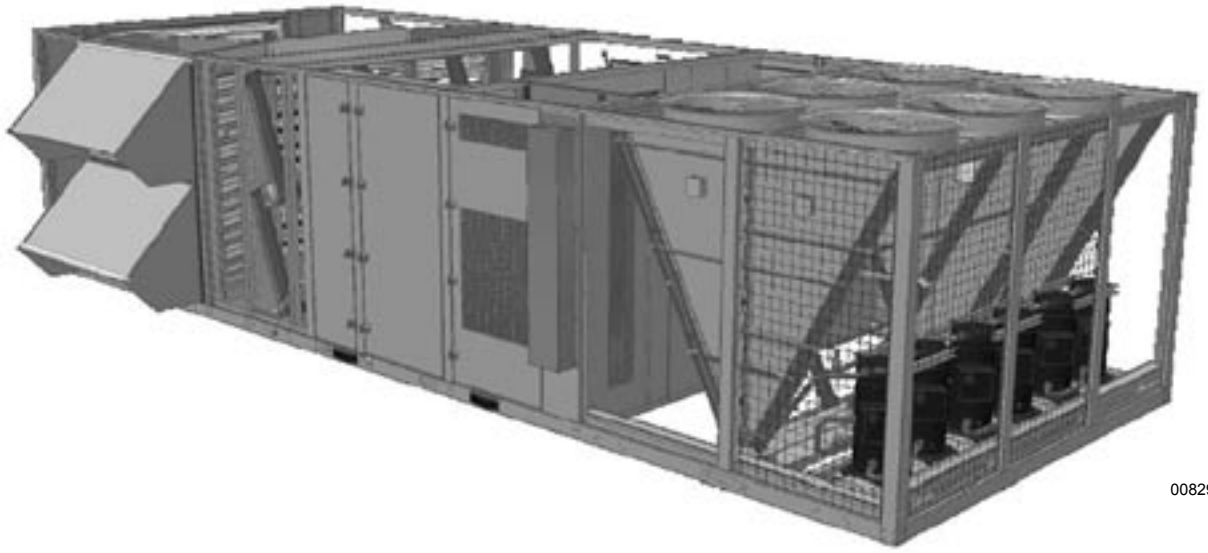
YORK®	PACKAGED ROOFTOP AIR CONDITIONING UNITS	
TROUBLESHOOTING GUIDE	New Release	Form 100.50-TS1 (905)

eco2™

Packaged Rooftop Air Conditioning Units



00829vip

50 - 130 TONS
MOD D & E

INTRODUCTION

DANGER – WHEN USING THIS TROUBLE SHOOTING GUIDE YOU WILL HAVE TO WORK INSIDE THE CONTROL COMPARTMENT AND THE UNIT WITH THE POWER SUPPLY ENERGIZED. THIS WILL EXPOSE YOU TO LIVE HIGH VOLTAGE CIRCUITS. EXERCISE EXTREME CAUTION TO PREVENT COMING INTO CONTACT WITH HIGH VOLTAGE COMPONENTS.

This Trouble Shooting Guide applies to YPAL MOD D (50 to 105 ton units) and YPAL MOD E (106 to 130 ton units).

The Trouble Shooting Guide is structured to use the FAULT DESCRIPTION OUTPUT from the User Interface as a starting point. An explanation of each of the faults can be found in Table 8-12 of the unit IOM. The unit fault can be found in the history buffer of the Primary Unit Control. To identify the current active fault press the HISTORY key on the User Interface and enter a password. Refer to Section 6 – History subsection of the unit IOM for information on how to navigate through the HISTORY buffer.

After identifying the current active fault from the history buffer, use the index to identify which pages of the Trouble Shooting Guide pertain to that fault. The second column of the guide gives a description of the fault. The next column, identified as "Most Probable Cause", lists the items that could result in the generation of the fault. These items are listed from most to least probable. The fourth column provides instructions on how to trouble shoot the fault, the fifth column identifies how to correct the fault and the last column gives the theory behind the fault trouble shooting procedure.

It is hoped that the use of this guide will expedite the trouble-shooting process resulting in the fault being identified and corrected in the shorted amount of time.

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USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
BUILDING PRESSURE FAULT	THE BUILDING STATIC PRESSURE IS > 0.45 INWC OR < - 0.45 INWC FOR 10 SECONDS. THE POWER EXHAUST WILL REVERT TO NONE OR ON/OFF	FAULTY BUILDING TRANSDUCER
		FAULTY POWER SUPPLY
		FAULTY WIRING
		FAULTY IO CONTROL BOARD
CO2 SENSOR # WARN (# CAN BE 1 OR 2)	THE CO2 SENSOR IS OUT OF RANGE FOR >= 10 SEC. WHEN THIS OCCURS THE DEMAND VENTILATION BECOMES INACTIVE	FAULTY CO2 SENSOR
		FAULTY 24 VOLT VOLTAGE SOURCE
		FAULTY WIRING

HOW TO VERIFY	HOW TO CORRECT	THEORY
PLACE A TEE IN THE TUBE CONNECTED TO THE HIGH SIDE CONNECTION OF THE TRANSDUCER. MEASURE THE PRESSURE AND USE TABLE 8-3 OF THE IOM TO CONVERT THE PRESSURE TO A VOLTAGE. MEASURE THE DC OUTPUT BETWEEN TERMINALS “OUT” AND “COM” AT THE TRANSDUCER	IF THE OUTPUT VOLTAGE DOES NOT MATCH THE PRESSURE REPLACE THE TRANSDUCER	A TRANSDUCER TAKES A 12 VOLT DC VOLTAGE INPUT AND CONVERTS IT TO A 0 TO 5 VOLT DC OUTPUT BASED ON THE DIFFERENTIAL PRESSURE PRESENT AT THE TRANSDUCER
MEASURE THE VOLTAGE BETWEEN “COM” AND “EXC” AT THE TRANSDUCER. IF THE VOLTAGE IS 0 CHECK FOR 12 VOLTS DC AT THE J-11 CONNECTOR ON THE I/O CONTROL BOARD.	IF VOLTAGE IS NOT PRESENT THE POWER SUPPLY IS DEFECTIVE	THE BUILDING STATIC TRANSDUCER IS POWERED BY A 12 VDC SIGNAL THAT ORIGINATES AT THE POWER SUPPLY.
COMPARE THE VOLTAGE BETWEEN OUT AND COMMON AT THE TRANSDUCER AND THE VOLTAGE AT TERMINALS 3 AND 8 OF THE J6 CONNECTOR	IF THE VOLTAGE IS DIFFERENT CHECK THE WIRING.	----------
COMPARE THE READING FROM TABLE 8-3 ABOVE AND COMPARE IT TO THE VALUE SHOWN FOR BUILDING PRESSURE AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT MEASURE THE VOLTAGE AT TERMINALS 3 AND 8 OF THE J6 CONNECTOR AND COMPARE IT TO THE VOLTAGE BETWEEN OUT AND COMMON AT THE TRANSDUCER. IF THE VOLTAGE IS THE SAME REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE 0 TO 5 VOLT DC INPUT TO A PRESSURE VALUE.
USE A CO2 METER TO MEASURE THE ACTUAL CO2 AT THE SENSOR. MEASURE THE VOLTAGE BETWEEN TERMINALS “OUT” AND “COMM” AT THE SENSOR. USE TABLE 8-8 IN THE IOM TO CONVERT THE VOLTAGE TO A CO2 VALUE	COMPARE THE METER READING TO THE VALUE FROM THE TABLE. IF DIFFERENT REPLACE THE SENSOR	A CO2 SENSOR TAKES A 24 VOLT AC VOLTAGE INPUT AND CONVERTS IT TO A 0 TO 5 VOLT DC OUTPUT BASED ON THE CO2 LEVEL PRESENT AT THE SENSOR.
CHECK FOR 24 VOLTS AC BETWEEN TERMINALS “COMM” AND “EXEC” AT THE TRANSDUCER. IF THE VOLTAGE IS 0 CHECK THE VOLTAGE AT THE SECONDARY OF THE 2T TRANSFORMER	IF THE VOLTAGE IS 0 CHECK FOR 120 VOLTS ON THE PRIMARY SIDE OF THE TRANSFORMER. IF VOLTAGE IS PRESENT ON THE PRIMARY BUT NOT THE SECONDARY REPLACE THE TRANSFORMER	THE TRANSDUCER IS POWERED BY A 24 VOLT AC INPUT. IF THE INPUT VOLTAGE IS 0 THE CONTROL WILL INDICATE A FAULTY SENSOR
COMPARE THE VOLTAGE BETWEEN OUT AND COMMON AT THE SENSOR TO THE VOLTAGE AT TERMINALS 2 AND 7 OR 3 AND 8 OF THE J6 CONNECTOR	IF THE VOLTAGE IS DIFFERENT CHECK THE WIRING.	----------

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
CO2 SENSOR # WARN (# CAN BE 1 OR 2) (CONTINUED)	THE CO2 SENSOR IS OUT OF RANGE FOR >= 10 SEC. WHEN THIS OCCURS THE DEMAND VENTILATION BECOMES INACTIVE (Continued)	FAULTY IO CONTROL BOARD
COMP # LOCKOUT (# CAN BE 1, 2, OR 3)	***ONE OF THE FOLLOWING SAFETIES OPENED THREE TIMES IN 120 MINUTES*** 1) HIGH PRESSURE CUTOUT THE MECHANICAL COOLING SYSTEM IS LOCKED OUT (HIGH PRESSURE CUTOUT WILL USUALLY RESET WITHIN A MINUTE AFTER IT OPENS)	DIRTY CONDENSER COIL CONDENSER FAN MOTOR OPERATION REFRIGERANT OVERCHARGE

HOW TO VERIFY	HOW TO CORRECT	THEORY
COMPARE THE READING FROM THE TABLE 8-8 ABOVE TO THE VALUE SHOWN FOR CO2 LEVEL OUTDOOR OR RETURN AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT MEASURE THE VOLTAGE AT TERMINALS 2 AND 7 OF THE J5 CONNECTOR FOR OUTDOOR OR TERMINALS 3 AND 8 OF THE J5 CONNECTOR FOR RETURN AIR AND COMPARE IT TO THE VOLTAGE BETWEEN OUT AND COMMON AT THE SENSOR. IF THE VOLTAGE IS THE SAME REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE 0 TO 5 VOLT DC INPUT TO A CO2 VALUE.
EXAMINE THE SURFACE ON ENTERING AND LEAVING SIDE OF THE COIL	CLEAN THE COIL WITH A NON-ACIDIC COIL CLEANER IF REQUIRED	DIRT ON THE CONDENSER COIL PREVENTS THE TRANSFER OF HEAT FROM THE REFRIGERANT TO THE AIR STREAM. THIS LEADS TO AN INCREASE IN THE SYSTEM OPERATING PRESSURE
VERIFY 120 VOLT BINARY OUTPUT FOR EACH CONDENSER FAN FOR THE SYSTEM WITH THE TRIP	IF TABLE IN THE IOM INDICATES CONDENSER CIRCUIT SHOULD BE ENERGIZED AND NO OUTPUT VOLTAGE IS PRESENT CHANGE OUT THE IO CONTROL BOARD	THE IPU IN CONJUNCTION WITH THE IO CONTROL BOARDS TURNS THE CONDENSER FANS ON AND OFF
VERIFY THE OPERATION OF THE CONDENSER FAN MOTOR CONTACTOR. IF 120 VOLTS IS PRESENT DOES THE CONTACTOR CLOSE	IF CONTACTOR DOES NOT CLOSE REPLACE THE CONTACTOR	IF 120 VOLTS IS PRESENT AT THE CONTACTOR COIL AND IT DOES NOT CLOSE IT IS DEFECTIVE
VERIFY THAT LINE VOLTAGE IS PRESENT ON EACH LEG ON THE LINE SIDE OF THE CONTACTOR	IF LINE VOLTAGE IS NOT PRESENT CHECK CONTINUITY OF THE FUSE FOR THE LEG THAT IS OPEN AND REPLACE THE FUSE IF REQUIRED	A BLOWN FUSE IS OFTEN THE RESULT OF ANOTHER ISSUE AND NOT THE SOURCE OF THE PROBLEM, ADDITIONAL TROUBLESHOOTING IS REQUIRED
CHECK THE CONDENSER FAN MOTOR. IF THE MOTOR IS HOT TO THE TOUCH THIS CHECK CAN NOT BE PERFORMED UNTIL IT IS COOL. CHECK FOR CONTINUITY BETWEEN THE PHASES AND ALSO BETWEEN EACH PHASE AND GROUND.	IF THE CONTINUITY CHECK INDICATES AN OPEN WINDING (NO CONTINUITY BETWEEN WINDINGS) OR A SHORT TO GROUND (CONTINUITY BETWEEN THE WINDING AND GROUND) THE MOTOR IS DEFECTIVE AND NEEDS TO BE REPLACED.	THE MOTOR HAS AN INTERNAL THERMAL PROTECTOR IN THE WINDINGS SO THE TEST CAN NOT BE PERFORMED UNLESS THE MOTOR IS COOL.
WITH THE SYSTEM OPERATING AND STABILIZED CHECK THE SUBCOOLING AT THE LIQUID LINE LEAVING THE CONDENSER COIL.. SUBCOOLING SHOULD BE APPROXIMATELY 15 DEGREES	ADJUST THE CHARGE UNIT 15 DEGREES OF SUBCOOLING IS ACHIEVED	EXCESSIVE CHARGE IN THE SYSTEM WILL RESULT IN A BACKUP OF REFRIGERANT IN THE CONDENSER COIL RESULTING IS HIGHER DISCHARGE PRESSURE.

