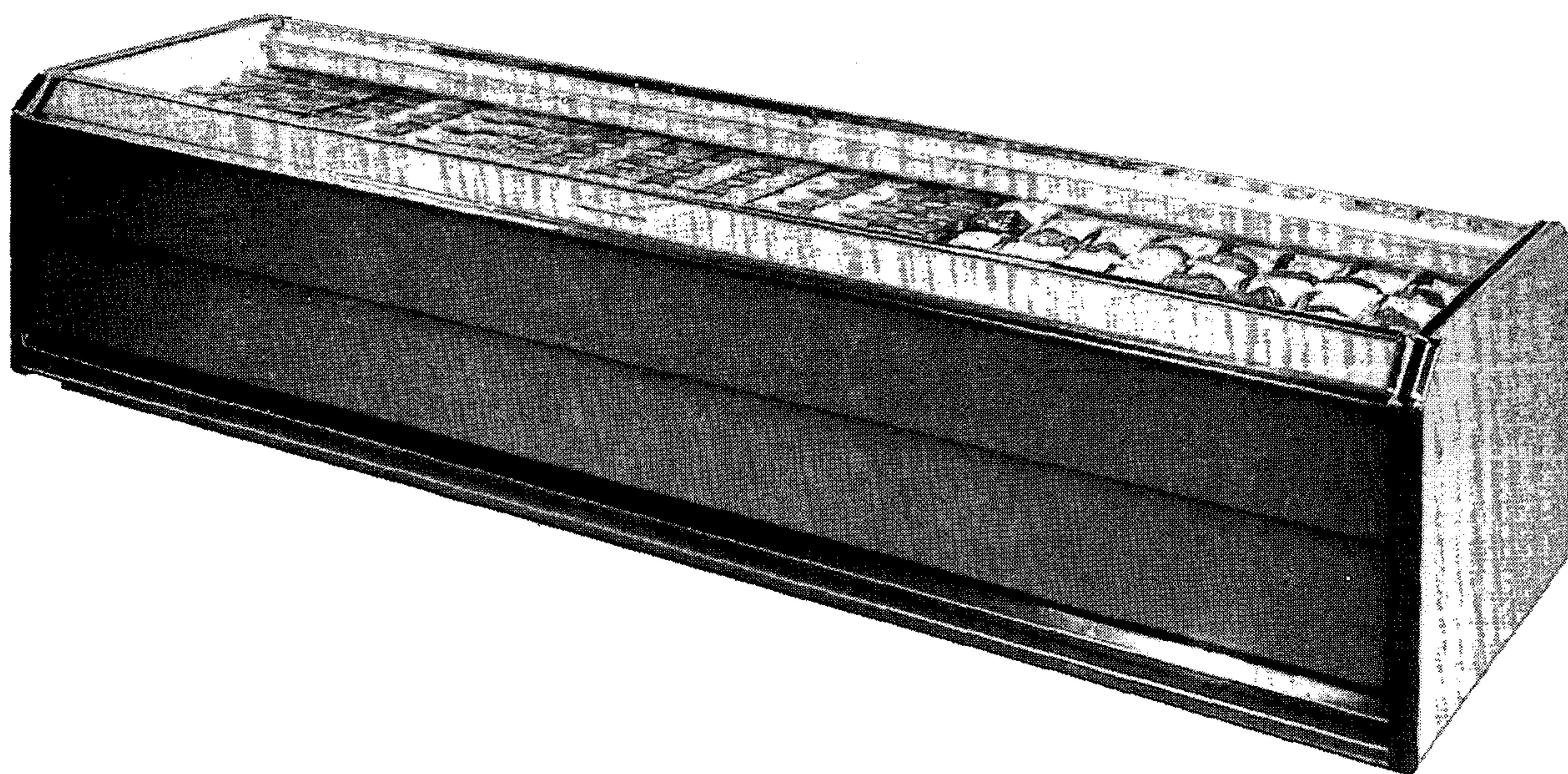


● **HUSSmann**®

CORPORATION

HUSSmann® HUSSmann® HUSSmann® HUSSmann®

HUSSmann® HUSSmann® HUSSmann®



HUSSmann® HUSSmann® HUSSmann®

HUSSmann® HUSSmann® HUSSmann® HUSSmann®

**GF, GC, GFFS, GCFS
GG, GGC, GTF & GTC**

REFRIGERATED MERCHANDISERS
For
FROZEN FOOD & ICE CREAM

INSTALLATION / SERVICE INSTRUCTIONS

ENG. NO. 252616J

July, 1992

Supersedes #252616I

Dated March, 1988

Section 3

CONTENTS

GENERAL INFORMATION.....1-1
Model Description.....1-1
Application.....1-1
Plan Views and Cross-Sections.....1-2

INSTALLATION.....2-1
Shipping Damage.....2-1
Shipping Braces.....2-1
Location.....2-1
Leveling.....2-2
Joining.....2-2
Waste Outlet and Waste Seal.....2-2
Installing Drip Piping.....2-3
Splashguard Parts.....2-4
Installing Splashguards.....2-4
Sealing Splashguard to Floor.....2-6

REFRIGERATION.....3-1
Refrigerant.....3-1
Refrigerant Piping.....3-1
Connection Sizes.....3-1
Connection Location.....3-1
Multiplexing.....3-1
Line Sizing.....3-1
Oil Traps.....3-1
Pressure Drop.....3-1
Insulation.....3-1
WARNING.....3-1
Refrigeration Parts List.....3-2
Expansion Valve Adjustment.....3-3
Controls and Adjustments.....3-4
Conventional Single Compressor.....3-4
Parallel Compressor Rack.....3-4
Control Settings.....3-5
Refrigeration Thermostat – Optional.....3-6
Defrost Termination Thermostat.....3-6

Contents Continued on Next Page

ELECTRICAL4-1

Connections.....4-1

Identification of Wiring.....4-1

Wiring Color Code4-1

Field Wiring4-2

Serial Plate Amperages4-2

Wiring Diagrams4-3

Electrical Replacement Parts.....4-9

USER INFORMATION.....5-1

Care and Cleaning5-1

Stocking and Stock Rotation5-1

Night Cover Usage5-2

SERVICE6-1

WARNING6-1

Replacing Anti-Sweat Heaters6-1

Replacing Defrost Heaters6-3

Replacing Waste Outlet Heater (Koolgas Defrost)6-4

Cleaning or Replacing Honeycomb6-4

Replacing Fan Motor and Blades6-5

Repairing Aluminum Coil.....6-6

WARRANTY

REVISION CHANGES ("J")

- 1. GFFS and GCFS models added throughout.
GFI and GCI models deleted throughout.

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

MODEL DESCRIPTION

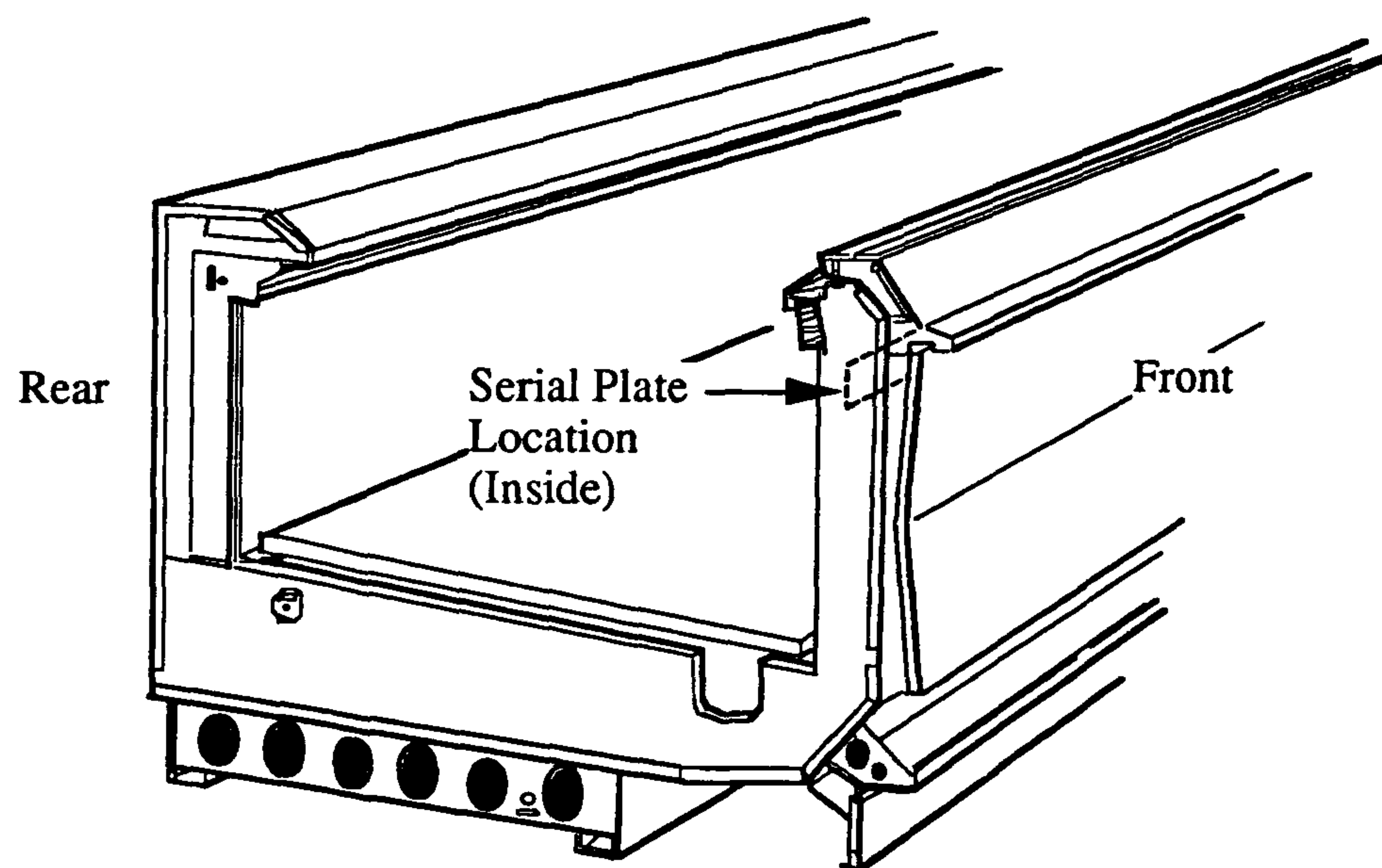
This instruction covers the merchandisers listed below. Basic design features are listed to the right of each merchandiser.

- GF Frozen Food Wall Display
- GFFS Frozen Food Free Standing Display
- GG Frozen Food Narrow Island Display
- GTF Frozen Food Intermediate Island Display

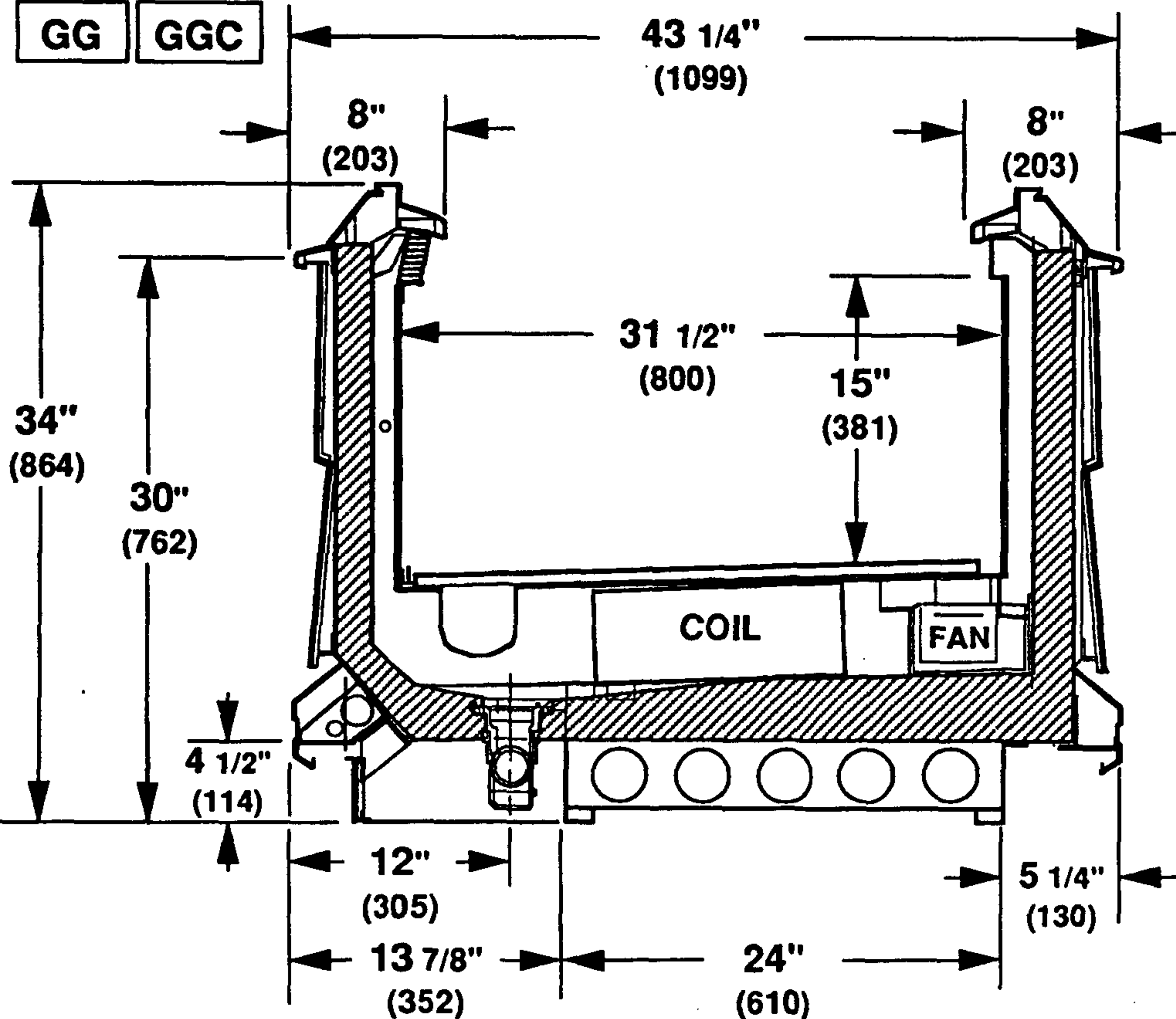
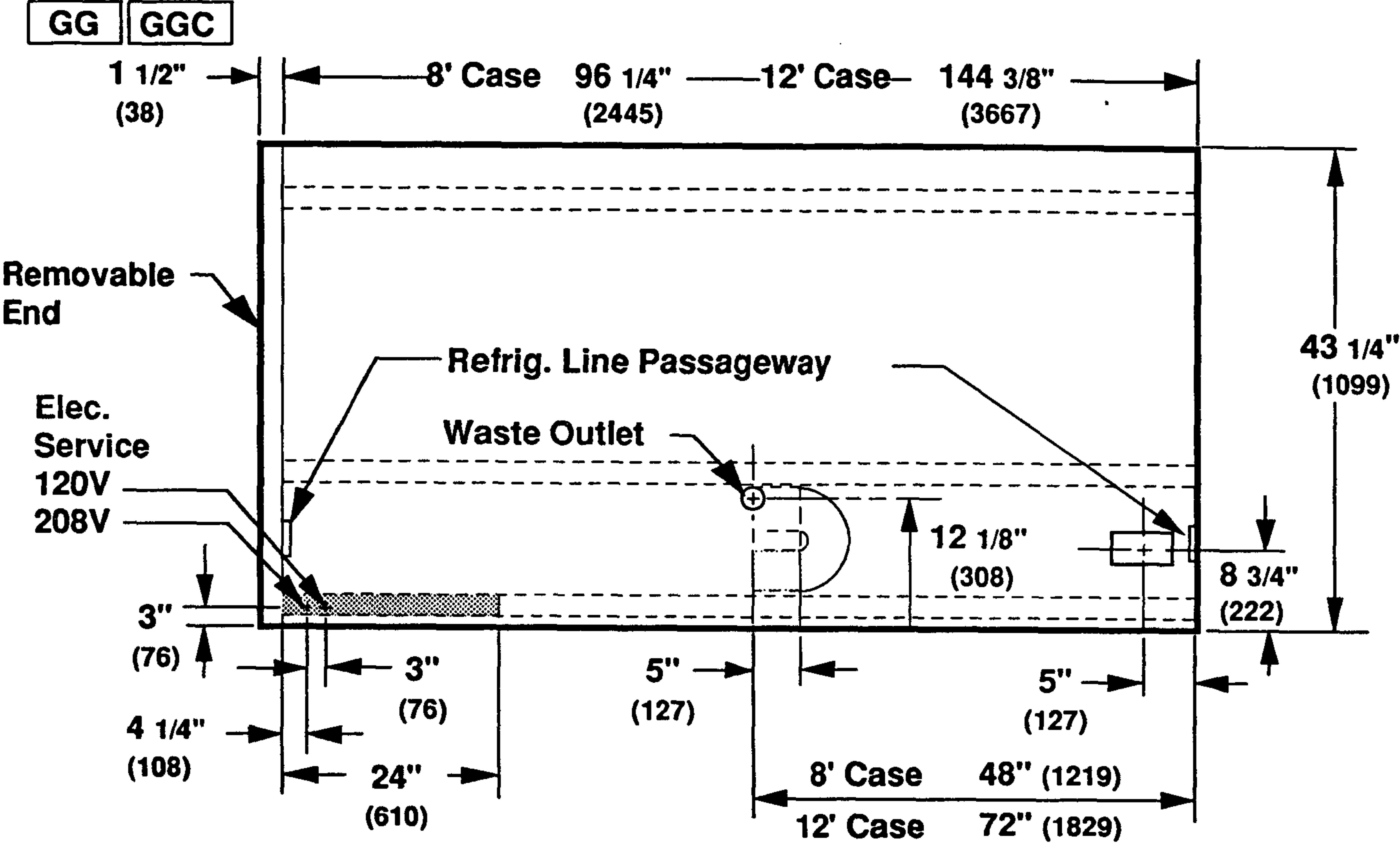
- GC Ice Cream Wall Display
- GCFS Ice Cream Free Standing Display
- GGC Ice Cream Narrow Island Display
- GTC Ice Cream Intermediate Island Display

