

SCHEMATIC DIAGRAM
 CFI - M19.7, M19.8
 M19.9 & M19.10

DATE	APPROVED	DESIGNED	SCALE
6/13/94	J. PIERCE	T.B.	BRAVO_DD
8/12/94	M. NORTON	M. NORTON	2
7/28/94			3
			4
			5
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			8

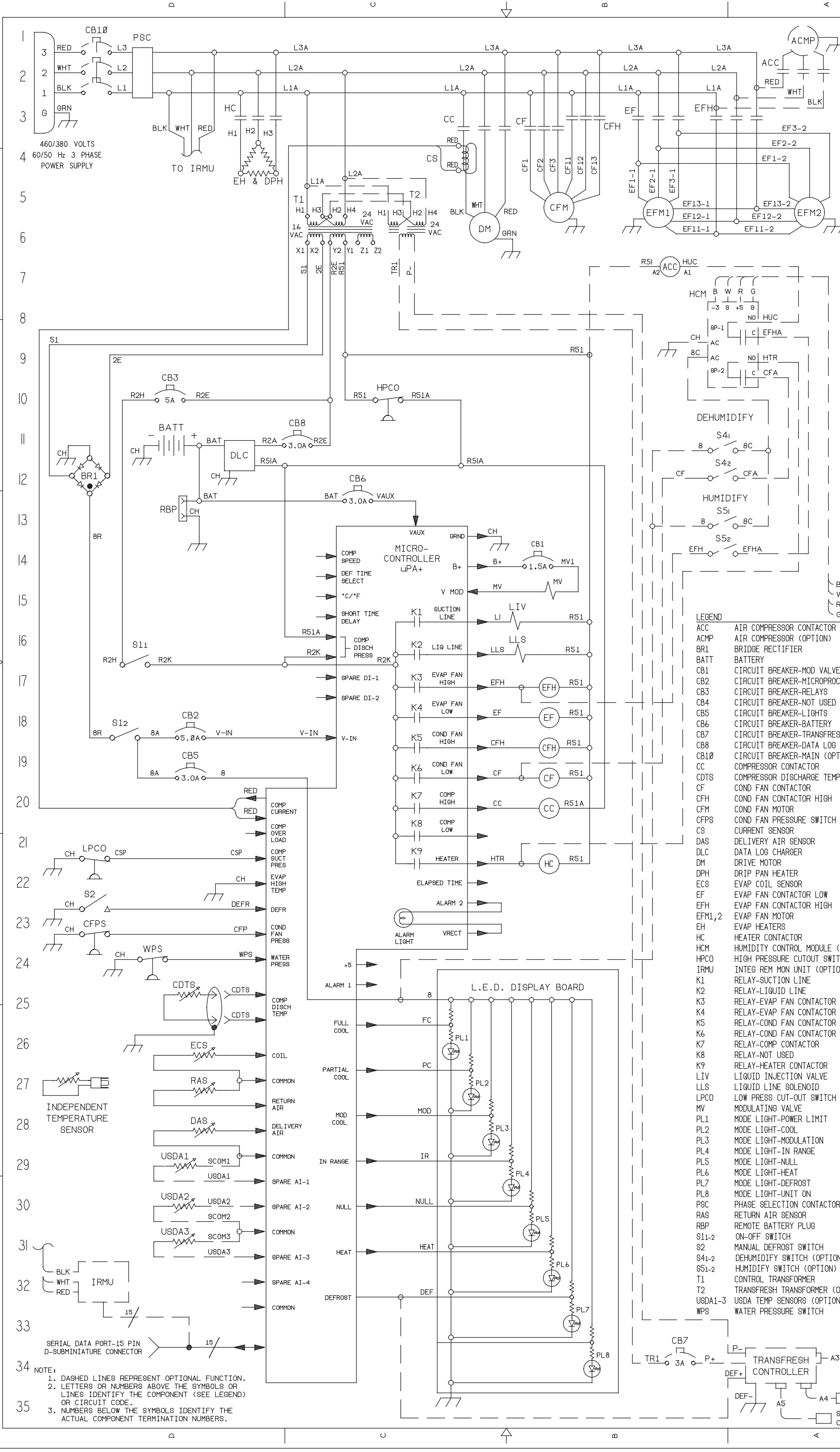
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REVISED	LEGEND	DATE	BY
64863	JMP	12/7/94	C
64897	DDW	12/9/94	D
67083	JMP	12/9/95	E
67817	JMP	5/8/96	F

