

Osprey

Owners' Notes



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Welcome from Nick and Anna Davidson

Osprey is a Nordic Tug 37, built in Anacortes, WA in 2006. We purchased **Osprey** in January 2018, after a working life in Alaska. She was owned by two doctors who used her to bring health care and healing to remote Alaskan communities, so 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.



Osprey has been professionally maintained and operated since new, but when we bought her we completed a full bow-to-stern refurbishment program including all engine, mechanical, electrical and domestic systems. In addition, we reconfigured and upgraded the forward stateroom, added a stern thruster to go with the bow thruster, a new dinghy and deployment system, as well as numerous other domestic additions.

For 2019, we replaced the navigation system with an all-new SIMRAD system, added a larger dining table, and installed wind-dodgers on the upper deck. In 2021 we installed a new sound system, an electric toilet, and an Airmar weather station which shows true wind-speed, direction and other parameters while underway. In 2022 we added a new, heavier Rocna anchor and extended 400 ft. anchor rode, and for 2023, we installed a 740 watt solar power system. For 2024, we have installed a Starlink wifi system. All are intended to ensure your boating experience here in the Islands is one to remember. We hope that you enjoy your time on **Osprey** as much as we do.



Osprey – Nordic Tug 37 Vessel Overview



Osprey is a classic Nordic Tug 37, built locally in Anacortes and designed by Lynn Senour specifically to handle the unique demands of Pacific Northwest cruising. The rugged design is optimized to handle the Northwest’s choppy coastal and open waters, and to provide efficiency, comfort and spaciousness for gentle island cruising. The boat has character and class and exudes solidity and quality from the moment you step aboard.

Design and Seaworthiness

Cruising boats in the PNW tend to prioritize strength and efficiency over speed. Reflecting this, Nordic Tugs have intentionally retained their classic “tug” style rather than compromising seaworthiness and comfort in the interests of more modern, sleek lines. Many years of design evolution have helped Nordic Tug establish a reputation for safety, comfort and quality, and have ensured that they are still one of the most popular boats in the PNW.

The Nordic Tug 37 has a semi-displacement hull with hard chines to minimize roll. There is a full keel to enhance stability, plus a stainless-steel shoe that protects the running gear. Like the Pacific Northwest trawlers which inspired its design, the 37 has a tall, fine-entry bow with little flare, which makes for a smooth ride in rough water. The stern features a moulded-in swim platform that also functions as part of the running surface, thereby extending hull length (to 39 feet) and increasing efficiency, speed and stability.

We love the practical lines of the boat and have developed great confidence in its ability to handle all conditions comfortably. An independent review on Boats.com, stated: “We had no concerns taking the Nordic Tug 37 out that day. The 20-knot winds and 3-foot breaking seas were nothing for this boat. The ride was comfortable and predictable, with a steady motion that instills confidence in the boat”. **Osprey** was originally specified for operation in Alaskan waters, and with additions we have made, is well-equipped for long-range cruising.

Internal Configuration

One of the best features of the Nordic Tug 37 is its configuration – with three dedicated internal spaces – sleeping, bridge and salon. This layout keeps functional activities separate, so for example, you will not need to use the same surface for navigation planning that you were earlier using for cutting up tomatoes, nor will you have to emerge from the shower or toilet straight into the salon!

Sleeping accommodation is forward, including the main stateroom, the second stateroom, (each with ample wardrobe and stowage space), the bathroom and a separate full shower. Aft and a few steps above the sleeping accommodation is the raised ship-style bridge, with helm to starboard, large nav table to port, and comfortable bench seats from which to enjoy the panoramic view. Aft is a spacious salon with large picture windows on three sides. The engine room is below the bridge and salon, and is large and easy to work in, with plenty of headroom.

Engine Performance and Systems

Osprey is powered by an electronically controlled, fuel-efficient 5.9 liter, turbocharged 380 hp Cummins diesel engine. This ultra-reliable powerplant drives a 28", four-bladed propeller which, with the 37's hull design, lets the boat reach speeds of up to 15 knots, yet is economical enough to cruise at 8 knots burning 2 gallons per hour at 1300 rpm. A comfortable "high-speed" cruise at 1800 RPM yields about 10 knots and consumes about 5 gph. The boat's 320-gallon fuel capacity provides well over 1,000 nautical miles of cruising range.

Osprey is equipped with bow and stern thrusters which make docking and close-quarter maneuvering easy. The boat is equipped with a new (in 2019) SIMRAD NSS evo3 touch-screen navigation system which includes chart-plotter, radar, automatic identification system (AIS), fish-finder and autopilot. For time at anchor, **Osprey** has a 740 watt solar system which meets normal 24hr electrical demand, and an Onan diesel generator for supplemental battery recharge.

Salon and Equipment

Down a few steps aft of the bridge lies the bright, roomy salon. The salon is beautifully finished in teak and has an L-shaped galley to starboard and a dinette to port. The galley is fully equipped with a large AC-DC refrigerator and freezer, as well as Corian counter tops and sink. The three-burner propane stove/oven and microwave are great for proper cooking (which we do a lot), living aboard or entertaining guests. With plenty of storage and drawer space behind the teak doors, keeping supplies of food and wine for long stints on the water is no problem. The dinette offers ample seating at the pedestal table with a six-foot settee that also converts to a double berth with storage underneath.

The salon has double-glazed windows fitted with Hunter-Davis blinds which are great both for privacy and for keeping the salon cool on hot summer days. For cold weather, **Osprey** has an ESPAR diesel furnace which heats the ship in minutes, supplemented with separate built-in blown-air electric heaters in the main stateroom and salon. **Osprey** has a full sound system and a fold-down smart TV and DVD player. The boat is carpeted throughout, which reduces engine noise, and makes for a comfortable living environment.

Unlike many 37s which use the upper deck for dinghy storage, **Osprey's** upper deck is unobstructed, providing an ideal space for entertaining, watching the sun rise with a cup of coffee or enjoying a cocktail in the evening. Lastly, for exploring and trips ashore, **Osprey** is equipped with an APEX A-10 Eurosport dinghy powered by a 20 hp Tohatsu outboard, deployed via an easy-to-use SeaWise system mounted on the swim-step, and two kayaks, stored in racks on the top deck.

We think that **Osprey** provides the perfect combination of seaworthiness, functionality and comfort for PNW cruising, and hope you will enjoy her as much as we do.

Using these Notes

These Notes are a high-level summary of information only. Use the manuals and other documents on board for definitive and complete information on *Osprey's* equipment and operation.



These notes have been prepared to give the charter captain and crew a helpful source of information and guidance. While the goal is to summarize information from multiple sources into a single volume, this document does not pretend to be a comprehensive authority on the equipment and systems on board. If in doubt, consult the manuals provided by the various manufacturers, which are stored underneath the port helm seat.

These Notes present information on topics in alphabetical sequence

Information in these Notes is organized alphabetically (ie, starting with “Anchoring” and ending with “Water Systems”). Use the table of contents to locate the topics you are interested in.



The Captain accepts responsibility for the safe operation of *Osprey*

These Notes are for information only. The Captain accepts that he/she is the person ultimately 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 the vessel, its handling and its systems prior to leaving the dock, using these Notes and the other information sources as necessary. 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

No warranties are expressed or implied by this document.

Safety Aboard

A cruise on *Osprey* around the beautiful Pacific Northwest islands is all about enjoying the amazing scenery, taking time away from the pressures of life, and being with people you care about. But, it is also about staying safe while you are doing these things.

Being mindful of some basic safety initiatives actually reduces stress and ensures a problem-free cruise. Here are our own “Top Ten” safety rules that we use for all our trips. We strongly suggest that you adopt these as your own:

