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## **1 TECHNICAL NOTES**

### ***1.1 DESCRIPTION OF THE CABINET***

The cabinet is essentially made up of four sections:

- 1) Glass Structure
- 2) Display Area
- 3) Frame
- 4) Cooling system

**1)** The glass structure is made up of two side panels of insulated tempered glass that have conductive heated strips to minimize condensation on the glass surface. The front glass is enclosed in a metal frame which is hinged at the bottom for ease of cleaning. The front glass is also insulated and includes heating strips to minimize fog and condensation. The top support frame includes the following components:

- Electronic control with temperature indicator
- Rear plastic doors and slides
- Product display light
- Service shelf

**2)** The display area is highly insulated with high density polyurethane so it has a low coefficient of conductivity. In the display area there are the evaporators and the evaporator fans which cool and dry the air and gently circulate it through the cabinet. In the interior is placed a bar which supports the rows of display pans. The pitch of the pans enhances the view of the display and allows for under storage of product depending on pan size used.

**3)** The frame structure is made of high quality, durable steel. In this structure all of the cabinets cooling, electrical and mechanical items are located for ease of service.

**4)** The cooling system is made up of:

- Condensing unit(s)
- Evaporator unit(s)

The condensing unit includes the compressor and the condenser. This assembly is mounted on tracks or rails which can be slid out to aid in the ease of servicing. The evaporators include the evaporator assembly with its own fan motors which keep the required temperature for the products placed in the display area of the cabinet.

## 1.2 Work Surface

The work surface for the cabinet is located on the back part of the cabinet itself. Located here are the sliding rear doors and opening where the ice cream can be scooped from the cabinet.

NOTE: Directly below the rear work surface is the machine identification data plate. This data plate includes all of the machine's pertinent information for servicing, model number, serial number and should be referenced when initiating a service call. See fig. 1 below.

MODEL #:	Date:
SERIAL #:	Charge Lb. Oz.:
Refrigerant Type:	Phase: 60Hz
Condensing Unit Voltage:	Case Heaters Voltage:
Lights Voltage:	Amps:
Defrost Type:	Amps:
Fans Voltage:	High PSI:
Condensate Heaters Voltage:	Minimum Circuit:
Pressure Test Low PSI:	
Total Running Amps:	
Maximum Circuit:	

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COMMERCIAL  
REFRIGERATORS  
AND FREEZERS

### 1.3 MODELS DIMENSIONS AND WEIGHTS

TYPE	P [in]	L [in]	H [in]	WEIGHT(lb)
G6	45 1/4	45 1/4	51 1/4	665
G9	45 1/4	64 5/8	51 1/4	840
G12	45 1/4	84 1/3	51 1/4	995

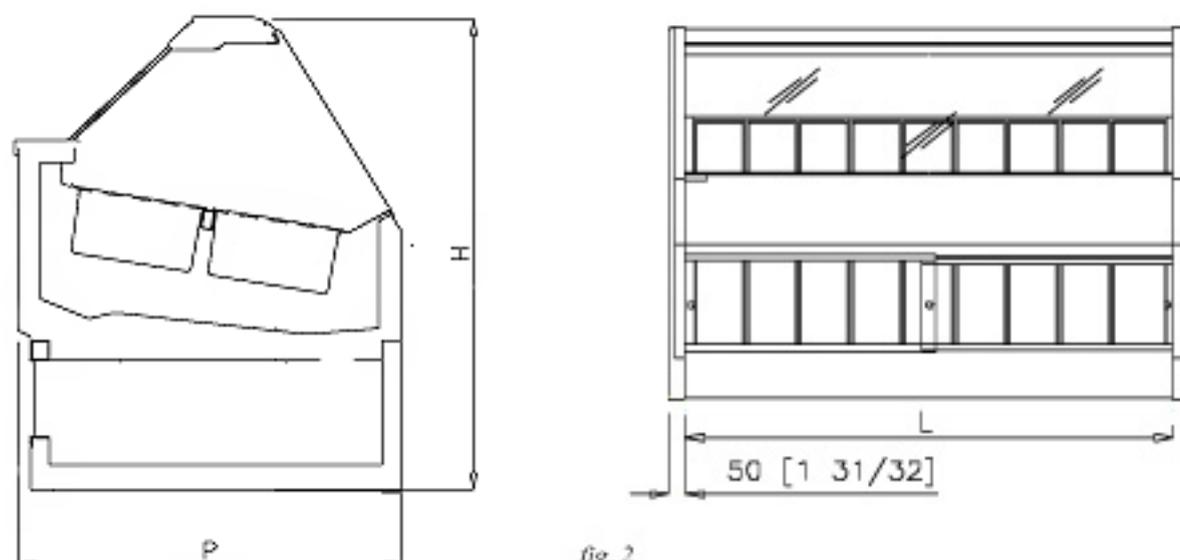


fig. 2

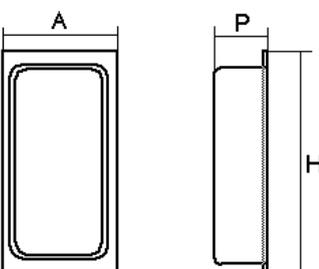
### 1.4 Uncrating the cabinet

#### - Packaging

Before removing any of the protective packing materials from around the machine, carefully inspect for any damage. This MUST be noted on the freight bill if damage has occurred and a freight claim filed.

## 1.5 TECHNICAL CHARACTERISTICS

	<b>G6</b>	<b>G9</b>	<b>G12</b>
Compressor	1	2	2
HP	1/2	1/2	1/2
Refr-Type	404A	404A	404A
Charge	40 oz	40 oz x 2	40oz x 2
No. of Evaporators	2	2	2
Defrost Type	Hot Gas	Hot Gas	Hot Gas
Voltage	208/230V	208/230V	208/230V
Working Range	0 to +5 Deg	0 to +5 Deg	0 to +5 Deg

Pan Size		A(in)	H(in)	P(in)	G6	G9	G12
	Capacity 5 L.	6 1/2	14 1/6	4 5/7	12+12R	18+18R	24+24R
	Capacity 7 L.	6 1/2	14 1/6	5 9/10	12	18	24
	Capacity 9 L.	6 1/2	14 1/6	7 1/10	12	18	24

## 2 INSTALLATION

### 2.1 Transportation

Two wooden rails are bolted to the bottom side of the machine frame structure of the cabinet. These wooden rails are in turn fastened to the main shipping skid or pallet, which holds the cabinet firmly in place during transportation. To remove the machine from the pallet, you must first remove these screws.

### 2.2 Handling and Lifting off of the Pallet

The display cabinet is lifted from the transport pallet in the following manner.

- Put the forks beside the machine as shown below.
- Ensuring that the forks are completely under the entire display cabinet and centered from side to side on the cabinet (see fig.3 below). You are now ready to lift off of the pallet.
- After removing from the pallet, place the display cabinet on the floor.
- To remove the wooden rails from the bottom, *CAREFULLY* lift and tip the display cabinet using the fork lit as illustrated in figure # 4.
- Unscrew the bolts which hold the rails to the bottom frame structure (fig.4 pos.A) and remove the rails from the supporting structure (fig.4 pos.B).
- Remove the other supporting structure and continue in the same way.

The movement and placement of the display cabinet must now be done by hand once it has been placed on the floor. *NEVER* push or try to move the cabinet by pushing or pulling on any side of the glass structure.

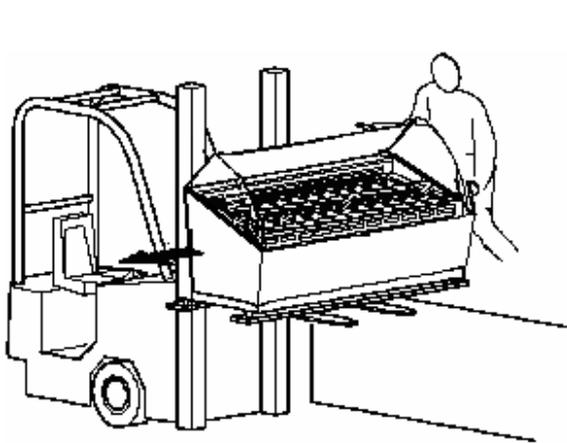


fig. 3

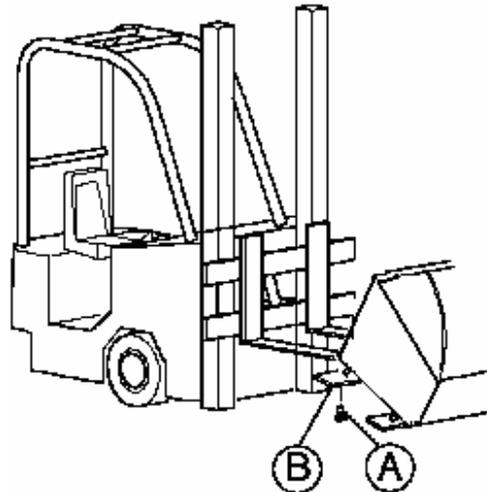


fig. 4

### 2.3 Positioning the cabinet

Before starting the installation, please ensure that the following clearances are maintained:

- A minimum space of (60 inches) customer side, and (28 inches) operator side is maintained
- Check that there is an appropriate power supply is provided according to the local and or national standards.
- After the final position is located, seal base of the cabinet with silicone sealant to the floor along the bottom frame rail.
- Using a level, precisely level the cabinet front to back, side to side as shown.

