

## *Fresh Aire Owner's Notes*

Welcome Aboard!

We're thrilled that we can offer Fresh Aire up for your adventure. She is an awesome boat!

We've been chartering various boats with San Juan Sailing for seven years to see which one we liked and would want to own and sail. As soon as we sailed Wind Song, the 2015 Bavaria 41 in the fleet, we were in love and knew the Bavaria 41 was our boat of choice.

Why?

Because she is fast, she is simple to sail, yet elegant enough that serious sailors can challenge themselves, and she has a simplistic, yet open interior. Everything we wanted in a boat.

We have worked diligently to prepare Fresh Aire for charter and hope she meets your needs. We already have ideas for improvements and would love to know any suggestions, issues, or questions you may have.

We hope you enjoy your sail with Fresh Aire!

-Rich and Roberta

RR Sail, LLC

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## Nuances

**Davit tie-down strap operation** - We do need to update the owner's manual for operating the dinghy tie-down straps

To release and tighten the black straps - we have a ratchet and strap system - common type found in stores - ours is stainless.

Check out this video if you have not used ratchets like this before: <https://www.youtube.com/watch?v=yDf6j6RPVDM>

**Boat hook is attached to the bimini in the cockpit.**

We use the boat hook to push the dingy from the boat when raising and lowering, grab buoys, and push off the dock (since the room to back up is so narrow), and.

**Tachometer error when turning on auto-pilot**

We're all researching the issue - it does not stop FULL use of the Autopilot. And will only happen the 1st time after the Nav is powered and the 1st time the Autopilot is invoked.



To remove the error click the center black button under the OK on the screen. All should be good/normal after. Red button puts an engaged Autopilot into Standby and the left most button, next to the Red button, Engages the Autopilot.

## Contacts

San Juan Sailing monitors channel 80 during office hours (closed Sundays).

## Phone numbers

San Juan Sailing office at 800-677-7245

SJS's owner, Roger Van Dyken, at 360-224-4300 on cell or 360-354-5770 at home

In the event of an emergency you can reach the Maintenance Professional, Parker Armstrong, on Sundays or after hours at 360-870-6320.

## Emergency Equipment

### Emergency Signaling Devices

- Visual day/night flares are located under the nav station seat.
- A large spot light is located above the nav table. It has an SOS mode reached by pressing the trigger three times.

### Emergency Tiller

The emergency tiller looks like a metal pipe with an “elbow” bend in it. It’s located in the port cockpit locker. The rudderpost attachment point is under the cover in the middle of the cockpit sole between the helm positions. To remove the cover, insert a winch handle in the star-shaped fitting and unscrew.

### Fire Extinguishers

Fresh Aire has six (6) fire extinguishers.

- All locations are marked with a red fire extinguisher sticker or a FIRE EXTINGUISHER label.
- All **red** fire extinguishers are USCG approved Type A-B-C extinguishers and can be used on all types of fires.
- White fire extinguishers are USCG approved Type B-C, which means they’re not as effective on type A fires (trash, wood, and paper).

Fire extinguisher locations

1. Under the galley sink (red)
2. Aft starboard berth in left hand locker (red)
3. Aft port berth in the bench seat (red)
4. Attached to starboard side of steps of engine compartment (white)
5. Forward berth in the left-hand locker (white).
6. Cockpit in starboard locker (white).

### First Aid Kits

- A complete first aid kit is located above the nav station in one of the cabinets.
- A smaller first aid kit is in the emergency equipment bag under the nav station seat.
- Band-Aids and antibiotic ointment are in each of the medicine cabinets for minor scrapes or cuts.

Please note any usage of these items at check-in so they may be replaced for the next guest.

### Throw Line

An emergency throw line (Lifeline) is located on the starboard aft stanchion.

## Anchors and Anchoring

- Always anchor with a minimum of two people: one at the helm to move the boat to and from the anchor and another at the anchor locker to lower and raise the anchor.
- From personal experience: Because of limited hearing due to length of boat, engine noise, and bimini covering, open and friendly communication improves the anchoring experience.
- We also recommend establishing friendly hand signals for “move forward”, “back up”, “STOP”.

## Anchors

Fresh Aire is equipped with two anchors.

1. The **primary bow anchor** is a 35# Lewmar Delta with 300 feet of 5/16” chain.
2. The **secondary anchor** is a 35# Lewmar Delta with 160’ of chain and 160’ of 5/8” nylon rode; all are UNATTACHED.

## Chain and snubber line

The Primary anchor chain is 300’ and marked:

- At 100’ – ten feet of Yellow (from 100-110)
- After every 50’ thereafter is ten feet of Yellow.
- The last 20’ feet of chain is marked red.

This rode should suffice for all situations you are likely to encounter in the islands. If you need additional rode, you can attach the secondary anchor rode.

The **snubber line** is used to keep the primary anchor chain taut and remove weight from the windlass. The snubber line is the red braided line with the hook in the anchor locker.

The **secondary anchor chain** is 150’ UNMARKED! chain in a bucket in the cockpit sole locker. An additional white nylon rode is on a spool in the cockpit sole locker.

## Pick a Safe Anchorage

**Fresh Aire’s transducer is positioned on the hull just forward of the keel.**

You must add in the keel length to properly identify how much depth you have between the keel and the bottom.

7 feet is a minimum approximation for a safe distance below the boat, so subtract 7 feet minimum from depth sounder reading to determine if you have enough depth to safely anchor. If the calculation equals less than 7 feet (taking low tides into consideration) we recommend moving into deeper waters.

**The Garmin chart plotter is set to 0 offset** so all depths are measured from the hull down so add 7 feet to what you see on the depth reading.

Two Examples:

Depth sounder indicates 12 feet.  $12 - 7 = 5$ ; the recommendation is to move to deeper waters

Depth sounder indicates 25 feet.  $25 - 7 = 18$ ; this is probably safe anchorage depending on tides.

## Determine Anchor Rode Length



**Btw** (bow to waterline distance): for Fresh Aire 4 feet is the approximate

**Formula:**  $(Btw + depth) * 7$  (for 7:1 scope – 7 feet of chain for every foot of depth)

Always figure in low tide depth.

Bow to Waterline = 4 feet

Keep in mind the charts are the average low tide depths, but tides do have extremes and charts are not always 100% accurate.

**Example:** Depth sounder reads 20.  $(4+20) * 7 = 24 * 7 = 168$  (so put down 168 feet of anchor chain)

**NOTE:** Fresh Aire carries 300 feet of primary anchor chain in the locker.

## Using the Windlass

### IMPORTANT NOTES!!

**Run the engine when operating the windlass.** Otherwise, the windlass will drain the battery, potentially causing damage to both the windlass and battery. You may then have to deploy or retrieve the anchor by hand using a winch.

The windlass and bow thruster operate off the same battery. Use them wisely and sparingly.

**Always have someone at the helm when performing anchor maneuvers.** Drive the boat to and from the anchor. Do not pull the boat to the anchor with the windlass. Use the bow thruster to help with maneuvers.

**The anchor has a swivel**, which allows you to twist the anchor away from the boat or towards the boat, but you do have to go out over the prow to adjust the position of the anchor. When

raising the anchor, the claw needs to face toward the boat to bring it onto the roller. Could try using the boat hook to adjust the anchor.

## Lowering the anchor

1. On the electrical panel, press the Windlass button.

Top row, fourth button from the left.



2. Grab the windlass controller located in one of the storage cabinets above the nav station.
3. Start the boat motor.
4. Idle at 1400RPM to get the alternator to produce electricity.
5. Open the anchor locker.
6. Connect the windlass controller to the plug in the anchor locker.
7. Remove snubber from chain.
8. The anchor will swing when released from the roller. To prevent the pendulum effect, on the controller, press Down and let out only enough rode to allow the anchor to hang from the roller.
9. Wait until the anchor stops swinging.  
**NOTE:** You may need to manually stabilize the anchor. The boat hook may be useful.
10. Start slowly to ensure the anchor doesn't swing and the chain doesn't bind.
11. Lower the anchor until it is in the water and stop.
12. Watch the anchor to identify current and boat movement.
13. Press Down again until the anchor hits bottom, and then continue to release a few more feet of chain.
14. Shift the boat into reverse and let out enough rode to properly anchor the boat based on the scope requirements for your depth, weather conditions, and tide.
15. Place the snubber line on the anchor chain and snub tight enough to take the tension off the windlass.
16. Take a sighting of surroundings and confirm the anchor is not slipping and you have sufficient swing room.
17. Disconnect the controller.
18. Close and lock the anchor locker.
19. Turn off the windlass circuit breaker.
20. Replace windlass controller in the nav station cupboard.

## Raising the anchor

1. On the electrical panel, press the windlass button.

Top row, fourth button from the left.



