



# **IMPORTANT INFORMATION FOR BZ13 SERIES**

**This cooler has passed the  
QUALITY CONTROL INSPECTION  
and meets the high standards at Beverage-Air.  
This inspection includes complete refrigeration  
system, cabinet construction & finish.**

**IMPORTANT  
PLEASE RETAIN FOR YOUR RECORDS**

**SALES OFFICE: P.O. BOX 5932 SPARTANBURG, S.C. 29304-5932  
PHONE: (864) 582-8111 TOLL FREE 1-800-845-9800  
TECHNICAL SERVICE: 1-800-684-1199, PARTS ORDER FAX: 1-800-262-9381  
PLANTS: SPARTANBURG, S.C. BROOKVILLE, PA. HONEA PATH, S.C.**



# BEVERAGE-AIR®

## Installation and Operating Instructions Model BZ13

### 1. Installation

#### a. Receiving Inspection

Standard items packaged in the cabinet interior are: Shelves – (3) each, Product Organizers – (3) each, Glide Mats – (3) each and Shelf Support Clips – (6) each. Cabinet accessories, such as additional Shelves and cabinet Rollers, are also packaged in the cabinet interior. Note: Product organizers and Glide Mats are not standard equipment on models intended for pre-packaged foods.

#### b. Levelers, Legs and Rollers

Levelers are standard and are installed at each corner of the cabinet base as received. Legs are not available as an accessory item, however, Rollers are a custom order accessory item (note: rollers have no swivel feature) and are installed by removing the levelers and inserting an axle pin through each set of rollers and spacers. (see instructions in Roller kit). In applications requiring the unit to be sealed to the floor, leveling legs must be removed and an approved sealant (caulk) applied around cabinet base perimeter.

#### c. Cabinet Leveling

For proper evaporator condensate drainage, it is necessary to level the cabinet. Levelers provide adjustment via the screw threads used for attachment to the cabinet base. Rollers are non-adjustable and require consideration for a combination of levelers and rollers (generally rollers at rear and levelers at front), or the floor must be brought up to a level condition.

#### d. Shelves

Shelf spacing is vertically adjustable to suit package size and presentation requirements. Interior cooling airflow performance should be considered when establishing shelf to product spacing. An equal spacing of shelves, with no less than 1" (2.54 cm) between top surface of product and bottom surface of shelf top, is recommended. To ensure proper airflow, product must not extend beyond the front or rear edge of the shelving and must not touch the interior roof. Product must not be placed over the return air passage located beneath the interior floor.

#### e. Locating Cabinet

Proper cabinet location is critical for proper cooling performance, on an "air curtain" refrigerator. Cabinet should be located away from entry / exit doors, ventilation ducts, etc. Since refrigeration system ventilation (intake and exhaust) takes place through the front panel, the unit can be located in close proximity to structures adjacent to the sides and rear of the cabinet. No structure should be located nearer than 36" (91 cm), to the cabinet front.

#### f. Environment

This unit is designed to provide proper cooling performance in locations where normal ambient conditions do not to exceed 75 degrees F. ( 24 degrees C.) and 55% relative humidity. Sustained greater ambient conditions are not recommended.

### 2. Operation

#### a. Electrical Supply and Connections

All information required for electrical supply is shown on the cabinet Data Plate. The unit must be connected to a source that meets, or exceeds, the Data Plate requirements and all applicable electrical codes. CAUTION: Non-conforming application of electrical supply or the use of an extension cord(s) will void the Manufacturer's Warranty!

#### **b. Initial Start-Up**

Verify temperature control setting to be at the 2 o'clock position (reference single scribe mark on adjuster plate) and connect cabinet electrical cord to electrical supply. Refrigeration system operation can be verified by the audible sound of the compressor start-up and the presence of air movement exiting the compressor compartment and in the cabinet interior. Contact a qualified service technician to correct any faults identified, at this point.

#### **c. Temperature Control**

The temperature control is located in the refrigeration system compartment behind the ventilation panel ("grille"). Removal of the grille is not required, for control adjustment. The factory setting should maintain product at approximately 38 degrees F. Colder product temperatures require a clockwise adjustment of the slotted stem. Allow 24 hours between control setting changes. Caution should be exercised when adjusting to colder settings. In addition to the possibility of frozen product, higher than normal energy consumption will be realized.

#### **d. Condensate Disposal**

Condensate, generated by "off cycle" warming of the evaporator coil, is routed to the disposal pan located in the compressor compartment. The compressor discharge line is routed through the pan to heat the collected condensate. Evaporation is assisted by air flow directed from the condenser fan.

