

Replacing an NTC sensor

e.g.: IKEF 238-5, IKEF 248-5, IKEF 308-5 Z3
IKE 309-5-2T, IKE 318-4-2T, IKE 339-0
IKE 458-4-4T, ITE 239-0

Service Manual: H8-74-05

Example of a name plate

Küppersbusch	
GROSS CAPACITY BRUTTO INHALT	447 l
REFRIGERATOR NET CAPACITY KUEHL-SCHRANK NUTZINHALT	294 l
FREEZER NET CAPACITY GEFRIER-SCHRANK NUTZINHALT	96 l
FREEZING CAPACITY GEFRIER-VERMOEGEN	13 kg/24h
CLASS KLASSE	SN/ST
220-240V~ 50 Hz	250 W
REFRIGERANT REFRIGERATOR KAELEMITTEL KS	R 600 a 30gr
REFRIGERANT FREEZER KAELEMITTEL GS	R 600 a 50gr
DEFROST HEATER ABTAUWIDERSTAND	211 W
MAX INPUT OF LAMPS/LAMPEN-MAX LEISTUNG 2X15 W	
MODEL: IKE 459-4-4T	
ARTIKEL-NR. 702026	
TYPE-TYP B257826	
PROD-NO. 925 781 701/00	
GER-NO. 53500001	
CE, DE, GS	

Model design

Version type

PNC number

Year

Week

Serial number

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1. Safety



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!
- The earthed conductor resistance must not exceed the resistance specified in the standard! It is vital for ensuring the safety of persons 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 in accordance with the corresponding regulations for your country!



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!

2. Temperature sensor faults

If the NTC temperature sensor develops a fault, the corresponding symbols will be shown in the displays of the various electronic devices.

2.1 Fault checking



Attention!

Repairs may only be carried out by qualified electricians or specialists!



Attention!

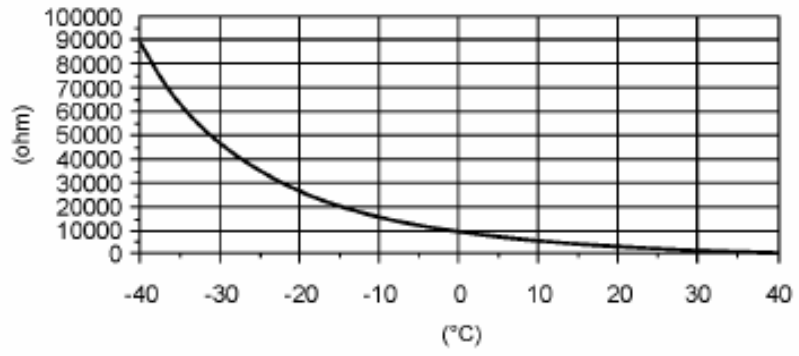
Disconnect the appliance prior to commencing with work!

1. Pull the plug out of the socket and keep the doors closed for as long as possible.
2. Switch off the temperature sensor consumers in the electronics system.
3. Position a thermometer near the temperature sensor or so that it makes contact with the temperature sensor (place the thermometer in the centre zone of the evaporator plate for evaporator sensors).
4. At the same time measure the resistance at the ends of the connector.
5. Compare the reading of the temperature and the temperature of the resistance measured (see following chart).
6. The temperature sensor will not need to be replaced if the two temperatures vary by a max of + or - 10°C. In this case the contact may be faulty, so please check the wiring of the sensor and the contacts of its connector with the electronic unit. Otherwise the temperature sensor will be defect and will need to be replaced. Please refer to the table of appliances shown on page 8 for the correct order number.
7. Repeat items 3 to 6 for each individual temperature sensor.

2.2 Features of the temperature sensor

Temperature in °C	Resistance (ohms)	Temperature in °C	Resistance (ohms)
-40	90721	-30	47606
-39	84867	-29	44735
-38	79431	-28	42056
-37	74381	-27	39556
-36	69686	-26	37221
-35	65320	-25	35039
-34	61258	-24	32999
-33	57475	-23	31092
-32	53952	-22	29307
-31	50668	-21	27637

Temperature in °C	Resistance (ohms)	Temperature in °C	Resistance (ohms)
-20	26072	11	5087
-19	24600	12	4851
-18	23221	13	4626
-17	21928	14	4414
-16	20715	15	4213
-15	19577	16	4022
-14	18509	17	3840
-13	17506	18	3668
-12	16564	19	3505
-11	15678	20	3350
-10	14845	21	3202
-9	14059	22	3062
-8	13320	23	2929
-7	12624	24	2802
-6	11969	25	2682
-5	11352	26	2567
-4	10770	27	2458
-3	10222	28	2354
-2	9705	29	2255
-1	9218	30	2161
0	8758	31	2071
1	8322	32	1985
2	7911	33	1904
3	7523	34	1826
4	7156	35	1752
5	6809	36	1681
6	6481	37	1614
7	6171	38	1549
8	5877	39	1488
9	5600	40	1429
10	5337		



3. Schedule of sensor installation

The 30-cm long cable may under no circumstances be shortened!

