BOSCH
Thermadore – Bosch – Siemens Gaggenau

Repair Instructions

Refrigerator/Freezer Combination

(Bottom Mount)

REFRIGERATOR/FREEZER COMBINATION (BOTTOM MOUNT)

1 SAFETY

DANGER!

A faulty housing or frame may be live!

Hazardous voltages inside the appliance!

- To prevent electric shocks, always comply with the following instructions:
- Before commencing repairs, ALWAYS disconnect the appliance from the power supply!
- If tests have to be performed while the appliance is live, ALWAYS use a residual-current-operated circuit-breaker!
- Ensure that the protective conductor is connected correctly! This is essential for personal safety and appliance function.
- When repairs are complete, perform a test in accordance with VDE 0701 and a function and leak test.
- Do not touch any components in the appliance; even the modules are live.
- ALWAYS comply with the ESD regulations!

2 INSTALLATION

CAUTION

Read the instructions in the installation manual completely and carefully before you begin installation manual.

WARNING

These appliances are top heavy and must be secured to prevent the possibility of tipping forward.

Keep doors closed until the appliance is completely installed and secured per installation instructions.

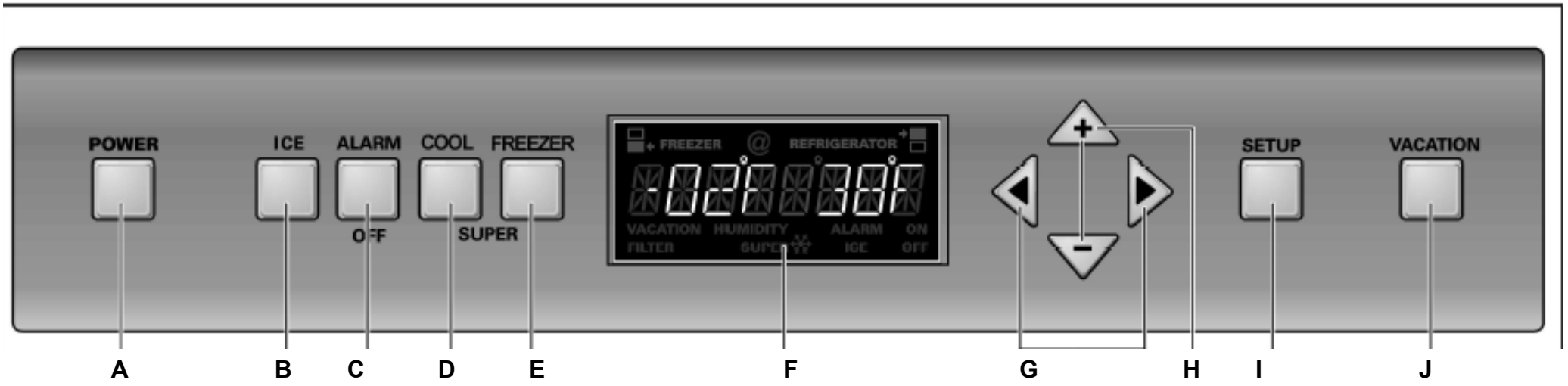
Due to size and weight of appliance and to reduce risk of personal injury or damage to the product – TWO PEOPLE ARE REQUIRED FOR PROPER INSTALLATION.

DANGER

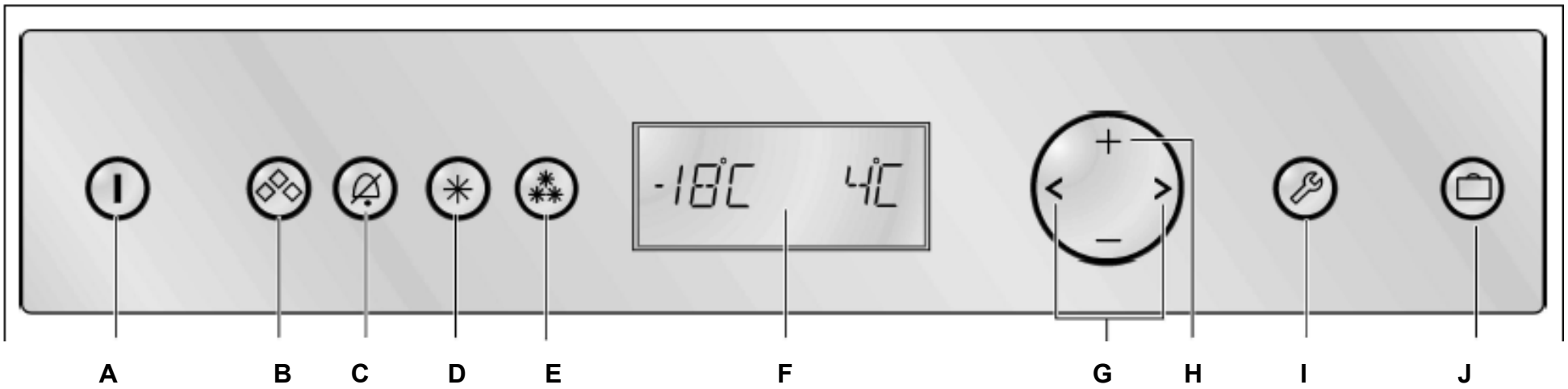
Avoid pinch/crush injury hazard –
Finger guard must be installed along the hinge side of the door for safety.

3 OPERATION

THERMADOR - BOSCH – SIEMENS



GAGGENAU



3.1 Power Button

Appliance will be switched on-off. **(A)**

3.2 Ice Button

Icemaker will be switched on-off. **(B)**

3.3 Alarm off Button

Switches the door and temperature alarm off. **(C)**

3.4 Super cool Button

The super cooling mode will be switched on-off. **(D)**

3.5 Super freezer Button

The super freezing mode will be switched on-off.**(E)**

3.6 Display

The selected required temperature is displayed. **(F)**

Activated special functions are shown using symbols. The menus and setting options which are available are represented on the fascia in the setup mode.

3.7 Arrow Button

With the arrow button (left or right) the target temperature adjustment is selected. **(G)**

3.8 Plus & Minus Button

The target temperature can be decreased and increased. **(H)**

From 8°C / 46 °F" to 2°C / 35°F and

From -14°C / 7°F" to -23°C / -9°F"

3.9 Setup Button

Setup menu will be switched on-off. **(H)**

- Press the setup button.
  →Afterwards the first menu item is displayed.
- Select the different menu items with the arrow buttons.
- Change with the plus and minus buttons the settings in the menu items
- The setting in the menu items will be stored when
  - the menu item will be left or
  - the setup menu ended with the setup button

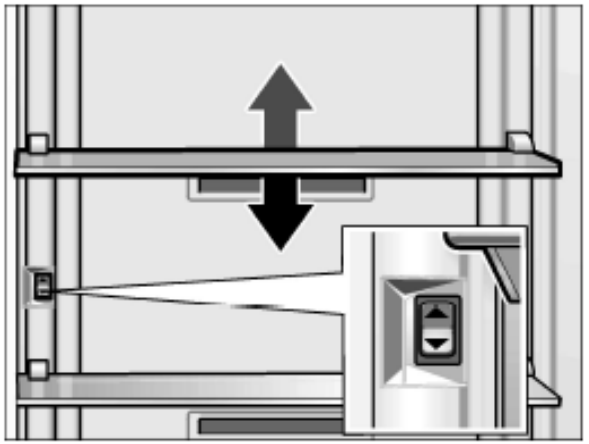
Settings which can be changed in setup mode:

- **Temperature unit selection :** °C or °F
- **Language selection**
- **Tone :** Buzzer will be on and off.
- **Eco function:** Eco function on and off

3.10 Vacation Button

Vacation mode will switched on-off . **(J)**

3.11 Motorized Shelf Button



Motorized shelf will be activated with the arrow buttons up and down.

3.12 Super Cooling Mode

Super cooling mode will be switched on by pressing the super cool button.

- Symbol ‘’SUPER and REFRIGERATOR’’ is activated.
- The “2°C / 6° F ” is used as the setpoint temperature.

The compartment is reseted to normal operation

- by pressing super button or
- 6 h. has expired.

After deactivation of super mode following adjustments will be chosen:

- Setpoint temperature which is chosen before
- Special functions ECO is erased.

3.13 Super Freezing Mode

Super mode will be switched on by pressing the super freezing button.

- Symbol ‘’SUPER’’ and FREEZER is activated.
- The “-30°C / -22° F ” is used as the setpoint temperature.
- Compartment alarm –on temperature value is set to -4°C / 25 °F

The compartment is reseted to normal operation

- by pressing super button or
- 52 h. has expired.

After deactivation of vacation mode following adjustments will be chosen:

- Setpoint temperature which is chosen before

Special functions ECO is erased

3.14 Vacation Mode

Vacation mode will be switched on by pressing the vacation button.

- Symbol ‘’ VACATION ’’ is displayed..
- The “-16°C / 3° F and 8°C / 45°” is used as the setpoint temperatures.
- The interior light is switched off.

The compartment is reseted to normal operation

- by pressing vacation button

After deactivation of vacation mode following adjustments will be chosen:

- Setpoint temperature which is chosen before
- All special functions ECO and super modes are erased.

3.15 Sabbath Mode

To enter the Sabbath mode:

- Hold down "super" button
- Press "vacation" button.
- Hold down super button for 3 seconds more.

→ Sabbath his displayed. Sabbath Mode is on.

When Sabbath is active:

- Super function is ended.
- Ice maker switches off.
- Tone is off.
- The interior light is switched off.
- The background light of the display is reduced.
- The “-16°C / 3° F and 8°C / 45°F” is used as the setpoint temperatures.
- Motorized shelf can not be activated.

The compartment is reseted to normal operation

- by pressing vacation button.

After deactivation of Sabbath mode following adjustments will be chosen:

- Setpoint temperature which is chosen before
- All special functions ECO and super modes are erased.

3.16 ECO Mode

ECO mode is activated in setup menu.

- ECONOMY displayed instead of the setpoint temperature.
- The” is used as the t temperature.
- Super is switched off.

ECO mode is ended

- If setpoint temperature is changed.
- If Super is activated.
- If ECO is deactivated in setup menu.

After deactivation of Eco mode following adjustments will be chosen:

- Setpoint temperature which is chosen before

3.17 After Filter Change (only for US version)

To reset the filter change signal after change of filter:

- Hold down "super cool" and “ice" buttons simultaneously for 3 sec.
  → Filter display is reseted.

Info: If the signal is not reseted, next filter change signal will not be displayed.

3.18 Deactivating the Filter Change Display (only for US version)

If the appliance will be used without a ‘’ Ultra Clarity ‘’ water filter, then it is possible to deactivate the filter change signal.

To switch off the filter change signal:

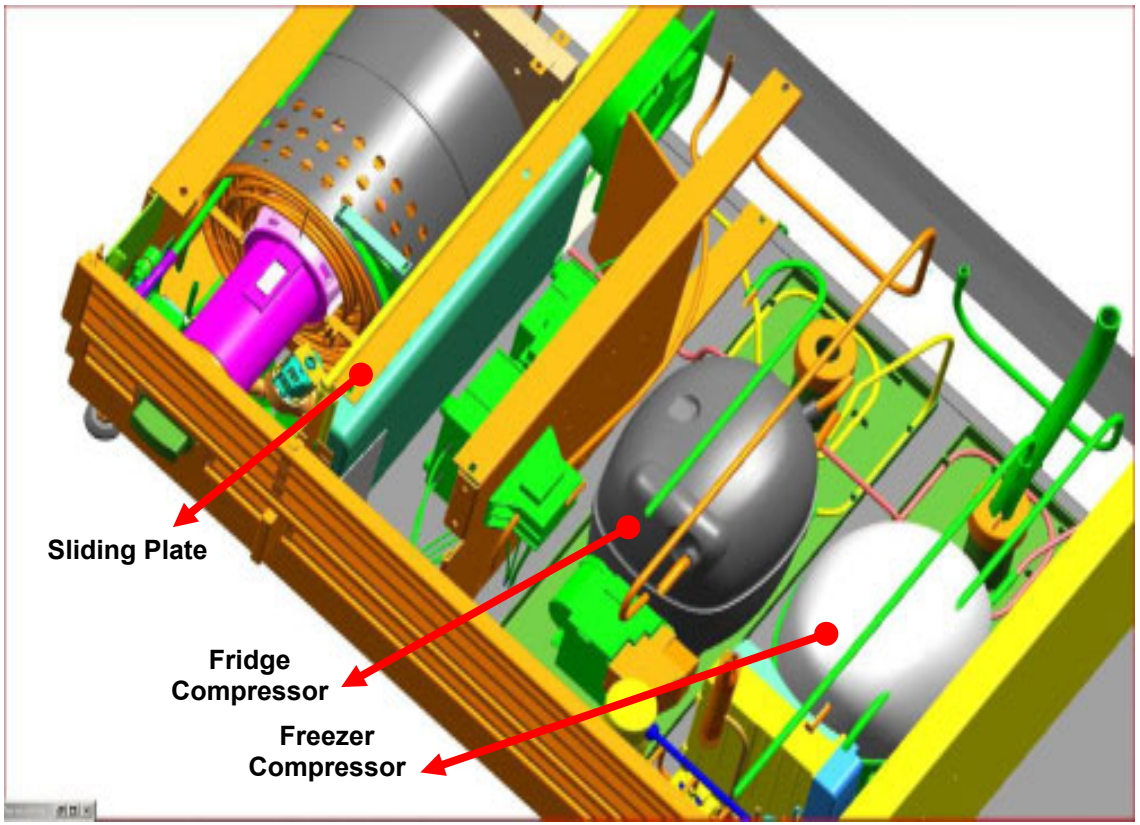
- Press "setup" and “ice" buttons simultaneously for 3 seconds.
  → Filter display is deactivated.

