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1 – IDENTIFICATION :

1.1 – Multibras Version

W	R	E	48	D	R	Y	WY	00	DESCRIPCION
								ENG ^{ING.} DIGIT	00= Lauching
								DESTINATION	WY= Turkey
								VOLTAGE	Y= 230V / 50Hz
								COLOR	B= White color (painted) S= Silver/ Aluminium color (painted) R= Stainless steel, finishing
								VERSION	D= 4° Version (for this model, this is the first version)
								CAPACITY	48=480 liters, 44=440 liters (commercial)
								TYPE	E= Bottom Mount (Combi) No Frost, Dual Fan
								PRODUCT	R= Refrigerator
								BRAND	W= WHIRLPOOL

1.2 – Multibras Serial Number

X	X	X	XXXXXX	DESCRIPCION
			4° DIGIT	Serial Number (Sequential manufacturing number)
			3° DIGIT	Manufacturing Year
			2° DIGIT	Manufacturing Month
			1° DIGIT	Manufacturing Plant (Factory)

The first digit indicates the Factory Plant (in Brasil), identified by a letter as follows:

C – Rio Claro Plant	P – São Paulo Plant	J – Joinville Plant
I – Imported Products	M – Manaus Plant	

The second digit indicates the manufacturing month of the product:

A – January	D – April	G – July	J – October
B – February	E – May	H – August	L – November
C – March	F – June	I – September	M – December

The third digit indicates the manufacturing year of the product:

8 – 1998	1 – 2001	4 – 2004	7 – 2007
9 – 1999	2 – 2002	5 – 2005	8 – 2008
0 – 2000	3 – 2003	6 – 2006	9 – 2009

The following six digits indicate the product manufacturing sequential:

Example: 000001, 000002,

2 – TECHNICAL INFORMATION

2.1 – Technical Specifications

Characteristics	ARC8140IX
Volts (V)	230
Voltage oscillation - allowed (V)	160 to 260
Frequency (Hz)	50
Current (A)	0,6
Power (W)	120
Tension Stabilizer recommended (W)	1000
Circuit Breaker (A)	10
Freezing Capacity (kg/24h)	10,5

2.2 – Capacity, Weight and Dimensions

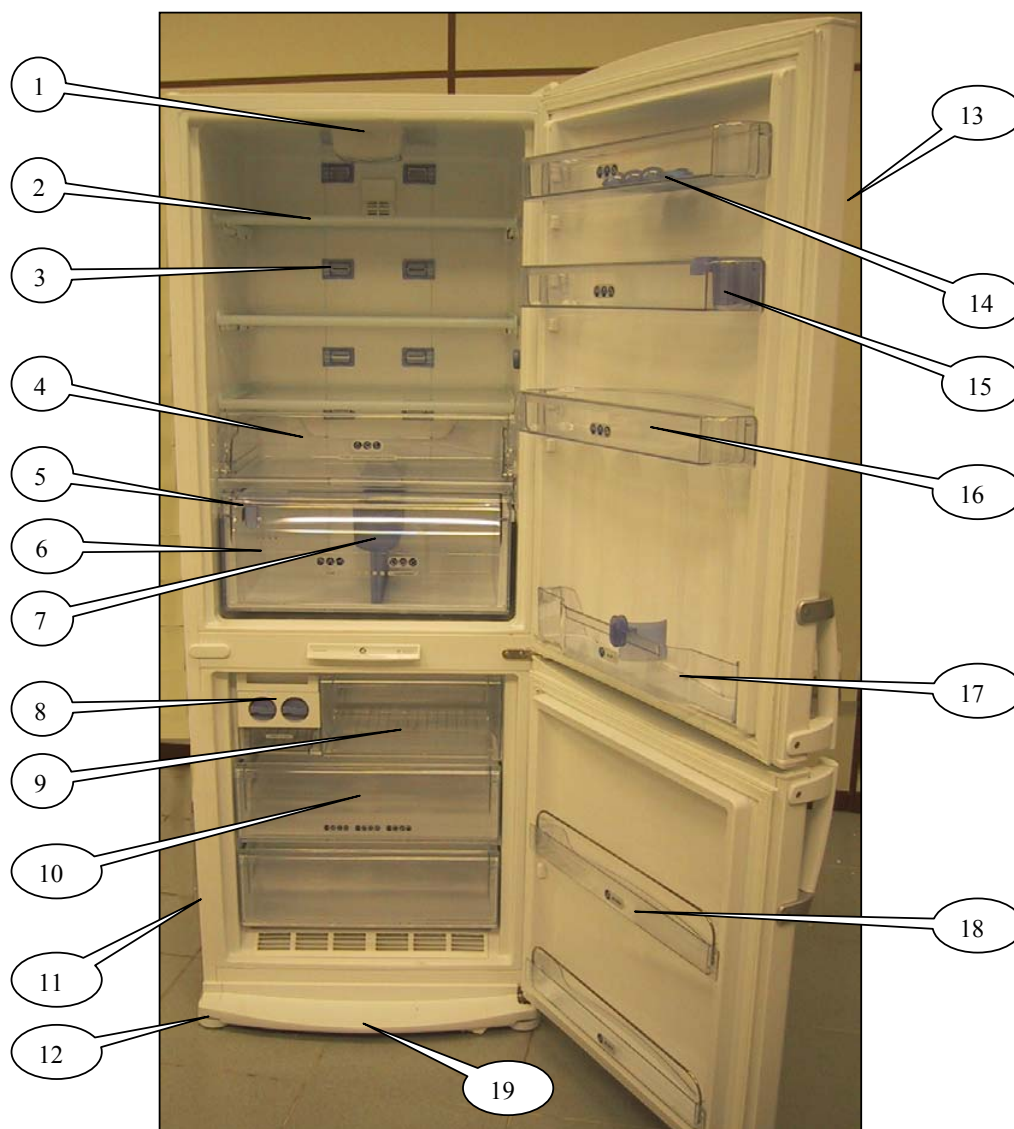
Characteristics		ARC8140IX
Dimensions (mm)	Height	1874
	Width	709
	Depth	728
Weight (Kg)	Unpacked	93
Net Capacity (liters)	Refrigerator	305
	Freezer	120

2.3 – Maximum weight under Components (Kg)

Ice bin, freezer	1,5
Wire Shelf, freezer (1 st)	13
Fast Freezing compartment	15
Wire Shelf, freezer (2 nd)	17
Drawer, freezer (1 st)	18
Drawer, freezer (2 nd)	12
Door Shelf, freezer (each one)	4
Extra-cold compartment	26
Glass Shelf, refrigerator (each one)	28
Drawer, vegetable	25
Door Shelf, 1 st	3,5
Door Shelf, 2 nd and 3 rd (each one)	7
Door Shelf, bottles	5

3 – AESTHETICS CHARACTERISTICS

Their main characteristics are: Easy Ice system with automatic feeder, External Handle, Electronic Control for both Compartments (Refrigerator - RC and Freezer - FC) with LCD Display & Skin Condenser (Clinched Condenser).



- 1- Lamp, refrigerator
- 2- Glass shelf (3)
- 3- Wind Flow System (air outlets)
- 4- Extra-cold compartment
- 5- Humidity Control
- 6- Vegetable Drawer
- 7- Vegetable separator
- 8- Easy Ice System with automatic feeder
- 9- Fast Freezing compartment
- 10- Drawer, freezer (2)

- 11- Rollers (4)
- 12- Leveler Feet (2)
- 13- External LCD Display (FC & RC Control)
- 14- Eggs tray
- 15- Spacer bin
- 16- Door Shelf, refrigerator
- 17- Door Shelf, bottles
- 18- Door Shelf, freezer (2)
- 19- Plinth

4 – USE CHARACTERISTICS

4.1 – Keys selection on the Control Panel

This product has 2 different electronic temperature controls for which compartment, both located at the Refrigerator Door on the Interface Panel – LCD Display.

When the product is connected for the first time to the Electrical power supply, the digital panel (LCD) light up for 2 seconds (all icons will appear) and the buzzer will beep once, then the presentation mode will be activated (around 10 seconds), after that, **5°C** pre-selected Refrigerator temperature will appear and the real freezer temperature will start blinking on Freezer temperature icon followed by an Alarm “BEEP” & Caution Alarm Icon. To disable the sound Alarm, keep OK key pressed for 3 seconds and 3 dashes will replace the real temperature until it reaches **-12°C**, when **-18°C** pre-selected Freezer temperature will appear. At this moment all functions will be deactivated, therefore, when one of the doors is opened, it will assume the 6th Sense function.



a) On key

Key for turning the product on, when it is in the Stand-by (Off) mode. If the product is disconnected from the electrical power supply during operation, or in case of lack of energy, it will assume the position On when re-connected, or when the power returns.

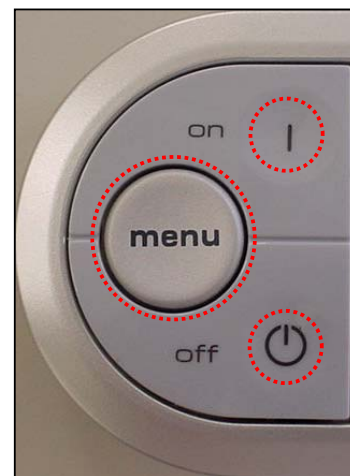
b) Stand-by / Off key

Key for turning the product off when it is in its normal mode. If the product is disconnected from power during operation in Stand-by (Off) mode, it will assume the "Off" position when re-connected. Whenever it is Off/ Stand-by, the display will show 3 horizontal traces on the Freezer display and 2 on the Refrigerator display.

c) Menu key

Select / Disable the several product functions, as well as Temperature Levels for the Freezer and Refrigerator (see functions details below). The available options will be shown on the Display on each touch on this key. They will flash until confirmation with the OK key.

Note: The function/program selection will always have to be confirmed with the OK key (see details below). If it is not confirmed (OK key), after 5 seconds it will return to the prior programming.



d) "+" Temperature level key

It selects the Temperature level to warmer in the Freezer compartment or in the Refrigerator compartment, depending on the selection chosen with the menu Key.

e) "-" Temperature level key

It selects the Temperature level to colder in the Freezer compartment or in the Refrigerator compartment depending on the selection chosen with the menu Key.

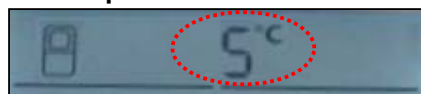
f) OK key

It confirms the selection of the desired function previously programmed with the Menu or Temperature Level Keys (+/-). It also works as Off Sound Alarm – Beeper.

4.2 – Functions & Indicative Icons on the LCD Display

4.2.1. For Refrigerator Compartment

- **Temperature selection for the Refrigerator Compartment**



It can be selected degree by degree (positive temperature) for the Refrigerator Compartment from 1° C (maximum – colder) to 7° C (minimum – less cold)

LEVEL	USE RECOMENDATION
7	Recommended to cold days, when there is not much food in the refrigerator and occasional door opening.
4	Recommended to intermediate situation, normal use; pleasant days (not much hot), food stored and door opening in the medium condition
1	Recommended to hot days, when there is a lot of food stored in the refrigerator and frequent door opening.

Note: # Additional to the levels above indicated, more 4 levels are available (levels "2 / 3 and 5 / 6 "), that can be used according with the consumer needs;

- **Fast Cooling**



This function allows a quick food **cooling** in an efficient way, without changing the food characteristics.

When the Fast Cooling is activated it will be kept on for **6 hours** and then it will be **automatically turned off** returning to the previously selected parameters. If it is necessary to interrupt the Fast Cooling function, just press the Menu key, select the Fast Cooling icon and confirm (OK key). It will be disabled.

Remarks:
This function disable automatically after 6 hours , then returning to the previously selected parameters.

For this function, the Compressor will be continuously activated, and the refrigerator temperature Control will be set at the maximum level, it means coldest mode (the LCD display will keep showing the previously selected temperature), while the Freezer temperature Control will be unchanged, and its temperature values will change according to the display pre-selected values.

- **Vacation Mode**



For a long time absence, when the open-door frequency is "null", this function can be used, in order to save power energy. In this function, the Compartments (Refrigerator &

Freezer) temperature levels are set at the minimum level , it means, warmest mode (the LCD display will keep showing the previously selected temperature), and the cool air passage to the refrigerator Compartment will be reduced.