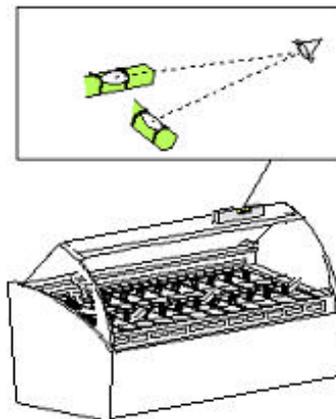


fig. 5

### 2.4 Environmental Conditions

When the cabinet has been positioned, please take note that its operation is affected by inside conditions. The temperature of (85 F) and with a relative humidity of < 55% should be maintained to ensure proper cabinet operating conditions.

During the installation we must also check that:

- THERE IS A SUFFICIENT AIR CIRCULATION AND THAT THERE ARE NO DIRECT DRAFTS ONTO THE CABINET.
- THE CABINET IS NOT SITUATED NEAR ANY HEAT SOURCES
- THE CABINET IS NOT EXPOSED TO DIRECT SUNLIGHT AT ANY TIME
- THE GRILL FOR THE AIR CONDENSER IS NOT OBSTRUCTED, AND AIR IS ALLOWED TO FLOW FREELY
- AIR CONDITIONING OR HEATING IN THE ROOM ARE NOT DIRECTED NEAR THE CABINET

It is essential to the proper operation of the case that all of the above items are strictly adhered to, all of which could adversely affect cabinet performance. It could also damage machine components, which will void the warranty on the machine and its components.

### 2.5 Service of condensing units and under frame components

In the event that service is required, it might be necessary to remove the condensing unit(s) from the cabinet. To do so, the rear panel must be first removed and adequate space provided to slide them out of the rear of the cabinet (see fig.6). It is therefore necessary to have adequate space behind the cabinet for this process to take place.

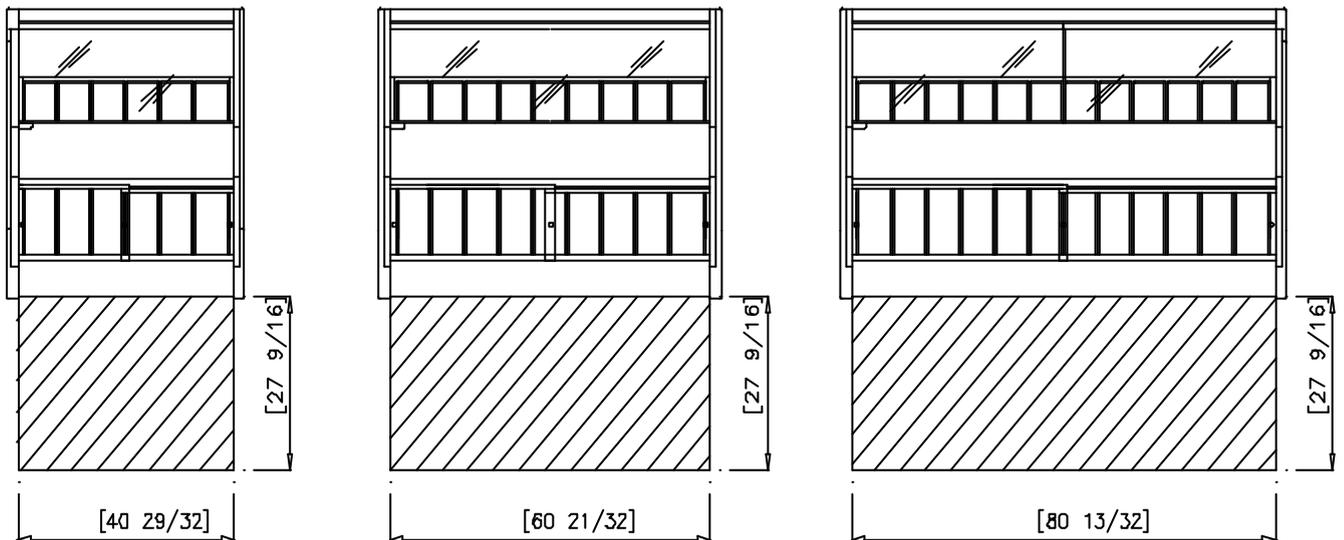


fig. 6

### 3 FUNCTIONS

#### 3.1 Start-up:

- 1) Activate the general switch of the central electrical plant.
- 2) Activate the general switch of the display cabinet which you will find on the protection panel on the rear of the display cabinet and position it to “1” (fig. 9 pos. A) activating the electrical supply of the display cabinet.

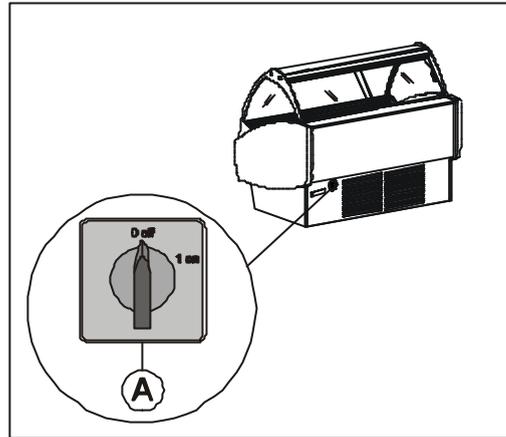


Fig. 9

#### 3.2 Command Console:

The refrigerating plant of the display cabinet is controlled by means of an electronic console.

The electronic console consists of:

- 1) a command console
- 2) a display

#### 3.3 Keyboard



T640: Dixell



To visualise or change the set point. When programming this button is used to select a parameter or to confirm a value.



This button is used during programming for going through the parameter codes or for increasing their value.



If pressed and then released you will visualise the controlled section (LOC, SE2, ALL). If pressed continually for 3 seconds this button allows you to gain access to the sections menu.



This button is used during programming for going through the parameter codes or decreasing their value.



Press Up & Down Arrow at some time to unlock.



Keep this button pressed for 3 seconds to start the manual defrosting cycle.



Use this button to turn the display cabinet lights on and off.



Turn the instrument on and off.

### 3.4 The meaning of the leds

There are a series of luminous points on the display, the meaning of which you will find in the table below:

LED	MODE	Function
	ON	Compressor on
	FLASHING	Programming phase (flashing with LED )
	ON	Evap Fan and evaporator active
	FLASHING	Programming phase (flashing with LED )
	ON	Defrosting active
	FLASHING	Dripping time underway
	ON	Keyboard in "ALL" mode
	FLASHING	Keyboard in RVD mode (remote control)
	ON	ALARM SIGNAL - In the "Pr2" programme it indicates that the parameter is also present in "Pr1"

### 3.5 How to visualise and change the set point



1. Press the SET key and release it to see the set point: you will visualise the set point immediately.
2. To change the set point press the SET key and keep it pressed for 3 seconds: the led will flash ;
3. To change the value activate and .
4. To memorise the new set point, press the SET key or wait 15 seconds to exit the programming feature.

*N.B. It is very important to bear in mind that the optimal air temperature varies considerably with the variation of the composition of the ice-cream (in particular the percentages of sugars and fats). Before placing the ice-cream in the display cabinet you should wait about 45 minutes from the start-up of refrigeration in order to allow the plant to reach its set functioning temperature.*

### 3.6 How to set up a manual defrosting cycle



1. Press the DEF key and keep it pressed for more than 2 seconds.

### 3.7 The ON/OFF Function



By pressing the ON/OFF key the instrument will show “OFF”. In this configuration the loads of all of the regulations will be deactivated. To turn the instrument back ON press the ON/OFF key again. The OFF condition allows for the exclusion of the instrument from monitoring without generating any type of alarm.

**N.B. The LIGHT key remains active in the OFF position.**

### 3.8 Local Alarms

MESSAGE	CAUSE	STATE OF OUTPUTS
“ P1 ”	Thermostat probe failure	Output according to “ Con “ and “ COF “ parameters
“ P2 “	Evaporator probe failure	Unchanged
“ P3 ”	Auxiliary probe failure	Unchanged
“ HA “	High temperature alarm	Unchanged
“ LA “	Low temperature alarm	Unchanged
“ EE ”	Memory anomaly	
“ EAL “	Digital input alarm	Unchanged
“ BAL ”	Blockage alarm from digital input	Regulation outputs deactivated
“ rtc “	Clock alarm	Unchanged
“ rtF “	Clock alarm failure / not present	Alarm output active, other outputs unchanged.

NOTE: On older cabinets with Elewell control there is a 3 position switch by master switch, must be turned to the left for Auto Defrost to occur.

### 3.9 Automatic defrosting

The display cabinet is complete with an automatic “warm gas” defrosting system that allows for rapid elimination of ice formations on the evaporator fins. The automatic defrosting process is set in the standard configuration every 8 hours.

### 3.10 Functioning with differentiated and reserve sector

In this configuration the ice-cream display cabinet and the differentiated / reserve sector are controlled with a single keyboard. The luminous red coloured led that appears on the display on the left at the top indicates the section in which it is located, according to the following table:

	ON	Keyboard in “ALL” mode
	OFF	Keyboard in “LOC” mode (ICE-CREAM MACHINE)
	FLASHING	Keyboard in RVD mode (DIFFERENTIATED / RESERVE SECTOR)

Please follow the instructions below to change sections:

1. To change the section press this key for 3 seconds .
2. You will see the message corresponding to the current keyboard programming (LOC, SE2, ALL).
3. Select the selection that you wish (LOC, SE2, ALL) using the  and  keys.
4. Press the SET key to confirm and wait 15 seconds before exiting the programming mode.