Faulty NTC temperature sensor																	
MODEL (NOTE)	Product number (PNC)	DATE	Refrigerator Air			Refrigerator Evaporator			Air 0°C			Freezer Air			Freezer Evaporator		
			Kit no.	Projection position	Spare part no.	Kit no.	Project. position	Spare part no.	Kit no.	Projection position	Spare part no.	Kit no.	Project. position	Spare part no.	Kit no.	Projection position	Spare part no.
EWKL1220Z	923.5340120	20071217	B	15	433725	Kit not available			Not available			B	15	433725	Not available		
EWKR1220Z	923.5340110	20071218	B	15	433725	Kit not available			Not available			B	15	433725	Not available		
EWKR1220Z	923.5340110	20080818	B	15	433725	Kit not available			Not available			B	15	433725	Not available		
IGU139-0	933.0270100	20091002	Not available			Not available			Not available			Kit not available			Not available		
IKE198-0	923.7610070	20090914	B	11	433725	Not available			Not available			Not available			Not available		
IKE238-7	923.7810180	20090702	B	11	433725	Kit not available			Not available			Not available			Not available		
IKE248-7	923.7910150	20090629	B	11	433725	Not available			Not available			Not available			Not available		
IKE309-5-2T	925.6966550	20050415	B	4	433725	Kit not available			Not available			Not available			Kit not available		
IKE309-5-2T	925.6966600	20060414	B	4	433725	Kit not available			Not available			Not available			Kit not available		
IKE309-5-2T	925.6966610	20060609	B	4	433725	Kit not available			Not available			Not available			Kit not available		
IKE309-6-2T	925.6966690	20071109	B	4	433725	Kit not available			Not available			Not available			Kit not available		
IKE309-6-2T	925.6966800	20091027	B	4	433725	Kit not available			Not available			Not available			Kit not available		
IKE318-4-2T	925.7006800	20040514	B	2	433725	Kit not available			Not available			Not available			Kit not available		
IKE318-4-2T	925.7006800	20040924	B	2	433725	Kit not available			Not available			Not available			Kit not available		
IKE318-4-2T	925.7006800	20050225	B	2	433725	Kit not available			Not available			Not available			Kit not available		
IKE318-4-2T	925.7006590	20010216	B	2	433725	Kit not available			Not available			Not available			Kit not available		
IKE318-4-2T	925.7006590	20010926	B	2	433725	Kit not available			Not available			Not available			Kit not available		
IKE318-4-2T	925.7006590	20030124	B	2	433725	Kit not available			Not available			Not available			Kit not available		
IKE318-4-2T	925.7006590	20030606	B	2	433725	Kit not available			Not available			Not available			Kit not available		
IKE318-4-2T	925.7006800	20040402	B	2	433725	Kit not available			Not available			Not available			Kit not available		
IKE318-5-2T	925.7016680	20060324	B	5	433725	Kit not available			Not available			Not available			Kit not available		
IKE318-5-2T	925.7016700	20060602	B	5	433725	Kit not available			Not available			Not available			Kit not available		
IKE318-62T	925.7016780	20071109	B	5	433725	Kit not available			Not available			Not available			Kit not available		
IKE318-62T	925.7016780	20080218	B	5	433725	Kit not available			Not available			Not available			Kit not available		
IKE318-62T	925.7016780	20080706	B	5	433725	Kit not available			Not available			Not available			Kit not available		
IKE325-0-2T	925.7717420	20080626	B	5	433725	Not available			Not available			Not available			Not available		
IKE325-0-2T	925.7717420	20090717	B	5	433725	Not available			Not available			Not available			Not available		
IKE325-0-2T	925.7717420	20100416	B	5	433725	Not available			Not available			Not available			Not available		

