

*NOTES FROM THE OWNERS
OF
“CATSPA W”*

Welcome aboard CATSPA W!

She’s a 3-stateroom Performance Cruising Gemini 105 MC catamaran. We sincerely hope you’ll enjoy sailing her and cruising the islands as much as we do.

CATSPA W is very well balanced and sails beautifully. She keeps her speed in light air and is very stable in brisk winds.

Our favorite things about CATSPA W:

1. She has a roomy covered cockpit (with an Eisenglass enclosure during the shoulder seasons) and is open and spacious below decks with the characteristic roomy catamaran salon for great seating. Having the cockpit and the salon on the same level allows everyone to be part of the fun. The open galley helps the cook join in too.
2. Her three staterooms allow everyone, three singles or three couples, to have privacy and a quiet place to sleep uninterrupted. The dinette converts to a spacious and very comfortable double, if a fourth sleeping area is needed. The queen master berth has a lovely panoramic view that cannot be equaled on a monohull.
3. The steerable drive leg allows good maneuverability (even in reverse) without the complication of two engines.
4. The kick-up centerboards and rudders ensure good upwind performance along with improved safety. For simplicity, they can be left down for your entire cruise if you so wish.

We’re delighted with this well-built and beautiful vessel and look forward to sharing her with you, our guests. We hope you’ll love CATSPA W as much as we do and we thank you for taking special care of her.

Happy Sailing!

Peter and Laura Muller, Owners

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EMERGENCY CONTACTS:

- SAN JUAN SAILING (800) 677-7245
- ROGER VAN DYKEN (360) 224-4300
- MAINTENANCE PROFESSIONAL - STEVE PINLEY: (360) 671-4300
- CATSPA W OWNERS –PETER AND LAURA MULLER (720) 318-4795

SPECIFICATIONS:

IDENTIFICATION:

USCG NAME & HOMEPORT:	CATSPA W / PORT ROBERTS, WA
Vessel Hull Number:	953
USCG DOCUMENTATION NO.	1221833
FCC Call Sign:	WDI6538
MMSI:	36744740
YEAR BUILT	2006

MEASUREMENTS:

DISPLACEMENT	9,600 pounds
MAST HEIGHT OFF DECK	39 feet
MAST HEIGHT OFF WATER	46 feet
DRAFT (boards up)	1.5 feet
DRAFT (boards down)	5.5 feet
LOA	33.5 feet
LWL	31.75 feet
BEAM	14 feet

CAPACITIES:

DIESEL FUEL CAPACITY	36 gallons total (2 tanks, 18 gallons per tank)
FRESH WATER CAPACITY	60 gallons total (2 tanks, 30 gallons per tank)
WASTE HOLDING TANK	18 gallons

POWER:

DRIVE LEG OIL	synthetic gear oil
ENGINE	27 hp Westerbeke 30B diesel engine

SAIL:

GENOA	350 square feet
MAIN	340 square feet

Please read the following information before setting sail to better familiarize yourself with CATSPA W.

1. Anchors.

CATSPA W is equipped with two anchors, one forward and one aft in the starboard cockpit locker. The primary bow anchor is a 35 # Lewmar claw (Bruce) with 50 feet of chain and 180 feet of nylon rode. The rode is marked every 30 feet.

The second anchor is a large Fortress with a chain and nylon rode located in the starboard aft locker. This can be used for “V anchoring” (with both anchors) in storm conditions if safety does not allow proper extension of scope with one anchor (4-to-1 up to 10-to-1). Instead of using one anchor off the bow in the center of the boat, one anchor can be cleated to each hull bow.

Catamaran ground tackle is much lighter than it would be for a monohull of the same length (34 feet). The holding power is sufficient because of the weight characteristics; there is no keel to add to the weight of a catamaran. This is a good balance between weight and holding power.

CATSPA W only draws 18" with the boards up, so she can be anchored in much shallower places than other sailboats. Anchoring in shallow water needs a lot less line and is much easier to raise.

Normal scope of the anchor is 4-to-1 in the San Juan Islands.

The stern tie line is a 300 foot reel of line for stern ties in the aft cockpit locker. (Please do not cut the line; it is all needed for certain places in Desolation Sound.)

The scope to use in the islands is 4-to-1 for the highest water depth you'll encounter in the spot where you choose to drop anchor. Check your tide data...to know how much water you may lose and how much water you will gain as the tide floods in and ebbs out during your stay. Since most coves are 15'-30' deep, expect to pay out about 60'-120' of rode. After you have paid out the suitable amount of rode, 2 minutes of reverse (at idle speed) sets the anchor and tests its holding power. (Note other boats and points of reference on land. Are you moving? If not after 2 minutes, you've set your anchor successfully.) If you wish to sleep even better, throttle up to about 1500 RPMs in reverse for another 30 seconds to prove to yourself that the anchor is set well!

For storm conditions (sustained winds of 25+ knots), extend your scope to 7 or 10-to-1, provided you have room to leeward. Otherwise, set two bow anchors (using the secondary anchor, chain and rode) in a v-type pattern for extra holding power.

2. Anchor Windlass.

A Lewmar ProFish 700 freefall windlass is installed above the anchor locker. There are separate up / down foot switches located adjacent to the windlass. Power is received from the engine start battery. **Always operate the engine when the windlass is running.** Otherwise, the windlass will drain the start battery. If the windlass fails to operate, ensure that the circuit breaker has not tripped. The 50 amp circuit breaker / isolator is located low on the port side wall of the entrance to the head compartment.

CAUTION: To avoid personal injuries it is imperative to ensure that limbs, fingers and clothing are kept clear of the anchor rode and windlass during operation.

To lower the anchor, press the down foot switch for 2 seconds until the anchor is under freefall. (Note: pressing the DOWN button for more than 5 seconds will result in a longer clutch re-engagement time during the next up command.) Motor astern to create the desired scope.

Once scope has been created press the up button continuously until freefall stops. It normally takes several seconds to full re-engage the internal clutch mechanism, locking the windlass. Failure to do this could result in rope / chain creeping out. Press the UP button continuously to recover the anchor.

Letting go under gravity:

Insert the clutch lever into the clutch nut and turn it clockwise to ensure that the clutch is tight. Release any independent anchor locks. If it is safe to do so, pull back on the clutch lever until the anchor and rode begin to pay out. Control the rate of descent of the anchor by pushing the clutch lever forwards. When sufficient rode has been paid out, fully tighten the clutch not once again.

Letting go under power:

Release any independent anchor locks. If it is safe to do so, let go under power by operating a DOWN control. Release the control when sufficient rode has been paid out.

Lying to anchor safely:

Vessels at anchor will snub on the rode and this can cause slippage or apply excessive loads to the windlass. For maximum safety and to prevent damage, **the windlass must not be left to take the entire force from the anchor rode while at anchor.** The rode should be made fast directly to the adjacent cleat.

Hauling in:

Untie the bridle or replace the rode in the gypsy. If it is safe to do so, operate an UP control. Having retrieved the anchor, ensure it is independently secured to prevent its accidental release.

Manual recovery:

Insert a standard 12 mm (1/2") drive ratchet into the socket on the end of the Driveshaft. Using the ratchet, turn the driveshaft clockwise.

Operating tips:

When anchoring, it is best to power the rode out, allowing the vessel to take up stern way before full scope is let out. This helps prevent the rode from becoming tangled on top of your anchor on the seabed.

To aid anchor recovery, we recommend that the vessel's engine be used to assist by moving the vessel towards the anchor. We do not recommend that the vessel be motored over and beyond the anchor, as this can cause the rode to damage your topsides. As the anchor approaches the stemhead, the last few feet of rode should be inched in by judicious use of controls to avoid damage to the vessel. Having retrieved the anchor, ensure it is independently secured to prevent accidental release. It is strongly advised to use an anchor safety strap or chain stopper.

When mooring stern to, at a suitable distance from the jetty, deploy the anchor to prevent the bow from swinging. Gently pay out the rode under the influence of the stern way of the vessel as it approaches the jetty. Make fast your vessel with warps from the stern.

Retrieving the Anchor.

