

Osprey Owner's Notes

Revised January 20, 2018

Table of Contents

From the Owners	1
Welcome from Nicholas and Anna Davidson.....	1
And Just a Reminder	2
Five Requests to Keep <i>Osprey</i> in Top Shape for Other Guests	3
Anchoring and Mooring Equipment	4
Dinghy Operations	7
Electrical Systems	9
Engine and Thruster Systems	12
Entertainment and Connectivity	18
Galley, BBQ, Crab Equipment, Vacuum, and Windows.....	19
Genset (Generator) System.....	21
Head Systems	22
Heating.....	24
Navigation, Radar and Autopilot Systems	25
VHF Radios.....	28
Water Systems	29
Appendix A: Spare Parts Inventory.....	30
Appendix B: Safety Equipment.....	31
Appendix C: Schematic of the Thru-hulls.....	33

From the Owners



Welcome from Nicholas and Anna Davidson

Osprey comes to San Juan Yachting and you from a working life in Alaska. When her bow nosed into harbors up and down the coast she and her two doctor owners brought health care, healing and hope to remote communities. She is blessed with good Karma. In Native American mythology ospreys are considered a "medicine bird" and seeing an osprey in a dream grants the dreamer spiritual power as a healer. She was in need of care herself when we bought her and we have lavished the care she deserves.

We have reconfigured and upgraded the forward stateroom, added a stern thruster to go with her bow thruster, a new dinghy and deployment system and a new tv and DVD player as well as numerous other domestic additions. All are intended to ensure your boating experience here in the islands is one to remember. We hope that your time on **Osprey** will be a healing, life affirming experience. May you dream of ospreys.



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 *Osprey* 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 *Osprey* 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 window cover is even slightly damp, please hang it where fresh air circulates until it's completely dry. Hooks in the cockpit are available for this purpose. 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 the engine is 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 engine is running.

5. The engine benefits from a periodic run at high speed

Osprey is equipped with a very reliable Cummins diesel engine. Yet, the engine can build up diesel soot in the turbo charger 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 engine at high speed cruise (1800-2200 RPM) for at least 20 minutes every other day while cruising to help keep the buildup to a minimum.



The Owners and other Guests thank you 😊

Anchoring and Mooring Equipment

Anchors & Rodes: *Osprey* carries a 44# plow anchor in a bow pulpit and roller and 310 feet of 5/16" high tensile chain lifted by an electric windlass. There is also a secondary anchor (Foretress) and 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 near flat bottom of the vessel's hull. While the depth sounder could indicate 10 ft of water depth, the keel, propeller, and rudder shoe extend below the bottom of the vessel's hull so it is a good idea to assume less than 10 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 indicated depth at low-low tide.

Anchoring process:

1. Turn ON Windlass power at the power panel. Release the safety tether that secures anchor. Bring the bucket from the lazarette that has the snubber line and washdown hose.
2. Power up and don the wireless headsets, it will enable easier communication.
3. Anchor is lowered with foot switches on the fore deck or from remote controls at the helm while boat is backed up slowly away from anchor. Be careful that anchor doesn't swing wildly and hit the bow. Better technique is to lower the anchor over the roller by hand while feeding out a short burst of anchor rode.
4. Mate at bow to monitor length of chain going out and to troubleshoot if it gets tangled. (Anchor rode is marked at every 25 ft increment with an 18" piece of nylon braided line

woven into the chain. And at the 100 ft and 200 ft marks, there is a distinct double segment of nylon line woven into the chain.

5. The working rode is all chain, 300 ft and then followed by 25 ft triple braid nylon rode that is attached to the ship in the anchor locker. The nylon rode segment has a specific purpose, it would allow the skipper to fully deploy the chain and then cut it loose if emergency conditions warrant. Remember, anchor and chain is an expensive investment, cut it loose only in an emergency (vessel or crew is in immediate danger) and if possible, attach a fender to the bitter end for future recovery of the anchor. We hope you never encounter a situation that requires you to take this action.
6. When desired chain length is out, stop windlass. Target scope of at least 4:1 at high tide.
7. Skipper to reverse the engine at idle speed to test the set of the anchor.
8. Attach Snubber line to anchor chain: Secure snubber line to windlass bow cleat. Run out enough rode to form loop in chain so anchor rode tension is transferred to snubber line.
9. Turn OFF Windlass power at power panel. Power down and stow Eartec headsets.
10. Press the STOP button to kill the engine, THEN Engine key to OFF.
11. Turn Off unnecessary systems at the circuit breaker panels, replace sunscreen covers on the electronics, canvas covers on Pilothouse windows as appropriate.
12. See "Tackle" section of Owner's Notes for instructions on hauling anchor and **saltwater washdown of the anchor rode.**

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 and twist a quarter turn clockwise into the deck connection. Then turn on the anchor washdown and windlass circuit breakers. Start the engine so it 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.

