

Appliance Documentation

BF(I)	1061	from Index 10/237	Premium
EBN(es)	3256	from Index 10/237	Premium

Combined BioFresh-freezer NoFrost with IceMaker



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1.0 Operating and control elements



Symbol for
symbol lit = function activated

Power failure

BioCool

Child lock

Alarm

IceMaker ON

SuperFrost

Sabbath Mode

Menu

Demo mode

2.0 Functions at a glance

Control:	Electronic	
Temperature display:	Refrigerator compartment: Freezer compartment:	Actual value Actual value
Temperature range:	BioFresh compartment: freezer compartment:	b1 to b9 (32°F to 36°F, 0°C to +2°C) 7°F to -16°F (-14°C to -26°C)
Temperature alarm:	BioFresh compartment: Freezer compartment:	Not present Visual, audible
Door alarm:	BioFresh compartment: Freezer compartment:	Audible Audible
Fan:	BioFresh compartment: Freezer compartment:	Present Present
Defrosting:	BioFresh compartment: Freezer compartment:	Automatic Automatic
Interior light:	BioFresh compartment: Freezer compartment:	Present Not present
Service menu:	Present	
Compressor:	VCC compressor, frequency-controlled.	
Solenoid valve refrigeration circuit:	Present	

3.0 Description of appliance

The **BF(I) 1061 / EBN(es) 3256** is a combined BioFresh freezer with a NoFrost freezer compartment. A bistable solenoid valve is used for the refrigeration control of the BioFresh evaporator and freezer compartment evaporator. Both evaporators are connected in series (see **4.2.4 Schematic diagram: Refrigeration circuit**). Therefore the BioFresh compartment can be operated only in conjunction with the freezer compartment. However, it is possible to operate the freezer compartment on its own.

The BioFresh compartment is cooled using a foamed-in evaporator. The evaporator is thermally sealed off by an insulated, vertical separating plate. A DC fan is employed for even temperature distribution in the BioFresh compartment. The fan is integrated in the vertical separating plate. The fan takes in the air from the bottom and blows it up, past the evaporator.

The freezer compartment is equipped with a NoFrost rear wall evaporator module, fan module, air sensor and evaporator sensor. The defrosting phases are initiated by way of the electronic control system, taking compressor running time and door openings into account.

3.1 Sensor positions, schematic diagrams

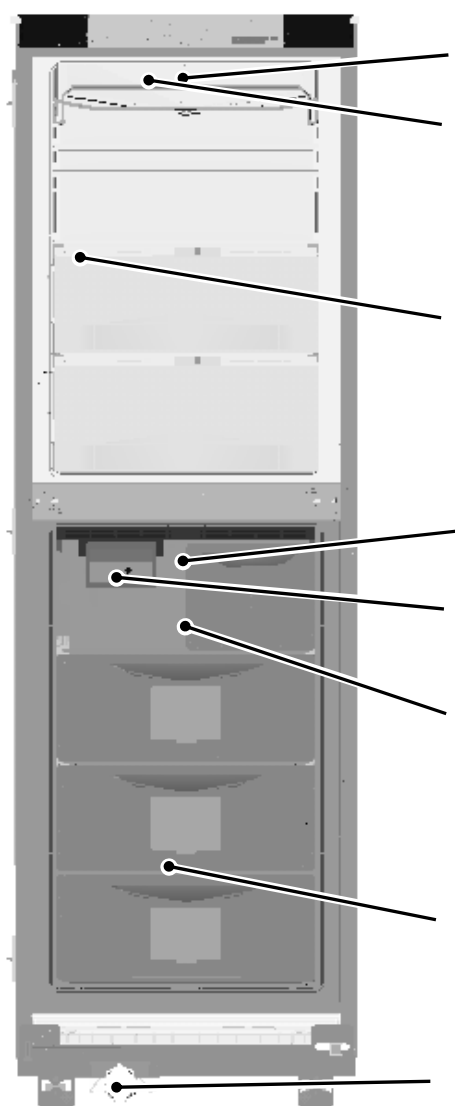


Fig. 3.1 / 1

Fan

Air sensor

Foamed-in rear wall evaporator

Evaporator sensor

Fan

IceMaker

Air sensor

Lamellar evaporator

Evaporator sensor

Water filter holder

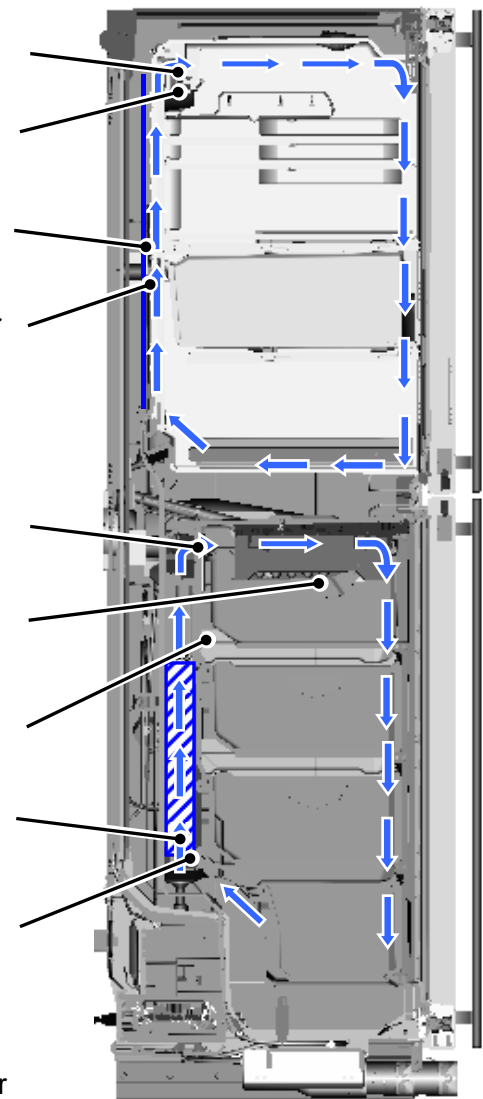


Fig. 3.1 / 2

4.0 Main components and their functions

4.1 Electrical components and functions

4.1.1 General

Electronics	
Type:	Series 6 electronic control system
Components:	Control panel and power PCB
Compressor	
Type:	VCC compressor, frequency-controlled.

- Function:**
- ON:** BioFresh compartment evaporator sensor switch-on value
or
freezer compartment air sensor switch-on value
Please note: On-delay time (8 minutes) must have elapsed.
- OFF:** BioFresh compartment air sensor switch-off value
and
freezer compartment air sensor switch-off value.

VCC compressor, frequency-controlled.

- Compressor with 4 different speeds (1600 / 1900 / 3000 / 3600 rpm).
- The inverter electronic control is fitted directly on the compressor. The inverter electronic control controls the compressor with a pulse-width modulated square-wave voltage.
- For speed value input, the inverter electronic module receives a square wave frequency signal from the power PCB.
This frequency signal is output with 56, 71, 87, 100 or 117 Hz, depending on the speed at which the compressor is to run.

Frequency in Hz	Speed in rpm	Operation
56	Compressor OFF	Compressor OFF
71	1600	Ideal case
87	1900	Control mode
100, 0 (signal interruption), other values than the defined frequencies	3000	Start-up, signal interruption, signal fault
117	3600	SuperFrost

- Runtime longer than 70 minutes:
Speed increase by one step during compressor operation.
- Runtime shorter than 40 minutes:
Speed reduction on next start-up.

For troubleshooting, see section 8.2 Troubleshooting VCC compressor / inverter

Solenoid valve refrigeration circuit	
Type:	Bistable
Function:	Changeover between REFRIGERATOR BIOFRESH COMPARTMENT + FREEZER COMPARTMENT to FREEZER COMPARTMENT only.

4.1.2 BioFresh compartment

Electronics		
Setting range:	b1 to b9 (32°F to 36°F, 0°C to +2°C)	
Display range:	32°F to 99°F (0°C to 49°C) (actual value display) Temperatures equal to/colder than 32°F (0°C) are displayed with 32°F (0°C).	
Functions		
BioCool:	ON:	Fan continuous operation (highest speed) for 6 hours.
	OFF:	- Fan high speed, when compressor ON. - Fan low speed, when compressor OFF.
Defrosting:	- Automatic when solenoid valve is at the B setting "freezer compartment only". - Automatic during compressor standstill phase.	
Door alarm:	When:	If door is open after 3 minutes.
	Audible:	3 beeps.
Sensors		
Air sensor:	Position:	At the top, behind the vertical separating plate, next to the fan.
	Function:	- BioFresh compartment air sensor and freezer compartment air sensor switch the compressor OFF. - Switches the solenoid valve to B direction (freezer only) - Switches the BioFresh fan ON/OFF. - Generates the display value.
Evaporator sensor:	Position:	In sensor holder on compartment liner rear wall.
	Function:	- BioFresh compartment evaporator sensor or freezer compartment air sensor, switches the compressor ON. - Switches the solenoid valve to A setting (refrigerator + freezer) - Ends the defrosting phase.
Switch		
Door switch:	Position:	At the top of the front housing.
	Type:	Reed PCB
	Contact type:	Make contact
	Function:	Activation via: magnet behind door panel, magnet is replaceable.
<u>Switching signal when:</u>		
door closed:	fan	ON
	interior light	OFF
door open:	fan	OFF
	interior light	ON
	door alarm	ON after 3 minutes

Loads**Fan:**

Position: At the top, behind the vertical separating plate.

Function:

BioCool	Compressor	Door	Fan
OFF	OFF	CLOSED	low speed
OFF	ON	CLOSED	high speed
ON	ON/OFF	CLOSED	high speed
ON/OFF	ON/OFF	OPEN	OFF

e.g. If BioCool is OFF **and** the compressor ON **and** the door closed, **then** the compressor runs at high speed.

During start-up, the fan is activated only from an evaporator sensor temperature of 46°F (+8°C) and colder.

Interior light:

Position: Ceiling.

Function:

- Shines as soon as the door is opened.
- Is switched OFF after door has been open for 15 minutes.

4.1.3 Freezer compartment

Electronics		
Setting range:	7°F to -16°F (-14°C to -26°C)	
Display range:	32°F to -58°F (0°C to -50°C) (actual value display) Values outside the range are indicated by a dash.	
Functions		
Temperature alarm:	<p>Alarm value: 7°Ra (4K) warmer than setpoint.</p> <p>SuperFrost alarm value: 7°F (-14°C).</p> <p>Delay: 20 minutes</p> <p>Visual: Flashing temperature display.</p> <p>Audible: 4 beeps.</p> <p>During start-up: The temperature display flashes until the switch-off value is reached, the audible alarm is switched OFF.</p> <p>(E.g. given a set value of 0°F (-18°C), a temperature of 7°F (-14°C) has to be present for at least 20 minutes, then a temperature alarm is activated.)</p> <p>When the defrosting phase begins, the temperature alarm is suppressed for 1.5 hrs.</p>	
Defrosting:	ON:	<ul style="list-style-type: none">- During start-up after 6 hours cumulative compressor running time.- After a cumulative compressor running time of 8 to 60 hours maximum, depending on the number/duration of the door openings. <p>When the defrosting phase begins, the compressor and the fan are switched OFF and the defrost heater is switched ON.</p>
	Duration:	<p>The defrost heater remains switched ON until such time as</p> <ul style="list-style-type: none">- the freezer compartment evaporator sensor has reached 59°F (+15°C) or- a max. defrosting time of 50 minutes has been reached.
	Info:	<p>After the end of the heating phase the compressor is switched ON with a 10-minute delay.</p> <p>If the SuperFrost function is activated during the defrosting phase, this will not interrupt defrosting.</p>
Door alarm:	When:	If door is open after 3 minutes.
	Audible:	3 beeps.
SuperFrost:	ON:	<p>Freezer compartment sets itself to -36-38 °C (quantity-controlled, min. 30 hrs., max. 65 hrs.)</p> <p>The appliance sets itself to -36°F (-38°C) for at least 30 hours. In the following 35 hours cooling by 148K to the set value must have been reached or a total time of 65 hours must have elapsed in order that SuperFrost is automatically ended.</p>
	OFF:	The freezer compartment sets itself to the set value.
<p>Note: If SuperFrost is actuated during a defrosting phase, the SuperFrost function is not performed before the defrosting phase has run.</p>		

Sensors

Air sensor:	Position:	Clipped into the sensor holder in the air duct panel.
	Function:	<ul style="list-style-type: none"> - Freezer compartment air sensor and BioFresh compartment air sensor switch the compressor OFF. - Freezer compartment air sensor or BioFresh compartment evaporator sensor, switches the compressor ON. - Generates the display value.
Evaporator sensor:	Position:	Slipped into lamellar evaporator.
	Function:	<ul style="list-style-type: none"> - Freezer compartment evaporator sensor and freezer compartment air sensor, switch the freezer compartment fan ON. - Ends the defrosting phase.

Switch

Door switch:	Position:	In fan housing.
	Type:	Reed PCB
	Contact type:	Make contact
	Function:	Activation via: Magnet on the door interior, magnet is replaceable.
<u>Switching signal when:</u>		
door closed: fan ON		
door open: fan OFF		
door alarm ON after 3 minutes..		

