

OPERATION MANUAL

Mary K

Welcome Aboard!

We are happy that you have chosen Ship Harbor Yacht Charters and the vessel Mary K for your vacation. We hope you enjoy your cruising experience in the lovely islands of the Pacific Northwest.

Mary K was named after the wife of the original boat owners, Ed & Mary Smith. They were the original owners who purchase the first of the 49ft Lord Nelson Victory Tugs made. Only 8 49's were made.

This manual will help you become more familiar with your boat. If you have any further questions, about the boat or your itinerary, please do not hesitate to ask the SHYC staff.

Remember our vessels are non-smoking boats. But please feel free to smoke out on deck.

Bon Voyage!

The Ship Harbor Yacht Charters Staff

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BOAT OPERATION

Engine Inspection

Remember your "WOBBS" every morning. (Water (Coolant), Oil, Bilges (Inspect and Pump-out), Belts, and Sea Strainer. Check the level of COOLANT in the expansion tanks. Check the level of your engine oil with the dipstick. Your dipstick is located on the starboard side of the engine. Look at the etch mark on the dipstick that indicates the proper level. Note the etch mark is different from the normal lines engraved on the dipstick. **DO NOT OVERFILL!** Only fill if oil levels are below the ½ mark. Check the general condition of the hoses and belts. Check the generator as well.

Ensure the valves on each RAW WATER THRU-HULL are OPEN! (Lever in-line with valve). Observe through the glass of each sea strainer for debris. If necessary, close the thru-hull, open the strainer lid (wrench in bottom drawer of toolbox), clean out debris, and reassemble. **REOPEN the Thru-hull!**

Start Up

Having finished your inspection, start your engine. Ensure that Gearshift is in **neutral** or the engines will not start (neutral lockout) Run your throttle up and bring back to just above the idle position. Inset the key into the ignition and turn it clockwise.

Turn the key clockwise until the engine alarm sounds and pre-heat the engine. After 10-30 seconds turn key fully to engage the engine. If the engine does not turn over, move the gearshift slightly while turning the key until the engine engages. If the engine cranks slowly, check the condition of your batteries at the electrical panel. If the battery is low, turn the top Battery Parallel Switch to position "both" to connect the windlass battery. The switch is the top of three switches located in the engine room on the port side of the engine room access door. After the engine has started, return Battery Parallel Switch to "1".

After the engine starts, warm it up at about 1000rpms for about 5 minutes. Observe your gauge readings. Oil pressure reads around 65 psi and water temp around 175 degrees. Engine temperature should rise very slowly.

*Note: If water temp.is high or oil pressure low, **shut down engine** and look for problem. Was there a lack of water exiting with exhaust? Are thru-hulls open and debris cleared from sea-strainer? If problem keeps occurring, call SHYC Service.*

Shut Down

Before shutting down, let engines idle for about 5 minutes letting them cool. Ensure the gearshift is in the neutral position and the throttle is in idle. Turn off the engines by turning the key to the left.

Getting Underway

Disconnect the shore power cord (see AC Power next page). Close portholes, windows, and hatches. Turn on VHF and electronics. Assign crewmembers to their tasks. Once outside marina, have crew members bring in fenders and put lines away.

Cruising

Make certain the throttles are in idle and engage the gearshifts. Slowly come up to cruising speed of 1700 rpms. If you run at 1700 rpms, you will cruise at approx. 7 knots, using only 4 gallons of diesel/hour. Your speed may vary depending on weight, load, and weather conditions. Watch your speed on the GPS as you adjust the throttle.

Note: Avoid high engine speeds as it causes the engine to overheat causing damage as well as high fuel consumption.

Docking

During docking, give clear instructions to the crew on what you will expect of them i.e. with lines and fenders.

While moving slowly towards the dock, generally center the wheel and use the gears and throttle to maneuver the vessel. Throttle should only be used in moderate to windy conditions. Bow Thruster may be used as needed. In addition, note that the left handed propeller will pull to the starboard when in reverse. This can be used to slow the boat and pull the stern into the dock.