### **3. Maintenance**

#### **a. Cleaning Cabinet Surfaces**

To protect paint and decal surfaces, the cabinet exterior should be cleaned with a mild soap and water solution, only. Use of a soft fabric cloth will minimize scratches on sign medallion and shields. **CAUTION:** Disconnect electrical service prior to any cabinet clean-up in electrical parts / wiring areas.

#### **b. Condenser**

To maintain acceptable compressor operating temperature and efficient refrigeration system operation, the condenser must be cleaned periodically. Cleaning intervals will vary according to cabinet proximity to customer traffic, location cleanliness, humidity, etc. After initial unit placement, it is recommended that the condenser face be inspected for blockage every other month until the need for cleaning intervals is understood. The condenser face should be brushed (vertically against face to protect fin edges) whenever no greater than one fourth of the total face area is obstructed. Once per year, the condenser fan blade should be cleaned.

#### **c. Condensate Pan**

To protect against unwanted odors and maintain evaporation performance, the condensate pan should be cleaned periodically. Access to the pan is gained by removal of the (2) screws which fasten the refrigeration system to cabinet base and sliding the refrigeration system outward. **CAUTION:** Disconnect electrical service prior to this operation.

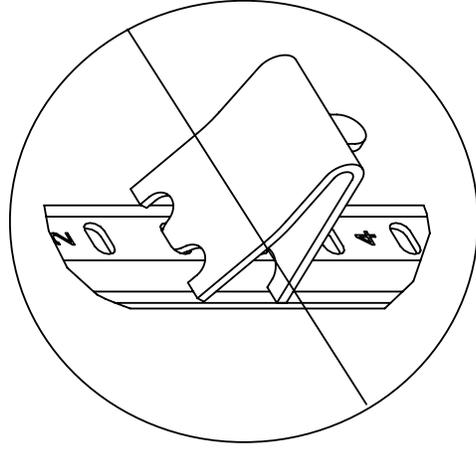
#### **d. Lamps**

Sign medallion and interior fluorescent lamps must be replaced with parts having identical diameter, length and wattage. Likewise, replacement lamp ballast must be of original equipment specification. **CAUTION:** Failure to ensure proper matching of lamp and ballast specifications can cause significant reduction in lamp and ballast life.

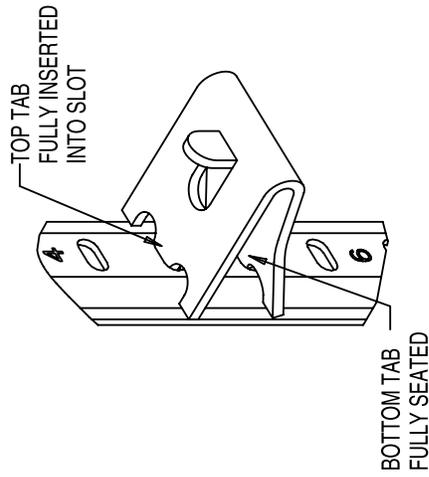
#### **e. Refrigeration System – Removal / Installation**

**CAUTION:** Disconnect primary electrical service prior to this operation. The entire refrigeration system can be removed as a single unit. Remove the service panel (grille) to access (2) fasteners securing the front unit surface. Pull system forward to access wire harness power disconnect feature, located behind compressor. Once the harness is disconnected, the system can be completely removed. Prior to installation, the gasket seal on the evaporator fan panel must be inspected for deterioration and replaced as required.

