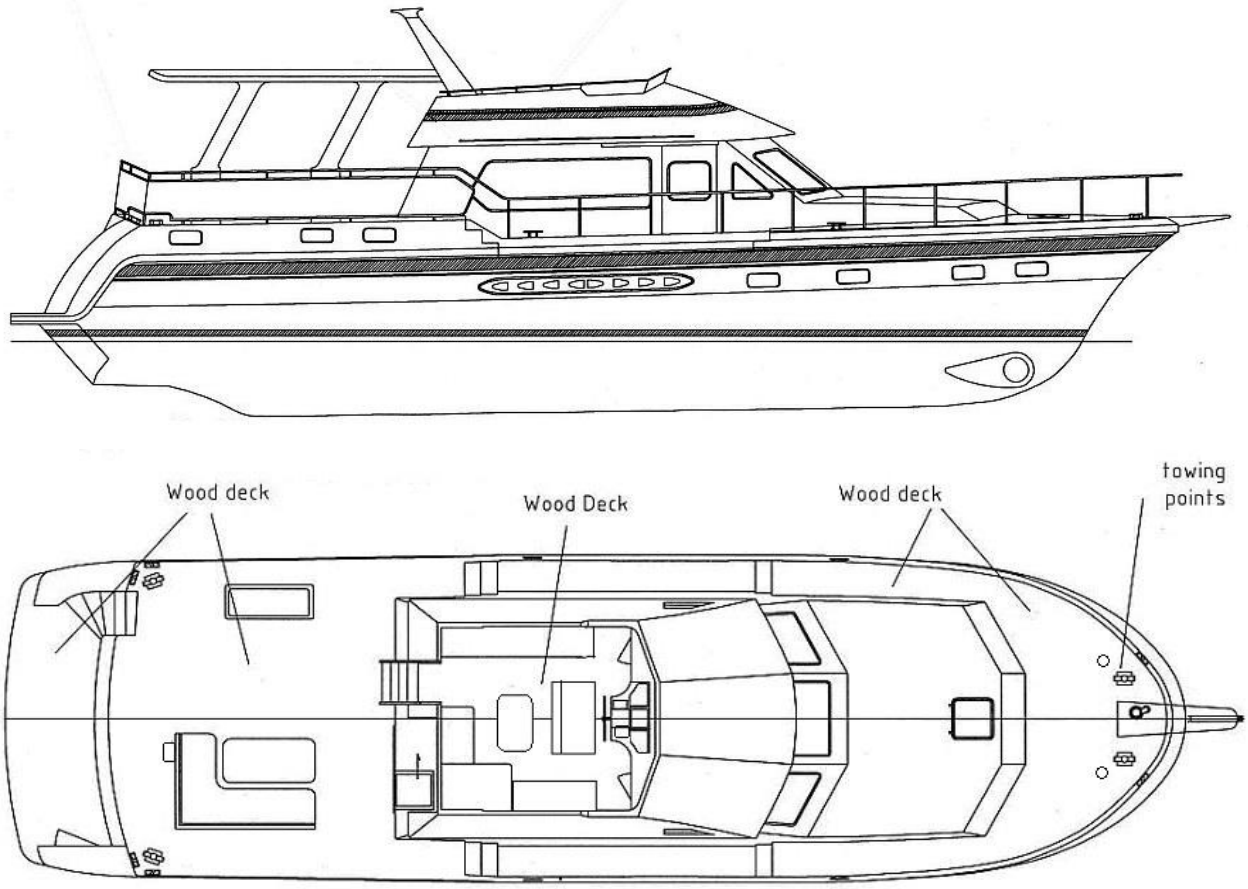
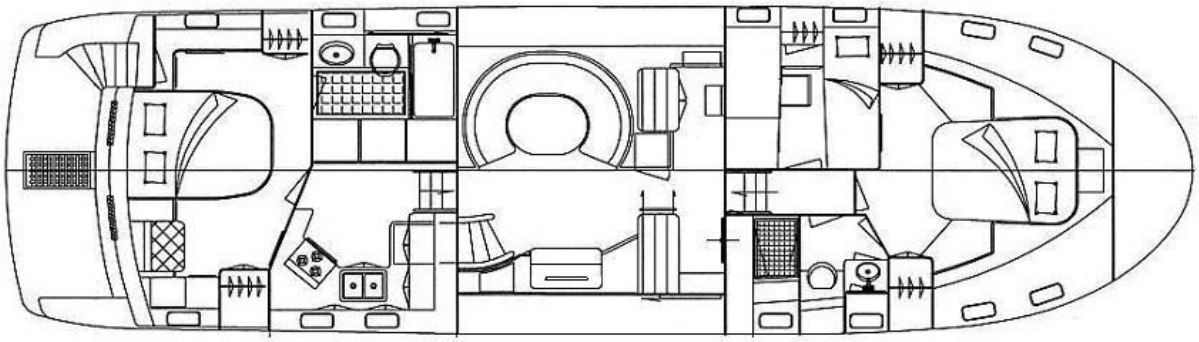
Motor Yacht TARILIAN

BOAT GUIDE



DECK & FLYBRIDGE LAYOUT



CABIN LAYOUT

PREFACE



*The **Boat Guide** intends to provide*

- *Safety information for all on board*
- *Detailed advice of the use of onboard systems*
- *Notes on upkeep and maintenance*
- *Previous experience and practical information*
- *Photographic reference for use when not on board*

***Appendices** contain*

- *Selected equipment manuals for quick reference*
- *Technical drawings of installations*
- *Checklists for routine procedures*

PLEASE NOTE: This Boat Guide is specific to motor yacht 'Tarilian' and applies to this boat only. It is supplementary to user manuals and guide books on board, which cover topics such as competent crew, boat handling, regulations, navigation, first aid.

Disclaimer:
All Information is provided in good faith at the time of writing, but no responsibility is assumed for its correctness, completeness, or any consequences arising from using it.

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tarilian@hotmail.com

Ver 3.2 [10/2025]
Download link

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SAFETY ADVICE & EQUIPMENT

- **GETTING ON/OFF BOARD**: NEVER ever JUMP on deck or ashore, **always STEP** and hold on to ladder/rails with at least one hand.

- When involved in a **BERTHING MANOEUVRE**, never try to push or stop the moving boat with your hands or feet. It is heavier than a fire truck. NEVER get a part of your body between boat and quay, or another boat; **use fenders and ropes**.

- **MOVEMENTS on board:**
  A boat is 'under way' when it is not tied to a marina/harbour mooring, a buoy, or anchored; this also includes all berthing and anchoring manoeuvres!
  When 'under way': Be ALWAYS - even in calm seas and bays - prepared for unexpected boat movements e.g. wake from fast passing boats, swell, surge.
  'One hand for you (to hold on), one for the boat'.
  CHILDREN: When 'under way' children stay on the flybridge, the aft deck, or under deck; they must not open/close any doors or gates. Going on side and front decks requires supervision by an adult.

- **LIFE JACKETS, '*useless unless worn*':** Stored in a yellow/blue bag under the navigator seat in the salon. Try one on and adjust it for your comfort.
  Children and Non-Swimmers wear them always when on deck whilst 'under way'. For others, life jackets are optional - but mandatory in an emergency, and, when asked by the skipper.

- **During MOORING/BERTHING/ANCHORING manoeuvres**:
  Crew not involved in manoeuvre keeps bow area, side and aft deck passages clear and stays away from ropes, cleats, fenders, hooks etc. CHILDREN must be kept safe by an adult; no running about or trying to go off deck until the skipper confirms it's safe to do.

- **MOB (M**an **O**ver **B**oard**) procedure:**
  The first person who notices the incident **immediately** shouts ***'Man over Board'*** to the skipper/helmsman, and throws one of the **white horseshoe buoys** over board to mark the position. He **must keep his eyes on the casualty** and keep indicating the direction by hand/arm sign.
  Upon alert the helmsman brings the boat back towards the casualty. When in position, usually to windward of the casualty, the skipper advises the next action.

  To help recover the casualty, there are a **throw line** (yellow bag next to horseshoe buoy on transom) and a **recovery sling** (blue bag) to port quarter on the aft deck.
  A small pull-out **boarding ladder** is underneath the aft platform on the port (stairway) side; there is a further a **swimming ladder** (stored next to rope locker) that can be taken to the platform and inserted.

- **FIRST AID kit** in locker underneath navigator seat. FIRST AID GUIDE in shelf under window by navigator seat. **Medications** in forward bathroom above the sink.

- **FIRE EXTINGUISHERS**: Positioned near both exits doors, in sleeping cabins, and in the galley (kitchen). Fire blanket next to hob. See pages FIRE SAFETY

- **S.O.S VHF emergency calls in coastal area:** VHF set above helm, instructions next to door. See page SOS VHF Call below.
  Alternatively, use mobile phone to call the national maritime emergency hotline or a search and rescue (SAR) centre.
  Offshore emergency calling: Iridium GMDSS terminal (Global Maritime Distress and Safety System) at lower helm, EPIRB (Emergency Position Indicating Radio Beacon) by aft deck door.

- **Emergency signalling FLARES**: In locker underneath navigator seat (lower helm). Electronic **Odeo** flare; pyrotechnic flares in yellow canister. See CALLING HELP

- **LIFE RAFT** on aft deck roof. See page Abandoning Ship.

PRACTICAL ADVICE

- **Use of BATHROOMs** (sometimes called 'heads'): Before using a **toilet** first time make sure whether it is set to discharge 'to holding tank' or 'overboard'; if unsure check with skipper.
  Do NOT use 'overboard' discharge in marinas, harbours or bays!

  Toilets use fresh water and have electric pump-out. Use as little toilet paper as necessary; put **only** used toilet paper into the toilet, any other paper (e.g. tissues) in the bin under the sink.
  After use, press black rocker switch one way to fill bowl, the other way to flush out; red button does both at the same time. Need to flush until clean, use brush as needed. Pumping out is faster than filling; do not hold flush-out unnecessarily long if the bowl has emptied, it just causes noise and isn't good for the pump.

  NEVER throw **ANY solid objects** into the toilet: The macerator pump will suffer damage and require expensive repair.
  Never put any non-dissolving substances (e.g. cleaning wipes, kitchen role) into toilet bowl! They will block the system. Remember the saying ***'Put nothing into the toilet unless you have eaten it before'***.

  Sink: Allow only liquids into it - it is connected to a sump tank and uses a pump-out system, too. A waste bin is under the sink.
  The only direct-to-sea discharging sink is the kitchen sink.

- **Sea Sickness:** If you feel you are subject to sea sickness please procure and take preventative medication you trust. Some people prefer motion sickness patches, such as Scopoderm.
  It is important, that you do not try to read under deck in any sea state. Get plenty of fresh air outside and keep an outlook at a steady target such as the horizon or a coastline.

- **Dinghy** on aft platform: Caution if you need to move across it to access the water filler: Mind the gangway above your head! Take utmost care to avoid the flexible hydraulic pipes. STEP INSIDE the rigid white hull and on seats. **Never step on tubes** or put **weight on the sea-side (outside) tube:** Accidental tilting of the dinghy leads to serious harm and injuries!

Rules when 'UNDER WAY'

Being 'under way' means that the boat isn't tied to a mooring, berthed or anchored.

- All port holes, lockers and drawers are to be kept **closed and locked**. Port holes need to be water tight. Cupboards and drawers, if left unlocked, are at risk of opening or sliding out in strong boat movements, and objects falling down.
  Make sure the sliding shutter of the cupboard under the salon lamp is closed.

- The side (pilot) door may be shut at sea, as instructed by the skipper, but must be open during berthing and anchoring manoeuvres. The aft deck door is usually kept open and must be secured in position.
  The gates at the rear of the aft deck must be closed and secured.
  Crockery and glasses must be stored away securely in the galley to avoid breakages.

- When moving around the boat, be aware that even in seemingly calm seas there can be sudden unexpected swell e.g. a freak wave, or wake from another vessel passing. Always steady yourself with one hand, remember ***'one hand for you, one hand for the ship'***.

- In heavy weather use **both hands** to hold on to the boat; only move around as much as necessary. The helmsman needs to be aware where crew members are.

- be mindful of obstructions e.g. steps, ledges or deck fitting. Wear shoes to protect your feet and toes. Mind your head when climbing stairs under deck. NEVER RUSH or RUN!

- Alert the skipper IMMEDIATELY in case of: Man-over-board; any accidents; smoke, fuel or burning smells; water ingress. Tell him also of your other observations e.g. unusual noises, or, if you are feeling unwell.

INFORMATION & DOCUMENTS

- **USER MANUALS** are in a large black leather case in the cupboard under the salon lamp. For ***galley equipment*** see bottom drawer in galley under sink.
- **KEYS** in the salon, under the port side window (left of navigator's bench),
  The **key locker** contains **boat keys**, lighters, pocket knife, head torch.
  Below are **ships papers** to be shown to port/harbour authorities, guide books, first aid manual, area cruising guides. There are also torches.
  On the bottom shelf, hand-held search lights, emergency horn.

- The space under the **chart table** holds charts, handbooks, a magnifying glass, plotter, dividers and triangle
- Boat documentation, work records, previous log books and other books and mags are in the side cabin, in the right-hand cupboard above the writing desk.
- The current **log book** is kept by the Simrad chart plotter at the centre of the pilot house. It is for use by the skipper and must not be removed during cruising.

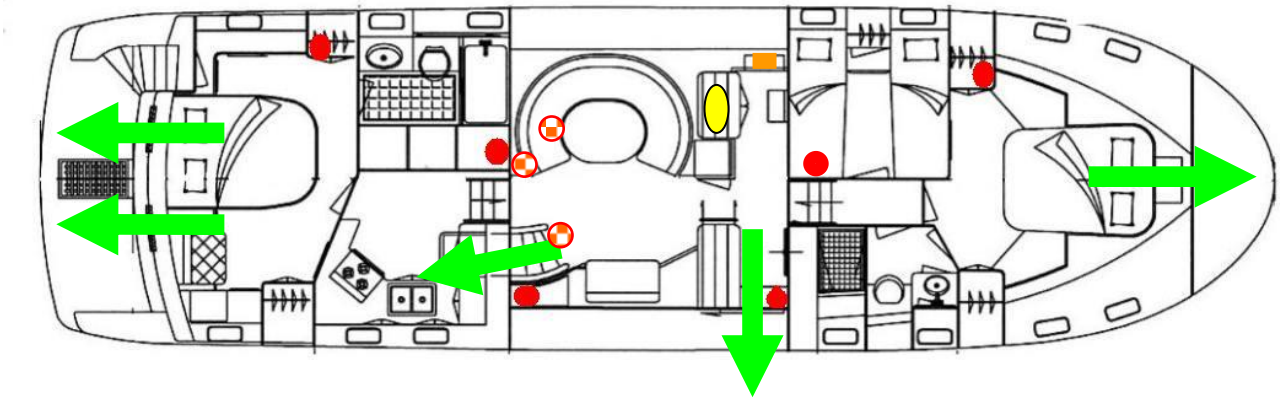
Basic selection of Nautical terms

Abeam - At right angles to the fore and aft of the vessel
Aft - Towards the rear of a boat
Ahead - Forwards
Astern - Behind the boat
Beam - The widest part of a boat's hull
Bilge – The lowest inside area of a boat where water collects
Bow - A boat's front part
Bulkhead - Upright partition that runs across the boat
Cleat - A fitting for tying up ropes
Draught - The depth of a vessel, from the waterline to its lowest point
Ensign - A flag carried by a vessel to show its nationality
Fender - A cushioning device to protect from damage, e.g. attached to the side
Fore/Forward - Towards the front of the boat
GRP - Glass re-inforced plastic used for vessel hulls
Heads - Toilet on the boat
Helm - The tiller or wheel used to steer a boat
HIN - Unique number stamped onto a boat's hull for identification
Hull - The main body of a boat, usually made from GRP
Kill cord - A safety cord to shut off the engine, e.g. on a dinghy
Knot - A nautical unit of speed. 1kn = 1nm/h = 1.852 km/h
Latitude - The north-south distance of the equator, in degrees and minutes
Lines - Ropes used to keep equipment safe
LOA - Length OverAll, the distance between the longest built parts of the boat
Log - A record of the course, journey and events on board
Longitude - Geographic distance east or west of the 0 meridian, in degrees and minutes
Mayday - An international distress signal that is repeated three times
Mooring - (a) Berthing place for a boat, (b) the ropes by which it is tied to its mooring
Nautical Mile - One minute of latitude, equivalent to 1,852m (6,076 ft)
Navigation Lights – Prescribed boat lights for cruising at night
Port - The left side of a boat when facing front
RIB - Rigid Inflatable Boat with hard bottom and inflatable sides
Starboard - The right side of the boat when facing the front.
Stern - The back of a boat
Transom - The flat rear section of the hull
VHF - Very High Frequency, two-way radios used on a boat
VHF/DSC – as VHF, with Digital Selective Calling functionality
Wake - Wash left behind a boat in the water
Winch - Mechanical device to pull in ropes

FIRE SAFETY

POSITION of FIRE EXTINGUISHERS & ESCAPE ROUTES

STERN BOW



ESCAPE ROUTES:
transom windows aft deck door side door bow cabin hatch

Position of manual FIRE EXTINGUISHER automatic unit in engine room

Under navigator seat: LIVE VESTS, FLARES, 'Grab Bag', First Aid Kit.

In shelves on left side: Boat/harbour documents, Boat Guide, Guides (cruising area, first aid, etc), binocular, torches, hand held search light.
Keys are in locker under window.

- Areas where fires can originate are mainly engine room and galley.
- When fighting a fire make sure your escape route is clear (see drawing)
- Small fire extinguishers only last for several seconds; before letting one off move into a position to direct it at the seat of the fire; have a second extinguisher ready.
- Turn off all 230V mains power circuits immediately (at AC panel).
- Have buckets of water ready for smouldering things but DO NOT use water with liquid fires, cooking (oil) fires, or live electrical circuits.
- Have quality face masks (N95/FFP2) ready for all crew members to help protecting against smoke poisoning

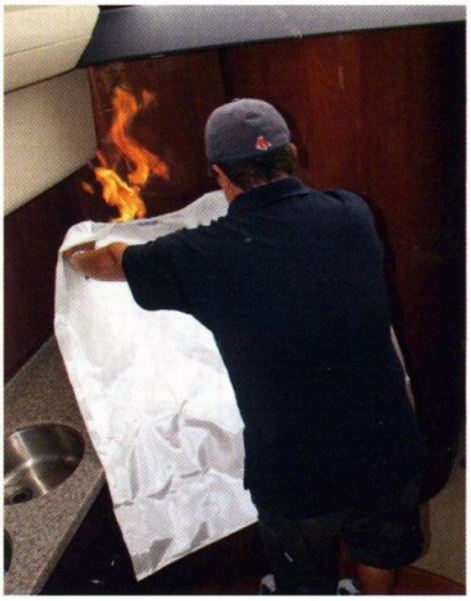
If in any doubt that the fire is minor and can be brought under control without help, raise an alert - emergency VHF call, red flares etc.

Manual Fire extinguishers: 6 units on board (serviced annually).
In salon next to aft door & underneath step to side door (marked with fire symbol); in galley; in aft cabin port side wardrobe (door marked with fire symbol); in bow cabin port side wardrobe (door marked). In side cabin bottom drawer of writing desk.
When using an extinguisher, direct stream as steady as possible to the base of the fire, not the flames. Spray until you are sure the fire is out.

Fire blanket in galley next to stove: A fire blanket is most effective with cooking fat/oil fires and some objects that have caught fire. Hold up with upper corners shielding your hands and body behind and drape it over the article on fire; snug into place to exclude air and wait to give it time to cool down before removing.



Position yourself well before using an extinguisher



Hold a fire blanket by its upper corners

Engine room fire: 2 independent automatic systems are installed (certified annually)

Shut down engines, generator, and blowers; turn off all 230V mains voltage sources, including the inverter. Keep engine room doors closed to prevent more air to enter and fuel the fire, and expect automatic systems to trigger. You may try to monitor the fire via the engine room camera on the Simrad MFDs (chart plotter).

Set off a Mayday call (see SOS VHF call procedure) mentioning the fire.
Instruct all crew to get their life jackets and prepare for ship abandoning situation (grab bag).
Get manual fire extinguishers ready at hand and prepare buckets of water. Buckets are in the aft deck settee, in the section near to the aft deck door. Wear face mask.
If deploying a hand-held fire extinguisher, unlock the engine room door and ***carefully*** crack open wide enough to discharge the extinguisher.

When the automatic systems have discharged, wait sufficient time for the space to cool down before opening a door – or the fire could reignite.
Have exit paths clear, including via aft cabin window; as soon as feasible, access engine room from the galley: Close diesel fuel valves on the bulkhead to left of door. Cool down any smouldering parts with water. Turn seacocks off, the fire may have damaged pipes.
As soon as you are confident that the fire is under control or stopped, make another call to cancel the Mayday and request rescue as appropriate.

***Engine room*:**

Fuel Shut Off Valves on aft bulkhead next to galley (no direct access from outside)
OPEN = handle in line with pipe. CLOSED = handle at right angle to pipe.
All valve handles shown in normal operating position.

