Service Manual
Active Smart Refrigerator/Freezer
Ice & Water Service Supplement

Models:
E522BLXU
E522BLXFDU
E522BRXU
E522BRXFDU

care

517804

The specifications and servicing procedures outlined in this manual are subject to change without notice.

The latest version is indicated by the reprint date and replaces any earlier editions.

CONTENTS

1   ICE & WATER INTRODUCTION

Ice making and water dispensing facilities are being introduced to the E522B Active Smart refrigerators.

The introduction required design changes to some components and to the physical movement and/or position of other components. The functionality of the Active Smart product including downloading and diagnostics have not changed.

Listed below are the changes to the E522B Active Smart with the introduction of Ice and Water.

1. **Through-the-door water dispensing**
    This feature incorporates:
    - **The Pressure Dispensing Pad**
      The pressure dispensing pad (located underneath the electronic display on the door activates water dispensing when pressed
    - **Water Piped to Door Through Door Hinge**
      Water is delivered to the door via water hose piped through the door hinge.
    - **Water Tank**
      The water tank is located in the top back rear of the PC compartment and feeds the water dispenser on the door via the water hose, through the door hinge.

2. **External water inlet plumbing**
    Delivers water for ice making and water dispensing through a 12-volt water valve.

3. **External Water Filter**
    An external in-line water filter is to be fitted to each Ice and Water refrigerator, which will come standard with every Ice & Water product.

4. **Automatic Ice Maker**
    The internal automatic icemaker is located on the ceiling of the FC compartment, on the left hand side. The icemaker can be disassembled and removed for servicing.

5. **New PC Temperature Sensor Position**
    Due to the location of the water tank in the back of the PC compartment, the PC temperature sensor position is now located in the centre LHS of the PC duct cover.

6. **New Display /Temperature Control location**
    The temperature control/ Digital Display panel is located on the front of the PC door

7. **Electronics Power Control Board**
    The electronics have been updated to run the ice and water systems with the addition of a small circuit board attached to the power controller. Although the electronics are still stage 4.2, they are NOT interchangeable with non-ice and water Active Smart products.

1.1   Display Functional Schematic

Inputs		Outputs
Display Harness →		→ Water Solenoid
Flow Sensor →	**Display Module**	←→ Comms
Tact Switches		→ LCD Display

PLEASE NOTE THERE HAVE BEEN SEVERAL CHANGES TO THE DISPLAY INTERFACE. REFER TO "MEASURED FILL PRODUCTS" OR "NON-MEASURED FILL PRODUCTS" FOR CORRECT INFORMATION.

2   DISPLAY INTERFACE

2.1   Display Interface (Button Descriptions)

2.1.1   Measured Fill Products - Products Produced Before January 2009
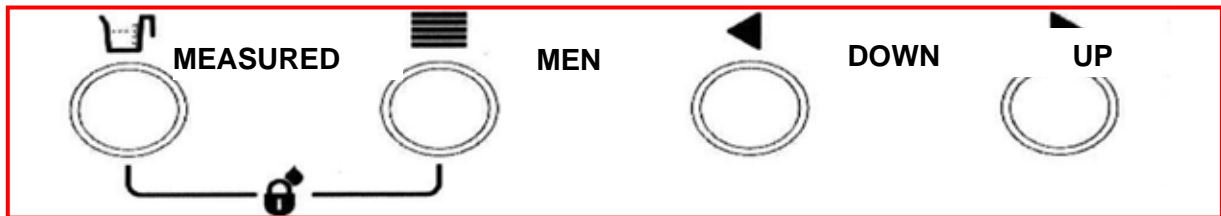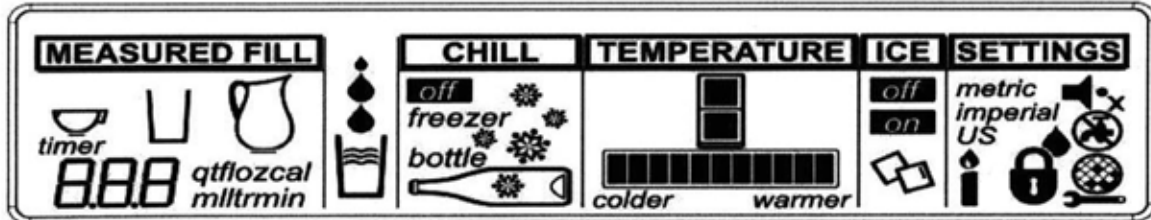
Measured Fill

The **MEASURED FILL** key enables you to select the amount of water to be dispensed.

Menu

The **MENU** key allows you to scroll through the main menu options (Chill, Temperature, Ice and Settings)

Arrow Keys

The **ARROW** keys are used to scroll through the settings of each function.

2.1.2 Non–Measured Products - Products Produced After January 2009
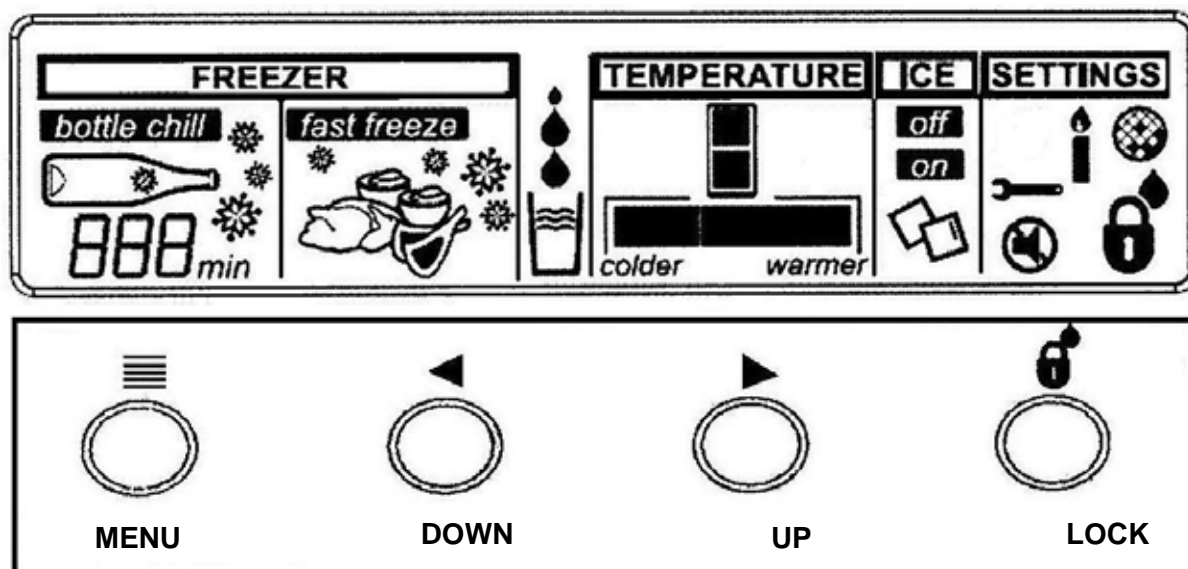
 Menu

The **MENU** key allows you to scroll through the main menu options (Chill, Temperature, Ice and Settings)

 Arrow Keys

The **ARROW** keys are used to scroll through the settings of each function.

 Lock

The **LOCK** key enables and disables the water dispenser and all the buttons.

2.2 Display Interface Features (Measured Fill Products)

- Icemaker on/off.
- Bottle chill mode – 10, 15, 20, 25, 30 minute timer with alarm.
- Freezer chill mode – nominated freeze time at lower temperature set point.
- Water dispensing.
- Measured fill water dispensing – water dispensing volume selection with 3 set points preset.
- Unit selection – Metric or US units for measured volumes.
- Sabbath mode enable/disable.
- Key silent mode enable/disable.
- Key lock.
- Water dispenser key lock.
- Filter replacement alert.
- No water alert.
- Fault alert.
- Diagnostics.
- Temperature set points.
- Measured fill calibration.

2.3 Display Interface Features (Non-Measured Fill Products)

- Icemaker on/off.
- Bottle chill mode – 10, 15, 20, 25, 30 minute timer with alarm.
- Freezer chill mode – nominated freeze time at lower temperature set point.
- Water dispensing.
- Sabbath mode enable/disable.
- Key silent mode enable/disable.
- Dispenser Key lock.
- Key lock.
- Filter replacement alert.
- Fault alert.
- Diagnostics.
- Temperature set points.

2.4 Features (Measured Fill Products)

2.4.1 Icemaker On/Off
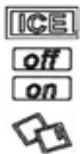
This mode simply turns the icemaker on or off.

To access the ice mode, press the **MENU** key until ICE is highlighted. Then use an arrow key to scroll to the icemaker **ON** or **OFF**.

2.4.2 Freezer Chill Mode

Freezer chill is a function that rapidly freezes food in the FC by temporarily dropping the freezer to its coldest temperature set point for a 12-hour period.

To access, use the **MENU** key to scroll to **CHILL**, then use the **UP** key until this icon appears.

To deactivate manually, use the **MENU** key and scroll to **CHILL**. Press the **DOWN** key until the icon disappears.

2.4.3 Bottle Chill Mode

Bottle Chill allows the customer to put a bottle in the freezer for a designated amount of time. When that amount of time has elapsed an alarm will sound telling the customer to take the bottle out of the FC. The Freezer automatically changes to its lowest set point.

The times are 10, 15, 20, 25 and 30 minutes.

To activate this mode, use the **MENU** key to scroll to CHILL, then use the **UP** key until this icon appears. Use the **UP** key to select the time in minutes. Once selected, the alarm count down will commence.

2.4.4 Water Dispensing

This icon will animate when the water is being dispensed.

2.4.5 Measured Fill Water Dispensing
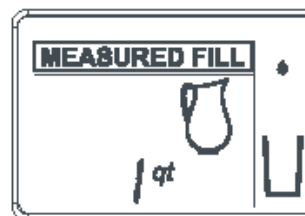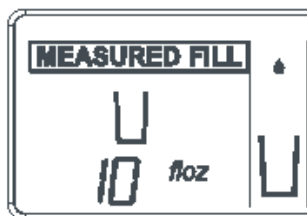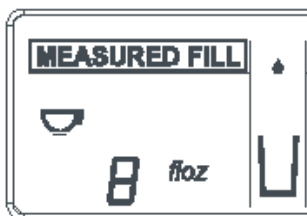
Imperial Display

Metric Display

The amount of water dispensed is pre-selected.
Metric
250ml – cup
300 ml – glass
1000ml – jug
The **UP** and **DOWN** keys can be used to change the units in 25ml increments.
 US
8 floz – cup
10 floz – glass
1 Qt – jug
The **UP** and **DOWN** keys can be used to change the units in 1oz increments.