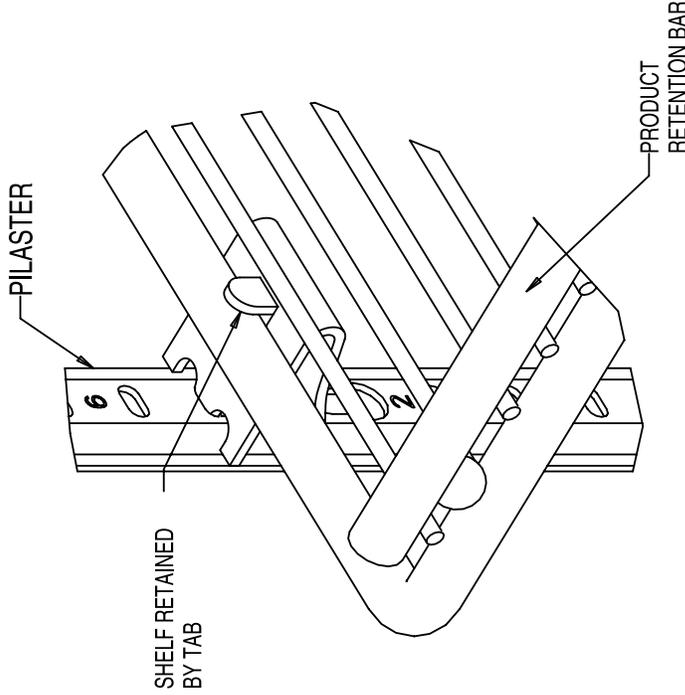
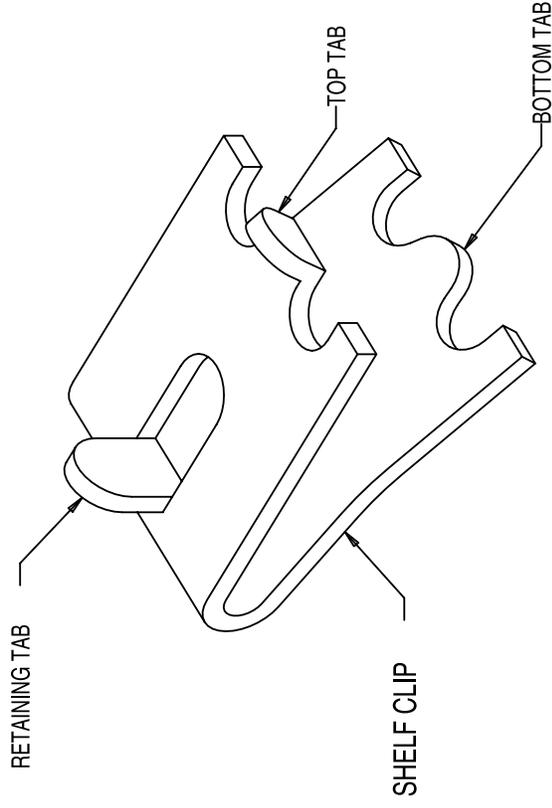
# SHELF CLIP INSTALLATION



IMPROPERLY INSTALLED  
CLIP ( UPSIDE DOWN )



PROPERLY INSTALLED  
CLIP



## INSTALLATION INSTRUCTIONS

- 1) DETERMINE PROPER LOCATION FOR SHELF CLIPS. THE REFERENCE NUMBERS ON THE PILASTER CAN SERVE AS A GUIDE TO ENSURE ALL CLIPS ARE PROPERLY LOCATED.
- 2) INSERT TOP TAB OF THE SHELF CLIP INTO THE DESIRED HOLE OF THE PILASTER. THE RETAINING TAB SHOULD BE FACING UPWARDS AS SHOWN.
- 3) ROTATE THE CLIP DOWNWARDS AND INSERT THE BOTTOM TAB INTO THE APPROPRIATE HOLE ON THE PILASTER. THE CLIP MAY NEED TO BE SQUEEZED SLIGHTLY DURING INSTALLATION.
- 4) INSTALL ALL REMAINING CLIPS AS DESCRIBED ABOVE.
- 5) INSTALL SHELVES ONTO CLIPS WITH THE PRODUCT RETENTION BAR FACING UPWARD. BE CAREFUL NOT TO DISLodge CLIPS DURING SHELF INSTALLATION.
- 6) SHELVES MUST BE PLACED SUCH THAT THE RETAINING TAB ON THE SHELF CLIP CAPTURES THE SHELF AS SHOWN.
- 7) PRIOR TO LOADING THE SHELF. ENSURE THAT THE SHELF IS RESTING ON EACH OF 4 CLIPS AND THE CLIPS ARE INSTALLED AS SHOWN.

## WARNING

- IMPROPER SHELF CLIP INSTALLATION MAY CAUSE SHELF AND/OR PRODUCT TO FALL RESULTING IN DAMAGE TO THE UNIT AND BODILY INJURY.
- DO NOT OVERLOAD THE SHELVES. THE UNIT IS DESIGNED TO UTILIZE ALL SHELVES THAT ARE SUPPLIED IN AN EQUALLY SPACED MANNER. IF LESS SHELVES OR A DIFFERENT CONFIGURATION IS DESIRED, CONTACT THE MANUFACTURER TO ENSURE SHELF OVERLOADING WILL NOT OCCUR.

## Bi-pin Florescent Lamp Installation / Verification

Prior to applying power to the unit, verify that all lamps are properly installed and fully engaged in the lamp holders.

Proper lamp engagement is achieved by rotating the lamp 90° from its insertion position until it “snaps” or “clicks” into place.

