SERVICE AND WIRING SHEET

W10843219

⚠WARNING

Electrical Shock Hazard
Disconnect power before servicing.
Replace all parts and panels before operating.
Failure to do so can result in death or electrical shock.

* Normal operating conditions are viewed when the air and temperature controls are at mid-setting, freezer section 0° to -5°F, and unit is cycling.

NOTE: Watt and pressure readings will vary and are influenced by the existing condition of the appliance, such as iced-up evaporator, condition of condenser, defrost cycle, pull-down time and customer use.

PERFORMANCE DATA *(NORMAL OPERATING CONDITIONS)			
		SYSTEM PRESSURE (PSIG)	
AMB	WATTS	HIGH SIDE	LOW SIDE
70°	120±20	120 ± 20	-6" TO 3#
90°	130±20	160 ± 20	-4" TO 3#
110°	140±20	220 ± 20	-2" TO 4#

SERVICE INFORMATION (W10881497 A)

1. COMPRESSOR SUCTION AND PROCESS STUBS MAY NOT BE INTERCHANGED UNLESS INDICATED BY **
2. REFRIGERANT CHARGE MUST BE APPLIED TO HIGH SIDE ONLY.
3. ICE MAKER AND WATER VALVE NOT ORIGINAL EQUIPMENT ON ALL MODELS.
4. CAUTION: ICE MAKER CYCLE MUST BE INITIATED ELECTRICALLY. DO NOT TRY TO MANUALLY START CYCLE.
5. THE PART NUMBER CAN BE FOUND ON THE COMPONENT. USE A REPLACEMENT PART OF SIMILAR PERFORMANCE.

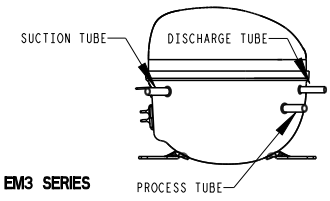
GENERAL COMPONENT INFORMATION FOR ALL REFRIGERATOR/FREEZER MODELS
BE SURE TO USE CORRECT REPLACEMENT PARTS

COMPONENT (IF APPLICABLE)	EMBRACO		OHMS RESISTANCE
	EM3D60	WATTS @ 120V	
COMPRESSOR	W10575980		
RELAY-STARTING, EMB	NOTE #5		
OVERLOAD PROTECTOR-T.I.	NOTE #5		
COVER-TERMINAL	-		
RUN WINDINGS	-		-
START WINDINGS	-		-
COMPRESSOR ELECTRICAL	-		
RUN CAPACITOR	NOTE #5		-
ADAPTIVE DEFROST	NOTE #5		
DEFROST HEATER	NOTE #5	350-480	42-30
DEFROST BI-METAL	NOTE #5		-
EVAPORATOR FAN	NOTE #5	3.6-4.8	-
CONDENSER FAN	NOTE #5	3.1-5.1	-

COMPRESSOR OPTIONS - REFER TO APPLICABLE DESIGN

(OIL COOLER NOT PRESENT ON ALL COMPRESSORS)

EMBRACO



EM3 SERIES

ELECTRONIC CONTROL FEATURES

The user interface in this appliance controls the product cooling system. The product cooling diagnostics is in the bag of this page.
The cooling portion of the electronic control in this appliance controls the temperatures in the refrigerator compartment and activates defrost heater.

The continuous defrost feature is controlled in the following manner:

1. Defrost Heat - During the defrost cycle the heater is energized continuously for the required time. This on/off cycle is mainteined turned on until the Refrigerator thermistor reach the cut-in temperature or the maximum defrost time (34 minutes) is reached.

In some European factories the letter "W" of the part code mentioned herein will be automatically replaced by the number "4000" (e.g. "W12345678" becomes "400012345678")

SERVICE DIAGNOSTICS MODE

SWITCH AND LED DIAGRAM

To ENTER SERVICE DIAGNOSTICS Mode: Press SW1 and hold door switch for 5 seconds.
Release both buttons when all LED's are turned on. All LED's turn ON and turn OFF after 10 sec.
Unit must be in the minimum temperature setting (LED1 on) prior to entering SERVICE DIAGNOSTIC MODE.
The display will show LED1 on to indicate the control is in step 1 of the diagnostics routine.
Each step must be manually advanced. Press SW1 to move to the next step in the sequence.
Diagnostics will begin at Step 1 following the sequence shown in Table 1. To guarantee good voltage comparison to indicate load failure, a minimum of 2 seconds is needed in each step for system stabilization.
All thermistors will be tested without action required from Service Technician. This check is done after Heater Off (Step 4).

