OPERATING MANUAL

SEAS The BREEZE

AUGUST 10, 2021

SEAS MONMOUTH CHAPTER

Contents

Catalina 30 MK II Specifications

General Specifications

• Designer: Frank Butler / Gerry Douglas	• Year: 1987 - 1993
• LOA: 29'10"	• Keel: Fin
• Beam: 10'10"	• Keel Mat'l: Lead
• Draft: 5'3"	• Displacement: 10,200 lbs
• Hull Color: White	• Ballast: 4,200
• Deck Color: Beige	• Construction: FRP

Mechanical Specifications

• Engine: Universal M3-20	• Power: 18 hp
• Cylinders: 3	• Fuel: Diesel
• Propeller: 3 blade RH	• Fuel: Capacity: 21 gal
• Oil Grade: SAE 10W40 Diesel	• Oil Capacity: 3.2 qt.
• Coolant: 3 qt 50/50 Antifreeze	• Alternator Belt: Gates 7355 (10x893)

Rigging Specifications

• **Standard**	• Mast: 48' bridge clearance
• I: 41' (stem to mast head)	• J: 11'6" (stem to mast base)
• P: 35' (main sail luff)	• E: 11'6" (main sail foot)
• Sail Area: 100% Jib: 235.75 sq ft	• Sail Area: Main: 201.25 sq ft
• Sail Area: Std Total: 437 sq ft	• Sail Area/Disp: 14.92
• **Optional Tall Mast with Bow Sprit**	• Mast: 50' bridge clearance
• I: 43' (stem to mast head)	• J: 13'2" (stem to mast base)
• P: 37' (main sail luff)	• E: 12' (main sail foot)
• Sail Area: 100% Jib: 283 sq ft	• Sail Area: Main: 222 sq ft
• Sail Area: 130% Jib: 368 sq ft	
• Sail Area: Total: 590 sq ft	• Sail Area/Disp: 20.05
• Roller Furling Jib	• Lazy Jacks and catch bag Main

Accommodations

• Headroom: 6'3"	• Berths: 2x2, 2x1, 1x1/2
• Opening Ports: 4	• Opening Hatches: 2
• Navigation Station	• Private lavatory
• Galley	• Pressure water
• Water tank: 1x25 gal, 1x18 gal	• Hot water
• Shore power	• Shower
• Bimini (planned)	• Dodger

Calculations

• Comfort Ratio: 24.93	• S#: 2.04

Scope

This guideline exists to describe and set standards for how this boat will be used by SEAS. It does not replace the Catalina 30 Owner's Manual, nor the Universal M3-20 Engine Manual, nor any of the other manuals for equipment on the boat. It also does not replace SEAS Skippers Information document or responsibilities; those responsibilities apply on ***SEAS the BREEZE*** the same as on any other SEAS vessel. If you need more information than is presented here you should refer to the appropriate authoritative source. In addition, you, as a level 3 or 4 skipper, are required to have certain minimum knowledge about boats, sailing, and crew management. If you feel that you cannot safely operate ***SEAS the BREEZE*** using the information in this and other sources, you should not skipper the boat. Sign on as crew on activity sails with someone who can help you learn whatever you need to build your skills.

Boarding

Hatch Boards: stow in port lazarette. Ensure that the hasp does not scratch the other boards.

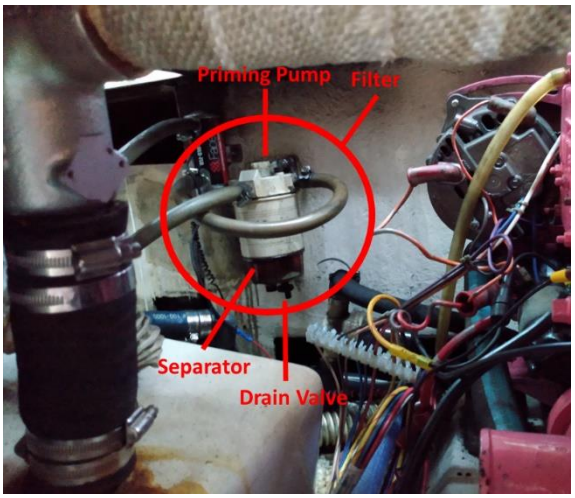
Pre-departure

1. **Engine OIL:** Check oil level using the dip stick before starting engine for the first time each day. If oil level is at or just below the upper mark on dipstick it is OK. If level is more than ½ way to lower mark, add a small amount of oil by pouring into oil fill on top of engine. This engine has capacity for 3.2 quarts of oil, so add small amounts, wait several minutes and recheck. Do not over-fill. If level is very low, check engine for traces of leaks, fill to mark on dip stick and run a dock side engine check and re-check oil level before leaving dock. Notify maintenance coordinator of low engine oil level.
2. **Fuel, Water, Oil Leaks:** Check engine compartment for fuel, oil, or water leaks by looking in the engine pan (under the engine) to make sure it is not full of oil, fuel or water. If any leaks are found take steps to stop the leak. (Note

there is a pad in pan to absorb traces of fuel or oil, but pan should not be full of any liquids.

3. **Raw water Strainer:** Check raw water strainer (plastic clear bowl) with plastic screen basket for seaweed, leaves or other debris. Strainer is in the engine compartment secured to port settee bulkhead. If the strainer has debris, clean it. To clean, close the seacock, unscrew plastic strainer basket, clean out debris. Replace basket in strainer, ensure that the basket is in the center of the container correctly in the indent and then carefully re-screw cover over basket. Make sure you do not cross-thread the cover when re-installing it. Open seacock and verify that the strainer is not leaking.

4. **Raw Water Seacock:** Located in engine compartment and accessed under the port settee. The seacock valve is mounted vertically, When the lever in vertical the seacock in open, when the lever is horizontal the seacock is closed. Rotate the lever clockwise to the vertical position (the seacock is now open and seawater can flow to the engine cooling system). If you cleaned the Raw Water Strainer basket, check the strainer after opening the seacock, to ensure the raw Water Strainer screw cover is secure and not leaking. Refer to the strainer documentation in the ship's library for more information.
5. **Primary Fuel Filter:** the primary fuel filter is located below the port side settee near the engine. Access it from the engine room access panel under the port settee short L cushion. If the fuel/water separator bowl shows water in it, drain the water into a cup and pour onto a water and oil absorbent towel to dry out. Then dispose of the towel in the trash. Oil and water don't mix, so the water will be at the bottom. Open the drain valve to let water out, then close it to keep the fuel in. Refer to the filter documentation in the ship's library for more information.



