

Sea Wings

Owner's Notes

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From the Owners

Welcome Aboard!

Sea Wings is a 2006 Navigator 51 pilothouse motor yacht. We purchased her in March 2017. We are the second owners. She was with her first owner in Seattle and was known at that time as *Miss Chardonnay*. Harbored on Lake Union, the prior owner kept her in pristine condition. We are fortunate to have acquired her and hope that you'll take good care of her during your adventures cruising the San Juan Islands and beyond.

PLEASE TAKE TIME TO READ THIS MANUAL AND USE IT AS A REFERENCE SOURCE DURING YOUR CHARTER CRUISE. Spending some time now will make your checkout a breeze and your actual cruise through the inland waters of the Salish Sea will be more enjoyable. And if you need more info, *Sea Wings* carries a comprehensive set of the manuals for the installed equipments, kept in a case in the forward part of the engine room.

Please don't be afraid to ask any question of the San Juan Yachting staff during your orientation or at any time during your cruise. You may also contact us the owners at any time using the info in the emergency contact list (noted in the Chart Guest Reference Manual). No question is too insignificant.

We have enjoyed getting *Sea Wings* ready for your cruise. We hope you will sense our pride in her and enjoy your time on her as much as we do. As you cruise, if you discover anything we could do to enhance your experience, please share that with the good folks at San Juan Yachting when you return or contact us directly at Lotharjt@comcast.net

May you be blessed with blue skies and calm waters.

Bon Voyage,

Lothar and Donna Taylor

And Just A Reminder

These notes have been prepared to give the charter captain and crew a helpful resource of information. While the goal is to summarize information from multiple sources into a single item, this document does not pretend to be the ultimate authority on the equipment and systems on board. Consult the manuals provided by the various manufacturers.

Further, the captain accepts and is the ultimate person responsible for the safety of the crew, passengers and the vessel. It is expected that he / she is qualified to operate a vessel the size, type and complexity of *Sea Wings* and has become thoroughly familiar with her prior to leaving the dock. Good judgment and following all applicable laws during operations is fundamental to a safe and successful experience on board this vessel and in the maritime environment.

No warranties are expressed or implied by this document.

Five Requests to Keep *Sea Wings* in Top Shape for Other Guests

1. Shore Shoes: Cleaned or Removed

Shore shoes can pick up lots of 'stuff' that increases the wear and tear on the interior. Help us keep her looking great by cleaning the bottom of your shoes before stepping into the salon or removing them whenever inside.



2. Damp Lifejackets Need Fresh Air

If a lifejacket, flag or canvas cover is even slightly damp, please hang it where fresh air circulates until it's completely dry. Snap straps on flybridge bimini support arms make a good hanging device. The slightest moisture in an enclosed place creates mildew quicker than one would think.



3. Wash Down the Anchor Chain

Use the saltwater washdown system with the dedicated coiled hose to thoroughly wash mud and marine debris from the anchor chain BEFORE it goes into the chain locker.

Failing to do so can result in foul odors in the chain locker!

4. Please Keep Salon Door Closed when engines are running

Diesel engines produce soot when they run and that can build up a film in the cabin. Therefore please keep the salon door closed whenever the engines are running.

5. The engines benefit from a periodic run at high speed

Sea Wings is equipped with two very reliable John Deere diesel engines. Yet, the engines can build up diesel soot in the turbochargers and exhaust ports when cruising for many hours at low speed economy cruise (less than 1400 RPM). We've found it helpful to run the engines at high speed cruise (1750-2000 RPM) for at least 20 minutes every other day while cruising to help keep the buildup to a minimum. Remember to use the trim tabs at these higher speeds.

The Owners and other Guests thank you 😊

Anchoring and Mooring Equipment

Anchors & Rodes: *Sea Wings* carries a 45# plow anchor in a bow pulpit and roller and 320 feet of 3/8" high tensile chain lifted by an electric windlass. There is also secondary anchor (Foretress) and spare rode (15' of chain and 150' of nylon rode) located in the lazarette.

Chain markings: Yellow nylon line segments are woven into the chain at 25' increments and a double segment is woven into the chain at the 100 ft, 200 ft and 300 ft marks. **Red** nylon line marks the last 5 ft prior to the end of the chain.

After the end of the chain, there is triple braid nylon line that will deploy thru the windlass. Under normal conditions, one would never deploy the chain with any portion of the red chain exposed. Always use the proper anchor rode ratio as noted below and seek appropriate anchorage water depths to achieve that.

In an emergency, the captain may determine that personnel or the vessel are in significant imminent danger and the only viable option is to quickly cut loose the anchor rode rather than haul it in. Hopefully that situation will never happen but if it does, the rode can be let all the way out and the triple braid line can be cut with a knife. This is an expensive, last resort option! If at all possible don't do it but if you must, attach a fender to the bitter end of the rode and note your lat/long position (use the Man Overboard, MOB, function on the chartplotter), this will allow for future retrieval of the anchor and the chain rode.

Rode Consideration for NW waters

In the Northwest, we usually do not have to follow *Chapman's* "7:1 scope minimum." It is common for boats with all chain rodes to use a 4:1 or 5:1 ratio (i.e., in a depth of 30 feet you let out approximately 120 to 150 feet of chain.) **In addition, we have substantial tides:** 10 ft. tide swing and occasional minus tides (level below the chart datum). **Do your calculations for the expected high tide level and yet be sure there will be sufficient water in your anchorage at low tide.**

Reminder: the depth sounder is calibrated to the bottom of the vessel. While this could indicate 5 ft of water depth, the propellers / shafts hang below the bottom of the vessel's hull so it is a good idea to assume less than 5 ft of water is a very hazardous area, after all, seldom is the sea bottom perfectly flat and there are uncharted rocks out there! We recommend always being in at least 10' of water at low-low tide.

Anchoring process:

1. Determine the total length of anchor rode you need to deploy.
2. Turn on Windlass power at the power panel. Release the safety line that secures anchor.
3. Anchor is lowered with foot switches on bow deck or from remote controls at either helm while boat is backed up slowly away from anchor.
4. Slowly let out the first few feet of anchor rode taking care to manually ease the anchor over the roller and not allow it to swing wildly.
5. Mate at the bow will monitor length of chain deployed and troubleshoot if it gets tangled.
6. Deploy the estimated length to initially hit the sea bottom plus another 5-10 feet and then continue to pay out the anchor rode while the helmsman begins to slowly back down the vessel. In essence, you are laying down a line of anchor rode on the sea bottom. When the target length is deployed, stop the windlass.

- Skipper will continue to reverse on one engine (idle throttle) at a time **gently** to test the set of the anchor. Stay in reverse on one engine long enough to convince yourself that the anchor is set.
- 7. Attach the “Snubber line” to the anchor rode: Secure the bitter end of the snubber line to windlass cleat. Attach hook to anchor chain beyond anchor roller. Run out enough added chain to form loop in the chain so that tension is transferred to the snubber line.
- 8. Turn off Windlass switch at the power panel.
- 9. Turn off engines, shutdown the chartplotters, turn off all unneeded circuit breakers. Time to relax and enjoy! And occasionally, check to see your position is still stable and you aren’t slowly dragging anchor.

Raising the Anchor and Washdown:

1. Before raising the anchor, attach washdown hose (kept in the lazarette in a bucket) to the deck connection at the bow. To connect, push the end of the coiled hose straight down into the deck connection. Then turn on the anchor washdown and windlass circuit breakers. Start the engines so they can be used to inch the boat forward toward the anchor and manage vessel movement once the anchor releases. Key is to recognize that the bow pulpit and windlass will be under strain as you haul the anchor rode and you don’t want to use the windlass to pull the boat toward the anchor.
 2. Press foot switch next to the windlass. **Wash chain and anchor thoroughly as you haul it in.** This prevents unpleasant odors from marine growth ending up in the anchor locker.
 3. Remember to remove the snubber line as soon as you can reach the hook.
 4. Please bring anchor up to the windlass carefully to protect the fiberglass around the roller from gouges. Stow the anchor in its support with no tension on the windlass and secure it with the safety line before getting underway.
- **Best practice during anchor raising:** The anchor locker is accessed thru the forward cabinet door at the head of the Guest VIP berth. All 320 ft of anchor rode sits in this space so long as the chain is layered to port and starboard sides of this space during the haul in process. We recommend that a crew member be stationed at this spot during haul-in process and periodically position the anchor rode (every 50’ of rode works well) so that it settles into the space. Else you’ll end up with a growing mound of chain that may backup into the windlass and jam. Gloves are available in the pilothouse storage cabinet just forward of the electrical panel.

Emergency Manual Winch:

In the event that the windlass motor fails, you can operate the windlass manually. A handle (looks much like a winch handle for a sailboat) is located in the pilothouse storage cabinet just forward of the electrical panel. Caution: If you turn it counter-clockwise, it will release the clutch and the anchor chain to run freely due to gravity. Stop the free run by engaging the winch handle in a clockwise turn.

