

Welcome aboard *Ardent*!

What could be a more perfect vacation than a week or more aboard the S/V *Ardent* which is a 2014 Beneteau Oceanis 41! Beneteau is the largest manufacturer of pleasure sailboats. You will find her very well engineered, spacious and thought through.

She is very fully equipped and updated to cruise the Puget Sound. She has three private cabins with double births, two heads: both with showers, full teak decking, a dinghy arch with a 10' Achilles RIB with a 9.8 hp outboard, Bimini cover over the entire cockpit with dodger, newer custom carpeting and salon upholstery, artwork and cockpit cushions. We take great pride in her and maintain her to the highest standards.

The *Ardent* sails beautifully with full roller reefing sails (jib and main) for maximum convenience and crew safety. All lines lead to the cockpit. Her generous jib rig makes sailing in light wind easy and enjoyable. When it is time to come to rest, her bow thruster makes docking a breeze.



Her electronics include a chart plotter, RADAR, wind and depth gauges which makes navigation easy. She has a 12" screen in the cockpit plus an additional 7" screen at the nav station. The dinghy arch prevents the drag of the dinghy which improves performance. Also, one doesn't have to dismount the outboard motor when leaving port. The 9.8hp outboard makes scooting to a nearby cove or fishing spot very doable while leaving the *Ardent* on anchor. We have a clam shovel and crab pot on board.

The skipper and guests will enjoy her exceptionally large cockpit which can seat 10 guests and has a full Bimini. The cockpit table extends for true al-fresco dining (with center cooler). The transom folds down to make into a dinghy dock which makes loading the crew into the dinghy as easy as being on a low dock ashore. It also allows one to dangle his feet into the water. Aboard this year, is a new set of cockpit cushions and two Sport-a seats.

Below, between the three cabins is a very large salon with two settees. Up to eight can dine below plus six in the cockpit. The galley has a separate refrigerator and a separate freezer along with a microwave. It is a great space to entertain.

The *Ardent* carries 150 gallons of fresh water; a full crew can go several days without re-filling. A total of nine (six house) AGM batteries, allow the crew to use all of the electrical conveniences as much as they need (within reason) and the battery status can be easily monitored. With an inverter, cell phones can be charged along while using other small load electrical devices while on anchor. There is even a special 800-watt hair dryer aboard (don't use your own, which will be 1200 or more watts).

We hope you will enjoy sailing *Ardent* and cruising the islands as much as we do. We also thank you for taking special care of her. If you have any questions, feel free to contact us or the San Juan Sailing staff.

Before you go, please review the material contained in this notebook so one can fully enjoy what the S/V *Ardent* has to offer. Bon voyage!

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1. Vessel Specifications and Information

Vessel Information:

Washington State Parks Annual Permit Decal – Located on the cabin exterior, port side aft.

U.S. Customs Re-Entry Decal – Located on the aft side of the port helm binnacle below the swim platform switch.

Vessel Official Number 1248849 (same number as shown on the Coast Guard Certificate of Documentation found in Section 5 of the Charter Guest Reference Manual (white binder). Ardent's number is located inside the engine compartment, forward end of the engine, under the tool kit on a stringer. Look for 3" high numbers.

Coast Guard Boarding Document – Refer to the Charter Guest Reference Manual (white binder), Section 5 Documentation. Explains what to expect if you are boarded by the Coast Guard and where to find the information/equipment they may ask to see as part of their safety inspection.

Specifications:

Year:	2014	Sail drive	SD60 Yanmar
Make/Model:	Beneteau Oceanis 41	Fuel tank:	53 US Gal
LOA:	40' 9"	Water tanks:	151 US Gal
LWL:	39' 4'	Holding tank (forward):	20 Gal
Beam:	13' 10"	Holding tank (aft):	35 Gal
Draft:	6' 11"	EC Certification:	A8-B9-C10
Displacement:	18,624 lbs. (Dry)	Electronics:	B&G
Air Draft:	63'		

Staterooms: 3 doubles, Salon: 1 double on dinette table conversion.

Forward Stateroom: Headroom: 6'-1", Berth Dimensions: 6'-7" Lx5'-7" W (head), 1'-7"W (feet)

Port Aft Stateroom: Headroom: 6'-2", Berth Dimensions: 6'-8" Lx4'-11" W (head), 3"W (feet) 4'-

Starboard Aft Stateroom: Headroom: 6'-2", Berth Dimensions: 6'-8" Lx4'-11" W (head), 4'-3"W (feet)

Salon Head room: 6'-4"

Refrigerator Dimensions: 17" x 27" x 13" Deep

Freezer Dimensions: 17" x 22" x 17" Deep

LINK to Ardent Operating Manuals: <http://1drv.ms/1GNCOlw>

2. Nuances

Swim Platform/Moveable Transom Seat – The operation of Ardent's swim platform/moveable transom seat is not 'typical' and requires special attention. The swim platform and transom seat are electrically operated and unfold in unison to create a large platform area for access to the water, dinghy or dock. Please see Section 27 of this document for operating detail

Port Side Helm- The helm and prop walk are the reverse of most sailboats. It isn't too difficult to use to; the skipper just needs to be prepared for this.

3. Emergency/Safety Equipment

You are not likely to need these items; you must know their location.

Bilge Pump (Manual) and Handle. Located on inside face of starboard helm base. Handle is held in clips inside the starboard cockpit locker, aft end. Note: if water rises above floorboards, can use shower sump pumps also in emergency.

Carbon Monoxide Detectors. Found in all three staterooms and the salon, port side.

Cockpit Cushions. In case of COB, throw anything that floats, quickly.

Emergency Tiller. located in the starboard cockpit floor lazarette, behind the wheel. The rudder post attachment point is in the center of the cockpit between the helms. To remove the cover, insert a winch handle in the star-shaped fitting and unscrew.

Fire Extinguishers (5). There are four portable, manual fire extinguishers (one in each compartment) and an automatic halon-type extinguisher mounted in the engine compartment.

- 1 located on the aft bulkhead of the galley
- 3 located on a bulkhead just inside each stateroom.
- 1 located in the engine compartment. There is a status indicator light near the battery switches in the starboard quarter stateroom. This light should be green indicating the extinguisher has not discharged. This light will only be energized when the battery breaker for the engine is ON.

First Aid Kits. A large offshore first aid kit is located under the settee on the starboard side of the saloon. Smaller kits including basics such as Band-Aids and antibiotic ointment are located in each of the medicine cabinets in the two heads for minor scrapes or cuts. Please note any use of these items so they may be replaced for the next guest.

Flare (Electronic) and Folded Plastic Distress Flag. located in an orange waterproof box in the starboard cockpit locker. The battery powered distress signal light may be used day or night. It can be mounted with the attached tethers and left on while dealing with the emergency. Batteries for the light are replaced at the beginning of each season and a spare set of batteries is located in the box. An orange distress flag is also included for daytime emergencies.

Flares (Pyrotechnic - 3). located in an orange waterproof box in the starboard cockpit locker. Hand flares and parachute flares are also included in the box.

Flashlights. One is located at the top of the companionway stairs, starboard side and a second is in the forward stateroom, port side aft next to the door.

Horn, handheld. Located in the starboard cockpit locker, in a plastic tub.

Lifesling, Port stern pulpit. Please review the cartoons on the face of the case for procedures. The lanyard is secured to the boat so that tossing the floating harness allows it to tow behind the boat like a ski tow rope. Circling the person overboard will draw the recovery line near them.

PFDs, inflatables (6). Two located in each of the three stateroom hanging lockers. NSO: please check for "green" visible at bottom of clear canister before each cruise. That verifies the auto-inflate function when immersed. We wear these at all times when working the deck and often in the cockpit.

PFDs, foam vests (3). Located in the port aft stateroom in a blue West Marine nylon bag.

Tapered Plug, Universal Foam Orange StaPlug. In green tub in starboard cockpit locker.

Tools. Engine compartment, forward end.

Spares. General and Engine spares are in the salon, behind the starboard settee seat back. Long term cruising spares are located under the port aft berth.

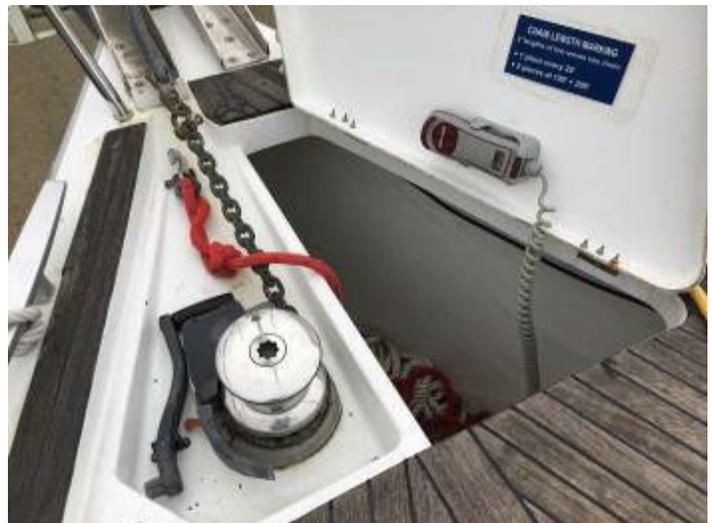
Windlass Clutch Release/Tighten Winch Handle. Bow anchor locker on tray, port side of windlass.

VHF Radios. The VHF base unit is on the port side of the salon, a handheld VHF is on the starboard side of the salon in a compartment above the electrical panel. There is a remote mic in the cockpit.

