

# AIR SCREEN REFRIGERATOR MODEL PHB495HE OWNER / OPERATOR'S MANUAL



MANUFACTURED BY:

**CARTER-HOFFMANN**  
1551 McCormick Avenue  
Mundelein, IL 60060 U.S.A.

Phone: 847-362-5500

Fax: 847-367-8981

Toll Free: 800-323-9793

Email: [technicalservice@Carter-Hoffmann.com](mailto:technicalservice@Carter-Hoffmann.com)



PHB495HE



## CAUTION: EQUIPMENT ELECTRICAL DAMAGE

DO NOT plug in or use this appliance until all *Installation Instructions* are read and followed. Damage to the appliance may occur if these instructions are not followed.

This manual is considered to be a permanent part of this appliance.

This manual must remain with the appliance if it is sold or moved to another location.

## GENERAL INFORMATION

- This appliance is intended for use in commercial establishments, where all operators are familiar with the appliance use, limitations and associated hazards.
- Operating instructions and warnings must be read and understood by all operators and users.
- This appliance is intended for use to holding pre-cooked foods for human consumption. No other use is recommended or authorized by the manufacturer or its agents.
- Cleanliness of this appliance is essential to good sanitation. Read and follow all included cleaning instructions and schedules to ensure the safety of the food product.
- All included trouble shooting guides, component views and parts lists are included for general reference, and are intended for use by qualified service personnel.
- Knowledge of proper installation, operation and maintenance procedures is essential to ensure the safe operation of this oven.

## SERVICE / SAFETY

- Always have dry hands prior to using the piece of equipment.
- Turn OFF the unit (not all units have power switches) anytime the cabinet is not in use.
- If an electrical shock is felt when touching the cabinet, disconnect the power immediately and call Carter-Hoffmann Technical Service for assistance.
- If the power cord is frayed or the plug damaged, DO NOT plug into the electrical power receptacle. If it is already plugged in, turn off the main circuit breaker, usually located in the building's breaker box, then disconnect the plug.
- Disconnect the power cord before attempting any repairs to the cabinet.
- Repairs to this unit must be by qualified personnel.
- DO NOT SPRAY WITH WATER OR CLEANING SOLUTIONS, or submerge the appliance. Components and wiring present a high shock hazard when wet.
- Disconnect power when cleaning cabinet.
- Both the interior and exterior surfaces of this appliance can be hot to the touch and may cause burns.

## UNPACKING AND INSTALLATION



### CAUTION: Electric Shock Hazard

All servicing requiring access to non-insulated components must be performed by qualified service personnel. Do not open any access panels which require the use of tools. Failure to heed this warning can result in electrical shock. Disconnect this appliance from electrical power before performing any maintenance or servicing.



### WARNING: Injury Hazard

All installation procedures must be performed by qualified personnel with full knowledge of all applicable electrical codes. Failure could result in property damage and personal injury.



### WARNING Electric Shock Hazard

Appliance must be plugged into a properly grounded receptacle to prevent possible shock hazard. Electrical shock will cause death or serious injury.



### WARNING: Risk of personal injury

Installation procedures must be performed by a qualified technician with full knowledge of all applicable electrical codes. Failure can result in personal injury and property damage.

Unpack the cart and any accessories included. Ensure that all packing materials and protective plastic has been removed from the unit. Inspect all components for completeness and condition.

**NOTE: DO NOT** discard the carton or other packing materials until you have inspected the appliance for hidden damage and tested it for proper operation. Refer to *SHIPPING DAMAGE CLAIM PROCEDURE* on PAGE 7 of this manual.



### CAUTION: Electrical Shock Hazard

The ground prong of the power cord is part of a system designed to protect you from electric shock in the event of internal damage. DO NOT cut off the large round ground prong or twist a blade to fit an existing receptacle.

Appliance should be thoroughly cleaned before use. See CLEANING INSTRUCTIONS, page 3.