Loads

Fan:	Position:	Top centre of freezer compartment.
	Function:	<p>ON:</p> <ul style="list-style-type: none"> - compressor ON - freezer compartment door closed - evaporator sensor switch-on value reached. <p>Switch-on value evaporator sensor:</p> <p>a) during start-up / after defrosting phase: -13°F (-25°C).</p> <p>b) In normal operation 4°Ra (2K) colder than freezer compartment air sensor.</p> <p>OFF:</p> <ul style="list-style-type: none"> - compressor OFF - <i>Special case:</i> The refrigerator compartment air sensor is too warm and the freezer compartment air sensor is at least 4°Ra (2K) colder than the switch-off value. There is therefore more power available for the refrigerator compartment!
Defrost heater:	Position:	Clipped into lamellar evaporator.
	Function:	Keeps the lamellar evaporator free from ice. For activation, see: Functions Defrosting

4.2 Refrigeration components and functions

4.2.1 General

Compressor	
Compressor:	VCC compressor, frequency-dependent
Solenoid valve	
Solenoid valve:	Bistable
Side wall heating	
Position:	Foamed-in in right-hand and left-hand side wall.
Type:	Hot gas heating
Water inlet nozzle heating	
Position:	Foamed-in in the housing, in the region of the
Type:	Hot gas heating
Heating cross connection centre	
Position:	Foamed-in in cross connection centre.
Type:	Hot gas heating

4.2.2 BioFresh compartment

Evaporator	
Type:	Rear wall evaporator
Type of installation:	Foamed-in
Injection point:	Top centre
Flow sequence:	Top to bottom

4.2.3 Freezer compartment

Evaporator	
Type:	Lamellar evaporator
Type of installation:	Free-standing between air duct panel and compartment liner.
Injection point:	Top left on lamellar evaporator.
Flow sequence:	From the top down and then up again.

4.2.4 Principle of operation of the refrigerating system

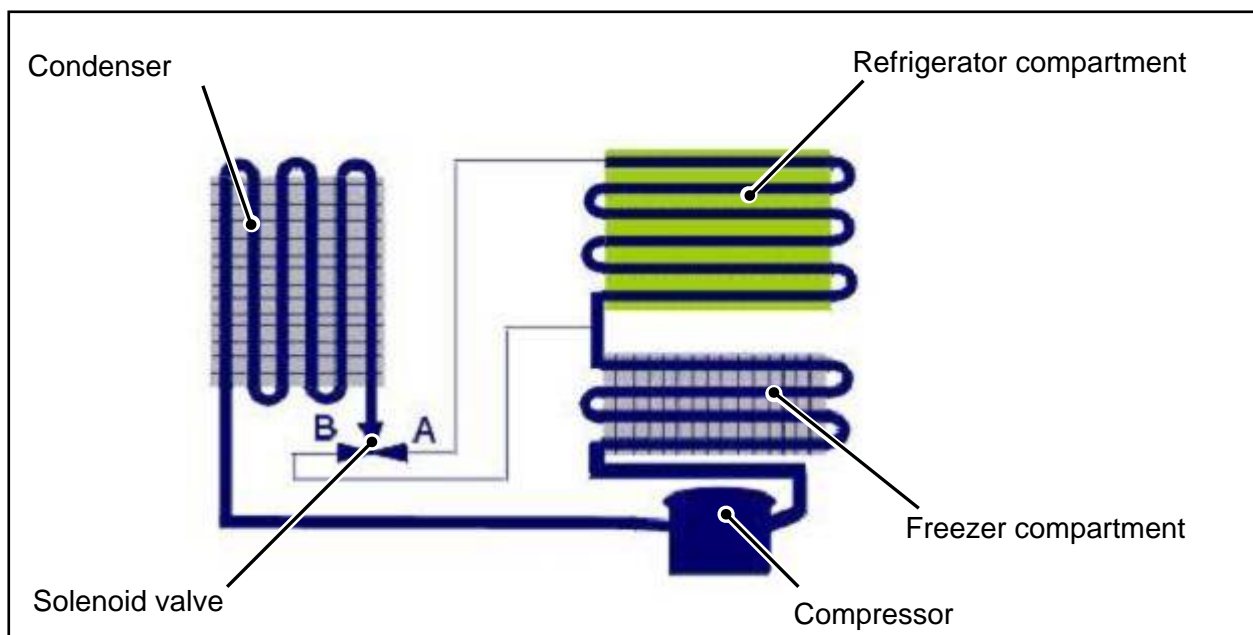


Fig. 4.2.4

5.0 Assembly instructions / replacement of parts

5.1 General

5.1.1 Control panel electronics

Covers:

- Disengage the covers at the marked locations.
- On hinge side, slightly detach cover and push bolt out upwards.



Fig. 5.1.1 / 1

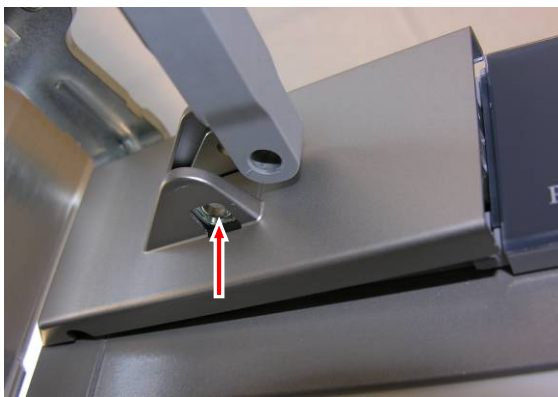


Fig. 5.1.1 / 2

Front panel:

Unlock locating lugs at the left and right of the front casing.



Fig. 5.1.1 / 3

Bus connector:

Disconnect and detach bus connector.

Front panel can be replaced only as a unit, PCB is not separately available!

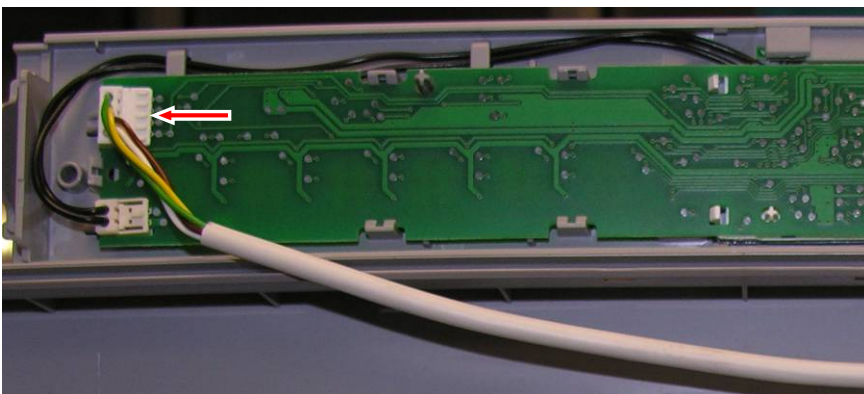


Fig. 5.1.1 / 4

5.1.2 Power electronics

Note: Pull out the mains plug!

Electronic power module cover:

- Undo marked screw.
- Unlock marked retaining clip.
- Swing out the cover at the bottom and lift for removal.

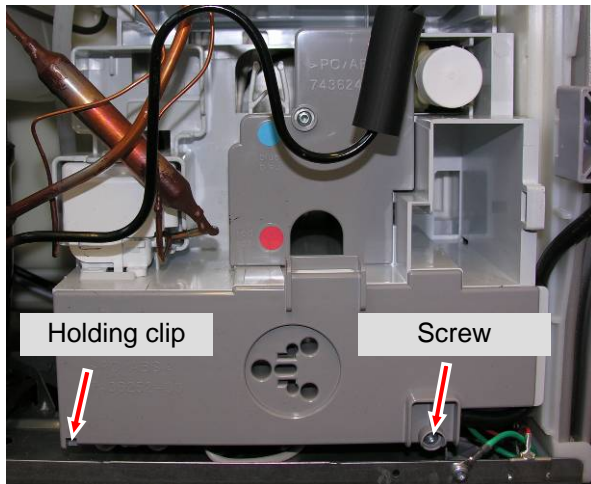


Fig. 5.1.2 / 1

Cable clip:

- Disengage the cable clip (transparent plastic clip) at the marked location.

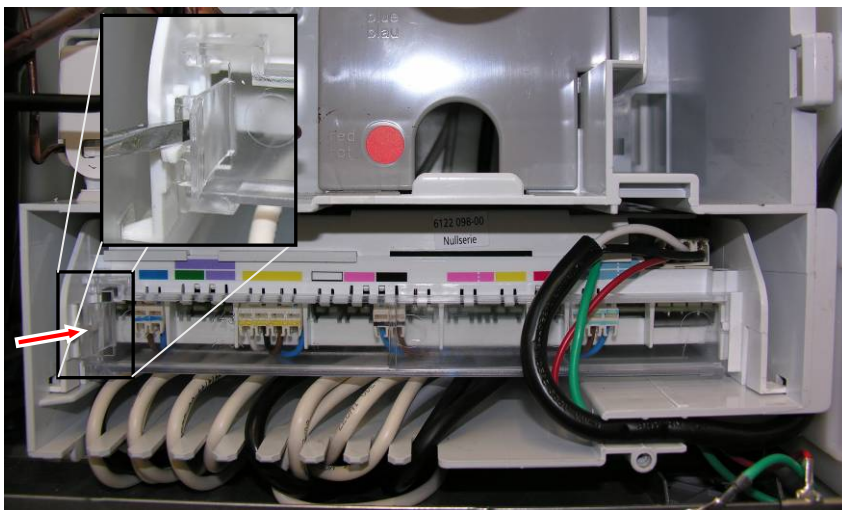


Fig. 5.1.2 / 2

Plug-in module:

- Remove front PCB edge connector
- Disengage plug-in module at the right and left clip and pull out forwards.
- Detach rear PCB edge connectors.

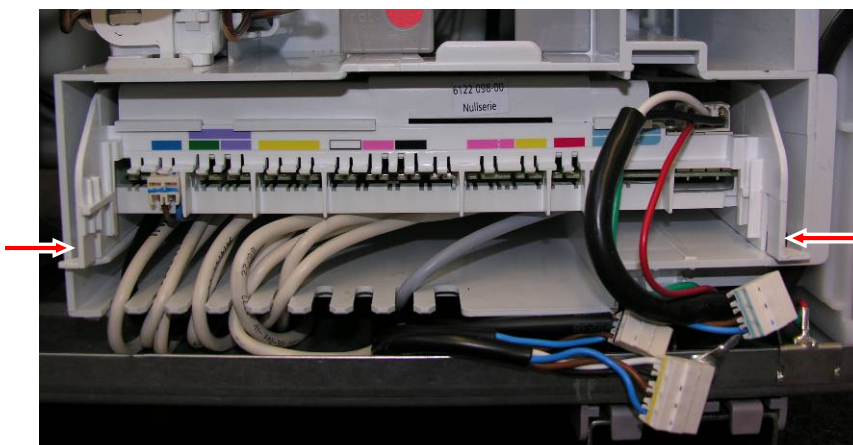


Fig. 5.1.2 / 3

Electronic power module:

- Disengage locating lug of the cover (**Fig. 5.1.2/ 4**).
- Disengage electronic power module at the marked locations (**Fig. 5.1.2/ 5**).

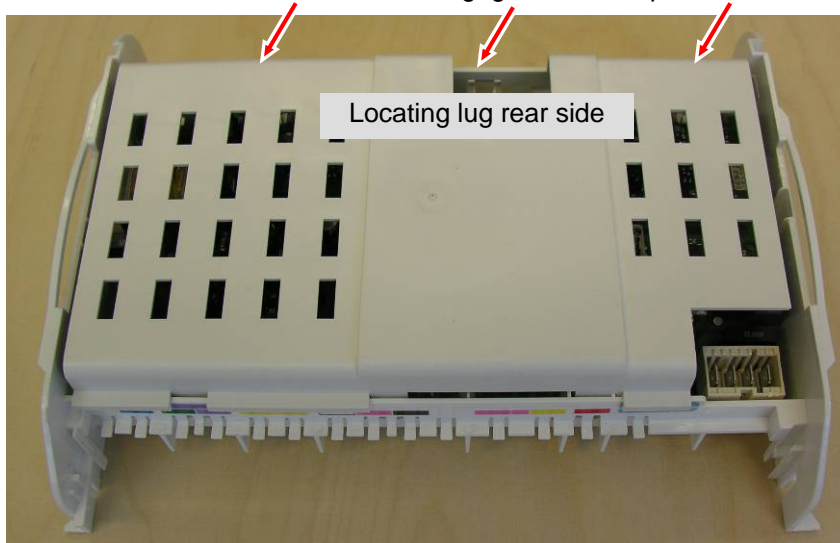


Fig. 5.1.2 / 4

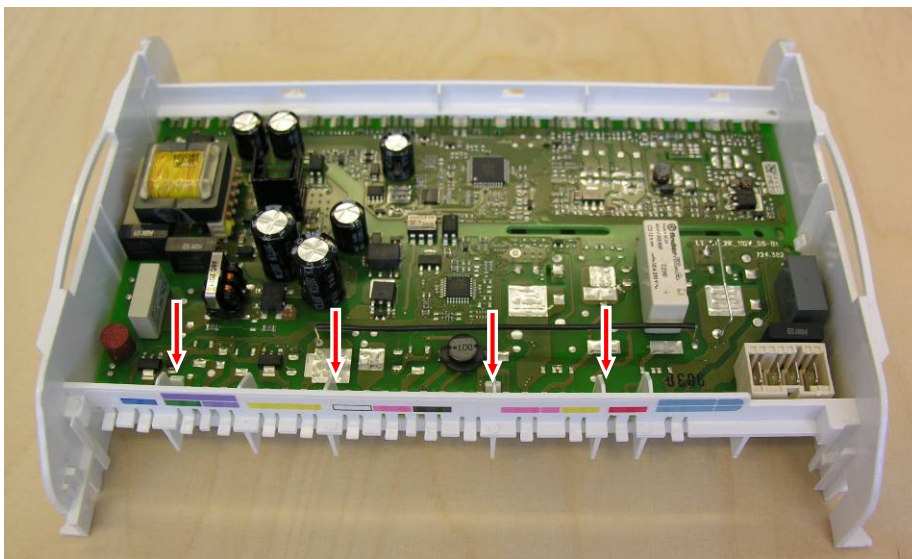


Fig. 5.1.2 / 5

5.1.3 Top soft stop mechanism

Cover of front panel: Raise the cover sufficiently far that the pin can be pressed up and out (see Fig. 5.1.3/ 1).