**The messages that appear on the display are as follows:**

**LOC:** The keyboard shows the temperature values measured, the state of the outputs and the alarms of the section to which it is connected (Default: ice-cream machine section). All of the commands given by the keyboard will be carried out by the local section only (Default: ice-cream machine section).

To see the set point of the ice-cream machine section and change it you must therefore enter the local section (LOC) following the instructions outlined above and then follow the instructions given in paragraph 3.5;

**SE2:** The keyboard controls the section corresponding to number “2”(Default: SE2= differentiated / reserve sector) and shows the temperature values measured, the state of the outputs and the alarms of that section. All of the commands given by the keyboard will be carried out by that section only.

To see the set point of the differentiated / reserve sector and change it you must therefore enter the “SE2” section following the indications outlined above and then follow the instructions given in paragraph 3.5;

ALL: The keyboard shows the temperature values measured, the states of the outputs and the alarms of the section to which it is connected (ice-cream display cabinet), but the commands given by the keyboard will also be transferred to the other section (differentiated / reserve sector). “As2” will appear on the display in case of alarm, this indicates that the differentiated / reserve sector is in alarm mode. To see details of the type of alarm in question programme the keyboard in such a way that it assumes control of the differentiated / reserve sector.

*N.B. To turn on or turn off the ice-cream machine sector and the differentiated / reserve sector at the same time enter the “ALL” section and activate the ON/OFF function. To turn the ice-cream machine section on or off or the differentiated / reserve section on or off, enter the relative section ( LOC, SE2 ) and activate the ON/OFF function*

### 3.11 Stopping the Machine:

To stop the machine completely, activate the switch (A) that is situated behind the back protection panel. Position the general switch to “0” (fig. 10 pos. A) cutting off the electrical supply of the display cabinet.

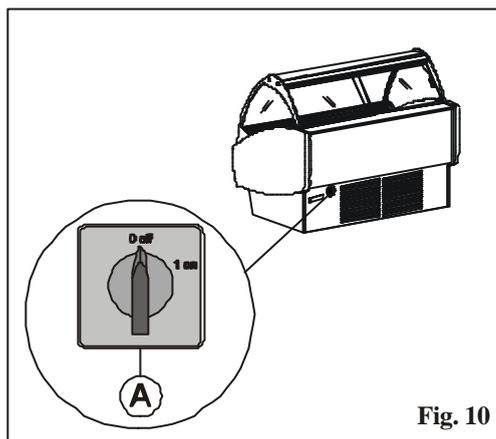


Fig. 10

## 4 ROUTINE MAINTENANCE

### 4.1 Preliminary

**WARNING!** Before starting any maintenance or cleaning operation it is necessary to disconnect the power supply to the cabinet at the main power disconnect or breaker box.

After turning off the power to the machine, you must then disconnect the main switch, which is located on the lower rear, left side of display cabinet. (see fig 8 below)

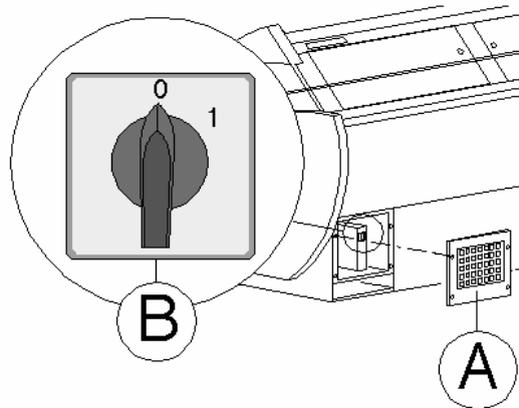


fig. 7

#### 4.2 Condenser cleaning

The dust and dirt deposits, generally situated on the fins of the air condenser, reduces the efficiency of the system and could eventually prevent it from functioning. It may also cause compressor damage if not cleaned regularly, so it is absolutely necessary to clean the condenser periodically (every 30 days). To do so, proceed as follows:

- Disconnect the power supply
- Removing the rear panel
- Remove the dust and the dirt in the condenser fins using a brush or a vacuum cleaner with a soft brush attachment (see fig. 9)

**WARNING! Do not use metal or rigid tools, as they could bend the cooling fins which could reduce efficiency or damage the condenser tubing.**

- Reinstall the rear panel
- Reconnect power to the machine

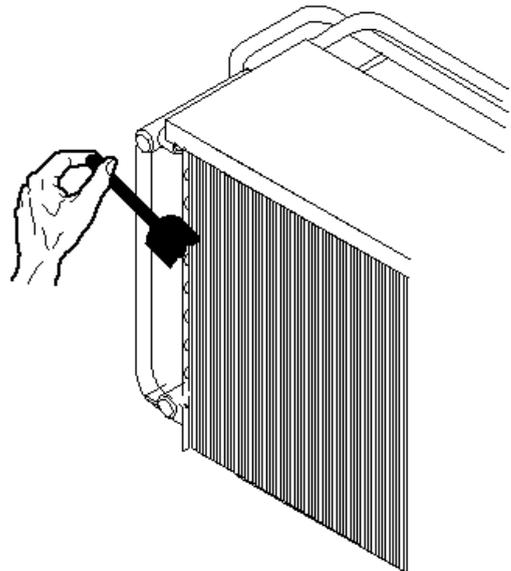


fig. 8

#### 4.3 Cleaning the interior storage compartment

The interior of the cabinet needs to be cleaned periodically. Once a week is the recommended cleaning cycle for the inside display area. To clean, proceed as follows:

- Remove the product from the display cabinet and place it into a low temperature freezer
- Disconnect the power supply to the cabinet
- Allow the cabinet defrost for about 90 minutes
- Clean the interior of the cabinet with a sponge or cloth and warm water without detergents, as shown in fig# 10.
- NOTE: You can mix 1 tablespoon of white vinegar with 1 gallon of water to clean.



*fig. 9*

**WARNING!** Avoid the use of large quantities of water as it could overflow the condensation collecting pan inside the cabinet frame

#### **4.4 External cleaning of the cabinet**

The outside of the cabinet could be cleaned with warm water and mild detergent. When cleaning it is critical that you ***NEVER*** use steel wool, abrasives, glass paper or similar products. Never use aggressive chemical products such as acids, chlorines, ammonia, etc as it could damage or destroy the cabinet surfaces. Clean as indicated in Fig.11 with a soft cloth or sponge.

**WARNING!** Absolutely avoid the use of pure alcohol.



*fig. 10*

#### 4.5 Weekly Defrosting

To ensure that the cabinet operates at maximum efficiency we suggest that you defrost the cabinet weekly and for a prolonged period (about 12 hours minimum). In order to do this, please disconnect the power supply to the cabinet. Allow the cabinet to stay idle for this prolonged period, which will ensure all ice has been defrosted and drained from the storage area.

## 5 PRACTICAL TROUBLESHOOTING GUIDE

### 5.1 The temperature of the display area is not low enough (the ice-cream is soft)

<b>LIKELY CAUSE</b>	<b>LIKELY REMEDY</b>
Evaporator obstructed by ice.	Carry out defrosting as indicated: Transfer the product from the display cabinet to a freezer at a temperature of 0°F. Turn off the main switch for 10 /12 hours so as to allow for the evaporator area to defrost (point 4.3).
Condenser obstructed by dust or other matter.	Clean the condenser as indicated in point 4.2 Remove everything that prevents a regular airflow to the condenser.
The evap motors are not working and / or their blades are damaged.	Request the intervention of the assistance service for the replacement of the same.
The display cabinet is exposed to air currents or direct sunlight	The display cabinet will not function correctly in these conditions; Remove the display cabinet from the air currents and / or direct sunlight
The thermostat is not working properly. With a perfectly functional refrigerating plant, the thermostat maintains a higher temperature in the air than that set.	Call the technical assistance service.
The refrigerated airflow (the “sheet of air”) on the ice-cream is irregular.	Check the air circuit (evap fan area, area beneath the evaporator) and remove any obstacles to the circulation of cold air.

