



Refrigeration **excellence** since 1962



REFRIGERATION UNIT **Series Uno Undermount**

USER MANUAL

TRANSLATION OF THE ORIGINAL
INSTRUCTIONS



REVISION

DATE	REVISION	DESCRIPTION
12/2021	01	First version
12/2021	02	General adjustment of all sections

The information contained in this manual is the property of ZANOTTI S.p.A.

The drawings and other documents accompanying the refrigeration unit are the property of ZANOTTI S.p.A.

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ZANOTTI S.p.A. reserves the right to change, without prior notice, the characteristics of the product described in this manual.

In case of doubt or difficulty in understanding or interpreting the manual, the original/official version indicated as "ORIGINAL INSTRUCTIONS" on the cover, must be considered as the valid version.

The contents of this manual have been carefully checked to ensure they correspond to the system in question.

However, as possible differences cannot be excluded, the contents of this document are periodically checked and any corrections or modifications will be included in the next edition.

Some of the images included in this manual should only be considered as an example, as they may not refer to the refrigeration unit described here.

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1 GENERAL INFORMATION

1.1 Introduction



NOTE

ZANOTTI S.p.A., the manufacturer of this refrigeration unit in question is referred to in the manual as **Manufacturer**.



NOTE

The company that purchased the refrigeration unit is referred to in the manual as **Customer**.

This manual contains all the information necessary for correct use and maintenance of the refrigeration unit.

This document represents the user manual of Refrigeration unit Uno Undermount and is completed in accordance with EEC Directive 2006/42.




This manual is to be regarded as an integral part of the refrigeration unit and must be kept until final disposal.

1.2 Service

For technical service, contact the manufacturer's service centre directly.

1.3 Symbols

The manual uses some symbols which are used to draw the reader's attention and highlight some particularly important aspects.

SYMBOL	MEANING	NOTES
	DANGER	It indicates a risk of injury to the user. Pay close attention to the text blocks indicated by this symbol.
	CAUTION	It is a warning of possible deterioration or damage to the refrigeration unit. Pay attention to the text blocks indicated by this symbol.
	WARNING NOTE	It indicates a warning or a note on key functions or useful information. Pay attention to the text blocks indicated by this symbol.

1.4 Manufacturer's contact details

For any type of information or clarification regarding use, etc., the Manufacturer's Technical Office is always at the disposal of the Customer's requests.

The latter should ask questions in clear terms, with references to this manual, always indicating the data on the identification plate of the refrigeration unit in question.

Any request for intervention, from the Customer's service department, or for clarification regarding the technical aspects of this document, must be addressed to:

Zanotti S.p.A.
Via M. L. King, 30
46020 Pegognaga (MN) Italy
Phone +39 0376 5551
E-mail: info@zanotti.com

1.5 Safety standards

This manual provides instructions, indications, standards, and safety notes which are intended to define a series of behaviours and obligations that must be followed in carrying out the various activities intended for use of the refrigeration unit in order to ensure personnel, equipment, and the surrounding environment are protected.

The safety standards are aimed at all personnel authorised, trained and delegated to perform the various tasks and activities of:

- Operation
- Use
- Management

1.6 Manufacturer's responsibility

The manufacturer cannot be held responsible for improper or incorrect use of the refrigeration unit, for damage resulting from the use of non-authorised spare parts or tampering with circuits, components and software.

The responsibility for the implementation of the safety precautions, listed below, is borne by the technical personnel responsible for the activities envisaged on the refrigeration unit.

It is the installer's responsibility to ensure that the operators (authorised to perform the required activity) are qualified, adhere to, and are aware of all the requirements of this document as well as the general safety standards applicable to the refrigeration unit.

Failure to observe the safety standards can cause injury to personnel and damage to the equipment.

1.7 Management of the refrigeration unit

The management of the refrigeration unit is only permitted to authorised and properly trained operators.

The operators in charge of the use of the refrigeration unit must be aware that knowledge and application of the safety standards is an integral part of their work.

Before starting the refrigeration unit it is necessary to:

- read this manual carefully.
- know which guards and emergency stop devices are on the refrigeration unit, where they are located and how they work.

It is prohibited to remove, even partially, the safety guards and devices located on the refrigeration unit.

The same standard applies to the warning plates.

The safety guards and devices must be kept in perfect order to ensure proper operation. In the event of a malfunction or breakdown of these devices, contact the Manufacturer's Technical service immediately.

1.8 Warranty

The Manufacturer warrants his products from defects in materials and manufacture for a period of 24 months from the date of delivery.

The purchaser is only entitled to the replacement of the defective parts; the costs of packing, transport and any installation shall be borne by the manufacturer. In this case, the following shall be specified:

- Date and number of the purchase document.
- Refrigeration unit model.
- Serial number.

Claims for damages due to non-use or long periods of inactivity of the refrigeration unit will not be accepted.

Damage for use not in accordance with this manual is excluded from the warranty.

The warranty will not be recognised for machines where unauthorised modifications have been made. In any case, modifications or tampering with safety devices are strictly prohibited.

In the case of repairs during the warranty period, it is necessary to use original spare parts in order not to affect their validity.

Repair work must only be carried out by specialised operators, who are familiar with the refrigeration unit.

2 SAFETY

2.1 General information

The Customer must provide personnel with training on the risks of injury, on the safety devices installed on the refrigeration unit and on the general accident prevention rules in the European Union and local regulations.

The operators must know the position and operation of all the controls of the refrigeration unit and their characteristics.

In addition, they must have read and fully understood the contents of this manual.

By tampering with, or unauthorised replacement of, one or more components of the refrigeration unit, adopting accessories that modify its use, and using spare parts other than those recommended, there is a risk of injury.



DANGER

It is absolutely forbidden to by-pass/tamper with the safety devices on the refrigeration unit. The Manufacturer accepts no responsibility for the safety of the refrigeration unit in case of non-compliance with this prohibition.



DANGER

In the event of an intervention on the plant, only use bypass hoses in good condition and avoid letting them come into contact with belts, pulleys, or fans.



DANGER

Avoid putting your hands near the fans and the belts when the unit is operating.



DANGER

The coolant liquid is under pressure. Any intervention into the refrigeration circuit must only be carried out by authorised personnel. To prevent accidental spillages of liquid, do not open the caps of the tanks.



DANGER

Disconnect the plug and ensure that the refrigeration unit is turned off before performing maintenance. In case of prolonged maintenance, disconnect the battery.



DANGER

Battery acid causes burns. The batteries contain sulphuric acid.

Avoid contact with skin, eyes or clothing.

In case of accidental contact with the skin, rinse with water.

