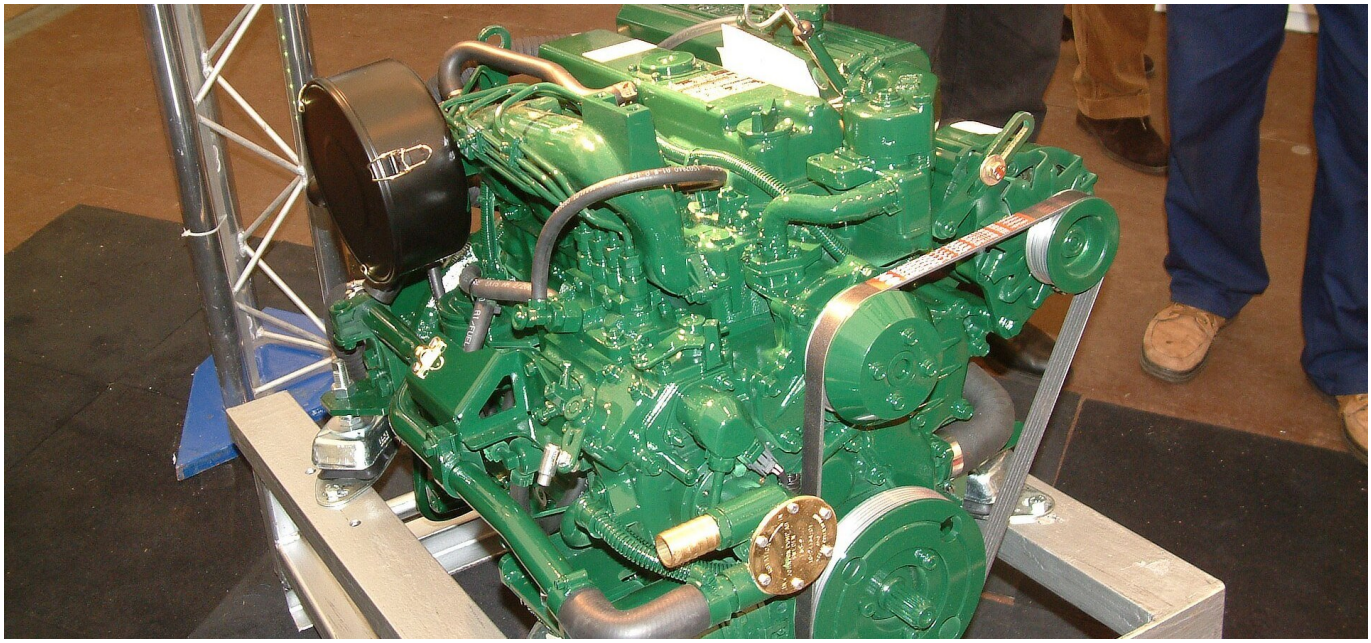


*A compact marine diesel of the kind found in many cruising sailboats and trawlers — note the heat exchanger, raw-water pump and belts at the front of the engine.* *1

MECHANICAL READINESS / ROUTINE CHECKS

# Marine Diesel & Generator Tips

*A practical engine-room walk-through before you leave the dock — and what to watch once you are under way.*

Most delivery breakdowns are not mysteries. They are clogged strainers, wet fuel, a tired impeller, a loose belt or a weak battery — problems that a careful twenty-minute walk-through at the dock would have caught while a mechanic, parts and shelter were still close by. This guide is the routine I use before every leg. It does not replace the engine and generator manufacturers' manuals, which always govern service intervals, fluids and procedures.

## AT A GLANCE

| | |
|---|---|
| **Oil & fluids**<br>Engine, gear and generator oil; coolant checked cold. | **Raw-water cooling**<br>Seacocks open, strainer clean, impeller and belts sound. |
| **Fuel**<br>Filters and water separators drained/inspected; tank level verified. | **Electrical**<br>Battery voltage, charging, terminals and alarms. |
| **After start**<br>Water at the exhaust, oil pressure, temperature, no leaks. | **Generator**<br>Its own checklist — plus a working CO detector. |


*General guidance only. Always follow vessel manuals, current regulations and the judgment of the vessel's master. * See photo & reference credits.*

# Cold Checks — Before You Start

Do these with the engine off and cold, in good light, with a flashlight and a rag in hand. Look, touch and smell. A clean engine room makes new leaks easy to spot; wipe up old drips so tomorrow's check is meaningful.

