the plastic with sand paper! To clean, use generous amounts of fresh water in a pan from the galley or dock hose and "flood" the glass to dissolve the salt crystals away.

Caution: Most spray-on sunscreens and bug-sprays react chemically with the plastic windows. Please inform your crew to spray downwind of all the panels. And please don't lean against the panels with sunscreen on your back and shoulders. Once that chemical reaction takes place, the plastic is ruined.

14. Electronics and Instruments

CHART PLOTTER:

The chart plotter, radar, autopilot, depth sounder, and wind instruments, are all **Raymarine** products and fully integrated.



Highlights

- Stargazer is equipped with two Raymarine chart plotters; one is located at the navigation station and one is located in the cockpit between the two helm stations. These are powered by the “Sailing Instruments” switch at the breaker panel.
- To fully utilize Stargazer’s navigation system, you must turn on the breakers for Sailing Instruments, AIS, Autopilot, and Radar (if you anticipate foggy conditions).
- The chart plotter at the nav station is the Master; the chart plotter in the cockpit receives its data from the nav station **AND** you must turn on AIS in order for the helm station plotter to receive the data.
- After power is applied, the system will return to the last formats / settings selected. The most popular selections for screen formats are accessed by selecting Home, then Favorites, then chose the desired app for each plotter.
- Please refrain from changing settings beyond the typical functions like chart orientation, radar overlay, AIS overlay and range.
- Commonly used chart plotter selections are detailed below. For a more complete orientation of how to operate and get the most value from a Raymarine chart plotter, you may download the user manual from the Raymarine website.

Commonly Used Chart Plotter Selections:

Finding the Navigational Chart: Press (touchscreen) the “Chart” icon from the main screen or go to the home/house icon in the upper left corner.

Zooming in and out: press the plus/minus icons along the bottom of the chart display or you can use 2 fingers and pinch in/out on the touchscreen.

Returning the screen to the vessel's current location:

- Press the boat icon in the upper left corner of the chart display to find the vessel's location on the chart at any time.

Clearing Pre-existing Waypoints, Routes and Tracks:

- Press the Menu icon (upper right).
- Select Waypoints, Routes, Tracks.
- Select Show/Hide or Delete as desired.

Chart Orientation: Subject to your preference, we recommend either Heads Up orientation (the direction of the boat is always pointing toward the top of the screen, or North Up (true north is always oriented toward the top of the screen, just like a paper chart).

Display Brightness:

- Press menu in the upper right corner and select settings

Course over Ground (COG) Vector/Line: Ensure the COG line is always ON by default.

- Press on the icon of the vessel in the center of the chart and you can select heading line and course over ground line

Displaying and using a Split Screen: Ex. Chart zoomed-in on one side and zoomed-out on the other, Chart on one side and Radar on the other.

- Press the home/house icon in the upper left corner and select the desired combination of screens

Radar Overlay:

- First ensure that the Radar is turned on at the breaker panel at the nav station.
- From the home screen select the dual view of the chartplotter and radar combined

AIS Overlay & Targets:

- Press the Menu icon (upper right).
- Press Settings – Layers – AIS – ON.

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

- Stargazer 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).
- **Stargazer is only transmitting her position when the VHF base unit radio is on AND the AIS switch at the breaker panel is turned on.**
- The chart plotter is tied to the VHF radio and AIS Unit and shows the positions of vessels with AIS as triangles. Make sure the AIS overlay is turned ON in the settings menu.
- 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. **Stargazer's MMSI number is 368295810** (note that an MMSI ending in "0" is one issued by the FCC and used for vessels traveling to international ports, such as Canada)

Details

AIS vessels appear on the chart plotter screen as triangles (must have AIS overlay turned ON – see above Quick Notes for how-to). The triangle points in the direction that the vessel is moving and if you touch the screen over the triangle the system will give you additional information (such as name, size, speed, bearing, etc.) about the vessel. The system also transmits this same type of information about Stargazer to other vessels with AIS.

The AIS is an added safety feature which allows large commercial vessels to easily see you and your direction/speed. They may try to contact you via VHF channel 16 to verify your course intent. In addition, AIS allows San Juan Sailing/Yachting to provide faster assistance in case of unplanned maintenance issues as well as alert San Juan Sailing/Yachting of Stargazer's return approach. Vessels with AIS can be viewed in real-time through mobile device apps and websites like www.marinetraffic.com that will reveal vessel name, course, speed, track, and other information.

AUTOPILOT:

Highlights

- To engage the autopilot, press "AUTO" one time
- To disengage the autopilot, press "STBY"

VHF RADIOS:

Highlights

- Raymarine VHF base unit located at the nav station and wired handheld is located at the starboard helm station
- Turn on base unit first then handheld.
- See **A.I.S. (Automatic Identification System)** section above for detailed description of AIS.

Details

Stargazer has a fixed mounted base unit VHF Radio at the nav station and a flybridge unit that can be plugged in at the starboard helm station, outboard side. The flybridge unit is kept in the second drawer of the nav station. Remember that the VHF radio is only usable for short range communications, generally about 10 miles or less.

