

**XARIOS SINGLE TEMPERATURE ROAD / STANDBY**

**X150-04 / X200-04**

**X300-05 / X300-07 / X350-05**

**X500-04 / X600**

**1. INTRODUCTION**

This guide has been prepared for the operator of Carrier Transicold refrigeration units. It contains basic instructions for the daily operation of the refrigeration unit as well as safety information, troubleshooting tips, and other information that will help you to deliver the load in the best possible condition.

Xarios range is simple, tried and tested design; low-cost purchase and operation to equip middle size delivery vehicles.

Please take the time to read the information contained in this booklet and refer to it whenever you have a question about the operation of your Carrier Transicold unit. This manual refers to the standard model. Some options may not appear in it, and in such cases you are requested to consult our Technical Services.

Your refrigeration unit has been engineered to provide long, trouble-free performance when it is properly operated and maintained. The checks outlined in this guide will help to minimize on the road problems. In addition, a comprehensive maintenance program will help to insure that the unit continues to operate reliably. Such a maintenance program will also help to control operating costs, increase the unit's working life, and improve performance.

When having your unit serviced, be sure to specify genuine Carrier Transicold replacement parts for the highest quality and best reliability.

At Carrier Transicold, we are continually working to improve the products that we build for our customers. As a result, specifications may change without notice.

**CONTENTS**

<b>1. Introduction</b> .....	<b>3</b>
<b>2. Identification</b> .....	<b>5</b>
2.1. Nameplate .....	5
2.2. Noise level sticker .....	5
2.3. Installation .....	5
<b>3. Warnings and precautions</b> .....	<b>5</b>
3.1. Warning stickers maintenance .....	8
<b>4. Product loading</b> .....	<b>8</b>
<b>5. Recommended transport temperatures</b> .....	<b>9</b>
<b>6. Quick glance on the display board</b> .....	<b>9</b>
6.1. Cab control .....	9
<b>7. Operation</b> .....	<b>10</b>
7.1. Operating principle .....	10
7.1.1. In ROAD mode .....	10
7.1.2. In STANDBY mode .....	10
7.1.3. Temperature control .....	10
7.1.4. Defrost .....	10
7.1.5. Heating .....	10
7.1.6. Control components .....	10
7.2. Operation on ROAD mode .....	11
7.2.1. Starting the unit .....	11
7.2.2. Stopping the unit .....	11
7.3. Operation on STANDBY mode .....	11
7.3.1. Starting the unit .....	11
7.3.2. Stopping the unit .....	12
7.3.3. Standby operation guidelines .....	12



7.4. To change display brightness .....	13
7.5. To change setpoint temperature .....	13
7.6. To change defrost parameters .....	13
7.7. To change other datas .....	14
7.8. To change default parameters .....	14
7.9. Fault alarm display .....	15
<b>8. Maintenance .....</b>	<b>16</b>
8.1. Maintenance schedule .....	16
8.2. Services description .....	16
<b>9. A.T.P. Europe Regulation extract .....</b>	<b>18</b>
<b>10. 24h Assistance .....</b>	<b>19</b>



## 2. IDENTIFICATION

*Keep the fold out sheet while reading the instructions.*

### 2.1. Nameplate

Each unit is identified by a nameplate attached to the frame of the unit. The nameplate identifies the complete model number of the unit, the serial number and some other information.

If a problem occurs, please refer to the information on this plate, and make a note of the model and serial number before calling for assistance. This information will be needed when you contact a technician so that he may properly assist you.

The complete nameplate is fixed on the frame (1a) and the Serial Number is fixed on unit side (1b) : easily readable.

### 2.2. Noise level sticker

This sticker indicates the noise level in Lwa (accoustic pressure).

### 2.3. Installation

Xarios are manufactured as a split-system, enabling them to adapt to any vehicle and any configuration.

- a. Evaporator
- b. Condenser
- c. Cab control
- d. Compressor mounting kit
- e. Vehicle battery
- f. Standby plug
- g. Main road fuse

## 3. WARNINGS AND PRECAUTIONS

This manual contains safety and service instructions to follow in order to prevent any accident. Some of following stickers have been placed on the product for your **SAFETY**.



