# Appliance Documentation

| | | | | |
|---|---|---|---|---|
| | SBSes | 7273 | from Index 20 | PremiumPlus |
| comprising: | SKBes | 4212 | from Index 20 | PremiumPlus |
| | SGNes | 3012 | from Index 20 | PremiumPlus |

Side by Side combined
BioFresh refrigerator and NoFrost freezer
with dispensing unit through the door

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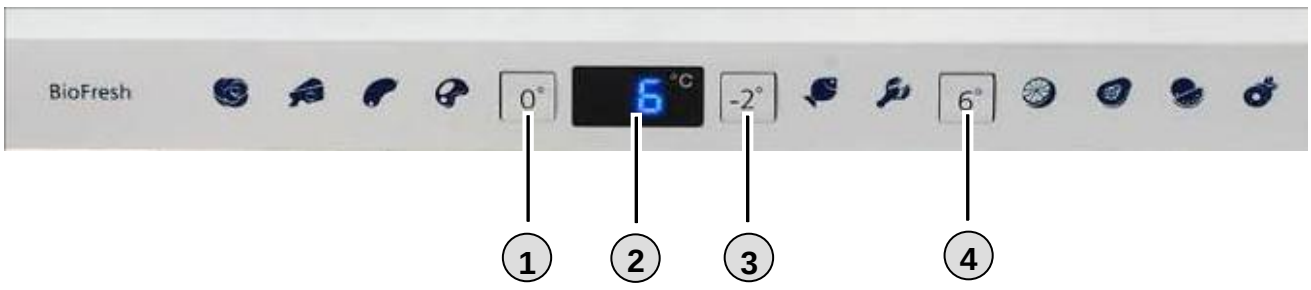
# 1.0 Operating and control elements


| | | |
|---|---|---|
| | **Freezer compartment** | |
| **1** | **ON/OFF** | ON/OFF button for appliance |
| **2** | **SuperFrost** | SuperFrost function |
| **3** | **Alarm** | Alarm OFF button for audible alarm |
| **4** | **Up** | Setting button temperature higher |
| **5** | **Down** | Setting button temperature lower |
| | **Refrigerator-BioFresh compartment** | |
| **6** | **Up** | Setting button temperature higher |
| **7** | **Down** | Setting button temperature lower |
| **8** | **SuperCool** | SuperCool function |
| **9** | **Holiday** | Holiday function, display indicates: Ho |
| **10** | **ON/OFF** | ON/OFF button for refrigerator BioFresh compartment |
| | **Dispensing unit** | |
| **11** | **ON/OFF** | ON/OFF button for dispensing unit |
| **12** | **Ice Cubes** | Ice-cube dispensing function |
| **13** | **Crushed Ice** | Crushed ice dispensing function |
| **14** | **Filter** | Filter change display |
| **15** | **Child Lock** | Child proofing |
| **16** | **Light** | Illumination |




| | | |
|---|---|---|
| | **BioFreshPlus** | |
| **1** | **0°C** | button (normal BioFresh) |
| **2** | Temperature display BioFreshPlus | |
| **3** | **-2°C** | button (fish and seafood) |
| **4** | **6°C** | button (tropical fruits) |

## 2.0 Functions at a glance

| | | |
|---|---|---|
| **Control:** | Electronic | |
| **Temperature display:** | Refrigerator compartment:<br>BioFreshPlus:<br>Freezer compartment: | Actual value<br>Set value<br>Actual value |
| **Temperature range:** | Refrigerator compartment:<br>BioFreshPlus:<br>Freezer compartment: | +2°C to +9°C<br>+6°C / 0°C / -2°C<br>-14°C to -28°C |
| **Temperature alarm:** | Refrigerator compartment:<br>BioFresh compartment:<br>Freezer compartment: | Not present<br>Not present<br>Visual and audible |
| **Door alarm:** | Refrigerator compartment:<br>Freezer compartment: | Audible<br>Audible |
| **Fan:** | Refrigerator compartment:<br>Freezer compartment: | Present<br>Present |
| **Defrosting:** | Refrigerator compartment:<br>Freezer compartment: | Automatic<br>Automatic |
| **Interior light:** | Refrigerator compartment:<br>BioFresh compartment:<br>Freezer compartment: | Present<br>Present<br>Present |
| **Service menu:** | Present | |
| **Compressor:** | Refrigerator compartment:<br>Freezer compartment: | Standard<br>VCC |
| **Solenoid valve refrigeration circuit:** | Not present | |

# 3.0 Description of appliance

The **SBSes 7273** is a Side by Side combined appliance consisting of a SKBes 4212 and a SGNes 3012.

**SKBes 4212:**
Refrigerator compartment and BioFresh compartment are cooled by way of a common evaporator. The freely suspended evaporator is thermally sealed off by an insulated, vertical separating plate.

A DC fan is used for temperature balance between the refrigerator compartment, BioFreshPlus and BioFresh compartment. In conjunction with the air flap in each case, the fan provides for the supply of cold air needed. The fan is integrated in the vertical separating plate.
If the refrigerator, BioFreshPlus or BioFresh compartment needs cooling (detection by the respective air sensor), the fan is switched on and the associated air flap is opened. The fan takes in the warm air from the front and blows it down past the evaporator.

When it is sufficiently cold in one of the compartments, the respective air flap is closed. The compressor and the fan continue running only until such time as the other compartments have reached the switch-off value and the air flaps close.

This appliance has a water tank for the supply of cold water (11°C to 15°C) in the dispensing unit.
The SKBes does not have a control panel as it is controlled using the control panel in the dispensing unit of the SGN.

**SGNes 3012:**
The appliance has a lamellar evaporator with fan and integrated defrost heater. Two sensors, an air sensor and an evaporator sensor, see to the control and automatic defrosting. A safety temperature limiter protects the appliance against excessively high temperatures during the defrosting phase.

A dispensing unit integrated in the door supplies ice cubes, crushed ice and chilled water.

