SYSTEM DIAGNOSTIC MODE

| Activate: | Press and hold + and - buttons for 10 secs. Navigate through tests with +/- buttons |
| Deactivate: | Press and hold + and - buttons for 10 secs. |

Display	Test	Activation/Deactivation	Display	Passing result
--	First Screen	--	Turn on all LEDS on main UI, VCZ UI, and external dispenser UI	---
--	Second Screen	--	Turn off all LEDS on main UI, VCZ UI, and external dispenser UI	---
2	FZR Defrost Heater	Press FREEZE BOOST to change status of load	Heater on when display reads "on", off when "oF" FRZ Evap Defrost sensor temp is flashed on display, watch for increase in temperature. May take up to max 5 min for evap to warm up or 45°C sensor threshold	Defrost heater shows temp increase before 5 min have passed or reaches 45°C cutout
8	Main Water Valve	Press FREEZE BOOST to change status of load	Main valve is activated when "on", stops when "oF"	Valve is able to turn on and off
10	Auger Motor	Press FREEZE BOOST to change status of load	FF DOOR MUST BE CLOSED Motor running when "on", motor stopped when "oF"	Auger motor is successfully activated
11	Cube/Crush Solenoid	Press FREEZE BOOST to change status of load	Solenoid activated when "on", deactivated when "oF" DO NOT LEAVE SOLENOID ACTIVATED FOR MORE THAN 1 MINUTE	Solenoid is able to turn on and off
13	FF Light	Press FREEZE BOOST to change status of load	Fresh Food lights come on when "on", lights turn off when "oF"	All FF lights come on
14	VCZ Light	Press FREEZE BOOST to change status of load	VCZ light come on when "on", light turn off when "oF"	VCZ light turns on
15	FRZ Evaporator Fan Motor	Press FREEZE BOOST to change status of load	Fan runs at 3 speeds; Max speed "on", medium speed "Mi", stopped "oF" Locked rotor will show "Lc" No PWM signal will show "Ns" when fan is stopped ("oF") No 12V signal or ground will show "Np" when fan is "on" or "Mi"	Fan will cycle through all 3 speeds and "Lc" or "Ns" or "Np" is not displayed
17	VCZ Fan Motor	Press FREEZE BOOST to change status of load	Fan runs at 3 speeds; Max speed "on", medium speed "Mi", stopped "oF"	Fan will cycle through all 3 speeds successfully
18	Condenser Fan	Press FREEZE BOOST to change status of load	Fan runs at 3 speeds; Max speed "on", medium speed "Mi", stopped "oF" Locked rotor will show "nS" when fan is stopped ("oF") No PWM signal will show "nS" when fan is stopped ("oF") No 12V signal or ground will show "nP" when fan is "on" or "Mi"	Fan will cycle through all 3 speeds and "LC" or "nS" or "nP" is not displayed
20	FZR Light	Press FREEZE BOOST to change status of load	FRZ light comes on when "on", light turns off when "oF"	FRZ light turns on
23	FF Door	Open/Close FF Door	Display shows "CL" when door is closed, "OP" when open	Display reads correctly when door is opened/closed
24	FRZ Door	Open/Close FRZ Door	Display shows "CL" when door is closed, "OP" when open	Display reads correctly when door is opened/closed
25	VCZ Door	Open/Close VCZ Door	Display shows "CL" when door is closed, "OP" when open	Display reads correctly when door is opened/closed
28	Dispenser Paddle	Press paddle	Display shows "oF" when paddle is not pressed or released; shows "on" when paddle is pressed	Display shows "oF" when paddle is not pressed and "on" when paddle is pressed
29	FF Temp Sensor	Activates automatically	Display will show compartment temperature in either °C or °F depending on mode Display will read "OP" if open circuit, "SH" if short circuit	Temperature is displayed and does not show "OP" or "SH"
30	FRZ Temp Sensor	Activates automatically	Display will show compartment temperature in either °C or °F depending on mode Display will read "OP" if open circuit, "SH" if short circuit	Temperature is displayed and does not show "OP" or "SH"
31	FF Evaporator Temp Sensor	Activates automatically	Display will show FF evaporator temperature in either °C or °F depending on mode Display will read "OP" if open circuit, "SH" if short circuit	Temperature is displayed and does not show "OP" or "SH"
32	VCZ Temp Sensor	Activates automatically	Display will show compartment temperature in either °C or °F depending on mode Display will read "OP" if open circuit, "SH" if short circuit	Temperature is displayed and does not show "OP" or "SH"
33	Ambient Temp Sensor	Activates automatically	Display will show ambient temperature in either °C or °F depending on mode Display will read "OP" if open circuit, "SH" if short circuit	Temperature is displayed and does not show "OP" or "SH"
36	Ice Chute Door/Flapper Motor	Press FREEZE BOOST to change status of load	When flapper is closed, shows "CL", when open "OP" During movement of flapper, screen will blink "1" Flapper will open/close for 3 cycles and will show "Er" if any failures are detected	Flapper door opens and closes successfully, "Er" does not show on display
38	VCC Compressor	Press FREEZE BOOST to change status of load	Compressor is running at max speed when "on", stopped when "oF"	Compressor successfully turns on
39	FRZ Evaporator Temp Sensor	Activates automatically	Display will show FRZ evaporator temperature in either °C or °F depending on mode Display will read "OP" if open circuit, "SH" if short circuit	Temperature is displayed and does not show "OP" or "SH"
45	FFIM Tray Temp Sensor	Activates automatically	Display will show FFIM tray temperature in either °C or °F depending on mode Display will read "OP" if open circuit, "SH" if short circuit	Temperature is displayed and does not show "OP" or "SH"
