

OPERATIONS MANUAL

Laura Marie

2015 - Leopard 48



Welcome aboard! We are happy you have chosen the Laura Marie for your vacation. Laura Marie is a Leopard 48 Catamaran. She was built at Robertson & Caine Pty Ltd in Woodstock, South Africa and delivered to Sidney, B.C. Canada in 2015. She was moved to Anacortes in 2020.

Engineered by Simonis & Voogd Yacht Design, the award-winning Leopard 48 is a sophisticated and comfortable cruiser, incorporating excellent overall performance with spacious living accommodations. An enormous saloon, with large panoramic windows, offering incredible visibility and a comfortable gathering and dining area. The unique Forward Cockpit is a separate, intimate and sunny space, while the Aft Cockpit nearly doubles the entertaining area of the saloon and provides excellent communication to the skipper upstairs in the helm. The Leopard 48 features 4 double cabins, all are ensuites with head, sink and a separate stall shower. For extra guests, the main dining table converts to a King size bed. Additionally, there is a single berth in the port side forepeak area, which is a perfect sleeping chamber for children. There is another single berth crew cabin, with a head, sink and shower in the starboard side forepeak area. The design of the raised helm allows for great visibility and easy single handling, with comfortable seating for three.

Aside from the spaciousness and comfort of this vessel, a catamaran provides several significant advantages for cruisers and explorers. The stability of a catamaran is exceptional, so even in rough water, it's unlikely passengers will feel jostled or for items to fall to the floor. Efficiency is also exceptional; when running on engines only, at a cruising speed of ~8.5 knots, fuel consumption will be about 1.5 gallons / hour. With 185 gallons fuel capacity, the range is a spectacular 1,000 nautical miles. In the unlikely event of an engine failure or propeller damage, the vessel can still cruise at ~7 knots on only one engine. With a load carrying capacity in excess of six tons, this vessel exceeds any reasonable need for carrying people and gear. Even heavily loaded, she drafts only 4' 10". Laura Marie has storage for 264 gallons of fresh water. A diesel hydronic heating system assures you will be warm and cozy, even when chartering off the summer season.

The information summarized in this manual is intended to assist all skippers, crew and guests aboard in feeling more comfortable with the basic systems and how they work. **If something isn't familiar to you, please check this manual.** If the information offered is unclear, incomplete, confusing, or otherwise less than helpful, please help us to improve, change, or restate the information so that it conveys the desired results. Feel free to add your suggestions for other information or clarifications at the end of this manual, or simply add a comment or two in the margin. Your suggestions will be added to future revisions.

In addition to the information contained in this Operations manual, you will find a factory Leopard 48 Owner's Manual kept with the books at the Navigation station. If you need more detailed information, there are three folios which contain many booklets from the manufacturers of the various systems and accessories aboard Laura Marie. These materials are in the starboard bow cabin, on the top shelf, hidden behind some NW adventure travel books. Feel free to consult these manuals if the need arises.

Laura Marie is a ***no smoking, no candles*** vessel. We ask that you restrict your smoking to dockside in order to maintain a pleasant sailing environment for all future guests. Your cooperation is appreciated.

There is a logbook stored at the navigation station. Please use the logbook to document your adventures if you wish. You may also use this logbook to make any comments and/or suggestions about improving Laura Marie for future charters. Alternately, email us at bpnc@msn.com if you have other questions, comments or suggestions. We are interested in ensuring Laura Marie is not only very well stocked and maintained, but also improved over time. We look forward to hearing from you.

We are sure you will enjoy cruising and sailing the beautiful islands of the Pacific Northwest aboard Laura Marie. If you have questions about the boat or about places to visit, there are ample resources aboard, or do not hesitate to ask the AYC staff. Have a great adventure, and again thanks for choosing the Laura Marie!

First Things to Know

Orientation to the areas of this vessel as referenced in this Operations Manual:

- The large area, with the table for ten, in the aft portion of the ship is the Aft Cockpit.
- The large area inside with the galley and dining table is the Saloon.
- The port bow corner of the Saloon is the Navigation Station.
- The small sunroom just forward of the Saloon is the Forward Cockpit.
- The netting at the bow is the trampoline. It's very strong and you can walk or jump on it.
- The small cabin accessible via the hatch on the starboard bow is the Crew Quarters.
- The small bed accessible via the hatch on the port bow is a sleeping area for two kids or one adult.
- There are three locker handles on the deck of the bow, just in front of the Forward Cockpit.
 - a. The middle handle opens the access door to the anchor and the electric windlass.
 - b. The starboard side handle opens a locker with two water tanks and a white anchor wash hose.
 - c. The port side handle opens a locker with the generator, fenders, power cords and other items.

Storage for all your stuff:

- Laura Marie provides a lot of storage for all your empty suitcases, supplies and gear:
 - a. Store your suitcases or duffels in the cavities below deck, accessible by lifting the floorboard at the foot of your bed. Loose items can be put into the collapsible red & black bin.
 - b. Additional below deck storage is available under the 2nd floorboard forward of the aft beds.
 - c. Toilet paper, paper towels and spare toiletries are stored under the two floorboards in the hall at the foot of the stairs on both the port and starboard sides. Spares have been provided, if needed.
 - d. An additional area for storage of bulky items is under the bed of the starboard forward cabin.
 - e. No storage space is available under the beds of the aft cabins, nor the portside forward cabin bed.
 - f. Another possible storage area, assuming you won't be using it as a cabin, is the crew quarters, which is only accessible through a deck hatch on the starboard bow.
 - g. Food stuffs that don't fit into the cabinet next to the main refrigerator can be stored under the seat cushions of the settee or under the two removable floorboards in the saloon.

Fresh Water:

- Laura Marie carries a tremendous amount of water, up to 264 gallons in three large tanks.
 - a. Since there are no water gauges, you must manually verify the tanks are full before leaving.
 - b. Two big blue tanks are in the starboard bow storage locker. Spin open the 4" cap to look inside.
 - c. The 3rd smaller auxiliary water tank is in the port bow storage locker next to the generator.
 - d. A 50' hose and a 100' hose for filling water are stored in the starboard bow storage locker.
 - e. The two big tanks should easily last for a week, even with liberal use of fresh water.
 - f. If the water runs out, you must switch to open the auxiliary tank, by twisting a valve behind the forward settee cushion in the saloon. You may also have to re-prime the water pump.

Life Jackets:

- Laura Marie is stocked with 12 comfortable life jackets of various sizes for adult men and women.
- There are also 4 child / teen life jackets aboard, but since children's sizes vary greatly, be certain to bring life jackets for all children on your voyage to assure a perfect fit.
- Adults should wear a life jacket anytime they are outside on the deck, while underway and anytime someone uses the tender or a kayak.
- Children must always wear a life jacket, even if not underway, except when inside the vessel.

Fire Extinguishers:

- Laura Marie is stocked with 9 fire extinguishers. Taking a moment to learn their locations could be critically important in the unlikely event of a fire. The locations of the fire extinguishers are:
 1. 5# - In the Aft Cockpit and prominently visible on the wall above the dining table.
 2. 2.2# - In the Aft Cockpit behind a marked door just above the beverage refrigerator.
 3. 2.2# - In the Galley inside the cabinet just below the sink.
 4. 5# - In the Hallway and prominently visible at the entrance to the starboard aft cabin.
 5. 5# - In the Hallway and prominently visible at the entrance to the port aft cabin.
 6. 2.2# - In the Starboard bow cabin, inside the main closet.
 7. 2.2# - In the Port bow cabin, inside the main closet.
 8. 2.2 - In the Forward Cockpit inside a marked locker under a seat on the starboard side.
 9. 2.2# - In the Starboard bow Crew Quarters and prominently visible on the wall.
- **WARNING:** If there is a fire in an engine room or in the generator locker, this is very important: **DO NOT OPEN THE ACCESS DOOR**, as this would provide oxygen and greatly accelerate a fire. Instead, spray the contents of a 5# extinguisher into the Fire Port, which is a 2" round white circular port with clear rubber doors. The Fire Ports are on the inside of the gunnel above the engine rooms and on the back wall of the aft cabins. The generator Fire Port is accessible just above the anchor.

Life raft and other important safety equipment:

- Laura Marie has been fully set up for serious voyages. It's extremely improbable you'll never need it but isn't nice to know there as an automatically deployed eight-person Life Raft on the upper deck. Additionally, there is a ditch bag, a first aid kit, a blood pressure monitor and a defibrillator aboard.

Portable VHF Radios:

- Laura Marie is stocked with 3 portable VHF radios for safety when using the tender and kayaks.
- One person aboard the tender and/or one person in each kayak should carry a VHF radio in case the need arises to contact the Laura Marie, or the Laura Marie needs to contact you.
- Be certain to choose a specific VHF channel that your group will monitor and leave your radio on.

Extra Items Are Kept Aboard Laura Marie to Make Your Cruise More Pleasurable:

- a. Two stable high quality 15' inflatable kayaks (each can be fitted with up to three seats). One kayak and all six paddles are kept inside the large fiberglass box on the portside, near the stern. The other kayak may be stored in the crew quarters, accessible via the hatch on the starboard bow. Alternately, the kayaks may be left inflated and tied in crosswise on the trampoline at the bow. Another area for kayak storage is rolled up and put in the Forward Cockpit.
- b. Two crab pots are stored in the starboard bow locker. Also, there is a large stainless-steel pot and an outdoor stove, stored in the crew quarters, so you can cook your crabs on the beach. A small propane tank is kept together with the main propane tank at the back of the Aft Cockpit. Our big local clams are great bait for crabs, so an excavator hand tool is provided to dig up clams at low tide. This tool is stored next to the generator in the port bow storage locker.
- c. A large fishing net is kept alongside the generator in the port bow storage locker. Racks for stowing fishing poles are on the ceiling in the Aft Cockpit. A cleaning table has been provided.
- d. For those with pets, a tray with fake turf (potty station) and a pair of stainless bowls are onboard.

