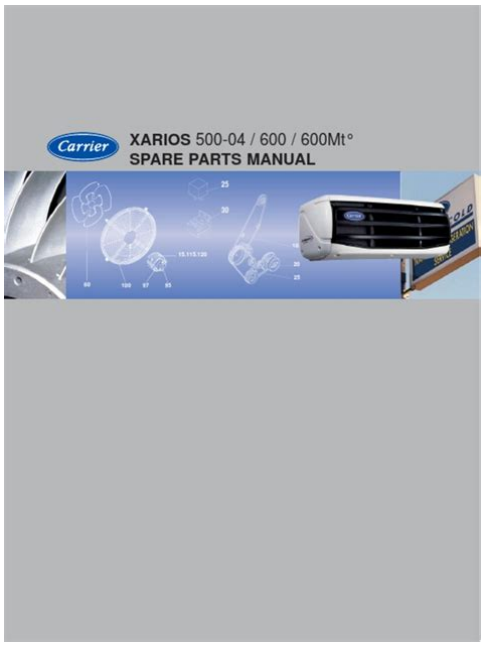
Carrier xarios 600 manual



File Name: Carrier xarios 600 manual.pdf
Size: 4388 KB
Type: PDF, ePub, eBook
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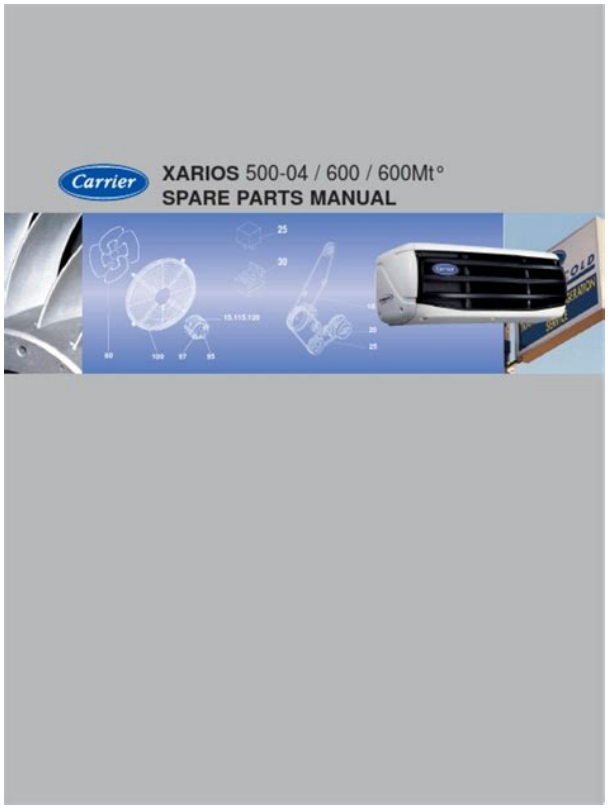

Discover everything Scribd has to offer, including books and audiobooks from major publishers. Start Free Trial Cancel anytime.Browse Books Site Directory Site Language English Change Language English Change Language. BEFORE USING THIS REFRIGERANT UNIT, read carefully all safety information explained 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 Always use adequate Personal Protective Equipment before doing anything on this refrigerant unit, as explained in this manual. Working at height Take all necessary safety precautions when accessing this refrigeration unit use safe ladders, working platforms with appropriate guards. When the unit is running beware of belts and fans that are moving. Before servicing refrigeration unit, make sure the main power switch is on the OFF position. Ensure the unit will not restart. 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. Before working in the electrical control box, it is required to control the lack of tension.Refrigerant The refrigerant contained in this refrigeration unit can cause frosbite, severe burns or blindness in case of projection and direct contact with the skin or eyes. In contact with flame or heat refrigerant generate toxic gas. Refrigerant handling must be done by qualified people. Keep any flame, any lighted object or any source of sparks away from the refrigerant unit. Always use Personal Protective Equipment when handling refrigerant safety clothes, safety gloves and safety glasses.http://amoosetracksmanor.com/userfiles/eclipse-repair-manual-download.xml

