OPERATIONS MANUAL

A Lil' R & R

42' Catalina

Welcome aboard!

Thank you for chartering **A Lil R & R** for your vacation**. A Lil R & R** is your boat for the next few days or weeks; please treat her with the care you would your own boat.

This manual will help you become familiar with the boat. If any concerns arise, please let your charter representative know.

A Lil R & R is a No Smoking yacht.

Enjoy your time aboard and we hope to see you again next year!

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BOAT OPERATION

Daily Inspection

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

Access to the engine room is via the companionway stairs. Please be careful when handling the stairs as they are heavy and can easily scratch the teak sole. With the companionway removed, a small pull rod located on the port side of the engine room will turn on the light in the engine room, as long as the port side light breaker on the electrical panel is also engaged.

Check the level of WATER COOLANT in the expansion tank. The expansion tank on the front of the engine should be checked (engine off and cold) every day to ensure that the coolant level is within 1/2" of the max. Top off with a 50/50 mixture of coolant/water. You will find coolant stored in the engine room, in a cavity beneath the companionway stairs.

The OIL level must be checked each morning before you start the engine. There is a dipstick located on the Starboard side of the engine. Proper indication on the dipstick is when the oil level is at the upper mark on the dipstick. If you add oil make sure you do not over fill. Only add oil if you are more than one quart low. There is spare oil in the engine compartment. Oil is added to the filler cap on top of the engine. Please wipe off any oil you may spill with a paper towel or a rag.

Check the general conditio1n of the BELTS, HOSES, and FUEL LINES. As you move around the engine.

Check the BILGE for excess water. Just forward of the center island, lift the small access panel and dust pan in the sole to access the bilge well. The automatic bilge pump is just forward of that, under the bench seat.

The raw water STRAINER is located under the aft port berth mattress. If necessary, the raw water STRAINER can be cleaned. To do so, shut off the through-hull valve, unscrew the thumbscrew, remove the lexan cover, clean and reassemble. Be sure to put the cover on tight and be sure to OPEN THE THROUGH-HULL VALVE when complete! Check for leaks/tight seal after opening the through-hull valve.

Failure to open the through-hull valve will result in engine failure.

Engine

A Lil R & R has a 54 horsepower Yanmar diesel engine, which drives a three-bladed propeller through a reversible transmission. All engine controls and indicators are at the helm.

Starting

Place shift lever in neutral (straight up in center). Insert the engine key and turn to the ON position. Verify the oil and temperature alarms sound. Turn on the blower for a minute to ensure no fumes in the engine compartment. If OK, press the START button. You may need to hold for a second or two, but don't hold much longer or you will burn out the starter. Verify the alarms are now off, and then check over the stern for water exiting with the exhaust. After starting the engine, allow it to warm up for about 5 minutes at 1000 RPM. After warm up you should shutoff the blower. To increase RPM without engaging transmission, firmly press the black button in the center of the neutral-positioned shift lever and advance the throttle. ALWAYS MAKE SURE THAT THE ENGINE IS AT IDLE SPEED (600-800 RPM) ***BEFORE*** SHIFTING.

THE TRANSMISSION MUST BE IN NEUTRAL BEFORE STARTING THE ENGINE. IF THE ENGINE WILL NOT TURN OVER CHECK THE SHIFT MECHANISM.

Operation

Normal cruising speed is 1800 to 2400 RPM. When cruising at 2400 RPM, the engine will consume about 1.25 gallons per hour.

Using higher throttle settings will produce very little increase in forward speed but will greatly increase fuel and oil consumption and the wear on the engine. ENGINE AND DRIVE SHAFT DAMAGE IS PROBABLE AT HIGH RPM. For this reason, we ask that you limit the use of higher power settings to real emergency situations. Never operate above 2400 RPM.

Extended low speed operation such as for battery charging can also be hard on the engine as this leads to internal carbon built up. Therefore, when operating the engine at low speed for long periods of time, periodically run the engine at a higher RPM for 5 minutes.

This boat has a definite prop walk to Port in reverse with not much noticeable effect in forward. When in reverse, be careful to keep a firm grip on the wheel. And use only low RPM.

Shutdown

Prior to shutting down, be sure to race the engine. Then allow the engine to cool down for at least five minutes at low speed (1500 rpm or lower). Usually this is about the amount of time it takes to secure your lines and plug into shore power. Push the red engine stop button located on the instrument panel. This cuts off the fuel supply to the engine. Alarms should sound until the key is switched off. Switch off the key after engine has completely stopped. NEVER TURN THE KEY TO OFF WHILE THE ENGINE IS RUNNING! You will do serious alternator damage. The key should always remain ON until the engine has stopped.

Emergency Fuel Shutoff valve is located aft of the fuel tank.

When sailing, leave the shifter in the NEUTRAL position per Yanmar's recommendation.

Getting Underway

Close the PORTHOLES and DECK HATCHES. Assign one crew member to be in charge of securing ports and assign one to be in charge of the dinghy if towing. Shorten the towline on all close-quartering maneuvers. Once outside the marina, idle the engine while crew brings in fenders and lines. Fenders are stored in the port & starboard lazarettes. There are four "jumbo" and four smaller fenders. Fenders can be secured on the stanchions, typically on the upper line. Make certain that the fenders are properly stowed and don't drag in the water when underway. Loose lines can catch on debris in the water and damage the fenders, and/or the bow rails.

