

OPERATION MANUAL

SAILING VESSEL “H2O Bungalow”

February 2022

Welcome aboard!

We are happy you have chosen H2O Bungalow for your vacation. Enjoy cruising the beautiful waters of the Pacific Northwest.

We hope this manual will help you become familiar with the boat.

Please remember this is a non-smoking vessel. Always smoke outside.

If you have questions about the boat or about places to visit, please do not hesitate to ask the AYC staff.

Mark and Denise Bernstein, co-owners

TABLE OF CONTENTS

<u>Boat Operation</u>	3
<u>Engine Inspection</u>	3
<u>Seacocks</u>	3
<u>Wheel</u>	3
<u>Engine</u>	4
<u>Shutdown</u>	4
<u>Getting Underway</u>	4
<u>Docking</u>	5
<u>Fueling Up</u>	5
<u>BOAT SYSTEMS</u>	5
<u>Electrical Systems</u>	5
<u>120-Volt AC System (Alternating Current)</u>	6
<u>12-volt DC System</u>	6
<u>Sanitation System</u>	8
<u>Marine Toilet</u>	8
<u>Holding Tank</u>	9
<u>Water Systems</u>	9
<u>Fresh Water Tanks</u>	9
<u>Fresh Water Pumps</u>	10
<u>Switching Fresh Water Pumps</u>	10
<u>Hot Water Heater</u>	11
<u>Shower</u>	11
<u>GALLEY</u>	11
<u>Propane Stove</u>	11
<u>Refrigeration</u>	12
<u>HEATING</u>	13
<u>Wabasto Forced Air Heater</u>	13
<u>ELECTRONICS</u>	13
<u>VHF Radio</u>	13
<u>GPS, Plotter, AIS and Radar</u>	14
<u>AM/FM Stereo Radio including Bluetooth, etc.</u>	14
<u>Internet hotspot</u>	14
<u>Inverter</u>	15
<u>AC Power in Port Stern Cabin</u>	16
<u>Cell Phone Chargers</u>	16
<u>ANCHORING & MOORING</u>	16
<u>Anchoring</u>	16
<u>Anchoring Without Power Windlass</u>	18
<u>Stern-to Anchoring</u>	18
<u>Mooring Buoys</u>	19
<u>Reducing Noise at Night</u>	20
<u>SAILS AND RIGGING</u>	20

Troubleshooting:	21
OTHER:.....	21
Barbecue	21
Dinghy	22
Safety, Spare Parts, etc.	22
Crabbing and Fishing	23

Boat Operation

Engine Inspection

Remember your “**WOBBS**” every morning: **W**ater (Coolant), **O**il, **B**ilges (Inspect and Pump-out), **B**elts and **S**ea Strainer.

Lift the companionway steps and use a flash light to check the level of coolant in the expansion tank, which can be seen to the upper left as you face the engine from the salon. Engine coolant is a mixture of 50% antifreeze and water. For your convenience, there is a bottle of pre-mixed coolant under the port stern cabin bed. Check the level of engine oil with the dipstick located on the starboard side of the engine. This can be accessed by removing the companionway steps or the access panel in the aft starboard cabin. A pair of etch marks on the dipstick indicates the proper oil level. **Do not overfill!** Make sure the dipstick is firmly put back in. Check the oil with a paper towel or a rag. Check the general condition of the belts, hoses and fuel lines. Look for dripping or spattering oil or antifreeze.

Engine oil and coolant can be found under the bed in the port stern cabin.

The bilge can be accessed by tipping the starboard settee toward the stove. You will see the float valve for the automatic bilge pump. Pure Joy’s hull does not have anything that drains to bilge so you should see no more than a few cups of water.

Check the glass of the raw water strainer for debris, which can be accessed by removing the shelf on the engine side of the port stern cabin. If necessary, close the engine seacock (see below), open the strainer cover, clean the strainer, and reassemble. Be careful to seat the O ring properly or the strainer will leak. **Reopen the seacock.**

Seacocks

If you need to close the engine seacock to service the raw water strainer or you need to open it because no water is coming from the exhaust pipe at the starboard stern procedure as follows: You can access the seacocks from under the bunk in the port stern cabin. Remove the first two cushions and then remove the left-most horizontal panel as you face aft. If you look down towards the propeller shaft you will see the two valves. You may see the small valve labeled Stern Tube Inlet first. Make sure it is open and then look for a larger valve closer to you, which is the raw water seacock for the engine. You can close this valve to service the raw water strainer. When you have finished, make sure both valves are open.

Summary: Ensure the valves on the two raw water seacocks (through hull valves) are in the ‘open’ position (lever in-line with valve) before starting the engine.

Wheel

The folding wheel can be folded and unfolded as follows:

Folding: Turn the two grey grips to unthread the spokes to which they are attached. Fold each side of the wheel. Use a pair of small bungees to tie each of the folded halves to the nearest spoke attached to the hub.

Unfolding: Release the small bungees. Unfold wheel, turn the grey grips to attach and tighten the spokes.

Engine

H2O Bungalow has a 56HP Yanmar diesel engine, which drives a three-bladed propeller through a reversible transmission. The combined shift lever and throttle control is on the starboard side of the steering wheel. The engine stop is located above the ignition key above the port seat. The engine will propel the vessel to about 7 knots in calm water at 2400 RPM. Your best cruising is at 2000 - 2200 RPM for longer periods.

Using higher throttle settings will produce very little increase in forward speed but will greatly increase fuel and oil consumption and wear on the engine. For this reason, we ask that you limit the use of higher power settings to real emergency situations.

This boat has a definite prop walk to the port in reverse with not much noticeable effect in forward. She will move to starboard with slightly greater ease than to port at close quarters. When in reverse, be careful to keep a firm grip on the wheel. Use only low RPMs.

Starting

To Start the Engine: Place the engine transmission in Neutral by positioning the shift lever straight up. If you need to increase engine speed out of gear, push the red button in to disengage the propeller and advance the shift lever ahead slightly.

