

Yacht Manual 'Charlotte Rose' Westerly Riviera 1993

MCA SSR60748
HIN SOU 605890

This manual has the following parts:

- **Part One – Basic Systems & Structure**
 - Electrics & Navigation Equipment
 - Structure Fixtures & Fittings
 - Standing Rigging, Reefing, Sails, Decking
 - Engine & Gearbox
- **Part Two - Maintenance Notes & Log from Aug 2022 on**
- **Part Three - Engine maintenance and helpful information**
- **Part Four – History (Previous Ownership)**
- **Part Five - Essential Safety information for Crew**
- **Part Six – Appendix**
 - List of pdf's & Printed copies for systems and fittings

Charlotte Rose - Westerly Riviera, Fin Keel. Built 1990, commissioned 1993

Introduction

Charlotte Rose is in excellent condition. This is backed up by two surveys (see appendix). After purchasing in 2022, the boat has had significant work improving many of the electrical and other systems and has undergone a deep clean and improvement of many internal parts including the headlining and wooden fixtures. There are still a few items that could be improved, but these do not affect the sailing or the living accommodation in any material way.

The new Flexiteek Decking looks brilliant and provides an excellent stable deck for moving around and will last at least 20 years and probably many more.

As a boat she is a delight to both sail and motorsail. The layout of the aft cockpit and the internal cabin are perfect for summer or winter sailing. Charlotte Rose is an excellent boat for both long sea passages or shorter day sailing and also canals proving almost perfect to take through the Caledonian and sail through the interconnected Lochs.

The internal helm saloon has great appeal for the UK climate. Few similar boats are now built. Why? The simple reason is because they cost a lot more to build than conventional cruisers. The Riviera was built by Westerly to their top specification and fitting out, only 72 were ever commissioned.

As a comfortable boat with good sailing and motoring characteristics, Charlotte Rose offers quality modern systems such as Autopilot, lines back to the cockpit with a roller reefing headsail & mainsail, electric windlass, bow thrusters, AIS, and an internal and external cockpit plotter. The excellent accommodation offers both hot water and cabin heating a wide beam and two heads. Such facilities are normally associated with a much more modern boat. Being a Westerly, she excels in her comfortable sailing and seaworthiness due to a well built substantial hull. This same hull is used on a number of renown Westerly's known for quality sailing characteristics such as the Seahawk, Falcon and Oceanquest.

The engine, (original (VP 2003T), has been exceptionally well looked after. The boat was owned for many years by an engineer who lavished care on the engine and gearbox. Today, the engine is a major asset, being very powerful and in excellent condition, it has never shown any signs of weakness. It has been fully serviced by the current owner who also has extensive experience in diesel engines. The previous owner had the fuel tanks and system cleaned to clear out a diesel bug infection. The tank now has access points and is kept topped up with fuel and additives to prevent this recurring.

Hull Design – Ed Dubois

Based on the successful and well liked Seahawk design, the Riviera created a new type of vessel with a different superstructure for the internal helm cabin.

Twin keel vs fin keel

The sailing qualities are said to be similar. There is just a little difference in draft, the twin keel being slightly less (100mm). Some twin hull owners have mentioned noise (cavitation) from the keel when on a faster reach. It is likely that the fin keel points higher, but there is no definitive information on this.

Design issues

The windage from the raised cabin is often mentioned as a factor. However, many owners have reported that this is not a significant issue and many modern boats have significant windage from large biminis, canopies and centre cockpits

Part One: BOAT STRUCTURE & SYSTEMS

Electrics & Electrical Systems

Main Battery Isolator;

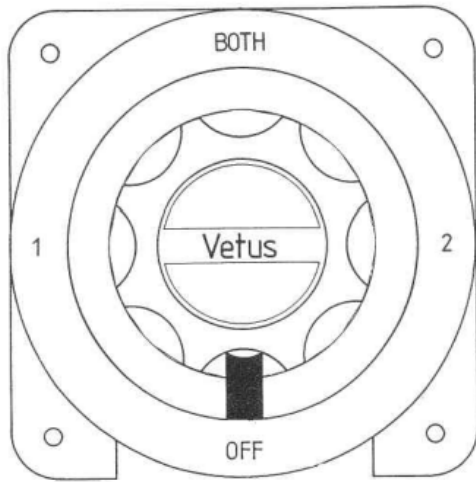
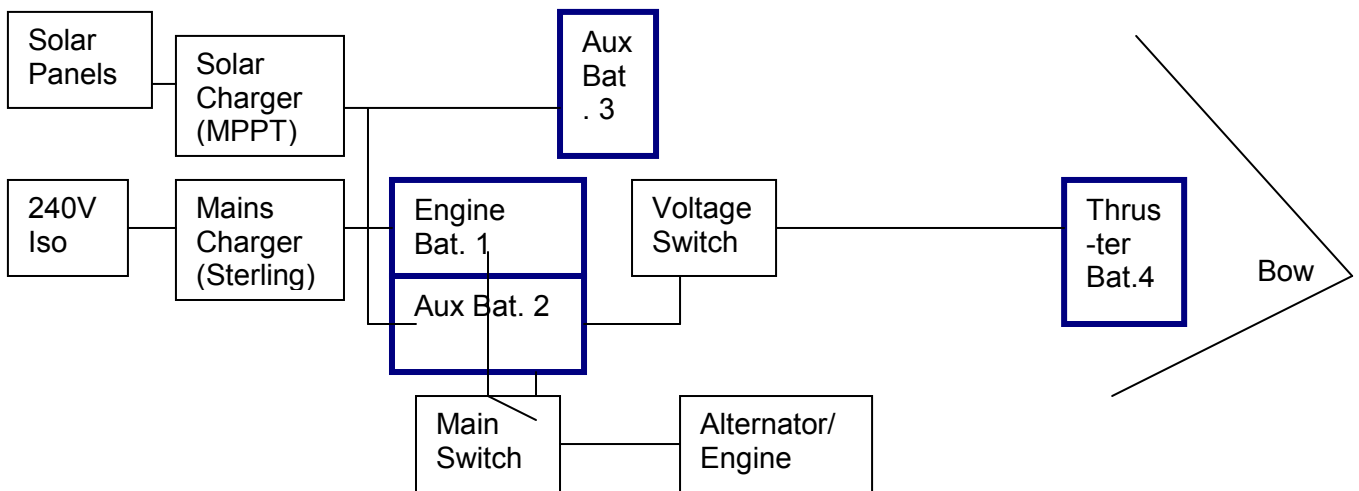


Fig. 3 - Vetus Isolation Switch

Batteries & Charging Systems



Battery Locations

- 3 Under rearmost seat in main cabin
- Thruster - Below forward cabin bunk (bow section)

Sterling Charger 1230CED see separate pdf

MPPT Solar Charger (ML2430) see pdf

- Linked directly to solar panels

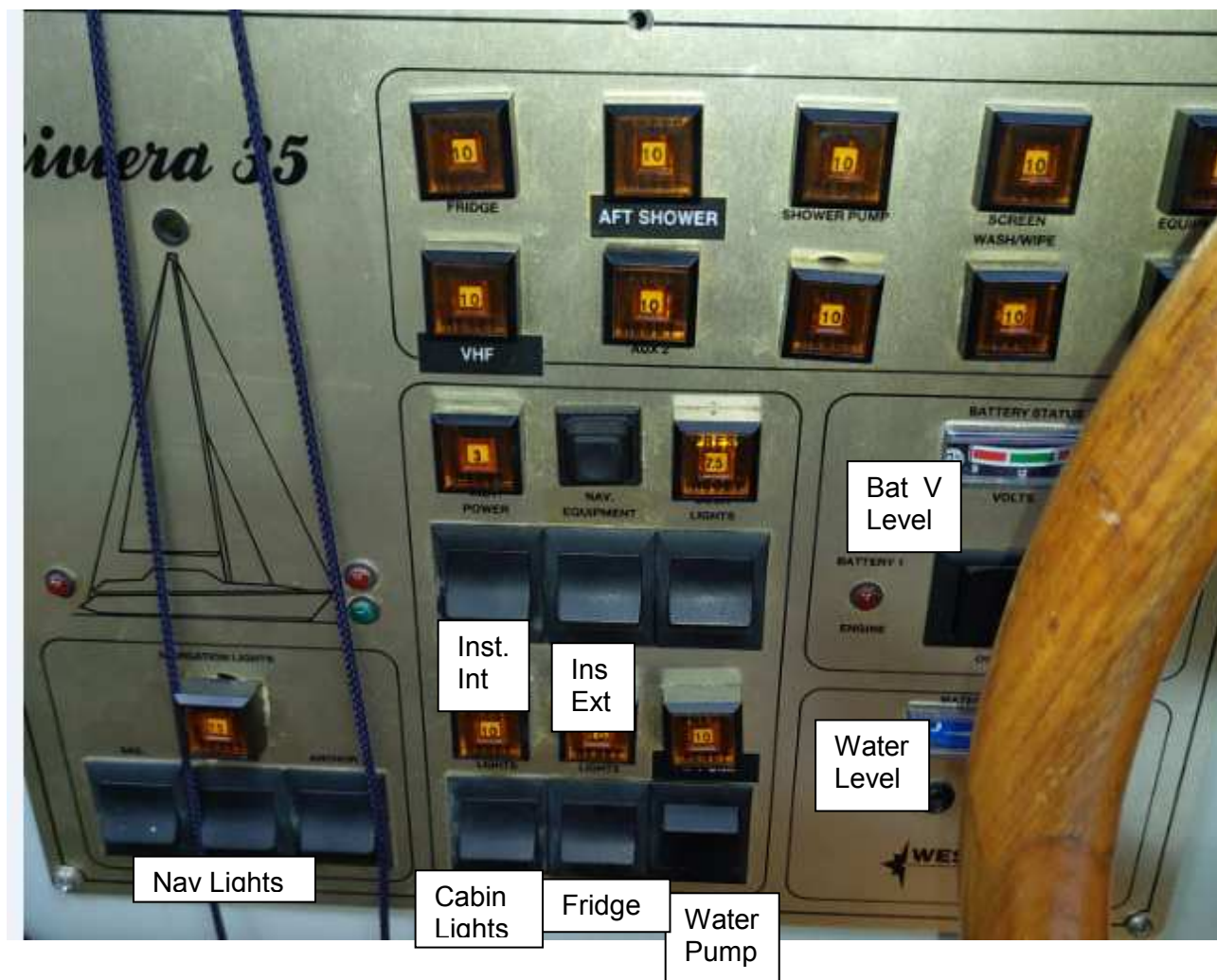
Voltage Switch for Thruster Battery

- Charges thruster battery only when Aux 2 above 14.4 Volts

Fuses

- Various in-line fuses from batteries
- See below for main board fuses (and maintenance log notes)

Switches & Main Board fuses



All Lights:

- All Cabin Lights are LED
- Strip LED above internal helm – works when ALL switches off
- Strip LED in rear cabin – works when ALL switches off
- Flex light at internal helm comes on with main cabin light switch (turn to switch flex light on)
- Mast top Tri-Colour (not working)
- External rear (white), Port and Starboard on cabin top
- External mast deck-light

Bilge Pumps

- Electric Pump, switch is to rear of the main isolation switch
 - Note: this is a two position switch, DOWN is a momentary switch that needs to be held down
 - UP is a latch switch, but care is required as it will continue to run the pump when dry (and seize the pump).
- Manual bilge pump in cockpit port side rear, handle in rear locker cover

Electrical Windlass

- Powered from Aux 2 battery via KEY switch to rear of main battery switch
- Use RED KEY to insert and turn to power on
- Windlass up-down switch on Pulpit
- Manual handle kept on hook above cabin steps