## 3.1 Sensor positions, schematic diagrams

### 3.1.1 SKBes 4212 filter, water tank and air flaps

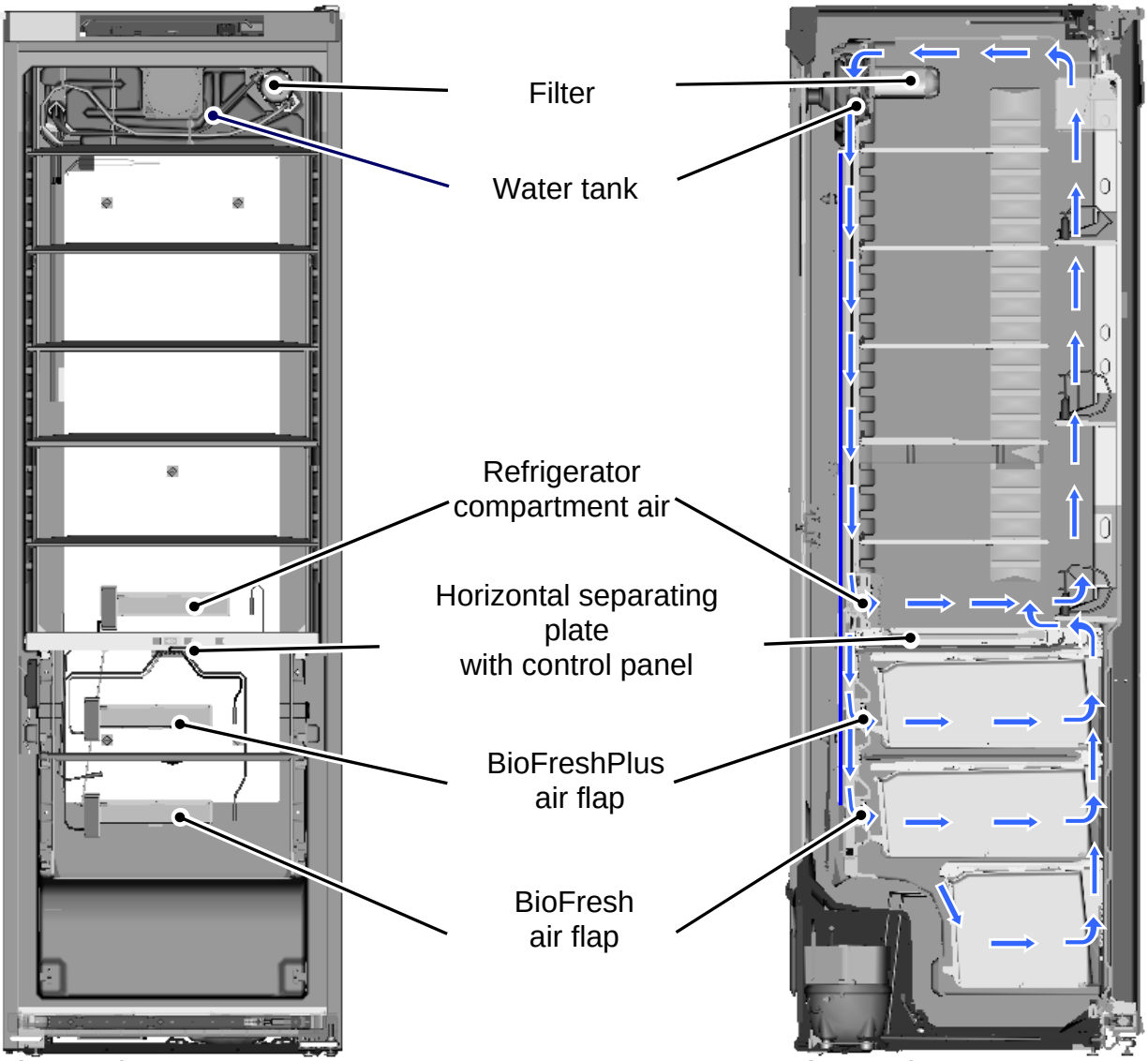



Fig. 3.1.1 / 1

Fig. 3.1.1 / 2

### 3.1.2 SKBes 4212 fan, evaporator, sensors and heater

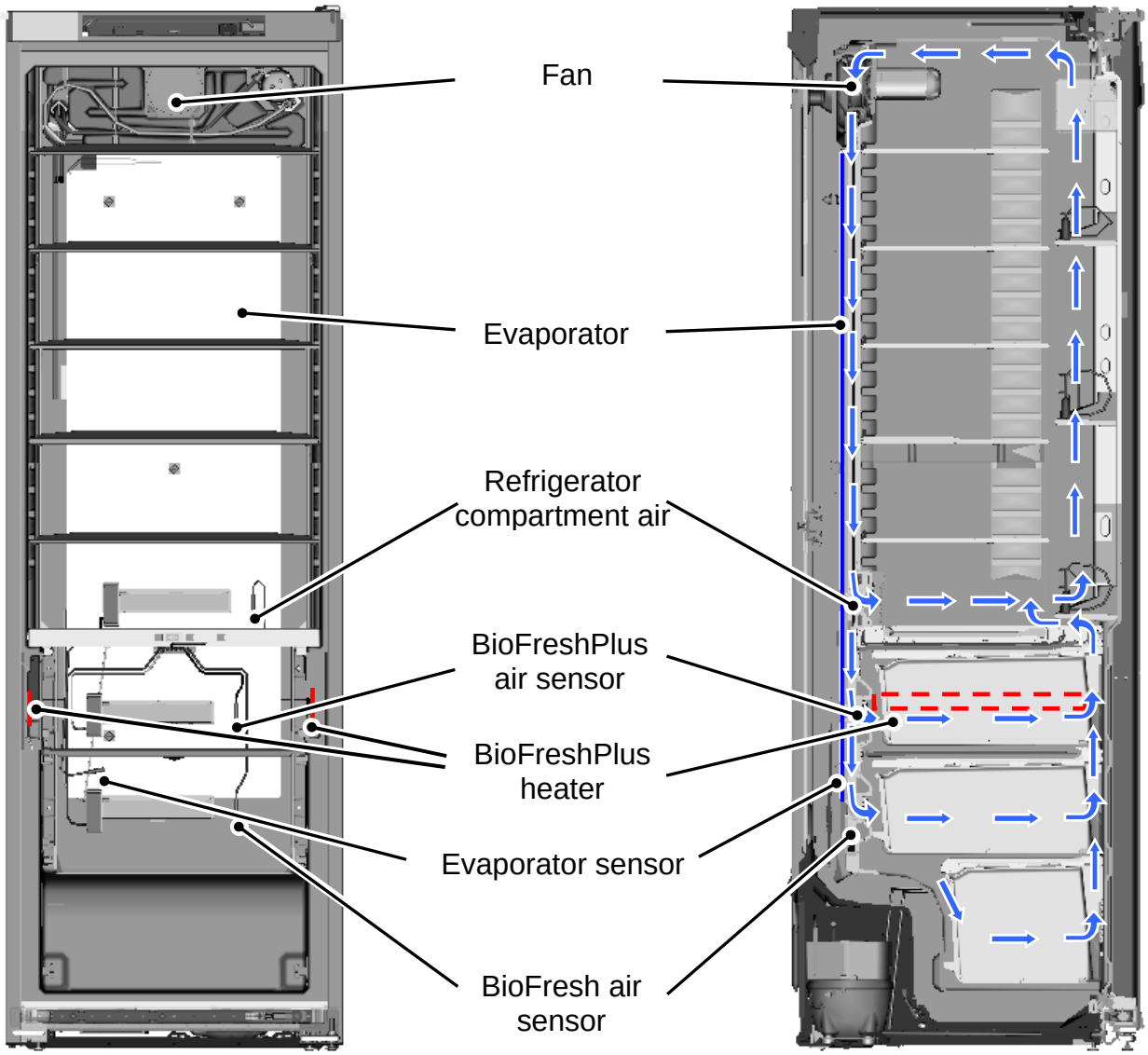



Fig. 3.1.2 / 1

Fig. 3.1.2 / 2

### 3.1.3 SGNes 3012 fan, sensors

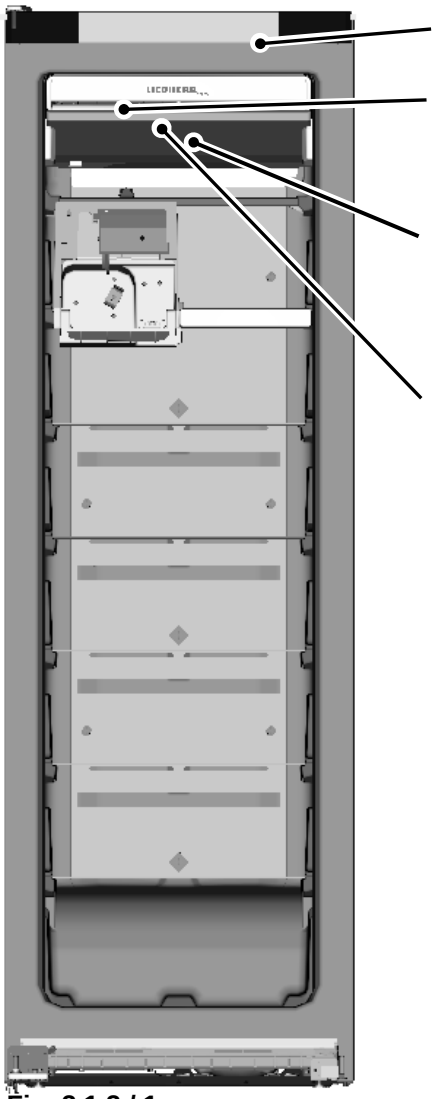



Fig. 3.1.3 / 1

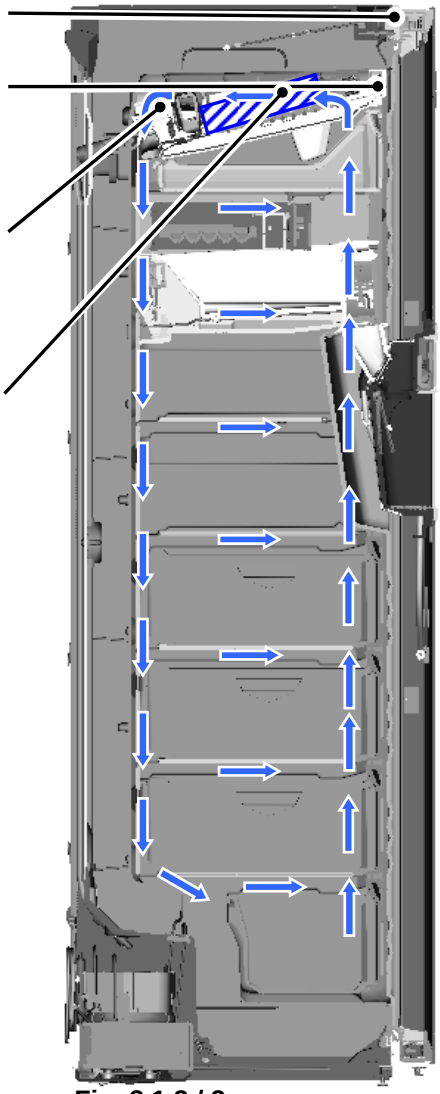


Fig. 3.1.3 / 2

### 3.1.4 SGNes 3012 feed screw, crusher

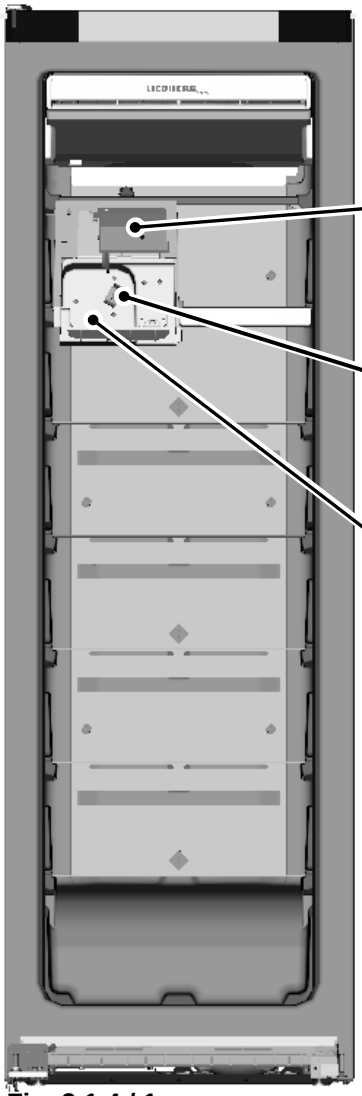



Fig. 3.1.4 / 1

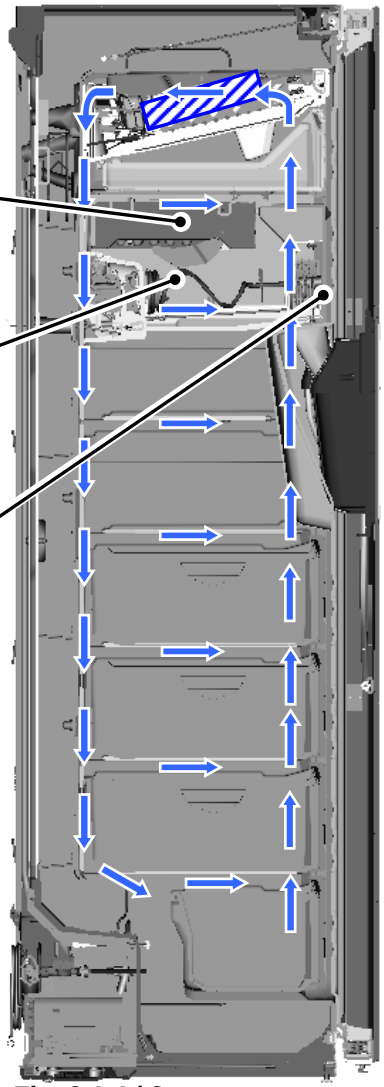


Fig. 3.1.4 / 2

### 3.1.5 Water circuit

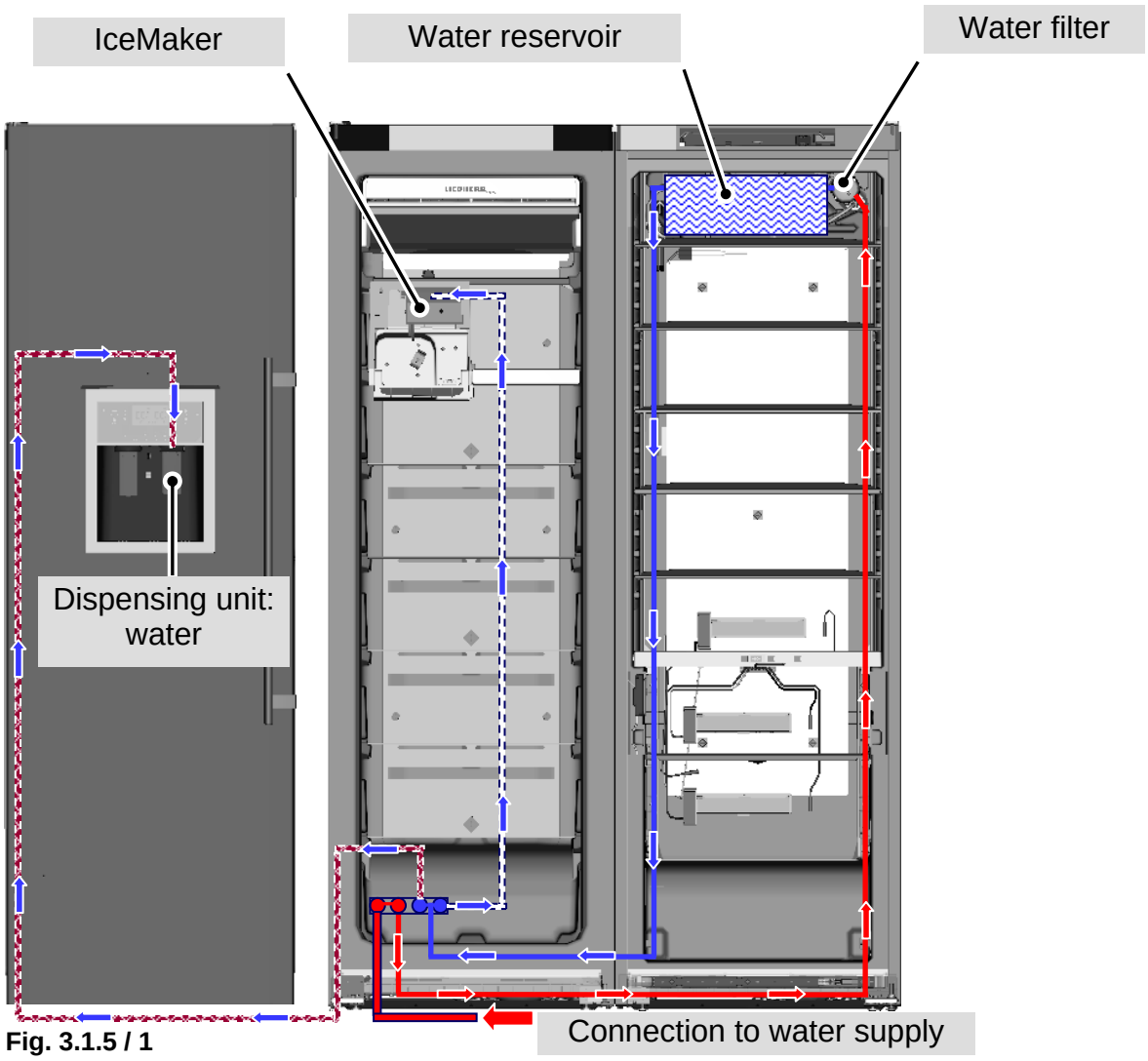



**Fig. 3.1.5 / 1**

# 4.0 Main components and their functions

## 4.1 Electrical components and functions

### 4.1.1 General

| Electronic control system | |
|---|---|
| **Type:** | Series 6 electronic control system |
| **Components:** | 1x control panel 2x power module (1 power module per appliance) |

### 4.1.2 SKBes refrigerator with BioFresh

| Electronic control system (operation using SGNes) | | |
|---|---|---|
| **Setting range:** | Refrigerator compartment:<br>BioFreshPlus:<br>BioFresh compartment: | +2°C to +9°C<br>+6°C / 0°C / -2°C , U0 to U9 (U0: coldest setting)<br>b0 to b9 (b0: coldest setting; 0.8K per step) |
| **Display range:** | 2°C to 49°C (actual value display)<br>temperatures equal to and lower than +2°C are displayed with 2°C. | |
| **Functions** | | |
| **SuperCool:** | ON: | Refrigerator compartment sets itself to +2°C for 6 hours. BioFresh temperature remains unchanged. |
| | OFF: | The refrigerator compartment sets itself to the set value. |
| **Holiday** | ON: | Press button for 3 seconds. Refrigerator and BioFresh compartment sets itself to +15°C. **Ho** appears in the display. |
| | OFF: | The refrigerator and BioFresh compartment sets itself to the set value. |
| | Info: | Remove all food from the refrigerator and BioFresh compartment. This function prevents odour when the refrigerator compartment door is closed. |
| **Defrosting:** | Automatic during compressor standstill phase. | |
| **Door alarm:** | When: | If door is open, after 60 seconds. |
| | Audible: | 3 beeps. |
| **Sensors** | | |
| **Refrigerator compartment air sensor:** | Position: | Behind refrigerator compartment air flap cover. |
| | Function: | - Compressor ON/OFF<br>- Fan ON.<br>(Condition: Evaporator sensor is 1K colder)<br>- Refrigerator compartment air flap open/closed.<br>- Generates the display value. |
| **Evaporator sensor:** | Position: | In sensor pocket on the back of the evaporator. |
| | Function: | - Fan ON enable.<br>(During start-up from +8°C and colder;<br>in operation from +4.8°C and colder)<br>- Compressor ON enable (from +5°C and warmer).<br>- Ends the defrosting phase (from +5°C and warmer). |
| **BioFreshPlus air sensor:** | Position: | Behind BioFreshPlus air flap cover. |
| | Function: | - Compressor ON/OFF<br>- Fan ON. |

(Condition: Evaporator sensor is 1K colder)
- BioFreshPlus air flap open/closed.

**BioFresh air sensor:**

Position: Behind BioFresh air flap cover.

Function:
- Compressor ON/OFF
- Fan ON.
  (Condition: Evaporator sensor is 1K colder)
- BioFresh air flap open/closed.

**Ambient air sensor:**

Position: On the power PCB.

Function: Affects the switch-off value of the BioFresh air sensor. Therefore temperature fluctuations in the BioFresh compartment are minimised.

Info: An ambient air sensor error is displayed only in the service menu. In case of fault, the switch-off value of the BioFresh air sensor is not affected.
In case of a defect the power PCB has to be replaced.

## Switch

**Door switch:**

Position: In front panel.

Type: Reed PCB

Contact type: Make contact

Function: Activation via:
Magnet in the door, magnet is replaceable.

**Switching signal when:**

| | | |
|---|---|---|
| **door closed:** | interior light | OFF |
| **door open:** | fan | OFF |
| | interior light | ON |
| | door alarm | ON after 60 seconds |

## Loads

**Fan:**

Position: Centre of liner ceiling, behind vertical separating plate.

Function:

| Compressor | Door | Fan |
|---|---|---|
| OFF | CLOSED | **ON low speed** |
| ON | CLOSED | **ON high speed** |
| ON/OFF | Up | **OFF** |
| Evaporator sensor from +5°C and warmer | CLOSED | **OFF** |

e.g. if the refrigeration is OFF **and** the door is CLOSED and the evaporator sensor is colder than +5°C, **then** the fan is **ON, low speed**.

Control:

| | |
|---|---|
| Low speed | 6 V/DC |
| High speed | 9 V/DC |

During start-up the fan switches ON only from +8°C at the evaporator sensor.

**BioFreshPlus heater:**

Position: Foamed-in, inside right and left, directly above the pull-out rail for BioFreshPlus.

Function: Switches ON as soon as the BioFreshPlus air sensor has reached the switch-on value for the heater.

| | | |
|---|---|---|
| **Refrigerator compartment interior light:** | Position: | Inside right and left. |
| | Function: | - Shines as soon as the door is opened.<br>- Is switched OFF after door has been open for 15 minutes. |
| **BioFresh compartment interior light:** | Position: | Inside left. |
| | Function: | - Shines as soon as the door is opened.<br>- Is switched OFF after door has been open for 15 minutes. |
| **Compressor:** | Type: | Standard compressor |
| | Function: | ON: Refrigerator compartment evaporator sensor switch-on value (equal to or wamrer than +5°C) and refrigerator compartment, BioFreshPlus or BioFresh air sensor switch-on value<br>Note: On-delay time (8 minutes) must have elapsed.<br><br>OFF: Refrigerator compartment, BioFreshPlus and BioFresh-air sensor switch-off value. |

### 4.1.3 SGNes NoFrost freezer

| Electronic control system | | |
|---|---|---|
| **Setting range:** | -14°C to -28°C | |
| **Display range:** | 0°C to -49°C<br>Values outside the range are indicated by a cross bar | |
| **Functions** | | |
| **Temperature alarm:** | Alarm value: | 4K warmer than set value. |
| | Warmest alarm value: | -10 °C |
| | Coldest alarm value: | -20 °C |
| | Delay: | 20 minutes |
| | Visual: | Flashing alarm LED |
| | Audible: | 4 beeps (suppressed during start-up) |
| | During start-up: value is reached, | The temperature display flashes until the switch-off<br>the audible alarm is switched OFF. |
| | (e.g. given a set value of -18°C, a temperature of –14°C must be present for at least 20 minutes, then a temperature alarm is raised.) | |
| | **When the defrosting phase begins, the temperature alarm is suppressed for 1.5 hrs.** | |
| **Defrosting:** | ON: | - During start-up after 3 hours cumulative compressor running time.<br>- After a cumulative compressor running time of 10 to 60 hours maximum, depending on the number/duration of the door openings.<br><br>When the defrosting phase begins, the compressor and the fan are switched OFF and the defrost heater is switched ON. |
| | Duration: | The defrost heater remains switched ON until<br>- the freezer compartment evaporator sensor has reached +22°C or<br>- a max. defrosting time of 50 minutes has been reached. |
| | Info: | After the end of the heating phase the compressor is switched ON with a 10-minute delay. Fan ON, from -25°C.<br>If the SuperFrost function is activated during the defrosting phase, this will not interrupt defrosting. |
| **Door alarm:** | When: | If door is open, after 60 seconds. |
| | Audible: | 3 beeps. |
| **SuperFrost:** | ON: | Freezer compartment sets itself to -36 °C (quantity-controlled, min. 30 hrs., max. 65 hrs.)<br><br>The appliance sets itself to -36°C for at least 30 hours. In the following 35 hours cooling by 8K 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. |
| | OFF: | The freezer compartment sets itself to the set value. |
| | **Note:** If SuperFrost is actuated during a defrosting phase, the SuperFrost function is not performed before the defrosting phase has run. | |

## Sensors

**Air sensor:**

Position: Behind the front panel of the evaporator module.

Function:
- Switches the compressor ON/OFF.
- Generates the display value.

**Evaporator sensor:**

Position: Slipped into the lamellar evaporator.

Function:
- Switches the defrost heater OFF (ends the defrosting phase).
- Switches the fan ON/OFF.

## Switch

**Door switch:**

Position: In door panel

Type: Reed contact

Contact type: Make contact

Function: Activation via:
Magnet in the front panel, magnet is replaceable.

**Switching signal when:**

| | | |
|---|---|---|
| **door closed:** | interior light | OFF |
| **door open:** | interior light | ON |
| | fan | OFF |
| | door alarm | ON after 60 seconds |

## Loads

**Fan:**

Position: In the evaporator module, at the back centre.

Function:

| Evaporator sensor | Compressor | Door | Fan |
|---|---|---|---|
| Switch-on value | OFF | CLOSED | **OFF** |
| Switch-on value | ON | CLOSED | **ON** |
| Switch-on value | OFF/ON | UP | **OFF** |
| Switch-off value | OFF/ON | CLOSED/OPEN | **OFF** |

e.g. If the evaporator sensor has reached the switch-on value for the fan **and** the compressor is ON **and** the door is CLOSED, **then** the fan is **ON**.

Switch-on value evaporator sensor:
a) During start-up: -25°C
b) In the normal mode 2K colder than air sensor

**Defrost heater:**

Position: Clipped into lamellar evaporator

Function: Keeps the evaporator free from ice. Activation via electronic control system.

Defrost heater ON:
- Depending on the number and duration of door openings, the electronic system calculates the defrost cycles between 10-60 hours cumulative compressor running time.
- Upon start-up after 3 hours cumulative compressor running time.

Defrost heater OFF:
- When the evaporator sensor has reached +22°C
- When max. time of 50 minutes is exceeded.

**Heater cannot be replaced →only complete evaporator module!**

| | | |
|---|---|---|
| **Interior light:** | Position: | In front panel |
| | Function: | - Shines as soon as door is opened.<br>- Is switched OFF after door has been open for 15 minutes. |
| **Compressor:** | Type: | VCC compressor, frequency-controlled. |
| | Function: | **ON:** Air sensor switch-on value<br>Note: On-delay time (8 minutes) must have elapsed.<br><br>**OFF:** 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,<br>0 (signal interruption),<br>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**

## 4.2 Refrigeration components and functions

### 4.2.1 SKBes refrigerator with BioFresh

| | |
|---|---|
| **Compressor** | |
| **Compressor:** | Standard. |
| **Evaporator** | |
| **Type:** | Rear wall evaporator |
| **Type of installation:** | Suspended freely. |
| **Injection point:** | Top centre |
| **Flow sequence:** | Top to bottom |

### 4.2.2 SGNes Freezer

| | |
|---|---|
| **Compressor** | |
| **Compressor:** | VCC, frequency-controlled |
| **Frame heater** | |
| **Position:** | Foamed-in in the housing, in the contact area of the magnetic door seal. |
| **Evaporator** | |
| **Type:** | Lamellar evaporator |
| **Type of installation:** | In evaporator module on appliance ceiling |
| **Injection point:** | Front centre |
| **Flow sequence:** | Front to back |

# 5.0 Assembly instructions / replacement of parts

## 5.1 General

### 5.1.1 Electronic control panel

**Front casing:**

- Remove drip plate.
- Detach the front housing from the door, starting at the bottom with the plastic frame.
- Disconnect the bus connector and the connector to the dispensing unit (**Fig. 5.1.1/ 4 and 5**).

**Fig. 5.1.1 / 1**

**Fig. 5.1.1 / 2**

**Fig. 5.1.1 / 3**

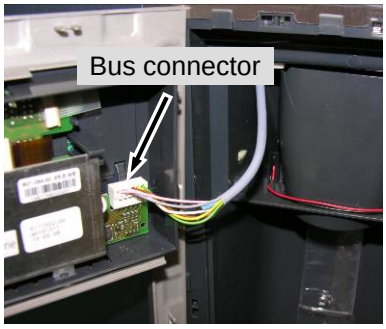



**Fig. 5.1.1 / 4**

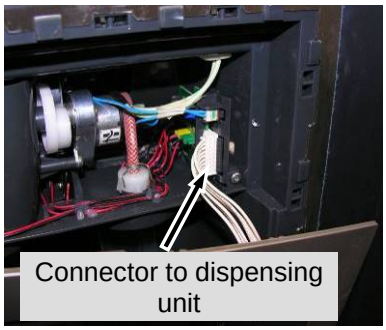



**Fig. 5.1.1 / 5**

## 5.1.2 Dispensing unit

- Undo fastening screws (**Fig. 5.1.2/ 1**).
- Release hose clip.
- Disconnect heater connector
  (foamed-in heater in dispensing unit to prevent condensate).
- Draw dispensing unit forwards for removal (**Fig. 5.1.2/ 2**).

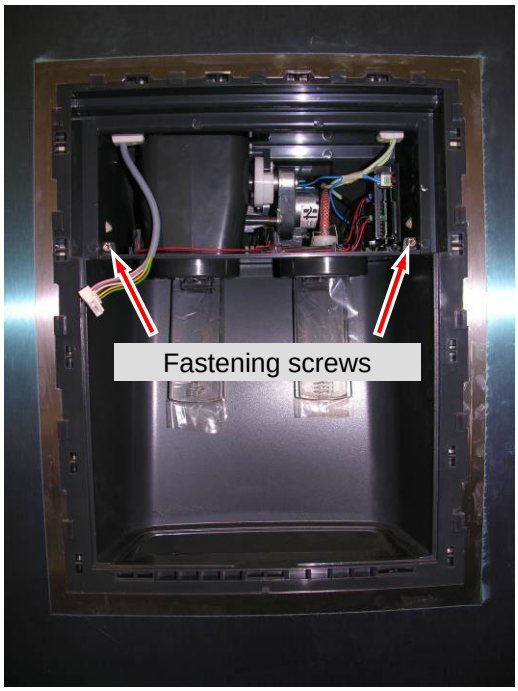



**Fig. 5.1.2 / 1**

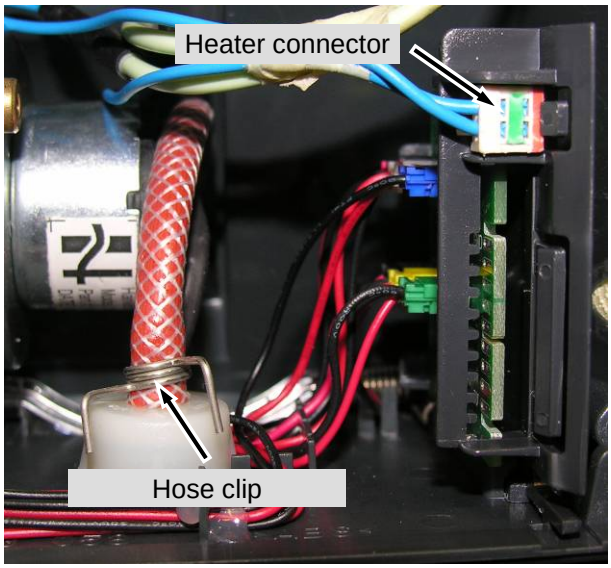



**Fig. 5.1.2/ 2** Dispensing unit connections

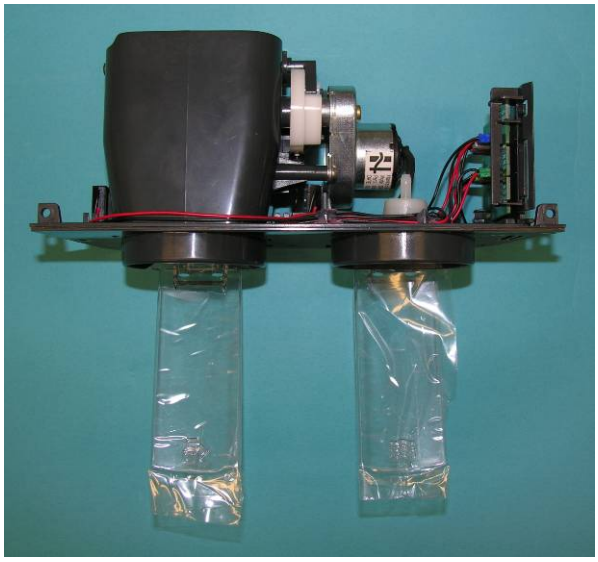


**Fig. 5.1.2/ 3** Dispensing unit

**Fig. 5.1.2 / 4**

### 5.1.3 Electronic power module

**Note: Pull out the mains plug!**

**Electronic power module cover:** - Disengage marked retaining clips.
- Swing out the cover at the bottom and lift for removal.

