



# **IMPORTANT INFORMATION**

for

## **CF/CR5/CFD/CRD5 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.

\* \_\_\_\_\_  
Quality Control Inspector – Beverage-Air



### **WARRANTY REGISTRATION CARD**

Cabinet Serial No. \_\_\_\_\_

Original Purchaser \_\_\_\_\_

Address \_\_\_\_\_

CITY

STATE

Installation Location \_\_\_\_\_

NAME

ADDRESS

Beverage-Air Model No. \_\_\_\_\_ Installation Date \_\_\_\_\_

*This card must be mailed within 10 days after installation date to*

**BEVERAGE-AIR®**

90 Days  
Labor Warranty

**BEVERAGE-AIR®** 5 Years  
Compressor Warranty

### LIMITED WARRANTY

Beverage-Air warrants to the original purchaser the "BEVERAGE-AIR" unit sold and all parts thereof to be free from defects in material or workmanship, under normal use and service, for a period of one (1) year from the date of registration, or fifteen (15) months from date of shipment by us, whichever is earlier.

Our obligation under this warranty shall be limited to repairing or replacing f.o.b. factory any part of such product which proves thus defective and which our examination shall disclose to our satisfaction to be defective.

- a. Any part returned to the company under the terms of this warranty must be accompanied by a record of the cabinet model, serial number and return authorization number, and such return shall be on the basis of **TRANSPORTATION CHARGES PAID.**
- b. Improper operation due to low voltage conditions, inadequate wiring, and accidental damage are not manufacturing defects and are strictly the responsibility of the purchaser.
- c. Condenser coils must be cleaned at regular intervals. Failure to do so can cause compressor malfunction, and will void warranty. This contract does not apply outside the limits of Continental United States, nor does it apply to any part which has been subject to misuse, neglect, alteration, accident, or to any damage caused by transportation, flood, fire or the acts of God.

This contract is not effective unless the Beverage-Air Warranty Registration Card, furnished with each Unit, is properly filled in and mailed to Beverage-Air within ten (10) days from date of installation.

The term "original purchaser" as used herein shall be deemed to mean that person, firm, association or corporation for whom the Refrigeration Unit referred to herein is originally installed.

### ADDITIONAL FOUR-YEAR COMPRESSOR REPLACEMENT WARRANTY

In addition to the warranty set forth above, Beverage-Air warrants the hermetically sealed compressor for an additional four (4) years, not to exceed sixty (60) months from date of shipment from our plant provided, upon receipt of the compressor, manufacturer examination shows the sealed compressor to be defective. This extended warranty does not apply to any electrical controls, condenser, evaporator, fan motors, overload switch, starting relay, temperature control, dryer, accumulator, or wiring harnesses, which items are covered by the standard warranty.

No claims can be made against this warranty for spoilage of products.

These warranties are in lieu of all other warranties, express or implied, and all other obligations or liabilities on our part, and we neither assume nor authorize any other person to assume for us any other obligation or liability in connection with the sale of said Refrigeration Units or any part thereof. This warranty shall not be assignable and shall be honored only in so far as the original purchaser.

Date \_\_\_\_\_

1.88

**RETAIN THIS PORTION FOR YOUR RECORDS**

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PLACE  
POSTAGE  
HERE

**BEVERAGE-AIR.**

PO BOX 5932  
SPARTANBURG, SC 29304-5932



# BEVERAGE-AIR®

SPARTANBURG, SC

BROOKVILLE, PA

## INSTALLATION AND OPERATION INSTRUCTIONS MODELS, CF/CR 5 & CFD/CRD 5

### 1. INSTALLATION

#### a. Receiving Inspection

Upon receipt, check all packages for accessories or components, including legs and shelves.

