FOR SERVICE TECHNICIAN'S USE ONLY

NOTE: This sheet contains important Technical Service Data.

Tech Sheet

Do Not Remove Or Destroy

ADANGER



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.

Temperature Charts

No-Loa	d Perf	ormar	ice, Co	ontrols	in No	rmal P	ositio	n	
	Kw/24	\$ hr/±0.	4	Percei ±10%	nt Run [*]	Time/	Cycle	es/24 h	r/±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
29 cu. ft	0.9	1.5	2.8	50%	70%	90%	28	22	10
	Refrigerator Compartment Average Food Temperature ±4°F/2°C			Avera	artmen ge Food erature		Avera	partme age Foo eratur	od
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
29 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

_									
lempera	Temperature Relationship Test Chart								
	Refrigera Evaporat Outlet ±5	tor Inlet/	Freezer Inlet/Ou ±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	70°F 21°C	90°F 32°C			
29 cu. ft	15°F -9°C	20°F -7°C	-11°F -24°C	-8°F -22°C	80°F 27°C	104°F 40°C			
	Average Wattage		Suction ±2 PSIG	Pressure	Head Po				
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			
29 cu. ft	80-100	80-100	6.0	3.6	70	125			

Component Specifications

Component	Specifications All Parts - noted	115 VAC/60Hz unless
Cooling		
Compressor	BTUH Watt Current lock rotor Current full load Resistance run windings Resistance start windings	Variable VEGZ7H 60 Hz/113 watts 3.3 amps ± 15% 3.3 amps ± 15% 6.4 ohms ± 15% 6.4 ohms ± 8%@77°F/
	Inverter	25°C red and black wires = 3 to 6 VDC black and white wires = 120 VAC
Electric Damper Control	Maximum closing time Temperature rating	16 seconds -11°F to 110°F/ -12°C to 43°C 3
Condenser Motor	Rotation	Clockwise 1190 RPM 4.1 ± 15% watts @115 VAC
Refrigerator Evaporator Fan Motor	proper airflow. Rotation (facing end opposite shaft) RPM Watt	Clockwise 3300 RPM ± 10% 2.8 ± 15% watts @14 VDC
Freezer Evaporator Fan Motor	Rotation	Clockwise 2800 RPM 5.5 ± 15% watts @14 VDC
Thermostat (Defrost)	Volt	120/240 VAC 495 watts 3.75/1.87 amps 56 K ohms Open Closed
Freezer Evaporator Heater	Volt Wattage Resistance	115 VAC 435 ± 5% watts 30.4 ± 5% ohms
Controls		
Control Board	Volt See control board section for diagnostics.	120 VAC, 60Hz
Thermistor	Temperature	Resistance 2700 ohms ± 5.0% 7964 ohms ± 1.0% 23,345 ohms ± 2.0%
Light Switch	Type Volt Current	SPDT NO/NC 125/250 VAC 8/4 amps
Ice and Water		
Dual Water Valve	Watts	Green side: 20 watts Red side: 35 watts
Isolation Valve	Watts	20 watts (Green)
Ice Box Fan	Rotation(facing end opposite shaft)	Clockwise 3500 RPM
	Watt	4.2 ± 15% watts @14 VDC

Control Board Troubleshooting

	SWI	ГСН І	DIAG	RAM	
SW1	SW2	SW3	SW4	SW5	SW6

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.
- 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 33 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 test 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

- Control the RC and FC evaporator fan motors by depressing SW3 (01 = both fan motors off. 02 = FC fan on).
- Depress SW3 once to advance. Service Test 3 will flash quickly and advance to tests 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 airflow inside pantry on left-hand side when damper is open (13 displayed). Airflow in pantry will cease when "23" is displayed.
- Depress SW3 to advance to last step (04 = both RC and 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.
 - **NOTE:** 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 sound.
- Control the sealed system loads by selecting SW3 (01 = initialize dual evaporator valve in home position (4 min.), 02 = close both RC and FC evaporator valves (1 min.), 03 = turn compressor on (1 min.), 04 = keep compressor on. Drive the valve to RC position and turn RC fan on, 05 = keep compressor on. Drive the valve to FC position and turn FC fan on. Verify airflow from the evaporator fan.