4. Anchors and Windlass

Highlights

- The windlass is powered by the engine start battery. The engine must be running to operate the windlass.
- The circuit breaker for the windlass is located in the starboard aft stateroom between the battery switches and should always be "ON" unless tripped or mistakenly turned off.
- Windlass controller is in the anchor locker clipped to the underside of the hatch.
- The engine must be running prior to operating the windlass. The windlass is powered by the engine start battery.
- Windlass clutch release/tighten winch handle is in the anchor locker port side of the windlass.
- The windlass gypsy is not designed to hold the boat while anchored, so please use the bridle with chain hook to hold the chain while anchored.



CHAIN LENGTH MARKING

2' lengths of line woven into chain:

- 1 piece every 25'
- 2 pieces at 100' + 200'

- Please avoid chipping the bow with the anchor by using caution and slowly raising/lowering the anchor when it is clear of the water.
- Chain length markings: 200' of chain marked with 1 piece of yellow line at 25' intervals and 2 pieces of yellow line side by side at 100' and 200'. At the end of the chain there is 125' of nylon rope. The placard shown on the right is glued to the inside of the anchor locker door as a reminder.
- Secondary/Spare anchor is stowed in the port cockpit floor lazarette, aft of the helm.
- Turn ON the Anchor light overnight. Breaker switch is labeled and located on the electrical panel starboard side of the salon.
- Raw water washdown located in the anchor locker. Breaker/Switch located in the starboard aft stateroom on the forward face of the berth platform, outboard end.

Details

- *Ardent* is equipped with two anchors.
 - The primary anchor is a 55-pound Delta anchor on the bow anchor roller with 200 feet of 5/16" HT chain and 125' of nylon rope in the chain locker.
 - The secondary anchor is a 35-pound Delta. The rode is 18' of chain and 200' of three-strand nylon. This anchor is located in the port cockpit floor lazarette. The rope is contained in a black bag for easy movement. Please use care when moving the secondary anchor and rode about the boat.
 - A snubber line with chain hook for the anchor is located in the anchor locker.
- A 600' Stern Tie Line is located on a line reel in the stern port cockpit floor lazarette, aft of the helm. **Please do not cut this line; the entire length is needed for certain places in Desolation Sound.**
- *SJS NOTE: The anchor 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 determine the tidal range 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!*
- *SJS NOTE: For storm conditions (sustained winds of 25+ knots), extend your scope to 7 or 10-to-1, provided you have swing room to leeward. Otherwise, set two bow anchors (using the secondary anchor and rode) in a v-type (45-60°) pattern for extra holding power.*
- *SJS NOTES:*
 - **Deploying the Anchor.** With an electric windlass, it is important to deploy the anchor into the water by hand. Have a boat hook ready to fend the anchor off the hull. 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 and might cause serious damage to the attachment base. Instead, slowly head the boat under power toward the anchor while using the windlass to take up the slack in the chain. 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 jams the windlass.** You might need to push it down several times (with the boat hook) 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 anchor "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!

5. Barbecue

Ardent is equipped with a Magma Cabo Stainless Steel BBQ attached to the starboard stern rail.

To operate:

- Turn on the solenoid valve switch in the galley inside the first drawer below the sink.
- Turn on the BBQ propane hose isolation valve located in the propane tank locker (located in the cockpit floor between the helms). The swim platform/transom seat needs to be partially deployed to open the propane tank locker hatch. Please refer to Section 28 of these notes for instructions on deploying the platform.
- Turn the regulator on the right side of the BBQ to the "Light" position.
- Press the "sparker" to light the burner. If the sparker isn't working, grab a BBQ lighter from the galley and insert the end into the small hole in the BBQ below the grill until ½" from the burner.
- As a courtesy to the next charter guest, please clean the BBQ grill with the wire brush.
- Turn off the regulator and isolation valve when done cooking. Regulators often malfunction and don't close properly so it's important to turn off the isolation valve too.
- Turn off the solenoid valve switch.
- **Avoid BBQing chicken thighs and other fatty meats.** These can flare up and potentially catch the Bimini on fire (from personal experience. I didn't catch the Bimini on fire but got concerned. If the BBQ starts to get out of control; bring up a fire extinguisher before the problem occurs).

6. Batteries/Charging/Inverter

Highlights

- Please keep batteries above 12.2V and 50% of charge at all times. 12.8V is fully charged (with all loads turned OFF – including the fridge and when not charging).
- When charging, battery voltage will read above 13V.
- Ensure batteries are charging when connected to shore power – see details below in Battery Charging section.
- When underway the engine is automatically charging all batteries.
- At anchor, there is no generator on board; the house battery bank is ample enough to handle normal DC loads including lights, the fridge, diesel cabin heater and entertainment systems.
- Caution is needed when inverting and using 120V power. Only low draw (wattage) items like phone charging or computers. High wattage items like microwave oven, hair dryers and electric heaters will quickly drain the batteries.

Details

BATTERIES

Ardent has the following battery groups on board:

- Engine start and Windlass (Single Group 31 AGM battery)
- House and Swim Platform (Six AGM batteries providing 660 Amp Hours)
- Bow thruster (Two 12V AGM batteries)

All batteries are charged automatically when connected to shore power with BLUE DOT breakers ON or while the engine is running. Isolator devices on the battery busses separate the Engine Start batteries from the House batteries and from the Bow Thruster batteries, while assuring all batteries are charged during the battery charging process. This protects the Engine Start batteries from draw-down of the other battery banks.

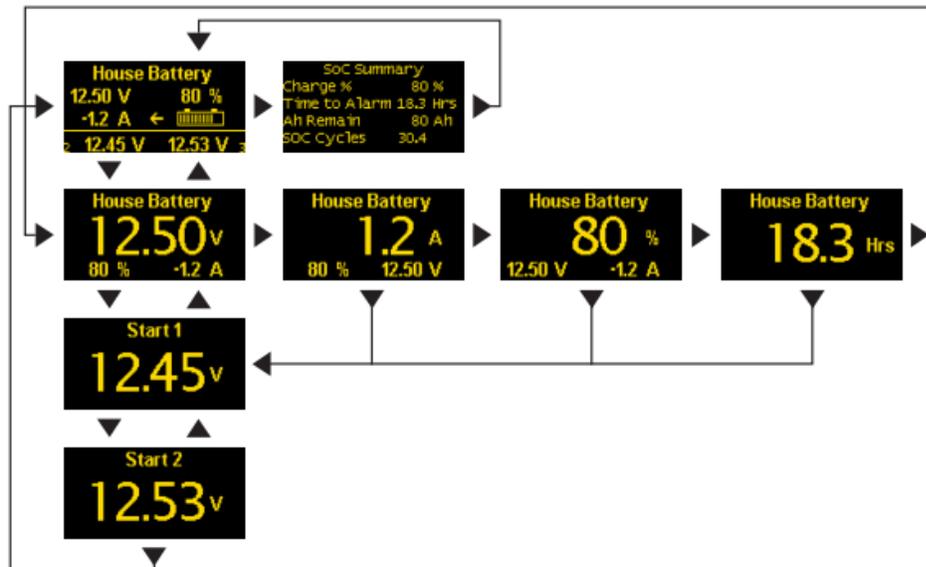


Check battery voltages on the BlueSea M2 charge monitor located just aft of the electrical panel starboard side of the salon. The Blue Seas charge monitor is more accurate than the display on the electrical panel.

Charge the batteries any time they drop below 12.2V or 50%

The menu system is a two dimensional matrix. Pressing the UP ↑ or DOWN ↓ arrow buttons will transition the display between the System Summary screen which displays summary information for each of the "voltage" or "current" channels.

Press the Next button to display more detailed information about an input channel or to show a single parameter, such as "voltage" in the display (see example below).



charge to minimize battery damage from improper discharge. See CHARGING below.

Battery disconnect switches

- The battery disconnect red “T” handle switches are located on the forward face of the starboard aft berth.
- The switches should remain in the ON position except in the unlikely event that the engine start battery is depleted. To use the house batteries to start the engine, turn the red EMERGENCY COMBINE switch to the ON position and try restarting the engine. The emergency combine switch (red/white) is located just inboard (to the right of) the battery switches (see photo above).
- After the engine starts, switch OFF the emergency combine switch.
- After running the engine at cruise RPM for at least 1 hour, turn off the engine and try to restart. If it restarts using the start battery with no hesitation, then you are good to go. If the engine won't start or the start battery is slow cranking, then contact the SJS office.



Bow Thruster:

The bow thruster has its own battery bank (2 12V AGM batteries), located in the forward cabin under the berth. Under normal circumstances you don't need to do anything with this system. See Section 9, Bow Thruster, for detailed description of using the bow thruster.

CHARGING/INVERTING

Ardent has been equipped with a state-of-the-art Magnum Energy power management system which includes a battery charger and an inverter. The Magnum control panel is shown in the photo on right. It is located aft of the electrical panel, starboard side of the salon.



Charging – Shore Power

- Connect the 30Amp shore power cord to the boat's receptacle behind the port helm below the seat.
- Run the cord to the dock outlet, turn OFF the dock breaker then plug in the cord. Turn the dock breaker back ON.
- At the electrical panel, turn ON the BATTERY CHARGER breaker.
- Normally the Magnum panel will automatically start charging (after a 20 second startup) and indicate Bulk, Float or Absorb charging. If not, press the small white CHARGER button on the Magnum panel.
- When correctly connected to shore power, a red light will show on the upper left-hand side (AC power side) of the electrical panel indicating that shore power is available. If shore power is connected but the light is not illuminated, check 1) the shore power breaker on the dock, 2) the vessel's primary shore power breaker under the hatch aft of the port helm station, and 3) the battery charger switch on the electrical panel.

