OPERATORS MANUAL

RANDELL®

This manual provides
Installation & Operating instructions for

BLAST CHILLER

NOTIFY CARRIER OF DAMAGE AT ONCE.
It is the responsibility of the consignee to inspect the container upon receipt of same and to determine the possibility of any damage, including concealed damage. Randell suggests that if you are suspicious of damage to make a notation on the delivery receipt. It will be the responsibility of the consignee to file a claim with the carrier. We recommend that you do so at once.

Manufacture Service/Questions 888-994-7636.

Information contained in this document is known to be current and accurate at the time of printing/creation. Unified Brands recommends referencing our product line websites, unifiedbrands.net, for the most updated product information and specifications.

P/N OMANUAL_MNL0016-01/01

UNIFIED BRANDS
FOODSERVICE EQUIPMENT SOLUTIONS
A DOVER COMPANY

1055 Mendell Davis Drive
Jackson, MS 39272
888-994-7636, fax 888-864-7636
randell.com

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Congratulations on your recent purchase of Randell food service equipment, and welcome to the growing family of satisfied Randell customers.

Our reputation for superior products is the result of consistent quality craftsmanship. From the earliest stages of product design, to successive steps in fabrication and assembly, rigid standards of excellence are maintained by our staff of designers, engineers, and skilled employees.

Only the finest heavy-duty materials and parts are used in the production of Randell brand equipment. This means that each unit, given proper maintenance, will provide years of trouble free service to its owner.

In addition, all Randell food service equipment is backed by one of the best warranties in the food service industry and by our professional staff of service technicians.

The Randell BC-Series Blast Chillers are designed for rapid chilling of food through the danger zone down to 40° F or lower, in approximately 90 minutes. The exact chill time will vary depending on the product type. This rapid chilling also preserves food quality, and nutritional values. After the chilling process, the blast chillers can hold the food at or below 40° F.

Retain this manual for future reference.

Notice: Due to a continuous program of product improvement, Randell Manufacturing reserves the right to make changes in design and specifications without prior notice.

Notice: Please read the entire manual carefully before installation.
If certain recommended procedures are not followed, warranty claims will be denied.

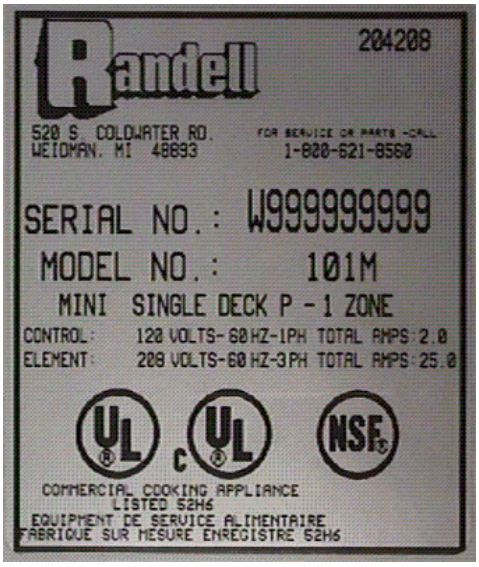
Model Number _____
Serial Number _____
Installation Date _____

Randell Manufacturing
Service and Parts
Hot Line
1-800-621-8560
or for our
Service Agent Listing
visit our web site at
www.randell.com

Safety Procedures

- Always disconnect power cord before attempting to work on or to clean equipment. Turning the switch off is insufficient as the power remains live to the cabinet and can be a hazard.
- Route the power cord so that it is not likely to be walked on or pinched by other appliances.
- Your unit is equipped with a grounded plug (a plug with two blades and a grounding post). Do not defeat the purpose of the plug by removing ground post or using an adapter without properly grounding the outlet.
- Do not overload outlets with too many appliances. This can result in fire or electrical shock.
- Disconnect plug when the appliance will be idled for a long period of time.
- Do not attempt to service this unit yourself as removing covers may cause unnecessary exposure to dangerous voltage.
- Never connect the unit to a power source while standing in water. Wet hands and wet floors should be avoided when connecting any electrical appliance to a power outlet.
- When a replacement part is required, always insist on factory authorized parts.
- When working on units equipped with casters, depress the caster brake to secure the unit in place.

SERIAL NUMBER LOCATION
FOR THE
BC SERIES
BLAST CHILLERS



This is a sample of a serial number tag.

The serial number tag on the BC series is located inside the unit, on the back wall, far left side.

Unit Specifications
For The BC Series
Blast Chillers

BC Series
Blast Chillers

Model	L	D	H	12x20x2.5 Pans	Lbs.	H.P.	Volt/Hz/Ph	Min. Circuit Ampacity	NEMA	BTU Req. For Remote
BC-3	27	30	35	3	30	½	120/60/1	20	5-20P	5,400
BC-5	36	34	50	5	50	¾	120/60/1	20	5-20P	6,600
BC-5E	56	34	35	5	50	¾	120/60/1	20	5-20P	6,600
BC-10	36	34	75	10	100	1½	120-208/230/60/1	20	4-Wire Direct	12,100
BC-10E	70	34	35	10	100	1½	120-208/230/60/1	20	4-Wire Direct	12,100
BC-20	44	34	75	20	200	(2) 1½	120-208/230/60/3	20	5 Wire Direct	24,200

Warranty Policies

Parts Warranty
Randell warrants all component parts of manufactured new equipment to be free of defects in material or workmanship, and that the equipment meets or exceeds reasonable industry standards of performance for a period of one year from the date of shipment from any Randell factory, assembly plant or warehouse facility.

Note: Warranties are effective from date of shipment, with a thirty day window to allow for shipment, installation and set up. In the event equipment was shipped to a site other than the final installation site, Randell will warranty for a period of three months following installation, with proof of starting date, up to a maximum of eighteen months from date of purchase.