Shore Lines (Stern Tie)

Why? It is common to use a stern tie line in crowded / narrow anchorages (for example, in most Desolation Sound locations, Todd Inlet at Butchart Gardens, Inati Bay near Bellingham) where there simply isn’t enough room to have your own “swinging space”. Stern tie limits your swing and the anchorage will support more boats in close proximity.

How? Survey the intended spot to determine depths, hazards close to shore, expected tidal swing, etc. Then do the math to determine the total amount of anchor rode you need to deploy. Estimate where you will drop the anchor and aim to be 50-75 ft out from shore once the total anchor rode is deployed (of course this assumes sufficient depth and no hazards this close to shore). Then a stern line is paid out, passed around a tree or a convenient steel ring in some locations. If sufficiently close, you can pass the bitter end of the stern tie line out to the point on shore and back to the boat. This practice will enable a "quick release" without having to go ashore when you're ready to untie. To get to shore, you will need to have the dinghy down and have your mate keep the boat toward shore with short bursts of reverse gear. Sometimes a helpful boater already anchored will help you by taking your line to shore for you with her / his dinghy---a considerate "good deed" that you might reciprocate some day. We have met some nice boaters this way!

Using *Sea Wing's* Shore Line

1. Find the 275-foot shore line on a reel stowed on top of the engine/house batteries aft of the port engine, secured by a bungee cord around the reel and around a securing hook on the bulkhead.
 2. Position the reel in the cockpit and with one foot, steady it in place and then manage deployment of the line as the mate in the dinghy heads to shore.
 3. Once dinghy operator has run the line to shore and back to the boat, secure both "ends" of line on one of the stern cleats. The goal is a firm line at high tide and no tension on the remaining line on the reel. Secure the reel so it doesn't go overboard. Do not attempt to secure the line to the hand railings, they are not strong enough to withstand the potential forces on the line.
- After retrieving the stern tie line and prior to stowing the reel in the engine room, please be sure it has dried sufficiently to not 'dribble' seawater on to the battery covers. Then secure the reel back in place on top of the batteries aft of the port engine.

Mooring Equipment

Dock lines are stowed in latch straps on the rails for regular use at docks:

- Two 20-ft, typically at the stern
- Two 25-ft, typically at the bow
- Two 30-ft, typically used for mid-ship spring lines

Stowed in the transom storage locker:

- Extra dock lines including two 50-ft lines that work well in transiting the Chittenden Locks

Black Fenders:

When not in use, store the smaller black fenders in racks on bow rails and stow the larger fenders in the cockpit or in the lazarette. As a general practice, we use the larger fenders, all four of them, for the dockside of the vessel and we use the smaller fenders tied high for protection on the non-dockside of the vessel.

Boat Hook: A floating, telescoping boat hook is stored in the transom locker.

Dinghy Operations



The law requires everyone under 12 in the dinghy to wear a lifejacket and all others to have a lifejacket readily available.

Prevent Mildew!

Please be sure lifejackets are bone-dry before stowing them.

Hanging them on the Bimini snap straps is a handy way to let them dry.

Launching:

1. Turn davit ON at power panel; find remote control in the forward cabinet adjacent to the power panel.
2. Connect remote control, plug receptacle in on the base opposite the lifting arm.
3. **MAKE CERTAIN BILGE PLUG IS IN THE DINGHY!!** Then ensure the winch carabineer is secured to the lift ring in the dinghy. Remove (if not already done) the canvas cover from the dinghy. Make ready the stern and bow lines on the starboard side of the dinghy, use them control the movement of the dinghy during the launch. Remove tie-down straps from dinghy (lower the aft portions away from the dinghy but leave them attached to cradle hooks and secure so they don't dangle in a breeze).
4. Using the power winch, lift dinghy free and manually rotate the davit arm and the dinghy over the starboard side (bow of the dinghy pointing to the stern of the vessel), then lower it to the water, use the bow/stern and painter lines to help manage movement in the process.
5. Secure painter so dinghy won't drift away once you release the winch cable.
6. Disconnect winch cable and secure it to the starboard stern cleat with light tension. Clip the carabineer to the bowline loop of the Lifesling's safety line is a good option, then lightly tension the davit cable to keep it secure.
7. Disconnect and safely stow the remote control.
8. Turn off the davit circuit breaker.

Starting the Outboard Motor:

1. Be certain fuel line is connected; squeeze bellows pump till slightly firm and confirm the air vent on fuel tank is open.
2. Lower the motor with Up/Down lever on the starboard side of the engine.
3. Insert the key at the control quadrant, pump the priming lever 2-3 times, ensure the shifter is in neutral, push the key in and turn clockwise until the starter motor engages. It should start very quickly. There is no choke, the engine manages the process as it warms up.
4. You are ready to go once the engine sustains a smooth idle.

Retrieving and Loading:

1. **BE SURE GRILL IS COVERED** to avoid saltwater dripping on it and causing rust.

2. To hoist dinghy, reverse "Launching" procedure. **Note: Be sure to raise the motor to the first 'click' of trimmed up position (see pictures) to avoid contact with the upper deck structure when hauling the dinghy aboard. And ensure there is not a lot of water in the bilge, pump out manually to avoid excess weight during haulout.**
3. Raise the dinghy and manage it physically via the davit arm and bow / stern lines. Rotate it back into position on the flybridge and slowly lower it to the cradle support arms. You can check the proper position of the dinghy by sighting the alignment of the bow and stern of the dinghy with the reference pictures here:



4. **BE SURE TO SECURE DINGHY IN CRADLE WITH TIE- DOWN STRAPS.** If you don't do it right away, it is easy to forget and dinghy will bounce out of cradle while cruising!
5. Maintain light tension on the davit cable when all is secured.
6. When finished with the winch, return remote control to the pilothouse cabinet.
7. Close the fuel tank vent and remove the bilge plug to allow the dinghy to drain.

Outboard Fuel: Unleaded regular (87 octane), non-ethanol if possible. **NO** oil mixture needed for the 4-stroke motor. **Please replace the fuel you use!**

Dinghy Care:

- ✓ Keep the dinghy clean and well inflated. There is a portable bilge pump and a foot air pump in forward seat of the dinghy.
- ✓ A spare fuel filter and spark plugs are kept in the spare parts bin under the guest VIP berth in a Rubbermaid storage bin.
- ✓ Dinghy toolkit is in the bow compartment in the dinghy.

If Dinghy doesn't run:

- ✓ Is the safety clip in place?
- ✓ Is the tank vent open?
- ✓ Is the fuel line connected?
- ✓ Is there gas in the tank?
- ✓ Did you prime it prior to start (only when cold)?

If it still won't run or runs very rough, first suspect contaminated gas. If you can't figure it out, call the San Juan Yachting office or the owner for advice.

Trimming the Dinghy and Balancing the Weight: The dinghy is heavy aft so passengers should sit forward as much as possible and the engine should be trimmed all the way down.

Anchoring the Dinghy: There is a collapsible anchor in the dinghy that can be attached to the end of the painter for anchoring the dinghy.

Going Ashore: Estimate the change in tide during your time ashore and secure the dinghy accordingly. The metal sand spike in the dinghy can be used to secure the painter on a sandy beach. Otherwise, secure the painter to a log on the beach.

Cleaning Your Shoes: Your shore shoes are likely to pick up gravel or dirt on shore. Please clean them off or remove them before boarding *Sea Wings*. A brush to help clean your shoes is stored in the transom cabinet, starboard side.

Use of Swim Ladder: The swim ladder is stored in the engine room, outboard of the port engine and can be hung off the center of the swim platform using the two stainless mounting holes. Remember to rinse the ladder thoroughly using the fresh water shower in the transom. Stow the ladder before getting underway and always maintain a firm grasp of the ladder when installing and retrieving it (it doesn't float!).

Electrical Systems

The electrical systems of a vessel are its nervous system. *Sea Wings* has both AC (alternating current like you have in your home) and DC (direct current, much like you have in your automobile) electrical systems. All functions within the vessel that require power to operate get their power source from one or more connections to the AC or DC power systems.

The electrical panel on the starboard side of the pilothouse is where you go to control the power status of all the DC and AC systems through the use of the circuit breakers. The circuit breakers act like switches. White switches control 110 volt/AC systems; black switches control 12 volt/DC systems.

All switches have colored bands on them to indicate the typical / normal state:

Green: ON for all normal activities

Yellow: ON as needed depending on the activity

Red: OFF most of the time, activated only for select times



The **AC Main and DC Main breakers are at the bottom of the electrical panel.** The DC Main breaker should be on during all normal operations. The AC main is actually two sets of breakers that are interlocked so that only one source of AC power can feed the ship. Slide the interlock to expose the appropriate breaker source and then you can activate that source.