Charging – Engine

- All batteries are automatically being charged when the engine is running.

Inverter

- If 120V power is needed for **low wattage devices** when shore power is not available, the Inverter on the Magnum panel can be turned ON.
- The inverter powers the 120V outlets including the MICROWAVE OVEN.
- At the Magnum control panel, press the INVERTER button.
- On the AC panel, flip ON the OUTLETS breaker.
- Please turn the inverter OFF when not in use.

7. Berths and Bedding

- *Ardent* is ideal for six people but will sleep a maximum of eight: two in the forward cabin, two in each of the aft cabins, and two on the berth converted from the dinette table and settee (converts to a double berth).
- To convert the dinette table and settee into a double berth:
 - Gently pull up on each side of the salon table until it comes releases from the legs (friction fit).
 - Remove the long metal legs that are attached by friction only.
 - Insert the short legs (stored in the small compartment at the forward end of the galley countertop, above the port settee) into the floor sockets and carefully place the tabletop onto the legs.
 - Locate the two filler cushions on port aft cabin and place them over the tabletop.

8. Bilge Pumps

Highlights

- **Manual Bilge Pump and Handle:** The pump is located on inside face of starboard helm base. The handle is held in clips inside the starboard cockpit locker, aft end.
- **Electric Bilge Pump:** Has an automatic float switch. The pump is located just aft of the mast post down in the bilge. Check the strainer on the pump inlet for any clogging debris and remove if needed. The pump mode control switch is on the electrical panel has two positions: AUTO and ON. Should always be in the AUTO position unless the float switch fails to turn the pump on then you can override by switching to the ON position.
- Please visually inspect the bilge each day, which is accessed by lifting the floorboard in front of the main salon table. The refrigerator drains into the bilge, so most accumulated water is from melting ice and condensation. The intake tube is at the lowest point in the bilge.

9. Bow Thruster

Highlights

- There is no separate breaker/switch on the electrical panel.

- There is a dedicated circuit breaker located in the starboard aft stateroom on the face of the berth platform between the battery switches.
- The engine must be running for the thruster to operate.
- Battery bank is located under the v-berth.
- The controller is located at the port helm. Activate by pressing the red and green buttons together and holding until beeps and the green light on the red button turns on. Test function by briefly pressing port thruster, pausing, then briefly press starboard thruster. Controller will auto shut-off after 12 minutes of non-use. Just before shutdown, you will hear 5 beeps; a few seconds later you will hear another series of 5 beeps, followed by a long beep. It's now off.
- Use minimally, in short 5 second bursts. Continual use will overheat the thruster. It will shut down and not restart until cool – 10-15 minutes.
- Most of the vessel maneuvering should be done using the engine and rudder. The thruster is meant to be used for small corrections during your final approach into the slip or emergency situations to keep from hitting another vessel or dock.
- Caution: the bow thruster is very powerful, designed to push into a 30 knot sidewind. It will rotate the boat on its keel and can swing the stern sharply into the dock. Please position a crew with fender between stern and dock when departing and arriving until you get a feel for it.

10. Dinghy, Davit and Outboard

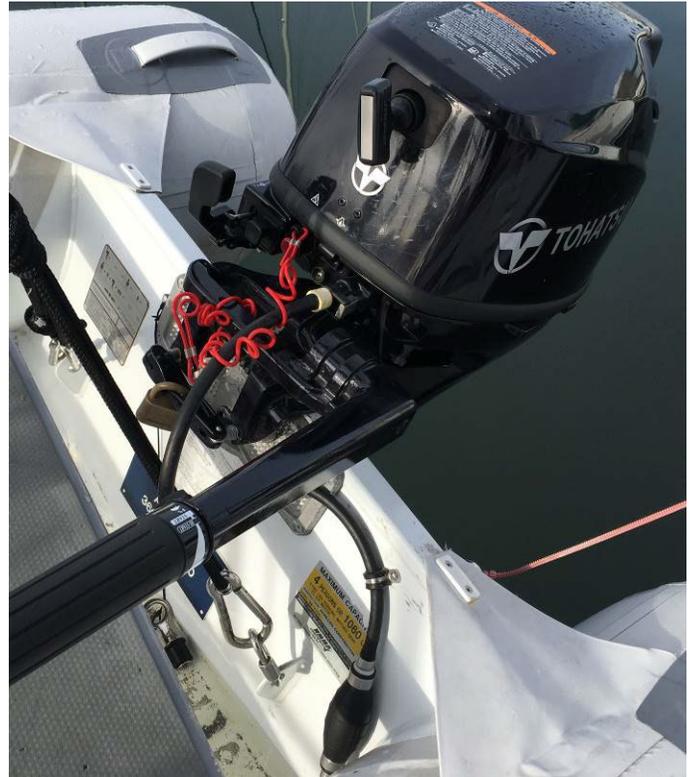
Dinghy and Davit

- Ardent has a 10'-2" Achilles aluminum hull RIB dinghy with two seats, oars and a 9.8hp Tohatsu outboard engine (see also "Outboard" below).
- While underway the dinghy must be raised out of the water and secured onto the dinghy davit. It takes 2-3 people. Each end must put on the jib winches to crank it up. A third person should make sure the dinghy doesn't drag on the transom. If the dinghy isn't raised, might capsize in rough water. Make sure the cleats are locked after the dinghy is raised.
- When in the raised position the top of the dinghy tube should be at the same height as the rear bench seat. If it is too low, it will damage the name graphics. There is also black marks on the hoisting lines which should be at the chocks when the dinghy is raised.
- The transom/swim platform must be folded up to deploy or retrieve the dinghy.
- Using the transom folded down is a very convenient way to retrieve mooring balls. If one does this; the dinghy needs to be deployed first and tied midships; then lower the transom, then pick up the mooring. After the mooring is picked up; walk it to the bow to secure it.



Outboard

- *Ardent* is equipped with a 4-stroke Tohatsu 9.8 horsepower outboard.
- DO NOT add any oil to the gasoline – it uses straight gasoline.
- Starting
 - Pull out the choke (black square knob next to the gear shift lever).
 - On the orange fuel tank under the seat, open the air vent on the top of the fuel cap by turning counterclockwise about 3 full turns.
 - Squeeze the black fuel line primer bulb a few times (port side of the transom inboard face).
 - Check that the black U-shaped kill clip (with the red lanyard) is clipped into the red shut-off knob (next to the choke and gear shift lever).
 - Check that the gear shift is in neutral.
 - Turn the throttle handle to start position.
 - Pull the start cord until the engine starts. You shouldn't have to pull it more than 5 times.
 - Push the choke back in shortly after the engine starts (after about 10 seconds).
- Operating
 - 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.
- To Shut Off
 - Shut the outboard off by pushing in the red shut-off knob (where kill-clip attached) or just pull the red engine kill-lanyard until the clip pops off.
- When Not in Use
 - Close the air vent on top of the fuel tank cap by turning it clockwise.
- Troubleshooting
 - If the engine won't start, review the steps above to make sure you've done them all.
 - 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 the engine suddenly quits, it's usually that someone has forgotten to vent the fuel cap.



Inflating the Dinghy

If the dinghy needs inflation, the foot pump is in the starboard cockpit locker. The dinghy has three (3) baffles, each with an inflation valve located on the inside of the boat, plus an inflatable keel.

The foot pump is held closed with a locking clasp. Release the clasp, insert the inflation nozzle onto the valve and give a ¼ turn to lock it in place. Inflate the baffle or keel with the foot pump until it is firm. When done, carefully detach the inflation hose. If the valve is still open, press it once to close it.

11. Dodger and Bimini

Ardent has a very large sturdy dodger that protects the crew from the weather when in the cockpit. It has several stainless steel grab handles for safety.

- **Please Do not remove the dodger** -- it is very difficult to put back on.
- SJS NOTE:
 - The dodger's plastic "glass" 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 sandpaper! To clean, please use generous amounts of fresh water (use bucket & shower nozzle at starboard helm station) 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!
 - *CAUTION -- We have found that most spray sunscreens react chemically with the plexiglass and other boat surfaces. **Please inform your crew to spray sunscreen downwind of the dodger and other boat surfaces.** And please don't lean against the dodger with sunscreen on your back and shoulders. Once that chemical reaction takes place, the glass is ruined and must be replaced at significant cost.*
- *Ardent* has a two-piece Bimini that covers the entire cockpit when both pieces are installed. In combination with the dodger, it provides excellent shelter in less than pleasant conditions.
 - The aft section of the Bimini covers the helms and part of the aft cockpit.
 - **This section should NOT be removed.**
 - Please check the large black straps connected to the Bimini forward supports to ensure they are sufficiently tensioned to keep the Bimini stable in all winds.
 - The forward section of the bimini (bimini to dodger connector piece) is relatively easy to remove and can provide extra sunshine in the cockpit if desired. Unzip this section at the support then slip it out of the groove on the arch. This canvas **WILL NOT FLOAT** so use care when removing and installing. Please store dry and properly folded, on the shelf above the hanging locker in the port aft cabin.

