ADVANCED TEMPERATURE CONTROL

TRUCK REFRIGERATION SYSTEMS

INSTRUCTION MANUAL

M960141

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ADVANCED TEMPERATURE CONTROL

HEALTH & SAFETY

1. Advanced Temperature Control Systems are designed to operate using an environmentally friendly refrigerant.

2. When installed the system is always under pressure and should only be serviced by a qualified refrigeration technician.

3. Advanced Temperature Control Systems contain moving parts which can cycle on and off without warning.
   Caution must be taken when working around these parts.

4. During system operation some components generate heat and may be hot to touch.

5. Advanced Temperature Control electric standby systems require electric power. Service on this equipment should be performed by a qualified technician.

ADVANCED TEMPERATURE CONTROL

UNIT REGISTRATION INFORMATION

1 UNIT MODEL

2 EVAPORATOR SERIAL NUMBER

3 CONDENSER SERIAL NUMBER

4 STANDBY COMPRESSOR SERIAL #

5 IN-TRANSIT COMPRESSOR SERIAL #

6 INSTALLATION DATE

7 IN SERVICE DATE

8 INSTALLER

ADDRESS

9 CUSTOMER

ADDRESS

10 IN SERVICE DEALER

11 SIGNATURE IN SERVICE DEALER

ADVANCED TEMPERATURE CONTROL

SERVICE RECORD

ADVANCED TEMPERATURE CONTROL
OPERATING INSTRUCTIONS

PRODUCT LINE DESCRIPTION

ADVANCED TEMPERATURE CONTROL (A.T.C) manufactures seven major transport refrigeration systems described as SERIES 8, SERIES 12, SERIES 14, SERIES 15, SERIES 16 SERIES 18 and SERIES 20.

Systems are available for over-the-road operation or with electric standby (plug-in) when cargo temperatures must be maintained while the vehicle is stationary.

Additional features are hot water heat and electric heat. Units with hot water heat or electric heat can have a performance range of -4 degrees Fahrenheit to 68 degrees Fahrenheit depending on the model.

Temperature range performance statistics can only be achieved if the cargo area is insulated to acceptable industry standards. For information on proper insulation contact your local distributor.

OPERATING METHOD

Once activated all systems operate automatically. The unit will continue to operate until the set point on the controller is reached, after which it will cycle on and off as required to maintain the pre-selected temperature.

Once the selected box temperature has been reached a red indicator light on the controller panel will come on.

CONTROL CENTRAL CONSOLE

Air temperature in the cargo area is displayed on the CONTROL CENTRAL console and will fluctuate in a narrow range at above the thermostat set point. CONTROL CENTRAL is extremely sensitive to air temperature changes so compressor operation, defrost cycling even door opening will cause some change in displaying temperature. THIS IS NORMAL. Air temperature changes may change significantly for short time periods – you should only be concerned if the displayed air temperature fails to return to the operating range.

ADVANCED TEMPERATURE CONTROL

OPERATING INSTRUCTIONS

CONTROL CENTRAL OPERATING SWITCHES

ON/OFF — **Activates refrigeration or heating system. Once activated CONTROL CENTRAL will continue to display the air temperature in the cargo compartment.**

DEFROST — **Only supplied on low temperature units and operates while held as an emergency manual switch. Used to force a defrost cycle under abnormally heavy humidity conditions or during defrost system service checks. The defrost switch is a spring style switch and will reset when released.**

STAND-BY — **Used to engage cooling or heating system when power source is 115V or 230V A.C. electric stand-by (ESB) power, and the vehicle is stationary.**

OVER THE ROAD OPERATION

1. **Position "ON-OFF" switch to "OFF"**
2. **Start the truck engine.**
3. **Position "ON-OFF" switch to "ON".**
4. **Press the controller set button to check the required temperature. If a different temperature is required refer to instructions for setting box temperature.**

ELECTRIC STANDBY OPERATION

1. **Position "STANDBY" switch to "OFF".**
2. **Press the controller set button to check the required temperature. If a different temperature is required refer to instructions for setting box temperature.**
3. **Before plugging in the electric standby, make sure that the voltage and phase of the power source is the same as the unit and that the fuses in the commercial source are not oversized for the compressor.**

ADVANCED TEMPERATURE CONTROL
OPERATING INSTRUCTIONS

ELECTRIC STANDBY OPERATION

4. **Check all electrical connectors, particularly the female receptacle on the plug-in cord, for loose connections or frayed wires. Repair any defects before proceeding. Unit operates from line voltage.**
5. **Plug in the power cord from an A.C. power source to the standby compressor section.**
6. **Position "STANDBY" switch to "0N".**

NOTE: **The power cord supplied should be the only power cord used and under no circumstances should it be substituted or extended. Any extension of this power cord may cause low voltage to the unit rendering it inoperable. The plug-in receptacle must be properly wired and fused for 20A. Failure to heed this warning could result in permanent damage to the stand-by compressor and voidance of warranty. If the cord is worn, replace with A.T.C power cord only.**

DEFROSTING

Under normal operation, refrigeration cycles for both medium temperature and low temperature units will be interrupted automatically to ensure your evaporator coil does not ice-up and block air flow. This is done in two different ways.