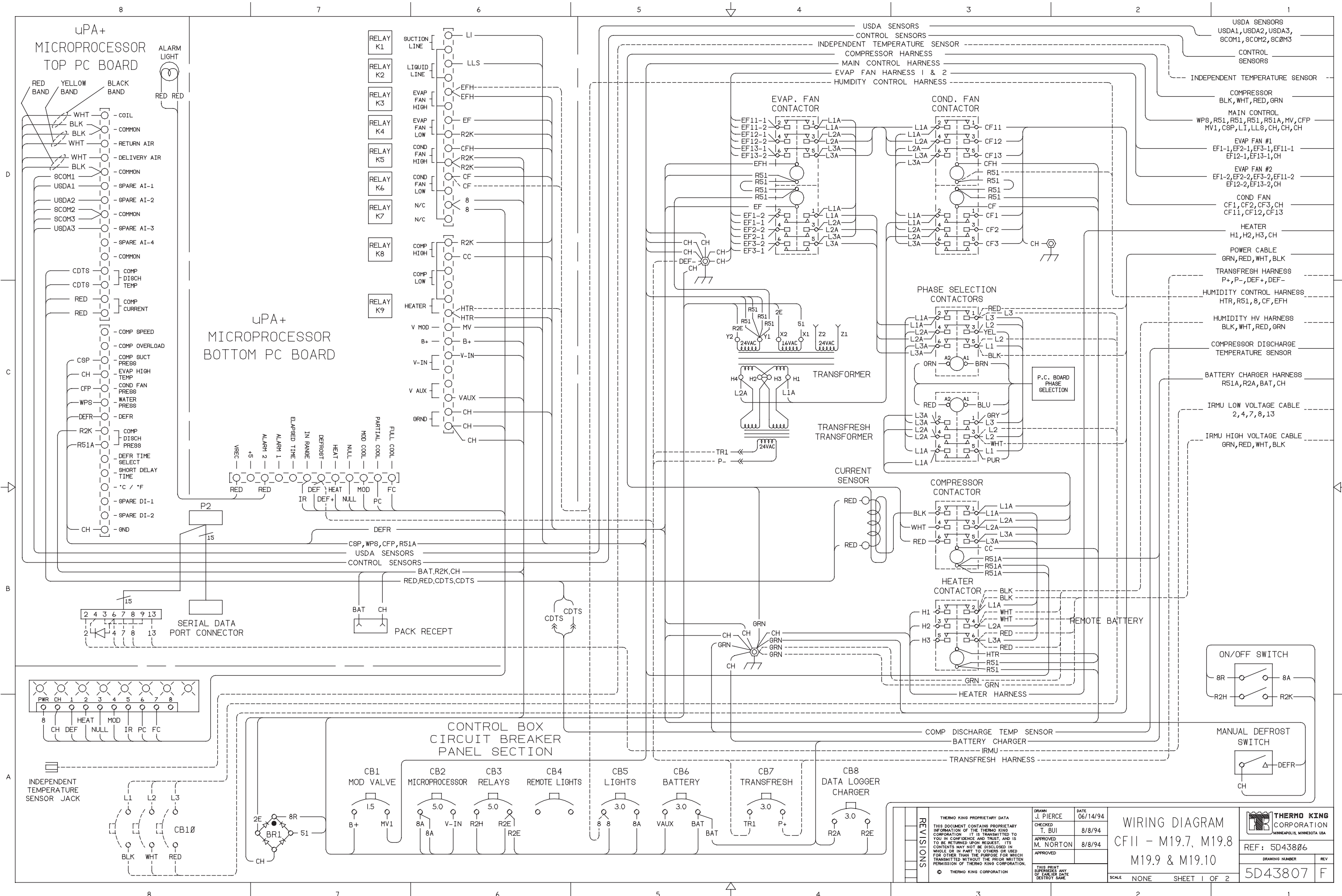
CB2 WAS 3A
 ADDED M19.9 TO TITLE
 ADDED M19.10 W/ CB10 OPTION