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, port side step storage. 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 many 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 Osprey's Shore Line

1. Find the 400-foot shore line on a reel secured on aft rail on the upper deck.
 2. Untie the bitter end of the line and feed the line to the mate in the dinghy as they head 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. Be careful not to allow the line and the reel to become part of the tensioned line to shore as the reel mount is not intended withstand the potential forces on the line.
- When it comes time to retrieve the line, it should be a simple process of casting off the bitter end of the line from the stern and begin reeling in the line. It should come off the ring or object on shore and wind up on the reel. Secure the bitter end tightly so it does not unravel while underway.

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 cockpit 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 fenders in the cockpit lazarette or tied off to the stern rail and handing inside the cockpit.

Boat Hook: A floating, telescoping boat hook is stored adjacent to the ladder leading to the upper deck.

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. **MAKE CERTAIN BILGE PLUG IS IN THE DINGHY!!**
2. Trim the motor up to clear the davit arm mechanism.
3. Pull the safety pin that secures the lifting arm of the Sea Wise davit in its parked position.
4. Rotate the hand crank counterclockwise and observe the dinghy as it smoothly lowers to the water.
5. When afloat, continue to crank until the lifting cable is loose, detach and secure it to the base of the davit.
6. Lock the transom pivot arm in place.
7. The dinghy detaches from the swim platform by pulling up on the lever and pushing the dinghy away from the vessel. Best to do this after the outboard motor is started and running smoothly.

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 the Tilt / Trim button on the throttle lever to the full down position.
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:

1. Maneuver the dinghy to the swim step and engage the two securing clips at the swim step.
2. Close the vent on the fuel tank, remove the key, raise the motor to full trim up, not fully tilt up position. **Reminder: Remove all loose gear from the dinghy.**
3. Unlock the transom pivot arm.
4. Attach the lifting cable to the transom arm.

5. Rotate the hand crank clockwise and observe the dinghy as it smoothly raises out of the water. Continue cranking until the transom arm engages with the davit base.
6. Engage the locking pin and check that all is secure.
7. Lower the motor to the full down trim position.
8. Stow the key for the dinghy in the storage cabinet in the port aft corner of the salon.

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 hatch in the salon.
- ✓ 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.

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 *Osprey*. A brush to help clean your shoes is stored in the cockpit storage locker.

Use of the Swim Ladder: The swim ladder is attached to swim platform and can be self-deployed from someone in the water. Please sure it is in its stowed position prior to getting underway.

Electrical Systems

The electrical systems of a vessel are its nervous system. *Osprey* 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 DC electrical panel is on the inboard side of the starboard pilothouse seat. The AC electrical panel is on the inboard side of the port pilothouse seat. You will reference these panels for On /Off status and to control each of the systems through the use of the circuit breakers. The circuit breakers act like switches.

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 top left when facing the respective 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: four 6V golf cart batteries to supply power for many items including lights, navigation electronics, autopilot, diesel heat and frig / freezer, inverter
- Bow thruster: one 4D battery solely for this system
- Stern thruster: two 27D batteries solely for this system
- Genset start: one Group 24 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.

The ship's main AC system is designed for a 30A service. The genset is capable of supplying that



load continuously. Quite frequently and most commonly, you will find 30A shore power service at the marinas. But the on-board inverter is capable of 2500 Watts, or in essence, 20A of service. The net result is when you consider all the systems on board that can consume AC power, you will need to manage the systems and devices that you allow to be active at any one time to stay below the total AC power capacity feeding the ship. Further, in the case of the inverter, there is a practical limit to the total energy that the house 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 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	2500 watts
Microwave	1000 watts
Portable Cabin Heater	750 or 1500 watts (depends on the heat setting)
Refrigerator	400 watts
Freezer	400 watts
Stern Thruster Battery Charger	1000 watts
Toaster	800 watts
Trash Compactor	tbd
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 port side of the pilothouse just aft of the pilothouse door. The ship is designed for and the main power cable is rated for a 30 Amp, 125 V service connection. There is a primary cord and a second extension cord, normally stored in the cockpit lazarette when not in use.

