Electrolux

SERVICE MANUAL

Refrigerator

FOR INTERNAL AND PARTNERS USE ONLY

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4 door French door fridge fully convertible compartment

Model: WQE6870SA/925060611

WQE6870BA/925060612

EN

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CONTENTS

CONTENTS 1

1 PURPOSE OF THIS MANUAL 2

2 SAFETY 3

3 COOLING CIRCUIT 4

4 TOP COVER 6

5 WATER SUPPLY CIRCUIT 7

6 ALARM & ERRORS 8

7 SENSORS 11

8 MAIN CONTROL BOARD ERF2600 15

9 MODE 17

10 DIAGNOSTIC MODE 27

11 REMOVAL & REPLACEMENT OF PARTS 36

1 PURPOSE OF THIS MANUAL

The purpose of this Service Manual is to provide Service Engineers who are already familiar with the repair procedures with information regarding: **4 door French door fridge fully convertible compartment.**

fitted with electronic control systems.

The manual deals with the following topics:

- General characteristics
- Control panel
- Guide to diagnostics
- Technical and functional characteristics
- Access

Document Revisions

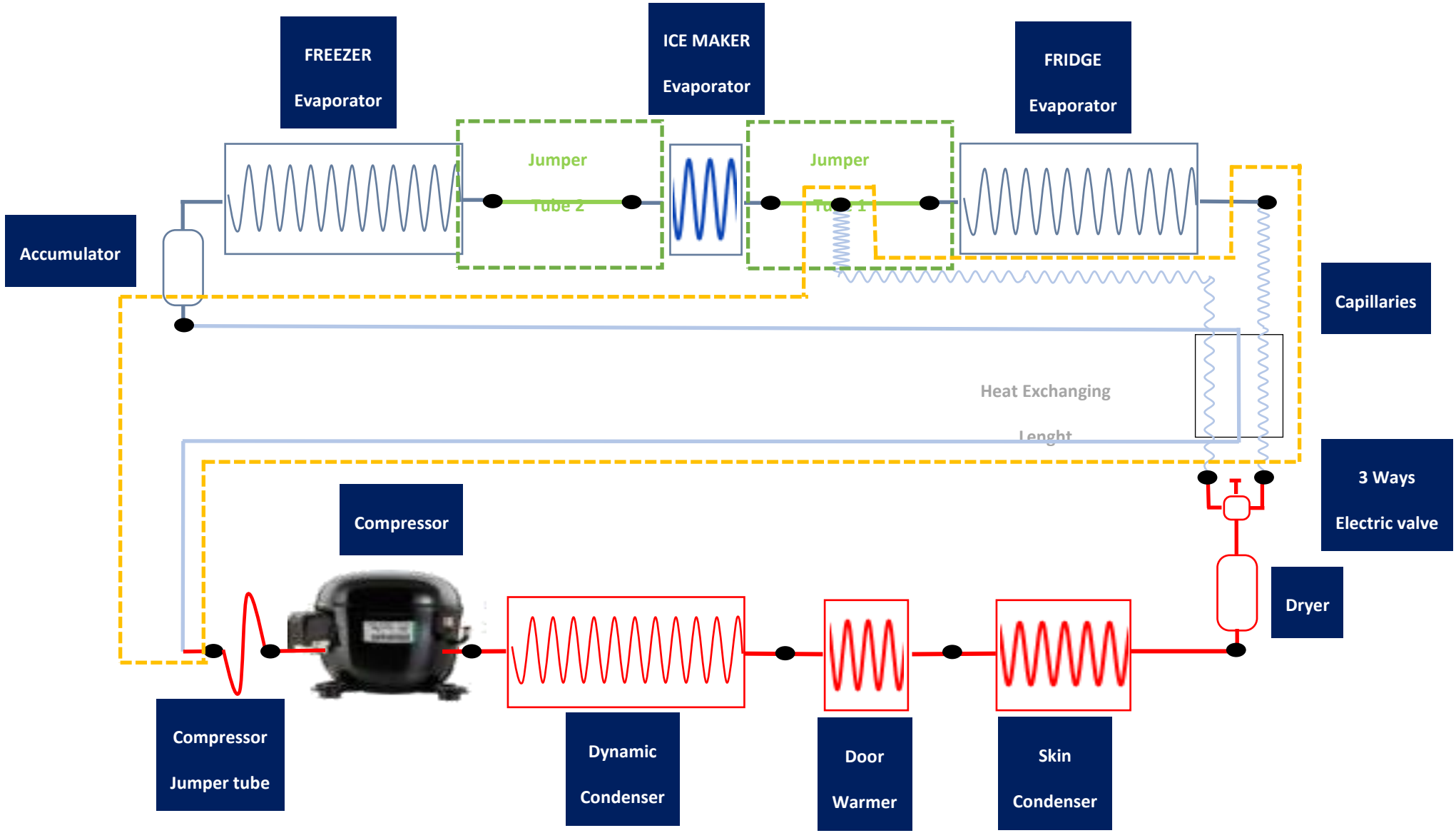
Rev.	Date	Description	Author
00	01/2021	Document creation	Khomsan Phuhatsuan
01	02/2021	Add model/PNC at the cover page	Khomsan Phuhatsuan

2 SAFETY

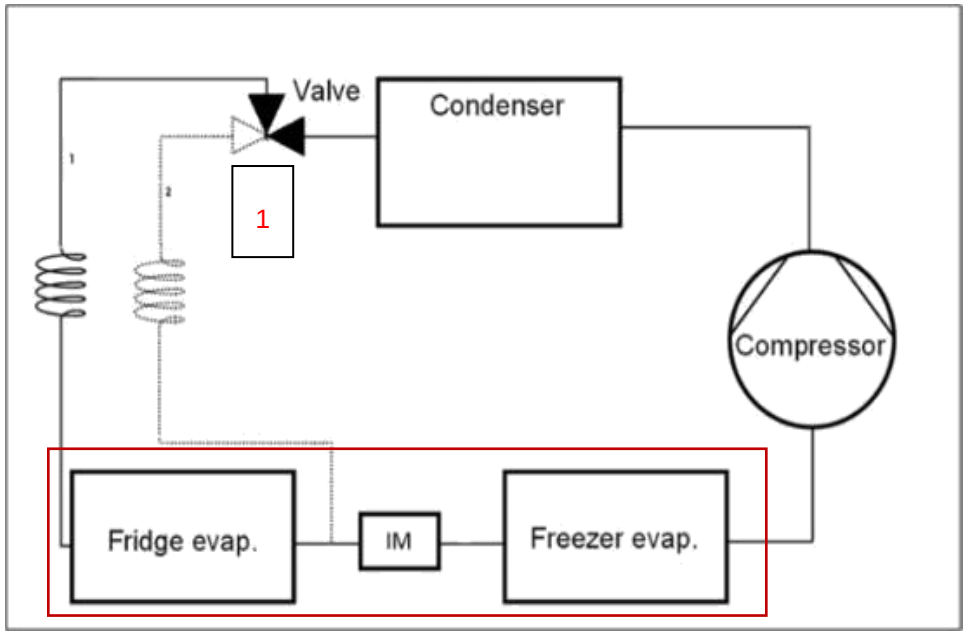
- All the work to be performed inside the appliance requires specific skills and knowledge and may only be carried out by qualified and authorised Service Engineers.
- Before you access internal components, take the plug out of the socket to disconnect the power supply.
- Some of the components in the mechanical part could cause injuries, so wear suitable protection and proceed with caution.

3 COOLING CIRCUIT

3.1 Cooling circuit flow



3.2 Cooling circuit valve position

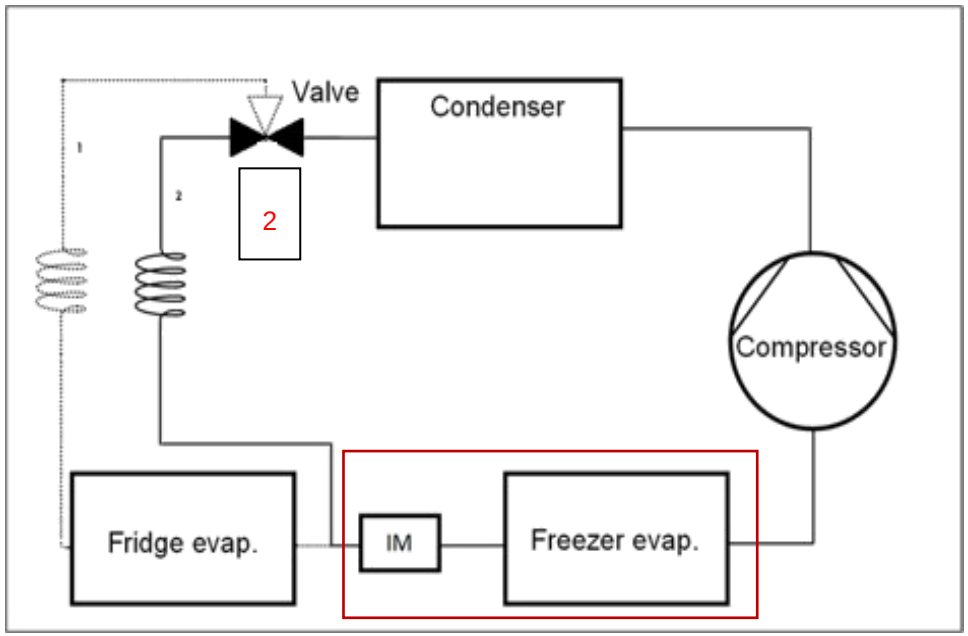


VALVE POSITION 1

Valve position used when needs cooling capacity in the fridge.

If IM reaches the target temperature, its fan is set off.

If freezer reaches the target temperature, its fan can also be set off.



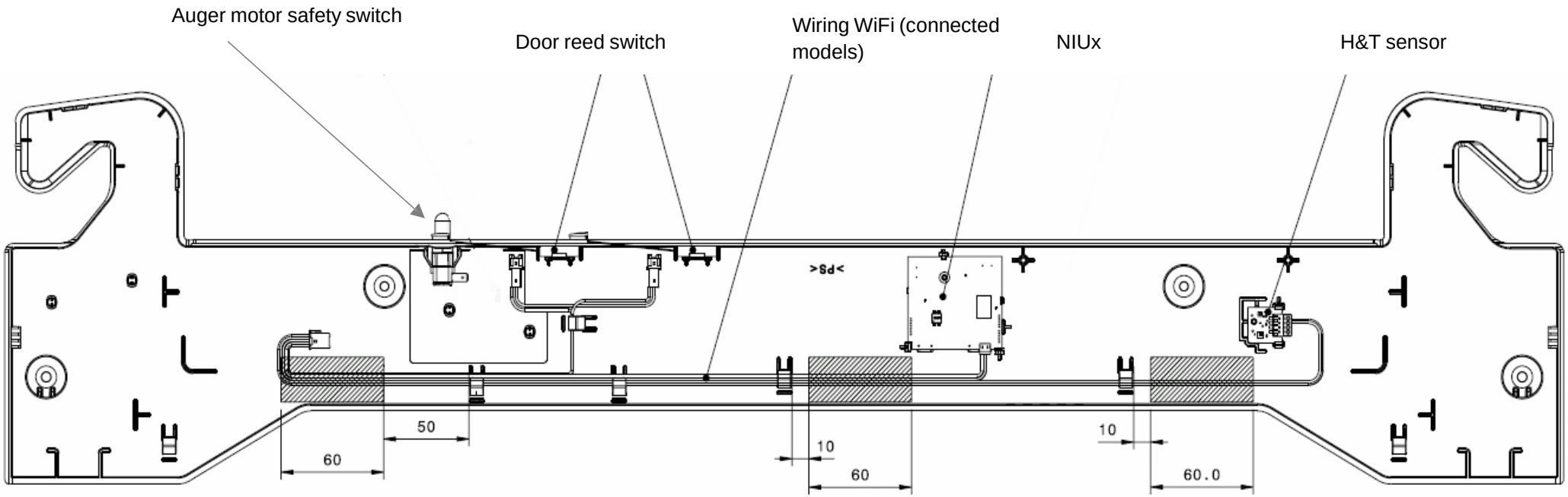
VALVE POSITION 2

Valve position used when the fridge reached cooling target capacity and IM needs cooling capacity (building ice and/or mantaining the temperature of the ice).