Attention:
Whenever this function is activated, sensitive/perishable food should be removed from the refrigerator, in order to avoid their deterioration.

This function **does not disables automatically**, and it must be disabled in the Menu. In this case, the product will work as the last programming of Freezer & Refrigerator temperature.

Important: This function **does not disables automatically**.

The Vacation Mode, also will be deactivated when selected other function or when one of the doors is opened after 30 minutes of their programming.

Note: During the first 30 minutes the Vacation Mode is not deactivated by opening door.

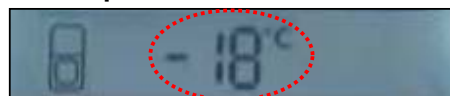
- **Open Refrigerator door Icon**



Whenever the refrigerator Door is open, this icon will activate, showing the door status. If it is flashing, it means the product is in the Alarm mode (see Alarm system – item).

4.2.2. For Freezer Compartment

- **Temperature selection for the Freezer Compartment**



It can be selected degree by degree (negative temperature) from -18° C (minimum – less cold) to -24° C (maximum - colder).

LEVEL	USE RECOMENDATION
-18	Recommended to cold days, when there is not much food in the freezer and occasional door opening.
-21	Recommended to intermediate situation, normal use; pleasant days (not much hot), food stored and door opening in the medium condition
-24	Recommended to hot days, when there is a lot of food stored in the freezer and frequent door opening.

Note: # Additional to the levels above indicated, more 4 levels are available (levels "-19 / -20 and -22 / -23 "), that can be used according with the consumer needs;

- **Party Mode**



It allows fast cooling for bottles (0,75 l) in the Freezer Compartment. It works as if it was a Timer, and after **30 minutes an alarm will sound, the Caution Alarm icon will light and the Party icon will flash**, indicating the bottle can be taken.

At this moment, **disable manually** the Party mode Function by pressing the OK key (**it does not disable automatically**).

Attention:

Do not leave bottles, mainly glass bottles inside the Freezer compartment longer than 30 minutes, because it can explode causing accidents.

If the function is not disabled after 30 minutes, the product will return to the prior parameters, but the sound Alarm will be disabled after 10 minutes and the Caution Alarm and the Party mode icons will keep activated until they are manually disabled with the OK key.

For this function, the Compressor and the Freezer Fan Motor will be continuously activated. The refrigerator temperature control will keep unchanged, and its temperature levels will change according to the display pre-selected values.

- **Fast Freezing**



This function allows a quick food **freezing** in an efficient way, without changing their characteristics.

When the Fast Freezing is activated, it will be kept on for **18 hours**, and then it will be **automatically turned off**, returning to the previously selected parameters. If it is necessary to interrupt the Fast Freezing function, just press the Menu key, select Fast Freezing icon and confirm (OK key). It will be disabled.

For this function, the Compressor and the Freezer Fan Motor will be continuously activated. The refrigerator Temperature control will keep unchanged, and its temperature levels will change according to the display pre-selected values.

- **Open Freezer door Icon**



Whenever the freezer Door is open, this Icon will activate, showing the door status. If it is flashing, it means the product is in the Alarm mode (see Alarm system – item).

4.2.3. Informative and Alarm Icons

- **6th Sense**



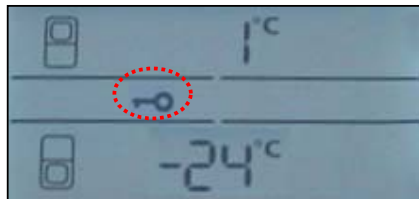
Automatic function that adjusts to the consumer use conditions, achieving a better use of the device as well as the conservation of the food.

This automatic adjustment is made by the Electronic Control software, based on the differential of internal Temperatures (Refrigerator & Freezer) versus Doors opening frequency versus the LCD panel user's selection, whenever one of the Doors is opened,

the software will try to be close to the user selected temperature.

Whenever the function is activated the 6th Sense icon will show on the display. If not, it means the function is disabled and the inside temperature is close to the one selected by the user.

- **Keyboard lock – “Child lock”**

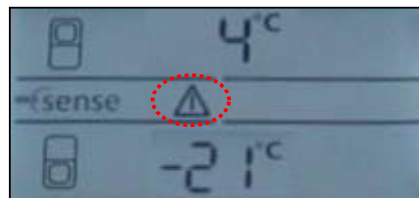


This function protects temperature/function selection from being handled accidentally or by children.

To activate this function, press the **+**, **-** (Temperature level) & **OK** keys for 5 seconds, and then the lock key will appear on the display locking the keyboard. After activating this function, other functions cannot be programmed.

To disable this function, repeat the same operation that activates it.

- **Caution Alarm Icon**



This function prevents the consumer about something abnormal in the operation or at the end of some previously programmed function (see details in Alarm situations).

- **Service Call Icon**



This function, also an alarm function, is related to some possible technical failure in the product, and can need some technical intervention (see details in Alarm situations).

The consumer should call the Authorized Technical Service unit, requiring the technical assistance, giving the failure code showed in the Display, making it easier to the Technician to make a pre-diagnosis.

5 - FUNCTIONAL CHARACTERISTICS

This refrigerator is managed by an Electronic System, mainly consisting of:

- ✓ Electronic Control
- ✓ Interface board
- ✓ Reed-switch board
- ✓ Temperature Sensors (Refrigerator , Freezer & Defrost)
- ✓ Compressor
- ✓ Freezer Fan Motor (V dc)
- ✓ Refrigerator Fan Motor (V dc)
- ✓ Defrost Heater
- ✓ Lamps

These components are described as shown below.

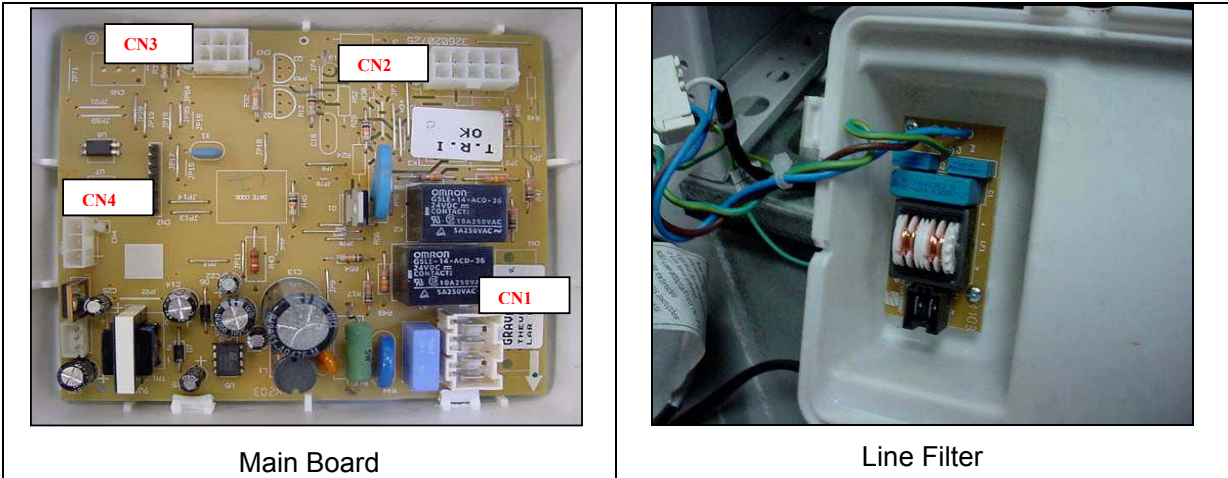
5.1. Electronic Control

The complete operation of this product is done by the Electronic Control, which executes the functions according to the needs, turning the components on or off through received/managed signals, such as:

- Compressor On/Off
- Fan Motors (Refrigerator & Freezer) On/Off & Speed
- Defrost Heater On/Off
- Lamp, through received signals by the reed-switch board, that checks the door opening/closing.
- Receives signals from the Freezer/ Refrigerator & Defrost temperature Sensors
- Among many other functions controlled by its software.

The Electronic Control is located at the rear of the refrigerator, next to the cabinet and besides the compressor, inside a plastic box. Cables going inside the product, using connectors that do not permit an assembling failure do its connection to the mains and its components.

Inside, the Electronic Control is divided in 2 parts, a main Board and a line filter.



CN1 – Compressor and Power Cord	CN2 – Load Components and Reed-Switch Board
CN3 – Temperature Sensors	CN4 – Interface Board
Note: More Details, check the Wiring Diagram	

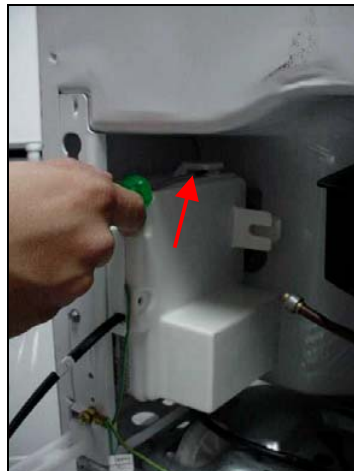
WARNING Electrostatic Discharge Risk Do not touch the Circuit components, because you can damage, fuse/burnt or weaken the board. Always handle the Boards by the sides/plastic holder. Spare Parts/ stock boards must be kept in anti-static packaging.

- Disassembly

1. Remove the cover fastening screws.



2. Release the cover tabs.



3. Release the Board connectors.

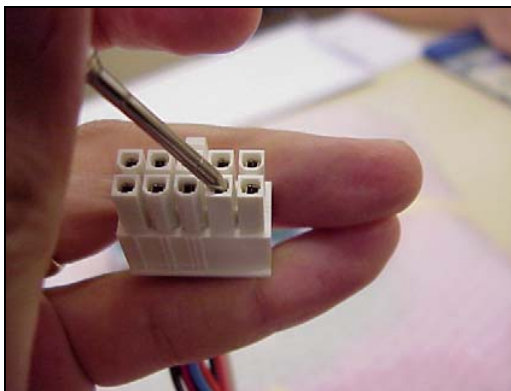


4. Loose all other screws and remove the Electronic Control.



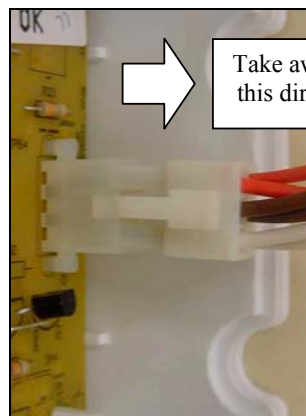
IMPORTANT

Be careful when using the Multimeter measuring probes, as they may damage the connector terminals.



Be careful when removing the electronic board connectors, as they are latched.

Remove them at right angles with no side movements

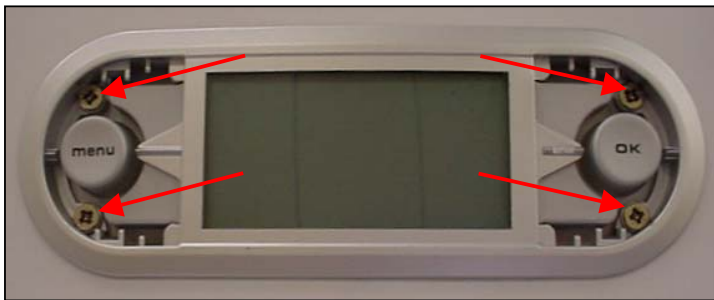


Take away on
this direction

5.2. Interface Board – LCD Display

The interface board has the function of interacting with the user, indicating the product functions/programming and operation (see Use Characteristics item) always put in operation by the Electronic Control.

- Disassembly - LCD

1. Pry the Buttons (right & left) of the Interface.	2. Release the screws that are attaching the Interface board;
	
3. Remove the Interface board	4. Disconnect the wire connector and take out the Interface board.
	

WARNING

Electrostatic Discharge Risk

Do not touch the Circuit components, because you can damage, fuse/burnt or weaken the board.
Always handle the Boards by the sides/plastic holder.
Spare Parts/ stock boards must be kept in anti-static packaging.

