HUSSMANN®

NEBNDT & NEBBDT

Curved Glass Bakery
(Refrigerated and Non-refrigerated)

Vision Series

P/N 345910A•••
October, 1991
Section 2

Installation / Service Manual

CONTENTS

REVISION CHANGES ("B")

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IMPORTANT
KEEP IN STORE FOR FUTURE REFERENCE
Quality that sets industry standards

This merchandiser conforms to the
Commercial Refrigerator Manufacturer's Association
Health and Sanitation Standard
CRS-S1-86

HUSSMANN® 12999 St. Charles Rock Road.• Bridgeton, MO 63044 USA• (314) 291-2000• FAX (314) 298-5753

MODEL DESCRIPTIONS

This instruction covers the merchandisers listed below. All models are available in either 59 or 78" lengths. All have the tilt glass feature shown below. Basic design features are listed to the right of each case.

NEBNDT Non-refrigerated Curved Glass Bakery Merchandiser, tilt glass, 4 levels (3 shelves)

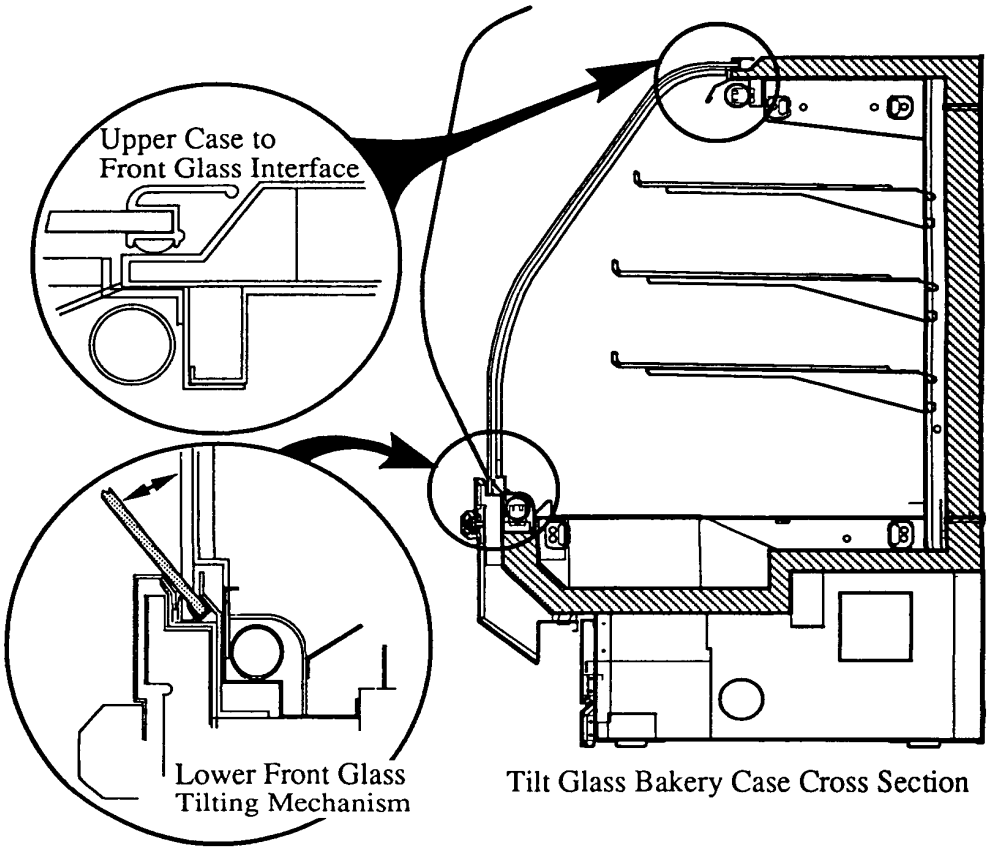
NEBBDT Refrigerated Curved Glass Bakery Merchandiser, tilt glass 4 levels (3 shelves)
Available as **self-contained** (NEBBDT-59**B** or -78**B**) **or remote** (NEBBDT-59 or -78 without the B) Remote unit requires separate condenser unit connection.

APPLICATION

These service-type merchandisers have been specifically designed for bakery departments. The full length, curved glass front provides complete product visibility.

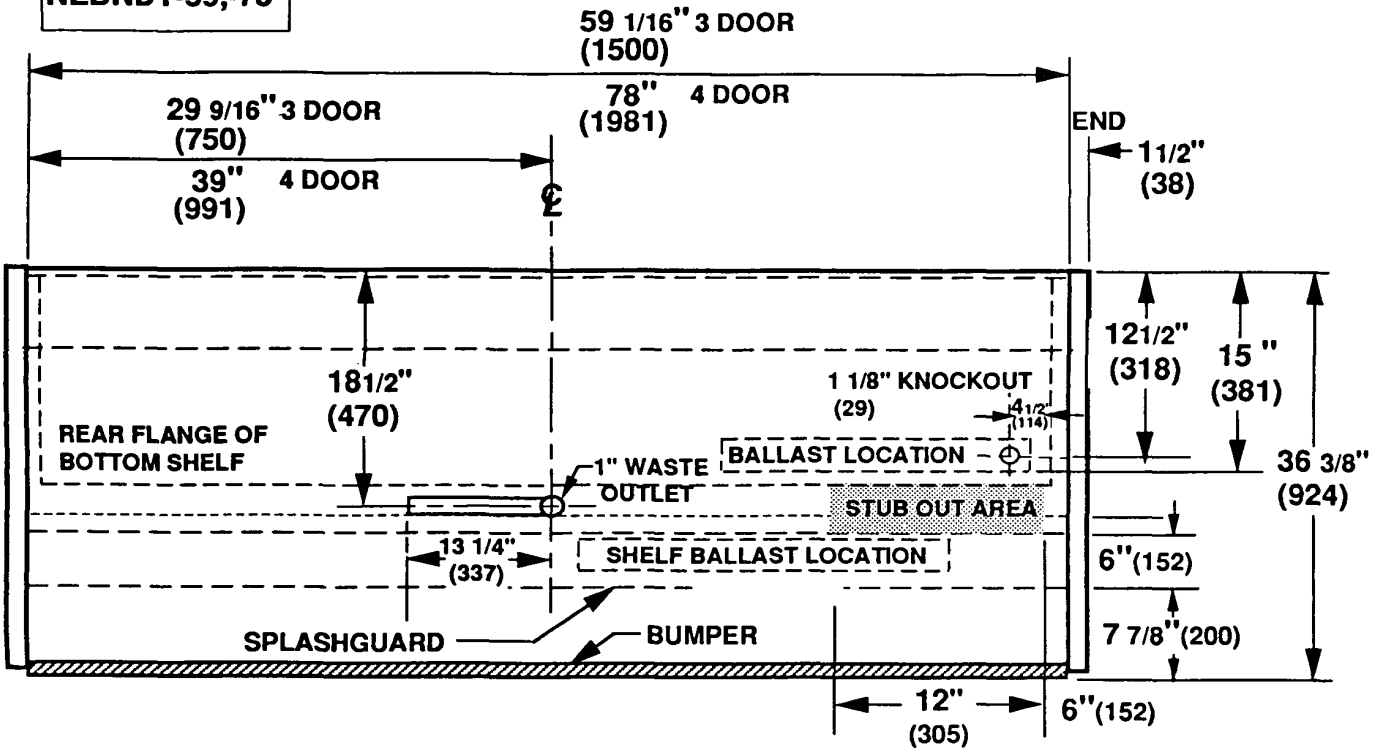
The NEBNDT, non-refrigerated model, is designed to display fresh bakery products that have fast turnover and require no refrigeration. The refrigerated bakery merchandisers are designed for use only in air conditioned stores where temperature and humidity are maintained at or below 75°F dry bulb temperature and 55% relative humidity.

NOTE: Plan view and cross section measurements are given in inches and in millimeters.