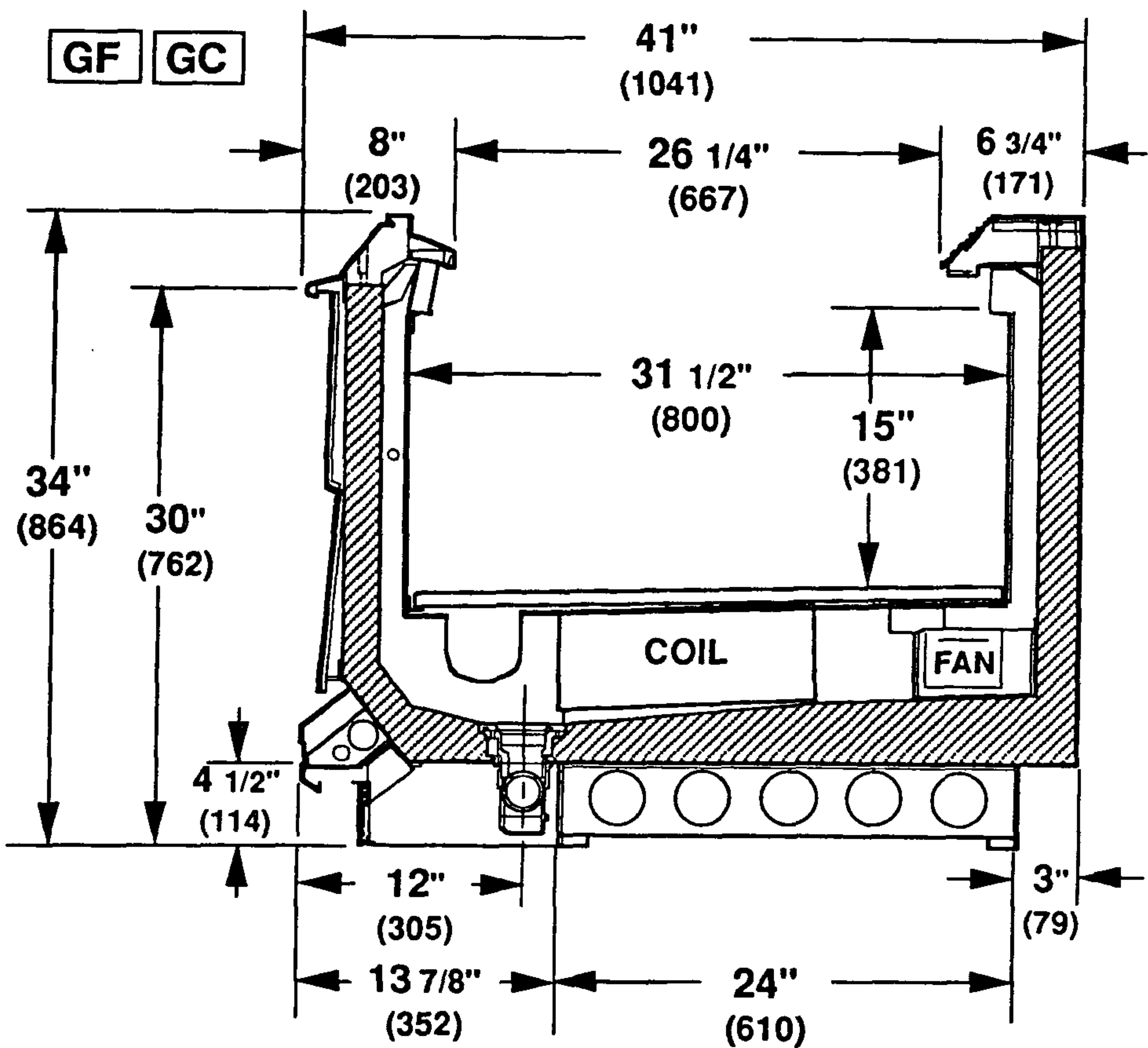
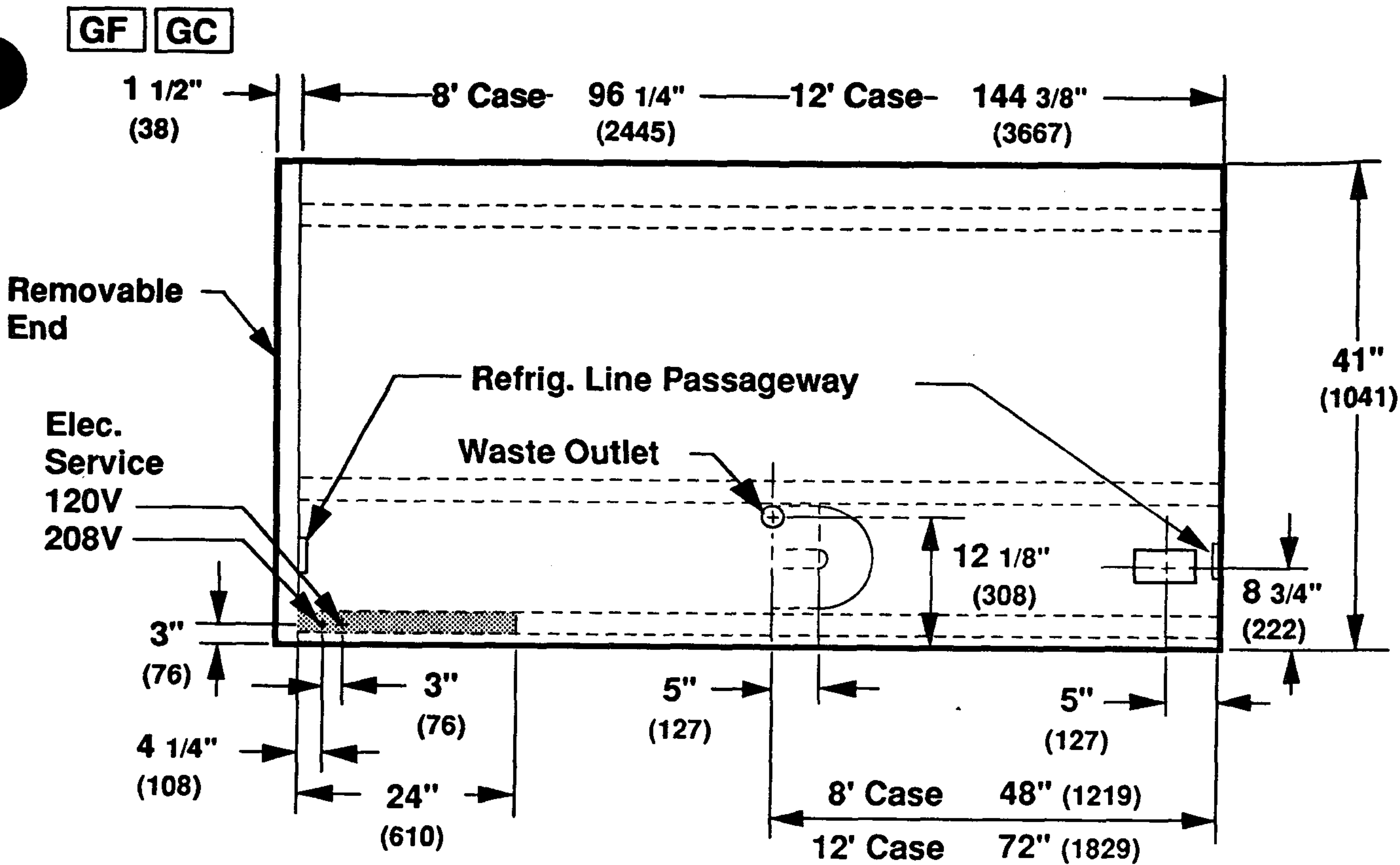
APPLICATION

These models have been designed for use in air conditioned stores where temperatures and humidity are maintained at or below 75°F and 55% relative humidity.

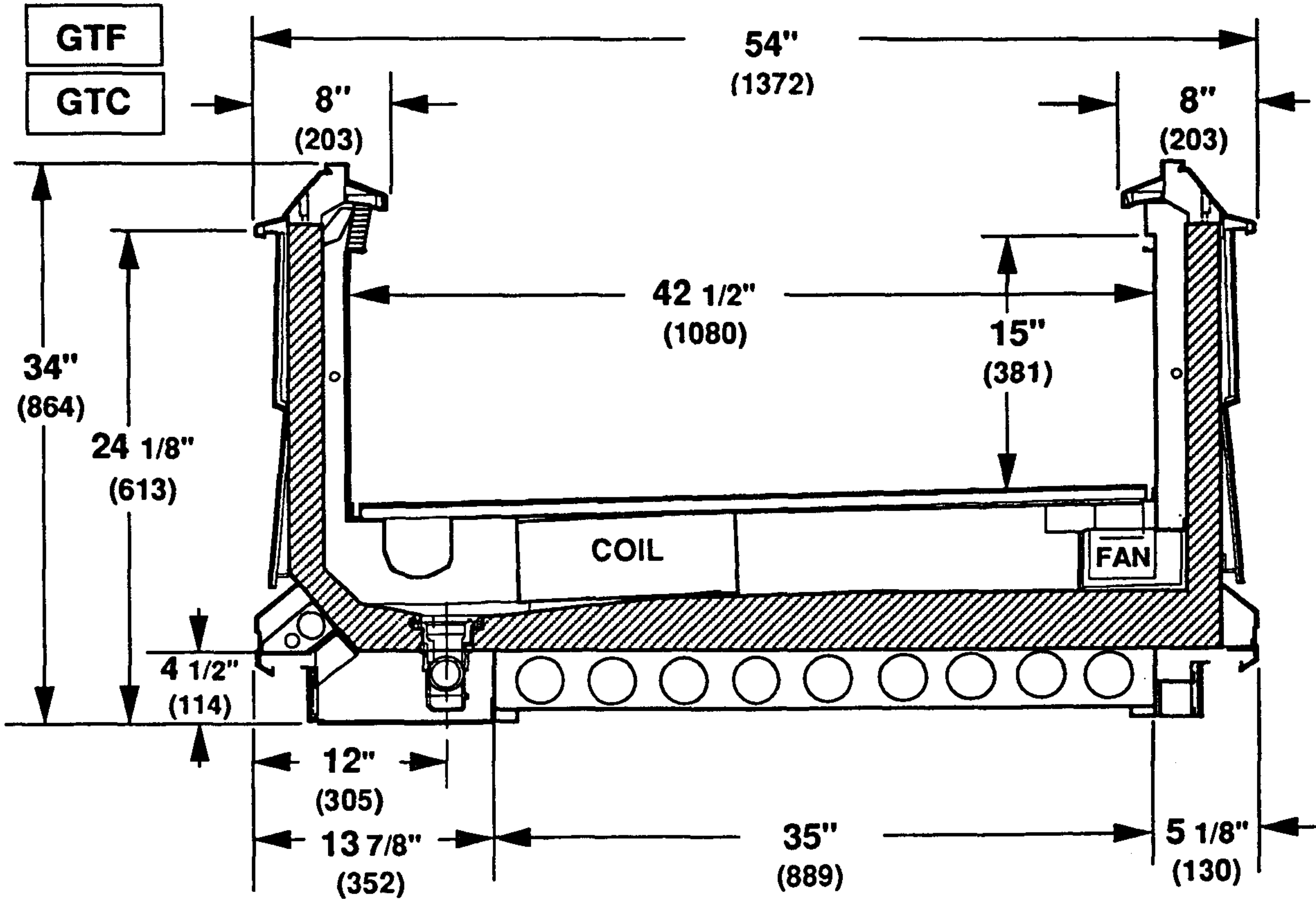
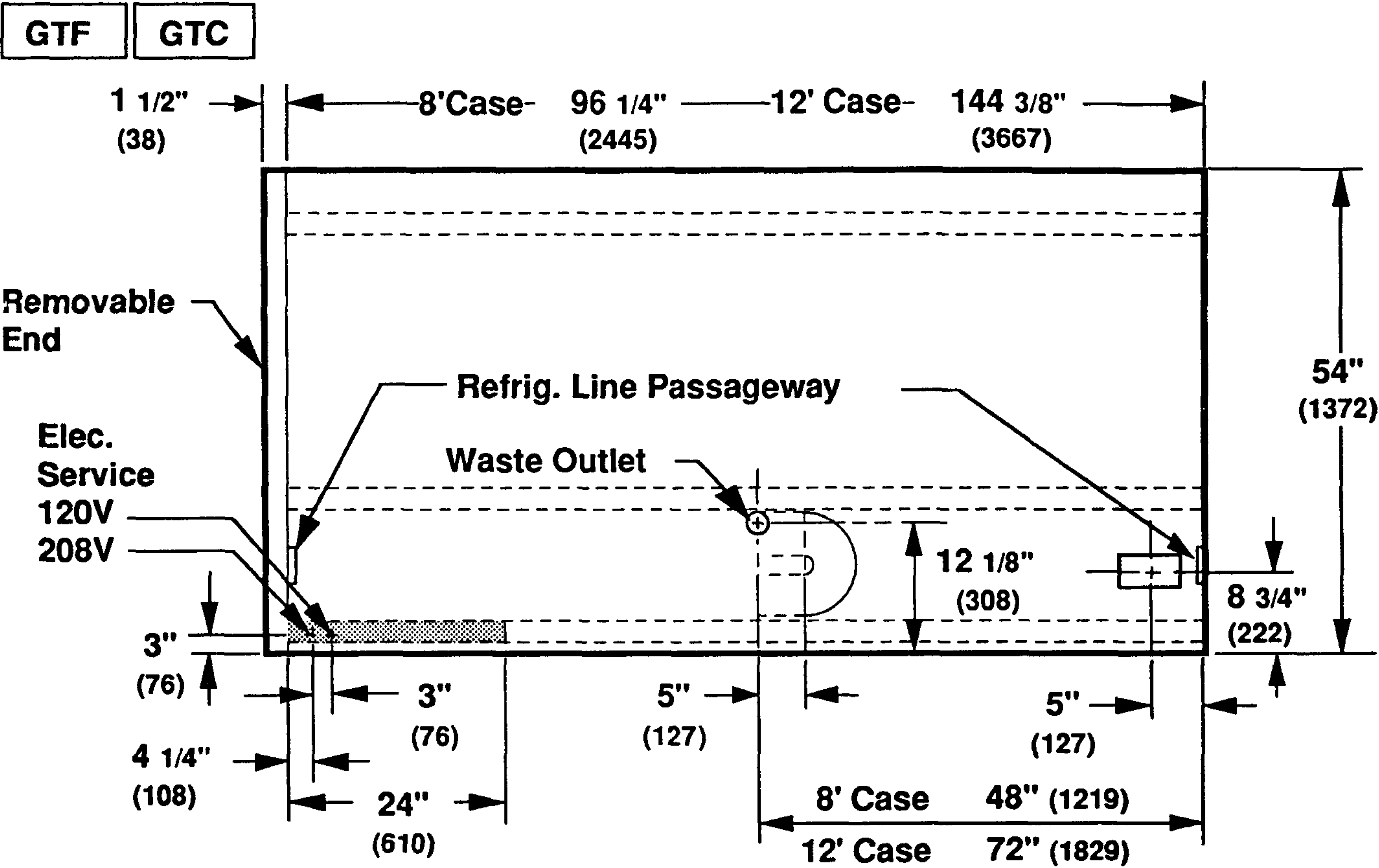


