

SERVICE AND WIRING SHEET

W10737602 A

⚠ 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, freerzer 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 (W10486232 A)

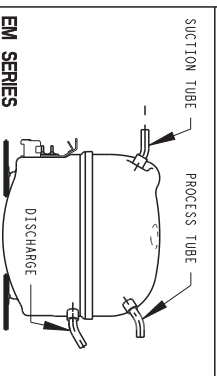
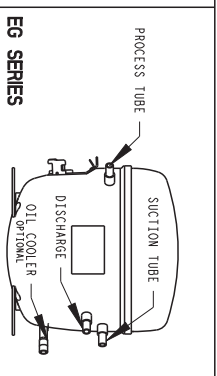
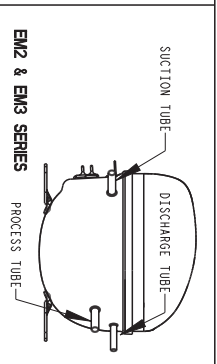
1. COMPRESSOR SUCTION AND PROCESS STUBS MAY NOT BE INTERCHANGED UNLESS INDICATED BY **
2. REFRIGERANT CHARGE MUST BE APPLIED TO HIGH SIDE ONLY.
3. ICE MAKER AND WATER VALVE NOT ORIGINAL EQUIPMENT ON ALL MODELS.
4. CAUTION: ICE MAKER CYCLE MUST BE INITIATED ELECTRICALLY. DO NOT TRY TO MANUALLY START CYCLE.
5. SERVICE DEFROST BI-METALS 58°F OPEN.
6. 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	
	EGX60	WATTS ® 120V	EM3Z60	WATTS ® 120V	EMW260	WATTS ® 120V		EMW560
COMPRESSOR	W10253005		W10445423		W10187125		W10237272	
RELAY-STARTING, EMB	NOTE #6		NOTE #6		NOTE #6		NOTE #6	
OVERLOAD PROTECTOR-T.I.	NOTE #6		NOTE #6		NOTE #6		NOTE #6	
COVER-TERMINAL	-		-		-		-	
RUN WINDINGS	-		-		-		-	
START WINDINGS	-		-		-		-	
COMPRESSOR ELECTRICAL	-		-		-		-	
RUN CAPACITOR	NOTE #6		NOTE #6		NOTE #6		NOTE #6	-
ADAPTIVE DEFROST	NOTE #6		NOTE #6		NOTE #6		NOTE #6	
DEFROST HEATER	NOTE #6	350-480	NOTE #6	350-480	NOTE #6	350-480	NOTE #6	42-30
DEFROST BI-METAL	NOTE #6		NOTE #6		NOTE #6		NOTE #6	-
EVAPORATOR FAN	NOTE #6	1.5-2.5	NOTE #6	1.5-2.5	NOTE #6	3.6-4.8	NOTE #6	-
CONDENSER FAN	NOTE #6	3.1-5.1	NOTE #6	3.1-5.1	NOTE #6	3.1-5.1	NOTE #6	-

COMPRESSOR OPTIONS - REFER TO APPLICABLE DESIGN

(OIL COOLER NOT PRESENT ON ALL COMPRESSORS)

EMBRACO		
		
EM SERIES	EG SERIES	EM2 & 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 pulses the defrost heater.

The pulsed defrost feature is controlled in the following manner:

1. Pulsed Defrost Heat - During the defrost cycle the heater is energized continuously for the first 5 minutes. It is then cycled off for 180 seconds and on for 120 seconds. This on/off cycle is repeated until the Refrigerator thermistor reach the cut-in temperature or the maximum defrost time (55 minutes) is reached.

SERVICE AND WIRING
SHEET NO.

W10737602 A

SERVICE AND WIRING
SHEET NO.

W10737602 A

SWITCH AND LED DIAGRAM



NOTE: LED5 IS OPTIONAL IN SOME MODELS

To ENTER SERVICE DIAGNOSTICS Mode: Press SW1 and SW2 simultaneously for 3 seconds.
Release both buttons when all LED's are turned on for 1 second.
Unit must be in the minimum temperature setting (LED4 on) prior to entering SERVICE DIAGNOSTIC MODE.
The display will show LED4 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 6).