If freezer reaches the target temperature, its fan can be set off

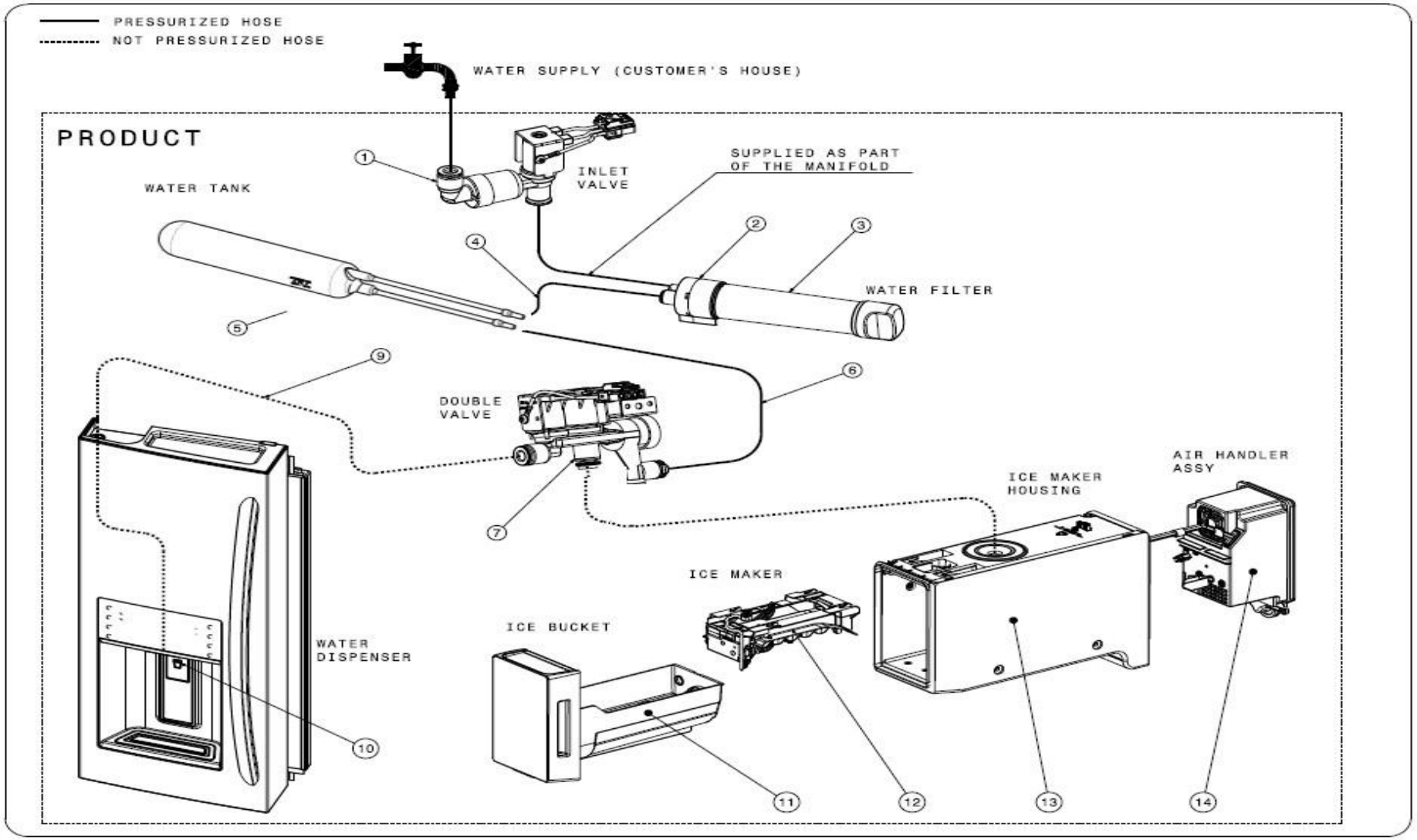
4 TOP COVER

4.1 Top cover electronic part assembly



Note. Do not replace the ERF2600 and the NIUx board at the same time. Replace first one and start the appliance before replacing the other. This is due to that the boards are serialized.

5 WATER SUPPLY CIRCUIT



6 ALARM & ERRORS

Door alarm

1. When door is opened,

- Illuminate LED Door Open in the display

- If during the sleep mode and door is opened, only show LED Door Open, no need to wake up the display.

2. After 5 mins if the door is still open,

- Hide all the other display elements.

- Hide all the LEDs above function keys.

- LED Door Open stays visible

- Play tone Alarm once, play tone Alarm every 10 seconds until a key is pressed or door is closed.

3. Touching any key when alarm sounds,

- LED Door Open stays visible until door is closed.

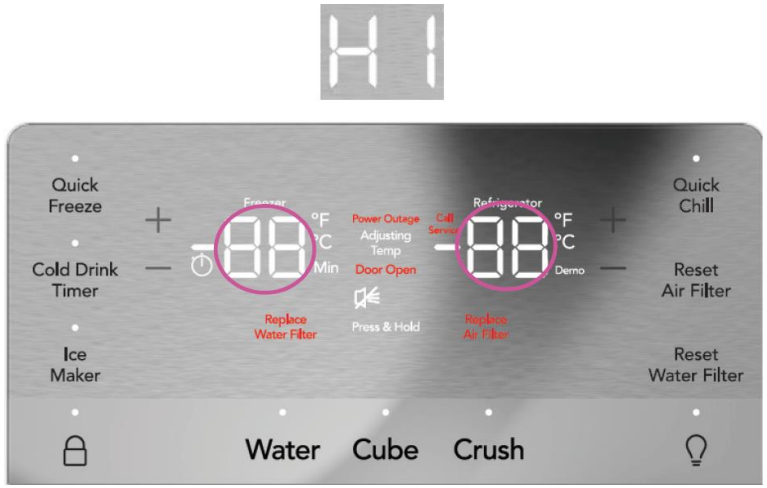
- Mute the alarm.

- Mute the alarm if the alarm is sounding.

- UI goes back to previous state before door is opened (either sleep mode or wake-up mode).

High Temperature Alarm “HI”

Display 'HI' on the correspondent compartment display (FF or/and FZ) and blink.



When power is out and recovered

If the temperature is within the range (FF under 55°F/12°C and FZ under 23°F/-5°C), do not show the alert.

- If the temperature falls outside of the range,

- Display 'HI' in the display of the correspondent cavity (Fridge &/or Freezer) and blink.

- Play tone Alarm every 60 seconds until power is recovered.

-Touch any key to mute the alarm.

High temp condition occurs without power out or door alert.

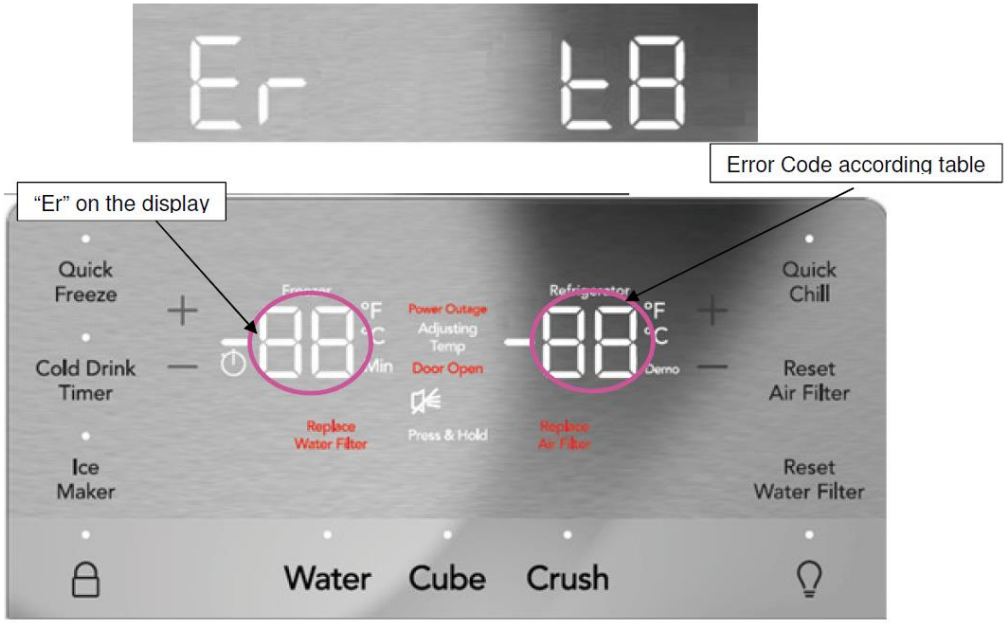
1. Play tone alarm, every 10 seconds until the alert is acknowledgment.

2. On touching any key or opening the door,

- Mute the alarm for 45minutes.

- Show set temperature settings.

6.1 Errors



Error	Indication		Errors Verification
Freezer Temperature Sensor	Er	t1	Open/Shorted
Freezer Defrost Sensor	Er	t2	Open/Shorted
Fridge Temperature Sensor	Er	t3	Open/Shorted
Fridge Defrost Sensor	Er	t4	Open/Shorted
VCZ Temperature Sensor	Er	t5	Open/Shorted
Ice Maker Tray Sensor	Er	t6	Open/Shorted
Communication Error	Er	CE	UIs to Main board error after a period of operation
Chute Flapper Error	dI	SP	Chute Flapper not connected or with error

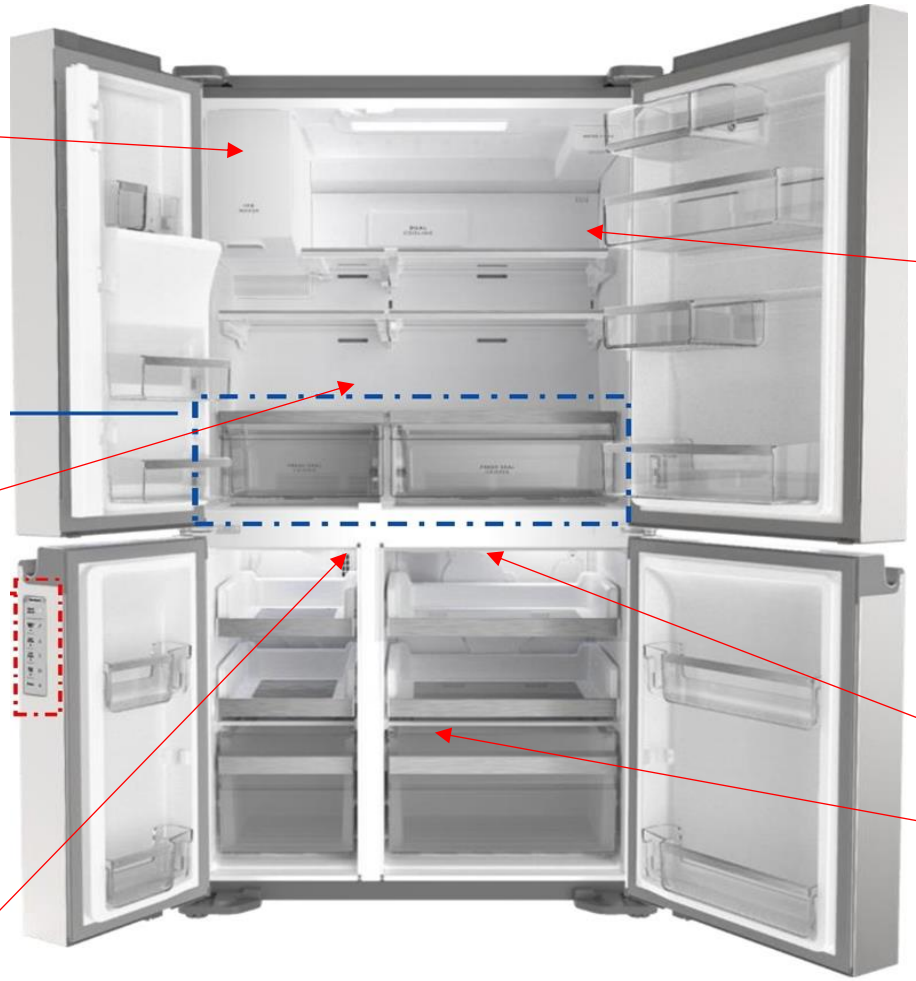
7 SENSORS

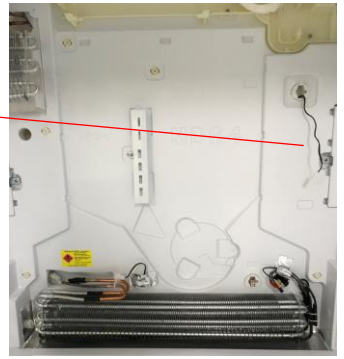
7.1 SENSORS POSSITIONING

Defrost sensor ice maker evap Ice maker temperature sensor.

Fridge Defrost

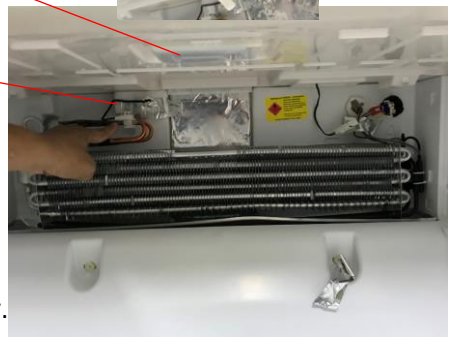
VCZ sensor





Fridge sensor

Freezer sensor



Freezers defrost sensor.

7.2 RESISTANCE AND VOLTAGE SENSORS - REFRIGERATOR, FREEZER,VCZ COMPARTMENT AND DEFROST

Temp.	R Min	R Max	V Max	V Min	Temp.	R Min	R Max	V Max	V Min	Temp.	R Min	R Max	V Max	V Min
(ºC.)	(kOhm)	(kOhm)	(Volts)	(Volts)	(ºC.)	(kOhm)	(kOhm)	(Volts)	(Volts)	(ºC.)	(kOhm)	(kOhm)	(Volts)	(Volts)
-40	329,28	342,72	0,31	0,30	-16	72,38	76,58	1,17	1,12	8	22,37	23,50	2,48	2,42
-39	281,06	292,53	0,36	0,35	-15	70,90	74,98	1,18	1,13	9	21,43	22,50	2,53	2,47
-38	264,79	275,60	0,38	0,37	-14	64,89	68,61	1,27	1,21	10	20,54	21,55	2,59	2,53
-37	249,45	259,63	0,41	0,39	-13	61,49	64,99	1,32	1,26	11	19,69	20,67	2,64	2,58
-36	234,97	244,56	0,43	0,41	-12	58,29	61,59	1,37	1,32	12	18,89	19,82	2,69	2,63
-35	234,93	247,55	0,43	0,41	-11	55,29	58,41	1,42	1,37	13	18,13	19,02	2,74	2,68
-34	206,00	216,98	0,48	0,46	-10	53,83	56,81	1,45	1,40	14	17,42	18,26	2,79	2,73
-33	194,09	206,67	0,51	0,48	-9	49,83	52,61	1,53	1,47	15	16,74	17,55	2,84	2,78
-32	182,86	194,63	0,54	0,51	-8	47,35	49,97	1,59	1,53	16	16,11	16,88	2,89	2,83
-31	172,30	183,30	0,57	0,54	-7	45,01	47,49	1,64	1,58	17	15,51	16,25	2,93	2,88
-30	171,60	182,40	0,57	0,54	-6	42,81	45,15	1,70	1,64	18	14,94	15,65	2,98	2,92
-29	153,01	162,63	0,63	0,60	-5	41,20	43,45	1,74	1,68	19	14,42	15,10	3,02	2,97
-28	144,21	153,22	0,66	0,63	-4	38,79	40,89	1,81	1,75	20	12,21	12,77	3,22	3,16
-27	135,95	144,38	0,70	0,66	-3	36,95	38,94	1,87	1,80	25	9,78	10,22	3,46	3,41
-26	128,18	136,08	0,73	0,70	-2	35,22	37,11	1,92	1,86	30	7,88	8,23	3,68	3,64
-25	126,55	134,25	0,74	0,70	-1	33,59	35,38	1,98	1,92	35	6,39	6,67	3,87	3,84
-24	114,03	120,96	0,81	0,77	0	31,80	33,50	2,04	1,98					
-23	107,59	114,10	0,85	0,81	1	30,59	32,20	2,09	2,03					
-22	101,55	107,65	0,89	0,85	2	29,21	30,74	2,15	2,09					
-21	95,89	101,61	0,93	0,89	3	27,91	29,36	2,20	2,14					
-20	94,25	99,87	0,95	0,90	4	26,68	28,06	2,26	2,20					
-19	85,58	90,62	1,02	0,98	5	24,76	26,03	2,35	2,29					
-18	80,89	85,64	1,07	1,02	6	24,41	25,65	2,37	2,31					
-17	76,50	80,96	1,12	1,07	7	23,36	24,55	2,43	2,36					