Supply pipes from STBD and PORT TANK, valves shown in OPEN position; turn at right angle to shut

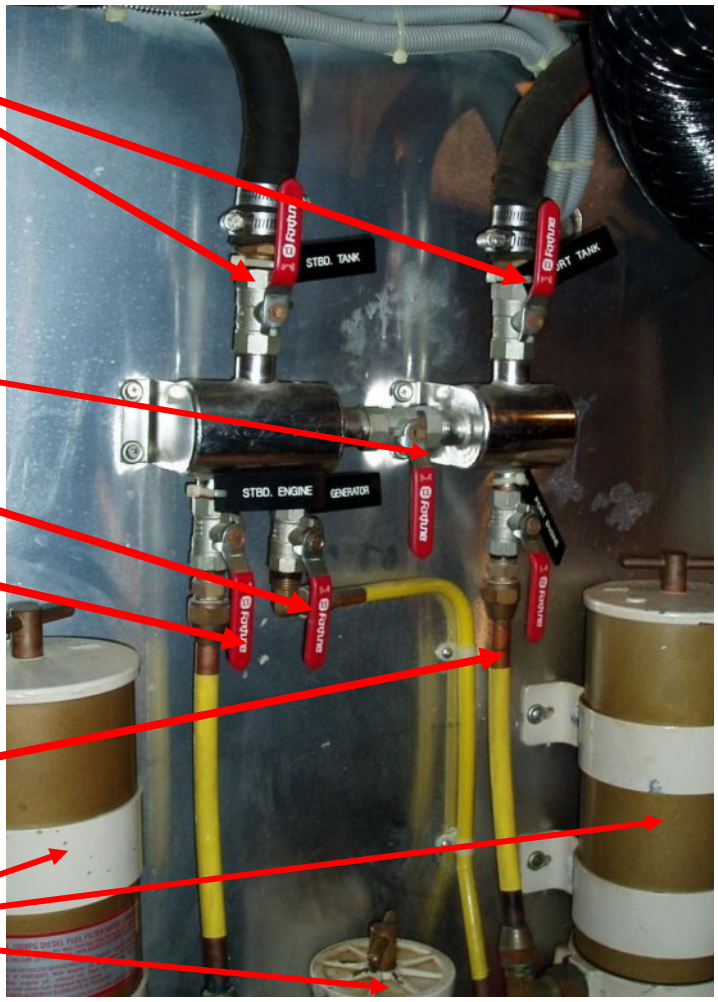
Crossover valve (Normal = shut)

Feed to GENERATOR

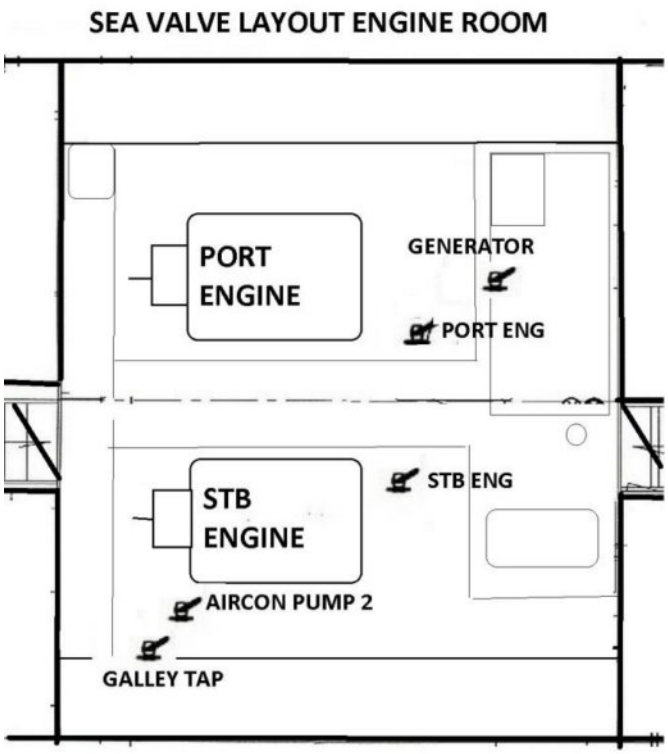
Feed to STBD ENGINE

Feed to PORT. ENGINE

RACOR FUEL PRE-FILTERS stbd/port engine
Generator



Locations of SEA VALVES (sea cocks)



Stern ⇦ ⇨ *Bow*

Entrance from galley

entrance from forward corridor

Galley sea water tap valve stays OFF

Emergency Tiller

The rudder shafts are accessible under the head of the bed in the aft cabin.
On top of the port rudder shaft is an attachment point for the **emergency tiller**, which is stored under the foot of the aft cabin bed.





SEA WATER INGRESS

E.g. from a cracked low-level pipe, or hull damage after an accident: First locate the leak and try to stop it or at least contain it, e.g. turn off sea valve in case of a defect pipe, plug hole using cloth, towels or a wooden cone in case of hull damage. The outside water pressure is usually not high, as it is near the surface.

There are three automatic bilge pumps (see section “Electric Bilge Pumps” for reference), and one manual pump. Furthermore, hand pumps and buckets are available in the aft deck settee.

Wooden cones and fire extinguisher under step to side door (lower helm):



Manual bilge pump in salon under sofa in centre underneath window: To access pump take out all storage boxes first!



LIFE VESTS

In blue/yellow bag in locker under navigator seat (also the Grab Bag, First Aid box and flares).
Try one on and adjust it to fit you.
Attach one of the safety lights for night sailing.





Automatic live vests (SEAGO) will self-inflate when getting in contact with water. They can also be inflated by pulling the trigger manually.
Manual life vests (XM Quickfit, Baltic, Compass) need pulling the trigger to inflate.

Automatic vests work for accidents where the bearer is unable to pull the trigger e.g. knocked overboard or unconscious. In other situations, manual control may be preferable, as an inflated vest restricts the bearer's ability to manoeuvre.

'Flotation aids' (non- inflating vests) are in the plastic box under the central salon seat.

In an **emergency situation,** all crew members must wear correctly fitting **life vests**.

CALLING HELP

On-board modern electronic distress signalling and calling technologies including VHF/DSC, Mobile phones, EPIRBs, MDSS/Satellite calling are to be prioritised over the use of historic and dangerous pyrotechnics flares.

DISTRESS FLARES

The **ODEO electronic flare** is a recognised and safe distress signal. It is stored under the navigator bench, with flares and live vests. It supports SOS pattern transmission. Be careful not to let it shine directly into your eye.

PYROTECHNICS FLARES



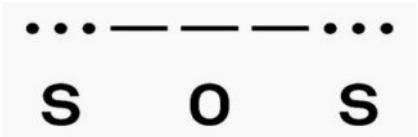
In yellow canister in the locker under the navigator bench seat in the salon.

Only manipulate pyrotechnics flares in the open and *with the wind coming from behind you*. *Point flare away from you*.
Follow the instructions printed on the flare!
Hand held flares burn about 60 seconds.

Types of pyrotechnics signals:
- *red hand-held flares*: Emergency alert.
When a vessel/observer is in viewing distance, light one, then one more etc.
- [*red parachute rocket flares*: As above, but can be seen over a longer distance.]*
- *orange smokers*: Create smoke cloud to guide rescuers/helicopters, daytime use
- [*white flares*: Collisions warning, any time. Not for emergency alerting.]*

[]* type may no longer be carried.

Recognised marine distress signals include sending the **'SOS' Morse code**.



3 short pulses - 3 long pulses - 3 short pulses

The pattern can be sent optically or acoustically.
The **Simrad VHF** set with hailer supports automated transmission.

Alternatively, the ship's horn, a whistle, torch or a mirror may also be used.
When using a horn or whistle, a short blast is about 0.5 to 1 second, a long blast 1-2 seconds. The gaps between blasts are short.

SOS CALL "MAYDAY"

ONLY IN IMMINENT DANGER REQUIRING IMMEDIATE RESCUE (THREAT TO LIFE).
OTHERWISE, MAKE A PAN-PAN CALL ch.16 WITH SAME PROTOCOL





S.O.S. VHF DSC CALL

DSC (Digital Selective Calling) works within VHF DSC range from a coastal station, up to about 30nm.
Check: SIMRAD VHF*: Powered up and display showing GPS position. Calls can be made from the fixed unit or from the wireless remote.*

EMERGENCY DSC CALL, with selection of nature of distress:

- **SHORT PRESS of key under red cap [DISTRESS].**
  Select nature of distress from list by rotating CH select knob, push knob to select.
- **LONG PRESS of key under red cap [DISTRESS].**

- **Wait for ACK (acknowledgement) to be received from the coast station.**
  DSC distress call is automatically repeated if no ACK is received.
- **When ACK is received, follow up with (analogue) voice call on Channel 16:**

CHANNEL 16 VOICE CALL"MAYDAY"

SHORT PRESS on 16/9 key to select Ch 16 if not selected already.

PRESS+HOLD PTT (Push-To-Talk) switch on handset mic or wireless handset, and speak slowly + clearly:

- "*MAYDAY MAYDAY MAYDAY*"
- *"THIS IS YACHT TARILIAN, MMSI 2 0 3 2 4 4 1 4 3, MAYDAY YACHT TARILIAN"*
- **Give GPS data from POS Display or external device:**
  "MY POSITION IS xx º xx.x' N, xxº xx.x.' W / E"
- **State NATURE OF DISTRESS and ASSISTANCE REQUIRED:**
  "OUR PROBLEM is ….. we need …. "
- *"WE HAVE (number) ADULTS / CHILDREN" ON BOARD*
  Give any other information that helps the rescue, and
- *"OVER"*

RELEASE PTT switch. Wait for reply

Emergency Call from Mobile Phone

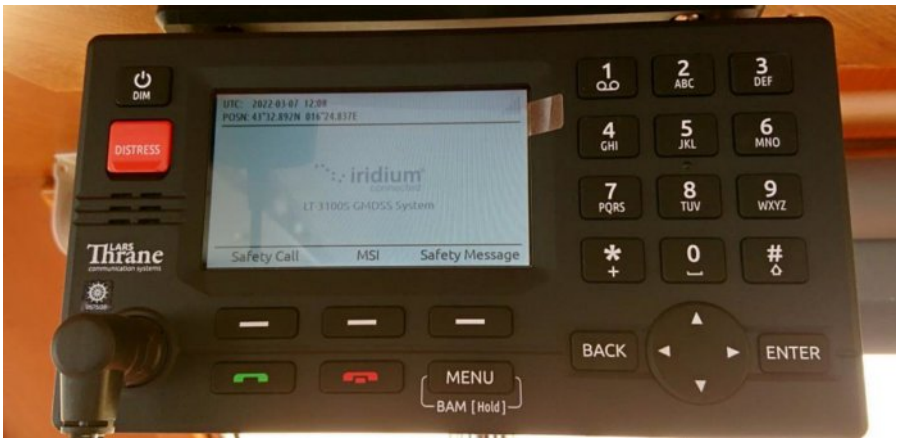
Mobile networks cover most coastal areas. A universal number to call is the European SOS number 112. Ask for the 'Coast Guard' or 'Sea Search & Rescue'.
Before the call, have the same information ready as for an VHF Ch.16 SOS call:
Boat name and MMSI, # position (GPS), # people on board, # problem, # which assistance is needed**.**

Numbers for national emergency services, Maritime Rescue Coordination Centres (MRCC), Search & Rescue at Sea (SAR) are written on the inside cover page of the log book**,** and can be found online.
For **CROATIA** (00385 county code), the numbers are **195 - Search and Rescue at sea, 112** general emergencies, **192** – Police, 193 – Firefighters, 194 – Ambulance

OUTSIDE TERRESTIAL NETWORK REACH:

Emergency Call from GMDSS Satellite Phone*, Lars Thrane LT3100S*

NEEDS AN IRIDIUM AIRTIME CONTRACT & ACTIVE SIM
(Display shows working satellite connection, no crosses, no BAM error warning)



GMDSS DISTRESS CALL :

- Lift red lid marked DISTRESS. Press and hold DISTRESS button for 3 seconds.
- Watch display. A Distress tone will also sound. After 3 seconds the Distress will be activated, the tone stops. Release DISTRESS button.

The display will indicate Distress Alert Status = Sending, Sent, Delivered, Acknowledged.

- The nature of the Distress can be selected at any time with softkey "SELECT NATURE" or "UPDATE NATURE".

Follow up with a VOICE CALL to a Rescue Coordination Centre (RCC):

- A Distress Call to a RCC is automatically established after Distress Acknowledgment. Pick up the handset and start voice communication. Provide information as of the nature of distress and assistance needed.
- A Distress call to a RCC can be established manually with softkey 'Call RCC' any time after a Distress has been acknowledged. Softkey 'Cancel' to cancel.

The LT3100S can of course be used as a **standard satellite phone**.

EPIRB



* The EPIRB (Emergency Position Indicating Radio Beacon) GME MT603G is kept in the salon, by the door to the aft deck. When activated, the EPIRB issues an emergency alert to a coast guard station and initiates rescue operation: It is registered with the ship, and transmits ship's details and GPS position to a rescue centre using satellite transmission.
It needs to be launched MANUALLY; instructions are written on it.
As it works via satellites it needs unobstructed view of the sky, is best left floating in the sea but attached with the lanyard.
After activation it must be left working until rescue arrives.

Periodic testing: Carry out 'test' (TEST button) once a month or at the start of a cruise, **in the way it is described on the unit (pay attention** to the **required time slot**, it must only be done during the first 5 minutes of an hour**)**.
Activation by mistake must be avoided: If accidental activation happens, inform Coast Guard immediately of the false alarm - there may be a severe penalty on raising false alarms which trigger rescue operations.

ABANDONING SHIP

GRAB BAG

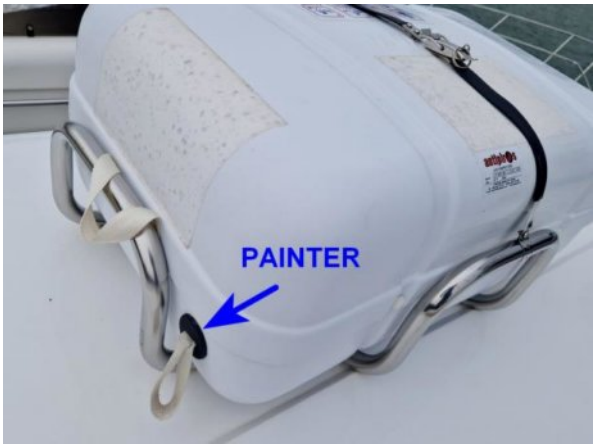
* Emergency "Grab Bag" (ship abandon bag) in locker underneath the navigator seat. It is preconfigured with some essentials for survival. When abandoning ship, gather items as per **list.** A copy is in grab bag. Obviously, the content of a grab bag will depend on the cruising area and how long it could take until rescue services arrive.
Examples:
Thermal protection aids. First aid kit, Medications. Motion sickness patches.
EPIRB. Handheld VHF. Handheld GPS. Torch. Spare batteries. Solar charger for mobile phone. Bottled water (2 ltr per person). Non-thirst-provoking food (in waterproof boxes).
Cutting board. Knife/multi-tool. Gaffer tape. Sponges. Bin liners/sick bags.
Boats documents. Dry bag. Manual horn/whistle. Signalling mirror.
Flares/smokers (in separate sealed canister), electronic flare.
Personal grab bag/ personal items: Medications. House/car keys. Personal documents/ Passport/ ID/ health card/ driver's license, bank cards. Mobile phone(s) in water proof pouch. Eye glasses/sun glasses. Sun blocker/lip balm. Neoprene gloves and hat

In a position nearer to the coast, it is advisable to launch the dinghy and resort to the dinghy. All crew members must wear correctly fitting life jackets.
Complete all distress calls and alerts. Gather ship's grab bag and personal grab bags before abandoning ship.

LIFE RAFT

Deploying a life raft is a heavy procedure for all; only to be attempted as a ***last resort effort*** in an offshore emergency where the main boat is lost. The life raft is kitted out with a basic survival kit for all passengers.

* A 6 persons inflatable life raft (to ISO 9650-1), in a canister, is stored in a cradle on the aft deck roof, port side.





All crew members must wear correctly fitting life jackets.
Complete all distress calls and alerts. Gather ship's grab bag and personal grab bags before resorting to raft. Launching instructions are marked on the canister of the raft.

Label on raft



When abandoning ship, you should consider taking the dinghy and any water toys with you; this will enlarge your footprint on the water and make it easier for rescue services to spot you.

INTRODUCTION TO OPERATION

ACCESS TO THE BOAT & KEYS

For stern-to moorings requiring use of the gangway, the passarella electrics need to be powered up (switch GANGWAY 'on'), see also section PASSARELLA (GANGWAY).
For alongside mooring, there are openings in the railings on both sides: A section of the railing is removable by unscrewing and sliding aside, also detach the guard rail below.

The pilot door (starboard side) is the primary cabin entrance. Its lock uses a conventional 2 lever key (note that copied keys might not work perfect but needs 'jiggling' before they can be turned….).
The sliding aft deck door has a specialist small key (only one is available). Note that it turns in the opposite direction from what's usual (to left to lock, right to unlock). Anyhow, the aft deck door can be locked and unlocked with a level from the inside.

After entry, proceed to the DC/AC switch panel in the salon to left of the helm, by the stairs down to the forward cabins, and switch on 12V DC MAIN switch at the bottom (see section THE D.C. 12V SYSTEM PANEL). The small toggle switch on top to 'DOM.' turns on lights above the panel. Turn on household circuit fuses, e.g. cabin lights, as required.

The **key locker** is under the port side window, next to the navigator seat. There are flybridge helm engine keys, sets of spare engine keys for both helms, two sets of dinghy keys, the cabin keys and the key to the electricity cupboard.
The engine keys for the inside helm are usually left permanently in their panels.

ACCESSING THE ENGINE ROOM

Turn on ENGINE ROOM lights at D.C. 12V switch panel.
ACCESS for inspection is via doors from forward (= lift stairs in forward corridor or from **rear** (= lift stairs in galley).
For service access, there are **two lifting floor panels** in the salon. Their correct position and orientation are marked on one side.

Access from forward corridor. Before lifting the hinged stairs:
- If the glazed door of electric panel is fitted, take it off and store it away.
- Fix bathroom door ajar slightly open with its brass hook to avoid the door knob fouling the lifting ladder.
- Release floor bolts (if locked); lift hinged stairs; attach chain to wall fitting above cabin door, and open hatch to engine room.

Access from aft, in **galley**:
- Release floor bolts (if locked) and lift hinged stairs; attach chain to wall fitting above.

IMPORTANT: BEFORE opening an engine room door at CRUISING SPEED, put on a pair of ear protectors! Entering from the galley, a pair of ear protectors is kept by the fire extinguisher.
For the forward door, a pair is kept on the desk in the mid cabin.
There is a range of respiratory and medical masks and eye protectors on board.
Engine room access from fwd corridor:



After leaving the engine room:

- shut and lock engine room door **before** lowering the stairs.
- lock stairs into position with bolts. Turn off ENG ROOM lights

THE ELECTRICAL SYSTEMS

The boat has two electrical systems, 12V DC (battery), and mains voltage 230/240V AC. The DC and AC switch board is located on the left side of interior helm, accessible from the stairs to the forward cabins. For practicality, its door is usually kept removed.

THE D.C. 12V SYSTEM PANEL

There are two 12V battery banks:

- **Domestic battery**, for all 12V circuits apart from engine starter motors. **Turn D.C. MAIN SW 'ON'**.
- **Engine starter battery**. **Turn ENG. MAIN SW 'ON'**



2x LED **courtesy lights** above the panel are ON when the toggle switch is set to DOM or ENG; off in middle position.

NOTE All switches work as automatic fuses for their circuits.
Some just connect power to further equipment switches; others turn devices on directly, see table.



Instruments:
DC Voltmeter (V) reads the domestic battery (toggle up = 'DOM.'), or the engine start battery (toggle down = 'ENG.'). (If '0' reading, check MAIN SW!). Middle position = off.
Regular battery operating voltage range: 12.6V (full) to 12.0V. When charging: 13.8V (float) to 14.6V.

DC Amp meter (A) reads the load current on the domestic bank, but does not show inverter current and some other loads.
For detailed monitoring see DOMESTIC BATTERY MONITOR.

