FOR SERVICE TECHNICIAN'S USE ONLY

NOTE: This sheet contains important Technical Service Data.

W11203256E **Tech Sheet** **Do Not Remove Or Destroy**

⚠ DANGER



Electrical Shock Hazard

Only authorized technicians should perform diagnostic voltage measurements.

After performing voltage measurements, disconnect power before servicing.

Failure to follow these instructions can result in death or electrical shock.

⚠ 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.

Voltage Measurement Safety Information

When performing live voltage measurements, you must do the following:

- **Verify the controls are in the off position so that the appliance does not start when energized.**
- **Allow enough space to perform the voltage measurements without obstructions.**
- **Keep other people a safe distance away from the appliance to prevent potential injury.**
- **Always use the proper testing equipment.**
- **After voltage measurements, always disconnect power before servicing.**

Temperature Charts

No-Load Performance, Controls in Normal Position

	kW/24 hr ± 0.4			Percent Run Time ± 10%			Cycles/24 hr ± 10		
Ambient °F/°C	70°F 21°C	90°F 32°C	110°F 43°C	70°F 21°C	90°F 32°C	110°F 43°C	70°F 21°C	90°F 32°C	110°F 43°C
27 cu ft	1.0	1.3	2.4	40%	50%	60%	29	22	20

	Refrigerator Compartment Average Food Temperature ± 4°F/2°C			Freezer Compartment Average Food Temperature ± 5°F/3°C			Ice Maker Compartment Average Food Temperature ± 5°F/3°C		
Ambient °F/°C	70°F 21°C	90°F 32°C	110°F 43°C	70°F 21°C	90°F 32°C	110°F 43°C	70°F 21°C	90°F 32°C	110°F 43°C
27 cu ft	37°F 3°C	37°F 3°C	37°F 3°C	0°F -18°C	0°F -18°C	0°F -18°C	24°F -5°C	24°F -5°C	24°F -5°C

Temperature Relationship Test Chart

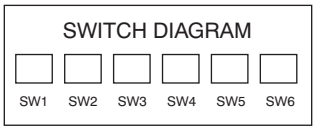
	Freezer Evaporator Inlet/Outlet ± 5°F/3°C		Suction Line ± 7°F/4°C	
Ambient °F/°C	70°F 21°C	90°F 32°C	70°F 21°C	90°F 32°C
27 cu ft	-6°F -21°C	-3°F -19°C	70°F 21°C	94°F 34°C

	Average Total Wattage ± 10%		Suction Pressure ± 2 PSIG		Head Pressure ± 5 PSIG	
Ambient °F/°C	70°F 21°C	90°F 32°C	70°F 21°C	90°F 32°C	70°F 21°C	90°F 32°C
27 cu ft	90-110	100-120	1.0	3.4	100	141