Component parts warranty does not cover glass breakage or gasket replacement. Randell covers all shipping cost related to component part warranty sent at regular ground rates (UPS, USPS). Freight or postage incurred for any express or specialty methods of shipping are the responsibility of the customer.

Labor Coverage
In the unlikely event a Randell manufactured unit fails due to defects in materials or workmanship within the first ninety days, Randell agrees to pay reasonable labor incurred. During the first ninety days work authorizations are not required for in warranty repairs. However, repair times are limited to certain flex rate schedules and hours will be deducted from service invoices if they exceed allowed times without prior approval and a work authorization number. Warranties are effective from date of shipment, with a 30 day window to allow for shipment, installation and setup.
Where equipment is shipped to any site other than final installation Randell will honor the labor warranty for a period of ninety days following installation with proof of starting date, up to a maximum of nine months from date of purchase. Travel time is limited to one hour each direction or two hours per invoice. Any travel time exceeding two hours will be the responsibility of the customer.

Note: Temperature adjustments are not covered under warranty, due to the wide range of ambient conditions.

Five Year Extended Compressor Warranty
United States installations only:
Randell will pay for the replacement compressor only. Freight, labor, refrigerant, handling and all other miscellaneous charges are the responsibility of the customer. Randell will fulfill its warranty obligation by using one of the four methods provided below, which will be selected by the Randell in house service technician:

1. Provide reimbursement to servicing customer for the cost of the locally obtained replacement compressor in exchange for the return of the defective compressor returned to Randell freight prepaid. Randell does limit the amount of reimbursement allowed and does require a copy of the local supply house bill for replace ment compressor.

Customer should not pay servicing agent up front for compressor.

2. Provide repair at the manufacturing facility by requiring that the defective unit be sent back to Randell freight prepaid. Perform repair at the expense of Randell and ship the item back to job location freight Collect.
3. Furnish a replacement compressor freight Collect in exchange for the return of the defective compressor sent back freight prepaid.
4. Furnish complete condensing unit or replacement package freight Collect in exchange for the return of the defective compressor sent back freight prepaid. (Decisions based on whether or not to send complete condensing unit will be made by Randell in-house service technician).

Export Warranty
Our export warranties will cover all non electrical parts for the period of one year from the date of shipment to be free of defects in material or workmanship. Electrical parts are also covered if ordered and operated on 60 Hz. Electrical components, ordered and operated on 50 Hz, are warranted for the first 90 days from shipment only. Service labor is covered for the first 90 days with authorization from factory prior to service. Warranty is automatically initiated 60 days from ship date. Inbound costs on any factory supplied items would be the

responsibility of the customer. Adherence to recommended equipment maintenance procedures, according to the owners manual provided with each unit, is required for this warranty to remain in effect, and can have a substantial effect on extending the service life of your equipment. Equipment abuse voids any warranty. Extended warranties are not available for parts, labor or compressors on units shipped outside the United States.

Freight Damage
Any and all freight damage that occurs to a Randell piece of equipment as a result of carrier handling is not considered warranty, and is not covered under warranty guidelines. Any freight damage incurred during shipping needs to have a freight claim filed by the receiver with the shipping carrier (note all damages on freight bill at time of delivery). Internal or concealed damage may fall under Randell's responsibility dependent upon the circumstances surrounding each specific incident and are at the discretion of the Randell in-house service technician.

Gasket Coverage
Randell does not cover gaskets under warranty. Gaskets are a maintenance type component that are subject to daily wear and tear and are the responsibility of the owner of the equipment. Because of the unlimited number of customer related circumstances that can cause gasket failure all gasket replacement issues are considered non-warranty. Randell recommends thorough cleaning of gaskets on a weekly basis with a mild dish soap and warm water. With proper care Randell gaskets can last up to two years, at which time we recommend replacement of all gaskets on the equipment for the best possible performance.

NOTICE: FOOD LOSS IS NOT COVERED UNDER WARRANTY

Unit Installation

A. Receiving Shipment
Upon arrival, examine the exterior of the shipping crate for signs of abuse. It is advisable that the shipping crate be partially removed, in order to examine the cabinet for any possible concealed damages which might have occurred during shipment. If no damages are evident, replace the crate in order to protect the unit during storage and local delivery. If the unit is damaged, it should be noted on the delivery slip or bill of lading and signed to that effect. A claim must be filed immediately against the carrier indicating the extent and estimated cost of damage occurred.

B. Locating Your New Unit
The following conditions should be considered when selecting a location for your unit:

1. Floor Load - The area on which the unit will rest must be free of vibration and suitably strong enough to support the combined weights of the unit plus the maximum product load weight.
2. Clearance - There must be a combined total of at least 3" clearance on all sides of the unit.
3. Ventilation - The air cooled self contained unit requires a sufficient amount of cool clean air. Avoid surrounding your equipment around other heat generating equipment and out of direct sunlight, also avoid locating in an unheated room or where the room temperature may drop below 55° F or above 90° F.

C. Electrical Supply
The wiring should be done by a qualified electrician in accordance with local electrical codes. A properly wired, and grounded outlet will assure proper operation. Please consult the data tag attached to the compressor to ascertain the correct electrical requirements. Supply voltage and amperage requirements are located on the serial number tag located inside the far left drawer.

Note: It is important that a voltage reading be made at the compressor motor electrical connections, while the unit is in operation, to verify that the correct voltage required by the compressor is being supplied. Low or high voltage can detrimentally affect operation and thereby void its warranty.

Note: It is important that your unit has its own dedicated line. Condensing units are designed to operate with a voltage fluctuation of plus or minus 10% of the voltage indicated on the unit data tag. Burn out of a condensing unit due to exceeding voltage limits will void the warranty.