**BEFORE USING THIS REFRIGERANT UNIT**, read carefully all safety information explained in this manual and indicated on the product. Be sure that everybody who will use this refrigeration unit has been trained to use it in a safe way.

**DURING THE USE OR MAINTENANCE OF THIS REFRIGERATION UNIT**, the notes on safety are to be considered.

	<p><b>Personal Protective Equipment :</b></p> <p>Always use adequate Personal Protective Equipment before doing anything on this refrigerant unit, as explained in this manual.</p>
	<p><b>Working at height :</b></p> <p>Take all necessary safety precautions when accessing this refrigeration unit : use safe ladders, working platforms with appropriate guards.</p>





### Automatic start :

This refrigeration unit is equipped with Auto-Start/Stop, a valuable fuel saving feature. When this refrigeration unit is set for Auto-start/Stop operation it may start at any time and without warning.

Before servicing refrigeration unit, make sure the main power switch is on the OFF position. Ensure the unit will not restart.

Lock-out / Tag-out can be performed by disconnecting and enclosing :

- The negative battery cable in diesel mode
- The electrical plug in electrical mode.



### Belts and fans :

This refrigeration unit is equipped with Auto-start/stop, it may start at any time and without warning.

When the unit is running beware of belts and fans that are moving. Before servicing refrigeration unit, make sure the main power switch is on the OFF position.

Ensure the unit will not restart. Lock-out / Tag-out can be performed as described above.

When there is protective structure (fan grid or guard for example) make sure they are in place. Never removed them when the refrigeration unit is running.

Always keep your hands, body parts, clothes, hairs and tools far from moving parts.



### Electricity :

When this refrigeration unit is running in electrical operation, some devices are powered up especially in the electrical control box.

Before servicing refrigeration unit, make sure the main power switch is on the OFF position. Ensure this refrigeration unit is disconnected from the local electrical network. Lock-out / Tag-out can be performed as described above.

Before working in the electrical control box, it is required to control the lack of tension.

WHEN IT IS NECESSARY TO WORK IN THE ELECTRICAL CONTROL BOX UNDER TENSION, PEOPLE MUST BE QUALIFIED FOR WORKS UNDER LOW OR HIGH VOLTAGE.

Always use adequate tools and Personal Protective Equipment when working on electrical devices : safety gloves and safety glasses.



### Refrigerant :

The refrigerant contained in this refrigeration unit can cause frostbite, severe burns or blindness in case of projection and direct contact with the skin or eyes.

In contact with flame or heat refrigerant generate toxic gas.

Refrigerant handling must be done by qualified people.



Keep any flame, any lighted object or any source of sparks away from the refrigerant unit.



Always use Personal Protective Equipment when handling refrigerant : safety clothes, safety gloves and safety glasses.





### First aid in case of frost-bite :

- Cover up the frost-bitten part.
- Quickly warm up the frost-bitten part by dipping it into lukewarm water (not hot). If you don't have water, wrap the injured part in a clean cloth.
- If refrigerant fluid has been splashed into your eyes, rinse them immediately with clean water. As a precaution, you are recommended to have a medical examination as well.