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
COMP # LOCKOUT (# CAN BE 1, 2, OR 3) (CONTINUED)	1) HIGH PRESSURE CUTOUT THE MECHANICAL COOLING SYSTEM IS LOCKED OUT (HIGH PRESSURE CUTOUT WILL USUALLY RESET WITHIN A MINUTE AFTER IT OPENS) (Continued)	HIGH OUTDOOR AMBIENT TEMPERATURE
		FAULTY HIGH PRESSURE SWITCH
		FAULTY SAFETY CIRCUIT RELAY
		FAULTY I/O CONTROL BOARD
	2) COMPRESSOR MOTOR PROTECTOR. THE MECHANICAL COOLING SYSTEM IS LOCKED OUT. (THE COMPRESSOR MOTOR PROTECTOR TAKES 30 MINUTES TO RESET)	COMPRESSOR MOTOR PROTECTOR OPERATION

HOW TO VERIFY	HOW TO CORRECT	THEORY
THE UNIT IS RATED FOR AN OUTDOOR AIR ENTERING TEMPERATURE OF 120 DEGREES.	IF THE TEMPERATURE OF THE AIR ENTERING THE UNIT EXCEEDS THE RATING THERE IS NOTHING THAT CAN BE DONE	REMEMBER THE TEMPERATURE OF THE AIR ENTERING THE CONDENSER CAN BE HIGHER THAN THE AMBIENT AIR TEMPERATURE BECAUSE OF HEAT REFLECTED BY THE ROOFING MATERIAL
CHECK FOR CONTINUITY ACROSS THE HIGH PRESSURE SWITCH. IF AN OPEN CIRCUIT IS INDICATED AND THE PRESSURE IS BELOW THE SWITCH SETTING THE SWITCH IS DEFECTIVE	REPLACE THE HIGH PRESSURE SWITCH	----------
CHECK FOR 24 VOLTS AT THE COIL OF RELAY 1R FOR SYSTEM 1, 2R FOR SYSTEM 2, OR 3R FOR SYSTEM 3. IF 24 VOLTS IS PRESENT BUT THE CONTACTS ARE OPEN THE RELAY IS DEFECTIVE	REPLACE THE RELAY	----------
RESET THE CONTROL AND CHECK FOR 24 VOLTS BETWEEN GROUND AN TERMINAL TB7-1 OF THE I/O CONTROL BOARD FOR SYSTEM 1, TB7-2 TO GROUND FOR SYSTEM 2 OR TB7-4 FOR SYSTEM 3. IF 24 VOLTS IS PRESENT BUT CONTROL CONTINUES TO INDICATE A FAULT THE I/O CONTROL BOARD IS BAD	REPLACE THE I/O CONTROL BOARD	----------
CHECK FOR 120 VOLTS AT TERMINALS L1 AND L2 OF THE COMPRESSOR MOTOR PROTECTOR	IF VOLTAGE IS NOT PRESENT DETERMINE WHY AND CORRECT	THE COMPRESSOR MOTOR PROTECTOR REQUIRES 120 VOLTS TO OPERATE
REMOVE WIRES S1 AND S2 FROM THE COMPRESSOR MOTOR PROTECTOR AND CHECK RESISTANCE	IF RESISTANCE IS 2750 OHMS OR GREATER THE COMPRESSOR IS OVERHEATED, ALLOW TO COOL AND CHECK AGAIN	----------
	IF RESISTANCE IS ZERO (SHORTED SENSOR CIRCUIT) OR INFINITE (OPEN SENSOR CIRCUIT) REPLACE THE COMPRESSOR	THE SENSORS ARE INTERNAL TO THE COMPRESSOR AND CAN NOT BE CHANGED WITHOUT REPLACING THE COMPRESSOR
	IF RESISTANCE IS BETWEEN 250 AND 2250 OHMS, THE COMPRESSOR HAS BEEN OFF FOR 30 MINUTES AND THERE IS AN OPEN CIRCUIT BETWEEN TERMINALS M1 AND M2 OF THE COMPRESSOR MOTOR PROTECTOR REPLACE THE MOTOR PROTECTOR	250 TO 2250 OHMS IS THE NORMAL OPERATING RANGE OF THE SENSORS.

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
COMP # LOCKOUT (# CAN BE 1, 2, OR 3) (CONTINUED)	2) COMPRESSOR MOTOR PROTECTOR. THE MECHANICAL COOLING SYSTEM IS LOCKED OUT. (THE COMPRESSOR MOTOR PROTECTOR TAKES 30 MINUTES TO RESET) (Continued)	HIGH DISCHARGE SUPERHEAT (THE DISCHARGE SUPERHEAT SHOULD BE BETWEEN 40 AND 60 DEGREES)
		VOLTAGE IMBALANCE GREATER THAN 3%
	3) EXTERNAL CIRCUIT BREAKER. THE MECHANICAL COOLING SYSTEM IS LOCKED OUT. THIS IS MANUAL RESET DEVICE)	COMPRESSOR UNDER VOLTAGE
		COMPRESSOR BEARING FAILURE
COMP # SAFETY TRIP * (# CAN BE 1, 2, OR 3) (* CAN BE 1 OR 2)	SEE SECTION TITLED "COMP # LOCKOUT" FOR TROUBLE SHOOTING PROCEDURE. THIS FAULT IS THE SAME EXCEPT THE SAFETY HAS NOT TRIPPED THREE TIMES IN 120 MINUTES	----------
COMPR # LPCO SAFETY LOCKOUT (# CAN BE 1, 2, OR 3)	THE LOW PRESSURE CUTOUT CIRCUIT HAS OPENED THREE TIMES IN 120 MINUTES. THE MECHANICAL COOLING SYSTEM IS LOCKED OUT.	DIRTY EVAPORATOR COIL

HOW TO VERIFY	HOW TO CORRECT	THEORY
CHECK THE AMOUNT OF CONDENSER SUBCOOLING	IF SUBCOOLING IS LESS THAN 15 DEGREES CHECK FOR A REFRIGERANT LEAK, REPAIR AND ADD CHARGE	LOW CHARGE WILL RESULT IN LOW CONDENSER SUBCOOLING AND HIGH DISCHARGE SUPERHEAT RESULTING IN HIGH COMPRESSOR WINDING TEMPERATURES BECAUSE OF LACK REFRIGERANT GAS COOLING
----------	IF SUBCOOLING IS GREATER THAN 15 DEGREES AND THE EVAPORATOR SUPERHEAT IS GREATER THAN 15 DEGREES CHECK FOR THE PROPER OPERATION OF THE LIQUID LINE SOLENOID VALVE, A PLUGGED LIQUID LINE FILTER DRIER, OR A RESTRICTION IN THE LIQUID LINE	A BLOCKING IN THE LIQUID LINE WILL RESULT IN HIGH LIQUID LINE SUBCOOLING AND HIGH EVAPORATOR SUPERHEAT AND RESULT IN THE OVER HEATING OF THE COMPRESSOR WINDINGS
VERIFY PROPER OPERATION OF THE EXPANSION VALVE	PLACE THE EXPANSION VALVE BULB IN ICE AND THEN HOLD IT IN YOUR HAND AND LOOK FOR A CHANGE IN EVAPORATOR SUPERHEAT. IF NO CHANGE IS SEEN REPLACE THE EXPANSION VALVE	AN INOPERATIVE EXPANSION VALVE CAN RESULT IN HIGH DISCHARGE SUPERHEAT AND LACK OF COMPRESSOR WINDING COOLING
CHECK THE VOLTAGE BETWEEN THE THREE LEGS, TAKE AN AVERAGE OF THE READINGS, COMPARE THE AVERAGE TO EACH READING, DETERMINE THE MAXIMUM DIFFERENCE AND DIVIDE BY 100	TRY TO BALANCE THE LOAD ON EACH OF THE THREE PHASES. MAY REQUIRE THE ASSISTANCE OF AN ELECTRICIAN	A IMBALANCE BETWEEN THE LEGS CAN RESULT IN AN OVERHEATING OF THE COMPRESSOR WINDINGS
COMPARE THE VOLTAGE IN EACH LEG TO THE OPERATING RANGE SPECIFIED ON THE RATING PLATE	CONTACT THE OWNER AND IDENTIFY THERE IS A PROBLEM WITH THE SUPPLY VOLTAGE TO THE UNIT	LOW VOLTAGE TO THE COMPRESSOR CAN RESULT IN EXCESSIVE OPERATING AMPS
COMPARE THE COMPRESSOR AMP DRAW TO THE PUBLISHED COMPRESSOR DATA FOR THE SYSTEM LOW AND HIGH SIDE OPERATING PRESSURES	IF THE AMP DRAW IS SUBSTANTIALLY ABOVE THE PUBLISHED DATA CHANGE THE COMPRESSOR	HIGH AMP DRAW IS AN INDICATION OF A FAILURE OF THE BEARINGS WITHIN THE COMPRESSOR
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EXAMINE THE SURFACE ON THE ENTERING AND LEAVING SIDE OF THE COIL	CLEAN THE COIL WITH A NON-ACIDIC COIL CLEANER IF REQUIRED	DIRT ON THE EVAPORATOR COIL PREVENTS THE TRANSFER OF HEAT FROM THE AIR STREAM TO THE REFRIGERANT. THIS LEADS TO A DECREASE IN THE SYSTEM OPERATING PRESSURE

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
COMPR # LPCO SAFETY LOCKOUT (# CAN BE 1, 2, OR 3) (CONTINUED)	THE LOW PRESSURE CUTOUT CIRCUIT HAS OPENED THREE TIMES IN 120 MINUTES. THE MECHANICAL COOLING SYSTEM IS LOCKED OUT. (Continued)	DIRTY AIR FILTERS
		LOW SYSTEM SUPPLY AIRFLOW
		LOW SYSTEM CHARGE
		FAULTY LOW PRESSURE SWITCH
		FAULTY I/O CONTROL BOARD
COMP # LPCO SAFETY TRIP * (# CAN BE 1, 2, OR 3) (* CAN BE 1 OR 2)	SEE SECTION TITLED “COMP # LPCO SAFETY LOCKOUT” FOR TROUBLE SHOOTING PROCEDURE. THIS FAULT IS THE SAME EXCEPT THE LOW PRESSURE SWITCH HAS NOT TRIPPED THREE TIMES IN 120 MIN UTES	----------
DISCHARGE PRS SENSOR # WARN (# CAN BE 1, 2, OR 3)	THE CIRCUIT 1, 2, OR 3 DISCHARGE PRESSURE WAS OUT OF RANGE FOR >=10 SECONDS	FAULTY HIGH PRESSURE TRANSDUCER

HOW TO VERIFY	HOW TO CORRECT	THEORY
EXAMINE THE FILTERS	REPLACE THE FILTERS IF NECESSARY	DIRTY FILTERS RESULT IN A DECREASE IN THE UNIT AIRFLOW RESULTING IN LESS HEAT TRANSFER BETWEEN THE AIR STREAM AND THE REFRIGERANT RESULTING IN A DECREASE IN THE SYSTEM OPERATING PRESSURES
COMPARE THE ACTUAL UNIT AIRFLOW TO THE ACCEPTABLE AIR FLOW RANGE PUBLISHED IN THE UNIT IOM	IF THE AIRFLOW IS LOW INCREASE THE AMOUNT OF AIR	LOW AIRFLOW RESULTS IN LESS HEAT TRANSFER BETWEEN THE AIR STREAM AND THE REFRIGERANT RESULTING IN A DECREASE IN THE SYSTEM OPERATING PRESSURES
CHECK THE CONDENSER SUBCOOLING AT THE LIQUID LINE LEAVING THE CONDENSER COIL. IF THE SUBCOOLING IS SUBSTANTIALLY LESS THAN 15 DEGREES THE CHARGE IS LOW	CHECK FOR A REFRIGERANT LEAK, REPAIR AND ADD CHARGE	LOW REFRIGERANT CHARGE RESULTS IN LOW SYSTEM PRESSURES DUE TO REDUCED HEAT TRANSFER BETWEEN THE AIR STREAM AND THE REFRIGERANT
CHECK FOR CONTINUITY ACROSS THE LOW PRESSURE SWITCH. IF AN OPEN CIRCUIT IS INDICATED AND THE PRESSURE IS ABOVE THE SWITCH SETTING THE SWITCH IS DEFECTIVE	REPLACE THE LOW PRESSURE SWITCH	----------
RESET THE CONTROL AND CHECK FOR 24 VOLTS BETWEEN GROUND AN TERMINAL TB7-5 OF THE I/O CONTROL BOARD FOR SYSTEM 1, TB7-7 TO GROUND FOR SYSTEM 2 OR TB7-8 FOR SYSTEM 3. IF 24 VOLTS IS PRESENT BUT CONTROL CONTINUES TO INDICATE A FAULT THE I/O CONTROL BOARD IS BAD	REPLACE THE I/O CONTROL BOARD	----------
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PLACE A GAUGE SET ON THE DISCHARGE SHRADER FITTING. MEASURE THE PRESSURE AND USE TABLE 8-6 OF THE IOM TO CONVERT THE PRESSURE TO A VOLTAGE. MEASURE THE DC OUTPUT BETWEEN TERMINALS 3 AND 8 FOR SYSTEM 1; 4 AND 9 FOR SYSTEM 2; OR 5 AND 10 FOR SYSTEM 3 AT THE J4 CONNECTOR	IF THE OUTPUT VOLTAGE DOES NOT MATCH THE PRESSURE REPLACE THE TRANSDUCER	A TRANSDUCER TAKES A 5 VOLT DC VOLTAGE INPUT AND CONVERTS IT TO A 0 TO 5 VOLT DC OUTPUT BASED ON THE DISCHARGE PRESSURE PRESENT AT THE TRANSDUCER