Do the following to operate the VHF radio and ensure the radio is operational and tuned to channel 16 anytime you are underway:

- Turn on the VHF radio at the electrical breaker panel at the nav station
- Turn on the VHF radio by pressing the power button on the radio itself
- Plug the flybridge unit into the starboard helm station and turn on this unit with its own power button
- The radio should default to channel 16; you may press the "16/+" button if not

You may adjust or change the radio controls (power output, channel, volume, squelch, etc) either from the base unit or from the flybridge unit as follows:

- **Menu:** Press the large rotary knob to access the settings and menu functions. From the menu you can change many settings, however most of these settings should be left as they are and do not need to be changed.
- **Power Output:** You may select High Power (25 watts) or Low Power (1 Watt) from both the base unit as well as the handheld by pressing the Hi/Lo button. The radio defaults to high power on channel 16. We recommend

using the low power mode when making non-emergency calls to nearby vessels or ports and high transmit power for Channel 16.

- **Priority Channels:** Press the “16/+” button to quickly scroll through the priority channels (16 and 9). Use the large dial to turn the radio to any channels that you wish to use for transmitting. Channel 16 must remain a priority channel but you can remove channel 9 and add other channels through the menu functions.
- **Weather channels** – The weather channels, WX1 through WX10, are accessed through the menu (depressing large dial) and changing Mode > Weather Mode. Change channels back to US or International after you have listened to the weather forecast. Refer to the U.S. and Canadian weather channel listings in the Charter Guest Reference Manual binder located on board, section 7, VHF Procedures & Weather Reporting.
- **Volume & Squelch:** Use the volume/squelch knob in the lower right to adjust the volume and squelch settings. Push this knob inward to toggle *between* volume and squelch adjustment.
- **International & U.S. channel modes:** Channel modes can be accessed through the menu functions (depressing the large dial) and changing the Frequency Band between US, Canadian and International channels. The radio can transmit and receive on all available US, Canadian, International and Private marine VHF channels.
- **Watch Mode:** Watch mode can be used so that the radio will continuously monitor both channel 16 as well as one other channel to which the radio is set. This is helpful when you switch away from channel 16 to communicate with a marina, for example, or any other working channel such as 68, 69, 71, or 72. Go to Menu > Watch Mode to select dual watch mode. During Watch mode, press the Back button at any time to end the Watch mode and resume normal operation.
- **Scanning:** Scan mode enables automatic searching for channels that are currently broadcasting. Scan mode will search through available channels and stop when it finds a channel that is currently broadcasting. If the broadcast stops or is lost for more than 5 seconds then the scan will resume. Scan mode is started by pushing the menu button and Menu > Scan Mode.

15. Engine

Highlights

- **The Volvo Penta D2-40 is a 40 HP, 4-cylinder diesel engine with sail drive.**
- **The sail drive helps eliminate shaft vibration, noise, and alignment problems. Under engine power, you will find *Stargazer* to be quiet, balanced, maneuverable, and powerful.**
- **Maximum RPM is 3,200 and cruising RPM is 2,200 2,700. It's OK and in fact preferred to vary engine speed within the RPM range as you cruise.**
- **Please do not let the engine run at idle (~1000 RPM) for more than a few minutes and do not run it above the highest cruising RPM of 2,700 unless needed momentarily for emergency purposes.**
- **If you are at anchor and need to charge the house batteries, you may run the main engine solely for purposes of charging batteries.**

Details

Daily Engine Check

Engine access is provided by lifting the companionway stairs. There are no latches, just lift it up, push it down. Side access is provided via two hatches in the aft cabin.

We recommend performing the following inspections each morning before getting underway:

- **General Inspection:** Lift the companionway steps to access the engine compartment. Look around and below the engine for any signs of oil or other fluid leaks.
- **Coolant Level:** The coolant level is checked from within the aft berth (see picture) by opening the small wall panel inboard and forward of the mattress, where labeled. Anywhere between the two lines (high and low) on the overflow reservoir is normal.
- **Raw Water Strainer:** Located on the left side of the engine when facing aft, inspect the raw water strainer for debris. In case of an engine overheat alarm, check for eelgrass clogging the strainer. Unscrew the top of the strainer, clean out any debris, then replace it.
- **Belt Check:** There are two belts on Stargazer's engine – one on the forward end and one on the aft end. Check belt tightness by deflecting the belts inward with your fingers; it should not depress more than one inch. Please check both belts daily.



For longer charters (> 7 days), check the oil level once a week. The dipstick is on the port side of the engine and can be accessed from the companionway stairs. If you need to add oil, there is spare oil stored behind the seatback cushions in the port settee. There are two (2) oil filler caps, one on top of the engine and one on the left side near the dipstick. Do not overfill! Add oil one cup at a time and re-check the oil level.

The diesel fuel is filtered before going to the engine and generator. Inside the engine compartment, you will see multiple Racor fuel filters as well as the fuel filter mounted of the engine.

Starting the Engine

This is a keyless start system. The main battery engine switch, located in the aft cabin, must be in Position 2 to start the engine. When docked in a marina, or leaving the boat for an extended period, switch the engine battery switch to "OFF" and lock the companionway hatch.

1. Ensure that the throttle/gearshift is in neutral.

OPERATING TIP: In colder weather or when you want to run the engine at a higher idle speed (e.g., to charge batteries), you may push in the throttle handle (which looks like a winch



handle) and then push the throttle slightly forward. This disengages the transmission and allows the engine to run at a higher idle RPM. We recommend targeting 1000-1200 RPM for warm-up.

2. On the engine control panel in the cockpit, press the bottom "On/Off" button once to turn on the power at the engine control panel.
3. Press the "START" button and hold it for a few seconds, which will start the engine.
4. Listen/look for water discharging from the aft starboard exhaust tube. If water is not in the exhaust immediately shut the engine down and contact SJS.