Component Specifications

Component	Specifications All Parts - 115 VAC/60Hz unless noted	
Cooling		
Compressor	BTUH.....	617/EGD60HLC
	Watt	60 Hz/101 W
	Current lock rotor	9.3 A ± 15%
	Current full load.....	1.75 A ± 15%
	Resistance run windings....	5.1 Ω ± 15%
	Resistance start windings..	5.7 Ω ± 8% @ 77°F (25°C)
Relay	5SP	
Compressor Run Capacitor	Volt	180 VAC
	Capacitance.....	12 µfd ± 10%
Electric Damper Control	Maximum closing time..	16 seconds
	Temperature rating.....	-11°F to 110°F (-24°C to 43°C)
	RPM	3
Condenser Motor	Rotation..... (facing end opposite shaft)	Clockwise
	RPM	940 RPM
	Watt ..... **NOTE:** Fan blade must be fully seated on shaft to achieve proper airflow.	2.6 ± 15% W @ 115 VAC
Freezer Evaporator Fan Motor	Rotation..... (facing end opposite shaft)	Clockwise
	RPM	2800 RPM
	Watt ..... **NOTE:** Fan blade must be fully seated on shaft to achieve proper airflow.	5.5 ± 15% W @ 12.7 VDC
Thermostat (Defrost)	Volt	120/240 VAC
	Watt	495 W
	Current	3.75/1.87 A
	Resistance across terminals ...	56 kΩ
	Above 42°F (5.6°C) ± 5°.....	Open
	Below 12°F (-11°C) ± 7°.....	Closed
Freezer Evaporator Heater	Volt	115 VAC
	Wattage.....	435 ± 5% W
	Resistance	30.4 ± 5% Ω
Controls		
Control Board	Volt ..... See control board section for diagnostics.	120 VAC, 60Hz
Thermistor	Temperature	Resistance
	77°F (25°C)	2700 Ω ± 5.0%
	32°F (0°C)	7964 Ω ± 1.0%
	0°F (-18°C).....	23,345 Ω ± 2.0%
Light Switch	Type.....	SPDT NO/NC
	Volt	125/250 VAC
	Current	8/4 A
Ice and Water		
Dual Water Valve	Watts	Green side: 20 W Red side: 35 W
Isolation Valve	Watts	20 W (Green)
Ice Box Fan	Rotation..... (facing end opposite shaft)	Clockwise
	RPM	3500 RPM
	Watt	4.2 ± 15% W @12.7 VDC

Control Board Troubleshooting



To Enter Service Diagnostics Mode:

NOTE: Refrigerator must not be in lockout mode prior to entering Service Diagnostic Mode.

1. Press SW1 and SW2 simultaneously for 3 seconds.
2. Release both buttons when you hear the CHIME indicator. The display will show “01” to indicate the control is in Step 1 of the diagnostics routine.

To Exit Service Diagnostics Mode, Choose one of the Following Options:

- Press SW1 and SW2 simultaneously for 3 seconds
  OR
- Unplug refrigerator or disconnect power
  OR
- Allow 20 minutes to pass.

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

NOTES:

- Cooling diagnostics are Service tests 1 through 7 and 32 through 39.
- Dispensing diagnostics are Service tests 8 through 31.
- Each step must be manually advanced.
- Press SW5 to move to the next step in the sequence.
- Press SW4 to back up in the sequence to the previous step.
- Diagnostics will begin at Service Test 1.
- Each step is displayed in the 2 digits of the dispenser user interface display.
- The step results are displayed in the 2 digits on the dispenser user interface and display 2 seconds after the step number is displayed. An amber “Order Filter” light will be shown to designate that the step number is being displayed, and a red “Replace Filter” light will be shown to designate that the status of the step is being displayed.
- All button and pad inputs shall be ignored and all inputs shall be off except as described in the actions for each step.

Service Test - 1: FC Thermistor

- The board will check the resistance value of the thermistor and display flashes results on the Temp display (01 = pass, 02 = open, 03 = short).

Service Test - 2: RC Thermistor

- The board will check the resistance value of the thermistor and display the results on the Temp display (01 = pass, 02 = open, 03 = short).

Service Test - 3: Evaporator Fan and Air Baffle Motors

- Turn on the FC evaporator fan and the air baffle motor.
- Monitor the air baffle feedback. SW3 (01 = fan on. Air baffle open, 02 = fan on. Air baffle closed).

Service Test - 4: Compressor/Condenser Fan Motor

- Control the sealed system loads by selecting SW3 (01 = on, 02 = off).

Service Test - 6: Defrost Heater/Bi-metal

NOTE: If bi-metal is open, it will need to be bypassed for heater to operate. Heater should be on. Display will be blank until a valid reading is displayed (01 = bi-metal closed, 02 = bi-metal open).

Service Test - 7: Defrost Mode Selection

- The defrost mode can be set by using SW3. In ADC mode, the refrigerator will automatically defrost after a minimum of 8 hours of compressor run time up to a maximum of 96 hours of compressor run time, depending upon refrigerator usage. In basic mode, the refrigerator will automatically defrost after 8 hours of compressor run time (01 = ADC on, 02 = basic mode on 8 hour timer).