2.4.6 Sabbath Mode

When in this mode, the alarms are deactivated and the interior light and back light on the display will not come on. The interior fan will not turn off when the door is opened.

2.4.7 Key Silent Mode

When in this mode, the beeper does not operate when the buttons on the keypad are pressed.. Note: Faults, Bottle chill, & the door will still alarm when the refrigerator is set on key silent mode.

Indicates the product is in Key Silent Mode.

To activate or deactivate, hold the **MENU** key for four (4) seconds.

2.4.8 Dispense Lock

This mode disables the water dispensing pad & prevents water from being dispensed.
To activate this mode, press the **MENU** and **MEASURED FILL** keys together for two (2) seconds.

2.4.9 Key Lock

This mode disables all the buttons.
To activate this mode, press the **MENU** and **MEASURED FILL** keys together for four (4) second.

2.4.10 Filter Replacement Alert

This icon will appear when the water filter needs changing. The filter needs replacing every 2800 Litres or 6 months. This will flash when dispensing water.
To deactivate the warning, press the **MEASURED FILL** and **UP** keys for 4 seconds.

2.5 Features (Non-Measured Fill Products)

2.5.1 Icemaker On/Off
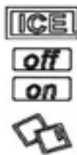
This mode simply turns the icemaker on or off.
To access the ice mode, press the **MENU** key until **ICE** is highlighted. Then use an arrow key to scroll to the icemaker **ON** or **OFF**.

2.5.2 Freezer Chill Mode

Freezer chill is a function that rapidly freezes food in the FC by temporarily dropping the freezer to its coldest temperature set point for a 12-hour period.
To access, use the **MENU** key to scroll to **CHILL**, then use the **UP** key until this icon appears.
To deactivate manually, use the **MENU** key and scroll to **FREEZER**. Press the **DOWN** key until the icon disappears.

2.5.3   Bottle Chill Mode

Bottle Chill allows the customer to put a bottle in the freezer for a designated amount of time. When that amount of time has elapsed an alarm will sound telling the customer to take the bottle out of the FC. The Freezer automatically changes to its lowest set point.

The times are 10, 15, 20, 25 and 30 minutes.

To activate this mode, use the **MENU** key to scroll to **FREEZER**, then use the **UP** key until this icon appears. Use the **UP** key to select the time in minutes. Once selected, the alarm count down will commence.
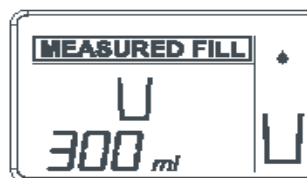
2.5.4   Water Dispensing

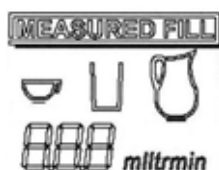This icon will animate when the water is being dispensed.

2.5.5   Sabbath Mode

When in this mode, the alarms are deactivated and the interior light and back light on the display will not come on. The interior fan will not turn off when the door is opened.

To activate press and hold **MENU** + **DOWN** + **LOCK** for 4 seconds

2.5.6   Key Silent Mode

When in this mode, the beeper does not operate when the buttons on the keypad are pressed.. Note: Faults, Bottle chill, & the door will still alarm when the refrigerator is set on key silent mode.

Indicates the product is in Key Silent Mode.

To activate/deactivate, press the **MENU** key and scroll to **SETTINGS**, then use the **UP** or **DOWN** keys to turn the mode on or off.

2.5.7   Dispenser Lock

Locks the water dispenser. To activate this mode press the **LOCK** button for 2 seconds.

2.5.8   Key Lock

Key Lock - disables all buttons**.**

To activate this mode press and hold the **LOCK** button for four (4) seconds

2.5.9   Filter Replacement Alert

This icon will appear when the water filter needs changing. The filter needs replacing every 2800 Litres or 6 months. This will flash when dispensing water.

To deactivate the warning, press the **UP** + **LOCK** keys for 4 seconds.

2.6   Key Presses (Measured Fill Products)

To activate any mode, certain combinations of key presses are required.

The key-presses are as follows. Key presses used by the service technician are those shown shaded.

Function	Key Presses	Action	Press Time
Key Silent Mode	Menu ☰	On/Off	Hold down for 4 seconds.
Key & Dispenser Lock	Menu + Measured fill ☰ + ⊔	On/Off	Hold down for 2 seconds.
Key Lock	Menu + Measured fill ☰ + ⊔	On/Off	Hold down for 4 seconds.
Diagnostic Mode	Menu + Up ☰ + ▶	On	Hold down for 4 seconds.
Forced Defrost	Menu + Down ☰ + ◀	On	Hold down for 4 seconds.
Sabbath Mode	Menu + Measured fill + Down ☰ + ⊔ + ◀	On/Off	Hold down for 4 seconds.
Disable Filter Alarm	Menu + Measured fill + Up ☰ + ⊔ + ▶	On/Off	Hold down for 4 seconds.
Show Off Mode	Menu + Down + Up ☰ + ◀ + ▶	On/Off	Hold down for 4 seconds.
Flowmeter Calibration	Measured Fill + Down ⊔ + ◀	On	Hold down for 4 seconds.
Filter Reset	Measured Fill + Up ⊔ + ▶	Reset	Hold down for 4 seconds.
Force Icemaker Manual	Measured Fill + Down + Up ⊔ + ◀ + ▶	Activates once	Hold down for 4 seconds.

2.7   Key Presses (Non-Measured Fill Products)

Function	Key Presses	Action	Press Time
Key Silent Mode	Scroll to **SETTINGS**	On/Off	Press **UP** or **DOWN** keys to turn on or off.
Dispenser Lock	Lock	On/Off	Hold down for 2 seconds.
Key Lock	Lock	On/Off	Hold down for 4 seconds.
Diagnostic Mode	Menu + Up	On	Hold down for 4 seconds.
Forced Defrost	Menu + Down	On	Hold down for 4 seconds.
Sabbath Mode	Menu + Down + Lock	On/Off	Hold down for 4 seconds.
Disable Filter Alarm	Menu + Up + Lock	On/Off	Hold down for 4 seconds.
Show Off Mode	Menu + Down + Up	On/Off	Hold down for 4 seconds.
Filter Reset	Up + Lock	Reset	Hold down for 4 seconds.
Force Icemaker Manual	Lock (first) Down + Up	Activates once	Press **LOCK** key first, then **DOWN** & **UP** keys and hold all keys for 4 seconds.

2.8   Temperature Settings

PC Setting

32° F	32.9^{o}F	33.8^{o}F	34.7^{o}F	35.6^{o}F	37.4^{o}F	39.2^{o}F	41.0^{o}F	42.8^{o}F	44.6^{o}F	46.4^{o}F

Colder   **Warmer**

FC Setting

-5.8^{o}F	-5.8^{o}F	-4°F	-3.1^{o}F	-1.3^{o}F	0.0^{o}F	1.4^{o}F	2.3^{o}F	4.1^{o}F	5°F	6.8^{o}F

Colder   **Warmer**

Default factory settings are 37.4^{O}F for the provision compartment and 0°F for the freezer compartment.
Note: Crowbar setting for the PC is 28.4^{O}F and for the FC is –14.8^{O}F. Temperatures shown are average temperatures.

3 ICEMAKER

3.1 Ice Production

The icemaker comes out of the factory defaulted to off. To turn the icemaker on, press the **MENU** key and continue pressing the key until the **ICE** option has been scrolled to.

Press the **UP** and **DOWN** keys to turn the icemaker on or off. When the cubes are frozen, the icemaker motor will turn the ice cube tray and twist the tray causing the ice cubes to dislodge and fall out of the tray. The tray will then return to its normal position and refill with water.

Note: If the FC is above 14^OF or the ice bin is full, or has been removed, or fitted the wrong way around, the icemaker will not operate.

3.2 Information About The Icemaker

The temperature of the FC needs to reach 14^OF before the icemaker commences to operate. When first switched on, the icemaker carries out a harvest with no water in the ice tray.

Once the ice tray resumes its normal position, the water will fill the tray. At this stage it will calculate the amount of time taken to do a cycle and then flips. After this point it will run normally calculating the amount of time for each batch. The rate of production will depend on the temperature of the freezer and will not operate if the temperature is above 14^OF.
NOTE: If the temperature is above 14^0F, the ice/water tray will sit in this position and will not turn to dispense.

The cubes will be ejected from the mould into the ice bin. It is suggested that the ice cubes are levelled with the ice scoop occasionally for maximum storage.

The large and small freezer bins can be rotated if a large amount of ice is required.

3.3 Ice Bin Full Sequence

When the ice bin is full, the icemaker starts a sequence of testing to ensure ice harvest can continue. If the icemaker senses the bin is full, the motor resumes its normal position. Twenty minutes later, the testing sequence commences until such time as the ice level is reduced by usage. The testing sequence happens every 20 minutes.
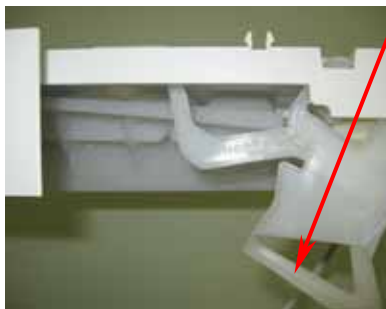
Bin In Position

Bin lever – senses if there is a bin in position or not.

If there is no bin, lever will be in the down position as shown.

Bin Full Of Ice

Lever sensing if ice bin is full.

If bin is not full, icemaker continues rotation to eject ice.

3.4   Safety First

When first placed into operation, discard the first bin of ice, as this will remove any impurities that may have been in the water system.

Do the same after vacations or extended periods when ice is not used.

Ice cubes, when not used, will become cloudy, will shrink, and will taste stale. The ice bin will need to be emptied and cleaned periodically.

Avoid contact with moving parts of the ejector mechanism.

Do not place fingers on the automatic ice making mechanism while the refrigerator is turned on.

4   AIRFLOW

The freezer fan draws air through the evaporator and into a duct in the rear wall of the freezer compartment. This air exits through the fan grill at the top of the freezer compartment. The air behind the freezer coil cover is also diverted through the divider partition to another fan, which supplies the cold air into the PC compartment. The amount of air is controlled electronically by two sensors, which in turn regulate the speed of both PC and FC fans to maintain selected temperatures in each compartment.