To EXIT SERVICE DIAGNOSTICS Mode, do one of the following 4 options:

- 1) Press SW1 and SW2 simultaneously for 3 seconds.
 - 2) Disconnect the product from power.
 - 3) Allow 20 minutes to pass.
 - 4) Press SW1 while in Step 7.
- Following the exit of the diagnostic mode, the controls will then resume normal operation.

PASS CONDITION: Pressing SW1 while in Step 7 the system returns to normal mode.

FAIL CONDITION: Pressing SW1 while in Step 7 fail message status is displayed by blinking LED's for specific failure as shown in Table 2.

TABLE 1

Step No.	Component Tested	DISPLAY INFORMATION
1	EVAP FAN ON	<div><div>SW2 LED6 LED5 LED4 LED3 LED2 LED1</div><div><div>LED6 LED5 LED4 LED3 LED2 LED1</div><div>SW1</div></div></div>
2	EVAP FAN OFF	<div><div>SW2 LED6 LED5 LED4 LED3 LED2 LED1</div><div><div>LED6 LED5 LED4 LED3 LED2 LED1</div><div>SW1</div></div></div>
3	COMPRESSOR/CONDENSER FAN ON	<div><div>SW2 LED6 LED5 LED4 LED3 LED2 LED1</div><div><div>LED6 LED5 LED4 LED3 LED2 LED1</div><div>SW1</div></div></div>
4	COMPRESSOR/CONDENSER FAN OFF	<div><div>SW2 LED6 LED5 LED4 LED3 LED2 LED1</div><div><div>LED6 LED5 LED4 LED3 LED2 LED1</div><div>SW1</div></div></div>
5	HEATER ON	<div><div>SW2 LED6 LED5 LED4 LED3 LED2 LED1</div><div><div>LED6 LED5 LED4 LED3 LED2 LED1</div><div>SW1</div></div></div>
6	HEATER OFF	<div><div>SW2 LED6 LED5 LED4 LED3 LED2 LED1</div><div><div>LED6 LED5 LED4 LED3 LED2 LED1</div><div>SW1</div></div></div>
7	SERVICE CHECK COMPLETED	<div><div>SW2 LED6 LED5 LED4 LED3 LED2 LED1</div><div><div>LED6 LED5 LED4 LED3 LED2 LED1</div><div>SW1</div></div></div>

