

## Instructions

# Yanmar 4JH5E Diesel Motors

1. The main propulsion motors are 53 horsepower Yanmar 4JH5E diesels with Yanmar SD60 saildrives
2. Before starting the motors always check the oil and coolant and alternator belt tension as well as the gearbox oil level.
3. The motors and saildrives need oil changes every 250 hours and use Yanmar 15W40 Multigrade oil for engine and saildrive gearbox. Unless you plan on using a Yanmar mechanic for servicing the engine please read the Operation Manual which gives the scheduled servicing required to keep the motor running and extend its life. Fuel timing, fuel injector spray pattern, diaphragm assembly, valve clearance, etc need to be checked and adjusted every 1000 hours. The exhaust elbow should be replaced if it is showing signs of rust internally. You should remove the elbow every 1000 hours and inspect it for corrosion damage. The heat exchanger will also need to be cleaned as it gets a build up of calcium over time. You can run a solution of barnacle buster through the salt water inlet hoses using a small 12 volt pump and a bucket to recycle the solution. This usually takes an hour. This is done without running the motor.
4. A vacuum pump is used to remove the oil from the sump. The engine has a 5.5 litre oil capacity. It best to change the oil after the engine has been running and the oil is still warm. The suction hose on the pump should be fitted over the dipstick tube and clamped to avoid air intake. ( Failure to seal the tube stops the suction from working on the pump)
5. The oil and fuel filters should be changed at the same time as the oil change.
6. The salt water cooling pump has a rubber impellor which should be changed every 1000 hours. It should be checked every oil change. Adjust the alternator V-ribbed belt tension when necessary.



Oil filter (white cylinder) shown above is removed with an oil filter wrench. Place a shallow plastic tray under the filter to catch any oil in the filter

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1. The coolant water has an overflow into the plastic tank shown below. Do not remove the filler cap on the heat exchanger until the engine has cooled as any overflow into the tank will be sucked back into the heat exchanger as the engine cools.
2. If the coolant is low it indicates a leak in the system. Check the sump under the motor for purple coolant caused by a leaking hose connected to the engine cooling system. If the leak is not in the engine compartment check under the aft bunks where the coolant hoses connect to the hot water tank. Any leaks at the hot water tank drain into the sump and you can check under the floor for purple coolant.
3. The salt water for cooling the motor enters the engine compartment via a gate valve (red handle) on the base of the saildrive.
4. If you have an engine overheating alarm occur it is generally a blockage in the salt water intake or a failed impellor.
5. It is easy to check the intake by removing the hose on the salt water intake valve. If you have poor or no flow a blockage has occurred and needs to be cleared. You may need to check the inlet holes on the saildrive leg have not been covered in growth or barnacles. This means a dive overboard with a mask and flippers. These slotted holes can be cleaned with a screwdriver if blocked.
6. If the water flow is good at the gate valve then you need to check the impellor by removing the cover plate and pulling the impellor out of the pump. If rubber vanes are missing you need to remove these before installing a new impellor. That generally requires checking the hoses from the pump up to the heat exchanger and if no bits are found you need to dismantle the ends of the heat exchanger where they usually get lodged. Lots of Utube videos show you how to go about fixing overheating problems.

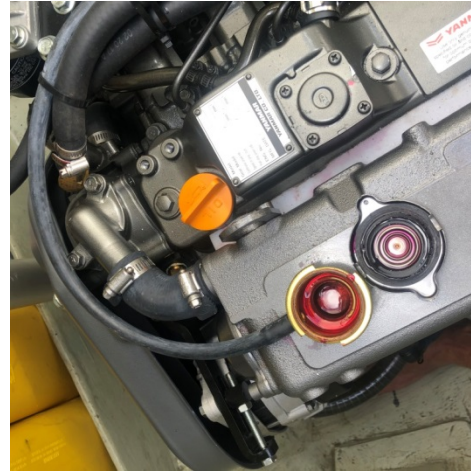




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The Ryco filter should be checked for sediment and water and new filter installed every 500 hours



The heat exchanger has a radiator cap shown removed in the photo. If the red coolant is low top up with coolant. Refer to previous page for trouble shooting reasons for low coolant.



