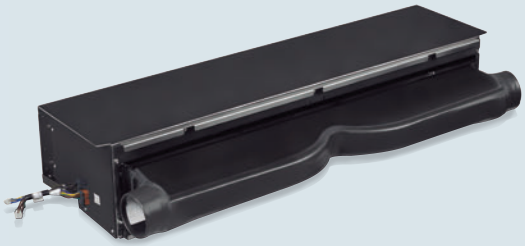
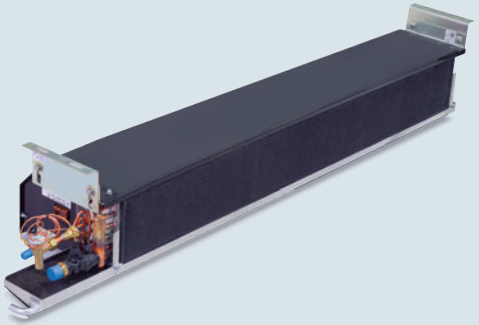




AIR CONDITIONER DOUBLE DECKER

CC 430 P3

Owner's Manual
Warranty Certificate

Rev.01/November 2023
Code: 036-00082-002

OBSERVATION: to get the best air conditioner performance we recommend that you read this manual carefully before starting operation.
Keep this manual with your vehicle for reference.

VALEO Climatização do Brasil - Veículos Comerciais S/A develops its products, oncerned with offering passengers a comfortable environment, always seeking the best HVAC conditions.

The equipment has a design that allows perfect integration with vehicles, facilitating operation and maintenance.
With optimized sizing, they ensure a high cooling capacity and low noise level.

This manual was developed with the purpose of presenting important aspects of functioning, operation and maintenance, in order to obtain the best performance of the air conditioning equipment.

In order to ensure that the equipment has a long and trouble-free service life, it is essential that the operating and maintenance instructions described in this manual are followed and executed periodically.

The controls installed by VALEO Climatização do Brasil - Veículos Comerciais S/A that are used by the user are properly illustrated and explained in this manual.
It is important that the user carefully read the instructions in this manual before operating the air conditioning equipment.

VALEO Climatização do Brasil - Veículos Comerciais S/A maintains an authorized service network with tools, equipment and a team trained to perform any type of maintenance within quality standards.

Thank you for choosing VALEO Climatização do Brasil - Veículos Comerciais S/A products. In case of doubts, contact the VALEO Climatização do Brasil - Veículos Comerciais S/A authorized service network or contact the technical assistance department.

Warrant Terms

VALEO Climatização do Brasil - Veículos Comerciais S/A warrants its products for two-years period in accordance with the terms listed below:

1 - The warranty will be valid for the period above specified, counting from the date when the equipment is installed in keeping with the warrant certificate, even after the property there of has ben transfered.

2 – Should the equipment be installed by a third part, VALEO Climatização do Brasil - Veículos Comerciais S/A warrant only the product and not its instalations.

3 - During the stipulated period, the warranty completely covers the workmanship and spare parts used to repair defects duly identified as being:
premature failure of material and components defects used on its manufacture.

4 - Only a techinician from the VALEO Climatização do Brasil - Veículos Comerciais S/A authorized network of services is qualified to repair the defects coverd under the warranty.

5 - The warranty approval is subject to the technical analysis of the defects shown in the components and operational conditions to which the equipment has been subjected.

6 - No claims will be accepted if the vehicle is still in use after the defect is found, even if there is lack of pieces, delay in transportation or any other such incident.

7 - The Warrant Loses its Validity

a) If the installation or use of the product is not in accordance with the VALEO Climatização do Brasil - Veículos Comerciais S/A technical recommendations.
b) If the product suffers any damage caused by improper use, neglect, accident, failures caused by external agents and even lack of maintenance (see owner's manual) or services performed by unqualified person.

c) If the warranty certificate and/or the serial number of the product are adulterated, overwritten or damaged.

d) If defects or unsatisfactory performance are caused by the use of non original spare parts and in disagreement with the technical specifications from VALEO Climatização do Brasil - Veículos Comerciais S/A.

8 - The Warranty Does Not Cover

a) Displacement of the bus for repairing of the equipment. In case the customer requests to be attended in the same place where products is operating, the collection or not of the visitation charge will be the criterion of the authorized service provider.
b) The attending to the consumer, free or paid, in cities that do not have authorized services providers. So the expenses with displacement are the sole responsibility of the owner.
c) Lack of proper preventive maintenance, as described in the preventive maintenance item in this manual.
d) Replacement of bearings, belts, filters in general and lubricating oil, since they are considered items of natural wear.
Bearings, belts and alternators have limited warranty as follows:

- Bearings in general: 60,000km or 2 years, whichever occurs sooner.
- Belts in general: 20,000km or 3 months, whichever occurs sooner.
- SEG Alternators: 1 year with no mileage limit.
- Prestolite Alternators: 2 years without mileage limit.

For the items listed above, the conditions established in these warranty terms and the technical specifications of the respective manufacturer must be respected.
e) Loss or loss of profits caused by the stoppage of the vehicle due to non-operation of the equipment.

- Preventive Maintenance Frequency Check List

WEEKLY	1 - Clean or change the return air filter.
	2 - Check out the belt stretchiness condition and compressor with alternator alignment, observing the wear and tear of them.
	3 - Check the water level of the radiator reservoir. See note (*)
MONTHLY	1 - Accomplish the weekly check list.
	2 - Clean the condenser capillary tube coil (Apply only water and neutral non-aggressive soup to cooper and aluminum). See note (**)
	3 - Check if the evaporator hatches are closed to avoid air intake into the equipment.
	4 - Check the refrigerant charge: wait 15 minutes, it has to flow through the liquid display without bulb formation.
	5 - Check the compressor oil level: wait 15 minutes, it must be 3/4 up to 1/4 full at oil display.
	6 - Test the equipment operation functions: cool / fan (high and low speed) / heat / dry (air renewing) modes.
	7 - Lubricate the components of the compressor support. It includes articulation (elbows), axles, bushing and pulleys, if necessary.
	8 - Operate the heating system (if any) for at least 30 minutes.
TRIMESTRAL	1 - Accomplish the monthly check list.
	2 - Measure the exhaust suction pressure, temperature and suction line condition.
	3 - Check the tightening of alternator potency cables fuses in general, electric board and start motor.
	4 - Measure the condenser and evaporator fan flow consumption (check their air outflow).
	5 - Measure the electromagnetic clutch coil.
	6 - Measure the Voltage and Current from alternator.
SEMESTER	1 - Accomplish the trimestral check list.
	2 - Clean the evaporator capillary tube coil (Apply only water and neutral non-aggressive soup to cooper and aluminum). See note (**)
	3 - Clean the evaporator drain.
	4 - Check out the oil retainer felt of the compressor sealing part.
	5 - Look carefully, if there is any leakage at coupling spots: oil leakage, refrigerant leakage.
	Check if there are any loose, free, damaged, broken, worn parts, rusty, melting, cracked or bad fractioning to the bus body.
YEARLY	1 - Accomplish the semester check list.
	2 - Test the compressor efficiency at 1500 RPM.
	3 - Make notes about the compressor oil pressure at 1000 RPM.
	4 - Check the opening and closing pressures of high and low pressure switches.
	5 - Check the screws or bolts that attach the compressor support and equipment, checking the right torque.
	6 - Clean the air conditioning body getting rid of any dust/scrap at components: evaporator, condenser, clutch compressor, alternator, alternator, relay and control board. See note (**)

IMPORTANT: If you do not accomplish the preventive maintenance check list as above, it implies to total or partial loss of warranty coverage.
The actions of preventive maintenance written in this manual have been based on normal conditions. Just in case of environment contaminated and bad weather conditions, then you must do the maintenance more frequent.

NOTES (*): if necessary, fill it in with water and additives, follow the recommendations of the OEM Body Builder.
(**): when cleaning using water, protect electrical and electronic components to prevent damage.