2. Grab the windlass controller located in one of the storage cabinets above the nav station.
3. Start the boat motor.
4. Idle at 1400RPM to get the alternator to produce electricity.
5. Open the anchor locker.
6. Connect the windlass controller to the plug in the anchor locker.
7. Remove snubber from chain.
8. On the windlass controller, press **Up**, but stop frequently to prevent overrunning the chain and move the boat forward to release tension on the chain.  
If the tension is too much, the windlass will not pull up the chain and will simply spin.  
**NOTE:** Again, do not use the windlass to move the boat to the anchor. Based on your weather conditions, tides, and current drive the boat to the anchor.
9. When you can see the anchor, let it rest below the water surface to stop the swing and possibly clean the anchor.
10. Press **Up** and just before the swivel enters the roller, stop until the anchor stops swinging. The boat hook may be useful.
11. Adjust the anchor so the claw faces the boat.
12. Press **Up** until the anchor is in place, slowly. Do not force the windlass to snub the chain.
13. Use the snubber to pull the anchor in tight.
14. Tie the snubber off.
15. Take up any remaining chain slack with the windlass controller.
16. Replace the anchor keeper to lock the anchor roller.
17. Disconnect the controller.
18. Close and lock the anchor locker.
19. Turn off the windlass at the nav station.
20. Replace windlass controller in the nav station cupboard.

The anchor “keeper” securely attaches the anchor to the boat, relieves stress on the windlass, and will keep the anchor from jumping off the roller in rough seas.

## Barbecue

The BBQ is a Magma propane stove with a large round party grill.

To operate the barbecue:

1. Open the valve on the propane tank.
2. On the aft port cockpit to the left of the LP tank storage area, remove the LP extension hose and attach to the barbecue.
3. Turn on the valve in the same area as the LP extension hose.
4. Inside, at the nav station, turn on the LP gas.
5. At the solenoid in the galley, when the green light stops blinking, click **On**.
6. You are now ready to light the barbecue.

**The BBQ has a push button lighting system.** In the unlikely event that does not work, you can light the BBQ with one of the lighters by inserting the lighter through a hole on the left side of the BBQ while supplying the BBQ with propane.

**With the lid on, the BBQ tends to be hot and cook quickly,** so tend your food often. Please use the brush attached to the BBQ to clean the grates; this is most effective immediately after cooking when the grates are warm. As a courtesy to the next guest, you could wash the removable grates after using the BBQ for the last time.

Please remember to turn off the propane connection (circuit breaker and solenoid) when you have finished with the BBQ.

## Batteries and Charging

Fresh Aire has three sets of batteries:

1. 1 engine starter battery - under the steps
2. 1 windlass / bow thruster battery - under the forward berth
3. 1 house bank located under the starboard settee forward of the nav station.

The house bank consists of four 90-amp hour AGM deep cycle batteries for a total capacity of 360 amp hours and a normal usable capacity of 180 amp hours.

**NEVER drop the battery usage below 50% charge and below 11 volts.** You never want to take most common AGM deep cycle batteries to 0 volts as they will not recover.

## Monitoring battery levels

Battery charging is supervised by a "smart" charging system and requires no user input. Solar augments this system. The engine drives a high capacity 115-amp alternator (@ 12 volts) good for battery charging.

Fresh Aire utilizes 30 amp/120 volt shore power with an onboard 40 amp battery charger.

### ***To get a basic status of the starting battery and the service (house) bank***

1. On the Electrical Control Panel, press the **Panel Lt** button (second row, third button).
2. Page through the LCD monitor using the **Up** or **Down** key.

### ***To check the overall battery voltage***

1. Use the Mastervolt electrical panel, located on the right side of the nav station instrument panel. This device provides a granular view of the electrical aspects of the battery system.
2. Tap the screen to light the panel.

**You should try not to discharge below 12.0 volts before recharging the batteries** by (1) running the engine or (2) plugging into shore power. If the service battery voltage drops to 11.8, please reduce battery use by turning off electrical appliances, including the refrigerator and freezer, until you can recharge the batteries.

**We recommend that you check the status of the batteries in the evening.** If the service battery voltage is at or below 12.0 volts, please run the engine until the voltage reaches 12.5 volts.

## **Berths and Headroom**

Fresh Aire is ideal for 6 people in three cabins. The forward bed is 6'4" long, 5'2" wide (at the head) and 2'1" wide (at the foot). The aft beds are each 6'6" long, 4'8" wide (at the head) and 3'8" wide (at the foot). All beds have a 4" foam cushion and a 3" memory foam topper.

The headroom on Fresh Aire (taken centerline in the main salon) is 6'4". There is approximately 6'6" headroom in the standing area of the aft cabins and 6'4" headroom in the standing area of the forward cabin.

## **Bilge Pumps**

**For your own safety, do not store anything in the bilge pump area.** This is one of the few places in the Owner Manual where we wish to be emphatic. A shift in position by anything stored in the bilge pump area because of a boat maneuver (one as simple as coming about) could damage (a) the water level sensor which automatically activates the bilge pump, (b) the bilge pump or (c) both. Because of the delay in alerting you (or a subsequent charter guest) to a major safety issue, this could alter a controllable leak to a catastrophic situation, endangering lives and potentially causing the loss of the vessel. **Please do not allow anyone on board to store anything in the bilge area.**

**Check the electronic bilge pump area every day!** The bilge pump area is in front of the aft head door. Lifting the floorboard directly to the starboard of the door of the aft head provides access. Except in the event of a small amount of condensation, the bilge should always be completely dry.

**If you encounter excessive water in the bilge pump area let SJS know.** *Fresh Aire* is equipped with saildrive propulsion. Since there is no leakage through the propeller shaft packing, the bilge should always be completely dry.

**The circuit breaker switch for the bilge pump should always be on.**

Top row, last button



**When the bilge pump electric switch is on, the bilge pump operates automatically** when the float switch in the bilge is triggered. Bilge pump operation is accompanied by an alarm. If the alarm goes off, please attempt to locate and stop the leak. If you cannot locate and stop a slow leak, please report the situation to San Juan Sailing on check-in. The bilge pump will shut off automatically when there is a very low level of water (approximately 1 ½ inches) in the bilge. Please contact San Juan Sailing (or the Maintenance Professional after hours/Sunday) if there is any substantial continuing water coming into the bilge.

Fresh Aire has two bilge pumps:

1. The **electric bilge pump** is wired to the breaker on the electrical panel.
2. The **manual emergency bilge pump** is located behind and below the engine throttle and engine monitor panel on the starboard side.

#### ***To operate the manual emergency bilge pump***

1. Open from top with both hands.
2. Push it back and forth. There is no emergency bilge pump handle; it is completely hand operated.

**Note:** The shower sump pumps are also effective water removal pumps in the event water is high enough to enter the shower compartments. Turn them on at the electrical panel, second button from the left in the second row.

Finally, there is a bucket in the port cockpit locker. Empty the water into the cockpit and it will drain off the boat.

## **Davit, Dinghy, and Outboard**

**Do NOT remove the motor from the dinghy. The motor is locked to the dinghy.** The dinghy rides on the davit with the motor in place.

**The motor is in operational position on the dinghy.** Meaning, the propeller will be in the water when the dinghy is lowered. If you want to use the dinghy with the oars, lift the motor to the up position.

**Put the plug in the dingy before lowering.**

### **Operating the Davit**

**Before lowering the dinghy, BE SURE THE PLUG IS IN THE BOTTOM OF THE BOAT.**

**Do not raise the dinghy with the transom down.**

**We recommend that you do not lower the transom with the dinghy on the davit.** If you must lower the transom while the dinghy is on the davit watch out for the dinghy motor's propeller!

### ***To release the dinghy from the davit***

1. **BE SURE THE BOAT PLUG IS IN PLACE.**
2. Pull blue painter line out of boat with enough slack to tie off so boat doesn't float away.
3. Release black ratchet straps.
4. On both sides of the boat, release black lines from stainless steel cleats and black clam cleats.
5. Slowly lower dinghy.
6. Once in water, open the transom.  
**NOTE:** Use the boat hook to push the dinghy from the boat.
7. Tie off dinghy blue painter to boat.
8. Release davit cables from dinghy.

### ***To mount the dinghy to the davit***

**The dinghy and engine are heavy!** It takes work to lift the boat from the water.

**The dinghy will rub on the back of the boat.** We use the boat hook to push on the dinghy's aft block tackle (by the motor). The boat hook is found behind the settee in the saloon.

1. Turn the dinghy so motor is on port side of Fresh Aire.  
The davit has a block and tackle (pulley) system to raise the dinghy. The starboard side of the davit has two pulleys versus three pulleys on the port side to handle the weight of the motor.
2. Close the transom before raising the dinghy.
3. Remove black line from the black clam cleats when raising.
4. Raise the dinghy.
5. Cleat the lines to davit black clam cleats, then tie off to the stainless-steel cleats.