Plug the cabinet into a properly grounded NEMA 5-15R electrical receptacle. **DO NOT MODIFY CORD PLUG.**

Electrical Information  
NEMA Plug Type

NEMA 5-15P

120 volts  
60 Hz  
Single Phase  
7 running amps



### IMPORTANT:

Power cord is 10' long. If necessary, contact a licensed electrician to install an appropriate 15 amp electrical circuit with NEMA 5-15R receptacle. DO NOT use an extension cord.



**Before using, familiarize yourself with the controls. Read entire manual before operating this cart.**

### IMPORTANT:



Damage to unit due to being connected to the wrong voltage or phase is **NOT** covered by warranty.

### GROUNDING INSTRUCTIONS

This appliance is equipped with a cord having a grounding wire with a grounding plug which must be plugged into an outlet that is properly installed and grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electrical current.

**WARNING-Improper use of the grounding can result in a risk of electric shock.** Consult a qualified electrician or service agent if the grounding instructions are not completely understood, or if doubt exists as to whether the appliance is properly grounded.

## CLEANING



**WARNING: ELECTRIC SHOCK HAZARD**

Unplug the unit from electric power before performing cleaning or maintenance.



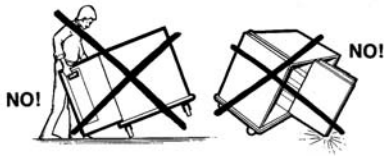
**WARNING: ELECTRIC SHOCK HAZARD**

DO NOT spray or splash water on the control panel or wiring.



**CAUTION: CART DAMAGE**

Do not tip cart onto the doors to drain excess water. Permanent damage to the doors and hinges will result. Use a clean dry cloth to mop any excess water inside cabinet after cleaning.



Turn the main power switch OFF and unplug the cabinet to before cleaning. DO NOT spray or splash water on the electrical components, control panel, timer or wiring.

1. Racks or shelves are easily removed without tools for cleaning, Simply lift up and pull out. The tray racks may be hand washed or run through an automatic washer.
2. To clean stainless steel surfaces use only cleansers, detergents, degreasers, or sanitizers that are certified to be "chloride-free" and "phosphate-free," and cleansers, degreasers, or sanitizers only in the recommended concentrations. **DO NOT** exceed recommended concentrations or mixing ratios. After cleaning and sanitizing, rinse all exposed surfaces thoroughly with large amounts of clean, clear water. Wipe off any standing liquid or residue from all surfaces, corners and rear edges.
3. Vinyl trim should be washed with a chlorine-free detergent and water. Rinse thoroughly with clear water and allow to dry. Never use abrasive cleaners, waxes, car polish, or substances containing strong aromatic solvents or alcohol. Use of **direct steam / hot water** cleaning at temperatures above **190°F** may result in "bubbling" or loosening of vinyl adhesive.
4. After all parts are dry, reinstall them and then plug the cabinet back into electrical source.

**IMPORTANT:** Cleansers, detergents, degreasers, sanitizers or bleaching agents that contain **chlorides or phosphates will cause permanent damage** to stainless steel products. This damage appears as pits, eruptions, voids, small holes, cracks, severe discolorations or dulling of the metal finish. Water with a high chlorine content can also damage stainless steel. If unsure of your water quality, we recommend you have it tested. **THIS DAMAGE IS PERMANENT, COSTLY TO REPAIR, AND IS NOT COVERED BY WARRANTY.**

### RECOMMENDED "TIPS" FOR CLEANING STAINLESS STEEL

PURPOSE	FREQUENCY	CLEANING AGENT	METHOD OF APPLICATION
Routine cleaning	Daily	Soap, ammonia, detergent and water	Swab with cloth. Rinse with clear water, wipe dry.
Smears and fingerprints	As needed	Stainless steel cleaner, similar products	Rub with cloth as directed on package. Rub in direction of grain of stainless steel. <b>Do not</b> use on vinyl trim or control panel.
Stubborn spots and stains	Daily or as needed	Any chloride-free or phosphate-free cleanser	Apply with damp sponge or cloth. Rub in direction of grain. Rinse thoroughly. <b>Do not</b> use on vinyl trim or control panel.
Hard water spots	Daily or as needed	Vinegar	Swab with cloth. Rinse with clear water, wipe dry.