- Refrigerant Gas R134a

VALEO Climatização do Brasil - Veículos Comerciais S/A products apply for R 134a. The se of different type of gas, low quality or from unknown brands will cause low performance from the refrigeration and damage the equipment components.

ATTENTION: under no circumstances, refrigerant cannot be spoiled at the atmosphere.

- Oil

We recommend you that you shall preventively change the air system oil every two years or 10.000 working hours, whatever becomes first.

- Dry Filter

We recommend that you shall preventively change the drier filter every 3 years. Just in case, you need to refill in the equipment with gas, we recommend you replace to a new filter to extinguish any dirt out of the system.

- Compressor Sealing Part

In order to avoid leakage at the sealing part of the compressor due to lack of lubrication, then the air conditioning must be working at cool mode for at least 15 minutes, once every 15 days.
The sealing part is lubricated by the compressor oil and in its normal operation allows a small leakage of 0.05 ml per hour under operation.
Check frequently the reservoir and/or felt then remove the excess of it.
Dispose the old oil as your Country regulations and laws.

- Ducts

The cleaning of the air ducts must be done every tree months, it can be earlier, depending on: the frequency of operation of the air conditioning system, quantity of passengers and resistivity of the environment where it is driven. This cleaning is the responsibility of the vehicle owner´s only, he is in charge of this cleaning in order to offer good air quality to his passengers.

NOTE: ducts are components of the bus body.

- Pulley Belts

In order to increase the lifetime of the belts, the strength/stretchiness must be as low as possible, but working, not leaving them skidding without any friction. Too low stretchiness on the pulley belts can cause overheat and too much skidding, causing early break.
Too much stretched belts diminish their lifetime and from roll bearing and from sleeves, this problem can cause engine interior and compressor damage.
After changing the belts, check their stretchiness back again after 48 working hours.
It is recommended not use different brands. Install assemblies with the same diameter/length of the series and do not apply new belts beside old ones. Putting the assembly into action without one or two belts for a long time can cause a damage inside the “v” groove of the pulley. It will cause wear in that “v” groove, so the new belt may not be stretched accordingly.

SAY NO TO RECONDITIONED PARTS

The application of reconditioned parts will diminish the air conditioning efficiency, will overcharge the electric system causing early brake of the compressor and set a fire!

IMPORTANT: the vehicle owner must do preventive maintenance actions. If you do not do the preventive maintenance as described in this chapter, it implies you lose partially or full warranty coverage.

ATTENTION: Just in case a problem happens in the refrigeration system, then it must be repaired in an authorized shop or qualified professional.
If a third party installs the equipment, VALEO Climatização do Brasil - Veículos Comerciais S/A, guarantees only the product, not the installation of it.

The following items are in charge of the OEM Plant (Bus Body Builder).

- **Tubes, hoses, drains and wiring harness:**

Bad attachment. Leakage at connections and welding points. Damages due to frictioning / chassis and components frictioning or bad installed.

- **Alternator/Compressor Support:**

Excess or lack of torque at attaching screws/bolts. Assembly is out of project designs. Pulleys are not aligned, excess or lack of stretchiness at the belts and pulleys.

- **Gas Charge Process:**

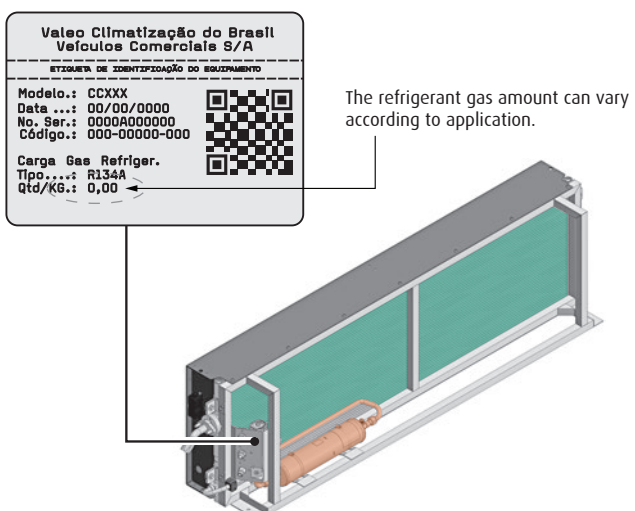
Leakage test procedure. Vacuum process and refrigerant gas charge.

Note: in case the installation is bad, VALEO Agent Authorized Service Net will have to call the OEM Plant first, then get an authorization to do the service, print and issue the Invoice of repairs.

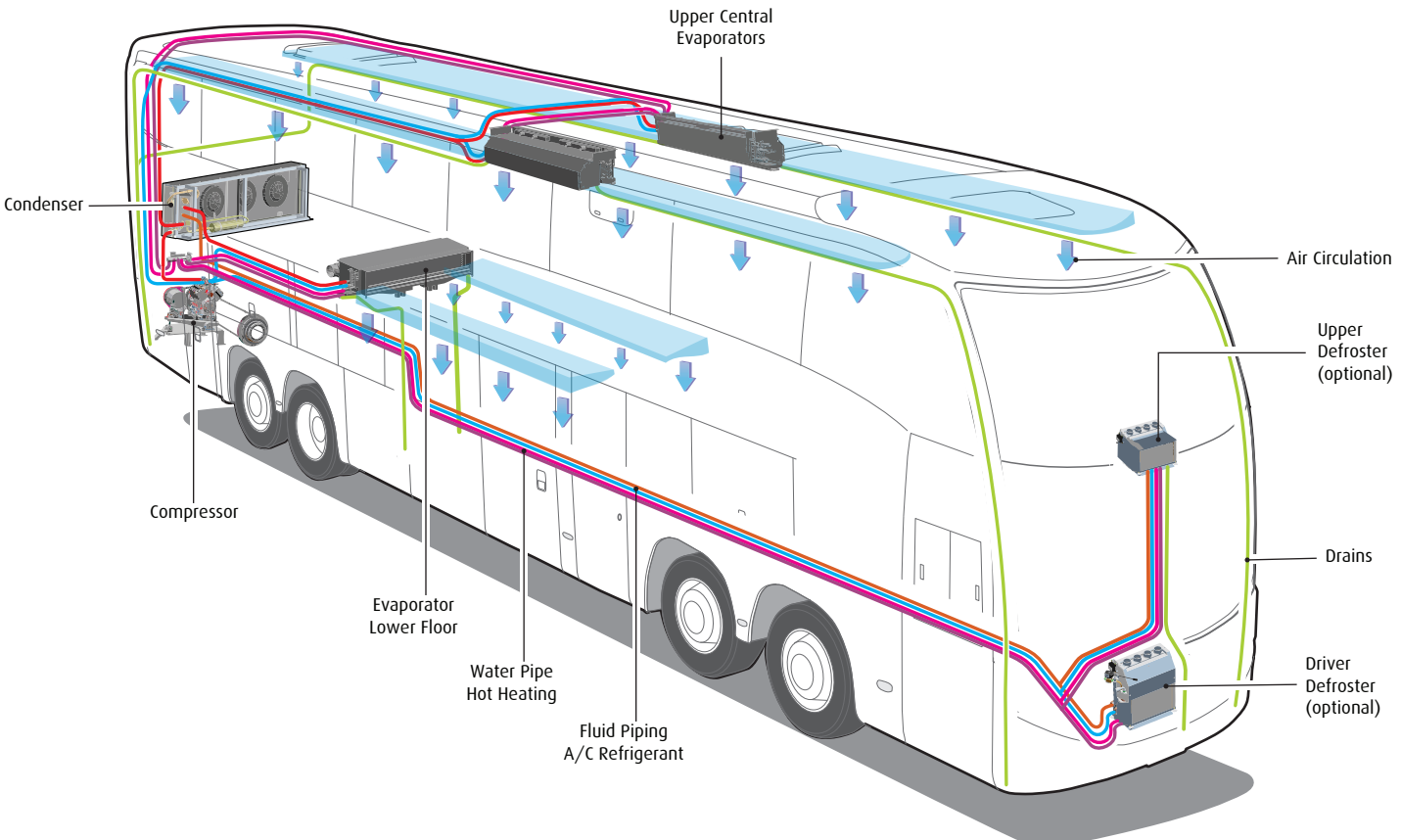
Identification Tag

It is very important, when you need to ask for spare parts or after sales parts, and similar ones, customer must identify the model of the air conditioning, telling the series number, model and manufacturing date.
This information can be found in the Air Conditioning Warranty Certificate and ID tag.

