

Appliance Documentation

GN 19.3 from Index 20 Comfort

GN 23.3 from Index 20 Comfort

GN 27.3 from Index 20 Comfort

GN 30.3 from Index 20 Comfort

NoFrost freezer



GN 1913

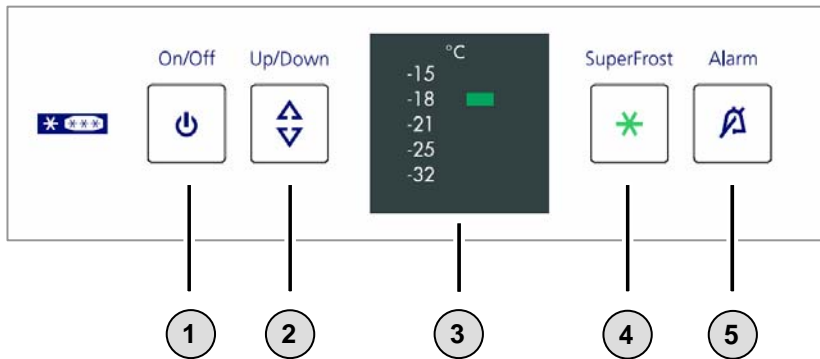


GN 2313

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1.0 Operating and control elements



Freezer compartment

- | | | |
|---|----------------------------|--|
| 1 | ON/OFF | ON/OFF button |
| 2 | Up/Down | Setting button higher/lower temperature |
| 3 | Temperature display | |
| 4 | SuperFrost | SuperFrost function |
| 5 | Alarm | Alarm OFF button for audible alarm |

2.0 Functions at a glance

Control:	Electronic control system
Temperature display:	Set value
Temperature range:	-15°C, -18°C, -21°C, -25°C, -32°C
Temperature alarm:	Visual and audible
Door alarm:	Audible
Fan:	Fitted
Defrosting:	Automatic
Interior light:	Not fitted
Service menu:	Fitted
Compressor:	Standard
Solenoid valve refrigeration circuit:	Not fitted

3.0 Description of the appliance

The **GN ..13** is a NoFrost freezer with a series 3 control system with setpoint display.

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.

3.1 Sensor positions, schematic diagrams



Fig. 3.1 / 1

Fan
Evaporator sensor
Air sensor

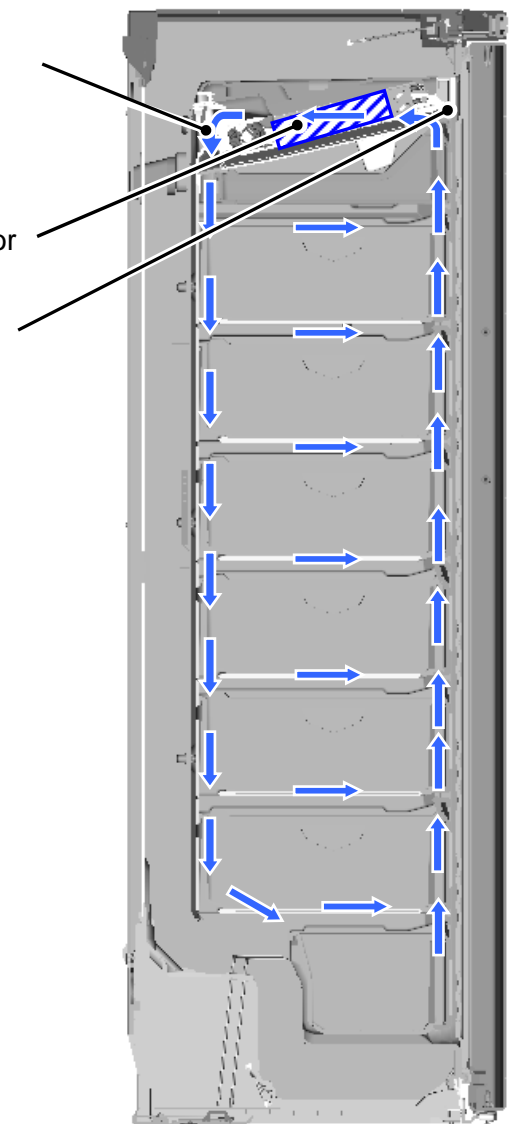


Fig. 3.1 / 2

4.0 Main components and their functions

4.1 Electrical components and functions

4.1.1 General

Electronic control system

Type: Series 3 electronic control system

Components: - Control panel electronics
- Power module electronics

Compressor

Type: Standard

Function: **ON:** Air sensor switch-on value.
Note: On-delay time (8 minutes) must have elapsed.

OFF: Air sensor switch-off value
or
during defrosting

Switch

Door switch: Position: In front panel
Type: Reed contact
Contact type: Make contact
Function: Activation via:
magnet on the door, magnet is replaceable.

Switching signal when:

door closed: fan ON

door open: 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	ON/OFF	OPEN	OFF
Switch off value	ON/OFF	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:

- during start-up: -25°C
- In the normal mode 2K colder than air sensor

4.1.2 Freezer compartment

Electronic control system

Setting range: -15°C / -18°C / -21°C / -25°C / -32°C

Display range: -15°C / -18°C / -21°C / -25°C / -32°C

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).