The 30-cm long cable may under no circumstances be shortened!																			
Faulty NTC temperature sensor																			
MODEL	Product number (PNC)	DATE	Refrigerator Air			Refrigerator Evaporator			Air 0°C			Freezer Air			Freezer Evaporator				
(NOTE)			Kit no.	Projection position	Spare part no.	Kit no.	Project. position	Spare part no.	Kit no.	Projection position	Spare part no.	Kit no.	Project. position	Spare part no.	Kit no.	Projection position	Spare part no.		
	See comment at the end of the chart!																		
IKE339-0	923.8017230	20060526	B	6	433725			439071			Not available			Not available			Not available		
IKE339-0	923.8017230	20070406	B	6	433725			439071			Not available			Not available			Not available		
IKE339-0	923.8017310	20070518	B	6	433725			439071			Not available			Not available			Not available		
IKE339-0CN	923.8017440	20090509	B	6	433725			439071			Not available			Not available			Not available		
IKE339-1	923.8017320	20071105	B	6	433725			439071			Not available			Not available			Not available		
IKE339-1	923.8017320	20090630	B	6	433725			439071			Not available			Not available			Not available		
IKE339-1	923.8017320	20100610	B	6	433725			439071			Not available			Not available			Not available		
IKE458-4-4T	925.7817010	20040910	B	8	433725			Kit not available			Not available			D		433724	C1		438701 !*
IKE458-4-4T	925.7817050	20060224	B	8	433725			Kit not available			Not available			D		433724	C1		438701 !*
IKE458-4-4T	925.7817050	20070914	B	8	433725			Kit not available			Not available			D		433724	C1		438701 !*
IKE458-5-4T	925.7817080	20071026	B	8	433725			Kit not available			Not available			D		433724	C1		438701 !*
IKE458-5-4T	925.7817080	20071001	B	8	433725			Kit not available			Not available			D		433724	C1		438701 !*
IKE458-5-4T	925.7817080	20080421	B	8	433725			Kit not available			Not available			D		433724	C1		438701 !*
IKE458-5-4T	925.7817080	20090214	B	8	433725			Kit not available			Not available			D		433724	C1		438701 !*
IKE458-5-4T	925.7817080	20100205	B	8	433725			Kit not available			Not available			D		433724	C1		438701 !*
IKEF2380-0	923.4570240	20090528	C		433723			C1			438701 !*			D		433724			Not available
IKEF2380-0	923.7480050	20100226	B	16	433725			Kit not available				B	16	433725					Not available
IKEF238-5	923.4570070	20040514	C		433723			C1			438701 !*			D		433724			Not available
IKEF238-5	923.4570070	20040702	C		433723			C1			438701 !*			D		433724			Not available
IKEF238-5	923.4570070	20050520	C		433723			C1			438701 !*			D		433724			Not available
IKEF238-5	923.4570070	20050715	C		433723			C1			438701 !*			D		433724			Not available
IKEF238-5	923.4570150	20060331	C		433723			C1			438701 !*			D		433724			Not available
IKEF238-5	923.4570160	20060623	C		433723			C1			438701 !*			D		433724			Not available
IKEF238-5	923.4570160	20060818	C		433723			C1			438701 !*			D		433724			Not available
IKEF238-6	923.4570180	20080229	C		433723			C1			438701 !*			D		433724			Not available
IKEF238-6	923.7480040	20091013	B	16	433725			Kit not available				B	16	433725					Not available
IKEF2480-0	923.5240400	20090519	C		433723			C1			438701 !*			D		433724			Not available
IKEF2480-0	923.8210070	20091130	B	16	433725			Kit not available				B	16	433725					Not available

The 30-cm long cable may under no circumstances be shortened!

Faulty NTC temperature sensor																	
MODEL (NOTE)	Product number (PNC)	DATE	Refrigerator Air			Refrigerator Evaporator			Air 0°C			Freezer Air			Freezer Evaporator		
			Kit no.	Projection position	Spare part no.	Kit no.	Project. position	Spare part no.	Kit no.	Projection position	Spare part no.	Kit no.	Project. position	Spare part no.	Kit no.	Projection position	Spare part no.
IKEF248-5	923.5240100	20040514	C		433723	C1		438701 !*	D		433724						
IKEF248-5	923.5240100	20040702	C		433723	C1		438701 !*	D		433724						
IKEF248-5	923.5240100	20050513	C		433723	C1		438701 !*	D		433724						
IKEF248-5	923.5240100	20051028	C		433723	C1		438701 !*	D		433724						
IKEF248-5	923.5240220	20060428	C		433723	C1		438701 !*	D		433724						
IKEF248-5	923.5240270	20060428	C		433723	C1		438701 !*	D		433724						
IKEF248-5	923.5240270	20060728	C		433723	C1		438701 !*	D		433724						
IKEF248-5	923.5240270	20070726	C		433723	C1		438701 !*	D		433724						
IKEF248-6	923.5240320	20071026	C		433723	C1		438701 !*	D		433724						
IKEF248-6	923.8210060	20091031	B	16	433725			Kit not available	B	16	433725						
IKEF308-5Z3	925.7036590	20050311	C		433723	C1		438701 !*	B	1	433725						
IKEF308-5Z3	925.7036690	20060414	C		433723	C1		438701 !*	B	1	433725						
IKEF308-5Z3	925.7036700	20060424	C		433723	C1		438701 !*	B	1	433725						
IKEF308-5Z3	925.7036700	20060929	C		433723	C1		438701 !*	B	1	433725						
IKEF308-5Z3	925.7036700	20070406	C		433723	C1		438701 !*	B	1	433725						
IKEF308-5Z3	925.7036700	20070427	C		433723	C1		438701 !*	B	1	433725						
IKEF308-5Z3	925.7036700	20070430	C		433723	C1		438701 !*	B	1	433725						
IKEF308-6Z3	925.7036750	20071119	C		433723	C1		438701 !*	B	1	433725						
IKEF308-6Z3	925.7036750	20081209	C		433723	C1		438701 !*	B	1	433725						
IKEF308-6Z3	925.7036750	20090506	C		433723	C1		438701 !*	B	1	433725						
IKEF308-6Z3	925.7036750	20090715	C		433723	C1		438701 !*	B	1	433725						
IKEF308-6Z3	925.7036750	20100623	C		433723	C1		438701 !*	B	1	433725						
IKEF329-0	923.8120050	20090807	B	16	433725			Kit not available	B	16	433725						
ITE137-0	922.7600060	20090630			Not available			Not available			Not available	B	3	433725			Not available
ITE138-0	922.7610040	20091110			Not available			Not available			Not available	B	3	433725			Not available
ITE139-0	922.7720080	20090909			Not available			Not available			Not available	B	3	433725			Not available
ITE139-0	922.7720080	20100507			Not available			Not available			Not available	B	3	433725			Not available
ITE139-0	922.8040060	20070713			Not available			Not available			Not available	B	3	433725			Not available