Docking

Prepare for docking by having:

Fenders in position
Lines out and ready
Boat hook at the ready
A crew that knows what is expected of them and where their stations are
AND only one captain!

When docking, have someone at the bow and someone at the stern, other than the helmsman.

GO SLOWLY—ONLY ENGINE IDLE SPEED IN CLOSE QUARTERS SUCH AS MARINAS AND HARBORS.

The ***A Lil' R&R*** weighs over 20,000 pounds and if uncontrolled can do great damage to docks, other boats, herself, the captain and crew, your self-esteem and your vacation. Anticipating wind, currents, and tide is very important.

This boat has a definite prop walk to Port in reverse which can work to your advantage. When backing, the rudder should be aligned with the centerline of the boat. Limited maneuvering may be achieved using short bursts of powering forward to align or realign your position. This requires a great deal of patience and an awareness of current and wind conditions. Ask your check-out skipper to review techniques for backing up.

If you cannot step from the boat to the dock then you are too far off the dock. BACK OFF and do it again. Wait until the boat is next to the dock before anyone gets off. Too many times charterers have jumped from the boat to the dock only to have vacations end right there with sprained ankles or broken bones.

Fueling Up

You will need to fuel up before returning to your slip at the end of your charter. Before pumping, have a spare rag or paper towel handy to soak up spilled fuel. You should have a rough idea of the number of gallons you will need by the engine hour indicator. Your vessel uses approximately 1.25 gal/hr. Due to sloshing, filling to the 7/8 reading on the fuel gauge is usually considered "full". Do not overfill or it may spill into the water. Your deck fitting key is located in the Navigation table.

The ***A Lil' R&R*** has a fuel tank with a capacity of 46 gallons. When the fuel gauge reads 7/8 the tank is full. The tank has a shut off valve that is aft of the tank. The fuel cap is located on the deck**, starboard** stern, and labeled "Diesel". CHECK THAT YOU HAVE THE CORRECT DECK OPENING! Use only DIESEL! Do not add water or perform a pump-out at the same time you are fueling.

When refueling, be extra careful that water or any other contaminant does not get in the fuel.

Place the DIESEL nozzle into the tank opening, pump slowly and evenly, and note the sound of the fuel flow. Pumping too fast may not allow enough time for air to escape, which may result in spouting from the tank opening. As the tank fills, the sound will rise in pitch or gurgle. Pay attention to the TANK OVERFLOW VENT on the outside of the hull opposite the tank opening. The sound may indicate that the tank is nearly full. When sound or the gauge indicate nearly full, proceed carefully, and be prepared to catch spilled fuel. Spillage may result in a nasty fine from law enforcement. Replace deck caps.

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

BOAT SYSTEMS

Electrical Systems

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

The system is controlled from the Navigation station, and the BATTERY SWITCHES located under the removable section of the port cabin mattress.

Most breakers are labeled by colored dots. Green signifies “usually on”. Red is “usually off”. Yellow signifies electronics or items to use cautiously. Blue is for our cleaning crew and may be "left on" while on shore power. No dots on breakers signify irregular use or use with discretion.

When not connected to shore power, batteries are providing all power. Therefore, turn off electrical devices that are not needed and monitor the use of onboard electricity carefully.

110-Volt AC System

A Lil R&R is wired for a 30 Amp shore power circuit. SHORE POWER supports the water heater and receptacles on board, as well as the battery charger. While this sounds like a lot of amps, it is surprisingly easy to run short of power and pop a breaker. Plan on using only TWO major appliances at any given time, and only ONE per circuit. Major appliances include:

110v Heaters (each counts as ONE) on setting 3 or below
Water Heater
Battery Charger (only if the batteries are depleted)
Hair Dryers, and other heating devices

There are four 110v circuits:
Port Outlets
Starboard Outlets
Water Heater
Battery Charger

To connect to shore power, ensure that all four AC POWER CIRCUIT BREAKERS are OFF, then carefully route the SHORE POWER CORD and run the cord ashore. Check the power rating/plug size of the nearest dock receptacle (that is 50, 30, 20, or 15 amp). If the receptacle is other than a 30 amp, add the appropriate CORD ADAPTER located in the starboard lazarette. Plug in the cord after adding any needed adaptor and turn ON the dockside breakers (some dock boxes require all service breakers to be ON although only one is used).

At the ELECTRICAL PANEL, check for reverse polarity. Turn ON the four AC CIRCUIT BREAKERS or just those desired. If you are not getting power, a) check the circuit breakers on the dock and in the Starboard cockpit locker and b) RESET the two Ground Fault Interrupters (GFI) located at the Nav station.

12-volt DC System House Battery Bank & Switch

There are three 12 volt batteries aboard ***A Lil' R&R***. The aft two are in a single bank, and are considered the "house" batteries. There is a third battery forward next to the mast which serves as the engine start and windlass battery. The control panel for the batteries is located under the removable section of the port cabin mattress.

Your 12 volt panel shows all the systems supported by your batteries. Primarily you will be turning on the breakers for your navigation instruments and lights, water pressure, electronics, stove propane, etc. Interior lights are also powered from a circuit breaker on this panel but have individual switches at each fixture. The BILGE PUMP should always be left on. The breaker for the STOVE propane should always be turned off after every use.

