GRATITUDE

OPERATIONS MANUAL

Welcome aboard!

Thank you for choosing **Gratitude** for your vacation. We are sure you will enjoy cruising the wonderful islands of the Pacific Northwest.

This Manual, along with the Charter Reminders sheet located at the lower helm, will help you become familiar with the boat, and make your vacation more enjoyable and trouble free.

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

We wish you and enjoyable and safe cruise!

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SAFETY

Safety should be paramount in your daily cruising.

Lifejackets are located in forward and aft cabin closets and also on the flybridge under the port (left) aft facing seat. A few should always be out and ready. We recommend wearing them whenever working on the decks. The life jackets located in the cabin closets are auto inflatable. Be sure not to leave them out where they might get wet. If using them with the tender, be sure to store them in the bow locker when away from the tender.

Flares are located under the salon settee in the forward cupboard.

Fire extinguishers are located in the forward cabin, lower helm station, and aft cabin.

Before leaving the marina, it is a good idea to discuss what to do in case of a Man Overboard.

MECHANICAL ISSUES

Prior to attempting any repairs (unless in the case of an emergency), please contact AYC to ensure the repairs are necessary and appropriate. Every boat has its unique quirks, and often problems can be solved with a phone call. There may also be spare parts on board which may help provide a quick fix.

SHIPS LIBRARY

A full set of owners and operating manuals for all ship systems, including full manuals for the chartplotters, are located in the aft cabin.

QUICK START

Before Starting Engines:

- Check WOBBBS: Water (engine coolant), Oil, Belts, Bilges, Batteries and Strainers
- Check engine pads and thru-hulls for signs of leaks (a few drips are normal)
- Turn off AC Breaker at the boat first, and then the dock breaker prior to disconnecting shore power. Store cord
- Ensure Tender is secure, BBQ secure, deck gear secure
- Power panel: double green dots ALWAYS ON; green dots ON for normal operation; yellow dots ON as needed; red dots Normally OFF (**read Ops Manual!**)
- Close aft stateroom hatch to cockpit and all windows to keep diesel fumes out of the cabin

Starting Engines:

ENGINE PANEL

- **Turn battery selector to "2" Start Batteries**
- **The only time the Battery Selector should be in the "2" Start Batteries position is during staring of the engines**
- Put gear controls in neutral, throttle levers at slightly above "idle"
- On **Engine Panel** of the DC Power Panel, turn the STOP SOL breaker ON and turn starboard POWER switch to ON for starboard engine. Buzzer will sound (low oil pressure warning)
- Push STARTING button for the **Starboard Engine**. When engine starts, throttle back to a smooth idle. Buzzer should stop. Do not try to crank more than 30 seconds without a 2-minute "rest" period
- Repeat procedure for port engine
- Once the engines have started, turn battery selector back to "ALL"
- Warm up at idle - approx. **900 RPM**
- Check oil pressure for both engines - **30-60 PSI**
- Check for water coming out of both engine exhausts at the stern

Before Leaving the Dock:

- **Ensure windows are closed** – especially in the forward and aft cabins and heads to keep sea water out of the cabin
- Make sure v-berth overhead hatch is closed
- Check that the tender is secured, BBQ grill cover secured, and deck gear secured
- Open curtains for visibility
- Open salon doors for ease of movement to the side decks
- Center the rudders
- Untie mooring lines
- Make sure engines are at idle (approx. **750-800 RPM**) before shifting gears. Make a slight pause at neutral before shifting between forward and reverse
- Initial piloting away from the dock can be done at idle, with the rudders centered, using selective forward and reverse of the twin props

Underway:

- Always keep your wake in mind
- Station a member of the crew at the bow to check for cross traffic in the marina
- Once outside the marina, stow mooring lines and fenders
- Keep doors and lower windows closed – to prevent sea water from entering the cabin
- Keep watch for logs or debris in water
- Monitor gauges. Normal readings: Engine Temp **175º-190º** Oil Pressure **30-60 psi**
- Keep engines under **1300 RPM** until engines warm to **150 degrees**
- Normal RPM is between idle and 2200. **Gratitude** cruises a very comfortable 8 knots @ **1600 RPM** with fuel consumption about 3 gals per hour. Do not exceed **2300 RPM** for more than 30 minutes, or more than 10% of running time – check engine temps!

Approaching Dock:

- Put fenders out and have lines ready. Put fenders down on both sides when maneuvering in close quarters. Be prepared to move fenders if the vessel will make contact with the dock or another boat
- Secure lines to cleats and run lines out through the Hawseholes. Be sure to run lines OUTSIDE and over the TOP of the rail and OUTSIDE of fender lines. Station a member of the crew on deck to tend the mooring lines
- Engine throttle should be at idle and rudders centered. Close maneuvering is best done with forward and reverse maneuvers with twin props
- Crew ready to catch a cleat or step off swim step (No leaping across water to dock!) and secure stern line (most circumstances), then bow and spring lines

Upon Arrival at Marina:

- Secure all lines. Stern, bow and two spring lines at a minimum
- If bow-in, be sure anchor is not protruding over dock walkway. Ensure **Gratitude** is fully in the slip, and the Tender is not protruding beyond the pilings at the end of the slip
- Turn off engines (see "Stopping Engines" below)
- Turn off electronics at DC Power Panel; replace covers
- Connect shore power. First to the boat, then to the shore receptacle (30 amp power). Switch dock breaker on first and check for reverse polarity on the AC Panel before turning on the MASTER SWITCH AC Breaker aboard the boat. **To check for reverse polarity** of the shore power connection, use the "Push to Check" button located above the AC Power Selector. If the "Reverse Polarity" light lights up, do not turn on the MASTER SWITCH

Stopping the Engines:

After operating at cruising speed, allow engines to idle a few minutes to cool down before shutting them down (this usually happens naturally while tying dock lines or setting anchor). You can also turn on the engine room VENTS *to help cool the engine room.*

- On Engine Panel, the STOP SOL breaker should already be in the ON position, if not turn it ON
- Push the port STOPPING button and hold until the engine stops. Low oil pressure buzzer will sound
- Turn OFF the port engine POWER breaker. Buzzer will stop
- Push the starboard STOPPING button and hold until the engine stops. Buzzer will sound
- Turn OFF the starboard engine POWER breaker. Buzzer will stop
- Turn OFF the STOP SOL breaker

Daily (Overnight) Checklist in Marina:

- MASTER SWITCH ON for AC power
- Be sure the Inverter/Charger is charging the batteries. Check the ***Magnum Energy Panel***
- Keep an eye on the holding tank. The meter is located in the master stateroom head on the sink vanity

Daily (Overnight) Checklist at Dock, Anchor or Buoy:

- **Battery Switch set to "1" House Batteries**
- Turn off unnecessary electrical items. Even unplugging appliances not in use will help reduce the drain on battery power - turn off the power strip for the microwave and coffee maker when not in use
- Keep an eye on the holding tank. The meter is located in the master stateroom head on the sink vanity
- ANCHOR LIGHT ON during hours of darkness

Mooring at Anchor:

- All anchoring should be done with the engines running as the windlass uses a lot of power
- **Gratitude** is equipped with 200 ft. of 5/16" BBB anchor chain (250 lbs.) and 150 ft. of 1/2" rope. The chain and rope are marked with flags in 25 ft. increments
- Turn WINDLASS POWER ON at the panel to the right of the helm. It's best to lower and raise anchor utilizing the foot switches below the Windlass
- Crew on bow to monitor length of chain going out and to troubleshoot if it gets tangled
- Lower the anchor to the predetermined scope (5:1 to 7:1) while backing the boat slowly
- Back the boat at idle using just one engine to test the set of the anchor. Use a combination of sighting objects abeam and GPS to confirm anchor set
- Attach the bridle or snubber lines to anchor chain. Use of bridle or snubber lines will give a more comfortable anchorage in windy conditions as they act like springs to absorb tension on the line. Attach the bridle or snubber lines to the anchor chain beyond the anchor roller in order to take the "load" off the Windlass. Secure the lines through bow hawseholes and to bow cleats
- Run out enough chain to take the tension off the Windlass
- Turn OFF Windlass power at the panel
- STOP engines

First Thing Each Day:

- If at anchor, turn OFF the ANCHOR LIGHT
- Check battery status on the ***Magnum Energy Panel***. If less than 12 volts, start engines to begin recharging house batteries before using any additional electricity
- Check fresh water tank level
- Check holding tank gauge. If near full (orange light), it will be necessary to pump out very soon

Before Leaving Moored or Docked Vessel:

- DC Power Panel: Turn off unnecessary equipment. Make sure that BILGE PUMP circuit breaker is ON and the Bilge Pump toggle switch is in AUTO position
- Cover electronics screens at both helm stations
- Close curtains
- Lock the cabin doors
- If you are docked at an island, make sure no food is left out or accessible as critters will come aboard

BOAT OPERATION

ENGINE INSPECTION

Remember **WOBBBS** every morning: **W**ater (Coolant), **O**il, **B**elts, **B**ilge, **B**atteries and **S**trainers.

Access to the engine compartment is below the helm. There is a strap on the hatch to prevent it from slamming down on your head.

Disposable gloves and paper towels are located in the engine room on top of the spares box.

