# KRATOS

## Undercounter/Worktop Refrigerators and Freezer

### Service, Installation and Care Manual

**Please read this manual completely before attempting to install or operate this equipment.**

**Notify carrier of damage! Inspect all components immediately.**



# For Kratos Chef's Base Models: 67K-300, 67K-301, 67K-302, 67K-303, 67K-304, 67K-305, 67K-306, 67K-307, 67K-308, 67K-309, 67K-310, 67K-311, 67K-312, 67K-313

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# INTRODUCTION

This user's manual is intended for installing, using and servicing your Kratos appliance. It is recommended that this manual be kept in an accessible place. Every Kratos machine is designed and manufactured according to the highest standards of safety and performance. It meets or exceeds UL 471 safety standards and sanitation standard NSF 7.

Kratos assumes no liability or responsibility of any kind for products manufactured by Kratos that have been altered in any way, including the use of any parts and/or other components not specifically approved by Kratos.
Kratos reserves the right to make design changes and/or improvements at any time. Specifications and designs are subject to change without notice.

## SERIAL NUMBER INFORMATION

- The serial number of all self-contained appliances is located inside the unit on the left hand side near the top on the interior wall.
- Always have the serial number of your unit available when calling for parts or service.

READ THIS MANUAL IN ITS ENTIRETY
TO HELP FAMILIARIZE YOURSELF WITH YOUR NEW EQUIPMENT BEFORE PROCEEDING.
We have provided many important safety messages in this manual.
Always read and obey all safety messages.
Understanding of safety messages will assist in alerting you to potential hazards, as well as tell you how to reduce the chance of injury. Follow the instructions as outlined in this manual.

*Due to periodic changes in designs, methods, procedures, policies and regulations, the contents of this manual are subject to change without notice. While we exercise good faith efforts to provide information that is accurate, we are not responsible for errors or omissions in information provided or conclusions reached as a result of using this reference manual. By using the information provided rather than simply using it for reference purposes, the user assumes all risks in connection with such use.*

## CAUTION FOR SAFETY.

1. **Caution:** Leave enough space from the wall to the cabinet and the ceiling; do not be sealed completely in the back part of the cabinet, prepare an air vent to the outside.
   **Caution:** It needs more than 8” from the cabinet to wall.
2. **Caution:** Please move away all out-package for bottom heat radiation to avoid fire.
3. **Caution:** It’s prohibited to store flammable and volatile chemical, or leading to exploding.
4. **Caution:** Individual singe-phase socket must be used. It should be reliably connected to a grounding wire.
   **Caution:** Do not connect grounding wire to a water or gas pipe.
5. **Caution:** Do not be hard collided or fiercely vibrated when in transportation; it is not larger than 45’’ for the inclination of the cabinet.
6. **Caution:** Please refer to the Trouble Shooting references when the unit is facing some problems. Do not attempt to solve the problem on your own. Please refer to certified technician only.
7. **Caution:** Risk of fire or explosion. Flammable refrigerant used. Consult repair manual/owner’s guide before attempting to service this product. All safety precautions must be followed.
8. **Caution:** Risk of fire or explosion. Dispose of properly in accordance with federal or local regulations. Flammable refrigerant used.
9. **Caution:** Risk of fire or explosion due to puncture of refrigerant tubing; follow handling instructions carefully. Flammable refrigerant used.
10. **Caution:** Keep clear of obstruction all ventilation openings in the appliance enclosure or in the structure for building-in.
11. **Caution:** Servicing shall be done by supplier authorized service personnel, so as to minimize the risk of possible ignition due to incorrect parts or improper service.

## RECEIVING AND INSPECTING THE EQUIPMENT

Even though most equipment is shipped crated, care should be taken during unloading so the equipment is not damaged while being moved into the building.

1. Visually inspect the exterior of the package and skid or container. Any damage should be noted and reported to the delivering carrier immediately.
2. If the damage appears minor, open and inspect the contents with the carrier. Take photographs of the packaging before its opened. If the carrier is impatient & won't wait, return the goods if the damage appears to be anything more substantial than superficial harming of the external protective packing layers.
3. In the event that the exterior is not damaged, yet upon opening, there is concealed damage to the equipment, notify the carrier. Notification should be made verbally as well as in written form.
4. Request an inspection by the shipping company of the damaged equipment. This should be done within 10 days from receipt of the equipment.
5. Be certain to check the compressor compartment housing and visually inspect the refrigeration package. Be sure lines are secure and base is still intact.
6. Freight carriers can supply the necessary damage forms upon request.
7. Retain all crating material until an inspection has been made or waived.

## APPLIANCE SAFETY

Always read and obey all safety messages.



