

HARMONY

Owner's Notes

Table of Contents

1	Introduction
2	Tips
3	QUICKSTART
6	Dinghy Operation, Swim Ladder
9	Electrical Systems (including Genset)
12	Engine Systems Description & Operation
15	Entertainment
16	Flybridge and Cockpit
17	Galley, BBQ, Crab Equipment, Vacuum, & Windows
19	Head System
20	Heating and Cooling the Cabins (and alternate Hot Water)
21	Navigation Equipment & Weather Station
22	Tackle, Anchors, Mooring Equipment
25	Water System (including Water Maker)
27	Appendix A: Spare Parts Location
28	Appendix B: EMERGENCY EQUIPMENT
29	Appendix C: Schematic of Through-Hulls

Owner's Comments

Welcome Aboard!

Harmony is a 2000 Californian 39 (built by Navigator). We purchased her in October, 2006, from her original owners with the intention of adding her to the San Juan Yachting charter fleet.

Harmony is a documented motor yacht. Her hailing port has always been Squaticum Harbor in Bellingham, Washington. She has cruised much of the west coast of the U.S. and British Columbia, as well as the Inside Passage to Alaska.

PLEASE TAKE TIME TO READ THIS MANUAL AND USE IT AS A REFERENCE SOURCE DURING YOUR CHARTER CRUISE. On board you will find a selection of useful guide books, including *Chapman's Piloting*, which is the boater's version of "Everything You Need to Know but Didn't Think to Ask or Can't Remember."

Please don't be afraid to ask any question of the San Juan Yachting staff during your orientation or at any time. The folks at San Juan are thorough, friendly and caring, so they appreciate customers of the same ilk. No question is too insignificant.

We have enjoyed getting *Harmony* ready for your cruise. We hope you will sense our pride in her and enjoy your time on her as much as we do. As you cruise, if you discover anything we could do to enhance your experience with *Harmony*, please share that with the good folks at San Juan Yachting.

May you be blessed with blue skies and calm waters.

Bon Voyage,

The Taylors

Four Tips
to keep Harmony in top shape for other guests.

1. Shore Shoes Off

Shore shoes: Worn on shore or in dinghy only. Remove them before entering the salon. There is a brush at stern spigot for cleaning shore shoes before getting back on the deck.



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Boat shoes: Wear clean, light-soled shoes or slippers on deck and inside. Slippers are provided in the ottoman. Please do not wear "boat shoes" on shore.

2. Damp Lifejackets Need Fresh Air!

If a **lifejacket** or **flag** is even slightly damp, please hang it where fresh air circulates until it's completely dry. Snap straps on flybridge canvas make a good hanging device. The slightest moisture in an enclosed place creates mildew within 24 hours.



3. Wash Down the Anchor Chain!

Use the fresh water hose on the bow spigot to wash salt water, mud, and marine debris from the anchor chain BEFORE it goes into the chain locker. Failing to do so can result in foul odors in the chain locker!

4. Please Keep Salon Door Closed when engines are running to prevent buildup of exhaust film inside the cabin.

The Owners and other Guests thank you 😊

***Harmony*Quick Start**

Before Starting Engines:

1. Dinghy and deck furniture secured? Grill covered?
2. Disconnect shore power; stow cord.
3. Power panel: Green dots ON; Yellow dots ON as needed; Red dots: Always OFF
4. Close all hatches and portholes in staterooms and heads.
5. If using inside helm, open blinds and curtains for visibility.
6. Check oil and coolant levels in engines and generator; add if necessary.
7. Check under-engine oil pads.
8. Check fuel gauge.

Starting Engines:

1. Locate ignition keys at lower helm. The four keys are not interchangeable, so please don't remove them from the key rings with their floating labels.
2. Put gear controls in Neutral. If engine is cold, advance throttle lever about ½ inch. If warm, leave at "Idle."
3. Turn keys to start, one at a time. If engine doesn't start, be sure controls are in neutral. Do not try to start more than 30 seconds without a 2-minute "rest" period.
4. Warm up at idle speed (650 RPM)
5. Oil pressure OK? (takes 5-10 seconds)
6. Water running from both engine exhausts? (go look)
7. Throttles all the way down to "Idle" before engaging transmission!
8. Keep salon door closed when engines are running to prevent diesel exhaust film from settling on interior furnishings.

Electronics: Be sure you start the engines before turning on electronics.

Turn on "Radar" switch on DC panel for power to both helm stations.

1. Lower Helm must be turned on FIRST:

Turn on Raymarine E120 (left screen); Raytheon Depthfinder is optional.
Check if VHF is on. If not, depress volume button to turn on.

2. Upper Helm may be turned on AFTER Lower Helm:

Turn on Raymarine E80 and connect the RAM (microphone) for VHF.

Before Leaving Dock:

1. Center the rudder.
2. Untie and stow mooring lines. (Buckle latch straps shut so you don't lose lines!)
3. Once underway, stow fenders in fender racks. It is best to clip fender holder on the railing for added security. (Hint: Since the fender lines are different lengths for bow, mid, and stern, you may want to keep track of where you stow which fender.)

Always use Upper Helm station for docking and leaving the dock, as it provides maximum visibility and communication with crew.

Underway:

1. Helmsperson "on watch" at all times: Always be alert for logs or debris in water. Monitor gauges.
2. Keep RPM under 1300 until engines warm to 150 degrees.
3. Always keep effects of your wake in mind.
4. Over 1500 RPM, level the boat by lowering Trim Tabs
5. Remember to raise Trim Tabs when you slow down.
6. "Normal" readings: Engine temp. 150-190 Oil pressure: 30-90 psi

Approaching Dock:

1. Put fenders on appropriate side. (Stern fender = shortest line; Bow = longest line.)
2. Attach Bow line to cleat and run line OUTSIDE stanchion and OUTSIDE fender lines toward amidships; secure to a stanchion so it can be pulled by someone on the dock.
3. Engines should be dead slow.
4. Mate ready to step off swim step (No leaping across water to dock!) and secure Stern first (most circumstances), then Bow. In crosswind, best to secure mid-line first.