## CONTROLLER OPERATION

### Manual Defrost Start Key

Press and hold for two seconds to enable defrost. NOTE: Cabinet temperature must be at 40°F or lower for manual defrost to operate. During the defrost cycle, **melting snowflake** will illuminate on the controller here.

### Set Key

Press to display temperature set point



**Snowflake** symbol will illuminate here when compressor is ON

### Up Arrow Key

Press to increase temperature set point (1° increments)

### Down Arrow Key

Press to decrease temperature set point (1° increments)

To Lock or Unlock the Controller: Press and hold both Arrow Keys at the same time.

## CONTROLLER SETTINGS

The cabinet contains (2) Dixell controllers, where only the visible controller is required for user interface. The set points for each are listed below.

IRAC15 C1 Controller (Face): 34° F

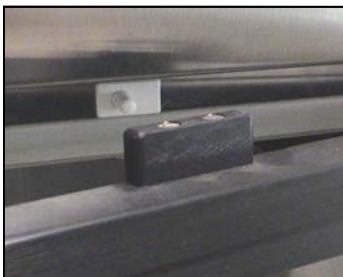
IRAC15 C2 Controller (Inside): 20° F

**Note:** The Dixell controller settings have been carefully configured to optimize the performance of the cabinet. See the notes below regarding possible outcomes if any deviation from the factory set points is made.

- Adjusting the set temperature of the cabinet to a lower setting may make the stored food product more susceptible to freezing when storing the food product for extended periods of time without open door operations.
- Adjusting the set temperature of the cabinet to a higher setting may affect open door performance.

Please contact the service department if there are any questions or if further customization is required.

## DAILY OPERATION



Door switch activates air screen when door is opened

The Air Screen Refrigerator is designed for use with the door open when unloading during meal or tray assembly operations lasting up to two hours. Only product that has been pre-chilled should be placed in the cabinet. Placing warm product into the cabinet will elevate the cabinet air temperature above 40°F (4°C). This will have a direct effect on optimum product serving temperatures.

Due to various conditions such as extremely high kitchen temperatures, high frequency of tray activity breaking the air curtain and excessively long operations, the door may need to be closed so the unit can recover to proper operating temperature.

1. Pre-chill empty cabinet with the door closed for approximately 40 minutes. Always keep the door closed, except when actually loading or unloading the cabinet. Do not load the cabinet until the proper operating temperature has been reached (34°-40°F).
2. **Load the cabinet from the bottom to the top.** While the side-to-side air flow of the Air Screen Refrigerator will function well when trays are partially pulled out, the best position for the trays is to be pushed all the way in during unloading. After loading, close the door and allow the inside air temperature to recover.
3. If necessary, unplug and move cabinet to serving area. Plug cabinet back in immediately upon arrival.
4. **Unload the cabinet from the top down.**
5. Close the door during slow periods to extend the effective temperature maintenance time.

**Remember: the refrigerator or freezer must be at proper temperature before the door is opened.**

**The cabinet will not lower food temperatures with the door open.**

The cabinet is equipped with an automatic condensate evaporator. To prevent water spills, leave the unit plugged in, with the door closed for at least 90 minutes after use.