To EXIT SERVICE DIAGNOSTICS Mode, do one of the following 3 options:
1) After last step press SW1
2) Disconnect the product from power.
3) Allow 20 minutes to pass.

Following the exit of the diagnostic mode, the controls will then resume normal operation.

FAIL CONDITION: Before displaying failure message (Table 2) all LEDs will be blinking, this step does not apply when all loads are working properly.

TABLE 1

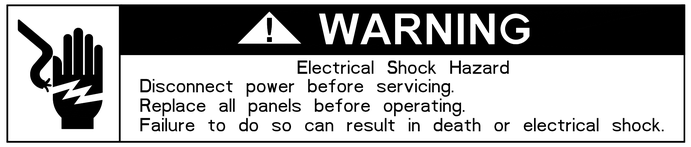
Step No.	Component Tested	DISPLAY INFORMATION
1	COOLING ON	SW1 ○ LED1 ● LED4 ○ LED3 ○ LED2
2	COOLING OFF	SW1 ○ LED1 ○ LED4 ○ LED3 ○ LED2
3	HEATER ON	SW1 ○ LED1 ○ LED4 ● LED3 ○ LED2
4	HEATER OFF	SW1 ○ LED1 ○ LED4 ○ LED3 ○ LED2
5	NO LOAD	SW1 ○ LED1 ○ LED4 ○ LED3 ● LED2
6	NO LOAD	SW1 ○ LED1 ○ LED4 ○ LED3 ○ LED2
7	FAIL CONDITION	SW1 ● LED1 ● LED4 ● LED3 ● LED2

TABLE 2

LOAD FAILURE	DISPLAY INFORMATION
POWER BOARD (HEATER OR COMPRESSOR DRIVER)	SW1 ○ LED1 ● LED4 ○ LED3 ○ LED2
RC SENSOR	SW1 ○ LED1 ○ LED4 ● LED3 ○ LED2
DEFROST SENSOR	SW1 ○ LED1 ○ LED4 ○ LED3 ● LED2
RC & DEFROST SENSOR	SW1 ○ LED1 ○ LED4 ● LED3 ● LED2
MULTIPLE FAILURES	SW1 ○ LED1 ● LED4 ● LED3 ● LED2

NOTE: WHEN MORE THAN ONE FAILURE IS DETECTED, THE MAJOR FAIL IS SHOWED
WHEN SERVICE MODE IS ENTERED, ALL MAIN CONTROL BOARD LOADS: DEFROST HEATER, COMPRESSOR, FANS, ETC. ARE TURNED OFF.
ONLY THE LOAD BEING CHECKED DURING A DIAGNOSTIC STEP IS ENERGIZED.

NOTES:
1. GROUND COMPRESSOR THROUGH CHASSIS.
2. IM SOLENOID VALVE GROUNDED THROUGH MOUNTING.
3. THERMAL FUSE CUTOUT 84±2°