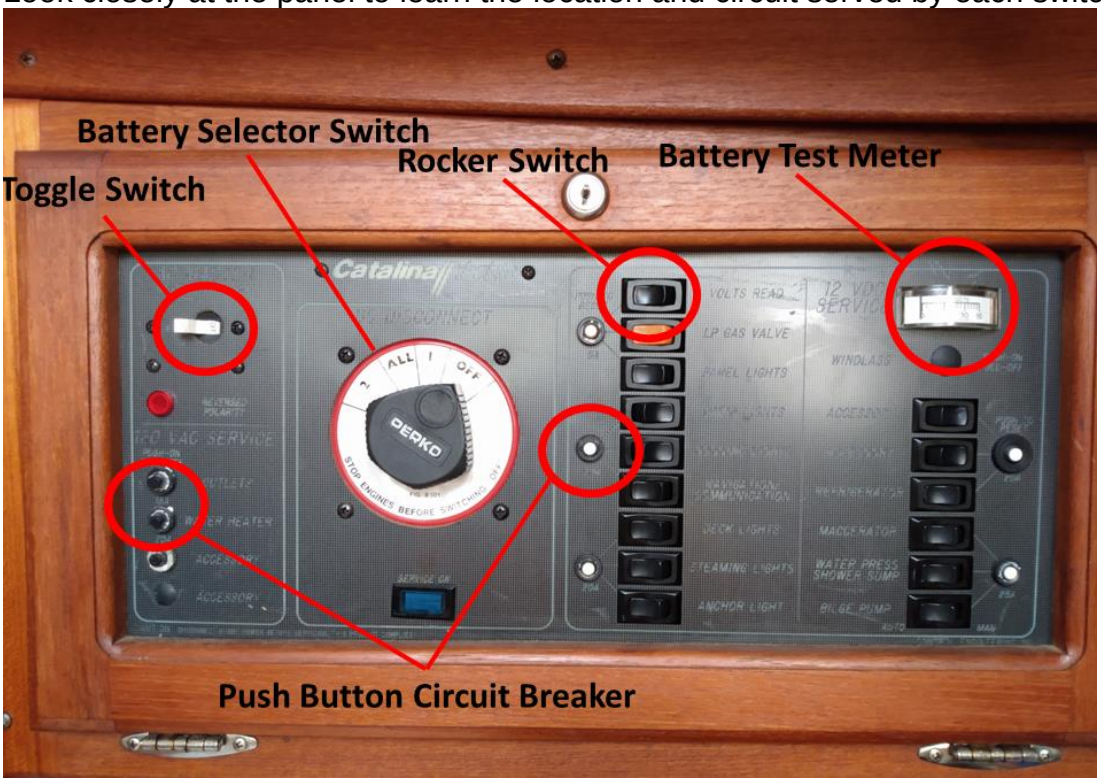
6. **Fuel Level:** The fuel tank is located under the quarter berth. The fuel gauge is located on the instrument panel. Check tank level, if below ¼ level you will need to purchase fuel before leaving marina or on your return before docking. The

capacity of the fuel tank is 21 gallons of diesel fuel. (***Browns Point Marina does not allow filling of fuel tanks from portable fuel jugs in the marina, see Refueling procedure in this document for instruction on how to refuel.***).

Shore and Solar power, Battery, Circuit Switches and Circuit Breaker Checks

1. **This boat has several types of switches on the electric circuit panel:**
    1. **Toggle –** the 120VAC switch is a toggle type circuit breaker
    2. **Push button circuit breakers –** used for 120VAC circuits and 12VDC circuits
    3. **Rocker switches –** used for all 12VDA circuits
    4. **Rotary switch –** used for battery selection

    Look closely at the panel to learn the location and circuit served by each switch.



2. **There is no shore power at Brown's Point Marina slip R71.** A solar panel is installed to keep the house battery charged. If departing from Brown's Point Marina stow the solar panel in the aft lazarette and go to step 7.

3. **115 VAC Shore Panel:** AC voltage panel is located on the electric circuit panel above the navigation station. There are three push-type circuit breaker switches (electric outlets, water heater, accessory), a main breaker toggle switch (right is on, left is off) and one panel light (Red – reverse polarity). Switch main AC breaker off.

4. **Shore Power plug:** Turn off Shore power at the dock power tower. Unplug shore power cord on dock at the dock outlet. In our home slip the cord is secured to dock and outlet box with plastic wire ties. Leave plug in center of coiled power cord.
5. **Boat Shore power cord:** Unthread black plastic retaining ring around power plug. Unplug shore power plug from boat. Thread stainless steel cover over plug socket using care not to cross-thread the cover. It should thread on easily and not require a lot of effort.
6. **Coil Power cord:** Coil power cord and store it in the cockpit stern lazarette starboard side.
7. **Battery check:** Test battery voltage as follows**:**
    1. Set battery selector switch to **1**
    2. Turn on battery test switch
    3. Read battery voltage on the battery test meter on the electric circuit panel
    4. Turn off battery test switch
    5. Set battery selector switch to **2**
    6. Turn on battery test switch
    7. Read battery voltage on the battery test meter on the electric circuit panel
    8. Turn off battery test switch

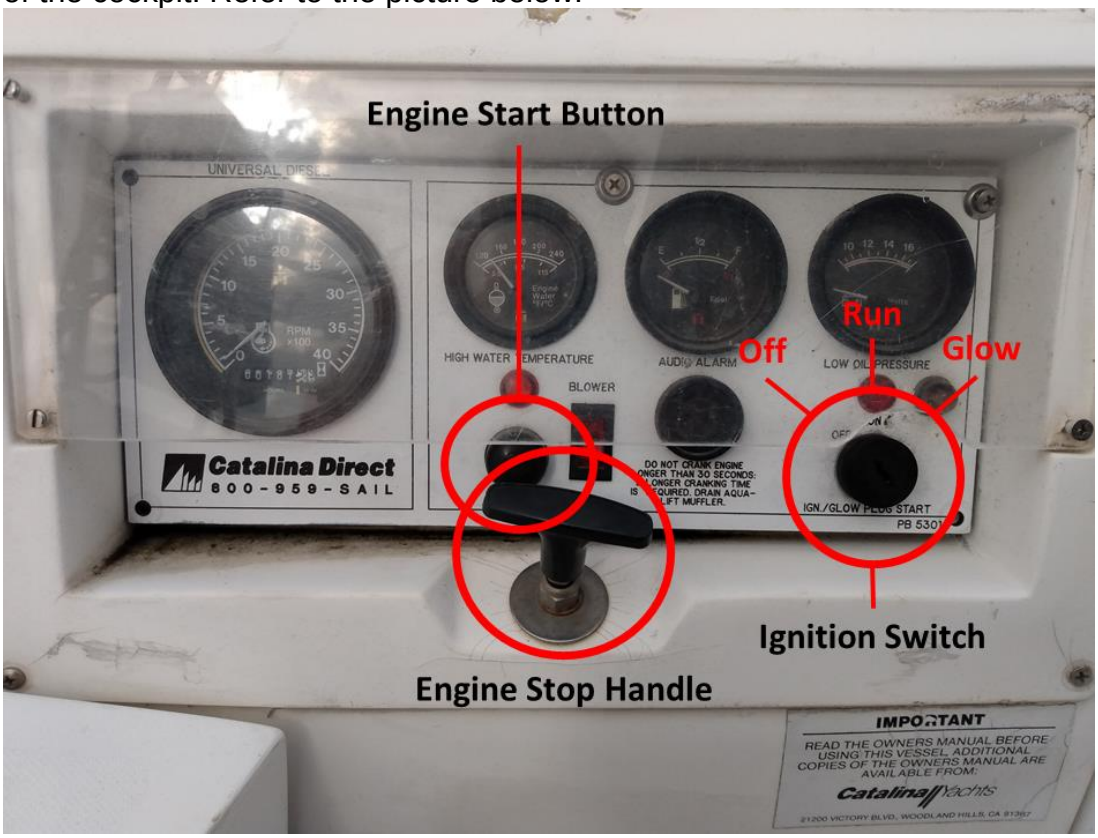
    Both batteries should indicate approximately 12.5 volts. If battery reading is low notify maintenance coordinator indicating which battery and the reading observed. (Bilge pump is directly hooked to battery #2, a low voltage could indicate pump has been running and there are water leaks – so check for water leaks.) Batteries are currently charged by the engine or by the AC Charger hooked up to shore power. A solar charger also is hooked to battery #2.
8. **Set Battery Switch:** Set battery selector switch to “ALL”.