Defrosting: The defrosting phase is initiated:

- During start-up after 3 hours cumulative compressor running time.
- After a cumulative compressor running time of 3 to 60 hours maximum, depending on the number/duration of the door openings.

As the defrosting phase begins, the compressor and fan are switched OFF and the defrost heater is switched ON.

The defrost heater remains switched ON until such time as

- the freezer evaporator sensor has reached +22°C

or

- a max. defrosting time of 50 minutes has been reached.

After the end of the heating phase, the compressor is switched ON with a 10-minute delay. Fan ON, from -25°C.
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: **SuperFrost activated:**

Cooling of the freezer compartment with full refrigeration performance (time-controlled, 65 hours).

SuperFrost deactivated:

The appliance sets itself to the set value.

Sensors

Air sensor:

Position:	Behind the front panel of the evaporator module.
Function:	- Switches the compressor ON/OFF.

Evaporator sensor:

Position:	Slipped into the lamellar evaporator.
Function:	- Ends the defrosting phase. - Switches the fan ON/OFF.

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	ON/OFF	OPEN	OFF
Switch off value	ON/OFF	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: Control via electronic system.

Defrost heater ON:

- Depending on the number and duration of door openings, the electronic system calculates the defrost cycles between 3-60 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!

4.2 Refrigeration components and functions

4.2.1 General

Compressor	
Compressor:	Standard
Frame heater	
Position:	Foamed-in in the housing, in the region of the magnetic door seal.

4.2.2 Freezer compartment

Evaporator	
Type of design:	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 system

Covers: Remove using screwdriver.



Fig. 5.1.1/ 1 Cover left fastening screw



Fig. 5.1.1/ 2 Cover right fastening screw

Front panel: Undo screws of front panel.



Fig. 5.1.1/ 3 Left screw



Fig. 5.1.1/ 4 Right screw

PCB carrier: Raise and rest the front panel and disengage the PCB carrier.

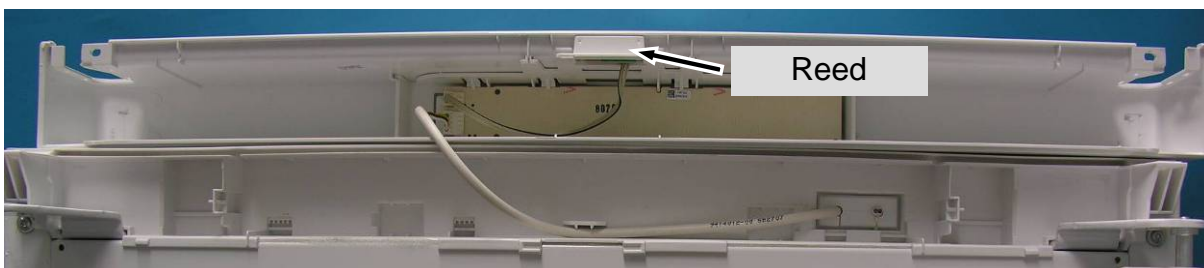


Fig. 5.1.1/ 5 PCB carrier in front panel

Electronic control system: Disengage electronic module from PCB carrier.

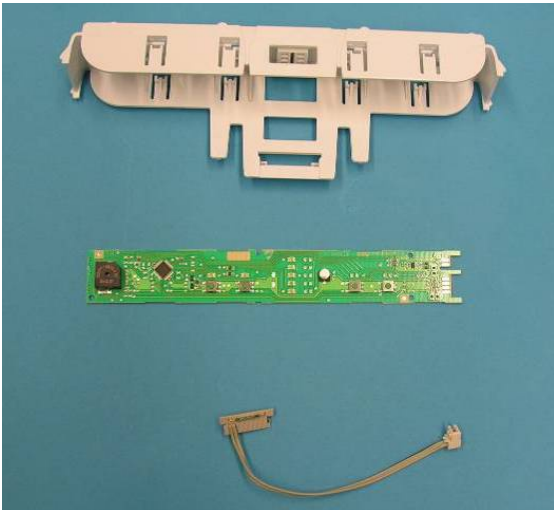


Fig. 5.1.1/ 6 PCB carrier and electronic module

5.1.2 Electronic power module

Attention: Pull out the power plug!

Electronic power module cover:

- Disengage marked retaining clips.
- Swing out the cover at the bottom and lift for removal.