General Information
1-2



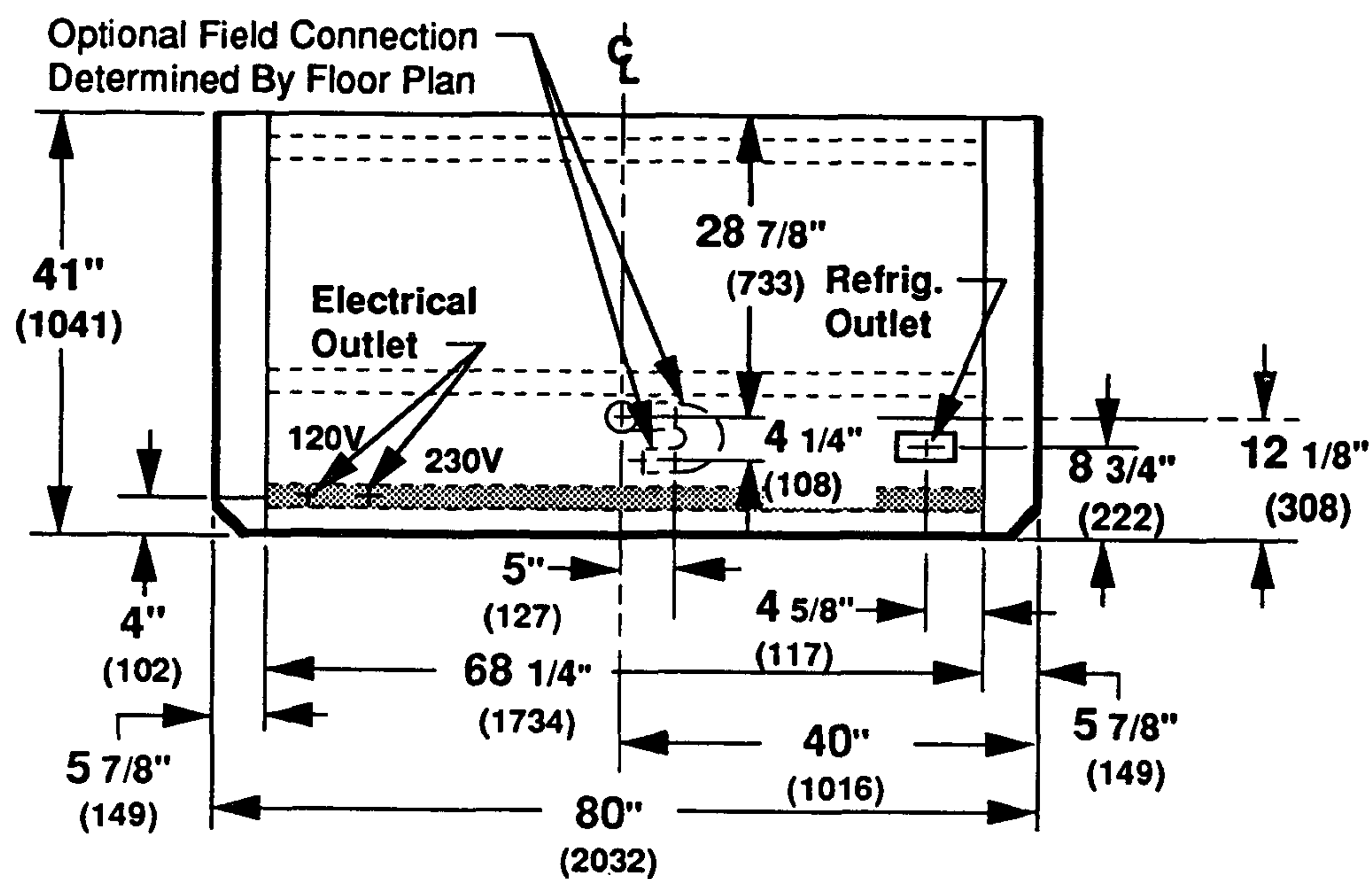


General Information
1-4



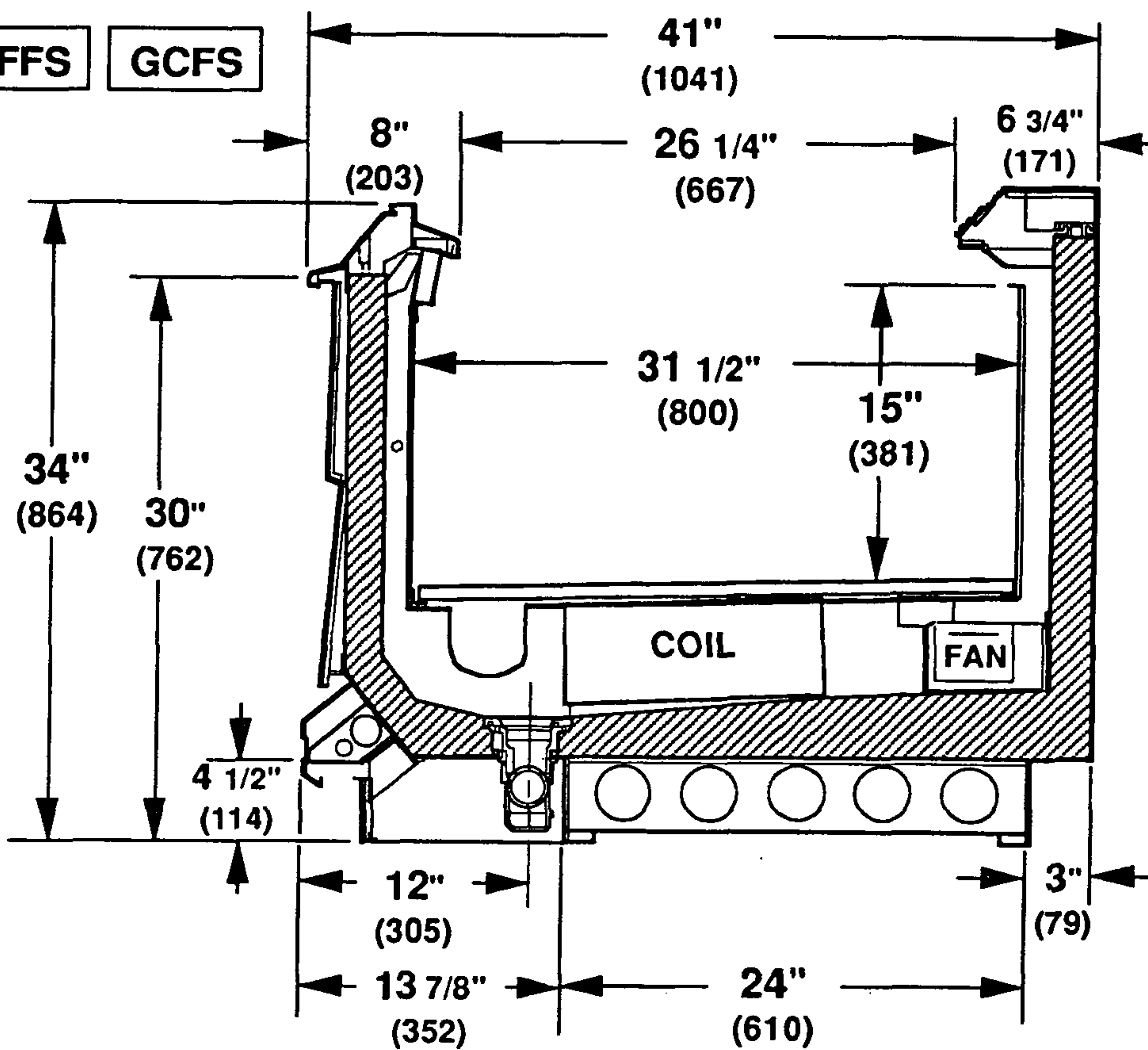
GFFS

GCFS



GFFS

GCFS



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 packaging. The carrier will supply inspection report and required claim forms.

WARNING: Exercise caution at all times when moving merchandisers shipped with "L" shaped riders. They are top heavy and should never be left in the vertical position.

LOCATION

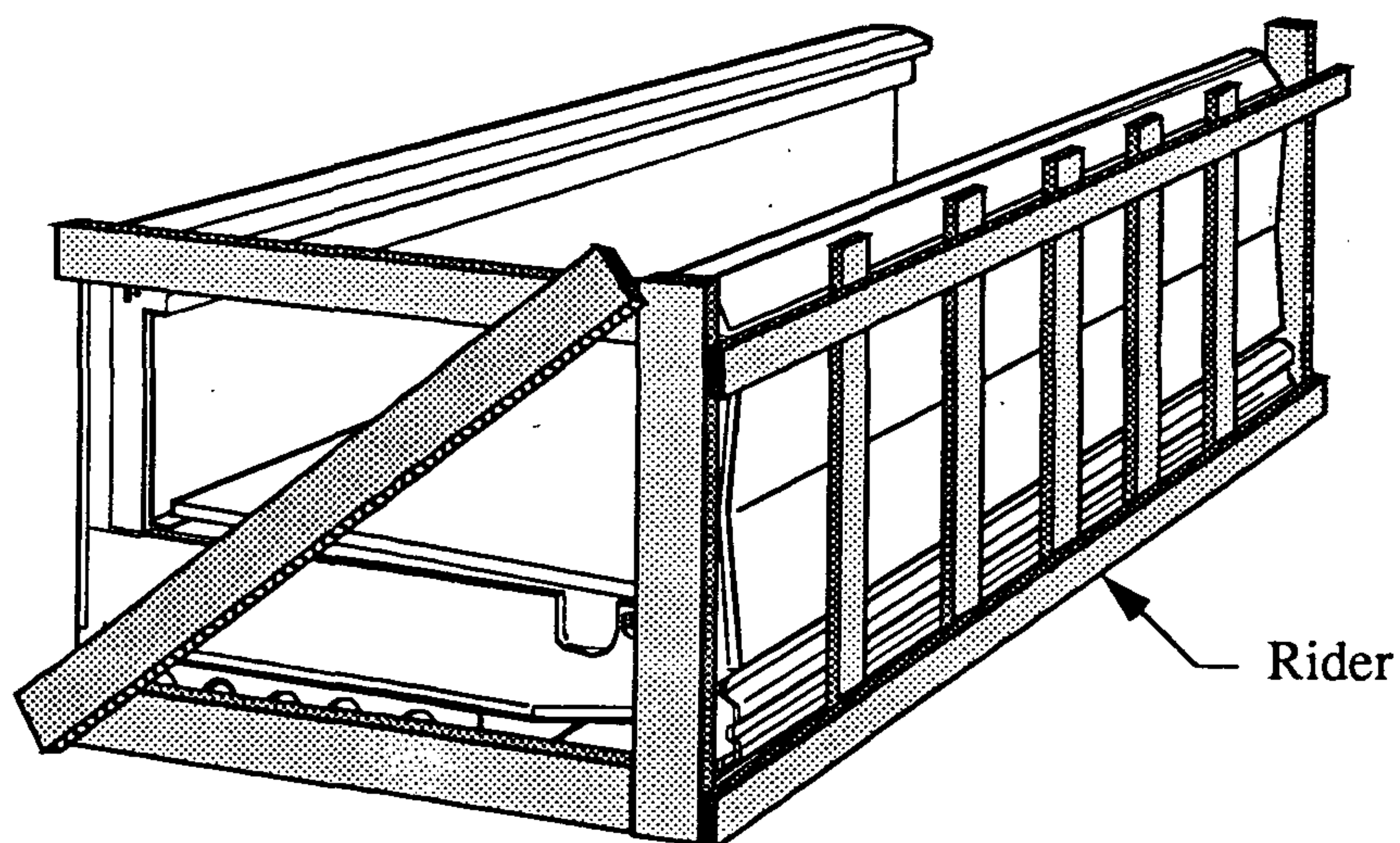
All open merchandisers are sensitive to store air movement. Do not allow air conditioning, electric fans, open doors or windows, etc., to create air currents around these merchandisers.

To prevent sweating on the exterior surfaces of these models, there must be a minimum clearance of 4 inches between their backs or ends and adjacent walls, merchandisers or coolers.

Sweating may occur even with the required clearance where high humidity conditions exist. For these conditions, some method of forced ventilation, such as the Hussmann Fan Ventilation Kit, must be used.