Navigation Equipment, Autopilot, AIS, Radar, Depth / log , VHF

Clipper Depth sounder

Clipper Wind indicator

Clipper Log

- Not reading – impeller stuck or not working

Raymarine C70 see pdf

Onwa 1299 & AIS see pdf

- AIS is both transmit & receive

Lowrance Elite 4

- 9 cm screen (diagonal)
- Note: NO charts for northern Scotland installed

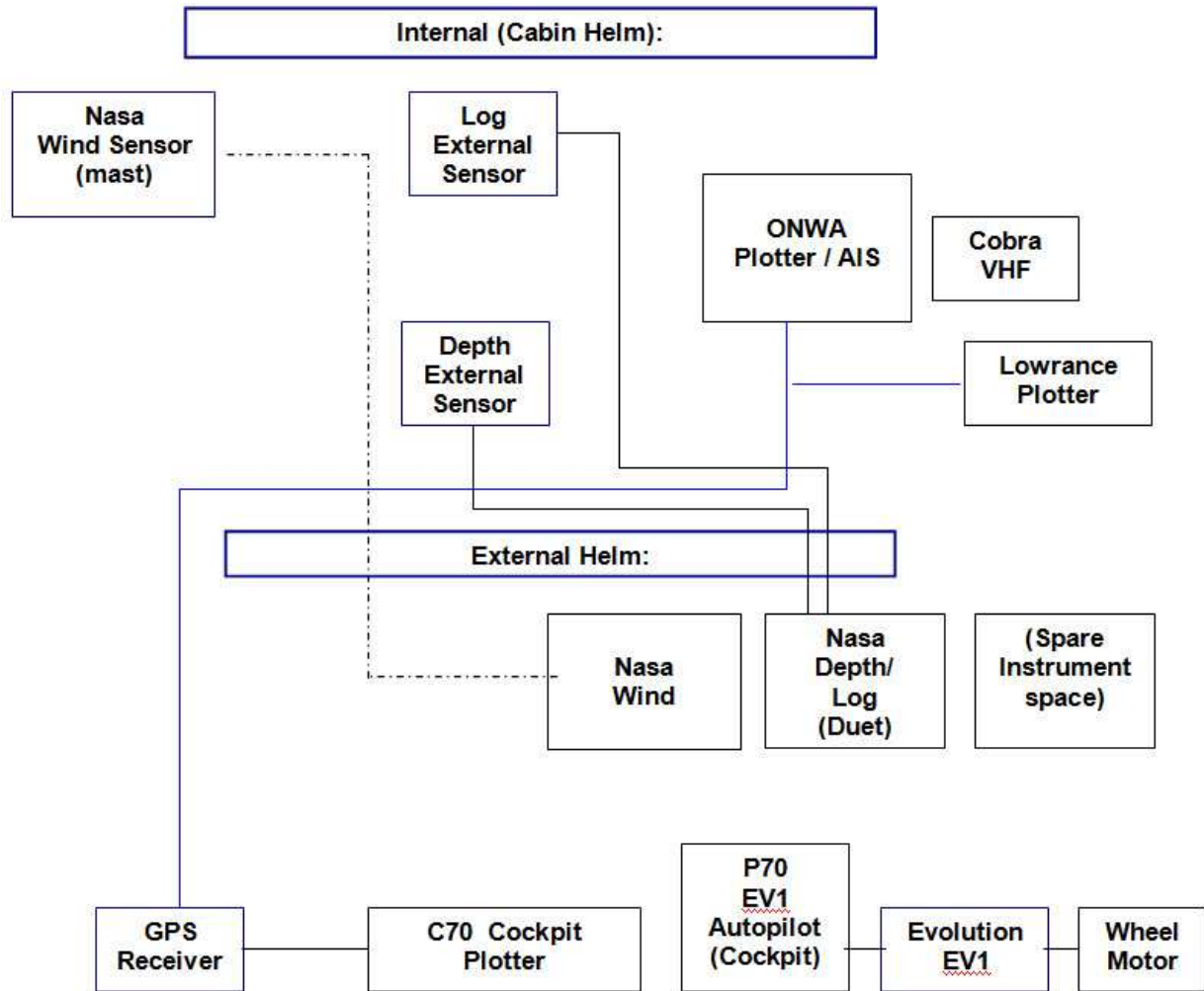
Raymarine Autopilot ACU1000 see pdf

To turn on, need to press on button several times. Select Auto and engage the handle linking to wheel. To disengage, press 'Standby' and disengage from wheel.

Cobra VHF

Standard fixed VHF with Mayday emergency button (see pdf)

Current Navigation Instruments:



Solar Panels (4)

These are held above the Bimini on a NEW piece of very strong fabric. They do provide ample voltage most of the time to keep all the batteries topped up. The panels along with the retaining fabric can be removed and stowed in a few minutes. The panels fold together for easy storage.

- Panels: Two mpptsun plus middle one Topsolar , all 100W

Vetus Bow Thruster BOW5512D (Fitted 2021, £5000)

Turn on press on button then press again after audio signal. (May turn off after a long delay).

Vetus BASIC details / spec:

- Output = 3kW
- The Vetus 55kgf is arguably the most popular Bow Thruster for Yachts and Powerboats up to 12.5m (42ft). Manufactured using the highest quality materials to give high power and long service life.
- The Vetus 55Kgf unit is one of the few thrusters for this class of vessel with a 150mm diameter tunnel -making it much easier to fit than competitors with standard 185mm units.
- High quality, high output DC motor.

Radio / Speakers – New 2023

Car Stereo Kenwood KMM-205 Digital 1-Din Radio Digital Media Player USB AUX iPod iPhone Android

- FM (RDS) / AM (MW/LW) tuner (24presets).
- LW range: 153kHz - 279kHz (9kHz step)

- Met Office: Frequencies: Longwave **198 kHz**, VHF 92.4-94.6 MHz,
 - Brightness control 0 - 31 steps
 - MP3, WMA, WAV, FLAC playback
- Speakers - 1 x JVC CS-J620 J Series 16 cm 2-way Coaxial Car Speaker 300W (in new boxes)

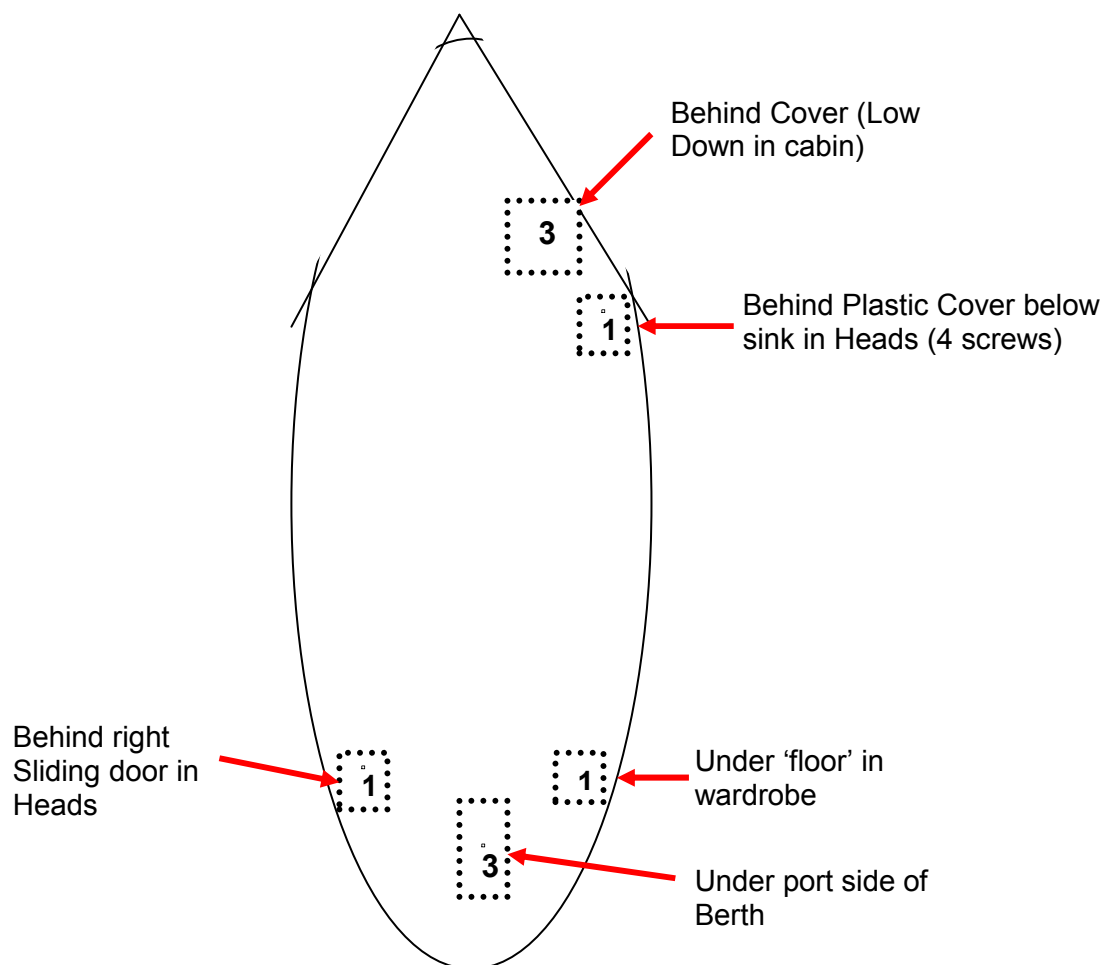
General Internal Hull & Fittings

Through-Hull Seacocks

- These are all 'free' working and have been greased (using special marine grease).
- There are emergency wooden stoppers in top of cabin steps

Seacocks Layout Top View (9):

- Three forward cabin below bunk via access hatch
- One Forward heads below the basin behind screwed cover?
- One Rear heads below the basin behind sliding forward door
- One Rear cabin under floor in the main Locker
- Three Rear cabin under port side bunk compartment



Wood Fittings & Panels

- Good condition

Headlining

- Good condition

Brass fittings

- Good condition

Water & Plumbing systems

- Check leaks within hot water system (pump runs when off)
- Check electrics for emersion heater

Hot Water System

This works both from engine via the cooling water or using the emersion (240V). The emersion switch is port side of cabin and has an on light.

- There is a water circulation switch (white) near the top of calorifier. This must point forward to turn on the water circulation
- There is a pressure release valve on the calorifier half way down port side.
- There is a pressure container that keeps the pressure stable on the forward side of the calorifier
- Sometimes water gets into the bilges – this could be the expansion water?

Cold Water System & Drainage

Main large fresh water tank starboard side under floor, when filling the floor can lift if overfull. Both the main cabin sink drain and the forward heads sink goes to the

Water Filter on Main basin cold tap

- Whale Aqua Source with Carbon Water Filter

Diesel Air Heating System

Eberspacher Diesel Heater (see pdf)

- Air heating pipes to main cabin and both rear and forward cabins
- Heater controller port side rear main cabin bulkhead
- There is a manual for heater controller (in folder with other yacht manuals)

Main Fresh water pump (under main cabin floor forward of engine, port side)

- Johnson pump, Orebro Sweden.

Calorifier & Hot water system

- 3kW heater -The emersion 240V switch is port side of cabin and has a red on light.
- There is a large white tap to turn on the water supply / pump, rear starboard side of tank
- Has a valve on the white top outlet pipe - this must be ON
- Supplies hot water to Galley and both sink taps in heads.

Safety Equipment

- Liferaft (Valise) in Rear hold 6 man (out of date)
- Liferaft 4 man canister – dated 2019
- MOB lifebuoy and light on stern
- Flares replaced with LED flare, in top of cabin stairs
- Replaced fire extinguisher with modern type 'water mist' (better)
- Fire blanket next to cooker

Liferaft servicing

Dated To 2019

Paperwork - it is an XM Offshore, 4 man, serial:10216 (manufactured 1997 RORC pack).

