

OPERATION MANUAL

POWER BOAT

Moon Dance

Welcome aboard!

We are happy you have chosen "Moon Dance" for your vacation. We are sure you will enjoy cruising the lovely islands of the Pacific Northwest.

We trust this manual will help you become familiar with the boat. If you have questions about the boat or about places to visit, please do not hesitate to ask the AYC staff.

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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.

Check the level of COOLANT in the expansion tanks. Check the level of OIL in the engine by checking your dipsticks located **port side**. Look at the etch marks on each dipstick that indicate the proper oil level. **DO NOT OVERFILL OIL!** Only fill if oil levels are below the ½ way mark. Please use a paper towel or oil rag, not the dish towels! Check the general condition of the BELTS, HOSES, and FUEL LINES.

Ensure the valve on each RAW WATER THRU-HULL is in the ‘**open**’ position (lever in-line with valve). Observe the glass of each RAW WATER STRAINER for debris. If necessary, close the seacock, open the strainer cover, clean the strainer, and reassemble. Remember to reopen the seacock. Check your generator fluids as well.

Start-Up **Remember to address the fact if you have a single screw.**

Before starting the engines, do your inspection. The engines should be started from the lower helm station. Ensure GEARSHIFTS are in ‘neutral’, or the engines cannot be started because of the “neutral lockout”. THROTTLES should be run up and down and then brought almost back to the idle position. Turn the key clockwise partially until the ENGINE ALARM sounds and pre-heat the engine. Flip switch to Engine on DC panel. Push the START button on DC panel.

If the engine cranks slowly or fails to turn over, check the condition of the battery on the ELECTRICAL PANEL.

Move the THROTTLE to raise the engine speed to 1000 rpm on the TACHOMETER. Warm the engine for about 5 minutes before engaging transmission. Observe the readings of the gauges. The oil pressure will register about 45 PSI. The engine temperature should rise slowly.

Note -- If oil pressure is low, shut down engine, and inspect engine compartment and look for possible cause (for example, loss of oil.) Caution -- If an engine is overheating or there is lack of raw water expelled in the engine exhaust, stop the engine immediately. Recheck the raw water-cooling system to ensure the seacock is 'open' (handle in-line with valve). Next, check the raw water strainer for debris. Remove the strainer, clean, re-assemble, and reopen the raw water intake valve (seacock). Restart the engine and re-check water flow from the exhaust. If water is not flowing properly, the RAW WATER PUMP may need to be serviced. Seek help.

Shut-Down

Before shutting down, allow the engines 'idle' for about 5 minutes to cool them gradually and uniformly. The time engaged in preparing to dock the boat is usually sufficient. Ensure GEARSHIFT is in the 'neutral' position and each THROTTLE is in the 'idle' position. Turn off engines by pulling the stop switch on top of dash board on consul.

Getting Underway

DISCONNECT the shore power cord (see 110-Volt next page). Close the PORTHOLES, WINDOWS, and FORWARD HATCH. Turn on your VHF and electronics. ASSIGN crew members their various positions. Once outside the marina, idle the engines while crew brings in fenders and lines.

Cruising

All close quarters maneuvering should always take place at the upper helm.

Engage the GEARSHIFTS. Ensure the throttles are in the 'idle' position before engaging the gearshifts to avoid transmission damage. Cruising speed is a maximum of about 2200 RPMS. If you run at 1400 RPMS you will cruise at 7 knots and use only 2 gallons of diesel per hour. Your speed will vary depending upon the weight and load and weather conditions.

Note -- Avoid higher engine speeds as it causes higher engine temperature, possible damage, and higher fuel consumption.

Docking

During docking, use the FLYBRIDGE HELM for greater visibility to the stern. Have your crew make ready the lines and fenders and give clear instructions on how you will be docking. Often times your crew will need to step off from the swim step with the stern line. Another crew member will need to be at the bow or mid-ships to hand over the next lines.

BOW THRUSTER

Turn on main switch located starboard door, side of step by helm. Now ready for use. Don't forget to turn off switch when finished.

Fueling Up

OPEN FILLER CAP(S) located midship port and starboard side with a DECK FITTING KEY which is kept forward of lower helm consul under neith.

