## FOR SERVICE TECHNICIAN'S USE ONLY

Do not Discard





### **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.

# **AWARNING**



## **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.

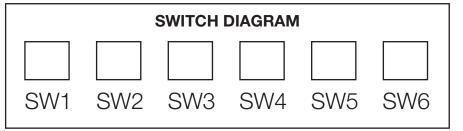
# **Component Specifications**

Component	Specifications all parts 115VAC/60HZ unless noted
Cooling	
Compressor	BTUH
Electric damper control	Maximum closing time
Condenser motor	Rotation
Refrigerator Evaporator fan motor	Rotation

Component	115VAC/60HZ unless noted
Cooling	
Freezer Evaporator Fan Motor	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
Freezer Evaporator Heater	Volt
Controls	
Control Board	Volt
Thermistor	Temperature       Resistance         77°F       2700 ohms ± 5.0%         36°F       7964 ohms ± 1.0%         0°F       23,345 ohms ± 2.0%
Light Switch	Type         SPDT NO/NC           Volt         125/250 VAC           Current         8/4 amps
Ice & Water	
Dual Water Valve	Watts
Isolation Valve	Watts
Ice Box Fan	Rotation

# **Control Board Troubleshooting**

Specifications all parts



#### To ENTER SERVICE DIAGNOSTICS Mode:

Press SW1 and SW2 simultaneously for 3 seconds. Release both buttons when you hear the CHIME

Unit must not be in Lockout prior to entering SERVICE DIAGNOSTIC MODE. The display will show 01 to indicate the control is in Step 1 of the diagnostics routine.

## To EXIT SERVICE DIAGNOSTICS Mode: do one of the following 3 options:

- Press SW1 and SW2 simultaneously for 3 seconds
- Disconnect the product from power. • Allow 20 minutes to pass
- Following the exit of the Diagnostic Mode, the controls will then resume normal operation.

Component

- Cooling diagnostics are steps 1 through 6 and 32 through 41.
- Dispensing diagnostics are steps 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 Step 1.
- Each step is displayed in the two digits of the dispenser user interface display.
- The step results are displayed in the two digits on dispenser user interface display two 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
- All button and pad inputs shall be ignored and all inputs shall be off except as described in the actions for

## 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).

	No-Load Performance, Controls in Normal Position																	
	Kv	w/24 hr/±(	0.4	Percent	t Run Tim	e/±10%	Сус	les/24 hr	/±10	Refrigerator Compartment Average Food Temperature ±4°F/2°C		Compartment Average Food  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	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
29 cu ft	1.3	1.9	3.6	49.4%	85.3%	89.2%	28.6	18.8	8.6	36.8°F 2.7°C	36.4°F 2.4°C	36.8°F 2.6°C	-2.1°F -18.9°C	1.6°F -18.7°C	7.3°F -13.7°C	24.5F -4.2°C	22.2°F -5.5°C	21.6°F -5.8°C

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										2.7 0	2.4 0	2.00
Temperature Relationship Test Chart												
	Evapora	erator tor Inlet/ :5°F/3°C	Evapo Inlet/0	ezer orator Outlet 5/3°C		on Line =/4°C		ge Total e ±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	70°F 21°C	90°F 32°C	70°F 21°C	90°F 32°C	70°F 21°C	90°F 32°C
29 cu ft	22.2°F -5.4°C	23.2°F -4.9°C	-5.7°F -20.9°C	-6°F -21.1°C	86.5°F 30.3°C	104°F 40°C	38	67.1	31.1	31.3	121	161.3

\*Pressures during FC cycle

NOTE: This sheet contains important Technical Service Data. FOR SERVICE TECHNICIAN ONLY

DO NOT REMOVE OR DESTROY

# **Control Board Troubleshooting**

## Service Test - 3 Evaporator Fan Motor and Air Baffle Motor

- $\bullet\,$  Control the RC & FC Evaporator Fan Mtrs. by depressing SW3 (01 = Both Fan Mtr. OFF, 02 = FC Fan ON).
- Depress SW3 once to advance. Step 3 will flash quickly and advance to steps 13/23 very quickly. The result is RC Fan ON, Pantry Air Damper ON. Pantry Air Damper will open and close automatically. (13 = Damper Open, 23 = Damper Closed. Verify air flow inside pantry on left-hand side when damper is open, 912 displayed). Air flow in pantry will cease when 23 is displayed.
- Depress SW3 to advance to last step. (04 = Both RC & FC fans on).

