

**Refrigeration System Troubleshooting**

Evaporator Troubleshooting Chart

<b>SYMPTOMS</b>	<b>POSSIBLE CAUSES</b>	<b>POSSIBLE CORRECTIVE STEPS</b>
Fan(s) will not operate.	<ol style="list-style-type: none"> <li>1. Main switch open.</li> <li>2. Blown fuses.</li> <li>3. Defective motor.</li> <li>4. Defective Timer or defrost thermostat.</li> <li>5. Unit in defrost cycle.</li> <li>6. Coil does not get cold enough to reset thermostat.</li> </ol>	<ol style="list-style-type: none"> <li>1. Close switch.</li> <li>2. Replace fuses. Check for short circuits or overload conditions.</li> <li>3. Replace motor.</li> <li>4. Replace defective component.</li> <li>5. Wait for completion of cycle.</li> <li>6. Adjust fan delay setting of thermostat. See Defrost Thermostat Section of this bulletin.</li> </ol>
Room temperature too high.	<ol style="list-style-type: none"> <li>1. Room thermostat set too high.</li> <li>2. Superheat too high.</li> <li>3. System low on refrigerant.</li> <li>4. Coil iced-up.</li> <li>5. Unit cooler located too close to doors.</li> <li>6. Heavy air infiltration.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust thermostat.</li> <li>2. Adjust thermal expansion valve.</li> <li>3. Add refrigerant.</li> <li>4. Manually defrost coil. Check defrost controls for malfunction.</li> <li>5. Relocate unit cooler or add strip curtain to door opening.</li> <li>6. Seal unwanted openings in room.</li> </ol>
Ice accumulating on ceiling around evaporator and/or on fan guards venturi or blades.	<ol style="list-style-type: none"> <li>1. Defrost duration is too long.</li> <li>2. Fan delay not delaying fans after defrost period.</li> <li>3. Defective defrost thermostat or Timer.</li> <li>4. Too many defrosts.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust defrost termination thermostat.</li> <li>2. Defective defrost thermostat or not adjusted properly.</li> <li>3. Replace defective component.</li> <li>4. Reduce number of defrosts.</li> </ol>
Coil not clearing of frost during defrost cycle.	<ol style="list-style-type: none"> <li>1. Coil temperature not getting above freezing point during defrost.</li> <li>2. Not enough defrost cycles per day.</li> <li>3. Defrost cycle too short.</li> <li>4. Defective Timer or defrost thermostat.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check heater operation.</li> <li>2. Adjust Timer for more defrost cycles.</li> <li>3. Adjust defrost thermostat or Timer for longer cycle.</li> <li>4. Replace defective component.</li> </ol>
Ice accumulating in drain pan	<ol style="list-style-type: none"> <li>1. Defective heater.</li> <li>2. Unit not pitched properly.</li> <li>3. Drain line plugged.</li> <li>4. Defective drain line heater.</li> <li>5. Defective Timer or thermostat.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace heater.</li> <li>2. Check and adjust if necessary.</li> <li>3. Clean drain line.</li> <li>4. Replace heater.</li> <li>5. Replace defective component.</li> </ol>
Uneven coil frosting	<ol style="list-style-type: none"> <li>1. Defective heater.</li> <li>2. Located too close to door or opening.</li> <li>3. Defrost termination set too low.</li> <li>4. Incorrect or missing distributor nozzle.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace heater.</li> <li>2. Relocate evaporator.</li> <li>3. Adjust defrost termination setting higher.</li> <li>4. Add or replace nozzle with appropriately sized orifice for conditions.</li> </ol>