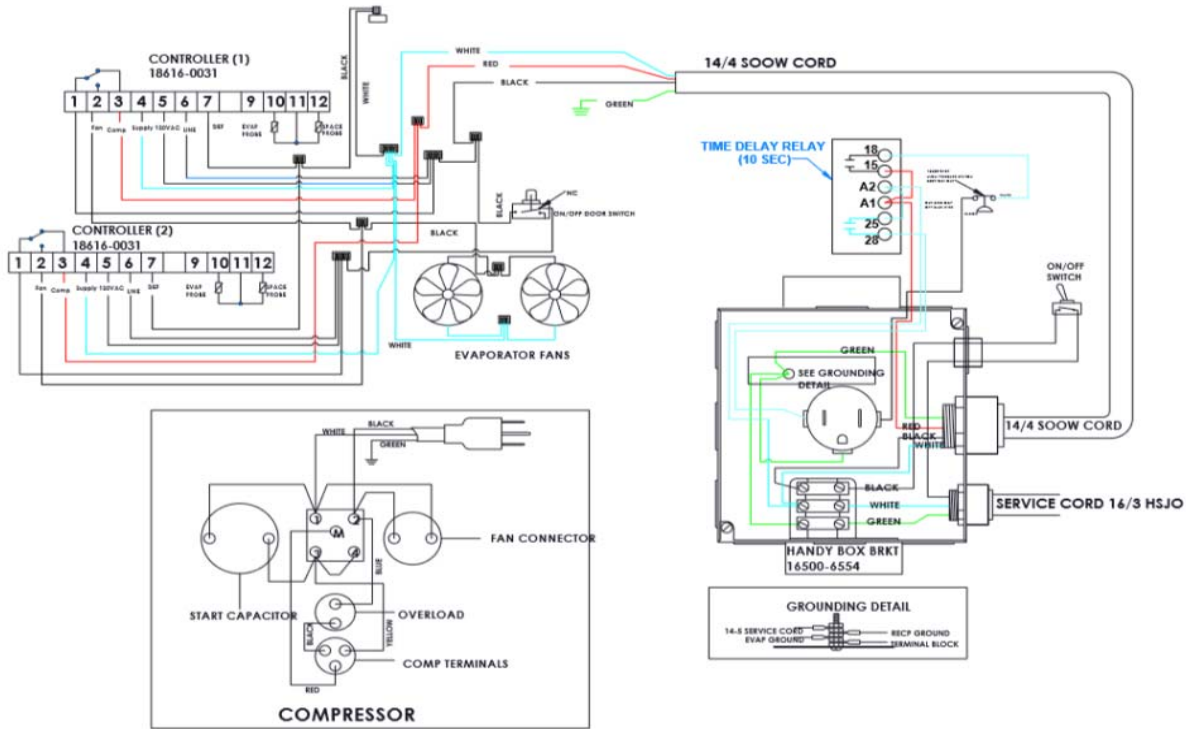
## 24/7 OPERATION

The cabinet is designed to operate for a minimum of 2 hours with the door open in normal ambient conditions, but is capable of operating 24 hours a day, 7 days a week with the door closed. There are a few items to note for this extended operation:

1. If the cabinet is used for an extended period of time with the door closed, it may be necessary to raise the set temperature to avoid freezing the food product.
2. If the cabinet is used for an extended period of time with the door closed, it may be necessary to manually drain the condensate drain pan. See section regarding drain pan instructions. For reference, active evaporation in the condensate drain pan only occurs while the condenser is operating. When the door is closed for extended periods of time, the condenser operates infrequently.
3. Depending on environmental and operating conditions, manually draining the condensate drain pan may be necessary. See **DRAINING CONDENSATE PAN** section in the **GENERAL MAINTENANCE INSTRUCTIONS** portion of this manual for more details.