NOTE: Advance quickly through Service Test 4 to keep from locking in. Once locked in, you cannot exit, and must wait approximately 10 minutes.

Service Test - 5: Compressor Status/Speed

- Initial Display 02 = Minimum speed
- Depress SW3. Display = 03. Compressor ramps up to maximum speed.
 When maximum speed is reached, 01 is displayed.
- Depress SW3. Display = 04. Speed ramps down from maximum to minimum speed. Display = 02.

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 (User Interface) 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 and water dispenser 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 - 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 Door Switch Input

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

Service Test - 17: FC Door Switch Input

 Displays the FC door status in real time on the UI display. Verify that the open and closed statuses 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 dispenser paddle and verify that the 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 paddle 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 - 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

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: If a forced defrost is selected, defrost will occur immediately after exiting the Service Diagnostic mode.

Service Test - 39: RC Evaporator 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 - 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: 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: Ice Maker Error Codes

Displays active ice maker error codes on the UI display.

E0 = No errors. Functioning ice maker.

E1 = No cooling. Ice maker timed out. Ice compartment unable to reach desired temperatures. Possible cooling or fan issue.

E2 = Motor lost position. Ice maker did not find home during harvest and exceeded maximum attempts.

NOTE: Check for obstructions in ice maker. If none found, verify operation of the ice maker with Service Test 57.

E3 = Heater time-out, Ice mold heater was on longer than maximum allowable time. Ice maker heater is driven to a temperature. If temperature is not reached, a time delay shuts it down. Possible heater issue.

E4 = Dry cycle. Unit detected dry cycles above minimum requirement. Possible valve or frozen fill tube.

E5 = Bad ice maker thermistor, Ice storage temperature satisfied but ice mold in frozen state too long. Possible an ice mold thermistor issue.

Service Test - 57: 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: 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: Ice Maker Motor

completed)

■ 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

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

Service Test - 60: Pantry UI Software Version

NOTE: Not normally used.

The pantry 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 - 61: Pantry Touch Input Module Software

NOTE: Not normally used.

The pantry UI control software version displays in three sequential flashes on the UI display.

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

Service Test - 62: Pantry Lighting (on some models)

Pressing SW3 will change the pantry lighting setting from OFF (0%) to ON (100%) (00 = off, 01 = on).

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 - 64: Pantry UI Button Test

Displays the pantry UI button function.

Press	Digit 1	Digit 2
SW701	0	1
SW703	0	3
SW705	0	5



Service Test - 65: Pantry 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 - 66: Manufacturing Codes

Displays the active manufacturing errors 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 bi-metal faulty, E6 = dispenser UI EEPROM faulty, Er = communication failure).

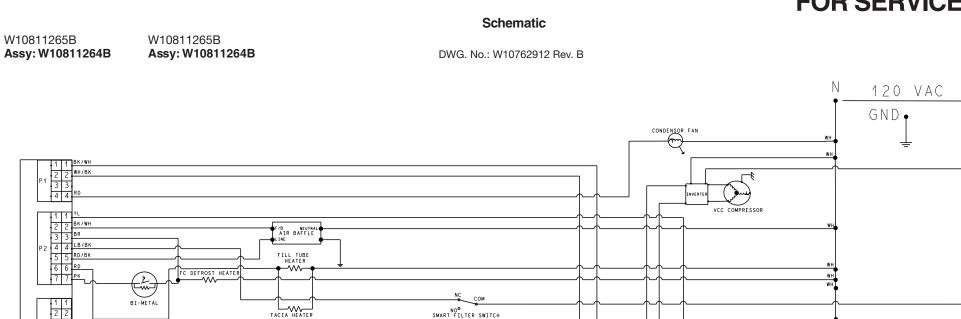
NOTE: Test is used by Whirlpool manufacturing plant only.