#### b. Legs (optional)

To install legs, tip or raise the cabinet one side at a time and remove skid base by removing (2) 5/16-18 hex head bolts. Screw-on legs mount directly into 5/16-18 weld nut provided in each corner at the bottom. (See Fig. 1)

#### c. Leveling

To provide adequate condensation drainage, proper door alignment and operation, it is necessary that the cabinet be level. If levelers are used, the cabinet must be sealed to the counter around the perimeter of the cabinet base with an N.S.F. listed silicone such as Dow Corning #732. (See Fig. 4)

#### d. Shelves

Shipped inside each cabinet are shelves packed in plastic and a bag of shelf supports. Shelf spacing is adjustable to suit requirements. Three (3) shelves come with each cooler, shelves (17 5/16 x 18 7/8) are adjustable from top to bottom.

#### e. Door Removal and Adjustment

Swing Door - Glass or Solid - If door removal is necessary, (remove sign by lifting up and out, CF Model only disconnect power) hold door securely and remove top hinge by unscrewing two (2) 1/4 - 20 hex head screws. Remove hinge from cabinet and lift door off bottom hinge. Replace door by reversing above method. Adjust Door - Bottom hinge is adjustable. Simply loosen the screws that hold the hinge to the cabinet, the top hinge and the bottom hinge have (2) 1/4 - 20 hex head screws. By loosening the bottom hinge the door is adjustable up and down. (See Fig. 2 for Door Removal)

#### f. Location Cooler

Provide at least three inches of space between cabinet and any adjacent wall or fixture, at rear of cabinet.

### 2. OPERATION

#### a. Electrical Supply and Connections

Plug all standard models into 115 volts A.C. 60 hertz outlet. Low line voltage is often the cause of service complaints. Check to see that the line voltage is 110 volts or more with the unit running. Other motors or heavy appliances should not be used on the same circuit with the cooler. When working on the inside of the cooler disconnect from electrical circuit for safety reasons. CAUTION - If an extension cord is necessary, use only a three wire grounding type of wire size 16 AWG or larger, do not exceed 20 ft. in length. The use of ungrounded cords or overloaded circuit voids compressor warranty.

#### b. Initial Start-Up

Turn power on and check to verify that the condenser fan is running.

#### c. Temperature Control

Factory setting of temperature control for a refrigerator is No. 4 position (normal) which will maintain the product at about 38degreesF. Factory setting for a freezer is No. 4 position (normal) which will maintain the product at about 0degreesF. For colder temperatures, turn knob clockwise one number at a time.

Excessive tampering with temperature control could lead to service difficulties. For operation above 3000 ft. altitude, have thermostat adjusted by a qualified serviceman.

#### d. Condensation Disposal

The drain pan below the evaporator serves to collect and direct the condensate to the evaporator pan located below the unit. Air flow over the pan hastens condensation evaporation so that external drain plumbing is not required.

#### e. Freezer Defrost System

The defrost timer is factory set for (6) twenty minute defrosts per 24 hour period. The start time for defrosting should be set to occur during lightest usage of cabinet. Choose defrost time desired and turn adjusting cam until defrost is activated. The defrost will then occur every four hours. The adjusting cam is located on the Instrument panel behind the inside light (See Fig. 3)

NOTE Defrost timer on freezer models only.

### 3. MAINTENANCE

#### a. Cleaning Cabinet Exterior

Cabinets should be cleaned with a solution of mild soap and water. Do not use caustic soap or abrasive cleaners, since these might damage the cabinet finish. If stainless steel surface becomes discolored, scrub by rubbing only in the direction of the grain. Do not use steel wool.

#### b. Cleaning Interior Surface

The inside of the cabinet is coated with baked-on paint (except stainless steel cooler). To clean, use mild soapy water and cloth or sponge.

#### c. Condenser

For efficient operation, it is recommended that the condenser coil and fans be cleaned every 3 to 6 months. Remove rear grille for access. Vacuum clean front surface of coil thoroughly or direct forced air through condenser fins. Failure to clean condenser can cause compressor malfunction and will void warranty.

#### d. Evaporator Pan

Evaporator pan should be cleaned periodically to prevent odors and maintain evaporating efficiency.

#### e. Evaporator Fan

To clean evaporator fan, disconnect power. Remove sign frame. Unlatch lid locks on front and back of lid and remove. Lift up on evaporator fan and shroud assembly to expose evaporator fan for cleaning.