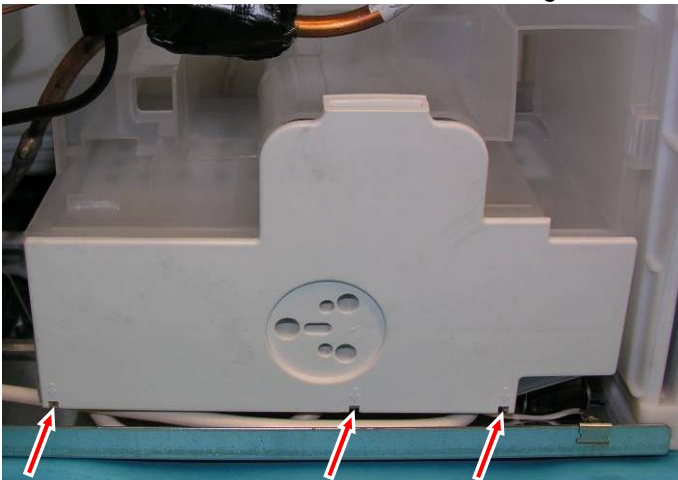


Fig. 5.1.2 / 1

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

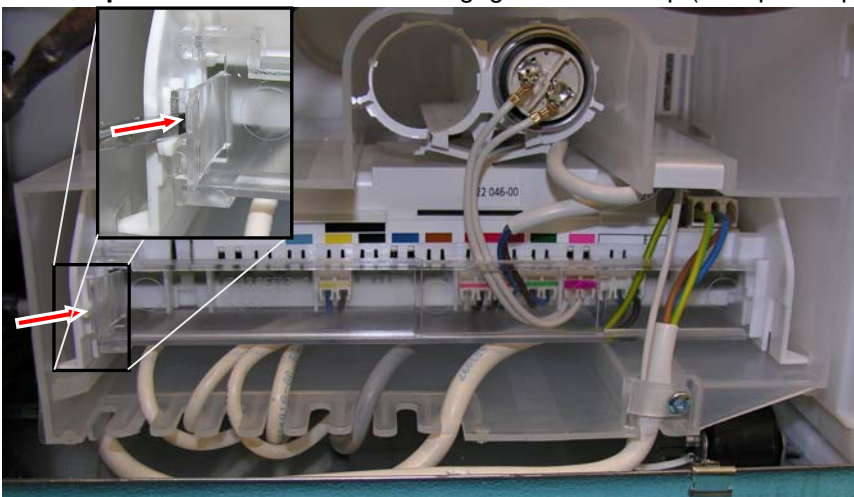


Fig. 5.1.2 / 2

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

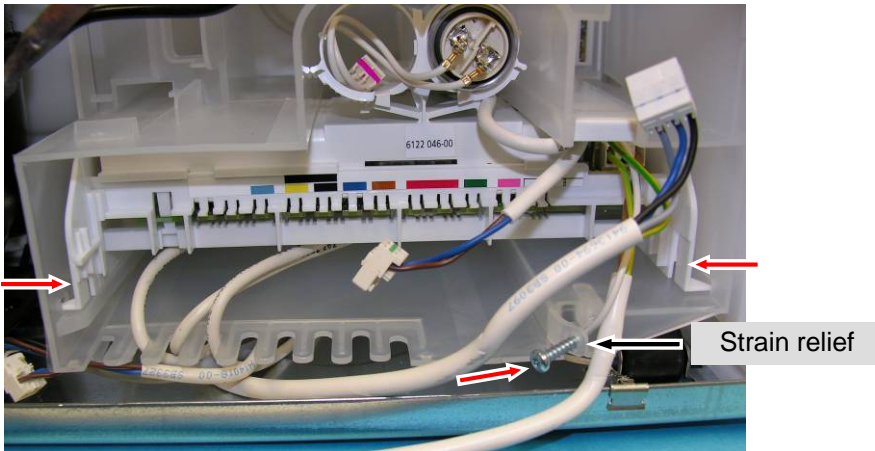


Fig. 5.1.2 / 3

Plug-in module:

- Detach rear PCB edge connector.

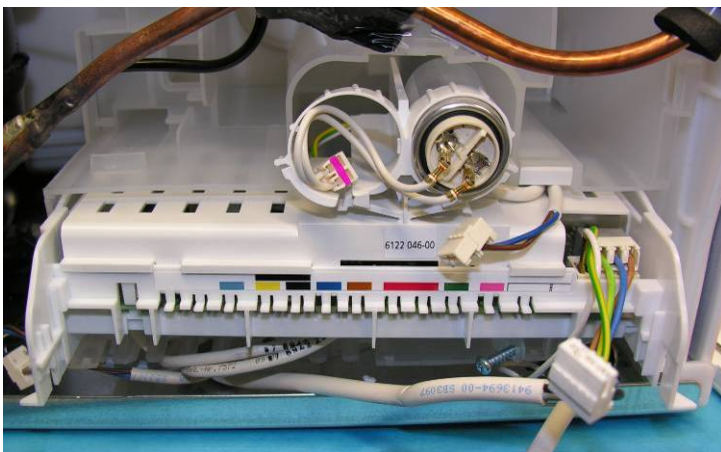


Fig. 5.1.2 / 4

Electronic power module:

- Disengage the locking hooks at the "holder for capacitors".
- Disengage electronic power module at the marked locations (Fig. 5.1.2/ 6).

