

SV Turiae

Crew and Systems Manual



Welcome aboard. This manual is intended to help you move about the boat safely, understand the major systems, and settle in quickly aboard Turiae.

Heather and Andy

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WELCOME

Turiae (pronounced Tur-ree-ah) is a 2016 Beneteau Oceanis 45 configured for offshore passages and liveaboard cruising. She is well equipped, well maintained, and ready to carry a capable crew in comfort and safety.

The purpose of Turiae is straightforward: go somewhere worth going, stay close to the water and weather, and leave the noise of daily life ashore. We take safety seriously and schedules lightly. Wind, sea state, and weather will change the plan; a flexible crew will always have the better passage.

This manual covers the operating essentials: crew expectations, navigation tools, sail handling, engine and generator procedures, electrical systems, heads, anchoring, and routine onboard practices. The working copy lives in the nav station desk. If you want to understand how Turiae is run, this is the place to start.

Two Rules Above All Others

Ask questions — speak up if something feels wrong or confusing.
Stay on the boat — when moving, keep one hand on the boat and one hand for you.

Vessel Specification and Information

Year / Make / Model	2016 / Beneteau / Oceanis 45
Length overall (LOA)	45'9"
Hull length	44'3"
Length at waterline (LWL)	42'10"
Beam	14'9"
Draft	6'5"
Displacement	25,000 lbs
Mast height above waterline	68 feet
Fuel	75 gallons diesel
Water	150 gallons (total of 2 tanks)
Hot water	10 gallons
Holding tanks	20 gallons each in forward and aft heads
Number of cabins	3 (two doubles, one single)
Number of heads	2 (fresh water flush; showers)
Solar power	800 watts

Shore power	50 Amp/120 volt
Generator power	7.5 kW Cummins Onan
Engine power	Yanmar 4JH57, 57 horsepower
Engine battery capacity	105 Amp-Hours (1@105 Ah)
Battery charger capacity	120 amps house, 20 amps generator, 5 amps each engine & bow thruster bank
House battery capacity	Lithium bank, 920Ah
Navigation equipment	AIS in/out, 3 chart plotters, wind/multifunction instruments at both helms, autopilot, radar (4G)
Safety equipment	EPIRB, Ditch bags, First aid kits, crash pumps, flooding control kits, etc., all required USCG items, plus more
U.S. Coast Guard Number	1267699
MMSI No. (AIS Identification)	368430720
U.S. Customs Re-Entry Decal	Located on port side transom
Other features	Refrigerator, 2 freezers, a/c and heating, washing machine
Dingy	GoDu 10.5 Max (aluminum)
Dinghy Outboard	Epropulsion Spirit 1.0 (about 3 hp equivalent)

Finding Your Way Around

Use this section as a quick reference for common sailing terms and principal locations aboard.

Bow	Front of the boat
Stern	Back of the boat
Port	Left side (when facing forward)
Starboard	Right side (when facing forward)
Forward	Toward the front of the boat
Aft	Toward the back of the boat
Helm	Where you steer
Cockpit	Outdoor area around the helms
Salon	Main living area below deck
Galley	The kitchen
Head	The bathroom

“Nav” station	Navigation desk, below deck, salon port side
Control panel	Below deck, salon starboard side
Companionway	Main steps going below deck
Berth or cabin	A bed or sleeping area
Locker	Storage compartment or cabinet

STANDING ORDERS

Be deliberate and act promptly. The boat depends on timely, responsible action from every crew member. If you are uncertain, ask for help immediately. If you are debating whether to call for assistance or wake the captain, do it now—not later.

- All crew must wear a PFD while underway.
- If you leave the cockpit while underway:
 - Clip in with a tether whenever conditions, darkness, or sea state warrant it.
 - Another person must remain in the cockpit; wake someone if necessary.
- Use the doorbell at the aft center cockpit table to summon the captain. Use the air horn only to summon the entire crew.
- Any sail change requires at least two people. Call for help every time.

Crew Maintenance

Look after yourself before it becomes necessary. Your value on watch depends on it.

- Eat before you are hungry.
- Add layers before you get wet.
- Layer up before you get cold.
- Drink water before you feel thirsty.
- Rest before you are tired—nap early and often.
- If you are off watch, you are preparing for the next one.

Notifying the Captain

Advise the Captain at the Next Opportunity If:

- A water tank runs dry or the selector valve must be changed.
- Propane runs out.
- Battery voltage drops below 12.6 V.
- Something breaks, fails, or is not operating normally.

Wake the Captain Immediately If:

When in doubt, wake the captain. It is always preferable to interrupt sleep than to manage a developing problem alone.

- A crew member is ill or injured.
- You are concerned, need a second opinion, or are in doubt about any course of action.
- Restricted visibility is encountered.
- Wind speed or direction changes enough that you cannot maintain the intended course or speed.
- Wind or sea state indicates reefing or another change is required.
 - Sea state changes by more than 2 feet.
 - AWA changes more than 20°.
 - AWS or TWS changes enough to require a sail change.
- Barometric pressure changes by 3 mb during your watch, or 5 mb or more over any 6-hour period.
- A weather warning is received for our area.
- A CBDR (constant bearing, decreasing range) situation is developing.
- AIS shows CPA under 2 nm, unless it is a known buddy boat maintaining steady course and speed.
- You fail to sight an expected ATON or landmark, or encounter one unexpectedly.
- Any mechanical or other issue affects safety, stability, maneuverability, navigation, or propulsion.
- An electronic navigation problem is not immediately corrected.
- The vessel closes to within 5 nm of land offshore or 2 nm near shore.
- The vessel reaches a waypoint or a planned route turn.
- Fuel drops below one-quarter tank while motoring.
- Battery voltage drops below 12.4 V.
- A distress message is heard on VHF.
- Unusual sounds or vibrations.
- SOG drops below 4 knots for more than 30 minutes.
- A squall is identified visually or on radar.
- Depth becomes shallower than expected for the area.
- You cannot maintain course or speed, or you have any doubt about vessel safety.

Watch Duties

General Duties

- Know the watch schedule and your rotation before your watch begins. If anything is unclear, ask before you go on deck.
- All times are on Boat Time: the time zone of departure or the last port, as set on the chart plotter, navigation iPad, and captain's phone. Boat Time changes only on arrival.
- Be ready to go on deck at least 5 minutes before your watch starts, properly dressed and wearing your life jacket, harness, and tether. At night, clip in before leaving the companionway.

- If the autopilot is engaged during any period of elevated risk, stay in a position from which you can take the wheel immediately. That may mean standing at the helm even when you are not actively steering.

Night Watches

- After sunset, always remain clipped in while on deck.
- Navigation lights on vessels are steady (red, green, white). ATON lights typically flash (green, red, yellow, or white). Be certain what you are looking at before you act.
- Keep heel to 10° or less whenever practicable.
- Call for assistance for any sail plan changes.
- Use red light to preserve night vision, and set all electronics to night mode at the lowest practical brightness.
- Limit device use at night to preserve attention and night vision. No earbuds or headphones. A Bluetooth speaker at low volume is acceptable.
- Stand a standing watch whenever sea state and safety allow.
- Continuously scan the horizon, instruments, sails, and cockpit in a slow, deliberate pattern.
- Sail trim is harder to judge at night. Use a light briefly to check telltales when needed, listen for luffing or flutter, and confirm trim by carefully heading up or easing a sheet.
- If hand steering, use the stars when practical. Establish the course by compass or plotter, select a reference star, and recheck it often. Remember that every star except Polaris is moving.

Watch Shift Change—Outgoing Watch

- Complete the watch log before you are relieved.
- Brief the incoming watch on the following:
 - Traffic: any vessel, land, or ATON contacts within 10 nm (AIS, radar, visual).
 - Sail plan: current configuration and any changes made or anticipated.
 - Wind: AWS, TWS, AWA.
 - Weather: current or anticipated events or trends, including radar review and barometric pressure.
 - Navigation: position (GPS), course (COG and magnetic heading), speed (SOG and boat speed), depth, ATONs/landmarks, autopilot mode and recent performance.

Watch Shift Change—Incoming Watch

- Check sail trim and make any necessary sail changes before the outgoing watch goes below. Reef early and reef often.
- Confirm all wind and navigation data.
- Know the magnetic heading required to maintain the intended COG, and recheck it regularly throughout the watch.

Monitor Throughout Your Watch

- Course / heading
- Speed: SOG and boat speed

- Wind: AWA, AWS, TWS
- Sail trim—properly trimmed sails should be quiet.
- Weather: barometric pressure, radar, and visual observations
- Traffic: AIS, radar, visual — vessels, ATONs, and land
- Chart: verify position, depth, and check for reefs or hazards
- VHF Channel 16 for distress or other calls
- Engine gauges (fuel, oil, temperature) if motoring
- Maintain a clean and tidy cockpit — secure lines, devices, and any loose items.
- Turn navigation lights on/off as required.
- Secure any loose items above or below decks as needed.

While Moored / At Anchor

- Do not leave the vessel until the anchor has been set, the boat is stable, and no dragging has been observed for at least 1 hour.
- Use a minimum scope of 5:1 unless safety requires otherwise and the deviation has been discussed and agreed upon.
- The snubber must be used while at anchor.
 - Light weather bridle: winds up to 25 knots.
 - Heavy weather bridle: winds above 25 knots.
 - See guidelines posted in the anchor locker.
- The anchor alarm must run continuously on the navigation iPad. All crew are encouraged to run their own alarm.
- The captain is responsible for the anchor light, but every crew member should help remember it.
- Raise the swim platform at night and any time weather or sea state could allow a wave to strike it. A wave impact on a lowered platform can tear it from the transom and cause major hull damage.

EMERGENCY / SAFETY

Safety aboard Turiae is built on preparation, good equipment, and good habits. Know where the gear is, know how to summon help, and speak up early if something is wrong.

Non-Negotiable Safety Rules

- Wear a life jacket whenever the boat is underway. No exceptions.
- Keep one hand for yourself and one hand for the boat.
- Stay on the boat. That sounds obvious, but it requires deliberate movement—especially at night, in rough water, or when fatigue sets in.
- Do not go forward of the mast alone at night.
- Clip in with a tether at night and whenever conditions warrant. If you are unsure, ask Heather or Andy.