5.3. Reed-switch Board

This Refrigerator is equipped with a switch electronic system (reed switches) that are connected to the Reed Switch Board, located inside of the Console, on the Refrigerator frontal portion. These switches, along two magnets, one located on the lower head of the Freezer door, and the other on the upper head of the Refrigerator door, informs the Electronic Control which is the position of the doors, opened or closed. This reading is done when the magnet stays away from the reed switch, indicating that the door is opened or that it is closed, when the magnet is close to the reed switch.

Door opening management

When 1 or the 2 doors are opened, the following actions will be executed:

Freezer door opened

Freezer door Icon will switch on

Freezer and refrigerator Fan Motor will switch off.

Refrigerator door opened

Refrigerator door Icon will switch on

Refrigerator Fan Motor will switch off

Refrigerator lamp will switch on

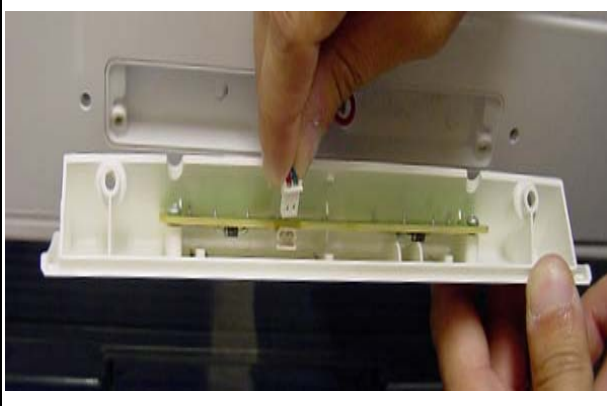
MSEX0105i – Electronic No Frost Refrigerator Bottom Mount/ Dual Fan - Maestro High

- Disassembly

1. Remove both screws that are fastening the Console



2. Release the connector and pull out the set



5.4. Freezer Fan Motor

The Freezer Fan Motor is fed by direct voltage (Vdc) and fixed to the rear cover of the evaporator through a rubber flexible holder, that protects from occasional vibrations, and consequently noise. It is responsible for the forced air circulation inside the product, as much the Freezer as the Refrigerator compartment.



This component does not depend on the compressor to work, and its speed (rpm) can range according to the function/necessity managed by the Electronic Control. The orders it performs are:

- It receives signals from the Electronic Control to turn on/off, change speed according to the necessity/function;
- The Fan Motor **always** turns off when the **Freezer door is** opened.
When closing the door, the Electronic System re-starts controlling the activation of the Fan Motor.
Note: - Except during the Initial Test Routine (factory routine) which has priority over other functions (see Component Tests) and keep the Fan on during this time.
- In case that one of the Doors remains open during 6min, the Freezer Fan Motor will turn on automatically
- After a defrost or compressor start up cycle, the Fan Motor will re-start only when the temperature differential between the Freezer and the Defrost sensors reaches 2° C, it means it is reactivated according to the temperature, not according to the time, as it used to be in other product models.

Technical Characteristics

Nominal Tension (Vdc)	Range (Vdc)	Nominal Current (a)	Potency (W)	Velocidade (rpm)
24 Vdc	from 20,4 to 27,6 Vdc	0,14 a	3,4 W	2700 to 3300 rpm

5.5. Refrigerator Fan Motor

The Refrigerator Fan Motor is also fed by direct voltage (Vdc), therefore, located inside the Wind Flow, fixed to a plastic Housing by flexible rubber holder, which avoids occasional vibrations and consequently noise. It is responsible for the forced air circulation inside the Refrigerator Compartment.



This component does not depend on the compressor to work, and its speed (rpm) can range according to the function/necessity managed by the Electronic Control. The orders it performs are:

- It receives signals from the Electronic Control to turn on/off, change speed according to the necessity/function;
- The Fan Motor **always** turns off when the **one of the doors** (Freezer/Refrigerator) is **opened**. When closing the door, the Electronic System re-starts controlling the activation of the Fan Motor.
Note: - Except during the Initial Test Routine (factory routine) which has priority over other functions (see Component Tests) and keep the Fan on during this time.
 - In case that one of the Doors remains open during 6min, the Freezer Fan Motor will turn on automatically
- After a defrost or compressor start up cycle, the Fan Motor will re-start only when the temperature differential between the Freezer and the Defrost sensors reaches 2° C, it means it is reactivated according to the temperature, not according to the time, as it used to be in other product models.

Technical Characteristics

Nominal Tension (Vdc)	Range	Nominal Current (A)	Potency (W)	Velocidade (rpm)
24Vdc	20,4 to 27,6 Vdc	0,1A	2,9 W	2900 to 3500 rpm

Remark

In order to avoid the return of hot air (re-circulation air) through the Wind flow, whenever the Refrigerator Fan Motor is "on" the Freezer Fan Motor will also be.

5.6. Temperature Control

The temperature inside the product depends on the quantity of food and the open-door frequency. The refrigerator and freezer temperature sensors are responsible in checking the inside temperature in each compartment, sending signals to the electronic control, and it will activate/disable the interface components so that the inside temperature is kept next to desired, according to selected in the LCD Display (temperature / function) or automatically by the 6th Sense mode.

The temperatures range of each compartment by graduation level are described as follows:

	Level – 24	Level – 23	Level – 22	Level – 21	Level – 20	Level – 19	Level – 18
FC	-20°C to -29°C	-16°C to -25°C	-15°C to -24°C	-14°C to -23°C	-13°C to -22°C	-12°C to -21°C	-11°C to -20°C
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
RC	+4°C to +2°C	+5°C to +3°C	+6°C to +4°C	+7°C to +5°C	+8°C to +6°C	+9°C to +7°C	+10°C to +8°C

Note: Reference temperatures on the Sensor body with; empty product, stabilized internal temperatures and approximated room temperature +25° C.

COMMENTS

The temperature value is measured close to the Sensor and not at the center of the Refrigerator or Freezer compartment.

When the product is for the first time connected to the Electrical power supply and the initialization routine was finished (See User Characteristics) the digital panel (LCD) will start with the factory pre-selected temperatures:

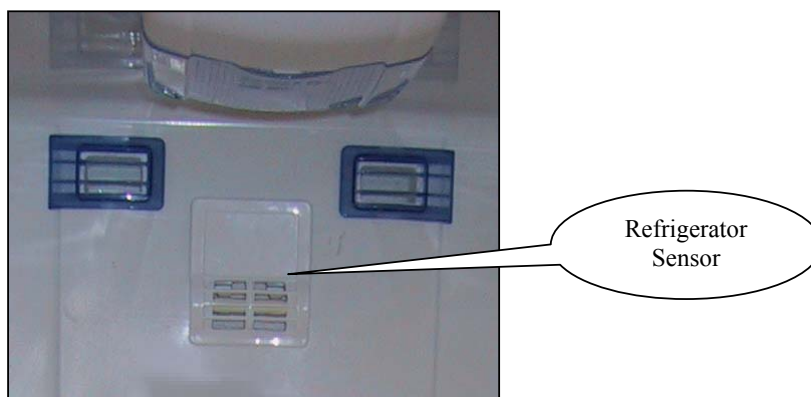
- Freezer = 3 dashes (then, -18°C)
- Refrigerator = $+5^{\circ}\text{C}$

If the product is disconnected during its use, or lack of energy occurs, it will assume the last function/programming done by the user when reconnected. When this lack of power makes the Freezer and Defrost sensors temperatures upper than $+20^{\circ}\text{C}$, the controls will assume the pre-selected factory temperatures.

5.6.1. Refrigerator Temperature Sensor – NTC

Located in the refrigerator compartment, attached on its support, in upper portion of the internal air duct, the refrigerator sensor is responsible for sending signs to the electronic control, which will command the **Refrigerator and Freezer fan motors functioning always simultaneously**, that is, whenever they're put in action by the refrigerator sensor, they will work together.

Note: Except after the first 5.8 minutes the product was connected to the electrical power supply (see Initial Test Routine), they will work individually.

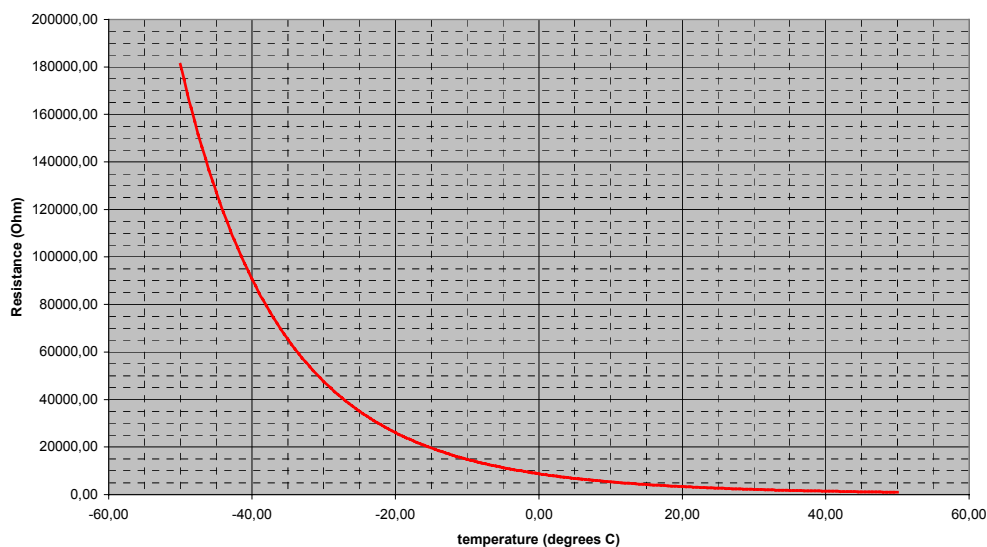


Its actuation range will follow the temperature selection indicated at the Refrigerator Control (LCD Panel), which the Electronic Control Software will convert following the relation:

T (°C)	R (Ω)	T (°C)	R (Ω)	T (°C)	R (Ω)	T (°C)	R (Ω)
-50,0	181117,9	-25,0	35050,0	0,0	8758,0	25,0	2681,8
-49,5	174753,7	-24,5	34012,7	0,5	8532,5	25,5	2623,7
-49,0	168634,8	-24,0	33009,5	1,0	8323,0	26,0	2567,1
-48,5	162751,1	-23,5	32039,1	1,5	8114,7	26,5	2511,9
-48,0	157092,7	-23,0	31100,3	2,0	7912,1	27,0	2458,0
-47,5	151650,2	-22,5	30192,0	2,5	7715,3	27,5	2405,4
-47,0	146414,9	-22,0	29313,2	3,0	7524,0	28,0	2354,1
-46,5	141378,0	-21,5	28462,8	3,5	7337,9	28,5	2304,0
-46,0	136531,5	-21,0	27639,7	4,0	7157,1	29,0	2255,2
-45,5	131867,6	-20,5	26843,1	4,5	6981,2	29,5	2207,5
-45,0	127378,7	-20,0	26072,0	5,0	6810,2	30,0	2160,9
-44,5	123057,8	-19,5	25325,5	5,5	6643,9	30,5	2115,5
-44,0	118898,1	-19,0	24602,7	6,0	6482,2	31,0	2071,2
-43,5	114893,0	-18,5	23902,9	6,5	6324,9	31,5	2027,9
-43,0	111036,3	-18,0	23225,2	7,0	6171,8	32,0	1985,6
-42,5	107322,0	-17,5	22568,9	7,5	6023,0	32,5	1944,3
-42,0	103744,5	-17,0	21933,1	8,0	5878,1	33,0	1904,1
-41,5	100298,2	-16,5	21317,3	8,5	5737,2	33,5	1864,7
-41,0	96977,9	-16,0	20720,8	9,0	5600,1	34,0	1826,3