MAKE SURE YOU HAVE THE RIGHT FUEL! DIESEL! DIESEL! DIESEL! MAKE SURE IT IS GOING INTO THE RIGHT DECK FILL! DOUBLE-CHECK!

Before pumping, have an oil/fuel sorbs 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. Also periodically have someone turn on the key to watch the fuel gauge.

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 near 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.

Replace each tank cap. Turn on blower before starting engines. *Caution -- Clean up splatter and spillage immediately for environmental and health reasons. Wash hands with soap and water thoroughly.*

BOAT ELECTRICAL

The electrical system is divided into two distribution systems: 110-volt AC and 12-volt DC.

The systems are controlled from the AC ELECTRICAL PANEL located starboard of helm, the DC AUXILIARY PANEL located **port side of helm** and the BATTERY SWITCHES FOUND **port side of helm under DC panel**. When not connected to shore power, batteries are providing all power. Therefore, monitor the use of onboard electricity carefully with your volt meter located port side of helm, and turn off electrical devices that are not needed.

Most breakers are labeled by colored dots. Green signifies "usually on". Red is "usually off" Blue dots are water pressure or water-related like pumps. Yellow signifies electronics or items to use cautiously. No dots are breakers signify irregular use or use with discretion.

110-Volt AC System

SHORE POWER supports all AC equipment and receptacles on board, as well as the battery chargers.

To connect to shore power, plug the **30 amp** POWER CORD into the boat and then into the dock receptacle. Check the power rating/plug size of the nearest dock receptacle (that is 50 amp, 30 amp, 20 amp, or 15 amp). If necessary, add a CORD ADAPTER located behind upper consul. Turn the dock power on. Cords coming off the bow can be wrapped loosely around the bow line.

At the ELECTRICAL PANEL, flip the SHORE CIRCUIT BREAKER on. Check for reverse polarity. Then turn on appropriate breakers for battery charger, refrigeration, water heater, and fresh water. Watch your volt meter for load. If the load exceeds voltage, you will pop your breaker. If this occurs, wait to turn on one of your systems (i.e. water heater) until your use of volts drop.

If your outlets fail to work, check your GFIs to make sure that they have not been tripped.

Inverter Power

The INVERTER provides AC power to the 110-volt receptacle plugs (i.e. the microwave oven) when the boat is disconnected from shore power. The inverter does not provide power to the water heater or the battery charger. Your inverter panel is located starboard of helm with an on/off switch. Make certain that it is on. The actual inverter is located aft wall in engine room.

The inverter's power source is the DC house or inverter batteries located **starboard side in engine room**. The quantity of DC power is limited to the capacity of these batteries... Therefore, running hair dryers, toaster, coffeepots, space heater, etc. and will quickly discharge the house/inverter batteries. Use these items VERY SPARINGLY! Monitor your battery usage very carefully!

When connected to shore power, the inverter automatically becomes a battery charger for the 12-volt HOUSE BATTERIES. Should you detect the inverter failing to charge the house batteries, check the circuit breaker in the AC Panel. And the inverter control panel. Also, there is usually a circuit breakers located on top of the inverter box.

House (12-volt) System

2 battery banks support 12-volt DC power:

The 2 BATTERY SWITCHES are located **port side of helm**. Normally, leave both in the 'ON' position. *Note -- Do not change the position of the switches while the engines are running or the alternator diodes will be damaged. Change positions with the engines off.*

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

House Battery Bank & Switch

The HOUSE BATTERY BANK provides power for all DC systems, except the engines and automatic bilge pumps. When disconnected from shore power, all 12-volt devices drain the house battery. Use devices as needed. The DC voltmeter on the DC panel can be switched between Port, Starboard, and House Battery banks to measure charging or resting battery voltages.

When a battery bank is being charged, the voltage will read from about 13.1 volts to 14.4 volts depending upon state-of-charge of the battery bank. When the battery bank is at rest, (that is, not being charged), the voltmeter can give a rough indication of the state-of-charge of the battery bank.

House, inverters and main batteries are charged by the engine ALTERNATORS while underway. The engine/house batteries are charged by the BATTERY CHARGER when connected to shore power. Ensure the Battery Charger and Inverter circuit breakers at the electrical panel are ON.

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%

Battery Parallel Switch

Batteries are automatically paralleled together when rocker switches are on.

