Operations Manual for

Tollycraft 57’ PH

LUVaLEE

Revision July, 2017

OPERATIONS MANUAL FOR: *"LUVaLEE"* Tollycraft PH570

Welcome to the *"LUVaLEE"!*

We hope you have a very enjoyable and safe trip aboard the ***"LUVaLEE"*** and at your destinations. This manual is provided to assist you in operating the ***"LUVaLEE"*** and all the systems aboard. It is not all inclusive and is not a training manual. This manual is not part of your lease contract in any way.

Please take time to review this manual thoroughly and be sure to ask your checkout person if you want clarification or additional information. NOTE: all safety notices are in RED and you should read all of the Safety notices in this manual at a minimum.

The ultimate responsibility for safety of crew and boat is undertaken by the person who charters the boat. The chartering captain has represented his/her experience, judgment, and skills to be adequate to overcome any errors and/or omissions in this manual and checkout procedures.

This manual provides information necessary for an experienced boater to operate the systems and equipment on "LUVaLEE". It is not a training manual and assumes that the reader has had sufficient experience with similar yachts and systems in the past.
Safety is a top priority in all procedures and when noted should be clearly understood before proceeding. Safety cannot be completely managed by procedures and requires experience and common sense to be achieved.
This manual does not include navigational, weather assessment, or boat handling skill instructions.

As the captain, you are responsible for safety of all crew and the yacht and for understanding all instructions and information in this manual. If you have questions about any of the instructions or information included in this manual or if you encounter situations not included, please call San Juan Yacht Charters 1- 800- 670-8089, for assistance.

IMPORTANT POINTS:

Safety is the most important item in all of the following information and safety considerations will be emphasized. Plan ahead and review procedures to prevent accidents. **Make sure your crew is prepared to assist as needed by training them beforehand how to assist you and tell them what you expect from them.** Always review crew assignments and instructions with your crew before getting under way, docking, and anchoring. Almost anything done without preparation can be high risk for accidents, so take your time, train your crew before they have to perform, and have fun!

Please read this complete manual thoroughly and ask SJYC about anything that is not clear or missing. Reading completely will save you time, money, and risk of injury.

A REQUEST from the Owner

Wearing boat friendly shoes that do not leave black scuff marks and taking extra care when loading and unloading gear will prevent difficult cleanup tasks or damage. The interior is in new condition and any damage will stand out. Your care and consideration are greatly appreciated.
Thank you for your consideration.

1. PRE-START CHECK LIST

Before you operate the vessel for the day, do an inspection of the mechanical systems and the engine room. Any problem is much easier and safer to fix while securely tied up at a dock, or at anchor, than it is while unexpectedly adrift.

A. ENGINE CHECKOUT

1) Turn on engine room breaker on 12 volt panel.

2) Access to the engine room is through the cockpit hatch. The hatch is hydraulically operated with a control switch on the starboard side of the main salon door. The engine room light is on the starboard side of the engine room access door, inside on the wall by the door.

3) Check **oil level** in main engines. Oil level should be close to the FULL mark. If oil covers less than half of the crosshatched mark, add DELO 10w-40 oil up to full. There are funnels under the starboard generator.

4) **Oil filler cap with 'T' screw top, on engine port side top. Unscrew 'T' top and lift it off of the filler tube.**

5) Check **fresh water coolant level** in translucent expansion tanks. They are forward of each engine. They should be full to the indicator line. Add anti-freeze - under forward part of engine - if they are running low.

6) Check for **water in bilge**. There may be some water in the sump. Visually check general condition of belts, hoses and fuel lines for cracks or leaks.

7) Verify through-hull valves for each engine and each generator are open.

8) Check **sea strainers** aft of each engine for obvious obstructions like seaweed. You should be able to see light from a flashlight go through the strainer. There are sea strainers for the engines (2), Aqua air heat pump (1), and generators (2).
To Clean Sea Strainers: Close thru hull valve for sea strainer raw water intake, and remove sea strainer top with brass deck key, remove and clean basket. There is a brass deck key on the aft engine mount on the port engine that should be used to open the strainer top. Re-assemble sea strainer, **open thru hull** and make sure there are no leaks.

Port Engine Strainer with through-hull valve closed.

Heat Pump Strainer forward of port engine.

9) Inspect the primary **Racor fuel filters** aft of the engines and make sure they are clear and do not have water accumulated in the bottom. Inspect by shining the flashlight towards you through the transparent part of the filter housing. There are 2 filters per engine. If water is present, it may be drained out through the valve on the bottom of the filter housing. **BE SURE TO HAVE A CONTAINER READY TO CATCH THE LIQUID!** Clean up any spilled fuel immediately. Wipe off the valve with paper towel and make sure the valve is not dripping after closing.

10) Fuel supply and return valves should always be positioned as shown in this picture. **NOTE: If valves are in a different position it is possible to pump fuel overboard while underway**.

Fuel Routing Valves

Main fuel tank valves in front of each engine. Turn off for all fuel filter changes.

11) Check **transmission fluid** levels. Dip sticks are on the starboard side of each transmission. Re-insert dipsticks and make sure they are firmly in place. This should be done with the engine running and warmed up. Add Delo 100 30wt oil if low.

12) Look for anything else that looks out of place, loose, disconnected, or broken. There should not be any fluids under the engines and the drip pads should be mostly clean. If you notice any significant fluid, identify the source and cleanup or notify SJYC.

B. GENERATOR CHECKOUT

The generator oil and coolant level should be checked prior to departure. Check again after one week of use.

1) Open generator inspection plate, (Port 12KW generator forward panel – Starboard 20KW generator aft panel), by unscrewing the inspection plates.

2) Check oil - dipstick is on generator engine inside inspection plate.