DC Systems: There are a number of systems that use DC power (from an on-board battery). So first, let's review just what is on board for sources. There are:

- Engine start: a single 8D battery dedicated and isolated for this sole purpose
- House systems: two 8D batteries to supply power for many items including lights, navigation electronics, autopilot, davit and the windlass
- Inverter system: four deep cycle 4D batteries dedicated to sourcing power for the inverter
- Bow thruster: two 8D batteries solely for this system
- Stern thruster: two 27D batteries solely for this system
- Genset start: one 27D battery solely for this purpose

AC Systems: There are three sources of AC power for the ship: on-board generator, shore and on-board inverter. When using the generator (capable of 12,500 Watts) there is adequate power to run virtually everything on the vessel simultaneously.

But when using shore power or the on-board inverter, you will need to manage the power loads you allow to be active at any one time. Further, in the case of the inverter, there is a practical limit to the total energy that the inverter batteries can support before they need to be recharged. We will cover that later.

Let's just consider managing the total power draw. You will do this by using the AC circuit breakers as 'switches' to turn on and off functions. And with the knowledge of what a given function uses for power, you can estimate what the total load current will be and then select functions to turn off to stay within the available power level.

The basic formula is: power of a load (in Watts) = source voltage multiplied by the current draw (in amps). A conservative approximation is to assume the voltage is 100, then the current required of any load is simply its wattage rating divided by 100. For example, a device with a 350 watt power consumption will require 3.5 amps of current to operate. Do that for each load and you can now determine when the budget will be exceeded.

Why do you have to do this? It is typical that a marina will offer power service limited at the main breaker on the dock to either 50 amps (6000 watts), 30 amps (3,600 watts), 20 amps (2,400 watts), or even as low as 15 amps (1,800 watts). Below is a table of the typical load required by various functions on board the vessel:

Bow Thruster Battery Charger	500 watts
Coffee grinder	475 watts
Coffee maker	1000 watts
House / Engine Battery Charger	2000 watts
Microwave	1000 watts
Portable Cabin Heater	750 or 1500 watts (depends on the heat setting)
Refrigerator	400 watts
Stern Thruster Battery Charger	1000 watts
Toaster	800 watts
Water heater	1800 watts

Note: If the various battery banks have had significant use without recharging, the current draw can be significant and may limit the other functions that can be powered at the same time.

Shore Power: The main power cord to feed the ship is available at the starboard lower corner of the outboard transom. The ship is designed for and the main power cable is rated for a 50 Amp, 125 V service connection. The cord itself is managed using the Glenndinning cablemaster system. Turn on the DC breaker for the cablemaster system and then the toggle switch on the transom above the cable outlet is used to manage deployment and retrieval of the main power cord. Depending on the service available at the shore connection point, you may need to use an adapter or power cord extension. The following are provided to accommodate the most common situations:

- 1) 50 amp ship's connection to a 30 amp shore service connection
- 2) 30 amp service extension cord (yellow)
- 3) 30 amp service connection to a 20 amp service connection

Once connected to a shore power source, enable that source to feed the ship by engaging the main AC breaker at the bottom of the electrical panel. The AC voltmeter will register the voltage of the shore power and you can then use the AC breakers to manage the load.



Inverter:

The inverter is a great device, it will take DC power from a bank of dedicated deep cycle batteries and convert that energy into AC power. The circuits that can access this AC power are the two outlet breakers that control all the AC outlets throughout the ship and the microwave.

The inverter is controlled through the Xantrex control panel on the aft side of the electrical control panel cabinet. The inverter batteries will charge automatically when shore power is connected and the charge button is activated. When not connected to shore power and you wish to use the inverter to power the AC outlets or the microwave, activate the 'Invert' button.

The inverter battery bank consists of four deep cycle batteries. Their total capacity is 440 amp-hours and the practical limit is 50% of this capacity or 220 amp-hours. To keep it simple, the Xantrex monitors the batteries and will cease inverter operation if the battery capacity is too low.

As stated earlier, one needs to consider the total load to be drawn and manage that usage to stay below the output capacity of the inverter. It is capable of 2000 Watts of AC power generation. So, you will need to manage the loads drawing power from the AC outlets and the microwave to stay below the 2000 Watt limit. Use the same table presented earlier in making this decision.



Do the battery banks automatically recharge while cruising under engine power?

Yes and no. The engine start and house batteries are recharged by the alternators on the engines. All the other battery banks are only recharged when AC power is available. So if you will be away from any port with shore power for a number of days, it will be a necessary practice to run the genset for a few hours every couple of days to recharge the other batteries.

Battery Switches: There are three battery switches located in the engine room aft of the port engine. They are used to manage connections between the engine battery, genset battery and the main house batteries. The general rule of thumb is don't touch them unless there is a problem or if specific maintenance action is required. Better to call the emergency contacts and discuss the situation before changing any of the switch settings.



Engine and Thruster Systems

Access: Through a hatch in the cockpit deck or the floor hatch in the galley. Engine room lights are controlled by a breaker on the main electrical panel. The engine room lights are long life LED lights but please remember to turn them off when done in the engine room.

The twin 375hp, 6-cylinder turbocharged John Deere engines drive the propeller shafts directly through inline 2:1 reduction gear transmissions with dripless shaft seals.

Starting: The twin 375HP John Deere engines require no preheating during the normal seasonal conditions (see below for circumstances that warrant the use of engine block heaters). Be sure you do a visual inspection of the engine room looking for signs of something amiss. Check oil, coolant, thru hulls, sea strainers and fuel filters. The keys at the lower helm have two positions, Off and Run. Turn the key to the Run position, wait for the 'Murphy' display to power up, transmissions in neutral, throttles at idle, engage the starter and the engine will start with ease. You may start the engines at either helm station after turning on the keys at the lower helm. Follow the quick start procedure.

Cold weather OPS: Each engine has an AC powered block heater that can be used to warm the engines when the ambient temp is 40 F or below. They are controlled by breakers on the AC electrical panel and can be powered by shore power or the genset. Use them for 1-2 hours prior to engine start will make for quicker warmup of the engines and reduce wear / tear. Remember to turn off the block heaters prior to engine start.

Keys: The two ignition keys are interchangeable. Please keep the keys in the ignition switches at all times. A spare set of ignition keys are stowed with the spare engine parts under the forward end of the guest VIP stateroom berth.

Engine Alarms: The engines are managed by an Electronic Control Module (ECM computer). The ECM has numerous sensors for various engine parameters and uses those to create any cautionary or warning alarms. The Murphy LCD display is the visual screen for the ECM and will annunciate any abnormal conditions. In general, a caution (yellow) alarm should result in immediate action to slow the vessel, consult the Murphy display and potentially shut down the alerting engine. A warning (red) requires immediate action to slow the vessel and shutdown the alerting engine immediately.

Engine Warm-up / Normal Indications: Start-up and initial running of the diesel engines is when most of the wear occurs. Allowing the engines to reach normal operating temps before putting them under heavy load is critical to ensuring long life and trouble-free performance.

- Don't plan to leave the dock until the engines have idled for a few minutes. You'll notice on a cold start, the ECM will automatically keep the idle speed at 750 RPM and after about a minute, drop that idle speed to 600 RPM.
- Idle out of the harbor / anchorage area.



- Keep engine speeds below 1000 RPM until temps are above 125 and below 1300 RPM until engine temp reaches 155 degrees.

Normal Readings: Engine temp. 160-170 Oil pressure: 30-90 psi

Optimum RPM for low speed cruise efficiency: approx. 1100 - 1250

Optimum RPM for high speed cruise efficiency: approx. 1700-2100; **Do not run** at wide open throttle (2400 RPM) nor run above 2100 RPM for more than short durations.

Shifting: Shift gears only at idle RPM. Allow a couple seconds between shifts from forward to reverse or vice-versa. Dockside maneuvering should be performed with the throttles at dead idle speed and rudder amidships.

Bow and Stern Thrusters: The thrusters are controlled from the dedicated joystick controls at each helm or by using the wireless remote and activating it with the power switch at the lower helm. The thrusters are quite capable of pushing the vessel sideways but you will notice the bow thruster seems more effective than the stern thruster. It is a good practice to make short bursts of thruster engagement and then evaluate if the vessel is making adequate progress in the desired direction. Too much input generally results if further inputs of the opposite direction to slow or reverse the process. Learn to make less of an input and wait to see the result.



The thrusters are high current, short term use devices. They will significantly drain the dedicated batteries if overused and potentially will overheat and shut down to protect the motor from damage. For the bow thruster, there is a dedicated charger and master cutoff switch on the forward bulkhead of the engine room, starboard side. For the stern thruster, the dedicated charger and master cutoff switch are mounted on the lower portion of the transom, visible when standing in the lazarette.

As mentioned in the electrical systems section, remember that the thruster batteries will only be recharged when the ship is connected to AC power, either via shore power or thru operating the genset.