9. **DC Switches:** Switch 12 volt DC switches ON for departure:
   Navigation/Communication
   The bilge pump switches should be on at all times.
10. **Other switches:** Note location of cabin light, running light, and steaming light switches in case you require these during your trip.
11. **Radio:** Turn on VHF radio, listen for traffic on channel 16 and check weather (channels 1 and 5) before leaving dock. You may also wish to call a boat or marina for a radio check. There is a remote mic in the navigation station that can be used in the cockpit. The remote has microphone, speaker, and channel changer functions.
12. **Helm Station:** Remove cover from helm station, stow in port lazarette, check reading on depth instrument. It is critical that the depth instrument be functioning. Currently the depth gage displays the depth below the hull. Since this is a function that is configurable by anyone at the helm you should not rely on the reading as absolute. Do your own verification before departing. The draft of the Catalina is 5 feet 3 inches; use extreme caution if depth reading is 6 feet or less. Boat speed/log may always read zero if the paddle wheel is not spinning, this instrument is not critical to operation of boat.
13. **Steering Wheel Brake –** release the Steering Wheel Brake by turning it counter-clockwise until the steering wheel moves freely.

Starting engine:

1. **Engine controls:** The throttle and gearshift control levers are located on the binnacle in front of the wheel on the sides of the compass.
2. **Throttle control:** The throttle control lever is located on starboard side of the compass. Check operation of throttle by rotating throttle lever forward. To return engine to idle lightly rotate throttle lever back. Unlike a car, boat throttles do NOT return to idle automatically when you let go; you must move it manually.
3. **Gearshift control:** The gearshift control lever is located on port side of the compass. Check operation of gearshift lever by rotating forward for FORWARD gear, back to vertical for NEUTRAL and then rotate backward to REVERSE gear and forward again for NEUTRAL. Become familiar with FORWARD, NEUTRAL, and REVERSE positions of the gearshift lever so you will know what gear you are in by looking at the lever and by feel of the position of the lever. Always set throttle to idle before shifting gears. Move shift lever to “NEUTRAL” position before starting engine. NEVER shift while the engine speed is above idle – if you do you can damage the transmission. NEVER shift from FORWARD to REVERSE, or from REVERSE to FORWARD without pausing in NEUTRAL – if you do you can damage the transmission. Replacement transmissions cost about $2000 (2021 prices.)
4. **Key:** Ignition key is kept in the engine compartment on the panel that provides access to the engine oil dip stick. When taking out the key, check the oil level and ensure that the engine cooling water seacock is open. Key is inserted into ignition switch at bottom of engine instrument panel that is located on lower port side of the cockpit by the helm. Make sure the shift lever is in NEUTRAL position. Turn key clockwise one click, you will hear the low oil pressure alarm, the electric fuel pump, and the engine room blower.

5. Engine Instrument Panel: The engine instrument panel is located on the port side of the cockpit. Refer to the picture below:



6. **Blower:** this boat is equipped with an engine room blower. The blower is switched by the ignition key. Always leave the blower switch 'on'.
7. **Glow plug switch:** This boat has a Universal Diesel engine and requires that the glow plugs be turned on to start the engine. To turn on glow plugs turn ignition key to Glow for 10-20 seconds before attempting to start the engine.
8. **Start switch:** To start the engine press the Start button while holding the ignition key to the Glow position. The engine should start after 1 - 2 seconds. Release the Start button and the ignition key when the engine starts. If the engine does not start, you probably did not turn on the glow plug long enough. **WHEN CRANKING THE ENGINE, CRANK FOR A MAXIMUM OF 10 SECONDS AND PAUSE FOR A MINIMUM OF 20 SECONDS. REPEAT UNTIL ENGINE STARTS. NEVER CRANK ENGINE LONGER THAN 10 SECONDS WITHOUT A PAUSE TO PERMIT STARTER TO COOL.** If engine fails to start after three tries, notify the maintenance coordinator. When engine starts set the throttle so engine idles smoothly without a lot of vibration.
    a. **NOTE: IT IS POSSIBLE TO SEVERLY DAMAGE AN ENGINE BY CRANKING TOO LONG.** Engines that have a water lift muffler can fill the muffler with water to the extent that water gets into the engine and prevents the engine from turning. This is called 'hydrolock.' Hydrolock does not occur when the engine is running because there is enough exhaust gas pressure to push the water out the exhaust. But there is very little pressure when cranking the engine via the starter, so the

water builds up. After water gets into a cylinder and the exhaust valve closes there is nowhere for the water to go and water is not compressible. So continuing to crank will burn out the starter motor OR break the starter gear or the flywheel gear OR break internal engine parts. All of these results are costly and time consuming – and you are responsible for both.

b. **How long is TOO LONG?** Universal says 30 seconds total cranking time is too long.
c. **Who keeps track of how long they crank the engine?** You do… …if you want the boat to stay in service.
d. **What if the engine still didn't start?** Then something is wrong, and that needs to be addressed. Solve the problem, drain the muffler, then try again.

9. **Exhaust & cooling water:** Look over stern of boat at exhaust pipe in center of transom. Make sure there is some water running out of exhaust along with engine exhaust gasses. This engine uses both fresh water and sea water cooling – so there ALWAYS should be water coming out of the exhaust when the engine is running.
10. **Engine exhaust pipe:** After starting engine check the exhaust hose (engine compartment). Make sure there are no exhaust gasses leaking from any of the hose or hose connections.
11. **Alternator output:** At the 12 Volt DC panel use battery test switch to check alternator output. Readings should be just above 12 volts to indicate charging output of alternator. Turn off battery test switch after the test.

NOTE: Do not let engine run at a speed where it vibrates strongly; adjust throttle to reduce or eliminate vibration. If there is vibration at high rpm, reduce rpm, if there is vibration at idle increase throttle just slightly until vibration is reduced. If vibration is present at all speeds, shift into reverse and throttle up for 5 seconds. This can remove growth or other build-up on propellor. Shift into forward and reset engine speed. You may need to repeat this procedure to eliminate the vibration.

NOTE: It is especially important that the exhaust is checked periodically for water flow to avoid engine and muffler overheating. If no water comes out of the exhaust check the engine temperature gauge. Stop engine if it is overheating (over 160º F.)

Leaving the slip & Matawan or Cheesequake Creek – General procedure

1. Check wind and current and plan method of departure
2. Check railroad bridge (Morgan) closing estimates and plan arrival at route 35 bridge before the on-the-hour opening. Leave at least 15 minutes before the hour to insure you will reach bridge before opening.