OPERATING TIP: Allow 5-10 minutes of warm up before placing a load on the engine. It stresses the diesel engine if it is placed under load without being properly warmed up. Conversely, allowing a diesel engine to idle too long is bad and will cause carbon build-up.

Running the Engine

- Engage forward or reverse gear by moving the transmission directly from Neutral to Idle-Forward or Idle-Reverse (the transmission will click into each setting), pause momentarily, then move the throttle forward/backward smoothly to your desired RPM setting. DO NOT engage the engine or switch between forward/reverse erratically or too quickly – doing so places stress on the clutch, transmission and propulsion machinery. Always use smooth and gradual movements to the throttle control with engaging the engine, changing direction, or changing speed.
- To keep the transmission "healthy" when shifting from forward to reverse and vice-versa, pause ~2 seconds in the 12 o'clock neutral position (say "one and two and") before shifting gears.
- An economical cruising speed of 5-7 knots is achieved at 2000-2200 RPM, which uses about 0.5 gallon of diesel per hour. Please do not exceed 2700 RPM: it is very hard on the engine, will significantly increase fuel consumption but will do very little to increase boat speed. We recommend keeping the engine speed under 2500 RPM for most operating conditions.
- To avoid sucking in air or sludge when the fuel level approaches $\frac{1}{4}$ of a tank, refuel when the fuel drops below $\frac{1}{2}$ full and before it reaches $\frac{1}{4}$ full. The tank holds 40 gallons, so topping up at about 15 gallons is a reasonable exercise and doesn't take too long.

Shutting Down the Engine

1. Allow the engine to idle for a few minutes in neutral to cool down.
2. Press and hold the "STOP" button and listen for the engine to slow down and stop.
3. After the engine stops press the bottom "POWER" button. The tachometer will turn off.
4. You may run the blower for 5 minutes after shutting down the engine if you wish to remove heat from the engine space.

SAFETY REMINDER – Turning the control panel off while the engine is running can damage the diodes on the alternator, and as a result, the batteries will no longer charge.

Boat Handling with the Engine

Stargazer has a single large rudder and a moderate draft keel that is 5 feet deep. Please remember that Stargazer handles differently than your typical charter monohull, which nowadays usually have two small spade rudders offset to the sides, instead of a single deep centerline rudder.

San Juan Sailing offers free handling instruction before you leave for your charter if you'd like to practice with Stargazer, or just to improve your overall boat handling skills. Spending 30-60 minutes practicing getting in and out of the Bellingham marina can be a great experience!

Forward

Because the saildrive/propeller is almost directly below the engine, the wash from the prop takes a moment to reach the rudder; anticipate this delay when maneuvering in tight spaces. A short burst of throttle will direct water at the rudder, which if already turned, will result in a short, sharp turn with little forward movement – a strategy that can be handy when turning in confined spaces.

Reverse

When driving in reverse, grip the wheel firmly as water pressure on the aft edge of the rudder can push the rudder over to one side, which is hard on the steering mechanism (and your arms).

Docking

Unless there are high winds, we typically motor in the marina in Idle-Forward, which will produce a boat speed of about 2 knots. About 4 slips from your target dock, shift to neutral and glide in. Use the engine to stop the boat at the dock, and don't shut down the engine until the vessel is secured at the dock.

SAFETY REMINDER: It's difficult for people holding lines on the dock to stop the momentum of a heavy cruising sailboat. 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, crew should never jump to the dock from a moving vessel. 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**. 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**" team mate. If you are going to accidentally "touch" a boat or other object, lower the fender to the point of contact.

Using the Bow Thruster

The bow thruster allows you to control bow alignment using short bursts when docking or departing (see Bow Thruster section in these notes for details).

Troubleshooting Engine Problems

Volvo Penta engines are incredibly durable and you shouldn't have any problems on your voyage. Nevertheless, there are a few things to watch out for.

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. 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, twist off the clear screw-top and extract the eelgrass. Replace the lid and tighten by turning it clockwise until the lid is seated firmly on the rubber gasket. **Please hand tighten only!** Don't use tools and 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. Then restart the engine.

If after restarting the engine it overheats again, check the seal between the strainer, the rubber gasket, and the lid. If the strainer is drawing air, it won't draw water. If needed, open and then retighten the lid on the strainer and check to make sure the rubber gasket is in place in the lid (and not lying in the bilge.)

If the above steps fail to solve the problem, call San Juan Sailing for assistance.

Loss of Oil Pressure or Coolant

If the engine loses oil pressure, the warning buzzer will sound and the oil icon warning light on the tachometer will light up, so check which light is showing red. If it's the oil light, shut down the engine, check the oil level, and contact San Juan Sailing.

The alarm buzzer is more likely to indicate engine overheating, and the temperature icon light will light up. Before you shut down the engine, check for water gurgling out the exhaust. If you have a “wet exhaust,” check the coolant level in the overflow reservoir bottle. If none is seen, add enough to reach the top-level line on the bottle. After the engine cools down, remove the cap on the engine block and add coolant. And check the bilge for a light green liquid (coolant). If coolant is found in the bilge, call San Juan Sailing immediately.

If the coolant reservoir bottle is full, check to see if the engine threw a belt. Without a belt on the raw water pump, the coolant won't circulate and cool the engine. Replacement belts are in the engine spares kit underneath the aft berth. One other possible cause of an overheating engine is that the impeller in the raw water pump has failed. While the impeller is replaced each spring with a new one, it's still possible that a hard object may be drawn in and break off an impeller blade. A replacement impeller is found with the engine spares underneath the aft berth. Call San Juan Sailing if you suspect you have an impeller problem.