The 30-cm long cable may under no circumstances be shortened!

Faulty NTC temperature sensor																	
MODEL (NOTE)	Product number (PNC)	DATE	Refrigerator Air			Refrigerator Evaporator			Air 0°C			Freezer Air			Freezer Evaporator		
			Kit no.	Projection position	Spare part no.	Kit no.	Project. position	Spare part no.	Kit no.	Projection position	Spare part no.	Kit no.	Project. position	Spare part no.	Kit no.	Projection position	Spare part no.
ITE239-0	9.2275E+10	20060519	Not available			Not available			Not available			B	3	433725	Not available		
ITE239-0	9.2275E+10	20070629	Not available			Not available			Not available			B	3	433725	Not available		
ITE239-0CN	9.2275E+10	20090520	Not available			Not available			Not available			B	3	433725	Not available		
ITE239-1	9.2275E+10	20080314	Not available			Not available			Not available			B	3	433725	Not available		
ITE239-1	9.2275E+10	20090907	Not available			Not available			Not available			B	3	433725	Not available		
KE680-1-2T	923.8075050	20080104	B	6	433725	Kit not available			Not available			Not available			Not available		
KE680-1-2T	923.8075050	20080111	B	6	433725	Kit not available			Not available			Not available			Not available		
KE680-1-2T	925.8075100	20080111	D		433724	Not available			Not available			B	7	433725	Not available		
KE680-1-2T	925.8075100	20081219	D		433724	Not available			Not available			B	7	433725	Not available		
KE680-1-3T	925.8075110	20080215	D		433724	Not available			Not available			B	7	433725	Not available		

See appliances outlined in red:

The 439071 kit is a replacement electronic unit. It is installed in the event of a breakdown of the refrigerator evaporator sensor to enable the appliance to continue to operate.

4. Projection positions

Position 1



Position 2



Position 3



Position 4



Position 5



Position 6



Position 7



Position 8



Position 9

Important note:

Drill through the area of the bump/marketing X when KIT B is to be used (see illustration).

Otherwise, if KIT NOT AVAILABLE is shown, do not drill through the area because the sensor will be foamed on the side panel, so that KIT B cannot be used due to interference between the sensor cover and the freezer box.