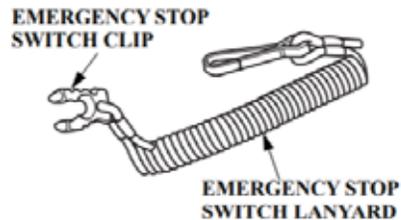
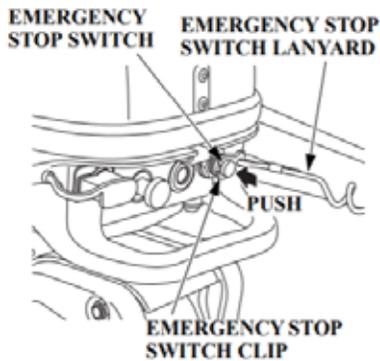
## **Gasoline for the Outboard**

**The Honda four stroke engine uses straight gasoline** and has an onboard 1.6 liter gas tank. Please do not add any oil to the gasoline. The fill cap is located at the top of the engine. As a courtesy, we have an additional red spare gasoline container tied into the dinghy.

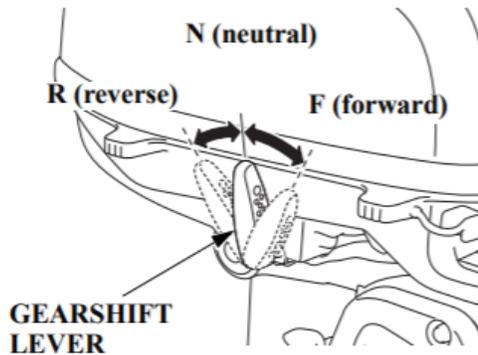
**WARNING – Gasoline fumes are explosive and a very dangerous fire hazard if stored on a boat.** Keep the spare gasoline container in the dinghy and tied to the transom so it stays upright. **NEVER** store the spare gasoline container in a locker, lazaretto, or any other storage area on the vessel.

## Operating the Outboard

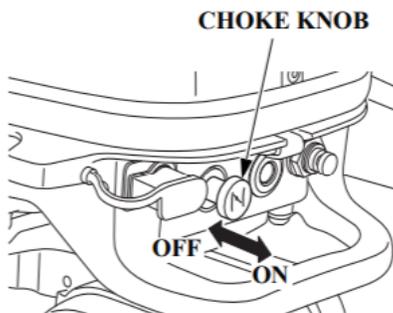
1. Snap the red Emergency Stop Switch Clip on the Emergency Stop Switch.



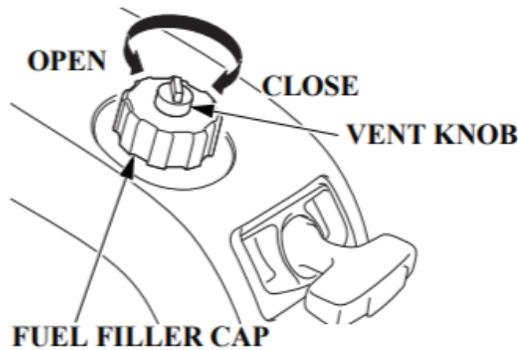
2. To start the engine, make sure the gear shift is in neutral (centered).  
In the dinghy, when facing aft (facing the motor), the gear shift is at your left hand and has three positions: forward, neutral, and reverse.



3. If the outboard hasn't been operated for a while, you may need to apply a little choke. The choke is located on left hand side of the engine.



4. Set the throttle to the **Start** position
5. Open Fuel Filler Cap Vent knob.



6. Pull the start cable until the motor starts.
7. Once the engine turns over, decrease choke and adjust throttle, as needed to idle.

**NOTE:** The dinghy motor has FAST and FASTER. Be seated when throttling forward.

## Beaching the Dinghy

**Please take special care when beaching the dinghy.** Most of the beaches on which you will land are strewn with barnacle-covered, bottom-slicing rocks. Please review the section on beaching the dinghy in your Guest Charter Manual on the boat.

**Owners Tip:** We use crocs or diving booties to exit/enter the dinghy off the side into/out of the water. We find this an easy and effective way to avoid damage to the bottom of the dinghy. You can then change to other shoes and leave the crocs/booties in the dinghy while on land. Note that you can use the cockpit shower to wash off salt and sand when you return to the boat.

## Dodger & Bimini

**CAUTION: San Juan Sailing has found that most spray sunscreens react chemically with the plexiglass.** So please inform your crew to spray sunscreen downwind of the dodger glass. 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 a cost of around \$500).

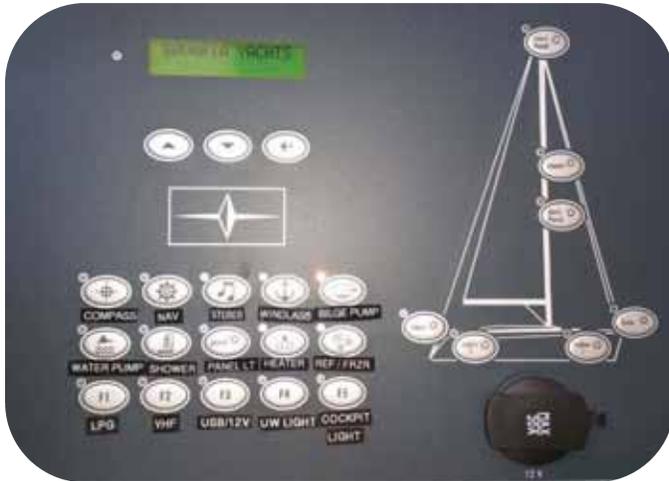
**Please don't remove the dodger or the bimini or open the Plexiglas windows.** Every part is tightly fitted and difficult to put back in place. The dodger not only protects the crew from the weather when in the cockpit, but it has several stainless steel grab handles for safety.

Removing the bimini can cause damage to the solar panels. The solar panels are attached to the bimini.

**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.** Please avoid directly touching the glass with a damp rag or sponge. When salt spray dries on the glass, tiny salt deposits are left behind and tend to obscure your vision. Salt does dissolve in water, but not as quickly as you might think. The salt crystals remain un-dissolved for several seconds. So, using a cloth or sponge on it is like rubbing the glass with sand paper! If the dodger glass is really clear, you can thank

previous guests for their care. We thank you too. **Better yet, wait until you're at a dock where you can hose off the salt crystals.**

## Electrical Control Panel (12 volt DC)



The 12 volt electrical control panel is located on the nav station instrument board and controls the devices run off the batteries.

**A blinking red light to the left of the LCD display indicates an alarm for one of the displays.** This is normally a water tank level of 25% or less. After reviewing the alarm condition, you can temporarily turn the light off by holding the **Enter** button (  ) for several seconds. The alarm will eventually return.

**We recommend you leave the bilge pump and fridge/freezer on all the time.**

**Turn the water pressure pump off while sailing or motoring unless someone is using water.** it may continue to run and burn out if there is inadequate water in the tanks. You generally cannot hear the water pump from the cockpit. We suggest you turn on the water pressure system only when in use. You can, of course, leave it on at night if you wish, but it will cycle throughout the night.

The electrical panel has four sections:

1. Monitoring display (LCD)
2. Circuit Switches
3. Boat Lights
4. 12-V charger

## Monitoring display



At the top left is an LCD display that you can page through using the “up/down” buttons, to monitor battery charge, water tank, and waste tank status.

The system monitors both waste tanks, but will only display one issue whether one tank is full or both.

Please note that waste tank monitors are notoriously inaccurate.

## Circuit Switches

Circuit switch buttons are located below the LCD display and the Bavaria logo. Use these to turn on and off the specified electronics.

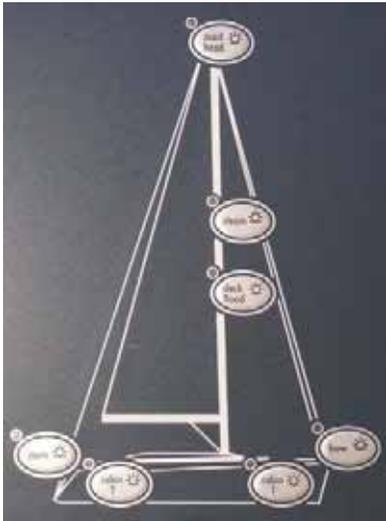


- **First row, left to right:** Cockpit compass light, all navigation instruments, Fusion entertainment system, windlass, and bilge pump
- **Second row, left to right:** Water pressure, shower sump pumps, electrical panel lights, Webasto heating system, refrigerator and freezer
- **Third row, left to right:** (F1) propane delivery system, (F2) VHF, (F3) USB/12V outlets in berths, (F4) stern underwater light, (F5) cockpit floor lights and cockpit table lamp

Except for the bilge pump, we highly recommend turning off all circuit switches unless the specific equipment/item serviced by that electrical switch is in use.

## Boat Lights

The third section is the boat lights schematic containing the interior and exterior light switches.



**Note that your contract with San Juan Sailing specifically prohibits travel at night. You should never be using the steaming, bow, or stern lights.**

**If any light on this panel blinks, a lightbulb is out.** Only for this section. If this happens, let SJS know during check in.

The mast head/anchor light should be on at night whenever you are either moored at a buoy or anchored.

Cabin #1 is for the v-berth lights and #2 is for both the main and aft cabins.

## 12-Volt Charger

At the bottom right of the panel is a 12-volt receptacle for charging 12 volt electrical devices, such as cell phones. A 12-volt adapter is in a cupboard above the nav station.

