

Notes from the Owner of "ONEWORLD"

Last Revision: October 24, 2016

Welcome aboard ONEWORLD!

She's a 3-stateroom 2010 Lagoon 400. I bought her brand new and spent a great deal of time sorting out the equipment choices. I think the boat's hull, a true blue-water boat, and the amazingly beautiful and simple elegance of a Lagoon Catamaran...

Three very cool things about my Catamaran ONEWORLD:

1. CATAMARANS ARE SMOOTH, FAST SAILING. Because of the 24 foot beam there is very little rolling. This also results in an **AMAZINGLY LARGE DECK SALON**, where you can both sail and navigate at the dinner table so you can cook and eat while you look for whales and porpoises! This is very easy to do with nearly **360 DEGREES OF VISIBILITY**. This also keeps the cook in the conversation while everyone enjoys watching the meal. Very similar to our home where everyone congregates in the kitchen, somehow, so everyone can stay in the conversation...

2. CATAMARANS ARE INCREDIBLY SAFE BOATS. The bows have a safety crunch-zone before you reach cabin, which rarely occurs. If it does, that hull can only fill partially because the central deck salon is so high. This keeps all the water from entering the opposite hull. That's why it's so rare to see a catamaran sink! I added 6 very strong Bilge pumps to the 2 standard electric pumps and the two manual pumps and so the results are impressive. Catamarans this size, by the way (she weighs 24,000 pounds) almost never turtle because the mast gives well before that occurs. These are true Blue Water boats with EEC certification A. They usually sail from the Atlantic Coast of France on their hulls across the Atlantic Ocean to the Eastern United States, fresh out of the factory. Lagoon is the largest maker of Cruising Catamarans in the world. See the details of their production from the Lagoon/Beneteau website...http://www.cata-lagoon.com/lagoon_production_uk.php

3. CATAMARANS ARE VERY EASY TO SAIL AND POWER. That's why they are so popular in the Caribbean as teaching boats, rather than mono hulls. It's much easier to power with twin 40 hp engines 24 feet apart when you can put one engine forward and the other reverse and rotate the boat on it's length; rather than just one engine and wondering which way the prop walks. The bigger issue is that when you dock you can move the boat at half a knot rather than the 1-2 knots you need to maintain steerage on a mono hull boat.

NUANCES

ONEWORLD's Primary nuances (which will be discussed in greater detail in our notes):

- 1. Shore Power will only show on the gauges, if the switch for 115 Volts is on for ship power while you connect shore power to the dock.*
- 2. As you hoist the mainsail, it will get stuck on the lazy jacks. It's very important to keep the engine revs to 1200 or whatever it takes in a heavy wind to keep the bow straight on autopilot, and the main sheeted on the loose side so the main can't move too far and harm those on top of the deck salon. Then be sure to have a crew on top of the deck salon feeding the main halyard and the mainsail through the lazy jacks as you hoist the mainsail. Be sure to use the electric winch. The electric winch switch is in the Port stern bedroom at the base of the bed.*
- 3. Never sail with 100% jib and 2 reefs in the mainsail, or the mast will break...*
- 4. She's a catamaran, and so she doesn't heel like a mono hull boat will do to let you know if you need to change sails. Therefore, you need to adjust the sails based on the wind speed alone.*
- 5. When starting her engines, adjust the RPM's to 1200 so the impeller can prime with water for 2-3 minutes, and then you're desired RPM. Protects the impeller from melting!
I'm immensely pleased with this well-built and beautiful vessel and look forward to sharing her with you, our guests. I hope you'll love ONEWORLD as much as I do and thank you for taking special care of her.*
- 6. One of the refrigerator units is actually dedicated as a refrigerator and the other is a dedicated as a freezer. See the labels please.*

Happy Sailing!

Tom Reinertson, Owner

Revisions: 10/24/2016 – Section 19 – Corrected refrigerator and freezer designations.

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ONEWORLD Specifications:

- LOA (with davit): 41'
- Hull length: 39'
- Beam: 24'
- Air draught: 70' 2"
- Draft: 4'
- Displacement (light): 24,000 lbs
- Displacement (max load): 33,800 lbs
- Water: 80 gallons
- Fuel: 2 x 53 gallons
- Holding: 3 x 21 gallons

1. Emergency / Safety Equipment

Emergency/Safety Equipment Locations: You are not likely to need these, but must know their location.