In case of accidental contact with the eyes, rinse with water for 15 minutes and consult a doctor immediately.

In the event of an accidental ingestion, you should consume large quantities of water or milk. Do not induce vomiting. Consult a doctor immediately.

Failure to comply may result in death or serious injury.



DANGER

The battery could explode!

To prevent an explosion:

- Always unplug the negative battery cable (-) first.
- Always connect the negative battery cable (-) last.
- Do not short-circuit the battery ends with metal objects.
- Do not weld, mould or smoke near a battery.

Failure to comply may result in death or serious injury.

2.1.1 Refrigeration unit certification

The refrigeration unit is provided with the EC Declaration of Conformity with the essential safety requirements in accordance with Machine Directive 2006/42/EC (Annexe II A) and the Electromagnetic Compatibility Directive 2014/30/EU.

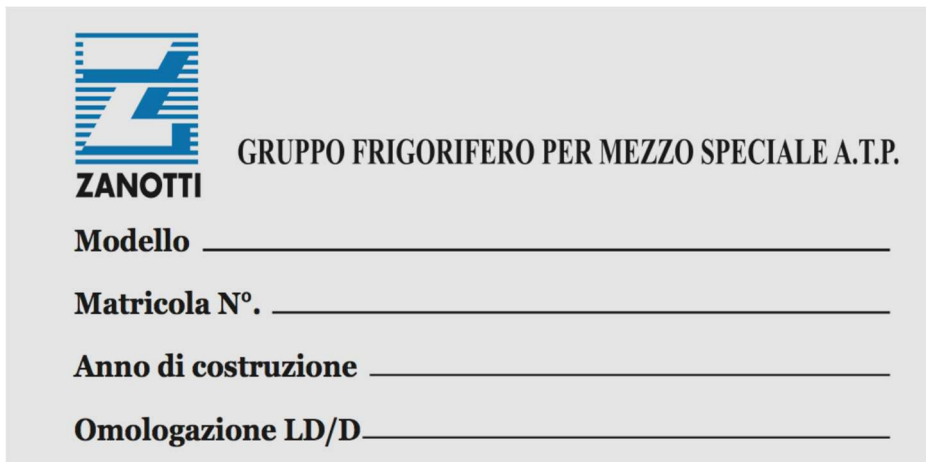


NOTE

Any changes made to the refrigeration unit will immediately invalidate the EC certification issued by the manufacturer.

2.1.2 Refrigeration unit identification

the model and serial number (or registration number) are shown on the metal plate attached to the side of the unit (Figure 1) and to the electrical panel (Figure 2).



ZANOTTI
GRUPPO FRIGORIFERO PER MEZZO SPECIALE A.T.P.

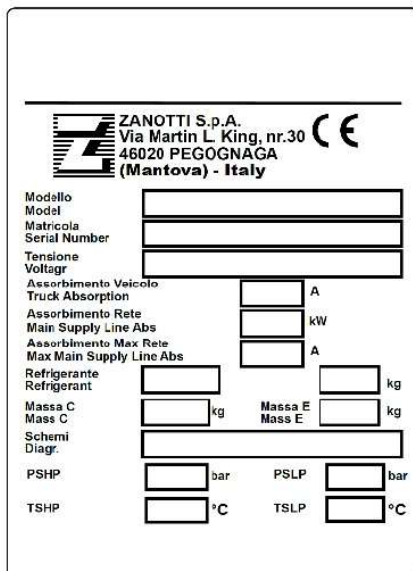
Modello _____

Matricola N°. _____

Anno di costruzione _____

Omologazione LD/D _____

Figure 1 - Metal plate



ZANOTTI S.p.A.
Via Martin L. King, nr.30
46020 PEGOGNAGA
(Mantova) - Italy

CE

Modello _____

Model _____

Matricola _____

Serial Number _____

Tensione _____

Voltagr _____

Assorbimento Veicolo _____ A

Truck Absorption _____ A

Assorbimento Rete _____ kW

Main Supply Line Abs _____ kW

Assorbimento Max Rete _____ A

Max Main Supply Line Abs _____ A

Refrigerante _____ kg

Refrigerant _____ kg

Massa C _____ kg

Mass C _____ kg

Massa E _____ kg

Mass E _____ kg

Schemi _____

Diagr. _____

PSHP _____ bar

PSLP _____ bar

TSHP _____ °C

TSLP _____ °C

Figure 2 - Plate on the electrical panel

2.2 Intended and unintended uses

The unit in question was designed and built to be installed in motor vehicles intended for the transportation of refrigerated products, or, more generally, for the transportation of goods for which temperature control is required.



DANGER

The use of the refrigeration unit for purposes and processes not described in this manual constitutes **IMPROPER USE**. The Manufacturer declines any and all responsibility for any damage caused to property and/or persons and considers that any form and type of guarantee of the refrigeration unit has lapsed. The Manufacturer accepts no responsibility for tampering with the refrigeration unit, for unauthorised modifications or for maintenance operations carried out by untrained personnel.



DANGER

In case of abnormal behaviour or lack of supply, it is forbidden to carry out any operation. These interventions are reserved only for operators assigned to maintenance.

2.3 Environmental operating conditions

2.3.1 Fire extinguishing system

The refrigeration unit is not equipped with its own fire extinguishing system.

In accordance with local regulations, the customer must make sure the fire extinguishing devices on the vehicle where the refrigeration unit is installed are present and functioning properly.

Flammable liquids do not circulate freely in the refrigeration unit.

2.3.2 Explosive Atmosphere

The refrigeration unit is not designed and manufactured to work in environments with an explosive or partially explosive atmosphere.

2.3.3 Vibrations

The refrigeration unit does not produce vibrations which are dangerous to the health of the staff in charge.



CAUTION

Excessive vibration can only be caused by a mechanical fault, which must be immediately reported and eliminated, in order not to jeopardise the safety of the refrigeration unit and of the staff in charge.

2.3.4 Noise

The noise level testing has been carried out in accordance with the requirements of UNI EN ISO 9614-2 acoustics.

Typical phonometric data are stored by the Manufacturer.

The sound power generated is indicated on a label located on the door of the electrical panel.



NOTE

The measurements of the noise exposure levels of the persons in charge shall be carried out by the users, in accordance with the local regulations.

2.3.5 Electromagnetic emissions

The refrigeration unit contains electronic components subject to Electromagnetic Compatibility legislation, conditioned by conducted and irradiated emissions.

Emission values conform to the standard through the use of components complying with the Electromagnetic Compatibility Directive, suitable connections and installation of filters where necessary.

The refrigeration unit therefore complies with the Electromagnetic Compatibility (EMC) Directive.