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

Inverter:

The inverter is a great device, it will take DC power from the house battery bank 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 inboard side of the helm station. The house 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 2500 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 2500 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 engine alternator. All the other battery banks (bow and stern thruster and genset start) 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:TBD.....

Engine and Thruster Systems

Osprey is equipped with a modern, computer controlled, 5.9 Liter Cummins diesel engine. She is very reliable and features a turbocharger to boost total output to 380 HP. The output of the engine drives a 28", four-blade propeller thru a 2.5:1 reduction gear transmission. The prop is on the centerline of the vessel with a modest keel and sizeable rudder directly aft of the propeller.

Access: In the pilothouse deck, there are a pair of hatches. Usually it is sufficient to remove just the forward hatch to gain access to the engine room. The engine room lights are controlled by a switch at the helm. The engine room lights are long life LED lights but please remember to turn them off when done in the engine room.

Starting: The Cummins engine requires no preheating during the normal seasonal conditions (see below for circumstances that warrant the use of the engine block heater). Be sure you do a visual inspection of the engine room looking for signs of something amiss. Check oil, coolant, thru hull, sea strainers and primary fuel filters. The engine key at the helm has two positions, Off and Run. Turn the key to the Run position, wait for the "Smart Craft" display to power up, acknowledge the display power-up message, confirm the throttle / transmission lever is in neutral (centered detent position), press the start button and release when the engine begins to run (usually less than two seconds of cranking).



Cold weather OPS: tbd

Keys: The engine key is unique to just the lock at the helm, it doesn't work in any other lock. When not underway, we recommend you remove the key and place it in the starboard aft corner of the map table drawer. A spare engine key is stowed with the spare engine parts in a marked plastic bin on the starboard side of the engine room.

Engine Alarms: The engine is managed and monitored 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 Smart Craft LCD display at the helm is the visual screen for the ECM. In normal circumstances, the display is displays various engine parameters such as RPM, oil pressure, temperature, etc. It will announce and sound an aural tone if any parameter or condition warrants action by the skipper.

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

- Don't plan to leave the dock until the engine has 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 or so, 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 175 degrees.

Normal Readings: Engine temp. 175-190 Oil pressure: 30-90 psi

- RPM for low speed cruise efficiency: 1000–1400 results in 6.5-8.5 kts; 1.0-2.1 gph
- RPM for high speed cruise efficiency: 1800-2200 results in 9.5-11.5 kts; 4.9-8.7 gph

Do not run at wide open throttle (3000 RPM) nor run above 2400 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 a dedicated joystick control panel at the 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 looking 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: The engine's exhaust port is at the starboard stern of the vessel. At idle, you will see a periodic burst of water as the waterlift muffler fills with seawater and the exhaust gas pressure pushes the water out the exit port. This exhaust system and the clean running diesel engine do a good job of minimizing the amount of diesel soot that enters the environment. Never the less, **please keep salon door closed while the engine is running** to prevent diesel exhaust film from settling on interior furnishings.

Pumps: The engine is dependent on several pumps to operate properly. Most important of these is the seawater (raw water) pump, 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 the

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 for the 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 in the Charter Guest Reference Manual.

Fuel: Fuel flows from the port and starboard tanks to a common manifold and then passes thru either a port or starboard Racor primary fuel filter. Racor primary fuel filters are mounted on the aft wall of the engine room, port side. A lever on the face of the support brackets determines which filter is in use. The pre-engine start procedure includes a visual check of the glass bowl at the bottom of the filter to ensure it has just tinted diesel fuel, no visible debris or clear liquid. If either are noticed, there is a fuel contamination issue. Time to call San Juan Sailing for assistance.



Similarly, the general practice is to maintain flow thru the selected filter system until such time that the vacuum gauge shows a vacuum reading of 5" or more when running underway at cruise speed. If the max vacuum measured is above 5", it is time to report the condition for timely maintenance. With the engine shut down, it is possible to switch the lever to start use of the other filter assembly and then be sure to report that action when you return from your charter. If the primary fuel filter must be replaced, it is relatively simple. Call for help and guidance. Spare filters are stored in an engine spares bin in the starboard side of the engine room.