Left Row	**D.C. 12V SYSTEM**	Right Row
HORN powers signal horn. Push buttons on lower and upper helms		GANGWAY powers electrics for passarella control *****(see Note)
WIPERS powers windscreen wipers and washer. Controls on lower helm		SALOON LTS powers light switches for salon and forward corridor
PORT ENG. BLOWER turns on air blower in engine room/ port side		AFT.CABIN LTS powers lights switches for galley, aft cabin and bathroom
STBD. ENG. BLOWER turns on air blower in engine room/ starboard side		ENGINE RM LTS turns on lights in engine room
GALLEY BLOWER powers extractor fan above hob. Switch in galley		SPREADER LTS turns on flybridge lights on radar arch
REFRIG. turns on fridges in galley and salon		EXTERIOR LTS powers aft deck lights, courtesy lights and stair lights. Light switches on rear end of aft deck settee
FRESH WATER PUMP toggle switch To RIGHT: Main pump ON (= default); to LEFT: Backup pump ON. Caution, see ** Note!		FREEZER turns on fridge/freezer in galley
TOILET powers toilets' water solenoid and macerator pumps, forward and aft.		BOW THRUSTER enables the controls of bow and stern thrusters.
UNDER WATER LTS turns on blue spots on transom. Relay/fuse in wiring cabinet.		ENGINE CONTROL S. powers electronics of port engine (EDC)
TRIM TAB powers trim tabs controls on both helms.		ENGINE CONTROL P. powers electronics of stbd engine (EDC)
ANCHOR LT turns on anchoring light		HOLDING TANK PUMP turns on the macerator pump; do not turn on accidentally!
RUNNING LTS turns on navigation lights (port/stb, forward, stern)		DC OUTLETS turns on 12V DC outlets on aft deck and side cabin
FWD CABIN LTS powers lights switches for bow cabin, shower room, mid cabin		DOCKING LT turns on rear in floodlight on aft deck roof

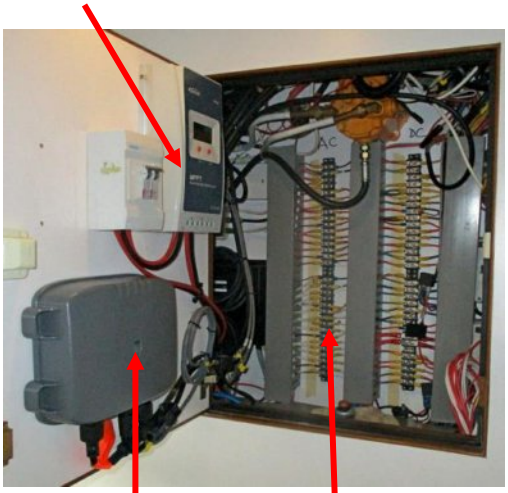
* Note: The GANGWAY switch is connected directly to dom. battery (+) to allow operation when D.C. MAIN SWITCH is off. Leave ON if on a stern-to mooring.
** Note: Switch valves before switching to backup pump see ISOLATION VALVES.

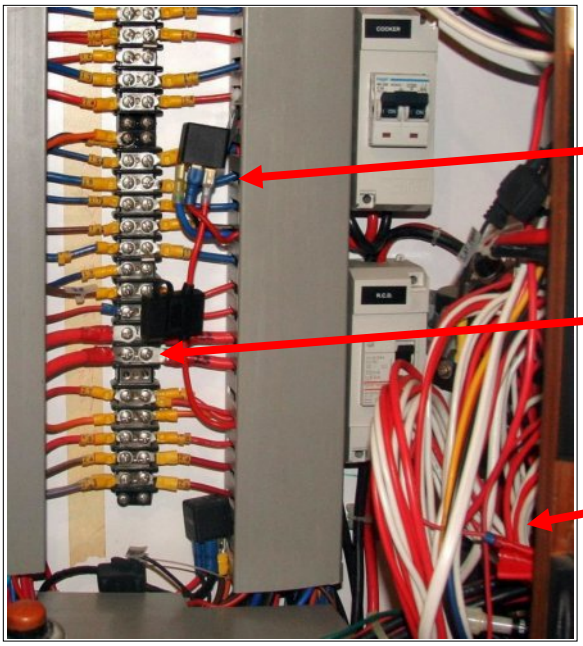
Further circuits connected to D.C. MAIN SWITCH: 12V Instruments panel, windlass control, 12V USB socket lower helm; chart lights port and stbd; radio switched+; fwd sump pump; holding tank monitor (on same fuse as fwd sump pump); search light. Circuits connected **permanently** to domestic battery (+): Diesel heaters; bilge pumps and monitor; aft sump pump (auto), radio constant +; battery monitor; gangway pump.

WIRING CABINET behind helm (in forward shower room)

CAUTION DANGER: 230V mains power connectors inside! Do not open door when wet! Cupboard must be kept key-locked when access is not needed.

MPPT charger (Solar panels)





FUSES:
Underwater lights relay

Fresh water pump fuse (20A)

Spare pump (15A)

230V AC circuits

Sounder module DMS30 (fish finder) for RAYMARINE plotter at inner helm.

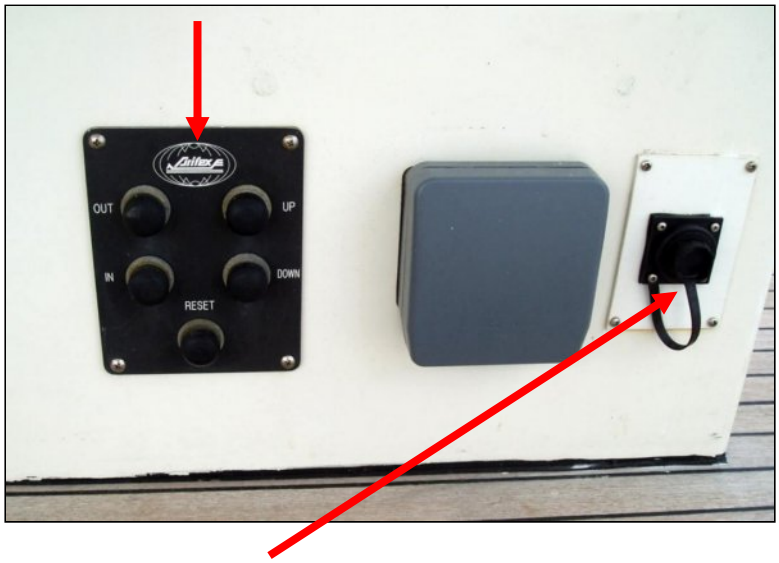
PASSARELLA (GANGWAY)

Switch GANGWAY on the 12V DC must be on.
Wireless remote control (one of 3) on holder next to the spiral staircase to the aft deck.
A pushbutton panel is located on the side of the aft deck settee.

The buttons on the remote have the same functions



Wireless remote.
If performance is poor, or stops, replace battery, CR2032, 3V. Best to replace all at start of each season.



D.C. 12V outlet for handheld searchlight
A second socket is at the flybridge helm.

Passarella is used as dinghy crane. See Appendix 14 'Dinghy Launching' (study the procedure before attempting to launch! Otherwise risk of personal danger and damage)

The passarella hydraulic pump is in the engine room, to rear of stbd engine.
The fuse in located in a wooden box above, rated at 160A.

TRIM TABS (BENNETT)

When cruising, trim tabs can push the bow down and/or level the boat in cross winds.
The default position is fully ‘up’ (= no effect).
BOW DOWN: Press top of p/stb rocker switch to lower bow on p/stb side,
BOW UP: Press bottom of p/stb rocker switch to lift bow on p/stb side.
A tab is moved fully up or down in about 10 seconds; do not press much longer.

INSIDE HELM:
Trim tab controls, push top down for bow ‘down



Anchor windlass,

Bow Thruster

[Bilge pump](#) switches, fuses, and indicators
Switches **must be in AUTO mode for** normal operation

[Sump pump](#) switches and indicators.
Fuses are on top of the 12V DC switch panel.



Windlass and trim tab control at upper helm.

Note: Trim tab switches on upper helm are of a different type, to push bow “UP” press top of rocker switch.

BOW AND STERN THRUSTERS

Thrusters (bow/stern propellers) shift the bow/stern sideways, used during close quarter manoeuvres. The bow thruster (THRUSTPOWER) is **hydraulic** and powered by **the stbd engine**. The stern thruster (SIDE-POWER), installed 2017, is **electric** and has its own battery and charger (24V DC) which is located under the head of the bed in the aft cabin.
For clarification: To operate, the bow thruster needs the starboard engine to run; its speed depends to some extent on the engine revs. The stern thruster’s speed is constant and power is always available. The stern thruster battery is charged from its own 24V DC mains charger, and is not charged from the engine alternators (which deliver 12V).

For thruster operation, turn on switch **BOW THRUSTER** on the 12V DC panel.

Inside helm:



Bow and stern thrusters can be controlled from the wireless **SIDE-POWER/SLEIPNER handheld remote**, of which there are two identical units on board.

Turn on: Press both "on"- buttons at the same time (a beep is heard, and a slight 'click' from the aft cabin - thruster power is turned on). The handheld will give off yellow flashes (hard to see in bright daylight).
If triple beeps, and **red** flashes – no connection to control unit, no operation.
Top arrow keys = bow thruster port/stbd.
Middle (half round) keys = both thrusters operate together, shift sideways
Bottom arrow keys = stern thruster port/stbd
Turn off: Press "off"-button and hold for 2 secs.
Be aware that the handheld remote turns off automatically after a **4 min timeout** if no button is pressed.

Bow thruster joy stick: Press [1] to enable: Green lamp on

[Only operate the stern thruster from the inner helm if you have got a view of the stern quarters; if necessary, step away from the helm - hence the wireless remote].

Flybridge helm



Double joy stick control, bow thruster (top) and stern thruster (bottom).
Operation:
Turn on power to stern thruster by pressing both ON-buttons at the same time > Yellow light on.
BOW THRUSTER switch on DC 12V panel on, and stbd engine running.

Be aware that the stern thruster control turns off automatically after **12 min timeout** if no use.



Stern thruster power relay, under aft cabin bed.
Red button lifted = ON: Thruster controlled with fly helm toggle or wireless remote.
Red button down = ISOLATED

The charger for the stern thruster batteries (2x 12V) is located under the aft cabin seat.
Connected to 'BATT CHARGER/ INVERTER' switch on the 220VAC panel. There is a local isolator switch for safety.



On the seat base is a small round LED **DC voltage indicator:** Press button to show reading. Voltage should be 25-25.6V (charger off), 27-29V (during charging).

The hydraulic bow thruster has its oil tank in the bow cabin, in the void under the bed. Hydraulic liquid level should be checked from time to time.



Temp gauge and hydraulic liquid indicator:



NOTE The storage space under the bow cabin bed is used for equipment not in constant use, including ENGINE SPARES (in boxes and bags), folding bicycles, folding chairs, cushions and more.

TECHNICAL NOTE. The control of both different thruster systems (hydraulic, 12V and electric, 24V) is integrated at the upper helm; on the Side-Power dual joy stick control, and the handheld remote receiver (RCR) for the wireless controls, which is installed in the vault underneath.



RCR remote control receiver

BILGE PUMP SWITCHES and MONITOR - ALARM

3 automatic bilge pumps: At the stern, in the engine room, in the forward corridor.
AUTO = activated via float switch (=DEFAULT); MAN. = manual override 'ON'; red lamps indicate, but running sound may not too low to hear.
Do NOT leave switch in the MIDDLE POSITION (pump off). For details see section ELECTRIC BILGE PUMPS below.

BILGE PUMP MONITOR - ALARM
Small instrument to the left side of the interior helm console, near bilge pump switches. The monitor records pump activities and can issue an audible alarm if unexpected activity occurs.

Operation:
Press *YES* > *YES* > *YES* to display:

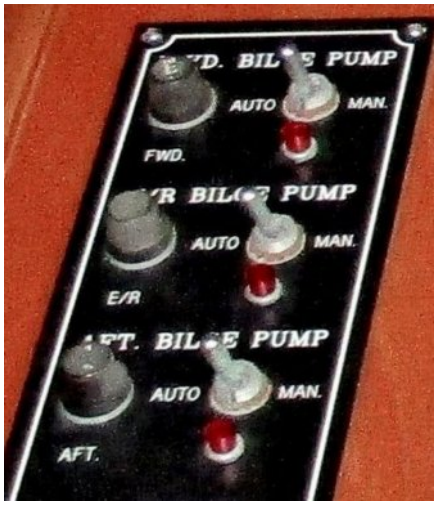


PUMP (number 1) - PERIOD (1) - ACTIVITY (number of times a pump has come on, 000) within the monitored period of DAYS (99).
In this photo, there is also an indication of a previous power failure.

"+" Cyclic display of pumps 1-5:
+ PUMP 1 = Fwd bilge pump,
+ PUMP 2 = Eng/room bilge pump,
+ PUMP 3 = Aft bilge pump,
+ PUMP 4 = Fwd sump pump,
+ PUMP 5 = Aft sump pump. To exit press *EXIT* > *EXIT*.

Under regular operating conditions bilge pumps should not need to run.
Sump alarm: Sump pumps run automatically to empty the sump tanks for the forward and aft bathrooms, but an alarm is triggered if the running time exceeds a set limit.
If an alarm condition occurs, the buzzer sounds for 10 minutes. To stop it press *EXIT*.
Details of the alarm conditions are displayed until cleared.
Further information in the leaflet Bilge Pump Monitor in the annexes.

ELECTRIC BILGE PUMPS



Working bilge pumps are essential safety devices to help in case of sea water ingress. Switches for Auto/Off/Manual modes, and fuses, are at the lower helm.
Switches must be in A**UTO** mode position for normal operation. OFF and MANUAL are for maintenance.

The Bilge Monitor/Alarm can record pump activity but does not detect failure to operate:

The correct **operation of float switches and pumps should be verified** periodically and before the start of a cruise.

HOW TO CHECK BILGE PUMPS AND SWITCHES

Check pipes and cables for mechanical damages, especially after works were carried out nearby!

(1) Forward bilge pump under forward corridor.
Access panel in forward corridor, by side cabin: Open side cabin door fully, lift and slide panel out carefully, as shown. Store panel away, e.g. to left side of stairs.



Step onto tread plates in bilge



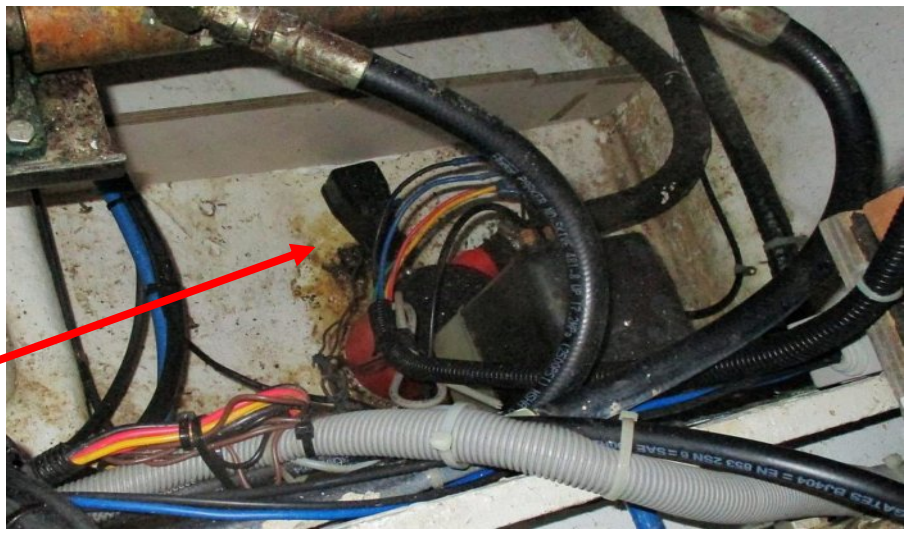
Lift float switch and verify pump runs.

FWD BILGE MAINTENANCE:
The section of the bilge forward of the bilge pump, and below the aircon sea water pump 1, lies slightly **lower** than the rest of the bilge: It collects water, for example from the engine room. **It needs checking routinely and emptying / drying if needed**. A quick way to inspect is by lifting the panel in the forward bed cabin.

For information about aircon sea water pump see section aircon pump1

A bucket, hand pump and sponges are stored in the area to port side.
If the bilge contains only seawater, discharge hand pump into forward sump tank or overboard.
If there is oil or chemicals, collect in container (use empty engine oil can, stored in void under galley and aft cabin) and/or use absorbent mats; dispose responsibly.

(2) Aft bilge pump:
Access under head of aft cabin bed.
Need to lift mattress and pull forward, lift rear bed board and slide forward.
The float switch is located near the transom.
Tip: Bilge is deep, you need a pickup tool to reach and lift switch.



(3) Engine room bilge pump: (Difficult to reach)
Pump is underneath the generator, visible through a cut out in the floor.



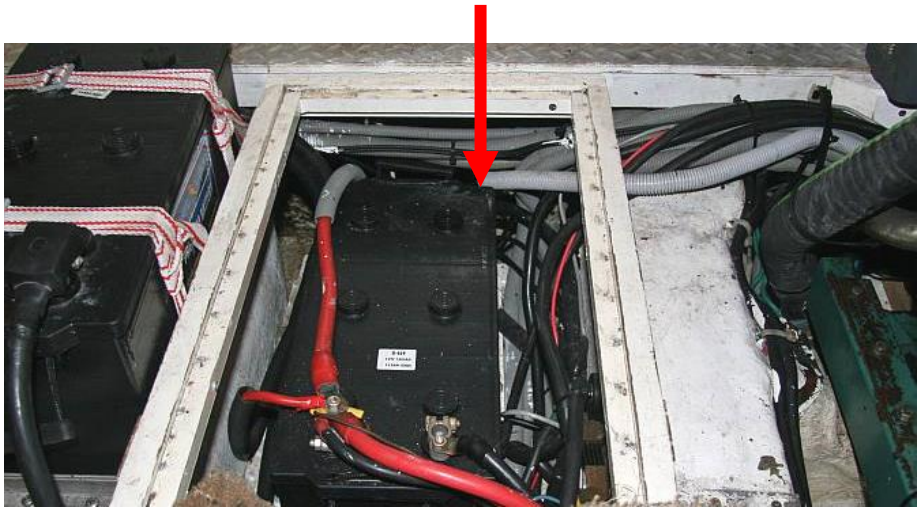
The float switch is located forward of the first of the batteries under the walkway.

Photo looking from pump to rear, battery (black) seen above



Testing:

Take off the forward walkway plate.
Reach with one arm fully down behind the forward right corner of the battery.
You should (just) be able to reach the float switch.



Port and stbd exhaust overheat alarms.
They should react faster than the engine panel coolant temperature alarm.

Victron charger/inverter panel



12V INSTRUMENTS PANEL

The auxiliary panel provides fused central Power on/off controls for instruments.
If software turn-off (standby) is intended, the panel switch should remain on.

If no lights come up when switched on, check DC MAIN SWITCH on the main panel.

As a simple rule, ‘all red switches’ of the panel should be ON when under way.
Black switches are for the backup chart plotter Raymarine.

'ON at sea'



NAV INSTRUMENTS * Simrad network, (IS42 multi-instrument, AP44 auto pilot display), AutoAnchor chain counter & wireless remote. Simrad NSS12 MDF at upper helm, VHF charging cradle, USB socket on upper helm, …

SIMRAD PLTR * NSS12 evo3 MDF at inner helm.

RADAR * Simrad Halo 20 radar

VHF * Simrad RS40-B VHF (wireless' charging cradle at fly helm, switched on with "NAV INSTR"), Thrane **GMDSS Iridium Terminal** LT3100.

AUTO PILOT * Simrad NAC-3 autopilot computer

FUEL CLNR Diesel fuel cleaning unit, engine room

RAY & AIS Raymarine C90W chart plotter above lower helm

FISHFINDER transducer/DMS30 for Raymarine plotter

*** networked devices. Note: RADAR must be ON to get use of cameras and charts on both MFDs**

SEARCH LIGHT

Osculati HID Spotlight, remote control on the panel above the inner helm, and on the upper helm above thrusters.

Inner helm:

With joy stick for movement. Circuit switch. – red LED on Upper helm control



(next to chain counter)

HANDHELD SEARCH LIGHTs are stored in the bottom shelf next to navigator seat. Can be plugged into the dedicated DC OUTLET at the flybridge helm, or on the aft deck seat. (Turn on DC OUTLETS at the D.C. 12V panel).

ECHOMAX

Active radar reflector.
Control on lower helm behind wheel

Red switch and LED for operation (during cruising). ON at sea,

Switch / green LED for acoustic indication of radar signals.
Switch is normally OFF to avoid noise nuisance.



DOMESTIC BATTERY MONITOR above inner helm

The instrument reads the domestic battery bank. It has been set to show voltage (V), battery load/charge current (I), and consumed (=taken out) energy (Ah). The display is available as long as the domestic battery bank is installed.

Typical values: 'V' in operation, no charging, 12.6V down to 12.0V under load; on charger, max 14.6V (peak bulk/absorption), to 13.2 -13.6V (float) maintaining.
'I' current (amps); pos. (+): battery is being charged; neg. (-): battery under load.
Examples of loads -9A for 2 fridges, -20A (water pump); consumption of LED lights is low. During inverter operation, 'I' can be up to -165A (1.8 kW kettle boiling).
Charging: +70A (bulk) to +/-0A (float).
Note: Due to wiring, the passarella pump current is not monitored by the instrument.
Note: The battery percentage indicator bar is based on a total capacity of 250Ah. (See section 'Considerations re battery power on the boat')



Press '+' and '-' to cycle through:

* Battery voltage ('V') volts
* Current +/- ('A') amps
* Consumed energy ('Ah') since last time full

THE A.C. 220V SYSTEM PANEL

The boat is wired for a single phase 32A shore power connection. The A.C. POWER SELECTOR switch (bottom centre) selects whether SHORE POWER or GENERATOR is connected to the onboard system. In position OFF the boat is isolated.