*When retrieving the anchor, **never use the windlass to pull the boat forward to where the anchor is set.** (The windlass is not designed for it, would be a large draw on the batteries, and might cause serious damage to the attachment base.) Instead, head the boat under power toward the anchor while using the windlass to take up the slack in the chain.*

Take your time, the anchor chain and/or rode dropping off the gypsy sometimes bunches up under the windlass and you might need to push it down several times (with your foot or a mop handle) to the bottom of the chain locker to prevent it from jamming in the windlass.

Securing the Anchor.

Once the anchor is on the bow roller, be sure to secure the anchor with the "keeper" line. (The chain on the gypsy on the windlass should not be the only thing keeping the anchor from unexpectedly returning to the sea bottom!)

3. Autopilot

The autopilot is powered by an on/off breaker labeled “sailing instruments.” A lever behind the wheel needs to be activated to engage the clutch. Press “Standby” and disengage the lever to resume manual steering.

4. Barbecue.

The BBQ is plumbed to the low pressure side of the propane tank regulator through the solenoid valve. The propane tanks are located in the starboard cockpit locker.

The solenoid is opened by turning on the “gas alarm breaker. Then press the left button on the gas alarm to get three green lights. Make sure the faucet-like valve on the tank located in the starboard cockpit locker is turned on before the solenoid. The propane line to the BBQ exits along the inside top of the locker and includes a shut-off valve that must be opened. Turn the BBQ’s regulator valve to the “on” or “light” position, and with the LID OFF, light the burner. If the igniter fails to light the BBQ, be sure to have a butane lighter ready (located in the galley). Be sure to ignite the butane lighter first, then turn the BBQ control to “ON” to prevent injuries.

With the lid on, the BBQ tends to be hot and cook quickly, so tend your meat often. We provided a meat thermometer in the galley to ensure your meat is cooked to a safe temperature for consumption. *As a courtesy to the next guest, please use the wire brush in the galley clean it after use.*

5. Batteries & Inverter.

CATSPA W is equipped with 3 deep cycle house batteries (240 Amp Hrs) and one dedicated engine start battery. They are located in the locker under the port navigation table. The batteries are combined through a relay during charging and isolated during discharge. This makes the operation simple and requires no attention from the charter guest. The voltage and charge level of each battery bank can be monitored at the remote indicator mounted at the navigation station.

There is a 1200 watt inverter that can power ac loads from the batteries. High load devices (microwave, coffee pot, special hairdryer) put a considerable drain on the house battery bank and the engine should be run during inverter use to relieve the load on the batteries. To turn the inverter on and off press the inverter switch located on the remote control installed at the navigation station. The inverter should be selected off to conserve battery power when not needed to power ac loads. The batteries should be maintained above 50% of charge. When not on shore power the engine should be run for 1 – 2 hours a day.

CAUTION: Never turn a battery switch to “off” while the engine is running! This will blow the diodes on the alternator, and your batteries will no longer charge.

6. Berths.

CATSPA is ideal for 6 people, but there are 4 possible berths. One queen berth in the forward cabin, two double berths in each of the aft cabins, and two people can sleep on the dinette table which converts to a double berth.

Steps for converting the dinette to double berth as follows:

- Remove the table top by loosening the black screw knob underneath.
- Remove the table post by pulling up and wiggling (it's a friction fit - no screws to loosen)
- Set the table top in place to fill the berth area. Unfold the wings.
- Remove the forward seat cushions and place lengthwise on the table top with angled ends facing forward and pushed against the forward seat cushions.
- Fill remaining aft section of berth with the two small square cushions.



7. Bilge leaks.

Bilges are normally dry. Any water in the bilge typically comes from over-filling the fresh water tank.

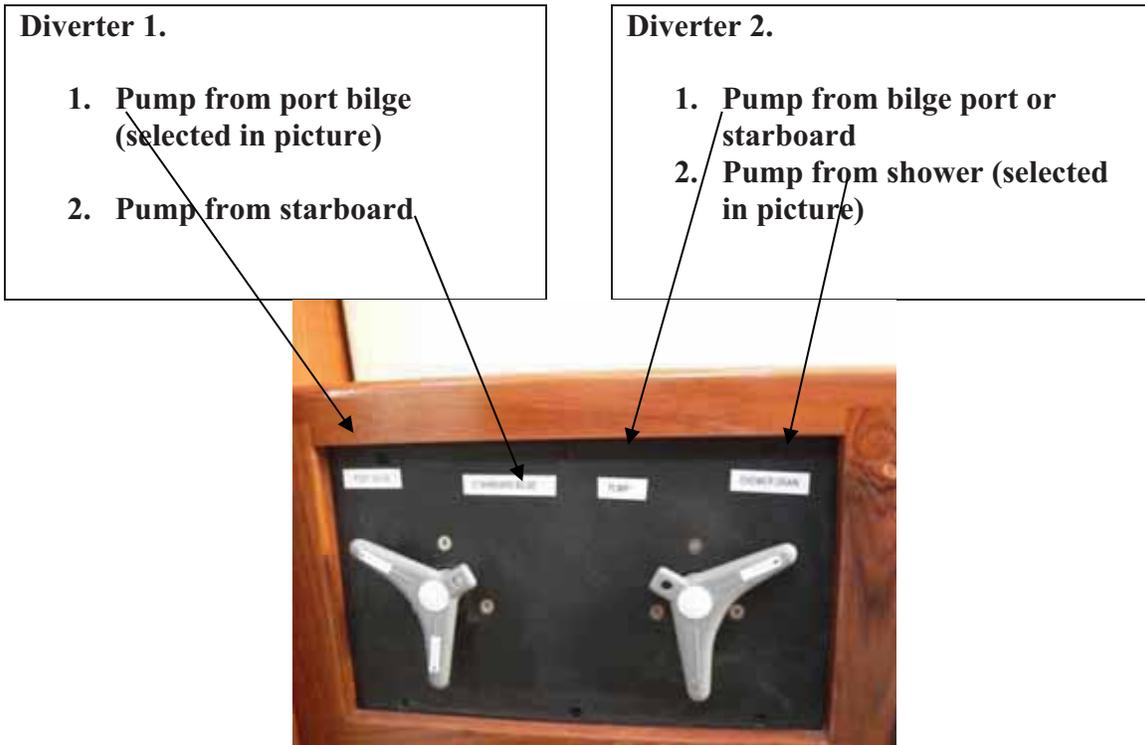
8. Bilge pumps.

The Gemini 105Mc comes with a combination shower pump / bilge pump system which enables you to get “double-duty” out of the Gulper 220 pump. The pump is located under the port dinette and is accessible from the cabinet door closest to the head. Through the use of the two diverter handles (note: they are quite stiff to turn) located on the outside of the cabinet, you can convert the pump to act either as a shower sump pump, or as a port or starboard bilge pump.

There are two 6’ section of hoses housed in the same cabinet as the pump (on the port side) and in the corresponding cabinet on the starboard side in the galley area. You can move the end of these hoses to the area of the boat you would like to pump out.

Configurations:

The two-way diverter handles enable the following selections (as depicted, this would pump the shower sump):



To turn on the pump – make sure “shower sump pump” is turned on at the electrical panel. To turn the pump on and off use the grey switch located behind the door and below the sink in the head.

Please check the bilge each day, morning and evening. It is accessed by lifting the floorboard next to the navigation area floor and one in the galley floor. Usually any water found in the bilge is water that has leaked from the fresh water tanks due to overfilling. If the level is not excessive there is no cause for concern. The water can easily be removed by using the bilge drain hoses located in each hull.