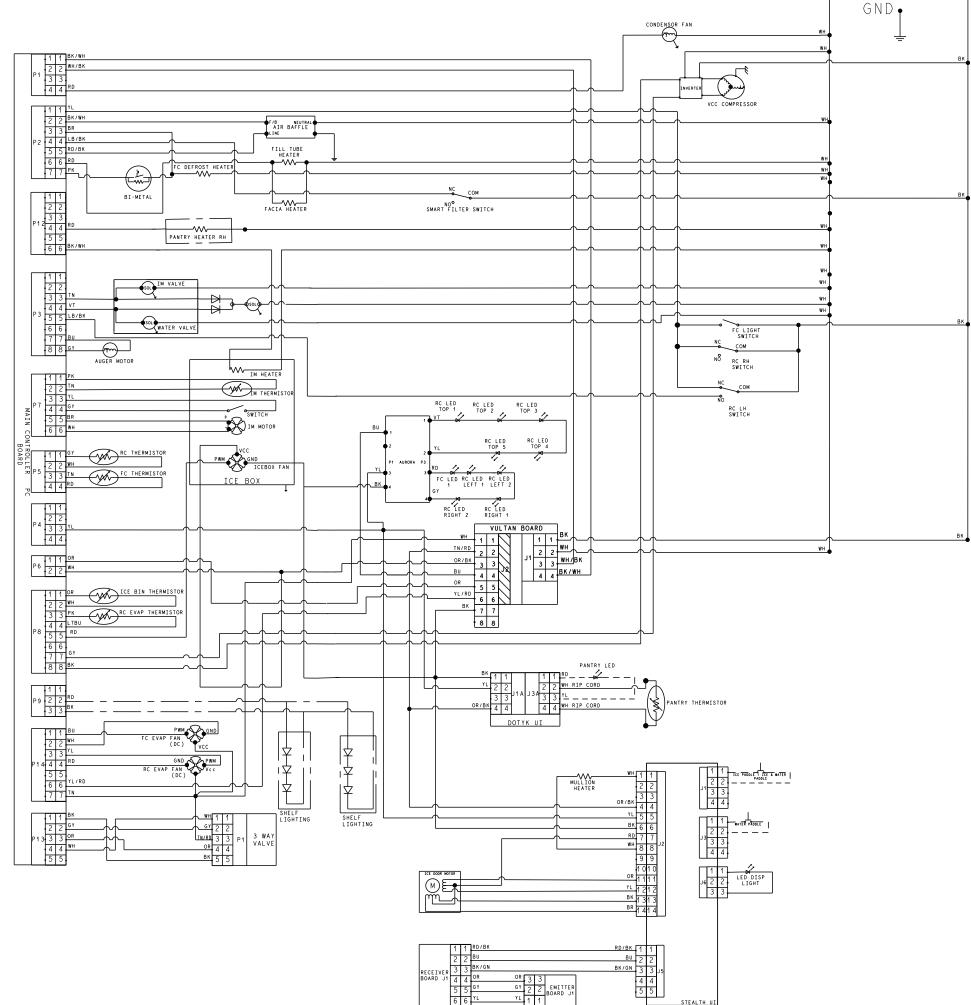
Service Test - 67: Water Filter Switch Status