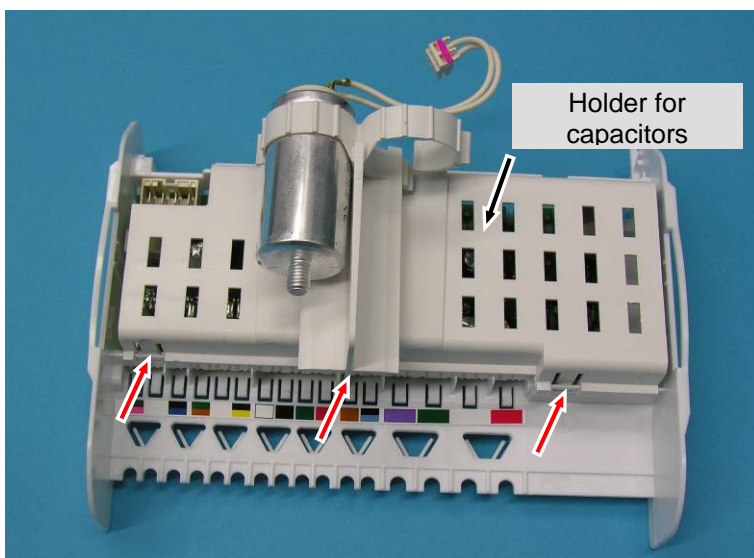


Fig. 5.1.2 / 5

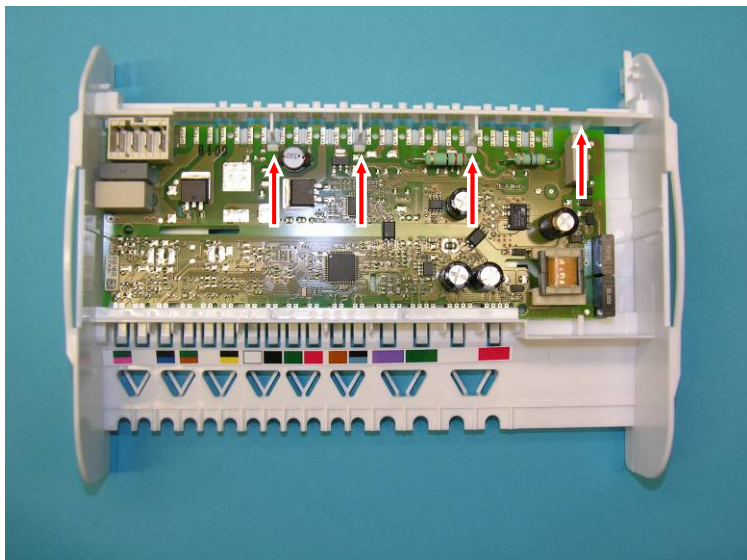


Fig. 5.1.2 / 6

5.1.3 Bottom door hinge

Turn hinge cover: Disengage the cover in the marked direction and draw it forwards for removal (Fig. 5.1.3/ 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. 5.1.3/ 2). Notch has to point forwards for re-assembly.

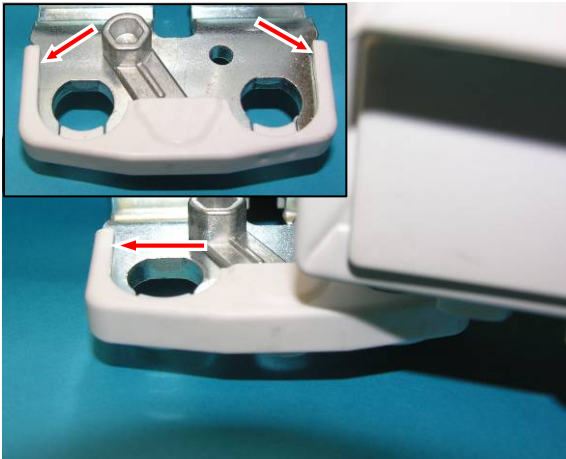


Fig. 5.1.3/ 1 Turn hinge cover

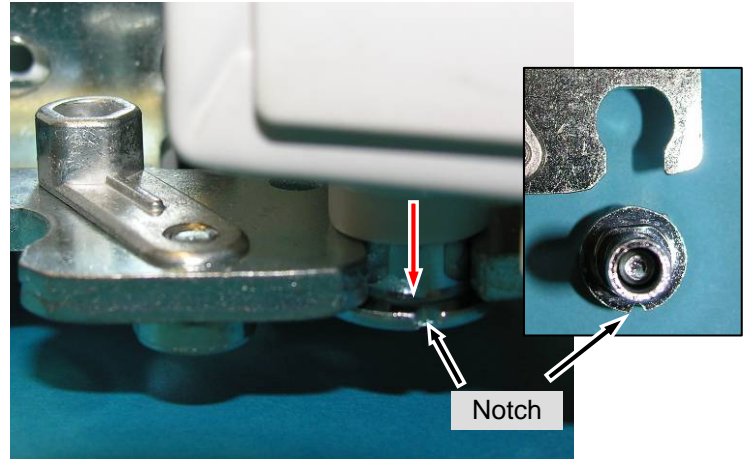


Fig. 5.1.3/ 2 Bearing pin

Spring clip: Depress the holder and remove the spring clip. Has to be transferred to the opposite side if the door hinges are changed (Fig. 5.1.3/ 3).

Bottom bearing part: Bottom bearing part has to be transferred if the door hinges are changed (Fig. 5.1.3/ 4).

Slot: Screw can be transferred to slot for better door adjustment (Fig. 5.1.3/ 4).