<b>Lack of water</b> (Water Cooled Only)	<b>Check if there is a water flow, if there is, call the technician for possible water valve rupture, pressurestat problems or other causes.</b>
---	--

**5.2 The defrosting water does not drain off properly (that is, the water obtained from the melting of ice during the automatic or manual defrosting phases).**

<b>LIKELY CAUSE</b>	<b>LIKELY REMEDY</b>
<b>The defrosting water drainage tube that goes from the cold tub to the tub in which such water is channelled (for evaporation) is blocked.</b>	<b>Open up the drainage tube</b>
<b>The display cabinet is positioned on the ground in such a way that the drainage water is not directed towards the outlet hole.</b>	<b>Ensure that the display cabinet is level on the ground as outlined in point 2.2. It must be completely level.</b>

**5.3 The compressor never stops or it works for very long periods of time.**

<b>LIKELY CAUSE</b>	<b>LIKELY REMEDY</b>
<b>The room temperature is very high (e.g. above 85°F).</b>	<b>If it is not possible to lower the room temperature (e.g. by means of air conditioning) the compressor will work almost constantly.</b>
<b>The air condenser is blocked</b>	<b>Clean the condenser as outlined in point 4.2</b>
<b>The thermostat is set too low.</b>	<b>Regulate the thermostat to a higher temperature as indicated in point 3.5</b>
<b>The evap and or condenser fan are off</b>	<b>Call the assistance service to individualise the cause and replace them if necessary.</b>

**5.4 The display cabinet does not work**

<b>LIKELY CAUSE</b>	<b>LIKELY REMEDY</b>
<b>The cabinet is not plugged in.</b>	<b>Plug it in (see point 2.6)</b>
<b>The trip switch has gone off.</b>	<b>Reinsert the trip switch.</b>
<b>The general switch of the display cabinet is off.</b>	<b>Turn on the general switch of the display cabinet (see point 3.1)</b>

**5.5 The light is not working**

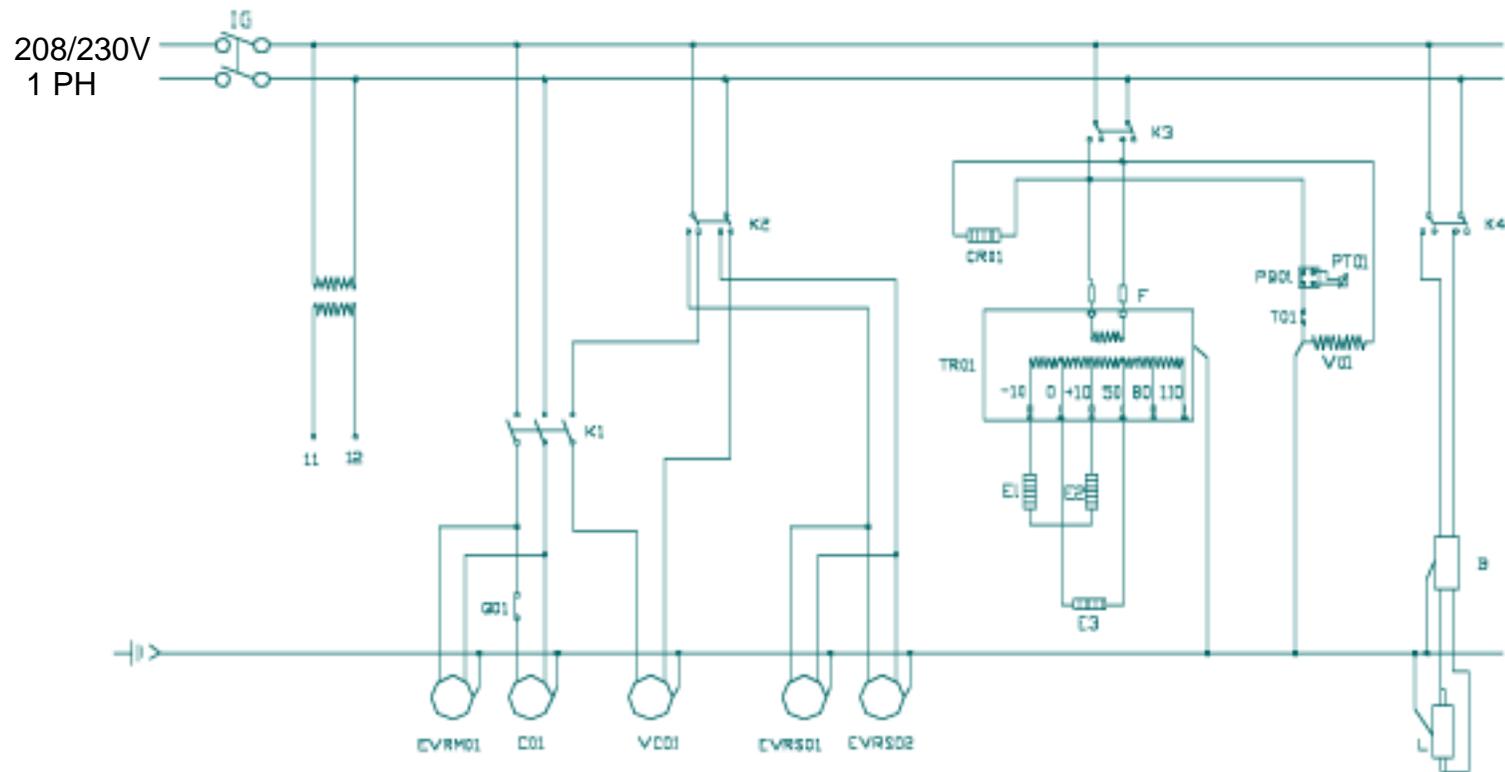
<b>LIKELY CAUSE</b>	<b>LIKELY REMEDY</b>
<b>The light switch is not turned on.</b>	<b>Turn on the light switch</b>

<b>The fluorescent light bulb is not inserted properly.</b>	<b>Insert the light bulb properly.</b>
<b>The light bulb is blown.</b>	<b>Replace the light bulb</b>
<b>The “starter” is blown.</b>	<b>Replace the “starter”</b>

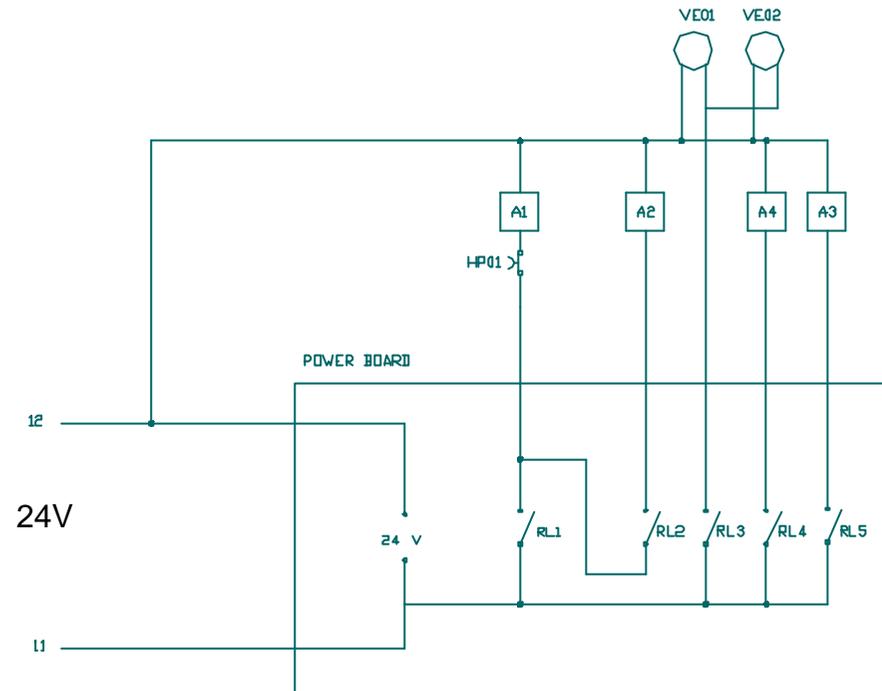
NOTE: Some units do not have starters. They have Electronic Ballast.

## 5.1 Electrical Board

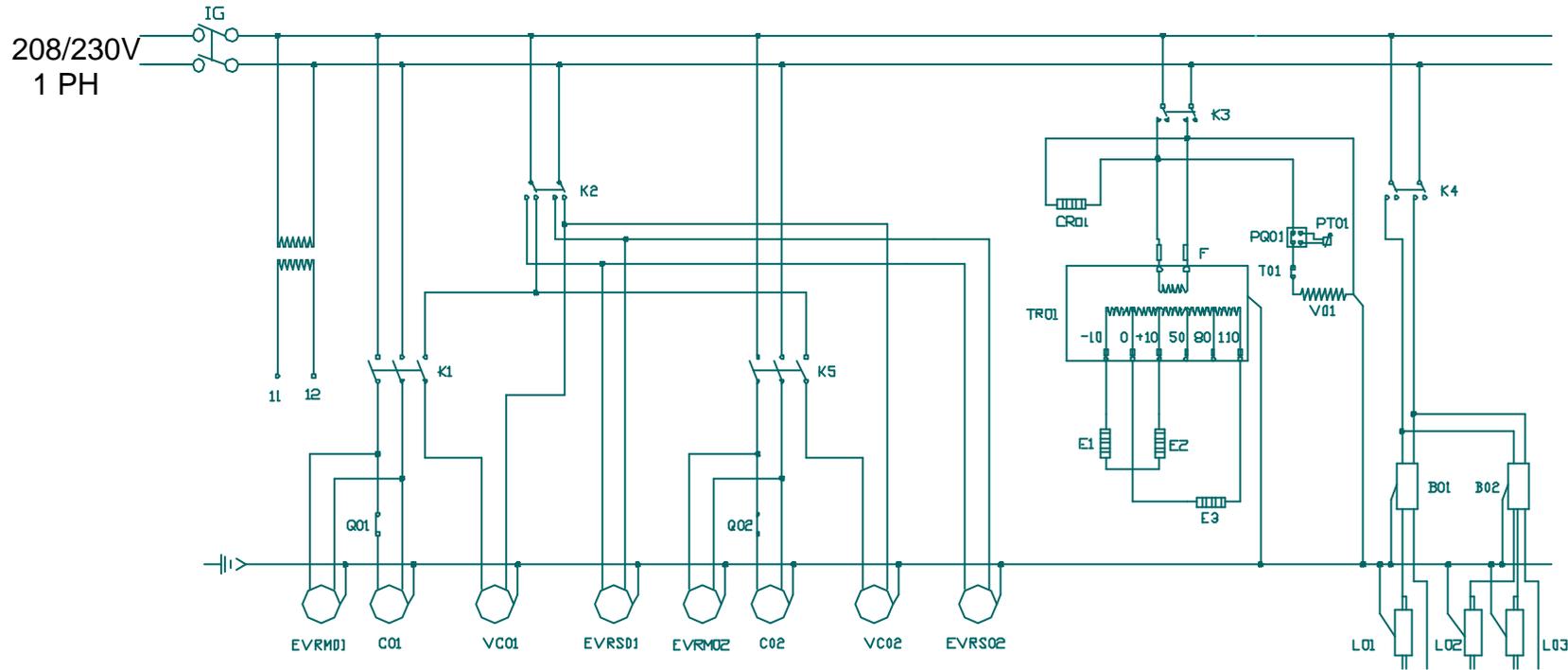
Electrical Diagram Ghes G6  
Illustration n°1a