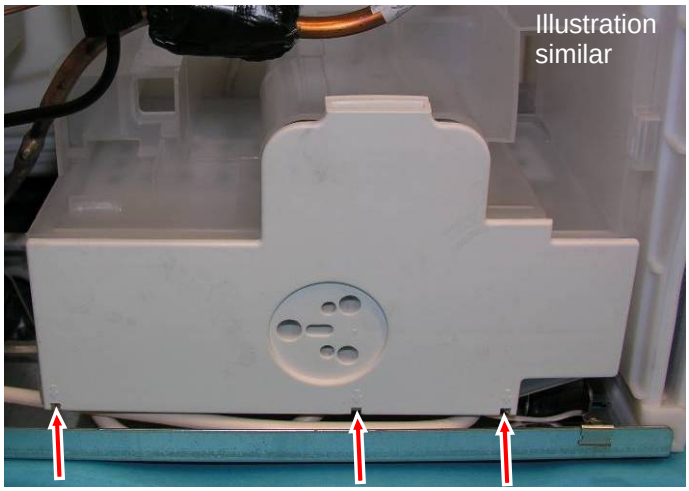



**Fig. 5.1.3 / 1**

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

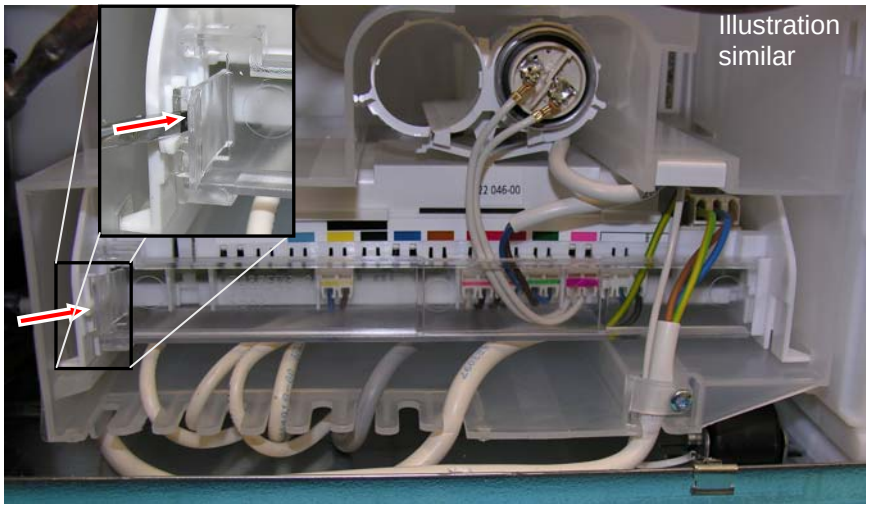



**Fig. 5.1.3 / 2**

- Detach front PCB edge connector
- Release strain relief of supply cable.
- Disengage plug-in module at the right and left clip.

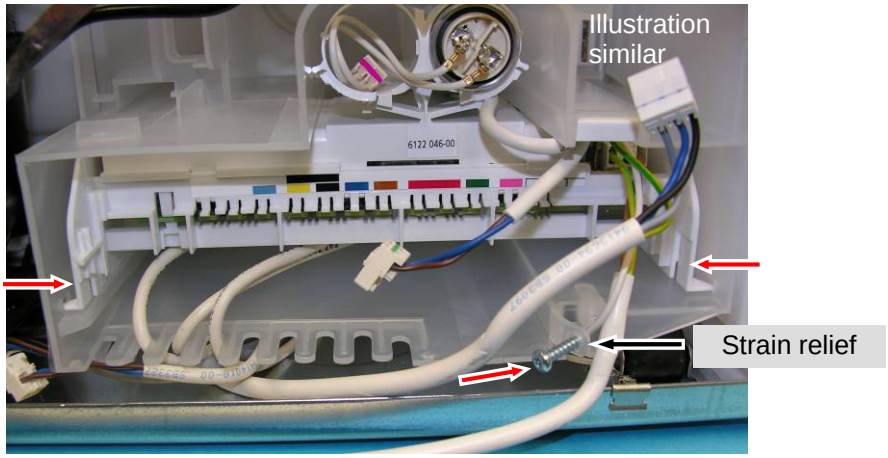



**Fig. 5.1.3 / 3**

**Plug-in module:**

- Pull out the plug-in module forwards.
- Detach rear PCB edge connectors.

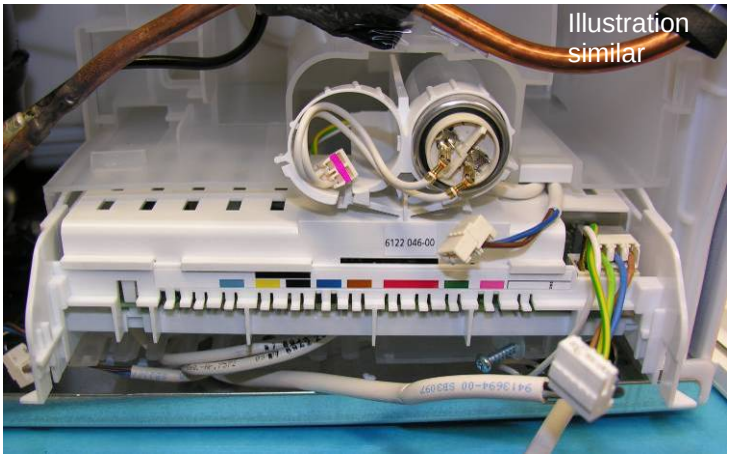



**Fig. 5.1.3 / 4**

**Electronic power module:**

- Disengage the locking hooks at the "holder for capacitors".
- Disengage electronic power module at the marked locations (**Fig. 5.1.3/ 6**).

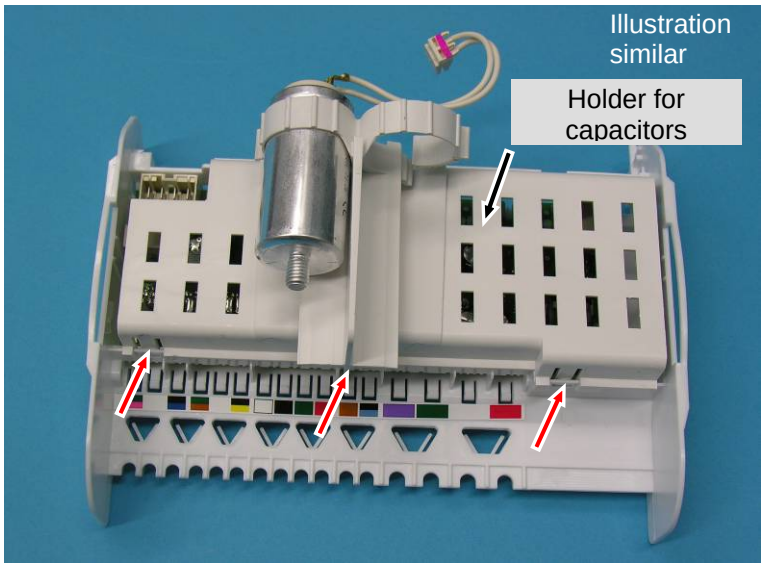



**Fig. 5.1.3 / 5**

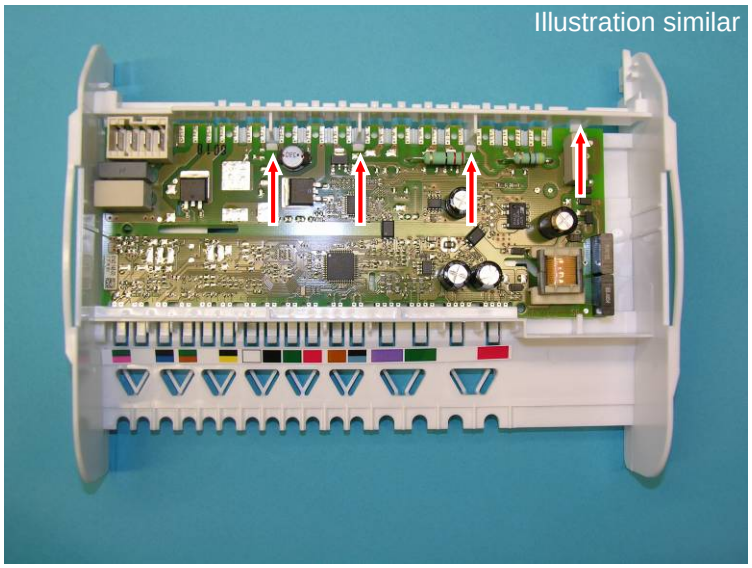



**Fig. 5.1.3 / 6**

## 5.2 SKBes refrigerator with BioFresh

### 5.2.1 Top door hinge

**It is not possible for the hinges of this appliance to be changed over!**

**Turn hinge cover:** Disengage the cover in the marked direction and raise it for removal (**Fig. 5.2.1/ 1**).

**Turn hinge:** Undo the marked screws and remove the turn hinge **Fig. 5.2.1/ 2**).

**Fig. 5.2.1 / 1**

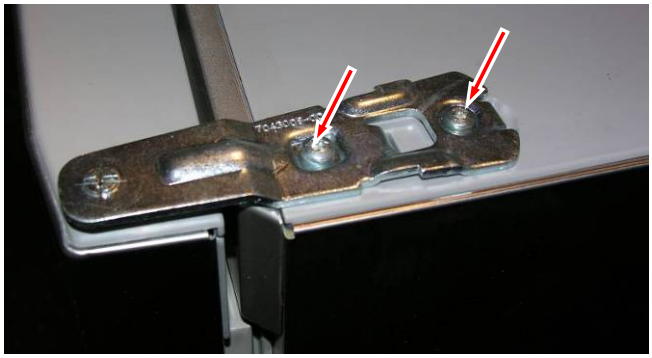


**Fig. 5.2.1 / 2**

### 5.2.2 Bottom door hinge

**Turn hinge cover locking device:** Disengage the cover in the marked direction and draw it forwards for removal (**Fig. 5.2.2/ 1**).

**Bearing pin:** Retract the adjustable foot and press the bearing pin downwards. Then swing out the door at the bottom and draw it out of the upper bearing pin (**Fig. 5.2.2/ 2**). Notch has to point forwards for re-assembly.

**Turn hinge:** Undo the screws (**Fig. 5.2.2/ 3**) and remove the turn hinges.

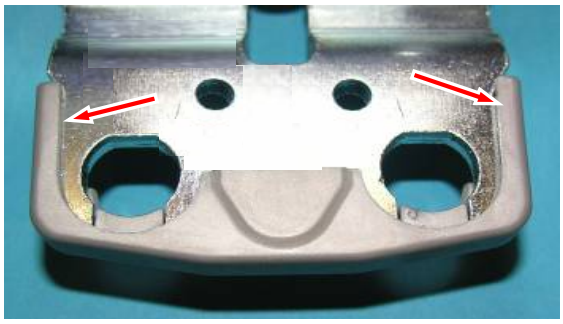


**Fig. 5.2.2/ 1** Turn hinge cover locking device

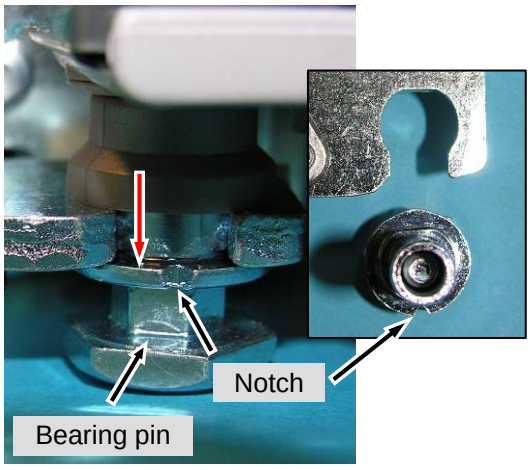



**Fig. 5.2.2/ 2** Bearing pin

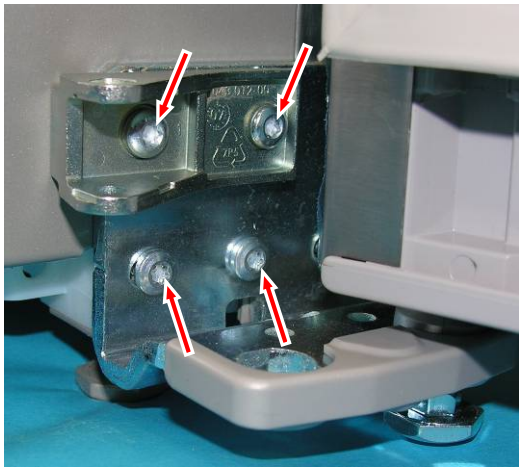


**Fig. 5.2.2/ 3** Turn hinge

## 5.2.3 Bottom soft stop mechanism

**Turn hinge cover:** On the right-hand side, lever it forwards off the turn hinge (**Fig. 5.2.3/ 1**), push the hinge pin up and out (**Fig. 5.2.3/ 2**).

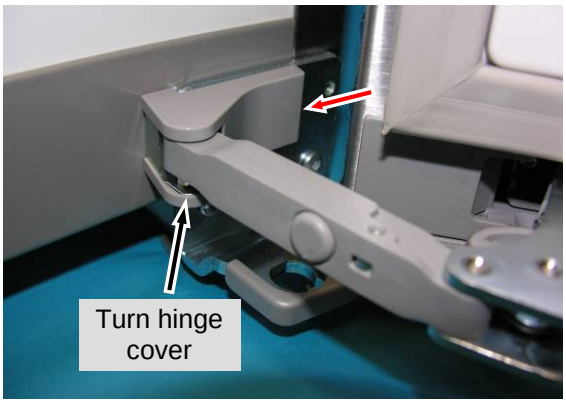



**Fig. 5.2.3 / 1**

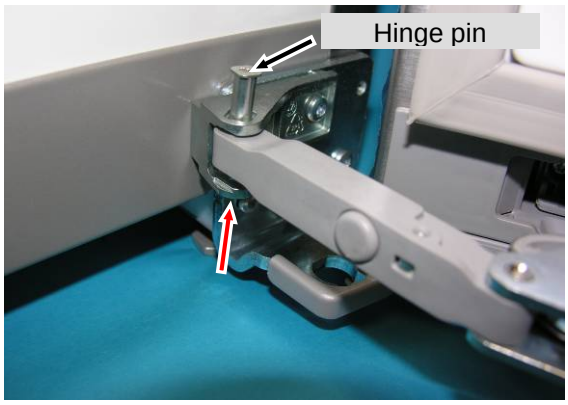



**Fig. 5.2.3 / 2**

**Cover Soft stop mechanism:** Disengage cover of the soft stop mechanism at the marked locations (see **Fig. 5.2.3/ 3**).

**Fig. 5.2.3 / 3**

**Soft stop unit:** Undo the screws fastening the soft stop unit (see **Fig. 5.2.3/ 4**).

**Fig. 5.2.3 / 4**

**Safety device soft stop unit:** Fit the safety device for the soft stop unit.
**Danger of crushing in the area indicated** (see **Fig. 5.2.3/ 5**).

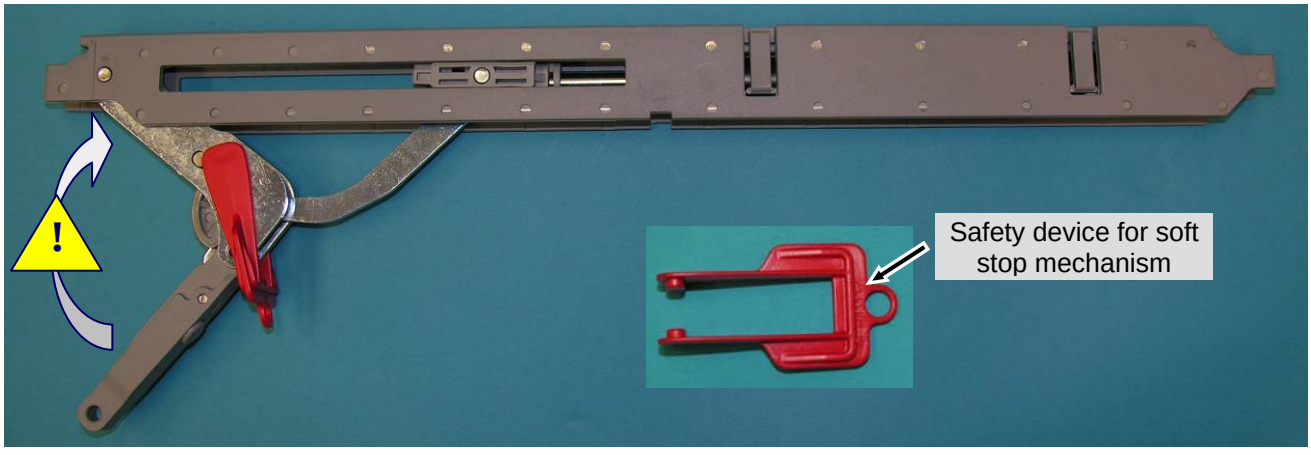



**Fig. 5.2.3 / 5**

## 5.2.4 Reed relay-door recognition

**Reed relay:**

- Remove the cover of the front panel at the left and right.
- Disengage and remove the front panel (**Fig. 5.2.4/ 1**).
- Reed relay is clipped into place at the rear (**Fig. 5.2.4/ 2**).

**Fig. 5.2.4 / 1**

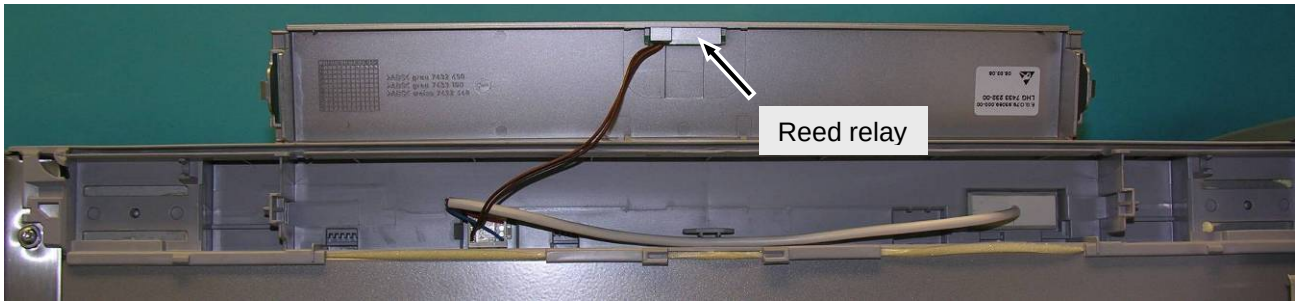



**Fig. 5.2.4 / 2**

## 5.2.5 Magnet-door recognition

**Magnet:**

- Slightly depress the locking lug of the magnet holder and lever the magnet holder out (**Fig. 5.2.5/ 2**).

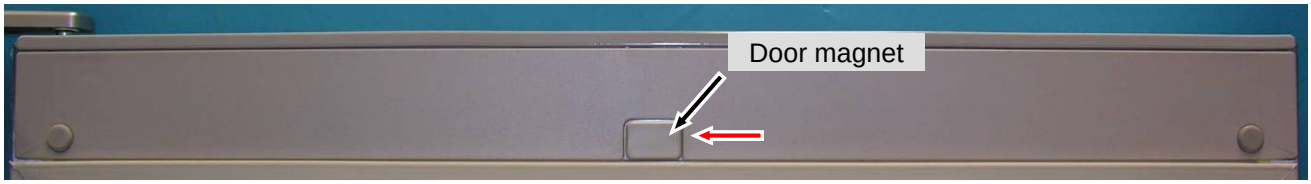



**Fig. 5.2.5/ 1** Door panel

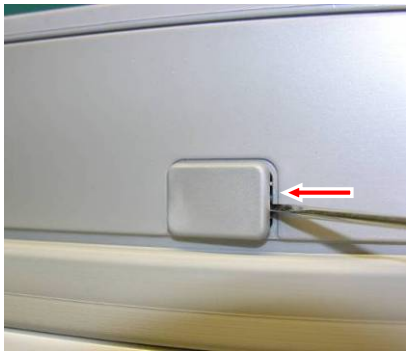


**Fig. 5.2.5/ 2** Magnet holder

**Fig. 5.2.5/ 3** Magnet holder

### 5.2.6 Horizontal separating plate

- Remove BioFresh drawers and insulation plate of BioFreshPlus.
- Remove cable duct panel (see **Fig. 5.2.6/ 1**)
- Disconnect and detach cable.
- Undo fastening screws (see **Fig. 5.2.6/ 2**)
- Pull out the separating plate forwards.

