



## **INTREPID EP56 SERIES**

**Keep This Manual  
With Air Conditioner**

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Technical Documents



# **AIR CONDITIONER OPERATOR'S MANUAL**

### **CAUTION**

**BEFORE INSTALLING AND USING THIS AIR CONDITIONER, IT IS IMPORTANT THAT THIS MANUAL BE READ AND UNDERSTOOD THOROUGHLY**



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**NOTE:** Wiring Schematics are available on the specific model page of the Kooltronic website.

## ***I. Introduction***

Kooltronic Air Conditioners are designed to provide a cool, dehumidified environment for your electronic components. There are models to fit virtually all sizes and shapes of electronics enclosures, in capacities ranging from 1,000 to 30,000 BTU/H. Our "closed-loop" design also ensures that your components will not be exposed to hot, dirty operating conditions.

This Manual provides you with the necessary general information for properly installing and operating standard Kooltronic Air Conditioners. Technical data and mounting instructions are presented on pages 7 through 9.

## ***II. Incoming Inspection***

Kooltronic Air Conditioners are designed, built and packaged to withstand the shock and vibration normally associated with shipment by common carriers. Occasionally improper handling during shipping causes damage. Such handling could include unbanding of palletized shipments, failing to respect "**This Side Up**" arrows, rough handling, falling off conveyors, excessive vibration, crushing, etc. Therefore, a thorough inspection should be done upon receipt of all shipments. Any carton tears, dents, scratches, loose articles or evidence of oil are signs of damage and should be noted on the Freight Bill. Cartons should be opened promptly and the units inspected for CONCEALED DAMAGE. Kooltronic Air Conditioners must be delivered in the proper mounting position to assure that damage to the compressor has not occurred during shipping. Any Kooltronic Air Conditioner that is delivered removed from the banded pallet, lying down or double stacked should be refused.

An immediate claim **MUST** be filed with the freight carrier and an inspection requested. Retain all packing materials. Kooltronic cannot assume responsibility for Consignee's failure to file a timely freight claim.

## ***III. Product Handling:***

- 1) Do not attempt to operate your Kooltronic Air Conditioner until you read and thoroughly understand this Manual. See section **VI PRE-INSTALLATION TESTING**.
- 2) Before operating the Kooltronic Air Conditioner be certain that it is placed in its correct mounting position. **This Air Conditioner is designed to operate in a vertical position only.** This placement must be done a minimum of 5 minutes prior to operating in order to allow the compressor oil to drain to the compressor sump area.

### ***CAUTION***

**Kooltronic Air Conditioners must be operated in their proper mounting position. If attempts are made to operate a unit that is not in its designed mounting position, permanent compressor damage will occur. This action will void the warranty. To avoid compressor damage do not tip the unit more than 45° from its proper mounting position.**




- 3) Before operating this unit, all electrical wiring must be checked to assure the proper connection to the correct power source. Minimum circuit ampacity should be at least 125% of the amperage found on the nameplate for the corresponding voltage. Do not exceed the maximum fuse size found on the nameplate.
- 4) We do not recommend that Air Conditioners be shipped to their final destination attached to an enclosure. In the event that the Air Conditioner needs to be shipped attached to an enclosure it is strongly recommended that proper support be provided for the Air Conditioner. Excessive vibration can occur if Air Conditioners are not properly supported when shipped on enclosures, increasing the potential for internal damage and voiding the warranty.
- 5) **PROCEDURE FOR PROPER PACKING AND SHIPMENT OF KOOLTRONIC AIR CONDITIONERS:**
  - Keep Air Conditioner in proper upright position indicated by arrow markers.
  - Pack Air Conditioner in an appropriate carton (preferably original carton if possible), with adequate internal protective packaging, making sure carton is marked and is kept in correct upright position.
  - For local, controlled transportation, strap carton to a secure part of truck to prevent falling or sliding, minimize vibration, etc.
  - For common carrier shipment, band unit(s) securely to a pallet. Unpalletted shipment risks severe damage which voids the warranty.

