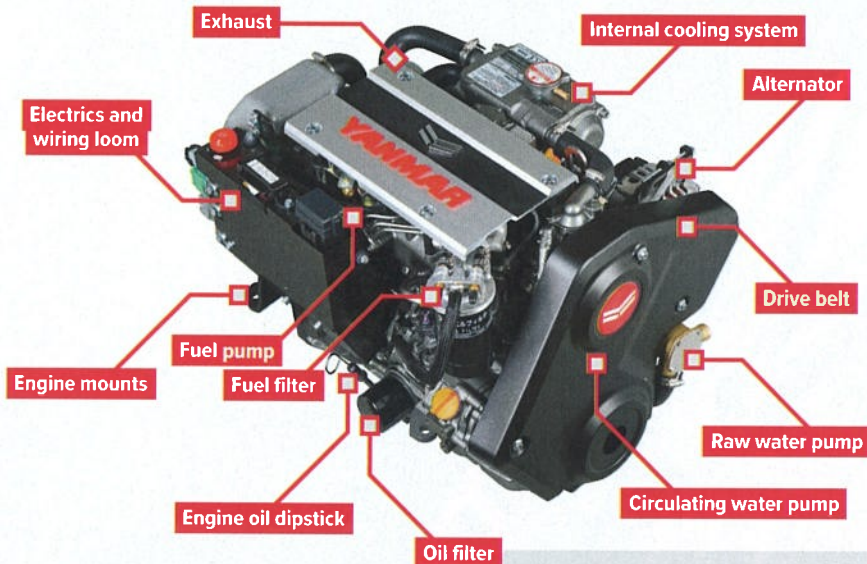


THE 10-POINT ENGINE CHECKLIST

Motor with confidence this season with these top tips from marine surveyor Ben Sutcliffe-Davies



FUEL

Check the deck filler and the condition of the O-ring. If in doubt, chuck it out. Even a small amount of water in the tank can cause issues. Keeping the tanks full does two things: firstly it lowers the chance of water causing problems to the fuel, and secondly, if you have a fuel leak it indicates there are problems. If you have a primary filter with a clear bowl, check it for contamination. Most inline filters have a small drain on the underside of the body. Drain off a small amount to check for contamination.

Replace filters every year and check the condition of fuel lines. They should be well supported. Also, check any rubber hose runs. Look for perishing rubber and ensure they are marked ISO7840.



Check and replace fuel filters every year

ELECTRICS

Testing switches is a good idea, but one of the most common faults is simply that the engine won't start because the batteries are flat. One cause is incorrect positioning of the battery isolator, allowing the batteries to be combined under the 'Both' position.

Consider having a secondary starting system, or even one of those sealed jump-start battery packs – but be sure to protect the terminals when not in use.

Regularly check batteries are secure and not relying on the main cabling to hold them in position in the event of a knock-down. Likewise, terminals should be properly covered and fitted snugly in good, vented boxes.



The health of both your batteries and wiring is vital



Faulty alternators often go unnoticed until at sea

ALTERNATOR

Check the condition of wires to and from the alternator and that they're secure. When the engine's running, check it actually charges the batteries, either by using a meter or – when possible – fit a small gauge in the system. With shore power and onboard charging systems, a faulty alternator can go unnoticed until you're out at sea and it's too late.

DRIVE BELTS

On many engines there will be two drive belts: one for the alternator and the other for either one or two water pumps depending on the type of system; in some cases the pump(s) will be mechanically driven. If the engine isn't used much then small amounts of corrosion will develop on the V-belt pulleys. When the engine is started this will become abrasive to the rubber drive belts and in some cases will cause the belt to fail. The first clue is the inside the engine box. Look here for the rubber fines thrown onto the make-up of the boxing. The second is to take a photo of the pulleys and enlarge it. Sometimes the belt will become slack in just a few hours, causing rapid wear.



Belt failure is often caused by corrosion on the V-belt pulleys

Photos: Ben Sutcliffe-Davies



Is water flowing through your basket strainer?

BASKET STRAINER

One of the daily checks on my own yacht is to see that the basket strainer is fitted before starting the engine and that the water flows in. On many production boats the position of the strainer won't allow you to see water flow in but once the lid is fitted it should have water flow through that can be viewed.



Perishing water hoses and seacocks need to be rectified

WATER HOSES

Check whether the water hoses are perishing – especially where they are tightly returned through bulkheads. If you have a calorifier, don't forget to look at the hoses to and from it as well. Occasionally look at the security of all clamps within the run, starting with the intake through to the exhaust hull fitting. Double clamping is strongly advised.



Oil running over the engine mounts can cause damage

ENGINE SECURITY

Make sure that no diesel or oil can run over the engine mounts as this damages the rubber vulcanisation. With engines that don't get a lot of running, engine mounts normally fail from perishing or from the vulcanisation failing before they go soft from use. Mounts vary depending on the type of installation but with frequent checking you will get an idea when they are not right when the engine is running, from the noise and their change in position.

IMPELLERS & PUMP HOUSING

Check the condition of the water pump impeller(s) and pump housing condition. Have you got the right spares and tools onboard to change them? When the engine is running look for good regular water discharge. Seeing steam is not good! If you have a few temperature gauges or alarms fitted these will prove very useful.

COOLANT SYSTEMS

Not all engines are indirectly cooled but if you have one, it's important the anti-freeze levels are checked. All water-cooled engines rely on good water circulation. On direct systems this means raw water is drawn in by a pump and pushed around the whole engine before being discharged via the exhaust. Indirect systems use two water systems: the first is the raw water but instead of circulating the engine it runs through a heat exchanger before being discharged. The water within the engine is usually fresh with anti-freeze and relies on a pump. I always look for anti-syphon valves to be fitted. These prevent water from flooding back into the engine when not being run.

EXHAUST

If most of the coolant items are satisfactory, an exhaust will last years. I've seen some craft over 20 years old with the original exhaust pipe run still serviceable. The rubber exhausts rely on coolant water to keep them cool. If no water has been circulated for even a very short while, the area around the exhaust manifold will become very hot and cause problems. Periodically check the security of the pipework and examine the rubber exhaust hose occasionally for any signs of perishing.



Ensure you have the right spares to replace pump impellers



Anti-syphon valves prevent water flooding back into the engine



A lack of cooling water will overheat the exhaust pipe and cause damage