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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 Beware when operating closed from cold or hot components. Always use adequate safety gloves when doing any maintenance on this refrigeration unit. Cuttings Beware when handling or operating closed from parts that could be sharp coils, evaporators, clamps for example. Environment Think about protection of environment during all the life of this refrigeration unit. 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. When disposing this refrigerant unit do it in an environmentally sound way and in accordance with current regulations. 12 CAUTION Under no circumstances should anyone attempt to repair the Logic or Display Boards. Should a problem develop with these component, contact your nearest Carrier Transicold dealer for replacement. 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.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. Once the controller remote Command within the cab of the truck is set at the desired temperature, the unit will operate automatically to maintain the desired temperature within very close limits.,, safety clothes This manual contains Operating Data, Electrical Data and Service Instructions for the van refrigeration units listed in Table 21.http://www.dmkaudit.sk/101/upload/eclipse-run-indexer-manually.xml

Also Table 21 charts some significant differences between these models. Two types of drive are available The control system automatically selects cooling and heating cycles as necessary to maintain the desired temperature. The evaporator assembly consists of an evaporator coil, an expansion valve, one defrost thermostat termination switches and an electrical evaporator fan motor, one starting valve and a optional injection valve. Condenser closing valve HGS2 14. Liquid line fitting 15. Excessive temperature on moto compressor or standby motor winding Overload relay Electronic relay O.L.P. overload protector EXCEPT for Xarios 300ry in 3 phases YES YES NO YES YES Cutout 0.2 bar R404A Timer 5 mn Selfprotected opening Selfprotected opening See electrical wiring diagram Selfprotected opening Selfprotected opening YES 11. Clutch malfunction road exces Electronic relay sive current draw YES 12. Clutch malfunction road insuffi Electronic relay cient current draw YES Detection of min.The indicator lights up red in the event of a malfunction. When the battery voltage is too low, a failsafe system shuts down the unit. Unit restart is automatic and timedelayed if the voltage rises to the normal level see Figure 214 2.7.2 Keypad The keypad comprises six keys enabling the operator to activate various functions, display operating data and to modify operating parameters. The cab command is mounted remote in the cab. The command comprises the green and red LED readouts, the keypad and keypad interface see Figure 214. WARNING Manual defrost control key Unit startup key in standby or road mode Unit shutdown key in standby or road mode On road operation, the unit can be shut down with the ignition key. The display changes parameter each time the SET key is pressed. The controller card and cab command must never be repaired by the driver! see section 3.16.

In the event of a malfunction with any of their components please contact your nearest Carrier Transicold distributor so that they can be replaced. Decrement key for selected data Increment key for selected data 217 2.7.3 Digital display The digital display comprises 4 alphanumeric characters. The default value displayed is the box temperature. The microprocessor enables selection of the display in degrees Celsius or Fahrenheit see photo Road control box. Decrease the setpoint Press the SET key to go to the next configuration. Increase the setpoint NUMBER OF EVAPORATOR FAN FAn1 1 fan FAn2 2 fans FAn3 3 fans Validates setpoint temperature. Returns to display of the box temperature. It is possible to increase or decrease the setpoint by whole numbers until the required setpoint is displayed. If display stays highlighted, this indicates the setpoint displayed has not been validated. Press the SET key to go to the next configuration. In defrost mode, the microprocessor displays “dF” on the cab command, which no longer displays the setpoint. DEFROST Defrost is fully automatic but can be manually controlled if authorized by the defrost thermostat. The defrost cycles are fully managed by the integrated microprocessor. OPTIONAL STANDBY HEATING KIT hSOF option standby heating kit not installed During the defrost phase, the evaporator fan shuts down.

The condenser fan is controlled by the microprocessor.During the defrost phase, the readout of the cab command indicates “dF”. Press the SET key to go to the next configuration. a. Defrost Defrost mode is activated by the microprocessor automatically or manually by the operator. The cycle stops when the defrost termination thermostat DTT is activated. The defrost interval timer is reset to zero when the defrost cycle is terminated, for whatever reason. If the defrost cycle does not terminate after 45 minutes, the cycle terminates automatically and displays alarm code A14. Validate modified settings.