SHIPPING BRACES

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



LEVELING

Their physical setting and joining is covered in installation instructions contained in the End, Joint and Partition Kits. **MERCHANDISERS MUST BE INSTALLED IN A LEVEL PLANE TO ALLOW PROPER OPERATION OF THE REFRIGERATION COILS AND DRAINING OF DEFROST WATER.** Use a 24-inch carpenter's level, as shown in illustration below, to level. **Note:** To avoid removing concrete flooring, begin lineup leveling from the highest point of the store floor.

JOINING

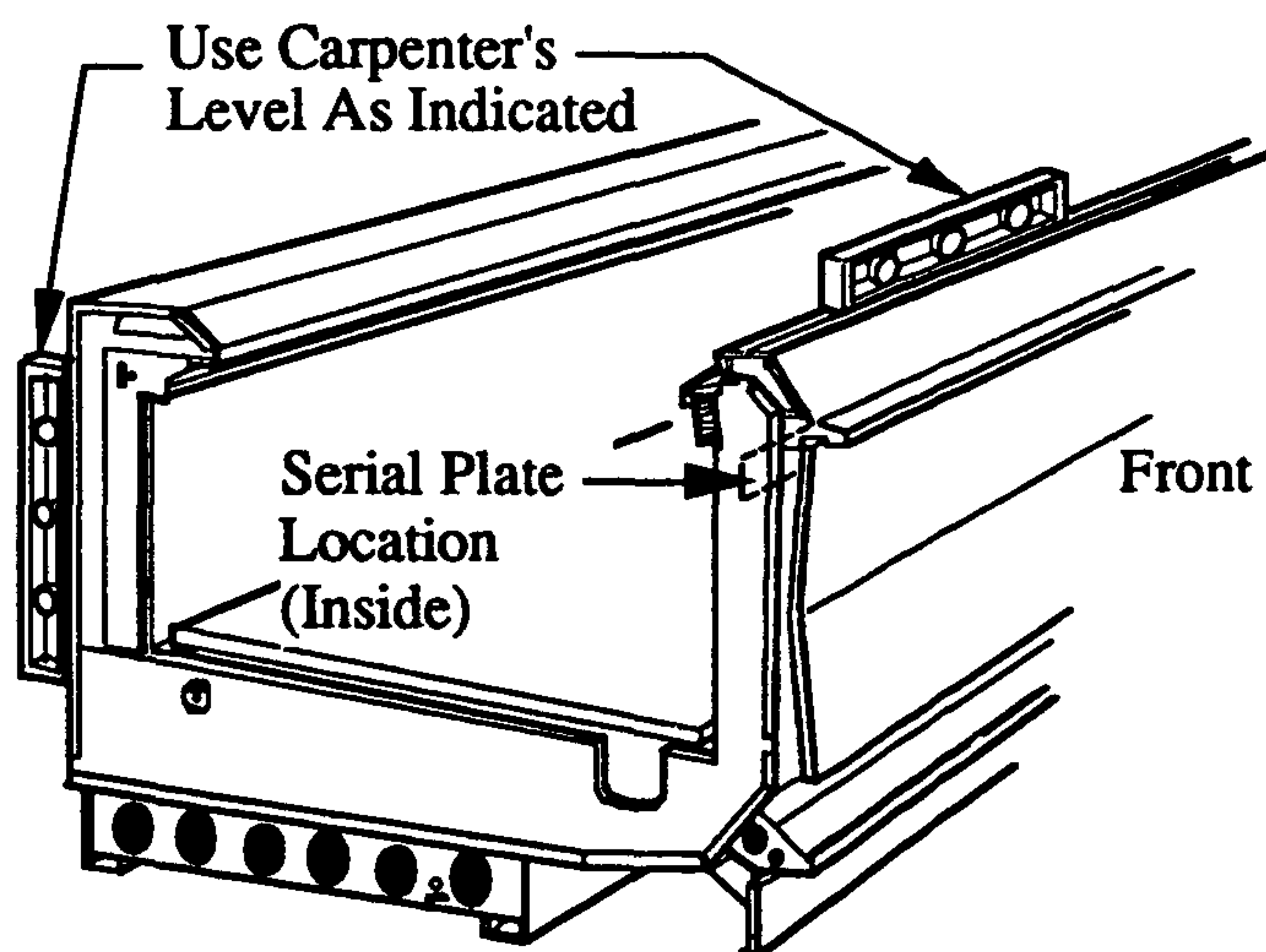
These merchandisers are of sectional construction; two or more may be joined in line to give one continuous display with one pair of end assemblies or unitized end cases. For joining, a joint kit is required. Instructions for joining are provided with each kit.

WASTE OUTLET AND WATER SEAL

The waste outlet is located as shown on the plan views allowing drip piping to be run under the merchandiser lengthwise.

A water seal is supplied with each merchandiser. The water seal must be installed to prevent air leakage and insect entrance into the merchandiser.

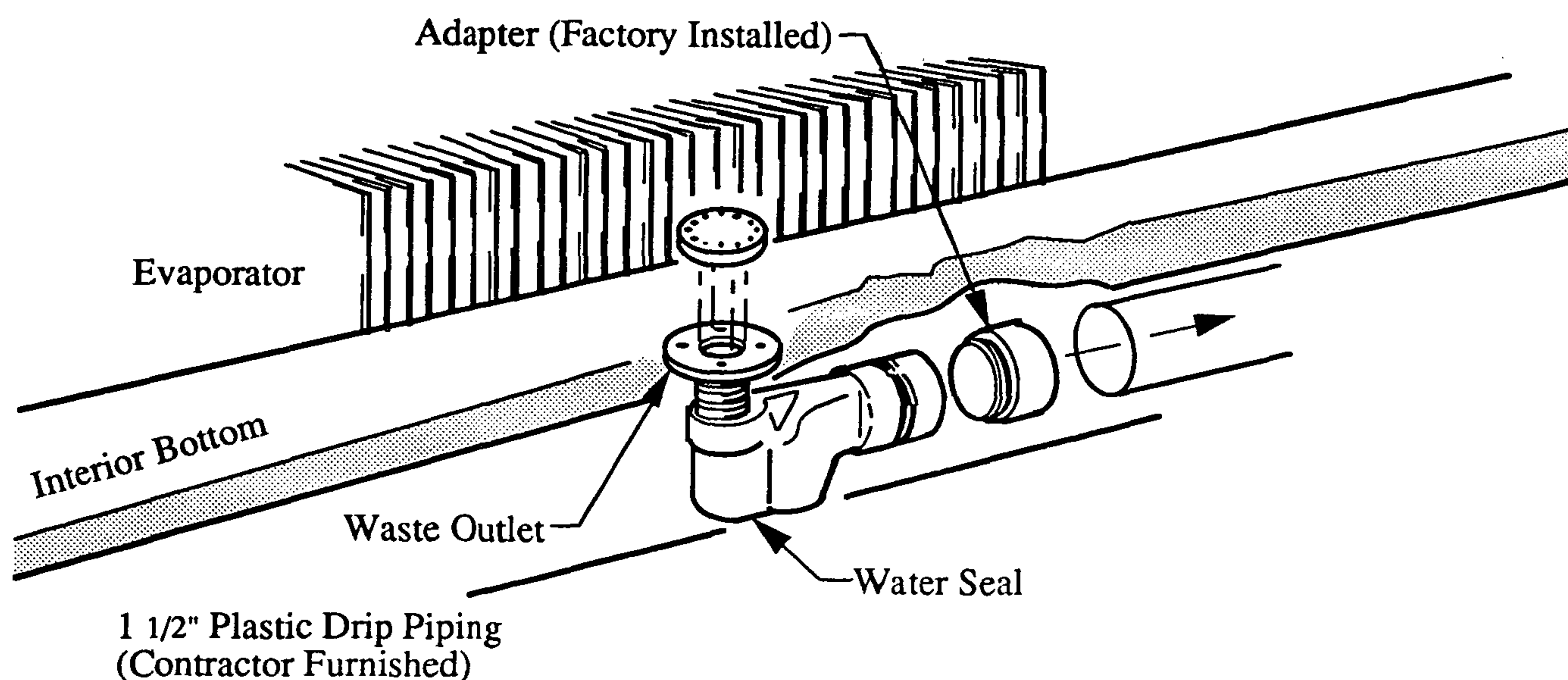
NOTE: PVC-DWV solvent cement is recommended. Follow the manufacturer's instructions.



INSTALLING DRIP PIPING

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

1. Merchandisers are sized for 1 1/2" drip piping. Never use pipe 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. Store plumbing system floor drains should be at least 1 1/2" off center of merchandiser to allow use of the "water seat" pipe section. Never use two water seals in series in any one drip pipe. **Double water seals in series will cause an air lock between water seals 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 non-absorbent insulation material.
 - B. Where pipes are located in dead air spaces, such as between merchandisers or between a merchandiser and a store wall, provide means to prevent freezing.
7. Hussmann supplied Elbow and Adapter may be installed on factory-installed drip piping.



SPLASHGUARD PARTS

| Item | Quantity | | | | | Description |
|------|----------|--------|-------|--------|-------|---|
| | GFFS | GTF(C) | | GF-GC | | |
| | GCFS | GG(C) | | GF(C)I | | |
| | 6 ft | 8 ft | 12 ft | 8 ft | 12 ft | |
| 1. | 3 | 3 | 4 | 3 | 4 | Lower Splashguard Retainer – Merchandiser |
| 2. | 1 | 2 | 2 | 1 | 2 | Lower Splashguard – Merchandiser |
| 3. | 4 | 3 | 4 | – | – | Lower Splashguard Retainer – End |
| 4. | 2 | – | – | – | – | Lower Splashguard – End |
| 5. | 2 | – | – | – | – | Lower Splashguard – Corner |
| 6. | 11 | 6 | 8 | 3 | 4 | #10x3/4" Hex Head Sheet Metal Screw |
| 7. | 8 | – | – | – | – | #8x1/2" Hex Head Sheet Metal Screw |
| 8. | 3 | 6 | 4 | 3 | 4 | Fastener |