7.3 ICE MAKER TEMPERTURE SENSOR RESISTANCE AND VOLTAGE CONVERSION

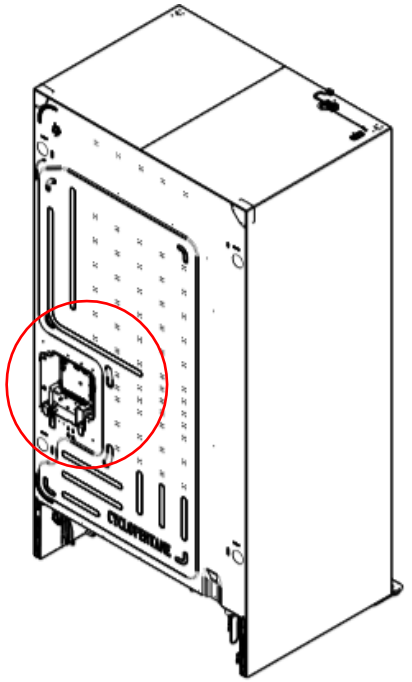
Temp (°C)	Resistance (kΩ) Max	Typ	Min
-50	161.6	154.6	147.9
-49	152.5	146.0	139.7
-48	144.0	137.9	132.0
-47	136.0	130.3	124.9
-46	128.5	123.2	118.1
-45	121.5	116.5	111.8
-44	114.9	110.3	105.9
-43	108.7	104.4	100.3
-42	102.9	98.93	95.06
-41	97.52	93.76	90.15
-40	92.42	88.91	85.52
-39	87.52	84.24	81.07
-38	82.91	79.85	76.89
-37	78.58	75.72	72.95
-36	74.52	71.84	69.25
-35	70.69	68.19	65.76
-34	67.09	64.84	62.48
-33	63.71	61.51	59.39
-32	60.51	58.46	56.47
-31	57.51	55.58	53.72
-30	54.67	52.87	51.12
-29	51.95	50.26	48.62
-28	49.38	47.80	46.26
-27	46.96	45.48	44.04
-26	44.67	43.28	41.94
-25	42.51	41.21	39.95
-24	40.48	39.26	38.07
-23	38.55	37.41	36.30
-22	36.73	35.66	34.62
-21	35.01	34.01	33.03
-20	33.39	32.44	31.52
-19	31.82	30.93	30.07
-18	30.34	29.51	28.70
-17	28.93	28.16	27.40
-16	27.61	26.88	26.16
-15	26.35	25.66	25.00
-14	25.16	24.52	23.89
-13	24.03	23.43	22.84
-12	22.96	22.39	21.84
-11	21.94	21.41	20.89
-10	20.98	20.48	19.99
-9	20.06	19.59	19.13
-8	19.18	18.74	18.31
-7	18.34	17.93	17.53
-6	17.55	17.16	16.78
-5	16.80	16.43	16.08
-4	16.08	15.74	15.41
-3	15.40	15.08	14.77
-2	14.76	14.46	14.16
-1	14.14	13.86	13.58
0	13.56	13.29	13.03
1	12.99	12.74	12.50
2	12.46	12.22	11.99
3	11.94	11.73	11.51
4	11.46	11.25	11.05
5	10.99	10.80	10.61
6	10.55	10.37	10.19
7	10.13	9.960	9.793
8	9.728	9.569	9.412
9	9.345	9.169	9.049
10	8.979	8.840	8.702
11	8.626	8.496	8.366
12	8.289	8.167	8.045
13	7.967	7.853	7.739
14	7.660	7.553	7.447
15	7.367	7.267	7.167
16	7.087	6.993	6.900
17	6.819	6.731	6.644
18	6.563	6.481	6.400
19	6.319	6.242	6.166
20	6.085	6.013	5.942
21	5.859	5.793	5.726
22	5.643	5.581	5.519
23	5.437	5.379	5.321
24	5.239	5.185	5.132
25	5.050	5.000	4.950
26	4.871	4.821	4.771
27	4.700	4.650	4.601
28	4.536	4.486	4.437
29	4.379	4.329	4.280
30	4.228	4.179	4.130
31	4.082	4.033	3.984
32	3.942	3.894	3.845
33	3.808	3.760	3.711
34	3.679	3.631	3.583
35	3.556	3.508	3.461
36	3.437	3.390	3.343
37	3.323	3.276	3.229
38	3.213	3.167	3.121
39	3.108	3.062	3.017
40	3.007	2.961	2.916
41	2.908	2.864	2.819
42	2.814	2.770	2.726
43	2.723	2.679	2.636
44	2.636	2.593	2.550
45	2.552	2.509	2.467
46	2.471	2.429	2.387
47	2.393	2.352	2.311
48	2.318	2.277	2.237
49	2.246	2.206	2.166
50	2.177	2.137	2.098

7.4 ICE MAKER DEFROST SENSOR RESISTANCE

Temperature (°C)	R(T)/R25	(Ohms)	ΔR/R (%)	α (%/K)	ΔT (K)	Rmin (Ohms)	Rmax (Ohms)
-40	33.427	334274	4.92	-6.63	0.74	317833	350716
-35	24.132	241323	4.73	-6.41	0.74	229899	252747
-30	17.613	176133	4.56	-6.19	0.74	168107	184158
-25	12.990	129900	4.39	-5.99	0.73	124202	135598
-20	9.676	96761	4.22	-5.79	0.73	92675	100848
-15	7.276	72765	4.07	-5.61	0.73	69806	75723
-10	5.522	55218	3.92	-5.43	0.72	53056	57380
-5	4.227	42268	3.77	-5.26	0.72	40674	43861
0	3.262	32624	3.63	-5.10	0.71	31440	33808
5	2.538	25381	3.49	-4.94	0.71	24494	26268
10	1.990	19897	3.36	-4.80	0.70	19227	20566
15	1.571	15711	3.24	-4.65	0.70	15202	16220
20	1.249	12493	3.12	-4.52	0.69	12103	12882
25	1.000	**10000**	**3.00**	-4.39	0.68	9700	10300
30	0.806	8056	3.11	-4.26	0.73	7805	8307
35	0.653	6530	3.22	-4.14	0.78	6319	6740
40	0.532	5324	3.33	-4.03	0.83	5147	5501
45	0.437	4365	3.43	-3.92	0.88	4215	4515
50	0.360	3599	3.53	-3.81	0.93	3472	3726
55	0.298	2982	3.63	-3.71	0.98	2874	3091
60	0.248	2484	3.72	-3.61	1.03	2391	2576
65	0.208	2079	3.81	-3.51	1.09	1999	2158
70	0.175	1748	3.90	-3.42	1.14	1679	1816
75	0.148	1476	3.99	-3.34	1.20	1417	1535
80	0.125	1252	4.07	-3.25	1.25	1201	1303
85	0.107	**1066**	4.15	-3.17	1.31	1022	1110
90	0.091	912	4.23	-3.09	1.37	873	950
95	0.078	782	4.31	-3.02	1.43	749	816
100	0.067	674	4.38	-2.94	1.49	645	704
105	0.058	583	4.46	-2.87	1.55	557	609

8 MAIN CONTROL BOARD ERF2600

1. Disconnect power and place the refrigerator in a position to access rear side.
2. Remove the five screws on the rear panel cover and remove the cover.
3. Mark and disconnect all wires and release snaps to detach the boards.
4. Do not replace the ERF2600 and the NIUx board at the same time. Replace first one and start the appliance before replacing the other. This is due to that the boards are serialized.

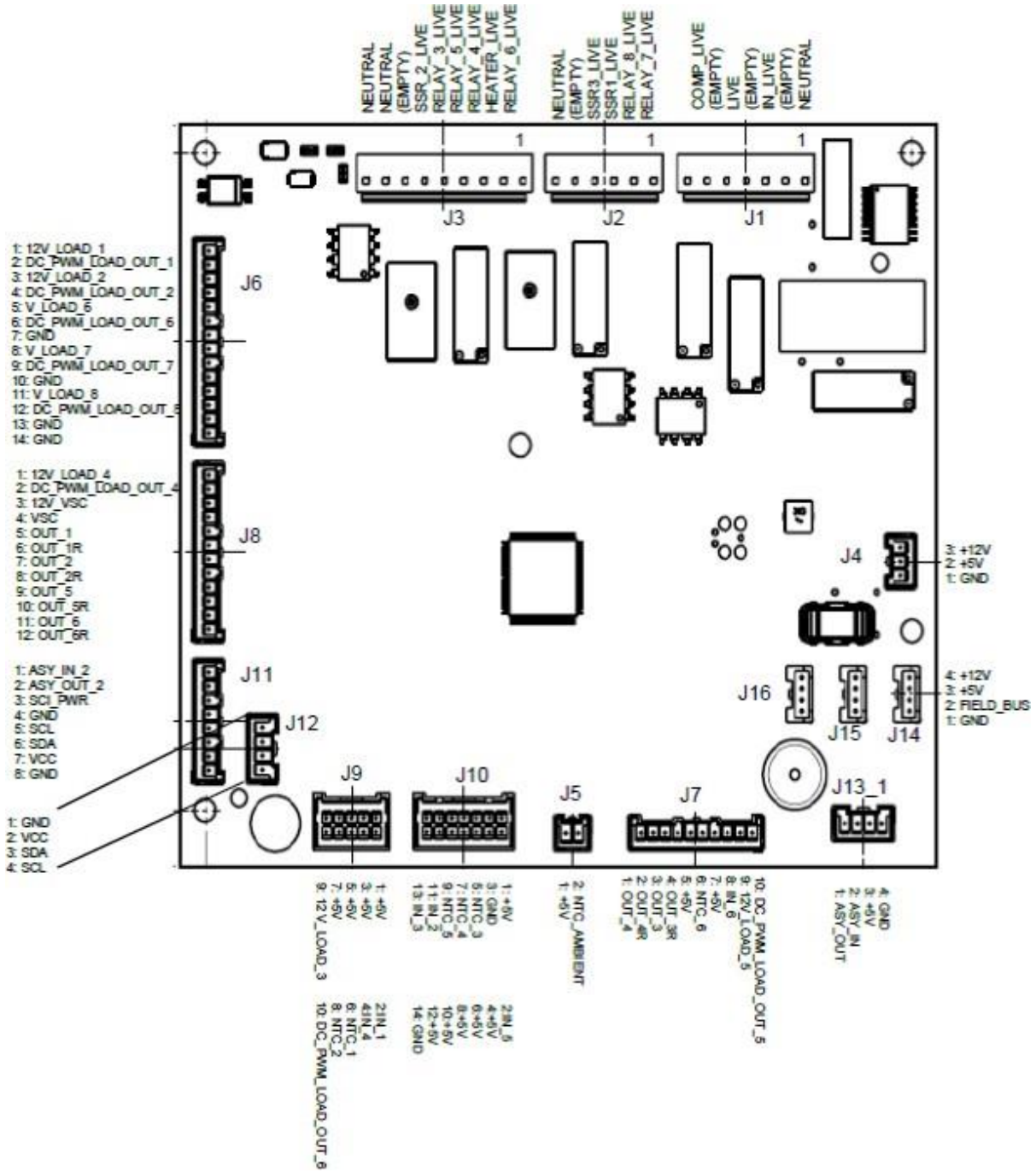


ERF2600 has eight relays and three SSRs power boards, connected mostly to insulated UI.