Upon Arrival at Dock in Marina:

1. Secure all lines: Stern, Bow and Springline as a minimum.
2. If bow-in, be sure anchor is not protruding over dock walkway.
3. Turn off defroster (if using it) and engines (see "Stopping Engines" below).
4. Turn off Raymarine electronics at both helm stations; replace covers.
5. Once shore power is connected, make certain there is 110 voltage on the panel. (See Electrical section of Owner's Notes for details.)

Stopping Engines:

After operating at cruising speed, allow engines to idle a few minutes to cool down. (This usually happens naturally while tying dock lines or setting the anchor.) Then turn keys to "OFF." **Remove keys from upper helm station and stow them at lower helm station.**

Tying up to a Mooring Buoy:

1. Skipper at Upper Helm, Mate on starboard side of cockpit with boathook and nylon mooring line (stowed in aft flybridge seat). Nylon line is less prone to fraying from the rub of the buoy ring than the regular dock lines.
2. Mate secures one end of dock line to stern cleat.
3. Skipper puts starboard end of stern next to buoy.
4. From stern, standing inside cockpit, mate pulls up buoy ring with boathook and loops dock line through buoy ring.
5. Mate places boat hook in cockpit, releases dockline from stern cleat and holds two ends of dock line while walking up side to bow. Skipper maneuvers bow close to buoy.
6. With buoy close to bow, secure one end of line to each front bow cleat. This allows for "quick release" when you're ready to cruise: Simply release one end of line from bow cleat and pull through the buoy ring and you're free to go.
7. Secure 2nd line as a safety if mooring overnight.
8. Turn off defroster (if using), engines and Raymarine electronics at both helm stations and replace covers.

Mooring at Anchor:

1. Turn on Windlass power in power panel. Release loop that secures anchor.
2. Anchor is lowered with foot switches on bow deck or from remote controls at either helm while boat is backed up slowly away from anchor.
3. Mate on bow to monitor length of chain going out and to troubleshoot if it gets tangled. (Anchor line marked at 10 ft - red paint, then every 20 ft - orange rope; 100 feet -yellow.)
4. When desired chain length is out, stop windlass. (See "Tackle" section for recommended scope in NW waters.)
5. Skipper reverse one engine at a time gently to test the set of the anchor.
6. Attach "Snubber line" to anchor chain: Located in aft flybridge benchseat. Secure snubber line to windlass cleat. Attach hook to anchor chain beyond anchor roller. Run out enough chain to form loop in chain so tension is transferred to snubber line.
7. Turn off Windlass power in panel.
8. Turn off engines. Turn off navigation electronics at both helms; replace covers.
9. See "Tackle" section of Owner's Notes for instructions on hauling anchor and **freshwater washdown (very important!) of anchor chain.**

Daily (Overnight) Checklist in Marina:

1. AC Input "On" for shore power.
2. Inverter "On" – Be sure it is charging.
3. Keep an eye on water tank gauge and holding tank gauge.

Daily (Overnight) Checklist at Anchor or Buoy:

1. Anchor light : "On" during hours of darkness. (Not required in designated anchorage or if tied to buoy.) How to turn on anchor light: Turn on "Nav Lights" switch on panel. Above this, switch toggle to "Anchor Light."
2. Turn off unnecessary electrical items. Even unplugging appliances not in use will help reduce the drain on battery power.
3. Keep an eye on water tank gauge and holding tank gauge.

First Thing Each Day:

1. If at anchor, turn off anchor light.
2. Check Heart Interface for battery reserve. If less than 11 volts or if amp hours used exceeds 300, start generator.
3. Check water tank level (gauge in power panel)
4. Check holding tank gauge. If near full, pumping is necessary.

Before Leaving Vessel:

1. Power panel: Turn water pressure "OFF"
2. Cover electronics screens at both helm stations. Be sure ignition keys are not left at the upper helm.
3. Optional: Close blinds for UV and theft protection.
4. Lock the door.

Fueling: See instructions in "Engine Systems" section of Owner's Notes.

Dinghy Operation



The law requires everyone in the dinghy to wear a lifejacket.

Lifejackets are located in the forward flybridge seat.

Prevent Mildew!

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

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

Launching:

1. Turn davit ON at power panel; find winch remote control in salon port cabinet.
2. Remove vinyl winch cover (keep one tie fastened to mount so it doesn't blow overboard) and connect remote control.
3. Remove tie-down straps from dinghy (leave them attached to cradle) and **MAKE CERTAIN PLUG IS IN THE DINGHY!!** Release hook and connect it to dinghy harness. Loosen "painter" (dinghy's long bow line) and hand down to cockpit (over aft or port edge, not through stairwell).
4. Using power winch, lift dinghy free and manually rotate it over port side, then lower it to the water.
5. Secure painter so dinghy won't drift away once you release the cable. Get into dinghy and disconnect the front harness clip to allow you to raise the seatback.
6. Disconnect winch cable and secure it to an eyesplice of the dockline on the port stern cleat or raise it up and secure it on cradle if dinghy will stay in the water overnight.
Note: You will want to put some tension on the cable while raising it; otherwise cable will wind too loosely and cause problems.
7. Disconnect and safely stow the remote control. Replace vinyl winch cover.

Starting the Outboard Motor:

1. Be certain fuel line is connected and air vent on fuel tank is open.
2. Lower motor with Up/Down lever on side of throttle.
3. Pull on choke, set throttle on fast idle and start outboard with pull rope.
4. Push in choke when the engine is warm and lower fast idle lever.

Bringing In:

1. **BE SURE GRILL IS COVERED** to avoid saltwater dripping on it and causing rust.
2. To hoist dinghy, reverse "Launching" procedure.
3. **BE SURE TO SECURE DINGHY IN CRADLE WITH TIE- DOWN STRAPS.**
If you don't do it right away, it is easy to forget and dinghy will bounce out of cradle while cruising. Not fun!
4. When finished with dinghy, return remote control to salon port cabinet.

Securing Dinghy to Swim Step:

Two carabineers on the port side of dinghy clip to metal loops under the swim step. This stabilizes the dinghy safer embarking/disembarking as as securing it while at anchor. **Do not cruise with the dinghy in this position!** A flat small fender tied to center handle on the port side protects the dinghy from rubbing on swim ladder and swim step. When using the dinghy just flip the fender the inside.