The AC~Voltmeter, top left, reads the source voltage, it should be 220 to 240V AC.
Below 220V indicates a weak, overloaded or faulty mains supply

Shore power POLARITY:
'OK' light on = shore power is live. 'REV' (reverse polarity) indicates a fault (live and neutral circuits reversed).
See 'Connecting Shore Power'

The AC~ Amp meter reads the total current used. Shore power sockets are rated **32A** (7.3kW) for larger, or **16A** (3.6kW) for usual small blue marina sockets.
The generator is rated 50A (12kW)
If on a 16A only shore supply, check and keep consumption below 16A: The use of air-con, oven/hob, and other heavy loads is restricted to only one at a time, or will lead to overload and trigger a shoreside fuse.



Panel switches work as 2-pole on/off switches and fuses for their circuits. (Rating can be checked on their back)

There is an **RCD switch** (residual current detector/ safety switch) for shore power in the wiring cabinet under the helm (door in shower room). If the shore power polarity light OK is on, but the MAIN SWITCH does not work, check the RCD switch.

OVEN and HOB (in galley) have a dedicated isolator switch in the wiring cabinet, marked COOKER. There is a further mains isolator switches in the galley, in the cabinet under the sink (marked MAINS ISOLATOR)

A.C. 220V SYSTEM (typical switch positions when using the boat)

MAIN SWITCH turns on AC power to the rest of the panel. **ON**	AIR COND. PUMP 1 turns on pump for aircon in bow and mid cabin
CHARGER/INV. Battery chargers, & inverter **ON**	FWD. CABIN AIR COND. powers air-con control in bow cabin
WATER HEATER turns on immersion heater of hot water cylinder. **ON**	GUEST CABIN AIR COND. Powers aircon control in mid cabin
AUX. BATT. CHARGER turns on spare battery charger. Always: **OFF**	AIR COND. PUMP 2 turns on pump for aircon in salon and aft cabin
REFRIG. (not in use) **OFF**	AFT. CABIN AIR COND. Powers air-con control panel in aft cabin
MICROWAVE powers Microwave oven in galley	SALOON AIR COND. Powers aircon control panel in salon

CONNECTING SHORE POWER

CAUTION: A shore-power cable (blue, 32A or 16A) must be **attached to the boat's connected PRIOR to** plugging into shore socket: Boat-side socket (Hubbell) in the transom locker to stbd of bathing platform; shore power cable is normally left connected. The metal body of the cable's connector must be exposed from its yellow plastic sleeve and fully inserted into the boat socket, turned clockwise until it locks (can be stiff!), then secured by screwing the metal ring on. Tightening insufficiently or incorrectly will leave connector loose and cause unreliable connections.

1) Turn A.C. POWER SELECTOR 'OFF' at panel (always on a "new" mooring).
2) Check shore sockets: Blue 32A single phase (3 pin) plug fits directly into 32A single phase outlets.

- In case the shoreside socket is small blue 16A: Use 16/32A adapter, or change shore cable to 16A lead.
- For 3x32A shore socket (red, 5- pin): Use 3x32 to 1x32A adapter (1 phase)
- For 63A shore socket (large blue, 3-pin, rare): 63/32A adapter
- For 3x63A shore socket (large red, 5-pin "superyacht") 3x63 to 1x32 adapter
- Some common adapters are in salon cupboard under lamp. Extension cables and more adapters are in salon settee, seat on front end.
- Alternative shore power cable (16 / 32A) is stored in aft deck settee rear part
- Note: Some marina shore outlets have mechanical switches: You need to turn it off/unlock it first before inserting your plug, then turn on.

3) Once plugged in, **check POLARITY and REV lights** before turning POWER SELECTOR TO SHORE:

OK	**REV**	**lights meaning:**
off	**off**	no shore power (no live). Check marina outlet, (shoreside fuse/RCD off?)

on	**off**	**OK ✔ if V is 220-250V,** turn AC POWER SELECTOR to 'SHORE'
on	**on**	wrong polarity! Insert INVERTER adapter in cable. Check again
off	**on**	faulty connection! Do NOT turn on.

NOTE: REV light tests neutral circuit against earth; This does not work if the earth connection itself is faulty.
In case of trouble, a more detailed mains check can be done by using the short adapter cable that converts from marine socket to UK mains socket, and the mains plug tester adapter, in drawer of bow cabin stbd wardrobe.



OPERATING THE GENERATOR

- Pre-check: Generator seacock (sea water intake valve) must be open. If unsure, check again in engine room (see Seawater Intake Valves).
  Running gen without cooling will destroy (burn) the impeller after few minutes.

- On the AC 220V panel, turn AC POWER SELECTOR to 'OFF'.

AC~ Voltmeter



GEN. = ON light

GEN. START/ STOP

AC Amp meter

- In GEN. CONTROL field, press 'STOP' toggle UPWARDS and hold for some 5seconds, then release (pressing down has no effect).
- Press 'START' upwards and hold until you hear the generator run up and the red light turns on. This should only take a couple of seconds.
- Wait a few moments and check that generator revs are stable, then turn AC POWER SELECTOR to 'GEN'. AC~Voltmeter on panel reads 230-240V, and ~Amp meter reading should be within expectation for the given load.
- **Always** get out to the port side deck and check that there is a stream of water and bubbles coming from the generator cooling water outlet. If it isn't, there is no cooling water getting to the generator, it needs to be stopped immediately. Investigate the possible blockage.

When mains power is no longer needed, turn the generator off:

- Turn off AC POWER SELECTOR. Push ‘STOP’ upwards and hold until generator has fully stopped.

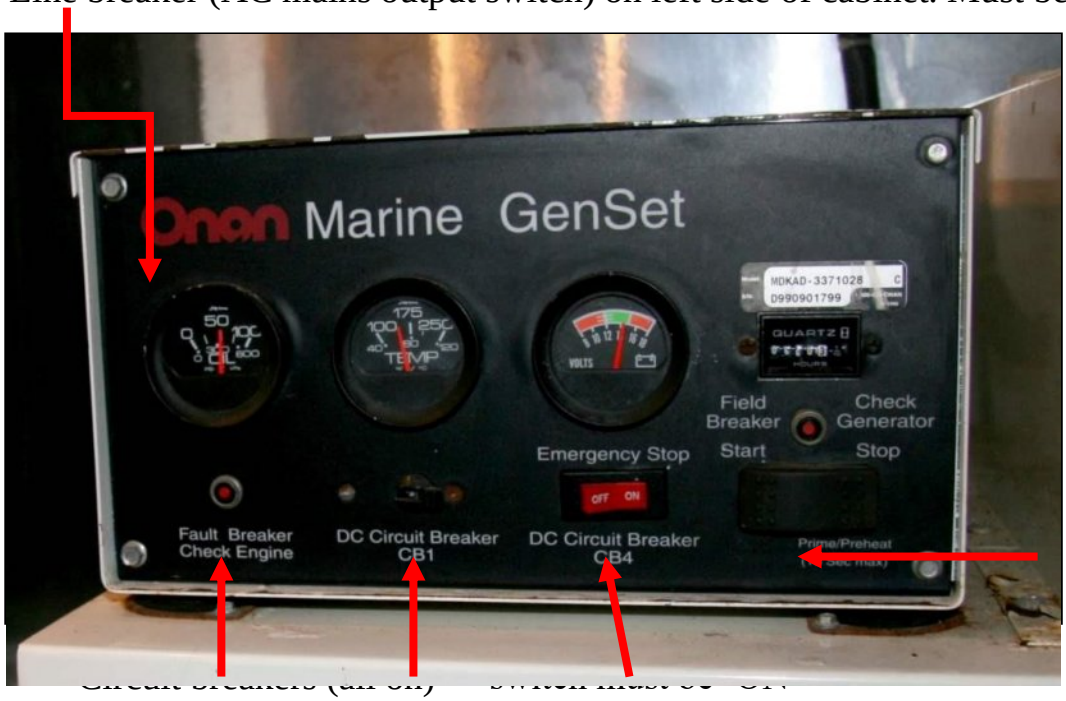
In case the generator does not start from the electric switch panel, enter the engine room and check the generator from the front panel.

- Check that all circuit breakers/ fuses are 'on', see photo.
- The toggle switch ‘Start’/‘Stop’ (provides same functionality as upstairs): To prime, press ‘Stop’ for 5 sec, then press ‘Start’.
- Mains power breaker switch on LEFT side of control box, check it is 'on'.

Generator starter battery, left side under red plastic cover. It gets charged by the generator; if the generator is not operated for a long time, the battery should be re-charged with an external charger. There is a mains socket near the Victron charger.

Safety: When opening the enclosure to work on the generator, turn off the DC circuit breakers first to avoid accidentally starting it.

Line breaker (AC mains output switch) on left side of cabinet. Must be ON



Unit shown in operation. Note readings.

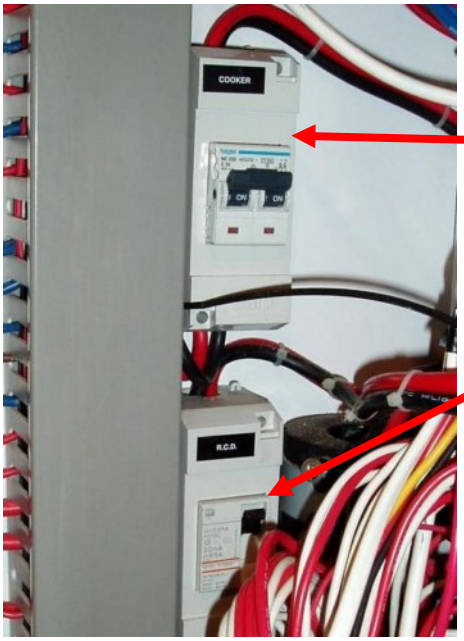
Start/Stop

OVEN and HOB

Oven and hob require power from shore or generator.
To power up, turn ON the isolator switch in the galley, in the cupboard under the sink.
There is an additional on-off switch for the oven, marked OVEN.
If there is no power (no red light), check that the isolator switch ‘COOKER’ in the wiring cabinet, is ON (accessible from forward shower room, ‘220V’).

It is recommended to turn off the isolator switch in the galley after cooking has ended.

Electrical cabinet under helm,
door in fwd shower room



COOKER
Mains isolator

Shore power
RCD switch

If triggered,
will turn off
all AC circuits
on the boat

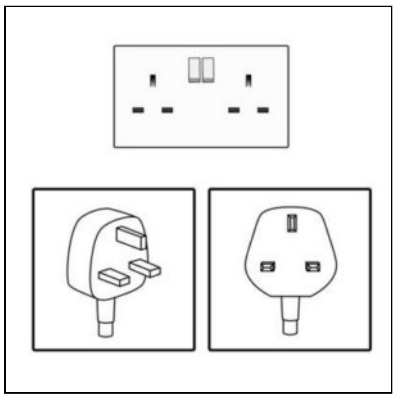
Lower switch: Hob + oven ‘mains isolator’.
Upper: Oven on/off (fused)



For operation of the ceramic hob and fan oven see leaflet OVEN AND HOB CONTROLS in the annexes.

DOMESTIC MAINS SOCKETS

All household power sockets on Tarilian are of the BRITISH TYPE.



Mains equipment on Tarilian is generally fitted with corresponding plugs.

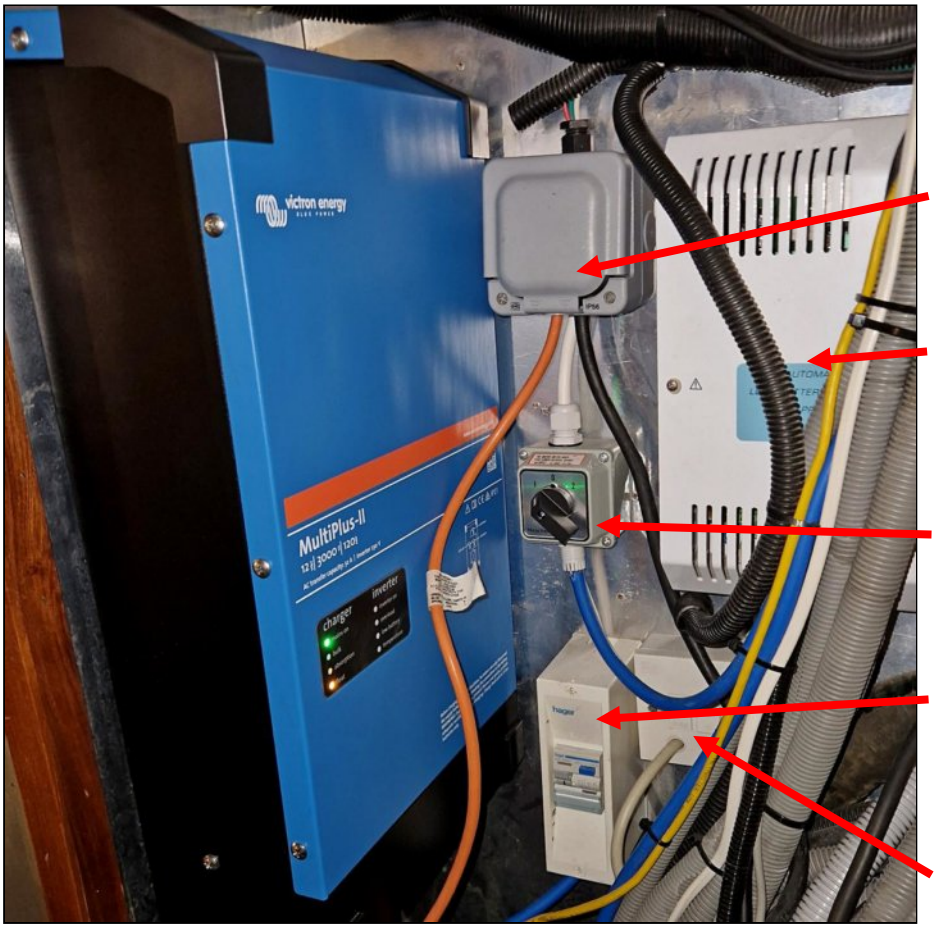
British power sockets use the same voltages as in the EU. Plugs have asymmetrical layout and can only be inserted in the socket in one way: Live and neutral contacts are fixed assigned. All plugs have 3 pins; there is no equivalent for the 2-pin so-called 'Euro' plug (no Earth) available.
Some of the sockets are fitted with USB charging ports.

There are UK to EU (e.g. Germany) plug adapters on board (bow cabin, port side wardrobe drawer).
NOTE: Power sockets are connected to the output of the CHARGER – INVERTER, and supplied from shore/marina or inverter. A dedicated RCD safety switch for sockets is located by the Victron Multiplus charger/inverter in the engine room.

In addition, there is a selector switch which allows to connect domestic sockets directly to the BATT INVERTER /CHARGER supply (bypassing the Victron unit).
This can be useful in case of an issue with shore power or with the charger/inverter performance.

BATTERY CHARGING - THE 12V CHARGER / INVERTER

* Combined charger/inverter unit Victron Multiplus in engine room, forward bulkhead.
* Extra battery charger Shark (back-up unit): normally switched off.



Mains socket, connected to BATT CHARGER supply

SHARK, spare charger

3-way selector switch for domestic sockets.

RCD switch for domestic sockets (on Victron inverter output).

Isolator switch for Shark (off)



3-way selector switch for domestic mains sockets

Pos Mains sockets

1 - connected to Victron charger/inverter output (default position)

0 - OFF / sockets isolated

2 - connected to BATT CHARGER supply (Victron bypass, no inverter)

The purpose of the switch is to control domestic mains socket more flexibly.
Pos. (1): Default. Socket connected to charger/inverter output.
Pos. (2): Sockets are connected to shore power (via the batt charger/inverter supply circuit). In case there is a problem with the charger/inverter, it can be turned off and a spare charger used.
Pos. (0): Isolates mains sockets, e.g. when boat is decommissioned whilst battery charging is still required. Leave batt charger/inverter switch on.

OPERATING THE BATTERY CHARGER – INVERTER

- BATT.CHARGER/INVERTER switch on AC panel must be **ON**
- On **Victron Multiplus-II** unit 3-way switch on bottom left must be **'on'**

Control panel on the right side of the lower helm: **inverter / charger indicators**



The Inverter provides power to the mains sockets using the domestic battery bank, when there is no shore- or generator power.

The shore current limiter knob is normally left to maximum (16A).

Toggle selector 'on' / 'off '/ 'charger only':

MODE **'Charger only'** = **default mode**

- Toggle to right, 'charger only': Battery charger operation, no inverter function.

Connect shore power; few seconds later the **blue 'mains on'** light starts blinking (= *testing the shore supply*), then should light steadily: Mains power correct, batteries get charged, mains sockets are powered.
Yellow lights show charging status: 'bulk' (max. initial charging), 'absorption' (at ~ 14.5 V) until batt mostly full, 'float' maintaining ~ 13.8V reducing to 13.2V over hours.
Lights off = No mains power, or, mains test failed. Check shore power.

MODE **Inverter 'on'** = automatic mode. Domestic sockets are continually powered.

- Toggle switch to left, 'on': Works like 'charger only', but inverter power takes over without interruption in case of shore power outage: Only blue light 'inverter on'; none of the red warnings lights must come on! If 'overload', check equipment connected to mains sockets.

MODE **'off'** (centre position): Charger/inverter is powered down, mains sockets are off (even if shore power is present and batt charger/inverter switch is on).
Also see 3-way mode selector switch for sockets, described above.

Limitations of inverter use:
(1) Inverter powers mains sockets only. **Total power** supplied to all sockets must not exceed 2000VA; suitable for TV, lamps, PC/mobile chargers etc., small galley appliances can be operated for a brief period: small kettle 1000-1600W, espresso machine 1300W, toaster 900W, but **only one appliance at the a time.** Currents add up and will cause **inverter overload** if turned on together.
Large hoover or electric heaters ***MUST NEVER BE PUT ON*** when on inverter.

(2) The available energy (Ah) is **limited** by the battery capacity:
Do not waste energy. Set mode switch back to 'charger only' when inverter is not needed any longer, to save stand-by current.

(3) Be aware that the inverter comes as an **addition load** on the domestic batteries' other 12V devices: At all times when the **gangway** or **anchor winch** may be deployed, which take high current, the mode switch should be **'charger only'** or 'off'. This is to avoid battery current overload which is damaging to the batteries and can be dangerous.

When leaving the boat: Mode switch must be **'charger only'**

Further considerations re use of battery power on the boat

The **battery monitor** displays amps (-A) taken out; comparing the reading with expectations can help detecting unwanted/unneeded energy users.
Batteries need **re-charging** when the taken-out energy (CE) gets near 50% of their nominal capacity. E.g. total nominal Ah capacity 480Ah (3x 160Ah), 50% CE = 240Ah taken out. In this case, start the generator as soon as convenient. As a rough estimate, at an average consumption of 12A, e.g. 2 fridges, lights, changers, some usage of appliances, TV, this may be after 20 hours without charging. 4 hours re-charging with generator will be needed to replenish the batteries. The solar charger can reduce the need to re-charge but not eliminate it.
In practise, the generator may be run anyway at times, to power the aircon or cooker.

The generator should also be started if repeated use of kitchen appliances is required, and, if there is uncertainty about the battery status.

Domestic and engine start batteries are installed in the engine room, underneath the treadplates between both engines.
Domestic bank: 3 x batteries of 160-180Ah. Counting from forward to aft, the domestic bank are batteries no.1, 2 and 4. On the negative terminal is a shunt for the battery monitor. The charger/inverter minus connection is secured with a 320A fuse.
Engine start bank: 2 x batteries of 160-180Ah. One is located forward of the port engine, the other underneath the treadplates, no.3 counting from forward to aft.
Engines alternators charge both banks but not the generator and stern thruster batteries.

SOLAR PANELS (for domestic battery only)
3 panels on the aft deck roof, rated 160W each, connected in parallel.

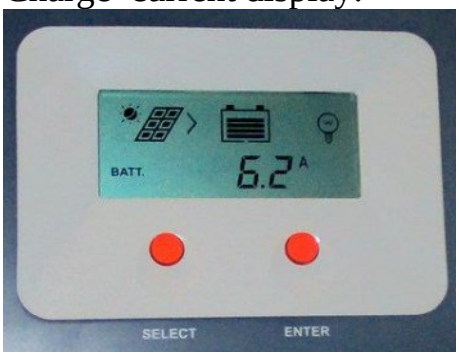


In practise, an average charging performance of about 25% of the panel rating may be realistic (this is due to conversion losses, angle of the sun, cloud cover, shading/blocking of panels, excessive heat in summer).
Under good conditions, a daily charging performance of 80-120Ah may be achieved.

The charge controller (MPPT) is in the electrical cabinet behind the lower helm.
It charges the domestic battery bank only.