Sidekick connection Power supply

Control board

Filter board

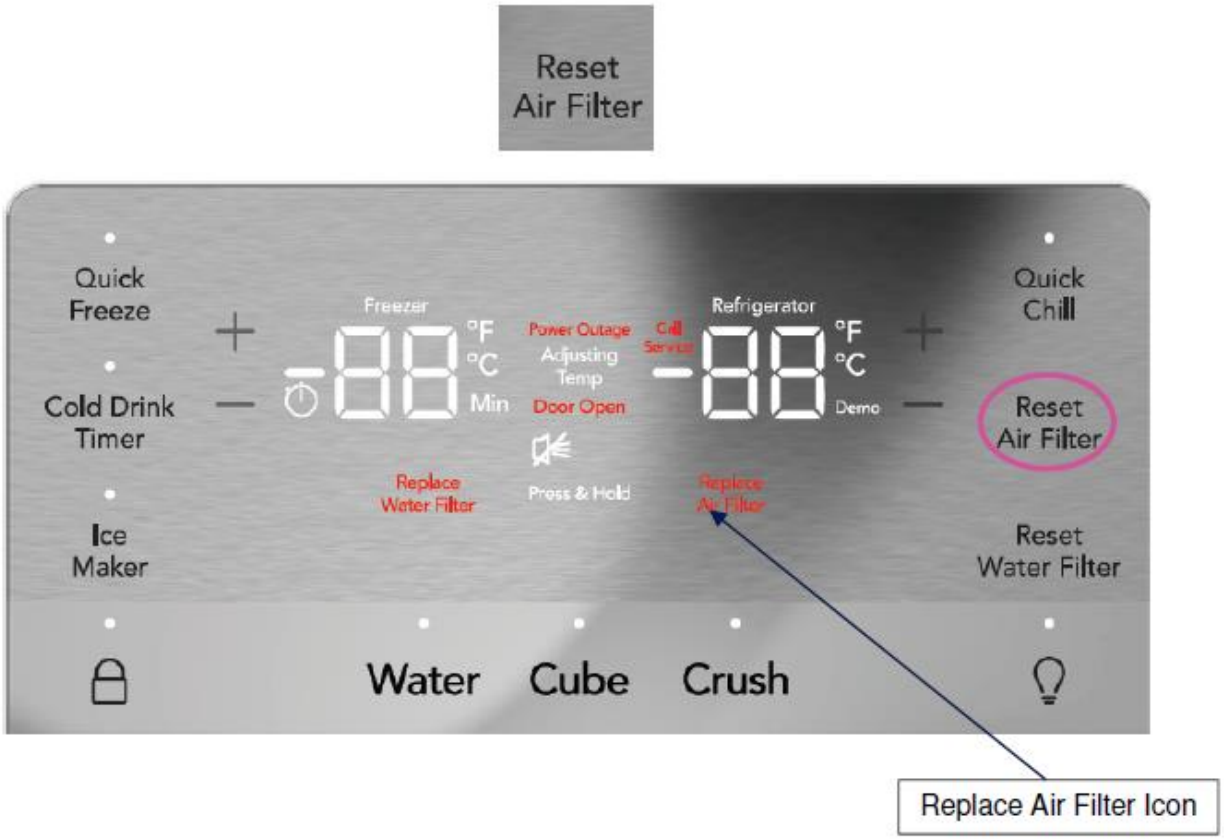

NEUTRAL
NEUTRAL
(EMPTY)
SSR_2_LIVE
RELAY_3_LIVE
RELAY_5_LIVE
RELAY_4_LIVE
HEATER_LIVE
RELAY_6_LIVE
NEUTRAL
(EMPTY)
SSR3_LIVE
SSR1_LIVE
RELAY_8_LIVE
RELAY_7_LIVE
COMP_LIVE
(EMPTY)
LIVE
(EMPTY)
IN_LIVE
(EMPTY)
NEUTRAL
J3
J2
J1
J6
J8
J11
J12
J9
J10
J5
J7
J13_1
J4
J16
J15
J14
1: 12V_LOAD_1
2: DC_PWM_LOAD_OUT_1
3: 12V_LOAD_2
4: DC_PWM_LOAD_OUT_2
5: V_LOAD_6
6: DC_PWM_LOAD_OUT_6
7: GND
8: V_LOAD_7
9: DC_PWM_LOAD_OUT_7
10: GND
11: V_LOAD_8
12: DC_PWM_LOAD_OUT_8
13: GND
14: GND
1: 12V_LOAD_4
2: DC_PWM_LOAD_OUT_4
3: 12V_VSC
4: VSC
5: OUT_1
6: OUT_1R
7: OUT_2
8: OUT_2R
9: OUT_5
10: OUT_5R
11: OUT_6
12: OUT_6R
1: ASY_IN_2
2: ASY_OUT_2
3: SCI_PWR
4: GND
5: SCL
6: SDA
7: VCC
8: GND
1: GND
2: VCC
3: SDA
4: SCL
3: +12V
2: +5V
1: GND
4: +12V
3: +5V
2: FIELD_BUS
1: GND
1: +5V
3: +5V
5: +5V
7: +5V
9: 12V_LOAD_3
2IN_1
4IN_4
6: NTC_1
8: NTC_2
10: DC_PWM_LOAD_OUT_6
1: +5V
3: GND
5: NTC_3
7: NTC_4
9: NTC_5
11: IN_2
13: IN_3
2IN_5
4:+5V
6:+5V
8:+5V
10:+5V
12:+5V
14: GND
1: +5V
2: NTC_AMBIENT
1: OUT_4
3: OUT_3
4: OUT_3R
5: +5V
6: NTC_6
7: +5V
8: IN_6
9: 12V_LOAD_5
10: DC_PWM_LOAD_OUT_5
4: GND
3: +5V
2: ASY_IN
1: ASY_OUT

9 MODE

9.1 RESET AIR FILTER

After 6 months, LED Replace Air Filter turns ON.

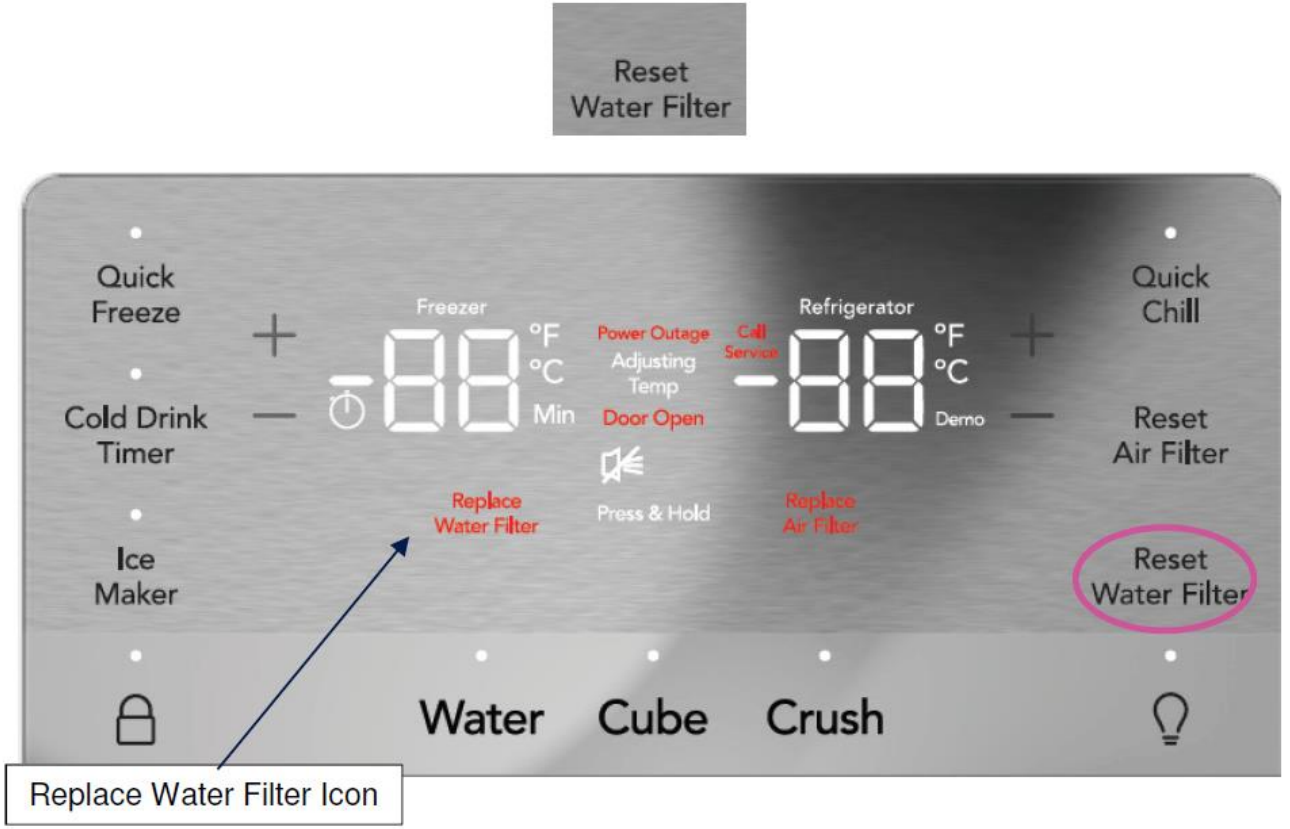
1. To reset the alert, press & hold the Reset Air Filter key for 3 seconds.
2. The new 6-month count will start.



9.2 RESET WATER FILTER

After 6 months or after 120 gallons of water dispensed, LED Replace Water Filter turns ON.

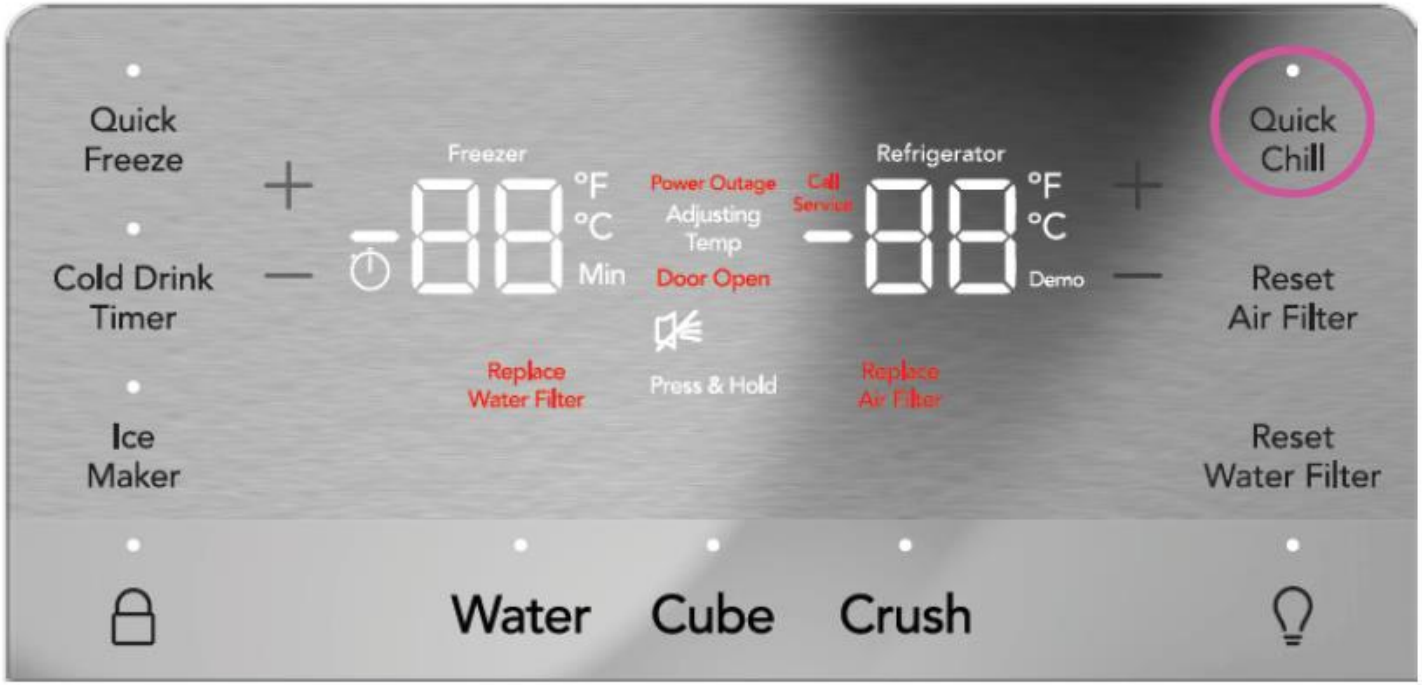
1. To reset the alert, press & hold the Reset Water Filter key for 3 seconds.



9.3 QUICK CHILL MODE

To turn on/off press the Quick Chill key

1. The product will respect the Minimum Fridge setup in the function (1°C / 34°F), it means, if the product reach the minimum temperature setup the system will change the valve to do not pass gas into the FF evaporator until reach again the cut in temperature.
2. The compressor will run in the maximum speed according the Compressor flowchart (ERF2600).
3. If the product was running previously a defrost, the product will wait until finish the defrost to start the compressor ON state, but the 6h timer will maintain decreasing;
4. Note: the Refrigerator setup temperature (value displayed) will not change. When Quick
5. Chill ends, the product will adjust back to the Refrigerator setup temperature indicated in
6. the display.
7. 6. IMPORTANT: Quick chill function is a refrigerator function. When the Quick Chill feature is
8. turned ON, it CANNOT freeze fresh food. It runs 6 hours at minimum Fresh Food setup
9. temperature (1°C / 34°F) or manually turned off by user;



9.4 QUICK FREEZ MODE

To turn on/off press the Quick Freeze key

1. The product will respect the Minimum Freezer setup in the function (-23°C / -9°F), it means, if the product reaches the minimum temperature setup the compressor will turn OFF until reach again the cut in temperature.

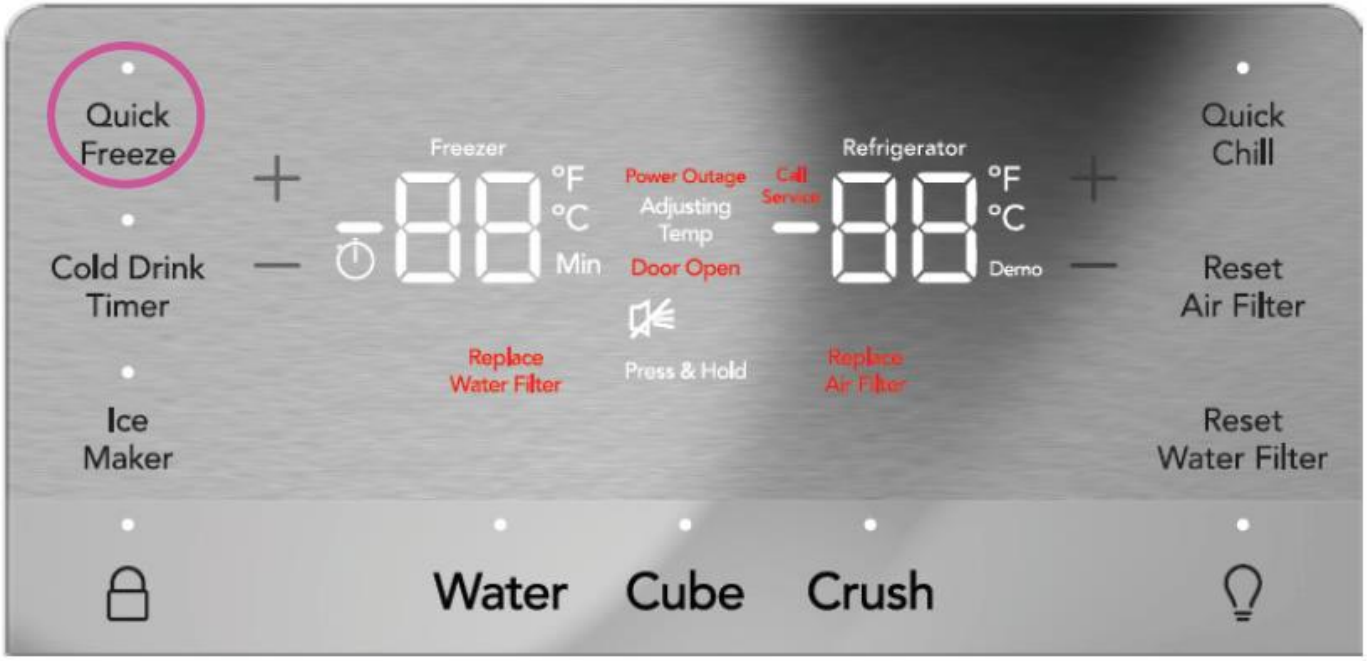
2. The compressor will run in the maximum speed according the Compressor flowchart (ERF2600).