The HOUSE BATTERY BANK provides power for all DC systems. When disconnected from shore power, all 12-volt devices and 110-volt devices drain the house battery.

Battery systems will lose their charge while ANCHORED or MOORED except for what the solar panels can provide. If you are only away from shore power for one night, you are not significantly constrained by battery capacity. For two nights out, be more prudent with your power usage. Turn the refrigeration off at night. Turn off systems not in use such as instruments, VHF, stereo, etc. If you do not need the cabin heater, turn it off. For two or more nights away from shore power (without significant motoring), we recommend that you shut off the engine start battery in the port aft cabin to ensure you can still start the engine when it comes time to depart.

Never change the position of the battery switches while the engines are running or the alternator diodes will be damaged. Change positions with the engines off.

Whenever shore power is available, it is recommended that you plug in. Be sure that the switch for the battery charger, located on the AC side of the power panel, is "on". Running the engine at anchor or at the dock to charge the batteries is not recommended. It generally takes at least three hours at cruise RPM to charge the batteries.

Solar Panels

This boat is equipped with 2 solar panels on top of the Bimini. These will charge the house batteries when the sun is out and help prolong your ability to be on anchor/buoy yet still run lights, refrigerator, etc. There is a monitor above the chart table. With PNW weather it is hard to detail how much energy can be made. Good battery management is still essential

DO NOT USE A BRUSH to clean. A damp cloth is more appropriate.

SANITATION SYSTEM

Marine Toilet

It is important that every member of the crew be informed on the proper use of the MARINE TOILET. The valves, openings, and pumps are small and may clog easily. If the toilet clogs, it is YOUR RESPONSIBILITY! These heads use water from the fresh water tanks.

Caution – Never put paper towels, tampons, Kleenex, sanitary napkins, household toilet paper, food, etc. into the marine toilet. Put non-human waste into Ziplock bags and dispose of with trash

Both forward and aft heads are electrically operated. Before flushing, the toilet may require additional water in the bowl. There is a button to add water and a button to flush the bowl. If in doubt, add water before flushing. Pay close attention to the flushing button; if the light in the button is green, all is well. If the light turns yellow it indicates that the holding tank for that toilet is almost full. If the light is red then the toilet will be inoperable and the tank for that head must be pumped.

Holding Tanks

A Lil' R&R is equipped with a sanitation system that is Coast Guard approved. Effluent from each head is routed to its respective holding tank. The Forward tank will hold approx. 30 flushes and the aft head will hold approx. 15 flushes.

The holding tanks are emptied in one of two ways:

1) At the Marine Pump out Station, remove the WASTE CAP from the deck waste fittings located on the deck and stern outlets. Double-check your deck fitting! Insert the pump-out nozzle into the waste opening. Turn on pump and open valve located on handle. When pumping is finished, close lever on handle and turn off pump. Remove from deck fitting and replace the cap.

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

2) If you are in Canadian waters that permit direct overboard pumping (not in a harbor or marina - please make sure you know the rules), use the procedures below. IMPORTANT: The outlet valves for the macerator pump MUST be open when you turn on the pump, or you risk burning out the pump.

To meet US inspection requirements the macerator pump handles are blocked with wood and zip ties. You may have to remove these and then put them back once in US waters again.

For forward holding tank

1 - Open macerator outlet valve beneath floor board at the foot of the forward berth by turning the handle to point up, parallel with the hose.
2 - Turn on "Macerator" switch on electrical panel. This activates the pump circuit.
3 - Turn on macerator switch on the side of the port seat in the forward cabin. This turns on the pump.
4 - Pump out until the pump sound changes, indicating an empty tank.
5 - Immediately turn off the macerator switch on the side of the port seat.
6 - Close macerator outlet valve by turning the handle to be perpendicular to the hose, its original position.
7 - Turn off "Macerator" switch on electrical panel.

For aft holding tank

1 - Open macerator outlet valve beneath the starboard aft cabin seat in front of the closet by turning the handle to point up, parallel with the hose.
2 - Turn on “Macerator” switch on electrical panel. This activates the pump circuit.
3 - Turn on macerator switch in the aft head on the forward side of the mirror. This turns on the pump.
4 - Pump out until the pump sound changes, indicating an empty tank.
5 - Immediately turn off the macerator switch in the aft head.
6 - Close macerator outlet valve by turning the handle to be perpendicular to the hose, its original position.
7 - Turn off “Macerator” switch on electrical panel.

*****The seacock must be closed when using a marine pump-out station.**

WATER SYSTEMS

Fresh Water Tanks

A Lil' R&R has four fresh water tanks holding a total of 131 gallons. The two tanks amidship hold 25 gallons each. The forward tank holds 50 gallons and the aft tank holds 20 gallons. In addition, the hot water tank holds 11 gallons. You can gauge your water usage by using only one tank at a time. Water tank controls are located in the hatch below the port aft berth. Each line is labeled as to the tank it controls.

Before refilling tanks, it is recommended that you hose the deck down slightly around the filter caps before you open them to keep loose dirt and debris from falling into the tanks. To refill the tanks, remove the WATER CAPS on the deck (Deck key is in the NAV station in bag). DO NOT fill water and diesel at the same time!

The forward tank will leak into the bilge when full so it is best to have it monitored by someone from inside the boat while filling.