Safety Gear Locations

Life Jackets	Heather or Andy will show you yours and how to fit it properly. Inflatables in port cabin, spares in port cockpit locker
Fire Extinguishers	Cabinet at the bottom of the companionway steps; outside the guest head, starboard guest cabin locker and forward cabin
Fire Blanket	Same cabinet — bottom of the steps, below the mirror
Ditch Bags	Port (left) cockpit locker
First Aid Kit	Cabinet underneath the guest head sink
EPIRB	In primary ditch bag.
Crash Pumps	In port cabin, under bed
Emergency Procedures	One copy in the nav station desk; one copy in the cockpit table

Emergency and Safety Equipment (Miscellaneous)

Flares stored in orange case, port cockpit locker. Air horn in cockpit table and orange case, port cockpit locker. Type IV throwable in port cockpit locker. Inflatable MOB pole in cockpit table while underway, stored in port cockpit locker while stopped.

Flooding Kit & Emergency Plugs

An emergency flooding kit with tapered wooden plugs, mallet and other supplies is located in the port cabin, under the bed. A through hull location diagram is included in this manual.

Emergency Tiller

The emergency tiller is stored in the aft, starboard lazarette. It fits onto the rudder post, which is accessed through the round cap between the helm stations. Use a which handle to remove round cap.

First Aid Kit

Minor kit located in the aft head cabinet above the sink. Extensive kit with bleeding control under aft head sink. Medications located in aft head cabinet above the sink.

Spare Parts & Supplies

See dedicated storage guide for specific spares and locations. Most under forward salon settee.

Tools & User Manuals

User manuals are in the starboard settee cabinet. Toolkits are in the port seat base in the salon.

Bilge Pumps

Turiae has two bilge pumps. The manual pump is on the starboard side of the cockpit just forward of the steering pedestal; its handle is in the starboard cockpit locker immediately forward of the pump. The electric pump operates automatically by float switch, but it can also be run manually from the main electrical panel; that breaker is normally left in Auto. The electric pump is under the salon sole approximately 2 feet aft of the mast compression post.

If you hear the bilge pump running more than once or twice per day, check the bilge pump for blockages or running water. There may be a water leak on the boat to identify.

Emergency Procedures

Fire

Fire extinguishers are in the cabinet at the bottom of the companionway steps, outside of the guest head. There are additional fire extinguishers in the port guest cabin and the forward cabin. Large fire extinguishers are also located in the port and starboard cockpit lockers. In the event of a galley fire, shut off the propane solenoid immediately.

Hitting a Log or Running Aground

After a log strike or grounding, immediately check the bilge for water, then inspect the forward and aft bilge sections where the keel attaches to the hull. Check the keel bolts as well. Address any leaks or damage.

Leaks

Ensure the bilge pumps are operating, then determine the source of the ingress. Check the saildrive through-hull seals through the access openings in either aft cabin, then inspect the remaining through-hulls. A through-hull diagram is included in this manual. Get the crew on deck and into life jackets.

A flooding control kit including plugs is located in the port cabin under the bed. There is also an emergency bilge pump here. It has two battery clamps on it, clamp to any available battery, make sure positive and negative is hooked up correctly. The hose can be run out the companionway and into the cockpit.

Turiae has two permanent bilge pumps. The manual pump is on the starboard side of the cockpit just forward of the steering pedestal; its handle is in the starboard aft cockpit locker immediately above the pump. The electric pump operates automatically by float switch, but it can also be run manually from the electrical panel; that breaker is normally left in Auto. The electric pump is under the salon sole about 2 feet aft of the mast compression post.

Steering Failure

If the steering system fails, use the emergency tiller stored in the starboard aft lazarette. It fits onto the rudder post, which is accessed through the cap in the center of the cockpit floor. The access cap can be removed with a winch handle. Reduce sail or power before using the tiller; the rudder is large and the emergency tiller is small.

Man Overboard (MOB)

The best man-overboard response is prevention. Use tethers in rough conditions, do not go on deck alone at night, and always tell someone where you are going. If someone goes overboard:

1. Shout “MAN OVERBOARD” loudly so the entire crew hears it.
2. Throw the horseshoe buoy flotation toward the person. Remove the inflatable MOB pole from the white waterproof bag and throw the yellow inner bag towards the MOB.
3. Press the MOB button on the chartplotter immediately to mark the GPS position.
4. Keep the person in sight at all times. Do not lose visual contact. Point continuously.
5. If safe, steer a beam reach course. The captain will maneuver the vessel for recovery.

Calling for Help

The VHF radio is the primary means of calling for help. It is monitored by the Coast Guard and other rescue authorities. Before making a distress call, know your GPS position; it can be read from any of the three chartplotters. Use VHF channel 16 for all distress calls.

Distress Call Levels

SÉCURITÉ ("securitay")	Safety information — hazards to navigation, large vessel movements. Not an emergency, but important.
PAN-PAN ("pawn pawn")	Urgent but not immediately life-threatening — lost power, someone injured, a system failed.
MAYDAY	Immediate danger to life. Boat sinking, fire, serious medical emergency. Be ready for authorities to board and to abandon ship.

Digital Distress Button (DSC)

Lift the red cover and hold the Distress button for 3-5 seconds. This transmits the vessel name and exact GPS position by DSC. Only use in MAYDAY or PAN-PAN situations

Voice Protocol When Calling for Help — Channel 16

1. Tune to Channel 16 and select HIGH power.
2. State your distress level three times: “PAN-PAN, PAN-PAN, PAN-PAN.”
3. Then say: “THIS IS SAILING VESSEL TURIAE, TURIAE, TURIAE.”
4. State the situation clearly, for example: “PAN-PAN TURIAE.”
5. Give your position as GPS coordinates, or by distance and bearing from a known landmark.
6. Describe the nature of the distress: flooding, fire, injury, loss of propulsion, and so on.
7. State the number of persons on board.
8. Describe the vessel: “Beneteau Oceanis 45, grey hull, grey sails.”
9. Release the transmit key and wait for a response. Repeat after 1-2 minutes if there is no reply.

SAILS AND SAILING

Turiae is set up to be easy to sail with a small crew. The main and jib are both furling, and all lines run back to the cockpit. Heather or Andy will handle the sails and rigging — this section is context so you know what is happening.

Before getting underway, please ensure that all hatches are closed prior to getting underway to prevent damage from jib sheets. Stow loose items below — things become projectiles when heeling. Put on your life vest.

Crew Jobs

- Keep watch for other boats, crab pots, floating debris, and anything in the water ahead.
- Call out what you see clearly: “boat to starboard,” “buoy ahead,” “debris at eleven o'clock.”
- If asked to steer, hold a steady course. Small corrections are always better than large ones.
- Always keep one hand for the boat when underway.
- When crossing the cockpit under heel, stay low and move carefully.

Sail Setup

Main Sail	Composite furling main — unfurls in-mast
Jib	101% furling jib — wraps around the forestay



[Electric Winches](#)

Use the electric winch only for sheeting in the mainsail or jib, or for hoisting a person aloft in a bosun's chair. Do not use it to tension furling lines or other control lines. It is powerful enough to damage sails, lines, and hardware long before the winch itself gives up. If the winches are inoperative, check the circuit breakers in the starboard quarter berth.

Sail Configuration

Set the sail plan for the gusts you expect to see, not for the average wind speed.

Wind Speed Guidelines (AWS)

- 0-6 kts: Motoring
- 6-10 kts: Full sail, all points of sail
- 10-15 kts: Full sail downwind; begin de-powering upwind
- 15 kts: Reef 1 in main
- 20 kts: Reef 1 main and jib
- 25 kts: Reef 2 main / reef 1 jib; work toward reef 2 main and jib
- 30 kts: Deep reef 3 main / reef 2 jib; work toward deep reef 3 in all
- 35 kts: Storm jib, reef 4+ on main

Sail Plan Reference

TWS (kts)	TWA (°)	Headsail	Main	Engine
< 4	Any	-	-	On
< 6	> 120	-	-	On
< 6	> 50	-	Full	On
< 17	> 160	Spinnaker	-	-
< 17	> 140	Spinnaker	Full	-
< 17	< 50	Jib	Full	-
< 17	< 120	Genoa	Full	-
> 18	> 170	Jib + Genoa	-	-
> 17	> 100	-	1st Reef	-
> 21	Any	-	2nd Reef	-
> 25	Any	Furl Jib 5%	2nd Reef	-
> 27	Any	-	3rd Reef	-

TWS = True Wind Speed | TWA = True Wind Angle | AWS = Apparent Wind Speed

AWA = Apparent Wind Angle | "-" = Not applicable / as needed

Sailing Characteristics

Turiae is a solid, well-balanced cruising boat, but like many modern cruisers she carries her beam well aft. If she heels too far, weather helm increases quickly. Once the breeze reaches 15-20 knots, trim for less heel: move the jib cars aft and sheet in to flatten the lower section and open the leech; on the main, increase outhaul tension to flatten the sail and ease the mainsheet slightly to twist off the top. These adjustments work well to roughly 20 knots; above that, reef the main.

Mainsail

Turiae carries an in-mast furling mainsail. Use the following procedures for furling and unfurling.

Unfurling:

1. Uncleat the boom vang, furling line, outhaul, and mainsheet.
2. Ensure topping lift is holding boom at approximately 5 degree up angle to match foot of the sail.
3. We typically take two turns with the mainsheet on the port winch but do not cleat it. That keeps the sheet under control without trapping it.
4. Steer head to wind or with wind just slightly to starboard.
5. Take a wrap of the outhaul on the starboard winch and begin pulling the sail out by hand. If you use the winch at all, do not force the sail. At the first sign of resistance, stop and ease the outhaul.
6. If the main continues to resist, tension the topping lift slightly to raise the boom (or ease it as needed).
7. Once the sail is fully deployed, it is appropriate to tension the outhaul on the winch.
8. Retension the boom vang, topping lift and sheet the main as required. The electric winch may be used on the mainsheet.