- e. An HP Printer / Scanner is in the Saloon. Connect to its Wi-Fi with Security Key: 12345678
- f. A collapsible pushcart is kept in the crew quarters. This is provided in the event you need to go to shore to purchase a lot of groceries or supplies and the store is a long distance from the dock.
- g. The tender has a 3-gallon fuel tank, and a portable 5-gallon fuel tank has been provided. The best place to keep the portable tank is in the tender but, be certain to remove it before you launch.
- h. There are ample tools and spare parts aboard. The tools are kept in a locker under the aft seat of the Aft Cockpit. Spare engine parts are kept in bins at the aft end of the port side engine room.
- i. A SodaStream carbonator, with four bottles and many syrups, so you can make your own pop.
- j. The galley is well equipped with a microwave oven, coffee maker, #4 filters, coffee grinder, toaster, mixer, blender and an Instant Pot. For coffee dilettantes, there is a French Press. All the regular cooking tools are aboard, plus a few extra. There is also a broad array of spices.

Electrical Basics:

- A fair degree of familiarity with the electrical system and the location of key components is mandatory for your ability to operate the Laura Marie. The electrical system is covered in more detail later in the manual, so the introduction below is a fast primer with just the basics.

Locations of the most important electrical components:

- a. The main circuit breaker / switch panel is behind the smoke glass door next to the television.
- b. The left half of the main panel are the 12 VDC breakers, which are powered by the house batteries.
- c. The right half of the main panel are the 115 VAC breakers, which are powered by shore power, the ship's 9kW generator or the ship's 2kW inverter, which makes 115 VAC from the house batteries.
- d. Study the labelling and locations of the circuit breakers as you will be using them frequently.
- e. The engine battery off switches are at the foot of the beds in the aft cabins on port and starboard.
- f. The house battery off switch is located under the right side of the galley sink.
- g. Circuit breakers for the anchor windlass and the dingy davit winch are also under the galley sink.
- h. The anchor windlass will work only when the port engine is also running.
- i. The up down switch for the dingy davit is on the ceiling above the aft deck.

Management of the House 12V battery bank:

- If you plan to anchor at night and won't be connecting to shore power, managing the available power of the 840AH house battery bank will be crucial. A sophisticated Victron BMV-712 battery monitor has been provided. The monitor itself has a limited display, so it is strongly recommended that you download the free VictronConnect app before departing. With a Bluetooth connection, the VictronConnect app provides an easy to read rich array of data about your energy usage and the state of the house batteries. The password required to connect to the monitor is: 126420
- a. It is important to avoid draining the house AGM lead acid batteries below 50% State of Charge (SoC) which is 12.2V, read after the batteries have been at rest with no loads for several hours. Discharging below 50% SoC will rapidly shorten the life of all lead acid batteries. However, you cannot just read 12.2V on a meter, since batteries are never at rest, as there are always loads applied or the batteries are charging when underway. That's why it is so important to load the Victron App in be able to monitor the %SoC status of the house batteries.

- b. As a point of common sense, the hardest time for the batteries to provide energy to high power devices, whether 12 VDC or 115 VAC devices, supplied by the ship's inverter, which converts 12V to AC power, is in the morning when you get up. The house batteries are already partially drained, due to supplying power for refrigeration and any lights left on all throughout the night. Turning on the inverter in the morning to power heavy draw AC loads, such as a coffee maker, microwave or toaster is like asking an exhausted person to jump up and sprint. The morning is the best time to start up the ships generator to supply 115 VAC loads that may be needed for cooking. If you don't want to hear the generator, make your coffee by boiling water on the stove and use the French Press. Also, consider using propane to heat your food in a pan or in the oven.
- c. Lead acid batteries that have been discharged to 50% SoC must be fully recharged as soon as possible or they are permanently damaged. Unless you will be making a significant run to a new location in the morning, please start the generator and let it run for several hours every morning.

None of the above applies, if you are docked and connect the vessel to shore power at night.

Simple Minimal Rules for use of Laura Marie:

- **This is a no smoking vessel. If you must smoke, please do it onshore.**
- **Do not burn candles or light any other flames. The risk of a fire must always be minimized.**
- **Children must wear lifejackets when outside the envelope of the canvass, even when docked.**
- **If someone takes the tender or a kayak on a trip away from the Laura Marie, be certain they wear a lifejacket and carry a portable VHF radio to maintain communications.**
- **This vessel is heavy and does not slow down or turn quickly in tight quarters maneuvering. Keep approach speed to a dock reduced to 1 knot or less to avoid hard bumps and damage.**
- **Because the clear Isinglass windows of the cavass surround scratch so easily, Do Not Remove any canvass panels, except the center door in the Forward Cockpit.**
- **When removing this center door panel, store it carefully by draping it over the brown striped cushion that is kept on the shelf on the port side of the Forward Cockpit.**
- **All vessel items and inventory have a regular location, please do not move vessel items to other locations. If you forget where something belongs, consult the inventory list.**
- **Only flush human waste and toilet paper into the heads. Paper towels, food waste and other items will choke the macerator or plumbing and knock the toilet out of service.**

Laura Marie

2015 - Leopard 48

| | |
|---------------------------------|-------------------------------------|
| Max Passengers | 12 |
| Sleeps | 12 (8 typical) |
| Cabins / Heads / Showers | 5 |
| L.O.A. | 48' 5" |
| L.W.I | 45' 5" |
| Beam | 25' 0" |
| Draft | 4' 10" |
| Engines | Yanmar 4JH5CE (x2) 54 HP ea. |
| Fuel capacity | 185 Gallons |
| Fresh water capacity | 264 Gallons |
| Mast Height | 74' 2" |
| Genoa Area | 581 ft² |
| Mainsail Area | 977 ft² |
| Total Upwind Area | 1,555 ft² |
| House Batteries | AGM x 4 = 840 AH |
| Generator | 9kW |

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BOAT OPERATON

ENGINE

Laura Marie has two Yanmar 54 horsepower engines (Model – 4JH5CE). Each engine drives an 18” dia. three-blade folding propeller. There is a single control lever that operates both the throttle and transmission. In the helm, there are gauges for RPM, fuel, Amps, oil pressure, engine hours and water temperature. An audio alarm is provided to indicate high water temperature, low oil pressure or water in the sail drive.

The engines will propel Laura Marie at about 8.5 knots in calm water at 2,350 RPM. The max continuous RPM is 2,800, but please maintain engine RPM around 2,350 for efficient low temperature cruising. Higher throttle settings will only minimally increase the vessel speed but will greatly increase engine heat, fuel consumption and wear on the engine. Only use higher throttle settings for limited periods of time.

Engine Inspection

Once a week, check the COOLANT, OIL, BILGES, BELTS, and SEA STRAINER by remembering “FWOBBS”: **Fuel, Water (Coolant), Oil, Belts, Bilges and Sea Strainer**

Fuel Filter:

Diesel engines must have clean fuel to run properly. Each engine room has a Racor 500 FG three stage filter that protects the engine from water and the other contaminants prevalent in fuel. The collection bowl at the bottom must be inspected and drained before water reaches the top of the bowl. Hold a suitable collection cup under the bowl and using fingers only, briefly open the drain on the bottom. Close after an ounce or two have drained, then hand tighten.

Engine Coolant:

The Yanmar engines are cooled by a heat exchanger. The engine pumps sea water through a sea water strainer, then through a heat exchanger that cools the coolant fluid, thus cooling the engine. The sea water is then pumped overboard. Check the level of coolant in the expansion tank. Engine coolant is a mix of 50% antifreeze and 50% water. There is spare coolant kept on board, which should be located during your orientation.



Engine Oil:

Check the oil level in the engine with the dipstick located on the port side of the Engine. The oil level should be between the high and low marks. If you need to add oil, please use great care to not overfill. Running the engine with too much oil will cause damage. The correct oil type is API, Class CK-4 / 15W-40.

Sail Drive Oil:

Also check the oil level for the sail drive which is at the back of the engine with the dipstick located on its side. Conveniently, the sail drive uses the same oil type as the engine: API, Class CK-4 / 15W-40.

Belts:

Check the general condition of the belts, hoses, and fuel lines. Make certain none are rubbing or chafing.

Bilges:

There is a bilge with a pump behind each sail drive. Check to verify it looks normal. The main bilges are accessible at the bottom of the stairs on both port and starboard sides forward of the stairs. Remove a floor panel. There is normally a small amount of water in the bilges. Check for debris, oil, or anything unusual.

Sea Strainer:

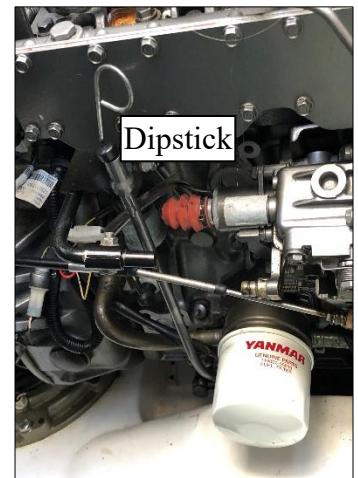
The sea water strainer is located on the hull side of each engine. It should be checked weekly, as it can clog with seaweed and other debris. To check the strainer, shine a flashlight through the plastic lid. If debris is visible it will have to be removed. To clear debris from the strainer, simply unscrew the plastic lid. Be careful not to lose the rubber O-ring. Pull out and rinse the white strainer, then reinsert the strainer and carefully replace the O-ring. When you are certain the O-ring is aligned, tighten the plastic lid by hand and observe for leaks. The continued supply of seawater is critical to the operation of the engine.