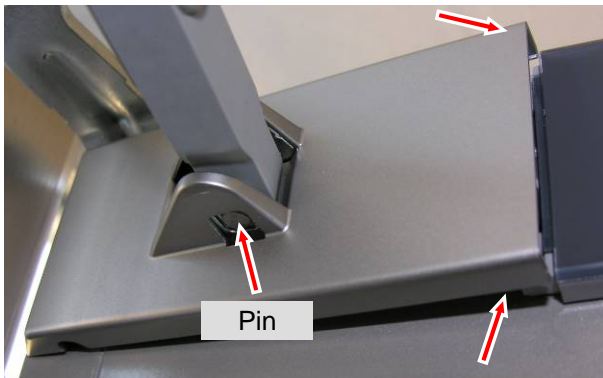


Fig. 5.1.3 / 1

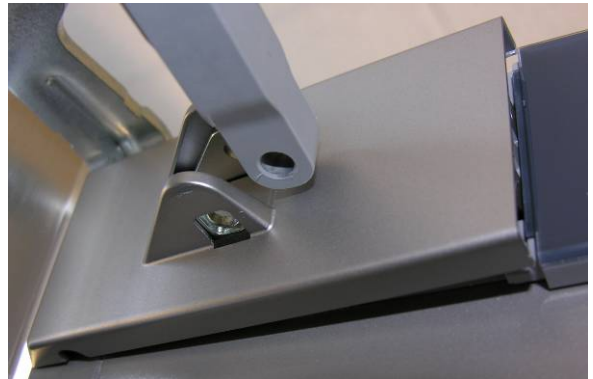


Fig. 5.1.3 / 2

Cover Soft stop mechanism: Disengage cover of the soft stop mechanism at the marked locations (see Fig. 5.1.3/ 3).



Fig. 5.1.3 / 3

Soft stop unit: Undo the screws fastening the soft stop unit (see Fig. 5.1.3/ 4).



Only BFI appliances (overlay): Undo the screws fastening the soft stop unit (see Fig. 5.1.3/ 5).

With BF appliances (stainless steel), the soft stop mechanism is directly screwed on without additional retaining part!

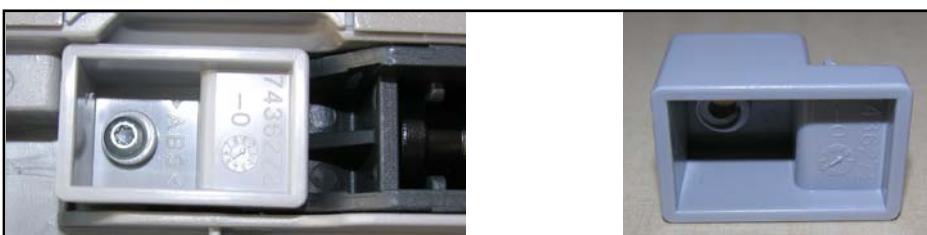


Fig. 5.1.3/ 5 Retaining part

Safety device**Soft stop unit:**

Fit the safety device for the soft stop unit.

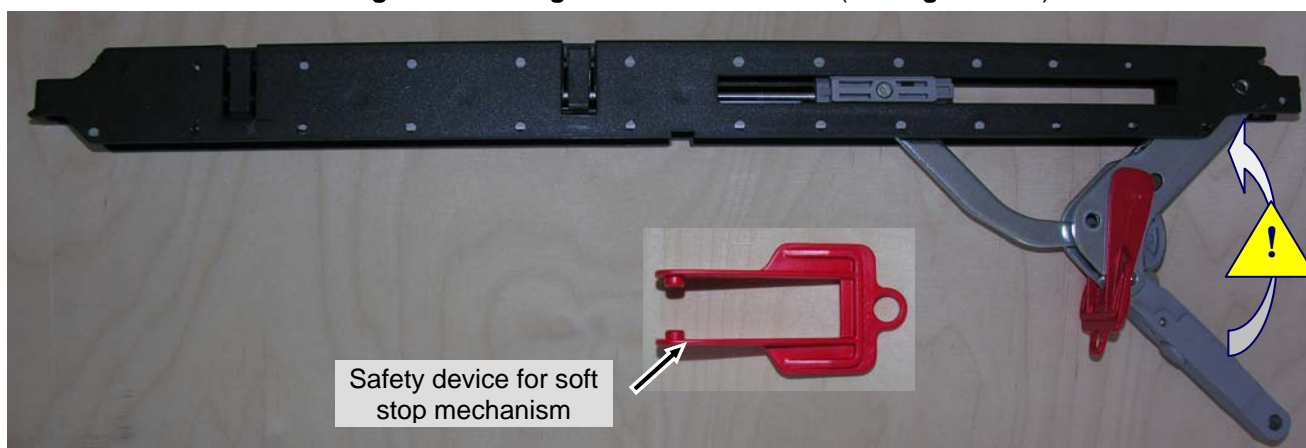
Danger of crushing in the area indicated (see Fig. 5.1.3/ 5).

Fig. 5.1.3 / 6

5.1.4 BFI 1061: Top door hinge**Turn hinge cover:**

Disengage the cover in the marked direction and raise it for removal (Fig. 5.1.4/ 1).

Turn hinge:

Undo the marked screws and remove the turn hinge (Fig. 5.1.4/ 2).

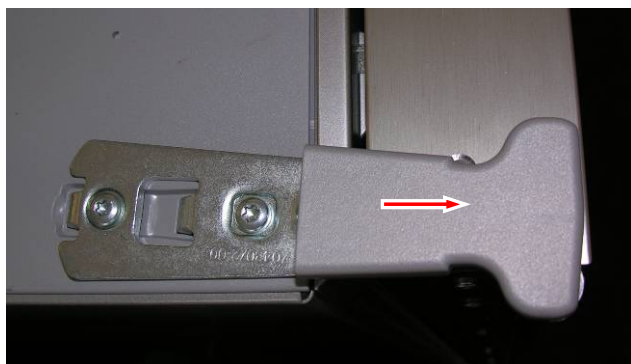


Fig. 5.1.4 / 1

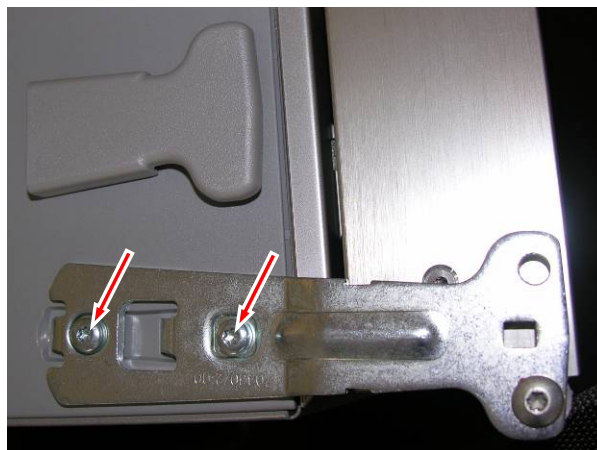


Fig. 5.1.4 / 2

Changing the door hinges:

Remove the cover on the opposite side (Fig. 5.1.4/ 3) and insert and screw down the turn hinge.



Fig. 5.1.4 / 3



Fig. 5.1.4 / 4

5.1.5 BF 1061: Top door hinge

Turn hinge cover: Disengage the cover in the marked direction and raise it for removal (**Fig. 5.1.5/ 1**).

Turn hinge: Undo the marked screws and remove the turn hinge (**Fig. 5.1.5/ 2**).



Fig. 5.1.5 / 1



Fig. 5.1.5 / 2

Changing the door hinges:

Remove the cover on the opposite side (**Fig. 5.1.5/ 3**) and insert and screw down the turn hinge.



Fig. 5.1.5 / 3



Fig. 5.1.5 / 4

5.1.6 Bottom soft stop mechanism

Turn hinge cover: On the right-hand side, lever it off the turn hinge in a forward direction (**Fig. 5.1.6/ 1**), push the pin up and out (**Fig. 5.1.6/ 2**).



Fig. 5.1.6 / 1



Fig. 5.1.6 / 2

Cover

Soft stop mechanism: Disengage cover of the soft stop mechanism at the marked locations (see **Fig. 5.1.6/ 3**).



Fig. 5.1.6 / 3

Soft stop unit: Undo the screws fastening the soft stop unit (see **Fig. 5.1.6/ 4**).



Fig. 5.1.6 / 4

Only BFI appliances (overlay): Undo the screws fastening the soft stop unit (see Fig.. 5.1.6/ 5).

With BF appliances (stainless steel), the soft stop mechanism is directly screwed on without additional retaining part!

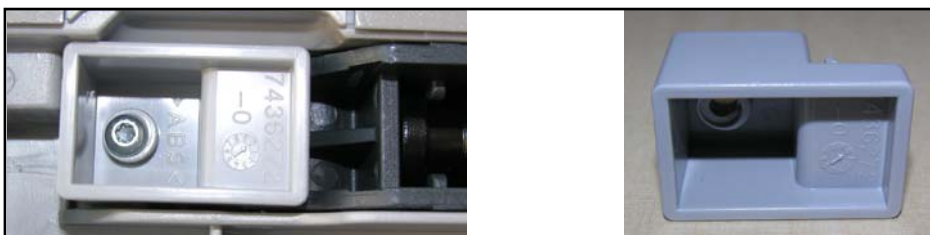


Fig. 5.1.6/ 5 Retaining part

Safety device**Soft stop unit:**

Fit the safety device for the soft stop unit.

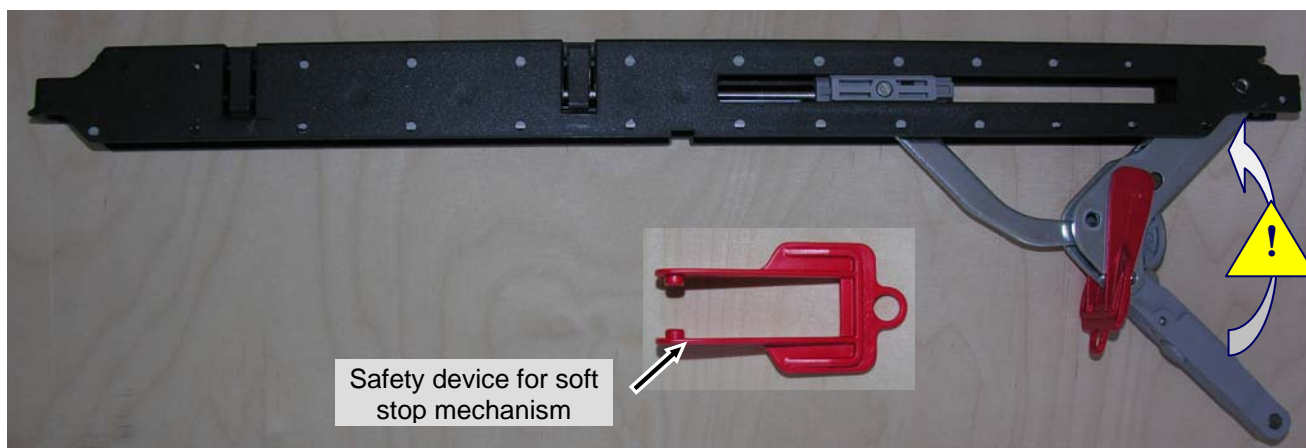
Danger of crushing in the area indicated (see Fig. 5.1.6/ 6).

Fig. 5.1.6 / 6

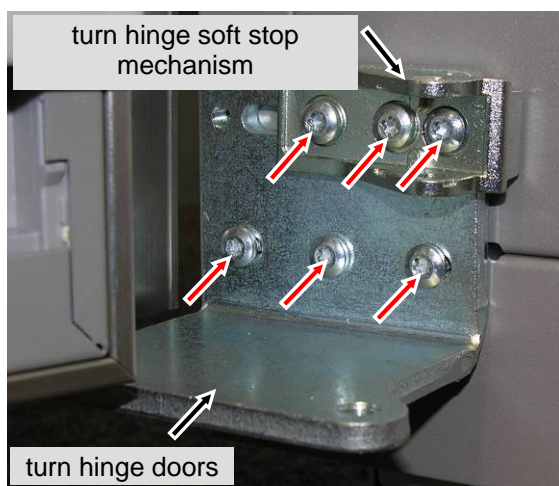
5.1.7 Bottom door hinge**Turn hinge cover:** Disassembly see Fig. 5.1.6/ 1**turn hinge-soft stop mechanism:** Remove the marked screws (Fig. 5.1.7/ 1).**Door turn hinge:** Remove the marked screws (Fig. 5.1.7/ 1).

Abb. 5.1.7/ 1 turn hinge bottom

5.1.8 Door magnet, top door

Magnet:

- Disengage cover of the soft stop mechanism at the marked locations (**Fig. 5.1.8/ 1**).
- Magnet is clipped into place at the rear (**Fig. 5.1.8/ 2**).