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Outboard Fuel: Unleaded regular (87 octane). **NO** oil mixture needed for the 4-stroke motor. Please replace the fuel you use! It is easiest to refill the dinghy gas can from the extra gas can behind the flybridge seat. Then top off the extra can before your check-in.

Dinghy Care:

- ✓ Keep the dinghy clean and well inflated. There is a hand water pump in the dinghy and a foot air pump in aft flybridge seat.
- ✓ A spare fuel filter and spark plugs are kept in the spare parts bin under the forward side of the master berth.
- ✓ Dinghy toolkit is in the bow compartment in the dinghy.

If Dinghy doesn't run:

- ✓ Is the safety clip in place?
- ✓ Is the tank vent open?
- ✓ Is the fuel line connected?
- ✓ Is there gas in the tank?
- ✓ Did you choke it?

If it still won't run or runs very rough, replace the spark plugs, which are located in the hatch under the forward side of the master berth. Replacement fuses are located next to the fuse in the Honda motor.

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

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

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

Cleaning Your Shoes: Your shore shoes are likely to pick up gravel or dirt on shore. There is a hand brush hanging on the fresh water spigot at the stern for cleaning shoes.

Use of Swim Ladder: The retractable swim ladder is mounted under the swim step. To use it, undo the Velcro fastener and pull the ladder straight out horizontally all the way, then drop it down. Put it away in the same fashion, being sure to secure it with the Velcro fastener. If planning to use the ladder, securing a short line on the transom rail is useful to provide a grab line for getting out of the water.

Electrical Systems

Controls: The electrical control panel (port side of salon) contains controls for all electrical systems. The switches act like circuit breakers. White (left side) switches control 110 volt/AC systems ; black (right side) switches control 12 volt/DC systems. **AC Main and DC Main should be set to ON at all times.** AC input is automatically switched to the appropriate source with the Genset taking priority over shore power. If no AC power source is available, the gauge in top center will read “0 volts.” The gauge to the right of this indicates voltage in battery banks. **Normal voltages: 12.5 – 14.0 volts DC.**
Green dots: ON at all times ~ Yellow dots: ON as needed ~ Red dots: OFF at all times

DC Switches: During normal use most DC switches may be left ON with the exception of the macerator pump and the running lights. **Be sure to leave Bilge Pump and Sump Pump ON at all times** (green dots); they are on automatic when these switches are ON.

DC Fuses: Spare fuses (for Radio/CD) are with spare light bulbs in salon port cabinet.

AC Switches: You will use AC breakers more than DC breakers because you will need to limit loads while on shore power to suit power availability. When using the generator there is adequate power to run virtually everything on the boat. But when using shore power, you will need to limit loads to 30 amps (3,000 watts), 20 amps (2,000 watts), or even 15 amps (1,500 watts), depending on shore power availability. Here are some loads:

Water Heater	900 watts	Portable Heaters	750/1500 watts
Defroster Heaters	500/1000 watts	Refrigerator	125 watts
Battery Charger	250 watts typical*	Microwave	1000 watts
Toaster	800 watts	Blender	475 watts
Coffee maker	1000 watts		

*If house batteries have had significant use without recharging, the inverter, when in charging mode, can draw up to 1,000 watts. Watch the load carefully and allow the inverter’s charger to come up to full current before adding other loads while on shore power, especially the water heater. This can take a minute or two. Watch the amp meter when adding load. Multiply amps by 10 to approximate the load in watts from the charger. **Add up the power you are using and be sure it’s under the limit!**

NOTE: It is necessary to wait until the Magnum meter reads “Absorb” or “Float” before turning on the hot water heater. **OPTION: If you need hot water** and don’t want to run the Espar (see p.19) system or wait for batteries to charge, you can turn off the “Charge” button temporarily to bypass the charging system. Be sure to turn it back on later or batteries won’t charge.

Shore Power: Shore power cords are stowed in lazarette next to port fuel tank. 15 and 20 amp adapters and a Y-adaptor hang on stair rail. Shore power receptacle is located on port side of transom above swim step.

- 1) Connect the cord with the Smartplug 30 amp adapter to *Harmony’s* receptacle first and then into shore power. If more length of cord is needed, the second cord (without Smartplug) can be connected to the first cord.
- 2) After connection, the meter on the panel should read “110 volts” and green light labeled “AC Power On” should be lit. If not, check that AC Main switch is ON and then check the supply at the dock to make certain it is turned on.

Inverter:

Generator:

Starting the generator is a **10-sec. sequence**, using switches on upper left of electrical panel:

- 1) Unless you have run the generator within the last hour, hold the PREHEAT switch ON for **5 seconds**. Continue holding it up while you perform the next step.
- 2) Push ENGINE CONTROL switch up to START position; hold about **2 seconds** until generator starts. Release START switch; continue holding PREHEAT switch **3 more seconds**. (This completes your 10 seconds). If engines are running, it can be difficult to hear the generator start. Check by having your mate look over the side for exhaust.)
- 3) Within a few seconds, you should see "110 volts" on voltmeter on the electrical panel.
- 4) Look over port side at generator exhaust. Water should be flowing from exhaust opening. If not, stop the generator and check strainer and pump.
- 5) Put a load on the generator by switching on the hot water heater or an appliance. (Be aware that switching on too many things at a time could trip a switch.)

To stop the generator:

- 1) Remove the electrical load from the generator by turning off your elective load.
- 2) Run the generator engine for a 2- to 3- minute cool-down period.
- 3) Move the engine control switch to the STOP (down) position.

The generator will shut itself off if there is low oil pressure or high water temperature.

Battery Switches: There are no regularly used battery switches. The main DC battery switch is located in the engine room aft of the starboard engine. This should normally remain set to "House Bank #2."

Interior Lighting: All lighting is 12-volt DC with the exception of the wall lamp in the salon (which uses a 12V bulb) and table lamps in Master Stateroom (type A 110 bulbs, 75W max) . Spare bulbs are labeled and stored in a bin in the salon port cabinet.