REVISIONS	DATE	BY
64863	12/7/94	C
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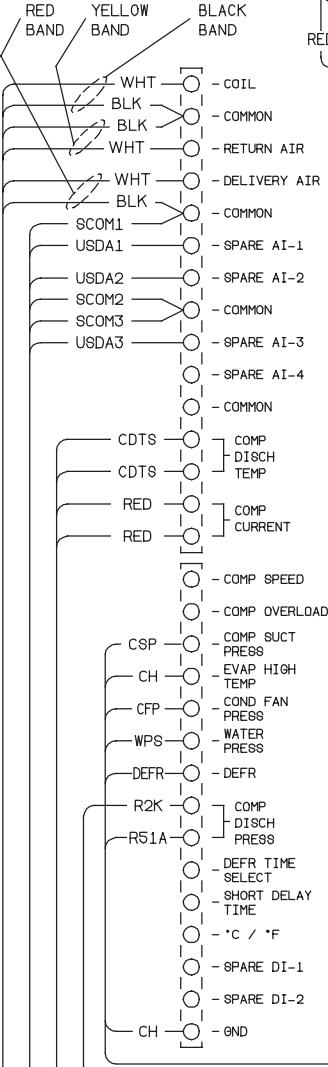
LEGEND	AREA
ACC	AIR COMPRESSOR CONTACTOR (OPTION) 2,(7)
ACMP	AIR COMPRESSOR (OPTION) 1
BR1	BRIDGE RECTIFIER 12
BATT	BATTERY 11
CB1	CIRCUIT BREAKER-MOD VALVE 14
CB2	CIRCUIT BREAKER-MICROPROCESSOR 18
CB3	CIRCUIT BREAKER-RELAYS 10
CB4	CIRCUIT BREAKER-NOT USED -
CB5	CIRCUIT BREAKER-LIGHTS 19
CB6	CIRCUIT BREAKER-BATTERY 13
CB7	CIRCUIT BREAKER-TRANSFRESH (OPTION) 33
CB8	CIRCUIT BREAKER-DATA LOG CHARGER 11
CB10	CIRCUIT BREAKER-MAIN (OPTION) 2
CC	COMPRESSOR CONTACTOR 3,(20)
CDTS	COMPRESSOR DISCHARGE TEMP SENSOR 25
CF	COND FAN CONTACTOR 3,(19)
CFH	COND FAN CONTACTOR HIGH 3,(19)
CFM	COND FAN MOTOR 5
CFPS	COND FAN PRESSURE SWITCH 23
CS	CURRENT SENSOR 4
DAS	DELIVERY AIR SENSOR 28
DLC	DATA LOG CHARGER 11
DM	DRIVE MOTOR 6
DPH	DRIP PAN HEATER 4
ECS	EVAP COIL SENSOR 26
EF	EVAP FAN CONTACTOR LOW 3,(18)
EFH	EVAP FAN CONTACTOR HIGH 3,(17)
EFM1,2	EVAP FAN MOTOR 5,5
EH	EVAP HEATERS 4
HC	HEATER CONTACTOR 3,(21)
HCM	HUMIDITY CONTROL MODULE (OPTION) 8-10
HPCO	HIGH PRESSURE CUTOFF SWITCH 10
IRMU	INTEG REM MON UNIT (OPTION) 32
K1	RELAY-SUCTION LINE 15
K2	RELAY-LIQUID LINE 16
K3	RELAY-EVAP FAN CONTACTOR HIGH 17
K4	RELAY-EVAP FAN CONTACTOR LOW 18
K5	RELAY-COND FAN CONTACTOR HIGH 19
K6	RELAY-COND FAN CONTACTOR LOW 19
K7	RELAY-COMP CONTACTOR 20
K8	RELAY-NOT USED 21
K9	RELAY-HEATER CONTACTOR 21
LIV	LIQUID INJECTION VALVE 16
LLS	LIQUID LINE SOLENOID 17
LPCO	LOW PRESS CUT-OUT SWITCH 21
MV	MODULATING VALVE 15
PL1	MODE LIGHT-POWER LIMIT 26
PL2	MODE LIGHT-COOL 27
PL3	MODE LIGHT-MODULATION 28
PL4	MODE LIGHT-IN RANGE 29
PL5	MODE LIGHT-NULL 30
PL6	MODE LIGHT-HEAT 31
PL7	MODE LIGHT-DEFROST 33
PL8	MODE LIGHT-UNIT ON 34
PSC	PHASE SELECTION CONTACTORS 1-3
RAS	RETURN AIR SENSOR 27
RBP	REMOTE BATTERY PLUG 13
S11-2	ON-OFF SWITCH 16,18
S2	MANUAL DEFROST SWITCH 23
S41-2	DEHUMIDIFY SWITCH (OPTION) 11,12
S51-2	HUMIDIFY SWITCH (OPTION) 13,14
T1	CONTROL TRANSFORMER 6
T2	TRANSFRESH TRANSFORMER (OPTION) 6
USDA1-3	USDA TEMP SENSORS (OPTION) 29-31
WPS	WATER PRESSURE SWITCH 24