## IV. Product Identification and Nameplate

Each Kooltronic Air Conditioner includes an identification nameplate. This nameplate provides:

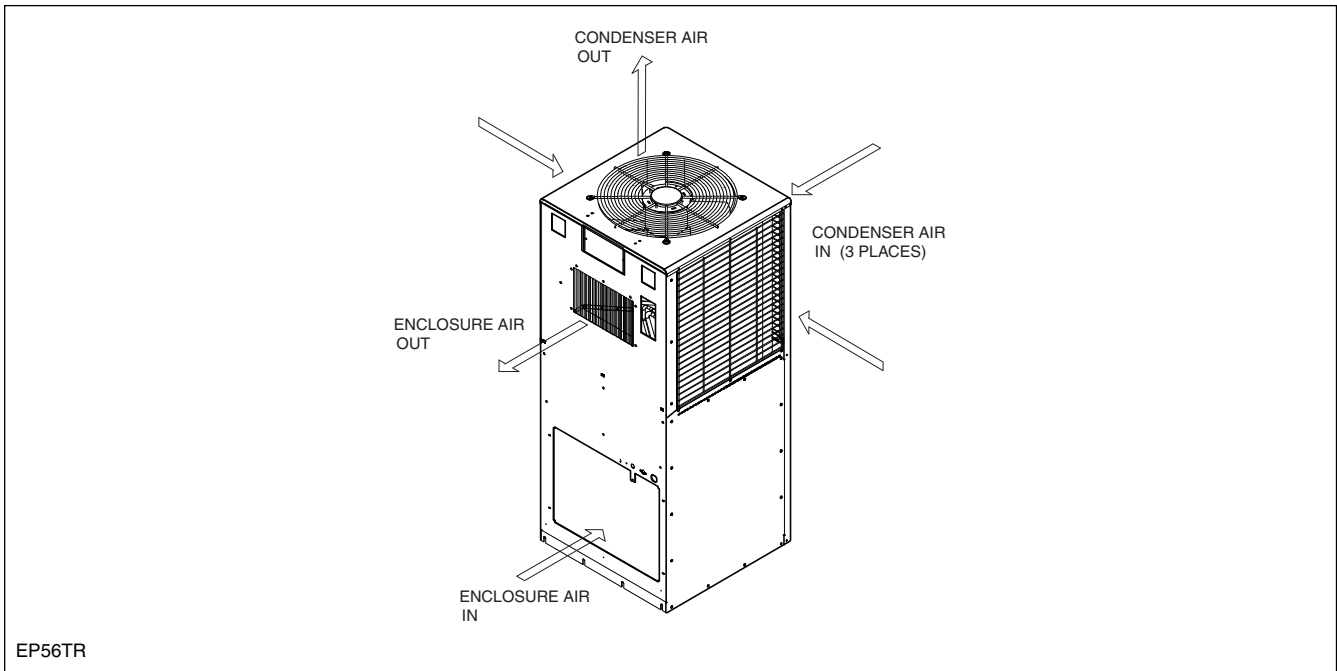
- ① Model Number
- ② Serial Number
- ③ Electrical power characteristics
- ④ Maximum and minimum ambient operating temperatures
- ⑤ Cooling capacity
- ⑥ Type and amount of refrigerant required for recharging
- ⑦ Design Pressure
- ⑧ Maximum Fuse Size
- ⑨ Final Assembly Number
- ⑩ Manufacturing Order Number
- ⑪ Underwriters Laboratories Inc. Listed or Recognized Marks and NEMA ratings

We recommend you copy this information from your unit.