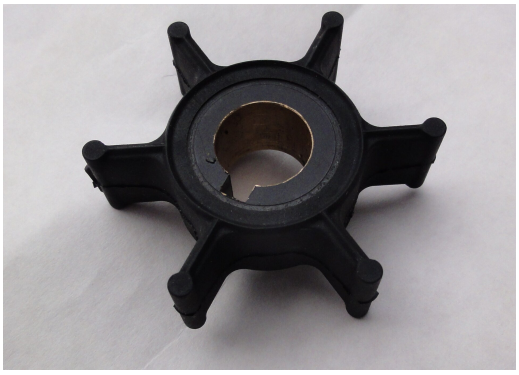
## Oil and fluids

- **Engine oil:** check on a level boat after the oil has drained back (at least several minutes after shutdown). Level between marks; note color and smell. Milky oil can indicate coolant or water contamination — do not depart.
- **Transmission / reverse gear:** check per the manual — some gears are checked with the dipstick resting on the threads, others screwed in.
- **Coolant:** check the expansion or recovery tank only when the engine is cold. Never open a hot pressure cap.
- **Fuel:** verify actual tank level by gauge and sight tube or dipstick. Gauges on yachts are often inaccurate.
- **Hydraulic steering and trim:** reservoir levels, where fitted.

## Raw-water (seawater) cooling circuit

Seawater enters through a seacock, passes a strainer, is pumped by a rubber-vaned impeller through the heat exchanger (and often the gear and oil coolers), and is injected into the exhaust. A blockage anywhere in that chain will overheat the engine and can destroy the impeller in minutes.

- Seacocks for the engine and generator **open**. Inspect hoses for cracking, soft spots and double hose clamps below the waterline.
- Strainer basket clean and the lid gasket seated. Close the seacock before opening a strainer, and check the lid seals after reassembly — an air leak here will starve the pump.
- Belts: check tension (typically around 1/2 inch of deflection at the midpoint of the longest run — follow the manual), glazing and cracks. Black dust near the pulleys means a belt is wearing.
- Look under the raw-water pump for drips: a weeping pump seal is a warning, not a curiosity.



*A healthy raw-water pump impeller: flexible vanes with no cracks or set.* *2



*A failed impeller with missing vanes. The missing pieces travel downstream — usually into the heat exchanger — and must be found.* *3

**CARRY SPARES**

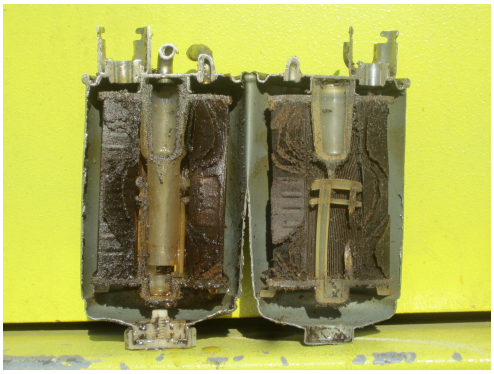
At minimum: impellers (with gasket or O-ring), primary and secondary fuel filters, oil filter, belts, hose clamps, a spare strainer gasket, a few litres of the correct oil and coolant, and the tools to fit them all. A spare impeller is useless if you cannot reach the pump cover.


*General guidance only. Always follow vessel manuals, current regulations and the judgment of the vessel's master. * See photo & reference credits.*

### Fuel system

Diesel engines tolerate many things but not water or dirt in the fuel. Most yachts have a primary filter / water separator (often with a clear bowl) ahead of a secondary, engine-mounted filter.[1]

- Inspect primary filter bowls for water (a clear layer at the bottom) and sediment. Drain into a container per the manufacturer's procedure.
- Check vacuum gauges on the primary filter, where fitted; rising vacuum means a filter is clogging.
- Look for weeping at fittings and the injection pump, and smell for diesel in the bilge.
- Confirm fuel-selector and return valves are set to the tank you intend to draw from, especially on boats with multiple tanks.
- Buy fuel from busy docks, keep tanks full in storage to limit condensation, and consider a biocide. Modern ultra-low-sulfur diesel can support microbial growth ("diesel bug") in water-contaminated tanks.[2]



*An opened fuel filter element loaded with dirt — exactly what you want to find at the dock, not offshore.* *4




*Spin-on fuel filter with a water-separator bowl. Many yachts use a similar primary filter ahead of the engine.* *5

### Bilges and electrical

- Bilge dry or nearly so; test float switches and pumps; note any oil sheen (do not pump oily water overboard).
- Batteries: resting voltage of roughly 12.6 V or more indicates a well-charged 12 V lead-acid battery; terminals tight and free of corrosion; battery switches set correctly.
- Check that engine-room blowers, fire suppression indicators and high-water alarms are operational.