- This cannot now be serviced due to its age

Calor Gas System & New Cooker 2021

- Gas – 4.5Kg calorgas bottles - These are now discontinued, replace with **Campingaz 907 = (203 x 235 mm)**
- Gas tap under the Cooker
- Gas tester beneath the cooker, turn on / off

Standing Rigging, Reefing, Sails, Decking, Sailing & Manoeuvring

Deck - Flexiteek new 2020

This is a high quality new decking that is made from some sort of extruded plastic. There are no current issues with this new decking.

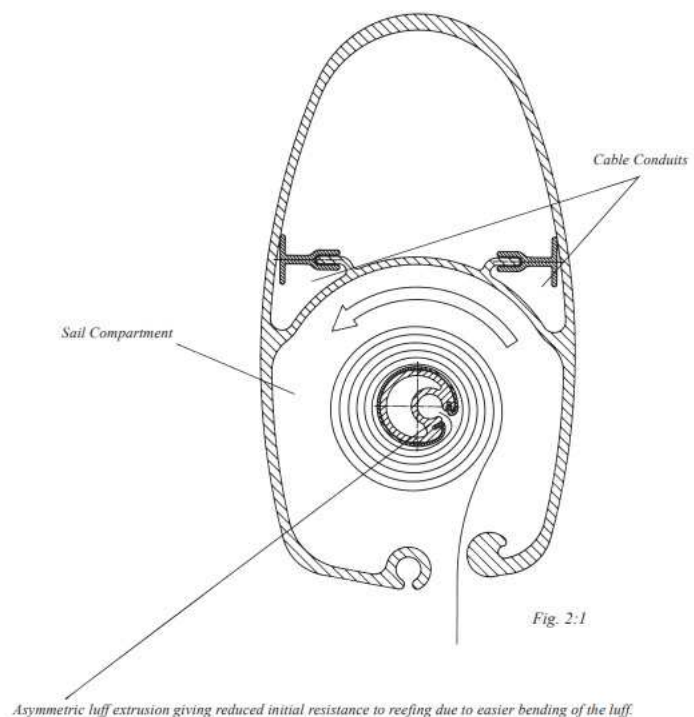
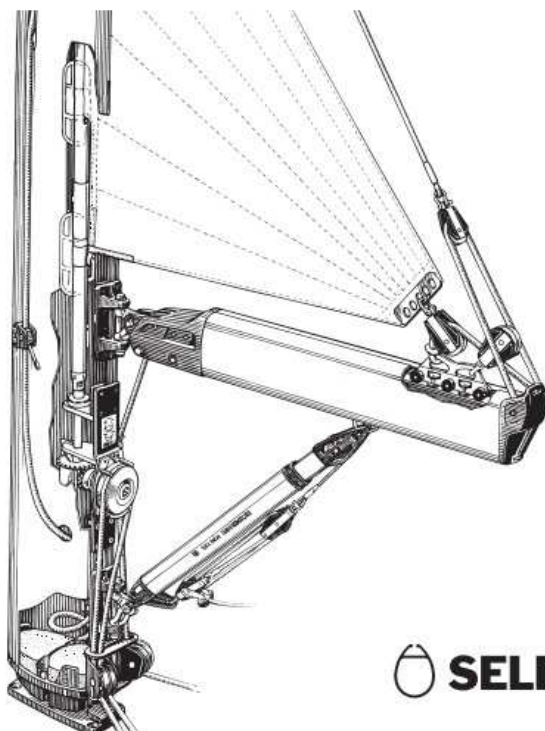
- It can be sanded to remove marks – sand only in the grain direction

Standing Rigging

Renewed approximately 2017. Survey 2022 found it in good condition.

Seldon Main Sail Reefing & Furling

Seldon: 2002 (SEE PDF)



Seldon - Use the ratchet when:

1. You leave the boat to make certain the sail is secured. Remember to take the ratchet off before deploying.
2. If you use a winch handle on the drive to reef the sail
3. If the wind is over 20 knots. This will allow you to reef the sail in but you will not rely on the endless line to stay tight in the driver.

Furling Headsail

- Lines back to cockpit

Sails (new 2020)

- Main
- Genoa

- Chute (unused) kept under forward bunk
- Old spare Sails – these are kept under forward bunk

Bimini, Solar Panels & Dodgers

- Bimini in reasonable condition, Dodgers new 2022

Sailing & Manoeuvring

Some basic points for a new owner:

Sails:

- She sails better with both sails up
- Easier to unfurl mainsail first, before headsail
- If required - Reef the headsail as it is being extended, the furling pulley will slip on the rope if tension is not applied all the time (in high winds this can cause the sail to completely unfurl)
- In high winds LOCK the headsail furling winch using the ratchet pin (port side is locked)
- Lock the ratchet in port to prevent unfurling
- There are marks on the headsail to show reefing positions.
- To furl/unfurl the main make sure you are on a starboard tack with the main sheet slack, (the sail ONLY goes in PROPERLY one way (see diag, anticlockwise from above). It will go in the other way – care!
- If you are having trouble furling in – use the winch plus handle, this is a tight fit between the other fittings, but it does work in a blow.

Headsail

- The headsail is easy to unfurl – just pull it out when you are off the wind.
- Reefing - If required – makes sure that the furling line is cleated at a reefing point, BEFORE pulling the headsail out with the sheets, else it will fly out too quickly to stop and is much more difficult to reef in subsequently (you will need to go head to wind of course)
- Furling line is not marked, but less line is better initially as the headsail seems to come out further than expected.
- It can be difficult to let the reef out further without the headsail flying, and impossible to reef in a blow unless you are head to wind.

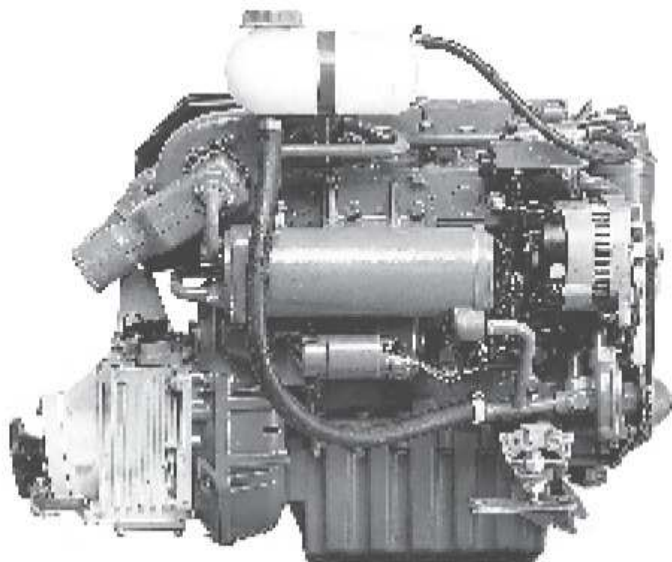
Manoeuvring:

- The prop will kick the stern to Port when reversing, this can be useful (or not!)
- The bow thrusters are useful in confined spaces (but not so useful in picking up a mooring buoy – as it pushes the buoy away!)
- The engine/propeller has a lot of torque – care
- When attempting to pick up a mooring, hand signals can be used as the helm cannot see exactly where the buoy is over the bow from the cockpit.
- Dropping the Bimini screen down helps the helm to see much better.

Engine & Gearbox (See Maintenance and Potential Issues later)

This is the original engine. It is however in very good condition and has been very well maintained. The last owner had it fully serviced regularly and the previous owner was an engineer by trade and serviced the engine after almost every trip. During the present ownership the engine has worked perfectly and was given an excellent long term 'test' during the passage from Portland Bill to Findhorn in August 2022. As someone who has rebuilt and worked on many (vehicle) engines, I have reviewed many of the potential issues and attempted to check on these. The maintenance notes cover this research. To date I have found no issues that require attention.

This engine is very powerful and I have found that it will propel the boat easily at quite low revs. It also seems to be very frugal on fuel.



2003T/MS2B-R

- The Header Tank is located within the main battery compartment



Engine Start / Stop

Start

- (Check Main isolator on engine (1) or BOTH (2))
- Push Once the black round Ignition switch in the instruments panel (should get tone and instruments working)
- PULL UP TWICE the Black handle on top of wooden helm position (Decompression Lever)

- Put Forward/Reverse lever into **NEUTRAL** (PRESS RED BUTTON IN & HOLD), and move forward 90 degrees
- Push starter button and hold until engine fires.
- Pull back Lever and idle engine AT 15 rpm, (check water cooling at stern)

Engine Stop

- DO NOT TURN OFF IGNITION UNTIL ENGINE IS STOPPED (damages Alternator)
- PULL UP BLACK (Decompression Lever), until engine stops
- Turn of ignition switch (push once), check that instruments go off

PART TWO: Maintenance Notes & Log (3Aug 2022 on)

Electrics & Electrical Systems

Sterling Charger 1230CED

The Sterling CED chargers do have three separate outputs; but these are just electrically separated by diodes - and not physically separated. Also, there is only 1 charging controller - so all batteries have to be of the same type.

Solar Panels (4)

- **The wires/connectors are wrong** xxx connected the positive connector to the negative on the solar MPPT unit
 - This is not going to be changed (yet) as I cannot find decent MC4 connectors – they are ALL CHINESE!
 - RS or electronic supplier?
- The battery terminal ends – ‘xxx’ has not crimped these – just pulled out, needed re-doing

Clipper Depth sounder

- Depth Test: (sept 2023) - Reads MINUS approx 400mm to bottom
- Cannot add a slave unit to this (for internal cabin)

Clipper Wind indicator

- This does not always work properly, reading wrong or no reading when heading into wind (is the sensor in the wrong place, it is behind the mast when most are in forward of mast)
- Powers on with external instrument power

Raymarine C70

- If screen has lines or is not working properly check the screen plugs inside the unit.

Onwa 1299 & AIS

- No info on chart updates (K charts don't update!)
- AIS works only on the Onwa, direct connection from mast VHF unit

Raymarine Autopilot ACU1000

- Uses SeaTalk (STNg) for comms
- Does not integrate with any of the Plotters
- Uses a hydraulic unit connected to the steering system behind the cockpit wheel, removable cover for access.
- The main fluxgate compass (ST-1) is at the rear of the main locker unit, along with a networking unit with SeataKNG cables and connectors (just for autopilot)
- The STNg can daisy chain to another unit to extend the network
- At rear of locker cables go through for the GPS unit
- There is also another unit with attached with a rod ... maybe a position sensor or stabiliser



Old Raymarine Radar Unit

- This has been removed from the mast and attachment fittings smoothed
- The wiring is still attached at the bottom of mast, requires sealing off.