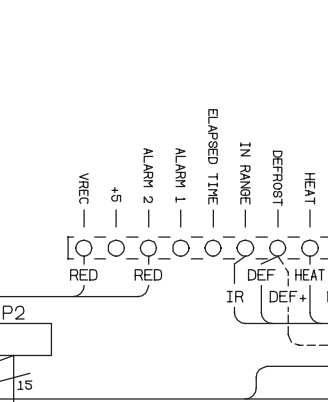
NOTE:
 1. DASHED LINES REPRESENT OPTIONAL FUNCTION.
 2. LETTERS OR NUMBERS ABOVE THE SYMBOLS OR LINES IDENTIFY THE COMPONENT (SEE LEGEND) OR CIRCUIT CODE.
 3. NUMBERS BELOW THE SYMBOLS IDENTIFY THE ACTUAL COMPONENT TERMINATION NUMBERS.



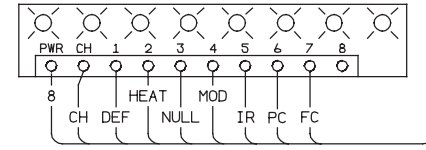
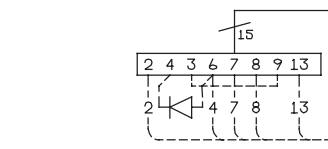
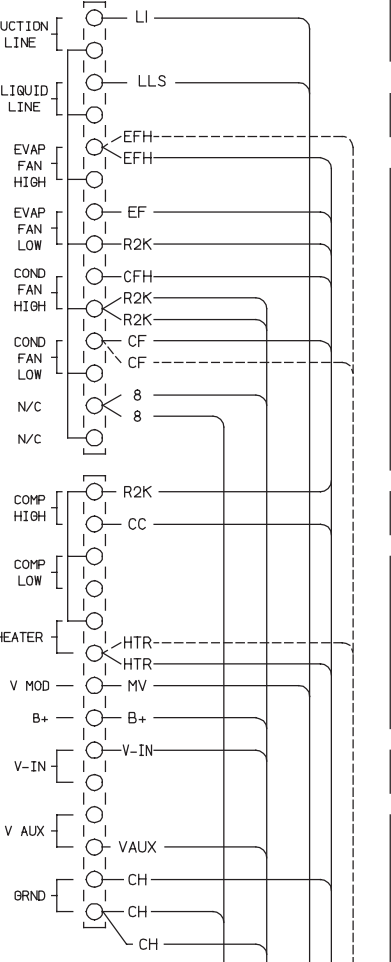
uPA+ MICROPROCESSOR TOP PC BOARD