-40,5	93778,7	-15,5	20142,8	9,5	5466,7	34,5	1788,8
-40,0	90695,7	-15,0	19582,8	10,0	5336,8	35,0	1752,2
-39,5	87724,3	-14,5	19040,1	10,5	5210,4	35,5	1716,4
-39,0	84860,2	-14,0	18514,1	11,0	5087,4	36,0	1681,4
-38,5	82099,2	-13,5	18004,3	11,5	4967,6	36,5	1647,3
-38,0	79437,2	-13,0	17510,2	12,0	4851,1	37,0	1613,9
-37,5	76870,3	-12,5	17031,1	12,5	4737,6	37,5	1581,3
-37,0	74394,9	-12,0	16566,7	13,0	4627,1	38,0	1549,5
-36,5	72007,4	-11,5	16116,4	13,5	4519,5	38,5	1518,4
-36,0	69704,4	-11,0	15679,7	14,0	4414,7	39,0	1488,0
-35,5	67482,7	-10,5	15256,3	14,5	4312,7	39,5	1458,3
-35,0	65339,2	-10,0	14845,6	15,0	4213,3	40,0	1429,3
-34,5	63270,8	-9,5	14447,2	15,5	4116,5	40,5	1400,9
-34,0	61274,7	-9,0	14060,7	16,0	4022,2	41,0	1373,2
-33,5	59348,2	-8,5	13685,8	16,5	3930,3	41,5	1346,1
-33,0	57488,5	-8,0	13322,1	17,0	3840,9	42,0	1319,6
-32,5	55693,3	-7,5	12969,1	17,5	3753,7	42,5	1293,7
-32,0	53960,0	-7,0	12626,6	18,0	3668,7	43,0	1268,4
-31,5	52286,3	-6,5	12294,2	18,5	3585,9	43,5	1243,6
-31,0	50670,0	-6,0	11971,6	19,0	3505,3	44,0	1219,4
-30,5	49108,9	-5,5	11658,4	19,5	3426,6	44,5	1195,8
-30,0	47601,1	-5,0	11354,4	20,0	3350,0	45,0	1172,6
-29,5	46144,4	-4,5	11059,2	20,5	3275,3	45,5	1150,0
-29,0	44737,1	-4,0	10772,7	21,0	3202,5	46,0	1127,9
-28,5	43377,3	-3,5	10494,4	21,5	3131,5	46,5	1106,2
-28,0	42063,2	-3,0	10224,2	22,0	3062,3	47,0	1085,1
-27,5	40793,2	-2,5	9961,7	22,5	2994,8	47,5	1064,4
-27,0	39565,6	-2,0	9706,8	23,0	2929,0	48,0	1044,1
-26,5	38379,0	-1,5	9459,2	23,5	2864,9	48,5	1024,3
-26,0	37231,8	-1,0	9218,7	24,0	2802,3	49,0	1004,9
-25,5	36122,6	-0,5	8985,0	24,5	2741,3	49,5	986,0
xxx	xxx	xxx	xxx	xxx	xxx	50,0	967,4

NTC Curve - Steinhart-Hart Equation



Note:

- ✓ Table values/ Graphic are referential and can modify conform the environmental temperature and other external factors.
- ✓ The bigger the sensor ohmic Resistance is, smaller is the temperature (colder) of the Compartment.

5.6.2. Freezer Temperature Sensor – NTC

Located on the freezer compartment at the Evaporator Front Cover, the Freezer temperature Sensor is responsible for internal temperature monitoring of this compartment, sending signs to the Electronic Control which will activate/ deactivate Compressor and Fan Motor (thermostatic routine), keeping the internal temperature close to the desired/ selected on the Interface Panel



Right	Wrong
	

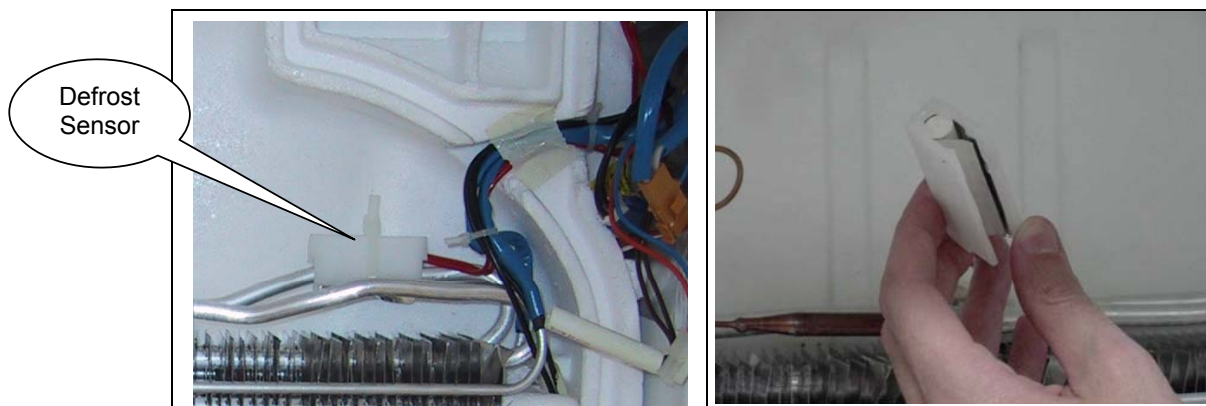
IMPORTANT

Check the correct position of the Freezer Sensor on its housing;
its wires should run downwards to prevent them from being broken.

It's operation range will be in accordance to the temperature selection indicated on the Freezer Control (LCD Panel) which will follow the list shown at the table and graphic of the Refrigerator Temperature Sensor, since they have the same electrical properties

5.6.3. Defrost Temperature Sensor – NTC

It's located at the freezer compartment, along with the Evaporator returning pipe. The Defrost Sensor is responsible for sending signs to the electronic control, which will command the ending of the adaptive defrost, turning off the Defrost Heater, containing a similar function to the well-known Defrost Bimetal.



IMPORTANT

- ♦ The Defrost Sensor is provided with a conductor sheet that should **never** be removed.
- ♦ **Never** change the position of such Sensors, as their functional characteristics can be modified.

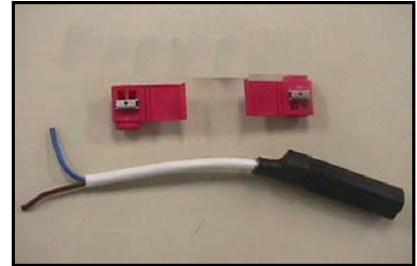
This sensor also informs the temperature conditions of the Evaporator when the product is activated (plugged in electricity) indicating to the Electronic Control the correct start up to be followed (see item – Temperature Control), for instance, manufacturing default or the previous programming done by the user, compressor shelter, etc.

WARNING

These Sensors (Freezer & Defrost) **Are Compatible with Each Other**, but **Are Not Compatible** with the Sensors of the previous line.
NEVER replace these Sensors with the Sensor Kit used in the previous line.

Replacement

In the need of replacing one of the Temperature Sensors, use the SENSOR KIT (code **326.013.997**), which consist in; Temperature Sensor (1) and connectors (2), as showed on the picture.

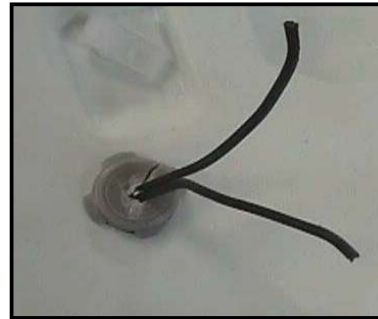


Field Provisions

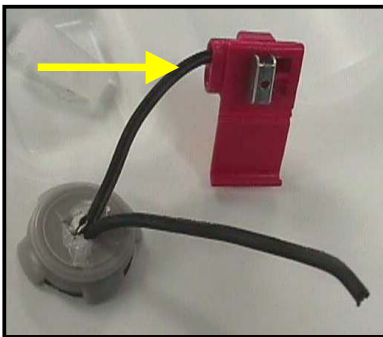
1) Remove the defective Temperature Sensor.



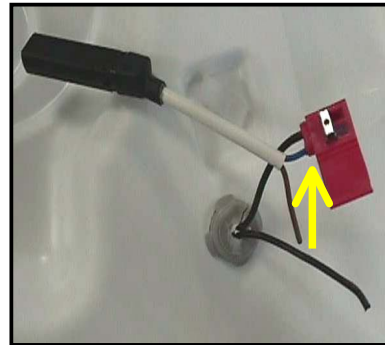
2) Apart the wiring cables. Striping the wires is not necessary



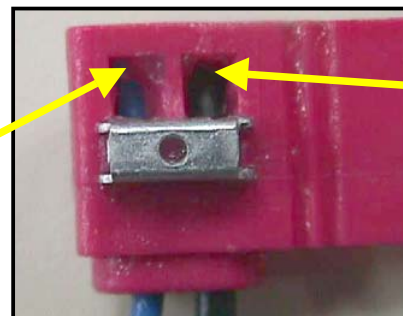
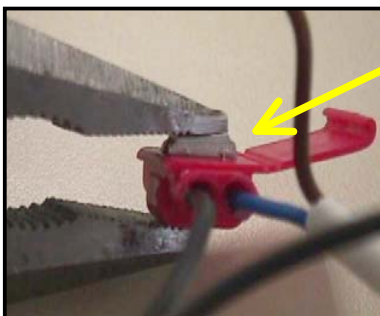
3) Now insert one of the wiring cable into the connector



4) Then insert one of the sensor wires into the same connector



5) Using a pliers, press the connector blade. Internally, this blade will lock both wires doing the electrical connection between them.



Wires touching the connector bottom

IMPORTANT

- ◆ Only press the metal blade after ensuring that the wires are touching the connector bottom.
- ◆ Do not remove the silicon grease from inside the connector, for this grease protects the wire terminals against moisture and rust.

6) Take the other connector and repeat the operation with the other wires, then put the Sensor at its origin position.



5.7. Defrost System

This refrigerator holds an adaptive Defrost System, i.e., it's adjustable according to needfulness, depending on the client's habits, environmental conditions, etc

Monitored by the Electronic Control, this system is constituted of the following components:

- Electronic Control;
- Defrost Heater;
- Defrost Temperature Sensor;
- Defrost Gutter;
- Evaporation tray (above the compressor).

The accurate frequency is defined by the Electronic Control throughout the following monitoring:

- Compressor activity time;
- Door opening frequency;
- Time of the last executed defrosts;

Defrosts shall occur in every 8 hours (of the compressor activity), able to be reduced (adaptive) to every 4 hours (of the compressor activity) according to the needfulness / usage (determined by the Electronic Control Software).

Defrost average time is from 10 to 20 min. and the maximum is 40 min., afterwards, the product will return to its normal operation.

Upon a period of 5 minutes elapsing after the end of the Defrost cycle, the Electronic Control will turn the Compressor on, and as the Defrost Sensor reaches a temperature 2°C below the one set by the Freezer Sensor, the Fan Motors will be also activated and the unit will return to normal operation.

Summarily, the Electronic Control activates the Defrost System, which will execute the following steps:

- Fan Motors (Refrigerator & Freezer) and Compressors are turned-off;
- Heater is activated;
- Defrost Sensor informs the Defrost ending when reach 15° C (or 40 minutes, max. time);
- Heater is turned-off;
- Compressor is turned on after **5 Minutes** the heater is off;
- Fan Motors are turned on when the differential of temperature between Defrost and Freezer Sensors reach 2° C;
- Product returns to the programmed function before defrost.

This product's Defrost System has also a **safety system which will put in action an immediate defrost** in case of an existing differential temperature between Defrost Sensor and Freezer Sensor higher than 10° C for 10 minutes, helping against casual ice building up on the Evaporator.

When the product is with Fast Freezing mode enable, the Defrost System **will be fixed** and not adaptive, and 2 defrosts will occur during this period, it means, the first will occur 3 hours after the compressor activity and the second just 9 hours after (compressor activity) the first defrost.

Upon ending the activity of the Fast Freezing function (18 hours), the next defrost cycles will occur as adaptive normal cycles.

5.8. Alarm System

Should the product present any irregularity (according the possibilities below), it will set off a sound ("BEEP") and/ or visual Alarm (Icon blinking), through the LCD Interface, getting the diagnosis easy.

Before visiting a client requiring service, we must request to the consumer if any Alarm or failure Code is been shown on the LCD display (Interface Board)

ATTENTION

When one of these faults occur, the client must be instructed to turn off the sound alarm by pressing the OK key, however, **THE PRODUCT MUST NOT BE UNPLUGGED FROM THE WALL SOCKET.**

The Alarms can be:

5.8.1. Caution Alarm

a) Party Mode Alarm (exceeded time)



After exceeded 30 minutes of predetermined time to the Party Mode, product will raise the **Caution Alarm** (Caution Alarm Icon will light and the Party Icon will flash), indicating the bottle can be taken. Its operational properties will not be changed.