Exterior Lighting:

"Arch Lights" switch on panel controls lights on flybridge. In addition to the panel switch, these lights are turned on by pull knobs on the flybridge console: (1) Radar "Arch Lights" and (2) "Deck Lights" (floodlight above the dinghy).

"Cockpit Lights" (including courtesy lights on exterior steps) are controlled by the uppermost switch beside the refrigerator.

"Nav Lights" switch must be on for **"Running Lights"** and **"Anchor Lights"** which have a toggle switch at the top right corner of the electrical panel.

Engine Systems

Access: Through hatch in cockpit deck. Engine room lights are controlled by a breaker on the main panel and a pressure switch on the engine room hatch.

General: The twin 318hp, 6-cylinder turbocharged Volvo Pentas drive the propeller shafts directly through inline 2:1 reduction gear transmissions with dripless shaft seals.

Starting: No preheating required. Be sure you check oil and coolant levels first. Turn starboard and port keys on separately. You may start the engines at either helm station.

Keys: The four ignition keys are not interchangeable. Do not remove keys from their respective key chains with labels. Upper helm keys should be stowed at the lower helm with the cabin door locked when you leave the boat. An emergency set of keys is stowed in the forward bedside drawer in the master stateroom.

Engine Alarms: This boat has alarms on each engine, which sound for either low oil pressure or high temperatures. If alarms should sound when you are underway, idle back the engine, check the gauges, and shut down the offending engine promptly.

Do not run engines over 1300 RPM until the temperatures reach 150.

Normal Readings: Engine temp. 150-190 Oil pressure: 30-90 psi

Optimum RPM for high speed cruise efficiency: approx. 2500; **Do not exceed 2600 RPM**

Shifting: Shift gears only at idle RPM. Allow at least 2-3 seconds between shifts from forward to reverse or vice-versa. Dockside maneuvering should be performed with the throttles at minimum idle speed.

Bow Thruster: Thruster may be operated from either of two controllers: lower helm (joystick) or upper helm (remote). Either can be turned on by pressing both "On" buttons on its control simultaneously. The controller will turn off automatically after 4 min. of non-use. Maximum continuous usage time of the thruster is 3 minutes, after which it will shut off. The thruster is powered by separate batteries which charge only with AC input. A battery switch on port side of V-berth bed will turn off all power to thruster in an emergency.

Exhaust: Please keep salon door closed while engines are running to prevent diesel exhaust film from settling on interior furnishings.

Pumps: The engines are dependent on several pumps to operate properly. Most important of these is the sea water (raw water) pump on each engine, which circulates sea water through a heat exchanger to cool the engine and its transmission, and then expels it through the exhaust pipe to keep the pipe cool. If a pump fails, it could severely damage the engine; if left unattended, a fire can result. If something smells "hot" or an alarm sounds, investigate at once! There should be no steam or water spraying in the engine room. There should be water coming out of each exhaust pipe.

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

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

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

1. Turn off the seacock to the pump on the defective engine.
2. Take the top off the sea strainer. Save the gaskets!
3. Open the seacock valve to make sure it is clear (water won't gush in).
4. If seacock and strainer are clear, the problem is likely the pump impeller or a broken belt.

Replacing the pump impeller is simple:

1. Find spare impeller under the forward side of the master berth mattress.
2. Close the seacock for that engine.
3. Follow the hose from the strainer to the pump.
4. Remove the front plate (opposite end from the pulley).
5. You'll see the impeller, shaped like an asterisk, and it will likely have one or more broken or damaged arms. (If no arms are broken, the problem isn't the impeller – consult a mechanic.)
6. If an arm is broken, slide impeller out from front of pump where cover plate was.
7. Clean out pump chamber, trying to get all the pieces out of the water system.
8. Lubricate the new impeller with hand soap or dishwashing detergent.
9. Aligning the "flat" on the shaft with the matching "flat" on the impeller, pushing the blades aside as required, slide the new impeller into the pump.
10. Replace the cover with its gasket and tighten the screws securely.
11. To avoid "air lock" be sure sea strainers are full of water before you open the seacock. Use the fresh water hose in the cockpit (starboard side).
12. Open the seacock and check for leaks.
13. Start the engine and check for proper operation.

Replacing a belt:

1. Find spare belt under the forward side of the master berth.
2. Remove the broken belt.
3. Loosen the generator or water pump as applicable to provide slack. Install belt.

Fuel: Each engine has a "supply" and a "return" valve from the fuel tank. Raycor fuel filters are mounted on the starboard tank and do not require service unless the bowl is full of sediment and the disposable filter is clogged. If the fuel filter must be replaced, follow instructions in the service manual (salon port cabinet). Each engine has another fuel filter mounted on its starboard side. These are normally serviced by the boat owner, but there are spares under the forward side of the master berth mattress. Instructions can be found in the service manual.

Shaft Logs: Shaft logs are watertight fittings that prevent water coming into the boat around the holes where the propeller shafts exit the hull. *Harmony* is fitted with PSS dripless shaft seals. There should be no need to adjust these.

Oil Changing: Oil should be changed every 150 hours; normally this is done by the owner. However, if it is necessary for you to change the oil, run the engines to warm up the oil before changing. Also, change the filters on the engine at each oil change – spare filters are under the forward side of the master berth. A “filter wrench” is in the lower bin (#2) in the engine room. To avoid a mess, enclose the filter in a plastic bag before removing for easy disposal.

Oil Leaks: A small bit of oil spattering is normal for these engines, and the owner has supplied oil absorbent drip pads to catch this. If the dipstick shows excessive leaking, track it down! Remember, a little bit of oil makes a big spot: the dipsticks are the best warning of excessive use! Other than drips, the engines are clean running and the engine room will stay clean.

Coolant: Engine coolant should be above “cold” level in the reservoirs. There is a plastic jug of pre-mixed coolant (50% water, 50% coolant) in the engine room. Distilled water is stored on the starboard side of the aft bilge along with a spare gallon of coolant. If the jugs are empty, use fresh water. Add coolant to the reservoir.

Fueling Process: Port and Starboard fillers are located on the cockpit deck. Cap keys (with floats) hang behind stairs to engine room.