Each cabin is also equipped with a 12-volt outlet next to the USB outlets.

## Electrical AC Circuit Breakers (AC)

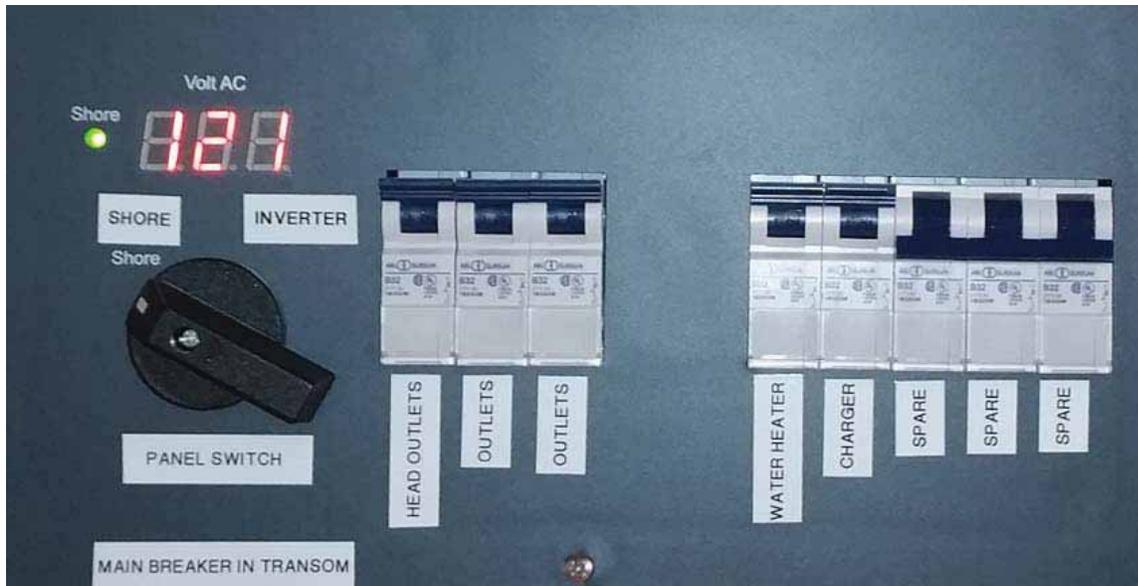
The AC panel is used:

- (a) while operating on shore power or
- (b) while using the inverter to provide 110-volt alternating current to selected equipment (primarily the microwave) and to the outlets when the boat is not connected to shore power.

**Devices that use the inverter (microwave, hot water heater, and anything plugged into an AC outlet) utilize a large draw on the house batteries and could reduce them to dangerous levels.** We suggest using the inverter only for short periods of time while the engine is idling at 1400 rpm.

The AC system utilizes a 110v 30-amp shore power connection. (this supplies to a 40 amp 12 volt battery charger). This connection is just in front of the Starboard Helm engine controls.

The AC electrical circuit breakers are located underneath the nav station desk.



## Panel Switches and breakers

**AC Main Panel Switch:** to switch from shore power to inverter

**Left Side:** Head Outlets, Outlets (powers the starboard aft berth 110V), Outlets (powers the rest of the boat 110V outlets, including microwave)

**Right Side:** Water Heater, Charger (main boat battery charger)

When attached to shore power, turn on the AC Main Switch/polarity fault switch to accept power from the shore power connection. Immediately switch it off if the polarity fault light comes on as this signals that the shore power is not correctly wired. Then also switch on the Charger and the AC devices and outlets you wish to use. We normally turn on the outlets and hot water heater.

## Main Shore Power Circuit Breaker

**If the main shore power circuit breaker trips and you are not immediately certain of the reason and correct the problem, do not reset the breaker and attempt to use shore power as this presents an enormous risk of creating an electrical fire on the boat.** Contact San Juan Sailing (or the Maintenance Professional on Sunday) immediately. They will advise you regarding steps to be taken in this situation. It may be necessary to dispatch an electrician to inspect the AC power system. For your information, the main shore power circuit breaker has never tripped; as the boat is essentially new and wired to ABYC standards, there is no reason this would happen, other than damage to the AC wiring. If it does trip, you should be very cautious.

The main shore power circuit breaker is located on the interior of the hull space below the instruments next to the starboard steering wheel. It can be accessed by removing the panel at the rear of the starboard aft berth or by removing the storage compartment behind the starboard steering wheel.

## Using the Inverter

You can generate 110-volt AC power when not connected to shore power by using the inverter.

**Devices that use the inverter (microwave, hot water heater, and anything plugged into an AC outlet) utilize a large draw on the house batteries and could reduce them to dangerous levels.** We suggest using the inverter only for short periods of time while the engine is idling at 1400 rpm.

### *To use the inverter*

1. Under the navigation table, on the **AC Circuit Breaker panel**, switch the big black **Panel Switch** to **Inverter**.

**NOTE:** Once you make this switch, if you are plugged into shore power, it is not using shore AC now - you are using only the house batteries.

2. On the right of navigation station instrument panel, tap the **Mastervolt** device screen to activate the device.
3. Press **Inverter**.
4. Press **Inverter Standby** to activate the system.
5. Under navigation station, on the **AC Circuit Breaker panel**, switch on the circuits you wish to use.

If the microwave clock is on, the inverter is generating your AC current.

6. Turn on the boat motor and set to idle at 1400 RPM.  
Review steps in the Starting the Engine in the Engine & Handling section.
7. When finished using the inverter, on the **AC Circuit Breaker panel**, switch the big black **Panel Switch** back to **Shore Power**.

**NOTE: The Panel Switch should always be on Shore Power when not using the inverter.**

## Engine, Handling, and Fuel

Fresh Aire has a 40 HP Volvo Penta sail drive engine and a 3-blade foldable propeller.

All engine start-up controls are at the starboard helm.

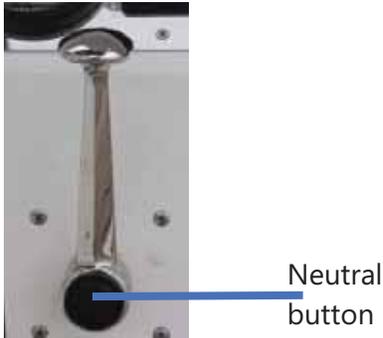
(Economy Cruising RPM: 2200, Cruising RPM: 2550, Max RPM: 3000)

### Starting the Engine

If control readings are dim, press and hold **Alarm/Dim**.

***To start the engine:***

1. Place the control lever (gear shift) in **Neutral!**



2. Press **ON**.
3. Press and hold **START** until engine engages.

**Idling the Engine**

**You must idle the engine at 1400 RPMs to use** the windlass, the inverter, or if you need to charge batteries.

**You CANNOT just start the engine, then push the control lever forward.** You must disconnect the gearshift function to increase RPMs.

***To disconnect the gearshift function***

1. Place the gear shift in Neutral and start the engine.
2. On the control lever depress and hold the neutral button (the center pivot point of the lever) while slowly moving lever forward until RPMs reach 1400.

**NOTE:** Control lever has a few centimeters of gap before RPMs increase.

3. When RPMs reach 1400, release neutral button.

Now you are in neutral.

You can now run the windlass or charge batteries.

***To disengage Neutral***

1. Pull the gear shift straight up.
2. Shut down the engine.

**Proceeding in Forward/Reverse**

To keep the transmission "healthy", please remember to pause 1-2 seconds in the vertical neutral position when shifting from forward to reverse and vice versa.

Fresh Aire has a single throttle; engage forward gear by pushing ahead on the throttle or reverse gear by pulling back on the throttle. The further forward or back, the faster the engine speed.

## Engine Shutdown

1. On the engine control panel, push the **Stop** button.  
The engine is off if the RPM gauge goes to zero.
2. Wait until the oil pressure monitor drops, then push the **On/Off** button.  
The LCD display will go blank.

If you fail to push the "on/off" button, the system will give an audible alarm after a minute or so.

If you turn battery off when engine is on, the engine will continue to run. Press stop lever on engine.

**The foldable propeller should fold up automatically on engine shut down.** If sailing after engine shutdown and you feel a vibration: with the engine turned off, push the gear shift to reverse, then back to neutral to close the foldable prop.

## Bow Thruster

Fresh Aire is equipped with a bow thruster, which makes docking and mooring maneuvers much easier.

**YOU MUST RUN THE ENGINE TO OPERATE THE BOW THRUSTER.** The bow thruster is powered by the same battery that powers the windlass. Because it draws a substantial amount of power, use in short bursts, please use the bow thruster only when the engine is running.

Have RPMs up to 1400, so the alternator is producing electricity.

**When performing bow thruster maneuvers remember that the boat's pivot point is the keel, which is dead center on the boat.** Hence, the stern will move in the opposite direction from the bow.

The bow thruster is powerful so it only takes a couple of seconds to get the boat moving in the desired direction.

### ***To activate the bow thruster***

The bow thruster controls are located at the starboard helm.