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.*

To use the toilet, move the SELECTOR SWITCH to the ‘flush’. Lift the PUMP HANDLE 3 to 5 times to wet the bowl. After using the toilet, lift the PUMP HANDLE to flush again. Then, move the PUMP LEVER to the ‘right’ (dry bowl). Pump to remove water from the bowl. Flush sufficiently to move effluent in the hoses; 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. Pump the toilet dry slowly, to draw the lube into the handle unit.

The TOILET THRU-HULL is located **under floor panel** if you need to shut off the water to the toilet. Clean the toilet as necessary. If the toilet-pump handle squeaks or sticks, squirt ‘pump lube’ into the toilet and pump the toilet slowly to draw the lube into the pump unit. The ‘pump lube’ is located behind the mirrored cabinet.

Holding Tank

The sanitation HOLDING TANK holds approximately 27.5 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 indescribable catastrophe and an EXPENSIVE FIX to you. Empty the tank EVERY OTHER DAY to avoid this problem.

The HOLDING TANK is located in engine room starboard midship. Some may be subject to a visual check with a flashlight or the “watermelon” test by thumping it. There is a tank watch warning light located starboard of helm below, but do not rely upon this as they often get clogged.

The holding tank is emptied in one of two ways:

#1 At the Marine Pump-Out Station, remove the WASTE CAP located **starboard midship**. Insert the pump-out nozzle into the waste opening. Double-check your deck fitting! Turn on pump and open valve located on handle. 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 head odors.

#2 The tank’s contents can be discharged with the MACERATOR only in Canadian waters.

To operate the macerator, open thru-hull behind aft of toilet. Pull the MACERATOR ROCKER SWITCH. The switch is located next to the ‘Tank Watch’ indicator, below and forward of the AC panel. Listen to the macerator’s sound. When the pitch becomes higher, the tank is empty. Discharge may be observed on the starboard side. It should only take a few minutes to empty the tank

Y-Valve Forward Head only

The Y-VALVE directs waste effluent into the sanitation-holding tank or flushes the effluent ‘directly overboard’. The Y-VALVE is located forward bathroom behind toilet. A plastic strap keeps the handle pointed to the holding tank – the normal position. *Y-valves are usually wire-tied to the holding tank position in respect to Coast Guard regulations. Please leave it “as is” unless there is an emergency. It is better to pump to the holding tank and then pump the holding tank overboard or at a pump out station. Be familiar with the applicable laws concerning dumping sewage directly overboard.*

WATER SYSTEM

Fresh Water Tank(s)

The FRESH WATER TANK holds 130 gallons. Observe the water level by water melon test. Waste water from the sinks and showers drains overboard through various thru-hulls usually located under the sinks.

To refill the tank, remove the WATER CAP(S) located port and starboard aft deck. Avoid flushing debris from the deck into the tank opening. DO NOT fill water and diesel at the same time!

Fresh Water Pressure Pump

The WATER PRESSURE PUMP is located **in between water tanks.** Activate pump at the DC panel by turning on the breaker. If the water pump continues to run, you are either out of water or might have an air lock and need to bleed the system by opening up a faucet. If you run out of water SHUT OFF YOUR HOT WATER HEATER on the AC panel. Serious damage can occur!

Hot Water Tank

The HOT WATER HEATER has an 8 gallon capacity tank and is available when connected to shore power or via a heat exchanger underway. To use on shore power, flip on the water heater circuit breaker on the AC electrical panel. Do not use the water heater if the water tank level is very low. The water heater is located starboard side of engine room.

Shower

Before taking a SHOWER, make sure water pressure and shower sump breakers are on. 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. Check for accumulation of hair in the shower and sink drains. Ensure that the faucets and nozzle are completely off after use.

A pressured RAW WATER WASHDOWN is available from a hose spigot **starboard aft deck.** To activate, flip the PUMP ROCKER SWITCH located **starboard side of helm.** After use, turn the switch off to prevent pump burn out, and ensure no object leans on the switch to turn it on accidentally.

GALLEY

Stove/oven

The stove is **propane.** Turn on the “stove” breaker on the AC panel. Your propane stove is activated by the following steps:

- #1 Turn on the propane tank located on fly bridge under port seat
- #2 Turn on the DC breaker labeled **“stove“** and the solenoid switch located upper port side of helm.