Fueling Up

At the full mark the gauges are quite accurate. Use them to judge when to stop. When the gauge is exactly over the full mark there should be 2" of air space left. They are less accurate when partially full because the tanks follow the curve of the hull. In rough terms the $\frac{3}{4}$ mark results in 70% full, the $\frac{1}{2}$ mark is 40% and the $\frac{1}{4}$ mark is 10%. Never run below the $\frac{1}{4}$ mark. While there is still useable fuel, rough seas or even big rolling wakes could cause the intake to take in air.

Mary K has 6 tanks, 3 each side. You will see 3 filler caps each side near the aft end of the cabin that coincide with the tanks. You can also see the tank vents located on the aft corner of the cabin. As one might expect the port vent is for the 3 port tanks and the starboard vent is for the starboard tanks. As you fill you can hear the gurgling at the vents. Typically, the two aft tanks (250gal ea.) are left empty. The numbering of the tanks is as follows: port side 1 forward(150gal), 3 center(150gal), 5 aft. Starboard side 2 forward(150gal), 4 center(150gal), 6 aft. You will note the tank sender switch is laid out similarly as is the fuel manifold in the engine room.

Open filler caps located on either side of the aft deck with the deck-fitting key kept in the drawer on the starboard side in the aft end of the main cabin. **MAKE SURE YOU HAVE DIESEL!** Make sure it is going into the right deck fill! **DOUBLE-CHECK!** Before pumping, have your oil/fuel sorb ready to soak up any spilled fuel. You should have a rough idea of how many gallons you will need, but have someone check the fuel

gauge frequently by turning on the "instrument" switch on the DC panel. Be certain to switch to the correct tank.

Put **Diesel** nozzle into the deck fitting and pump slowly listening to the sound of the flow. Pumping too fast may not allow excess air to escape, which will lead to spillage out the vent. As the tank fills, the sound will rise in pitch or gurgle. Pay attention to the vent that it does not spill fuel into the water. Top off carefully, catching any spillage with your sorb. **Fill the forward tanks first**, then the center tanks and last, if they are used the aft tanks. The reason for this is the filler hose to the forward tanks is very flat. If you fill the aft tanks first the stern will settle and flatten the hose even more. If you have all day feel free to reverse the process.

Check your gauges! Replace the deck fill caps and turn on the engine room blower for a few minutes. Clean up any spatter and wash hands thoroughly.

Emergency Steering

Should the steering fail there is an emergency tiller located under the settee in the main cabin. On the aft deck there is an access plate which can be removed with the aid of the tool in the bottom drawer of the toolbox in the engine room.

ANCHORING

Your primary working anchor, a #8 Forfjord Safety Anchor weighing 93#, is attached to 400 of chain. The starboard anchor is the working anchor. The port anchor is a spare. To use it one would have to switch it to the starboard chain.

The anchor windlass runs off its own battery and is switched on by the middle switch in the engine room. However, it is commonly connected to the engine starter battery. **Be sure to always have your engines running while raising the anchor.**

To lower the anchor, flip the handles on the windlass outward. Release the ratchet pawl and carefully turn the handle counterclockwise to release the clutch. The rate can be controlled with the clutch. To stop the anchor, tighten the clutch. To hold the anchor, engage the pawl to take the load off the gears.

To raise the anchor, press the deck switch. When the anchor finally comes into its final position you may need to flip the anchor flukes with the boathook. If the anchor fouls or the windlass stalls or is nearly stalled use engine power to free the anchor

If the windlass fails, you can raise the anchor by hand. Remove the center bolt in the capstan, the clutch nut, capstan, capstan key and upper cone. There is an emergency handle under the chart drawers on the starboard side.

See page 9 in the White Binder for further anchoring instructions.

BOAT ELECTRICAL

The electrical system is divided into two distribution systems: 110 volt or AC and 12 volt or DC. The systems are controlled from the electrical panel located on the port side of the helm and the battery switches located in the engine room.

When not connected to shore power your batteries provide most of your electrical power. Therefore, the use of onboard electricity needs to be monitored very carefully. **Turn off electrical devices** when they are not being used (lights, instruments, etc.)