3. Assign departure responsibilities to the crew.
4. Assign one person as spotter in bow to look for other boat traffic and handle bow lines. Bow person should remain at the ready with the anchor should an engine failure or other emergency arise in the creek especially in the bridge area.
5. Assign fender and line handlers on port and starboard sides to fend off boats in adjacent slips and hang spring lines on pilings.
6. On departure and entry keep a watchful eye on the depth gauge especially in the Cheesequake creek and Keyport Harbor. There are shallow areas across from Lockwood entrance, behind Railroad Bridge, and on both sides of Keyport Harbor. Slow down and use extreme CAUTION if depth reading is 6 feet or less. The Catalina 30 draws 5 ft 3 inches.
7. Tune VHF radio to Channel 13 and listen for Bridge attendant instructions. Call Bridge attendant to request passage to ensure the bridge will be opened.
8.
    a. At Morgan: once past the bridge, go straight out past the first channel marker lights, as there are rock jetties on both sides of the channel. Stay in the channel, as the area immediately outside the bridge is shallow.
    b. At Matawan: once past Keyport #12 either follow the channel through the mooring field or pass the mooring field to the west side
9. Check to see if the engine is continuing to spit water out of the exhaust. Check periodically while under engine power.

Getting Ready to Sail:

1. When ready to sail, put mainsail up first and then unfurl the jib.
2. Turn off engine by pulling up on the engine stop handle on the instrument panel. This will cut off the fuel to the engine and stop it. After engine has stopped push the stop handle down, turn off key switch and move transmission lever to reverse position to keep the propeller from rotating. Never turn the key switch off while the engine is running as it will damage the alternator.
3. **Battery Switch:** With engine off switch battery switch to match day of month (even day use #2 battery; odd day use #1 battery).
4. The main sheet traveler is adjustable manually by releasing the traveler lines from the cam cleats (one at each end of track) then position the car where desired and pull the lines through the cam cleats to lock in place.
5. Jib sheet blocks are adjusted by manually lifting the knurled knob on the block and slide to a different position, then release the knob and ensure that it seats in a hole in the track. The jib sheet blocks should be adjusted according to how much jib is unfurled. There are labels next to the jib sheet track that correspond to various amounts of jib exposed. For example, FULL, 75%, 50%, 25%. Look for similar markings on the jib. Do not attempt to adjust the block position while there is a load on the sheet. Best practice is to adjust the block for the lazy sheet then adjust the block for the other sheet after the boat has changed tack. Alternatively,

temporarily release the working sheet to release the load, adjust the block, then haul in on the sheet to trim sail shape as needed.

6. The boom topping lift may now be loosened at the mast (starboard side.) You might choose to loosen it if it is interfering with main sail shape.

Sail Selection:

SEAS the BREEZE is equipped with the optional tall rig and bow sprit (TRBS) AND a 130% jib. These features ensure that the boat will move in even the slightest breeze. They also mean that the boat needs to be reefed early. Following guideline minimizes heeling and maximizes comfort. You may want to reef more or less than the guide. You are responsible for making your own decisions about how much of the available sail area to use.

Wind 0 – 9 kts	Jib: all (17')	Main: all
Wind 10 – 12 kts	Jib: 90% (16')	Main: all
Wind 13 – 15 kts	Jib: 90%	Main: Reef 1
Wind 16 – 18 kts	Jib: 75% (14'9")	Main: Reef 1
Wind 19 – 21 kts	Jib: 75%	Main: Reef 2
Wind 22 – 25 kts	Jib: 50% (12')	Main: Reef 2
Wind 26 – 30 kts	Jib: 25% (8'6")	Main: none
Wind 30 kts and up	Jib: 0%	Main: none

Here is a comparison of the key performance factors for the O'Day and Catalina. Sail Area / Displacement is the ultimate indicator of performance: the higher the number, the higher the performance.

The Catalina is a bigger, heavier boat, so it needs more sail area to meet the same performance level as the O'Day.

Boat	**Name**	**Displacement**	**Sail Area**	**Sail Area / Displacement**
O'Day 28	**SEAS the Day II**	7300 lbs	370 sq ft	15.78
Catalina 30 Standard		10200 lbs	437 sq ft	14.93
Catalina 30 TRBS	***SEAS the BREEZE***	10200 lbs	590 sq ft	20.14

The C-30 Standard has less power (14.93) when compared to the O'Day (15.78.) The C-30 Tall Rig Bow Sprit (TRBS) has almost 25% more power than the O'Day relative to its displacement (20.14.) This is a LOT of power and needs to be managed accordingly.

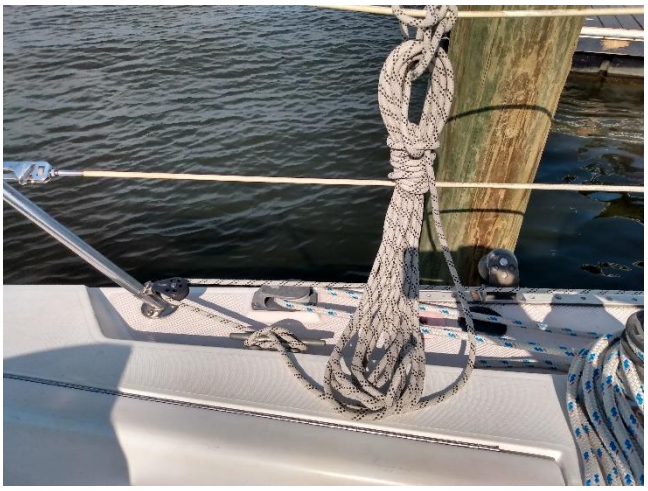
Reefing does not slow the boat – it reduces heeling and makes the ride more comfortable. You may even go faster because a properly reefed boat has less or no weather helm. Reef early. Reef often.

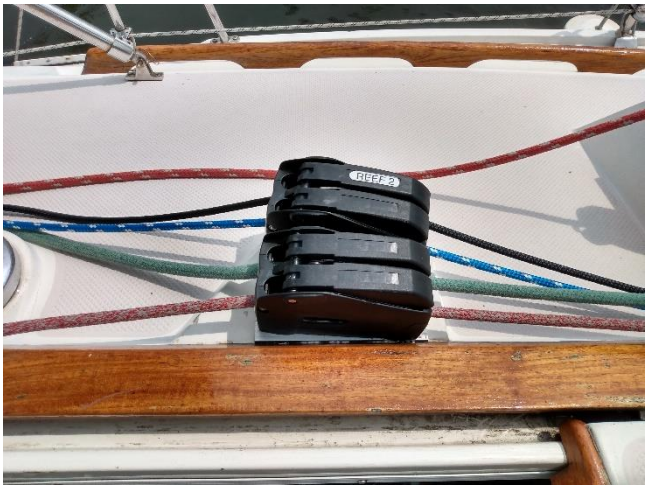
Sail Trim:

Jib: The working jib sheet should bisect the angle between the foot and leach of the jib. The jib sheet angle is adjusted by moving the jib cars fore and aft. The more the jib is furled, the farther forward the cars should be. The more it is unfurled the farther aft the cars should be. When the leach is fluttering and the foot is taut the car is too far aft.
Main: when hoisting the main sail it is critical that the luff be properly tensioned. If the luff is loose the boat will heel more. The luff is properly tensioned when a slight crease is visible in the luff for most of its length and boat is dead to wind. Also check the reef clutches and lines – be sure they are set or released to suite your conditions.