Shaft Logs: A shaft log is watertight fitting that prevents water from coming into the boat around the hole where the propeller shaft exits the hull. *Osprey* is fitted with excellent shaft seal. There should be no need to adjust it. If there is any sign of water dripping / concern, contact San Juan Sailing.

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 storage bin in the

starboard side of the engine room and the containers of spare oil are marked (engine / genset versus tranny, outboard, etc). Check oil levels on the engine and genset every few days so long as no spotting is noted, more frequently if there is any question in your mind. For the engine, there is a dipstick midway along the port side of the engine. Using a clean paper towel and with the engine 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 the engine 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 few hours since an oil change. 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 (when the engine is cold) in the reservoir on the forward wall of the engine room. There is spare coolant in the storage bin on the starboard side of the engine room. 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 the spares storage bin.

Fueling Process: Port and Starboard fillers are located on the respective sides of the vessel, close to the cockpit. A cap key (on a floating key ring) is in the storage bin just inside the salon door. A spare can be found in the storage bins on the starboard side of the engine room.

Osprey carries 324 gallons of diesel (162 gallons on each side). Each tank has a fuel gauge that can be observed on the Smart Craft display at the helm. We've found the gauges are fairly accurate so using simply math, estimate to the nearest 1/8 increment how much fuel is in each tank and compute the current level, subtract that from 324 and you'll have a pretty good idea how much fuel to put in each tank.

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: *Osprey* has a semi-displacement hull design and is very efficient at low speeds, a classic characteristic of trawler design. The table below is from Nordic Tug and is precise data taken during sea trials of a sister ship of *Osprey*. We have found the following to be

the owner will notice it. You can see the rails quiver a bit, and can notice it in your...
 The new thruster is stronger and quieter than the previous 6 hp Side Power. So score one for the Lewmars. Decibels when thrusters were on were about 78. As I recall, this compares to 82 to 83 for the Side Powers.
 Workmanship looked superior. Doors and windows were easy to open and close again. Woodwork looked great.
 I think new dealer Massey will enjoy this boat.

BOAT AND ENGINE PERFORMANCE

RPM	East			West			Average						
	Speed kts	GPH	% pwr used	Speed kts	GPH	% pwr used	Speed kts	Sound DB	Bow Angle	GPH	% pwr used	NMPG	NM Range
600	4.4	0.4	18	4.5	0.4	19	4.5	55.0	-0.5	0.4	18.5	11.1	3,249
800	5.7	0.7	22	5.8	0.7	22	5.8	58.0	-0.5	0.7	22.0	8.2	2,399
1000	6.4	1.0	28	6.8	1.0	27	6.6	59.0	-0.5	1.0	27.5	6.6	1,927
1200	7.6	1.4	29	7.7	1.4	29	7.7	61.0	-0.5	1.4	29.0	5.5	1,596
1400	8.6	2.0	30	8.3	2.2	31	8.5	66.0	0.0	2.1	30.5	4.0	1,175
1600	9.1	3.3	32	8.9	3.5	33	9.0	68.0	0.5	3.4	32.5	2.6	773
1800	9.5	4.8	34	9.5	4.9	35	9.5	71.0	1.0	4.9	34.5	2.0	572
2000	10.5	6.8	41	10.3	7.1	38	10.4	72.0	2.0	7.0	39.5	1.5	437
2200	11.6	8.6	50	11.4	8.8	50	11.5	72.0	2.5	8.7	50.0	1.3	386
2400	13.3	10.5	61	13.2	10.7	61	13.3	73.0	3.5	10.6	61.0	1.3	365
2600	15.2	12.4	70	14.5	12.9	72	14.9	74.0	4.0	12.7	71.0	1.2	343
2800	17.1	15.4	82	16.2	15.5	80	16.7	76.0	4.0	15.5	81.0	1.1	315
3000	18.6	18.6	89	17.5	18.1	95	18.1	79.0	4.0	18.4	92.0	1.0	287
WOT - 3060	18.8	19.3	95	18.1	19.5	98	18.5	81.0	0.0	19.4	96.5	1.0	278
	<u>Time in Min.</u>		<u>Distance</u>			<u>Speed in Knots</u>							
	10.25		3.12			18.3							
ACCELERATION: Time to accelerate to full power:							11.5						
	<u>Trip Time (Hours)</u>	<u>Fuel Used (Gal)</u>		<u>Fuel Used Per Hour</u>									
Trip Log	2.25	11		4.89									