2.4 Disposal of used materials

The refrigeration unit, in its normal operation and in the absence of defects, does not produce any used material.

It is necessary to periodically check for leaks in the coolant circuit, in accordance with the correct procedure to avoid any dispersion. It is also necessary to check for leaks of fuel, oil and engine cooling liquids.

The engine oil, cooling liquid, dehydrating filter, oil filter, fuel filter and air filter are materials that must be replaced regularly according to the scheduled maintenance plans in this manual. They should not be disposed of in the environment, but in accordance with local regulations. The customer must be aware of this fact and operate in such a way as to comply with it.

The refrigeration unit and its packaging must be disposed of in accordance with local laws and regulations. As this unit is composed of an engine and electronic components, the refrigeration unit and its accessories must be disposed of separately from general solid urban waste at the end of its life cycle. Contact your local authority for information on disposal and recycling.



3 DESCRIPTION

3.1 General information

The refrigeration unit has been designed and built to be installed on motor vehicles for the refrigerated transport of fresh and frozen products.

The refrigeration unit consists of the following parts (Figure 3):

1. Electronic control and command power unit, located inside the vehicle cab (in-cab controller).
2. Evaporative unit installed inside the isothermic crate.
3. Condenser unit, installed under the isothermic crate on the left side.

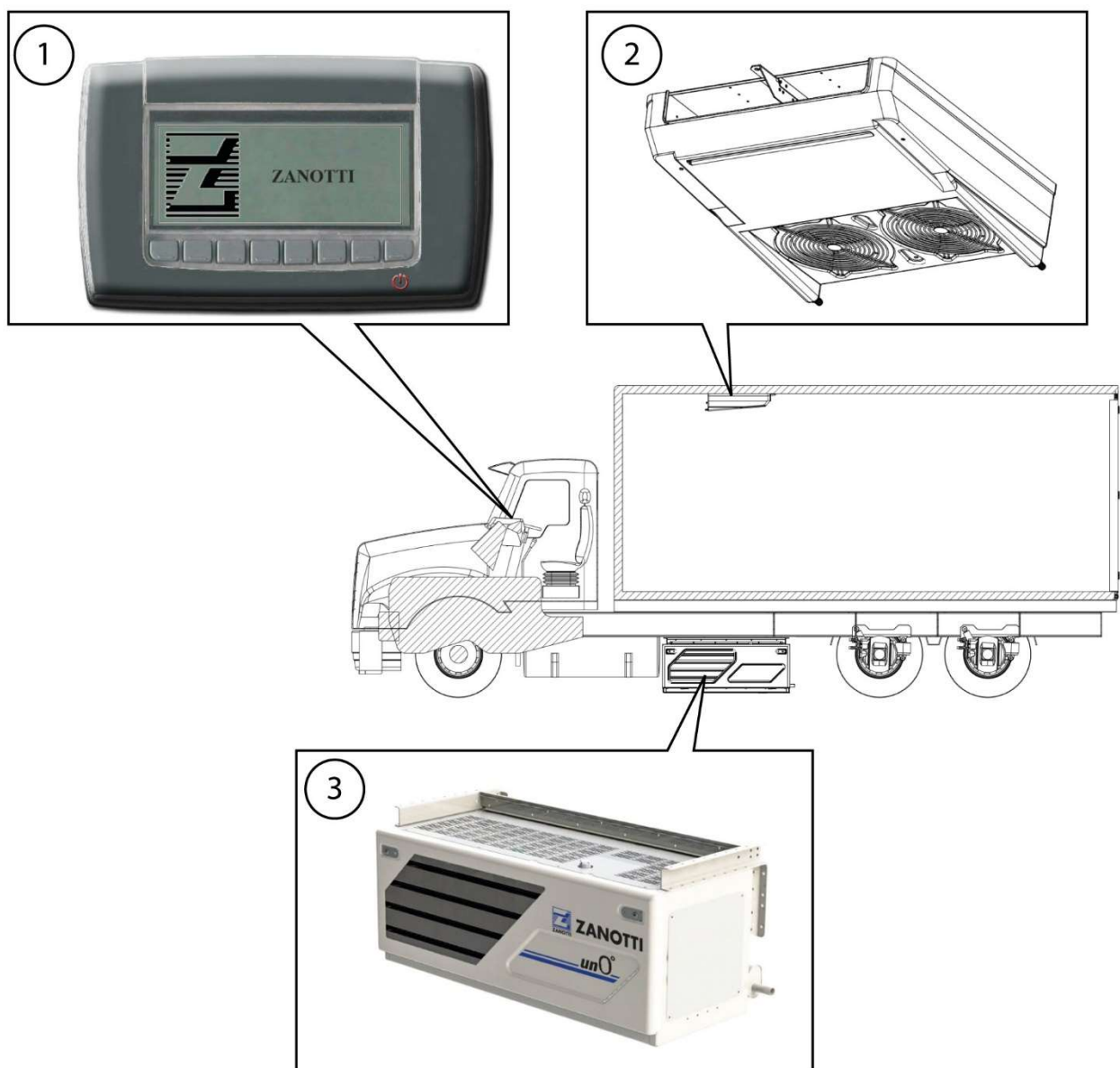


Figure 3 - Refrigeration unit Uno Undermount

3.2 Loading of goods



NOTE

The refrigeration system is designed to keep the temperature of the goods being loaded constant. It is not designed to refrigerate hot products.

It is therefore extremely important to check the temperature of the goods during loading to ensure that they are at the ideal transport temperature.

Maintaining the quality of the goods during transport depends on the correct air circulation (and thus on the uniform temperature distribution) in the insulated cold room.

The lack of free movement of air leads to pockets of heat or to ice formation.

For this reason, it is advisable to use pallets that will promote the free movement of air, protecting goods from heat coming from the floor of the trailer.

It is also important to position the goods away from the walls of the insulated cold room in order to ensure correct air circulation.

Products such as fruit and vegetables, which generate heat, must be stacked to ensure sufficient space for the removal of the heat generated.

Products such as meat and frozen food, which do not generate heat, must be stacked in the centre of the cold room close to each other.

3.2.1 Before loading goods

- Cool the cold room in advance before loading the goods. Power on the unit before loading.
- If the temperature reaches 4°C, it is recommended that the evaporating battery is defrosted from the presence of ice in order to increase its efficiency.

3.2.2 When loading goods



NOTE

The loading of goods must be carried out with the system off.

- Reduce the opening times of the cold room doors, to avoid the entrance of hot air and humidity.
- Depending on the products to be transported, select the temperature via the HMI in-cab controller (see 4.3.3).