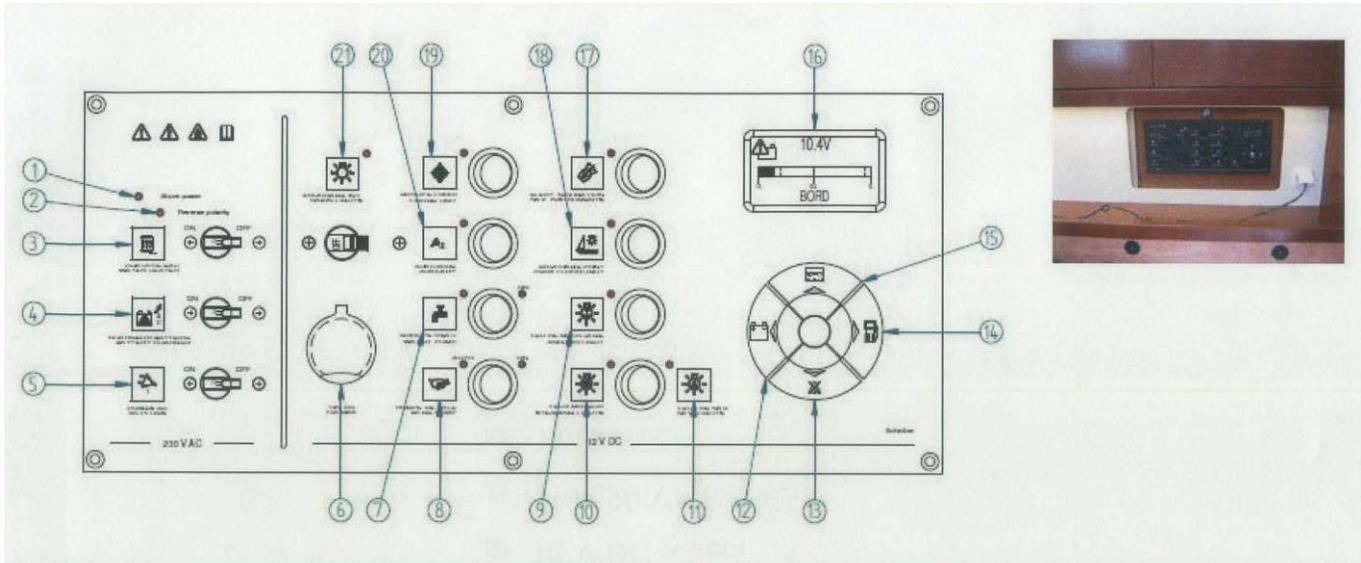
12. Electrical

Highlights

- The electrical **panel breaker/switches** use the color dot convention shown in the photo of the legend to the right.
- The shore power **BATTERY CHARGER switch** is located on the electrical panel, starboard side of the salon. Must be ON when connected to shore power for the batteries to charge. When the engine is running, the batteries will charge even when the switch is OFF.
- **Primary shore power breaker** is located near the shore power cord outlet at the port aft end of the cockpit. Open the floor lazarette and look for a grey box mounted on the forward bulkhead; port side up high. This breaker should always be "ON" but if it trips, the red light on the BATTERY CHARGER switch will not appear. Perform the following steps:

- Turn OFF the breaker switch at the dock.
- Re-check your connections at both ends of the shore power cord. Look for signs of arcing (blackened areas). If seen, do not proceed. Call San Juan Sailing.
- Reset the primary breaker at the boat.
- Turn back ON the breaker switch at the dock.
- If the primary breaker trips again, do not proceed. Call San Juan Sailing.





REF	Designation	REF	Designation
1	Indicator - common - Shore	12	Test batteries
2	Warning light - reverse polarity	13	Alarm disabling
3	Control - Water heater	14	Fuel gauge
4	Control - Battery charger	15	Water gauge
5	Control - Cabin outlets	16	Multi-function display
6	Socket 12V	17	Electronic controls
7	Control - FW Water pump	18	Control - Deck light
8	Control - Bilge pump	19	Control - Refrigeration unit
9	Control - Anchor light	20	Control - Auxiliary
10	Control - Engine navigation light	21	Control - Interior lighting
11	Control - Navigation lights		

• **AC (120V) Circuit:**

- **Shore Power Indicator Light (Reference #1)** A red light indicates that shore power is connected and available on the AC bus.
- **AC Outlets:**
 - To energize the AC outlets, flip on the OUTLETS switch on the electrical panel (#5 above) and check that the AC OUTLET BREAKER (located in the electronics cabinet above the electrical panel) is on ("I" position). See photo on right.
 - The AC outlets can be energized through 1) shore power or 2) when the inverter is energized (see "Inverter" in Section 6, Batteries/Charging/Inverter, above).
- **Water Heater:** When connected to shore power, you can energize the water heater electrical circuit (#3). Note: Hot water is also produced by running the diesel engine (see below).
- **A reverse polarity light (#2)** is located below the shore power light. If this light is fully illuminated (not just a light shadow from shore power indicator), immediately de-energize shore power and determine the cause of the reverse polarity.



• **DC (12V) Circuit:**

- **Cabin Lights:** Energizes the circuit with all cabin lights. Lights must be individually turned on. Main Cabin light switches for the saloon are in the headliner at the bottom of the companionway ladder.

- **Refrigeration:** Energizes the refrigerator and freezer. Each unit has an independent temperature switch which must be turned “ON” and set.
- **Freshwater Pump:** Turning on the freshwater pump pressurizes the freshwater faucets throughout the boat as well as the toilet flushing water. Please turn this switch off when everyone is above deck. If a water tank is low, air might enter the pump causing it to run continuously and eventually burn up.
- **NAV Instruments:** Energizes all the navigation instruments, including the T12 & T7 MFDs, Triton displays, Autopilot, VHF, stereo.
- **Navigation Lights:** Push switch to RIGHT position to energize sidelights and stern light for sailing. Push switch to LEFT position to also energize masthead light for motoring.
 - **NOTE: Night movement is not permitted under terms of your charter agreement. Use Navigation lights for reduced visibility (e.g., fog, rain, etc.).**
- **Anchor Light.** Should be “ON” all night in an anchorage.
- **Deck Light:** Illuminates the foredeck for night work.
- **12V Outlets.** A 12V outlet is located on the electrical panel. Another 12V outlet is located inside the forward compartment of the cockpit table.

13. Electronics/Instruments

- *Ardent* is equipped with state of the art, networked B&G displays and instruments. Several “Quick Start” guides are attached at the end of these Owner’s Notes. Also, follow this link to manuals in “.pdf” format: <http://1drv.ms/1GNCOlw>
- **B&G Zeus T12 & T7 Color Multi-Function Displays (MFDs)**
 - A 12” Zeus Touch MFD is located at the aft end of the cockpit table and can be rotated and accessed from either helm station. Rotate the display by loosening the knob under the base of the unit support bracket.
 - A 7” Zeus Touch MFD is in on the port side of the salon above the VHF set. The T7 has all the functions of the T12 but has a smaller display.
 - From these MFDs you can access the following functions:
 - GPS/Chartplotter with Navionics Platinum+ Pacific Coast & Hawaii charts. Includes detailed images of many ports & approaches and port information.
 - 4G HD Radar
 - Radar can be displayed in a traditional relative bearing circle or overlaid on top of chartplotter data.
 - AIS information
 - Note: *Ardent* has an active AIS transponder. Information from AIS equipped vessels and virtual AIS Nav Aids through the VHF radio which must be “ON” to receive AIS information.
 - Autopilot
 - Wind, Depth, Boat speed, SailSteer/Racing computer
 - Stereo settings
 - See Zeus Touch Quick Start guide and Op Manual for other functions.
 - Screens can show single functions or can be split (see image above) for multiple views.



- These MFDs are very user friendly for those familiar with tablet devices, but spending a few minutes looking at the “Quick Start” guide will be very helpful. A few items to note:
 - The MFD display always has several windows of information (e.g., a chartplotter window, data bar(s), radio bar). You must select the window you wish to manipulate. Often the bottom bar that controls the radio will be selected and a user will attempt to use the chartplotter getting frustrated when the chartplotter doesn't respond. Touch the chartplotter part of the screen to select that window.
- **See Appendix 1 below for instructions on restoring the normal MFD settings if you have inadvertently changed settings.**
- *SJS Note: 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.*
- *SJS Note: 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 chartplotter, 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 typically accurate to within 3 meters – about 10 feet.)*

B&G 4G HD Radar

- *Ardent* is equipped with a continuous wave, frequency modulated radar system. Outstanding close range (2-3 NM) resolution at low power consumption (165 mW nominal transmission).
- Returns can be displayed in a relative bearing circle or overlaid with chartplotter data.
- Radar controls are located on the appropriate screens of the B&G MFDs. On the MFD, press the “Pages” button then select a “Radar” box. On the Radar screen you can set the unit to “Transmit”, “Standby”, or “Off”. Review the B&G MFD Operation Manual for Radar operation and settings.
- *SJS NOTE: 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.*

Triton Instrument Displays

- Fully customizable instrument displays located at each helm.
- Typical screens give wind information, depth, speed, GPS, trip data, route info, etc.
- See the “Quick Start” guide for more information on available screens and operation.



B&G Autopilot System

- Autopilot control panel located at **Port Helm** station.
- Simple operation panel for operating the autopilot system.
- To engage the auto pilot push “auto” at the bottom. To disengage push “standby”.
- **NOTE: Exercise care and monitor the autopilot when using in substantial following seas. All autopilots have difficulty in these conditions.**
- The autopilot can also be controlled on the MFDs on the appropriate screens.
- **Remember, one cannot steer the boat with the autopilot on. One must push the standby button to re-gain control of the boat. I have gotten flustered one time and had a minor impact. Remember, if you cannot re-gain control; stop the engine or put in reverse immediately.** From personal experience.
- **An auto pilot isn't a relief skipper. One needs to maintain a watch at all times! One can become distracted when making a quick trip below and a lot can happen.**



Standard Horizon GX1800G VHF Radio Primary Unit plus RAM 4 in Cockpit

- The primary VHF radio unit is located on the port side of the salon behind the aft nav station settee.
 - DC power for the unit is wired directly to the bus bar – no need for the Nav/Instrument breaker on the DC panel to be on.
 - Press and release the red power button in the lower right corner of the unit to power on.
 - Press and hold the red button for a few seconds to power off.
- Cockpit RAM
 - Hardwired at the aft end of the cockpit table, port side.
 - Full controls – channels, volume, squelch, etc.
- *SJS Note: 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, 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).