Service Test - 8: All UI Indicators

- Verify that all LED indicators and UI display digits turn on automatically. All indicators on for 30-second time-out.

Service Test - 9: UI Button and Pad Test

- Displays the user interface buttons, and ice/water pad status as described in the following chart.
  NOTE: Do not use SW4 or SW5 as these are used only to navigate through the Service Diagnostics.

Press	Digit 1	Digit 2
SW1	1	
SW2	2	
SW3	3	
SW6	6	
Ice and Water Pad		1

NOTE: SW4 and SW5 are used for navigation and are not displayed.

Service Test - 11: Dispenser Lighting

- Pressing SW3 will change the dispenser lighting setting from OFF (0%) to ON (100%) to DIM (50%). Status Indicator is blank.

Service Test - 12: Accent Light Turns On

- Turn ON all Light Modules (ice bucket light/Pad light).
  NOTE: Only applies to products with dual paddles.

Service Test - 15: Ice Level Sensor

- Displays the ice bin status in real time on the UI display. Verify that the Full and Not Full levels display correctly (01 = bin full or not present, 02 = bin not full).

Service Test - 16: RC Left Door Switch Input

- Displays the RC left door status in real time on the UI display. Verify that the open and closed statuses display correctly (01 = RC left door open, 02 = RC left door closed).

Service Test - 17: RC Right & FC Door Switch Input

- Displays the RC Right & FC door status in real time on the UI display. Verify that the open and closed statuses display correctly (01 = FC and/or RC Right door open, 02 = FC and/or RC Right door closed).

Service Test - 18: Ice Door Motor

- Displays the ice door stepper motor state on the UI dispaly. Press ice dispenser paddle, and verify that mechanical operation of the ice door corresponds to the component status indicator (01 = closed, 02 = opening, 03 = open, 04 = closing).

  NOTE: Ice door will have a delay in closing after the ice paddles is released.

Service Test - 19: Ice Maker Fill Tube and Fascia Heater Status

- Control the ice maker fill tube heater and fascia heater by selecting SW3 (toggle between on and off) (01 = on, 02 = off).

Service Test - 20: Water Filter Usage Rating

NOTE: Not normally used.

- The total water usage rating in gallons for the water filter displays in 2 sequential flashes on the UI display. A dash will display to show the end of the number. (00/0- to 99/9-). Example: 123 will be displayed as “12 3-.”

Service Test - 21: Water Filter Time Rating

NOTE: Not normally used.

- The total time rating in days for the water filter displays in 2 sequential flashes on the UI display. A dash will display to show the end of the number (00/0- to 99/9-). Example: 123 will be displayed as “12 3-.”

Service Test - 22: Water Filter Usage

NOTE: Not normally used.

- The current water filter status in gallons used since last reset displays in 2 sequential flashes on the UI display. A dash will display to show the end of the number (00/0- to 99/9-). Example: 123 will be displayed as “12 3-.”

Service Test - 23: Water Filter Time

- The current water filter status in days since last reset displays in 2 sequential flashes on the UI display. A dash will display to show the end of the number (00/0- to 99/9-). Example: 123 will be displayed as “12 3-.”

Service Test - 24: Water Filter Reset

- The current times the water filter was reset display in 2 sequential flashes on the UI display. A dash will display to show the end of the number (00/0- to 99/9-). Example: 123 will be displayed as “12 3-.”

Service Test - 26: Main Control Software Version

NOTE: Not normally used.

- The main control software version displays in 3 sequential flashes on the UI display.

  NOTE: Software version is continually displayed during this step (00/00/00 to 99/99/99).

Service Test - 27: Dispenser UI Control Software Version

NOTE: Not normally used.