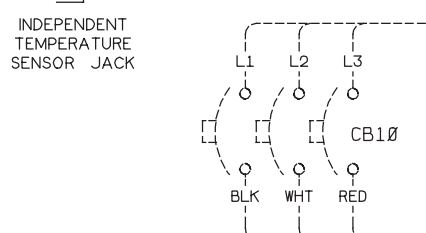
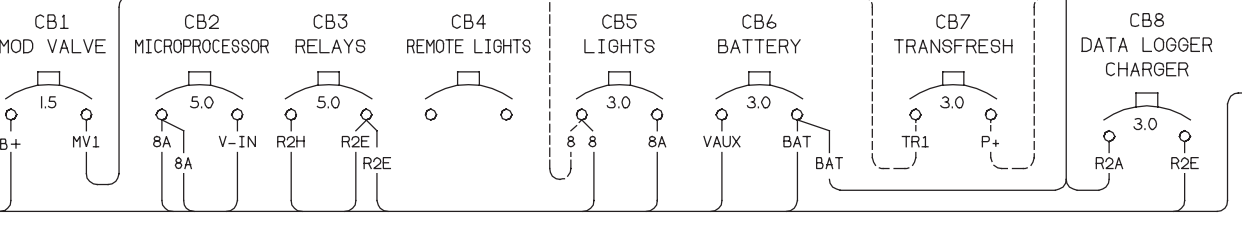
uPA+ MICROPROCESSOR BOTTOM PC BOARD



- RELAY K1
- RELAY K2
- RELAY K3
- RELAY K4
- RELAY K5
- RELAY K6
- RELAY K7
- RELAY K8
- RELAY K9



CONTROL BOX CIRCUIT BREAKER PANEL SECTION



REVISIONS

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2	THIS PRINT SUPERSEDES ANY OF EARLIER DATE DESTROY SAME.