Air from the PC returns to the FC evaporator by way of the return air duct, which is built into the divider partition. This air is drawn across the evaporator by the evaporator FC fan motor to be recirculated again throughout the PC / FC compartments.
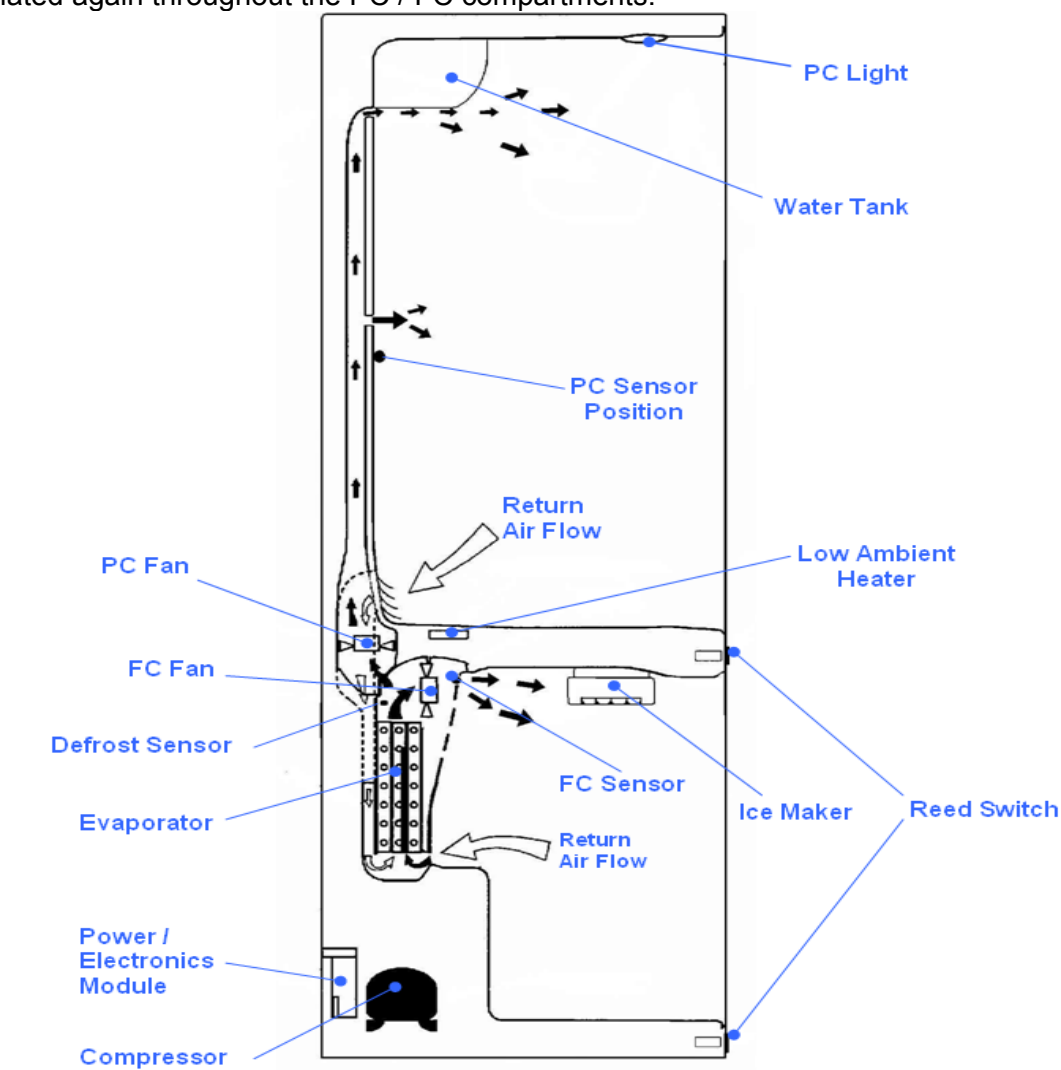
5   DIAGNOSTICS

A spanner symbol and LCD fault code will appear automatically if there is a fault in the temperature measuring system, defrost system, fans or low ambient heater. (Refer diagram below.)
When the PC door is opened, an alarm will sound. The number of beeps also indicates the fault code. Pressing any of the control buttons can deactivate these alarms.
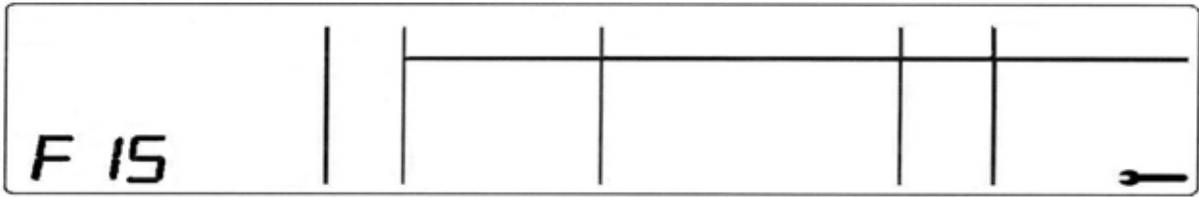
Example: When a fault develops, the LCD fault code appears with the spanner.

After rectifying the problem, the fault code and spanner will disappear. Faults are only rectified when that feature is used. So in the case of a defrost fault, the code will remain until a defrost is initiated and it is successful.

5.1   Fault Codes

Fault Code 1
Reason: On the last power up, the power module failed self-test.
Primary Action: Replace the power module.

Fault Code 2
Reason: The previous 2 defrosts were aborted after 40 minutes.
Primary Action: Check the defrost element assembly in the FC. If faulty, replace.

Fault Code 3
Reason: The resistance of all the temperature sensors are outside the normal range.
                           (> 45K Ohms)
Primary Action: Check the 6-way RAST connector at the power module.
Secondary Action: Re-terminate the 6-way RAST connector.
Tertiary Action: Replace the power module.

Fault Code 4
Reason: The resistance of all the temperature sensors are outside the normal range.
                           (< 660 Ohms)
Primary Action: Check the 6-way RAST connector at the power module.
Secondary Action: Re-terminate the 6-way RAST connector.
Tertiary Action: Replace the power module.

Fault Code 5
Reason: The resistance of the FC sensor is outside the normal range (> 45K Ohms).
Primary Action: Check the sensor connection at the power module.
Secondary Action: Replace the sensor.

Fault Code 6
Reason: The resistance of the FC sensor is outside the normal range (<660 Ohms).
Primary Action: Check the sensor connection at the power module.
Secondary Action: Replace the sensor.

Fault Code 7

Reason:	The resistance of the Evaporator sensor is outside the normal range (> 45K Ohms).
Primary Action:	Check the sensor connection at the power module.
Secondary Action:	Replace the sensor.

Fault Code 8

Reason:	The resistance of the Evaporator sensor is outside the normal range (<660 Ohms)
Primary Action:	Check the sensor connection at the power module.
Secondary Action:	Replace the sensor.

Fault Code 9

Reason:	The resistance of the PC sensor is outside the normal range (> 45K Ohms).
Primary Action:	Check the sensor connection at the power module.
Secondary Action:	Replace the sensor.

Fault Code 10

Reason:	The resistance of the PC sensor is outside the normal range (< 660 Ohms).
Primary Action:	Check the sensor connection at the power module.
Secondary Action:	Replace the sensor.

Fault Code 11

Reason:	The current measured for the ambient heater, PC fan and FC fan is lower than expected.
Primary Action:	Check the 6-way fan/LAH RAST connector at the power module.
Secondary Action:	Re-terminate the 6-way fan/LAH RAST connector.
Tertiary Action:	Replace the control module.

Fault Code 12

Reason:	The current measured for the ambient heater, PC fan and FC fan is higher than expected.
Primary Action:	Check the 6-way fan/LAH RAST connector at the power module.
Secondary Action:	Re-terminate the 6-way fan/LAH RAST connector.
Tertiary Action:	Replace the control module.

Fault Code 13

Reason:	The low ambient heater is drawing less current than expected. Either the heater or wiring is open circuit or the heater is faulty.
Primary Action:	Check the wiring and connections at both the heater and the power module.
Secondary Action:	Check the low ambient heater resistance. If not within limits, replace.

Fault Code 14

Reason:	The low ambient heater is drawing more current than expected. Either there is a short in the heater, or the heater is faulty.
Primary Action:	Check the wiring and connections at both the heater and the power module.
Secondary Action:	Check the low ambient heater resistance. If not within limits, replace.

Fault Code 15

Reason:	The PC fan is drawing less current than is expected. Either the wiring is open circuit or the fan is faulty.
Primary Action:	Check the PC fan wiring and connections at both the fan and the power module.
Secondary Action:	Check the fan. If faulty, replace.

Fault Code 16

Reason: The PC fan is drawing more current than is expected. Either the wiring is shorted or the fan is faulty.

Primary Action: Check the PC fan wiring and connections at both the fan and the power module.

Secondary Action: Check the fan. If faulty, replace.

Fault Code 17

Reason: The FC fan is drawing less current than is expected. Either the wiring is open circuit or the fan is faulty.

Primary Action: Check the FC fan wiring and connections at both the fan and the power module.

Secondary Action: Check the fan. If faulty, replace.

Fault Code 18

Reason: The FC fan is drawing more current than is expected. Either the wiring is shorted or the fan is faulty.

Primary Action: Check the FC fan wiring and connections at both the fan and the power module.

Secondary Action: Check the fan. If faulty, replace.

Fault Code 19   Reserved.

Fault Code 20

Reason: Flapper heater current low.
Primary Action: Check the Molex connections for the flapper heater.
Secondary Action: Check the resistance of the heater. If open circuit, replace the heater.

Fault Code 21

Reason: Flapper heater current is high.
Primary action: Check for short circuit of the heater. If faulty, replace the heater.

Fault Code 22

Reason: The resistance of the PC sensor 2 is outside the normal range (> 45K Ohms). Temperature PC2 sensor cold.

Primary Action: Check the connection at the module. Check the resistance of the sensor.
Secondary Action: Replace the sensor.

Fault Code 23

Reason: The resistance of the PC sensor 2 is outside the normal range (< 660 Ohms). PC 2 sensor hot.

Primary Action: Check the connection of the sensor at the module. Check the resistance of the sensor.

