
# OWNERS NOTES

*Revised April 10, 2026*

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***DISCLAIMER & CAPTAIN'S RESPONSIBILITY***

***Important Notice:*** *These owner's notes are provided solely as a helpful resource to familiarize the charter captain and crew with Starhaven. While every effort has been made to ensure accuracy, this document is not a comprehensive operational guide and does not supersede the official manuals provided by the vessel and equipment manufacturers.*

***Captain's Responsibility:*** *By taking command of this vessel, the captain assumes ultimate responsibility for the safety of the crew, passengers, and the vessel itself. The captain warrants that they are fully qualified to operate a vessel of this size, type, and complexity, and have become thoroughly familiar with her systems prior to leaving the dock.*

***Limitation of Liability:*** *Exercising prudent seamanship, good judgment, and strict adherence to all applicable maritime laws and navigational rules is solely the responsibility of the captain and crew. No warranties regarding the vessel's condition or performance are expressed or implied by this document. In the event of an emergency, the captain must rely on their own training, experience, and the official emergency procedures dictated by maritime law.*

*If you have any questions or are unsure about any system on board**, ask the San Juan Sailing & Yachting team** for clarification before departure.*

# 1. Welcome Aboard

We welcome you aboard **STARHAVEN**, our beautiful 2022 Beneteau Oceanis 40.1. We purchased her in 2025 with a vision of creating a home for unforgettable sailing adventures on the water, a vessel worthy of the stunning Pacific Northwest we call home.

**STARHAVEN** represents far more than a sophisticated sailing platform. She embodies our passion for exploration, our respect for the marine environment, and our commitment to sharing the joy of sailing with fellow adventurers like yourself. Every system, every detail, and every corner of this boat has been thoughtfully maintained and continuously upgraded to ensure your comfort and safety.

**What Makes STARHAVEN Special**

**STARHAVEN** is a modern performance cruising sailboat that excels in all conditions. With her sleek hull design, powerful sail plan featuring a 105% genoa and Code Zero, and responsive twin rudders, she's equally at home in light airs or blowing conditions. Whether you're exploring the San Juan Islands, cruising the Georgia Strait, or venturing further afield, **STARHAVEN** delivers a sailing experience that balances excitement with comfort.

Her well-appointed interior provides genuine comfort for extended cruising—spacious queen berths, a genset, a fully equipped galley, comfortable saloon seating, and clean modern systems. This is a boat that rewards good seamanship and rewards sailors who take time to understand her capabilities.

**STARHAVEN's** interior is important to us. Please clean or remove shore shoes before entering the salon, wipe up spills promptly, keep the galley and heads organized, handle all systems with care, and report any issues immediately to the San Juan Sailing & Yachting team. We also ask for a smoke-free environment onboard.

May you encounter fair winds and following seas. We look forward to hearing about your adventures aboard **STARHAVEN**.

**Bon Voyage!**

*Tatiana & Christian Maier*

*Owners, STARHAVEN*
*Seattle, Washington*

## 2. Vessel Specification & Information

| | | | |
|---|---|---|---|
| **Vessel** | Name | STARHAVEN *(formerly Marie Katherine)* | |
| | Home Port | Seattle, Washington | |
| | Make / Model | Beneteau Oceanis 40.1 | |
| | Year | 2022 | |
| | Hull Number (HIN) | BEYGN144H122 | |
| | USCG Official Number | 1322236 | |
| | MMSI | 368240540 | |
| **Dimensions** | **Length Overall (LOA)** | **42’3”** | **12.87 m** |
| | Hull Length | 39’4” | 11.99 m |
| | Length Waterline (LWL) | 38’5” | 11.70 m |
| | Beam | 13’9” | 4.18 m |
| | **Draft** from DWL | **7’ 1”** | **2.17 m** |
| | **Air Draft** (bridge clearance / DWL) | **60’ 2”** | **18.33 m** |
| | Displacement | 17,604.00 lbs | 7,985 kg |
| | Ballast (cast iron) | 4,425.00 lbs | 2,007 kg |
| **Engine & Genset** | Make / Model | Yanmar 4JH45 (direct shaft) | |
| | Type | Diesel (4-stroke, 4-cylinder) | |
| | Rated Power | 45 HP / 33.1 kW @ 3000 RPM | |
| | Alternator | 12V / 125A | |
| | **Fuel** | **52 gal** | **195 liters** |
| | **Cruising Speed** | **7 kts @ 2500 RPM, Fuel 0.90 gal/hr** | |
| | Generator Make/Model | Fischer Panda 8000i | |
| | Generator Output Rating | 6.0 kW, 120V/60A | |
| **Electrical** | Engine Start | 1 x Renology 12V 100Ah | |
| | House Bank | 4 x Renology 12V 100Ah (400Ah total capacity) | |
| | Thruster Bank | 2 x Excide EP450 | |
| | Generator Start | 1 x Excide EP450 | |
| | Inverter/Charger | Mastervolt 12/2000W (AC output 120V/60A) | |
| | AC Shore Power | 1 x 50A 125/250V inlet | |
| | USB Ports (8 total) | 5V DC / 2.1-2.4A / 10-12W | |
| **Anchor** | **44# Delta FastSet** | **300 ft, 3/8”chain** | |
| **Water System** | Fresh Water Capacity (2 tanks) | 149 gal | 564 liters |
| | Hot Water (AC/Engine heated) | 11 gal | 40 liters |
| **Waste System** | Holding Tank (aft cabin) | 21 gal | 80 liters |
| | Holding Tank (forward cabin) | 13 gal | 50 liters |
| | Discharge | Gravity overboard discharge | |
| **Galley** | Fridge Capacity | 6.36 cubic feet | 180 liters |
| | Freezer Capacity (3-star rated) | 0.35 cubic feet | 10 liters |

| | | | |
|---|---|---|---|
| **Rig & Sails** | Rig Type | Fractional Sloop (9/10s) | |
| | Total Sail Area (Main + Genoa) | 790.18 ft² | 73.41 m² |
| | Sail Area: Main | 401.75 ft² | 37.32 m² |
| | Sail Area: Genoa (105%) | 388.43 ft² | 36.09 m² |
| | Sail Area: Code Zero | 658 ft² | 61.10 m² |

## WHAT'S NEW ON STARHAVEN FOR THE 2026 SEASON?

We've just completed a major round of upgrades to make your time on Starhaven safer, faster, and more comfortable. Everything listed below is brand new for the **2026 season**. You'll find details about each of these covered in the appropriate sections of this manual.

**Sailing & Performance**

- **Harken Genoa Furler & Outhaul Car**: The genoa furler has been upgraded to a new Harken system, and a new Harken outhaul car with bearings was added to the boom for much smoother, more reliable sail handling.
- **Dyneema Running Rigging**: All running rigging has been replaced with Marlow Dyneema lines for precise control and minimal stretch.
- **Code Zero Sail:** We've added a furling Code Zero to the sail inventory. It is highly effective for keeping the boat moving in light Pacific Northwest summer breezes so you can sail instead of motoring.

**Comfort & Cruising Lifestyle**

- **Starlink Internet:** High-speed Starlink satellite internet has been installed, allowing you to easily check the weather, stream, or work remotely from quiet anchorages.
- **Galley Water Filter:** A new carbon water filter system has been installed at the galley sink to ensure clean, odor-free water for washing dishes, food prep, and general use aboard.
- **Rail mounted BBQ:** A Camco 58131 Stow N' Go 160 Gas Grill with Thermometer and Igniter has been installed on the stern starboard rail.

**Anchoring & Tender**

- **Upgraded Windlass:** We've installed a powerful, high-quality new Maxwell RC10 windlass to ensure dropping and retrieving the hook in the deep anchorages of the San Juans is smooth, effortless, and reliable.
- **New Kachemak Aluminum RIB Dinghy:** A brand new 10'2" rigid aluminum hull dinghy has been added to the charter package. Its lightweight aluminum hull makes it easy to handle while providing excellent stability, and it allows you to pull up on to rocky Pacific Northwest beaches without worrying about puncturing a soft bottom or damaging fiberglass.

**Safety & Navigation**

- **Echomax EM230 High-Performance Radar Reflector**: Unlike the standard "tube" style reflectors found on many charter boats (which offer a notoriously weak radar signature), we mounted a rigid Echomax array high on the mast. It provides a massive radar cross-section that keeps you highly visible to ferries and commercial shipping, even in heavy fog or when the boat is heeled over.
- **Aqualarm Engine Monitoring System:** We've added an Aqualarm water-flow and exhaust temperature sensor with an alert panel right in the cockpit. This provides an instant alert if cooling water flow is ever interrupted (such as catching seaweed in the intake), giving you early warning and peace of mind long before a standard engine overheat alarm would sound.

## 3. Fuel Consumption and Range

**PERFORMANCE DATA BY RPM**

| Operating Mode | RPM | Speed | Fuel (gal/hr) | Fuel (L/hr) | Range (nm) | Hours | Efficiency |
|---|---|---|---|---|---|---|---|
| **Idle** | 900 | 0 kts | 0.20 | 0.8 | N/A | N/A | N/A |
| **Low Cruise** | 2000 | 5.4 kts | 0.60 | 2.3 | 468 | 86.7 | 9.00 nm/gal |
| **Medium Cruise** ⭐ | **2500** | **7.0 kts** | 0.90 | 3.4 | 404 | 57.8 | 7.78 nm/gal |
| **High Cruise** | 2800 | 7.5 kts | 1.20 | 4.5 | 325 | 43.3 | 6.25 nm/gal |
| **WOT** | 3125 | 7.9 kts | 2.50 | 9.5 | 164 | 20.8 | 3.16 nm/gal |

⭐ ***Recommended cruising setting*** *- optimal balance of speed and efficiency*

**FUEL CAPACITY & PLANNING**

| Parameter | Value |
|---|---|
| **Total Fuel Capacity** | 52 gallons / 195 liters |
| **Number of Tanks** | 2 integral FRP tanks |
| **Recommended Reserve (20%)** | 10.4 gallons / 39 liters |
| **Usable Fuel excluding Reserve** | 41.6 gallons / 156 liters |
| **Range excluding Reserve @ 7 kts** | 324 nautical miles |

**FUEL CONSUMPTION BY DISTANCE**

*(At optimal cruising: 2500 RPM, 7.0 knots)*

| Distance | Fuel Required | Time Required |
|---|---|---|
| 10 nm | 1.3 gallons (4.9 L) | 1.4 hours |
| 25 nm | 3.2 gallons (12.2 L) | 3.6 hours |
| 50 nm | 6.4 gallons (24.3 L) | 7.1 hours |
| 100 nm | 12.9 gallons (48.7 L) | 14.3 hours |
| 200 nm | 25.7 gallons (97.3 L) | 28.6 hours |
| 300 nm | 38.6 gallons (146.0 L) | 42.9 hours |

**FUEL PLANNING RECOMMENDATIONS**

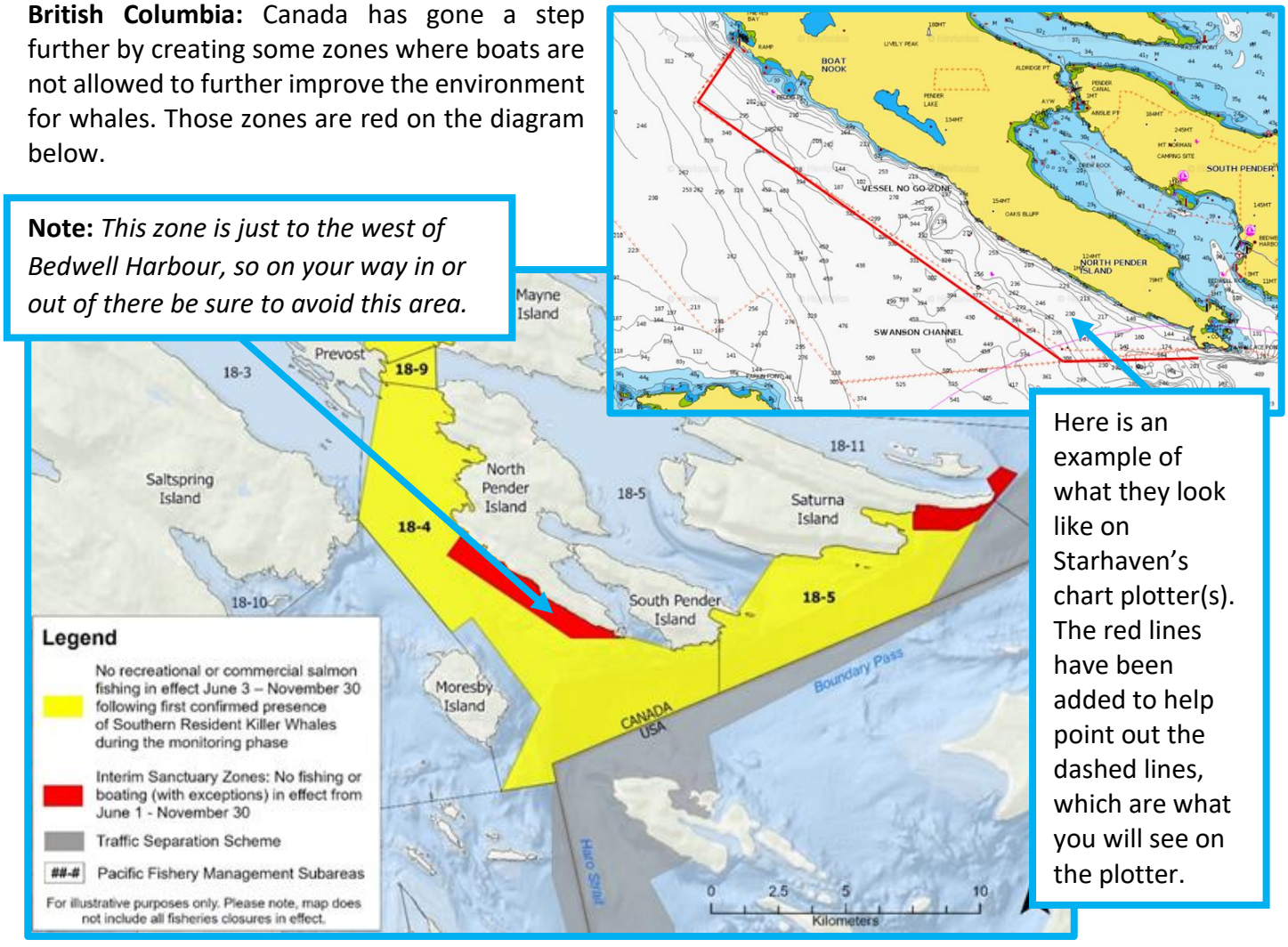
- **Always maintain 20% reserve** for emergencies and safety margin
- **Optimal cruising at 2500 RPM** provides best balance of speed and efficiency
- Consider sea state and wind conditions - fuel consumption increases in rough seas
- Running at lower RPM (2000 RPM) provides 50% longer range but 23% slower speed
- Full throttle (WOT) should only be used briefly for emergencies - reduces range by 60%
- **Conservative passage planning**: Use 1.0 gal/hr. for estimates

## 4. Being Whale Wise

Our resident orca 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 and noise pollution from boats and ships makes it harder for them to thrive. In an effort to decrease human impact both the Canadian and US governments have implemented new rules. We provide a summary of these rules in the packet you receive when you arrive and **more information in section 10** of this white reference binder onboard Starhaven. Here is a summary of the rules in Washington State and in BC:

**Washington State:** In an effort to reduce boat-related noise, which negatively affects the southern resident orca's salmon foraging behavior and success, Washington State made some rule changes, effective January 1, 2025. Vessels are not allowed to approach within, or intentionally position themselves to become within, 1000 yards of a southern resident orca. If you find yourself inadvertently within 1000 yards of a southern resident orca, you must reduce speed to less than 7 knots and proceed as directly as possible to a distance that is more than 1000 yards away. However, if you find yourself inadvertently within 400 yards of a southern resident orca, you must disengage your transmission and wait for the orca to move away. Exceptions will be made where safety or rules of navigation do not allow compliance. Since most of us would not be able to distinguish a southern resident orca from a Biggs orca at any distance, let alone 1000 yards, please assume any orca you see is a southern resident.