DRAWN	J. PIERCE	DATE	06/14/94
CHECKED	T. BUI	8/8/94	
APPROVED	M. NORTON	8/8/94	
APPROVED			

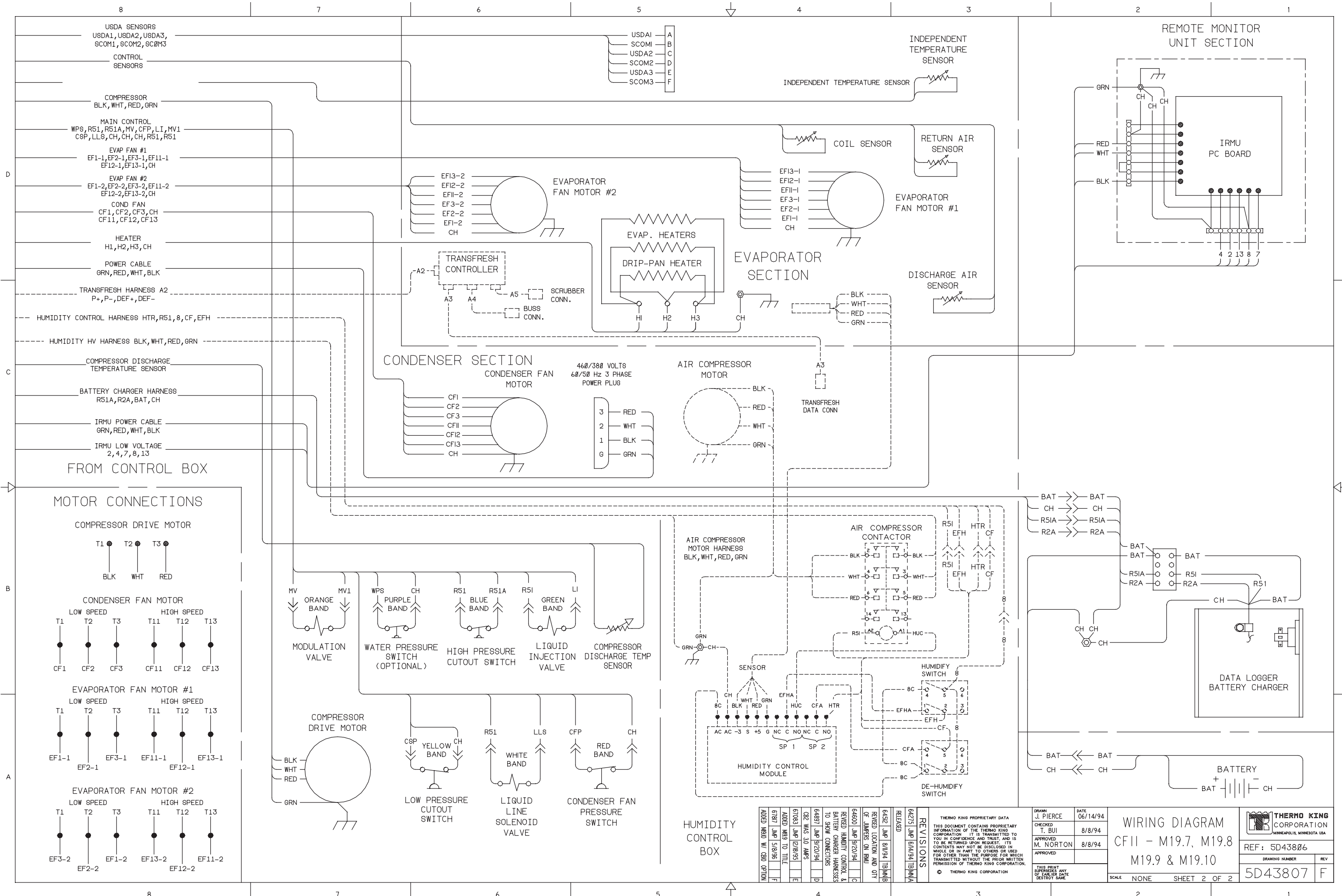
WIRING DIAGRAM
CFII - M19.7, M19.8
M19.9 & M19.10

THERMO KING CORPORATION
MINNEAPOLIS, MINNESOTA USA

REF: 5D43806

DRAWING NUMBER	REV
5D43807	F

SCALE NONE SHEET 1 OF 2



REVISIONS

NO.	DATE	DESCRIPTION
64275	JMP 6/16/94	REVISION
64512	JMP 8/1/94	REVISION
64600	JMP 9/20/94	REVISION
64897	JMP 9/20/94	REVISION
67003	JMP 12/8/95	REVISION
67897	JMP 5/8/96	REVISION
67903	JMP 5/8/96	REVISION

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67903	JMP 5/8/96	REVISION

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<p>REF: 5D43806</p>			<p>DRAWING NUMBER: 5D43807 REV: F</p>	<p>SCALE: NONE SHEET 2 OF 2</p>

Defrost Cycle Checkout Procedure

CAUTION: Do not forget to remove jumper wires from the unit after checking or testing unit components.

To check the defrost cycle, run the unit on cooling until the evaporator coil temperature is below 45 F (7.2 C). Operate the manual defrost switch. If the unit continues to operate on cooling, proceed to "Unit Does Not Defrost".