Start the engine by turning ignition to Exhaust Blower for 30 seconds then to the start position. Do NOT hold the key in the start position for more than 15 seconds at a time. If engine does not catch the first time WAIT about 30 seconds before trying again. **Never turn off the key while the engine is running.** You will do serious alternator damage. The key should remain on while the engine is running.

Check the exhaust pipe at the starboard stern to ensure that water and exhaust are exiting while the engine is running. This is as an indication that your engine seacock is open and water is keeping your engine cool. If you do not see water coming out with the exhaust, see Seacocks above.

Normal cruising speed is 2000 to 2200 RPM.

Shutdown

Place the transmission in neutral and allow the engine to cool down for several minutes. Usually this is about the amount of time it takes to secure your lines and plug into shore power. Push the stop button located above the ignition key. This cuts off the fuel supply to the engine. **Never turn off the key while the engine is running.** Alarms will sound until the key is switched off. Switch off the key after engine has completely stopped.

Getting Underway

Disconnect the SHORE POWER CORD (See AC Power next page). Close the PORTHOLES, WINDOWS, and FORWARD HATCHES. Turn on V.H.F. and electronics. Assign crewmembers to

their tasks. Put one crew member in charge of the dinghy, if it is under tow. It needs to be kept on a tight leash when in the marina. Once outside marina, have crew members bring in fenders, put lines away, and pay out extra dinghy tow line.

Docking

Have your crew make ready the lines and fenders and give clear instructions on how you will be docking. Have bow, stern, and spring lines ready. Often times it is best to lead them to the mid section of the boat (the fattest part) where your crew member can easily step off and secure lines. Pull the dinghy up tight and make sure no lines are in the water that could foul the prop.

As you are coming in to dock, have your best communicator at mid ships to give you distances from the dock. It is often hard for the helmsperson to judge how close the boat is to the dock. Calling out distances (i.e. 20 feet, 10 feet, 4 feet etc.) will add to a successful docking.

When possible arrange for someone to meet you at the dock or hail someone who is already nearby to take your lines. When this is not possible, have a crewperson prepare to step on the dock from the mid section: stand facing the mast, take hold of the shroud (the lines from the mast to the edge of the deck) and carefully step backwards while lift his or her feet over the life lines, placing both feet on the toe rail from the outside.. When the boat is within inches of the dock, the crewperson can move one foot down to the sling step on the side of boat and then move the other foot to the dock itself. If you find you are too far off the dock, **BACK OFF** and do it again. **NO HEROIC JUMPING OFF BOAT BY CREW MEMBERS!!!!!!** This is very dangerous!

Fueling Up

You will need to fuel up before returning to your slip at the end of your charter. The fuel tank holds approx. 40 gallons of diesel fuel. Before pumping, have oil/fuel sorbs, which are usually provided by the fuel dock and are stored under the chart table seat, handy to soak up spilled fuel. You should have a rough idea of the number of gallons you will need by the engine hour indicator. Your vessel uses approximately 0.75 gal/hr, depending on the RPM you choose while cruising.

The fuel deck cap is located on the aft Starboard deck, with the key located in the Nav station drawer. **CHECK THAT YOU HAVE THE CORRECT DECK OPENING! Use only DIESEL – make sure that is what you are pumping!** Do not add water or pump-out at the same time you are fueling.

Place the **DIESEL** 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 spouting from the tank opening. As the tank fills, the sound will rise in pitch or gurgle. Pay attention to the TANK OVERFLOW VENT on the outside of the hull opposite the tank opening. The sound may indicate that the tank is nearly full. Top off carefully, and be prepared to catch spilled fuel. Spillage may result in a nasty fine from law enforcement.

Caution -- Clean up splatter and spillage immediately for environmental and health reasons. Thoroughly wash hands with soap and water.

BOAT SYSTEMS

Electrical Systems

The electrical system is divided into two distribution systems: 120-volt AC and 12-volt DC.

The systems are controlled from the AC electrical panel located **below** the Nav station and the 12 volt DC panel at the Nav. station. The battery switches and the windlass breaker are located above the starboard stern berth on the engine side. To see them, sit on the bunk and lean toward the engine and look forward. You may need a flashlight.

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

120-Volt AC System (Alternating Current)

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

To connect to shore power, locate the power cords stored in the port stern lazaret and plug the power cord into the dock receptacle. Check the power rating/plug size of the nearest dock receptacle (that is 30 amp, 20 amp, or 15 amp). If necessary, add a cord adapter located in the Nav station drawer. Secure the cord around the shore power electrical receptacle tower and off the bow. Turn the dock power on. Then check to see that the breaker switch in the port stern lazaret (where the power cord connects to the boat) is on.

Then go below and find the AC electrical panel. You will find it below the Nav table behind the inverter. Turn on the AC Circuit breaker. If the red light labeled Reverse Polarity comes on, turn the breaker off and contact dock staff for advice.

Then turn on appropriate breakers for battery charger, water heater, etc. Watch your amp meter for load. If the load is exceeded, it will pop the breaker. If you are not getting power to your outlets, check to ensure one of your breakers has not been tripped. If this occurs, wait to turn on one of your systems (i.e. water heater) until the use of power decreases.

The boat also has an **inverter** that provides limited 120-volt AC power when the boat is away from shore power. See Inverter under Electronics.

12-volt DC System

House Battery Bank & Switch

Two battery banks support 12-volt DC power: 1) engine battery 2) two house batteries.

The battery switches are located above the starboard berth in a nook behind the fire extinguisher. Normally, leave all switches in the on position while running. *Note -- Do not change the position of*



the switches while the engine is running or the alternator diodes will be damaged. Only change their positions with the engine off.



The 12-volt DC panel shows all the systems supported by your batteries. Primarily you will be turning on the breakers for your lights, water pressure, electronics, etc. Interior lights are also powered from a circuit breaker on this panel but many have individual switches at each fixture. #2 Bilge pump light is always on. Breakers such as the LP gas breaker should always be turned off after every use.

The house battery bank provides power for all DC systems except the engine starter. When disconnected from shore power, all 12-volt devices drain the house batteries.