This speed is from a reciprocal TIMED run @ max rated RPM

ViewSonic

Edge:
Order (4)

true:

- Economy cruise: 1000-1400 RPM yields 6.5-8.5 kts and consumes 1.0-2.1 gph
- High speed cruise: 1800-2200 RPM yields 9.5-11.5 kts and consumes 4.9-8.7 gph

As owners, we've found it most comfortable to cruise at 7-8 knots with an engine speed of 1200 – 1300 RPM. It allows time to enjoy the scenery and maintains a relatively quiet noise level while being able to cover reasonable distances in a day. We've also found that it's not good to baby the engine all the time, it is actually good meant to run a high-speed cruise loads every so often. Running at those higher speeds ensures carbon buildup is kept at a minimum. So please run at higher speeds of at least 1800 RPM at least every other day for 15 minutes or more.

Checking Transmission Oil Levels: The oil used in the transmission of the engine is different than the primary crankcase engine oil. For the transmission, it is straight 30W oil and spare oil can be found in the storage bin in the engine room. The dipstick for the transmission is found at the rear of the 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 engine, 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 the 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 pilothouse and salon have a quad speaker sound system which offer a hi-fidelity sound experience. The central unit is an AM / FM radio receiver, CD player and supports playing audio from an external device like a smartphone.



Salon TV and DVD Player

The flat panel LCD TV is mounted in a ceiling cabinet in the salon. A quarter turn of the two latches and it will swing down and be viewable from the salon table. Included is a smart Blu-ray DVD player that can provide video entertainment or can link to an available wi-fi source and then stream internet content such as Netflix, Hulu, YouTube, etc. Enjoy!

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 under the ladder to the upper deck).
2. Turn ON the LP Gas Control circuit breaker (it's the power source for the step 3) switch).
3. Turn on propane solenoid switch, it is the round control / gauge at the bottom center of the DC circuit breaker panel.

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 edges of the cooktop surface!

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

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 dedicated storage case in the lazarette along with a small table to use in the cockpit as a cooking station.

Microwave: Many of the basic controls are self-explanatory. See the instruction manual stored with the ship's instruction manuals stored in the pilothouse, port side seating storage cabinet.

Frig and Freezer: The refrigerator is a primarily a frig with a small freezer compartment. There is a separate, much larger freezer for storing provisions for your charter. Both will run on either DC or AC power and will default to AC when available. Both DC and AC switches at the electrical panels can be on and the power switching is automatic.

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).

Similarly, the freezer does well at keeping items frozen with a setting of 3-4. Temp gauges are in each unit to monitor actual temperatures.

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.

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

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 along with line, a buoy and a bait box. The crab cooker pot is located in the galley, under the sink.

Vacuum: A portable AC powered vacuum cleaner is stowed in the guest stateroom closet. Please use it to clean up as necessary during your charter.

A Note about Cleaning 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.

Genset (Generator) System

An Onan diesel powered AC generator is on board and has a capacity of 5 KWatts (40 amps at 125 VAC). The ship's AC electrical system is limited to 30 Amp service so the genset can easily source the ship's AC system at a 75% load factor.

Starting the generator is a 10-second automatic starting sequence, using either the switch panel on the bottom of the AC circuit breaker panel or the similar switch panel directly on the genset enclosure in the engine room, port side.



To start:

- 1) Hold the toggle switch in the start/run position. The light in the switch will illuminate as the preheat circuit is activated.
- 2) Continue to hold the switch and listen for the genset starter to engage and the diesel engine start to run. Then release the toggle switch.
- 3) Look over the port side of the vessel near the water line. There is a stainless exhaust port above the waterline where you will hear the exhaust gas from the generator and an underwater port where the seawater that is cooling the genset is exiting the muffler system. It will be subtle but in relatively calm waters, you'll see a small stream of tiny bubbles when the genset is running. If this is not evident, stop the generator and check the strainer and the thru-hull valve.
- 4) After two minutes of the generator running with no electrical load, 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.
- 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 (upper left column of breakers)
- 2) Run the generator with no load for a 2-3 minute cool-down period.
- 3) Press 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 the head as a dedicated disposal bag for all toilet paper. After use, put the 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: The black water holding tank is 40 gallons. The Tank Monitor panel is in the head vanity and gives a simple 'Red light' indication when the tank is near full. A completely full tank can cause problems so stop head use immediately if this occurs.