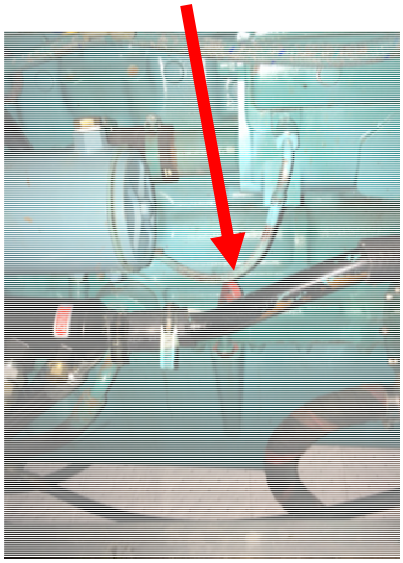
Water (Coolant):

This engine does not lend itself to an easy check of the level of **Coolant** in the coolant reservoir. However, you can check the coolant level from the coolant overflow tanks mounted in front of each engine. Minimum coolant levels when engines are cool are marked on each bottle. The Fleet Captain will have checked this prior to your arrival and normally it should not be necessary to check it during your trip.

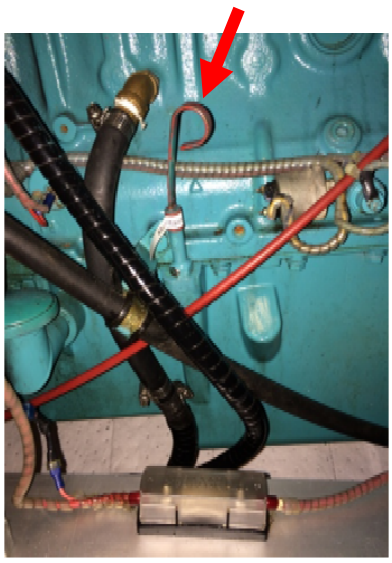
However, if you notice overheating, the strainers are not clogged and water is coming out of the exhausts, shut down the engines. **Once the engine has cooled down**, open the coolant caps located at the front of the engine and check the coolant level. The best method to check for coolant is to place one finger inside the reservoir. If your finger touches coolant at any point when inside the reservoir, the coolant level should be adequate.

Oil:

PORT ENGINE



STARBOARD ENGINE



Check the level of **Oil** in each engine by using dipsticks located on the side of each engine, easily accessed from the center of the boat.

Look at the etch marks on each dipstick that indicate the proper oil level.

Only add oil if level is below the lower mark. **DO NOT OVERFILL!** Generally adding one quart of oil will be sufficient. Please use a paper towel or oil rag to wipe off the dipstick and any oil that dripped. Ensure the dipsticks are fully seated back into the tube when done and wipe up any drips.

Belts:

Check the general condition and tightness of the belts. If they feel tight, that's about right.

Bilge:

Check the lower areas of the engine room for excess water. You will note the amount when you first start. If the water seems to be increasing significantly, check for causes.

There are sorbs (diapers) under each engine. They will help identify if there are leaks in the engine and to determine where they may be. Under normal operation there are minimal oil and coolant drips, however if an engine is dripping significantly check for the cause.

Batteries:

Check the water level in each battery cell – but do not overfill. Use only distilled water provided in the battery filler if you need to add water to the batteries.

Strainers:

Raw water intakes are located forward between the engines. Ensure the valves (**blue handle**) on each raw water thru-hull is in the "**OPEN"** position (lever pointing up) before running the engines.

Observe the metal screen through the glass of each strainer for debris. It may be necessary to clean the strainer due to a buildup of debris clogging the system. It is important to keep a close eye on sea strainer condition, and if they need cleaning, follow these simple directions:

1. Close the thru-hull valve (**blue handle**) by turning it to the horizontal position.
2. Open the cover on top of the Strainer by loosening the wing nuts.
3. Clean the strainer thoroughly. The toilet bowl brush works great for cleaning the inside of the strainers.
4. Reassemble, making sure the strainer is seated correctly so the cover will tighten fully. **Remember to reopen the thru-hull valve** (lever pointing up).

RAW WATER INTAKES

ENGINE STRAINERS

Transmission Fluid:

Check the level of the Transmission Fluid for each engine by using the dipsticks located on the top of the transmission behind each engine. To loosen the dipstick, hold the outer ring and turn the t-handle counterclockwise. To check the fluid level, wipe the stick off and fully insert it back into the transmission. If the engines are cool/cold, the level should be between the "cold" and "hot" markers. If the fluid is low, add more AFT to the transmission. When replacing the dipstick, hold the outer ring and turn the t-handle clockwise until it is tight. **Failure to fully tighten the t-handle can result in loss of fluid.**

START-UP

The engines should be started from the lower helm station. Normally, plan to start the STARBOARD engine first.

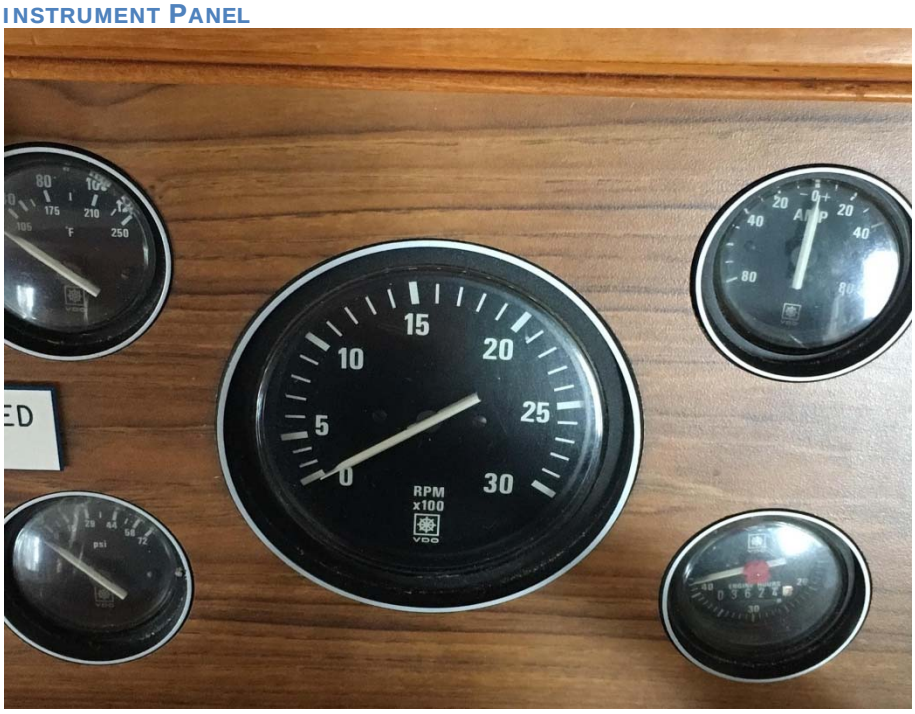
1. Turn battery selector to "**2**" Start Batteries.
2. GEAR SHIFT in neutral.
3. THROTTLE should be just above the idle position.
4. Make sure the STOP SOL (Stop Solenoid) switch is ON
5. Turn the STBD POWER switch ON. You should hear a loud buzzing noise. This is the low oil pressure alarm and will sound until the oil pressure comes up.
6. Press the STBD STARTING button. You may need to add a little throttle to get the engine started. After a few seconds the buzzer should stop, indicating the oil pressure is normal. If it does NOT stop, turn off the engine by holding the STOPPING button. Determine why the buzzer did not stop. See NOTE below.
7. Turn the PORT POWER switch ON.
8. Press the PORT STARTING button and again note the buzzer.
9. Once the engines have started, turn battery selector back to "**1**" House.
10. If the engines will not start from the Start Batteries, move the selector to "ALL" and try starting again.
11. **The only time the Battery Selector should be in the "2" Start Batteries position is during staring of the engines.**

BATTERY SELECTOR

ENGINE PANEL

Raise the engine speed to between 800-900 rpm on the TACHOMETER (or just enough to stop most of the vibration).

INSTRUMENT PANEL



Check the engine exhausts at the stern. There should be water burping out of the exhausts. If there is no water coming out, shut down the engines and see NOTE below.

NOTE--If oil pressure is low, shut down the engine, and inspect engine compartment to look for a possible cause (low oil level, loss of oil).

NOTE -- 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 valve on the strainer is open (handle pointing up).

Next, check the raw water strainer for debris. If necessary, close the Strainer valve, remove the strainer, clean, re-assemble, and reopen the valve. 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. Call AYC.

BEFORE LEAVING DOCK

When disconnecting AC power from the dock, make sure to turn OFF the boat MASTER BREAKER on the AC Power Panel first. Next, turn off the power at the dock breaker before you disconnect the power cord. This will prevent arcing between the power cord legs. Disconnect the shore power cord and stow it aboard.

FORWARD SHORE POWER CONNECTION

AFT SHORE POWER CONNECTION

Close all windows, and forward hatch.

Set up VHF radio and electronics.

Brief crew on what you expect from them for departure: lines, fenders, etc.

GETTING UNDERWAY

All close quarters maneuvering should take place at the upper (flybridge) helm for better visibility.

Shift only at idle to avoid transmission damage. Pause for a second or two before shifting between forward and reverse.

Once outside the marina, stow fenders and lines.

CRUISING

Maximum cruising speed is about **1800 RPM**. If you run at a slightly lower RPM (1500) you will cruise at about 7 knots and use a little over 2 gallons per hour. Speed will vary depending upon the weight, currents and weather conditions. NOTE -- Higher engine speed causes higher temperatures (and possible damage) as well as a substantial increase in fuel consumption.

DOCKING

During docking, use of the flybridge provides greater visibility of the stern (most damaged part of a boat).

Have the crew prepare the lines and fenders and give clear instructions on how you expect to dock (bow in, port side tie; etc.). Fenders at the rear of the boat are the most important, however be sure there are several on each side.

Before entering the marina center the wheel (rudders will then be straight) and use only the GEARSHIFTS to maneuver the boat. (Throttles and Steering may be necessary in very windy conditions).

SHUT-DOWN

After operating at cruising speed, allow engines to idle a few minutes to cool down before shutting them down (this usually happens naturally while tying dock lines or setting anchor). You can also turn on the engine room VENTS to help cool the engine room.