- *SJS Note: 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 360-671-4300. Please refer to the Emergency Contact List in the Charter Guest Reference for additional staff cell phone numbers and the current maintenance pro contact number.)*
- *SJS Note: 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 until it confirms that the automatic distress signal is engaged. GPS input is automatically coded into your signal. The VHF Remote also has a red distress button.*

Depth Sounder & Boat Speed (rotolog) Transducer

- **Displayed depth is measured to the transducer which is approximately 5.5' above the bottom of the keel. San Juan Sailing uses a ZERO OFFSET for charter vessels.**
- The transducer for depth & speed is located under the cabin sole just inside the forward V-berth.
- This transducer provides depth and "boat speed" (speed through the water) input to the network for all network devices.
- This data is displayed on the MFDs and on the Triton Instrument Displays.
- *SJS Note: The digital depth sounder may not give accurate readings in deep water. In deeper water, you will receive many false readings caused by currents, changes in water temperature, fish, and seaweed. Use the depth sounder as an aid to navigation only in shallow water.*
- *SJS Note: 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.*
- *SJS Note: We do not recommend using the depth sounder's alarm during night. 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.*

WiFi-1 Network

- *Ardent has an internal WiFi. If you have an iPad or iPhone, download the free B&G app, connect to Ardent's wireless network, and use your device to see and control the MFDs. Your iPad turns into another MFD. iPhones will typically only display, not control the MFD screen .*
 - Password: SJSViva2. (verify/change password in MFD: Setup -> Network -> Wifi -> Access Points -> Network Key)

- In addition, you can connect your laptop computer to the network (wireless or Ethernet RJ-45) and receive NMEA 2000 data to your planning software if supported.
 - Open CPN is compatible with this system. Additional information about setting up the system is attached at the end of these Notes.
- **Note: Neither the Owners nor San Juan Sailing can provide support for connecting or operating devices on the Ardent network other than what is contained in these Notes.**

14. Emergency/Safety Equipment: See Section 3

15. Engine and Handling

Ardent is equipped with a Yanmar 3JH5e 40hp engine and an SD60 sail drive.

Operation

- For Ardent's Yanmar 3JH5E engine cruising speed is approximately 7.5+ knots at 2400 RPM with a corresponding fuel consumption of approximately 1.2 gallon/hour.
- Please do not exceed 2400 RPM except for short periods of emergency maneuvering.
SJS NOTE: 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.

Reverse

Ardent has a **left-handed prop** and backs to starboard slightly.

- Sufficient sternway or the bow thruster will help overcome the prop walk.
- **Hold the wheel tightly in reverse** or water pressure on the aft edge of the rudder will slam the rudder over possibly damaging the steering system.

Forward

Ardent has a large spade rudder which responds quickly and turns in a narrow radius.

Docking

- Never shut down the engine until the vessel is securely tied at the dock.
- 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 forward momentum of a vessel as heavy as a cruising sailboat.

SJS NOTE: 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. They will 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

- Look around the engine compartment for leaking fluids or anything that appears or smells unusual for an engine compartment.
- **The engine oil level is checked weekly by Ardent's maintenance pro.** It is not necessary to check daily. If you are out on a multi-week charter, please check the oil level once a week as follows:

- The dipstick is accessed by opening the panel just inside the starboard aft berth.
- The dipstick is on the starboard side of the engine.
- Note the oil range dots on the dipstick. 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. It is unlikely that you will need to add oil during your time on *Ardent*.
- If you need to add oil **Please Do Not Overfill**, the excess oil will escape somehow, perhaps by blowing the head gasket.
 - a) Use the onboard spare oil to add no more than a cup at a time.
 - b) After waiting about 2 minutes for the oil to trickle down to the pan, check the level again.
 - c) 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.

Daily Checks:

- Coolant level...anywhere between the two lines (high and low) on the overflow reservoir is "good".
- Belt tightness by feeling behind the large gray cover on the front of the engine for the belt and check its tightness.
- Engine raw water strainer – check **visually** by shining a flashlight through the glass bowl looking for obstructions like eelgrass and other debris. Clean out if necessary, by unscrewing the wing nuts at the top of the strainer, remove the cap and metal sieve, clean out and replace. Strainer is above the waterline so no need to close the inlet seacock. The seacock is located on the port side of the sail drive housing behind the engine (access via inspection hatch in the port aft stateroom).
- Check diesel fuel level using the tank level display on the aft end of the electrical panel in the salon.

Procedure for starting the engine.

- Prepare the boat for leave the dock or anchorage. Disconnect shore power. Secure all items. Raise aft platform, Hoist dinghy, onto davit system.
- Look over the stern for kelp, logs or branches that could foul the propeller.

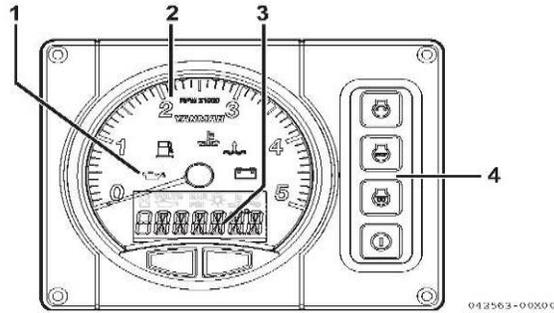


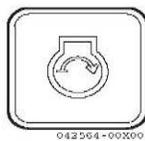
Figure 14

1 – Alarm lamp
2 – Tachometer

3 – LCD
4 – Switches (push-buttons)

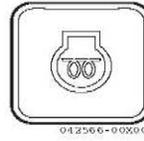
Control panel switches

All switches are push-buttons.



Start switch

Pushing this switch operates the starter and starts the engine.



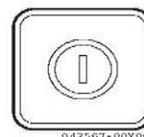
Glow switch

Pushing this switch for the specified time heats the air heater on the air intake manifold. It becomes red-hot, facilitating fuel ignition. This assists starting in cold weather.



Stop switch

Pushing this switch stops the engine.



Power switch

Pushing this switch turns on or off the power.

- Energize the engine panel by pressing the bottom right hand button (Power Switch) for about one second. Observe the low oil pressure alarm sounds after a few seconds.
- Press the top right-hand button (Start Switch) on the engine panel to start the engine.
 - After the engine starts, release the Start Switch and check for water gurgling out the exhaust over the port side near the helm.
 - Do not hold down the start button for more that 4-5 seconds at a time.
 - **WARNING – EXCESSIVE STARTING CAN DAMAGE THE ENGINE**
- After the engine is running smoothly, gradually ease the throttle back to idle and observe that the red button pops out – the clutch is now reengaged.
- Please allow 5-10 minutes of warm up before operating at cruising RPM. Normally, maneuvering out of the harbor or raising anchor is sufficient time to warm up the engine at low RPM.

Proceeding in Forward / Reverse

- You are in neutral when the throttle/shifter clicks in the straight up and down position. You may engage forward gear by pushing ahead on the throttle or reverse gear by pulling back on the throttle.
- **Remember to pause 2 seconds (say “one and two and”) in neutral when shifting from forward to reverse and vice versa.** Otherwise, you may damage the transmission.

Engine Alarm Procedures (see alarm indicator descriptions on next page below):**Engine Overheat**

The most common cause of engine overheat is eelgrass plugging up the raw water strainer and reducing or blocking cooling water flow. The best solution to this problem is prevention—keep a lookout for eelgrass mats, especially along tide lines. Safely steer around them.

If the engine panel alarm sounds while the engine is running, look at the engine panel to determine the cause of the alarm - high temperature, low oil pressure, battery charging. See alarm panel legend below.

High Temperature:

If safe to do so, reduce RPM to idle. Before shutting down the engine, check if cooling water is still gurgling out of the exhaust. If not, then most likely a failure of cooling water flow. Shut down the engine and perform the following:

- Check the engine raw water strainer:
 - a) Shine a flashlight through the glass bowl looking for obstructions like eelgrass and other debris.
 - b) Clean out, if necessary, by unscrewing the wing nuts at the top of the strainer, remove the cap and metal sieve, clean out and replace. **Make sure the rubber gasket is in place in the lid** (and not lying in the bilge.)
 - c) Strainer is above the waterline so no need to close the inlet seacock.
 - d) The seacock is located on the port side of the sail drive housing behind the engine (access via inspection hatch in the port aft stateroom). Make sure it's OPEN!
- Restart the engine. Check for water gurgling out of the exhaust. If none, shut down the engine and perform the following:
 - a) 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.
 - b) AFTER THE ENGINE COOLS DOWN, remove the cap on the engine block and add coolant.
 - c) Check the bilge for a light green liquid. If found in the bilge, call San Juan Sailing.
 - d) 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 in the engine spares kit.)
 - e) 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.

Low Oil Pressure:

Shut down the engine, check the oil level, check for oil under the engine and contact San Juan Sailing.

Battery Charging:

Shut down the engine, check the alternator belt and, if necessary, contact San Juan Sailing.