1. With the engine running, on the bow thruster controller, push both **On** buttons at the same time for a couple of seconds.
2. A light will indicate when the bow thruster is activated.

***To use the bow thruster:*** Push on the arrow in the direction you wish the bow to move.

***To turn off the bow thruster:*** The bow thruster turns off automatically if not used for several minutes.

## Fuel Tank and Gauges

**Fuel gauges on sailboats are notoriously inaccurate and Fresh Aire is no exception.** It will stay on "F" (full) until about 30% of the available fuel is used. At ½ tank there is probably less than 25 gallons of fuel available. At a low fuel level (1/4 tank), the engine may suck air or sludge. When the fuel gauge reaches ½ tank, please refuel at the first opportunity.

**Please do not let the fuel level fall below ¼ full; you are in danger of running out of fuel,** which (in addition to requiring towing) can require extensive and expensive engine maintenance. Because the fuel gauge overstates the available fuel, we recommend refueling promptly after reaching the ½ tank mark.

Full fuel may still show below the Full fuel line.

**Fresh Aire has a theoretical range under power of approximately 350 nautical miles** (55 gallons x 1 gal per hour X 6.5 knots).

You can estimate how much fuel will be needed to refill the fuel tank by noting the engine hours at the time you start your cruise. Engine values: ~ .8 gal/hr @ Economy Cruising 2200 RPM, ~ 1.1 gal/hr @ Cruising 2550 RPM, ~ 2 gal/hr @ Max 3000 RPM.

**Keep in mind the Webasto cabin heater uses the same diesel as the engine.**

**Be extremely careful when filling the fuel tank.** The fuel lines on sailboats are generally smaller than those on motor vessels. If you are filling the tank at the fuel station at Bay 3 in Bellingham Marina (where Fresh Aire is docked), the attendant will often turn down the pump rate. One can normally hear when the pitch of the noise going into the line changes and gets higher; unless you have created a surge in the line, this means the tank is full. To avoid a spill, please stop.

**When filling, we recommend that one person stand at the vent with paper towels to catch any fuel that may exit through the vent.**

The fuel fill line is on the starboard side of the stern.

The fuel vent is on the starboard side, about 4 feet from the stern. No winch is needed.

Please fill slowly so that fuel does not come out of the fuel line or the vent.

**Diesel fuel will stain fiber glass.** Please use soapy water to clean up any fuel drips. Thank you.

**San Juan Sailing requests that after you restart the engine and before leaving the fuel dock, check the fuel gauge.** If the gauge is not on "F", stop the engine and add more fuel. That way, San Juan Sailing will not charge you a \$50 fueling charge (plus the cost of fuel).

## Entertainment Systems

Fresh Aire has a Fusion Sound System with interior cabin and cockpit speakers and a television with DVD and USB input capabilities.

## Fusion Sound System

**To turn on the radio:** On the Electrical System Control Panel, press the music button (top row, third from left).

The radio will eventually turn on but takes about 30 seconds to receive the signal from the electrical panel.

### **To change the volume**

**When the radio is first turned on, the interior AND cockpit speakers are turned up. Not a pleasant experience in a quiet cove.**

1. On the radio, push the big button on the center of the dial.  
Two big columns will display (Interior and Cockpit).
2. Press the dial again to select Interior or Cockpit or both.
3. Once you have your option(s) selected, use the large dial to adjust the volume.  
The radio will automatically return to default radio station view after a few seconds of inactivity.

The radio can accept input from Bluetooth device (i.e. phone).

## TV

The TV does not have any connection to a TV program supplier and is made available to play DVDs or other local input. There is a small selection of DVDs in one of the small cabinets above the settee forward of the NAV station.

### **To operate the TV as a DVD player**

1. On the TV press the **Power** button. The "AXESS" logo will come up on the screen.
2. Insert the DVD at the bottom right side of the TV, with the top of the DVD toward the bow and content side of the DVD toward the stern.
3. The DVD will automatically load.

**To extract the DVD,** press the **Open** button (left side of the far left button on the top of the TV).

The TV will also accept other sources, including a USB Player (USB2) and several types of cards (SD/MMC/MS). The system supports MPEG1 and MPEG2 video, WMA and MP3 audio and JPEG photos. A portion of the TV Instruction Manual is on the shelf in the nav area.

## Head & Holding Tanks

Fresh Aire has two 20 gallon holding tanks, one for each head.

The toilets are salt water flush.

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 wastebasket with a liner bag or a Ziploc baggie. We and San Juan Sailing highly recommend you follow this procedure. Since San Juan Sailing has been recommending this, the fleet has 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. Pumping the toilet puts everything into the holding tank located behind the panel above the toilet. It is a white translucent tank, allowing you to check the amount of waste in the tank visually.

## Monitor Holding Tanks

**If you find the holding tank gauges inaccurate, please advise San Juan Sailing on check-in.** Holding tank monitors are often inaccurate because of accumulated waste on the gauge.

You can visually monitor the holding tank level in the forward head by looking under the sink

You can monitor holding tank status on the Electrical Control Panel.

### ***To monitor holding tank status***

1. On the Electrical Control Panel, under the LCD display, press the **Enter** button ()
2. Press the down arrow () to navigate to holding tank.

## Empty Holding Tanks

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

### ***To empty the holding tanks through gravity feed***

Because the holding tanks are above the water line, they can be emptied through a gravity discharge system.

**NOTE:** Please keep in mind that it is illegal in the US to discharge holding tanks within 3 miles of the shoreline.

1. Under the head sink, open the red-handled large seacock.
2. All tank contents will drain overboard in just a few seconds...you’ll hear a noticeable “whoosh” as it discharges.
3. Close the large seacock handle, and all toilet contents go to and remain in the holding tank once again.

## Heater

The diesel-fired Webasto cabin heater will make the interior “toasty” within 10-15 minutes.

The heat is dry, comfortable, and on those rainy days or cool evenings, makes a huge difference in cruising comfort!

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

The heater control panel is located at the Navigation Station to the right of the VHF unit.



The heater control consists of:

1. **Mode selector knob** - Low (Eco), medium (Normal), and high (Plus). We find medium to be generally adequate. There is also a blue fan only setting.
2. The white **ON / OFF button**.
3. **Temperature selector** - Normal operating temperatures are within the short-segmented line section.

Heater vents are in the main and forward cabins.

### ***To operate the heater***

Operating the heater requires activating the relevant electrical switch AND the heater power button.

1. On the **Electrical Control Panel**, push the heater switch on (second row, fourth from the left).



2. On the heater control panel, push the white power button.

The heater takes several minutes to “cycle up” and get hot before the fan starts blowing hot air.

### **To turn off the heater**

1. On the heater control panel, push the white power button.
2. On the **Electrical Control Panel**, push the heater button (second row, fourth from the left).

The fan will also continue to run for several minutes after the unit is turned off as the heater cycles down.

## **Keel Depth**

**San Juan Sailing strongly recommends you maintain a minimum of 10'-12' under the boat at all times, both underway and at low tide on anchor.** This means that some popular sites, such as Fossil Bay on Sucia (buoys at 7-9 feet), are not accessible except at major positive tides.

Fresh Aire has a deep trapezoidal keel (which provides a major improvement in sailing performance relative to a shallow draft keel) and draws roughly 7'.

**To avoid grounding, always take into account the often significant tidal change while anchored.** Anchoring or taking a buoy in this Northwest cruising area is very different than doing so in the Caribbean; in the Caribbean you are OK with 3'-5' (sometimes even less) under the keel because there is almost no tidal change. Here, in the Pacific Northwest, the tides shift and

## **Lights**

Fresh Aire is equipped with interior cabin lights, underwater lights, and blue courtesy lights lining the cockpit floor.

### **Interior Cabin Lights**

The interior cabin lights are controlled on the Electrical Control Panel by pushing the Cabin 1 and Cabin 2 buttons on the Boat Lights display.

Cabin #1 is for the v-berth lights and #2 is for both the main and aft cabins.

If you are using the inverter the interior cabin lights are activated using the Electrical AC Circuit Breakers under the navigation table.

### **Cockpit Courtesy Lights**

The cockpit floor lights are great for guiding your footsteps when boarding late at night or for some evening ambience.

**To turn on the cockpit lights**, on the **Electrical Control Panel**, press **F5 - Cockpit Lights** (bottom row, last button).

## Underwater Lights

The underwater lights provide dockside viewing of the marine life at night, if they are willing. We cannot guarantee the appearance of any creatures.

**We recommend only using the underwater lights when on shore power.** The underwater lights are LED, but because of the number of them they place a heavy draw on the house batteries.

**To turn on the underwater lights**, on the **Electrical Control Panel**, press **F4 - UW Light** (bottom row, fourth from left).

## Navigation Instruments

**Fresh Aire has a complete suite of technically sophisticated Garmin instruments.** The radar/chart plotter/GPS, depth sounder, wind instrument, and autopilot are all Garmin products. AIS (Automatic Identification System) is integrated into the chart plotter to enhance collision avoidance, especially with larger commercial vessels in low visibility.