Startup

Set both battery switches to the **ON** position. The battery switches are in the aft cabins at the foot of the bed. (See battery section for additional information related to the battery switch). Verify the throttle/shift lever is in the center neutral position. Press and release the button on the lower right side of the tachometer with the vertical bar symbol. You will hear an audible alarm sound. If the engine is cold, press the Glow Plug button and hold for ten seconds, then press the top start button. The engine should start immediately.

Note: Never crank the starter longer than ten seconds.

If the engine does not start the first time, wait a minute before trying again. When starting cold, **allow the engine to warm up for about TEN MINUTES** prior to going any faster than two knots. If a heavy load is applied before the engine warms, it will seize. Normal idle speed is 750 RPM. Be sure the audible alarm is not sounding. It should stop a few seconds after the engine starts. After the engine starts, verify that plenty of water is exiting the exhaust and there is not an abnormal smoke color. Normal smoke is a thin light grey. If the engine does not start or there is a low water flow or suspicious smoke, contact AYC immediately.



Shifting

To engage the transmission, simply move the throttle/shift lever from the neutral center position. Push throttle forward for forward propulsion, or back for reverse propulsion.

Shutdown

Place the throttle/shift lever in neutral and allow the engine to cool down for five minutes. Usually this is about the amount of time it takes to secure your lines. Push and hold the STOP button until the engine stops. The audible alarm will sound until the bottom power button has been pressed in for a few seconds.

Fueling Up

You will need to fuel up before returning to the slip at the end of your charter. The fuel filler caps are located on the port and starboard aft gunnels. Each fuel tank holds 92.5 gallons of diesel fuel. You should have a rough idea of the number of gallons you will need by the fuel gauges and by the hour meter. Before refueling, have an “oil/fuel sorbs” handy to soak up any spilled fuel. Laura Marie uses approximately 1.5 gallons per hour. **CHECK TO BE CERTAIN YOU USE THE CORRECT DECK OPENING!** Use only **DIESEL FUEL!** Place the diesel fuel nozzle into the tank opening, pump slowly and evenly, and note the sound of the fuel flow. Pumping too fast may not allow enough time for air to escape, which may result in fuel spouting from the fill port. As the tank fills, the sound will rise in pitch or gurgle. Pay attention to the tank overflow vent. Top off carefully and be prepared to catch spilled fuel. **Spillage may result in a fine from law enforcement.** Replace the deck caps. *Caution – Clean up splatter and spillage immediately for environmental and health reasons. Wash hands with soap and water thoroughly.*

Trouble Shooting Engine Problems

Engine Overheating:

1. **Immediately shut engine down.** The most likely cause is clogging of the sea water strainer. This condition may be preceded by black smoke from the exhaust. Follow procedure on page 10 to clear the strainer.
2. The next likely cause is low coolant level. Check the coolant level by observing the expansion tank. If coolant level is low, add coolant to the expansion tank from the pre-mixed coolant jug. Never open the radiator cap when the engine is hot, as it could spray out and cause severe burns.

Low Oil Pressure:

1. **Immediately shut engine down.**
2. Check oil level. Add oil if necessary. Use care not to overfill oil.
3. If the engine oil level is not low, **DO NOT RESTART.** Contact AYC or other personnel listed on the emergency contact list in the gray manual.

Alternator Failure:

You may keep running the engine but, be aware the engine battery for that side is not being charged and the charge rate of house batteries is reduced to the power of the other alternator. Contact AYC immediately.

Running on One Engine:

It is okay to run on only one engine and the speed will still be ~7 knots. Contact AYC immediately.

GETTING UNDERWAY

TENDER

Laura Marie is equipped with a 11' 10' West Marine RIB with Hypalon tubes and a fiberglass hull. This sturdy RIB has a capacity for four people or a total of 1,322 pounds. The motor is a 25 HP Yamaha, with fuel injection, electric start and power trim / tilt. Laura Marie's winch powered davit system makes launching and stowing the dingy very easy.

Stowing:

Never tow the tender or the kayaks as accidents or serious problems are just too likely to occur. To stow the tender, simply attach the four clips hanging from the davit to the tender's bow and transom lifting eyes, with the bow facing the port side of Laura Marie. The control switch for the winch is on the ceiling of the aft deck. Before lifting, be certain nobody is aboard the tender and the battery power switch is turned off to its 12:00 position. Fully lift the tender until the davit locking latch (shoulder height on the starboard side) engages its locking pin. If the davit stops working, reset its 25 Amp circuit breaker, which is located under the galley sink.

After the tender is all the way up, you must fully secure it to the davits using the two black ratchet straps.



One strap attaches from the stern lifting eye to the starboard vertical davit post and the other strap from the bow lifting eye to the port side vertical davit post. Position the small white fender as shown in the picture on right.



Ratchet the straps until snug, then push the switch to lower the tender slightly, so the latch carries more load than the blue Spectra winch line. When fully secure, put the spare gasoline can into the tender.

Launching:

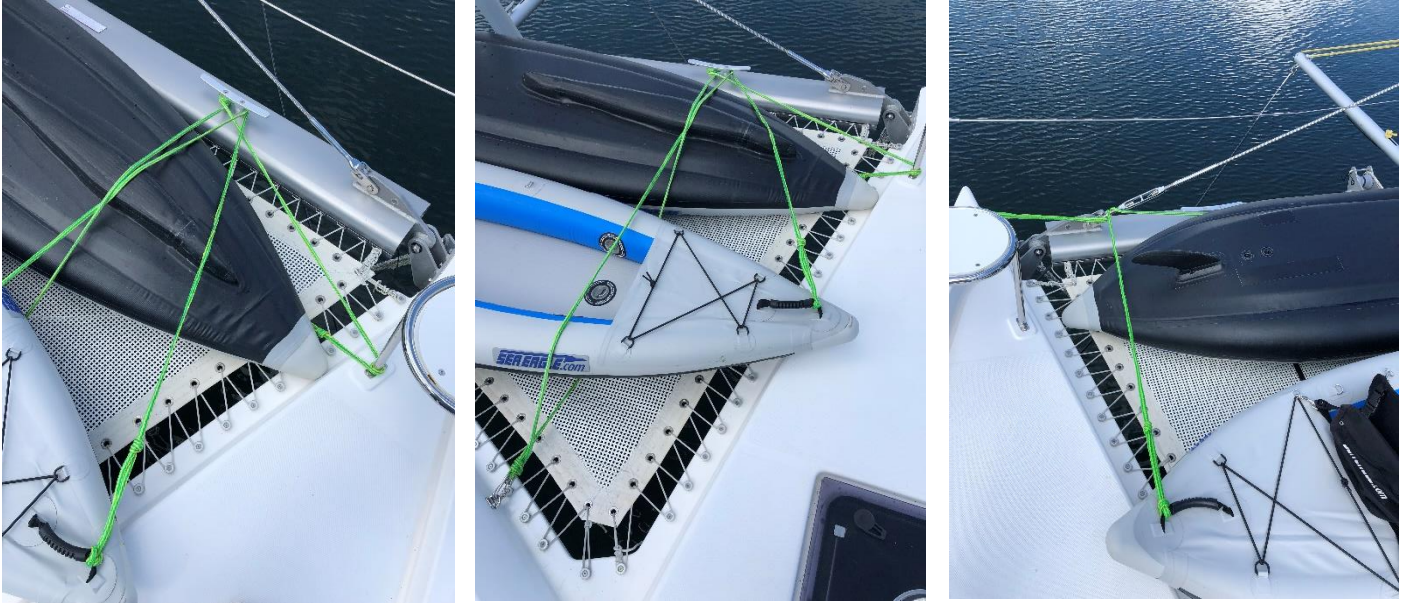
Before launching, check the gas to verify there is enough fuel for your intended use. Check the air pressure by stepping on a pontoon. If it is firm, that's good enough. If not, use the foot pump stored under the rear seat and fill each of the three inflation ports on the tender to 2.9 PSI maximum. Kept onboard if needed are: Paddles, tools, patch kit, spare propeller and an emergency signaling kit. Use the davit switch on the ceiling of the rear deck to raise the dingy slightly, so that the chrome plated locking latch at shoulder height on the starboard side of the davit, can be lifted. Undo and disconnect the two black ratchet straps, then use the switch to lower the tender to the water, leaving the four lifting lines very loose. Climb into the tender and turn on the battery power switch under the seat (3:00 position), start the motor, then unclip the four carabiners from the lifting eyes. Be certain all passengers wear a life jacket and bring a portable VHF radio.

KAYAKS

Laura Marie carries two high quality Sea Eagle inflatable kayaks, each rated for three people or 800 pounds. There are six high back comfortable / removable seats and six carbon fiber paddles for use with the kayaks.

Stowing:

Never tow the kayaks as accidents or serious problems are just too likely to occur. Before departure, the kayaks must be stowed on deck, securely tied down and the paddles put away into the deck storage box (portside aft). Both kayaks may be kept inflated and stored on the bow trampoline. Do not pull the kayaks onto deck from the stern as it will scar the gel coat and it is far easier to use the bow line to pull the kayaks around to the bow of Laura Marie. Pull the pin to release the cable railing on either the port side or starboard side and simply pull the kayak(s) up and onto the trampoline area. The most forward kayak is stored upside down and the inner kayak fits best if kept right side up. Use the kayak's bow and stern lines as ties to secure the kayaks to the trampoline area at the bow of the Laura Marie, as shown in the pictures below.