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.

16. Entertainment Systems

Stargazer is equipped with a FUSION marine entertainment system for audio and a Samsung 1080p HD SMART television for watching movies and accessing streaming video services. Speakers for the FUSION system are in the main cabin and in the cockpit. Audio for the TV is provided by its own speakers and is not connected to the vessel's sound system. Highlights of the entertainment system include:

- **FUSION audio system:** AM/FM radio, wired and wireless (Bluetooth) connections for audio players (e.g., iPhone, etc), and VHF monitoring. Speakers are in the main cabin and in the cockpit. The audio system can be controlled from the FUSION unit in the main cabin, port side cabinet forward of the nav station.
- **TV:** Samsung 40" 1080p LED HD SMART TV with built-in Wi-Fi capability. You may use your Amazon Prime or Netflix accounts to log-in and play TV shows and movies.
- **Remote controls:** Remotes for the TV and Fusion player are stored in the top drawer of the dining table.

FUSION Audio System

The FUSION unit is located inside the cabinet just forward of a nav station. The system includes AM/FM radio, auxiliary inputs including (USB) and wireless (Bluetooth) connections for audio sources such as iPods.

OPERATING TIP: If using Bluetooth to connect an audio source, the FUSION unit will appear as **Stargazer** in the list of available BT connections shown on your device.

To connect an iPod or other portable music player using the USB port, open the cap from the USB connector to the left of the FUSION unit and plug in your device using your own cable. Use the menu on the front panel of the FUSION unit to select your audio source.



HD TV

The Samsung 32-inch 1080p LED "SMART" TV gives access to online video services like NetFlix and Amazon Prime Video with a valid subscription. You'll need an internet connection to access online video services. We use a wireless hotspot from our cellular provider successfully in many places in the Islands, but coverage can be spotty. Wi-Fi is available in some of the marinas in the Islands (e.g., Bellingham, Roche Harbor, Deer Harbor). To connect the TV to a Wi-Fi hotspot:

- Activate your wireless hotspot.
- Turn on the TV with the Samsung remote.
- Press the Menu button on the remote.
- Select "Network" then select "Network Settings."
- Select "Network Type – Wireless."
- Select your wireless hotspot device from the list of wireless networks.
- Enter your network passcode, if required (use the remote to interact with the onscreen keyboard; select "Done" when ready to complete passcode entry).

17. Fuel

Highlights

- There is a single diesel fuel tank that holds 40 gallons (~150 liters).
- The fuel gauge is located at the nav station above the water gauges.
- Refuel when gauge reads ½ or lower – do not risk running low or out of fuel.
- Fuel deck fill labeled “DIESEL” is located on the starboard side, approximately in line with the mast.
- Under nominal conditions and load, the engine consumes approximately 1 gal/hr at 2500 rpm. This means you should be able to motor for ~20 hours or about 120 nautical miles on with just half a tank of fuel. However, reducing engine speed to 2,000 RPM saves significant fuel economy and you can travel further.
- A fuel cutoff valve is located on the fuel line on top of the fuel tank under the starboard settee. The access panel is labeled (see picture with red handle sticking up).



Details

Fueling:

Please fill very carefully because it is difficult to tell when the tank is full. You need to put your ear to the fill pipe, not fill “too fast”, and be prepared to stop immediately when the pitch rises. Before you begin fueling, look at the gauge and your log book and calculate the approximately amount of fuel that you believe that take can accept. This way you can slow down the fuel flow ahead of time because you will know when you should be expecting it to be full.

In the cockpit locker, we have a “refueling kit” consisting of a small red bucket, rubber fueling gloves, and paper towels. The attendant should give you absorbent pads. Before fueling, we build a fuel absorbent dam fore and aft in case of overfill. **Reaching for the pads after the spill is too late!**

18. Heads and Holding Tanks

Highlights

- Only what has been eaten goes in the toilet!
- Stargazer has a single toilet, which is an electric macerating flush using fresh (potable) water piped from the water tanks. Please use water sparingly or you will need to refill water tanks frequently. **Please note the position of the Y-value shown in the adjacent picture – this is the correct position and indicates that overboard discharge is closed and all effluent from the head will flow to the holding tank.**
- When the holding tank needs to be emptied, there are two methods to do so:
 - **Deck Pump Out:** deck plate open and pump out equipment operated shore side)

- **Holding tank pump overboard with macerator:** macerator discharge valve open and pump turned on)
- **Note that there is no way to use gravity to empty the holding tank** – it must either be pumped out at a shoreside facility or pumped out using Stargazer's own macerator pump.
- The toilet discharge hose has a Y-valve which is used to direct the effluent to either (a) the holding tank or (b) directly overboard. When sailing in US Waters you must direct the effluent to the holding tank only.
- The holding tank level gauge is located next to the flush switch panel – please monitor closely.
- The holding tank is 24 gallons and should be emptied every 2-3 days depending up the number of guests on board.
- Only where permitted by law, the holding tank may be pumped directly overboard by opening the discharge valve and operating the macerator pump from the switch located on the electrical panel at the nav station.



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.

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.

Head Usage:

Controls: Normal flush on the left side – toilet flushes as long as this switch is pressed and held down. The switch on the right side is use to add water when desired, and to empty the head as a “dry bowl flush.”

Flushing the head: Press and hold flush switch on the left side until the bowl has emptied plus a couple more seconds to clear the discharge line (normally 2-3 seconds total flushing time).