The Garmin chart plotter and GMI instruments are located by the steering wheels.

For additional information on navigation and using the chart plotter, please see Appendix E: Avoiding Hazards.

## Initiating the Navigation Instruments

### **To activate the instruments**

1. On the **Electrical Control Panel**, press the **Nav** button (first row, second from left).



2. On the chart plotter in the cockpit, on the center console between the steering wheels, press the **Power** button to activate the instruments.

## Depth Sounder

**We never enter anchorage in less than 7 feet of depth.** The transducer for the digital depth sounder is located on the bottom of the hull. We consider 7 feet as the draw.

**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.

**We do not recommend using the depth sounder's alarm during the night.** Besides a 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 books to determine

whether you're anchored in a safe location, considering how shallow your depth will become when the tide ebbs out of your anchorage in the middle of the night.

## Chart Plotter

Fresh Aire is equipped with a color Garmin 800 GPS Map chart plotter. The chart plotter is generally used without the radar to minimize battery drain.

**Although sophisticated and highly reliable, chart plotters are not infallible.** If the instruments lose connection with one or more GPS satellites, the chart plotter may show the boat in an erroneous position, often significantly displaced from your actual condition. This requires that you reboot the system by turning off the chart plotter and the instrument circuit breaker and then turning them back on.

### *To access charts*

1. After powering up the navigation instruments, the chart plotter **Home** page will display. You can always return to the Home Page by pressing the Home button to the right of the screen.
2. On the chart plotter **Home** page, press **Navigation**.
3. On the **Navigation** page, press **Charts**.
4. Press the + and - keys to zoom in and out.

## Boat Position

**In an emergency you may need to identify your boat position.** If you make an emergency call ("Pan, Pan, Pan" or "Mayday") either U S Coast Guard Sector Puget Sound or Victoria Coast Guard Radio will respond. After asking if you need assistance and the nature of your emergency, the responding agency will immediately ask you for your position (longitude and latitude).

### *To Identify boat position*

1. On the chart plotter **Home** page, press **Gauges**.
2. On the **Gauges** page, press **Numbers**.

## Man Over Board

The chart plotter includes a MOB button (at the bottom of the Home Page) that will record the boat's location with a MOB icon. The chart plotter then provides course and distance to return to that location.

## Radar

Fresh Aire is equipped with the Garmin model GMR 18HD radar.

### *To activate the radar*

1. On the chart plotter **Home** page, press the **Radar** button.

2. On the **Radar** screen, press **Cruising** for full screen radar.
3. When the **Ready to Transmit** message appears, press the **Menu** button, and then the **Transmit** button.

It takes a few seconds for the radar to spin up and the radar screen to be populated with the radar scan.

### ***To see radar overlaid on the navigation chart***

1. With the radar scan operating, on the **Radar** screen, press the **Overlay** button.
2. To place the navigation chart and the radar chart side-by-side, on the Radar page, press the **Combination** button.
3. Page down and select **Combination 2 (Navigation Chart and Radar)**.

## **AIS**

**To assist you in collision avoidance at all times, Fresh Aire is equipped with AIS (Automatic Identification System).** AIS is an automatic tracking system used on ships and by vessel traffic services for identifying and tracking vessels. It provides traffic information and collision avoidance information in real-time.

**AIS is required to be used by (1) all sea-voyaging ships with a gross tonnage of 300 gross tons or more and (2) all passenger ships.** Most commercial vessels are equipped with AIS. Larger recreational vessels often have AIS; smaller boats, such as recreational fishing boats, generally do not have a broadcast AIS installation (but may be able to receive AIS signals).

**On Fresh Aire AIS is integrated into the chart plotter.** The chart plotter will automatically display vessels broadcasting AIS signals if those vessels may approach your course. The chart plotter will display the vessel name and its position, course and speed. The display projects the vessels course and may indicate a danger of collision.

## **Knotmeter**

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

If the digital knotmeter shows a reading of "0.00" while underway, the paddlewheel in the transducer 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 chart plotter also displays speed through water information from the knotmeter and speed over ground (SOG) as determined by the GPS.

## **Propane**

**Propane is a hazardous gas and requires caution.** For your safety, please follow the appropriate procedures when turning on the stove, oven or BBQ.

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

**Please note that the propane tank is in the propane locker at the port stern and isolated from the rest of the boat.** Any leaks there will move down, out, and away from the boat.

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

## Connecting to the Propane Supply

There are four points at which the propane can be turned on or off.

1. The faucet-like hand valve at the tank
2. A valve under the stove at the forward edge of the storage cabinet
3. The circuit breaker on the electrical control panel (third row, first button)
4. The solenoid switch at the aft end of the galley

To operate the stove or oven, you must turn on all four points.

### ***To turn on the propane***

1. Open the faucet-like hand valve at the propane tank all the way open.
2. Make sure all stove control knobs on the stove are in the "off" position.
3. Check to see that the shut-off valve in the cabinet under the stove is on (handle in the vertical position).
4. On the **Electrical Control Panel**, press the **LPG** button (third row, first button).  
A green light on the electric solenoid switch at the aft end of the galley will blink indicating the system is testing for the presence of propane.
5. After the light turns a solid green, on the solenoid switch push the **ON** button.

Turn off the solenoid switch and the LP button on the Electrical Control Panel when finished using the propane.

## Refrigerator/Freezer

Fresh Aire is equipped with a wall front refrigerator and a small freezer under the aft settee seat.

**We recommend leaving the refrigerator and freezer switch on at all times to preserve food safely and at maximum freshness.** We generally keep the refrigerator at the "5" cold setting and run the refrigerator and freezer all the time and have had no issues with the use of battery power. The temperature thermostat control dial (with 1 through 7, 7 being coldest and will probably freeze your lettuce) is located inside the refrigerator on the forward edge.

## Refrigerator

Fresh Aire's refrigerator has two small boxes at the bottom and three shelves. The dimensions are height 19 ¼ inches, width 18 inches and depth 17 inches.

There is a small freezer compartment in the refrigerator. This freezer is 4 ½" high, 16 ¾" wide and 7 ½" deep.

**To conserve the house battery power, you may want to turn the thermostat down to "3" (the medium setting) at night.** Then turn it back up to "5" or "6" during the day if the daytime temperature is high. This is not necessary if you are charging the batteries daily either through running the engine or with shore power.

## Freezer

The freezer is in the settee directly across from the aft head door. This freezer is 9" high, 10" wide and 16" deep. It has a temperature control at the back of the unit. It should not be necessary to change the freezer temperature control.

### ***To turn on the refrigerator/freezer***

On the Electrical Control Panel, press the **REF / FRZR** button (second row, last button).



## Sails

Fresh Aire sails best (fastest and most comfortably) when sailed flat. She is a fast boat and an easy vessel to sail, yet she is versatile enough that experienced sailors can challenge themselves with different sail configurations. Fresh Aire is fastest and sails easily when heeling 5-15 degrees depending on wind conditions.

**We suggest that all deploying and furling operations take place on a starboard tack.**

Having the sails on the port side of the boat means that the sail can deploy and furl more smoothly.

**When hoisting sails, we recommend unfurling the jib first.** We find the jib easier to deploy than the main and enough sail to have up while we identify what the boat can and cannot do under the current wind conditions. This also takes pressure off the mainsail when we let it out. Fresh Aire sails easily with just a jib and will get up to 6-7+ knots with just the jib in favorable winds.

Once you feel comfortable with the jib, we recommend letting out the mainsail only part way, again to get comfortable with what the boat is doing under the current conditions.

**Reef early and often.**

**When sailing in winds above 15-17 knots, reefing the Main first is best.** Full sails can generally be carried up to wind velocity of 15-17 knots depending on wave action. Because the boat sails well with just a jib, you can use just the headsail in heavy winds.

## Headsail

The 110% genoa/jib has roller furling. 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 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. Except in higher winds, you should not have to use the winch to furl the jib. In a higher wind, consider going to a broad reach on a starboard tack so the main sail partially blankets the jib, making the furling easier. It is easier and the jib furls more compactly if the sail is on the port side. If you cannot furl by hand in light winds, forcing it with the winch will only exacerbate the problem. Instead, please investigate to see what is impeding the furling process and correct the problem.

## Mainsail

**The mainsail on Fresh Aire utilizes twin main sheets without a traveler to control the boom and main sail.** This is a common European rigging. It is often necessary to use both weather and leeward sheets in tandem to obtain proper mainsail trim. Your check-out skipper can review the use of this rigging with you at your request.

**The main has an in-mast furling system.** With an in-mast rig, in normal conditions, it's recommended that the headsail be deployed first (while underway). The mast bows slightly aft at the top. By deploying the headsail 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 deploy from within the mast.

**Fresh Aire has a mainsail outhaul ratchet located on the mast, which controls the mainsail as it exits and enters the mast.** The ratchet controls the in-haul and the lazy in-haul and has two settings Ratchet and Free Wheeling. When in free wheeling mode, if the wind catches the sail, the sail will fly out of the mast and unfurl, which means you have limited control in free wheeling mode. If you are furling sails in high winds and use free-wheeling, if the wind catches the sail, it might very well grab it and pull it back to the top of the mast. **Our recommendation is to set the outhaul ratchet to Ratchet when furling sails.** We admit that having to go out to the mast to adjust the ratchet is Fresh Aire's weakest point.

