



## GENERAL TROUBLESHOOTING

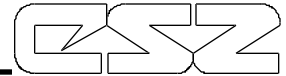
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Compressor will not run	Conditioning system OFF No electrical power Wrong voltage to applied to unit Compressor internal overload tripped High/Low Limit tripped Control alarm energized Motor failure Motor shorted Fuse may need to be replaced	Turn ON conditioning system Check fuses Check voltage and correct Will automatically reset when cooled Correct cause of limit condition, repair and reset Check winding resistance and lead to ground resistance Replace compressor Refer to section on Replacing Fuse
Unit short cycles continuously	Restricted or improperly adjusted thermal expansion valve Time-out timer set too low Gain setting too high Proportional band setting to low Compressor low on refrigerant	Replace or adjust valve Increase "Time-out" time Decrease gain setting Increase proportional band setting Check refrigerant and charge if necessary
Compressor difficult to start	Wrong voltage applied to unit Defective run/start capacitor(s) Defective start relay Refrigeration overcharge	Connect correct voltage Replace capacitor(s) Replace start relay Recover and recharge
High load amps	Low voltage Electrical malfunctions Defective start relay	Check supply circuit Check for proper wiring and correct compressor capacitor. Check for grounds and measure winding resistance Check and replace
Low Amps	Low refrigerant	Check for leaks; charge system

Table 1. General Troubleshooting

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PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Insufficient cooling effect	Refrigerant shortage Frosted coil Low air circulation Exceeding rated live load capacity (See data sheets) Cooling coils obstructed TXV defective Solenoid coil burned out Solenoid valve bad Dirty condenser R-404A compressor frosting	Repair leak and recharge Defrost and dry coil Check fan blade and shaft. Blade may have come off Reduce live load Remove obstruction or defrost Replace valve Replace coil Replace valve Clean condenser Possible leak in R-508B. Check ambient pressures
R-508B Head Pressure too high	Refrigerant overcharge Humidity unit switch "on" Exceeding rated live load capacity (See data sheets) Air in system R-404A system short of gas	Recover excess refrigerant Turn switch "off" during low temperature operation or turn Humidity event "off" in program Reduce live load Recover, evacuate and recharge. Add Pentane Repair leak and recharge
R-508B Head Pressure too low R-404A Head Pressure too high Water Cooled Units	Refrigerant shortage Condensing air too warm Restricted air cooled condenser Air in system Condenser water too warm Differential pressure too low	Repair leak and recharge Maximum condenser inlet air = 85°F Clean condenser Recover, evacuate and recharge Supply cooler water Minimum water differential = 40 PSI
R-404A Head Pressure too low	Condensing air too cold Condenser water too cold Low refrigerant charge	Location may need to be changed Raise supply temperature Repair leak & recharge

Table 1. General Troubleshooting (Cont'd)



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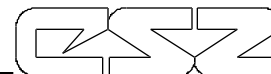
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Noisy unit	Insufficient compressor oil Fan Tubing rattle Compressor mounting	Consult Cincinnati Sub Zero Check blades and bearing Bend tubes away from contact Tighten

Table 1. General Troubleshooting (Cont'd)

## HUMIDITY TROUBLESHOOTING (Optional)

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Humidity not reaching desired level	Atomizing Nozzle Clogged	Remove & Clean Replace Demineralizer Filter if required
	Water is not connected to unit	Connect water
	Air pump is not functioning	Check air pump
	Water control solenoid not energized	Check coil - replace if burned Check solenoid circuit - repair circuit
	Chamber fan not functioning	Check fan circuit Check fan blade for tightness on shaft
	Filter/Strainer clogged	Remove & Clean
	Humidity switch not on	Turn switch ON
	Solid state sensor defective	Replace
	Water metering valve not adjusted properly	Adjust to 20.25 CCS
Demineralizer cartridge clogged internally	Replace cartridge	

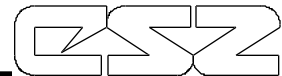
Table 2. Humidity System Troubleshooting



## DRY AIR PURGE TROUBLESHOOTING (Optional)

PROBLEM	PROBABLE CAUSE	CORRECTION ACTION
<p>Unit delivers wet air.</p> <p>Moisture indicator is pink.</p>	Improper operating conditions	Change temperature and RH setpoint to be within recommended operating range for Dry Air Purge
	Solenoid core spring broken	Remove solenoid valve Spring should be seated on core and not broken. Replace if necessary.
	Purge orifice plugged	Remove, inspect, and clean orifice. Use air gun to clean. Do not force wires through critically drilled holes.
	Solenoid coil burned out	Remove cover, place iron or steel material (screw driver or nail) on exposed end of solenoid base to feel the magnetic effect indicating proper operation. Each coil should be energized for 30 seconds. Depress switch lever by hand and listen for clicking contact. Switch should click when depressed and when released. Replace if necessary.
	Improper operation of cycle timer	<p>Check the power supply . If the correct voltage is not present between L1 and both of the L2 terminals, check the wiring and protective device supply ing power to the dryer.</p> <p>Dryers with DC solenoid valves should alternately have DC voltage between L2 and DC1 and between L2 and DC2. Replace the timer if voltage is present at either DC terminal continuously or not at all.</p> <p>Timer Input 120VAC/Timer Output 53 VDC Timer Input 240 VAC/Timer Output 106 VDC</p> <p>Timers P-06521-F1 and F2 are the standard timers used on the HF200, HF300A and HF300B air driers. The timers permit simultaneous switching of the solenoid valves every 30 seconds.</p>
	Desiccant attrition or contamination	<p>Inspect outlet air line for indication of excessive oil. Check operation of dropout filter.</p> <p>Remove chamber from manifold and depress perforated disc at open end of chamber. If it can be depressed more than 1/4" from the retaining ring.</p>
	Water in Customer air supply lines	Find and correct problem