Fig. 5.1.8 / 1

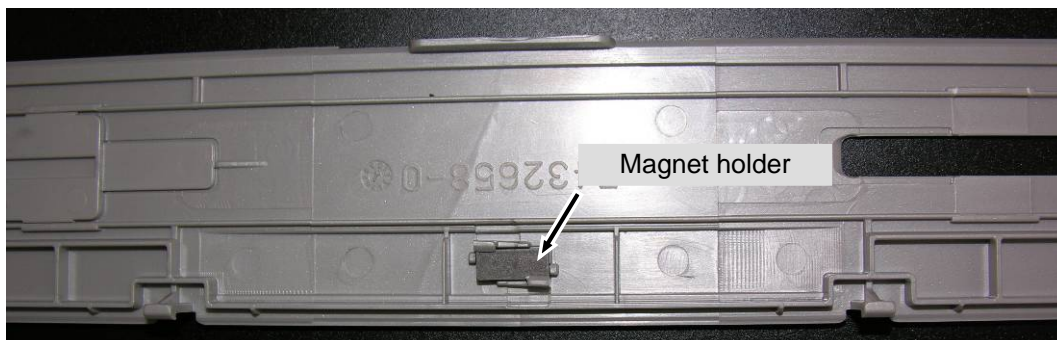


Fig. 5.1.8 / 2

5.1.9 Door magnet, bottom door

Door magnet: Lever out blind rivet with screwdriver and remove magnet holder.



Fig. 5.1.9 / 1

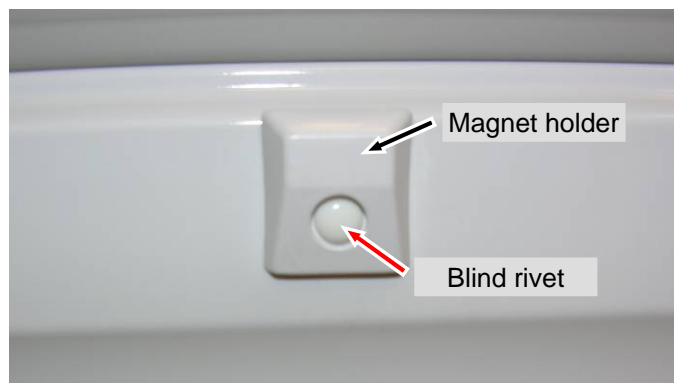


Fig. 5.1.9 / 2

5.1.10 Solenoid valve refrigeration circuit

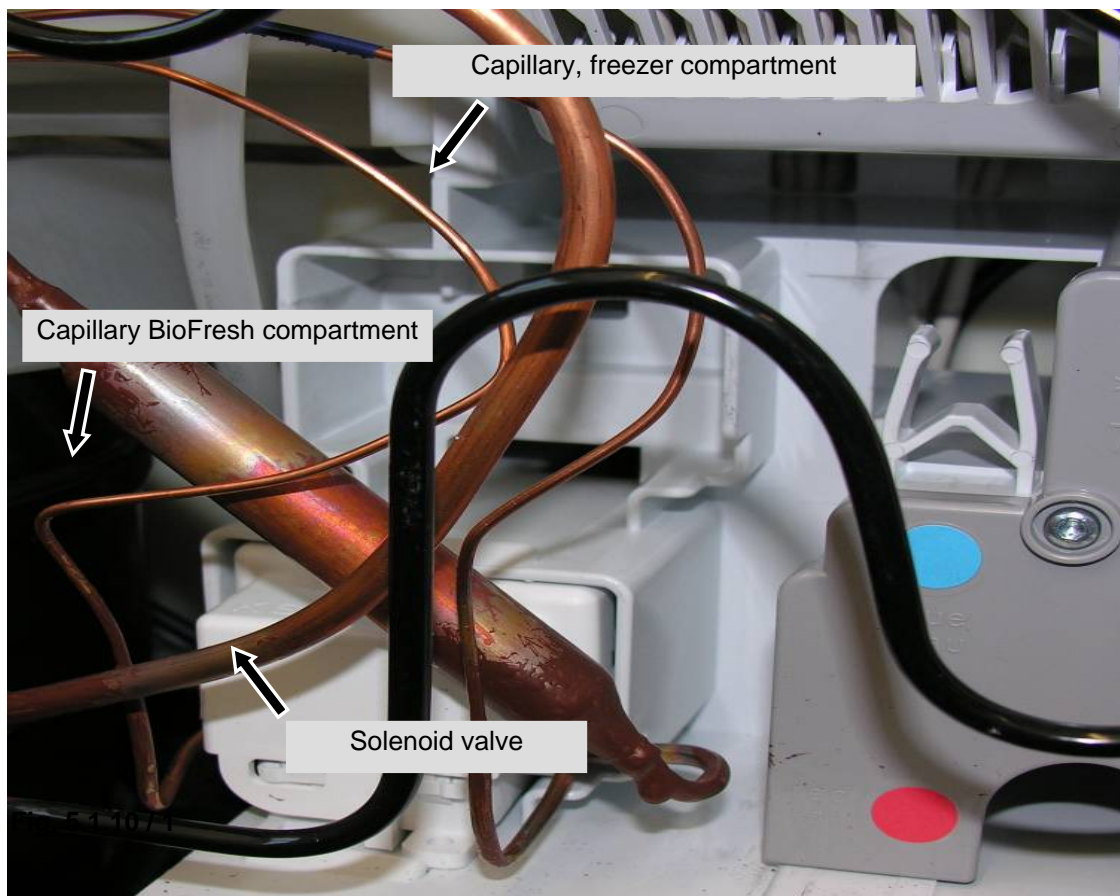
Solenoid valve

- When detaching the capillaries, pay attention that they are properly re-connected.

Marking on solenoid valve cover:

KS : Capillary BioFresh compartment

GS : Capillary, freezer compartment (marked with blue adhesive tape)



5.2 BioFresh compartment

5.2.1 Disassembling the vertical separating plate

- Remove interior fittings.
- Using a screwdriver, disengage holding clips at the right and left at the marked location (**Fig. 5.2.1/ 2**) and press in the direction of the separating plate (**Fig. 5.2.2/ 3**). Remove holding clip.
- Release fastening screws (see **Fig. 5.2.1/ 1**) of the separating plate.
- Pull air sensor cable and fan cable out of the guides.

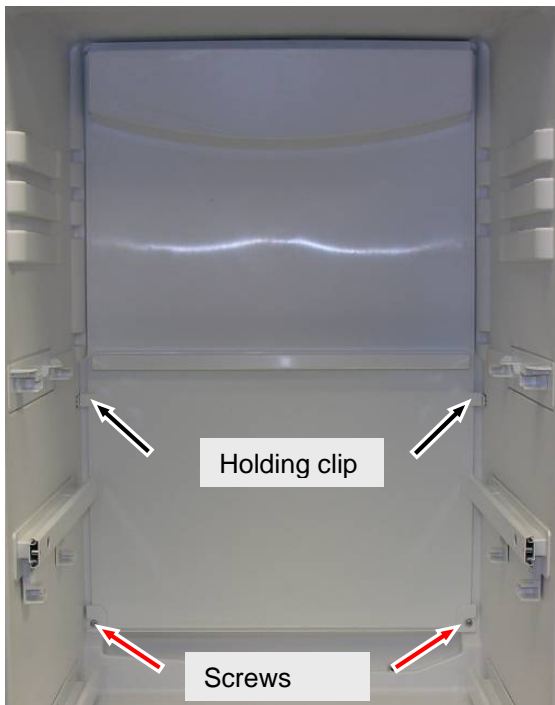


Fig. 5.2.1 / 1

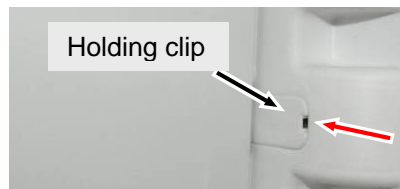


Fig. 5.2.1 / 2



Fig. 5.2.1 / 3



Fig. 5.2.1 / 4

During assembly pay attention that the locking lugs of the vertical separating plate are slipped into the grooves of the compartment liner for fixing the separating plate at the top.

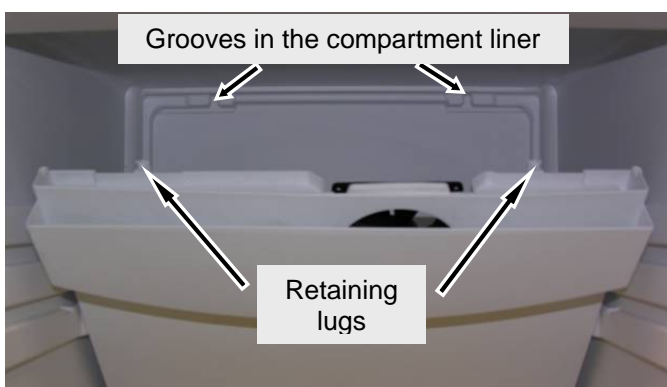


Fig. 5.2.1 / 5

5.2.2 Air sensor

- BioFresh air sensor:**
- Procedure as described under **5.2.1 Disassembling the vertical separating plate.**
 - Swing the vertical separating plate to the left.
 - Unclip the BioFresh air sensor.

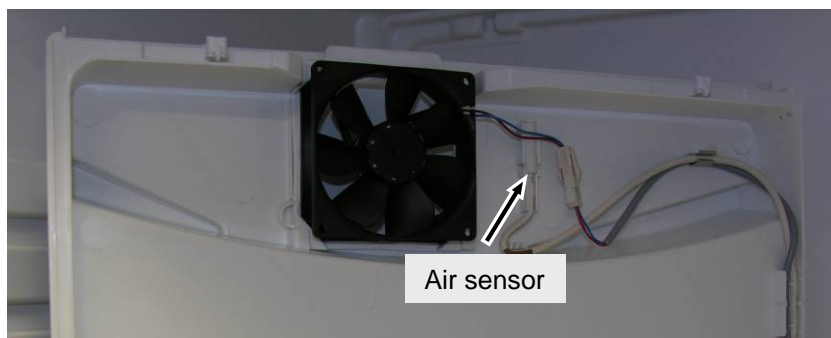


Fig. 5.2.2 / 1

5.2.3 Evaporator sensor

- Evaporator sensor:**
- Procedure as described under **5.2.1 Disassembling the vertical separating plate.**
 - Swing the vertical separating plate to the left.
 - Release the evaporator sensor mount (**Fig. 5.2.3/ 1**).

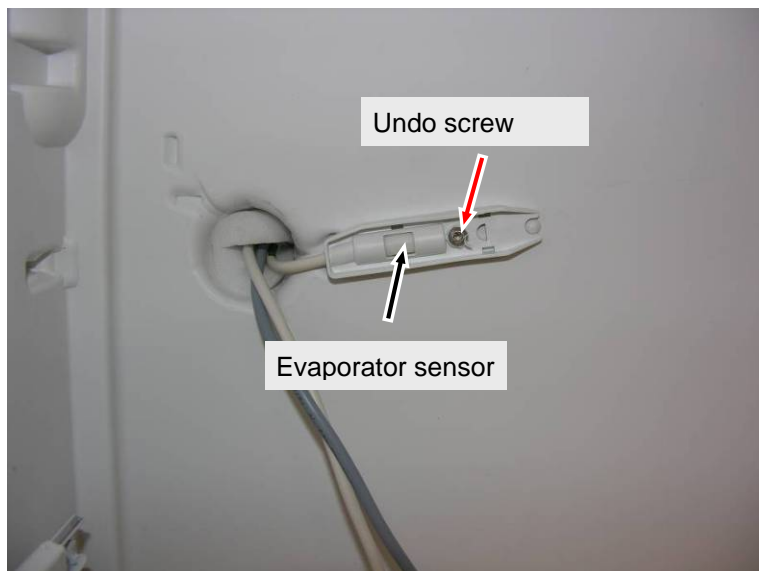


Fig. 5.2.3 / 1 Evaporator sensor

5.2.4 Fan

Fan:

- Procedure as described under **5.2.1 Disassembling the vertical separating plate**.
- Swing the vertical separating plate to the left.
- Disconnect the fan and press it up and out together with the rubber mounting (**Fig. 5.2.4/ 1**).

Note:

The fitting direction (air current direction) is indicated by an arrow imprinted on the fan.

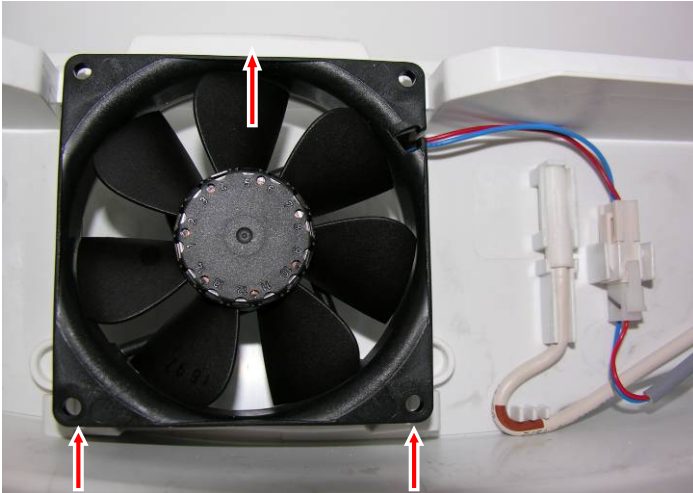


Fig. 5.2.4 / 1

5.2.5 BioFresh pull-out rails

Pull-out rail:

- Undo fastening screws (**Fig. 5.2.5/ 1**).
- Depress lock and press rail to the rear (**Fig. 5.2.5 / 2**).
- Support is replaceable (**Fig. 5.2.5/ 4**).