3. If the product was running previously a defrost, the product will wait until finish the defrost to start the compressor ON state, but the 12h timer will maintain decreasing.

4. After 12 hours, the LED above key will turn OFF automatically, (none Tone). It is because the function finished.

5. Note: The Freezer setup temperature feedback (value displayed) will not change. When Quick Freeze Mode ends, the product will adjust back to the Freezer setup temperature indicated in the display.

6. IMPORTANT: Quick freeze is a freezer function. When the Quick Freeze Mode is turned ON, it CANNOT freeze fresh food. Quick Freezer Mode runs 12h to automatically finish the function, or manually turned OFF by user directly in the key.



9.5 DRINK CHILL (COLD DRINK TIMER)

If there is no further change to the value for 3 second,

- Blink “normal” the values digits twice,Play tone Confirm.

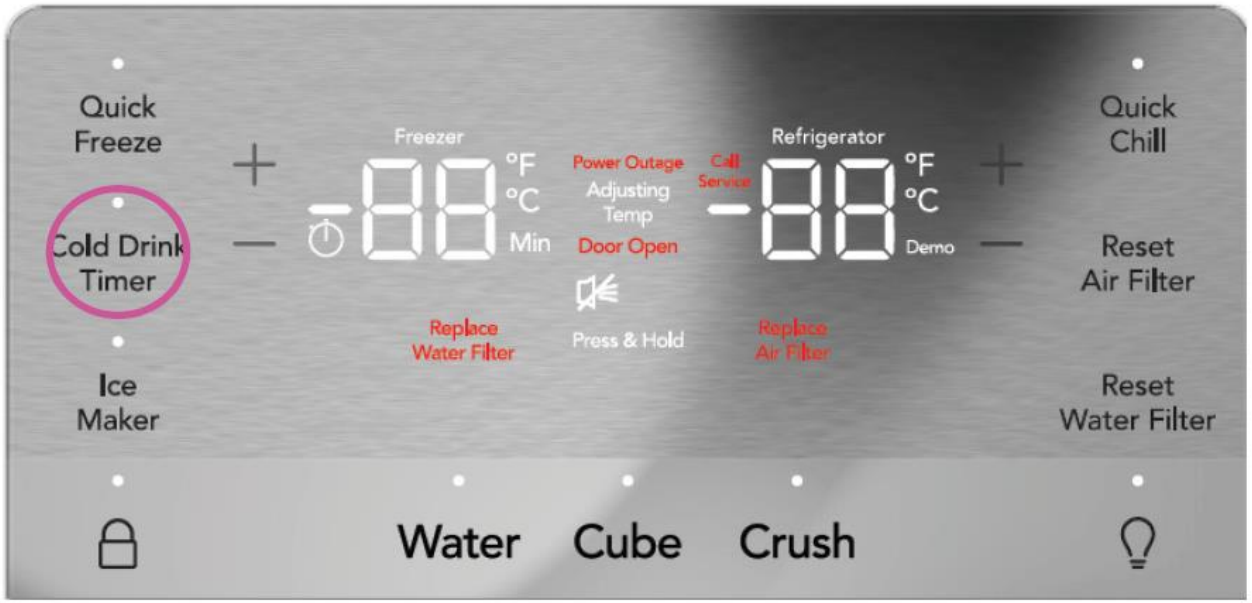
When timer time expires,

- Digits display show '00min' ,Blink “normal” LED Drink Timer above the key, until acknowledged by any keypress

- Play tone EOC for the first time, and then play tone EOC every 10 seconds until acknowledged by any keypress.

Time Range: 20 > 25 > 30 > 35 > 40 > 45 (6 timer options).

As soon as the function is confirmed the product will run the compressor maximum & Freezer fan speed until reach the end of the timer.



9.6 DEMO MODE

Pressing and holding + (freezer) and – (refrigerator) for 10 seconds will activate Demonstration mode.

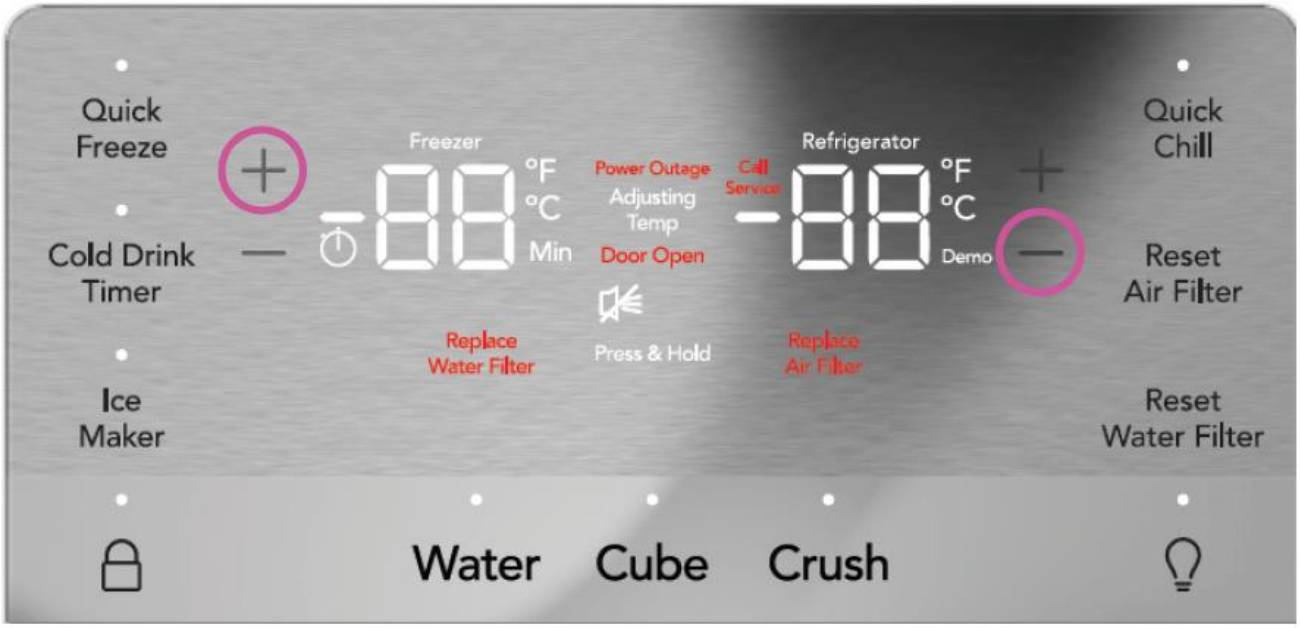
On detection of 10-sec-holding,

- Illuminate Icon “Demo”,Play tone Confirm.

All the Icons/Touches/Display/Lighting will work properly, excepted cooling will not work.

Pressing and holding + (freezer) and – (refrigerator) for 10 seconds again will deactivate Demo mode

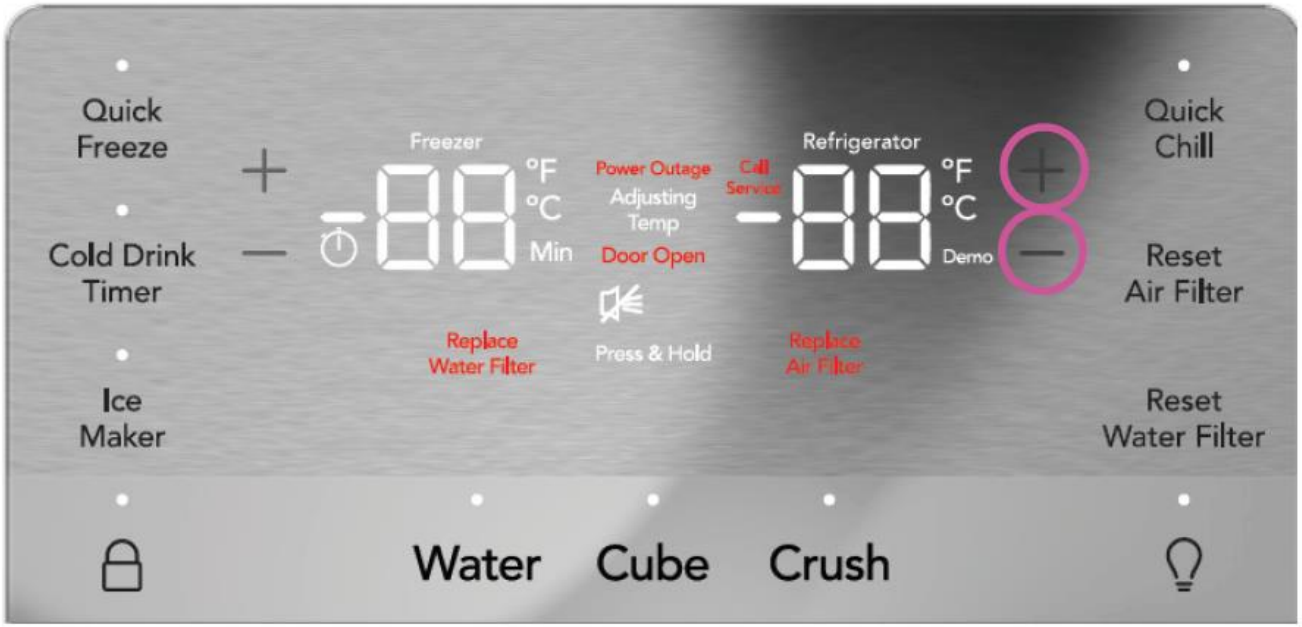
- Illuminate Icon “Demo” removed, Play tone Cancel.



9.7 CHANGE TEMPERATURE ENTER IN THE °F/°C

Press and hold for 5 seconds + and - from the refrigerator side.

Will change from Degrees Celsius to Degrees Fahrenheit or Degrees Fahrenheit to Degrees Celsius.



9.8 SABBATH MODE

Pressing and holding – (freezer) and + (refrigerator) for 5 seconds will activate Sabbath mode. The digits display show 'Sb' and 'Sb'

- Turn off all the other LEDs ,No sound playing

During the Sabbath mode only the loads that are strictly necessary to the product works normally. It means that Chute/Mullion Heater will be enable to work. Freezer Light/Fridge Light/ VCZ light and Dispenser light are disable during the Sabbath mode (also if the dispenser light is turned ON in the panel before

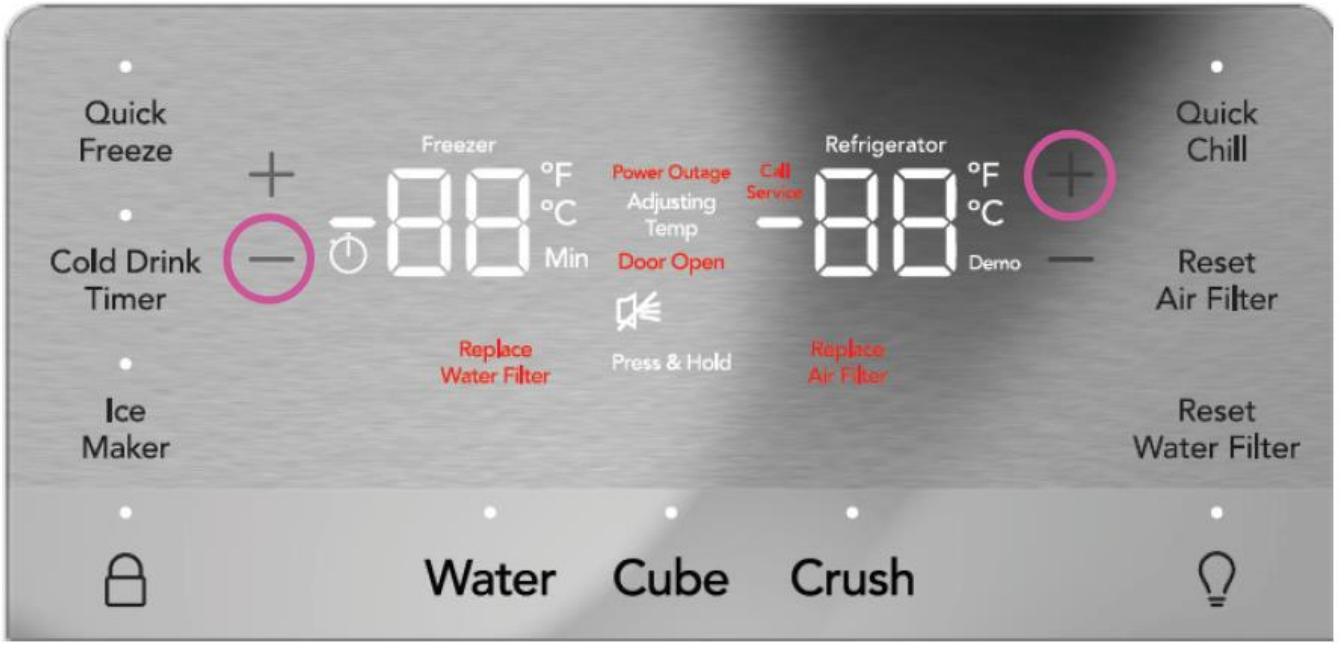
- Alarms are disable, except High Temperature Alarm. If it occurs, the alarm is visualized ondisplay “HI” that overwrite the “Sb” indication.entering in Sabbath mode)

The sound alarm is automatically mute by timeout (5 minutes). During the Sabbath mode is not possible to acknowledge the alarm.