110 Volt or AC (Alternating Current)

Shore Power supports all AC equipment and receptacles on board as well as the battery charger.

To connect to shore power, plug the power cord into the boat, either port or starboard side, and then into the dock receptacle. Check your power rating voltage and plug size of the dock receptacle (i.e. 30amp, 50amp etc.) If necessary, add an adaptor located in the lower drawer, starboard side of the settee in the pilot house. Secure the cord around the shore power electrical receptacle and off the bow (i.e. wrap around bowline a few times) turn the dock power breaker on.

On the boat, turn the shore power switch to the proper position (1 is port side, 2 is starboard side) breaker on at the electrical panel. Turn on appropriate breakers for battery charger, refrigeration, water heater, and outlets. Watch your voltmeter for load. If the load exceeds the voltage, it will pop the breaker. If this occurs, wait to turn on one of your systems (i.e. water heater) until the use of power decreases.

Inverter

The inverter converts 12V-DC power from the house batteries into 110V-AC power for the 110 receptacle plugs (i.e. microwave) when the boat is disconnected from shore power. Your inverter switch is located at the bottom in AC panel 1 with an on/off switch. Make certain it is on. The actual inverter is located in the engine room starboard side. The Inverter is powered by batteries located in the engine room. The amount of DC power is **limited** to the capacity of these batteries so **use it very sparingly!!!** This means use of the toaster, hair dryer, microwave, coffee maker etc. must be limited! When those items are to be used, turn on the generator.

Generator

To start your generator, first check that the fluids have been checked and the raw water thru-hull is open. The generator controls are located the bottom of the panel. Pre-heat the generator for about 20-30 seconds. Then, while pre-heating, turn the switch to start. Hold the switch in that position for about 5 seconds until the engine catches. Make sure your water and exhaust is exiting at the stern.

After the generator is running, turn your AC distribution switches to generator. Note if the phase light is flashing and if so switch the phase by pressing the button. Turn on your AC systems as you would when hooking up to shore power. If you have

been anchored a while, turn on the battery charger first for 10 minutes. Too much load such as water heater, stove top etc. may overload the system.

To turn the generator off, first take off the load by turning the AC breakers off. Turn off the main AC distribution switch. Last, kill the generator by holding switch in the off position until it dies.

House 12-volt System

Batteries.

Six battery banks support your 12V-DC system: #1 Engine Start, #2 Windlass, #3 House Battery Bank, #4 Boat Crane, #5 Generator Starter and #6 Bow Thruster.

Three battery switches are located on the port side of the access door on the front bulkhead in the engine room. Normally you will leave the switches in the on position. *Note: Changing the position of the battery switches with the engine running will cause damage! Only change positions with the engine off!*

1. The top switch is the engine switch 1- connects only the starter battery to the starter. 2- connects only the windlass battery to the starter. Both connects both to the battery,
2. The second switch is the windlass/generator switch. 1- connects the windlass battery to the generator. 2- connects the windlass battery to the windlass. Both connects the battery to both.
3. The bottom switch is the house battery. 1- connects the house batteries to the starter and by default then to the starter battery and/or windlass depending on how the switches are set. 2- connects the house batteries to the DC panel. Both connects the house batteries to the DC panel and starter.

Two switches are located on the starboard side battery box.

1. The forward switch is for the house batteries. 1- connects the batteries to the house switch (#3 above). 2- connects the alternator to the house switch. Both- connects the alternator and the batteries to the house switch. Leave on both.
2. The aft switch is for the crane battery. 1- connects to the house battery. 2- connects to the crane battery. Both- connects the house and crane batteries to the crane.

A sixth switch is located aft near the generator battery. 1- connects the generator battery to the generator. 2- connects the windlass battery to the generator. Both- connects both batteries to the generator.

A seventh switch is located on the starboard side in the guest stateroom. It is for the bow thruster batteries located under the guest berth.

Battery Positions.