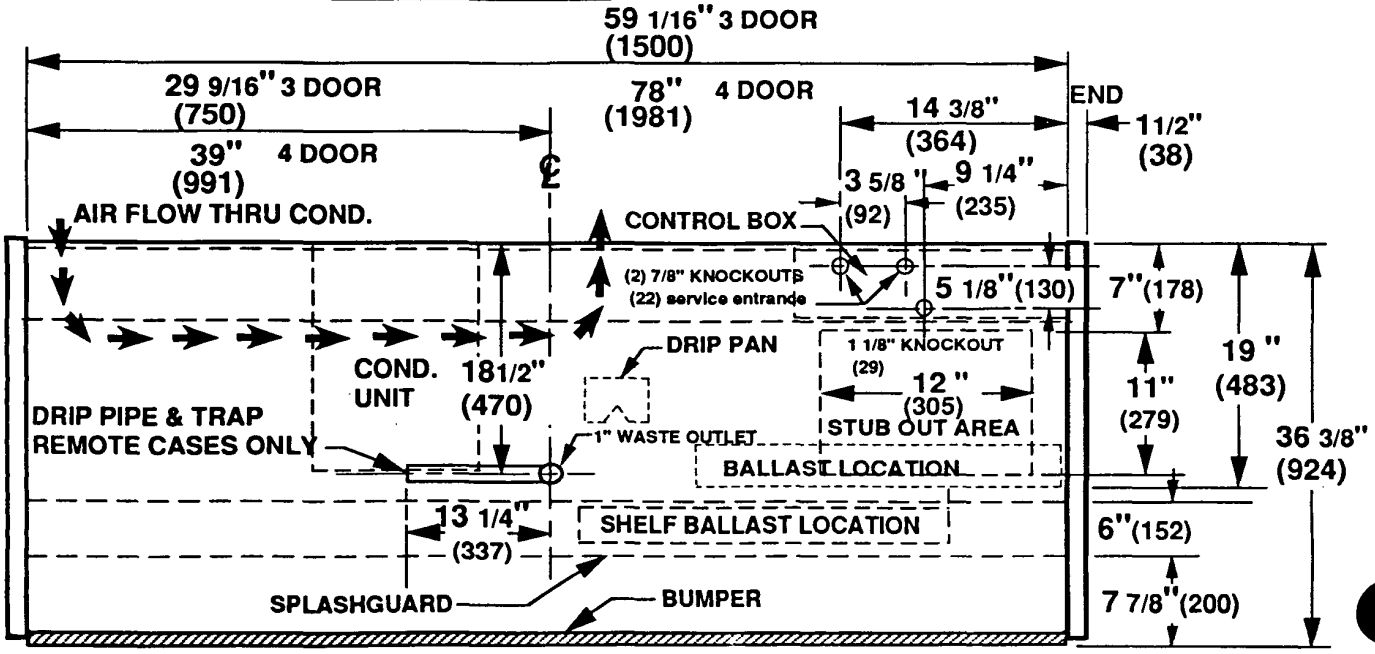


Tilt Glass Bakery Case Cross Section

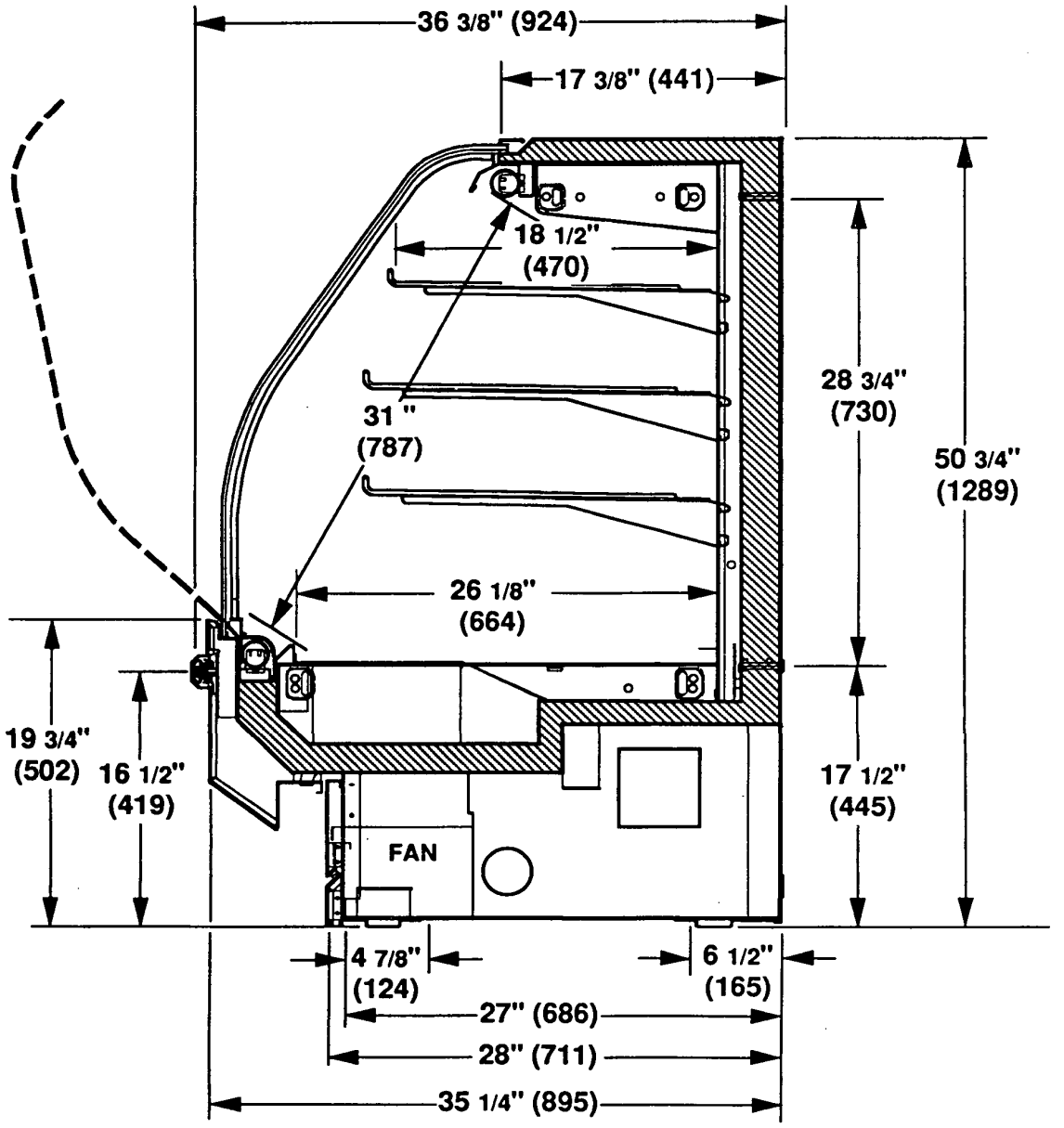
NEBNDT-59,-78



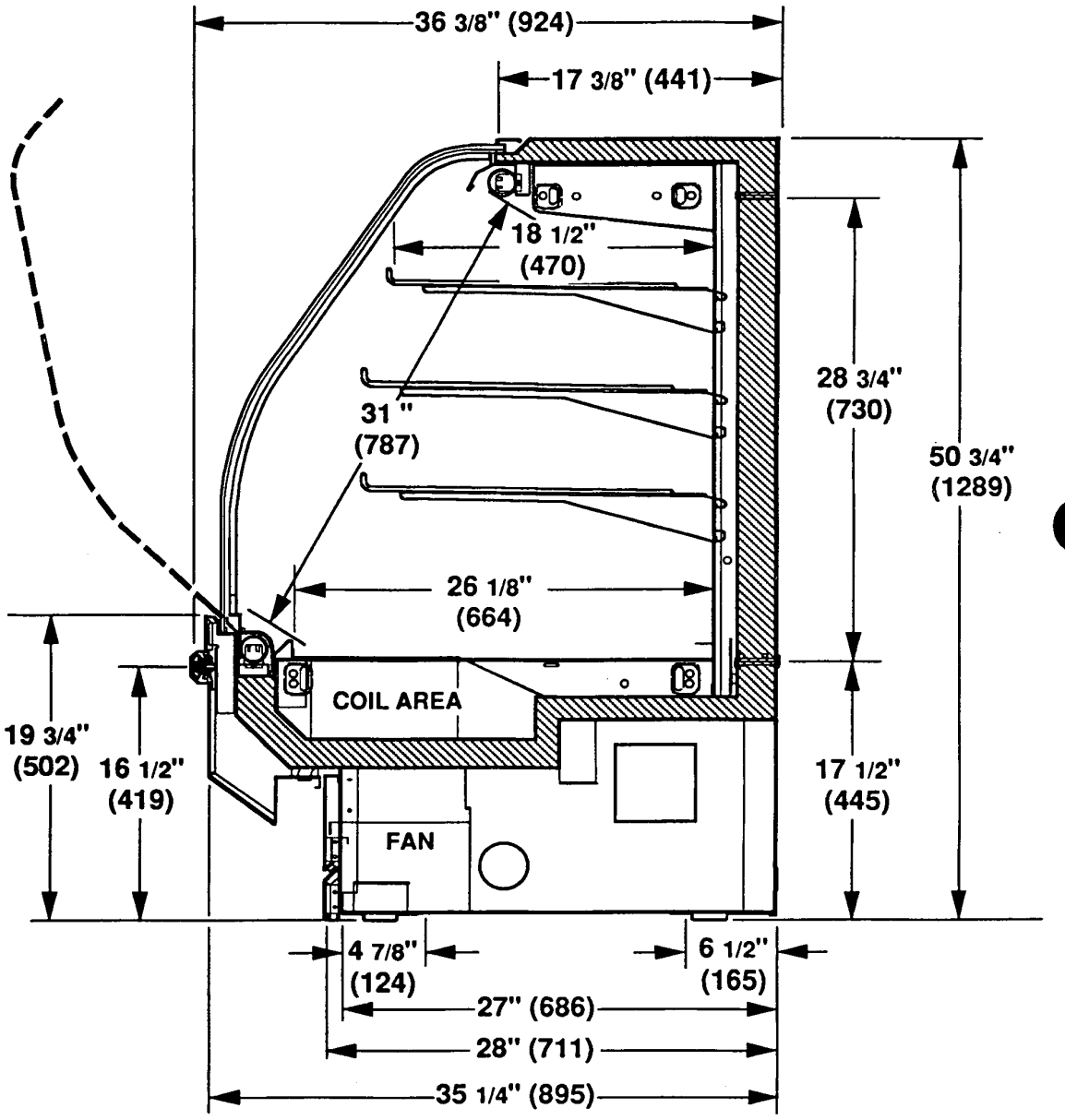
NEBBDT -59B, -78B | **NEBBDT -59, -78**



NEBNDT-59,-78


36 3/8" (924)
17 3/8" (441)
18 1/2"
(470)
28 3/4"
(730)
50 3/4"
(1289)
31 "
(787)
26 1/8"
(664)
19 3/4"
(502)
16 1/2"
(419)
17 1/2"
(445)
FAN
4 7/8"
(124)
6 1/2"
(165)
27" (686)
28" (711)
35 1/4" (895)

NEBBDT-59B, -78B | **NEBBDT-59, -78**



SHIPPING DAMAGE

All equipment should be thoroughly examined for shipping damage before and during unloading.

This equipment has been carefully inspected at our factory and the carrier has assumed responsibility for safe arrival. If damaged, either apparent or concealed, claim must be made to the carrier.

Apparent Loss Or Damage

If there is an obvious loss or damage, it must be noted on the freight bill or express receipt and signed by the carrier's agent; otherwise, carrier may refuse claim. The carrier will supply necessary forms.

Concealed Loss Or Damage

When loss or damage is not apparent until after equipment is uncrated, a claim for concealed damage is made. Upon discovering damage, make request in writing to carrier for inspection within 15 days and retain all packing. The carrier will supply inspection report and required claim forms.

SHIPPING BRACES (Not All Merchandisers)

Move the fixture as close as possible to its permanent location and then remove all packaging. Check for damage before discarding packaging. Remove all separately packed accessories such as kits and shelves.

WARNING

Do NOT remove shipping braces until the merchandisers are properly anchored to the floor. Merchandisers are top heavy and could tip over causing serious injury.

Merchandisers must be braced before removing the lag bolts.