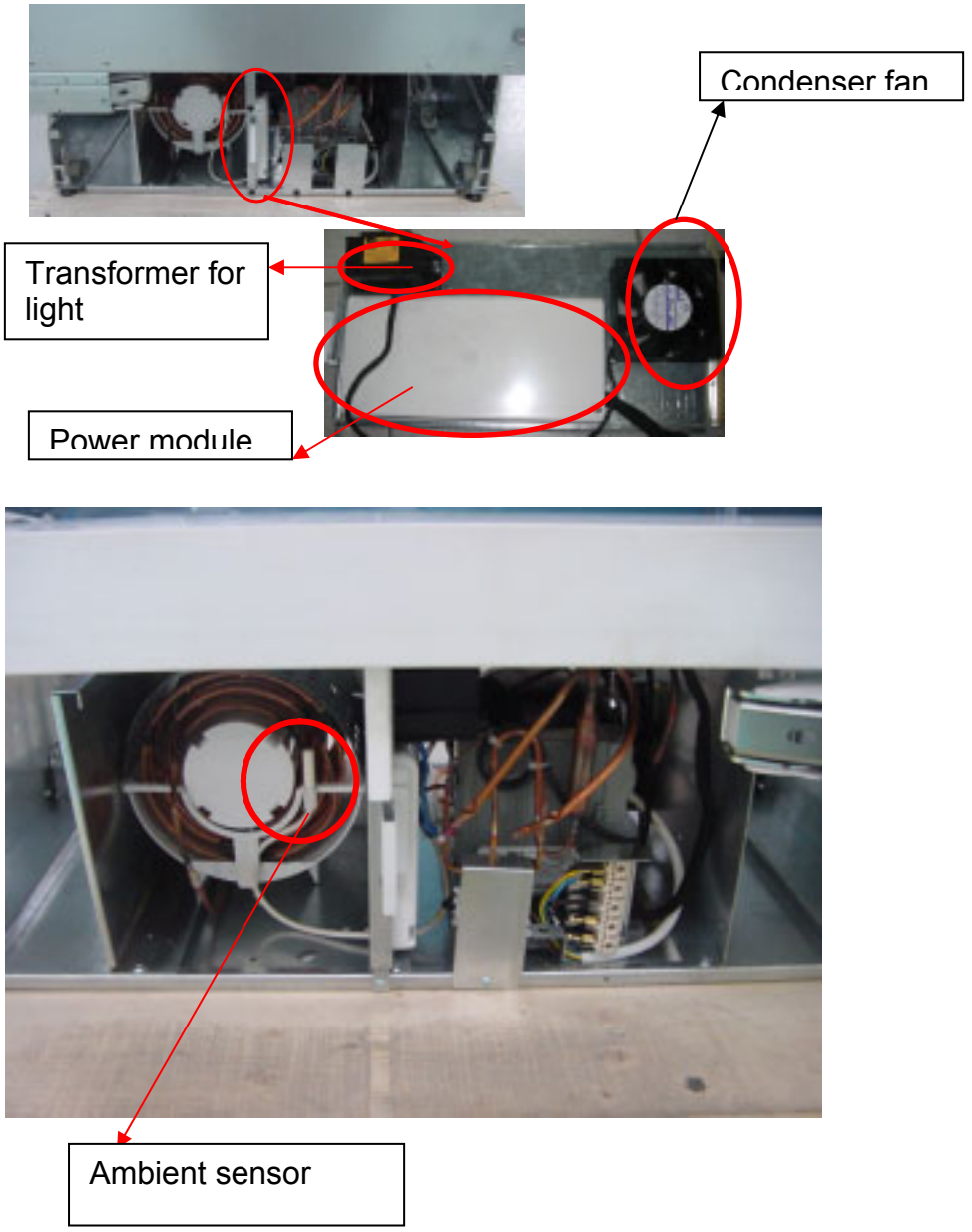
To switch on again the filter change signal:

- Press "setup" and “ice" buttons simultaneously for 3 seconds.
  → Filter display is activated.

4 COMPONENTS

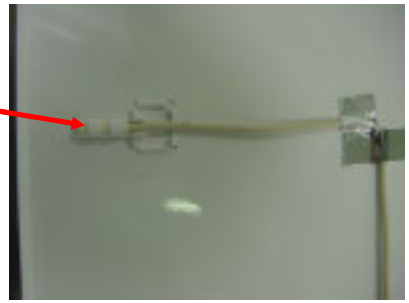
4.1 Compressor Compartment





4.2 Display Electronic

4.3 Fridge Compartment Sensor

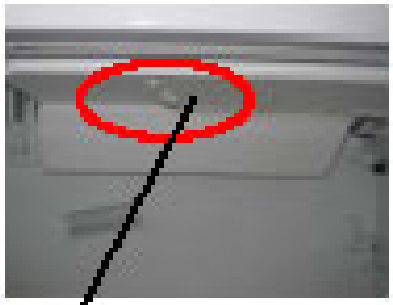


4.4 Fridge Evaporator Sensor

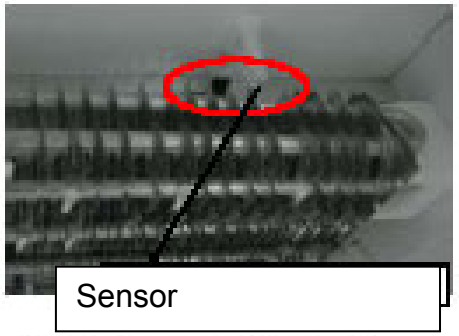
4.5 Fridge Thermo Fuse

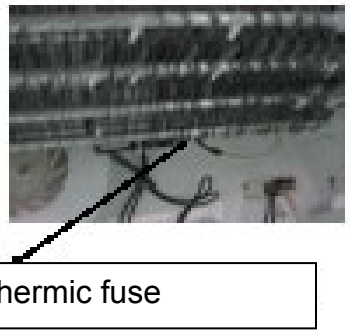
4.6 Fridge Evaporator Fan

4.7 Freezer Evaporator Compartment

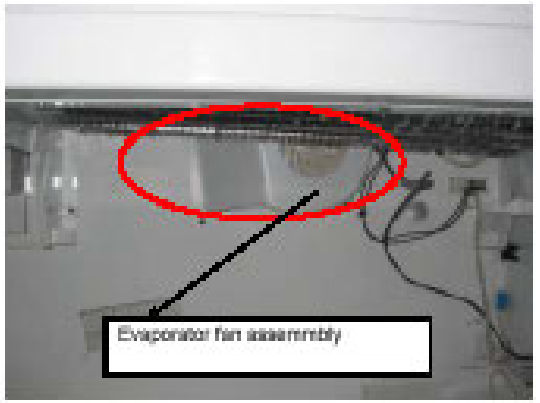


4.8 Freezer Evaporator Sensor and Thermo Fuse

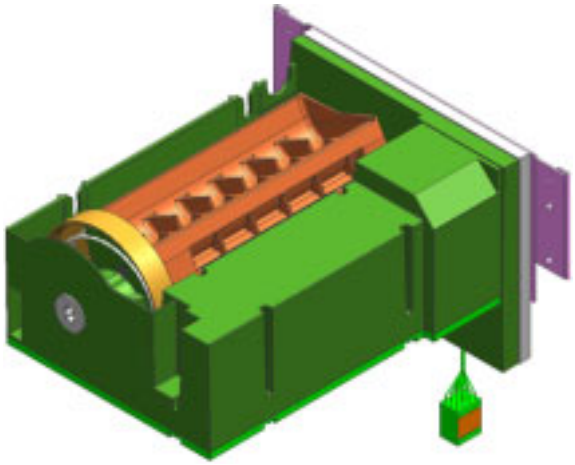




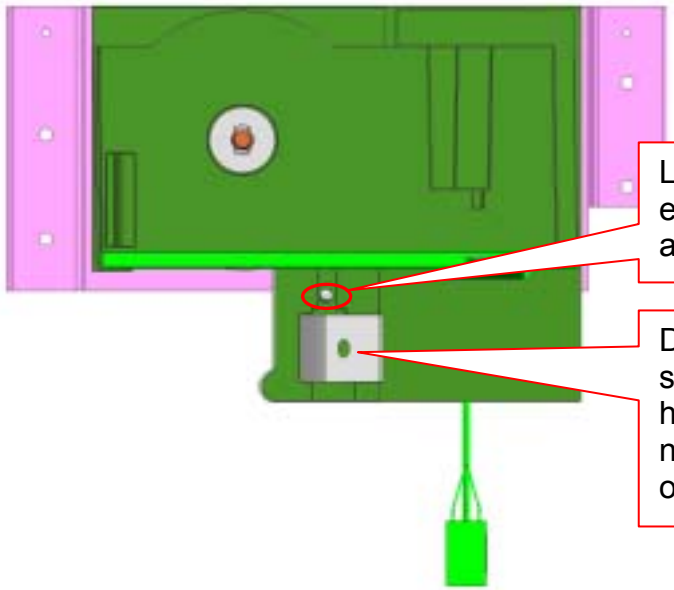
4.9 Freezer Evaporator Fan



4.10 Icemaker (in FC)



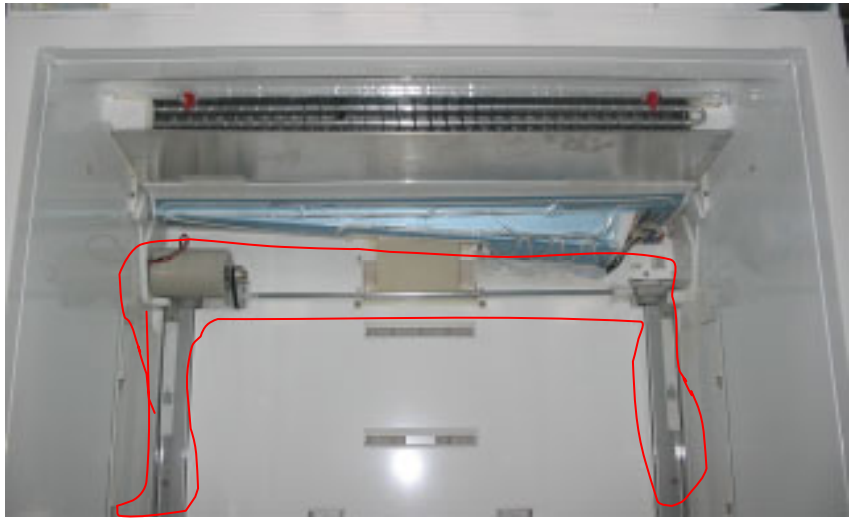
Icemaker water inlet with heater
(on the backside of the appliance)



LED for error code and selftest.

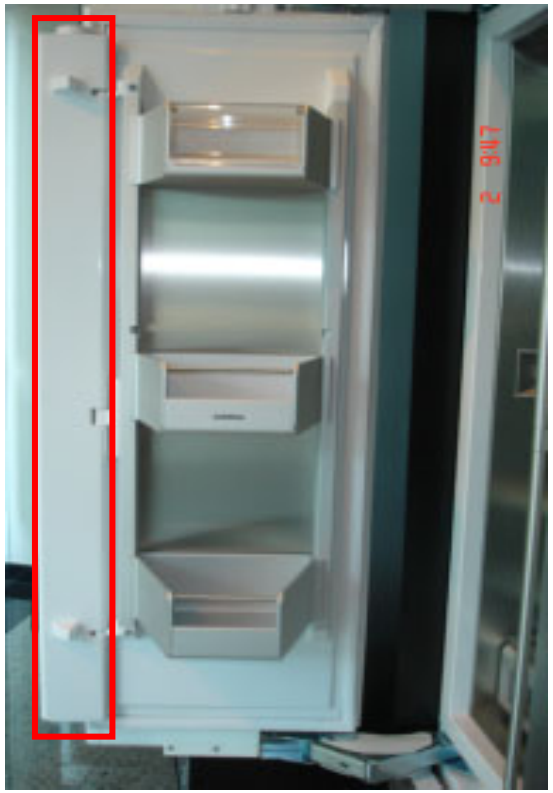
Detective switch for hopper full / not full or out / in

4.11 Motorized Shelf Assembly (optional)



4.12 Trio Door Heater (Flip mullion)

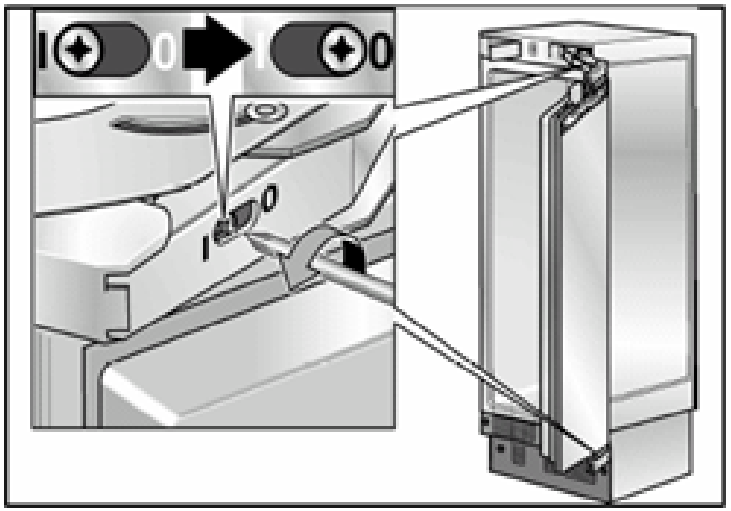
Fridge Door (left)



4.13 Hinge System

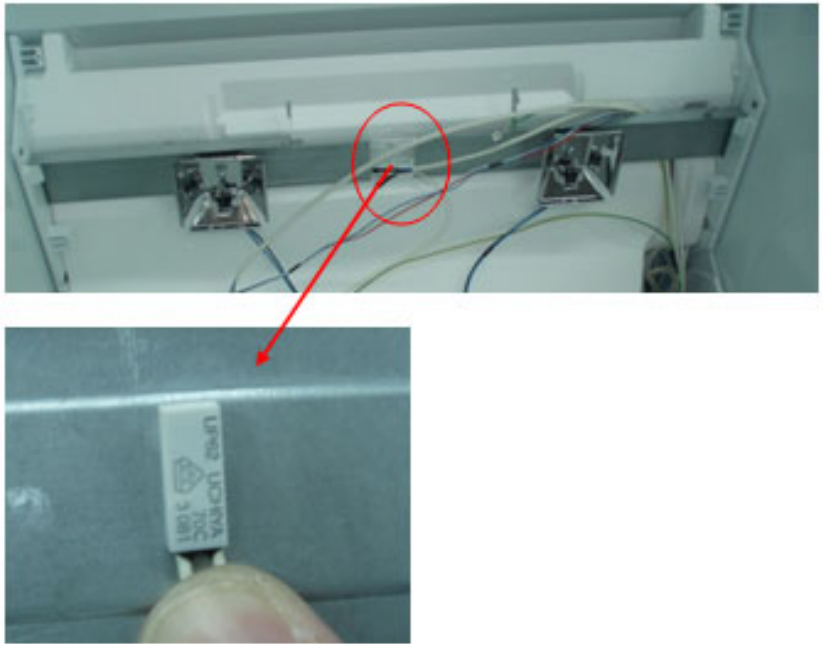
WARNING

Before door direction change or before hinge change the hinge screw should be on 0 position.