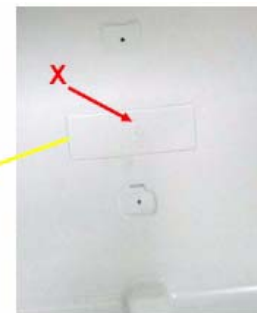


Position 9a

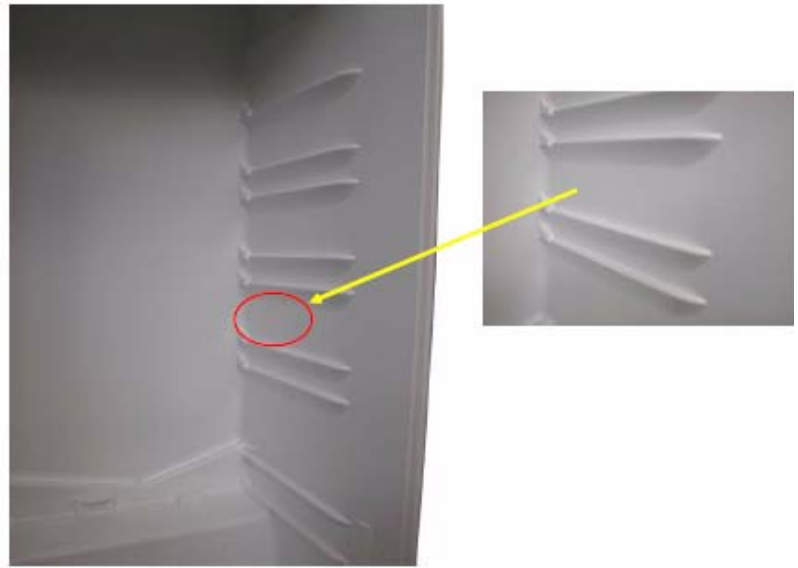
Important note:

If the service bulletin indicates that KIT B, spare-part no. 433725 is to be used, drill through the area of the bump/marketing X (see illustration).

Otherwise, if KIT NOT AVAILABLE is shown, do not drill through the area because the sensor will be foamed on the side panel, so that KIT B cannot be used due to interference between the sensor cover and the freezer box.