D. Installation Checklist
After the final location of the unit has been determined refer to the following checklist prior to start up:

1. Check all exposed refrigeration lines to ensure that they are not kinked, dented or rubbing together.
2. Check that condenser and evaporator fans rotate freely without striking any stationary members.
3. The unit must be properly leveled (see figure A page 10).
4. Plug in unit and turn on the control (see operation section).
5. Refer to the front of this manual for serial number location. Please record this information in your manual on page 3 now. It will be necessary when ordering replacement parts or requesting warranty service.
6. Confirm that unit is holding temperature.
7. Allow your unit to operate for approximately 15 minutes before putting in food.

Note: All motors are oiled and sealed.
Note: All self-contained models are shipped from the factory with the service valves open ready for operation**.**

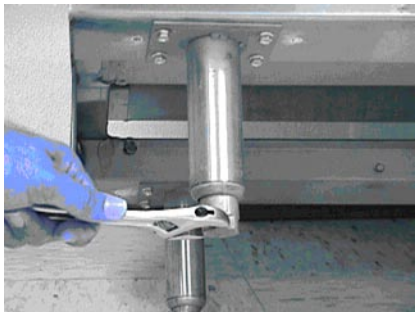


Figure A - Bullet Feet Adjustment

The legs are equipped with bullet-type leveling bolts. Turn bolts clockwise or counterclockwise until the unit is level (both right to left and front to back). This can be done by hand or with an open end wrench.

TEMPERATURE PROBE

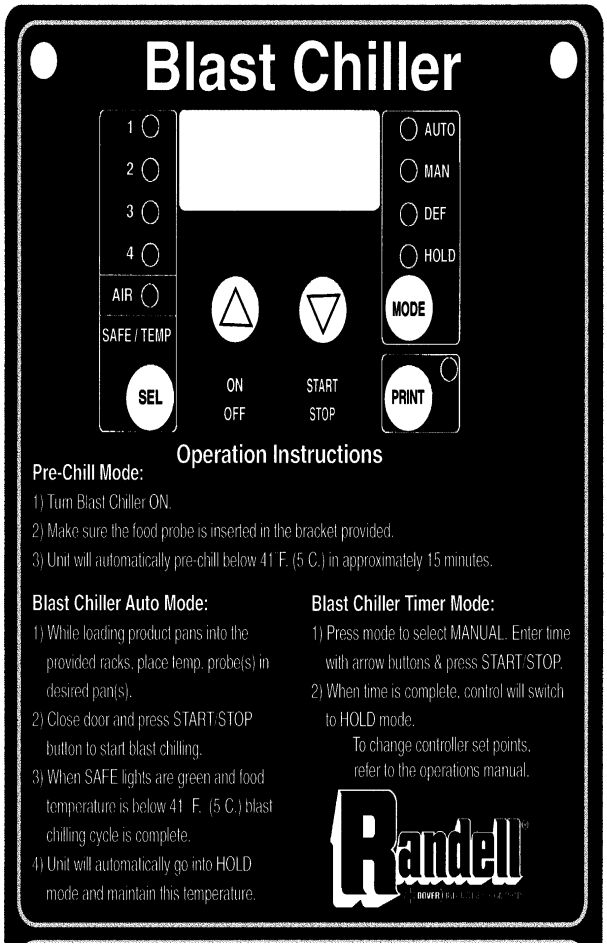
The blast chillers come standard with one temperature/product probe. The probe will be previously calibrated from the factory, but in time, it may need to be adjusted. If so, call a service technician and have him/her refer to the Control Programming section below.

PRINTER OPERATION
All Randell blast chillers (except the BC-3) come with an on board data logging printer. This is a thermal printer that uses a 3.125" spool thermal paper. The printer records the data that the food probes monitor from inside the unit in the product pans. The printout will always show the air temperature and at least one product temperature. You will see additional printed temperatures depending on how many probes are hooked to the control.

LOADING PRINTER PAPER
To load the printer paper, pull the paper cover plate towards you. Remove the old paper spool by lifting upward and forward. Feed the paper into the slot in the top of the paper housing. After the paper self feeds, return the spool back into the paper housing and place it on the paper carriage. Push the paper cover back in place.

TIPS
1. After each use, be sure to clean and disinfect the product probes.
2. If the power is lost or the unit is unplugged for an extended period of time, the time and date may have to be reset. Refer to the control programming section for directions to reset/set the time.

OPERATION FOR CONTROL



There are three modes of operation for the blast chiller. Idle, Automatic, and Manual. When a cycle is running (start has been pushed), the selected modes' LED will flash.

The following explains how to use each mode:

Idle mode - When the control is first turned on, it will Pre-chill the cabinet down to 38°F and begin to cycle the compressor. In this mode the "auto" led will be lit and the display will show probe temperature. If there are no food probes present, the "air" led will be lit and unit will cycle on the air temperature. The cooling fans will run continuously to maintain uniform cabinet temperature.

Auto mode - The chiller is designed to operate automatically with one or more food probes placed in the product pans. With the control turned on, as soon as any probe exceeds 40°F the chiller will begin to cool to get the probe down to 38°F. This will automatically happen, without pushing any buttons; however, to properly control the chill temperature, to log time and temperature information, and to have an alarm sound at the end of the chill, the "start" button must be pushed. When the start button is pushed, the "auto" led will start to flash indicating that chill cycle is in process. The chiller will automatically maximize the efficiency of the chill cycle according to the air temperature set point. During the chill cycle, the individual probes can be viewed temporarily by using the "SEL" select button; the green led's will indicate which probe is being viewed. Near the end of the chill cycle, the green led's become "safe" indicators. They light up as each food probe reaches 40°F, the chill cycle will continue until all probes reach the 38°F set point.