Furling:

1. Steer head to wind.
2. Ease the mainsheet.
3. Uncleat the outhaul and have a crew member tend it while you furl the main. Maintain tension so the sail wraps tightly and evenly.
4. Close the furling line clutch and pull by hand. You may use a winch and which handle lightly to start it if necessary. Do not use the electric winch.
5. If the main resists, tension the topping lift slightly to raise the boom.
6. Do not furl the entire sail into the mast. Leave the grey UV patch exposed; the logo should be just touching the mast..
7. Retension the boom vang and mainsheet enough to control the boom, but not so much that the boom is pulled down onto the bimini.

IMPORTANT: Maintain slight tension on the outhaul when furling so the mainsail wraps tightly inside the mast. A small amount of wind in the sail accomplishes the same thing. If you furl in calm conditions, outhaul tension is the only force keeping the wrap tight. A loose wrap can make the next hoist difficult or jam the sail entirely. Also note that excess halyard tension will cause

the furler to bind, so do not add halyard tension. If the main continues to resist, ease the halyard slightly—an inch can make a meaningful difference.

Headsail

The genoa is a 101 and sets well when fully deployed. In stronger conditions, furl the headsail as required. Maintain moderate tension on the furling line while deploying to avoid overruns on the drum, and maintain moderate sheet tension while furling to prevent candy-striping on the sail.

NAVIGATION ELECTRONICS

Turiae carries a capable navigation suite. You do not need to master every feature, but you should know what equipment is available and how it supports the watch.

Autopilot	Holds a compass or wind angle course.
Chartplotters (x3)	Two (fixed at port helm, Orca at starboard helm) in the cockpit and one (iPad) at the Nav station below. Show our position, charts, AIS, radar and more.
Radar (4G)	Detects other vessels, land, and weather in low visibility.
AIS (In/Out)	We broadcast our position and receive other vessels' positions. Shows on the chartplotter as moving triangles.
Wind Instruments	Wind speed and direction at both helms.

If you want a walkthrough on any of it, ask. A basic understanding of the instruments makes watchstanding more effective and far more enjoyable.

VHF Radio

The primary handheld VHF is normally kept near the port helm or in the charging station by the nav desk.

Turiae has two principal VHF radios: a fixed base unit mounted on the port side of the salon and a separate handheld unit stored near the port helm by the winch handle storage.

A portable handheld VHF radio should be moved from the charging station into the cockpit while underway. The handheld radios need to be charged every couple of days. There is a charging cradle in the cabinet.

An additional handheld VHF is in the primary ditch bag for emergency use.

Monitor Channel 16 whenever underway, then shift to the appropriate working channel when contacting harbormasters or marinas.

If you call another station on Channel 16, move promptly to a working channel such as 68, 69, 72, 74, or 78. We also monitor NOAA weather before departure and before anchoring for the night.

Details

Common operating functions are summarized below.

To turn the radios on and off: on the base unit, rotate the volume knob at the upper right. On the handheld, long-press the power button at the upper right to turn the unit on or off.

To silence a DSC alarm: when another vessel or the Coast Guard transmits a DSC signal, nearby radios will alarm. Press any key to silence it.

To change transmit power: press the H/L button on the microphone. The display will show HI or LO. HI is 25W and LO is 1W. Channel 16 defaults to HI power. On the handheld, long-press the center OK/H-L button to change power.

To return quickly to Channel 16, press the green 16/9 button. A long press selects Channel 9.

To access weather channels, press the WX/NAV button to toggle between weather and standard channels.

Adjusting Volume and Squelch

On the base unit, the upper-right knob controls volume and power. Squelch is adjusted separately; turn it only high enough to suppress static. On the handheld, use the Volume +/- soft key on the right side, and access squelch through the soft key menu using the same +/- controls.

How to set up and use Dual Watch Channel Scanning

Channel 16 is automatically included in the Dual Watch scan.

Dialup the second channel you want to include in the scan. Leave the radio set to this channel.

- To start scanning, press the SCAN button.
- The display indicates the unit is scanning by “blinking” the displayed channel. When a transmission is received on either 16 or the channel you selected to scan, the radio will stop scanning at the channel received.

Keep the VHF radio on Channel 16 whenever underway. This is how the Coast Guard and other boats will reach you.

Autopilot

Turiae's autopilot is fully serviced and works great for long passages. It steers to a set compass heading or wind angle so the crew does not have to steer constantly.

The autopilot steers to a heading or wind angle — it does not watch for other boats, reefs, or obstacles. Someone always needs to be keeping watch or when autopilot is on.

If you need to take manual control quickly, press the STANDBY button on the autopilot controller at the helm. This immediately returns steering to the wheel. Do not yank the wheel while autopilot is engaged — disengage first.

The autopilot can be controlled from the autopilot controller at the port helm, on every chart plotter and via the Orca app on the iPad. Get specific instructions prior to your watch.

Chart Plotter

(Lady Grey AS PICS THAT CAN BE ADDED)

As is typical of modern chart plotters, Turiae's instruments can display the following information in addition to the basic navigational charts: Radar, A.I.S., Autopilot, Wind Speed, Depth and Speed

Highlights

- B&G Zeus chart plotter at port helm.
- Large Zeus chart plotter at aft end of cockpit table.
- Orca tablet at starboard helm
- Standard compasses are located at each helm.
- Turn on Navigation Instruments at main breaker first to begin startup, and turn off at main breaker to shut down.

We recommend FIRST turning on the VHF radio in the salon. Next turn on the "Nav Instruments" breaker at the electrical panel, then press the power button (lower right corner) of the 12" display. Complete the process by turning on the smaller 7" displays at the port helm. Orca tablet will power on automatically when nav power is applied. After turning on the radio and navigation systems, check the following to confirm successful power-on procedures:

Location is displaying on the radio

- All instrumentation (wind, boat speed, depth) are displaying on the chart plotter

Commonly Used Chart Plotter Selections:

Selecting Applications:

Use Home key (Touch upper left corner on screen or press and briefly hold upper right Home button on instrument bar, #5 in image below).

Finding navigation charts: Go to home screen and select Chart Application (see image below).

Zooming in and out: Press “+” and “-” icons at bottom of screen or “pinch to zoom” in or out on screen using 2 fingers.

Returning the screen to the vessel's current location: Touch “Clear Cursor” at the bottom of the chart screen.

Clearing Preexisting Waypoints, Routes and Tracks: Press Home Button in upper right, or menu icon (array of 9 squares) upper left corner of display screen. Find – Waypoints, Routes or Tracks – delete all or selection. Chart Orientation: Subject to your preference, we recommend Heading Up. 1) Menu icon, 2) More Options, 3) Orientation.

Display Brightness: Press and quickly release the Power button. Select “Brightness” option, and adjust brightness using the slider slider on the screen.

Course over Ground (COG) Vector/Line: Ensure the COG line is always ON. If not currently on:

1. Press and quickly release the Power button
2. Settings
3. Chart
4. Extension Lines
5. Set the Course over Ground (COG) Vector/Line Length
6. Select “infinite”

Which plotter you use for primary navigation depends on location and needs. Some general guidance is below, ask before your watch if you have questions:

B&G plotters (port helm & center): have Navionics charts loaded. Good for open ocean navigation and general use.

Orca table (starboard helm): good for general use or close in navigation/satellite images of harbors. This is a European product and US charts on it are of occasionally dubious quality. Always cross reference info with other charts if in doubt.

iPad (nav station): has orca charts and aquaMaps with navinics and active captain integrations. Has the most crowd sourced content and a third independent chart source. Consult if you do not have the needed information on the cockpit units or need to plan.

Other Equipment

Radar

You should have little need of the radar except if you are suddenly enveloped by fog. Fog in the islands usually forms in the wee hours of the morning and burns off by mid-day. For practice you can watch the radar screen or set it as a chart overlay to develop a familiarity with what it looks like.

Quick steps for use:

- Go to the Home screen.
- Select Radar/Chart.
- Alternatively, press and quickly release the Power button.
- Select Standby or Transmit as required.
- Zoom to select radar range.
- Guard zones can be set, ask before your watch if you are interested in this function.

AIS Overlay: This feature is always on. If you see a vessel on the chart plotter, touch the vessel icon and an information screen will appear. Select the 'x' in the upper right corner of the screen to close the informational display.

A.I.S. (Automatic Identification System)

Highlights

- Turiae transmits her position and data via an AIS signal as well as receives AIS signals from other vessels equipped with AIS transmitters (Commercial vessels are required to have AIS, recreational vessels are optional).
- The VHF base unit radio must be ON to send and receive AIS data. The chart plotter is tied to the VHF radio and shows AIS vessel positions as triangles.
- AIS information supplements marine radar, which continues to be the primary method of collision avoidance for water transport.

AIS vessels appear on the chart plotter screen as triangles. The triangle points in the direction that the vessel is moving and if you touch the screen over the triangle the system will give you additional information (such as name, size, speed, bearing, etc.) about the vessel. The system also transmits this same type of information about Turiae to other vessels with AIS.

AIS requires each vessel to have a 9 digit MMSI (Maritime Mobile Service Identity) number to transmit position and data. We have entered Turiae's MMSI number (338314489) into all required systems.

The AIS is an added safety feature which allows large commercial vessels to easily see you and your direction/speed. They may try to contact you via VHF channel 16 to verify your course intent. In addition, AIS allows the captain/owners to provide faster assistance in case of unplanned maintenance issues as well as alert the captain/owners of Vessel name's return approach. Vessels with AIS can be viewed in real time through mobile device apps and websites like www.marinetraffic.com that will reveal vessel name, course, speed, track, and other information.

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Depth Sounder

The 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, when you are in deep water false readings caused by currents, changes in water temperature, fish, etc. are common. These false reading often report very shallow water so knowing you are in deep water will prevent momentary heart attacks.

The depth showing on the sounder is being measured from the bottom of the keel. In other words, the depth shown is the depth of the water under the keel. Actual depth is about 6.5 to 7 feet greater. If it shows zero, you are already grounding the boat!