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
DISCHARGE PRS SENSOR # WARN (# CAN BE 1, 2, OR 3) (CONTINUED)	THE CIRCUIT 1, 2, OR 3 DISCHARGE PRESSURE WAS OUT OF RANGE FOR >=10 SECONDS (Continued)	FAULTY 5 VDC FUSE
		FAULTY IO CONTROL BOARD
DUCT PRS XDCR LOCKOUT	THE DUCT STATIC PRESS WAS <= 0.25 INWC FOR 30 SECONDS OR >=5.78 INWC FOR 30 SECONDS. THE UNIT IS LOCKED OUT	FAULTY DUCT STATIC TRANSDUCER
		FAULTY POWER SUPPLY
		FAULTY WIRING
		FAULTY IO CONTROL BOARD
EVAPORATOR AIR TEMP SENSOR LOCKOUT	THE EVAP TEMP SENSOR IS OUT OF RANGE FOR .= 10 SEC - THE UNIT IS LOCKED OUT.	FAULTY SENSOR

HOW TO VERIFY	HOW TO CORRECT	THEORY
CHECK FOR 5 VDC BETWEEN TERMINALS 8 AND 13 OF THE J4 CONNECTOR FOR SYSTEM 1, TERMINALS 9 AND 14 FOR SYSTEM 2 AND TERMINALS 10 AND 15 FOR SYSTEM 3. IF THE VOLTAGE IS 0 CHECK THE 5 VDC FUSE. SEE FIGURE 8-1 OF THE IOM FOR THE LOCATION OF THE FUSE	REMOVE THE 5 VDC FUSE AND CHECK CONTINUITY. IF THE FUSE INDICATES AN OPEN CIRCUIT REPLACE THE FUSE	THE DISCHARGE PRESSURE TRANSDUCERS ARE POWERED BY A 5 VOLT DC OUTPUT FROM THE I/O CONTROL BOARD
COMPARE THE READING FROM THE TABLE 8-6 ABOVE AND COMPARE IT TO THE VALUE SHOWN FOR DISCHARGE PRESSURE (SYSTEM 1, 2, OR 3) AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE 0 TO 5 VOLT DC INPUT TO A PRESSURE VALUE.
PLACE A TEE IN THE TUBE CONNECTED TO THE HIGH SIDE CONNECTION OF THE TRANSDUCER. MEASURE THE PRESSURE AND USE TABLE 8-2 OF THE IOM TO CONVERT THE PRESSURE TO A VOLTAGE. MEASURE THE DC OUTPUT BETWEEN TERMINALS OUT AND COMMON AT THE TRANSDUCER	IF THE OUTPUT VOLTAGE DOES NOT MATCH THE PRESSURE REPLACE THE TRANSDUCER	A TRANSDUCER TAKES A 12 VOLT DC VOLTAGE INPUT AND CONVERTS IT TO A 0 TO 5 VOLT DC OUTPUT BASED ON THE DIFFERENTIAL PRESSURE PRESENT AT THE TRANSDUCER
MEASURE THE VOLTAGE BETWEEN “COM” AND “EXC” AT THE TRANSDUCER. IF THE VOLTAGE IS 0 CHECK FOR 12 VOLTS DC AT THE J-11 CONNECTOR ON THE I/O CONTROL BOARD.	IF VOLTAGE IS NOT PRESENT THE POWER SUPPLY IS DEFECTIVE	THE DUCT STATIC TRANSDUCER IS POWERED BY A 12 VDC SIGNAL THAT ORIGINATES AT THE POWER SUPPLY.
COMPARE THE VOLTAGE BETWEEN OUT AND COMMON AT THE TRANSDUCER AND TO THE VOLTAGE AT TERMINALS 2 AND 7 OF THE J6 CONNECTOR	IF THE VOLTAGE IS DIFFERENT CHECK THE WIRING.	----------
COMPARE THE READING FROM THE TABLE 8-2 ABOVE TO THE VALUE SHOWN FOR DUCT PRESSURE AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT MEASURE THE VOLTAGE AT TERMINALS 2 AND 7 OF THE J6 CONNECTOR AND COMPARE IT TO THE VOLTAGE BETWEEN OUT AND COMMON AT THE TRANSDUCER. IF THE VOLTAGE IS THE SAME REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE 0 TO 5 VOLT DC INPUT TO A PRESSURE VALUE.
MEASURE THE AIR TEMPERATURE AT THE SENSOR. REMOVE THE J1 CONNECTOR FROM THE IO BOARD AND MEASURE THE RESISTANCE BETWEEN TERMINALS 3 AND 11. USE TABLE 8-1 IN THE IOM TO CONVERT THE RESISTANCE TO A TEMPERATURE	IF THE RESISTANCE / TEMPERATURE DOES NOT MATCH THE ACTUAL MEASURED TEMPERATURE REPLACE THE SENSOR.	THE RESISTANCE VALUE OF THE SENSOR CHANGES WITH TEMPERATURE

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
EVAPORATOR AIR TEMP SENSOR LOCKOUT (CONTINUED)	THE EVAP TEMP SENSOR IS OUT OF RANGE FOR .= 10 SEC - THE UNIT IS LOCKED OUT. (Continued)	FAULTY 5 VDC FUSE
		FAULTY IO CONTROL BOARD
EXHAUST FAN LOCKOUT	30 SECONDS AFTER THE I/O CONTROL BOARD SENDS A 24 VOLT SIGNAL TO START THE EXHAUST FAN THE CONTROL CHECKS TO VERIFY EXHAUST FAN OPERATION. (BEFORE TROUBLE SHOOTING RESET THE LOCKOUT AND VERIFY EXHAUST FAN SHOULD BE OPERATING) (REFERENCE IOM FORM 100.50-NOM3 FOR EXPLANATION OF EXHAUST FAN OPERATION)	FAULTY EXHAUST FAN MOTOR (IF THE MOTOR DOES NOT OPERATE DURING FIRST 30 SECONDS OF OPERATION)
		FAULTY FUSES (IF FUSES 7 FU ARE PRESENT)
		FAULTY 14M CONTACTOR (IF 14M CONTACTOR IS USED) (IF MOTOR DOES NOT OPERATE DURING FIRST 30 SECONDS OF OPERATION)
		TRIPPED OVERLOAD PROTECTOR (IF 14 OL IS PRESENT)
		FAULTY EXHAUST FAN VFD (IF MOTOR DOES NOT RUN DURING FIRST THIRTY SECONDS OF OPERATION))
		FAULTY 11R RELAY (IF MOTOR DOES NOT OPERATE DURING FIRST 30 SECONDS OF OPERATION)

HOW TO VERIFY	HOW TO CORRECT	THEORY
MEASURE THE DC VOLTAGE BETWEEN TERMINALS 7 AND 11 OF THE J1 CONNECTOR. IF THE VOLTAGE IS 0 CHECK THE 5 VDC FUSE SEE FIGURE 8-1 IN THE IOM FOR THE LOCATION OF THE FUSE	REMOVE THE 5 VDC FUSE AND CHECK CONTINUITY. IF THE FUSE INDICATES AN OPEN CIRCUIT REPLACE THE FUSE	THE 5 VDC OUTPUT VOLTAGE TO THE THERMISTOR ORIGINATES FROM THE I/O BOARD
COMPARE THE READING FROM TABLE 8-1 ABOVE TO THE VALUE SHOWN FOR THE EVAPORATOR TEMP AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE RESISTANCE TO A TEMPERATURE VALUE.
CHECK FOR LINE VOLTAGE AT WIRES 172, 175, AND 178 AT THE MOTOR TERMINAL BOX.	IF VOLTAGE IS PRESENT AND THE MOTOR DOES NOT RUN REPLACE THE MOTOR	THERE IS NO INTERNAL PROTECTOR IN THE MOTOR SO IF THE MOTOR HAS VOLTAGE AND DOES NOT OPERATE IT IS DEFECTIVE.
CHECK CONTINUITY OF EACH OF THE 7 FU FUSES	IF A OPEN CIRCUIT IS INDICATED REPLACE THE FUSE	----------
CHECK FOR 24 VOLTS AT THE COIL OF THE 14M CONTACTOR. IF THERE IS 24 VOLTS TO THE COIL AND NO LINE VOLTAGE ON WIRES 172, 175, AND 178 OR WIRES 171, 174, AND 177 THE CONTACTOR IS DEFECTIVE	REPLACE THE CONTACTOR	----------
RESET THE OVERLOAD PROTECTOR AND MEASURE THE MOTOR AMPS AND COMPARE THEM TO THE RATING PLATE VALUE AND THE SETTING OF THE OVERLOAD	IF THE AMP VALUE IS SUBSTANTIALLY ABOVE THE RATING PLATE VALUE THE MOTOR BEARINGS MAY BE DEFECTIVE AND THE MOTOR WILL NEED TO BE REPLACED. IF THE AMPS ARE BELOW THE OVERLOAD SETTING AND THE OVERLOAD TRIPS REPLACE THE OVERLOAD PROTECTOR.	BAD BEARINGS IN A MOTOR CAN RESULT IN A HIGH AMP DRAW.
VERIFY THAT 24 VOLTS IS PRESENT AT TERMINALS 12 AND 18 AT THE VFD AND THAT A 0 TO 10 VOLT DC SIGNAL IS PRESENT AT TERMINALS 53 AND 55 AT THE VFD	IF BOTH VOLTAGE ARE PRESENT VERIFY THE PROPER PROGRAM IS INSTALLED PER FORM 100.40-N04, “VARIABLE FREQUENCY DRIVE”, IF PROGRAM IS CORRECT REFERENCE SERVICE INFORMATION LETTER SI0094	THE VFD REQUIRES A RUN INPUT OF 24 VOLTS BETWEEN TERMINALS 12 AND 18 AS WELL AS A VARIABLE ANALOG DC VOLTAGE INPUT AT TERMINALS 53 AND 55 IN ORDER TO OPERATE
CHECK FOR 24 VOLTS AT THE COIL OF THE 11R RELAY. IF 24 VOLTS IS PRESENT IS THERE VOLTAGE BETWEEN TERMINALS 12 AND 18 OF THE VFD.	IF THERE IS VOLTAGE AT THE COIL BUT NO VOLTAGE AT THE VFD REPLACE THE RELAY	----------

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
EXHAUST FAN LOCKOUT (CONTINUED)	30 SECONDS AFTER THE I/O CONTROL BOARD SENDS A 24 VOLT SIGNAL TO START THE EXHAUST FAN THE CONTROL CHECKS TO VERIFY EXHAUST FAN OPERATION. (BEFORE TROUBLE SHOOTING RESET THE LOCKOUT AND VERIFY EXHAUST FAN SHOULD BE OPERATING) (REFERENCE IOM FORM 100.50-NOM3 FOR EXPLANATION OF EXHAUST FAN OPERATION) (Continued)	FAULTY IO CONTROL BOARD (IF MOTOR DOES NOT OPERATES DURING THE FIRST 30 SECONDS OF OPERATION)
		FAULTY VFD (IF THE MOTOR OPERATES DURING THE FIRST 30 SECONDS OF OPERATION)
FURNACE MULTIPLEXER WARN	THE VOLTAGE INPUT FROM THE MULTIPLEXER IS < = 0.017 OR > = 4.537 VOLTS DC FOR 60 SECONDS. (STAGED GAS WILL CONTINUE TO FUNCTION BUT THE STATUS WILL BE LOST. THE MODULATING GAS HEAT SECTION WILL NOT FUNCTION)	FAULTY MULTIPLEXER CONTROL
HET SENSOR WARN	HET (HEAT ENTERING TEMPERATURE) SENSOR IS OUT OF RANGE FOR >=10 SECONDS. AIR TEMPERING IS DISABLED	FAULTY SENSOR
		FAULTY 5 VDC FUSE
		FAULTY IO CONTROL BOARD
HIGH DUCT STATIC PRESSURE LOCKOUT	DUCT STATIC PRESSURE >= DUCT STATIC PRESSURE LOCKOUT SETTING. THE UNIT IS LOCKED OUT	DUCT STATIC OVERPRESSURE SETTING IS SET TO CLOSE TO THE DUCT STATIC RESET HIGH SET POINT
		ATMOSPHERIC SENSOR NOT INSTALLED PROPERLY
		CONDENSATION IN THE PRESSURE TUBING
		SUPPLY FAN VFD IS BEING OPERATED IN HAND MODE