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

Harmony carries 300 gallons of diesel (150 gallons on each side). Each tank has a fuel gauge at the lower helm. Ignition key must be turned to ON position (without starting engine) to read each gauge. These gauges are accurate, but a more precise reading can be obtained by using the yellow yardstick (located by port fuel tank). Holding the cork ball, lower yardstick into tank until it touches the bottom. The level of diesel indicated on the yardstick corresponds to the chart on the engine room hatch. This is a good way to estimate how much fuel you need before you begin filling.

While filling, be certain to form a “doughnut” around the filler hole with paper towels or absorbent pad. As you fill, listen for fuel level coming up in the filler tube. Fuel spills are your responsibility and may need to be reported to the Coast Guard.

No fuel additives are needed during the charter season.

Fuel consumption: *Harmony* uses 0.4 gal/mi at a cruising speed of 6 knots (2 gal/hr). and approximately 1.0 gal/mi running at fast cruise.

ENTERTAINMENT

Salon TV

The TV/integral DVD player operates on 110 volts AC. Since it is on the same panel switch as the microwave, be aware that they may not be able to run at the same time. The TV mount rotates both vertically and horizontally. Tilting the screen vertically can improve the picture, depending on your position and the lighting. Spare batteries for remote are in "Cabin Tools" bin and instruction manual is in the "Entertainment" service manual, both in salon port cabinet.

Securing the TV in rough seas:

In rough water (3-ft. chop or more), please monitor the stability of TV. Too much bouncing could damage the swivel mount. Stabilize it by installing the designated bungee cord (located in the low shallow drawer under the galley sink) as follows:

1. Remove upper fire extinguisher from its bracket.
2. Hook one end of the bungee on the extinguisher bracket.
3. Run it across front of TV and hook other end in vent slot above the microwave.
4. When seas are calmer, please stow the bungee where you found it. Thanks.

Stereo System - XM Radio/CD player:

The XM radio/CD player has its own switch on the panel as well as a Power On/Off button on the instrument. You can plug your own **MP3** into the front of the radio. An **iPod** port for playing and recharging is inside the cabinet. The remote is stored on a Velcro strip inside the cabinet door below the radio, along with a listing of XM channels. The instruction manual and spare batteries for the remote are located in the salon port cabinet.

External speakers: Speakers in the cockpit and flybridge can be controlled separately with push button switches on the end of the radio cabinet, above the lower helm seat. (In a moorage area, please be considerate. Sound really travels over water!)

Flybridge and Cockpit

Flybridge

Lighting: “Arch Lights” switch on panel controls lights on flybridge. In addition to the panel switch, these lights are turned on by **pull knobs on flybridge**:

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

Canvas and Strataglass Enclosure: Removing the canvas enclosure is not recommended, unless done by SJY staff. On hot days, you can roll up the side window panels and the front center panel and secure them with the snap straps. Be careful not to scratch the Strataglass with rings or long fingernails. Never fold the Strataglass; always roll it. If you need to clean it, **use only the cleaner/polisher in the plastic bottle stowed in the forward flybridge seat** (starboard side) with a soft cloth.

Be careful not to leave navigation electronics uncovered and exposed to weather or overnight dew if Strataglass windows are open.

Stowage: The forward seat contains **lifejackets, flags, and canvas** for the windshield. **PLEASE TAKE CARE TO ALLOW THESE ITEMS TO DRY BEFORE STOWING.**

The aft seat contains extra mooring lines & fenders, spare anchor, and emergency flares, fog bell, etc. **Chaise Lounge mats** are stowed on the port side of the flybridge seats.

Cockpit

Lighting is controlled with the uppermost switch beside the refrigerator.

Marine ice chest provides extra seating. You can move it to the flybridge to make more room in the cockpit, but there is no way to secure it up there while cruising. A **bistro table** and **canvas chairs** stow in the lazarette near port fuel tank.

BBQ: See the “Galley” section.

Exterior Speakers: Cockpit and flybridge speakers are controlled with switches above the lower helm seat, on the end of the cabinet.

Flags: A U.S. flag on a metal flagstaff fits into the aft rail mount on the cockpit. An optional *Harmony* logo pennant clips onto the bow staff. While cruising in Canadian waters, fly the Canadian courtesy pennant on the bow staff. Please be sure flags and pennants are **completely dry before stowing** them in the forward flybridge seat.

Clothesline: Utility line and clothespins are in the Upper Bin (#1) in the engine room.

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

Galley, BBQ, Crab Equipment, Vacuum, and Windows

Cooktop:

Turn the propane on in 3 steps:

1. Open valve on propane tank (in the box on swim step).
2. Turn on propane switch on main control panel in salon.
3. Turn on propane switch to the right of refrigerator.

Burners are self-lighting, but it takes a minute or two for the gas supply to fill the line before it reaches the burners.

Beware: Keep large kettles on the left burner. If on the right, they may hold too much flame heat under the kettle, which will begin to melt the control knob.

Steam: If cooking creates a lot of steam (such as the crab cooker), please open a window and use a fan to prevent moisture buildup on upper cabinets.

Microwave/Convection Oven: See instruction manual (GALLEY service manual in salon port cabinet). Because the microwave switch on the electrical panel is not ON at all times, don't expect the microwave clock to stay set. You may need to press "Clear" before beginning your desired function. (We're not sure if TV and Oven can run at the same time – you can give us your feedback on this.)

Disposal: The disposal discharges waste over the side (under the water line) as "gray water," which is permissible in both U.S. and Canadian waters. Run tap water while running the disposal. There is a disposal "wrench" stored under the galley sink for unjamming the disposal. Consult the service manual. If the outlet hose becomes plugged, it may be cleaned out by closing the seacock and disconnecting the hose outside of the starboard engine. A drain snake is stored at this location.

Countertops: Corian sink covers provide extra counter work space. They are not cutting boards! **Please do not cut or chop on the Corian or the drop leaf cabinet surfaces! Please do not put hot pans from the stove or oven directly on the countertop or table.** You will find a separate cutting board on the top shelf inside the drop leaf cabinet and heat-proof trivets on the pull-out shelf under the galley stove. When using the sink, you can get the Corian sink covers out of your way by standing them up between the drop leaf cabinet and the step.