3) Check fresh water coolant in the expansion tank aft of the generator. Add antifreeze if needed.

4) Check generator sea strainer for obvious obstructions. Sea strainer is located forward the generator. Also make sure the through hull valve is open.

5) Re-attach inspection plates and tighten snugly.

6) Note there are no generator gauges. Overheating or low oil pressure will stop the generator. There is an automatic fire suppression extinguisher in each generator inside the cabinet.

To Start Generator

1. Note which generator you want to start. The top 20KW control is for the starboard generator.
2. On the AC panel, only have the AC switch for the chosen generator turned on. Make sure the air-conditioning breaker is off or it may overload the generator and cause it to stall.
3. Hold the preheat switch down for 12 seconds,
4. Push the start switch and release the start switch when the generator starts.
5. Volt meter will show voltage when generator has started.
6. Continue holding the preheat switch for 5 seconds after starting, then release.

IF THE GENERATOR SHUTS DOWN: Check for a closed thru hull valve, low oil, low coolant, or plugged sea strainer. If problems persist, call SJYC.

C. BATTERY CHECK AND MAINTENANCE

House batteries are starboard in the engine room and require water and water level checks. All other batteries on the boat are sealed.
Check water level in house batteries on starboard side of engine room. Distilled water is stored next to the batteries. All battery exterior surfaces should be dry and free of corrosion.

All wire terminals should be tightly fastened. If there is significant corrosion or evidence of failing wires, please notify SJYC.

1) Use rubber gloves to prevent acid burns on your hands. Discard the gloves in a plastic bag to prevent acid getting on other objects.

2) For all batteries that need water, add distilled water (using the black battery filler and flashlight) until the water comes up to touch the bottom of the split ring. Wipe up all excess water that spills using a paper towel and make sure to dispose of the paper towel in a plastic bag.

   Generators have their own dedicated sealed battery located aft of the generator.
   The bow thruster and inverter share sealed batteries. Those batteries are located under the forward berth.

2. FUEL and WATER GUAGE

It is recommended that you measure and record fuel levels at the beginning of your trip. The 'Tank Tender' measures pressure in tanks and translates the measurement into vertical inches of liquid. There are different scales for diesel and for water because they have different densities.

To operate:

Press and hold the tank button and gently pull out the pump button and gently push it in once or twice. That will cause the indicator to go up and settle on a number on the scale. The number indicates how many inches of liquid are in that tank. If a full tank is known to be 30 inches and the indicator is at 15 inches, the tank is 15/30 or ½ full.

Tank 1 – 500gal fuel full = 38
Tank 2 – 500gal fuel full = 38
Tank 3 – 100gal fuel full = 36 - Normally empty

Tank 4 – 100gal fuel full = 36 = Use only in an emergency.

Tank 5 – 300gal Water full = 30

Fuel Inches	Gallons Remaining	% full
38	500	100.0%
30	417	83.3%
24	333	66.7%
16	222	44.4%
8	111	22.2%
4	56	11.1%

3. STARTING and STOPPING MAIN ENGINES

After your engine room check, you are ready to start main engines.

1

2

3, 4 & 5

NOTE: The ignition KEY is inserted in the main 12V power panel. (Photo 1)

1. Turn key to on.
2. Make sure engine control levers are in vertical neutral position. At the base of the engine control levers push the station transfer switch to select the station and turn off the warning buzzer. (Photo 2)
3. On the port switch panel, turn on the ignition switch.
4. Press the Port Start switch to start the engine. Engine should start within 3 seconds.
5. Press the Starboard Start switch to start the engine. Engine should start within 3 seconds.
6. Make sure temperature gauges show above 110 before increasing RPM. Running underway with cold engines can more than double fuel consumption and can increase chances of engine problems.

ENGINE SLOWDOWN AND SHUTDOWN

1) **VERY IMPORTANT: When running at cruising speeds, avoid suddenly dropping engine speed to idle. Gradually reduce speed over a minute or more. Rapid changes in RPM can cause rapid temperature changes in the engine and exhaust system which can cause engine problems.**
After cruising over 12kts, let engines idle for at least 5 minutes to cool down the turbos and fully lubricate the engine. Do not shut the engines down immediately after running

at higher cruising speeds. Cooling down will also help to avoid coolant boil-over and vapor locks in the fuel line due to overheating.

2) To turn off each engine, Press and hold down the Stop button for that engine. Once engines have stopped, turn off ignition switch **and ignition key at power panel. There is no warning buzzer that the ignition key is on.**

4. ELECTRICAL SYSTEM:

A. 120 VOLT SYSTEM

120 Volt electricity is used to run TV/VCRs, air conditioning, electric heat, microwave, wall outlets, etc.

- The 120 volt system breakers are on the right half of the electrical panel console.
- 120 volt power can be obtained from three sources.
    a. shore power
    b. generator
    c. inverter

Switches set for shore power 1 and transfer switch on which routes power to load group 1 and 2. Meter set to group 1.
Note total current used is the combination of current 1 and current 2.

The transfer switch provides power to both load groups. Regardless of source.

B. SHORE POWER

Special Considerations: Care should be taken not to exceed the shore power available. This vessel can exceed the dock's power capacity even when connected to 250V/50A power. **NOTE:** You cannot use all 120V circuits and electrical items with only one 30 amp source. It will pop the shore power circuit breaker on the dock. Check the ammeter on the power panel to see how much power you are using. Add current from group 1 and 2 for total current draw. You may have to alternate between electric cook-top, water heater, and battery chargers in order to avoid popping the shore power breaker.

Using the Aqua Air heat pump requires running a generator. 50A shore power will not support the heat pump. See the section about heating and air conditioning.