GEAR SHIFT in neutral position.

THROTTLE in idle position.

Make sure the STOP SOL is ON.

Turn off engines by pressing the STOPPING button for each engine. Low oil pressure buzzer will sound.

Silence buzzer by turning the POWER switches OFF.

Turn the STOP SOL breaker OFF.

If not on shore power use the VENTS sparingly as they will drain the batteries.

ENGINE PANEL

FUELING

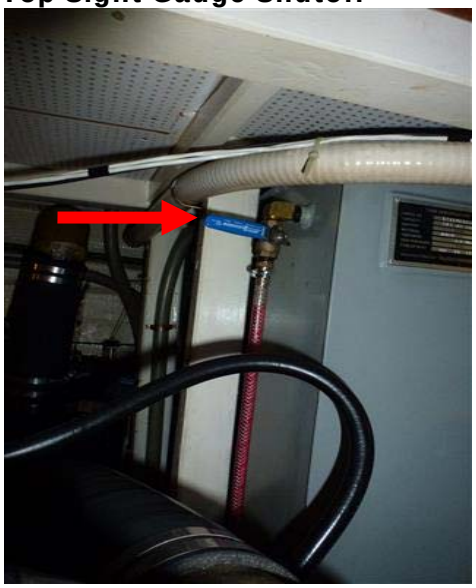
A deck fitting key is located in the step locker at the starboard side of the helm.

Before pumping, have a rag ready to soak up any spilled fuel. You should have a rough idea of the number of gallons you will need by the engine hour indicator and/or inspecting the fuel tank sight gauges in the engine room.

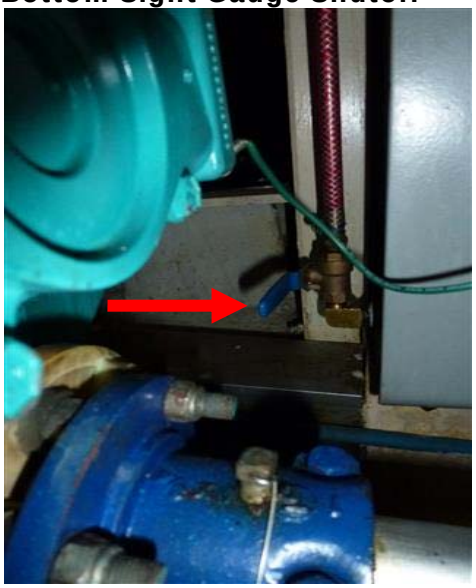
To visually check the fuel level, open the top and bottom sight gauge shutoffs at the port and starboard fuel tanks by turning them in-line with the sight gauges.
1 inch of fuel in the sight gauge is approximately 6 gallons.

STARBOARD FUEL TANK SIGHT GAUGES (VALVES SHOWN IN CLOSED POSITION)

Top Sight Gauge Shutoff



Bottom Sight Gauge Shutoff



Make sure you have the correct fuel, DIESEL ONLY!

And, be sure it is going into the correct deck fill.

When removing the tank caps, be sure to retain the o-rings. Wipe down the caps and tank openings to remove dirt and water if necessary. Paper towels are located in the aft deck locker.

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 a fuel spill from the tank vent. As the tank fills, the sound will rise in pitch (like water filling up a glass).

As the tank fills, monitor the sight gauges located in the engine room. Stop filling when the fuel level rises to the **top of the sight gauge**, this is considered full. DO NOT OVERFILL!

Pay attention to the overflow vent on the outside of the hull near the deck fitting. Fill carefully and be prepared to catch spilled fuel. This should not be an issue if the tanks are only filled to the **top of the sight gauge**. A fuel spill could result in a fine from law enforcement. By correctly using the sight gauges you should not have any problems.

Replace each deck fitting, making sure the rubber o-ring is in place, and tighten snuggly so the deck fittings are flush.

Close top and bottom sight gauge shutoffs valves at the port and starboard fuel tanks when finished.

ELECTRICAL

Power Panels

The electrical control panels are located on the starboard side of the lower helm. The electrical system is divided into two distribution systems: 12 Volt DC Power Panel (12 volt batteries) on top and 120 Volt AC Power Panel (shore power) on the bottom.

Dot system on the DC Power Panel
Double green dots: Always ON. Green dots: ON during normal operation. Yellow dots: ON as needed. Red dots: normally OFF (**read Ops Manual!**)

12 VOLT DC POWER PANEL

120 VOLT AC POWER PANEL

When not connected to shore power, the batteries are providing all power. Monitor the use of electricity carefully with the voltmeter on the ***Magnum Energy Panel*** and ***Balmar Battery Monitor*** located at eye level to the port side of the lower helm and battery charge chart.

When the batteries drop below 12 volts, it is time to re-charge the batteries. If on a buoy or at anchor, you can do this by running the engines at 900-1000 RPM for an hour or so. Check the ***Magnum Energy Panel*** or ***Balmar Battery Monitor*** to verify the level of battery charge after shutting the engines down.

Magnum Energy Panel

The ***Magnum Energy Panel*** manages the charging of batteries and the conversion of 12V to 120V power (Inverter) delivered to selected appliances and 120V outlets. In addition, the Magnum inverter can display battery voltage and charge status

Turn off electrical devices that are not needed to conserve battery power when not running, or on shore power.

To manage batteries and ensure the boat will start:

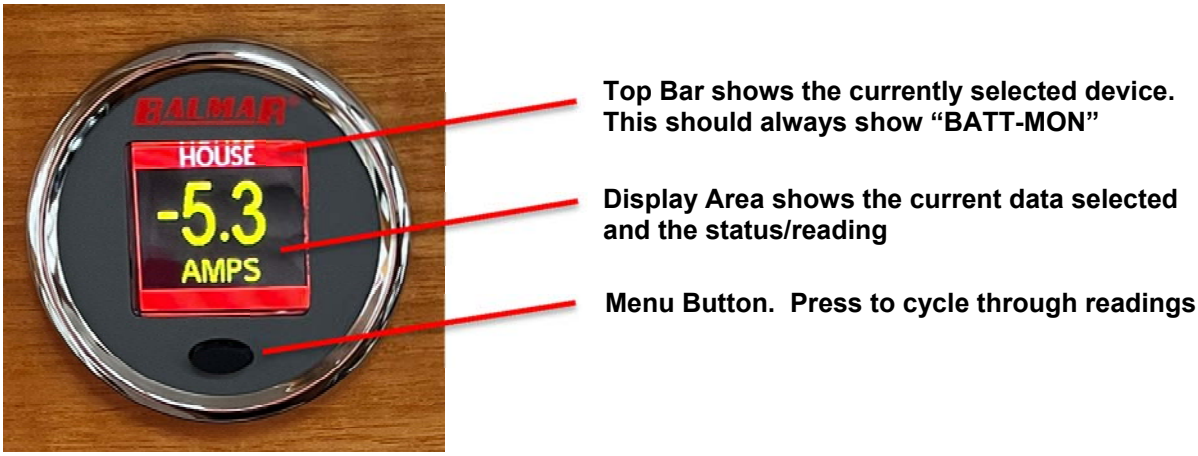
- **Shore Power**: Battery Selector should be on "**1**" **House Batteries**. All batteries will be charged from shore power; 120 Volt outlets and appliances up to 30 amps will work.
- **Boat Underway**: Battery Selector should be on "**1**" **House Batteries**. All batteries will be charged from the engine alternators; 120 Volt outlets and appliances will only work if Inverter is on.
- **Boat at anchor or on mooring buoy**: Battery Selector should be on "**1**" **House Batteries**. Also, it would be prudent to turn off any battery draining devices until morning. If in doubt, check the voltage draw on the ***Balmar Battery Monitor***. If you are not getting power when the selector is on "**1**", check the engine room battery breakers (see the note at the end of the Batteries Section).
- **The only time the Battery Selector should be in the "2" Start Batteries position is during staring of the engines.**

Balmar Battery Monitor

A Balmar SG200 Battery Monitor was installed on **Gratitude** in February 2025.

The SG200 is a battery monitoring system. It's purpose is to provide continuous information regarding battery status and DC usage.

The SG200 has three main data display areas, as shown below.



The SG200 has a single button for ease of operation. A button press will cycle through the following displays:

Display	Description
VOLTS	Shows the current House battery bank voltage
AUX1-V	Shows the current Start battery voltage
HRS LEFT	Shows the time remaining (at the current usage rate) until the House battery bank is at 50% discharge. During charging this shows the estimated time remaining until full charge
SOC	State of Charge. Shows the percentage of the actual full-charge capacity of the House battery bank
SOH	State of Health. Indicates the House battery bank aged capacity compared to the design capacity. This will not give an accurate reading until several charge and discharge cycles have been completed
AMPS	Shows the net amps being used or added to the batteries.

SHORE POWER

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

FORWARD SHORE POWER CONNECTION

AFT SHORE POWER CONNECTION

Before hooking up the shore power cord, make sure that the dock breaker switch and the AC Panel MASTER SWITCH are both turned OFF. To connect to shore power, plug the 30amp power cord into the boat (either at the forward or aft shore power connection) and then plug in to the dock receptacle. If necessary, 50 amp, 30 amp, and 20 amp adapters are available.

The forward shore power connection also has a circuit breaker on the right side. If you are not getting AC power, check to make sure the breaker has not tripped.

Turn ON the breaker switch at the dock receptacle first. At the AC Power Panel select which AC power inlet you are using, either FWD Shore or AFT Shore. Check for REVERSE POLARITY by pushing the "PUSH TO CHECK" button.

AC POWER PANEL

If the Reverse Polarity light comes **ON**, do not turn on the MASTER SWITCH circuit breaker, as there is a problem with the power supply. Almost all marinas in the San Juan Islands will not experience this problem; it is typically the outlying areas where there could be a problem.