- Air horns – Cockpit seat locker port side of salon entry door.
- Bilge pumps (manual) & handle – Aft end of cockpit on inboard end of seat.
- Carbon monoxide detectors (3) – Nav station, port and starboard hulls mid-sections.
- Emergency tiller – Located in the starboard cockpit locker immediately to the right of the salon entry door. (To remove the rudder post cover, insert a winch handle in the star-shaped fitting and unscrew). The covers are as far back and adjacent to the engine covers, round, white fiberglass.
- Fire extinguishers (5) – Galley next to sink, Salon port side aft end of settee inside locker, cockpit seat locker port side of salon entry door, port and starboard hulls inboard side on bulkhead outside stateroom.
- First aid kit – A complete first aid kit is located Salon port side aft end of settee inside locker
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 Cockpit seat locker port side of salon entry door.
- Flashlights – Salon port side aft end of settee inside locker.
- Lifesling – Port stern pulpit.
- PFDs – Starboard hull hanging locker.
- Tapered plugs for through-hulls (seacocks) – Tied to each seacock
- Tool kit and spares – Starboard hull hanging locker.

2. Anchors & Windlass

ONEWORLD is equipped with two anchors, one forward and one in the starboard cockpit locker. The primary bow anchor is a 40 # Lewmar Claw (Bruce) with 200 feet of 5/16" chain. The chain is marked with 5 ft yellow paint marks at 50-foot intervals, a 10 ft long mark at 100 ft, and red paint the last 20 ft of chain.

The **secondary stern anchor** is a 21 # Danforth with 7 feet of chain and 500 Feet of nylon rode. It is in the starboard bow locker.

The **stern tie line** is a 300 foot reel of line for stern ties in the starboard bow 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 (in idle speed reverse) 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 you 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.

Windlass

Power is received from the engine start battery. Always operate the windlass while the engine is running! The windlass breaker is permanently in the "on" position. The breaker is located in the port aft stateroom. It is labeled. The up-down controller for the windlass is located inside the chain locker (leave plugged in please).

Deploying the Anchor

With an electric windlass, it is important to deploy the anchor into the water by hand. Pay out enough slack in the chain so that you can hand-deploy the anchor into the water about one foot below the water surface. (By having the anchor slightly in the water, the water will buffer that troublesome "pendulum" action that causes a partially-deployed anchor to swing and ding the bow before you get it all the way into the water with a windlass controller that you're not familiar with.) Once the anchor is in the water, use the electric windlass to lower the anchor to the bottom of the bay and deploy the desired amount of scope.

Retrieving the Anchor

When retrieving the anchor, never use a 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.

*Also, when retrieving the anchor, only retrieve it up to where you can see the anchor about one foot below the water (again to buffer any possible “pendulum” action if the anchor were just out of the water). Then, by hand, retrieve the anchor from just below the water onto the bow roller. This prevents possible pendulum action, plus, if the anchor gets hung up on the bow roller and you continue to press the “up” button on the electric windlass, you will probably damage the attachment base. **DO NOT** use the windlass power to take up the last few inches of slack. Just take the extra chain and snug it up and hand-set the chain back onto the gypsy.*

Take your time, the anchor chain dropping off of 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 the chain 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. Snap the line through a link in the chain nearest the anchor, then lead the line straight back and around the drum angling the line to the port bow cleat. Secure tightly with a standard cleat knot. (The chain on the gypsy on the windlass should not be the only thing keeping the anchor from unexpectedly returning to the sea bottom!) After securing the anchor with a line, immediately switch the windlass breaker “off” to prevent draining the engine start battery should the windlass system decide to short out.

3. Barbecue

The propane BBQ is plumbed to the propane tank. Make sure the faucet-like valve on the tank is turned on. After that, the BBQ’s little blue regulator is the control. Turn the control to the “on” or “light” position, and with the LID OFF, light the burner. (With the lid on, the BBQ tends to be hot and cook quickly, so tend your meat often.) *As a courtesy to the next guest, please use the wire brush attached to the BBQ to clean it after use.*

4. Batteries & Charging

For normal operations, please leave the battery switches ON (in the vertical position) all the time. The battery switches are located below the port and starboard aft berths behind the lower cabinet door. The battery charger automatically charges the start and house batteries with all of the battery switches remaining ON. The house battery bank is isolated from the start batteries so that house use (lights, instruments, pumps, etc.) will not deplete the start batteries. The windlass motor IS connected to the start batteries. The engines must be running when operating the windlass to ensure the start batteries are not depleted.