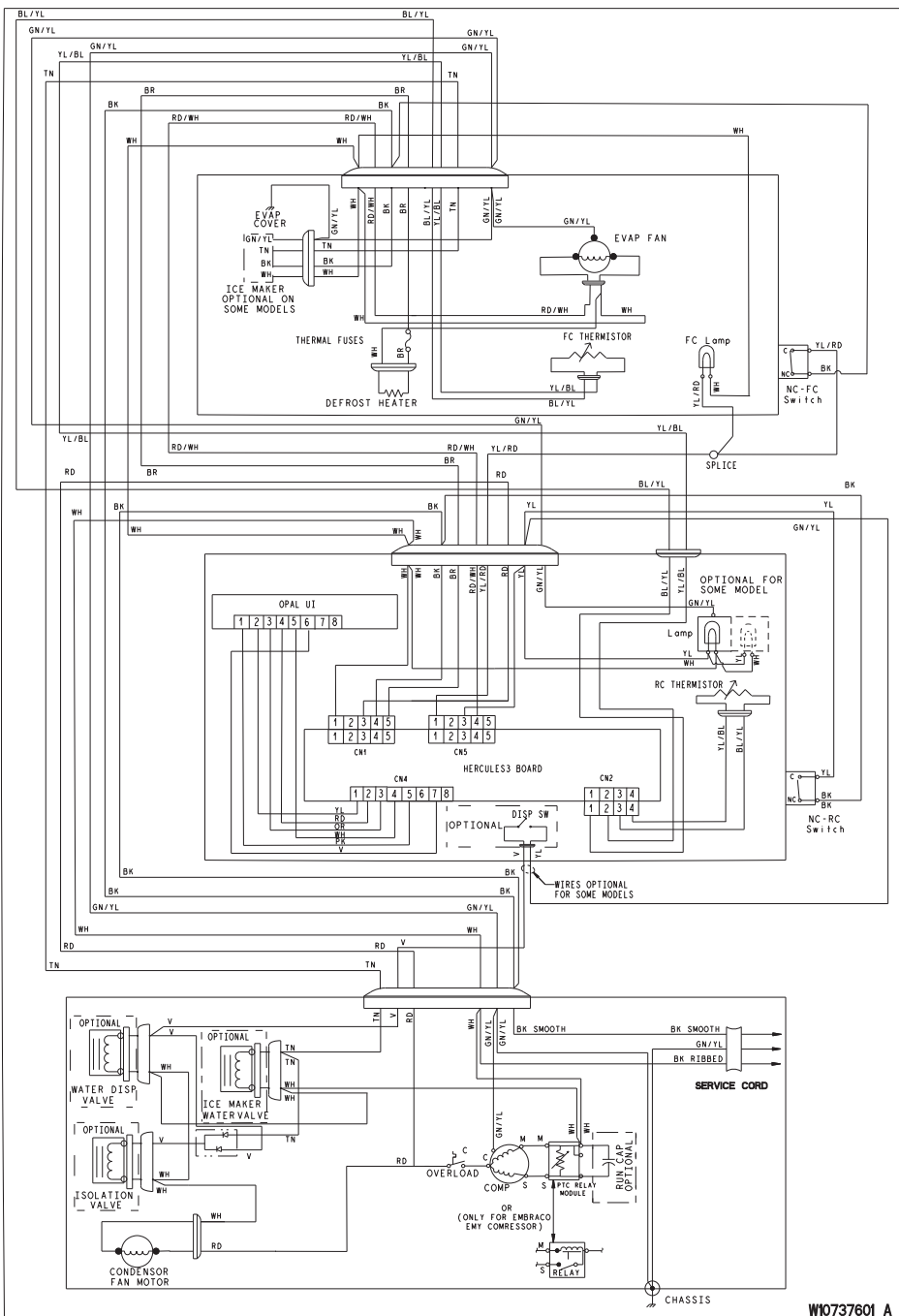
TABLE 2

LOAD FAILURE	DISPLAY INFORMATION
POWER BOARD (EVAP FAN DRIVER)	<div><div>SW2 LED6 LED5 LED4 LED3 LED2 LED1</div><div><div>LED6 LED5 LED4 LED3 LED2 LED1</div><div>SW1</div></div></div>
POWER BOARD (COMPRESSOR DRIVER)	<div><div>SW2 LED6 LED5 LED4 LED3 LED2 LED1</div><div><div>LED6 LED5 LED4 LED3 LED2 LED1</div><div>SW1</div></div></div>
POWER BOARD (HEATER DRIVER)	<div><div>SW2 LED6 LED5 LED4 LED3 LED2 LED1</div><div><div>LED6 LED5 LED4 LED3 LED2 LED1</div><div>SW1</div></div></div>
EVAP THERMISTOR	<div><div>SW2 LED6 LED5 LED4 LED3 LED2 LED1</div><div><div>LED6 LED5 LED4 LED3 LED2 LED1</div><div>SW1</div></div></div>
RC THERMISTOR	<div><div>SW2 LED6 LED5 LED4 LED3 LED2 LED1</div><div><div>LED6 LED5 LED4 LED3 LED2 LED1</div><div>SW1</div></div></div>

NOTE: WHEN MORE THAN ONE FAILURE IS DETECTED, THE MAJOR FAIL IS SHOWN
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.