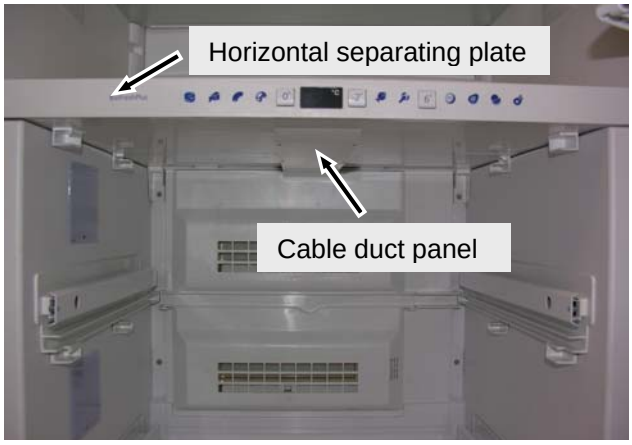



**Fig. 5.2.6 / 1**

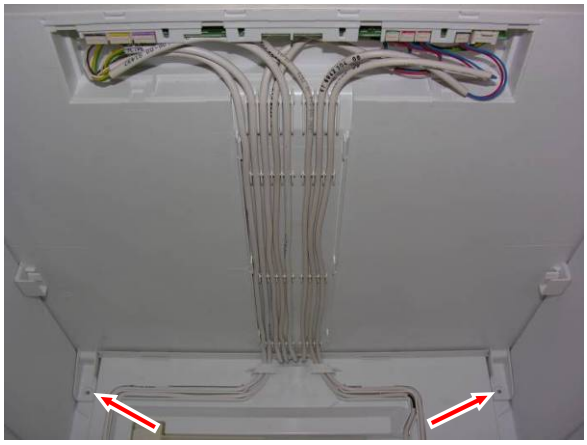


**Fig. 5.2.6 / 2**

### 5.2.7 BioFresh control panel

- Remove cable duct panel, disconnect cable.
- Disengage control panel at marked locking lugs.

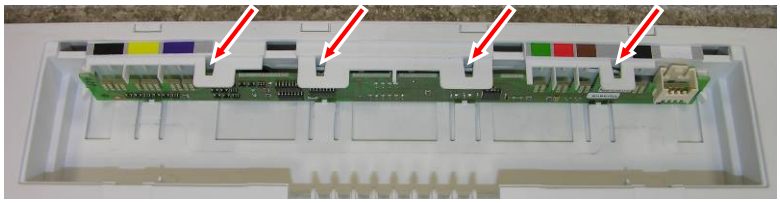


**Fig. 5.2.7 / 1**

## 5.2.8 Vertical separating plate

- For disassembly of the horizontal separating plate (see **5.2.6 Horizontal separating plate**).
- Remove glass shelves.
- Using a screwdriver, disengage clips at the right and left at the marked location (**Fig. 5.2.8/ 1**) and press in the direction of the separating plate (**Fig. 5.2.8/ 2**). Remove clip.
- Undo screws (**Fig. 5.2.8/ 4**) fastening the separating plate.
- Disconnect fan cable (**Fig. 5.2.8/ 5**).


**Fig. 5.2.8 / 1**

**Fig. 5.2.8 / 2**

**Fig. 5.2.8 / 3**

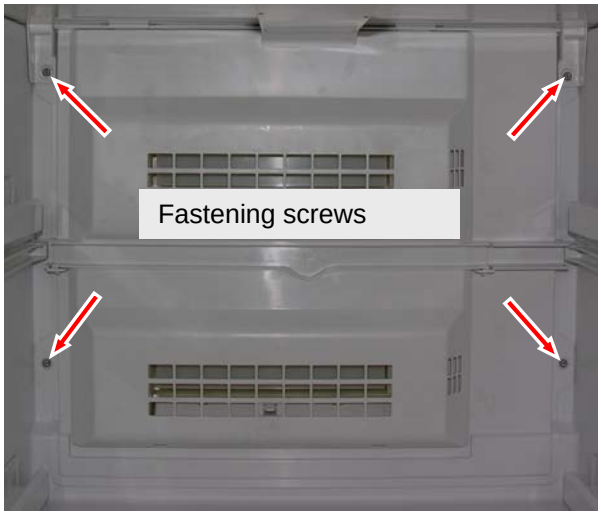



**Fig. 5.2.8 / 4**

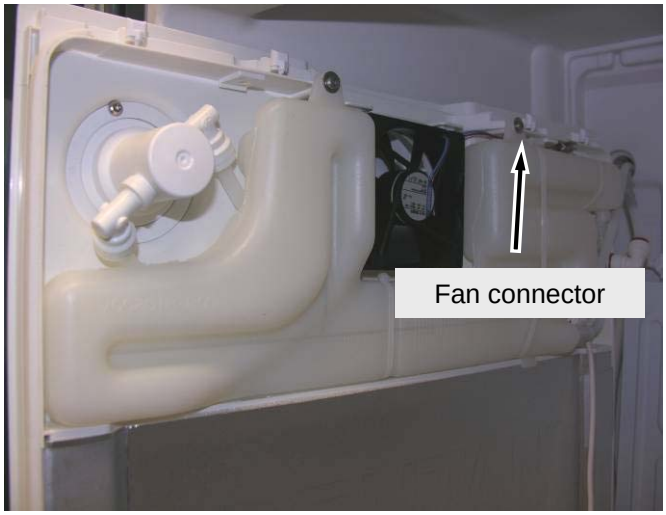



**Fig. 5.2.8 / 5**

**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. 5.2.8 / 6**

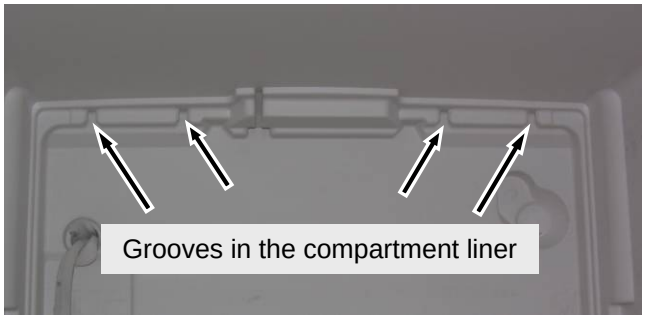



**Fig. 5.2.8 / 7**

## 5.2.9 Fan

- For disassembly of the horizontal separating plate (see **5.2.6 Horizontal separating plate**).
- For disassembly of the vertical separating plate (see **5.2.8 Vertical separating plate**).
- Undo the fastening screw of the water tank.
- Undo fan connector.
- Press up holding clips to unlock fan with rubber mount.

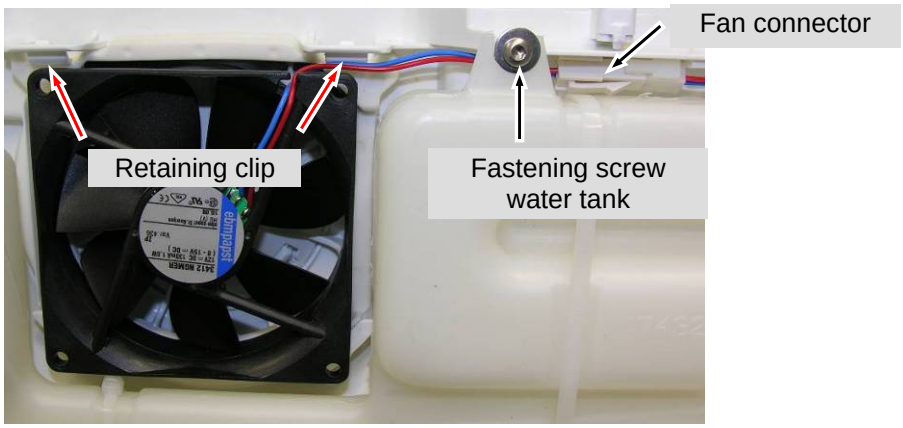



**Fig. 5.2.9 / 1**

## 5.2.10 Water tank

- For disassembly of the horizontal separating plate (see **5.2.6 Horizontal separating plate**).
- For disassembly of the vertical separating plate (see **5.2.8 Vertical separating plate**).
- Undo the fastening screws of the water tank.
- Undo the fastening screws of the filter holder.


**Fig. 5.2.10 / 1**

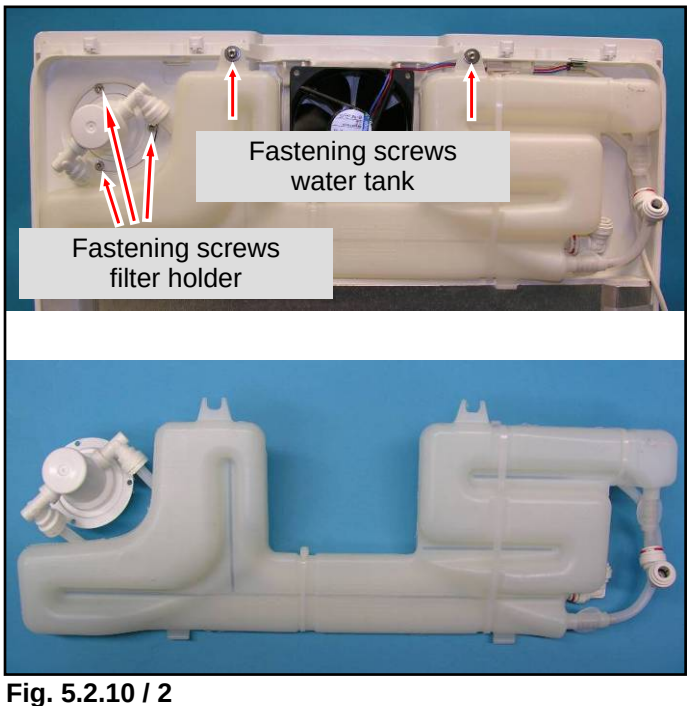



**Fig. 5.2.10 / 2**

## 5.2.11 Refrigerator compartment air sensor/air flap

- Disengage cover of the refrigerator compartment air flap and raise it (**Figs. 5.2.11/1** and **2**).
- Refrigerator compartment air sensor is attached to the BioFreshPlus PCB in the horizontal separating plate.
- The refrigerator compartment air flap is only slipped into place, it is not interlocked or screw-fitted.

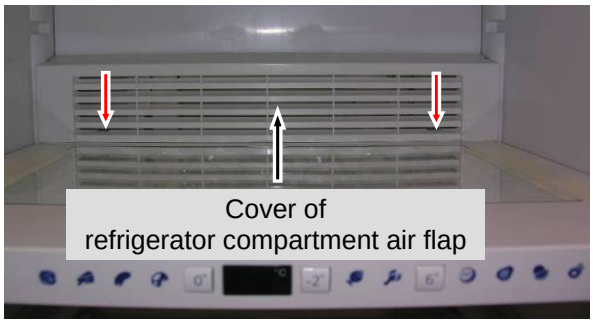



**Fig. 5.2.11 / 1**

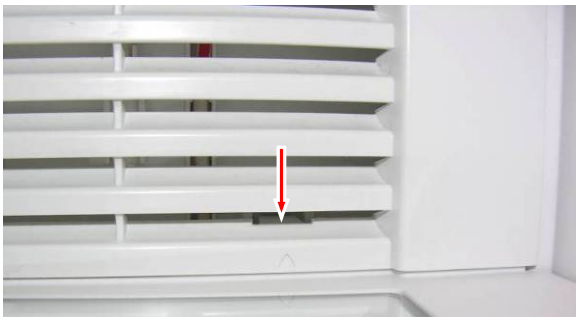


**Fig. 5.2.11 / 2**

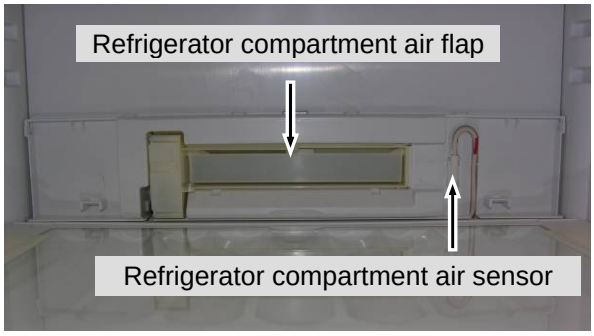



**Fig. 5.2.11 / 3**

## 5.2.12 BioFreshPlus and BioFresh air sensor/air flap

- Disengage and remove cover of BioFresh air flaps (**Fig. 5.2.12/1**).
- BioFreshPlus and BioFresh air sensors are attached to the BioFreshPlus PCB in the horizontal separating plate.
- BioFresh air flaps are only slipped into place, they are not interlocked or screw-fitted.

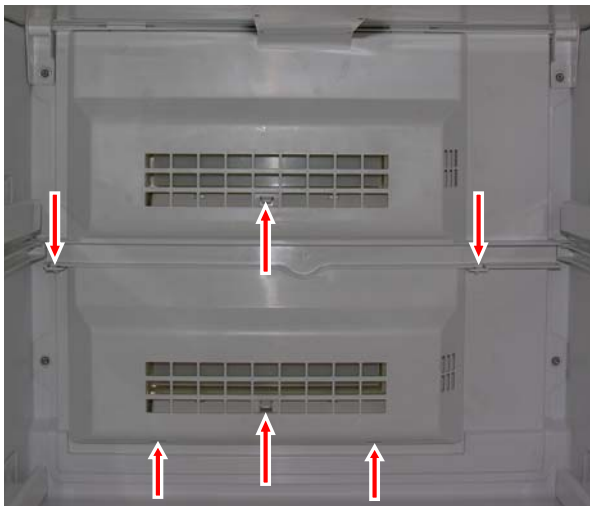


**Fig. 5.2.12 / 1**

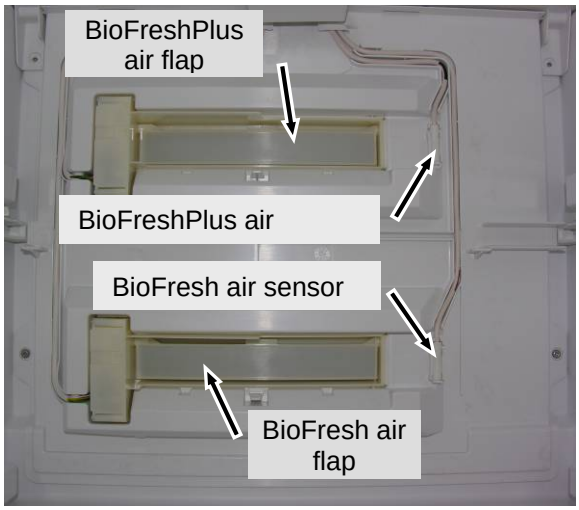



**Fig. 5.2.12 / 2**

### 5.2.13 Evaporator sensor

- For disassembly of the horizontal separating plate (see **5.2.6 Horizontal separating plate**).
- For disassembly of the vertical separating plate (see**5.2.8 Vertical separating plate**).
- Undo screws holding the evaporator.
- Draw the evaporator sensor out of the sensor pocket at the back of the evaporator (**Fig. 5.2.13/ 1**).

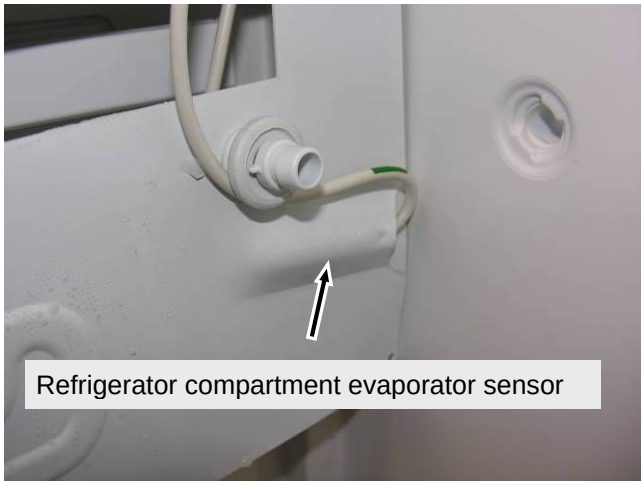



**Fig. 5.2.13 / 1**

## 5.2.14 Refrigerator compartment LED lighting

**LED light column:**

- Using a small screwdriver, turn the slot in the cap downwards.
- Insert a screwdriver in the slot and remove the cap.
- Undo screws of light column.

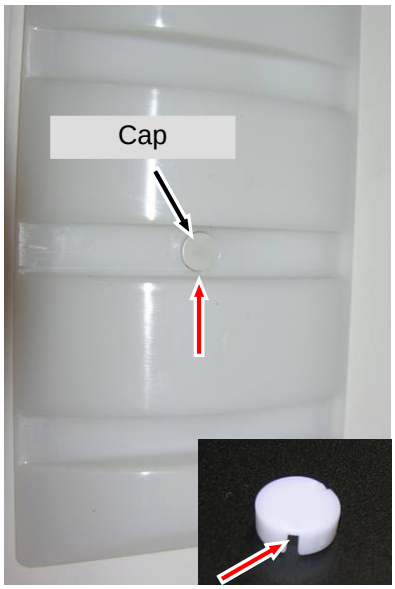



**Fig. 5.2.14 / 1**

**Fig. 5.2.14 / 2**

**LED PCB:**

- Unlock and pull off connector (Fig. **5.2.14/ 3**).
- Unlock PCB and connector socket at the marked locations **(Fig. 5.2.14/ 4)**.
- Lift PCB at an angle from the light cover.

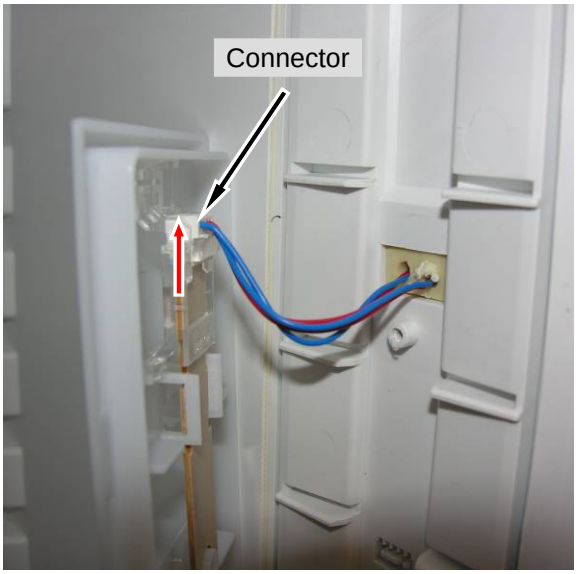



**Fig. 5.2.14 / 3**

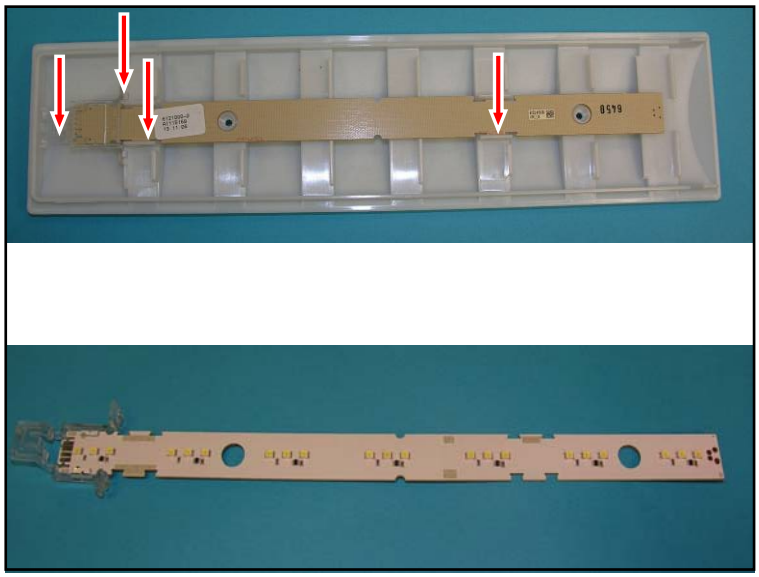


**Fig. 5.2.14 / 4**

***INFO***

One LED group comprising 3 LEDs is used for each illuminated support rib.
If a single LED of an LED group is defective, the entire LED group is inoperative.
All the other LEDs continue to shine.