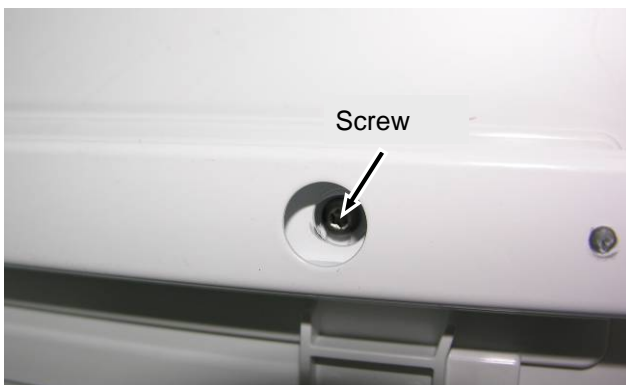


Fig. 5.2.5 / 1

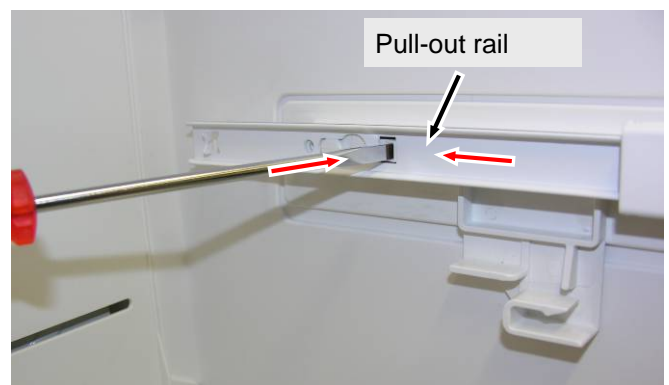


Fig. 5.2.5 / 2



Fig. 5.2.5 / 3

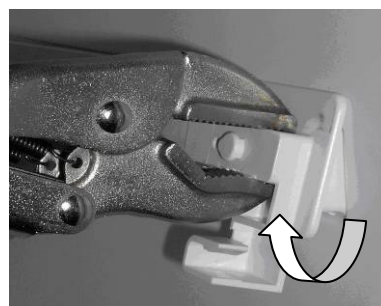
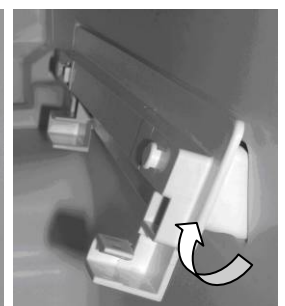


Fig. 5.2.5 / 4



5.2.6 LED interior light

Ceiling-

LED interior light:

- Press housing forwards, see **Fig. 5.2.6/ 1**.
- Undo Torx screws (**Fig. 5.2.6/ 2**).
- Pull off connector and remove LED lighting unit.



Fig. 5.2.6 / 1

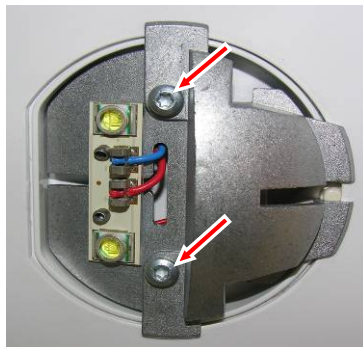


Fig. 5.2.6 / 2



Fig. 5.2.6 / 3

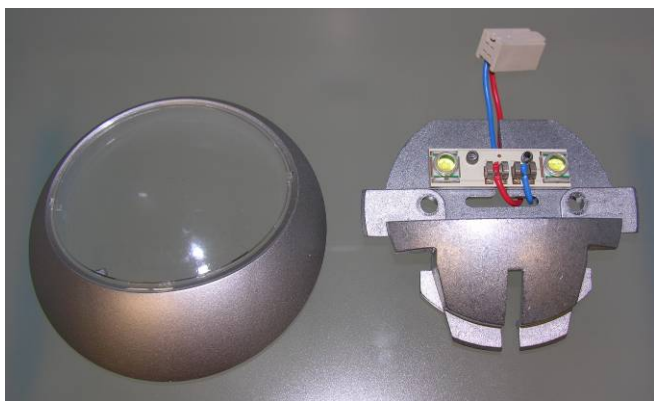


Fig. 5.2.6 / 4

Side wall

LED interior light:

- Unlock lighting unit (**Fig. 5.2.6/ 5**).
- Unlock and pull off connector (**Fig. 5.2.6/ 6**).
- Unlock LED PCB and remove PCB (**Fig. 5.2.6/ 7**).



Fig. 5.2.6 / 5



Fig. 5.2.6 / 6

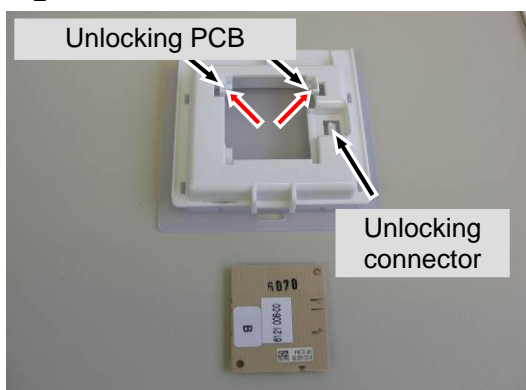


Fig. 5.2.6 / 7

5.3 Freezer compartment

5.3.1 Air sensor, evaporator module and fan module

Air sensor: Engaged in sensor holder on air duct panel.

Evaporator module:

- Clear the drawers and glass shelves in the freezer compartment.
- Disengage the air sensor.
- Undo the screws marked in **Fig. 5.3.1/ 1** and remove the air duct panel.
- Raise and swing out the evaporator module in a forward direction.

Fan module: Undo the marked screws and expose the cable (see **Fig. 5.3.1/ 3**).

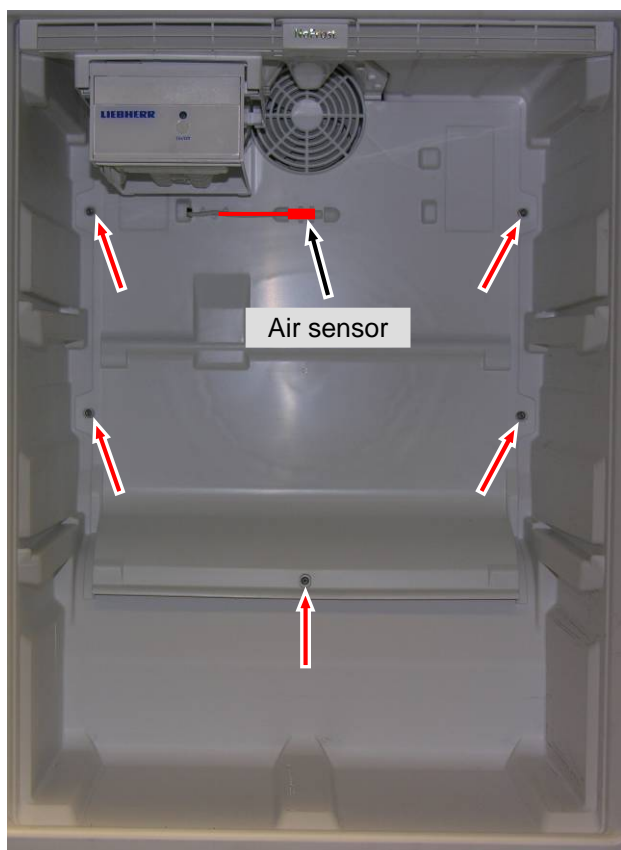


Fig. 5.3.1/ 1 Freezer compartment with air duct



Fig. 5.3.1/ 2 Swinging out the evaporator module

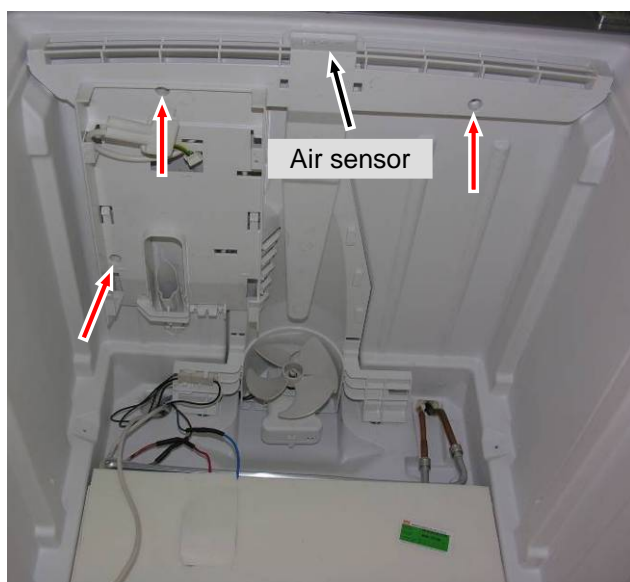


Fig. 5.3.1 / 3 Fan module

5.3.2 Temperature fuse, evaporator sensor and defrost heater

- Temperature fuse:**
- Feel for the position of the temperature fuse (see 1st step, **Fig. 5.3.2/ 1**)
 - Make an incision in the sheeting (see **Fig. 5.3.2/ 2**).
 - Undo screw (see **Fig. 5.3.2/ 3**).

The temperature fuse has to be replaced separately using a conversion kit.

- The conversion kit comprises:
- 1 temperature fuse
 - 2 compression connectors
 - 2 shrink hoses

Note:

Always fit the compression connector to the red and blue lead of the temperature fuse.
The defrost heater is destroyed as soon as the white lead of the defrost heater is cut.

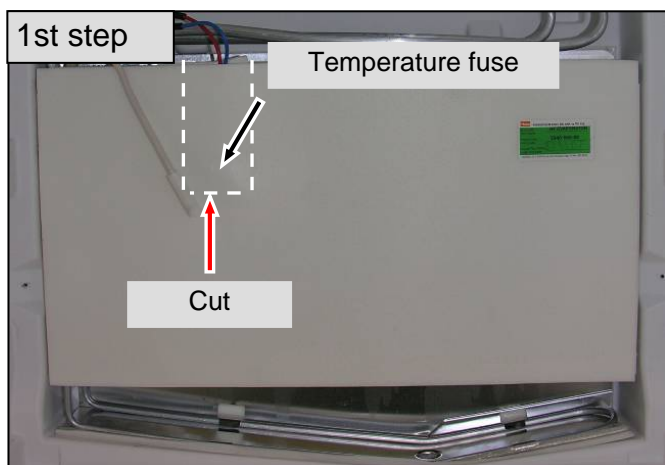


Fig. 5.3.2/ 1 Evaporator module

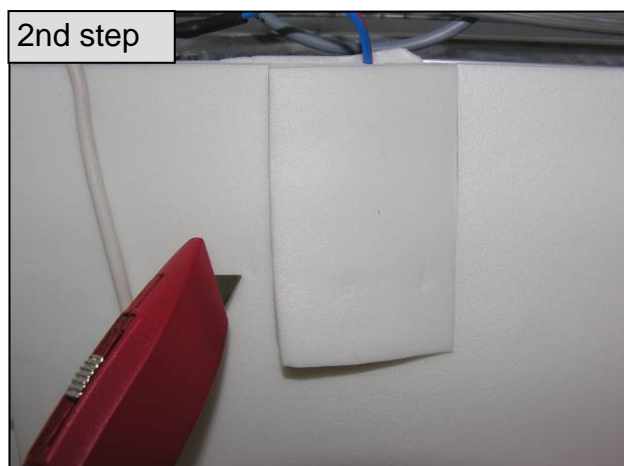


Fig. 5.3.2/ 2 Making an incision in the

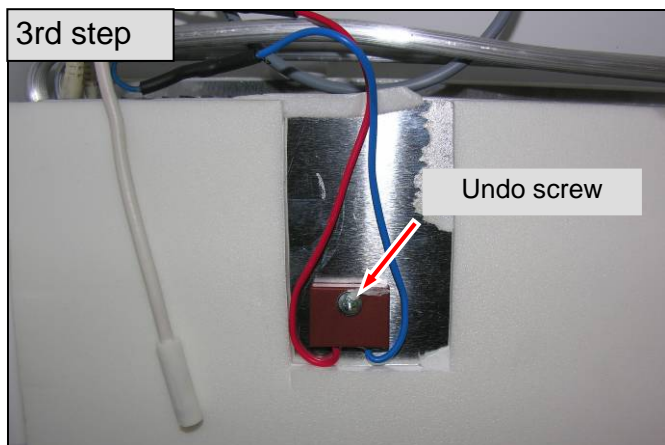


Fig. 5.3.2/ 3 Temperature fuse

Evaporator sensor:

- Raise evaporator module and swing it out in a forward direction .
- Make incisions in the sheeting at the marked locations (1st and 2nd step, see **Fig. 5.3.2/ 4** and **Fig. 5.3.2/ 5**).
 - Bend open the retaining lugs of the cover plate and remove it.
 - Draw the evaporator sensor to the left, out of the lamellar evaporator.

Defrost heater:

Is clipped into the evaporator fins. Can be replaced if defective.