Application information regarding to: series and bus body model, series and chassis model are very important to identify which parts the equipment carries. In order to identify the bus body and chassis, you need to check the bus body builder manual.



1- Operating the Air Conditioner



Note: Illustrative drawing.

MECHANIC SYSTEM

1 Refrigerant Fluid

It is inside the air conditioning equipment, inside the system. It works absorbing the heat from the interior / room of the vehicle, at the evaporator, and then it goes to the condenser where the heat is thrown to the outside. VALEO Climatização do Brasil - Veículos Comerciais S/A, products apply refrigerant R134a, according to the Protection Environmental Law.

2 Compressor

When it is working, the compressor sucks the refrigerant fluid from evaporator at gaseous state and under low pressure, compressing it, so temperature and pressure increase, then the compressor puts it into the condenser.

3 Condenser

Its main goal is dissipate the heat out, which was absorbed by the refrigerant fluid along the refrigeration system.
At the condenser, the overheat refrigerant fluid is sent to outside losing its force, changing from gaseous state to liquid state.

4 Drier filter

Tiene la finalidad de retener impurezas y/o humedad que pueda haber en el sistema impidiendo que lleguen en la válvula de expansión.

5 Expansion Thermostatic Valve

Valve hinders the refrigerant inlet that comes from de condenser at high pressure and its goal is adjust the refrigerant gas flow that passed by the evaporator looking for making the pressure steady and temperature at the capillary tubes output.

MECHANIC SYSTEM

6 Evaporators

Now at evaporators, the refrigerant fluid, at low pressure, turns from liquid to gaseous state, absorbing the interior heat of the vehicle in this process.

7 Air filter

Air return filter retains impurities from air avoiding any block of dirt at evaporator capillary tubes and coil.

8 Air circulation

Air being cooled by the evaporator, then it follows to the bus interior through fans.

9 Drain

It is a way to get the condensed moisture from evaporator tubes from the condensed tray to putting out.

ELECTRIC SYSTEM

10 Controller

It is installed in the instrument panel, it offers to the driver to set-point of temperature, to see by display the interior temperature, offering full climatic control inside de bus.
Set-point: it is the temperature the driver wishes to set inside the vehicle for passengers.

11 Relay Board

Relay board has the controller controls, condenser fan control, evaporator control and compressor control.

ELECTRIC SYSTEM

12 Condenser Fan

Condenser fan and the compressor will only work at "Cool Mode".

13 Evaporator Fan

Evaporator fans are working at cool and fan modes, fans can be set in two speeds.
Sped control can be manual or automatic.

14 Compressor Operation

It is started up by the vehicle engine though a pulley-and-belt system and put into action by an electromagnetic clutch when air conditioning is operating at "Cool Mode".

15 Solenoid Valve

Solenoid valve is applied to stop refrigerant flow through a line. It is a closing valve controlled remotely and under electric operation.

16 Temperature Sensor

The interior temperature is measured by the temperature sensor placed at the air return spot.

17 Pressure Switches

Pressure switches are electric devices that monitor the air conditioning equipment operation pressure. Every time a strong change happens from the NORMAL temperature, they turn off the compressor immediately to avoid break.
Observation: pressures are always monitored, even if the air conditioning is turned off.

2- SC2000 Controller

This objective of this product is to control the temperature of DD (Double Deck) vehicles, independently controlling each of the floors in Double Deck scenarios. The intelligence of the system and charge activation is done by Smart ECU in conjunction with the relay board, while the panel is used for user interface only.

The following ECU configurations are available:

- **SU021 - HVAC SD/DD LIN ANALOG**
- **SU021 - HVAC DD**
- **SU021 - VAC DD**

Panel configuration:

• SC2000 HVAC DD

2.1- Control Panel Description

Below is a description of each of the keys with their respective functions.

Item	Description	Function
1	ON/OFF	Turns the product on/off.
2	AC	Indicates that the compressor is ready for operation.
3	Increase the upper floor set-point.	Sets the desired temperature for the upper floor.
4	Decrease the upper floor set-point.	Sets the desired temperature for the upper floor.
5	Auto	Activates the automatic fan speed and air renewal mode.
6	Increase the lower floor set-point.	Sets the desired temperature for the lower floor.
7	Decrease the lower floor set-point.	Sets the desired temperature for the lower floor.
8	VENT	Manual speed control of the evaporator fans.
9	Re-Heat	Turns the passenger window defroster on/off.
10	Air recirculation.	Turns the air recirculation on the bus on/off.

2.2- Turning the Panel on

The controller can be started using the ON/OFF key or using the auto-start function. To connect the controller, a +15 signal is required. With this, the standby light will be on, allowing visualization of the temperatures of the upper and lower floor if the panel is turned on.

Note 1: to activate the cooling or heating system, the D + signal (car engine in operation) is required. If the panel is turned on without the D + signal, the charges will be activated for 30 seconds before they are turned off.

Note 2: if the stand-by light is off and the Power button is pressed, the stand-by light will come on and the panel can be turned on. However, if no communication is established, the product will return to sleep mode.

Note 3: Emergency mode -> if the ECU does not communicate with the panel after 1 minute, the ECU automatically starts operating after 1 minute.

2.3- Auto Mode

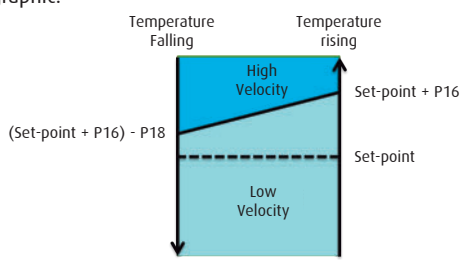
When starting the panel, the auto mode is activated (the corresponding key is lit in amber).

The auto activated mode indicates that the fan speed and the air recirculation function are operating in automatic mode, as well as activation of the compressor. Auto mode is deactivated when any of the functions below occur:

- Deactivation of the AC key (Cooling mode);
- Fan speed change using the key.

2.3.1- Auto Mode Ventilation

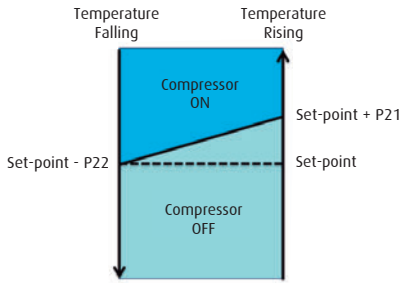
Automatic ventilation is controlled by the Set-point along with parameters P16 and P18 for the upper floor and P56 and P57 for the lower floor, as shown in the following graphic:



In heating mode, the evaporator speed will always be at a low level.

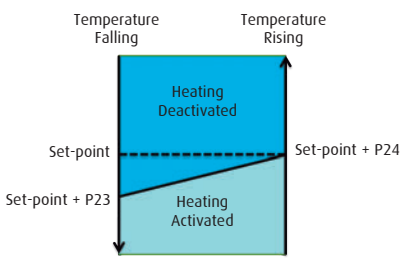
2.3.2– Auto Mode Compressor

Note: after turning on the controller and going into cooling mode, the condenser fans will run for 10 seconds before the air conditioning compressor is activated. In Auto mode, the compressor is activated and deactivated according to the graphic below:



2.3.3– Heating

The heating mode is controlled by the Set-Point and by the parameters P23 and P24, as shown in the graph below:



In heating mode, the evaporator speed will be at a low level.

2.4- Compressor Enabler/Disabler

• **Deactivate:** Press the AC button with the status light on.

If the compressor is activated, it will be turned off respecting the minimum operating time. The cooling function is disabled.

• **Activate:** press the AC button with the status light off.

The air conditioning compressor is enabled and turns on if necessary, and if minimum operating times are maintained (see following note).
The cooling function is switched on again.