ALWAYS TASTE THE WATER BEFORE FILLING THE TANK TO PREVENT DISTASTEFUL POTABLE WATER FROM CONTAMINATING THE TANK.

Fresh Water Pressure Pump

The fresh water pump switch is located on the DC panel and must be switched "on" for any sink or shower to work. A slight pulsing of the water as it comes out of the tap is normal. If however you hear the pulsing sound and all water fixtures are turned off, there is probably a loose or broken water line in the bilge, or you have run out of water. Shut off the fresh water pump (at the DC switch panel) and investigate. The probability of a line breaking is remote. As a best practice only turn on the pump when you need it and turn off again to avoid potential water loss.

If you run out of water SHUT OFF YOUR HOT WATER HEATER on the AC panel. Serious damage can occur!

Hot Water Tank

The HOT WATER HEATER has an eleven gallon capacity tank and heats when connected to shore power or off the heat exchanger when the engine is running. Do not use the water heater if the water tank level is very low. It will keep the water hot for about 30 minutes after engine shut off.

If you should ever run out of water (which is signaled by air coming out of the water lines or the water pump continually pulsing) while connected to shore power, make sure to turn-off the hot water switch on the AC switch panel. This is necessary to prevent the element in the hot water heater from burning out and causing a potential electrical fire.

Showers

Before taking a SHOWER, make sure the water pressure breaker is on. Gray water from the showers will drain into a sump, which in turn can be emptied by sump pumps. To drain the sump pump after showering, locate the button and press until you hear a change in pump noise. Check for accumulation of hair in the shower and sink drains and discard (in the waste paper basket!). DON'T FORGET TO RUN THE SUMP PUMP WHEN FINISHED.

An additional FRESH WATER SHOWER is located in the cockpit adjacent to the swim platform. Ensure that the faucets and nozzle are completely off after use.

Head Sinks

Gray water from the sinks goes directly overboard. Be careful not to clog them. The head off the galley drains very slowly; it is a design issue and is not clogged – DO NOT ATTEMPT TO UNCLOG BY POURING DRAIN CLEANER DOWN IT. THANK YOU.

GALLEY

Propane Stove/Oven

The boat is equipped with a low-pressure propane system for cooking.
Your propane stove is activated by the following steps:

1) Open the valve on the propane tank located in the propane locker in the starboard compartment in the cockpit.
2) Turn on the DC breaker labeled LPG SOLENOID to open the solenoid valve.
3) Turn on the gas at the stove (see details below)

As a safety practice to remove any possible propane from inside the boat there is a recommended order of shutoff after cooking. When finished cooking turn off the DC breaker, then once the stove burns out turn off all stove and oven knobs, then go to the outside tank and turn it off there.

Each of the top burners is controlled by a single knob for igniting, adjusting the flame and turning it off. Lighting a burner can be a bit tricky after disuse.

The stove cover is not attached and will slide off and should be stowed when underway.

To light top burner

Push the knob in and turn clockwise to "high" position, rather than the "ignition" position. We have found that the latter does not allow enough (any?) fuel to the burner. Hold the knob "in" for several seconds. While holding in the knob, push in the igniter button and a spark will result. If the burner does not catch, continue to hold in another 2 or 3 seconds and try the igniter again. If this doesn't work, repeat the above process using a match or lighter (found in the drawers next to the stove) to the burner, instead of the igniter. After igniting, continue to hold in the knob for at least ten seconds before releasing. Especially when cold, the burner may take more than one attempt to maintain the flame. Then adjust the height of the flame to your cooking needs.

To light the oven pilot

Open the oven door and check for gas smell. Ventilate if you detect residual gas. If ok, turn the oven control knob to any temperature over 140 degrees. Push in "oven safety" button for 5 seconds with one hand. Light the pilot with a match or lighter while holding "oven safety" button in. Pilot is on the right hand side of oven burner. Turn oven control to "pilot" and continue to hold "oven safety" button in for 15 seconds or until the pilot stays lit. Turn the oven control knob to the temperature desired. Check to ensure that the oven burner is lit. The main burner may require up to two minutes to light.

Sink

There is only one water supply source at the sink which comes from your four tanks through an on-demand water pump. Use your water carefully. The 50-foot hose provided with ***A Lil' R&R*** is one that is safe for drinking water. However, you may wish to purchase jug water for drinking. PLEASE DON'T CLOG THE SINK OR POUR BOILING HOT WATER DOWN THE DRAIN. All fittings, hose, etc., are vinyl or rubber and could be damaged by excessive heat. Gray water from the sink goes directly overboard.

Refrigeration

The Adler Barbor refrigerator is a -12V DC unit. DO NOT adjust the thermostat since the temperature of the refrigerator is directly proportional to the amount of energy being consumed from the batteries. A straight up setting of around 5-6 is typically good. In hot weather, the batteries can run the refrigerator for about two days, assuming no other load on the battery. It is good practice to minimize how often you open the refrigerator. Remember that it takes at least three hours at cruise RPM to charge the batteries.

When cruising in remote areas you should plan to supplement your cooling needs with purchased ice. There is a drain at the bottom of the fridge.

Cooking and Serving Ware

The galley is equipped with all of the utensils you will need for cooking and serving six to eight people. Please return the galley gear where you find it.