We suggest using the depth sounder mainly as an aid to navigation in shallow water. However, the key to avoiding rocks is not the depth sounder – but knowing where you are on the chart at all times.

Knot Meter

If the knot meter reads 0.00 while underway, the impeller is probably fouled. It may clear on its own, sometimes helped by a wake or by briefly moving astern. The instrument transducers are under the floor panel just inside the forward stateroom. Do not remove the impeller underway unless specifically directed to do so. If necessary, use SOG on the chartplotter as your backup speed reference.

Wind Instruments

Wind data is available on the chartplotters and includes both true and apparent wind. The B&G system can also display laylines and other sailing data overlays. Use the information, but do not become captive to it; the feel of the boat, the sails, and the telltales still matter.

ANCHORING

Anchoring is one of the great pleasures of cruising, and Turiae is properly equipped for it. Good anchoring practice is deliberate, unhurried, and disciplined.

Anchor Setup

Primary Anchor	86 lb Mantus M2 — 300 feet of 3/8" G3 chain
Backup Anchor	25 lb aluminum Fortress — 15 ft chain plus 125 ft rode
Windlass	Electric anchor windlass at the bow

Deploying the Anchor

1. Select the anchorage carefully, considering depth, wind direction, bottom type, and swinging room.
2. Make the approach slowly, with the bow into the wind or current as conditions dictate.

3. Once the boat is stopped, lower the anchor with the windlass remote at the bow. Lower it under control; do not let it free-fall and pile chain on itself. You will need to disengage the safety cog on the left side of the windlass using the small orange plastic handle.
4. As the boat falls back, pay out chain smoothly. As a working rule, use 5:1 scope in settled conditions and 7:1 for overnight anchoring. In 10 feet of water, that means roughly 50-70 feet of rode.
5. The chain is color coded with zipties as specific lengths. A chart with these colors and recommend deployment lengths is located in the cockpit table and the anchor locker.
6. Snub the chain and allow the boat to settle back onto the anchor until it bites. You will feel the anchor take hold and see the bow align with the load. There is a standard Y bridle snubber with chain hook (white 5/8" line) and a storm bridle (independent leg, 3/4" black), use the standard bridle up to about 25 knots, storm bridle in stronger conditions.
7. Take visual bearings ashore and confirm that the vessel is not dragging.
8. Back down on the anchor and confirm you are stationary.

Recovering the Anchor

1. Motor slowly toward the anchor while a crew member at the bow recovers chain with the windlass.
2. Recover enough chain to remove the snubber.
3. Never use the windlass to drag the boat to the anchor. Instead, power slowly toward the anchor while the windlass takes up slack. If the anchor is deeply set and you hear the windlass labor, stop immediately and drive the boat forward to break the anchor free.
4. When the chain is vertical, the anchor will usually break free.
5. Continue recovering until the anchor is seated securely in the bow roller.
6. Rinse the chain and anchor with the deck washdown hose as they come aboard.

The windlass is powerful. Keep fingers, feet, and lines clear of the chain and gypsy at all times when in operation.

DOCKING

Turiae carries enough freeboard to sideslip noticeably in stronger winds. She also handles better with a little way on—roughly 1 knot is often appropriate. Approach the dock slowly but with enough speed to maintain control. Station a crew member at midships and, when close enough, secure the midship line first. The bow thruster is an excellent aid, but it supports proper boathandling; it does not replace it.

Use ample fenders. Fenders are located in the lazarette beneath the starboard helm.

Bow Thruster

The bow thruster controls are at the port helm, and the engine must be running before the thruster can be used. To activate or deactivate it, press the red and green buttons simultaneously. One short beep indicates activation; two short beeps indicate deactivation. The

system also powers down automatically after about 20 minutes of inactivity. If you hear two quick beeps while motoring, the thruster has simply gone to sleep. If you are new to bow thrusters, remember the following:

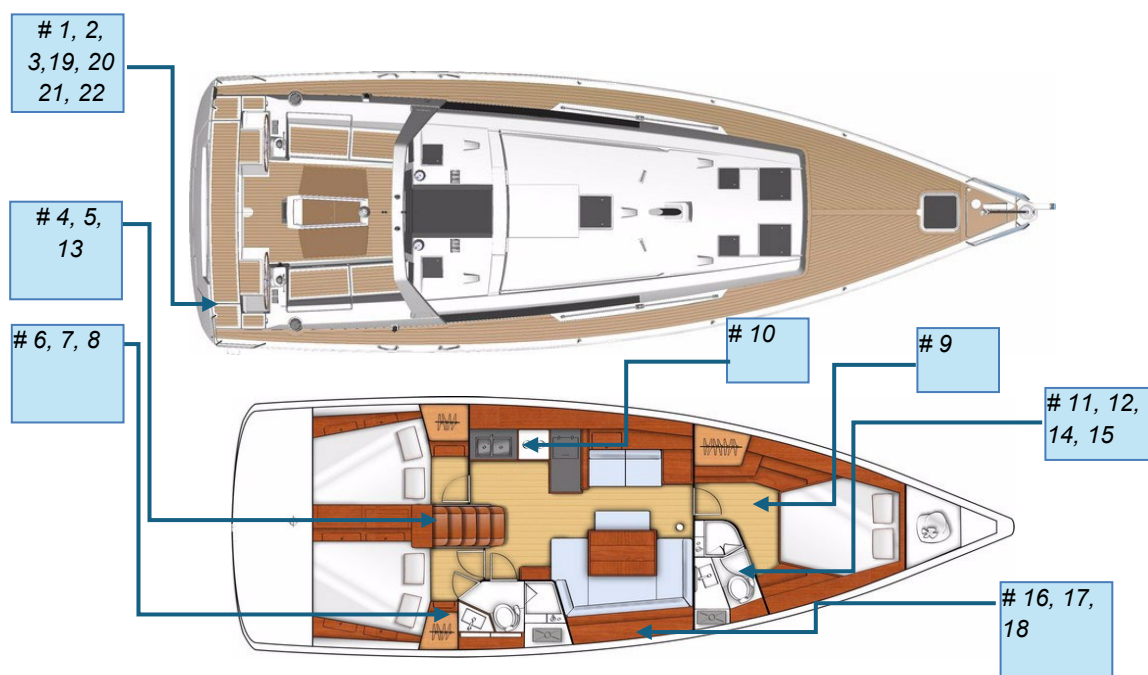
- Do not use the bow thruster as your primary steering tool. Steer the boat conventionally and use the thruster only to fine-tune the approach or counter wind and current.
- Remember that the thruster rotates the boat around its keel. If you push the bow away, the stern will move toward the dock. Keep a fender as far aft as practical to protect the quarter.

SEACOCKS

Turiae has 22 seacocks that should be regularly checked.

Closed at Sea: Seacocks for sink drains, toilets, and cockpit drains that rest near the waterline should remain closed when underway or in rough conditions to prevent water from back-siphoning into the boat.

Open at Sea: Seacocks that supply water to the engine cooling system or a running generator must be left open while the boat is in operation, or the system will quickly overheat.



Reference	Designation	Valve	Access Location
1	Seawater discharge - Generator	No	Starboard helm locker
2	Drainage - Liferaft locker	Yes	Starboard helm locker
3	Seawater inlet - Generator	Yes	Starboard helm locker
4	Sea water intake – Aft Toilet	Yes	Under companionway stairs
5	Sea water intake – A/C	Yes	Under companionway stairs
6	Aft head evacuation to sea	Yes	Under Aft Head Sink

7	Aft Head Shower draining	Yes	Under Aft Head Sink
8	Aft head sink drain	Yes	Under Aft Head Sink
9	Sensor	No	Under floor in fwd cabin
10	Galley Sink Drain	Yes	Under galley sink
11	Fwd Head Discharge	Yes	Under fwd head sink
12	Fwd Head Shower draining	Yes	Under fwd head sink
13	Engine Cooling Raw Water Intake	Yes	At sail drive between cabin
14	FWD head/washdown raw water intake	Yes	Under fwd head sink
15	FWD Head Sink Drain	Yes	Under fwd head sink
16	Fwd & salon A/C condensate discharge	Yes	Behind salon couch backrest
17	Fwd A/C raw water discharge	Yes	Behind salon couch backrest
18	Salon A/C raw water discharge	Yes	Behind salon couch backrest
19	Aft Cabin A/C Raw Water Discharge	Yes	Starboard helm locker
20	Aft Cabin A/C Condensate Discharge	Yes	Starboard helm locker
21	Manual Bilge Pump Outlet	Yes	Starboard helm locker
22	Automatic Bilge Pump Outlet	Yes	Starboard helm locker

POWER

Turiae is powered primarily by a 920Ah lithium house bank supported by 800 watts of solar. That setup covers most daily loads without much crew intervention. Standard 120V outlets for heavier appliances such as the coffee maker or hair dryer require generator power unless the inverter is intentionally being used.

- USB charging ports are available throughout the boat and may be used freely.
- Turn off lights when leaving a space.
- Unplug devices and chargers when not in use.
- Ask before running any appliance with a high electrical load/turning on the inverter.
- Air conditioning and heat are available in the salon and all cabins with independent controls. Use them when the generator is running or when on shore power.

Phone and Device Charging

Cell phones can be charged in cabins, each reading light has an integrated USB port for charging phones.

The dinghy outboard battery can be stowed and charged in the port cockpit locker.

The electric scooter battery can be charged from any 120 volt outlet when 120 volt power is available.

Cubbies at the nav station has many charging options for computers, phones, and other devices. Turiae also has reading lights in the cabins with USB charging located in the side of the base.

To charge devices using a normal 110-volt outlet, either connect to shore power, turn on the generator or activate the inverter.

Main Electric Panel



The electrical panel on Turiae is straight forward and clearly marked. Cabin lights and refrigeration should be on at all times. Bilge pump should be left in auto position. Water pump should be turned off when not on board. “Auxiliary” runs the starlink and can be left on as it automatically sleeps between midnight and 6 am.