C. GENERATOR STARTING AND USE

Caution: Never run more than one generator at a time.
When shore power is unavailable, either generator can fully power the boat. You may need to run the generator for at least an hour every day when you have not been connected to shore power to charge all the batteries. Monitor the battery voltage levels to determine how long to run the generator. Either generator may be run while the boat is underway.

AC Power Panel Routing switches
Showing setup for Shore Power 1 to Load group
1 and 2. The top switch switches the voltage and current meters between load groups.

Prior to starting the generator, set green buttons as follows:

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Go to 120V Power Panel:

1. To start generator, **first turn off ALL 120 breakers** and press green selector switch Generator 1 for 20 KW Starboard Generator or Generator 2 for 12 KW Port Generator.

2. Press pre-heat switch next to generator start switch for 12 seconds.

3. **After the pre-heat switch is depressed 12 seconds**, press the generator start switch to start and continue to hold the pre-heat switch down for 5 seconds after the generator starts running. **NOTE**: Watch the voltage meter to see when the generator has started.

4. When a cold generator begins to run, it must warm up for at least 2 minutes before adding a load. Starting the generator with a load or adding a load too soon may cause the generator to stop.

5. After the 2 minute warm up, switch on desired 120 volt circuits.

6. Avoid running generator for less than 20 minutes from a cold start.

7. To turn off generator, turn off all 120V breakers. Press and hold the stop switch and wait until you hear the generator shut down or see the voltage meter drop to zero.

D. INVERTER – 2400 Watt 110v Power

NOTE: The inverter system is setup to be totally automatic and should not need any settings changed. 120 volt power can be provided by the inverter which uses 24 volt battery power to make 120 volt AC current. 120 volt power is very limited with the inverter because it comes

from a limited source. You cannot run high use devices like space heaters, hair dryers, waffle irons, at the same time or for any combined length of time. It will drain the batteries to the point of inverter shutdown.

The inverter's best use is to provide low wattage, or intermittent 120 volt power during an evening to save the generator from constant short start-ups and shut downs.
The inverter can usually run the refrigerator 8 hours over night if nothing else is running.

NO SETTINGS SHOULD BE CHANGED ON THE INVERTER CONTROL PANEL.

To operate the inverter:

1. The inverter breaker should be always on. No other action is required.
2. The inverter is operated by the remote panel to the right of the electrical panel. The inverter is normally on all the time and does not need intervention. Do not make any changes unless directed by SJYC.
3. The inverter will power the 120v AC outlets in the galley and master cabin. It will also run the icemaker, galley refrigerator, and the microwave. **It will not power the stove or hot water heater. 50A** Shore power or generator is needed for those appliances.

E. ELECTRIC WATER HEATER

Electric water heater runs off of 120 volt system. The circuit breaker is on the 120 volt panel. ***VERY IMPORTANT:*** Do not use the electric water heater if the water tanks are very low or if they run dry. The **electric element will always burn out** if the tank has no water.

F. 12 VOLT SYSTEM - House Batteries

The 12-volt system runs the electrical systems necessary to operate the vessel. Bilge pumps, water pumps, electric toilets, navigation lights, house lights, electronics, etc. are 12 volt systems.

- For safety, Windlass Control breaker should be OFF except when using the windlass. Holding Tank Pump should be OFF.

G. POWER PANEL 120V SWITCHES

The power panel has 6 green buttons for controlling 120V sources and destinations.

1. Shore Power via retractable 50A power cord or 30A with an adapter.
2. Shore Power via #2 shore power inlet: NOT USED.
3. Generator 1:
4. Generator 2:

H. BATTERY CHARGERS

There are several battery chargers setup for automatic charging. No setting changes are needed for charging batteries.

I. DEAD BATTERIES

In case batteries are drained to the point they will not start engines, start a generator (they have their own isolated starting battery) and run for at least one hour before attempting to start engines again. Make sure the power is properly switched so that the chargers receive power. For the start batteries, check the charger which is on the port side above the 12KW generator. Make sure the charger's breaker is in on position - not sticking out.

5. MARINE HEADS AND HOLDING TANK

This vessel has two heads, each with an electric vacuum toilet. It has one holding tank (140 Gallons) with a capacity indicator aft of the power panel. The 'HOLDING TANK' breaker turns on the capacity indicator. **NOTE**: the tank indicator lights are not always reliable but anytime the full light is lit the holding tank must be emptied before further toilet use.

A. ELECTRIC VACU-FLUSH TOILETS

It is critical that every member of the crew be informed regarding the proper use of marine toilets. **NEVER** dispose of paper towels, tampons, Kleenex, sanitary napkins**, household toilet tissue** undigested food, etc., in the marine toilets. In the event of seasickness, DO NOT USE THE MARINE TOILETS. The valves, openings and pumps are extremely small and will clog very easily. A clogged toilet can be very expensive to repair, leave a huge mess and potentially ruin a vacation. NOTE: Kleenex, paper towel, ordinary household toilet tissue, and other tissue will always clog the system.

1) To operate electric toilets, make sure the **AFT Cabin Toilet** and **FWD Cabin Toilet** 12volt breakers are on at the power panel. There is also a power switch in each head for that toilet. The power switch in the head may be turned off if the vacuum pump cycles on its own. Especially useful at night.

2) The fresh water pump breaker must be on to supply the toilets with fresh water.

3) To flush, step on the foot pedal until empty and release the pedal from the floor to rise to the stop position.
4) When you flush you will hear the vacuum pump run for 40-60 seconds for normal operation.