Battery systems will lose their charge while ANCHORED or MOORED. Avoid this by using power sparingly at anchor. Turn the refrigerator off at night. Use only one or two lights at a time. Turn off systems not in use such as instruments, VHF, stereo, etc. If you do not need the cabin heater, turn it off. If you stay moored for more than a day, run your engines just above idle to recharge your batteries. **WATCH YOUR VOLTAGE!** 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.

Voltage (Wet Cell Battery)	Battery State
12.65 volts	100%
12.47 volts	75%
12.25 volts	50%
11.95 volts	25%
11.70 volts	0%

Batteries are charged by the engine ALTERNATOR while underway. The engine/house batteries are charged by the BATTERY CHARGER when connected to shore power.

There is a 12-volt auxiliary receptacle located on the electrical panel. This operates off battery power alone and is turned on using the Salon Lights breaker. The AC receptacles will not work under the DC battery system. For information on AC power while anchored see Inverter and AC Power under Electronics.

Sanitation System

Marine Toilet

It is important that every member of the crew be informed on the proper use of the marine toilet. The valves, openings, and pumps are small and may clog easily. **If the toilet clogs, it is YOUR RESPONSIBILITY!** Always pump the head for children so you can make sure nothing foreign is being flushed.

Caution – Never put paper towels, tampons, Kleenex, sanitary napkins, household toilet paper, or food into the marine toilet. Use only the special dissolving marine toilet tissue provided by AYC – and use it sparingly, flushing more than once if significant deposits are being made.

To use the toilet:

- Open the lid.
- Change valve left to “wet bowl”.
- Pump 4 or 5 times until 1 to 2 pints in bowl. Short strokes may help fill the bowl.
- Use only marine grade toilet paper – just enough to the job.
- Wash hands.
- With valve still on “wet bowl” pump until water in bowl is clear.
- Add a dollop of holding tank treatment.
- Pump 10 to 12 times to clear all the lines.
- Change valve right to “dry bowl”
- Pump until no water in bowl.

Heavy effluent may clog hoses. Clean the toilet as necessary.

Should the toilet pump handle squeak or stick, it needs to be lubricated. Put a couple of squirts of ‘pump lube’, salad oil, or dish soap into the toilet when the bowl is empty. Pump the toilet dry slowly, to draw the lube into the handle unit. The ‘pump lube’ is located below sink in forward head.

The toilet through-hull is located under the sinks in aft head, and under mirrored cabinet in forward head, if you need to shut off the water to the toilet.

Holding Tank

Each sanitation HOLDING TANK holds approximately 20 gallons. Be aware of the rate of waste production. (about 1 gallon per flush) With an overfilled tank, it is possible to break a hose, clog a vent, or burst the tank. **The result will be an EXPENSIVE FIX to you.** Empty the tank every day to avoid this problem.

The HOLDING TANKS are located above each head behind the bulkhead.

The holding tank is emptied in one of two ways:

#1 At the Marine Pump out Station, Remove the deck WASTE CAP located on the starboard deck above each head. Insert the pump-out nozzle into the waste opening. Double-check your deck fitting! Make sure you have the right deck opening! Turn on pump and open valve located on handle of the hose. When pumping is finished, close lever on handle and turn off pump. Remove from deck fitting.

If there is a fresh water hose on the dock, rinse the tank by adding 2 minutes of water into tank. Then repump to leave the tank rinsed for the next charter. This also eliminates any head odors.

#2 The tank's contents can be discharged at sea by using the the hand pump and seacock. Note: Overboard discharge is only allowed in Canadian waters. **It is illegal to discharge overboard within U.S. waters.**

Water Systems



The water pumps and valves under the salon seat on the port side

Fresh Water Tanks

There are two fresh water tanks that together hold about 131 gallons. They are located under the forward bunk and under the starboard bunk. Be mindful of the amount of water you use while washing dishes and taking showers, etc. Wastewater from the sinks and showers drains overboard through various thru-hulls usually located under the sinks.

To refill the tank, remove the water caps located on port deck fore and aft using a winch handle. Attach the hose to the dock spigot and let run for a minute before inserting into deck fitting. Avoid flushing debris from the deck into the tank opening. **DO NOT** fill water and diesel at the same time!

A pair of valves to switch tanks is located under the aft curved settee. Here are the steps:

1. Turn off the sink faucets.
2. Turn off the fresh water pump circuit breaker on the main DC panel.
3. Turn each of the two small valves below the water pumps so they are in the opposite position.
 - a. Turn the one that is horizontal so it is vertical.
 - b. Turn the one that is vertical so it is horizontal.
4. Turn on the fresh water pump circuit breaker on the main DC panel.
5. Open a sink faucet to clear air and to allow the pump to prime using water from the newly selected tank. Leave the water on until a relatively smooth water flow is present.
6. Turn off the sink faucet. The pump will continue to run for a short time until it reaches full pressure. If it fails to turn off, repeat step 5 using a different faucet.
7. Depending on how many days the first tank lasted, you may want to consider visiting a marina to refill the empty tank and top off the other one.



Valves set to draw water from aft tank.



Valves set to draw water from forward tank.

Fresh Water Pumps

The water pressure pumps are also located under the aft curved settee. Activate pump at the DC panel by turning on the breaker. It may take a while for the system to fully pressurize because the system includes an air tank that is pressurized by the water pump. If when in use, the water pump continues does not shut off about a minute after a faucet has been turned off, the water tank in use has run dry. **If you run out of water, shut off the water pump at the DC panel and turn off the hot water heater on the AC panel (below the chart table).** Serious damage can occur to the heating element! If the other tank has water, you can switch to it – see the section on water tanks above. Another reason that the pump may continue to run is an air lock has developed. You can eliminate the air lock by bleeding the system by opening a faucet to let air out of the system.

Switching Fresh Water Pumps

(Should almost never be necessary.)

Under normal operating conditions both red handles should point up so they point at "Primary Pump". When operating with this primary pump the switch on the box should be set left pointing at "Primary Pump". If the primary pump should fail, you can switch to a backup pump by changing the position of two valves and one switch while the fresh water breaker is off:

- Turn the left red valve handle clockwise so it points to the right.