**British Columbia:** Canada has gone a step further by creating some zones where boats are not allowed to further improve the environment for whales. Those zones are red on the diagram below.




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

Here is an example of what they look like on Starhaven'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.

## 5. Starhaven's Nuances

There are a few things about Starhaven that are not "typical." These are the quick items that require special attention from the captain and crew to prevent damage or confusion.

**1. Bow Thruster Limitations**

Starhaven has a fold-a-way drop-down thruster. It takes 3 seconds to deploy and will retract automatically if not used for 5 minutes. Use it minimally, in short 5-second bursts. Continuous use will overheat the thruster. It will shut down and will not restart until it cools (10-15 minutes)! (See **Section 12** for full details).

**2. Twin Rudders (Maneuvering)**

Starhaven has twin rudders. When underway, they provide excellent turning ability in both forward and reverse. However, there is one nuance you must anticipate in tight quarters: there is an **initial** lack of prop wash over the rudders when initiating a turn from a standstill. Starhaven will briefly move straight forward (about 3 feet) until the rudders respond to the water flow and the inside rudder catches the prop wash to tighten the turn. (See **Section 17** for maneuvering details).

**3. In-Mast Furling Main**

Starhaven features a U.S. Spars in-mast furling main. Because this **system can severely jam if operated incorrectly**, please carefully review the full operating instructions in **Section 25** (Sails and Rigging) before unfurling the mainsail.

**4. Delicate Deck Caps**

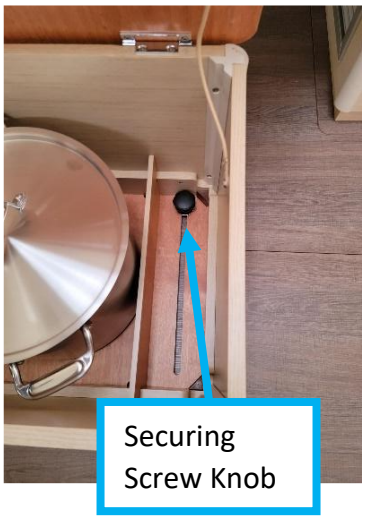
The deck caps and base fittings on Starhaven are somewhat delicate and can easily be damaged if over-tightened. Please do not use a winch handle as the inherent leverage applies too much force. Please hand tight-only or use the short deck cap key which is conveniently stored in the cockpit table or in the chart table.

**5. Swim Platform**

Starhaven has an electrically operated swim platform. The controller is located forward of the port helm, on the base of the cockpit seat. The latch is on the transom port side. Review the full operating instructions in **Section 28**.

**6. Salon Settee Bench Seat**

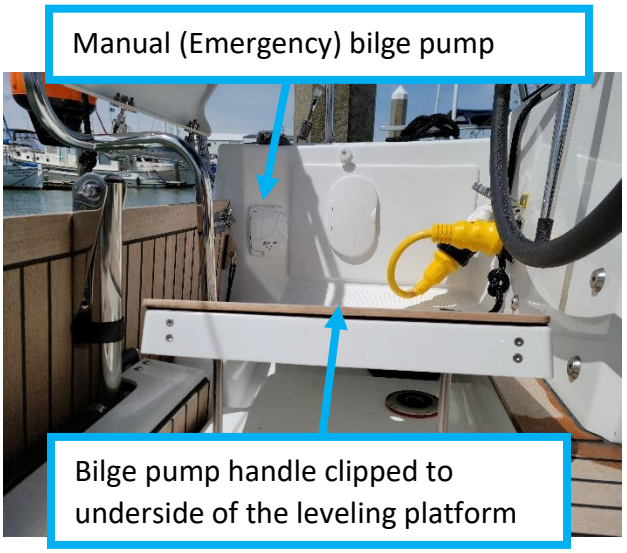
The settee seating bench pulls out into the salon to create more legroom under the table. Open the bench top and unscrew the black securing screw knobs on both sides to gently slide out the bench. Please retighten the screws so the bench seat is stable. Note: Screw the bench down securely when underway to prevent it from sliding and scratching the floor.

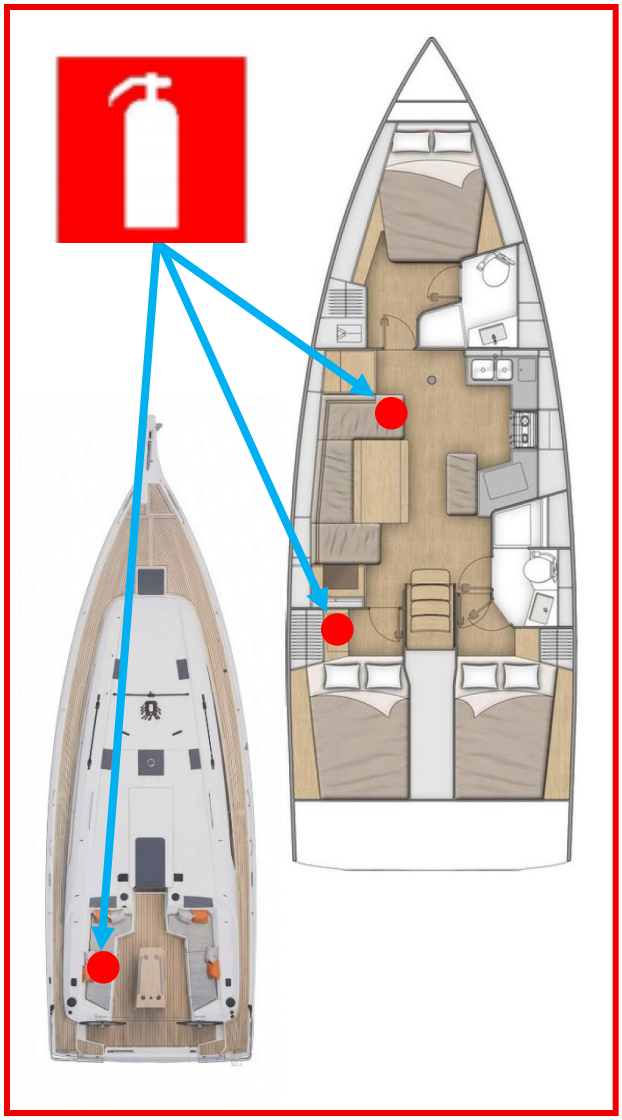


## 6. Emergency & Safety Equipment

Please ensure you and your crew are aware of the location and operation of the emergency and safety equipment:

- ✓ **Bilge Pump (Manual) and Handle**. Located behind the port helm at floor level. Handle is clipped to the underside of the leveling floor platform behind the port side below helm. **Note:** if water rises above the salon floorboards, you can use shower sump pumps also in emergency.
- ✓ **Carbon Monoxide Detector:** Mounted on the ceiling outside aft starboard cabin door.
- ✓ **Cushions**. In case of Crew Overboard, throw anything that floats, quickly.
- ✓ **Emergency Tiller**. Long curved pipe mounted in clips inside the aft middle cockpit floor locker between the helms.
- ✓ **Fire Extinguishers (3)**: Salon cubbie under nav table; in cabinet aft port cabin; port cockpit locker.
- ✓ **First Aid Kit.** In aft head vanity cabinet.
- ✓ **Flare (Electronic) and Folded Plastic Distress Flag**. In yellow mesh bag in seat under nav station seat.
- ✓ **Flares (Pyrotechnic, 3)**. In yellow mesh bag under nav station seat.
- ✓ **Flashlights 1 & 2.** Nav station and companionway
- ✓ **Flashlight 3 (Searchlight).** Shelf above nav station.
- ✓ **Horn, handheld.** In yellow mesh bag under nav station seat.
- ✓ **Lifesling**, port stern pulpit. Please review the cartoons on the face of the case for procedures. The lanyard is secured to the boat so that tossing the floating harness allows it to tow behind the boat like a ski tow rope. Circling the person overboard will draw the recovery line near them.
- ✓ **Type 5 PFDs – Inflatables (6)**. Located in the stateroom lockers. Please check for "green" visible at bottom of clear canister before each cruise.
- ✓ **Type 3 PFDs - Foam Vests (3) & Type 4 – Throwable Cushion (1)**. Located in the stateroom hanging lockers.
- ✓ **Radar Reflector (cross section).** White canister mounted above the radar dish.
- ✓ **Tapered Plug, Universal Foam Orange StaPlug.** In yellow mesh bag under nav station seat.
- ✓ **Tools:** under nav station seat
- ✓ **Spares:** under nav station seat
- ✓ **VHF Radios**: Channel 16 is for emergencies. The B&G VHF base unit is located at the nav station along with a handheld wireless unit to use at helm. Make sure the wireless unit is stored in the induction charging cradle when not in use. The cradle is located under the chart table on the outboard side.
- ✓ **Windlass Clutch Release/Tighten tool** (use a winch handle)**.**



# 7. Anchors and Windlass

**HIGHLIGHTS**

- **Power Requirement:** The engine must be running to operate the windlass.
- **Windlass Breaker:** Located at the base of the aft port cabin berth.
- **Windlass Remote Controller:** Stored in the anchor locker's aft bracket.
- **Helm Control & Chain Counter:** Located at the starboard helm (powered by the windlass breaker). *Note: Use primarily for monitoring chain length. Operating the windlass from the helm is not recommended—retrieving from here causes chain jams, and deploying requires manual guidance at the bow to prevent hull damage.*
- **Chain Markings (300'):** Yellow every 50'; Red at the 25' midpoints (ie. at 25', 75', 125', etc.).


- **Clutch Tool:** Stored in the chart table. Tighten the clutch if the windlass slips; loosen for an emergency rapid drop. Maintain enough tension for a controlled payout.
- **Snubber:** The snubber is hooked on the chain all the time except when the chain is moving in or out. The windlass cannot bear the anchoring load. Always use the attached snubber line when setting and holding the anchor.
- **Bow Protection:** Raise and lower the anchor slowly when it is out of the water to prevent hull damage.
- **Anchor Light:** Turn ON overnight (breaker on the DC panel at the Nav Station).
- **Secondary Anchor:** Stowed in the aft middle cockpit floor locker (between the helms).

**1. Anchors**

- **Primary Anchor** – 44# Delta FastSet mounted on the bow. 300' of chain spray painted yellow at 25' intervals and red every 100'
- **Secondary Anchor** – Danforth, 30' chain and 150' nylon rope.

**2. To Deploy the Main Anchor:**

a) **Preparation & Scope**

- **Check Conditions:** Review tides and weather (VHF WX Ch 4 or 7) to select a safe anchorage.
- **Calculate Scope:** Target a **4:1 scope**. Add 5 feet to your depth sounder reading (4' freeboard and 1' for transducer below waterline), then multiply by 4. *(Example: 20' depth + 5' = 25' x 4 = 100' of chain). Note: In San Juans, anchorages are often about 20'-35' bow to bottom, so we often deploy about 100' chain—hence the 10' marker at 100'.*
- **Power Up:** Start the engine and verify the windlass breaker is ON (port aft stateroom).

b) **Dropping the Anchor**

- **Clear the Bow:** To avoid chipping the hull, manually push the anchor forward, keeping the shank level until it clears the roller. Ease it down slowly until it hangs vertically, **do not let the anchor swing!**
- **Hit Bottom:** Press the down switch to lower the anchor to match the depth sounder reading so it rests on the bottom. (Reset the helm chain counter here if desired).

- **Pay Out & Set:** Signal the helmsman to shift into **idle reverse**. Continue lowering the chain smoothly as the boat backs up, until you reach your calculated scope. *Note: You can power the chain down, or to use gravity, loosen the clutch (pull aft) and use a pulsing motion to safely moderate the descent.*
- **Hold & Verify:** Keep the boat in idle reverse for about 1 minute. Line up two stationary objects on shore to confirm the anchor is holding and you are not dragging.

c) **Securing**

- **Attach the Snubber:** Hook the snubber line to the chain.
- **Release Tension:** Ease the windlass just enough so the snubber takes 100% of the load. **Never leave the anchoring load on the windlass gypsy!**

d) **Anchoring Tips & Variations:**

- **High winds expected:** Test your set by backing down at higher RPMs (e.g., 1,000 RPM for 20-knot winds; 1,500 RPM for 30-knot winds) ***after* setting snubber**. Increase your scope if you have adequate room to leeward. (We check movement shoreside, not the significant prop current going by the chain).
- **If anchored in a small cove:** A 250' floating stern line reel is stored in the stern cockpit table locker. Pro-tip: Lower the swim step, slide a mop handle through the reel to act as an axle, and use the dinghy to run the line around a shore object and back to a transom cleat.
- **The secondary anchor** is available for additional holding power if a storm is anticipated, but best if set before the storm hits.

🌟 **Pro-Tips for the Crew:**

- **Use Hand Signals:** It is impossible to hear yelling from the bow to the helm over the wind and engine. The bow person should continuously point their arm in the exact direction the chain is entering the water so the helmsman knows how the boat is falling back.
- **"Feel" the Set:** Have the bow person safely place a hand (or a booted foot) lightly on the chain between the bow roller and the windlass while the boat is backing down. If the chain vibrates, skips, or shudders, the anchor is dragging. If the chain becomes rigid and stops vibrating, the anchor has bitten and set.

