



Refrigerator  
IKE 159-6  
IKE 189-6  
IKE 229-6

## Service Manual: H8-71-06

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## 1. Safety instructions



### **Danger!**

***Repairs may only be carried out by a qualified electrician!  
Improper repairs can be extremely dangerous for the user.***

**It is essential that you observe the following instructions in order to prevent electric shocks:**

- The casing and the frame may be live in the event of faults!
- Touching live components inside the appliance may cause dangerous currents to flow through your body!
- Disconnect the appliance from the mains prior to carrying out any repair work!
- When inspecting live parts, a residual current circuit breaker must always be used!
- Always ensure that an earthed conductor is properly connected! The ground wire resistance must not exceed that specified in the standard! It is of vital importance for ensuring the safety of people and the functioning of the appliance.
- On completion of repairs, an inspection must be carried out in accordance with VDE 0701 [Association of German Electrical Engineers] or the corresponding regulations for your country!
- Do not touch any of the components in the appliance. The modules are also live!
- Observe instructions on electrostatic hazards!
- Wear safety goggles and protective gloves when handling refrigerants. Rinse your eyes with a lot of water if refrigerant splashes into them.



### **Attention!**

Make sure you observe the following instructions:

- The appliances must be disconnected from the mains prior to all repairs. If inspections must be carried out on live appliances, make sure you use a residual current operated device.



Sharp edges: Use protective gloves.



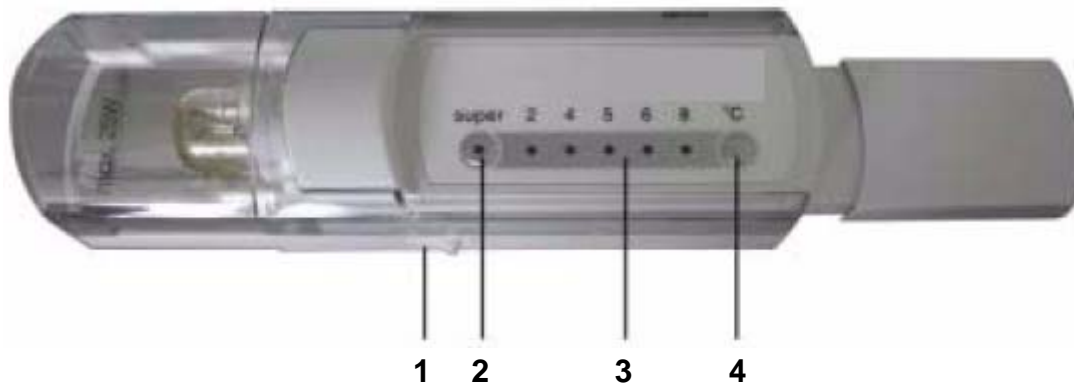
Components may be electrostatic!  
Observe handling precautions!

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## 2. Repair instructions

- Never attempt to carry out repairs by “randomly replacing” components!
- Always proceed systematically and observe the technical documentation that goes with the appliance!
- Electronic circuit boards are generally not repaired; instead they are completely replaced with original spare parts. Exceptions are documented separately.
- Pipe connections in cooling circuits are not to be soldered. Lokring connections are to be used.
- Carry out a leak test and a functional test on the cooling circuit.
- The dehumidifier is to be replaced before evacuation and filling during any intervention in the cooling circuit.
- It is essential to replace the compressor and the dehumidifier when repair work resulting from suction leaks in the cooling circuit is carried out. Humidity which gets into the cooling circuit will cause irreparable damage to the oil in the compressor.

### 3. Operation



1. Main switch
2. Super LED button
3. Temperature display
4. Temperature adjuster

#### 3.1 Main switch

The main switch is used to switch the refrigerator on and off.

#### 3.2 Temperature display

The temperature in the refrigerator section is shown with the LED chain. The selected target temperature is always shown. The LED will begin to blink when the temperature setting is changed or when the sensor temperature exceeds the temperature displayed by a 5.5 heat transfer coefficient. During the defrost phase and for 60min after defrosting the blink function will be suppressed.

#### 3.3 Temperature setting range

The setting range is from 2°C to 8°C. The basic setting is 5°C.

#### 3.4 Refrigerator section Super button

This button is used to start the Super program for the refrigerator section. Pressing this button again will discontinue the program.

## 4. Components

### 4.1 Refrigerator fan (if present)

- ◆ The fan will always be switched off when the door of the refrigerator section is open.
- ◆ The fan is switched on when the refrigerator section is being defrosted.
- ◆ When the room temperature is 27°C to 40°C the fan will clock (12min on / 20min off) if the compressor is operating.
- ◆ When the room temperature is > 40°C the fan will operate when the compressor is in operation.
- ◆ If the compressor operates for longer than 100min the fan will clock (12min on / 20min off) until the compressor switches off.

### 4.2 Heating the refrigerator section

The refrigerator section is heated by means of a reduced light bulb output. The refrigerator section is only heated when the compressor dwells.