Exhaust: Each engine has two exhaust ports, an idle overflow port visible just at the waterline on the aft portion of each side of the ship. Exhaust fumes and some water flow will exit these ports during very low speed operations. A second set of exhaust ports are plumbed into the bottom of the hull (underwater ports). Above 1000 RPM, most of the exhaust gas and seawater passing through the engines will exit via these ports. That's a real benefit as it keeps exhaust fumes and sooting of the stern to an absolute minimum. Never the less, **please keep salon door closed while engines are running** to prevent diesel exhaust film from settling on interior furnishings.

Pumps: The engines are dependent on several pumps to operate properly. Most important of these is the seawater (raw water) pump on each engine, which circulates seawater through a heat exchanger to cool the engine and then expels it through the exhaust system to keep the

pipes cool. If a pump fails, it could severely damage the engine. If something smells "hot" or an alarm sounds, investigate at once! There should be no steam or water spraying in the engine room.

If a pump seems to have failed, the usual causes are:

- Plugged intake. Is there plastic wrap, seaweed, jellyfish or other obstruction?
- Clogged sea strainer. Is there debris in the sea water strainer for this engine?
- Failed impeller in the pump itself?

Troubleshooting any of the above problems takes only a few minutes:

1. Turn off the seacock to the pump on the defective engine.
2. Take the top off the sea strainer. Save the gaskets!
3. Open the seacock valve to make sure it is clear (water won't gush in but will start to overflow the strainer, a plastic bag and / or towel is handy to capture the water while you are confirming water flow).
4. If the strainer is clogged, rinse in a bucket with clear water and a hose if available. You can also rinse it in the sea but don't let go, it won't float and operation without it in place will damage the engine.
5. If seacock and strainer are clear, the problem is likely the pump impeller. Time to call for help using the emergency contact list.

Fuel: Each engine has a "supply" and a "return" hose. Racor primary fuel filters are mounted inboard of the fuel tanks and do not require service unless the bowl is full of sediment and / or the disposable filter is clogged. The condition of the filter can be monitored by the vacuum gauge. The gauge has a 'memory' function where the highest vacuum measured is shown. Perfect filters will result in less than 2" of vacuum at high cruise speeds. If the max vacuum measured is above 5", it is time to report the condition for timely maintenance. If the primary fuel filter must be replaced, it is relatively simple. Call for help and guidance. Spare filters are under the forward side of the Guest VIP berth.



Shaft Logs: Shaft logs are watertight fittings that prevent water from coming into the boat around the holes where the propeller shafts exit the hull. *Sea Wings* is fitted with excellent shaft seals. There should be no need to adjust these. If there is any sign of water dripping / concern, contact the maintenance pro or owner.

Checking Engine and Genset Oil Levels: The oil used in the engine and genset is the same, 15W-40 weight Chevron Delo 400. Spare oil is kept in the bilge forward of the port engine and the containers are labeled. Check oil levels on the engines and genset every few days so long as no spotting is noted, more frequently if there is any question in your mind. For the engines, there is a dipstick midway along the inboard side of each engine. Using a clean paper towel and with the engines off for at least a few minutes, pull the dipstick and wipe it clean. Then reinsert it fully and then pull it again. The oil level should be between the upper XXX mark and the lower fill mark on the dipstick. If below the lower mark, add oil to the engine via the dipstick port (its wide enough if you use care). You should also question why oil is needed if it is a sudden change during your trip as these engines use virtually no oil. If the oil

level is suddenly lower / low, the real question is why. Look for spotting or leakage. Call for advice if in doubt.

- **Note:** diesel engines create some residue as part of the combustion process that ends up accumulating in the oil, hence in part why the quantity of oil in a diesel engine is so much more than a gasoline engine. A by-product of this process is that the engine oil will appear very dark, almost black even after just a short time of operation. This is normal.

Similarly, the genset oil level can be checked. The oil dipstick is behind the forward cover of the enclosure. Using a clean paper towel and with the genset off for at least a few minutes, pull the dipstick and wipe it clean. Then reinsert it fully and pull it again. The oil level should be between the upper and lower marks on the dipstick.

Coolant: Engine coolant should be above "cold" level in the reservoirs on the forward support posts of the engine room. There is spare coolant in the bilge area forward of the starboard engine. Note that the raw coolant is concentrated and must be diluted to a 50/50 mixture of coolant and distilled water before use. We keep a marked gallon container of premixed coolant that should be used first.

If it becomes necessary to make more diluted coolant, use the half gallon empty container to measure out first a given portion of coolant and then an equal amount of distilled water, pouring each measured amount into the pre-mixed gallon container. Distill water is store outboard of the port engine in the bilge area of the port exhaust tube.

Mixing coolants is discouraged and in fact can cause harm as not all coolants are compatible. We exclusively use Cat DEAC coolant (purple in concentrate form) and spare concentrate is on board in front of the starboard engine.

Fueling Process: Port and Starboard fillers are located on the cockpit deck. A cap key (on a floating key ring) is in the storage bin just inside the lazarette. A spare can be found in the storage bins in the forward part of the engine room.

Estimating how much fuel you will need can prevent overfilling and spills:

Sea Wings carries 600 gallons of diesel (300 gallons on each side). Each tank has a fuel gauge at the lower helm. The Horn circuit breaker must be ON to read these gauges. These gauges are reasonably accurate but a more precise reading can be obtained by using the metal yardstick (located on top of the port fuel tank). Wipe the yardstick clean prior to using as dirt added to the tank is not a good thing! Holding the whiffle ball, lower yardstick into the tank until it touches the bottom. The level of diesel indicated on the yardstick corresponds to the chart on the lazarette hatch. Or simply do the math in your head. The tank is 30" high, every inch is 10 gallons. Take the yardstick measurement, multiply by ten, that's the number of gallons in the tank. That amount subtracted from 300 is what is needed to fill the tank. Either method is a good way to estimate how much fuel you need before you begin filling.

While filling, be certain to form a "doughnut" around the filler hole with paper towels or absorbent pads. As you fill, listen for a change in pitch as the air exits the tank. Another clue is that marine diesel will foam quite a bit while filling the tank so watch for that as it will start to bubble up the fill tube as you get near the full point of the tank. When you get close to the expected amount needed for the tank, that's when to be particularly careful and reduce the flow rate. You have filled the tank sufficiently when a short burst of fuel added results in immediate foam forming in the fill tube.

Remember: Protect the environment. Fuel spills are your responsibility and may need to be reported to the Coast Guard.

Note: there is a gravity based fuel cross-feed with shutoff valves that connect the two tanks. Normally these valves are closed. It is a good idea to confirm they are closed prior to refueling as you'll be slowly transferring fuel to the opposite tank when refueling the first tank if both valves are open. You will find the valves on the lower inboard corner of each tank.

Fuel consumption: *Sea Wings* uses approximately 0.75-1.0 gal/nm at a cruising speed of 8-10 knots and approximately 1.7-2.0 gal/nm running at fast cruise (14-18kts). The Murphy digital displays have a selectable screen format that will show actual measured fuel flow in real time.

As owners, we've found it most comfortable to cruise at 8-10 knots with an engine speed of 1100 – 1250 RPM. It allows time to enjoy the scenery and maintains a relatively quiet salon noise level while being able to cover reasonable distances in a day. We've also found that it's not good to baby the engines all the time, they are meant to run a high speed cruise loads. Running at those higher speeds ensures carbon buildup is kept at a minimum. So please run at higher speeds of at least 1700 RPM at least every other day for 15 minutes or more.

Checking Transmission Oil Levels: The oil used in the transmission of the engines is different than the primary crankcase engine oil. For the transmissions, it is straight 30W oil and spare oil can be found in the bilge forward of the port engine (be sure to check the label to find the correct container). The dipstick for the transmissions is found at the rear of each engine, down low and to starboard of the drive shaft. It has a rubber cap with grooves at the top which secure it in place.

Transmission oil is checked without the engine running. This is best done during the morning check of the engine room. Oil level can normally be checked less frequently than the engines, once or twice per week assuming no spotting is observed in the bilge as part of your daily engine room checks.

Using a clean paper towel, pull the dipstick and wipe it clean. Then reinsert it fully and then pull it again. The oil level should be between the upper and lower marks on the dipstick. If the oil level is below the lower mark, use a funnel and the provided 30W oil. It won't take much to move the level on the dipstick, the capacity of each transmission is 4 quarts in total. If oil is added, please make note of it and mention it to San Juan staff during your check-in at the end of your trip as it is a potential indication of a more serious issue.

Entertainment and Connectivity

Audio Amp / Surround Sound System

The salon has a surround sound speaker system and subwoofer to provide a hi-fidelity sound experience. The amplifier has an AM / FM radio receiver, CD and DVD five disc player and audio / video connections to the salon TV.