To disable the Alarm, press OK key

When Constant, there is the chance of a real **Sensor Failure**, being necessary to check its source

Check Point:

- Poor contact between terminals/ connectors – CN4 / Electronic Control (main board), Interface board (LCD Display), upper wiring harness between freezer Door and Cabinet;
- Open wires/ wiring harness
- Finally, Interface board or Electronic Control (main board). Do the Interface Board – LCD Display routine.

b) Anti Bacteria Filter Alarm (replacement time)



This product has a function that announce the correct time of Filter replacement which will occur after 4320 hours of plugged in product, it means, around 6 months of Filter life. At this moment, a Caution Alarm will blink and Failure Code – "AF" will be shown in the LCD Display.

To disable the Alarm, just press OK key, therefore the Caution Icon will remain in the LCD and every 6 hours the sound alarm with "AF" code will activate again, until consumer replace the Filter and reset the counter.

To reset the counter, keep OK key pressed for 5 seconds **while the product is in Alarm mode** (this reset can not be done with the product out of "AF" Alarm) and the Caution Alarm Icon together with the "AF" failure code will disappear.

IMPORTANT

Don't reset the Alarm counter before Filter replacement.
It will prejudice the Anti-Bacteria Filter Alarm function

When constant, there is the chance of a real **Technical Failure**, check its source.

Check Point:

- Poor contact between terminals/ connectors – CN4 / Electronic Control (main board), Interface board (LCD Display), upper wiring harness between freezer Door and Cabinet;
- Open wires/ wiring harness
- Finally, Interface board or Electronic Control (main board). Do the Interface Board – LCD Display routine.

c) Open door Alarm



When any of the doors (Freezer or Refrigerator) remains open more than **2 minutes**, the Electronic Control system will emit a **sound Alarm - “BEEP”**, the **Open Door icon (corresponding to the compartment/ door) will blink** and the **Caution Alarm Icon will switch on**, indicating that it's open.

To turn off the sound sign just **close the door or press the turn off Alarm (OK) key**, in this second situation, the Open Door Icon will keep blinking until the door is closed.

Remark
When the open door sound alarm is disabled by the OK key (Alarm off) and the door remain open, this Caution Alarm will be activated again 2 minutes later.

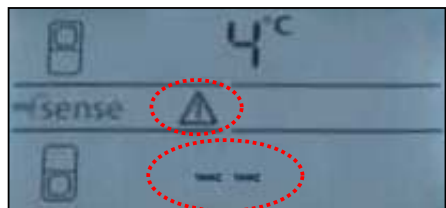
After 6 minutes, if the door has not been closed yet, a **new Caution** open door **Alarm** will be enable and the Electronic Control **will assume a safety routine**, turning off the Refrigerator lamp, putting in action the Fan Motors (Freezer & Refrigerator) and the Compressor, even whether the doors are open, as it's working in normal cycle, trying to keep food refrigerated.

When constant, there is the chance of a real **Technical Failure**, check its source.

Check Point:

- Reed Switch board – must operate correctly
- The magnet on the doors (Freezer and Refrigerator) must be present and correctly positioned
- If the doors are adjusted and closing correctly;
- Poor contact between terminals/ connectors – CN4 (Interface board) and CN2 (Reed Switch Board) at Electronic Control, upper wiring harness between freezer Door and Cabinet;
- Interrupted/ damaged wires.

d) Temperature Alarm



If the Electronic Control detects a High Internal Temperature (above -8°C), at the Freezer compartment, it will activate the Alarm Icon and the Freezer Temperature Icon “— —” (2 dashes) will blink.

Note: To prevent “wrong” Alarm, this Alarm status is disabled on the following circumstances:

- During the first 6 hours after the product is connected to the energy
- During defrost process
- During the first 2 hours after a defrost
- During the first 2 hours that one of the doors was open

If the product takes over the temperature reaching -11°C , the Alarm will be automatically disabled and the product will return to the normal operation.

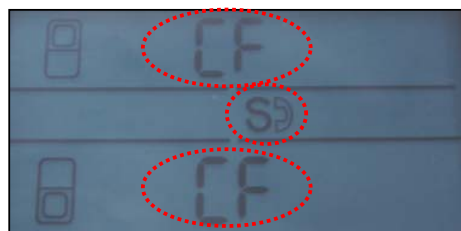
When constant, there is the chance of a real **Technical Failure**, check its source.

Check Point:

- If the Freezer compartment was loaded with “hot food”, increasing the internal temperature of the compartment. Wait until the internal temperature has stabilized.
- Poor contact between terminals/ connectors – CN3 (Temperature Sensors) and CN2/ CN1 load components at Electronic Control; Compressor, Fan Motors, others . Do the Self Test Routine
- Also check; Ice blockage, leakage of refrigerant fluid, Compressor's low pumping, etc.

5.8.2. Service Call Alarm

a) Communication Failure Alarm



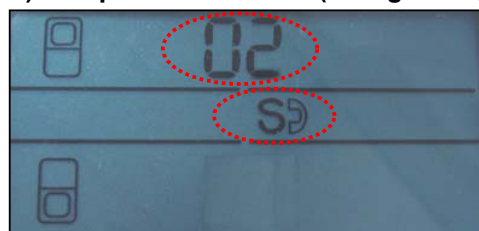
This failure mode is shown at the LCD Display through the Failure Code – “CF” and Service Call Icon blinking.
This failure is caused due to a communication fault between the Interface Board (LCD Display) and the Electronic Control.
To disable the sound Alarm, just press the Turn off Alarm key (OK)

When constant, there is the chance of a real **Technical Failure**, check its source.

Check Point:

- Poor contact between terminals/ connectors – CN4 / Electronic Control (main board), Interface board (LCD Display), upper wiring harness between freezer Door and Cabinet;
- Open wires/ wiring harness
- Finally, Interface board or Electronic Control (main board). Do the Interface Board – LCD Display routine.

b) Temperature Sensor (Refrigerator, Freezer or Defrost) Failure



This Alarm status is straightly connected to a wrong reading, short circuit or NTC open from any of the **Temperature Sensors** (Refrigerator, Freezer or Defrost), in this situation the Electronic Control System **activates the Service Call Alarm icon and shows the Failure Code regarding to the Sensor in fault (see below) at the LCD Display**, as follows:

Alarm Code	Sensor reader	Temperature Icon indicator
01	Refrigerator Sensor	Refrigerator Compartment
02	Defrost Sensor	Refrigerator Compartment
03	Freezer Sensor	Freezer Compartment

If the product retrieves the normal operation at the first hour, a momentary reading fault may occur, but without necessity of intervention.

When Constant, there is the chance of a real **Sensor Failure**, being necessary to check its source.

Check Point:

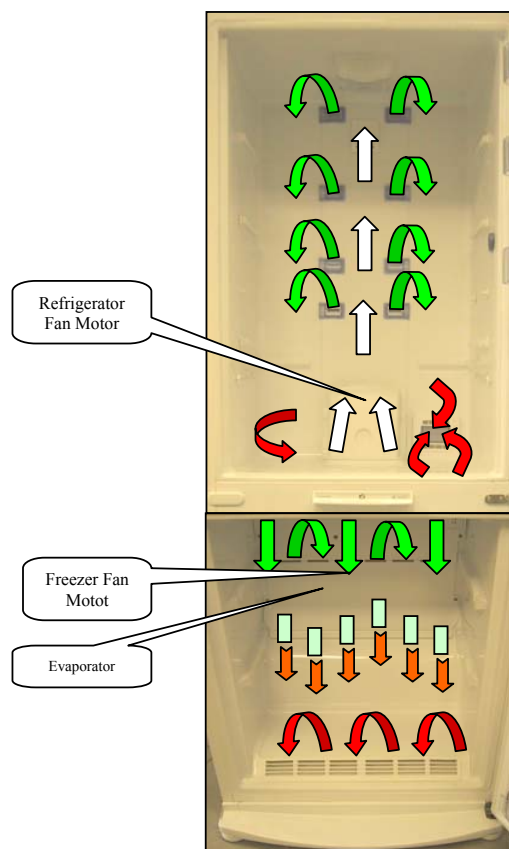
- Poor contact between terminals/ connectors – CN3 (Temperature Sensors) at Electronic Control (main board)
- The Sensor itself that might be open or in short circuit and has to be replaced (see Sensor replacement).

During Constant Alarm, the Electronic Control will **assume a safety routine**, as in normal cycle, trying to keep food conservation, however will work as follows:

- Compressor and Fan Motors (Refrigerator & Freezer) will be on for 20 minutes and then will turn off for 15 minutes.
- Interval set between defrosts will be fixed (not adaptive) in every 5 hours of the Compressor activity
- Every defrost time will be fixed in 10 minutes

Note: This routine happens independent of which sensor has failed, and can be any of them (Refrigerator, Freezer & Defrost)

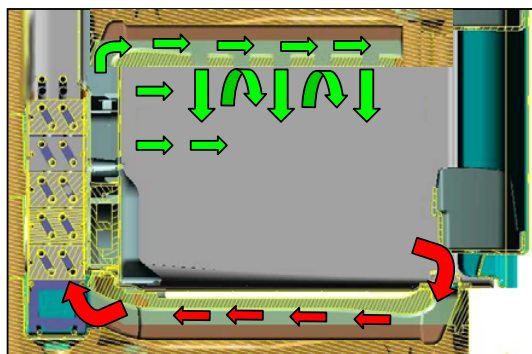
5.9 – Air flow



The flow of forced air circulates inside the product by the action of 2 Fan Motors (Dual Fan), one located on Freezer Compartment and the other on Refrigerator Compartment. The Air is directed through ducts provided with different paths as illustrated in the figure.

- Cold Air circulation (inside Compartments)
- Internal (cabinet paths) Cold Air circulation
- Warm Air circulation (air return)

5.9.1 – Air circulation on Freezer Compartment



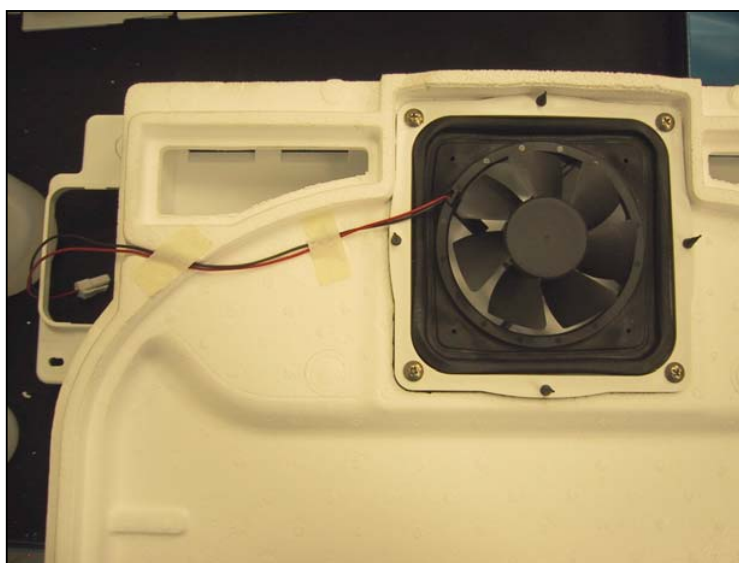
The Cold air is circulated inside this compartment by the Freezer Fan Motor that “pushes” it through the outlets/windows of the Evaporator Cover and freezer Ceiling , returning through the Freezer air Guide (located on the freezer base/ floor) to the Evaporator that will cool the air, thus making this a cyclic operation.

