

# Cellar cooler trouble shooting

FAULT	POSSIBLE CAUSE	CHECK	SOLUTION
<b>COMPRESSOR</b>			
<b>Compressor will not start</b>	Power supply	Is power switched on?	If not - switch on
		Phase and neutral present?	Check/rectify
		Voltage within tolerance?	Check/rectify
	Compressor contactor not pulled in (contactor in indoor unit)	Is there correct voltage to contactor coil? (Terminals A1 & A2)	If yes - coil faulty. Replace contractor
			If no - check for break in control circuit
		Is the controller calling for cooling? (Cooling LED lit)	If yes - check for break in control circuit
			If no - is controller set correctly?
		Is the controller on defrost? (Defrost LED lit)	If yes - wait for defrost to finish or terminate defrost and check operation
		Is there an alarm condition shown on the controller display?	Refer to manual for alarm identification and resolution
	Has a safety switch tripped out?	Check cause and rectify	
	Compressor contactor pulled in but compressor not running	Is voltage being switched across contactor? (Terminals L1 & T1)	If yes - check voltage present at compressor terminals. If correct - compressor may have tripped internal overload or be faulty If no - contactor fault. Replace contactor
	LP switch tripped (on indoor unit)	Low pressure condition	Low refrigerant charge / icing of evaporator coil / evaporator fan failure / blockage in piping. Check & rectify cause
	Compressor internal overload tripped	Is the correct voltage at compressor terminals?	Compressor has overheated - allow time for reset (up to 3 hours) and rectify cause
	Faulty compressor run capacitor	Check visual condition of capacitor and check uF reading with capacitor meter	Replace capacitor as required
Motor windings faulty	Check resistances of windings	Windings that show open circuit could be due to internal overload trip. Wait for reset and recheck. If continually open circuit - motor faulty. Replace compressor.	
Compressor seized	Does compressor attempt to start but does not run correctly (makes humming sound?) Are amps equivalent to LRC rating?	If all electrical checks on components as above are OK - Change compressor	
<b>Compressor runs but no effect on suction / discharge pressures</b>	Mechanical failure within compressor	Are compressor motor amps lower than expected? If so - potentially valve damage or other internal wear / damage	Try pump test on compressor. If test on compressor. If test fails - replace compressor.

<b>Compressor starts and stops too quickly</b>	Operating on safety controls	Check LP switch and compressor internal overload	Rectify cause and recheck
	Refrigerant levels	Is there too little refrigerant in the system causing LP switch tripping?	Check refrigerant level and adjust accordingly
	Faulty contactor (if fitted)	Are the contacts chattering on the contactor?	Contacts may be dirty or worn. Check and replace contactor as necessary
	Anti short cycle time in controller is set too low	Anti short cycle time should be set for a minimum of 3 minutes	Check and rectify
	Temperature differential in controller set too low	Differential should be set for a minimum of 2°C	Check and rectify
	Room temperature rising too quickly	Are doors open to room?	Check and rectify
	Loose / broken wiring connection		Make sure all electrical connections are sound
<b>Compressor is noisy</b>	Vibration	Rubbing feet mountings worn or bolts are loose / missing	Replace mounting and tighten/ replace bolts as necessary
	Liquid refrigerant	Does compressor 'knock' when starting up or running? Liquid refrigerant may be present in oil and compression chambers	Identify cause of liquid return to compressor and rectify
	Overloaded	Are suction and discharge pressures too high? There may be too much load on the compressor	Identify cause of increased load and rectify
	High discharge pressure	Blocked condenser / faulty condenser fan	Check and rectify
		Refrigerant overcharge	Check and rectify
		Non-condensibles in system	Reclaim refrigerant, evacuate & recharge
	Internal wear / damage	Noise is always present even if all operating conditions are ok?	Replace compressor
<b>Compressor body too hot</b>	System load too high	Are suction and discharge pressures high?	Reduce load at evaporator
	High discharge pressure	Blocked condenser / faulty condenser fan / airflow around unit restricted	Check and rectify
	Lack of compressor cooling	Suction superheat too high	Check refrigerant charge is correct
			Too much heat load at evaporator - reduce
			Are refrigerant lines correctly insulated?
	Compressor starting too frequently	Refer to section above 'Compressor starts and stops too quickly'	Refer section above 'Compressor starts and stops too quickly'
Discharge gas bleeding into suction side	Does suction pressure rise abnormally quickly when compressor stops	Compressor valves may be damaged - replace compressor	

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CONDENSER FAN			
<b>Condenser fan is not running</b>	Power supply	See compressor will not start section	See compressor will not start section
	Compressor contactor not pulled in	See compressor will not start section	See compressor will not start section
	Compressor contactor pulled in	Is voltage being switched across contactor? (Terminals L1 & T1)	If yes - check voltage to fan motor. If correct voltage present at more - fan faulty. Replace fan motor
			If no - contactor faulty. Replace contactor
	Fan being controlled by Fan Speed Controller (if fitted)	Is operating pressure below FSC setting?	If yes - all ok (check fan operates when pressure rises)
	Fan capacitor fault	Check visual of capacitor and check uF reading with capacitor meter.	Replace capacitor as required
Motor fault	If FSC fitted - bypass FSC to test motor. If motor still does not run - motor is faulty	Replace fan motor	
<b>Condenser fan runs but only slowly</b>	Fan capacitor or motor fault	See above	See above
	Is fan being controlled by a FSC?	Adjust FSC setting - does fan speed up?	If yes - all ok
	FSC faulty	If fan runs slowly even after adjusting FSC with head pressure rising- FSC may be faulty	Replace FSC
INDOOR UNIT			
<b>Indoor fan not running</b>	Power Supply	Is power switched on?	If not - switch on
		Is rocker switch on unit switched on?	If not - switch on
	Motor faulty	Are there correct voltages at motor terminals?	If yes - motor faulty. Replace motor
		Check fan capacitor	Replace as required
<b>No display on controller</b>	Power Supply	Is power switched on?	If not - switch on
		Is rocker switch on unit switched on?	If not - switch on
		Are there correct voltages at controller	If yes - controller faulty. Replace controller
			If not - check supply / wiring connections

<b>Power to controller but no cooling from unit</b>	Is unit in defrost mode?	Check if defrost LED is displayed	If yes - all ok. Wait for defrost to end
			If no - further checks required
	Is unit in cooling mode (cooling LED displayed)	Is room at required temperature?	All ok
		Room above required temperature?	Further checks required
<b>Reduced airflow</b>	Fan motor	Is fan rotating slowly?	Further checks required on fan (see above)
	Air inlets blocked	Is anything blocking air inlet grilles at side of unit	Clear items from around unit
	Evaporator coil dirty	Check condition of coil	Clean as necessary
	Evaporator coiled iced up	Switch off unit and allow to defrost	Checks required to determine cause of icing
<b>SYSTEM</b>			
<b>Insufficient cooling</b>	Lack of refrigerant	Remove charge and note weight	Leak test / pressure test system
	Condenser coil dirty	Visual check of coil condition	Clean condenser coil
	Lack of ventilation to outdoor unit	Any obstructions around unit?	Clear same to ensure good ventilation
	Evaporator coil dirty	Visual check of coil condition	Clean evaporator coil
	Evaporator coil iced up	Switch off unit and allow to defrost	Checks required to determine cause of icing
	System settings	Controller set correctly?	Adjust as necessary
	Service valves not open correctly	Are valves fully open?	Adjust as necessary
	Restriction in capillary device	Low suction pressure / sweating on capillary	Clear restriction or replace capillary
	Damage to piping	Restricted refrigerant flow	Replace piping as required