This is the Safety Alert Symbol. This symbol alerts you to potential hazards that can injure or kill you and others. All safety messages will follow the Safety Alert Symbol and either the words **"DANGER", "WARNING" OR "CAUTION".**

**DANGER**

**DANGER** means that failure to heed this safety statement may result in Death or Severe Personnel Injury.

**WARNING**

**WARNING** means that failure to heed this safety statement may result in extensive product damage, serious personal injury, or death.

**CAUTION**

**CAUTION** means that failure to heed this safety statement may result in minor or moderate personal injury, or property or equipment damage.

All safety messages will alert you to what the potential hazard is, tell you how to reduce the chance of injury, and let you know what can happen if the instructions are not followed.



**NOTE: IMPORTANT SAFETY INSTRUCTIONS**

**WARNING**

To reduce the risk of fire, electric shock or injury, when using your appliance, follow these basic precautions:

- Plug into grounded 3-prong outlet.
- Do not remove grounding prong.
- Do not use an adapter.
- Do not use an extension cord.
- Disconnect power before cleaning.
- Disconnect power before servicing.
- Use 2 or more people to move and install appliance.

# SAVE THESE INSTRUCTIONS

# IMPORTANT SAFEGUARDS



**Before the appliance is used, it must be properly positioned and installed as described in this manual, so read the manual carefully. We strongly recommend that you have a professional install your new machine. The warranty may be affected or voided by an incorrect installation. To reduce the risk of fire, electrical shock or injury when using the appliance, follow basic precautions, including the following:**

## DANGER

- It is recommended that a separate circuit, serving only your appliance, be provided. Use receptacles that cannot be turned off by a switch or pull chain.
- Please ensure that the required voltage is being supplied at all times.
- The unit should be plugged into a grounded and properly-sized electrical outlet with appropriate over-current protection.
- Ensure the unit is not resting on or against the electrical cord.
- Do not connect or disconnect the electric plug when your hands are wet.
- Never unplug the appliance by pulling on the power cord. Always grip the plug firmly and pull straight out from the outlet.
- Never clean appliance parts with flammable fluids. Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance. The fumes can create a fire hazard or explosion.
- Before proceeding with cleaning and maintenance operations, make sure the power line of the unit is disconnected.
- Unplug the appliance or disconnect power before cleaning or servicing. Failure to do so can result in electrical shock or death.
- If the unit is not in use for a long period of time, it is best to unplug the unit from the outlet.
- After unplugging or if a power outage occurs to the unit, wait at least 10 minutes before plugging it back in. Failure to do so could cause damage to the compressor.
- Do not operate the appliance with a frayed or crimped power cord.
- Do not attempt to repair or replace any part of your appliance unless it is specifically recommended in this manual. A qualified technician should do all other servicing or repairs.
- Flammable refrigerant used in this units with the risk of fire or explosion. Do not use mechanical devices to defrost the unit. Do not puncture refrigerant tubing.
- Risk of fire or explosion. Flammable refrigerant used. To be repaired **ONLY by trained service personnel**. Do not puncture refrigerant tubing.

## WARNING

- Use two or more people to move and install appliance. Failure to do so can result in serious injury.
- This appliance must be properly installed and located in accordance with the Installation Instructions before it is used.
- Do not touch the cold surfaces in the appliance compartment when hands are damp or wet. Skin may stick to these extremely cold surfaces.
- Setting temperature controls to the ZERO (0) position does not disconnect power from the appliance, it must be turned off at the unit appliance circuit breaker or by unplugging it.
- To ensure proper ventilation for your appliance, choose a well-ventilated area with temperatures above 50ºF (10ºC) and below 86ºF (30ºC). If in an environment with a temperature between 86 and 104ºF (30 to 40ºC) use of a fan blowing into the utility compartment or similar auxiliary cooling of that area is required. This unit MUST be installed in an area protected from the elements, such as wind, rain, water spray or drips.
- The appliance should not be located next to fryers, ovens, grills or other sources of high heat.
- It is important for the appliance to be level for proper operation. You may need to make adjustments to the unit to level it.

- Remove the packing materials & be sure to discard them as the work area is policed. Clean the appliance before using.
- Do not use this apparatus for other than its intended purpose.
- Only trained, qualified personnel should attend to and monitor the appliance's performance/preventative maintenance.
- Never use the shelving as a stepping stool or ladder.
- Please refer to the Trouble Shooting references when the unit is having problems. Do not attempt to solve the problem on your own. Please refer to a certified technician only.
- Risk of fire or explosion. Flammable refrigerant used. Consult repair manual/owner's guide before attempting to service this product. All safety precautions must be followed.
- Risk of fire or explosion. Dispose of properly in accordance with federal or local regulations. Flammable refrigerant used within the unit.
- Risk of fire or explosion due to puncture of refrigerant tubing; follow handling instructions carefully. Flammable refrigerant used.
- Servicing shall be done by supplier authorized service personnel to minimize the risk of possible ignition due to incorrect parts or improper service.