We recommend the practice that you plan to empty the holding tank every 2-3 days for a crew of four persons. With that frequency, you stay sufficiently below the full level and all will stay good.

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 head pumps 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 is legally discharged overboard as "gray water." The Thru-hull for the macerator is accessed in the engine room, starboard side. This thru-hull valve shall remain closed except when needing to pump overboard. The Coast Guard may ask to see this seacock so be sure it is closed after any dumping activity.

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 almost everywhere in Canada except in harbors, stagnant tidal flow areas and near land. To discharge the holding tank under allowable conditions, open the thru-hull valve (access to the valve described above) and turn ON the Macerator switch on the DC panel, then depress the momentary toggle switch on the inboard side of the helm. Continue holding until the tank gauge reads empty. Once the operation is complete, turn OFF the macerator circuit breaker and close the seacock for the holding 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 the Vacuflush pump 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.

Vacu-Flush Repair Parts are located under the sink in the vanity cabinet.

Heating

Electric Space Heaters: There are two built-in electric heaters with a simple rotary thermostat, one in the master stateroom and one in the salon. They are enabled at the AC circuit breaker panel. Use them when connected to shore power or when the genset is powering the ship.



In addition, there are two portable electric space heaters stowed on-board to provide supplemental heating, you will find them stowed in the stateroom closets. They use 750 watts on low and 1500 watts on high and would connect to available AC outlets. Be sure you are only using them when shore power or generator power is supplying the ship. The ship's inverter is capable of supplying AC energy to the ship's outlets but will quickly drain the house batteries if they heaters are used, so avoid that situation. Also 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 hanging from the ceiling in the engine room on the port side of the ship.

The thermostat is mounted on the forward bulkhead of the salon area, port side. It is the primary ON/Off control and temperature setting for the furnace. The red and green lights mean 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. You can moderate the amount of heat delivery in each space using the vent louvers of the air vents.

Defrosters: There are defrost / defog vents under the forward windows of the pilothouse. The can be opened and rotated to direct air flow as needed. The engine, once warmed up, provides the heat to feed these vents and a fan control switch is at the helm station.

Navigation, Radar and Autopilot Systems

Osprey is equipped with a comprehensive multi-function navigation display, 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 systems are kept in the cabinet under the port side pilothouse seat.

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 Display (MFD)

At the helm is the 12" multifunction display (Raymarine classic E-series). The MFD is the central hub of the 'action', its where you will look 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, etc.



When we are cruising, we usually select the full-size chart depiction on the MFD and set the range for 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 display. 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

Osprey 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 viewable on a designated page of the MFD.

GPS Sensors

The primary GPS antenna is mounted on the starboard side of the pilothouse just above the helm. It maintains excellent reception of the satellite signals. The AIS transceiver has its own GPS antenna and it provides GPS position data to the VHF radio.

Radar

The radar is a 24" closed scanner analog system. Radar's primary use is to sense objects and land masses that are within a 5-10 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

Osprey is equipped with a Class B transceiver AIS system. It will transmit *Osprey's* 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 the MFD. The MFD has 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 helm adjacent to the MFD. You can also control the autopilot using the wireless remote controller. The concept is to stabilize the direction and cruise speed of the ship, then sit back in the helm seat and have the autopilot remote in hand. Using it, you can tweak heading to port or starboard and continue to monitor progress while sitting comfortably. It is a good idea to periodically put the wireless controller in the cradle at the 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.

A few key reminders:

- **START THE ENGINE BEFORE turning on the two electronics and instruments breakers** on the DC panel, which supplies power to all navigational equipment 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.
- **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 nuisance 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 in the master stateroom. Cruising guides, current and tide tables are will be found in the chart drawer in the pilothouse. A set of dividers, parallel ruler and portable compass are kept in the chart drawer as well.