HOW TO VERIFY	HOW TO CORRECT	THEORY
CHECK FOR 24 VOLTS BETWEEN PIN 4 OF TERMINAL BLOCK TB1 AND COMMON.	IF 24 VOLTS IS NOT PRESENT AT TERMINAL BLOCK TB1 REPLACE THE IO CONTROL BOARD	RETURN FAN OPERATION IS INITIATED BY A 24 VOLT OUTPUT FROM TERMINAL BLOCK TB1
CHECK FOR 24 VOLTS ACROSS TERMINALS 4 AND 5 AT THE VFD	IF 24 VOLTS IS NOT PRESENT VERIFY THAT PARAMETER 326 IS SET TO 3. IF PROGRAMMED PROPERLY, MOTOR IS RUNNING AND VOLTAGE IS NOT PRESENT REFERENCE SERVICE INFORMATION LETTER SI0094	A CONTACT BETWEEN TERMINALS 4 AND 5 AT THE VFD SHOULD CLOSE ANYTIME THE MOTOR IS OPERATING. THIS CLOSED CIRCUIT INPUTS 24 VOLTS TO THE IO BOARD AND ALLOWS IT TO DETERMINE THE EXHAUST FAN IS OPERATING.
VERIFY 24 VOLTS BETWEEN TERMINALS 1 AND 7 OF THE MULTIPLEXER. WITH NONE OF THE GAS HEAT SECTIONS ENERGIZED THE VOLTAGE BETWEEN TERMINALS COM AND OUTPUT OF THE MULTIPLEXER SHOULD BE 0.137 +/- 0.016 VOLTS DC	IF THE VOLTAGE IS OTHER THAN INDICATED CHANGE THE MULTIPLEXER.	----------
MEASURE THE AIR TEMPERATURE AT THE SENSOR. REMOVE THE J1 CONNECTOR FROM THE IO BOARD AND MEASURE THE RESISTANCE BETWEEN TERMINALS 2 AND 10. USE TABLE 8-1 IN THE IOM TO CONVERT THE RESISTANCE TO A TEMPERATURE	IF THE RESISTANCE / TEMPERATURE DOES NOT MATCH THE ACTUAL MEASURED TEMPERATURE REPLACE THE SENSOR.	THE RESISTANCE VALUE OF THE SENSOR CHANGES WITH TEMPERATURE
MEASURE THE DC VOLTAGE BETWEEN TERMINALS 6 AND 10 OF THE J1 CONNECTOR. IF THE VOLTAGE IS 0 CHECK THE 5 VDC FUSE SEE FIGURE 8-1 IN THE IOM FOR THE LOCATION OF THE FUSE	REMOVE THE 5 VDC FUSE AND CHECK CONTINUITY. IF THE FUSE INDICATES AN OPEN CIRCUIT REPLACE THE FUSE	THE 5 VDC OUTPUT VOLTAGE TO THE THERMISTOR ORIGINATES FROM THE I/O BOARD
COMPARE THE READING FROM TABLE 8-1 ABOVE TO THE VALUE SHOWN FOR THE HEAT ENTERING TEMP AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE RESISTANCE TO A TEMPERATURE VALUE.
COMPARE THE TWO SET POINTS	INCREASE THE DUCT STATIC OVER PRESSURE SETTING	----------
VERIFY ATMOSPHERIC PROBE IS INSTALLED PER FORM 100.50-N1	INSTALL PER THE INSTRUCTIONS	THE DUCT STATIC PRESSURE TRANSDUCER REQUIRES AN ATMOSPHERIC REFERENCE
CHECK FOR THE PRESENCES OF MOISTURE IN THE TUBE	REMOVE THE MOISTURE AND VERIFY PROPER INSTALLATION OF THE ATMOSPHERIC PROBE	AS THE MOISTURE MOVES IN THE TUBE IT COULD MOMENTARILY GIVE A FALSE PRESSURE READING
VERIFY SUPPLY FAN VFD IS BEING CONTROLLED BY THE UNIT CONTROLLER	PLACE THE SUPPLY FAN VFD IN THE AUTOMATIC MODE	----------

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
HYDRONIC FREEZESTAT LOCKOUT	THE HYDRONIC FREEZE STAT SWITCH CLOSES WHENEVER THE TEMPERATURE AT THE SWITCH DROPS BELOW 35 DEGREES. THE HYDRONIC VALVE IS SENT A SIGNAL TO OPEN 100% (DIRECT ACTING) OR GO TO 0% (REVERSE ACTING) THIS INDICATES THE SWITCH REMAINED CLOSED FOR >= 5 MINUTES. UNIT LOCKOUT	FAULTY HYDRONIC VALVE
		NO HYDRONIC HEAT MEDIUM AVAILABLE
		FAULTY HYDRONIC FREEZE STAT
		FAULTY IO CONTROL BOARD
HYDRONIC FREEZESTAT TRIP	THE HYDRONIC FREEZE STAT SWITCH CLOSES WHENEVER THE TEMPERATURE AT THE SWITCH DROPS BELOW 35 DEGREES. THE HYDRONIC VALVE IS SENT A SIGNAL TO OPEN 100% (DIRECT ACTING) OR GO TO 0% (REVERSE ACTING) AS SOON AS THE SWITCH OPENS THE UNIT RESUMES NORMAL OPERATION	FAULTY HYDRONIC VALVE
		NO HYDRONIC HEAT MEDIUM AVAILABLE
		FAULTY HYDRONIC FREEZE STAT
		FAULTY IO CONTROL BOARD
LOW SUCTION TEMP # TRIP (# CAN BE 1, 2, OR 3)	THE SUCTION LINE TEMPERATURE IS BELOW THE FAULT SETTING. SEE THE UNIT IOM FORM 100.50-NOM3 FOR DESCRIPTION OF UNIT OPERATION	DIRTY EVAPORATOR COIL
		DIRTY AIR FILTERS

HOW TO VERIFY	HOW TO CORRECT	THEORY
TURN THE LOCAL STOP SWITCH TO OFF AND ENTER THE SERVICE MODE THROUGH THE USER INTERFACE. CHANGE THE ANALOG OUTPUT TO THE HYDRONIC VALVE TO 100% FOR DIRECT ACTING VALVE OR 0% FOR REVERSE ACTING VALVE.	VERIFY HOT WATER OR STEAM IS AVAILABLE. VALVE SHOULD OPEN AND ALLOW THE FULL FLOW OF HOT WATER OR STEAM TO THE COIL. IF THIS DOES NOT HAPPEN REPLACE THE VALVE.	AT 10 VOLTS A DIRECT ACTING VALVE SHOULD BE FULLY OPEN, AT 0 VOLTS REVERSE ACTING VALVE SHOULD BE FULLY OPEN.
VERIFY THE AVAILABILITY OF STEAM OR HOT WATER SUPPLY	MAKE STEAM OR HOT WATER AVAILABLE	----------
APPLY ICE TO THE DISC OF THE HYDRONIC FREEZESTAT AND CHECK CONTINUITY .	WITH ICE APPLIED THE SWITCH SHOULD BE CLOSED. USE YOUR HAND TO HEAT UP THE DISC. THE SWITCH SHOULD OPEN. IF THIS DOES NOT HAPPEN REPLACE THE HYDRONIC FREEZESTAT.	THE HYDRONIC FREEZESTAT IS A NORMALLY OPEN SWITCH THAT CLOSES AT 35 DEGREES F.
RESET THE UNIT CONTROL. CHECK FOR 24 VOLTS BETWEEN TERMINAL 14 OF TERMINAL BLOCK 7TB AND GROUND.	IF 24 VOLTS IS NOT PRESENT AND THE USER INTERFACE INDICATES THE FAULT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL SHOULD ONLY SHOW THIS FAULT IF 24 VOLTS IS PRESENT AT THE IO CONTROL BOARD
TURN THE LOCAL STOP SWITCH TO OFF AND ENTER THE SERVICE MODE THROUGH THE USER INTERFACE. CHANGE THE ANALOG OUTPUT TO THE HYDRONIC VALVE TO 100% FOR DIRECT ACTING VALVE OR 0% FOR REVERSE ACTING VALVE.	VERIFY HOT WATER OR STEAM IS AVAILABLE. VALVE SHOULD OPEN AND ALLOW THE FULL FLOW OF HOT WATER OR STEAM TO THE COIL. IF THIS DOES NOT HAPPEN REPLACE THE VALVE.	AT 10 VOLTS A DIRECT ACTING VALVE SHOULD BE FULLY OPEN, AT 0 VOLTS REVERSE ACTING VALVE SHOULD BE FULLY OPEN.
VERIFY THE AVAILABILITY OF STEAM OR HOT WATER SUPPLY	MAKE STEAM OR HOT WATER AVAILABLE	----------
APPLY ICE TO THE DISC OF THE HYDRONIC FREEZESTAT AND CHECK CONTINUITY .	WITH ICE APPLIED THE SWITCH SHOULD BE CLOSED. USE YOUR HAND TO HEAT UP THE DISC. THE WITCH SHOULD OPEN. IF THIS DOES NOT HAPPEN REPLACE THE HYDRONIC FREEZESTAT.	THE HYDRONIC FREEZESTAT IS A NORMALLY OPEN SWITCH THAT CLOSES AT 35 DEGREES F.
RESET THE UNIT CONTROL. CHECK FOR 24 VOLTS BETWEEN TERMINAL 14 OF TERMINAL BLOCK 7TB AND GROUND.	IF 24 VOLTS IS NOT PRESENT AND THE USER INTERFACE INDICATES THE FAULT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL SHOULD ONLY SHOW THIS FAULT IF 24 VOLTS IS PRESENT AT THE IO CONTROL BOARD
EXAMINE THE SURFACE ON THE ENTERING AND LEAVING SIDE OF THE COIL	CLEAN THE COIL WITH A NON-ACIDIC COIL CLEANER IF REQUIRED	DIRT ON THE EVAPORATOR COIL PREVENTS THE TRANSFER OF HEAT FROM THE AIR STREAM TO THE REFRIGERANT. THIS LEADS TO LIQUID REFRIGERANT IN THE SUCTION LINE.
EXAMINE THE FILTERS	REPLACE THE FILTERS IF NECESSARY	DIRTY FILTERS RESULT IN A DECREASE IN THE UNIT AIRFLOW RESULTING IN LESS HEAT TRANSFER BETWEEN THE AIR STREAM AND THE REFRIGERANT RESULTING IN LIQUID REFRIGERANT IN THE SUCTION LINE

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
LOW SUCTION TEMP # TRIP (# CAN BE 1, 2, OR 3) (CONTINUED)	THE SUCTION LINE TEMPERATURE IS BELOW THE FAULT SETTING. SEE THE UNIT IOM FORM 100.50-NOM3 FOR DESCRIPTION OF UNIT OPERATION (Continued)	LOW SYSTEM SUPPLY AIRFLOW
		SUCTION LINE THERMISTOR POSITION
		FAULTY SUCTION LINE THERMISTOR
		FAULTY 5 VDC FUSE
MSAT SENSOR LOCKOUT	MSAT (MIXED SUPPLY AIR SENSOR) IS OUT OF RANGE FOR .>= 10 SEC. COOLING OPERATION IS SHUT DOWN	FAULTY SENSOR
		FAULTY 5 VDC FUSE
		FAULTY IO CONTROL BOARD