## Start-Up and Warm-Up

| | |
|---|---|
| 01 | Engine room clear of tools and rags; hatches closed or secured. Run blowers if the boat has gasoline equipment aboard. |
| 02 | Start per the manual. Within a few seconds, confirm **water at the exhaust** outlet. No water, or a weak stream: shut down and investigate. |
| 03 | Confirm oil pressure rises promptly and alarms clear. Note the reading. |
| 04 | Confirm the alternator is charging — roughly 13.8 to 14.4 V on a 12 V system, depending on the regulator and battery type. |
| 05 | Warm up at moderate RPM under light load rather than long idling, per the manufacturer's guidance. |


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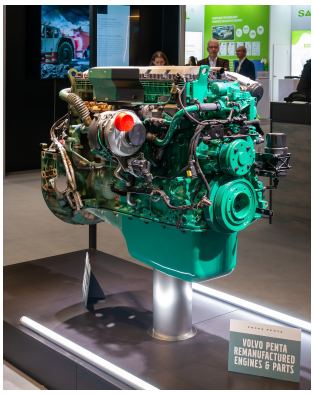
## At Operating Temperature

■ Recheck the engine room: leaks at hose clamps, the raw-water pump, the exhaust elbow and fuel fittings; any unusual smell (hot rubber, diesel, exhaust).

■ Record RPM, oil pressure, coolant temperature, gear temperature (if fitted), charging voltage and any warning codes in the log. These baselines make tomorrow's change obvious.

■ **Stop and investigate** an unexplained rise in temperature, a loss of cooling water at the exhaust, a drop in oil pressure, new vibration, or a change in exhaust smoke.

| Exhaust smoke | Common indication | Action |
|---|---|---|
| Black | Overload, fouled bottom or propeller, restricted air intake, injector issue | Reduce RPM; check air filter and loading; inspect at next stop. |
| White (persistent, not just cold start) | Unburned fuel, or water / coolant entering the cylinders | Monitor coolant level; shut down if coolant is being lost. |
| Blue | Burning lubricating oil | Check oil level and consumption; plan service. |




*Modern common-rail marine diesels report fault codes on the helm display — photograph and log them.* *6



*Know where each filter, dipstick, pump and seacock is on your own engine before you need them in a seaway.* *7

## The Generator Gets Its Own Checklist

A generator is a small diesel with its own oil, coolant, raw-water circuit, fuel filter, starting battery and seacock. It is often installed where it is hardest to reach, and it is the most common source of carbon monoxide aboard.[3]

| | |
|---|---|
| **01** | Check generator oil, coolant, fuel supply and starting battery. |
| **02** | Inspect the generator raw-water strainer, impeller access, hoses, clamps and seacock. |
| **03** | Start with no load. Confirm water at the generator exhaust within seconds. |
| **04** | Apply load gradually. Verify stable output — about 120/240 V at 60 Hz on U.S. installations — normal temperature and no leaks. |
| **05** | Allow a cool-down at light load before shutdown, per the manufacturer. |


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### CARBON MONOXIDE

CO is odourless and can accumulate in cabins and cockpits from a generator or engine exhaust — including from a neighbouring boat. Have working, in-date marine CO detectors in every accommodation space, never sleep with a generator running unless the detectors are tested and the exhaust system is sound, and never swim near an exhaust outlet.[3][4]

## Engine Log Template

| Time | Engine hrs | RPM | Oil psi | Coolant °F | Volts | Notes (leaks, smell, alarms) |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

### CAPTAIN'S NOTE

Follow the specific manufacturer's instructions for strainer cleaning, impeller replacement, fuel-system bleeding and coolant service. On a delivery, I ask the owner for maintenance records and the date of the last impeller and filter change before we leave — if nobody knows, we change them at the dock.

## Further Reading & Official Sources

**[1]** BoatUS — Engine and maintenance articles (Seaworthy / Expert Advice) — https://www.boatus.com/expert-advice/expert-advice-archive

**[2]** U.S. EPA — Diesel fuel standards (ultra-low-sulfur diesel) — https://www.epa.gov/diesel-fuel-standards

**[3]** USCG — Carbon monoxide safety for recreational boaters — https://uscgboating.org/recreational-boaters/carbon-monoxide.php

**[4]** ABYC (American Boat & Yacht Council) standards — including A-24 carbon monoxide detection — https://abycinc.org/

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**Visit the AYD website | Captain services | Delivery-preparation checklist | Printable preparation checklist (PDF)**



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