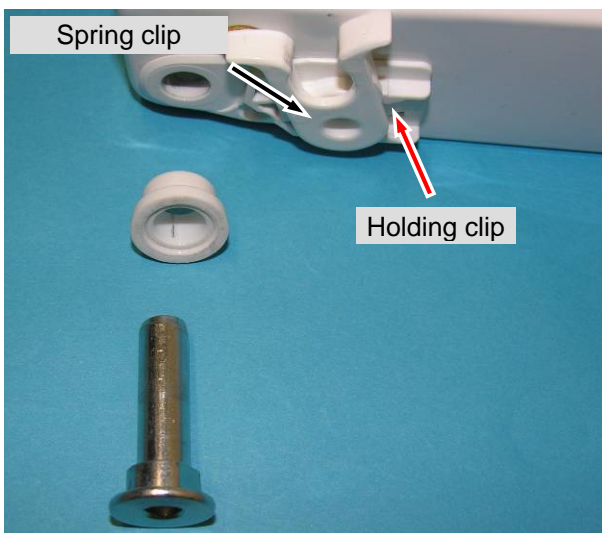


Abb. 5.1.3/ 3 Spring clip

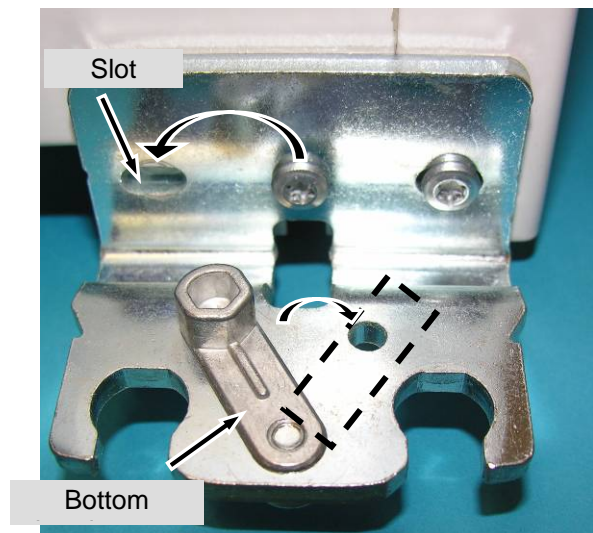


Fig. 5.1.3 / 4

5.1.4 Door magnet, reed contact

Magnet holder: The holder of the door magnet is located on the top edge of the door and can be levered off.

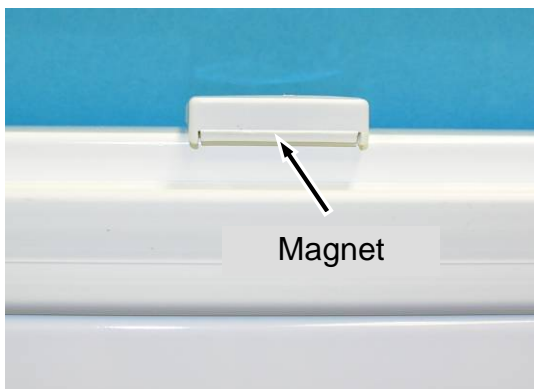


Fig. 5.1.4/ 1 Door magnet, magnet holder

Reed contact : The reed contact is in the front housing.

