

TROUBLESHOOTING

1 PRELIMINARY INFORMATION

Troubleshooting mechanical engine problems can be difficult. This section lists possible engine problems that could be encountered with possible causes and corrections. The information given is of a general nature as it covers the basic engine and your particular application may be different.

Electrical wiring diagrams can be found in section 9. If you are in any doubt, contact your local Lister Petter Power Systems distributor.

Before starting any dismantling procedure the following should be considered:

- a. Do you know and understand the engine and all the related systems?
- b. Do you have sufficient electrical and mechanical knowledge and skills to understand the symptoms?
- c. Do you have suitable electrical diagnostic equipment available?
- d. Do you have, or access to, the necessary Lister Petter Power Systems spare parts before you commence dismantling?

2 METHOD OF TROUBLESHOOTING

1. Diagnose the problem by eliminating the easiest things first.
2. Before starting to remove or dismantle any components double check your observations.
3. During dismantling keep all cylinder related items together. This will ensure they are refitted in the original orientation.
4. When electrical troubleshooting always start at the battery first.

3 TROUBLESHOOTING TABLES

<i>Problem</i>	<i>Method of Correction</i>
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Difficult Starting or Failure to Start

Incorrect starting procedure.	Refer to the correct procedure.
Unsuitable lubricating oil (too heavy).	Use oil of the correct viscosity and specification.
Incorrect fuel.	Use fuel of the correct specification.
No fuel in the tank.	Refill the tank.
Choked fuel filter.	Replace the filter.
Air lock in the fuel system.	Check the fuel level. Prime the fuel filter.
Water or dirt in the fuel system.	Drain, flush, refill and prime the filter.
Dirty or faulty injector.	Replace the injector or have it serviced.
Discharged battery.	Recharge or replace the battery.
Fuel pump solenoid not energised.	Check the electrical supply.
Poor battery connections.	Clean, replace and coat with petroleum jelly.
Faulty fuel pump.	Contact a Lister Petter Power Systems distributor.

Excessive Carbon Deposits

Choked air filter.	Dismantle and clean the cap and element.
Choked exhaust system.	Dismantle and clean.
Unsuitable fuel.	Use fuel of the correct specification.
Unsuitable lubricating oil.	Use oil of the correct viscosity and specification.
Continuous low, or no load running.	Investigate your load management programme.

White Exhaust Smoke

Water in the fuel system.	Drain, flush, refill and prime the filter.
Faulty fuel pump.	Contact a Lister Petter Power Systems distributor.

Light Blue Exhaust Smoke

Generally as a result of light load.	Investigate the load management programme.
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Heavy Blue Exhaust Smoke

Lubricating oil passing the piston rings.	Check the crankcase vacuum. Check for wear.
Stuck, worn or broken piston rings.	Check for damage, decarbonise, replace the rings.
Worn cylinder bore.	Replace the piston and piston rings.
Overfull oil sump.	Correct the level.

Black Exhaust Smoke

Overload.	Reduce the load.
Choked air filter.	Dismantle and clean the cap and element.
Inlet air temperature too high.	Investigate the reason.
Water in the fuel system.	Drain, flush, refill and prime the filter.
Unsuitable fuel.	Use fuel of the correct specification.

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<i>Problem</i>	<i>Method of Correction</i>
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Engine Stops

Lack of fuel.	Check the system. Refill the tank.
Air in the fuel system.	Prime the fuel filter.
Water in the fuel system.	Drain, flush, refill and prime the fuel filter.
Choked fuel filter.	Replace the filter.
Choked air filter.	Dismantle and clean the cap and element.
Overload.	Reduce the load.
Overheating.	See the 'Overheating' section.
Loss of compression.	Check the piston rings and the valves.
Loss of electrical supply to the fuel solenoid.	Check the electrical feed.
Automatic shutdown, if protective devices are fitted.	Investigate the cause and rectify.

Lack or Loss of Power

Loss of compression.	Check the piston rings and the valves.
Choked air filter.	Dismantle and clean the cap and element.
Choked exhaust system.	Dismantle and clean.
Overload.	Reduce the load.
Choked fuel filter.	Replace the filter.
Worn engine.	Give the engine a major overhaul.

Overheating

Overload.	Reduce the load.
Lubricating oil level too low.	Add oil of the correct specification and viscosity.
Incorrect fuel.	Drain the system, add fuel of the correct specification.
Recirculation of exhaust gasses or cooling air.	Investigate and eliminate the cause.
Air cooling system obstructed.	Check for restrictions and clean the cylinder head and cylinder barrel cooling fins

High Fuel Consumption

Incorrect type of fuel.	Drain the system, add fuel of the correct specification.
Overload.	Reduce the load.
Dirty or faulty injector.	Clean or replace.
Choked air filter.	Dismantle and clean the cap and element.

Continued on the next page

<i>Problem</i>	<i>Method of Correction</i>
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Undercharging

Excessive electrical load from added accessories.	Remove accessories.
Poor electrical connections to alternator or battery.	Inspect, clean and rectify the cause.
Faulty battery.	Test, recharge or replace.
Faulty alternator or charge windings.	Test or replace.

Overcharging

Faulty alternator or charge windings.	Test or replace.
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Battery Requires Excessive Amounts of Water

Battery case leaking.	Clean surrounding area and replace the battery.
Deffective battery.	Test or replace the battery.
Battery charging rate is too high.	Check the alternator output or battery charging system.

Battery will not Charge

Loose or corroded connections	Clean and tighten the connections.
Worn out battery.	Replace the battery.
Loose alternator drive belt.	Replace or re-tension the drive belt.

Starter Motor does not Operate

Loose or corroded connections.	Clean and tighten the connections.
Worn out battery.	Replace the battery.
Faulty starter panel or connections.	Check the connections or replace the panel.