5) If the vacuum pump runs longer or starts by itself between uses, **lift the foot pedal slightly to add water to the bowl and improve the vacuum seal in the toilet. Make sure the water flow stops before you leave the head.**

6) If a seal is leaking or the pedal has not been brought to its closed position, the vacuum pump will run periodically. Each head has a switch that turns off the vacuum pump. You may want to turn off the pump at night if it runs intermittently. This should be reported to SJYC upon return.

B. Showers & Sumps

Each shower has a European style water temperature and pressure control. Once set, you only need to turn on the water and it will stay at the set temperature. Each knob has a push button that allows the safe heat and flow to be exceeded. Please to not go beyond set limits. The hot water can be hot enough to cause serious burns.

Each shower has a sump pump that needs to be turned on at the main power panel. If the shower is used without the sump pump, the shower water will end up in the bilges and be pumped out by the bilge pumps. Shower water in the bilges can get smelly, so please make sure the sump pumps are used.

Each head has an exhaust fan. Do not leave running for long periods of time and avoid excessive battery drain.

C. Overboard Discharge VALVE

There is a valve to pump the effluent from the holding tank overboard. **BE SURE** you are familiar with applicable laws concerning use of holding tanks and dumping of sewage overboard. You are personally responsible for compliance with discharge laws. (NOTE: Anchorages and harbors are never places to dump sewage and you must use the holding tank.)

Best practice for managing the holding tank is to only dump underway **WHERE IT IS LEGAL**. Do not pollute harbors or anchorages even if they are isolated.
The pump overboard valve is in the pump room under the bunk room, on the port side.

D. HOLDING TANK

The holding tank is located on the aft side of the forward lazarett. It holds approximately 140 gallons.

IMPORTANT: You must be mindful of the extent of your crew's use of the holding tank. The tank capacity lights located aft of the power panel are approximate measures as they can be influenced by rocking and changes in boat attitude underway.

NEVER overfill the holding tank. One sign of a full tank is discharge on the port side whenever a toilet is flushed. (It will leave a dirty streak on the side of the hull) It is possible to break a

hose, clog the overflow vent, or burst the tank if it is used when it is full. The result is an indescribable unpleasant catastrophe for the whole crew and a costly repair bill.

Pumping out the holding tank is done one of two ways. There is a deck pump out port on the port side front deck for use with marina pump out stations. The contents of the holding tank can be pumped overboard with the macerator in appropriate areas. (NOTE: Anchorages and harbors are never legal places for dumping.)
To operate macerator:

1. **MAKE SURE THROUGH-HULL VALVE FOR MACERATOR IS OPEN WHEN PUMPING OVERBOARD. THIS VALVE IS REQUIRED TO BE SECURELY CLOSED IN U.S. WATERS. YOU MAY BE FINED BY THE US COAST GUARD IF THE THROUGH-HULL IS OPEN IN U.S. WATERS!**

2. Turn on macerator circuit breaker on 12 volt panel. It is marked “holding tank pump.”

3. Listen carefully for macerator’s operation. When pitch of motor goes high, discontinue operation.

4. **NEVER** run macerator when holding tank is empty or pump may burnout.

6. GALLEY

A. STOVE TOP

The stove top is powered by the breaker on the 110volt panel. You must have 50 amp shore power or the generator running to operate the stove top.

B. MICROWAVE AND APPLIANCES

The microwave is connected to the power inverter. An instruction book for use is in a galley drawer.
Coffee Maker, waffle iron, toaster, and other electrical appliances may be plugged into the power outlets in the galley that are powered by the battery inverter**. Use care when using multiple devices simultaneously** as the breaker may pop or inverter power may turn off due to over use.
Galley Crew Note: The coffee maker uses one coffee measure of coffee for each 2 cups of water shown on the coffee maker for “Seattle Standard Coffee”; or moderately heavy coffee.

Note the sink discharges directly into the water. Coffee grounds should not be dumped into the sink.

C. Refrigerator Freezer

The refrigerator freezer is 120V only and runs off the inverter batteries when not on shore or generator power.

Bar B Q Grill

The grill propane is located under the grill and should be off unless in use. The 120V TV /VCR breaker must be on in order to use the grill. There is also a backup propane tank under the grill. Do not run an empty grill on high flames. The grates will overheat and warp.

DO NOT BOIL CRABS on the bbq grill. Salt water will seriously corrode the grill. Use the portable heater stored in the cockpit starboard cabinet. Never use the portable heater when the boat is underway or rocking. Using it on a dock is highly recommended. The portable heater uses a standard propane tank which you can remove from under the grill.

7. HEATING AND AIR CONDITIONING

A. AQUA AIR HEAT/AC

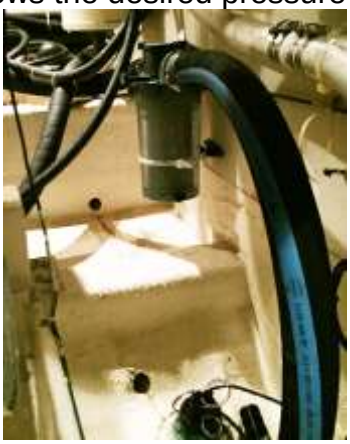
NOTE: Individual air handlers may be used for air circulation without using the heat pump. For example, in most situations running the salon air handler will cool the salon without the heat pump on.

The heating and air conditioning system uses considerable 110v AC current even though it is an efficient heat pump. You will need to use either generator when running this system. Make sure you give the generator at least 5 minutes to warm up before using it for this heavy electrical load. When running, the heat pump will intake water and exhaust it under the port boarding platform. You will see a large stream of water flowing out of the boat when the system is running.

The breakers for the heating and air conditioning are in the 110v panel. Each zone has its own set of controls to set temperature and control fan speed. Operation requires the compressor breaker to be on. Control switches at the heat pump need to be set to SYSTEM ON and MODE - HEAT or COOL.