The House bank is three 70 amp-hour deep-cycle batteries. The Engine batteries are high-amperage-output specifically designed for starting diesel engines. In the rare event the engine batteries are low and won't start the engine, the Starboard battery switches have a combiner switch on the right which connects the house batteries to start the engine. Turn the combiner switch to OFF after the engine starts.

Battery voltage can be checked on the electrical panel after you press the battery symbol (see photo in Section 10). Do not discharge any batteries below 11.8V. Charge the batteries by connecting to shore power or running the engines.

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.*

Charging with Shore Power

See panel photos in Section 10.

1. Flip on the SHORE breakers on the Shore Power/Inverter sub-panel located in the cabinet in the port-aft corner of the salon facing the galley.
2. Flip on the BATTERY CHARGER breaker on the AC side of the AC/DC Panel located in the cabinet in the port-aft corner of the salon facing forward.

Charging with the Engines Running

See panel photos in Section 10.

1. Flip on the BATTERY CHARGER breaker on the AC side of the AC/DC Panel located in the cabinet in the port-aft corner of the salon facing forward.

5. Berths

ONEWORLD is ideal for 8 people, but she'll sleep a maximum of 10 - two in the Skipper's Quarters on the Starboard side, which has it's own, very large bathroom. On the Port side, there are two berths in the forward and aft cabins each, and one adult or two kids can sleep in the "kid's cabin" just forward of the port forward cabin, which has it's own deck hatch. In the deck salon, two people sleep on the dinette table (converts to a double berth), if it's cool. By the way if it's warm, I actually prefer to sleep outside in my sleeping bag on the bow trampoline where it's incredibly soft and comfortable and you can hear water and birds and watch the stars in the amazingly black skies...

Converting the Dinette into a Double Bed. Very important to unscrew the legs very slowly and back and forth until the legs move freely before you lift up the table, because the metal leg holders on the floor are screwed into place. If you just pull on the table it will rip out the metal that holds the feet to the floor and the screws. It is okay to GENTLY lift up on the table while someone else moves the legs up and down and rotates them until freed. Then you can put the table into slots... It's very comfortable.

6. Bilge Pumps

Please check the bilge each day, morning and evening. It is accessed by lifting the floorboards in each hull, in fact all the floorboards are over bilge . Please note that the refrigerator drains into the bilge, so most of the water that accumulates in the bilge is from melting ice and condensation.

There are EIGHT bilge pumps:

- (1) TWO **electric PUMPS, one on each side, on-demand** bilge pump is controlled at the electrical panel. Push the breaker on to turn it on; push it again to turn it off.

- (2) FOUR, VERY LARGE "RULE" BILGE PUMPS ARE LOCATED, TWO ON EACH HULL FORE AND AFT. IT IS IMPORTANT TO LEAVE ALL PUMPS "ON" AT ALL TIMES. This means they are set to the "AUTO" position. The alarms are loud and located at the helm under the tachometer, and easy to hear throughout the boat. (If it goes off, you should investigate why. There may be a slow leak.) It will shut off automatically when there is no more water in the bilge.

- (3) There are TWO **manual emergency** bilge pumps, one on each side. The emergency bilge pump handles are located in the cockpit. Just as you enter the hard Bimini door from the outside, there are pumps each side of the adjacent seats. You take each pump handle and extend it to function. Port side drains Port Bilge, and Starboard Pump drains Starboard Bilge. Monitor bilge water daily and alternate your choice of pumps to ensure that all are functioning properly. The handle is built into the Seat.

7. Dinghy & Outboard

Dinghy

ONEWORLD has an inflatable “Walker Bay 11 ft Genesis” dinghy, two seats, oars and an outboard engine. (See “Outboard” section.)

Towing works best when the dinghy is brought close to the boat – only have about 4 or 5 feet of painter line from the stern cleat to the bow of the dinghy. This lifts the bow slightly out of the water and reduces drag so you go faster, and lessens the chance of wrapping the painter around the propeller. Tie the painter off twice – once at a cleat with a standard cleat knot, then the bitter end to the stern rail. We’ve recovered dinghies “lost at sea” by others who relied on a single cleat hitch.

Please take special care when beaching the dinghy (refer to the dinghy beaching procedure in your charter guest book). Most of the beaches you will land at are strewn with barnacle-covered, bottom-slicing rocks. When approaching the shore, weight the dinghy aft by leaning or moving the crew toward the back of the dinghy. Then offload everyone over the bow. Lift the dinghy above barnacle height using the hand lines on either side, and set it down gently on the beach. Also remember to secure the painter under a rock or to a large driftwood log – we have very large tidal fluctuations (so your dinghy won’t float away).