Bag Rack Shipping Brace

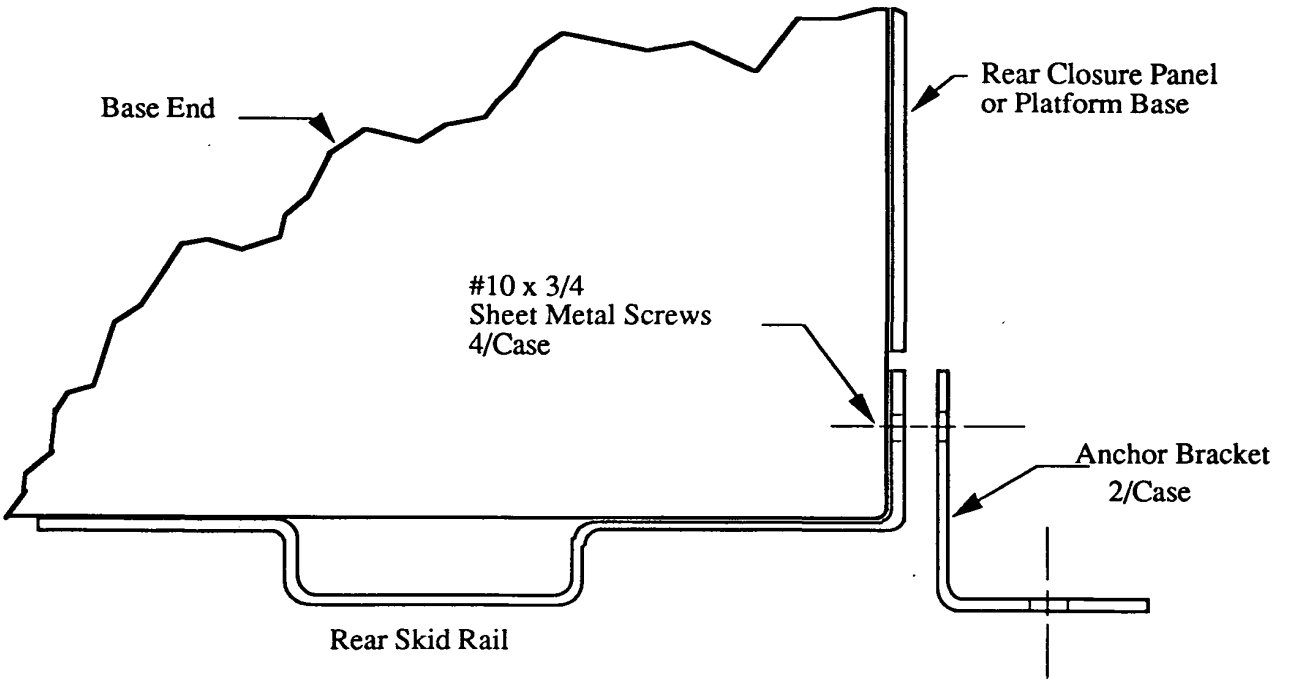
On non-refrigerated cases, the shipping brace in the middle should be removed. Its purpose is to protect the bag rack during shipment.

EXTERIOR LOADING

Do NOT walk on top of merchandisers or damage to the merchandisers and serious personal injury could occur. They are not structurally designed to support excessive external loading such as the weight of a person.

LOCATION

Like other open merchandisers, these are sensitive to air disturbances. Air currents passing around merchandisers will seriously impair their operation. Do NOT allow air conditioning, electric fans, open doors or windows, etc. to create air currents around the merchandisers.



LEVELING

Merchandisers must be installed level to ensure proper operation of the refrigeration system and to ensure proper drainage of defrost water. Leveling shims or wedges are provided with each merchandiser for use if needed. **NOTE:** To avoid removing concrete flooring, begin lineup leveling from the highest point of the store floor.

JOINING

Merchandisers are of sectional construction which means that two or more may be joined in line yielding one long continuous display requiring only one pair of ends. Joint kits and instructions are shipped separately.

When joining merchandisers, we suggest removing the curved front glass so that the joining crew can work from both the front and back of the merchandiser. To remove, tilt glass open and lift vertically. Glass is heavy, TWO people are needed to remove it. Avoid placing the glass against other surfaces; do NOT lay the glass directly on the floor.

ANCHORING

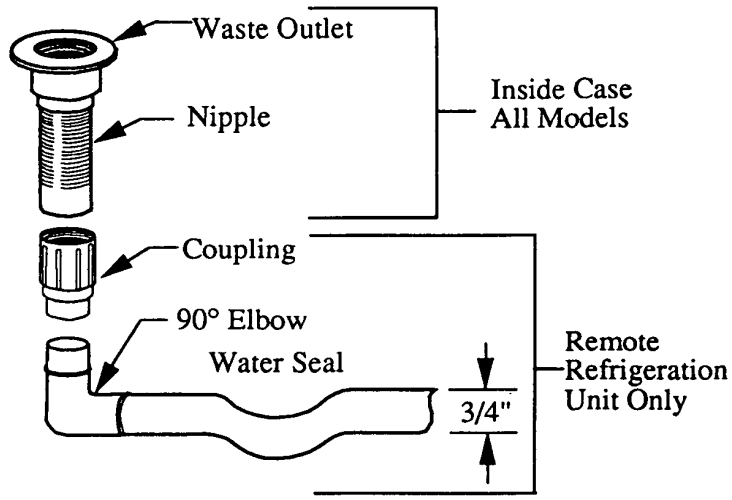
1. After positioning the merchandisers, each should be anchored using the anchor brackets shipped with each case.
2. Mount the brackets at each end of the rear skid rail to determine proper anchoring location. Then remove anchor brackets.
3. After making appropriate anchoring provisions, once again mount the anchor bracket, (using #10 x 3/4 sheet metal screws), and "lag" the case to the floor at each bracket location. See detail above.

Once the merchandisers are properly anchored, remove shipping braces.

WASTE OUTLET AND WATER SEAL

On refrigerated merchandisers, remote and self-contained, the waste outlet is centrally located and accessible from the rear of the case. For accessibility on the NEBNDT, non-refrigerated model, remove the front splashguard assembly.

For remote refrigerated merchandisers, field install the water seal/90° elbow assembly and coupling, supplied with each unit, and attach 3/4" PVC drip piping in the desired orientation. See illustration. The self-contained merchandiser empties into an evaporator pan.



NOTE: PVC-DWV solvent cement is recommended. Follow the manufacturer's instructions.

INSTALLING DRIP PIPING

Poorly or improperly installed drip pipes can seriously interfere with the merchandisers' operation and result in costly maintenance and product losses. Please follow the recommendations listed below when installing drip pipes to ensure proper installation.

1. Never use drip piping smaller than the nominal diameter of the pipe or water seal supplied with the merchandiser.

2. When connecting drip piping, the "water seal" must be used as part of the drip piping to prevent air leakage or insect entrance. Never use two water seals in series in any one drip pipe. Double water seals in series will cause an air lock and prevent draining.

3. Pitch the drip piping in the direction of flow. There should be a minimum pitch of 1/8" per foot.

4. Avoid long runs of drip piping. Long runs make it impossible to provide the pitch necessary for good drainage.

5. Provide a suitable air break between flood rim of the floor drain and outlet of drip pipe.

6. Prevent drip pipes from freezing:
   A. Do NOT install drip pipes in contact with uninsulated suction lines. Suction lines should be insulated with a nonabsorbent insulation material.
   B. Where drip pipes are located in dead air spaces, such as between merchandisers or between a merchandiser and a store wall, provide means to prevent freezing.

INSTALLING SPLASHGUARD

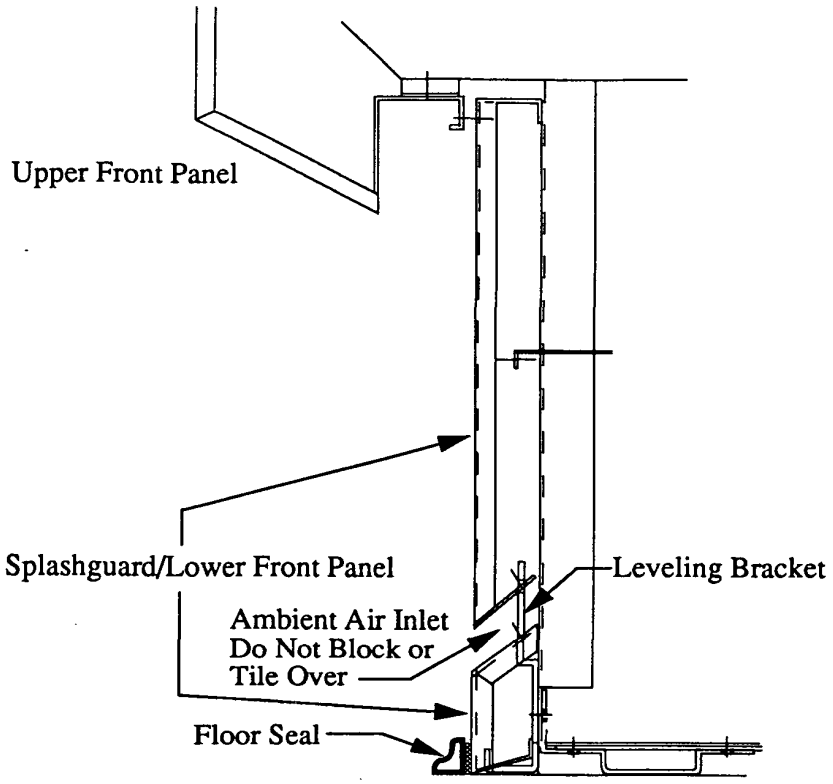
The splashguard and lower front panel are shipped inside each merchandiser. After merchandisers have been leveled and joined, and all drip piping, electrical and refrigeration work has been completed, install the splashguards. The leveling brackets have a maximum extension of 3/4" for uneven floors. After adjusting brackets flush with the floor, align slots in splashguard with leveling brackets and drop in place. Position lower front panel UP BEHIND THE FRONT PANEL, then down over the brackets.

SEALING SPLASHGUARD TO FLOOR

For refrigerated models, sealing the splashguard to the floor is NOT recommended because it does not allow easy splashguard removal to service fan motors. However, if required by local sanitation codes, or if desired by the customer, the splashguard may be sealed to the floor using a vinyl cove base trim. The size of trim needed will depend on how much the floor is out of level.

To install the trim to the splashguard:

1. Remove all dirt, wax and grease from the area of the splashguard where adhesion will be necessary. This is to ensure a good and secure installation.
2. Apply a good contact cement to the trim and allow proper drying time according to the directions supplied with the cement.
3. Install the trim to the splashguard so that it is lying flush with the floor.

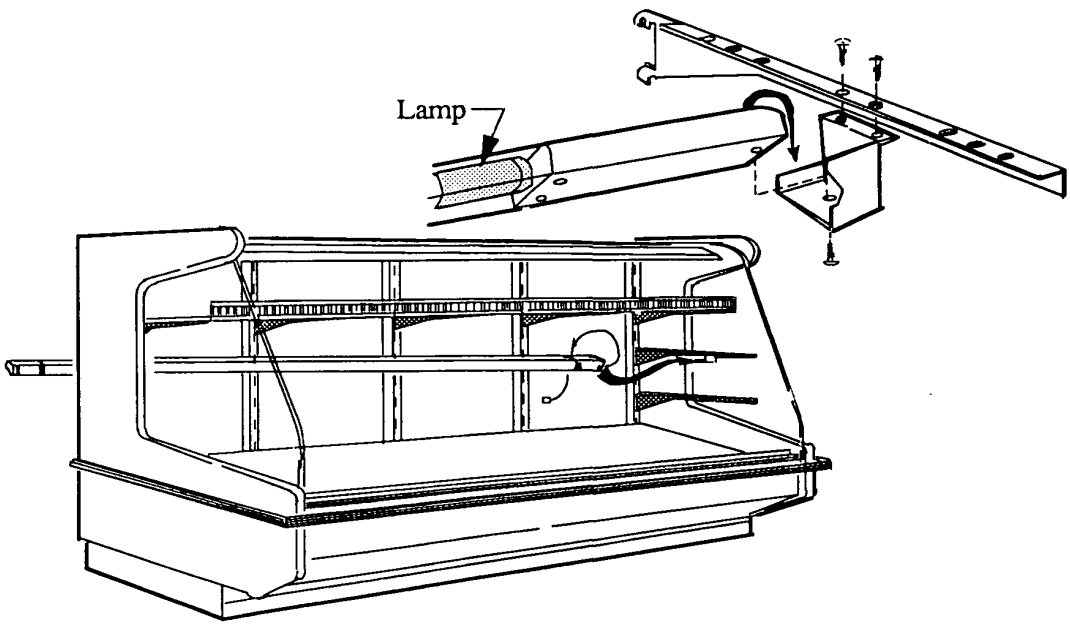


INSTALLING SHELF LIGHT FIXTURES

Shelf lighting is optional. A lighting kit containing lamp fixtures, holders, and fixture cord set will be shipped separately when ordered. A simple procedure will allow proper installation of the fixture. Each display level supporting wire shelves can also support shelf fixtures.