- The dispenser UI control software version displays in 3 sequential flashes on the UI display.
  NOTE: Software version is continually displayed during this step (00/00/00 to 99/99/99).

Service Test - 29: Low Voltage IDI Software Version

NOTE: Not normally used.

- The low voltage software version displays in 3 sequential flashes on the UI display.
  NOTE: Software version is continually displayed during this step (00/00/00 to 99/99/99).

Service Test - 31 Touch Input Module Software

NOTE: Not normally used.

- The dispenser UI control software version displays in 3 sequential flashes on the UI display.
  NOTE: Software version is continually displayed during this step (00/00/00 to 99/99/99).

Service Test - 32: Ambient Thermistor UI Control

- This is an internal board test. The board will check the resistance value of the thermistor and display the results (01 = pass, 02 = open, 03 = short).

Service Test - 33: Humidity Sensor UI Control

- Relative humidity test (humidity % value 0-99 = pass or Er = fail)

Service Test - 34: Vertical Mullion Heater Mode

- Set the vertical mullion heater sensor mode by selecting SW3 (01 = sensor operation on, 02 = sensor operation off) (heater on 100%).

Service Test - 35: Vertical Mullion Heater Status

- Control the vertical mullion heater by selecting SW3 (toggle between on and off) (01 = on, 02 = off).

Service Test - 36: Ice Box Fan

- Check for fan operation. Control ice box fan by selecting SW3. Display the status on Temp display. (01 = on, 02 = off). Verify airflow from the ice box fan.

Service Test - 37: Ice Box Thermistor

- The board will check the resistance value of the thermistor and display the results on the Temp display (01 = pass, 02 = open, 03 = short).

Service Test - 38: Forced Defrost Mode

- Set the forced defrost mode by selecting SW3 (OF = no forced defrost, Sh = short defrost, Lo = long defrost).
  NOTE: Long defrost will occur immediately after exiting service mode. Short defrost may take longer.

Service Test - 40: Horizontal Mullion Heater Mode

- Set the Horizontal Mullion Heater Sensor Mode by selecting SW3. [01 = Sensor Operation On, 02 = Sensor Operation Off (Heater on 100%)].

  NOTE: Only applies to products with a horizontal mullion (four or five door products)

Service Test - 42: UI EEPROM Control Software Version

NOTE: Not normally used.

- The dispenser UI control software version displays in 3 sequential flashes on the UI display.
  NOTE: Software version is continually displayed during this step (00/00/00 to 99/99/99).

Service Test - 43: UI FLASH Control Software Version

NOTE: Not normally used.

- The dispenser UI control software version displays in 3 sequential flashes on the UI display.
  NOTE: Software version is continually displayed during this step (00/00/00 to 99/99/99).

Service Test - 45: Ref. Compartment Ice Maker Water Fill Test

NOTE: Before initiating this test, go to Service Test 57. Initiate ice maker harvest to ensure that all ice is ejected from mold before filling.

- After an initial 3-second delay, displays the ice maker water fill state on the UI display. Press SW3 to start water fill. Pressing SW3 will toggle between on and paused (02 = off, 03 = on, 04 = paused).

Service Test - 46: Water Dispensing Test

- Displays the status of the water dispense valve. Press the water dispenser pad to start water dispensing (00 = water dispense valve off, 01 = water dispense valve on).

Service Test - 56: Ref. Compartment Ice Maker Error Codes

- Displays active ice maker error codes on the UI display.

E0 = No errors, functioning ice maker.	E3 = Heater time-out. Ice mold heater on longer than maximum allowable time. Ice maker heater is driven to a certain temperature. If temperature not reached, a time delay shuts it down. Possible heater issue.
E1 = No cooling. Ice maker timed out. Ice compartment unable to reach desired temperature. Possible cooling or fan issue.	E4 = Dry cycle. Unit detected dry cycles above minimum requirement. Possible valve or frozen fill tube.
E2 = Motor lost position. Ice maker did not find home during harvest and exceeded maximum attempts. Check for obstructions in ice maker. If none found, verify operation of ice maker.	E5 = Ice maker thermistor is bad. Ice storage temperature satisfied but ice mold in frozen state too long. Possible ice mold thermistor issue.