The water valve above the control switches is used to provide additional water to the system if needed. A gauge over the pressure tank shows the desired pressure range to be maintained.

Heat Pump water supply valve



Raw water supply through hull

MAKE SURE HEAT PUMP THROUGH HULL VALVE (forward of the port engine) IS OPEN AND STRAINER IS CLEAR BEFORE OPERATING! Check to make sure water is coming out under the port side boarding platform when heat pump is running. If not, the intake strainers may be plugged.
When the system water temperature reaches operating temperature, the heaters in each cabin can be controlled by individual thermostats.
The solon heater is controlled by the thermostat and switch located by the salon starboard storage cabinet.
The pilot house heater is controlled by a thermostat under the engine switch panel.

8. USE OF AUTOPILOT –

***WARNING*:** IF AUTOPILOT IS ENGAGED, A QUALIFIED HELMSMAN MUST ALWAYS MANAGE THE HELM STATION. WHEN THE BOAT IS UNDERWAY, VIGILANCE MUST BE MAINTAINED REGARDING THE CONDITION OF THE SEA AHEAD. AUTOPILOT WILL NOT AVOID COLLISION WITH FLOATING DEBRIS OR SOLID GROUND.

***WARNING*:** DO NOT USE AUTOPILOT AROUND BRIDGES, IN HARBORS, OR NEAR LARGE SHIPS. MAGNETIC INTERFERENCE MAY CAUSE HOMING INTO TO THE METAL OBJECT!

***WARNING*:** THE AUTOPILOT OVERRIDES STEERING AT THE HELM. AUTOPILOT MUST BE PLACED IN STANDBY OR TURNED OFF IN ORDER TO CONTROL STEERAGE.

9. USE OF GPS

GPS systems are considered navigational aids. Feel free to use them but do not rely on them. There is an operator's guide in the boat's manuals. The compass, charts, dividers, etc., are considered navigational tools. You must be constantly aware of your position, course and speed using the navigational tools. Electrical, operational, or software problems can render electronic navigational aids unreliable or inoperable.

10. Windshield Wipers

Windshield wipers are controlled individually by switches on the port side of the helm. There is also a breaker on the power panel for the wipers.

11. Windshield Defogging Fans

Fans to clear fog from the windshields are turned on with a power panel breaker and Defrost switch on the port side of the helm.

12. RADAR - .125 – 75 nm range

Please refer to the Furuno Operator's Guide for more details.

NOTE: RADAR IS NOT A SUBSTITUTE FOR VISIBILITY AND CANNOT DISPLAY ALL OBSTACLES OR DANGERS. (Example: it is impossible for radar to see the cable between a tug and its tow a quarter mile away. You could get hung up on the tow cable by going between the two on radar guidance by not realizing they are connected.) Only use radar for supplemental information. If you have no visibility you are in a dangerous situation – even with GPS and radar!

13. Remote control Spotlight

The spotlight is in a fixed position. You should not be in a situation that requires a spotlight since running the boat in darkness is not allowed.

14. GENERAL VESSEL OPERATION

Always operate the vessel from the helm station that provides sufficient visibility given your course, speed and sea conditions. During docking maneuvers that require backing, there is little visibility astern from the helm or pilot house. It is best to center the wheel (See Auto Pilot for Rudder Angle) and use only the engines and bow thruster to maneuver the boat backwards at very slow speeds. It is extremely important that the trim tabs be in the full up position (bow-up) whenever the boat is maneuvered for docking. Make certain engine control levers are vertical in neutral before selecting that station.

When planning a day's passage, it is good to have an alternative plan and routes in the event of inclement weather, crew preference, etc.

It is a good idea to refuel before the tanks reach 1/4 full. One reason is so that you are not searching for fuel with dangerously low tanks. Another reason is to prevent excessive stirring any sediment that may be in fuel tanks, which could enter fuel lines and prematurely clog the fuel filters.

Getting underway

1. Gather crew together and make sure they are trained and capable for their departure assignment. Review the sequence of events and your strategy for departure. This is especially important if it is windy or there are strong currents.
2. Remove canvas as required to have full access to the flying bridge controls and stow. **STOW ALL LOOSE CANVAS. IT CAN EASILY BE BLOWN OUT OF THE FLYBRIDGE OR DINGHY.**
3. **FRONT DECK CUSHIONS/TOWELS, CLOTHING, CAN BLOW OFF IF NOT SECURED.**
4. Disconnect shore power and stow power cable. DO NOT LEAVE EXTENSION CABLES OR ADAPTORS ON THE DOCK!
5. If towing a dinghy, secure alongside or astern and pad well with fenders.
6. Turn on all electronics and bridge breakers.
7. Start engines and warm up to operating temperature. (depending on wind direction, you may want to close the salon doors to keep exhaust fumes out)
8. Get charts and electronics setup for departure.

9. Get crew to assigned positions and verify they are ready.
10. Headcount to make sure everyone is aboard.
11. Release lines, weigh anchor, release float line, etc. per your directions to crew.
12. While slowly underway, stow fenders on upper deck by dinghy cradle, stow lines, check for anything that might fall or blow off the boat.
13. If towing dinghy, stop when convenient to move dinghy to towing position.
14. Verify your position and desired direction on the charts.
15. Verify that engines are up to operational temperature before slowly accelerating to desired cruising speed.
16. **Have a great and safe trip!**

15. WINDLASS AND ANCHOR

The anchor windlass uses a large amount of electrical power (90-120 amps). It is always best to have main engines running when operating the windlass so you retain control of the boat and minimize battery drain.