If the light does not come "**ON**" then it is OK to turn ON the MASTER SWITCH circuit breaker and you should see approximately 120V on the AC meter. Then, turn on the appropriate breakers for hot water heater, refrigeration, etc. Watch the ammeter to see corresponding load changes.

If the load is greater than the available power (30 amp, 20 amp, etc.), a breaker will likely trip at the dock power connection. If this occurs, reset the dock circuit breaker and turn on the boat systems one at a time while watching the load so as not to exceed the rated maximum 30 amps (3,000 watts), 20 amps (2,000 watts) or even 15 amps (1,500 watts) depending on shore power availability.

Here are some example AC loads (Amps = Watts/Volts):

Water Heater	1500 watts	20 amps
Microwave	1000 watts	8.3 amps
Coffee maker	1000 watts	8.3 amps
Hair dryer	1500 watts	12.5 amps

This means you could potentially trip the shore power circuit breaker using any three of these appliances simultaneously.

If an AC outlet is not working, check to make sure the OUTLET breaker located at the top left side of the AC Power Panel is ON. Also check the GFCI outlets located in the forward and aft heads to make sure they have not tripped. Each GFCI outlet can protect several other outlets.

INVERTER

The Inverter control is located above and to the port side of the helm on the ***Magnum Energy Panel***. The Inverter will provide AC power to the 120-volt receptacle plugs (i.e. the microwave oven, coffee maker) when the boat is not connected to shore power. The Inverter will not provide power to the water heater.

To use the Inverter, push the INVERTER button and the INV light should illuminate indicating it is functioning and there is power to outlets. If no appliances (i.e., microwave) or electronics are drawing any current from the Inverter, the display will read "Searching". This is a stand-by mode which will save power while the Inverter is not in use. Once an appliance or charger is plugged in, the Inverter should start automatically.

The Inverter power source is the DC House Batteries located in the engine room. The quantity of 120-volt AC power is limited to the capacity of these batteries. Running hair dryers, toaster, coffeepot, space heater, etc. and will quickly discharge the batteries.

Use these items very sparingly as they draw a significant amount of power!

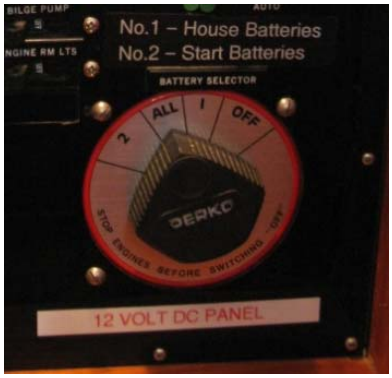
When connected to shore power, the Inverter automatically becomes a battery charger for the 12 Volt House Batteries.

To ensure the House Batteries are charging while on shore power, or to check the status, press the CHARGER button on the ***Magnum Energy Panel***. The "CHG" light will come on and the display will indicate the status of charging.

12-VOLT DC SYSTEM

The 12 Volt DC Power Panel shows all the systems supported by the batteries. Primarily you will be turning on the breakers for your lights, water pressure, electronics, etc. The Bilge Pump should always be left in the "Auto" postition.

The battery banks supply 12 Volt DC power. The Battery Selector Switch in the 12 Volt DC Power Panel controls the following:



- **1** House battery bank
- **2** Engines start battery
- **All** All batteries [only used if batteries need to be combined during starting]

There are three battery switches located below the steps to the forward stateroom. They are normally in the 'ON' position. There is NO generator now but the panel still has a switch… ignore it.

Note – In the unlikely event it is necessary to switch battery positions, **do not** change the position of the switches while the engines are running or the alternator diodes along with electrical instruments could be damaged. ONLY change position with the engines off.

BATTERIES

The HOUSE battery bank provides power for all DC systems and automatic bilge pumps. When disconnected from shore power, all 12-volt devices drain the house battery. Use devices only as needed.

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 (i.e, not being charged), the ***Magnum Energy Panel*** or ***Balmar Battery Monitor*** can give an indication of the state-of-charge of the battery bank.

Never let the battery voltage drop below 12.0 volts as this will reduce the life of the batteries.

Voltage (Wet Cell Battery)	Battery State
12.6 volts	100%
12.5 volts	90%
12.4 volts	80%
12.3 volts	70%
12.2 volts	60%
12.0 volts	**50%**
11.9 volts	40%
11.7 volts	30%
11.6 volts	20%
11.3 volts	10%
10.5 volts	0%

The batteries are charged by the engine alternators while underway.

The batteries are charged by the battery charger when connected to shore power.

Note: If you are not getting power when the Battery Selector Switch is in the "**1**" **House Batteries**, it's likely the house battery breaker in the engine room may have tripped or was turned off inadvertently. The switch is located on the forward bulkhead in front of the port engine. Remove the cover and ensure the switches are "ON". Likewise, if the starboard engine will not start, check to make sure the start battery breaker is "ON".

SANITATION SYSTEM

VACUFLUSH MARINE TOILETS

It is important that every member of the crew be aware of the proper use of the VacuFlush Toilet. It is a great system usually without problems if you only put human waste and a small amount of MARINE toilet paper into the toilet. The valves, openings, and pumps are small and may clog easily. Always monitor use by children. To increase flushing action, add water to the bowl by lifting the foot lever.

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.

VacuFlush Toilet ON/OFF Switches

In order to keep the Vacuflush system from cycling unnecessarily (particularly at night), we have installed ON/OFF switches below the countertops in each head. Before using the toilet, turn the switch "ON". You will hear the pump cycle for approximately a minute or less. To ensure good flushing action, wait until the pump stops before flushing. Turn the switch OFF after flushing. Please keep the switch turned OFF when the toilet is not in use.

HOLDING TANK

The holding tank holds approximately 40 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 for you.

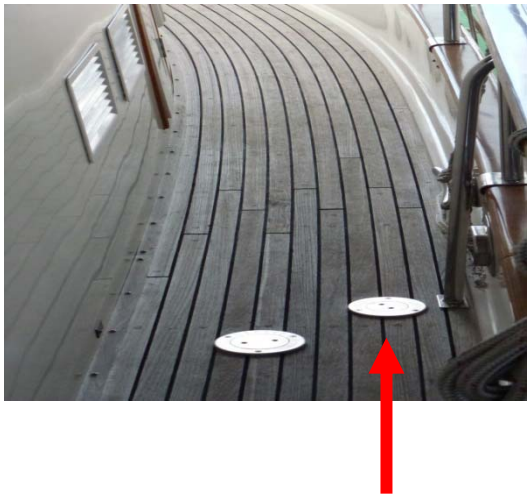
The holding tank is located aft of the fuel panel in the engine room. There is a **tank monitor located in the Aft Head**. To ensure the tank does not get too full, we suggest pumping out when the light is at the third level (orange).

PUMP OUT (U.S. and Canadian Waters)

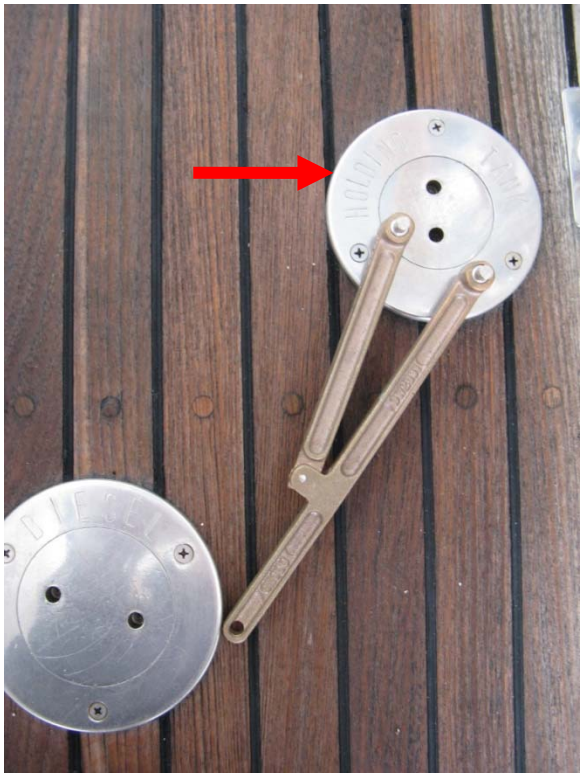
Based on your location, the holding tank can be emptied in one of two ways.

At a Marine Pump-Out Station (all around the San Juans), remove the HOLDING TANK deck fitting located on the starboard side deck.

STARBOARD SIDE DECK



HOLDING TANK PUMP OUT



Insert the pump-out nozzle into the WASTE opening. Double-check the correct deck fitting (sucking DIESEL into their sewer system is frowned upon)! Turn on pump and then open the valve located on handle. When pumping finished, before removing from deck fitting close the valve on the handle. Turn pump off.

If there is a fresh water hose on the dock, rinse the tank by adding about 2 minutes worth of water into tank. Then pump out again to leave the tank rinsed for the next charterer. This also helps eliminate head odors.

DISCHARGE OVERBOARD (Canadian Waters Only)

In Canadian waters, the tank contents can be discharged overboard with the MACERATOR. If you choose to do this, please read the following instructions before attempting to discharge waste overboard. Failure to follow the instructions will result in damage to the pump and a possible mess inside the boat.

To discharge the contents of the holding tank overboard:

1. Before turning on the Macerator Pump, open the thru-hull valve located behind the starboard engine below the fuel tank. It is marked "**WASTE DISCHARGE**". Failure to open the thru-hull valve before turning the pump on will result in damage to the pump and valves.

2. **To open the thru-hull valve**, un-tighten the t-handle on the backside of the valve and turn the yellow handle until the handle is pointing up. Re-tighten the t-handle to prevent leaking.