Outboard

ONEWORLD is equipped with a 4-stroke Honda 15 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.

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.)

While Running.

1. Push the choke back in shortly after the engine starts (after about 10 seconds).
2. There is a transmission for forward, neutral, and reverse--just throttle up to go forward and throttle down to stop

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. Put the outboard back on the outboard mount on the stern rail and tighten both braces.

2. Push the fuel valve lever forward to close (starboard aft corner of the outboard).

3. Close the air vent on top of the fuel cap (top of outboard) by turning it clockwise.

4. 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.

8. Dodger & Bimini

Fortunately Catamarans have no Dodger and the Bimini is hard or fiberglass. The sides and the door to the Bikini are indeed plastic and canvas. *The Bimini's plastic is vulnerable to scratching from salt crystals, especially after sailing into a challenging breeze. When salt spray on the glass dries in the wind, tiny salt deposits are left behind and tend to obscure your vision. Please avoid directly touching the glass with a damp rag or sponge. Salt does dissolve in water, but not as fast as you might think. The salt crystals remain un-dissolved for several seconds. It's like rubbing the glass with sand paper! To clean, please use generous amounts of fresh water from a pan from the galley and "flood" the glass to dissolve the salt crystals away. (Better yet, wait until you're at a dock where you can hose off the salt crystals. If the dodger glass is really clear, you can thank previous guests for their diligence. And we thank you too*

9. Draft (Keel Depth)

ONEWORLD has a 4-foot Keel, so I always act like it's 6 feet of draft...

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

10. Electrical Panels

AC/DC Panel (located in the cabinet in the port-aft corner of the salon facing forward)



Shore Power/Inverter Panel (located in the cabinet in the port-aft corner of the salon facing the galley)



Most breakers on the AC/DC Panel are self-explanatory, but some circuits are unique.

A/C (120V) Power to Outlets

Note: The two outlets in the salon are GFI type. If either GFI trips the black reset button needs to be pushed all the way in to reset the circuit.

While Connected to Shore Power:

1. Flip on the SHORE breakers on the Shore Power/Inverter sub-panel located in the cabinet in the port-aft corner of the salon facing the galley.
2. Flip on the AC PLUGS breaker on the AC side of the AC/DC Panel located in the cabinet in the port-aft corner of the salon facing forward.

Not Connected to Shore Power – Using the Inverter

1. Flip on the INVERTER breakers on the Shore Power/Inverter sub-panel located in the cabinet in the port-aft corner of the salon facing the galley. You'll need to first flip OFF the SHORE breakers and slide the protective cover up to expose the inverter breakers.
NOTE: The inverter is used for light (low amperage) electrical loads like computers and cell phones, not for the heater, dehumidifiers or hair dryers.

VERY IMPORTANT!!

There are dedicated 115 ac electrical plugs for the heater and the dehumidifiers!!! The first plug is in the deck salon to the right of the door in the shore power cabinet, they look just like the outlets you have at home, with its own switches above it. The other one is in the master stateroom, just below the microwave desk where the book shelf is. They also look like home outlets, not the white ones above the desk table. All the traditional marine 115 ac plugs near the nav table and behind the oven and in each bedroom by the light switches are light loads for phones and computers. Plugging a heater or defroster into these will melt their wiring and ruin the batteries and is very expensive.

Battery Charger

See Section 4, Batteries and Charging.

Inverter

See A/C (120V) Power to Outlets above.

Chart Plotter

The circuit breaker for “NAV INSTRUMENTS” is located on the electrical panel. This switch powers the C120 chart plotter at the Nav Station, but not the much newer model C70 chart plotter at the helm: which can link to your iPad NAV stuff and phones and has its own power supply and not controlled by the electrical panel.

Autopilot

Powered by “NAV INSTRUMENTS” again, then the individual power buttons for both inside the cabin at the Navigation Table as well as outside at the helm. You must turn off the wireless Remote Control separately, or it will beep. But it's great for controlling the boat elsewhere in the boat.

Cabin Lights

Once you have turned on the circuit at the electrical panel labeled “CABIN LIGHTS.”

Water Pressure

This pump pressurizes a small accumulator tank located in the Port forward Cabin in the wall. Open with a quarter or a thumbnail, and it shuts down when the tank is at “working pressure”. If you don’t hear the pump start up when you turn it on at the panel board, hopefully it means that the system is at working pressure – you should hear the pump start again after you use some fresh water. (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.) The two tanks are joined together in the foredeck just in front of the deck salon where the anchor is. You can check the water level by pushing the square symbol just above the white round “SELECT BUTTON” adjacent to the screen on the far right side of the electrical panel.