Hold mode - At the end of the chill cycle an alarm will sound and the "hold" led will light up to indicate that the chill cycle is complete. The chiller will begin holding 38°F food based on the warmest food probe. The display will change to a timer, counting up the minutes and hours since the chill cycle ended. The control and printer will continue to log time and temperature information until stopped. To stop the logging and the timer, and return to temperature display, press the "stop" button.

Hint - Some freezing of food on the sides of the pans is normal. However, if freezing of food is a problem, there are several things that can be done to help.
1. Locate the food probes closer to the sides of the pans where freezing is more likely to occur. If this is done, keep in mind that the center of the food may actually be warmer than indicated.
2. If one pan is freezing before another pan is "safe", this may be due to a slow loading process or loading at different times within a chill cycle. Always try to fully load the unit all at once.

3. If you think there's a pattern to the freezing, try putting the last pan into the coldest location; this gives the first pans in a head start and this may be just enough to solve the problem.
4. The product temperature set point can be adjusted from 0 to +40°F. The recommended setting is 38°F, but +40°F setting will stop the chill cycle sooner. In the interest of food safety, always be careful to place a food probe in the warmest or last pan in to assure that all food pans are 40°F when the chill cycle ends (see "control programming" section on "Setting Suggested Parameters").
5. The "air temperature set point" can be adjusted from -10°F to +40°F; however, keep in mind that a warmer air temperature will mean a slower chill. Normally an air temperature above 28°F would not be recommended unless the product being chilled is very sensitive to freezing. To avoid longer than necessary chill times, try 0°F or +10°F and make smaller adjustments until the amount of freezing is acceptable. For best food safety, always try to avoid a chill time longer than 4 hours (see "control programming" section on "setting Parameters").

Manual mode - In this mode the chill cycle is a timed cycle rather than a temperature cycle. The control will automatically default to this mode if no food probe is plugged in. It can be used when food probes are lost or in need of replacement. To use the manual mode, press the "mode" button until the manual led is lit. The default chill time of 1:45 (1 hour 45 minutes) will be displayed. The chill time may be adjusted from 0:01 (1 minute) to 4:00 (hours) by using the up down arrows. When the desired time is displayed, use "start" to begin the timed chill. The display will continue to show chill time as long as you are in the manual mode. If probes are being used, they can be viewed temporarily by using the "SEL" select button; the green LED's will indicate which probe is being viewed. At the end of the chill mode the display will count up to tell you how long since the chill cycle ended. Use "stop" to end the manual chill cycle. Use the "mode" key to get out of manual mode.

Hint - If manual operation becomes common practice, the default chill time can be adjusted for the common chill time (see "control programming" section on "Setting suggested parameters). When ever the start button is pressed when there is no food probe, the unit will automatically start chilling for the default time period. You do not have to set the chill time each time you run a chill cycle.

Defrost mode - In most chill applications, this mode is never needed. In the event that you should have a coil freeze-up problem, this mode can be used to force an off period to deice the coil. This is a manual operation that you must force; it is not automatic. To use the defrost mode, use the "mode" key to light the "defrost" LED then press start. The fans will operate to warm up the coil. Leave the door open to let in warm room air. If necessary, add heat or repeat defrost until the coil is clear.

Hint - If you have frequent freeze-up problems:
1. Check probe calibration (see "Calibrating the probes")
2. Be sure unit is turned off at night and leave the door open to let it defrost naturally on a daily basis.
3. Make sure the product temperature set point is not lower than necessary; 38°F is recommended.
4. Leave the unit on when loading and unloading; normally the hot product load will naturally defrost the coil at the start of each chill cycle if the fans are on.
5. Coil freeze-up usually only occurs over a period of days when the unit is used on a near continuous basis. If this is your situation, try to set up a routine to use the defrost mode on a regular basis between chill cycles or during slow times to minimize the time required. This will also keep your chiller working efficiently.
6. If 30 minutes is not long enough, the defrost time can be extended to 60 minutes (see "Control programming" section on "Setting Suggested parameters).
7. If you continue to have problems, consult the factory or a service agent.

CONTROL PROGRAMMING

A. Setting/Changing Parameters (SETTING THE DATE AND TIME)
1. Make sure the control is OFF to begin programming the Real Time Clock.
2. Depress and hold both the SEL and the DOWN buttons, press the ON/OFF button.
3. LED #1 should illuminate and the display will show the year currently set in the control.
4. Use the arrow keys, to adjust the setting to the current year.
5. Press the SEL button to advance to the next setting to be established (settings to be established include year, month, date, and time).
6. Once all of the parameters are set, press the SEL button and the unit will advance to the idle mode.

B. Setting suggested Parameter
1. Apply power to the unit.
2. Turn switch in mechanical housing on.
3. If the control display is blank, press the on/off button.
4. Depress and hold the SEL and the MODE button (at the same time) for approximately 3 seconds.
5. This will place the control in the programming mode.
6. Using the up and down arrows to adjust value of the particular parameter, and the SEL button to toggle from parameter to parameter; set the parameters as per the table below.
7. The up and down arrows will increment the value of the parameter, the SEL button will toggle to the next parameter.
8. Once the last parameter is reached, the control will advance to the idle mode.

PARAMETER	INDICATOR	NORMAL SETTING	ADJUSTMENT RANGE
Air Temp Set Point	Zone 1 LED	-10°F	-10°F to +40°F
Air on/off Differential	Zone 2 LED	2°F	1 to 5
Product Temp Set Point	Zone 3 LED	38°F	0°F to +40°F
Product on/off Differential	Zone 4 LED	2°F	1 to 5
Manual Mode Timer default	Manual LED	1:45	0:01 to 4:00
Defrost temp set point	Defrost LED	40°F	32 to 60
Defrost timer set point	Defrost LED	30 minutes	1 to 60
Printing Option	Printer LED	PR1	PR1 or PR2

Note: Use warmer air temperature set point and warmer product set point to minimize freezing of product. Other set points should seldom be set different from normal settings.