Dinette Table

The dinette table converts into a bed and can sleep two comfortably. Lift the table top straight up and off of the posts, replace the posts with the shorter set (located under the forward settee cushion) and after affixing the table top, place the cushion cover (located in the aft port cabin) over the table top.

HEATING SYSTEMS

Heat Exchange (DC)

The Red Dot heater works on a heat exchange principle. The heater heats circulating water, which in turn heats air blown into the cabin by fans at radiator outlets in the circulating system. The fan can be set at "off," "1", "2", or "3" (three being the highest setting) **THIS SYSTEM WORKS ONLY WHEN THE ENGINE IS RUNNING.** It may take over 30 minutes for the system to generate noticeable heat.

Space Heaters (AC)

Two electric Space Heaters are available for use when connected to shore power. They has several heat level settings. Two heaters can be run if no higher than setting 3. If you wish to use setting 4 then only one heater can be run w/o drawing too much power and risking an electrical fire.

ELECTRONICS

All electronic manuals are located under the chart table at the Navigation station. All Navigation instruments are turned on and off with the Nav Instruments switch.

VHF Radio

The VHF radio is installed at the electrical panel above the chart table. Turn it on with the volume control knob. Monitor channel 16 at all times underway.

Instrument Pod

A state-of-the-art instrument pod is located on the pedestal guard for easy monitoring by the helmsperson. This pod contains a set of Raymarine instruments with integrated functioning. The three standard instruments, depth sounder, knot meter, and wind direction/speed monitor are tied to a chart-plotter with GPS. Separate manuals for the specific instruments are in the nav station desk.

Depth Sounder

The depth sounder is one of your **most important pieces of electronic equipment.** Its proper use will help ensure a safe and trouble-free cruise.

Because of the placement of the transducer, there is about a five foot difference between the depth that is displayed and the actual depth **under the keel.** Therefore, if the depth sounder says, for example, that you are in 20 feet of water, you actually have about 15 feet under the keel! Be extra careful when you are in less than 15 feet of water.

The depth sounder features both a deep and shallow alarm and a deep and shallow "at anchor" alarm—four alarm functions in all, each of which can be separately turned on or off, using the instrument buttons on the instrument face.

Turning an alarm function "on" or "off" is relatively simple. Press the "alarm" button to sequence through the alarm options. The sequence of functions is *shallow, deep, shallow anchor, deep anchor*, then back to *shallow*. The display for a given function will indicate both the alarm depth setting and whether that alarm function is "on" or "off." You can change the currently displayed function from "on" to "off" or vice-versa simply by pressing the reset key for one second. The display will flash back from the alarm setting to the current depth setting after about 8 seconds.

You should only set the anchor alarms to "on" when at anchor. Anchor alarms sound a continuous audible signal any time this range is exceeded, for example, because you are dragging anchor out to sea or onto the shore, or the tide goes out farther than you calculated. Note, however, that this function will not be operable if the depth instrument has been turned off at the control panel.

The deep alarm (as opposed to deep anchor) behaves somewhat differently. It sounds when the depth is crossed (in either direction), but is easily turned off by pressing "depth," and furthermore, unlike the "shallow" alarm, stays off until the depth is crossed again in the other direction. This alarm can be useful as an "early" warning of entering shallow waters, and get your attention back on monitoring depth.

When you are in waters of less than fifteen feet, the shallow alarm will beep continuously until you press the "depth" button. Unlike the "deep" alarm, the shallow alarm will begin beeping again while you remain in shallow waters of 15 feet or less. It is seldom advisable to turn off the shallow alarm, unless you are very aware of what you are doing.

Occasionally, in very deep waters beyond the capability of the transducer to give a reading, a false shallow reading will appear. In such cases, as long as you know your true depth, it is permissible to hit the reset button for one second, rather than continually having to hit the "depth" button. Be sure to reset back to "on" when your display is again operating properly.

Before you depart, be sure to check that the shallow depth alarm is both set for a reasonable depth and turned on. A previous charter may have "played" with the shallow depth function. It is recommended that you keep the shallow alarm for 15 feet or deeper, which as previously emphasized corresponds to about 10 feet of water under the keel. This section has gone into considerable detail about the depth alarm and its functions because this instrument is the most important instrument on the navigation console.

Global Positioning System (GPS) Chart plotter

The chart plotter is supplied with an electronic (and very expensive) chart card (CompactFlash card) for the San Juans and Vancouver Island. Please do not remove or attempt to remove this card from its slot on the chart plotter! Charts are readily accessed based on ***A Lil' R&R's*** position, or from other geographic locations as selected, via simple "drill-down" or "drill-up" routines. The set of electronic chart plotter charts are not meant to replace the numerous paper charts and guides located in the convenient storage compartment beneath the chart table.

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

THE HELM

The pedestal has a complete compliment of gauges, instruments, controls and electronic equipment to safely operate ***A Lil' R&R***. Gauges relate to engine function and include tachometer, oil pressure, water temperature, and amp meter. It is important that you monitor the gauges whenever the engine is operating. The instrument pod includes a knot meter, depth sounder, and wind indicator, with both true and apparent wind speed and direction. Centrally positioned on this pod is a programmed chart plotter, possessing a multitude of accessible features which can provide the helmsperson with a wealth of information, a detailed discussion of which is beyond the scope of this manual. A separate instruction manual on how to use the chart plotter is housed in the chart table (also See section on Instrument Pod located on page thirteen of this manual).