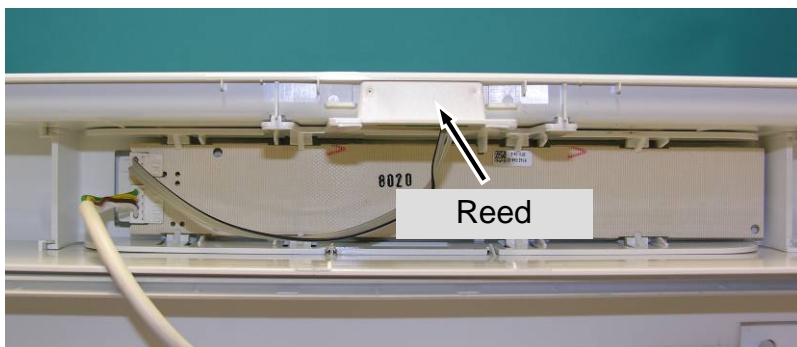


Fig. 5.1.4/ 2 Reed contact

5.2 Freezer compartment

5.2.1 Disengaging the parts locking the evaporator module, folding down the evaporator module

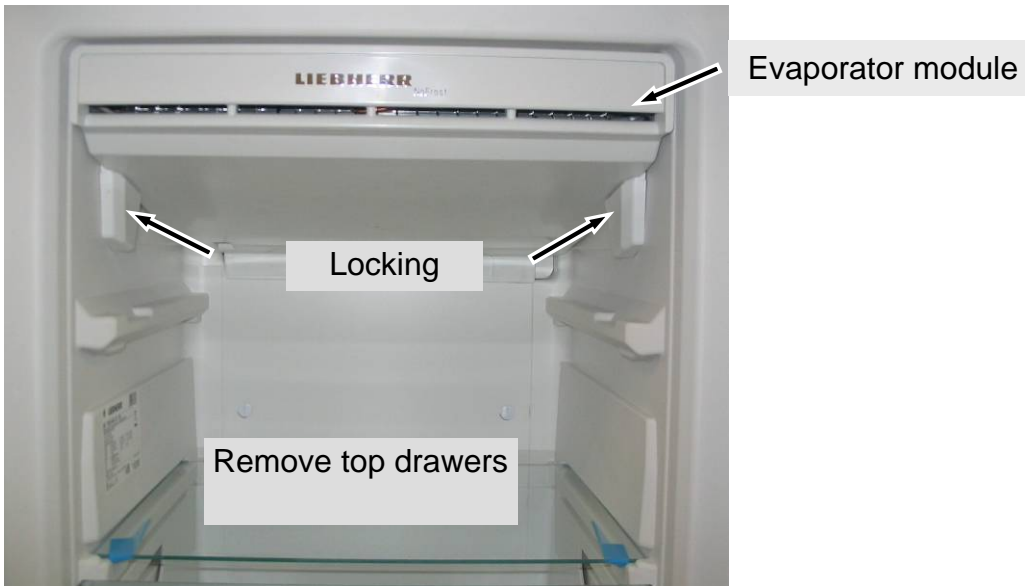


Fig. 5.2.1/ 1 Evaporator module

Locking parts: Are snapped into place at the right and left for locking the evaporator module.

Transit support: Remove adhesive tape securing the "top polystyrene moulding" in transit, is no longer needed for assembly.

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

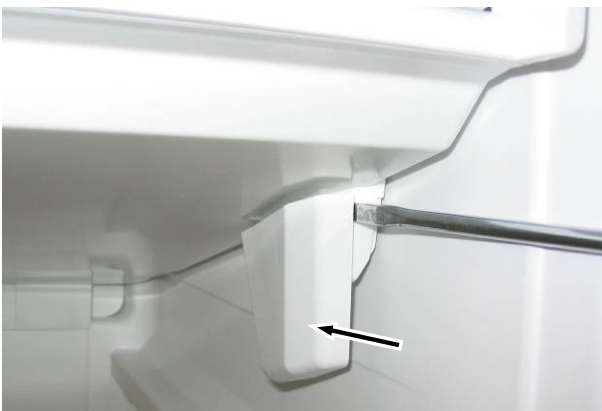


Fig. 5.2.1/ 2 Remove locking part



Fig. 5.2.1/ 3 Remove adhesive tape

5.2.2 Evaporator sensor

Evaporator module: Dismantle evaporator module as described under, **5.2.1 Disengaging the parts locking the 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).

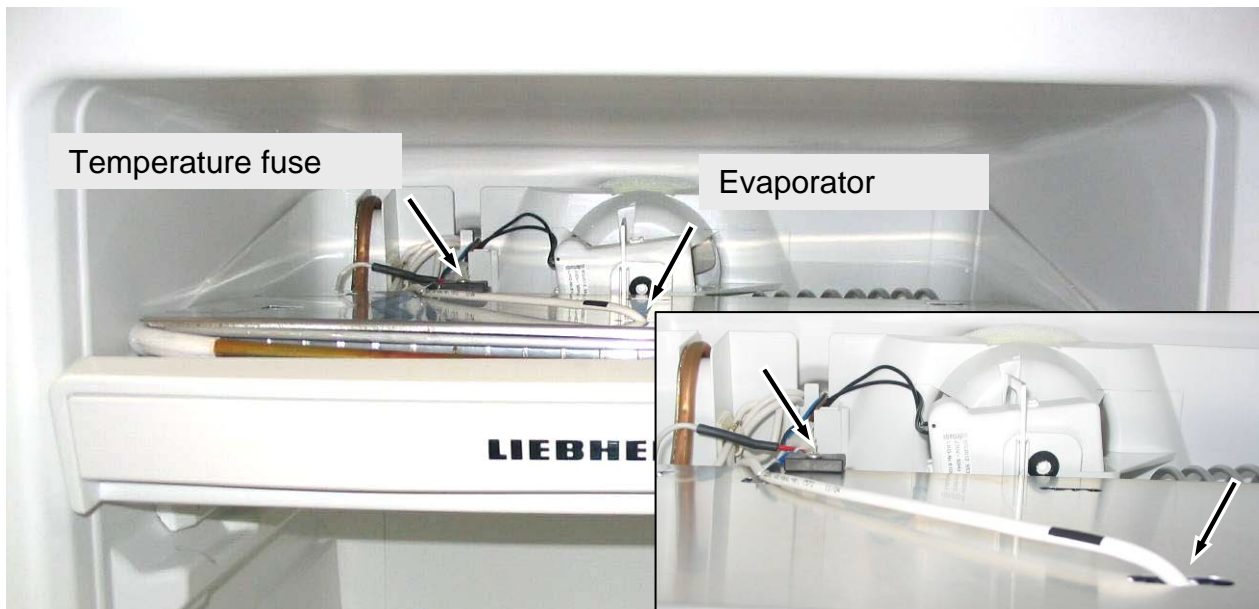


Fig. 5.2.2/ 1 Evaporator module folded down

5.2.3 Air sensor

Evaporator module: Dismantle evaporator module as described under, **5.2.1 Disengaging the parts locking the 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. 5.2.3/ 1 Removal of the polystyrene