- Move the right red valve handle clockwise so it points to the right.
- Move the pump power switch on the face of the white box to the right.



Hot Water Heater

The hot water heater has a 6-gallon capacity tank and heats when connected to shore power or off the heat exchanger when the engine is running. To use in the AC mode, flip on the water heater circuit breaker on the AC electrical panel located under nav table. Do not use the water heater if the water tank level is very low. The water heater is located under that aft curved settee.

Shower

Before taking a shower, make sure water pressure and shower sump breakers are on. To activate the hand-held wand pull the hose out of the sink and attach to wall spray holder. Take only very short “boat” showers (turning off water between soaping up and rinsing). To keep shower tidy wipe down the shower stall and floor. Push and hold the shower drain button next to the light switch button to drain shower. Check for accumulation of hair in the shower and sink drains and pick up any accumulation, as it clogs the hoses. There are shower sump strainers under each head sink. Spin off the clear plastic bowl and clean as necessary. An additional fresh water shower is located at the transom opposite of the swim ladder. Ensure that the faucets and nozzle are completely off after use to save water.

GALLEY

Propane Stove

The boat is equipped a low-pressure propane system for cooking. The propane tank is located in the port aft cockpit locker. Your propane stove is activated by the following steps:

- 1) Turn on the breaker labeled “LP Gas Valve” on the DC Panel. This is the power supply to the Trident Marine LP Gas Control and Detection System, which includes a propane sniffer below the stove, a control panel above the stove and a solenoid near the propane tank
- 2) Open the valve on the LPG (propane) tank in the lazaret in stern on the port side by turning it counter clockwise.
- 3) Look for the small black control panel to the right and above the stove. After the “DETECTOR ON” green light stops flashing, press the ON button. The green “VALVE ON” light should light.
- 4) **If a RED light appears and an alarm sounds, turn off the gas at the tank in the stern lazaret and call AYC.** (See details below.)

- 5) Turn on the gas at the stove by pressing in the knob firmly, waiting for clicking and then turning the knob to the left. If you do not hear any clicking, use two hands by pressing and turning a range knob with your left hand and pressing but not turning the oven knob with your right. You can also light the burner using a barbecue lighter, which you should find to the left of the microwave. You might need to hold the knob in for a few seconds while the thermocouple warms up. When lighting for the first time, allow a few seconds for the gas to travel from the tank to the stove.
- 6) **When you are finished cooking, turn off the burners and then press the OFF button on the control panel above the stove.**
- 7) **Before you get underway and before retiring, close the valve at the bottle in the lazaret on the port side of the stern by turning it clockwise.**
- 8) You can leave the LP Gas Valve switch on the DC Panel in the on position as long as you have the “VALVE ON” indicator light on the small panel above the stove is off. That way the detection system will continue to monitor for propane gas while the stove and oven are not being used.

DETAILS ON SNIFFER ALARM. If the LPG Gas sniffer sounds an alarm and the red light on Alarm 1 lights, contact Anacortes Yacht Charters for advice. If you cannot reach AYC, proceed as follows. The sniffer/detector has automatically turned the gas to the stove and oven off. Nevertheless, turn the gas off at the tank as well. Then turn off the LPG circuit breaker on the panel to silence the alarm. Open hatches to ventilate the salon and galley area but do not use the fans as there is a chance they will generate a spark. After you ventilate the salon and galley you can try turning on the sniffer/solenoid at the panel but do not turn the gas on at the tank. If the alarm sounds again and you smell gas, seek additional advice by radio or telephone. Avoid using anything that could create a spark. If you do not smell gas and you are sure the galley is well ventilated, you can try blowing on the sensor, which is a black box mounted directly below the oven, to clear any dust, etc. that may have gathered there. If the alarm no longer sounds and you do not smell gas you can proceed to turn on the gas at the tank if you need to use the stove but monitor the situation carefully.

Refrigeration

The REFRIGERATOR operates on 12-volt power. **Carefully monitor the use of the refrigerator when the engine is not charging the 12-volt battery system, such as when you are at anchor.** There is both a breaker on the DC panel and a thermostat in the locker above the refrigerator. AYC will supplement you with 2 bags of ice. Placing one of them in the refrigerator and the other in your cooler if you have one will provide more stable temperatures in the refrigerator and give you a way of keeping your afternoon beverages cool.

The refrigerator thermostat in the cabinet above the refrigerator reads from 1 to 7 with 7 being the coldest setting. Placing the thermostat on 5 or more will eventually produce frozen goods on both sides of the refrigerator not to mention placing an unnecessary load on the house battery. There should be refrigerator thermometers in both sides of the refrigerator. If you set the thermostat to 2 you should be able to maintain about 40° F on the left side and 20° F on the right, while on shore power or motoring. This setting will also reduce the load on the batteries. The thermometers will give more accurate readings if you put them a few inches from the top of the things you are storing in the refrigerator. For instance, you could place a bag of lettuce over the thermometer on the left side.

Consider turning the refrigerator breaker off at night or lowering the thermostat to 1 when anchored or on a mooring buoy to prevent drainage of the battery. Use a cooler when possible for all your drinks, which will help keep the refrigerator door closed as much as possible.

Pump out excess water in fridge as follows: (1) Turn on shower pump breaker on DC panel. (2) push and hold the labeled button above the fridge.

HEATING

Wabasto Forced Air Heater

The Wabasto diesel heater is located in the locker aft of the port cabin. It provides heat in the same way as a household furnace.

Check the exhaust port on the starboard transom to make certain that no obstruction such as a fender or line exists. Flip up the toggle switch located at the Nav station and set the temperature to the desired temperature. You will hear the heater start to run in the aft compartment accompanied by a steady clicking by the fuel pump. This sounds like water dripping under the port bunk.

Let the furnace run at least 30 minutes before turning it off. Turn the furnace off with the toggle switch after reducing thermostat setting to a point where furnace fan stops.

ELECTRONICS

All electronic manuals are located under the Nav Station table.

