

**VECTOR 1350
OPERATING INSTRUCTIONS**

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.

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.

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1. DESCRIPTION & IDENTIFICATION

Keep the fold out sheet while reading the instructions.

1.1. 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 (1a) is fixed on the frame and the Serial Number is fixed on the control box (1b).

1.2. Noise level sticker

This sticker indicates the noise level guarantee in Lwa (sound power level).

Carrier Log-out/Tag-out procedure (CTE mandatory Fatality Prevention Review: LO/TO and Electricity).

- 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 or doing anything on this refrigeration unit, ALWAYS implement Carrier Log-out/Tag-out procedure (CTE mandatory Fatality Prevention Review: LO/TO and Electricity).

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.

2. SAFETY

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.



Personal protective equipment :

Before doing anything on this refrigerant unit, ALWAYS use tools and Personal Protective Equipment in accordance with Carrier Log-out/Tag-out procedure (CTE mandatory Fatality Prevention Review: LO/TO and Electricity).

. Hearing protection is recommended when unit is running.



Working at height :

Take all necessary safety precautions in accordance with regulations in force when accessing this refrigeration unit: use safe ladders, working platforms with appropriate guards.



Automatic start :

This refrigeration unit is equipped with Auto-Start/Stop, a valuable fuel saving feature.

Before servicing refrigeration unit, ALWAYS implement

Electricity :



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



Always use insulated tools relating to maximum voltage and wear individual protecting equipment (EPI) following Carrier Log-out/Tag-out procedure (CTE mandatory Fatality Prevention Review: LO/TO and Electricity).

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. Implement Carrier Log-out/Tag-out procedure (CTE mandatory Fatality Prevention Review: LO/TO and Electricity). Before working in the electrical control box, it is required to control the absence of tension.

Ensure that all capacitors (if so equipped) are discharged before service to avoid electric shock.

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




Power generator :

Be aware of HIGH VOLTAGE supplied by the generator as the unit may start automatically

Before servicing the unit, make sure the RUN/STOP switch is in the STOP position. Also disconnect the negative battery cable.



Engine coolant :



This refrigeration unit is equipped with a pressurised cooling system. Under normal operating conditions, the coolant in the engine and radiator is under high pressure and very hot.





Coolant is very slippery. It can be harmful in case of ingestion.

Never remove the cap from a hot radiator when this refrigeration unit is running or immediately after.


If the cap must be removed, wait at least 10 minutes and then do so very slowly in order to release the pressure without spray.

In case of leakage, immediately clean the floor to prevent slipping.

Avoid contact with the skin and eyes. Always use Personal Protective Equipment when handling engine coolant: safety clothes, safety gloves and safety glasses.

Engine :



NEVER START THE ENGINE IN A CLOSED ROOM, EXHAUST GAS IS POISONOUS.

It is colourless and odourless and created by the incomplete combustion of hydrocarbons.

Exhaust gas is poisonous, breathing it induces drowsiness and may lead to loss of consciousness.



The following symptoms indicate exhaust gas has been inhaled :

Blackout, intense headache, sudden weakness and sleepiness, vomiting, muscular contractions, beating temples.

If you feel one of the above mentioned symptoms, go out and breathe fresh air.

If you notice a noise or modification of the exhaust system, immediately stop the engine and call your service centre for checking and repair.

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 generates toxic gas: 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.

Refrigerant handling must be done by qualified people.

FIRST AID




- General advice: Never get a unconscious person swallow nothing.
- Inhalation: Put the victim in the open air. Oxygen or artificial respiration if necessary. Do not administrate adrenalin or similar medicine.
- Contact with eyes: very well rinse abundantly with water during at least 15 minutes and consult a doctor.
- Contact with skin: wash immediately abundantly with water.
- Remove immediately every soiled or splashed clothing