Shore Power A/C Circuit Breaker

This is in the engine room on Port side. You enter the wood and then it’s high up on the left side close to where the water is filtered.

Running & Steaming Lights

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).

Anchor Light

On all night in an anchorage. (It won’t deplete batteries.)

11. Electronics

To energize the electronics, flip on the NAV INSTRUMENTS breaker on the DC panel.

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

Cellular Telephones

ONEWORLD's equipped with a 12-volt cigarette lighter type outlet that may be used for recharging your cellular telephone. The outlet is next to the helm station and there is one in each bedroom as well as 115 volts in each of those sites.

Depth Sounder

The digital depth sounder will not give accurate readings beyond 400'. 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 depth sounder only as an aid to navigation in shallow water.

IMPORTANT: *The key to avoiding rocks is NOT the depth sounder – 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 depth sounder'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.)

Radar & Chart Plotter

ONEWORLD is equipped with a Raymarine C120 color chart plotter at the Nav Station. At the helm is a 7 inch Raymarine e7 GPS as well. The chart plotter may be used without the radar to minimize battery drain To start the Radar/Chart plotter, turn on the electrical panel switch labeled NAV plan to save electricity and use the chart plotter only, toggle to Standby. The unit will start up in its last pre-shutdown mode (Radar only, Chart only, or Radar Overlay screen). Use the "Page" key located at the upper right corner of the unit to change modes (using the soft keys at the bottom to select Chart or Radar). To shut down the unit, press and hold the power key (red button, lower left) for 3 seconds.

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 chart plotter 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.

The only time when the chart plotter 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 chart plotter is accurate to within 3 meters – about 10 feet.)

You should have little need of the radar except for the highly unlikely event that you are suddenly enveloped by fog, which is rare in this area. 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, even with radar, would be contrary to prudent seamanship. FYI – Fog becomes "reduced visibility" when you can see ¼ mile (about 4 football fields) in all directions. It is safe to proceed CAREFULLY in reduced visibility using your radar to "see" beyond the haze, but be sure to look up from the screen about every 10 seconds and use your eyes to scan the horizon forward, behind, and side to side. A motor yacht, 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.

Knot meter

Speed is indicated in knots or nautical miles per hour. (For comparison, 7 knots is approx. 8 statute mph.)

If the digital knot meter shows a reading of "0.00" while underway, the impeller is most likely clogged with a piece of eelgrass. Sometimes it will float off overnight. You can also try removing it by traveling for a short distance in reverse. The impeller is located beneath the most forward salon sole board. (It's not recommend that you try to remove the impeller to clear it, unless you are VERY experienced in such things. An open hole in the hull is a scary situation, and if not plugged quickly, it can jeopardize the boat and the safety of your crew.) If the knot meter is temporarily "out of service", the GPS input to the chart plotter provides an alternate and quite accurate speed indication called SOG (speed over ground).

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. GPS input is automatically coded into your signal.

12. Emergency/Safety Equipment – See Section 1

13. Engines and Handling

Reverse

ONEWORLD has no prop-walk, since she has two engines.

Forward

ONEWORLD with one engine forward and the other engine in reverse the boat will turn in nearly it's length.

Docking

When you call into the marina, tell them you have a (beautiful) 40 ft long Catamaran 24 feet wide and 4 ft draft and that you need an end tie or a long dock or pier. The usual docks rarely are wide enough. ONEWORLD docks in reverse very easily. But first power very slowly: Power right a second and Neutral and repeat to turn left and power left a second and repeat to turn right. Power both a second and neutral to stay straight. Do the same in reverse and pause in neutral. There is no prop walk. If you need to spin, put right forward and left reverse to spin to the left.

I bring the boat in parallel to the dock and adjacent slowly so there's no damage to the boat. It's amazing how little power and damage to the boat there is if you hit it at 1 knots, and there's no need to come in at greater speeds like mono-hulls do to maintain their steering. If the dock is long and no adjacent boats.