Electrical Diagram Ghea G6  
Illustration n°1.b

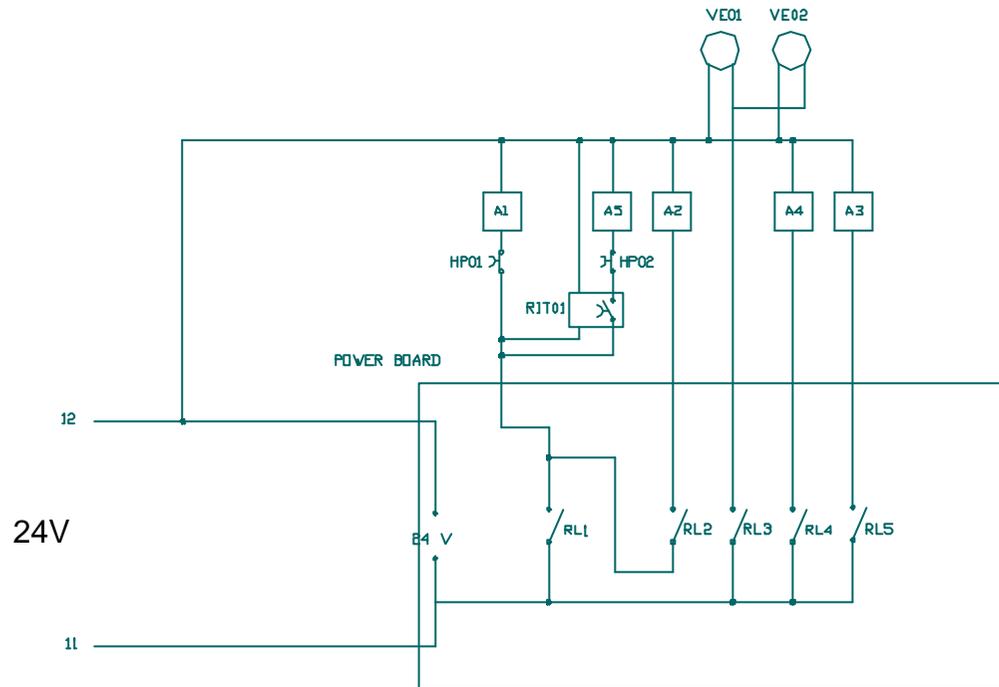


Electrical Diagram Ghea G9 / G12  
Illustration n°2.a



		<b>IG</b>	<b>MAIN POWER DISCONNECT SWITCH</b>
<b>CR01</b>	<b>REAR DECK HEATING WIRE</b>	<b>K1</b>	<b>CONTACTOR COMPRESSOR</b>
<b>TR01</b>	<b>TRANSFORMER</b>	<b>K2</b>	<b>DEF RELAY-COND FANS/SOLENOID VALVES</b>
<b>F</b>	<b>TRANSFORMER FUSE</b>	<b>K3</b>	<b>GLASS HEATER STRIP TRANSFORMER RELAY</b>
<b>E1</b>	<b>RIGHT SIDE GLASS HEATER STRIP</b>	<b>K4</b>	<b>LAMP RELAY</b>
<b>E2</b>	<b>LEFT SIDE GLASS HEATER STRIP</b>	<b>K5</b>	<b>CONTACTOR 2ND COMPRESSOR</b>
<b>E3</b>	<b>FRONT GLASS HEATER STRIP</b>	<b>Q01</b>	<b>KLIXON</b>
<b>B01</b>	<b>BALLAST</b>	<b>Q02</b>	<b>KLIXON 2ND COMPRESSOR</b>
<b>B02</b>	<b>BALLAST</b>	<b>11/12</b>	<b>POWER 24 V</b>
<b>L01</b>	<b>LAMP</b>	<b>EVRM01</b>	<b>LIQUID LINE SOLENOID VALVE</b>
<b>L02</b>	<b>LAMP</b>	<b>EVRM02</b>	<b>LIQUID LINE SOLENOID VALVE 2ND COMPRESSOR</b>
<b>L03</b>	<b>LAMP</b>	<b>C01</b>	<b>COMPRESSOR</b>
<b>PQ01</b>	<b>THERMOSTATIC SWITCH CONDENSATION PAN</b>	<b>C02</b>	<b>2ND COMPRESSOR</b>
<b>PT01</b>	<b>PROBE FOR THERMOSTATIC SWITCH CONDENSATION PAN</b>	<b>VC01</b>	<b>CONDENSER FAN MOTOR</b>
<b>T01</b>	<b>CONDENSATE EVAPORATION PAN THERMAL PROTECTION</b>	<b>VC02</b>	<b>CONDENSER FAN MOTOR 2ND COMPRESSOR</b>
<b>V01</b>	<b>CONDENSATE EVAPORATION PAN HEATER</b>	<b>EVRM01</b>	<b>HOT GAS DEFROST SOLENOID VALVE</b>
		<b>EVRM02</b>	<b>HOT GAS DEFROST SOLENOID VALVE 2ND COMPRESSOR</b>

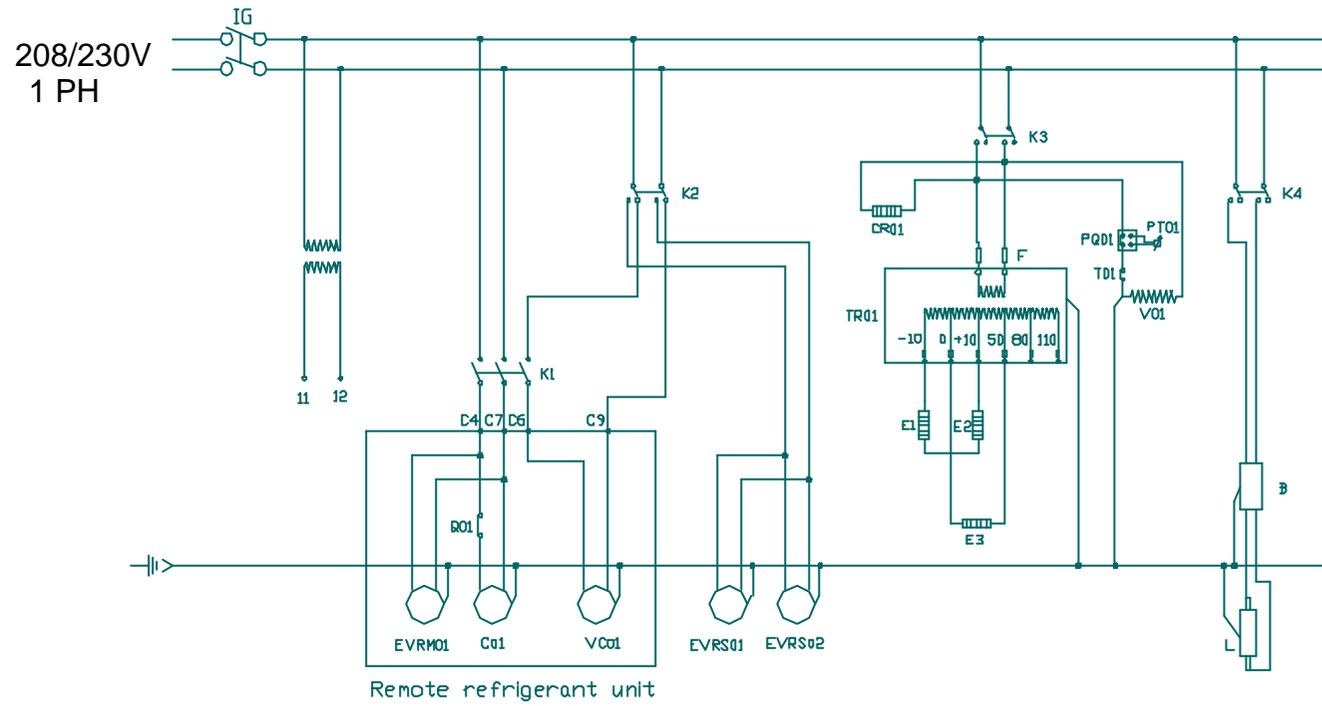
Electrical Diagram Ghea G9 / G12  
Illustration n°2.b