Refrigerant Use & Handling



- Combustibility - Certain HFC & HCFC refrigerants can become combustible when mixed with high concentrations of air at elevated pressures. This not only includes R-22, but also many other HFC & HCFC refrigerants. For example, this is also true of R-134a.
- Therefore, these refrigerants should not be mixed with air under pressure for leak testing or other purposes.
- Inhalation Hazards - All refrigerants are hazardous if inhaled in concentrations exceeding the recommended safe limits. The symptoms include: headaches, nausea, sleepiness, lethargy, dizziness and loss of coordination. It can result in irregular heartbeat, unconsciousness and even death. The proper remedies should be taken to eliminate or reduce the exposures.
- Flame Enhancement - If you see a change in the color or size of the torch flame while welding or soldering in the presence of refrigerant vapors, stop work immediately and ventilate the area. This flame effect only occurs at dangerously high concentrations of refrigerant vapors. This could create the inhalation hazards noted above.
- Skin & Eye Protection - Contact with "liquid" refrigerants can result in immediate freezing of the tissues, and permanent damage or blindness can result. DO NOT handle liquid refrigerants without proper personal protective equipment. DO NOT cut into any refrigerant lines under pressure. DO NOT open valves or vent equipment where you may be sprayed with liquid refrigerant.

Cooling oil :

- avoid prolonged or repeated contact with the skin.
- wash carefully after handling.










Burning with hot and cold :









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>Beware when operating closed to 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>Cuttings :</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>Battery :</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> <p>Respect polarity when connecting a battery.</p>
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	<p style="text-align: center;">CAUTION</p> <p>Under no circumstances should anyone attempt to repair the Logic or Display Boards. Should a problem develop with these components, contact your nearest Carrier Transcold 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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	<p>Environment :</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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2.1. Warning stickers maintenance

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

3. 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 centre 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.



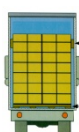
SOME ADVICE

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 during pull down and 8°C during heating).
- 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.



Load spacers

Load on pallets

- Leave a free space of about :
 - 6 to 8 cm between load and front wall,
 - 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.

4. 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 set-point required by the shipper or receiver.

More detailed information can be obtained from your Carrier Transicold dealer.

Product	Set point range	Operating mode*
Bananas	15°C (60°F)	Continuous
Fresh fruits and vegetables	+4°C to +6°C (+39°F to +43°F)	Continuous
Fresh meats and seafood	+2°C (+36°F)	Auto-Start/Stop or continuous
Dairy products	+2°C to +6°C (+36°F to +43°F)	Auto-Start/Stop or continuous
Ice	-20°C (-4°F)	Auto-Start/Stop
Frozen fruits and vegetables	-18°C (0°F)	Auto-Start/Stop
Frozen meats and seafood	-20°C (-4°F)	Auto-Start/Stop
Ice cream	-25°C (-13°F)	Auto-Start/Stop

* 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 doors are open.

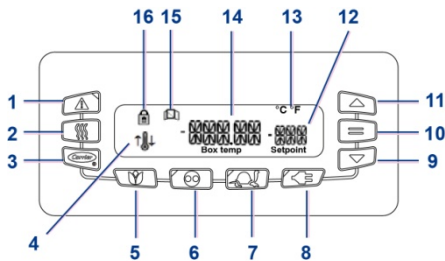
5. 12VDC BATTERY SAVING RECOMMENDATION

- You are reminded to disconnect the battery when the refrigeration unit is not in use.
- Note that you need to run the unit for at least 72 minutes to charge the battery from 80% state of charge to 100%.
- It is recommended to run the unit in continuous mode for 3 hours if it is parked with options connected to the battery.



6. DESCRIPTION

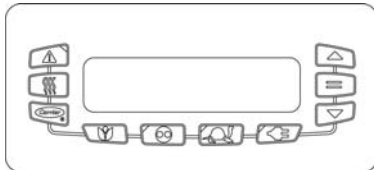
6.1. Display



- 1- Alarm Key and Indicator
- 2- Defrost Key
- 3- Carrier Magic Key
- 4- Bulb and Arrows
- 5- "Fresh protect" key
- 6- Start/StopContinuous Key and Indicator
- 7- City Speed On/Off and Indicator
- 8- Diesel/Electric Key and Indicator
- 9- Set Point Down Key
- 10- "=" (Select) Key
- 11- Set Point Up Key
- 12- Set point Temperature
- 13- Centigrade/Fahrenheit
- 14- Box Temperature
- 15- Door Open Icon
- 16- Lock Icon Display
- 17- ON/OFF switch (not shown) – located on display panel

7. OPERATION

7.1. To start the unit – ENGINE operation



- 1- Turn on the ON/OFF switch.
- 2- The appropriate LED's should illuminate. The system will then perform a start sequence, energize the buzzer, and then start the unit automatically.
- 3- If the alarm LED(1) illuminates, see the Alarm List.
- 4- If the display does not illuminate, check:
 - Battery voltage. A booster battery may be needed.
 - Check for blown fuse(s).