Secondary Action: Replace the sensor.

Fault Code 24

Reason: The resistance of the ice tray sensor is outside the normal range (> 45K Ohms) Sensor cold.

Primary Action: Check the connections of the sensor at the module. Check the resistance of the sensor.

Secondary Action: Replace the sensor.

Fault Code 25

Reason: The resistance of the ice tray sensor is outside normal range.(< 660 Ohms). Sensor hot.

Primary Action: Check the connections of the sensor at the module. Check the resistance of the sensor.

Secondary Action: Replace the sensor.

Fault Code 26

Reason: Icemaker motor timed out

Primary Action: The icemaker gearbox is not returning to the start position and ends signal to the controller.

Secondary Action: Check the gearbox, and if faulty, replace.

Fault Code 27

Reason: Icemaker motor current high.

Primary Action: Check motor for obstruction. Check wiring at both the icemaker gearbox and the power module.

Secondary Action: Clear obstruction. Test motor operations. Check the gearbox motor resistance. If not within limits, replace motor.

Fault Code 28

Reason: Icemaker solenoid current high.

Primary Action: Check the connections to the solenoid. Check the resistance of the solenoid.

Secondary Action: Correct loose connections. Replace the solenoid if faulty.

Fault Code 29

Reason: Icemaker solenoid current low.

Primary Action: Check the connection to the solenoid. Check the resistance of the solenoid.

Secondary Action: Correct loose connections at the module or the water valve. Replace the solenoids if open circuit.

Fault Code 32

Reason: Solenoid Driver 1 has failed. If this happens, the water dispenser will still be operating, however as Solenoid Driver 1 has failed, the product has reverted to Solenoid Driver 2 to dispense water. Fault code 32 will be displayed to make the customer aware of the fault.

Primary Action: Check the solenoid resistance. If not within limits, replace the solenoid. If OK, replace the display module if the problem still present.

Fault Code 33

Reason: Solenoid Driver 2 has failed. The module has detected a fault with Solenoid Driver 2; however Solenoid Driver 1 may still be operational and the water dispenser is still working.

Primary Action: Check the solenoid resistance. If not within limits, replace the solenoid. If OK, replace the display module.

Fault Code 34

Reason: Both Solenoid Drivers 1 and 2 have been detected to have a fault.

Primary Action: Check the solenoid resistance. If not within limits, replace the solenoid. If OK, replace the display module.

Fault Code 40

Reason:	Icemaker solenoid Transistor 1 short circuit. A transistor on the controller that drives the icemaker solenoid has failed. This could be as a result of a fault in the solenoid.
Primary Action:	Check the solenoid resistance. If not within limits, replace the solenoid. Check the wiring and connections at the solenoid and the module. If OK, replace the control module.

Fault Code 41

Reason:	Icemaker solenoid Transistor 2 short circuit.
Primary Action:	Check the solenoid resistance. If not within limits, replace the solenoid. Check the wiring and connections at the solenoid and the module. If OK, replace the control module.

5.2   Fault Codes (Measured Fill Products)

If a fault has occurred relating to the display board, the fault code will show on the display just like any other fault.

Note: There will be no alarm/beeping if these faults occur.

Code	Fault
F30	No display signal received (shorted or broken wire).
F31	No display signal received (shorted or broken wire) clock or data line.
	Additional Fault Codes
F32	Solenoid Driver 1 & 2 (transistor) has failed, or the solenoid has failed.
F33	Solenoid Driver 2 (transistor) has failed.
F34	Both Solenoid Drivers have failed.

Additional fault codes have been added to the display module in order to detect water leaks or continual flow of water from the dispenser should a fault appear. Previous to these changes, the software only counted water flow when the solenoid was on. The new version of software (V1.067) now counts water flow when the water valve is on or off.

Fault Code 32, 33 and 34 initial detection.

The first time this fault is detected there are two possible scenarios as to how the customer/user will see it happen.

Possibility 1:
1. Dispense water.
2. Remove glass/cup.
3. Water continues to dispense for 5 seconds.
4. Fault is detected.
5. Water stops.
6. After a certain period of time the display will show the customer/user what the fault code is.

Possibility 2:
1. Dispense water.
2. Remove glass/cup.
3. Water stops.
4. Fault is detected 5 seconds after the cup is removed.
5. Water stops.
6. After a period of time the display will show the user what the fault code is.

If both solenoid drivers fail and/or the water valve fails:
1. Dispense water.
2. Remove glass/cup.
3. Water continues to dispense until water supply is turned off.
4. Fault is detected.
5. After a period of time the display will show what the fault code is.

5.3 Fault Codes (Non-Measured Fill Products)

If a fault has occurred relating to the display board, the fault code will show on the display just like any other fault.

Note: There will be no alarm/beeping if these faults occur.

Code	Fault
F30	No display signal received (shorted or broken wire).
F31	No display signal received (shorted or broken wire) clock or data line.

5.4 Testing Icemaker Sensor

The icemaker sensor is located on the bottom of the ice cube tray. The testing is carried out at the power module.

Icemaker sensor located under insulated pad.

Sensor Insulation.

- Disconnect the refrigerator from the power supply.
- Remove the power module from the product.
- Test two white wires marked "0V" and "Ice Sensor" on the controller.

Testing of the sensor should be in a known stable temperature, such as a glass of water full of ice cubes.

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5.5 Thermistor Sensor Resistance Table

TEMPERATURE		RESISTANCE
°C	°F	(K Ohms ±5%)
-30.0	-22.0	25.17
-25.0	-13.0	19.43
-20.0	-4.0	15.13
-15.0	5.0	11.88
-10.0	14.0	9.392
-5.0	23.0	7.481
0.0	32.0	6.000
5.0	41.0	4.844
10.0	50.0	3.935
15.0	59.0	3.217
20.0	68.0	2.644
25.0	77.0	2.186
30.0	86.0	1.817
35.0	95.0	1.518
40.0	104.0	1.274
45.0	113.0	1.075
50.0	122.0	0.9106

Table 6.2.8

5.6 Testing Icemaker Motor

Testing of the icemaker motor is carried out at the power module.

Note: Before any testing is carried out ensure the product has an ice bin in place and the icemaker arm is in the down position.

Procedure:

- Disconnect the refrigerator from the power supply.
- Remove the power module to expose connectors.
- Remove the connector from the Icemaker PCB.
- Check the resistance of the motor between pins 5 & 6 – Resistance should be 35Ω +/- 5%.
- Check the tact switch continuity between pins 4 & 7 – The switch should be closed.

Note: To identify pin numbering, Pin 10 and 11 are White wires

Tact switch continuity – Pins 4 & 7

Motor - Pins 5 & 6

Pins 10 & 11
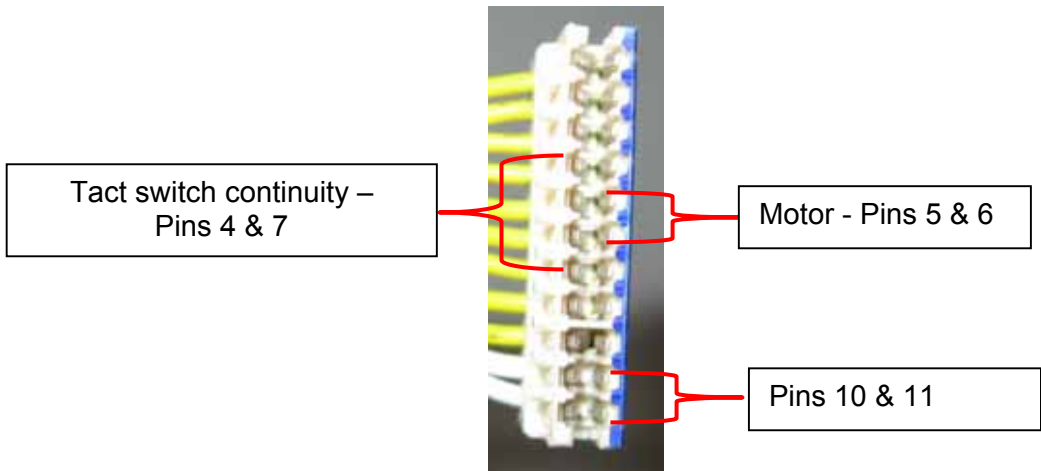
5.7   Testing Water Valve

The water valves are located in the unit compartment.
- Disconnect the refrigerator from the power supply.
- Remove the connector from the valve.
- Resistance of the water valves is 14 Ω ± 5%.

When testing for voltage at the ice or water valve:
- Disconnect the refrigerator from the power supply.
- Remove the connector from the water valve.
- Place the meter probes into the connector of the valve that is faulty (ice valve or water dispenser valve).
- Reconnect the refrigerator to the power supply.
- Place a glass into the dispenser to operate the valve (for water dispenser valve only).
- Place the product into a forced harvest (for icemaker only).

The voltage at the connector (once disconnected from the valve) should be 12 volts DC. Care should be taken not to damage the connector or wiring.

5.8   Testing The Flow Meter (Measured Fill Products)

The flow meter cannot be tested electrically. If a fault occurs where the flow meter is suspected to be faulty, the Flow Meter Calibration procedure (refer to Section 7.9 Flow Meter Calibration) is to be followed, and if after the procedure has been followed the fault still exists, replace the flow meter.

6   DIAGNOSTIC MODES

6.1   Entering Diagnostic Mode

To enter diagnostic modes, press and hold the **MENU** button, then press the **UP** button for 4 seconds. The PC temperature will be displayed on the LCD as shown in Diagram A. The actual temperature of the PC is shown.

NOTE: All temperatures shown on display are in degrees Celsius.

PC Sensor Temperature

Note: 4.0 shown on display, indicates the temperature of the PC sensor is 4.0^{O}C (39.2^{O}F).
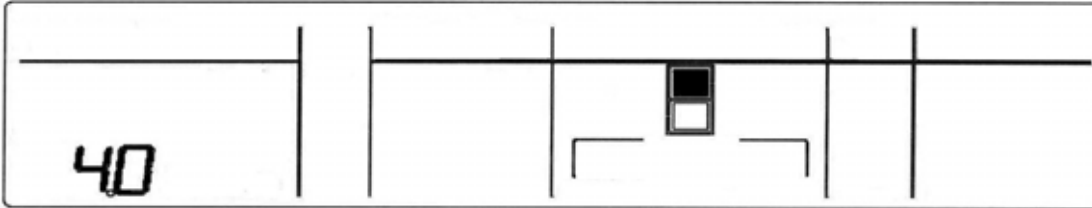
Diagram A

PC Sensor Temperature.