HOW TO VERIFY	HOW TO CORRECT	THEORY
COMPARE THE ACTUAL UNIT AIRFLOW TO THE ACCEPTABLE AIR FLOW RANGE PUBLISHED IN THE UNIT IOM	IF THE AIRFLOW IS LOW INCREASE THE AMOUNT OF AIR	LOW AIRFLOW RESULTS IN LESS HEAT TRANSFER BETWEEN THE AIR STREAM AND THE REFRIGERANT RESULTING IN LIQUID REFRIGERANT IN THE SUCTION LINE
VERIFY THE SUCTION LINE THERMISTOR IS SECURELY ATTACHED TO THE SUCTION LINE AND COVER BY INSULATION	REATTACH AND INSULATE THE THERMISTOR	----------
REMOVE THE J3 CONNECTOR FROM THE I/O CONTROL BOARD. CHECK THE RESISTANCE BETWEEN PINS 1 AND 5 FOR SYSTEM 1, 2 AND 6 FOR SYSTEM 2, OR 3 AND 7 FOR SYSTEM 3. IF THE RESISTANCE IS GREATER THAN 140,000 OHM OR LESS THAN 3,000 OHMS THE SENSOR IS DEFECTIVE	REPLACE THE THERMISTOR	----------
MEASURE THE DC VOLTAGE BETWEEN TERMINALS 5 AND 9 OF THE J2 CONNECTOR FOR SYSTEM 1, TERMINALS 6 AND 10 FOR SYSTEM 2 AND TERMINALS 7 AND 11 FOR SYSTEM 3. IF THE VOLTAGE IS 0 CHECK THE 5 VDC FUSE SEE FIGURE 8-1 IN THE IOM FOR THE LOCATION OF THE FUSE	REMOVE THE 5 VDC FUSE AND CHECK CONTINUITY. IF THE FUSE INDICATES AN OPEN CIRCUIT REPLACE THE FUSE	THE 5 VDC OUTPUT VOLTAGE TO THE THERMISTOR ORIGINATES FROM THE I/O BOARD
MEASURE THE AIR TEMPERATURE AT THE SENSOR. REMOVE THE J1 CONNECTOR FROM THE IO BOARD AND MEASURE THE RESISTANCE BETWEEN TERMINALS 1 AND 9. USE TABLE 8-1 IN THE IOM TO CONVERT THE RESISTANCE TO A TEMPERATURE	IF THE RESISTANCE / TEMPERATURE DOES NOT MATCH THE ACTUAL MEASURED TEMPERATURE REPLACE THE SENSOR.	THE RESISTANCE VALUE OF THE SENSOR CHANGES WITH TEMPERATURE
MEASURE THE DC VOLTAGE BETWEEN TERMINALS 5 AND 9 OF THE J1 CONNECTOR. IF THE VOLTAGE IS 0 CHECK THE 5 VDC FUSE SEE FIGURE 8-1 IN THE IOM FOR THE LOCATION OF THE FUSE	REMOVE THE 5 VDC FUSE AND CHECK CONTINUITY. IF THE FUSE INDICATES AN OPEN CIRCUIT REPLACE THE FUSE	THE 5 VDC OUTPUT VOLTAGE TO THE THERMISTOR ORIGINATES FROM THE I/O BOARD
COMPARE THE READING FROM TABLE 8-1 ABOVE TO THE VALUE SHOWN FOR THE MIXED AIR TEMP AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE RESISTANCE TO A TEMPERATURE VALUE.

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
OA TEMP SENSOR LOCKOUT	THE OA (OUTDOOR AIR TEMP SENSOR) IS OUT OF RANGE FOR >=10 SEC. THE UNIT WILL LOCKOUT OUT	FAULTY SENSOR
		FAULTY 5 VDC FUSE
		FAULTY IO CONTROL BOARD
OA FLOW PRS # WARN (# CAN BE 1 OR 2)	THE AIR MEASURING STATION INPUT IS OUTSIDE THE LIMITS FOR 10 SEC. THE OUTSIDE AIR DAMPER OPERATES AT MINIMUM POSITION.	FAULTY AIR MEASURING STATION TRANSDUCER
		FAULTY POWER SUPPLY
		FAULTY WIRING
		FAULTY IO CONTROL BOARD

HOW TO VERIFY	HOW TO CORRECT	THEORY
MEASURE THE AIR TEMPERATURE AT THE SENSOR. REMOVE THE J2 CONNECTOR FROM THE IO BOARD AND MEASURE THE RESISTANCE BETWEEN TERMINALS 1 AND 9. USE TABLE 8-1 IN THE IOM TO CONVERT THE RESISTANCE TO A TEMPERATURE	IF THE RESISTANCE / TEMPERATURE DOES NOT MATCH THE ACTUAL MEASURED TEMPERATURE REPLACE THE SENSOR.	THE RESISTANCE VALUE OF THE SENSOR CHANGES WITH TEMPERATURE
MEASURE THE DC VOLTAGE BETWEEN TERMINALS 5 AND 9 OF THE J2 CONNECTOR. IF THE VOLTAGE IS 0 CHECK THE 5 VDC FUSE SEE FIGURE 8-1 IN THE IOM FOR THE LOCATION OF THE FUSE	REMOVE THE 5 VDC FUSE AND CHECK CONTINUITY. IF THE FUSE INDICATES AN OPEN CIRCUIT REPLACE THE FUSE	THE 5 VDC OUTPUT VOLTAGE TO THE THERMISTOR ORIGINATES FROM THE I/O BOARD
COMPARE THE READING FROM TABLE 8-1 ABOVE TO THE VALUE SHOWN FOR THE OUTDOOR AIR TEMP AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE RESISTANCE TO A TEMPERATURE VALUE.
PLACE A TEE IN THE TUBE CONNECTED TO THE HIGH SIDE CONNECTION OF THE TRANSDUCER. MEASURE THE PRESSURE AND USE TABLE 8-4 OF THE IOM TO CONVERT THE PRESSURE TO A VOLTAGE. MEASURE THE DC OUTPUT BETWEEN TERMINALS OUT AND COMMON AT THE TRANSDUCER	IF THE OUTPUT VOLTAGE DOES NOT MATCH THE PRESSURE REPLACE THE TRANSDUCER	A TRANSDUCER TAKES A 12 VOLT DC VOLTAGE INPUT AND CONVERTS IT TO A 0 TO 5 VOLT DC OUTPUT BASED ON THE DIFFERENTIAL PRESSURE PRESENT AT THE TRANSDUCER
MEASURE THE VOLTAGE BETWEEN “COM” AND “EXC” AT THE TRANSDUCER. IF THE VOLTAGE IS 0 CHECK FOR 12 VOLTS DC AT THE J-11 CONNECTOR ON THE I/O CONTROL BOARD.	IF VOLTAGE IS NOT PRESENT THE POWER SUPPLY IS DEFECTIVE	THE OUTSIDE AIR FLOW CONTROL TRANSDUCERS ARE POWERED BY A 12 VDC SIGNAL THAT ORIGINATES AT THE POWER SUPPLY.
COMPARE THE VOLTAGE BETWEEN OUT AND COMMON AT THE TRANSDUCER AND THE VOLTAGE AT TERMINALS 4 AND 9 FOR FLOW PRESSURE 1 OR 5 AND 10 FOR FLOW PRESSURE 2 OF THE J6 CONNECTOR	IF THE VOLTAGE IS DIFFERENT CHECK THE WIRING.	----------
COMPARE THE READING FROM THE TABLE 8-4 ABOVE AND COMPARE IT TO THE VALUE SHOWN FOR OA FLOW PRESSURE 1 OR 2 AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT MEASURE THE VOLTAGE AT TERMINALS 4 AND 9 FOR FLOW PRESSURE 1 OR 5 AND 10 FOR FLOW STATION 2 OF THE J6 CONNECTOR AND COMPARE IT TO THE VOLTAGE BETWEEN OUT AND COMMON AT THE TRANSDUCER. IF THE VOLTAGE IS THE SAME REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE 0 TO 5 VOLT DC INPUT TO A PRESSURE VALUE.

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
OUTSIDE AIR RH WARN	THE OUTDOOR TEMPERATURE IS >= 32.0 F AND THE OUTDOOR AIR RELATIVE HUMIDITY < 5% FOR 10 SECONDS. THE CONTROL REVERTS TO DRY BULB ECONOMIZER OPERATION	FAULTY SENSOR
		FAULTY 24 VOLT VOLTAGE SOURCE
		FAULTY WIRING
		FAULTY I/O CONTROL BOARD
POWER FAILURE FAULT	THE IPU CONTROL LOST ITS 5 VDC INPUT WHILE THE OPERATING STATE WAS IN THE RUN MODE	THE MAIN UNIT DISCONNECT WAS OPENED
RAT SENSOR FAULT	THE RAT SENSOR WAS OUT OF RANGE FOR >= 10 SECONDS. THE UNIT LOCKS OUT	FAULTY SENSOR
		FAULTY 5 VDC FUSE
		FAULTY IO CONTROL BOARD
RETURN AIR RH WARN	THE RETURN TEMPERATURE IS >= 32.0 F AND THE RETURN AIR RELATIVE HUMIDITY < 5% FOR 10 SECONDS. THE CONTROL REVERTS TO DRY BULB ECONOMIZER OPERATION	FAULTY SENSOR

HOW TO VERIFY	HOW TO CORRECT	THEORY
MEASURE THE RELATIVE HUMIDITY AT THE SENSOR. MEASURE THE DC VOLTAGE BETWEEN WIRES 318 AND 319 AT THE SENSOR. USE TABLE 8-7 IN THE IOM TO CONVERT THE VOLTAGE TO A RELATIVE HUMIDITY	IF THE VOLTAGE / RELATIVE HUMIDITY DOES NOT MATCH THE ACTUAL MEASURED RELATIVE HUMIDITY REPLACE THE SENSOR.	THE VOLTAGE OUTPUT FROM THE TRANSDUCER CHANGES WITH RELATIVE HUMIDITY
CHECK FOR 24 VOLTS AC BETWEEN TERMINALS “COMM” AND “EXEC” AT THE HUMIDITY SENSOR. IF THE VOLTAGE IS 0 CHECK THE VOLTAGE AT THE SECONDARY OF THE 2T TRANSFORMER	IF THE VOLTAGE IS 0 CHECK FOR 120 VOLTS ON THE PRIMARY SIDE OF THE TRANSFORMER. IF VOLTAGE IS PRESENT ON THE PRIMARY BUT NOT THE SECONDARY REPLACE THE TRANSFORMER	THE HUMIDITY SENSOR IS POWERED BY A 24 VOLT AC INPUT. IF THE INPUT VOLTAGE IS 0 THE CONTROL WILL INDICATE A FAULTY SENSOR
MEASURE THE DC VOLTAGE BETWEEN TERMINALS 3 AND 7 OF THE J2 CONNECTOR AT THE IO CONTROL BOARD AND COMPARE IT TO THE VOLTAGE AT THE SENSOR	IF THE VALUES ARE DIFFERENT THERE IS A PROBLEM IN THE WIRING. CHECK FOR THE CORRECT WIRE NUMBERS PER THE WIRING DIAGRAM ON THE UNIT AND VERIFY PROPER INSERTION AND TERMINATION OF THE WIRING TERMINALS	----------
COMPARE THE READING FROM TABLE 8-7 ABOVE TO THE VALUE SHOWN FOR THE OUTDOOR RELATIVE HUMIDITY AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE VOLTAGE INPUT TO A RELATIVE HUMIDITY.
----------	----------	IF THE MAIN DISCONNECT IS OPENED WITH THE UNIT IN THE RUN MODE THE 5 VDC INPUT IS LOST TO THE IPU CONTROL BOARD
MEASURE THE AIR TEMPERATURE AT THE SENSOR. REMOVE THE J2 CONNECTOR FROM THE IO BOARD AND MEASURE THE RESISTANCE BETWEEN TERMINALS 2 AND 10. USE TABLE 8-1 IN THE IOM TO CONVERT THE RESISTANCE TO A TEMPERATURE	IF THE RESISTANCE / TEMPERATURE DOES NOT MATCH THE ACTUAL MEASURED TEMPERATURE REPLACE THE SENSOR.	THE RESISTANCE VALUE OF THE SENSOR CHANGES WITH TEMPERATURE
MEASURE THE DC VOLTAGE BETWEEN TERMINALS 6 AND 10 OF THE J2 CONNECTOR. IF THE VOLTAGE IS 0 CHECK THE 5 VDC FUSE SEE FIGURE 8-1 IN THE IOM FOR THE LOCATION OF THE FUSE	REMOVE THE 5 VDC FUSE AND CHECK CONTINUITY. IF THE FUSE INDICATES AN OPEN CIRCUIT REPLACE THE FUSE	THE 5 VDC OUTPUT VOLTAGE TO THE THERMISTOR ORIGINATES FROM THE I/O BOARD
COMPARE THE READING FROM TABLE 8-1 ABOVE TO THE VALUE SHOWN FOR THE RETURN AIR TEMP AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE RESISTANCE TO A TEMPERATURE VALUE.
MEASURE THE RELATIVE HUMIDITY AT THE SENSOR. MEASURE THE DC VOLTAGE BETWEEN WIRES 320 AND 321 AT THE SENSOR. USE TABLE 8-7 IN THE IOM TO CONVERT THE VOLTAGE TO A RELATIVE HUMIDITY	IF THE VOLTAGE / RELATIVE HUMIDITY DOES NOT MATCH THE ACTUAL MEASURED RELATIVE HUMIDITY REPLACE THE SENSOR.	THE VOLTAGE OUTPUT FROM THE TRANSDUCER CHANGES WITH RELATIVE HUMIDITY