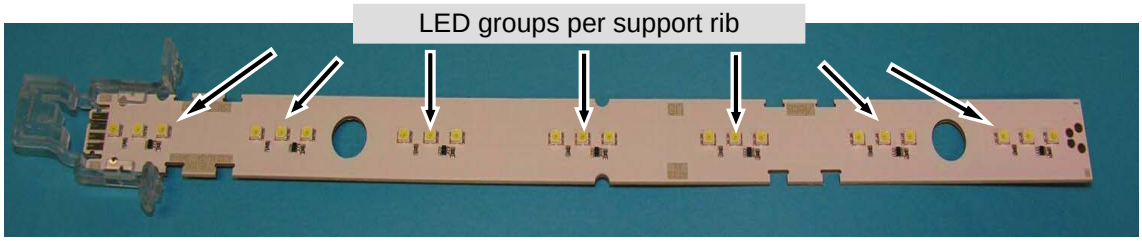



**Fig. 5.2.14 / 5**

## 5.2.15 BioFresh LED lighting

- Disengage light unit (**Fig. 5.2.15/ 2**).
- Unlock and pull off connector (**Fig. 5.2.15/ 3**).
- Disengage and remove LED PCB (**Fig. 5.2.15/ 4**).

**Fig. 5.2.15 / 1**

**Fig. 5.2.15 / 2**

**Fig. 5.2.15 / 3**

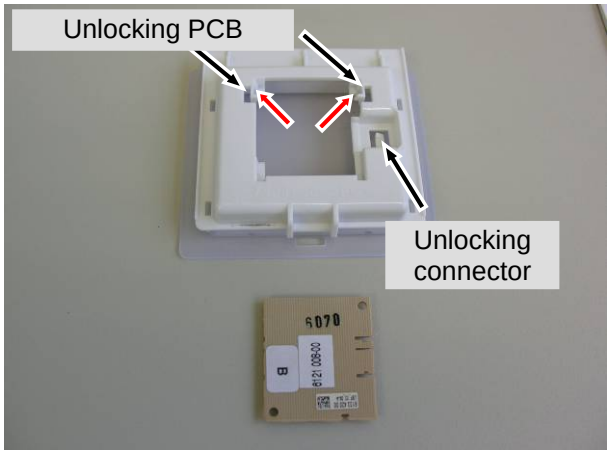



**Fig. 5.2.15 / 4**

## 5.2.16 BioFresh pull-out rails

**Pull-out rail:**

- Press in lock and press rail to the rear (**Fig. 5.2.16 / 1**).
- Support is replaceable (**Fig. 5.2.16/ 3**).

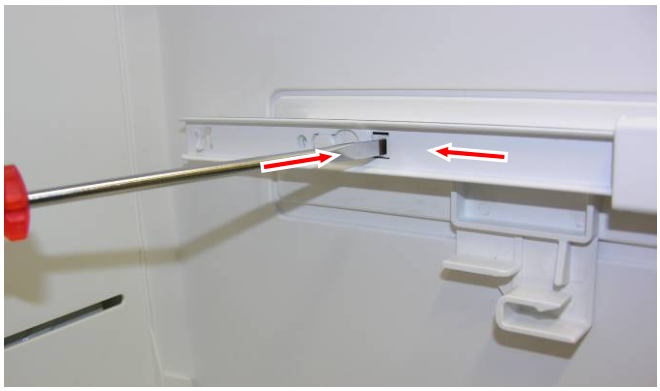


**Fig. 5.2.16 / 1**

**Fig. 5.2.16 / 2**

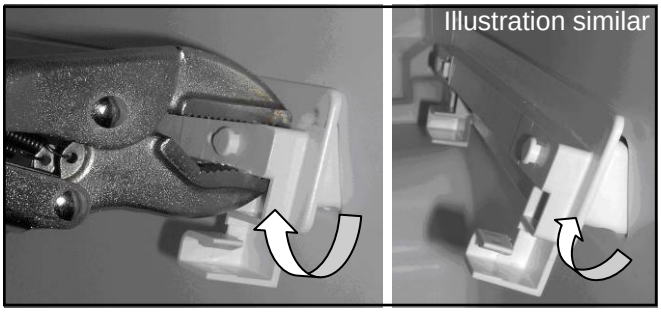



**Fig. 5.2.16 / 3**

## 5.3 SGNes freezer

### 5.3.1 Top door hinge

**It is not possible for the hinges of this appliance to be changed over!**

**Turn hinge cover:** Disengage the cover in the marked direction and raise it for removal (**Fig. 5.3.1/ 1**).

**Door turn hinge:**
- Undo the marked screws (**Fig. 5.3.1/ 2**).
- Position the door turn hinge as illustrated (**Fig. 5.3.1/ 3**), so that the holes for the template are in a line.
- Fit the template, which safeguards against twisting of the cable (**Fig. 5.3.1/ 3**).
- Remove the top door panel and lever out the cable feedthrough using a screwdriver (**Fig. 5.3.1/ 4**)
- Disconnect the bus connector on the reed PCB (**Fig. 5.3.1/ 4**) and remove the turn hinge together with cable.


**Fig. 5.3.1 / 1**

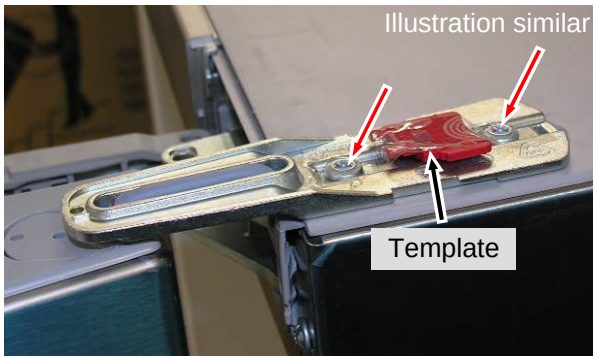



**Fig. 5.3.1 / 2**

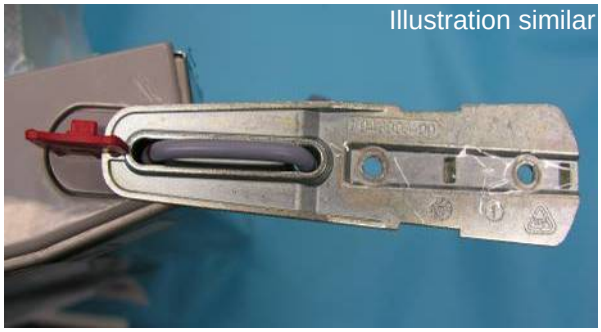



**Fig. 5.3.1 / 3**

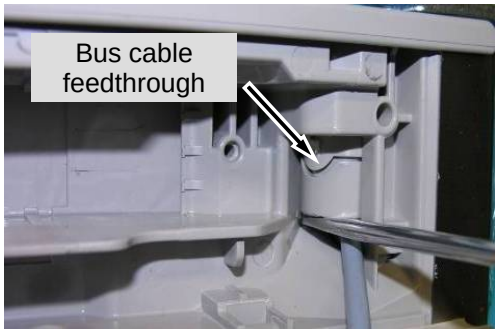



**Fig. 5.3.1 / 4**


**Fig. 5.3.1 / 5**

## 5.3.2 Bottom door hinge

**Turn hinge cover locking device:** Disengage the cover in the marked direction and draw it forwards for removal (**Fig. 5.3.2/ 1**).

**Bearing pin:** Retract the adjustable foot and press the bearing pin downwards (**Fig. 5.3.2/ 2**). Notch has to point forwards for re-assembly.

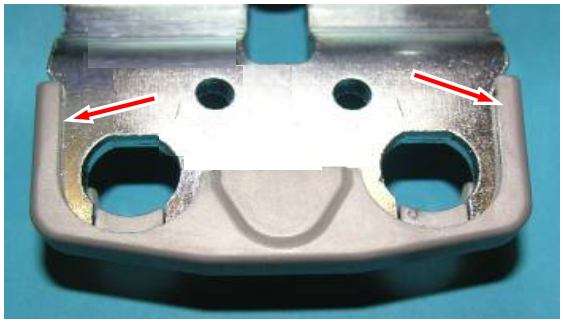


**Fig. 5.3.2/ 1** Turn hinge cover locking device

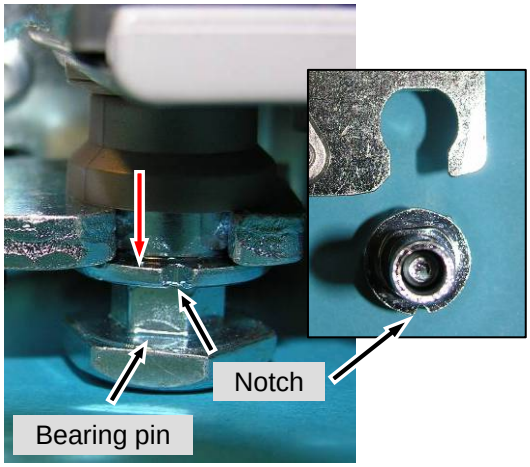



**Fig. 5.3.2/ 2** Bearing pin

**Bottom turn hinges:** Undo screws (**Fig. 5.3.2/ 3**).

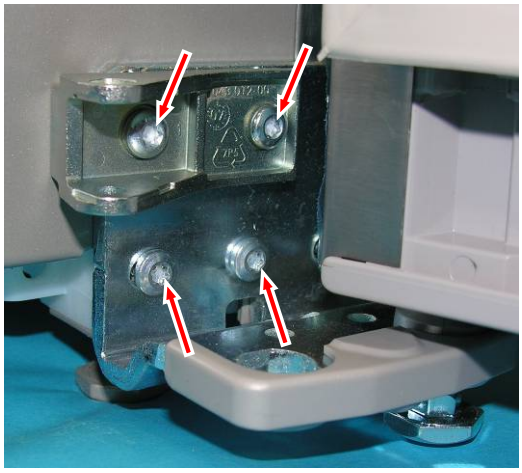


**Fig. 5.3.2/ 3** Turn hinge

## 5.3.3 Bottom soft stop mechanism

**Turn hinge cover:** On the right-hand side, lever it forwards off the turn hinge (**Fig. 5.3.3/ 1**).
Push the pin up and out (**Fig. 5.3.3/ 2**).

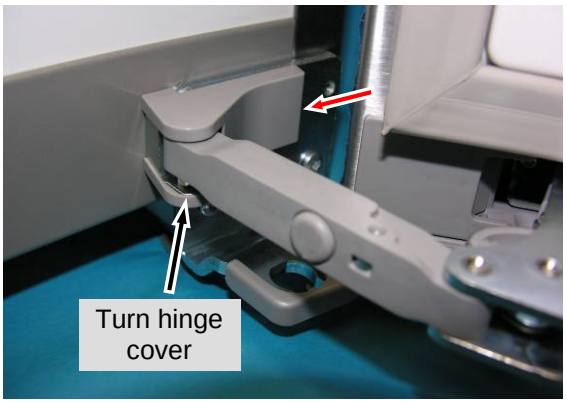



**Fig. 5.3.3 / 1**

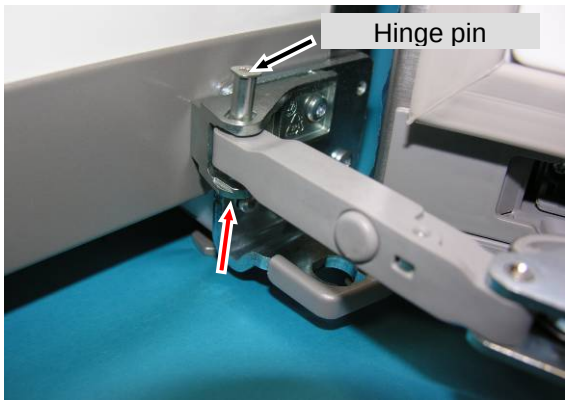



**Fig. 5.3.3 / 2**

**Cover**
**Soft stop mechanism:** Disengage cover of the soft stop mechanism at the marked locations (see **Fig. 5.3.3/ 3**).

**Fig. 5.3.3 / 3**

**Soft stop unit:** Undo the screws fastening the soft stop unit (see **Fig. 5.3.3/ 4**).

**Fig. 5.3.3 / 4**

**Safety device**
**soft stop unit:** Fit the safety device for the soft stop unit.
**Danger of crushing in the area indicated** (see **Fig. 5.3.3/ 5**).

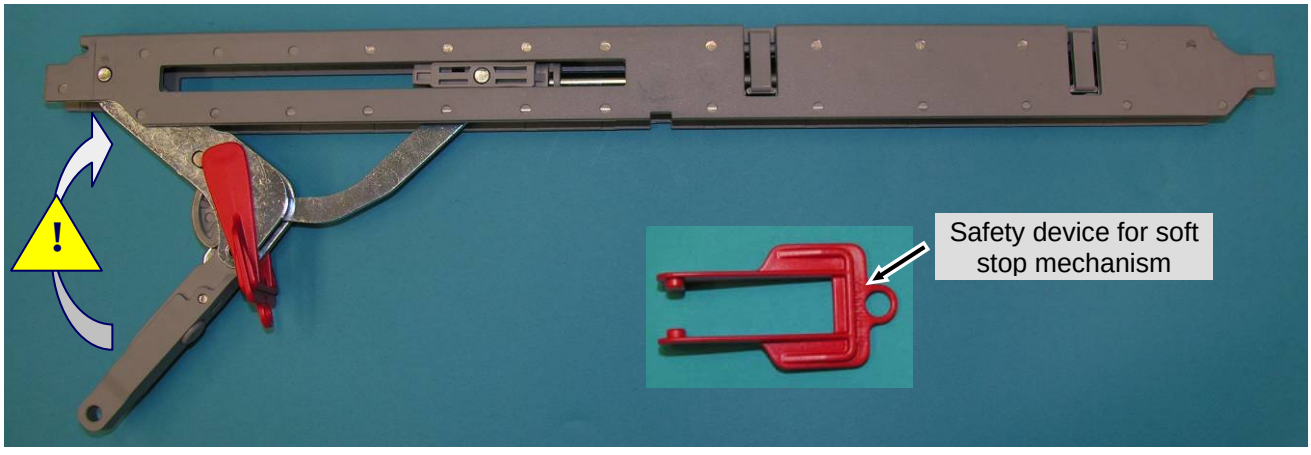



**Fig. 5.3.3 / 5**

### 5.3.4 Reed relay-door recognition

**Reed relay:**
- Disengage and remove the door panel (**Fig. 5.3.4/ 1**).
- Reed relay is clipped into place at the rear (**Fig. 5.3.4/ 2**).

**Fig. 5.3.4/ 1** Door panel


**Fig. 5.3.4/ 2** Reed PCB

### 5.3.5 Magnet-door recognition

**Magnet:**
- Disengage the front panel (**Fig. 5.3.5/ 1**).
- Unclip the magnet off the holder (**Fig. 5.3.5/ 2**).

**Fig. 5.3.5/ 1** Front panel

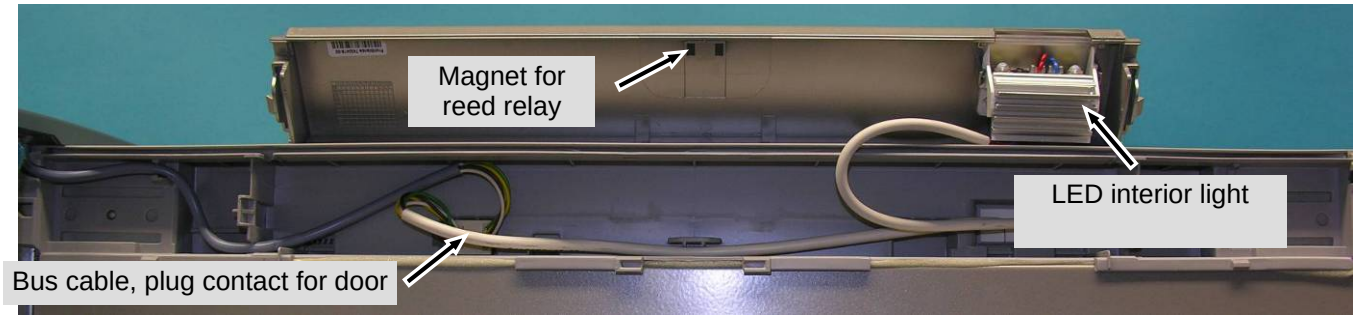



**Abb. 5.3.5/ 2** Inside the front panel

## 5.3.6 LED interior light

**LED interior light:** The interior light is behind the front panel and is directed downwards, towards the drawers.
- Unlock and pull off the connector (**Fig. 5.3.6/ 1**).
- Disengage the LED unit (**Fig. 5.3.6/ 2**).
- LED unit comprising LED with heat-sink and light cover (**Fig. 5.3.6/ 3**).

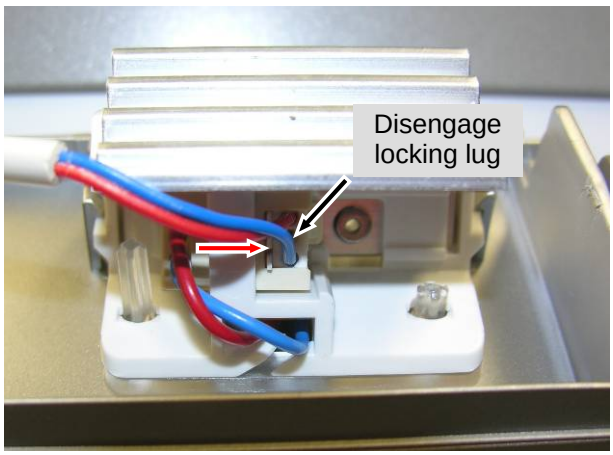



**Fig. 5.3.6/ 1** Connector

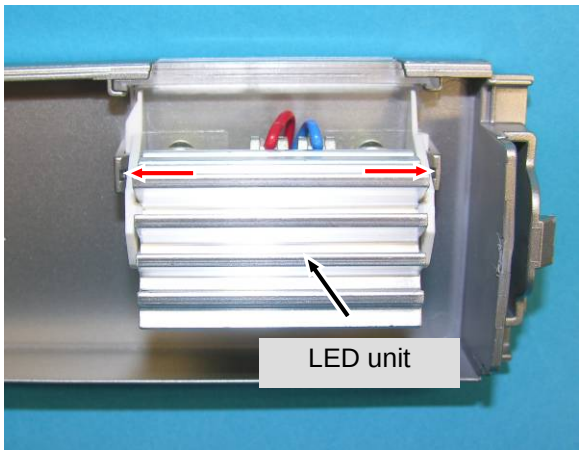



**Fig. 5.3.6/ 2** LED unit

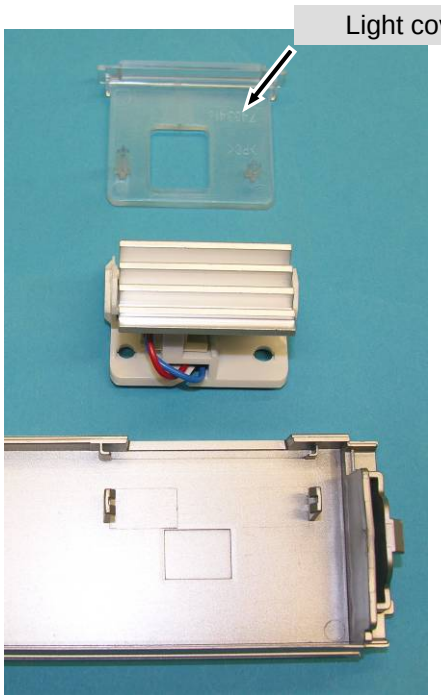



**Fig. 5.3.6 / 3**

### 5.3.7 Evaporator module

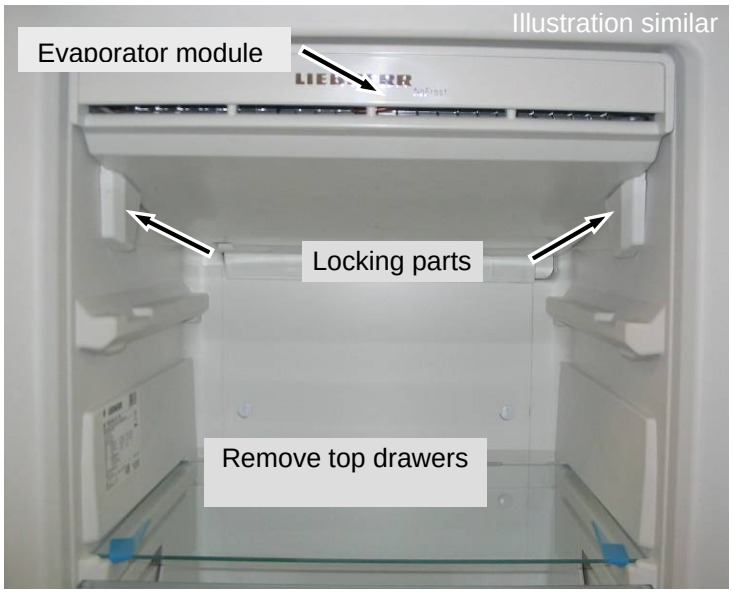



**Fig. 5.3.7/ 1** Evaporator module

**Locking parts:** Are snapped into place at the right and left for locking the evaporator module. Lever off by applying a screwdriver between the locking part and the compartment liner (**Fig. 5.3.7/ 2**).