Note: When the door is open for 1 minute the compressor will shut down.

Calibrating the probes:

1. With the unit on and the unit in idle mode, immerse probes in an ice bath for at least 5 minutes.
2. Press the SEL button to index the LED to illuminate next to the probe to be calibrated.
3. If the display reads 32° F, move on to the next probe (if applicable). If the display does not read 32° F, adjustment is required.
4. Press the mode button to place the unit into manual mode. Temperature of the first probe is displayed.
5. Depress and hold the up and down arrows for approximately 3 seconds. The current offset setting is displayed. The green LED's will indicate which probe is being adjusted.
6. Use the up and down buttons to appropriately adjust the offset setting necessary for the probe to read 32° F. (If the probe had displayed 36° F and the offset displayed -02, use the down arrow to change the offset by 4° F to display -06).
7. Follow the same process for all probes as applicable using the SEL button to toggle through the probes required.
8. Continue using the SEL button until no LED's are illuminated in the probe or air temp area, 00 should flash on the display and all offset adjustments are saved.
9. Return to idle mode and double check that all probes display 32° F as applicable.

NOTE: This must be done using an ice bath to achieve the most accurate temperature reading.

Additional Programming Information

1. Hysteresis #1 — 2°F — allows for 2 degrees of variance from set point #1.
2. Hysteresis #2 — 4°F — allows for 4 degrees of variance from set point #2.
3. Alarm — 50°F — a visual alarm will appear if the air temperature stays above the alarm setting for longer than 30 minutes.
4. Printer — yes — select if a printer is or is not installed.
5. Probe calibration at 32°F — put product probes in ice bath to automatically calibrate probes.

PREVENTATIVE MAINTENANCE

Randell strongly suggests a preventive maintenance program which would include the following MONTHLY procedures:

1. Cleaning of all condenser coils. Condenser coils are a critical component in the life of the compressor and must remain clean to assure proper air flow and heat transfer. Failure to maintain this heat transfer will affect unit performance and eventually destroy the compressor. Clean the condenser coils with coil cleaner (available at your local appliance parts center) and/or a vacuum cleaner and brush.

Note: Brush coil in direction of fins, normally vertically as to not damage or restrict air flow from passing through condenser.

2. Clean all fan blades, both on the condensing unit and the evaporator assembly.
3. Lubricate door hinges with a 3 in 1 oil.
4. Clean all gaskets on a weekly if not daily basis with a solution of warm water and a mild detergent to extend gasket life.
5. Stainless steel surfaces should be wiped with a damp cloth with a mild cleaning solution. DO NOT FLUSH UNIT (ESPECIALLY THE MACHINE COMPARTMENT) WITH RUNNING WATER.
6. Sanitize food probes after EACH use.

Recommended cleaners for your stainless steel include the following:

JOB	CLEANING AGENT	COMMENTS
Routine cleaning	Soap, Ammonia, Detergent, Medallion	Apply with a sponge or cloth
Fingerprints & smears	Arcal 20, Lac-O-Nu, Ecoshine	Provides a barrier film
Stubborn stains and discoloration	Cameo, Talc, Zud, First Impression	Rub in the direction of the polish lines
Greasy and fatty acids, blood, burnt on foods	Easy-Off, De-grease It, Oven Aid	Excellent removal on all finishes
Grease and oil	Any good commercial detergent	Apply with a sponge or cloth
Restoration/Passivation	Benefit, Super Sheen	Good idea monthly

References: Nickel Development Institute, DiverseyLever , Savin, Ecolab, NAFEM

Do not use steel pads, wire brushes, scrapers or chloride cleaners to clean your stainless steel.

Caution: DO NOT USE ABRASIVE CLEANING SOLVENTS. NEVER USE HYDROCHLORIC ACID (MURIATIC ACID) ON STAINLESS STEEL.

Proper maintenance of equipment is the ultimate necessity in preventing costly repairs. By evaluating each unit on a regular basis, you can often catch and repair minor problems before they completely disable the unit and become burdensome on your entire operation.

For more information on preventive maintenance consult your local service company or CEFSA member. Most repair companies offer this service at very reasonable rates to allow you the time you need to run your business along with the peace of mind that all your equipment will last throughout its expected life. These services often offer guarantees as well as the flexibility in scheduling the product it manufactures and backs those products with one of the best warranties in the industry. We believe with the proper maintenance and use, you will realize a profitable return on your investment and years of satisfied service.

Recommended cleaners for your stainless steel include the following:

JOB	CLEANING AGENT	COMMENTS
Routine cleaning	Soap, Ammonia, Detergent, Medallion	Apply with a sponge or cloth
Fingerprints & smears	Arcal 20, Lac-O-Nu, Ecoshine	Provides a barrier film
Stubborn stains and discoloration	Cameo, Talc, Zud, First Impression	Rub in the direction of the polish

