

FaultFinding QRG

This is just a basic faultfinding check sheet. It is impossible to put down every fault on a single workflow guide, but this gives a good starting list. The actions to take are non in any specific order, it is up to you to work out the best ones to try.

Failure to Crank / Cranking Slowly

<ul style="list-style-type: none">• Check the Battery is not Isolated• Check the Ignition is on• Flat Battery• Dead Battery	<ul style="list-style-type: none">• Switch on Battery Isolation Switches• Switch on ignition and confirm panel lights• Measure battery voltage – fully charged should be above 12 volts• Check battery electrolyte levels• Do a hygrometer check on each cell and confirm charge• Try starting from house battery• Charge battery - if possible
<ul style="list-style-type: none">• Check connections on Starter motor and solenoid	<ul style="list-style-type: none">• Tighten any loose connections
<ul style="list-style-type: none">• Jammed Starter Motor• (Can you hear the solenoid engaging and the starter motor is getting hot?)	<ul style="list-style-type: none">• Gently tap the side of the starter motor
<ul style="list-style-type: none">• Faulty Solenoid	<ul style="list-style-type: none">• Try shorting out the solenoid terminals with a screw driver.
<ul style="list-style-type: none">• Engine oil too thick	<ul style="list-style-type: none">• Check oil• Check oil moves freely on the dip stick.

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Failure to Fire

<ul style="list-style-type: none"> • Lack of Fuel • Contaminated Fuel • Air in Fuel System 	<ul style="list-style-type: none"> • Check fuel level • Check Isolation Valve • Drain of water in tank • Check primary Fuel Filter • Check engine Fuel Filter • Bleed System • Replace Fuel
<ul style="list-style-type: none"> • Insufficient heat from glow plug 	<ul style="list-style-type: none"> • Check electrical connections on glow plug • Check Glowplug electrical resistance. Less than 10 ohms
<ul style="list-style-type: none"> • Cranking Speed is too low 	<ul style="list-style-type: none"> • See section above.
<ul style="list-style-type: none"> • Insufficient Inlet Air 	<ul style="list-style-type: none"> • Check Air filter • check air vents into the compartment are not blocked
<ul style="list-style-type: none"> • Faulty Injectors 	<ul style="list-style-type: none"> • Extract and clean injectors.

Lack of Exhaust Water

<ul style="list-style-type: none"> • Closed inlet Seacock 	<ul style="list-style-type: none"> • Open seacock (valve may show open but have a broken handle, you should be able to feel the friction from the moving handle)
<ul style="list-style-type: none"> • Fouled Seawater Strainer 	
<ul style="list-style-type: none"> • Water Leaks 	Will show as a rise in bilge water level <ul style="list-style-type: none"> • Check all hoses. • Check outlet of inlet seacock
<ul style="list-style-type: none"> • Trapped Air 	
<ul style="list-style-type: none"> • Fouled Heat Exchanger 	
<ul style="list-style-type: none"> • Raw-water pump not functioning 	<ul style="list-style-type: none"> • Broken Impeller • Broken or poor tension drive belt (if belt driven)
<ul style="list-style-type: none"> • Fouled Heat Exchanger 	<ul style="list-style-type: none"> • Clean Heat Exchanger

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Overheating – with Exhaust Water

<ul style="list-style-type: none"> • Fouled Heat Exchanger • Malfunctioning Thermostat 	<ul style="list-style-type: none"> • Clean Heat Exchanger • Remove thermostat and check operation in a pot of water on galley stove • If at sea and need to return to shore – run for short periods with thermostat internals removed. Keep engine load low.
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Black or Grey Smoke

