

Pump Trouble Shooting

Your irrigation pump stops pumping. What's your first reaction? Reach for the phone and call your friendly local irrigation repairer? Sometimes a systematic approach to diagnosing developing or crisis problems can pay dividends in minimising down time. The following is a guide identifying common pumping problems. You may even be able to fix the problem without the need to contact a professional.

Problem	Possible Cause	Possible Remedy
Pump noisy and vibrating	Misalignment of pump shaft	Determine the cause and repair misalignment
	Pump/motor coupling faulty	Replace the coupling
	Cavitation	Determine the cause of the cavitation
	Clogging of the pump	Remove material blocking the pump
	Worn or dry bearings	Replace or lubricate
	Water hammer	Check pipe sizing, closing of valves and pressure tank pressures
	Pump mountings loose	Check pump foundations and pipe supports
Pump doesn't start	Motor problem -shaft is hard to turn by hand, pump turns easily	Check motor bearings
	Pump problem - shaft is hard to turn but the motor rotates easily	Check pump bearings, or pump impeller for clogging
	Shaft is easy to turn by hand.	Check the wiring, pump controller and power supply
No water being pumped	Loss of prime	Prime pump and determine cause of lost prime - cavitation, leaking suction or leaks at the pump.
	Required head too high	Review irrigation design and modify to reduce head.
	Suction lift too high	Review suction design to reduce lift
	Air leak in suction line	Identify source of air leak and repair
Low pump output	Suction pipe or foot valve clogged	Unclog the foot valve and identify source of clogging
	Pump not primed properly	Prime pump
	Pump running in reverse	Check direction of rotation of the motor
	Pump speed too low	Check electricity supply
	Required head too high	Review irrigation design and modify to reduce head
	Suction lift too high	Review suction design to reduce lift
	Air leak in suction pipe	Identify source of air leak and repair
	Wrong foot valve size	Check suction design
Wrong foot valve submergence	Check depth of foot valve	
Low pressure	Pump speed too low	Check electricity supply
	Pump running in reverse	Check direction of rotation of motor
	Air in water	Check for air leaks or cavitation
	Wrong impeller diameter	Review pump duty and match to system requirements
	Pump wear or impeller damage	Check pump components for wear or damage
Too much power used	Pump speed too high	Review pumping requirements
	Mechanical defect e.g. bearings	Check and replace worn or damaged components
Pump works, then stops	Air pocket in suction pipe	Check for air leaks or cavitation
	Suction lift too high	Review suction design to reduce lift
	Wear in stuffing box	Check and replace worn or damaged components

Further information on pumping systems can be found in the publication "Managing Water in Plant Nurseries".

Lex McMullin

Farm Management System Officer

Mob: 0400 005 236

Email: fmso3@ngiq.asn.au