Caution – ALWAYS leave the “stove” breaker ON as it is also the “bilge alarm” breaker for the high water bilge pump. It is a little odd but they are on the same breaker. Always leave it on.

- #3 Turn on the gas at the stove (Press in knob) and light burner. You might need to hold knob in for a few seconds while the thermo coupler warms up.

When finished cooking turn off the switches and the bottle.

Microwave

To use the Microwave, turn on the breaker on the AC panel.

Refrigerator

The REFRIGERATOR is dual voltage (12-volt and 110-volt power). It will automatically use 110-volt power when the shore power is connected; otherwise, it will operate on 12-volt power. Monitor the use of the refrigerator when the engines are not charging the 12-volt battery system. The local power switch is located below the front door. It can be turned down to the lowest position when anchored or moored or turned off when turning in for the night.

HEATING SYSTEM

Diesel Heater (DC)

The DIESEL FORCED-AIR FURNACE located aft cabin port side of closet provides heat in the same way as a household furnace. Turn on the TOGGLE SWITCH located port side of closet. Set the THERMOSTAT to the desired temperature.

Check The furnace EXHAUST PORT located port side mid ship for any obstruction such as fenders or lines. Do not block this opening when operating the furnace. Heat will damage fiberglass or rubber. Once it is on, allow it to run for at least 15 minutes before turning it off. Turn 'off' the furnace heater by turning switch back off.

ELECTRONICS

All electronic manuals are located starboard cabinet by steering consul.

VHF Radio

There are 2 VHF RADIOS. The first is located upper helm. Make sure the radio breaker is on located at the DC panel. There is a second VHF RADIO located lower helm. Turn on by VHF. Always monitor channel 16 while underway.

Depth Sounder

There are 2 DEPTH SOUNDERS, one below and the other upper helm. To activate the upper DEPTH SOUNDER, press the switch bridge instrument panel.. Set the scale, shallow alarm, and deep alarm as desired. The sounder should provide reliable readings in shallow waters. If in doubt, switch it off, then turn it back on to reset sounder. If your reading is blinking, it is a FALSE reading. False readings can occur in depths of more then 200 feet or in areas of string currents or tides.

Remember to ALWAYS consult your charts for depth!

Radar

To operate the SI-TEX RADAR turn the POWER button to turn the radar on. To turn off, press and hold POWER button about 3 seconds. Refer to the quick reference card at under forward helm. Remember you are not allowed to travel in FOG or in serious wind conditions..

Global Positioning System (GPS)

Note -- GPS is considered a navigation aid. Do not rely on it. Compasses, charts, and dividers are the tools to plot position, course, and speed.

ENTERTAINMENT SYSTEMS

AM/FM Stereo Radio

The AM/FM unit is located starboard side at cabinet. It operates like a normal car radio. There are 4 speakers (stereo) in the salon and two (stereo) on the bridge. The **FADER** controls the distribution of the salon and bridge speakers. **The BALANCE controls the sound distribution in the left and right speakers.**

ANCHORING

The primary WORKING ANCHOR is a bruce and is attached to 185ft chain and 0ft nylon line passed through the deck from the ANCHOR LOCKER. The locker can be accessed through the **forward lower cabinet state room.** If there is an anchor keeper, release it.

The WINDLASS POWER SWITCH is located starboard side by door entry side of step. Can only be free dropped only. Hand clutch. Release clutch and keep control of speed while paying out chain. When ready to raise, turn on power and use foot pedal.

Let out sufficient ANCHOR RODE (chain) before setting the anchor. Green markers are placed every 50 feet on the chain, indicated amount of rode played out. The markers on the chain are yellow (every 10') and red (every 50'). 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.

Before raising the anchor, ALWAYS start the engines as it uses large amounts of power. Turn 'on' the WINDLASS SWITCH and as the boat moves toward the anchor, press the 'up' control to take up slack line. Give the windlass short rests as you are pulling it up. Place yourself in position to guide the anchor onto the roller. As the anchor rises, be careful not to allow it to swing against the hull. Wash it down if you have a wash down pump before it goes into anchor locker.

Reconnect the keeper between the anchor and **tighten clutch.** Close the plastic covers on the FOOT PEDAL CONTROLS. Turn 'off' the WINDLASS POWER SWITCH.