#### f. Temperature control / Defrost Control

Located behind front light in instrument panel assembly. Remove panel by loosening #10 - 32 thumb screw. This will expose temperature control and defrost timer. (See Fig. 3).

# 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 use on all finishes.
Smears and Fingerprints	Arcal 20, Lac-O-Nu, Lumin Wash O'Cedar Cream Polish, Stainless Shine.	Rub with cloth as directed on the package.	Satisfactory for use on all finishes. Provides barrier film to minimize prints.
Stubborn Spots and Stains, Baked-On Splatter, and Other Light Discolorations.	Allchem Concentrated Cleaner.	Apply with damp sponge or cloth.	Satisfactory for use on all finishes.
	Samae, Twinkle or Cameo Copper Cleaner	Rub with damp cloth.	Satisfactory for use on all finishes if rubbing is light.
	Grade FFF Italian pumice, whiting, or talc.	Rub with damp cloth.	Use in direction of polish lines on No. 4 (polished) finish. Use light pressure on No. 2 (mill) finishes, and Nos. 7 and 8 (polished) finishes.
	Liquid NuSteel	Rub with dry cloth. Use small amount of cleaner.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and Nos. 7 and 8 (polished) finishes.
	Paste NuSteel or DuBois Temp.	Rub with dry cloth using a small amount of cleaner.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and Nos. 7 and 8 (polished) finishes.
	Copper's Stainless Steel Cleaner Revere Stainless Cleaner	Apply with damp sponge or cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and Nos. 7 and 8 (polished) finishes.
	Household cleansers, such as Old Dutch, Lighthouse, Sunbrite, Wyandotte, Bab-O, Gold Dust, Sapolio, Bon Ami, Ajax, or Comet	Rub with a damp cloth. May contain chlorine bleaches. Rinse thoroughly after use.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and Nos. 7 and 8 (polished) finishes.
Heat Tint or Heavy Discoloration	Grade F Italian Pumice, Steel Bright, Lumin Cleaner, Zud, Restoro, Sta-Clean, or Highlite.	Rub with a damp cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and Nos. 7 and 8 (polished) finishes.
	Penny-Brite or Copper-Brite.	Rub with a dry cloth using a small amount of cleaner.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and Nos. 7 and 8 (polished) finishes.
	Penny-Brite or Copper-Brite.	Rub with a dry cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and Nos. 7 and 8 (polished) finishes.
	Past NuSteel, DuBois Temp, or Tarnite.	Rub with a dry cloth or stainless steel wool.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and Nos. 7 and 8 (polished) finishes.
Burnt-On Foods and Grease Fatty Acids, Milkstone (where swabbing or rubbing is not practical)	Revere Stainless Steel Cleaner.	Apply with damp sponge or cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and Nos. 7 and 8 (polished) finishes.
	Allen Polish, Steel Bright, Wyandotte, Bab-O or Zud.	Rub with a damp cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and Nos. 7 and 8 (polished) finishes.
Tenacious Deposits, Rusty Discolorations, Industrial Atmospheric Stains	Easy-Off, De-Grease-It, 4 to 6% hot solution of such agents as trisodium phosphate or sodium tripolyphosphate or 5 to 15% caustic soda solution.	Apply generous coating. Allow to stand for 10-15 minutes. Rinse. Repeated application may be necessary.	Excellent removal, satisfactory for use on all finishes.
Hard Water Spots and Scale	Oakite No. 33, Dilac Texo 12, Texo N.Y., Flash-Klenz, Caddy Cleaner, Turco Scale 4368 or Permag 57.	Swab and soak with clean cloth. Let stand 15 minutes or more according to directions on package, then rinse and dry.	Satisfactory for use on all finishes.
	Vinegar.	Swab or wipe with cloth. Rinse with water and dry.	Satisfactory for all finishes.
	5% oxalic acid, 5% sulfamic acid, 5 to 10% phosphoric acid, or Dilac, Oakite No. 33, Texo 12, Texo N.Y.	Swab or soak with cloth. Let stand 10-15 minutes. Always follow with neutralizer rinse, and dry.	Satisfactory for all finishes. Effective on tenacious deposits or where scale has built up.