FC Sensor Temperature

Press the **UP** button once more – FC temperature.

Note: 12.0 min shown indicates the temperature of the FC sensor is –12°C (10.4^{O}F).
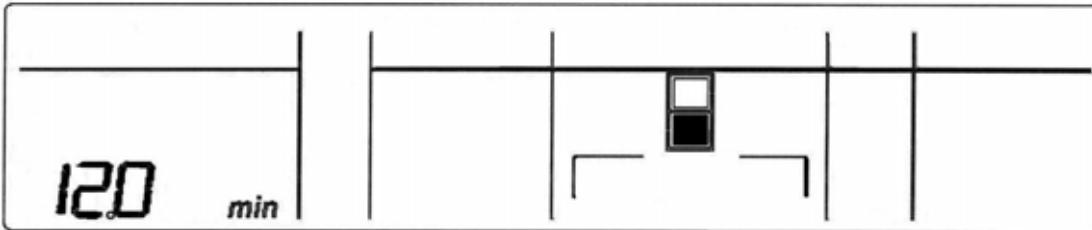
Diagram B

FC Sensor Temperature

Defrost Sensor Temperature

Press the **UP** button once more – Defrost sensor temperature.

Note: 18.0 min shown indicates the temperature of the defrost sensor is -18°C (0°F).

Diagram C

Defrost Sensor Temperature

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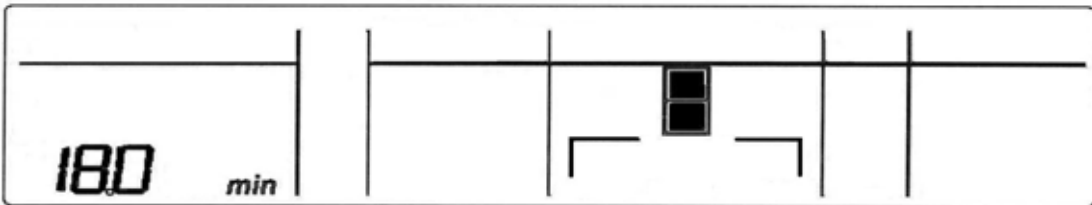
Input/Output Status

Press the **UP** key once more – Input/Output status.

IO shown indicates the product is in input/output status. The LCDs that are highlighted indicate what components are on.

Note: When the PC door is opened, the backlight will turn off. The LCD for the FC or PC door will come on when either door is opened.

The **IO** shown stands for Input/Output, not a temperature.

Diagram D
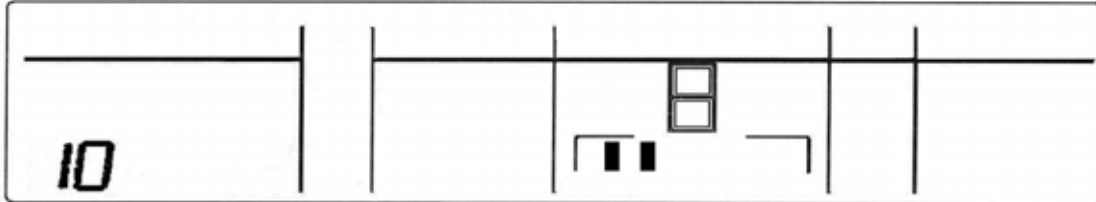
Input/Output Status

PC2 Sensor Temperature

Press the **UP** key once more – PC2 sensor. This sensor is attached to the water tank.

Note: 5.0 shown indicates the temperature of the PC2 sensor is 5°C (41°F).
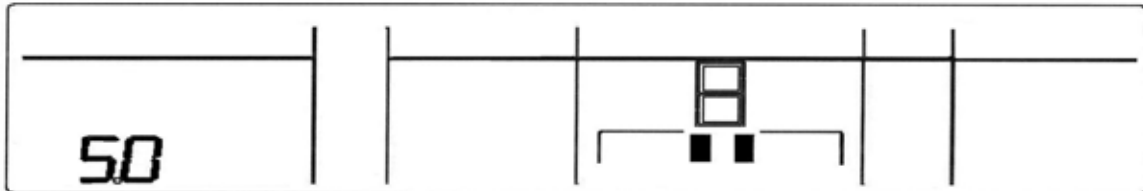
Diagram E

PC Sensor 2

Icemaker Sensor Temperature

Press the **UP** key once more – Icemaker sensor.

Note: 12.0 min shown indicates the temperature of the Icemaker sensor is –12°C (10.4^{O}F).
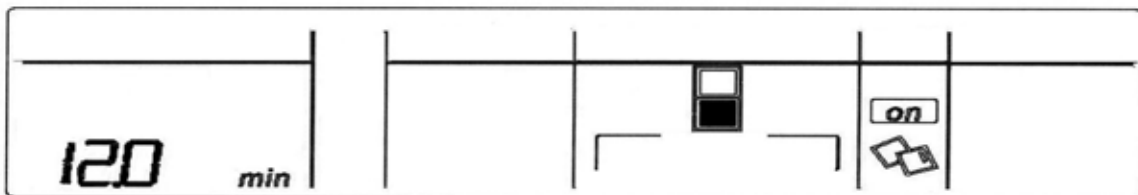
Diagram F

Icemaker Sensor

Fault History

Press the **UP** key once more – Fault History.

HOO will be showing.

Diagram G
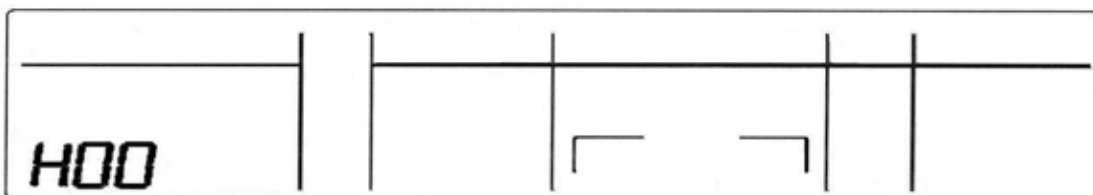
Fault History

To exit the diagnostic mode, press the **MENU** key. If not terminated manually, the diagnostic mode will time out and go back to default display after 5 minutes.

Note: The door alarms do not operate when the appliance is in diagnostic mode.

6.2 Input / Output Status

To enter input / output status:

Press and hold the **MENU** button, then press the **UP** button for 4 seconds. This enters the Diagnostic mode.

Press the **UP** button three times. The current input /output status will be displayed.

- If a device is on or a door is open, the respective LED will be on.
- Return to normal operation by pressing the **MENU** button.
  Note: Only the first 6 LED's are used. The last 5 are not used.

Input/Output Status
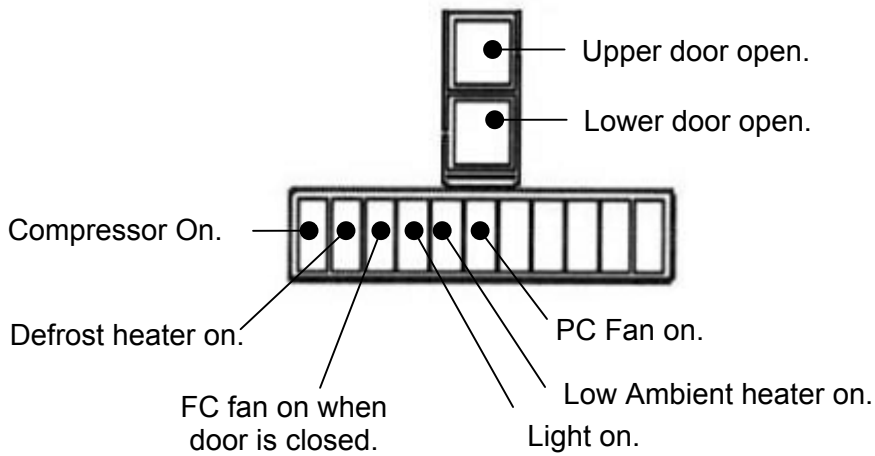
Example.

- The Compressor is on.
- The FC fan is on.
- The PC fan is on.
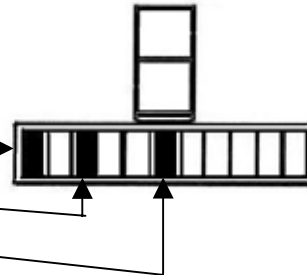
Note: In I/O mode, the illumination of the LED will turn off if either PC doors are opened.

6.3 Fault History

The Fault History will indicate the last fault that occurred with the product. However, this will only be displayed for a periods of 4 days, after which it can only be accessed through a download.

It will also indicate if there are any further faults with the display board. If an icemaker display fault has occurred, these will be indicated by fault codes F40 or F41 on the LCD Display.

Note: This is fault history and may not necessarily be a current fault.

6.4 To Manually Force A Defrost

While pressing and holding the **MENU** button, press the **DOWN** button for 4 seconds. Note that there will be a delay of two (2) minutes before the element starts to heat after going into this mode. This is known as the warm up time.

6.5   LCD Display

When the PC door is opened, the backlight of the display will turn off and the functions will not operate, i.e. the water dispenser will not work and temperature setting etc. cannot be altered.

However, if the door is left open for 5 minutes, the interior light will turn off and the alarm will sound. At this point the display will start working and all functions will be operative.

6.6   To Manually Force The Icemaker

(Measured Fill Products)
Press and hold down the **MEASURED FILL** + **UP** + **DOWN** buttons for 4 seconds. This will activate the icemaker.
Note: If the bins are removed to observe the icemaker operation, the icemaker will start to rotate. However, if the bin lever device is in a down position, the icemaker will not rotate. The lever-lock needs to be either removed or pushed backwards for the icemaker to complete a full rotation.

(Non-Measured Fill Products)
Press **LOCK** key first, then **DOWN** + **UP** keys and hold all three (3) keys for 4 seconds. This will activate the icemaker.
Note: If the bins are removed to observe the icemaker operation, the icemaker will start to rotate. However, if the bin lever device is in a down position, the icemaker will not rotate. The lever-lock needs to be either removed or pushed backwards for the icemaker to complete a full rotation.

Note: A forced harvest will operate without the product being down to temperature. If the harvest does not work, the sensor may be not connected or open circuit. The icemaker sensor must be in circuit for a forced harvest to work.

Bin lever in down position. When in this position, the icemaker will not rotate/harvest.