Note: the air conditioning compressor must be deactivated at least 1 minute before it can be switched on again. If the AC button is pressed during this time, the device will reactivate the air conditioning compressor after 1 minute. The air conditioning compressor runs for at least 1 minute before turning off. If it is deactivated directly after activation, it will continue to function for 1 minute. In case of a change in heating -> cooling2.1.3– Heating
The heating mode is controlled by the Set-Point and by the parameters P23 and P24, as shown in the graph below:
Operation, the compressor remains in protection mode (off) for 180 seconds.

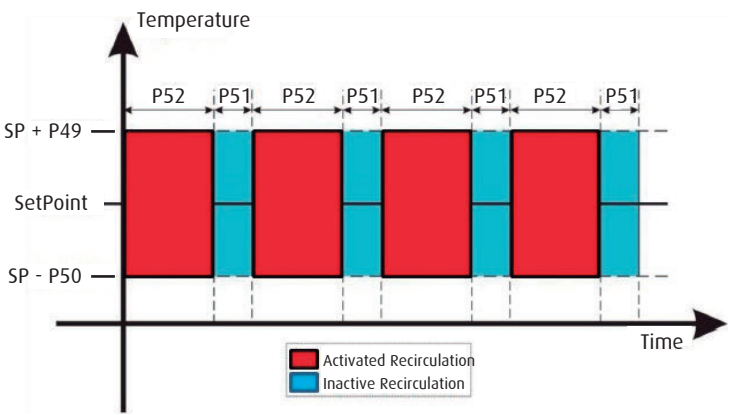
2.5- Changing the speed of the Fans

The speed of the evaporator fans can be changed manually by the key and individually controlled by floor. The auto key will be deactivated.
If brush fans are being used, 2 speed levels will be available. If electronic fans are being used, 5 speeds will be available. The fan speed is changed on the panel using the screen in the image below:

2.6– Air Recirculation

When the air recirculation function is deactivated, this allows external air to enter the vehicle.
The function can be activated automatically and will depend on the internal temperature and parameters P49 and P50. If the return temperature is outside the range (between SP + P49 and SP - P50) shown in the graph, the air recirculation will remain activated (without external air intake). In this condition, if the function is manually activated by the key, air recirculation will remain inactive for the time programmed in parameter P20. If the internal temperature is within the range, the air recirculation will remain cycling between active and inactive, during the times programmed in P52 and P51, respectively, as shown in the following graphic:

Note 1: air recirculation can operate separately for the upper and lower floors.



2.7– Re-Heat Function

Re-heat is used to reduce humidity inside the vehicle, preventing the vehicle's windows from fogging up and increasing passenger comfort.
When this function is available, it is activated by pressing the key .

There are three different operating modes for the Re-Heat function based on the external temperature and the parameters defined in the configuration:

1- External temperature greater than 8°C;
2- External temperature between 0°C and 8°C;
3- External temperature below 0°C.

2.7.1– Re-Heat Function External Temperature above 8°C

The function will be enabled and will activate the cooling along with the heating. The mode operates when the set-point is greater than or equal to the internal temperature, which must be greater than 15°C and the external temperature is greater than 8°C.

Note 1: this function will be available whenever parameter 66 is different from 0.

Note 2: this function is enabled and will activate in continuous cycles defined by parameters 67 and 68 for the time defined by parameter 73, automatically switching off after that time.

Note 3: if the activation conditions are not met, when the function is activated, the key will flash.

2.7.2– Re-Heat Function External Temperature between 0°C and 8°C

The function will be enabled and will activate cooling along with the heating. The mode operates when the set-point is greater than or equal to the internal temperature, which must be greater than 15°C and the external temperature is in the range between 0°C and 8°C. In this mode, the speed of the condenser fans is controlled.

Note 1: this function will be available whenever parameter 66 is equal to 2, parameter 74 is greater than 0 and parameter 64 is equal to 1. These parameters are necessary due to the criticality of the operation, requiring pressure control and electronic fans in the condenser.

Note 2: this function is enabled and will activate in continuous cycles defined by parameters 67 and 68 for the time defined by parameter 73, automatically switching off after that time.

Nota 3: if the activation conditions are not met, when the function is activated, the key will flash.

2.7.3– Re-Heat Function External Temperature below 0°C

The function will be enabled and open the air renewal so that there is external air, in this mode the compressor will not be turned on, since the external air is already capable of reducing the humidity of the environment. The mode operates when the set-point is greater than or equal to the internal temperature, which must be greater than 15°C and the external temperature is less than 0°.

Note 1: this function will be available whenever parameter 66 is different from 0.

Note 2: this function is enabled and will activate in defined continuous cycles by parameters 67 and 68 for the time defined by parameter 73, automatically turning off after that time.

Note 3: if the activation conditions are not met, when the function is activated, the key will flash.

3- Error Screen

When an error occurs, the exclamation mark on the floor referring to the failure will appear on the display.
Note: depending on the severity of the failure, charges can be disconnected.

The error table can be visualized when there is an exclamation mark on the screen and the Auto key is pressed.
The current error is indicated with flashing and the value 1. Description of errors according to the following table:

3.1– Error Table

Error	Component	Cause	Solution
F01	System error	No standard systems recognized.	Update panel and ECU firmware. Voltage supply check.
F02	System error	No standard systems recognized.	Update panel and ECU firmware. Voltage supply check.
F03	Upper floor clutch	Clutch decoupled by ice or pressure sensors.	Replace the pressure switches and/or the compressor. Inspect condenser fans. Inspect refrigerant gas level. Inspect for leaks. Replace expansion valve.
F04	Lower floor clutch	Lower floor solenoid valve closed by ice sensors.	Inspect lower floor evaporator fans. Inspect filters. Inspect the coil. Replace ice sensor.
F05	Proportional motor water valve Upper Floor	The proportional motor water valve could not be calibrated or failed to reach the desired position.	Inspect the wire harnesses. Replace valve.
F06	Proportional motor water valve Lower Floor	The proportional motor water valve could not be calibrated or failed to reach the desired position.	Inspect the wire harnesses. Replace valve.
F07	Air renewal valve Upper Floor	The valve could not be calibrated or failed to reach the desired position.	Inspect the wire harnesses. Replace valve.
F08	Air renewal valve Lower Floor	The valve could not be calibrated or failed to reach the desired position.	Inspect the wire harnesses. Replace valve.
F09	External temperature sensor Upper floor	Short-circuit or open sensor.	Inspect the wire harnesses. Replace sensor.
F10	External temperature sensor Lower floor	Short-circuit or open sensor.	Inspect the wire harnesses. Replace sensor.
F11	Duct sensor Upper floor	Short-circuit sensor.	Inspect the wire harnesses. Replace sensor.
F12	Duct sensor Lower floor	Short-circuit sensor.	Inspect the wire harnesses. Replace sensor.

Error	Component	Cause	Solution
F13	Duct sensor Upper floor	Sensor open.	Inspect the wire harnesses. Replace sensor.
F14	Duct sensor Lower floor	Sensor open.	Inspect the wire harnesses. Replace sensor.
F15	Return temperature sensor Upper floor	Short-circuit or open sensor.	Inspect the wire harnesses. Replace sensor.
F16	Return temperature sensor Lower floor	Short-circuit or open sensor.	Inspect the wire harnesses. Replace sensor.
F17	Ice sensor Upper Floor	Short-circuit or open sensor.	Inspect the wire harnesses. Replace sensor.
F18	Ice sensor Lower floor	Short-circuit or open sensor.	Inspect the wire harnesses. Replace sensor.
F19	Upper floor UV purifier AC system failure	Lamp or reactor failure.	Inspect the wire harnesses. Check lamp and reactor.
F20	Lower floor UV purifier AC system failure	Lamp or reactor failure.	Inspect the wire harnesses. Check lamp and reactor.

4– Parameter Screen

To access the parameter screen, the controller must be in standby mode and the VENT, AUTO and ON/OFF keys must be quickly pressed.

Note: keys to be pressed are highlighted in the image below, it is not necessary to press them all at the same time.