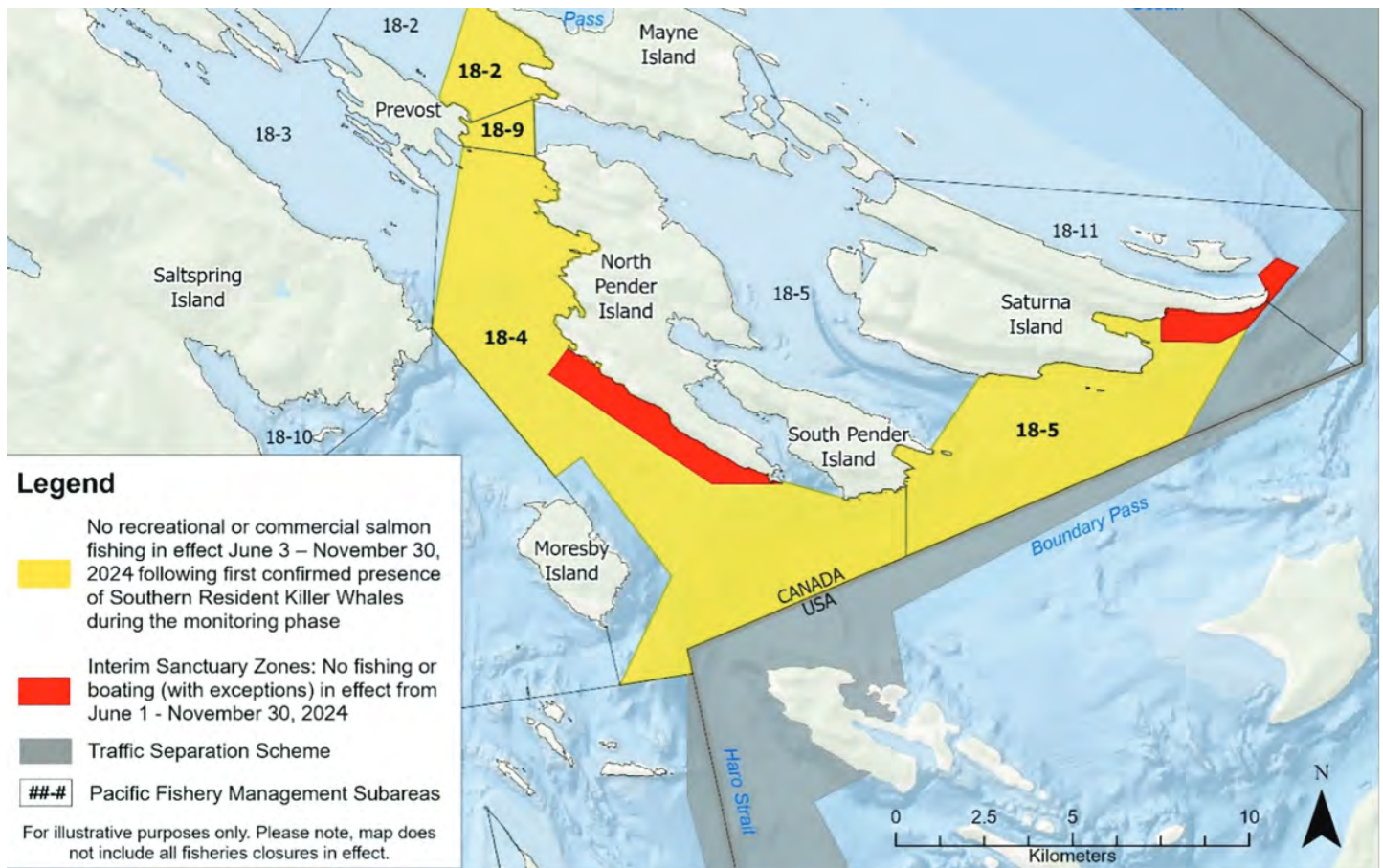


- 1. LIFEJACKETS** -- All crew and passengers ALWAYS wear life-jackets when underway. Even on a sunny day, situations can arise rapidly when a lifejacket is a lifesaver.
- 2. LIFESLING** – A lifesling is located on the railing at the rear cockpit. Make sure everyone knows how to use it in the case of a person overboard.
- 3. ASSIGN A SKIPPER**– Assign ONE individual as the Skipper each day, who accepts responsibility for the safety of the vessel and all its occupants.
- 4. BRIEF THE CREW**– Before starting out each day, brief all members of the crew on the plan for the day, the route, the weather and their individual responsibilities.
- 5. TWO PEOPLE ON THE BRIDGE** – When underway, assign TWO people to be on the bridge at all times – one helming and operating the vessel, and one as a “second pair of eyes” watching for hazards and continuously monitoring location
- 6. FIVE SECOND DRILL** – Don’t rely exclusively on the chart plotter. Make sure the person at the helm can ALWAYS point to the location of the vessel on a map, within five seconds.
- 7. ONE HAND FOR YOURSELF, ONE FOR THE SHIP** – When outside on deck while underway, always hold a railing with one hand, and use the other for tasks.
- 8. NEVER USE THE SIDE DECK WHILE UNDERWAY** – *Osprey’s* side deck (from behind wheelhouse) is narrow and unprotected, and should NEVER be used while underway.
- 9. TAKE IT SLOWLY** – One great thing about a boat is that if in doubt, you can slow down or stop. Take your time and NEVER be in a hurry, as that is when accidents happen.
- 10. KNOW THE SAFETY EQUIPMENT** – Make sure everybody aboard knows where the fire extinguishers and safety equipment are located (See Appendix B for listing), and how to use them.

Being Whale Wise

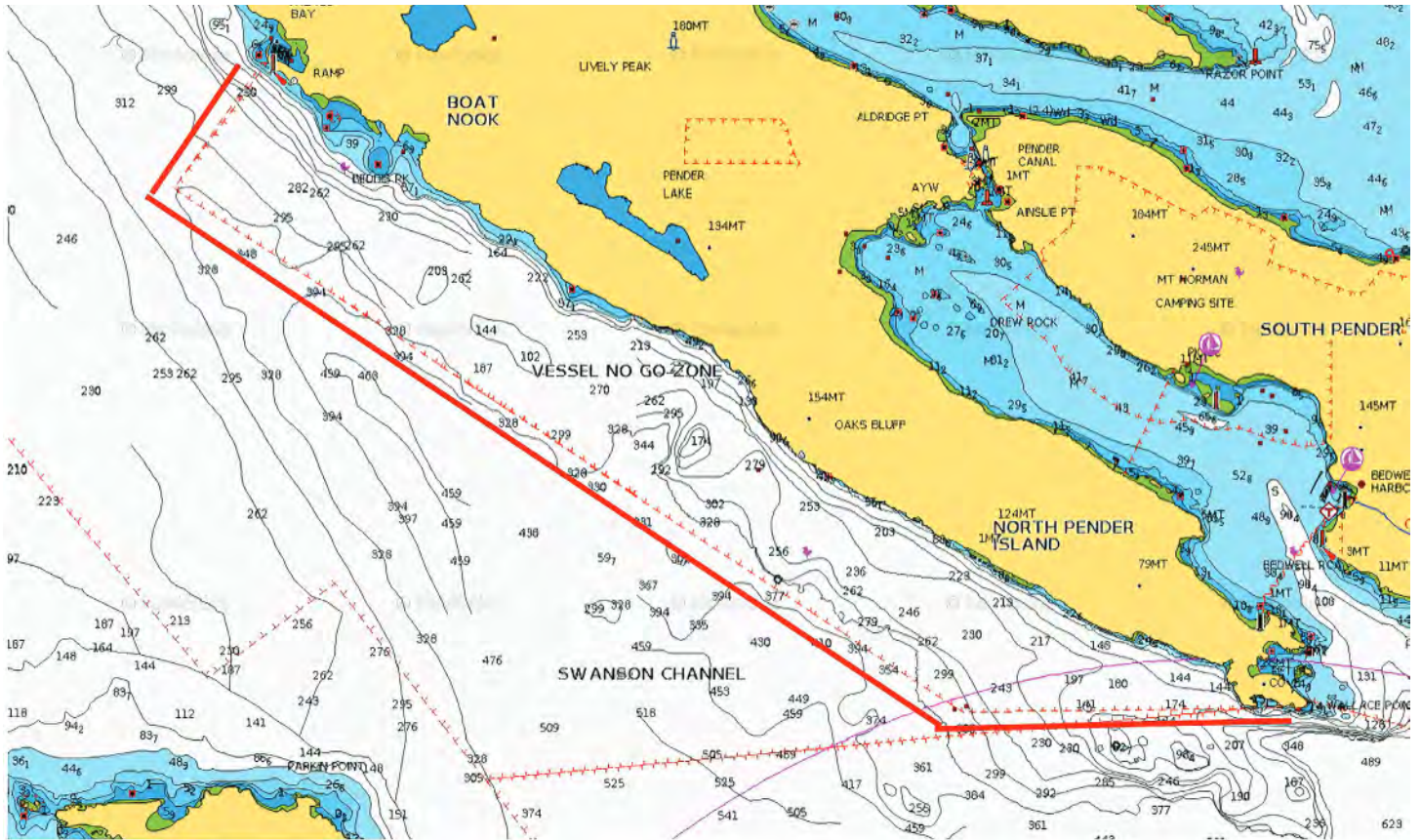
Our local Killer Whales are a wonderful part of the local family. But they are having a difficult time surviving due to declining salmon runs. These whales use echo location to find and catch their food. Therefore, noise pollution from boats and ships make it harder for them to thrive. In an effort to decrease human impact both the Canadian and US governments have implemented rules. In general, stay at least 400 yds. away from the whales. Sometimes they come to you, if this happens shutdown the engine and turn off the instruments (assuming this is safe to do). They can hear the pings of the depth sounder – this is why we have you turn off the instruments.

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



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

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



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 *Osprey* looking great by cleaning the bottom of your shoes before stepping into the salon or removing them whenever inside.

2. Damp life-jackets 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. The slightest moisture in an enclosed place creates mildew quicker than one would think.

3. Wash down the anchor chain

Use the saltwater wash-down 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. 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. Run the engine at high speed periodically

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.



Anchoring and Mooring Equipment



Anchors & Rodes: *Osprey* carries a 55lb Rocna anchor in the bow pulpit with 300 feet of 5/16" high tensile steel chain and 100' of nylon rode (400' total) lifted by an electric windlass. There is also a Bruce 44lb secondary anchor and rode (30' of chain and 150' of nylon rode) located in the rear cockpit lazarette.

Chain markings: YELLOW nylon line segments are woven into the chain at 25' increments. A **DOUBLE YELLOW** segment is woven into the chain at the 100 ft, 200 ft and 300 ft marks. A 3' **RED** nylon line marks the last 10 ft prior to the end of the rode, and a 5" **RED** nylon line marks the **END** of the rode.

Except in unusual circumstances, do not deploy the anchor rode beyond the first **RED** marker. Always use the proper anchor rode ratio as noted below and seek appropriate anchorage water depths to achieve that.

In an emergency, and if the captain determines that personnel or the vessel are in significant danger the anchor can be severed manually. Hopefully this situation will never occur but if it does, the rode can be let all the way out and the triple braid line at the very end of the anchor rode can be cut with a knife. **This is an expensive, last resort option to be avoided if at all possible!** If

you exercise this option, attach a fender to the bitter end of the rode and note your lat/long position (use the Man Overboard, MOB, function on the chart plotter), this will allow for future retrieval of the anchor and the chain rode.

Rode Consideration for NW Waters

In the Northwest, due to limited tidal variation, 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.). Ten – 15 foot tidal variations are common with 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! **When planning anchoring, we recommend always ensuring a minimum indicated water depth of 10' at low-low tide.**

Anchoring Process

1. Turn ON the windlass power on the DC breaker panel. Check that the windlass master breaker located on the starboard side of the front stateroom berth is ON. (Note: This should be left ON and use the breaker on the DC panel as the primary control). Release the safety tether that secures anchor. Bring the bucket containing the yellow anchor bridle and wash-down hose from the rear lazarette and position it on the foredeck.