Use the provided wireless remotes to control the amplifier and the source media selection. A few tips:

- Tuner: allows selection of AM and FM stations, an external antenna is automatically used for reception
- DVD/CD: allows direct play of a DVD or CD. DVD video will be viewed on the salon TV with the TV selected to view the S-video input.
- Aux 2: select this input to listen to mobile media from your smart phone or tablet and connect those devices thru the audio/video cord provided just above the amplifier (forward salon cabinet on the port side).
- Aux 1: select this input to listen to an audio track from a media source connected to the HDMI input of the TV



Salon TV

The salon TV is on a remote-controlled lift. The lift will automatically fully raise or lower the LCD TV once activated through the provided remote.

The TV is interfaced to several sources of selectable media:

- Air: Over the air with an antenna inside the flybridge arch when the A/B switch is in the Antenna selection
- Air: Cable source from the marina when the ship is plugged into shore service and the A/B switch is in the shore position
- S-video: DVD player integrated with the stereo amp
- HDMI: external source when the HDMI cable found under the amplifier is connected to a suitable source (audio will play thru the amplifier on the Aux 1 selection)
- PC: digital video interfaced (DVI) video which is a direct output from the lower helm's chartplotter



TIP: We found that some guests like to stay connected to what's happening in the world. Here's one way to do so. If you have a smart device like a cellphone or tablet with a sufficient dataplan, those devices can be turned into a temporary hot-spot. Once operating in that mode, they can be a wi-fi datapath for content from the internet. We've successfully demonstrated this connectivity to a laptop that then feeds the HDMI port of the salon TV, now you can watch streamed content. The same is possible with a direct wi-fi connection to a marina's wi-fi service. Even at low data rates like 1Mbit / second, we've seen good results in streaming Netflix content.

Use of the TV while underway:

The TV lift is sturdy and in mild sea conditions, it is permissible to be underway with the monitor up and operational. But if conditions are expected to be more challenging (3-ft. waves or winds above 20 kts), please refrain from using the TV and stow it in the lowered position while underway.

Flybridge Stereo Radio

There is a typical car stereo installed in the starboard side of the flybridge helm. Speakers are installed in the radar arch. This radio can also play CDs or external media from a smart device. A cable to connect to the radio is kept in the middle drawer of the salon credenza.

Flybridge and Cockpit

Flybridge

Lighting: "Arch Lights" switch on panel controls lights on flybridge. The breaker switch enables power to the circuits and individual toggle switches on the flybridge activate the lighting systems:

(1) Radar "Arch Lights" and (2) "Deck Lights" (floodlight above the dinghy).

Canvas and Strataglass Enclosure: The flybridge enclosure is normally kept in place for the cruising season as it provides additional sheltered area while cruising. On warmer days, you can unzip and roll up the two side 'windows', they are made of a heavy gauge plastic and can be rolled with care.

The forward facing Strataglass are made of a more rigid polycarbonate that looks like glass. It can flex but must be done with care. For additional airflow exchange, the center panel of the forward facing windscreen can be unzipped on each side and unsnapped along the bottom, then flex it carefully and raise it aft and up to secure the bottom corners to snap straps hanging from the bimini support bars.

Care of the Strataglass is relatively simple. To remove saltspray, liberally hose off with fresh water. Then use a soft cloth or towel to wipe dry. A cleaner that is specially designed for Strataglass is kept in the port side seating of the flybridge seats.

Be careful not to leave navigation electronics uncovered and exposed to weather or overnight dew if the side windows or center front panel are open.

Sliding Hatch to the Flybridge: The hatch slides to port to open and has a simple latch to secure it in the full open or full closed position. While underway, please always secure the hatch in one of the two locked positions.

Caution: We've found that it is possible to lock yourself out on the flybridge by inadvertently closing the hatch all the way in the closed position. The simple latch will lock into place! So take care not to fully close without having someone below to open it up, else, with some care, you can skinny over the side of the aft flybridge deck to the cockpit using the handhold railing along each side of the vessel.

Cockpit

Lighting is controlled with the lowermost switch adjacent to the salon door.

A **wood table** and **deck chairs** are stowed in the lazarette for use in the cockpit.

BBQ: See the "Galley" section.

Flags: A U.S. flag on a wood flagstaff fits into the mount on the top center of the transom. Tradition calls for this to be in place during all operations of the vessel as a declaration of the ships country of origin. An optional San Juan Yachting pennant clips on to the bow staff. While cruising in Canadian waters, fly the Canadian courtesy pennant on the bow staff. Please be sure

flags and pennants are **completely dry before stowing** them in the pilothouse storage cabinet on the starboard side.

Clothesline: Utility line and clothespins are in the storage bins forward in the engine room.

Cleaning Supplies: Boat soap, deck brush, etc. are stowed on the port side of the aft bilge adjacent to the port fuel tank.

Securing the Ship

There are several things to do to ensure the ship is secured / locked prior to leaving her and your valuables inside:

- 1)** Lock the pilothouse door, the slide lock will be in the down position to be locked.
- 2)** Close the lazarette hatch and then engage the cable latch by ensuring the 'T' handle is not extended. This handle is accessed in the aft port corner of the galley hatch to the engine room
- 3)** Lock the flybridge hatch
- 4)** Lock the salon door



Galley, BBQ, Crab Equipment, Vacuum, and Windows

Cooktop: Turn the propane on in 3 steps:

1. Open valve on propane tank that is connected (in the box on swim step). Note the box has a stiff spring, bend the spring manually to help relieve the tension and assist the top in closing when it is time to do so.
2. Turn ON the DC frig circuit breaker (it's the power source for the step 3) switch). We normally leave this switch on at all times.
3. Turn on propane solenoid switch in the galley, forward and to port of the frig.

Burners have an ignitor, simply depress the control and rotated counterclockwise to a high temp setting, allow the flame to form and wait 3-5 seconds before releasing the control and adjusting for the desired flame.

Generally, the burners will light with ease unless that gas line has not been used for some extended time. In that case, it may take up to 15 seconds or so for the gas supply to fill the line and reach the burners.

Beware: Keep large kettles and pans positioned so that they don't deflect excessive heat towards the burner controls, it may melt the control knob!

Steam: If cooking creates a lot of steam (such as the crab cooker), please open the pilothouse and salon doors to encourage air flow or use a fan to help circulate the steam to minimize buildup on upper cabinets and ceiling in the galley.

Crab or Shrimp Boil: We have provided an auxiliary cooktop and portable propane bottles to use for boiling a large pot of water. The amount of steam that comes from such cooking can leave a film and smell in the galley area that is hard to clean. So please use this cooktop for this purpose. It is stowed in the transom storage cabinet and can be set up on the cockpit table stowed in the lazarette.

Microwave/Convection Oven: Many of the basic controls are self-explanatory. See the instruction manual stored with the ship's instruction manuals stored in the engine room, forward on the starboard side.

We've found the convection oven to be very productive. We've baked whole chickens and bread in it with excellent results. Note that it can be run from any AC power source, either shore power, the genset or the inverter.

Frig / Freezer: The refrigerator / freezer will run on either DC or AC power and will default to AC when available. Both switches at the electrical panel can be on and the power switching is automatic.

The compressor and cooling fan are very quiet but can be heard if you listen carefully.

Inside the frig at the top starboard corner is the temp control. We've found that a setting of 3 with a moderate amount of food in the frig and freezer yields excellent results. Adjust the setting accordingly for how much food you have stored and how often you open the door(s).

Disposal: The galley sink disposal discharges waste directly into the sea (under the water line) as “gray water,” which is permissible in both U.S. and Canadian waters. Run tap water while running the disposal. There is a disposal “wrench” stored under the galley sink for unjamming the disposal. Consult the service manual. If the outlet hose becomes plugged, it may be cleaned out by closing the seacock and disconnecting the hose on the port side of the vessel just forward of the Xantrex charger/inverter. A drain snake is also stored at this location.

Countertops: The countertops are Corian and are very durable. **Please do not cut or chop food on the Corian surfaces. Please do not put hot pans from the stove or oven directly on the countertop or table.** You will find cutting boards and heat-proof trivets stowed in the galley under the stove and in the forward galley cabinet.

Pilothouse Settee: The pilothouse settee is a distinctive element of *Sea Wings*. From this seating area you have a very broad view of the surrounding waters / landscape. Enjoy! The



tabletop is a high gloss wood finish, please exercise care so that it continues to look sharp for future charter guests. **Please do not sit or lean on the table top, it will stress the mounting of the table stand.**

Drying dishes: A dish strainer set is located under the galley sink. Please take care to dry dishes and flatware thoroughly before putting away.

Small Appliances: Using too many at a time may cause a circuit breaker to ‘pop’. Unplugging them when not in use helps to conserve inverter battery power while at anchor.

BBQ: The BBQ grill is mounted on the transom. Please secure the lid and keep the canvas cover on when cruising. A propane hose for connection to the grill is stowed in the propane locker. Gas flow is enabled using the same process as for the galley cooktop with one additional step. There is also a dedicated gas valve that must be in the ‘open’ position to all gas to flow to the grill, you will find it tuck along the forward side of the port propane tank.