- Disassembly

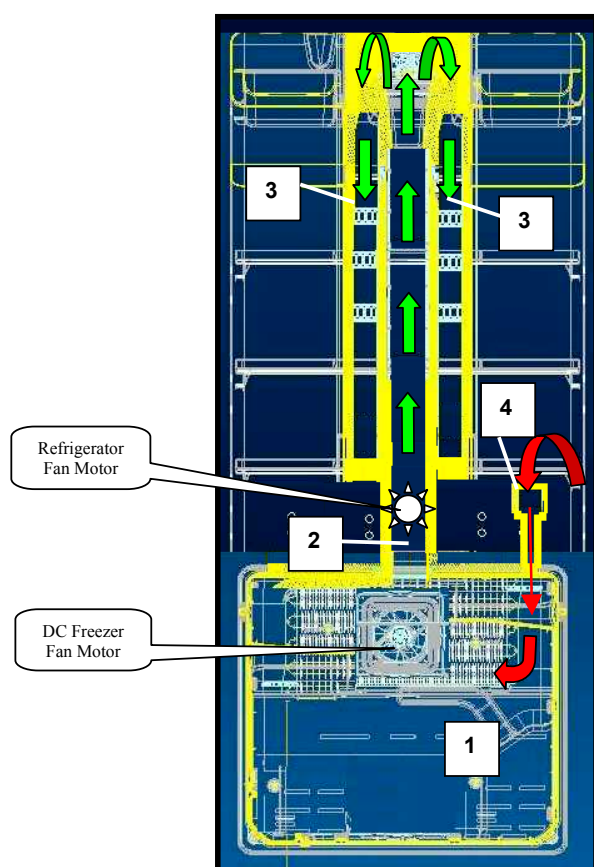
For accessing the Freezer internal components remove the sensor Support, the Sensor itself (from the Support) and then disconnect the FC Fan Motor Connector. Finally, just loosen the 4 screws at the sides of the Cover and pull it out.



In order to disassembly the Fan Motor, just remove the 4 screws that are attaching its support. When reassembling take care with the wires position and sealing tapes.



5.9.2 – Air circulation into Refrigerator Compartment



Cold air is blown into the refrigerator compartment by the Freezer Fan Motor that “pushes” the air through the Evaporator Cover (1) reaching the internal Duct (2) and at the same time is “pulled” by the refrigerator Fan Motor (exhauster), following to the refrigerator Diffuser/ducts (3) and going out through the outlets/ windows at the different levels of the Wind Flow (Internal Refrigerator Diffuser).

After circulating through whole Refrigerator compartment, the “hot” air come back through the return duct (4) located on the lower right corner of refrigerator compartment, where the Anti-Bacteria Filter is located (not available in some models), returning again to the Evaporator that will cool down the air and make this a cyclic operation.

Inlet and Outlets air Ducts have different paths, therefore both are inside/ internal of the cabinet.

The refrigerator air Diffuser has a Wind Flow System (inside duct), which provide a better air distribution over this compartment due to the many outlets/ windows available.

Protected by a front plastic cover, the Air Diffuser is made of styrofoam (expanded polystyrene - EPS) and houses the refrigerator Fan Motor.

- Disassembly

1- Remove the 2 Plugs/ cover, then the screws.



2- Remove the plastic Cover, then disconnect the fan motor Connector



3- Open the EPS Diffuser, locate the refrigerator Fan Motor and the Membrane .	Note: Fan Motor and Membrane details.
	  
Remarks: ❖ Be aware with the Fan Motor position to avoid cooling problems after reassembling; ❖ Take care to not damage the seals, in case of damage replace them by new ones that are available as Spares. ❖ This membrane has the function of avoiding the air re-flow (return) and must not be removed under any circumstances. ❖ In case of no cooling in the refrigerator compartment, check with the Membrane is working properly.	

6 – OTHERS COMPONENTS

6.1 – Refrigerant fluid and Drier filter

These Refrigerators uses the R-600a as refrigerant fluid on its Sealed System, therefore the drying filter used is also for the R-600a. The refrigerant fluid load should always be checked on the product ID tag which, usually is fixed onto the Cabinet rear portion.

REMINDER
• DO NOT USE ANTI-FREEZING AGENTS (e.g. Methyl Alcohol) on the Sealed System reoperation, as these agents damage the Compressor. Only technicians skilled in the operation of Isobutane Sealed Units are authorized to maintain the products. • When reoperating the Product, REPLACE the Drying Filter with a NEW one. • Use a original Drying Filter, only for the R-600a fluid. • Isobutane is an inflammable refrigerant fluid, however, don't use flame/ weld process to do the joins/ link connections

6.2 – Cabinet

The Cabinet has thicker walls and is fitted with a side heating tube to get a better insulation and avoid sweating in places where the relative humidity is very high.

The polyurethane insulation used is formulated with Pentane Cycle (C-Pentane) basis, which is harmless to the Ozone Layer and takes care of the international norms of environmental protection.

6.3 – Compressor:

This model is fitted with Embraco Compressor's, which is prepared to work only with the R-600a Fluid and can only be replaced with another of the same type.

Description	Characteristics
Embraco – EGM90CLC	166W – 220-240/50-60Hz

Remark
The Electronic Control System of the product holds a safety device that allows the compressor to be turned on 7 minutes after its last power down. This prevents the Compressor from attempting to start while the inner pressures of the system are not equalized yet. The same will happen (Safety) if the Defrost Sensor informs to the Electronic Control temperatures lower than -40°C (colder).

6.4 – Capacitor:



The ARC8140IX is fitted with $5\mu\text{F}$ – 380V Capacitor, located on the electronic control Box fastened to its support .

Its function is help the compressor works efficient and not to execute startup

6.5 – Condenser:

This refrigerator holds a new concept of built-in Condenser, which is known as the “clinched”.

To test leakage, install a gauge to the inlet or outlet Condenser pipe, close the opposite side, then inject air pressure or cooling fluid in the system and follow through the gauge if there are pressure leak. Finding any, check the solder points and gauge connection to be sure, not been detected, Condenser may be defective, with leakage. In case of inner leakage in this part, it will not be possible to replace alone, only together with the cabinet.

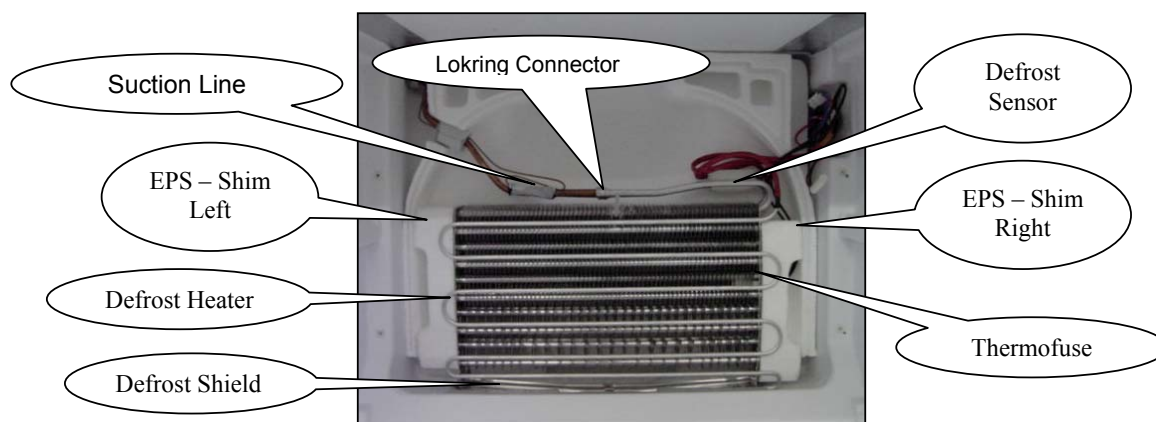
IMPORTANT

Don't try to adapt an external Condenser into the Cabinet.



6.6 – Evaporator

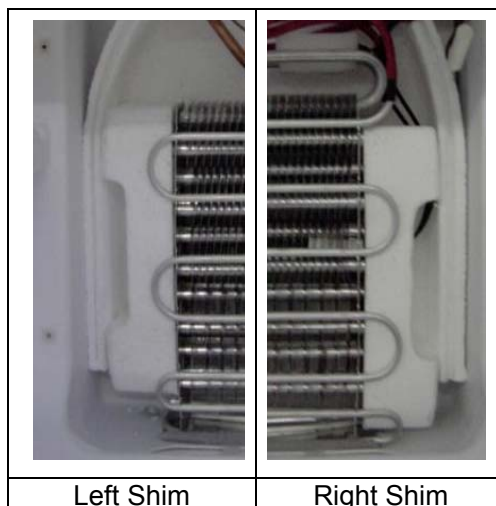
The suction line in these products is injected (and cannot be individually replaced unless with the whole cabinet) into the cabinet, being connected to the Evaporator through Lokring connectors.



WARNING

Be careful when handling the Evaporator, due to it blades has sharp edges and can cut your hands.
Always wear protective gloves.

The sides of the Evaporator are provided with 2 EPS shims that will cause the whole of the return air to pass through the Evaporator instead its sides.



IMPORTANT

Those shims should not be removed from the product.
If they are missing, problems could occur such as low refrigeration or frost formation in the Freezer compartment.

In the event of Evaporator replacement, proceed as follows:

a) Order a new Evaporator assy and 2 Lokring connectors, according to:

Description	Part Number	Models Application	R-600a Fluid Load (g)
Lokring Connection	326.008.340	ARC8140IX	--
Evaporator Assembly	326.046.948	ARC8140IX	58g

Note: The Evaporator assy include chute and defrost heater which should be replaced simultaneously due to the possibility of defrost heater damage while removing from the old evaporator , causing electrical escape.

b) Remove the damaged Evaporator by releasing the Defrost Sensor, Heater connectors, EPS shims and then the Lokring connectors;



- c) Install the new Evaporator and the Lokring connectors, do Vacuum in the system followed by the original load of R-600a.

REMINDER

- **DO NOT USE ANTI-FREEZING AGENTS** (e.g. Methyl Alcohol) on the Sealed System reoperation, as these agents damage the Compressor. Only technicians skilled in the operation of Isobutane Sealed Units are authorized to maintain the products.
- When reoperating the Product, **REPLACE** the Drying Filter with a **NEW** one.
- Use a original Drying Filter, only for the **R-600a** fluid.
- Isobutane is an inflammable refrigerant fluid, however, don't use flame/ weld process to do the joins/ link connections

6.7 – Defrost Heater:



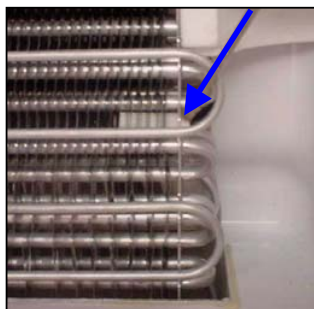
The Defrost Heater involves all the Evaporator extension, presenting a better performance of the system. Its operation (on/off) is also commanded by the Electronic Control and its electrical features can be verified at the table bellow:

Description	Power (W)	Ohmic value
Defrost Heater (240V)	275	194 to 227 ohms

COMMENTS

The lower part of the Defrost Heater is fixed at the defrost gutter through claws in order to avoid ice bulding on this place. Always secure the contact between these parts.

6.8 – Thermofuse:



Turned on, in series connection with the Heater Defrost, the thermofuse aims at protecting the product and do not allow Defrost Heater to be turned on continuously. In case of failures in the defrost system when the Heater is continuously working, it will open at the range of 72 °C to 77 °C

IMPORTANT

In case of thermofuse burnt/ opening, verify the reason of this before replacing and plug in the product again.

6.9 – Doors and Gaskets:

As well as the Cabinet, the Refrigerator and Freezer Doors have a thicker walls to get a better insulation and the polyurethane foam is done with C- Pentane fluid.

The internal door Panels are fitted/ injected with the Doors and cannot be replaced individually, only with the Doors, which one, doesn't has internal components, handles and gaskets.

The Gasket is not foamed jointly with the Panel and Door, and is not screwed, and can be easily replaced by simply pulling it from bottom to top, and fitted again by just placing it from top to bottom as per the below figure. Such procedure ensures the Magnet will not break.

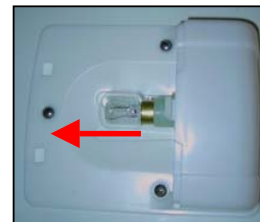


6.10 – Refrigerator Lamp:

The ARC8140IX use a special refrigerator Lamp with 25-W, however, the freezer compartment has no lamp/lighting.



This refrigerator lamp is located on the (refrigerator) compartment ceiling; to replace it, slide the lamp protector, pulling it out and then take the Lamp out.



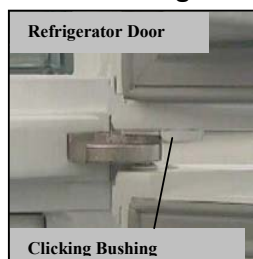
CAUTION

To replace the lamp, **do not turn it** as it has no thread. This Lamp has a plug-in system.