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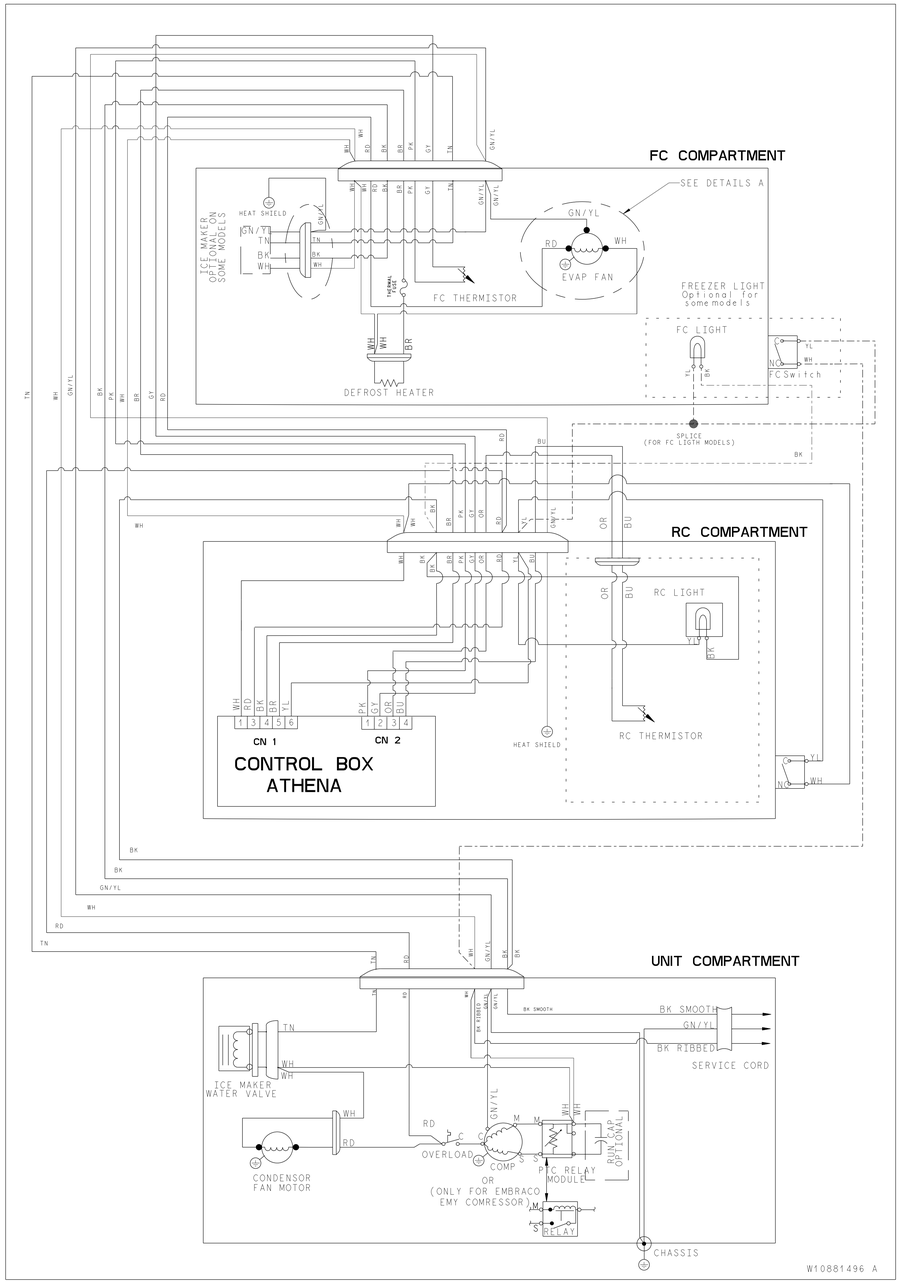
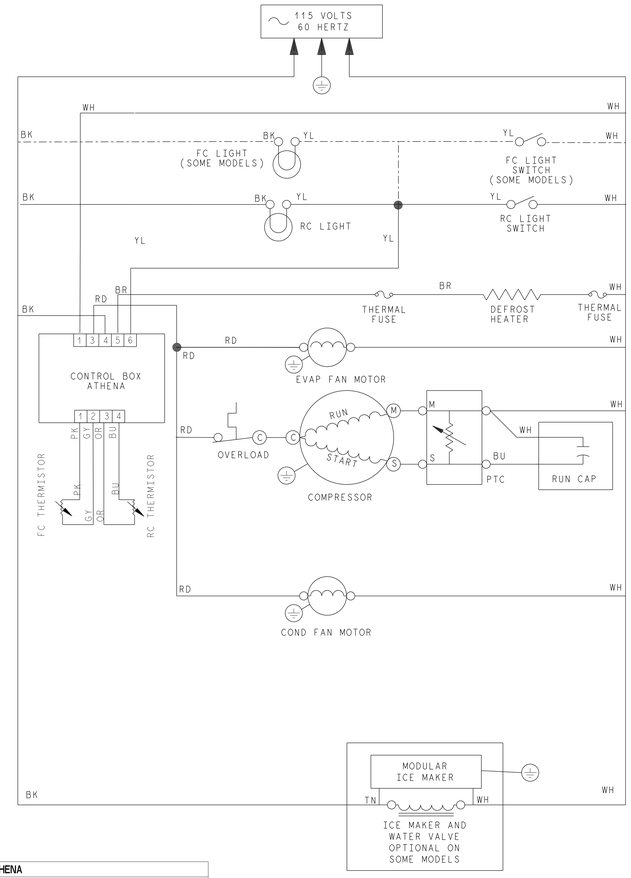
WIRING DIAGRAM