The password screen for entrance to the parameter menu will appear.
The navigation arrows on the upper floor are used to change the value of each character, the AUTO key is used to change the position of the character if the firmware version is 01 or higher.
If the installed version is 00, the password is defined using the arrows on the upper and lower floor.

Upper floor navigation arrows are used to change the parameter and its value. To switch between the parameter selection mode and the change mode, press the AUTO key. The changes are confirmed by the VENT button and the ON/OFF button cancels the operation.

Parameters	Parameter Name	Description	Value Interval	Standard Value
P01	Reserved	-	-	-
P02	Minimum temperature (°C)	Minimum configurable temperature value (°Celsius)	16 - 34	16
P03	Maximum temperature (°C)	Maximum configurable temperature value (°Celsius)	16 - 34	30
P04	Initial temperature value (°C)	Default temperature value when starting the system for the first time (°Celsius)	16 - 34	22
P05	Proportional motor water valve.	• 0: valve is disabled. • 1: valve is controlled.	0 - 1	1
P06	Movement time limit for the proportional motor water valve.	Maximum time the proportional valve needs to reach the desired position.	1 - 20	5
P07	Hysteresis start of the proportional motor water valve.	Minimum position, in AD points, for the engine to move.	1 - 200	30
P08	Hysteresis stop of the proportional motor water valve.	Minimum position, in AD points, for the engine to stop moving.	1 - 200	20
P09	Minimum voltage in the proportional motor water valve potentiometer.	Minimum voltage, in AD points, on the return pin.	1 - 255	1
P10	Maximum voltage in the proportional motor water valve potentiometer.	Maximum voltage, in AD points, on the return pin.	1 - 255	238
P11	Air recirculation valve.	• 0: valve is disabled. • 1: valve is controlled.	0 - 1	1
P12	Movement time limit for the air recirculation valve.	Maximum time the valve needs to reach the desired position.	1 - 20	5

Parameters	Parameter Name	Description	Value Interval	Standard Value
P13	Reserved	-	-	-
P14	Return temperature sensor.	Type of sensor used: • 3K Epcos Sensor (1). • 10K Globus Sensor (0). • 30K Globus Sensor (2).	0 - 2	1
P15	Duct temperature sensor.	Type of sensor used: • 3K Epcos Sensor (1). • 10K Globus Sensor (0). • 30K Globus Sensor (2).	0 - 2	1
P16	Value above SETPOINT in which the evaporator fan speed changes from low to high on the upper floor.	Threshold value in °C, in which the evaporator fan changes from the first to the second level. Scale: 10: 1 (10 ≙ 1 °C)	10 - 100	20
P17	Reserved	-	-	-
P18	Hysteresis value at which the evaporator fans change speed from high to low on the upper floor.	Hysteresis speed of the evaporator fan (from level 2 => 1). Scale: 10:1, meaning 10 ≙ 1 °C	1 - 50	10
P19	Time for the air recirculation valve to remain closed using the key (min).	Time in minutes for the air recirculation valve to remain closed after pressing the air recirculation button.	1 - 90	60
P20	Time for the air recirculation valve to remain open using the key (sec).	Time in seconds for the air recirculation valve to remain open after pressing the air recirculation button.	1 - 60	10
P21	Temperature difference to activate the compressor (°C)	Temperature difference between the set-point and the return temperature to activate the compressor.	0 - 10	1
P22	Temperature difference to deactivate the compressor (°C)	Temperature difference between the set-point and the return temperature to deactivate the compressor.	0 - 10	0
P23	Temperature difference to activate heating mode (°C)	Temperature difference between the return temperature and the set-point to activate the heating mode.	0 - 10	2

Parameters	Parameter Name	Description	Value Interval	Standard Value
P24	Temperature difference to deactivate heating mode (°C)	Temperature difference between the return temperature and the set-point to activate the heating mode.	0 - 10	0
P25	Offset Proportional motor water valve.	Minimum position for proportional valve to operate.	20 - 80	20
P26	Proportional motor water valve off position.	Position that the proportional valve takes when the system is turned off.	0 - 255 255= Válvula fechada	255
P27	Air recirculation valve off position.	Position that the valve takes when the system is turned off.	0 - 255 255= Válvula fechada	255
P28	Using the duct sensor.	• 0: Duct temperature. • 2: Not used.	0 - 2	0
P29	Reserved.	-	-	-
P30	Reserved.	-	-	-
P31	Minimum compressor function time (sec)	Minimum time that the compressor must remain on.	0 - 255	60
P32	Rotation direction of the proportional motor water valve.	1: Normal • 2: Opposite	1 - 2	2
P33	Rotation of the air recirculation valve.	• 1: Normal • 2: Opposite	1 - 2	1
P34	Reserved.	-	-	-
P35	Reserved.	-	-	-
P36	Reserved.	-	-	-
P37	Reserved.	-	-	-
P38	Opening hysteresis of the proportional motor water valve (%).	Minimum temperature deviation () at which the proportional motor water valve is opened (minimum opening of the water valve = P25 P38).	0 - 255	10

Parameters	Parameter Name	Description	Value Interval	Standard Value
P39	Controller parameter of the Proportional motor water valve.	P and I portion of the proportional motor water valve controller.	0 - 255	60
P40	Reserved	-	-	-
P41	Auto Start	Automatically turns the controller on when the engine is running. • 0: Automatic Start OFF • 1: Automatic start ON	0 - 1	0
P42	No ventilation below the set-point.	Turn off ventilation when the room temperature is below the set-point. • 0: ventilation always active • 1-99: turns ventilation off at the selected value minus the set-point.	0 - 99	0
P43	No ventilation below the set-point: temporary ventilation ON.	In the case of (P42> 0), it turns on the ventilation when the ambient temperature is well below the set-point for a few seconds. Ventilation ON, in seconds.	10 - 255	15
P44	No ventilation below the set-point: temporary ventilation OFF.	In the case of (P42> 0), it turns on the ventilation when the ambient temperature is well below the set-point for a few seconds. 10-255: ventilation OFF, in minutes.	10 - 255	15
P45	Convection heating on the floor.	Floor heating availability • 0: not available • 1: available	0 - 1	1
P46	Reserved.	-	-	-
P47	Reserved.	-	-	-
P48	Reserved.	-	-	-
P49	Upper range Recirculation Automatic Mode.	Hysteresis upper to the set-point for automatic air recirculation mode.	1 - 5	2
P50	Lower range Recirculation Automatic Mode.	Hysteresis lower to the set-point for automatic air recirculation mode.	1 - 5	2
P51	Valve Recirculation Time open.	Time in seconds for open air recirculation valve in automatic mode.	1 - 90	20
P52	Valve Recirculation Time closed.	Time in minutes for closed valve in automatic mode.	1 - 90	60

Parameters	Parameter Name	Description	Value Interval	Standard Value
P53	Operating mode Motor water valve.	• 0: Water valve control in ON/OFF mode. • 1: Proportional mode water valve control.	0 - 1	1
P54	Return temperature update time.	Time in seconds that the return temperature is updated on the display.	0 - 30	10
P55	External temperature sensor	Type of sensor used: • 10K (0). • 3K (1). • 30K (2). • ON/OFF (3). • Disable (4).	0 - 4	0
P56	Value above SETPOINT in which the evaporator fan speed changes from low to high on the lower floor.	Threshold value in °C, in which the evaporator fan changes from the first to the second level. Scale: 10: 1 (10 ≙ 1 °C)	10 - 100	20
P57	Hysteresis value at which the evaporator fans change speed from high to low on the upper floor.	Hysteresis speed of the evaporator fan (from level 2 => 1). Scale: 10:1, meaning 10 ≙ 1 °C	1 - 50	10
P58	NTC 1 Ice sensor Upper floor	Type of sensor used: • 10K (0). • 3K (1). • 30K (2). • ON/OFF (3). • Disable (4).	0 - 4	3
P59	NTC 2 Ice sensor Upper Floor	Type of sensor used: • 10K (0). • 3K (1). • 30K (2). • ON/OFF (3). • Disable (4).	0 - 4	4