**3. To Retrieve the Anchor:**

a) **Preparation**

- **Start the Engine:** The windlass requires the engine to be running (it draws from the start battery). Ensure the windlass breaker (port aft stateroom) is ON.
- **Remove the Snubber:** Detach the snubber line so the windlass has a clear pull on the chain.

b) **Weighing Anchor (Pulling it up)**

- **Coordinate with the Helm:** The windlass should *only* lift the weight of the chain, not pull the boat forward. The bow person must point their arm directly at the chain so the helmsman can slowly motor toward the anchor. Into a breeze, we engage forward gear as needed, but exercise care that we don't overrun and drag the chain against the hull.
- **Prevent Chain Jams:** A "mountain" of chain piling up directly under the windlass in the locker will jam the gears. To prevent this, use the mop handle to reach into the locker and push the chain pile forward away from the drop point every 15–20 feet. *(Note: This is critical for the first 250 feet; the last 50 feet will stack fine on its own).*

- **Watch the Load:** As the chain becomes completely vertical (straight up and down), you are right over the anchor. If you hear the windlass motor groaning or laboring heavily, **STOP IMMEDIATELY**.
- **Break it Free:** Do not use the windlass to rip a stuck anchor out of the mud. Instead, pause the windlass, secure the chain, and have the helmsman bump the engine into forward gear to break the anchor free using the momentum of the boat.

c) **Nesting the Anchor**

- **Final Approach:** As the anchor breaks the surface of the water, bring it up very slowly (pulse the 'up' button).
- **Nest Without Chipping:** The anchor shank may need to be rotated to seat properly. Use the windlass to bring the shank up and over the bow roller in one continuous, smooth motion. Adjust it by hand to nest it securely.

d) **Securing for Travel**

- **Re-attach Snubber:** Once nested, leave slight slack in the chain and attach the snubber directly to the anchor chain to take the load off the windlass.
- **Stow the Remote:** Ensure the windlass remote is fully clipped into its bracket before closing the locker lid to prevent crushing the cable.
- **Leave Breaker ON:** Normally, the windlass breaker remains ON while underway in case you need to deploy the anchor in an emergency.

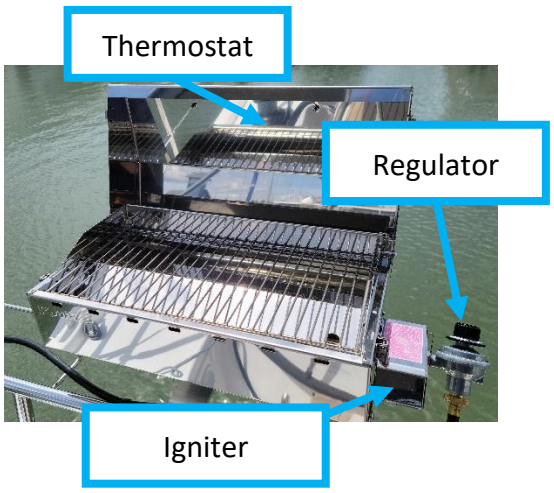
🌟 **Pro-Tips for the Crew:**

- **Wash the Mud:** Keep a bucket tied to a lanyard at the bow. As the chain and anchor come up, toss buckets of seawater over them to wash off the thick mud before it enters the chain locker and smells up the forward cabin.
- **Hand Signals:** Use clear hand signals for the helmsman: point in the direction of the chain to steer, hold up a closed fist for "Neutral/Stop", and make a "thumbs up" when the anchor is off the bottom.

## 8. Barbecue

**HIGHLIGHTS**

- Powered by a dedicated propane tank on the starboard stern rail.
- ALWAYS turn the propane tank valve OFF after use.




**To Start:**

1. Open the valve on the propane tank and wait a couple of seconds.
2. Push and turn the black regulator counter-clockwise to HIGH.
3. Press the igniter to light the flame.

**When finished (Please Clean!):**

1. **Burn off grease:** Leave the grill on HIGH for 8–10 minutes.
2. **Shut down:** Turn OFF the regulator *and* the main tank valve.
3. **Brush:** Once cool, scrub the grates with the provided wire brush.

# 9. Batteries, Inverter, and Generator

**HIGHLIGHTS**

- **Capacity:** Starhaven's House Bank is 400 Ah (Amp-hours). However, for battery health, you only have **200 Ah of *usable* capacity** (50%). A typical cruising crew consumes about 100 Ah overnight.
- **The Voltage Cheat Sheet (Resting):**
  - 🟢 **12.8V = Fully Charged** (checked with all loads OFF and no active charging).
  - 🟡 **12.2V = 50% Empty.** You must recharge when the bank hits 12.2V
  - 🔴 **11.8V = Critical Warning!** Letting the batteries drop this low causes permanent damage.
- **Nightly Check:** Check your voltage on the Navicolor display every night before bed. If it is near 12.2V and you are not on shore power, run the engine or generator to charge them, or turn off the refrigerator for the night.

**Checking the Navicolor Display (at the Nav station)**

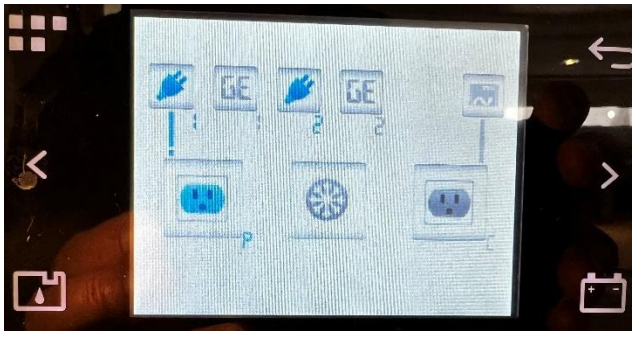

- Turn on the display at the Nav Station (press the dark vertical bar next to the power icon on the left edge).
- Tap the **Battery Icon** (lower right) to view individual voltages for the House, Engine, Thruster, and Generator batteries. *(Note: When charging, voltages will read 13V+).*

**Battery Switches**

- **Main Switches:** Located in the port aft stateroom (foot of the berth). **Leave these ON.** There is no need to touch them unless you are combining banks for an emergency engine start. ***Caution:*** *Please keep children from playing with these dials.*
- **Bow Thruster Bank:** The bow thruster operates on a dedicated battery bank located under the forward v-berth.

**Charging the Batteries**

1. **Engine Alternator**
   - The engine automatically charges all batteries while running.
   - *Pro-Tip:* Despite the high-output alternator, running the engine will not fully "top off" the batteries to 100% unless run for several hours. If you are deeply discharged, you will need to run the engine at ~1,100 RPM for at least an hour to restore safe levels.
2. **Shore Power**
   - Connect the 30A cord from the dock to the receptacle below the port helm. Turn ON the dock breaker.
   - Check the Navicolor Home screen: Tap the Menu icon (upper left) and then the Cord Plug icon.
   - Ensure the "Cord Plug" is linked to the "Outlet". If there is a red "disconnected" symbol, tap the Cord Plug icon. You will hear a click from the aft cabin as the contactor engages, energizing the AC outlets and the battery charger.



3. **Generator**
    - Use the generator when at anchor to charge batteries, run the Cruisair heating/cooling, or power the 120V outlets. *(See Generator section for starting details).*


**Using the Inverter (120V Power Off-Grid)**

- The MasterVolt Inverter converts 12V battery power into 120V AC power for the outlets and the Microwave when you are away from the dock.
- **To Use:** Ensure the inverter breaker (port aft stateroom, foot of the bunk) is ON. Press the power button on the MasterVolt controller at the Nav Station.
- **Turn OFF when done:** The inverter draws power just by being on.
- 🛑 **SHORE POWER WARNING:** ALWAYS turn the inverter OFF when connected to shore power or running the generator. If left on, and the dock power trips, the inverter will silently take over and completely drain your house batteries.
- ***Caution:*** Use only for low-draw items (laptops, phones) or brief microwave use. High-wattage items like hair dryers or electric heaters will drain your house batteries incredibly fast.

Inverter Breaker ON Position


## 10. Berths and Bedding

Starhaven sleeps up to eight guests across three private cabins and a convertible salon settee.

**Private Cabins**

- **Accommodation:** Three cabins, each featuring a queen-size bed, hanging lockers, and ample lighting. All overhead hatches are equipped with integrated sliding sunshades and bug screens.
- **Forward Cabin:** Features a private en-suite head with a separated shower.
- **Starboard Aft Cabin:** Features private, direct-door access to the shared aft head.

**Converting the Salon Settee (Extra Berth)**

The salon dining area converts into an additional double berth:

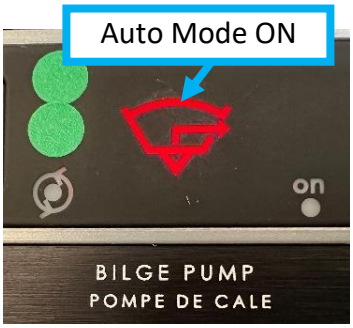
- **Step 1:** Slide the bench seat out (unscrew the black knobs to move it; see *Starhaven's Nuances* for details).
- **Step 2:** Swap the table legs. The shorter table legs are stored in the salon's port-side, forward top-access cubby (behind the settee seat).
- **Step 3:** Place the filler cushion (stored in the forward cabin, starboard bulkhead) over the lowered table to complete the bed.

## 11. Bilge Pumps

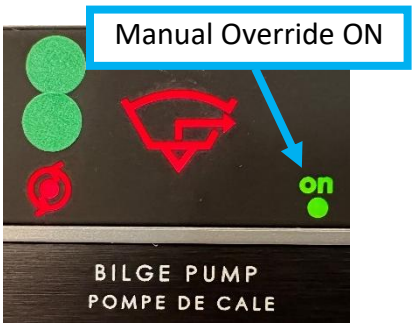
**Daily Inspection**

- **Visual Check:** Lift the floorboard in the center of the salon (forward end) each day to inspect the bilge.
- *Note on Water:* The refrigerator drains into the bilge, so it is normal to see a small amount of fresh water from condensation and melting ice. However, if you taste the water and it is salty, immediately check your thru-hulls and the dripless shaft seal.

### 1. Electric Bilge Pumps




- **Primary Auto Pump:** Located in the lowest point of the bilge under the salon. On the DC panel at the Nav Station, **leave the Bilge Pump icon illuminated RED**—this means it is set to AUTO and will trigger via the float switch.
    - *Manual Override:* Pressing the icon a second time will turn on the pump continuously (the rotating pump icon and the green ON light will illuminate). Turn it back to AUTO when finished.
- **High-Volume Emergency Pump:** Starhaven has a second, high-capacity electric float-switch pump mounted slightly higher in the bilge. It is wired directly to the house batteries and is *always powered* (there is no switch on the DC panel).




### 2. Manual / Emergency Bilge Pumps

- **Cockpit Hand Pump:** Located behind the port helm near floor level. The metal pump handle is clipped to the underside of the small cockpit floor hatch (aft end, port side, below the helm).
- **Shower Sumps (Emergency Use):** If water ever rises above the salon floorboards and enters the heads, the shower sump pumps (black buttons inside each shower) can be turned on to help pump water overboard.

**Pro-Tips for the Crew:**

- **Keep it Clean:** A clogged strainer is the #1 cause of bilge pump failure. When you do your daily check, look for and remove any hair, lint, or debris near the pump intake.
- **Pump Cycling:** If you hear the automatic bilge pump cycling on more frequently than usual, investigate immediately. It is often the first warning sign of a loose hose clamp or a weeping fresh water line.

## 12. Bow Thruster

Starhaven is equipped with a high-performance Sleipner retractable (drop-down) bow thruster. Because it is retractable, it is mounted very far forward in the hull, giving it tremendous turning leverage.

**HIGHLIGHTS**

- **Power:** Powered by a dedicated 24V battery bank located under the forward v-berth.
- **Engine Requirement:** The main engine *must* be running to activate the thruster controller at the helm.
- **Primary Steering:** The thruster is meant for minor corrections during final approaches or emergencies. Most of your maneuvering should still be done using the engine and the twin rudders.


**Operation**

1. **Deploy:** At the starboard helm, press and hold both "ON" buttons simultaneously for 2 seconds. The yellow light will flash quickly for about 3 seconds while the unit drops down. Once the yellow and green lights turn solid, the thruster is ready.

2. **Usage:** Use the joystick in **short, 3 to 5-second bursts**.
3. **Auto-Retract:** If not used for about **5 ½ minutes**, the thruster will automatically retract into the hull (the red light will illuminate while it goes up). You will need to press the two ON buttons again to re-deploy it.


### 🛑 Important Warnings & Pro-Tips

- **Overheating:** Continuous, long pushes will overheat the electric motor and trip the thermal safety switch. If this happens, the thruster will shut down and **will not restart for 10–15 minutes** while it cools. Always use short, controlled bursts.
- **Twin Rudder Trick:** Because Starhaven has twin rudders, you do not get immediate "prop wash" steering when accelerating from a dead stop. **Pro-Tip:** To turn the boat before water begins flowing over the rudders, leave the wheel centered and use short bursts of the bow thruster in combination with forward/reverse engine thrust to point the bow exactly where you want it.
- **Extreme Power:** This thruster is designed to push the bow against a 30-knot sidewind. It is incredibly powerful and will rotate the boat sharply on its keel, which swings the stern rapidly in the opposite direction.
- **Fender Duty:** Until you get a feel for how fast the stern swings when thrusting the bow, always position a crew member with a roving fender between the stern and the dock during departures and arrivals.

## 13. Dinghy, Outboard and Swim Platform

Starhaven comes with a 10’ fiberglass-hulled Kachemak dinghy and an air-cooled, 4-stroke 2.3hp Honda outboard (takes straight gas, no oil mixing required).

**1. Towing the Dinghy**

- **Remove the Motor:** **NEVER tow the dinghy with the outboard attached**. The motor will likely flip into the water.
- **Towing Position:** Tie the painter line to the **port stern cleat** (away from the diesel exhaust). Tow the dinghy close to the boat with only **4 to 5 feet** of line. This lifts the bow out of the water, reduces drag, and prevents the dinghy from surfing down waves and flipping.
- **Secure the Line:** Tie a proper cleat hitch, and for peace of mind, tie the bitter end of the painter securely to the base of the stern pulpit.

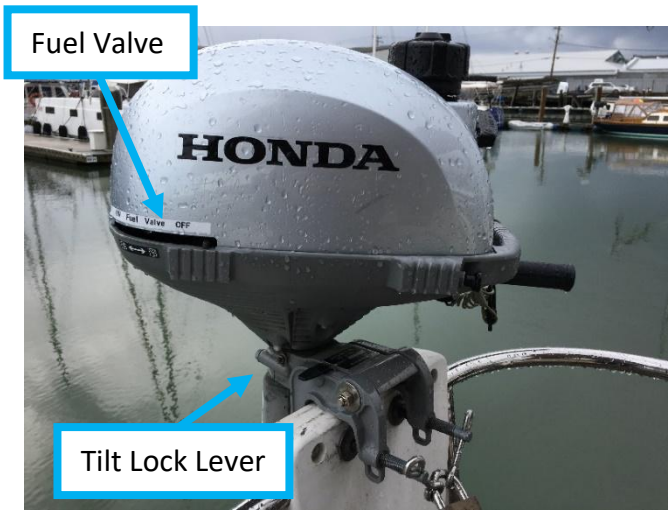
**2. Boarding, Handling, & Fuel**

- **Boarding Caution:** When pulling the dinghy alongside the drop-down swim platform, be careful not to let the dinghy’s hard front handle or side oar-locks rub and scratch Starhaven’s gelcoat. Have a crew member hold the dinghy slightly fended off during boarding.
- **Transferring the Motor:** To avoid dropping the motor into the sea, have one crew member get into the dinghy first to receive the motor from a second crew member on the swim platform.
- **Gas Storage**: A spare 1¼-gal red gas can is provided. *Always* leave this stored in the dinghy (forward bow locker). For safety, *never* store gasoline inside Starhaven’s cabins or cockpit lockers.