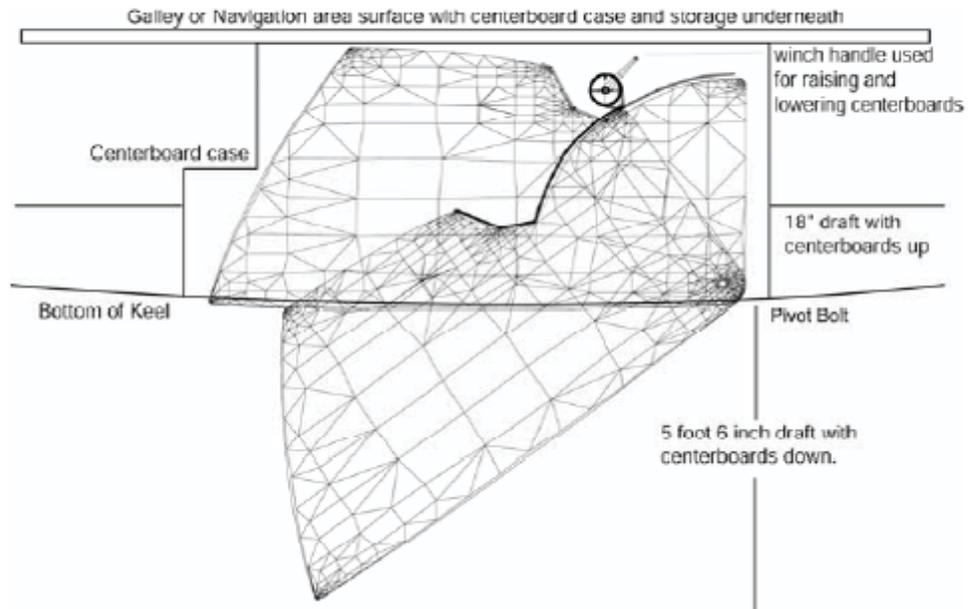
*The **manual emergency bilge pump** is portable and is located in the starboard aft locker. In a real emergency use a five-gallon bucket.*

9. Centerboards.

The centerboards are 7' long and pivot from a case in the hull. When the centerboards are fully down they go down 4 ft below the keel. Inserting a winch handle in the socket and turning the drum approximately 1 3/4 turns lowers the centerboard. Turning the other way raises the centerboard. The centerboard is held in position by sliding the chrome wing nut wrench over the nut behind the winch handle socket. Turning the wing nut clockwise jams the drum to the side and prevents the board from moving. Do not over-tighten. The direction of rotation is such that if the centerboard was down and it struck bottom it would push up and simply undo the locking nut.



Centerboard Design



When motoring, the centerboards are not needed. Maneuvering at slow speeds with centerboards down will make the boat easier to control. In strong cross winds when docking, both boards down will help stop the boat from drifting and being blown around. The boards will push up if run aground.

The boards are only necessary for windward work or when close maneuvering in a marina.

Only the leeward board is necessary but it does not hurt if they are both used. If in doubt put both down 1 1/4 turns. If the boards are down and they do not need to be, the lack of side pressure will cause them to rattle in the slot. Simply raise them. The boat will sail at any angle with no boards. However tacking is more difficult and the boat will slip sideways when sailing to windward. It is more difficult to sail in light air with no centerboards down.

10. Dinghy.

CATSPA W has an inflatable hard bottom West Marine dinghy, one seat, oars and an outboard engine. (See "Outboard" section.)

CATSPA W's dinghy is suspended from dinghy davits. A hand operated air pump is in the aft starboard port storage locker if the dinghy needs a top-off. **The out-drive leg must be down to raise and lower the dinghy from the davits.** Be sure to store the bow higher than the stern and leave the drain plug out when on the davits so water will drain out. If using an outboard on the dinghy, turn it sideways to provide clearance at the stern. Be careful to not hit the hull of the boat

with the outboard motor or propeller. Raise the dinghy fully and secure it with spring lines to eliminate motion underway.

Choose your landing site carefully. Please use extra care when you beach the dinghy. Rocks here are very sharp and often covered with barnacles that have razor-edged shells. Nudge onto the beach while moving some weight aft a bit. Once grounded, the bow person can jump off with the painter in hand. The rest of the crew should disembark before moving the dinghy. Then carefully lift the dinghy and carry it onto the beach. Please do not drag it on the beach. Thank you for your care!

***The dinghy should not be towed.** The dinghy should be stowed on the davits when underway to prevent the davits from swinging and possibly causing injury.*

It is not necessary to remove the outboard engine prior to stowing the dinghy on the davits. This makes use of the dinghy very convenient for charter guests.

11. Docking

We recommend backing CATSPA into the slip. With the steerable drive leg this gives better maneuverability, visibility and communication with crew. It also provides easier access to the dock from the swim steps.

First place dock lines on the fore and aft cleats on the appropriate side and locate a fender near each cleat. Then simply back the boat towards the end or side of the slip. When you get close enough, your crew steps ashore and helps you maneuver the boat into the slip. If the boat is not well aligned, move the boat until the stern cleat is opposite the nearest dock cleat and secure the cleats to each other with a dock line. Now, with the rudders centered, gently motor forwards or astern depending on which way you need to turn the boat. Release the line and move into the slip (with engine assistance as needed) once the boat is sufficiently aligned.

On departure from the home slip there is too little room to turn without hitting the boat across the channel without backing up. While drifting towards this boat turn the wheel fully the other way (to starboard) and then engage reverse to immediately rotate the boat. Better yet (since it is possible for the drive leg to jump out of reverse) loop a line from the port stern cleat around the last dock cleat taking the end back on board. Then keep motoring forward with this line tight in order to turn the boat. Once the boat is aligned, the line can be allowed to slip through the cleat and you can continue on your way.

If the engine is insufficient to align the boat as described above, it is too windy for you to be docking the boat. Approach any suitable dock cleat from downwind and tie the bow to it allowing the boat to swing downwind of any obstructions while you wait for the wind to die down and/or call the marina for assistance.

12. Eisenglass Cockpit Enclosure

Please be very careful with the Eisenglass which is easily scratched. When sailing, the panels that have the straps to facilitate rolling up need to be rolled up or removed. The back panel needs to be raised away from the mainsheet using a bungee.

13. Electrical System

120 Volt AC Panel



The box at the upper left is the inverter used to send 120V power through the system. Do NOT turn it on unless on shore power or the engine is running. The 1200 watt inverter that can power ac loads from the batteries. High load devices (microwave, coffee pot, special hair dryer) put a considerable drain on the house battery bank and the engine should be run during inverter use to relieve the load on the batteries.

To turn the inverter on and off press the on/off switch located on the MAGNUM remote control installed at the navigation station. The inverter should be selected off to conserve battery power when not needed to power ac loads. The inverter also charges the batteries when on shore power or the engine is running if the white “inverter” breaker is closed (on).

The circular instrument below the inverter shows the state of battery charge (12.4V in this instance).

AC MAIN 30A/REVERSE POLARITY

Turn on after hooking up to shore power to feed power to the panel. If the Reverse polarity light comes on there is a problem – speak to the marina.

Maximum draw is 1200 watts.

OUTLETS

Sends 120V power to the outlets.

REFRIGERATOR

Powers the refrigerator electrically. If this switch is sending power to the refrigerator and the refrigerator is set to “Auto”, it will choose to run on electricity rather than propane even if the propane is on.

WATER HEATER

Runs the electric water heater (as opposed to the engine water heater).

INVERTER

This is really the battery charger. **It must be switched on for the batteries to be charged from the engine or from shore power.**

12 Volt DC Switch Panel.



COMPASS LIGHT

CABIN LIGHTS

In addition to activating the cabin lights, this breaker activates both 12-volt outlets (one located next to the AC/DC panel and one above the refrigerator).

Note that the fluorescent light bulbs are 8 W while the round fixtures have 2 W LED lamps and draw $\frac{1}{4}$ of the power.

RUNNING LIGHTS

This switch activates the fore and aft white lights and the pulpit-mounted navigation lights. Use these lights in poor visibility when the engine is in gear.

Please be advised that night passage-making is not permitted under terms of your charter agreement with San Juan Sailing. Only use in cases of reduced visibility (like fog or on the rare days in the Pacific Northwest when there's heavy overcast).

MASTHEAD LIGHT

This switch activates the tricolor masthead light. Use this light when sailing in poor visibility and the engine is not in gear.

VHF

SHOWER SUMP PUMP

This provides power not only for the shower sump pump, but also for the bilge pumps. The switch behind the door in the head activates the same circuit. Select where the pump acts on the panel outside the head behind the settee.

WATER PRESSURE

Turns on the water pump. Turn off whenever not needed. When no one is below decks, especially while motoring or even when sailing, turn off the water pressure breaker. Should you run a tank dry, the pump would continue to run until it burns out...and you'd never hear it running while everyone is in the cockpit. Water tank selection valves are located in the aft port berth.

GAS ALARM

This turns on the Propane Alarm Control System Panel (located between the VHF and stereo). Press the "Valve On/Off" button on the Propane Panel to open the gas solenoid valve.