- The toilet is electric macerating flush type that uses DC electrical power from the House bank. Circuit breaker for the “Head” is located on the distribution panel at the nav station. If the system appears to not have power, check these breakers.
- The toilet uses freshwater from the freshwater tanks for flushing. The freshwater pump breaker/switch on the DC panel in the nav station must be ON to operate the



toilet (as well as the sink, shower, and other fresh water uses).

- A macerator is integrated into the discharge of the toilet itself and delivers macerated solid waste to the holding tank or directly overboard. Please use sufficient water to fully macerate the discharged solid waste.
- A holding tank monitor is located next to the toilet control switches. **Please empty the holding tank long before you receive a FULL indication – sailboats heel and can significantly affect the performance and readings of these devices and the levels of the holding tanks.**
- Y-Value: Normal operation is to direct the toilet waste to the holding tank. If you are in Canadian waters and direct overboard discharge is permitted, you must change the selection on the Y-value AND you must open the direct overboard discharge value located behind the access panel near the floor of the shower.

Emptying the Holding Tank

1. Deck Pumpout (located on the port side, just outboard of the cockpit)
2. Overboard Discharge (**where legal**)

1. **Deck Pump Out:** The holding tank can be pumped out via the labeled “WASTE” deck plate on the port side. After pumping out the holding tank, please refill with about 5 gallons of fresh water through the deck fitting to rinse, and then pumpout again. This will help keep the waste system from smelling. Thank you!

2. **Overboard Discharge (where legal)**

The holding tank can be pumped out using the macerator pump (switch at the nav station). To use the electric macerator to empty the holding tank, you first open the overboard discharge valve which is located behind an access panel near the floor of the shower (**see picture with valve**). You then turn on the macerator pump at the nav station using the switch labeled “Macerator.” Listen closely for the sound of the pump and you will hear the pitch of the pump change as it initially primes with effluent and again when the holding tank is empty. You must shut off the pump when the holding tank has been fully emptied and then you must close the overboard discharge valve.



19. Heaters & Hot Water

Stargazer has a Webasto diesel heating system, which can be used anytime and runs on diesel for heating and battery power for circulating the heating fluid and internal fans. This system provides both heating to the cabins as well as hot water.

Highlights

- Turn on the Diesel Heating System on the switch located at the nav station (shown in picture).
- Primary system also produces hot water for use in shower and galley sink.
- The system takes about 5 minutes to heat up enough to begin blowing warm air, and about 45 minutes to heat up enough to hot water to take a shower.

Details

The Webasto thermostatically controlled forced air heating system draws from the main diesel fuel tank. In our waters, we use the heater on cool evenings or to take the chill off in the morning.

The heating system is turned on by pressing the black button at the nav station and the green light indicated that it is operating. You will hear sounds when the furnace starts as well as a “clicking” sound from the fuel pump that powers the furnace. After 5-10 minutes the fans may be turned on for each space to be heated. There is one fan in each of the berths – forward and aft – as well as one under the nav station and one under the dinette. Each fan has a high/low/off controller and we find that the low setting is ideal for heating. We generally only run the system for 30 minutes to heat the entire boat and then we turn it off.



We flip down the companionway hatch and doors to retain heat in the cabin. We normally turn off the heater at night, both to sleep cool and to avoid the noise of its electric fuel pump and the furnace exhaust.

Note that there is a separate hot water heater switch at the electrical panel at the nav station. This switch may be used only when on shore power (i.e., at a marina) and it only provides hot water, not heating to the vessel.

20. Lighting

Highlights

- Flip on the CABIN LIGHTS breaker on the DC panel at the nav station and you can turn on the lights on the switch located on the forward side of the navigation station chart plotter.
- Most of the cabin lights can be individually switched on/off locally to adjust ambient light levels.
- The nav station and galley each have additional light switches
- Stateroom light switches are on the individual light fixtures.

21. Refrigerator and Freezer

Highlights

- Stargazer has two large refrigerators and one large freezer. Ideal thermostat setting is no. 4 on the refrigerator [press the image of the snowflake to adjust temperature].
- The freezer has its own temperature control and we find that about halfway around the dial is the ideal position for frozen foods.
- Circuit breaker/switches for refrigerator and freezer are located on the DC panel in the nav station. They are always ON unless the house batteries do not have sufficient power (below 12.2V).
- Check to be sure there is sufficient battery power to operate the refrigeration equipment all night.

22. Sails and Rigging

Highlights

- Leisure Furl In-Boom Mainsail
- "Solent" Rig (aka - Tartan refers to as their Cruise Control Rig)
- Self-Tacking Jib on a furler
- 155% genoa on a furler

Details

Electric Winches: Electric Winches - The two primary winches and the starboard cabin top winch are 2-speed electric. The circuit breakers are located next to the chart table at the nav station. Please note these winches are extremely powerful and will damage rigging and sails if used improperly. **We recommend charter guests always use winch handles at first to get a feel for the loads on the winches, and when using power always use slow speed only.** Always watch the sail you are winching and listen for the winch motor or lines/blocks straining under too much load. Stop the winch immediately and figure out the cause.

Mainsail: Stargazer has a Leisure Furl In-Boom furling mainsail, coupled with a Solent headsail rig. The Leisure Furl allows for a great degree of control over main sail operations. HOWEVER, this system must be operated very carefully to ensure that the main sail can be raised, reefed, or furled correctly. Specifically, you must have an 87-degree angle between the boom and the mast at any time you are raising or lowering the main halyard. This angle is achieved through release of the boom vang and mainsheet, and setting the topping lift at the black mark on the line. If you do not set and maintain the proper angle between boom and mast, the mainsail cannot be raised or lowered correctly and you may damage the sail as a result. Please refer to the youtube video and checklist before performing main sail operations.