 <p>BURNING RISK RISQUE DE BRULURE VERBODEN TOEGEGANGEN PERICOLO DI BRUCIATURA A RIESCO DE COBERTURA</p> 	<p><b>Burning with hot and cold :</b></p> <p>When this refrigeration unit is running or even after, different components can be very cold or hot (exhaust pipe, tubes, coils, receiver, accumulator or engine for example)</p> <p>Beware when operating closed from cold or hot components.</p> <p>Always use adequate safety gloves when doing any maintenance on this refrigeration unit.</p>
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 <p>CUTTING RISK RISQUE DE COUPURE SCHNITTGEFÄHR PERICOLO DI TAGLIO A RIESGO DE CORTADURA</p> 	<p><b>Cuttings :</b></p> <p>Beware when handling or operating closed from parts that could be sharp (coils, evaporators, clamps for example).</p> <p>Always use adequate safety gloves when doing any maintenance on this refrigeration unit.</p>
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 <p>ALTO RIESGO PRECAUTION BATTERIES RISQUE CHOC ELECTRICAL WELDING RISQUE DE BRULURE</p>   	<p><b>Battery :</b></p> <p>This refrigeration unit may be equipped with a lead-acid type battery. When charging the battery normally vents small amounts of flammable and explosive hydrogen gas.</p> <p>Projections of acids on the skin or eyes can cause severe burns.</p> <p>Keep any flame, any lighted object or any source of sparks away from the battery elements.</p> <p>Always use Personal Protective Equipment when handling and charging battery: safety clothes, safety gloves and safety glasses.</p>
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	<p><b>Cooling oil :</b></p> <ul style="list-style-type: none"> <li>- avoid prolonged or repeated contact with the skin.</li> <li>- wash carefully after handling.</li> </ul>
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	<p><b>Environment :</b></p> <p>Think about protection of environment during all the life of this refrigeration unit.</p> <p>To prevent environmental damages NEVER release refrigerant in the atmosphere, NEVER throw coolant, oil, battery and chemicals in the nature. It must be recuperate and recycle according to current regulations.</p> <p>When disposing this refrigerant unit do it in an environmentally sound way and in accordance with current regulations.</p>
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	<p style="text-align: center;"><b>CAUTION</b></p> <p>Under no circumstances should anyone attempt to repair the Logic or Display Boards. Should a problem develop with these component, contact your nearest Carrier Transicold dealer for replacement.</p> <p>Under no circumstances should a technician electrically probe the processor at any point, other than the connector terminals where the harness attaches. Microprocessor components operate at different voltage levels and at extremely low current levels. Improper use of voltmeters, jumper wires, continuity testers, etc. could permanently damage the processor.</p> <p>Most electronic components are susceptible to damage caused by electrical static discharge (ESD). In certain cases, the human body can have enough static electricity to cause resultant damage to the components by touch. This is especially true of the integrated circuits found on the truck/trailer microprocessor.</p>
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### 3.1. Warning stickers maintenance

- Keep the warning pictograms clean and without any obstruction material.
- Clean the pictograms with water and soap and wipe them with soft fabric.
- Replace damaged or missing pictograms with new pictograms available in Carrier network.
- If a component having a pictogram is replaced by a new one, be sure that the new component has the right pictogram.
- Place a warning pictogram by applying it on a dry surface. Press to external sides to eliminate air bubbles.

## 4. PRODUCT LOADING

Proper air circulation in the insulated box, air that can move around and through the load, is a critical element in maintaining product quality during transport. If air cannot circulate completely around the load, hot spots or top-freeze can occur.

The use of pallets is highly recommended. Pallets, when loaded so air can flow freely through the pallets to return to the evaporator, help protect the product from heat passing through the floor of the truck. When using pallets, it is important to refrain from stacking extra boxes on the floor at the rear of the truck, because this will cut off the airflow.

Product stacking is another important factor in protecting the product. Products that generate heat, fruits and vegetables for example, should be stacked so the air can flow through the product to remove the heat; this is called "air stacking" the product. Products that do not create heat, meats and frozen products, should be stacked tightly in the center of the box. All products should be kept away from the sidewalls of the body, allowing air to flow between the body and the load; this prevents heat filtering through the walls from affecting the product.

It is important to check the temperature of the product being loaded to ensure that it is at the correct temperature for transport. The refrigeration unit is designed to maintain the temperature of the product at the temperature at which it was loaded; it was not designed to cool a warm product.

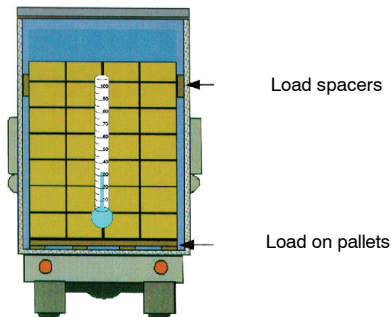
## SOME ADVICE

### Before loading

- Pre-cool the inside of the insulated body by lowering the temperature for about 15 minutes.
- Evacuate the humidity existing inside the box by carrying out a manual defrost. This can only take place when enabled by the defrost thermostat (box temperature lower than 3°C).
- Evaporator fans are protected by safety grills. In the event of heavy duty use of the unit, ice can accumulate on the grills. It is therefore recommended to clean them regularly by means of a small brush. The operation **MUST** be done when the unit has been SHUT DOWN.