<b>POWER BOARD</b>	<b>POWER BOARD</b>
<b>RL1</b>	<b>COMPRESSOR POWER BOARD RELAY</b>
<b>RL2</b>	<b>DEFROST POWER BOARD RELAY</b>
<b>RL3</b>	<b>MOTOR FAN EVAP DEFROST POWER BOARD RELAY</b>
<b>RL4</b>	<b>LAMP DEFROST POWER BOARD RELAY</b>
<b>RL5</b>	<b>GLASS HEATER POWER BOARD RELAY</b>
<b>A1</b>	<b>COMPRESSOR CONTACTOR COIL</b>
<b>A2</b>	<b>DEFROST RELAY - CONDENSER FANS/SOLENOID VALVE</b>
<b>A3</b>	<b>GLASS HEATER STRIP TRANSFORMER RELAY</b>
<b>A4</b>	<b>DISPLAY LAMP RELAY</b>
<b>A5</b>	<b>COMPRESSOR CONTACTOR COIL 2ND COMPRESSOR</b>
<b>RJT01</b>	<b>CONDENSING UNIT DELAY ON MAKE TIMER</b>
<b>HP01</b>	<b>HIGH PRESSURE CONTROL</b>
<b>HP02</b>	<b>HIGH PRESSURE CONTROL 2ND COMPRESSOR</b>
<b>VE01</b>	<b>RIGHT FAN MOTOR EVAPORATOR</b>
<b>VE02</b>	<b>LEFT FAN MOTOR EVAPORATOR</b>

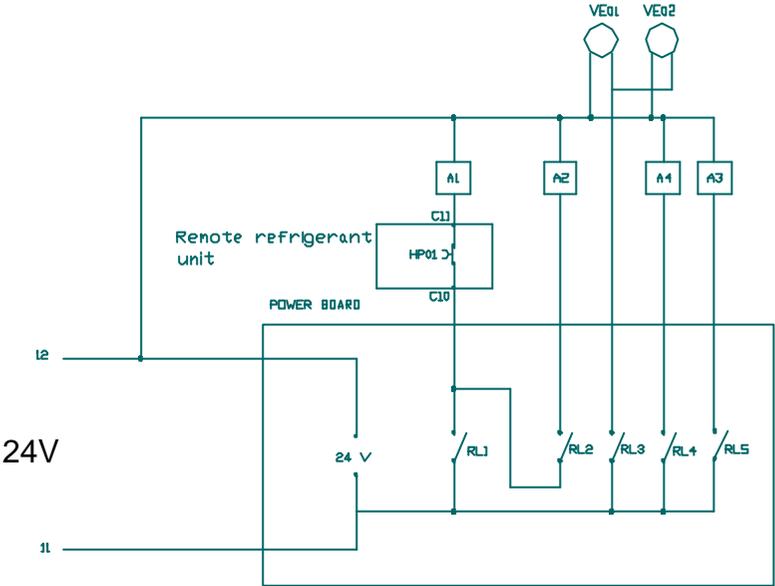
## Remote

Electrical Diagram Ghea G6  
for remote refrigerant unit  
Illustration n°3.a



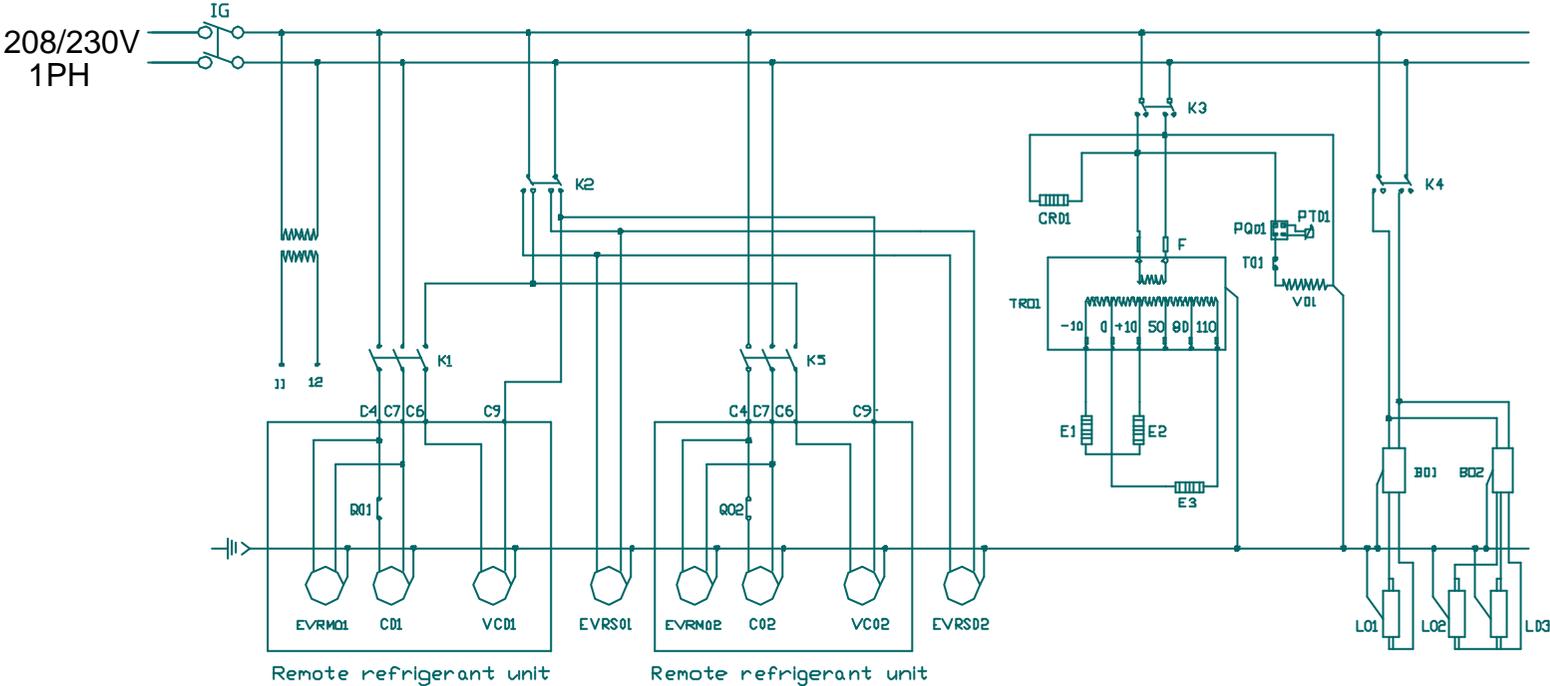
# Remote

Electrical Diagram Ghea G6  
for remote refrigerant unit  
Illustration n°3.b



# Remote

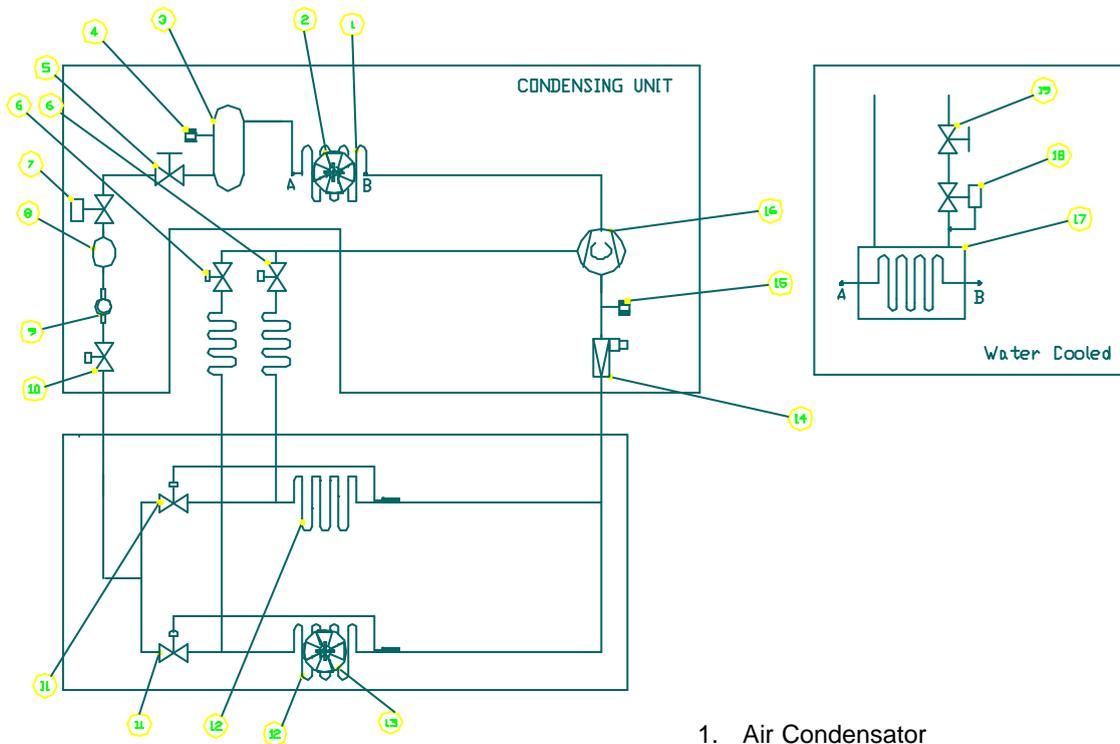
Electrical Diagram Ghea G9 / G12  
for remote refrigerant unit  
Illustration n°4.a