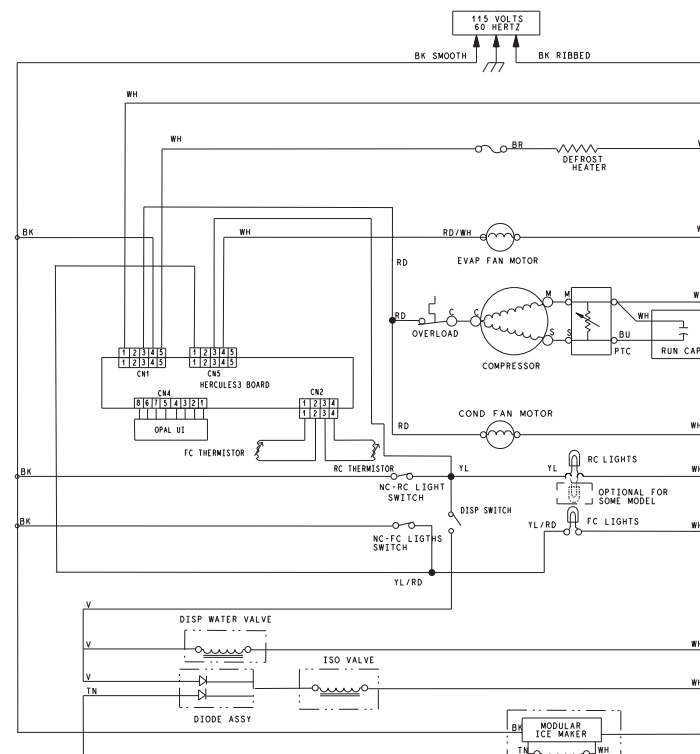
- NOTES:
1. GROUND COMPRESSOR THROUGH CHASSIS.
 2. IM SOLENOID VALVE GROUNDED THROUGH MOUNTING.

WIRING DIAGRAM



WARNING

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



WIRE COLOR CODE

BU = BLUE
BK = BLACK
RD = RED
WH = WHITE
YL = YELLOW
OR = ORANGE
BR = BROWN
GT = 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
RD/WH = RED/WHITE TRACER

VOLTAGE TEST POINTS HERCULES 3 BASIC						
MAIN CONTROL		FROM	COLOR	TO	CONDITIONS	
		CN1-4	BK	CN1-1	WH	120 VAC INPUT - CONSTANT WHEN UNIT PLUGGED IN
	CN1		WH	CN1-3	RD	120 VAC OUTPUT TO COMPRESSOR AND CONDENSER FAN WHEN COOLING
		CN1-1	WH	CN1-5	BR	120 VAC OUTPUT TO DEFROST HEATER WHEN ENERGIZED
		CN5-1	YL/RD	CN1-1	WH	120 VAC INPUT FC LIGHT FEEDBACK
		CN5-3	YL	CN1-1	WH	120 VAC INPUT RC LIGHT FEEDBACK
		CN5-4	RD/WH	CN1-1	WH	120 VAC OUTPUT TO EVAP FAN MOTOR
		CN2-1	BL/YL	CN2-2	YL/BL	5 VDC INPUT FC THERMISTOR
		CN2-3	BL/YL	CN2-4	YL/BL	5 VDC INPUT RC THERMISTOR
	CN4		CN4-2	RD	CN4-4	WH

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 4,765,896 4,908,544 5,011,101
4,084,725 4,665,708 4,767,886 4,911,508 5,033,182
4,090,641 4,694,553 4,768,353 4,914,928 5,033,273
4,192,660 4,706,169 4,776,178 4,920,758 5,042,388
4,327,557 4,707,401 4,787,216 4,924,680 5,044,704
4,330,310 4,709,556 4,798,362 4,934,541 5,055,777
4,640,432 4,715,512 4,800,935 4,936,641 5,070,708
4,649,712 4,728,159 4,801,181 4,944,566 5,077,985
4,649,717 4,745,656 4,833,894 4,958,880 5,009,461
4,649,718 4,745,775 4,862,577 4,996,848

OTHER PATENTS PENDING

W10737601 A

Printed in Mexico

W10737602 A