SAILING INSTRUMENTS

Turns on the chart plotter, autopilot, knot-meter and wind instruments but not the radar.

ANCHOR LIGHT

The white light at the masthead used when anchored.

DECK LIGHTS

Mast-mounted lights illuminating the deck

STEREO

REFRIGERATOR

Turn on for operation under propane

CABIN LIGHTS

Also powers the DC outlets.

HEATER

Powers the Webasto diesel heater. This switch is guarded because the heater should not be turned off with it. Use the switch in the master stateroom to turn the heater off. Then wait until it has completed its cooling cycle before turning this switch off.

NAVIGATION ELECTRONICS

This powers the radar system.

14. Electronics.

The chart plotter/GPS, depth sounder, wind instrument, and autopilot are all RayMarine products.

TV. A 12-volt 19 inch television / DVD player is stowed beneath the seat at the cabin entryway in a laptop bag. To prevent damage, the TV should not be used while underway. The locker below this seat also contains a variety of games.

Cellular Telephones. *CATSPA*W is equipped with a 12-volt cigarette lighter type outlet (powered through the “cabin lights” breaker) that may be used for recharging your cellular telephone. The outlets are adjacent to the navigation station and the chart plotter.

Depthsounder. Power on by flipping “on” the breaker labeled “sailing instruments” on the electrical panel just inside the cabin to the port wall.

The digital depthsounder will not give accurate readings beyond 200'. In deeper water, the sensitivity on the unit increases as the transducer tries to get some reading back. Consequently, you will receive many false readings caused by currents, changes in water temperature, fish, and seaweed. Use the depthsounder only as an aid to navigation in shallow water.

IMPORTANT: *The key to avoiding rocks is NOT the depthsounder – but knowing where you are at all times. (Rocks are the greatest navigational and safety hazard in the islands – but they are all clearly marked on the charts.)*

We do not recommend using the depthsounder's alarm during night. Besides a fairly high battery drain, it's likely to sound at inappropriate times such as late at night while fish are passing beneath the transducer. (Instead, consult the onboard tide data to determine whether you're anchored in a safe location, considering how shallow your depth will become when the tide ebbs out of your anchorage in the middle of the night.)

Chart Plotter. *CATSPA*W is equipped with a RayMarine color C90W chart plotter at the helm. (The chart plotter may be used without the radar to minimize battery drain.) GPS input to the Chart plotter comes from a Raystar 120 WAAS receiver antenna mounted on the hard bimini. To start the Radar/Chart plotter, turn on the electrical panel switch labeled “Sailing Instruments”. Then, press and hold the power button at the lower left corner of the unit until it beeps and turns on the display. To shut down the unit, press and hold the power key (button, lower left) for 3 seconds.

There is a backup handheld chartplotter in the NAV locker on the port side.

We recommend that in addition to using your PRIMARY navigation aids – namely, the Maptech waterproof chart book or the roll charts (with the most active “killer rocks”

marked in red) – up in the cockpit while underway, you also utilize the chartplotter for added safety. It helps you to see if you are where you think you are on the chart book or paper charts. If someone asks, “Where are we?” Within 3 seconds, you need to be able to point to the chart and show them the vessel’s precise position. If you can’t, you’re in danger of hitting a rock. There is also a red rock hit laminated placard in the head where you may find some time to review it.

The only time when the chartplotter becomes your primary navigation tool is when you’re in a “tight spot” like going through a narrow pass or approaching the entrance to a secluded cove. With the chart plotter, you can “zoom in” to make something that’s the size of a dime on a paper chart into the size of a paperback novel or larger on the screen. You can see more detail and, importantly, any hazards in the area. Your boat’s position on the chartplotter is accurate to within 3 meters – about 10 feet.

CAUTION: Do not use the chart plotter as your sole means of avoiding navigational hazards!

Fog:

The fog that we’ve encountered in the islands usually forms in the wee hours of the morning and burns off by mid-day. So if it’s a little soupy after breakfast, we put on an extra pot of coffee until it lifts. Never depart from a safe location into the fog! To do so, you would be contrary to prudent seamanship. FYI – Fog becomes “reduced visibility” when you can see ¼ mile (about 4 football fields) in all directions. A motoryacht, tanker or freighter traveling at 20 knots takes only 39 seconds to travel ¼ mile! You need to see these fast-moving vessels sooner-rather-than-later so you can prepare, if indicated, to quickly take evasive action to avoid an impending collision.

Knotmeter. Power on by flipping “on” the breaker labeled “sailing instruments” circuit breaker compartment side wall. Speed is indicated in knots or nautical miles per hour. (For comparison, 7 knots is approx. 8 statute mph.)

If the display shows a reading of 0 while underway, the impeller may be fouled with eelgrass. If it doesn’t rectify itself while sailing, your speed can always be viewed through the GPS input on the chart plotter.

VHF Radio.

To listen to the weather reports (should be done in the morning before you head out and ½ hour before your final destination), push the “WX” button on the radio. Scan the weather channels for the one with the best reception before sailing in the morning and prior to anchoring for the evening. This is generally a light wind region but weather changes can be sudden. Listen for the “inland waters of western Washington” Both cover the San Juan Islands and the Canadian Gulf

Islands. You will also hear “Strait of Juan de Fuca” (south of the San Juans), “Georgia Strait” (north), and “Rosario Strait” (runs through the eastern part of the San Juans).

You should monitor channel 16 (the hailing and distress channel) during your cruise. You may save a vessel or a life. You may hail vessels on channel 16, but after establishing contact on channel 16, ask the skipper of the other boat to switch to working channels 78, 79 or 80. San Juan Sailing monitors channel 80 during office hours (closed Sundays). If you need a review of VHF radio protocol, you’ll find information located in the onboard Charter Guest Reference Notebook. (By phone you can reach the San Juan Sailing office at -800-677-7245 or SJS’s owner, Roger Van Dyken, at 360-224-4300 on cell or 360-354-5770 at home.)

In case of a distress where you can no longer stand by the radio to pass your mayday, use the red distress button on the radio. First flip up the cover, then press the button.

There is a handheld VHF in the NAV locker on the port side.

15. Emergency / Safety Equipment.

Air Horns: Air horns are located in the shelf on the side of the refrigerator.

Carbon Monoxide Detector: this is located on the wall of the salon area leading into the head area. It is powered by a 9 volt battery and emits a startling shrill alarm when carbon monoxide is detected. Please react promptly should the alarm sound. Spare 9 volt batteries are in the general spares box in hold adjacent to the navigation station.

First Aid Kit: A complete first aid kit is located in the resources locker on the port navigation station. Band-Aids and antibiotic ointment are located in each of the medicine cabinets for minor scrapes or cuts. Please note any usage of these items so they may be replaced for the next Guest.

Flares: Visual day/night distress signals are located in the resources locker on the port navigation station.

Fire Extinguishers: There are three fire extinguishers. One is located in the entry way of the master cabin, one in the salon entryway on the starboard side, one in the resources locker on the port hull.

PFD’s: 4 Adult PFD’s type 2, are located in the master berth forward locker in the canvas bag. The additional 5 adult PFD’s are located in the aft berth hanging lockers for easy access. We wear our PFD’s at all times outside the cabin when underway for safety. We request you do the same to keep your sailing adventure a safe and happy experience.

16. Engine & Handling.

STARTING AND STOPPING PROCEDURES

DIESEL ENGINE START:

1. **Check oil level daily.** Dipstick access is behind the side panel in the propane locker.

CAUTION: Never overfill oil in a diesel.

2. **Lower the sonic drive leg (More information under “Sonic Drive Leg”)**

3. **Disengage gears / advance throttle.** Center the throttle / gear lever. Use left hand to pull out ever 1/4" to the left while the right hand pushes the lever forward approximately 45 degrees.

4. **Turn the key to “run”** (1 o’clock position), buzzer will sound. **Press pre-heat button** for a few seconds. **Then press start button** while still pressing pre-heat. Once engine starts, let go of the button.