VHF Radio

The VHF radio is located in the Nav Station. Make sure the breaker is on located at the DC panel (electronics). Monitor channel 16 at all times. VHF operation is covered in detail in the Moorings Beneteau manual located in the cabinet under the nav. station table. To use the VHF while underway, find the remote in the drawer under the chart table and plug it into the receptacle on the port side of the binnacle in the cockpit. Please return the VHF remote to the drawer at the end of your cruise.

There is also a VHF remote that allows you to use the radio from the cockpit. You will find it in the chart table. It plugs into the socket below the chart plotter in the cockpit. When you are using the remote, you can turn down the volume on the radio above the chart table and turn up the volume on the remote. To adjust the squelch, tap the volume knob on the remote and turn the knob. Tap it again to return to volume adjustment.

A hand-held VHF radio is also provided, located on shelf beneath circuit breaker panel to the port side of the nav. station table. It can be charged by plugging its charger into the 12 volt (cigarette lighter) receptacle to the left of the circuit breakers. The Salon Lights breaker must be on.

GPS, Plotter, AIS and Radar

Refer to the instruction manuals located in the cabinet below the nav. station table.

Pure Joy is equipped with an Automatic Identification System (AIS) receiver that will plot some of the local ships and boats on the chart plotter. It may issue a warning if it detects that the course of a nearby ship may intersect with Pure Joy's course. To acknowledge this warning press the middle of the five buttons below the screen.

The radar is turned on by tapping the chart plotter's power button and then selecting from the menu. The mast and the boom will block the radar somewhat in the forward starboard quarter. To reduce this problem, use the traveler to align the boom between the radar dome and the mast.

Note: The radar will go to standby if the house battery voltage is low, which may occur after a night at anchor. To keep this from happening, postpone turning on the radar until the engine has been running for a while. Then bring the RPMs up to 1500 to 2200 and turn on the radar. If the radar goes to standby due to low voltage you may have to power down the chart plotter, then power it back up and then restart the radar to resynchronize the radar with the chart plotter. Once you are underway the alternator will bring the house battery back up to full voltage and the radar should stay on.

AM/FM Stereo Radio including Bluetooth, etc.

The AM/FM stereo unit is located in the Nav Station. It operates like a normal car radio. There are speakers (stereo) in the salon and on the deck.

You will find a mode selector to the right of the power button that allows you to choose between AM, FM, WB, CD, Aux, USB, SD, and Bluetooth. WB stands for Weather Band so you can use the stereo instead of the VHF to listen to weather stations if you like.

The Bluetooth mode allows you to pair your Bluetooth device (e.g. your smart phone) by selecting Dual BT from your device and entering the password 1234. If you have more than one Bluetooth device you return the stereo to pairing mode by pressing and holding the little button in the lower left of the faceplate that is marked with a telephone symbol. This will disconnect the current Bluetooth device and return the stereo to Bluetooth pairing mode.

****VHF RADIO BREAKER MUST BE ON FOR THE STEREO TO OPERATE.**

Internet hotspot

Section not used at this time. Refer to your own hotspot information.

Inverter

H2O Bungalow includes a 600-watt inverter that mounted underneath the nav. table. It can be used to provide limited 120 volts AC service when you are away from shore power. The main purpose of the inverter is to allow you to charge your laptop computer(s). It may also be used to power other low-power appliances such as CPAP machines (see AC Power in Port Stern Cabin below for details). It cannot be used to power the microwave, toaster or a hair dryer. Please understand that the inverter draws on the house batteries and thus competes for power with the refrigerator, cabin lights, etc. If you use the inverter, please turn off the refrigerator or set its thermostat to 1 to conserve battery power. The inverter does not power the main AC receptacles on the boat; they are only available while you are on shore power and the appropriate AC breakers are turned on. There are two AC receptacles on the face of inverter. One of them is normally used to power the special AC outlet in the port stern cabin (see below).



To turn on the inverter look for the toggle switch at the top right of its face. Push the left side of the switch to turn on the inverter. This will also activate “bat save” which will automatically turn off the inverter if the house battery goes below 11.9 volts. To operate the inverter without the bat-save feature, press the right side of the switch rather than the left side. This will allow you to use the inverter until the house battery drops below 10.5 volts although it is not recommended as it shortens the life of the battery. This switch also serves as the circuit breaker switch for the inverter. If the load on the inverter exceeds 600 watts, an alarm will sound and you should turn off the switch to silence the alarm.

To turn off the inverter return the switch the center position.

AC Power in Port Stern Cabin

There is a special 120-volt AC receptacle in the port stern cabin. You will find it under the bunk on the right side as you face the bunk. To ensure that it receives power, verify that the cord above the inverter is plugged into the inverter and that the inverter’s power switch is set to the right to disable “bat save”. (See Inverter above). This receptacle can be used to provide power to a low-power CPAP machine but you should understand that its source of power is the house battery which provides power to many other things on the boat. As such, we cannot guarantee that there will be enough power to keep a CPAP machine running all night. The amount of power available to the CPAP AC receptacle depends on several things including

1. how long you will run the diesel engine during the day to recharge the batteries;
2. how much power your CPAP machine consumes; and
3. the other things that you turn on or use that draw battery power.

To maximize the availability of power to the inverter, turn off all instruments at the panel while the engine is not running, turn down or turn off the refrigerator, turn off lights that you are not using and minimize the use of the stereo.

Cell Phone Chargers

Each cabin is equipped with a duplex USB charger. This means that you can charge up to two cell phones at a time in each cabin **provided that you bring the USB cables that match your phones.** You can plug in your USB cable by finding the receptacle next to a shelf in each cabin:

Bow cabin: the aft end of the shelf on the starboard side of the cabin.

Port stern cabin: the forward end of the shelf on the port side of the cabin.

Starboard stern cabin: the forward end of the shelf on the starboard side of the cabin.

The cabin lights breaker must be on to provide power to these chargers.

ANCHORING & MOORING

Anchoring

The primary WORKING ANCHOR is a 45# CQR and is attached to 200 feet of chain and 200 feet of line. The rode is passed through the deck from the anchor locker.