2. The windlass is powered by the house batteries. The windlass should only be operated when the engine is running, as the system places a heavy load on the batteries

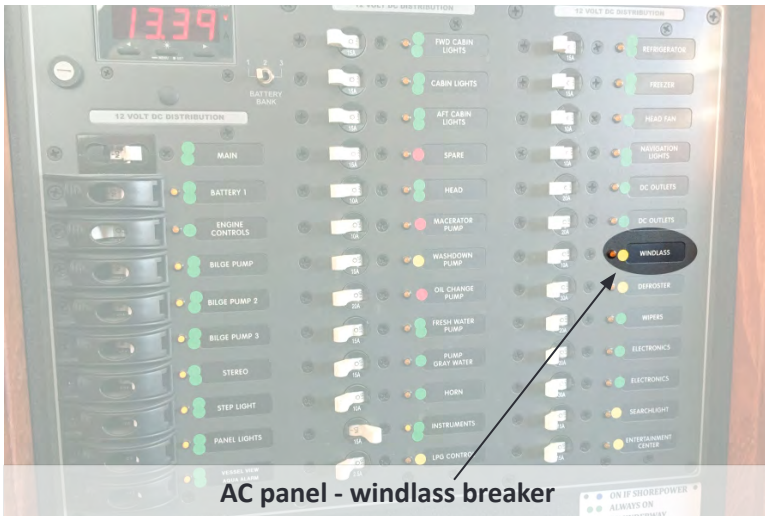
3. Lower the anchor using the foot switches on the fore deck or the rocker switch at the helm while slowly backing the boat away from anchor. Be careful that the anchor doesn't swing wildly and hit the bow. Best technique is to lower the anchor over the roller by hand initially while feeding out a short burst of anchor rode.

4. Position crew at the bow to monitor length of chain as it pays out and to troubleshoot if it gets tangled. (Anchor rode is marked at every 25 ft increment with an 18" piece of YELLOW nylon braided line woven into the chain. At the 100 ft and 200 ft marks, there is a distinct double segment of nylon line woven into the chain).

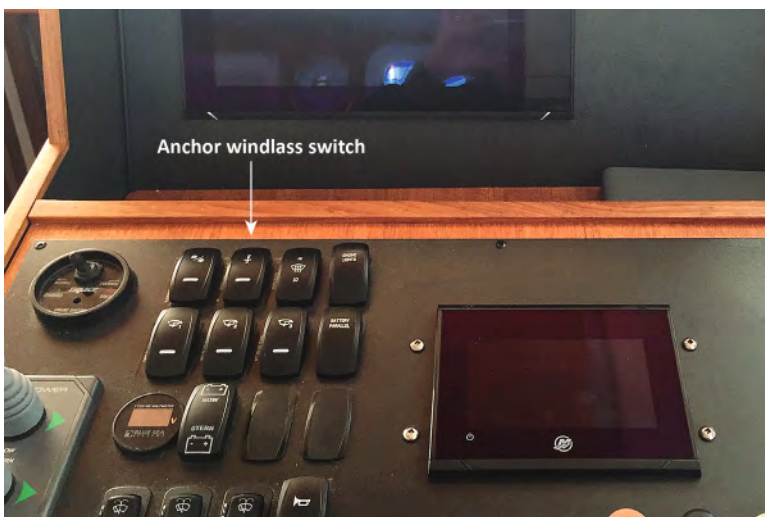
5. The working rode is 300' chain and 100' nylon rode and then followed by 25 ft triple braid nylon rode that is attached to the ship in the anchor locker. The nylon rode segment has a specific purpose, it would allow the skipper to fully deploy the chain and then cut it loose if emergency conditions warrant (see above). 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. When desired chain length is out, stop windlass. Target scope of at least 4:1 at high tide.

6. Skipper to reverse the engine at idle speed to test the set of the anchor.

7. Attach anchor bridle line to anchor chain: Secure snubber line to windlass bow cleat. Run out enough rode to form loop in chain



AC panel - windlass breaker



Anchor windlass switch



so anchor rode tension is transferred to snubber line.

8. Turn OFF Windlass power at power panel.

9. Then turn engine key to OFF.

10. Turn Off unnecessary systems at the circuit breaker panels, replace sunscreen covers on the electronics, canvas covers on Pilothouse windows as appropriate.

Raising the Anchor and Wash-down:

1. Before raising the anchor, attach wash-down hose (kept in the rear cockpit lazarette in a bucket) to the deck connection at the bow. To connect, push the end of the coiled hose straight forward into the socket and twist a quarter turn clockwise into the deck connection. Then turn on the anchor wash-down 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. 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 to raise the anchor. 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 anchor bridle as soon as you can reach the hook.

4. Please bring the anchor up to the windlass carefully to protect the fiberglass around the roller from gouges. To prevent damage to the windlass, we strongly suggest that raise the last few feet of anchor chain by hand, taking up the slack chain with short bursts of windlass power. Stow the anchor in its support with no tension on the windlass and secure it with the safety tether before getting underway.

Emergency Manual Operation of Windlass:

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 starboard pilot house step locker. To use, insert the handle in the socket on the collar located on the left side of the windlass. You may have to rotate the collar to expose the socket for the handle. **Caution:** The windlass lock can be released using the three pronged handle to the right of the windlass unit. 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, etc) 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 stern toward shore with short bursts of stern thruster. 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 someday.

Using Osprey’s Shore Line

1. Find the 600-foot shore line on a reel secured in aft cockpit lazarette
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.
4. 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 hanging inside the cockpit.

Boat Hook: A floating, telescoping boat hook is stored adjacent to the ladder leading to the upper deck. A second boat hook is stored in the rear cockpit under-deck lazarette.

Dinghy Operations

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



Osprey is equipped with a new (in 2018) APEX A-10 Eurosport dinghy powered by a 20hp Tohatsu outboard motor. The dinghy accommodates up to five adults, and features an inboard steering console with windscreen, cushioned seats with folding backrests, navigation lights, electric bilge pump, and a 6 gallon fuel tank in the bow locker.

A Sea Wise dinghy deployment system mounted on the stern swim-step makes launching and retrieving the dinghy a simple and straightforward process, involving no manual lifting or awkward positioning of overhead derricks, hoists and harnesses.



Launching the Dinghy

1. Trim the motor up to clear the davit arm mechanism using either the rocker switch on the throttle arm, or the rocker switch on the port side of the outboard motor casing.
2. Remove the safety pin that secures the lifting arm of the Sea Wise davit in its parked position.
3. Rotate the hand crank counterclockwise and observe the dinghy as it lowers to the water.
4. When afloat, continue to crank until the lifting cable is loose, detach the cable and secure it to davit.
5. Lock the transom pivot arm at the stern of the dinghy in place using the screw fitments.



6. Detach dinghy from the swim platform by pulling up on the attachment bracket levers 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 firm and confirm the air vent is open.
2. Lower the motor with the Tilt / Trim button on the throttle lever to the full down position.
3. Attach the “Kill switch” (the red coiled cable attached to the dinghy key) to the red binnacle on the lower face of the control console
4. Insert the key into the ignition (lower face of console), 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.
5. You are ready to go once the engine sustains a smooth idle.



Retrieving the Dinghy

1. Maneuver the dinghy to 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. Engage the two lugs mounted on the starboard side of the dinghy into the Sea Wise attachment brackets on the swim step and lock. (We find it easy to do this if one person remains in the dinghy and leans to port, thereby raising the starboard side of the dinghy so the lugs neatly rise to lock into the attachment brackets)
4. Unlock the transom pivot arm.
5. Attach the lifting cable to the transom arm.
6. 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.
7. Engage the locking pin and check that all is secure.
8. Lower the motor to the full down trim position.
9. Stow the key for the dinghy in the navigation table drawer in the helm.

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 with other spares in the starboard side storage area of the engine room.
- ✓ 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 anchor can be used to secure the painter on a sandy beach. Otherwise, secure the painter to a log on the beach. A supplementary painter is stored in the dinghy under-seat locker, if you need to allow for a large tidal difference on a gently sloping 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

Systems Overview

Osprey has two electrical systems-- AC (alternating current, like you have in your home) and DC (direct current, much like you have in your car).

The AC system powers most of the ship's domestic services and is the primary source of electrical power while not underway. The AC system derives its supply from one of three sources-- shore power, on-board generator or on-board inverter.

The DC system powers most of the ship's operating systems and is the primary source of electrical power while underway. The DC system derives its supply from on-board batteries which are charged primarily by the engine, or for some systems, via the AC system. A 740 watt solar panel is located on the pilot house roof which provides charge to the house batteries automatically. The power delivered by the solar system varies according to sunlight levels, temperature, cleanliness of panels, etc, but some level of charge is generated during all daylight hours.

A diesel-powered genset (generator) system can be activated to charge the house and other batteries and to provide AC power when away from shore power – for example when at anchor and when away from mains supply (**See generator operating instructions on page 36**).

A **Victron** inverter can be used to provide AC power to power outlets for small appliances (eg. toaster, coffee maker, Starlink, etc.) when using DC power while underway, and when away from shore power.

Batteries provide electrical power when not connected to shore power, or underway. See sub-section “Managing Battery Status” at the end of this Section.



DC control panel

Electrical Control Panels

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 use the circuit breakers on these panels to control each of the systems on the ship. The circuit breakers act like switches.



The AC main and DC main breakers are at the top left of their respective panels. 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 (shore power or battery). Slide the interlock to expose the appropriate breaker source. All circuit breakers on both the AC and DC panels are marked with adjacent colored “dot” markers to indicate the typical / normal state as follows:

- Blue:**ON with shore power
- Double Green:**Always ON
- Green:**ON underway
- Yellow:**ON as needed depending on the activity
- Red:**OFF most of the time, activated only for specific functions

DC Systems

There are a number of systems that use DC power from on-board batteries as follows:

- Engine start: one dedicated 8D battery
- House systems: four 6V golf cart batteries to supply power for many items including lights, navigation electronics, autopilot, diesel heat and frig/ freezer, inverter, etc.
- Bow thruster: one dedicated 4D battery
- Stern thruster: two dedicated 27D batteries
- Genset start: one dedicated Group 24 battery

As shown in the picture on page 14, there is a LED panel at the upper left corner of the DC panel that displays battery voltages. A toggle switch to the right of the LED display can be used to check battery status. Position 1 displays START battery voltage. Position 2 displays HOUSE battery bank voltage, and Position 3 displays BOW thruster and windlass battery voltage.