		Air Conditioner			
MODEL NUMBER ①		SERIAL NUMBER ②			
VOLTS ③	FREQ. ③	PH. ③	COOLING F.L.A. ③	AMBIENT TEMP. MIN. °F ④	MAX. °F ④
COOLING BTU ⑤	REFRIGERANT ⑥		Oz.		
DESIGN PRESSURE P.S.I.G. LOW ⑦	HIGH ⑦	MAX. FUSE SIZE ⑧	MFG. ORDER NO. ⑩		
FINAL ASSY. NO. ⑨				⑪	
<p><b>SPECIAL PURPOSE AIR CONDITIONER</b> NEMA/EEMAC/UL50 BY UNDERWRITERS LABORATORIES, INC. TYPE 3R &amp; 12 INTERFACE TO THE ELECTRICAL ENCLOSURE ONLY</p> <p><b>NEMA/EEMAC/UL50 BY UNDERWRITERS LABORATORIES, INC.</b> TYPE 1 SPECIAL PURPOSE AIR CONDITIONER EQUIPMENT COMPARTMENT ONLY OUTDOOR USE SERVICE AIR FILTER REGULARLY ALLOW 5 MIN. BEFORE RESTARTING AFTER SHUTDOWN UNAUTHORIZED SERVICE OR MODIFICATION VIOLATES WARRANTY ALL MOTORS ARE THERMALLY PROTECTED</p> <p><b>MANUFACTURED BY:</b> KOOLTRONIC, INC. PENNINGTON, NJ</p>					
					

- ①②⑨⑩ When ordering parts, specify the Model Number, Serial Number, Final Assy. Number & MFG. Order Number.
- ③ Before operating, be sure that the power source matches these requirements.
- ④ Make sure that these parameters are met. Failure to do so may result in permanent damage to the unit.

## V. Principles of Operation



Kooltronic Air Conditioners are required when the equipment operating temperature must be kept near or lower than the ambient room temperature, and/or the cabinet must be sealed from dust, fumes, oil, corrosives and other contaminants. These Air Conditioners utilize a "Closed-Loop Cooling System" to ensure optimum performance of the installed components.

Closed-Loop cooling seals the electronic enclosure from hostile elements in the environment. Two separate circulation systems are employed. The internal system cools and dehumidifies the air inside the cabinet, totally isolating the sensitive electronics and other components from the environment. The external system uses circulating ambient air or water to discharge the heat removed from the electronics. The heat is dissipated from the enclosure by means of the vapor compression refrigeration cycle. This takes place in a hermetically-sealed refrigeration system, utilizing either an air-cooled or water-cooled condenser heat exchanger. The warm air inside the enclosure is drawn through the evaporator coil where it is cooled, dehumidified and returned.

The heat removed through the evaporator coil is transferred by the compressed refrigerant to the condenser coil. Ambient air or water is then passed through the condenser coil, where it absorbs the heat and is then discharged to the environment.

The unit is equipped with a Low Temperature Thermostat to prevent the evaporator coil from freezing and must not be set below the factory setting of 75°F (16°F differential). If necessary the thermostat may be adjusted to increase the temperature within the cabinet. Unlike thermostats that are commonly found in household air conditioners that control the room temperature, the thermostat found on the EP56 monitors the return air from the enclosure to prevent the evaporator from freezing. In conditions of low ambient temperature and low enclosure load, the thermostat regulates the return air temperature from 75°F to 91°F. If the unit is equipped with an optional non-adjustable high temperature alarm, it will activate when the temperature reaches 130°F. A condenser blower thermostat is standard on this unit. The thermostat temperature sensor is installed in the refrigerant liquid line. When the ambient temperature is above 95°F the condenser fan will run at full speed. When the ambient temperature is lower than 95° the condenser fan will cycle. In applications having frequent voluntary heat load fluctuations, an optional Compressor Short Cycle Protector is recommended.

When the Kooltronic Air Conditioner is properly sized it should operate constantly and maintain 75°F to 115°F enclosure temperatures, depending on the ambient temperatures.

## ***VI. Pre-Installation Testing***

Before mounting the air conditioner to the enclosure, test for proper operation. This will verify the shipping integrity of the system. Please follow the steps below prior to installation.