- Promote air circulation without obstructing the air suction and air supply openings (Figure 4).

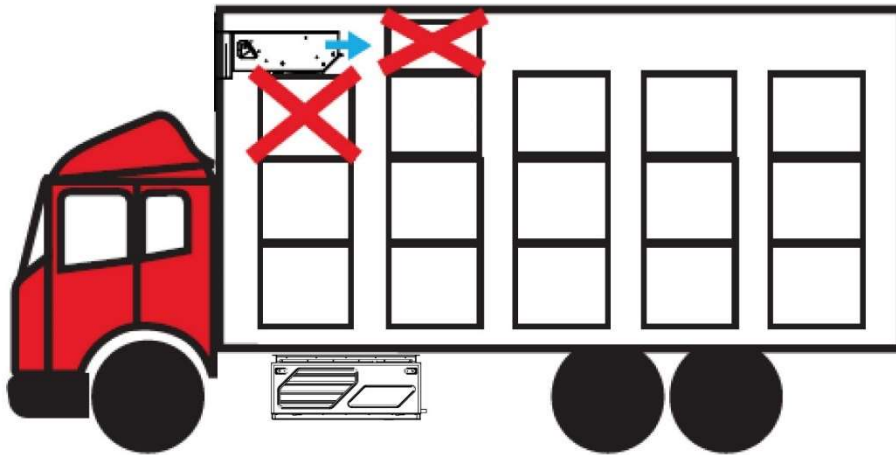


Figure 4 - Covered suction and ventilation ducts

- Leave a free space of about 6 - 8cm between the load and the front wall and about 20cm between the top of the load and the roof (Figure 5).
- Leave a free space even between the floor and the load.

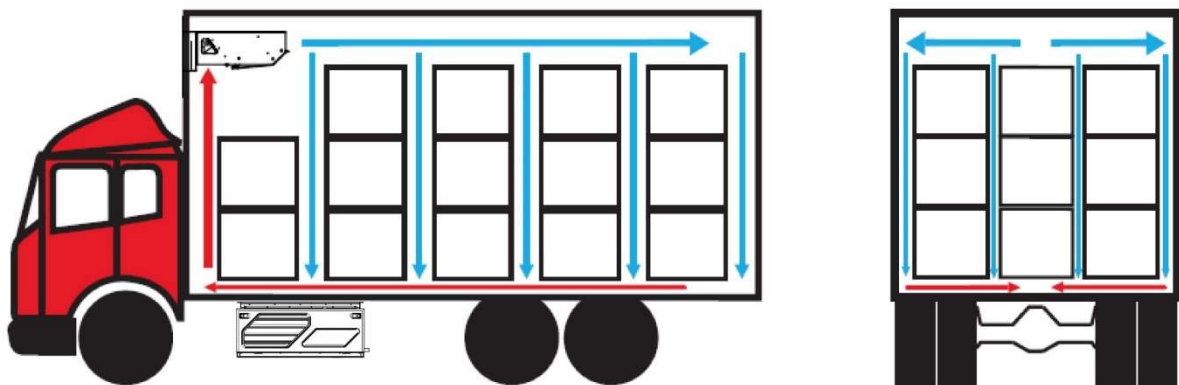


Figure 5 - Air circulation inside the cold room



DANGER

The transport cold rooms do not need to be opened from the inside. Before closing the doors of the cold room, make sure that no one is inside it.



CAUTION

During rest periods, it is recommended to place the cold room in the shadows.



CAUTION

Never leave a system unused for more than a month.

3.3 Operation

3.3.1 Operating in "road" mode

The in-cab controller recognises that the unit is in "road mode" operation mode when it does not detect the presence of a mains voltage (plug connection to the mains).

The unit is completely autonomous with respect to the vehicle on which it is installed and can operate even during rest periods.

In Road mode, the compressor is operated by a laminated diesel engine via an axial joint.

The diesel engine also operates a 12 VDC alternator which:

- provides supply to the control components of the fridge circuit and the various control circuits services;
- recharges the dedicated start battery.

3.3.2 Operation in "External power supply" mode (optional)

On request, it is possible to connect the unit via a plug to the mains ("External power supply" mode).

By connecting the unit to the external socket, the "External power supply" mode is automatically triggered and the diesel engine is turned off after approximately four and a half minutes (255 seconds).



CAUTION

The "External power supply" option is a dimensioned operating mode for occasional and non-intensive use. It cannot be considered as a replacement for a system with a fixed cold room, without having the same technical characteristics.

3.3.3 Defrosting

Because of the cooling it is subjected to, the air releases moisture that accumulates while gradually freezing on the fins of the evaporator. This would result in a progressive obstruction of the circulation of air resulting in a reduction in the efficiency of the system.

Over time, this could also cause damage.


As a result, the hydraulic unit periodically performs defrosting cycles to reduce the accumulation of ice, thereby avoiding the problems mentioned above. The water is discharged externally.

The in-cab controller manages autonomously and periodically the beginning and end of the defrosting.

During the defrosting phase, "hot gas" is exploited, i.e. the heat created by the compression of the refrigerant gas is diverted directly into the evaporator to melt the accumulated ice.

Tips

The efficiency of the defrosting is inextricably linked to the accuracy with which the water discharge line generated as a result of the ice melting is achieved. Therefore:

- Make sure that the slope of the discharges is such as to ensure the correct flow of condensation.
- Periodically check the water outflow from the condensate drain hose.
- Minimise the cold room openings and switch off the unit during loading and unloading of the goods, in order to minimise the inlet of damp external air.
- In case of intensive use of the unit, regularly check the accumulation of ice in the evaporator and, if necessary, perform manual defrosting .

3.3.4 Temperature control

It is possible to set the temperature control in two different ways:



AUTOMATIC (start/stop)

The unit stops as soon as the set temperature has been reached. When the unit detects that the temperature has exceeded the set-point by 2K (2°C), the in-cab controller restarts the unit. In this mode, temperature control is obtained by means of stops and starts.



CONTINUOUS

When carrying delicate loads, such as fresh meat, vegetables and cheese, it is possible to select the continuous operation mode.



NOTE

In order to keep the quality of the goods intact, during delivery cycles that require frequent door stops and opening, it is recommended to keep the unit in automatic operation.

3.3.5 Heating

In case of particularly low ambient temperatures (in certain circumstances and/or periods of the year), it may be necessary to heating the cold room as an alternative to keeping it cool.

This, in order to maintain the correct temperature of the product, regardless of the external conditions for the entire necessary period.

This occurs, for example, in the case of transporting foil flowers or plants for which a temperature between 5 and 10°C (41-50°F) must be guaranteed, even when the external temperature falls below zero.