**3. Starting the Honda 2.3hp**

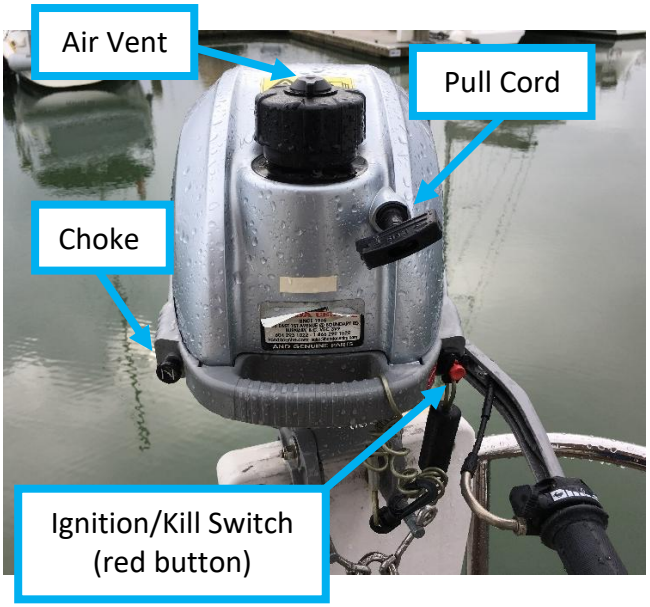
1. **Fuel On:** Push the fuel valve lever (starboard aft corner) to the ON position.
2. **Vent Open:** Turn the air vent on top of the gas cap halfway between ON and OFF. *(Pro-Tip: Turning it all the way to "ON" sometimes accidentally closes the valve).*

3. **Kill Switch:** Ensure the black U-shaped kill clip (on the lanyard) is securely snapped under the red shut-off knob (port forward corner).
4. **Choke:** Pull the choke knob all the way out.
5. **Throttle:** Turn the throttle grip to the "START" position.
6. **Pull:** Give the cord a firm, quick pull. Once it starts, let it run for 5–10 seconds, then slowly push the choke back in and roll the throttle back to idle.




**4. Operating the Outboard**

- **Centrifugal Clutch:** This motor does not have a gear shift lever. The propeller automatically starts spinning as soon as you increase the RPMs above idle.
- **Warning:** Because of the clutch, make sure the dinghy is securely tied to Starhaven before starting the engine! When it fires up at the "Start" throttle position, the dinghy will immediately try to surge forward until you roll the throttle back to idle.
- **Reverse:** To go backward, simply swivel the entire motor around 180 degrees. The tiller arm can flip 180 degrees to help maneuver in reverse.
- **Safety Lanyard:** Always attach the red kill switch lanyard to your wrist or PFD while driving.




**5. Arriving at the Beach**

- **Kill the Engine Early:** Stop the motor in a few feet of water by pulling the red lanyard.
- **Shut the Fuel/Vent:** Close the fuel valve and vent immediately. *If you tilt the motor with these open, fuel will leak everywhere and flood the carburetor, making it very hard to restart.*
- **Tilt the Motor:** Pull the motor head forward until it clicks into the locked-up position. (To lower it later, pull the motor head slightly to relieve pressure, then lift the black lever on the starboard side).
- **Beaching:** Do not drag the fiberglass hull over sharp rocks or barnacles. Secure the painter line to shore so the dinghy doesn't float away on a rising tide.

**6. Stowing & Troubleshooting**

- **Overnight Storage:** Always return the outboard to the stern rail mount on Starhaven. Tighten both bracket screws, attach the combination lock, close the fuel valve/vent, and put the blue Honda cover on.
- **Sudden Quits:** If the motor is running fine and suddenly dies, the fuel cap vent is likely closed.
- **Engine Runs but Prop Doesn't Spin:** If you throttle up and the prop won't spin, the shear pin is broken. A spare pin is taped to the forward underside of the motor head. Remove the cotter pin, take off the prop, and replace the shear pin.

**7. Inflating the Dinghy**

- The inflatable tube air pump is located in the starboard cockpit locker.

- The dinghy has 3 chambers, each with an internal valve. Insert the nozzle with a ¼ turn to lock it in place. Inflate the baffle until it is firm using the foot pump. When finished, carefully detach the hose (if the valve remains open and leaks air, press the center of the valve once to close it).

## 14. Dodger, Bimini, and Cockpit Enclosure

**Adjusting the Canvas**

- The primary Dodger and Bimini must remain in place.
- **The Connector Panel:** The overhead canvas piece connecting the dodger to the Bimini can be unzipped and removed if you want more sun in the cockpit.
- **Storage Rule:** If you remove the connector piece, **ALWAYS ROLL IT, NEVER FOLD IT**. Folding creates permanent creases in the fabric and plastic. Store it safely below deck where it won't be stepped on or damaged.

**Essential Window Care (Please Read)**

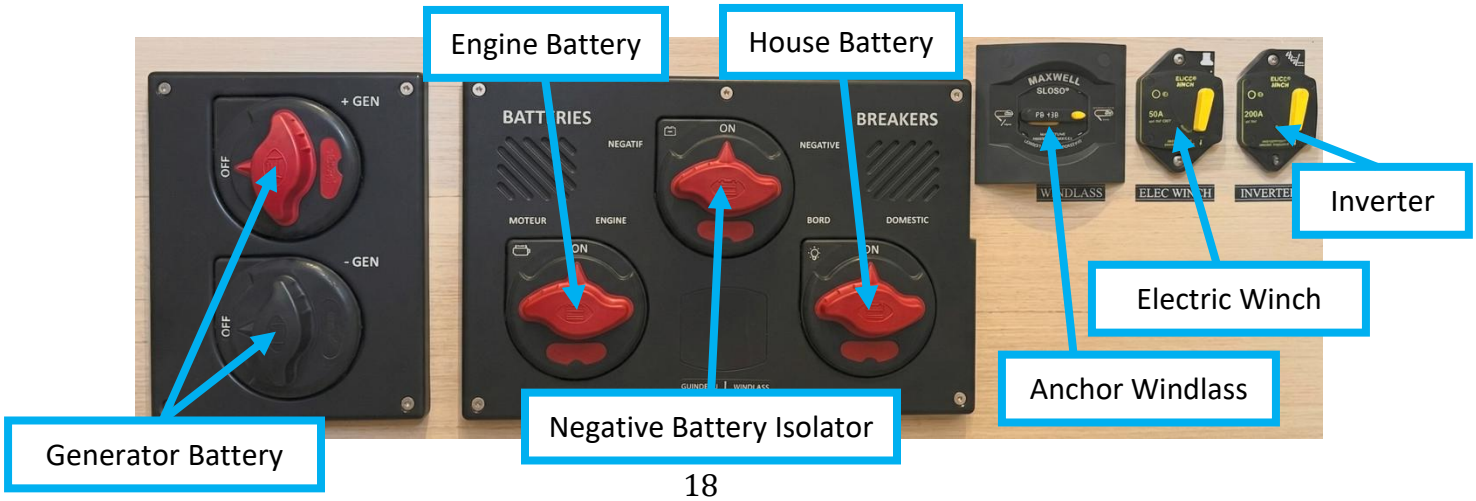
The clear vinyl windows (isinglass) on the dodger and enclosure are extremely fragile and very expensive to replace. Please help us keep them crystal clear by following these rules:

- **Never "Wipe" Salt Spray:** When saltwater dries on the windows, it leaves microscopic, abrasive salt crystals. If you wipe the plastic with a rag, towel, or sponge, it acts like sandpaper and permanently scratches the window.
- **How to Clean:** To clear the windows, simply **flood them with fresh water** using a pan from the galley or a dock hose. Let the water dissolve and wash the salt away naturally. Do not touch or scrub the plastic.
- **The Sunscreen & Bug-Spray Danger:** The chemicals in aerosol sunscreens and bug repellants will instantly and permanently melt/cloud the plastic windows. *Always* apply sprays downwind and far away from the canvas. *Do not* lean against the plastic windows

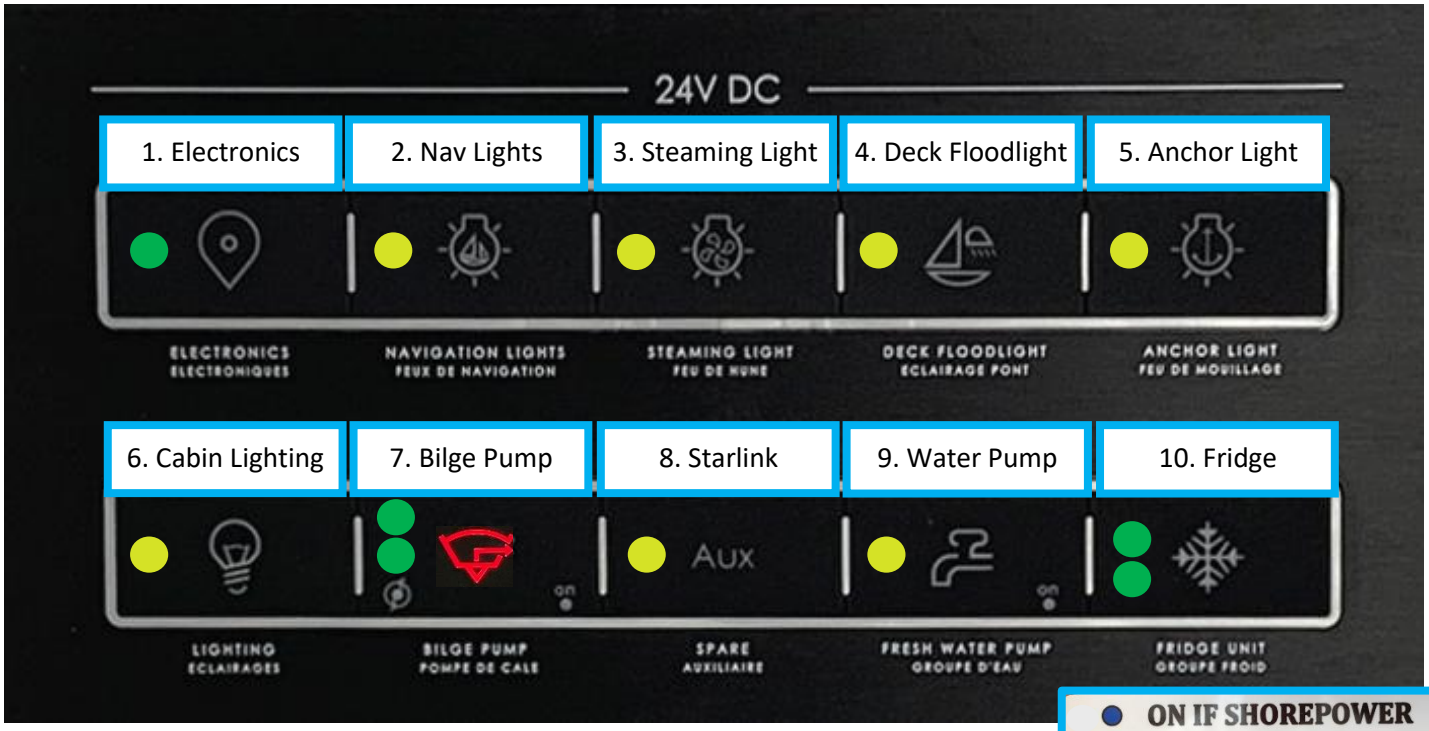
## 15. Electrical

**Panel Locations**

- **DC Panel:** Located at the nav station. Breakers operate using the color-dot convention shown on the panel.
- **AC Panels:** Located in the port aft stateroom, outboard of the berth, behind the hinged wood panels.
- **GFCI Reset:** If the AC outlets stop working, check the GFCI breaker at the AC panel and reset it if needed.
- **DC Battery and Load Isolator Switch Panel:** Located in the aft port cabin.



**DC Electrical Panel**




1. **Electronics:** Powers the B&G chartplotters, instruments, radar, depth sounder, and knotmeter.
2. **Nav Lights:** Turn on when sailing or motoring at night/in low visibility (e.g. fog).
3. **Steaming Light:** Turn on (in addition to Nav Lights) only when the engine is running and you are motoring at night/low visibility.
4. **Deck Floodlight:** Use only when you must go forward on deck at night.
5. **Anchor Light:** Turn 360° light on (located at the top of the mast) when anchored or moored at dusk.
6. **Cabin Lighting:** This main breaker must be ON before any interior LED lights will work.
7. **Bilge Pump:** **Leave in AUTO at all times!** Test it daily by temporarily pressing it to Manual (green dot), listening for the pump, then returning it to Auto.
8. **Starlink (Aux):** Turns on the Starlink internet router and dish as needed. Allow a couple of minutes for it to boot up and acquire a satellite signal.
9. **Fresh Water Pump:** It is good practice to turn the water pump OFF while underway if no one is below decks using the water.
10. **Fridge:** Normally left ON. However, if house batteries drop to 12.2V and you do not plan to run the engine or connect to shore power, turn it OFF for the night to save power (your provisions will stay cold overnight).

**Practical Tips**

- Before leaving the boat or going to bed, do a quick check that the bilge pump is in **AUTO**, unnecessary lights are off, and high-draw items are not left running.
- If something electrical suddenly stops working, first check the relevant breaker, then the GFCI for outlets, and then confirm battery state or shore power connection before assuming there is a fault.
- Under normal operation, the AC breakers should remain on; guests usually only need to manage the dock pedestal breaker and the shore cord connection.