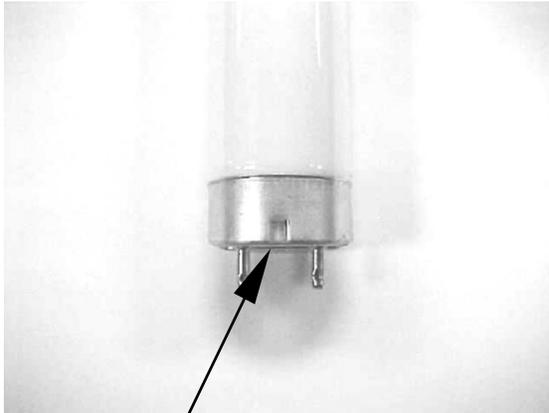
Visual verification can be made on units without safety shields by using the identification mark on the end of the bulb. Properly installed bulbs will have the mark centered between the “halves” of the lamp holder.

On units with shields, the identification mark cannot be seen. Physically verify that the lamp has been rotated and locked into place.

See pictures below.

### **Caution: Improperly installed lamps may cause damage to the lighting circuit.**

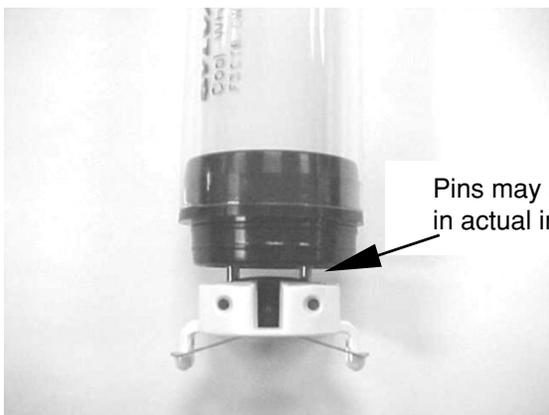
Beverage-Air shall have no liability whatsoever for equipment or component failures or other damages or losses which arise as a result of improper installation.



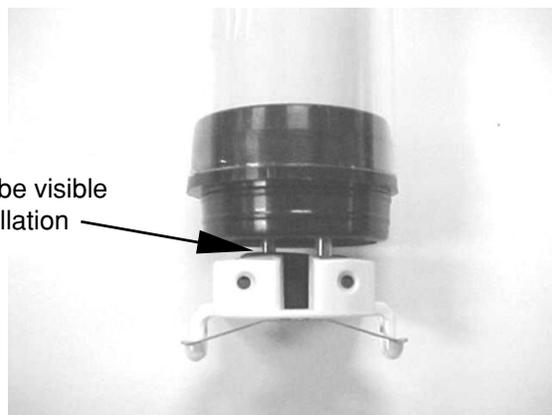
Bi-pin lamp end identification mark



Properly installed lamp without shield. Verify identification mark is positioned as shown.

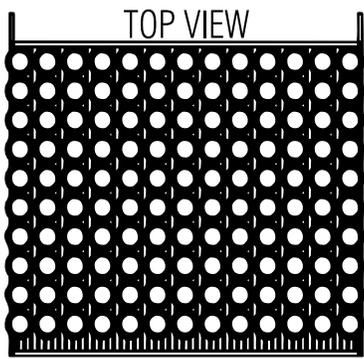


Properly installed lamp with shield. Requires physical verification that lamp has been rotated and locked into place

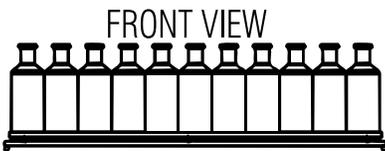
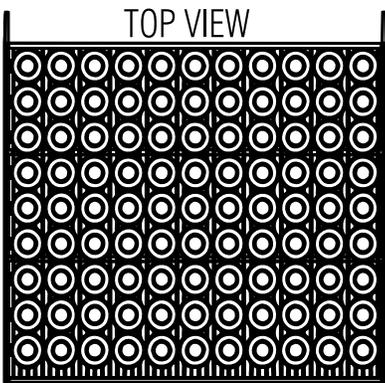
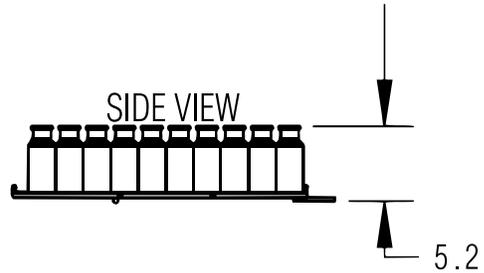


Improperly installed lamp with shield. Note that pins have not achieved full 90° rotation