### When loading

- To be carried out with the unit stopped.
- It is recommended to open doors as little as possible to avoid the intake of hot air and humidity.
- Select the temperature by means of the thermostat, according to the transported goods.
- Check the internal temperature of the goods being loaded (using a probe thermometer).



- Take care not to obstruct the air intakes on the evaporator section and the ventilation ducts.
- Leave a free space of about :
  - 6 to 8 cm between load and frontwall,
  - 20 cm between the top of the load and the roof,
  - between the floor and the load (gratings, pallets).
- Do not forget to close the doors.
- Before closing the doors, check your load once more and see that nobody is shut inside the box.





## NOTE :

For stationary utilization, we recommend to place the body in the shade.

## IMPORTANT

Never leave your unit more than a month without running.

## 5. RECOMMENDED TRANSPORT TEMPERATURES

Below are some general recommendations on product transport temperatures and operating modes for the unit. These are included for reference only and should not be considered pre-emptive of the setpoint required by the shipper or receiver. More detailed information can be obtained from your Carrier Transicold dealer.

Product	Set-point Range		
	°C	°F	
Bananas	15°C	60°F	* During delivery cycles that include frequent stops and door openings, it is recommended that the unit always be operated in the continuous run mode to help insure product quality. It is essential to shut down the unit during the periods when the body doors are open, in order to maintain the temperature of the cargo and keep the unit operating correctly.
Fresh fruits and vegetables	+4°C to +6°C	+39°F to +43°F	
Fresh meats and seafood	+2°C	+36°F	
Dairy Products	+2°C to +6°C	+36°F to +43°F	
Ice	-20°C	15°F to 20°F	
Frozen fruits and vegetables	-18°C	0°F	
Frozen meats and seafood	-20°C	-10°F to 0°F	
Ice cream	-25°C	-20°F	











## 6. QUICK GLANCE ON THE DISPLAY BOARD

Keep the fold out sheet while reading the instructions.

### 6.1. Cab control

This functional accessory simplifies all control operations. From his seat, the driver can carry out all the control operations: shut-down, automatic start-up in road mode, adjusting the setpoint, defrost.

The driver can display the box temperature and see whether the setpoint is being maintained by checking the green indicator. The indicator lights up red in the event of a malfunction. When the battery voltage is too low, a fail-safe system shuts down the unit. Unit restart is automatic and time-delayed if the voltage rises to the normal level.

	<b>1. Display</b>		<b>6. Set key</b>
	<b>2. Standby operation LED</b>		<b>7. + key</b>
	<b>3. Road operation LED</b>		<b>8. OFF key</b>
	<b>4. Manual defrost key</b>		<b>9. ON key</b>
	<b>5. - key</b>		<b>10. Unit operation display</b> Green : off cycle (left half) Red : malfunction (right half)



*Keep the fold out sheet while reading the instructions.*

### 7.1. Operating principle

After starting up, the refrigeration unit by pressing the ON key, unit start-up and shut-down are automatic.

#### 7.1.1. In ROAD mode

An open-type compressor is driven by the engine of the vehicle. The vehicle battery (alternator) powers the evaporator and condenser fans. The unit automatically shuts down when the engine is switched off with the ignition key.

#### 7.1.2. In STANDBY mode

A standby compressor is energized, and a transformer is used to power the evaporator and condenser fans. The power network connection is detected by the Cab Command which automatically starts up the unit in Standby mode.

If the ignition key is switched on while the unit is connected to the power network, or vice-versa, the Cab Command triggers a visual alarm, in the form of a flashing red malfunction light and readout.

As soon as one operating mode is inhibited, the unit automatically starts up in the other mode. An output for a buzzer alarm is available on the unit.

In all cases the unit can be completely shut down manually by pressing the OFF key on the Cab Command.

#### 7.1.3. Temperature control

As soon as the set-point temperature has been reached, temperature control is obtained by the start-up and shut-down of the standby compressor. On road mode, this shut-down is done by the road compressor electro-magnetic clutch.