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customer service.**

System Troubleshooting Chart

PROBLEM	POSSIBLE CAUSES	POSSIBLE CORRECTIVE STEPS
Compressor will not run	<ol style="list-style-type: none"> <li>1. Main switch open.</li> <li>2. Fuse blown.</li> <li>3. Thermal overloads tripped.</li> <li>4. Defective contactor or coil.</li> <li>5. System shut down by safety devices.</li> <li>6. No cooling required.</li> <li>7. Liquid line solenoid will not open.</li> <li>8. Motor electrical trouble.</li> <li>9. Loose wiring.</li> <li>10. Phase loss monitor inoperative.</li> </ol>	<ol style="list-style-type: none"> <li>1. Close switch.</li> <li>2. Check electrical circuits and motor winding for shorts or grounds. Investigate for possible overloading. Replace fuse after fault is corrected.</li> <li>3. Overloads are automatically reset. Check unit closely when unit comes back on line.</li> <li>4. Repair or replace.</li> <li>5. Determine type and cause of shutdown and correct it before resetting safety switch.</li> <li>6. None. Wait until calls for cooling.</li> <li>7. Repair or replace coil.</li> <li>8. Check motor for open windings, short circuit or burn out.</li> <li>9. Check all wire junctions. Tighten all terminal screws.</li> <li>10. Refer to page 18.</li> </ol>
Compressor noisy or vibrating	<ol style="list-style-type: none"> <li>1. Flooding of refrigerant into crankcase.</li> <li>2. Improper piping support on suction or liquid line.</li> <li>3. Worn compressor.</li> <li>4. Scroll compressor rotation reversed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check setting of expansion valves.</li> <li>2. Relocate, add or remove hangers.</li> <li>3. Replace.</li> <li>4. Rewire for phase change.</li> </ol>
High discharge pressure	<ol style="list-style-type: none"> <li>1. Non-condensables in system.</li> <li>2. System overcharges with refrigerant.</li> <li>3. Discharge shutoff valve partially closed.</li> <li>4. Fan not running.</li> <li>5. Head pressure control setting.</li> <li>6. Dirty condenser coil.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove the non-condensables.</li> <li>2. Remove excess.</li> <li>3. Open valve.</li> <li>4. Check electrical circuit.</li> <li>5. Adjust.</li> <li>6. Clean.</li> </ol>
Low discharge pressure	<ol style="list-style-type: none"> <li>1. Faulty condenser temperature regulation.</li> <li>2. Suction shutoff valve partially closed.</li> <li>3. Insufficient refrigerant in system.</li> <li>4. Low suction pressure.</li> <li>5. Variable head pressure valve.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check condenser control operation.</li> <li>2. Open valve.</li> <li>3. Check for leaks. Repair and add charge.</li> <li>4. See corrective steps for low suction pressure.</li> <li>5. Check valve setting.</li> </ol>
High suction pressure	<ol style="list-style-type: none"> <li>1. Excessive load.</li> <li>2. Expansion valve overfeeding.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reduce load or add additional equipment.</li> <li>2. Check remote bulb. Regulate superheat.</li> </ol>
Low suction pressure	<ol style="list-style-type: none"> <li>1. Lack of refrigerant.</li> <li>2. Evaporator dirty or iced.</li> <li>3. Clogged liquid line filter drier.</li> <li>4. Clogged suction line or compressor suction gas strainers.</li> <li>5. Expansion valve malfunctioning.</li> <li>6. Condensing temperature too low.</li> <li>7. Improper TXV.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check for leaks. Repair and add charge.</li> <li>2. Clean.</li> <li>3. Replace cartridge(s).</li> <li>4. Clean strainers.</li> <li>5. Check and reset for proper superheat.</li> <li>6. Check means for regulating condensing temperature.</li> <li>7. Check for proper sizing.</li> </ol>
Little or no oil pressure	<ol style="list-style-type: none"> <li>1. Clogged suction oil strainer.</li> <li>2. Excessive liquid in crankcase.</li> <li>3. Low oil pressure safety switch defective.</li> <li>4. Worn oil pump.</li> <li>5. Oil pump reversing gear stuck in wrong position.</li> <li>6. Worn bearings.</li> <li>7. Low oil level.</li> <li>8. Loose fitting on oil lines.</li> <li>9. Pump housing gasket leaks.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean.</li> <li>2. Check crankcase heater. Reset expansion valve for higher superheat. Check liquid line solenoid valve operation.</li> <li>3. Replace.</li> <li>4. Replace.</li> <li>5. Reverse direction of compressor rotation.</li> <li>6. Replace compressor.</li> <li>7. Add oil and/or through defrost.</li> <li>8. Check and tighten system.</li> <li>9. Replace gasket.</li> </ol>
Compressor loses oil	<ol style="list-style-type: none"> <li>1. Lack of refrigerant.</li> <li>2. Excessive compression ring blowby.</li> <li>3. Refrigerant flood back.</li> <li>4. Improper piping or traps.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check for leaks and repair. Add refrigerant.</li> <li>2. Replace compressor.</li> <li>3. Maintain proper superheat at compressor.</li> <li>4. Correct piping.</li> </ol>
Compressor thermal protector switch open.	<ol style="list-style-type: none"> <li>1. Operating beyond design conditions.</li> <li>2. Discharge valve partially shut.</li> <li>3. Blown valve plate gasket.</li> <li>4. Dirty condenser coil.</li> <li>5. Overcharged system.</li> </ol>	<ol style="list-style-type: none"> <li>1. Add facilities so that conditions are within allowable limits.</li> <li>2. Open valve.</li> <li>3. Replace gasket.</li> <li>4. Clean coil.</li> <li>5. Reduce charge.</li> </ol>