Press ‘SELECT’ to cycle the display to read panel voltage (V), panel current (A), battery voltage, battery charge current. ‘Load’ is not connected. E,g, Charge current display:

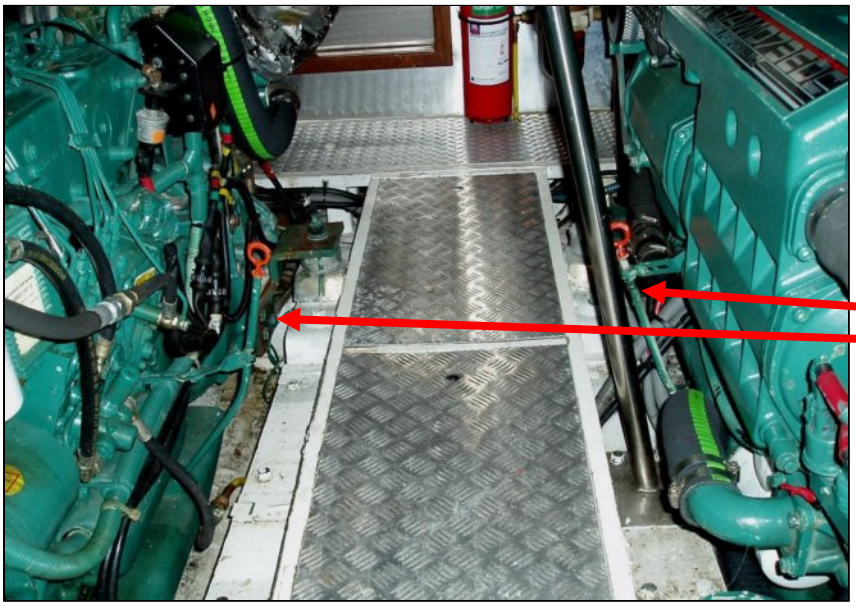


To stop charging, turn off panel isolator switches. [Do not disconnect the MPPT charger from the battery while the panels are connected, this would damage it.

The solar charger is effective around midday, 13:00 +/- 4 hours. Its output varies with the orientation of the boat, weather, sun hours etc.
When the boat is not in use and off shore-power, it provides battery top-up.
The solar charger is an auxiliary charging system which should operate continually.

<u>Do not leave Solar and shore-powered charger</u> on together over long periods of times: Both devices are regulated systems, but operate independently and this may lead to overcharging the batteries on long term. With the solar charger permanently available there is no need to keep shore-power on just to top up batteries when the boat is left. (This resolves the issue with the rule in Croatian marinas to disconnect yachts when no one is on board)

BASIC ENGINE CHECKS



You need:
* disposable gloves
* kitchen role
* inspection lamp/torch (kept in side cabin and galley, near door)

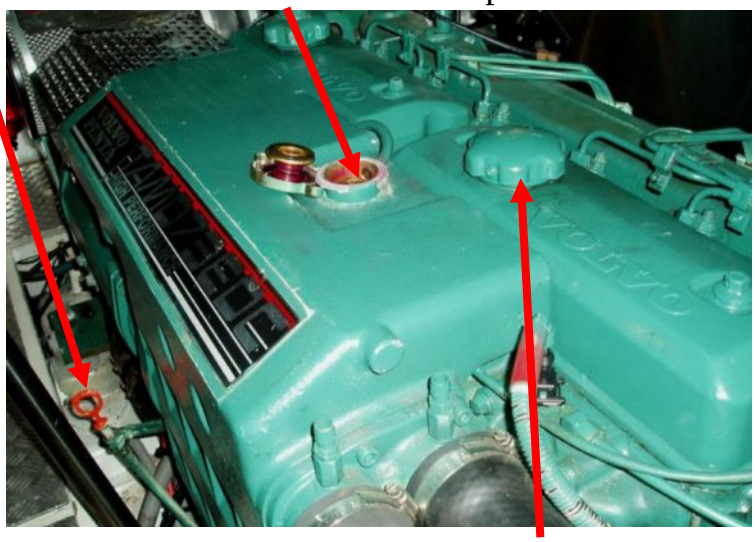
oil dipsticks

Spare oil can is in void under galley floor hatch (or, see Annex 3)

Visual inspection of bilges and engines: Engine oil leaks cause black/dark oil stain under the engine; coolant appears as green liquid. Gearbox oil is transparent/light oil. Sea water leaks will result in white stains and salty powder.
Tension of belts: Ok if it can just be pushed in 2cm with a finger, or twisted 90º. Compare both engines. [Note that the correct tension is quite high.]

Coolant/water: Push down and turn spring-loaded filler cap anti-clockwise. If engine is hot, wait until pressure/steam releases; push down to turn fully open. Green coolant must be visible below filler. If needed, top up with Volvo coolant. Put filler cap back on carefully (pushing down). Spare coolant in bow cabin, port side step.

Fresh water/coolant filler and cap



Oil: Pull out dipstick, wipe with kitchen role, insert fully, then check: (Darker) oil mark should cover the full crossed area of the dipstick (=max).
Sometimes difficult to see.
Wipe dipstick, start again to verify.
You can try to "print" the dipstick area on the kitchen role to make it more visible.

Top up: Fill Volvo Diesel engine oil. If dip stick reading is just 2mm below max, fill 1/2 ltr of oil. Do not overfill. Check again after a minute. Replace caps and dipsticks.
Note top-up quantities in log book.

Oil filler cap

Gear box: Uses SEA30 oil (single grade oil). Short dipsticks on gear box; to be checked monthly. (Spare gear oil location see Annex 3)

Engine oil consumption used to be around 1ltr every 200 nm. Coolant and gear box oil rarely need topping up during one season.

SEA WATER INTAKE VALVES (SEACOCKS)

Attention!
Do not start engines!

ENGINE SEACOCKS are SHUT

GENERATOR INTAKE is SHUT

Aircon Intakes are SHUT

When leaving the boat for longer periods of time, shut seacocks and put this warning label over the EDC panel on lower helm to prevent damage.

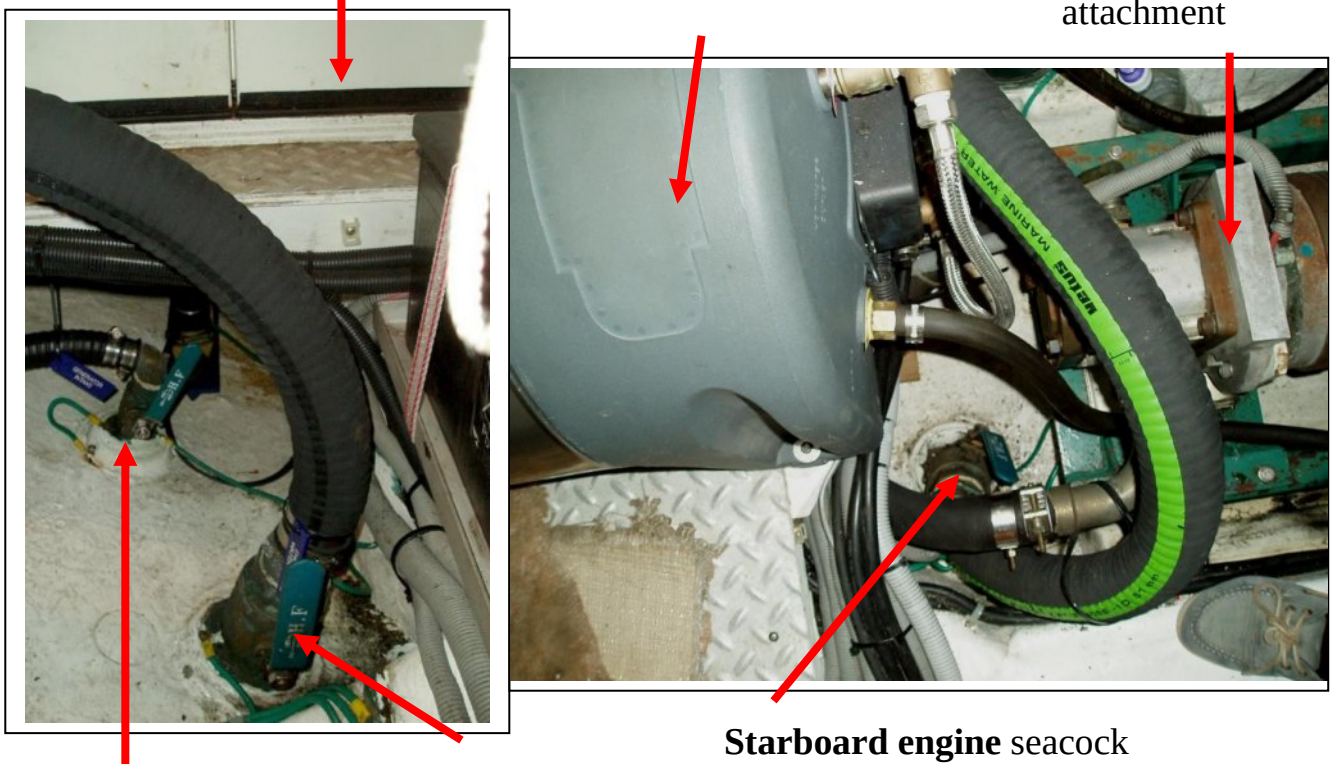
Aircon intake for pump1 is located to stbd in the rear part of the engine room, intake for aircon pump 2 is accessed from the forward corridor void to stbd, more difficult.

Engine SEACOCKS are positioned forward of each engine. Hoses lead to the sea water filters. See 'sea water strainer', below.
The **generator seacock** is positioned below the generator (port side), the generator sea water filter (small filter) nearby.

View towards generator

Hot water cylinder

Bow thruster engine attachment



Starboard engine seacock

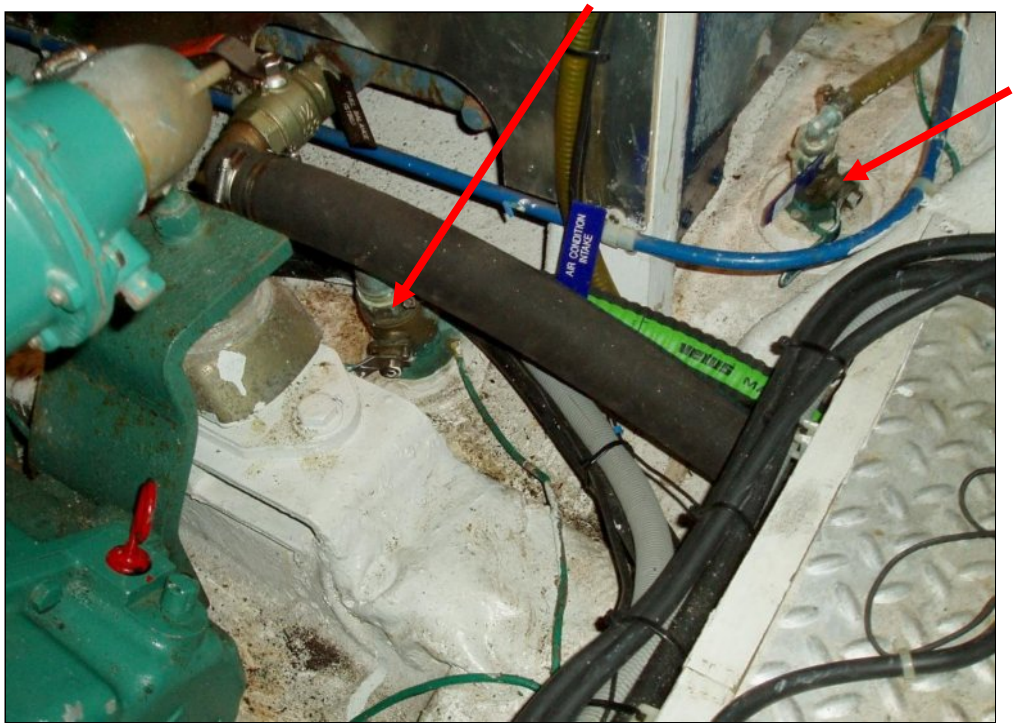
Generator seacock.

Port engine seacock.

Valves are shown in open position. OPEN = handle points in line with through-hull fitting. CLOSED = handle stands square to through-hull fitting.

Aircon pump 2

(for salon and aft cabin) seacock: To rear of the stbd engine, by the fuel tank. (Narrow access; use gloves, keep screw on handle tightened)



Galley sea water tap intake valve. This has never been used; leave it shut

Aircon pump 2 and seawater strainer in compartment under centre back floor panel

Space under the walkway, battery top up water, hydraulic oil etc



Lifting panels to both sides give access **to PROPELLER SHAFTS & SEALS.**

Aircon pump 1 and seacock:

Access from the forward corridor floor hatch.

Open side cabin door; lift hatch cover carefully and slide it forward from under the door as shown. Tip: Lifting the stairs may help but is not actually required



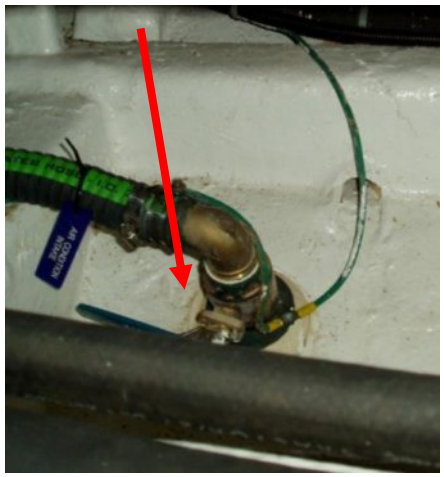
Step down onto the tread plates.

Take care not to damage the bilge pump and switch!

The aircon intake valve is in the right side (stb) compartment, it can be reached behind the black heating pipe (use torch).



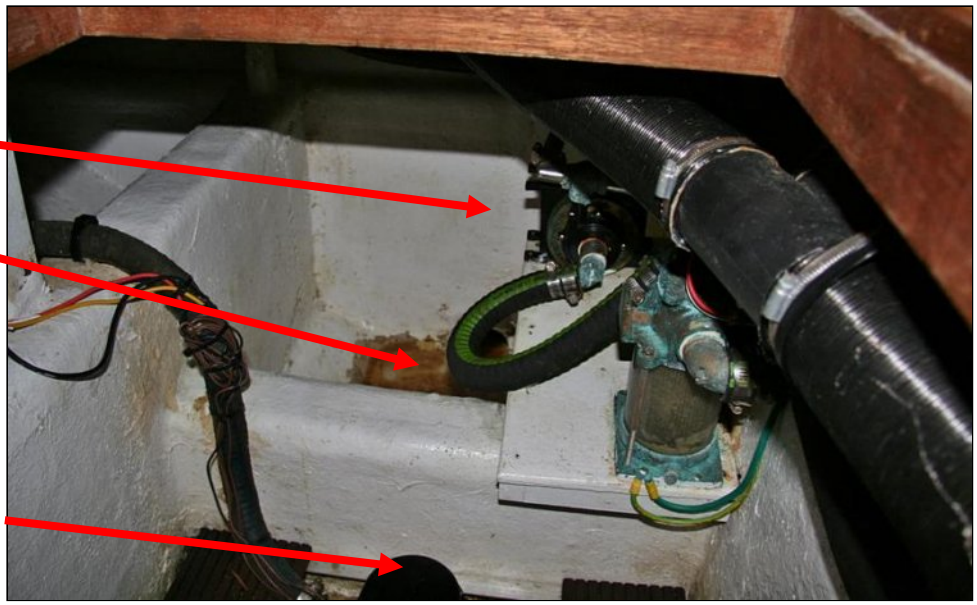
Aircon pump 1 seacock, shown 'shut'.



Aircon pump 1 and water strainer

Bilge area where liquid collects. Empty and clean as needed

Forward bilge pump



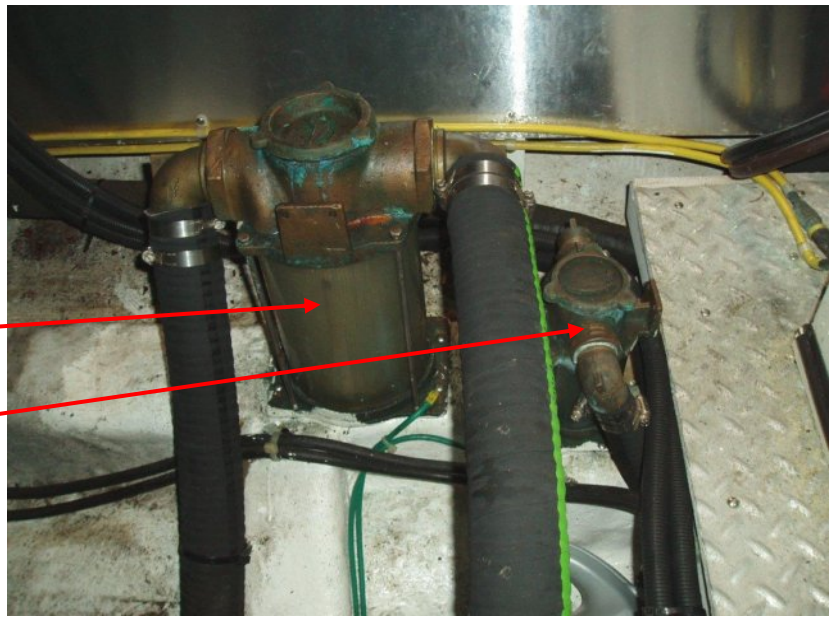
SEA WATER STRAINERS

Engines and generator need sea water for cooling.
An interruption in the flow leads to overheating.

Port engine strainer

Generator strainer

(In case a strainer is blocked, close seacock, open filter housing, clean strainer.)



IMPORTANT: KEEPING SEA VALVES OPERATIONAL

Marine growth can over a longer period become so stubborn and hard that the sea valve "freezes". This must not happen. To avoid, **operate each valve (a few times on-off-on) routinely at least once a month**, as well as before a cruise.

Be aware that larger seacocks can feel stiff when operated first time after not being moved for a while. This also depends on the temperature and kind of marine growth. The stbd engine valve is more difficult to access than the port side valve; do **not** try to force the handle using a tool, only use hand power. If forced too hard, the handle may sheer off. Make sure handle screws are tightened.
If you have got into a situation where there seems to be no way to close a valve (completely) despite effort, it may be better to leave it open until the next out of water works on the boat are done when that valve can be dealt with or replaced.

DIESEL FUEL filters

Fuel shut off valve to filter (shown in open position; turn 90 deg, across the flow, to shut)

Racor filters (pre-filters): Unscrew top to change filter

port engine

generator

stbd engine



Important: In normal operation this valve must be SHUT (as shown). If left open, unbalanced take-up of fuel from both tanks happens

Check looking glasses routinely. Need to show clear fuel. If fuel contains water, it will gather on the bottom (drain water into jar or customized vessel). Fuel contamination ("diesel bug") will also show, e.g. as floating strings of brown slime, or dark sludge.

If too much debris passes the filter, it will get clogged and eventually block the fuel flow to the engine. In mild cases of contamination, it is easier to change filters as a precaution than risk that the engine stalls at sea and you need to change the filter and vent the line.
A couple of spare fuel filters are kept in the bow cabin, in the central locker at the head of the bed.
Detailed information about filter change in document 'Maintenance Guidance' and Annex 3.

HELM STATIONS - overview

Inside steering position (primary helm), left to right

- Helm console: Volvo Penta engine instruments panels, port/stbd. Compass.
- Dash board: Bilge/sump pump switches. Trim tabs. Windlass control. Horn. Battery link. Wireless thruster control port/stbd. Bow thruster toggle.
- Simrad IS42 Multi, AP44 auto pilot, EDC panel, Windscreen wiper/washer.
- Engine exhaust alarm. Dual single lever Volvo engine controls.
- To right, Instruments switch panel. Charger-inverter control panel above.
- Below, behind wheel: Eberspaecher control panel, holding tank monitor, Echomax radar reflector control, windlass control & fuse.
- Outside the photo, to left: NSS12 evo 3 MFD (plotter), Thrane GMDSS terminal



Overhead panel at inside helm from left to right

- VHF Simrad RS40-B; Osculati search light control. AutoAnchor chain counter. Fuel and water tank gauges. Domestic battery monitor.
- Behind panel: Electronics for chain counter, fuses and other
- Raymarine C90W in bracket (Spare/backup chart plotter; standalone)



Flybridge helm (upper helm station), overview (from left to right)

- 12V socket for searchlight (to left of console), port engine instrument panel.
- Wireless windlass remote, Search light control, Thruster joystick control.
- Windlass control (photo to right). Simrad IS42 Multi and AP44 auto pilot control Engine exhaust alarms. Volvo EDC panel (not visible, behind compass).
- Compass. Trim tabs control. Stbd engine instrument panel. Single lever engine controls. Horn. Simrad NSS12 evo3 MFD.
- Below: VHF Simrad RS40B wireless remote in charging cradle. USB socket
- Photo to right: Windlass control and wireless remote/chain counter AA710





A small auxiliary wind/rain screen can be plugged into a couple of sockets at the rear of the helm console: It is stored inside the helm seat.