If heavy seas are anticipated, the kayakers must be deflated and put away. To deflate, twist the caps off all air valves, then push in and twist the center pin of each valve counterclockwise, so that the valve remains locked open. Allow the kayakers to self-deflate for five minutes on a flat smooth surface (the deck just in front of the Forward Cockpit is perfect). Tuck the deflated pontoons toward the center of the kayak, then roll the kayak from the aft end toward the bow end, while forcing the remaining air out. Wrap the bow line around the kayak to tie up the bundle. If storage is to be temporary, stow in the Forward Cockpit. If storage is long term, stow one kayak in the deck storage box and the other in the crew quarters in the starboard.

Set up and Launching:

If the kayak(s) are ready for use on the bow trampoline, launch by simply pulling the pin to release the cable railing on either the port side or starboard side and sliding the kayak(s) off, stern first, into the water. If the kayakers need more air, they may be inflated with the red handpump that is kept with the paddles in the deck storage box (portside aft).

Setting up a deflated kayak the kayakers may be done quickly with the electric compressor that is stored in the deck storage box. To access 12V power for the compressor, the deflated kayak must be unrolled so that its aft end hangs off the stern steps of the Laura Marie. First, put the removable floor into the kayak, being careful to put it with the inflation valve towards the bow. Also note that the oval cutout, must align with the keel air valve on the kayak, under the bow skirt. Push and twist the center pin of each valve counterclockwise, so that the valve will not allow air to escape after inflation. Plug the compressor cord adapter into the 12V electrical twist lock socket located on the gunnel adjacent to the deck storage box. Start the compressor to soft / semi-inflate both kayakers main pontoons, then after the kayak shape has just formed, stop the compressor and verify the floor is correctly positioned and that its perimeter edges are fully

captured under the pontoons. Note the dial on the compressor that sets the maximum pressure of the compressor and **set it to 3 PSI**. Inflate the floor until the compressor automatically shuts off at 3 PSI. Next, connect the hose to the keel inflator valve in the opening at the front of the floor. Start the pump and it will quickly shut off as the keel fills in a few seconds. Twist the cap onto the valve. Fully fill both port and starboard pontoons to 3 PSI and twist the cap onto the valves. Last, reconnect the hose to the floor and set the compressor to 7 PSI and run until automatic shut off. Twist the cap onto the floor valve. Turn the kayak over or on its side and slide in the keel fin, then insert the plastic cross pin to hold the keel in place.

Sort the kayak seats, which are marked 3M-S (for stern), 3M-M (for middle) and 3M-B (for bow). Attach the four clips to install the stern and middle seats into the kayak. The stern seat attaches to the D rings closest to the stern, and to the pair of the six D rings that are most forward. The middle seat attaches to the four D rings in the middle of the kayak. Only install the bow seat if a you need the kayak to carry three people. The middle seat attaches to the four D rings closest to the bow, but the installation is a bit wonky when three seats are used, because the middle seat must be moved back a bit and only two D rings are used.

Preparation before departure:

Before leaving, close all portholes, hatches and the forward bulkhead door. Assign one crew member to verify all portholes and hatches are properly secured. Switch off the shore power 1 & 2 circuit breakers and disconnect the shore power cord(s) and store them on top the generator. Verify that the tender is secured and fully lashed to the davit at both the bow and stern ends. Once outside the marina, idle the engine while the crew brings in fenders and lines. With the engines running, turn on the inverter to restore AC power.

Heavy Seas:

If heavy seas are likely - 30 knot or higher winds (Beaufort 7) or there are large steep swells or wakes from ships, remove the zipper panel in the Forward Cockpit, then close and lock the bulkhead door. Deflate and remove the kayaks from the trampoline. Be certain nothing is stored in the Forward Cockpit that must remain dry. Note the Forward Cockpit has a large drain in the center should a wave, swell or wake wash in.

SAILS AND RIGGING

The fully battened, mainsail is the main driver under sail in this sloop rig sail plan. It is this feature that allows for great sailing in light air. This sail plan however requires early reefing in stronger winds. If the windspeed exceeds 20 knots Apparent, the sail plan must be reduced. The table below provides a schedule for the sails set as the wind speed increases. **Warning! If excess sail is set, capsize is possible!** To minimize this risk, do not exceed the recommendations in the table below.

| Sails set | Apparent Wind Speed advised for each sail combination | | |
|--|---|--------------------------|------------------|
| | Velocity in Knots | Beaufort Scale | Velocity in Km/h |
| Full main sail + full Genoa | 0 - 20 Knots | Force 5 Fresh Breeze | 0 - 37 |
| First reef in main sail + full Genoa | 21 – 25 Knots | Force 6 Strong Breeze | 38 - 46 |
| First reef in main sail + 3 rolls on Genoa | 26 – 30 Knots | Force 7 Near Gale | 47 - 56 |

| | | | |
|---|-------------------|------------------------|---------|
| Second reef in main sail + 3 rolls on Genoa | 31 – 35 Knots | Force 7 Near Gale | 57 - 65 |
| Second reef in main sail + 6 rolls on Genoa | 36 – 40 Knots | Force 8 Gale | 65 - 74 |
| Storm jib only Exercise Extreme Caution | Above 40 Knots | Force 9 Strong Gale | 75+ |

*The wind speeds above include a margin for the effect of gusts. In the event of a severe gust, LUFF UP. In violent winds or confused or breaking seas, additional caution should be exercised, as the boat may be vulnerable to capsize in roll or pitch.

* **Danger! Special care should be taken** when turning from a following wind onto a beam reach, because both the apparent wind speed and heeling effect will increase. Such turns should not be made rapidly, and consideration should be given to a reduction in sail before such a maneuver.

There is no “preventer,” so take care with jibing – for your sake, and for the protection of the gear. The jib employs Roller furling. The Genoa lines are led aft to the cockpit. To unfurl the jib: (a) wrap one Genoa line around the appropriate winch and close the clutch. (b) Unlock the clutch of the other Genoa line. (c) Press the jib toggle switch to unfurl the jib sheet, while alternately activating the winch to take up the slack on the Genoa line, (d) Stop when the desired jib reefing level has been achieved. To furl the jib, apply slight tension on the jib sheet while pressing the toggle switch to furl the Genoa lines until it is fully furled. Place three or so line wraps over the jib sheets to hold the sail.

To raise the mainsail: (a) Fully unzip the Stack Pack and attach the shackle at the end of the main Halyard to the ring at the top of the mainsail. (b) Release the clutches for the Reef lines. (c) Adjust the Mainsheet lines so that the boom is centered. Many will leave the Mainsheet clutches open, but I prefer to tighten the lines and close the Mainsheet clutches, because the reefing lines tend to be sticky as the mainsail raises, which lifts the boom. (d) Wrap the main halyard around the starboard winch, using four turns and close the clutch. (e) Steer the vessel directly into the wind and set the autopilot. (f) Slow your speed to be not more than 2 knots. (g) Activate the winch to raise the mainsail and watch the mainsail very carefully to verify that no part snags on the Lazy Jack lines as the mainsail raises. (h) If at any time, you hear the winch load up and slow, stop immediately and inspect carefully because something is impeding the mainsail and damage will be done if not corrected. (i) Verify the vessel is still heading directly upwind and continue activating the winch to fully raise the mainsail, while constantly and carefully watching that the progress is smooth, without any snags. (j) The winch will sound heavily loaded as the mainsail approaches its maximum height extension. (k) Continue to pull the mainsail up until all horizontal creases are gone and vertical creases begin to form, then stop. (l) Keep the Mainsheet lines close hauled if Tacking into the wind or release the Mainsheet lines if Jibing downwind to allow the boom to swing to an appropriate position.

Pay careful attention to the reefing schedule above! The jiffy reefing system has two reefs. To apply a reef: (a) Reduce the wraps of the main halyard on the winch to two turns. (b) Wrap the line for Reef 1 onto the port side winch. (c) Turn the vessel to head directly windward. (d) Hang onto and pull the mainsail halyard, then release its clutch. (e) Activate the winch for the reef 1 line, while easing tension on the main halyard to allow the mainsail to be pulled down. (f) Continue to activate the winch for the Reef 1 line until the winch loads up and slows, which indicates that the Reefing is complete. (g) Close the clutch for the main halyard and wrap the line with four turns on the winch. (h) Activate the main halyard winch to pull the mainsail upward and tighten to reset the sail to proper tension for the Reef 1 position and resume sailing.

Sailing with engines off:

If you intend to cruise with only sail power, be certain to shift the transmission into reverse as you shut the engines down. This locks the folding propellers, so they won't spin the transmission backwards.

Troubleshooting Sails and Rigging:

1. **Mainsail resists being raised:** Check all lines. Both reefing lines should be loose and flopping. The boomvang should be loose. The battens must not get stuck onto the lazyjack. If they are, lower the sail and be sure to be head directly to the wind, when raising the sail again.
2. **Genoa line snags on mast hardware as you switch your tack:** This is usually due premature reefing of the unloaded Genoa line as the jib begins to crossover to the new tack. Avoid applying tension on the Genoa line until the jib has fully inverted itself to a back-sail shape.
3. **Back of boom lifts when raising the mainsail:** Probably have one or both reef lines too tight. Help feed the reef lines forward, when winching the main halyard or tighten and secure the Mainsheet lines.