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

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

The vent behind the refrigerator needs some air space, so keep the toaster stowed in a manner that allows circulation.

Bar-B-Q: The Bar-B-Q is mounted on the aft rail. Please secure the lid and keep the canvas cover on when cruising. Propane tanks and hoses are in the propane locker on the swim step. To connect propane, screw hose from port tank to BBQ or connect a small propane canister. Open BBQ lid and turn on gas by opening valve on tank. If auto-ignite doesn't function, use the butane lighter in galley utensil drawer. BBQ cooking utensils are in the galley utensil drawer.

Cleaning the Grill: Please keep the grill clean inside and out so that food stains won't build up and it will look good for the next charter guest. The grease drip pan and the grates remove for cleaning. Beware! The removable parts of the grill may go overboard if you're not careful. There is a grill cleaning brush stored in the propane box (or sometimes hanging from a latch strap under the grill).

Crab Fishing and Cooking Equipment: A crab ring with line and buoy is located between the Genset and the port fuel tank. A mesh bag containing a bait box and measuring tool is located aft of the port fuel tank. The crab cooker is located in the upper bin in the engine room. When using the crab cooker on the propane stove, please place the cooker on the left burner to prevent melting the control knobs on the stove. Please vent the steam out an open window to protect the wood above the stove from moisture buildup.

Vacuum: A hand vacuum with attachments is located in the utility cabinet in the Master Stateroom. The dust reservoir twists off for emptying. An extension cord is in the Cabin Tools box in the salon port cabinet.

A Note about Cleaning Windows:

Glass Windows: There is a spray bottle of vinegar based cleaning solution under the galley sink and a squeegee in the lazarette. NO Ammonia-based products, please, as they destroy the UV protection built into the glass.

Plastic Windows on Flybridge: There is a spray bottle of special cleaner at the upper helm (labeled for this purpose). **This is the only product you should use** on the plastic windows. Use a soft cloth to apply and dry, NO squeegee and NO abrasive material, please. The windows can be rolled if removed, but NOT folded.

Head Systems

The main cause of problems is misuse. Dealing with a stopped-up head is an unpleasant task, especially when it can easily be avoided. **The only things that should be put into the head are human waste and toilet paper!** Under no circumstances should Kleenex® tissue, feminine hygiene products, or wads of hair be flushed down the heads. **Use the marine toilet paper supplied; do not use household toilet paper!** Do not use excessive paper. Four or five squares per flush is recommended maximum.

Flushing: The Vacuflush system uses fresh water from the tank. Flush by depressing the flush pedal beside the toilet bowl. If waste matter is solid, add a little extra water to the bowl before flushing by lifting the flush pedal briefly.

Holding Tank: Turn the Tank Monitor switch ON to get a reading on the gauge at the bottom of the electrical panel. Don't panic too soon: the needle doesn't begin registering at all until the tank is 1/3 full. With two people on board, it could be late in your charter week before the needle moves. **If you are boarded by the U.S. Coast Guard**, and they ask to see the Y-valve, explain to them that this boat has no Y-valve. The heads pump only to the holding tank. There is no way to flush the heads directly overboard. Only the head waste goes into the holding tank; waste water from sinks and showers is legally discharged overboard as "gray water."

Discharging the Holding Tank: In U.S. waters, the holding tank may be pumped overboard in deep water more than 3 miles from land. Discharge of waste overboard is permitted in Canada except in harbors and near land. To discharge the holding tank under these allowable conditions, turn ON the Macerator switch on the DC panel until the tank gauge reads empty. The Macerator switch has a safety cap which must be opened in order to flip the switch. Be sure to turn the Macerator switch OFF after the tank is emptied. As a precaution, we recommend setting the timer on the microwave for 15 minutes to remind you to turn the switch OFF, to avoid burning out the pump.

To pump out at a Pumpout Station: Pumpout access is on the starboard walkway just aft of the fender rack. Follow instructions at the Pumpout Station. SJY has provided a list of pumpout locations in the Guest Manual.

Night Shut-off switch: Both heads are equipped with switches on the wall beside the head, which allow you to turn the vacuum pump OFF (switch down) while sleeping to prevent the chance of a small break in the seal causing the pump to run unnecessarily for a prolonged period of time. Prolonged pumping not only disturbs your sleep, but also poses the risk of burning out the pump and/or running the battery down if not on shore power. Of course, when the switch is in the OFF (down) position, you won't be able to continue flushing.

Heating and Cooling the Cabins

Electric Space Heaters: Space heaters are stowed in the utility cabinet in the Master Stateroom. They use 750 watts on low and 1500 watts on high, so they can be used while on shore power. Be aware that their energy draw means you probably will have to turn them off while running the coffeemaker, toaster, etc.

ESPAR Diesel Furnace: When not on shore power, diesel heat is a comfortable option. There is no panel switch for it. Thermostats in each cabin operate independently, but the salon thermostat must be on for the others to function. The red light means the thermostat is turned on; the green light means it is producing heat for the room in order to meet the temperature setting you have chosen. The green light must be on in the salon in order for the other cabins to produce heat.

It can take about 20 minutes for the system to heat up enough to start blowing warm air in the cabin. If it still doesn't blow warm air, check to make sure the "blower" switch on the unit itself is turned on. Unit is located in the lazarette, on the transom, just port of center; the "blower" switch is located directly below the sign that says "Hydronic 10."

ESPAR Optional Hot Water Setting: If you want to heat water without consuming electricity when shore power is not available, you can use the ESPAR system if the salon thermostat is turned on to activate it. The green light must be on, but if you don't want cabin heat, find the Espar system in the lazarette (on the transom, just port of center) and turn off the Espar "Blower" switch, located directly below the sign that says "Hydronic 10."

Cooling Fans: Small summer fans are stowed in the utility cabinet in the master stateroom. Using these with some windows open for a cross-ventilation can make the cabins more comfortable on hot days.

Navigation Equipment and Weather Stations

Raymarine Navigation System

The Raymarine E Series allows lower and upper helms to communicate with each other.