5. **Check to ensure water is coming out of the exhaust** on the transom beside the outdrive leg. (If there is no water coming out follow procedures outlined below for engine overheating.) Idle the throttle lever back so the engine warms up at 1200-1400 RPM for a several minutes. Pull the throttle gear lever back to the center (neutral position) until it slips to the right: the lever is now ready to be put into gear. Push up for forward gear or pull down for reverse gear. Allow a few seconds between shifting into gear to ensure propeller stops turning. **Ensure the ignition key to does not go to “off” position while the engine is running. -DO NOT EXCEED 3,000 RPM.** Normal cruising is optimized at 2,200 – 2,500 RPM. This is the most efficient use of engine power without greatly increasing fuel and oil consumption.

IF ENGINE OVERHEATS: check for water discharge from the exhaust. Stop engine immediately (when safe to do so). Check the sea water strainer located under aft starboard bunk. *Ensure strainer is full of water & free of debris.* If you need to remove debris (usually eel grass): close cooling water seacock also located under the bunk. Open the lid to the sea strainer and remove any debris from the filter. Ensure the strainer lid is seated properly and sealed. Open cooling water seacock. If clogged water strainer is not the problem, check the coolant level and add water if necessary. If nothing else seems to indicate a problem, it is possible the impeller must be replaced (spare impeller located in the Westerbeke spare parts box).

NOTE: Engine may overheat while motor-sailing on starboard tack. If heeled more than 5 degrees the thruhull can come out of the water.

DIESEL ENGINE STOP

CAUTION: Engine must only be stopped by cutting off the fuel supply to the engine.

1. Put gear handle in neutral.

2. Pull T handle above the steering wheel to cut fuel supply to the engine. Turn off ignition with the key when the engine has stopped and the alarm sounds. Push T handle back down to be in position to start the engine.

3. Raise drive leg when not running engine. (and see how your sailing speed increases!) Close the black valve knob. Open red stopcock (horizontal). Pull out the chrome T knob in the back of the locker to release the reverse lock, and then pump the red handle. The first pump will be hard and then you should be able to feel the leg slip out of reverse lock and start to raise up. At that point, push in the chrome T knob and continue pumping. Once the leg is up all the way, turn the red stopcock vertical to stop any fluid flow through the pump.

Never turn off the engine until the vessel is securely tied at the dock. Remember, you'll need to use your engine – in reverse – to stop the boat. It's very difficult and often impossible for people holding lines to stop the momentum of a vessel as heavy as a cruising sailboat.

When coming into our docks in high winds or if you'd just like a little assistance upon arrival, simply hail "San Juan Sailing" on VHF channel 80. We'll be glad to offer some "coaching" and/or catch your lines. In fact, most marinas in the islands will help you if you hail them and ask for assistance. Asking for docking assistance, especially in windy conditions or with an inexperienced crew, is a sign of prudent seamanship.

Operation.

27 HP Westerbeke 30 – 3B series engines are very reliable. Cruising speed is **6.5 knots** at **2500 RPM**. Fuel consumption is approximately ½ gallon/hour at 2500 RPM.

Please do not exceed 2800 RPM because it's hard on the diesel and fuel consumption goes WAY UP (at very little increase in actual speed). We find the engine will have least vibration at 2300 RPM...and at some points below 2300 RPM. (5-6 knots at 2000-2500 RPM – economy cruise speed at less than ¾ gallons per hour.)

To avoid the possibility of sucking air or sludge when the fuel level approaches 1/4 of a tank, refuel when the fuel drops below ½ full and before it reaches ¼ full.

Engine Overheat. If the buzzer sounds while the engine is running, about 999 times out of a thousand it's no more serious than eelgrass plugging up your raw water strainer. The best upfront solution to this problem is prevention—keep an eye peeled for eelgrass mats, especially along those "soapy" looking tide and eddy lines in the water. And don't run over it. When eelgrass gets sucked into the engine cooling water intake, it jams at the raw water strainer.

To clear the eelgrass from the raw water strainer (above the water line in the engine compartment in CATSPA), simply twist off the clear screwtop and extract the eelgrass and toss it in the galley garbage can. Replace the lid and tighten by turning it clockwise until the lid is seated firmly on the rubber gasket. Then restart the engine.

If upon restarting the engine overheats again, check the seal between the strainer, the rubber gasket, and the lid. If the strainer is drawing air, it won't draw water. If needed, open and then retighten the lid on the strainer...and check to make sure the rubber gasket is in place in the lid (and not lying in the bilge.)

If the above fails to solve the problem, call San Juan Sailing for assistance.

There may be other reasons you hear the buzzer. If you lost oil pressure, the oil icon warning light will light up, so check which light is showing red. If it's the oil light, shut down the engine, check the oil level, and contact San Juan Sailing. The alarm buzzer is more likely to indicate engine overheating, and the temperature icon light will light up. Before you shut down the engine, check for water gurgling out the exhaust. If you have a "wet exhaust", check the coolant level in the overflow reservoir bottle and if none is seen, add enough to reach the top level line on the bottle. (ONLY AFTER THE ENGINE COOLS DOWN, you might remove the cap on the engine block and add coolant.) And check under the engine for a light green liquid. If found, call San Juan Sailing. If the coolant reservoir bottle is full, check to see if the engine threw a belt. (Replacement belts are located in the engine spares kit.) One other possibility is that the impeller in the raw water pump has failed. While they are replaced each spring with a new one, it's still possible that a hard object may be drawn in and break off an impeller blade. (A replacement impeller is found with the engine spares.) Call San Juan Sailing if you suspect you have an impeller problem.

Engine Shutdown. CAUTION: Remember--do not shut the RED ignition key while the engine is running! (This can damage the diodes on the alternator, and the batteries will no longer charge. If you accidentally do this, turn the key back to the "on" position as soon as possible.) Instead, first bring the engine to idle and the gearshift to neutral. Allow the engine 5 minutes to cool down. Then pull the fuel cutoff button located next to the key. After the engine stops, push the fuel cutoff back down and turn the key to the "off" position (turn it counter-clockwise) and remove key.

17. Fog.

The fog that we've encountered in the islands usually forms in the wee hours of the morning and burns off by mid-day. So if it's a little soupy after breakfast, we put on an extra pot of coffee until it lifts. Never depart from a safe location into the fog! To do so, you would be contrary to prudent seamanship. FYI – Fog becomes "reduced visibility" when you can see ¼ mile (about 4 football fields) in all directions. A motoryacht, tanker or freighter traveling at 20 knots takes only 39 seconds to travel ¼ mile! You need to see these fast-moving vessels sooner-rather-than-later so you can prepare, if indicated, to quickly take evasive action to avoid an impending collision.

Audible signals for a sailboat is 1 prolonged and 2 short blasts with the air horns located in the resource locker.

18. Fuel Tank.

*CATSPA*W has 2 - 18 gallon fuel tanks. The engine consumes approx. ½ gallon of diesel per hour.

To change from one tank to the other, lift center cover at aft of engine. Turn the two valves 180 degrees to direct the fuel from the full tank.

Please be very careful when fueling. Never allow maximum flow from the filler hose (have the attendant reduce the flow from the hose). If you do, the fill tube will surge and diesel will spill from the vents onto the side and onto the deck. It takes only a few drops of diesel fuel in the water to create a sheen and subject you to a Coast Guard fine. Fill slowly and carefully. Check the side vent and, with dish washing soap, wipe up any excess fuel to avoid yellowing the hull and stern and polluting the water. Also be very careful of drips when removing the hose. Diesel and shoe bottoms are a very slippery and dangerous combination. After wiping, please use soapy water to scrub down any drips so it does not stain the fiberglass.

Put your ear down to the fill hole and listen to the diesel flow. When the pitch changes and gets higher and higher, the tank is likely full and you're now filling the hose between the tank and the fill hole. Avoid a fuel spill – STOP! Check the fuel gauge. If the gauge is not on "F", continue filling. When you think you're finished fueling, check the fuel gauge one last time to make sure it's reading "F". That way, San Juan Sailing will not charge you a \$50 fueling charge (plus the cost of fuel).

Note: Unlike automobile fuel gauges, fuel gauges on boats are notoriously inaccurate, especially on the low end. Therefore, whenever the fuel level drops below ½ full, you should refuel at your next opportunity. NEVER let the fuel level fall below ¼ full or you're in danger of running out of fuel. (Towing and the cost of a mechanic to bleed the air from the fuel lines is an expensive proposition for a charter guest.)