Reducing Sail Area:

1. To furl the jib the furling line must be secured to the cleat behind the winch. When the jib is furled part way, the jib sheet blocks must be moved to corresponding locations as marked next to the jib sheet track.
2. To reef the main sail there are two reefing lines set up that lead into the cockpit on the port cabin top. When reefing the main lower the main halyard, haul in the appropriate reef line until tight, close the clutch, then hoist the main halyard until tight, close that clutch. The reefing lines are easily identified by color: blue for reef 1, black for reef 2.
3. If possible release reefing lines before stowing the main sail by hoisting the main sail all the way up then lower it into the storage bag.





Preparing to re-start engine on return:

1. Turn battery switch to “ALL”.

2. Move transmission gear shift lever to neutral, throttle lever to idle (both in vertical position).
3. Turn ignition switch to right to turn on glow plugs for 10-20 seconds
4. Push Start button to start the engine
5. When engine starts release Start button and ignition switch
6. Check to see if the engine is spitting water out of the exhaust. Keep checking while under way.
7. Shift into gear and set throttle

Furling sails:

1. Furl jib until sheets wrap twice around the sail and secure furling line to cleat behind winch. Snug the jib sheets on the winches.
2. Turn the boat into the wind, decrease throttle to the minimum possible to maintain directional control
3. If you loosened the boom topping lift, now is the time to tighten it. Release the mainsheet and boom vang, lift the boom so the aft end is higher than the fore end, tighten the topping lift, tighten the mainsheet, tighten the boom vang.
4. Lower main sail, flaking it alternately port and starboard while standing in front of the mast and pulling the luff half-way between luff cars. Move main halyard to handhold on starboard side. Be careful about threading it through the lazy jacks.
5. Check wind and current and plan for entry into Cheesequake creek, or Keyport Harbor and Matawan Creek.
6. Assign bow person to stand by with anchor in emergency.
    a. Entering Cheesequake Creek: Tune into Channel 13 and listen for Bridge attendant instructions. Call Bridge attendant to request passage to ensure the bridge will be opened and that they know you intend to pass through. (Don't make them guess.)
    b. Entering Keyport/Matawan: be sure to pass Keyport #12 to starboard before turning toward #14, then toward private marker off Harbor View Marina, then toward middle of Matawan Creek. Between Keyport #14 and the private marker be careful not to drift more than ½ a boat length to either side of the middle of the harbor.
7. On entry and departure keep a watchful eye on the depth gauge especially in the creek and the area outside of the creek and past the Cheesequake lights 1 and 2 at the end of the jetties.
8. Check fuel level before returning to slip. If the fuel level is below 1/2 full, go to the Marina Fueling dock and add fuel before docking. Tank capacity is 21 gallons. USE DIESEL FUEL ONLY. Fueling from jugs at the slip is prohibited. Refer to refueling details.
9. Assign return responsibilities to Crew. On return ensure there is someone at the ready on the anchor should an emergency arise. This is especially important in Cheesequake Creek and Matawan Creek where the current can draw the boat into a low bridge. Decide on a technique that will be used to dock the Catalina

30. Assign responsibilities to crew and ensure they know what is expected of them.

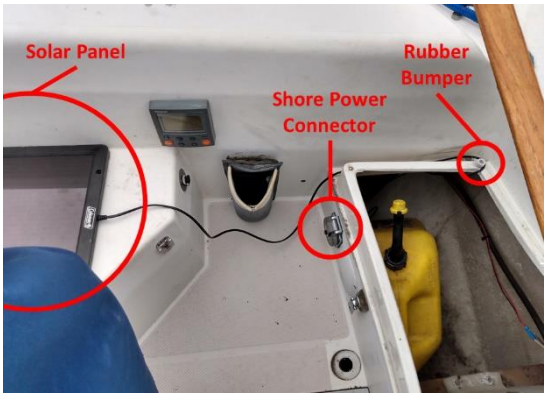
10. When close to the slip reevaluate the chosen docking technique. If it is changed, alert the crew and reassign responsibilities.
11. The docking conditions include **traffic** (power boats tend to move quickly in the creek and have little regard for sailboats under power); **wind** (bow is swung by the wind); **current** (boat will drift with the current – remember this is a fixed keel boat) with a lot under the water line); boats in **adjacent slips.**
12. If conditions are too rough to dock
    a. At Morgan, tie up at the Fueling dock and wait an hour or so as things will change in that time. The current runs strongest for the hour before and after mid-tide.
    b. At Brown's Point, motor out, anchor, wait an hour, motor in and try again.

After docking:

1. Secure bow, spring and stern lines so that boat is secure in middle of slip and does not hit floating dock. At a transient dock, if backed in, cross the stern lines. E.G. The line tied to the starboard side of the dock is cleated to the Port stern cleat. Ensure that the stern lines can't become tangled in the stern ladder.
2. Stop the engine by pulling up on the engine stop handle. This will cut off the fuel to the engine and stop it. After engine has stopped push in the stop handle, turn off engine key switch. WARNING: DO NOT TURN KEY SWITCH OFF WHILE ENGINE IS RUNNING – YOU WILL DAMAGE THE ALTERNATOR.
3. Close the mainsail bag by zipping the top zipper and attaching the front cover panel.
4. Center the rudder and tighten the steering wheel brake to prevent the rudder from flopping around. (To tighten the brake turn clockwise until steering wheel cannot move.)
5. Move the boom off center to port. Ensure that the boom cannot hit the piling.
6. Tighten halyards, sheets, furling lines, traveler lines
7. Stow GPS, remote mic, cockpit cushions, winch handles
8. Cover the helm station
9. Turn off radio and turn off instrument and other breaker panel switches. Move battery switch to OFF position
10. Check for water in engine bay
11. Check Holding Tank level. If it is more than ½ full arrange for a pump out. See Pump Out Procedure below.

Connecting shore or solar power:

1. **Deploy solar panel OR shore power**
2. **To deploy solar panel:** remove from aft locker and lay on starboard seat face up. Ensure that the cord is hooked behind the rubber cushion to protect it from the locker lid.



3. **Cord and boat plug:** At a transient slip you may be able to connect to shore power. Determine the best way to lay the shore power cord so that it will stay out of the water and not get strained by the changing tide. Unthread the cover from boat socket, line up plug with socket, insert and then twist plug to lock in position. Screw black retainer ring to plug outlet.
4. **Shore plug:** Plug power cord into adapter at the shore power outlet. Turn on shore power at the outlet
5. **Plug power light:** Check boat end of power cord, a light indicates that there is power to the boat.
6. **AC Breaker panel:** Flip AC Power main breaker switch on (to right). Check light for reverse polarity warning. Disconnect power immediately if reverse polarity light is on.
7. **Outlet breaker:** Turn on AC breakers as needed.
8. **Power Cord routing:** Check power cord routing to make sure it is not chaffing on the boat or dock and that it will not end up dangling in the water.

Leaving the boat:

1. **Go below to secure hatches,** make sure forward hatch dogs are locked so that hatch cannot be opened from outside. See photos:
2. **Walk around boat before leaving**. Check dock lines and fenders. Ensure dock lines did not unwind from dock cleats because of handling. Fenders should be out of the water. Check for loose rigging. Make sure furling line is secure
3. **Check bilge for water**
    a. run pump if necessary to pump overboard.
    b. **NOTE: The bilge pump switch should be set to the 'Auto'** position so that pump runs as needed. There is a float switch that turns the pump on when the water level in the bilge gets too high. Check that the bilge pump

float switch is operating. If not do not leave the breaker switch on as the pump will run continuously and burn out.