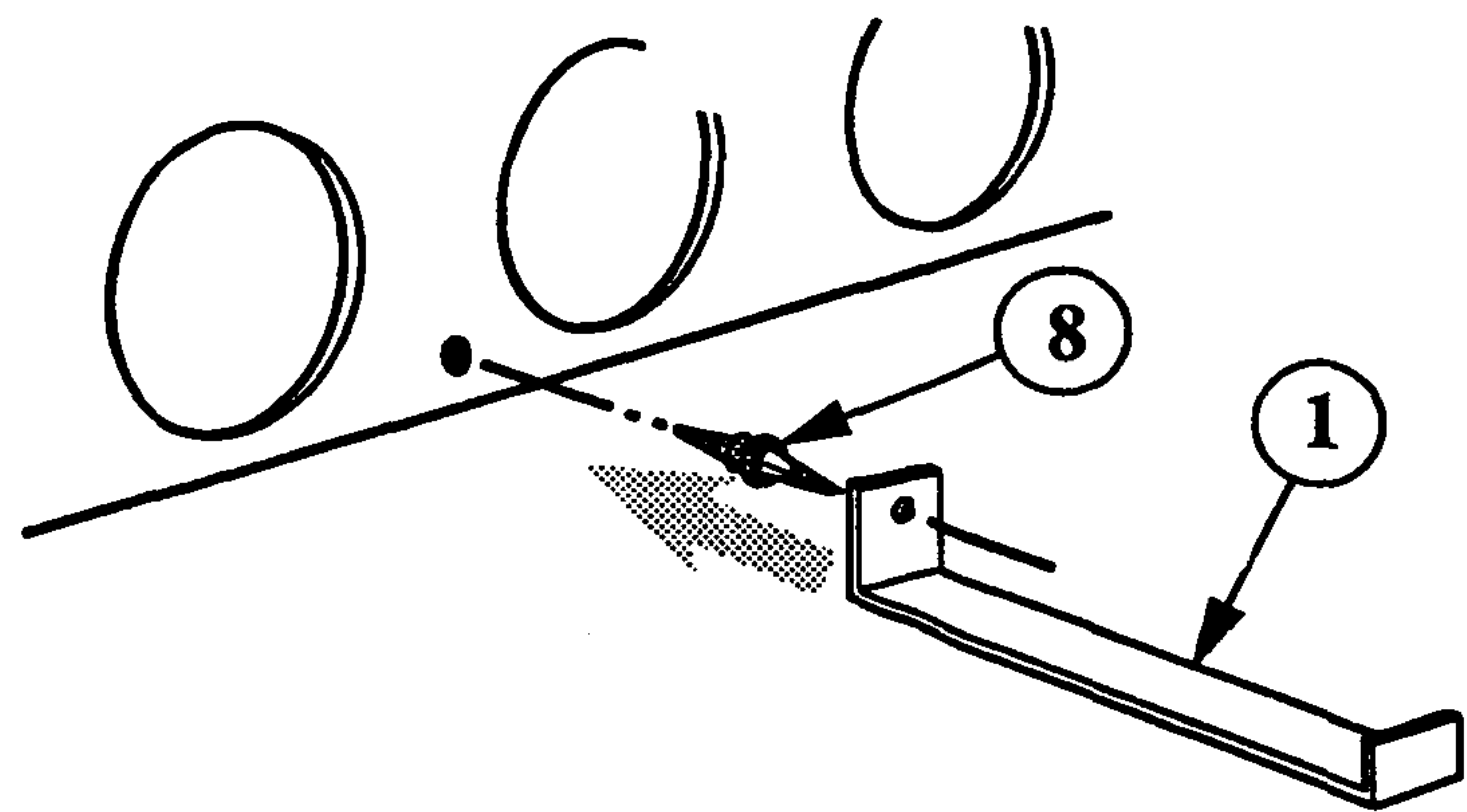
INSTALLING SPLASHGUARDS

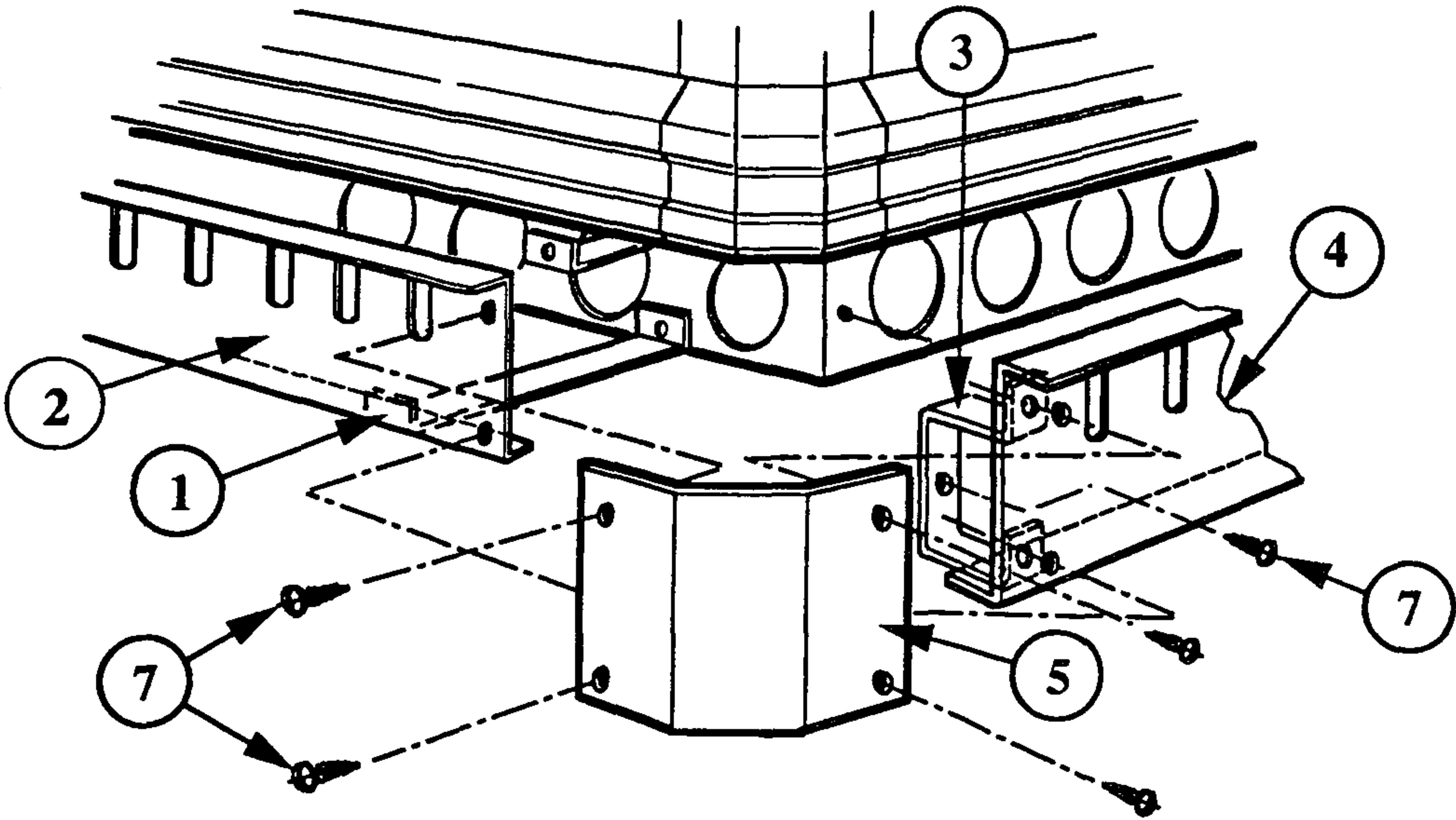
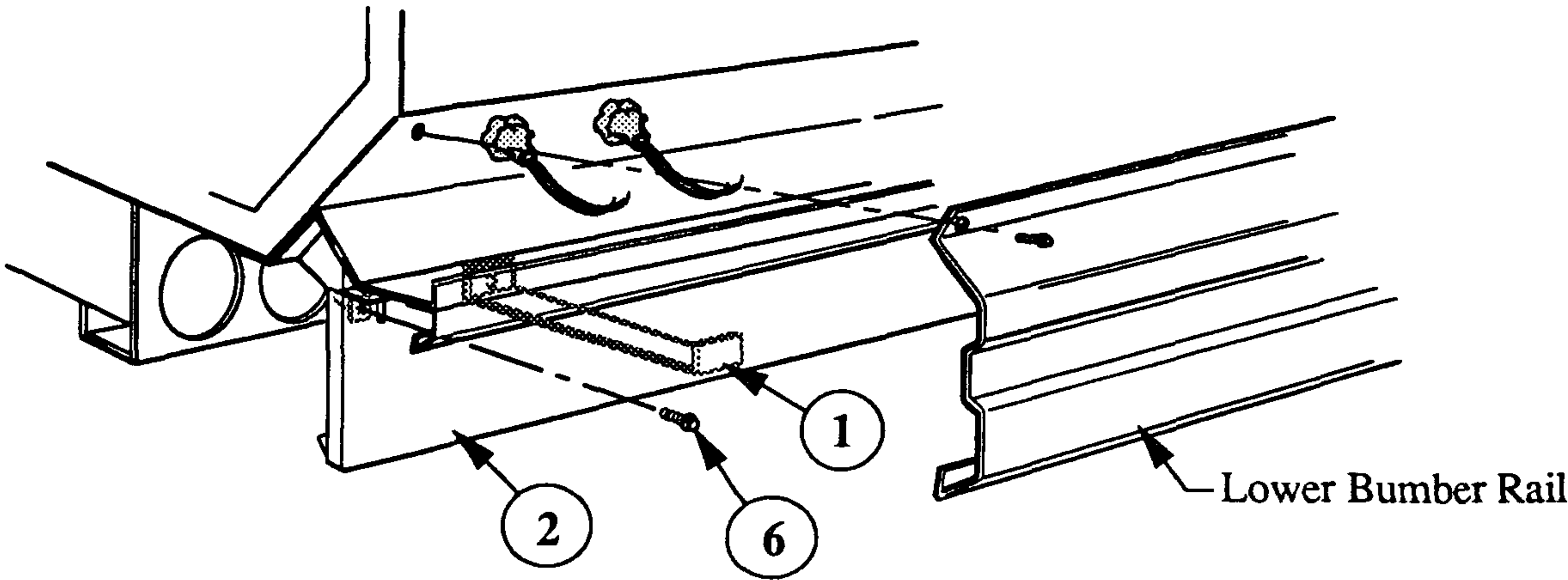
1. To install the Lower Splashguard Retainers – Merchandiser (Item 1):
A. Press one end of Plastic Fastener (Item 8) into each retainer, seating completely.
B. Position the opposite end of the fastener to a prelocated base rail hole then tap the end of the retainer with a hammer to seat the fastener.
If necessary, temporarily raise the side of the merchandiser slightly while installing.

2. Insert Lower Splashguard – Merchandiser (Item 2) onto installed retainers and secure to case mounting brackets with Screws (Item 6).
3. Install Lower Splashguard Retainer – End (Item 3) to pre-located holes in case end cross braces using Screws (Item 6).

4. Insert Lower Splashguard – End (Item 4) onto retainers and secure to end mounting brackets with Screws (Item 7).

5. Install Lower Splashguard Corner (Item 5) with Screws (Item 7). Four screws are required per corner.





Installation

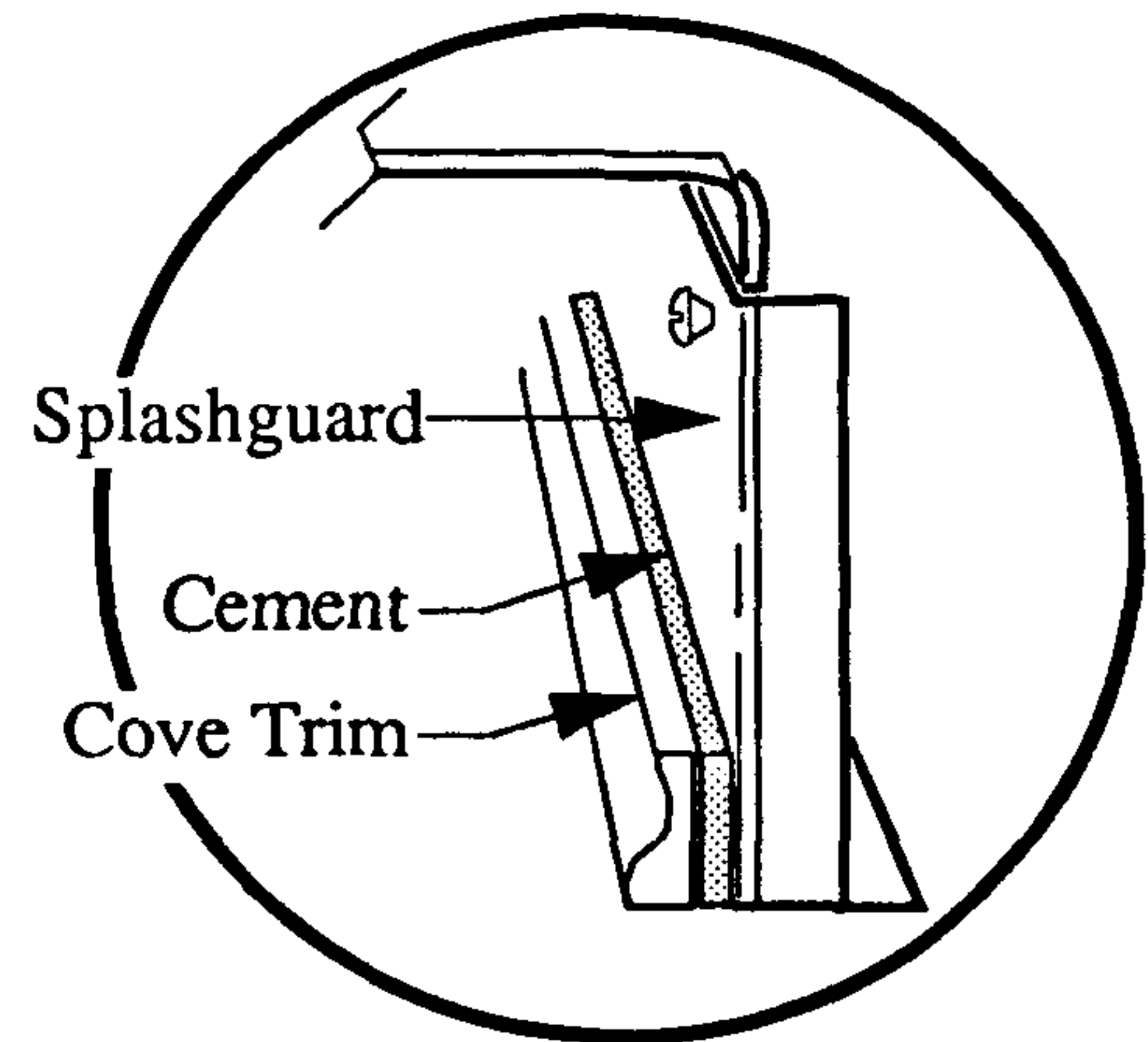
2-6

SEALING SPLASHGUARD TO FLOOR

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 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.



Sealing Splashguard to Floor

REFRIGERANT

The correct type of refrigerant will be stamped on each merchandiser's serial plate located on the left-hand end of the interior front liner.

REFRIGERANT PIPING

Connection Sizes

| | |
|--------------|---------|
| Liquid Line | 3/8" OD |
| Suction Line | 7/8" OD |

Connection Location

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

After connections have been made, seal this outlet thoroughly. Seal both the inside and 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.

NOTE: If Gas defrost is used, the liquid line will need to be increased two sizes larger inside the merchandiser area. This is necessary to ensure even liquid drainage from all evaporators during defrost.

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.

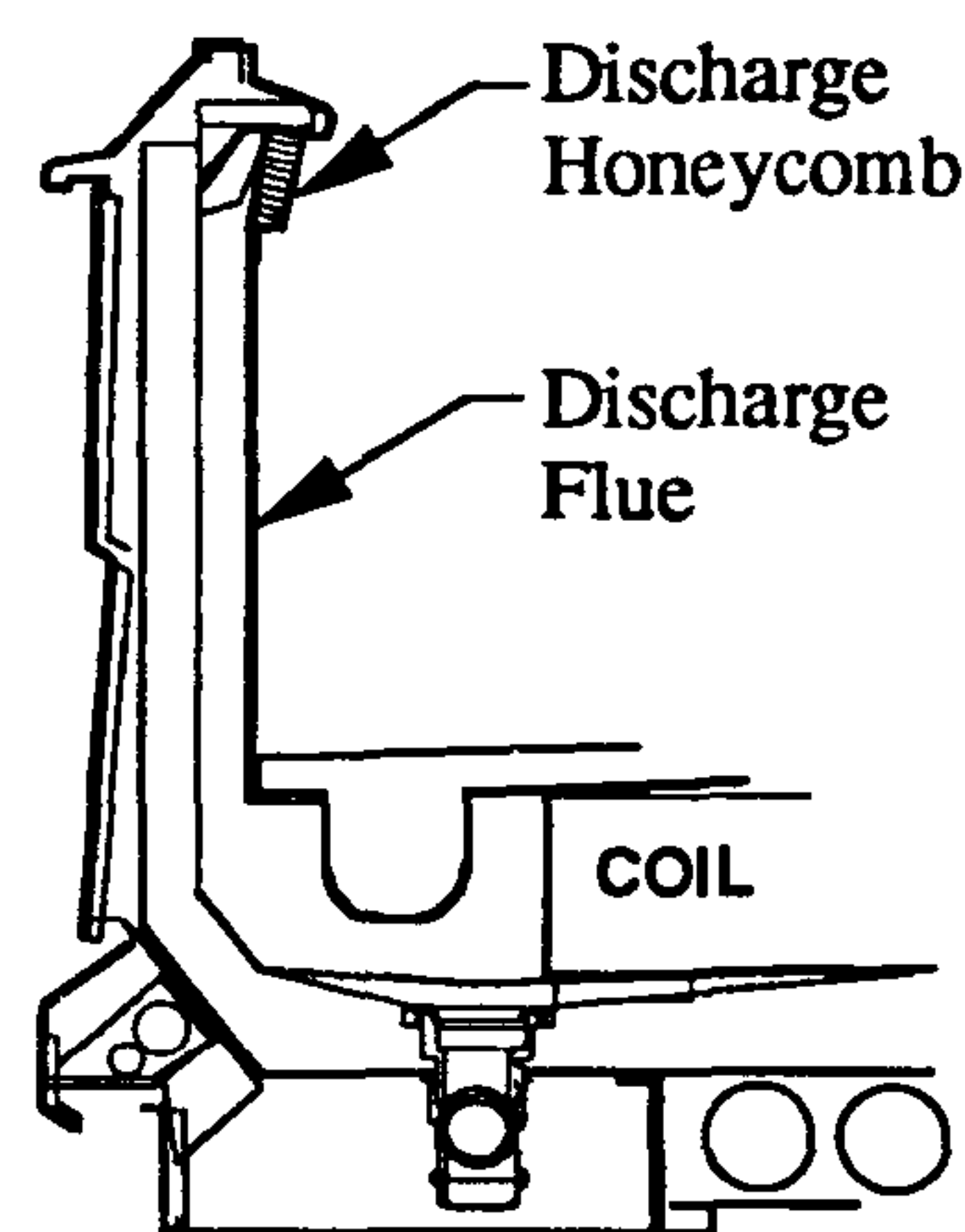
Oil Traps

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

WARNING

Use extreme care when making refrigeration line connections. Heat from the torch can travel up the discharge flue to the back side of the plastic discharge honeycomb and possibly damage the honeycomb.

To avoid this possibility, we suggest that the section of honeycomb above the area where connections are to be made be removed until connections are complete.



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

For merchandisers with OTHER than GAS defrost: the suction and liquid lines should be clamped or taped together and insulated for a minimum of 30 ft from the merchandiser; for merchandisers with GAS defrost, the suction and liquid lines should not contact each other and should be insulated separately for a minimum of 30 ft from the merchandiser. Additional insulation for the balance of the liquid and suction lines is recommended wherever condensation drippage is objectionable.