From a technical point of view, the heating uses the same principles as for the hot gas defrosting described above.

In the event that the set-point temperature of the cold room exceeds that measured, the unit automatically switches to the heating mode if required by the operating conditions.

3.4 Multi temperature unit

The multi temperature unit allows the management of two compartments at a different temperature. The unit is equipped with two evaporators (2 and 3, Figure 6) and a dedicated in-cab controller (1), which manages the two temperatures independently of each other. The heating function is also included in the operating logics.

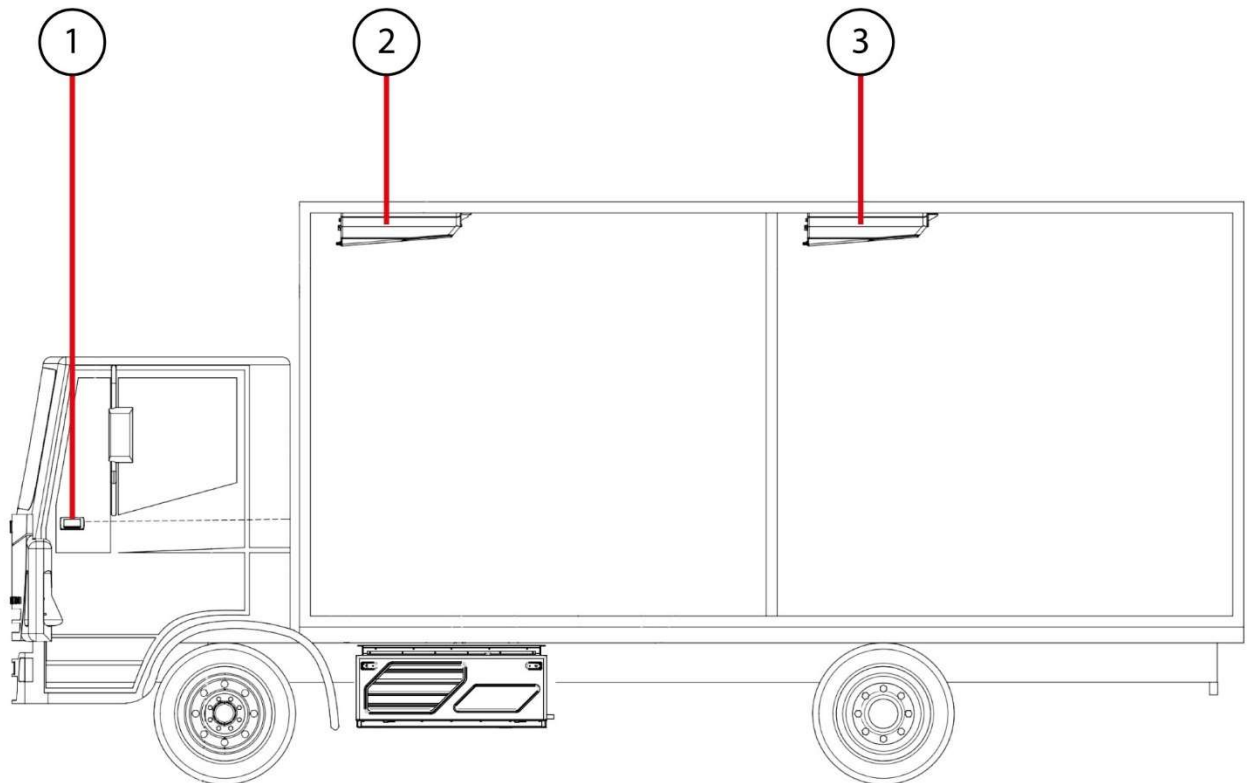


Figure 6 - Multi temperature unit evaporators

4 USE

4.1 On/Off unit



NOTE

With the unit off, the display and the electronic board are not powered. This prevents the battery from being discharged.

To turn on the unit, press and hold the button (1, Figure 7), located on the in-cab controller, until display turns on.

After the initialisation phase, identified by indications on the display, it is possible to start the refrigeration unit by pressing the ON/OFF key on the in-cab controller (see instructions in the following paragraphs).

To turn off the unit, press the button (1) until the display turns off.



Figure 7 - On/off Button

4.1.1 Emergency start and stop button

In special cases, and when the in-cab controller does not work, the unit can be switched on by the emergency button (1, Figure 8) located on the electrical panel closing panel.



NOTE

If you turn on the unit by pressing the emergency button, the temperature control is activated with the last settings adjusted.



Figure 8 - Emergency push-button

4.2 In-cab controller

The main control unit, located inside the vehicle cab (in-cab controller), allows the management and monitoring of the unit.

By setting the Set-Point temperature, the unit executes the thermoregulation autonomously in the operating mode selected (Continuous or Automatic).

Road mode (diesel engine) or External power supply (Electric Compressor) operations are automatically managed by evaluating the connection to the power supply. It is possible to prevent the thermal engine from starting, in the event of a power failure or an interruption of power supply, by inhibiting its starting (see.4.2.2).



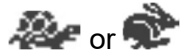
Figure 9 - In-cab controller

4.2.1 Control description

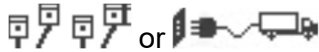
Symbol Key

A or **C**

Automatic or Continuous working mode



Slow or Fast diesel engine running Low or High diesel engine speed



Diesel or Stand-by mode



Cooling, Defrosting or Heating mode

TA or **SP**

Cold storage actual temperature and set-point temperature



Alarm Active or Present in memory

Locked

An alarm has caused permanent unit stop



Scheduled maintenance is required

Buttons



Unit ON/OFF

SET

Setup Set-Point temperature or Enable modification or Confirm input

**AUTO
CONT**

Working mode choice

HIGH△

Increase engine speed

LOW▽

Decrease engine speed



Manual Defrost



Alarm Log



Move to next page or Move cursor right inside menu



Move to previous page or Move cursor left into menu

PROG

Access programming menu



Access scheduled maintenance menu



Disable Blackout mode (Symbol indicates actual option state)



Enable Blackout mode (Symbol indicates actual option state)

SERV

Access to Service menu

BACK

Return to previous menu



Increase set-point Temperature



Decrease set-point Temperature



Move cursor down into menu or decrease value



Move cursor into menu or increase value

Toggle

Change to opposite value

RST

Reset Alarm log and Scheduled Maintenance counter

**UNLOCK
ENGINE**



Unlock unit after a manual reset alarm

EVP

Evaporators Management Menu (Multi-Temperature units only)

4.2.2 Road mode/External power supply mode operation and blackout mode.

As indicated in the previous chapters, by connecting the unit to the mains via the special plug provided (if present), the system switches automatically to "mains" mode, turning off the diesel engine. However, to maintain the correct temperature inside the cold room, the diesel engine may start automatically if the system detects there is no main power supply for more than 255 seconds (blackout mode).