The grill has an ignitor which we’ve found to be very reliable. If it doesn’t work, there will be a butane lighter stowed in the galley. BBQ cooking utensils are also stowed in the galley.

Cleaning the Grill: Please keep the grill clean inside and out so that food stains won't build up and it will look good for the next charter guest. A good practice is to run the grill burner on high with the lid closed for 10-15 minutes after all grilling is done, then use a pair of tongs and a wad of aluminum foil to 'brush' the grill grates and remove the charred residue.

Crab Fishing and Cooking Equipment: A collapsing crab cage is stowed in the lazarette forward of the port fuel tank, along with line, a buoy and a bait box. The crab cooker pot is located in the galley, under the sink.

Vacuum: A central vacuum system is installed in the companion way leading to the staterooms. The storage closet adjacent to the central vacuum has the hose and attachments. Use it as appropriate to clean.

A Note about Cleaning Windows:

Glass Windows: There is a spray bottle of vinegar based cleaning solution under the galley sink. Use that and paper towels only for touching up glass smudges. NO Ammonia-based products, please, as they destroy the UV protection built into the glass.

Plastic Windows on Flybridge: There is a spray bottle of special cleaner at the upper helm (labeled for this purpose). **This is the only product you should use** on the plastic windows. Use a soft cloth to apply and dry, NO squeegee and NO abrasive material, please. The windows **MUST NOT BE FOLDED OR ROLLED TIGHTLY** if removed. To open the front window, unsnap the bottom and unzip both sides completely. Using the top zipper as a hinge lift window up to the inside and secure corners by snapping to the straps on the bimini frame.

Genset (Generator) System

The diesel powered AC generator is installed and has a capacity of 12.5 KWatts (100 amps at 125 VAC). The ship's AC electrical system is limited to 50 Amp service so the genset can easily source the entire ship and have only a 50% load.

Starting the generator is a **10-sec. sequence**, using either the switches in the lower aft corner of the main electrical panel or the matching switches hung from the ceiling just above the genset.

- 1) Unless you have run the generator within the last hour, hold the PREHEAT switch ON for **5 seconds**. Continue holding it while you perform the next step.
- 2) Toggle the ENGINE CONTROL switch to START; hold **2 seconds** or until generator starts. Release START switch; continue holding PREHEAT switch **5 more seconds**, then release it.
- 3) After one minute of the generator running, bring the generator on line with the ships AC circuits by engaging the main breaker at the bottom center of the electrical panel. You will see 110-125 volts on the AC voltmeter.
- 4) Look over the starboard side at the generator exhaust. Water should be flowing from exhaust opening. If not, stop the generator and check strainer and the thru hull valve.
- 5) Activate AC loads as necessary through the AC circuit breakers at the electrical panel. (Be aware that switching on too many AC loads at the same time could trip a breaker switch.)



To stop the generator:

- 1) Remove the electrical load from the generator by turning off the generator master breaker at the electrical panel.
- 2) Run the generator with no load for a 2-3 minutes cool-down period.
- 3) Move the generator toggle switch to the STOP position and hold it there until the unit stops completely.

Note: The generator monitors its own operational parameters and will shut itself off if there is low oil pressure, low coolant level or high coolant temperature.

Head Systems

The main cause of problems is misuse. Dealing with a stopped-up head is an unpleasant task, especially when it can easily be avoided. **The only things that should be put into the head are human waste. Under no circumstances should Kleenex® tissue, feminine hygiene products, or wads of hair be flushed down the heads.**

It is current SJY practice to provide household quality toilet paper, not the ultrathin marine toilet paper and dispose of the used paper in small sandwich baggies. We keep a supply of small plastic sandwich bags (with Ziploc closure) at each head as a dedicated disposal bag for all toilet paper. Put that bag into the trash bin under the vanity sink, hence never flushing any paper down the head. One less thing to cause problems. Change the trash bin as needed to keep things fresh and the net result is no problems with clogged heads

Flushing: The Vacuflush system uses fresh water from the tank. Flush by depressing the flush pedal beside the toilet bowl. If waste matter is solid, add a little extra water to the bowl before flushing by lifting the flush pedal briefly. Flush by holding the pedal down for 2-3 seconds and then allow the pedal to bounce back up to the center position. Allow the bowl to refill with a small amount of water (it will do so automatically with the pedal at its center rest position) and the pump to rebuild the vacuum pressure for the next usage.

Holding Tank: Turn the Tank Monitor switch ON to get a reading on the waste tank gauge at the lower helm. Holding tank gauges don't tend to be terribly accurate. We've found that the needle will start to register with usage but then not move as fast with continued usage. We've found that the tank will be nearly full when the meter reads 3/4 full, so it is a good idea to empty the tank when it is getting close to 2/3 full on the gauge.

If you are boarded by the U.S. Coast Guard, and they ask to see the Y-valve, explain to them that this boat has no Y-valve. The heads pump only to the holding tank. There is no way to flush the heads directly overboard. Only the head waste goes into the holding tank; waste water from sinks and showers is legally discharged overboard as "gray water." The Thru-hull for the macerator is under the floor in the forward stateroom – blue handle on the starboard side. This thru-hull valve shall remain closed except when needing to pump overboard.

Access is gained by pulling up the carpeting at the foot of the berth in the forward stateroom (start at the starboard forward end and gently fold it back towards the center walkway), then do the same for the carpet padding. Pull the removable hatch panel in the subfloor. You now will be able to see the blue-handled valve just to starboard (normally closed).

Discharging the Holding Tank: In U.S. waters, the holding tank may be pumped overboard in deep water more than 3 miles from land. Discharge of waste overboard is permitted in Canada except in harbors and near land. To discharge the holding tank under these allowable conditions, open the thru-hull valve (access to the valve described above) and turn ON the Macerator switch on the DC panel until the tank gauge reads empty. The Macerator switch has a safety cap which must be opened in order to flip the switch. Be sure to turn the Macerator switch OFF and close the thru- hull valve after the tank is emptied. As a precaution, we



recommend setting the timer on the microwave for 15 minutes for a nearly full tank to remind you to turn the switch OFF, to avoid burning out the pump. Note that discharge occurs below the water line so be underway at a modest speed while discharging the tank.

To pump out at a Pumpout Station: Pumpout access is on the starboard walkway forward of the pilothouse door. Follow instructions at the Pumpout Station. SJY has provided a list of pumpout locations in the Charter Guest Resource Manual.

Occasional Vacuflush Pump Operation: We've found through experience that occasionally, we will hear one of the Vacuflush pumps run for a few seconds for no apparent reason. Invariably, the condition is caused by some waste matter that has decided to cling to the vacuum systems 'duck bill' valves.

To clear the debris, fill the head with a large volume of water and flush all at once. This heavy flow of liquid will almost always clear the debris with just a single cycle. The trick may be in determining which head's vacuum pump is running. You can isolate by turning off just one of the pump breakers temporarily to see if the problem continues or stops. **REMEMBER TO TURN ON THE CIRCUIT BREAKER AFTER RUNNING THIS TEST!**

Vacu-Flush Repair Parts are located under the sink in the guest head.

Heating and Cooling the Cabins

Electric Space Heaters: Three electric space heaters are stowed on-board to provide supplemental heating for the salon and staterooms. They use 750 watts on low and 1500 watts on high, so they can be used while on shore power or with generator power. Be aware that their energy draw means you may have to turn them down or off while running other heavy electrical loads such as the convection oven, water heater, toaster, etc.

ESPAR Diesel Furnace: When not on shore power, diesel heat is a comfortable option. It will take less than two minutes for the system to heat up enough to start distributing warm air throughout the ship.

There is no electrical panel switch for it. It has a dedicated circuit breaker adjacent to the furnace itself which is forward in the engine room on the port side of the ship. It is wired into the inverter batteries, the only system that draws directly from those batteries besides the inverter itself.

The thermostat forward on the starboard side of the salon cabin is the primary ON/Off control and temperature setting for the furnace. The red and green lights means the thermostat is turned on and the system is active. You'll hear a click when you rotate the dial clockwise and that will be the current trip point of calling for a warmer cabin temperature.



The furnace sources the entire ship including the pilothouse defogger vents. You can moderate the amount of heat delivery in each space using the vent louvers of the air vents.

Fresh Air / Cooling Fans: There are two independent blowers which will draw outside air into the ship, one in the main salon and one in the pilothouse. Both are controlled by circuit breakers on the DC panel.

Small summer fans are stowed in the closets of each stateroom (three on-board). Using these along with opening the guest VIP stateroom hatch, pilothouse door and salon doors to provide a cross-ventilation flow can make the interior spaces more comfortable on hot days.

Note as well that the forward hatch has a screen insert to keep pests out and both the pilothouse and salon doors have hide-a-screens to be used when necessary.

Defrosters: The Espar diesel furnace is also the source of defrost / defog air for the lower helm windshield. It is very effective as the furnace is very quick to source warm air. Position the vent louvers for the given conditions.