### ***CAUTION***

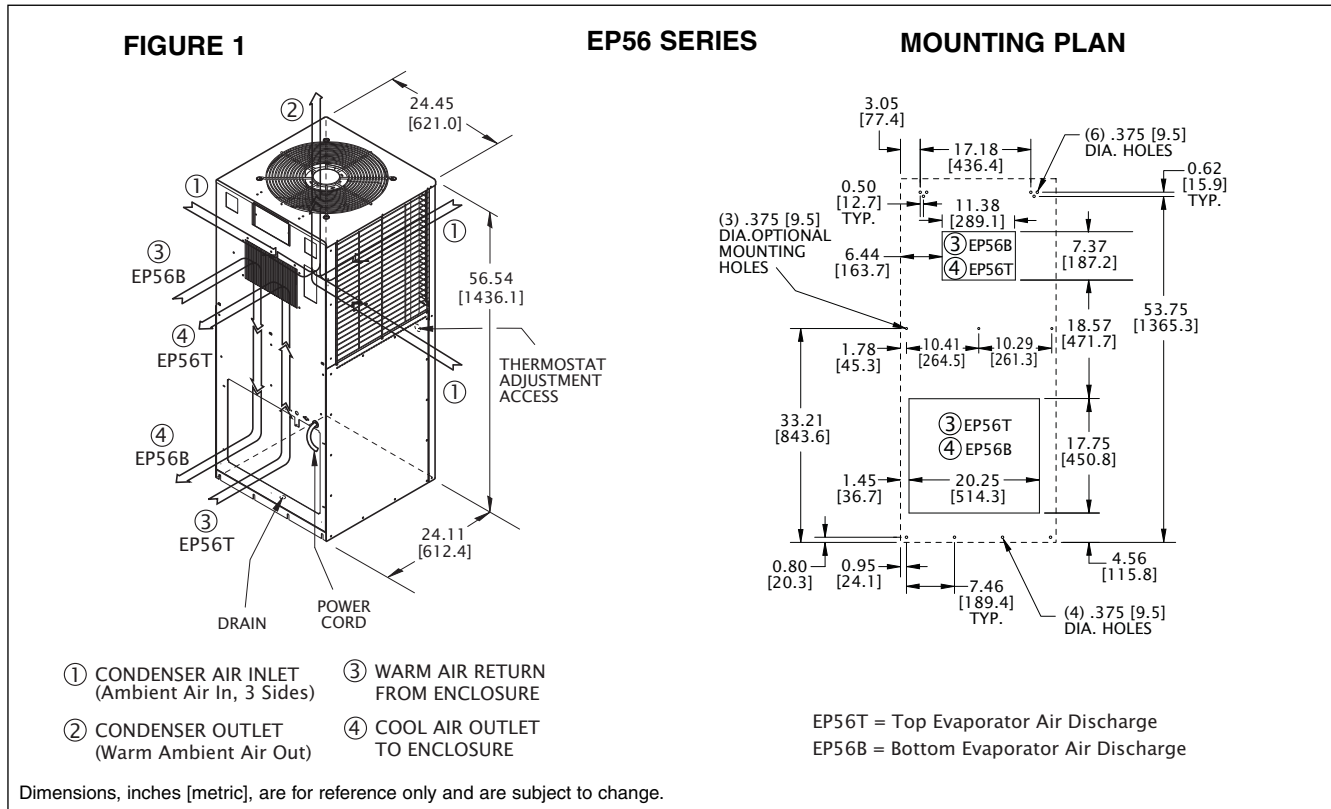
**The air conditioner must be standing in its proper mounting position for a minimum of five (5) minutes prior to testing. Failure to follow this procedure will cause permanent damage to the compressor.**

1. The unit must sit in an upright position at a minimum room temperature of 65°F to allow the system to warm-up. This is particularly important during winter months.
2. Refer to the nameplate for proper electrical voltage and current requirements. Connect the power cord to a properly grounded and fused electrical supply, leaving electrical power to the unit turned off.
3. Remove the rubber plug from the lower panel. The thermostat dial is visible through the hole in the lower panel. Note the factory thermostat setting which is typically 75°F.
4. Adjust the thermostat to its maximum setting (turn it clockwise).
5. Turn the electrical power on.
6. Verify that the evaporator blower is running.
7. Adjust the thermostat to its minimum setting (turn it counterclockwise). The compressor should start. On units equipped with a short cycle protector, the compressor will have a delayed start of 6 minutes from the time power is applied to the unit.
8. Verify that the condenser fan is running.
9. Operate the air conditioner for approximately ten (10) minutes. During this period no unusual noise or vibration should be evident. Both the evaporator and condenser fans or blowers should be delivering air through their respective discharge ports. The cool air discharged should be less than 70°F when the room temperature is between 70°F and 80°F.
10. Turn off the electrical power and disconnect the air conditioner from the power source.
11. Adjust the thermostat back to 70°F. Failure to do this will cause the coil to freeze.
12. Reinstall the rubber plug.