4.14 Temperature Limiter Switch (From FD 8802)

Appliances from FD 8802 have a temperature limit switch on the area of top lights in fridge compartment.

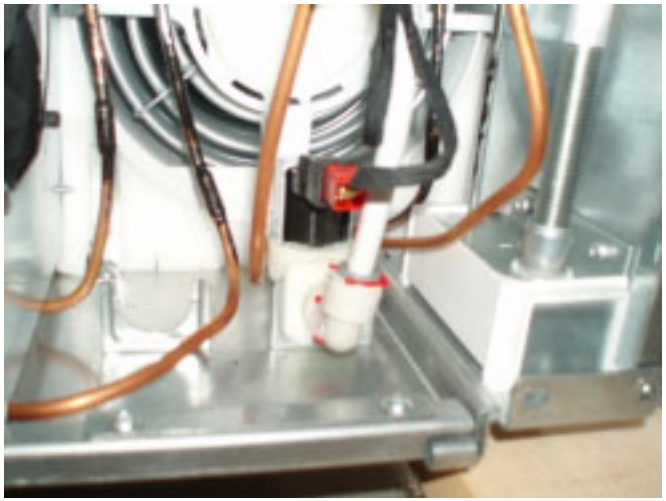


Info:

If the limiter switch is replaced, the position of the switch must be like above. The written information must be readable from front if installed. Otherwise it will not function properly.

4.15 Stop valve (From FD 8803)

Appliances from FD 8803 have an additional stop valve at the back of the condenser.



4.16 Modified Adjustable Back Roller (From FD 8712)

Appliances from FD 8712 have new adjustable back rollers on the right and left side panels that have been secured inside an *aluminum tube*.

OLD Design (Up to FD 8712)

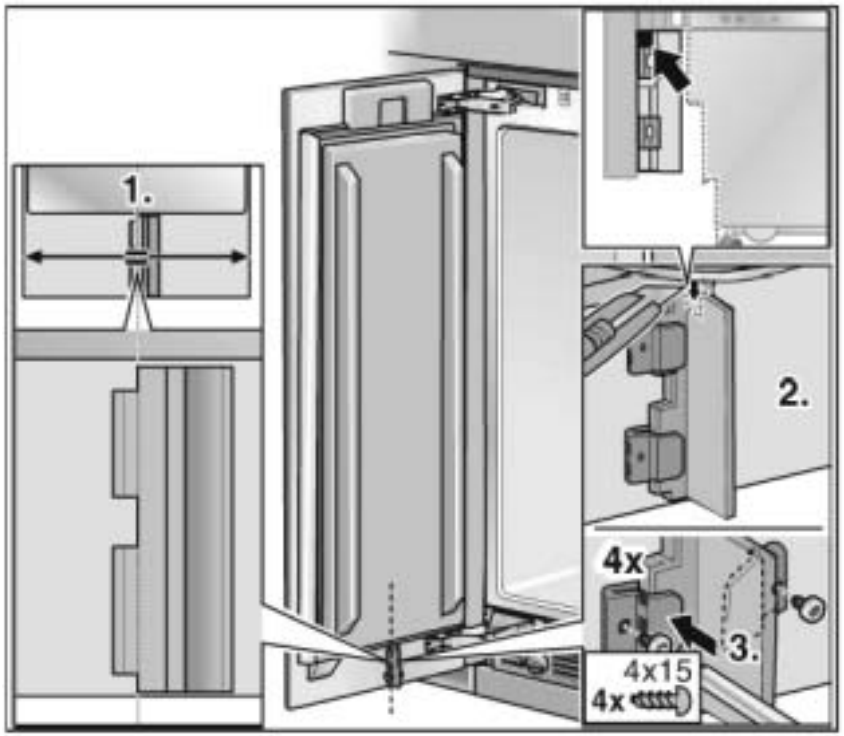
NEW Design (From FD 8712)

4.17 Air Seperator

During the installation process the air separator, which is supplied in the installation package, **must** be mounted.

If the air separator is **not** mounted, the following situations will occur:

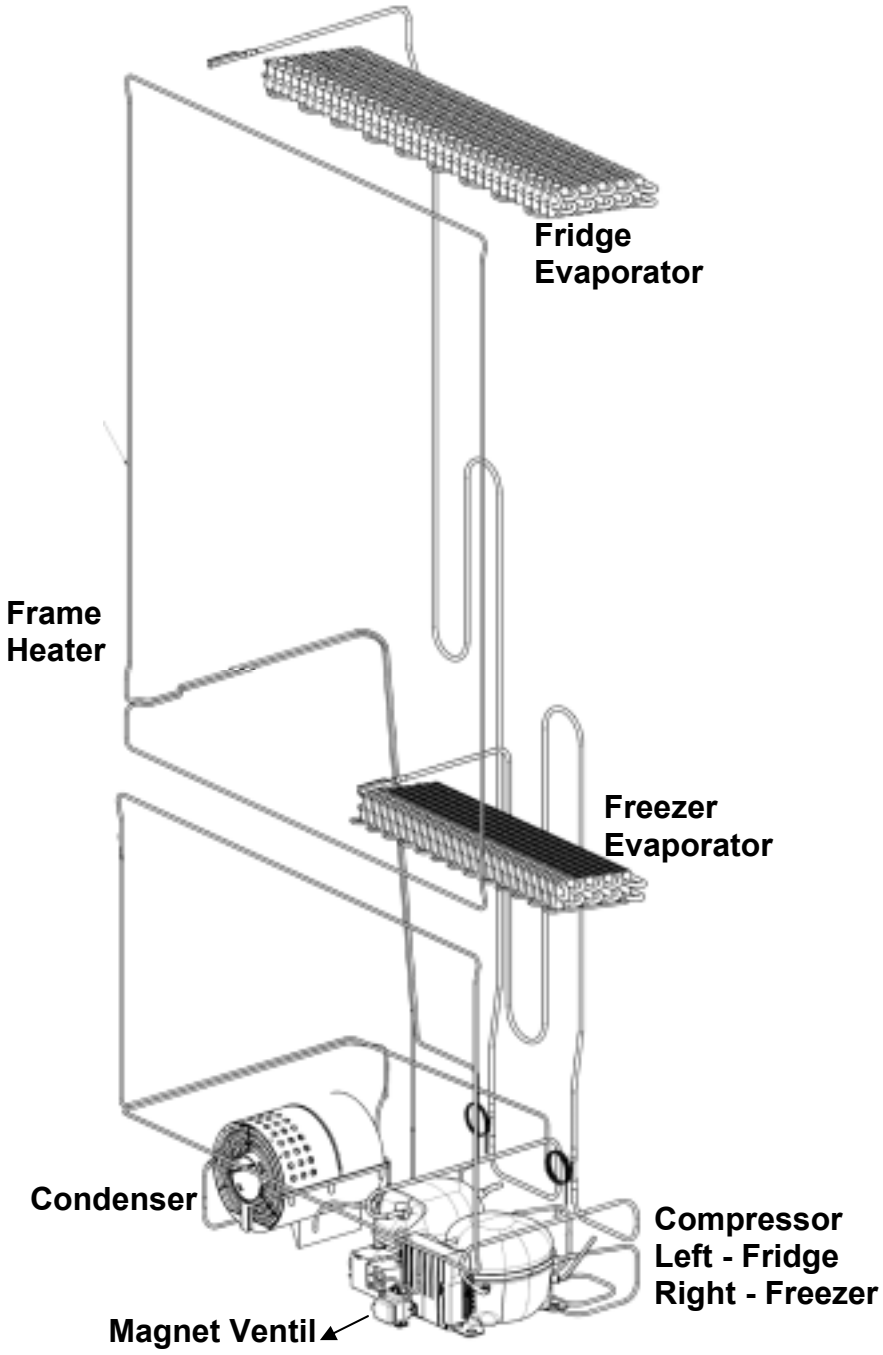
- reduced performance,
- increased energy consumption,
- higher noise level,
- possibility of damages in the cooling system due to incorrect operating conditions



5 FUNCTIONS

5.1 Cooling System

The two temperature zones, fridge and freezer compartments, are supplied by two separate cooling system, with a compressor for each compartment. The evaporators feature an electric heater and a circulating air fan. The evaporators are automatically defrosted.



5.2 Electronic Controller

The controller consists of two modules. The operating and display module is housed in the evaporator compartment The power module is in the machine compartment. This is where all load components are actuated and the operating module is supplied with power.

Another module INVERTER is located in front of the freezer compressor, which enables to operate the compressors in different speeds.

5.3 NTC Sensor

The appliance features 5 NTC sensors. All the sensors can be changed.

- The freezer and fridge compartment sensors are used for controlling the temperature inside the compartments.
- The freezer and fridge compartment evaporator sensors are used for automatic defrost.
- The ambient sensor is used for controlling different components.

5.4 Fridge Compartment Closed-Loop Control

- The compressor is switched ON

  When the fridge temperature **≥** the compartment switch on temperature.

- The compressor is switched OFF

  When the fridge temperature **≤** the compartments switch off temperature

The temperatures are picked up by the compartment sensors.

5.5 Freezer Compartment Closed-Loop Control

- The compressor is switched ON

  When the freezer temperature >= the compartment switch on temperature.

- The compressor is switched OFF

  When the freezer temperature <= the compartments switch off temperature

The temperatures are picked up by the compartment sensors.

5.6 Compressor

The appliance have two compressors , one for the fridge and one for the freezer.
Compressor is operating with the inverter module,(optional depending on model)

So the compressor is enable to run in different speeds , with the inverter module.

Compressor without inverter module

Compressor switches on and off according to the setpoint temperature.

Compressor with inverter module

Compressor switches on and off according to the setpoint temperature and runs in different speeds

- The start speed is depending on the ambient temperature.
- Speed will be increased according the compressor operating times.
- The speed is not reduced until the compressor is switched off.

Info: Speed controlled compressor has same resistance value for auxiliary and main windings.

5.7 Magnetic Valve (optional)

A magnetic valve is used in cooling cycle for energy saving option. The valve is installed in cooling circuit after the dryer. The valve closes the cooling circuit when the compressor switches off, as a result pressurized refrigerant remains between the valve and compressor. Before the compressor switches on according to the set point temperature, the valve opens the cooling circuit and pressurized refrigerant flows in to the evaporator, as a result it is enabled to have cooling performance without compressor runs.

- The solenoid valve is switched on 12 s. before compressor start and switched off immediately with the compressor stop.
- If the ambient temperature is higher than “35°C / 95 °F ” or the supply voltage is lower than “107V US / 215 V EU the stop valve pre running time changes to 3 min
- If the ambient temperature is higher than “35°C / 95 °F ” and the supply voltage is lower than “107V US / 215 V EU ”the stop valve pre running time changes to ‘’8 min

5.8 Evaporator Fan

The compartment fan runs parallel to the compartment compressor.

Special functions:

- During an open door the fan is always switched off
- Fan is switched off during defrost period
- Fan is activated acc. to defrost phase and phase after defrosting
- After door was closed the fan is switched on for 30s

5.9 Condenser Fan

The fan runs parallel to the compressor(if one of the compressor runs) depending on the ambient temperature.

- Ambient temperature < 20 °C / 68 °F ”
  → the condenser fan is off.

- 20°C / 68 °F ≤ ambient temperature ≤ 28°C/ 82 °F
  → low rotation speed

- 28°C/ 82 °F ≤ ambient temperature ≤ 35°C/ 95°F
  → middle rotation speed.

- ambient temperature > 35°C/ 95°F
  → high rotation speed.

5.10 Adaptive Defrost (Fridge)

Actuation of a defrosting phase is determined according to the following factors..:

- Last defrosting period.
- Appliance running time.
- Compressor running time
- Door openings

Defrosting is operated in 9h, 20h, 23h, 83h **.**

Sequence schedule of RC defrosting:

- The fan is activated for 5 min.
- Then the defrost heater and the drain heater are activated until the evaporator sensor reaches the “9,5°C/ 49°F” or max. 60 min . has expired.
- Then the drain heater will remain activated for an additional 8 min.
- Compressor runs but fan will stay off until the evaporator sensor has reached the “-1 °C/30°F”.or max 8 min has expired.
- Afterwards the RC enters normal mode

5.11 Adaptive Defrost (Freezer)

Actuation of a defrosting phase is determined according to the following factors..:

- Last defrosting period.
- Appliance running time.
- Compressor running time
- Door openings

Defrosting is operated in 9h, 20h, 23h, 83h**.**

Sequence schedule of FC defrosting:

- The fan is activated for 5 min.
- No component is active for 5 min.
- Then the defrost heater and the drain heater are activated until the evaporator sensor reaches the “9,5°C/ 49°F” or max. 60 min . has expired.
- Then the drain heater will remain activated for an additional 8 min.
- Compressor runs but fan will stay off until the evaporator sensor has reached the “-1 °C/30°F”.or max 8 min has expired.
- Afterwards the FC enters normal mode

5.12 Alarm Function

5.12.1 Door Alarm

When the door(freezer or fridge) remains open for longer than 30s a door alarm is triggered.
→ DOOROPEN is displayed and buzzer is activated.

The alarm is ended automatically
- when the door is closed

When ‘’ALARM OFF’’ button is pressed
- The alarm is ended. The alarm is again triggered when 60s is again exceeded.

5.12.2 Temperature alarm and memory function for freezer

Temperature alarm is triggered; when the temperature for 30 min. exceeds “-6°C 21°F”.
→ The ‘’ ALARM ‘’ symbol and the displayed setpoint temperature flashes and the buzzer beep every second.

- During defrosting and for the 2h after defrost no temperature alarm is triggered .
- In super mode the “alarm ON temperature” changes to “-4°C / 25°F

The buzzer and the alarm display switches off automatically
- when the actual temperature falls below the “-12°C / 10°F.