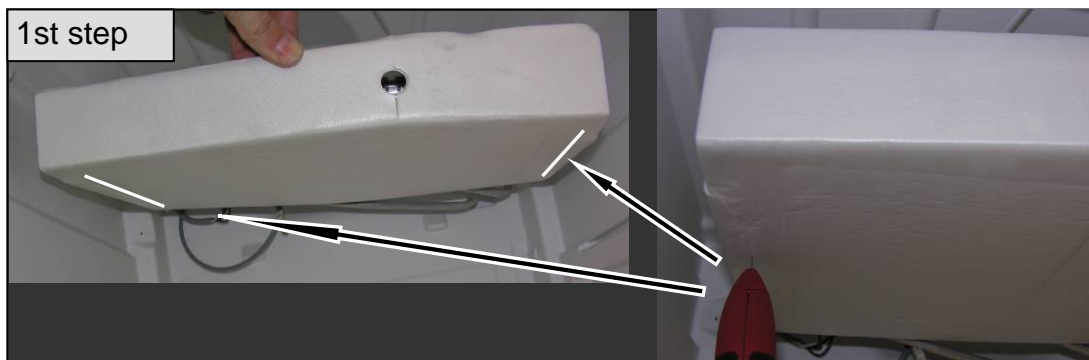


Fig. 5.3.2/ 4 Making an incision in the

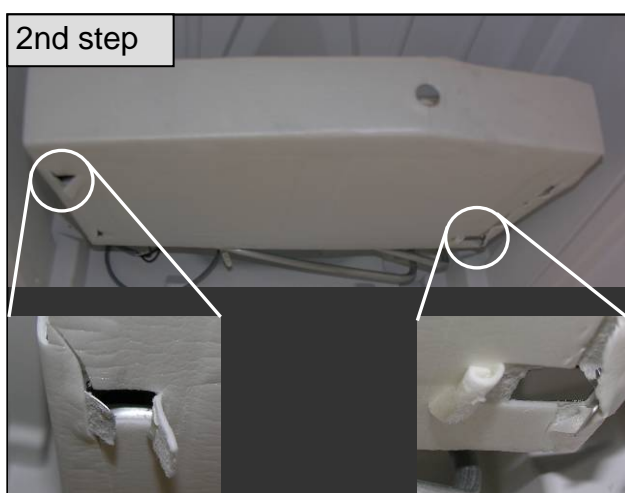


Fig. 5.3.2/ 5 Cutting open the evaporator cover

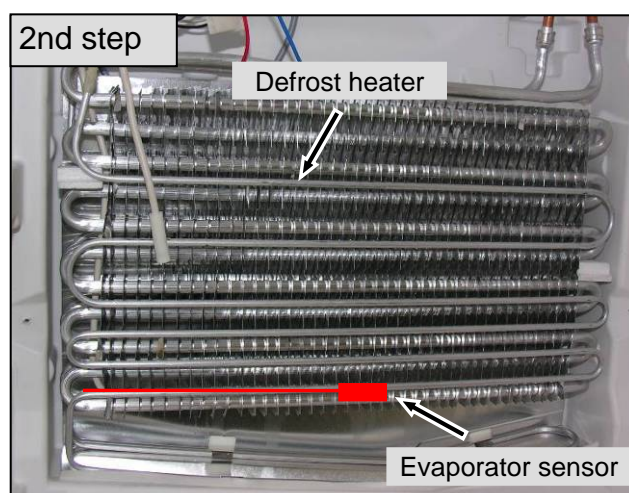


Fig. 5.3.2/ 6 Lamellar evaporator

5.3.3 Fan and reed PCB

Reed PCB:

- Disengage cover of the reed PCB (see **Fig. 5.3.3/ 2**).
- Disconnect reed PCB.
- Note the mounting direction of the reed PCB. Reed relay points forwards.

Fan:

- Disconnect reed PCB.
- Extract cable from the fan module.
- Disconnect fan cable.
- Remove fan module.
- Detach fan blades.
- Remove fan from holder.

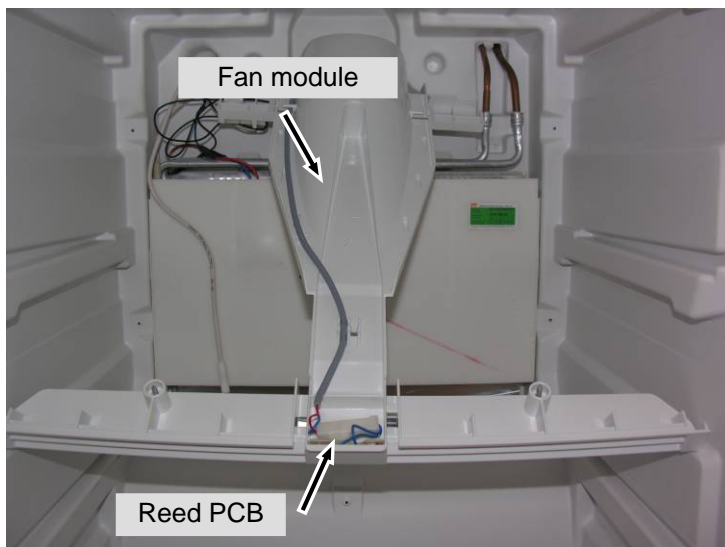


Fig. 5.3.3/ 1 Fan module with reed PCB

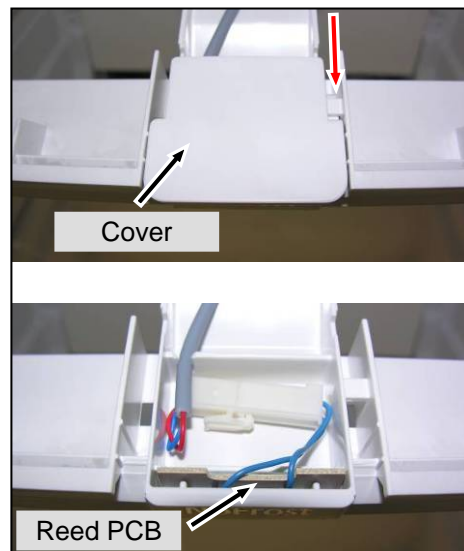


Fig. 5.3.3/ 2 Reed PCB

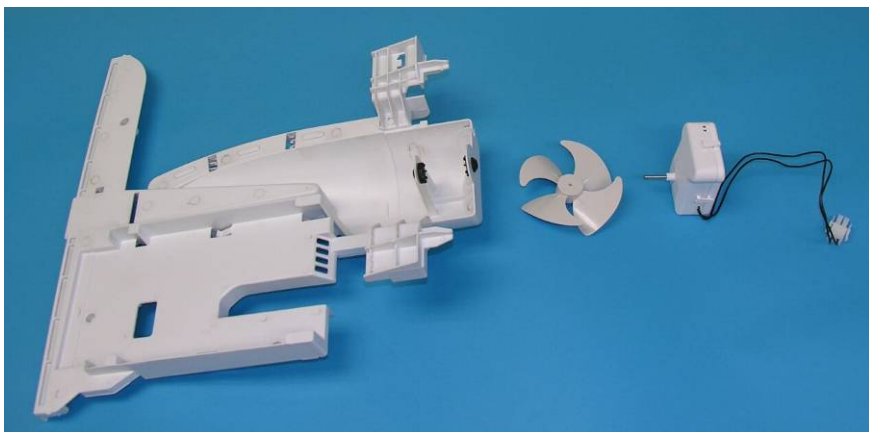


Fig. 5.3.3 / 3 Fan

5.3.4 IceMaker

- Disengage the IceMaker and draw it forwards for removal (see **Fig. 5.3.4/ 1**).



Fig. 5.3.4 / 1 Fan

- Detach connector (see **Fig. 5.3.4/ 2**).



Fig. 5.3.4/ 2 Connector contact

5.3.5 Double solenoid valve, IceMaker

- Undo screw and remove cover (see **Fig. 5.3.5/ 1**).
- Unlock double solenoid valve and pull out of the unit holder (see **Fig. 5.3.5/ 2**).
- Electrical connection, detach cable lugs (see **Fig. 5.3.5/ 3**).
- Press in dark grey ring on elbow piece and detach water hose (see **Fig. 5.3.5/ 4**).

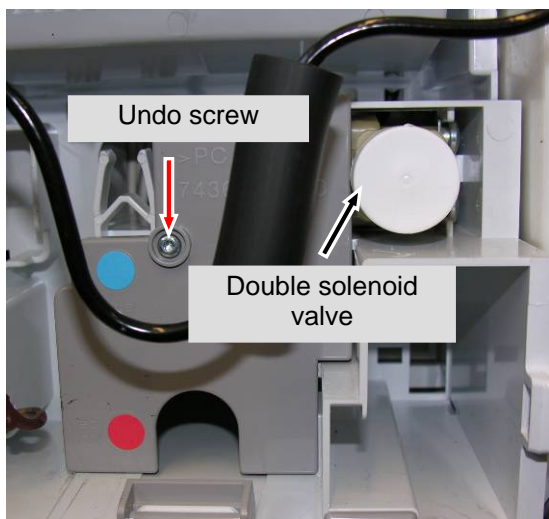


Fig. 5.3.5 / 1



Fig. 5.3.5 / 2

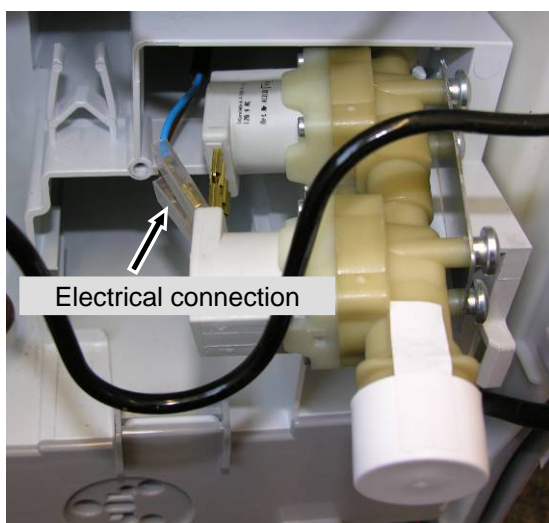


Fig. 5.3.5 / 3

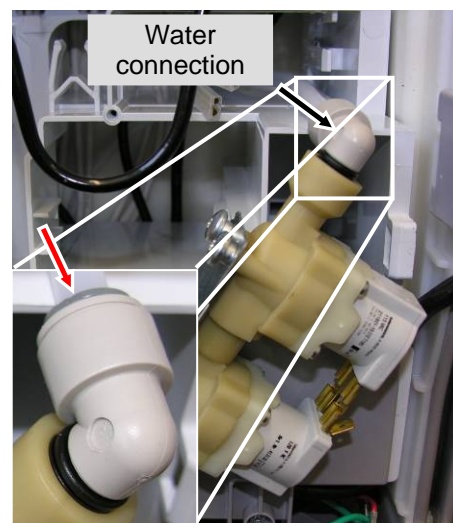


Fig. 5.3.5 / 4

5.3.6 Using the water filter

- The water filter holder is located on the underside of the appliance. The filter holder is covered by a covering cap (see **Fig. 5.3.6/ 1**).
- From the front the water filter holder is accessible behind a plastic flap and can be pulled forwards to insert the filter (see **Fig. 5.3.6/ 1**).
- To insert the filter, the covering cap is removed and the filter turned in.
- The covering cap can be fitted to the filter at the back in order to have it at hand if the filter is removed (see **Fig. 5.3.6/ 4**).
- The water filter holder is pushed back again and the plastic flap closed.