Position 10



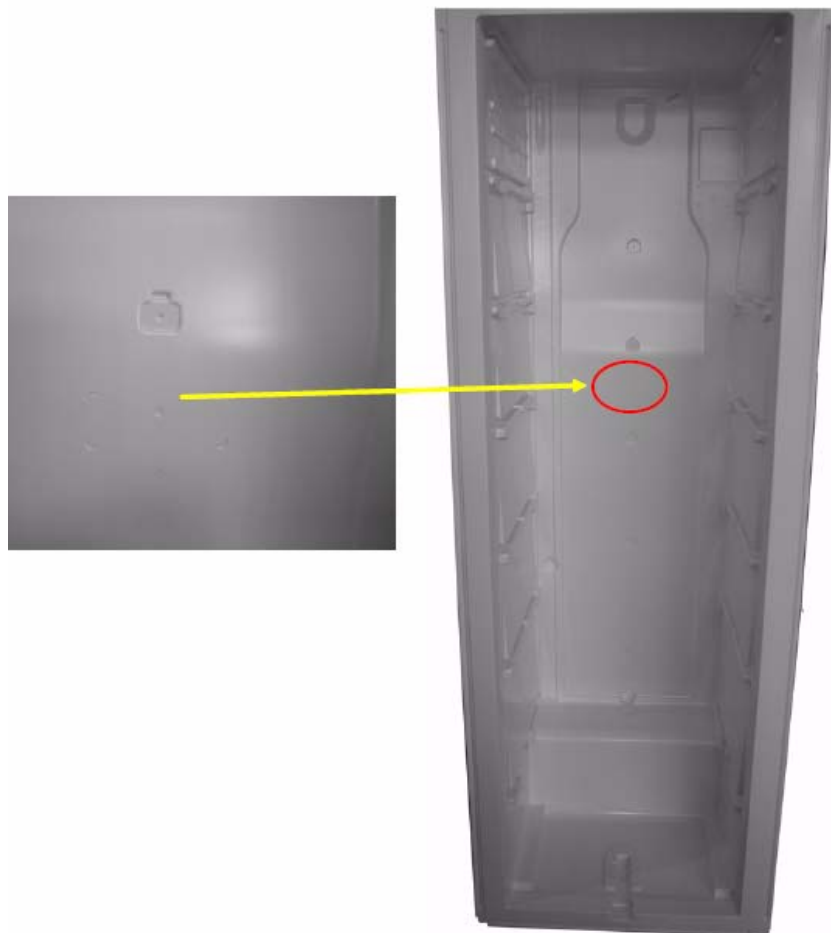
Position 11



Position 12



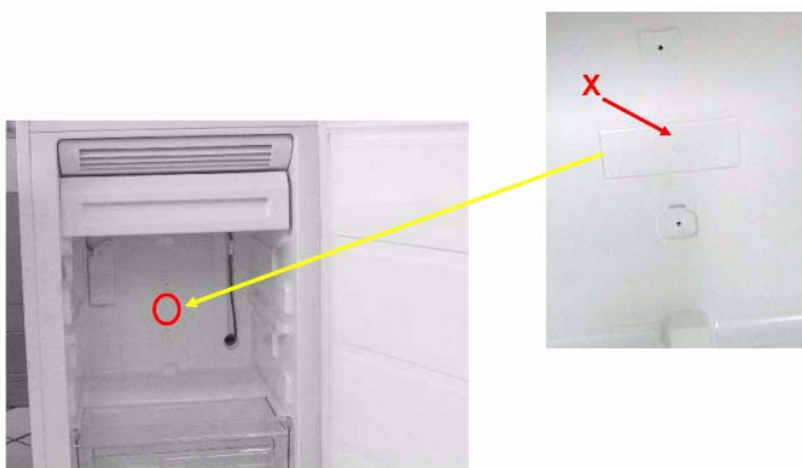
Position 13



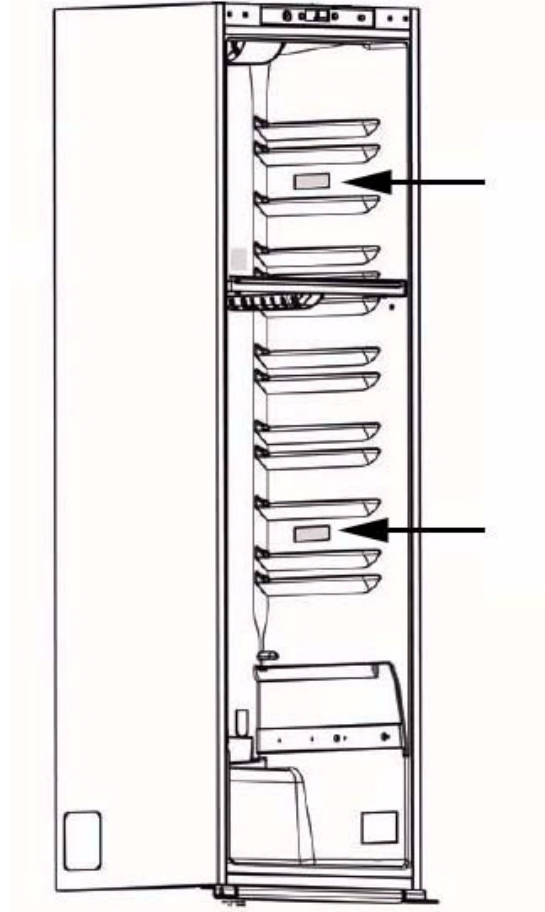
Position 14

Important note:

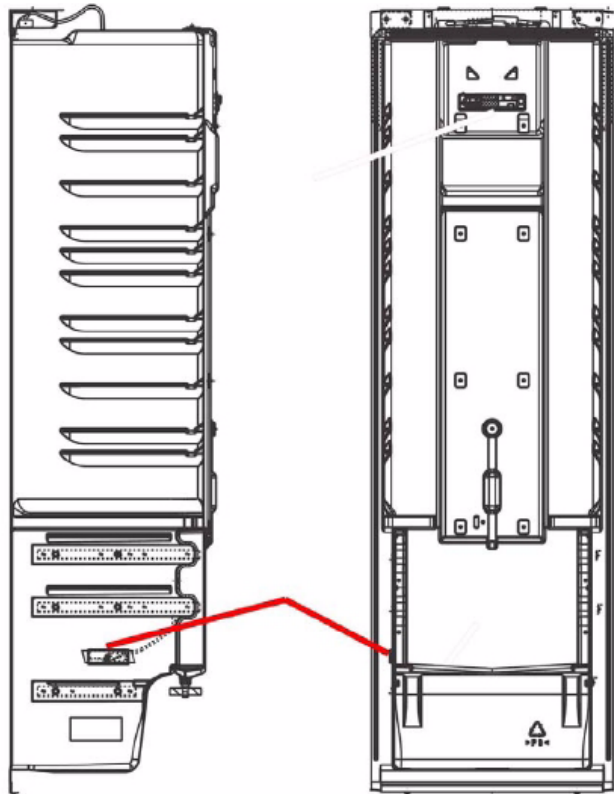
Drill through the area of the bump/marking X (see illustration).



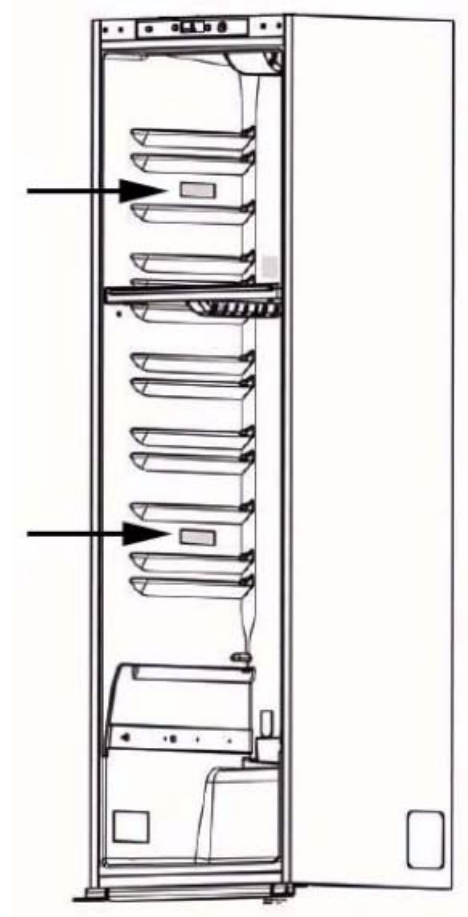
Position 15



Position 16



Position 17



5. Instructions for replacing a sensor

5.1 Kit A3 - spare part no. 43 90 03



Warning!