When the ALARM OFF button is pressed,
→the acoustic alarm is switched OFF
→the alarm display stops flashing.
→The warmest temperature for the compartment is displayed for 10 s. The alarm is again activated when -6°C / 21°F is still exceeded after 24h.

5.13 Trio Door Heater

The 3-door variant appliance is equipped with a heater, and has to be switched on as soon as damp forms on the door flap.

Activate and deactivate the door heater:

Simultaneously hold down the .super cool and alarm off button for 3 seconds. The DRY DOOR and the momentary status (on-off) will appear on the display.

If the trio door heater is activated it is always on

5.14 Thermal Cut-out

Another thermal cut-out (fuse) is also attached to the freezer and fridge evaporator. If the temperature of the evaporator rises above 70 °C, this thermal cut-out disconnects the defrosting and channel heaters. If the heaters were disconnected via this limiter, it is no longer functional and must be replaced.

5.15 Temperature Limiter Switch (From FD 8802)

Appliances from FD 8802 have a temperature limit switch on the area of top lights in fridge compartment. If the temperature on the top light area rises above 70 C, lights will be switched off. Lights will be switched on again if the temperature falls below 50 C.

5.16 Icemaker

CAUTION 1:

To operate the icemaker, icebin should be on its place and locked. Otherwise ice production cycle will stop at step 5. (see ice production cycle)

CAUTION 2:

Icemaker will be active if ''ICE'' button is pressed. If ice button is not pressed and ''ICE'' is not displayed on the display ice production will not start!

CAUTION 3:

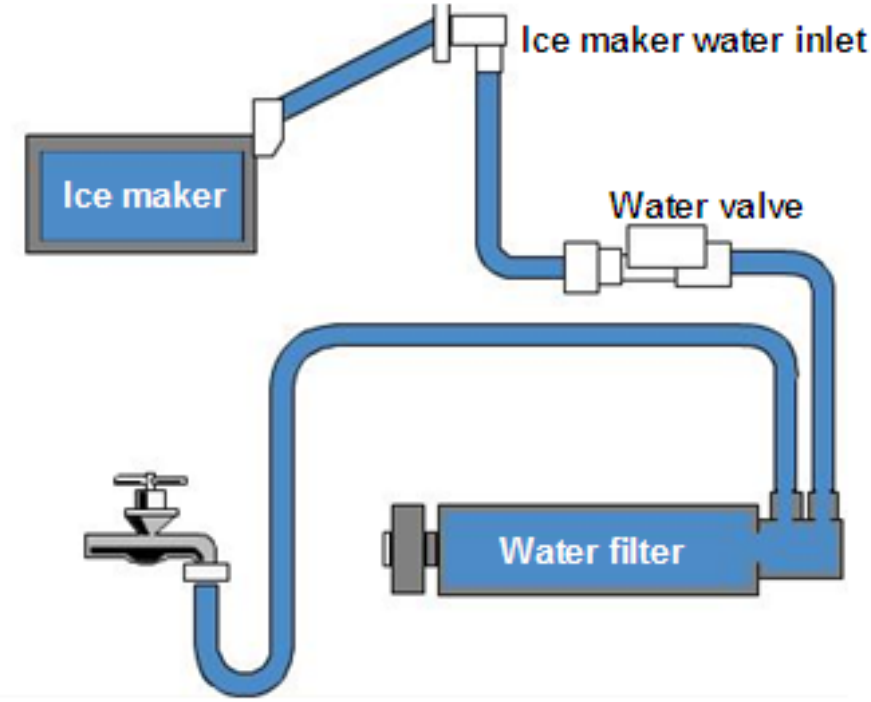
If the temperature in freezer compartment is warmer than -12 °C, then ice production will not start.

CAUTION 4:

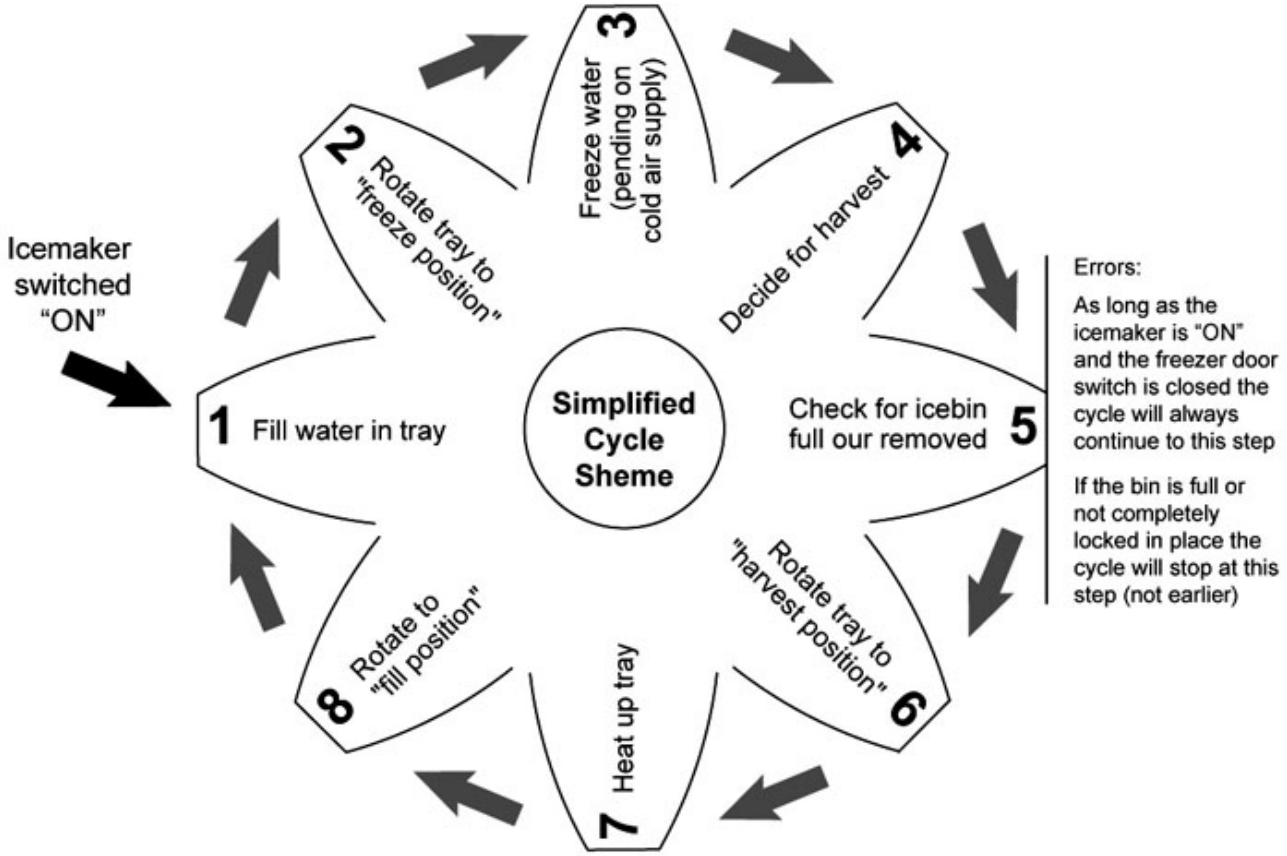
If ice bin is full of ice, ice production cycle will stop at step 5 (see ice production cycle)

CAUTION 5:

If the water filter is not installed or not well assembled, then ice production will not start and water will not be dispensed!

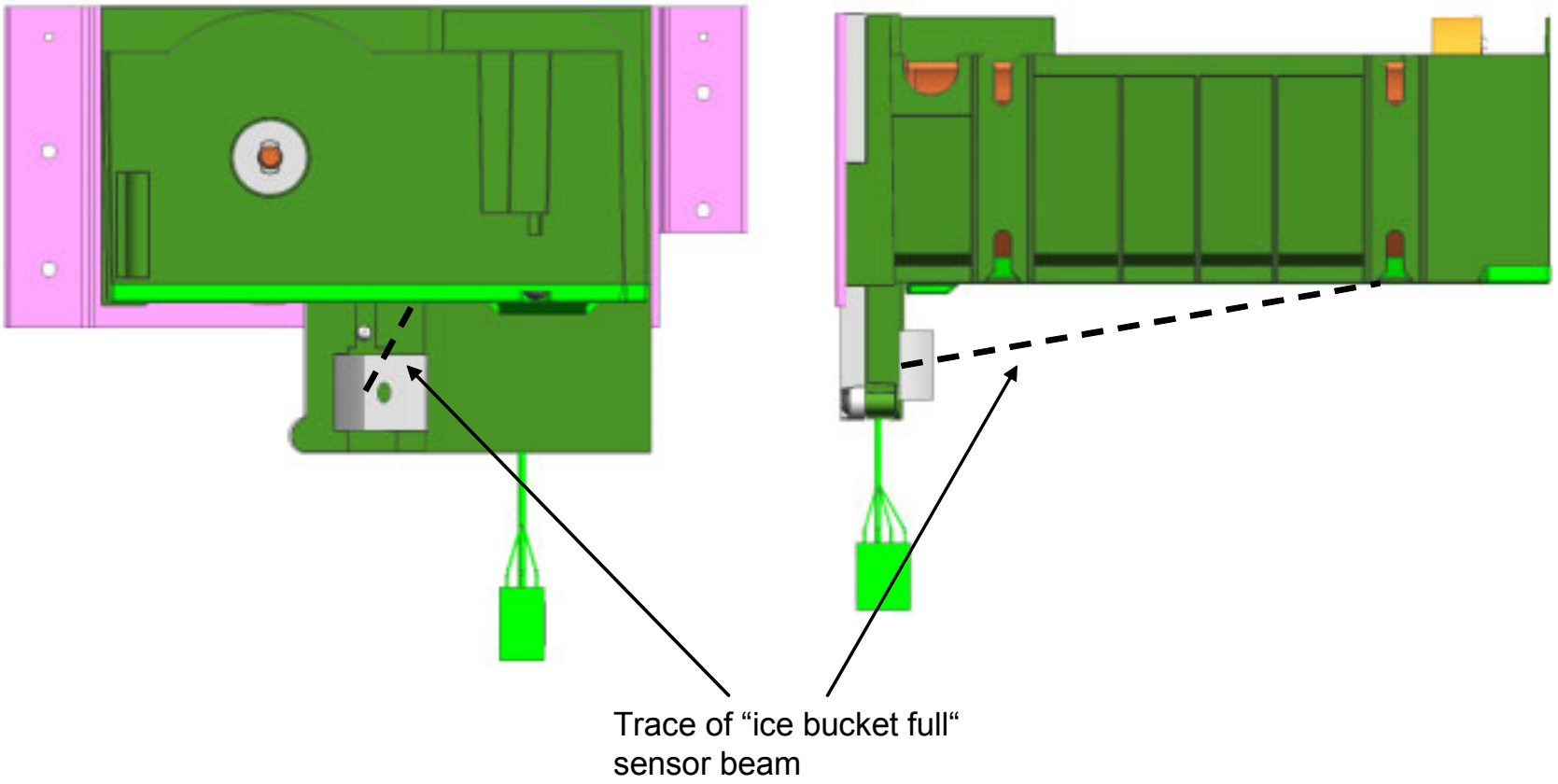


5.16.1 Ice Production cycle



During the cycle the Icemaker checks for: "door open or closed" (if open,cycle is interrupted)