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Return to display of box temperature. Press the SET key to go to the next configuration. 0 complete deletion of defrost. 0.5 to 0.9 decreases time interval between 2 auto defrost cycles in relation to calculated time coefficient 1. IMPORTANT If when settings are adjusted, no key is activated within 5 sec.AUT automatic defrost optimized by the microprocessor according to the type of cargo transported variable intervals. 219 1.1 to 1.5 increases the time interval between 2 automatic defrost cycles in relation to calculated time coefficient 1. Malfunction evaporator 1 fan control. Malfunction heating road 1 control option. 1 H, 2 H,. 6 H Forced interval between each defrost expressed in hours. Malfunction defrost valve control HGS1. Malfunction quench valve control BPV. IMPORTANT If when settings are adjusted, no key is activated within 5 sec.All changes made are recorded. Malfunction heating valve control HGS2. High temperature alarm. d. Minimum shutdown only on standby The minimum shutdown compressor is 5 minutes.If the battery voltage drops below 10 V for 12 volts unit Thermal breack down standby compressor PTO. 20 V for 24 votls unit Static control fault heating standby 1 control option.Access to malfunction codes Open circuit detected standby compressor. Malfunction management Open circuit detected condenser fan CFM. Press SET for 5 seconds enables access to malfunction codes. Open circuit detected heating road 1 option. Open circuit detected defrost valve HGS1. MALFUNCTION CODES Red LED flashes Open circuit detected liquid injection valve BPV. No malfunction. Unit in operation. Open circuit detected hot gas valve HGS2. Cutout lowpressure switch LP. Open circuit detected drain water resistor DWR1.

Cutout highpressure safety switch HP. Open circuit detected heating standby option. Cutout electric motor overload protection or overload relay. In case of several simultaneous malfunctions, use Malfunction road operation clutch control.

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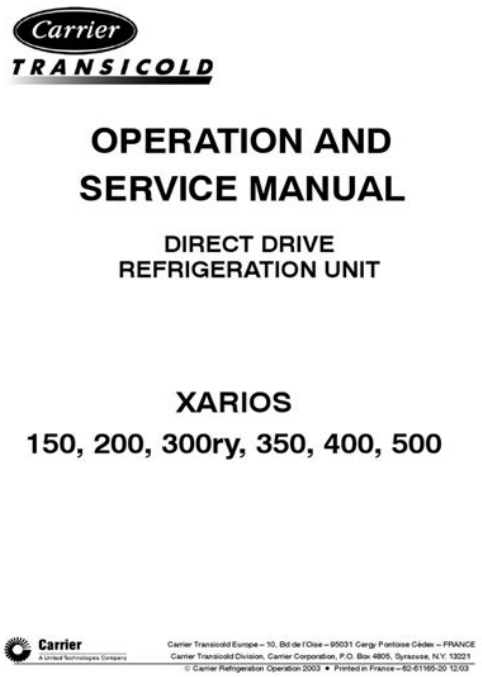
Carrier
TRANSICOLD