# IMPORTANT SAFEGUARDS (cont.)

## Electrical Connection

Do not, under any circumstances, cut or remove the third (ground) prong from the power cord. For personal safety, this appliance must be properly grounded. The power cord of this appliance is equipped with a 3-prong grounding plug that mates with a standard 3-prong grounding wall outlet to minimize the possibility of electric shock hazard from the appliance. Have the wall outlet and circuit checked by a qualified electrician to make sure the outlet is properly grounded. The appliance should always be plugged into its own individual electrical outlet which has a voltage rating that matches the rating label on the appliance. This provides the best performance while also preventing the overloading wiring circuits which could cause a fire hazard from overheated wires. Repair or replace immediately all power cords that have become frayed or otherwise damaged. Do not use a cord that has been crimped, shows cracks, or has frayed insulation, abrasions, or damage along its length or at either end. When moving the appliance, be careful not to damage the power cord.

## Power Surges

Connecting the unit to the incorrect voltage or oversized circuit protection (i.e., a breaker rated for over 20 amps) is not covered by the appliance warranty. Neither is a damaged power cord, using unauthorized electrical components and/or modifying the units wiring.

## Disposal

- **Refrigerant**
  - If you are disposing of your old appliance, it has flammable refrigerant. Make sure the refrigerant is removed for proper disposal by a qualified service technician.
- **Appliance**
  - Follow and comply with all applicable codes and ordinances, cut the plug off the electrical power cord, remove the door(s), and discard the shelving. This prevents misuse of the unit after it has been scrapped.
  - The appliance uses flammable insulation blowing gas C5H10, disposal of the appliance shall be in accordance with the regulations of local authorities.

# APPLIANCE INSTALLATION

**WARNING**

**Excessive Weight Hazard**

Use two or more people to move and install appliances.

Failure to do so may result in serious injury.

## Remove Packaging Materials

**IMPORTANT:**

**Do not remove any permanent instruction labels or the data label on your appliance.**

- Remove tape and glue from your appliance before using.
- To remove any remaining tape or glue, rub the area briskly with your thumb or a sponge. Tape or glue residue can also be easily removed by rubbing a small amount of liquid dish soap over the adhesive with your fingers. Wipe with warm water and dry with a soft cloth.
- Do not use sharp instruments, rubbing alcohol, flammable fluids, or abrasive cleaners to remove tape or glue. These products can damage the surface of your appliance.

***NOTICE:***

***LOSS OR SPOILAGE OF PRODUCTS IN YOUR APPLIANCE IS NOT COVERED BY WARRANTY. IN ADDITION TO FOLLOWING THE RECOMMENDED INSTALLATION PROCEDURES AFTER IT HAS BEEN SET IN PLACE, DO NOT RUN THE APPLIANCE FOR 24 HOURS TO LET OIL IN THE REFRIGERANT LINE TO RE-EQUILIBRATE. (DO NOT LOAD WITH PRODUCT UNTIL THE UNIT TEMPERATURE HAS REACHED ITS SET POINT.)***

**Location**

Units represented in this manual are intended for indoor use only. Be sure the location chosen has a floor strong enough to support the total weight of the cabinet and contents. A fully loaded unit can weigh as much as 1500 pounds. Reinforce the floor as necessary to provide for maximum loading. For the most efficient refrigeration, be sure to provide good air circulation inside and out.

**Inside cabinet:**

Do not pack the units so full that air cannot circulate. The refrigerated air is discharged at the top rear of the unit. It is important to allow for proper air flow from the top rear to the bottom of the unit. Obstructions to this air flow can cause evaporator coil freeze ups and loss of temperature or overflow of water from the evaporator drain pan. The shelves have a rear turn up on them to prevent this. However, bags and other items can still be located to the far rear of the cabinet. Air is brought into the evaporator coil with fans mounted to the front of the coil.

**Outside cabinet:**

Be sure that the unit has access to ample air. Avoid hot corners and locations near stoves and ovens.
It is recommended that the unit be installed no closer than 2" from any wall with at least 12" of clear space above the unit.

**Leveling**

A level cabinet looks better and will perform better because the doors will line up with the frames properly. Use a level to make sure the unit is level from front to back and side to side. Units supplied with legs will have adjustable bullet feet to make the necessary adjustments. If the unit is supplied with casters, no adjustments are available. Ensure the floor where the unit is to be located is level.