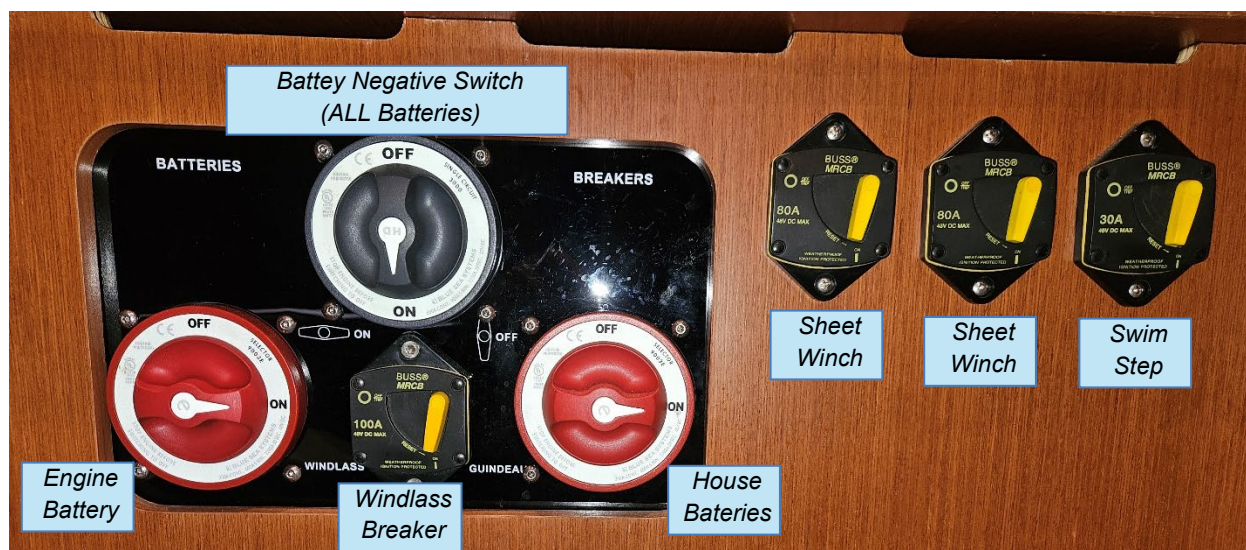
The right side of the panel has the level indicator for the batteries, water, and fuel. Press the appropriate button for the level you want to see.

Additional Breakers

There are four other breakers not shown in the pictures:

1. There is a main shore power breaker, located in the aft port side lazarette (behind the wheel, mounted on the bulkhead up high. If shore power is not working check this breaker – up is on.
2. The second breaker is for the 110 V outlets and is in the cupboard next to the Fusion stereo). This is a GFCI as well and can trip in use.
- 3 & 4. There are two breakers for the generator in the port cabin, center access panels.

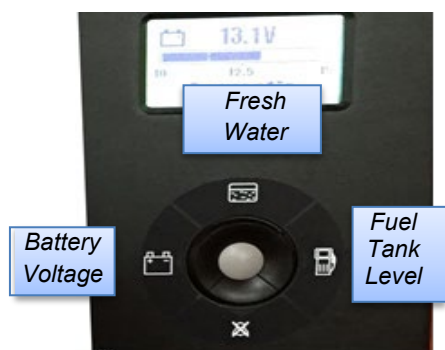
The battery bank switches are in the starboard quarter berth. Generally, these will not be moved during a trip. Check to ensure they are on if the windlass, electric winches or transom lift stop working.



Battery Banks

Turiae has six batteries aboard: one engine start battery, two bow thruster batteries, one generator start battery and two batteries in the house bank. These systems are isolated from one another so each can be depleted independently. Battery locations are as follows:

- House bank—under the forward end of the aft berths, one batteries per side. These are the



large lithium ion batteries.

- Start battery—under the forward end of the aft berth, inside battery on the port side. Inside a yellow case.
- Generator battery- under washing machine in port berth.
- Bow thruster batteries—under the forward end of the V-berth.

Monitoring the Battery Banks

The main electrical panel includes a monitor for battery voltage and tank levels. Fully charged voltage will typically read around 13.6 volts and will decrease as loads are applied. An alarm sounds at 11.7 volts. As a general operating rule, recharge before the bank approaches 12.5 volts, and do not allow it to remain below that level.

Water and fuel levels can also be checked using this same display by pressing the appropriate buttons (see picture below from main electric panel).

A more sophisticated and accurate battery monitor is integrated with the iPad at the nav station. Use the 'Victron Connect' app and look for the 'Battery Monitor'. It will show you state of charge information and a variety of charge/discharge information. You can also monitor the solar and alternator charging systems here.

Managing Battery Capacity

Turiae's house bank has 2 lithium-ion batteries with 920 amp hours of total capacity. With moderate use and adequate sunshine, the house bank will supply power indefinitely, being automatically fully recharged daily by the solar panels. The house bank will usually last about 2-4 days in cloudy conditions depending on usage.

The largest ongoing power consumers are the refrigerators. Lights are the second largest ongoing user.

Using the inverter is a significant draw of between 100 and 200 amps depending on appliance run. If you need to use the microwave, coffee maker, hairdryer, etc. frequently it is important to closely monitor the batteries via the Victron app. Solar charging will not provide enough charging to replace the heavily loads from the inverter. It will be necessary to intermittently utilize the generator to recharge the batteries if the inverter is used routinely.

Charging the Batteries

Turiae's batteries are charged in three ways:

1. Solar: Turiae has (2) 400 watt solar panels. Charging the house bank from these panels is handled automatically. Solar charging can be monitored via the Victron app on the iPad.
2. Engine: Charging happens automatically when the engine is running at cruising speed. The alternator is low output and only provides about 20 amps. The charging current can be adjusted to a maximum of 50 amps via the Victron app. The primary purpose of the engine alternator is to charge the engine start battery. It should not be used as a primary means to charge the house bank.
3. Generator or Shore Power: Following is the procedure for charging the batteries when connected to shore power. For generator power, reference the generator section below.
 - Connect the shore power cord to the dock outlet. The primary cord and any extensions are stored in the starboard cockpit locker
 - Ensure the dock outlet breaker is on.
 - Verify the breaker in the aft port lazarette is on (this should not trip and should be on, check if you have no power in the aft cabin)
 - Select "Shore" on each selector switch in the starboard cabin
 - Turn on Turiae's battery charger breaker on the AC panel.
 - Verify charging at the battery/levels monitor; the reading should quickly rise above 13V.

To problem solve shore power charging issues, follow these steps:

1. Check all cable connections.
2. Verify the dock breaker is turned on.
3. Check Turiae's primary breaker located inside the port cockpit floor lazarette near the shore power cord outlet (see photo on right). This breaker rarely trips but if it does try resetting it once. If it trips a second time, then contact Heather or Andy for assistance.

Inverter

We have a factory installed 2000-watt inverter so 110V power can be used when not connected to shore power. Leave the inverter turned off unless you need 110V power, as you will drain the house batteries without realizing it.

To turn on the inverter, press the on/off toggle button on the controller located above the main panel (on top of the shelf against the outside hull). You will know the inverter is on when the microwave beeps "on".

Should the inverter not turn on, check to ensure the breaker located in the starboard quarter berth closet is turned on.



GENERATOR (SHIP) POWER

The generator powers the air-conditioning units, AC outlets, and any other loads requiring 120V service. It is low-hour and fully serviced.

The Generator Panel

Generator controls are on the port wall of the starboard aft cabin. You will find the Cummins Onan controller at the top and two power panels below: the upper breakers are for shore power and the lower breakers are for ship power.

Starting the Generator

1. Using the button switch at the top, press and hold start to turn generator on. Once you hear generator running, continue to hold for another few seconds, you will see the primer light turn green, then let go. Shortly, blue nights should light up on the control panels and reach approximately 120 volts.
2. Wait 2-3 minutes.



3. Move the selector switches from shore to ship to connect the generator to the 120 volt system.

Stopping the Generator

1. Turn off all three A/C units.
2. At the salon electrical panel, turn off all three “230V AC” switches on the left side.
3. In the starboard aft cabin, move both selector switches to shore.
4. Wait 2-3 minutes. Then press STOP on the Cummins Onan controller.

Main Electrical Panel

The main electrical panel is on the starboard side of the salon. The left side controls AC circuits; the right side controls 12V DC circuits.



After the generator is running and warmed up, energize the three switches on the left side labeled 230V AC. The right side, labeled 12V DC, controls lighting, water pressure, bilge pumps, navigation lights, and other DC systems.

The generator can run most everything on the boat simultaneously. It is possible, however, to overload the generator and trip a breaker. This is most common when you are running the water heater, battery charger and a hairdryer or microwave all at the same time. Just keep in mind that you can run two major loads at a time, not three. So you can run the battery charger and water heater or the water heater and a hair dryer.

Every 120 volt AC outlet on the boat is connected to one common 15 amp circuit, so you can only run one major appliance from an outlet at a time. So if you are using the microwave, you cannot also run a hairdryer or the coffee maker.

To keep it simple think 2 major loads overall and only 1 major ‘plug in’ load at a time.

The air conditioning units are on a separate leg of the generator and do not affect anything else. All air condition units can run simultaneously when the generator is running. It is recommended to run all three units anytime the generator is running to keep load on the generator and keep it happy.

A/C Control Panels

There are three independent A/C units. Each has its own Cruisair control panel. Turn them on to make good use of the generator while it is running.



Cruisair A/C control panel — POWER, MODE (cool/heat), TEMP up/down, FAN speed

A/C Unit 1 Panel	Forward starboard wall of the starboard aft cabin
A/C Unit 2 Panel	Port side of the salon, by the radio
A/C Unit 3 Panel	Port aft wall of the forward cabin

SHORE (DOCK) POWER

When shore power is available, use it in place of the generator. Connect in the following order:

1. Confirm the dockside breaker is OFF before making any connection.
2. Locate the shore power cord in the starboard cockpit locker.
3. Connect to the boat first, at the inlet aft of the port helm. Align the connector, push in, twist, and tighten the locking ring until snug.
4. Then connect the dockside end to the shore receptacle.
5. Turn on the dockside breaker.
6. Go to the starboard aft cabin and turn on both shore-power breakers on the lower right panel. Slide the covers down if necessary. Confirm normal voltage on the display.