4. **Check 12-volt panel and battery switch:** all should be turned off**.**
5. **Hang ignition key on engine access door**
6. **Pack-up any trash and take ashore with you**
7. **Get locks from navigation station drawer**
8. **Install companionway boards and lock companion way and lazarettes.**

Refueling:

1. Refueling from portable fuel cans is forbidden in most marinas.
2. Portable fuel cans can be carried onto boats. Just don't dispense the contents into the boat while in the marina.
3. Dispense the fuel into the tank when away from the marina
4. Use paper towels or oil absorbent towels to catch any spills that may occur.
5. Use the safety nozzle that is part of the portable fuel can.
6. Open the fuel fill port – be careful to ensure the port cover stays on-board
7. Ensure that you have firm hold of the fuel can
8. Tip fuel can to insert nozzle into fuel fill port before releasing the valve
9. Release the valve to dispense fuel into tank
10. Close the valve, return fuel can to upright position
11. Close the fuel can
12. Close the fuel fill port
13. Wipe area clean.

Autohelm

This boat is equipped with Raymarine ST4000+ Autopilot. There is a limit to how much force the Autopilot can provide. If the boat is yawing widely from side to side it is time to turn off the Autopilot and steer manually. Refer to the Autopilot manual in ship's library for more details.

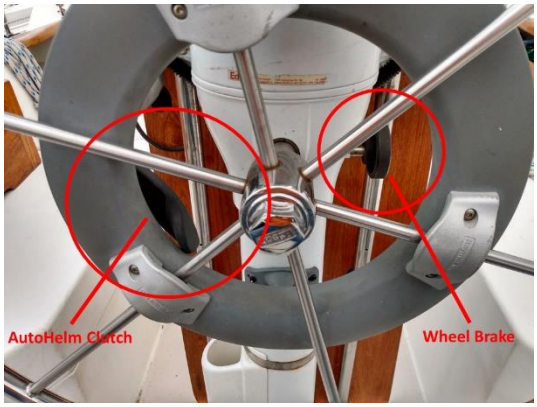
NOTE: Autopilot does not steer around obstacles. You are still required to keep a lookout and steer the boat around obstacles like other vessels, reefs, and land. Autopilot also does not give you right of way – you still must yield (or stand on) according to right of way regulations.

The control panel is in the cockpit on the starboard side of the cockpit. The clutch is on the helm station in front of the wheel port side.

1. To operate

a. turn on the circuit switch
b. press **standby** on the control panel
c. engage the clutch at the helm station (up is engaged)
d. press **auto** on the control panel
e. adjust heading by pressing +1, -1, +10, -10 buttons
f. disengage temporarily by pressing **standby**

2. To disengage
   a. Press **standby** on the control panel
   b. Disengage the clutch at the helm station (down is disengaged)
   c. Turn off circuit switch



Radar

This boat is equipped with Simrad RADAR. The radar dome is on the front of the mast; there are modules in various places in the boat. The display module is mounted on a bracket attached to the cabin ceiling. It can be rotated so that it is visible from the cockpit. If you use the radar, when done return the display module to a position where people will not bump into it. Refer to the Simrad manual in ship's library for information about its operation. There is a laminated Quick Reference sheet in the binder.

Leaving the slip at Brown's Point Marina – Detailed procedure

- With the engine running, double check that there is water coming out of the exhaust at the stern
- Determine which way the wind and/or current will push the boat as it comes out of the slip. Keep in mind that all other things being equal the prop walk will take the stern to port.
- There are 4 specific crew positions/duties:
  - The helmsperson will be in command; he/she will also take off the starboard stern line.
  - Having determined which way the stern will want to go (starboard or port), have a crew member pass a dock line around the piling on the ***opposite*** side of the boat. For instance, if the stern will be pushed port, pass a line around the piling on the starboard side. Both ends of this line should be on board the boat in the crew member's hands; it will be used to keep the boat close to the piling and will eventually have one end released so that it can be pulled on board. This is the warp line.
  - A second crew member is at the bow ready to cast off first the bow lines then the starboard spring line.
  - A third crew member is at the piling on the port side, fending off as needed.

    - Additional crew members can assist as the skipper desires.
    - All crew members should be instructed to give verbal feedback when they have completed the task.
- The sequence of events is:
    1. Take the starboard midships fender aboard. This removes a potential obstacle.
    2. After verbal confirmation that everyone is ready, and a visual check for boat traffic, the helmsperson casts off the stern line (drop the line onto the floating dock).
    3. Instruct the bow person to cast off the bow lines, and to uncleat but hold onto the spring line.
    4. Engage reverse at idle throttle speed to get the boat moving backwards. The person holding the line around the piling walks forward as appropriate to stay near the piling, paying out the line as necessary but holding it tight to keep the boat as close to the piling as possible.
    5. The bow person uses the spring line to control, as much as possible, the swing of the bow. Once this is no longer effective or the bow has passed the dock cleat, drop the line onto the dock. Try to drop it in a way that will make it easier to pick up on return.
    6. The person with the warp line will release one end and pull the line onboard once it has served its purpose.
    7. Use a combination of turning the wheel and switching from reverse to neutral to maintain speed and desired direction (putting it in neutral eliminates prop walk and makes turning the stern to starboard more effective). Do not use excessive throttle!
    8. Once the bow person announces that the boat is completely out of the slip, maneuver as necessary to proceed out of the creek.

Returning to the slip at Brown's Point Marina

- Evaluate the wind and current situation. Will the boat be pushed starboard or port when it is broadside to the creek? This will determine whether you will approach the slip high (from further starboard) or low (from further port).
- Prepare the crew
    - One person will be on the starboard side with the boat hook, to retrieve the spring line. This person must be prepared (and agile enough) to get off the boat onto the finger pier if necessary, to retrieve the spring line if the boat hook didn't work, and later on to get the bow lines.
    - One person will be on each side, near the bow, prepared to fend off whichever piling the boat comes up against first. As the boat continues into the slip they will walk back to stay at the piling.
- Prepare the boat
    - Fenders down
    - Boat hook on the foredeck
- Approach the slip far enough out into the channel that you can make a controlled turn towards the slip, keeping in mind your evaluation of which way the boat will

be pushed. The farther the boat is from the slip, the more it will be impacted by cross winds and currents during the approach. Plan accordingly.

- Use forward, neutral and reverse as necessary to bring the bow into the slip. If the stern is at an acute angle, you can turn the rudder hard over to the appropriate side and engage forward gear to “spin” the boat around the piling.
- Do not use excessive throttle! Leave it at idle and use the gear shift to control the movement.
- At very low tide, it may necessary to use the throttle to “push” the boat into the slip.
- As soon as it can be done, the spring line should be retrieved and put on the starboard bow cleat. Once this goes taut it stops the bow from hitting the dock.
- Make sure there is a fender midships on the starboard side, and a fender board (or horizontal fender) on the port side next to the piling.
- The two bow lines and the stern line should be attached.
- Double check that all lines are attached correctly and that boat is sitting as it should in the slip.