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
RETURN AIR RH WARN (CONTINUED)	THE RETURN TEMPERATURE IS >= 32.0 F AND THE RETURN AIR RELATIVE HUMIDITY < 5% FOR 10 SECONDS. THE CONTROL REVERTS TO DRY BULB ECONOMIZER OPERATION (Continued)	FAULTY 24 VOLT VOLTAGE SOURCE
		FAULTY WIRING
		FAULTY I/O CONTROL BOARD
RETURN FAN LOCKOUT	30 SECONDS AFTER THE I/O CONTROL BOARD SENDS A 24 VOLT SIGNAL TO START THE RETURN FAN THE CONTROL CHECKS TO VERIFY RETURN FAN OPERATION. (BEFORE TROUBLE SHOOTING RESET THE LOCKOUT)	FAULTY RETURN FAN MOTORS (IF THE MOTOR DOES NOT OPERATE DURING FIRST 30 SECONDS OF OPERATION))
		FAULTY FUSES
		FAULTY RETURN FAN VFD (IF MOTOR DOES NOT RUN DURING FIRST THIRTY SECONDS OF OPERATION))
		FAULTY 11R RELAY (IF MOTOR DOES NOT OPERATE DURING FIRST 30 SECONDS OF OPERATION)
		FAULTY IO CONTROL BOARD (IF MOTOR DOES NOT OPERATES DURING THE FIRST 30 SECONDS OF OPERATION)
		FAULTY RETURN FAN VFD (IF THE MOTOR OPERATES DURING THE FIRST 30 SECONDS OF OPERATION)

HOW TO VERIFY	HOW TO CORRECT	THEORY
CHECK FOR 24 VOLTS AC BETWEEN TERMINALS "COMM" AND "EXEC" AT THE HUMIDITY SENSOR. IF THE VOLTAGE IS 0 CHECK THE VOLTAGE AT THE SECONDARY OF THE 2T TRANSFORMER	IF THE VOLTAGE IS 0 CHECK FOR 120 VOLTS ON THE PRIMARY SIDE OF THE TRANSFORMER. IF VOLTAGE IS PRESENT ON THE PRIMARY BUT NOT THE SECONDARY REPLACE THE TRANSFORMER	THE HUMIDITY SENSOR IS POWERED BY A 24 VOLT AC INPUT. IF THE INPUT VOLTAGE IS 0 THE CONTROL WILL INDICATE A FAULTY SENSOR
MEASURE THE DC VOLTAGE BETWEEN TERMINALS 4 AND 8 OF THE J2 CONNECTOR AT THE IO CONTROL BOARD AND COMPARE IT TO THE VOLTAGE AT THE SENSOR	IF THE VALUES ARE DIFFERENT THERE IS A PROBLEM IN THE WIRING. CHECK FOR THE CORRECT WIRE NUMBERS PER THE WIRING DIAGRAM ON THE UNIT AND VERIFY PROPER INSERTION AND TERMINATION OF THE WIRING TERMINALS	----------
COMPARE THE READING FROM TABLE 8-7 ABOVE TO THE VALUE SHOWN FOR THE RETURN AIR RELATIVE HUMIDITY AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE VOLTAGE INPUT TO A RELATIVE HUMIDITY.
CHECK FOR LINE VOLTAGE AT WIRES 172, 175, AND 178 AT THE MOTOR TERMINAL BOX.	IF VOLTAGE IS PRESENT AND THE MOTOR DOES NOT RUN REPLACE THE MOTOR	THERE IS NO INTERNAL PROTECTOR IN THE MOTOR SO IF THE MOTOR HAS VOLTAGE AND DOES NOT OPERATE IT IS DEFECTIVE.
CHECK CONTINUITY OF EACH OF THE 7 FU FUSES	IF A OPEN CIRCUIT IS INDICATED REPLACE THE FUSE	
VERIFY THAT 24 VOLTS IS PRESENT AT TERMINALS 12 AND 18 AT THE VFD AND THAT A 0 TO 10 VOLT DC SIGNAL IS PRESENT AT TERMINALS 53 AND 55 AT THE VFD	IF BOTH VOLTAGE ARE PRESENT VERIFY THE PROPER PROGRAM IS INSTALLED PER FORM 100.40-N04, "VARIABLE FREQUENCY DRIVE", IF PROGRAM IS CORRECT REFERENCE SERVICE INFORMATION LETTER SI0094	THE VFD REQUIRES A RUN INPUT OF 24 VOLTS BETWEEN TERMINALS 12 AND 18 AS WELL AS A VARIABLE ANALOG DC VOLTAGE INPUT AT TERMINALS 53 AND 55 IN ORDER TO OPERATE
CHECK FOR 24 VOLTS AT THE COIL OF THE 11R RELAY. IF 24 VOLTS IS PRESENT IS THERE VOLTAGE BETWEEN TERMINALS 12 AND 18 OF THE VFD.	IF THERE IS VOLTAGE AT THE COIL BUT NO VOLTAGE AT THE VFD REPLACE THE RELAY	----------
CHECK FOR 24 VOLTS BETWEEN PIN 4 OF TERMINAL BLOCK TB1 AND COMMON.	IF 24 VOLTS IS NOT PRESENT AT TERMINAL BLOCK TB1 REPLACE THE IO CONTROL BOARD	RETURN FAN OPERATION IS INITIATED BY A 24 VOLT OUTPUT FROM TERMINAL BLOCK TB1
CHECK FOR 24 VOLTS ACROSS TERMINALS 4 AND 5 AT THE VFD	IF 24 VOLTS IS NOT PRESENT VERIFY THAT PARAMETER 326 IS SET TO 3. IF PROGRAMMED PROPERLY, MOTOR IS RUNNING AND VOLTAGE IS NOT PRESENT REFERENCE SERVICE INFORMATION LETTER SI0094	A CONTACT BETWEEN TERMINALS 4 AND 5 AT THE VFD SHOULD CLOSE ANYTIME THE MOTOR IS OPERATING. THIS CLOSED CIRCUIT INPUTS 24 VOLTS TO THE IO BOARD AND ALLOWS IT TO DETERMINE THE RETURN FAN IS OPERATING.

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
RETURN PRESSURE XDCR LOCKOUT	THE RETURN FAN STATIC PRESSURE IS > 0.95 INWC OR < - 0.95 INWC FOR 10 SECONDS OR THE SUPPLY FAN IS OFF AND THE RETURN FAN PRESSURE IS <-0.1 UNWC OR >0.1 FOR 5 MINUTES. THE UNIT WILL LOCKOUT.	FAULTY RETURN FAN PRESSURE TRANSDUCER
		FAULTY POWER SUPPLY
		FAULTY WIRING
		FAULTY IO CONTROL BOARD
SAT SENSOR FAULT	THE SAT SENSOR WAS OUT OF RANGE FOR >= 10 SECONDS. THE UNIT LOCKS OUT	FAULTY SENSOR
		FAULTY 5 VDC FUSE
		FAULTY IO CONTROL BOARD

HOW TO VERIFY	HOW TO CORRECT	THEORY
PLACE A TEE IN THE TUBE CONNECTED TO THE HIGH SIDE CONNECTION OF THE TRANSDUCER. MEASURE THE PRESSURE AND USE TABLE 8-5 OF THE IOM TO CONVERT THE PRESSURE TO A VOLTAGE. MEASURE THE DC OUTPUT BETWEEN TERMINALS "OUT" AND "COM" AT THE TRANSDUCER	IF THE OUTPUT VOLTAGE DOES NOT MATCH THE PRESSURE REPLACE THE TRANSDUCER	A TRANSDUCER TAKES A 12 VOLT DC VOLTAGE INPUT AND CONVERTS IT TO A 0 TO 5 VOLT DC OUTPUT BASED ON THE DIFFERENTIAL PRESSURE PRESENT AT THE TRANSDUCER
MEASURE THE VOLTAGE BETWEEN "COM" AND "EXC" AT THE TRANSDUCER. IF THE VOLTAGE IS 0 CHECK FOR 12 VOLTS DC AT THE J-11 CONNECTOR ON THE I/O CONTROL BOARD.	IF VOLTAGE IS NOT PRESENT THE POWER SUPPLY IS DEFECTIVE	THE RETURN FAN STATIC TRANSDUCER IS POWERED BY A 12 VDC SIGNAL THAT ORIGINATES AT THE POWER SUPPLY.
COMPARE THE VOLTAGE BETWEEN OUT AND COMMON AT THE TRANSDUCER AND TO THE VOLTAGE AT TERMINALS 1 AND 6 OF THE J6 CONNECTOR	IF THE VOLTAGE IS DIFFERENT CHECK THE WIRING.	----------
COMPARE THE READING FROM THE TABLE 8-5 ABOVE AND COMPARE IT TO THE VALUE SHOWN FOR RETURN FAN PRESSURE AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT MEASURE THE VOLTAGE AT TERMINALS 1 AND 6 OF THE J6 CONNECTOR AND COMPARE IT TO THE VOLTAGE BETWEEN OUT AND COMMON AT THE TRANSDUCER. IF THE VOLTAGE IS THE SAME REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE 0 TO 5 VOLT DC INPUT TO A PRESSURE VALUE.
MEASURE THE AIR TEMPERATURE AT THE SENSOR. REMOVE THE J1 CONNECTOR FROM THE IO BOARD AND MEASURE THE RESISTANCE BETWEEN TERMINALS 1 AND 9. USE TABLE 8-1 IN THE IOM TO CONVERT THE RESISTANCE TO A TEMPERATURE	IF THE RESISTANCE / TEMPERATURE DOES NOT MATCH THE ACTUAL MEASURED TEMPERATURE REPLACE THE SENSOR.	THE RESISTANCE VALUE OF THE SENSOR CHANGES WITH TEMPERATURE
MEASURE THE DC VOLTAGE BETWEEN TERMINALS 5 AND 9 OF THE J1 CONNECTOR. IF THE VOLTAGE IS 0 CHECK THE 5 VDC FUSE SEE FIGURE 8-1 IN THE IOM FOR THE LOCATION OF THE FUSE	REMOVE THE 5 VDC FUSE AND CHECK CONTINUITY. IF THE FUSE INDICATES AN OPEN CIRCUIT REPLACE THE FUSE	THE 5 VDC OUTPUT VOLTAGE TO THE THERMISTOR ORIGINATES FROM THE I/O BOARD
COMPARE THE READING FROM TABLE 8-1 ABOVE TO THE VALUE SHOWN FOR THE SUPPLY AIR TEMP AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE RESISTANCE TO A TEMPERATURE VALUE.

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
SLAB TEMP SENSOR WARNING	THE SLAB TEMPERATURE SENSOR IS OUT OF RANGE FOR >= 10 SECONDS. EVAP TEMPERATURE RESET CONTROL REVERTS TO REMOTE RESET	FAULTY SENSOR
		FAULTY 5 VDC FUSE
		FAULTY FIELD WIRING
		FAULTY FACTORY WIRING
		FAULTY IO CONTROL BOARD
STAGED INPUT FAULT	ON A CONSTANT VOLUME UNIT THE I/O BOARD IS RECEIVING A BINARY INPUT FOR COOLING (Y1, Y2) AND HEATING (W1, W2) AT THE SAME TIME. THE UNIT SHUTS DOWN	FAULTY ROOM THERMOSTAT
		FAULTY FIELD WIRING

HOW TO VERIFY	HOW TO CORRECT	THEORY
MEASURE THE AIR TEMPERATURE AT THE SENSOR. MEASURE THE RESISTANCE BETWEEN THE TWO LEADS OF THE SENSOR. USE TABLE 8-1 IN THE IOM TO CONVERT THE RESISTANCE TO A TEMPERATURE	IF THE RESISTANCE / TEMPERATURE DOES NOT MATCH THE ACTUAL MEASURED TEMPERATURE REPLACE THE SENSOR.	THE RESISTANCE VALUE OF THE SENSOR CHANGES WITH TEMPERATURE
MEASURE THE DC VOLTAGE BETWEEN TERMINALS 6 AND 12 OF THE J7 CONNECTOR. IF THE VOLTAGE IS 0 CHECK THE 5 VDC FUSE SEE FIGURE 8-1 IN THE IOM FOR THE LOCATION OF THE FUSE	REMOVE THE 5 VDC FUSE AND CHECK CONTINUITY. IF THE FUSE INDICATES AN OPEN CIRCUIT REPLACE THE FUSE	THE 5 VDC OUTPUT VOLTAGE TO THE THERMISTOR ORIGINATES FROM THE I/O BOARD
MEASURE THE RESISTANCE AT TERMINAL 17 AND 18 OF THE CTB1 TERMINAL BLOCK. COMPARE THE RESISTANCE READING TO THE VALUE MEASURED AT THE SENSOR	IF THE RESISTANCE DOES NOT MATCH CHECK THE FIELD WIRING AND THE TERMINATION TO DETERMINE THE PROBLEM.	----------
REMOVE THE J7 CONNECTOR FROM THE CONTROL BOARD AND MEASURE THE RESISTANCE BETWEEN TERMINALS 2 AND 12 AND COMPARE IT TO THE VOLTAGE AT TERMINALS 17 AND 18 OF THE CTB1 TERMINAL BLOCK.	IF THE VALUES ARE DIFFERENT THERE IS A PROBLEM IN THE WIRING. CHECK FOR THE CORRECT WIRE NUMBERS PER THE WIRING DIAGRAM ON THE UNIT AND VERIFY PROPER INSERTION AND TERMINATION OF THE WIRING TERMINALS	----------
COMPARE THE READING FROM TABLE 8-1 ABOVE TO THE VALUE SHOWN FOR THE SLAB TEMPERATURE SENSOR AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE RESISTANCE TO A TEMPERATURE VALUE.
CHECK FOR VOLTAGE BETWEEN TERMINAL 10 (Y1) OR TERMINAL 11(Y2) AND GROUND AND TERMINAL 12 (W1) OR TERMINAL 13 (W2) AND GROUND OF THE CTB1 TERMINAL BLOCK. I	IF VOLTAGE IS PRESENT AT TERMINALS 10 OR 11 AND ALSO AT 12 OR 13 EITHER THE ROOM THERMOSTAT IS DEFECTIVE OR THE FIELD WIRING IS WRONG	----------
VERIFY THE COLORED WIRE ON Y1 OF THE THERMOSTAT IS CONNECTED TO TERMINAL 10 (Y1) OD THE CTB1 TERMINAL BLOCK. VERIFY THE COLORED WIRE ON Y2 OF THE THERMOSTAT IS CONNECTED TO TERMINAL 11 (Y2) OF THE CTB1 TERMINAL BLOCK. VERIFY THE COLORED WIRE ON W1 OF THE THERMOSTAT IS CONNECTED TO TERMINAL 12 (W1) OF TERMINAL BLOCK CTB1. VERIFY THE COLORED WIRE ON W2 OF THE THERMOSTAT IS CONNECTED TO TERMINAL 13 (W2) OF TERMINAL BLOCK CTB1.	IF THE WIRES ARE CROSSED CORRECT THE WIRING.	----------