Shore Adapters

Turiae's onboard service is 120V. Depending on the marina pedestal, an adapter may be required to connect safely to shore power.



The picture to the left is the Smart Y adapter (30-to-50 amp). This is the main adapter to use always when an adapter is needed at the main power box on shore. This can also be lent to other boats to use if needed.

The following two adapters are spares to only be used in limited circumstances and are strictly not to be lent to other boats as they could be dangerous.



30-to-50 amp adapter — Only Andy to use; dangerous to lend



Two-30-to-50 amp converter — Only Andy to use; safe for our boat but dangerous to lend. May be needed in an old marina that can't function with the Smart Y adapter.

INTERNET (STARLINK)

Turiae carries Starlink satellite internet. Turn it on when the boat is unattended. It automatically sleeps at night, but can also be manually turned off to save even more power.

Network Name: TuriaeWiFi
Password: sunandfun

If the Wi-Fi is not up yet, ask or follow the instructions below.

1. **STARLINK Power-** The power switch is located on the main electrical panel and is labeled 'auxiliary'. If the power switch is illuminated, the STARLINK is powered. Wait approximately 5 minutes after initial startup to access the wireless network.
2. **Connecting Your Device-** Search for the wireless network TuriaeWiFi on your mobile or computing device. The password is located next to the power button.
3. **Bandwidth availability-** STARLINK broadband typically ranges from 25Mbps to well over 100 (Download) and 10Mbps to 50 (upload). Orientation and motion of the boat, trees or obstructions influence network speeds. We do have a limited data plan, so be mindful, but feel free to use as you need.

FRESH WATER

Turiae carries 150 gallons of fresh water in two tanks, and the galley faucet cold water is filtered. That supply disappears faster than most crews expect, so manage it with intent.

- Do not leave faucets running unnecessarily.
- For dishes, wash in a basin of soapy water and do a brief final rinse.
- Toilets flush with fresh water, so use enough water to flush, but be aware.
- Showers, toilets and dishwashing are the largest water consumers, in that order.

Monitoring / Filling / Switching the Water Tanks

The control panel in the salon starboard wall has a display gauge for monitoring the water tank levels. The tank levels are only very approximate. Assume a tank is near empty if it is at half or lower.

The aft tank can be filled via the starboard aft deck fitting behind the steering wheel. The forward tank can be filled via port deck fitting behind anchor locker. A clean hose for filling the water tanks is located in the starboard lazarette inside a 5 gallon bucket. There is also a hose pre-filter in the bucket to make filling easier. A deck key to open the deck fittings is located in the center cockpit table.

It is best to switch water tanks before one is completely empty. This prevents pump damage and annoying air in the lines. The tank selector valves are located under the starboard center settee. The top most valve is the aft tank. The second from top is the forward tank. A tank is 'on' when the indentations in the white valve knob are inline with the water line. A tank is off when the indentations are perpendicular to the water line. Only have one tank on at a time, otherwise water will transfer to the aft tank via gravity. Use the yellow handle attachment tied next to the valves to make turning them easier. The handle simply snaps on and off.

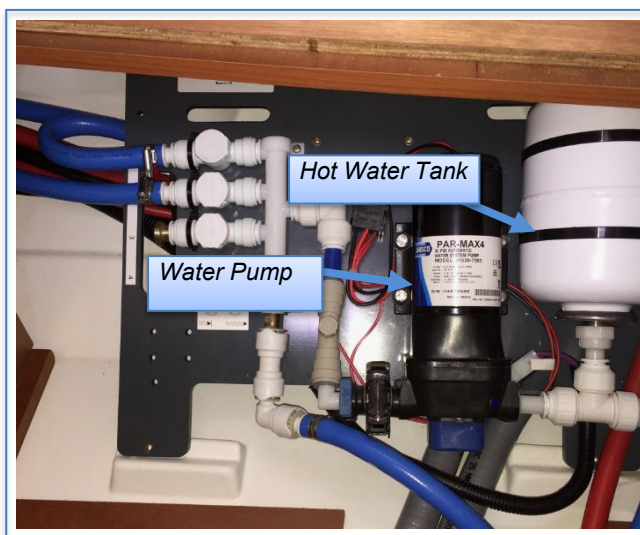
Water Pressure

The water pressure switch is on the electrical panel. Turn it off when off the boat

Water Heater

Hot water is produced automatically when the engine runs under load for roughly 45 minutes; idling briefly at the dock will not do much. Hot water is extremely hot, much hotter than your water at home, use extra caution to avoid scalding. Hot water is stored in a 10-gallon tank under the dinette seat just forward of the head, and it can also be heated electrically when shore power or generator power is available via the switch on the 110V panel.

Hot Showers



Hot water is heated by the engine or generator—it takes roughly 30 minutes of run time to warm up. Give Heather or Andy a heads up before you want a shower. Hot water is extremely hot, much hotter than your water at home, use extra caution to avoid scalding.

Please take a “Navy” shower:

1. Wet down, then shut the water off.
2. Soap up and shampoo.
3. Rinse quickly and finish.

Use the black rubber drain button on the shower sole to empty the sump. Do not allow more than 1-2 inches of water to collect or it may spill out into the cabin sole.

FUEL

The main fuel tank holds about 53 gallons diesel. The auxiliary fuel tank holds about 20 gallons. The fuel gauge is located on the main panel and can be activated by pressing the right-hand side of the level gauge control (see panel section). However, this gauge tends to show large changes rather than fine gradations. Note the hours when you leave and fill the tank if you have run 35-40 hours. The main engine uses between .8 and 2 GPH depending on RPM. The generator uses between .6 and 1 GPH depending on load

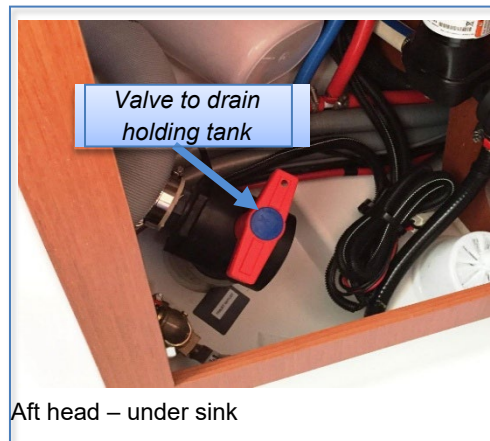
The engine hours can be viewed using the digital readout on the engine panel.. They can also be found on the center chart plotter via the instrument dash board.

When filling the tank listen closely and stop as soon as you hear fuel coming up the fill pipe. It will foam out the vent if you go further. The deck fittings for the fuel tanks are on the port side aft. The aft fill is for the main tank. The forward fill is for the auxiliary tank.

HOLDING TANKS

To pump out the holding tanks, you will find the two deck fittings on the starboard side. If you have four people on board and have ‘normal’ usage, the tanks may need to be emptied every other day. If you have more onboard or heavy usage, plan on pumping every day.

If travelling more than three nautical miles offshore (or nine miles in the Gulf of Mexico), the tanks can be dumped overboard by opening the drain valves: both are under the sinks. NOTE: DO NOT ADJUST THESE VALVES unless instructed to do so. The drain valve handle removes easily and then it becomes difficult to know if the valve is open or closed. Please also note these are gravity drain tanks; there is no need for a macerator. They will normally drain in less than a minute (you will hear them finish with a 'woosh' if the engine is not running).



ENGINE

Turiae is powered by a Yanmar 4JH 57, 57 hp diesel engine. There is a complete set of spares on board. Cruising should be done at engine RPMs of 1800 to 2250. The following table gives approximate fuel consumption information:

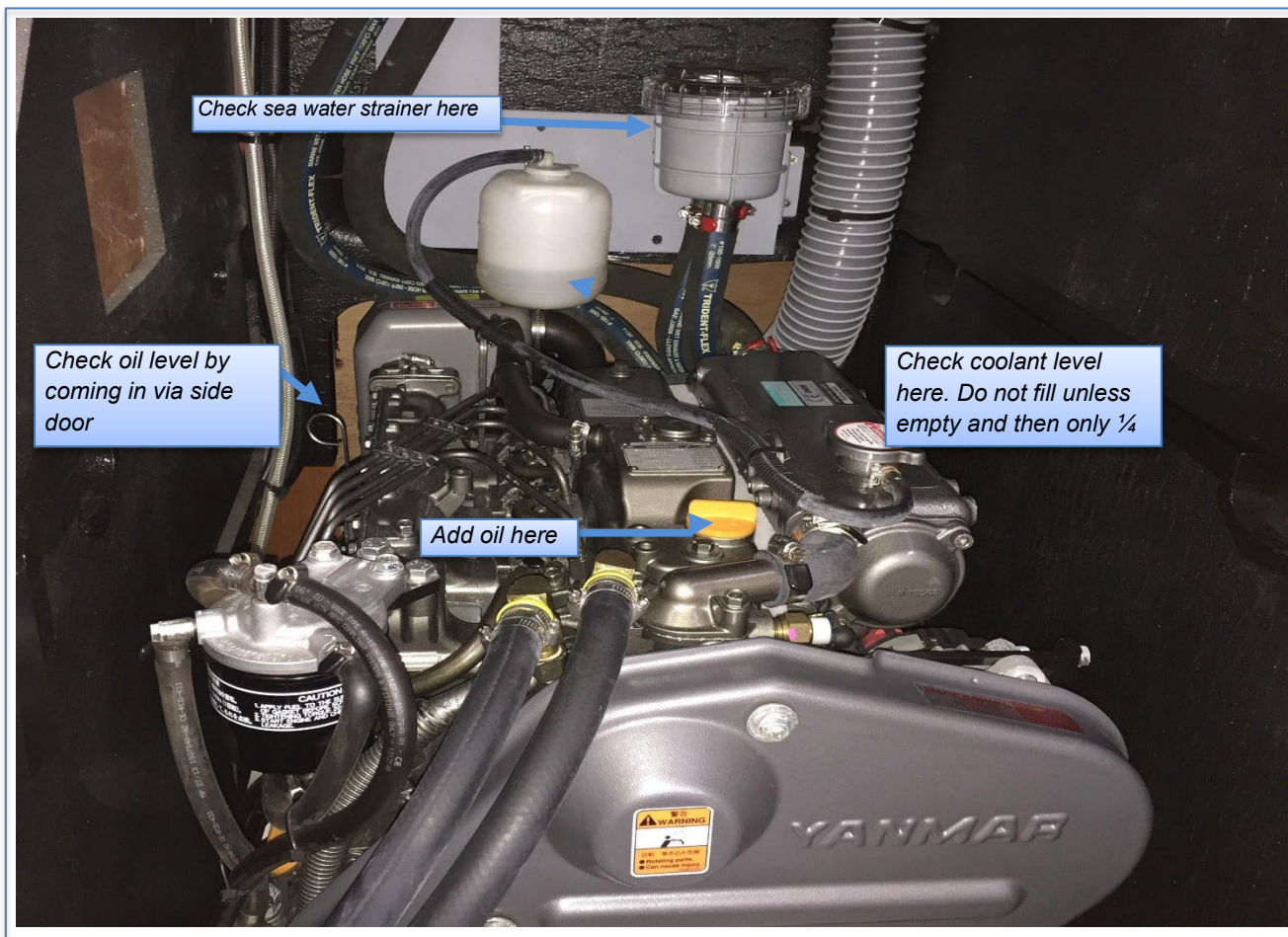
	Gal/hr	Approx Kts	NM per Gallon	Range Main Tank	Range Aux Tank	Total Range	Hrs Total Range
1200 RPM	0.39	3.9	10.0	530	200	730	146
1500 RPM	0.502	4.8	9.6	507	191	698	114
1800 RPM	0.74	5.6	7.6	401	151	552	77
2000 RPM	1	6	6.0	318	120	438	57
2250 RPM	1.32	6.8	5.2	273	103	376	43
2500 RPM	1.85	7.4	4.0	212	80	292	31
3000 RPM	3.24	8.2	2.5	134	51	185	18