TROUBLESHOOTING GUIDE

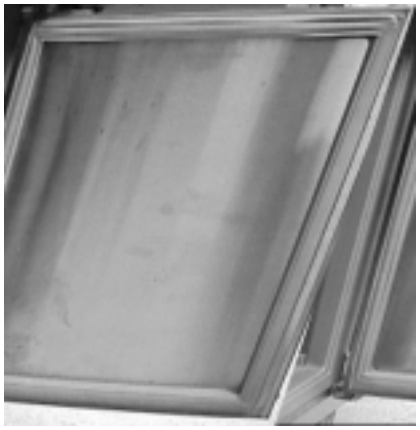
SYMPTOM	POSSIBLE CAUSE	PROCEDURE
unit doesn't run	no power to unit	plug in unit
	compressor overheated	clean condenser coil
	condenser fan faulty	service condenser fan motor
	compressor relay faulty	test relay
	compressor faulty	call 1-800-621-8560 for service
	product probe faulty	check connections then replace if needed
unit short cycles some note: short cycling at end of blast chilling is normal	may be normal near end of chill cycle	adjust differential setting if cycles do not return to normal
	condenser coil dirty	clean coil
	condenser fan faulty	service fan and motor
	compressor faulty	call 1-800-621-8560 for service
	overload repeatedly trips	check outlet voltage
unit runs constantly	door not sealed properly	check/replace door gasket
	condenser coil dirty	clean coil
	condenser fan faulty	service condenser motor
	temperature probe faulty	check connections then replace if needed
	pressure control differential too close	adjust for minimum 15 PSI differential
Ice in drain trough	drain tube clogged	clean drain
	unit not level	adjust leveling leg
Unit noisy	unit not level	adjust leveling leg
	compressor mounting loose or hardened	tighten or replace compressor mountings
	condenser fan damaged or hitting fan shroud	inspect condenser fan
	evaporator fan damaged or hitting fan shroud	inspect condenser fan
	mechanical compartment louver rattling	bend or align tabs to reduce noise, replace if necessary

1. Cleaning condenser coil.
An accumulation of dirt and dust prevents the condenser coil from removing heat, making your unit cool poorly, run constantly, or even stop completely if the compressor overheats. Clean coil using a vacuum cleaner with a wand attachment. If the coil is greasy, wash it with warm soapy water and a bristle brush, taking care not to drip water on other parts of your unit.

2. Cleaning drain and drain pan.

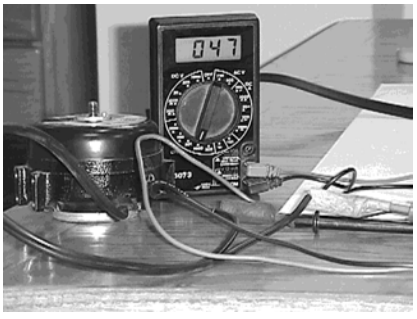
Remove the perforated panel on the extreme left interior, along with the adjoining back interior panel. Clean the drain using an oven baster to force a solution of hot water and baking soda or bleach into the opening. To clear a stubborn clog, insert a length of ¼" round plastic tubing into the drain and push it through to the drain pan, then pull it out. Wash the pan regularly with a solution of warm baking soda and water.

3. Checking the door seal.



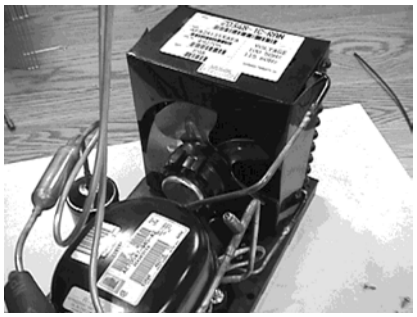
Open the door and examine all four sides of the door gasket for tears. Feel the gasket for brittleness or cracks. If the gasket shows damage replace it. If not, close the door and check the seal between gasket and cabinet for obvious gaps. Next open the door and shut it on a dollar bill then slowly pull it out of the door. If the gasket seals properly, you will feel tension as it grips the bill. Repeat this test all around the door. If the gasket doesn't seal tightly, replace gasket after first checking the door for sagging, warping.

4. Servicing the condenser fan.
Inspect the condenser fan motor by removing the mechanical housing cover to gain access. Unplug the unit. Clean the fan blade, and turn it to see if the blade rotates freely. If the motor binds, replace it. If the blade is damaged, unscrew the nut that holds it to the motor shaft and pull it off. Install a new fan blade, replacing any washers, and tighten the nut.



To test the condenser fan motor disconnect the wires to the fan motor. Set a multimeter at RX10 and touch one probe to each terminal. The multimeter needle should show approximately 45 to 50 ohms resistance; a lower reading means the motor is faulty.

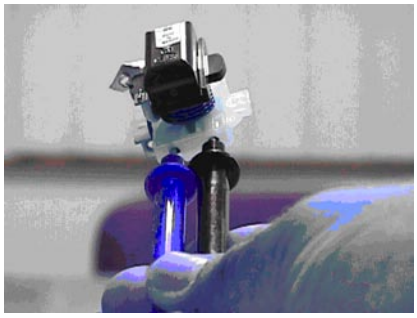
Next set the meter at RX1000 and touch one probe to the motor terminals and the other one to any unpainted metal part of the unit. If the meter needle moves, the motor is grounded and should be replaced. To remove the motor unscrew the bracket that holds the fan motor to its housing, slide the motor out of the housing. Remove the fan blade from the old motor and attach it to the new motor, replacing any washers. Install the new motor in its housing by screwing the bracket in place. Reattach the wires to the motor terminals and reconnect the ground wire.



5. Servicing the compressor.

The compressor is part of the sealed refrigeration system and should be replaced by a professional service technician. You can, however, test the compressor and certain components. Unplug the unit and remove the access cover to the mechanical housing. A small box mounted on the side of the compressor protects the relay, overload protector and capacitor. Release the wire retaining clip that holds the cover in place and slip off the cover and the clip.

To test the compressor relay pull the relay straight off the compressor without twisting. If the relay has an external wire coil, hold the relay so that the word top is up. Set the multimeter at RX1 and place the probes on the terminals S and M. The multimeter needle should not move. Next remove the probe from M and place it on the side terminal marked L. once again, the needle should not move. Finally, remove the probe from S and place it on M. the needle should sweep across the scale, showing full continuity. Now turn the relay upside down and perform the same tests. You should get the opposite results: continuity between terminals S and M and between S and L; no continuity between M and L. if the relay fails any of these tests, replace it: push the new relay onto the compressor terminals and replace the terminal cover. If the relay passes these tests, test the overload protector.