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
STAGED INPUT FAULT (CONTINUED)	ON A CONSTANT VOLUME UNIT THE I/O BOARD IS RECEIVING A BINARY INPUT FOR COOLING (Y1, Y2) AND HEATING (W1, W2) AT THE SAME TIME. THE UNIT SHUTS DOWN (CONTINUED)	FAULTY FACTORY WIRING
		FAULTY I/O CONTROL BOARD
SUCTION PRS SENSOR # WARN (# CAN BE 1, 2, OR 3)	THE CIRCUIT 1, 2, OR 3 SUCTION PRESSURE WAS OUT OF RANGE FOR >=10 SECONDS	FAULTY HIGH PRESSURE TRANSDUCER
		FAULTY 5 VDC FUSE
		FAULTY IO CONTROL BOARD

HOW TO VERIFY	HOW TO CORRECT	THEORY
WITH THE POWER OFF VERIFY CONTINUITY BETWEEN TERMINAL 10 (Y1) AT THE CTB1 TERMINAL BLOCK AND TERMINAL 10 AT TB8. VERIFY CONTINUITY BETWEEN TERMINAL 11 (2) AT THE CTB1 TERMINAL BLOCK AND TERMINAL 11 AT TB8. VERIFY CONTINUITY BETWEEN TERMINAL 12 (W1) AT THE CTB1 TERMINAL BLOCK AND TERMINAL 13 AT TB8. VERIFY CONTINUITY BETWEEN TERMINAL 13 (W2) AT THE CTB1 TERMINAL BLOCK AND TERMINAL 14 AT TB8.	IF ANY OF THESE CONNECTIONS DO NOT SHOW CONTINUITY CHECK THE WIRING AND CORRECT	----------
CHECK FOR VOLTAGE BETWEEN TERMINAL 10 (Y1) OR TERMINAL 11(Y2) AND TERMINAL 13 (W1) OR TERMINAL 14 (W2) OF THE TB8 TERMINAL BLOCK ON THE I/O CONTROL BOARD.	IF VOLTAGE IS NOT PRESENT AT TERMINALS 10 OR 11 AND 13 OR 14 AT THE SAME TIME AND THE FAULT IS STILL PRESENT REPLACE THE I/O CONTROL BOARD.	----------
PLACE A GAUGE SET ON THE SUCTION SHRADER FITTING. MEASURE THE PRESSURE AND USE TABLE 8-6 OF THE IOM TO CONVERT THE PRESSURE TO A VOLTAGE. MEASURE THE DC OUTPUT BETWEEN TERMINALS 4 AND 8 FOR SYSTEM 1 AT THE J3 CONNECTOR; 1 AND 6 FOR SYSTEM 2; OR 2 AND 7 FOR SYSTEM 3 AT THE J4 CONNECTOR	IF THE OUTPUT VOLTAGE DOES NOT MATCH THE PRESSURE REPLACE THE TRANSDUCER	A TRANSDUCER TAKES A 5 VOLT DC VOLTAGE INPUT AND CONVERTS IT TO A 0 TO 5 VOLT DC OUTPUT BASED ON THE SUCTION PRESSURE PRESENT AT THE TRANSDUCER
CHECK FOR 5 VDC BETWEEN TERMINALS 8 AND 12 OF THE J3 CONNECTOR FOR SYSTEM 1, TERMINALS 6 AND 11 OF THE J4 CONNECTOR FOR SYSTEM 2 AND TERMINALS 7 AND 12 OF THE J4 CONNECTOR FOR SYSTEM 3. IF THE VOLTAGE IS 0 CHECK THE 5 VDC FUSE. SEE FIGURE 8-1 OF THE IOM FOR THE LOCATION OF THE FUSE	REMOVE THE 5 VDC FUSE AND CHECK CONTINUITY. IF THE FUSE INDICATES AN OPEN CIRCUIT REPLACE THE FUSE	THE DISCHARGE PRESSURE TRANSDUCERS ARE POWERED BY A 5 VOLT DC OUTPUT FROM THE I/O CONTROL BOARD
COMPARE THE READING FROM THE TABLE 8-6 ABOVE AND COMPARE IT TO THE VALUE SHOWN FOR SUCTION PRESSURE (SYSTEM 1, 2, OR 3)AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE 0 TO 5 VOLT DC INPUT TO A PRESSURE VALUE.

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
SUCTION TEMP SENSOR # FAULT (# CAN BE 1, 2, OR 3)	THE SUCTION # TEMPERATURE SENSOR IS OUT OF RANGE FOR >= 10 SECONDS. THE COMPRESSOR SYSTEM USING THAT SENSOR WILL SHUT DOWN	FAULTY SENSOR
		FAULTY 5 VDC FUSE
		FAULTY IO CONTROL BOARD
SUPPLY FAN LOCKOUT	30 SECONDS AFTER THE I/O CONTROL BOARD SENDS A 24 VOLT SIGNAL TO START THE SUPPLY FAN THE CONTROL CHECKS TO VERIFY SUPPLY FAN OPERATION. (BEFORE TROUBLE SHOOTING RESET THE LOCKOUT)	FAULTY SUPPLY FAN MOTORS (IF THE MOTOR DOES NOT OPERATE DURING FIRST 30 SECONDS OF OPERATION)
		FAULTY FUSES
		FAULTY SUPPLY FAN VFD (IF MOTOR DOES NOT RUN DURING FIRST THIRTY SECONDS OF OPERATION)
		FAULTY 1OR RELAY (IF MOTOR DOES NOT OPERATE DURING FIRST 30 SECONDS OF OPERATION)
		FAULTY IO CONTROL BOARD (IF MOTOR DOES NOT OPERATES DURING THE FIRST 30 SECONDS OF OPERATION)

HOW TO VERIFY	HOW TO CORRECT	THEORY
MEASURE THE SUCTION LINE TEMPERATURE AT THE SENSOR. REMOVE THE J3 CONNECTOR FROM THE IO BOARD AND MEASURE THE RESISTANCE BETWEEN TERMINALS 1 AND 9 FOR SYSTEM 1, 2 AND 10 FOR SYSTEM 2, OR 3 AND 11 FOR SYSTEM 3. USE TABLE 8-1 IN THE IOM TO CONVERT THE RESISTANCE TO A TEMPERATURE	IF THE RESISTANCE / TEMPERATURE DOES NOT MATCH THE ACTUAL MEASURED TEMPERATURE REPLACE THE SENSOR.	THE RESISTANCE VALUE OF THE SENSOR CHANGES WITH TEMPERATURE
MEASURE THE DC VOLTAGE BETWEEN TERMINALS 5 AND 9 FOR SYSTEM 1, 6 AND 10 FOR SYSTEM 2, OR 7 AND 11 FOR SYSTEM 3 OF THE J3 CONNECTOR. IF THE VOLTAGE IS 0 CHECK THE 5 VDC FUSE SEE FIGURE 8-1 IN THE IOM FOR THE LOCATION OF THE FUSE	REMOVE THE 5 VDC FUSE AND CHECK CONTINUITY. IF THE FUSE INDICATES AN OPEN CIRCUIT REPLACE THE FUSE	THE 5 VDC OUTPUT VOLTAGE TO THE THERMISTOR ORIGINATES FROM THE I/O BOARD
COMPARE THE READING FROM TABLE 8-1 ABOVE TO THE VALUE SHOWN FOR THE SUCTION LINE TEMP AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE RESISTANCE TO A TEMPERATURE VALUE.
CHECK FOR LINE VOLTAGE AT WIRES 163, 165, AND 167 OR 163A, 165A, AND 167A AT THE MOTOR TERMINAL BOX.	IF VOLTAGE IS PRESENT AND THE MOTOR DOES NOT RUN REPLACE THE MOTOR	THERE IS NO INTERNAL PROTECTOR IN THE MOTOR SO IF THE MOTOR HAS VOLTAGE AND DOES NOT OPERATE IT IS DEFECTIVE.
CHECK CONTINUITY OF EACH OF THE 6 FU FUSES	IF A OPEN CIRCUIT IS INDICATED REPLACE THE FUSE	----------
VERIFY THAT 24 VOLTS IS PRESENT AT TERMINALS 12 AND 18 AT THE VFD AND THAT A 0 TO 10 VOLT DC SIGNAL IS PRESENT AT TERMINALS 53 AND 55 AT THE VFD	IF BOTH VOLTAGE ARE PRESENT VERIFY THE PROPER PROGRAM IS INSTALLED PER FORM 100.40-N04, “VARIABLE FREQUENCY DRIVE”, IF PROGRAM IS CORRECT REFERENCE SERVICE INFORMATION LETTER SI0094	THE VFD REQUIRES A RUN INPUT OF 24 VOLTS BETWEEN TERMINALS 12 AND 18 AS WELL AS A VARIABLE ANALOG DC VOLTAGE INPUT AT TERMINALS 53 AND 55 IN ORDER TO OPERATE
CHECK FOR 24 VOLTS AT THE COIL OF THE 10R RELAY. IF 24 VOLTS IS PRESENT IS THERE CHECK VOLTAGE BETWEEN TERMINALS 12 AND 18 OF THE VFD.	IF THERE IS VOLTAGE AT THE COIL BUT NO VOLTAGE AT THE VFD REPLACE THE RELAY	----------
CHECK FOR 24 VOLTS BETWEEN PIN 2 OF TERMINAL BLOCK TB1 AND COMMON.	IF 24 VOLTS IS NOT PRESENT AT TERMINAL BLOCK TB1 REPLACE THE IO CONTROL BOARD	SUPPLY FAN OPERATION IS INITIATED BY A 24 VOLT OUTPUT FROM TERMINAL BLOCK TB1

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
SUPPLY FAN LOCKOUT (CONTINUED)	30 SECONDS AFTER THE I/O CONTROL BOARD SENDS A 24 VOLT SIGNAL TO START THE SUPPLY FAN THE CONTROL CHECKS TO VERIFY SUPPLY FAN OPERATION. (BEFORE TROUBLE SHOOTING RESET THE LOCKOUT) (Continued)	FAULTY AIR PROVING SWITCH 4PS (IF THE MOTOR RUNS DURING THE FIRST 30 SECONDS AND THEN SHUTS DOWN)
		FAULTY I/O CONTROL BOARD (IF MOTOR RUNS FOR 30 SECONDS AND THEN SHUTS DOWN)
UNDER FLOOR RH SENSOR WARN	THE UNDER FLOOR RELATIVE HUMIDITY IS < 5% FOR >= 5 MINUTES. THE EVAPORATOR RESET CONTROL REVERTS TO REMOTE RESET	FAULTY SENSOR
		FAULTY 24 VOLT VOLTAGE SOURCE (THE 24 VOLT SOURCE MUST BE SUPPLIED BY THE FIELD)
		FAULTY FIELD WIRING
		FAULTY FACTORY WIRING
		FAULTY I/O CONTROL BOARD