1. To install a fixture, **disconnect power to the merchandiser**. Remove the right and left most shelf support brackets above the desired display level to be illuminated.
2. With the fixture holders, right- and left-hand pieces, and fasteners (#8 x 1/2 Truss HD sheet metal screw) provided, attach the holders to the respective support bracket using the 3/16" clearance holes available.
3. Reposition the bracket assemblies to their original positions.
4. The lamp and lamp shield should be installed prior to mounting the fixture in the case. These items have been included as part of the lighting kit.
5. Insert the fixture into the merchandiser through either the right or left rear service doors. Care should be taken so that the fixture does not strike internal case parts. See illustration.
6. After the fixture has been oriented properly, lengthwise, begin placing the fixture in the holders, bottom first, and rotate the fixture forward until the bottom of the fixture rests in the holders.
7. Plug the fixture cord set into the receptacle at the rear of the merchandiser, right side as viewed by the customer. A spring steel clip has been provided to eliminate any droop in the fixture cord. Fasten the clip to the shelf bracket nearest the receptacle after having captured the cord with the lip.

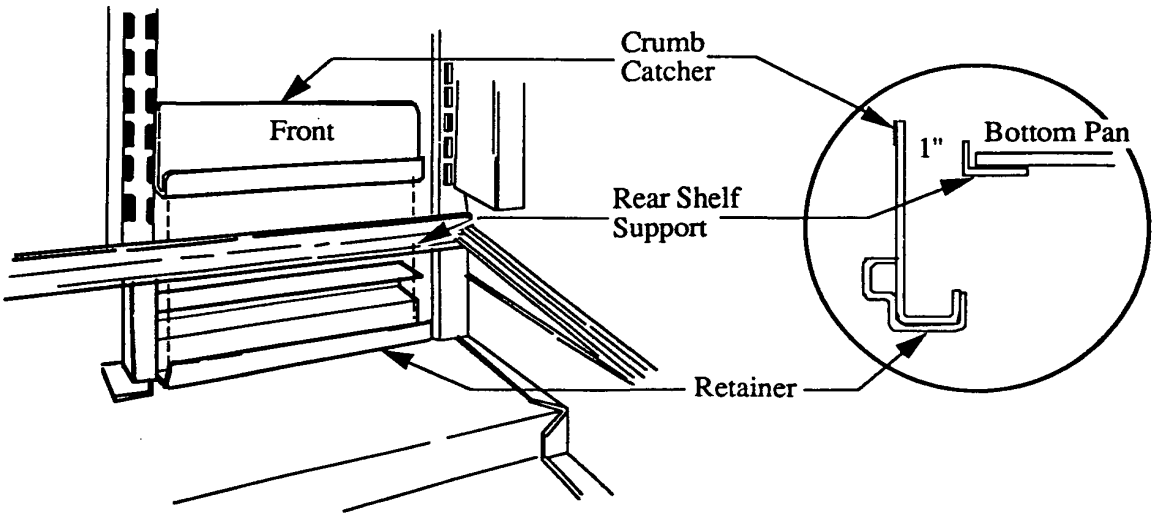
After all shelf fixtures, maximum of 3 per case, have been installed, the light switch may be turned to the ON position to activate the light source.



INSTALLING CRUMB CATCHER

The bakery merchandisers come with a crumb catcher device that sits in a retainer at the back of the case. See illustration below. The purpose of the crumb catcher is to trap food particles which would otherwise accumulate in the bottom over time and increase the frequency of cleaning.

The crumb catcher is labeled "FRONT" on one side and the other side is labeled "BACK". Incorrect positioning of the crumb catcher on refrigerated models can obstruct the air flow and proper refrigeration will be reduced or eliminated. Be certain that the 1" gap between the "Rear Shelf Support" and the "Crumb Catcher" is present as shown below.



REAR CLOSEOFF PANEL

To perform electrical and refrigeration work, remove the rear closeoff panel by loosening the sheet metal screws. Replace when work is complete. See illustration below.

NOTE: Self-contained Models—Do NOT block the vent openings on the rear closeoff panel. These allow intake and exhaust air for the condensing unit. Vents only appear on self-contained models.

SELF-CONTAINED (NEBBDT-59B, -78B) MODEL INSTALLATION

Merchandiser needs only to be connected to a 120V/60 Hz electrical supply.

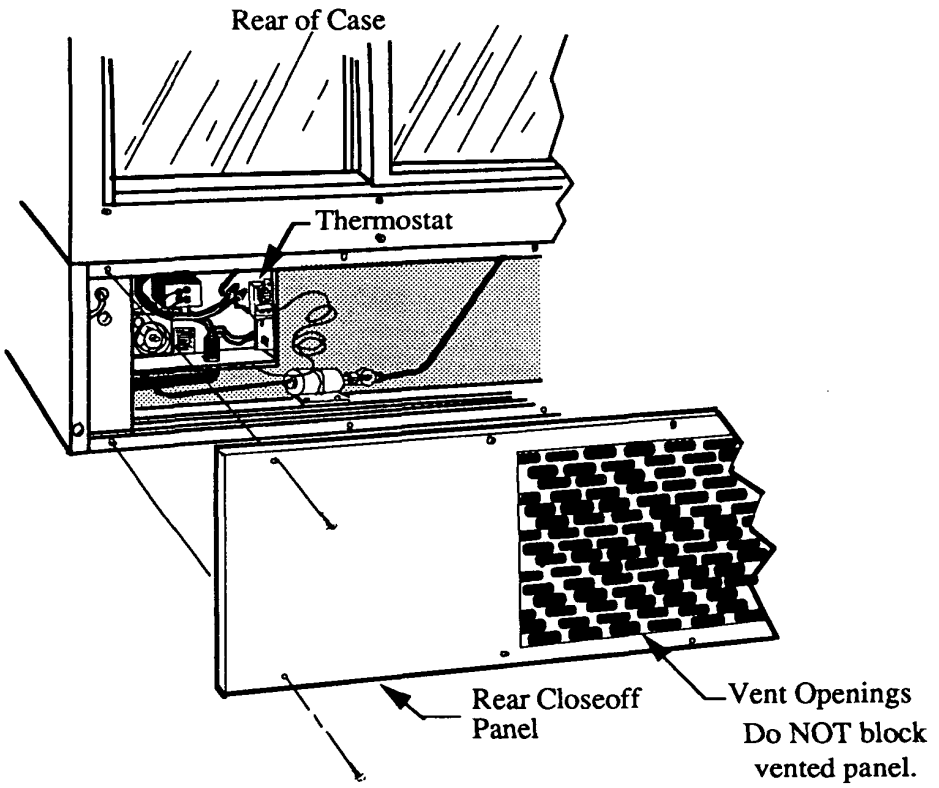
Access to Connections and Compressor

To make electrical connections and future adjustments, remove the rear closeoff panel by removing the sheet metal screws. Discard the brace that supports the case during shipment. There is no need to remove the compressor to make connections or adjustments, however, all interconnecting lines are flexible and long enough to allow its removal if necessary for servicing.

The electrical wiring for the compressor is routed directly to the electrical panel. These wires are tagged for identification. Install all wiring according to applicable NEC and local codes.

Post Construction Clean-up

After the first two weeks of a major store remodel or new store operation, the grill should be removed and the condensing unit and condenser face cleaned due to the accumulated dirt and debris generated during construction.



REFRIGERANT

The correct type of refrigerant will be stamped on each merchandiser's serial plate located inside the merchandiser at the right rear end of the upper foam assembly.

REFRIGERANT PIPING

Connection Sizes

Liquid Line	3/8" OD
Suction Line	5/8" OD

Connection Location

The refrigerant line connections are beneath the display pans at the right-hand end of the merchandiser as viewed from the front.

After connections have been made, seal this outlet thoroughly. Seal both the inside and the outside. We recommend using an expanding polyurethane foam insulation.

Multiplexing

Piping of merchandisers operating on the same refrigeration system may be run from merchandiser to merchandiser through the end frame saddles provided for this purpose. **DO NOT RUN REFRIGERANT LINES THROUGH MERCHANDISERS THAT ARE NOT ON THE SAME REFRIGERATION SYSTEM** as this may result in poor refrigeration control and compressor failure.

Line Sizing

Refrigerant lines should be sized as shown on the refrigeration legend that is furnished for the store (not furnished by Hussmann). If a legend has not been furnished, refer to the Hussmann Application Engineering Manual for guidance.

Oil Traps

P-traps (oil traps) must be installed at the base of all suction line vertical risers.

Pressure Drop

Pressure drop can rob the system of capacity. To keep the pressure drop to a minimum, keep the refrigerant line run as short as possible using a minimum number of elbows. Where elbows are required, use long radius elbows only.

Insulation

The suction and liquid lines should be clamped or taped together and insulated for a minimum of 30' from the merchandiser. Additional insulation is recommended wherever condensation drippage is objectionable.

CONTROLS AND ADJUSTMENTS

The objective of the controls and settings listed in this section is to maximize product shelf life. Not complying with these instructions will increase spoilage rate due to drying of the product and could cause sweating on the front glass if operated too cold.

Allow bakery products to reach store ambient conditions after preparation just prior to display. This is essential to maximize the shelf life of perishables.