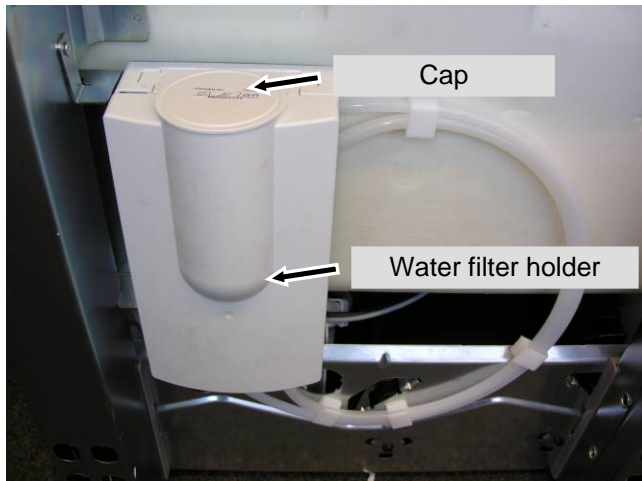


Fig. 5.3.6/ 1 Underside of appliance, water filter holder

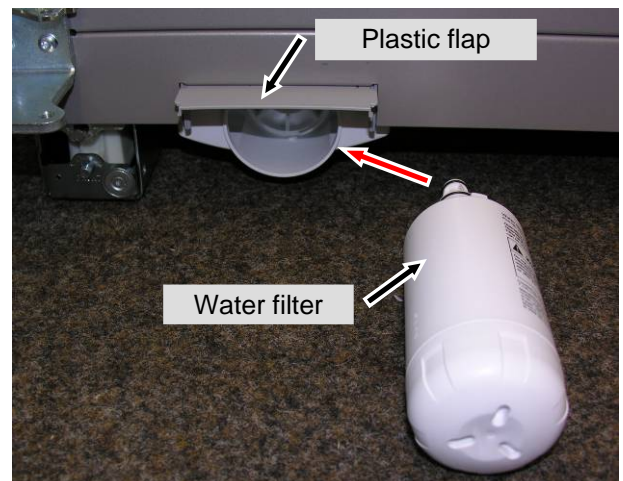


Fig. 5.3.6/ 2 Insert water filter

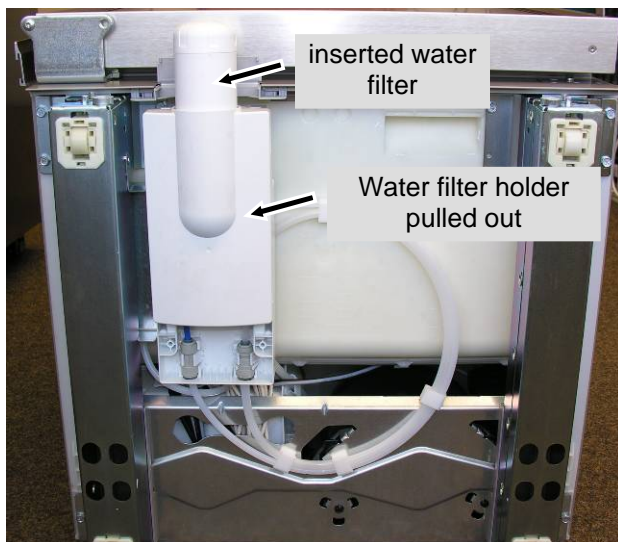


Fig. 5.3.6/ 3 Water filter holder pulled out



Fig. 5.3.6/ 4 Water filter with covering cap

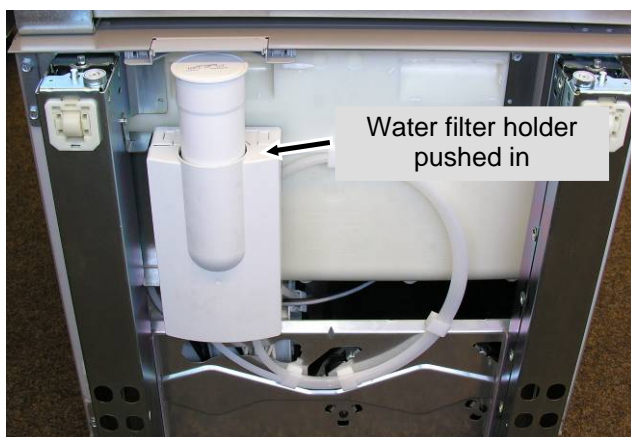


Fig. 5.3.6/ 5 Water filter holder pushed in

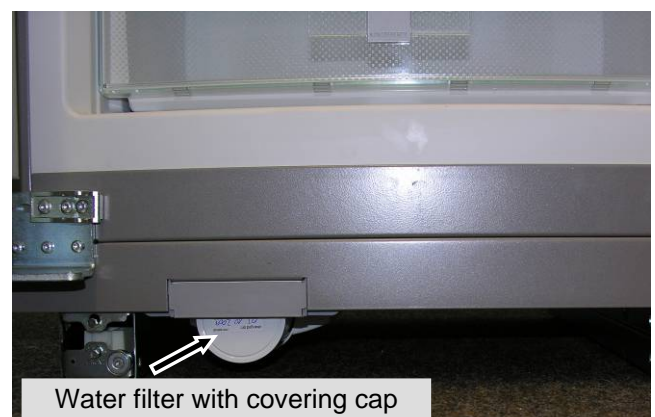


Fig. 5.3.6/ 6

5.3.7 Water filter holder

- Place appliance down on condenser side.
- The water filter holder is screwed onto the roller base via a carrier plate (see **Fig. 5.3.7/ 1**).
- The carrier plate is attached to the roller base and must first be detached in the direction of the compressor support and then in the direction of the appliance floor (see **Fig. 5.3.7/ 2**).
- Push water filter holder forwards so that the hose connector is accessible.
- Press in dark grey ring of hose connector and detach water hose (see **Fig. 5.3.7/ 4**).



Fig. 5.3.7 / 1

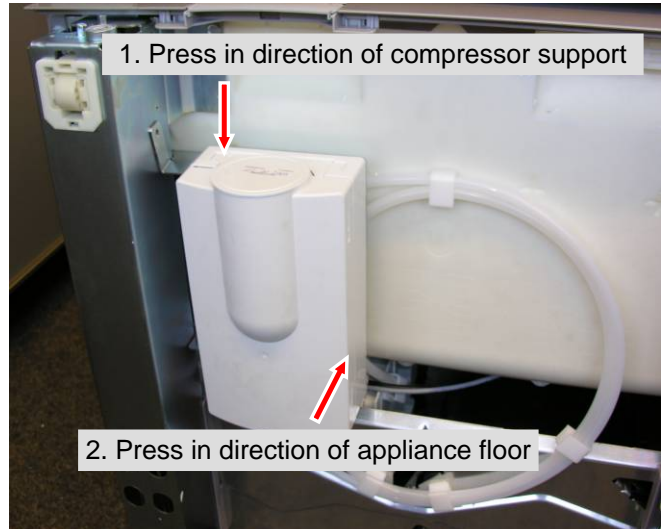


Fig. 5.3.7 / 2

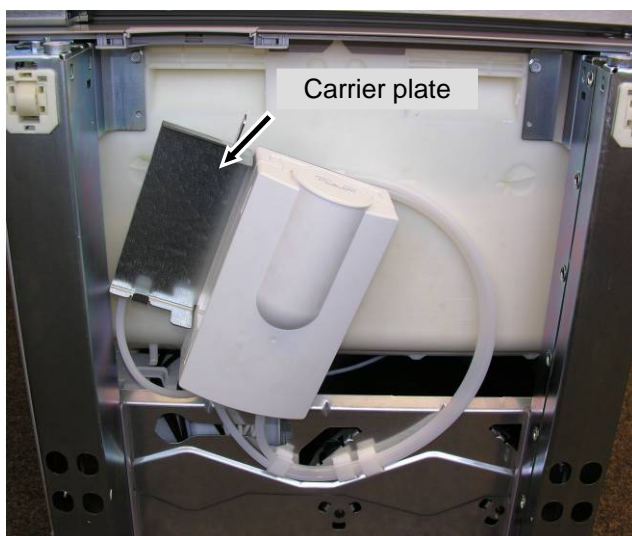


Fig. 5.3.7 / 3

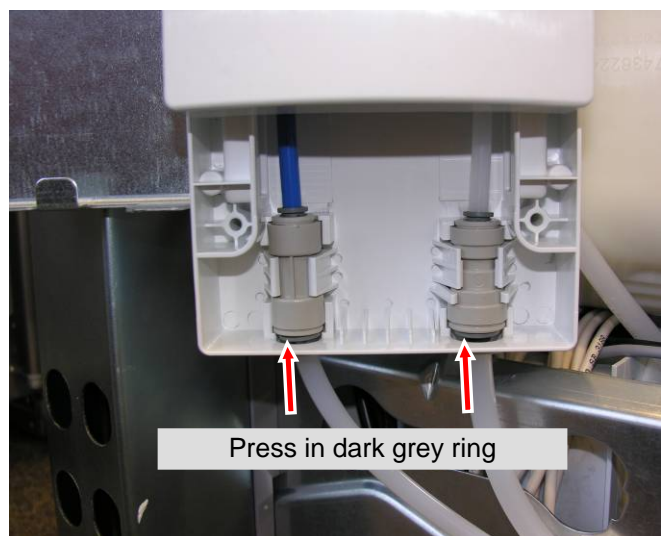


Fig. 5.3.7 / 4

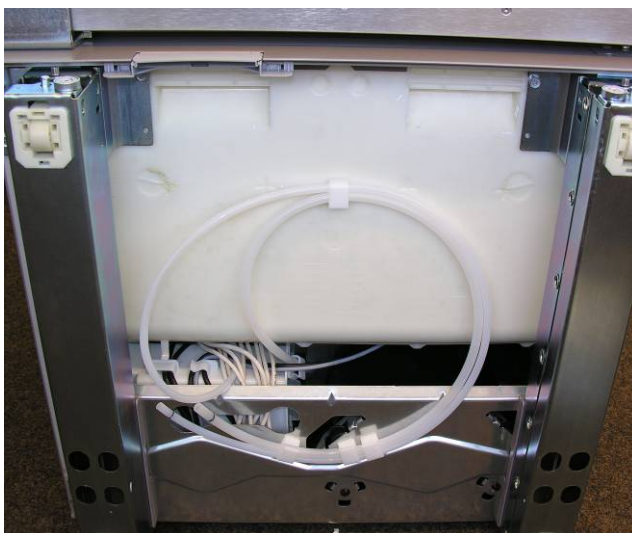


Fig. 5.3.7 / 5



Fig. 5.3.7/ 6 Water filter holder and carrier plate

6.0 Technical data

6.1 General

Sensor values: BioFresh compartment: Air and evaporator sensors
Freezer compartment: Air and evaporator sensors

Temperature °F (°C)	Resistance value kOhm
95 (+35)	3.1
86 (+30)	3.8
77 (+25)	4.7
68 (+20)	5.9
59 (+15)	7.3
50 (+10)	9.3
41 (+5)	11.9
32 (0)	15.3
23 (-5)	19.8
14 (-10)	25.9
5 (-15)	34.1
-4 (-20)	45.3
-13 (-25)	60.8
-22 (-30)	82.3
-31 (-35)	112.8

Solenoid valve refrigeration circuit: Voltage: 110 V/AC (50/60Hz)
Resistance: 670 Ohm

6.2 BioFresh compartment

interior light-ceiling: Wattage: 1 watt
Voltage: 13 volts/DC

interior light-BioFresh side: Wattage: 2 watts
Voltage: 13 volts/DC

Fan: Wattage: 1 watt
Voltage: 12 volts/DC
- 8V at low speed
- 9.8V at high speed
Speed: 2200 rpm

6.3 Freezer compartment

Fan: Wattage: 1.9 watts
Voltage: 115 V

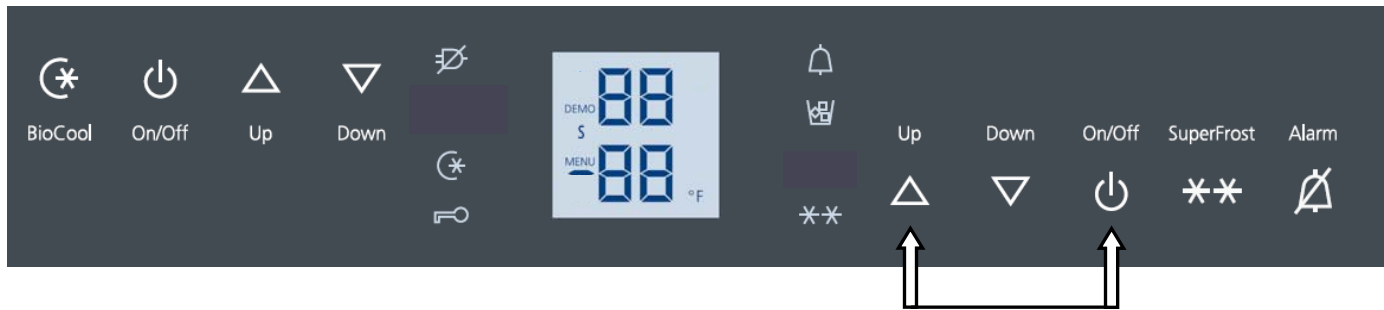
Defrost heater: Wattage: 186 watts
Voltage: 115 V

Temperature fuse: Tripping temperature: 199°F (93°C) (If the fuse has tripped, it has to be replaced)

Solenoid valve water inlet: Wattage: 2x7 watts
Voltage: 110 Volt/AC (50/60Hz)

7.0 Service menu

The service menu may be used by service technicians only.



Activation of service menu: Press "Up" + "ON/OFF" simultaneously for about 5 seconds (freezer compartment buttons)

If the **service menu is activated**, then **"MENU" flashes in the display**.








7.1 Brief survey of service menu

Service menu	Menu	Operati on	Submenu	Operati on	Selection of functional part
Manual defrosting	H	1x SF	H I	1x SF	A Freezer compartment defrost heater ON
Demo mode	d	1x SF	d I d 0	1x SF	Demo mode ON ----- Demo mode OFF
Panel test	P	1x SF	P I	1x SF	Press sensor buttons, door sensor
Sensor test	E -	1x SF	E I	1x SF	Up/Down button ↓/↑ 3 : Freezer compartment air sensor 4 : Freezer compartment evaporator sensor 0 : BioFresh air sensor 2 : BioFresh evaporator sensor A : BioFresh door contact b : Freezer compartment door contact
			E I		3 : IceMaker air sensor A : Ice-cube drawer open/closed

Service menu	Menu		Operati on	Submenu		Operati on	Selection of functional part				
Service mode		L	1x SF		L 1	1x SF	Up/ Down button ↓/↑	10 : All OFF 11 : - Compressor On, low speed - solenoid valve at position B 12 : - Compressor ON, high speed - solenoid valve at position A 13 : Freezer compartment fan ON 14 : Freezer compartment heater ON 15 : Light ON 17 : BioFresh compartment fan low speed 18 : BioFresh compartment fan high speed			
								L 2	1x SF	Up/ Down button ↓/↑	20 : All OFF 22 : - ice-cube tray - 3secs. Water inlet valve - On/Off button IceMaker 23 : - ice-cube tray - 20secs. Water inlet valve
								L 3	1x SF	Up/ Down button ↓/↑	30 : All OFF 32 : 10 seconds water intake valve















7.2 Manual defrosting



Step	Display	Operation	Display following operation	Testing option / Info
Service menu start				SF = SuperFrost
1	Actual value	Press "Up" and "ON/OFF" simultaneously for 5 seconds	 flashes	Service menu active, Manual defrosting selected
2	 flashes	Press "SF" once	  Static	Manual defrosting ON selected
3	  Static	Press "SF" once	 Static	Manual defrosting ON activated
Manual defrosting is ended by: - Switching appliance OFF/ON - Automatic after the defrost parameters are reached				









7.3 Demo mode



Step	Display	Operation	Display following operation	Testing option / Info
Start service menu -- Demo mode ON --				SF = SuperFrost
1	Actual value	Press "Up" and "ON/OFF" simultaneously for 5 seconds	 flashes	Service menu active
2	 flashes	Press "Up" once	 flashes	Demo mode selected
3	 flashes	Press "SF" once	  Static	Demo mode ON selected
4	  Static	Press "SF" once	Set value and " Demo "	Demo mode ON
Start service menu -- Demo mode OFF--				SF = SuperFrost
1	Actual value and " Demo "	Press "Up" and "ON/OFF" simultaneously for 5 seconds	 flashes and " Demo "	Service menu active Demo mode selected
2	 flashes and " Demo "	Press "SF" once	  static and " Demo "	Demo mode OFF selected
3	  static and " Demo "	Press "SF" once	Actual value	Demo mode OFF
The text " Demo " in the display informs of the activated demo mode . Demo mode can be deactivated only via service menu, not by OFF/ON or disconnection from the supply. Operation switches to the mode wanted, demo mode or normal mode, as soon as "SuperFrost" has been actuated.				