Galley

- The galley includes an ice box, refrigerator, cooktop, double sink with mixer faucet, sea water spigot, counter space, and several drawers for storage. Following are details about the operation of each.
- Ice box –
    - Lid has recessed handle for lifting
    - Inside wire rack is a shelf
    - Foot pump to drain liquid
- Refrigerator –
    - Runs only on 110VAC electricity
    - 110VAC is available from shore power or the inverter (planned)
    - When chilled items stay chilled for 24 hours, depending on how often the door is opened
- Cooktop –
    - Electric cooktop runs only on 110VAC electricity
    - 110VAC is available from shore power or the inverter (planned)
- Double sink
    - To use the pressure water system turn on the pressure water circuit on the circuit panel

    - Ensure that the galley sink drain seacock is open (accessed below the galley counter
    - Close the galley drain seacock when you turn off the pressure water system
    - Do not open the seacock that has red tape on it
- Sea water spigot –
    - Currently disconnected
    - Do not open the sea water spigot seacock (marked with RED tape)
- Drawers
    - To open a drawer – lift the handle and pull the drawer out until you can see and access whatever is in the drawer. Don't pull until the drawer falls out.
    - The bottom drawer in the aft cabinet is reserved for mechanic tools.

Marine Lavatory (aka Head)

- The marine lavatory is a complete, compact lavatory. There is a marine toilet, wash basin, and shower. Some important points follow:
- Marine toilet (aka marine sanitation device (MSD))
    - The marine toilet empties into a holding tank on board the boat. The holding tank must be emptied by scheduling a pump out. See the Pump Out procedure for details. There is a warning light in the lavatory to indicate when the holding tank is full.. When the light is lit the tank is full and the toilet cannot be used until the tank is emptied. DO NOT WAIT FOR THE LIGHT TO BE LIT TO SCHEDULE A PUMP OUT.
    - Marine toilets are flushed by manually pumping effluent out using the built-in hand pump – see the procedure below for details.
- Wash basin
    - The wash basin empties overboard. If it does not drain verify that the seacock for the drain is open. The seacock is in the storage area located on the lower forward wall of the lavatory.
    - Water for the wash basin comes from the on-board freshwater tanks and is pressurized by a pump. If there is no water when you turn on the tap verify that the Pressure Water switch is ON on the 12VDC panel above the navigation station. If the switch is on verify that the tanks have water in the and that the valves at the tanks are open.
- Shower
    - The shower is made of 2 parts
        - The shower head is a pull out from the wash basin.
        - The drain empties water into the bilge. Normally the bilge pump will drain the bilge automatically. If it does not you must turn on the bilge pump manually. After the bilge is drained reset the switch to automatic.

Head Operation

The head is a standard manual marine toilet. The steps to use it are:

1. Turn on the water pressure at the electrical panel. We use fresh water to flush, not sea water, because it keeps the boat smelling better
2. Always keep the wet bowl/dry bowl switch on the head in the dry bowl position. In the picture at right, the switch is in the wet bowl position – you want it the other way – to the right (It's the lever behind the big handle)

3. Use the shower head hose from the washbasin to put the necessary amount of water in the toilet bowl
4. Do what you came for
5. Pump the handle up and down as necessary to flush the toilet. The handle may be locked in place; if it is a quarter turn to the left unlocks it. You may need to add more water from the washbasin hose
6. Be judicious with the amount of fresh water you use. You want to get the toilet completely flushed – which means not only getting the waste out of the bowl and into the pipe leading to the holding tank, but pumping/flushing enough that the waste gets all the way to the holding tank and isn't left in the pipe. When you stop pumping there will be some back flow, make sure that's clear water. At the same time you don't want to use more water than necessary because that will fill the holding tank faster. The tank has only a limited capacity, and once it's full the head is out of use until the tank gets pumped out
7. Leave the pump handle in the down and locked position (turned to the right)
8. Add about a cup of water to the bowl to lock sewer gases in the plumbing
9. Put the washbasin hose back in place and turn off the water pressure at the electrical panel

Pump Out Procedure

As mentioned above, the holding tank needs to be pumped out when it's getting full. There is no easy way to know how full it is, because there isn't a gauge. There are two ways to get a pumpout:

1. Go to a dock that has a pump out. Unfortunately that's not an easy option for us – there are only two such docks nearby; the one in Perth Amboy, and the other one is through two bridges in Cheesequake Creek
2. There is free pumpout boat (the *Head Mistress*) that can be scheduled and they will come to our boat – we don't even need to be there. They operate on Sunday plus one other weekday (unspecified which day). To schedule a pumpout:
    - Call 848 231 2202 and submit a request online at Pumpout Boat Program – NYNJ Baykeeper. When making the request remember that the Pumpout Operator will identify the boat by the name on it. During 2021 season that name is ***Sea Drive***.
    - Put a tip (suggested $5) in an envelop, put that envelop in a ziploc bag, and clip that ziploc bag to the lower life line near the Waste deck fitting using a clothespin (stored in navigation station.)
    - When the tip bag is empty (and the tank pumped) stow the plastic bag and clothespin in the navigation station.

NOTES:

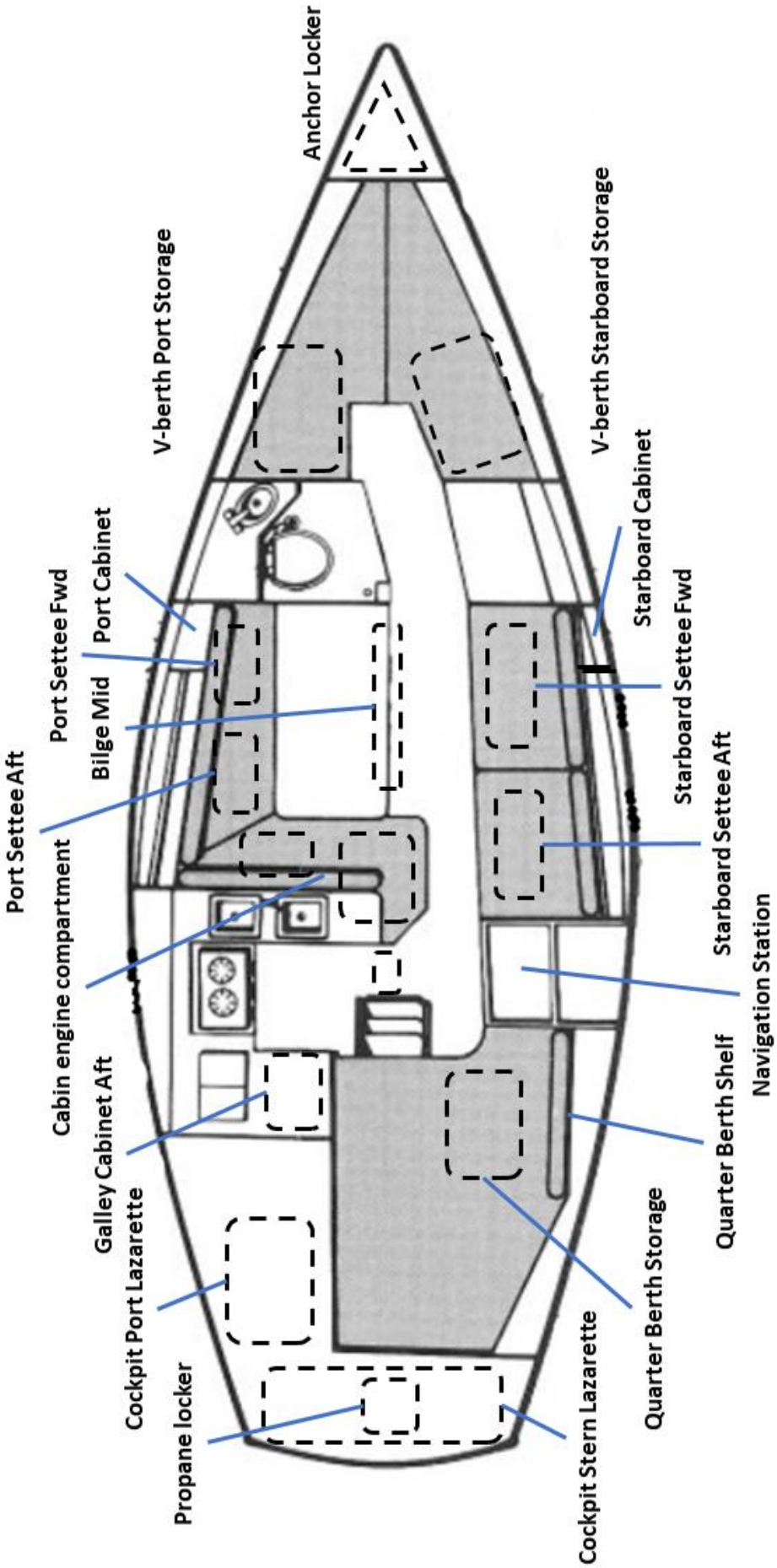
1. When at the dock do not leave the boat if an emergency condition exists. *Call* the Maintenance Coordinator and the Reservations Coordinator. An email or text without a corresponding reply does not constitute notification. You are there; you are the first line of defense.