DOCKING

Visibility from the helm to the starboard side is excellent, but very poor to the port side, so plan to only dock on the starboard side. Have your crew make ready the lines and fenders and give clear instructions on how you will be docking. Have the bow line, stern and spring lines ready to deploy rapidly. If the bow line is carefully routed along the rail posts to the stern, one person can quickly secure both the stern and bow lines. It is somewhat easier if a 2nd crew member remains aboard to toss the bow line to the other crew member on the dock, who can quickly secure it after they have first secured the stern line. Through practice, I have found that the easiest docking plan is for the Skipper to land the vessel by bringing the stern to the dock, with the bow pointing outward. When the stern line is secured to the dock, the helmsman can bring the bow to the dock with a gentle forward thrust from the port side engine. When tying off the bow line, remember to leave it fairly loose to allow the stern of the vessel to be pulled very close to the dock. When the stern and bow lines are secured correctly, tie off the spring lines last.

Note: To get the best performance from the stern line, attach it to the port side aft cleat, but also loop the stern line over the inside of the starboard aft cleat. After the bow line is secured, flip the stern line off the starboard aft cleat, which allows the aft starboard bottom step to not be obstructed by the stern line.

MOORING CANS (BUOYS)

Laura Marie has a pre-paid Washington State Parks permit (sticker) which allows free use of the docks in Washington's marine parks. You only need to register at the kiosk, usually located at the head of the docks. The parks permit is also good for free use of the mooring cans, but unfortunately, only vessels 45' or less are allowed to use the mooring cans. If you decide to temporarily tie up a mooring can for some reason, know that mooring cans have a metal triangle at the top, upon which is a metal ring. The ring is attached to the chain which secures your boat. IT IS VERY HEAVY. The strongest member of your crew should be chosen for this job. Come up to the mooring can into the wind as you would for anchoring. Have crew members on the bow, one with a boat hook and one with a mooring line that is secured to the ships bridle. As you are coming slowly up to the can, have the crew holding the boat hook point at the can with the hook so the skipper always knows where it is. Hook the can and bring the ring up to the boat to allow the second crew member to thread the ring with the mooring line. Release the boat hook.

ANCHORING

Laura Marie carries a plow type anchor attached to 500 feet of 3/8" chain. Access the anchor by opening the long rectangular anchor locker on the bow just outside the steps in the Forward Cockpit. The port side

engine must be running to supply power to the windlass. There is a 100 Amp circuit breaker that sometimes trips out when raising the anchor, which is located under the galley sink on the right sidewall. The windlass is controlled by a pendant stored in a pouch on the underside of the anchor locker door.

Setting the anchor:

Pay out a generous length of chain before setting the anchor. Color length markers are placed every 25 feet on the chain. A laminated label on the underside of the anchor locker door provides a key to understand how much chain has been deployed. If the anchorage is crowded, put down at least a 3 to 1 scope (60 feet of chain for 20 feet of water at highest tide). Lock the chain by closing the anchor chain stopper door, then set the anchor by shifting the vessel in reverse and accelerating firmly and long enough to be certain the anchor is holding well. Let out additional scope, depending upon the expected wind conditions. If the anchorage is less crowded, more scope is always a better option. The holding power of the anchor increases greatly as more scope is added. Once the anchor is properly deployed, attach the anchor bridle hook into a link of the chain and deploy 20' more chain, such that the bridle carries the entire load. Be certain to re-close the anchor chain stopper door.

There is a backup anchor in the starboard bow locker, next to the anchor locker. This anchor can be set off the bow or the stern as needed. Be sure to secure the free end, as it is not pre-secured. There is also a long reel of line in the port bow locker with the generator, which is reserved for use as a stern shore tie if needed.

Raising the anchor:

The Skipper must start both engines and be at the helm. Raising the anchor requires two deck hands. It is important, as the anchor rises, to be careful not to allow the chain to swing against either hull. One deck hand will signal the Skipper as necessary to reposition the vessel to be above the anchor as it is raised and this person will also wash the anchor chain with saltwater, so that the chain is clean of both mud and other debris. Connect the rinse hose by twisting the blue adapter end on the white hose into the wash down port inside the anchor locker, then turn on the circuit breaker for the saltwater rinse pump. The second deck hand will use the windlass control to raise the anchor while sitting inside the starboard bow locker and using their left hand to reach into the chain locker to evenly distribute the anchor chain as its loads. This is necessary to prevent the chain from overflowing the center of the long narrow chain locker. As you begin to raise the anchor, stop after 20' to disconnect the bridle hook from the chain and secure the bridle. Continue to lift the anchor, from time to time calling out the remaining length to the Skipper. When the anchor comes out of the water, call "anchor" to the Captain. Pull the anchor carefully and snugly into its roller, then close the anchor chain stopper door. As a final clean up, switch the rinse water valve handle to fresh water and thoroughly rinse the windlass head. Be certain to return the rinse water valve to the saltwater before disconnecting and stowing the rinse hose. Turn off the circuit breaker for the saltwater rinse pump.

BOAT SYSTEMS

ELECTRICAL SYSTEMS

Laura Marie has two electrical systems, 115 Volts AC and 12 Volts DC.

It is important to understand these two electrical systems are separate and fully isolated from one another. 115 Volt power can be supplied by shore power, the 9kW generator or by the 2kW ship's inverter. Both the AC and DC systems are controlled at the electrical panel in the saloon. DC left side and AC right side.

115-Volt AC System

Laura Marie is equipped with the capacity to plug into dockside shore power (115 VAC) using one or two 30 Amp circuits. There are four heavy yellow shore power cords aboard in the event the shore power receptacles are more than 50 feet away. Shore power 1 will power most everything on the AC circuit

breaker panel, except the starboard water heater and some of the air conditioning. The shore power 2 cord must be connected in order to power the starboard water heater and the full air conditioning system.

- 115 VAC wall outlets (Shore 1)
- 115 VAC air conditioning (Shore 1 & Shore 2)
- Battery charger (Shore 1)
- Water heaters (Shore 1 port side, Shore 2 starboard side)
- Icemaker (Shore 1)



Connecting to shore power:

Check the power rating/plug size of the nearest dock receptacle and look for two 30 Amp receptacles or use a single 50 Amp receptacle. If the receptacle is 50 Amps, use the 50 Amp shore power Y adapter cord to supply both 30 Amp power cords. Typically, the shore power cords are routed over the starboard side, but if they must be routed off the bow, four cords will be required, which can be wrapped around the bowline.

The procedure to activate the shore power is as follows:

1. Make sure the “AC Main” circuit breakers (Shore 1 & Shore 2) are turned off.
2. Turn off the circuit breaker at the outlet(s) on the dock.
3. Connect the cords to power inlets and the shore outlet(s). Give each plug a small twist clockwise to lock.
4. Turn on the circuit breaker(s) at the dock.
5. Turn on the AC Shore power 1 & 2, then the circuit breakers for any 115 VAC systems needed.

Troubleshooting shore power:

If there is no power to the panel, verify the shore cord indicator lights are lit where the cords plug into the vessel. If not lit, there is no power coming from the dock receptacle. If lit, the ships shore power GFCI circuit breakers must be reset. These breakers are on the back wall inside the aft locker behind the tools. This locker is under the seat next to the shore power inputs.

If shore power is not available, the AC electrical system can also be powered by the ships generator or by turning on the inverter. Due to the large drain on the House batteries, the inverter must be used sparingly, when the main engines are not running.

Starting the generator:

Laura Marie has a 9kW Northern Lights diesel generator, which is in the port bow storage locker. The generator is powerful enough to fully supply most of the 115 VAC systems, however the air conditioning system may need to be tuned off if other heavy AC loads will also be used. The generator controls are located just above the circuit breaker panel. To start the generator, push and hold the pre-heat switch for ten seconds before attempting start up and keep the pre-heat switch engaged while activating the engine starting switch. Release the engine starting switch as soon as possible but hold the pre-heat switch for a few seconds after the engine starts. Allow the generator to run until the temperature reads about 150F before switching on any AC loads.



Activating the generator:

When the generator has warmed up, it's okay to switch on the AC loads. To apply all AC loads to the generator, locate the circuit breakers with slide covers in the middle of the power panel and move both upward, then activate the Transfer switch to power up shore 2 loads, which include the starboard side water heater. Last, activate the generator circuit breaker at the bottom of the panel.

12 Volt DC House Power System

Laura Marie House power is provided by four 12V- 210 AH (840 AH total) deep discharge AGM batteries. These batteries provide power to everything onboard the runs on 12 Volts DC, and can supply some of the 115 Volt AC loads, but only when the inverter is turned on.

The House battery voltage can be read with the Voltmeter, when the switch on the meter at the top left of the circuit breaker panel, is set to #2. The house batteries are in the Aft Cockpit, under the seat just outside the sliding glass door. The voltage for the engine batteries can be read by selecting #1 or #3 on the DC Voltmeter. The engine batteries are located inside each engine compartment. Both engine batteries are dedicated for the engine only and neither can be depleted by house power loads. The shut off switches for the engine batteries are located at the foot of the bed in the aft cabins on the starboard and port sides.

The running, steaming, and anchor lights are all controlled by a selector switch at the top of the electrical panel. All lights are powered from circuit breakers in this panel. Each interior light also has an individual wall switch or a switch at each fixture. There are six 12 Volt cigarette lighter plugs. Two are located at the electrical panel, two are in the Forward Cockpit to power the spare refrigerator and freezer, one is at the navigation station and the other in the helm. There is a USB device charging center at the electrical panel.



When connected to shore power, the inverter also serves as a charger that can also provide all DC power, without draining the House batteries. When at anchor and not on shore power, the House batteries will be drained, so use DC power sparingly and only turn the inverter on for short periods of AC power. To minimize House battery power usage when the engines are off and not connected to shore power:

- Turn off the inverter, so all AC loads will be shed.
- Turn off the Icemaker (switch near bottom) so the icemaker won't run if the inverter is turned on.
- Turn off DC systems, such as instruments, VHF, autopilot, stereo, etc.
- If you do not need the diesel forced air heater system, it should be turned off as well.