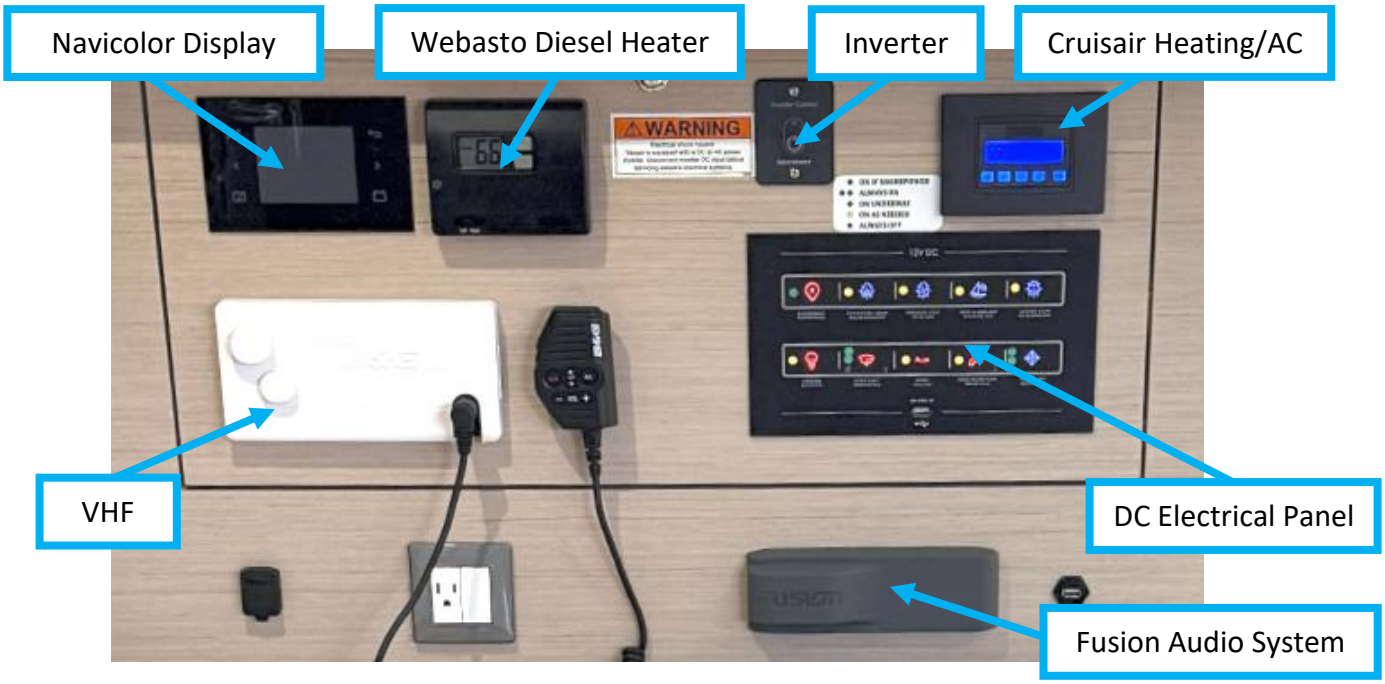
**Shore Power**

Starhaven is wired for 50A service but uses a 30A shore cord with a 30A-to-50A adapter pigtail at the port helm connection. For safety, always connect in this order so you are never holding a "live" wire over the water:

1. Verify the breaker on the dock power pedestal is turned **OFF**.
2. Plug the power cord into **Starhaven's receptacle first** (located below the port helm).
3. Plug the other end of the cord into the dock pedestal.
4. Turn the dock pedestal breaker **ON**.
5. **Quick Visual Check:** Look at the shore power plug connected to the boat. The built-in red LED should now be illuminated, confirming power is reaching the boat.
6. **Verify & Activate at the Panel:** Go below to the Navicolor display at the Nav Station. Tap the *Menu* icon (upper left) and then the *Cord Plug* icon.
    1. If the system is charging, you will see the Cord Plug icon visually linked to the Outlet below it.
    2. If you see a red "disconnected" symbol, tap the Cord Plug icon on the screen. You will hear a click from the aft cabin as the contactor engages, linking the power and energizing the AC outlets and battery charger.

- *Disconnecting:* Reverse the process. Turn OFF the dock breaker, unplug from the dock first, then unplug from the boat.

## 16. Electronics and Instruments




**B&G Chart Plotter**

- Starhaven is equipped with dual B&G chart plotters (C-Map charts) powered by the *Electronics* breaker on the DC panel.
- Please refrain from changing settings beyond the typical functions like chart orientation, radar overlay, AIS overlay, and range.
- The charts are updated once a year. When you first power up the system, it may take several minutes for the port chart plotter to synchronize the charts with the starboard chart plotter, which contains the SD card. The port chart plotter might not display any charts until this synchronization is complete.

### 1. Basic Navigation & Operations

- **Find the Chart:** From the Home screen (the “squares matrix” icon top left), select "Chart".
- **Zooming & Panning:** Use pinch/expand gestures on the touchscreen, tap the **+** and **–** icons or use the knob on the right of the touchscreen to zoom in (best when wearing gloves or in rain).


- **Return to Boat:** If you pan away and lose the boat, touch the **Clear Cursor** box in the bottom right corner to snap the view back to your current location.
- **Creating a Waypoint:** Press the balloon icon soft-key (lower left) to drop a waypoint at your current location or at your cursor. To edit/delete routes, select *Find...* from the main menu.
- **Chart Orientation:** Menu (three vertical lines, top right) > *More Options* > *Orientation*. We recommend setting it to **Heading Up**.
- **Course Over Ground (COG):** The COG line should always be on. Home > *Settings* > *Chart* > *Extension Lines* > *Course over Ground*.


### 2. Radar Overlay

- *Turn Radar ON:* Home > Radar > Menu > Transmit.
- *Show Radar on Chart:* Home > Chart > Menu > Overlay > Radar.

### 3. A.I.S. (Automatic Identification System)

- **How it Works:** AIS transmits Starhaven’s position/data and displays other AIS-equipped vessels on your chart plotter as triangles. *Note: Starhaven only transmits her position when the VHF base unit is turned ON.*
- **Reading the Data:** The triangle points in the vessel's direction of travel. Tap the triangle on the screen to see their name, speed, and closest point of approach (CPA).
- **Vessel MMSI:** Starhaven’s MMSI number is **368240540**. Large commercial vessels may call you by name on Channel 16 if they need to verify your course intent.

**Chart Plotter Pro-Tip (Screen Brightness):**

- If a previous guest turned the brightness all the way down for night sailing, the screen may look dead or pitch-black the next morning. **Do not panic.** Just quickly press the physical power button *twice* to bring up the brightness menu and adjust it back up.


**B&G Autopilot**

- **Engage:** Press **AUTO** one time on the B&G controller (port helm).
- **Disengage:** Press **STBY** (Standby) to immediately return to manual steering. *Ensure your crew knows how to turn the autopilot off in an emergency!*
- **Gyrocompass:** Located in the salon, on the port side behind the settee seat back. *Do not store magnetic items, cell phones, or heavy metals near this area, or the autopilot will steer erratically.*

**Autopilot Pro-Tips:**

- **Wait for Stability:** Never engage the autopilot while actively turning or accelerating. Steer the boat straight, let the boat settle into a steady course, and *then* press AUTO.
- **Course Adjustments:** While in AUTO, use the +1/-1 buttons for small corrections, or the +10/-10 buttons for large course changes.

Gyrocompass

**B&G VHF Radios**

- **Power:** The B&G base unit is always wired for power (no DC breaker required). Turn the base unit on *before* the wireless handheld.
- **Charging:** The handheld charges automatically via an induction bracket at the nav station (outboard side, below the chart table).
- **Channel 16:** Always monitor Ch. 16. It is for emergencies and hailing only. Once you make contact, switch to a working channel (68, 69, 72, 74, or 78).
- **Weather:** Listen to "Northern Inland Waters" on WX channels 1–10 (Channel 4 is usually best in the San Juans) before departing and before anchoring.

**Operation & Features**

- **Power ON/OFF:** Press and release the power button (lower left). To turn off, press and hold for 2 seconds.
- **Quick Ch. 16/9:** Press the red **16/9** button to instantly jump to Channel 16. A long press will take you to Channel 9.
- **Weather Channels:** Press the **Sun/Cloud/Rain icon** button (below the LCD, left side) to instantly toggle between weather channels and normal VHF channels.
- **Silencing DSC Alarms:** If a DSC distress alarm goes off, it will scream loudly. Press any key to silence it, then listen to Ch. 16 for the broadcast.
- **Hi/Low Transmit Power:** Press the **H/L** button on the mic to toggle (LCD shows HI or LO). HI is 25W; LO is 1W. *Note: Ch. 16 defaults to HI. On the handheld, long-press the OK H/L button to change power.*

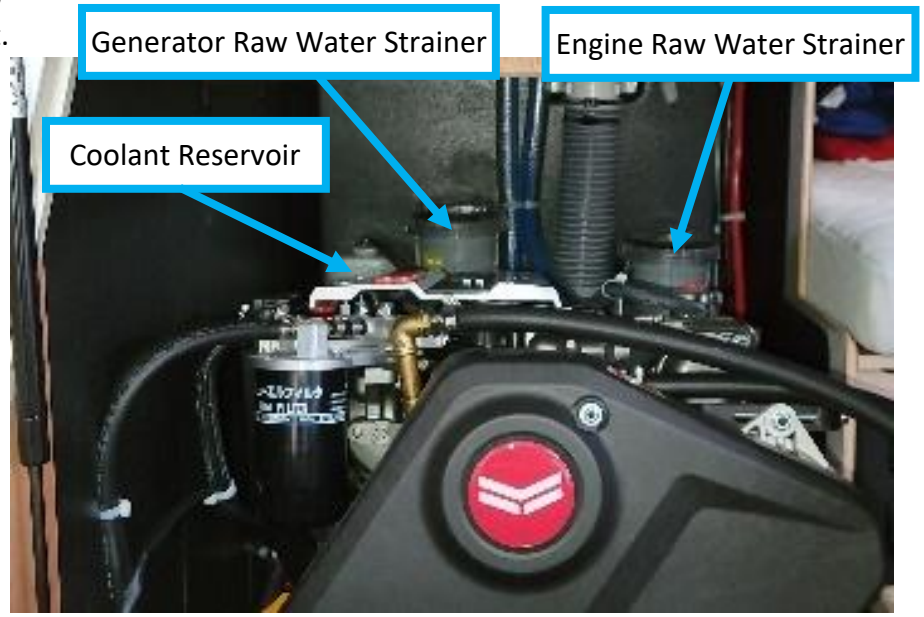
- **Volume & Squelch:**
  - *Base Unit:* Press the Vol/Sq knob to toggle between the two modes, then turn the knob to adjust. The active mode is bolded on the LCD screen.
  - *Handheld:* Use the Vol/Sq soft key on the right side of the unit.
- **Region Modes (USA, INT'L, CAN):** The radio should generally be left in USA mode. To check or change: Long-press the *DSC/MENU button > RADIO SETUP > UIC > select USA*. (The top right of the LCD shows the active mode).
- **Channel Scanning:**
  - Long-press the **DSC/MENU** button.
  - Select *SCAN > EDIT MY CHANNELS* and pick your desired channels.
  - Go back and select *MY CHANNELS + 16.*
  - To start scanning, press the **SCAN** button below the LCD.


## 17. Engine

**HIGHLIGHTS**

- **Engine:** Yanmar 45hp 4-cylinder diesel (Shaft drive).
- **RPM Limits:** Idle is ~800 RPM. Cruising is **2000-2500 RPM** (uses approx. 1 gal/hr at 5-7 knots). Max is 2900 RPM. *Please do not exceed 2500 RPM for extended periods, as fuel consumption skyrockets with very little gain in speed.*
- **Fueling:** The tank holds 52 gallons. Please **refuel before it drops to ¼ tank** to prevent drawing air or sediment into the fuel lines.

**1. Morning Engine Inspection (Daily Checklist)**
Lift the companionway stairs (hydraulic, no latches) to access the engine compartment. Check:

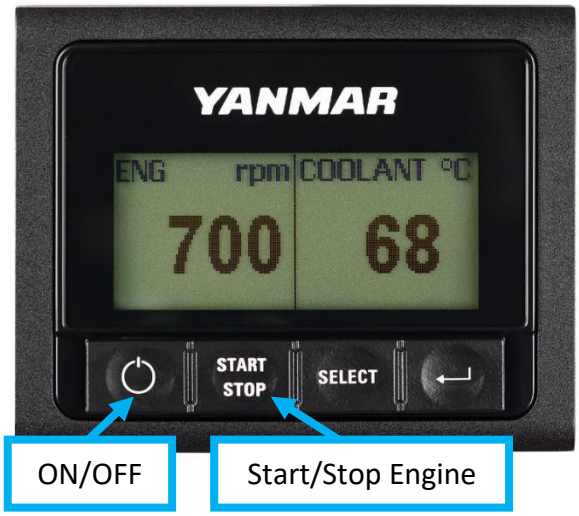



- **Leaks:** Look under the engine for any signs of oil or green coolant.
- **Coolant:** Verify the level is between the "high" and "low" lines on the overflow reservoir.
- **Raw Water Strainer (engine and generator):** Shine a flashlight down through the transparent lid. Look for eelgrass or debris. *Do not open the cap unless it needs cleaning.*

**Weekly Oil Check (> 7 days):** Check the oil dipstick (accessed from the starboard cabin hatch, down and to your left). Spare oil is at the front of the engine. If low, add *no more than a cup at a time* using either filler cap (top or left side). **Key Locations:** The fuel filter is on the starboard front of the engine. The raw water pump is on the port side.

**2. Starting and Stopping**

Starhaven uses a keyless start system located at the starboard helm. Ensure the main engine battery switch (port aft cabin) is **ON**.




a) **Neutral:** Ensure the throttle/gearshift lever is perfectly vertical.
b) **Power On:** Long-press the **Power** button on the Yanmar panel until the LCD display turns on and you hear the ventilation fan. *(Note: The Aqualarm will begin beeping here, that's expected—see below).*
c) **Start:** Press and release the **START/STOP** button.
d) **Verify Water Flow:** Immediately look over the port aft quarter of the hull to ensure water is gurgling out of the exhaust and monitor for 1 minute. ***If no water flows after 10 seconds, shut the engine down immediately.***
e) **Warm-Up:** To warm up the engine or charge batteries faster, depress the button at the base of the throttle handle to disengage the transmission, and push the throttle forward to ~1200 RPM.
f) **To Stop:** Press and hold the **START/STOP** button until the engine dies. The Aqualarm will start beeping again (that's expected). **Long-press the Power button** until the LCD screen goes blank to silence it and fully power down the system.

🛑 **CRITICAL CAUTION:** Never stop the engine by turning off the battery switch. This will instantly blow the diodes on the alternator, and the batteries will no longer charge for the rest of your trip.

**3. Running the Engine & Shifting**

- **Engaging Gears:** Engage forward or reverse by moving the lever *directly and firmly* from Neutral into Idle-Forward or Idle-Reverse (you will feel it click into gear). Do not ease it into gear in jerky, incremental steps, as this slips the clutch and causes premature wear. Once in gear, pause momentarily before smoothly advancing the throttle to your desired RPM.
- **The 2-Second Rule:** To protect the transmission when shifting between forward and reverse**, always pause for about 2 seconds in the 12 o'clock Neutral position** (say "one and two and") before engaging the opposite gear. Allow the propeller to stop spinning before reversing direction.
- **Cruising RPM:** An economical cruising speed of 5-7 knots is achieved at **2000-2500 RPM** (burning approx. 1.0 gal/hr.). Please do not exceed 2900 RPM. We recommend keeping it under 2500 RPM to minimize engine wear and maximize fuel efficiency.
- **Fuel Management:** The tank holds 52 gallons. Please refuel when the gauge drops below ½ and *before* it reaches ¼. Topping up ~25 gallons is quick and prevents drawing air or sediment into the fuel system.

*(And as a reminder, the SAFETY REMINDER about the battery switch is currently located right at the end of the "Starting and Stopping" section, just above this block!)*

**4. Aqualarm Cooling & Exhaust Monitor**

Starhaven is equipped with an Aqualarm warning panel at the starboard helm (behind the steering wheel) that constantly monitors raw water flow and exhaust temperatures to protect the engine.

**Normal Beeping (Ignition ON / Engine OFF)**


- **During Startup:** When you power on the Yanmar ignition panel (before starting the engine), the Aqualarm will beep loudly and the red "WATER FLOW" light will illuminate. This is completely normal! It is just warning you that the system is powered but no seawater is flowing yet. Once the engine starts and water flows through the sensor, the alarm will silence.
- **During Shutdown:** When you stop the engine, the water flow stops, so the alarm will immediately start beeping again. It will stop as soon as you fully power down the Yanmar ignition panel.