## WIRING DIAGRAMS & PARTS LISTS

120v, 7 running amps  
Standard Electric



WITH HOT-GAS BY-PASS

Part Number	Description	Part Number	Description
18614-0051	Accumulator 5/8 Suct.	18302-0050	Magnetic door latch, chrome offset
16002-5190	Push handle assembly	18302-0048	Magnetic door latch, locking, chrome offset
18614-0408	Blade, fan evaporator	18614-0407	Evaporator motor, 120v
18602-0031	Boot, toggle switch	16504-6906	Side vent panel
29034-0050	Breaker strip, grey	18302-0054	Door strike, SST #R25
18301-6217	Caster, no brake	18602-0013	Push button door switch
18301-6218	Swivel caster with brake	16090-4209	IRAC15 C1 Controller (Face)
18614-0276	Evaporator coil, #5598	16090-4210	IRAC15 C2 Controller (Inside)
18612-5066	Condensing unit R134a 1 HP	18616-0013	Digital controller probe
18605-0010	Cord with plug 14/3 HSJO, 5-15P	18614-0091	Expansion valve, EFJ-1/2-C 3x4 SAE 30"
16503-2999	Evaporator cover	16503-5504	Door hold open retainer bracket
18614-0062	Filter drier C-032-S	18305-0076	Rubber door stop bumper
16501-6807	Front grill	18141-0030	Mounting rivet for 18505-0076 bumper
18303-0080	SST Flush pull handle	16001-1621	Bottom left pan slide duct
16090-4097	Door hinges	16001-1622	Top left pan slide duct
18602-0334	Time Delay Relay	16001-1623	Bottom right pan slide duct
18602-0030	Toggle switch, 30A	16001-1624	Top right pan slide duct
18615-0168	Valve, Condensate Pan Drain	18614-0028	HGBP Solenoid, 120v
18615-0166	Elbow, Condensate Pan Drain		

## GENERAL MAINTENANCE INSTRUCTIONS

### REVERSING THE DOOR

The door is designed to be field reversible. Carefully read all of the instructions below before starting. Look closely at the orientation of the door, latch and the strike before disassembling. Take a picture if needed to ensure a correct reassembly. It may take two or three people to safely accomplish this task (See remounting instructions).

1. Remove the door latch trim plate located on the opposite side of the cabinet from the door latch and set the plate and (2) screws aside.



2. Remove the door latch and reinstall the latch in the location where the door latch trim plate was just removed.



3. Reinstall the door latch trim plate where the door latch was previously located.

4. Remove the (2) screws located on the inside bottom of the door. Set the screws aside.

## GENERAL MAINTENANCE INSTRUCTIONS

### REVERSING THE DOOR (cont.)

5. Remove the button detent bracket located on the inside top of the door and reinstall at the mounting locations where the (2) screws were previously located at the inside bottom of the door.
6. Reinstall the (2) screws in the mounting locations at the top inside of the door where the button detent bracket was located previously.



7. Remove the door handle and the handle trim plate from the door.

8. Relocate the (4) door handle screws and the door trip plate to the opposite side of the door handle. Ensure the finished side of the trim plate is facing out.



## GENERAL MAINTENANCE INSTRUCTIONS

### REVERSING THE DOOR (cont.)

9. Reinstall the door handle, door trip plate and (4) screws into the same location as they were removed. The door pull should point up instead of down.



10. Remove the (6) bolts, (3) for the top, (3) for the bottom, located on the side of the cabinet opposite from the door hinges and set aside.



11. With assistance, remove the (6) bolts that attach the door hinges to the cabinet. There are (3) on the top and (3) are the bottom.
12. Rotate the door 180 degrees and mount the top and bottom hinges using the (6) bolts previously removed. The door pull should be pointing down.
13. On the side where the hinges were previously, reinstall the (6) bolts.
14. Adjust the hinges, door handle and door catch as needed to ensure there is a good seal and door closure.

## GENERAL MAINTENANCE INSTRUCTIONS

### CASTERS

Some casters are equipped with Zerk grease fittings so that they may be easily lubricated with a grease gun. It is recommended that all caster bearings need to be lubricated with a high quality multi-purpose grease that has good extreme pressure and anti-wear characteristics, as well as withstands temperature range that fits the application requirements. Wheel and swivel bearings last longer if lubricated regularly.

It is recommended to lubricate the bearings at least once every six months. Lubrication will be required more frequently if carts are cleaned with a hot water or steam cleaning system.