A SPARE ANCHOR is normally stowed in Laz. The 200ft SPARE ANCHOR RODE

Mooring Cans

The State Park Sticker on your vessel allows you to pick up the MOORING CANS in the parks for free. You only need to register at the kiosk usually located at the heads of the docks. Mooring cans 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 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 secured like a bow line. 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 to thread the ring with the line. Release the hold with the boat hook. If your mooring line is led out 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 slack from the chalk to the can.

BARBECUE

The BARBECUE and MOUNTING BRACKET are stored on fly bridge back rail. .

Attach a PROPANE BOTTLE to the REGULATOR found to BBQ. Carefully light the unit, preferably with a long-stem butane lighter. The barbecue generates a lot of heat and cooks hot and fast. Please wipe with a paper towel before storing to prevent grease and dirt soiling the boat..

*Note: Propane bottles are not stocked by AYC. You will need to purchase one if extras are not found on board. 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 cockpit cabinet.** Ensure gasoline and flammable materials are not near the barbecue.*

DINGHY & OUTBOARD MOTOR

Every dinghy hoist is different. Explain yours thoroughly.

Your DINGHY with a 3hp engine is stored **on dinghy.** It has a capacity of about 800 pounds (motor, equipment, and 4 people).

To deploy the dinghy, clip the snap clip of the DINGHY ROPE to the top of the rail near the oarlock, and route the line through the pulley block on the bridge ladder, then the pulley block on the line. Holding the dinghy and the line, detach the STANDOFF BARS, and lower the dinghy with the line into the water, noting that the dinghy gets heavier as it nears the water.

When towing your dinghy, always keep it tight to the boat any time that you slow down or stop, Assign one of your crew members as the “dinghy” person to be responsible for taking up slack. You don’t want to wrap a propeller.

Coast Guard regulations state that any child 14 and under must wear a life jacket in a dinghy. It is a good idea for EVERYONE to follow this rule.

CRABBING & FISHING

Always check the fishing and crabbing requirements before you leave on your cruise. You will need a license. Many areas are CLOSED to crabbing and fishing on certain months.

CRAB AWAY FROM THE BOAT! Lines can get wrapped around props. Fish-flavored cat food with the pop-up ringed lids work the best for a nice neat way to bait the ring. After 15-20 minutes, retrieve the crab line and ring quickly. Measure the crabs using the CRAB MEASURING GAUGE normally located **in laz.** Keep the male crabs of proper size (usually 6 ¼ inches across the carapace). Boil crabs about 12 minutes to cook.

After using, wash equipment thoroughly with fresh water (available from the cockpit shower faucet). *Note - Please do not store wet rings and gear inside the boat.*

OTHER: Safety & Bilge Pumps

SAFETY should be paramount in your daily cruising. A MAN OVERBOARD DRILL should be discussed and perhaps even practiced with a life jacket. Remember you lifejackets are stowed **upper starboard seat.** A few should always be out and ready. Your flares and safety equipment are located **below in starboard cabinet.**

Moon Dance is equipped with an AUTOMATIC BILGE PUMP. The master switch is located on the electrical panel. Normally, the switch will be left in the AUTO position. You may occasionally hear the pump operate due to condensation and water from the shaft log accumulating in the bilge. There is also an electric bilge pump in the engine room that has a pull switch. The switch is located on top of the port stringer by the pumps.

An AUXILIARY HAND OPERATED BILGE PUMP is located under sink in the cockpit using the handle provided for that purpose. This is used only in emergency situations.

The ENGINE SPARES BOX (plastic blue color) is stowed in engine room. This includes oil filter, raw water impeller, pump parts, injectors, and other small parts.

THRU-HULL LOCATIONS

Thru Hull diagram is found in back of the manual.

IF YOU NEED TO PRIME THE ENGINE

Very easy! On the right side of the helm, there is a pull switch on top named (Xfer fuel), pull out that switch. Make sure both main fuel valves are open and the raycore is on. There is a breaker just starboard of the shaft with a red switch on it. That's your main turn on switch for the fuel pump to prime the engine. Flip that switch on. At the injector rack on the engine there are two red painted bolts and those are the air release for the engine. Crack open one at a time until you get a steady stream out and then close them. Shut off fuel pump switch and push in the push switch.