47	Ice Chute Heater	Press FREEZE BOOST to change status of load	Chute heater is activated when "on", deactivated when "oF"	Heater turns on successfully and difference in temperature is felt around dispenser ice chute
50	FFIM Twist Tray Harvest Test	Press FREEZE BOOST to change status of load	REMOVE ICE BUCKET IN ORDER TO SEE ROTATION OF TRAY Display will show "Go" when tray is in home position (horizontal) During rotation, screen will blink "1" In case of failure at end of twisting operation, will show "Er"	Tray twists successfully and "Er" is not displayed at the end of the cycle
53	Water Valve Dispenser + Main Valve	Press FREEZE BOOST to change status of load	Water dispenses when "on"; stops when "oF" Be prepared to collect water at dispenser	Water is dispensed successfully at dispenser
56	IM Water Valve + Main Valve	Press FREEZE BOOST to change status of load	Remove ice tray to collect water into a container to measure water fill If collecting water into ice tray, perform test 50 first to empty tray. Water flows in the tray when "on", test is correspondent to Ice tray water fill setting; automatically goes to "oF" state once configured time has elapsed	Water is dispensed at ice tray for configured time setting
61	Stepper Motor Valve	Press FREEZE BOOST to change status of load	COMPRESSOR WILL AUTOMATICALLY RUN AT MAX SPEED Valve can cycle through 4 states: 1. "03" - Open position 2. "00" - Close position 3. "01" - IM/FZ position 4. "02" - FF/IM/FZ position FFIM Evap temp is flashed during 00 and 01 to check if temp is increasing/decreasing in FFIM evap FF Evap temp is flashed during steps 03 and 02 to see if temp is increasing/decreasing in FF evap During movement	Valve successfully cycles through all 4 positions; evap temps are increasing/decreasing as described
62	FFIM Evap Fan Motor	Press FREEZE BOOST to change status of load	Evap fan motor is activated when "on", deactivated when "oF"	Fan turns on successfully
63	Flipper Mullion DC Heater	Press FREEZE BOOST to change status of load	Flipper mullion heater is activated when "on", deactivated when "oF"	Heater turns on successfully and difference in temperature is felt along flipper mullion
64	Humidity Sensor	Activates automatically	Display will show relative humidity sensed by H&T sensor in % Display will read "OP" if open circuit, "SH" if short circuit	Humidity is displayed and does not show "OP" or "SH"
66	Dispenser Light	Press FREEZE BOOST to change status of load	Dispenser pocket light turns on when "on", light turns off when "oF"	Dispenser pocket light turns on successfully
68	FFIM Evaporator Temp Sensor	Activates automatically	Display will show FFIM evaporator temperature in either °C or °F depending on mode Display will read "OP" if open circuit, "SH" if short circuit	Temperature is displayed and does not show "OP" or "SH"
70	FF Evap Fan Motor	Press FREEZE BOOST to change status of load	Fan runs at 3 speeds; Max speed "on", medium speed "Mi", stopped "oF" Locked rotor will show "LC" No PWM signal will show "nS" when fan is stopped ("oF") No 12V signal or ground will show "nP" when fan is "on" or "Mi"	Fan will cycle through all 3 speeds and "LC" or "nS" or "nP" is not displayed
71	FF Defrost Heater	Press FREEZE BOOST to change status of load	Heater on when display reads "on", off when "oF" FF Evap Defrost sensor temp is flashed on display, watch for increase in temperature. May take up to max 5 min for evap to warm up or 45°C sensor threshold	Defrost heater shows temp increase before 5 min have passed or reaches 45°C cutout
72	FFIM Defrost Heater + Fill Tube Heater	Press FREEZE BOOST to change status of load	Heater on when display reads "on", off when "oF" FFIM Evap Defrost sensor temp is flashed on display, watch for increase in temperature. May take up to max 5 min for evap to warm up or 45°C sensor threshold	Defrost heater shows temp increase before 5 min have passed or reaches 45°C cutout
74	VCZ Balance Heater	Press FREEZE BOOST to change status of load	Heater on when "on", off when "oF"; Maximum of 5 minutes on continuous	Defrost heater is successfully turned on and off; temperature increase is noted in VCZ compartment
76	VCZ Damper Heater	Press FREEZE BOOST to change status of load	VCZ damper heater activated when "on", deactivated when "oF"	Heater turns on successfully and difference in temperature is felt around VCZ damper
77	VCZ Damper Motor	Press FREEZE BOOST to change status of load	FRZ EVAP FAN WILL TURN ON AT MAX SPEED Damper is open when "OP", closed when "CL" Check for airflow when damper is fully open ("OP") and no air flow when fully closed ("CL") Screen will blink "1" during damper movement Any FRZ evap fan motor errors will display alternatively of damper status during test	Damper opens and closes successfully and no air flow is felt when damper is in closed ("CL") position
78	FFIM Bail Arm/Ice Level Bucket	Press FREEZE BOOST to change status of load	REMOVE ICE BUCKET IN ORDER TO SEE STATUS OF IM BAIL ARM Allow bail arm to drop freely, "Em" (empty) will show when tray returns home Hold bail arm up by hand, "Fu" (full) will show when tray returns home In case of failure at end of twisting operation, will show "Er"; Screen will blink "1" during rotation	Bail arm successfully completes test and "Er" is not displayed at the end of each cycle
91	FRZ IM Fill Tube Heater	Press FREEZE BOOST to change status of load	Heater on when "on", off when "oF"; Maximum of 5 minutes on continuous	Defrost heater is successfully turned on and off; temperature increase is noted in fill tube area