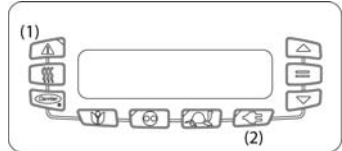
- Verify the harness connector at the back of the display module and all other module connectors are securely attached.

Under no circumstances should ether or any other starting aids be used to start the engine.)

7.2. To start the unit – STANDBY operation

1. Check that the unit is connected to a suitable electricity supply (See section 7.2.1)

Ensure the power plug is clean and dry before connecting to any electrical outlet/receptacle. Do not connect power plug to any electrical outlet without checking that it meets the 400/3/50 and 32 amp electrical requirements of the unit.



- 1- Turn on the ON/OFF switch.
- 2- Press the Diesel/Electric key to select Electric Operation. The Diesel/Electric LED (2) should illuminate to signify electric operation. The system will then perform a start sequence, and then start the unit automatically.
- 3- If the alarm LED (1) illuminates, see the Alarm list.
- 4- If the display does not illuminate, check:
 - Battery voltage. A booster battery may be needed.
 - Check for blown fuse(s).
 - Verify the harness connector at the back of the display module and all other module connectors are securely attached.

7.2.1. Standby operation guideline

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

- a) **ALWAYS check** that the unit is OFF 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:

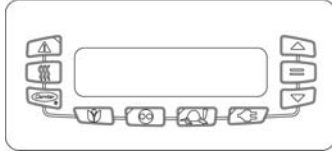
Fuse	Standardized extension cable
aM 400 / 3 / 50 Hz	H.07.RNF
aM: Motor rated fuse	400 V
32 A	6 mm ²

- c) The unit connection cable must be fitted with a ground connection. The cable must be connected to earth.



- d) On the 400 V supply, the unit **MUST BE CONNECTED** to a high sensibility (30mA) differential protection.
- e) The user is liable for ensuring that the above measures are taken.

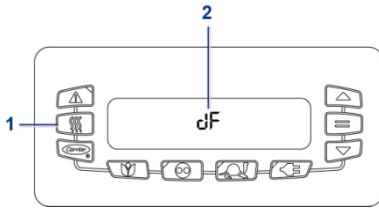
7.3. To stop the unit



- 1- To shut the unit down: turn off the ON/OFF switch, any active LED's should turn off.

NOTE: Due to internal processing, turning the ON/OFF switch OFF then back to the ON position will result in a 4 to 50 second delay between the display going off and coming back on again.

7.4. To initiate defrost



1. With the system powered up, press the DEFROST key.
2. If the conditions for defrost are met, the display will change to "df" and remain so for the entire defrost cycle. At the completion of any defrost cycle, the display will return to the default.
3. If the conditions for defrost are not met, the display will display "no df" for 10 seconds. At the completion fo 10 seconds, the display will return to the default.

The message "no df" will be activated when:

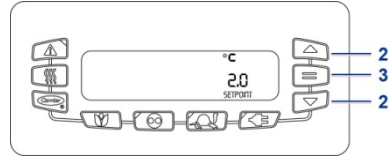
- The box temperature is too warm. Defrost may be entered when the defrost termination temperature sensor is below 4.4°C (40°F) or the supply air temperature sensor is below 7.2°C (45°F) **OR**
- The engine has not run at least 15 seconds after starting **OR**
- There is an active shutdown Alarm.

Defrost may also be initiated automatically at preset intervals by the system defrost timer or by the defrost air switch.

The defrost mode terminates when the defrost termination temperature sensor (DTT) and the supply air temperature sensor (SAT) both rise higher than 12.8°C (55°F). Should the defrost cycle not end after a maximum of 45 minutes, the defrost cycle is terminated automatically.

If defrost terminates on the 45 minutes termination timer, the system will wait 1.5 hours of compressor running time before attempting an automatic defrost cycle. Pressing the manual defrost key will override this mode and start a defrost cycle.