To deactivate the automatic switching on of the diesel engine, press and hold the button  for a few seconds until the display shows the icon  indicating that the diesel engine cannot operate.



DANGER

It is compulsory to disable the automatic ignition of the diesel engine when the vehicle is in a closed place and in External power supply mode. Danger of suffocation.


4.3 Using in-cab controller

4.3.1 Power On

When starting the system, the welcome page (Figure 10) appears.



Figure 10 - Start page

To turn the refrigerator unit on or off, press the button .

Depending on the type of operation and configuration, the following screens will appear:

"External power supply mode" operation main screen



Figure 11 - "External power supply mode" operation screen

"Road mode" operation main screen

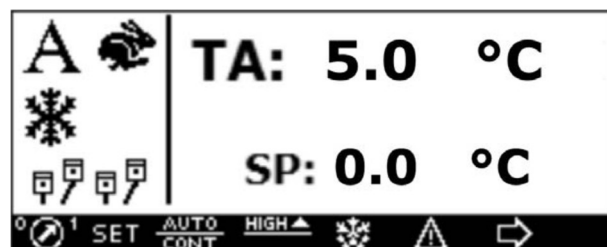


Figure 12 - "Road mode" operation screen

"External power supply mode" operation main screen - Multi temperature versions

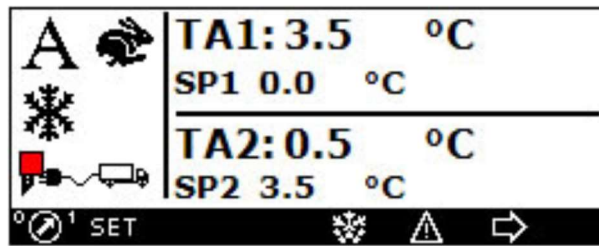


Figure 13 - "External power supply mode" operation screen (multi temperature versions)

"Road mode" Operation Main Screen - Multi temperature versions

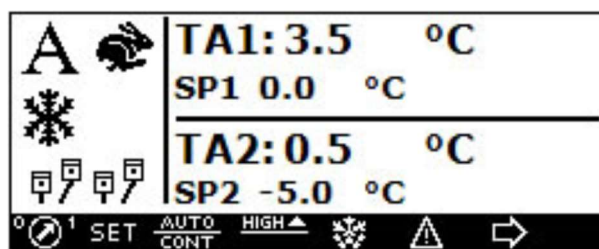




Figure 14 - "Road mode" operation screen (multi temperature versions)

4.3.2 Automatic/Continuous Operation

The unit has two modes of keeping the temperature inside the cold room:

- 
 Automatic (start/stop): the engine turns on and off according to the set temperatures (Set-point)
- 
 Continuous: maintains the temperature without ever turning off the engine

To select the type of operation, press the button .

To select high or low speed, press the button  (only for automatic operation).

4.3.3 Set-point setting



To set the desired temperature inside the cold room, press the button . The screen will appear in Figure 15.



Figure 15 - Set-point setting

To increase or decrease the value, press the buttons .

In multi temperature versions, you can view individual cold room temperatures and edit set-points separately (Figure 16).

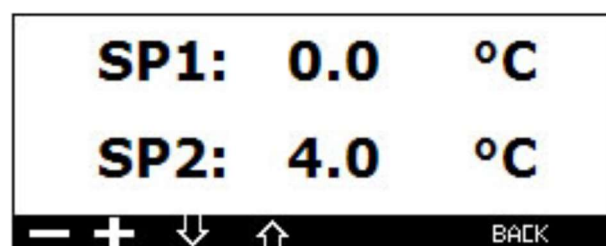



Figure 16 - Setting the set-point - Multi temperature versions

To select the set-point to be modified (SP1 or SP2), press the buttons .

To increase or decrease the selected value, press the buttons .

4.3.4 Enable and disable evaporators (multi temperature versions only).

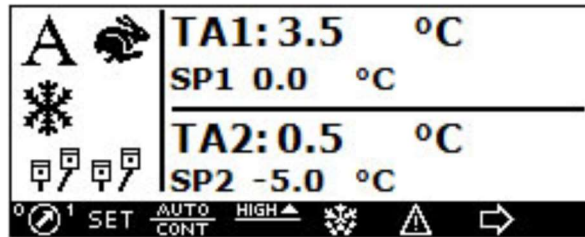


Figure 17 - Main Screen - Multi temperature Versions

From the main screen (Figure 17), press the button  to display the second part of the menu (Figure 18).

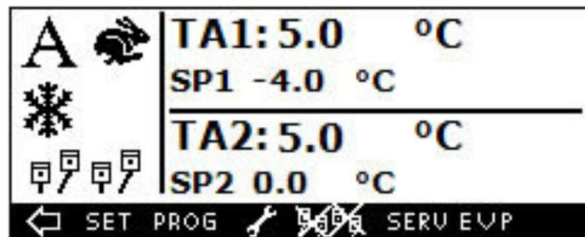


Figure 18 - Main Screen 2 - Multi temperature versions





To access the evaporators enable and disable screen, press the button .



Figure 19 - Evaporator screen

To select the evaporator, press the buttons  .

To change the status of the selected evaporator, press the button .

To return to the main screen, press the button .

The note **Dis** in the main screen indicates that the evaporator has been disabled.

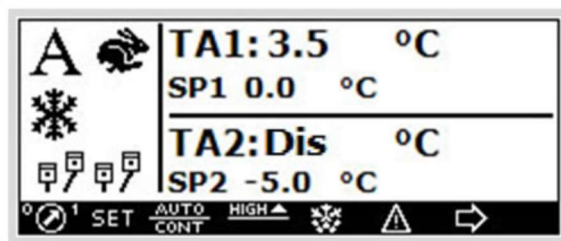



Figure 20 - Evaporator disabled

4.3.5 Manual Defrost

From the main screen, press and hold the button  for 5 seconds.



NOTE

Defrosting is activated by closing the defrost termination thermostat.


During the defrosting phase, the icon  will appear in the display and at the same time the key will start to flash.



Figure 21 - Manual defrosting screen

At the end of the defrosting cycle the ice melting phase starts, with the unit stopped and the display flashing.

4.3.6 Service

From the main screen, press the button  to display the second part of the menu.