Sail Drive Seal:

Water is detected between the sail drive seals. Inspect the sail drive housing area (at the aft end of the engine – access via the hatch in the starboard aft stateroom) for water leaks. Contact San Juan Sailing for guidance.

Lock prop by putting in reverse while under sail. This will save wear on the running gear and cause less drag. Restore to neutral before starting engine while taking down sails.

Engine Alarms

Indicators and Alarms (Optional)

When a sensor detects a problem during operation, the indicator on the instrument panel will light and an alarm will sound. Indicators are located on the instrument panel and the alarms are located on the back of the panel. Under normal operating conditions, the indicators are off.



Battery Low Charge Indicator

When the alternator output is too low, the indicator will light. When charging begins, the indicator will turn off.



Coolant High Temperature Indicator and Alarm

When coolant temperature reaches the maximum allowable temperature (95°C [203°F] or higher), the indicator will light and the alarm will sound. Continuing operation at temperatures exceeding the maximum limit will result in damage and seizure. Check the load and troubleshoot the cooling system.



Engine Oil Low Pressure Indicator and Alarm

When the engine oil pressure falls below normal, the oil pressure sensor will send a signal to the indicator, causing it to light and the alarm to sound. Stop operation to avoid damage to the engine. Check the oil level and troubleshoot the lubrication system.



Water in Sail Drive Seal Indicator and Alarm

When water is detected between the seals of the sail drive, the indicator will light and the alarm will sound.

- Engine Shutdown
 - **NEVER turn off the engine panel electronics (Power Switch) 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, press the Power Switch to reenergize the electric panel then as soon as possible then perform a normal engine shutdown even if you plan to continue operating the engine. You can do a normal restart if you intend to continue operating the engine.
 - To shut down the engine, press the engine Stop Switch on the right side of the engine control panel (second from top) until the engine stops and you hear the panel alarm.
 - **After the engine completely stops** and you will hear the panel alarm, **hold in the Power Switch for approx. 3 seconds** until the panel turns off and the alarm ceases.
 - **EMERGENCY SHUTDOWN**
 - If the engine won't respond to the engine panel Stop Switch, do the following.
 - Make sure the throttle is in neutral and engine is running at idle speed and allow the engine to cool down for approx. 5 minutes in idle.
 - Press engine shutdown button on starboard side of engine.
 - RED rubber button near middle of starboard side of engine about a foot above top of dip stick.
 - NOTE: If engine RPM won't decrease to idle or if engine RPM is increasing, **immediately** press shutdown button on side of engine, **do not wait for cool down.**

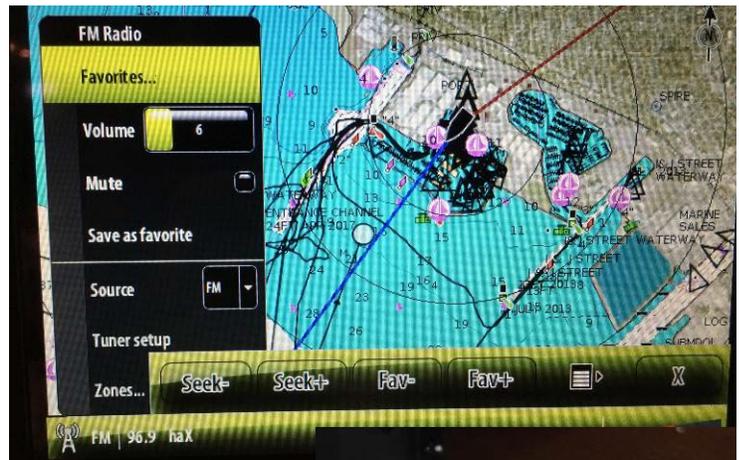
- If the engine continues to run, shut the fuel shutoff valve on top of the fuel tank and starve the engine of fuel.
 - The fuel cutoff valve is a small valve that can be accessed from the port stern berth under the bedding and a sliding horizontal panel -- labeled.
 - The engine will not stop immediately when the fuel is valve is shut. It will take some time to starve the engine of fuel.
- After engine stops, turn off the Power Switch on the engine panel to deenergize the electronics.
- Notify SJS immediately anytime an emergency shutdown is performed.

16. Entertainment System

Ardent is equipped with a FUSION marine entertainment system for audio.

- AM/FM radio
- Wired and wireless (Bluetooth) connections for audio players (iPod, iPad, Smart Phones)
- Speakers are in the salon and aft end of the cockpit.
- The audio system can be controlled from:

- a) The B&G Zeus T7 display located in the salon, port side above the VHF base unit.
- b) the B&G Zeus T12 display located on the aft end of the cockpit table.
- c) The FUSION wired remote controller (in the cabinet above the electrical panel, starboard side of the salon).



Getting Started

The system is best controlled using the B&G displays in the salon or cockpit.

Following are the steps to get you going playing your favorite tunes:

- a) Flip ON the NAV/INSTR switch on the electrical panel.
- b) Using the T7 or T12 display, press the yellow bar at the bottom. See photo top right.
- c) A new bar will appear just above. See photo top right. Press the MENU icon near the right side of the bar.
- d) A dialog box will appear on the left, select your source – AM/FM Radio or connect to device. Press the right side of SOURCE on the dialog box to get a list of sources.

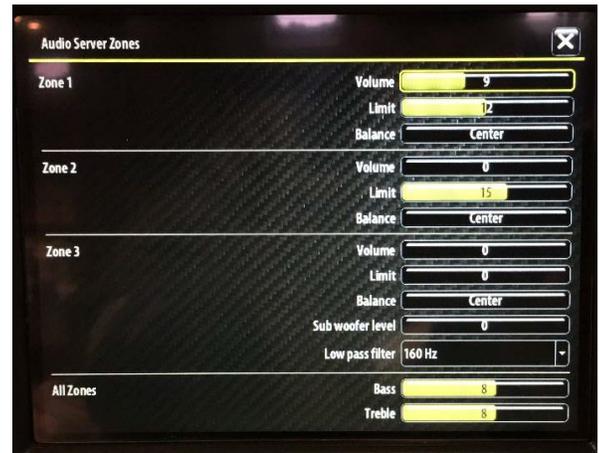
Connecting to a Device using a USB cable

- a) Connect your device's USB cord to the "iPod" outlet on the USB outlet box located in the cabinet above the electrical panel. See photo above right.
- b) Select "iPod" from the source dialog box on the T7/T12 display.

Connecting to a Device using the WiFi-1 Onboard Network – refer to the WiFi procedure at the end of Section 13 above.

Controlling Volume and Zones

- a) Zone 1 is the Salon speakers and Zone 2 is the cockpit. Zone 3 is unused.
- b) Press "Zones..." at the bottom of the menu dialog box on the T7/T12 display.
- c) Slide the volume to zero to mute a zone. See photo on right. Please be courteous of other boaters nearby when using the cockpit speakers. Not everyone will like your music. Keep the cockpit speakers at a lower volume and for short periods of time if other boats are nearby.



17. Fuel

Highlights

- The diesel fuel tank holds 53 gallons (200 liters).
- The fuel gauge is located on the right side of the electrical panel in the salon. Press the black ring below the display and cycle through the displays until Fuel 1 shows.
- Refuel when gauge reads ½ or greater.
- Fuel deck fill is on the port deck, near the stern.
- In nominal conditions, the engine consumes 1.2 gal/hr. at 2400 rpm.
- A fuel cutoff valve is located on the fuel line on top of the fuel tank under the aft port berth. The access panel is labeled.

Details

- SJS NOTES:
 - 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.



- CAUTION: Unlike automobile fuel gauges, fuel gauges on boats are notoriously inaccurate, especially on the low end. 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 expensive.

18. Heads and Holding Tanks

Highlights

- Only what has been eaten goes in the toilet.
- Both toilets are electric macerating flush using fresh (potable) water piped from the water tanks.
- The WATER PUMP switch on the electrical panel must be ON before flushing the toilets.
- The toilet discharge (flushing) does NOT have a Y-valve option. When you flush the toilet, it always goes directly into the holding tanks.
- Circuit breakers for both toilets are located under the aft starboard berth at the forward end and are labeled. Look for black fixtures with white push-button resets.
- The salon holding tank level gauge is located next to the flush switch panel in the head next to the toilet (see photo above right).
- The forward stateroom holding tank does not have a level gauge but can be checked visually by removing the panel above the toilet and looking for the level. A flashlight can help to see the level better.
- Holding tanks are 20 gallons forward and 35 gallons salon and should be emptied every second day.
- The holding tank overboard discharge seacocks have large red "T" handles and are located inside the cabinet of each head. See "Emptying the Holding Tanks" below.



Details

Please do not put anything in the toilet that has not been eaten. Experienced sailors deposit toilet paper in a wastebasket in Ziploc baggies, not down the toilet because paper tends to clog the hoses.

San Juan Sailing staff will discuss holding tanks and pump outs on your arrival. Our one plea is this: please don't over fill the holding tank as leaking sewage is most unpleasant! Thank you.

Please note that in U.S. waters it is illegal to discharge holding tanks overboard. While in Canadian waters outside of bays and harbors overboard discharge is allowed.

Flushing the Toilets

Reminder: The WATER PUMP switch on the electrical panel must be ON before flushing the toilets.

There are two rocker switches for operating the toilet. They are located on the vanity side next to the toilet:

Left Switch – Flush.

Right Switch – Fill or empty water in the bowl.



Flushing – Press and release the bottom of the rocker switch. The toilet will flush.

Add/Remove Water – Pressing the top of the rocker switch adds water to the bowl. Pressing the bottom drains water from the bowl. It's good practice to empty the bowl before sailing.