-The adaptive defrost will be a clock time of 10h

-All dispenser functions are disable

Pressing and holding – (freezer) and + (refrigerator) for 5 seconds again will deactivate Sabbath mode



9.9 SLEEP MODE

To turn "Sleep Mode" On/Off, press and hold for 5 seconds 'CRUSH' and 'Light' Key. Play tone 'confirm' Sleep Mode is turned on or off.

Option A: When the Control panel is not active locked mode.

10 seconds of no user interface, the control panel goes into sleep mode,

- Dispense mode selection and light state remains the current state water,cube,Crush and light ON.

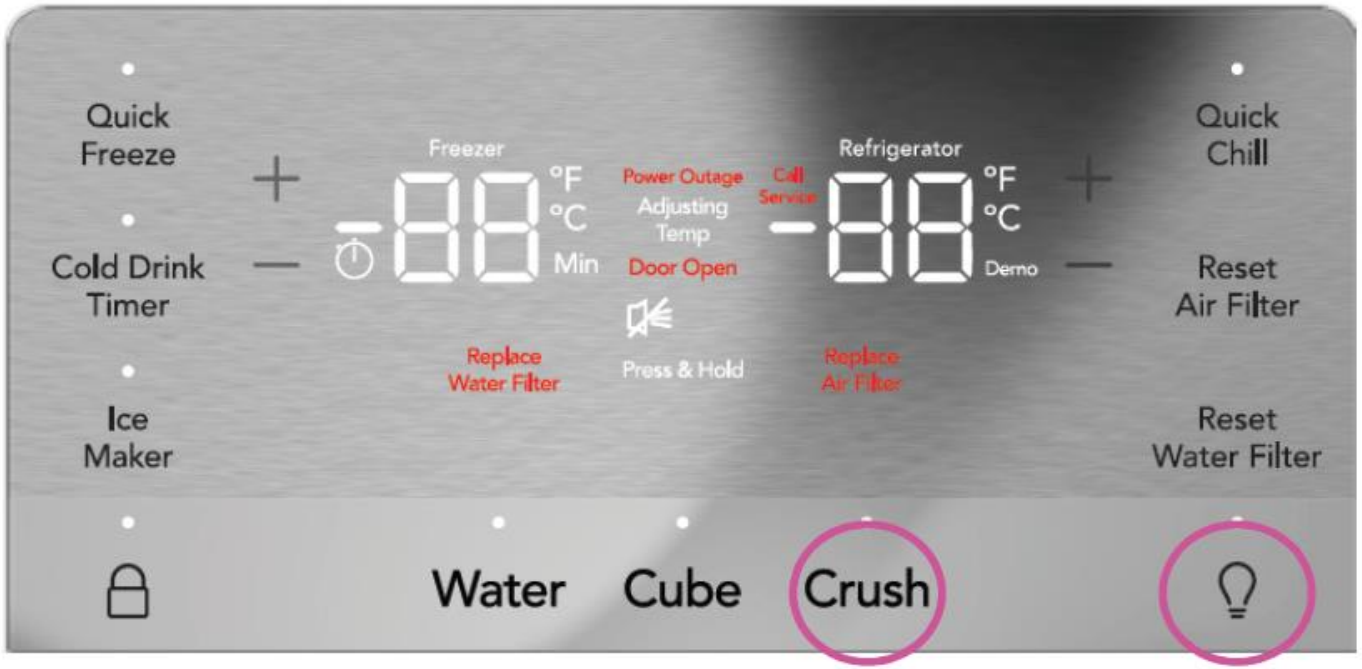
- All other UI elements are off.

- Touching any other key to wake up the UI and show settings.

Option A: When the Control panel is not active locked mode.

When Control panel is locked, then 10 seconds of no user interface, the control panel goes into sleep mode,

- Turn off everything except the lock LED



9.10 FACTORY DEFAULT MODE

Pressing Refrigerator (-) and (-)Freezer keys (press together for 10 seconds)

This function will reset all the settings to the factory default settings. It means:

- Set the Freezer temperature to Default (-18°C / 0°F)

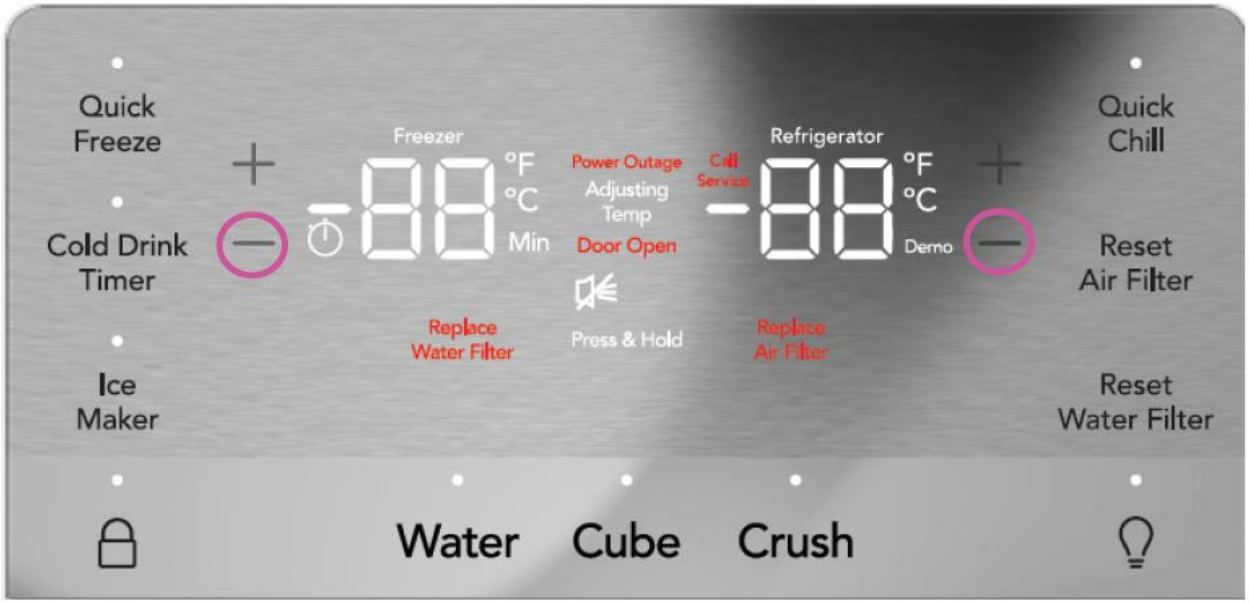
- Set the Fridge temperature to Default (4°C / 37°F)

- Ice maker function Default ON

- Dispenser Default Water

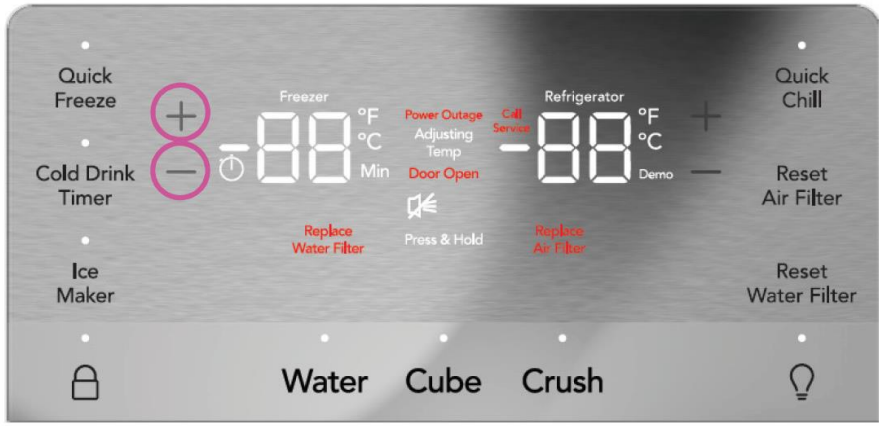
- Other functions OFF

- and HI Temp reset to the initial value.



10 DIAGNOSTIC MODE

10.1 ENTER TO DIAGOSTIC MODE



Activate service mode:

Press and hold
+ (freezer) and
– (freezer) for 10 seconds.

All LEDs of the UI illuminates and a beep confirms that service mode is activated.

Press **+ (refrigerator)** icon to progress through the different functions. Press **– (refrigerator)** icon to go back to the previous function.
Press **"Ice cubes"** icon to change the status of the function.

- Each function is associated with a number indicated on the freezer display.
- Function status is indicated with intermittent time duration on the fridge display.
- See **List of functions in service mode** table below for details

Extra information:

Freezer display: Numbered item.

Refrigerator display: Status of the item, status/value of the extra information, numbered item, status/value of the extra information.

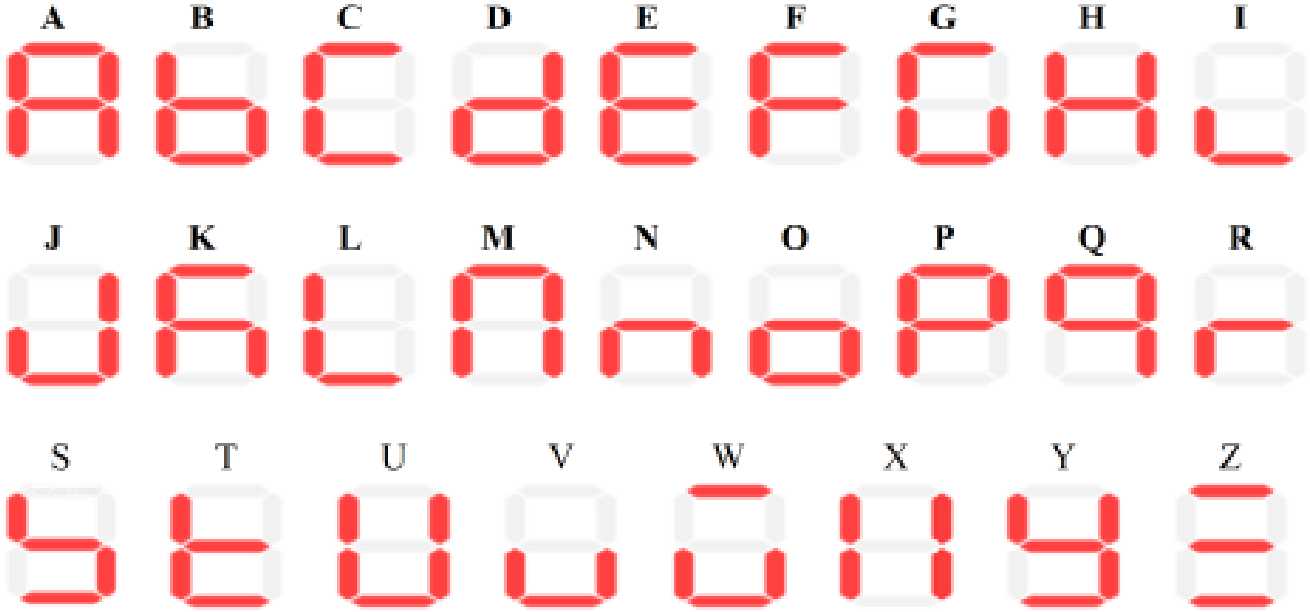
Exit service mode:

Press and hold freezer **+** and **–** icons for 10 seconds.

Appendix A. Seven-segment display character representation

Numbers:

Letters:



10.2 LIST OF FUNCTIONS IN DIAGOSTIC MODE

• Freezer Display: N° item
• Refrigerator Display: status of the item, status/value of the extra info, N° item, status/value of the extra info

N° item	Function test	UI action to change the status	Expected behavior
-	First screen	-	LED lights up to display UI.
-	Second screen	-	LED turns off.
2	Freezer defrost heater	Press “Ice Cubes”	a. The freezer evaporator defrost sensor temperature flashes on the display. b. Watch for temperature increase with the heater on. • It may take a maximum of 5 minutes for the evaporator to heat up. Maximum 5 minutes “on” or 45°C Freezer Evap Defrost Sensor threshold.
8	Main valve	Press “Ice Cubes”.	a. Main valve (faucet) is activated when “on”; stops when “off”
11	Cube/crush solenoid	Press “Ice Cubes”.	a. Solenoid is activated when “on”, deactivated when “off”. b. Do not leave solenoid activated for more than 1 minute; it turns off automatically after 1 minute.
53	Water valve dispense + main valve	Press “Ice Cubes”.	b. Be prepared to collect water at dispenser. c. Water dispenses when “on”; stops when “off”.

56	Ice maker water valve+ main valve	Press “Ice Cubes”.	a. Remove ice tray to collect water into a measuring container to measure the water fill. b. If collecting water into ice tray, first perform test number 50 to empty ice tray. c. Water flows in the tray when “on” and stops when “off”
71	Refrigerator defrost heater	Press “Ice Cubes”.	a. Refrigerator Evaporator Defrost Sensor temperature flashes on the display. b. Watch for temperature increase with the heater on. c. It may take a maximum 5 minutes for the evaporator to heat up. Maximum 5 minutes “on” or 45°C Refrigerator Evap Defrost sensor threshold.
72	Ice maker defrost heater	Press “Ice Cubes”.	a. Icemaker Evaporator Defrost Sensor temperature flashes on the display. b. Watch for temperature increase with the heater on. c. It may take a maximum 5 minutes for the evaporator to heat up. Maximum 5 minutes “on” or 45°C IM Evap Defrost Sensor threshold.
74	VCZ balance heater	Press “Ice Cubes”.	a. Maximum five minutes “on” continuous.
79	Fill tube heater	Press “Ice Cubes”.	a. Maximum five minutes “on” continuous.
10	Auger motor	Press “Ice Cubes”.	a. Refrigerator door must be closed. b. Motor running when “on”; motor stopped when “off”
13	Refrigerator light	Press “Ice Cubes”.	a. Refrigerator lights on when “on”, off when “off”
14	VCZ light	Press “Ice Cubes”.	a. VCZ light on when “on”, off when “off”
15	Freezer evaporator fan	Press “Ice Cubes”.	a. The freezer evaporator fan runs at three speeds: • “On”: Fan runs at maximum speed • “Mi”: Medium speed • “Off”: Stopped b. “Lc”: Rotor condition locked. c. “Ns”: PWM signal that provides duty cycle is absent and the fan is ““off”. d. “Np”:12V signal or GND signal is absent and the fan is “On” or “Mi”.