- **START ENGINES BEFORE turning on “Radar” switch** on DC panel, which supplies power to all navigational equipment. Otherwise, a power surge may cause the navigation equipment to re-set.
- **The lower helm unit is the master display and should always be turned on first.** The Raytheon Depthfinder is optional.
- **CAUTION: Please do not change settings randomly** “by guess and by golly” – getting this fixed later is expensive! Follow manual instructions; call for help if you are confused. The “quick version” of the manual is kept at the lower helm. More complete details are in the burgundy canvas bag (at lower helm or in salon port cabinet).
- If **VHF** is not on, depress volume button to turn on. At upper helm, connect RAM microphone for VHF. Tips for using VHF can be found in the Guest Reference Manual.

Nautical Charts and Tide Tables

Spiral bound charts of San Juan Islands are kept at the lower helm. Annotated paper charts of Strait of Georgia and Gulf Islands are stored in a plastic tube in the salon port cabinet. Cruising guides, current and tide tables are will be found either at the lower helm or with service manuals. A set of dividers is in the “Cabin Tools” bin beside service manuals.

Defrosters

The Espar defrost blower (on forward side of helm console) is often inadequate to clear the windows. Two small white heaters stored on the dashboard can be plugged into the outlet under the windshield and aimed at the center and starboard windows. Usually the low setting (500 watts) will be adequate, without requiring you to burn more amps than necessary. Be sure to unplug them when you finish your cruise.

Weather Station

A weather station located above the microwave monitors wind speed and direction, outside temperature, and wind chill. The microwave panel switch must be on for this to function.

Tackle and Mooring Equipment

Anchors & Rodes: Harmony carries a 45# plow anchor in a pulpit fitted with a roller and 270 feet of 5/16" high tensile chain lifted by an electric windlass. The secondary anchor (Danforth) and spare rode are located under the aft flybridge seat.

Chain markings: Red paint at 10 ft; Orange wire woven through every 20 ft
Yellow line at 100 ft, 200 ft and at end (270 ft)

Rode Consideration for NW waters

Anchoring: In the Northwest, we usually do not have to follow *Chapman's* "7:1 scope minimum." It is common for boats with chain rodes to use a 4:1 or 5:1 ratio (i.e., in a depth of 30 feet you let out approximately 120 to 150 feet of chain.) **In addition, we have substantial tides:** 10-ft. tides and occasional "minus" tides below chart datum are not uncommon. **Be sure there will be sufficient water in your anchorage at low tide.** Since the "depth sounders" read the distance below the keel, and since there are tide tables and a TideFinder aboard, there is no reason for running aground when anchored.

Anchoring process:

1. Turn on Windlass power in power panel. Release loop that secures anchor.
2. Anchor is lowered with foot switches on bow deck or from remote controls at either helm while boat is backed up slowly away from anchor.
3. Mate on bow to monitor length of chain and to troubleshoot if it gets tangled.
4. When desired chain length is out, stop windlass.
5. Skipper reverse one engine at a time **gently** to test the set of the anchor.
6. Attach "Snubber line" to anchor chain: Locate snubber (line with hook on one end and eye splice on other end) in aft flybridge seat. Secure snubber line to windlass cleat. Attach hook to anchor chain beyond anchor roller. Run out enough chain to form loop in chain so that tension is transferred to snubber line.
7. Turn off Windlass switch on panel.
8. Turn off engines and navigation electronics at both helms; replace covers.

➤ **See instructions below for hauling anchor and washdown of anchor and chain.**

Windlass use:

1. Turn on Windlass switch at electrical control panel in salon.
 2. Release anchor by removing the loop.
 3. Lower anchor either by stepping on the up/down foot switches on bow deck or by remote windlass control at either helm. Lower the first few feet carefully to avoid damaging the pulpit as shackle passes through the pulpit's slot.
 4. Count the painted markings until the correct ratio is reached.
- **Set the anchor without excessive force!** HARMONY weighs over 13 tons; take up the strain on the anchor rode gently to save our ground tackle.

Troubleshooting: If the chain gets stuck, first check the compartment in the bow (access above forward berth). Sometimes chain tangles as it passes through this compartment. Straighten it out and continue. If this doesn't solve the problem, you can access the chain by lifting the mattress and opening the hatch to the chain locker.

Washdown & Hauling:

1. Before raising the anchor, attach **washdown hose** to spigot on bow and make sure windlass switch is on.
2. Press foot switch next to the windlass. **Wash chain and anchor thoroughly as you haul them in.** This prevents unpleasant odors from sea water and marine growth in the anchor locker and bilge.
3. **SHUT OFF spigot when finished to avoid a slow leak of your water supply!!**
4. Remove the snubber line as soon as you can reach the hook.
5. Please bring anchor up to the windlass carefully to protect the fiberglass around the roller from gouges. Be sure anchor is stowed in its support and secured with the loop before getting underway at any speed other than idle.
6. Place snubber line on flybridge to dry before stowing.

Emergency Manual Winch handle is located in the aft bench seat on the flybridge.

Warning: If you turn it counter-clockwise, it will release the anchor chain to run freely. Stop the free run by engaging the winch handle in a clockwise turn.

Shore Lines (Stern Lines)

Why? It is common to use a stern line (but not a stern anchor) in protected bays (in most Desolation Sound locations, Todd Inlet at Butchart Gardens, Inati Bay near Bellingham) where there simply isn't enough room to have your own "swinging space" and still share the anchorage with other boats. In addition, the great water depths make anchoring very far from shore impossible.

How? Set anchor 75-100 feet from shore, with the boat backing toward shore during anchor setting. Be sure to keep clear of rocks near the shore and allow for Northwest tides, often 12 ft in our area, and up to 20 ft farther north. Then a stern line is put out, passed around a tree, and brought back to the boat, allowing you a "quick release" without having to go ashore when you're ready to untie. To get to shore, you will need to have the dinghy down, and have your mate keep the boat toward shore with bursts of reverse gear. Sometimes a helpful boater already anchored will help you by taking your line to shore for you with his dinghy---a neat "good deed" that you might reciprocate. We have met some nice boaters this way!

Using *Harmony's* Shore Line

1. Find the 275-foot shore line on a reel stowed on top of the battery housing in the engine room, secured by a fixed bungee cord around the reel and around the aluminum post.