MEDIUM TEMPERATURE UNITS

In the event your coil starts to build-up ice (not unusual in high humidity situations) a sensor in the unit will detect this condition, and prevent the compressor from engaging until there is sufficient temperature rise to clear the coil of ice.
During this process your evaporator fan(s) will continue to operate.
The sensor will activate at approximately 12 degrees Fahrenheit (-10 Celsius) and deactivate at 34 degrees Fahrenheit (1 degree Celsius), at which time normal operation of the unit will resume.

ADVANCED TEMPERATURE CONTROL
OPERATING INSTRUCTIONS

LOW TEMPERATURE

Low temperature systems utilize a differential air pressure control to initiate the defrost system.

The "Air Switch" senses the pressure drop between the fan side of the evaporator and the discharge side. When ice builds up on the evaporator coil, it creates a pressure difference between the two sides activating the defrost system.

The defrost is terminated by a klixon mounted on the evaporator suction line.

During the defrost cycle the evaporator fan(s) will stop and the compressor will continue to run pumping hot gas through the evaporator coil to melt the ice build-up.
NOTE: During the defrost cycle a red light on the controller will come on. The light is located under the manual defrost switch.

UNIT PROTECTION

All A.T.C. systems have high and low pressure safety switches. If the system should lose its refrigerant charge, the low pressure safety switch will turn off the power to the compressor only and if the system is too high on pressure. The high pressure switch will turn off the power to the compressor. This prevents the compressor from pumping out its oil charge and a subsequent major breakdown or other damages on the parts of the compressor.
All A.T.C. Low Temperature Systems have an oil separator assembly as standard equipment. This assembly provides a continuous flow of oil back to the over-the-road compressor.

ELECTRIC OR HOT WATER HEATING OPTION

A two stage controller controls either the cooling or heating mode. After setting the desired box temperature, depending on the ambient temperature, either the cooling or heating mode will start automatically to achieve the set point temperature.

CONDENSER FAN CYCLE SWITCH

All A.T.C. systems are equipped with a condenser fan cycle switch. This switch is designed to cycle the condenser fan(s) depending on system pressures.

ADVANCED TEMPERATURE CONTROL

INSTRUCTION FOR SETTING BOX TEMPERATURE
ONE SET POINT

IMPORTANT

1. **If the programming sequence is interrupted for more than 15 seconds or not completed to the blank screen stage, the unit will automatically revert to the temperature display mode WITHOUT acknowledging any new value (tamper resistant feature).**
2. **Once the temperature controller has been programmed it will maintain the same set point every time the system is in operation. If a different box temperature is required, follow instructions for setting box temperature.**

STEPS	SCREEN DISPLAYS
1. PRESS (SET) BUTTON ONCE	SP1 (SET POINT 1)
2. PRESS (SET) BUTTON AGAIN	SP1 VALUE DEG F
3. PRESS (ADJUST) ARROW UP OR DOWN TO SELECT BOX TEMPERATURE REQUIRED	TEMP DEG F INCREASE OR DECREASE
4. TO COMPLETE THE PROGRAMMING SEQUENCE, PRESS THE SET BUTTON UNTIL THE SCREEN GOES BLANK	BLANK

NOTE: AFTER 5 SECONDS, THE UNIT WILL AUTOMATICALLY DISPLAY THE SENSOR (BOX) TEMPERATURE.

ADVANCED TEMPERATURE CONTROL

Manufacturer's (12) twelve month warranty
Canada and United States of America
A.T.C. Refrigeration units and/or heating systems

ADVANCED TEMPERATURE CONTROL (ATC) agrees to repair or replace with a new or remanufactured part, any part or component which UNDER NORMAL USE AND OPERATION fails as a result of defects in material or workmanship WITHIN THE STATED WARRANTY PERIODS.

The system warranty includes labour for replacement of defective parts in accordance with ATC's Flat Rate Labour Schedule.

The warranty period will be (12) twelve months following date of installation for new systems. Replacement parts are warranted for (90) ninety days after installation against defects in material. No labour allowance will be given for replacement parts.

The foregoing warranties are offered only to the original owner of the system, and subject to the unit having been installed in accordance with ATC's instructions, and duly registered with ATC as to the date in service.

LIMITATION OF LIABILITY

COMPRESSOR FAILURE RESULTING FROM INADEQUATE LUBRICATION OR FAILURE TO FOLLOW LABELLED GUIDELINES FOR REFRIGERANT CHARGE AND/OR OIL CHARGE WILL BE DENIED WARRANTY COVERAGE.