Monitor the use of onboard electricity carefully with the DC voltmeter located at the navigation station. There is also a sophisticated Victron BMV-712 Smart battery monitor that provides a wealth of information, via Bluetooth to the VictronConnect smart phone App. Download the App before you depart and enter the password shown on the label next to the monitor. The lead acid House batteries should not be used when the Voltage has dropped to or below 50% State of Charge (SoC) or 12.2 Volts, at no load. This is because discharge below 50% greatly shortens the lifespan of a lead acid battery!

No Load Battery Voltage (LifeLine AGM type) vs. Depth of Discharge:

12.8 Volts or more = 0% discharged or fully charged

12.5 Volts = 25%

12.2 Volts = 50% - **Discharge below 50% SoC progressively damages a lead acid battery!**

11.9 Volts = 75%

11.6 Volts = 100% or dead.

Troubleshooting the Battery Systems

1. House batteries running very low. This should never happen, because you are monitoring the house batteries with the VictronConnect App. Signs of this are that the inverter cuts off and refrigerators will not run. At this stage the House batteries are well below 50% SoC. Immediately start the generator or cruise, with the ship's engines for at least two hours and preferably four hours.
2. Unable to start an engine, due to low battery. Find the portable lithium Ion jump start battery, which is kept on top of the House Batteries in the Aft Cockpit under the seat at the sliding glass door. Connect the jump start battery to the engine battery and follow instructions with the device. If engine starts, recharge the engine battery as above. If it does not work, see engine troubleshooting or contact AYC for instructions.

SANITATION SYSTEM

Marine Head (toilet)

Laura Marie has four ensuite cabins, each with a shower, sink, and an electric flush salt-water toilet with a powerful macerator. These modern heads are far less problematic than the old manual flush heads, but care must still be exercised. It's okay to flush Costco 2-ply tissue, but tampons, flushable wipes or paper towels are not permitted and will definitely knock the toilet out of service. **The person who plugs a head with a non-flushable product is responsible for its repair.**

Normal flush: Press and hold the top rocker switch for a normal wet flush.

To flush the toilet with solids in the bowl:

1. Press and hold the bottom rocker switch in the direction of the shower symbol to fill the bowl about ½ full in order to allow a good flush.
2. Press and hold the top rocker switch to start a normal wet flush.
3. Listen to the sound of the macerator as you flush. When the sound returns to a steady high frequency whine and the bowl is clean, the flush is complete.

Note: The bottom rocker switch has two positions, one for a dry flush and the other to just add water. To conserve space in the blackwater tank, use the dry flush button instead of the normal flush for liquid waste.



Holding Tank

Head contents go to blackwater holding tanks on the port and starboard sides, located behind the hinged shower panel in the aft cabins. Each tank has a capacity of 22.5 gallons, which is shared between the bow and aft cabins. With about ½ gallon per use, the tank will be full after about 45 flushes or in about three days, which triggers a bright red light at the top of the shower. If the blackwater tank is overfilled, it is possible to clog an air vent or break a hose. To prevent such an unfortunate and messy event, never ignore the red light and plan on emptying the blackwater tanks every 3rd day, depending upon your usage. There are two ways to empty the blackwater holding tanks:

1. Go to a pump-out station and pump the both port and starboard blackwater tanks. A list of pump out stations is in the Gray book.

2. Cruise over the Canadian border and dump the blackwater at sea in mid-channel. * Note that the entire Puget Sound and San Juan Islands are designated as a No Discharge Zone. The only legal place in Western Washington to dump blackwater is in the Strait of Juan De Fuca, West of the New Dungeness Lighthouse, but you must be at least 3 nautical miles offshore.

*In Canada, dumping blackwater at sea is okay, provided that a vessel is at least 3 nautical miles offshore. There is also an exception that if a pump-out station is not available and you cannot go 3 miles offshore then dumping is allowed. Anytime you dump at sea, you must go to mid-channel and be travelling as reasonably fast as the vessel can go.

Pumping out:

DO NOT CONFUSE THE HOLDING TANK CAP AND THE DIESEL FUEL TANK FILLER CAP. BOTH ARE WELL LABELLED. READ CAREFULLY BEFORE OPENING.

1. Locate the nearest pump-out station and consult the directions there.
2. The holding tank pump-out fittings are located on the port and starboard decks about mid-ship.
3. Remove the caps and apply the pump nozzle pushing down to make a tight seal to remove the blackwater.
4. Flush all four toilets, using plentiful water and rinse the tanks with hose water and repeat the pump-out.
5. Dip the pump-out hose into sea water to rinse and replace in its cradle.
6. Tighten the holding tank caps on the boat.
7. If the boat will be unused for a while, put ½ cup of tank deodorant in one toilet bowl on both the port and starboard sides and flush through.

* Never use chlorine or caustic drain cleaners as these will damage the hoses, seals and the holding tanks.

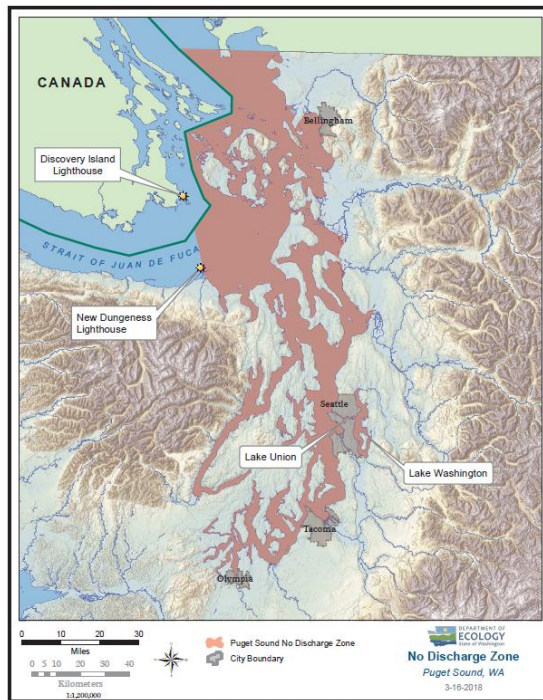
Overboard Discharge:

The blackwater holding tanks may also be emptied overboard, provided you are in one of the areas where overboard discharge of blackwater is allowed, as described above. To empty the holding tanks, remove the fasteners that retain the hinged shower wall panel in the two aft cabin showers and swing open access panel. Turn the red handle at the bottom of the holding tank so that the handle is parallel with the valve body. Because the holding tanks are above the water line, they will drain with gravity alone. Flush all four toilets, using plentiful water to rinse the tanks, then close the red handled valves and secure the access panels.

WATER SYSTEM

In General

Laura Marie carries a total of 264 gallons / 1,000 liters of freshwater in three water tanks. Wastewater from the sinks drain overboard through various thru-hull fittings. Each sink is fitted with a small basket strainer to avoid the risk of food or hair clogging the small drain hoses. The shower drains are pumped overboard by individual 12 Volt pumps with in-line fine mesh strainers. When showering, it will be necessary to occasionally press and hold the button on the wall in the shower to activate the drain pump. The shower drain is fully pumped out when out when you hear a gurgling sound. Each shower has a colander under the center drain, which serves as a pre-filter to capture hair and other debris to avoid clogging the small, hard to get to, mesh strainers that protect the drain pumps. Please have your guests use toilet paper or a paper towel to clean out their shower colander after the last shower of the trip.



Conserving and Filling the Fresh Water

Despite the large freshwater carrying capacity, you'll want to be mindful of the amount of fresh water you and your guests use while washing dishes and when taking showers. Behind the forward seat back cushion of the settee in the Saloon, there are three valves, one for each water tank. The two main tanks are generally both open, so the fresh water should last for the whole week. Since there are no water level gauges, the best gauge of usage is to know that the Fore and Aft tanks carry 103 gallons each, while the supplemental tank carries 58 gallons. You should be able to cruise for a week or more with the fresh water aboard. If, despite your conservation efforts, the two big tanks only last for six days, then switching to the supplemental tank will provide another day and a half of fresh water.

To fill the freshwater tanks, open both the port and the starboard bow storage lockers, remove the large white filler caps located on top each blue tank. Use the dock hose if provided or attach the ship's hose (50' or 100' hoses are kept aboard) and fill each tank until full. It may be necessary to lay a heavy object on top of the hose where it enters the tank to prevent the hose from jumping out of the filler port. Fold the hose when moving it to avoid getting everything wet and put it into the next tank for filling. As the last tank nears full, have someone stand near the spigot to turn the water off.

Fresh Water Pump Priming

The main water pump is controlled by a circuit breaker in the electrical panel. If the water pump continues to run for more than a few seconds after turning off a faucet, the tank has gone empty. Quickly pull off the large seat back cushion behind the Forward portion of the settee in the Saloon to access the tank valves and twist a white valve knob to open another tank, then close the valve to the empty tank(s). Turn on the galley faucet and run cold water to prime the system. If only a little or no water flows, you have an air lock and need to bleed the system. Alternately, another symptom of an air lock is when the water pump does not stop running after you shut off the faucet. To cure an air lock, open the drain valve to the lower right of the tank valves and close this drain valve after ten seconds. Test that the pump is now fully primed, by turning on the galley faucet and running cold water. When properly primed, the faucet will run strong and the pump will shut off a few seconds after you turn the faucet off. If not, repeat the priming procedure.

