SERVICE DATA SHEET

A21060401

ICE & WATER - AUTOMATIC DEFROST
BOTTOM FREEZER - R600a

IMPORTANT: PLEASE RETURN THIS SHEET TO ITS ORIGINAL LOCATION.

IMPORTANT SAFETY NOTE

The information provided herein is designed to assist qualified repair personnel only. Untrained persons should not attempt to make repairs due to the possibility of electrical shock. Disconnect power cord before servicing this appliance.

IMPORTANT

If you remove any green grounding wires during servicing, you must return and properly secure them to their original position.

SYSTEM DIAGNOSTIC MODE

Activate:
Deactivate:

Press and hold **+** and **— v** buttons for 10 secs. Navigate through tests with the **+/—** buttons. Automatically deactivates after 10 minutes of no activity.

Code	Test	Activation/ Deactivation	Display	Passing Result
---	1st Screen	---	Turn on all LEDs on the Main UI and VCZ UI	---
	2nd Screen		Turn off all LEDs on the Main UI and VCZ UI	
2	FZ Defrost	Press **Cube** to change the status of the load	Heater is on when the display reads **On**, off when **oF**	Defrost heater shows temp increase before 5 min have passed or reaches 45°C cutout.
8	Main Water Valve		Main valve activates when **On**, stops when **oF**	Valve turns on and off.
53	Dispenser Water Valve + Main Valve		Water dispenses when **On**, stops when **oF**	Water successfully dispenses at dispenser.
56	FF IM Water Valve + Main Valve		Remove the ice tray to collect water into a container to measure the water fill. If collecting water into the ice tray, perform test 50 first to empty the tray. Water flows in the tray when **On**. Test is correspondent to the ice tray water fill setting; automatically goes to **oF** state once the configured time elapses.	Water dispenses at the ice tray for the configured time setting.
71	FF Defrost Heater		Heater is on when the display reads **On**, off when **oF**	Defrost heater shows temp increase before 5 min have passed or reaches 45°C cutout.
72	FF IM Defrost Heater			
74	VCZ Balance Heater			
79	FF Fill Tube Heater		FF fill tube heater activates when **On**, deactivates when **oF**	Fill tube heater successfully turns on and off. Note a temperature increase in fill tube area.
10	Auger Motor		Auger activates when **On**, deactivates when **oF**	Auger motor successfully activates
13	FF Light		FF lights come on when **On**; lights turn off when **oF**	All FF lights turn on
14	VCZ Light		VCZ light comes on when **On**; light turns off when **oF**	
15	Freezer Evaporator Fan		Fan runs at 3 speeds: max **On**, medium **MI**, stopped **oF**; locked rotor shows **Lc**. No PWM signal shows **nS** when fan stops (**oF**) No 12V signal or ground shows **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			
18	Condenser Fan		Fan is on when **On**, deactivates when **oF**	Fan motor successfully activates
20	FZ Light		FZ light comes on when **On**; lights turn off when **oF**	FZ light turns on
38	VCC Compressor		Compressor runs at max speed when **On**, stops when **oF**	Compressor successfully turns on
47	Ice Chute Heater		Chute heater activates when **On**, deactivates when **oF**	Heater successfully turns on and you feel the difference in temperature around the dispenser ice chute
62	FF IM Evaporator Fan Motor		Evap fan motor activates when **On**, deactivates when **oF**	FF IM evap fan successfully turns on
63	Flip Mullion DC Heater		Flipper mullion heater activates when **On**, deactivates when **oF**	Heater successfully turns on and you feel the difference in temperature along the flipper mullion
66	Dispenser Light		Dispenser pocket light turns on when **On**, deactivates when **oF**	Dispenser pocket light successfully turns on
70	FF Evap Fan Motor		Fan on when **On**, deactivates when **oF**	Fan motor successfully activates
76	VCZ Damper Heater		VCZ damper heater activates when **On**, deactivates when **oF**	Heater successfully turns on and you feel the difference in temperature around the dispenser ice chute
84	**Cube**/**Crush** DC Solenoid		Solenoid activates when **On**, deactivates when **oF**	Solenoid turns on and off
77	VCZ Damper Motor		FRZ evap fan turns on at max speed Damper opens when **OP**, closes when **CL** Check for air flow when damper fully opens (**OP**) and fully closes (**CL**) Screen blinks **1** during damper movement Any FRZ evap fan motor errors display alternatively of damper status during test	Damper successfully opens and closes and you feel no air flow when the damper closes (**CL**)
36	Ice Chute Door/ Flapper Motor		Flapper closes when **CL**, opens when **OP**	Flapper door successfully opens and closes; **Er** does not show on display
50	FF IM Twist Tray Harvest Test		Remove ice bucket in order to see rotation of tray. Display shows **Go** when tray is in home position (horizontal). Screen blinks **1** during rotation. In case of failure at end of twisting operation, screen shows **Er**	Tray successfully twists and **Er** does not display at the end of the cycle
78	FF IM Bail Arm Test		Remove ice bucket to see status of IM bail arm. Allow bail arm to drop freely, **Em** (empty) shows when tray returns home. Hold bail arm up by hand, **Fu** (full) shows when tray returns home In case of failure at end of twisting operation, **Er** shows. Screen blinks **1** during rotation.	Bail arm successfully completes test and **Er** does not display at the end of each cycle
61	Stepper Motor Valve		Compressor automatically runs at max speed. Valve cycles through 4 states: 1. **03** Open position 2. **00** Closed position 3. **01** IM/FZ position 4. **02** FF/IM/FZ position FF IM evap temp flashes during **00** and **01** to check if temp is increasing/decreasing in FF IM evap FF evap temp flashes during steps **03** and **02** to see if temp is increasing/decreasing in FF evap during movement Screen flashes **1** when the valve moves from position to position.	Damper successfully opens and closes and you feel no air flow when the damper closes (**CL**)
23	FF Door Switch	Open/Close FF Doors	Display shows **CL** when door closes; **OP** when open	Display reads correctly when the door is opened/closed
24	FZ Door Switch	Open/Close FZ Door		
25	VCZ Door Switch	Open/Close VCZ Door		
28	Dispenser Paddle	Press the Dispenser Paddle	Display shows **oF** when you press the paddle; **On** when you release or do not press the paddle	Display shows **oF** when you do not press the paddle and **On** when you press the paddle
29	FF Temp Sensor	Activates automatically	Display shows compartment temperature in either **C** or **F** depending on the mode Display reads **OP** if open circuit; **SH** if short circuit	Temperature displays and does not show **OP** or **SH**
30	FZ Temp Sensor			
31	FF Evaporator Temp Sensor		Display shows FF evaporator temperature in either **C** or **F** depending on the mode Display reads **OP** if open circuit; **SH** if short circuit	
32	VCZ Temp Sensor		Display shows compartment temperature in either **C** or **F** depending on the mode Display reads **OP** if open circuit; **SH** if short circuit	
34	UI Ambient Temp Sensor		Display shows UI temperature in either **C** or **F** depending on the mode Display reads **OP** if open circuit; **SH** if short circuit	
39	FZ Evaporator Temp Sensor		Display shows FZ evaporator temperature in either **C** or **F** depending on the mode Display reads **OP** if open circuit; **SH** if short circuit	
45	FF IM Tray Temp Sensor		Display shows FF IM tray temperature in either **C** or **F** depending on the mode Display reads **OP** if open circuit; **SH** if short circuit	
68	FF IM Evaporator Temp Sensor		Display shows FF IM evaporator temperature in either **C** or **F** depending on the mode Display reads **OP** if open circuit; **SH** if short circuit	
64	Humidity Sensor		Display shows relative humidity sensed by H&T sensor on UI. Display reads **OP** if open circuit, **SH** if short circuit	