Navigation, Radar and Autopilot Systems

Sea Wings is equipped with a comprehensive set of multi-function navigation displays, sensors, radar, fish finder, AIS and autopilot. All of the equipment works together to provide a wealth of information and control in all phases of operation.

We don't want to duplicate the information found in the manuals so please utilize them for all reference information. Manuals for the Raymarine and Garmin systems are kept in a basket just to port of the lower helm station.

What we will do here is summarize what's on board and the general nature of operation and practices we've found that work for us, maybe they will work for you too.



Multifunction Displays (MFDs)

There are two multifunction displays (Raymarine classic E-series) that are networked together to share data across the displays and from all available sources. The MFD is the central hub of the 'action', its where you will look the most for situational awareness of where you are, which direction you are headed, how fast you are going, how deep is the water in the area and current depth under the ship, where are the adjacent land masses and navigation markers, what other reporting vessels are in the area, what am I able to confirm via radar.

When we are cruising, we usually select the full size chart depiction on the MFD and set the range for about 6nm. This gives you a good view of the area ahead of the vessel, sea bottom contours, radar returns, AIS targets. In and close to the harbor or anchorage, we slow down and range in to the 0.5 or 1.0 nm range. In inclement weather, we use the split screen format where half the display is a chart, the other half is a radar return page. We like this because when really focusing on radar, a screen just dedicated to the radar return will allow you to see small targets that may get lost in a radar overlay format.

The navigation system is capable of being programmed for an entire route, from start to finish. But we find that tedious to set up and prefer to have the route planned on paper or on a tablet app. Then while underway, select a heading and monitor the green 'track' line on the display to ensure we are making our desired course over the water. Engage the autopilot to reduce the tedium of holding a heading and now you have a wealth of information and can focus your attention on what's floating in the water, what's coming at you from the sides or behind and periodic glances at the engine gauges and displays. Doing that in a pattern allows you plenty of time to enjoy the scenery, monitor the radio, assess the weather and tide forecast and still have time to be thankful for having a great time out on the water. Life is pretty good!

Depth and Speed Sensors

Sea Wings is equipped with a DSM-300 digital sounder module which provides water speed over the hull, digital depth sensing and fish finding / sea floor structure sensing. Data from the DSM is networked and utilized in various manners on each of the MFDs.

GPS Sensors

The primary GPS antenna is mounted on the port side of the radar arch above the flybridge. It maintains excellent reception of the satellite signals. Those signals are interfaced to the master MFD at the lower helm, networked to the flybridge MFD and also shared with the lower helm VHF radio. The AIS transceiver has its own GPS antenna and it provides GPS position data to the flybridge VHF radio. The Garmin Portable chartplotter has an independent GPS sensor and provides a backup source of position data and navigation if necessary.

Radar

The radar is a 48" open array analog system. Radar's primary use is to sense objects and land masses that are within a 10-15 mile radius of the vessel. When used properly, it provides a useful tool in monitoring the performance of the navigation and AIS systems by providing independent 'painted' images of other vessels, navigation aids and land masses that should be depicted already. In reduced visibility conditions, it is another tool to help the captain maintain situational awareness. Consult the manual for proper operation and settings. We encourage you to practice using the radar during fair weather conditions so that it is familiar and will be less daunting when conditions become more challenging.

AIS

Sea Wings is equipped with a Class B transceiver AIS system. It will transmit *Sea Wings'* position and identification data periodically to other vessels and receive AIS data from all other ships that are broadcasting their ident information. Display of AIS-equipped vessels and their data is visible on either of the MFDs. The MFDs have an alert feature that will sound (when enabled) that an AIS target is too close and presents a possible danger. Enabling and disabling this alert feature is accomplished by selecting 'Menu / Alarm Setup / AIS Alarms Setup'.

Autopilot

The autopilot is another useful tool to maintaining the ship's operations and reducing workload. It includes a magnetic compass and turn rate sensor module that provides excellent performance in heading and waypoint tracking under all sea conditions. The primary autopilot controller is mounted at the lower helm. You can control the autopilot from the flybridge using the wireless remote controller. It is a good idea to put the wireless controller in the cradle at the flybridge helm and plug it in to the umbilical cord periodically to charge its batteries.

- **One word of caution:** An autopilot is a great tool as it relieves the helmsman from having to make frequent rudder inputs to hold a course or heading. But it is important to be on alert at all times, never should the helm be left unattended. Logs and tide lines with lots of seaweed or debris have a way of popping up when least expected. We urge you to use the autopilot as a tool to take the drudgery out of steering the ship and allowing you to keep your eyes up and looking outside the ship. It's called maintaining situational awareness in the aviation world and is equally valid here.

Garmin GPS Chartplotter

At the lower helm station is the Garmin portable chartplotter. It can run on internal batteries or off ship's power from a local plug-in port



at the helm. We recommend keeping the plotter here at the lower helm station. We always run it with the screen displaying the local tide chart. It's just a handy reminder of what the tide state is and what the flow will be doing in the next hours. And in case there is a major system failure or you need to run with reduced power, this chartplotter is fully capable of being used for navigation, ie, it is a useful backup if the need arises.

To summarize, both MFD's share information and settings to allow the operator to make a change at one display and see it reflected at the other display. Each display is very flexible and allows the operator to choose from various page formats, scale the map display for close-in or far out ranging, show radar data overlaid on the moving map and review navigation waypoint data.

A few key reminders:

- **START ENGINES BEFORE turning on the Nav System and Autopilot breakers** on the DC panel, which supplies power to all navigational equipments and the autopilot system. Turning them on beforehand could result in a momentary power spike that will confuse the electronics and result in erroneous operation.
- **The 12" MFD at the lower helm is the master display. As such, it must be on whenever the flybridge MFD is to be used as it coordinates distribution of system data from the 'master' MFD. DO NOT elect to make the flybridge MFD as the system master even if a momentary system message pops up suggesting that choice. It will only cause problems with some data / functions no longer working.**
- **CAUTION: Please do not change MFD settings randomly.** The settings, system page formats and optional parameters are set for a specific reason. Getting this fixed later is time consuming and could result in lost data! Follow manual instructions; call for help if you are confused.
- **The AIS alarm function will potentially give false warnings in the harbor area. To disable it, select 'Menu / Alarm Settings / AIS Alarm Setup / Off'. This will silence the alarm itself and put an "X" thru the status symbol in the upper right portion of each MFD screen. To re-enable the alarm after leaving the harbor, select 'Menu / Alarm Settings / AIS Alarm Setup / On'.**
- **Monitor the emergency calling frequency, channel 16 whenever underway.**

Nautical Charts and Tide Tables

Charts of San Juan Islands are kept in the pilothouse forward and to port of the helm. Annotated paper charts of Strait of Georgia and Gulf Islands are stored in a plastic tube in the closet to starboard of the companionway. Cruising guides, current and tide tables are will be found at the lower helm. A set of dividers and parallel ruler is kept in the center drawer of the credenza in the salon.

VHF Radios

VHF Radio

Sea Wings has two fixed mount radios, one at each helm and a handheld VHF kept at the lower helm, port side. Both fixed mount radios have GPS position sourced to them. In an emergency; either radio's DSC function can be activated to broadcast a unique identifier code along with GPS position. The identifier code is called the MMSI (Maritime Mobile Service Identity) and is unique to *Sea Wings*. The MMSI is 367791490 and is registered in a database that is accessible to both the USA and Canadian coast guard. We hope it never becomes necessary to use it but if it does, we want you to know that it will broadcast 'who' you are and your position so long as the radio and GPS signals are functioning.

To activate that 'Panic' call, lift the red plastic cover on either of the fixed mount VHF radios and press and hold the Distress button. The radio's display will count down (3-2-1) and then transmit the distress call information. The radio will automatically channel to 16 and the coast guard will hail Sea Wings on that channel to establish contact and determine what assistance is needed. Consult the radio manual for further details.

The handheld VHF radio is provided in case you wish to take it with in the dinghy or be able to communicate with another vessel while not present at either helm. It must be charged periodically, the charging cord is kept in the salon credenza, center drawer.

There is a standard protocol to communications on the marine radio. For guidance, refer the the page in the Wagonner's Guide, it provides a good tutorial on radio etiquette.

Water Systems

Fresh Water: The 170-gallon fresh water tank (in engine room along the centerline of the bilge) is filled through a deck plate on the port side of swim step. Please use care in filling the tank with only clean water and from a hose of known quality / cleanliness.

The fresh water pump is controlled by a 12 V circuit breaker. It pressurizes the entire water system and strives to maintain a constant pressure of 35-45 psi.

- **Turn off the circuit breaker switch when you are not on the boat** so that if a leak develops, you won't lose all the fresh water.
- **Water gauge** is at the lower helm and is active when the "Tank Monitor" circuit breaker is ON. Be aware that while underway, this gauge will not give an accurate reading.