6.7   Data Download

To place the product into download mode, press and hold the **MENU** button, then press the **UP** button for four seconds, then press the **DOWN** button.

Once the product is in a download mode, either of the LEDs can be used. Place the download pen towards the LEDs and start the download. The display will have the letters **dl**, signifying product is in a download mode.

Diagram H
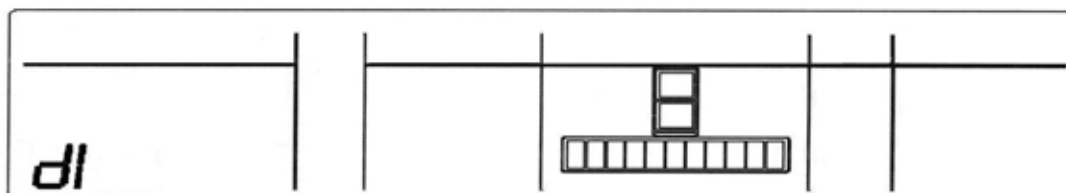
7 WATER DISPENSER

7.1 Pressure Dispensing Pad

This pad is located at the rear of the dispensing area, and is used to dispense water. Water can be dispensed using a measured fill option on the display, or free flow. The display will light up and the water fill icon will appear when the water is dispensed.

The dispenser will not operate while the PC door is open.

7.2 Initial Use

Press the glass or container into the pressure-dispensing pad.
Note: Pressing very hard against the water dispensing pad will NOT make the water dispenser operate any faster or produce greater quantities of water.

Initially allow approximately a one-minute delay from when the pressure-dispensing pad is pushed until the water is dispensed. While the tank is filling, no water sign will appear.

It is important to flush the tank, discarding around 3 Litres/Quarts of water immediately after the first fill. This may also be necessary after extended periods of non-use.

7.3 Measured Fill Use (Measured Fill Products)

Select the desired amount to be dispensed.
Activate the pressure-dispensing pad to start dispensing.
Water flow will stop when either the pre-selected amount has been dispensed, or the dispensing pad is released.
During measured fill, the amount of water dispensed will be counted and displayed on the screen.

7.4 To Change Measured Fill (Measured Fill Products)

Press the **MEASURED FILL** button. The default quantity is 250 mls/8flozs.
To change the quantity, press the **MEASURED FILL** button again. This will change the quantity to 300mls/10flozs.
Pressing the button once more will change to the jug icon 1litre/1quart.
The water-dispensing icon will animate when the water is being dispensed.
Note: After dispensing, the measured fill will return to its default position of 8flozs.

7.5 Water Filter And Cartridge

The product is supplied with a water filter and cartridge. It is recommended that the filter be mounted in a vertical position. Where the filter is positioned is at the discretion of the customer, however, closer to the product is recommended. Water pressure may be reduced if the filter is installed too far from the product.

The replacement icon will appear and blink when the filter needs to be replaced. This is approximately every 2800 litres of water or 6 months.

7.6 Changing The Water Filter

Turn the water off. It is also recommended that the pressure be released by dispensing water with the tap off.

- Grasp and firmly twist the cartridge in an anticlockwise direction (to the left when installed in the recommended orientation).
- Pull the cartridge away from the filter head (down when installed in the recommended orientation).
- Discard the old filter.
- Remove the protective cap on the spigot on the head of the new cartridge.
- Push the cartridge upwards towards the head while rotating it in a clockwise direction (to the right when installed in the recommended orientation).
- Reset the filter icon on the display (this will be set to remind the customer the filter is due to be replaced).
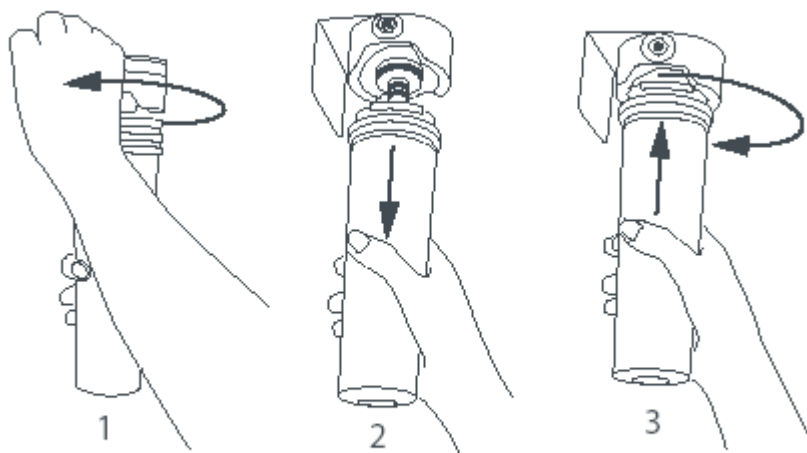
Fig.11 Changing the water filter cartridge

7.7   To Reset The Filter Icon

- Press the **UP** + **LOCK** button for 4 seconds to reset the Filter monitor.
  Note: Do not reset the monitor before the filter is changed, or monitoring will be inaccurate.

7.8   To Disable The Filter Alarm (Measured Fill Products)

- Disable the alarm if no filter is to be fitted.
- Press and hold the **MEASURED FILL** button, and press and hold the **MENU** and **UP** buttons for 4 seconds to turn this feature on/off.

7.9   Flowmeter Calibration/Measured Fill Calibration
(Measured Fill Products Only)

This calibration is to be carried out when the set quantities may be under or over the default settings.
Example: Default setting is 250 mls/8fl ozs, however only 200 mls/7fl ozs is being dispensed.

- Press and hold the **MEASURED FILL** button, then press the **DOWN** button to enter the calibration mode.
- 100 CAL will be displayed in the **MEASURED FILL** window.
- The 100 display is a percentage. It can be increased by using the **UP** button, or decreased by using the **DOWN** button.

7.10   To Disable The Filter Alarm (Non-Measured Fill Products)

Disable the alarm if no filter is to be fitted.

- Press and hold the **MENU** + **UP** + **LOCK** buttons for 4 seconds to turn this feature on/off.

7.11   Noises

Ice and water into the Active Smart products introduced some unfamiliar sounds, which are normal. The noises are difficult to hear and may not be heard during the day, but during the night may sound louder.

Cracking Noise
The ice cracking is due to the ice tray being twisted to loosen the ice cubes in the ice tray.

Humming.
There will be a low humming noise when the ice tray motor/gearbox rotates the tray to flip the ice cubes from the tray.

Clunking Noise.
Ice falling into the ice bin may initially make a noise then disappear. The reason for this is that there is no ice in the bin, but as the bin fills with ice the noise lessens.

Water Filling
After the ice trays bins empties and returns to its normal position, the water valve comes on to refill the tray. The noise will be a hissing or water running noise. How often this noise appears will be dependent on the time the water takes to reach freezing temperature.

8   WIRING DIAGRAMS

WIRING DIAGRAM A/S P42 I&W   VCC
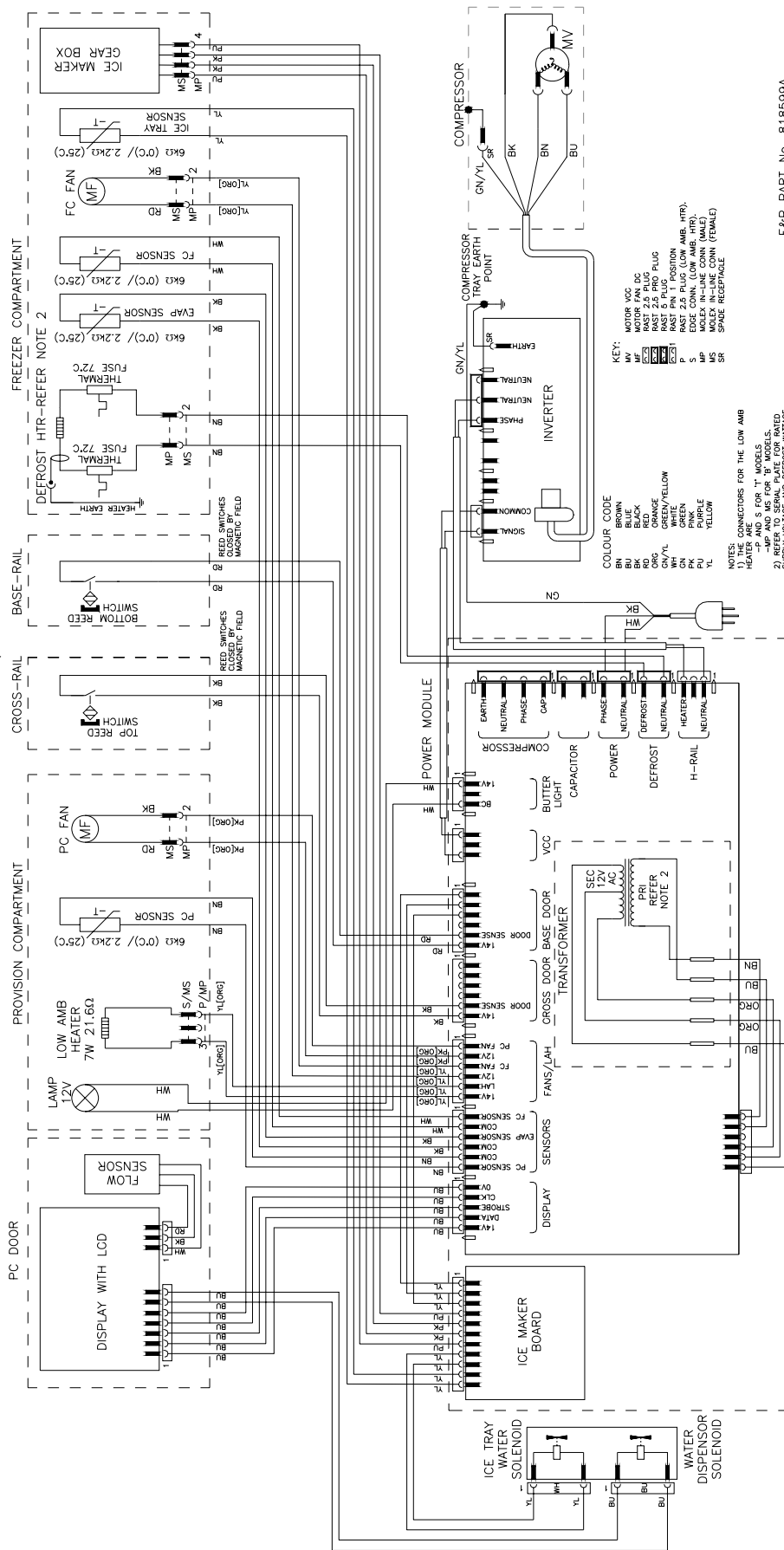
F&P PART No. 818599A