5.16.2 Check for ice bin full or removed



5.17 Special Programs

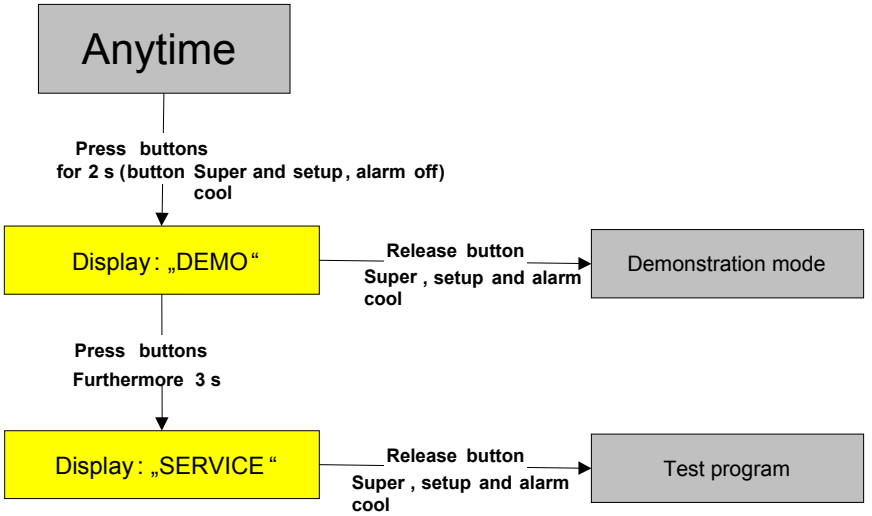
5.17.1 Start – up program

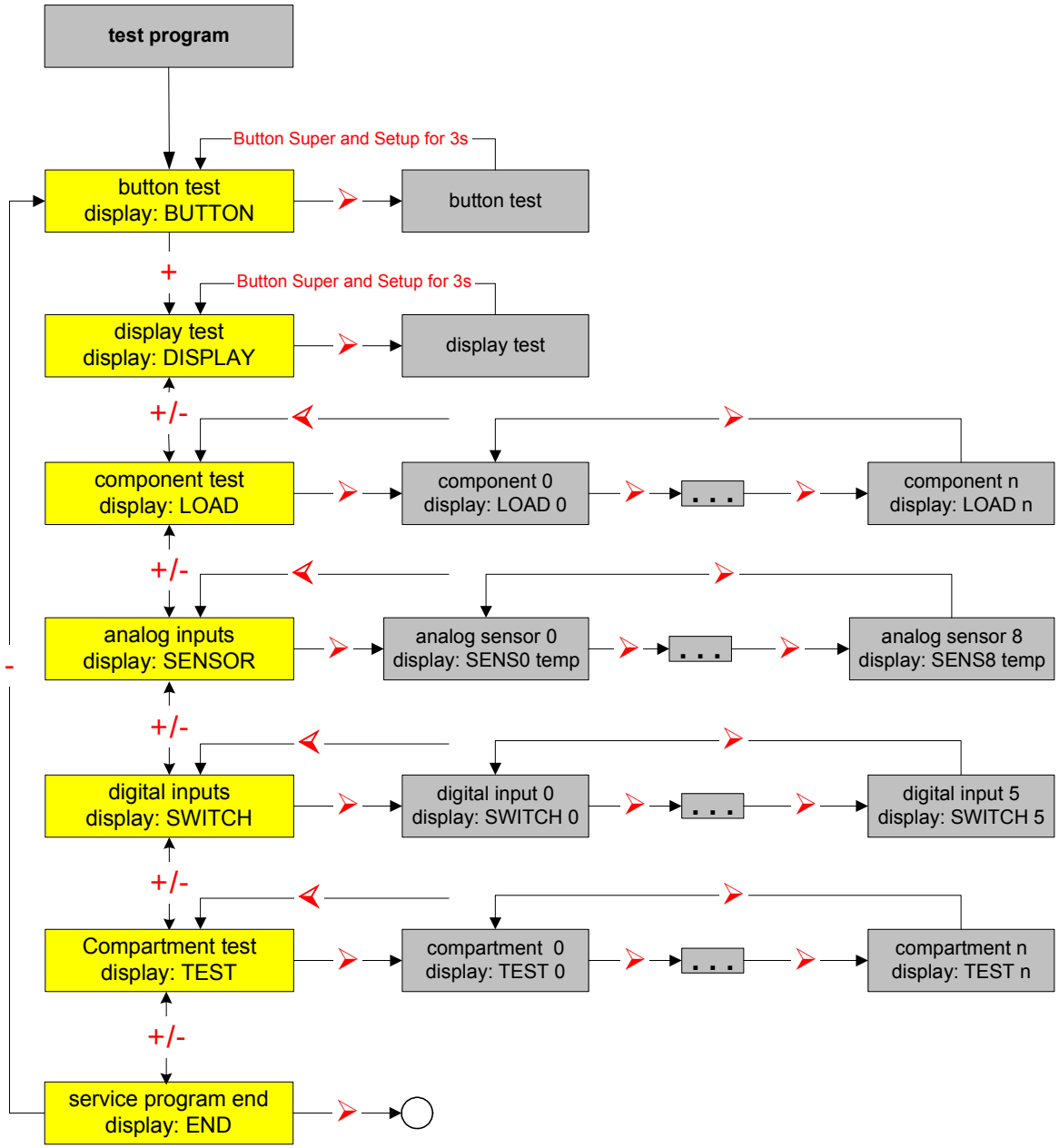
The start-up program becomes active when the following conditions are fulfilled at the moment the appliance is started up:

- none of the installed temperature sensors (excepting ambient temperature sensor) are defect.
- the temperatures of the freezer and fridge compartment sensor > 5 °C / 41 F
- the door is closed

Start-up program will activate all components, including complete ice production cycle, with 70 sec delay.

5.17.2 Service and Demo program




test program
Button Super and Setup for 3s
button test
display: BUTTON
button test
+
Button Super and Setup for 3s
display test
display: DISPLAY
display test
+/-
component test
display: LOAD
component 0
display: LOAD 0
. . .
component n
display: LOAD n
+/-
analog inputs
display: SENSOR
analog sensor 0
display: SENS0 temp
. . .
analog sensor 8
display: SENS8 temp
-
+/-
digital inputs
display: SWITCH
digital input 0
display: SWITCH 0
. . .
digital input 5
display: SWITCH 5
+/-
Compartment test
display: TEST
compartment 0
display: TEST 0
. . .
compartment n
display: TEST n
+/-
service program end
display: END

Button test:
The display shows “BUTTON ‘’. Pressing a button the number of the button is displayed (e.g. “BUTTON 8” for Setup button) and a buzzer tone is activated.
Display test:
The display test is a continuous sequence which can be ended by pressing the buttons Super and setup for 3s
Sequence:

1) LCD backlight activated for five seconds; no LCD segment or symbol is activated.
2) LCD backlight activated for five seconds; all affected LCD segments and symbols are activated
3) LCD backlight off for five seconds; all affected LCD segments and symbols are activated
4) LCD backlight activated for five seconds; all affected LCD segments and symbols are activated
5) LCD backlight activated for five seconds; half of LCD segments and no symbols are activated
6) LCD backlight activated for five seconds; other half of LCD segments and all symbols are activated
7) Starting with 1)

Component test:
By pressing the setup button the loads will activated. The status of the load is additionally displayed with the symbols ON and OFF
LOAD 0: FC compressor
LOAD 1: RC compressor
LOAD 2: Trio door heater(not used for two door models)
LOAD 3: RC defrost heater
LOAD 4: FC defrost heater
LOAD 5: RC drain heater
LOAD 6: FC drain heater
LOAD 7: condenser fan
LOAD 8: RC evaporator fan
LOAD 9: FC evaporator fan
LOAD A: ice maker (See Capital)
LOAD B: Magnetic valve

Analog inputs:
The display shows the number of the sensor and automatically the measured temperature in °C or °F.
SENS0: FC evaporator sensor
SENS1: ambient sensor
SENS2: not used
SENS3: not used
SENS4: FC room sensor
SENS5: RC evaporator sensor
SENS6: RC room sensor
SENS7: not used
SENS8: not used

Digital inputs:
The display shows the number of the switch and the status with the symbols ON and OFF
SWITCH 0: vacation switch (OFF = vacation active)
SWITCH 1: RC door switch (OFF = door closed)
SWITCH 2: FC door switch (OFF = door closed)
SWITCH 3: not used
SWITCH 4: not used
SWITCH 5: water usage
Compartment test:
The regulation of the compartments can be activated and deactivated with the setup button. The status is displayed with the ON and OFF symbols.
TEST 0: FC control
TEST 1: RC control
Service program end:
With the button right will the test program ended. The appliance control starts with a RC defrost.

DEMO Program

When DEMO Mode is active:

- No loading components are activated.
- All setting functions can be initiated.
- The under voltage display and the sensor error display are deactivated.

Demo mode is ended when the appliance is switched off.

5.17.3 Auto diagnostic program

Activation of the auto diagnostic program:

- Switch the appliance off and wait at least three minutes.
- Switch the appliance on.
- Press the buttons ‘’ALARM OFF’’ and ‘’SETUP’’ together until “LOAD 0” appears on the display. (ca 5 seconds.)

  →The auto diagnostic program starts.

  Program runs as follows:

  The electronics check all sensors (-55°C to 60°C)

  → If a sensor is defect, the related error message (see fault display) appears and the appliance switches to normal mode. (no load activation)

  → If all sensors are OK, the electronics switch all components for five seconds on.

Finally the program switches to normal operation.

5.17.4 Icemaker self test

Before self test bring the appliance to the following status.

1	Ice maker is enabled		
2	Freezer and Fridge door switches not fixed		
3	Ice bin should be in its place and locked		

The self test will be initiated by the following steps.

1	Press “ICE” to turn OFF the ice maker			‘ICE’ symbol will disappear
2	Fix the fridge and freezer door switches with an adhesive tape			
3	Press the “ON/OFF” button to switch off appliance			Wait at least 10 seconds
4	After 10sec, switch on the appliance			
5	Press ‘’ALARM OFF’’ button to make the text / numbers visible			Temperature is indicated but backlight remains OFF.
6	Press “ICE” button to turn ON the ice maker			Within 70 sec. after Power Up!
7	Wait **exactly** 5 sec and press again ICE button to turn OFF the ice maker			
8	Wait for 70 sec			

The test includes both a check of the electrical components (e.g. heaters of icemaker, icemaker sensor and water valves.) and mechanical movement of the ice tray.

A short flash of the service LED indicates that a test step was performed successfully.

The test will be finished approximately in 5 min. At the end of the test a long red signal (~30sec.) shows that the self test is completed successfully. Otherwise the service LED flashes with the appropriate error code. (see the list of error codes)

Info: In the test of water valve, electronic opens the tray valve only about for 1 sec., so no water flow will be visible during self test.

Info: The movement of the ice tray will start after approximately after 2 min.

Info: For the appliances with FD>8803, the LED will blink if the self test is successfully initiated.

6 REPAIR

6.1 Mini Manual (only for US Version)

There is a mini manual inside the upper hinge box, which consist of the explanation of service mode and failure messages. If the door direction will be changed, change the mini manual from the right or left hinge box, or vice versa.

6.2 Opening the Refrigeration Circuit

Whenever the refrigeration circuit is opened, always replace the drier before evacuating and filling the refrigeration circuit.

If there will be no compressor change, evacuation and gas charge can be done from front side of the appliance.

6.3 Leaks on Intake Side

If the refrigeration circuit leaks on the intake side resulting in repairs, always replace the compressor and drier.

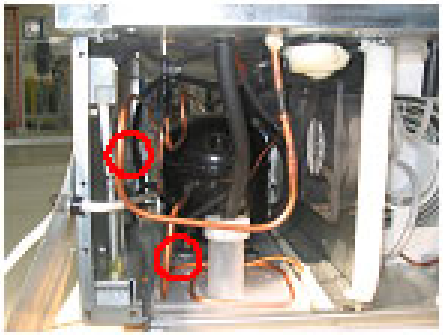
If atmospheric humidity penetrates the refrigeration circuit, the oil in the compressor will be contaminated.

6.4 Compressor Change

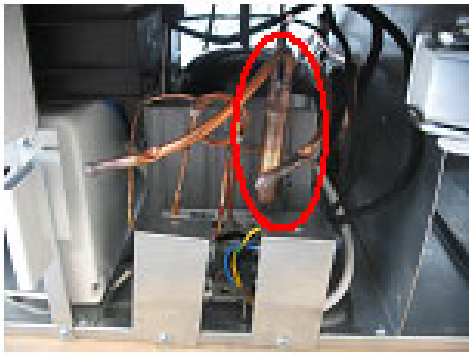
1. Disassembly the appliance from the furniture. If there is a side by side installation, no need to remove the side by side connection.
2. Remove the covers at backside.

3. Remove front covers.

4. Disconnect the pipes from back.



5. Disconnect the dryer from front

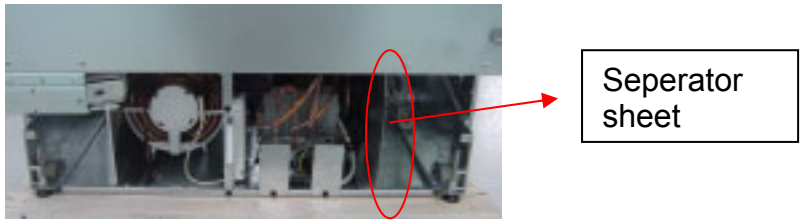


6. Remove the magnetic valve and terminal box and remove the compressor. Lokring connections on the compressor can be carried out outside the machine compartment now and new compressor will be installed back.

6.5 Removal of Inverter Module

To remove the Inverter from the compressor the screw(below picture) connected the inverter to the compressor should be removed.

To reach the screw from front side use an L-shape screwdriver. For 24'', 30'' and 36'' appliances the front screws of the separator sheet next the compressors can be unscrewed and moved to the right to obtain much space.

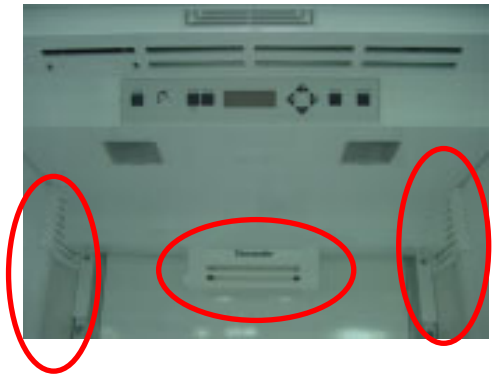


6.6 Replacement of Power Module & Condenser Fan

Info: While removing the slider plate, touch and press softly the condenser for easy disassembly. (see picture below)

6.7 Evaporator Cover

1. Firstly remove the side lamb covers, side supports and airflow channel.

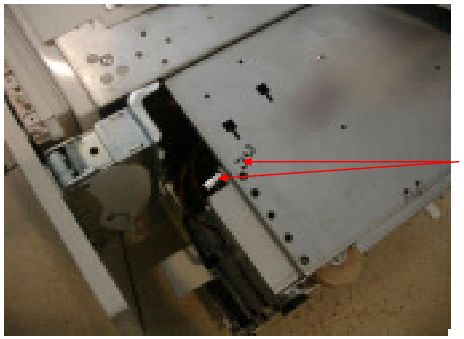


Hint: While removing the lamb cover, use an thin screwdriver to pull out the front profiles from the bottom side..

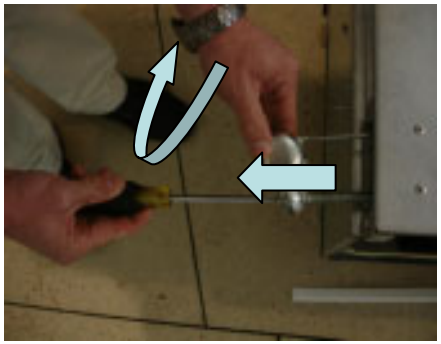
2. Remove the evaporator cover by unscrewing from 6 points.

6.8 Adjustable Back Roller Change

I.) Removing the flexible shaft

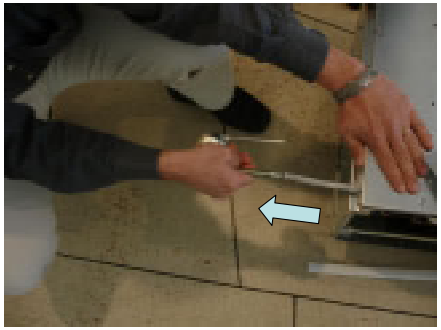


1. Lay down the product on the side
2. Remove the two shaft locking clamps at front side of flexible shaft (in between the fixing bracket) so that the shaft is free.