Before approaching an anchorage, bring the dingy in close to the stern so its painter (line) will be unlikely to sink and entangle the propeller while you are maneuvering.

The anchor windlass is operated by a hand held remote located in the forward head. To prepare to anchor, route the remote through the hatch so it is available at the bow. Use it to lower the anchor until you have established safe scope as described below or until all the chain is paid out and you are releasing line. Be sure to always have your engine running when operating the windlass to provide power to the windless and to assure you can maneuver until the anchor is set. If the engine is running at 1000 to 1200 rpm and the windlass does not operate, check the windlass breaker. The windlass breaker is located above the starboard stern birth on the engine side. To see it, sit on the bunk and lean back and toward the engine and look forward and left to find a nook with red switches handles. The breaker is below the red battery switches. You may need a flashlight.

Note: If the windlass fails to operate, see Anchoring Without Power Windlass below.

The anchor rode is marked with zip ties. The coding system is as follows:

25 feet: White

50 feet: Blue

100 feet: Green

150 feet: Blue

200 feet: Yellow

300 feet: Red

350 feet: Black

You should also find a laminated card with this information in the chart table or in the drawer below the table.

Let out sufficient anchor rode (chain and line) before setting the anchor. If the anchorage is crowded put down at least a 3 to 1 scope (60 feet for 20 feet of water), back the anchor in with a short burst from the engine. Then let out additional scope dependent upon conditions. Once the proper scope has been set, choose one of the following to secure the anchor rode for the night. These methods are designed to provide a secure connection to the anchor line with minimum chain noise and stress on the windlass if the wind comes up during the night.

- (1) If there is still chain running through the windlass, get out the white snubber line with the hook on one end, secure its hook to the chain forward of the windlass, and then use the windlass to pay out a few feet of chain, secure the snubber line to a deck cleat, and then pay out a few more feet of chain so that tension of the chain is transferred to the snubber line rather than the windlass. The nylon snubber line will also absorb some of the shock of waves or wakes, reducing the chance that the anchor will drag so when in doubt use as much of the snubber line as possible while still securely tying it to a bow cleat.
- (2) Alternatively, you can use the bridle, which has a snubber hook. The bridle can be found in the port lazaret in the cockpit. Connect the hook to the chain as described above, tie one of the bridle to the port bow cleat, the other to the starboard bow cleat and then let out enough chain so the bridle is taking the load.
- (3) If there is line running from to the anchor rode (chain) locker to the water line rather than chain, have the helmsperson bring the boat forward a few feet to provide some slack on the line and secure the line to a deck cleat, while leaving it running through the chain guide at the bow.

Before raising the anchor, start the engine. Use the hand-held remote as the boat moves toward the anchor **on engine power**, pressing the ‘up’ control to take up slack line as you move forward. Do not pull the line tight or pull the boat with the windlass. Have the helmsperson bring the boat forward slowly to take up the slack. When you are directly over the anchor, raise the anchor up with the windlass, giving the windlass short rests as you are raising the anchor. The windlass uses a large amount of electrical power; so always operate the windlass with the engine running. Once you are directly above the anchor you can have the helmsperson put the engine in neutral, push the red button

on the throttle lever and then ease the throttle forward to bring the engine speed to about 1000 RPMs to provide electric power to the windlass. *Slow the windlass to minimum speed as the anchor comes out of the water.* The person tending the windlass should be in a position to guide the anchor onto the roller but not while the windless is running.

Note: If the windlass fails to operate, see Anchoring Without Power Windlass below.

Coordinate the maneuver with the helmsperson to remain steady above the anchor as it is raised. As the anchor rises, be careful not to allow it to swing against the hull.

If you put out line (rope) after exhausting the chain you can raise it wrapping it two or three times around the hub on the left side of the windlass. Once the line is onboard, set the chain on the right side in the cogged slot and bring it aboard.

If the windlass motor refuses to operate you may have overheated it and tripped the breaker. Wait a few minutes for it to cool and then reset the breaker in the starboard aft cabin. You will find it hiding in a nook behind the fire extinguisher that can be seen by sitting on the bunk and looking towards the engine and forward. If it still fails to operate, you can use operate it manually. Place the handle that is in the anchor locker in the hole between the left hub and center of the windless and move it back and forth using the ratchet mechanism.

A spare anchor and rode is normally stowed in the aft port lazaret. Make sure that the rode is securely attached to the boat before use.

Anchoring Without Power Windlass

If the power windlass fails to operate, make sure that its breaker has not tripped. The windlass breaker is located above the starboard stern birth on the engine side. To see it, sit on the bunk and lean back and toward the engine and look forward and left to find a nook with red switches handles. The breaker is below the red battery switches. You may need a flashlight. Also, make sure that the engine is running and running in neutral at about 1200 RPM. To increase RPM in neutral, pull the throttle handle to starboard and then push it forward. If it still fails to operate, proceed as follows:

To lower the anchor: Take the handle that is in the hole to the left of the windlass and place it on one of the three pins of the three-pin nut on the right side of the windlass axle. Pull the handle back to loosen the clutch. Move the anchor forward of the pulley with one hand while holding the handle so that you can tighten the clutch to control the anchor and its chain. Move the handle backward and forward to control the lowering of the anchor.

To raise the anchor: Use the handle to tighten the clutch. Move the handle to a hole in the hub on the left of the windlass and to the right of the large pulley on the left. Move the handle back and forth to lift the anchor rode. To take a break, move the ratchet lock on the right side of the windlass to catch a notch in the hub that holds the chain. Once the anchor is aboard, return the handle to its storage hole.

Stern-to Anchoring

Some bays in British Columbia have steep under-water slopes. If you drop your anchor on one of these slopes and the wind or current pulls the boat towards the center of the bay, your anchor may not hold. For these reasons and to allow more boats to fit in the same bay, it is the custom in such bays to take a stern line ashore and tie it to a ring that has been secured to a rock. In places where there are no rings you may be able to use the trunk of a sturdy tree instead but only if the tree is on public property and there are no signs prohibiting this practice. If it is safe to do so and the depth allows, set your anchor from 150 to 250 feet from shore, depending on depth and appropriate scope such that your stern will be about 40 to 90 feet from shore when you back away from your anchor towards the shore. Have someone watch the depth and for rocks as you back as your stern will probably be shallower than the depth indicated by the sounder that is mounted amidships.