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	Press **+** to skip to the next test	The current software revision will show simultaneously on both displays. For example: 00559502 will be shown as 0-0, 0-0, 5-5, 5-5, 9-9, 5-5, 0-0, 2-2
	Main Board Firmware Version		The current software revision will show simultaneously on both displays. For example: JHBI0500 will be shown as J-J, H-H, B-B̈, I-I, 0-0, 5-5, 0-0, 0-0
	VCZ Firmware Version		The current software revision will show simultaneously on both displays. For example: 3HFE0C00 will be shown as 3-3, H-H, F-F, E-E, 0-0, C-C, 0-0, 0-0
	Dispenser UI Firmware Version		The current software revision will show simultaneously on both displays. For example: 2HFE0H12 will be shown as 2-2, H-H, F-F, E-E, 0-0, H-H, 1-1, 2-2
	Lifetime	Press **+** to advance to next digit	Displays number of days the appliance has been powered. Range is from 0-9999

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

CD DISPENSER		
Type A with Run / Start Capacitor	55°F (13°C) Ambient	90°F (32°C) Ambient
Operating Time	70 to 90%	90 to 100%
Freezer Temperature	-6° to 6°F (-21° to -14°C)	
Refrigerator Temperature	34° to 44°F (1° to 7°C)	
VCZ Temperature	-6° to 45°F (-21° to 7°C)	
Low Side Pressure	-1 to 3 psig (98 to 124 kPa)	0.8 to 3 psig (107 to 120 kPa)
High Side Pressure	69 to 83 psig (577 to 672 kPa)	117 to 128 psig (907 to 982 kPa)
Wattage	45 to 55	54 to 74
Amps (running)	0.7 to 0.9	0.8 to 1.1
Base Voltage	115 vac (103 to 127 vac max)	