Tilt backwards to take out

Aft deck (3rd) control station. For use during mooring / close quarters manoeuvres.

- Single lever engine controls and Volvo EDC panel
- Side-Power thruster wireless remote control.
- AA710 windlass wireless remote (far right)



NAVIGATION INSTRUMENTS – *Overview and Notes*

SIMRAD nav instruments are connected via NMEA 2000 network; display and control units are duplicated on both helm stations; system installed Jan 2022.

2x MFD Multi-Functional Display (chart plotter) NSS12-evo3, (12” touchscreen)
2x Multi Instrument IS42, 2x Auto pilot display/control AP44, Radar Halo 20+,
VHF DSC RS40-B at inner helm, wireless handheld on flybridge, hailer horn,
Other components: Autopilot computer NAC -3, Tridata sender DST800
GS25 GPS (x2), Wind sensor B&G, networking components, AIS aerial splitter,

- Manufacturers’ installation and user manuals in the Annexes.

POWER supply see 12V INSTRUMENTS PANEL at the inner helm.

- MDFs have power/standby buttons and need to be switched on manually.
- Auto pilot display and multi-instrument operate as soon as the power is powered.

MDF NSS12 evo3 (chart plotter) notes

- C-map chart max N+ Adriatic is installed on inside MDF; it needs to be turned on.
- IP-cameras (screen 'VIDEO') are on a network together with RADAR, it must be powered on to see cameras. Radar operation is within the MDF functions.
- MDFs are set to connect to on-board wi-fi in use. Check router/hotspot if no connection.
- Flybridge unit is taken off its bracket and stored inside when boat is not in use, to protect it from the elements.

  Insert in bracket, connect cables ETH (yellow), NMEA2000 (black 5-pole), Power (black 4-pole)



and

- Panels and pages are configurable in various ways. Systems at inner and fly helm can be set up independently.
- Note limitation: Engine instrument panel - engine senders are analogue; they are not available on the Simrad displays. No audio equipment is available.

IS 42 Multi-Instrument and **AP44**

- Pages and content on inner and fly helm units configured independently.
- For autopilot display and control, the AP44 autopilot controller is used.
- AP44 requires the autopilot computer to operate; power switch AUTO PILOT

VHF DSC: SIMRAD RA40-B and handheld mic, plus HS40 wireless handset

The VHF unit has its own GPS sensor and can operate independently from the system.

- The AIS transceiver provides AIS Class B safety information which is shared with the MDFs and IS-42. Transmission of AIS data is over the VHF aerial using an aerial splitter. The transmission (Class B mode) can be turned off; the system will still receive AIS data (receiver only).

Note to SIMRAD units: Many front panel keys/knobs have dual function, depending on whether pressed short or long. E.g., VHF key DSC/MENU, short press for DSC call menu, long press for device menu. Key AIS/IC, short press opens AIS menu, long press the intercom/hailer/foghorn menu.
Be aware that the user interface of the Simrad MFDs is not very intuitive (in my view). Have the manual ready, it may be necessary to check it.

USING THE ENGINES

- Engine seacocks port and stbd must be OPEN; chapter Sea water intake valves
- Switches: 'ENG. MAIN SW', 'ENGINE CONTROL S', 'ENGINE CONTROL P' and 'BOW THRUSTER' must be on. NEVER TURN OFF those switches while the engines are running, it could damage the engines and electrics.
- Verify EDC system functions BEFORE starting the engines.

EDC [Electronic Diesel Control]

Volvo Penta TAMD73P-A engines use EDC, an early electronic control system, which provides control, diagnostic and alarm features. It is a predecessor of EVC.
The system works with electronics which translates throttle potentiometer positions into signals which are sent to the ECU computer that controls the engine, fuel pump, gearbox, and starter motor. EDC also selects which helm station is active and controls switching over.
The throttle levers are combined throttle and gear controls ("single lever"): When moved out of neutral position, to forward or reverse, the gearbox engages in the chosen direction.

NOTE: Memorize the layout of the buttons - some of the coloured lenses and stencils had to be removed for better recognition of indicators in daylight.

At start up, the EDC panel will be ready at the helm station where both engines starter keys are turned to Position I, operation, see below.

RED: **ACTIVE STATION**
On = OK, throttle levers are active
Off = Station/controls are disconnected
Flashing = Station selected but not ready, or in error. Check that all throttle levers are in NEUTRAL position **(GREEN lights)**

YELLOW: **DIAGNOSIS**
Normally **port and stbd OFF**
Press briefly to display diagnostic 'Trouble Code' flashes (*)
Flashing = new trouble code/testing
Also used during calibration

PORT STBD



GREEN: NEUTRAL detects gear/throttle lever neutral position:
On = throttle in neutral, out of gear
Off = throttle in gear fwd or reverse
Flashing = out of gear, but throttle engaged (revving up).
To apply throttle without gear, press and hold NEUTRAL button whilst shifting lever out of neutral.
NEUTRAL lamp starts flashing.
It will return to normal as soon as throttle lever is put into neutral.

BLUE SYNC On = Synchronising engine revs. The stbd engine leads.
Sync is active from 800 to 2500 r/min. It stops if throttles differ by more than 200 r/min but resumes when within range. Default is ON, to turn OFF/ON, hold button for 2 secs

(*) Stored diagnostic codes are displayed as a sequence of flashes. E.g. 1+1 flashes mean ‘1.1’= ‘no fault’. For diagnostic functions see Appendix 07, or **Volvo Penta TAMD73-74P Instruction Book p.102 to 105.**

Warning: Do NOT attempt to start an engine, if the light in the green NEUTRAL button does not correspond to the actual throttle/gear lever position, or, does not precisely follow movements of the throttle! (See PREPARATIONS BEFORE STARTING, below) Calibration may be needed.

SELECTING / CHANGING THE HELM STATION

Engines can be started from the inner or the flybridge helm station.

- At the chosen helm station, check that both throttle/gear levers are in neutral.
- Attach start keys of both engines, and turn both to operating position, pos. I (but NOT to ‘starter motor’, position III)
- Press red ACTIVE STATION button and hold briefly; button must light up
- All EDC controls work in the same way whether engines are running or not. Try and test the system without starting the engines.



- Active Station:

Gear levers in neutral, both green NEUTRAL buttons and the red ACTIVE button must be lit.

.

- To change between helm stations, BOTH throttle levers on BOTH station need to be in NEUTRAL
- Change station: Go to new station, check levers. Press red ACTIVE STATION and hold for about one second. Watch ACTIVE STATION and both green NEUTRAL buttons light up steadily to confirm new active station. If not, for example red light blinks, the change was unsuccessful and you need to revert to the original station and make it active station again.

PREPARATIONS BEFORE STARTING ENGINES

Carry out the following brief checks routinely; they only take seconds.

- On the active station, check throttle levers: Slide both throttles together slightly into forward (watch NEUTRAL lights go out) and back into neutral, then gradually into reverse and back; observe that NEUTRAL lamps precisely follow lever positions on port and stbd side.
- Press and hold NEUTRAL button whilst moving throttle lever out of neutral towards forward. Observe the NEUTRAL light blinks and stops when you put back into neutral; do the same for reverse gear. Do it for the other engine.

If the station passes the checks, change to the alternative station.

If the NEUTRAL lights turn on/off but not fully in sync with lever movements, try the potentiometer calibration procedure described in Appendix 07 and the Volvo Penta TAMD73-74 Instruction Book p.18 – 19
If one of the NEUTRAL indicators remains unlit although the throttle lever is moved, the station may not be recognized (contact problem). Investigate further whilst the engines are off.

- At the alternative station, verify the switch-over works and the above checks are passed. If ACTIVE STATION flashes**,** or the above checks fail, do **not** try to proceed with the new station. Switch back to the previous station.

Helm stations work independently. You can drive the boat from any helm, but a faulty station should not be re-selected.

If, for any reason, one of the engines has stopped, the EDC requires to turn off both engines, and then to start both again. (Trying to just turn off the failed engine and to start it again won't work).

WARNING
Attempting to change station where one gear lever is not in neutral, by overriding a blinking ACTIVE STATION button, is very dangerous: The system transfers one control only to the new station: Port and starboard engine controls are then active on two different helm stations, one on each; you have lost control! Turn both engine off immediately with their keys, and start all over again.

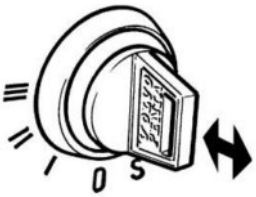
If engines are started despite one or more throttles being out of calibration, there is danger that an engine remains in gear, or shifts into gear unintentionally, and without the helmsman noticing the situation. An accident is likely.

ENGINE INSTRUMENTS and STARTER KEYs

- insert starter keys, inside helm shown (same procedure applies for flybridge helm)



Starter key pos 0 = Off. Key can be removed. (steady state)
pos S = Stop. For EDC functions
pos I = Operation (steady state)
pos II = no function
pos III = Start; engage starter motor



Starting procedure:

- Both <u>control levers</u> in NEUTRAL/out of gear position (marked).
- Turn BOTH engine keys from Off clockwise to operating position (I). Alarm indicator lamps light up and rev counters reset to 0.
- On the EDC control panel press red ACTIVE STATION BUTTON and hold for one second. It lights up together with BOTH green NEUTRAL buttons. Yellow DIAGNOSIS lights must both be off.
- To start port engine, turn key clockwise to starting position (III), and HOLD. Listen to starter motor cranking and hold key until the engine fires and runs; release key, it springs back to operating position. Rev counter should read 600 in idling.
- Start starboard engine in the same way; [it should not matter which engine is started first]

  The engines do not have glow-plugs. Before injecting fuel, the starter motor always turns it about 4 revolutions, it does not ‘jump into life’ immediately. Starting from cold can take few seconds. Never crank the engine for more than 10 seconds.

Trouble shooting: If EDC lights and engine alarm lamps show ok, but starter motor does not crank, check that switch ENG.MAIN SW is ON. If still no starter motor, check semiautomatic fuses on junction box on the engine (Volvo manual p.67).

If red 'active station' blinks and only one green 'neutral' is on, the other control is not in neutral or not recognised. Turn all off, correct lever and repeat procedure. If problem persists, calibration may be required. See section EDC [Electronic Diesel Control] and appendix 7.

If the key is released too early, or an engine has stopped for any reason, it cannot just be started again by turning the key (due to 'start lock' feature): Turn key to Off (0) and wait a few seconds. Then start again, as above.

If starter motor cranks the engine but appears slow, stop cranking. The battery might be weak. Press and hold the LINK button while trying again; (the 'click' of the relay that connects the battery banks can be heard).

- Once engines are running
  It is advisable to run cold engines a few minutes at increased idle of 700-800 revs to speed up warming, especially in cold weather:
  Press and hold green NEUTRAL button whilst adjusting revs on throttle lever.
  Release button, green NEUTRAL is flashing.
  Do not rev above 1000 revs/min during the first 2 minutes from cold start.
  Returning lever to neutral position automatically stops NEUTRAL light flashing.

  Warming up: There is no need to wait until engines have reached operating temperature, but the boat must be driven at low revs (max 1000 revs) until the coolant temperature has reached operating level, 60-70˚C.

  During cruising, the engine room blowers should be switched on, especially in high summer.

STOPPING THE ENGINES

- If engines are hot after cruising, allow to idle for 5 minutes before turning off. The berthing or anchoring manoeuvre usually takes care for this anyway.
- Turn key to 0 position (anti-clockwise), to stop engines. Then briefly turn further anticlockwise to S position. This should reset the EDC system.

- If engines are not being used any more for the rest of the day, turn off switches 'BOW THRUSTER', 'ENGINE CONTROL S', 'ENGINE CONTROL P'.

- If the boat is going to be left unattended for a longer period, turn off seacocks for the engines, generator and aircons, place warning label "Attention! Do not start engines!" over the EDC controls at the lower helm.

ENGINE CONTROL PANEL & INDICATORS

Oil pressure rev. gear. High value ~300psi warm

Coolant temp. #75-95 (ºC)# #80-85 (ºC)# cruising

Oil pressure to #90 psi (6 ba)# from cold, ~ #50 psi (3.5 ba)#



Alternator 12V. (Reads ~ 2V less than actual battery volts)

Alarms lamps for coolant (*), oil pressure, alternator; with sounder and test button

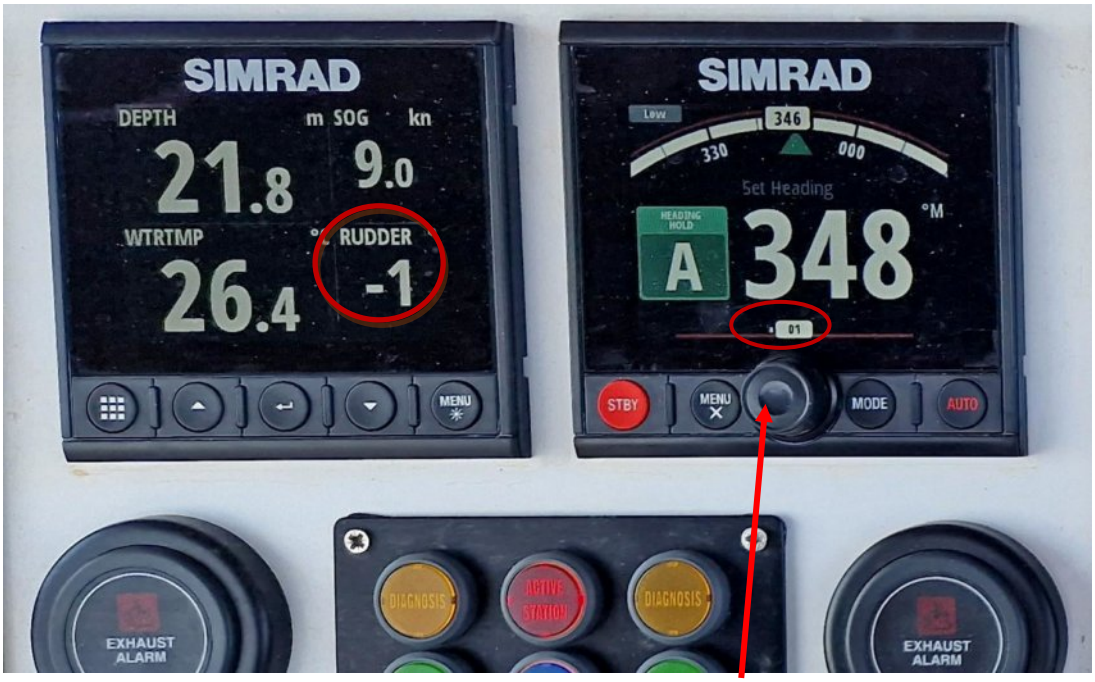
Rev counter (x100 r/min)
idle = 600
cruising range 1450 - 2000
full throttle 2600 (to 2750)

Turbo boost pressure, reads from ~1400 revs (stbd higher than port)

Engine hour counter (LCD display on stbd tacho faded, may be deciphered using torch. Count is correct)
(*) coolant light turns off at standstill after a short period
xx..# *current readings off range (issues between instrument panels)*

RUDDER INDICATOR & AUTO PILOT

When leaving berth, check that rudder is in neutral position (about 0), on AUTO PILOT AP44 (right) and on IS42 multi-instrument (left), at both helm stations.
Basic usage: Steer boat manually on target course (using plotter), press mode AUTO to keep the course. Correct by turning course knob as needed.



RUDDER position range is approx. 37° to P or S. Course knob changes course by 1° per step.

DIESEL FUEL ECONOMY & FUELLING

Fuel gauges read when switches ENGINE CONTROL are ON and engine keys in operating position. Full tank = gauge reads ~ 90%, 70% tank reads ~ half full, half tank reads ~ 40% full. At low level the gauges are more accurate: Red sector (reserve) at 15% of tank left.



"full"



Approx. safe range (at 10.5 / 9 kn):

Gauge	1850 revs	1550 revs
90%	380 nm	500 nm
60%	270 nm	370 nm
45%	180 nm	250 nm
32%	115 nm	155 nm
25%	70 nm	90 nm
(into red/reserve	45 nm	60 nm)

Always refuel BEFORE red sector is reached.

Detailed readings can be taken on 'looking glasses' (pipes) on the forward end of the tanks. Tanks are located on the sides of the engine room. Open valve on bottom, hold a torch behind pipe and read level in % of tank capacity (the makeshift "calibration" of the pipes is only approx. and different on port and stbd tanks, figures are relative) Close valve after reading,

CALCULATION
Safe range: Tank capacity 2460 ltr - 15% reserve = 2090 ltr. Fuel consumption is 5.5 litres/nm at cruising 10.5-11 kn @ 1850 revs, gives **380nm**.
Consumption **reduces at lower speed** towards displacement speed 8.5 - 9 kn.
At 9kn @1500 revs: **4 litres/nm,** safe range increases to **520nm.**

Calculate remaining safe range using gauges on tanks: Read (%) on stbd + port tank, add values and multiply 11.2 ltr to give total litres available. Deduct 370 ltr (reserve), then divide by consumption/nm. Gives safe range remaining (nm).
Example: Stbd reading 35, port 33. Sum is 68. 68 x 11.2ltr = 761 ltr, deduct 370 ltr reserve = 391ltr. At 5.5 ltrs/nm (1850 revs) 71nm range left, or 98nm @1500 revs.

RE-FUELLING



Fillers are on the side decks to port and stbd, marked 'DIESEL' (**do not mistake** with nearby 'WASTE'). Have an adjustable wrench or small pliers ready in case cap doesn't easily turn.

Fuel balance pipes between tanks in engine room are **kept closed at all time**. This keeps tanks separate to confine contamination (!) and allow to check differences between engines.

Add a good **fuel treatment** to the tank before filling up, particularly important with fuel containing biofuel, bottles in step to side door. From 2019 'Marine 16 Complete Diesel Fuel' additive used. Their "Diesel Bug Treatment" helps with contamination.

Calculate how many litres to refuel for each tank (approx.):
To reach '100' mark on 'looking glass': (100 - current reading) x 11.5 ltr.
To fill tank to the very top, above the gauge, about 80 more litres can be filled, but there is risk of spillage. If it happens, wash down deck with a bucket of seawater.

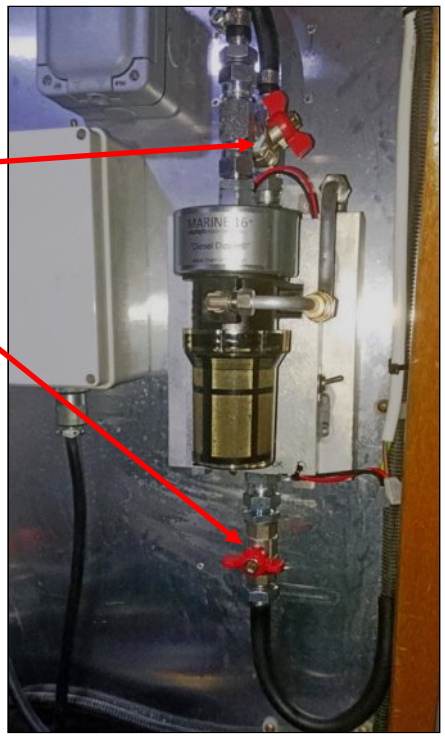
When closing filler caps check whether the rubber seals are still in place and unbroken. A defect or missing seal will let water get into the tank and cause contamination.

DIESEL FUEL CLEANER device ("Diesel Dipper")

The device is intended to help removing water and contamination from fuel tank.
Currently on stbd tank only, in engine room to stbd side of entrance from galley.
The device should be run (at least) whenever under way. It causes a rattling noise.
Switch on 12V instruments panel switch "FUEL CLNR". There is an on/off switch on the device, too.

After a trip: Switch off. Drain separator from drain outlet.

(1) open vacuum break valve,
(2) lead drain pipe into a bottle, open flush-out valve to start draining.



Only drain as long as water or contamination can be detected. When fuel comes, close both valves.
It is best to use a transparent (plastic) bottle.
Fuel that looks clear might be returned to the tank.
Dispose at an old-oil disposal point (in a marina or fuel station).

If needed, unscrew transparent bowl and clean stainless-steel filter.

FILLING THE FRESH WATER TANK

The domestic water gauge is above the inner helm, next to the battery monitor.
It reads when the domestic water is on, FRESH WATER PUMP switch on.
If a water tap or the toilet flush starts churning out air bubbles in the water stream, the tank is empty; turn off pump at switch and refill tank. Running empty can damage a pump. Do not let it get to the stage of running out of water (unless intended for maintenance).
Readings are, as usual, not precise; it will not reach "F" even when tank is overflowing.

LOW Need to fill water at the stage!



Empty tank display



Each level will display for some time before it changes suddenly to the next level.

A short hose pipe for refilling the tank is stored in the grp box in the flybridge void behind the helm, port side. Make sure to use one of the inline filter to stop debris getting into the tank(!).
There are various pipes for boat washing, and more in the rear seat locker (e.g. 2 pipes of different length). Usual adapters are in a plastic bag.



Buckets, brushes, boat shampoo and various boat cleaning products are kept under the aft-deck bench, starboard side.