17	VCZ fan	Press “Ice Cubes”.	a. The VCZ fan runs at three speeds: a. “On”: Fan runs at maximum speed b. “Mi”: Medium speed c. “Off”: Stopped
18	Condenser fan	Press “Ice Cubes”.	a. The condenser fan runs at three speeds: a. “On”: Fan runs at maximum speed b. “Mi”: Medium speed c. “Off”: Stopped b. “Lc”: Rotor condition locked. c. “Ns”: PWM signal that provides duty cycle is absent and the fan is ““off”. d. “Np”:12V signal or GND signal is absent and the fan is “On” or “Mi”.
20	Freezer light	Press “Ice Cubes”.	a. Freezer light on when status is “on”, and off when “off”
38	VCC compressor	Press “Ice Cubes”.	a. Compressor is running at maximum speed when “on”, it is stopped at “off”.
47	Ice chute heater	Press “Ice Cubes”.	a. Chute heater is activated when “on”, deactivated when “off”.
62	Icemaker evaporator fan	Press “Ice Cubes”.	a. Icemaker evaporator fan is activated when ”on”, deactivated at “off”.
63	Flip mullion heater DC	Press “Ice Cubes”.	a. DC flip mullion heater is activated when “on”, deactivated at “off”.
66	Dispenser light	Press “Ice Cubes”.	a. Dispenser light on when “on”, off when “off”
70	Refrigerator evaporator fan	Press “Ice Cubes”.	a. The refrigerator evaporator fan runs at three speeds: a. “On”: Fan runs at maximum speed b. “Mi”: Medium speed c. “Off”: Stopped b. “Lc”: Rotor condition locked. c. “Ns”: PWM signal that provides duty cycle is absent and the fan is ““off”. d. “Np”:12V signal or GND signal is absent and the fan is “On” or “Mi”.
76	VCZ damper heater	Press “Ice Cubes”.	a. VCZ Damper Heater is activated when “on”, deactivated when “off”.

77	VCZ damper	Press “Ice Cubes”.	a. Freezer evaporator fan is automatically at maximum speed. a. “Op”: VCZ damper is open. b. “Cl”: VCZ damper is closed. c. “Off”: Stopped b. Check for airflow when the damper is fully open and that there are no air leaks when fully closed. c. “1” blinks during movement of damper. d. If there are errors during movement, the error status of the fan is displayed (LC, Ns, Np) and the status of the damper (Op, Cl).
36	Ice chute door/ ice flapper motor	Press “Ice Cubes” to change the status of the function and to move the flapper motor.	a. “Op”: Ice chute door is open. b. “Cl”: Flapper motor is closed. c. “1” blinks during movement of flapper motor. d. “Er” in case of failure. e. Opening/closing of the ice chute door are performed recursively for three consecutive times.
50	Icemaker twist tray harvest test	Press “Ice Cubes” to change the status of the function and to start the rotation.	a. Remove the ice bucket to see the rotation of the ice tray. b. “Go” on the refrigerator display when the tray finds the home position (horizontal position) c. “1” blinks during rotation of the ice tray. d. “Er”: In case of failure at the end of the twisting action.
78	Ice maker tray bail arm/ ice level bucket	Press “Ice Cubes”.	a. Remove the ice bucket to see the status of the ice tray bail arm. b. Allow bail arm to drop freely. “Em” (empty) when the tray returns to the home position. c. Hold up the bail arm. “Fu” (full) when the tray returns to the home position. d. “1” blinks during rotation of the ice tray. e. “Er” In case of failure at the end of the twisting action.
61	Stepper motor valve	Press “Ice Cubes”.	a. First Position must be (“open-open") and the compressor starts at maximum speed. b. Going through the steps below, the stepper valve goes to close position, IM/FZ then FF/IM/FZ. It is possible to loop through the four states. c. The display indicates the steps as: • “03”: Open position • “00”: Close position • “01”: IM/FZ position • “02: FF/IM/FZ position d. Steps 00 and 01: e. f. g.

			h. Evaporator defrost sensor temperature is displayed to see if the temperature is decreasing or not. i. Steps 02 and 03: Refrigerator evaporator defrost sensor temperature is displayed to see if the temperature is decreasing or not. j. “1” blinks during the movement of the stepper motor from one-step to another.
23	Refrigerator door	Open/Close FF Reed Switch	a. “Op”: Door is open. b. “Cl”: Door is closed.
24	Freezer drawer	Open/Close FZ Reed Switch	a. “Op”: Door is open. b. “Cl”: Door is closed.
25	VCZ drawer	Open/Close VCZ Reed Switch	a. “Op”: Door is open. b. “Cl”: Door is closed.
28	Dispenser paddle	Press the Dispenser Paddle	a. “On”: Paddle is pressed. b. “Of”: Paddle is released or not pressed.
29	Refrigerator sensor	Activates automatically	a. Temperature sensed by refrigerator sensor displayed in °C or °F. b. “OP” if open-circuit; “SH” if short-circuit.
30	Freezer sensor	Activates automatically	a. Temperature sensed by freezer sensor displayed in °C or °F. b. “OP” if open-circuit; “SH” if short-circuit.
31	Refrigerator evap defrost sensor	Activates automatically	a. Temperature sensed by refrigerator evaporator defrost sensor displayed in °C or °F. b. “OP” if open-circuit; “SH” if short-circuit.
32	VCZ sensor	Activates automatically	a. Temperature sensed by VCZ sensor displayed in °C or °F. b. “OP” if open-circuit; “SH” if short-circuit.
33	Ambient temperature sensor	Activates automatically	a. Temperature sensed by H&T sensor regarding the ambient temperature displayed in °C or °F. b. “OP” if open-circuit; “SH” if short-circuit.
39	Freezer evaporator defrost sensor	Activates automatically	a. Temperature sensed by freezer evaporator defrost sensor displayed in °C or °F. b. “OP” if open-circuit; “SH” if short-circuit.
45	Icemaker tray sensor	Activates automatically	a. Temperature sensed by icemaker tray sensor displayed in °C or °F. b. “OP” if open-circuit; “SH” if short-circuit.
68	Icemaker evaporator defrost	Activates automatically	a. Temperature sensed by icemaker evaporator defrost sensor displayed in °C or °F. b. “OP” if open-circuit; “SH” if short-circuit.

	sensor		
64	Humidity sensor	Activates automatically	a. Relative humidity sensed by H&T sensor in %. b. "OP" if open-circuit; "SH" if short-circuit.

10.3 SOFTWARE PARAMETERS AND FIRMWARE VERSIONS

After the functional tests, it is possible to view the software parameters and firmware versions of the electronic boards.

Press the + (refrigerator) icon after the functional tests, "--" is display and after this the sequence described below starts. .

The --" characters are used as a separator.

a-	Software Parameters	Runs Automatically, scrolling all the digits of the string.	a. Displays digits sequence related to the set of parameters that is flashed inside ERF2600 power board; b. It is built of 8 digits. The same digit is displayed simultaneously on the 2 displays (Freezer and Refrigerator). • For example: "00499539" c. Press + icon if you want to skip this visualization and pass to the next record.
b-	Main Board Firmware Version ERF2600	Runs Automatically, scrolling all the digits of the string.	a. Displays digits sequence related to the ID string or firmware version of ERF2600 power board b. It is built of 8 digits. The same digit is displayed simultaneously on the 2 displays (Freezer and Refrigerator). • For example: "JHB10G10" c. Press + icon if you want to skip this visualization and pass to the next record
d-	Cobalt UI Firmware version	Runs Automatically, scrolling all the digits of the string.	a. Displays digits sequence related to the ID_string or firmware version of Cobalt User Interface (main UI) b. It is built of 8 digits. The same digit is displayed simultaneously on the 2 displays (Freezer and Refrigerator). • For example: "LHFE0700" c. Press (refrigerator) + if you want to skip this visualization and pass to the next record.

d-	Indigo Firmware Version (VCZ drawer)	Runs Automatically, scrolling all the digits of the string.	a. Displays digits sequence related to the ID_string or firmware version of Indigo User Interface (VCZ drawer UI) b. It is built of 8 digits. The same digit is displayed simultaneously on the 2 displays (Freezer and Refrigerator). • For example: "MHFE0600" Press (refrigerator) + if you want to skip this visualization and pass to the next record

10.4 LIFETIME

After the software parameters and firmware versions, it is possible to view the lifetime of the appliance. This refer to the number of days the appliance has had power, not consecutively.

The maximum value can be 9999 days.

a-	**Lifetime**	Press + icon, to pass to the next digit.	a. Displays lifetime sequence related to the number of days from the first start-up. b. It is built of 4 digits for Example: "*0077*" means 77 days. c. Press + icon to pass to the next digit.

10.5 FREE COUNTER

The last section is related to display a free counter. It is a one second up-counting timer (0,1,2,3…) and the digit is displayed on the display.

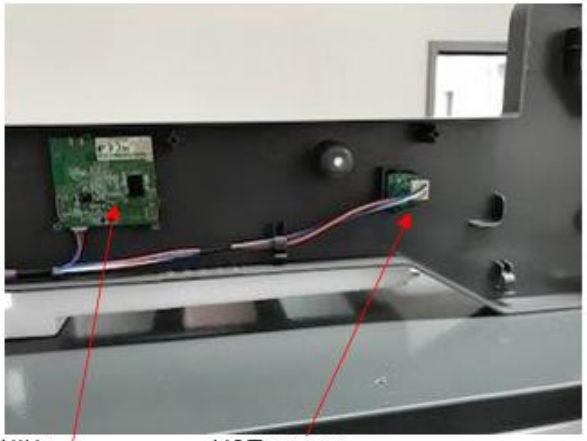
This phase communicates that service mode has come to end. To return to normal mode you have to press and hold + and – icons for 10 seconds or unplug the appliance and plug it again

11 REMOVAL & REPLACEMENT OF PARTS

11.1 TOP PANEL

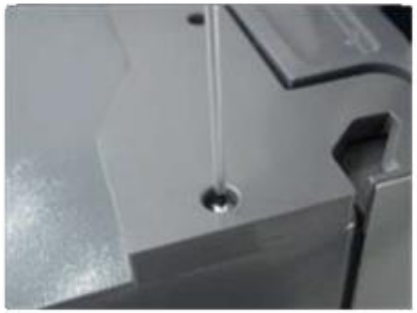
Remove the five screws on the top panel to access:

- Auger motor safety switch
- Water hose
- Safety switch auger motor
- Reeds switch internal light.
- NIUx board
- H&T sensor



NIUx H&T sensor

Water hose switch Auger motor safety switch Light reed



Remove the Light reed switch:

Disconnect the wire connector of the switches

Open the snaps to remove. the switches.

Remove the Auger safety switch:

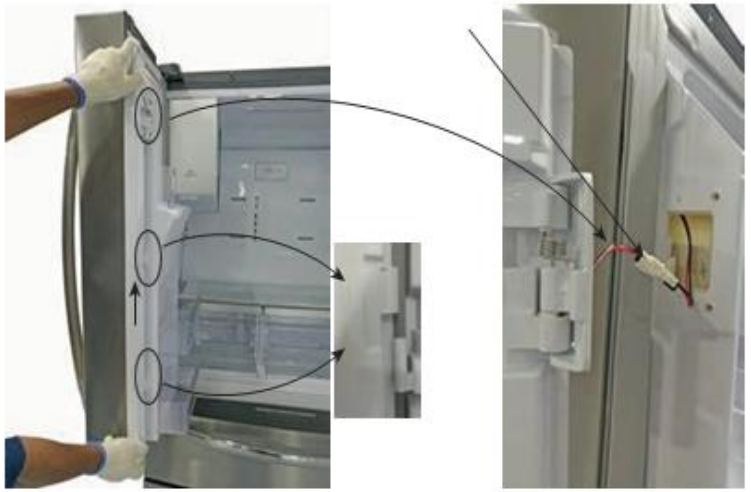
Disconnect the wire connector.

Release the snap and push out

11.2 FILPPER MULLION PLATE

1. Disconnect power.
2. Remove the screws on the flipper mullion hinge.

3. Hold the flipper mullion and push it upward.
4. Disconnect the wire connector of the flipper mullion.



11.3 HUMIDTY CONTROL

1. Disconnect power.
2. Release snap and remove the humidity control cover and detach the humidity control.

11.4 FILTERS

Air filter:

Hold the air filter assembly and pull it out.

Air filter

Water filter:

1. Pull the water filter housing towards the front of the cabinet to release the tab, the filter housing drops to reveal the filter.
2. Hold the water filter and rotate counterclockwise to remove the water filter.

Water filter

11.5 ICE MAKER AIR HANDLER & EVAPORATOR

Ice maker:

1. Hold the ice bucket assembly and pull it out.
2. Remove the screw and detach the wiring cover.
3. Disconnect the wire connector of the ice maker.
4. Hold the ice maker and pull it out.

Note: The ice maker fill tube is not replaceable.

Air handler:

1. Remove the ice maker.
2. On the side of the ice maker, remove the screw cap with a plastic putty knife.
3. Remove the two screws mounting the flip shelf.
4. Take the shelf out.

5. Remove the screw mounting the ice maker housing.
6. Hold the ice maker housing and pull out.

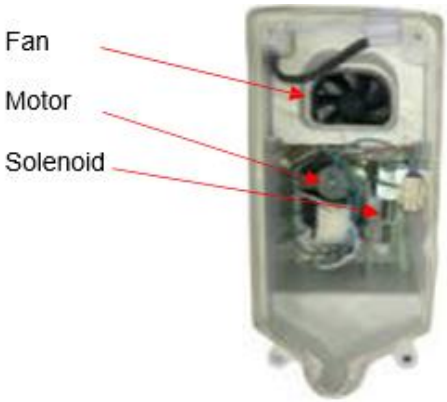
7. Remove four screws mounting air handler.
8. Pull out the defrost thermistor and disconnect the wire.