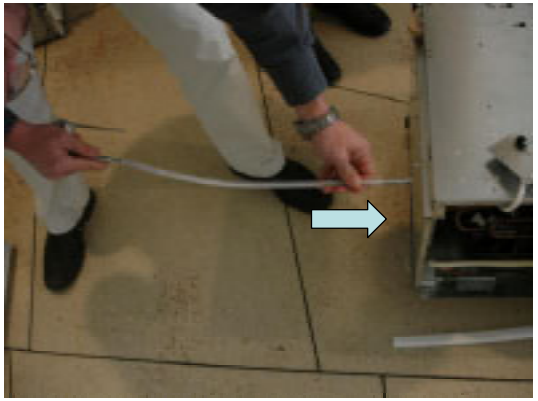
3. Unscrew the flexible shaft at it‘s threaded bolt. There is a screw (cross slot) at lower side which makes this operation more easy.

If the shaft is completely twisted, it might be necessary to cut the wire of the shaft (bolt cutter) and to remove the single parts.

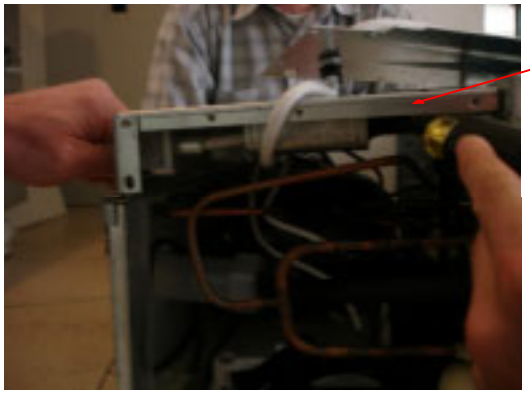


4. After the threaded bolt is completely unscrewed, pull at the flexible shaft until it is removed from the product.

II.) Installing spare part „flexible shaft roller“



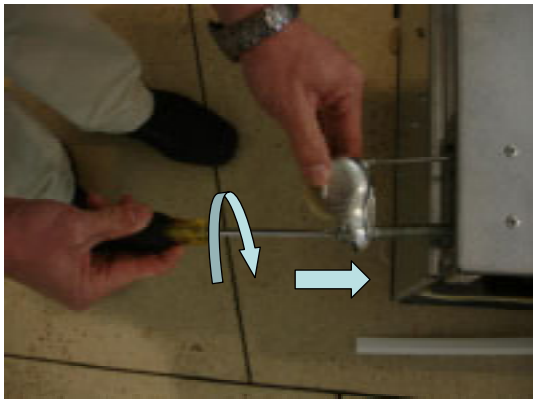
1. Insert the new flexible shaft.



guiding the shaft

2. It might be useful to remove the rear wall of appliance, to have access to the fixing sheet of the flexible shaft.

Then it is possible to guide the shaft by using a screwdriver so that it finds it‘s correct position towards front side



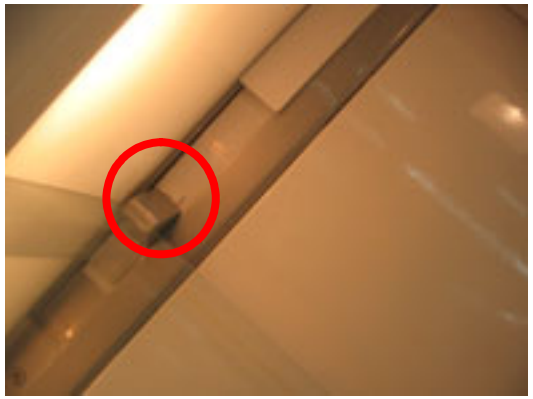
3. Screw the threaded bolt back.

CAUTION:

- **It is not recommended to use a cordless screwdriver for height adjustment! Always turn the flexible shaft manually.**
- **The adjustment of the rear-feet is facilitated if the appliance is unloaded at rear side .**

6.9 Motorized Shelf Assembly

1. Remove the locking clips of the motorized shelf on right and left. Then remove the shelf.



2. Remove the evaporator cover.

3. Remove the spindle

Unscrew the motorized shelf and rail from 4 points.

WARNING

WARNING !!!

Left motor part and right driven mechanism should be on the same level ,during installation or repair.

6.10 Trio Door Heater (Flip Mullion)

To change trio door heater:

1: Remove 2 pins, upper and lower

2. Remove the tray support by unscrewing from 3 points.

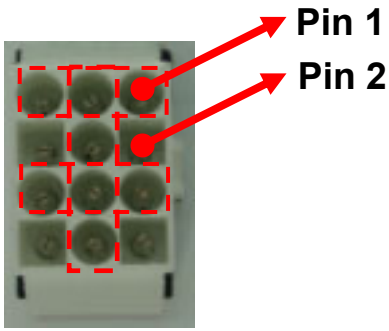
6.11 Voltage Measuring from Icemaker Socket

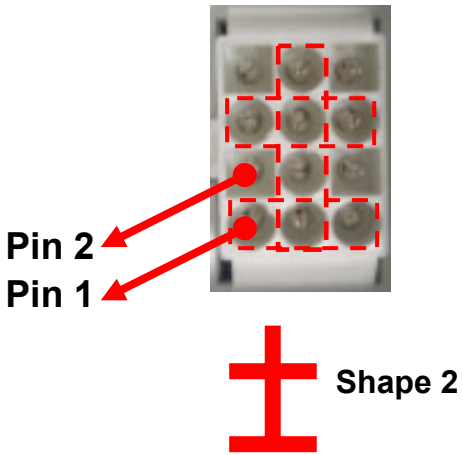
For a correct communication, between the display electronic and icemaker 5V DC between pin1 and pin2 at icemaker socket should be measured.

Ice On --> 5V

Ice Off --> 0V

Before measuring, pay attention to the direction of the socket.



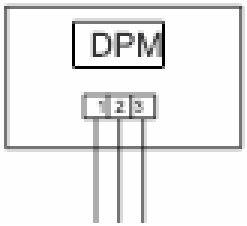


Alternative Method :

This voltage can be measured in test program, by choosing the appropriate (ICE) LOAD in load test. If in the test program icemaker is activated via setup button, than 5V should be measured.

6.12 Voltage Measuring from Display Module

9V DC between pin1 and pin 3 at the socket connection of the display electronic should be measured for a correct communication with the power module.



pin1: GND
pin2: data
pin3: 9V

6.13 Voltage Measuring from Motorized Shelf Motor

Motorized shelf is equipped with a DC motor. To check the voltage at the motorized shelf socket on the back wall, following values should be measured.

While pressing the motorized shelf upwards movement button, the voltage value is around 12 V DC.

While pressing the motorized shelf downwards movement button, the voltage value is around 9 V DC.

7 FAULT DIAGNOSTICS

7.1 Fault Displays

E01 : Fridge compartment Sensor break / short circuit
E02: Freezer compartment Sensor break / short circuit
E06 : Fridge evaporator sensor No failure message during normal operation. After auto diagnostic test, **E06** is displayed, if evaporator sensor fails

E07 : Freezer evaporator sensor. No failure message during normal operation. After auto diagnostic test, **E07** is displayed, if evaporator sensor fails

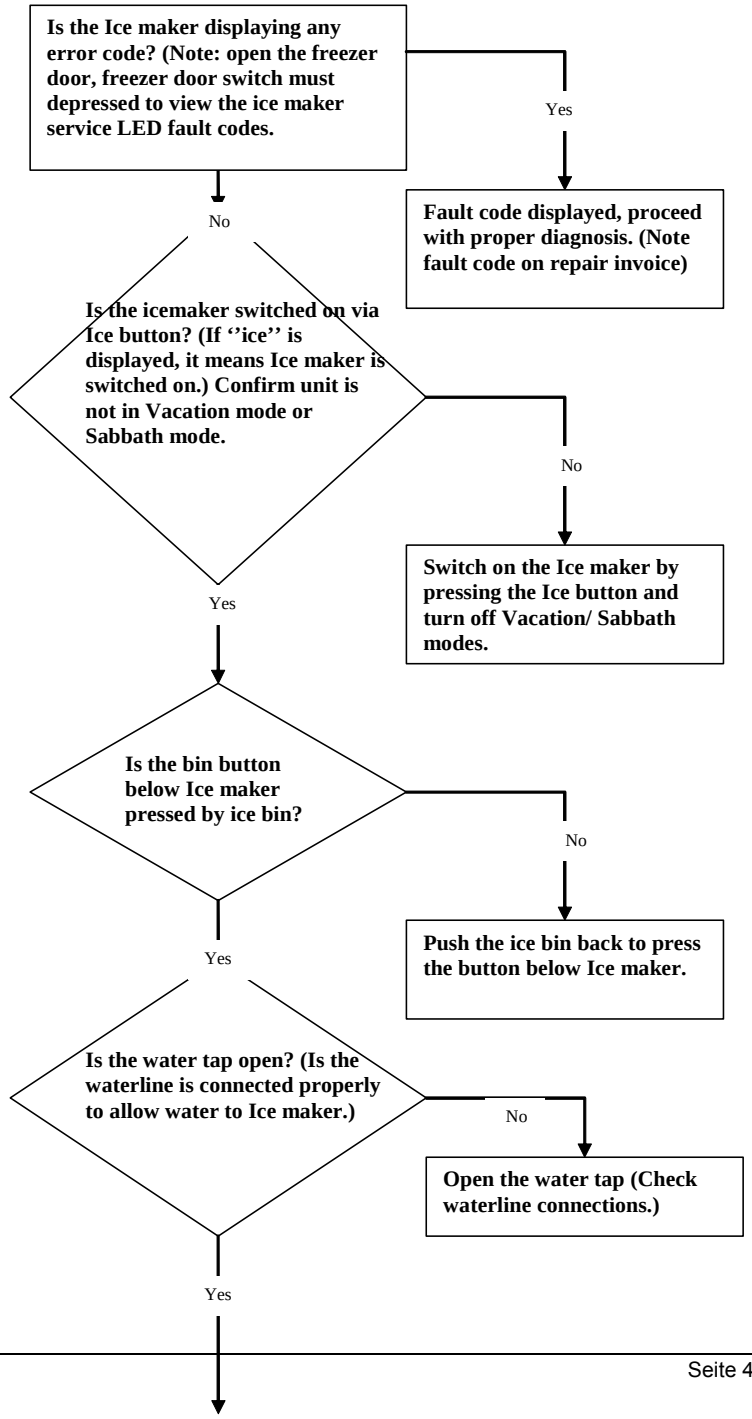
E15 : Ambient Sensor break / short circuit
E10 : Power module software failure
E11 : Display module software failure
E20 : Communication error between power and display module.
DOOROPEN: When the door remains open for longer 30 s
LOWPOWER: Not working, until the voltage is above 85 V US / 165 V EU

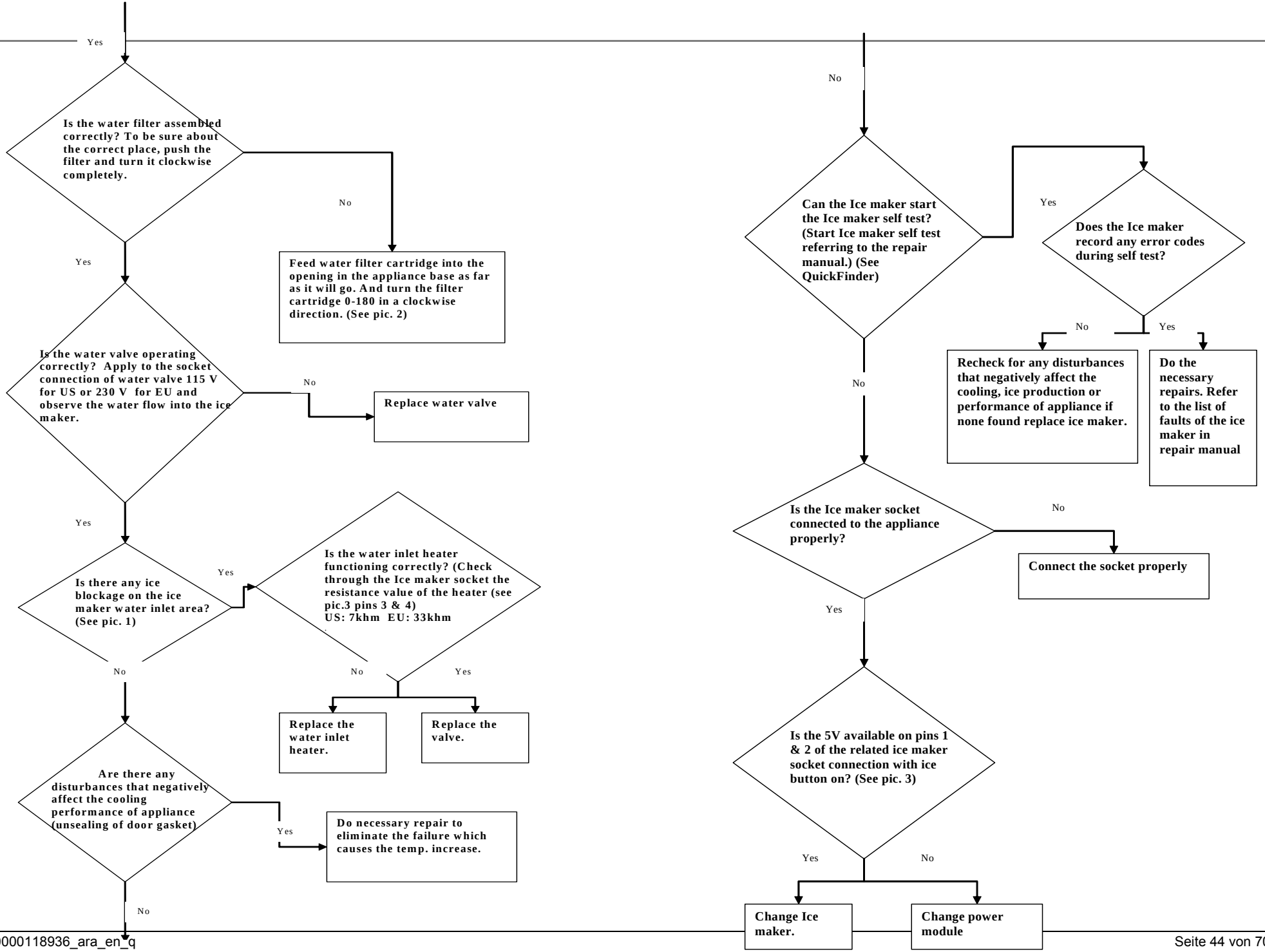
7.2 Icemaker Fault Diagnostics

TROUBLESHOOTING PLAN

Complaint: No ice production

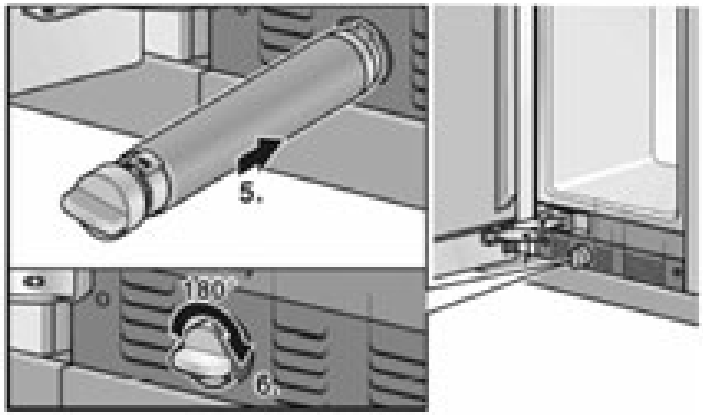
DO NOT TURN OFF CONTROL POWER SWITCH OR ICE MAKER CONTROL SWITCH ON CONTROL BOARD BEFORE PROCEEDING!