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



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





Component		From	То	Voltage	Conditions	
		P1-1	P1-2		Constant 115 VAC	
ply	P1	P1-3	P1-4	115 VAC	Constant 115 VAC	
Power Supply		P2-1	P2-4		Constant 14 VDC	
	P2	P2-2	P2-5	14 VDC	Constant 14 VDC	
P		P2-3	P2-6		Constant 14 VDC	
	P1	P1-1	P1-2	115 VAC	Constant 115 VAC	
		P1-4	P1-2		CONDENSER FAN. SERVICE TEST 4. 115 VAC IF CONDENSER FAN ON.	
		P2-1	P1-2		RC OR FC DOOR OPEN 115V. DOOR CLOSED = OV	
	P2	P2-2	P1-2		AIR BAFFLE FEEDBACK, ACTIVATE SERVICE TEST 3, STEP 3.	
		P2-3	P1-2		HEATER, BI-METAL BYPASS, SERVICE TEST 6. 115 VAC IF BI-METAL CLOSED	
_		P2-4	P1-2	115 VAC	WATER FILTER REMOVED 115V. FILTER INSTALLED 0V	
ntro		P2-5	P1-2		AIR BAFFLE OUTPUT. ACTIVATE SERVICE TEST 3, STEP 3.	
Main Control		P2-6	P1-2		FILL TUBE HEATER,FASCIA HEATER OUTPUT. SERVICE TEST 19. 01=115V, 02=0V	
M		P2-7	P1-2		HEATER OUTPUT, W/BI-METAL. SERVICE TEST 6. 115V	
		P3-1	P2-1		RC OR FC DOOR OPEN 115V. DOORS CLOSED = 0V	
			P3-3	P1-2	115 VAC	ICE MAKER WATER VALVE. SERVICE TEST 45. 03= 115V (WATER VALVE ON)
	P3	P3-4	P1-2	TIO VAC	WATER DISPENSING VALVE. SERVICE TEST 46. DIGIT 2 = 1 = 115V	
		P3-5	P1-2		LEFT RC DOOR MUST BE CLOSED =115V. OPEN= 0V	
		P3-7	P3-8	130VDC	AUGER OUTPUT. LH RC DOOR CLOSED, ACTIVATE ICE PADDLE = 130-140VDC	

Comp	onent	From	То	Voltage	Conditions
P4		P4-3		unication	Conditions
	-	P5-1	P5-2	I	DO TUEDINISTO OUTDUE 4 5 5 DO
P5	D5			5 VDC	RC THERMISTOR OUTPUT =1.5-5VDC.
		P5-3	P5-4		FC THERMISTOR OUTPUT =1.5-5VDC.
	P6	P6-2		14 VDC	Constant 14 VDC
Control		P7-1	P7-2	5 VDC	IM THERMISTOR OUTPUT =1.5-5VDC.
	P7	P7-5	P7-6	14 VDC	IM MOTOR OUTPUT TEST 57, SW3 TO ACTIVATE. UP TO 2 MIN DELAY
		P8-1	P8-2	5 VDC	ICE BIN THERMISTOR OUTPUT = 1.5-5VDC
	P8	P8-3	P8-4	O VBO	RC EVAP THERMISTOR OUTPUT =1.5- 5VDC
		P8-5			ICE BOX FAN PWM CONNECTION
		P8-7	P8-8	3-6 VDC	INVERTER OUTPUT 3-6 VDC WHEN COMPRESSOR RUNNING*
	P9	P9-2	P9-3	12 VDC	SHELF LIGHTING OUTPUT
Ma	P12	P12-4	P1-2	115 VAC	PANTRY HEATER OUTPUT TEST 73. 01=115VAC
		P12-6	P1-2		IM HEATER OUTPUT TEST 58. DIGIT 1=1, HEATER ON (115V)
	P13	P13-1	P13-2		3WAY REFIGERANT VALVE, CAN NOT CHECK VOLTAGE OUTPUT
	1 10	P13-3	P13-4		3WAY REFIGERANT VALVE, CAN NOT CHECK VOLTAGE OUTPUT
		P14-1	P14-2		FC FAN MOTOR. OUTPUT ACTIVATE SERVICE TEST 3, STEP 2
	P14	P14-3	P14-4	14 VDC	RC FAN MOTOR. OUTPUT ACTIVATE SERVICE TEST 3, STEP 3
		P14-7	P14-6		Constant 14 VDC.
_		J1-1	J1-3	14 VDC	Constant 14 VDC.
Receiver/ Emitter	J1	J1-2			COMMUNICATION
nite ei	01	J1-5			
œ. <u>p</u>		REFER	TO SEF	VICE TEST	5 FOR VERIFYING THE EMMITTER/RECEIVER BOARDS