PLEASE DO A THOROUGH VISUAL INSPECTION OF THE LINES, BOOM, SAIL COVER AND RELATED ASPECTS OF THE MAINSAIL PRIOR TO RAISING THE SAIL AND PLEASE PROCEED SLOWLY WHEN RAISING OR LOWERING THE SAIL TO ENSURE SAFE OPERATION. The in-boom furling system is new to most charter guests and it requires more attention to ensure correct operation as a result.

RAISING THE MAINSAIL

Start at the mast:

1. Retract sail cover: un-bleat cover control lines, retract cover, re-bleat cover control lines to boom.
2. Verify head of sail is pre-fed in the luff track on the mast.
3. Verify that halyard is attached to the head of the mainsail.
4. Verify ratchet pin is disengaged from boom furler (pull down and rotate metal ring).

Then continue in cockpit:

5. Ensure boom vang is slack.
6. Check that the topping lift is set at the mark (black mark on the line just forward of the clutch).
7. Open the main sheet clutch and ensure the main sheet is slack.
8. Visually check the gap between the boom and the bimini – you should see that the bottom of the boom is located 8-10 inches above the bimini. If not, recheck items 5, 6 and 7.
9. Load the main halyard on starboard cabin top winch.
10. Flake-out the boom furling line along the cockpit cushion to ensure that it will run freely.
11. Open clutches for both main halyard and boom furling lines.
12. The helmsperson idles forward using the engine and heads the boat into the wind.
13. With one crew standing at the winch and a second crew standing at the mast, begin raising mainsail with SLOW speed on the power winch. **Never use fast speed.**
14. Raise mainsail until the head reaches the black line on top of the mast. This takes about 90 seconds - watch for kinks in lines or other problems and STOP if anything looks or sounds unusual.
15. Once the mainsail is fully raised, close the clutches for both the main halyard and boom furler.
16. Load the main sheet on primary winch and trim - helmsperson can bear away and begin sailing!

FURLING THE MAINSAIL

1. Start the engine, head the boat into the wind, engage the autopilot, idle forward on engine throttle.
2. Load the boom furling line onto the cabin top winch.
3. Open the boom furling line clutch.
4. Ensure topping lift is set to the mark (black mark should be 1 inch forward of the clutch).
5. Release boom vang tension.
6. Double check you are heading into the wind, luffing main sail, then open mainsheet clutch.
7. Position one crew member at the mast, one crew at the winch.
8. Flake out the main halyard.
9. Put ONE WRAP of main halyard on circular line snubber and pull to hold tension.
10. Now, holding tension on main halyard wrapped around snubber, open the main halyard clutch.
11. Crew at winch uses slow speed only to begin furling the mainsail. IT IS CRITICAL TO MAINTAIN MODERATE TENSION ON HALYARD AT ALL TIMES – DO NOT ALLOW THE MAIN SAIL TO FALL. Remember that you are *furling* the main, not *dropping* the main!
12. While furling mainsail, crew at mast watches to ensure the luff rope comes down straight and mainsail rolls evenly onto boom furler. If the main sail is “walking” forward or backward you must stop and correct by re-raising the sail and attempting again to furl the sail correctly.
13. Stop furling when you still have 12-18 inches of the head of the sail still in the luff groove.
14. Close clutches on halyard and furling line.

Reefing the Mainsail: Begin reefing the mainsail by following all of the steps used to lower the sail and then do the following:

1. Stop lowering/furling the mainsail when one of the horizontal battens is on the mandrel within the boom. This ensures that you will have a flat-footed shape to the mail sail, which is appropriate for high wind conditions.
2. Once you have stopped furling at the desired mainsail size, you must re-engage the main halyard rope clutch to make fast the halyard.
3. Now flatten the sail by pulling in on the furling line until the foot is completely flat.

Controlling Mainsail Shape

The furling system allows sail shape to be controlled without the use of a Cunningham or outhaul by simply tensioning or easing the furling line!

Upwind sailing or strong wind Conditions: Flatten the sail by tensioning the furling line. This draws fullness out of the foot and luff of the sail as you would otherwise do with an outhaul and Cunningham.

Downwind sailing or light wind Conditions: Deepen the sail by easing the furling line. This adds fullness to the foot and belly of the mainsail as you would otherwise accomplish by easing the outhaul and Cunningham.

Never use the main halyard to make sail shape adjustments! All you need to do is adjust the furling line.

However, always remember that in an emergency situation the mainsail can be “dropped” by simply releasing the halyard.

Troubleshooting the Mainsail Furling System – Common Problems and Causes

Problem: Sail cannot hoist

- Furling line rope clutch is not disengaged (not fully open)
- Furler locking ratchet is still engaged (front of mast)
- Furling line has a knot in it somewhere
- Head of sail has not been fed into the feeder correctly

Problem: Sail is hard to hoist

- Sail is partially loaded
- Main halyard or sail is catching somewhere. (Check head is not hooked on runners, etc.)
- Furling line is catching somewhere
- Furling line is jammed in the spool

Problem: Sail cannot furl

- Main halyard rope clutch is not disengaged
- Main halyard is jammed somewhere
- Sail is caught somewhere

Problem: Sail pushes forward when furling

- Sail has not been unloaded – head up and release the main sheet
- Boom height is set to low
- Insufficient halyard resistance applied during the furl

Problem: Sail pulls back excessively when furling

- Boom height is set to high. A small amount of extra height is not normally critical
- Too greater halyard resistance applied

Problem: Broken or damaged furling line, deck gear

Solution: Bring the yacht head to wind, insert a winch handle in the spool, engage the locking ratchet, ease the main halyard as the spool is rotated. At the desired level of hoist engage the main halyard rope clutch, and continue rotating the spool to tension the luff and flatten the foot. It may be necessary to winch up the main halyard also under these circumstances.