- At anchor or moored and running on house batteries - Turn the house switch to 2 so the generator and starter batteries will not be drawn down.
- At other times the house switch may be left on both.
- Engine switch may be left on both thus connecting the engine and windlass batteries. **But start the engine before using the windlass!**
- The windlass switch can be left on both.

Panel.

Your 12-volt DC panel shows all the systems supported by your batteries. Primarily you will be turning on these breakers for lights, water pressure, electronics, etc. Bilge pumps will always be left on. Your breakers such as "LPG Control" should be turned off after every use.

When disconnected from shore power, the 12-volt systems will drain the battery especially when at anchor. Monitor your batteries very carefully. The DC voltmeter on the DC panel can be switched between your battery banks to measure battery voltage. Typically, the bank should read from about 13.0 to 14.5 volts when being charged. While at rest, your voltage will drop as indicated in the figures below.

All your batteries are charged while underway by the alternator. The engine and house batteries are charged by the battery charger while connected to shore power. Ensure that the charger is on. The generator will also charge the batteries.

| Voltage | Battery State of Charge | |
|-------------|-------------------------|------------------|
| 12.65 volts | 100% | 12.25 volts 50 % |
| 12.47 volts | 75 % | 11.95 volts 25 % |
| | | 11.70 volts 0 % |

SANITATION SYSTEM

Marine Toilet

All three heads are electric marine heads. They must have the DC breakers turned on at the panel for each head. In addition, the water pressure breaker must be turned on. The head in the master stateroom has a special tank monitor which will indicate when the holding tank is ½ full and when it is full.

It is imperative that every member of the crew be informed on the proper use of these marine heads. The valves, openings, and pumps are small and will clog easily. If the head gets clogged, **it is your responsibility!** Always **flush the head for small children** so you can be certain of what is being flushed. *Note: Never put in paper towels, napkins, sanitary products, household T.P., or food into marine heads. Use only marine T.P. provided by SHYC.*

To flush forward and starboard toilets, Press the flush button. You may add water to the bowl by pressing the upper button on the switch panel. The toilet in the master stateroom is more advanced and will add water automatically as it is flushed. Press the button and wait.

Holding Tanks

Your sanitation holding tanks holds 50 gallons. Be aware of the rate of waste production (about 1 gallon/flush). If you overfill your tank, you will break a hose, clog a vent, or burst the tank **which is an indescribable catastrophe!** And a very **expensive fix for you.** Empty the tank at least every other day to avoid any problems. Monitor the tank level in the master head

The holding tank is located in the engine room just forward of the engine. There is a tank watch warning light located master stateroom head. But do not rely on this as they are subject to being inaccurate.

The holding tank is emptied in one of two ways:

#1 At the pump-out station, remove the deck waste cap located on the portside just aft of the boarding door. Insert the pump-out nozzle into the waste opening. Double-check that you have the right deck opening! Turn on the pump on the dock and open the valve on the handle of the hose. When pumping is finished, close lever on handle and turn off pump. Remove from deck fill. If there is a fresh water hose on the dock, rinse the tank by adding water for 1-2 minutes. Then re-pump to leave the tank rinsed and clean for the benefit of the next charterer. This also eliminates any head odors.

#2 The tank's contents can also be discharged at sea by using the macerator (Sealand pump). To operate the macerator, open thru-hull located in the starboard head through the opening in the bulkhead aft of the head and to the left of the washer. Do not confuse it with the smaller thru-hull for the washer. Turn on the macerator on the lower right bottom of the panel. Pump until pitch becomes higher indicating an empty tank. This should take about 2 minutes. Discharge can be seen on the starboard side of the boat. *Note: Overboard discharge is only allowed in Canadian waters. It is illegal to discharge overboard within U.S. waters.*

WATER SYSTEM

Fresh Water Tank/ Pump/ Hot Water Heater

Three fresh water tanks hold 350 gallons and two are located in the engine room and another is located just forward of the engine room. Observe the water level by means of a gauge in the pilothouse. Tank 1(150gal) is the port tank, tank 2 (50 gal) is the forward tank, and tank 3 (150gal) is the starboard tank. To fill the tanks, remove the deck water fill caps located just forward of the boarding gates on both sides. There are two on the port side and one on the starboard side. Fill the tank avoiding flushing debris into the tank. **Do not fill water and diesel at the same time!** A manifold to switch tanks is located in the forward end of the engine room on the port side. Only open 1 tank at a time! Waste water from the sinks and showers drains overboard through various thru-hulls usually located under the sinks