There is a spool containing over 200 feet of stern line in port stern lazaret. One crew member can use the dingy (see Dinghy) to take the loose end of the line ashore while another member holds the spool and pays out the line. A broom handle can be used as an axle for the spool. There is also a stainless steel carabiner that can be used to help secure the line ashore. It is particularly useful if you find that the shore provides a rusty ring that will chafe the line as the boat moves back and forth. Attach the carabiner to the rusty ring and run the line through the carabiner rather than the rusty ring.

Note: Make sure that the engine is in neutral when you carry out this procedure. If you find that you need to back the boat to bring it within 100 feet of shore, make sure the line is well away from the propeller area of the boat when you do so.

Once the crew member has placed the loose end through a ring he or she should bring it back to the boat while the crew member with the spool continues to pay out more line. Both ends of the stern line should then be secured to deck cleats at the stern. If you do not have enough line for it to run to the shore and back, it is OK to tie the line to the ring on shore.

If you set up a stern-to line at high tide you will find the line slackens as the tide goes out. You should not take in this slack unless you are sure that you will be leaving before the tide comes back in. If you perform the procedure at low tide the stern line will tighten as the tide comes in so leave slightly less slack than the expected tide change. This slack will be taken up as the tide comes in.

There are two advantages of bringing the loose end of the line back to the boat: (1) You will not have to send a crew member ashore to untie the line when it is time to leave (unless you used the carabiner mentioned above) and (2) if the rising tide covers the ring, you will not be tempted to go under water to untie it! If you have tied the line to a ring that has been covered by the tide or find that the line will not come through the ring easily, wait until the tide has gone out enough to expose the ring and provide a crewperson safe access to the ring using the dingy. If you used the carabiner and you cannot safely remove it from the ring on shore, leave it for the next visitor.

Note: Stern-to anchoring should not be used in bays exposed to a wind that could blow perpendicular to the boat after the anchoring procedure has been completed. Such a wind will put much more tension on the anchor rode than a boat that is allowed to weather vane into the wind and the anchor may drag or the stern line may break.

Mooring Buoys

The Washington State Park sticker on your vessel allows you to use the mooring buoys in the parks in the San Juan Islands free of charge but not Gulf Islands. In the San Juans you only need to register at the kiosk usually located at the head of the docks. At provincial parks in the Gulf Islands look for a kiosk where you can deposit the required fee or pay the park host and place the receipt in a visible place on the boat during your stay.

Mooring buoys have a metal triangle at the top upon which is a metal ring. The metal ring is attached to the chain, which secures your boat. It is very heavy. The strongest member of your crew should be picked for this job.

Come up to the mooring buoy into the wind as you would for anchoring. Have two crewmembers on the bow, one with a boat hook and one with a mooring line secured like a bow line. As you are coming slowly up to the buoy have the crew holding the boat hook point at the buoy with the hook so the skipper always knows where it is. Hook the buoy and bring the ring up to the boat to allow the second crew to thread the ring with the line. Then lower the ring and remove the boat hook. If your mooring line is led out of the starboard chock bring the end of the line back through the port side. You will essentially create a bridle with about 10 feet of line from each chalk to the buoy. If there a chance of strong currents or winds during the night, repeat set up a second bridle using a second mooring line as the first line may become chafed and weaken. For extra security and to reduce noise, tie the second mooring line to the ring instead of setting a second bridle. Two good knots for this purpose are an anchor hitch or a round turn and two half hitches. Either of these knots will reduce the chance of chafing on the line. Add extra slack to the line that is not tied to the ring so the line that is tied takes the load. When you get ready to leave you can use the bridle line (that is through the ring but not tied) to draw the ring in, providing slack on the tied line so you can untie it.

Reducing Noise at Night

What seems like a quiet boat will sometimes seem noisy once everyone has retired for the night. Some of the sources of noise are:

- (1) Dingy rubbing on the hull. If you expect a consistent breeze the dingy will float away from the stern but if there is no wind or current, it might find its way back to the rub against the stern. Consider how you might tie it to keep it from moving back and forth against the hull.
- (2) Main halyard vibrating inside the mast. Move the end of the halyard to a fitting at the bottom of a shroud and tighten the halyard at the cleat under the port side of the dodger.
- (3) Main sheet vibrating in the breeze. Ease the main sheet a bit to eliminate the vibration but not so much that the main sheet blocks rattle in the breeze.
- (4) Mooring buoy bouncing on bow. Make sure you have left enough slack in the lines running to the buoy.

SAILS AND RIGGING

Before raising the main sail, uncleat the reefing lines and add slack to the boom vang line. Unzip the sail cover completely. Have the helmsperson bring the boat dead into the wind at a slow speed. As you raise the main ensure that the reefing lines are running free and the sail batons do not catch on a lazy jack.

Once the main sail is up you can add slack to the topping lift but remember to reset the topping lift later to prevent the boom from dragging on the bimini. You should remove the main halyard from the winch after closing its cleat as you may need the same winch for the main sheet.

There is a 150% genoa (jib) on a roller furler. The furling line runs on the port side to the cockpit. To unfurl the headsail, (a) uncleat the furling lines, (b) wrap the sheet on the leeward side around the appropriate winch, (c) pull the sheet aft while maintaining tension on the furling line, (d) cleat it when it is fully out. If the winds are too strong to use the full genoa, cleat the furler when you have released enough of it to balance the reefed main sail. If the winds come up after have set the genoa you can use the furling line to take some in but you will need to partially luff the sail to do so.

The jib sheets are led back through fairleads to winches on each side of the cockpit. Adjust fairleads forward in heavy air, aft in light wind.

To furl the jib, apply slight tension on the jib sheet while pulling on the furling line until there are 2-3 wraps of the sheet around sail.