Emptying the Holding Tanks

1. Deck Pump out
2. Overboard Discharge (**where legal**)

1. Deck Pump out

The holding tanks can be pumped out via the labeled deck fills. After pumping out the holding tanks, please refill each tank with about 5 gallons of fresh water through the deck fitting to rinse, and then pump out again. This will help keep the waste system smelling fresh! Thank you!

2. Overboard Discharge (**where legal**)

The holding tanks are gravity drain, there is no macerator pump. They will normally drain in less than a minute (you may hear them finish with a 'whoosh' if the engine is not running). Open the large, red-handled seacocks located inside the cabinet of each head (see photo on right). Please make sure you close the seacock after the tank empties. If left open, then every time the toilet is flushed it will flow straight overboard out of the holding tank!



19. Heater (Cabin)

- Ardent's efficient diesel fired Webasto cabin heater will make the interior "toasty" in around 15-20 minutes.
- The heater control is located on the port side of the salon near the VHF.
- Push the slide switch to HEAT; set your desired temperature using the grey UP/DOWN buttons.
- The salon and stateroom vents have adjustable louvers to control the heat flow to the space.
- The heater draws diesel fuel from the main diesel fuel tank.
- *SJS NOTE: 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 be a load on the house batteries. The first one up in the morning can turn the cabin heater back on.*

20. Lighting

Highlights

- Ardent is fully equipped with low wattage LED lights.
- Flip on the CABIN LIGHTS breaker on the DC panel, starboard side of the salon.
- Light Switch Locations:

- a) **Salon and galley** - overhead on the ceiling near the foot of the companionway stairs, port and starboard sides.
- b) **Aft staterooms** - inboard side walls near the head of the berths.
- c) **V-berth** – port side wall just forward of the hanging locker.
- d) **Cockpit** - overhead on the salon ceiling near the foot of the companionway stairs, starboard side.

21. Refrigerator and Freezer

Highlights

- Ideal thermostat settings for both the refrigerator and the freezer is half way between min and max on the dials.
- Both units are wired to one switch on the electrical panel which is labeled FRIDGE/FREEZER. This switch is always ON unless the house batteries do not have sufficient power (below 12.2V).
- SJS NOTE: We recommend running the refrigerator at all times to avoid it becoming smelly. You may want to turn the thermostat down to a medium setting at night. This will help conserve house battery power. Then turn it back up to the normal after charging the batteries.
- The refrigerator is located below the “L” section of the counter in the galley.
- The freezer is accessed through the lid built into the countertop, in the forward corner.
- The freezer has a drain hose and pump. Activate the pump by pressing and holding the silver button on the front face of the galley sink, forward end.

22. Sails and Rigging

- *Ardent* is a delight to sail. She has a modern sail plan using a mast stepped much further aft (large “J” measurement) than was common on older boats. This allows a large headsail without having as much mast overlap as was common on older boats carrying 130-150% genoas measured with masts stepped further forward.
- We had a Genoa specially designed for the lighter air conditions in this area. It uses material of different weights in a radial design so it will be effective in both light air and when reefed.
- Once she has way, *Ardent* is well balanced and easily steered with small rudder changes. Her perfect breeze is 10-20 knots with heel at 5-20 degrees. Full sail can be carried in winds up to 17 knots. *Ardent* also has a hard chine and is designed to be sailed fairly flat under all conditions – great for those that don’t like excessive heel.
- 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.
- NOTE: The mainsail & headsail halyards are double cleated with two sets of clutches – one set is on the port side of the cabin top under the dodger and a second set is on the port side of the mast. Both must be released to ease halyard tension. Normally it is not necessary to adjust these halyards.



Adjusting the main halyard too tight can cause the furling mechanism to bind. Adjusting it too loose can cause the mainsail to bunch up in the mast and not deploy.

- Please lock the sail drive while under sail by putting the shifter into reverse. This will save wear on the sail drive and improve performance by causing less drag.

Headsail

- *Ardent's* light air Genoa mounted on a Facnor roller furler.
- Whether fully or partially deployed, you'll have good sail shape. Slight hand-over-hand tension on opposing lines – furling line and sheets – prevents problems such as a rat's nest on the furling drum (should the wind catch the sail and unwrap it violently) or a baggy furled sail.
- Reefing the Headsail – Turn to a close reach and ease the jib sheet until the sail is luffing (keeping control of the sheet). Pull in the jib furling line and reduce sail to the desired amount. Use caution when using the jib winch to pull in the furling line – if too much tension, then stop and determine the cause. A loose jib halyard may cause the top of the furler to bind.

Mainsail

- *Ardent* has an in-mast main furling system.
- With an in-mast furling rig, in normal conditions it's recommended that the headsail be unfurled first (while underway). The mast bows slightly aft at the top. By deploying the head sail first, the pressure of the wind in that sail tends to straighten up the mast making it more "plumb". This makes it easier for the main to unfurl from within a plumb mast.
 - Provided that the wind is less than 20 knots, steer to a course of approx. 60 degrees to the wind (close reach). Deploy the head sail first. Now you may throttle down and place the engine in neutral, sailing on the head sail alone. (After a few minutes of "cool down", kill the engine.) Now you're ready to deploy the main.
 - If you're in high wind (20+ knots) conditions, you may prefer to deploy the mainsail head-to-wind instead.
 - If you're in high winds, only partially unfurl the main so it's "reefed". Once deployed, fall off and begin sailing...just like you would on a vessel with a conventional main. Then partially deploy the headsail.
 - Be conservative with the amount of sail you deploy in high winds. If you've been too conservative, you can easily deploy more sail area in both the main and headsail while you're sailing. It is recommended that one reef the sails if winds are over 17 knots.

Unfurling the mainsail:

- The mainsail does not cooperate when the boom is pulled down too tight, so give it a little "play" but don't completely release the mainsheet and boom vang.
- Loosen the boom vang by pulling out about a foot of line (then close the rope clutch) and loosen the main sheet by pulling out about 3 feet of line (then close the rope clutch).
- The "outhaul" line pulls out the main and the main furl line will wind around the main furler.
- Open the main furler line clutch and keep control of the line.
- You can control how much of the main you deploy by controlling how much of the main furl line is released.
- Pull the outhaul by hand or careful use of the winch. Be careful not to force the outhaul or you will do damage to the rigging and the sail. The wind pressure on the main will help the main to deploy.
- If it doesn't respond to moderate force, check for the hang-up.

- *Ardent's* line clutches provide one-way stops, so you don't need to open when winching in.

Reefing the Mainsail:

- You have infinite reef points with an in-mast furling main. You can deploy as little or as much sail area as you determine is appropriate for wind conditions you encounter -- from the safety of the cockpit!
- Place the "main furler" line on a winch.
- Place the opposing "outhaul" line on a winch with a minimum of two wraps since the sail is under load and you'll need to maintain control, but do not lock the line in the winch since it needs to be free to pay out slowly.
- Turn to a close reach (approx. 60° off the wind) on Starboard tack and let out the mainsheet to around 45 degrees.
 - This will take a lot of pressure off the main while you are reefing it.
 - Starboard tack is preferred because the furler rotates counterclockwise when furling and will go into the mast and wrap neatly.
 - If practicable, tension the vang to bring the boom closer to parallel so that the mainsail enters the mast at the correct angle.
 - Do not over-tension the vang. The boom does not need to be perfectly parallel.
 - When ready, open the outhaul clutch and winch in the main furling line while you slowly pay out the opposing outhaul line.
 - Maintain tension so the sail furls neatly in the mast until you've shortened the mainsail to a position appropriate for the current wind conditions.
 - Close the outhaul clutch and fully tension the foot of the sail with the outhaul.
 - **NEVER tension the sail with the furling line.** The pressure can damage the furler. Always use the outhaul.
 - After you've reefed the main, you are ready to shorten the head sail. If you shorten the head sail first, you'll increase "weather helm" and likely round up. Always reef the main first.

Furling the Mainsail

- When you're ready to bring in the sails, furl the main first using the procedure above. Think of furling the main as reefing "all the way".
- Winch in the main furling line until the main is completely furled, with only about 18 inches of sail (at the foot) remaining outside of the mast.
- **IMPORTANT:** Keep plenty of tension on the outhaul when reefing/furling the main in order to get a neat tight wrap of the mainsail inside the mast. The wind will help you get a nice tight wrap. However, if you furl the main without any wind pressure on it (e.g., head-to-wind in high winds, becalmed, etc.), tension on the outhaul line is the **ONLY** force that will get you a neat tight wrap. A loosely furled main inside the mast could mean a tough next deployment or a jammed main.
 - Now that you're just sailing on a close reach on the head sail only, start the engine and shift into "idle speed" forward in order to maintain your course of 60° off the wind. While holding course, furl the head sail.

Asymmetrical Spinnaker – Advanced Notice and Spinnaker Resume Required

- *Ardent* is equipped with a large asymmetrical spinnaker.
- There is no extra charge for use of the spinnaker, but **you must contact SJS at least one month prior to the charter and make arrangements to have the spinnaker onboard.** In addition, a spinnaker resume review and approval by SJS is required.

23. Showers and Sumps

Highlights

- Both heads have showers. The forward head shower stall is integrated into the toilet/sink area.
- The shower drain pumps are manually turned on in the shower by pushing the black waterproof button.
- There is a fresh water hot/cold outlet at the transom. It is set up to use the small, coiled hose to wash the dodger windows with a sprayer.

Details

Forward Head Shower - The sink faucet extends to become the shower head. Press the top of the shower head for spray.

