

SERVICE AND WIRING SHEET

2216443R



WARNING

ELECTRICAL SHOCK HAZARD

Disconnect electrical power before servicing

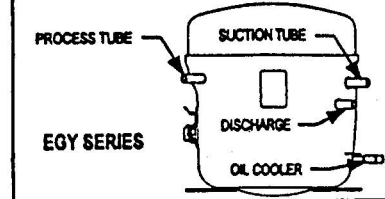
Failure to do so can result in death or electrical shock

PERFORMANCE DATA (NORMAL OPERATING CONDITIONS)			
AMB	WATTS	SYSTEM PRESSURE (PSIG)	
		HIGH SIDE	LOW SIDE
70°	140 ± 20	95 ± 20	-7 TO 3
90°	150 ± 20	135 ± 20	-4 TO 3
110°	170 ± 20	165 ± 20	-2 TO 4

* 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 load-up evaporator, condition of condenser, defrost cycle, pull-down time and customer use.

(OIL COOLER IS OPTIONAL)
EMBRACO



SERVICE INFORMATION (2216219 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: ICEMAKER CYCLE MUST BE INITIATED ELECTRICALLY. DO NOT TRY TO MANUALLY START CYCLE.
5. SERVICE DEFROST BIMETALS - 80°F OPEN.
6. DEFROST TIMER MAY CONTAIN A CAPACITOR IN SERIES WITH MOTOR. DO NOT CONTINUITY TEST WHEN CHECKING FOR FAILED TIMER MOTOR. INSTEAD, ENERGIZE TIMER AND LISTEN FOR GEAR MOVEMENT.
7. PART NUMBER CAN BE FOUND ON THE COMPONENT.

SERVICEABLE ELECTRICAL PARTS MATRIX (COMPONENTS BY CUBIC FOOT SIZE)						
SERVICEABLE PARTS	22 FT ³ 120V		25 and 27 FT ³ 120V		WATTAGE 120V	RESISTANCE 120v
	Kenmore	KitchenAid	Kenmore	KitchenAid		
COMPRESSOR	2212191	2212191	2212192			
RUN WINDINGS	.	.	.	.		1-5
START WINDINGS	.	.	.	.		3-11
4SP (RELAY, OVERLOAD)	2212193		2212194			
RUN CAPACITOR (OPT)	See Note 7		See Note 7			
ELECTRIC AIR BAFFLE ASSY.	2216112		2216112			
THERMISTOR	2216113		2216113			2.7K @ 77°F (25°C)
MAIN CONTROL (NUMERIC)	2216216	2216230	2216216	2216230		
MAIN CONTROL (BARGRAPH)	2216217		2216217			
DEFROST HEATER	2188174		2188175		550-650	27-21
DEFROST BI-METAL	2196155		2196155			
EVAPORATOR FAN	see note 7	see note 7	see note 7	see note 7	2-9	
CONDENSER FAN	see note 7	see note 7	see note 7	see note 7	3-12	

** PRIMARY SOURCE PART NUMBER

ELECTRONIC CONTROL FEATURES

The electronic control in this appliance controls the temperatures in the refrigerator and freezer compartments independently, delays the operation of the evaporator fan, pulses the defrost heater and monitors the water filter usage. The fan delay and pulsed defrost features are controlled in the following manner:

1. Evaporator Fan Delay - The electronic control delays the evaporator fan from coming on for 40 seconds after the compressor has turned on, and the evaporator fan stays on for 120 seconds after the compressor has turned off.
2. Pulsed Defrost Heat - During the defrost cycle the heater is energized continuously for the first 5 minutes. It is then cycled off for 60 seconds and on for 120 seconds. This on/off cycle is repeated until the bi-metal opens or the maximum defrost time (25 minutes) is reached.