To remove the overload protector use a screwdriver to gently pry open the circular spring clip that secures the overload protector to the compressor and snap out the protector. Pull the two wire connectors off their terminals. To test set a multimeter at RX1 and touch a probe to each overload protector terminal. The multimeter needle should sweep across the scale, showing full continuity. If the overload protector passes this test, test the compressor. If not replace the overload protector. Reattach the push-on connectors to the new overload protector, clip it in place on the compressor and replace the terminal cover.

To test the compressor set a multimeter at RX1, test each of the three terminal pins against each of the other two. Each pair should show continuity. Then, with the multimeter set at RX1000, place one probe against the metal housing of the compressor; if necessary, scrape off a little paint to ensure contact with bare metal. Place the other probe on each of the three terminals in turn. If any of the three terminals shoes continuity with the housing, the compressor is grounded. If the compressor fails either test, CALL 1-800-621-8560 FOR SERVICE. If it passes the tests, reinstall the overload protector, relay, terminal cover and mechanical housing cover.

	BC3	
RANDELL #	**DESCRIPTION**	**QTY**
EL SNB0001	SNUBBER	2
HD CNT9901	BLAST CHILLER TEMPERATURE CONTROL	1
EL TRN9905	TRANSFORMER, 12VAC 6VA	1
HD OVR9902	CONTROL OVERLAY	1
HD PRB9902	AIR PROBES	1
HD PRB9903	FOOD PROBES	1
EL CNT9904	PROBE RECEPTACLES	1
EL BLK0003	CABLE CONNECTORS	5
EL WIR9901	PROBE CABLE	16'
EL RLY9902	RELAYS	1
RF CON9902	CONDENSING UNIT 1/2HP 115V 1PH	1
RF COI9904	EVAPORATOR COIL 12" X 17 1/4"	1
RF VLV9801	EXPANSION VAVLE 1 TON R404A	1
RF SOL9801	SOLENOID VALVE 1/4"	1
RF CNT 700	LOW PRESSURE CONTROL	1
EL MTR9902	EVAPORATOR FAN MOTOR	1
HD BRK9902	EVAPORATOR MOTOR MOUNTING BRACKETS	2
RF BLD9905	EVAPORATOR FAN BLADE 12"	1
EL SWT0005	SWITCH, DOOR PLUNGER TYPE	1
IN GSK1020	GASKET, DOOR 15 9/16" X 24 1/4"	1
HD CST2030	CASTERS 3 3/4" OA SWIVEL GRAY NO BRAKE	4
EL SWT145	ROCKER SWITCH 20A	

	BC5 & BC5E	
RANDELL #	**DESCRIPTION**	**QT-Y**
EL SNB0001	SNUBBER	2
HD CNT9901	BLAST CHILLER TEMPERATURE CONTROL	1
EL TRN 9905	TRANSFORMER, 12VAC 6VA	1
HD OVR9902	CONTROL OVERLAY	1
HD PRB9902	AIR PROBES	1
HD PRB9903	FOOD PROBES	1
EL CNT9904	PROBE RECEPTACLES	1
EL BLK0003	CABLE CONNECTORS	5
EL WIR9901	PROBE CABLE	16'
EL RLY9902	RELAYS	1
RF CON800E	CONDENSING UNIT 3/4HP 115V 1PH	1
RF COI9902	EVAPORATOR COIL 19" X 20 1/4"	1
RF VLV9801	EXPANSION VAVLE 1 TON R404A	1
RF SOL9801	SOLENOID VALVE 1/4"	1
RF CNT 700	LOW PRESSURE CONTROL	1
EL MTR9902	EVAPORATOR FAN MOTOR	1
HD BRK9902	EVAPORATOR MOTOR MOUNTING BRACKETS	2
RF BLD9904	EVAPORATOR FAN BLADE 14"	1
EL SWT9901	SWITCH, DOOR PADDLE TYPE	1
IN GSK1006	GASKET, DOOR 18 9/16" X 22 9/16"	1
EL SWT145	ROCKER SWITCH 20A	1
HD HNG1522L	DOOR HINGE TOP LEFT	1
HD HNG15221L	DOOR HINGE BOTTOM LEFT	1
HD PNT9901	PRINTER PANEL MOUNT	1
EL CBL9901	PRINTER CABLE	1
EL TRN9904	PRINTER TRANSFORMER	1
PP ROL9901	PRINTER PAPER	1
EL CNT0002	PRINTER CONTROL/ ADAPTER	1
HD RCK9901	PAN RACKS	1
HD PIN9903	PAN RACK PINS SHORT	1
HD CTH9901	MAGNETIC DOOR CATCHES	1
HD STR9901	MAGNETIC CATCH PLATES	1