NOTE: The Windlass is a powerful machine and can be dangerous to use. Make sure all crew operating the windlass have been trained how to operate it and to stay out of harm's way. ALWAYS lift the anchor very slowly over the roller.
Windlass controls are at both helms and at the windlass. Controls at the helms should only be used in emergencies where a crew person is not available to run the windlass from the deck. It is highly recommended the deck controls at the windlass be used in order to manage the angle of retrieval (always vertical retrieval) and to make sure the anchor does not swing into the boat. Ensure the anchor is secured with a safety line before getting under way.


Windlass

A. Setting Anchor

CREW NOTE: The skipper will signal when to drop the anchor. Make sure the chain dog is flat to allow the chain out. Start with a few taps on the windlass deck switch to let the

anchor roll off slowly and without suddenly dropping. Once the anchor is hanging vertical, you can step on the deck switch and release as much chain as the skipper requests. Chain Marks: There are green rope markers every 50 feet of chain. YELLOW =400 THE END! Do not go past the YELLOW marker.

1. Make sure the crew setting anchor has been trained in using the windlass and anchor and knows what you expect them to do.
2. Turn on the lower windlass breaker.
3. Always use proper anchoring procedures when anchoring. (See Chapman's)
4. Bring boat to complete stop before lowering anchor.
5. Pay out sufficient scope before setting anchor. ALLOW SCOPE FOR HIGHER WINDS DURING YOUR STAY. There is only enough anchor chain (400') to anchor in 80' of water or less with a 5:1 scope. Know how much the tide will change while anchored. **CAUTION**: Review the copy of Chapman's onboard if you need to review the correct anchor setting procedure or the amount of scope to use. Be Safe! Drifting in the middle of the night is unpleasant at best and always very dangerous.
6. Be sure you do not allow Luvalee to ride at anchor directly against the windlass. Properly snub the anchor rode using a chain hook and line attached to the deck cleats. There should be at least 1' of loose chain hanging below the snubber hook. This will take pressure off of the windlass by securing the line to the forward cleats. (Half inch line with galvanized hook in Lazarette.)
7. Monitor vessel's position periodically after setting anchor to see that the anchor remains set. This is important because the wind and currents both change constantly.
8. NOTE: If snubbing line is not used on the anchor chain, it will make a snapping noise when winds swing the boat. (This will be heard most clearly in the middle of the night when it is dark and cold and wet on the bow)

B. Weighing Anchor

CREW NOTE: You will be signaling the skipper which direction to move in order to retrieve the anchor. The objective is to always have the chain vertical when retrieving. NEVER allow the boat to run over the chain, or pull the boat with the windlass.
Do not force a stuck anchor with the windlass. It will pop the breaker or damage the windlass or anchor. If the windlass strains or stalls, wait ten seconds and try again. Often this will let the anchor pull free. If this does not work, notify the skipper. Consult Chapman's for suggestions.

1. Make sure the crew weighing anchor has been trained in using the windlass and knows what you expect them to do.
2. Always start main engines before you begin to weigh anchor. Do not pull the boat with the windlass – this could cause the windlass to fail and require manual (read painful) retrieval. Keep the chain vertical when raising the anchor. This will minimize windlass strain and anchor swinging.
3. Care should be taken that anchor does not swing into bow.
4. Stop the windlass when the anchor shank reaches the roller. Make sure the anchor is aligned to have the point towards the bow. Carefully raise the anchor shank over the roller until the chain is snug. Engage the ratchet on the windlass to prevent the anchor from

releasing unexpectedly, position the chain dog to hold the chain and secure with a safety line.
5. When finished with windlass, turn off breaker at panel.

C. Windlass Emergency Procedures

1. If the windlass is slipping without taking up chain, the clutch must be tightened. The lever for tightening the clutch is a 1”x1/4”x 18” aluminum bar with a steel pin on one end, stored under the main power panel.
2. Insert the lever in one of the slots near the top of the windlass and tighten clockwise.
1. If the windlass fails, the clutch lever may be used to bring up the anchor.
2. First, set the chain dog to keep the chain from going out.
3. Using the clutch bar, release the clutch by turning counter clockwise.
4. Insert the clutch bar into the lower slot with the pin end inserted pin up.
5. Engage pin on chain gear and pull clockwise as far as possible. Make sure the chain dog is holding and re-engage the pin again and pull.
6. This works best if at least 2 people trade off pulling and one making sure the chain dog is held in place. (As you can imagine, this is not an easy recovery but better than using brute force to pull the chain and anchor up! It could be over 250 pounds dead weight.)

16. Dinghy and Davit Operation

This section also applies in most part to hoisting any dinghy to or from the fly bridge.
Hoist operation requires 2 people to safely manage the operation.

- **The Davit hoist is heavy machinery and is inherently dangerous. All precautions must be followed to avoid serious damage and/or injury.**
- ***Make sure your crew knows exactly what you want them to do and not to do before you start!***
- **Never allow passengers to be in the Dinghy when it is being hoisted or lowered.**
- **Never allow anybody to be directly underneath the Dinghy when it is being hoisted or lowered.**
- **Only use the hoist in calm water. DO NOT hoist the Dinghy up or down while Luvalee is rocking. Survey surrounding water to make sure there are no waves headed your direction. When swinging, the dinghy can crush someone or end up in the salon.**

A. OFF-LOADING DINGHY

Preparation

1. Get hoist control cable out of storage area located under the bridge bar. Connect control cable to fitting on aft side of bridge seating.
2. Turn on Dinghy power breaker in main panel.
3. Verify that the lifting harness is connected, free, and ready for hoisting. Remove any twists before proceeding.
4. Make sure dinghy stern and bow lines are available for the crew to guide the dinghy during transit.
5. Make sure all harness cables are free and connectors closed. Unfasten all hold down lines.
6. On the port side of Luvalee make sure at least 2 of the large black fenders are in position to fend off the dinghy when it is in the water.