2. Mount reel on swim step by standing it up with flat board backing tight against starboard end of propane box and securing strap around the propane box. The reel can turn freely to pay out line and to reel line back in.
 3. Once dinghy operator has run line to shore and back to the boat, secure both “ends” of line on the two stern cleats, so that there is no pull on reel. Do not attempt to secure the line to railing; it is not strong enough to withstand the potential force on the line.
- When stowing the reel in the engine room, please keep the strap with it and be sure the bungee runs around the post so the reel won’t bounce off.

Mooring Equipment

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

- Two 20-ft., marked at the spliced end with one black stripe.
- Two 25-ft., marked at the spliced end with two black stripes.
- Two 35-ft., marked at the spliced end with three black stripes.

Stowed in the aft flybridge seat:

- Extra 40-ft. dock line
- Nylon line for use on a mooring buoy (less prone to fraying than dock lines), Instructions for tying up to a buoy are in the QuickStart section.

EZ-Moor Dock throw line: Stowed in the cockpit. This works for throwing and hooking onto a dock with a railing to pull the boat in.

Black Fenders:

When not in use, store black fenders in racks on bow rails and also secure the clips on the rails. Never cruise with fenders down; it is hard on fenders and you risk losing them.

In preparation for docking, put fenders on the appropriate side and adjust the lines so the fenders are barely above the water line. Typically, you will use 3 fenders for docking. The stern fender is the one with the shortest line; when you place it, check to see that it is not over the exhaust on the side. The bow fender has the longest line.

Extra fenders:

Extra flat fenders are stowed in the aft flybridge seat. They can be used for rafting to other boats or for extra protection if the docking situation puts another boat in close proximity to you. For this purpose, tie them to a stanchion or cleat as needed.

Boat Hooks: A floating, telescoping boat hook hangs on the transom. A spare is stowed between the Genset and the port fuel tank.

- Remember that *Harmony* weighs over 13 tons; these boathooks are not strong enough for “hooking the dock” at docking time.

Water Systems

Fresh Water: The 100- gallon fresh water tank (in engine room) is filled through a deck plate on port side of swimstep. From the pump, water goes to an accumulator/pressure tank, and then into the boat's plumbing system. All plumbing is 15 mm. and there is a pressure switch on the pump itself to regulate water pressure.

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

Watermaker: The HRO Watermaker converts sea water to potable water. It is rated for 20 gal/hr in tropical waters. Expect 12-15 gal/hr in Northwest cold waters. The process consumes ½ gallon of diesel per hour.

- **Use Watermaker only when underway in deep clear water.**
- The watermaker circuit goes directly from the genset, not through the AC panel. The **circuit breaker switch** is labeled and located on a post in the engine room.
- **Do not** attempt to start Watermaker from the remote station above microwave. However, it is O.K. to stop it from this station.
- **Before attempting to start Watermaker, read the procedure below and locate these modular units** of the system (they are labeled) on aft wall of lazarette:
 1. **System Controller**: A white box aft of the stairs to the lazarette. It has a black START button and a "Running" light on it.
 2. **Product Flow Control**: Located down a bit and to your right (toward port side) just above a large blue filter. It has a black control knob (labeled), a vertical tube **Flow Meter** (gal/hr) and a round **Pressure Gauge** (psi).
 3. **Vacuum Gauge**: A bit to the left (starboard) of the Product Flow Control, above two small blue filters. It is a small round gauge.

Now you're ready for the Procedure:

1. Turn on **Gen-Set** (instructions on electrical panel in salon).
2. Turn on **Watermaker circuit switch** on port side post of engine room.
3. Before starting water production, **Product Flow Control** knob must be turned counter-clockwise at least 1 full turn. This opens valve and lessens initial startup load on the system.
4. Start system by pressing and releasing START switch on **System Controller**. "System Running" lamp will light.
5. Check **Vacuum Gauge**: It should read between 1 and 6. If above 6, the two small blue filters below it need to be cleaned. (See HRO service manual.)
6. After Watermaker is started, **Product Flow Control** knob should be slowly rotated clockwise until round pressure gauge above it reads 780-790 psi. There is a bit of delay between adjustment of the knob and the pressure reading, but it gets touchy as you approach 750. Take it slow and easy from 750 up. After you let go at 780-790, it will

tend to creep up a bit on its own, probably to 800 psi, which is O.K. You don't want it to exceed 800 psi. If over 800 psi, transient surges in the system may cause auto shut-off.

7. Flow Meter (vertical tube above Product Flow Control knob) should read 12-15 gal/hr. (This is the normal rate for cold NW waters.)
 8. The "Safe Water" light on the remote console (above microwave) will come on while potable water is being automatically routed to the fresh water tank.
 9. Check Flow Meter occasionally and adjust Product Flow Controller if necessary to maintain normal flow.
 10. To stop the system, press STOP on the System Controller or on the remote station (above microwave).
 11. Flip off Watermaker circuit switch in engine room.
- If the system does an auto shut-off, you need to start over from step #2.
 - The water tank will not overflow because excess fresh water will bypass the system and discharge overboard. If this occurs, turn off watermaker and generator (unless the generator is needed for other systems).
 - The system automatically backflushes the membrane when stopped, so no further flushing or maintenance is required.

Washdown: There are two freshwater washdown spigots: one in the cockpit and one by the anchor windlass for washing mud and debris from the chain and anchor before they come aboard. These spigots use fresh water from the tank. A white coil hose is generally kept at the stern spigot except when it is needed on the bow for the anchor chain washdown. **REMEMBER TO SHUT OFF THE SPIGOT WHEN FINISHED to avoid a slow water leak from your fresh water supply!!**

Use of Shower:

MUST DO's:

1. "Sump Pump" switch on electrical panel must stay ON at all times. This pump drains both showers and the anchor chain locker.
2. After showering, please wipe up water spills on wood areas around shower.
3. Hang wet towels so they are not left up against wood surfaces. (Moisture turns wood black and encourages mildew.)

TIPS:

1. To conserve your water supply, turn off the shower head while lathering.

While cruising, it is best to place the shower heads on the floor of the shower to prevent them from bouncing out of the brackets.