CONTROL SETTINGS

Med-Temp Curved Glass Bakery		Conventional Single Compressor (1)	Parallel Compressor Rack (1)
Discharge Air Temperature °F		30	30
Evaporator Temperature °F		18	18
REFRIGERATION CONTROLS		(2)	(4)
EPR When used, EPR Valve setting must maintain evaporator temperature listed above.			
Thermostat Cut-out °F		30	30
CDA Valve Set Point °F		—	30
Low Pressure Cut-in/Cut-out psig	R502	72/47	—
	R22	61/38	—
	R12	32/18	—
DEFROST CONTROLS		(3)	(5)
Frequency Every		12 hours	12 hours
Termination			
Pressure psig indoor condenser units only	R502	96	—
	R22	82	—
	R12	45	—
Fail-safe			
minutes Single Compressor Outdoor Condenser pumpdown included		44	—
minutes All Other Applications		40	40
Length			
minutes Off Time		40	40
Low Pressure Settings with CDA or Thermostat Temperature Control Cut-in/Cut-out psig	R502	62/24	—
	R22	52/18	—
	R12	26/5	—

FOOTNOTES

(1) Measure Discharge Temperature at the discharge air flue during times of reduced loads (off lights, low ambient).

Conventional Single Compressor

(2) Refrigeration temperature may be controlled by either an EPR valve or a 5 1/2°F differential thermostat responding to evaporator discharge air temperature. The thermostat will control the compressor motor contactor.

(3) Defrost is Off Time. Indoor condenser units may use pressure or time termination. Outdoor condenser units use time termination. On outdoor units the defrost timer will control a liquid line solenoid beginning a defrost pumpdown 4 minutes before defrost.

Parallel Compressor Rack

(4) Refrigeration temperature must be controlled by both an EPR valve and a 3 to 5°F differential thermostat responding to evaporator discharge air temperature. The thermostat will be wired to a continuous "ON" circuit and will control a liquid line solenoid in the merchandiser.

(5) Defrost is Off Time and is time terminated.

REFRIGERATION PARTS LIST (Sporlan Nomenclature)

NEBBDT Models	Type of Defrost	Refrigerant	Refrigerant Charge	Expansion Valve	Crankcase Press. Reg.	EPR Settings
Remote -59 & -78	Time Pressure	R502 R22 R12	N/A	GR-1/4 C GV-1/4 C GF-1/4 C	N/A	N/A
Self-contained -59B & -78B	Time Pressure	R12	3lb-2oz 4lb-2oz	FF 1/4 C	CRP-4	22 psig

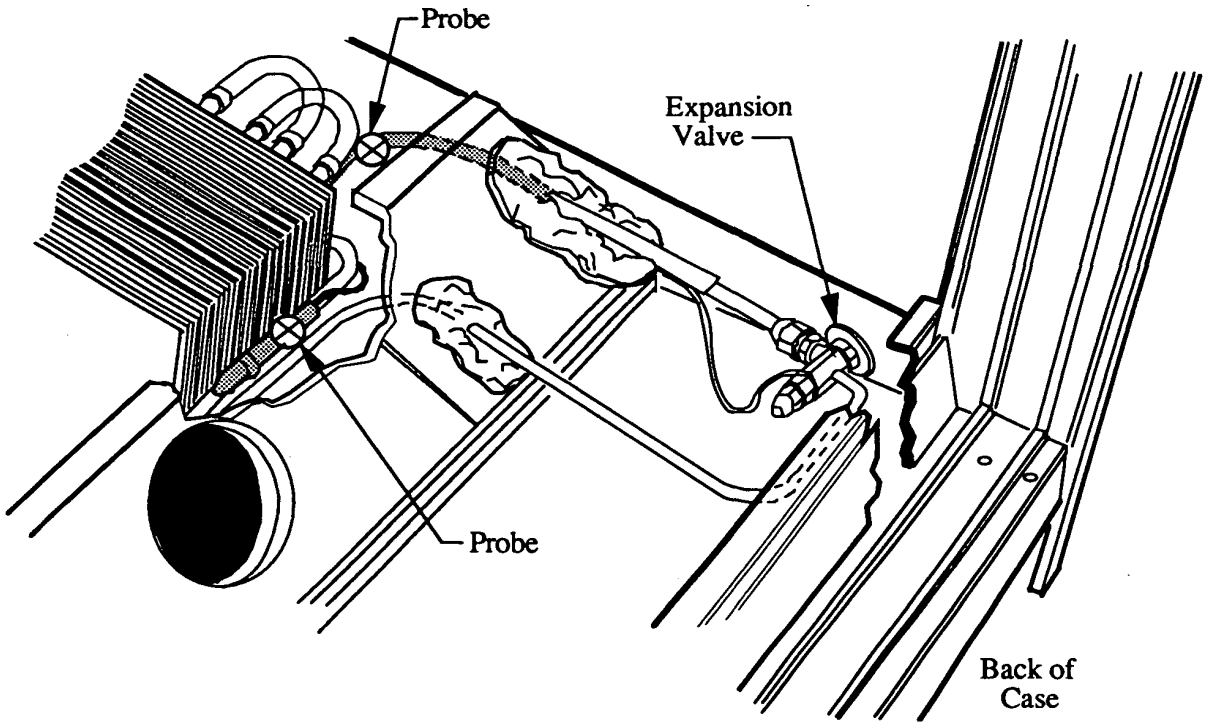
EXPANSION VALVE ADJUSTMENT

Expansion valves must be adjusted to fully feed the evaporator. To achieve the proper setting, the merchandiser must first have been in operation long enough to have reached the approximate intended operating temperature. Air flow should not be restricted by heavy frost formation on the evaporator. Adjust valves as follows.

Attach two (2) sensing probes (either thermocouple or thermistor) to the evaporator. One under the clamp holding the expansion valve bulb and the other securely taped to the evaporator inlet line as close to the coil as practical (see illustration).

Some "hunting" of the expansion valve is normal. The valve should be adjusted so that during the hunting the greatest difference between the two probes is 3–5°F for remote merchandisers. With this adjustment, during a portion of the hunting the temperature difference between the probes will be less than 3°F (at times as low as 0°F). Make adjustments of no more than one-fourth (1/4) turn for Balanced Port TEV and one-half (1/2) turn for "G" Body valves' stem at a time. Wait for at least 15 minutes before rechecking the probe temperature and making further adjustments.

Self-contained merchandiser should be adjusted using the same technique with a temperature difference of 6–8°F.



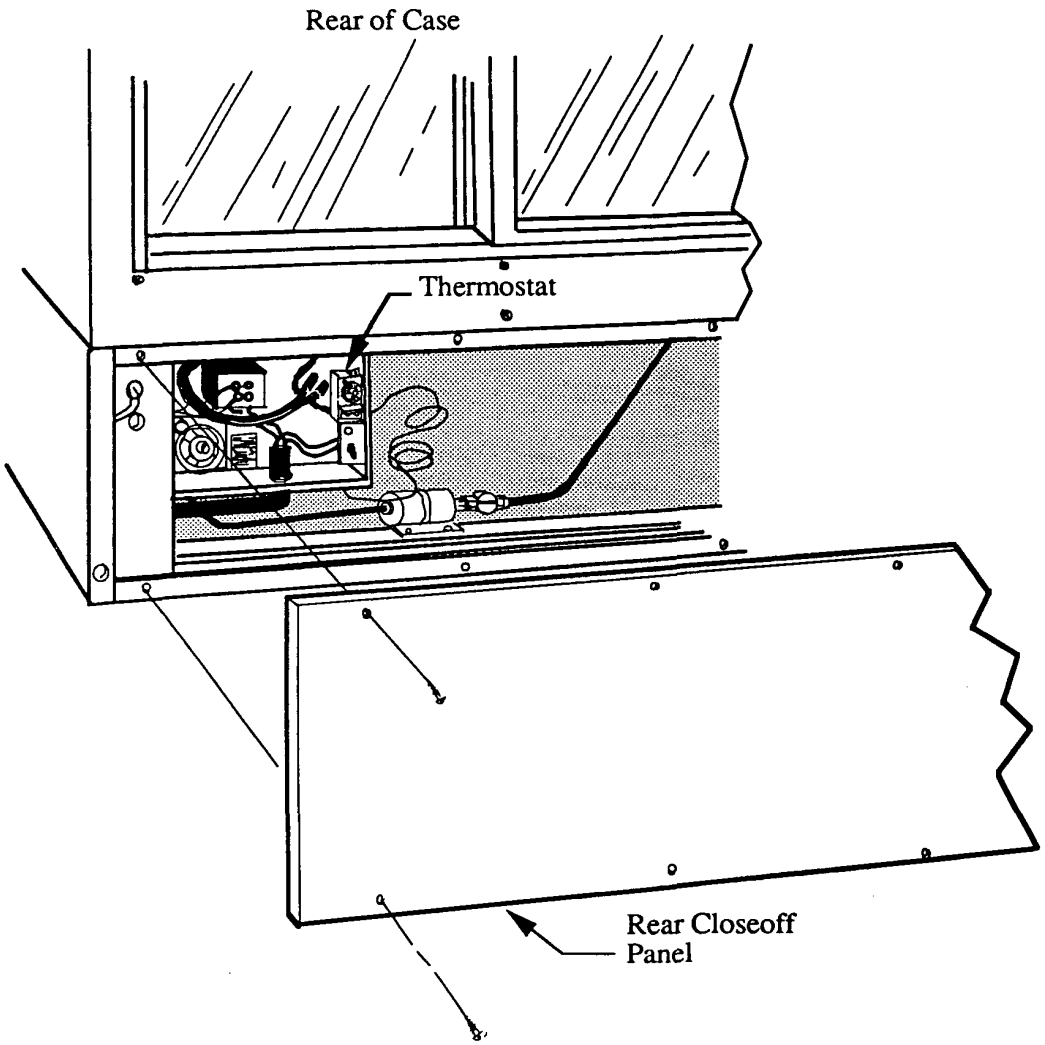
REFRIGERATION THERMOSTAT

The factory installed refrigeration thermostat is fastened inside the electrical panel at the rear of the merchandiser behind the rear closeoff panel. The capillary tube is routed through the bottom and fastened to the underside of the rear shelf support.

NOTE: Only the self-contained unit has a vented rear closeoff panel.

CDA SENSOR

Factory installed optional CDA sensor is located where the thermostat bulb would normally be located. Its leads will be routed through the electrical raceway and to the rack control panel. Leads are tagged in the raceway.



ELECTRICAL

CONNECTIONS

All wiring must be in compliance with NEC and local codes. All electrical connections for the non-refrigerated model are to be made in the electrical panel (ballast raceway). Electrical connections for refrigerated models are made in the electrical box on the back of the case behind the rear closeoff panel.

NOTE: The Red insulated leads on the finned heater in the refrigerated case ambient air flue must NOT be connected to 208 volt. They are to be wired to 120 volt power supply. This heater is cyclic when ambient conditions permit.

IDENTIFICATION OF WIRING

Leads for all electrical circuits are identified by colored plastic bands. These bands correspond to the "color code sticker" (shown below) located inside the case wireway.

SELF-CONTAINED ELECTRICAL DATA

The refrigeration thermostat is wired directly to the condensing unit terminal box behind the rear closeoff panel.

Note that the condenser fan has been wired to run continuously. The lead is spliced (at the factory) directly to the time clock "N" terminal in the case electrical panel.