**Transit support:** Remove the adhesive tape as transit support of the "top polystyrene moulding", it is no longer needed for assembly (**Fig. 5.3.7/ 3**).

**Top polystyrene moulding:** Lift off the polystyrene moulding first at the front, then at the back. Draw the "top polystyrene moulding" forwards for removal.

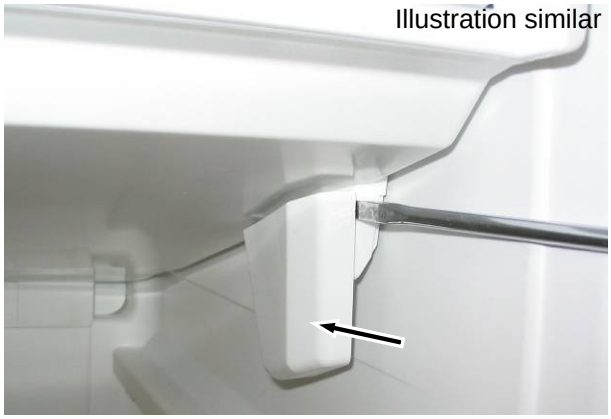



**Fig. 5.3.7/ 2** Remove locking part


**Fig. 5.3.7/ 3** Remove adhesive tape

## 5.3.8 Evaporator sensor

**Evaporator module:** Dismantle the evaporator module as described below under **5.3.7 Evaporator module**.

**Evaporator sensor:** Is slipped inbetween the lamellas and in case of defect it has to be cut off and repaired with the repair kit (Art. No. 9590 062).

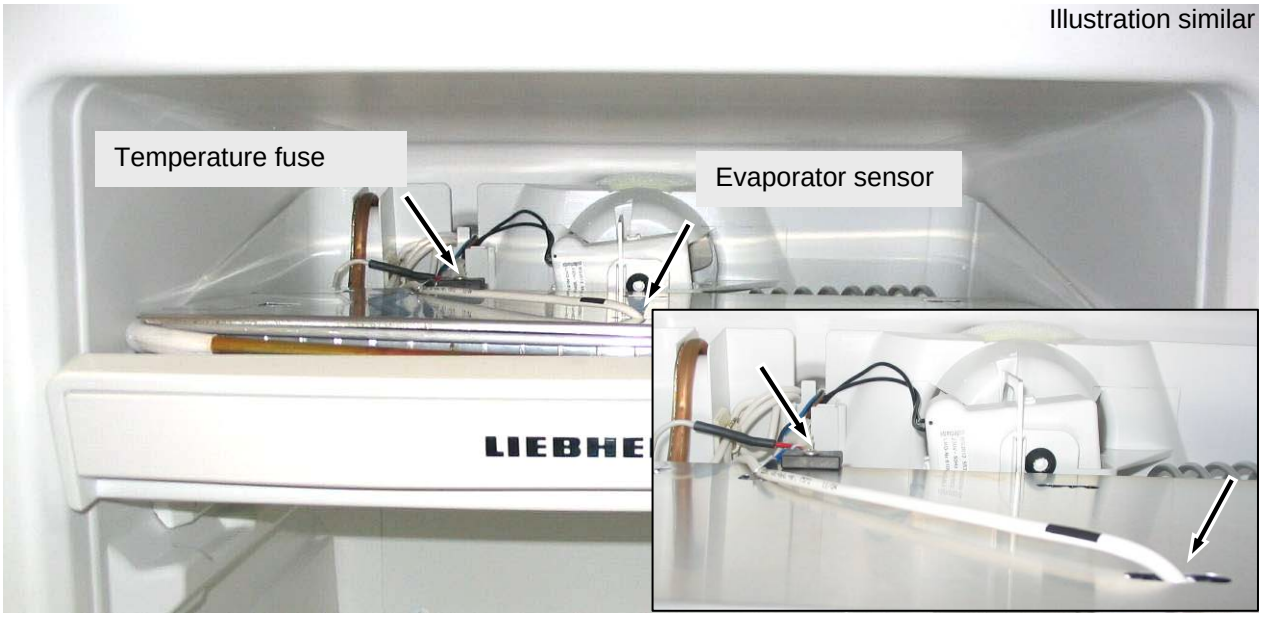



**Fig. 5.3.8/ 1** Evaporator module folded down

## 5.3.9 Air sensor

**Evaporator module:** Dismantle the evaporator module as described below under **5.3.7 Evaporator module**.

**Front polystyrene moulding:** Is situated behind the front panel of the evaporator module. Acts as an air seal of the air sensor in the direction of the lamellar evaporator.

**Air sensor:** Is engaged behind the front panel of the evaporator module and in case of defect it has to be cut off and repaired with the repair kit (Art. No. 9590 062).

**Fig. 5.3.9/ 1** Removal of the polystyrene

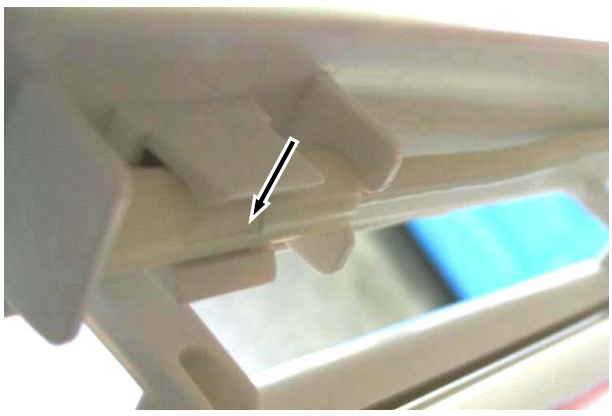


**Fig. 5.3.9/ 2** Air sensor

## 5.3.10 Temperature fuse

**Evaporator module:** Dismantle the evaporator module as described below under **5.3.7 Evaporator module**.

**Temperature fuse:** Fastened by screw (see **Fig. 5.3.8/ 1 Evaporator module lowered**).
To be noted for replacement:
- Cut off only at the coloured wires (not heater wire!)
- Fix the wires in such a way that they do not touch the heater.

## 5.3.11 Fan

**Evaporator module:** Dismantle the evaporator module as described below under **5.3.7 Evaporator module**.

**Safety plate** Lift out of the guide.
**Fan:** Safety plate is used for support in transit to prevent the fan from becoming detached.

**Fan blade:** Press the fan blade off the fan shaft using your thumbs.

**Fan:** Swing the fan out of the seat.
**Take care:** As the fan is swung out, the lower clip of the fan housing may get caught in the rubber mount and break.

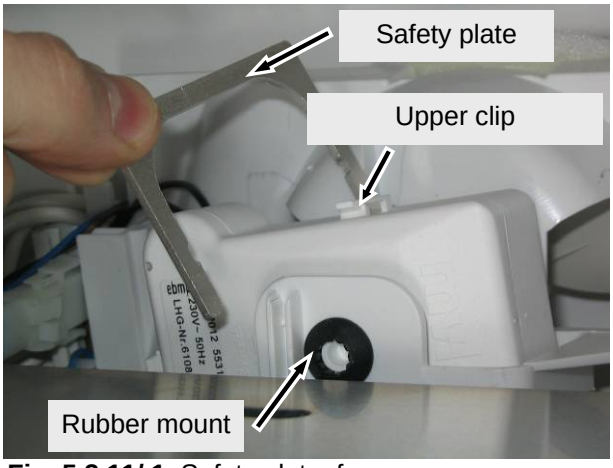


**Fig. 5.3.11/ 1** Safety plate, fan


**Fig. 5.3.11/ 2** Dismantling fan blade

## 5.3.12 IceMaker

**Ice storage container with crushing unit:**

- Raise the ice storage container a little and remove it.
- The ice storage container composes a module together with the feed screw and crusher. Therefore these components are not singly available as spare parts.


Fig. 5.3.12 / 1

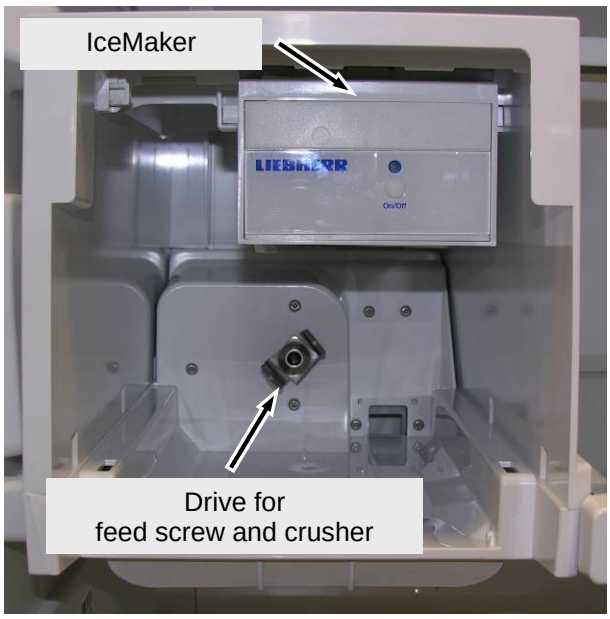



Fig. 5.3.12 / 2

**Magnet holder:**

- Clipped into the ice storage container, the reed contact is situated in the IceMaker. For recognititon that the ice storage container is slid into place.

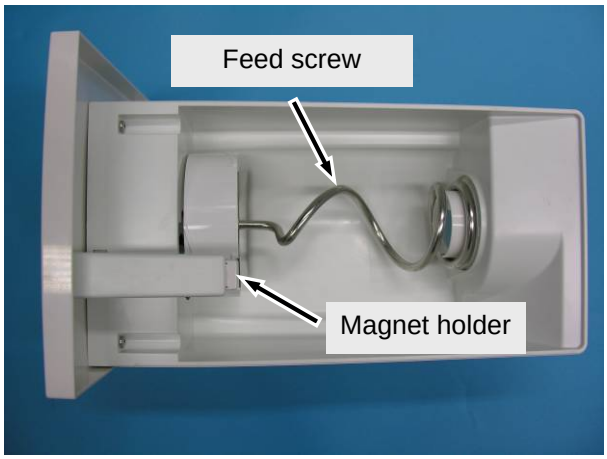



Fig. 5.3.12 / 3

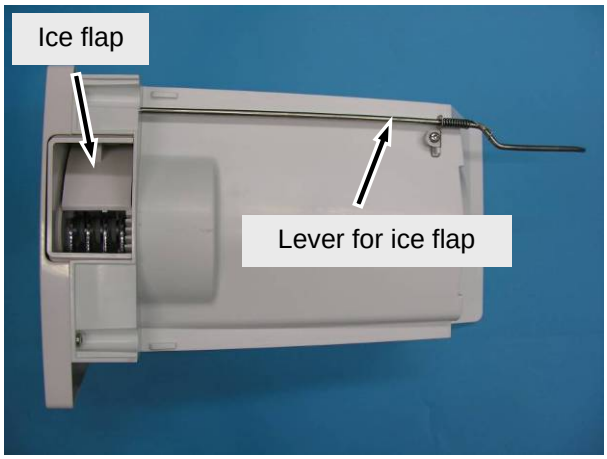



Fig. 5.3.12 / 4

**IceMaker:**

- Disengage the locking lugs on the upper side of the housing of the crusher module (**Fig. 5.3.12/ 6**)
- Press the IceMaker backwards.
- Disconnect the connector.

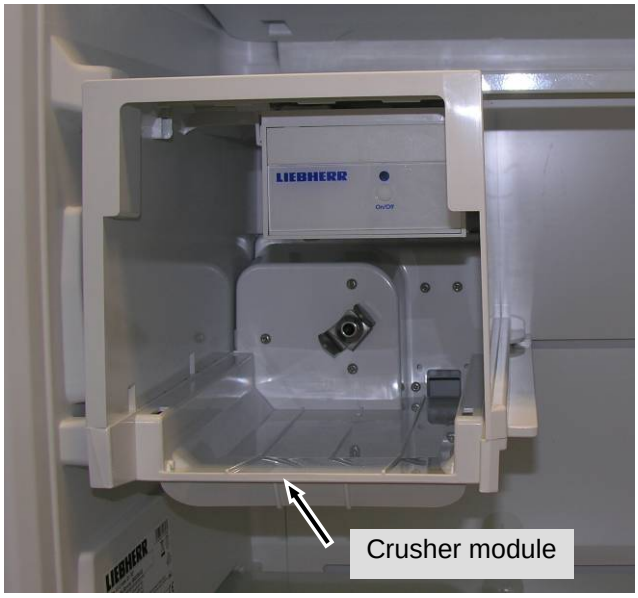



**Fig. 5.3.12 / 5**

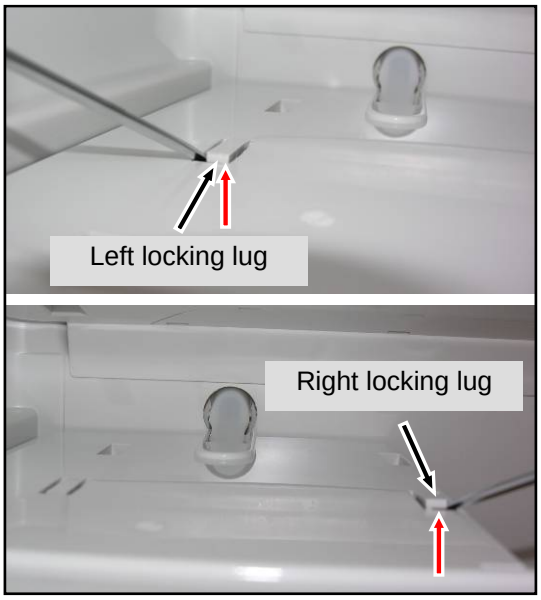



**Fig. 5.3.12 / 6**

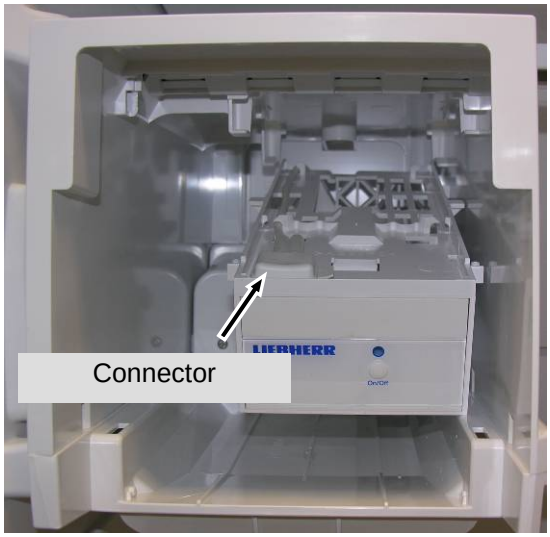



**Fig. 5.3.12 / 7**

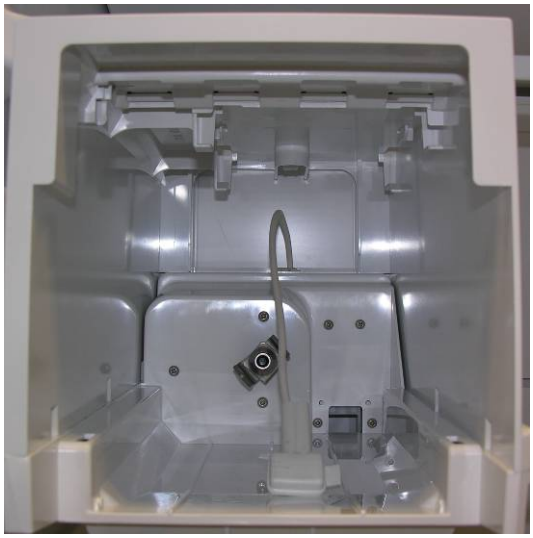


**Fig. 5.3.12 / 8**

## 5.3.13 Crusher module housing

- Press the left and right retaining clips of the crosspiece in the direction shown and release them (**Figs. 5.3.13/ 1** to **3**).
- Detach the housing from the support ribs by turning it a little (**Fig. 5.3.13/ 4**).
- Tip the housing forwards (**Fig. 5.3.13/ 5**)
- Disengage the crosspiece from the housing and push it out to the right (**Fig. 5.3.13/ 5**).

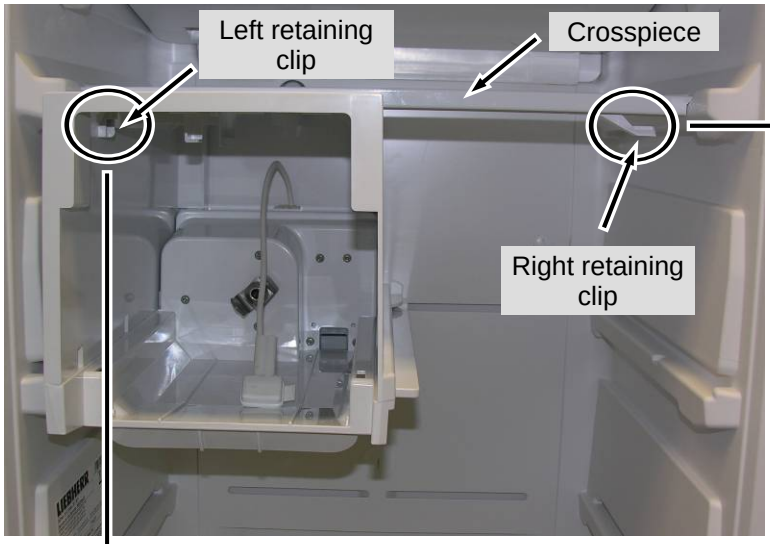



**Fig. 5.3.13 / 1**

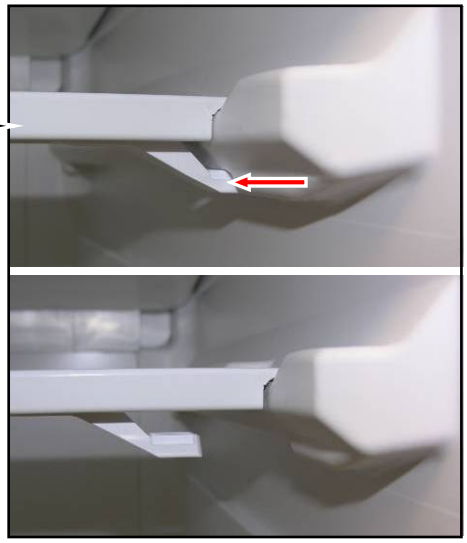


**Fig. 5.3.13/ 2** Right retaining clip

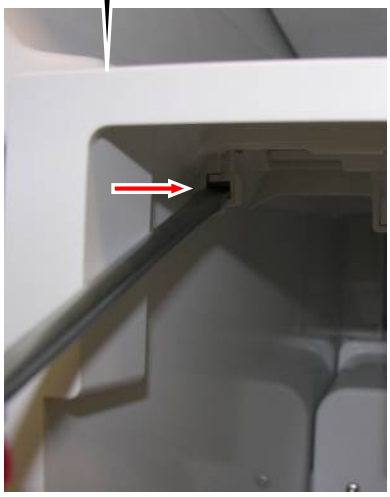


**Fig. 5.3.13/ 3** Left retaining clip

**Fig. 5.3.13 / 4**

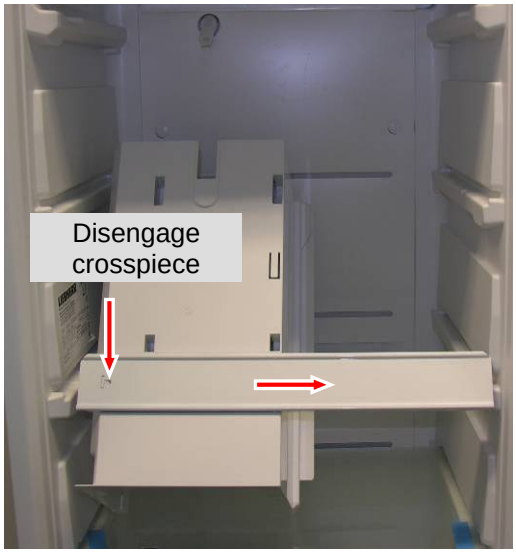



**Fig. 5.3.13 / 5**

### 5.3.14 Crusher module connection

- Using a screwdriver, disengage the cover at the marked locations and remove it (**Fig. 5.3.14/ 1**).
- Connections for the feed screw motor and for the magnet-operated switch of the ice flap are accessible (**Fig. 5.3.14/ 3**).