The mainsail flaps into the cover which zips closed. Jib sheets, reef lines, mainsheet, halyards, boom vang, and traveler are all operated from the cockpit. There is no whisker pole, and no spinnaker setup. Please use the topping lift located at the mast to raise the boom to its usual position after sailing.

Troubleshooting:

1. *Mainsail resists being raised.* Check all lines. All reefing lines uncleated and should be pulled loose as well as the boom vang and main sheet. Check to see if a batten has become stuck on the lazyjacks. If one has, lower the sail and be sure to head to windward before resuming raising the sail.
2. *Furling line gets stuck* partway through the furling process. This is usually due to not applying proper tension on lines during the furling and unfurling process. Try letting the sail out and repeating the process. Be sure you are headed into the wind to reduce pressure on the rig. If this fails you could have an over-ride in the furling drum.

3. *Unable to sail upwind with reef in place.* You probably have not snugged the reef line sufficiently. Repeat process and be sure lines are snug before raising the halyard.

OTHER

Barbecue

The barbecue and mounting bracket are mounted on the aft rail.

The propane bottles are stored in the small port stern lazaret where the main propane bottle for the stove lives. The regulator can usually be found in the drawer below the chart table. If it's not there, check the lazaret that holds the propane bottles. Attach the regulator to the barbecue. This will involve rotating it in the hole on the on the right side until it is secure. Then attach the bottle to the regulator. Turn the regulator knob and press it in and then press the sparker press the sparker button. To confirm that the burner has lit, look in the small hole on the left side of the barbecue. If sparker doesn't work, carefully light the unit, preferably with long-stem butane lighter, inserting it in the hole on the left side. The barbecue usually cooks well unless the bottle is nearly empty. Nearly empty bottles will feel cold to the touch. Please wipe with it a paper towel after it has cooled to prevent grease and dirt soiling the boat.

Note: Propane bottles are stocked in the AYC office. AYC will give you one free bottle. You should consider purchasing extra bottles unless extras are found on board. (They are stowed in the aft port locker in the vicinity of the main propane tank.)

*Caution -- For safety reasons, do not store an opened propane bottle within the salon or engine compartment. Chances are these will leak slightly once opened and propane gas could settle into low spaces. **Store these bottles in the propane locker. Ensure gasoline and flammable materials are not near the barbecue.***

Dinghy

If you rent a motor to mount to the Dinghy, never tow the dinghy with the engine mounted. Be sure when towing your dinghy, that one responsible individual is always keeping an eye on its towrope when slowing down or stopping. Bring up all the slack to prevent a wrap around the prop.

The dingy can be accessed via the stern transom by lifting the helmsperson's seat slightly, moving it back slightly and then sliding it down the guides to its lower position. You do not need to lift it all the way out and you will be prevented from doing so by a short cord under the seat.

You may want to take the dingy anchor with you. If you make a beach landing you can take it ashore and plant it in the sand to ensure the dingy doesn't float away. The anchor can be found in the port lazaret.

After the dinghy is readied to go and crew members are wearing PFDs, open the vent in the fuel tank and choke the engine once while starting. Set the choke unless the engine is already hot. Make sure outboard is in neutral if it has a sifter. (Some newer outboards have an automatic transmission that engages the propeller automatically when the engine is above idles so you will need to throttle down as soon as the engine starts.) Set the throttle to the start position. Pull the rope to start it. After it starts reduce the choke until the engine runs smoothly.

When heading to shore, use **EXTREME CAUTION**. Choose an area free of any large rocks that might cause damage in beaching. Make sure the engine gets tilted up a safe distance from shore so the prop does not hit the bottom or shear the pin. Lift up on the dinghy to bring it up to higher ground. **NEVER** drag it! Secure it when leaving as tides come up very quickly.

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.

Losing a dingy while underway or while at anchor can be a minor disaster. The right knots are the solution. The bitter end of the painter (the line from the bow of dingy) should be tied to a railing using a bowline knot. Then bring the painter in further so the dingy is at the right distance from the stern and tie the painter again using a pair of half hitches. (These knots will be made from a loop of line (referred to as a bight) and thus will be double-line knots.)

Safety, Spare Parts, etc.

Safety should be paramount in your daily cruising. A man overboard drill should be discussed and perhaps even practiced with a life jacket. Remember your lifejackets are stowed in starboard lazaret. A few should always be out and readily available. Your flares and safety equipment are located under the Nav station seat.

Always keep a sharp lookout posted for logs, deadheads, or other flotsam and jetsam. A log hitting your prop can ruin your vacation.

H2O Bungalow is equipped with an Automatic Bilge Pump that is hard wired to the battery and a second bilge pump that is operated by switching on the bilge pump breaker on the DC panel. Normally, the switch will be left in the OFF position unless the bilge is accumulating water. You may occasionally hear the automatic pump operate due to condensation and water from the shaft log accumulating in the bilge. If you continually hear the bilge pump running, check your bilge! You may have a serious problem!

One auxiliary hand operated bilge pump is located to the left of helm. Handles are located in each head and in port aft lazaret. These are operated by an up and down motion with the handle. Use only in emergency situations. The pumps in the heads are not bilge pumps; they are holding tank pumps that may be used in certain Canadian waters but not in U.S. waters.

Supplies and parts for the engine are located under the port settee at the forward end. This includes oil filters, raw water impeller; fuel filters, belts, and other small parts. Extra oil and coolant is located under port cabin bunk.

Crabbing and Fishing

Crabbing is fun but requires the correct license and season. You will find information about fishing and crabbing regulations on the world wide web. The crab pot is in a small flat round black bag in the starboard lazaret. You will find instructions for assembling and disassembling the ot in the outside pouch of the bag.

Please be sure not to crab off the stern as the crab line can easily get dangled in your prop as you swing with wind or current. It is best to use the dinghy to set your crab pot/ring away from the boat. A partially open can of seafood or cat food works well as many other baits and is less messy. Please clean up any seaweed or crab shells afterwards to keep the boat neat and tidy.

**THANK YOU FOR CHOOSING H2O BUNGALOW FOR YOUR VACATION
EXPERIENCE.**

WE HOPE YOU ENJOY OUR BOAT AS MUCH AS WE DO!!!