🛑 **IMMEDIATE ACTION FOR ANY ALARM (while running): Shut down the engine immediately.** Do not idle, and do not keep running to troubleshoot. Without raw water, the pump impeller can melt and shed blades within seconds, and the exhaust system can overheat fast enough to damage or burn out the exhaust hose and waterlift muffler.

**Water Flow Alarm Causes**

If this red light illuminates and the alarm sounds while the engine is running, the sensor has detected that raw water has stopped flowing through the cooling system.

- **Eelgrass/Debris:** The most common cause is a mat of eelgrass or debris sucked into the intake and plugging the raw water strainer.
- **Failed Impeller:** The rubber impeller inside the raw water pump may have broken or melted.
- **Air Leak:** The clear lid on the raw water strainer may be cracked or not seated properly on its O-ring, causing the pump to suck air instead of water.
- **Closed Seacock:** The raw water intake valve (seacock) was accidentally left closed before starting.

**Exhaust Temperature Alarm Causes**

If this red light illuminates and the alarm sounds while the engine is running, the sensor on the exhaust hose has detected dangerously high temperatures.

- **Secondary to Lost Flow:** This alarm usually triggers shortly after the Water Flow alarm. If water stops flowing, the exhaust gases are no longer being cooled before exiting the boat.
- **Partial Flow/Blockage:** If the water flow is only partially restricted, it might be enough to satisfy the flow sensor but not enough to adequately cool the exhaust or engine heat exchanger.
- **Broken Pump Belt:** If the engine threw a serpentine or raw water pump belt, the pump will stop turning, causing an immediate spike in exhaust and engine temperatures.

**Mute Button**

Once the engine is safely shut down, you can press the red MUTE button to silence the loud buzzer so you can think clearly while you go down below to troubleshoot the strainer or check the impeller.

**5. Troubleshooting Engine Alarms**

**Overheating & Loss of Flow**

Yanmar engines are incredibly durable, but if the overheat buzzer sounds, it is almost always caused by eelgrass plugging the raw water strainer.

- **Prevention:** Keep an eye out for eelgrass mats—especially along "soapy" looking tide and eddy lines—and avoid driving over them.
- **Clearing the Strainer:**

1. Stop the engine immediately.
2. **Close the raw water seacock** (intake valve) to prevent seawater from flooding into the boat.
3. Twist off the clear screw-top lid on the strainer and pull out the eelgrass. *(If the lid is overtight and difficult to unscrew, there is a black 3D-printed tool tucked behind the generator sea water strainer to help loosen it).* Fill up water with a cup if needed.

- **Reassembling (Pro-Tip):** When replacing the lid, **do not overtighten it**, or it will crack. Just make sure the rubber O-ring is seated and hand-tighten until snug. Make sure the threads are not crossed. *(If the lid does crack, spare lids are located under the nav station seat).*
- **Open the Seacock: Remember to open the seacock valve again before restarting the engine!**
- **Check the Seal:** If the engine overheats again after restarting, the strainer is likely drawing air through a bad seal, which means the pump cannot draw water. Close the seacock, open the lid again, and verify the rubber gasket is properly seated in the lid (and didn't fall into the bilge).
- **Next Steps:** If clearing the strainer and checking the seal fails to solve the problem, call San Juan Sailing.

**Loss of Oil Pressure or Coolant**

- **Oil Pressure Alarm:** Shut down the engine, check the oil level, and contact San Juan Sailing.
- **Overheat/Coolant Check:** If an alarm sounds, check whether cooling water is gurgling out of the exhaust. Then check the coolant level in the overflow reservoir. If low, add coolant to the upper line; after the engine cools, remove the cap on the engine block and top off there as well.
- **Check the Bilge:** If you see light colored coolant in the bilge, call San Juan Sailing immediately.
- **If Coolant Level Looks Normal:** Check whether the engine threw a belt. Another possibility is a failed raw water pump impeller. Spare belts and a replacement impeller are in the engine spares kit under the Nav seat bench. Call San Juan Sailing if you suspect a belt or impeller problem**.**

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

**6. Maneuvering & Twin Rudder Handling**

**The Twin Rudder "Quirk"**
Because Starhaven is exceptionally wide, she has twin rudders. While this provides incredible steering control under sail, it creates a specific nuance under power: **there is zero prop-wash over the rudders!**

- When initiating a turn from a dead stop, turning the wheel does nothing at first. Starhaven will move straight forward for about 3 feet until enough water flows over the rudders for them to bite.
- *Pro-Tip:* Don't fight the wheel. Use a brief burst of throttle (about 1500 RPM) to get water moving over the blades, then drop back to idle-forward to execute the turn without using up precious sea room.
- *Tight Quarters:* Keep the bow thruster powered on. Use short bursts of the thruster combined with forward/reverse engine kicks to spin the boat in her own length.

**Reverse & Docking**

- **Prop Walk:** Starhaven pulls moderately to **PORT** in reverse.
- **Firm Grip: Always grip the wheel firmly in reverse!** Water pressure catching the trailing edge of the twin rudders can violently spin the wheel out of your hands, potentially damaging the steering mechanism or your wrists.
- **Docking:** Keep a designated "roving fender" crew member ready on deck. We recommend gliding into the slip in neutral, using brief bursts of reverse to stop the boat.
- **Ask for Help:** When coming into our docks in strong winds, hail "San Juan Sailing" on VHF Channel 80. They'll gladly catch your lines. Asking for docking assistance is a sign of smart seamanship.

## 18. Entertainment System

Starhaven is equipped with a FUSION MS-RA70N audio system. Speakers are located in the main cabin and in the cockpit. The audio system can be controlled from the main FUSION head unit in the salon, or remotely from the B&G Zeus2 navigation screens at the helms.

**Connecting via Bluetooth**

To play your own music through the system:

1. Press the **Source** button on the Fusion stereo and select **Bluetooth**.
2. Press the **Menu** button (the icon with three lines).
3. Select **Discoverable**. The stereo will remain discoverable for two minutes.
4. Open the Bluetooth settings on your phone, search for devices, and select **Starhaven** to pair.


**Sound Zones and Volume Control**

The volume for the inside and outside speakers can be adjusted independently.

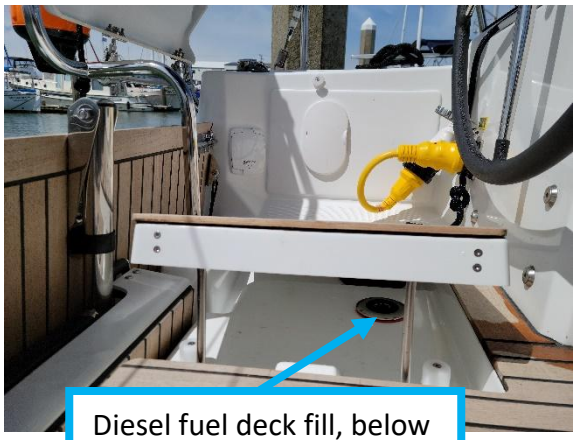
- Press the large volume knob. The LCD will show the two sound zones: **Below Deck** (Salon) and **Deck** (Cockpit).
- Keep pressing the volume knob to highlight the specific zone you wish to change.
- Turn the volume knob to decrease or increase the volume for that zone.

**A quick courtesy reminder:** Sound travels beautifully over water! Please be mindful of others in the marina or anchorage when using the cockpit speakers. Not everyone will love your music as much as you do.

## 19. Fuel


**HIGHLIGHTS**

- Diesel tank capacity is **52 gallons**.
- Check fuel level on the **NAVICOLOR display** at the nav station. Turn the display on using the raised vertical tab just above the power icon on the left side, then press the lower-left **tank** icon and select **diesel tank level**.
- Plan to refuel when the tank drops to about **½ full**, and do not let it get near **¼ full**.
- The diesel deck fill is located **below the port helm**.



Diesel fuel deck fill, below port helm under hatch

**Fueling**

- Fill **slowly and carefully**. It is difficult to tell when the tank is nearly full, so listen at the tank and stop as soon as the sound changes and the pitch rises.
- Have one person at the nav station watch the fuel level and alert the person fueling as the tank approaches **95%**.
- The attendant will give you absorbent pads. Use before fueling to make a fore-and-aft spill dam around the fill; reaching for pads after a spill is too late.

## 20. Generator

**HIGHLIGHTS**


- **Unit:** 9000W Fischer Panda generator (located behind the main diesel engine).
- **Function:** Powers the entire AC system when away from the dock, including battery chargers, microwave, and Cruisair heating/cooling system.
- **Cruisair Rule:** The generator *must* be running before you turn on the Cruisair heating/cooling system.
- **Battery Switches:** Located in the **port aft cabin** at the foot of the berth on the inboard side.

**Pre-Start Checklist**

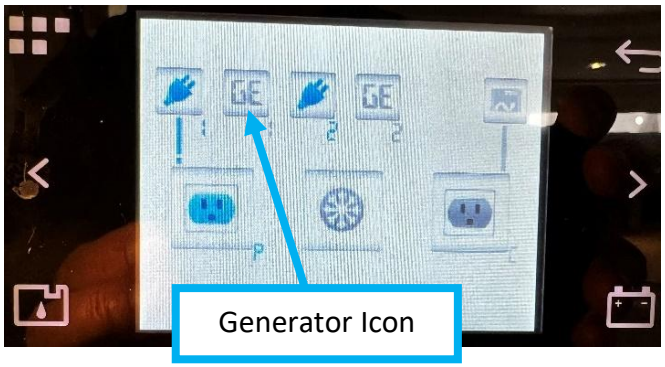
Before starting the generator, **always verify the following**:

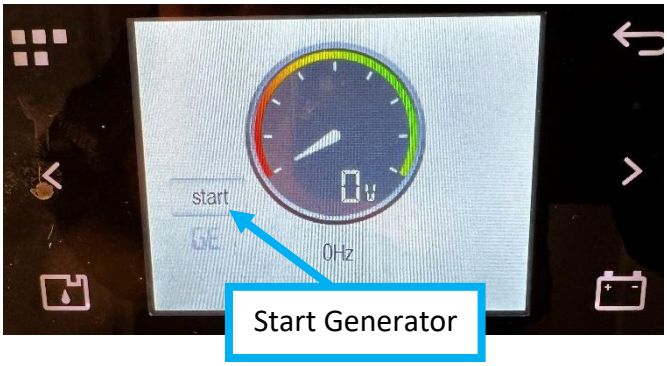
1. **Shore Power:** Make sure the shore power cord is disconnected.
2. **Seacock:** Verify the cooling water intake seacock is OPEN (located at the front end of the engine compartment on the starboard side).
3. **Strainer:** Check the cooling water strainer for debris (located at the back end of the engine, high up on the starboard side).
4. **Battery Switch:** Ensure the generator battery switch is ON (port aft cabin).
5. **Shed Loads:** Make sure heavy AC loads (especially the Cruisair system) are turned OFF before starting or stopping the generator to protect the electrical windings.

**Starting the Generator**
All controls for the generator are accessed via the **NAVICOLOR Controller** at the Nav Station.

1. From the main menu, touch the **"Power Cord Plug"** icon in the middle of the display.
2. Touch either of the **"GE" (Generator)** icons in the top row.
3. Touch **"Start"** in the lower left of the display. The generator takes about 15 seconds to cycle up and start.
4. **Cooling Water:** The exhaust exits below the waterline on the port aft side, so you will not be able to visually verify water flow. If the generator overheats, an alarm will sound. **Shut it down immediately** and call SJS.

*(Note: To route the AC power to the boat's outlets and Cruisair system once the generator is running, refer to the "To operate on the Generator" subsection in the Heating/Cooling section).*




**Stopping the Generator**

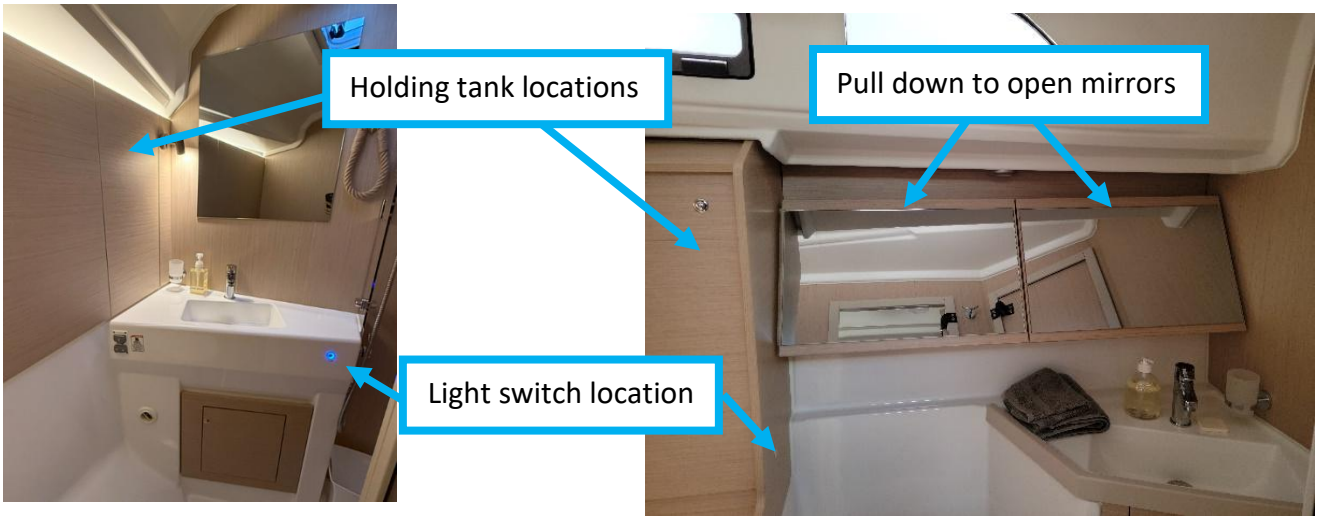
1. Turn off heavy AC loads (like the Cruisair system) and let the generator run for 1-2 minutes to cool down.
2. On the NAVICOLOR Controller, touch the **"Power Cord Plug"** icon.
3. Touch the **"GE" (Generator)** icon.
4. Touch **"Stop"** in the lower left. It takes about 5 seconds to cycle through the shutdown process.

**Backup Controls**
If the NAVICOLOR display fails, there is a backup manual Start/Stop panel located directly on the generator inside the engine compartment

## 21. Heads and Holding Tanks

**HIGHLIGHTS**

- **The Golden Rule:** Only put things in the toilet that have been eaten. Toilet paper goes in a wastebasket (in Ziploc baggies)—*never* down the toilet, as paper clogs the hoses.
- **Flushing:** The toilets use **seawater** for flushing. There are no Y-valves; everything flushes directly into the holding tanks.
- **Tank Sizes:** The aft tank holds 21 gallons, and the forward tank holds 13 gallons. With four people and normal usage, they need to be emptied about every other day.
- **Level Checks:** There are no electronic gauges. Check the levels visually by removing the panel above the toilet and shining a flashlight against the tank, or by knocking on the side.
- **Do Not Overfill:** Please monitor tank levels closely. Overfilled tanks lead to leaking sewage, bubbling vents, and a very unpleasant vacation!