**NOTE:** Before shipment all Kooltronic Air Conditioners are subjected to a performance test.

## VII. Specific Model Data

### Mounting



Kooltronic Air Conditioners have been engineered to be easily installed. To avoid damaging your air conditioner, please read the following information before installation:

1. Attach two hooks to your enclosure with supplied hardware (see mounting drawing).
2. Route the power cord through the bottom cutout in your enclosure. It is recommended that a lift truck be used to mount the air conditioner. Hang the air conditioner on the hooks. Before the lift truck lowers the air conditioner make sure that the hooks are located inside of the small cutouts on the front panel.
3. Tighten the air conditioner bottom flange to your enclosure with supplied hardware (see mounting drawing).
4. If the mounting panel of your enclosure is not stiff enough (moment inertia is less than 0.005"⁴) it is recommended that the three additional supplied screws be used at approximately the middle of the unit height for proper gasket compression. The screws must be started from inside your enclosure.
5. Attach the supplied drain hose to the drain tubing on the bottom of the air conditioner using the plastic clamp.

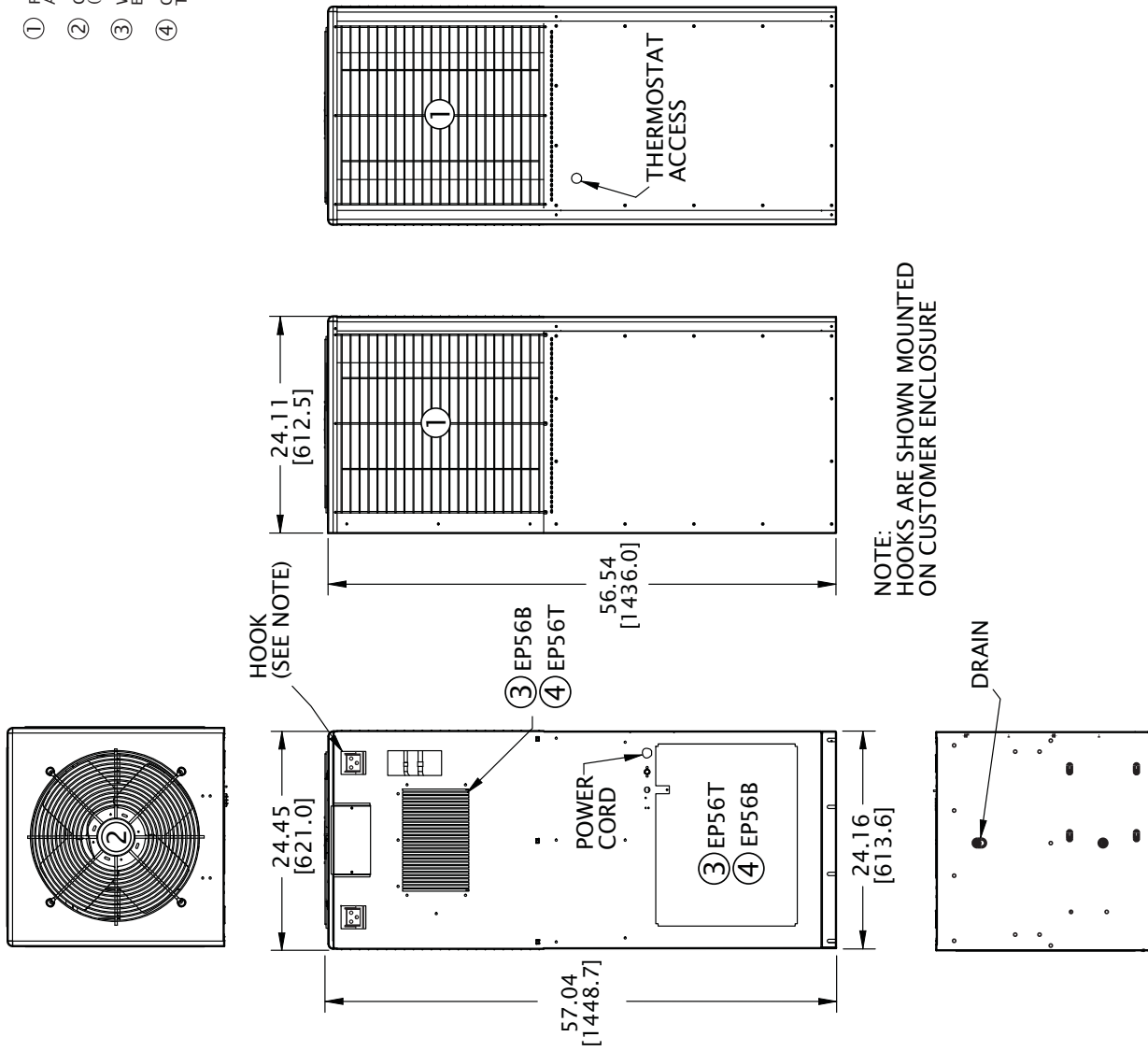
### **CAUTION**

**If the air conditioner is mounted to the cabinet door you must be sure that the door hinges will support the additional weight of the air conditioner. Also be certain that when the door is opened fully, the cabinet does not become unbalanced. The actual weight of the unit can be found in the Technical Data on page 9.**

# Drawings and Dimensions

## EP56 SERIES

- ① FILTERED CONDENSER AIR INLET (Ambient Air In)
- ② CONDENSER OUTLET (Warm Ambient Air Out)
- ③ WARM AIR RETURN FROM ENCLOSURE
- ④ COOL AIR OUTLET TO ENCLOSURE



NOTE:  
HOOKS ARE SHOWN MOUNTED  
ON CUSTOMER ENCLOSURE

GA00376A - Rev. A  