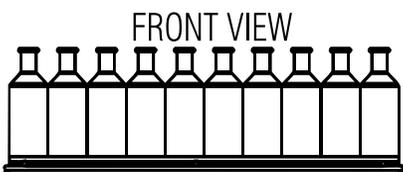
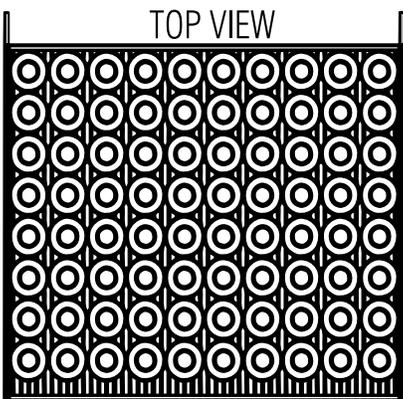
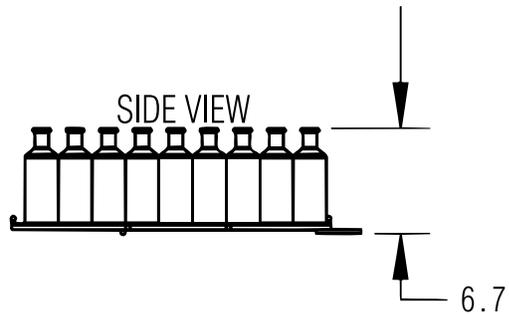
# PACKOUT FOR THE BZ13



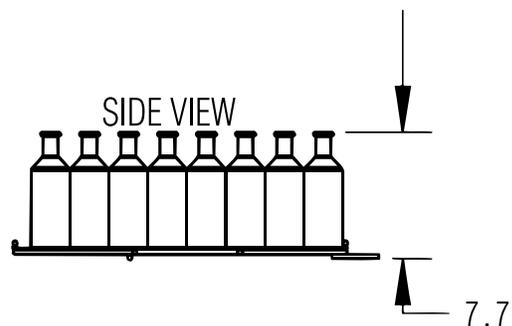
13 ROWS x 9 ROWS x 5 SHELVES  
TOTAL PACKOUT FOR 8oz. CONTAINERS = 650



11 ROWS x 9 ROWS x 4 SHELVES  
TOTAL PACKOUT FOR 10oz. CONTAINERS = 396



10 ROWS x 8 ROWS x 3 SHELVES  
TOTAL PACKOUT FOR 16oz. CONTAINERS = 240

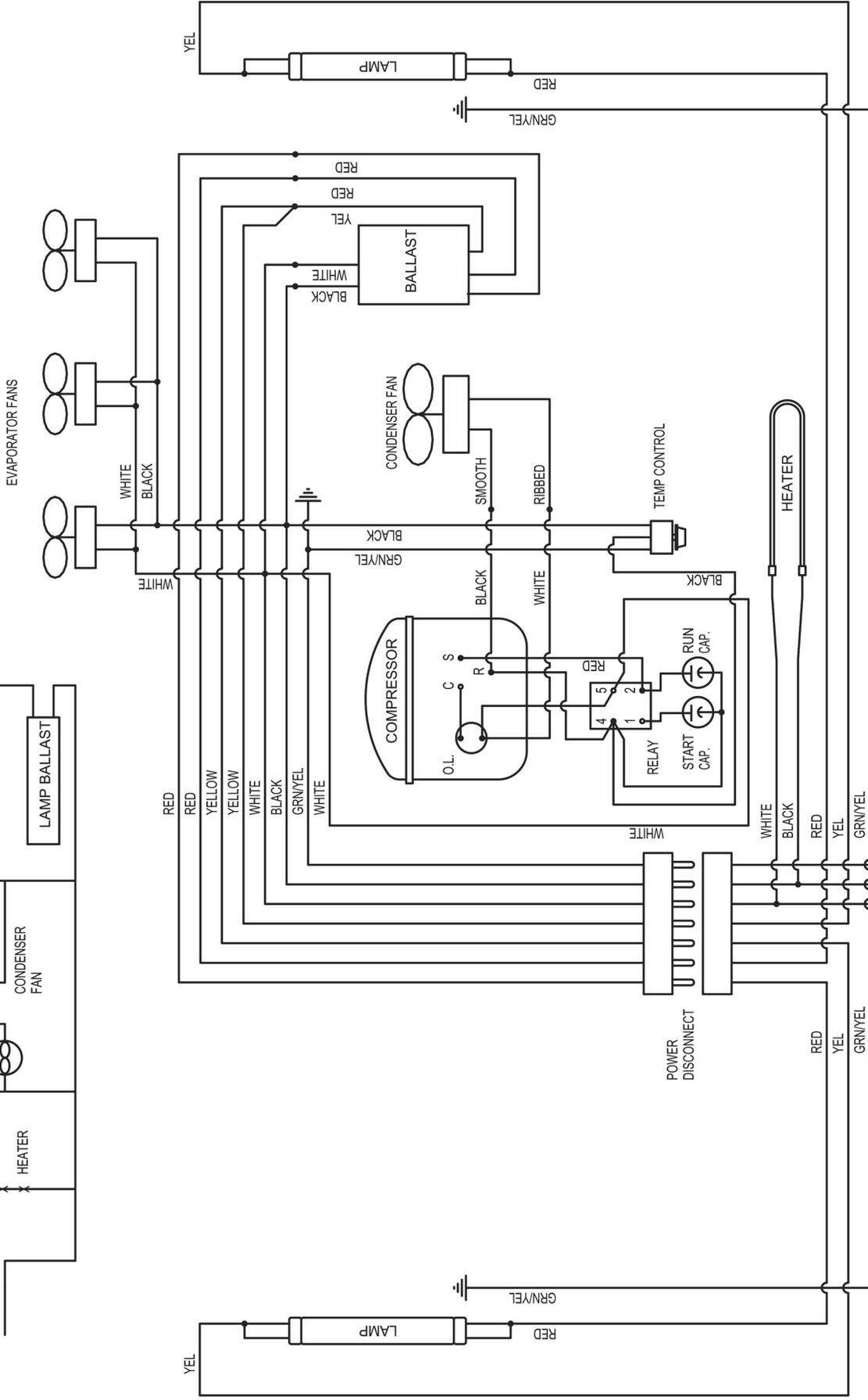
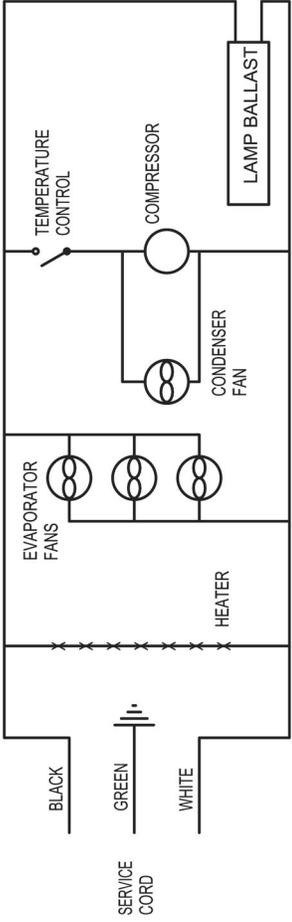