9   PROBLEM SOLVING CHECKLIST

Problem	Possible Causes	What to do.
Icemaker makes unfamiliar sounds or seems too loud.	Normal icemaker operation.	Refer to normal operating noises.
Automatic Icemaker does not work.	Icemaker has not been switched on.	Switch on icemaker.
	Bin is in the wrong way or no bin at all.	Place bin so scoop is on the right hand side. Ice bin sits directly under icemaker on top left hand side of freezer.
	Water supply turned off or not connected.	Connect to water supply or turn water on.
	Freezer compartment not working.	Icemaker will not operate if temperature of FC is above 14º F. Refer to diagnostics and rectify.
	Icemaker sensor.	Sensor out of range. Sensor open circuit. Bad connection to PCB.
	Water pressure too low	Check water pressure.
	Water line/squashed.	Check water lines for kinks/ squashed.
	Filter clogged.	Water filter may need replacing.
Ice cubes have odour /taste.	Unsealed packages may be transmitting odour/taste.	Old cubes need to be discarded. Ensure food packaging is sealed.
	Interior of freezer needs cleaning.	Ice storage bin needs to be emptied and washed. Refrigerator requires cleaning.
	Poor taste from incoming water.	Filter may need changing. If no filter has been installed, filter may need to be installed.
Slow ice cube freezing.	Door may have been left ajar.	Check door closing to identify any potential causes (gasket sticking, door closing hook).
	Freezer compartment too warm.	Check PC and FC settings. Check temperature of FC and download if required for any potential reasons for poor temperatures. (e.g. excessive usage).
Water has poor taste/odour.	Refrigerator not used for extended period.	Dispense 3 Quarts of water so fresh water supply is replenished.
Water dispenser does not work and/or icon flashing. ❋	Water supply turned off or not connected.	Press dispenser for 2 minutes to remove trapped air from water line and to fill the water system.
	Supply line may be blocked. On first installation there may be air in the water system.	Check supply for kinks or leaks. To remove air, run a litre or a quart of water through the dispenser.
	Filter may be blocked and needs replacing.	Replace filter.
	Dispenser lock activated.	Hold down the Lock button for 4 seconds.
	Water frozen in tank.	Check the setting of the PC and FC and increase if necessary. Check download to review excessive usage and cycle of cabinet.
Water in first glass is warm.	Water dispenser not used for extended periods.	Allow 24 hours for water to cool to set temperature.
	Tank capacity used recently.	Allow water time to cool.
Filter warning icon is flashing. ❋	Filter needs replacing.	Replace filter as soon as possible.
Wet ice/ice clumping.	Low water pressure.	Check pressure-reducing valve. Check for low pressure.
	Filter blocked.	Replace filter.

10 SERVICE PROCEDURES

Safety Considerations

> **CAUTION**
> **ALL TERMINALS AND INTERNAL PARTS SHOULD BE TREATED AS LIVE.**
>
> **ALL SERVICING SHOULD BE CARRIED OUT WITH THE REFRIGERATOR DISCONNECTED FROM THE POWER SUPPLY.**

10.1 Component Replacement

10.1.1 Icemaker PCB Replacement

- The icemaker PCB is fitted to the outside of the power module.
- Disconnect the refrigerator from the power supply.
- Remove the power module from the unit compartment.
- Using a flat bladed screwdriver, lever the PCB cover from the power module.
  Note: Care should be taken, as too much pressure may cause the clip on the cover to break.
- Remove the RAST connector from the icemaker PCB and remove the PCB.
- Refit in reverse order.

10.1.2 Icemaker Unit Replacement

- Disconnect the refrigerator from the power supply.
- Remove all baskets/trays from the freezer.
- Remove left hand side rail supports.
- Remove the clip and insulation pad holding the icemaker sensor from bottom of the ice tray.
- Remove the sensor from under the icemaker tray.
- Place fingers at the rear of the icemaker and with a brisk downward motion pull the icemaker from the roof of the freezer.
  Note: Both front and rear clips should have dislodged. If only the rear clip has dislodged, place fingers in the front of the icemaker and once again briskly pull the icemaker down.
- Disconnect the icemaker harness.

10.1.3 Refitting Icemaker

- Refit the sensor to the underneath of the icemaker tray.
- Refit the wiring connector.
- Place harness into the groove on the edge of the body of the icemaker.
- Locate the clips and align the icemaker to the clips.
- With an upward pressure, re-clip icemaker into place.
  Note: If either front or rear clips do not re-clip, further pressure will need to be exercised to re-clip the icemaker into place.

10.1.4 Icemaker Temperature Sensor Replacement

- Remove the icemaker (refer to Section 4.1.2).
- The sensor wires are to be cut as close to the sensor as possible. Strip the wires back (10mm) on the new sensor and on the wiring in the cabinet to allow the wires to be soldered together.
- Place heat shrink onto both wires of the sensor.
- Solder the wires, slide the heat shrink over the joints and heat the joints.

10.1.5   Water Valve Replacement

- Ensure the water is turned off at supply tape.
- Disconnect the refrigerator from the power supply.
- Pull the product away from the wall to access the rear of the product.
- To remove the water tube from the water valve, push the inner part of the clip inwards and hold down while pulling the tube from the valve. Drain the water (approximately 1½ litres) into a container.
- Remove the RAST connector from the water valve.
- Remove two screws holding the valve to the back wall of the unit compartment.
- Refit in reverse order.

10.1.6   Display Module Replacement

The display module is located on the front of the door.
To remove the module:

Step 1

- Disconnect the refrigerator from the power supply.

- Push the tabs upwards and gently pull the panel forward once the tabs release.

- A small screwdriver or key may need to be used to dislodge the tabs from the housing.
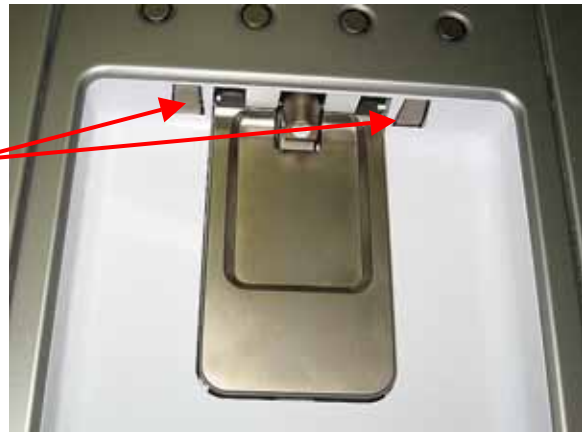
Step 2

- Two locating pins on the base of the front panel hold the housing at the bottom.
  Note: The housing cannot be removed, as wiring looms prevent the housing being removed.

Locating pins

Step 3

- Disconnect the RAST connectors from the module.

- Pull the two bottom tabs forward.

- Remove the module.
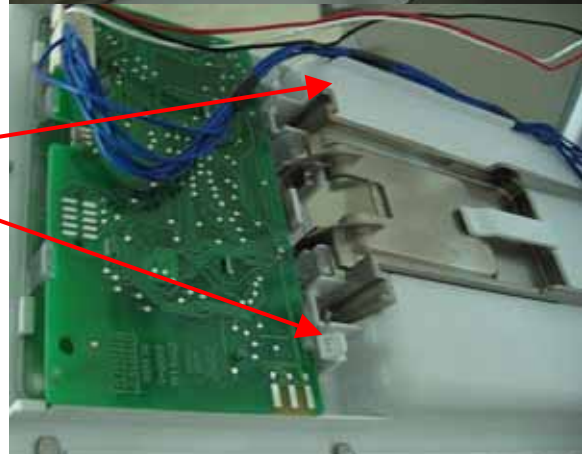
Step 4
Refit in reverse order.

- Ensure the wiring is placed and clipped into the correct position.

- Ensure the flow meter and water hose are in the correct position prior to clipping the panel into position.

- If necessary, replace the water hose between the flow meter and the dispenser.
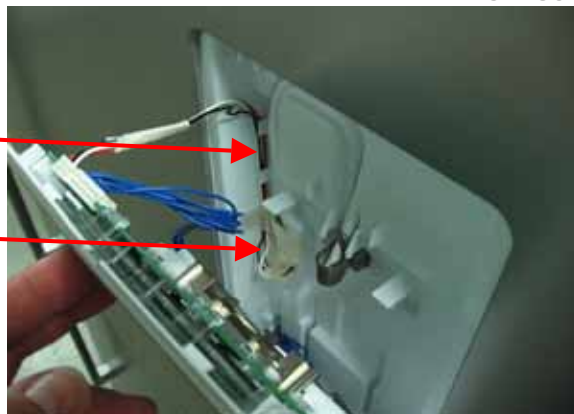
10.1.7   Water Dispenser Pad Replacement

- Remove the module (refer to Section 8.1.6).
To remove the pad, lift the sensor pad upward.

To refit the sensor pad, ensure the retaining clip is as shown.

Refit in reverse to above procedure.

10.1.8   Removing Water Tank

- Turn the water off at source.
- Remove all shelves.
- Remove the PC duct cover and PC Sensor from duct cover.
- Unclip the water reservoir cover from the cabinet liner.
- The reservoir is removed by sliding a flat bladed plastic putty knife or spatula on top of the tank, and with a folding motion of the spatula, lever the tank lip from the LH side to the RH side until the clip is lifted from the liner and the tank is removed.

Diagram A. Tank in position.

Diagram B. Fit spatula on the RH side of lip and move to RH side until unclipped.

Diagram A   **Diagram B**

- Remove water tubes from the tank.

Hoses are accessible once tank is removed.

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10.1.9   Refitting Water Tank

- Place the bottom section of the tank onto protrusion on PC liner (refer to Diagrams C and D).

Diagram C

Diagram D

- Push the tank towards the rear of the liner until top lip is clipped into position.
- Refit cover (as per Diagram E).