If the docking is tighter, I come in adjacent to the boat in front and then back with my controls. It's much easier to see the Port stern since the helm is there. I'll come in at a 45 degree angle toward a good spot on the dock. I get very close to the dock and have a crew jump off the stern with the Port stern dock line and IMMEDIATELY FULL Cleat it to the closest cleat. The boat weighs way too much to hold it with a partial cleat. Now you can use predominantly Starboard engine to bring the bow to the Port side, close to the dock and now you can cleat that line. Now the stern side will be out too far again, which you can fix with L throttle forward and R throttle reverse to spin the stern to the dock so you can cleat her tighter.

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.

Starting

1. Check the oil level. The dipstick is accessed by . The dipstick is on the front starboard side of the engines. There is a wide gap on the dipstick between the full line and the fill line. **Do not overfill.** Use the onboard spare oil to add no more than a cup at a time. Then, after waiting about 2 minutes for the oil to trickle down to the pan, check the level again. Overfilling is a bad thing to do to a diesel. The excess oil will escape somehow, perhaps by blowing the head gasket. Also, if the dipstick indicates no oil the first time you check it, reinsert and try again - the correct level will show when the air lock bubble is broken. Expect the oil to be blacker than that of a gasoline powered automobile engine...this is normal for a diesel after only a few hours of operation.
2. Check the coolant level...anywhere between the two lines (high and low) on the overflow reservoir is “good”.
3. While you have access to the front of the engine, check for belt tightness and leaking fluids.
4. Look over the stern for kelp, logs or branches that could foul the propeller.
5. Make sure the gearshift is in neutral
6. Each throttle is set to Neutral when it is even with the tape. It can be difficult to tell when you're in slow forward, versus neutral, and the tape is very helpful. To start the engine, pull each throttle out (away from the midline). Now you can start the engine and accelerate the engine and still be in neutral.
7. Push the START button to start the engine. Expect the engine to start in 5 seconds or less. If the engine doesn't start after 10 seconds of cranking, push the OFF button, Wait 15 seconds and try again.
8. After the engine starts, release the button, check for water gurgling out the exhaust, then gradually ease the throttle back to idle near 1000 RPM.
9. While the engine warms, check your fuel level. Please allow 5-10 minutes of warm up before placing a load on the engine. It is very hard on a diesel to be placed under load when cold.

Proceeding in Forward / Reverse

Bring the throttle back to the neutral position where the tape is and you are now in gear when you push it forward. To keep the transmission “healthy”, please remember to pause 2 seconds (say “one and two and”) in the 10 o'clock neutral position when shifting from forward to reverse and visa versa.

Operation

Twin 40 HP Yanmar 3jh4e engines and SD50 sail drives are very reliable. Cruising speed is **7 knots 2400 RPM**. Please do not exceed 2600 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 2400 RPM.

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 1/2 full and before it reaches 1/4 full.

Engine Overheat. If the over heated 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 ONEWORLD), 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 the bilge for a light green liquid. If found in the bilge, call San Juan Sailing. If the coolant reservoir bottle is full, check to see if the engine threw a belt. Without a belt on the raw water pump, the coolant won't circulate and cool the engine. (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 Remember--do not shut the 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 press the STOP button and as the engine stops and alarms, push the OFF button. There is no key.

14. Fuel Tank

ONEWORLD has twin 53 Gallons fuel tanks.

Please be very careful when fueling. Never allow maximum flow from the filler 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.)

15. Heads & Holding Tanks

ONEWORLD has 3 heads, 3 toilets and 3 holding tanks (one for each toilet). The holding tanks 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 pump outs upon your arrival.)

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!

***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. The toilets do not have Y-valves. Pumping the toilet puts everything into the holding tank. The tanks are located as follows: Skipper's or Starboard head, in the shower. You'll find a round access port there and open it and you'll see the holding tank and its access cover. Both Port head tanks accessed in the head.*

Emptying the Holding Tanks:

1. **Pump Out at Shore Facility or Barge** – *After pumping the waste out please fill the holding tank with about 5 gallons of fresh water through the deck fitting to rinse, and then pump it out again. Thank you!*
2. **Overboard Discharge** – All of the holding tanks are gravity discharge (no macerator pump). The discharge seacocks have a red “T” handle – seacock is OPEN when handle is aligned with the hose. The tanks will empty in 10-15 seconds. Listen for the “whooshing” sound.
 - The port side fore and aft heads holding tanks discharge seacocks are located under the floor boards at the foot of the berths.
 - The starboard head holding tank discharge seacock is located inside the cabinet under the vanity sink.

16. Headroom

The headroom on *ONEWORLD* (taken centerline in the main salon) 7 feet

17. Heater

ONEWORLD's cabin heater is a Hydronic Forced-air Heat System. Note that the furnace takes 5-10 minutes to cycle up before heat is produced from the cabin vents.