OPERATION AND
SERVICE MANUAL

DIRECT DRIVE
REFRIGERATION UNIT

XARIOS
150, 200, 300ry, 350, 400, 500

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Malfunction standby contactor control MC. Other data Press SET for 5 sec. enables access to malfunction codes The unit does not run until the malfunction has disappeared or been corrected. Except for “Twin power supply” where the unit starts in Road mode. Display of codes for malfunctions Immediate display in case of malfunction Display of cab command software version Display of software versions Malfunction evaporator temperature probe RAS Display of road hourmeter Road led ON Low battery voltage low alarm 22 bars HP2 is switch and the fan is switch on. It is closed in defrost and heating mode to increase the capacity. The main components of the system are the reciprocating compressor, aircooled condenser, thermostatic expansion valve, direct expansion evaporator, and hot gas solenoid twoway. The compressor raises the pressure and temperature of the refrigerant and forces it into the condenser tubes. The condenser fan circulates surrounding air over the outside of the condenser tubes. Heat transfer is thus established from the refrigerant gas inside the tubes to the air condenser flowing over the tubes. The condenser tubes have fins designed to improve the transfer of heat. This removal of heat causes the refrigerant to liquefy; liquid refrigerant flows from the condenser to the receiver. The refrigerant then flows through the filterdrier, where an absorbent keeps it dry and clean. The liquid enters than to the thermostatic expansion valve with external pressure equalizer which regulates the flowrate of refrigerant towards the evaporator in order to obtain maximum use of the evaporator heat transfer surface. When refrigerant vapor is compressed to a high pressure and temperature in a compressor, the mechanical energy necessary to operate the compressor is transferred to the gas it is being compressed. This energy is refereed to as the ”heat of compression ” and is used as the source of heat during the defrost and heating mode.

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Case 1 With condenser closing solenoid option. When the microprocessor activates heating or defrost, the hot gas HGS1 twoway solenoid energizes, and if HP2 is open the condenser closing solenoid HGS2 energizes, closing the port to the condenser and opening a port which allows heated refrigerant vapor to flow directly to the evaporator coil. Case 2 Without condenser closing solenoid option. When the microprocessor activates heating or defrost, the hot gas solenoid HGS1 twoway energizes, opening a port which allows heated refrigerant vapor to flow directly to the evaporator coil. The main difference between heating and defrosting is that, when in heating mode all the evaporator fans continue to run, blowing the air around the heated coils to heat the product. When defrosting, the evaporator fans stop, allowing the heated vapor to defrost any ice buildup there may be. The evaporator tubes have aluminium fins to increase heat transfer; therefore heat is removed from the air circulated through the evaporator. Relief valve RV 12. Pressure control switch HP2 13. High pressure switch HP1 14. Standby discharge check valve 15. Standby discharge check valve 12. Pressure control switch HP2 14. High pressure switch HP1 15. Relief valve 16. Standby discharge check valve 17. Before startup, check Check the belt tension of the compressor drive belts. The digital display of the cab command displays the box temperature. Connect the unit to the power network. Startup and box temperature control Press the ON key to start the unit startup is timedelayed for 40 seconds. Check the temperature setpoint is correct by pressing the SET key; the setpoint temperature is highlighted on the digital display. Enter a new setpoint if necessary see temperature setpoint adjustment. In the event of difficulty on startup, check that The road fuses have not blown. Unit shutdown The temperature selected by the cab command has not been affected. Press the OFF key.

Unit shutdown If you have difficulty in starting up, check Turn off the ignition key or press the OFF key. The setpoint temperature selected on the cab command has not been reached. The standby fuses have not blown. 31 COOLING HEATING There are two control ranges, Frozen and Perishable. See section 2.12 for a description of the heating cycle. The microprocessor automatically selects the mode necessary to maintain box temperature at set point.This prevents the motor from rapid cycling due to changes in air temperature. The presence of a sticker indicates that the oilchange has been correctly carried out in our CARRIER TRANSICOLD plant. NOTE To avoid damage to the earth’s ozone layer, use a refrigerant recovery system whenever removing refrigerant. Service operations are to be carried out according to the following schedule. Service B 4.2 CAUTION Beware of Vbelt and beltdriven components as the unit may start automatically. 4.2.1 Belt tension gauge road compressor A belt tension gauge provides an accurate and easy method of adjusting belts to their proper tension. Properly adjusted belts give long lasting and efficient service. Too much tension shortens belt and bearing life, and too little tension causes slippage and excessive belt wear. It is

also important to keep belts and sheaves free of any foreign material which may cause the belts to slip. The Belt Tension gauge can be used to adjust all belts. The readings which we specify for Carrier Transicold units are applicable only for our belts and application, as the tension is dependent on the size of the belt and distance between sheaves. When using this gauge, it should be placed as close as possible to the midpoint between two sheaves. Change the condenser motor brushes. Only use Ester oil POE approved by CARRIER. Note The evaporator of this unit is equipped with brushless fan motors which don't need to be maintained. 42 Figure 41 Road compressor belt tension Belt tension depends on each kit.