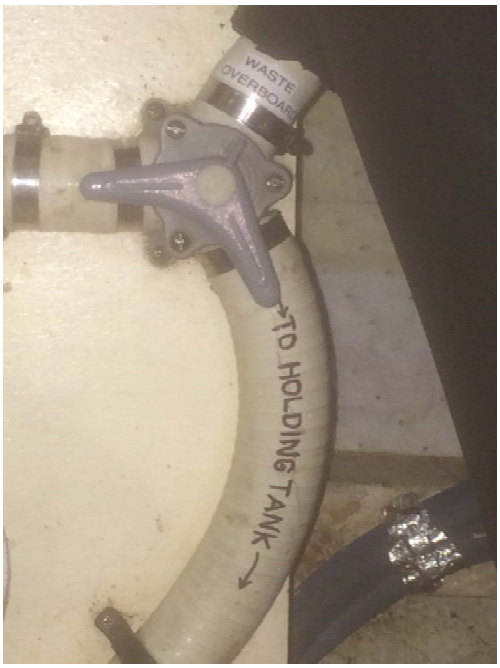
THRU-HULL VALVE

2. Turn ON the MACERATOR PUMP switch on the DC Power Panel. Listen for the macerator's sound. When the pitch becomes higher, the tank is empty. Watch for bubbles coming out from under the boat on the starboard side. When you see bubbles, the tank is empty. It should only take a few minutes (4 max) to empty the tank. Do not run the pump too long as it will cause excessive wear. You can check the holding tank level at the status panel in the aft head.

3. After pumping out, close the thru-hull valve by un-tightening the t-handle and moving the yellow handle to the horizontal position. Re-tighten the t-handle to prevent leaking.

Y-VALVE

If necessary, waste can also be discharged directly overboard during flushing using the Y-VALVE. The Y-VALVE directs waste effluent either into the holding tank or directly overboard.



The Y-VALVE is located behind the fuel panel in the engine room. The Y-VALVE is normally set to direct waste into the holding tank as shown in the picture to the right.

Before changing the setting on the Y-VALVE, open the thru-hull valve located behind the starboard engine below the fuel tank. It is marked "**WASTE DISCHARGE**". Failure to open the thru-hull valve before turning the pump on will result in damage to the pumps and valves.

To open the thru-hull valve, un-tighten the t-handle on the backside of the valve and turn the yellow handle until the handle is pointing up. Re-tighten the t-handle to prevent leaking. See picture on previous page.

To direct waste discharge overboard when flushing the toilets, turn the Y-Valve clockwise until the arrow points to the "Waste Overboard" hose.

The Y-Valve must be turned back to its original position as shown above before entering US waters.

WATER SYSTEMS

FRESH WATER TANK

The two fresh water tanks are located in the Lazarette below the cockpit. They each hold 77 gallons for a total of 154 gallons. They are interconnected so no valve is necessary switch between the tanks. Observe the water level visually by removing the caps. A flashlight is helpful. To refill the water tanks, remove each cap and fill. Be careful not to let the water overflow or spray into the Lazarette. You can usually fill each tank faster than the interconnection. Replace the caps making sure they are only finger tight.

FRESH WATER PUMP

Activate the pump by turning on the F.W. PUMP breaker on the DC Power Panel. If the water pump runs continuously, the water tanks are empty or there might be an air lock. Bleed the system by opening up a faucet.

If you run out of water, shut off the hot water heater on the AC Power Panel or serious damage can occur!

HOT WATER

The hot water heater has an 11 gallon tank. Water is heated when connected to shore power from the AC Power Panel or from engine heat through a heat exchanger when underway.

To use while on shore power, turn ON the WATER HEATER circuit breaker on the AC Power Panel. Do not use the water heater if the water tank level is very low.

While underway, water is heated by the starboard engine. A one to two hour running time will usually be sufficient to heat the water in the hot water tank.

SHOWERS

Before taking a shower, turn ON the DRAIN PUMP switch on the DC Power Panel.

Before turning on the shower, pull out the drain pump switch just below the vanity sink to activate the shower sump pump. The drains are below the waterline so pumps are required. The sump pumps are "Gulper" pumps and will run continuously. It is OK for the pumps to run dry for short periods. If there is no sound from the pump, or if the shower pan fills with water, shut off the shower immediately to prevent flooding the cabin and inspect the sump to make sure the drain is not clogged.

To conserve water, take only very short "Navy" showers (turning off water between soaping up and rinsing). To keep the heads tidy and dry, wipe down the shower stall after use. Check for accumulation of hair in the drains and remove.

WASH DOWNS

A pressured fresh water Wash Down with hot and cold water is available from a hose spigot at the cockpit on the transom. The fresh water pump F.W. PUMP breaker must be on at the DC Power Panel for it to function.

There is also a raw water Wash Down located at the bow below the windlass. This is primarily used for cleaning off the anchor as you bring it in. This pump is operated by the WASH DOWN breaker on the DC Power Panel. A hose and spray nozzle are stored in the right side locker below the Windlass.

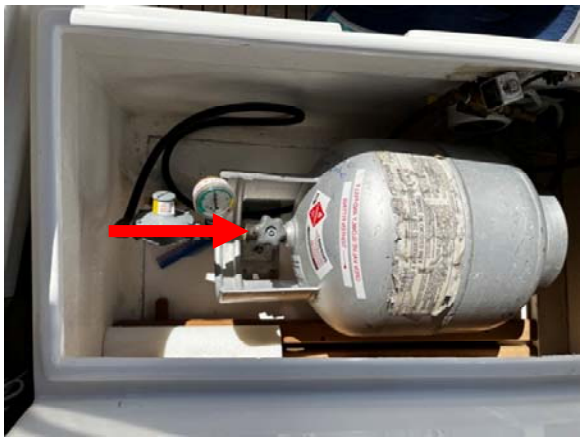
Turn off the WASH DOWN circuit breaker after use to prevent burning out the pump.

GALLEY

STOVE & OVEN

The stove and oven are propane. To use them, turn on the GAS STOVE circuit breaker on the DC Power Panel. The propane stove is activated by the following steps:

1. Turn on the propane tank located in the port side, forward, flybridge seat. Open the valve **slowly** so as not to trip the regulator. If you hear a "click" while opening the valve you will need to close the valve, and loosen the regulator fitting from the tank a bit to bleed the system and reset the regulator.



2. Turn on the LP GAS solenoid switch. The red "**GAS ON**" light will illuminate.

3. Turn on the gas at the stove by pressing in on the knob and turn to IGN. While holding the knob in, press the red BURNER IGNITE button to light burner. You can also use a lighter or match. It may take a few seconds the first time to light due to the air in the line between the propane tank and the appliance. You might need to hold knob in for a few seconds while the thermocouple warms up. Once the thermocouple has warmed up you can release the knob and set the burner to the desired temperature.

4. To light the oven, turn the temperature knob to the “Light” position. While pressing the red OVEN SAFETY button, hold a lighter or match to the pilot inside the oven under the shelf. **You might need to hold the button in for a few seconds while the thermocouple warms up**. Once the thermocouple warms up the pilot light should stay lit. You can then release the OVEN SAFETY button and set the oven to the desired temperature. There is an Oven Thermometer on board to help with oven temperature control

When finished using the stove or oven, turn the LP GAS switch off and turn the GAS STOVE circuit breaker on the DC Power Panel to OFF.

If leaving the boat for an extended period, it is a good idea to turn off the gas at the tank.

REFRIGERATOR

The refrigerator operates on the 12-volt system and uses very little power. However, it is always a good idea to monitor the batteries to ensure you do not run out of battery power. To operate the Fridge, turn the FRIDGE circuit breaker on the DC Power Panel ON.

The thermostat is located inside the Fridge on the left hand side. There is a thermometer mounted inside the Fridge to help monitor the temperature. The Fridge will normally keep temperature at around 38 degrees at a setting of between 3 and 4. The higher the number on the dial, the colder the temperature. The condenser is cooled by a raw water pump which you will hear cycle periodically.

HEATING SYSTEM

DIESEL HEATER

A diesel forced-air furnace located in the engine room provides heat in the same way as a household furnace. Vents are located under the settee in the salon, and under the steps to the aft and fwd cabins. Ensure that at least a couple of vents are open so that heat will flow into the cabin. If the vents are closed, the system will overheat and shut off.

To turn on the Heater, move the slide switch located on the bottom left-side of the thermostat to the right, **HEAT**. Set the desired temperature using the up or down buttons to the right of the display. It takes a few minutes for the computers to start up the system.

Check the furnace exhaust on the port side hull mid-ship for any obstruction such as fenders or lines. Do not block this opening when operating the furnace as the heat will damage fiberglass and rubber.

Turn off the furnace heater by moving switch to **OFF**. The furnace will go through a "cool down" cycle, so may continue to run for a few minutes after being turned off.

ENGINE HEAT

While underway, cabin heat is available via an engine heat exchanger located aft of the port side door just above the floor. There is a two speed fan switch which is located on the vent and is operated by pulling the switch out. This heater is very effective while underway and can also be used while running the port engine to recharge the batteries.

BILGE PUMPS

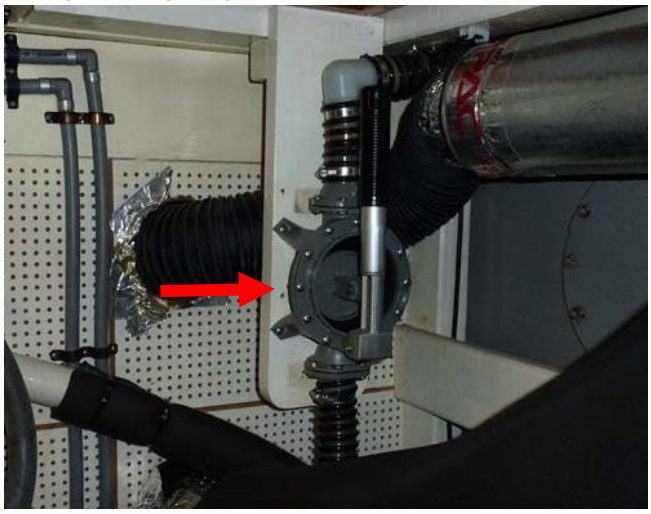
Gratitude has two bilge pumps. One is an automatic bilge pump located below the forward bulkhead in the engine room. The other is a manual bilge pump which is located on the port side aft bulkhead in the engine room.