7.5. To change set point temperature

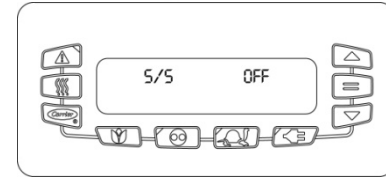
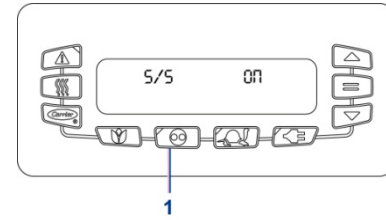


1. With the system powered up and the default screen displayed
2. Press the ▼ or ▲ key to bring the displayed set point to the desired value. The screen will display set point only, LED's will continue to function based on unit operation.

TIP
The setpoint will change one degree with each press and release of an arrow key.

3. Press the "=" key to save the new set point. The display will return to default.
4. If the "=" key is not pressed within 5 seconds, all LED's will flash and the set point will then return to original set point.

7.6. Start-Stop or Continuous operation



1. With the system powered up, press the START-STOP/CONTINUOUS key to toggle between the desired operations.
2. The message "S/S on" (Start-stop) or "S/S OFF (Continuous) will be displayed. The LED (1) should be illuminated whenever the display indicates "S/S ON".
3. The final selection will display 10 seconds; then return to the default display.



NOTE: Changing between Start/stop and continuous may take place at any time.

Start-Stop is provided to reduce fuel consumption. This feature allows full automatic control of the unit starting and stopping by monitoring compartment temperature, battery charge condition and engine coolant temperature. The main function of Start-Stop Operation is to turn off the refrigeration system near setpoint to provide an efficient temperature control system and to initiate a restart sequence after certain conditions are met.

Whenever the unit starts in Start-Stop, it will run until:

- It has run for the selected minimum run time.
- The compartment temperature is at setpoint.
- The battery is fully charged AND the charging amps are less than the Configuration setting.
- The engine coolant temperature rises above 50°C (122°F).

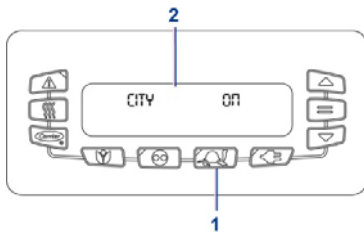
A restart will be initiated when one of the following conditions occurs:

- During the Minimum Off Time compartment temperature has moved away from setpoint by 3.6° to 18°F (2° to 10°C) depending on the Functional Parameter settings.
- The Minimum Off Time has expired and the compartment temperature has moved away from setpoint by more than the Restart Functional Parameter setting (3.6 to 18 °F, 2° to 10°C)
- Engine coolant temperature drops below the configured setting (10 to 32°F, -2.2° to 0°C) .
- The battery voltage falls below the configured setting (12.0 to 12.8V).
- Maximum Off Time has expired. The Maximum off time setting ensures that the entire load stays within safe temperature range. The unit will start after a pre-selected maximum off time-regardless of any change in compartment temperature.

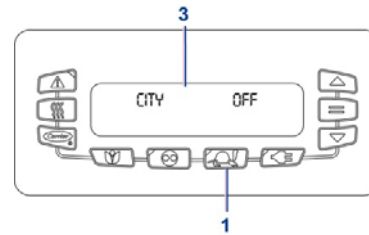
In Continuous Operation the unit will not shut down, except in response to a shut down alarm. Continuous Operation provides constant air flow and temperature control for the product.

Refer to "RECOMMENDED TRANSPORT TEMPERATURES" (page 7) for suggested Start-Stop.

7.7. City Speed



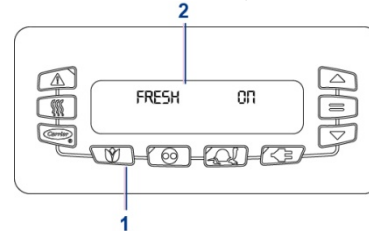
1. With the system powered up and the default screen displayed
2. Toggling the City Speed key (1) will switch from normal speed to city speed and back again. The screen (2) will display "CITY on" and the City Speed LED (1) will light or the screen (3) will display "CITY off" and the City Speed LED will not light.



3. The final selection will show "CITY ON" or "CITY OFF" for 10 seconds, then revert to the default display.
4. All other conditions/settings will remain unchanged.