**To deploy sails** (provided that the wind is less than 20 knots)

1. On the mast, set the mainsail outhaul ratchet to Free-Wheeling.
2. Steer to a course of approximately 60 degrees to the wind (close reach) with the wind on the starboard side (so the sail will deploy on the port side).  
**NOTE:** If your nervous, use the motor to head into the wind to deploy the sails.
3. Deploy the headsail first.  
**NOTE:** The headsail furling cleat is on the portside of the boat.
4. Now you may throttle down and place the engine in neutral, sailing on the head sail alone.

5. When ready deploy the main. by loosening the in-haul lines and using the out-haul line to pull out the sail. The wind will assist you in deploying the sail.

**NOTE:** For many small boat sailors, this sail deployment routine feels wrong, but helps with the mast bend. We suggest you do what makes sense to you. It is much better to have control of the boat and be safe then worry about a bit of mast bend.

**Again, we suggest that all deploying and furling operations be conducted with the sails on the port side of the boat.** The sails will deploy and furl more smoothly.

**If you're in high wind (20+ knots) conditions, you may prefer to deploy the mainsail head-to-wind instead.**

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.

1. In this situation, *partially* deploy the main sail first so it's in effect "reefed".  
Since you're in high winds, only partially deploy the main)
2. Once deployed, fall off to a close reach and begin sailing...just like you would on a vessel with a conventional main.
3. Partially deploy the headsail.

**Fresh Aire has a mainsail outhaul ratchet located on the mast, which controls the mainsail as it exits and enters the mast.** The ratchet controls the in-haul and the lazy in-haul and has two settings Ratchet and Free Wheeling. When in free wheeling mode, if the wind catches the sail, the sail will fly out of the mast and unfurl, which means you have limited control in free wheeling mode.

Detailed instructions for deploying and furling the main sail are included as Exhibit G: In-Mast Furling.

**NOTE:** Due to the furling functions of both sails, the halyards are preset and should not be adjusted other than by the Sailmaker (UK Halsey) or the Maintenance Professional.

**Important Note:** Even if you are experienced in reefing in-mast furling main sails, please review the section below dealing with Reefing in High Winds. As fellow sailors, we want you to have a safe and pleasurable cruise. If you have not reviewed the process to reef the main sail in high winds, part of your cruise may be neither safe nor pleasurable.

## Shore Power

**When connecting the boat to shore power, always connect the electrical cord to the boat first,** and then to the shore power. If connecting to shore power first, you now have a live wire that if dropped in the water can be electrically dangerous.

Fresh Aire accepts 30 amp shore power.

- The yellow electrical cord is in the port cockpit locker.
- There is also a 25' yellow extension cord if the primary cord is too short located under the forward settee seat. If necessary, we suggest you use it to plug into the shore power.
- Use the associated clip to join the ends of the power cable and the extension cord to protect from weather and dropping in the water.

### ***To safely connect to shore power***

1. Attach the electrical cord to the input plug on the boat (next to the starboard steering wheel below the instruments).
2. On the shore power box, *we highly recommend turning the breaker to off before attaching the shore power.*
3. Attach electrical cable to shore power.
4. If you switched the breaker in the shore power box off, turn it on now.
5. On the boat, a blue light on the cord plug confirms power is reaching the plug.
6. Under the navigation table, turn the **Panel Switch** to **Shore Power**.
7. **If the reverse polarity fault light comes on, immediately turn off the AC circuit breaker** as this indicates that the polarity is incorrect. We have never had this happen.

## **Shower**

**Experienced cruisers know the sailor's shower: get wet, turn off the water, soap up, rinse off.**

### ***To operate the shower***

1. On the Electrical Control Panel, press the **Shower** button to activate the sump pump (second row, second button).



When showering the operation of the sump pumps is automatic.

2. In the head, swing the shower door so it covers the vanity.
3. When finished showering, wait until the shower basin is empty, then on the Electrical Control Panel, press the Shower button to deactivate the system.

On warm, sunny days, an alternative to the below decks shower is the swim platform shower (with hot and cold water) located on the port side aft of the propane locker. This is also a good way to rinse off salt after swimming or dirt after going ashore.

The swim platform shower (both hot and cold water) is located aft of the propane tank.

## Solar

Fresh Aire is equipped with solar power. The system includes three solar panels attached to the bimini and the Mastervolt monitoring system in the navigation instrument panel.

### Solar Panels

**Three solar panels are zipped into the top of the bimini and require no maintenance, but do require special care with the bimini.**

- Don't let the boom rest on the bimini. This will damage the solar panels.
- Don't let anything hit the bimini. This can happen while dropping the mainsheet or trying to snug up the boom.
- Be careful of the four black cloth covered solar power cables attached to the bimini.  
**These are not handholds.** We tried to tuck them away so you don't grab them while moving about.

### Solar Power Charger

The solar power charger is a smart charger that charges all the batteries.

The solar charger will switch to standby automatically when completely charged or when insufficient sunlight is available (like at night, during a solar eclipse, end of the world).

The solar panel will not go to standby when motoring.

The solar panels will still charge during cloudy days, even when shadowed by the mainsail or boom.

### Monitor Solar Power Production

You can monitor solar power production on the Mastervolt monitoring system on the navigation instrument panel.

The monitor also allows you to switch the solar power panels on or on standby.

#### ***To monitor solar power levels***

1. Tap the **Mastervolt** screen to activate the device.
2. Tap **Solar Contro**.
3. To page through solar power options, at the bottom of the screen, on the scroll bar, press the **right** and **left** button.

#### ***To turn solar power panels on or place in standby***

1. On the **Mastervolt** device, in the **Solar Contro** section, tap the scroll bar buttons right or left to the **On/Off**.
2. Tap **On/Off** until desired state is displayed.

## Spares and Tools

*Fresh Aire* is equipped with engine and general spares located in plastic containers under the settee seat at the forward end of the main cabin.

Tool kits are also located under the forward settee in the main cabin.

See the list of engine and general spares and tools in the inventory.

## Stove/Oven/Microwave

**NOTE: The Stove control knob metal facing does get very hot when oven and burners are lit! Please use caution when touching knobs and watch young children and babies in the galley.**

The microwave can run on shore power or inverter, but will make a big draw on the batteries when using the inverter. Idle the boat motor while using the inverter

The external propane tank runs the outside BBQ, the stove, and the oven.

### Stove

**The gimbaled propane stove has two burners and an oven.** If you are cooking underway, we suggest you gimbal the stove by pushing the rod under the oven door to the left, so it is not inserted in the hole in the cabinet (forward). Then if the boat heels, pots and pans will not readily slide off the stove.

**When cooking at a dock or in a quiet anchorage, lock the stove in position** by pushing the rod under the stove to the right and into the hole in the cabinet (forward). That way, if someone leans on the stove or grabs the oven handle, it won't tip and spill pots/pans on the cook top.

**Also, for added security, use the fiddles that hold the pots/pans on the burners.** They are in a storage compartment above the stove.

### ***To light the stove:***

1. Connect to the propane supply (see directions above).
2. On the wall above the microwave, be sure the two green lights are lit to confirm the solenoid is on.
3. Push in the stove control knob and turn left to high.
4. While pressing in the knob, light a match or butane lighter and place to burner.
5. The burner should light immediately.
6. Hold the knob in for 5 seconds (warming a thermal couple) and release.
7. You may then operate the knob like a normal stove.

### ***When finished with the stove:***

1. Turn off the burner(s).

2. Turn off the solenoid switch. (What little propane remains in the line from the tank to the galley is insignificant, and even if this tiny amount of propane were to leak into the cabin, it would not cause a problem.)
3. On the electrical panel, press the **LPG** button to deactivate the electrical service to the propane system.
4. There is no need to shut off the propane tank during the day.

## Oven

**The oven door lock is a tab to the right of the left burner control knob.** It is one of the few deficient pieces of engineering on the boat. It generally does not lock the oven. We recommend that you do not use the oven under way except for very small, light food—such a making toast.

### ***To light the oven:***

1. [Connect to the propane supply.](#)
2. Push in the oven control knob and turn it to the left.
3. While pressing in the oven knob, light a match or butane lighter and place into the hole at the front center of the oven.
4. Hold the knob while lighting until the flame lights.  
The oven may not light immediately if it is not primed.
5. Hold the knob in for 5 seconds (warming a thermal couple) and release.
6. You may then operate the knob like a normal oven.

## Microwave

**We highly recommended that you run the microwave on shore power.** A microwave draws a lot of power and is operated using the AC 110 volt electrical system on the boat. Though the inverter will run the microwave, this will cause a terrible drain on the house batteries and requiring running the engine to recharge the batteries. Even running on the boat motor is not sufficient.