CODE	DESCRIPTION
IG	MAIN POWER DISCONNECT SWITCH
K1	CONTACTOR COMPRESSOR
K2	DEFROST RELAY-CONDENSER FANS/SOLENOID VALVES
K3	GLASS HEATER STRIP TRANSFORMER RELAY
K4	LAMP RELAY
K5	CONTACTOR 2nd COMPRESSOR
Q01	Klixon
Q02	Klixon 2nd COMPRESSOR
11 / 12	POWER 24 V
EVRM01	LIQUID LINE SOLENOID VALVE
EVRM02	LIQUID LINE SOLENOID VALVE 2ND COMPRESSOR
C01	COMPRESSOR
C02	2nd COMPRESSOR
VC01	CONDENSER FAN MOTOR
VC02	CONDENSER FAN MOTOR 2nd COMPRESSOR
EVRS01	HOT GAS DEFROST SOLENOID VALVE
EVRS02	HOT GAS DEFROST SOLENOID VALVE 2 <sup>nd</sup> COMPRESSOR
R01	DEFROST HEATING WIRE
CR01	REAR DECK HEATING WIRE
CR02	FRONT HETAING WIRE
TR01	TRASFORMER
F	TRANSFORMER FUSE
E1	RIGHT SIDE GLASS HEATER STRIP
E2	LEFT SIDE GLASS HEATER STRIP
E3	FRONT GLASS HEATER STRIP
B01	BALLAST
B02	BALLAST
L01	LAMP
L02	LAMP
L03	LAMP
PQ01	THERMOSTATIC SWITCH CONDENSATION PAN
PT01	PROBE FOR THERMOSTATIC SWITCH CONDENSATION PAN
T01	CONDENSATE EVAPORATION PAN THERMAL PROTECTION
V01	CONDENSATE EVAPORATION PAN HEATER
POWER BOARD	POWER BOARD
RL1	COMPRESSOR POWER BOARD RELAY
RL2	DEFROST POWER BOARD RELAY
RL3	MOTOR FAN EVAPORATOR DEFROST POWER BOARD RELAY
RL4	LAMP DEFROST POWER BOARD RELAY
RL5	GLASS HAETER POWER BOARD RELAY
A1	COMPRESSOR CONTACTOR COIL
A2	DEFROST RELAY –CONDENSER FANS/SOLENOID VALVE
A3	GLASS HEATER STRIP TRASFORMER RELAY
A4	DSPLAY LAMP RELAY
A5	COMPRESSOR CONTACTOR COIL 2nd COMPRESSOR
RIT01	CONDENSING UNIT DELAY ON MAKE TIMER
HP01	HIGH PRESSARE CONTROL
HP02	HIGH PRESSARE CONTROL 2nd COMPRESSOR
VE01	RIGHT FAN MOTOR EVAPORATOR
VE02	LEFT FAN MOTOR EVAPORATOR

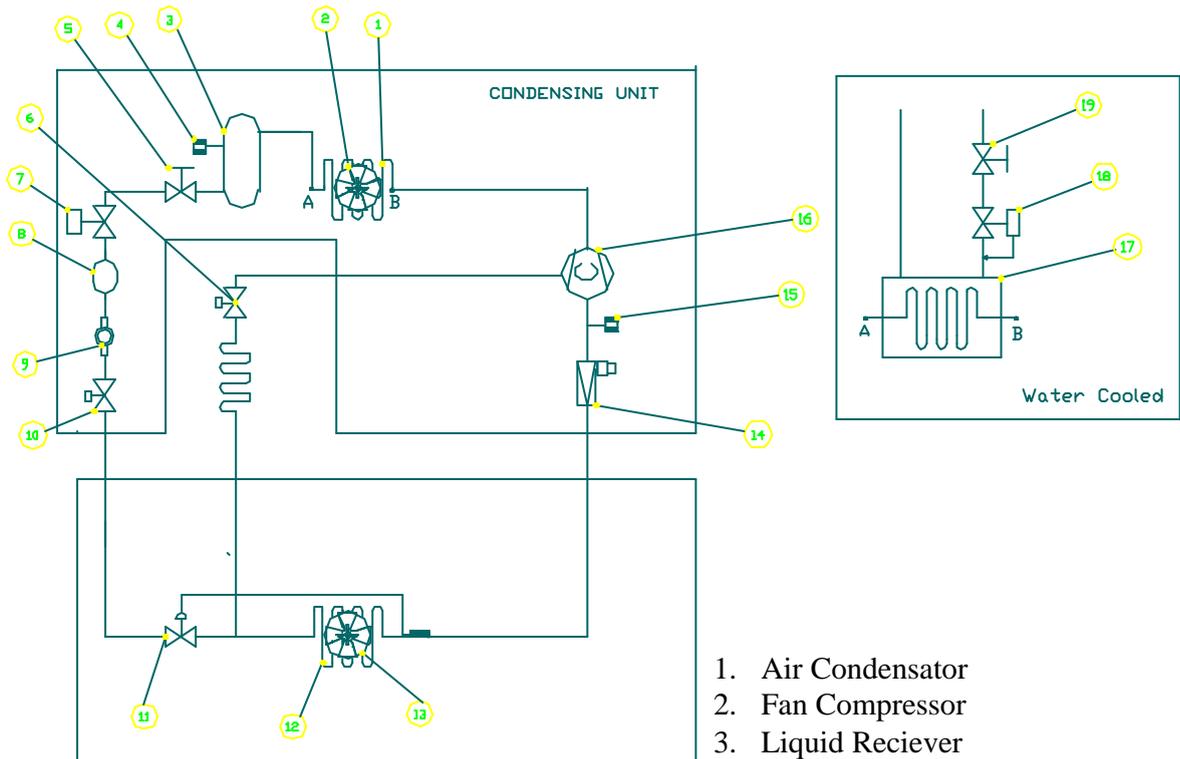
## 5.2 Thermodynamic Board

## G6



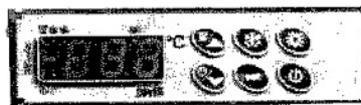
1. Air Condensator
2. Fan Compressor
3. Liquid Receiver
4. High Pressure Puddle Plug
5. Refrigerant Ball Valve
6. Solenoid Valve Hot Gas
7. High Pressusre Control
8. Filter Drier
9. Liquid Indicator
10. Solenoid Valve
11. Thermostatic Valve
12. Evaporator
13. Fan Evaporator
14. Pressure Regulating Valve KVR
15. Low Pressure Fusible Plug
16. Water Condensator
17. Water Condensator
18. Water Pressure Regulating Valve
19. Water Inlet Ball Valve

## G9-G12



1. Air Condensator
2. Fan Compressor
3. Liquid Reciever
4. High Pressure Puddle Plug
5. Refrigerant Ball Valve
6. Solenoid Valve Hot Gas
7. High Pressure Control
8. Filter Drier
9. Liquid Indicator
10. Solenoid Valve
11. Thermostatic Valve
12. Evaporator
13. Fan Evaporator
14. Pressure Regulating Valve KVR
15. Low Pressure Fusible Plug
16. Compressor
17. Water Condensator
18. Water Pressure Regulating Valve
19. Water Inlet Ball Valve