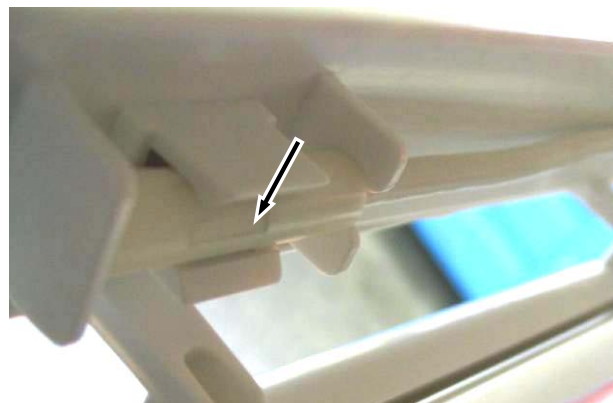


Fig. 5.2.3/ 2 Air sensor

5.2.4 Temperature fuse

Evaporator module: Dismantle the evaporator module as described under **5.2.1 Disengaging the parts locking the evaporator module**.

Temperature fuse: Fastened by a screw. (see **Fig. 5.2.2/ 1 Evaporator module folded down**)
Please note in case of 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.

5.2.5 Fan

Evaporator module: Dismantle evaporator module as described under, **5.2.1 Disengaging the parts locking the 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.

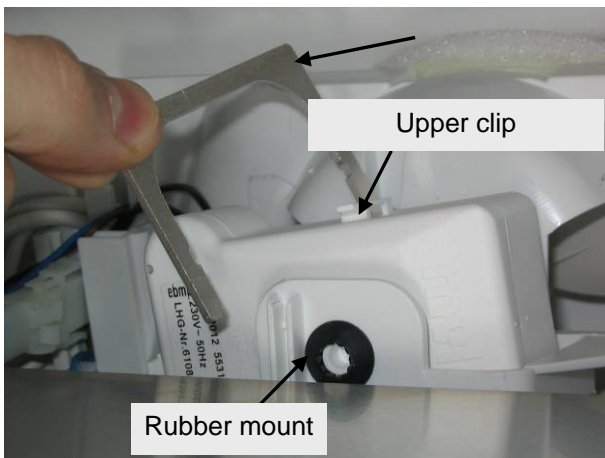


Fig. 5.2.5/ 1 Safety plate, fan



Fig. 5.2.5/ 2 Dismantling fan blade

6.0 Technical data

6.1 General

Sensor values: 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 Freezer compartment

Fan:
GN ..13
 Wattage: 4.5 watts
 Voltage: 230 volts
 Speed: 2500 rpm
 Direction of rotation: right (as viewed onto shaft), left (as viewed in the direction of the evaporator module)

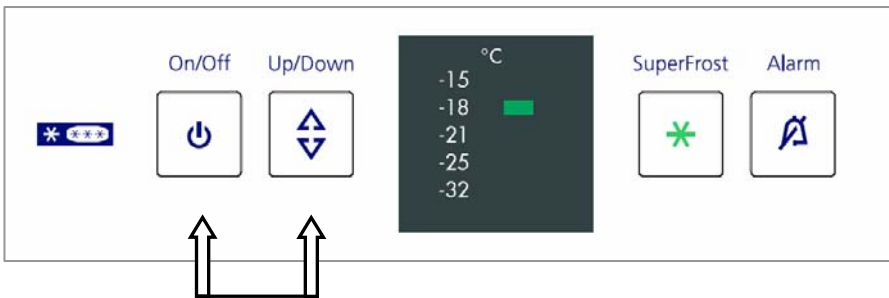
Fan:
GN ..23
 Wattage: 1.9 watts
 Voltage: 230 volts
 Speed: 2500 rpm
 Direction of rotation: right (as viewed onto shaft), left (as viewed in the direction of the evaporator module)

Defrost heater:
 Wattage: 259 watts
 Voltage: 230 volts

Temperature fuse: Tripping temperature: 93°C

7.0 Service menu

The service menu may be used by service technicians only.



Activation of service menu: Appliance has to be switched ON
 Press "Up/Down" + "ON/OFF" simultaneously for about 5 seconds

Once the **service menu is activated**, the "SuperFrost LED" flashes.

Service menu:	-15°C LED:	Manual defrosting	activation of the defrost heater
	-18°C LED:	Panel test	Test of controls and displays
	-21°C LED:	Service mode	Addressing electric loads
	-25°C LED:	Demo mode	Appliance is switched ON, without refrigeration
	-32°C LED:	<i>No function</i>	