The heating for the refrigeration section is activated:

- ◆ When the room temperature sensor is below 20°C. The light bulb will heat up more as the room temperature drops.
- ◆ When the refrigerator is defrosting.
- ◆ When the "Super Freeze function" is in operation.

The heating for the refrigeration section is not activated:

- ◆ For 120sec. after the door has been opened.
- ◆ When the evaporator sensor measures more than 25°C.

### 4.3 NTC sensor

The refrigerator is equipped with three NTC sensors. The refrigerator section sensor is located in a sensor box and can be replaced. The evaporator sensor is located in the insulating foam and cannot be replaced. The room temperature sensor is located on the electronic unit.

#### 4.4 Sensor readings

Temp. in °C	R kOhm	Temp. in °C	R kOhm	Temp. in °C	R kOhm	Temp. in °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		





### 5.3 Defrosting the refrigerator section

Commencement of a defrost phase:

- ◆ After 12h of compressor operation.
- ◆ After 10h of continuous compressor operation.
- ◆ After 2h if the evaporator sensor shows below 8°C.

The refrigerator section is initially not supplied for with power for 20min.

Then the process will wait until the refrigerator section sensor has reached 8°C and the evaporator sensor 6.5°C or until 3h have passed.

At room temperatures of > 30°C the switch-back temperature of the refrigerator section sensor will be raised from 8°C to 10°C.

The refrigerator section heater is switched on for the duration of defrosting.

### 5.4 Freezer section Super program

The freeze program is activated with the Super button. The Super LED will light up for the duration of the freeze program. The refrigerator is set at a target temperature of 0.9°C.

The refrigerator section heater is activated during the compressor dwell times in the Super program.

The appliance will switch back to the usual standard operating mode when the Super button is pressed or when 6h have passed.

### 5.5 Customer service test program

- ◆ Switch off the appliance.
- ◆ Press the Super button and keep it pressed.
- ◆ Switch on the appliance.
- ◆ Keep the Super button pressed for 5sec.
- ◆ Release the Super button.
- ◆ The right-hand LED (refrigerator section setting of 8°C) will light up.

Pressing the temperature setting button will make the test program move forward. The test will be recommenced with the first test step after the final test step.

The Super button activates the test.

If no button is pressed for 5min and if the appliance is not switched off within 5 min, the refrigerator will switch to standard operation.

LED flashes	Function
8°C	All the temperature sensors are checked. The LED will blink if all the temperature sensors are OK.
6°C	Refrigerator section fan is activated.
4°C	The refrigerator section heater is activated.
2°C	The compressor is activated.

## 6. Repairs

### 6.1 Remove the regulator/light combination



- ◆ Shift the cover cap to the left.
- ◆ Undo the screws.
- ◆ Shift the complete regulator/light combination to the right.
- ◆ Assembly is carried out in reverse order.

## 7. Trouble shooting

### 7.1 Lack of refrigerant

A lack of refrigerant will initially make itself felt in the refrigerator section of this appliance.

In a single-circuit system, the refrigerant will firstly flow through the freezer evaporator and then into the refrigerator section evaporator.

If refrigerant is not sufficiently reduced, the refrigerator section will become too cold. If a lot of refrigerant is lost, the refrigerator section will become too warm. The refrigerator section evaporator will ice up since the switch-off temperature is not reached and defrosting will hence not take place during the compressor dwell time.

### 7.2 NTC fault

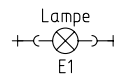
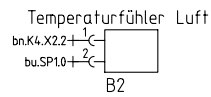
Sensor	Temperature	Behaviour of the refrigerator
Refrigerator section sensor	$\geq 50^{\circ}\text{C}, \leq -44^{\circ}\text{C}$	Refrigerator section controls: 25min on / 35min off
Refrigerator section evaporator sensor	$\geq 50^{\circ}\text{C}, \leq -44^{\circ}\text{C}$	Regulation by means of the refrigerator section sensor, defrosting every 12h
Room temperature sensor	$\geq 50^{\circ}\text{C}, \leq -20^{\circ}\text{C}$	Heater is not activated

## 8. Technical data

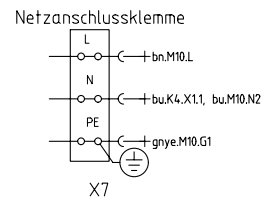
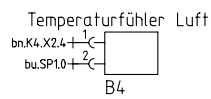
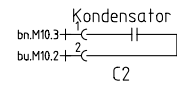
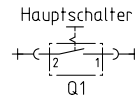
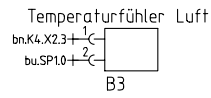
See nameplate.

## 9. Circuit diagrams

Temperaturfühler Luft	=	Air temperature sensor
Lampe	=	Lamp
Hauptschalter	=	Main switch
Kondensator	=	Condenser
Netzanschlussklemme	=	Supply terminal
Elektronische Basissteuerung	=	Electronic basic control
Verdichtermotor Danfoss	=	Compressor motor Danfoss



bu.B2.2, bu.K4.X2.1, bu.B4.2, bu.B3.2  
SP1



#### Elektronische Basissteuerung RLK