Evaporator:

1. Remove ice maker.
2. Remove air handler.
3. Pull out defrost heater fuse.
4. Cut the welding on inlet and outlet tubes of evaporator.
5. Release snaps and remove the evaporator.

11.6 AUGER MOTOR,ICE MAKER FAN & CUBE CURSH SOLENOID

1. Remove ice maker.
2. Remove air handler.
3. Pull out thermal cover on top of the fan assembly.
4. Pull out the fan assembly and disconnect the wire.
5. Remove the two screws mounting the crush solenoid.
6. Pull out the crush solenoid.

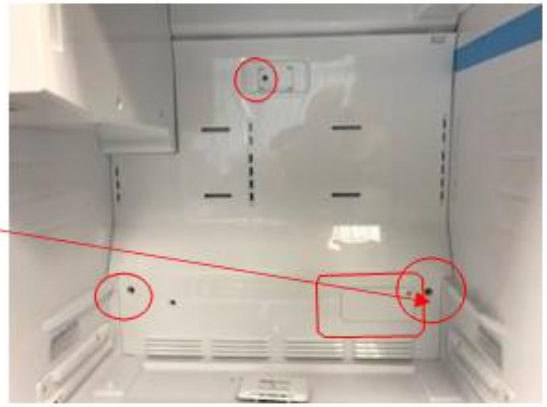


7. Disconnect all wires connected to the crush solenoid.
8. Unscrew the auger drive bar.
   a. Note that it has left-hand threads (turn right to loosen). Hold auger drive bar and rotate clockwise to remove.
9. Remove the foam gasket that covers the top screw.

10. Remove the three screws.
11. Disconnect the wires connected to the motor.
12. Detach the motor.

11.7 FRIDGE EVAPORATOR, EVAPORATOR FAN,AIR DUCT,DEFROST SENSOR

1. Disconnect power.
2. Remove the flip-shelf, shelves, crisper drawers, crisper support and air filter.
3. Remove the connector window cover and disconnect all the connectors.
4. Remove the three screws to unfasten the cover of the fridge evaporator.
5. Remove the NTC sensor.
6. Pull the cover from the top to release the tabs.
    a. **Be sure to grasp the cover right above. the air filter location. The back of the air ducting is adhesive backed foam tape. If the cover is pulled from either the right or left, the tape will collapse and attach itself to the air duct causing an air restriction**.



Adhesive backed foam tape – make sure to grasp the cover from the top, above the air filter location.

7. Disconnect the wire connector of the fan motor.
8. Remove the sensor on the air duct.

Fridge evaporator fan:

1. Remove the three screws.
2. Cut the foam tape with a knife.
3. Do not cut more than necessary to remove the fan.
4. Take the fan motor out.
5. Remove the fan housing.
6. Separate the housing by releasing the tabs and detach the fan motor by removing the three screws.

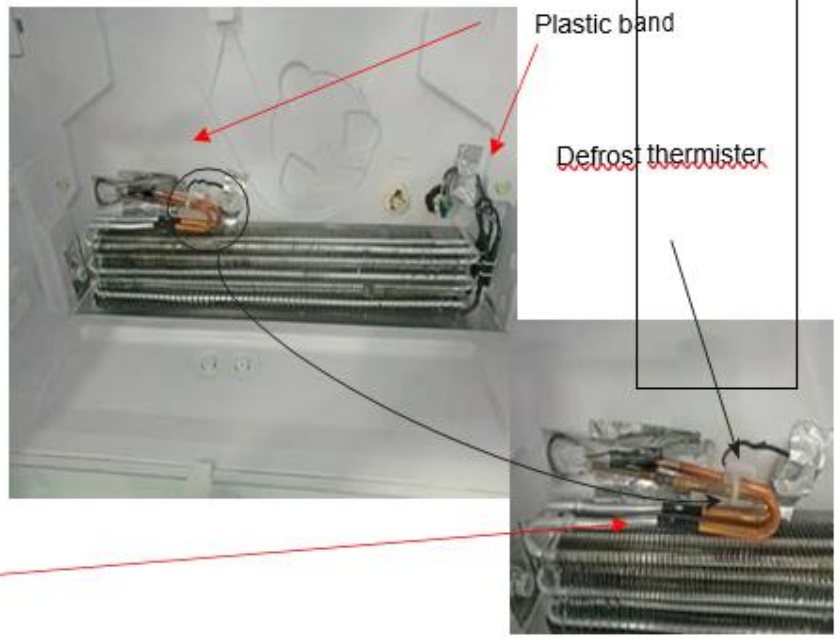
After a fan replacement, use an adhesive tape to hold the original tape in position.

Release the snap and remove the screws

The defrost thermistor is located on the upper side of the evaporator, on the copper tube leading to the evaporator inlet.

1. Cut the plastic band attached to the thermistor/heater thermal cutoff.
2. Disconnect the wires and detach the thermistor/ heater thermal cutoff.

Note: Do not break the welding of the evaporator if removing the defrost thermistor.



Fridge evaporator:

1. Separate the defrost thermister from the evaporator.
2. Cut the welding on inlet and outlet tubes and remove the evaporator

11.8 WATER SUPPLY

Note: Tubes may contain water.

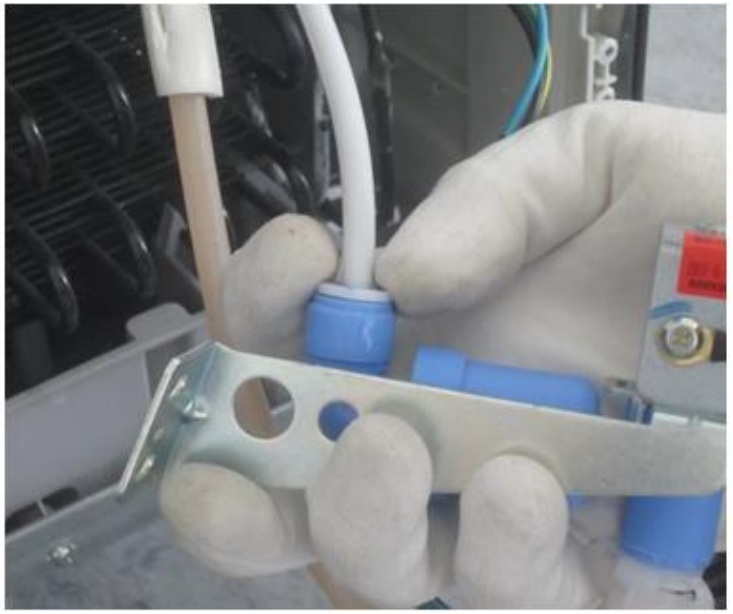
1. Remove the screws mounting the main water valve.
2. Disconnect the wire connector of the valve.

Note: MDR4 has an additional double valve inside the fresh food compartment.

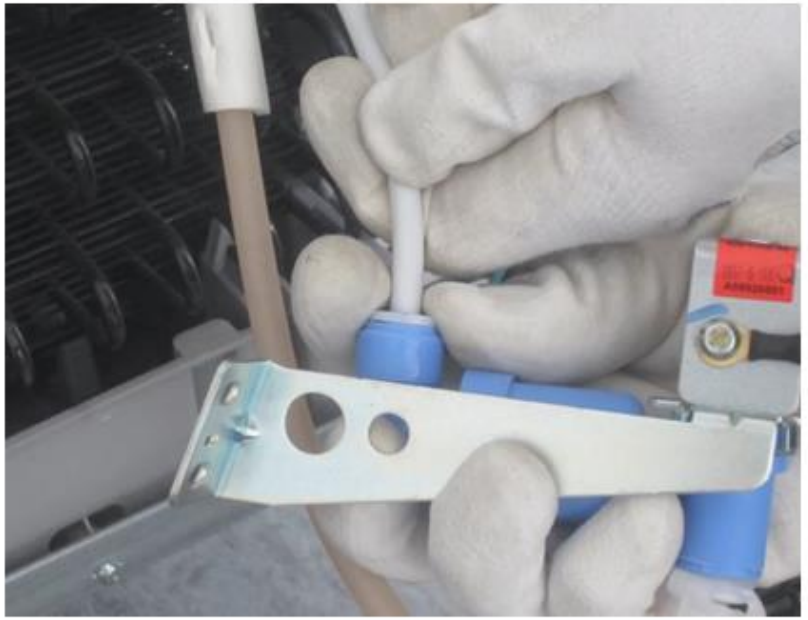
Inlet tube:

3. Remove the black lockring clip.

4. Hold the valve and press down the white release collar on both sides.



5. Gently pull out the tube while at the same time pressing down the release collar on both sides.



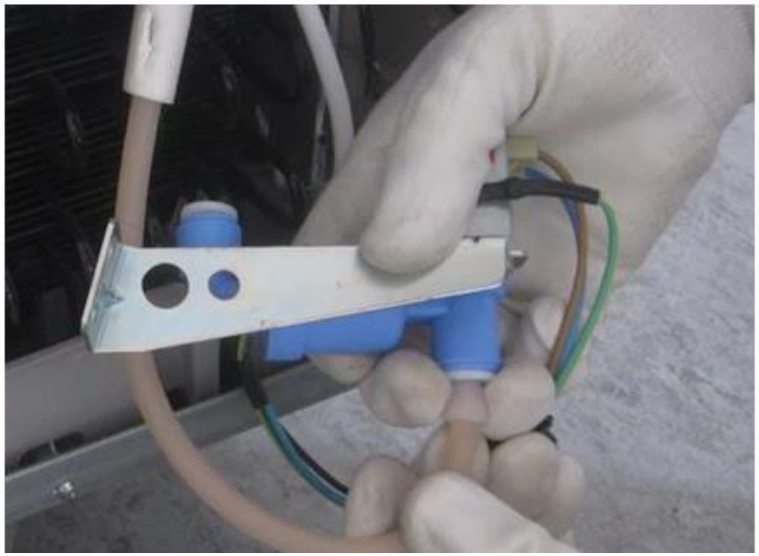
Reverse the actions to assemble.

11.9 MAINFOLD TUBE

Filter manifold tube

1. Remove the plastic zip ties and unclip the tube guide.

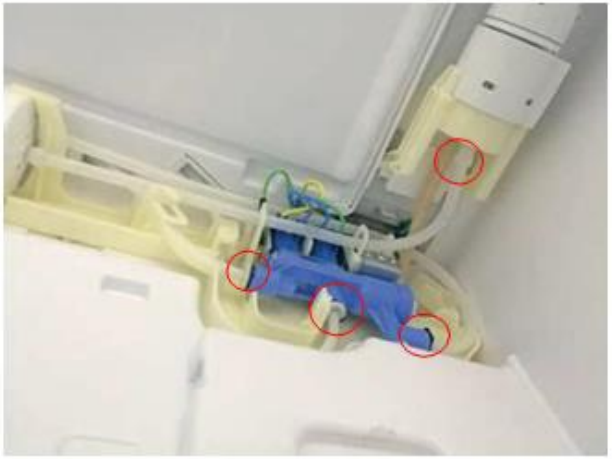
2. Hold the valve and press down the white release collar on both sides.
3. Gently pull out the tube while at the same time pressing down the release collar on both sides.



11.10 WATER FILTER

1. Unfasten the two screws on the cover of the water dispenser

Remove tubes as described in **Inlet tube**



2. Carefully remove the tubing secondary water valve and water filter – follow the same process as detailed in chapter. **Inlet tube**

3. Remove the screw mounting the secondary water valve.
4. Disconnect the wire connector and detach the secondary water valve.
5. To remove the water tank, gently bend the lower arm of the bracket outwards and the push the tank down. The tank will pop out.

Note: Other tank in production, see Water supply overview image.

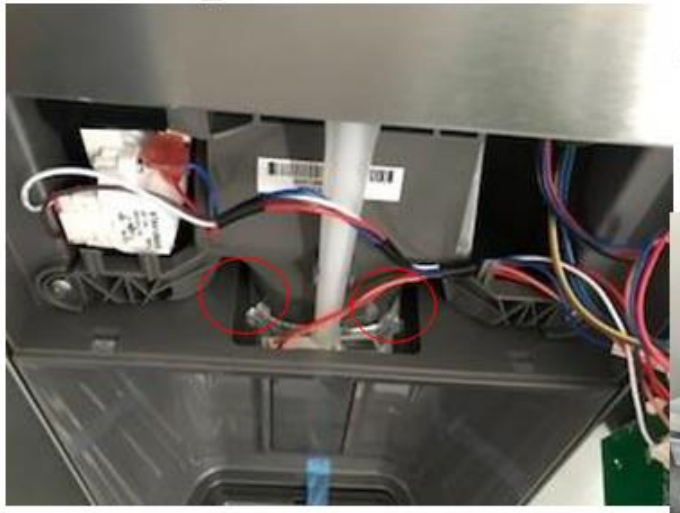
Disconnect wire.

Remove screw

Push tank down. Bend lower arm

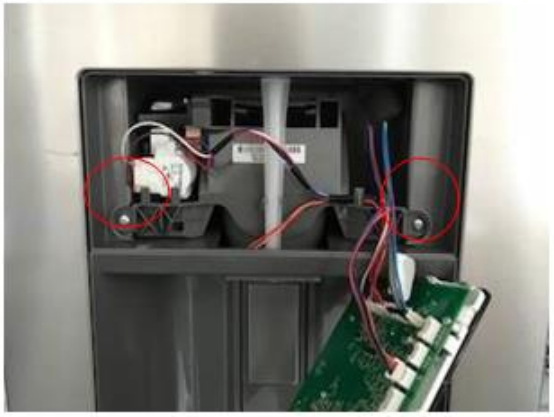
11.11 DISPENSOR MODULE

1. Remove top cover to reach the water hose.
2. Pull out water hose approx. 10 cm.



3. Insert thin plastic tool to clip out the electronic board or use a suction cup.
4. Disconnect the wire connector.

5. Remove the cover of the water hose



6. Unfasten the two screws.

11.12 DISPENSOR PADDLE

1. Use a suction cup to pull out the dispenser paddle.