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The most common are copper plating, acid sludge formation, "freezingup" of metering devices by free water, and formation of acids, resulting in metal corrosion. When working with refrigerant use safety glasses and gloves to avoid skin contact or burning. Remember that hoses and copper tube can be hot points when the unit is functionning. 4.5.2 Preparation a. Evacuate and dehydrate only after pressure leak test. Refer to section 4.4. NOTE Once the system is OPEN, it must be evacuated and deshydrated see section 4.5.3. Connect a refrigerant system to the unit to remove refrigerant charge. NOTE Use of a compound gauge is not recommended because of its inherent inaccuracy. REFRIGERANT LEAK CHECKING Once the recovery system is OPEN and repairs completed, leak check the unit by proceeding as follows f. The recommended procedure for finding leaks in a system is with a halide torch or electronic leak detector. Testing joints with soapsuds is satisfactory only for locating large leaks. g. If system is without refrigerant, charge system with refrigerant to build up pressure between 2.1 to 3.5 bar 30 to 50 psig. Remove refrigerant cylinder and check for leak all connections. NOTE Important only the correct refrigerant cylinder must be connected to pressurize the system. Any other gas or vapor will contaminate the system which will require additional purging and evacuation of the high side discharge of the system. h. Remove refrigerant using a refrigerant recovery system and repair any leaks. Heat lamps or alternate sources of heat may be used to raise system temperature. 4.5.3 Evacuation and dehydration procedure a. Remove refrigerant using a refrigerant recovery system. b. The recommended method to evacuate and dehydrate the system is to connect three evacuation hoses to the vacuum pump and refrigeration unit as shown in Figure 43 do not use standard service hoses as they are not suited for evacuation purposes.

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Also, as shown, connect an evacuation manifold with special evacuation hoses to the vacuum pump, to the electronic vacuum gauge and to the refrigerant recovery system. c. Shut off the pump and check to see if the vacuum holds. This operation is to test the evacuation setup for leaks, repair if necessary. d. Open the vacuum pump and electronic vacuum gauge valves, if they are not already open. Start the vacuum pump. Evacuate unit until the electronic vacuum gauge indicates 2000 microns. Close the electronic vacuum gauge and vacuum pump valves. Shut off the vacuum pump. Wait a few minutes to be sure the vacuum holds. e. Break the vacuum with clean dry refrigerant. Use refrigerant that the unit calls for. Raise system pressure to approximately 2 psig. 43 f. Remove refrigerant using a refrigerant recovery system. g. Repeat steps d. to f. h. Evacuate unit to 500 microns. Close off vacuum pump valve and stop pump. Wait five minutes to see if vacuum holds. The correct amount of refrigerant may be added by observing the scales see section 4.6 NOTE Vacuum duration must be at least 8 hours. Purge charging line at outlet valve. Purge charging line at inlet manifold. c. Note weight of refrigerant cylinder. Be sure that the unit is stopped during this operation. d. Open liquid valve on refrigerant cylinder. Open king valve half way and allow the liquid refrigerant to flow into the unit until the correct weight of refrigerant has been added as indicated by scales. Correct charge will be found in section 2.2. NOTE Adding a partial charge a. Place

refrigerant cylinder on scale and note weight. b. Connect charging line from the cylinder to the receiver valve. Purge the line at the cylinder valve. c. Start the unit with the road compressor turning at 2400 rpm. d. Front seat the receiver valve. NOTE The refrigerant R404A must be charged from liquid valve and not vapor. The refrigerant R404A is a blend.