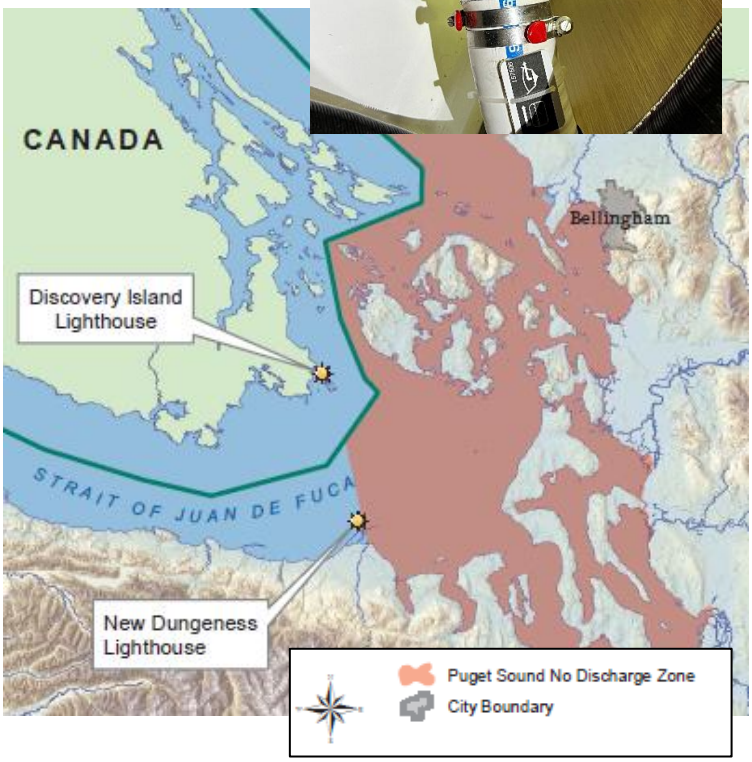

**Emptying the Holding Tanks**

**1. Deck Pumpout**

- **Process:** Both holding tanks can be pumped out via their labeled deck fittings (black ring), located on the starboard side near the heads.
- **Pro-Tip for Odors:** After the initial pumpout, add about 5 gallons of fresh water through the deck fitting to rinse the tank, then pump it out again. This simple step goes a long way in keeping the waste system smelling fresh.

**2. Overboard Discharge (Where Legal)**

- **Gravity Drain:** There is no macerator pump. The tanks drain via gravity in less than 60 seconds (you may hear a "whoosh" when they finish if the engine is off).
- **Aft (Salon) Head Seacock:** Located in the starboard aft stateroom, inside the base of the closet (lift the hinged hatch cover).
- **Forward Head Seacock:** Located below the sink, inside the cabinet base.
- **Critical Step:** Always close the large red "T" handle seacock immediately after the tank empties. If left open, seawater can backflow, or every flush will flow straight overboard!




🛑 **IMPORTANT WARNING*:*** Puget Sound and the San Juan Islands are a designated **No Discharge Zone (NDZ)**. It is strictly illegal to discharge holding tanks overboard anywhere in the U.S. waters of the Salish Sea. You must use pumpout stations. If you cross into Canadian waters, overboard discharge is allowed, provided you are at least 3 nautical miles offshore and outside of bays and harbors.

San Juan Sailing staff will discuss holding tanks and pump outs on your arrival.

## 22. Heating & Cooling (Cabin)

**HIGHLIGHTS**

- **Two Systems:** Starhaven has a **Webasto diesel-fired forced-air heater** (burns diesel for heat, but uses 12V battery power for the fans and fuel pump, so it can be used at anchor) and a **Cruisair reverse-cycle heating/cooling system** (requires 110V AC from Shorepower or Generator).
- **Noise/Efficiency:** It is not efficient to run either system all night, and the fan noise often wakes light sleepers.

**1. Webasto Diesel Heater (12V Battery Power)**
The Webasto system draws fuel from the main diesel tank and runs off the 12V house batteries. It is perfect for taking the chill off on cool mornings or evenings while at anchor.


- **To Operate:** The thermostat is located at the nav station (up and to your right). Move the slide switch at the bottom left to **"Heat"**, then use the grey UP/DOWN buttons to set the temperature.
- ***Note:*** *It takes about* ***10 minutes*** *for the glow plug to heat up and start blowing hot air.*
- 🛑 **SAFETY WARNING:** The Webasto exhaust outlet is located on the **upper starboard side of the transom** (the flat back of the boat). It gets incredibly hot and will easily melt dinghy painters, stern-tie lines, or fenders draped over that corne r. Ensure all items are clear of this exhaust!

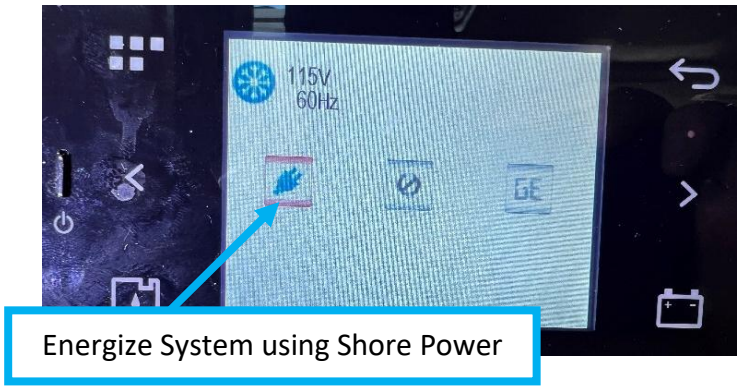

**2. Cruisair Heating/Cooling System (110V AC Power)**
The Cruisair system has two zones. It *only* operates when plugged into shore power or when the generator is running.

**Zone Locations:**

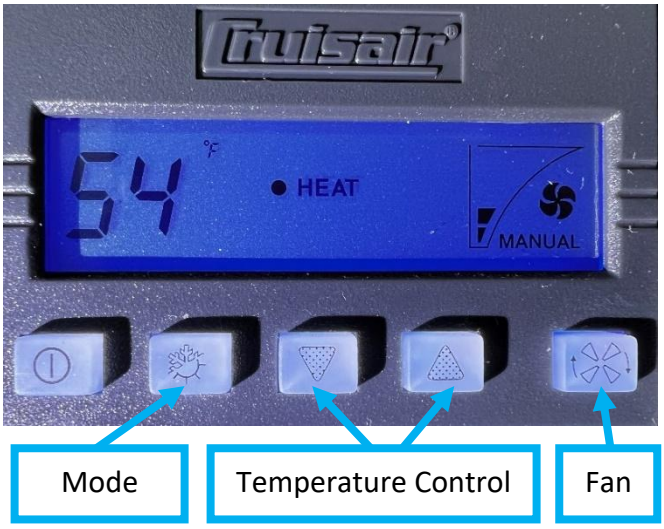
- **Zone 1 (Nav Station Controller):** Controls the salon and the forward V-berth vents.
- **Zone 2 (Starboard Aft Cabin Controller):** Controls both aft cabins and the aft head vent.

a) **Operating on Shore Power**

1. **Energize the System:** On the Navicolor display (Nav Station), go to Main Menu > touch the **Power Cord Plug** icon > touch the **Heat Pump** (wheel) icon > touch the **Power Cord Plug** icon on the left.
2. *Confirmation:* You will hear a "click" from the aft cabin, the plug icon will highlight with red lines, and both Cruisair wall controllers will power up.



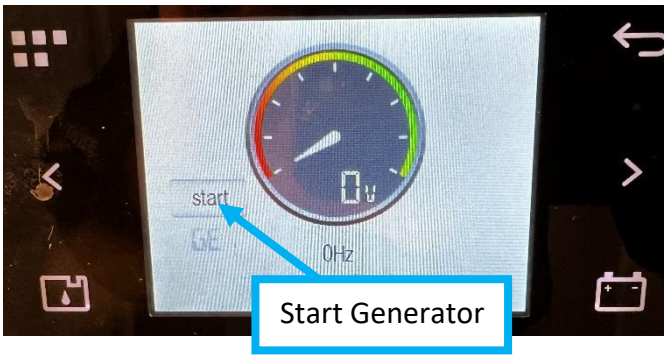
3. **Set the Climate:** At either wall controller, press the **Mode** button (2nd from left) to cycle through Cool, Heat, Auto, or Dehumidify. Use the "arrows" buttons for temperature and the fan icon for speed.
4. Note that it will take a few minutes for the system to "warm up" and start producing warm/cool air out the vents.
5. *Pro-Tip:* Once running, look outside the hull to verify water is discharging. Marine AC units use a raw water pump; if water isn't flowing, the system will automatically shut down to prevent damage.




b) **Operating on the Generator**

🛑 **IMPORTANT WARNING:** *You must **physically disconnect the shore power cord from the dock** before starting the generator.*

1. **Verify** that the cooling water **intake seacock** is open – it's located at the front end of the engine compartment on the starboard side.1
2. **Check** the cooling **water strainer** – it's located at the back end of the engine, up high, on the starboard side.
3. **Check** that the **generator battery switches are turned on** (located in the port aft cabin, base of berth, inboard side).
4. **Start Generator:** Go to Navicolor Main Menu > **Power Cord Plug** > **GE (Generator)** icon > **Start**. Wait ~15 seconds for it to start.
5. **Route Power to AC Outlets:** Press the back button > touch the **Outlet** icon > touch the **GE** icon on the right. (You'll hear a click).
6. **Route Power to Cruisair:** Press the back button > touch the **Heat Pump** icon > touch the **GE** icon on the right. (You'll hear a click).
7. *Confirmation:* The display will show blue lines flowing from the generator to both the outlets and heat pump. You can now use the Cruisair wall controllers normally. If the generator overheats for some other reason, the alarm will sound. Shut down the generator immediately and call SJS.




c) **Shutting Down**

- **On Shore Power:** Wake the Navicolor screen > navigate to the Heat Pump screen > touch the **Off/Disconnect** icon (circle with a diagonal slash).
- **On Generator:** First, disconnect the loads so the generator can cool down. Go to Navicolor > touch **Outlet** > touch **Disconnect**. Repeat for the **Heat Pump**. Finally, go to the Generator screen and touch **Stop**.

## 23. Lighting

**Main Power**

- To activate the interior lights, first press the **LIGHTING** breaker on the main DC electrical panel located at the nav station.

**Light Switch Locations**
Once the main breaker is on, the cabin lights are controlled by individual switches or toggles located throughout the boat:

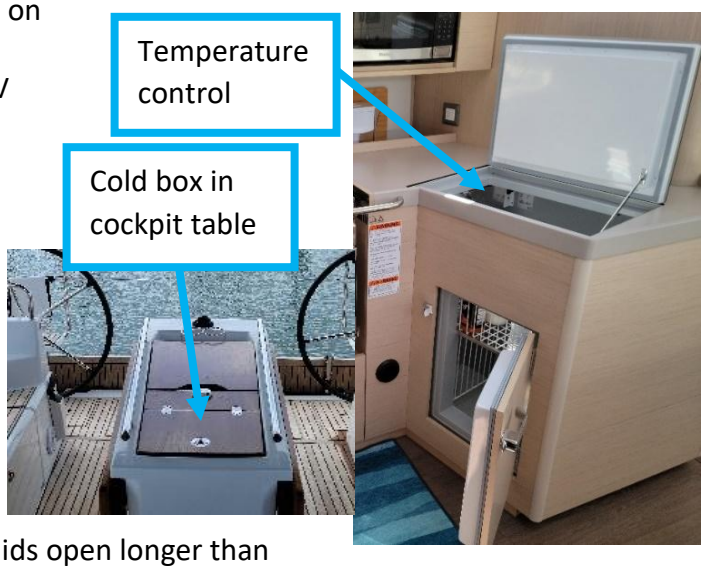
- **Salon/Galley:** Three paddle switches located on the aft end of the galley countertop face.
- **Forward Stateroom:** A white paddle switch on the port side, located just above the black heater vent.
- **Forward Head:** A switch on the inboard face of the sink cabinet.
- **Aft Head:** A switch located next to the toilet, just above the flush controls. (There is also an overhead puck light—simply press the glass fixture to turn it on or off).

*Tip: Leaving the main LIGHTING breaker on at the panel and using these local switches is the easiest way to manage lighting during your trip.*

## 24. Refrigerator and Freezer

**HIGHLIGHTS**

- **Power Supply:** Circuit breakers/switches are located on the main DC panel at the nav station. They should be left ON unless the house batteries drop too low (below 12.2V).
- **Thermostat:** The ideal thermostat setting is **No. 5** on the dial, located at the top back of the fridge.
- **Battery Management:** These units run off the 12V house bank. Always check your battery monitor before bed to ensure there is sufficient power to operate the refrigeration equipment all night (usually there is).
- **Cockpit Cooler:** The cockpit table also houses a small, unpowered "cold box" perfect for keeping drinks and snacks on ice.




**Best Practice: Preventing Frost Buildup**

- **Keep it Closed:** Marine refrigeration plates frost up very quickly when exposed to humid sea air. To prevent this, never leave the fridge or freezer lids open longer than necessary.
- **The Frost Cycle:** If you notice a thick layer of ice building up on the cooling plates, the system is working *too* hard. Heavy frost acts as an insulator, preventing the cold air from reaching your food while forcing the compressor to run constantly (which drains the batteries).
- *Tip:* If heavy frost builds up, you may need to temporarily turn the thermostat down or power the unit off to let it melt, then wipe it dry.

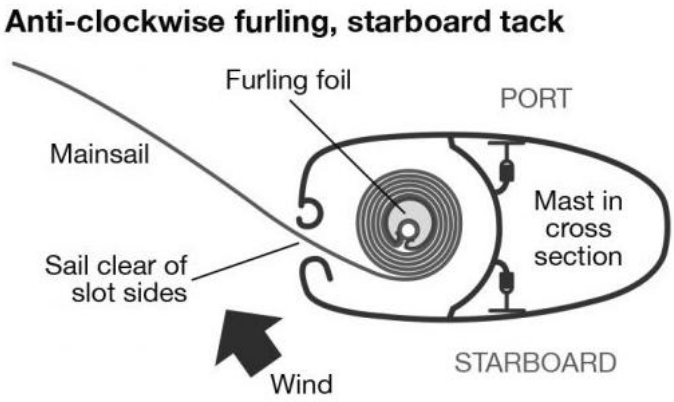
## 25. Sails and Rigging

**1. Operating the In-Mast Furling Mainsail (US Spars)**

This boat has a U.S. Spars in-mast furling main; It's <u>important to follow these instructions</u> to avoid jams or damaging the in-mast furling mechanism:

**PRE-CHECK (Do this before every furl or unfurl)**

a) **Set the wind angle:** Put the boat on a **SLIGHT STARBOARD TACK.** Point into the wind, then bear off slightly to port so the wind comes over the starboard bow. This blows the sail away from the mast slot and prevents friction.
b) **Release loads:** Ease the mainsheet and the boom vang to remove all pressure from the sail.