Cleaning data supplied by AISI.

## NOTES

\* Use of proprietary names is intended only to indicate a type of cleaner, and does not constitute an endorsement, nor is omission of any cleanser to imply its inadequacy. It should be emphasized that all products should be used in strict accordance with instructions on package.

\*\* In all applications a stainless steel wool or sponge or fibrous brush or pads are recommended. Avoid use of ordinary steel wool or steel brushes for scouring stainless steel.

## SUGGESTIONS:

- Use the mildest cleaning procedure that will do the job effectively.
- Rub in the direction of polish lines for maximum effectiveness and to avoid marring the surface.
- Rinse thoroughly with fresh water after every cleaning operation.
- Wipe dry to avoid water marks.





# SERVICE AND ANALYSIS CHART

# REFRIGERATION SYSTEM

MALFUNCTION	POSSIBLE CAUSE	SOLUTION
Compressor will not start - no hum	1. Line cord not plugged in. 2. Fuse removed or blown. 3. Overload protector tripped. 4. Temp control stuck in open position. 5. Wiring improper or loose.	1. Plug in the cord. 2. Replace fuse. 3. Refer to electrical section. 4. Repair or replace temp control. 5. Check wiring against diagram.
Compressor will not start - hums but trips on overload protector.	1. Low voltage to unit 2. Relay failing to close  3. Starting capacitor defective. 4. Improperly wired.	1. Determine reason and correct 2. Determine reason and correct,replace if necessary 3. Determine reason and replace 4. Check wiring against diagram
Compressor starts but does not switch off of start winding.	1. Low voltage to unit. 2. Relay failing to open.  3. Run capacitor defective 4. Comp Mt winding is open or shorted	1. Determine reason and correct. 2. Determine reason and correct,replace if necessary. 3. Determine reason and replace. * 4. Determine cause,correct, and replace comp
Compressor starts and runs, but short cycles on overload protector.	1. Additional current passing through overload protector.  2. Low voltage to unit. 3. Overload protector defective. 4. Run capacitor defective. 5. Excessive discharge pressure.  6. Compressor too hot - return gas hot.	1. Check wiring diagram. Check for added fan motors, pumps, etc. connected to wrong side of protector. 2. Determine reason and correct. 3. Check current, replace protector. 4. Determine reason and replace. * 5. Check ventilation, restrictions in cooling medium,restrictions in refrigeration system. * 6. Check refrigerant charge (fix leak if necessary). Check air flow across condenser.
Unit runs OK, but short cycles.	1. Overload protector. 2. Cold control. 3. Overcharge. 4. Air in system. 5. Undercharge.	1. Check wiring diag for correct wiring 2. Differential set too close. * 3. Reduce refrigerant charge. * 4. Recover and recharge. * 5. Fix leak and recharge with refrigerant.
Unit operates long or continuously.	1. Dirty condenser 2. Shortage of refrigerant. 3. Temp control contacts stuck or frozen 4. Evaporator coil iced. 5. Restriction in refrigeration system.	* 1. Clean condenser 2. Fix leak,add charge,correct charge 3. Replace Temp control * 4. Defrost 5. Determine location and remove.
Start capacitor open, shorted or blown.	1. Relay contacts not opening properly. 2. Low voltage to unit. 3. Improper relay.	1. Replace relay 2. Determine reason and correct. 3. Replace.
Run capacitor open, shorted or blown.	1. Improper capacitor. 2. Excessively high line voltage (110% of rated max).	1. Determine correct size and replace. 2. Determine reason and correct.
Relay defective or burned out.	1. Incorrect relay. 2. Line voltage too high or too low. 3. Relay being influenced by loose vibrating mounting.	1. Check and replace. 2. Determine reason and replace. 3. Remount rigidly.
Space temperature too high.	1. Control setting too high. 2. Overcharged with refrigerant.  3. Inadequate air circulation.	1. Reset control. * 2. Recover refrigerant and recharge with proper charge specified on dataplate. 3. Improve air movement.
Cooler freezing beverage.	1. Temperature control	1. Reset control.
Unit noisy.	1. Loose parts or mountings. 2. Tubing rattle. 3. Bent fan blade causing vibration. 4. Fan motor bearings worn.	1. Find and tighten. 2. Reform to be free of contact. 3. Replace blade. 4. Replace motor.