AC Systems

The ship's main AC system is designed for a 30-amp service. Typically, you will find 30-amp shore power service at the marinas you visit. When operating away from shore power, the house batteries will be charged by the solar system. In the event that battery power levels need "topping up", the genset can be used to recharge batteries to desired levels. If AC power is required for particular domestic services while underway, the inverter can be used to provide a source of AC power, converted from the DC system.

Managing AC Usage in Relation to Supply

Marinas typically provide 30 amp shore power supply adjacent to assigned guest slips.



Given that the AC power supply has a finite "capacity", it is necessary to manage the systems and devices that you use at any given time, to stay below the total AC power capacity feeding the ship. If demand exceeds supply, the main AC breaker will trip. In this case demand should be reduced by turning off selected services via the individual breakers, and re-setting the main AC breaker.

The total power draw at any time is managed using the AC circuit breakers as "switches" to turn particular functions and services on and off. With the knowledge of what a given service uses for power, you can estimate what the total "load" will be and then select functions to turn off to stay within the available power capacity (usually 30 amps or 3,600 watts).



Without getting too technical, 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. So, for example, a device with a 350 watt power consumption will require 3.5 amps of current to operate.

To help you plan and manage power consumption in relation to supply, here is a table of the typical load required by various functions on board the vessel:

House / Engine Battery Charger	2500 watts
Water heater	1800 watts
Electric cabin heaters	1500 watt
Microwave	1000 watts
Coffee maker	1000 watts
Stern Thruster Battery Charger	1000 watts
Toaster	800 watts
Bow Thruster Battery Charger	500 watts
Coffee grinder	475 watts
Refrigerator	400 watts
Freezer	400 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.

The LED AC Multimeter located on the upper left of the AC panel will show you the load in watts, Hz, volts and amps if you push the arrow keys. The amps value displayed will show you the exact total amps being used at that moment.

Shore Power

The main shore power connection to feed the ship is located 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. An orange colored primary shore power cable is stored in the rear cockpit lazarette. A yellow cable extension is stored in the locker under the starboard helm seat.

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 within the available capacity.

Inverter

The **Victron** inverter takes DC power from the house battery bank and converts 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 inverter control panel on the inboard side of the helm station. A toggle switch on the inverter control panel has 3 positions “Charger Only”, “Off”, and “Invert”. The house batteries will charge automatically when shore power is connected and “Charger Only” is selected. When not connected to shore power and you wish to use the inverter to power the AC outlets or the microwave, switch the toggle to “Invert”. Once you are done using the outlets or microwave, switch back to “Charger only” to avoid inadvertently draining the batteries.



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 **Victron** monitors the batteries and will cease inverter operation if the battery capacity is too low.

The inverter has a capacity of 2500 Watts of AC power generation. So, when using the inverter to provide AC power while away from shore-power, it will be necessary to manage loads drawing power from the AC outlets and the microwave to stay below the 2,500-Watt limit. Use the same table presented above to help plan concurrent usage.



Blue Sea state of charge monitor

Monitoring Battery Charge Status

A **BlueSea** battery state-of-charge monitor is located on “eyebrow” panel above the pilot house windshields. This is the primary information source to monitor available battery power supply, especially when not underway, and away from shore power.

The upper segment of the screen shows the level and rate of charge/discharge for the house batteries. On the picture to the upper left, the house battery icon shows 100% charged, with 13.92 volts, and a positive rate of charge of 0.1 amp. The arrow to the left of the battery icon shows direction of charge/discharge.

The lower segment of the **BlueSea** monitor shows the voltage for the main engine start battery (on the lower left), and the generator start battery (on the lower right).

Thrusters

The small circular display to the immediate right of the thruster control panel shows battery charge for the thruster batteries. (see photo to lower left). With the engine running and the thruster panel on, use the rocker switch annotated with “bow/stern” located next to the display to show the corresponding battery voltage on the round display between the thruster controller and the rocker switch.

Managing Battery Charge Status

Managing the charge status of the batteries to ensure power is available when needed, whether underway, using shore-power at a marina or at anchor is largely an automatic process, but does require monitoring, and control inputs under certain circumstances, as described below.

While underway, the house batteries, the engine start, bow and stern thruster and genset batteries are all recharged by the main engine alternator. To ensure efficient charging while underway, leave the inverter set to “charger only”, and set to 30 amps.

When on shore power, similarly, all batteries are charged via the shore power connection.

When at anchor or moored with no shore power connection, power will be via the DC system, as when underway. The 740-Watt solar system will provide charge direct to the house batteries. Note, the solar system does not recharge the engine start, thruster and genset batteries, but under normal circumstances, these will be fully charged as a result of prior engine running while underway, so



Blue Sea thruster battery status monitor
Fireboy system control

recharging should not be necessary.

While at anchor or moored away from shore-power, with typical PNW summer daylight sunshine and typical electrical usage, the 740-Watt solar system should provide sufficient charge to keep the house batteries adequately charged with no input from you. In other words, power supplied from the solar system should generally match typical electrical consumption over a 24-hour period.

However, it is important to regularly monitor the **BlueSea** house battery charge level. In the case of heavy electrical usage, or poor sunlight conditions, the house battery level will fall. **You should NOT let the level of charge fall below 50%.**

When the state of charge of the house batteries falls to 60%, you should prepare to use the genset to recharge the house batteries or plug into shore power, if available. If you want to use systems powered by the AC system while at anchor (eg electrical appliance outlets, microwave, water heater, etc) you can use the inverter to provide AC power, or alternatively, you can use the genset to activate the full AC panel. **Operation of the genset is described on page 36.**

In rare circumstances, if the engine start, thruster or genset batteries require recharge while at anchor or moored away from shore power, they can be charged by activating the genset.



Fireboy-Xintex Automatic Extinguisher and Engine Shutdown System

Osprey is equipped with a **Fireboy-Xintex** automatic fire extinguisher and engine shutdown system. If the ambient temperature in the engine room reaches 175 degrees, the **Fireboy** system will automatically shut down the engine, and discharge fire suppressant.

In the event that the **Fireboy** system is activated, and it is once again safe to start the engine, the switch on the circular **Fireboy** control unit at the helm, located above the thruster controls, (see photo on previous page) can be used to “override” and bypass the shutdown system and allow the engine to be restarted.

Engine and Thruster Systems



Osprey is equipped with a modern, computer controlled, 5.9 Liter **Cummins** diesel engine. This engine is extremely reliable and features a turbocharger to boost total output to 380 HP. The output of the engine drives a 28", four-blade propeller through 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. The engine, controlled from the single-lever throttle and the bow and stern thrusters are the primary controls to manoeuvre the boat.

Engine Access

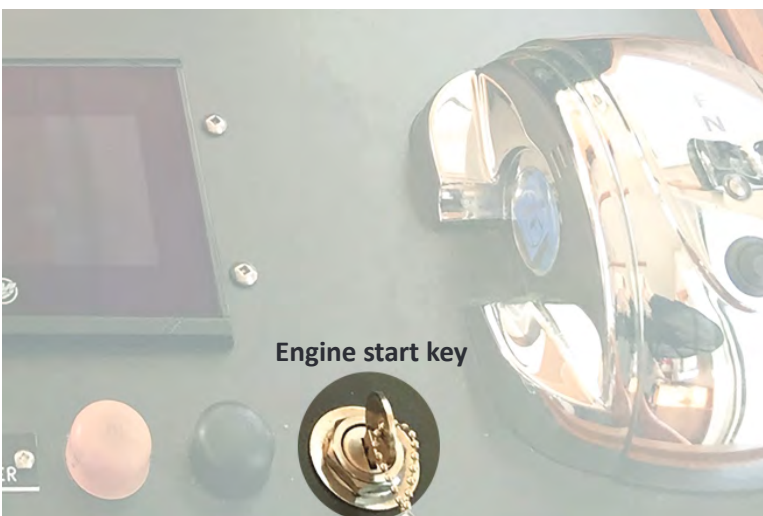
In the pilothouse deck, there are a pair of hatches. Usually it is sufficient to remove just the forward hatch to gain access to the engine room. The engine room lights are controlled by a switch at the helm. The engine room lights are long life LED lights but please remember to turn them off when done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

Pre-start checks

Before engine start each day, conduct a thorough inspection of the engine and engine room, following the directions on the laminated Quick Start Procedures (QSP) check-list located at the helm.

Starting

The **Cummins** engine requires no preheating during normal seasonal conditions. The engine key at the helm has three positions: "Off", "Start", and "Run". Confirm the throttle/transmission lever is in neutral (centered detent position), and turn the key fully clockwise to the "Start" position. When the engine begins to run (usually less than two seconds of cranking), return the key to the central "Run" position.



Engine Control Functions

The engine control unit is electronic, and is operated via the chrome throttle quadrant controls. The throttle lever controls the engine RPM and the illuminated control button makes available a range of other functions. The control button is connected to an alarm that sounds when the engine is powered up – press the button to silence it. One useful function is the “fast warm up” capability. This allows RPM to be increased without engaging the power drive. To activate this function, push and hold the black control button while simultaneously advancing the throttle to the forward detent position the engine RPM will increase and the LED will blink. To cancel, press the control button and return the throttle to neutral. Other control button functions (not typically required for guest use) are explained in the Nordic Tug manual, located under the port helm seat.



SeaView Engine Parameters Display

Engine operating parameters are displayed on the **SeaView** J 1939 Digital Display unit adjacent to the throttle quadrant. The **SeaView** unit will automatically activate when the ignition key is turned on. The unit features a SuperBright display for easy viewing in all daylight conditions, which can also be dimmed for night operations. In normal operating mode, the unit displays the four most important engine operating parameters: engine RPM, oil pressure, coolant temperature and fuel consumption-rate. Normal operating ranges for these key parameters are shown below and are also shown on the laminated QSPs located at the helm (see below). Other secondary engine parameters can also be displayed, as described below.