7.8. Fresh protect mode

- This function is to protect the top of perishable cargo from freezing (vegetables, fruits, flowers...) in Continuous mode ONLY.
- The temperature set point range of the "Fresh protect" mode is between 0°C and +18,4°C.



1. Press the "Fresh protect" key to enable/disable the "Fresh protection" mode.
2. **ON:** "FRESH ON" is displayed during 10 seconds. Then the box temperature (5sec) and "FRESH" message (2sec) are displayed alternatively on left side of the display. The set point temperature is always displayed on the right side.

OFF: by default. When disabling Fresh Protect mode, "FRESH OFF" is displayed.

NOTE: Fresh mode is automatically disabled if:

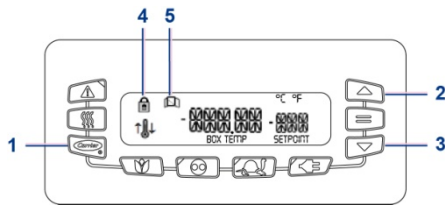
- Start-stop mode is selected
- If the Set point temperature is out of the range 0°C / +18 °C.
- If Alarm AL123 is displayed due to a sensor default.



- If Fresh protect mode is locked in functional parameters. In this case, pressing the Fresh Protect key will display "LOCK FNC".

Pressing the "Fresh protect" key under one of these conditions will display "NO FRESH" message because Fresh Protect mode is not usable.

7.9. Operator messages



The display key pad can be used by operators to access system information without the need of a PC. Service functions can be accessed only through use of a PC.

To access system information the display needs to be unlocked:

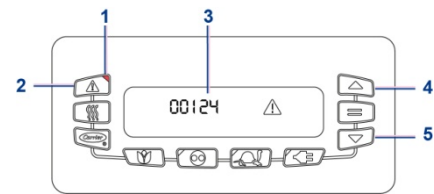
- To lock/unlock the display, depress and hold the Carrier key (1) for 5 seconds. The Lock icon (4) will be displayed when the display is locked.
- To change the display back light brightness, simultaneously depress the Carrier key AND the UP (2) or the DOWN (3) arrow keys.

Momentarily depressing the Carrier key will allow the user to cycle through unit data:

XXXXX Eng – Engine hour meter
 XXXXX Son – Switch on hour meter
 XXXXX Sby – Electric hour meter
 XX.X Amb – Ambient temperature
 XX.X Bat – Battery voltage
 XXXYZ ZRv – Software revision
 PROBE RAT / PROBE SAT – Active Temperature Probe

- The DOOR OPEN icon (5) will be displayed if an optional door switch is installed and when the door is opened or not closed tightly.

7.10. Alarm list



1. If there is a shutdown, the Alarm LED (1) will flash ½ second on, ½ second off. If a non-shut-down alarm is present the Alarm LED (1) will flash ½ second on, 3 seconds off.

2. The Alarm LED remains lit until cleared.
3. Pressing the Alarm key (2) will display the latest alarm.
4. Press the Up (4) or Down (5) arrow key to scroll through the list of alarms.
5. To clear the alarms, press and hold the Alarm key (2) for 3 seconds. "STATE OK" should then be displayed.

If there are no active alarms, the Alarm LED (1) will not be illuminated.

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.

8.1. Maintenance schedule

Vector 1350			
Hours	Initial service	Service A	Service B
400	■		
1500		■	
3000		■	■
4500		■	
6000		■	■
7500		■	
9000		■	■
10500		■	
12000		■	■

9. A.T.P. EUROPE REGULATION EXTRACT

(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:

class A : Refrigeration unit furnished with a cooling system whereby a temperature between +12°C and 0°C inclusive can be chosen.

class B : Refrigeration unit furnished with a cooling system whereby a temperature between +12°C and -10°C inclusive can be chosen.



class C : 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/m² °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:
FRC 6-2013
(6 = month (June) 2013 = year)

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.

10. 24H ASSISTANCE

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 centres 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 centre. Consult the directory to locate the service centre nearest you. This directory may be obtained from your Carrier Transicold dealer.

If you are unable to reach a service centre, call Carrier Transicold's 24Hour 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	99 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 / 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 and serial number
- Box temperature, set point and product
- Brief description for 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.