- Flip on the SYSTEM HEAT switch located in the lower right corner of the AC/DC Panel.
- Heat output is individually controlled by a thermostat mounted in each cabin. Slide the black switch to HEAT. Select the desired temperature by pressing the arrow buttons.
- Turn off the SYSTEM HEAT switch before retiring in the evening to prevent excessive battery drain.

When it's cool, we recommend warming the boat before turning in for the night, with the last person to go to bed 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 down comforters will keep you warm in bed.) Then, the first one up in the morning can simply turn the cabin heater back on.

18. Inverter – See Section 10, Electrical Panels

19. Refrigerator and Freezer

There are two units side by side in the galley, each unit has a refrigerator below and a freezer compartment above.

Each is 130 Liters (34 Gallons), each approximately 3' by 4' and quite large, since there are two of them.

We recommend running them at all times to avoid a bad smell. You may want to turn the thermostat down to (the medium setting) on the refrigerator on the right. This will help conserve house battery power. Then turn it back up to medium high in the day. The freezer should always be left on its highest or coldest setting.

To drain the water from the refrigerator for cleaning or in case of water build-up, pull the small plug in the lower right-hand bottom of the refrigerator. Be aware that the water drains into the bilge and the bilge pump may come on to pump it out.

20. Sails and Sailing

Headsail

The 130% sail shape. Slight hand-over-hand tension on opposing lines – furling line and sheets – prevents problems such as a rat's nest on the drum (should the wind catch the sail and unwrap it violently) or a baggy furled sail.

Reefing the Headsail – Simply ease the jib sheets (keeping control of them) while pulling in the jib reefing line until only the amount of sail you desire is deployed. I usually have to attach the furling line to my Electric winch to bring it in with one person, if you have two it's safer on the winch to pull it in by hand. *Please furl the jib so the line is wrapped 4 times by extra jib sheet so it won't come loose later on and then cleat and then tie off again the furling line.*

Mainsail

The mainsail is a 100% battened, conventional rig with a lazy bag and two pre-rigged reefing lines. When attaching the halyard to the mainsail (we keep the main halyard shackled to the deck fitting abeam of the mast on the port side near the toe rail to keep the noise down), be sure not to foul the halyard on the lazy bag lines.

To deploy the main:

1. Steer head-to-wind and maintain.
2. Unzip the lazy bag.
3. Attach the halyard to the head of the sail.
4. Release mainsail reefing lines, mainsheet, and vang when preparing to hoist the main.
5. Pull down on the halyard at the mast, while someone in the cockpit takes up the slack. (If shorthanded, you can pull the halyard from the cockpit – but it takes a fair amount of elbow grease.)
5. Then, winch the halyard up the last few inches to eliminate wrinkles in the luff. (Don't over-crank on the winch or the sail could possibly rip somewhere along the luff.)
6. Fall off and you're sailing! (Now you're ready to deploy the head sail.)

When letting the mainsail down, it will flake nicely for the first 1/3 to 1/2 of the sail, but then will require a few tugs on the leech or luff to help flake the rest of the mainsail neatly into the lazy bag.

Reefing the Mainsail: “Reef early and reef often.” This will keep your crew comfortable and you from rounding up. Reefing the main is easy and can be done from the cockpit. Here's how.

1. De-power the main (by heading up or heaving to).
2. Be sure the topping lift has not been loosened, and will hold up the boom.
3. Let the tension off of both the boom vang and the main sheet.
4. Lower the mainsail so that the reefing point you desire is about 24 inches above the boom and cleat off the main halyard to keep tension on the mainsail halyard when reefing down the foot of the main.
5. Pull in on the reefing line (using the winch if necessary) to tighten the sail, which will draw down the reef point much closer to the boom and “shape” the sail.
6. If needed, raise the main halyard slightly (with the winch).

ONEWORLD is a delight to sail. Her sail plan (a medium-sized furling genoa and fully battened main with the optional large Roach) was selected with consideration for single or short-handed sailing. Once she has way ONEWORLD is easily steered with small rudder changes. Her perfect breeze is 10-25 knots with no heel. Full sail can be carried in winds up 20 knots. If you reach the edge of your comfort envelope sooner, don't hesitate to shorten your sails. Remember, “Reef often and reef early.” You can always shake them out if you decide you've been too conservative.

CLOSE-HAULED TRIMMING: (Between 75 and 50- degrees to true wind.)