The BILGE PUMP circuit breaker should normally be left in the ON position. There is also a BILGE PUMP toggle switch on the DC Power Panel as shown below which should normally be left in the AUTO position. You may occasionally hear the pump operate to clear water accumulating in the bilge due to condensation, water drips from the shaft log, anchor chain wash down or rough seas.

12 VOLT DC POWER PANEL

The auxiliary hand operated bilge pump is located on the port side aft bulkhead in the engine room and can be accessed through the aft hatch in the floor of the salon. This is generally used only in emergency situations. To operate the pump, pull the handle forward and then push back. Repeat.

MANUAL BILGE PUMP



ELECTRONICS

Generally all electronics breakers should be turned on prior to cruising. **To ensure the electronics are "talking" to each other, it is best to turn the breakers on from the bottom up as indicated on the DC Power Panel.**

VHF RADIOS

There are two VHF radios onboard; one in the dashboard above the lower helm and one on the Flybridge in the cabinet to the left of the upper helm. To operate the radios, turn ON the VHF breaker on the DC Power Panel. To be able to hear the VHF Radios, the Shipmate speaker devices must also be turned on. The Shipmate speakers are located to the left of the VHF Radio at the lower helm and above the VHF Radio in the upper helm cabinet. There is a toggle switch to turn the speakers on and off.

LOWER HELM VHF RADIO

FLYBRIDGE VHF RADIO

DEPTH SOUNDER

There is a Depth Sounder located at each helm. The DEPTH circuit breaker must be ON. **The Depth Sounders have been calibrated to show the depth from the bottom of the Keel.** The sounder should provide reliable readings in shallow waters. If in doubt, switch it off, and then turn it back on to reset. If the reading is

blinking, it is a FALSE reading. False readings can occur at depths of more than 200 feet.

CHARTPLOTTERS

Gratitude is equipped with a Garmin 1242xsv 12" touchscreen chartplotter at the lower helm and a 942xs 9" touchscreen chartplotter on the Flybridge. These chartplotters are networked together so that waypoints, routes and other information entered on one chartplotter will be available on the other. **Full operating manuals are available in the Navigation Binder at the lower helm and in the Ship's Library.**

To use the chartplotters, turn ON the CHARTPLOTTERS circuit breaker on the DC Power Panel. The lower helm chartplotter should come on automatically. If not, press the power button on the upper right-hand side. The Flybridge chartplotter is normally in standby mode. To turn it on, press the power button on the upper right-hand side.

Below are some basic instructions:

Using the Touchscreen

- Tap the screen to select an item.
- Drag or swipe your finger across the screen to pan or scroll.
- Pinch two fingers together to zoom out.
- Spread two fingers apart to zoom in.

On-Screen Buttons

These on-screen buttons may be displayed on some screens and functions. Some buttons are accessible only in a combination page or SmartMode™ layout or when accessories, such as a radar, are connected.

Tips and Shortcuts

- Press power button to turn on the chartplotter.
- From any screen, press power button repeatedly to scroll through the brightness levels. This can be helpful when the brightness is so low you cannot see the screen.
- Select **Home** from any screen to return to the Home screen.
- Select **Menu** to open additional settings about that screen.
- Select **Menu** to close the menu when finished.
- Press power button to open additional options, such as adjusting the backlight and locking the touchscreen.
- Press power button and select Power > Turn Off System, or hold power button until the Turn Off System bar fills to turn off the chartplotter, when available.
- Press power button and select Power > Sleep Station to set the chartplotter to standby mode, when available.
- On the home screen of some models, swipe up or down on the category buttons along the right side of the screen to view the additional buttons. On some models, not all category buttons are visible. The arrows at the top or bottom of the buttons indicate not all buttons are visible.
- On some menu buttons, select the button to enable the option. A green light on an option indicates the option is enabled.

Button	Function
	Clears the on-screen icons and re-centers the screen on the boat
	Opens a full-screen view of the item
	Creates a new waypoint
	Creates a route, with turns, to the destination
	Adds a turn to the route at the selected location
	Removes the last added turn from the route
	Creates a direct route, without turns, to the destination
	Creates an Auto Guidance route to the destination
	Begins navigation
	Ends navigation
	Stops and starts radar transmission
	Opens the radar gain adjustment menu
	Opens the radar sea clutter adjustment menu
	Opens the radar rain clutter adjustment menu
	Turns on and off the radar echo trails
	Acquires a radar target and begins tracking it
	Shows and sets the VRM/EBL line
	Opens the menu for the page or function
	Opens the Weather menu for the page or function
	Opens the Radar menu for the page or function
	Opens the Presets menu for the page or function

- When available, select the arrow on a menu button to open the menu.

Acquiring GPS Satellite Signals

The device may need a clear view of the sky to acquire satellite signals. The time and date are set automatically based on the GPS position.

1. Turn on the device
2. Wait while the device locates satellites

It may take 30 to 60 seconds to acquire satellite signals. When the device acquires satellite signals, power bars appear at the top of the Home screen showing signal strength. If the device loses satellite signals, the power bars disappear and a flashing question mark appears over your location on the chart.

Waypoints

Marking Your Present Location as a Waypoint

From any screen, select Mark.

Creating a Waypoint at a Different Location

1. Select Waypoints > New Waypoint
2. Select an option:

- To create the waypoint by entering position coordinates, select Enter Coordinates, and enter the coordinates.
- To create the waypoint using a chart, select Use Chart, select the location, and select Select.
- To create the waypoint using a range (distance) and bearing, select Enter Range/Bearing, and enter the information

The depth reading shown on the Chartplotters is calibrated to the Sonar so shows the depth from the bottom of the hull. **Bear in mind the bottom of the keel is about 4 feet deeper.** The individual depth sounders at each helm are calibrated to show the depth from the bottom of the keel.

RADAR

Gratitude is equipped with a Garmin GMR 18 HD+ Radar which is available on both the upper and lower helm chartplotters.

To activate the Radar, turn ON the RADAR circuit breaker on the DC Power Panel. As the Radar is powering up you will see a countdown message on the chartplotter. As a safety feature, the radar enters standby mode after it warms up. This gives you an opportunity to verify the area around the radar is clear before beginning radar transmission. To begin radar transmission, select Menu > Transmit Radar.

To stop the Transmission of Radar Signals, from a radar screen, select Menu > Radar To Standby. Press > Radar To Standby from any screen to quickly stop radar transmission.

You can change between a radar overlay screen or side-by-side screen by pressing Home and selecting the appropriate display.

We do not recommend operating in reduced visibility!

COMNAV AUTOPILOT

Lower Helm Autopilot

A few words of caution, an autopilot is a great tool as it relieves the helmsman from having to make frequent rudder inputs to hold a course or heading. But it is important to be on alert at all times. The helm should never be left unattended. The waters around the San Juan Islands and Canada contain logs, crab and shrimp traps, debris and other pleasure and commercial traffic. Use the autopilot as a tool to take the drudgery out of steering, allowing you to keep your eyes up and looking outside the boat.

The most basic use of the Autopilot is to keep the vessel on the course/heading you have chosen. If the autopilot breaker is on, and the Autopilot select switch is turned to "STANDBY", the compass heading that displays on the Autopilot screen should be very close to the compass reading on the physical compass ball at the helm and the GPS heading on the Chartplotter. Don't worry if the readings are not exactly the same, as the Autopilot simply maintains a heading – whatever that heading might be.

To engage the autopilot, move the selector switch to "PILOT". This will do two things:

1. The autopilot will begin adjusting the rudders to keep **Gratitude** "on course"
2. The wheels at the lower and flybridge helms will move as the autopilot is adjusting the rudders, and will become very difficult to move manually

In order to regain operational control, move the Autopilot selector switch to "STANDBY" or "OFF".

To adjust the course, you can either:

1. Disengage autopilot, change course manually, then re-engage autopilot, or
2. Push the red or green arrow buttons to adjust the course by 1 degree for each push

Flybridge Autopilot Remote

In order to use the Autopilot control in the Flybridge communications locker, the lower helm Autopilot must be in “STANDBY” or “PILOT” mode.

To take control from the Flybridge, move the selector switch to “STANDBY” and press both red and green push buttons simultaneously for one second. You will see the marker on the display move to either REM 1 or REM 2 and the course heading should be displayed.

The STANDBY and PILOT modes operate the same as the lower helm unit. The red and green buttons allow 1 degree adjustments to the course.

When you want to go back to the main control unit at the lower helm, leave the remote in the PILOT mode so the boat is under control. At the lower helm press both the red and green arrow keys simultaneously for one second. The marker should move back to the MASTER position. If control does not transfer back to the lower helm unit, you can regain control by turning the selector switch to the OFF position and then back to STANDBY.

ENTERTAINMENT SYSTEM

Gratitude is equipped with a **FUSION** stereo that allows you to listen to AM/FM radio, your own music via a connected Bluetooth device, and CD/MP3 discs via the **PIONEER** deck when the **FUSION** stereo is set to "AUX".