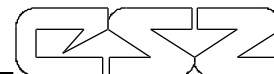
Table 3. Dry Air Purge Troubleshooting



## DRY AIR PURGE TROUBLESHOOTING CONT'D (Optional)

PROBLEM	PROBABLE CAUSE	CORRECTION ACTION
Excessive drop in outlet pressure	Improper operating conditions	Correct operating conditions
	Solenoid coil burned out	Remove cover, place iron or steel material (screwdriver or nail) on exposed end of solenoid base to feel the magnetic effect indicating proper operation. Each coil should be energized for 30 seconds. Depress switch level by hand and listen for clicking contact. Switch should click when depressed and when released. Replace if necessary.
	Improper operation of cycle timer	<p>Check the power supply. If the correct voltage is not present between L1 and both of the L2 terminals, check the wiring and protective devices supplying power to the dryer.</p> <p>Dryers with DC solenoid valves should alternately have DC voltage between L2 and DC1 and between L2 and DC2. Replace the timer if voltage is present at either DC terminal continuously or not at all.</p> <p>Timer Input 120VAC/Timer Output 53 VDC Timer Input 240 VAC/Timer Output 106 VDC</p> <p>Timers P-06521-F1 and F2 are the standard timers used on the HF20, HF300A and HF300B air driers. The timers permit simultaneous switching of the solenoid valves every 30 seconds.</p>
	Check valve balls seating	Remove check balls and springs and inspect for excessive wear or damage. Replace if necessary.
	Plugged air passages	Check inlet and outlet air passages and piping for blockage. Correct if necessary.
	Desiccant attrition or contamination	Inspect outlet air line for indication of excessive oil. Check operation of dropout filter.
		Remove chamber from manifold and depress perforated disc at open end of chamber. If it can be depressed more than 1/4 from retaining ring, replace chamber.
Solenoid valve chatter	Solenoid valve defective	Replace solenoid valve core assembly and solenoid base.

Table 3. Dry Air Purge Troubleshooting (Cont'd)



## GN2 SYSTEM TROUBLESHOOTING (Optional)

PROBLEM	PROBABLE CAUSE	CORRECTION ACTION
Unit doesn't reach low humidity setpoint	Solenoid core spring broken	Remove solenoid valve and inspect core assembly. Spring should be seated on core and not broken. Replace if necessary.
Excessive drop in outlet pressure	Solenoid coil burned out	Remove cover, place iron or steel material (screw driver or nail) on exposed end of the solenoid base to feel the magnetic effect that indicates proper operation. Each coil should be energized for 30 seconds. Depress switch lever by hand and listen for clicking contact. The switch should click when depressed and when released. Replace if necessary.
	Solenoid coil burned out.	Remove cover, place iron or steel material (screw driver or nail) on exposed end of the solenoid base to feel the magnetic effect that indicates proper operation. Each coil should be energized for 30 seconds. Depress switch lever by hand and listen for clicking contact. The switch should click when depressed and when released. Replace if necessary.
Solenoid valve chatter	Solenoid valve defective	Replace solenoid valve core assembly and solenoid base.

Table 4. GN2 System Troubleshooting



## LN2 SYSTEM TROUBLESHOOTING (Optional)

PROBLEM	PROBABLE CAUSE	CORRECTION ACTION
No LN2 Flow	Check LN2 Supply  Check Solenoid Valves	Is LN2 Supply tank empty?  Are the solenoid valves opening?  Do the solenoid coils have power? They should have 120 VAC applied to the coil.

Table 5. LN2 System Troubleshooting

## FROZEN COIL TROUBLESHOOTING (Optional)

PROBLEM	PROBABLE CAUSE	CORRECTION ACTION
Coil not Freezing  Water	Frozen Coil Mode Not Engaged  Solenoid Valve Not Working  Frozen Coil T.E.V. out of Adjustment	Dewpoint not low enough, let wet coil remove moisture before unit enters frozen coil mode  Check liquid line solenoid (Frozen Coil)  Check EPR bypass solenoid. Do they have power?  Adjust T.E.V. to increase superheat  Verify Frozen Coil is turned on by the event and/or switch on control panel

Table 6. Frozen Coil Troubleshooting