<ul style="list-style-type: none"> • Excessive Growth on Propeller 	<ul style="list-style-type: none"> • Dive on the propeller and clean – even a small amount of growth will cause smoke
<ul style="list-style-type: none"> • Excessive Growth on hull 	<ul style="list-style-type: none"> • Clean Hull. A heavily fouled hull will make the engine work much harder than normal.
<ul style="list-style-type: none"> • Dirty Fuel 	<ul style="list-style-type: none"> • Check fuel filter elements • Check that it is not too cold for the grade of diesel • Check fuel condition – take sample <ul style="list-style-type: none"> ◦ Look for water ◦ Look for particulates <p>Flush fuel system if needed</p>
<ul style="list-style-type: none"> • Fouled injectors or fuel pump 	<ul style="list-style-type: none"> • Add fuel injector cleaner fuel additive to see if issue clears up. • Clean injectors • Clean fuel Pump
<ul style="list-style-type: none"> • Air in Fuel System 	<ul style="list-style-type: none"> • Bleed off Excess air
<ul style="list-style-type: none"> • Engine Room Ventilation 	<ul style="list-style-type: none"> • Check ventilation system is operating correctly – is smoke coming from ventilation
<ul style="list-style-type: none"> • Engine Room Fire 	<ul style="list-style-type: none"> • Release Fire extinguisher into the engine bay.
<ul style="list-style-type: none"> • Turbocharger Failure 	<ul style="list-style-type: none"> • Have turbo charger serviced

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Blue or White Smoke

<ul style="list-style-type: none">• Old or Incorrect Grade of Oil	<ul style="list-style-type: none">• Change Oil if it is old• If an oil change has just been done, probably incorrect grade
<ul style="list-style-type: none">• Diesel Fuel in Engine Oil	<ul style="list-style-type: none">• From the dipstick, drip a few drops of oil onto a paper towel. Look for a halo around the oil spot. The bigger the halo, the more diesel fuel is present. Conduct oil change.
<ul style="list-style-type: none">• Too Much Oil in the Sump	<ul style="list-style-type: none">• Check oil level – if too much but viscosity is consistent, pump out excess oil
<ul style="list-style-type: none">• Too much Crank Case Pressure	<ul style="list-style-type: none">• Check crankcase breathers – you can also open the oil filler cap to see if there
<ul style="list-style-type: none">• Excessive Engine Wear	<ul style="list-style-type: none">• There is not much that can be done apart from have the engine overhauled by a diesel mechanic.
<ul style="list-style-type: none">• Head Gasket Leak	<ul style="list-style-type: none">• Have the engine repaired by a diesel Mechanic
<ul style="list-style-type: none">• Turbocharger Seal Failure	<ul style="list-style-type: none">• Have turbo charger serviced

Battery System Not Charging.

<ul style="list-style-type: none">• Incorrect drive belt tension or broken drive belt	<ul style="list-style-type: none">• Confirm the belt tension. Deflection in the centre of the belt is about 12mm.
<ul style="list-style-type: none">• Poor electrical connections	<ul style="list-style-type: none">• Check all electrical connections are tight and securely• Check cables for any damage
<ul style="list-style-type: none">• Failed Battery	<ul style="list-style-type: none">• Check the battery voltage when isolated. If less than 8v, the battery has a failed cell and need to be replaced.
<ul style="list-style-type: none">• Failed alternator	<ul style="list-style-type: none">• Check output voltage of the alternator when the engine is running

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Engine Running Rough – Vibration

<ul style="list-style-type: none">• Faulty Fuel Injection System	<ul style="list-style-type: none">• Add fuel injector cleaner fuel additive to see if issue clears up.• Clean injectors• Clean fuel Pump
<ul style="list-style-type: none">• Propeller Issues	<ul style="list-style-type: none">• Fouled Propeller – Clean• Damaged Propeller - Replace
<ul style="list-style-type: none">• Faulty or Damaged Engine Mounts	<ul style="list-style-type: none">• Check mounts, tighten loose mounts• Replace mounting rubbers
<ul style="list-style-type: none">• Air in the Fuel System	<ul style="list-style-type: none">• Bleed Fuel System

Engine Stalls

<ul style="list-style-type: none">• Line Wrapped around Propeller	<ul style="list-style-type: none">• Go for a swim and clean the propeller
<ul style="list-style-type: none">• Lack of Fuel Supply	<ul style="list-style-type: none">• Empty tank• Accidental Closure of Fuel Supply Valve• Fouling of primary filter due to sudden inrush of water• Damaged fuel Supply line – look for diesel in the bilge
<ul style="list-style-type: none">• Contaminated Fuel	<ul style="list-style-type: none">• Check fuel condition, flush fuel system if required.
<ul style="list-style-type: none">• Blocked Fuel Tank Breather	<ul style="list-style-type: none">• Open fuel filler cap – if there is a sudden change of pressure then the breather line is blocked