The condenser and evaporator fans cut out during regulation. When transporting fragile loads such as fresh meat, vegetables and cheese, it is possible to program the microprocessor to obtain continuous ventilation by the evaporator during regulation.

#### 7.1.4. Defrost

- Defrost operation is fully automatic but can be manually controlled if enabled by the defrost thermostat.
- Defrost cycles are fully controlled by the integrated microprocessor.
- During the defrost cycle, the evaporator fan shuts down. The condenser fan is controlled by the microprocessor.
- Defrost cycle termination is controlled by a defrost thermostat.
- During the defrost cycle, the Cab Command display indicates "d F".

#### 7.1.5. Heating

- The heating option (by hot gas) is delivered STANDARD on XARIOS 600 and only on REQUEST on other units.
- The evaporator fan operates, the condenser fan is controlled by the microprocessor.

#### 7.1.6. Control components

Cab control :



- Automatic selection of road or standby operation.
- Shut-down.
- Manual defrost.
- Thermostat control.
- Error messages in the event of unit malfunction.
- Programming to customize unit operation to your own requirements.





## 7.2. Operation on ROAD mode

### 7.2.1. Starting the unit


1. Check the belt tension of the charge alternator and road compressor drive belts.
2. Start the vehicle engine.
3. Start the unit by pressing the  key . Start-up is time-delayed for 40 seconds.
4. The digital display (1.) of the cab control displays the box temperature.
5. Check the temperature setpoint is correct by pressing the  key. The setpoint temperature is highlighted on the digital display.
6. Enter a new setpoint if necessary (see temperature setpoint adjustment 7.5. - page 13).

#### In the event of difficulty on start-up, check that :

The main road fuse has not blown (g. - p. 5)

The temperature selected by the cab control has not been affected.

### 7.2.2. Stopping the unit

1. For a **short stop** (ie : delivery) : switch off by the vehicle ignition key.
2. For a **long stop** : press the  key.



## 7.3. Operation on STANDBY mode

### VERY IMPORTANT

THE UNIT MUST BE SHUT-DOWN BEFORE CONNECTING OR DISCONNECTING THE STANDBY SUPPLY CABLE !

1. Before starting :
  - On the power network : check that the type of current corresponds to the characteristics of the unit (see paragraph 7.3.3.).
  - On the unit : connect the unit to the power network.

### 7.3.1. Starting the unit

2. Start the unit by pressing the  key. Start-up is time-delayed for 10 seconds.
3. The digital display (1.) of the cab control displays the box temperature.
4. Check the temperature setpoint is correct by pressing the  key. The setpoint temperature is highlighted on the digital display.
5. Enter a new setpoint if necessary (see temperature setpoint adjustment 7.5. - page 13).

#### In the event of difficulty on start-up, check that :

Network supply is ok.

The control box fuses have not blown (refer to the electric schematic supplied with the unit).

The temperature selected by the cab control has not been affected.



### 7.3.2. Stopping the unit

1. Press the  key .

### 7.3.3. Standby operation guidelines

For safe, reliable operation in Standby mode, it is important to consider the following guidelines :




- a. **ALWAYS CHECK** that the unit is OFF (Cab command) before connecting or disconnecting it from the power source.
- b. The extension cable and fuse used for network connection must comply with the legislation currently applicable on the site of use (minimum H07 RNF CEI 245-4) and with the unit specifications as described in the table below :

Maximum amperage for operation equipment			
Operating voltage	XARIOS 500-04	XARIOS 600	
230/1/50Hz	17.2 amps	17.2 amps	
230/3/60Hz	16.6 amps	16.6 amps	
208-230/1/60Hz	20 amps	20 amps	
400/3/50Hz	8 amps	10.7 amps	
Operating voltage	XARIOS 300-05	XARIOS 300-07	XARIOS 350-05
230/3/50Hz/60Hz	Not available	Not available	8.8 amps
400/3/50Hz/60Hz	Not available	5 amps	5 amps
230/1/50Hz	5.6 amps	Not available	11 amps
208/230/1/60Hz	Not available	Not available	11.7 / 10.7 amps
115/1/60Hz	Not available	Not available	18.3 amps
Operating voltage	XARIOS 150-04	XARIOS 200-04	
400/3/50Hz	2.4 amps	2.4 amps	
230/1/50Hz	8 amps	8 amps	
208/230/1/60Hz	Not available	9 amps	