**Stabilizing**
All models are supplied with casters for your convenience. It is very important, however, that the cabinet be installed in a stable condition with the front wheels locked while in use.
Should it become necessary to lay the unit on its side or back for any reason, allow at least 24 hours before start-up to allow compressor oil to flow back into place. Failure to meet this requirement can cause compressor failure and unit damage.




**Unit repairs will not be subject to standard unit warranties if due to improper installation procedures.**




**The unit must be turned OFF and disconnected from the power source whenever performing service, maintenance functions or cleaning the refrigerated area.**

# OPERATION




**Do not throw items into the storage area. Failure to heed these recommendations could result in damage to the interior of the cabinet.**

**Refrigerated cycle**

**Refrigerators:** During the refrigeration cycle, the evaporator fans wilt run continuously even when one or more doors are open. The door switch will activate the lights when opened.
1. Every 6 hours, the unit will turn off and to allow the evaporator coil to defrost. The controller now displays defrost symbol. When the coil temperature reaches 41°F or after 20 minutes of defrost, the unit will turn on again.
2. Anti-condensation heaters on door frames work in conjunction with the compressor.
3. The factory setting for the temperature range is 33° to 41° F.

**The unit must be turned OFF and disconnected from the power source whenever performing service, maintenance functions or cleaning the refrigerated area.**

**Refrigerators and Freezers**
The interior and exterior can be cleaned using soap and warm water. If this isn't sufficient, try ammonia and water or a nonabrasive liquid cleaner. When cleaning the exterior, always rub with the "grain" of the stainless steel to avoid marring the finish. Do not use an abrasive cleaner because it will scratch the stainless steel and plastic and can damage the breaker strips and gaskets.




**Never use a high pressure water wash for this cleaning procedure as water can damage the electrical components located near or at the condenser coil.**

In




**NEVER USE STEEL PADS, WIRE BRUSHES OR SCRAPERS!**

## MAINTENANCE

Cleaning solutions need to be alkaline based or non-chloride based. Any cleaner containing chlorides will damage the protective film of the stainless steel. Chlorides are commonly found in hard water, salts, and household and industrial cleaners. If cleaners containing chlorides are used, be sure to rinse and dry thoroughly.

Routine cleaning of stainless steel can be done with soap and water. Extreme stains or grease should be cleaned with a non-abrasive cleaner and plastic scrub pad. It is always good to rub with the grain of the steel.

There are also stainless steel cleaners available which can restore and preserve the finish of the steel's protective layer. Early signs of stainless steel breakdown can consist of small pits and cracks. If this has begun, clean thoroughly and start to apply stainless steel cleaners in attempt to restore the passivity of the steel.

***NOTICE:***

***Unit repairs will not be subject to standard warranties if due to improper installation, procedures, or utilizing an unqualified installer technician to commission the unit.***

## Electrical Connection

Refer to the amperage data on the Technical Information table, the serial tag, your local code, or the National Electrical Code to be sure that unit is connected to the proper power source.



DANGER

**The unit must be turned OFF and disconnected from the power source whenever performing service, maintenance functions or cleaning the refrigerated area. Failure to comply may result in Death or Severe Personnel Injury.**

# OPERATION

## Refrigerated cycle

**Refrigerators:** During the refrigeration cycle, the evaporator fans will run continuously even when one or more doors are open. The door switch will activate the lights when opened.

- Every 6 hours, the unit will turn off and on to allow the evaporator coil to defrost. The controller now displays defrost symbol. When the coil temperature reaches 41°F or after 20 minutes of defrost, the unit will turn on again.
- Anti-condensation heaters on door frames work in conjunction with the compressor.
- The factory setting for the temperature range is 33° to 41° F.

# SOLID-STATE THERMOSTAT OPERATIONS






**Table of alarms**

| Alarm code | | LED | Description | Parameters involved |
|---|---|---|---|---|
| E0 | E0 | ON | probe 1 error = control | - |
| E1(*) | E1 | ON | probe 2 error = defrost | [d0 = 0 / 1] |
| dr(*) | dr | ON | open door alarm | |
| Lo | Lo | ON | low temperature alarm | [AL] [Ad][A0] |
| HI | HI | ON | high temperature alarm | [AH] [Ad][A0] |
| EE | EE | ON | unit parameter error | - |
| EF | EF | ON | operating parameter error | - |

(*) not available for PJEZS*E*

### Setting the set point (desired temperature)

- press SET for 1 s, the set value will start flashing after a few moments;
- increase or decrease the value using ▲ or ▼ ;
- press SET to confirm the new value.