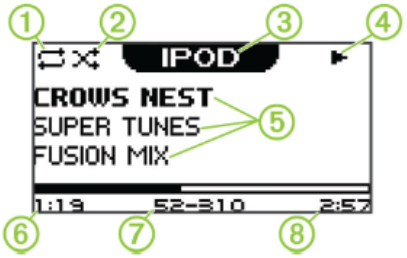
The **FUSION** stereo broadcasts to two "zones" on the boat; the Salon and the Flybridge. These zones are labeled on the stereo screen and can be controlled individually or together.

Stereo Controls

Dial ①	• Turn to adjust the volume. • Press to switch between zones. • Hold for at least one second to adjust the subwoofer levels. • Turn to move through the menus or adjust a setting. • Press to select the highlighted option.
	• Select to open a menu. • Select to return to the previous screen or menu.
	Select to change the source
⏮	• Select to skip to the previous track, when using an applicable source. • AM or FM source: ◦ Select to tune to the previous station. ◦ Hold for faster tuning (manual mode only). • AUX source: Select to decrease the gain for the connected source. • DAB source: Select to return to the previous DAB station in the ensemble. When you reach the beginning of the current ensemble, the stereo automatically changes to the last available station in the previous ensemble.
⏭	• Select to skip to the next track, when using an applicable source. • AM or FM source: ◦ Select to tune to the next station. ◦ Hold for faster tuning (manual mode only). • AUX source: Select to increase the gain for the connected source. • DAB source: Select to advance to the next DAB station in the ensemble. When you reach the end of the current ensemble, the stereo automatically changes to the first available station in the next ensemble.
⏻	• Select to turn on the stereo. • When the stereo is on, select to mute the stereo. • Hold to turn off the stereo.
⏯	• Select to pause or resume. • AM or FM source: ◦ Select to cycle through the tuning modes (auto or manual) and presets (when two or more presets are saved). ◦ Hold to save this station as a preset. • DAB source: Select to scan for DAB stations.

Stereo Screen

The information displayed on the stereo screen varies depending on the source selected. This example shows the stereo playing a track on an iPhone® mobile digital device.



①	Repeat status icon
②	Shuffle status icon
③	Source
④	Play status icon
⑤	Track details (if available)
⑥	Elapsed time
⑦	Current track number out of total number of tracks in the playlist (if available)
⑧	Track duration

Adjusting the Volume

1 Use the dial to adjust the volume.

2 If necessary, press the dial to switch between zones.

TIP: To control all zones at the same time, press the dial until all zones are highlighted.

Adjusting the Tones

1 Select ☰ > **SETTINGS** > **TONE**.

2 Use the dial to adjust the level.

3 Press the dial to switch to a different tone.

Bluetooth Device Playback

You can pair the stereo to up to eight Bluetooth media devices.

You can control the playback using the keys, but you cannot browse the music collection. You should select the song or playlist on the media device.

The availability of song information such as song title, artist name, and track duration depends on the capability of the media player and music application. The shuffle and repeat status icons are not supported over Bluetooth wireless technology.

Connecting a Compatible Bluetooth Device

You can play media from a compatible Bluetooth device using the Bluetooth wireless connection.

1. Select the Bluetooth source.
2. Select ☰ > **DISCOVERABLE** to make the stereo visible to your compatible Bluetooth device.

   NOTE: The stereo is discoverable for only two minutes to prevent interruption to audio streaming over Bluetooth wireless. If more than two minutes pass before you connect a compatible device, you must repeat this step.
3. Enable Bluetooth on your compatible Bluetooth device.
4. Bring the compatible Bluetooth device within 10 m (33 ft.) of the stereo.
5. On your compatible Bluetooth device, search for Bluetooth devices.
6. Select the stereo from the list of detected devices.
7. Follow the on-screen instructions to pair and connect to the discovered stereo.

   When pairing, your compatible Bluetooth device may ask you to confirm a code on the stereo. The stereo does not display a code, but it does connect correctly when you confirm the message on the Bluetooth device.
8. If your compatible Bluetooth device does not immediately connect to the stereo, repeat steps 1 through 7.

Bluetooth Range Information

The stereo and Bluetooth wireless devices have a range of 10 m (33 ft.). For optimal performance, the Bluetooth wireless device should also have a clear line of sight to the stereo.

Controlling Music Playback on an Apple or Android Device

1. Connect a compatible Apple or Android device to the stereo using USB or Bluetooth.
2. Select the appropriate source.
3. Launch a music application on the connected Apple or Android device and begin playback.

You can use the stereo controls to play, pause, and skip tracks.

Selecting a Different Bluetooth Source

When you have more than one Bluetooth device paired to the stereo, you can select a different source when needed. You can connect the stereo to up to eight Bluetooth devices.

1. With the **BLUETOOTH** source selected, select ☰.
2. Select a Bluetooth device.

Bluetooth Source Settings

With the BLUETOOTH source selected, select ☰.

DISCOVERABLE: Allows the stereo to be visible to Bluetooth devices. This setting turns off automatically after two minutes to prevent possible interruption to audio after pairing a Bluetooth device to the stereo.

REMOVE DEVICE: Removes the Bluetooth device from the stereo. To listen to audio from this Bluetooth device again, you must pair the device again.

Changing the Radio Station

1. Select an applicable source, such as **FM**.
2. Select ⏯ repeatedly to move through the tuning modes:
   - Select **AUTO** to scan and stop on the next available station.
   - Select **MANUAL** to select a station manually.
   - Select **PRESETS** to select a saved station preset.
3. Select ⏮ or ⏭ to tune to the station.

Presets

You can save your favorite AM stations and FM stations as presets for easy access.

You can save up to 15 presets for each radio band or broadcast type.

Saving a Station as a Preset

1. With an applicable source selected, tune the stereo to a station.
2. Select ☰ > **PRESETS**.
3. Select **SAVE CURRENT**.

TIP: You can quickly save the selected station as a preset by holding ⏯.

Selecting a Preset from a List

Before you can select a preset from a list, you must save at least one station as a preset.

1. Select the applicable source.
2. Select ☰ > **PRESETS**.
3. Select a preset from the list.

FUSION-Link™ Application

You can use the FUSION-Link application on your compatible Apple or Android device to adjust the stereo volume, change the source, control playback, and adjust some stereo settings.

The application communicates with the stereo using the Bluetooth connection for the mobile device. You must connect your compatible device to the stereo using Bluetooth to use the application.

For information about the FUSION-Link application for compatible Apple or Android devices , go to the Apple App Store℠ or the Google Play™ store.

Playing a CD or MP3 Disc

The single CD/MP3 unit is located behind the control head of the **PIONEER** deck.

To play a CD/MP3, change the source on the **FUSION** deck to "AUX".

On the **PIONEER** deck, press the Open (Eject) button on the lower right corner. This should turn the power on and the control head will rotate down, allowing you to insert the disc into the slot at the top of the deck. Once you have inserted the disc, the control head will close and the disc should begin playing automatically.

To eject a disc, press the Open button. To close the control head, press the Open button again.

To turn the power off on the **PIONEER** deck, press and hold the SRC button. If you have previously inserted a disc and need to turn the power back on, press the SRC button.

If the source was inadvertently changed on the **PIONEER** deck to XM or Tuner (both non-functioning) change the source back to CD by pressing the SRC button repeatedly until "CD" appears in the screen.

To fast forward or reverse a track, press and hold the round knob on the **PIONEER** deck to the left or right. To skip back or forward to another track, press and release the round knob to the left or right.

Volume and speaker zones are controlled by the **FUSION** deck.

TENDER & OUTBOARD MOTOR

The Caribe Tender is outfitted with a 9.9 hp Honda 4 stroke and is located on the swim step. It has a capacity of approximately 1,200 total pounds (which includes, motor, equipment and up to 4 people).

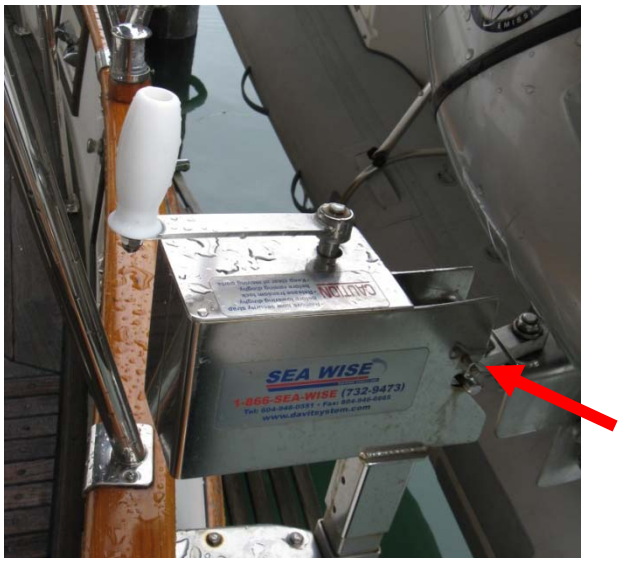
Keys are located in the helm drawer and aft deck locker. Oars and bench seat are located in the Lazarette. The gas tank and hose for the outboard is located in the aft deck locker

To deploy the Tender first make sure the bow line has been loosened so that as the Tender is lowered it won't pull the line tight. Also, make sure the **motor is tilted up** so that the propeller doesn't puncture the Tender.