WIRING COLOR CODE

Leads for all electrical circuits are identified by a colored plastic band: neutral wire for each circuit has either White insulation or a White plastic sleeve in addition to the color band.

PINK.....REFRIG. THERMOSTAT LOW TEMP.
LIGHT BLUE..REFRIG. THERMOSTAT NORM TEMP.
DARK BLUE ..DEFROST TERM. THERMOSTAT
PURPLE.....ANTI-SWEAT HEATERS
BROWN.....FAN MOTORS
GREEN* .....GROUND
ORANGE OR TAN.....LIGHTS
MAROON...RECEPTACLES
YELLOW....DEFROST HEATERS, 120V
RED*.....DEFROST HEATERS, 208V

*EITHER COLORED SLEEVE OR COLORED INSULATION

ELECTRICIAN NOTE: CASE MUST BE GROUNDED

FIELD WIRING

Field wiring must be sized for component amperes stamped on the serial plate. Actual ampere draw may be less than specified. Field wiring from the refrigeration control panel to the merchandisers is required for optional defrost termination thermostats and for optional refrigeration thermostats or CDA sensors. When multiple merchandisers are on the same defrost circuit the defrost termination thermostats are wired in series. Most component amperes are listed below, always check the serial plate.

Serial Plate Amperages

Model	120V 1PH 60Hz				
	Fans	Anti-sweat Heaters	Lights—Includes full complement of lighted shelves. Standard	Option	Total Amp Draw
	(1)	(2)	(3)	(4)	(5)
Self-contained					
-59B	—	—	3.90	4.40	13.40
-78B	—	—	4.90	5.70	17.30
Remote					
-59	1.10	3.7	3.90	4.40	—
-78	1.55	5.0	4.90	5.70	—
Non-refrigerated					
-59	0.32	—	2.75	3.25	—
-78	0.32	—	3.70	4.50	—

(1) All fans (ambient, evaporator, exhaust or condenser) and heaters (anti-sweat and condensate pan) are wired internally through the control panel switch. No separate circuit is needed for these items. For self-contained models, fans and anti-sweat heater are included in total amp draw.

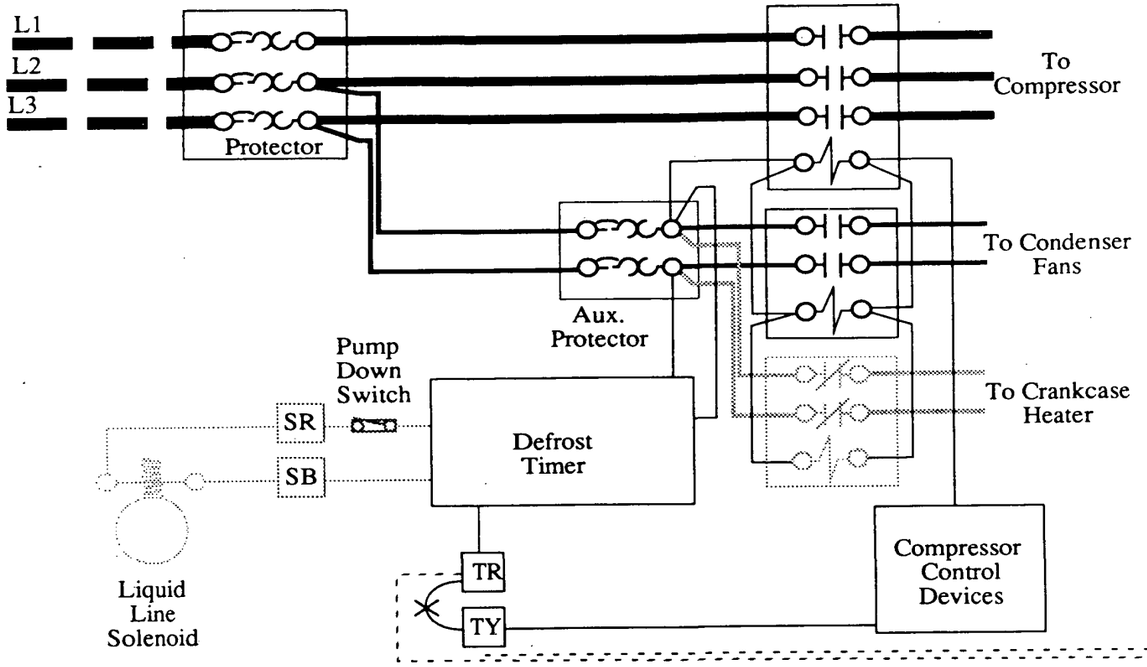
(2) The anti-sweat heater used on the refrigerated models is wired through the electrical panel in parallel with the remainder of the merchandiser's components (except lights). This heater can be cycled off by connecting it with an energy saving controller and it has been tagged to indicate this option.

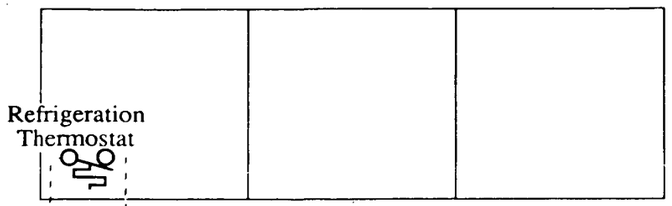
Each column applies to light configurations listed below:

(3) Standard lighting is one row canopy and interior front ledge of the refrigerated compartment with 3 lighted shelves on 59" model and 6 lighted shelves on 78" model. Shelves are optional.

(4) Standard lighting plus exterior front overhang light.

(5) Includes all fans, anti-sweat heater, condensate pan heater and condensing unit. Lights are not included.





Merchandisers

Field Wiring Indoor and Outdoor Condensing Units

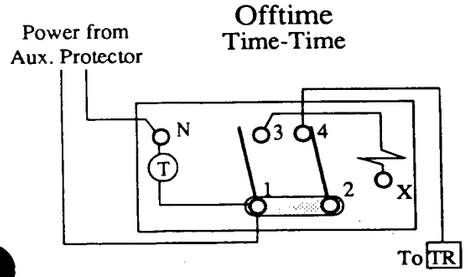
WARNING

All components must have mechanical ground, and the Merchandiser must be grounded.

Notes:
- Broken lines indicate field wiring
- All field wiring is supplied and installed by the electrical contractorin accordance with NEC and local codes.
- Grayed Components are found on Outdoor Units only
- Remove Jumper TR to TY when Refrigeration Thermostat is used
- Refrigeration and Defrost Termination Thermostats each require one 230V, 125VA, 2-wire circuit.

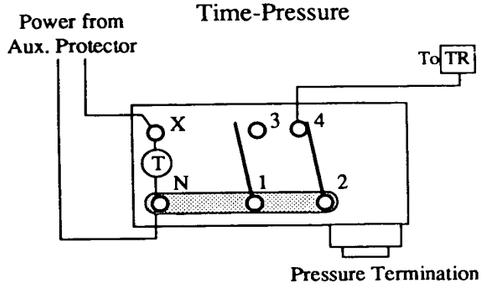
8145 Clock
Indoor

Offtime
Time-Time



8245 Clock
Indoor

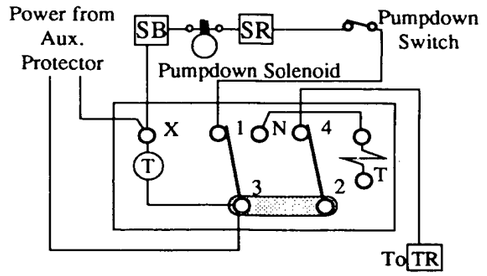
Offtime
Time-Pressure



A633 Clock
Outdoor

On call for defrost contacts 3-1 open and 3-N close. Four minutes later contacts 2-4 open.

Offtime
Time-Time



Refrigerated & Non Refrigerated Curved Glass Remote Bakery
NEBBDT & NEBNDT-59,-78

WARNING

All components must have mechanical ground, and the merchandiser must be grounded.

Notes:

Schematic shows both standard and optional components. Not all components will be on each merchandiser.

Check store legend for specifics.

Grayed components in 78" models only.

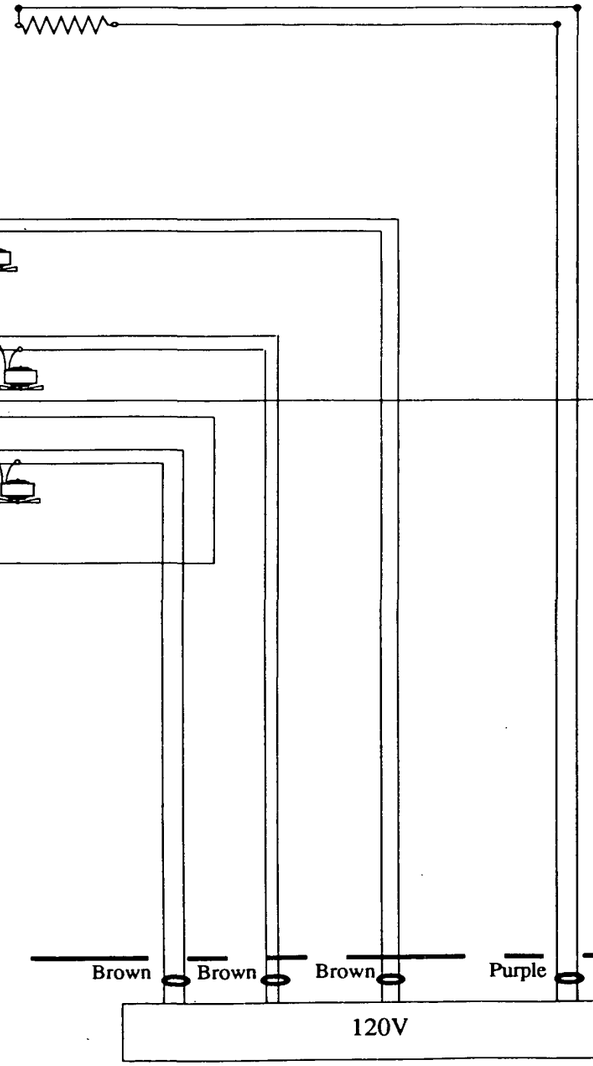
(5) This finned heater has red insulation. However, wire into a 120V 1PH, circuit only. The red insulation is an exception from Hussmann's standard application of red.