Service Test - 57: Ref. Compartment Ice Maker Harvest

- Press SW3 to activate a harvest sequence.
  NOTE: Digit 1 displays the state of the sequence. Digit 2 displays the outcome of the sequence. Once initiated, the sequence cannot be exited.

  Digit 1 (0 = heater and motor off, 1 = ice maker heater on, 2 = motor rotating clockwise until it finds home position)

  Digit 2 (0 = in progress, 1 = harvesting completed, 2 = harvesting not completed). Doors must be closed.

NOTE: “Harvesting not completed” does not exit the step, but indicates the time-out of 70 seconds has passed.

Service Test - 58: Ref. Compartment Ice Maker Heater Activation and Thermistor

- Press SW3 to activate the ice maker heater and to toggle between on and off.
  NOTE: Digit 1 displays the state of the heater. Digit 2 displays the thermistor state.

  Digit 1 (0 = ice maker heater off, 1 = ice maker heater on)

  Digit 2 (0 = Temperature warmer than harvest temperature, 1 = temperature cooler than harvest temperature, 2 = open, 3 = short)

Service Test - 59: Ref. Compartment Ice Maker Motor

- Press SW3 to activate a motor sequence and toggle through each step.
  NOTE: Digit 1 displays the state of the motor. Digit 2 displays the status of the motor. Once initiated, the sequence cannot be exited.

  Digit 1 (0 = motor off, 1 = motor rotating clockwise until home position, 2 = motor off, 3 = motor rotating counterclockwise until home position)

  Digit 2 (0 = in progress, 1 = harvesting completed, 2 = harvesting not completed)

NOTE: “Harvesting not completed” does not exit the step, but indicates the time-out of 70 seconds has passed.

Service Test - 66: Manufacturing Codes

NOTE: Test is used by Whirlpool manufacturing plant only.

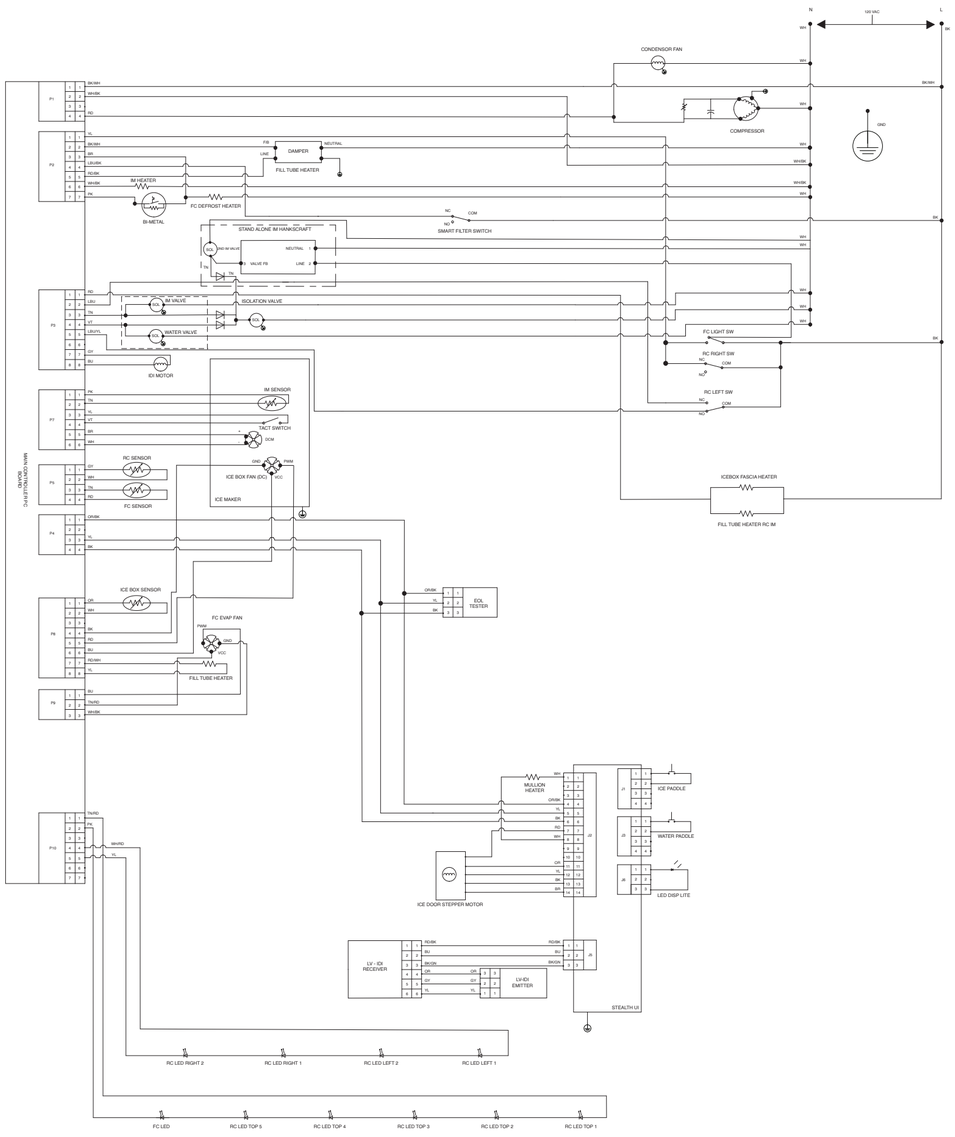
Service Test - 67: Water Filter Switch Status