### Service Test - 4 Compressor/Condenser Fan Motor/Evaporator Fan

- There will be a delay of 3 seconds before start of Sub Step 01. Each step is timed and will automatically proceed to the next step. User will not be allowed to exit step. If exit is attempted, an invalid chime will be
- Control the Sealed System loads selecting SW3 (01 = Initialize Dual Evap Valve in home position (4 min), 02 = Close both RC & FC Evap Valve (1 min), 03 = Turn compressor ON (1 min), 04 = Keep compressor ON, drive the valve to RC position & turn RC fan ON, 05 = Keep compressor ON, drive the valve to FC position & turn FC fan ON. Verify air flow from the evaporator fan

NOTE: Advance guickly through step 4 keep from locking in. Once locked in you can't exit, must wait ten

#### Service Test - 5 Compressor Status/Speed

- Initial Display, 02 = Minimum speed
- Depress SW3, Display = 03, Compressor ramps up to Max speed. When Max speed reached,
- Depress SW3, Display = 04 Speed ramps down from Max to minimum speed, Display 02.

#### Service Test - 6 Defrost Heater/Sensor

 Switch on the defrost heater, wait 0.5 seconds and read the status of sensor. Display will be blank until a valid reading is displayed (01 = Sensor Short, 02 = Sensor Open, 03 = Pass).

#### Service Test - 8 All UI indicators

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

#### Service Test - 9 UI Button and Pad Test

• Displays the user Interface Buttons and Ice and Water Pads status as described in the Component Status Indicator column below.

NOTE: Do not use SW4 and 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		
Dispenser 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 - 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 Door status in real time on the UI display. Verify that the open and close status display correctly. (01 = FC Door Open, 02 = FC Door Closed)

### Service Test - 17 RC Right, Pantries, FC Doors Switch Input

. Displays the FC Door status in real time on the UI display. Verify that the open and close status display correctly. (01 = FC Door Open, 02 = FC Door Closed).

## Service Test - 18 Ice Door Motor

• Displays the Ice Door stepper motor state on the UI display. Press ice paddle and verify that the mechanical operation of the ice door corresponds to the component status indicator. NOTE: Ice door will have a delay in closing after an ice paddle is released. (01 = Closed, 02 = Opening,

## Service Test - 19 Ice Maker Fill Tube Heater Status

• Control the Ice Maker Fill Tube Heater by selecting SW3 (toggle between ON and OFF) (01 = ON, 02 = OFF).

## Service Test - 20 - Water Filter Usage Rating

• Displays in two sequential flashes the total water usage rating in gallons for the water filter on the UI display. Wait until dash is displayed which means end of the number. (00/0- to 99/9-) Example: 123 will be displayed

## Service Test - 21 Water Filter Time Rating

. Displays in two sequential flashes the total time rating in days for the water filter on the UI display. Wait un dash is displayed which means end of the number. (00/0- to 99/9) Example: 123 will be displayed as 12 3-

## Service Test - 22 Water Filter Usage

. Displays in two sequential flashes the current water filter status in gallons used since last rest on the UI display Wait until dash is displayed which means end of the number. (00/0- to 99/9-) Example: 123 will be displayed

## Service Test - 23 Water Filter Time

• Displays in two sequential flashes the current water filter status in days since last reset on the UI display. Wait until dash is displayed which means end of the number. (00/0- to 99/9) Example: 123 will be displayed

## Service Test - 24 Water Filter Reset

• Display in two sequential flashes the current times the water filter was rest on the UI display. Wait until dash is displayed which means 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

 Displays in three sequential flashes the Main Control software version on the UI display NOTE: This is repeatedly displayed during all time in this step. 00/00/00 to 99/99/99.

## Service Test - 27 Dispenser UI Control Software Version NOTE: Not normally used

• Displays in three sequential flashes the Main Control software version on the UI display NOTE: This is repeatedly displayed during all time in this step. 00/00/00 to 99/99/99.

#### Service Test - 29 Low Voltage IDI Software Version NOTE: Not normally used Displays in three sequential flashes the low voltage software version on the UI display.

NOTE: This is repeatedly displayed during all time in this step. 00/00/00 to 99/99/99.

## Service Test - 31 Touch Input Module Software NOTE: Not normally used

• Displays in three sequential flashes the Dispenser UI Control software version on the UI display. NOTE: This is repeatedly displayed during all time in 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 Million 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 using SW3. Display the status on Temp Display. (01 = ON, 02 = OFF). Verify air flow from the IB 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.

Service Test - 39 RC Evap 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 - 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%).

#### Service Test - 41 Horizontal Mullion Heater Status

Control the Horizontal Mullion Heater selecting SW3. (toggle between ON and OFF) (01 = ON,

Service Test - 42 UI EEPROM Control Software Version NOTE: Not normally used Displays in three sequential flashed the Dispenser UI Control software version on the UI display. NOTE: This is repeatedly displayed during all time in this step. 00/00/00 to 99/99/99.