**The Bosch microwave operates at a lower power level than American microwaves,** thus requiring longer cooking times.

### ***Running the microwave***

1. On the Electrical AC Circuit Breakers panel under the navigation station, turn on the second Outlets circuit breaker.
2. On the microwave, push the large circular button directly under the LED display so it is out.  
The clock should be on.

3. To select a power setting push one of the power buttons: 90,180,360,600 or 800 watts. In our experience, the 800-watt button is closest to the power of the normal American microwave.
4. Set the cook time by turning the large button clockwise to the desired amount of time.
5. Press Start.
6. Pressing Stop returns the LED to clock time.

## Table in the Main Saloon

The main salon table opens to comfortably seat six people.

### ***To enlarge the table:***

1. Pull down the knob on the forward edge of the bottom of the table and slide the table leaves forward.
2. Pull up and fold over the table leaf support bar (it has a black strip of material on the top when folded over).
3. Unfold the table leaf.

***To close the table,*** reverse the procedure.

## Water & Tanks

Fresh Aire has a total of 95 gallons of fresh water in two tanks.

The tanks can be isolated, but we typically leave the valve in the aft head split to draw from both tanks.

## Water pressure

To use any of the faucets in the boat you must activate the fresh water pump.

1. On the Electrical Control Panel, press the fresh water pump button (second row, first button).



2. When finished using the water, press the water pump button to turn off the pump.

**Always turn off the water pump when motoring or sailing.** Should one of the tanks run dry, the water pump could burn out as it tries in vain to pump water to build pressure (and you would likely not hear the pump running continuously over the sound of motoring or sailing).

## Checking water level

You can access the water tank level indicators by paging through the LCD display at the top of the electrical panel. They give levels in quarter of tank increments.

## Water tanks

**Fresh Aire has two water tanks, holding a total of 95 gallons.** One tank is in the aft berth under the bed. The other is in the port berth under the bed.

**Selection valves under the sink in the aft head let you choose which tank to draw water.**

We generally leave both tanks open but we know others prefer to use one tank at a time. Note that the forward tank is higher than the aft tank, so if both tanks are open, the forward tank will empty first.

**Water conservation is, of course, a cruising skill.** State parks have no pressurized water to refill tanks, but all points of civilization do. We suggest refilling the tanks whenever possible.

## Hot Water

Hot water is stored in a six gallon.

You can heat water while motoring, while on shore power, by heating in the teapot on the stove.

**CAUTION:** The engine heats water to scalding temperatures! Please test the temperature of the water to be certain it is appropriate.

**Be Aware that using the inverter to heat water takes a large draw on the house batteries.**

We recommend not using the inverter to heat water. Instead idle the boat engine at 1400 RPMs to heat the water instead of using the inverter. It takes about 30 minutes of running the engine under load (1100-1400RPMs) to get the water hot.

**Do not heat the hot water using the inverter when not running the motor.** The hot water heater takes a significant draw on the house batteries. If not on shore power and you use the inverter to power the hot water tank, run the motor.

**When on shore power,** heat the water by turning the water heater switch on the Electrical AC Circuit Breaker Panel to the "on" position. It takes about an hour to heat the water on shore power.

## VHF Radio

### *To turn on the VHF radio*

1. On the Electrical Control Panel, push the **VHF** button (third row, second from the left).
2. Remove the Simrad cover from the VHF radio.

## Monitoring the Hailing/Distress Channel

Please 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.

## Weather

**You should listen to the weather reports in the morning before you head out and ½ hour before reaching your destination.** This is generally a light wind region in the summer but weather changes can be sudden. Listen for the “inland waters of western Washington” and the “northern inland waters”, which cover the San Juan Islands and the Canadian Gulf Islands.

### To listen to the weather reports

1. On the **VHF** radio, push the **WX** button.
2. On the left of the device, turn the black knob to scan the weather channels for the one with the best reception (channel 4 or 7 in our experience).

## DSC Signal

This radio receives DSC (Digital Select Calling) distress signals, which start with a long series of what can only be described as shrieks. The location of the vessel sending the DSC distress signal will be shown on the chart plotter. This will likely be followed by a message from either US Coast Guard or Victoria Coast Guard radio; this may alert you to the opportunity of being of assistance to another mariner.

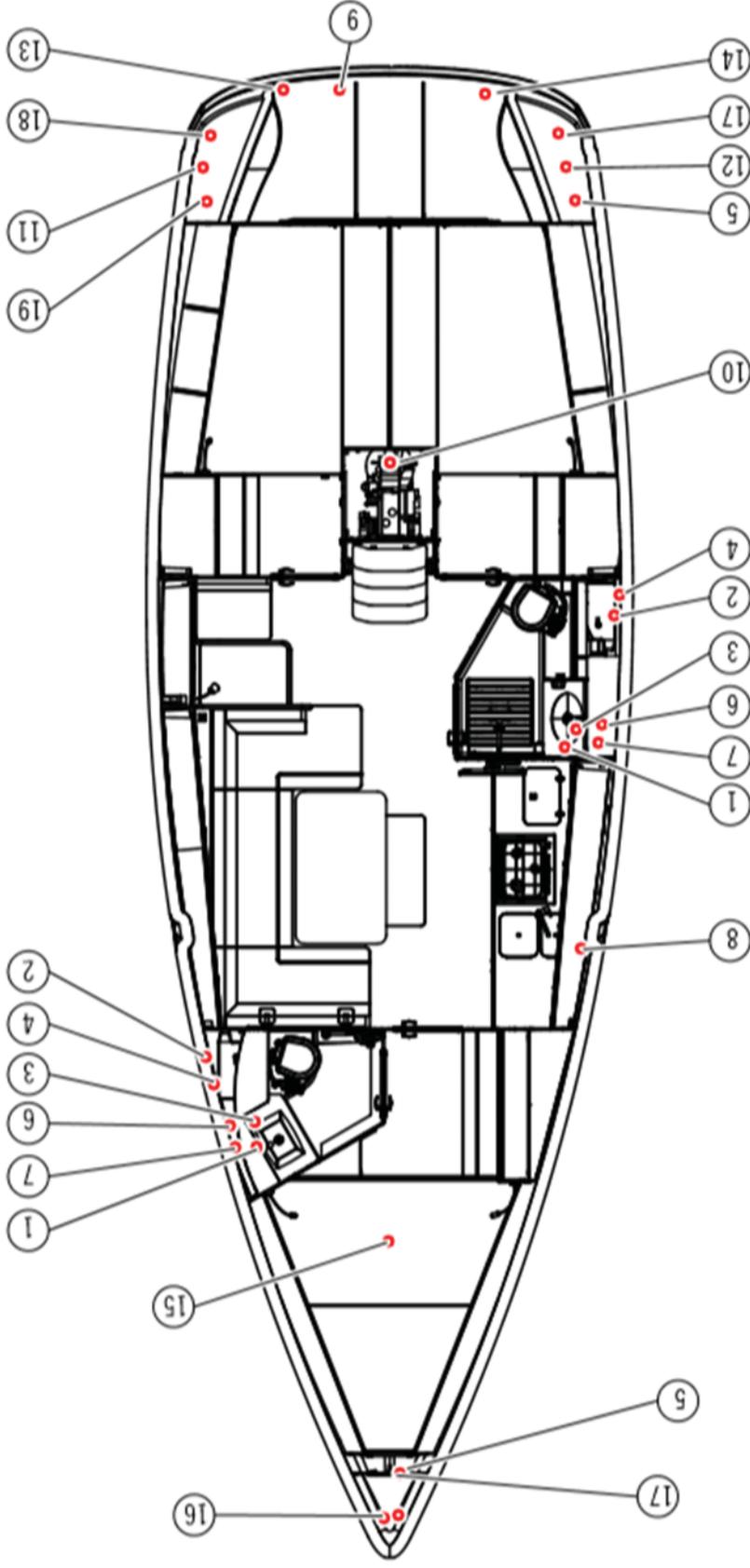
## Remote Access Microphone (RAM)

The VHF remote access microphone (RAM), when plugged into the outlet on the starboard side aft of the engine controls in the cockpit, can control all VHF radio functions. This bracket also serves as an inductive charger for the remote.

The RAM cannot control the base unit volume.

If you would like to review VHF radio protocol and procedures please see the section in the onboard Charter Guest Manual.

## Appendix: Through Hulls



Description		Description	Description
<b>1</b>	Intake flushing water toilet	<b>6</b> Discharge sink	<b>11</b> Discharge Heater
<b>2</b>	Deck suction black water	<b>7</b> Discharge head/shower	<b>12</b> Discharge engine
<b>3</b>	Discharge black water tank	<b>8</b> Discharge sump of galley sink	<b>13</b> Discharge manual bilge pump
<b>4</b>	Vent black water tank	<b>9</b> Discharge el. bilge pump	<b>14</b> Drain gas box
<b>5</b>	Vent fresh water tank	<b>10</b> Saildrive	<b>15</b> Log/echosounder
			<b>16</b> Drain anchor locker
			<b>17</b> Filler fitting fresh water
			<b>18</b> Filler fitting diesel
			<b>19</b> Vent diesel tank