Throttle/Shift Lever

Gentle, positive movements of the throttle/shift lever are required to prevent wear or damage to the mechanisms or engine transmission. Never shift the transmission unless the engine is in idle (lever straight up and down for neutral). In addition, always pause for a moment at the neutral position when shifting from reverse to forward thrust or vice versa. This pause allows the transmission mechanism to follow your shift lever inputs without damage and prevents wear.

Tachometer

Do not run the engine over 2,800 RPM for extended periods. ***A Lil' R&R*** is a displacement hull vessel, therefore the higher engine RPM will yield a negligible increase in speed but fuel consumption will rise dramatically. In addition, engine overheating can occur because the engine is laboring, and damage can be done to the drive gears. Normal MAX RPM is 2400.

Oil Gauge

There is a low oil pressure indicator light on the helm panel; if the light comes on STOP THE ENGINE IMMEDIATELY and check the engine for oil leaks, replenish oil as needed. Low/loss of oil pressure will result in immediate engine failure. Spare engine oil is in the engine compartment.

Temperature Gauge

The engine water temperature should remain in the 160-185 degree range. SHUT DOWN THE ENGINE IMMEDIATELY IF THE ENGINE WATER TEMPERATURE EXCEEDS 200 DEGREES.

High water temperature means that the engine is not getting water for cooling and engine overheating will lead to engine failure. Check for a clogged raw water strainer, broken hose, or water pump impeller (see separate manual on the engine).

Amp Gauge

The amp meter should read 13 or just slightly above thirteen. There are USB outlets which help monitor this but may show slightly differently when current is being drawn from them.

ENTERTAINMENT

Radio/CD Player

A Bose AM/FM car stereo/CD Player is located at the Nav Station. It has an auxiliary input with a 1/8" stereo plug for your iPod or similar player. The jack is located on the front of the stereo system. In the main salon there are two Bose 601 speakers. The stereo is powered through a dedicated breaker on the electrical panel. Cockpit speakers are connected through a separate breaker. The relative volume between the cabin and cockpit speakers is via the fader control on the stereo. Please be conscious of your neighbors when playing music in the cockpit.

TV/DVD

A Lil' R&R is equipped with a mounted flat screen 19" TV/DVD in the salon. The DVD is built right into the TV and the remote is in the NAV station. The TV has 1 HDMI port on the bottom which may be used to connect to your personal devices. There is also an audio cord which can be plugged into the stereo for better sound output.

ANCHORING/MOORING

The ***A Lil R&R*** comes with one anchor, one chain and anchor rode. The 35 lb. Bruce anchor is located on the anchor davit with 100 feet of anchor chain and 100 feet of 5/8 inch line (marked red at 25' intervals and yellow at 100') passed through the deck from the CHAIN LOCKER. A hatch in the foredeck provides access to the chain locker.

Before lowering or raising the anchor, start the engine and turn ON the WINDLASS CIRCUIT BREAKER in the main salon on the side of the settee closest to the galley. With the prop dis-engaged, idol at 1000 RPM. The anchor is on a windlass system and can be operated by the up and down foot control switches located in the chain locker at the bow of the boat. Ease the anchor carefully off the bow roller so that it does not hit against the hull.
Allow the windlass to stop fully when reversing directions (UP to DOWN or vice versa). When lowering the anchor, let out sufficient ANCHOR RODE (chain and nylon line) before setting the anchor. Determine sufficient rode according to the following formula:

> Good weather: Your depth times 4 is adequate. (Chapman recommends 7, but because of the 100 feet of chain, less is needed.) However, if you are at low tide, let out a little extra to compensate for the later rise in tide.
>
> Example: If your depth is 25 feet you will release approximately 100 feet of chain.
>
> Bad Weather: Your depth times 6 or 7
>
> Example: If your depth is 25 feet you will release 150-175 feet of chain and line, unless the proximity of other boats forbids this amount of rode, in which case let out as much as you can providing for swing, and be sure to keep an anchor watch. Again the 100 feet of chain will help greatly to keep you from dragging.

REMEMBER TO ALLOW FOR TIDAL CHANGES WHICH ARE VERY LARGE AT THESE LATITUDES AND IN SOME CHANNELS TIDAL CURRENTS CAN EXCEED 10 KNOTS.
Anchoring on mud or gravel bottoms is best. The anchor does not set as well on rocky bottoms.
Red marks are placed every 25 feet on the chain and nylon rode, count the marks as the rode is let out.
Back the anchor in with a short burst from the engine. Then let out additional scope dependent upon conditions.

Before raising the anchor, start the engine and allow it to warm up. Turn ON the WINDLASS CIRCUIT BREAKER. The windlass motor draws a lot of power, therefore, it is required to have the engine running to conserve battery power. With the prop dis-engaged, idol at 1000 RPM. When raising anchor, motor forward gently. As the boat moves toward the anchor, the foredeck person should press the UP control to take up slack line, rather than pulling a tight line. DO NOT PULL THE BOAT FORWARD WITH THE WINDLASS. **THIS IS VERY HARD ON THE WINCH** AND DAMAGE TO THE WINDLASS COULD RESULT!