Inventory

Item	*Location*
AC 110V Power Cord	Cockpit Port lazarette
AC Electrical Breaker Panel	Navigation station
AM FM Radio	Quarter Berth Overhead
AM FM Radio Breaker	DC Breaker Panel
Anchor & Rode - bow	Anchor Locker
Anchor & Rode - stern	Cockpit stern lazarette
Anti-freeze	V Berth Port Storage area
Auto Pilot Breaker	DC Breaker Panel
Auto Pilot Clutch	Helm port side
Auto Pilot Control	Cockpit starboard footwell bulkhead
Battery - Engine	Cabin Starboard Settee Aft
Battery - House	Cabin Starboard Settee Aft
Battery Charger	Quarter Berth Bulkhead Inboard side
Battery Charger Breaker	
Bilge Pump Electric Primary	Bilge Mid
Bilge Pump Electric Primary Fuse	Bilge Mid
Bilge Pump Electric Primary Switch	DC Breaker Panel
Bilge Pump Electric Secondary	Bilge Mid
Bilge Pump Electric Secondary Fuse	Bilge Mid
Bilge Pump Electric Secondary Switch	DC Breaker Panel
Bilge Pump Manual	Cockpit Port lazarette
Bilge Pump Manual Handle	Cockpit Port lazarette
Binoculars	Quarter Berth Shelf
Boarding Step (Folding)	behind toilet
Boat Pole	Quarter Berth
Bolt Cutters	
Bosons Chair	V Berth Port Storage area
Bungy Cords	
Cabin Lights Breaker	DC Breaker Panel
Charts	Navigation station
Cleaners	Galley Locker Under Sink
Cockpit Cushion Storage	Quarter Berth
Compass	Cockpit Binnacle
Cups and Glasses	Galley Cabinets
DC Battery Selector	DC Breaker Panel
DC Electrical Breaker Panel	Navigation station

Depth Gauge	Cockpit Binnacle
Diesel Fuel Additive	Cabin Port Cabinet
Dishes	Galley Cabinets
Dock Lines (Spare)	Cockpit Port lazarette
Emergency Tiller	Quarter Berth Shelf
Engine Glow plug Switch	Engine key switch
Engine Key	Cabin engine compartment starboard access
Engine Key Switch	Cockpit Engine Panel Port Side
Engine Oil Dip Stick	Cabin engine compartment starboard access
Engine Oil Pressure Warning Light	Cockpit Engine Panel Port Side
Engine Raw Water Seacock	Cabin engine compartment port settee access
Engine Raw Water Seacock Lever	Cabin engine compartment port settee access
Engine Start Switch	Cockpit Engine Panel Port Side Push button
Engine Stop Switch	Cockpit Engine Panel Port Side T-handle
Engine Temperature Gauge	Cockpit Engine Panel Port Side
Engine Throttle Lever	Cockpit Binnacle - Starboard Side
First Aid Kit	Cabin Starboard Cabinet Forward Lower drawer
Flags, Signal	
Flares	Cockpit Port lazarette
Flashlight	Navigation station
GPS Breaker	DC Breaker Panel Navigation/Communication
GPS Chart plotter Mounting Location	Cockpit Binnacle
GPS Chart plotter Storage Location	Starboard Settee Shelf
Hand Wipes	Galley top shelf / Head Sink Cabinet
Horn (compressed air)	Quarter berth Shelf
Horn (manual)	
Hose (water)	Cockpit Stern lazarette
Life Jackets	Cockpit Port Lazarette
Log	Navigation station
Lubrication Sprays	Cabin Port Cabinet
Manuals (Boat equipment)	Navigation Station - lower
Navigation Lights breaker	DC Breaker Panel
Operations Guide	Navigation station
Paper Towels	Galley Cabinets
Propane Fuel Bottle	Cockpit stern lazarette
Radar Reflector	Cockpit Port lazarette
Spare Line	Cockpit Port lazarette
Spare Parts Box	Cabin Behind Port Settee Aft
Spare Rigging	Cabin Behind Port Settee Aft
Steaming Light Breaker	DC Breaker Panel
Steering Wheel	Cockpit Binnacle

Sun Screen	Head Sink Cabinet
Tableware	Galley Cabinets
Throw Cushions	Quarter berth
Tide Information	Navigation Station
Toilet Paper	Head Sink Locker and Cabinet
Toilet Raw Water Seacock	Cabin Port Settee Fwd
Toilet Raw Water Shutoff	Right side of Head near floor
Tool Kit (Emergency)	Navigation Station
Tools	Galley cabinet aft - lower drawer
Transmission Shift Lever	Cockpit Binnacle - Port Side
VHF Radio	Navigation Station
VHF Radio Breaker	DC Breaker Panel
Water Pressure Manifold Water Pressure Pump Water Pressure Pump Breaker	None DC Breaker Panel
Winch Handles	Starboard Settee Shelf


Anchor Locker
V-berth Port Storage
V-berth Starboard Storage
Port Cabinet
Starboard Cabinet
Port Settee Fwd
Starboard Settee Fwd
Bilge Mid
Port Settee Aft
Starboard Settee Aft
Cabin engine compartment
Navigation Station
Galley Cabinet Aft
Quarter Berth Shelf
Cockpit Port Lazarette
Quarter Berth Storage
Propane locker
Cockpit Stern Lazarette