HOW TO VERIFY	HOW TO CORRECT	THEORY
REMOVE THE TUBE FROM THE HIGH SIDE OF PRESSURE SWITCH 4PS. PLACE A TEE IN THE LINE AND CONNECT ONE END OF THE TEE TO THE PRESSURE SWITCH AND THE OTHER TO A MANOMETER. CHECK THE PRESSURE	IF THE PRESSURE IS GREATER THAN 0.3 IWC AND THE PRESSURE SWITCH CONTACTS ARE OPEN REPLACE THE PRESSURE SWITCH.	THE PRESSURE SWITCH CLOSES AT 0.3 IWC AND SENDS A 24 VOLT SIGNAL TO THE UNIT CONTROL BOARD TO VERIFY SUPPLY FAN OPERATION.
WHILE THE MOTOR IS RUNNING CHECK FOR 24 VOLTS BETWEEN TERMINAL 10 OF THE TB7 TERMINAL BLOCK AND GROUND.	IF 24 VOLTS IS PRESENT AND THE MOTOR SHUTS DOWN AFTER 30 SECONDS REPLACE THE I/O CONTROL BOARD	THE CONTROL LOOKS FOR 24 VOLTS AT TERMINAL 10 OF TERMINAL BLOCK 7B7 TO VERIFY THE PRESSURE SWITCH IS CLOSED AND THE SUPPLY FAN IS OPERATING.
MEASURE THE RELATIVE HUMIDITY AT THE SENSOR. MEASURE THE DC VOLTAGE BETWEEN TERMINALS “OUT” AND “COM” AT THE SENSOR. USE TABLE 8-7 IN THE IOM TO CONVERT THE VOLTAGE TO A RELATIVE HUMIDITY	IF THE VOLTAGE / RELATIVE HUMIDITY DOES NOT MATCH THE ACTUAL MEASURED RELATIVE HUMIDITY REPLACE THE SENSOR.	THE VOLTAGE OUTPUT FROM THE TRANSDUCER CHANGES WITH RELATIVE HUMIDITY
CHECK FOR 24 VOLTS AC BETWEEN TERMINALS “COMM” AND “EXEC” AT THE HUMIDITY SENSOR.	IF THE VOLTAGE IS 0 IDENTIFY WERE THE FIELD 24 VOLT POWER IS COMING FROM AND VERIFY VOLTAGE AVAILABILITY.	THE HUMIDITY SENSOR IS POWERED BY A 24 VOLT AC INPUT. IF THE INPUT VOLTAGE IS 0 THE CONTROL WILL INDICATE A FAULTY SENSOR
MEASURE THE DC VOLTAGE AT TERMINAL 20 AND 21 OF THE CTB1 TERMINAL BLOCK. COMPARE THE VOLTAGE READING TO THE VALUE MEASURED AT THE SENSOR	IF THE VOLTAGE DOES NOT MATCH CHECK THE WIRING AND THE TERMINATION TO DETERMINE THE PROBLEM.	----------
REMOVE THE J7 CONNECTOR FROM THE CONTROL BOARD AND MEASURE THE DC VOLTAGE BETWEEN TERMINALS 3 AND 8 AND COMPARE IT TO THE VOLTAGE AT TERMINALS 20 AND 21 OF THE CTB1 TERMINAL BLOCK.	IF THE VALUES ARE DIFFERENT THERE IS A PROBLEM IN THE WIRING. CHECK FOR THE CORRECT WIRE NUMBERS PER THE WIRING DIAGRAM ON THE UNIT AND VERIFY PROPER INSERTION AND TERMINATION OF THE WIRING TERMINALS	----------
COMPARE THE READING FROM TABLE 8-7 ABOVE TO THE VALUE SHOWN FOR THE UNDER FLOOR RELATIVE HUMIDITY AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE VOLTAGE INPUT TO A RELATIVE HUMIDITY.

USER INTERFACE DISPLAY TEXT	DESCRIPTION OF MESSAGE	MOST PROBABLE CAUSE
ZONE TEMP SENSOR WARNING	THE ZONE TEMPERATURE SENSOR IS OUT OF RANGE FOR >= 10 SECONDS.	FAULTY SENSOR
		FAULTY 5 VDC FUSE
		FAULTY FIELD WIRING
		FAULTY FACTORY WIRING
		FAULTY IO CONTROL BOARD

HOW TO VERIFY	HOW TO CORRECT	THEORY
MEASURE THE AIR TEMPERATURE AT THE SENSOR. MEASURE THE RESISTANCE BETWEEN THE TWO LEADS OF THE SENSOR. USE TABLE 8-1 IN THE IOM TO CONVERT THE RESISTANCE TO A TEMPERATURE	IF THE RESISTANCE / TEMPERATURE DOES NOT MATCH THE ACTUAL MEASURED TEMPERATURE REPLACE THE SENSOR.	THE RESISTANCE VALUE OF THE SENSOR CHANGES WITH TEMPERATURE
MEASURE THE DC VOLTAGE BETWEEN TERMINALS 6 AND 11 OF THE J7 CONNECTOR. IF THE VOLTAGE IS 0 CHECK THE 5 VDC FUSE SEE FIGURE 8-1 IN THE IOM FOR THE LOCATION OF THE FUSE	REMOVE THE 5 VDC FUSE AND CHECK CONTINUITY. IF THE FUSE INDICATES AN OPEN CIRCUIT REPLACE THE FUSE	THE 5 VDC OUTPUT VOLTAGE TO THE THERMISTOR ORIGINATES FROM THE I/O BOARD
MEASURE THE RESISTANCE AT TERMINAL 14 AND 15 OF THE CTB1 TERMINAL BLOCK. COMPARE THE RESISTANCE READING TO THE VALUE MEASURED AT THE SENSOR	IF THE RESISTANCE DOES NOT MATCH CHECK THE FIELD WIRING AND THE TERMINATION TO DETERMINE THE PROBLEM.	----------
REMOVE THE J7 CONNECTOR FROM THE CONTROL BOARD AND MEASURE THE RESISTANCE BETWEEN TERMINALS 1 AND 11 AND COMPARE IT TO THE VOLTAGE AT TERMINALS 14 AND 15 OF THE CTB1 TERMINAL BLOCK.	IF THE VALUES ARE DIFFERENT THERE IS A PROBLEM IN THE WIRING. CHECK FOR THE CORRECT WIRE NUMBERS PER THE WIRING DIAGRAM ON THE UNIT AND VERIFY PROPER INSERTION AND TERMINATION OF THE WIRING TERMINALS	----------
COMPARE THE READING FROM TABLE 8-1 ABOVE TO THE VALUE SHOWN FOR THE ZONE TEMPERATURE SENSOR AT THE USER INTERFACE	IF THE VALUES ARE DIFFERENT REPLACE THE IO CONTROL BOARD	THE UNIT CONTROL USES A LOOK UP TABLE TO CONVERT THE RESISTANCE TO A TEMPERATURE VALUE.

ADDITIONAL TROUBLE SHOOTING GUIDELINES BASED ON SYMPTOMS		
SYMPTOM	**MOST PROBABLE CAUSE**	**HOW TO VERIFY**
BLANK USER INTERFACE DISPLAY SCREEN (ALL UNIT OPERATION IS OFF)	FAULTY 5 FU FUSE	REMOVE THE 5 FU FUSE FROM THE UNIT AND CHECK IT FOR CONTINUITY
	FAULTY 1T TRANSFORMER	CHECK FOR 120 VOLTS ON THE SECONDARY SIDE OF THE 1T TRANSFORMER. CHECK FOR LINE VOLTAGE ON THE PRIMARY SIDE OF THE TRANSFORMER
	FAULTY POWER SUPPLY	CHECK FOR 120 VOLTS AT PINS 1 AND 3 AT THE J1 CONNECTOR AT THE POWER SUPPLY. CHECK FOR 5 VDC BETWEEN TERMINALS 2 AND 4 AT THE J2 CONNECTOR OF THE POWER SUPPLY
	FAULTY 5 AMP IPU FUSE	REMOVE THE 5 VOLT FUSE FROM THE IPU CONTROL BOARD. SEE FIGURE 8-1 FOR THE LOCATION OF THE FUSE. CHECK THE FUSE FOR CONTINUITY
NO BINARY OUTPUTS FROM THE I/O CONTROL BOARD	FAULTY 12 VDC FUSE	REMOVE THE 12 VDC FUSE FROM THE I/O CONTROL BOARD. SEE FIGURE 8-1 IN THE IOM FOR THE LOCATION OF THE FUSE. CHECK THE FUSE FOR CONTINUITY.
	FAULTY POWER SUPPLY	CHECK FOR 12 VDC BETWEEN TERMINALS 1 AND 5 OF THE J2 CONNECTOR AT THE POWER SUPPLY. CHECK FOR 5 VDC BETWEEN TERMINALS 2 AND 4 OF THE J2 CONNECTOR AT THE POWER SUPPLY
	FAULTY WIRING	CHECK FOR 12 VDC BETWEEN TERMINALS 1 AND 5 OF THE J2 CONNECTOR AT THE POWER SUPPLY. CHECK FOR 12 VDC BETWEEN TERMINALS 1 AND 3 OF THE J11 CONNECTOR AT THE I/O CONTROL BOARD
NO ECONOMIZER DAMPER MOVEMENT	UNIT OPERATING MODE	VERIFY THE UNIT IS IN THE OCCUPIED MODE AND THE SUPPLY FAN IS ON
	FAULTY DAMPER MOTOR	SET THE OUTSIDE AIR DAMPER MINIMUM POSITION TO 50%. GO TO THE SERVICE SCREEN OF THE USER INTERFACE AND VERIFY THE ANALOG OUTPUT TO THE DAMPER MOTOR. CHECK FOR APPROXIMATELY 5 VDC AT TERMINALS 1 AND 5 OF THE DAMPER MOTOR. VERIFY 24 VAC BETWEEN TERMINAL 2 AND GROUND AT THE DAMPER MOTOR.
	FAULTY 2T TRANSFORMER	CHECK FOR 120 VOLTS AT THE PRIMARY OF THE TRANSFORMER. CHECK AR 24 VAC AT THE SECONDARY OF THE TRANSFORMER
	FAULTY I/O CONTROL BOARD	SET THE OUTSIDE AIR DAMPER MINIMUM POSITION TO 50%. GO TO THE SERVICE SCREEN OF THE USER INTERFACE AND VERIFY THE ANALOG OUTPUT TO THE DAMPER MOTOR. CHECK FOR APPROXIMATELY 5 VDC BETWEEN TERMINALS 1 AND 2 AT THE TB9 TERMINAL BLOCK

HOW TO CORRECT	**THEORY**
IF THE CONTINUITY CHECK INDICATES AN OPEN CIRCUIT REPLACE THE FUSE	THE FUSE PROTECTS THE 120 VOLT CIRCUIT SUPPLYING POWER TO THE POWER SUPPLY.
IF VOLTAGE IS PRESENT ON THE PRIMARY BUT NOT ON THE SECONDARY REPLACE THE 1T TRANSFORMER	THE 1T TRANSFORMER SUPPLIES THE 120 VOLTS TO THE POWER SUPPLY
IF 120 VOLTS IS PRESENT AT THE J1 CONNECTOR BUT 5 VDC IS NOT PRESENT AT THE J2 CONNECTOR REPLACE THE POWER SUPPLY	THE POWER SUPPLY IS THE SOURCE FOR THE 5 AND 12 VDC POWER TO THE IPU AND THE I/O CONTROL BOARDS.
IF THE CONTINUITY CHECK INDICATES AN OPEN CIRCUIT REPLACE THE FUSE	THE FUSE PROTECTS THE POWER SUPPLY TO THE MICRO PROCESSOR. IF THE FUSE IS FAULTY THE MICRO PROCESSOR SHUTS DOWN
IF THE CONTINUITY CHECK INDICATES AN OPEN CIRCUIT REPLACE THE FUSE	THE ON BOARD BINARY RELAY CONTACTS ARE POWERED BY THE 12 VDC INPUT TO THE I/O CONTROL BOARD
IF 5 VDC IS PRESENT BETWEEN TERMINALS 2 AND 4 AND 12 VDC IS NOT PRESENT BETWEEN TERMINALS 1 AND 5 REPLACE THE POWER SUPPLY	----------
IF 12 VOLTS IS PRESENT AT THE POWER SUPPLY AND NOT AT THE I/O CONTROL BOARD CHECK THE WIRING, TERMINATION OF THE WIRES AND INSERTION OF THE TERMINALS IN THE CONNECTORS.	----------
----------	THE DAMPER WILL NOT OPERATE IF THE UNIT IS NOT IN THE OCCUPIED MODE WITH THE SUPPLY FAN ENERGIZED.
IF ALL THE VALUES ARE PRESENT AND THE DAMPER MOTOR DOES NOT MOVE TO APPROXIMATELY 50% REPLACE THE DAMPER MOTOR.	IN ORDER TO OPERATE THE DAMPER MOTOR REQUIRES 24 VAC POWER AND A 0 TO 10 VDC SIGNAL FROM THE I/O CONTROL BOARD.
IF 120 VOLTS IS PRESENT AT THE PRIMARY BUT 24 VAC IS NOT PRESENT AT THE SECONDARY REPLACE THE TRANSFORMER	THE 24 VAC FROM THE 2T TRANSFORMER SUPPLIES THE 24 VAC TO THE DAMPER MOTOR
IF VOLTAGE IS PRESENT REPLACE THE I/O CONTROL BOARD	THE I/O CONTROL BOARD SUPPLIES THE 0 TO 10 VDC ANALOG SIGNAL TO THE DAMPER MOTOR.

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