If the unit shifts to defrost but the evaporator temperature fails to rise, proceed to "Defrost Terminated on Time Limit".

Unit Does Not Defrost

If the unit continues on cooling, proceed to the following steps:

1. Check the Evaporator Coil Sensor:
If evaporator coil sensor fails, the Alarm light will flash and the Microprocessor will not initiate a defrost cycle. A faulty evaporator coil sensor is reported on the fault indication readout display as Code 02 when the Alarm [CODE] key is depressed. Test the evaporator coil sensor to determine if the sensor is faulty (see "Sensor Check" under Microprocessor Repair in the Electrical Maintenance section).
2. Check the evaporator temperature:
Be sure the evaporator temperature is actually below 45 F (7.2 C) if the unit will not defrost. Use the thermistor lead in the unit control box to check the evaporator return air temperature. The evaporator return air temperature should be 40 F (4.4 C) or less.
3. Check the manual defrost switch and DEFR wire:
If unit will not defrost, no Alarm signal is displayed and the evaporator return air temperature is below 40 F (4.4 C), place a jumper wire from the DEFR wire to ground at the DEFR terminal on the front of the Microprocessor printed circuit board. If the unit shifts to defrost, the manual defrost switch is defective or there is an open in the DEFR or CH (ground) wires to the switch. Repair or replace the defective switch or wire.

CAUTION: Do not forget to remove jumper wires from the unit after checking or testing unit components.

Defrost Terminated on Time Limit (Alarm Light Blinking — Fault Code 14)

If the unit shifts to Defrost but the evaporator temperature fails to rise, an interval timer in the Microprocessor will automatically terminate defrost after 45 minutes. Defrost cycle termination by the interval timer

results in a fault indication alarm. The Alarm light flashes and fault Code 14 is displayed on the right hand digital readout when the Alarm [CODE] key is depressed. If the evaporator temperature fails to rise, proceed to the following steps:

1. Check the Evaporator Coil Temperature:
Check to see if the evaporator temperature is above 75 F (23.9 C) if the unit will not come out of defrost. Use the coil sensor temperature readout or the thermistor lead in the unit control box to check the evaporator temperature. If the evaporator temperature does not rise enough to bring the unit out of defrost, some of the heater rods, the heater contactor, or HTR or R51 wires to the heater contactor may be defective.
2. Check for Additional Fault Indication Codes:
If the interval timer terminates defrost, press the Alarm [CODE] key to view and record any additional faults.

A Code 09 (Evaporator Over Temperature) fault would cause the Microprocessor to de-energize the electric heater contactor due to the coil sensor high temperature. Check for a defective electric heater rod (hot spots) or a defective coil sensor.

A Code 02 (Coil Sensor) Fault could indicate a faulty evaporator coil sensor. If the evaporator coil sensor fails during defrost, the Microprocessor interval timer automatically terminates defrost in 30 minutes instead of 45 minutes. To test the evaporator coil sensor, see "Sensor Check" under Microprocessor Repair in the Electrical Maintenance section. Replace a defective evaporator coil sensor.
3. Check Compressor and Evaporator Fan Contactors and the Microprocessor Relays:

When the unit shifts to defrost, the compressor and evaporator blowers should stop immediately. If the compressor motor or evaporator blowers fail to stop, check for a defective compressor motor contactor or evaporator fan motor contactor, a defective compressor motor contactor relay or evaporator fan motor contactor relay, or a defective Microprocessor.

Microprocessor Internal Defrost Timer Checkout

To test the Microprocessor internal defrost timer, run the unit on cooling until the evaporator coil sensor temperature is below 45.0 F (7.2 C). Connect a jumper wire from the "Short Time" terminal on terminal strip TB2 on the front of the Microprocessor printed circuit board to a GRND (ground) terminal. The Microprocessor will initiate the defrost mode and then terminate defrost.