THE OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE OF HIS EQUIPMENT. NORMAL WEAR WILL NOT BE CONSIDERED AS DEFECTIVE WORKMANSHIP AND MATERIAL. DAMAGE CAUSED BY NEGLECT OF NORMAL MAINTENANCE SHALL NOT BE INCLUDED IN THIS WARRANTY. COMPRESSOR MOUNTING BRACKETS, DRIVE-BELTS, AND REPLACEABLE BRUSHES IN MOTORS MAY REQUIRE PERIODIC ADJUSTMENT OR REPLACEMENT TO MAINTAIN UNIT OPERATING INTEGRITY, AND ARE NOT COVERED BY WARRANTY.

CONTINUED

ADVANCED TEMPERATURE CONTROL

Manufacturer's (12) twelve month warranty
Canada and United States of America
A.T.C. Refrigeration units and/or heating systems

WARRANTY REPAIRS SHALL BE PERFORMED ONLY BY AN AUTHORIZED ATC DEALER AT HIS PLACE OF BUSINESS DURING NORMAL WORKING HOURS. THE DEALER IS RESPONSIBLE FOR MAKING APPLICABLE REPAIRS DURING THE WARRANTY PERIOD, IN ACCORDANCE WITH ATC'S CURRENT WARRANTY PROCEDURE MANUAL ATC SHALL NOT BE RESPONSIBLE FOR THE COST OF WARRANTY REPAIRS MADE BY ANYONE OTHER THAN AN AUTHORIZED ATC DEALER UNLESS PRIOR WRITTEN FACTORY APPROVAL IS OBTAINED.

THIS WARRANTY SHALL NOT APPLY TO ANY ATC PRODUCT WHICH, IN THE OPINION OF ATC, HAS BEEN ALTERED OR REPAIRED IN A MANNER AFFECTING THE EFFICIENCY OR PERFORMANCE OF THE UNIT, OR IF THE SERIAL NUMBER IS MISSING, ALTERED OR DEFACED.

ATC DOES NOT WARRANT THE WORKMANSHIP OF THE INSTALLER AND WILL NOT BEAR ANY COST DUE TO FAULTY OR INCORRECT INSTALLATION.

ATC IS NOT RESPONSIBLE FOR DAMAGE OCCURING DURING SHIPPING OR HANDLING, OR DAMAGE CAUSED BY MISUSE, FLOOD, FIRE OR OTHER ACTS OF GOD.

IN NO EVENT SHALL ATC, OR ITS AFFILIATES, BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR LOSSES OF A COMMERCIAL NATURE ARISING OUT OF A MALFUNCTIONING SYSTEM, PART OR COMPONENT.

THE WARRANTIES SET FORTH ABOVE ARE IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTIES OF MERCHANT ABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHICH ARE HEREBY DISCLAIMED.

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ADVANCED TEMPERATURE CONTROL

NOTES

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ATC FEATURES / BENEFITS

AERODYNAMIC DESIGN
* Improved air flow around vehicle
* Blends with aerodynamic style of the vehicle

ABS (UV) PROTECTED COVERS
* Will not rust
* Easy to maintain

CONDENSER FAN CYCLE SWITCH
* Shuts off the condenser motors when not required
* Extends the motor life

DRESSED WIRING
* Protects individual wires
* Resists UV rays
* Clean and neat appearance

FAN MOTORS
* Stainless steel shaft
* Sealed case
* Brushless

COPELAND COMPRESSOR
*Used in truck refrigeration for years
* Heavy duty design for years of trouble free operation

STANDARDIZED WIRING
* All units are wired the same
* Eliminates the need for multiple wiring diagrams
* Ease of service
* Eliminates problem wire troubleshooting

COLOUR CODED WIRING
* Simplifies installation
* Simplifies troubleshooting and service work

PARTS STANDARDIZATION
* Eliminates major down time
* Less inventory
* Parts interchangeable with other ATC systems

CHOKE ASSEMBLY
* Controlled power to the motors
* Eliminates power peaking
* Extends motor life
* Cleans D.C. voltage

LOW / MEDIUM TEMPERATURE UNITS
* Units designed for medium temperature
* Units designed for low temperature
* Customers can decide which design meets their needs.

GENERAL FEATURES
* All Steel fittings
* 134A refrigerant
* 404A refrigerant
* Digital box temperature display
* Oil separator system (low temp)
* Split system design (no opening required)
* Air differential switch (low temp)
* Drain pan heat assembly (low temp)
* Off cycle defrost (med temp)

ADVANCED TEMPERATURE CONTROL

MEET OUR FAMILY OF VARIABLE DRIVEN
TRUCK REFRIGERATION SYSTEMS
FOR SMALL, MEDIUM AND LARGE VAN BODIES

SERIES 8 SERIES 12 SERIES 14 SERIES 15 SERIES 16 SERIES 18 SERIES 20

FOR ALL YOUR TRUCK REFRIGERATION REQUIREMENTS "JOIN THE ATC TEAM"

ADVANCED TEMPERATURE CONTROL

TRUCK REFRIGERATION SYSTEMS

FOR ALL YOUR TRUCK REFRIGERATION

REQUIREMENTS "JOIN THE ATC TEAM"

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