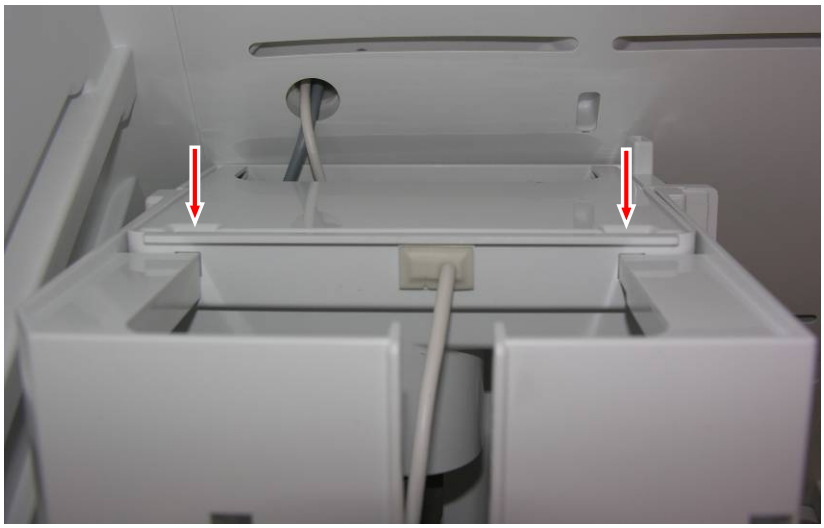


**Fig. 5.3.14 / 1**

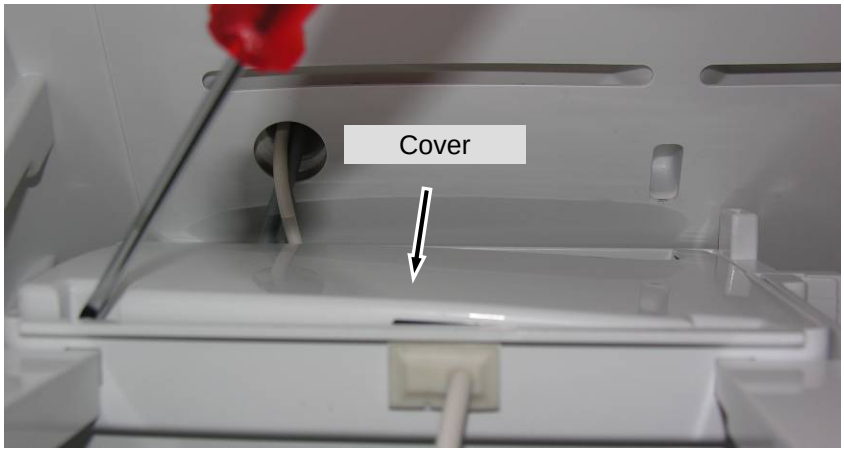



**Fig. 5.3.14 / 2**

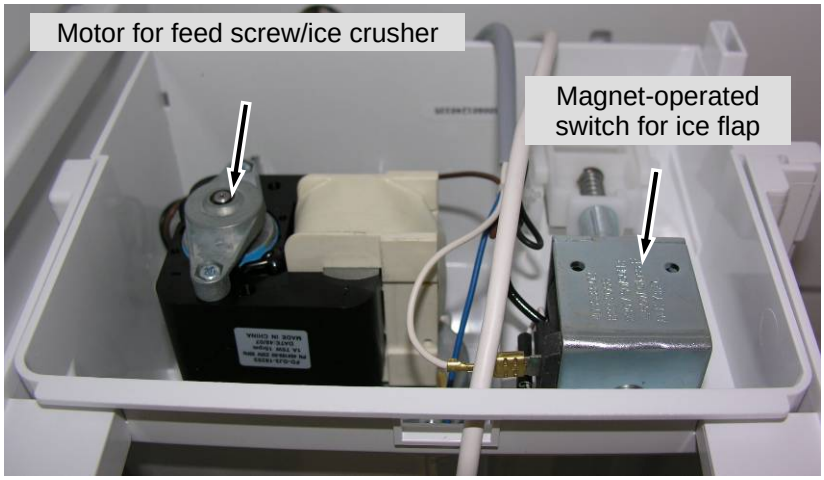



**Fig. 5.3.14 / 3**

## 5.3.15 Solenoid valves

**Water connections:** Press the elbow in the direction of the solenoid valve, keep the black outer ring depressed and detach the elbow (**Fig. 5.3.15/ 1**).

**Solenoid valve group:** Disengage it at the sides and press it downwards (**Fig. 5.3.15/ 2**).

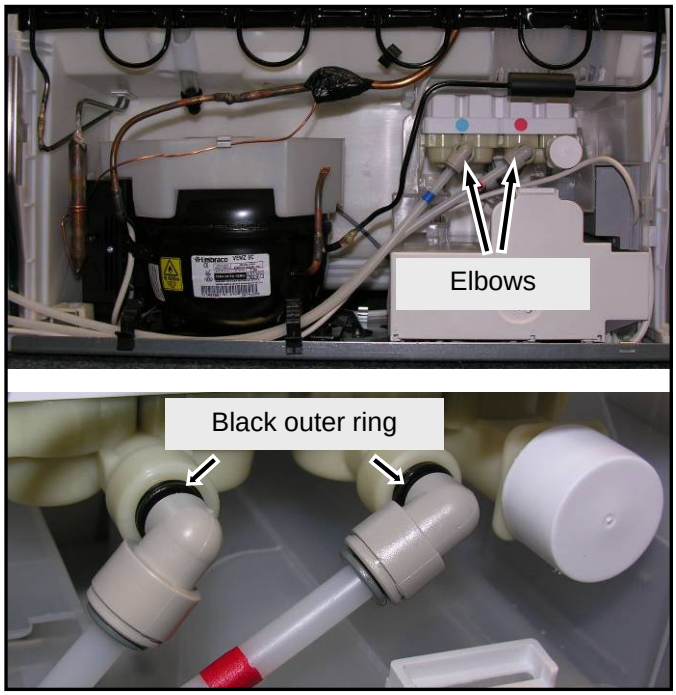



**Fig. 5.3.15 / 1**

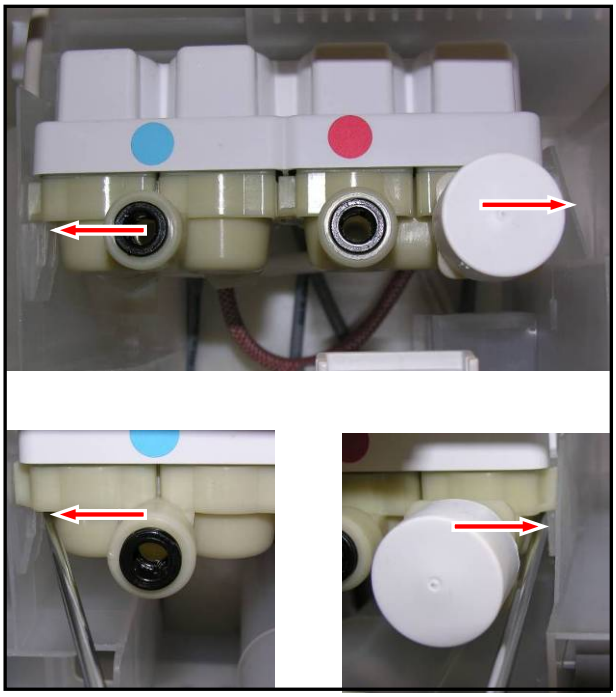


**Fig. 5.3.15 / 2**

**Electrical connections:**

- Detach the marked PCB edge connectors for control of the solenoid valves and attach the connectors to the cable slots in the unit carrier (**Fig. 5.3.15/ 3**). In this way the individual connectors cannot be inadvertently drawn under the unit carrier when pulling out the solenoid valve group.
- Detach connectors on the solenoid valve (**Fig. 5.3.15/ 3**).

**Note:** The connectors have to be inserted in such a way that the text "OBEN" (TOP) points upwards. (splash-proof)

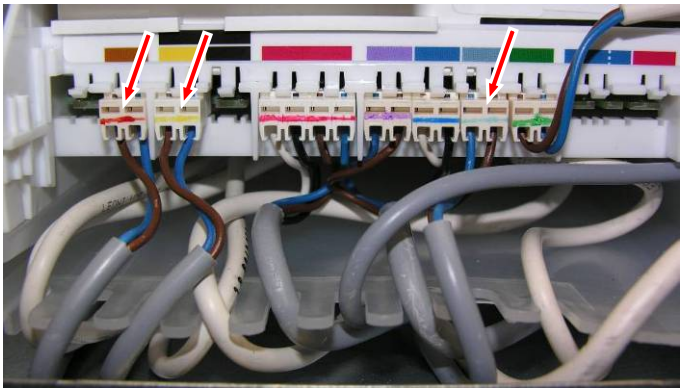


**Fig. 5.3.15 / 3**

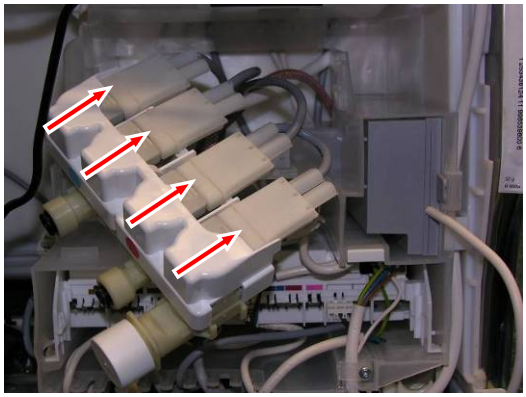


**Fig. 5.3.15 / 4**

**Water connections at the rear:**

Undo the screw fittings (**Fig. 5.3.15/ 5**).

**Note:** The hose will be entrained!
The hose has to be pretensioned in the opposite direction before screwing the parts together.

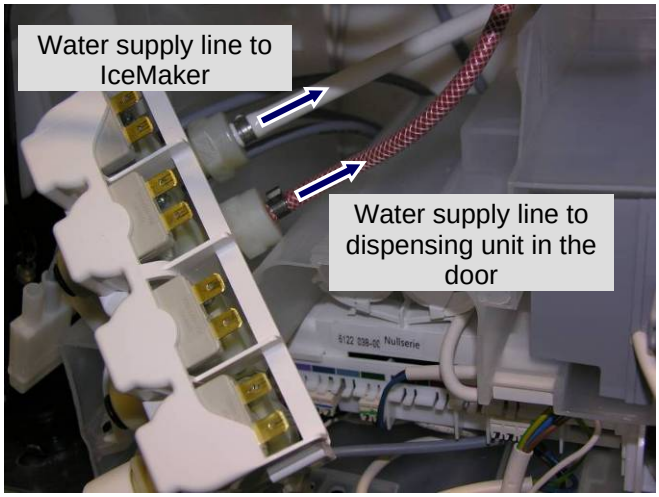



**Fig. 5.3.15 / 5**

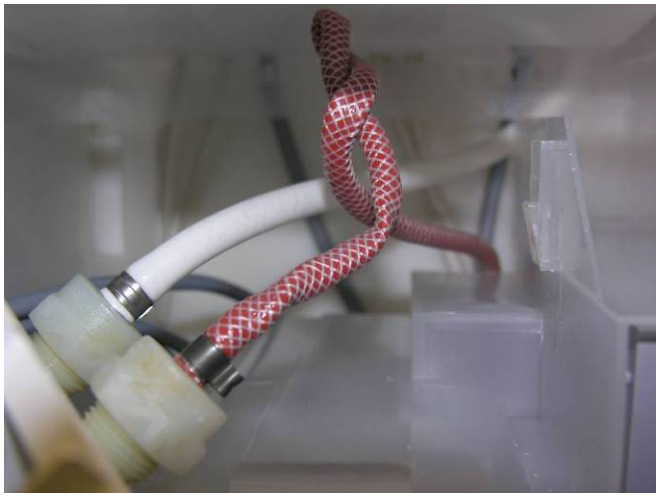


**Fig. 5.3.15 / 6**

**Seal of water connections:**

The screw fittings are sealed with a paper washer (**Fig. 5.3.15/ 7**).

Since the screw action leaves a score (**Fig. 5.3.15/ 7**) in the washer, the washer has to be replaced once the screw fitting has been undone.

**Note:**
Replace washer (xxxx xxx) once the screw fitting has been undone!

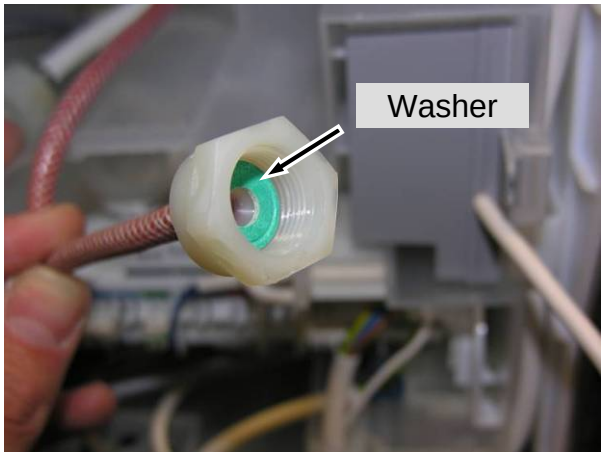



**Fig. 5.3.15 / 7**


**Fig. 5.3.15 / 8**

# 6.0 Technical data

## 6.1 General

**Sensor values:**

| | |
|---|---|
| Refrigerator compartment: | Air and evaporator sensor |
| BioFreshPlus: | Air sensor |
| BioFresh compartment: | Air sensor |
| Freezer compartment: | Air and evaporator sensor |

| Temperature °C | Resistance value kOhm |
|---|---|
| +35 | 3.1 |
| +30 | 3.8 |
| +25 | 4.7 |
| +20 | 5.9 |
| +15 | 7.3 |
| +10 | 9.3 |
| +5 | 11.9 |
| 0 | 15.3 |
| -5 | 19.8 |
| -10 | 25.9 |
| -15 | 34.1 |
| -20 | 45.3 |
| -25 | 60.8 |
| -30 | 82.3 |
| -35 | 112.8 |

## 6.2 Refrigerator- BioFresh appliance

**Interior light:**
**SKBes 4210**

Refrigerator compartment:
Wattage: approx. 3 watts
Voltage: approx. 13 volts/DC, with LED lighting connected.
approx 13 volts/DC, with LED lighting disconnected
Current: 350 mA

BioFresh compartment:
Wattage: approx. 1 watt
Voltage: approx. 13 volts/DC, with LED lighting connected.
approx. 13 volts/DC, with LED lighting disconnected.
Current: 350 mA

**Fan:**

Wattage: 1.6 watts
Voltage: 12 volts/DC
- 6V at low speed
- 9V at high speed
Speed: 2300 rpm
Direction of rotation: left (viewed from the front onto the fitted fan)

**BioFreshPlus heater:**

Wattage: 7 watts
Voltage: 230 volts/AC

**Air flaps:** Non-verifiable.

**Water tank:** Capacity: 0.75 litres

**Water filter:**
Capacity: 0.25 litres
Filter change: 200 days

## 6.3 Freezer

| | | | |
|---|---|---|---|
| **Motor of feed screw/ crusher:** | Wattage: | 75 | watts |
| | Voltage: | 230 | volts |
| **Magnet-operated switch of ice flap:** | Wattage: | 60 | watts |
| | Voltage: | 230 | volts |
| **Heater dispensing chute:** | Wattage: | 2.6 | watts |
| | Voltage: | 13.3 | volts |
| **LED interior light:** | Wattage: | 2 | watts |
| | Voltage: | 230 | volts |
| **Fan:** | Wattage: | 1.9 | watts |
| | Voltage: | 230 | volts |
| | Speed: | 2100 | rpm |
| | Direction of rotation: | right (as viewed onto shaft), left (as viewed in the direction of the evaporator module) | |
| **Defrost heater:** | Wattage: | 259 | watts |
| | Voltage: | 230 | volts |
| **Temperature fuse:** | Tripping temperature: | 93°C (Is faulty after tripping and has to be replaced) | |

## 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 (only with freezer buttons!)

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

### 7.1 Brief survey of service menu

| Service menu | Menu | Operation | Submenu | Operation | Selection of functional part |
|---|---|---|---|---|---|
| **Manual defrosting** | H | 1x SF | H1 | 1x SF | A : Defrost heater ON |
| **Demo mode** | d | 1x SF | d0<br>d1 | 1x SF | Demo mode ON<br>Demo mode OFF |
| **Panel test** | P | 1x SF | P1 | 1x SF | Press sensor buttons, door sensor |
| **Sensor test** | E- | 1x SF | E1<br>Er<br>Eo<br>En<br>Ei | 1x SF | Up/ Down button ↓/↑<br>**Freezer compartment** : Sensors<br>**IceMaker** : Sensors<br>**Dispensing unit** : Sensors<br>**Water intake** : Sensors<br>**Refrigerator-BioFresh compartment** : Sensors |
| **Service mode** | L | 1x SF | L1<br>Lr<br>Lo<br>Ln<br>Li | 1x SF | Up/ Down button ↓/↑<br>**Freezer compartment** : Electric loads<br>**IceMaker** : Electric loads<br>**Dispensing unit** : Electric loads<br>**Water intake** : Electric loads<br>**Refrigerator-BioFresh compartment** : Electric loads |