19. Head & Holding Tanks. *CATSPA*W has an 18-gallon holding tank, and it will need to be emptied once every day to avoid a leaking sewage or, worse yet, an exploded holding tank...a real "vacation ruining" event! San Juan Sailing staff will discuss holding tanks, overboard discharge and pumpouts upon your arrival.

CAUTION: If the toilet pump starts to resist your flushing effort, don't force it!

Exploding or leaking sewage is most unpleasant! Search out the problem and correct it.

If you pump out the holding tank at a shore facility, please fill it with about 5 gallons of fresh water through the deck fitting to rinse, and then pump it out again. Thank you!

Offshore sailors have a rule: “Never put anything down a marine toilet that hasn’t been eaten first.” And that, of course, includes feminine items. In fact, offshore sailors do not even put soiled toilet tissue down a marine head. They simply deposit soiled toilet tissue (and feminine items) in a receptacle such as a waste basket with a liner bag or a ziplock baggie, but not down the toilet. We and San Juan Sailing highly recommend you follow this rule. And since we’ve been recommending this, we’ve had almost no incidents of plugged heads!

HOLDING TANK & SELECTION VALVES

The valves located behind the access panel behind the toilet direct the toilet water either overboard or into the holding tank. The 18 gallon holding tank is on the same level as the sail locker base. The holding tank level can be inspected visually through the Plexiglas bulkhead in the sail locker. The holding tank is fairly small and should be emptied on a regular basis at a pump out station. If you use the holding tank, please monitor it carefully! If the tank is over filled, exploding or leaking sewage is most unpleasant.

The deck pumpout is on the port side of the foredeck. The selection valves behind the toilet direct the toilet water either overboard or into the holding tank.

The photos below show all the possible valve configurations for the toilet. This photo is also taped to the back of the access panel behind the toilet next to the sail locker. The Coast Guard is very strict on valves: they must be set to pump from toilet to the holding tanks! The Coast Guard is routinely boarding boats and checking the valve positions...





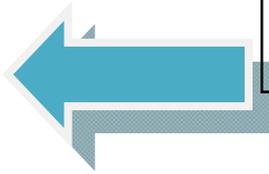
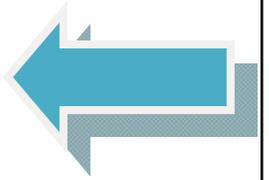
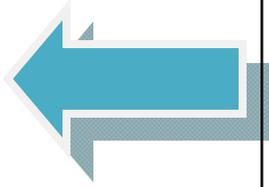
Overboard



Into Holding Tank



Gravity Drain Holding Tank



The selection valves behind the toilet direct the toilet water either overboard or into the holding tank.

The photos show all the possible valve configurations for the toilet.

This photo is also taped to the back of the access panel behind the toilet.

20. Heater.

The auxiliary diesel-fired Webasto cabin heater will make the interior “toasty” within 10-15 minutes. The heater control is located in the starboard forward cabin. Heater control is located within easy reach from the bed adjacent to the master berth side wall. Rotating the dial to the right starts the unit and raises the temperature setting. Note: It takes about 5 minutes for the heater to “cycle up” and get hot. Turning the dial all the way to the left turns off the unit, however the fan will continue to run for about 5 minutes while the unit is cooling down and cycling off. **Do not switch the guarded heater breaker off until the fan has stopped running.** The heat is dry, comfortable, and on those rainy days or cool evenings, makes a huge difference in cruising comfort.



When it's cool, we recommend warming the boat before turning in for the night, with the last person to go to bed in the master berth instructed to turn the diesel heater off before retiring. (Otherwise, the boat will get too hot and the electric fan in the diesel heater will drain the house batteries. The comforters will keep you warm in bed.) Then, the first one up in the morning can simply turn the cabin heater back on.

The diesel heater will not start if the house battery bank voltage falls below 12.2 volts.

21. Hot Water Heater.

The 6-gallon hot water heater is located forward of the port water tank (under the bunk). When the engine is running, the heat exchanger coil from the engine heats the water in the heater. A blue handled valve in the front end of the engine compartment is used to shut off the hot water going to the water heater tank. When the handle is pointing down, the engine is not heating the water. When the handle is horizontal, the water in the tank is being heated. A switch on the main 110V panel turns on an electric element in the hot water tank that heats the water when on shore power. See Shore Power section above regarding use when needed.

CAUTION: Do not switch on electric element unless water is in the tank. Do not run hot water heater out of water when the electric element is on. These actions will burn up the hot water heater.

22. Inverter.

There is a 1200 watt inverter that can power ac loads from the batteries. High load devices (microwave, coffee pot, special hair dryer) put a considerable drain on the house battery bank and the engine should be run during inverter use to relieve the load on the batteries. To turn the inverter on and off press the invert switch located on the remote control installed at the nav station. The inverter should be selected off to conserve battery power when not needed to power ac loads.

23. Inverter/Battery Charger.

The white "Inverter" breaker switch must be on when on shore power or the engine is running in order for the batteries to be recharged.

24. Keel Depth.

CATSPA has a dual centerboards and draws 5'5" with them down so figure on 6 feet to be on the safe side. Centerboards up position draws 1'5" (figure on 2 feet).

San Juan sailing strongly recommends that you maintain a minimum of 10'-12' under the keel at all times, both underway and at low tide on anchor.

24. Outboard.

CATSPAW is equipped with a 4-stroke Honda 2 horsepower outboard. This brand and size has proven to be a practical and VERY reliable dinghy outboard.

DO NOT add any oil to the gasoline mixture – it uses just straight gasoline. The fill cap is located at the top of the engine.

As a courtesy we have an additional red spare gasoline container tied into your dinghy.

WARNING – Gasoline fumes are explosive and a very dangerous fire hazard if stored on a boat. Keep the spare gasoline container in the dinghy and tied to the transom so it stays upright. NEVER store the spare gasoline container in a locker, lazarette, or any other storage area on your vessel.

PLEASE do not cruise with the outboard on the dinghy. The dinghy must be stowed on the davits rather than towed behind the vessel.

To Start.

1. Push the fuel valve lever (starboard aft corner of the outboard) aft to open the fuel valve.
2. Pull out the choke switch (starboard forward corner of the outboard).
3. Open the air vent on the top of the fuel cap (top of outboard) by turning counter-clockwise about 3 full turns.
4. Make sure the black U-shaped kill clip (with the red lanyard) is clipped into the red shut-off knob (port forward corner of the outboard).
5. Turn the handle throttle $\frac{1}{4}$ turn counter-clockwise.
6. Pull the rip cord until it starts. (You shouldn't have to pull it more than 5 times.)

Note: the propeller will turn and the dinghy will move forwards slowly.

While Running.

1. Push the choke back in shortly after the engine starts (after about 10 seconds).
2. There is no transmission--just throttle up to go forward and throttle down to stop. If you want to go in reverse--just swivel the outboard around 180 degrees.

To Shut Off.

1. Shut the outboard off by pushing in the red shut-off knob (where the kill clip is clipped in). Or just pull the red lanyard until the clip pops off.
 2. To avoid prop damage, shut the outboard off and raise it out of the water before you reach the shore. Pull the outboard forward and out of the water until it clicks at stays in place.
- To put the outboard shaft back in the water, release the stainless steel lever on the starboard side of the shaft.

When Not in Use.

1. Push the fuel valve lever forward to close (starboard aft corner of the outboard).
2. Close the air vent on top of the fuel cap (top of outboard) by turning it clockwise.
3. Secure the outboard further by tying the safety lanyard with to the stern rail.

Troubleshooting.

If the engine won't start, review steps 1-6 above to make sure you've done all 6 steps. There is a spare spark plug and spark plug wrench in the tool box in case the engine won't start or is running rough. (A new spark plug solves myriad outboard problems. If you use the spare spark plug, notify your check-in skipper upon your return so a new one can be placed aboard for future guests.) If the outboard is running and you're heading toward shore, and the engine suddenly quits, it's usually that someone has forgotten to vent the fuel cap. If the engine is running fine but the propeller isn't moving, the shear pin is probably broken – just take the cotter pin out to remove the propeller and replace the broken shear pin (a spare pin is located forward of the shaft under the handle grip) and put the propeller and new pin back into place.

26. Propane System

CAUTION: propane is a dangerous gas and requires your attention.