SERVICE DIAGNOSTICS MODE

The Service Diagnostic Mode can be entered 13 seconds after the refrigerator is powered up. This mode tests the thermistor inputs and control board outputs. The results of the thermistor checks are displayed on the water filter status indicator as shown below. In steps 3 through 6, the component tested will be energized and should function if operational.

• Press the control ON button and the water filter RESET button *simultaneously* for 3 seconds.

• Diagnostics will begin at Step #1:

- Numeric - The refrigerator compartment (RC) temperature display will show "01" to indicate the control is in Step #1 of the diagnostics routine. The freezer compartment (FC) temperature display will show "0"
- Bargraph - The freezer compartment (FC) temperature display will light the left-most LED. All other LED's will be off.

• The table below shows the component tested at each step.

• Press and hold the water filter reset button for 2 seconds or until it beeps to move to the next step in the sequence.

Numeric - The RC display advances each time the water filter reset is pressed (indicating the completion of the previous step).

Bargraph - The FC indicator advances one position to the right each time the water filter reset is pressed (indicating the completion of the previous step).

• The diagnostics mode ends automatically after the steps are complete or 20 minutes have passed (whichever comes first). The control will then resume normal cooling operation.

Service Tip: If the control does not respond it may be necessary to remove power from the entire appliance for a few seconds. Re-apply power and perform the service diagnostics routine to verify that the control is working correctly.

Step #	Component Tested	Suggested Diagnostics Routine	Water Filter Status Indicator (Steps 1 and 2)	
			Numeric	Bargraph
1	FC thermistor	This is an internal board test. The board will check the resistance value of the thermistor and display the results on the water filter status indicator. (See the "Water filter status indicator column")	01 Pass	● Pass (green)
2	RC thermistor	This is an internal board test. The board will check the resistance value of the thermistor and display the results on water filter status indicator. (See the "Water filter status indicator column")	02 Fail	● Fail (red)
3	Evaporator fan motor	Neutral switched to motor from board, verify 120vac between line and neutral at motor. Verify 120vac between black and white/black wires		
4	Compressor and Condenser fan motor	Line voltage switched to components from board, verify 120vac between line and neutral at compressor and motor. (red and white wires)		
5	Air baffle motor	Neutral switched to component from board, verify 120vac between line and neutral at baffle (white and black wire).		
6	Defrost heater/Bi-metal	Line voltage switched to component from board, verify 120vac between line and neutral at heater. Note: If Bi-metal is open, it will need to be by-passed for heater to operate. See Warning below. Press and hold the water filter reset to indicate the completion of this step and the service routine.		

The water valve inputs to the control board can be checked when you are in the normal cooling mode. To verify that the water valve inputs are correctly connected to the main control open the Refrigerator door and **press in the door switch**. Activate the water dispenser and look at the water filter indicator. The yellow indicator light should be on or the numeric display should read "01". Repeating the process above for the icemaker valve would turn the red indicator light on or display "10" on the numeric indicator.

WARNING IF BI-METAL IS BY-PASSED FOR TESTING (IF APPLICABLE), DO NOT OVERHEAT EVAPORATOR AREA.