	BC10	
PART NUMBER	**DESCRIPTION**	**QTY**
EL SNB0001	SNUBBER	2
HD CNT9901	BLAST CHILLER TEMPERATURE CONTROL	1
EL TRN 9905	TRANSFORMER, 12VAC 6VA	1
HD OVR9902	CONTROL OVERLAY	1
HD PRB9902	AIR PROBES	1
HD PRB9903	FOOD PROBES	1
EL CNT9904	PROBE RECEPTACLES	1
EL BLK0003	CABLE CONNECTORS	5
EL WIR9901	PROBE CABLE	16'
EL RLY9902	RELAYS	1
RF CON151	CONDENSING UNIT 1 1/2HP 230V 1PH	1
RF COI9902	EVAPORATOR COIL 19" X 20 1/4"	1
RF VLV9801	EXPANSION VAVLE 1 TON R404A	1
RF SOL9801	SOLENOID VALVE 1/4"	1
RF CNT 700	LOW PRESSURE CONTROL	1
EL MTR9902	EVAPORATOR FAN MOTOR	1
HD BRK9902	EVAPORATOR MOTOR MOUNTING BRACKETS	2
RF BLD9904	EVAPORATOR FAN BLADE 14"	1
EL SWT9901	SWITCH, DOOR PADDLE TYPE	1
IN GSK9905	GASKET, DOOR 18 9/16" X 41 1/2"	1
EL SWT145	ROCKER SWITCH 20A	1
HD HNG1522L	DOOR HINGE TOP LEFT	1
HD HNG15221L	DOOR HINGE BOTTOM LEFT	1
HD PNT9901	PRINTER PANEL MOUNT	1
EL CBL9901	PRINTER CABLE	1
EL TRN9904	PRINTER TRANSFORMER	1
PP ROL9901	PRINTER PAPER	1
EL CNT0002	PRINTER CONTROL/ ADAPTER	1
HD RCK9901	PAN RACKS	1
HD PIN9903	PAN RACK PINS SHORT	1
RF VLV005	SOLENOID VALVE 3/8"	1
RF COI003	SOLENOID VALVE COIL	1
EL SWT2510	SWITCH 30A 600V	1
RF FLT376	FILTER DRIER R134A 3/8”	1

	BC10E	
RANDELL #	DESCRIPTION	QTY
EL SNB0001	SNUBBER	3
HD CNT9901	BLAST CHILLER TEMPERATURE CONTROL	1
EL TRN 9905	TRANSFORMER, 12VAC 6VA	1
HD OVR9902	CONTROL OVERLAY	1
HD PRB9902	AIR PROBES	1
HD PRB9903	FOOD PROBES	1
EL CNT9904	PROBE RECEPTACLES	1
EL BLK0003	CABLE CONNECTORS	5
EL WIR9901	PROBE CABLE	16'
EL RLY9902	RELAYS	1
RF CON151	CONDENSING UNIT 1 1/2HP 230V 1PH	1
RF COI9903	EVAPORATOR COIL 19" X 20 1/4"	1
RF VLV9901	EXPANSION VAVLE 2 TON R404A	1
RF SOL9801	SOLENOID VALVE 1/4"	1
RF CNT 700	LOW PRESSURE CONTROL	1
EL MTR9902	EVAPORATOR FAN MOTOR	1
HD BRK9902	EVAPORATOR MOTOR MOUNTING BRACKETS	2
RF BLD9904	EVAPORATOR FAN BLADE 14"	1
EL SWT9901	SWITCH, DOOR PADDLE TYPE	1
IN GSK1015	GASKET, DOOR 22 1/2" X 24 1/2"	1
EL SWT145	ROCKER SWITCH 20A	1
HD HNG1522L	DOOR HINGE TOP LEFT	1
HD HNG15221L	DOOR HINGE BOTTOM LEFT	1
HD PNT9901	PRINTER PANEL MOUNT	1
EL CBL9901	PRINTER CABLE	1
EL TRN9904	PRINTER TRANSFORMER	1
PP ROL9901	PRINTER PAPER	1
EL CNT0002	PRINTER CONTROL/ ADAPTER	1
HD RCK9901	PAN RACKS	1
HD PIN9903	PAN RACK PINS SHORT	1
RF VLV005	SOLENOID VALVE 3/8"	1
RF COI003	SOLENOID VALVE COIL	1
EL SWT2510	SWITCH 30A 600V	1
RF FLT376	FILTER DRIER R134A 3/8"	1
HD CTH9901	MAGNETIC DOOR CATCH	1
HD STR9901	MAGNETIC CATCH PLATE	1

	BC20	
RANDELL #	**DESCRIPTION**	**QTY**
EL SNB0001	SNUBBER	2
HD CNT9901	BLAST CHILLER TEMPERATURE CONTROL	1
EL TRN 9905	TRANSFORMER, 12VAC 6VA	1
HD OVR9902	CONTROL OVERLAY	1
HD PRB9902	AIR PROBES	1
HD PRB9903	FOOD PROBES	1
EL CNT9904	PROBE RECEPTACLES	1
EL BLK0003	CABLE CONNECTORS	5
EL WIR9901	PROBE CABLE	16'
EL RLY9902	RELAYS	1
RF CON150	CONDENSING UNIT 1 1/2HP 208V 3PH	1
RF COI9903	EVAPORATOR COIL 19" X 20 1/4"	1
RF VLV9901	EXPANSION VAVLE 1 TON R404A	1
RF SOL9801	SOLENOID VALVE 1/4"	1
RF CNT 700	LOW PRESSURE CONTROL	1
EL MTR9902	EVAPORATOR FAN MOTOR	1
HD BRK9902	EVAPORATOR MOTOR MOUNTING BRACKETS	2
RF BLD9904	EVAPORATOR FAN BLADE 14"	1
EL SWT9901	SWITCH, DOOR PADDLE TYPE	1
IN GSK9904	GASKET, DOOR 24 1/4" X 41 3/8"	1
EL SWT7810	SWITCH 3 PHASE POWER	1
HD HNG1522L	DOOR HINGE TOP LEFT	1
HD HNG15221L	DOOR HINGE BOTTOM LEFT	1
HD PNT9901	PRINTER PANEL MOUNT	1
EL CBL9901	PRINTER CABLE	1
EL TRN9904	PRINTER TRANSFORMER	1
PP ROL9901	PRINTER PAPER	1
EL CNT0002	PRINTER CONTROL/ ADAPTER	1
HD STR9901	MAGNETIC CATCH PLATE	1