Off-Loading

1. There are 3 plugs for the dinghy: 1 for the forward compartment; 1 for the floor under the steering wheel; and 1 for the transom. Make sure all 3 are in place.
2. Attach lifting harness making sure it is not twisted or caught on anything.
3. Push CABLE OUT button to allow the lifting hook to be released from the keeper.
4. Push Hoist UP button until hoist is at an up angle of nearly 75 degrees. Like /
5. Push boom LEFT/RIGHT button until hoist cable is over Dinghy lift ring. Have someone hold onto the weight & ring until it can be attached to the lifting harness. Be careful weight does not swing into people or dinghy.
6. Lower CABLE OUT until hook can be attached to the harness lift ring. Attach the hook to the ring. All 3 cables should slide to the bottom of the ring before hoisting. **Adjust boom position to put the cable in a vertical position before lifting. Failure to do this will cause unexpected results when the dinghy leaves the cradle. Make a note of the boom position both vertical and horizontal. This is the same position you will use to lower the dinghy onto the cradle.**
7. Untie all lines securing the dinghy to the cradle.
8. Attach a line to the bow and transom of the dinghy to be managed by an assistant on the upper deck of Luvalee. Remind the person to stay clear! The crew will use the lines to guide the dinghy's descent and to tie the dinghy when it gets to the water.
9. Make sure the cable remains vertical while lifting the dinghy. Adjust the hoist left/right, up/down to put the cable in vertical position. THIS ALIGNMENT MUST BE DONE

BEFORE LIFTING THE DINGHY COMPLETELY OFF THE CRADLE TO PREVENT DAMAGE OR INJURY.

10. Once aligned, push the CABLE IN button to lift the dinghy 2-3 inches to verify the cable is in the right position. If the dinghy moves in a direction other than up, adjust the hoist position. When properly aligned, continue to raise the dinghy using the CABLE IN until it is free of the cradle.
11. When free, the dinghy should hang level. If not, adjust number of chain links on bow cable or relocate objects in the dinghy.
12. Raise CABLE IN until the dinghy is clear of the cradle about 1 foot.
13. Rotate the boom RIGHT until the dinghy is parallel to the PORT side of Luvalee. IF the dinghy starts to swing, stop until it is steady. Use the two attached lines to keep the dinghy from spinning.
14. Lower the boom to level to get dinghy away from the boat and then push CABLE OUT until the dinghy is in the water.
15. Once the dinghy is on the water, have your crew tie it to Luvalee and make sure fenders are between the Whaler and Luvalee.
16. Lower the cable until your assistant can release the harness from the hoist cable. IMMEDIATELY raise the hoist CABLE IN until the cable weight is within 3 feet of the boom. Do not let the cable and weight swing free. The cable, boat, or crew, can be damaged by it swinging. Rotate the boom to its original stored position. Re-attach the hook to the hook keeper.
17. NOTE: THE BOOM WILL ROTATE TO A STOP POSITION WHEN POINTED TOWARD THE BOATS BOW. IT WILL NOT GO PAST THIS POINT AND IF FORCED MAY BECOME LOCKED IN THAT POSITION.

To operate the dinghy, see Starting the Motor below.

B. Loading DINGHY

No heavy gear or people should be in the Whaler when it is being moved on or off Luvalee. Excess gear could overload the hoist or cause failure.

The hoist is heavy machinery and is inherently dangerous. All precautions must be followed to avoid damage and/or serious injury. *Make sure your crew knows exactly what you want them to do and not to do before you start loading!*
Never allow passengers to be in the dinghy when it is being hoisted.
Never allow anybody to be directly underneath the dinghy when it is being hoisted.
Only use the hoist in calm water. *DO NOT* hoist the dinghy up or down while Luvalee is rocking. Survey water for incoming boat wakes before hoisting.

Preparation

1. Remove all loose gear from the dinghy
2. **Tie the dinghy to Luvalee's port side with the bow of the dinghy facing towards the stern of Luvalee.**
3. Attach the harness. Make sure all 3 cables are running free and all connectors are closed.
4. Raise the outboard motor out of the water with the tilt switch.
5. Position your crew in the dinghy to hookup the hoist cable hook on the ring. **Place hook on the ring between the front harness cable and the back cables.**

Loading - Be aware the hoist boom may hit the antenna arch or rack structure and cause damage. Keep an eye on the boom as well as the dinghy.

1. Release the Hoist cable hook from the keeper.
2. Rotate the hoist until it is over the dinghy lift ring and lower boom to level.
3. Lower the CABLE OUT until your crew can connect it to the lift ring.
4. Connect the cable hook to the ring.
5. Raise hoist cable until harness cables are taut. Adjust the cables on the hoist ring so the cables are all on the bottom of the ring and together. Verify all cables are free. Assistants hold the dinghy bow and transom lines in order to guide the dinghy during on-loading process. Untie all lines attaching the dinghy to Luvalee.
6. Raise the hoist cable until the dinghy is out of the water. The dinghy should ride level or you will need to relocate gear or drain excess water.
7. Raise the dinghy with the **CABLE IN** until the cable weight is **raised to NO CLOSER than 2 feet from the hoist tip**.
8. Raise the boom to about a 75 degree angle. Rotate boom to cradle. At that point, your assistant should swing the bow of the dinghy into position to go on the cradle.
9. Rotate LEFT until the dinghy is positioned above the cradle. Lower the boom and cable as necessary to align the dinghy with the cradle. Be sure the engine will not touch the deck when the dinghy is lowered.
10. Lower the Whaler until the harness is slack enough to remove the cable hook. Remove the hook and hold onto the hook while rotating the hoist back to its storage position
11. Tie down the dinghy securely even for a short transit! Tie the bow to the deck and secure a line across the gunnels to the cradle.
12. Lower the boom until it stops. Press CABLE OUT so the hook can be attached to the keeper. Only put enough pressure on the hook with CABLE IN to keep the weight from rocking.
13. Remove the hoist controller cable (it is not waterproof). Disconnect the plug, screw on the plug cover, and put the control back in the storage cabinet.