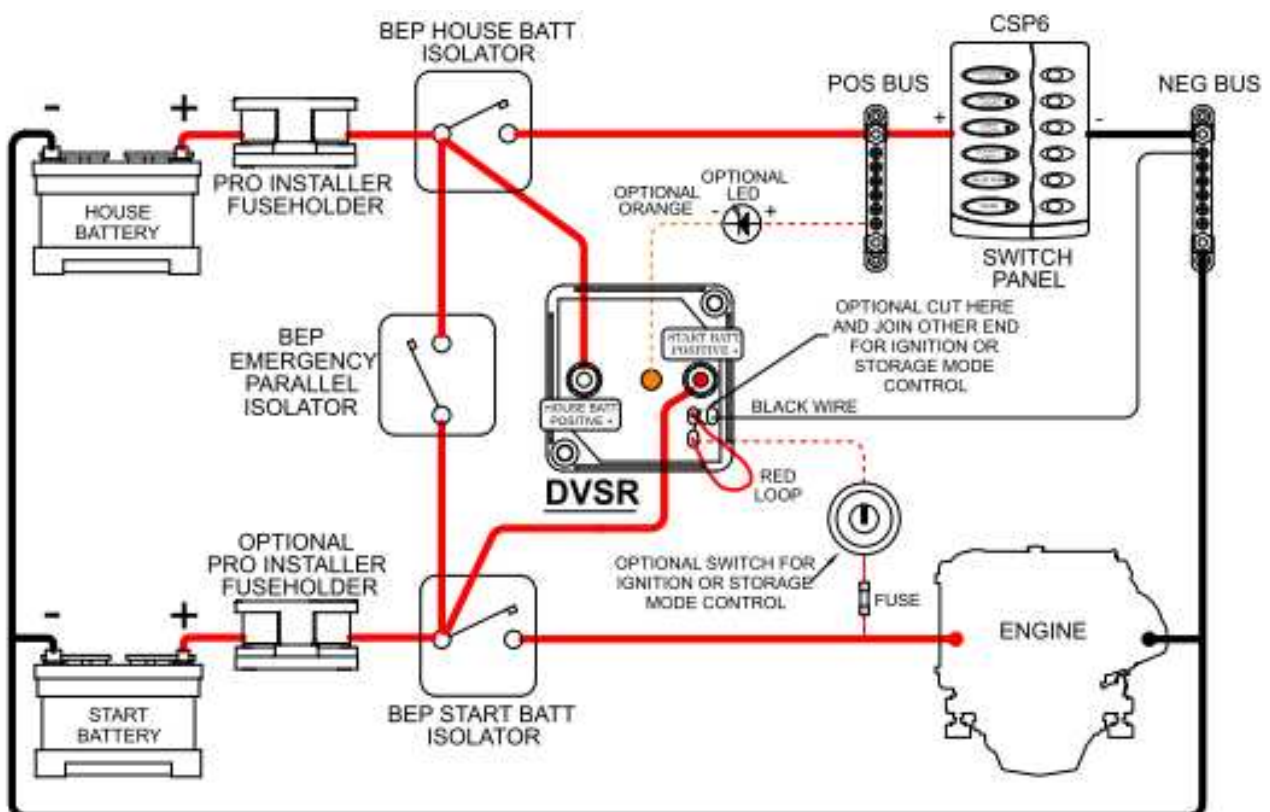
Vetus Bow Thruster BOW5512D (Fitted 2021, £5000)

Turn on press on button then press again after audio signal. May turn off after a long delay.

Notes:

- The Negative charging cable was initially missing! (not installed). New Common/negative (black) cable has been run from forward battery to the main batteries and fused at battery end, tinned wire used.
- The battery charges via a 'BEP' voltage sensitive relay, this connects to the positive end of battery (Yellow marked wire), via a 20A fuse to the BEP unit
- This unit is connected to the positive of battery TWO And negative battery ONE (which is common but this common is only for the RELAY and not the forward vetus battery)
- BEP - Has LED on left (low down) – this lights when relay closed and charging – tested, OK

VETUS General approx wiring Diag:



Radio / Speakers – New 2023

Car Stereo Kenwood KMM-205 Digital 1-Din Radio Digital Media Player USB AUX iPod iPhone Android

- The aerial needs attention, the current one does not give good reception. Maybe better to use an internal (windscreen) type that fits to a panel
- Speakers - 1 x JVC CS-J620 J Series 16 cm 2-way Coaxial Car Speaker 300W
 - New specially made speaker boxes for shelf unit
 - Switch in forward cabin switches between main cabin right hand speaker and front cabin white speaker
 - Fitted using ISO connector – which simply replaced radio end into the existing ISO
 - Cockpit Speak – did not work, disconnected.

General Internal Hull & Fittings

Issues Outstanding:

- Fuel and water caps need flexible retainers to hull (to prevent loss overboard)
- Cabin Starboard hatch not always holding up, no easy repair.

Brass fittings

- Inside helm wheel boss – very bad condition but used vinegar to cut back and then polished with cutting paste and finally polished using car polish – good result
- Clock & Barometer cleaned, clock fixed with new mechanism, Replacement Seiko SKP Round Shaft Quartz Clock Movement Motor Mechanism (Shaft Length 11.5 mm)
- Added brass hooks rear of cabin port side

A2 vs A4 Stainless Steel notes

- A2 stainless steel is often referred to as 304 or 18/8 Stainless. 18/8 actually refers to the amount of chromium and nickel in the alloy - 18% chromium and 8% nickel.
- A4 Stainless is often referred to as 316 or 18/10 stainless. As in A2 above, the numbers 18/10 refer to the chromium and nickel content- 18% chromium and 10% nickel. and the addition of Molybdenum in A4. Molybdenum is a silvery white metal that is highly corrosion resistant, very ductile and has an extremely high melting point.
- A4 stainless is often used in marine or chemical environments as it has greater corrosion resistance than A2.
- Spares purchased - 50 off 10 by 1" self tapper pan pozi £17

Headlining

- Cabins - Various bits re-glued using 'high temp' campervan carpet glue, works very well, Forward cabin and standing cupboard required significant work, rear cabin starboard side rear only

Wooden Parts & Re-furbishing

- Some fixed by self tappers – eg engine instrument wood covers, these are good quality screws
- Some fixed by through bolts (11mm nut on inside plus washer), eg external hatch handles. To get to the nuts inside need to lift away the headlining.
 - Including – Galley top, cabin steps, cabin entry handles and surrounds

Teak (veneer)

- Where refurbished, used Superior Teak Oil after very light 600 grit sanding, some areas removed (eg table top port side) and re-sanded and finished

Wood Internal & External Fittings

- Including – Galley top, cabin steps, cabin entry handles and surrounds
- Most wooden fixings were sanded to 320 grit and finished with two coats of Fiddes hard wax oil

These are often held using either self tapping screws (stainless) into bulkheads (as used for wooden pieces over the cockpit engine instruments) or have through screws and nuts (stainless) behind the internal lining. Both types have wooden plugs that need to be removed to access these screws. An effective way to do this is using a 5mm (30mm long) wood screw with the head grinded flat. Drill a neat 3mm hole in the centre of the plug and screw in the flattened 5mm screw to act as a puller. It will destroy the plug but you get access to the holding screw. When replacing a new plug, use varnish to hold the plug in rather than glue as this makes it easier to remove next time.

Wooden Deck Fittings

As varnish prevent wood breathing and splits causing damage due to water ingress, the wood rails and handholds and other fittings have been coated with Fides wax oil. This has worked well, gives an excellent finish but requires recoating every year.

Heads

- Forward heads – replaced plastic section below sliding mirror doors with oak panel
- Rear heads, oiled panels and re-fitted sliding doors (mirror doors and below sink)

Brass fittings, Plus Clock & Barometer

- Inside helm wheel boss – very bad condition but used vinegar to cut back and then polished with cutting paste and finally polished using car polish – good result
- Clock & Barometer cleaned, clock fixed with new mechanism, Replacement Seiko SKP Round Shaft Quartz Clock Movement Motor Mechanism (Shaft Length 11.5 mm)
- Added brass hooks rear of cabin port side

Red line trim:

- Port side replaced 2023
- SPS coverline 19mm by 15m £10 (marine superstore) £19 now
- <https://www.proboat.co.uk/item/1/131/1120/PSP-Coveline-Boat-Stripe-Tape-19mm>

Antifouling

- 2016 Int.trilux 33

Purchase: Vernon Lawson: 2022 aug 17th before leaving Portland:

- International Cruising Performer 250 Navy, 3ltr antifoul £84.
- Hull anode, 2kg, zinc £30.00 1 £30.00
- Shaft anode, 30mm, zinc £23.00 1 £23.00

NOTE: from 'International' - You can over paint Cruiser 250 with Micron 350 and the Primer you could use is Primocon as it will go over antifoul as well, great barrier coat between antifouls when you don't know what it is.

2023 External Hull Work:

- Antifouled with Micron 350 and International primer where required
- New Port side top Red Strip
- New zinc Shaft anode
- New zinc Hull anode
- Filled scratches port side top middle (isopon plastic padding)

Anchor Chain Markers added:

- Added coloured plastic units to denote chain length
 - Start – red/green (approx 2m from anchor)
 - 10m= 1xYellow; 20m=2xGreen; 30m=3xBlue; 40m=4xRed; 50m=5xWhite

Fuses & Main Board:

- A few of these have been changed to **Durite** push buttons (see below & pdf). These fit quite well and come in various trip amperages
- The wiring behind the main board is hugely complex. It all seems to work but would be a big job to change.

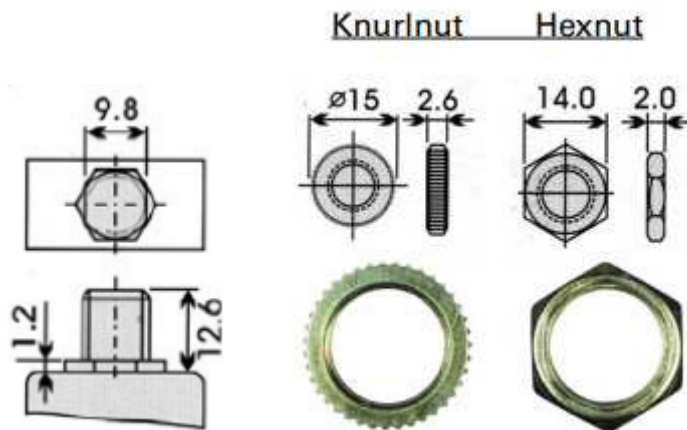
Durite push buttons (fuses)

UK manufacturer "Durite" (probably Chinese made but to their spec), 12V DC; 5A, 10A and up to 45A for panel hole 10mm cost approx £6 each ...see pdf spec sheet:

<https://webshop.durite.co.uk/WebResources/Common/Docs/Technical%20Information/301-400/0-381-60%20spec.pdf>

Part No. 0-381-55 ~ 95

See pdf spec sheet



Heads

- Re-furbished both Jabasco units, completely re-built with new parts, greased.

A2 vs A4 Stainless Steel notes

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- A4 stainless is often used in marine or chemical environments as it has greater corrosion resistance than A2.
- Spares purchased - 50 off 10 by 1" self tapper pan pozi £17

Water & Plumbing systems

- Check leaks within hot water system (pump runs when off)
- Check electrics for emersion heater

Main Fresh water pump (under main cabin floor forward of engine, port side)

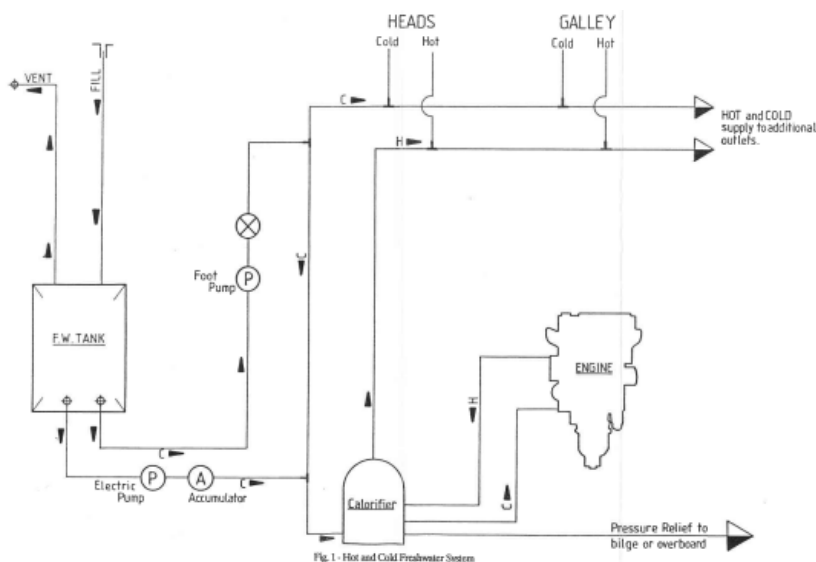
- Johnson pump, Orebro Sweden.
- Seems to be in good condition

Calorifier & Hot water system

- Works off the main fresh water pump
- There is a large white tap to turn on the water supply / pump, rear starboard side of tank
- There is a water circulation tap (white) near the top of calorifier. This must point forward to turn on the water circulation –this was closed!