- c. The unit connection cable must be fitted with a ground connection. The cable must be connected to earth.
- d. When performing service and/or maintenance procedures on a refrigeration unit, make certain that the unit is disconnected from the power source and that the keypad correctly indicates "OFF", and that it is impossible for the unit to start up automatically during the maintenance operation.
- e. The user is liable for ensuring that the above measures are taken.
- f. An internal sensor protects the standby compressor from overvoltages or overheating.



## 7.4. To change display brightness

1. Press the  to start the unit.
2. Press the  or  key during 5 seconds to increase or decrease the display brightness.





## 7.5. To change setpoint temperature

### IMPORTANT

If, when settings are adjusted, no key is activated within 5 sec. the system reverts to displaying the box temperature. All changes made are recorded.

If the cab command is built into the vehicle control panel, the command unit must be located as far as possible from the heating ducts. Maximum temperature of exposure : 70°C.







**NOTE :** Set the cab command to road or standby operation before programming.

1. Press the  key to display setpoint temperature.
2. Press the  or  to change the setpoint.
3. Press the  key to return to box temperature display.

## 7.6. To change defrost parameters

### IMPORTANT

If, when settings are adjusted, no key is activated within 5 sec. the system reverts to displaying the box temperature. All changes made are recorded.











1. Press the  key to shut-down the unit.
2. Press simultaneously the  key AND the  key to display last selected defrost interval.
3. Press the  or  key to change the defrost interval :  
00 : inhibit defrost function.  
0,5 to 0,9 : Decrease time interval between 2 automatic defrost cycles in relation to calculated time.  
AUT (coefficient 1) : microprocessor-optimized automatic defrost according to type of cargo transported.  
(Variable intervals)  
1,1 à 1,5 : Increase time interval between 2 automatic defrost cycles in relation to calculated time.  
1 H, 2 H,... 6 H : Fixed defrost interval in hours.
4. Press the  key to return to box temperature display.



## 7.7. To change other datas

### IMPORTANT
















If, when settings are adjusted, no key is activated within 5 sec. the system reverts to displaying the box temperature. All changes made are recorded.

1. Press the  key during 5 seconds to enable access to malfunction codes (see 7.9. for alarm list).
2. Press the  or  key to display alarms
3. Press the  key to display software versions.
4. Press the  key to display cab command software version.
5. Press the  key to display road hourmeter.
6. Press the  key to display standby hourmeter.
7. Press the  key to display the defrost interval (mn) calculated by the microprocessor between 2 defrosts.
8. Press the  key again to display elapsed time (mn) since the last defrost.
9. Press the  key to return to box temperature display.

## 7.8. To change default parameters

### IMPORTANT






If, when settings are adjusted, no key is activated within 5 sec. the system reverts to displaying the box temperature. All changes made are recorded. Malfunction codes remain displayed.

1. Press simultaneously the  and  and  keys to display minimum setpoint.
2. Press the  or  key to change the minimum setpoint : 0°C, - 20°C or - 29°C (default value -29°C)
3. Press the  key to display maximum setpoint.
4. Press the  or  key to change the maximum setpoint : + 20°C or + 30°C (default value +20°C)
5. Press the  key to display differential parameter .
6. Press the  or  key to adjust the differential value : Dif1 (1°C), Dif2 (2°C) or Dif3 (3°C) (default value Dif2).
7. Press the  key to display evaporator fan operating mode during off-cycle.
8. Press the  or  key to change the evaporator fan operating mode : FOFF or F On (FOFF by default).
9. Press the  key to return to box temperature display.



## 7.9. Fault alarm display

### a. Access by the SET key

1. Press the  key during 5 seconds to access to malfunction codes.
2. Press the  or  key to display alarms
  - Current malfunctions: **A**XX
  - Past malfunctions : **P**XX
3. If several malfunctions occur simultaneously, list them using the  or  keys.