Unplug the appliance, before carrying out the operations!

Please replace a defect sensor as follows:

- a) Remove the electronic unit holder.
- b) Remove the previous electronic components.
- c) Disconnect the group connector from the previous power electronic unit.
- d) Re-insert the group socket of the new power electronic unit.
- e) Insert the holder and the new electronic components (power electronic unit and display electronic unit (see illustration A)



Please note: Even if the defect temperature sensor of the evaporator remains attached, the new electronic unit will only use the air temperature sensor of the refrigerator.

5.2 Kit B - spare part no. 43 37 25

The service kit consists of:

- Temperature sensor for the service
- Housing cover for temperature sensor
- Screw cover
- Fixing screw
- 50 mm heat shrink tubing
- 2 x 15 mm heat shrink tubing
- Instruction sheet



Warning!

Unplug the appliance, before carrying out the operations!

Please replace a faulty sensor as follows:

1. Identify the indentation on the compartment wall (see figure and the section on projection positions).



2. Use a 10-mm drill to drill a hole in the compartment where the bump is.



3. Cut the cable of the faulty temperature sensor.



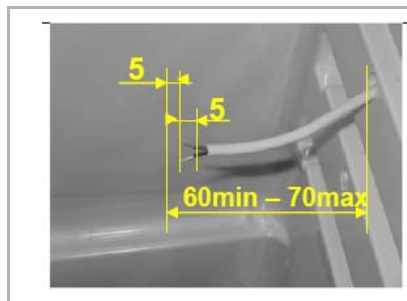
4. Take the cable with some pliers (note: the faulty sensor must not be removed from the inside of the compartment).



5. Pull out the cable of the temperature sensor.



6. Cut and remove the sleeve according to the measures shown in the figure.



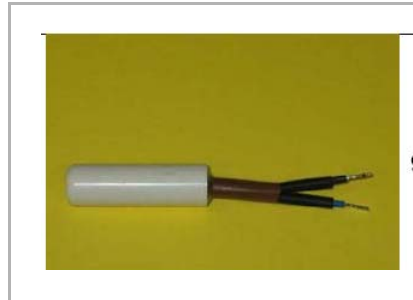
7. Solder the two cables.



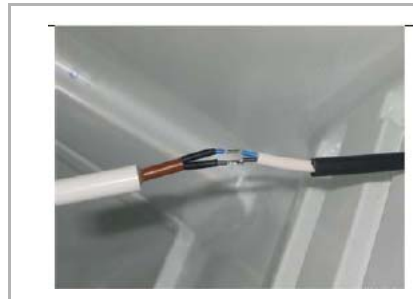
8. Insert the cable into the 50 mm heat shrink tubing.



9. Insert the cables of the new temperature sensor into the two 15 mm heat shrink tubings.



10. Solder the cables of the new temperature sensor with the cables of the cable pulled out before.



11. Warm up the two heat shrink tubings to insulate the 2 soldered junctions.



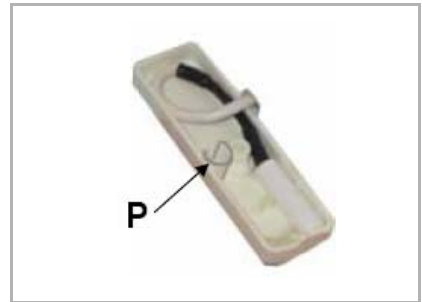
12. Warm up the 50 mm heat shrink tubing to insulate the cables with the junctions.



13. Fit the new sensor into the cover of the housing and fit the cable as shown in figure.



14. Insert the element P in the hole previously drilled in the compartment (where the cable comes out).



15. Fit the cover in the rectangular seat in the compartment (if no seat is there, place the cover so as not to interfere with the drawers and/or with the shelves) and fix it with the screw supplied with the kit.



16. Fit the screw cover.



5.3 Kit C - spare part no. 433723 and Kit C1 - spare part no. 438701

The service kits consist of:

- Temperature sensor for the service
- 50 mm heat shrink tubing
- 2 x 15 mm heat shrink tubing
- Instruction sheet



Important!