↑ Up or Down button

↓ Up or Down button

| Service menu | Menu | Opera-tion | Sub-menu | Opera-tion | Selection of functional part | |
|---|---|---|---|---|---|---|
| **Sensor test** | E - | 1x SF | ↑ Up or Down button ↓ | | | |
| | | | E1 | 1x SF | Up/ Down button ↓/↑ | **Freezer compartment**<br>13 : Air sensor<br>14 : Evaporator sensor<br>1A : Door contact |
| | | | Er | 1x SF | Up/ Down button ↓/↑ | **IceMaker**<br>r1 : Sensor ice-cube tray<br>rA : Contact IceMaker drawer |
| | | | Eo | 1x SF | Up/ Down button ↓/↑ | **Dispensing unit**<br>oA : Left pedal<br>ob : Right pedal<br>oC : Ice flap dispensing unit |
| | | | En | 1x SF | Up/ Down button ↓/↑ | **Water intake**<br>nA : Double solenoid valve, main valve |
| | | | Ei | 1x SF | Up/ Down button ↓/↑ | **Refrigerator-BioFresh compartment**<br>i1 : Air sensor<br>i2 : Evaporator sensor<br>i0 : BioFresh air sensor<br>i6 : BioFreshPlus air sensor<br>i7 : Ambient air sensor<br>iA : Door contact |

| Service menu | Menu | Operation | Submenu | Operation | Selection of functional part |
|---|---|---|---|---|---|
| **Service menu** |  | 1x SF | ↑ Up or Down button ↓  | 1x SF | Up/ Down button ↓/↑ **Freezer compartment**<br>  : All OFF<br> : Compressor ON, low speed<br>  : Compressor ON, high speed<br> : Fan ON<br> : Defrost heater ON<br> : Light ON |
| | | | |  1x SF | Up/ Down button ↓/↑ **IceMaker**<br>  : All OFF<br>  : All OFF<br>*Press SuperFrost*<br>  : - Ice-cube tray moves to emptying position and back.<br>- 3 seconds activation water intake valve.<br>Press *ON/OFF button on IceMaker.*<br>  : All OFF<br>*Press SuperFrost*<br>  : - Ice-cube tray moves to emptying position.<br>- 25 seconds activation water intake valve. |
| | | | |  1x SF | Up/ Down button ↓/↑ **Dispensing unit**<br>  : All OFF<br>  : IceCrusher flap Open<br>  : Dispensing unit ice flap Open/Closed<br>  : Heater dispensing chute<br>  : Light left pedal ON<br>  : Light right pedal ON<br>  : Light dispensing unit ON<br>: Button LEDs |
| | | | |  1x SF | Up/ Down button ↓/↑  **Water intake**<br>  : All OFF<br>: All OFF<br>*Press SuperFrost*<br>  : Double solenoid valve, main valve<br>: All OFF<br>*Press SuperFrost*<br>  : Solenoid valve IceMaker<br>: All OFF<br>*Press SuperFrost*<br>  : Solenoid valve dispensing unit<br>: Not assigned |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | L1 | 1x SF | Up/ Down button ↓/↑ | **Refrigerator-BioFresh compartment**<br>: All OFF<br>: Compressor ON<br>: Light ON<br>: Fan, low speed<br>: Fan, high speed<br>: BioFreshPlus heater ON<br>: Refrigerator compartment air flap Open<br>: Refrigerator compartment air flap Closed<br>BioFreshPlus air flap Open<br>: BioFreshPlus air flap Closed<br>BioFresh air flap Open |

## 7.2 Manual defrosting H

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

## 7.3 Demo mode d

| 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 | H flashes | Service menu active |
| 2 | H flashes | Press "Up" once | d flashes | **Demo mode** selected |
| 3 | d flashes | Press "SF" once | d 1 Static | **Demo mode ON** selected |
| 4 | d 1 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 | d flashes and "**Demo**" | Service menu active |
| 2 | d flashes and "**Demo**" | Press "SF" once | d0 static and "**Demo**" | **Demo mode OFF** selected |
| 3 | d0 static and "**Demo**" | Press "SF" once | Actual value | **Demo mode OFF** |
| The text "**Demo**" in the display informs of the **activated demo mode**.<br>**Demo mode** can be deactivated only via service menu, not by OFF/ON or disconnection from the supply.<br>**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** | | | | SC = SuperCool |
| 1 | Actual value | Press "**Up**" and "**ON/OFF**" simultaneously for 5 seconds |  flashes | Service menu active |
| **Panel test**<br>**-- test of sensor buttons, display elements, door sensor and beep --** | | | | |
| 2 |  flashes | Press "Up" once |  flashes | **Panel test** selected |
| 3 |  flashes | Press "SC" once |  Static | **Panel test activated** |
| 4 |  Static | Press "SC" once | All symbols/segments | Display elements/ More symbols are displayed than the respective electronic control system uses! |
| 5 | All symbols/segments | Door closed/open and press all buttons one after the other<br><br>(each operation is confirmed by beep) | - Beep for 2 seconds<br>- Appliance switches OFF<br>→ display dark | After the last button has been pressed, a beep sounds for 2 seconds, provided the test was successful. |
| **End** | Panel test cannot be ended in step 2, for example, it has to be performed in full.<br>Should a **button/reed contact be defective**, **no 2-second beep** sounds and the **appliance does not switch OFF**.<br>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 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 | E1 Static | **Sensor test mode *Freezer compartment* selected** |
| 6 → 4 | E1 Static | Press "SF" once | 13 flashes alternately with sensor temperature | Sensor test mode *Freezer compartment* activated **Freezer compartment air sensor** |
| 5 | 13 flashes alternately with sensor temperature | Press "Up" once | 14 flashes alternately with sensor temperature | Freezer compartment evaporator sensor |
| 4 ← 6 | 14 flashes alternately with sensor temperature | Press "Up" once | 1A 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 E1 . Points: E1 Er, E9 En E, selectable<br>Press "**ON/OFF**" twice: Return to level 1 E- . Points: d, P, E-, L selectable<br>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 | flashes | Service menu active |
| **Sensor test and door contact test** (sensor values without offset, appliance in control mode) | | | | |
| 2 | flashes | Press "Up" three times | flashes | **Sensor test mode** selected |
| 3 | flashes | Press "SF" once | Static | **Sensor test mode *Freezer compartment* selected** |
| 4 | Static | Press "Up" once | flashes alternately with sensor temperature | **Sensor test mode *IceMaker* selected** |
| 6 → 5 | flashes alternately with sensor temperature | Press "SF" once | flashes alternately with sensor temperature | Sensor test mode *IceMaker* activated **Sensor ice cube tray** |
| 5 ← 6 | flashes alternately with sensor temperature | Press "Up" once | flashes alternately with oP or cL | **Contact IceMaker drawer** (oP=drawer open, cL=drawer closed) |
| **End** | Press "**ON/OFF**" once: Return to level 2 . Points: , , , selectable<br>Press "**ON/OFF**" twice: Return to level 1 . Points: , , , selectable<br>Press "**ON/OFF**" three times: Return to normal/control mode | | | |

### 7.5.3 Dispensing unit E0

| 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 | E1 Static | **Sensor test mode *Freezer compartment* selected** |
| 4 | E1 Static | Press "Up" twice | E0 Static | **Sensor test mode*Dispensing unit* selected** |
| 7 → 5 | E0 Static | Press "SF" once | oA flashes alternately with oP or cL | Sensor test mode Dispensing unit activated **Left pedal (cL = actuated)** |
| 6 | oA flashes alternately with oP or cL | Press "Up" once | ob flashes alternately with oP or cL | **Right pedal (cL = actuated)** |
| 5 ← 7 | ob flashes alternately with sensor temperature | Press "Up" once | oc flashes alternately with oP or cL | **Ice flap dispensing unit** (oP=ice flap closed, cL=ice flap open) *Only when dispensing unit ON and left pedal is actuated!* |
| **End** | Press "**ON/OFF**" once: Return to level 2 E0. Points: E1 Er, E0, En E1 selectable<br>Press "**ON/OFF**" twice: Return to level 1 E- . Points: d, P, E-, L selectable<br>Press "**ON/OFF**" three times: Return to normal/control mode | | | |

### 7.5.4 Water intake

| 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 |
| **Sensor test and door contact test** (sensor values without offset, appliance in control mode) | | | | |
| 2 | flashes | Press "Up" three times | flashes | **Sensor test mode** selected |
| 3 | flashes | Press "SF" once | Static | **Sensor test mode *Freezer compartment* selected** |
| 4 | Static | Press "Up" three times | Static | **Sensor test mode *Water intake* selected** |
| 5 | Static | Press "SF" once | flashes alternately with oP or cL | Sensor test mode Water intake activated **Double solenoid valve, main valve** (oP = open, cL = closed) |
| **End** | Press "**ON/OFF**" once: Return to level 2 . Points: , , , , selectable<br>Press "**ON/OFF**" twice: Return to level 1 . Points: , , , selectable<br>Press "**ON/OFF**" three times: Return to normal/control mode | | | |

### 7.5.5 Refrigerator-BioFresh compartment E1

| 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 | E1 Static | **Sensor test mode *Freezer compartment* selected** |
| 9 → 4 | E1 Static | Press "Up" four times | E1 Static | **Sensor test mode *Refrigerator-BioFresh compartment* selected** |
| 10 → 5 | E1 Static | Press "SF" once | i01 flashes alternately with sensor temperature | **Refrigerator compartment air sensor** |
| 6 | i01 flashes alternately with sensor temperature | Press "Up" once | i02 flashes alternately with sensor temperature | **Refrigerator compartment evaporator sensor** |
| 7 | i02 flashes alternately with sensor temperature | Press "Up" once | i04 flashes alternately with sensor temperature | **BioFresh air sensor** |
| 8 | i04 flashes alternately with sensor temperature | Press "Up" once | i06 flashes alternately with sensor temperature | **BioFreshPlus air sensor** |
| 9 | i06 flashes alternately with sensor temperature | Press "Up" once | i07 flashes alternately with sensor temperature | **Ambient air sensor** |
| 5 ← 10 | i07 flashes alternately with sensor temperature | Press "Up" once | i08 flashes alternately with oP or cL | **Refrigerator compartment door contact** (oP=door open, cL=door closed) |
| **End** | Press "**ON/OFF**" once: Return to level 2 E1 . Points: E1, E2, E3, E4, E5 selectable<br>Press "**ON/OFF**" twice: Return to level 1 E- . Points: d, P, E-, L selectable<br>Press "**ON/OFF**" three times: Return to normal/control mode | | | |

## 7.6 Service mode

### 7.6.1 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** ***Freezer compartment*** **activated** | |
| 9 → 4 | Static | Press "SF" once | Static | **All OFF** | -- |
| 5 | Static | Press "Up" once | Static | - Freezer compartment compressor ON, low speed | -- |
| 6 | Static | Press "Up" once | Static | **- Freezer compartment compressor ON, high speed** | -- |
| 7 | Static | Press "Up" once | Static | **Freezer compartment fan ON** | 1.9 watts |
| 8 | Static | Press "Up" once | Static | **Freezer compartment defrost heater ON** | 259 watts |
| 4 ← 9 | Static | Press "Up" once | Static | **Freezer compartment light ON** | 2 watts |
| **End** | Press "**ON/OFF**" once: Return to level 2 : Items: selectable.<br>Press "**ON/OFF**" twice: Return to normal/control mode | | | | |

1) **Power input = power input of the load in the respective test 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 | 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 Freezer compartment selected** | |
| 4 | flashes | Press "Up" once | Static | **Service mode *IceMaker* activated** | |
| 11 → 5 | Static | Press "SF" once | Static | **All OFF** | -- |
| 6 | Static | Press "Up" once | flashes alternately with | **All OFF** | -- |
| 7 | flashes alternately with | Press "SF" once | flashes alternately with | **- Ice-cube tray emptied, back to home position<br>- 3 seconds activation water intake valve** | --<br>3 watts |
| 8 | flashes alternately with | IceMaker Press ON/OFF button | flashes alternately with | **All OFF** | -- |
| 9 | flashes alternately with | Press "Up" once | flashes alternately with | **All OFF** | -- |
| 10 | flashes alternately with | Press "SF" once | flashes alternately with → | **- Ice-cube tray emptied<br>- 25 seconds activation water intake valve**<br>After 25 seconds have elasped, again flashes alternately with | --<br>3 watts |
| 5 ← 11 | flashes alternately with | - Press IceMaker ON/OFF button (→ switch ON)<br>- Close drawer | flashes alternately with | **Ice-cube tray returns to home position** | -- |
| **End** | Press "**ON/OFF**" once: Return to level 2 : Items: , , , , selectable.<br>Press "**ON/OFF**" twice: Return to normal/control mode | | | | |

1) **Power input = power input of the load in the respective test step!**

### 7.6.3 Dispensing unit L0

| 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 | L1 Static | **Service mode Freezer compartment selected** | |
| 4 | L1 Static | Press "Up" twice | L0 Static | **Service mode *Dispensing unit* activated** | |
| 9 → 4 | L0 Static | Press "SF" once | 00 Static | **All OFF** | -- |
| 5 | 00 Static | Press "Up" once | 01 Static | **IceCrusher flap open/closed** | -- |
| 6 | 01 Static | Press "Up" once | 02 Static | **Dispensing unit ice flap open/closed** | -- |
| 7 | 02 Static | Press "Up" once | 03 Static | **Heater dispensing chute** | 2.6 watts |
| 8 | 03 Static | Press "Up" once | 04 Static | **Light left pedal ON** | -- |
| 4 ← 9 | 04 Static | Press "Up" once | 05 Static | **Light right pedal ON** | -- |
| 4 ← 9 | 05 Static | Press "Up" once | 06 Static | **Light dispensing unit ON** | -- |
| 4 ← 9 | 06 Static | Press "Up" once | 07 Static | **Button LEDs dispensing unit** | -- |
| **End** | Press "**ON/OFF**" once: Return to level 2 L0 Items: L1 , L7 , L8 , L9 , L1 selectable.<br>Press "**ON/OFF**" twice: Return to normal/control mode | | | | |

1) **Power input = power input of the load in the respective test step!**

### 7.6.4 Water intake 

| 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**<br>**Freezer compartment selected** | |
| 4 |  flashes | Press "Up" three times |  Static | **Service mode**<br>***Water intake* activated** | |
| 12 → 5 |  Static | Press "SF" once |  Static | **All OFF** | -- |
| 6 |  Static | Press "Up" once |  flashes alternately with  | **All OFF** | -- |
| 7 |  flashes alternately with  | Press "SF" once |  flashes alternately with  | **Double solenoid valve, main valve** | -- |
| 8 |  flashes alternately with  | Press "Up" once |  flashes alternately with  | **All OFF** | -- |
| 9 |  flashes alternately with  | Press "SF" once |  flashes alternately with  | **Solenoid valve, IceMaker** | -- |
| 10 |  flashes alternately with  | Press "Up" once |  flashes alternately with  | **All OFF** | -- |
| 11 |  flashes alternately with  | Press "SF" once |  flashes alternately with  | **Solenoid valve dispensing unit** | -- |
| 5 ← 12 |  flashes alternately with  | Press "Up" once |  Static | **Not assigned** | -- |

| | |
|---|---|
| **End** | Press "**ON/OFF**" once: Return to level 2 : Items: , , , , selectable.<br>Press "**ON/OFF**" twice: Return to normal/control mode |

1) **Power input = power input of the load in the respective test step!**

### 7.6.5 Refrigerator-BioFresh 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 | |
| **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 | L' Static | **Service mode Freezer compartment selected** | |
| 4 | L' Static | Press "SF" once | L, Static | **Service mode *Refrigerator-BioFresh compartment* activated** | |
| 9 → 4 | L, Static | Press "SF" once | ,0 Static | **All OFF** | -- |
| 5 | ,0 Static | Press "Up" once | ,1 Static | **Compressor ON** | -- |
| 6 | ,1 Static | Press "Up" once | ,5 Static | **Light ON** | 4 watts |
| 7 | ,5 Static | Press "Up" once | ,7 Static | **Fan, low speed** | 1.6 watts |
| 8 | ,7 Static | Press "Up" once | ,8 Static | **Fan, high speed** | -- |
| 8 | ,8 Static | Press "Up" once | ,d Static | **BioFreshPlus heater ON** | 7 watts |
| 8 | ,d Static | Press "Up" once | ,h Static | **Refrigerator compartment air flap open** | -- |
| 8 | ,h Static | Press "Up" once | ,L Static | **- Refrigerator compartment air flap closed<br>- BioFreshPlus air flap open** | -- |
| 4 ← 9 | ,L Static | Press "Up" once | ,n Static | **- BioFreshPlus air flap closed<br>- BioFresh air flap open** | -- |
| **End** | Press "**ON/OFF**" once: Return to level 2 L, Items: L', LC, Lo, Ln, L, selectable.<br>Press "**ON/OFF**" twice: Return to normal/control mode | | | | |

1) **Power input = power input of the load in the respective test step!**

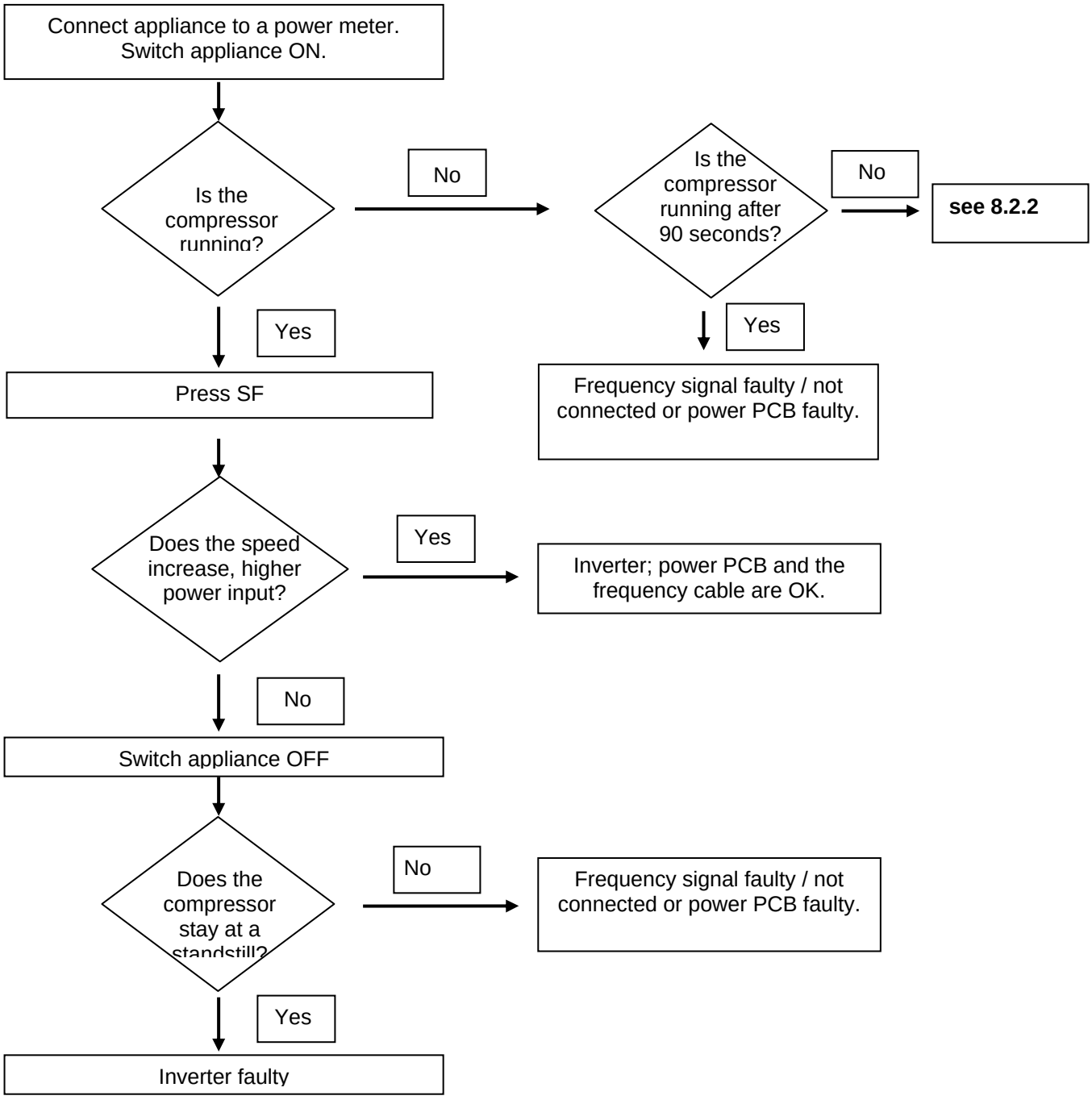
# 8.0 Error code, troubleshooting

## 8.1 Table of error codes

| Error code | Defective component | Emergency mode |
|---|---|---|
| F0 | BioFresh air sensor | Compressor 10 minutes ON and 40 minutes OFF. |
| F1 | Refrigerator compartment air sensor | Compressor 10 minutes ON and 40 minutes OFF. |
| F2 | Refrigerator compartment 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 |
| F6 | BioFreshPlus air sensor | Compressor 10 minutes ON and 40 minutes OFF. |
| F7 | Ambient air sensor | Ambient temperature of +25°C is preset<br>**Sensor error can be queried only in the service menu under the sensor test step "E".** |
| nC<br>(not Connected) | - SKBes not connected to mains.<br>- Connecting module not connected.<br>- Bus connector on SKBes power PCB, no contact.<br>- Bus connector on SKBes horizontal separating plate, no contact. | -- |

## 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** (not even after a waiting time of 90 secs)