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SERVICE DATA SHEET

A17002004

ICE & WATER - AUTOMATIC DEFROST

BOTTOM FREEZER - R600a

➡ **IMPORTANT: PLEASE RETURN THIS SHEET TO ITS ORIGINAL LOCATION.**

This concludes the hardware tests. The following tests correspond to firmware versions. Before each firmware version is displayed "--" will appear on screen followed by each 8-digit string representing firmware version. After the string has been displayed, "--" will appear again before automatically proceeded to the next 8-digit string. Press "+" to advance to the next string at any time

--	Software Version	Runs automatically scrolling through all digits Press "+" button to skip to next test	Displays digit sequence related to software loaded onto main power board; 8 digit sequence	Software version is able to be recorded from display
--	Main Board Firmware Version	Runs automatically scrolling through all digits Press "+" button to skip to next test	Displays digit sequence related to firmware loaded onto main power board; 8 digit sequence	Firmware version is able to be recorded from display
--	Jade UI Firmware Version	Runs automatically scrolling through all digits Press "+" button to skip to next test	Displays digit sequence related to firmware loaded onto Jade UI (inside door); 8 digit sequence	Firmware version is able to be recorded from display
--	Indigo UI Firmware Version	Runs automatically scrolling through all digits Press "+" button to skip to next test	Displays digit sequence related to firmware loaded onto Indigo UI (VCZ UI); 8 digit sequence	Firmware version is able to be recorded from display
--	Dispenser UI Firmware Version	Runs automatically scrolling through all digits Press "+" button to skip to next test	Displays digit sequence related to firmware loaded onto external 4 button dispenser UI; 8 digit sequence	Firmware version is able to be recorded from display
--	Lifetime	Press + button to advance to next digit	Displays number of days the appliance has been powered up, even not consecutively Range is from 0-9999	Lifetime displays successfully on display

After Lifetime is displayed, last display is a 1-second counting up timer (0, 1, 2, 3...) this communicates that Service Mode has come to an end To return to normal operation, press and hold "+" and "-" for 10 seconds or plug/unplug the appliance

PERFORMANCE DATA NO LOAD & NO DOOR OPENINGS AT 37°/0° CONTROL SETTING

Type A with Run / Start Capacitor	65°F (18°C) Ambient	90°F (32°C) Ambient
Operating Time	70 to 90%	90 to 100%
Freezer Temp	-6° to 6°F (-21° to -14°C)	-6° to 6°F (-21° to -14°C)
Refrigerator Temp	34° to 44°F (1° to 7°C)	34° to 44°F (1° to 7°C)
VCZ Temperature	-6° to 45°F (-21° to 7°C)	-6° to 45°F (-21° to 7°C)
Low Side Pressure	-1 to 3 psig (98 to 124 kPa)	.8 to 3 psig (107 to 120 kPa)
High Side Pressure (last 1/3 cycle)	69 to 83 psig (577 to 672 kPa)	117 to 128 psig (907 to 982 kPa)
Wattage (last 1/3 cycle)	45 to 55	54 to 74
Amps (running)	.7 to .9	.8 to 1.1
Base Voltage	115 vac (127 vac max)	

DEFROST SPECIFICATIONS

Cabinet Size: 22' CD		Thermal Cutout	Heater		Defrost Thermistor Termination
		Cut-out	Watts	Ohms	Cut-out
	FRZ	162°F (72.2°C)	220 +/- 5	51.3 +/- 5	48°F (8°C)
	FF				38°F (3°C)
	FFIM		70 +/- 5	189 +/- 5	61°F (16°C)

Electronic Timer - (ADC) Defrost 34 minutes every 12-96 hours of compressor run time.