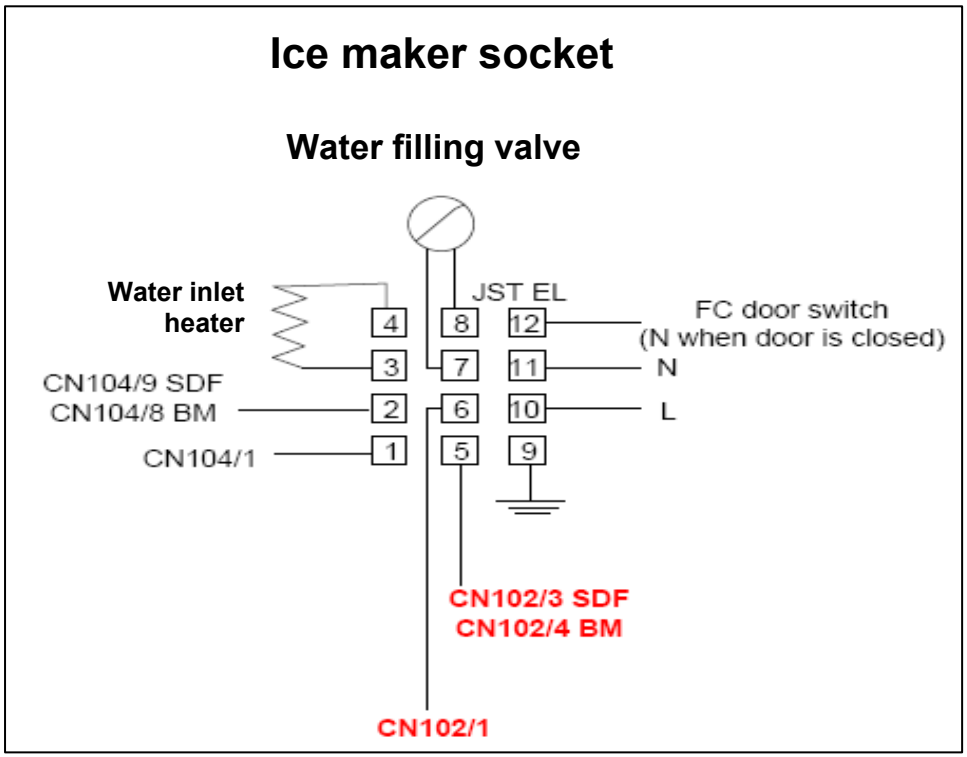

Yes
Is the water filter assembled correctly? To be sure about the correct place, push the filter and turn it clockwise completely.
No
Feed water filter cartridge into the opening in the appliance base as far as it will go. And turn the filter cartridge 0-180 in a clockwise direction. (See pic. 2)
Yes
Is the water valve operating correctly? Apply to the socket connection of water valve 115 V for US or 230 V for EU and observe the water flow into the ice maker.
No
Replace water valve
Yes
Is there any ice blockage on the ice maker water inlet area? (See pic. 1)
Yes
Is the water inlet heater functioning correctly? (Check through the Ice maker socket the resistance value of the heater (see pic.3 pins 3 & 4)
US: 7khm EU: 33khm
No
No
Yes
Replace the water inlet heater.
Replace the valve.
Are there any disturbances that negatively affect the cooling performance of appliance (unsealing of door gasket)
Yes
Do necessary repair to eliminate the failure which causes the temp. increase.
No
No
Can the Ice maker start the Ice maker self test? (Start Ice maker self test referring to the repair manual.) (See QuickFinder)
Yes
Does the Ice maker record any error codes during self test?
No
Yes
Recheck for any disturbances that negatively affect the cooling, ice production or performance of appliance if none found replace ice maker.
Do the necessary repairs. Refer to the list of faults of the ice maker in repair manual
No
Is the Ice maker socket connected to the appliance properly?
No
Connect the socket properly
Yes
Is the 5V available on pins 1 & 2 of the related ice maker socket connection with ice button on? (See pic. 3)
Yes
No
Change Ice maker.
Change power module

Pic 1

Pic 2.



Pic 3.



7.3 Icemaker Fault Display

When the Ice-maker detects an error the Red Service LED will start flashing to communicate this error.

CAUTION:

Icemaker fault display may be seen in normal operation if the light switch is pressed (fix with a tape) .

The structure of the flashed messages is as follows:

1 long flash to indicate the start of the error code.
This flash should not be counted towards any of the error codes.
Pause with the LED off.
A series of between 1 and 9 flashes. This forms code 1.
Pause with the LED off.
A series of between 1 and 9 flashes. This forms code 2.
Pause with the LED off.
A series of between 1 and 9 flashes. This forms the Device Code.

Then the fault code is established.
for ex.: (2 -1 -1)
2: Code 1
1: Code 1
1: Device Code

If an error code is detected, action list should be used for troubleshooting.

Action list for icemaker fault list:

If an error code occurs do the following control according to the following action list.

Kode 1	Kode 2	Kode 3	Problem	Action
1	1	1	Ice production cycle is interrupted.	Start icemaker self test and observe if ice tray rotates. If ice tray will not rotate: a, Check the icemaker for a mechanical blockage. b, If there is no mechanical blockage , then replace icemaker.
1	2	1	Ice production cycle is interrupted.	Start icemaker self test and observe if ice tray rotates. If ice tray will not rotate: a, Check the icemaker for a mechanical blockage. b, If there is no mechanical blockage , then replace icemaker.
1	3	1	Ice production cycle is interrupted.	Start icemaker self test and observe if ice tray rotates. If ice tray will not rotate: a, Check the icemaker for a mechanical blockage. b, If there is no mechanical blockage , then replace icemaker.
1	4	1	Ice tray heater or icemaker electronic is faulty.	Heater and electronics are not replaceable, replace the ice maker.
2	1	1	Sensor fault in ice maker	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, sensor is not replaceable, replace the ice maker
2	2	1	Sensor fault in ice maker	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, Sensor is not replaceable, replace the ice maker
2	3	1	Internal ice maker fault.	Replace the icemaker
2	4	1	Self Test Failed as Door was open.	Fix the door switch with tape.
3	1	1	Internal ice maker fault	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again,. Replace the ice maker
3	1	2	Icemaker motor faulty	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, Icemaker motor is not replaceable, replace the ice maker

3	1	3	Water valve of icemaker faulty	Check water fill valve of icemaker: If problematic replace water valve If water valve is okey, replace icemaker.
3	1	4	Ice tray heater is faulty.	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again,. Heater is not replaceable, replace the ice maker.
3	1	5	Icemaker inlet water heater problem.	Check the resistance of the inlet water heater according to the wiring diagram. US Version : 7kOhm EU Version: 33kOhm If the resistance is okey, replace the Icemaker.
3	2	1	Internal ice maker fault	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, Replace the ice maker
3	2	2	Icemaker motor faulty	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again,. Icemaker motor is not replaceable, replace the ice maker
3	2	3	Water valve of icemaker faulty	Check water fill valve of icemaker: If problematic replace water valve If water valve is okey, replace icemaker.
3	2	4	Ice tray heater is faulty.	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again,. Heater is not replaceable, replace the ice maker.
3	2	5	Icemaker inlet water heater problem.	Check the resistance of the inlet water heater according to the wiring diagram. US Version : 7kOhm EU Version: 33kOhm If the resistance is okey, replace the Icemaker.
3	3	2	Internal ice maker fault	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again,. Replace the ice maker

3	3	3	Internal ice maker fault	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, Replace the ice maker
3	3	4	Internal ice maker fault	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, Replace the ice maker
3	3	5	Internal ice maker fault	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, Replace the ice maker
3	4	2	Internal ice maker fault	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, Replace the ice maker
3	4	3	Internal ice maker fault	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, Replace the ice maker
3	4	4	Internal ice maker fault	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, Replace the ice maker
3	4	5	Internal ice maker fault	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, Replace the ice maker
4	1	1	Internal ice maker fault	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, Replace the ice maker
4	2	1	Internal ice maker fault	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, Replace the ice maker

5	1	1	Main voltage is to high.	Check main voltage
5	2	1	Main voltage is to low.	Check main voltage
5	3	1	Internal ice maker fault	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, check the water inlet heater at the back of the appliance. If the heater is functioning, replace the ice maker.
5	4	1	Internal ice maker fault	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, check the water inlet heater at the back of the appliance. If the heater is functioning, replace the ice maker.
5	5	1	Internal ice maker fault	Switch the appliance off and on. If the fault code is not displayed again, then this fault is a temporary fault. Inform the customer accordingly. If the fault code is displayed again, check the water inlet heater at the back of the appliance. If the heater is functioning, replace the ice maker.

7.4 Checking of Icemaker Sensor

To check the detective sensor and beam do the following:

- Perform icemaker self test
- At the end of test when error code LED lights up constantly for between 30s and 60s remove hopper:

  Hopper out →LED off

  Hopper in →LED on

7.5 No Ice / Ice Formation at Water Inlet of Ice Maker

Complaint:
Ice is not produced

Reason:
Icing on icemaker water inlet

Solution:
Check the following components and perform necessary repairs.

- Check if the gasket on water inlet is there or correctly positioned with the help of a mirror.

ICE MAKER GASKET CHECK

Step1

Step2

- The water valve is leaky. Water leakage at the outlet of the water valve should be checked by removing the water tube from water valve. If leakage is detected water valve should be replaced.

WATER VALVE LEAKAGE CHECK AS EXAMPLE

Step1: Water leakage should be checked.

After 5 minutes.

After 10 minutes. Same situation.
Result: No leakage

7.6 No ice / Appliances until FD 8705

Complaint:
Icemaker is not producing ice.

Reason:
Customer can not locate the ice bin correctly.

Solution:
The factory did a modification in FD 8705 and installed behind the ice bucket a magnetic latch, to help to move the bucket in its place and change the design of the bottom freezer door

For customer claims of appliances **FD < 8705 :**
Replace the bottom freezer door.

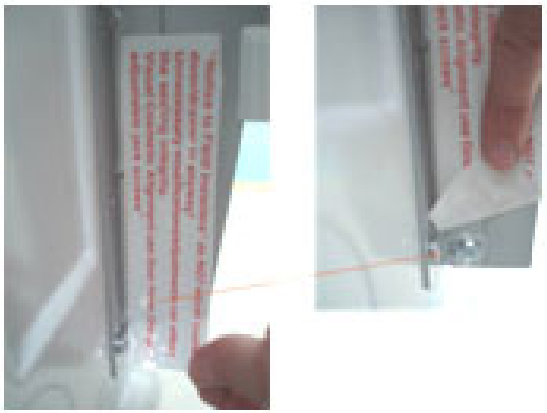
7.7 Icing in the Freezer Compartment

Problem: There is icing inside the freezer compartment around the gasket.

Reason: Gap on the lower area of freezer door. (see below)

Solution:

1. Peel of the sticker on freezer door-drawer bracket. You will see the adjustment screw.



2. Loose the screw a bit, then turn the door clockwise/counterclockwise to make the door sealed through complete door gasket

3. And fix the screw back. Put the sticker again.

7.8 Wrong Declaration of Filling Rate on Nameplates

The filling rate of R600 refrigerant for the given appliances is printed wrongly on nameplates. Below given correct values should be considered during gas charge.

Affected appliances:

RB491200 with index 02/05/06/07/08
RY491200 with index 02/03/04/05/06/07
CIB36P00 with index 01
CI36BP00 with index 01
K7791X0 with index 01

Wrong declaration on nameplates:

Fridge : 45 gr Freezer : 90 gr

Correct declaration:

Fridge : 90 gr Freezer : 45 gr

7.9 Water Leakage in Water Line Connection Hose

Complaint:
Water leakage in water line connection hose

Reason:
Defected sealing in the connection of hose.

Solution:
The improved sealing "**612618**" can be used.


The improved sealing (paper washer)

Addition this sealing, please check the position of the pilot valve (back flow protector) located at the inlet of the water hose.

If the pilot valve position is wrong, correct it by putting into the right position.