Diagram E

- Fit duct insulation and duct cover.
- Fit PC sensor into PC cover.
- Replace shelves and crisper.
- Turn water on and flush out system until all the air has been removed from water tank.
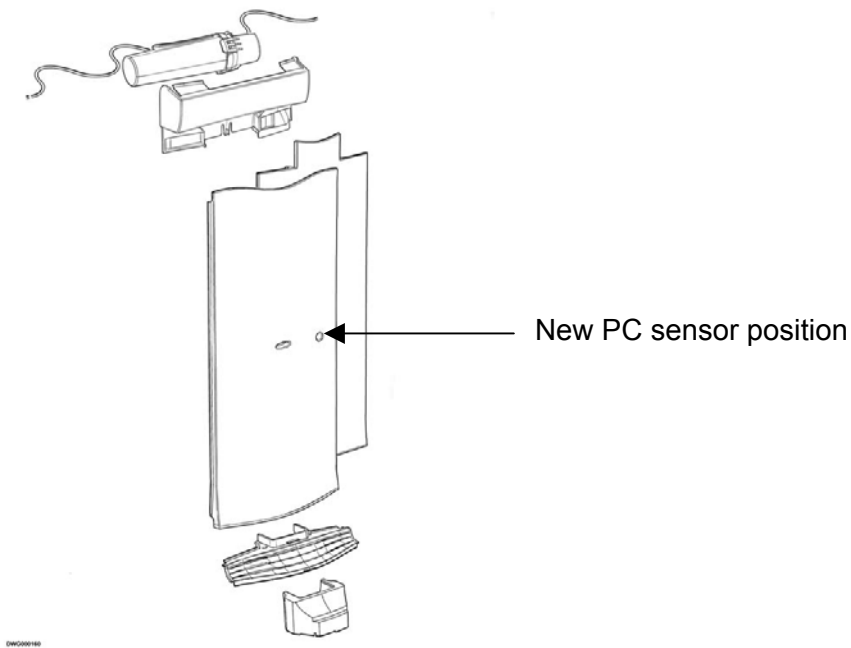

New PC sensor position

Diagram F

Note: When replacing the door, ensure that the collets are refitted and the product is water tested after completion of repair.

10.1.10 Replacement Of PC Door (Manufactured After May 2007)

- Disconnect the refrigerator from the power supply.
- Remove the top hinge cover to expose the wiring and water tubing.
- Disconnect the edge connector.
- Remove the left hand collet-locking clip from the John Guest fitting (refer to photo below).

Collet-locking clips in position. Remove left hand clip to remove the door.

- Once the clip has been removed, push the collar in to remove the water tube.
- Remove the top hinge cover and hinge.
- Remove the water tube and wiring from the guide.
- Remove the door.
- Remove the door dispensing pad, wiring and water tube from the old door and refit all components to the new door.
- Reassemble in reverse order.

10.1.11 Replacement Of PC Door (Manufactured Before May 2007)

(Without John Guest fitting under top hinge cover).

- Turn the power off to the refrigerator.
- Turn off the water (if connected).
- Remove the hinge cover.
- Disconnect the RAST connector.
- Remove the top hinge.
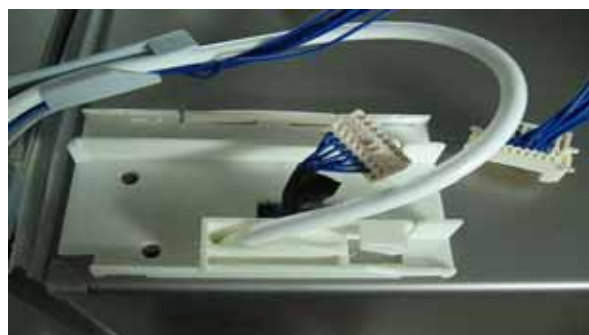
- Remove the LCD display and disconnect the bottom hose off the flow meter.

- Push the collar up and hold up.
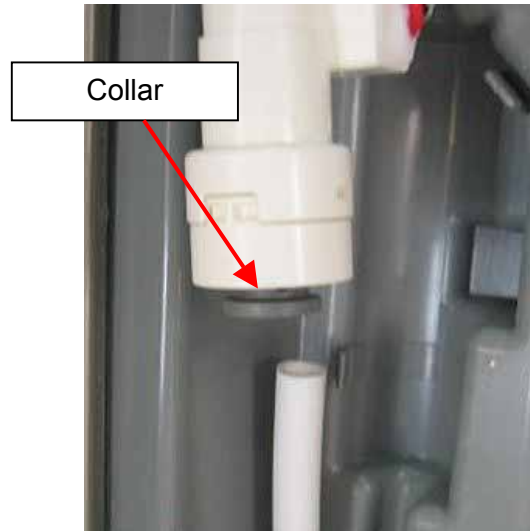- Pull the water tubing out.

Collar

- Remove the screw from the door.
- Remove the hose and wiring harness from the guide.

- Turn the guide 90º to the door to remove the guide from the housing.

- Remove the hose from the door conduit.

- Fit the harness to the bullet supplied with the replacement door and tape the harness to the bullet.
  Note: This is required to pull the harness through the conduit.
- Ease the bullet into the conduit and draw the harness out of the door.

Once the harness is removed from the door, remove the old door from the cabinet.

10.1.12 Fitting A New Door

- From the harness RAST connector, measure 300 mm (12 inches) and place a mark on the harness.

- The mark on the harness is to be placed in the middle of the guide.
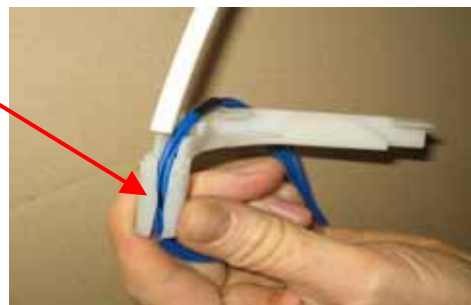
- Push hose through the guide until the hose equals the same length of the harness.
  Note: By connecting the harnesses, it makes the measuring easier.

- Using the bullet, place the RAST connector and hose as shown.

- Feed the harness and hose through the door conduit.

- Fit the hose to the flow meter. The hose may need to be trimmed on the end to prevent leaks.

- Reassemble the top hose and LCD display.

- Ensure that the water tubes are clipped into position correctly.

- Ensure that the flow meter wiring fitted behind the flow meter to the display panel is correctly fitted.

- Refit the LCD housing, ensuring that the wiring harness is firmly in place and is not preventing the housing from closing.

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- Refit the guide to the hinge ensuring that the tab lines up with the cut out.
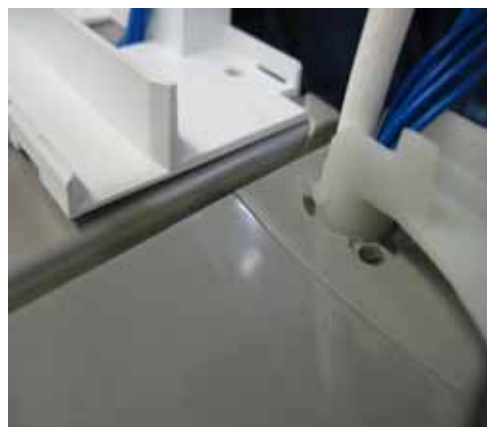
- Refit the screw to the hinge plate.

- Fit the hinge cover.

Note: If the original water tube is to be refitted, check the end of the tube for any damage, and if the tube has small pieces of plastic protruding, cut ¼ inch of tube from the end. This should be carried out with a sharp bladed knife.

11 ICE & WATER COMMON COMPLAINTS

The following are common complaints/problems/concerns regarding water and ice, which may have occurred. Explanation for these faults is given for the serviceman to better deal with customers having concerns.

11.1 Sublimation

When ice is not being used on a continual basis, cold dry air from the evaporator passes over the ice, causing the ice to dehydrate (evaporate, moisture is removed) and the ice will slowly disappear.

11.2 Ice Sticking Together

If the FC door is left open for an extended period or the ice bin is removed and allowed to warm up, the customer may find the ice cubes sticking together in the bin to form a large block.

Where a large block of ice is formed, the block will need to be removed to start the ice making process again.

Another reason for large blocks of ice can be due to water leaking from the fill tube onto the ice tray and overflowing the mould. Check for leaking diaphragm in the water inlet valve.

11.3 Discolouration / Metallic Taste

Where the water or ice cubes are discoloured, they should not be used. If the water is a greenish-blue colour, the reason for this happening is copper oxide. This is not a common fault but may happen where the water supply to the house is in a copper pipe but for whatever reason the pipe is not earthed. To overcome this problem, the pipe work should be earth bonded to the earth of the house.

11.4 Bad Taste

Any fresh food, which is not sealed or wrapped when placed into the freezer, may contaminate the ice with the taste of the unwrapped foodstuff. The ice will need to be thrown out and the ice-making process started again. The customer must be advised to wrap all foodstuffs.

11.5 Ice Appears Cloudy

This problem occurs when air or air bubbles are in the water, which normally happens in the early stages and will disappear with use.

11.6 Particles In Ice And / Or Water

This is normally due to a new filter, where carbon dust in the new filter needs to be flushed out of the system. The particles are harmless and safe for consumption; however customers are advised to flush the system of three (3) Quarts of water at every filter replacement. (Refer to Use and Care manual).

12 TEMPERATURE CONVERSION TABLE

°C	°F	°C	°F	°C	°F
-30	-22	0	32	30	86
-29	-20.2	1	33.8	31	87.8
-28	-18.4	2	35.6	32	89.6
-27	-16.6	3	37.4	33	91.4
-26	-14.8	4	39.2	34	93.2
-25	-13	5	41	35	95
-24	-11.2	6	42.8	36	96.8
-23	-9.4	7	44.6	37	98.8
-22	-7.6	8	46.4	38	100.4
-21	-5.8	9	48.2	39	102.2
-20	-4	10	50	40	104
-19	-2.2	11	51.8	41	105.8
-18	-0.0	12	53.6	42	107.6
-17	1.4	13	55.4	43	109.4
-16	3.2	14	57.2	4	111.2
-15	5	15	59	45	113
-14	6.8	16	60.8	46	114.8
-13	8.6	17	62.6	47	116.6
-12	10.4	18	64.4	48	118.4
-11	12.2	19	66.2	49	120.2
-10	14	20	68	50	122
-9	15.8	21	69.8		
-8	17.6	22	71.6		
-7	19.4	23	73.4		
-6	21.2	24	75.2		
-5	23	25	77		
-4	24.8	26	78.8		
-3	26.6	27	80.6		
-2	28.4	28	82.4		
-1	30.2	29	84.2		