- Has an accumulator – on the port side, forward of the calorifier
- There is a pressure release valve on the calorifier half way down port side.
- Sometimes water gets into the bilges – this could be the expansion water?
- 3KW heater, working tested - The emersion 240V switch is port side of cabin and has a red on light.
- The pump primes the system occasionally, presumably due to expansion / contraction within cylinder
- Pipes go to the accumulator in parallel with the tap, after the pump
- Pipe from top of tank goes via valve / tap to forward cabin under sink unit then splits to the galley and rear cabin taps
-



Cold Water System & Drainage

Water Filter main basin cold tap

- New - Whale Aqua Source Carbon Water Filter - White, 15 mm fittings
- (Sold by: Boroughbridge Marin £31.99Amazon)

- 15mm Hep2O fittings:
 - <https://www.johnguest.com/gb/en/products/jg-speedfit/fittings/push-fit-plastic-fittings>
 - Screwfix does these JG fittings! Have spares
- New Filter:- Just fits between existing pipes, screws up, but difficult as almost impossible to get both hands into position to push it in and tighten – need cushion behind back to get hands free.
- Fitted into the existing Hep2o fittings,
- Note; the O'ring is *within* the old fittings – you do not need another on the inlet/outlet pipes of the new filter, **ONLY the green fitting** in pic:



-
- When replacing, check O-ring is in the groove of old grey cap

Calor Gas System & Cooker

- Cooker new in 2021
- Gas – 4.5Kg calorgas bottles – could replace with **Campingaz 907 = (203 x 235 mm)**
- Gas tap under the Cooker
- Gas locker has a drain pipe that goes through the main cockpit locker (locker cleaned 2023). Make sure tap is open located within Cockpit locker, port side beneath the gas tank casing

Standing Rigging, Reefing, Sails, Decking

Deck - Flexiteek new 2020

This is a high quality new decking that is made from some sort of extruded plastic. There are no current issues with this new decking.

- It can be sanded to remove marks – sand only in the grain direction

Furling Headsail

- Removed rearmost attachment for furling line – too much pressure, stupid place to put a retainer.

Bimini, Solar Panels & Dodgers

The Bimini has been mended and strengthened where necessary. A complete new panel was made for the solar units. This is made from very strong fabric and is now secure.

- Dodgers were made from good fabric to fit the boat in 2023

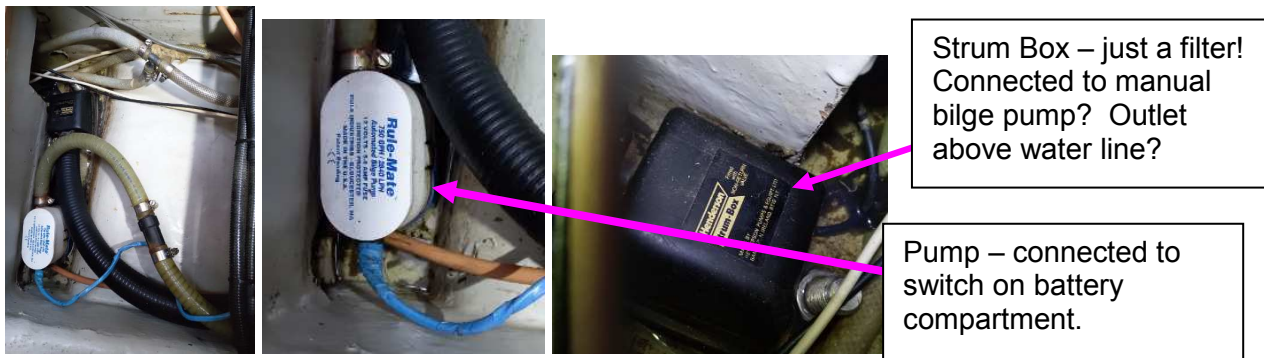
Maintenance LOG: List of Jobs Done after October 2022:

- Added a grab bag in top locker on steps – knife, water, food bars, LED flare, thermal sheet.
- Check thruster battery voltage – OK now
- Safety & general notes (laminated) on main cabin hook, rear bulkhead
- Test 'speaker' – doesn't work, in cockpit
- Fixed holes in rear heads forward bulkhead, using plastic padding (just underneath solar charger, holes go right through wood panel)
- Rear cabin rear end beneath bunk – had a little stale water, odd position maybe from

leaking window at some time? Cleared and cleaned.

- Gas cover fixed to boat, clean, (change gas cylinder to full one, other as spare almost empty)
- Test polecatcher and attach to top rail Using
- New floating rope ordered 10m
- Glued engine cover padding & screwed down
- Sorted large cabin locker, bits/bags label
- Fitted red stripe on port side
- Grease – use straw plus syringe, flatten end and push under seal – seemed to work
- Stern light new – needs a bracket for pole – could make one from plastic - done
- Dodgers make from cloth – use elastic cord to fix to stanchions
- Rubber grommet for wheel – replace, make- made one from polystyrene
- Test continuity / connection solar wiring – positive?? YEP XXXX got it wrong again!!!
- Forward heads mechanism – changed to new one – done, perfect, tricky fixing, need to remove whole unit, then pipes units (not pipes as they don't come off easily even with warming), then pipes. See diag in repair bits bag – tricky bits marked off, used mobile lithium x2fh grease on all surfaces
- Fuel filters changed, **do secondary one on engine -done**, other one needs more investigation as it takes two filters (engine = bosch 457 4734 051) 829913 vp
- Fuel filter, Mann 712/2 (Amazon) Old Bosch on engine looked very clean, fuel clean too.
- Engine blower? - battery compartment, connection block not connected – dont need
- Elec diag / labelling – some done – most impossible to track, esp panel wiring,
- Hooks for keys etc
- Measure for tender – where on bow? 1.4m by 2.7m – fits before front of forward mast stay
- Measure for curtain depth? Rear cabin curtain 800mm by 370mm – cleaned, refitted
- Headlining stick back forward cabin, both sides - done
- Fit new anodes -done
- Make wooden blank for extinguisher - again
- External cushions clean / renew – bring home
- Cabin Hatches NOT FIXED – starboard not staying open – **Lewmar** ... rollstop cannot change welded to lid, working better now, maybe use metal filler to add to serrated edges?
- Hull – sand, fill, prime, antifoul (Int. Micron 350)
- External handles/wood paint
- Lowrance – no charts here north Scotland – don't bother
- Electrical fuse/resets – need spares hole 13mm square bit 15mm dia ..fitted two, needs washers at rear of panel
- Curtains forward cabin – remove wash
- Dinghy mend
- Impeller not changed - ok as serviced before
- Engine oil plus filter changed (winter 2022)
- Gearbox oil (same as for engine) top up – very little, must add a tiny bit at a time, took reading without screwing in, now top of mark
- Added some grease into the rubber housing on transmission, very difficult to get under the rubber, need a small metal feed on a syringe. Grease almost gone now.
- Battery – renew straps -done
- New warps for fenders, attached
- Onwa – tightened fixings, comes on with Nav Inst + AIS SWITCH on Starboard side under windshield
- Hot water done – valve turned off! 240V Emersion works!

- Forward seacocks – checked continuity for anodes and cleaned, greased, tested, tightened clamps – all OK now
- Rear Cabin under bunk port side – 3 Seacocks, one very stiff, worked it loose, but still stiff, marked them all up for moving to close positions
- Rear heads behind forward sliding door, one seacock, working OK
- Stern cabin waste/shower pump – doesn't exist! Pipes there but no pump, can see where pump was fitted.
- Renewed cloth & bindings for the solar panels
- Heads furniture refurbished and headliners stuck down + main cabin
- New wood under mirror forward heads
- Retainers for doors done side of stairs
- Speakers done, see notes on wiring
- Stairs refurbished
- VHF screwed down and unused leads tidied and capped off
- Voltage across new negative wire from thruster battery, gave +0.6 V to the positive end of aux battery (that the thruster (voltage switch) charger is connected to), this means that there was zero negative connection – Muppets!
- This voltage switch had a red (on) light when the Aux battery was showing 1.36 V (it should activate at 13.4 V to charge)
- Water filled to max (floor lifts when full) gauge shows needle far right on the beginning of 'G'
- Mid section under floor next to forward heads door – there are two bilge pumps (see pics)
- There was considerable water in this bilge – is this required so that the pumps can use the water to keep them from running dry?
- Rule-Mate automatic bilge pump, plus Henderson strum box (filter for manual pump). Does one of these do shower basin –no this is under the sink unit behind fitted board



- Use new switch for bilge pump? And new pump – the switch on battery compartment does not stay on it's a momentary switch
- <https://www.marinesuperstore.com/marine-pumps/bilge/water-witch-float-switch>
 - Water Witch Float Switch £46
- Rear cabin heads under sink – has loads of wires, tidied these with a tie.
- Rear cabin heads under sink – has pipe for heater, 3 way large connector, used tape to link to loose pipe (seems too small to fit over metal connection). Maybe need to use thermal tape
- Rear cabin sink outlet / seacock working ok (only connected to sink, outlet from shower basin not connected, there is an end of a pipe that goes through bulkhead that is plugged)
- Rear cabin three inlets/outlets under bed port side seacock's: were stiff, loosened working ok
- Gas locker breather pipe is within rear locker at front near top, freed off tap (like a water tap with handle).
- Wood port handle, top of hatch cover

- Bilge pump handle – too big, grind down? Done
- Negative wire to thruster battery for charging
- Windlass switch secured
- Chart cover resurfaced
- New (Water MIST) Fire extinguisher fix to forward cabin wall
- Sink wood refurbished
- Pipes mended rear cabin (heater and water)
- Removed pilot table
- Hole for anchor support
- Pole/catcher fitted
- Cleaned lines for traveller

PART THREE: 2003T ENGINE & GEARBOX MAINTENANCE & HELP NOTES

2003T Engine Service Info and Notes –

Info:

<https://saltwaterdiesels.com/volvo-penta-2003t/>

The 2003T-V (with the additional reverse gear weighed 182 kg)

Service: – good

<https://www.youtube.com/watch?v=yJak48KqC9c>

Anode change

<https://www.youtube.com/watch?v=IGq-bcF3qqQ>

- Header tank? – in **battery** compartment!

Parts / Filters

<https://marinepartseurope.com/en/dealer/haisma/category/Marine%20Diesel%20Engines/product/2003T/>

Service parts CHEAP:-

<https://marineservicekits.co.uk/volvo-penta-d1-30--service-kit---b-1878-p.asp>

There are TWO FUEL filters – actually may be three, two in the initial supply? One on the engine

- Volvo Penta **3581078**, Diesel **CAV** water fuel separator filter
- Secondary? – top of engine front

Diesel filter secondary

This has a standard scrow on type filter, bosch "457 4734 051" fitted currently. But either of the BF 825's or delphi 296 will fit.

- Use plastic milk bottle catcher
- Remove secondary diesel filter (unscrew by hand)
- Place in bag and in bucket
- Use extractor to take diesel
- Install new diesel filter – screw tight by hand – check seal!
- Wet seal with diesel before assembly

Stock:

- Baldwin BF 788 fuel filter 3 – screw in – is this secondary? TOO BIG??
- BF 825 – fuel filter 7 – this replaces Delphi HDF 296 – so they are both secondary fuel filters? **NO!!! not screw in maybe first fuel filter?**
- https://www.bottomlinemarine.com/prod_cat/P_baldwin-fuel-filter-element-to-replace
- Delphi HDF 296 – Fuel Filter 2 – NO, not screw in!!
- Mann W 712 – Oil filter 3 (NOT 712/2 which is Fuel!)
- 3 belts
- 1 impeller kit + 1 old spare
- Oil engine part 5l + new 5L + part 1L
- Antifreeze 5L

Filter parts YBW

<https://forums.ybw.com/threads/vp-2003-alternative-part-numbers.194739/>

Oil

- Volvo 834337-8
- Crosland 659
- Unipart GFE 210

Main Fuel

- Volvo 829913
- Bosh N4051
- Crossland 5003
- Bosh 1457434051
- Mann WK 712/2
- Guttman 503590071 £3.79 + VAT Euro Car Parts
(Euro Ref: 503 59 0071)
- Hengst from Europarts 503590070 £3.49 + VAT

Water Separator

- Volvo 581078-7
- Bosh N4201
- Unipart GFE 5296
- Hengst E75K D42 £3.58 + VAT Euro Car Parts
(Euro Ref: 503 74 5080)

Catching fuel when repacing filter.