The ranges listed do not include any reserve.

Real time fuel consumption and engine information can be found on the center chart plotter. Select instrument display and scroll to the correct dash showing engine information. This is a great place to monitor fuel consumption, oil pressure and engine temperature during extended engine cruising.

Maintenance

You will not have to complete any maintenance on the engine.



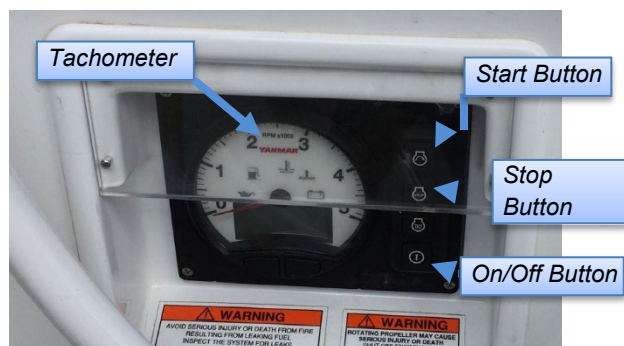
Operations

Before Starting the Engine

Visually inspect the engine before start-up. Look for oil or coolant beneath the engine and check the raw-water strainer for grass or debris. Through the access panel in the port aft cabin, check engine oil on the dipstick. Confirm that the engine cooling-water seacock is open.

Starting the Engine

The engine control panel is at the port helm. It has four principal controls:



Top button: ENGINE ON—press and quick hold

2nd button: STOP—press and hold to shut engine off

3rd button: n/a

Bottom button: Panel power ON/OFF

1. Ensure the gear lever is in neutral (fully vertical).
2. Press the bottom button to energize the panel. Wait for the beep; warning symbols may flash red briefly and then clear. That is normal.
3. Press the top button briefly to start the engine.
4. After 5-10 seconds, look over your left shoulder and confirm cooling water is pulsing from the exhaust outlet. It will come in bursts rather than as a continuous stream. That confirms raw-water cooling flow.

If you do not see cooling water within 10 seconds, shut the engine down immediately and notify Heather or Andy. An uncooled engine will overheat quickly.

Stopping the Engine

1. Press and hold the second button (STOP) until the engine stops.
2. Then press and hold the bottom button to shut off the panel. It is off when the display goes blank. Leaving the control panel on will drain the start battery

Engine Overheat

If the engine alarm sounds, first check whether cooling water is still discharging with the exhaust. Shut the engine down as soon as it is safe to do so. If immediate shutdown is unsafe, reduce RPM to just above idle while you assess the situation. The most common cause is a blocked raw-water strainer. Shut down, clear the strainer, and confirm the intake seacock is open through the inspection panel in the port quarter berth. Another possibility is a failed impeller. A spare is onboard.

Throttle and Saildrive

The Yanmar SD-60 saildrive can feel as though it hesitates before fully engaging. Let the engine warm briefly before maneuvering out of a slip. When shifting between reverse and forward, move slowly and deliberately: pause 1-2 seconds in neutral, shift into idle reverse or idle forward, pause again, then advance throttle smoothly. Slow and smooth is always better than abrupt. When backing or maneuvering in tight quarters, allow extra time and distance for sternway to develop.

THE HEAD (BATHROOM)

Turiae has two electric freshwater heads: one in the forward cabin and one in the midship cabin. They are comfortable by boat standards, but they require more discipline than a household toilet. The forward head is for urine only. The midship head is the only toilet to be used for solid waste.

The Golden Rules of the Head

- You may flush toilet paper, but only in small amounts. No large wads.
- Do not flush wipes, excessive toilet paper, feminine products, or anything else. Use the small trash can under the sink.

- Flushing uses fresh water from the tanks, so use it thoughtfully.
- The forward cabin head is for urine only unless Andy directs otherwise.
- The midship head is for all toilet use, including limited toilet paper.

Using the Head

The flush controls are on the side of the sink cabinet. There are three buttons:

- **Top button**—adds water and flushes simultaneously.
- **Bottom-right button**—flush only; drains the bowl.
- **Bottom-left button**—adds water only; rinses the bowl.

Suggestion For Going #1

4. When finished, press bottom-right to drain the bowl.
5. Press bottom-left to rinse with water.
6. Press bottom-right again to empty. Anything left in the bowl can splash when sailing.

Suggestion For Going #2

1. Use the midship head only.
2. First use the bottom-left button to add water to the bowl.
3. Use the head.
4. Then follow the rinse-and-drain sequence described above.



If the head does not sound or behave normally, stop and ask before experimenting. Marine sanitation systems clog easily and are expensive to repair.

THE GALLEY (KITCHEN)

The galley is a full working kitchen with refrigeration, freezers, and a propane stove with oven. Treat it like a moving kitchen and work deliberately.

Food and Storage

- The cabinet above the nav station and the cubby below it are snack storage. Help yourself.
- Other cabinets and the refrigerator/freezer contents are usually provisioned for planned meals. Check before helping yourself. On passage, anything that is prepared and/or ready to eat is free game. Eat early and often.
- Keep refrigerator and freezer lids and doors closed. Decide what you need before opening them.
- The boat moves. Use lids and secure your drinks.
- Most utensils, plates and other needs are in cabinets above or below sink. Pots and pans are located in the bench next to the salon table.

Galley Equipment

Coffee Maker / Microwave / Toaster

A coffee maker, microwave, induction hotplate and toaster are provided in the galley. To use them away from shore power, the inverter must be on and the AC Outlets switch on the 110V panel must be energized. Be aware that the microwave draws heavily from the batteries. Only one major appliance can be used at a time, or a breaker will likely trip.

Refrigerator / Freezer

The refrigeration system is controlled from the main electrical panel and is normally left on continuously. Turiae has three cold-storage spaces:

- **Front-loading refrigerator**—in the main compartment, the thermostat is usually set slightly below the 4 o'clock position. Higher settings may freeze contents. The upper freezer box is normally used for ice.
- **Top-loading fridge/freezer**—store meat and other critical items low in the box. A thermostat setting near 7 o'clock generally balances temperature and battery use. Items freeze near the back and bottom. Items towards the center of the boat and higher up usually do not freeze. The top-load compartment drains via a pump switch to the right of the sink under the counter lip.
- **Spare freezer**—an ARB travel refrigerator/freezer is in the port aft cabin behind the washing machine. It is generally kept at freezer temperature for meat storage.

Minimize the time refrigerator and freezer lids remain open.

Salon Dinette Table

The salon table has two positions: a compact cocktail configuration for easier access and a full-size dining configuration for meals. To expand it, pull down on the chain under the aft outboard corner, rotate the top 90 degrees, and unfold it.

Propane / Stove and Grill

The stove and grill are supplied by propane. The system has two controls: the galley solenoid switch and the valve in the propane locker on deck. Both must be on to use the stove or grill, and both must be turned off when you are finished.

Turning Propane On

1. In the galley, locate the propane solenoid switch. Slide the red switch down while pressing the top of the button. The green light indicates the system is energized.



Propane solenoid switch in the galley — slide red switch down while pressing top button; green light = ON

Turning the Stove On / Off

The gimbaled propane stove has three burners and an oven. Propane is heavier than air and requires caution. For safety, follow these procedures:

1. Make sure all stove controls are in the “off” position.
2. Turn on propane solenoid valve switch located below the sink in the topmost drawer.
3. The ignitor button is on the right side of the cooking panel. Press the ignitor switch then push IN the stove knob and turn to high. When the flame lights, hold in the knob IN for an additional 3-5 seconds.
4. When you are finished with the stove turn the solenoid switch off.

NOTE: Having the stove valves open when the solenoid is opened will cause the safety system to kick in. This will severely limit the flow to the stove. If this happens turn off the stove and close all the valves, including the one on top of the tank. Then re-open the tank valve, turn on the solenoid and finally turn on at the stove.