GA00377A - Rev. A  
GA00376A - Rev. B

Dimensions, inches [metric], are for reference only and are subject to change.



## Technical Data

Model	BTU/H Rating	95/95 Rating BTU/H	Ambient Temp. °F Max./Min.	Volts	Hz	Cooling Amps	Heating Amps	Approx. Weight (lbs)
K2A3C30EP56TR	30000	26000	131/0	230	60	26.0	15.3	302
K2A3C30EP56BR	30000	26000	131/0	230	60	26.0	15.3	304
<b>K2A6C30EP56TR</b>	<b>30000/24000</b>	<b>28000/22000</b>	<b>131/0</b>	<b>230</b>	<b>60/50</b>	<b>25.5/25.2</b>	<b>15.3</b>	<b>302</b>
<b>K2A6C30EP56BR</b>	<b>30000/24000</b>	<b>28000/22000</b>	<b>131/0</b>	<b>230</b>	<b>60/50</b>	<b>25.5/25.2</b>	<b>15.3</b>	<b>304</b>

Units in **BOLD** are current standard products. Other units are prior product offerings and shown for reference only.

## Major Component Replacements

Part	K2A3C30EP56_R* Part Number	K2A6C30EP56_R Part Number
Compressor	0665-57	0665-402
Compressor Capacitor	0452-54	0452-78
Condenser Blower Motor	0261-274	0261-274
Condenser Blower Capacitor	0452-04	0452-04
Evaporator Blower Motor	0261-275	0261-275
Evaporator Coil	0667-51	0667-51
Condenser Coil	0666-45-1	0666-59-01

\*NOTE: Part Numbers shown are for 60Hz/1Ø. For 50Hz consult Kooltronic.

## Standard Features

Available in either top or bottom evaporator  
 air discharge models  
 Baked Powder Finish  
 Closed-Loop Cooling  
 Condenser Blower Speed Controller  
 Crankcase Compressor Heater  
 Heavy-duty Steel Shell  
 Low Temperature Control Thermostat  
 NEMA 3R, 12 & 1 Ratings Maintained (UL50)  
 Tamper-resistant hardware  
 UL Recognized  
 Zero ODP Refrigerant

## Accessories and Options

Enclosure Heater  
 Internal Corrosion Protection  
 Lead-Lag Controller  
 Remote Thermostat Relay  
 Special materials or finishes  
 Temperature Alarm

## VIII. Maintenance

Kooltronic Air-Cooled Air Conditioners require no maintenance. In the event of a problem with your air conditioner, please follow the instructions below.