Transmission MS2 BR

Transmission Grease

- Volvo Penta 2003T 828250 grease £5 Grease needle – got syringes **ordered Mobile XHP222 grease – lithium, water reistant etc (ybw)**

<https://saltwaterdiesels.com/volvo-penta-2003/>

The 2003 was often mated to a Volvo MS or MS2 gearbox or to a Volvo Saildrive unit.

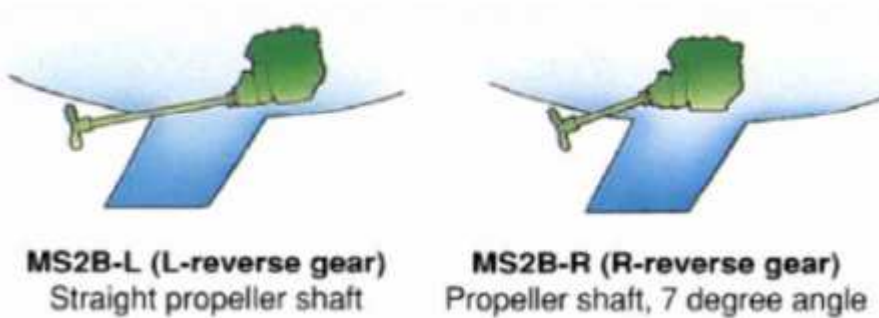
The 2000-Series is a complete engine programme, which has been specially developed for powering sailboats and small motor boats. There is a well-tested accessories programme for the 2000-Series for other requirements, such as, heating, cooling, electricity etc. Direct injected, easily started and fuel-efficient marine diesel. Large flywheel, decompression and cold-start facility which makes cold starts easier. A 12- volt two terminal marine electrical system and AC alternator of 50A assures excellent charging. The engine is carried in vibration-damping rubber mounts providing a low noise level.

Transmission Oil

- Oil (from manual) = 0.8L oil as for engine? (check with Caley marina) – YES! (Graham email)
- Very clean, top up – takes very little.

Transmissions Greasing:

There are four transmission alternatives in the 2000-Series, all with easily-operated cone clutch with an overload protection feature: the R, L, V and S versions. The R-version is angled down at 7 degrees on the output shaft that makes installation easier and saves space. The L-version is straight.



Venting Procedure

- 1 Compress the rubber seal at the lip and press towards the propeller shaft A, (Fig. 7). This will form a gap B between the shaft and the seal, allowing air to be vented.

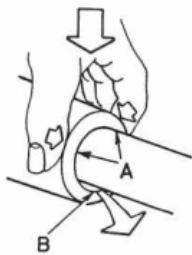


Fig. 7 - Venting

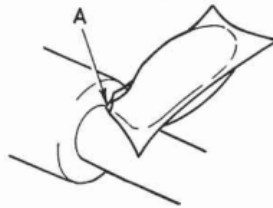


Fig. 8 - Lubrication

- 2 When water forces its way through the gap, release the seal. The seal is now vented, but must be lubricated.

Lubrication

Press a small quantity (approx 1 cm³) of waterproof grease into the rubber seal A as shown in Fig. D8.

Note: It is recommended that Volvo Grease Pt No 828250-1, or equivalent, is used.

- 2 The seal should be lubricated after approximately 200 hours operation, or annually.

Oil Cooler

If you own a 2003T you must examine the oil cooler carefully and regularly for corrosion. It's hidden under the heat exchanger. Secondly, also check for corrosion of the external steel high pressure oil pipe which feeds the turbocharger. A leak from either of these can dump the entire contents of the sump into the bilge and the first you'll know is when the engine suddenly stops.

- the usual failure is corrosion between the bras and caps and the aluminium body.

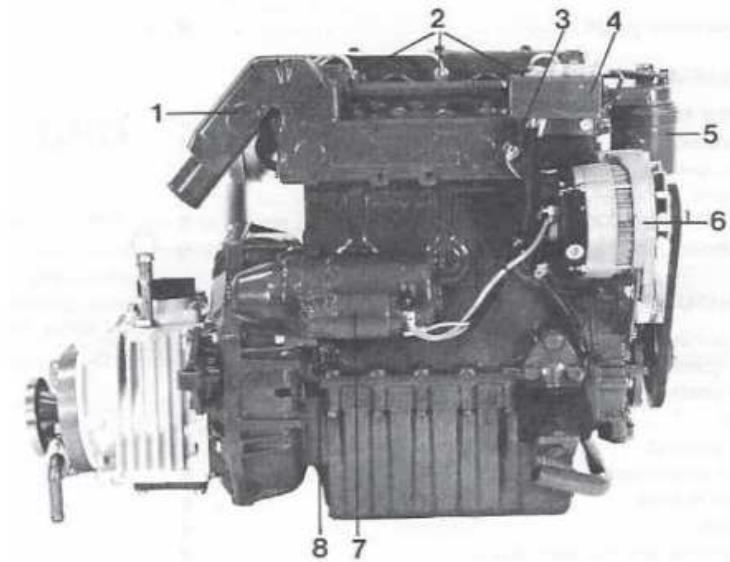
It's hidden under the heat exchanger. Secondly, also **check for corrosion of the external steel high pressure oil pipe which feeds the turbocharger**. A leak from either of these can dump the entire contents of the sump into the bilge and the first you'll know is when the engine suddenly stops.

Forum:

Check the oil cooler, the bronze and aluminum bits are separated and insulated by the 'O' rings under the end caps if the salt and corrosion bridges the gap the aluminum housing dies and you loose all the oil and will cost a fortune.

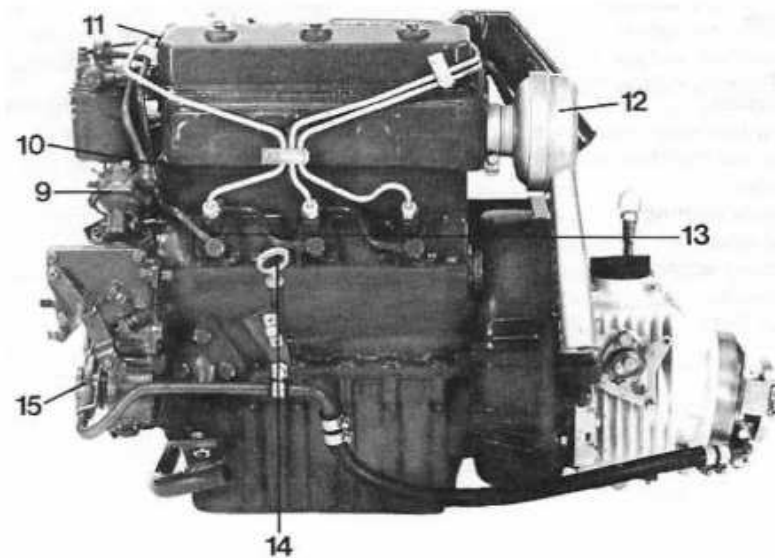
They have a brass insert in an aluminium body. The ally body can rot out electrolytically and dump the oil in the bilge. Worth inspecting externally for oil leaks at least annually. I caught mine going last year and replaced it with a used one. A better alternative if I'd had more time would have been to adapt the pipework to accommodate a generic bowman oil cooler - cheaper and better engineered!

Components of the Volvo Penta 2003



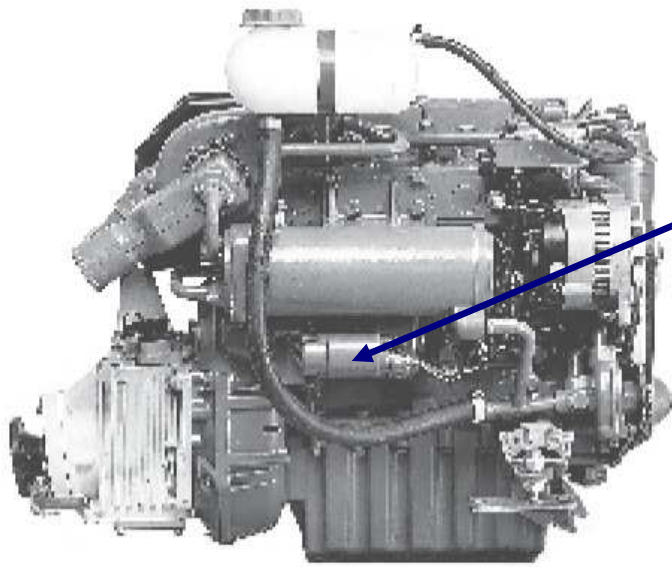
Volvo Penta 2003 Starboard Side Components

1. Exhaust Elbow
2. Injectors
3. Temperature sender
4. Electrical distribution box
5. Fuel filter
6. Alternator
7. Starter motor
8. Drainage, cooling water



Volvo Penta 2003 Port Side Components

9. Feed-pump
10. Engine serial number
11. Decompression device
12. Inlet air silencer
13. Fuel injection pumps
14. Oil dipstick
15. Sea-water pump

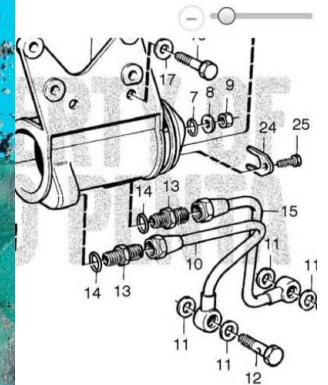


Oil Cooler!!

2003T/MS2B-R

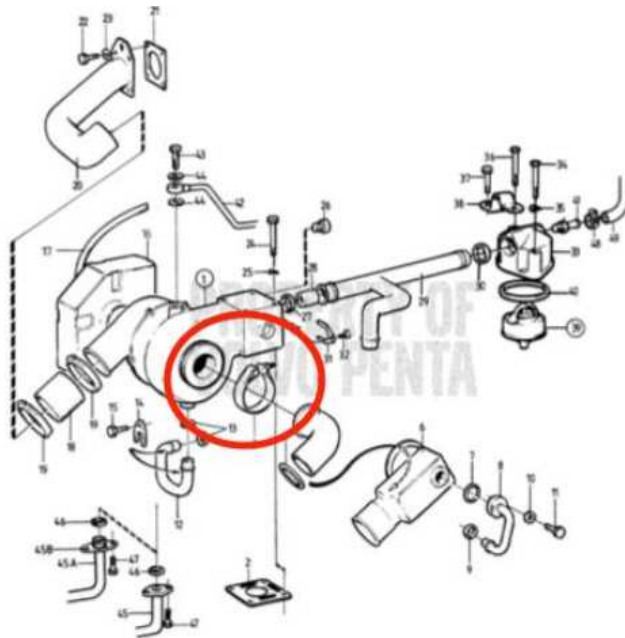


Oil cooler 2003T Volvo Penta 840957
Brand: Volvo Penta



Air Filter

- Air cleaner for turbo – replace with K&N need one that has a breather
- Volvo Penta 2003T Air Intake Muffler, Part Number 858502:-
- <https://fybmarine.shop/search?q=2003t>



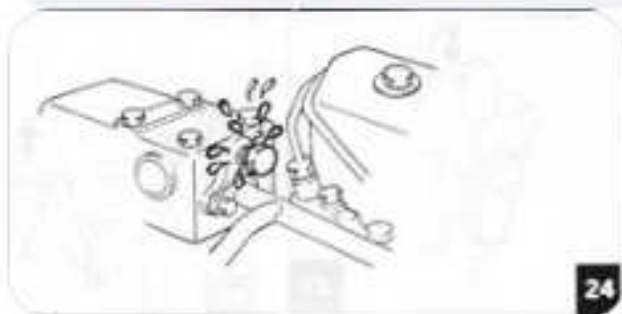
Change clamp each time (facecunt forum)

I've just had my turbo rebuilt. They advise if doing oil change remove the oil banjo bolt at the top of the turbo and fill it with oil then replace bolt. Bring oil pressure up by turning over engine without it firing up

Refill coolant for heat exchanger

Neil Lawton

Is it the turbo model 2003T or the non-turbo 2003? If it's the turbo one you **MUST** bleed the air out where it enters the turbo housing (see pic). Also, I'll DM you and send you the owner manual it covers all this stuff.