C. Operating Dinghy

Before taking off:

1. Make sure each passenger has a lifejacket available on the dinghy. **Washington State law: Kids under age 12 must be wearing their lifejackets at all times when in the dinghy.**
2. Check level of gas in gas tank by looking at sight gauge on top of tank.
3. Secure all loose baggage, charts, and clothing. The wind pattern underway will blow most light objects out of the boat.
4. Make sure all lines are secured in a way to keep them from falling overboard and getting into the prop. Especially the bow line.
5. Make sure the motor is lowered and pointed straight back. There is an up and down switch on the gear shift and also on the motor.
6. Open breather screw on gas tank. Pump squeeze pump until it is firm.
7. The motor has an electric starter and choke and starts with a key.
8. Make sure all passengers are sitting down before getting underway.
9. Pull all fenders and lines into the boat.
10. Even if you are in familiar waters, keep your eye on the chart and the depth sounder. There are many rocks and reefs in the northwest waters.

D. Towing Dinghy

Caution: Mind the tow line to prevent catching it in the propellers.

1. Before towing, tie down or remove all lightweight gear to keep it from blowing out of the dinghy. This includes all life jackets, clothing, empty ice chests, etc.
2. Pull all fenders out of the water.
3. Raise motor out of the water to reduce drag and prevent damage from debris.
4. Attach towing harness to Luvalee (use moorage line between aft cleats as harness.)
5. Attach tow line to bow ring of dinghy.
6. Attach other end of tow line to towing harness.
7. Assign one crew member keep line straight and untangled while slowly pulling away from the dinghy. Tangles or knots put under high pressure are impossible to remove and will require tow line replacement. Once the line is tight and free of tangles and knots, you may increase speed.
8. When underway the dinghy should ride between stern waves and track straight. It should not be riding up or down a swell or swerving from side to side. Take note of how much line to pull in or let out, stop Luvalee, and make adjustments.
9. ADJUSTING THE TOW LINE WHILE UNDERWAY IS DANGEROUS TO HANDS AND FINGERS AND CAN BREAK OR WEAKEN THE LINE!

When approaching anchoring or docking destination:

Best practice is to secure the dinghy alongside Luvalee near the stern, tie across the stern, or detach and send it ahead with a crew member. DO NOT TOW INTO A HARBOR OR ANCHORAGE.Stop Luvalee and pull the dinghy by hand alongside with adequate fenders between Luvalee and dinghy.
Untie and send a crew member with the dinghy to the dock or:
Secure tow line.
Secure the dinghy bow line and stern line.
Proceed to anchor or dock with dinghy secured.

17. Stereo, CD Changer, TV /VCr, Washer/dryer

Stereo

TV/DVD

The video screen is only for DVD movies.

18. Washer/Dryer

The washer/dryer is limited in capacity and is best for small loads of clothing. It cannot handle overloading with towels or bedding. Make sure the basket is only 2/3rds full of clothes when starting a load. Instructions for using the washer/dryer are in the Luvalee manual box.
Running the washer/dryer requires running the generator. Water valves for the washer/dryer are in the forward lazarette and are always on.
NEVER RUN WASHER WITHOUT BEING ONBOARD. If a valve were to stick it will drain your water supply. (This has happened once)

19. BOW THRUSTER

In order to use the bow thruster, the bow thruster breaker must be turned on.
Turn the switch in the direction you want to go. Note that extensive use of the bow thruster may overheat and shut it down. Use it in short bursts as needed to move the bow.

20. STABILIZER

The stabilizer is enabled when the 'electronics' breaker is turned on. Press the switch to 'Center' to activate the system. It may take 5 minutes for the system to warm up to operating temperature. Switch to 'ON' to engage the stabilizer.

PERFORMANCE CHART

PMY TEST RESULTS

Engines: 2/800-hp Caterpillar 3408 diesel inboards; **Transmission:** ZF; **Ratio:** 2.07:1; **Props:** 34"x34" Michigan Nibral; **Steering:** power-assisted Hynautic; **Controls:** Microcommander; **Trim tabs:** Bennett; **Optional equipment:** Teak or white ash interior wood; bow thruster; cockpit controls; Naiad stabilizers; trolling valves w/Microcommander controls; Onan 12.5-kW genset; customized cockpit package: refrigerator, freezer, icemaker, livewell, and stowage cabinets; electronics package

RPM	MPH	KNOTS	GPH	MPG	RANGE	DECIBELS
650	8.85	7.69	2.0	4.43	4660	62
1000	12.65	10.99	8.0	1.58	1665	66
1250	15.95	13.85	14.0	1.14	1200	68
1500	**16.85**	**14.64**	**26.0**	**0.65**	**682**	**70**
1750	19.20	16.68	34.0	0.56	595	71
2000	24.75	21.50	56.0	0.44	465	72
2250	27.20	23.63	72.0	0.38	398	74
2300	29.05	25.23	80.0	0.36	382	74

Temp.: 62°; humidity: 70%; wind: 15 knots; seas: 2-4 feet; load: ¾ fuel, full water, 3 persons, light gear. Speeds are two-way averages, measured w/radar gun. GPH measured w/Caterpillar Engine Monitoring System. Range: 90% of advertised capacity. Decibels measured at the helm on A scale. 60 dB is the level of normal conversation.