### A. Blowers

The design life of the blowers used in all Kooltronic Air Conditioners is substantially in excess of 20,000 hours. All Kooltronic condenser and evaporator blowers are equipped with automatic-reset thermal overload protectors.

### CAUTION

**Before opening the air conditioner, disconnect all power.**

If field replacement of a blower motor is necessary, most blower assemblies, including the mounting plate, are readily removable. Each of the blower mounting plates is held to the air conditioner cabinet structure by screws and nuts. For installation of the replacement blower, electrical connections may be broken at the terminal block, or power leads may be cut and appropriately spliced together.

### B. Compressor

All Kooltronic compressors are approved by UL and CSA, and require no maintenance. They are hermetically sealed and charged at the factory, and equipped with automatic-reset thermal overload protectors.

If the compressor fails, it is strongly recommended that the air conditioner be returned to Kooltronic for service.

### C. Refrigerant Loss

Kooltronic Air Conditioners are subjected to a series of tests to detect refrigerant leaks, during and after manufacture. It is possible that shipping or other damage, or microscopic leaks over a long period, may result in the need for replenishment of refrigerant charge. **When it has been verified by a Certified EPA Technician that a refrigerant shortage does exist, the leak must be repaired. Then the unit may be evacuated and recharged in the field by a Certified EPA Technician only.**

### CAUTION

**Refer to the data on the unit name plate which specifies the type of refrigerant and the amount of charge in ounces.**

### D. Relocation

If your Kooltronic Air Conditioner has to be moved to another location by truck, the following precautions should be taken:

- De-mount the air conditioner from the equipment, controller or enclosure.
- Conform to the applicable provisions of PROCEDURE FOR PROPER PACKING AND SHIPMENT OF KOOLTRONIC AIR CONDITIONERS in this manual under *Section III. "PRODUCT HANDLING"*.

## IX. Trouble-Shooting

Each Kooltronic Air Conditioner is engineered for performance and built for reliability. They are designed to require no routine maintenance. If your air conditioner should require service, we have compiled a trouble-shooting chart to assist your service personnel. If additional assistance is required contact Kooltronic at (609) 466-3400.

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Unit not Cooling	No Power	Check Power Source and Electrical Connections
	Loss of Refrigerant	Locate and repair leak
	Evaporator or Condenser Blower not operating	Replace Motor, Capacitor or entire Assembly
	Clogged Evaporator or Condenser Coil	Clean Coil
	Low Temperature Control (Thermostat) improperly set	Lower setting until unit starts
	Low Temperature Control (Thermostat) defective	Replace Thermostat or Relay when applicable
	Failed Compressor	Replace Compressor
Ice on Evaporator Coil	Insufficient Heat Load or Unit Oversized for Application	Contact Kooltronic
	Failed Evaporator Blower	Replace Evaporator Blower Motor or Assembly
	Clogged Evaporator Coil	Clean Coil
Condensate draining continuously	Enclosure not properly sealed	Check and seal all openings
	Excessive opening of Enclosure	Eliminate the frequency of door opening
Excessive vibration	Defective Motor in Blower	Replace Motor
	Defective Wheel in Blower	Replace Wheel
	Compressor Loose	Tighten Mounting Bolts
Compressor Inoperative	Low line Voltage	Check Nameplate Voltage against supply
	Loss of Compressor Oil	Replace Compressor
	Loss of Refrigerant	Locate and repair leak
	Failed Compressor Capacitor	Replace Capacitor
	Thermal Overload	Contact Kooltronic
	Power interruptions	Allow Compressor time to reset
Refrigerant or Oil leaks	Crack or pin hole in tubing or brazed joint	Replace tubing or rebraze joint
Condensate on the outside surface of the Enclosure	Insufficient Heat Load or Unit oversized for application	Contact Kooltronic