### Switching the device ON/OFF

press ▲ for more than 3 s. The control and defrost algorithms are now disabled and the instrument displays the message"OFF" alternating with the temperature read by the set probe.

### Manual defrost (only for models C/Y)

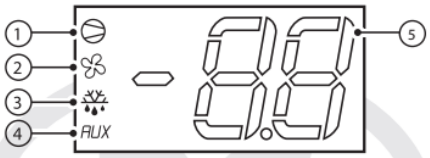
press down ▼ for DOWN more than 3 s (the defrost starts only the temperature conditions are valid).

Always remember to calculate the differential if you change the minimum temperature setting. The cabinet temperature will fluctuate up to +7°F over your set minimum temperature as the compressor runs and shuts off. Setting the temperature too high will result in unsafe maximum temperatures and possible health code violations.

**Display and functions**

During normal operation, the controller displays the ambient temperature. In addition, the display has LEDs that indicate the activation of the control functions (see Table 1), while the 3 buttons can be used to activate/deactivate some of the functions (see Table 2).

**LEDs and associated functions**




| index | function | normal operation | | | Start up |
|---|---|---|---|---|---|
| | | ON | OFF | blink | |
| 1 | compressor | on | off | request | on |
| 2 | fan | on | off | request | on |
| 3 | defrost | on | off | request | on |
| 4 | aux | output on | output off | - | on |
| 5 | digit | 2 digit LED display with sign (-99 to 99) and decimal point | | | |

Table.1

**Table of functions activated by the buttons**




| button | normal operation | | start up | |
|---|---|---|---|---|
| | pressing the button alone | pressed together | | |
| | more than 3 s: toggle ON/OFF | pressed together display defrost probe temp. | - | |
| | more than 3 s: start/stop defrost | | Pressed together start parameter reset procedure | For 1 s: display firmware vers. code |
| | 1 s: display/set the set point<br>More than 3 s: access parameter setting menu(enter password '22') | - | | |

Table.2

# TIPS FOR PROPER OPERATION, CLEANING AND MAINTENANCE

1. The unit should be cleaned daily as well as being tested for the proper holding temperature by measuring the content temperature and comparing it to the temperature displayed on the controller. They should be within 3°F of each other.
2. When cleaning the exterior surface always use a soft cloth or microfiber towel. If a stiff bristle brush, scouring pad or scraper is used, the protective chromium oxide barrier will be penetrated allowing the appliance to show signs of rust.
3. When cleaning the interior or exterior of the appliance always use a mild detergent solution or warm soapy water. This won't harm the plastic or metallic substances and will remove most residual surface dust and grime. If a more aggressive cleaning is needed use a General Purpose Synthetic Fiber Green Scouring Pad and a solution of dish detergent and warm water or a stainless steel cleaner/polishing product.
4. Ensure your gaskets are making a good compression seal and aren't torn or damaged as air entering the unit can increase the appliance's refrigeration system energy usage. In extreme cases, the temperature could fall out of range. When changing a gasket, it is recommended that a dab of gasket adhesive be applied every 10 to 12 inches to help hold the gasket in position. This escaping air may cause surface condensation.
5. Do not pack the unit so full that air cannot circulate. The refrigerated air is discharged at the bottom rear of the unit. It is important to allow for proper air flow from the top rear to the bottom of the unit.

6. Minimize the number of times the appliance door needs to be opened, as frequent access may preclude the unit's ability to maintain the proper temperature.
7. Use shelving with rear and side turn up rails to ensure proper air circulation is maintained as this is needed for effective, efficient temperature regulation.
8. Never use an infrared thermometer to monitor the unit's contents bulk temperature as they aren't accurate for this application. Use a NIST capable instrument with the right prove and calibrate the thermometer at least 3 times a year using an ice bath. Digital pocket thermometers may be off by as much as 1.8°F when measuring refrigerated products.
9. For best performance, the ambient conditions should be less than 80°F with a relative humidity below 65%.
10. Ensure the automatic defrost cycle is set to keep the evaporator fan coil free of ice with proper air flow or the unit won't maintain the right temperature. The set point for an appliance should be between -13° and 14°F to preserve the shelf life and freshness of your stored products without needing to worry about a frozen evaporator.
11. Periodically inspect the displayed appliance temperature and measured steady state product temperature with a calibrated high-quality digital thermometer. The two readings should agree within 4º F and be below the recommended product holding temperature established by your operating procedures as well as the model food code.
12. The cooling fins are subject to clogging with grease, dust, and other particulates even if an air filter is in place. The cooling fins should be cleaned using a commercial vacuum and if necessary, a degreaser at least 3 times a year. Do not use a wire or stiff bristle brush to avoid fin damage.
13. Any refrigeration system will generate condensate by cooling the air as it circulates through the appliance. At least twice a year, the drain line or condensate evaporator, tested to ensure the generated condensate is being adequality dealt with, and thoroughly cleaned/descaled so the condensate is always properly evacuated from the appliance.
14. The refrigeration system comes with a controller or thermostat to regulate the cold compartment temperature. New digital controllers have a differential setting that establishes when the refrigeration system cuts in and out around the selected set point. A 3° or 4°F differential is recommended for most applications to deliver tight temperature regulation without short cycling the compressor.
15. Only load the unit with pre-cooled product at temperature, warm product can cause food safety issues and impact the cooling of the unit.
16. Grabbing and pulling the door to reopen it immediately after its closed (before the internal and external pressures are again equal) will damage the gasket. This will cause a need for faster replacement and impact performance if air is let in from damaged gasket.