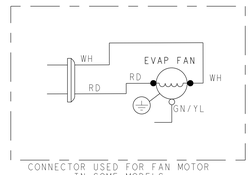




VOLTAGE TEST POINTS ATHENA						
		FROM	COLOR	TO	COLOR	CONDITIONS
MAIN CONTROL	CN1	CN1-4	BK	CN1-1	WH	120 VAC INPUT - CONSTANT WHEN UNIT PLUGGED IN
		CN1-1	WH	CN1-3	RD	120 VAC OUTOUT TO COMPRESSOR /EVAP FAN OR CONDENSER FAN WHEN COOLING
		CN1-6	YL	CN1-4	BK	120 VAC INPUT LIGHT SWITCH FEEDBACK
		CN1-5	BR	CN1-1	WH	120 VAC OUTPUT TO DEFROST HEATER WHEN ENERGIZED
	CN2	CN2-1	PK	CN2-2	GY	5 VDC INPUT RC/FC THERMISTOR
		CN2-3	OR	CN2-4	BU	5 VDC INPUT EVAP THERMISTOR

WIRE COLOR CODE

BU	=	BLUE
BK	=	BLACK
RD	=	RED
WH	=	WHITE
YL	=	YELLOW
OR	=	ORANGE
BR	=	BROWN
GY	=	GRAY
PK	=	PINK
PU	=	PURPLE
TN	=	TAN
OR/BK	=	ORANGE/BLACK TRACER
YL/RD	=	YELLOW/RED TRACER
BU/BK	=	BLUE/BLACK TRACER
WH/BU	=	WHITE/BLUE TRACER
BK/YL	=	BLACK/YELLOW TRACER
WH/RD	=	WHITE/RED TRACER
GN/YL	=	GREEN/YELLOW TRACER
BK/WH	=	BLACK/WHITE TRACER
YL/BK	=	YELLOW/BLACK TRACER
BK/RD	=	BLACK/RED TRACER
RD/WH	=	RED/WHITE TRACER



CONNECTOR USED FOR FAN MOTOR IN SOME MODELS

DETAILS A

SYMBOL CODE

- ◉ : CONNECTOR - SCREW ON
- ◎ : CONNECTOR - CLOSED END
- ○ : DISCONNECT TERMINAL
- ● : PERMANENT CONNECTION
- ⋙ : PLUG CONNECTOR
- ⏚ : GROUND (CHASSIS)

MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING UNITED STATES PATENTS

3,960,631 4,659,157 4,765,696 4,908,544 5,011,101
4,084,725 4,665,708 4,767,896 4,911,508 5,033,182
4,090,641 4,694,553 4,768,353 4,914,928 5,033,273
4,102,660 4,706,169 4,776,178 4,920,758 5,042,398
4,327,557 4,707,401 4,787,216 4,924,680 5,044,704
4,330,310 4,709,556 4,799,362 4,934,541 5,050,777
4,640,432 4,715,512 4,800,935 4,936,641 5,070,708
4,649,712 4,728,759 4,801,781 4,944,566 5,077,985
4,649,717 4,745,656 4,833,894 4,958,890 D309,461
4,649,718 4,745,775 4,862,577 4,996,848

OTHER PATENTS PENDING

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