## ***X. Standard Warranty***

KOOLTRONIC products are warranted to be free of defects in workmanship, materials and components. The following warranty periods apply from date of shipment:

- Air moving devices/components and hermetic system components: 1 year
- Spare parts, except filters: 90 days

The above warranty applies when the equipment is operated under the following conditions:

- Ambient temperature not in excess of 125°F (52°C) in normal atmosphere or as stated on product nameplate
- Voltage variation no greater than  $\pm 10\%$  from nameplate rating
- Frequency variation no greater than  $\pm 3\text{Hz}$  from nameplate rating
- Maximum cooling load no higher than air conditioner nameplate rating
- Waiting five minutes before restarting air conditioner after intentional or accidental shutoff
- Compliance to all other installation, maintenance and operating instructions, as supplied
- The purchaser assumes the responsibility of grounding the unit and installing it in accordance with local electrical and safety codes, as well as the National Electric Code (NEC) and OSHA

**KOOLTRONIC cannot assume responsibility for mis-application of its products or the erroneous selection of an inappropriate product by a non-authorized KOOLTRONIC representative. Our applications engineers will gladly assist in the selection of the proper product, provided all required details of the application are furnished.**

**THIS WARRANTY CONSTITUTES THE ENTIRE WARRANTY WITH RESPECT TO THE PRODUCT AND IS IN LIEU OF ALL OTHERS, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY AND WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND IN NO EVENT IS KOOLTRONIC RESPONSIBLE FOR ANY CONSEQUENTIAL DAMAGES OF ANY NATURE WHATSOEVER.**

### ***RETURN AUTHORIZATION (RA) PROCEDURE***

- All returns require a Return Authorization number whether the return is for warranty or non-warranty repair, rotation of stock, damage or any other reason. Returns without an RA number will be refused.
- Customer must call KOOLTRONIC After Sale Kare (ASK), Pennington, New Jersey (609 • 466 • 3400) to obtain an RA number, or email ask@kooltronic.com.
- The following information is required when an RA is requested:
  - Original customer Purchase Order number and date
  - Date product was received by customer
  - Number of parts to be returned
  - Product description, model and serial number
  - Reason for return
  - Action requested
  - Contact name, telephone, FAX numbers and e-mail address
- Pack unit in a suitable container for shipment, preferably the

KOOLTRONIC assumes no liability beyond the repair or replacement of its own product. This Warranty does not cover:

- Labor or reimbursement of labor for evaluation, removal, installation, repair, or cost of any warranted part, unless authorized in writing by KOOLTRONIC
- Use of equipment for other than its designed purpose or operating conditions
- Operation in harsh, oily, corrosive or other abnormal environmental conditions, without the proper filtration, sealing, protective coatings and/or weather protection
- Damage to hermetic system resulting from continuous operation with dirty or clogged air filters or improper or negligent maintenance
- Use of refrigerant other than designated
- Customer modification or abuse
- Shipping damage or other accident (Claims for shipping damage are the responsibility of the customer. Timely claims must be filed by the customer with the freight carrier)
- Cracked or broken hermetic tubing, brazed joints or other internal damage caused by shipping or mishandling
- Damage caused by shipping units attached to an enclosure
- Any and all conditions resulting from noncompliance with the preceding operating conditions
- Returned freight must be paid by customer
- **This standard warranty does not apply to custom products. Consult your KOOLTRONIC representative for limitations**

original packaging if available. All Air Conditioners must be returned in an upright position properly secured to a pallet. **Improper packaging may void warranty claim.** If an Air Conditioner is received laying down or shipped via UPS or similar small parcel service the warranty will be void.

- Mark carton prominently with KOOLTRONIC's Return Authorization Number.
- Enclose all pertinent documents.
- Freight charges on all products returned to KOOLTRONIC shall be paid by the customer. Unauthorized collect shipments will be refused.
- If a unit is repaired under Warranty, KOOLTRONIC will pay the freight charges both ways within the Continental USA at KOOLTRONIC's negotiated rates. Warranty repaired units will be returned to customer at KOOLTRONIC expense only within the Continental USA.
- All authorized returns are subject to a restocking fee.