REFRIGERATION PARTS LIST (Sporlan Nomenclature)

NOTES:

Distributors and TEVs are provided with a special side outlet port which allows the liquid condensed in the coil during defrost to bypass the expansion valve and flow into the liquid line.

| WALL DISPLAY, NARROW ISLAND, FREE-STANDING FROZEN FOOD, ICE CREAM GF, GC, GG, GGC, GFFS, GCFS | | | | |
|---|--------------|-----------|--------------|-----------|
| R-22 | | | | |
| Length | TEV | | Distributors | |
| | Gas | All Other | Gas | All Other |
| 6' | Y920 BGV AAZ | BFV AAZ | N/A | N/A |
| 8' | Y920 BGV AAZ | BFV AAZ | N/A | N/A |
| 12' | Y920 BGV AAZ | BFV AAZ | N/A | N/A |
| R-502 | | | | |
| Length | TEV | | Distributors | |
| | Gas | All Other | Gas | All Other |
| 6' | Y920 BGR AZ | BFR AZ | N/A | N/A |
| 8' | Y920 BGR AZ | BFR AZ | N/A | N/A |
| 12' | Y920 BGR AZ | BFR AZ | N/A | N/A |

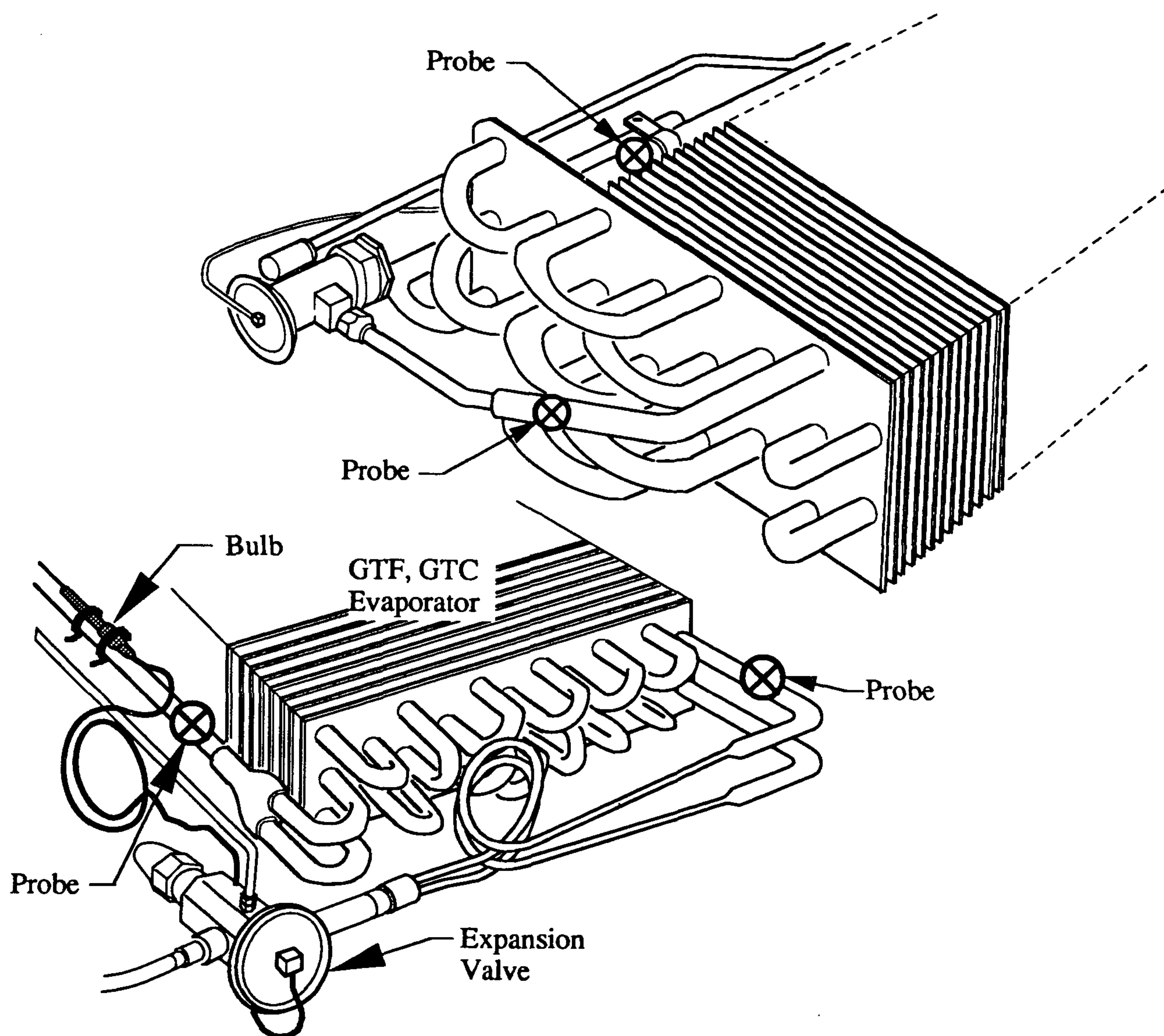
| INTERMEDIATE ISLAND FROZEN FOOD, ICE CREAM GTF, GTC | | | | |
|---|---------|-----------|-----------------|-----------------|
| R-22 | | | | |
| Length | TEV | | Distributors | |
| | Gas | All Other | Gas | All Other |
| 8' | BFV AAZ | N/A | D116-2-1/4-1/2 | N/A |
| 12' | BFV AAZ | N/A | D116-2-1/4-1 | N/A |
| R-502 | | | | |
| Length | TEV | | Distributors | |
| | Gas | All Other | Gas | All Other |
| 8' | BFRE AZ | BFRE AZ | D116-2-1/4-1 | D115-2-1/4-1 |
| 12' | BFRE AZ | BFRE AZ | D116-2-1/4-11/2 | D115-2-1/4-11/2 |

EXPANSION VALVE ADJUSTMENT

Expansion valves must be adjusted to fully feed the evaporator. Before attempting to adjust valves, make sure the evaporator is either clear or only lightly covered with frost, and that the merchandiser is within 10°F of its expected operating temperature. 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 coil inlet line (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. With this adjustment, during a portion of the hunting, the temperature difference between the probes will be less than 3°F (at times as little as 0°F). Make adjustments of no more than one-quarter (1/4) turn for Balanced Port TEV and one-half (1/2) turn for "G" Body valves. Wait at least 15 minutes before rechecking the probe temperature and making further adjustments.



Refrigeration

3-4

CONTROL SETTINGS

Conventional Single Compressor

Measure Discharge Temperature at the center of the merchandiser at the discharge honeycomb.

Merchandiser temperature must be controlled by a thermostat with a 1°F differential. It will be wired to control the compressor motor contactor.

Standard electric defrost is temperature terminated. The defrost termination thermostats for all merchandisers on one compressor must be wired in series. Failsafe must not control defrost cycle length, especially when less than 208V power supply is used for defrost heaters, or if frost build-up is heavy from shopping demands.

The defrost timer of outdoor condensing units must control a liquid line solenoid for pump-down prior to defrost only. The failsafe setting for outdoor condensing units must be increased 4 minutes to compensate for the pump-down period.

Optional Gas defrost is time terminated, and has fan cycling thermostat. The defrost frequency and lengths listed may require adjustment for specific store conditions. Factors include:

- Store temperature and humidity
- Low head pressure
- Long refrigerant line runs
- Seasonal changes
- Merchandiser temperature lower than recommended

Stagger defrosts to maintain stable compressor loading and sufficient defrost gas. When practical, defrost when store is closed.

Low pressure control settings are applicable to outdoor condenser units where ambient does not fall below 0°F.

| Refrigeration Data | | |
|--------------------------------------|-------------|-----------|
| | Frozen Food | Ice Cream |
| Discharge Air °F | -10 | -20 |
| Evaporator °F | -20 | -30 |
| Fan Cycling CO/CI | | |
| Gas Defrost ONLY °F | 28 | 38 |
| Defrost Data | | |
| | Frozen Food | Ice Cream |
| Frequency Hrs | 24 | 24 |
| <u>Electric</u> | | |
| Temp Term °F | 52 | 52 |
| Failsafe Min | 60 | 60 |
| <u>Gas</u> | | |
| Duration Min | 20 | 24 |
| <u>Offtime</u> | | |
| Temp Term °F | N/A | N/A |
| Failsafe Min | N/A | N/A |
| When Thermostat Controls Temperature | | |
| Low Pres Backup Control (PSIG) | | |
| | Cut-Out | Cut-In |
| | Frozen Food | Ice Cream |
| R-22 | | |
| Cut Out | 0 | 0 |
| Cut In | 7 | 7 |
| R-502 | | |
| Cut Out | 0 | 0 |
| Cut In | 11 | 7 |

CONTROL SETTINGS (Continued)**Parallel Compressor Rack**

Measure Discharge Temperature at the center of the merchandiser at the discharge honeycomb.

Merchandiser temperature must be controlled by a thermostat or an EPR (Evaporator Pressure Regulator). The EPR must maintain the evaporator temperature listed

Standard electric defrost is terminated. All like merchandisers must have their defrost termination thermostats wired in series. Failsafe must not control defrost cycle length, especially when less than 208V power supply is used for defrost heaters, or if frost build-up is heavy from shopping demands

Optional Gas defrost is time terminated, and has fan cycling thermostat. The defrost frequency and lengths listed may require adjustment for specific store conditions. Factors include:

- Store temperature and humidity
- Low head pressure
- Long refrigerant line runs
- Seasonal changes
- Merchandiser temperature lower than recommended

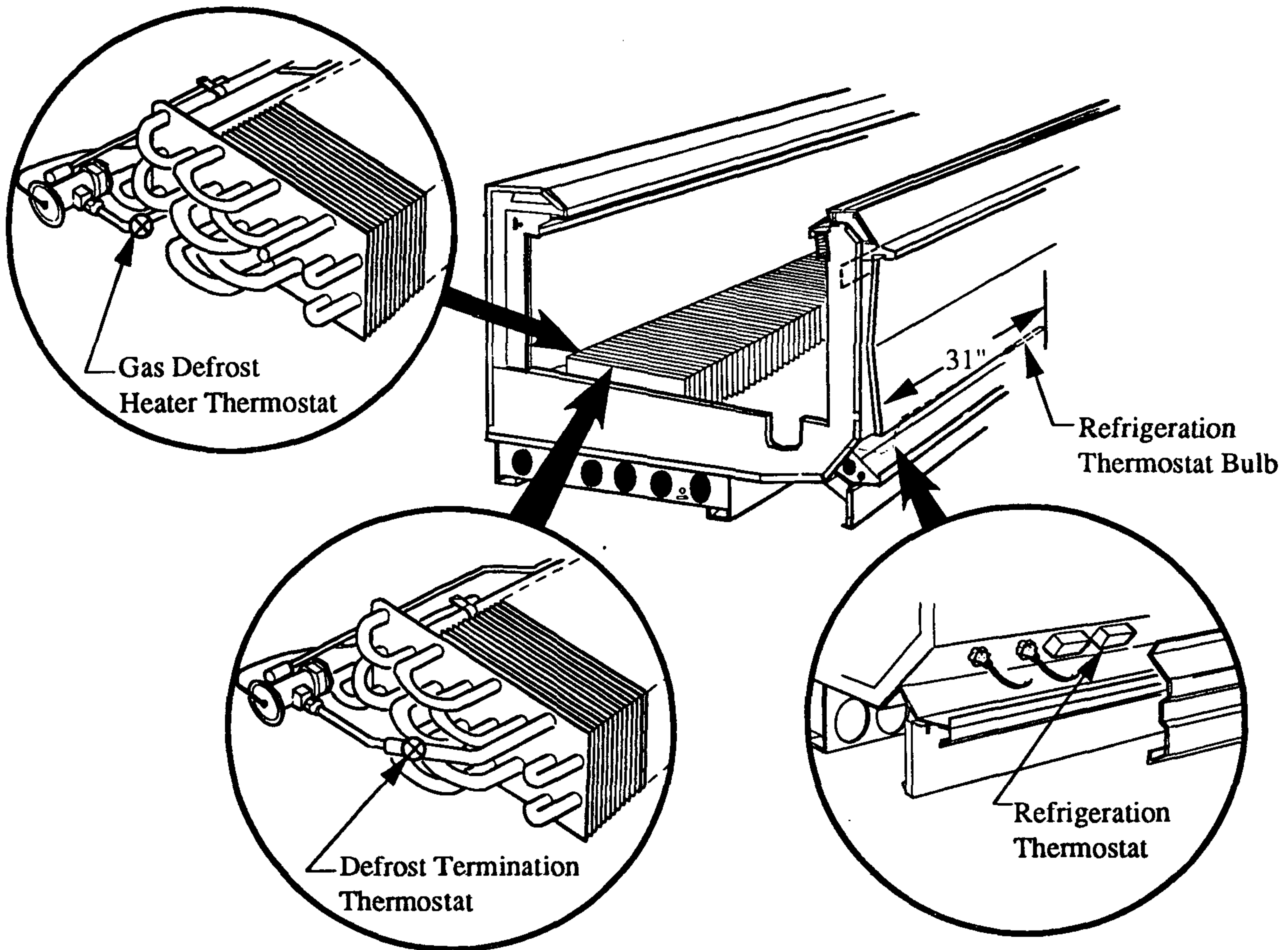
Stagger defrosts to maintain stable compressor loading and sufficient defrost gas. When practical, defrost when store is closed.

Refrigeration Data

| | Frozen Food | Ice Cream |
|---------------------|--------------------|------------------|
| Discharge Air °F | -10 | -20 |
| Evaporator °F | -20 | -30 |
| Fan Cycling CO/CI | | |
| Gas Defrost ONLY °F | 28 | 38 |

Defrost Data

| | Frozen Food | Ice Cream |
|-----------------|--------------------|------------------|
| Frequency Hrs | 24 | 24 |
| <u>Electric</u> | | |
| Temp Term °F | 52 | 52 |
| Failsafe Min | 60 | 60 |
| <u>Gas</u> | | |
| Duration Min | 20 | 24 |
| <u>Offtime</u> | | |
| Temp Term °F | 48 | 48 |
| Failsafe Min | 90 | 90 |



REFRIGERATION THERMOSTAT (OPTIONAL)

When factory installed, this thermostat will be located as shown in the above illustration. Connect the thermostat into the pilot circuit of the condensing unit. See Wiring Diagram in this Section.

When the optional refrigeration thermostat is factory installed, it will be located in the electrical raceway at the left-hand end of the case and with its sensing bulb fastened below the front shelf support.

DEFROST TERMINATION THERMOSTAT

This thermostat will be mounted as shown in the above illustration. The thermostat leads will be identified in the electrical raceway. **When two or more fixtures operate on the same refrigeration system, this thermostat MUST be wired in series.** See the Wiring Diagram in this Section.

Each merchandiser will have electric defrost heaters and a defrost termination thermostat. The thermostat is factory installed on the evaporator. It is a non-adjustable, single-pole, single-throw type thermostat.

CONNECTIONS

All wiring must be in compliance with NEC and local codes. All electrical connections are made in the electrical raceway at the left-hand end of the merchandiser (facing front). The lower bumper rail must be removed for access to wiring.

IDENTIFICATION OF WIRING

Leads for all electrical circuits are identified by colored plastic bands. These bands correspond to the "color code sticker" (shown below) which is located inside of the merchandiser's raceway.

The defrost heaters, defrost termination thermostats, and refrigeration thermostats are tagged with identification as defrost and refrigeration controls.