The water pressure pump and backup are located in the engine room over the hot water tank. Activate the pump by turning on the "Water Pressure" breaker at the DC panel. The pumps are variable flow and will continue to pump for a brief period after use as they raise the pressure to their cutoff point. However, if after use, the pump continues to run, you are either out of water or have an air lock which can be corrected by opening a faucet. If you run out of water, shut off pump and **turn off hot water heater** on AC panel. **You can cause serious damage** to the heating element. On this manifold you can select one of two water pumps. In the event of a pump failure open and close the appropriate valve and flip the switch to the new pump.

The hot water heater has a 15-gallon capacity. It is heated 3 ways. First is when the AC breaker is on while connected to shore power or running the generator. Second it will heat from the engine when the engine is running at temperature. Last, it is heated from the boat heater. Do not use the water heater if the water level is low. The water heater is located on the port side of the engine room at the forward end. **Beware the engine heat can heat the water much higher than the normal heater element. Turn the hot water on carefully. Help Children.**

Shower

Before taking a shower, make sure the water pressure and shower sump pump breakers are on. The sump pumps are located in the DC panel. The top switch is for the guest stateroom and the bottom switch is for the master stateroom. The middle switch is inactive. In addition, the sumps need to be turned on in the heads. The forward head sump switch is a small button just above the sink. The master shower switch is located under the overhang in the shower behind the curtain. Take short "boat" showers by pausing or turning off the water between soaping and rinsing. Please wipe down the shower stall and floor when finished to keep shower tidy. Pick up any accumulation of hair in the drains as it clogs the hoses. Ensure that the faucets are tightly turned off after each shower to save water.

GALLEY

Propane

The boat is equipped with a low pressure propane system for cooking. The propane tanks are located in the stack on the upper deck. Open the tank valve. Go to the DC panel and turn on the breaker labeled "LPG Control". Then turn on the propane solenoid switch in the galley. When lighting the first time, allow a few seconds for the gas to travel from the tank to the stove. You might need to keep the stove top or the oven in the light position for a few more seconds while the thermo-coupler warms up.

To ensure safety, turn off the propane solenoid switch, the propane at the bottle, and the DC breaker when finished.

Refrigerator/Freezer

The refrigerator and freezer are 12V DC. The switch and fuse are located in the engine room on the port side just forward of the front of the engine. It will automatically use the 110-volt power when shore power is on and the AC breaker flipped on. Carefully monitor the use of the refrigerator when the engines are not charging the 12-volt system as when you are at anchor. Use a cooler when possible for all your drinks to keep the refrigerator door closed as much as possible. Use the top lids when possible, since cold air will escape when the side doors are opened.

The power switch can be turned off at night to conserve energy while anchored or moored.

Ice maker

The ice maker is 110V. It is turned on at AC 2 panel and a small switch at the front lower right corner of the unit. It needs water pressure to operate properly.

Barbeque

The Barbeque and mounting bracket are stored in the lazarette. Place in mounting bracket on the starboard side by pulling the pin, inserting the support rod and inserting the pin. The barbeque screws on to the bracket.

Attach the propane bottle and regulator usually found in Lazarette. Carefully light the unit. This Barbeque cooks fairly hot and fast so keep a good eye on your food. Store the barbeque back in the lazarette when it has cooled. Please wipe it down with a rag or paper towel before storing. *Note: Propane bottles are not stocked by SHYC so you will need to purchase a bottle if one is not found on board during your check-out. Ensure that outboard gas or any other flammables are not near barbeque.*

HEAT

The Hurricane diesel hydronic heater is located in the engine room on the port side. It provides heat by heating water which then runs to various heat exchangers. Turn on the toggle switch in the main salon and set the thermostat at the desired temperature. Check the exhaust port on the stern to make certain that no obstruction such as a fender or line exists. Let the furnace run at least 15 minutes before turning it off. Turn the furnace off back at the control panel. Each stateroom and the main salon has a thermostat and there is a switch in the pilot house.