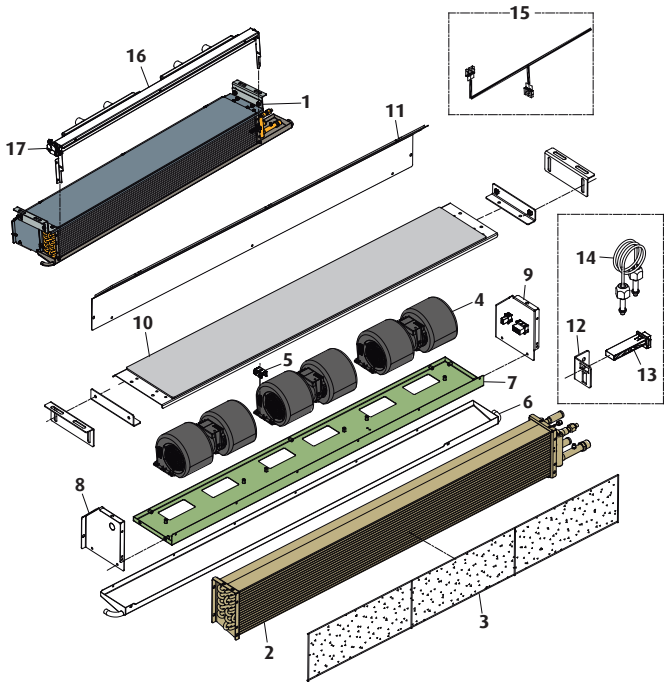
Parameters	Parameter Name	Description	Value Interval	Standard Value
P60	NTC 3 Ice Sensor Lower Floor	Type of sensor used: • 10K (0). • 3K (1). • 30K (2). • ON/OFF (3). • Disable (4).	0 - 4	3
P61	NTC 4 Ice Sensor Lower Floor	Type of sensor used: • 10K (0). • 3K (1). • 30K (2). • ON/OFF (3). • Disable (4).	0 - 4	4
P62	Maximum difference between Floor Set-point Upper and Lower.	Maximum allowed difference between the Upper and Lower Floor Set-point.	0 - 5	5
P63	Evaporator Fans	Type of Fan used: • Brush fan (0). • Electric fan (1).	0 - 1	1
P64	Condenser Fans	Type of Fan used: • Brush fan (0). • Electric fan (1).	0 - 1	0
P65	ECU configuration selection.	Configuration being used: • Parameter disabled (0). • Standard (1). • Basic DD (2). • Basic DD without heating (3). • Basic SD (4). • Basic SD without heating (5). • Cabriolet (6).	0 - 6	0
P66	Re-Heat (Window Defroster)	Re-Heat availability: • 0: not available • 1: available 8°C • 2: available 0°C	0 - 2	0

Parameters	Parameter Name	Description	Value Interval	Standard Value
P67	Re-Heat function time	Compressor function time in the Re-Heat function in minutes.	1 - 20	5
P68	Re-Heat inactivity time	Re-Heat inactivity time in minutes.	5 - 255	5
P69	Inverts information on the display	Information on the upper floor goes to the right side of the display and the information on the lower floor goes to the left side. • 0: standard display • 1: inverted display	0 - 1	0
P70	Select Single or Double Deck	Configuration being used: • Double Deck (0). • Single Deck (1).	0 - 1	0
P71	Second CAN network	0 - Disabled extra communication 1 - Enabled second CAN network 2 - Enabled Marcopolo CAN protocol	0 - 2	0
P72	Temperature reading offset	Adjusts ADC points to compensate reading	0 - 255	25
P73	Maximum time function is enabled Re-Heat	Maximum time the function will be enabled in minutes	0 - 255	25
P74	High pressure transducer	Enables or disables pressure reading by transducers • 0: Sensors disabled; • 1: Sensors enabled.	0 - 1	0
P75	Low pressure transducer	Enables or disables pressure reading by transducers • 0: Sensors disabled; • 1: Sensors enabled.	0 - 1	0
P76	AC purifier UV disinfection system	Enables UV purifier AC system fault detection (disables CAN address selection) • 0: UV purifier AC disabled (addressing available) • 1: UV purifier AC enabled (addressing unavailable)	0 - 1	1

5- Technical Data Sheet

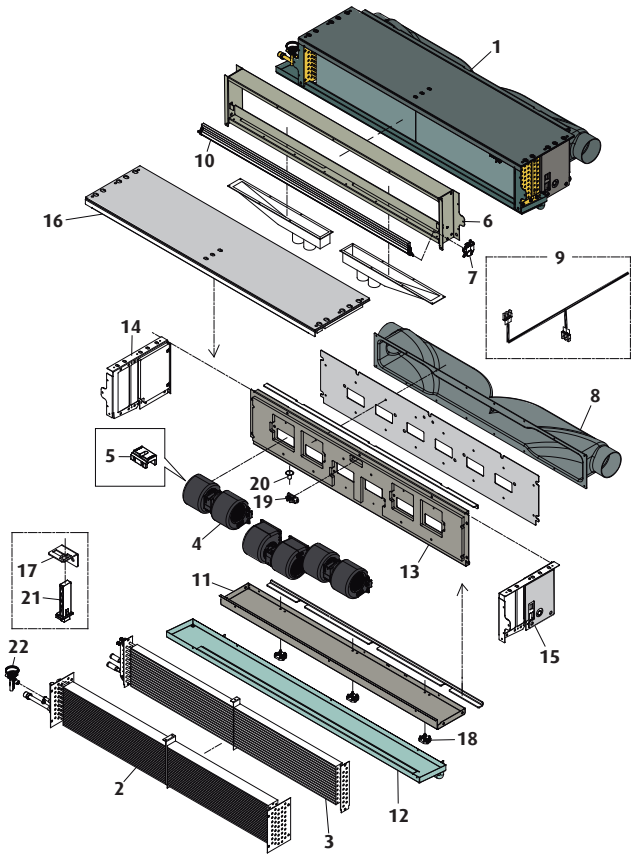
Componente	Features	CC430 P3
AIR CONDITIONING	Cool capacity	195.000 BTU/h (57Kw)
	Heat capacity	136.500 BTU/h (40Kw)
REFRIGERANT FLUID	Type	R134a
	Quantity	7,7 kg (+ 1,0 kg Defroster)
EVAPORATOR	Fan Model	Centrifugal
	Fan Quantity	6 Upper / 3 Lower
	Air Flow	6.600 m^3/h / 3.300 m^3/h
	Nominal Current	51A / 25A
CONDENSER	Fan Model	Axial
	Fan Quantity	4
	Air Flow	11.600 m^3/h
	Nominal Current	34A
COMPRESSOR	Model (Alternative type)	Bock FKX 40/655K
	Displacement	650 CM^3
	Allowed Maximum Rotation	3.500 RPM
	Lubricant Oil	POE
	Quantity of liters	2 Liters
CLUTCH	Type	Eletromagnetic
	Voltage	24V