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: 864-582-8111 TOLL FREE: 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 the compressor. Air is drawn through the condenser, over the body of the compressor and 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. This capillary tube 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 of moisture are present, system freeze ups will occur. Even in minute amounts, moisture will combine with refrigerants to form an 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 all 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 charging cylinder. After maximum vacuum has been obtained as detailed above, attach charging cylinder to the system 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 into 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.

Reclaim 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 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.

**FEDERAL LAW REQUIRES THAT REFRIGERANTS BE RECOVERED PRIOR TO SERVICING.**



**BEVERAGE-AIR®**

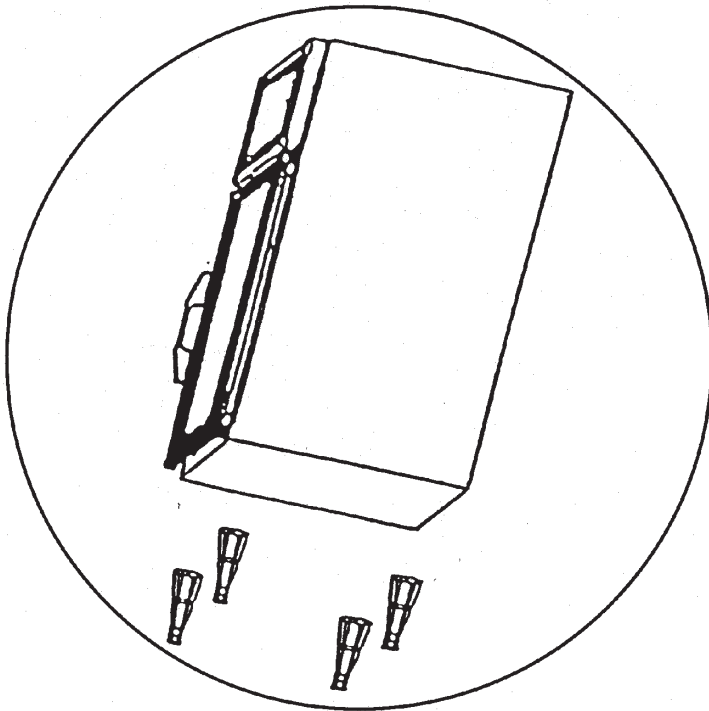


Fig. 1

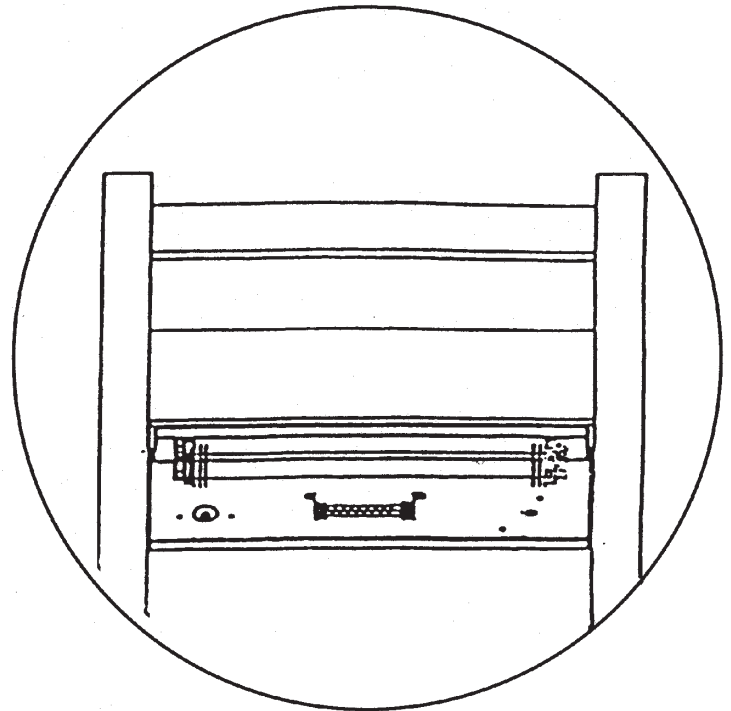


Fig. 2

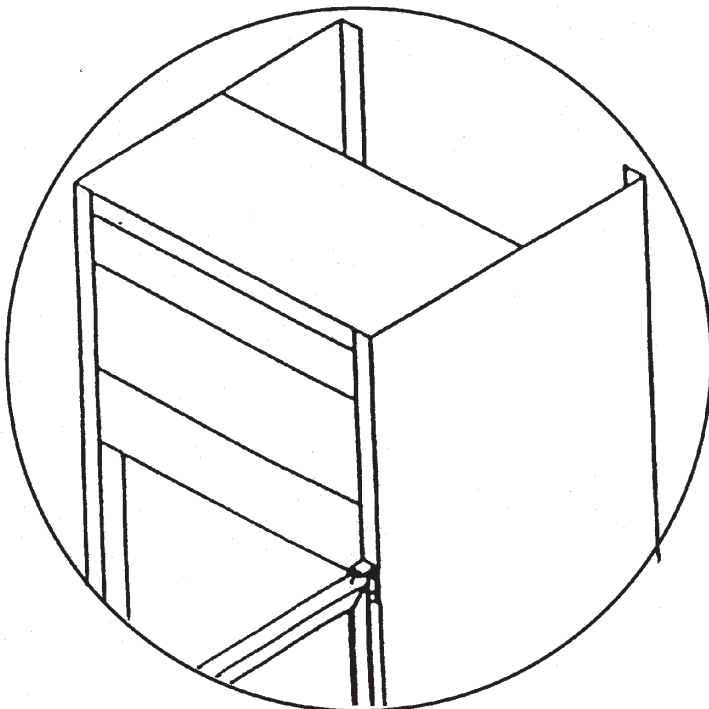
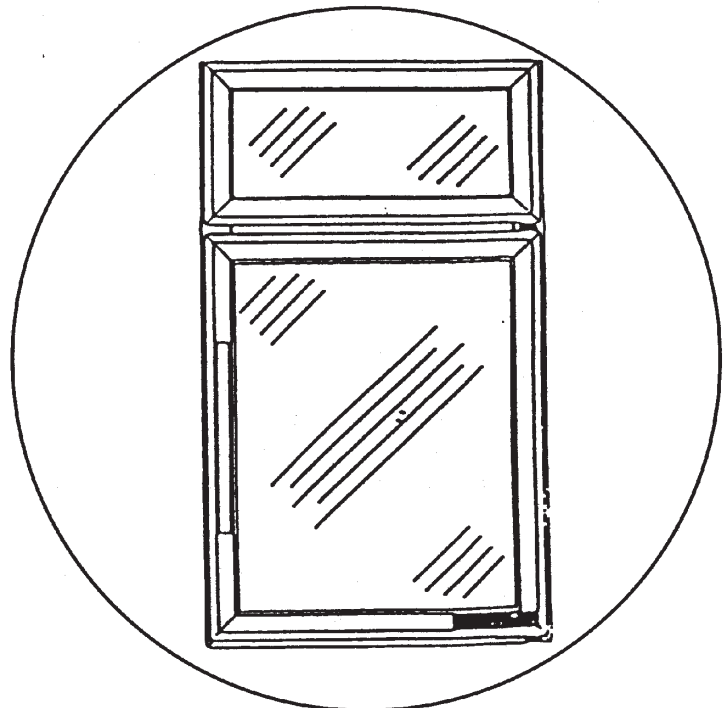


Fig. 3



SEAL CABINET TO COUNTER TOP AROUND BASE  
FOR NSF REQUIREMENTS USING DOW CORNING #732  
OR CLEAR RTV BEVERAGE AIR P/N 704-134A (AS REQ)

Fig. 4

<h1>SERVICE RECORD</h1>