A five-button toolbar enables access to additional information, control of display brightness and management of engine alarms, as follows (buttons numbered from left to right):

- Button 1** To select and view a display page
- Button 2** To select a particular gauge (The selection is indicated by a red rectangular box)
- Button 3** To choose a parameter for display in the selected gauge on the page
- Button 4** To display the “Manage Alarms” screen (This is applicable only when an alarm is active)
- Button 5** To open the display settings menu – brightness and view modes.

To adjust display brightness, Button 5 to open the settings menu. Then press Button 1 to decrease brightness, and Button 2 to increase brightness.

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 temperature: 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) and do not run above 2400 RPM for more than short durations.



Engine Key

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 **SeaView** unit has a built-in alarm feature that provides visible alarms and warnings when any performance parameter falls below a critical threshold or exceeds the permissible upper limit.

When an alarm is active an icon that describes the parameter exceeded will flash in red along with a pop-up warning message. To manage the alarms, press Button 4 to display the "Manage Alarms" screen. Then:

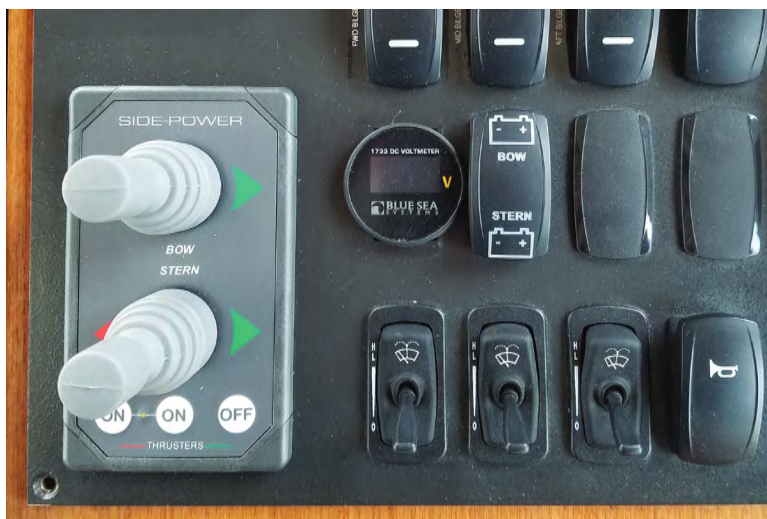
- Press Button 1 to scroll up, and Button 2 to scroll down.
- Press Button 4 to suppress the active alarm.
- Press Button 5 to return to the main **SeaView** screen.



Cooling Water Alarm

A cooling water flow alarm is installed which will alarm any time cooling water flow is interrupted or reduced for any reason, due to an intake blockage, impeller failure, etc. If this unit sounds an alarm it is imperative to STOP the engine immediately to avoid major damage to the engine and systems, and to immediately investigate the cause. The most likely cause will be a water flow blockage caused by eel grass or other ingested material, which can be identified in and removed from the glass water strainer unit in the engine room (Portside front

bulkhead – see picture on page 24). NOTE: The cooling water alarm will sound when you turn the ignition key until you start the engine, as there is no water flow until the engine is running. To avoid the irritating alarm sound while starting, you can depress the red mute button at the bottom of the helm station until the engine has started.



Bow and Stern Thrusters

The bow and stern thrusters are controlled from two dedicated joysticks at the left of the control panel at the helm. They should only be used to manoeuvre the boat when docking, mooring or maneuvering in confined spaces.

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 stern thruster, the dedicated charger and master cutoff switch are mounted on the lower portion of the transom, visible when looking in the rear cockpit 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 through operating the genset.

Activation: Ensure that the “Instruments” breaker is ON. To activate the thrusters,

depress the two “on” buttons on the thruster control panel. Note the thrusters will only activate when the ignition is on, so we normally leave this until the engine is running. There are no circuit breakers for the bow and stern thrusters.

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. Nevertheless, please keep the 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 the overheat alarm sounds, investigate at once! There should be no steam or water spraying in the engine room.



Engine cooling water strainer

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

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

Troubleshooting problems takes only a few minutes:

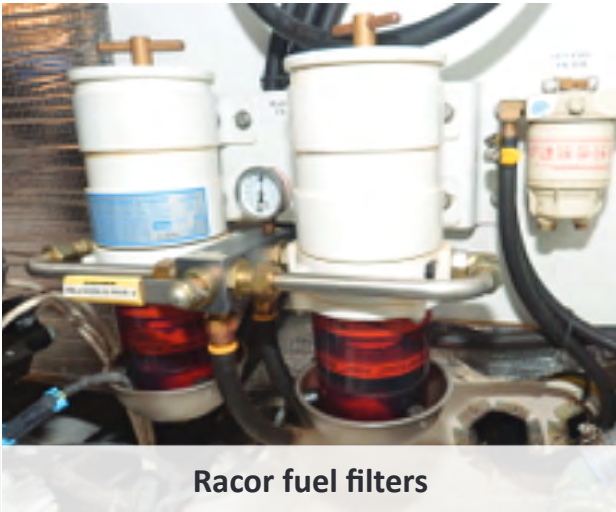
1. Turn off the seacock for the engine.
2. Take the top off the sea strainer. Save the gaskets!
3. Open the seacock valve to make sure it is clear (water won’t gush in but will start to overflow the strainer, make sure a plastic bag and / or towel is handy to capture the water while you are confirming 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 Owner’s Manual.

Fuel

Fuel is contained in two 162 gallon tanks located aft of the engine room, under the salon.

Fuel cross-feeds from the port and starboard tanks to a common manifold and then passes through either a port or starboard **Racor** primary fuel filter (shown at left). **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 engine pre-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.



Racor fuel filters

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

Checking Engine Oil Level

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.

- Before first engine start each day, conduct a visual check underneath the engine for any evidence of oil seepage or leaks. If any oil is noted, clean, check oil level and replenish as necessary. If you consider the oil leakage is significant, or if leakage becomes progressively worse, call San Juan Sailing for instructions.
- If chartering for more than seven days, once per week, conduct a check of oil levels using the dip stick, and replenish as necessary.

The engine dipstick is located 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 uses virtually no oil. If the oil level is suddenly lower or 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.



Checking Transmission Oil Levels

The oil used in the transmission is the same as for the engine (15W/40 Delo 400). 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 should be checked while the engine is not running. This is best done during the morning check of the engine room. Oil level should be checked weekly 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.



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 pre-mixed (50/50) 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.

Fueling Process

Port and Starboard fillers are located on the respective sides of the vessel, just behind the wheelhouse side doors. A cap key (on a floating key ring) is in the navigation desk drawer. A spare can be found in the storage bins on the starboard side of the engine room.

Osprey carries up to 324 gallons of diesel (162 gallons in each side tank). The contents of each tank can be observed via the circular fuel tank gauge at the helm. Use the toggle switch to view the contents of the left/right tanks. We have found the gauge to be fairly accurate, so using simple math, estimate to the nearest 1/8 increment how much fuel is in each tank, compute the current level, subtract it from 162, and you will have a pretty good idea how many gallons to add to each tank.

While filling, be certain to form a "doughnut" around the filler hole with paper towels or absorbent pads. As you fill, have someone watching the fuel gauge and advise you as the tank approaches the "Full" mark. When you get close to the expected amount needed for the tank, that's when to be particularly careful and reduce the flow rate. Also, listen for the changing filling sound as the fuel level reaches the top of the tank, and cease fueling at that point.

Remember: Protect the environment. Fuel spills are your responsibility and may need to be reported to the Coast Guard. If in doubt, better to leave the tank a few gallons short of absolute capacity than to risk a spill.



Fuel Consumption

Osprey has a semi-displacement hull design and is very efficient at low speeds, a classic characteristic of trawler design. The table on the next page shows typical fuel consumption rates, based on data taken during sea trials of a sister ship of **Osprey**. We have found the values shown to be generally accurate

- 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

We have 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 to run at 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.



Boat and engine performance:

RPM	Speed kts.	Sound DB	Bow Angle	GPH	% power	NMPG	NM range
600	4.5	55.0	-0.5	0.4	18.5	11.1	3,249
800	5.8	58.0	-0.5	0.7	22.0	8.2	2,399
1000	6.6	59.0	-0.5	1.0	27.5	6.6	1,927
1200	7.7	61.0	-0.5	1.4	29.0	5.5	1,596
1400	8.5	66.0	0.0	2.1	30.5	4.0	1,175
1600	9.0	68.0	0.5	3.4	32.5	2.6	773
1800	9.5	71.0	1.0	4.9	34.5	2.0	572
2000	10.4	72.0	2.0	7.0	39.5	1.5	437
2200	11.5	72.0	2.5	8.7	50.0	1.3	386
2400	13.3	73.0	3.5	10.6	61.0	1.3	365
2600	14.9	74.0	4.0	12.7	71.0	1.2	343
2800	16.7	76.0	4.0	15.5	81.0	1.1	315
3000	18.1	79.0	4.0	18.4	92.0	1.0	287
WOT-3060	18.5	81.0	0.0	19.4	96.5	1.0	278



Entertainment, Connectivity and Starlink

Audio / Surround Sound System

The pilothouse and salon have a Bose quad speaker sound system which offers a hi-fidelity sound experience. Audio can be streamed from a smart-phone via the **Fusion Entertainment** stereo system mounted at the port side of the “eyebrow” panel at the helm station. Power to the unit is provided by the “VHF/Stereo” breaker on the DC panel. The unit is activated via the “Power” button on the unit, and a connection made to a smart-phone in the usual way. The manual for the stereo can be found in the locker under the port side helm seat.