Refrigerated Only
Anti- sweat Heater
(5)

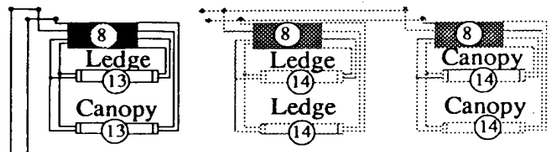
Ambient Fans
(1)(4)

Evaporator Fans
(2)(4)

Non-refrigerated Only
Exhaust Fans
(3)(4)

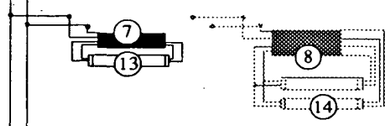


Raceway



Standard Lighting
1 row Canopy
1 Interior Front Ledge

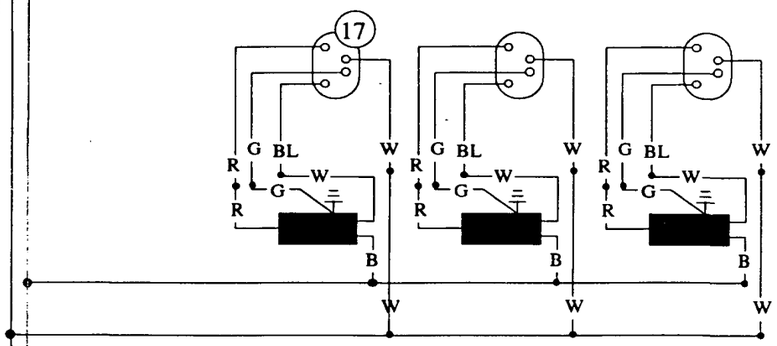
(8)(13)(14)



Optional Exterior Front Overhang Lighting

(7)(8)(13)(14)

Optional Mezzanine
Shelf Receptacles



59" (9)(11) 3 Lamps 42"
78" (10)(12) 3 Lamps 64"

(9)(10)(11)(12)(17)

Light Switch

Orange or Tan

120V

Optional
Refrigeration Thermostat
(15)

Light Blue (med-temp)
To Condensing Unit

Raceway

P/N 345910A

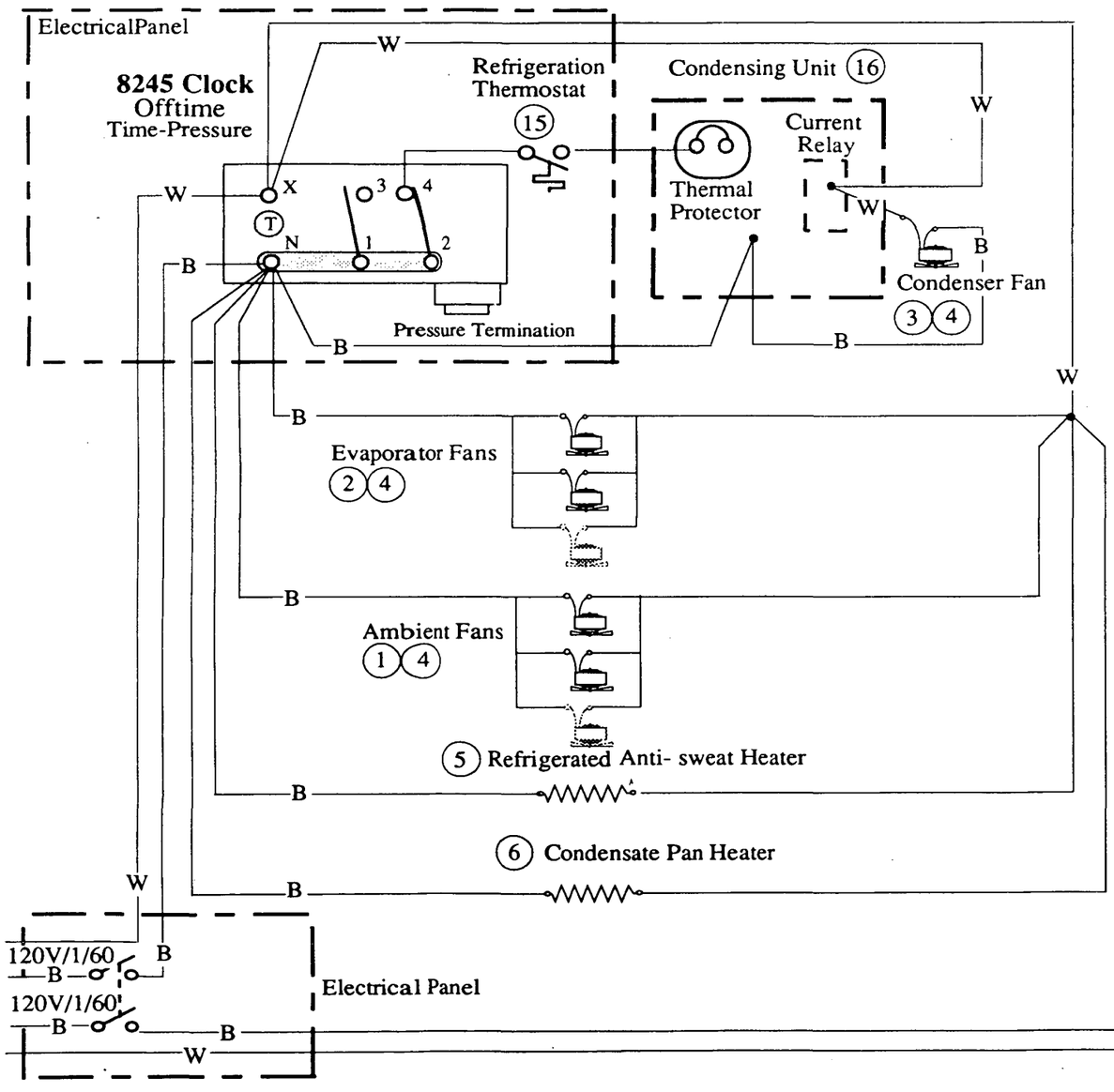
Self Contained Curved Glass Bakery NEBBDT-59B &-78B

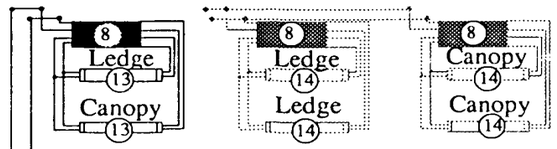
WARNING

All components must have mechanical ground, and the merchandiser must be grounded.

Notes:
Schematic shows both standard and optional components. Not all components will be on each merchandiser.
Check store legend for specifics.
Grayed components in 78" models only.

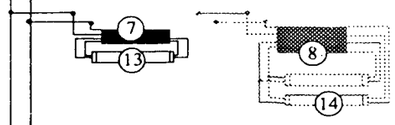
(5) This finned heater has red insulation. However, wire into a 120V 1PH, circuit only. The red insulation is an exception from Hussmann's standard application of red.





Standard Lighting
1 row Canopy
1 Interior Front Ledge

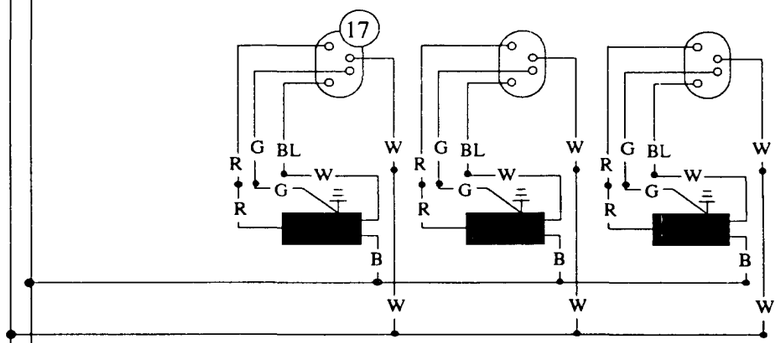
(8)(13)(14)



Optional Exterior Front Overhang Lighting

(7)(8)(13)(14)

Optional Mezzanine Shelf Receptacles



59" (9)(11) 3 Lamps 42"
78" (10)(12) 3 Lamps 64"

(9)(10)(11)(12)(17)

Light Switch

REPLACEMENT PARTS LIST

Item	Part Number	Description
1.	0301264	Fan Motor, Ambient Air 120V, 9W, CW EMS #S4BEB9E12
2.	0325369	Fan Motor, Evaporator 120V, 14W, CCW Rotron #MU2A4
3.	0326081	Fan Motor, Exhaust 120V, 11W, CCW Rotron #SU2A1
4.	0320114	Fan Blade, Evaporator embossing toward motor Morrill #FV700 CW 30S
5.	0309624	Anti-sweat Heater 59"120V, 2.7A, 45.2Ω
	0309626	Anti-sweat Heater 78" 120V, 3.9A, 30.2Ω
6.	0309791	Condensate Pan Heater Self-contained 120V, 2.9A, 41.1Ω
7.	0143354	Ballast, 1 lamp GE #8G1063W
8.	0147089	Ballast, 2 lamp GE #8G3905W
9.	0324396	Ballast, 1 lamp GE #8G3742W
10.	0324397	Ballast, 1 lamp GE #8G3922W
11.	0324398	Lamp, 42" Sgl Pin GE #F42T6/N/RS
12.	0324399	Lamp, 64" Sgl Pin GE #F64T6/N/RS
13.	0113694	Lamp 48" Fluorescent GE #F40T12/N/RS
14.	0257779	Lamp, 36" Fluorescent GE #30T12/N/RS
15.	0261933	Refrigeration Thermostat WR 1710-4
16.	0327849	Condensing Unit, 1/3 hp, 59" model Copeland, FBAL-A034-IAA-001
	0327850	Condensing Unit, 1/2 hp, 78" model Copeland, FBAL-A050-IAA-001
17.	0330455	Mezzanine Shelf Wiring Harness Hussmann

STOCKING

In order to maximize product life, maintain a constant and proper product temperature from the time the product is received through storage, preparation and display.

Product should not be placed in merchandisers until all refrigeration controls have been adjusted and merchandisers are at proper operating temperature. Care should be taken to place the bakery trays all the way to the front lip of the wire shelf. This avoids blocking the rear refrigerated air discharge. The load limit decals are affixed to the interior of the merchandiser. Again, **air discharge and return air flue must be unobstructed at all times to provide proper refrigeration.**

There is also a row of vents located at the base of the front glass, just above the front rubrail. These vents allow a gentle air flow across the front glass from the ambient fans that prevents any condensation on the lass. **Do NOT place any signs or other restrictive objects on the front of the merchandiser that will block these vents.**

SHELVES

Wire shelves of varying lengths are available with or without lights. The shelf support is designed to display product horizontally or at a 7° angle. Each display level is movable forward and backward within a 4" range. Brass wire shelves should NOT be used for refrigerated display. The shelf load limit is 40 lbs.

CARE AND CLEANING

Long life and satisfactory performance of any equipment is dependent upon the care it receives. To ensure long life, proper sanitation and minimum maintenance costs, merchandisers should be thoroughly cleaned, all debris removed and the interiors washed down, weekly.

WARNING

Do NOT use HOT water on COLD glass surfaces. This can cause the glass to shatter and could result in personal injury. Allow glass fronts, ends and service doors to warm before applying hot water.