7.1 Brief survey of service menu

Service menu	Menu	Operation	Selection of functional part															
Manual defrosting	-15°C LED	1x SF	Defrosting activated -15°C LED and -32°C LED flash alternately with SuperFrost LED															
Demo mode	↑ -25°C LED static ----- -25°C LED flashes fast	1x SF	Demo mode activated															
			Demo mode deactivated															
Panel test	-18°C LED	1x SF	Press buttons, door sensor															
Service mode	↓ -21°C LED	1x SF	<table border="0"> <tr> <td>↑</td> <td>LEDs OFF</td> <td>: All OFF</td> </tr> <tr> <td></td> <td>-15°C LED</td> <td>: Compressor ON</td> </tr> <tr> <td></td> <td>-15°C LED,</td> <td></td> </tr> <tr> <td></td> <td>-18°C LED</td> <td>: Fan ON</td> </tr> <tr> <td>↓</td> <td>-21°C LED</td> <td>: Defrost heater ON</td> </tr> </table>	↑	LEDs OFF	: All OFF		-15°C LED	: Compressor ON		-15°C LED,			-18°C LED	: Fan ON	↓	-21°C LED	: Defrost heater ON
			↑	LEDs OFF	: All OFF													
	-15°C LED	: Compressor ON																
	-15°C LED,																	
	-18°C LED	: Fan ON																
↓	-21°C LED	: Defrost heater ON																

7.2 Manual defrosting (-15°C LED)

Step	Display	Operation	Display following operation	Testing option / Info
Service menu start				SF = SuperFrost
1	Set value	Press "Up/Down" and "ON/OFF" simultaneously for 5 seconds	-15°C LED static SuperFrost LED flashes	Service menu active Manual defrosting selected
Manual defrosting -- activation of the defrost heater --				
2	-15°C LED static SuperFrost LED flashes	Press "SF"	-15°C LED + -32°C LED flash alternately with SF LED	Manual defrosting activated
End	Appliance switch OFF or automatic when defrost parameters reached. During manual defrosting, the -15°C LED and -32°C LED always flash alternately with the SuperFrost LED. The setpoint value can be set and is also displayed, then return to manual defrosting display.			

7.3 Demo mode (-25°C LED)

Step	Display	Operation	Display following operation	Testing option / Info
Start service				SF = SuperFrost
1	Set value	Press "Up/Down" and "ON/OFF" simultaneously for 5 seconds	-15°C LED static SuperFrost LED flashes	Service menu active
Demo mode ON				
2	-15°C LED static SuperFrost LED flashes	Press "Up/Down" once	-25°C LED static SuperFrost LED flashes	Demo mode selected
3	-25°C LED static SuperFrost LED flashes	Press "SF" once	Setpoint -18°C LED	Demo mode ON
Demo mode OFF				
2	-25°C LED fast flash SuperFrost LED flashes	Press "SF" once	-18°C LED lights up briefly, then temperature display is dark until set temperature is reached	Demo mode OFF
If the appliance is switched OFF and ON again when the demo mode is activated, all the temperature LEDs are lit for 3 seconds as indication of the activated demo mode. Demo mode can be deactivated only via service menu, not by OFF/ON or disconnection from the supply.				

7.4 Panel test (-18°C LED)

Step	Display	Operation	Display following operation	Testing option / Info
Service menu start				SF = SuperFrost
1	Set value	Press "Up/Down" and "ON/OFF" simultaneously for 5 seconds	-15°C LED static SuperFrost LED flashes	Service menu active
Panel test -- test of sensor buttons, display elements, door sensor and beep --				
2	-15°C LED static SuperFrost LED flashes	Press "Up/Down" twice	-18°C LED static SuperFrost LED flashes	Panel test selected
3	-18°C LED static SuperFrost LED flashes	Press "SF" once	All temperature LEDs ON, all button LEDs ON	Panel test activated
4	All temperature LEDs ON, all button LEDs ON	Door open/closed and press all buttons one after the other (each operation is confirmed by 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.

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 Service mode (-21°C LED)

Step	Display	Operation	Display following operation	Testing option / Info
Service menu start				SF = SuperFrost
1	Set value	Press "Up" and "ON/OFF" simultaneously for 5 seconds	-15°C LED static SuperFrost LED flashes	Service menu active
Service mode -- testing electric loads--				Power input
2	-15°C LED static SuperFrost LED flashes	Press "Up/Down" three times	-21°C LED static SuperFrost LED flashes	Service mode selected
6=>3	-21°C LED static SuperFrost LED flashes	Press "SF" once	All temperature LEDs OFF, SuperFrost LED flashes fast	Service mode activated / All OFF
4	All temperature LEDs OFF, SuperFrost LED flashes fast	Press "Up/Down" once	-15°C LED and SuperFrost LED flash	Compressor ON ---
5	-15°C LED and SuperFrost LED flash	Press "Up/Down" once	-15°C LED, -18°C LED and SuperFrost LED flash	Fan ON 4.5 watts
3<=6	-15°C LED, -18°C LED and SuperFrost LED flash	Press "Up/Down" once	-21°C LED and SuperFrost LED flash	Defrost heater ON 259 watts
End	Press "ON/OFF" twice: Return to normal/control mode			

8.0 Error code, troubleshooting

8.1 Table of error codes

Error code	Defective component	Emergency mode
-15°C + -18°C + -21°C LED flash in synchronism with SF LED	Freezer compartment air sensor	- Continuous compressor operation - Continuous fan operation
-15°C + -25°C LED flash in synchronism with SF LED	Freezer compartment evaporator sensor	- Continuous compressor operation - Continuous fan operation