Salon Smart TV and DVD Player

A flat screen LCD smart TV/DVD player is mounted in a ceiling cabinet in the salon, located above the cooktop and oven. A quarter turn of the two latches on the roof mounted TV cabinet, and the TV unit will swing down and be viewable from the salon table. Be careful to lower the unit gently, rather than letting it “free-fall” into place. The TV controller is stored in the folding unit, next to the TV screen.

The TV has a connected Roku device for Smart TV capabilities. The Roku is set up for Guest mode, allowing you to sign into your own personal streaming accounts, such as Netflix or Prime. When you sign into your streaming accounts, you will be asked to enter a checkout date. You should enter the last date of your charter aboard **Osprey**. The checkout date ensures that the Roku disconnects from your streaming accounts at the end of your charter.

The WiFi needs to be on for the Roku to work, either via a marina system, or via Starlink (see below).

The TV also includes a DVD player accessible at the rear of the screen. A selection of DVDs is stored in the ship’s library, located in the portside front salon cupboard.

WiFi via Starlink

To provide in-motion and static WiFi connectivity, **Osprey** is equipped with a high performance Starlink system. The system includes:

- High-Performance Fixed Antenna – The high-performance antenna’s larger size and higher power offer much higher download speeds (up to 220 Mbps) and upload speeds (up to 25 Mbps), compared with the standard antenna. It also offers lower latency, ensuring quicker data transfer, and a wider field of

view for connectivity which means that the system can handle obstructions more effectively.

- Mobile Priority Service – Mobile priority service offers the best level of connectivity while in motion and 50 GB of priority data, which means faster connections when Starlink is used in congested areas (such as marinas).

The system provides connectivity to any of your smart devices and the entertainment systems on board. The system connects to Starlink satellites, so a clear view of the sky will ensure the best connectivity.

You can connect to Starlink WiFi as you would any normal WiFi. To get started:

- Make sure that AC power is available (via shore-power, inverter, or genset)
- Turn the “Outlets” circuit breaker ON
- Turn ON the dedicated Starlink WiFi switch (located above the companionway stairs). Please ensure that you turn this switch OFF while you are not using the internet
- Use WiFi network name “OSPREY”, and password “Osprey2024!”

Be advised that the Starlink system may take up to five minutes to link with satellites once the system is powered on.

NOTE: The power draw during use can be substantial (<300watts). It is therefore important to monitor the State of Charge of the house battery bank, especially when not on shore power or using the generator, and when using multiple other AC systems.

Reports regarding coverage are positive. However, there is no guarantee of service as it is a “best efforts” service. We hope it opens a new window of capability for those who want to stay in touch, particularly in the more remote cruising areas of the PNW.



Galley, BBQ and Crab Equipment



Propane solenoid control

Cooktop

Turn the propane on in 3 steps:

1. Open valve on propane tank (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.

To light burners, simply depress the control to the "light" setting and rotate counterclockwise to the desired temperature setting. 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.

Microwave

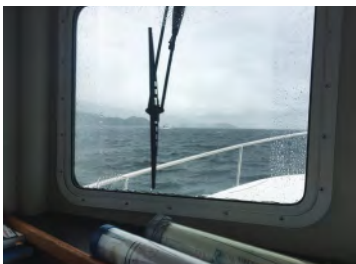
The operation of the microwave is self-explanatory. However, note that the microwave uses a lot of power, so you may need to reduce unnecessary draws before use. For more information, see the instruction manual located with the other ship's instruction manuals under the port side pilot house seat.

Fridge and Freezer

There is a separate refrigerator and freezer located in the galley. They are externally identical, and we have had guests confuse them. Note that the refrigerator is located forward adjacent to the stairway to the pilot house, and the freezer is located to the rear, adjacent to the salon door. 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 fridge 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 fridge yields excellent results. Adjust the setting accordingly for how much food you have stored and how often you open the door. 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

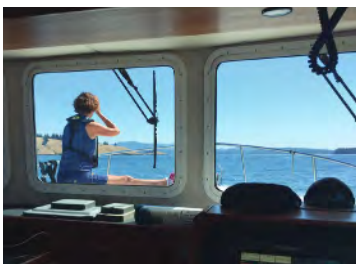
The BBQ grill is mounted on the transom rail. Please secure the lid and keep the canvas cover on when cruising. The propane supply is "hard wired" to the BBQ. To light; open the lid, turn the valve knob on the BBQ counter clockwise to high. Depress the igniter. If flame does not ignite, return to OFF and repeat.

If the igniter doesn't work, use 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 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.



Salon, Dinette and Folding Berth

Dining Table

The salon dining table has a folding leaf that can be extended to provide seating for 4 to 6 people around the table. Depress the catches below the folding leaf and lift the leaf into position. The table has a high gloss finish. Please refrain from placing heavy or sharp-bottomed objects directly on the table to avoid scratching the surface.

Additional Chairs

Two folding “director’s” chairs are stacked in the salon lazarette and serve as additional seating for the salon table.



Windows and Portholes

Windows on *Osprey* are double glazed so should help keep the interior warm in cool weather and cool in warmer weather. In general, it is a good idea to keep a couple of windows in the salon open a crack to prevent condensation and mildew formation. Similarly, portholes (especially in the bathroom) should be opened a crack each day to encourage air circulation. That said, please ensure that portholes are ALWAYS closed when underway, even on seemingly calm days.

Window Blinds

All windows in the salon are equipped with adjustable Hunter Douglas insulated blinds which can be used for privacy and to shade the salon in hot weather. Please treat these blinds with care. Also, please make sure that the blinds behind the cooker are raised prior to any stovetop use. External window covers for the pilot house are stored beneath the starboard helm seat, and are very effective in keeping the internal temperature cool in hot weather. A “snap-on” tool (blue handle) is stored in the Nav drawer, and is very helpful for stretching and fixing the window blinds to their attachments.

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.**





Dinette Folding Berth

The dinette bench seat converts into an additional double berth. To convert the dinette, remove and stow the dining table by lifting the pedestal from its floor socket, lift the seat cushions, remove the two pins, then slide out the bed, reinsert the pins and fold out the legs from the front of the bed frame.

Games

A selection of board games (Scrabble, Chess, Balderdash, etc) is located in the forward storage locker under the dinette bench seat.



GenSet (Generator) System



GenSet start at AC panel

Osprey is equipped with an **Onan** diesel powered AC generator with 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 ship's AC circuits by engaging the main breaker at the top left 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.)



GenSet start at enclosure

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.

The genset oil level should be checked at least weekly. 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



Head Systems

The main cause of problems with the head system is misuse. Dealing with a stopped-up head is an unpleasant and malodorous task, especially when it can easily be avoided. The only thing that should be put into the head is 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 ultra-thin marine toilet paper) and dispose of the used paper in small Ziploc bags. We keep a supply of small plastic 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. While this may seem a tiresome inconvenience it is essential practice on all boats to avoid even more tiresome toilet maintenance issues, and soon becomes an easy habit.

Flushing

Osprey has a new (in 2021) electric flush toilet, much simpler and more reliable than the vacuum systems on many boats. To flush the head, depress the “Flush” button on the side of the vanity unit for about two seconds. Then press the “Refill” button also for about two seconds to refill the head with a couple of inches of fresh water.

Holding Tank - IMPORTANT

The black water holding tank capacity is 40 gallons. The Tank Monitor panel is located on the starboard wall of the stairwell down to the sleeping quarters and head. It shows four fill stages – green (empty), yellow (low), amber (mid) and red (full). We aim to empty the black water tank whenever it reaches the amber (mid) stage. A completely full tank can cause problems so stop head use immediately if it reaches the red (full) level.

We recommend emptying the holding tank every 2-3 days for a crew of four persons, or when it reaches the “Mid” level on the Tank Monitor panel. All content from the head drains directly into the holding tank. There is no way to flush the head directly overboard. Only the head waste goes into the holding tank; wastewater from sinks and the shower is legally discharged overboard as “grey water”. If you are boarded by the US Coast Guard, and they



Holding tank monitor

ask to see the Y-Valve, first indicate that all head content goes directly into the holding tank. Then locate the thru-hull valve and the Y-Valve under the hatch in the salon floor. The thru-hull valve should remain closed at all times, except when needing to pump overboard in legally allowable waters (see below). It is preferable for the Y-Valve to be in the “Deck-plate” position as this position further assures that accidental dumping overboard is not a risk.

Discharging the Holding Tank

Discharging the holding tank overboard in the Puget Sound No Discharge Zone (ie The San Juan Islands and Puget Sound) is NOT legally allowed. However, discharging in the Strait of Juan de Fuca, three miles offshore and West of the Puget Sound Zone is allowable. Discharge of waste overboard in Canada is permitted in most open, free flowing waters, except in harbors, stagnant tidal flow areas and near land.

To discharge the holding tank, when sea conditions allow for safe operations, and when **Osprey** is in an allowable location, enter the salon floor lazarette and turn the Y-Valve handle to the “Overboardz” position and open the thru-hull seacock. Then, back at the pilot house, turn on the Macerator pump breaker on the DC panel and depress the Macerator toggle switch on the starboard stairwell panel. Leave the macerator switch “ON” until the tank gauge shows green again. Once the operation is complete, turn off the macerator toggle switch and DC panel circuit breaker, turn the Y-Valve handle to the “Deck Pumpout” position, and close the seacock for the holding tank.

To Pump Out At a Pumpout Station

Pumpout access is on the port-side walkway aft of the pilothouse door. Follow instructions at the Pumpout Station. SJY has provided a list of pumpout locations in the Charter Guest Reference Manual.



Heating



Electric space heater

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.