The cable (approx. 30 cm in length) of Kit 438701 may not be shortened.



Warning!

Unplug the appliance, before carrying out the operations!

Please replace a faulty sensor as follows:

1. Remove the shelves and/or the drawers. Access the faulty temperature sensor.

Note! The support of the temperature sensor might be different according to the appliance.



2. Remove the faulty temperature sensor.

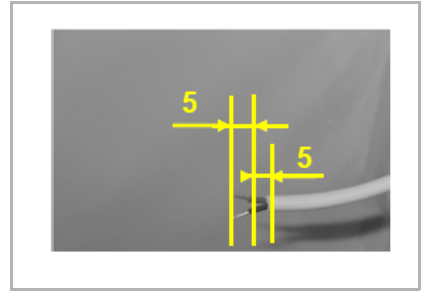


3. Disconnect the cable of the defect temperature sensor after a check has been made to ensure that the new sensor can reach the right position.

Only for Kit C1: the cable of the new sensor does not need to be shortened for insulation reasons! The excess cable must be properly positioned later.



4. Cut and remove the sleeve according to the measures shown in the figure.



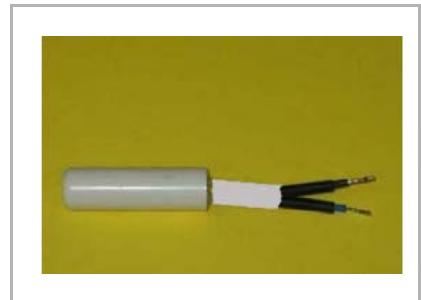
5. Solder the two cables.



6. Insert the cable into the 50 mm heat shrink tubing.



7. Insert the cables of the new temperature sensor into the two heat shrink tubings.



8. Solder the cables of the new temperature sensor with the cables of the cable pulled out before.



9. Warm up the two heat shrink tubings to insulate the 2 soldered junctions.



10. Warm up the 50 mm heat shrink tubing to insulate the cables with the junctions.



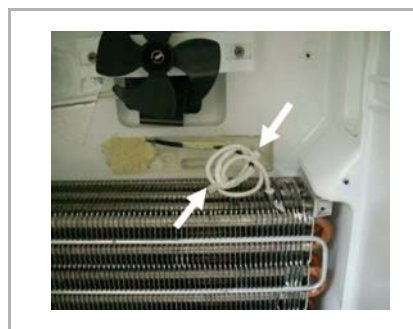
11. Instal the new sensor in the original casing. The excess cable must be properly positioned.

PLEASE NOTE FOR 4-DOOR MODELS (PNC 925 781 xxx):

Detail of the position of the defect original sensor.



Detail of the position of the new sensor cable. Excess cable must be fastened with 2 clamps in order to avoid the fan and the defroster heating from making contact.



Important!

The cable may not be shortened.

5.4 Kit D - spare part no. 433724

The service kit consists of:

- Temperature sensor for the service
- 50 mm heat shrink tubing
- 2 x 15 mm heat shrink tubings
- Instruction sheet



Warning!

Unplug the appliance, before carrying out the operations!

Please replace a defect sensor as follows:

1. Remove the shelves and/or the drawers. Remove the faulty temperature sensor.

Note! The support of the temperature sensor might be different according to the appliance.



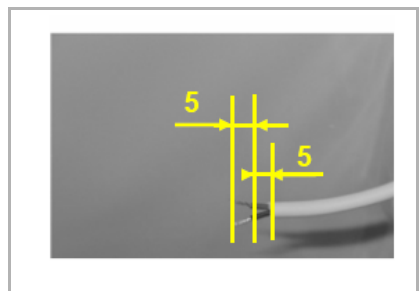
2. Cut the cable of the faulty temperature sensor.



3. Remove the faulty temperature sensor.



4. Cut and remove the sleeve according to the measures shown in the figure.



5. Solder the two cables.



6. Insert the cable into the 50 mm heat shrink tubing.



7. Insert the cables of the new temperature sensor into the two 15 mm heat shrink tubings.



8. Solder the cables of the new temperature sensor with the cables of the cable pulled out before.



9. Warm up the two heat shrink tubings to insulate the 2 soldered junctions.



10. Warm up the 50 mm heat shrink tubing to insulate the cables with the junctions.



11. Fit the new sensor into its original housing. Reposition the protection grid of the temperature sensor.

Note! Place the cable so that it doesn't get in contact with the grid's hooks shown in the figure, in order to avoid damaging the cable when fitting the grid.



5.5 Replacement electronic unit - spare-part no. 43 37 24

The 439071 kit is a replacement electronic unit. It is installed in the event of a breakdown of the refrigerator evaporator sensor to enable the appliance to continue to operate.