Transom shower – Features both hot and cold water. It is located below the transom seat, on the starboard side. To operate, pull the “T” handle toward you to open the valve. Turn the “T” handle left or right to adjust temperature. This shower has been converted to hose fitting; use the coiled hose in the port cockpit locker to wash the dodger or feet.

Note: shower sumps can become emergency bilge pumps if water rises to that level.

24. Spares and Tools

Ardent is equipped with a large variety of tools and spares for the engine and other systems. These are in labeled containers in the following locations:

- Tools are in the engine compartment.
- General and engine spares are located in the salon, behind the starboard settee seat back.
- Long term cruising spares are located under the port aft berth. Please do not disturb the spares in the aft lockers unless you need to.
- Rig/Bolt cutters and hacksaw are located in the salon, under the starboard, forward settee seat.
- A spare transom actuator can be accessed under starboard aft settee behind water heater.

25. Storage

The amount of storage is one of the appealing factors of this model. We found these compartments of greatest use:

Food:

- Under the salon settee seats.
- On the shelves, port and starboard sides of the salon.
- Cabinet on the outside wall of the salon head.

Clothes: Each stateroom has a hanging locker and drawers that we find more than adequate.

Tools: engine compartment.

Restricted areas: the aft cockpit (below floor) lockers are for spares and off-season equipment. Do not store personal gear in these lockers. Items in these areas are not needed for normal operations except for the 600-foot stern tie line and the spare anchor.

26. Stove/Oven and Microwave

Highlights

- The gimbaled propane stove/oven has two burners on the stove top and a large oven below.
- One 2.5 gallon aluminum propane (LPG) tank located in the cockpit floor locker below the helm seat, port side of centerline. The tank is plumbed to the galley and BBQ.
- The transom seat/swim step needs to be partially or fully opened to open the propane locker hatch. See Section 27, Swim Platform/Moveable Transom Seat, for instructions on how to open.
- The propane tank locker is vented overboard.
- Solenoid valve switch is in the galley, inside the first compartment below the sink.
- For safety, we turn off the solenoid switch after stove use. Located on the aft end of the galley sink cabinet face.
- The San Juan Sailing staff fills the propane tank weekly.
- If not connected to shore power the microwave can be powered by the battery inverter. Please only use for short (2-3 minute) cook times or you will rapidly drain the house batteries.
- Caution: propane is heavier than air. If leak is detected, extinguish all flames and open all hatches.

Details

Lighting a Stove Burner:

- Make sure the propane tank hand valve is open and the solenoid valve switch is on (aft end of the galley sink cabinet face).
- Make sure the gimbale lock at the bottom of the stove/oven is secured. That way, if someone leans on the stove or grabs the oven handle, it won't tip and spill pot/pans on the cooktop.
- Push the corresponding burner temperature knob in and turn to the "Light" (flame symbol) position.
- Push the black button (sparker) to the left of the burner knobs to ignite the burner.
- After the burner lights, hold the knob in for a few seconds to heat the safety "thermocouple", then release.
- Turn the knob to the desired heat level.

Lighting the Oven Burner:

- Make sure the propane tank hand valve is open and the solenoid valve switch is on.
- Make sure the gimbale lock at the bottom of the stove/oven is secured. That way, if someone leans on the stove or grabs the oven handle, it won't tip and spill pot/pans on the cooktop.
- Open the oven door and using a flashlight locate the burner pilot at the bottom right side of the oven.
- Push the black button (sparker) to the left of the burner knobs to ignite the burner.
- Push the oven temperature knob in and turn to 300 degrees. If the igniter doesn't work after several attempts, use the BBQ lighter.
- After the burner lights, hold the knob in for 15-30 seconds to heat the safety "thermocouple", then release.
- Turn the knob to the desired heat level.

Microwave Oven:

- Located in the aft-most cabinet above the sink.
- Make sure the OUTLETS switch on the electrical panel is ON.
- Leave the cabinet door open while cooking to allow heat to dissipate from microwave.
- If not connected to shore power the microwave can be powered by the battery inverter. Please only use for short (2-3 minute) cook times or you will rapidly drain the house batteries. See Section 6, Batteries/Charging/Inverter for instructions on how to use the inverter.

SJS Notes:

- If cooking underway, gimbal the stove by disengaging the retaining rod on the bottom front of the stove. Then if the boat heels, hot liquids and foods will not readily slide off of the stove. Also, for added security, use the fiddles that hold the pots/pans on the burners. 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). The oven door is equipped with a latching mechanism.
- **WARNING:** Never cook in high wave conditions or in strong, gusty winds.

27. Swim Platform/Moveable Transom Seat

Swim Platform – Please read the following carefully before operating – See photos below.

- **Ardent's transom and stern bench** fold down to create a great swim platform, dinghy dock, and easy on/off for loading your provisions and gear from the dock.
- **If the transom appears to be binding (by sight or sound) during operation; STOP and determine the problem.**
- To **Lower** the Transom:
 - In the aft starboard stateroom, check that the STERN BREAKER circuit breaker is ON (upper right corner of the face of the berth). Should always be on.
 - Using the pelican hooks, disconnect the four stern lifelines from the ladder and secure off to the sides out of the way of the transom.
 - Ensure no lines, shore power cable, other obstructions are around the transom/bench.
 - Locate and detach the black straps below the stern bench that are connected to eyelet hooks on each end of the bench. See photo on right.
 - Press and hold the bottom of the black Transom switch (inboard of the port helm, below the compass). A buzzer will sound, and the transom seat will start lifting up and out over the stern then lower to make a flat deck just above the water surface. See photos below.
- To **Raise** the Transom:
 - Make sure all lines are clear of the path of the transom/platform/bench



- Press and hold the top of the black Transom switch (inboard of the port helm, below the compass). A buzzer will sound, and the transom seat will start lifting. See photos below.
- Normally the transom will raise and without any problems. You can then re-attach the lifelines.
- **Note that sometimes the top seat section will not self-rotate to stay parallel to the water as the transom is raising. If this happens, it will bind with the section below it. A slight push on the stern ladder will correct this. The bench section must always be horizontal to the water as it is moving.**



28. Water

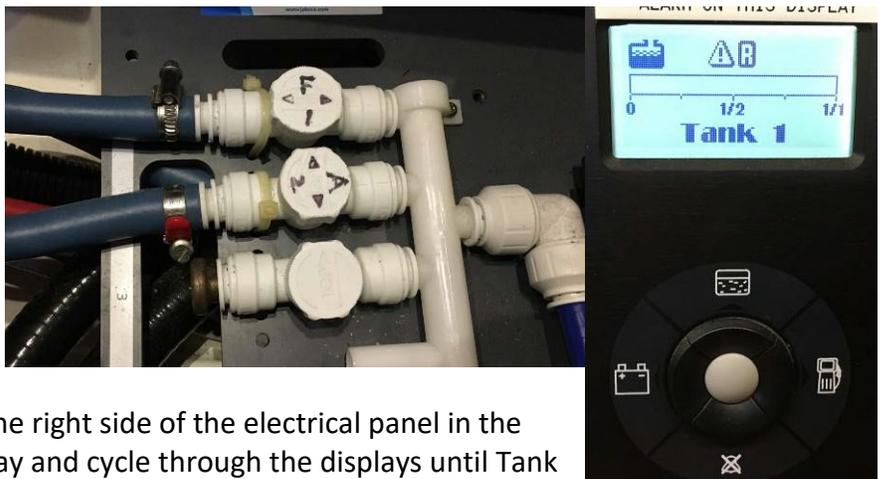
Highlights

- Two water tanks totaling 151 gallons.
- Water pressure switch is on the electrical panel, starboard side of the salon.
- Tank level gauge is on the electrical panel.
- Water tank selection valves are located in the salon, under the starboard dinette seat, aft end. See photo at right. Open only one tank at a time, starting with the bow (F) tank. It is the larger of the two tanks.
- Deck fills are located above the tanks – one near the bow and one near the port stern.
- Hot water is produced by two methods: 1. Shore power, 2. Engine. See details below.

Details

Water Pressure Switch:

Please turn off the water pressure switch when everyone is above deck (note: the water pressure needs to be on for the toilets to flush). If one of the water tanks runs dry the pump will run continuously and burn out. You will likely not hear the pump running over the sounds of motoring or sailing.



Water Level Gauge:

The water tank level gauge is located on the right side of the electrical panel in the salon. Press the black ring below the display and cycle through the displays until Tank 1 (forward tank) then Tank 2 (aft tank) show.

Hot Water Heater:

The hot water heater is located beneath the aft part of the starboard settee in the salon.

- It takes about 30 minutes of running the engine under load to get the water hot. CAUTION: Engine heated water may be scalding hot. Please BE CAREFUL!
- When on shore power, you can heat your water using electric coils by turning on the WATER HEATER switch on the AC panel.

State parks do not have pressurized water to refill tanks, but all points of civilization do.

Enjoy your vacation aboard *Ardent*!

29. Appendix 1: Restoring Standard Settings for B&G MFDs (chartplotter)

The B&G MFDs are fully customizable. If you decide to change a setting or if a setting is changed by mistake, please use the following procedure to restore the original settings.

1. Press "Pages" button – this is a "hard" button around the rotary knob in the upper right corner
2. Select "Tools" – soft button at bottom of screen
3. Select "Files"
4. Select "My Files"
5. Use rotary knob to highlight "SJS-Settings. Set" file then select by pressing in the rotary knob
6. Select "Import"
7. Select "Yes" at restart warning.

NOTES: It will take a few minutes for the MFDs to reset. Each MFD must be reset individually.

30. Appendix 2: Open CPN Settings for use with Ardent's Onboard Network