Problem: System makes a noise whilst at anchor

Solution: Take the load of the topping lift or attach a shock cord from the support bracket to the topping lift, then pull tight. If the sail cover rattles at night, pull the cover along the boom to open

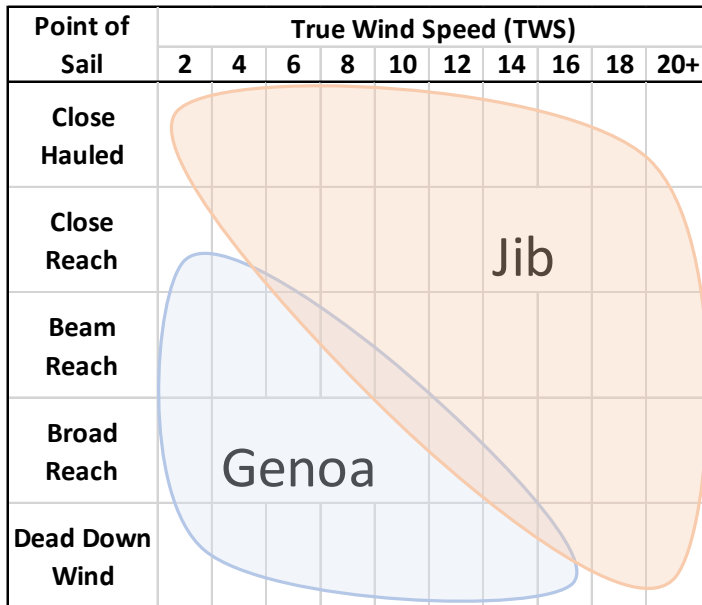
Headsail Usage (Jib and Genoa)

The Solent Rig, which Tartan refers to as the Cruise Control Rig, is characterized by two headsails that are very close to each other (as opposed to a Cutter Rig where there is a larger spacing between the two head sails). There are numerous advantages to this type of rig for the cruising sailor, but it must be understood how to sail it properly. **If you have any concerns, please just ignore the genoa completely and sail the boat using the self-tacking jib only. The genoa should only be used by charter guests who have some familiarity with larger sails and their handling and usage.**

The Tartan Cruise Control Rig uses two headsails: the self-tacking jib on the inner headstay and the larger genoa sail on the forestay. When sailing close the wind (close hauled and close reaching) and anytime you are sailing with heavy winds, you will use the self-tacking jib only. When sailing in very light winds or off the wind (TWA > 60 degrees) you may consider furling the jib and using the larger genoa instead. It is important to note that you must furl the genoa if you are tacking the boat. The genoa sail cannot be "tacked" or moved from one side of the boat to the other because it will get caught on the inner stay. **When sailing with the genoa and needing to perform a tack, you must completely furl the genoa first, then tack the boat, then unfurl the genoa on the other side!**

Please also note that you cannot sail with both the genoa and jib at the same time as with a cutter rigged boat. With the solent rig, you choose either the jib or the genoa, but never both sails.

So, to summarize, the following sail plan shows general guidelines for the appropriate head sail selection given various points of sail and true wind speeds.



Important: These are only general guidelines that suggest theoretically correct sail choices in stable and predictable conditions. It is the responsibility of the charter operator to incorporate further considerations such as wind gust speed, sea state, wave height, weather forecasts, crew readiness and other factors when determining the appropriate choice of sail.

23. Showers and Sumps

Highlights

- Aft head shower.
- Transom shower.
- Shower sump pump circuit breakers at nav station with float switch, no switches in showers

Details

The aft transom shower is incorporated into the head behind the nav station, near the swim platform. The transom shower uses both hot and cold water. To operate, turn the T-handle left or right to adjust temperature. Depress the spring-loaded button on the top of the shower head to spray water.

Note: shower sumps can become emergency bilge pumps if water rises to that level.

24. Spares and Tools

The following is a general list of the types of tools and spares and their location on board:

- Tool Bag (assorted tools) - behind the starboard settee just forward of the galley
- Socket wrench set - under the aft berth (red Craftsman socket set)

- General Spares (filters, belts, etc) – under the aft berth – numerous labeled boxes
- Spare Hardware – behind the port settee, forward
- Engine Oil & coolant – in the labeled compartment adjacent to the engine in the aft berth
- Heavy Duty Spares (pumps, alternator, etc) – behind the port settee, aft
- Technical Manuals – under the starboard settee, just forward of the galley

25. Storage

The following storage locations will be of greatest use to you during your charter:

Dry Goods:

- a) Port and starboard cabinets –behind the sliding doors as well as open shelves behind the settees
- b) Salon settee underneath the cushion there is a small storage area within a plastic bin at the aft end
- c) Under forward settee cushion – there is a small storage area here.

Refrigerated Food: We have substantial space for refrigerated goods in the twin refrigerators drawers at the aft end of the galley.

Frozen Food: The dedicated freezer is accessible by lifting up the countertop that is outboard of the sink in the galley area.