- Displays the water filter switch status in real time on the UI display. Verify that the open and close status display correctly (01 = switch open, filter installed, 02 = switch closed, filter not installed).

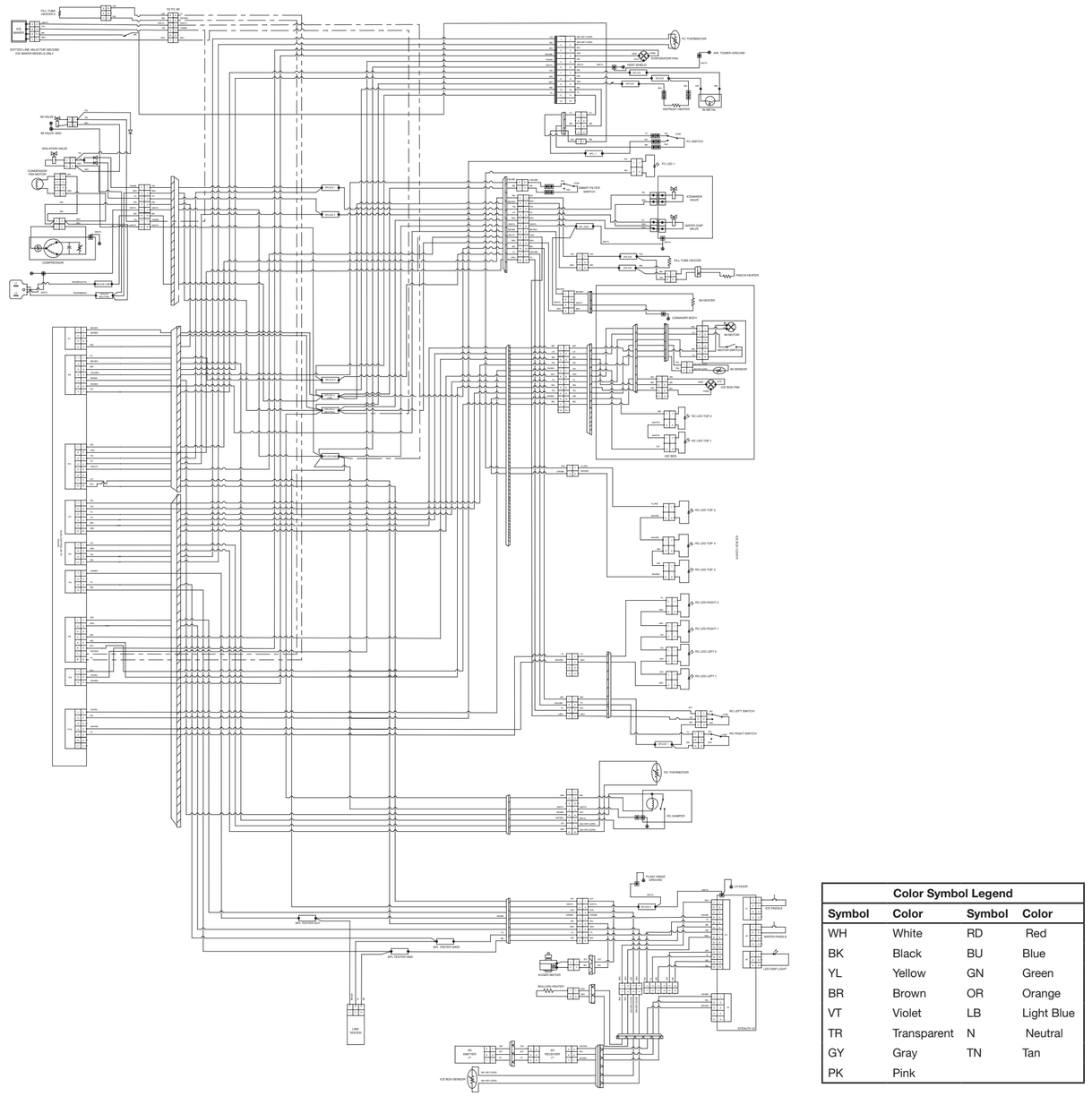
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Schematic

DWG. No.: W11157216 Rev. F



Wiring Diagram



Color Symbol Legend			
Symbol	**Color**	**Symbol**	**Color**
WH	White	RD	Red
BK	Black	BU	Blue
YL	Yellow	GN	Green
BR	Brown	OR	Orange
VT	Violet	LB	Light Blue
TR	Transparent	N	Neutral
GY	Gray	TN	Tan
PK	Pink		

COMPONENT		FROM	TO	VOLTAGE	CONDITIONS
APPLICATION CONTROL UNIT (ACU)	P1	P1-1	P1-2	115 VAC	CONSTANT 115 VAC
		P1-3	Not Used		
		P1-4	P1-2	115 VAC	COMPRESSOR / CONDENSER FAN ON OR SERVICE STEP 4 - 01
	P2	P2-1	P1-2		FC OR RC RIGHT DOOR WHEN OPEN
		P2-2	P1-2		AIR BAFFLE FEEDBACK OR SERVICE STEP 3 TO ACTIVATE