The fresh water tank filler is located on the bathing platform next to the transom shower behind the flap under ‘WIEN’.

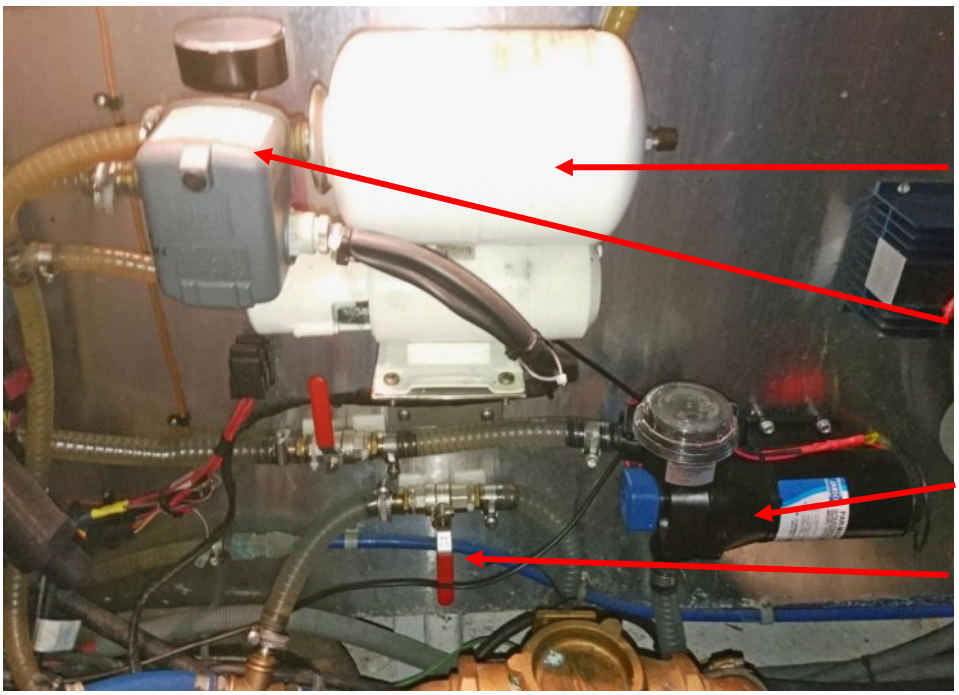




ATTENTION: When moving across the dinghy, ALWAYS KNEEL ON THE SEAT and STEP INSIDE the rigid hull. NEVER STEP ON THE TUBES on the sides. If the dinghy tilts, or you slip, a serious accident can happen. BE CAREFUL about the hydraulic tubes for the gangway which are right by the hydraulic ram; avoid fouling them, they pipes and connectors must not be damaged (!)
WATCH your head, the gangway is usually close above.

Open flap “WIEN”, take off black plastic screw-on cap, let plenty of water run through the hose pipe before sticking it into the filler. Tank capacity is 980 ltr.; when gauge reaches about 85%, the tank is close to overflowing.

Domestic Water System and Pumps



Pump and accumulator tank (Cleghorn AQM2-12) (=main pump)

Pressure switch and gauge

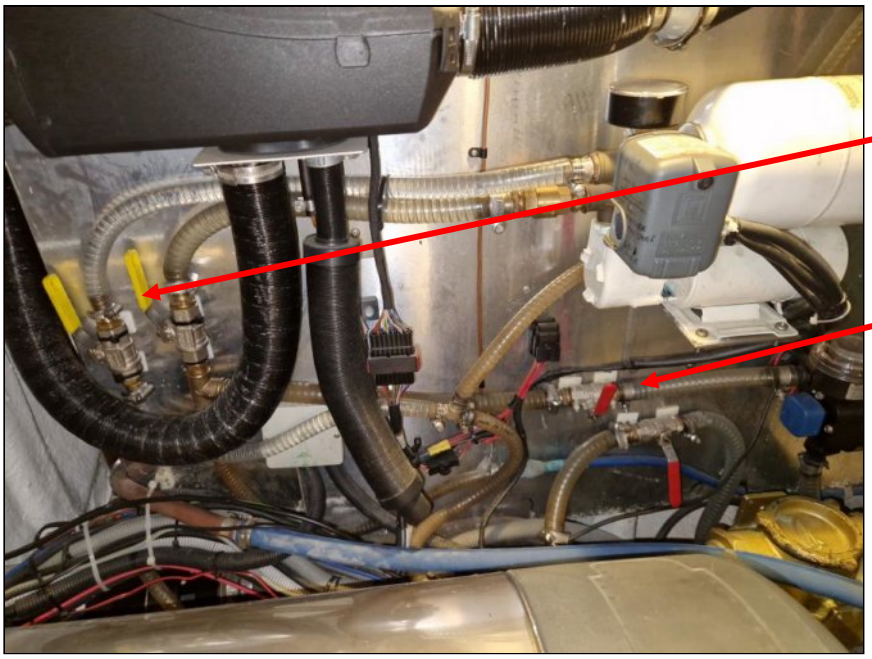
Backup pump Jabsco

Backup pump valves, shown closed (default).

There are isolating valves for both pumps: They switch between main and spare pump operation, and allow removing one if needed.

ISOLATION VALVES

Valve handle in line with pipe = OPEN. Handle square to pipe = CLOSED



Main pump isolation valves (YELLOW), shown OPEN = operating (default).

Backup pump isolation valves (RED) shown CLOSED (default).

Before switching on the backup pump, the yellow valves must be closed and the red valves opened!

The Cleghorn fresh water pump keeps the water pressure between 0.5psi (cut in) to 1.2psi (cut out), adjusted with the pressure switch. Note: This pump is sensitive to lower battery voltages: If the cut-out threshold is set too high it won't reach it, but keep running on and on. Should this happen, the pressure switch needs adjustment.
The Jabsco pump, "SPARE PUMP", is a standby equipment in case the main pump fails. Therefore its valves are normally closed.
The Jabsco pump operates between 0.7ps and 1.7 psi, there is no adjustment.

To change from main to spare pump, turn FRESH WATER PUMP switch OFF. Open both 'red' valves, and close both 'yellow' valves, Switch toggle to "SPARE PUMP".



In case of a leak, such as from a faulty tap, there are several **inline valves** which allow to isolate and fix circuits without having to disrupt the rest of the plumbing.
For example, the supply to the calorifier can be switched off near to the unit.

DRINKING WATER filter: There is a small faucet at the kitchen sink, which delivers purified drinking water from a Seagull IV filtration system. Its output provides drinking water quality and neutral taste. There is no need to use large plastic water bottles.
The steel canister of the filtration system is installed beneath the sink; the cartridge change procedure is described in the 'Maintenance Guidance' document.

ANCHORING / WINDLASS OPERATION

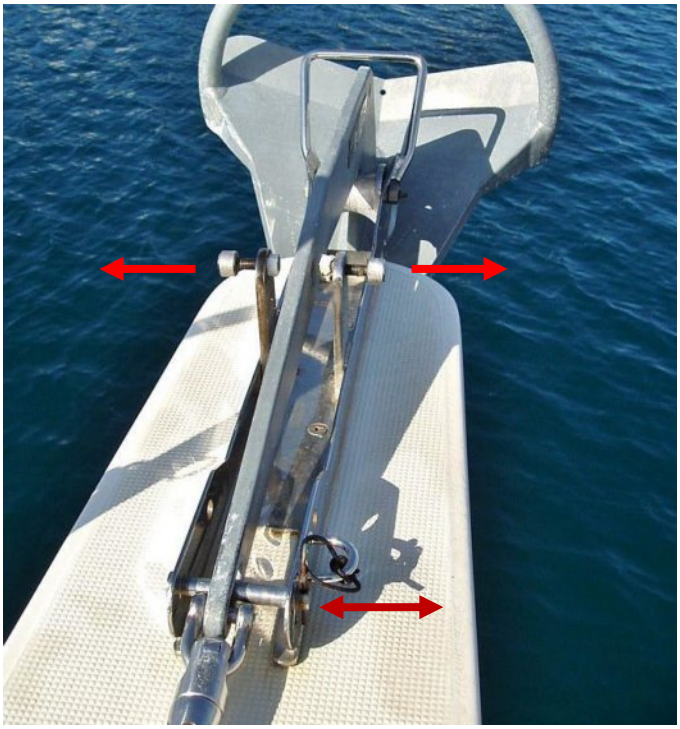
Turn on WINDLASS switch at lower helm. Have remote control ready at upper helm.



FUSE



On inner helm:
RODE (= CHAIN) COUNTER
If not '0.0' when anchor is on bow, reset by pressing any button for four seconds.



Anchor is secured to cradle with a bolt and 2 screws: **Make ready for self-launching**:
* Adjust anchor chain on gypsy, as needed
* Open both screws fully and TIGHTEN
* Remove pin in bolt, do not drop (!), hold shaft, pull bolt out, release shaft. Put bolt back into cradle and secure.

Windlass (anchor winch) control:
Three ways to control up/down:
(1) Toggle switches on lower and upper helms.
(2) Foot switches on front deck, **red = UP**, **black = DOWN**
(3) AutoAnchor/LEWMAR AA710 wireless remote control.
The **chain counter** on the panel above the lower helm reads the length of paid out chain in meters; similar display on AA710 wireless remote. **AA710 remote** in "windlass" mode:
Display "0.0 M" key ▲ anchor **UP**
key ▼ anchor **DOWN**
Turn unit on: Press round centre button until it powers up.
After power-up unit is in locked state: To **unlock** press and hold button for 2 secs [> beep], the 'key' symbol on top right of the display must disappear.
If unit is in 'Thruster Mode', press centre button again for 1 sec to change to windlass mode.
To enter menu e.g. reset chain count, press shortly once.
Switch off by holding 6 secs. Follow display.



BE AWARE: Handheld units will power-down automatically if no key is pressed! Unit marked AutoAnchor after 4 min timeout; unit marked LEWMAR goes into locked state (become inoperable) after 5 min and powers down after 10 minutes.
Furthermore, the anchor chain is marked with red paint colour every 10 meters.

DEPLOYING THE ANCHOR

It is a Rocna 33kg, suitable for most leisure cruising conditions.
Once the foredeck crew has made the anchor ready for self-launching (see above), try to identify a spot with sandy bottom ('blue' water). Sea weed (dark) or rock means poor holding. You may need to drive a round in a new anchorage to identify the best spot at the right depth. Remember that the depth instrument has an offset of 1.6m, e.g., '7.0 m' on the instrument means 8.6 m meters actual water depth from the surface. Take your time to move the boat to a suitable position relative to other yachts.
When boat is in position, pointing into the wind, launch anchor. When a length equal to **depth reading plus 3m** has been paid out, the anchor has reached the sea bottom. Start pushing boat backwards **very gently** (one engine only, one brief push in and out of gear), whilst continuing to pay out chain. Stop at length of **3 to 4 times** water depth, but not less than 25m even in shallow water. With engines out of gear and boat still moving, watch anchor chain; it should not sag but stop the boat's movement. Due to the weight of the boat, too much speed will put too high pressure on the windlass when the chain straightens, or break the anchor out.

Example: Depth gauge reads '8m', actual water depth 9.6m, boat's bow 1.4m above sea: Pay out 9.6 + 1.4 = 11m of chain, briefly engage one engine in reverse, whilst continuing to pay out until 30m reached; in wind pay out more, 35-40m; wait and watch chain as boat slowly moves back. If chain stetches but then suddenly sags, and boats keeps moving, take anchor up and start manoeuvre again. Reasons for failure to hold may be seaweed, hard rocky ground, sand, or debris. However, it can happen that sudden sagging of the stretching chain is caused by straightening on the seabed; the anchor may be holding, the boat will stop moving. Once you are satisfied that the boat has stopped, you can use the chart plotter in high resolution, and/or mark the position.

Nominal length of chain is 60m. The max reading of the chain counter is about **65m –** avoid reaching the "bitter end"! Practical depth limit for anchoring is 17-18m.

Consider rigging an **anchor snub line** to release pressure on the windlass and reduce noise on the bow roller.

An alternative, faster way to launch the anchor is by releasing the windlass clutch. With some experience, the windlass operator can control the clutch and sense when the anchor hits the seabed. The anchor chain should "self-deploy" moving backwards as long as the clutch remains open. It needs to be closed once the required length of chain is reached.
A pole to control the windlass clutch is stored in the deck locker next to the anchor. This manoeuvre requires effective communication between the helmsman and the foredeck crew (for example agreed hand signs)

Deck locker: Lift and twist lid handle to open.

There is a **pole for the windlass clutch** and a **handle for the manual bow winches**.

The chain and rode are for the **auxiliary anchor** (kedge, in rear part of aft deck settee).



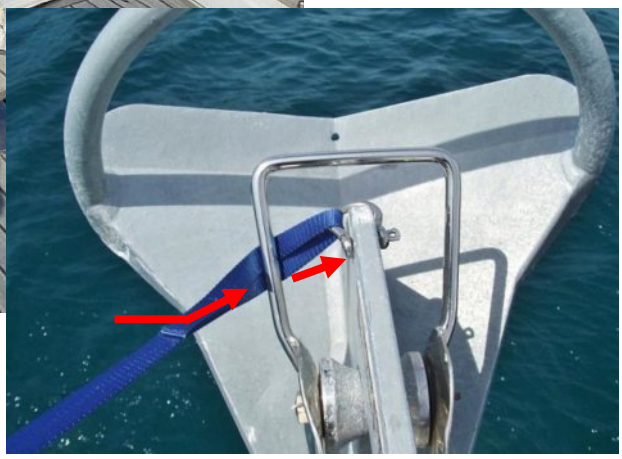
RETRIEVING THE ANCHOR

Always use **engines** to move boat SLOWLY in the direction of the chain, never try to "pull it along" with the windlass, this would overload the windlass and may cause damage.
Watch the chain and the direction it points: If it stretches (and winch revs slow), there is too much pressure, pause windlass and manoeuvre boat, or just wait; if chain is **pointing sideways** (can be seen from the upper helm), **pause windlass immediately to avoid jamming** on the bow roller; swing the boat's bow in the correct direction before carrying on.
Watch the chain counter: When the anchor is getting close to deck, an alarm sounds.
If the anchor emerges soiled with a lump of mud, grass etc stop pulling it further up. It can be lowered back into the water (2-3m). It may help driving the boat at low speed forward, as you leave the anchorage. Then lift anchor to see if it has cleared.
Continue bringing in chain; the anchor will straighten over the bow roller and move to its cradle. Sometimes fine tuning may be needed to bring the anchor in a good position for the foredeck crew to take over.
During all anchor movements above, the foredeck crew must stay away from contact with the chain or anchor, otherwise risk of injury.

Once the anchor is over its cradle, the windlass **should only** be controlled manually by the crew member on the foredeck who fixes the anchor back to the cradle.
Communicate unmistakably the moment when the foredeck crew has to take over, otherwise hand injuries can occur.

DEPLOYING THE ANCHOR BUOY (an optional gadget)
A ‘self-adjusting’ anchor buoy is available; it also works as a tripping line to help retrieve the anchor if it gets jammed.
Lift buoy from cradle, run strap over the railing and towards the anchor.





Run strap underneath the bracket of the cradle and shackle it to the anchor

Launch buoy into water with boat hook as soon as the anchor is under water.

When lifting the anchor, the buoy is best picked up with a boat hook when it floats upright close to the chain. That is shortly before the anchor emerges from the water.

Note: When close to a busy holiday resort, watch your anchor buoy; a tourist might come along in a tiny boat and believe they just found a handy mooring buoy 😉.

THE AUXILIARY ANCHOR (kedge)
is stored in the rear section of the aft deck settee. Its chain and rode are in the anchor locker at the bow. It can be deployed manually, for example at the stern.
There is a third **small anchor** stored in the aft deck settee forward section.

THE “SEA ANCHOR” (parachute anchor)
is an emergency aid which can be launched from the bow to keep the boat pointing into the wind in heavy weather when there is loss of engine power. Stored on flybridge, in starboard front seat. It is orange fabric, 190x145cm, there is rope to deploy it.

ROPES LOCKER

Box on aft deck. When open, secure lid to guard railing with bungee cord!





- ROPES, coloured cable ties mark length:

Red – short, 11m (x2): Stern/bow lines.
Cross stern springs. Tying up.
Green – 13m (x2): Mooring lines, springs
Yellow – Medium 15m, no eye (x1): Springs
White – long 19.5m (x1): Shore line
Blue – long 22.6m (x1): Shore line

- Anchor Buoy
- Anchor snubbing rope (white) with fittings, some rubber snubbers.
- Blue shorter rope with fittings for 'patent' buoy hook - use with dedicated boat hook.
- A further "buoy catcher" hook (yellow/black) is stored in the aft cockpit side settee

On flybridge:

- Floating rope: Thin yellow rope e.g. dinghy towing, in flybridge stbd seat.
- Very long rope 30m (x2) black: Shore lines or tow lines, in rear port seat.
- Under helmsman's seat: Old ropes, 2x29 m blue, long white rope, etc

BOARDING LADDER



Side boarding ladder stored on aft deck.
On demand, can be attached to the gunwale at the opening part of the hand rails (exits) at either of the side decks.
Secure it from falling accidentally by locking it with a loop of the guard wire.
Length is designed for use alongside a floating pontoon mooring; it may be too long for fixed (land-based) quays in the Med. Take care of tidal changes.

Swimming ladders

The **factory fitted swimming ladder**, and deck shower, are on the starboard side. This ladder can only be launched when the dinghy is off the platform.

A detached **customized swimming ladder** is stored on the aft deck to port. It gets attached to sockets at the port corner of the platform, easily accessible from the staircase.
Secure it to the hand rail with a rope.





Tip: Before a swim whilst the dinghy is on the platform, deploy this ladder, and lower the outboard prop shaft down to the platform. To protect the teak deck, put a rubber pad or similar underneath the prop. There is an extra small deck shower on the side of the staircase.

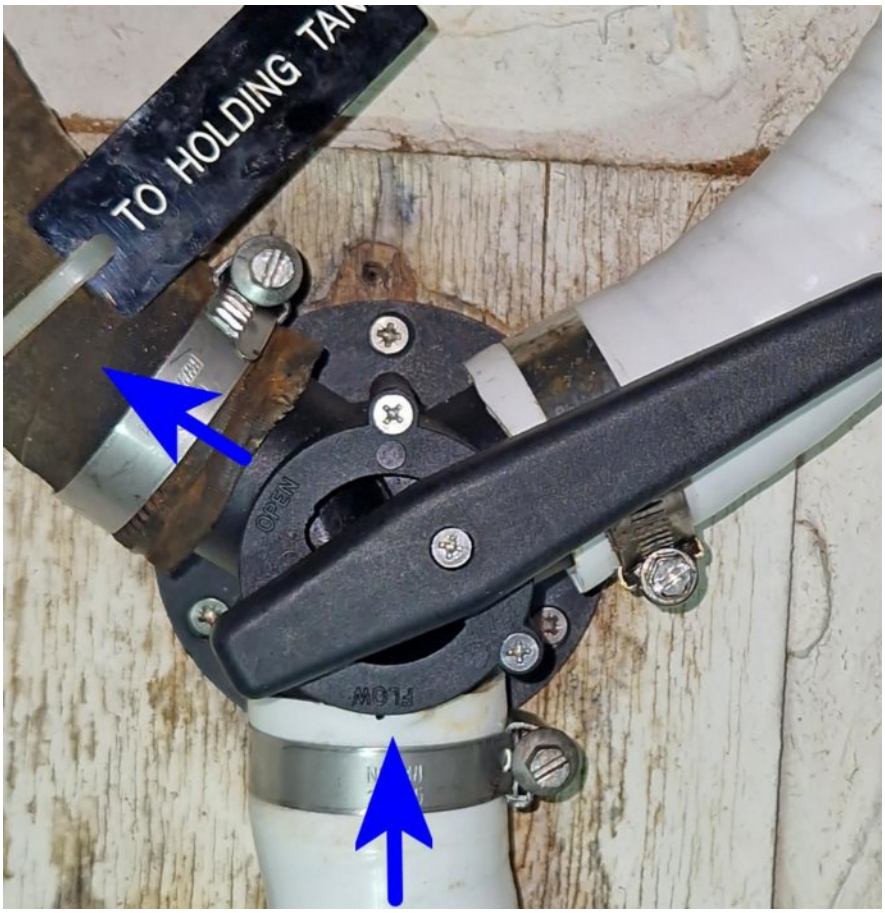
Furthermore, a small **pull-out boarding ladder** is attached underneath the platform in the same area on the port side. Push and hold the red button, and pull ladder out, extend it until it tilts. This ladder can also be deployed from the water.

Boat hooks

A range of adjustable hooks is stored next to the aft deck door.
Note the hook that accommodates an end fitting that allows catching a buoy with a rope; get familiar with its use.
A sturdy non-adjustable all-metal hook, dedicated to catching mooring ropes, is kept lying on the side deck behind the settee. (This position might look precarious but is safe from going overboard!)

THE HOLDING TANK ('BLACK WATER' or WASTE TANK)

Each toilet can be set to discharge overboard (directly to sea), or to the holding tank: 2-way diverter valves are underneath the bathroom sink.