# CLEANING AND MAINTENANCE



**DANGER**

**The unit must be turned off and disconnected from the power source whenever performing service, maintenance functions or cleaning the refrigerated area. Failure to comply may result in death or severe personnel injury.**

**NOTE**

**Ongoing appropriate preventative & repair maintenance along with cleaning the unit will preserve its performance, deliver high quality fresher product, and extend the appliance life.**

## Exterior and Interior Cleaning of Appliances

Clean using soap and warm water. If this isn't sufficient, try ammonia or a degreasing detergent and water or a nonabrasive multi-surface liquid cleaner. When cleaning the exterior, always rub with the "grain" of the stainless steel to avoid marring the finish.

- Do not use an abrasive cleaner because it will scratch the stainless steel and plastic and can damage the breaker strips and gaskets.

## Cleaning the Condenser Coil

Regular cleaning is recommended every 90 days. In some instances, you may find that there is a large amount of debris and dust or grease accumulated prior to the 90 day time frame. In these cases the condenser coil should be cleaned every 30 days.

If the buildup on the coil consists of only light dust and debris, the condenser coil can be cleaned with a simple brush. Heavier dust build-up may require a vacuum or even compressed air to blow through the condenser coil.

If heavy grease is present, there are de-greasing agents available for refrigeration use and specifically for the condenser coils. The condenser coil may require cleaning with the de-greasing agent and then blown clear with compressed air or $CO_2$.

Failure to maintain a clean condenser coil can initially cause high temperatures and excessive run times. Continuous operation with dirty or clogged condenser coils can result in compressor failures. Neglecting the condenser coil cleaning procedures will void any warranties associated with the compressor or cost to replace the compressor.

- For efficient operation, keep the condenser surface free of dust, dirt, and lint.
- We recommend cleaning the condenser coil at least once per quarter more in a greasy/dust environment.
- Clean the condenser with a commercial condenser coil cleaner and a soft brush, available from any commercial refrigeration equipment retailer, or vacuuming the condenser with a shop vac or use $CO_2$.



**CAUTION**

**Never use a high pressure water wash for this cleaning procedure as water can damage the electrical components located near or at the condenser coil.**

To maintain proper refrigeration performance, the condenser fins must be clear of dust, dirt, and grease regularly. It is recommended that this be done at least every three to 4 months. If conditions are such that the condenser is totally or significantly blocked in three months, the frequency of cleaning should be increased. Clean the condenser with a vacuum cleaner or stiff brush. If extremely dirty, a commercial-grade condenser cleaner may be required.

# CLEANING AND MAINTENANCE (cont.)

## Stainless Steel Care and Cleaning

To prevent rust or discoloration on stainless steel several important steps need to be taken. First, one must understand the properties of stainless steel. Stainless steel contains 70-80% iron which will rust. It also contains 12-30% chromium which forms an invisible passive film over the steels surface which acts as a shield against corrosion. As long as the protective layer is intact, the metal is still stainless. If the film is broken or contaminated, outside elements can begin to breakdown the steel and begin to form rust or discoloration. At least every 6 weeks the stainless steel surfaces should be cleaned and treated with a cleaner/polish product. Use of “hard water” with minerals like iron in it must be dealt with immediately (wipe dry) or the surface may tend to rust.