VHF Radios

VHF Radio

Osprey has two VHF radios, a fixed mount one above the helm and a handheld VHF kept at the chart table, port side of the pilothouse.

The fixed mount radio has GPS position sourced to it. In an emergency, the 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 *Osprey*. The MMSI is TBD 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 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 *Osprey* 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 the helm. It must be charged periodically; the charging cord is kept in the chart drawer in the pilothouse.

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

Water Systems

Fresh Water: The 144-gallon fresh water tank (underneath the salon along the centerline of the bilge) is filled through a deck plate on the port side of vessel. 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.

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.



Use of Shower in the Head:

MUST DO's:

1. The shower drains to a gray water holding tank built into the keel of the vessel. The level of that tank is also indicated at the panel on the inboard side of the helm. The circuit breaker for the gray water tank is on the DC panel and is normally left on. You can dump the gray water tank when in appropriate waters by depressing the momentary toggle switch until the tank indicator shows empty. The exit port is on the starboard side of the ship just forward of the pilothouse door.
2. After showering, please wipe up any 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 head on the floor of the shower to prevent it from bouncing out of the bracket.

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

Appendix A: Spare Parts Inventory

Antifreeze	Purple-ish DEAC antifreeze is used in the engines and genset: a spare gallon is kept in the storage bin in the engine room, starboard side. Note that the coolant must be diluted to a 50/50 mix with distilled water prior to using it.
Batteries for remotes & flashlights	Salon utility cabinet, drawer
Dinghy spare parts	Salon storage hatch, in a Rubbermaid container
Distilled water	Engine room Bilge, on the port side of the engine
Engine and Genset fan belts	Spare parts bin in the engine room, starboard side.
Filters - oil	Spare parts bin in the engine room, starboard side.
Filters - fuel	Spare parts bin in the engine room, starboard side.
Filters – fresh water at galley sink	Spare parts bin in the engine room, starboard side.
Fuses – Radio/CD	Spare parts bin in the engine room, starboard side.
Head parts: Duck bill valves; Ball assembly	Under the head vanity
Helm key, spare	Spare parts bin in the engine room, starboard side.
Hose clamps	Spare parts bin in the engine room, starboard side.
Impellers and gaskets	Spare parts bin in the engine room, starboard side.
Light bulbs	Spare parts bin in the engine room, starboard side.
Oils	Engine room Bilge, port side of the 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 step-storage cabinet in pilothouse, adjacent to the helm.
- **Handheld Air horn:** Starboard step-storage cabinet in pilothouse, adjacent to the helm.
- **Lifejackets:** Two vest style lifejackets in each stateroom closet and eight additional vest style life jackets in the engine room, to starboard of the engine in white plastic stowage bags.
- **Lifesling Rescue System:** Hanging on the rail on the inboard side of the cockpit
- **Fire Extinguishers:**
 - Engine Room: an automatic discharge, clean agent system
 - Interior: four BC types in total; two in the salon and one in each stateroom.
- **Whistle:** Starboard step-storage cabinet in pilothouse, adjacent to the helm.
- **Ship's Bell:** Mounted on the aft side of the cabin in the cockpit
- **Location of Placards** (Waste Overboard & Oil Discharge): TBD

Other Safety Equipment:

Bilge Pumps:

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

Flashlights:

Engine Room: kept on top or inside the main toolbox

Pilothouse: in the chart drawer

Staterooms: in a vanity drawer

Salon: storage cabinet, port side, adjacent the door

All flashlights are labeled with locations; please return them to those stations when not in use. Spare batteries are in the salon storage cabinet near the aft door.

Spot Light: *Osprey* is equipped with an articulating spotlight mounted on the mast. It is controlled by a panel above the helm.

First-Aid Kit: Located in head in the mirrored cabinet.

Boat Hook: Two, one in the lazarette and the other secured to the back side of the ladder leading to the upper deck.

Tools: A fully equipped toolbox and wrench set is located to starboard in the engine room.

Thru-hull Plugs, the universal foam type, are provided. They are available adjacent to each seacock. 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 salon 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): The fixed mount VHF radio above the helm station is capable of sending DSC messages include a distress all-call. See the section on VHF radios for further information. The upper 'Electronics' circuit breaker controls DC power to the VHF radio.

Appendix C: Schematic of the Thru-hulls