By pressing key, the following information  can be displayed:


- Alternator voltage
- Battery voltage
- Water temperature
- Diesel engine hours
- Electric motor hours



Service	
Tensione Alternatore	12.0
Tensione Batteria	12.0
Temp. Acqua	35.0

SET   BACK

Figure 22 - Service 1 Screen

Press the button  to move to the next screen.



Service	
Ore Motore Diesel	25
Ore Motore Elettrico	5

SET   BACK

Figure 23 - Service 2 Screen


To return to the main screen, press the button .

4.3.7 Alarms

The unit has three types of alarm warnings:

1. View only
2. Lock with automatic reset
3. Lock with manual reset

View only

When a display-only alarm occurs, the display shows the icon  indicating the presence of an alarm.

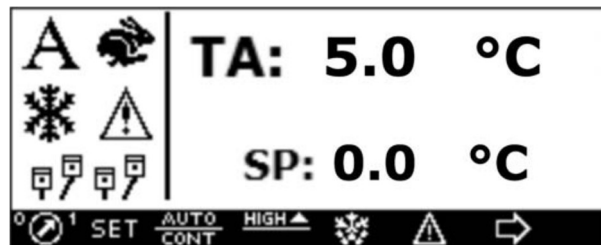



Figure 24 - Main screen with alarm

An acoustic alarm (buzzer) is also present on both the in-cab controller and the unit.

To deactivate the acoustic signal of the in-cab controller, press the button .



To display the type of alarm being signalled, press the key again . The screen describing the alarm (Figure 25) will appear.





Figure 25 - Alarm description page



NOTE


The icon  indicates the alarm status: if present, the alarm is active.

To deactivate the buzzer of the unit, press the button .

In order to return to the default state, press the button again to turn off the display signal .



NOTE


Should the alarm reappear automatically, the acoustic signals will be deactivated, but the signal on the display will remain active, indicating that the alarm has occurred. Enter the alarm description screen and press the button  to deactivate the signal on the display and restore the default state.

To return to the main screen, press the button .

Lock with automatic reset

When an automatic reset alarm occurs, everything that is written for display-only alarms remains valid, except that the refrigerator unit stops and restarts automatically when the alarm sounds again.

Lock with manual reset

When an alarm occurs with manual reset, the icon  and the message **Locked** appears on the display. Additionally, both the unit and the in-cab controller are equipped with acoustic warning devices (buzzers).

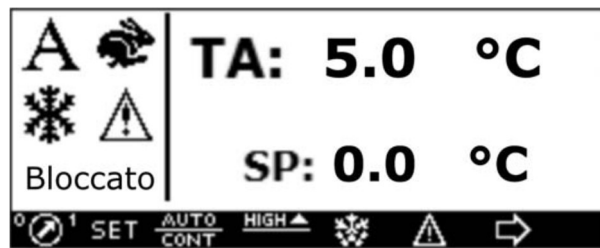



Figure 26 - Main screen with alarm and lock

To deactivate the acoustic signal of the in-cab controller, press the button .


To display the type of alarm being signalled, press the key again . The screen describing the alarm (Figure 27) will appear.



Figure 27 - Screen description of alarm with lock


When the cause of the alarm re-occurs, press the key **UNLOCK MOTOR** to cancel the alarm and restore the default state. The following screen will appear:



Figure 28 - No Alarm present screen



NOTE

The icon  in the locked state remains lit even when the alarm has returned.

To return to the main screen, press the button **BACK**.

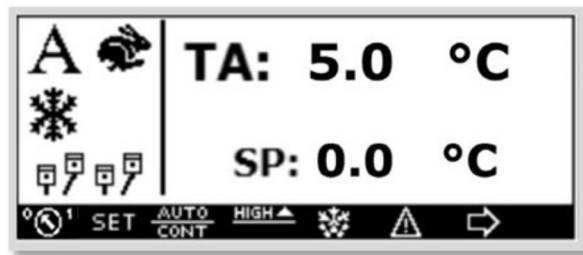



Figure 29 - Main screen

Once the alarm has been reset, press the key  to start the unit.

Alarm list

CODE	ALARM	DESCRIPTION
A01	Environment probe failure	Manual
A04	Low pressure switch alarm	Automatic
A05	Oil level alarm	View only
A06	Air filter alarm	View only
A07	Water temperature alarm	Manual
A08	Door microswitch	Automatic
A09	Door open	Automatic
A10	Oil pressure alarm	Manual
A11	High pressure switch alarm	Automatic
A12	High temperature alarm	View only
A13	Low temperature alarm	View only
A14	Thermal protection	Automatic
A15	Low battery level	Manual
A16	Start up failure	Manual
A17	Alternator failure	Manual
A18	Water probe failure	View only

Alarm description

A01 Environment probe fault alarm

This alarm causes the unit to stop permanently until the fault is corrected.

The procedure described in paragraph 0 must be followed in order to restart the unit.

A04/11 Pressure switch alarm

It is determined by a high pressure switch intervention or by a minimum intervention. There may be a cause for the high pressure switch intervention, such as inadequate condenser cleaning or loose condenser fan belts. The intervention of the low pressure switch may be due to a loss of freon. The intervention causes the unit to stop until the alarm itself disappears.

A06 Air filter alarm

This is a warning-only alarm that has no effect on the operation of the unit.

A07 Water temperature alarm

Occurs when the water temperature of the radiator exceeds the allowed value. It causes the diesel engine to stop.

The procedure described in paragraph 0 must be followed in order to restart the unit.

A08 Door open microswitch alarm

Occurs if the engine compartment door is opened. This alarm prevents the starting of the engine.

A09 Door open alarm

An indication of the door microswitch, if present, indicates the opening of the loading compartment door.

A10 Oil pressure alarm


If the diesel engine's oil pressure has decreased, this alarm will sound, resulting in a permanent shutdown of the engine.

The procedure described in paragraph 0 must be followed in order to restart the unit.

A12/13 Maximum/minimum temperature alarm

It occurs if the actual temperature of the cold room and the temperature set with the command differ beyond the limits set by the manufacturer.

A14 Overload relay alarm

This is determined when abnormal current is absorbed by the electrical compressor and the unit stops. The alarm can be reset by switching off the control unit, cutting off the power supply to the unit, opening the electrical panel, and restoring the overload relay. Switch the unit on and off, move to the in-cab controller and press the button .

A15 Low battery level alarm

During a start/stop operation, when the unit stops to reach the set temperature, if a battery voltage less than 11 volts is detected for 10 seconds, a continuous restart is triggered.

A16/17 Failure to start/alternator malfunction

The alarm may sound if the factory-set number of starting attempts (set at 5) have expired and the diesel engine has not been started.