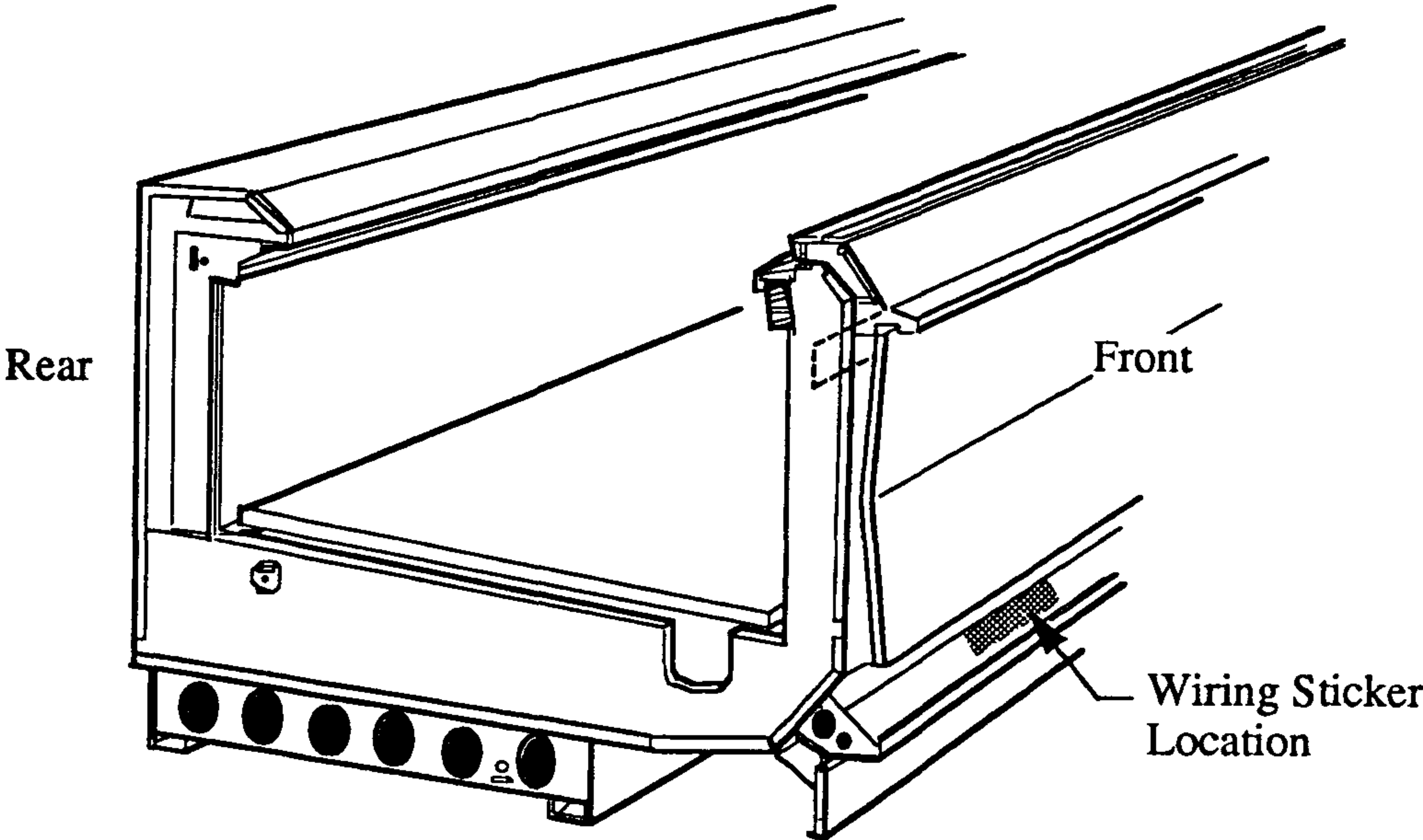
WIRING COLOR CODE

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

*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 amp 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. 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 | | | | | | 208V 1PH 60Hz Electric Defrost Heater (5) |
|--|-----------------|--------------------------------------|---|--|--|---|---|
| | Fans (1) | Anti-Sweat Heaters | | Lighting | | GAS Supplemental Heaters (4) | |
| | | With Rear Rail Overhang (1) | Without Rear Rail Overhang (1) | With Optional Rear Rail Overhang (2) | With Optional Super- structure (3) | | |
| Wall GF-GC 8 ft 12 ft | 1.2 1.8 | 1.4 2.2 | 1.0 1.5 | 0.8 1.3 | 5.2 7.9 | 0.2 0.2 | 8.2 12.1 |
| Narrow Island GG GGC 8 ft 12 ft | 1.2 1.8 | — — | 0.7 1.0 | — — | — — | 0.2 0.2 | 8.2 12.1 |
| Intermediate Island GTF-GTC 8 ft 12 ft | 1.2 1.8 | — — | 0.7 1.0 | — — | 7.1 10.4 | 0.2 0.2 | 10.5 15.7 |
| Free Standing GFFS-GCFS 6 ft | 0.6 | — | 1.0 | — | — | 0.2 | 5.1 |

Notes:

(1) Fans and anti-sweat heaters should be on a separate circuit from the lights to avoid turning them off with the store lights. Fans are run continuously.

(2) This circuit will be required only when the case is equipped with the optional lighted rear rail overhang.

(3) This circuit will be required only when the case is to be equipped with the optional superstructure with lighted shelves. The value given is for the maximum number of shelves that can be installed in the superstructure. These values include the current requirement for the anti-sweat heaters in the optional superstructure kit.

(4) This circuit is for the heater that is controlled by a disc type thermostat mounted on the evaporator, and is energized during Gas defrost only. It may be connected in parallel with the fan and anti-sweat heater circuit.

(5) Electric defrost ONLY. Not required for Gas defrost.

Single Deck, Free Standing, Wall, Narrow & Intermediate Frozen Food / Ice Cream GF, GC, GFFS, GCFS, GG, GGC, GTF & GTC

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 For 12' Only.

Anti-sweat Heaters

7 8 9 10

10 Discharge Nosing Heater

9 Return Nosing Heater

Rear Cap or Wall 7 Rear Overhang (Wall Only) 8

Optional
Super Structure
Receptacle

Additional Receptacle, Intermediate Only

Evaporator Fans All 8' & 12' Models

1 2

Evaporator Fan, 6' Free Standing

1 2

Brown

Brown

Purple

Orange

Purple

120V Only

120V Only

120V Only

Electrical Connection Box

Electric Defrost Heaters

Finned Heaters

Intermediate model has 2 heaters

Free Standing, Narrow and Wall models have 1 heater

Drip Pan Heaters

Narrow and Intermediate models have 1 heater

Free Standing has none

3 4 5

Gas Waste Outlet Heater

Defrost Heater
Switch 13

6 13

Defrost Termination Thermostat

12

Refrigeration Thermostat

11

Pink (Low-Temp)

Dark Blue

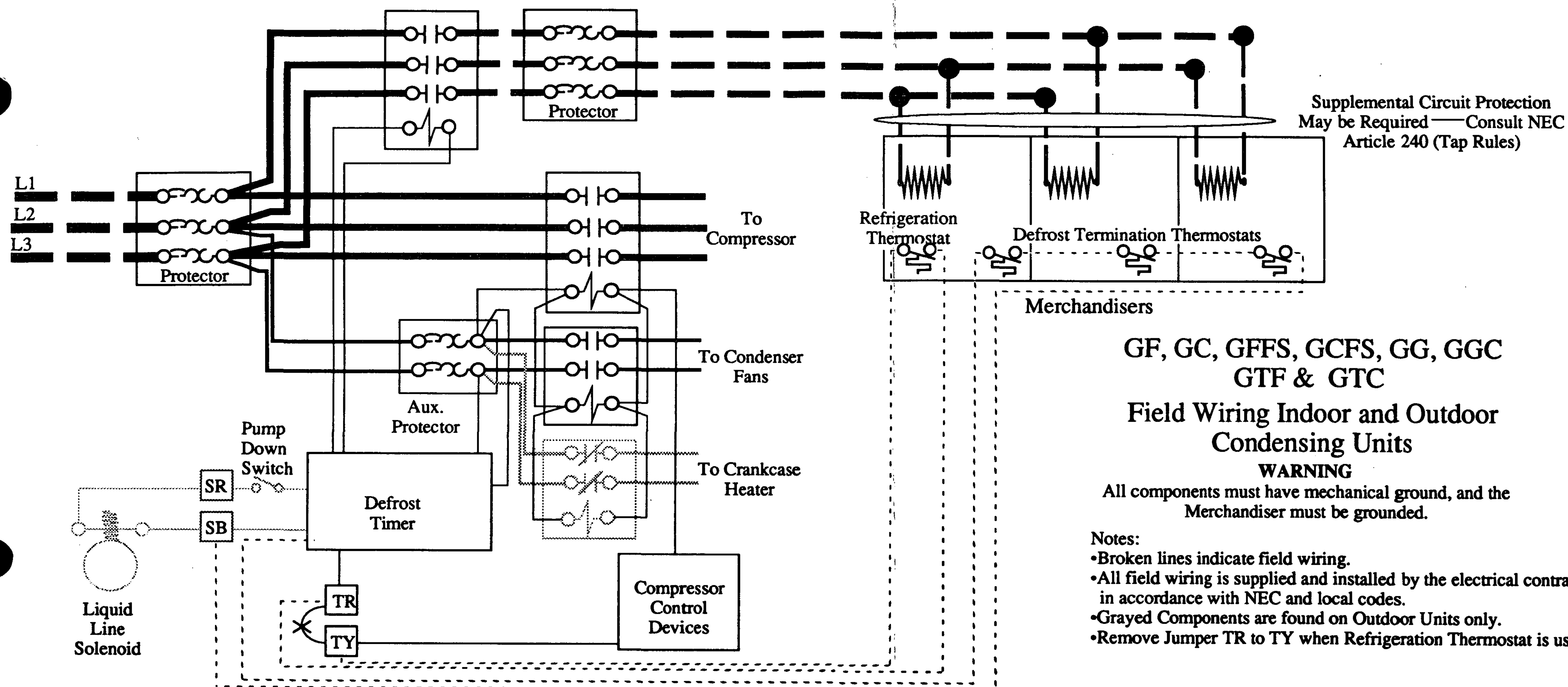
To
Condensing
Unit

To Defrost Contactor 208V

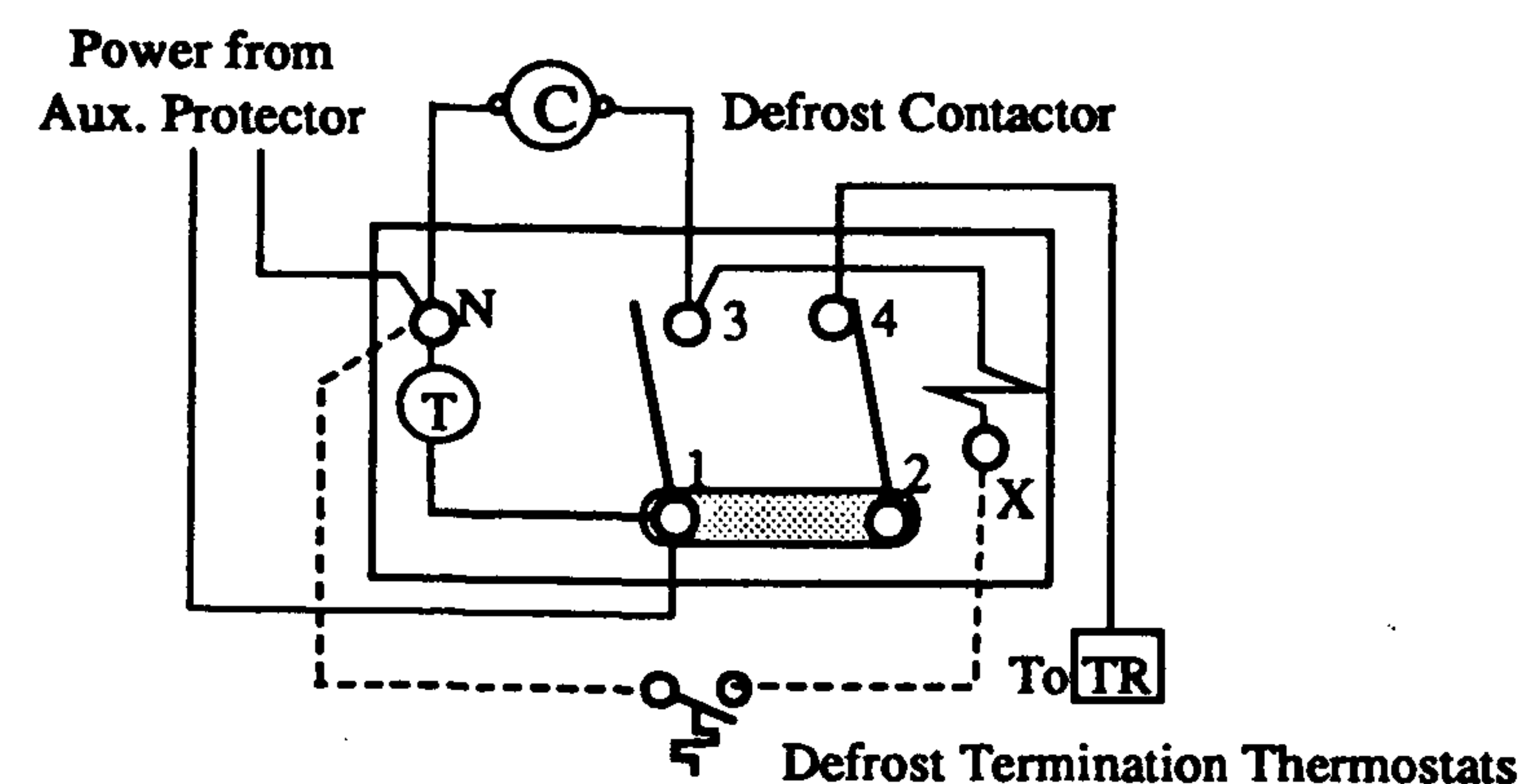
Yellow

120V Only

Electrical Connection Box



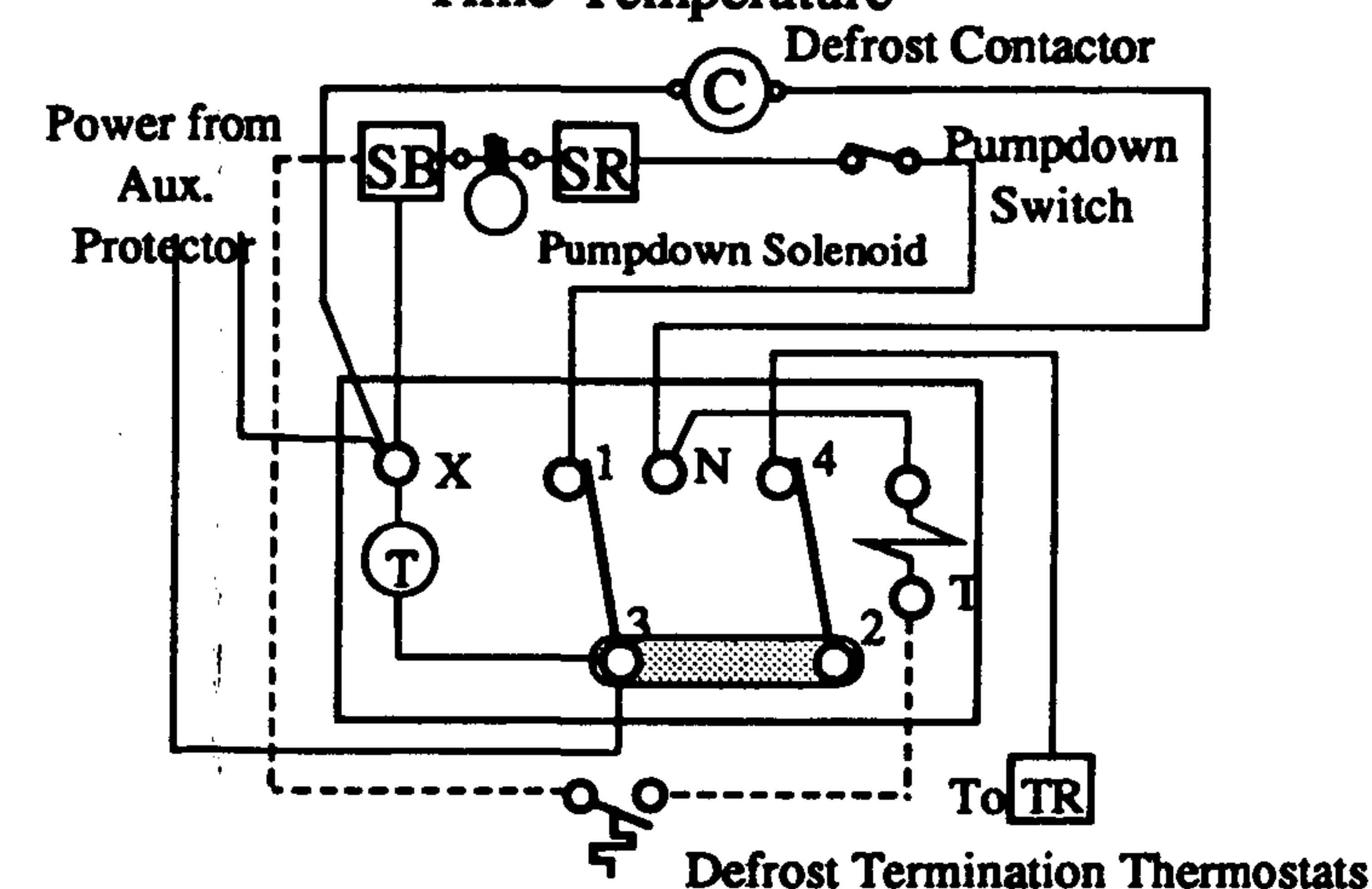
**8145 Clock
Indoor
Electric
Time-Temperature**