The alternator belt should be checked for tension and tightened if needed with the bolt shown on top

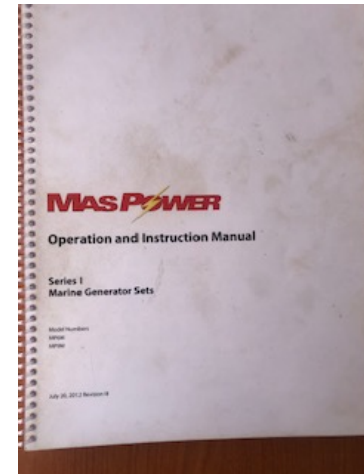
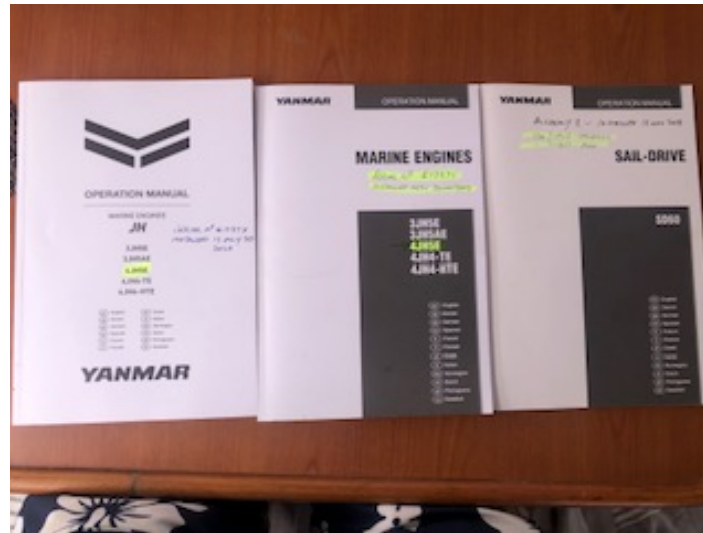


The saildrive gearbox dip stick is shown removed in photo. Clean the oil on the dipstick with a clean cloth and lower the dipstick into the gearbox hole so it sits on the hole. Check the oil level is up to the full mark. If OK screw it back into place. Check the colour of the gear oil. If it is milky then the propellor shaft seal is leaking and will need to be replaced. Seals fail if you get fishing line or rope wrapped around the prop. You will need to haul out to replace the seal. Changing the gearbox oil can be done with the suction pump used for engine oil changes. Remove the steel circular cap attached to the black plastic tube that extends to the bottom of the saildrive.. Fit the oil suction hose over the saildrive hose. If hauled out the oil can be changed by removing screws at the bottom of the saildrive leg..

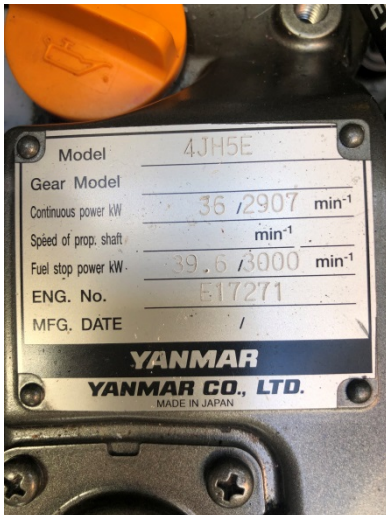
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The oil and coolant used in the motors can be purchased from Yanmar dealers.



The Yanmar main motors , generator and SD60 saildrive manuals are shown above. It is recommended reading to ensure that the motors and saildrive gearboxes are serviced at regular intervals . The manuals are located in a plastic storage bin under the port side aft bed cupboard with double door access.



Engine identification plates are located on top of the rocker cover.

## Spares

The ships stores have plastic bins with spares for the motors including impellers, oil and fuel filters. Hose clips and chain links for the main steering drive chain. They are stored under the port side forward cabin mattress. After changing oil and using the spare filters or impellers replace these items as you never know when they may be required.

## Maintenance Log

A ships maintenance log is located in the chart table. When servicing the motors or doing any works on the boat record the date and describe the work done including the engine hours.