**CAUTION**

**Proper cleaning of stainless steel requires soft cloths or plastic scouring pads, never use steel pads, wire brushes or scrapers.**

Cleaning solutions need to be alkaline based or non-chloride based. Any cleaner containing chlorides will damage the protective film of the stainless steel. If cleaners containing chlorides are used, be sure to rinse and dry thoroughly (similar to the use of hard water).
Routine cleaning of stainless steel can be done with soap and water. Extreme stains or grease should be cleaned with a non-abrasive cleaner and plastic scrub pad. It is always good to rub with the grain of the steel. There are also stainless steel cleaners available which can restore and preserve the finish of the steel’s protective layer.
Early signs of stainless steel breakdown can consist of small pits and cracks. If this has begun, clean thoroughly and start to apply stainless steel cleaners in attempt to restore the passivity of the steel.



**CAUTION**

**Never use an acid based cleaning solution! Many food products have an acidic content which can deteriorate the finish. Be sure to clean the stainless steel surfaces of all food products.**

## Gasket Maintenance

Gaskets require regular cleaning to prevent mold and mildew build up as well as to keep the elasticity of the gasket. Gasket cleaning can be done with the use of warm soapy water. Avoid full strength cleaning products on gaskets. Do not use sharp tools or knives to scrape or clean the gasket.
Gaskets can easily be replaced and don’t require the use of tools or authorized service technicians. The gaskets are "Dart" style and can be pulled out of the grove in the door and replaced by pressing the new one back into place. Do not run the unit long after noticing the gasket is torn or not sealing – immediately schedule replacing it. Over time gaskets will wear, as such they and other wear parts are not covered by the appliance warranty.

## Doors/Hinges

If the door is beginning to sag, tighten the screws that mount the hinge brackets to the frame of the unit. If the doors are loose or sagging, this can cause the hinge to pull out of the frame which may damage both doors and door hinges. (It may be necessary to insert some form of reinforcement if an old door & hinge set becomes loose so it can be tightened without stripping out of the body).

## Drain Maintenance

Each unit has a drain located inside the unit which removes the condensation from the evaporator coil and evaporates it into an external condensate evaporator pan or feeds into a floor drain sump. The drain can become loose or disconnected. If you notice excessive water accumulation on the inside of the unit, be sure the drain tube is connected from the evaporator housing to the condensate evaporator drain pan.
If water starts to collect underneath the unit, check the condensate evaporator drain tube to be sure it is still located inside the drain pan. Also confirm the evaporator pan (where the condensate cannot feed into a floor drain) is keeping up with the discharge water, if not a larger electric condensate pan is needed. Excessive moisture or frequent accessing of the appliance content in a fairly humid ambient creates the need for a larger and more powerful condensate evaporator which isn’t covered by the appliance warranty.
If your floor is not level, this can also cause drain problems. Be sure all drain lines are free of obstructions because this may cause water to back up and overflow the drain pans.

# TROUBLESHOOTING GUIDE

### BEFORE CALLING FOR SERVICE

If the unit appears to be malfunctioning, read through the OPERATION section of this manual first. If the problem persists, see Troubleshooting chart below. The problem may be something very simple that can be solved without a service call. Always see if this chart describes the problem and offers a remedy to the problem.

| SYMPTOM | POSSIBLE CAUSE | CORRECTIVE ACTION |
|---|---|---|
| Compressor not running | Fuse blown or circuit breaker tripped. | Replace fuse or reset circuit breaker |
| | Power cord unplugged. | Plug in power cord. |
| | Thermostat set too high. | Set thermostat to lower temperature |
| | Cabinet in defrost cycle. | Wait for defrost cycle to finish. |
| Condensing unit runs for long time. | Excessive amount of warm product placed in cabinet. | Allow adequate time for product to cool down. |
| | Prolonged door opening or door ajar. | Ensure doors are closed when not in use. Avoid opening doors for long periods of time. |
| | Door gasket(s) not sealing properly. | Ensure gaskets are snapped in Completely. Remove gasket and wash with soap and water. Replace if necessary. |
| | Dirty condenser coil. | Clean the condenser coil. |
| | Evaporator coil up. | Unplug unit and allow coil to defrost. Make sure temperature setting is not too lower. Ensure that door gasket(s) are sealing properly. |
| Cabinet inside temperature is too high. | Temperature setting is too high. | Set parameter to lower temperature. |
| | Air flow is blocking. | Re-arrange product to allow for proper air flow. Make sure there is at least four inches of clearance from evaporator. |
| | Excessive amount of warm product placed in cabinet. | Allow adequate time for product to cool down. |
| | Fuse blown or circuit breaker tripped. | Replace fuse or reset circuit breaker. |
| | Evaporator coil ice up. | Inspect the defrost heater if the fuse is burned.<br>Inspect the temperature controller if the defrost parameter setting is wrong |
| Cabinet Noisy | Parts are loose | Fastening loose parts |

## TROUBLESHOOTING (cont.)



WARNING:

This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

For more information: www.P65Warnings.ca.gov

## SERVICE AND TROUBLESHOOTING TIPS

1. The compressor comes with a 5 year limited warranty (2 year parts and labor and the subsequent 3 years part only). Properly assess the root cause of the problem, as issues that can cause similar symptoms such as weak refrigerant charge (leaks), condensing unit fan not performing properly, temperature controller failure, faulty starting or running components and filter drier needing replacement are not covered by the warranty. Service technician in years 2-5 must affirm the failure is the compressor and not the listed reasons.
2. The appliance is outfitted with Schrader access ports to make servicing easier enabling use of a pressure gauge connected to either the high or low side as well as facilitating applying a vacuum and recharging the refrigeration system.
3. A dirty or clogged condenser is not covered by the warranty.
4. After 30 days in service, gaskets and the door(s) sealing improperly are not covered by our warranty.
5. If the set point or auto defrost cycle program are misadjusted that condition is not covered by our warranty
6. A perimeter door heater can be replaced by removing the cover plate and replacing the heat cord element.

# 2 Year Limited Parts & labor Warranty

Kratos offers a warranty to the original purchaser of new equipment, that the model of equipment will be free of defects in material and workmanship for a period of 2 year from the original date of delivery. The Compressor is covered for the timeframe of 5 years. Equipment must be installed by a qualified installer where applicable. Warranty coverage is only valid in the Contiguous United States & Canada. It is for commercial customers and is not transferrable. Kratos will repair, provide replacement components, replace the entire unit, or refund the purchase price to satisfy the warranty obligation. Not to exceed the original price of the item purchased. Kratos makes no other warranties, express or implied, statutory, or otherwise, and hereby disclaims all implied warranties, including the implied warranties of merchantability and of fitness for a particular purpose.

**The 2 Year warranty does not cover:**

- Failure to install and/or use equipment within proper operating conditions as specified by Kratos. Improper operating conditions include but is not limited to Residential, outdoor, or mobile applications.
- **For commercial use only, residential use voids warranty.**
- **Mobile applications fall under a different level of coverage as outlined below.**
- **Outdoor use will void the warranty.**
- Issues related to improper installation which are the responsibility of the installer. To include improper voltage, phase, or fuel type.
- Damage caused by power surges, brownouts, or inconsistent voltage such as when connected to a generator. Also to include damage caused by vandalism; improper handling, maintenance, or storage; use of unauthorized parts, impacts by foreign objects, harmful chemicals, fire, flooding, or Acts of God.
- Failure to properly maintain equipment or failure due to lack of routine cleaning.
- Parts deemed by Kratos to be normal wear and tear parts including, but not limited to, casters, hoses, grates, glass, light bulbs, and rubber components.
- Products that have been modified, abused, or misused intentionally or accidentally. Any products that have been exposed to corrosive or other cleaners not intended for use on stainless steel will void the warranty.
- Any products sold outside the contiguous United States OR Canada.
- Any products where the original sale cannot be determined. No order #, invoice or receipt to provide proof of purchase will result in no warranty coverage.
- Service requires prior notice to Kratos and within 30 days of discovery of the defect, not to exceed the length of the warranty following the original date of delivery.
- Repair service must be through authorized Kratos services and not by unauthorized or unqualified persons. Repairs must be completed using parts consistent with Kratos OEM parts, except where permissible by state law.
- Rust or other damage caused by exposure to moisture.
- Freight damage must be made at time of delivery and addressed with the carrier for compensation.
- Kratos will not be liable for any parties that experience loss of product, consequential damage, lost business, or any other expenses.

The warranty does not cover overtime, holiday or weekend rates or other off-hour rates. Kratos reserves the right to deny coverage after a service technician is on site based on the above exclusions. Kratos will not be responsible for any service charges from non-warranty related labor and/or parts.

**Food Truck/Mobile Application Warranty**

Valid only in Contiguous United States

Kratos warrants all new equipment sold to food truck or other mobile applications for a period of **90 days** from the date of delivery and proper installation. Contact your authorized place of purchase for assistance.

**For Warranty Inquiries or Service**

Have your model number, serial number, and original order number ready to make an inquiry or claim. If possible, include pictures, a video and description of the problem to help expedite the processing time. Kratos reserves the right to investigate any warranty claim and evaluate the defective product to authenticate the problems found. Failure to permit this investigation and allow access to the defective item will void this warranty. Return authorization must be received from Kratos prior to returning any item. Any item that arrives without prior authorization will be refused and shipping costs will not be covered by Kratos.

- Call 1-800-215-9293
- Email crpcustomerservice@takktfoodservices.com