If the anchor is stuck on the bottom, bring up the rode as far as it will go, the line should be vertical, and power forward slowly. This will normally break the anchor free. When raising the anchor if possible have someone laying the line to insure it does not get tangled in the locker. Once over the anchor, coordinate with the helmsperson to remain steady above the anchor as it is raised. Give the windlass short rests as you are pulling it up. The windlass uses a large amount of electrical power; so ALWAYS operate the windlass with the engine running and use a fast idle (1000 rpm) when not in gear for any extended time. As the anchor breaks the surface of the water, be careful not to allow it to swing against the hull. To prevent bowsprit damage, caution should be used as the anchor reaches the pulpit. It sometimes becomes necessary to lift the anchor and/or chain over the roller on the end of the bowsprit. When the anchor shaft reaches the roller, if the plow head is not facing more aft than forward, stop the windlass, lower the anchor slightly, and try again. Several tries may be needed before the anchor comes up oriented 'right way around'.

When the anchor is up, turn OFF the WINDLASS CIRCUIT BREAKER. When the bow anchor is stowed it must be secured so it will not be lost overboard when underway or bang around and damage the hull. Be sure to replace and secure the anchor locker cover when you are done anchoring. This cover will prevent water from entering the anchor locker.

If the windlass will not operate electrically, the anchor can be raised manually by using the gypsy to grip the chain as a backup between manual lifts.

Mooring Cans

Should you use Mooring cans, they usually have a metal triangle at the top upon which is a metal ring. The metal ring is attached to the chain which secures your boat. IT IS VERY HEAVY. The strongest member of your crew should be picked for this job.

Come up to the CAN into the wind as you would for anchoring. Have crew members on the bow, one with a boat hook and one with a mooring line secured like a bow line. As you are coming slowly up to the can have the crew holding the boat hook point at the can with the hook so the skipper always knows where it is. Hook the can and bring the ring up to the boat to allow the second crew to thread the ring with the line. Release the hold with the boat hook. If your mooring line is led out the starboard chock bring the end of the line back through the port side. You will essentially create a bridle with about 10 feet of slack from the chock to the can.

If the mooring can bangs against the boat hull you can run another line through the bow pulpit and down to the can. This will hold the can out from the boat slightly.

SAILS AND RIGGING

A Lil R&R carries an in-mast furling main and a roller furling head sail. Familiarize yourself with the rigging, gear, and general layout prior to setting sail. It is also recommended that you practice reefing the main well before you are actually faced with doing so. Reefing is accomplished by releasing the out-haul line while pulling in the main furling line at the same time, making sure to keep proper tension on the out-haul line while rolling in the main furler. It is important to reef early. Until you are familiar with the rigging, you may want to start with a partially furled main and ease it out in accordance with conditions. Note that wind strength varies greatly between and behind islands. So don't get caught by surprise.

The main halyard sheet should not be normally used. If the in-mast furling doesn't work it might be due to this becoming loose and needing to be tightened.

Do not sail with the head sail only partially unfurled. This will put undue stress on the sail and distort the sail shape. Therefore, adjust to increasing wind by reefing the main. The boat will sail comfortably to weather under full sail in up to 20 knots apparent (approximately 15 knots true).

A hint on using the traveler: the traveler lines are located beneath the dodger. We recommend standing on the first step off the companionway, rather than in the cockpit proper. From this position, the traveler line can more easily be freed from the jam cleat by pulling up smartly close to where the line exits the dodger window. The traveler may not need working with the winches, if you avoid placing the traveler car beyond center when close-hauled. We have found that your sail shape and slot will be improved by positioning the car dead center and working the main sheet from the winch.

Compared to smaller boats, ***A Lil' R&R*** has a powerful rig, so please respect it.

A Lil' R&R has internal halyards. Both roller furling systems on this boat are very stable and work easily. All sailing lines can be easily operated from the cockpit. We recommend unfurling the main first. First point head to wind. From the cockpit, release the main sheet on the port side, then release the main furling & main out-haul. Using the out-haul, roll out the main. To unfurl the head sail, un-cleat the furling line; wrap what will be the leeward sheet around the winch and pull the sheet in while maintaining slight tension on the furling line so that the line rolls onto the furling drum neatly. Secure the end of the roller furling line around a cleat.

Furling the head sail and the main sail is very easy, and reverses the process of unfurling. Point head to wind and apply slight tension on the sheet while pulling on the furling line until the sail is furled. If it is not feasible to point head to wind, it is possible to furl the head sail while sailing downwind by blanketing the head sail with the main (being careful not to accidentally jibe) and pulling in on the furling line, making sure there is some tension on the sheet. 3 wraps of sheet around the headsail is usually considered good.

If a heavy wind comes up quickly before you have a chance to reef, furl the head sail and sail on the main alone. Avoid sailing solely with the head sail.

BARBECUE

The BARBECUE is attached to the stern rail. Attach a PROPANE BOTTLE to the REGULATOR found in the drawer next to the sink, invert and then insert in the barbecue. Carefully light the unit, preferably with a long-stem butane lighter (works better than built-in igniter). The barbecue generates a lot of heat and cooks hot and fast. After use, please wipe off any grease with a paper towel to prevent grease and dirt soiling the boat.

Note: Propane bottles are not stocked by AYC. You will need to purchase one if extras are not found on board.