		P2-3	P1-2		DEFROST HEATER BI-METAL CLOSED AND DEFROST HEATER ON OR SERVICE STEP 6 & DISPLAY 01
		P2-4	P1-2		SMART FILTER SWITCH INPUT. 115V WHEN FILTER REMOVED OR 0V WHEN FILTER PRESENT
		P2-5	P1-2		AIR BAFFLE OUTPUT ON OR SERVICE STEP 3
		P2-6	P1-2		IM HEATER OUTPUT ON OR SERVICE STEP 58
		P2-7	P1-2		DEFROST HEATER BI-METAL CLOSED & DEFROST HEATER ON OR SERVICE STEP 6 & SHOULD SHOW 01
	P3	P3-1	P1-1		FILL TUBE / FASCIA HEATER OUTPUT ON OR SERVICE STEP 19 - 01
		P3-2	P1-2		RC LEFT DOOR - CLOSED 0V OR OPEN 115V
		P3-3	P1-2		ICE MAKER WATER VALVE ON OR SERVICE STEP 45 - 03
		P3-4	P1-2		WATER DISPENSING VALVE ON OR SERVICE STEP 46 - 01
		P3-5	P1-2		LEFT DOOR IS CLOSED
		P3-7	P3-8		AUGER MOTOR OUTPUT ON WHEN RC LEFT DOOR IS CLOSED AND ICE PADDLE IS PRESSED. **NOTE:** CUBE WILL BE AN ESTIMATED 140 VDC. CRUSHED WILL BE AN ESTIMATED - 140 VDC