The causes may be:

- failed alternator
- loose belts

- no fuel
- flooded engine

During electrical operation, the same alarm will occur due to an incorrect operation of the alternator.

The procedure described in paragraph 0 must be followed in order to restart the unit.

A18 Water probe failure alarm

This is a warning-only alarm that has no effect on the operation of the unit.


5 MAINTENANCE

Each time the threshold is reached as for hours of maintenance, the  icon appears.



Figure 30 - Required maintenance icon

From the main screen, press the button  to display the second part of the menu.

By pressing the key , the description Maintenance A B C or D appears, depending on those required.

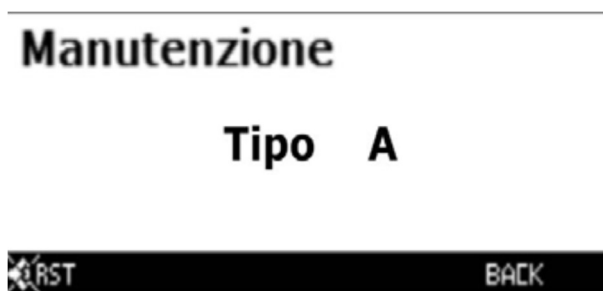


Figure 31 - Maintenance screen



CAUTION

Prior to any intervention, ensure that the in-cab controller is turned OFF and that the unit cannot start up during service.

In addition to the maintenance described, it is recommended to replace the engine oil at least once a year, even if the engine has not carried out the expected number of operating hours.

5.1 Type A Maintenance

- Replace the diesel engine oil ^[1]
- Oil filter replacement.
- Check the air filter: if necessary clean it
- Check the engine cooling system ^[2]
- Check the tightness of the fastening bolts of the unit
- Check the condition and tension of the belts ^[3]
- Check the cleaning of the condenser
- Check the operation of the in-cab controller
- Replace the diesel fuel filter.

TIME REQUIRED FOR SERVICE: 2 HOURS

5.2 Maintenance Type B

- Check the filter of the diesel fuel pump.
- Replace the air filter cartridge
- Check the oil level of the compressor.
- Check the alternator brushes
- Check the battery terminals.
- Check and adjust valve balances
- Check the coolant level.
- Check the operation of the diesel engine thermostat
- Check the defrosting cycle
- Check the brushes and the functioning of the evaporator fans
- Replace the belts if necessary ^[3]
- Check the operation of the in-cab controller

TIME REQUIRED FOR SERVICE: 3 HOURS

5.3 Maintenance Type C

- Clean the radiator and condenser ^[2]
- Check the coolant level.
- Check the revolutions of the diesel engine
- Check the tensioning device bearings
- Check the alternator load
- Check the evaporator blower brushes
- Check the operation of the in-cab controller

TIME REQUIRED FOR SERVICE: 3 HOURS

5.4 Maintenance Type D

- Check all the tensioners ^[3]
- Replace the diesel engine cooling anti-freeze ^[2]
- Check the electric motor bearings

TIME REQUIRED FOR SERVICE: 3 HOURS

5.5 Notes

^[1] Engine oil must be replaced at least once a year, even if the engine has not completed the expected number of operating hours.

Recommended oils:

- ZANOTTI 10W – 40
- ELF Multi performance 4D – 10W - 40
- AGIP SIGMA TURBOSHPD 10W – 40
- MOBIL DELVAC SHC 10W – 40 DELVAC
- 1400 SUPER
- FIAT URANIA TURBO 10W 40
- SHELL MYRINA TX 10W 40
- BP VANELLUS C3 EXTRA 10W 40

^[2] The cooling liquid (guard up to -36°C Long Life "B") must be replaced at most every 2 years.

^[3] Proper belt tension allows correct transmission and less belt deterioration.



CAUTION

When the pair-mounted belts require intervention, both belts should be replaced.

Maintenance Intervention Card _____ hours

Date	Model	S/N	Operating Hours (Road mode)	Operating Hours (External power supply mode)

Alarms Log

Parts replaced

Notes

Maintenance Intervention Card _____ hours

Date	Model	S/N	Operating Hours (Road mode)	Operating Hours (External power supply mode)
------	-------	-----	--------------------------------	--

Alarms Log

Parts replaced

Notes

Maintenance Intervention Card _____ hours

Date	Model	S/N	Operating Hours (Road mode)	Operating Hours (External power supply mode)

Alarms Log

Parts replaced

Notes

Maintenance Intervention Card _____ hours

Date	Model	S/N	Operating Hours (Road mode)	Operating Hours (External power supply mode)
------	-------	-----	--------------------------------	--

Alarms Log

Parts replaced

Notes

Maintenance Intervention Card _____ hours

Date	Model	S/N	Operating Hours (Road mode)	Operating Hours (External power supply mode)

Alarms Log

Parts replaced

Notes

Maintenance Intervention Card _____ hours

Date	Model	S/N	Operating Hours (Road mode)	Operating Hours (External power supply mode)
------	-------	-----	--------------------------------	--

Alarms Log

Parts replaced

Notes

Maintenance Intervention Card _____ hours

Date	Model	S/N	Operating Hours (Road mode)	Operating Hours (External power supply mode)

Alarms Log

Parts replaced

Notes

Maintenance Intervention Card _____ hours

Date	Model	S/N	Operating Hours (Road mode)	Operating Hours (External power supply mode)
------	-------	-----	--------------------------------	--

Alarms Log

Parts replaced

Notes

Maintenance Intervention Card _____ hours

Date	Model	S/N	Operating Hours (Road mode)	Operating Hours (External power supply mode)

Alarms Log

Parts replaced

Notes

Maintenance Intervention Card _____ hours

Date	Model	S/N	Operating Hours (Road mode)	Operating Hours (External power supply mode)
------	-------	-----	--------------------------------	--

Alarms Log

Parts replaced

Notes

Maintenance Intervention Card _____ hours

Date	Model	S/N	Operating Hours (Road mode)	Operating Hours (External power supply mode)

Alarms Log

Parts replaced

Notes

Maintenance Intervention Card _____ hours

Date	Model	S/N	Operating Hours (Road mode)	Operating Hours (External power supply mode)
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Alarms Log

Parts replaced

Notes

Maintenance Intervention Card _____ hours

Date	Model	S/N	Operating Hours (Road mode)	Operating Hours (External power supply mode)
------	-------	-----	--------------------------------	--

Alarms Log

Parts replaced

Notes

Maintenance Intervention Card _____ hours

Date	Model	S/N	Operating Hours (Road mode)	Operating Hours (External power supply mode)
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Alarms Log

Parts replaced

Notes



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