Dock water that is safe for consumption may also be connected directly to *Sea Wings*. Doing so will bypass the water tank (ie, it won't fill the tank). When using this method, you can turn off the Fresh Water pump switch at the electrical panel as the incoming pressure is regulated at the connection point and will pressurize the water system.

Connection is made thru the female water hose connection on the outboard transom, port side. Please remember to secure this connection with the plug on a lanyard when no longer using this system.

The cold water source that feeds the galley faucet is fitted with a high capacity charcoal water filter. The filter is changed prior to every cruising season. Try it, we believe you'll find the water quality is great.

Swim Shower Washdown: There is a hot / cold swim shower in the transom, port side. Use it to wash off the saltwater after swimming (if you dare in our cold waters!). Remember to turn off the water control after usage to avoid a slow water leak of the fresh water supply.

Use of Showers at Each Head:

MUST DO's:

1. The showers drain to a sump container that periodically pumps the water overboard (outlet is on the starboard side above the water line). No need to activate a breaker for the sump pump, it is powered at all times and has an in-line fuse. The sump is in the bilge and accessed thru a floor hatch just aft of the entrance to the master state room.
2. After showering, please wipe up water spills on wood areas around shower.
3. Hang wet towels so they are not left up against wood surfaces. (Moisture turns wood black and encourages mildew.)

TIPS:

1. To conserve your water supply, turn off the shower head while lathering.
2. While cruising, it is best to place the shower heads on the floor of the shower to prevent them from bouncing out of the brackets.

Water System Repair Parts (Connectors and tubing) are located under the sink in the guest head.

Wireless Headsets

We have provided a pair of Eartec wireless headsets that will allow the skipper and first mate to communicate clearly and calmly during any close quarters maneuvering. Docking, anchoring, backing, all are so much easier and less stressful when the crew mates can communicate without seeing one another.

The headsets are kept in a soft-sided case at the lower helm, port side. We've added lanyards to them to clip onto an adjacent collar, just in case they slip off while being used (they don't float).

One tip: after using the system, ensure the ON/OFF switch on the master headset is turned OFF. Then press and hold the power button on the remote headset for 4-5 seconds to ensure it turns off and doesn't continue to hunt for the master headset (will result in the remote's headset being run down).



EXCELLENT PERFORMANCE
Effective range up to 1/4 mile.

WEAR ON LEFT OR RIGHT EAR
Mic boom swivels 270 degrees.

LITHIUM BATTERIES
Provide continuous 6 hr operation and are field replaceable.

DECT TECHNOLOGY
(DIGITAL ENHANCED CORDLESS TELECOMMUNICATION)

The UltraLITE

Communicate in Total Comfort
Full Duplex Wireless System



IMPORTANT

UltraLITE systems include one headset labeled "MASTER".



This MASTER headset must be turned "ON" to link the corresponding REMOTE headsets.

Battery

All UltraLITE headsets are powered by a Lithium Polymer battery that will operate 6 hours when fully charged.

Charging

- 1) Batteries are charged via the multi-charger.
- 2) Insert the batteries making sure the contacts are properly aligned.
- 3) RED: Charging; GREEN: Fully Charged.



Installation

- 1) Press the release button located on the bottom of the battery compartment.
- 2) Insert the battery into the compartment (arrow indicates proper direction) and snap door closed.



Release Button

Low Indicator

A repetitive beep (every 20 seconds) indicates low power - battery should be charged or replaced.

Battery Care

To preserve optimum charge level remove battery from headsets when system not in use.

Operation



Adjusting for Fit & Performance

- 1) Adjust the headband slides for size as necessary.
- 2) Position the microphone capsule at one finger's width from the corner of your mouth to ensure superior speech recognition and noise cancellation.
- 3) "TALK" identifies front of microphone: always have this indicator facing towards your mouth.

STARTUP

- 1) Turn ON the MASTER headset, switch is located below battery compartment. Flashing blue LED on earcup confirms headset is in search mode.
- 2) Turn ON the REMOTE headset(s), press the power button located above volume controls. Flashing blue LED on earcup confirms headset is in search mode.
- 3) Flashing LEDs change to solid blue to indicate that headsets are connected.

SET VOLUME

UltraLITE features 5 volume settings. Select the desired volume by slowly clicking the UP or DOWN buttons. An audible tone reflects volume level. A double tone indicates low or max volume has been reached.



MASTER ON/OFF



REMOTE ON/OFF



SHUT DOWN

Power OFF the MASTER headset utilizing switch, then PRESS and HOLD the power button on the Remote headset(s) for 4-5 seconds to turn off.

Note: To preserve optimum charge level, remove battery from headsets when system not in use.

AutoMute Function



Boom swivels over the top 270 degrees. Headset can be worn on left or right ear.



Microphone mutes automatically when boom is set to "Up" position.

Appendix A: Spare Parts Inventory

Antifreeze	Purple-ish DEAC antifreeze is used in the engines and genset: a spare gallon is kept in the bilge forward of the starboard engine. Note that the coolant must be diluted to a 50/50 mix with distilled water prior to using it.
Batteries for remotes & flashlights	Salon credenza, center drawer
Dinghy spare parts	Under guest VIP berth, in a Rubbermaid container
Distilled water	Bilge, outboard and aft of the port engine
Engine and Genset fan belts	Under guest VIP berth, in a Rubbermaid container
Helm keys, spares	Under guest VIP berth, in a Rubbermaid container
Filters - oil	Under guest VIP berth, in a Rubbermaid container
Filters - fuel	Under guest VIP berth, in a Rubbermaid container
Filters – fresh water at galley sink	Under guest VIP berth, in a Rubbermaid container
Fuses – Radio/CD	Storage bins ahead of starboard engine
Head parts: Duck bill valves; Ball assembly	Under guest head vanity
Helm keys, spares	Under guest VIP berth, in a Rubbermaid container
Hose clamps	Storage bins ahead of starboard engine
Impellers and gaskets	Under guest VIP berth, in a Rubbermaid container
Light bulbs	Storage bins ahead of starboard engine
Oils	Bilge ahead of the port engine. Note each container is marked for its intended usage

Appendix B: Safety Equipment

This vessel has passed a Coast Guard Safety Inspection each boating season (sticker on forward port window). But, if you are boarded by the Coast Guard for any reason, you may be required to locate the following items:

- **Flares and Flare Gun:** Starboard cabinet in pilothouse, forward of the electrical panel
- **Handheld Air horn:** Starboard cabinet in pilothouse, forward of the electrical panel
- **Lifejackets:** Two vest style lifejackets in each stateroom closet and ten total standard type 1 lifejackets forward of the starboard engine in white plastic stowage bags.
- **Lifesling Rescue System:** Mounted on the inboard side of the transom door
- **Fire Extinguishers:**
 - Engine Room: one aft of the starboard engine
 - Interior: four in total; one adjacent the salon entry on the port side, aft of the pilothouse door, one inside the master stateroom door, and one under the forward portion of the Guest VIP stateroom berth.
- **Whistle:** Starboard cabinet in pilothouse, forward of the electrical panel
- **Ship's Bell:** Flybridge seating, port side storage
- **Location of Placards** (Waste Overboard & Oil Discharge): Engine Room forward ahead of the port engine.

Other Safety Equipment:

Bilge Pumps:

There are two high capacity bilge pumps. Both are powered by separate breakers that should be on at all times. Both have sensors to detect a modest level of water in the bilge and will pump automatically as needed. There are also override switches at each helm to force the pumps to run before the float switch triggers them.

Flashlights:

Engine Room: kept on top or inside the main toolbox

Salon: credenza middle drawer, starboard side

All flashlights are labeled with locations; please return them to those stations when not in use. Spare batteries are in the salon credenza middle drawer.

Spot Light: A rechargeable, portable spot light is kept at the lower helm, storage bins to the port of the helm. Please remember to recharge it periodically.

First-Aid Kit: Located in salon port cabinets, aft portion.

Boat Hook: Two, both located in the transom storage locker in the cockpit.

Tools: A fully equipped toolbox and wrench set is located forward in the engine room, secured under the stairs from the galley hatch entrance.

Thru-hull Plugs, the universal foam type, are provided. One is stowed between the engine's seawater strainers, one adjacent to the genset strainer and one adjacent to the galley sink

garbage disposal thru-hull and one in the forward bilge adjacent to the holding tank and seawater washdown thru-hulls. A schematic of the thru-hulls is shown in Appendix C.

Smoke Detectors: There are two smoke detectors, one in the aft port corner of the pilothouse and the other above the door to the master stateroom.

CO Detectors: Each stateroom has a carbon monoxide detector. Please keep these clear as piles of clothing, towels, etc. stashed too close to the carbon monoxide detectors could elicit a false alarm.

VHF Distress Call Using DSC (Digital Selective Calling): There are two independent VHF radios, one at each helm. Both are capable of sending DSC messages include a distress all-call. See the section on VHF radios for further information.

Appendix C: Schematic of the Thru-hulls