COMPONENT		FROM	TO	VOLTAGE	CONDITIONS
APPLICATION CONTROL UNIT (ACU)	P4	P4-1		12.7 V	CONSTANT 12.7 V FOR UI
		P4-2	Not Used		
		P4-3		Data	COMMUNICATION
		P4-4		GND	GROUND
	P5	P5-1	P5-2	5 V	RC THERMISTOR = 1.5-5 VDC
		P5-3	P5-4		FC THERMISTOR = 1.5-5 VDC
	P7	P7-1	P7-2		IM THERMISTOR = 1.5-5 VDC
		P7-3	P7-4	12.7 V	IF ICE MAKER MOTOR IS IN HOME POSITION
		P7-5	P7-6	12.7 V	IM DC MOTOR ON OR SERVICE STEP 57
	P8	P8-1	P8-2	5 V	ICE BOX THERMISTOR = 1.5-5 VDC
		P8-5	P8-4	12.7 V	ICE BOX FAN WHEN ALL DOOR SWITCHES ARE CLOSED AND COOLING OR SERVICE STEP 36 - 01
		P8-7	P8-8	12.7 V	FILL TUBE HEATER FREEZER (ONLY IN WRF767 MODELS WITH 2ND IM)
	P9	P9-2	P9-3	12.7 V	EVAPORATOR FAN WHEN ALL DOOR SWITCHES ARE CLOSED AND COOLING OR SERVICE STEP 3
	P10	P10-1	P10-2	20 VDC	FREEZER LED + 5 LED'S ON THE RC CEILING (CONSTANT CURRENT = 350 mA)
		P10-4	P10-5	13 VDC	4 LED'S ON THE RC SIDE WALLS (CONSTANT CURRENT = 350 mA)

COMPONENT		FROM	TO	VOLTAGE	CONDITIONS
USER INTERFACE (UI)	J1	J1-1	J1-2	12.7 V	ICE DISPENSER PADDLE WHEN PRESSED
		J1-1	J1-3	12.7 V	ICE DISPENSER BUTTON IS PRESSED*, (IF J1-3 USED)
		J1-2	J1-3	12.7 V	ICE DISPENSER PAD IS PRESSED*, (IF J1-3 USED)
	J2	J2-1	J2-8	12.7 V	VERTICAL MULLION HEATER WHEN ON
		J2-4	J2-6	12.7 V	CONSTANT 14V FROM ACU
		J2-5		Data	COMMUNICATION
		J2-6		GND	GROUND
		J2-7	J2-11	12.7 V	*ICE DOOR STEPPER MOTOR WHEN ACTIVE
		J2-7	J2-12	12.7 V	*ICE DOOR STEPPER MOTOR WHEN ACTIVE
		J2-7	J2-13	12.7 V	*ICE DOOR STEPPER MOTOR WHEN ACTIVE
		J2-7	J2-14	12.7 V	*ICE DOOR STEPPER MOTOR WHEN ACTIVE
	J3	J3-1	J2-2	12.7 V	*WATER DISPENSER PAD WHEN PRESSED
	J6	J6-1	J6-3	12.7 V	UI DISPENSER LIGHT

*Pulsing DC signal. May not be read with all meters.

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