Charging by the vapor valve will change the properties of the refrigerant and affect cooling capacity. e. Add refrigerant by small quantity. It is possible that all liquid may not be pulled into the circuit, as outlined in step d above. In this case, close the cylinder valve front seat and start the unit. Refrigerant will accumulate in the receiver and liquid of the refrigerant cylinder will be succed by the compressor. e. When refrigerant cylinder weight scale indicates that the correct charge has been added, close the manifold valves. 45 f. Back seat the receiver valve. g. Follow the step 4.6.3 and repeat if necessary from step c. 4.6.3 Checking the refrigerant charge Start unit in cooling mode. Run approximately ten minutes. Partially block off air flow to condenser coil so discharge pressure rise to 22 bars R404A. NOTE The seal is done by schraeder, it is not necessary to dehydrate or evacuate it. 4.9.2 Do not use a nitrogen cylinder without a pressure regulator. Cylinder pressure is approximately 165 bar 2350 psi. Replacing high pressure cutout switch 1. 4. 2. c. Installation 5. To install the compressor, reverse the procedure outlined when removing the compressor. If the temperature of the outlet connection seems lower than the temperature of the inlet connection, replace the filterdrier. Pressure switch cutin points are shown in sections 2.3. e. Close valve on cylinder and open bleedoff valve. f. Open cylinder valve. Slowly close bleedoff valve and increase pressure until the switch opens. If light is used, light will go out and if an ohmmeter is used, the meter will indicate open. Open pressure on gauge. Slowly open bleedoff valve to decrease pressure until switch closes light will light or ohmmeter will move. 4.10 CHECKING AND REPLACING CONDENSER FAN MOTOR BRUSHES The fan motor brushes should be checked periodically for cleanliness and wear to maintain proper operation of the fan motors. There is no maintenance on evaporator fan motor. 4.

11 EVAPORATOR COILCLEANING The use of recycled cardboard cartons is increasing. The recycled cardboard cartons create much more fiber dust during transport than ”new” cartons. The fiber dust and particles are drawn into the evaporator where they lodge between the evaporator fins. If the coil is not cleaned on a regular basis, sometimes as often as after each trip, the accumulation can be great enough to restrict air flow, cause coil icing, repetitive defrosts and loss of unit capacity. Due to the ”washing” action of normal defrost the fiber dust and particles may not be visible on the face of the coil but may accumulate deep within. It is recommended to clean the evaporator coil on a regular basis, not only to remove cardboard dust, but to remove any grease oil film which sometimes coats the fins and prevents water from draining into the drain pan. Cardboard fiber particles after being wetted and dried several times can be very hard to remove. Therefore, several washings may be necessary. 2. 1. 1. Brush cap 2. Brush a. Spray coil with a mild detergent solution such as any good commercialgrade automatic dish washer detergent and let the solution stand for a few minutes. Reverse flush opposite normal air flow with clean water at mild pressure. A garden hose with spray nozzle is usually sufficient. Make sure drain lines are clean. b. Run unit until defrost mode be initiated to check for proper draining from drain pan. Figure 46 Fan motor brushes 4.12 CONDENSER COILCLEANING To check brushes proceed as follows a. With unit off and battery disconnected, remove brush cap item 1; 2 per motor. See Figure 46. b. Remove brushes item 2; 2 per motor and check the length of the brush. This dust could prevent a good contact between the brushes and collector. d. Remove the back cover of the motor and inspect the collector. If the commutator is heavily grooved, polish it using fine sandpaper; do not use abrasive paper.

Wipe out any accumulation of greasy material using a clean rag dampened with solvent. Reassemble the motor; install new brushes and replace cap. The evaporator fan motor is a brushless fan motor. 47 Remove all foreign material from the condenser coil by reversing the normal air flow. Air is