#### MALFUNCTION CODE – Red LED flashes

CODE	DESCRIPTION
AL00	No malfunction. Unit in operation
AL01	Low pressure switch open
AL02	High pressure switch open
AL03	Standby compressor over heated
AL04	Clutch compressor fault
AL05	Contacteur fault
AL06	Condenser fault
AL07	Evaporator fan fault
AL08	Hot water solenoid fault
AL09	Defrost valve (HGS1) fault
AL10	Liquid injection valve fault
AL11	Hot gas valve (HGS2) fault
AL12	High temperature alarm
AL13	Low temperature alarm
AL14	Defrost alarm > 45 minutes
AL15	Setpoint adjusted out of the range -29°C / +30°C
AL16	Drain water resistor fault
AL17	Thermal break down standby transformer or diode bridge protection fault
AL18	Electrical heating relay fault
AL19	Liquid solenoid valve fault
AL20	LP standby pressure switch opened
AL21	Open circuit contactor compressor
AL22	Open circuit condenser fan
AL23	Open circuit hot water solenoid
AL24	Open circuit defrost valve (HGS1)
AL25	Open circuit liquid injection valve
AL26	Open circuit hot gas valve (HGS2)
AL27	Open circuit drain water resistor (DWR1)
AL28	Open circuit electrical heating relay (EHR)



**b. Direct access**

EE	Malfunction : evaporator temperature probe (open circuit)
bAt	Battery low voltage alarm
- - -	Twin power supply (road and standby)
- - -	
- - -	
Err	Programming mistake of the maximum setpoint by the user
- - -	Setpoint lower than maximum setpoint but in the range - 29°C / +30°C

**NOTE :**

Direct access malfunction messages are displayed instead of temperature read-out as soon as the malfunction is detected, and remain displayed as long as malfunction persists.

The unit does not run until the malfunction has disappeared or been corrected.

**8. MAINTENANCE**

A comprehensive maintenance program will help to insure that the unit continues to operate reliably. Such a maintenance program will also help to control operating costs, increase the unit's working life, and improve performance.

**NOTE**

**All maintenance services must be done by a technician trained on Carrier products respecting all safety and quality standards of Carrier.**

Before any operation requiring an intervention on the unit, check that :

- the unit (cab command) is OFF.
- it is impossible for the unit to automatically start-up during maintenance.

**8.1. Maintenance schedule**

Service operations are to be carried out according to this schedule : **Interval = road + standby hourmeters.**

Unit	Hours	100	1000	2000	3000	4000	5000	6000	7000
Xarios 150/200/300/350/ 500 & 600	Initial service 100 Hrs or 5000 Kms first achieved	■							
	Service A		■	■	■	■	■	■	■
	Service B			■		■		■	

**8.2. Services description**

Initial Service	<p>Check that the road compressor RPM high and low are correct.</p> <p>Check the compressor kit is correctly tightened / belt tension.</p> <p>Check the tightness of bolts and screws and that the unit is correctly fastened onto the box.</p>
Service A	<p>Check pressure switches, injection thermostats and defrost system.</p> <p>Clean up battery and battery clamps.</p> <p>Replace belt(s) compressor(s).</p> <p>Check for refrigerant leaks.</p> <p>Check the refrigerant level.</p> <p>Check the standby compressor oil level.</p> <p>Check the operation of the cab control.</p>



Service B	Replace condenser fan motor brushes. Replace idler pulley bearings if any.
EVERY YEAR	Replace filter drier. Clean up the TXV orifice filter.
EVERY TWO YEARS	Replace compressor(s) oil - only use Ester oil (POE) approved by Carrier Transicold. Replace refrigerant. Replace orifice expansion valve.

**Refrigerant** : type R404A

**Road compressor oil type** : The road compressors are supplied with CARRIER POLYOLESTER (POE) oil. The presence of a sticker indicates that oil-change has been correctly carried out in our Carrier Transicold plant. Oils of PAG type are **strictly incompatible** with the operation of our units : **never use an oil other than that approved by Carrier.**

**Oil analysis** : on request, we can analyze your compressor oil.

To do this, we send a small drum with a label on which you should indicate : the type of compressor, the lapse time or mileage since the last oil change, the type of Carrier equipment, the date of initial operation



(Date: March 1974)

Approval of vehicles intended for the carriage of perishable goods.