Hot Water Heaters

The port and starboard sides each have an 11-gallon hot water heater, under the aft bunks. Water is heated when connected to shore power, when the generator is running, provided the port and Starboard water heater circuit breakers are turned on. Water is also heated by the heat exchangers when the ship's engines are running. To activate the water heater from AC power, turn on the two water heater circuit breakers on the electrical panel. Shore power 1 supplies the port side water heater and Shore power 2 must be connected to supply the starboard side water heater. The generator has the power to supply both water heaters, but the two circuit breaker slide covers must be raised, and the Transfer switch activated to supply power to the starboard water heater. If connected to shore power, a good time to shower is in the morning before a cruise. If anchored at night with no power, a good time to shower is during the day, mid-way or more through the cruise, because the ship's engines naturally make a lot of hot water.

Showers

To conserve water, take only very short "boat" showers by turning off water between soaping and rinsing. Turn off water by simply twisting the small valve on the shower neck ¼ turn. When showering, it will be necessary to empty the sump by occasionally press and holding the button on the wall in the shower to activate the drain pump. The shower sump is empty when you hear a gurgling sound. To keep the shower tidy and the boat dry, use the squeegee to wipe down the shower stall and glass door when finished. Each shower has a colander in the sump, under the center drain, which serves as a pre-filter to capture hair and

other debris to avoid clogging the small and hard to get to mesh strainers protecting the pumps. Please have your guests clean out their sump colander after the last shower of the trip. An additional freshwater shower is located on the port side swim step area. Be sure the faucet valves are completely turned off after use.

GALLEY SYSTEMS

Propane Stove / Oven / Barbeque

The galley has an ENO propane range, with a three-burner hob. The propane tanks are located near the rear deck, just inside the canvass door. There is a manual valve on the top of the tank and three manual valves next to the tank, one for each gas appliance (stove, oven and barbeque). Keep the barbeque valve closed, unless in use. There is also an electric solenoid valve, which is activated by a circuit breaker (LPG Control) in the electric panel. The electric valve must only be activated when using propane and immediately turned off after any cooking is done. A yellow indicator light in the galley, by the microwave oven, serves as a visible reminder that the propane gas is turned on. Propane is heavier than air, so any leaking gas will collect at the lowest point, therefore, the tank valve should be turned off prior to retiring for the night and before returning the boat at the end of your charter.

Use the large propane bottle first and save the small tank as a back-up. The small tank is great for cooking crabs on shore. The large propane tank normally lasts two weeks to a month, depending upon usage.

To turn the propane on:

1. Turn on the propane tank valve.
2. Turn on the individual valve for the gas appliance you intend to use (Stove, Oven or Barbeque)
3. Turn on the circuit breaker switch marked "LPG Control" on the electrical panel. Verify that the yellow "Gas On" light is lit.

To light the burners:

- Push the burner control knob downward as you turn it on and continue to hold the knob in while pushing the spark button or clicking a handheld lighter to light the burner. Should the burner not light, be certain that the black metal burner caps are seated correctly and that you pushed the control knob inward and held it in as you sparked the burner and for at least 10 seconds after lit.
- Continue to hold the knob in for a few seconds, as the thermocouple must warm up before the burner will stay lit. Should the flame blow out, the thermocouple will shut off the gas to avoid leakage.

To light the oven:

- Push and turn the oven/broiler control knob to the desired position (CCW for the oven and CW for the broiler) and hold the button in while pushing the sparker button. Alternately, open the oven door and click a handheld long neck lighter through a hole in the front center of the bottom pan to light the burner in the bottom of the oven. Continue to hold the knob in for few seconds, as the thermocouple must warm up before the pilot light will stay lit. Should the broiler or oven not light, be certain that you held the knob inward as you used the sparker and for at least 10 seconds after lit.

Turn the propane off after using the stove, oven or barbeque:

1. Turn all the burner control knobs off and verify the oven control knob is also turned off.
2. Turn off the LPG Control circuit breaker on the electric panel.
3. Close the valve on the propane tank before retiring for the night, and before the end of your charter.

Barbeque

The barbeque is mounted on the aft railing. Before using, ensure that tender's spare fuel or other flammable materials are not near the barbeque. Turn on the gas with the manual valve marked BBQ, next to the propane tank. Turn on the circuit breaker switch marked "LPG Control" on the electrical panel. Light the barbeque with its sparker button. The barbeque generates a lot of heat and cooks hot and fast. Please clean up the BBQ when finished it to prevent grease and dirt from soiling the rear deck. **Note: The BBQ tools and cleaners are kept together with the propane tanks.**

Refrigerators & Freezers

Laura Marie is equipped with a large main refrigerator (bottom drawer) / freezer (upper drawer) and an additional small refrigerator in the Aft Cockpit, plus two additional refrigerators (convertible to freezer) in the Forward Cockpit. There is also an icemaker on the left side of the galley sink. All refrigerators and freezers operate from 12 VDC power. Turn on the refrigeration circuit breakers at the electrical panel and at the top center control of the main unit. The correct temperature for the main refrigerator is when the middle LED is lit on the indicator. Do not set any colder or your food will freeze and be destroyed.

The small refrigerator in the Aft Cockpit, is best used for beverages, condiments and salad dressings. There is an auxiliary refrigerator and a 2nd matching refrigerator or freezer (depending upon temp. setting) in the Forward Cockpit. If set as a freezer, this is a great place to store ice cream and large frozen items. The auxiliary refrigerator is especially good for bulky vegetables and/or milk and large juice containers.

Icemaker

A nice feature is the 115 VAC icemaker in the saloon, next to the sliding glass door to the Aft Cockpit. Because it requires 115 VAC, the icemaker should only be run when connected to shore power, when the generator is running or when underway and powered by the inverter. The power switch for the icemaker is a black rocker switch below the door near the bottom of the icemaker. Because of the high power required to make ice, only start the icemaker while on shore power or when leaving for a long cruise. If the icemaker is not full, raise the ice level sensing bar or shut off the icemaker at night if not connected to shore power.

Before starting the icemaker, be certain to drain all water out of the ice tray. Be certain the thin wire ice full sensing bar is lowered to make ice. The wire bar sometimes gets dislodged from the hole it fits into, but with careful attention, it is easy to refit the wire bar where it belongs, so that the icemaker will function properly. If the ice bucket looks full, gently lift the sensing wire to stop making ice, which will greatly reduce the high-power demand of the ice maker.

HEATING SYSTEMS

Forced Air Diesel Furnace

Laura Marie is equipped with three Eberspächer (Espar) diesel forced air furnaces. The furnaces are in the engine compartments and provide heat by circulating a hot fluid through lines to radiators with fans. There are air outlet vents in all four main cabins, the two small bow cabins, the saloon, the Aft Cockpit and the helm. This entire heating system operates on 12 VDC and is controlled by six thermostats, which means these furnaces can be run while anchored, with no shore power and without starting the generator.

To turn on furnace:

Turn on the circuit breaker at the top center of the power panel, labelled Heat. There are five wall thermostats which have all been preset to the same standard heating schedule. Each can be overridden to your desired temperature. Each heat outlet has a three-position fan switch (off-low-high). If you want heat

in that area, you must also turn on the fans with this switch at each vent location. The Aft Cockpit has its own furnace, which is controlled by the black thermostat on the bulkhead wall below the fire extinguisher.

When using the forced air furnace, you will hear a turbine like sound emitting from the aft end, which is the sound made by the furnaces. Since the furnaces are a 12 VDC system, be certain monitor the battery state of charge more often when the forced air furnace system is being used. If the battery charge state gets close to or at 50% SoC, you must turn on the generator, or turn on the ships engines or turn off the forced air furnaces, by turning off the circuit breaker at the top center of the power panel.

Space Heater (115 Volt AC)

A portable 115 VAC space heater can be used only when connected to shore power. Be sure to place this heater away from flammable materials when it is turned on.

ELECTRONICS SYSTEMS

All the ships manuals, including electronics are in three folios, on the top shelf of the starboard bow cabin. The Raymarine e125 HybridTouch chartplotter has an extensive instruction set built in.

VHF Radio

Laura Marie is equipped with a Raymarine 55 VHF radio. The Federal Communications Commission (FCC) licenses it as a ship station. This radio can be an extremely valuable source of information, such as weather and tides. In an emergency, it is a vital source of assistance. It can also provide telephone contact with people on shore through the marine operator. The operation of this station is strictly controlled by Part 80 of the FCC rules and regulations, and the Communications Act of 1934. You should review the communications section of Chapman’s Piloting to familiarize yourself with these rules before using the transmitter. Additionally, the three portable VHF radios aboard operate under the same license and Call Sign. The portable VHF radios are waterproof and intended for use with the tender and the kayaks.

Depth Sounder/Knot Meter/Wind Speed

These instruments are Raymarine i70 displays mounted panel in the helm. Each has a cover which should be put in place when not in use. When removed, store them on the broad dashboard above the instruments.

GPS and Chartplotter

There is a fixed mount GPS in the helm that integrates with the Raymarine e125 HybridTouch chartplotter, the i70 panels and the autopilot. A 2nd Raymarine e125 chartplotter is at the Navigation station in the saloon. Refer to the built in and onboard Raymarine manuals for detailed operating instructions.



Radar

Laura Marie is equipped with a Raymarine 18” Digital Raydome radar that fully integrates with the Raymarine e125 chartplotter.

Autopilot

Laura Marie is equipped with a Raymarine p70 Color autopilot and an autopilot smart remote controller. Refer to the onboard Raymarine manual for operating instructions.

AM/FM Stereo Radio – CD Player

The Sony CDX AM/FM stereo radio CD player, with Bluetooth is located at the navigation station. There is also an additional power amplifier and six built in Bose speakers and a fader control. It operates like a normal car radio. You must first turn the stereo on at the electrical panel with the C/B marked “Stereo”.