6.11 – Rollers and Leveler Feet:

The Refrigerator is equipped with 4 rollers which allow it to be easily moved around, making the kitchen cleaning easier, and with 2 Leveler Feet in its front portion to lock it on the desired position. To lock the Refrigerator on the desired position, rotate the Leveling Feet until they reach the ground, raising the casters.

6.12 – Clicking Bushings



On its lower portion Refrigerator & Freezer Doors use the Clicking Bushing in order to help close the Door, locking its rim on the Hinge when the Door is being closed. This bushing type prevents the door from remaining half open in instances where the consumer has NOT noticed that the door did not close.

6.13 – Vegetable Drawer with Humidity Control:

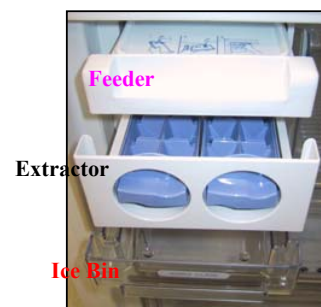
Certain food types such as greens and fruits get dehydrated when stored in a cold and dry environment.

The Vegetable Drawer keeps an appropriate temperature and humidity for storing these food items, preserving their natural characteristics. For this reason the Vegetable Drawer has an Humidity Controller, which is a sliding plastic part allowing to control the air flow to the Drawer inside as necessary. We advise to keep the regulator closed for greens vegetables and opened for fruits.



6.14 – Easy Ice System:

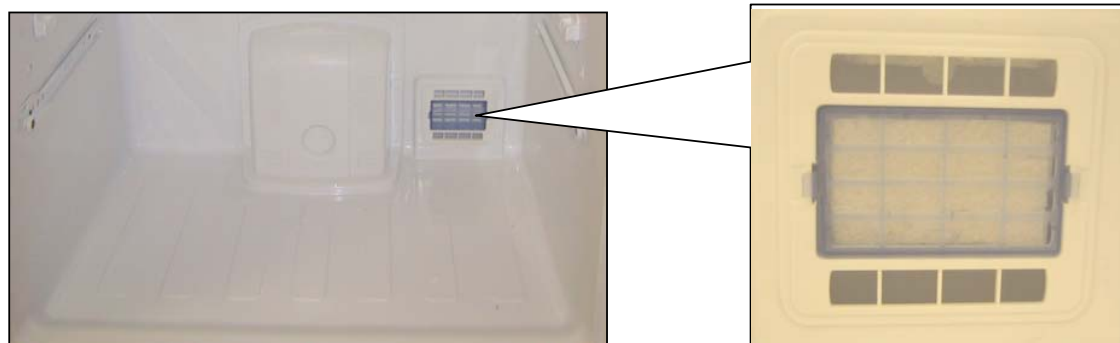
This product is equipped with an Ice-making system with a automatic feeder, extractor and an ice bin. To operate it, the consumer must remove and fill the feeder out of the product, then put at the place and finally the ice tray will be filled up automatically. After a normal freezing time, the ice tray button can be twisted and the ice cubes will fall down at the Ice bin, keeping them stored. For a new Ice production, do all this process again since the beginning.



6.15 – Anti-Bacteria Filter:

The Refrigerator is fitted with a "special" Anti-Bacteria Filter located behind of the vegetable Drawer at the refrigerator air return. This filter acts by absorbing characteristic odors and bacterias of certain food which circulate inside the product. It thereby prevents these foods from losing their natural flavor and smell characteristics.

The Anti-Bacteria Filter should be replaced around 6 months of life, therefore the LCD panel will show/ advise this correct time through a special Caution Alarm "AF" on the Display (see item Alarm System).



7 - COMPONENT TESTS

7.1. Electronic Control / Self-Test Routine

This refrigerator has an Automatic Test Routine (works automatically, without manual operation) that is always executed when the product is energized to the power supply, in order to verify the functioning of the main components of the product. This routine operates as follow:

Turn off the product from the wall socket, wait **10 seconds** and turn it on again

Note: At this moment, an inner temperature check will occur in the evaporator, through the Defrost Sensor, and then the Routine will start automatically.

- The Defrost Heater is energized for 6 seconds
- Freezer Fan Motor is energized for 6 seconds
- Refrigerator Fan Motor is energized for 6 seconds

After 18 seconds, from the result (temperature) gained from the Defrost Sensor, the Electronic Control will manage the activation of the compressor and fan motors, as follow:

If the Defrost Sensor is warm (temperature $> 0^{\circ}\text{C}$ = positive degree)

- Compressor and fans will be energized / turned on

If the Defrost Sensor is cold (temperature $< 0^{\circ}\text{C}$ = negative degree)

- Compressor and fans will not be energized / (will keep off).

After 328 seconds (5.5 minutes) the product is energized, an automatic check will occur for all the Sensors (Refrigerator, Freezer & Defrost)

If any of the sensors present failure (open or in short circuit);

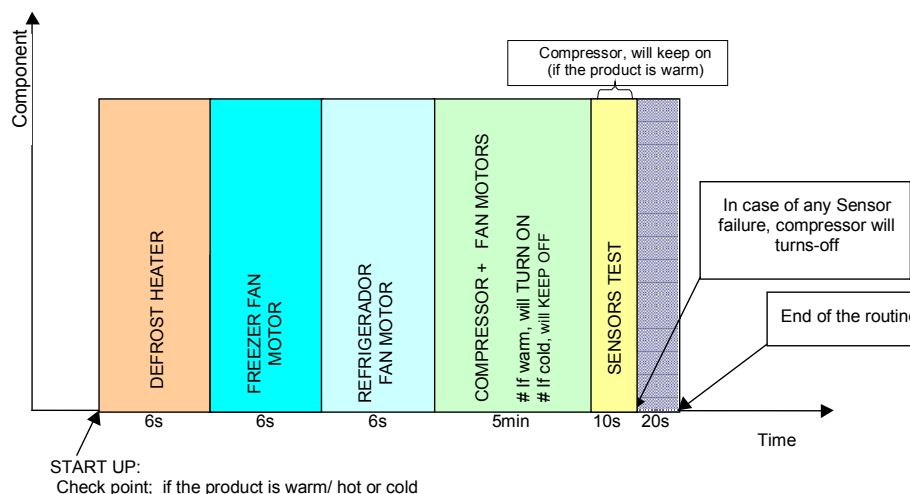
- Alarm Code regarding defective Sensor will be shown on the display 2 minutes later of the end of Routine, it means, approximately 468 seconds (7.8 minutes) after its beginning, then, the operation proceedings will follow as described in item – Alarm System.

In case of no failure is detected

- Product will abort the Automatic Routine (348 seconds/ 5.8 minutes) and starts working in normal activity, switching on the components due to the necessity (display temperature)

REMARKS
1- This routine always starts when the product is plugged in and has priority over other commands done on the Interface;
2- During this initial automatic test routine, if the Doors are open, the Fan Motor won't be deactivated;
3- If the product is in Defrosting mode, this routine will be aborted due to defrost mode has priority over all functions
The routine ending will be in 5 minutes and 48 seconds.

Summarily, the steps described above can be seen graphically.



7.2. Interface Board / LCD Display Routine

This refrigerator Interface Board has a Test Routine (manual) which will allow the technician to test the Icons operation, Back-light and sound Alarm – BEEP, to this, next steps must be followed:

- 1 – With closed doors, Turn off the product from the socket, and wait **10 seconds**;
- 2- Turn it on again and open the **two doors (Refrigerator and Freezer) simultaneously**;
Note: Wait the Open Door Icons to be shown in the LCD Display.
- 3- Close the 2 doors again;
- 4- Press **at the same time for 3 seconds** the keys;
 - “OK”
 - “ + ”
 - “ – ”
 - “MENU”

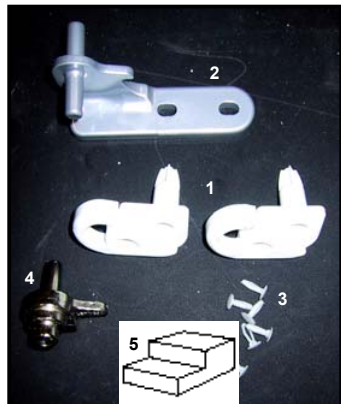
Note: In this moment, the icons may switch on (even some not available to this model of refrigerator) and then will turn off automatically. The code “ 9 ” must be shown on the Freezer Temperature Icon of the LCD Display, otherwise the test routine was not accepted.

- 5- Press “ ON ” key and all the Upper Icons (regarding to Freezer Compartment) will switch on;
 - 6- Press “ ON ” again and the icons will switch off;
 - 7- Press “ MENU ” key and all the Intermediate Icons (regarding to “Alarms”) will switch on;
 - 8- Press “MENU ” again and the icons will switch off;
 - 9- Press “ OFF ” key and all Lower Icons (regarding to the Refrigerator Compartment) will switch on;
 - 10- Press “OFF” again and the icons will switch off;
 - 11- Press “ + ” key and the BEEP sound will activate;
 - 12- Press “ + ” again and the BEEP sound will be disabled;
 - 13- Press “ – ” key and the LCD Back light will switch on. After few seconds will switch off automatically;
 - 14- Press “ OK ” key and the “ 9 ” code will change to “ 8 ” code;
 - 15- Repeat step 14 until the codes reduce one by one reaching to the “ 0 ” code, then the routine is concluded. Wait for the LCD interface to return automatically to the previous program done by the user.
- Note:** In this operation wait until the code (number) stabilizes, after that, press “OK” key

8 – DOOR REVERSAL

This Refrigerator comes assembled from the factory, with the doors opening towards the right side (hinges and bushings are located on the right side, when facing the product).

In order to change the doors opening, that is, to cause it to open towards the left side, the specific left-hand clicking bushings (Refrigerator & Freezer Door) and Centre Hinge for reversal should be replaced and the below steps followed.



Left-Hand items required for Reversal

Note:

- The right clicking bushings and centre hinge, initially assembled on the product, will not be used any longer.
- The upper and lower hinges remain the same, so there is no need to replace them.
- For white color version, the spare parts are white color
- For stainless steel finish and silver color version, the spare parts are gray color

REF.	PART NUMBER	DESCRIPTION	QTY.
	326.048.134	Kit for door reversion left hand – White color (White product)	
1	326.037.537	Clicking Bushing for door reversion left hand – White color	2
2	326.034.581	Intermediary Hinge for door reversion left hand	1
3*	326.037.585	Plug, door – White color	4
4	326.042.729	Pin, lower hinge for door reversion left hand	1
5	Not available	EPS, shim (to help reversal process)	1
	326.048.135	Kit for door reversion left hand – Gray color (Inox & Silver products)	
1	326.038.447	Clicking Bushing for door reversion left hand – Gray color	2
2	326.034.581	Intermediary Hinge for door reversion left hand	1
3*	326.037.587	Plug, door – Gray color	4
4	326.042.729	Pin, lower hinge for door reversion left hand	1
5	Not available	EPS, shim (to help reversal process)	1

Note: * Items used for damage removal case

To revert the door opening, do as follows:

1- Product preparation

- Disconnect the product from the power outlet
- Remove all door shelves (Freezer & Refrigerator) to prevent them from falling during the procedure;

2- Disassembling the Refrigerator Door/ preparing the upper wiring harness (Interface Board)

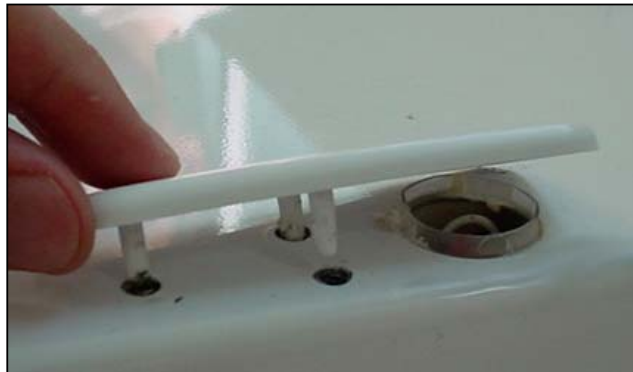
- Using screwdriver, remove the upper hinge Cover;
- Disconnect the Interface board (LCD Display) wire connectors;



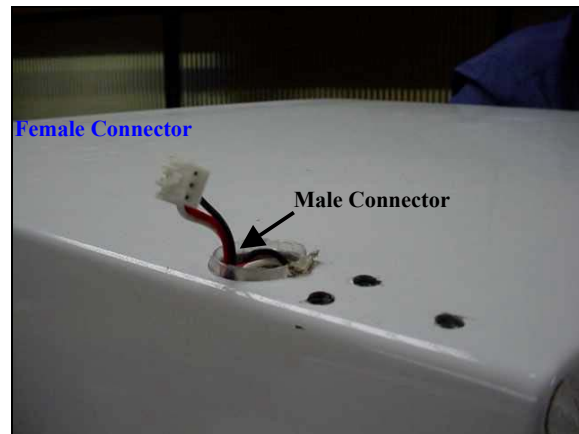
- Remove the upper Hinge screws and then the Hinge itself;



- Remove the Refrigerator Door;
- Hide the wire connector into the cabinet housing, then remove the plastic cover from left side and place it on the right-hand;



- On the left side of the cabinet, release the hidden wire connectors, then, disconnect them keeping the female connector outside to plug it later on at the freezer Door connector.