Before putting a refrigerated vehicle into service, it is necessary to have it approved by the Regional Health Department.

CHARACTERISTICS OF VEHICLES USED FOR CARRYING PERISHABLE GOODS; REFRIGERATION UNIT.

The refrigeration unit is an insulated unit with a cooling system which makes it possible, with a mean outside temperature of +30°C, to lower the temperature inside the empty body and to maintain this low temperature in the following way:

<b>CLASS A</b>	Refrigeration unit furnished with a cooling system whereby a temperature between +12°C and 0°C inclusive can be chosen.
<b>CLASS B</b>	Refrigeration unit furnished with a cooling system whereby a temperature between +12°C and -10°C inclusive can be chosen.
<b>CLASS C</b>	Refrigeration unit furnished with a cooling system whereby a temperature between +12°C and -20°C inclusive can be chosen.

The cooling capacity of a unit is determined by a test carried out in one of the approved testing stations and ratified by an official report.

Note: The "K" factor of bodies intended to be classified as C must be equal to or lower than 0.4 W/m<sup>2</sup>°C.

#### SIGNS, IDENTIFICATION MARKS AND PLATES TO BE ATTACHED TO REFRIGERATION UNITS

Refrigeration Plate : this reference must be followed by identification marks according to the following list:

Standard refrigeration unit Class A	FNA
Reinforced refrigeration unit Class A	FRA
Reinforced refrigeration unit Class B	FRB
Reinforced refrigeration unit Class C	FRC

In addition to the above identification marks, the date (month and year) of expiry of the approval certificate must be indicated.

Example :	6 = month (June)
FRC	2007 = year
6-2007	

#### VERY IMPORTANT

Regularly check the expiry date of the approval certificate. During transport, the approval certificate or provisional certificate should be shown on request of qualified agents. To have an insulated unit approved as a refrigeration unit, an application to modify the approval certificate should be sent to the regional health office.





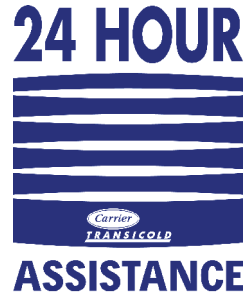
At Carrier Transicold we're working hard to give you complete service when and where you need it. That implies a worldwide network of dealers and available an emergency service. These service centers are manned by factory-trained service personnel and backed by extensive parts inventories that will assure you of prompt repair.

Should you encounter a unit problem with your refrigeration unit during transit, follow your company's emergency procedure or contact the nearest Carrier Transicold service center. Consult the directory to locate the service center nearest you. This directory may be obtained from your Carrier Transicold dealer.

If you are unable to reach a service center, call Carrier Transicold's 24 Hour Assistance :

**In Europe**, please use the following free phone numbers from :

A	AUSTRIA	0800 291039
B	BELGIUM	0800 99310
CH	SWITZERLAND	0800 838839
D	GERMANY	0800 1808180
DK	DENMARK	808 81832
E	SPAIN	900 993213
F	FRANCE	0800 913148
FIN	FINLAND	0800 113221
GB	GREAT BRITAIN	0800 9179067
GR	GREECE	00800 3222523
H	HUNGARY	06800 13526
I	ITALY	800 791033
IRL	IRELAND	1800 553286
L	LUXEMBURG	800 3581
RUS	RUSSIA	810 800 200 31032
N	NORWAY	800 11435
NL	THE NETHERLANDS	0800 0224894
P	PORTUGAL	8008 32283
PL	POLAND	00800 3211238
S	SWEDEN	020 790470



**From other countries or direct :** +32 9 255 67 89

In Canada or United States, call 1 - 800 - 448 - 1661.

**When calling, please have the following information ready for fastest service :**

- Your name, the name of your company, and your location.
- A telephone number where you can be called back.
- Refrigeration unit model number and serial number.
- Box temperature, set-point and product.
- Brief description of the problem you are having, and what you have already done to correct the problem.

We will do everything we can to get your problem taken care of and get you back on the road.