Neil Lawton

Here's where I bleed the air on my 2003T:



Like Reply 27 w

Hans Grutter

First empty all fluid by using the correct plug at the bottom left side.



Ron Widman

Gabriele Ghinato As you fill the expansion tank, the coolant will run into the engine.

Like Reply 27 w



Gabriele Ghinato

thanks for the advice. solved the problem. the liquid did not flow into the engine because the return pipe was blocked, or more precisely the thermostat outlet was blocked, I removed the return pipe and cleaned the clogged pipette with a copper wire and as if by a miraculous liquid began to flow into the engine, 5.5 liters of it entered. thank goodness hello



Alarm

The engine alarms are energised by the alternator output, until the alternator is generating 12volts the alarms remain silent.

Turbo



Had the same with my D2 75 with 750 hours.

Problem is when you run the rpm to low for long time. 10% of the running time it should be above 2100 rmp otherwise the turbo and elbow will close

Mario Rauch

I had one of these engines in the past. Turbo „starts“ working at 2200 rpm, which is recommended as minimum cruising rpm while motoring to make sure turbo is working. From time to time it's recommended to go with higher rpm to heat the charger up to burn down all the carbons. For my opinion good and solid engine, but sensitive setup with Turbo. I had two new Turbos until the engine had complete overhauling.

Gary Morozow

Just a caveat. Do not shut the engine down after a full throttle run as the oil will burn onto the turbo shaft. Let it idle for a few mins first.

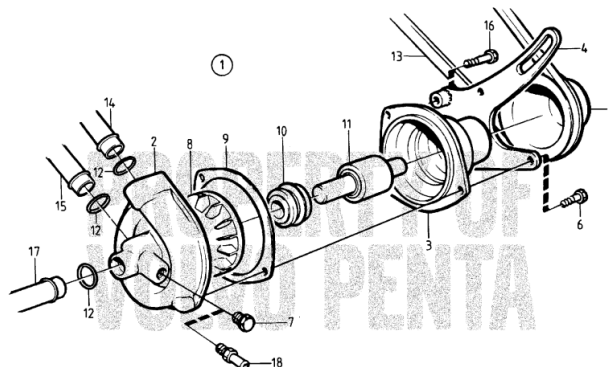
Over Heating / Impeller

After ruling out all other possibilities, fresh water pump was the only other option.

We checked the hoses to and from calorifier. By replacing outlet hose with hosepipe into bucket, we very soon worked out that no coolant was circulating. That, along with cold return pipe from calorifier meant no circulation.

All parts for fresh pump are available, so worst case scenario may cost £250 to replace including rotor itself.

My marine engineer friend was angry when he discovered it, as design is pretty poor. The bronze rotor uses friction alone to fix onto stainless spline. Also, the whole assembly is spring loaded, so any wear means rotor is pushed against front of casing, causing more wear and friction. He's drilled through the rotor, dimpled the stainless spline and put in a grub screw, so that should solve problem temporarily. Also, I've noticed that engine can run in neutral for a long time before overheating, but 2 mins under load will be enough to overheat.



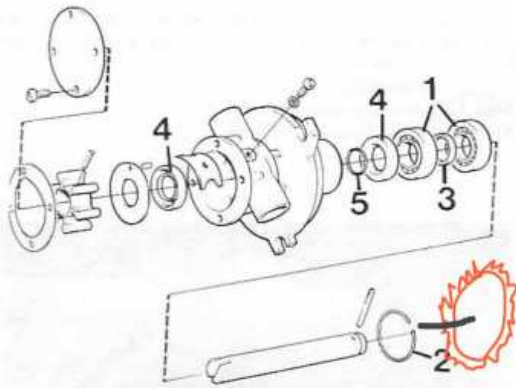
- Access is pretty easy-just need to release pump from bottom left of the block, but catching coolant can be tricky. We just let it all run into bilge and I sponged it all out. If rotor turns freely on its spline, you'll know that's the problem straight away. Also, might be an idea to test the sensor in hot water, just in case that's faulty?
- Change it once a year, you've got to take the cover off to check it, so might as well put a new one in at the same time. I also rotate the cover plate one screw hole at the same time. It wears at the point where the impeller is compressed, so moving it round one gives a longer life and better water flow
- Robin Pettigrew -When did you last replace the exhaust mixer elbow as Volvo recommend every 3 years at the most I service a lot of 2000 series engines and find the the elbows are blocked
- Did have to treat the engine though with Rydelime a couple of years ago as it was not getting enough water through it to cool it enough . Made a big difference to it .
- I've also had a problem with the cooling circuit and a (critical) small rubber bung which acts as a flow restrictor in the pipe that runs from the turbo to the thermostat housing. Oh, and these won't work correctly without a thermostat, no matter what anyone tells you 😊 as without the stat the coolant flow skips the engine block...

Seawater Pump:



- <https://www.youtube.com/watch?v=J09kaePFEL8>
- Tim Bigden - Douglas Ellison in my experience changing the water side seal is not enough because the shaft gets worn. So new shaft is generally needed.
- Two years ago I replaced the seals then the leak returned. Much better to replace the shaft and seals together. It is not difficult to remove that block. If bolts are rusted replace them. You have two circlips to remove, otherwise quite straightforward. Two hours work last week. Just check the diagram on the xylem website when you order the parts.

26. Check the connecting rod bushings by using the gudgeon pin as a gauge. There must be no play. If the bushings must be replaced, use a suitable mandrel for the removal and installation. Make sure to install the bushing with the oil hole coinciding with that of the connecting rod. Ream the new bushings. The fit is correct when an oiled gudgeon pin by its own weight can slowly slide through the bushing.



Sea-water pump

27. The pump is equipped with two ball-bearings (1). When disassembling, remove the locking-ring (2) in the housing and push out the shaft, whereby the bearings are following. Use a suitable mandrel to remove the bearings from the shaft. NOTE! Do not forget the spacer sleeve (3). Replace the sealings (4). NOTE! Turn the sealings correctly and make sure that they do not block the drainage hole in the pump-housing. Replace the O-ring (5). Install the ball-bearings and the spacer sleeve onto the shaft and leave a distance of 39,5 mm (1.55512 in.) from the shaft end to the ball-bearing. Coat the shaft with grease and "screw" it through the sealings and the O-ring and take care not to damage them. Push in the shaft as far as to allow the

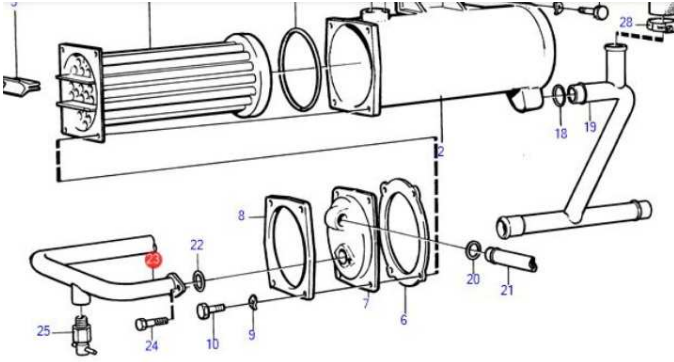
ball-bearing. Coat the shaft with grease and "screw" it through the sealings and the O-ring and take care not to damage them. Push in the shaft as far as to allow the bearings to bottom and then install the locking-ring (2).

Checking the thermostats

28. Immerse the thermostat in water and, using a thermometer, check if it opens at the correct temperature. See Technical Data for opening temperatures. If the thermostat is faulty, it must be replaced.

13

Heat Exchanger



- how to disassemble the heater if Volvo Penta 2003t - 858130? I want get out the insert part 858129 and clean all.

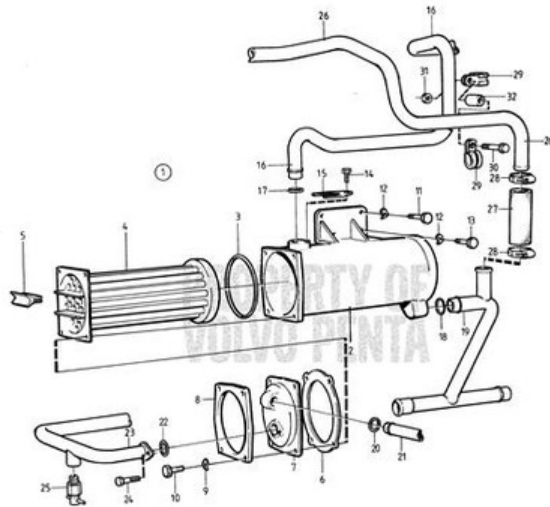


- Cleaning without disassembling: If it is a built up like photo, I use citric acid, 80 - 100gr per liter of water and let it suck in by engine. Our TMD30A takes 10 liters to fill the whole raw water system. After 12 to 24h start engine ... the debris you may watch leaving the exhaust, all clean. Every 2nd year I do so.

Tube for heat exchanger

2019 Tube 840949 VP £160

<https://propridemarine.com/tube-v2-volvo-penta-840949/>



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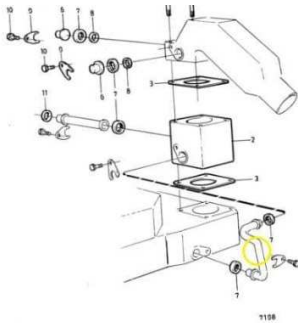
Anode position



Engine Runaway

2003T engine runaway problem. After much inspection, testing and manual reading, the fault was found to be in the governor. Inside the oil filler cap is an arm or lever that rides on a sliding sleeve on the camshaft. The sleeve should slide along the camshaft as the engine speed varies to control the injector pumps. Unfortunately the sleeve is aluminium and after two years of being idle has corroded and seized onto the steel camshaft. No amount of WD 40 would shift it, nor would gentle tapping. A local mechanic is sourcing the parts from VP and will fit them.