# ORION



4K

DATA:	28/04/04
REV.	01
REDATTO:	RENZI
APPROVATO:	LAMPONI

Code	Description	Range	Default	Orion	Menu
Set	Set point	LS + US	-10	<b>+4</b>	---
Hy	Hysteresis	0.1 + 25.5 °C / 1 + 45 °F	2.0	3.0	Pr1
LS	Minimum Set Point	-50.0°C + SET / -58°F + SET	-30.0	-22	Pr2
uS	Maximum Set Point	SET + 110°C / SET + 230°F	10.0	80	Pr2
odS	Outputs activation delay at star up	0 + 255 min.	0	0	Pr2
Ac	Anti-short cycle delay	0 + 30 min.	1	1	Pr1
con	solenoid valve on time with faulty probe	0 + 255 min.	15	15	Pr2
coF	solenoid valve off time with faulty probe	0 + 255 min.	30	30	Pr2
ch	Type of action (cold/hot)	cL / Ht	cL	cL	Pr2
cF	Temperature measurement unit: Celsius, Fahrenheit	°C / °F	°C	°F	Pr2
rES	Resolution (integer/decimal point)	in / de	fn	in	Pr2
Lod	Local display	P1 / P2 / P3	P1	P1	Pr2
tdF	Defrost type	rE / in	in	in	Pr2
EdF	Defrost mode	rtc / in / Sd	in	in	Pr2
SdF	Set point for SMART DEFROST	-30 + +30 °C / -22 + +86 °F	0	0	Pr2
dtE	Defrost termination temperature (1°Evaporator)	-50.0 + 110.0 °C / -58 + 230 °F	8.0	<b>4.5</b>	Pr1
idF	Interval between defrost cycles	1 + 120 ore	8	6	Pr1
MdF	(Maximum) length for defrost	0 + 255 min.	15	15	Pr2
dFd	Displaying during defrost	rt / rt / SEI / dEF / dEG	rt	rt	Pr2
dAd	Max display delay after defrost	0 + 255 min.	0	0	Pr2
Fdt	Draining time	0 + 255 min.	0	<b>2</b>	Pr2
dPo	First defrost after start up	no / Yes	n	n	Pr2
dEM	Global defrost mode	ALL / Loc	Loc	Loc	Pr2
Fnc	Fans operating mode	C-n / C-y / O-n / O-y	O-n	O-n	Pr2
Fnd	Fans delay after defrost	0 + 255 min.	1	1	Pr2
FSt	Fans stop temperature	-50.0 + 110.0 °C / -58 + 230 °F	10.0	<b>7.5</b>	Pr2
ALc	Temperature alarms configuration: relative/absolute	rE / Ab	Ab	Ab	Pr2
ALu	Maximum temperature alarm	-50.0 + 110.0 °C / -58 + 230 °F	80	170	Pr2
ALL	Minimum temperature alarm	-50.0 + 110.0 °C / -58 + 230 °F	-50	-40	Pr2
AFH	Temperature alarm and fan hysteresis	0.1 + 25.5 °C / 1 + 45 °F	2.0	2.0	Pr2
ALd	Temperature alarm delay	0 + 255 min.	15	15	Pr2
dAo	Delay of temperature alarm at start up	0 + 23h 50 min.	1.3	1.3	Pr2
EdA	Alarm delay at the end of defrost	0 + 255 min.	30	30	Pr2
dot	Alarm delay with open door	0 + 255 min.	30	30	Pr2
ot	Thermostat probe calibration	-12.0 + +12.0 °C / -21 + 21 °F	0.0	0.0	Pr1
oE	Evaporator probe calibration	-12.0 + +12.0 °C / -21 + 21 °F	0.0	0.0	Pr2
o3	Auxiliary probe calibration	-12.0 + +12.0 °C / -21 + 21 °F	0.0	0.0	Pr2
P2P	Evaporator probe presence	no / Yes	y	y	Pr2
P3P	Auxiliary probe presence	no / Yes	n	n	Pr2
HES	Temp. increase during the Energy Saving cycle	-30 + +30 °C / -54 + +54 °F	0	0	Pr2
odc	Open door control	no / FAn / cPr / F-c	no	no	Pr2
i1P	Energy Saving switch polarity	cL / oP	cL	cL	Pr2
i2P	Configurable digital input polarity	cL / oP	cL	cL	Pr2
i2F	Digital input configuration	cor / bAL / dFr / LiG / AuS / OnF	LiG	LiG	Pr2
did	Digital input alarm delay	0 + 255 min.	5	5	Pr2
bbc	Type of keyboard	4bb / 6bb / 8bb	6bb	6bb	Pr2
Hur	Current hour	0 + 23	---	---	Pr2
Min	Current minutes	0 + 59	---	---	Pr2



**PARAMETRI CONTROLLO**  
**ELIwEL**  
**EWPC 972 (GHEA/MISTRAL/SACHER)**

DATA:	20/06/01
REV:	0
REDATTO:	Piersigilli
APPROVATO:	Piersigilli

DESCRIZIONE PARAMETRO	FLAG	UNITA	RANGE	SET °C	SET °F
differenziale	diff	°C/°F	1...15	2	3
low set	LSE	°C/°F	-99...HSE	-55	-22
high set	HSE	°C/°F	LSE...99	40	80
Defrost type selection	dly	flag	EL / in	IN	IN
Defrost interval time	dli	hours	0...31	8	<b>6</b>
Defrost count type	dci	flag	dF/H/SC/Ft	RT	RT
Defrost offset	doh	minutes	0...59	0	0
def. endurance time-out	dEt	minutes	1...99	15	15
def. stop temperature	dSI	°C/°F	-70...99	8	<b>45</b>
fan stop temperature	FSI	°C/°F	-70...99	30	<b>75</b>
fan delay time	Fdt	minutes	0...99	1	<b>1</b>
drainage time	dt	minutes	0...99	0	<b>2</b>
Defrost power on	dPo	flag	n / y	n	n
Defrost display lock	dll	flag	n / y / lb	n	n
Defrost fan disable	dFd	flag	n / y	Y	Y
alarm fan diff.	Afd	°C/°F	1...50	2	2
fan compressor off	Fco	flag	oF / on	on	on
comp. probe protection	cFP	flag	oF / on	on	on
comp. type protection	cIP	flag	nP/don/dof/dbl	np	np
comp. delay protection	cdP	minutes	0...15	0	0
output delay on	odo	minutes	0...99	0	0
Evaporator Probe read out	EPR	°C/°F	/	/	/
calibration	CAL	°C/°F	-20...20	0	0
table of parameters	Tab	/	/	/	/

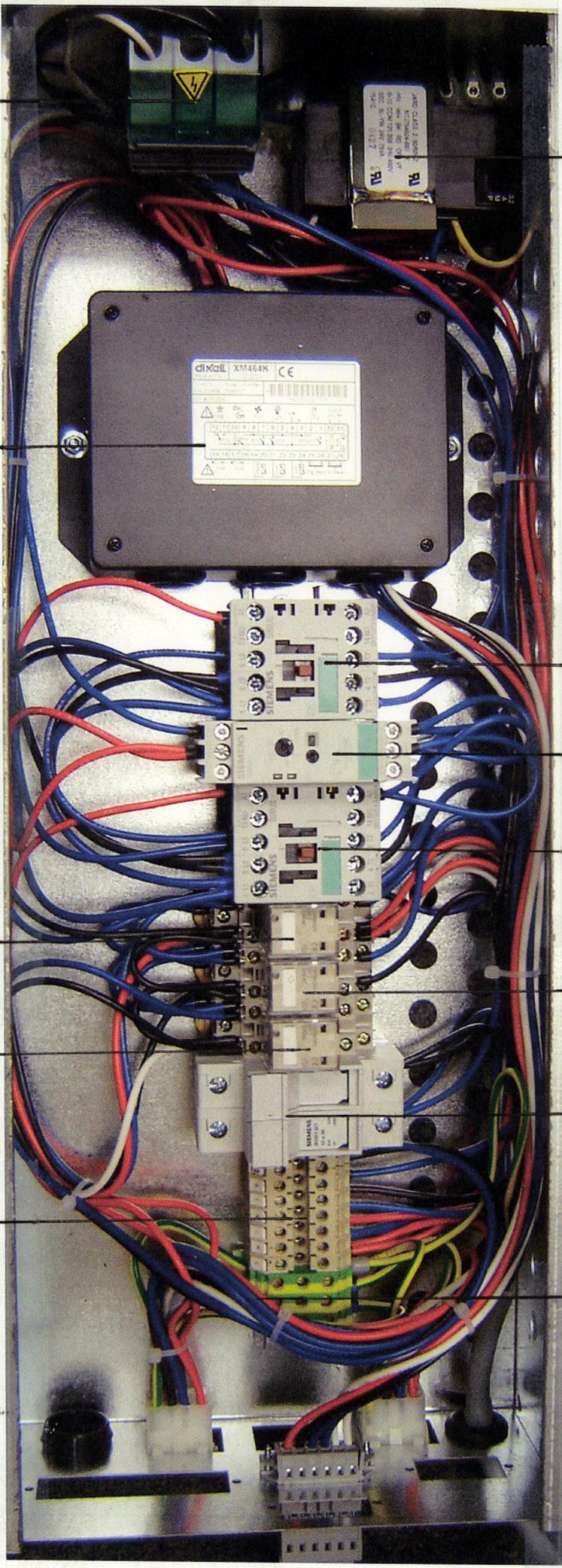
Per entrare in programmazione tenere premuto per alcuni secondi il tasto "SET"  
 Per scorrere i parametri :  
 Per memorizzare il nuovo :  
 Per scorrere i parametri :  
 Per memorizzare il nuovo :  
 Per scorrere i parametri :  
 Per memorizzare il nuovo :

 <b>Control parameters XM464K keyboards T640</b>		DATA:	28/04/04		
		REV.	01		
		REDATTO:	RENZI		
		APPROVATO:	LAMPONI		
Param.	Description	Range	Default	Orion	Menu
LSn	L.A.N. section number	1-7	1	1	Pr2
LAn	L.A.N. serial address	1-LSn	1	1	Pr2
LMd	Master Defrost Synchronizatio	n + y	y	y	Pr2
LSP	L.A.N. Set-point synchronisation	n + y	n	n	Pr2
LdS	L.A.N. display synchronisation	n + y	n	n	Pr2
LoF	L.A.N. On/Off synchronisation	n + y	n	n	Pr2
LLi	L.A.N. Light synchronisation	n + y	y	y	Pr2
LES	L.A.N. Energy Saving synchronisation	n + y	n	n	Pr2
LSd	Remole probe display	n + y	n	n	Pr2
Adr	RS485 Serial address	1 + 247	1	1	Pr1
dP1	Probe 1 value display	(function)	---	---	Pr2
dP2	Probe 2 value display	(function)	---	---	Pr2
dP3	Probe 3 value display	(function)	---	---	Pr2
rEL	Software release	(read only)	---	---	Pr2
Ptb	Map code	(read only)	---	<b>5</b>	Pr2
Pr2	Access parameter list	(function)	---	---	Pr1

### N.B. FRUIT / RESERVE UNIT PARAMETERS

LSn	L.A.N. section number	1-7	1	2	Pr2
LAn	L.A.N. serial address	1 (Cabinet) + 2 (Fruit/Reserve)	1	1-2	Pr2

PASSWORD



Master Switch

Slave MOG.

Lights Defrost

Block

24 V Trans.

Comp # 1

Time Delay

Comp # 2

EVAP FAN

Fuse

Ground Block