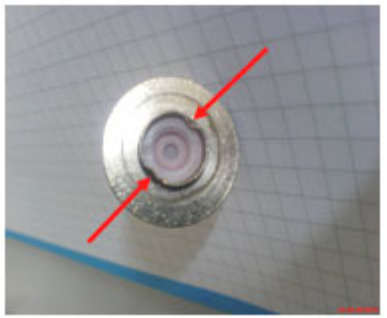
Wrong

Correct

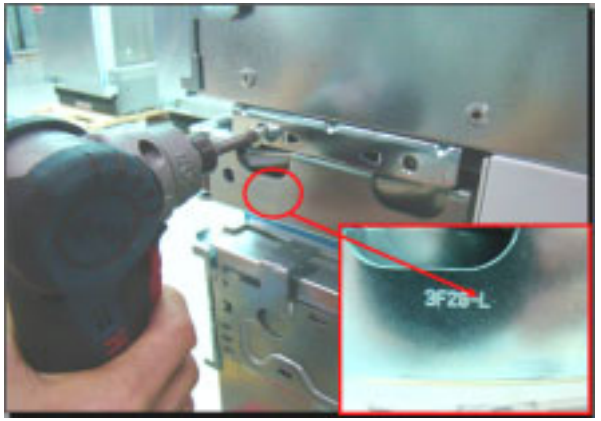
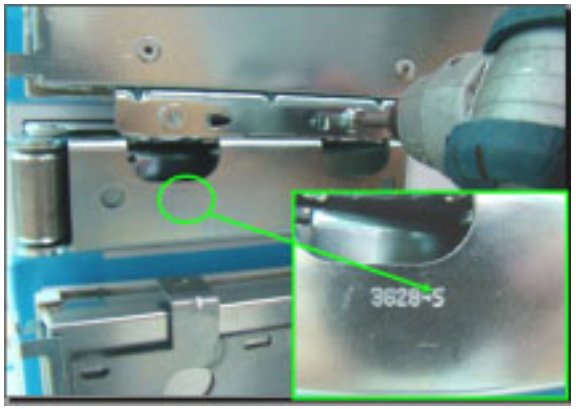
7.10 Noise coming from Condenser Area

Consequence	Cause / Measures	Remedial action
Noise coming from the condenser area	Condenser insulation sponge(s) (upper/lower) may touch the condenser fan motor blade. This situation might be caused if the separator sheet is removed from its place and *not* placed properly during the repair.	Place the sponge(s) in its correct positions.
	Condenser coils may cause vibration while the fan motor or the compressor is running.	Touch the condenser coils with hand carefully and observe the noise source.
		If the noise is **still** not eliminated after controlling the insulation sponge(s) and the condenser coils, replace the fan motor with “Sunon” brand fan. Spare part number “**643804**”

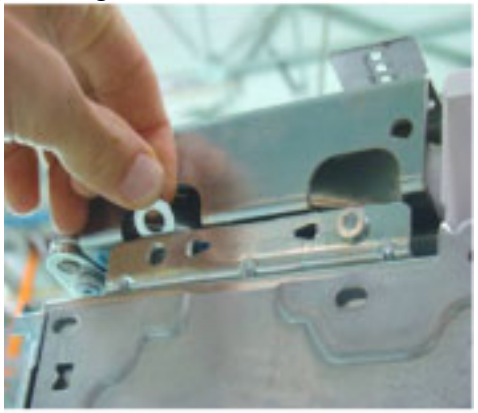
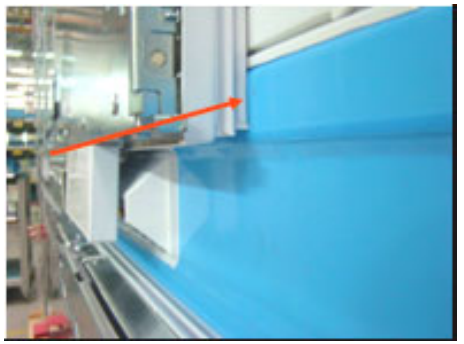
7.11 Pilot Valve (Back flow Protector) is reversing 180°

Consequence	Cause / Measures	Remedial action
Pilot valve at the inlet of water hose is reversing 180°	Due to the water pressure the pilot valve may reserve and block the water flow.	To prevent the reversing, do some bending in front of the pilot valve with a plier.  

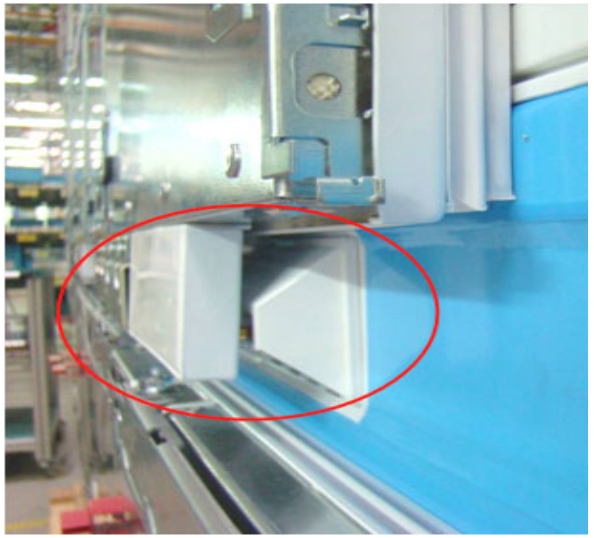
7.12 Condensation on the Evaporator Cover & Door Alignment in Trio Door (French Door) Models

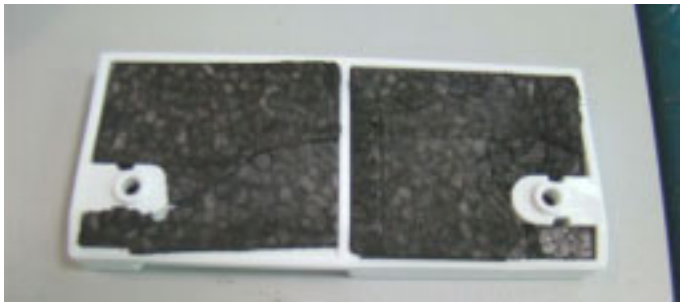
Consequence	Cause / Measures	Remedial action
Condensation on the evaporator cover and the doors are not aligned correctly 	Gap on the lower and upper corner of the left fridge door 	1.Replace **lower** left and right hinges with the strong force hinges. Lower right: **644838** Lower left : **644839** a. Remove the old (low force) hinge  b. Mount the new (strong force) hinge 

Consequence	Cause / Measures	Remedial action
		2. Put 1~1,5mm thick washer on lower left hinge. This application is **only** for the left screws on lower hinge of the left door.  When the washer is added, the upper right corner of the door gets closed. 

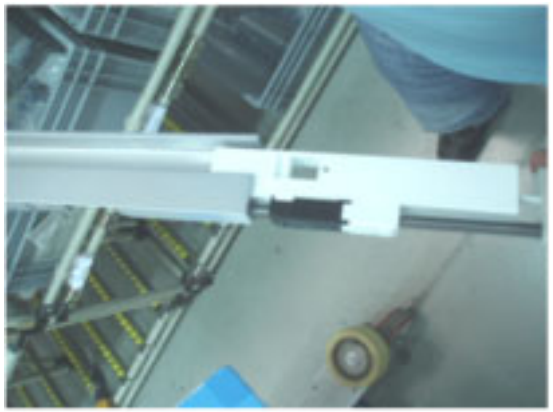
Consequence	Cause / Measures	Remedial action
		3. Put 1~1,5mm thick washer on upper left hinge. This application is **only** for the left screws on upper hinge of the left door.  When the washer is added the lower right corner of the door gets closed. 

Consequence	Cause / Measures	Remedial action
		After applying the new (strong force) hinges and washer, the gaps will be closed. 

Consequence	Cause / Measures	Remedial action
	Flip mullion heater contacts do not touch the housing contacts properly	Check if the door contacts touch the housing contacts. If the heater contacts do not touch, gently bend these contacts up with your finger in order to contact with the housing. 
	Flip mullion heater is not active	Activate “DRY DOOR” function to eliminate any possible condensation in front of the flip mullion heater.

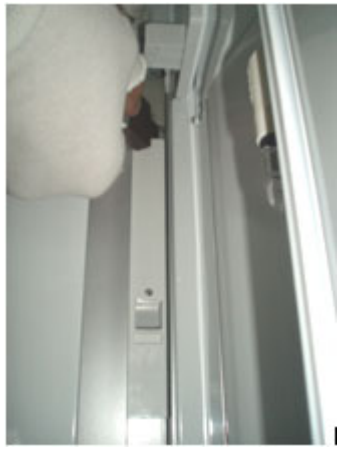
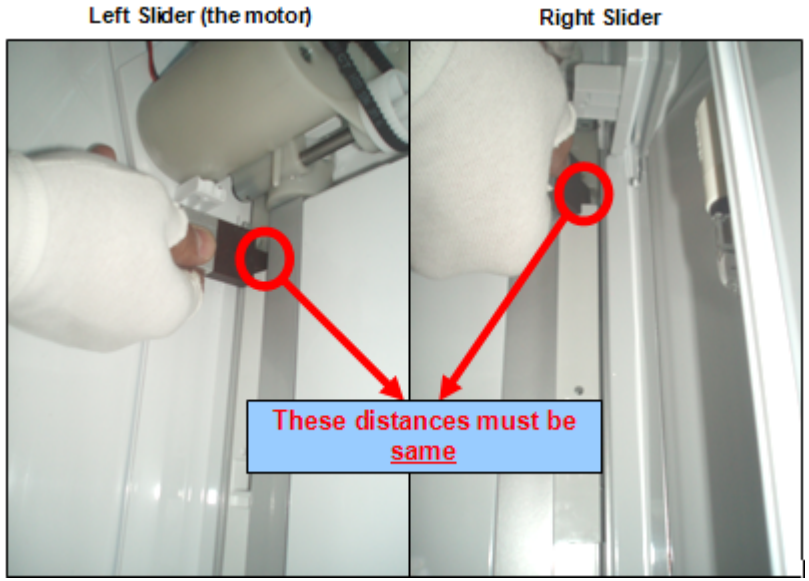
Consequence	Cause / Measures	Remedial action
	Put insulation sponges into the upper gliding plate of trio door heater (flip mullion)	1. Remove the upper gliding plate  2. Put insulation sponges into the gliding plate and close all gaps then mount the gliding plate back 

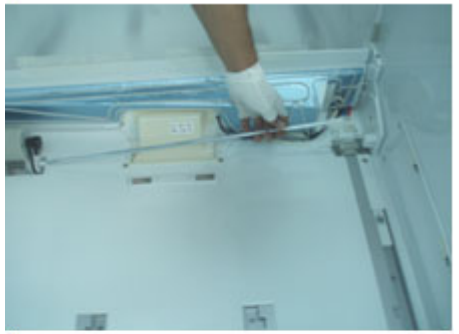
7.13 Motorized shelf is vibrating and noisy

Consequence	Cause / Measures	Remedial action
Motorized shelf is vibrating and is noisy	Due to the misalignment of the motorized shelf sliders, the shelf operates with vibration and noise	1. Put the left and right sliders into the fixing rails  2a. Mount the left slider (the motor) into the cabinet. 

Consequence	Cause / Measures	Remedial action
		2b. Mount the right slider into the cabinet.  3a. First, align the left slider (the motor) with a distance apparatus by pressing the shelf switch. 

Consequence	Cause / Measures	Remedial action
		Left slider alignment  3b.Second, align the right slider with the same distance apparatus. In this case, move the slide up/down by turning the gear of the slider with your hand. 

Consequence	Cause / Measures	Remedial action
		Right slider alignment  **<u>CAUTION!</u> THE DISTANCE THAT HAS BEEN SET FOR THE LEFT SLIDER (e.g. ~10mm) MUST BE SAME FOR THE RIGHT SLIDER.** 

Consequence	Cause / Measures	Remedial action
		4. Mount the finger guards.  5. Finally, mount the metal shaft between the sliders to fix the left & right slider alignment. 1  2 

8 TECHNICAL SPECIFICATIONS

8.1 Data Sheet

	BM36"	
	US	**EU**
Frequency (Hz)	**60**	**50**
Inverter module for freezer compressor	**YES**	**YES**
Stop valve (volt)	**120**	**220**
Frigde Tray heaters (watt)	**25**	**25**
Fridge Tray heaters (ohm)	**0.57**	**2.3**
Fridge Tray heaters (Ampere)	**0.20**	**0,1**
Freezer Tray heaters (watt)	**19**	**19**
Freezer Tray heaters (ohm)	**0.75**	**0,30**
Freezer Tray heaters (Ampere)	**0.15**	**0,082**
Fridge Evap heaters (watt)	**155**	**155**
Fridge Evap heaters (ohm)	**94**	**371**
Fridge Evap heaters (Ampere)	**1.2**	**0.57**
Freezer Evap heaters (watt)	**175**	**175**
Freezer Evap heaters (ohm)	**83**	**330**
Freezer Evap heaters (Ampere)	**1.4**	**0,69**
Waterinlet tube heater (watt)	**0,8**	**1,6**
Waterinlet tube heater (kohm)	**7**	**33**
Frezer Inside fan (mvl) (volt)	**115**	**220**
Fridge Inside fan (mvl) (volt)	**115**	**220**
Condanser fan motor (volt)	**12DC**	**12DC**
Motorized shelf motor (volt)	**12DC**	**12DC**
Fridge Compressor main winding (ohm)	**8.2**	**21**
Fridge Compressor auxiliary winding (ohm)	**9.5**	**37**
Freezer Compressor main winding (ohm)	**16.3**	**16.3**
Freezer Compressor auxiliary winding (ohm)	**16.3**	**16.3**
Tiro door heater (watt)	15	15

8.2 NTC Sensor Values

Temp. °C	R kOhm	Temp. °C	R kOhm	Temp. °C	R kOhm	Temp. °C	R kOhm
-40	169.1	-19	45.87	2	14.75	23	5.46
-39	158.19	-18	43.31	3	14.03	24	5.22
-38	148.06	-17	40.92	4	13.35	25	4.99
-37	138.66	-16	38.67	5	12.69	26	4.78
-36	129.93	-15	36.49	6	12.07	27	4.58
-35	121.75	-14	34.51	7	11.49	28	4.38
-34	114.12	-13	32.65	8	10.94	29	4.20
-33	107.03	-12	31.00	9	10.42	30	4.02
-32	100.43	-11	29.38	10	9.94	31	3.85
-31	94.28	-10	27.67	11	9.48	32	3.69
-30	88.73	-9	26.19	12	9.04	33	3.54
-29	83.42	-8	24.81	13	8.62	34	3.39
-28	78.47	-7	23.50	14	8.23	35	3.26
-27	73.84	-6	22.28	15	7.85	36	3.13
-26	69.52	-5	21.16	16	7.49	37	3.01
-25	65.31	-4	20.07	17	7.15	38	2.89
-24	61.52	-3	19.04	18	6.82	39	2.77
-23	57.98	-2	18.08	19	6.52	40	2.66
-22	54.67	-1	17.17	20	6.24		
-21	51.57	0	16.32	21	5.97		
-20	48.59	1	15.51	22	5.71		