Note: The male connector must be kept inside of the cabinet housing

3- Disassembling the Freezer Door

- Loose the screws of the intermediary hinge
- Remove the Freezer Door



- Remove the plastic cover and place it on the right-hand side of the rail



4- Preparation of the Plinth / lower Hinge:

- Remove the right lower hinge pin and move the position of the Plinth complement to right side;
- On the left side, place the left lower hinge pin which is available in the KIT



5- Doors preparation:

- On the Refrigerator Door, remove the hinge Bushing, then using a small screwdriver take out the plastic Cover
- On the left side, do the same operation to remove the finishing plastic Cover



- On the right, law the cable under the end cap housing;
- While in the opposite side, disconnect the hidden cables, keeping the male connector outside and the female connector inside the end cap housing;



- Close the end caps housing, reassembling the finishing plastic cover (in the right side) and the plastic cover & bushing (in the left side);



- At the lower part, remove the right-hand clicking bushing;
- On the left side, remove the bushing and place it in the opposite side where the right-hand clicking bushing was installed
- Install the the left-hand clicking bushing which is available on the Kit



- Repeat the same procedure indicated above to install the clicking Bushing on the Freezer Door

6- Doors Assembling:

- Position the Freezer Door, check for its alignment and then fasten the intermediary hinge



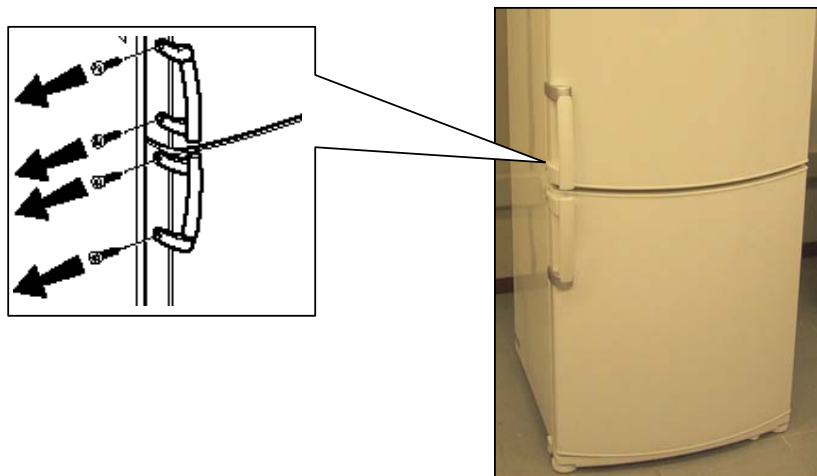
- Place the Refrigerator Door and engage the upper hinge into that Door
- Connect the interface board (LCD Display) wiring connectors



- Hide the remain wiring into the cabinet housing;
- Align both Doors and check the Gasket seal. If necessary, adjust them.
- Tighten all hinge screws;
- Place the hinge cover and reinstall all internal door shelves

7- Reversing the Handles

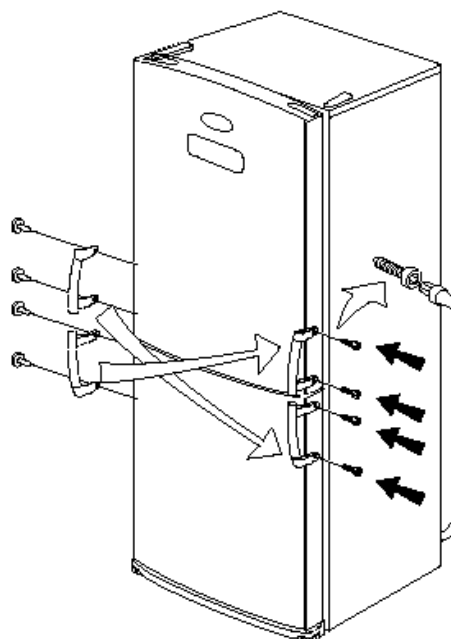
- Remove the allen Screws that fasten the freezer and refrigerator Handles



- Close the door orifices using the plugs provided with the Kit
- On the left-hand side, remove the door plugs.



- Finally, assembly the Handles inverting its position and fastening the allen Screws.



9 – REQUIRED TOOLS FOR SERVICING

- ◆ Temperature Thermometer
- ◆ Multi-meter (AC / DC)
- ◆ Ammeter Pliers/ Clamp
- ◆ Pliers
- ◆ Small and Large Screwdriver
- ◆ Socket / Nutdrivers 6mm, 8mm and 1/4 "
- ◆ Torx screwdriver T-30
- ◆ Medium and Large Phillips screwdriver
- ◆ Allen screwdriver

DIAGRAMA ELETRICO/WIRING DIAGRAM/SCHEMA ELETRIQUE/ESQUEMA ELETRICO

11 – FAILURE CORRECTION CHART (TROUBLESHOOTING)

COMPLAINT	CHECK	SOLUTION
Does not Work	If the Power Cable is connected.	Connect it
	If the wall outlet is powered.	If not, advise the consumer to call an electrician.
	If the circuit breaker is tripped or if the home fuse is opened.	Reset the circuit breaker or advise the consumer to call an electrician.
	High or Low voltage (check oscillation of lamps)	Advise the consumer to install an automatic voltage stabilizer = 1000Watts
	Power Cable damaged.	Replace it.
	If the Refrigerator was turned off by the Off key. In this situation the LCD display will be shown traces (see Use Characteristics)	Turn on the Refrigerator by the same way On key.
	If the Electronic Control – PCB and Interface Board are working properly.	Check if there is electrical energy coming well until the PCB and LCD Display (Interface), through the wiring harness. Check if all interface components are working well, if not, replace the damaged component, if yes, check the Electronic Control – PCB.
Does Not Refrigerate / Refrigerates not much in the Refrigerator.	If installation is correct (heat sources, sunshine, embedding, etc.)	Advise the consumer on the proper installation and minimum distance for embedding (10 cm on the top and 3cm on the sides).
	If there are any utensils blocking the wind-flow cold air outlet.	Unblock and advise the consumer.
	If there were excess door openings or open doors.	Advise the consumer.
	If the Refrigerator Temperature Set is on the proper position.	Advise the consumer. On days too hot or with the Refrigerator too full, the Temperature selection should be set to maximum position + 1 °C.
	If the Fan motors (Refrigerator & Freezer) is working properly.	Check the Fan Motors, Electronic Control and their electric connectors, carrying out the Self Test Routine. Finding any problem, adjust the contacts or replace the damaged component.
	If the Membrane is not stick on. Membrane must float during air flow.	Replace the Membrane or apply chemical talcum.
	If the product is an Alarm mode.	Check orientation done on this Manual Alarm – item, regarding respective Alarm code shown on the LCD.
	The Sealed system operation, as leakage or restriction on the system, low compressor pumping, fluid charge and others.	Replaced the failure component and do the reoperation system.
	If the Electronic Control – PCB is working properly.	Check if all interface components are working well, if not, replace the damaged component, if yes, check the Electronic Control – PCB.

COMPLAINT	CHECK	SOLUTION
Does not Freeze/ Freezing not much in the Freezer	If the evaporator is blocked by ice.	Check the defrost system: -Defrost Sensor should not be opened, in short-circuit or out of position (evaporator returning pipe) -Defrost Heater & Thermofuse are opened/ burnt or improperly positioned -The Electronic Control – PCB should be engaging the Defrost Heater, do the self test routine to prove it. Check if the Gutter or Defrosting Drain is blocked.
	If the product is an Alarm mode.	Check orientation done on this Manual Alarm – item, regarding respective Alarm code shown on the LCD.
	If the Freezer Fan motor is working properly.	Check the Fan Motor, Electronic Control and their electric connectors, carrying out the Self Test Routine. Finding any problem, adjust the contacts or replace the damaged component.
	The Sealed system operation, as leakage or restriction on the system, low compressor pumping, fluid charge and others.	Replaced the failure component and do the reoperation system.
	If the Electronic Control – PCB is working properly.	Check if all interface components are working well, if not, replace the damaged component, if yes, check the Electronic Control – PCB.
Freezing in the Refrigerator Compartment.	If utensils are placed directly on the cold air outlet.	Reposition them and advise the consumer.
	If the Door Cooling is well fitted / locked at the wind flow	Fit the Door cooling to the correct position and advise the consumer about its function and the correct position after cleaning
	If the Temperature Sets are on the proper position.	Advise the consumer: on days too cold or with few food in the Refrigerator, the Temperature selection should be set to the minimum position – 18 °C for the freezer compartment and 7°C for the refrigerator compartment.
Ice being formed in the Freezer.	Humidity infiltration through the door.	Check for any object blocking the door closing. If gasket is defective, replace it.
Alarm activated	If any of the doors remains open for more than 2 minutes	Advise the consumer to close the door and explain the Open Door Alarm system to her/ him, according the Alarm system item on this Manual.
	If any Alarm code, was showed on the LCD display	Check orientation done on this Manual, regarding respective Alarm code.
	If the Electronic Control – PCB is working properly.	Check if all interface components are working well, if not, replace the damaged component, if yes, check the Electronic Control – PCB.

COMPLAINT	CHECK	SOLUTION
Food on the Vegetable Tray sweating.	If Vegetable Tray Humidity Regulator is closed.	Adjust the Humidity Regulator to a more open position.
Lamp not light on	If the Lamp is burnt	Replace the Lamp. If not, check: -Reed switch board -Magnetics inside the end cap doors -Wirings and connectors between Electronic Control and LCD (Interface)
Internal Refrigerator sweating.	If the Doors are closing properly.	-Level the product -Check the gasket -Check the Hinges adjustment.
	If the temperature set is on the proper position.	Place the selection on the proper adjust and advise the consumer.
	If still hot, unpacked or uncovered food was stored.	Advise the consumer.
External sweating	External Temperature and Relative humidity are high.	Advise the consumer that the external sweating is normal in these situations.
	If the minimum embedding distances were observed.	Advise the consumer to observe the minimum embedding distances (10 cm on the top and 3cm on the sides).
	If there is heat source (stove, heaters) near the product or direct sunshine on it.	Advise the consumer to detach or remove such heat sources.
	Gasket bad sealing.	Adjust or Replace it.
Noise.	If any wiring cables are chocking with the cabinet liner or fan motor	Put them in the correct position and if is necessary use some adhesive tape to fix it
	If the product is unlevelled.	Level it and advise the consumer.
	Fan Motor noise.	Advise the consumer about No-Frost system.
	Noise when Compressor is turned on/off.	Advise the consumer that this is normal. Check capillary absorber tape
	Noises during the defrosting.	Advise the consumer that this is normal.
Difficulty to open the Doors.	If the Vacuum Valve is blocked.	Unblock it and advise the consumer.
Difficulty to close the Doors.	If the product is unlevelled.	Level it and advise the consumer.
	If utensils and internal portions are properly positioned.	Position them properly and advise the consumer.
Unpleasant smell or taste on the food.	If the refrigerator is clean inside.	Advise the consumer to clean it with warm water and neutral soap.
	If still hot, unpacked, or uncovered food was stored.	Advise the consumer.
	Smell of brand-new product.	Advise the consumer to clean with warm water and neutral soap.