### HINGES

Your cart doors and hinges have been factory aligned to assure positive latching and smooth action. If doors are removed for cleaning, we recommend that they be put back on the same cart to assure the best possible alignment and operation. Correct hinge alignment is based on the correct gasket compression of 1/32" to 1/16". The hinges also need to be aligned with the door strike to accommodate the locking cylinder. To adjust hinge alignment, it is recommended to use assistance. It is recommended to loosen the bolts on the cabinet side of the hinge and apply pressure inward on the door to form the seal on the gasket. Align the door as needed and while maintaining pressure, tighten the bolts.

### LATCHES

Check frequently to insure that all door latches are secure. Latches may become "sticky" due to residue build-up from daily use and cleaning. Lubricate latches regularly with WD-40, silicone spray, graphite or other commercial lubricants for stainless steel products. Do not use oil. If latches require adjustment, it is recommended to use assistance. First, loosen the screws on the latch. Next, align the latch to compress the seal of the gasket by applying pressure to the door while the screws are still loose. Lastly, while maintaining pressure to the door, tighten the screws on the latch.

### PERIMETER BUMPERS

Vinyl which has been dislodged from the channel due to severe bumping or scraping can be corrected by carefully utilizing a screwdriver to guide the rubber bumper back into the bumper channel.

### DRAINING CONDENSATE PAN

Depending on environmental and operating conditions, manually draining the condensate pan may be necessary. It is recommended that the condensate levels in the pan be checked regularly to gauge the necessary frequency, if needed, of manually draining the pan. It is also recommended that the condensate level be checked prior to transport of the unit to prevent possible spillage.

To manually drain the condensate pan, open the valve located on the underside and towards the rear of the unit. Rotate the valve lever counter-clockwise until it stops (parallel with tubing). Once condensate pan has been emptied, turn valve lever clockwise until it stops (perpendicular to tubing).

CLOSED



OPEN



## SERVICE EXPECTATIONS

### SERVICE PHILOSOPHY

***For almost sixty years, Carter-Hoffmann has enjoyed a reputation for manufacturing rugged, dependable foodservice equipment that permits foodservice professionals serve more food products to more people, and thus, to grow their business.***

Our goal is not only to provide the best food service equipment for the price, but also to back it up with after-sale service that is responsive fast, efficient and professional. To ensure a clear understanding of our goals, expectations, and responsibilities, we have prepared this brief document.

Carter-Hoffmann products are innovative and efficient. They are easy to use, easy to clean and easy to maintain. Although the products are quite reliable they are also designed for easy repair. We believe that a malfunction to a Carter-Hoffmann product should cause as little inconvenience to the customer as possible. Our aim is to provide "same day"/first time fix" repair service on all of our products. We are dedicated to making every aspect of our customer service the standard by which others are judged.

### END-USER RESPONSIBILITIES

**While we all strive to serve our mutual customers as well as possible that does not mean that the end-user (including their employees) does not share some responsibilities.**

1. All shipping damage must be noted on the freight bill when the shipment is received. Any freight damages must be collected from the Freight Company, NOT Carter-Hoffmann.
2. The end-user should be advised beforehand to carefully unpack and inspect all products when they are received BEFORE SIGNING THE SHIPPER'S RECEIPT OF DELIVERY.
3. The end-user must provide a safe, dry, level surface for the equipment to be placed upon.
4. The end-user must provide the proper electrical supply. All in-wall electrical modifications are to be completed by a licensed electrician. All building modifications are the responsibility of the end-user.
5. The end-user must operate, clean and maintain the equipment in accordance with the procedures described in the Operation Manual.
6. Carter-Hoffmann is NOT responsible for any loss of the customer's income, loss of food product, extra labor charges, or any other incidental or consequential costs as a result of the malfunction of our product.
7. The end-user shall allow for on-premises repair of the equipment to be completed at a mutually convenient place and time.

### WARRANTY SERVICE

1. Warranty service is to be **initiated** by authorized Carter-Hoffmann personnel only.
2. The service provider is **NOT** authorized to change or extend any of the terms or conditions of our warranty.
3. Initial freight damage is **NOT** covered by the product warranty.