Clothes: The forward stateroom has one hanging locker, one folding locker, and two drawers under the berth. The after stateroom has two hanging lockers only.

Fenders: We store them in the port cockpit seat locker. A fifth light blue fender is ideal for the “rover” or when backed into a slip.

Dock Lines: There are four black dock lines the port cockpit seat locker. The bow and stern lines are 20 feet long and the two spring lines are 30 feet long.

Cooking utensils: In the galley drawers to the left of the sink, and also in the starboard and port side cabinets.

26. Starlink

Highlights

Stargazer has a Starlink high speed satellite internet system that works very well. Simply turn on the breaker on the main panel when needed. The starlink antenna may take up to 15 minutes to acquire and maintain signal. The wifi router will establish the following network:

Username: Stargazer

Password: Lat!tude48

Important! – to conserve battery power when at anchor or mooring, please turn off the Starlink at bedtime or it will drain the batteries overnight.

27. Stove, Oven & Microwave

Highlights

- The stove/oven are propane-fired.
- There are two 2.5-gallon steel propane tanks in the starboard lazarette, under the helm seat. The locker is vented overboard for safety. Please be very careful when opening the starboard lazarette that you don't hit the hydraulic backstay.
- The San Juan Sailing staff checks these tanks weekly to assure that you don't run out.
- 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.
- 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.

Details

Lighting a Stove Burner:

- Make sure to open or activate each of the following parts of the propane system:
 - Open the propane tank hand valve under the starboard helm seat.
 - Turn on the "LPG Control" switch on the 12-volt DC Panel
 - **Press the "S" solenoid button on the bottom of the Xintex controller (see picture) located on the wall over the refrigerator.** Propane will now be flowing to the stove.
- Make sure the gimbal lock at the bottom of the stove/oven is secured. That way, if someone leans on the stove or grabs the oven handle, it won't tip and spill pot/pans on the cooktop.
- Light a BBQ lighter (or use the stove's igniter) and hold the flame near the burner edge.
- Push the corresponding burner temperature knob in and turn to the "Light" (flame symbol) position. 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. The flame should remain burning.
- Turn the knob to the desired heat level.



Lighting the Oven Burner or Broiler

- Make sure to open or activate each of the following parts of the propane system:
 - Open the propane tank hand valve under the starboard helm seat.
 - Turn on the "LPG Control" switch on the 12-volt DC Panel
 - Press the "S" solenoid button on the bottom of the Xintex controller located on the wall over the refrigerator. Propane will now be flowing to the stove.
- Make sure the gimbal lock at the bottom of the stove/oven is secured. That way, if someone leans on the stove or grabs the oven handle, it won't tip and spill pot/pans on the cooktop.
- Open the oven door and using a flashlight locate the burner pilot at the bottom right side of the oven.
- Light a BBQ lighter (or use the stove's igniter) and hold the flame near the burner edge (top for broiler, bottom for oven).

- Push the oven temperature knob in and turn to 300 degrees. 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.

Microwave Oven:

- Located in the aft-most cabinet on the starboard side above the refrigerator.
- Make sure the "Microwave" breaker on the panel is ON.
- Leave the cabinet door open while cooking to allow heat to dissipate from microwave.
- 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.

28. Water

Highlights

- Two water tanks totaling 100 gallons.
- Water pressure switch is on the electrical panel at the nav station and the domestic water pump is located under the starboard settee just forward of the galley and sink
- Tank level gauges are located at the nav station
- Water tank selection valves are located under the sink in the galley, adjacent to the domestic water pump that services the entire boat. Open only one tank at a time, starting with the bow (F) tank.
- Deck fills are located on the port side, near the shrouds.
- Hot water is produced by two methods: (1) An electric hot water heater that can be turned on while you are on shorepower or when running the generator. (2) The hydronic heating system, which runs on diesel fuel and can be used anytime you are NOT on shore power. (Note there is no hot water loop from the engine jacket water).
- Filtered water for drinking is available at the galley sink and is labeled as such.



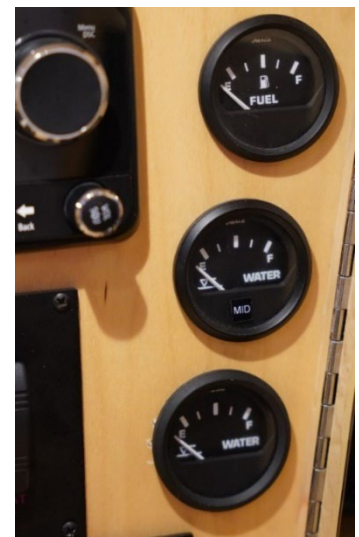
Details

Water Pressure Switch:

Please turn off the water pressure switch when the system is not being used (note: the water pressure needs to be on for the toilets to flush). If one of the water tanks runs dry the pump will run continuously and burn out. You will likely not hear the pump running over the sounds of motoring or sailing.

Water Level Gauge:

The water tank level gauges are located at the nav station. You need to make sure that the switch for "gauges" on the electrical panel is turned on. The tank selector valves are located under the sink. Don't have both open at the same time. Use one tank until it is empty, then close the respective valve, then open the valve for the second water



tank. When you are down to the last tank of water, be sure to refill both tanks at the earliest possible convenience. Stargazer does not have a fresh water maker.

Hot Water Heater:

The electric hot water heater (only available when plugged in to shore power) is located under the galley sink, down and to the right side.

Please note that state parks do not have pressurized water to refill tanks.