Two vertical propane tanks are located in the starboard aft cockpit locker and supply propane via a regulator to a junction box for the appliances inside the cabin. To operate the fridge (on propane) or stove you must turn on the propane at the tank that is connected. Then turn on the safety solenoid by closing the “gas alarm” breaker on the 12V panel and pressing the left button on the gas alarm located between the VHF and the stereo. When the switch is first turned on, the propane detector goes through a checking system and stabilizes with a green light over the number of each sensor on the control panel. To operate the barbecue you must also open the manual valve on the line to the barbecue inside the gas locker near the top.

Please note that the propane tanks and both propane valves (the hand valve and the solenoid valve) are located in the propane locker in the starboard aft cockpit locker, which is vented and isolated from the rest of the boat. Any leaks there will move down, out, and away from the boat.

At night, it's recommended that you turn off the propane tank with its faucet-like hand valve. That way, should the solenoid valve fail, there's no chance that propane will leak into the vessel. (Since propane is a deadly gas, you'll sleep much better!) Then, the first one up in the morning can go out to the tank and turn it back on to start the water boiling for the coffee.

While the propane tanks normally lasts for 4 weeks or more, San Juan Sailing's staff tops them off every 2 weeks...so you'll have plenty for you cruise!

27. Refrigerator.

The fridge is 3.5 cu. ft. and has a small freezer compartment in the top. The fridge is vented to the cockpit. Fresh air comes in through the hatch near the cockpit floor. The hot air is then vented out through openings above the steering wheel. The hot air fan switch (located inside the teak panel to the right of the refrigerator door around the corner) should be turned on in hot weather (The toggle switch is “On” when flipped to the down position).

Press the ON/OFF button on the refrigerator door to the “In” position which illuminates the “Auto” light indicator. The GAS button should remain pressed in (which is “Off”)



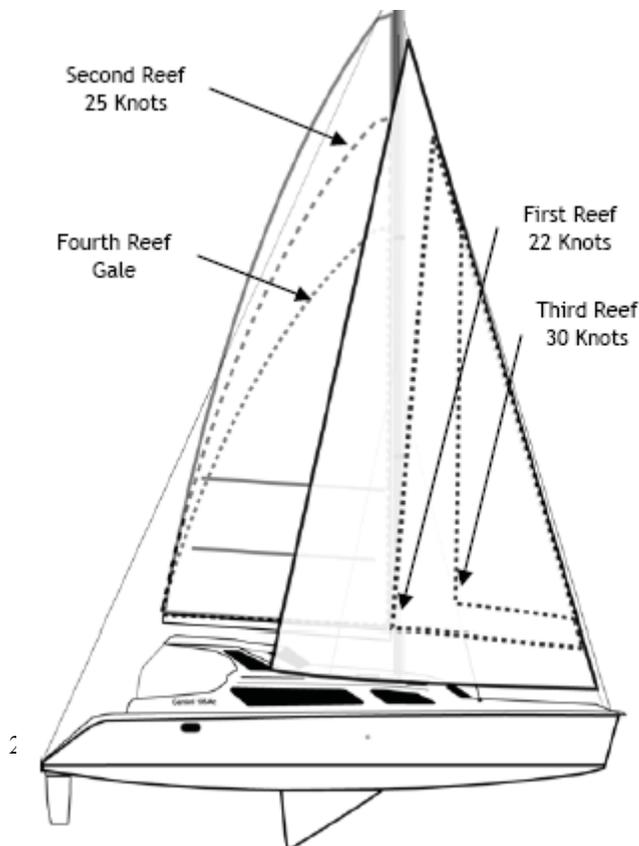
The refrigerator has an automatic set up which means if shore power is available, the unit will select A/C operation. Make sure the “Refrigerator” breaker on the AC panel is “on”. If shore power is not available, the unit will automatically switch to propane operation (MAKE SURE THAT THE PROPANE IS TURNED ON AT THE TANK AND THE PROPANE CONTROL PANEL - located between the VHF and the stereo). Also, flip on the “Refrigerator” breaker on the DC panel. Within 45 seconds, the burner should ignite and operate normally. If the “Check” indicator light comes on, the control has failed to light the burner on propane. To reset when the “Check” light comes on, press the main power button to the “Off” position and then “On” again which re-initiates the automatic lighting procedure. There are detailed lighting instructions on the inside of the refrigerator.

28. Sails.

CATSPAW is equipped with the following sails: 350 square foot Genoa and a 340 square foot Main.

REDUCING SAILS

The following are suggested guidelines. Good judgment goes a long way to a safe and happy trip.



Reduce sails when heeled to 7 degrees or when winds reach to following strengths:

18 knots MAIN & full GENOA

22 knots MAIN & 1st reefed GENOA

25 knots 1st reef in MAIN & 1st reef in GENOA

30 knots 1st reef in MAIN & 2nd reef in GENOA

Gale 2nd reef in MAIN & 2nd reef in GENOA

CATSPAW is equipped with two jiffy reefing lines, one for each reef in the mainsail.

NOTE: Reefing the Genoa first is important because the Genoa puts max load in mast and rig particularly when pounding to windward.

Heaving to can facilitate reefing. To heave to simply tack without tacking the jib. Then turn the wheel as if attempting to tack back. The backed jib will prevent the second tack and the boat will settle down and slowly drift to leeward while the main sail is allowed to flap during reefing. Over tightening the boom uphaul will also facilitate pulling the jiffy reefing line in. Don't forget to loosen it before setting sail again.

NOTE: Upon completion of sailing, wrap the jib sheets at least 2 times around the furled headsail and secure the reefing line. Also wrap a bungee around the sail when leaving boat to avoid sail from coming out.

Backstay Operation

The backstay should be slack when not sailing. This is important because a tight backstay strains the boat.

When sailing have the backstay just snug enough to avoid the boom catching on it. Pull it in tight only when beating to windward.

29. Sea Strainer and Seacocks.

Sea Strainer:

Check the sea water strainer located under aft starboard bunk daily. *Ensure strainer is full of water & free of debris.* If you need to remove debris (usually eel grass): close cooling water seacock also located under the bunk. Open the lid to the sea strainer and remove any debris from the filter. Ensure the strainer lid is seated properly and sealed.

Seacocks:

CAUTION: DO NOT CLOSE the seacocks unless there is a problem of water leaking into the boat.

30. Shore Power.

CAUTION: MAKE SURE THE INVERTER IS TURNED OFF BEFORE PLUGGING IN SHORE POWER CORD TO AVOID A HEAD-ON COLLISION OF THE POWER.

The shore power inlet is rated for 30 amps. The switches on the 110v panel are all circuit breakers. The top two are linked together as the main breaker. In the “ON” position, a green light indicates proper operation while a red light indicates a bad connection or possibly a badly wired marina. Under the main breaker are circuit breakers for the port outlets, starboard outlets, refrigerator, water heater and spare.

The inverter and ac main circuit breakers should be off when connecting shore power to the vessel. The inverter circuit breaker must be placed on along with the ac main circuit breakers to provide shore power to the ac main panel.

Connect the shore power line to the boat first. Disconnect it from the boat last. This way any sparking will not be on the boat.



31. Shower, Hot Water & Shower Sump Pump.

There is a partial shower door that should be closed when taking a shower. It stores flush against the port side and opens up in front of the toilet to the fastener located next to the sink. Experienced cruisers know the sailor's shower: get wet, turn it off, soap up, rinse off. *If the shower basin overflows, you're using too much water!*

Shower water collects in the sump below the panel on the floor of the head. The sump pump is operated manually by the grey switch mounted on the wall below the head sink. This will activate the sump pump for as long as the switch is depressed. Ensure “Y” valve is set to “drain shower”. (See the BILGE PUMP section above.) The shower water is pumped overboard. Listen for the change in the sound as the water empties from the drain to know when to release the pump switch. It is a good practice to wipe down shower walls and floor after use.



After pushing the “sump pump” breaker to “on” at the electrical panel, the pump is controlled by the grey switch, shown above, mounted on the wall by the head sink.

Hot water is stored in the insulated tank. It takes about 30 minutes of running the engine under load to get the water hot. When on shore power, you can heat your water electrically by turning the “water heater” switch on the A/C panel to the “on” position. It takes about an hour to heat the water electrically.