IL-2071B

BZ16

EN 8283 ; REV. ( B )

ELECTRICAL SCHEMATIC



SERVICE CORD & PLUG STYLE  
VARIES BY APPLICATION AND  
VOLTAGE REQUIREMENTS

JUNCTION-BOX ; CE ONLY

BLACK = HOT  
GREEN = GROUND  
WHITE = COMMON

WIRING DIAGRAM

# METHODS FOR CLEANING STAINLESS STEEL

	CLEANING AGENT*	METHOD OF APPLICATION**	EFFECT ON FINISH
Routine Cleaning	Soap, ammonia or detergent and water.	Sponge with cloth, then rinse with clear water and wipe dry.	Satisfactory for u all finishes.
Stubborn spots and stains, baked-on splatter, and other light discoloration's.	Revere Ware cleaner, Twinkle, or Cameo stainless steel cleaner.	Apply with damp sponge or cloth. Rub with damp cloth.	Satisfactory for u finishes if rubbing Use in direction c lines.
	Goddard's Stainless Steel Care, Revere Ware Stainless Steel Cleaner, Soft-Scrub.	Apply with damp sponge or cloth.	Use in direction of polish lines. May scratch or dull highly polished finishes.
	Household cleansers, such as Old Dutch, Zud, Bon Ami, Ajax, Comet	Rub with a damp cloth. May contain chlorine bleaches. Rinse thoroughly after use. Rub with a damp cloth.	
Heat tint or heavy discoloration	Revere Ware Stainless Steel Cleaner, Goddard's Stainless Steel Care.	Apply with damp sponge or cloth.	
Burnt-on foods and grease, fatty acids milkstone (where swabbing or rubbing is not practical)	Easy-Off Oven Cleaner	Apply generous coating. Allow to stand for 10 to 15 minutes. Rinse. Repeated application may be necessary.	Excellent remove Satisfactory for u finishes.
Hard water spots and scale.	Vinegar	Swab or wipe with cloth. Rinse with water and dry.	Satisfactory for u finishes.

\*Use of brand names is intended only to indicate a type of cleaner. This does not constitute an endorsement. does the omission of any brand name cleaner imply its inadequacy. Many products named are regional in dist and can be found in local supermarkets, department and hardware stores.

\*\*It is emphasized that all products should be used in strict accordance with instructions on package.

