Troubleshooting with GAUGES:

1) While unit is off, connect the High Pressure gauge (RED) to high side service port, on top of liquid line filter drier.
2) Start unit. Connect Low Pressure gauge (BLUE) to the Suction line service port, on the suction line prior to accumulator.
3) Allow unit to operate for approximately 4 minutes so pressures can stabilize before recording numbers.
4) Record pressure readings for both high side and low side. *
   Pressures that are not within limits (15 psig or more out of ranges outlined below *) indicate operational issues. Some scenarios would be: (Refer to troubleshooting for scenarios)
5) After 25 minutes of operation record pressure readings. Unit should go into Defrost automatically after 30 minutes. **
6) When the Defrost mode is initiated record the pressure RISE on the Low side and the pressure DROP on the High side. There should be a 15-20 psi rise in evaporator and approximately the same pressure drop on high side.
7) If there is no pressure rise and/or pressure drop at all check:
   a. ICM (power in/ contact position)
   b. Valve (listen for valve opening/closing and check for temperature change across valve)
   c. SOLENOID (ohm/hipot)
8) If components are good and there is a temperature change across the valve then the hot gas distributor (claw, not cap tubes) must be clogged. The unit must be recovered and the hot gas distributor either changed out or inspected for excessive brazing materials obstructing hot gas delivery.

* Pressure readings will very with the ambient conditions. (These figures are approximate and not exact, small variances are allowable ~ +10/-10 depending on temperature and humidity load)

At 60 degrees (shop temp) High side will be about 140-165 psi
Low side will be about 25-35 psi
At 70 degrees (shop temp) High side will be about 170-195 psi
Low side will be about 40-50 psi
At 80 degrees (shop temp) High side will be about 200-225 psi
Low side will be about 55-65 psi

** Checking unit after 25 minutes is an approximate time, defrost time may very depending upon evaporator temperature and ambient loading. Allow unit to defrost automatically. Forcing defrost may disrupt ICM defrost timer and possibly shorten 10 minute defrost cycle causing coil to not fully defrost.

TROUBLESHOOTING COMPONENTS

A) ICM: Check ICM power in (Voltmeter should read 110V-120V) at terminal contacts on ICM labeled 110V. Check power out (Voltmeter should read) at terminal contacts labeled N/O and COM when defrost initiated.
B)) VALVE: Tubing on valve outlet to evaporator should be cold prior to solenoid being energized then begin to warm up after solenoid is energized.

C) SOLENOID: Check the resistance (ohms) of the solenoid coil; it should be about 240-260 ohms. HIPOT test the solenoid (refer to HIPOT TESTING PROCEEDURES paper for further instruction on component HIPOT testing)

9) a) High pressure on high side and normal pressure on the low side indicates contaminates in system (not properly evacuated before charged)

b) High pressure on both the high side and the low side indicates an over charged system.

c) Low pressure on the high side and low pressure on the low side indicates an under charge or clogged cap tubes. (The system would probably go out at low pressure switch, but not always)

-With a low charge only the first half or so of the coil will frost and the outlet of the coil wont frost.

-A clogged cap tube won't frost the coil at all if the clog is prior to the evaporator coil inlet.

-If the clog is at the coil inlet the cap tube itself might frost but the coil won't.

-If the cap tube is only partially clogged there will be excessive frosting at the coil inlet but the rest of the coil will barely show frost if any at all.

-When one cap tube is clogged but the second is clear, one pathway of evaporator will frost but the other won't.

d) Low pressure on high side and high pressure on low side indicates bad compressor valves (extremely low amp draw = 2 amps total, would also be present with these symptoms)

e) Equal pressures with compressor operating (110/110 psi for example, accompanied by little to no amp draw from compressor) would also indicate a bad compressor.