pulled in through the front and discharges over the engine. Compressed air or water may be used as a cleaning agent. It may be necessary to use warm water mixed with any good commercial dishwasher detergent. Rinse coil with fresh water if a detergent is used. 4.13 HOT GAS TWOWAY SOLENOID AND CONDENSER CLOSING SOLENOID TWOWAY c. Check for foreign material in valve body. 4.13.1 e. Tighten enclosing tube. If the valve has been removed from the circuit, check for eventual leaks. Replacing solenoid coil It is not necessary to pump the unit down to replace the coil see Figure 47. a. Remove coil snap cap, voltage plate and coil assembly. Disconnect leads and remove coil junction box if necessary. b. Verify coil type, voltage and frequency. This information appears on the coil voltage plate and the coil housing. c. Place new coil over enclosing tube and then install voltage plate and snap cap. d. Check for damaged plunger and Oring. If Oring is to be replaced, always put refrigerant oil on Orings before installing. f. Install coil assembly, voltage cover and snap cap. g. Evacuate and dehydrate the circuit. h. Install a complete refrigerant charge. i. Start unit and check operation. 4.14 ADJUSTING THE ROAD COMPRESSOR PRESSURE REGULATING VALVE CPR The CPR valve is not factory preset and need adjustment. It is necessary to adjust the valve during commissionning, proceed with the following outline CAUTION When adjusting the CPR valve, the unit must be running in heating or defrost mode and at 2400rpm compressor speed. This will ensure a suction pressure above the proper CPR setting. Do not damage or over tighten the enclosing tube assembly.

Figure 47 Hot gas twoway solenoid or Condenser closing solenoid Twoway 4.13.2 Replacing solenoid valve internal parts If the hot gas solenoid is to be replaced, or if a service operation is scheduled on the internal components of the valve, the refrigerant must be evacuated. a. Remove and store the refrigerant charge in an evacuated container see section 4.3. b. Remove coil snap cap, voltage cover and coil assembly. Remove the valve body head. 48 c. With an 8 mm Allen wrench, loosen the jam nut Figure 48, item 2.. d. Using the 8 mm Allen wrench, adjust the setting screw. To raise the suction pressure turn the setting screw item 3. clockwise; to lower the suction pressure, turn the setting screw counterclockwise. Refer to section 2.3 for CPR valve setting. e. When the setting has been adjusted, tighten the jam nut securely against the setting screw item 3.. This will prevent any movement of the setting screw due to vibrations in the unit. Any temperature increase of the sensor can not open more the expansion valve. 3. The thermal expansion valve is an automatic device which maintains constant superheat of the refrigerant gas leaving the evaporator regardless of suction pressure. The valve functions are a automatic response of refrigerant flow to match the evaporator load and b prevention of liquid refrigerant entering the compressor. This area must be clean to ensure positive bulb contact. Boards should always be handled by their edges, in much the same way one would handle a photograph. This not only precludes the possibility of ESD damage, but also lowers the possibility of physical damage to the electronic components. Although the microprocessor boards are fairly rugged when assembled, they are more fragile when separated and should always be handled carefully. When welding is required on the unit frame, or on the front area of the trailer, ALL wiring to the microprocessor MUST be disconnected.

When welding is performed on other areas of the truck and van, the welder ground connection MUST be in close proximity to the area being welded. It is also a good practice to remove both battery cables before wedding on either the unit frame or the truck to prevent possible damage to other components such as the alternator and voltage regulator. If irritation occurs, call a physician. SKIN CONTACT wash contact areas with soap and water. INHALATION not expected to be a problem. INGESTION not expected to be a problem. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposure. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. SPECIAL PROTECTIVE EQUIPMENT for fires in enclosed areas, fire fighters must use selfcontained breathing apparatus. UNUSUAL FIRE AND EXPLOSION HAZARDS none. Contain and remove larger spills for salvage or disposal according to applicable regulation. ENVIRONMENTAL PRECAUTIONS prevent spills from

entering storm sewers or drains and contact with soil. PERSONAL PRECAUTIONS see section 8. 7. HANDLING AND STORAGE STORAGE do not store in open or unlabelled containers. RESPIRATORY PROTECTION no special requirements under ordinary conditions of use and with adequate ventilation. EYE PROTECTION normal industrial eye protection practices should be employed. SKIN PROTECTION no special equipment required. However, good personal hygiene practices should always be followed. 10. STABILITY AND REACTIVITY HAZARDOUS DECOMPOSITION PRODUCTS carbon monoxide in case of fire 13.In addition, it can be disposed of at an approved waste disposal facility. Land farming and processing through sewage treatment facilities may be available disposal options but necessary approvals must first be obtained from appropriate regulatory authorities. Specific characteristics of the waste at the time of disposal may affect the availability of the above options.