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

DINGHY

A Lil' R&R is has an 8.5 foot Caribe' inflatable/hard bottom in tow; the dinghy is equipped with two oars, a center seat and a dinghy painter. The boat also comes equipped with a 2.3 HP outboard motor. Underway, monitor your dinghy and adjust the length of the tow rope if needed. Assign one responsible individual to keep an eye on the tow rope whenever the ***A Lil R & R*** is being rapidly slowed down or maneuvered at slow speed. At slow speeds, take in all the slack in the line to prevent a wrap around the prop.

While the large inflatable tubes on this dinghy make it very stable, use EXTREME CAUTION when rowing or motoring to shore. Choose an area free of any large rocks that might cause harm in beaching. Lift up on the dinghy to bring it up to higher ground. NEVER drag it! Secure it when leaving as the tides come up very quickly.

When starting the outboard, do not stand the engine upright directly on the white or gray fiberglass decking since this practice will chip or put holes in the decking. If you think you may be out beyond dusk, please bring one of the flashlights on board and use it to guide you back to the boat and to alert other boaters of your position (there are three flashlights on board, see inventory list for the locations).

The Outboard engine is air cooled and simple to use. It has a built-in fuel tank that will get about an hour of use per tank, depending on how hard you run the engine. Going above 50% throttle consumes more gas with little additional speed. The combo lock on the engine is ****6.

To start the engine two things must be turned on: 1) The slide on the left side, 2) the switch on the gas tank. Use the choke and set the throttle to a little less than the "start" setting. Setting throttle too high will cause the prop to spin upon start and the boat to drive forward. Pull the cord to start the engine and then close the choke after a few moments.

When done with the engine for the day close the slide on the left and the switch on top.

SAFETY

SAFETY should be paramount in your daily cruising. A MAN OVERBOARD DRILL should be discussed and perhaps even practiced with a life jacket.

Life Jackets

Coast Guard approved life jackets are stored in the port aft cabin and in the port lazarette. A few should always be out and ready. It is recommend to wear one any time the boat is underway and outside the cabin.

Life Sling/Man Overboard

The life sling hangs on the stern rail. Please, do not use this device as a recreational toy. Study the sequence of actions shown on the life sling jacket. The GPS Chartplotter has a MOB function. Press and hold the GOTO button for two seconds to activate and mark a position.

Boat Pole

There is an aluminum gaff boat pole (familiarly termed a “boat hook”) stored in the port lazarette. You should have the aluminum pole available whenever coming into a docking situation. The pole will float for a few moments if accidentally dropped into the water, retrieve it as soon as possible.

Ships Bell / Fog Horn

The ships bell is located in the salon above the settee. There is also a fog horn which is stored in the nav station compartment. It is important that you familiarize yourself with the navigational rules regarding horn signals.

Emergency Tiller

There is an emergency tiller located in the port lazarette; it is in a yellow sleeve marked “tiller”. If needed, this tiller can be used to steer the boat. Simply insert the socket end over the rudderpost which can be found under the plate just behind the main wheel. You may need to remove the wheel. Don’t lose the nut.

EMERGENCIES

First Aid Kit

The First Aid kit is located in the main head behind the mirror. Please let your AYC charter rep know if you have used the kit so we can replace any items used.

Flares

Flares are in the nav station drawers. Flares have an extremely limited duration and should be saved for when someone is in sight to see the signal. By law, flares can only be used in case of emergency. Please tell your AYC charter rep if you have used ANY flares for ANY reason. They are required to be aboard by law and must be replaced before the next charter can depart.

Calling for Help

In the unlikely event that you need emergency help, do not hesitate to ask for it. Use the radio to send a Pan-Pan or May Day on channel 16. The AYC Gray manual contains specific instructions for sending a May Day.

Abandoning Ship

It is exceptionally unlikely that you will have to abandon ship, however, the topic bears discussion. One of the reasons you are towing a dinghy is as a life boat. The two main reasons for abandoning ship are sinking and fire. First off, get a May Day signal out early. A Lil' R&R is a very stout cruising boat, and is unlikely to be holed and sink quickly. However, should a leak occur, take these steps:

Find the leak. If it can be plugged, tapered wooden plugs are located in the Spare parts box under the NAV/settee seat. Larger holes can be slowed or plugged with spare clothing, blankets, etc. Slowing a leak will give you more time to determine the next course of action.

A manual bilge pump can be used to augment the electrical pump. Also, turn on both shower pumps, as they have separate motors and thru hulls (make sure the thru hulls are open). If you are losing the battle, deploy the dinghy (with oars!). Everyone should put on a life vest. Gather critical items such as water, first aid kit, medications, identification, cell phone, and a jacket. All non-essential crew should board the dinghy, but stay tied to the boat. Do not cast-off until the boat is in imminent danger of sinking. Frequently, boats will stay afloat for hours with trapped air. Staying with the boat increases the likelihood of being seen.

Fire Extinguishers

Fire is a more serious threat. Always shut off the propane when not in use. Fire extinguishers are located; in the galley under the sink 1 ABC in the forward cabin in the closet, and 1 ABC in the aft starboard stateroom in the closet; 1 ABC in the aft port stateroom in the closet and 1 ABC under the stove in the galley. Fire can spread quickly, so react aggressively. The same steps as above are followed for abandoning ship, but must be done quickly.

"Twenty years from now you will be more disappointed by the things you didn't do than by the ones you did. So throw off the bowlines. . . catch the trade winds in your sails. Explore. Dream. Discover."

Mark Twain