-From 0 to 16 Knots. Full mainsail with traveler 30 CM to windward of center, mainsail trimmed with a slightly opened leach, and the boom centered.

The jib is trimmed near the spreader and the jib traveler or cars is placed so that the angle of the jib sheet forms a straight line with the clew and the luff, at 40% of its height.

-From 16 to 20 knots. Full mainsail with traveler to 60 CM to windward of center, mainsail with a slightly more open leach. Boom at centerline, so the sheet will need to be loosened. The jib traveler or cars do not change position, but adjust the sheet so that the leech is 10cm from the spreader.

-From 20 to 26 knots. 1 Reef to the mainsail. Full jib. The mainsail traveler comes back to 30CM to windward of center. The jib traveler or cars does not change position but adjust the sheet so that the leech is 20cm from the spreader.

****I remember from my days of chartering, how unfamiliar those charter boats used to seem to us, actually. That's why I know that back then, around 20 to 26 knots, I would douse the sails and motor back to the dock or harbor...*

*The best way to do that is to start the engines and furl the jib so the line is wrapped 4 times by extra jib sheet so it won't come loose later on and then cleat and then tie off again the furling line. The mainsail douses very easily, and there are no issues with the lazy jacks on the way down. Again, I keep the main sheet slightly snug so the boom doesn't move around as they douse the mainsail, and push them off the deck salon roof.****

-However, sometimes you are caught in gales or the engine is broken (another cool thing about catamarans is they have two engines). In that case, though:

- From 26 to 30 knots. 1 Reef to mainsail. 75% of the Jib left. The mainsail traveler comes back to 60 CM to the windward of center. The jib cars remains in place or slightly forward but it is adjusted so that the leech forms a propeller, the upper part dumping air out during strong gusts of wind.

-From 30 to 36 knots. 2 Reefs mainsail. 60 % of Jib remaining. The mainsail traveler returns to 30cm to the windward of center. The boom is slackened to be 50CM leeward of center. The Jib cars moved slightly forward, the adjustments stay the same.

-From 36 to 45 knots: 2Reefs in the mainsail, 40% of Jib remaining. The mainsail traveler is dead center, and the boom veers 100CM to leeward. The Jib cars goes forward slightly, the sheet is slackened to open wide in strong wind conditions.

From 45 to 55 knots: 3 reefs alone on the mainsail. No jib. Heave to. Traveler in the center, and mainsail out 1 meter. The boat will be more at ease scudding in this weather.

Over 55 knots: Heave to and drag an anchor or preferably scud bare poles.

CLOSE REACHED TRIMMING: BETWEEN 75 AND 130 DEGREES TO TRUE WIND.

From 0 to 23 knots: Full mainsail and full jib. The traveler is positioned between 100CM to windward of center. The mainsheet is slacked so that the boom is veering out anything from 50CM in calm weather to 2 meters when the wind is forcing.

In every case, , no more than one batten should be allowed to chafe on the shroud at the fastest speeds. The Jib sheet is slackened so that it's average attack angle is head on to the apparent wind.

From 23 to 28 knots: 1 Reef in the mainsail and a full jib. The other adjustments are identical.

From 28 to 33 knots: 2 Reefs in the Main, 80% of Jib. The other adjustments are identical.

From 33 to 38 knots: 2 reefs in the Mainsail. 60% of the Jib. The other adjustments are identical.

From 38 to 45 knots: 3 reefs in the Mainsail. 40% of the Jib. The other adjustments are identical.

From 45 to 55 knots: Douse Mainsail. 30% of the Jib, trimmed not to flap.

Over 55 knots: scudding, depending on the sea conditions the mooring lines can be looped round behind the vessel and attached on the opposite side to act as a brake.

SAILING WIND ASTERN: Do not fall off more than 150 degrees to the apparent wind.

-Put the traveler out as far as possible and slacken the sheet slightly.

-Make sure the mainsail does not touch the shrouds; the rubbing of the battens will wear the material and cable very rapidly.

-Keep mainsail and partial jib up to 15 knots speed and put in one reef or more if the accelerations are sudden and strong of if sea conditions deteriorate.

21. Stove & Oven

Propane Tanks

The propane tanks are located in the cockpit under the seat on the starboard side.

Solenoid Valve

The breaker for the propane solenoid is located on the DC panel in the Salon and is labeled “US LPG gas / AUXILARY).

*Have a Great Sail! It sure is the most fun boat to sail I've ever sailed...
Tom Reinertson*