1. Use the mildest cleaning procedure that will do the job efficiently and effectively.
2. Always rub in the direction of polish lines for maximum effectiveness and to avoid marring the surface.
3. Use only a soft cloth, sponge, fibrous brushes, plastic or stainless steel pads for cleaning and scouring.
4. Rinse thoroughly with fresh water after every cleaning operation.
5. Always wipe dry to avoid water marks.
6. **Never use common steel wool pads, these will cause rust!**

**BEVERAGE-AIR**

P.O. BOX 5932, Spartanburg, SC 29304-5932 Phone 800-845-9800 Fax 864-582-5083

MADE IN USA

# SERVICE AND ANALYSIS CHART

# REFRIGERATION SYSTEM

MALFUNCTION	POSSIBLE CAUSE	SOLUTION
Compressor will not start — no hum	<ol style="list-style-type: none"> <li>1. Line cord not plugged in.</li> <li>2. Fuse removed or blown.</li> <li>3. Overload protector tripped.</li> <li>4. Control stuck in open position.</li> <li>5. Wiring improper or loose.</li> </ol>	<ol style="list-style-type: none"> <li>1. Plug in line cord.</li> <li>2. Replace fuse.</li> <li>3. Refer to electrical section.</li> <li>4. Repair or replace control.</li> <li>5. Check wiring against diagram.</li> </ol>
Compressor will not start — hums but trips on overload protector	<ol style="list-style-type: none"> <li>1. Improperly wired.</li> <li>2. Low voltage to unit.</li> <li>3. Starting capacitor defective.</li> <li>4. Relay failing to close.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check wiring against diagram.</li> <li>2. Determine reason and correct.</li> <li>3. Determine reason and replace.</li> <li>4. Determine reason and correct, replace if necessary.</li> </ol>
Compressor starts, but does not switch off of start winding	<ol style="list-style-type: none"> <li>1. Low voltage to unit.</li> <li>2. Relay failing to open.</li> <li>3. Run capacitor defective.</li> <li>4. Compressor motor has a winding open or shorted.</li> </ol>	<ol style="list-style-type: none"> <li>1. Determine reason and correct.</li> <li>2. Determine reason and correct, replace if necessary.</li> <li>3. Determine reason and replace.</li> <li>4. Replace compressor.</li> </ol>
Compressor starts and runs, but short cycles on overload protector	<ol style="list-style-type: none"> <li>1. Additional current passing through overload protector.</li> <li>2. Low voltage to unit.</li> <li>3. Overload protector defective.</li> <li>4. Run capacitor defective.</li> <li>5. Excessive discharge pressure.</li> <li>6. Compressor too hot — return gas hot.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check wiring diagram. Check for added fan motors, pumps, etc., connected to wrong side of protector.</li> <li>2. Determine reason and correct.</li> <li>3. Check current, replace protector.</li> <li>4. Determine reason and replace.</li> <li>5. Check ventilation, restrictions in cooling medium, restrictions in refrigeration system.</li> <li>6. Check refrigerant charge (fix leak) add if necessary</li> </ol>
Unit runs OK, but short cycles	<ol style="list-style-type: none"> <li>1. Overload protector.</li> <li>2. Cold control.</li> <li>3. Overcharge.</li> <li>4. Air in system.</li> <li>5. Undercharge.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check wiring diagram.</li> <li>2. Differential set too close — widen.</li> <li>3. Reduce refrigerant charge.</li> <li>4. Purge and recharge.</li> <li>5. Fix leak, add refrigerant.</li> </ol>
Unit operates long or continuously	<ol style="list-style-type: none"> <li>1. Shortage of refrigerant.</li> <li>2. Control contacts stuck or frozen closed.</li> <li>3. Evaporator coil iced.</li> <li>4. Restriction in refrigeration system.</li> <li>5. Dirty condenser.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fix leak, add charge.</li> <li>2. Clean contacts or replace control.</li> <li>3. Defrost.</li> <li>4. Determine location and remove.</li> <li>5. Clean condenser.</li> </ol>
Start capacitor open, shorted or blown	<ol style="list-style-type: none"> <li>1. Relay contacts not opening properly.</li> <li>2. Low voltage to unit.</li> <li>3. Improper relay.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean contacts or replace relay if necessary.</li> <li>2. Determine reason and correct.</li> <li>3. Replace</li> </ol>
Run capacitor open, shorted or blown	<ol style="list-style-type: none"> <li>1. Improper capacitor.</li> <li>2. Excessively high line voltage. (110% or rated-max.).</li> </ol>	<ol style="list-style-type: none"> <li>1. Determine correct size and replace.</li> <li>2. Determine reason and correct.</li> </ol>
Relay defective or burned out	<ol style="list-style-type: none"> <li>1. Incorrect relay.</li> <li>2. Line voltage too high or too low.</li> <li>3. Relay being influenced by loose vibrating mounting.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and replace.</li> <li>2. Determine reason and correct.</li> <li>3. Remount rigidly.</li> </ol>
Space temperature too high	<ol style="list-style-type: none"> <li>1. Control setting too high.</li> <li>2. Improper overcharge.</li> <li>3. Inadequate air circulation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reset control.</li> <li>2. Purge.</li> <li>3. Improve air movement.</li> </ol>
Cooler freezing beverage	<ol style="list-style-type: none"> <li>1. Control setting.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reset control.</li> </ol>
Unit noisy	<ol style="list-style-type: none"> <li>1. Loose parts or mountings.</li> <li>2. Tubing rattle.</li> <li>3. Bent fan blade causing vibration.</li> <li>4. Fan motor bearings worn.</li> </ol>	<ol style="list-style-type: none"> <li>1. Find and tighten.</li> <li>2. Reform to be free of contact.</li> <li>3. Replace blade.</li> <li>4. Replace motor.</li> </ol>