TV/DVD Player with remote control

Installed at the saloon, is a smart Samsung TV with a separate DVD player. It operates like a normal home TV/DVD Unit. There are three remote controls, one for the TV, one for the DVD player and a 3rd for the Yamaha surround sound speaker mounted to the bottom of the TV.

Bilge Pumps

Laura Marie is equipped with two 33 GPM bilge pumps with separate automatic float switches. Additionally, each engine room has an 18 GPM bilge pump. The pump master switches are located at the bottom of the electrical panel and can manually turn the pumps on for testing, however the pump is permanently wired for automatic operation. You may occasionally hear the pump briefly operate due to condensation. An auxiliary, hand operated, bilge pump may be operated from the port and starboard stairs, by cranking the handle provided for that purpose. This is used only in emergency situations.

Dodger and Bimini

Laura Marie is equipped with a dodger and Bimini top with canvass all around. Because they are so easily scratched and do not roll well, **Do Not Remove** any of the Isinglass panels, except the center door to the bow from the Forward Cockpit. The Isinglass windshields may be cleaned with “Mirror Glaze Clear Plastic Cleaner 17,” and a soft cloth found aboard. **Do Not Use** regular window cleaner and especially no paper towels, as they will scratch the Isinglass material.

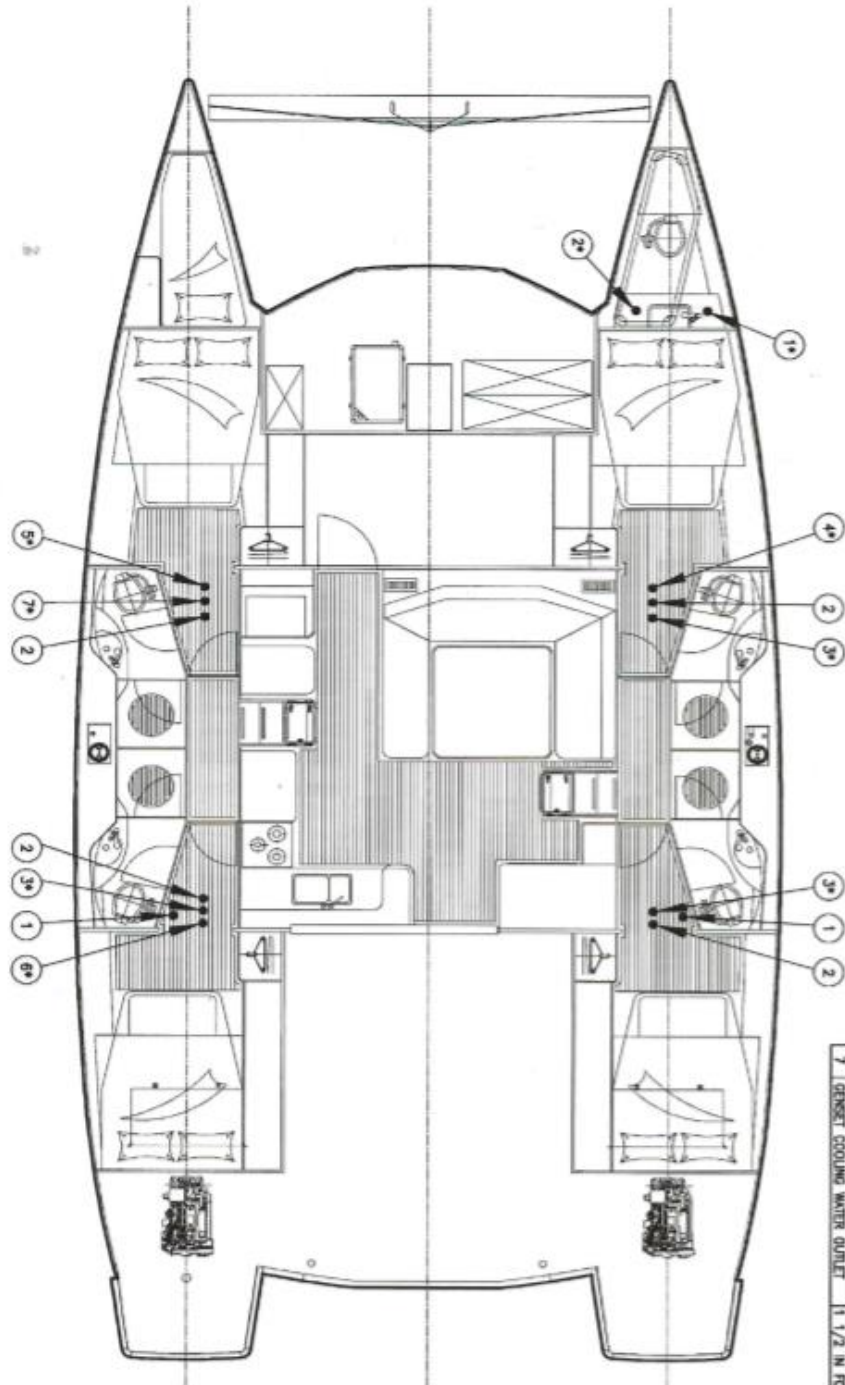
Thru-Hull Sea Cocks

Sea cocks are open when their handles are in line with plumbing (typically vertical) and closed when perpendicular to plumbing (typically horizontal). All sea cocks (except as noted herein) are normally left open while cruising. Please leave all open when returning the boat.

Below water line sea cock locations (also refer to thru-hull diagram):

- Raw water engine intake (through Sail Drive)
- Galley sink drain (drains into tunnel)
- Head sink drains (drains to port and starboard sides at waterline)
- Head seawater intake (under floorboards midship, both sides)
- Depth sounder (under floorboards)
- Holding Tank overboard discharge (behind aft cabin shower panel, both sides)

See the thru-hull diagram on the next page.



| No. | DESCRIPTION | SKIN FITTING | VALVE |
|-----|-------------------------------|-------------------|------------------------------|
| 1 | TOILET/HOLDING TANK DISCHARGE | 2 IN FORESPAR | 2 IN BALL VALVE FORESPAR |
| 2 | TOILET SALTWATER INLET | 3/4 IN FORESPAR | 3/4 IN BALL VALVE FORESPAR |
| 3 | AIRCORN COOLING WATER INLET | 1 IN FORESPAR | 1 IN BALL VALVE FORESPAR |
| 4 | DEPTH TRANSDUCER | 2 IN MAINWAKE | N/A |
| 5 | SPEED TRANSDUCER | 2 IN MAINWAKE | N/A |
| 6 | GENSET COOLING WATER INLET | 3/4 IN FORESPAR | 3/4 IN BALL VALVE FORESPAR |
| 7 | GENSET COOLING WATER OUTLET | 1 1/2 IN FORESPAR | 1 1/2 IN BALL VALVE FORESPAR |

* DENOTES AN OPTIONAL EXTRA

NOTES:

| ALT. | DATE | SIGN | MODIFICATION |
|------|------------|------|--------------|
| A | 15/10/2012 | HL | FIRST ISSUE |

P.O. Box 43341, Sandwick 7919
 Telephone: (021) 448 5986
 Fax: (021) 448 5741

ROBERTSON & CAINE
 AB Underwater Fittings & Seacocks
 4 Cabin Version
 SCALE: 1/25 on A4
 FILE NAME: CAD-009829
 DATE: 11/09/2012
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SAFETY EQUIPMENT

Laura Marie is heavily equipped with safety equipment, so, as you enjoy yourself, you can be safe.

First Aid Kit

A large First Aid kit is kept readily accessible in the starboard bow corner of the Saloon. Additionally, an array of common medical supplies may be found under the seat at the Navigation Station. Next to the first aid kit is a wall mounted defibrillator and in the same bin is a heart monitor.

Fire Extinguishers

Laura Marie is equipped with nine fire extinguishers. Their locations and other important information are detailed on page 4 of this handbook.

Signaling Devices, including flares, smoke, etc.

An array of emergency signaling devices are kept in the Helm in an orange dry box.

Life Jackets

Laura Marie is equipped with 12 adult and 4 child / teen life jackets. These are the comfortable type to encourage their regular usage. All are stored in the Forward Cockpit. The mens are inside the storage bin.

Steering Gear Failure

In the event of a steering gear failure, remove the white plastic round cover located on both the port and starboard aft steps and insert the emergency tiller. The emergency tiller is stowed in a locker located under the aft seat in the Aft Cockpit.

Engine Spares/Tools

The engine spares box is stowed in the port side engine room. This includes oil filters, fuel filters, raw water impeller, micro V belt, pump parts, engine oil, engine coolant and other small parts. An extensive tool collection is stored in the Aft locker, under the aft seat in the Aft Cockpit. Also kept in the Aft storage locker is another bin with oil, filters and spares for the 25 HP Yamaha outboard motor on the tender.

MOM, Life raft and other important safety equipment:

Laura Marie has been fully set up for serious voyages. It's extremely improbable you'll never need these but isn't it nice to know that a Man Overboard Module (MOM) is mounted to the port side railing - aft. For a worst-case disaster, an automatically deployed eight-person Life Raft is mounted on the upper deck. A fully equipped ditch bag is strapped to the poles that support the helm seat.

Portable VHF Radios

Laura Marie is stocked with 3 waterproof portable VHF radios for safety when using the tender and kayaks. One person aboard the tender and/or one person in each kayak should carry a VHF radio in case the need arises to contact the Laura Marie, or the Laura Marie needs to contact you. Be certain to choose a specific VHF channel that your group will monitor and leave your radio on.

Safety Harnesses

For serious sailing conditions, Laura Marie is stocked with eight safety harnesses, which are located under seat at Navigation Station.