### CONFIDENTIALITY

1. The end user and all his employees and sub-agents shall protect and keep confidential Carter-Hoffmann's proprietary designs, information, and knowledge.
2. All literature and informational materials provided by Carter-Hoffmann are to be considered confidential; they remain Carter-Hoffmann's property; and are not to be reproduced without our prior written consent.

### SHIPPING DAMAGE CLAIM PROCEDURE

**NOTE:** For your protection, please note that equipment in this shipment was carefully inspected and packaged by skilled personnel before leaving the factory. Upon acceptance of this shipment, the transportation company assumes full responsibility for its safe delivery.

#### **IF SHIPMENT ARRIVES DAMAGED:**

1. **VISIBLE LOSS OR DAMAGE:** Be certain that any visible loss or damage is noted on the freight bill or express receipt, and that the note of loss or damage is signed by the delivery person.
2. **FILE CLAIM FOR DAMAGE IMMEDIATELY:** Regardless of the extent of the damage.
3. **CONCEALED LOSS OR DAMAGE:** if damage is unnoticed until the merchandise is unpacked, notify the transportation company or carrier immediately, and file "CONCEALED DAMAGE" claim with them. This should be done within ten (10) days from the date the delivery was made to you. **Be sure to retain the container for inspection.**
4. Carter-Hoffmann cannot assume liability for damage or loss incurred in transit. We will, however, at your request, supply you with the necessary documents to support your claim.

## CARTER-HOFFMANN WARRANTY

Carter-Hoffmann warrants to the initial purchaser of its standard Carter Line Products that Carter-Hoffmann will, at its option, repair or replace, during the warranty period set forth below, any part of such products made necessary due to a defect in material or workmanship which is present when the product leaves its factory and which manifests itself during the warranty period under normal use and service.

This warranty applies only to original equipment owned and possessed by the initial purchaser and the warranty period begins on the date of original shipment from the Carter-Hoffmann factory and extends as follows: to component parts and labor for one year; to refrigeration compressor unit for one year (limited to replacement of the unit only-not to include the labor for removal, repair or replacement). Repair or replacement under this warranty will be performed, unless otherwise authorized in writing by Carter-Hoffmann, at its factory. All parts or components to be repaired or replaced under this warranty are to be shipped prepaid to Carter-Hoffmann, with reimbursement credit for such part or component to be given if found by Carter-Hoffmann to be defective.

Carter-Hoffmann neither makes nor assumes and does not authorize any other person to make or assume any obligation or liability in connection with its products other than that covered in this warranty. This warranty applies only within the continental United States and Canada. In Alaska and Hawaii, this warranty applies only to and is limited to the supply of replacement parts.

## WARRANTY EXCLUSIONS AND LIMITATIONS

ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS HEREBY SPECIFICALLY DISCLAIMED BY CARTER-HOFFMANN. There are no warranties, express or implied, which extend beyond the description on the face thereof.

This warranty does not cover and Carter-Hoffmann shall not under any circumstances be liable for any incidental, consequential or other damages (such as injury to persons or property, loss of time, inconvenience, loss of use, loss of business or profits, or other matters not specifically covered) arising in connection with the use of, inability to use, or failure of these products.

Note: Due to our continuous process of product improvement and innovation, all listed specifications subject to change.

### ***Carter-Hoffmann***

**1551 McCormick Ave.**

**Mundelein, Illinois, 60060 USA**

*Phone: 847-362-5500 Toll free: 800-323-9793 Fax: 847-367-8981*

*Sales and Marketing E-mail: [sales@carter-hoffmann.com](mailto:sales@carter-hoffmann.com)*

*Service E-mail: [technicalservice@carter-hoffmann.com](mailto:technicalservice@carter-hoffmann.com)*

*Company Website: [www.carter-hoffmann.com](http://www.carter-hoffmann.com)*



**Proud Member**