CAUTION: The engine heats water to scalding temperatures! So please BE CAREFUL!

Shower water collects in the sump below the panel on the floor of the head. The sump pump is operated manually by a gray push switch mounted on the wall below the head sink. This will activate the sump pump for as long as the switch is depressed. Ensure “Y” valve under the bilge access is set to “drain shower”. (See the BILGE PUMP section above.)

The shower water is pumped overboard. Listen for the change in the sound as the water empties from the drain to know when to release the pump switch. The pump itself is located behind the upper round access cover below the shower fixture. Every effort must be made to keep hair out of the pump. There is an oversized strainer located in the lower round access cover below the shower fixture. If there is a problem pumping out water, check and clean out the strainer. The round access covers are removed by rotating the cover counter clockwise. Minimize water use by wetting down first; then shut off the water and lather up. Then turn on the water and rinse off. Wipe the walls down after showering to prevent mildew and to dry the boat for a more comfortable trip.

32. Sirius Radio and Weather

Sirius Radio is received through the chartplotter. You can find it on the menu screen and select your station there. The black wire next to the stereo must be plugged into the stereo. Select Aux-in to play the radio through the stereo system.

Select a weather screen to see Sirius marine weather on the chartplotter.

33. Sonic Drive Leg

The sonic drive leg has a claw that goes over the thrust bar. The claw is held down by an inverted "L" shaped lever, this allows the engine to reverse without coming up. The "L" lever is pulled forward by a chrome (silver) knob in the starboard cockpit locker. Once this lever is moved forward the claw can move up off the thrust bar and the whole drive leg can be raised out of the water. As the leg drops back down to prepare for use, the claw pushes the spring loaded inverted "L" lever out of the way so that the claw can go over the 7/16" thrust bar. The spring loaded "L" then goes over the claw, preventing the sonic drive leg from raising up.



TO RAISE THE LEG:

- 1: There is a small red lever next to the pump handle in the locker. Place it in a horizontal position.
- 2: The black knob must be tightened (closed): turn clockwise.
- 3: Pull out the silver reverse lock knob at back wall of the locker.
- 4: Pump the handle to raise the leg up all the way
- 5: Turn the small red lever vertical - this will lock the leg up in case of a leak in the pump seal.

TO LOWER THE LEG:

1. Turn the small red lever to the horizontal position, in line with the hydraulic line.
- 2. Pull the silver knob and simultaneously loosen the black knob on the pump and the leg will drop into place. *Please loosen the knob slowly, to prevent the leg from slamming down.* Push the silver knob back in and attempt to raise the leg to ensure it is locked in.**
- 3.** If the boat is still moving forward as the leg is lowered, it likely will not lock into position as it drags through the water. In this case, with the engine running **slowly** move the throttle forward and out of neutral. As the prop engages, you will hear the “click” as the leg locks into place. When the drive leg is down, lines from the 8-inch tiller on the rudders go tight to the pad eye on the top of the drive leg. The drive leg is then steered when the rudders are steered.

Always engage forward gear first (if you do not want the boat to move forward at the dock, do this while still tied up). This will help ensure the leg is locked. If the leg is not locked reverse gear will result in the propeller jumping out of the water and very little reverse thrust developing. It is wise to check before you get in a position where you need reverse thrust to avoid running into something. **Never use high revs in reverse – you could break the yoke.**

If it becomes difficult to release the latch and raise the drive leg, it will be necessary to apply marine grease (lube bin) to the claw and latch mechanism. This is most easily accomplished from the dinghy.

34. Spares and Tools.

CATSPAW is equipped with engine and general spares. They are located in plastic containers in the resource locker by the navigation station. Tools are in the locker opposite the resource locker behind the settee. Large engine spares (starter and alternator) are in the locker above the foot of the bed in the master cabin.

35. Stove/Oven/Microwave.

*If you have something in the oven, please lock the oven door so the contents cannot slide out onto the galley sole (or someone's feet). A latching mechanism is located in the upper left of the oven door. **WARNING:** Never cook in high wave conditions or in strong, gusty winds.*

Stove / Oven

Pressing the “valve on/off” button on the control panel opens the solenoid to supply propane to the appliances inside the cabin (you should hear a click in the propane locker when the solenoid opens).

For your safety, please follow these procedures:

The stove has 2 burners, a broiler, and an oven. The unit includes a flame failure device to each burner so that if the flame were to blow out, after about 10 seconds the heat sensor beside each burner will cool down and the propane will automatically cut off. To light each unit push the knob in and turn it so the red dot is at the “flame”. For the oven, push in and turn the knob to 8. Hold in the knob, and push in the “igniter” button located on the far right. When the burner lights, keep the knob pushed in for a few seconds. This warms up the heat sensor and the unit will continue to run.

Oven Setting	Fahrenheit
1	230°
2	266°
3	302°
4	338°
5	374°
6	410°
7	446°
8	482°

When finished with the stove, shut off the burner(s), then shut off the solenoid switch. What little propane remains in the line from the tank to the galley is insignificant, and even if this tiny amount

of propane were to leak into the cabin, it would not cause a problem. No need to shut off the propane tank during the day.

At night, it's recommended that you turn off the propane tank with its faucet-like hand valve. That way, should the solenoid valve fail, there's no chance that propane will leak into the vessel. (Since propane is a deadly gas, you'll sleep much better!) Then, the first one up in the morning can go out to the tank and turn it back on to start the water boiling for the coffee.

Microwave

The microwave will work on shore power or the inverter. Please be careful not to operate other appliances (coffee pot, etc.) while using the microwave. The microwave draws a lot of power and we find it best to avoid using it unless on shore power.

36. Water Foot Pump – Galley

There is a Whale foot pump in the floor beside the galley. This pump does not have a diaphragm but is like a bicycle type pump that can take pressure. This pump is in the line direct from the pressure pump to the cold faucet in the galley. This pump can only be used when the pressure pump is not in use. The purpose of this pump is to conserve battery power and water. It also pumps water from the fresh water tanks if the pressure pump does not work. To keep it down, press and turn 90 deg clockwise.

37. Water Pressure & Tanks.

FRESH WATER SYSTEMS

FILLING FRESH WATER TANKS

The water tanks are filled individually from inlets on opposite ends of the coaming behind the mainsheet traveler track. A 30 gallon water tank is located under each aft cabin bunk. Do not overfill water tanks. It is best filled when one person fills outside while another person watches tank level from inside (under bunks). Do not fill past the "full" mark on the tank. Note: if the overflow tube fills with water at the fill inlet, the tank will not fill properly. To avoid this, use the short water fill hose shown below and insert it into the water fill inlet. The short hose is kept in the aft port locker and now includes a handy shutoff valve.



FRESH WATER TANK SELECTION

Water tanks. *CATSPAW* has 2 water tanks that each holds 2 – 30 gallon tanks. There is a Y valve in the port aft cabin. One red arrow of the Y valve handle points to the selected water tank. The other red arrow of the Y valve points to the faucet. The fresh water pressure pump will take the water from the selected tank and deliver it to the faucets in the galley and head.



PRESSURE PUMP

The fresh water 12 volt pressure pump is situated under the port aft bunk. The pressure pump has a non-return valve that keeps the pressure in the line. The pump has a pressure switch that switches the pump on when the pressure drops to 15 psi and off when the pressure reaches 25 psi.

If the pressure pump cycles on and off every few seconds, first check for a leak in the system. If no leak is found, then disassemble the pump and try to clean out any debris. It also could be that for some reason the non-return valve in the pump is not holding pressure. The pressure pump should be turned off when not needed because even in a perfect system it will come on and off periodically.

Water pressure. The fresh “water pressure” switch is located on the electrical panel. Push the breaker “on” to activate pump.

Please turn “off” when motoring or sailing. You could burn out the domestic water pump should one of the tanks run dry as it tries in vain to pump water to build pressure (and you would not hear the pump running continuously over the sound of motoring or sailing).

38. Window Operation

The sliding windows are designed for ease of maintenance. To open and close windows: hold the knob with one hand to ensure the window does not drop.

Remove the lock pin with the other hand, then lower (open) window by moving the knob.

Only clean windows with soap and water: anything else will destroy the protective coating on the window.



* * * Enjoy your vacation aboard *CATSPAW!* * * *