**ALL SERVICING MUST COMPLY WITH STATE AND FEDERAL REGULATIONS**

SALES OFFICE: P.O. BOX 5932, SPARTANBURG, SOUTH CAROLINA 29304  
 PLANTS: SPARTANBURG, SOUTH CAROLINA • HONEA PATH, SOUTH CAROLINA  
 BROOKVILLE, PENNSYLVANIA  
 PHONE 803-582-8111 TOLL FREE NUMBER 1-800-845-9800

# REFRIGERATION SYSTEM

# SERVICE AND ANALYSIS CHART

## ■ REFRIGERATION SYSTEM

The Refrigeration System consists of a hermetically sealed compressor and finned evaporator and condenser.

## ■ CONDENSER

The condenser has wide finned spaces which allow more air passage with less dirt or dust accumulation. The condenser still requires periodic cleaning for maximum efficiency.

## ■ CONDENSER FAN MOTOR

The condenser fan motor assembly is mounted between the condenser and compressor. Air is drawn through the condenser, over the body of the compressor and then out the rear of the unit compartment.

The motor is wired to cycle with the compressor but will continue to operate should the compressor cut out on the overload. (The motor is permanently lubricated; therefore, oiling is not required).

## ■ DRIER

The drier is installed in the system just before the capillary tube. Its purpose is to trap minute particles of foreign material and absorb any moisture in the system.

## ■ LIQUID CONTROL AND HEAT EXCHANGE

Liquid refrigerant control to the evaporator of the system is accomplished by the use of a capillary tube or expansion valve. This capillary tube or liquid line is soldered to the suction line to form a heat exchanger which subcools the liquid refrigerant to maintain high efficiency within the system.

## ■ REFRIGERATION SERVICE EVACUATION

Moisture in a refrigeration system is directly or indirectly the cause of more problems and complaints than all other factors combined.

When large amounts are present, system freeze ups will occur. Even in minute amounts, moisture will combine with refrigerants to form hydrochloric acid. The corrosive action of this acid forms sludge which will plug the lines and drier.

Since most field type vacuum pumps cannot pull a low enough vacuum to remove moisture from the system, it is recommended that the system be triple evacuated, breaking each time with dry refrigerant nitrogen. Use care to purge air from the charging hose when breaking the vacuum.

## ■ CHARGING REFRIGERATION SYSTEM

Since capillary tube systems have small critical refrigerant charges, we recommend that a field charge either be weighed in or put in from a portable charge board. After maximum vacuum has been obtained as detailed above, attach charging cylinder to the suction line making sure to purge air from hose with refrigerant. With the unit running, allow refrigerant to run slowly into the system until the desired charge is reached. When using Refrigerant Blends it is recommended to liquid charge into the high side of the system with the initial charge and then any remaining charge can be put into the suction side; however, care must be taken to meter the remaining amount into the low side so as not to cause excess liquid to go to the compressor

### OVERCHARGE

When the cabinet has pulled down to operating temperature an indication of an overcharge is that the suction line will be cooler than normal with the compressor running. Running time will be higher than normal. Suction line will sweat or frost.

Purge excessive refrigerant from the system very carefully in small amounts waiting several minutes for the system to balance.

### UNDERCHARGE

An undercharge or shortage of refrigerant will result in any or all of the following:

1. Lower than normal head pressure.
2. Lower than normal suction pressure.
3. Excessive or continuous operation of compressor.
4. Higher than normal cabinet temperature.