ELECTRONICS

There is a VHF radio located in the pilothouse. Make sure the breaker is on at the DC Panel. Always monitor Channel 16 while underway.

There is a depth sounders located in the pilothouse. To activate, ensure that the DC breaker is on. Turn on the depth sounder by . Note the sounder has an alarm for depth which can be set to several depths. The sounder is reliable in waters less than 200 feet and at the slower speeds of the Mary K. If your reading is blinking, it might be a false reading due to excessive depths or strong currents! Watch your depth carefully in cruising unknown waters that might have rocks or obstacles.

To operate the radar press and hold the power button. To turn off, hold the power button for about 3 seconds. Remember you are not allowed to travel in fog or at night.

A GPS is located in the pilothouse. Turn on by pressing the power button. Turn off by pressing and holding the power button until it goes off.

The Furuno radar includes a Chart Plotter. Use the menu button to scroll the options.

DINGHY AND OUTBOARD MOTOR

Your 13 ft Boston Whaler tender is equipped with a 50 hp Honda engine. It has a capacity of 900 pounds or 6 of people.

To deploy the tender, use the Auto-Crane. It has a capacity of 660# at its maximum extension. The remote control for the crane is located in the smokestack. The marked controls are self-explanatory. The crane runs off its own battery which is commonly connected to the house batteries. Numerous uses will drain this battery. Be aware that the hoist cable needs to be run out first when the boom is extended. The dingy may be deployed on either port or starboard side. Be aware of the handrails while operating the crane. The boom can move rapidly so think ahead.

After the dinghy is in the water and readied to go (PFDs etc), open the vent in the fuel tank and choke the engine once while starting. Make sure outboard is in neutral. The four cycle engine does not require oil in the gas. However, the engine oil level needs to be checked. See the Honda manual in the file cabinet under the navigation table.

Please use extreme care in beaching your dinghy. Make sure the engine gets tilted up a safe distance from shore so the prop does not hit the bottom or shear the pin. Do not drag the boat on the beach. Please lift it up with your crew. Make sure it is secured as the tide comes in fast in these here parts.

When returning to the boat, leave your shore shoes in the cockpit and slip on your deck shoes or slippers to keep the boat neat and tidy.

OTHER NOTES

Safety should be paramount to your daily cruising. A man overboard drill (person?) should be discussed and practiced with an unlucky PFD as the victim. (please rinse and dry afterward before stowing). Remember that your lifejackets are stowed in the locker on the port side of the quarter berth in the pilot house. A few should always be readily available. Flares and other safety equipment are located in the locker under the chart drawers in the pilothouse.

Always have a sharp lookout posted for logs, deadheads, or other flotsam and jetsam. A log hitting your prop can ruin your vacation. As you are traveling, the debris does seem to gather along current lines. It is sometimes best to go around these areas and miss the "mine fields".

Mary K is equipped with two automatic bilges pumps that can be activated remotely from the switch to the left of the helm chair. The switch should normally be left in the "Auto" position can be switched for a minute or so to "manual" to pump the bilge. If you continually hear the bilge pump running, **check your bilge!** You may have a serious problem!

An auxiliary hand-operated bilge pump is located just forward of the engine on the port side and operated by pumping up and down with the attached handle. This is used in an emergency situation.

The engine spares are located the engine room. They include extra oil filters, impellers, etc. Extra oil and coolant is located in the engine room.

Crabbing is fun but requires the correct license and season. Please be sure not to crab off the stern as the crab line can easily get tangled in your prop as you swing with wind or current. You certainly don't want to be the person who has to dive over and cut the line out of the propeller. It is best to use the dinghy to set your crab pot/ring away from the boat. A partially open can of seafood cat food works as well as any other bait and is less messy. Please clean up any seaweed or crab shells afterwards to keep the boat neat and tidy.