ESPAR Diesel Furnace

When not on shore power, diesel heat is a comfortable option (although the **ESPAR** system can also be used when on shore power). 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 located on 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. They 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

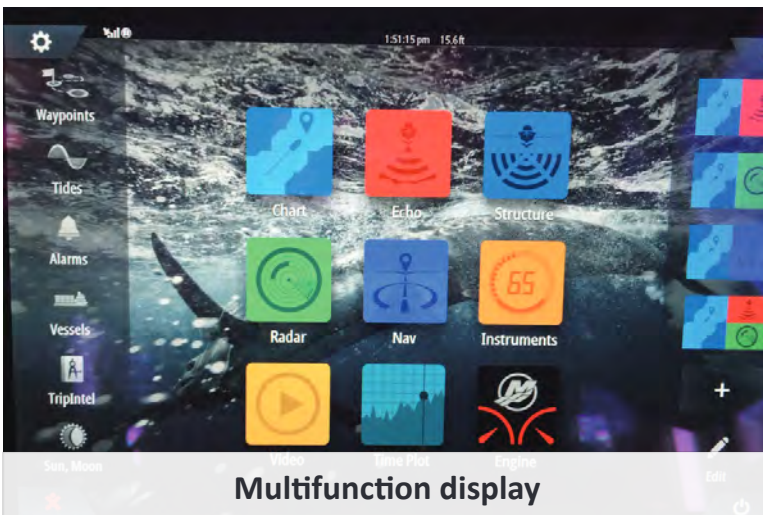


Osprey is equipped with a comprehensive multi-function **SIMRAD** NSS evo3 navigation system, which includes navigation displays, radar, automatic identification system (AIS), fish finder, and autopilot. All of the equipment works together to provide a wealth of information and control in all phases of operation.

This is a complex system, and it is beyond the scope of these Notes to describe its operation in full. We therefore suggest that you familiarize yourself with its capabilities and operation before boarding. Hardcopy manuals are available on board located under the port side pilot house seat. You can also access the operations manuals online using the link below:

ftp://software.simrad-yachting.com/documents/NSS-evo3_OM_EN_988-11354-001_w.pdf

The notes below summarize the main elements of the system and the practices we've found that work for us, so they should work for you too. A Quick Reference Guide to the **SIMRAD** is at Appendix D to these notes, also a laminated copy is kept at the helm.



Multifunction Display (MFD)

At the helm is the 12" multifunction touch screen display unit. The MFD is the central hub of the system where you will look for situational awareness -- where you are, obstacles and hazards, which direction you are headed, how fast you are going, how deep is the water in the area, where are the adjacent land masses and navigation markers, what other reporting vessels are in the area (using AIS feature), radar information, etc.

When we are cruising, we usually select the full-size chart depiction on the MFD, set the range for 6nm, and set the chart display orientation to "heading up". This gives you a good view of the area ahead of the vessel, sea bottom contours, AIS targets, etc. 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 easily programmed for an entire route, from start to finish (See NSS evo3 manual). While underway, select a heading and monitor the green 'track' line on the display to ensure you are making your 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, with periodic glances at the engine display. Establishing a regular external/internal scan 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.

Depth and Speed Sensors

Osprey is equipped with a **SIMRAD** IS42 networked multi-function instrument located on the "eyebrow panel" above the forward wind shields, which calculates speed, wind, trip distance and time, average speed, set and drift. The unit includes a digital sounder module which provides digital depth sensing and fish finding / sea floor structure sensing. This instrument has many useful functions, so it is worth studying the operator manual (located under the port seat on the pilot house). While underway, we find it helpful to set the display to show depth and speed over ground (SOG) (speed/depth page).



Simrad IS42 display

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.

Radar

The radar is an 18" 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.

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 – **the helm should NEVER 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.

Nautical Charts and Tide Tables

Physical charts of San Juan Islands are kept in the pilothouse forward and to port of the helm. 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.

Upper Deck Area, Kayaks and Equipment

Upper Deck Area

Osprey features an unobstructed upper deck area which is an ideal space for watching the sun rise with a cup of coffee, sunbathing, or enjoying a cocktail in the evening. It is equipped with outdoor chairs and a table.



Please ensure that before getting underway there are no loose articles on the upper deck. Chairs should be stacked, and all other loose articles should be secured to railings using bungee cords provided.

Kayaks

Note: USE OF THE KAYAKS IS ONLY PERMITTED IF THE OCCUPANTS ARE WEARING LIFEJACKETS

Two single-occupant kayaks are stored in racks attached to the upper deck railings. Kayak deployment is a two person-job. To deploy from their storage stations, unfasten the restraint straps and lower the kayak over the rear of the upper deck into the rear cockpit. Deploy the kayaks into the water from the swim step.



After use, return the kayaks to their storage location using the reverse of the procedure used for deployment. Always store the kayaks stern forward and inverted to ensure that they do not accumulate rain, spray or moisture when not in use. Please ensure that the Kayaks are ALWAYS fully secured before any movement of the boat.

Solar Panel and Wheelhouse Roof

A solar panel is located on the wheelhouse roof. The solar panel is not a load-bearing surface. **UNDER NO CIRCUMSTANCES STAND OR WALK ON THE SOLAR PANEL.** Be aware that the roof of the wheelhouse is not a deck and has no side rails. Please minimize time on this unprotected surface and exercise caution to avoid inadvertently stepping over the side of the wheelhouse roof. Also, exercise especial caution in wet weather, as the wheelhouse roof does not have a “no slip” surface.



Cargo Derrick

The upper deck is equipped with a manual cargo derrick, which can be used as required. A winding handle is located in the “funnel” storage. Please ensure that the derrick is fully stowed, lines tightened and secure before getting underway.

Other Equipment

Chairs, a cocktail table and a cooler are located on the upper deck. Please ensure that they are fully secured using the provided bungee cords before getting underway.

VHF Radios

VHF Radio



Osprey's VHF radio is located in the panel above the pilot house windscreens. The 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 (368031150) is called the MMSI (Maritime Mobile Service Identity) and is unique to **Osprey**. The MMSI 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.

Operating Instructions

Turning the VHF Radio On and Off – Ensure that the Electronics breaker is turned ON. Press PWR to turn on the radio. The radio sounds a tone and a screen showing the user MMSI appears. Press PWR again to turn off the radio.

Selecting a Channel -- Rotate PUSH/SELECT to select a channel. Rotating PUSH/SELECT clockwise tunes forward through the channels, while rotating PUSH/SELECT counterclockwise tunes backward through the channels. The currently tuned channel appears on the display. If the radio is set to marine mode, channel numbers appear as two digits. If the radio is set to WX mode, channel numbers appear as one digit.

Adjusting Volume and Squelch – There are separate rotating knobs for volume and squelch. Turning clockwise will increase, and anticlockwise will decrease both volume and squelch until the optimal setting is achieved.

Changing from High to Low Transmit Power-- Press the HI/LO/SCRAMBLER button to adjust the transmit power. If the transmit power on the currently tuned channel is set to Hi (25W), pressing HI/LO/SCRAMBLER changes it to Lo (1W), and appears on the display. If the transmit power on the currently tuned channel is set to Lo, pressing HI/LO/SCRAMBLER changes it to Hi, and appears. Important: The radio automatically sets itself to low transmit power if you tune to Channels 13, 67, 75, 76, 77 based on FCC rules.

Using Channel Scan-- Triple Watch Scan lets you easily scan emergency channels along with a channel you select. To use Triple Watch scan, hold down STEP/SCAN for about 2 seconds. The radio scans Channel 16, Channel 9, and the current memory channel appears on the display. Using Normal Scan lets you quickly scan and tune only selected channels. To use normal scan, set the radio to Triple Watch scan then hold down 16/9 TRI for about 2 seconds. The radio scans any channels you saved in memory and SCANNING appears.

To Quickly Select Channel 16 -- Press the red 16/9 TRI button once to quickly tune the radio to Channel 16. Press 16/9 TRI again to quickly tune the radio to Channel 9. Press 16/9 TRI a third time to quickly retune the radio to the previous channel.

Accessing Weather (WX) Channels -- To hear your local forecast and regional weather information, press the WX/ALERT button. Your radio scans through the weather band then stops on the first active weather frequency, which then appears on the display. Rotate PUSH/ SELECT to select another weather channel. To stop listening to the weather broadcast, press WX/ALERT again. The radio returns to the last channel you tuned before you selected the weather channel.

Using Weather Alert -- To set the radio so it alerts you if it receives a weather alert, hold down WX/ALERT for 2 seconds. If the radio receives a weather alert, it sounds a tone. Press any key to listen to the weather broadcast. To turn off weather alert, hold down WX/ALERT for 2 seconds. Note: You cannot listen to weather broadcasts while the weather alert mode is active.

Activating Fog Horn – The radio has an automatic fog horn capability. Rotate PUSH/SELECT to select FOG HORN, then press PUSH/SELECT to select it. A screen showing the fog horn sounds appears. Rotate PUSH/SELECT until the fog horn sound you want to select appears, then press PUSH/SELECT to select that sound. The name of the selected fog horn sound appears. If you select any fog horn sound other than AT UNDERWAY, AT UNDERTOW, MANUAL, or YELP, the sound you selected sounds every 2 minutes until you turn it off. If you select the ANCHOR or AGROUND fog horn sound, the radio sounds the appropriate fog horn pattern once per minute.

Distress Call Activation-- Lift the clear plastic protective tab over DISTRESS. If you momentarily press DISTRESS, the channel you were on at the time immediately changes to 16 and your power level changes to HI. If you hold down DISTRESS the radio beeps once per second. At the end of 5 seconds, a condition screen appears listing several distress condition choices. Rotate PUSH/SELECT to choose the appropriate distress condition or EXIT if you want to cancel. If you have chosen the correct distress condition and you want to proceed, press PUSH/ SELECT. The distress call is sent immediately. The Coast Guard will hail **Osprey** on channel 16 to determine what assistance is needed. To cancel sending the call, rotate PUSH/ SELECT to CANCEL and press the knob.

External Loud Hailer – The radio includes an external loud hailer facility. This can be activated by pressing the “HAIL” button on the radio and speaking into the hand-held microphone.

VHF Protocols

You should monitor Channel 16 (emergency call frequency) at all times when underway.

There is a standard protocol for communications on the marine VHF radio. For guidance, refer to the “VHF Protocol” page in the Waggoner’s Guide, which provides a summary of channel uses in US and Canadian waters, radio emergency calls and a good tutorial on radio etiquette.