7.4 Panel test



Step	Display	Operation	Display following operation	Testing option / Info
Service menu start				SF = SuperFrost
1	Actual value	Press "Up" and "ON/OFF" simultaneously for 5 seconds	 flashes	Service menu active
Panel test -- test of sensor buttons, display elements, door sensor and beep --				
2	 flashes	Press "Up" twice	 flashes	Panel test selected
3	 flashes	Press "SF" once	  Static	Panel test activated
4	  Static	Press "SF" once	All symbols/segments	Display elements/ More symbols are displayed than the respective electronic control system uses!
5	All symbols/segments	Doors closed/open and press all buttons one after the other (each operation is confirmed by a beep)	- Beep for 2 sec. - appliance switches OFF	After the last button has been pressed a beep sounds for 2 seconds, only if the test has been successful.
End	Panel test cannot be ended in step 2, for example, it has to be performed in full. Should a button/sensor be defective , there will be no 2-second beep and the appliance will not switch OFF . The appliance then has to be unplugged and plugged back in again.			

7.5 Sensor test (display of temperature) and door contact test



7.5.1 BioFresh / freezer compartment



Step	Display	Operation	Display following operation	Testing option / Info
Service menu start				SF = SuperFrost
1	Actual value	Press "Up" and "ON/OFF" simultaneously for 5 seconds	H flashes	Service menu active
Sensor test and door contact test (sensor values without offset, appliance in control mode)				
2	H flashes	Press "Up" three times	E- flashes	Sensor test mode selected
3	E- flashes	Press "SF" once	E8 Static	Sensor test mode activated
9 → 4	E8 Static	Press "SF" once	83 flashes alternately with sensor temperature	Freezer compartment air sensor
5	83 flashes alternately with sensor temperature	Press "Up" once	84 flashes alternately with sensor temperature	Freezer compartment evaporator sensor
6	84 flashes alternately with sensor temperature	Press "Up" once	80 flashes alternately with sensor temperature	BioFresh air sensor
7	80 flashes alternately with sensor temperature	Press "Up" once	82 flashes alternately with sensor temperature	BioFresh evaporator sensor
8	82 flashes alternately with sensor temperature	Press "Up" once	8A flashes alternately with oP or cL	Refrigerator compartment door contact (oP=door open, cL=door closed)
4 ← 9	8A flashes alternately with sensor temperature	Press "Up" once	8B flashes alternately with oP or cL	Freezer compartment door contact (oP =door open, cL =door closed)
End	Press "ON/OFF" once: Return to level 2 E'. No further points selectable with this appliance. Press "ON/OFF" twice: Return to level 1 E- Points: H, P, E-, L- selectable Press "ON/OFF" three times: Return to normal/control mode			


























7.5.2 IceMaker



Step	Display	Operation	Display following operation	Testing option / Info
Service menu start				SF = SuperFrost
1	Actual value	Press "Up" and "ON/OFF" simultaneously for 5 seconds	H flashes	Service menu active
Sensor test and door contact test (sensor values without offset, appliance in control mode)				
2	H flashes	Press "Up" three times	E - flashes	Sensor test mode selected
3	E - flashes	Press "SF" once	E8 Static	Sensor test mode refrigerator/freezer compartment selected
4	E8 Static	Press "Up" once	E9 Static	Sensor test mode IceMaker activated
6 → 5	E9 Static	Press "SF" once	881 flashes alternately with sensor temperature	IceMaker air sensor
5 ← 6	881 flashes alternately with sensor temperature	Press "Up" once	88A flashes alternately with oP or cL	Ice-cube drawer door contact (oP=door open, cL=door closed)
End	Press "ON/OFF" once: Return to level 2 E9 . No further points selectable with this appliance. Press "ON/OFF" twice: Return to level 1 E - . Points: H d, P E - L - selectable Press "ON/OFF" three times: Return to normal/control mode			

7.6 Service mode

7.6.1 BioFresh / freezer compartment

Step	Display	Operation	Display following operation	Testing option / Info	
Service menu start				SF = SuperFrost	
1	Actual value	Press "Up" and "ON/OFF" simultaneously for 5 seconds	 flashes	Service menu active	
Service mode -- testing electric loads--					Power input 1)
2	 flashes	Press "Up" four times	 flashes	Service mode selected	
3	 flashes	Press "SF" once	 Static	Service mode activated	
4	 Static	Press "SF" once	 Static	All OFF	0 W
5	 Static	Press "Up" once	 Static	- Compressor On , low speed - solenoid valve at position B	--
6	 Static	Press "Up" once	 Static	- Compressor ON , high speed - solenoid valve at position A	--
7	 Static	Press "Up" once	 Static	Freezer compartment fan ON	1.9 W
8	 Static	Press "Up" once	 Static	Freezer compartment defrost heater ON	186 W
9	 Static	Press "Up" once	 Static	Light ON	3 W
10	 Static	Press "Up" once	 Static	BioFresh fan low speed	3.6 W
11	 Static	Press "Up" once	 Static	BioFresh fan high speed	4.4 W
End	Press "ON/OFF" once: Return to level 2  . Points:  ,  ,  selectable Press "ON/OFF" twice: Return to normal/control mode				

1) Power input = power input of the appliance in the respective testing step!

7.6.2 IceMaker



Step	Display	Operation	Display following operation	Testing option / Info	
Service menu start					SF = SuperFrost
1	Actual value	Press "Up" and "ON/OFF" simultaneously for 5 seconds	H flashes	Service menu active	
Service mode -- testing electric loads--					Power input 1)
2	H flashes	Press "Up" four times	L flashes	Service mode selected	
3	L flashes	Press "SF" once	L8 Static	Service mode activated	
4	L8 flashes	Press "Up" once	L8 Static	IceMaker selected	
11 → 5	L8 Static	Press "SF" once	00 Static	All OFF	--
6	00 Static	Press "Up" once	02 flashes alternately with -0	All OFF	--
7	02 flashes alternately with -0	Press "SF" once	02 flashes alternately with -1	- Ice-cube tray emptied, return to home position - 3 seconds water pump ON	-- 3 W
8	02 flashes alternately with -1	Press IceMaker ON/OFF button	02 flashes alternately with -0	All OFF	--
9	02 flashes alternately with -0	Press "Up" once	03 flashes alternately with -0	All OFF	--
10	03 flashes alternately with -0	Press "SF" once	03 flashes alternately with -1 → -0	- Ice-cube tray emptied - 20 seconds water pump ON After 20 seconds have elapsed, 03 again flashes alternately with -0	-- 3 W
5 ← 11	03 flashes alternately with -0	- Press IceMaker ON/OFF button (→ switch ON) - Close drawer	03 flashes alternately with -0	Ice-cube tray returns to home position	--
End	Press "ON/OFF" once: Return to level 2 : L , L8 , L8 selectable Press "ON/OFF" twice: Return to normal/control mode				

1) Power input = power input of the appliance in the respective testing step!

7.6.3 Water intake valve



Step	Display	Operation	Display following operation	Testing option / Info	
Service menu start					SF = SuperFrost
1	Actual value	Press "Up" and "ON/OFF" simultaneously for 5 seconds	H flashes	Service menu active	
Service mode -- testing electric loads--					Power input 1)
2	H flashes	Press "Up" four times	L flashes	Service mode selected	
3	L flashes	Press "SF" once	00 Static	Service mode activated	
4	00 flashes	Press "Up" twice	00 Static	Water intake valve selected	
7 → 5	00 Static	Press "SF" once	00 Static	All OFF	--
6	00 Static	Press "Up" once	02 flashes alternately with -0	All OFF	--
5 ← 7	02 flashes alternately with -0	Press "SF" once	02 flashes alternately with -1 → -0	10 seconds water intake valve ON. After 10 seconds have elapsed, 02 again flashes alternately with -0	3 W
End	Press "ON/OFF" once: Return to level 2 : 00 Items: 00, 01, 02 selectable Press "ON/OFF" twice: Return to normal/control mode				

1) Power input = power input of the appliance in the respective testing step!

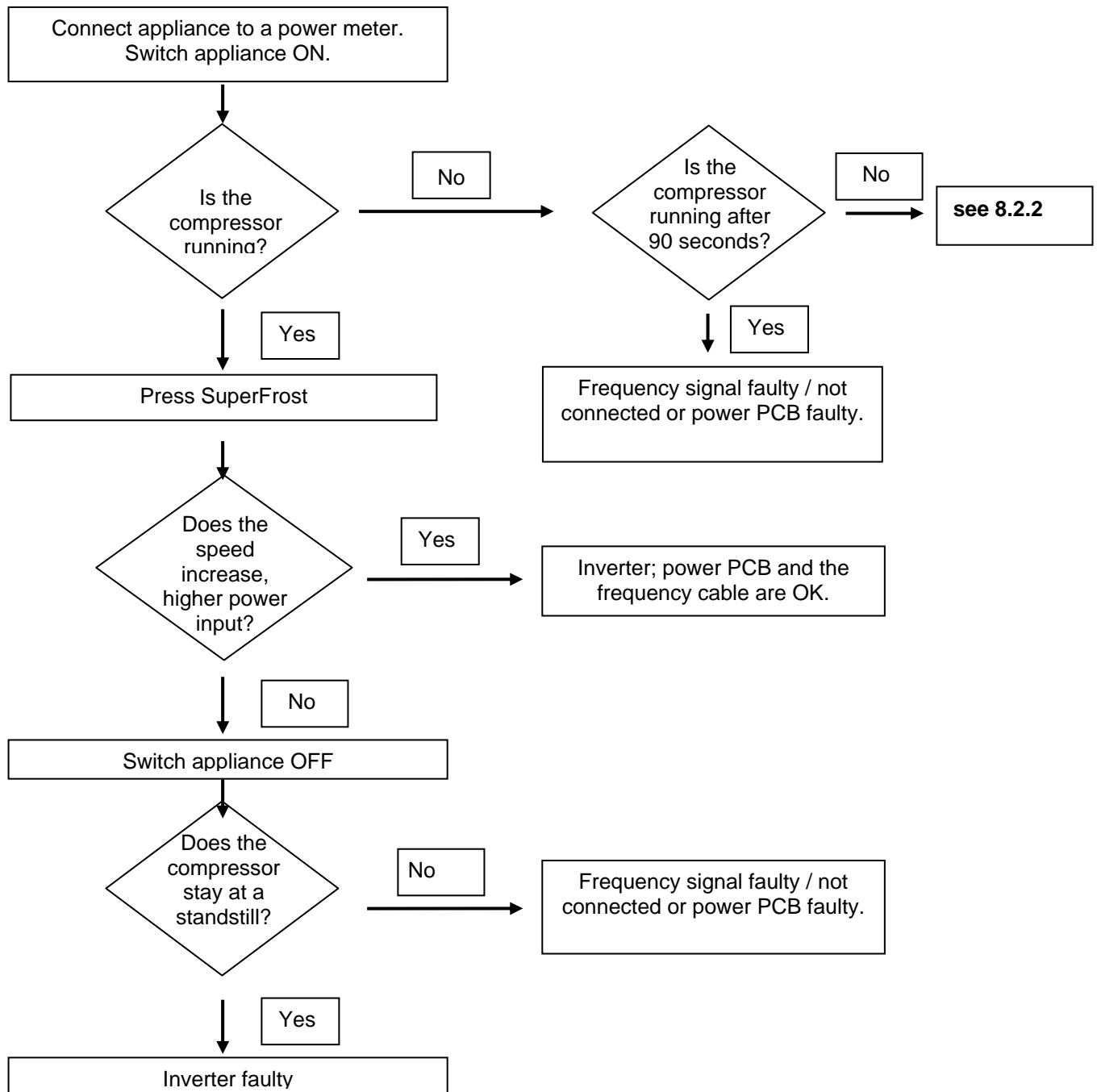
8.0 Error code, troubleshooting

8.1 Table of error codes

Error code	Defective component	Emergency mode
F0	BioFresh air sensor	Compressor 10 minutes ON and 40 minutes OFF.
F2	BioFresh evaporator sensor	Compressor 10 minutes ON and 40 minutes OFF.
F3	Freezer compartment air sensor	Compressor continuous operation
F4	Freezer compartment evaporator sensor	Compressor continuous operation

8.2 Troubleshooting VCC compressor / inverter

8.2.1 Checking the inverter and the frequency signal



Attention: In case of interruption of the frequency signal, the compressor starts only after 90 seconds!!

8.2.2 Checking the compressor

Fault profile: Compressor does not run (even after a waiting time of 90 seconds)

Select step 5 (compressor ON) in the service menu under "7.6.1 service mode". If the compressor now starts there was probably an operator error. Otherwise proceed as described below....
At the inverter, line voltage (115V) must be applied between N and 1/C.