**UNFURLING (Pulling the sail out)**

a) **Adjust the boom:** Use the topping lift or vang to **KEEP THE BOOM HORIZONTAL** or slightly below horizontal.
b) **Control the lines:** Open the inhaul (furling) clutch but **KEEP LIGHT HAND-TENSION ON THE LINE TAIL** so it doesn't tangle inside the drum.
c) **Pull smoothly:** Pull the outhaul steadily. Watch the mast slot: if the sail sticks, STOP immediately. **NEVER FORCE A STUCK SAIL WITH A WINCH**; roll it back in a few feet, check for tangles, and try again.

**FURLING IN (Stowing or Reefing)**

a) **Adjust the boom:** Raise the boom slightly (slightly above horizontal) using the topping lift so the bottom of the sail isn't overly tight.
b) **Roll it tight:** Winch the inhaul line to roll the sail into the mast.
c) **Keep tension on the outhaul: THIS IS THE MOST IMPORTANT STEP!** Open the outhaul clutch. You must keep firm, steady resistance on the outhaul line as the sail rolls in. A loose roll will jam inside the mast and ruin the next unfurl.
d) **Look up at the mast slot:** the sail must enter flat and smooth. If you see diagonal creases or it becomes hard to pull, STOP, ease it back out, and re-roll it tighter.

**CRITICAL WARNINGS**

- **NEVER FORCE A JAM:** If you have to grind hard on a winch, something is wrong. Stop immediately! Never use a winch to grind through a jam! This will damage the furling mechanism!
- **NEVER USE THE ELECTRIC WINCH** on the outhaul to force the mainsail out OR to furl in as you won't notice the early signs of a jam!
- **THE MAINSAIL MUST ALWAYS BE FURLED TIGHTLY AND EVENLY**, because a loose furl is the most common cause of jams on in-mast systems. A loosely rolled sail today guarantees a jammed sail tomorrow!
- **STOP AT THE CLEW TRIANGLE:** You must stop furling when the reinforced clew triangle (the last 18" of the sail) reaches the mast slot. Forcing this thick patch into the groove will severely jam the system and damage the sail.

🛑 **IMPORTANT:** If anything looks wrong, **stop and call San Juan Sailing** rather than forcing it!

**2. General Sail Handling**

- **Electric Winch:** The port coachroof winch is electric. Lock the line into the self-tailing jaws *before* pressing the button on the deck. **CAUTION:** Electric winches are incredibly powerful. Watch your fingers, watch the sail, and stop immediately if you feel heavy resistance to avoid tearing the sail or breaking the rig.
- **Clutches:** Rope clutches must be flipped fully up and rotated all the way forward to release the lines.
- **Headsail:** The Harken Genoa can be furled on any point of sail, but easing the sheet to spill the wind makes it much easier.
- **Winch Handles:** Stow winch handles in the bins near the helms when not in use. Dropping them will heavily chip the fiberglass/gelcoat.
- **Transmission:** Leave the engine transmission in **Neutral** while sailing. The propeller will freewheel, which may produce a slight whirring sound above 5 knots—this is normal.

**3. Heavy Weather & Reefing**

The Beneteau 40.1 has a modern, wide hull with double chines that tracks beautifully, but like all modern cruisers, she prefers to be sailed relatively flat.

- **When to Reef:** If you think you might need to reef, you probably should. Generally, start thinking about reefing when the wind consistently hits 15-18 knots.
- **Reefing Order:** We generally reef the mainsail first, then the Genoa. If you are still overpowered, take another reef in the main, then more of the Genoa.
- **Heel Angle:** If the boat is heeling excessively (more than 15 degrees) or the helm feels heavy/hard to turn, reducing sail area will actually *increase* your boat speed and make the boat much more comfortable to steer.

***Note:*** *Please ensure hatches and port lights are closed while underway.*

## 26. Showers and Sumps

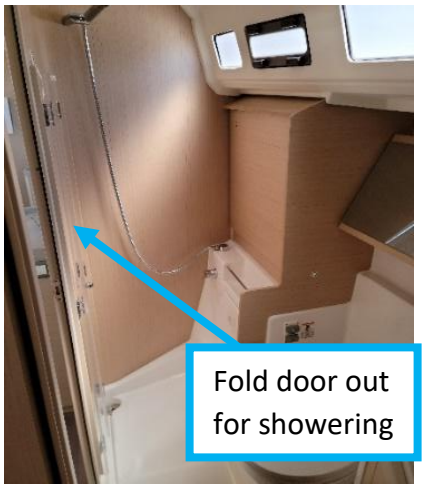
**HIGHLIGHTS**

- **Interior Showers:** There is a separate shower stall in each head.
- **Transom Shower:** Located on the stern, featuring hot and cold fresh water.
- **Emergency Feature:** The interior shower sumps can act as emergency bilge pumps if the water level in the boat ever rises to the shower grates.

**Operating the Interior Showers**

Unlike household showers, the water does not drain automatically. You must manually activate the pump to clear the floor.

1. Turn on the **Shower Sump Pump** circuit breaker on the DC panel at the nav station.
2. While showering, press and release the **black push-button** located in the shower stall.
3. *Note:* The drain pump is on a timer! You do not need to hold the button down. Press it once, and the pump will run for about 15-20 seconds to clear the water, then automatically shut off.




**Operating the Transom Shower**

The transom shower is perfect for rinsing off salt water after a swim.

- Ensure the **Water Pressure** switch is ON at the main DC panel.

- Pull the nozzle out towards you, adjust the hot/cold dials, and toggle the switch on the nozzle to start the flow of water.
- *Please ensure the nozzle is completely turned off and seated properly when finished so the fresh water pump doesn't cycle endlessly or leak into the lazarette.*

## 27. Stove, Oven, Microwave & BBQ

**HIGHLIGHTS**

- **Galley Stove/Oven:** A propane-fired appliance. The 2.0-gallon steel propane tank is safely housed in a vented locker in the cockpit floor between the helms.
- **Outdoor BBQ:** A Kuuma/Camco Stow N' Go 160 gas grill is mounted on the stern railing, it uses its own dedicated propane bottle mounted also to the stern railing.
- **Propane Checks:** The San Juan Sailing staff checks both the main galley tank and the BBQ bottles weekly so you shouldn't run out.
- **Microwave:** Operates on 120V AC power. It can be used when plugged into shore power or when running the generator. If neither is available, it can run off the battery inverter, but please only use the inverter for short (2-3 minute) bursts to avoid rapidly draining the house batteries..
- 🛑 **SAFETY CAUTION:** Propane is heavier than air. If you ever smell a propane leak, extinguish all flames immediately, open all hatches, and do not operate electrical switches.

**1. Using the Galley Stove Burners**

a) **Open Valves:** Open the hand valve on the main propane tank in the cockpit, then turn ON the interior propane solenoid switch (located in the galley).

b) **Safety Lock:** Ensure the gimbal lock at the bottom of the stove is secured so the unit won't swing and spill hot food if someone bumps it.

c) **Lighting:** Push in the desired burner knob, turn it to the light position, and press the electric ignitor button.

d) **The Thermocouple:** Once lit, **keep the knob pushed in for 5-10 seconds**. This warms up the safety thermocouple. If you release the knob too soon, the flame will go out.


e) **Safe Shut Down:** When finished cooking, leave the burner running and **turn OFF the propane solenoid switch first**. Wait for the flame to naturally die out (this burns off all the remaining pressurized gas in the hose). Once the flame is out, turn the burner knob to OFF, and close the tank valve in the cockpit.

**2. Using the Galley Oven**

a) Follow steps 1 & 2 above (Valves open, Gimbal locked).
b) Open the oven door fully (ensure the door lock is in the open position).
c) **Lighting:** Push in and turn the oven temperature knob while pressing the ignitor button. Keep the knob pushed in for 10 seconds to warm the thermocouple.

d) Verify you have a steady flame along the burner tube, then gently close the door so the flame isn't blown out. Set to your desired temperature.


**3. Using the Outdoor BBQ (Camco Stow N' Go 160)**

The BBQ is mounted on the stern rail and runs off a dedicated propane tank also mounted to the railing.

1. **Open Valve:** Open the hand valve on the top of the stern-mounted propane tank.
2. **Lighting:** Open the grill lid. Push the grill's control knob in, rotate it to the "HIGH" position, and press the built-in igniter button.
3. **Manual Light:** If the igniter fails, you can insert a long lighter through the access hole on the side of the grill while turning the knob to HIGH.
4. **Shut Down:** When finished cooking, first close the hand valve on the propane tank and let the grill burn out the remaining gas in the hose. Then, turn the grill's control knob to OFF.
5. **Cover:** Once the grill has completely cooled, please put the white cover back on to protect it from the weather.

**4. Microwave Oven**

Mounted in the galley on the starboard side.

- **Power Sources:** The microwave runs on 120V AC power. It operates normally when you are plugged into **shore power** or when running the **generator**.
- **Inverter Use:** If neither shore power nor the generator is available, it can be powered by the battery inverter. However, please only use the inverter for short (2-3 minute) cook times, or you will rapidly drain the house batteries. *(See Section 9, Batteries/Charging/Inverter/Generator).*

## 28. Swim Platform (Transom)

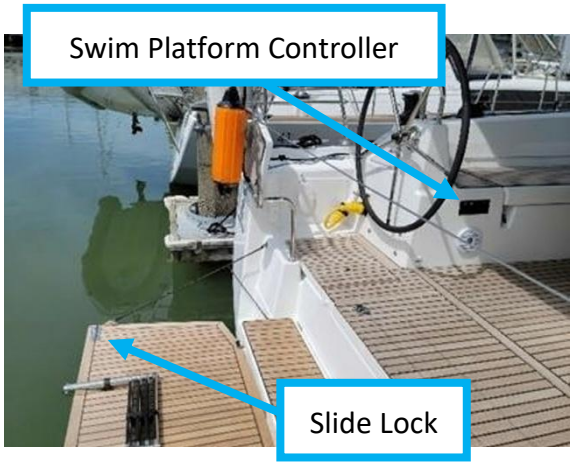
Starhaven features a large, electrically operated swim platform that expands the cockpit and makes boarding the dinghy or swimming much easier. The controller for lowering and raising the platform is located just forward of the port helm, on the base of the cockpit seat.

**1. Lowering the Platform**

1. **Release the lock:** Pull the physical slide lock located on the port side of the swim step to release the platform.
2. **Lower:** Press and hold the **DOWN** arrow on the electric controller until the step reaches its lowered position.

**2. Raising the Platform**

1. **Check the lock:** Ensure the manual slide lock on the port side is pulled back and not sticking out (so it doesn't jam as the door closes).
2. **Secure the ladder:** Verify that the stainless swim ladder is fully folded and securely snapped into its black retaining clips so it won't fall open while closing the door.
3. **Raise:** Press and hold the **UP** arrow on the controller until the platform is all the way to its home (vertical) position.
4. **Lock it:** Push the manual slide lock pin on the port side back in to safely secure the door. *Note: You must physically lock this pin before getting underway to prevent the door from dropping while sailing!*




## 29. Water System

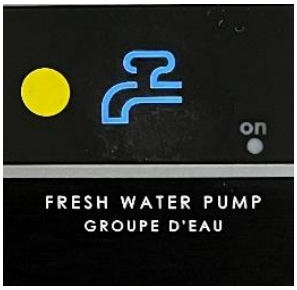
**HIGHLIGHTS**

- **Capacity:** Two water tanks totaling 140 gallons: Tank #1 (87 gal) and Tank #2 (53 gal).
- **Tank Locations:**
  - Tank #1 is under the forward v-berth.
  - Tank #2 is under the starboard aft cabin berth.
- **Deck Fills:** Both water fills are on the **starboard side** and have bright blue rings:
  - **Forward Fill:** Located on the side deck, just forward of the mast.
  - **Aft Fill:** Located under the flip-up foot chock/step at the starboard helm.

  *Please double-check the labels before filling to avoid accidentally putting water in the diesel tank!*
- **Level Gauge:** Monitored via the NAVICOLOR display at the nav station.
- **Hot Water:** The 11-gallon tank is heated either by running the main engine, or by turning on the Water Heater AC breaker when connected to shore power or the generator.

**1. Water Pressure Pump**

- **To turn on the water pressure:** Press Button 9 (Fresh Water Pump) on the main physical DC switch panel located at the nav station (below the Navicolor screen). The red LED will illuminate when the pump is powered on.
- **Critical Rule:** Please turn the water pump **OFF** when sailing, motoring, or leaving the boat. If a tank runs dry or a fitting leaks, the pump will run continuously and burn itself out. You will likely not hear the pump running over the sounds of the engine or wind.




**2. Checking Water Levels**

- Turn on the NAVICOLOR display by pressing the raised vertical tab just above the power icon on the left side of the unit.
- Press the lower-left **Tank Icon** to select tank levels, then select the water tanks.

- Press the blue arrows to cycle between **Tank #1** (Bow) and **Tank #2** (Starboard Stern).

**3. Switching Water Tanks**
The tank selection valves are located below the salon floorboards, at the foot of the companionway stairs.


- **Valve #1** = Bow Tank (under forward berth)
- **Valve #2** = Stern Tank (under starboard aft berth)
- **Operating Strategy:** When both tanks are full at the start of your charter, draw from the bow tank first to reduce weight in the bow (leave the stern tank valve closed). Once the bow tank is nearly empty, switch over to the stern tank.
- **How to Switch:** To prevent air from getting sucked into the lines, always **turn off the water pressure switch** at the nav panel before changing tanks. Close the empty tank's valve, open the full tank's valve, and then turn the pressure pump back on.

**4. Hot Water Heater**
The 11-gallon hot water heater is located behind the engine. It can be heated in three ways:

1. **Main Engine:** It takes about 30 minutes of running the engine under load to get the water hot. **CAUTION:** Engine-heated water can get scalding hot. Please test the temperature carefully before showering!
2. **Shore Power:** When plugged into the dock, you must turn on the electric **Boiler / Water Heater** switch. *Note: This switch is NOT at the main nav station. It is located on the AC Shore Power breaker panel in the port aft cabin.*
3. **Generator:** When away from the dock, start the generator and turn on the same Boiler / Water Heater switch in the port aft cabin.

## 30. Final Thoughts & Contact Info

We hope these notes have helped you feel comfortable and confident at the helm of Starhaven. We take immense pride in maintaining her to the highest standards, and we sincerely appreciate you treating her as your own during your time aboard.

If you encounter any mechanical issues, have questions about a system, or simply need advice while on the water, please do not hesitate to reach out to the San Juan Sailing & Yachting team. They are incredibly knowledgeable and are always standing by to help ensure your vacation is safe and stress-free.

**360 676 4116**
**San Juan Sailing & Yachting** Emergency Phone Number (call only, no text)
**360 224 3859**
**Mike's Marine Service** - Starhaven's Maintenance Pro Service Phone
**425 372 8772**
**Christian Maier** - Starhaven Owner Cell Phone

Thank you for choosing Starhaven for your Pacific Northwest adventure. We wish you fair winds, clear skies, and unforgettable memories! Fair winds ~~~~~_/)