Front bathroom switch: As shown, flow is open'**to Holding Tank'**.

NOTE – The handle position does NOT indicate the flow. There are small markings on the ring of the black diverter valve, saying FLOW and OPEN, but they are practically invisible!



Aft cabin bathroom toilet waste discharge shown in position to '**OVERBOARD**'.

(Generally, this is the preferred setting. The pipe run from the aft bathroom to the waste tank is quite long).

The holding tank has a capacity of 100 ltr. Regularly check the level when in use.

The TANKWATCH III monitor is located at the lower helm, behind the wheel.



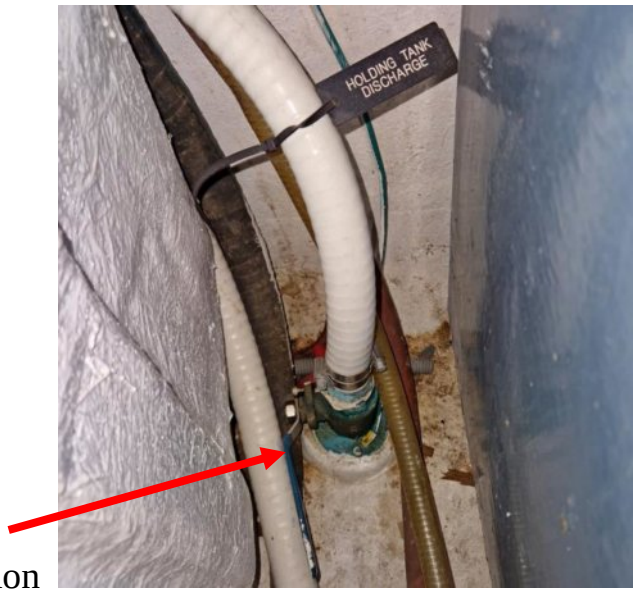
Display:	Tank level:	Action:
Green **EMPTY** (only)	EMPTY	None.
EMPTY + amber **MID**	LOW	Empty tank when permitted and convenient
Amber **MID** only	MID	Empty tank as soon as permitted
MID+ red **FULL** flashes	FULL	Stop using tank, empty tank as soon as permitted

If the tank is overfilled, it overflows through an airing vent on the stbd side of the hull, underneath the pilot door. It is illegal to pollute the sea in a harbour or marina.
If no light shows on panel, check fuse 'fwd sump pump'. If the status does not change for some time whilst tank is in use, e.g. stays at LOW, the monitor may be stuck and need maintenance, see below.

EMPTYING THE HOLDING TANK

1) Pump-out connection on stbd side deck, by side door, filler marked WASTE. [Pump-out facility could not be used due to unavailability of pump-out services in the cruising area.]
2) Discharge at sea is allowed when 3 or more nm off the coast.

- To discharge the tank using its pump, the holding tank discharge valve must be OPEN (it is normally left open).



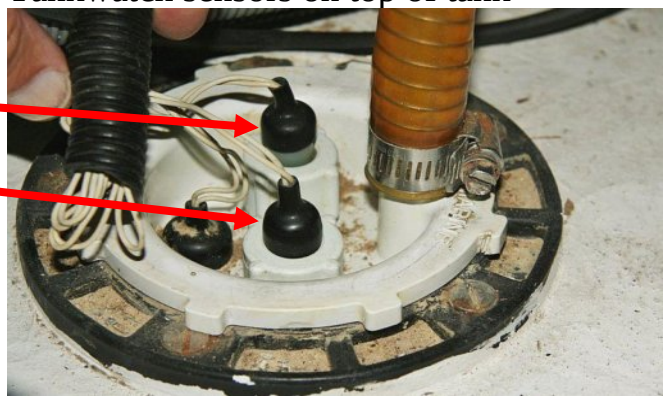
Valve shown in CLOSED position

- Turn on switch HOLDING TANK PUMP. A discharge from full to empty takes 2.5 to 3 minutes. The sound of the macerator pump cannot be heard whilst the engines run. Watch changes of display on TANKWATCH monitor:
- Red **FULL** flashing should stop after about 10 seconds; display amber **MID** only, then **MID** plus green **EMPTY,** and, finally, **EMPTY light** only.
- Do not let the pump run completely dry: As soon as the display reaches green **EMPTY** light only, switch off within 10 -15 seconds.

If the pump runs dry it can draw a higher current, the fused switch might turn off. If this happens after emptying do not turn on again, let cool for a while! If it happens when the tank is not empty, or, the pump runs but the display does not change, the outlet might be blocked.
The sea outlet is close to the edge of the hull, approx. underneath the side door. It can be easily reached from the water and cleared; gently try inserting a narrow (wooden) pole or a similar sturdy blunt stick, only 20cm length is needed. Remember that a floating stick will travel up the pipe if grip is lost (!)

MAINTENANCE NOTE:

Tankwatch sensors on top of tank



Tank sensors 1and 2 can 'get stuck' after some time, and cause **false indications**, This happens after longer periods of time with little or no boat movement.

Symptoms: In case sensor '2' sticks: The monitor initially shows light "EMPTY", then LOW ("EMPTY" plus "MID" lights) (sensor 1 on), but does not go to "MID only"; finally, after a long while, FULL (RED light) surprisingly flashes (sensor 3, tank full). Watch out for status LOW not changing to MID (light MID only) for a long while.

In case sensor '1' sticks to 'off': Monitor shows "EMPTY", but light "MID" does not come on for an unusually long period; then "EMPTY" goes out, no lights. Finally, suddenly changes to FULL (RED flashes).
Watch out for MID light not coming on for a long period, then EMPTY going out.

To get sensors to work: Carefully unscrew the cap and pull back the rubber cap without damaging the cable. Move the tube and shake it slightly, then fix it back. If successful, the display shows the status correctly.

SUMP TANKS (Grey Water) and PUMPS

Sump tanks are intermediate collectors of waste water from sinks and showers, washing machine and dish washer. Their outlets are below the sea water line and need pumping over board. There are two sump tanks on board, both are Johnson grey water tanks with pumps, their switches operate automatically.
Tanks need occasional checking and cleaning.

SUMP PUMP SWITCHES and indicators:



Red indicator lights as long as pump is running

Normal switch position is AUTO (float switch operation); each pump can be run manually by holding switch in MAN position (override).

The bilge pump monitor (BILGE WATCH) records pump activity and alerts if a pump operates for an abnormally long period of time. That can be a sign of a fault and needs attention.

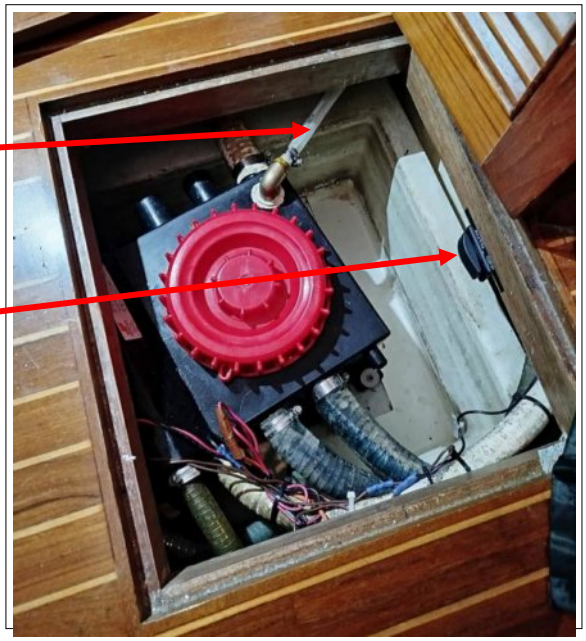
Sump pump fuses are at the top of the D.C. 12V SYSTEM PANEL,. However. the aft sump pump ‘auto mode’ fuse is in the engine room, see below.

FORWARD SUMP collects water from forward bathroom sink and shower and discharges overboard to port side.
It is located under the forward corridor and accessed from the hatch by the side cabin door. (Open this hatch as shown in section aircon pump1.)



Location of forward sump tank

AFT SUMP TANK in aft cabin
collects water from aft bathroom sink, bath tub, washing machine and dishwasher, and discharges overboard at the transom.
It is accessible under the hatch in the aft cabin centre, by galley door.



Power for automatic operation can be turned off locally with switch **AUTO – OFF**. This can be used to avoid operation at unwanted times, e.g. overnight, or when the boat is left for long.

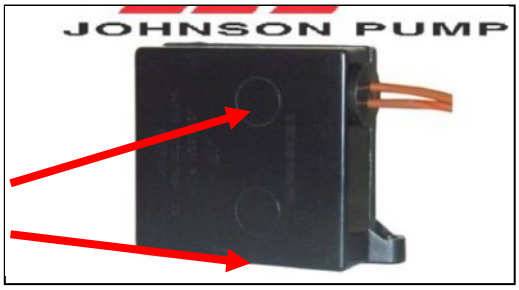
The red screw top has a small venting hole.

Power for the AFT SUMP PUMP's automatic operation is taken directly from dom. battery (+), bypassing the D.C. MAIN SWITCH. A separate inline fuse is in the battery compartment in the engine room, at its rear end.

Sump tanks need periodic **cleaning from debris and slime build-up:** Unpleasant slime can develop after 2 weeks of usage, in hot weather maybe earlier.



The sump tanks are fitted with mechanical float switches.
Note: The original equipment was fitted with electronic switches. They were replaced after repeated failure.



The following information is *for reference only*:
The electronic switch can be tested by pressing and holding the 'sensor rings' with two fingers of one hand; this should start the pump after a second. If the switch surface is covered with slime it needs cleaning.

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FURTHER HOUSEHOLD EQUIPMENT

GALLEY TAPS



Hot/cold mixer tap with pull-out hose;
drinking water tap, from water purifying filter;
(sea water tap with hand pump, not in use)

The galley sink discharges directly overboard to the side; the outlet is noticeable.
Do use washing up liquid sparingly, do not spoil the water around you.

HOOVER

A rechargeable handheld hoover is kept on its cradle in the cupboard with the sliding door under the salon lamp.
In the same cupboard are chargers for handheld VHF and more, as well as a large black leather briefcase with user manuals.

A Henry vacuum cleaner is kept underneath the salon settee:
It operates from 230V shore-power or generator power and is rated 2KW (do NOT try to use it when on inverter! It will bring the domestic battery down)



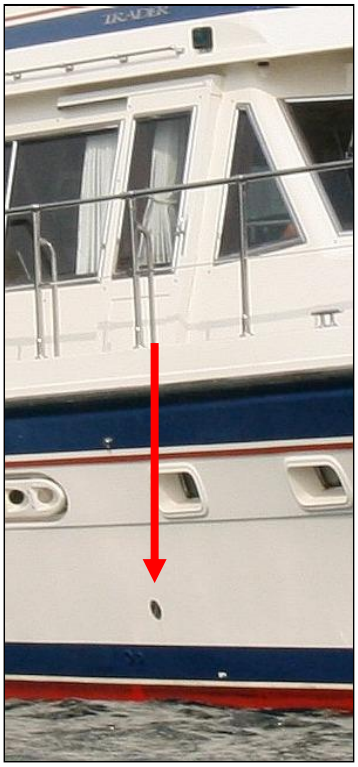
DOMESTIC HEATING

2 Diesel heater units (Eberspächer) are installed, for forward and aft section of boat. These heaters are using fuel from the diesel tanks and can operate any time.



Diesel heater control panel:
OPERATING INSTRUCTIONS are in Appendix "DIESEL HEATERS". When not in use, 'P' must be crossed out, that means no timer program is running.

Up/down arrows to change target temperature.
"Heating" button, press to run for 1 hour.
Extend time by pressing middle button.

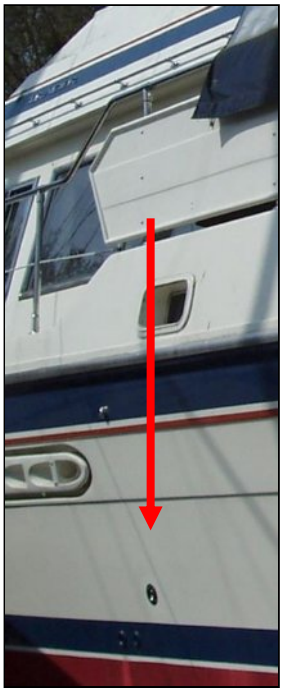


Forward system: Control panel at helm.
Heater outlets in:

- salon below pilot door (adjustable)
- bow cabin (fixed open)
- mid cabin under desk (adjustable)
- forward bathroom (adjustable)

Exhaust outlet to stbd in area below pilot door.

CAUTION: The exhaust outlets are at low level on the sides of the hull and must not be obstructed when the heaters get used. When moored alongside, make sure that no fender is near the exhaust, it will get burnt if in contact (!)



Aft system: Control panel on side of salon settee towards galley.
Outlets in:

- Salon settee (adjustable)
- galley (fixed open)
- aft cabin (adjustable)
- aft bathroom (adjustable)

Exhaust outlet on port side, below the first stanchion on the side deck the end of the white GRP dodger.

MAINTENANCE: Operate each heater regularly, once every two month, for (at least) one hour. Just press "heating" button once. This should help keeping fuel pipes and injectors operable.

AIR CONDITIONING



Air conditioning works on mains power, switches are on AC 220V panel. There are four separate compressor units. Aircon units use seawater for cooling, supplied by 2 pumps:
PUMP 1 - Forward cabin, guest (side) cabin units
PUMP 2 – Aft cabin, salon units

ATTENTION: Before switching power on, make sure that the **aircon pumps' sea valves are open**.
(see section SEA WATER INTAKE VALVES).

Turn the corresponding PUMP ON before turning on the AIR COND circuit it serves!

Once power is on, the **room control panel** is active. NOTE that after power-on there is a built-in **delay of about 4 minutes** before the compressor kicks in and operation starts.

Power consumption: Aircon units use about 8A AC each, the salon unit a little more than the cabins. LIMITATION: When connected to a standard small blue (16A) marina outlet, **only one aircon unit** can be used. Battery chargers and other equipment are also running. If you are unsure about the shore-power supply, check AC- voltmeter for reading under full load; it should be at least 210V AC.

TURNING ON
Salon: PUMP 2 & SALOON AIR COND on
Aft cabin: PUMP 2 & AFT CABIN AIR COND * on
Side cabin: PUMP 1 & GUEST CABIN AIR CON on
Bow cabin: PUMP 1 & FWD CABIN AIR COND * on

Note: * Unit does not support heating (reverse mode), only cooling,
(Use diesel heaters or ext. electric heaters)

ROOM CONTROL PANEL
Temperature in deg Celsius



ON/OFF: operate/standby. FAN: on/off (fan will turn on automatically when operation starts)
Press MODE to select COOL, AUTO, HEAT
SET temperatures menu: Press SET repeatedly to set
(1) target temp cooling, select with up/down buttons,
(2) target temp heating
(3) fan speed 1-5, but only a fixed speed is supported by the unit regardless of this setting.
Press SET again to return.

Essential check of COOLING WATER OUTLETS:
PUMP 2 (Salon and aft cabin units) runs continuously as soon as switch is turned on: Water is discharged from two outlets on the starboard side near the galley and on the port side near the salon.
PUMP 1 (side and bow cabin units) only runs if one of the compressors operates: Water is discharged from two outlets on the port side, near the mid cabin/forward cabin.

Troubleshooting: If no water is discharged (the burbling noise outside has stopped), and/or the system overheats: Turn off immediately. Check pump has not cut out, seawater filter is clear. In this case there may be external blockage. Locate sea water inlet and remove any blockage (for example floating debris or marine life) under the hull.

MAINTENANCE NOTE: All aircon units should be run up in cooling/heating cycles briefly at least 2 times a year to make sure that the internal relay switches in the control boxes do not freeze in one position. (If that happens, the unit will take irregular high amps and keep cutting out after moments)

TV and Internet

Equipment may change over time, photo may not show current equipment. Refer to user manuals and notes.



TV Samsung (UK model, no smart functions); does not decode terrestrial TV outside the UK.

Sat Receiver = TV ‘HDMI 1’. Box has USB ports for portable HDD/memory stick

Sat antenna control box (KNS). In the Med, set up is Astra 1 and Hotbird channels; in UK Astra 1 and 2 (British). The sat antenna is connected to the receivers in the salon and in the aft cabin. Each can be used independently.

BD-DVD player Sony =TV ‘HDMI 3 DVD’. Pioneer stereo (older type) drives the ball speakers and subwoofer (installed below, behind grills).
The TV has a third HDMI input
TV input sources: HDMI 1 = Sat TV; HDMI 2 = IPTV; HDMI 3 = DVD

Sat TV in Croatia: Astra 1; Hotbird. German channels, some news channels in English. Some channels have weak footprint in central/eastern Med. BBC News channel is available on sat.
More channels on internet/Wi-Fi (see below).

Sat TV: Worls on 230V mains
- Turn on mains socket behind TV
- Switch on KNS control box
- Sat receiver = small box OPTICUM, red light = “not receiving” or “stand-by”, green light = “channel received ok”; after power-up it is automatically on.
- Switch TV ‘source’ to HDMI 1. Wait for sat antenna to acquire and track sat (2 green lights stable); it can take a few minutes if the boat has changed position.

IP-TV: Amazon FireTV stick (Wi-Fi), in HDM 2 port. Remote control. Limited function without subscription but offers BBC Iplayer, IPTV player app etc. No off-swich, just unplug from mains power when not in use.

There is a Pioneer car **radio** (USB port, CD player), above the chart table. Speakers above the inner helm and on the flybridge. To play music from mobile phone and listen to international/internet radio channels, a Eono wireless stick is inserted in the USB port and plugged into the AUX input - it receives signals over Wi-Fi from a mobile phone app.

INTERNET / Wi-fi mobile router with data sim in use, currently no fix wifi router installed. External mobile broadband aerial on radar arch; cable to inner helm: loose cable by window to right. (Currently not in use).

NOTES

FURTHER OUTSIDE EQUIPMENT

BOAT COVERS and screens

Boat covers and sun screens are stored in the void behind the flybridge helm.

For winter: Blue canvas aft-deck all around covers with vinyl windows and openers (9 parts)
Blue canvas salon window covers (pilot house, pilot door, side windows starboard, side window port, aft deck door, aft deck window, 6 pcs)
Blue canvas flybridge canopy, with 2 poles

For summer: Blue canvas covers for flybridge helm and helm seat
Blue canvas flybridge sun bimini and hood (see setting up guide, below)
Mesh window covers for salon windows (Black mesh for pilot house, cream mesh for pilot door, port side and starboard side windows, aft deck door, aft deck window, 6 pcs)
Mesh aft deck covers, cream, for starboard side and port side (2 x 3 parts)
Mesh covers provide protection against sun and wind, they are semi-transparent

Note: Should a press stud be very hard to close, apply a small amount of WD40 to the inside and try again.

Cover storage bags (sail bags) in fly void behind helm



Content is marked n bags content



The helm seat cover accommodates a cushion.

The flybridge helm cover should be put on whenever the fly helm is not in use, to protect the instruments.

How to set up the flybridge sun bimini (a suggestion)

(Let's assume that the fabric had been taken off, e.g. at the begin of the season)

- untie/unfasten poles; take the both short forward poles off (those that get fixed inwards of the windscreen) to avoid them knocking the gelcoat when the frame is moved forward
- move both long forward poles, together with the foremost frame, to forward; fix to fittings in front of windscreen and secure the bolts.
- extend poles as necessary, up to their max length
- the rear and front frames should now be standing, ready to fit fabric
- fit fabric to front and rear frames in correct direction as marked on the fabric
- re-attach short forward poles and fix. Secure all bolts.
- lift centre brackets and close zips to hold them up;
- adjust/shorten length of forward poles to give reasonable tension.

Forward poles – adjust length by turning the threaded section



Folding the sun bimini back and covering it:

- loosen forward long poles, take short poles off entirely
- take off forward poles from fittings, fold frame back
- gather fabric and tie to frames as necessary, can use bungee cords
- fit bimini hood
- re-attach short poles to frame
- tie front and rear frames together on the sides, including short poles, to avoid movement, using cable ties or similar

GANGWAY accessories

The running pole, on the underside of the outer part, when not in use, is stopped from sliding forwards and back by a bungee cord. Spare cords are in the salon settee, under the front seat.

For convenient boat access when moored stern-to on pontoon or pier, two customized **guide poles** were made. They slot into sockets on the side of the gangway, a single pole at the outer end of the passarella, and a T-pole at the top end. Connect their strong flexible cords to the gangway railings to provide support.

NOTE: When poles are set up, it is NOT possible to fully fold the passarella in, the cords get caught and the poles conflict. But the outer part of the gangway can be lifted to 90 deg upright position if needed. Before getting underway, take poles off.
The poles are stored in the ropes locker.

Supporting T-pole at the top end of the passarella



Fit T-pole into its holder and secure with screw, attach flexible cord with hook securely to the gangway's rail on the outside and pull cord tight on the aft deck side, tie up around railing. The cord slots through the pole.

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