5.1- Upper Evaporator Components



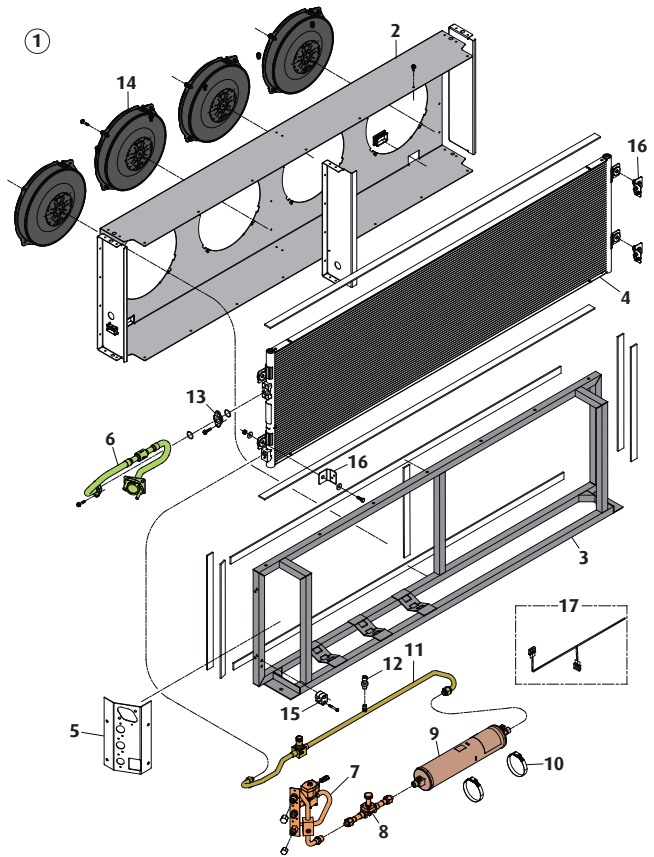
ITEM	DESCRIPTION	QTY.
1	CC430 P3/T3 24V Upper Evaporator Module w/ Renewall w/ Heating - Electronic Fan	1
2	CC430 Right Side Upper Evaporator Coil w/ Heating	1
3	CC430 - 1393 X 192 Upper Air Filter Upper Evaporator	1
4	1 110 M^3/H - Spheros 24V Electronic Radial Fan	3
5	Radial Fan Clip	6
6	CC430 Right Side Upper Evaporator Tray	1
7	CC430 Lower Closure Upper Evaporator	1
8	CC430 - ELITE Upper Evaporator RH II Side Closure	1
9	CC430 - ELITE Side Closure I Right Side Upper Evaporator	1
10	CC430 - UVENT Upper Closure Upper Evaporator	1
11	CC430 Closing the Upper Evaporator Fans	1
12	EPCOS 007-00169-000 Temperate Sensor Support	2
13	EPCOS 3K Temperate Sensor - SETBUS Controller	2
14	TGEN 3,5TR - DANFOSS Expansion valve	2
15	CC430 Upper Evaporator Module Electric Harness	1
16	Air Renewall Set - DD Top	1
17	Air Renewall - WOORY 24V Electric engine	1

5.2- Lower Evaporator Components



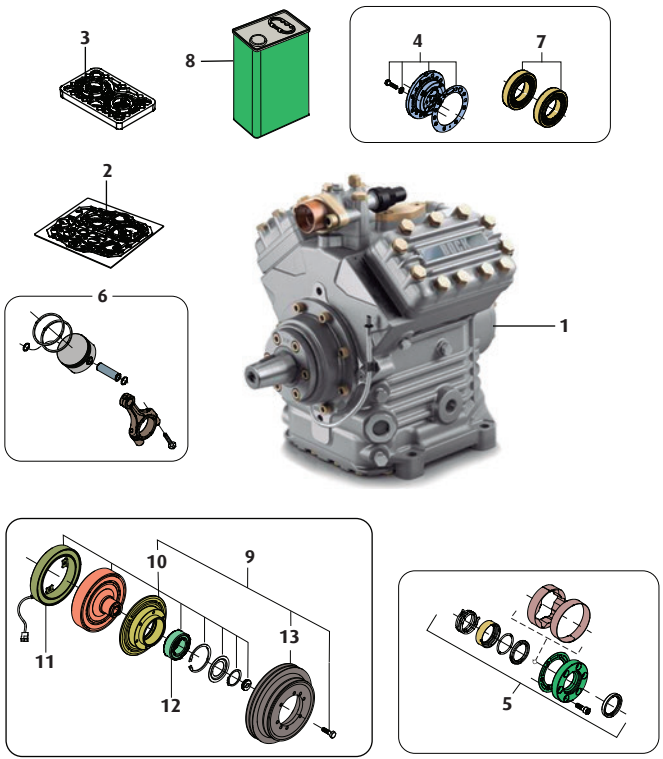
ITEM	DESCRIPTION	QTY.
1	CC430 P3/T3 24V Lower Evaporator Module w/ Renewall w/ Heating - Electronic Fan	1
2	CC430 P3/P4 Lower Evaporator Coil	1
3	Lower Coil Heating Aluminum DD CC430 Right Side	1
4	1 110 M^3/H 24V Electronic Radial Fan	3
5	Radial Fan Clip	6
6	Air Renewall Set DD Lower Decker	1
7	Electric Engine 24V Air Renewall - Woory	1
8	CC430 Lower Evaporator Duct w/ 4 Fans	1
9	CC430 Lower Evaporator Module Electric Harness	1
10	DD Lower Air Renewall Flap	1
11	DD Bottom Closure Complement w/ Heating	1
12	CC430 P3 Bottom Evaporator Welded Tray Set	1
13	Plate for 3 Lower DD Fans	1
14	DD Side Plate of 4 Fans - Right Side	1
15	DD Side Plate of 4 Fans - Left Side	1
16	DD Upper Closing Plate 4 Fans	1
17	EPCOS 007-00169-000 Temperature Sensor Support	2
18	DD Tilting PP Hinge 4 Fans	3
19	Latch Support Judeu (CIRNA Coupling Code 10101046)	1
20	Closing Pin Support (CIRNA Axle 10101045)	1
21	EPCOS 3K Temperate Sensor - SETBUS Controller	2
22	TGEN 3,5TR - DANFOSS Expansion valve	1

5.3- Condenser Components



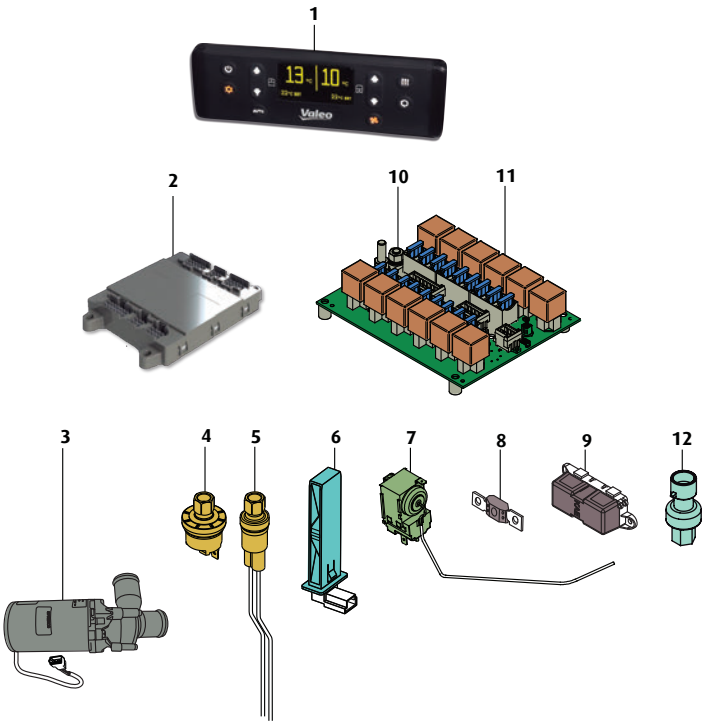
ITEM	DESCRIPTION	QTY.
1	MPHE CC430 24V Condenser Module	1
2	Closing Plate - CC430 MPHE Condenser	1
3	CC430 MPHE Condenser Structure	1
4	MPHE CC430 - 1800 X 27 X 520 Condenser Coil	1
5	Connection Support - CC430 MPHE Condenser	1
6	Tube Weldable Retention Valve Set for 7/8" Straight Tube 165 mm	1
7	Dryer Filter Tube Set X Liquid Line - CC430 MPHE	1
8	CASTEL 5/8" 1078/5S Solenoid Valve Tube Set	1
9	Liquid Tank / Dryer Filter/Liquid Display - REF. SG 11119	1
10	Ajustable Clamp 76-95 Stainless Steel AISI 304 - FLEX - Strip 14	2
11	Coil Tube Set X Liquid Tank	1
12	2CP45-4 Pressure Sensor	1
13	Condenser Coil Adapter Discharge Connection	1
14	Axial Fan 24V 12" Electronic 3100 M^3/H - SPAL - V1	4
15	STAUFF Group 2 STD - Ø16MM - 216 PP - REF. 22 Clamp Body	1
16	MPHE Coil Support - CC430 MPHE Condenser	4
17	CC430 Condenser Module Electronic Fan Electric Harness w/ Temperature Sensor	1