CONDENSER FAN MOTOR

Watts		RPM			Amps
.75	1.25	1100 ± 100	40 L/S		.104 A Max (@12V DC/20°C)
Nominal Input Power (W) @ 80% Duty	Max Input Power (W)	Speed (R/Min) *@80% Duty @ 100%	Air Flow in Free Air (0 Pa)		

ERROR CODES

Display		Interpretation
1st message	2nd message	
Er	t1	Fzr Temp Sensor Open/Shorted
Er	t2	Fzr Defrost Sensor Open/Shorted
Er	t3	FF Temp Sensor Open/Shorted
Er	t4	FF Defrost Sensor Open/Shorted
Er	t5	VCZ Temp Sensor Open/Shorted
Er	t6	FFIM Tray Sensor Open/Shorted
Er	CE	Communication Error UI to Main Board
No message - Dispenser UI will beep and blink either Cube or Crush (whichever is selected at the time of error)		Chute Flapper Not Closed

SPECIAL MODES

Mode	Display	Activate	Deactivate
Manual Defrost	dF	Hold + and Air Filter for 10 secs	---
Cube Size Menu	Settings will appear on UI	Hold FREEZE BOOST and Ice Maker for 10 secs	After 10 secs of no activity
Demo / Showroom	Demo Light On	Hold - and Water Filter for 10 secs	---
Sabbath	Sb	Hold - and Temp F-C for 5 secs	---
Service	---	Hold - and + for 10 secs	Hold - and + for 10 secs, or after 10 mins of inactivity
°F/°C Display	Look at UI	Press Temp F-C to alternate between °F and °C	

Notes: Always check for pin backouts, pinched or damaged wires before replacing components. Determine whether failure is caused by the component, main control board or wiring. **Contact TID before replacing main control board. Refer to Service Manual for additional information.**

FRESH FOOD ICE MAKER FILL TIME ADJUSTMENT MODE

NOTE: First consider water filter condition before adjusting fill time.

Activate: Press and hold **FREEZE BOOST** and **Ice Maker** buttons for 10 secs. Adjustments can be made with the -/+ buttons. The setting will time out after another 10 secs.

Deactivate: Resets to Normal Operation after 10 secs

Setting #	Pressure Condition	Fill Time
1	Normal-High (more than 60 psi)	3.9 secs
2	Low (between 30 and 60 psi)	4.6 secs
3	Very Low (between 20 and 30 psi)	5.8 secs
4	Extremely Low (less than 20 psi)	7.5 secs

FREEZER ICE MAKER SPECIFICATIONS

Electrical	115 vac (127 vac max)	60 Hertz

FREEZER ICE MAKER CONNECTOR PLUG CONNECTIONS

Wire Number	Wire Color	Connects to:
1	Light Blue	Neutral
2	Yellow	Water Valve
3	Black	Line

FREEZER ICE MAKER INFORMATION

Turn the IM ON and OFF: Press and hold the POWER button for ½ second to turn the IM ON and OFF. When the IM is ON, the Power button will illuminate solid green

Test Cycling: Press and release the TEST/SERVICE button to start the self-diagnostic function. The tray will perform 2 rotations. The ice level arm must be held so that it does not drop during the first rotation (simulating full ice bin). Once the tray returns to the Home position, the arm can be released. Allow the arm to drop normally during the second rotation (simulating empty ice bin). Once the tray returns Home after the second rotation, the POWER button will change back to solid green if no errors were detected during the test. This means the IM operates properly. If errors are detected at any time during the test, the test will stop immediately and the POWER button will blink rapidly continuously. In this case, there is some internal failure of the IM. **NOTE: If the arm is not held during the first rotation, the IM will indicate a failure falsely.** To run the test again to verify, the IM must be turned OFF and back ON.

Manual Water Fill: Press and hold the TEST/SERVICE button for 3+ seconds.

Adjust Water Fill Size: Press and hold the POWER and TEST/SERVICE buttons together for 3 seconds. The POWER button will blink to show the current setting.
1 blink = small, 2 blinks = med, 3 blinks = large, 4 blinks = extra large. Press the TEST/SERVICE button to advance to the next level. When at extra large, the next press goes back to small. The factory default is small.