Exterior Surfaces

The exterior surfaces must be cleaned with a mild detergent and warm water to protect and maintain their attractive finish. **Never use abrasive cleansers or scouring pads.**

Front Glass

The front glass may be tilted forward for cleaning purposes (see Page 1-1). However, do NOT use the front glass as a support during cleaning. Removal of the glass is NOT recommended.

Interior Surfaces

The lower display decks are removable through the rear service doors by lifting them up and off the front and rear shelf supports. The interior surfaces may be cleaned with most domestic detergents, ammonia based cleaners and sanitizing solutions with no harm to the surface.

To facilitate cleaning, the fan plenum is hinged for easy access to the area beneath the evaporator. The plenum is fastened down for shipping purposes with a screw at each end. If these have not been removed, do so and discard. After cleaning be sure the plenum is properly lowered into position.

CAUTION: SHUT FAN OFF DURING CLEANING PROCESS.

Do NOT Use:

•Mineral oil based solutions, as these will dissolve the butyl sealants used in the construction of the merchandisers.

•Abrasive cleansers and scouring pads, as these will mar the finish.

DO:

•Remove the product and all loose debris to avoid clogging the waste outlet.

•Thoroughly clean all surfaces with soap and hot water. **Do NOT use steam or high water pressure hoses to wash the interior.** These will destroy the merchandisers' sealing causing leaks and poor performance.

•Rinse with hot water, but do NOT flood. **Never introduce water faster than the waste outlet can remove it.**

NOTE: Self-contained Models
The evaporator pan MUST be monitored for overflow conditions. Provide drainage if necessary. After cleaning and rinsing, purge the pan of any standing water.

•Care should be taken to minimize direct contact between fan motors and cleaning or rinse water.

•Allow the merchandisers to dry before resuming operation.

•When cleaning lighted shelves, wipe down with a damp sponge or cloth so that water does not enter the light channel. **Do NOT use a hose or submerge shelves in water.**

REPLACING AMBIENT AIR HEATER
(Refrigerated Models Only)

The heater is located behind the upper front panel. See the illustration below.

For access to the heater:

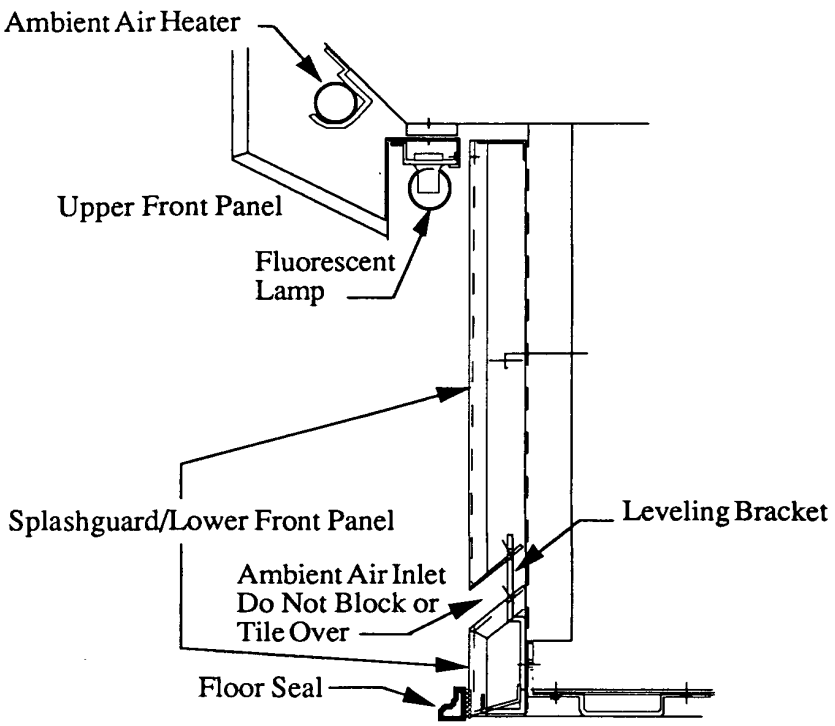
1. Remove the lower front panel and splashguard by lifting each up and out.
2. Remove the fluorescent lamp, if so equipped.
3. Remove sheet metal screws holding the upper front panel to the merchandiser and lift panel out of its retainer track.
4. Disconnect faulty heater at its supply connections.
5. Replace heater and reassemble merchandiser.

WARNING

Always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to such items as fans, heaters, thermostats and lights.

EVAPORATOR FANS
(Refrigerated Models Only)

The evaporator fans are located at the center of the merchandiser beneath the display pans. They can be reached by lifting the hinged plenum.



AMBIENT FANS (Refrigerated Models Only)

The ambient fans are located at the front of the merchandiser behind the lower front panel. Should these fans or blades need servicing, **always replace the fan blades so that the embossed side of the blade is installed toward the motor.**

For access to the fans:

1. Remove the splashguard assembly by lifting up and off the retainer and tilting the assembly out and away from the retainer.

2. Disconnect the fan harness. The plenum may be removed, if necessary, by unfastening the front and rear supports that attach the plenum to the lengthwise baffle.

REPLACING FLUORESCENT LAMPS

Fluorescent lamps (see illustration below) are furnished with moisture resistant lamp holders, shields and end caps. Whenever a fluorescent lamp is replaced be certain to reinstall the lamp shields and end caps.

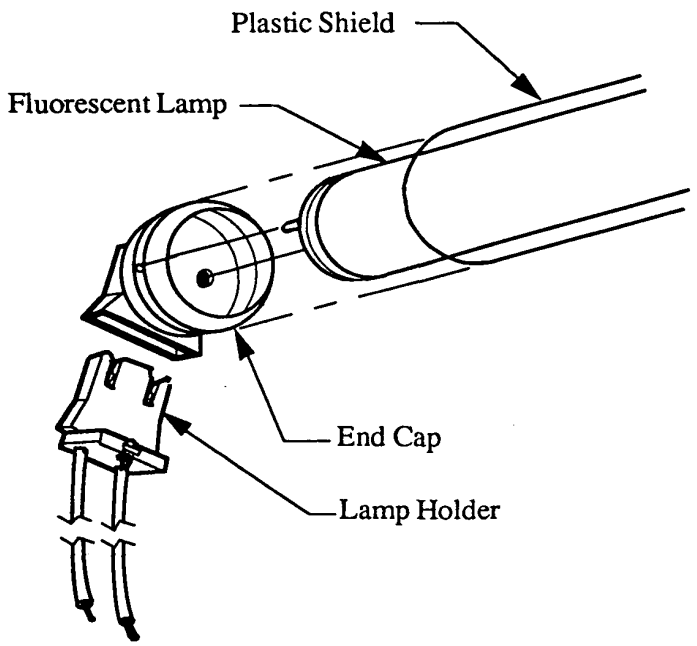
NOTE: Do NOT twist the lamp.

Remove Lamp

To remove a lamp, simply push the lamp away from the lamp holder.

Install Lamp

To install a lamp, align the end caps over the lamp holders and press gently. A slight snap will be felt as the lamp is seated.



REPLACING INTERIOR LEDGE LAMPS

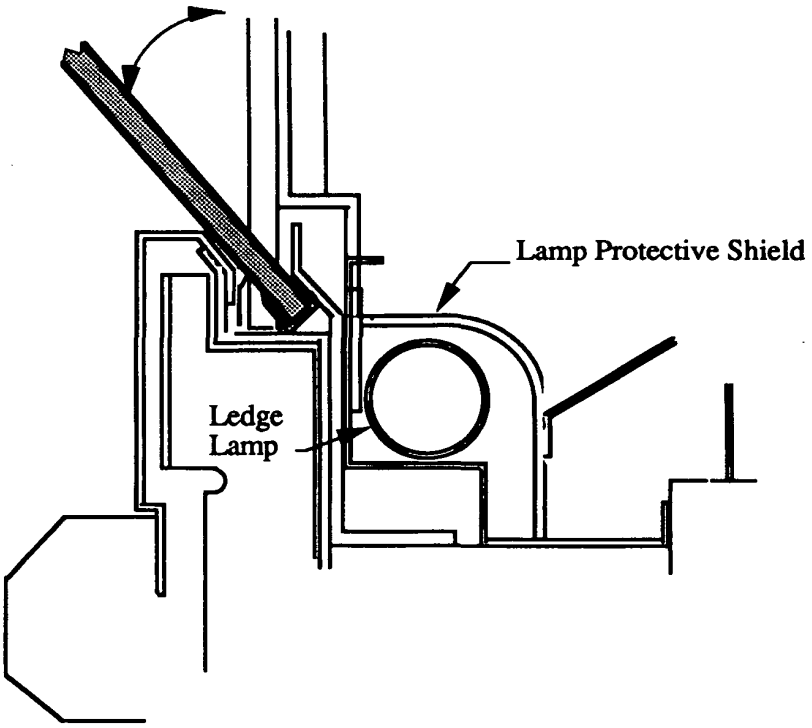
Remove Lamp

1. Remove any shelves blocking access to the lamp.
2. Remove the interior lamp protective shield by gently pushing down and rolling it back toward the rear of the case. See illustration below.
3. Remove the lamp by pulling the lamp and its end caps away from the case out of the lamp holders.

Install Lamp

1. Place the end caps on the new lamp.
2. Align the caps over the lamp holder and press down until a slight snap is felt seating the lamp.
3. Replace the lamp protective shield.

Tilt Glass Front (40° Angle)



REPAIRING ALUMINUM COIL

The aluminum coils used in Hussmann merchandisers may be easily repaired in the field. Materials are available from local refrigeration wholesalers.

Hussmann recommends the following solders and technique:

Solders

Aladdin Welding Products Inc.
P.O. Box 7188
1300 Burton St.
Grand Rapids, MI 49507
Phone: 1-800-645-3413
Fax: 1-800-645-3414

X-Ergon
1570 E. Northgate
P.O. Box 2102
Irving, TX 75062
Phone: 1-800-527-9916

NOTE:

Hussmann aluminum melts at .....1125° F
Aladdin 3-in-1 rod at .....732° F
X-Ergon Acid core at .....455° F
Factory Solder at aluminum
to copper transitions .....855° F

Technique

1. Locate leak.
2. **Remove all pressure.**
3. Brush area UNDER HEAT.
4. Use **Prestolite torch only. Number 6 tip.**
5. Maintain separate set of stainless steel brushes and USE ONLY ON ALUMINUM.
6. Tin surface around area.
7. Brush tinned surface UNDER HEAT, thoroughly filling the open pores around leak.
8. Repair leak. Let aluminum melt solder, NOT the torch.
9. Don't repair for looks. Go for thickness.
10. Perform a leak check.
11. Wash with water.
12. Cover with a good flexible sealant.