5.4- BOCK FKX 40/655K - 755K Compressor Components



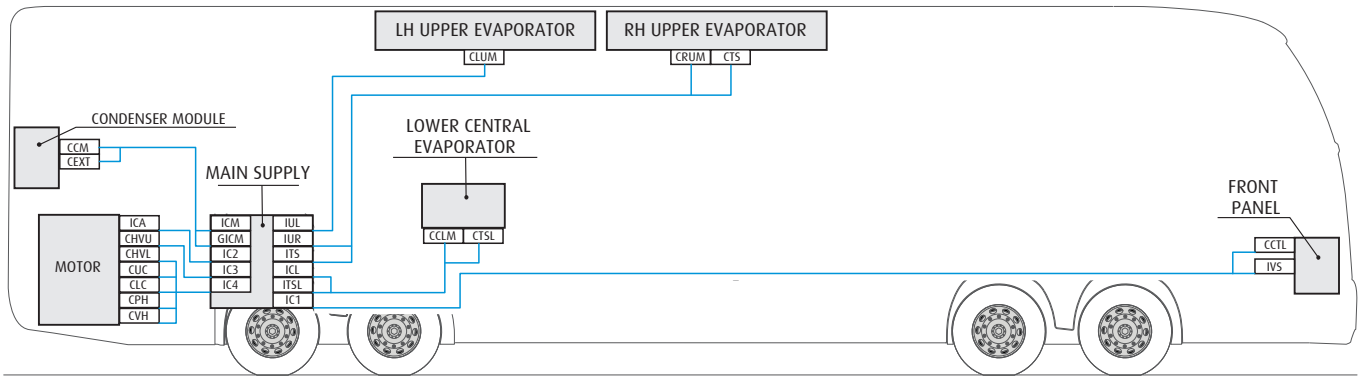
ITEM	DESCRIPTION	QTY.
1	BOCK FKX40/655K - 755K Compressor	1
2	Compressor Sealing Gaskets Set	1
3	Compressor Valve Board Set	2
4	Compressor Oil Pump	1
5	Compressor Sealing Seal	1
6	BOCK FKX40 Piston Set	4
7	Compressor Bearing	2
8	Compressor Oil	2
9	Compressor Clutch Set	1
10	Clutch kit without Pulley	1
11	Magneto	1
12	Bearing	1
13	Pulley 2A/2B	1

5.5- Electric Components



ITEM	DESCRIPTION	QTY.
1	SC 2000 Controller	1
2	A/C DD ECU Controller Module	1
3	24V Water Pump	1
4	High Pressure Switch	1
5	Low Pressure Switch	1
6	External Temperature Sensor	1
7	EPCOS 3K Temperature Sensor	1
8	Fuse 175A	1
9	Fuse Bracket	1
10	24V Electric Control Board	1
11	Relay	-
12	2CP45-4 Pressure Sensor	1

6- CC 430 P3 Electric Diagram



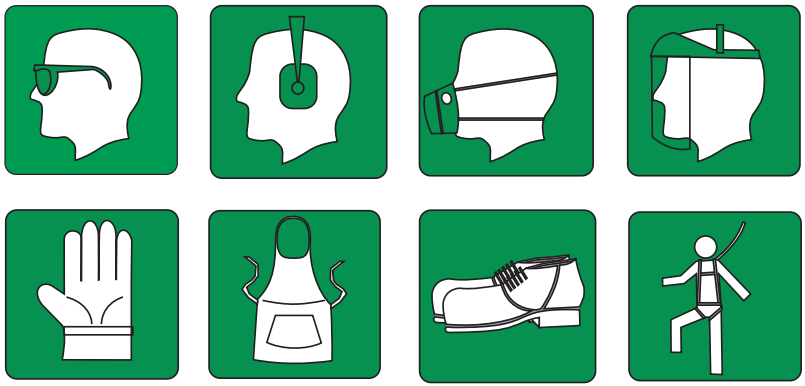
ACRONYM	DESCRIPTION CONNECTORS
CCLM	LOWER CENTRAL MODULE CONNECTOR
CCM	CONDENSER MODULE CONNECTOR
ICM	CONDENSER MODULE CONNECTOR
CEXT	EXTERNAL TEMPERATURE CONNECTOR
CHVL	LOWER HEATING VALVE CONNECTOR
CHVU	TOP HEATING VALVE CONNECTOR
CLUM	UPPER LEFT MODULE CONNECTOR
CRUM	UPPER RIGHT MODULE CONNECTOR
CLC	LOWER CONVECTOR CONNECTOR
CUC	TOP CONVECTOR CONNECTOR
CTS	CONNECTOR TEMPERATURE SENSORS
CTSL	LOWER SENSORS TEMPERATURE CONNECTOR
CPH	HEATING PUMP CONNECTOR
CVH	HEATING VALVE CONNECTOR

ACRONYM	DESCRIPTION CONNECTORS
GICM	CONDENSER MODULE INTERFACE GROUNDING
IC1	INTERFACE CONNECTOR 1
IC2	INTERFACE CONNECTOR 2
IC3	TOP HEATING INTERFACE CONNECTOR
IC4	LOWER HEATING INTERFACE CONNECTOR
ICA	COMPRESSOR / ALTERNATOR INTERFACE
IVS	VEHICLE SIGNAL INTERFACE
ITS	INTERFACE TEMPERATURE SENSORS
ITSL	LOWER TEMPERATURE SENSORS INTERFACE
IUL	UPPER LEFT EVAPORATOR INTERFACE
IUR	UPPER RIGHT EVAPORATOR INTERFACE
ICL	LOWER CENTRAL EVAPORATOR INTERFACE
CCTL	CLUTCH CONNECTOR

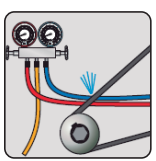
7- Personal Protection

Air conditioning systems offers chemic, mechanic and electric risks.

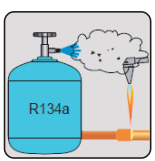
It is mandatory to wear IPE (Individual Protection Equipment), picture 1 to protect yourself from refrigerant gas, refrigerant oil, battery acid, waste launched, engine high temperature and noise.



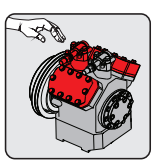
High Pressure:
The refrigerant in liquid state and high pressure causes a potential risk. When the refrigerant is sprayed to natural air, it can cause serious injuries to eyes and skin.



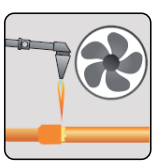
Hoses:
Check if manometer hoses are in good conditions, when holding them; stay far from belts, pulleys and hot surfaces.



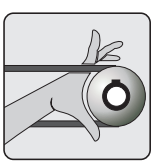
Toxic Gases:
The refrigerant gas along with flame becomes into toxic gases and can cause very serious breathing illness. Take special care in closed places, if gases scape somehow (leakage) and then it can cause no toxygen in the air.



Hot Surface:
The compressor discharges, exhaust pipes and other engine components can be extremely hot.



Welding:
Welding must be done carefully; it causes burns and spray toxic gases out. Provide ventilated places to do it.



Rotation Components:
The fans, pulleys and belts are not visible under certain conditions. Special care must be taken when putting your hands near them.

8- Product Discard

Concerned about sustainability at Valeo Climatização do Brasil - Veículos Comerciais S/A guides its customers and its authorized service network to discard products in an environmentally sound and safe manner.

Proper disposal of the product or components at the end of their useful life will contribute with the preservation and pollutinon reduction of the environment, creating economic growth through the Reverse Logistics Program.

According to Law 12,305 / 2010, the environmentally adequate destination of components (parts, oil, refrigerant) is required.

It is the responsibility of all to ensure that products and components are sent to appropriate treatment to companies approved by the environmental agencies.

For more information about our Reverse Logistics Program, please see our website: **http://www.valeo-thermalbus.com/br**

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