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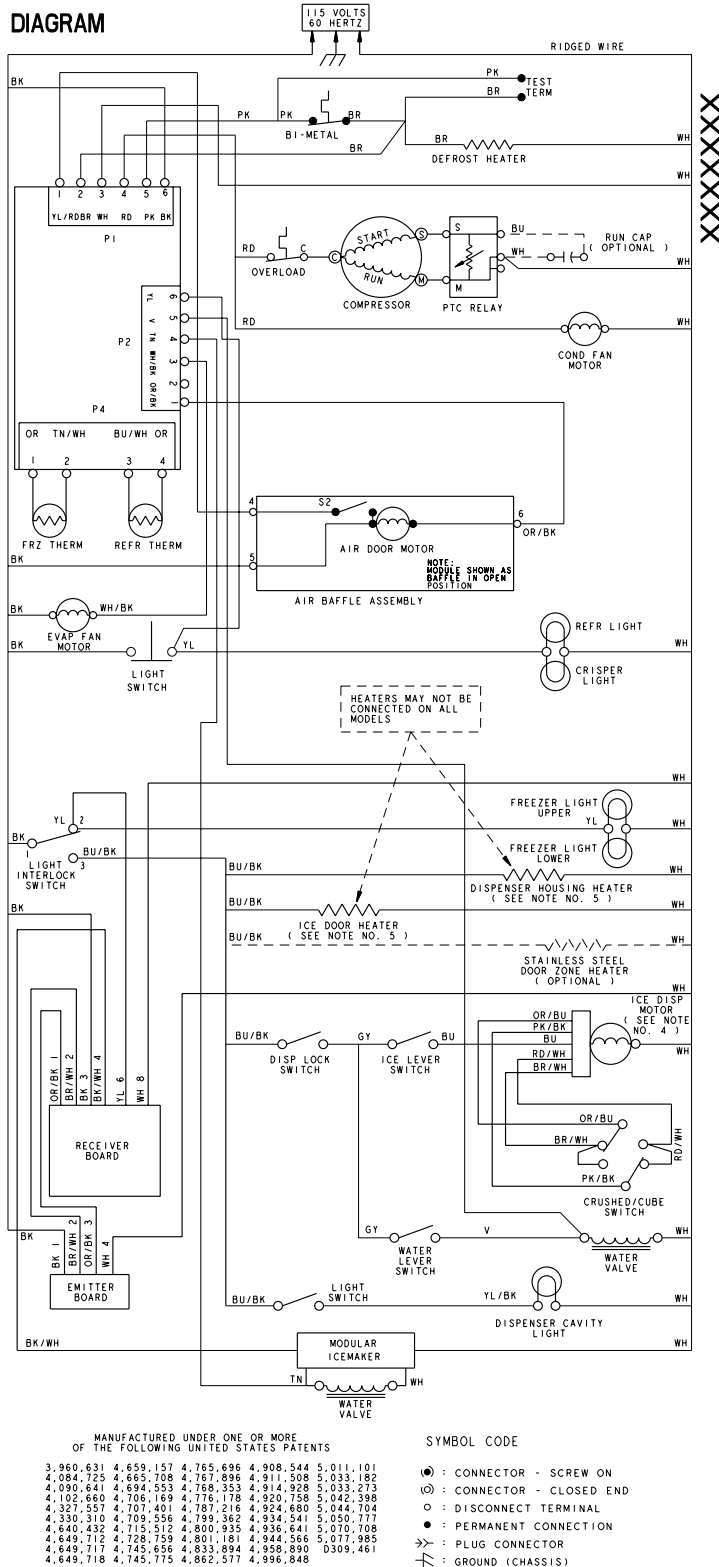
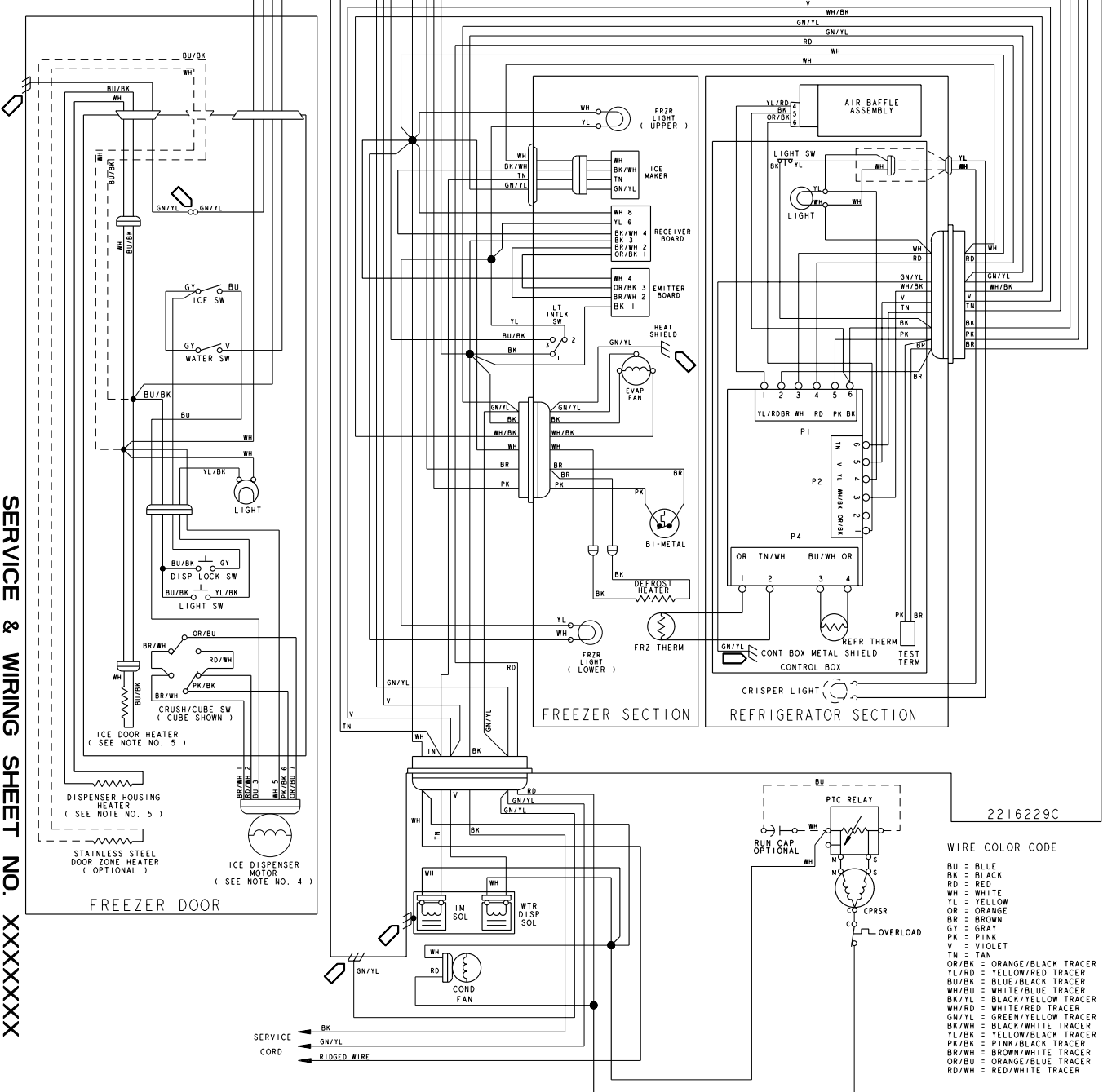
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- NOTES:
- GROUND COMPRESSOR THROUGH CONDENSER
 - IM SOLENOID GROUNDED THROUGH MOUNTING
 - EVAP COVER GROUNDED HEAT SHIELD
 - THE DISPENSER HAS A BUILT-IN INVERTER BOARD WHICH CONVERTS THE AC VOLTAGE TO 120V DC. THE OR/BU WIRE IS THE POSITIVE SIDE OF THE DC SIGNAL AND AND THE PK/BR WIRE IS THE NEGATIVE SIDE. THE BR/WH AND RD/WH WIRES SWITCH POLARITY DEPENDING ON CRUSH/CUBE POSITION. SEE TABLE BELOW:
- | | | |
|------------|-------|-------|
| CRUSH CUBE | BR/WH | RD/WH |
|------------|-------|-------|
- ICE DOOR HEATER OR DISPENSER HOUSING HEATER MAY NOT BE CONNECTED ON ALL MODELS.

WARNING

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

WIRING DIAGRAM



SERVICE & WIRING SHEET NO. XXXXXX