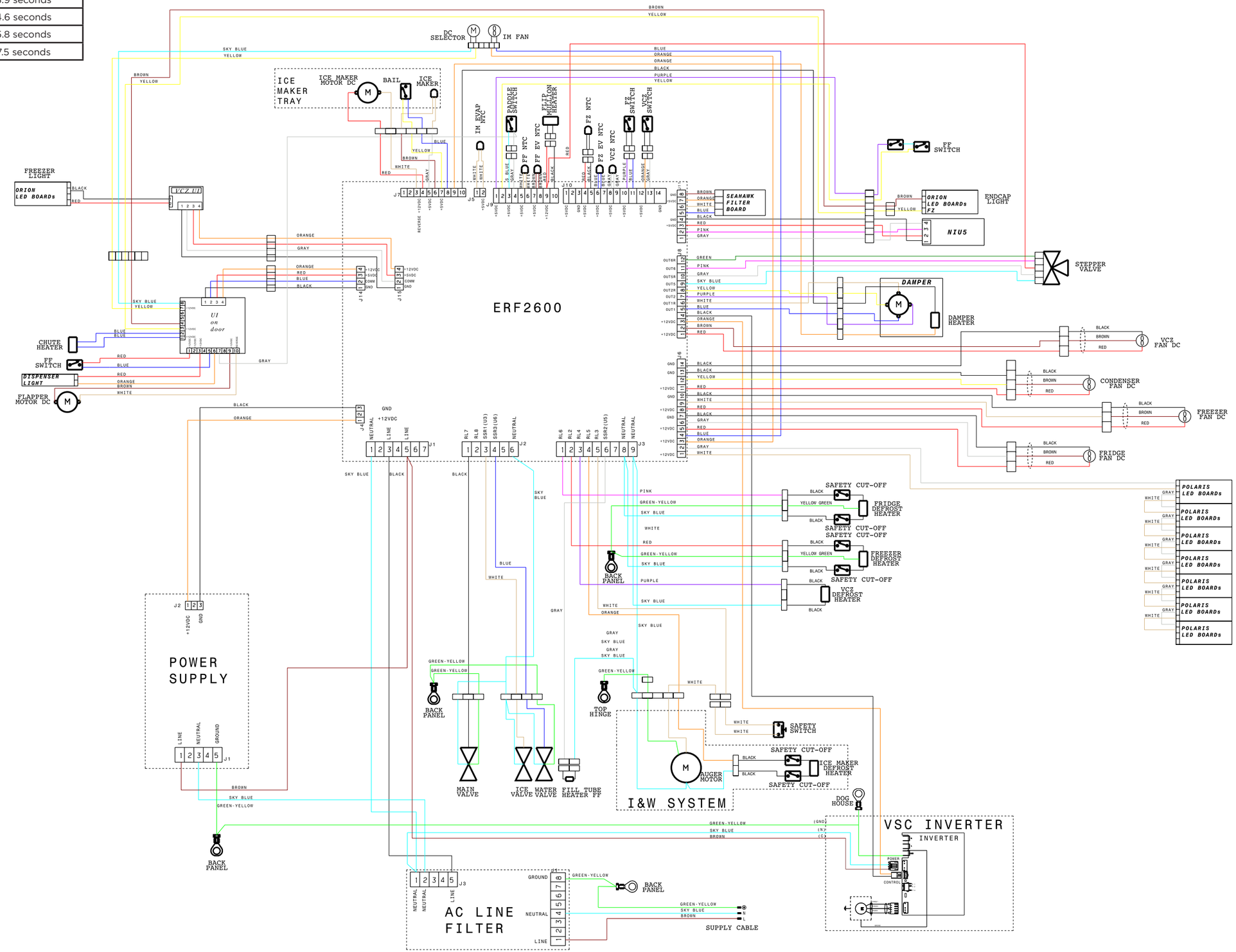
ERROR CODES

Error Message Display		Interpretation
FZ Temp Disp. Area	FF Temp Disp. Area	
Er	**Ht**	Defrost Heater Open/Shorted
	CE	Communication Error UI to Main Board
dl	**SP**	Chute Flapper Error - Flapper not Closed
Er	**t1**	FZ Temp Sensor Open/Shorted
	t2	FZ Defrost Sensor Open/Shorted
	t3	FF Temp Sensor Open/Shorted
	t4	FF Defrost Sensor Open/Shorted
	t5	VCZ Temp Sensor Open/Shorted
	t6	FF IM Tray Open/Shorted
	t7	FF IM Defrost Sensor Open/Shorted

SPECIAL MODES

Mode	Display			Activate	Deactivate
	FZ	FF	Other		
Manual Defrost	**d**	**F**	---	**FZ** + **∧** and **FF** + **∧** for 10 secs	---
Sabbath	**Sb**			**FZ** - **v** and **FF** + **∧** for 5 secs	
Demo/ Showroom	---		**Demo** Light On	**FZ** + **∧** and **FF** - **v** for 10 secs	
System Diagnostics			Refer to System Diagnostics Table	**FZ** + **∧** and **FZ** - **v** for 10 secs	
°F/°C Display			**°F** or **°C**	**FF** + **∧** and **FF** - **v** for 5 secs	
Sleep/Awake Mode			Display off or always on	**Crush** and **Light** keys for 5 secs	
FF IM Fill Time Menu			Setting will appear on UI	**Cube** and **Crush** keys for 10 secs	After 10 secs of no activity

IM FILL TIME MENU		
Setting	**Pressure Condition**	**Fill Time**
1	Normal	3.9 seconds
2	Low	4.6 seconds
3	Very Low	5.8 seconds
4	Extremely Low	7.5 seconds



Wire Diagram A20593702 Rev C