To light the oven, hold in the oven control knob and press the ignitor (you will hear it ticking). The flame will start. Continue holding 2-3 seconds to activate the pilot. Release and you will see the complete lit burner unit. If the burner unit goes out, repeat the above process. We find preheating the oven for 10 minutes produces a nice, even heat for cooking.

Turning the Grill On

1. Turn on the galley solenoid switch.
2. Go to the cockpit, open the propane locker just forward of the port helm.
3. Inside the locker, open the yellow valve by pushing it down.
4. Lead the hose to the Magma grill on the port stern rail.
5. Align the hose neck and locating divot with the matching receiver on the right side of the grill, then rotate until it locks in place.
6. With propane on, push in the grill control knob and turn it to admit gas.
7. Light the grill with the lighter while continuing to hold the knob in.
8. Set grill temperature with the black control knob.



Propane locker on deck, forward of port helm — contains the tank and shutoff valve



Propane valve inside the locker — push down on the yellow valve to open



Connecting hose to the Magma grill — align the divot and push in



Hose connected to grill valve — rotate until snug



Grill valve and regulator detail



Lighting the Magma grill — use the red-handled lighter while holding the control knob

Turning Grill Off

1. Close the yellow valve in the propane locker.
2. Turn off the galley solenoid switch.
3. Disconnect and stow the grill hose.

Always shut off both the locker valve and the galley solenoid when finished. Never leave propane on unattended.

COCKPIT FEATURES

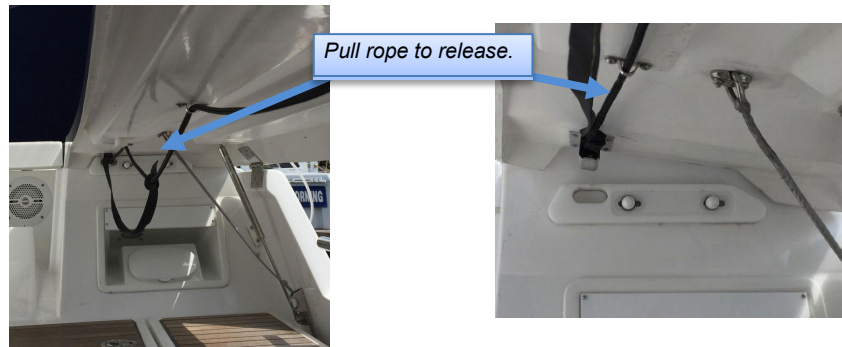
Dodger and Bimini

As with all dodgers, please be gentle. If the glass becomes spotted with salt, please get a pot of fresh water from the galley sink and “flood” the salt crystals off the plastic. DO NOT WIPE OFF THE WINDOWS. There is also a hose connection in the cockpit for a full wash down if water supplies are adequate to allow this.

The connector canvas between the dodger and bimini can be removed by unzipping and sliding the connector out of the plastic track. Feel free to roll and store the connector piece when not in use.

Swim Platform

The swim step is one of Turiae is one her best features. PLEASE ONLY LOWER THE LADDER AFTER THE SWIMSTEP IS DEPLOYED AND DO NOT JUMP ON THE SWIM STEP. Follow the procedure below to deploy the swim step and do the reverse to retrieve:



1. Release and stow the aft life lines out of the path of the deploying seat/swimstep.
2. Pull the rope located under the aft cockpit seat to release the lock on each side. (see pictures below).
3. Use the hydraulic system to open the swim step – the control switch is by the port steering wheel (see picture below). Press down to deploy and up to retrieve the step. You will need to hold the switch down until the step is fully deployed.



Outdoor Shower



An outdoor shower is available on the starboard side behind a white plastic cover. The handle controls both on and off and water temperature. Rotate the handle counter clockwise / clockwise to change temperature. Move handle up/down to turn on and off. You will also need to depress the button on the shower head to allow the water to flow in use. Be sure to turn off the water with the handle/temperature control after use.

BOAT CARE

Turiae is carefully maintained, and small habits make a large difference in keeping her that way. More than almost anything else guests bring aboard, sunscreen and careless handling damage finishes, fabrics, and clear surfaces.

Sunscreen Rules

- Spray sunscreen is not permitted aboard. It permanently damages clear plastics, fabrics, and interior finishes. It can also cause very slippery conditions on deck.
- Do not touch windows, clear plastic, or acrylic surfaces with sunscreen on your hands.
- After applying sunscreen, wash your hands thoroughly before touching boat surfaces.
- Use reef-safe, non-aerosol sunscreen only.

Other Aerosols

Hairspray and similar aerosols may be used only on deck, downwind, and well clear of fabrics and finished surfaces. Do not use them below deck. Hairspray and other aerosols can chemically attack boat plastics and gelcoat, so please be careful with use/overspray.

General Good Habits

- Close hatches and ports before rain and before getting underway.
- Do not step on deck hatches.
- Stow loose items below before getting underway; under heel they become projectiles.

- Ask before touching or adjusting rigging, lines, or sails unless you have been assigned to do so.
- If something breaks, report it immediately. Accidents happen; silence only makes them more serious and more expensive.
- Use water, power, and consumables wisely.
- No dark-soled shoes on deck; they mark the fiberglass.

DINGHY

Turiae carries an aluminum dinghy for shore access when anchored. The dinghy is towed during short trips in benign conditions. For longer journeys the dinghy must be stowed on the fore deck. Ratchet straps, foam pads and tie downs are provided for this purpose. Use the spinnaker halyard to lift the dinghy onto deck. We do not use the dinghy davits, but they can be used if you need to lift the dinghy to enter a slip or waters where theft is likely.

Dinghy Outboard

The dinghy outboard is an electric model with battery. The outboard is stored in the solar arch, port side. The battery is stored and charged in the port cockpit locker. The battery last 1 hour at full throttle operation, but will last significantly longer at reduced throttle. Round trips less than 3 Nmi are recommended, but longer trips are possible. Recharging is slow, a fully discharged battery will take around 24 hours to fully recharge. When towed, the outboard can be left on the dinghy, but the battery must be removed in placed in the locker.

LIVING ABOARD

Sleeping

Turiae has three cabins—two doubles and one single. The forward cabin is the owner's cabin, and the two aft cabins are for guests. The salon settee can also serve as an additional berth if needed.

- Keep your cabin tidy. Gear shifts underway and clutter quickly becomes a hazard.
- Clothes and other items can be stored in the lockers. There is free space under the salon settee for items you do not need often or for duffels/luggage.
- The cabins do not always have great airflow. Use the provided fans and leave hatches open when weather allows. Consider leaving your cabin door open if you do not need strict privacy. Onboard small sailboats, most experienced crew sleep with their doors open, you do whatever makes you comfortable.

Noise and Sleep

Sound carries everywhere aboard. Crew may be up early for weather, watches, or departures. Late-night conversation on deck is fine, but keep it reasonable after 10 p.m. if others are sleeping.

Trash and Waste

We follow leave-no-trace practice afloat. All trash remains aboard until it can be disposed of ashore. Nothing goes overboard—no food scraps, cans, plastic, line, or packaging. Offshore food scraps may be thrown overboard per the Maripol placard in the port cockpit locker.

Washing Machine

There is a washing machine aboard located in the port aft cabin. It requires 120V power and uses a significant amount of water. Check with Heather or Andy before using it. It cannot be used on passage in heeled/rough conditions.

WHAT TO PACK

Packing well matters aboard. Space is limited, conditions change quickly, and saltwater is hard on gear. Keep it simple, practical, and soft-sided.

Bags and Suitcases

- Bring a soft-sided bag or duffel; do not bring hard-shell luggage. Hard cases do not fit the available storage.
- Smaller is better. A medium duffel or soft backpack is ideal.

Shoes

- Bring boat shoes or other soft, non-marking shoes for use aboard. Dark soles mark the deck.
- Bring separate shore shoes for use ashore. When aboard, store them in the port helm locker.
- No hard soles or exposed metal on deck.

Clothing

- Layers are essential. Even in warm climates, mornings and evenings on the water can be cool.
- A waterproof foul-weather jacket is strongly recommended.
- Pack shorts and light clothing for warm-weather sailing.
- Bring a brimmed hat and UV sunglasses; reflected sun off the water is intense.
- A light long-sleeve shirt or sun hoodie is useful underway.
- Bring swimwear; you will likely use it.

Other Helpful Items

- Reef-safe, non-spray sunscreen only. Spray sunscreen is not allowed on the boat — it permanently damages clear plastics and fabrics.
- Bring all prescription medication for the full trip plus a few extra days.
- If you are prone to seasickness, bring medication and take it before you need it.
- Bring a small headlamp or flashlight for moving around after dark.

- Use a retainer strap on sunglasses so they do not go overboard.

Items to Leave at Home

- Leave hard-sided suitcases, metal water bottles, and other rigid loose items at home; under heel they become projectiles. We have plastic water bottles available for you onboard.
- Leave behind anything you would not want ruined by saltwater or lost to an unexpected wave.
- Avoid aerosol hairspray, and similar products. If you must use an aerosol, use it on deck, downwind, and clear of surfaces.

QUICK REFERENCE

Key Locations

Life Jackets	In port cockpit locker and cabin closets
Fire Extinguishers	Bottom of companionway steps; outside guest head
Fire Blanket	Bottom of companionway steps, below mirror
First Aid Kit	Cabinet under the guest head sink
Ditch Bag	Port cockpit locker
Emergency Procedures	Nav station desk + cockpit table
Shore Power Cord	Starboard cockpit locker
Propane Locker	Forward of port helm on deck
Anchor Windlass	Bow — foot switches
Engine Panel	Port helm (left steering wheel)
Generator Panel	Starboard aft cabin, port wall
Main AC Panel	Port side of salon
Snack Cabinet	Above the nav station
Nav Station	Below deck, port side forward

Emergency Contacts

US Coast Guard	Channel 16 VHF or call 911
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In Summary

If in doubt — ASK.
There are no dumb questions on a boat.
If something seems wrong, speak up.
The boat is insured, gear can be replaced, and mistakes happen. Just communicate.

Enjoy the passage. — Heather and Andy