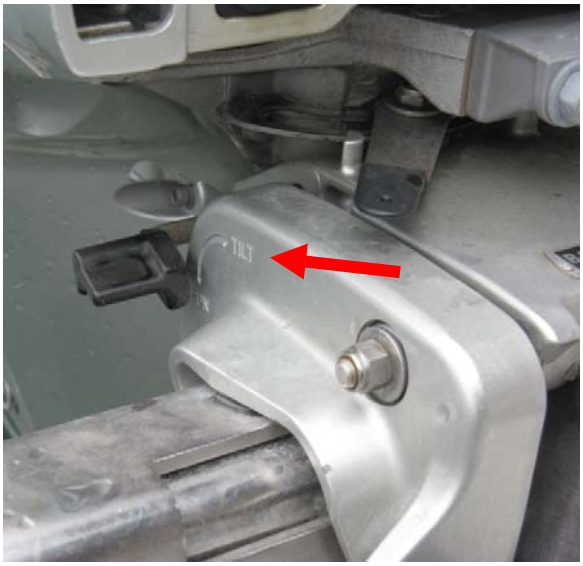
Pull the safety pin on the crank by pushing on the button in the end of the pin and slowly lower the Tender into the water using the crank on top of the pedestal. As the engine is lowered it will slip over the transom of the Tender. Lock the motor in position with the wingnut. Reverse the procedure to stow it.

Before starting the outboard motor, lower the outboard motor into the water (see illustration on the next page), move the tilt/run lever located on the starboard side of the motor to the "Run" position (down). Lift the motor slightly until you hear a click and then lower the motor into the water. To lift the motor out of the water, move the lever to "Tilt" (up) and lift the motor. It should then lock in the raised position.

DAVIT CRANK AND SAFETY PIN



OUTBOARD MOTOR SHOWING TILT / RUN POSITION LEVER



To start the outboard motor, connect the key to the red Stop switch and connect the gas tank hose to the gas connection on the motor. Pump the priming bulb until it is firm.

Pull the choke open and set the throttle up slightly. Pull the starter cord until the motor starts. If the motor has not been run in a while, it may need to warm up for a minute or so before the choke can be set back.

If you are restarting the outboard after it has been running for a while, make sure the choke is "in" to prevent flooding the engine.

If you are towing the Tender, always keep it tight to the boat any time that you slow down or stop. Assign one of the crew members as the "Tender" person to be responsible for taking up slack. You don't want to wrap the line in the propeller.

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

OUTBOARD MOTOR SHOWING GAS CONNECTION AND CHOKE LEVER

A copy of the tender registration, spare key, spare starter handle and spare drain plug are located in a waterproof sack in the tender bow locker.

If you are going ashore and leaving auto inflate lifejackets in the tender, it's a good idea to put them in the bow locker to keep them from getting wet and possibly auto inflating.

During storage and cruising, the outboard should be in the down position to allow water to drain from the motor and take stress off the Davit.

Ensure the clips are attached to the Davit hinges to prevent the Tender from coming loose during cruising.

ANCHORING

If you are bringing up more than 100’ of chain, it may be necessary to open the chain locker at the head of the v-berth to redistribute the chain as it may “pile-up” in the locker. Please remove the v-berth cushions and place a sorb or towel under the door before opening the chain locker to protect the cushions from any water or debris.

The primary working anchor is a 35lb CQR which is attached to 200ft of 5/16” BBB chain and 150ft of 1/2” 8-strand rope.

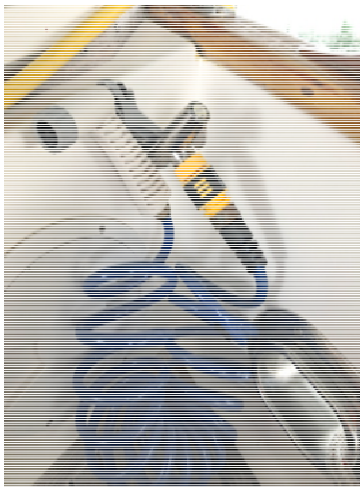
In the locker below the Windlass on the port side you will find a handle for tightening or loosening the Windlass clutch, and manual operation of the Windlass if necessary. You will also find an Anchor Bridle (snubber). Use the Anchor Bridle to take the strain off the Windlass when at anchor. The Anchor Bridle provides a more comfortable anchorage as it acts like a spring and prevents the chain from ratting in the bow roller. It also lowers the angle of the rode which helps the anchor stay set.

The windlass power switch is located on the PROTECTION PANEL located on the right side of the helm. Turn it ON. It is NOT a good practice to use the controls at the helm as it could be dangerous for the crewmember at the bow.

WINDLASS POWER SWITCH

WINDLASS FOOT SWITCHES

RAW WATER WASHDOWN



Before lowering the Anchor, be sure the security lanyard and chain hook has been removed. At the bow, tap gently on the DOWN foot control to lower the anchor. If necessary, guide the anchor over the anchor roller to prevent binding on the pulpit.

White flags with red lettering are placed every 25 feet showing the amount of Anchor Rode that has been let out. Use between 5:1 to 7:1 scope depending on the weather. Be sure to let out sufficient Anchor Rode before trying to set the anchor.

Once sufficient rode has been let out, start backing the boat down at idle with gentle pulses. When the anchor is set, you will feel the bow dip. Verify the anchor has held by having one engine in IDLE reverse and verify the boat is NOT moving backward.

If anchoring overnight or in high winds, attach the Anchor Bridle hook to the anchor chain below the pulpit and bring each side of the bridle rope through a hawsehole and secure to the bow cleats on the port and starboard sides. Once the Bridle is secure, relieve the anchor chain tension on the Windlass by letting out a little slack in the chain.

If all of the chain has been let out, bring the anchor rope through one of the hawseholes and secure to a bow cleat. The Windlass will not "hold" the rope.

Before raising the anchor, ALWAYS start the engines as the Windlass uses a large amount of power.

You will also want to turn on the WASH DOWN circuit breaker which provides sea water to the bow wash down hose. The hose may be stored in the locker under the right side of the windlass.

Turn ON the Windlass switch. As you slowly drive the boat toward the anchor, press the UP control to take up slack. Give the Windlass short rests as you are pulling the anchor up.

Wash down the chain if it's muddy before it goes into anchor locker to keep things clean and smelling nice.

As the anchor rises, be careful not to allow it to swing against the hull. Slowly guide the anchor onto the roller by "pulsing" the Windlass switch, or manually turning the anchor until the anchor is home.

Secure the anchor with the lanyard and chain hook to make sure it does not come loose as you are cruising. Turn OFF the Windlass power switch at the PROTECTION PANEL. Turn OFF the WASH DOWN circuit breaker.

A spare 18lb Danforth anchor with 25ft of chain and 150ft of rode is stowed in the Lazarette below the Cockpit.

MOORING BUOYS

The Washington State Park Sticker on this vessel allows you to pick up the mooring buoys in the parks for free. You only need to register at the kiosk on shore.

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

Come up to the buoy 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 slowly approach the buoy, have the crew member holding the boat hook point at the buoy to help guide you. It is usually very difficult to see them as it gets close under the bow.

Hook the buoy and bring the ring up to the boat to allow the second crew member to thread the ring with the line.

Lower the ring and line with the boat hook.

If you are only going to be on buoy for a few hours, you can run the line across the bow of the boat and in through the opposite side hawsehole, and tie off to the chock. If you leave about 10 feet of slack in the line to the buoy, this will help keep the boat from bumping up against the buoy.

If you are planning to be on buoy for a longer period, a better alternative is to loop two lines through the buoy; one from the starboard chock and one from the port chock. This will prevent wear on the line from “sawing” on the metal ring. If you leave about 10 feet of slack in each line to the buoy, this will help keep the boat from bumping up against the buoy.

BARBECUE

Gratitude is equipped with a Magma Chefsmate BBQ which uses standard 1 lb. disposable propane canisters. Note: Propane bottles are not stocked by AYC - you will need to purchase one if extras are not on board.

The propane regulator and propane bottles are either located in a pouch on the flybridge railing or in a bin under the starboard flybridge seats. BBQ tools and lighter are in a mesh bag located in the end locker under the settee in the saloon.

Screw the regulator onto the propane bottle. Attach the propane regulator to the barbecue by turning it (180 degrees or more) until it clicks-in. Always turn or push gently. Once it is clicked-in, it will rotate freely. The propane bottle can be rotated to rest on the outside of the rail for easier temperature control.

To light the BBQ:

- Open lid by turning lock lever counter-clockwise to loosen catch. Once open, turn the lock lever to the locked position so lid doesn't catch closed
- Stick lighter through hole on the left side and light lighter
- Depress valve and turn counter-clockwise to "High"
- Visually confirm ignition

To reduce flare-up:

- Empty and clean grease tray prior to each use
- Trim excess fats from meat
- Use non-oil based marinades
- Reduce heat

Warning: Do not overheat the grill. Magma Grills do not require pre-heating. When grilling on medium-high or high heat, grill with the lid open.

After use, please disconnect the fuel canister from the valve and remove the valve from the BBQ. Please wipe the BBQ down and clean grease tray with a paper towel to prevent grease from soiling the boat. Please replace cover once BBQ is cool to help prevent corrosion.

Caution -- For safety reasons, do not store an opened propane bottle within the salon or engine compartment. Store these bottles in the pouch on the flybridge rail or in the aft deck locker. They have been known to leak slightly once opened and propane gas could settle into low areas, which can be highly dangerous!

CRABBING & FISHING

Do not store crab pots and gear inside the boat, nor on the gelcoat surfaces.

Do not retrieve crab pots from Gratitude as lines can get wrapped around props. CRAB AWAY FROM THE BOAT.

Always check the fishing and crabbing requirements before you leave on your cruise.

You will need a valid Washington fishing license to participate.

Many areas are CLOSED to crabbing and fishing on certain months, read the pamphlet carefully.

Fish-flavored cat food with the pop-up ringed lids work well for a neat and tidy way to bait the ring. After 20-30 minutes, retrieve the crab line and pot quickly.

Measure the crab carapace using a CRAB MEASURING GAUGE located in the aft deck locker.

Boil crabs in seawater, about 12 minutes should do it.

After using, please wash the equipment thoroughly with fresh water (available from the cockpit freshwater faucet).