Exhaust:



PART FOUR: HISTORY (Previous Ownership)

(From Old Invoices + Old Survey - annotated)

2014 Old Survey plus broker notes:

- New bilge manual pump
- Fire extinguishers
- Gas vent in locker
- Port side cabin leaks fixed
- New solar charger (& TV Glomex tv aerial) 2103
- New 3rd battery fitted
- New switch for external instruments fitted
- Prop to anode bonding
- New led lights
- New tricolour and anchor lights
- Rudder blade blistered – ground out and re-gelled
- New prop bearing and stern gland
- Gearbox removed / serviced oil 3 changes
- Exhaust elbow leaking – fixed
- Seawater inlet pipe squashed at join to pump – fixed
- Turbo oil return pipe gasket leaking - fixed
- Cockpit Re-gelled
- Coachroof winches – rubber selftailers??
- 500 litres water, 200 litres oil
- New upholstery (7 months wintered ashore)
- 3 coats gelcoat 2014
- Lowrance fitted (elite 4?)
- Raymarine ‘speaker’
- CO Detector fitted
- 2017
 - Autopilot fitted (2014)?
 - AIS radar
 - New windlass and chain
 - Standing Rigging new
- 2019
 - Speed / depth Clipper fitted
 - Cobra VHF
- 2020
 - New deck
 - New bow thruster system
 - New sails (Jib, main, cruise)
 - Onwa plotter

Jabsco Toilets

- 2016 new one £104
- 2016 pump assembly £65
- 2022 one new pump, both serviced

Calorifier

- Replaced 2015
- 2015 Pressure relief valve ½” bspf 3 bar Plus connectors/pipe (aquafax)
- 2015 New stop cock (written note)

From 2014 Survey:-

- Galley sink seacock – checked ok
- 2014 Manual bilge pump replaced

Electronics / Electrics Cables electric

- 2014 Navionics MSD / 46XG (Europe west gold xl9 micro sd)
- 2020 14cm AIS antenna (RA111AIS) plus transducer £180 (aves marine)
- Above works with Onwa KP1299 Plotter
- <https://shop.glomex.it/en/generic/189-ra111ais-14cm-ais-antenna.html>

(From 2014 Survey):-

- 2017 Windlass new plus 60m all chain
- 2013 new TV and solar charger
- 2013 new battery (which?)
- No CO2 detector
- New switch for external instruments fitted (date?)
- New Tricolour plus anchor lights
- 2014 all LED's fitted
- Prop to anode bonding fitted
- 2014 Lowrance fitted (brokers info)
- 2019 Speed / depth Clipper duo (brokers info)
- 2014 Autopilot P70 fitted (brokers info)
- Raymarine mast speaker (brokers info)
- 2019 Cobra VHF (brokers info)

Rigging & general hull / fittings

- Standing rigging replaced 2017
- 2014 Port side leak in main cabin (windows replaced?)
- Rudder blade blisters ground out and gelled
- Cockpit re-gelled (brokers info)
- 500 litres water (brokers info)
- 200 litres fuel (brokers info)
- New prop and bearing and stern gland (brokers info)
- Gearbox removed and serviced (brokers info)
- Rope cutter on prop (brokers info)
- New upholstery (owners written comments 2014)
- New cabin table 2020

Safety & gas

(From 2014 Survey):-

- 2014 Fire extinguishers
- Gas locker vented and new pipes – no armoured pipe behind cooker
- 2016 Liferaft serviced dated 2019

- Gas = 4.5Kg calor gas bottles (2)
- CO2 alarm fitted (when)

VP 2003T & Drive Train

- 2014 21" by 14" x3 blade (propeller?) £500 hamble props plus straighten shaft
- Shaft F52 £300
- 2014 30x45x120 bearing £40
- 2014 impeller £12
- 2014 Shaft Anode zinc 30mm £9
- 2014 4" button anode zinc £12
- 2018 704c thermostat £40
- 2015 Volvo temp sensor / alarm

<https://www.salmarine.com/en/temperature-sensor-vp840345.html>

2014 Engine Report:

- Exhaust elbow leaking soot
- Seawater Inlet pipe squashed at join to pump
- Turbo oil return pipe gasket gone

PART FIVE: Charlotte Rose Safety & General Info for Crew

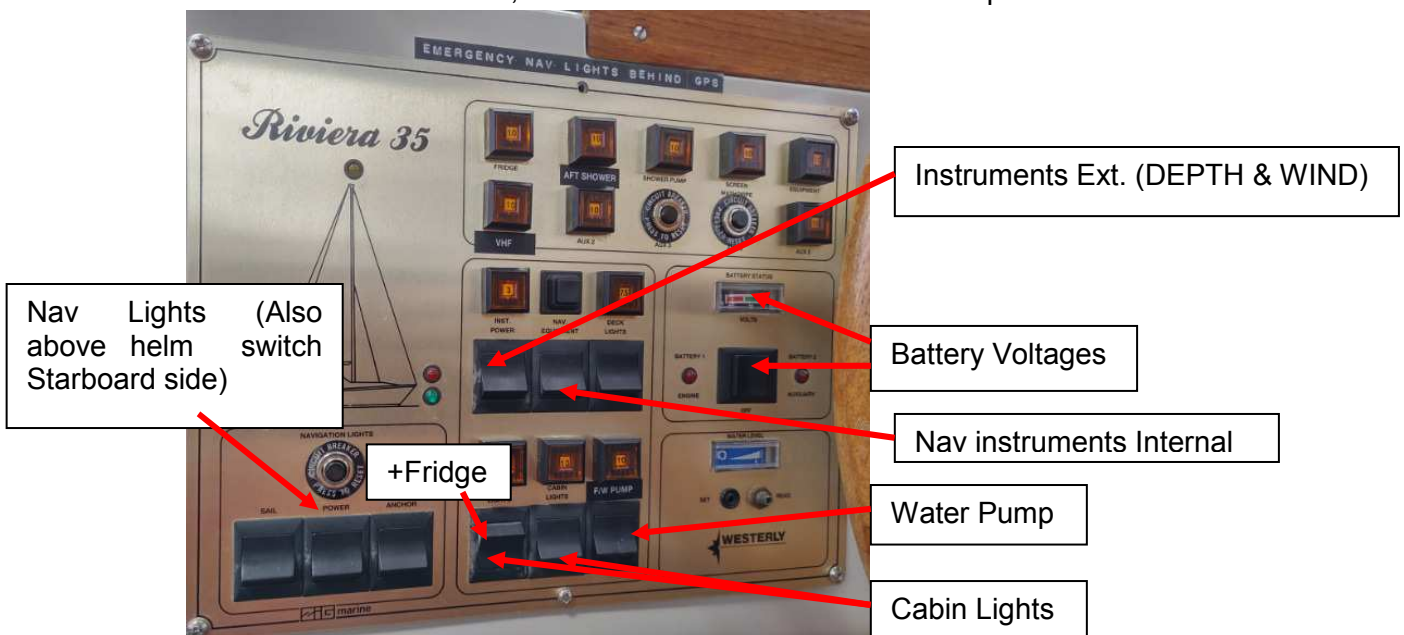
(Laminated copy on hook main cabin rear bulkhead)

Safety Equipment

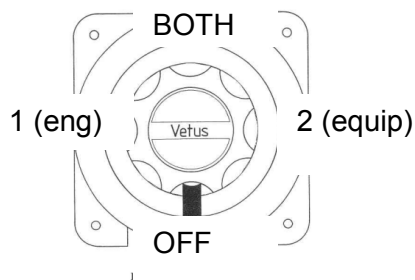
- LifeJacket / Safety Lines & Harness (fixes to lifejacket) in rear cabin vertical locker, white safety lines on each side of deck
- Liferaft - Stern Rail (Pushpit) Port Side 4 man canister Liferaft, release canister (not rope), enter from sugar scoop
- Man Over Board Lifebuoy & light – port side of cockpit rail
- Main Cockpit rear locker (port side), has a 6 man valise Liferaft
- LED flare in top of cabin steps under lid
- Wooden bungs for stopping Seacocks or through hull fixings
- Horn (gas) in top of cabin steps under lid
- Large Red Fire Extinguisher (Water Mist) for ALL types of fire, starboard side front in main cabin
- Fire Blanket, next to cooker on bulkhead
- Bolt Cutters, under rear berth starboard side locker (down the right hand side of locker)
- Titanium Knife (for ropes/rigging) in top of cabin steps under lid
- VHF Radio (Mayday, Pan Pan) main cabin above helm (turn on twist switch, then press RED button under cover, see Mayday Instructions on helm bulkhead)
- Bailers – Manual Handle for rear of cockpit (port side) on Lid underside of large cockpit locker
- Bailer – electrical pump, switch next to main battery isolator (Hold down)
- Warps, fenders, ropes in large cockpit locker

General Working Lights & Instruments

- Nav lights on bottom of panel (shown)
- Nav Instruments (shown)
- Fridge (shown)
- Internal helm Plotter, has additional isolation switch on top of helm starboard side



Battery Isolator / Selector – Port side of cabin steps (low down)



- Battery Main Switch (KEY) for Anchor Windlass – to rear of Main Battery Isolator
- Bow thruster MAIN switch in forward cabin low down port side, Vertically down = 'ON'
- General instruments and navigation manuals on top of cabin forward port locker
- Maritime lights and info on hook rear bulkhead of main cabin
- On push to turn on each Navigation plotter (Internal & External helms), press and hold to turn off
- Onwa Internal Navigation Plotter has AIS ship identification (can set alarms, turn off in port)
- LOG – (Display not working), Use either plotter SOG (top of display)
- Autopilot – cockpit starboard side rear, push 'on' once, then 'Auto' when correct heading, Engage Steering Helm Gear Port side of Wheel

Other Equipment & Tools

- Emergency Tiller Pole – in Cockpit main locker front side – remove rearmost top cover
- Charts, Tidal atlas, main cabin top locker port side
- Binoculars & Sighting Compass on hook Rear bulkhead main cabin
- Gas Cover Allen Key - on hook Rear bulkhead main cabin
- Windlass Isolator KEY – on hook Rear bulkhead main cabin
- Windlass Manual Handle – above main cabin steps (on hook)
- Windlass Up/Down electrical switch – on Bow Rail (Pulpit)
- Chain Length Markers - 10m= 1xYellow; 20m=2xGreen; 30m=3xBlue; 40m=4xRed; 50m=5xWhite
- Torch – top draw in galley
- Tools – Tool box under middle front of Rear cabin berth
- Spares - under starboard front of Rear cabin berth
- Engine oil and coolant – under Middle seat in main cabin (lift cushion)
- Batteries (3) – under rear seat in main cabin (remove cushions)
- Step for easy boarding – main cabin locker at rear
- Boat Hook & Buoy catcher Poles – starboard side of top deck near cockpit
- Diesel Cabin Heater controls – rear bulkhead port side main cabin (press 'on' switch once – gives one hour heat, (press again for manual off)
- Spare Anchor / Drogue – rear of main cockpit locker
- Carbon Monoxide & Gas detector – below rear of Galley
- First Aid Kit – top of main cabin steps
- Radar Reflector (kit) main cabin middle under seats

Engine Start / Stop

Start

- (Check Main isolator on engine (1) or BOTH (2))
- Push Once the black round Ignition switch in the instruments panel (should get tone and instruments working)
- PULL UP TWICE the Black handle on top of wooden helm position (Decompression Lever)
- Put Forward/Reverse lever into **NEUTRAL** (PRESS RED BUTTON IN & HOLD), and move forward 90 degrees
- Push starter button and hold until engine fires.
- Pull back Lever and idle engine AT 15 rpm, (check water cooling at stern)

Engine Stop

- DO NOT TURN OFF IGNITION UNTIL ENGINE IS STOPPED
- PULL UP BLACK (Decompression Lever), until engine stops
- Turn of ignition switch (push once), check that instruments go off

PART SIX: Appendix

Available PDF's:

- Conveyancing pdf
- Riviera Brochure
- Westerly manual
- Survey Aug 2022
- Original Specification when purchased Aug 2022 (Boatpoint, Note this is wrong)
- Invoices from previous owners
- Onwa manual
- Eberspacher D5 manual
- Raymarine manuals – C70 user and quick guide, Autopilot P70, SeaTalk
- Volvo Penta manuals – service and owners
- Seldon Mast Furling manual
- Durite reset button fuse spec sheet
- MPPT ML2430 solar charger manual
- Sterling Charger manual
- Kenwood Stereo KMM205 manual and installation
- Cobra VHF manual
- Vetus Bow thruster manual
- BEP Voltage Relay
- Clipper wind & Duet manual

Available Paper Copies:

- Survey 2017
- Bills of Sale
- MCA certificates
- Various manuals (also above in most cases)