## Service Test - 45 Ice Maker Water Fill Test

#### NOTE: BEFORE INITIATING THIS TEST, GO TO STEP 57, INITIATE ICE MAKER HARVEST TO INSURE ALL ICE IS EJECTED FROM MOLD BEFORE FILLING.

· After an initial 3-second delay, displays the Ice Maker water fill stat on the UI display. Press SW3 to start a water fill. Pressing SW3 will toggle between ON and PAUSE. (02 = Off, 03 = On, 04 + Paused).

#### Service Test - 46 Water Dispensing Test

• Displays the status of the water dispense valve. Press the water pad to initiate a water dispense. (00 = Water Dispense Valve OFF, 01 = Water Dispense Valve ON).

#### Service Test - 56 Ice Maker Error Codes

• Displays active Ice Maker Error Codes on the UI display. (E0 = No Errors, E1 = No Cooling, E2 = Motor Lost Position, E3 = Heater Time-out, E4 = Dry Cycle, E5 = Timed Ice Making).

Service Test - 57 Ice Maker Harvest • Press SW3 to activate a Harvest sequence. 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 = IM Heater ON, 2 = Motor Rotating CW until it finds home Digit 2 0 = In Progress, 1 = Harvesting Completed, 2 = Harvesting not completed. Doors must be

NOTE: Harvesting Not Completed does not exit the step, but indicates the time-out of 70 seconds

## Service Test - 58 Ice Maker Heater Activation and Thermistor

 Press SW3 to activate the Ice Maker Heater and to toggle between ON and OFF. Digit 1 displays the state of the heater. Digit 2 displays the thermistor state. Digit 1 0 = IM Heater OFF, 1 = IM Heater ON.

Digit 2 0 = Temp warmer than harvest temp, 1 = Temp cooler than harvest temp, 2 = Open,

#### Service Test = 59 Ice Maker Motor • Press SW 3 to activate a Motor sequence and toggle through each step. Digit 1 displays the state of

Digit 2 displays the status of the motor. Once initiated, the sequence cannot be exited. Digit 1 0 = Motor OFF, 1 = Motor Rotating CW until home position, 2 = Motor OFF, 3 = Motor Rotating

CCW 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

#### • Displays in three sequential flashes the Pantry UI Control software version on the UI display. NOTE: This is repeatedly displayed during all time in this step. 00/00/00 to 99/99/99.

Service Test - 63 All Pantry UI indicators Verify that all pantry LED indicators and pantry UI display digits turn on automatically. All indicators ON

## for 30 second time-out.

Service Test = 60 Pantry UI Software Version

Service Test - 64 Pantry UI Button Test • Displays the pantry UI buttons status.

Service Test - 65 Pantry thermistor The board will check the resistance value of the thermistor and display the results on the temp display.

	01.0014 0.10 100	.0.0	
Label	Control Key	Digit 1	Digit 2
Salact	SW705	Λ	2

#### (01 = Pass, 02 = Open, 03 = Short).Service Test - 66 Manufacturing Codes

• Displays the active manufacturing error codes stored in the UI. Press SW3 to toggle between the errors. See status on Temp Display (E0 = No Error, E1 = LPIM Motor Faulty, E2 = Damper Cycle not completed, E3 = Thermistor Faulty, E4 = Ice Bin not present or Full, E5 = Heater Bimetal Faulty, E6 = Dispenser UI EEPROM Faulty, Er = Communication Failure). **NOTE:** Step 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 not installed, 02 = Switch closed/filter installed).

#### Service Test - 73 Pantry Heater Status Control the Pantry Heater by selecting SW3 (toggle between ON and OFF) (01 = ON, 02 = OFF). Service Test - 76 Icebox Fascia Heater

Control the Icebox Fascia Heater by selecting SW3 (toggle between ON and OFF) (00 = OFF,

#### Service Test - 77 Defrost Thermistor The board will check the resistance value of the thermistor and display (01 = PASS, 02 = OPEN,

Service Test - 78 Pantry UI Flashmap Version

#### Displays in three sequential flashes the pantry UI flashmap version on the UI Display. NOTE: This is repeatedly displayed during all time in the step. 00/00.00 to 99/99/99.

Service Test - 80 LED Driver Software Version: NOTE: Not Normally Used plays in three sequential flashes the LED driver software version on the UI Display NOTE: This is repeatedly displayed during all time in the step. 00/00.00 to 99/99/99.

#### Service Test - 81 LED Driver Flash Software Version: NOTE: Not Normally Used • Displays in three sequential flashes the LED driver flash software version on the UI Display.

**NOTE:** This is repeatedly displayed during all time in the step. 00/00.00 to 99/99/99.