- Select “Fog Horn” using rotary knob.
- Rotate the knob until the configuration you want appears.
- Push to select the option you have chosen.

Hand-Held VHF Marine Transceiver

Osprey is equipped with a **Standard Horizon** HX210 floating transceiver for emergency use in the event of primary radio failure. We recommend that it is kept in its charging stand at front of the nav table to ensure that it is fully charged and available for use in an emergency. Turn ON using RED button (bottom right). The handheld is pre-set to Channel 16. Other channels may be selected by pressing “Menu”, selecting the channel icon, and scrolling up and down using the arrow buttons. An instruction manual is located in the port helm seat cabinet.



Weather Station

An ongoing awareness of applicable marine weather is critically important for both comfort and safety. We strongly encourage charter captains to listen to daily weather briefings available via the VHF radio. We also advise use of all available weather apps accessible via smart-phone, such as “Windfinder” and others, which provide real time and projected wind speed/direction and wave conditions for all PNW cruising areas.

Osprey is also equipped with an **AIRMAR** WX 220 weather station (new for 2021), which provides accurate actual windspeed (adjusted for vessel speed when underway), wind direction, temperature and barometric pressure. This information is presented on a display located on the eyebrow panel. The weather station will activate automatically when the “electronics” breaker is turned on.

AIRMAR WX 220 weather station



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 starboard side of vessel. Please use care in filling the tank with only clean water and from a hose of known quality / cleanliness. A green fresh water hose is located in the lazarette under the rear cockpit.



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.

A fresh water gauge is at the lower helm and is active when the “Pump Grey Water” 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.

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

Use of Shower

The shower drains to a gray water holding tank built into the keel of the vessel. 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.

MUST DOs:

- 1.** We suggest that you empty the grey water tank daily after shower use, whenever possible.
- 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 water supply, have “Navy showers”, ie, turn off the shower 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.
- **Life-jackets:** Two vest style life-jackets in each stateroom closet and eight additional vest style life jackets in the locker, port-side rear of salon.
- **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.



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

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.

First-Aid Kit: Located under the helm seat.

Boat Hook: 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.

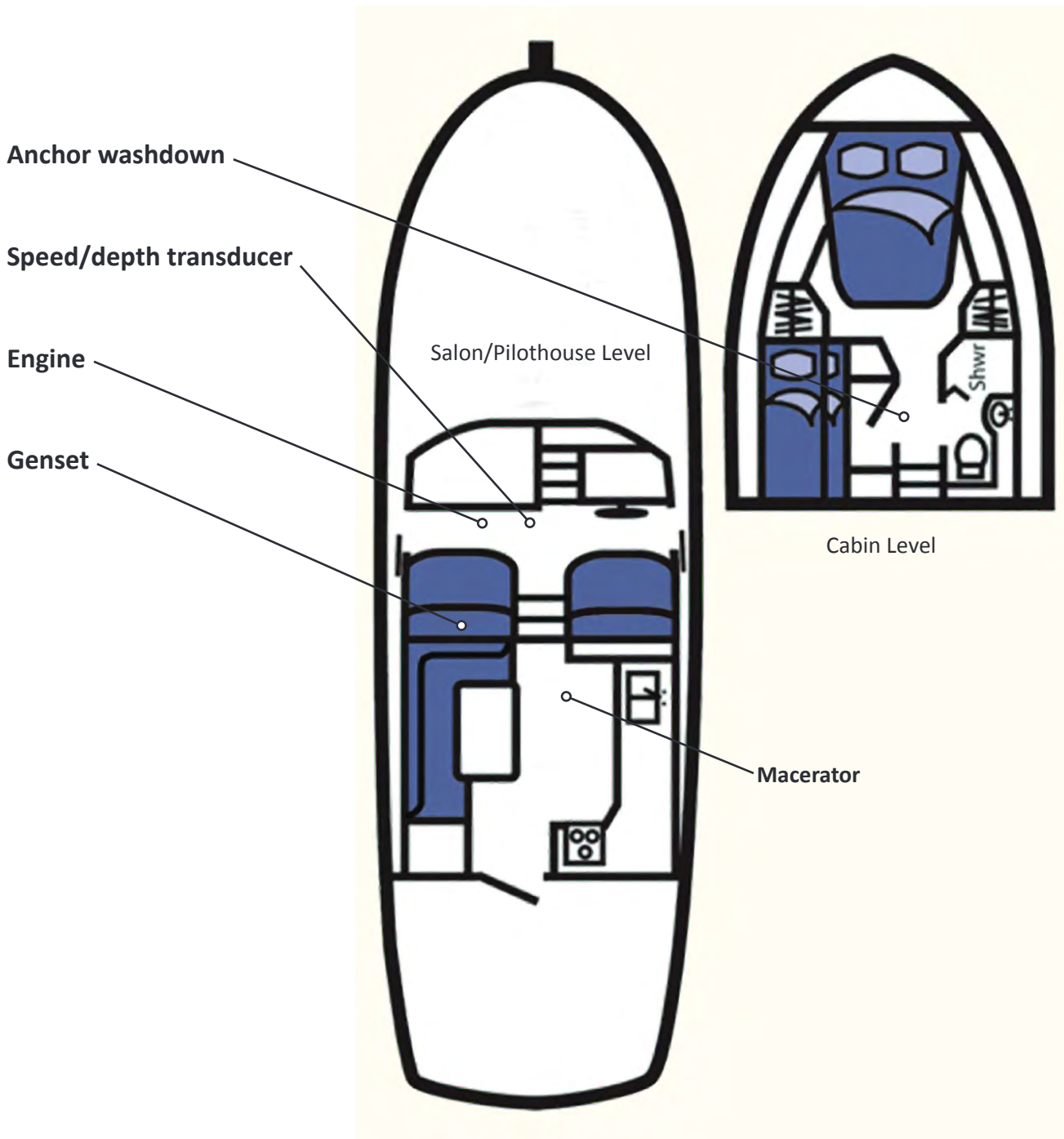
Smoke Detectors: There are two smoke detectors, one in the aft port corner of the salon and the other above the door to the master stateroom.

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 below-waterline thru-hulls



Appendix D: SIMRAD NSS evo3 Chart Plotter

SIMRAD Operating Controls

The SIMRAD system is operated via manual controls (keys and rotary knob) located to the right of the screen, and by direct “touch screen” capabilities. The manual controls and their functions are described on the previous page. FOR ADDITIONAL GUIDANCE, REFER TO THE SIMRAD OPERATIONS MANUAL, EITHER ON-LINE OR USING THE PRINT COPY LOCATED IN THE LOCKER UNDER THE PORT HELM SEAT.

Turning-on the Chart Plotter

- Confirm that the “Instruments” breaker is ON.
- Press the “Power” button on the right-hand side of the chart plotter.
- When a disclaimer and warranties page appears, press “Accept” on the screen.
- The “Chart” screen will almost always appear.
- In the event the screen reflects another previous use, return to Home (press the top center key on the panel to the right of the screen) and press the “Chart” soft key on the Home Page screen.

Zoom-in/out

- Zoom the chart scale in and out using the rotary knob to the right of the screen
- Clockwise for “In” and anti-clockwise for “Out”.

Heading and Course-Over-Ground Lines

- The Heading line (BLUE) projecting from the black boat icon, shows the direction the boat is pointing (compass heading).
- The Course line (BLACK) shows the course the boat is actually following (allowing for wind and tide).

Chart Orientation

- To change the chart orientation, press the menu key.
- Select “Chart Orientation” on the touch screen.
- Select desired orientation (Heading-up, Course-up, North up, Look-Ahead) via touch screen.

Automatic Identification System (AIS)

- **Osprey** is equipped with an AIS system, which automatically displays other AIS equipped vessels direct on the chart plotter map screen in use.
- In addition to Radar, AIS is a helpful way of avoiding traffic conflicts in reduced visibility.
- AIS equipped vessels are shown as a triangle pointing in the direction of vessel orientation.
- BOLD triangles mark a vessel which is a potential conflict.
- Non-bold triangles with a heading line show a moving target and the direction of travel.
- Non-bold triangles with no direction of travel extension line are static vessels.
- A triangle with a line across means that the contact with the vessel is unreliable or has been lost.

Adjusting Screen Brightness

- Screen brightness is adjusted via the “Systems Control” page.
- To access “Systems Control”, either press the “Power” key quickly, or swipe downwards from the top of the screen.
- Adjust screen brightness by pressing the “System Brightness” soft key.
- For night running, you can select a brightness level optimized for night running by pressing the “Night Mode” soft key.

Clearing Existing Waypoints

- If a previous user has overlaid waypoints on the chart display, you can remove them easily.
- Position the cursor by tapping the desired location on the screen.
- While the cursor is active, tap the “Clear Cursor” option.

Activating a Chart/Radar Overlay

- It is easiest to use the radar by overlaying the radar picture on top of the chart you are using.
- Ensure that the chart is orientated with “Heading up/Look ahead”.
- Select the menu (using the menu key).
- Select “Overlay Radar”.
- Select “Radar Options”.
- Select “Transmit”.
- Set the range using the zoom icons (bottom of screen) or by turning the rotary knob.
- Adjust gain, sea clutter and rain clutter settings from the slide bar displayed by tapping the “Settings” at the top of the screen or by pressing the rotary knob.
- To turn off the radar overlay, select the menu.
- Select “Radar Options”.
- Select “Standby”.

Person Overboard Marker

- If an emergency situation should occur, you can create a Person Overboard (POB) waypoint (“MOB” in Simrad-speak) at the vessel’s current position by selecting the MOB button at the bottom of the Home page.
- You can also save a POB waypoint at the vessel’s current position by pressing the Enter and Exit keys simultaneously.
- When you activate the POB function the following actions are automatically performed:
 - ◇ A POB waypoint is created at the vessel’s position.
 - ◇ The display switches to a zoomed chart panel, centered on the vessel’s position.
 - ◇ The system displays navigation information back to the POB waypoint
 - ◇ Multiple POB waypoints are saved by repeatedly pressing the POB buttons.