Marine Diesel Maintenance & Troubleshooting Checklist

For small auxiliary diesels on sailboats. Salty and Windy, saltyandwindy.com

Your engine manual comes first. The intervals below are what three makers publish for their small marine diesels (Yanmar YM series, Beta Marine 10 to 115T, Westerbeke 35B/38B/42B). Write your own manual's interval in the blank column and follow it.

Before each start

- [ ] Engine oil on the dipstick between the marks (engine stopped, do not overfill)
- [ ] Coolant level in the recovery tank (engine cold)
- [ ] Gearbox oil level, if your manual lists it
- [ ] Belts: no fraying, cracks or glazing; tension as your manual gives
- [ ] Raw water seacock open, strainer basket clear
- [ ] No fuel, oil, coolant or exhaust leaks; hoses, clamps and wiring sound
- [ ] Fuel filter / water separator bowl: drain any water
- [ ] After starting: steady cooling water from the exhaust. **If the flow is low, stop the engine and find the cause.**

Service schedule

Task	Published intervals	Your manual	Last done (date / hours)
Change engine oil	Yanmar 150 h or 1 yr; Beta 250 h or yearly (standard sump); never longer than a year (Practical Sailor)		
Replace oil filter	Yanmar 250 h or 1 yr; Beta and Westerbeke with every oil change		
Replace engine fuel filter	250 h or 1 yr (Yanmar, Beta, Westerbeke)		
Drain fuel filter / water separator	Beta daily; Yanmar 50 h or monthly		
Raw water impeller	Beta: check 250 h or yearly, replace if worn. Yanmar: check 250 h or 1 yr, replace 1,000 h or 4 yr. Westerbeke: inspect 100 h or yearly		
Replace coolant	Yanmar yearly (2 yr with long life coolant); Beta every other year or 500 h; Westerbeke 500 h or yearly		
Heat exchanger	Beta: clean tube stack 250 h or yearly. Westerbeke: clean and pressure test about 1,000 h, sooner in silty or tropical water		
Exhaust mixing elbow	Yanmar: clean 250 h or 1 yr, replace 500 h or 2 yr even if undamaged. Westerbeke: inspect exhaust 250 h or yearly		
Zinc anode (where fitted)	Beta 250 h or yearly; Westerbeke monthly		
Valve clearances	Yanmar 1,000 h or 4 yr; Beta 1,500 h; Westerbeke 500 h or yearly, by a mechanic		
New engine	All three makers: oil and filter change after the first 50 h		

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Troubleshooting by symptom

Work from the simplest cause, change one thing at a time. If an alarm sounds or the engine behaves abnormally, slow down, stop the engine and inspect it.

Will not start or cranks slowly

1. Gear lever in neutral
2. Battery switch on, starting battery charged
3. Battery cables tight and clean at both ends, including the engine ground
4. Turns but will not fire: fuel level and valve, water in the separator, clogged filter, bleed the system

Starts, then dies

1. Fuel level and fuel valve open
2. Drain water and sediment from the separator
3. Replace filter elements if in doubt, then bleed
4. Loose fittings or damaged fuel hoses letting air in

Overheating

1. Reduce speed and stop the engine when safe; let it cool
2. Seacock open, strainer clear
3. Impeller: missing or damaged vanes (find missing pieces)
4. Coolant level (engine cool), leaks, belt, thermostat

Smoke from the exhaust

1. Black: overload or too little air. Check the air filter, engine room air supply and load
2. White: engine running cold; persistent white smoke can mean injector or timing faults
3. Blue: wrong oil grade or overfilled crankcase
4. Persistent after these checks: mechanic

Loss of power or rough running

1. Fuel: drain the separator, replace filters if in doubt
2. Air: dirty air cleaner or blocked air supply
3. Load: fouled propeller or hull
4. Injector, timing or compression problems: mechanic

Work safely

- [ ] Never service a running engine; keep guards on, tie back hair, remove jewelry
- [ ] Never feel for a fuel leak with your hands: high-pressure fuel can penetrate skin (use cardboard); wear safety glasses when bleeding
- [ ] Do not bleed a hot engine: spilled fuel on the exhaust manifold can start a fire
- [ ] Never open the coolant cap on a hot engine; let it cool and release pressure slowly
- [ ] Fit a carbon monoxide alarm; exhaust smell means carbon monoxide is present
- [ ] Never pump oil or oily bilge water overboard; take used oil, filters and pads ashore for recycling

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Intervals and steps summarised from the Yanmar YM series operation manual, the Beta Marine 10 to 115T operator's manual (Rev 46), the Westerbeke 35B/38B/42B operator's manual and Practical Sailor, as described in "Marine Diesel Maintenance and Troubleshooting for Sailboat Owners" (saltyandwindy.com/boat-projects/marine-diesel-maintenance-troubleshooting-repair-guide/). Your engine's manual and a qualified mechanic take priority. Updated November 2026.

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