

# SERVICE AND WIRING SHEET

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**2255376B**



## ⚠ 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.**

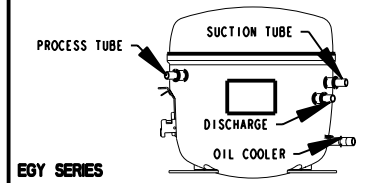
- Normal operating conditions are viewed when the air and temperature controls are at mid-sitting, freezer section 0 to -5°F and unit is cycling.

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 )			
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	185 ± 20	-2 TO 4

( OIL COOLER IS OPTIONAL )  
 EMBRACO



## SERVICE INFORMATION ( 2255284 B )

1. COMPRESSOR SUCTION AND PROCESS STUBS MAY NOT BE INTERCHANGED.
2. REFRIGERANT CHARGE MUST BE APPLIED TO HIGH SIDE ONLY.
3. ICE MAKER AND WATER VALVE NOT ORIGINAL EQUIPMENT ON ALL MODELS.
4. NOTE: ICE MAKER CYCLE MUST BE INITIATED ELECTRICALLY. DO NOT TRY TO MANUALLY START CYCLE.
5. SERVICE DEFROST BI-METALS -50°F OPEN
6. PART NUMBER CAN BE FOUND ON THE COMPONENT.

SERVICEABLE ELECTRICAL PARTS MATRIX ( COMPONENTS BY CUBIC FOOT SIZE )											
SERVICEABLE PARTS	22 CU FT 120V		25 & 27 CU FT 120V		22 CU FT 120V		25 & 27 CU FT 120V		WATTAGE	RESISTANCE ( Ω )	
	Kenmore	KA	Kenmore	KA	Kenmore	KA	Kenmore	KA	120V AC	120V AC	
COMPRESSOR	EGY80		EGY90		EGYS80		EGYS90				
	2212191		2212192		2320135		2320137				
RUN WDGS	*										1-5
START WDGS	*										3-11
START DEVICE, OVLD	See Note 6										
RUN CAP (IF EQUIP)	See Note 6										
ELEC AIR BAF ASSY	2216112										
THERMISTOR	2216113				2188819, 2188820					2.7K AT 77°F ( 25°C )	
MN CONT (NUM)	2216216	2216230	2216216	2216230	2216216	2216230	2216216	2216230			
MN CONT (BAR)	2216217		2216217		2216217		2216217				
DFR HTR	2188174		2188175		2188174		2188175		550-650	27-21	
DFR BI-MET	2196155				See Note 6						
EVAP FAN MOT					See Note 6				2-9		
COND FAN MOT					See Note 6				3-12		

## 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 No. 1.
  - Numeric** - The refrigerator compartment ( RC ) temperature display will show "01" to indicate the control is in Step No. 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 button 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 No.	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 the 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 120V AC between line and neutral at motor. Verify 120V AC between black and white/black wires.		
4	Compressor and Condenser fan motor	Line voltage switched to components from board, verify 120V AC between line and neutral at compressor and motor ( red wire and white wire ).		
5	Air baffle motor	Neutral switched to component from board, verify 120V AC between line and neutral at baffle ( white and black wire ).		
6	Defrost heater/Bi-metal	Line voltage switched to components from board, verify 120V AC between line and neutral at heater. Note: If Bi-metal is open, it will need to be by-passed for heater to operate. See Note 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 "02" on the numeric indicator.

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

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- NOTES:
1. 1M SOLENOID GROUNDED THROUGH MOUNTING.
  2. EVAP COVER GROUNDED HEAT SHIELD.
  3. 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 THE PK/BU WIRE IS THE NEGATIVE SIDE. THE BR/WH AND RD/WH WIRES SWITCH POLARITY DEPENDING ON CRUSH/CUBE POSITION. SEE TABLE BELOW:

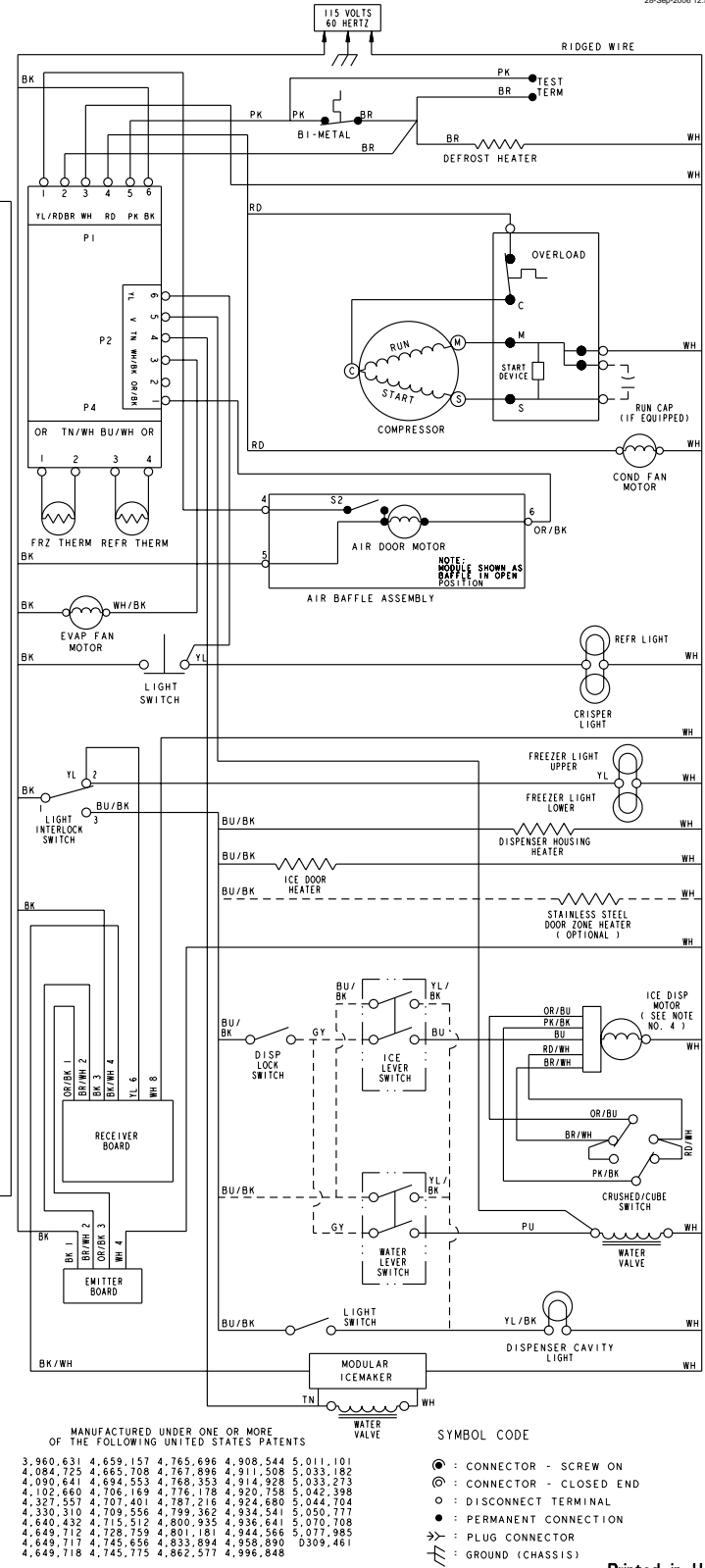
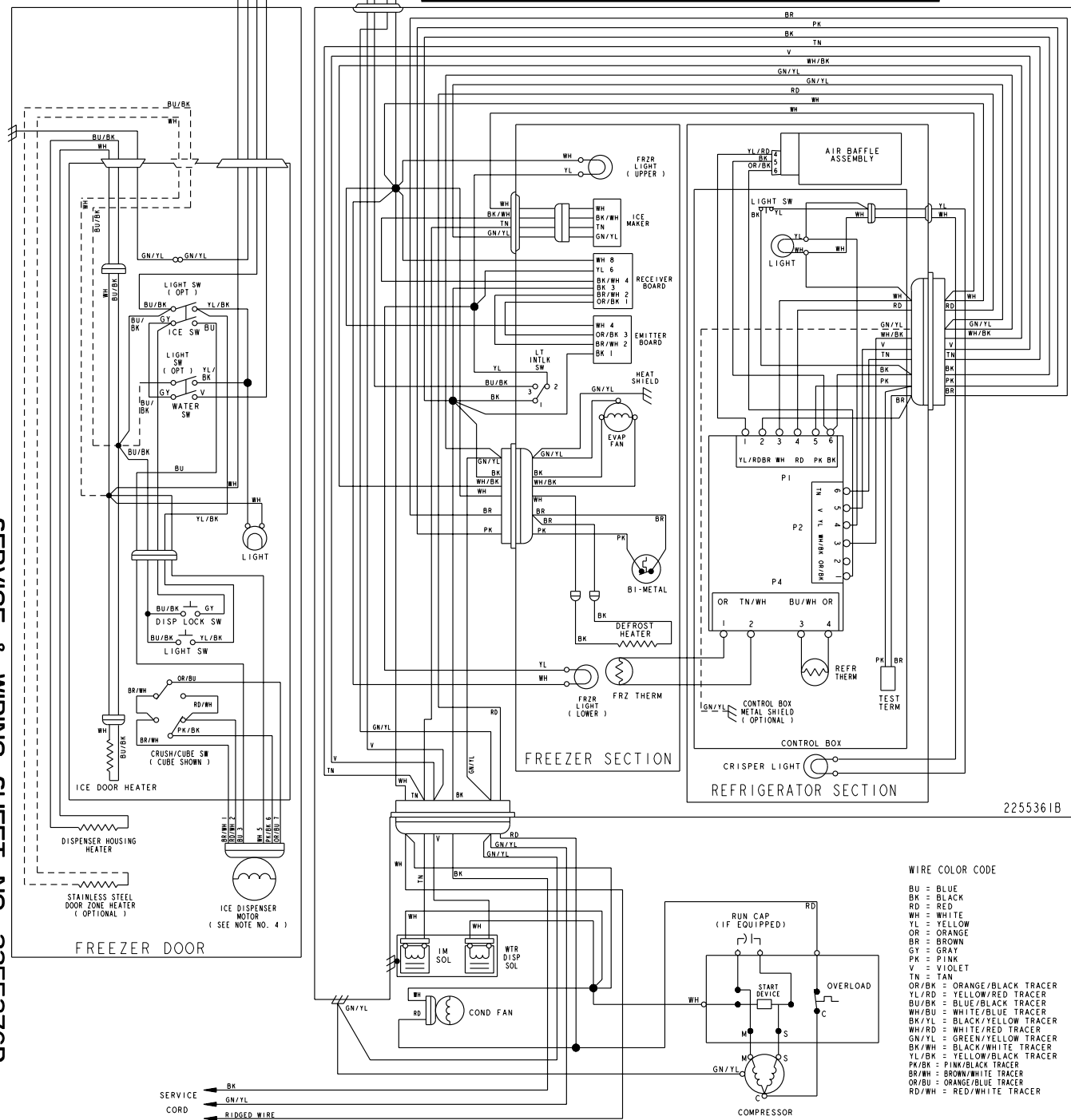
CRUSH	BR/WH	RD/WH
CUBE	-	-



# A WARNING

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## WIRING DIAGRAM



- WIRE COLOR CODE
- BU = BLUE
  - BK = BLACK
  - RD = RED
  - WH = WHITE
  - YL = YELLOW
  - OR = ORANGE
  - BR = BROWN
  - GY = GRAY
  - PK = PINK
  - V = VIOLET
  - 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
  - PK/BK = PINK/BLACK TRACER
  - BR/WH = BROWN/WHITE TRACER
  - OR/BU = ORANGE/BLUE TRACER
  - RD/WH = RED/WHITE TRACER

- 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 | 4,789,362 | 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 | 4,801,181 | 4,944,566 | 5,077,985 |
| 4,649,717 | 4,745,656 | 4,833,894 | 4,958,890 | 5,089,461 |
| 4,649,718 | 4,745,775 | 4,862,577 | 4,996,848 |           |

- SYMBOL CODE
- ⊙ : CONNECTOR - SCREW ON
  - ⊖ : CONNECTOR - CLOSED END
  - ⊙ : DISCONNECT TERMINAL
  - : PERMANENT TERMINAL
  - ⌞ : PLUG CONNECTOR
  - ⌞ : GROUND (CHASSIS)

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