**A633 Clock
Outdoor**

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

**Electric
Time-Temperature**



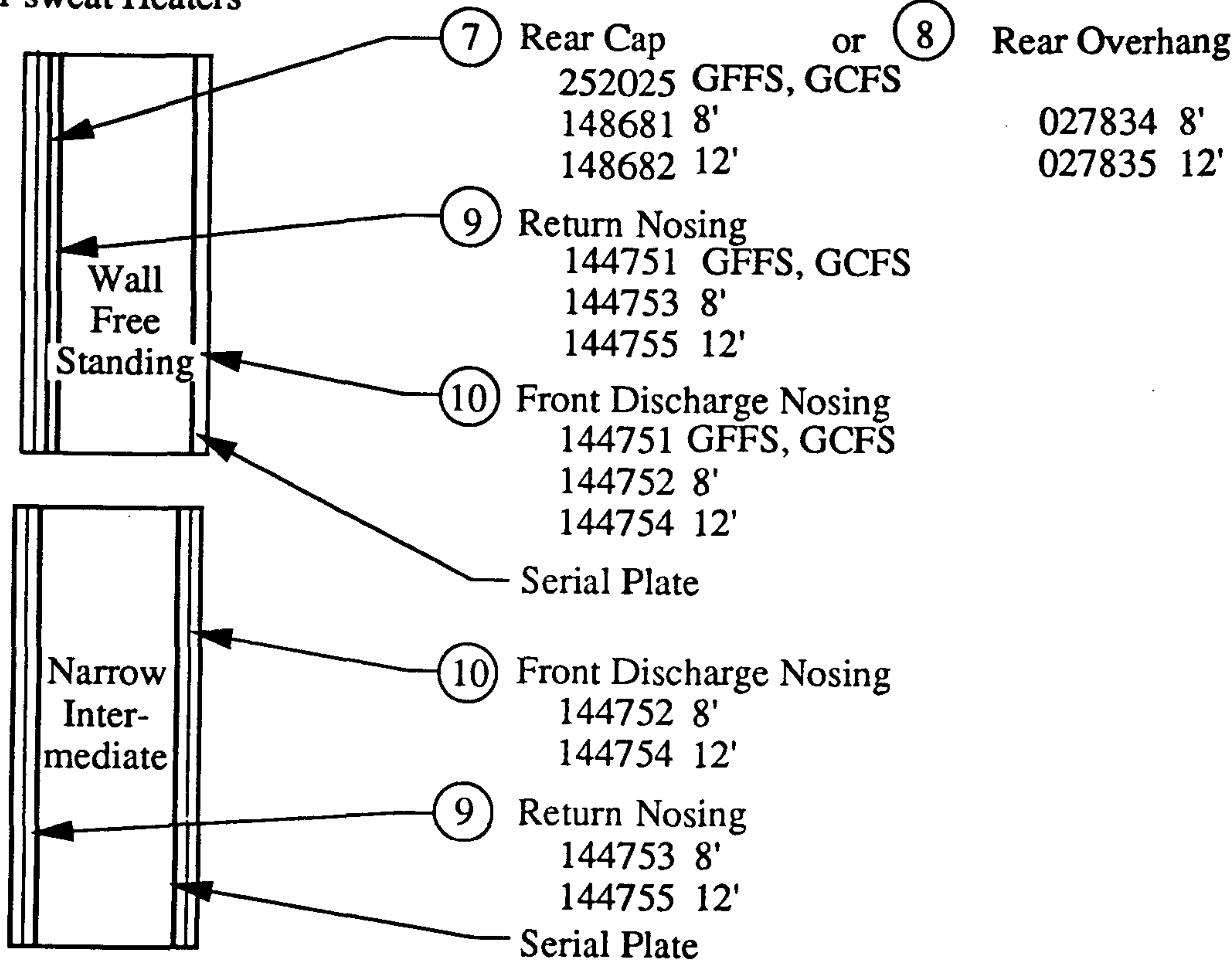
ELECTRICAL REPLACEMENT PARTS

| ITEM | PART NO. | DESCRIPTION | USED ON |
|-------------------------|----------|---|---|
| Fans | | | |
| 1. | 0058698 | Fan Motor, Evaporator, 120V, 6W, CW GE #KSM51ECG3264 | All |
| 2. | 0252116 | Fan Blade – Morrill FV700 CW 15S Embossing toward motor | All 8 ft & 12 ft Except Intermediate |
| | 0136260 | Fan Blade – Morrill FV700 CW 20S Embossing toward motor | Intermediate 8 ft & 12 ft |
| | 0136261 | Fan Blade – Morrill FV700 CW 25S Embossing toward motor | Free Standing |
| Electric Defrost | | | |
| 3. | 0252030 | Defrost Heater – Finned 5.1 amp, 208V, 41 ohms | Free Standing |
| | 0144619 | Defrost Heater – Finned 6.9 amp, 208V, 30 ohms | All 8 ft Except Intermediate |
| | 0144620 | Defrost Heater – Finned 10.2 amp, 208V, 20 ohms | All 12 ft Except Intermediate |
| 4. | 0309624 | Defrost Heater LH, 4.6 amps, 208V, 45 ohms | 8 ft Intermediate |
| | 0309626 | Defrost Heater LH, 6.9 amps, 208V, 30 ohms | 12 ft Intermediate |
| | 0309625 | Defrost Heater RH, 4.6 amps, 208V, 45 ohms | 8 ft Intermediate |
| | 0309627 | Defrost Heater RH, 6.9 amps, 208V, 30 ohms | 12 ft Intermediate |
| 5. | 0254027 | Drip Pan Heater – Electric Defrost 1.3 amp, 208V, 160 ohms | All 8 ft |
| | 0254028 | Drip Pan Heater – Electric Defrost 1.9 amp, 208V, 109 ohms | All 12 ft |
| Gas Defrost | | | |
| 6. | 0254641 | Waste Outlet Heater – Gas Defrost 0.16 amp, 120V, 737 ohms | All |

ELECTRICAL REPLACEMENT PARTS

| ITEM NO. | PART NO. | DESCRIPTION | USED ON |
|--------------------|----------|--|--------------------------------|
| Anti-Sweat Heaters | | | |
| 7. | 0252025 | Anti-Sweat Heater – Rear Cap 0.65 amp, 120V, 185 ohms | Free Standing |
| | 0148681 | Anti-Sweat Heater – Rear Cap 0.21 amp, 120V, 385 ohms | 8 ft Wall |
| | 0148682 | Anti-Sweat Heater – Rear Cap 0.46 amp, 120V, 260 ohms | 12 ft Wall |
| 8. | 0027834 | Anti-Sweat Heater – Rear Overhang 0.83 amp, 120V, 144 ohms | Optional on 8 ft Wall Only |
| | 0027834 | Anti-Sweat Heater – Rear Overhang 1.29 amp, 120V, 93 ohms | Optional on 12 ft Wall Only |
| 9. | 0144751 | Anti-Sweat Heater – Return Nosing 0.21 amp, 120V, 571 ohms | Free Standing |
| | 0144753 | Anti-Sweat Heater – Return Nosing 0.31 amp, 120V, 389 ohms | All 8 ft |
| | 0144755 | Anti-Sweat Heater – Return Nosing 0.46 amp, 120V, 262 ohms | All 12 ft |
| 10. | 0144735 | Anti-Sweat Heater – Front Discharge Nosing 0.31 amp, 120V, 385 ohms | All 8 ft |
| | 0144736 | Anti-Sweat Heater – Front Discharge Nosing 0.46 amp, 120V, 260 ohms | All 12 ft |
| Thermostats | | | |
| 11. | 0144732 | Refrigeration Thermostat | All |
| 12. | 0252112 | Defrost Termination Thermostat TI # 20425 F32-497-897 – Disc Type | All With Electric Defrost |
| 13. | 0122940 | Thermostat – Heater Cycling TI # 20420 F28-422-343 – Disc Type | Gas Defrost |

Anti-sweat Heaters



CARE AND CLEANING

Long life and satisfactory performance of any equipment is dependent upon the care you give it. To ensure long life, proper sanitation and minimum maintenance costs, the merchandisers should be thoroughly cleaned, all debris removed and the interior washed down at least every three months.

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.**

Interior Surfaces

The interior surfaces may be cleaned with most domestic detergents, ammonia based cleaners and sanitizing solutions with no harm to the surface.

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 pressure water hoses to wash the interior. These will destroy the merchandiser's 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.**

- Allow the merchandiser to dry before resuming operation.

Do NOT Use:

- Mineral oil based solutions, as these will dissolve the butyl sealants used in the merchandiser's construction.

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

STOCKING AND STOCK ROTATION

Product should not be placed in merchandiser until it has been in operation for approximately 5 hours. This will allow for adjustments and complete heat removal from the case.

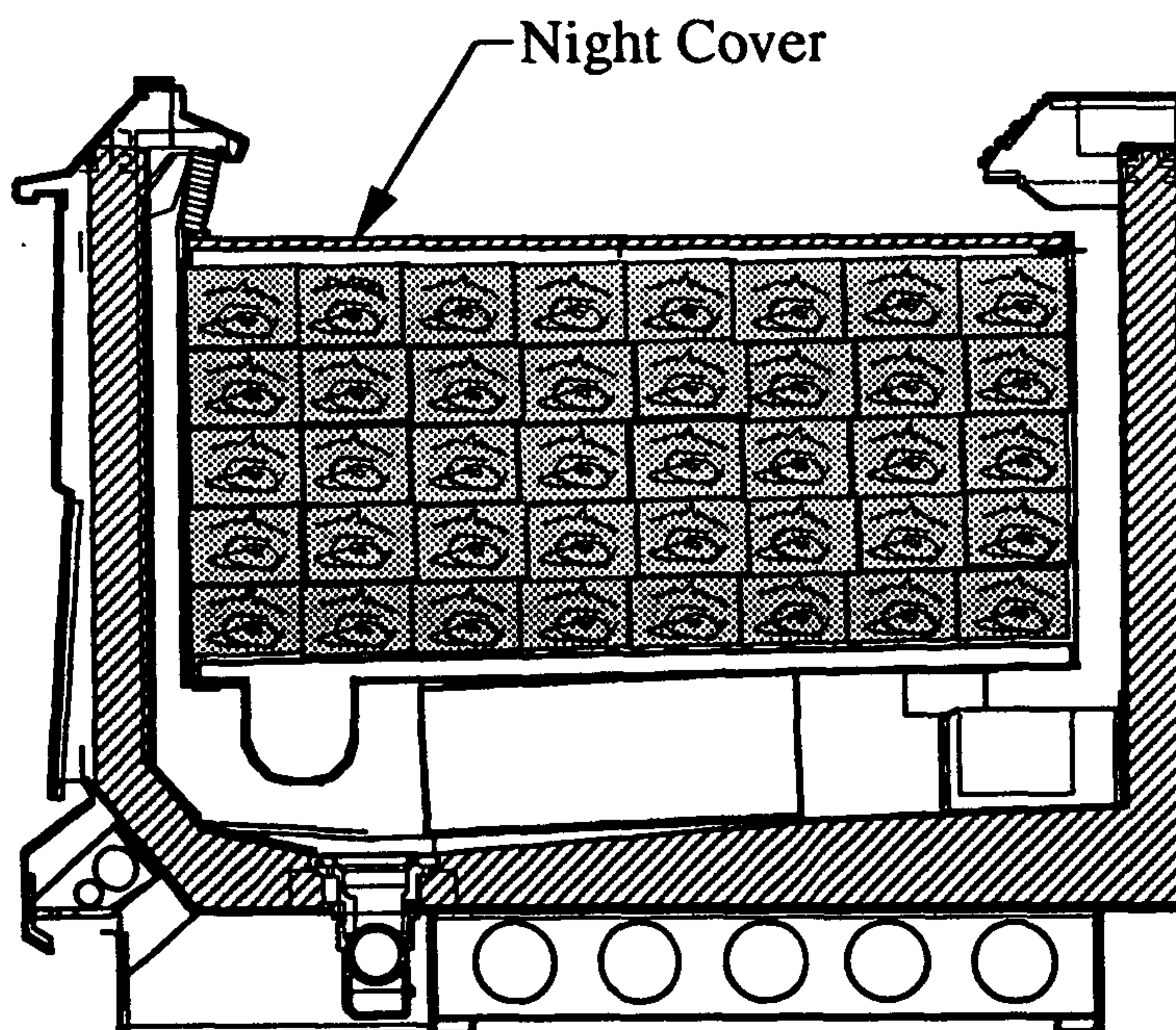
At no time should product be placed above the load limit line clearly marked on the merchandiser, **nor should the discharge or return flues be obstructed. Overloading the merchandiser will result in poor product and case temperature.**

Since ice cream and frozen foods are perishable and should not stay long on display, packages on display for a week should be rotated. Product rotation will also prevent excessive frost accumulation and sticking of packages.

NIGHT COVER USAGE

Night covers are supplied only when application is for ice cream display. These night covers should be placed flat on top of the packages each night at store closing. They should not extend above the load limit decal or block the air passage between the front honeycomb and the rear return flue.

The night covers are made of polished aluminum which prevents softening of the top packages from radiant heat or defrost air. Other materials that are porous or non-reflective will not give the same results. Frozen food products do not require night cover usage.



REPLACING ANTI-SWEAT HEATERS

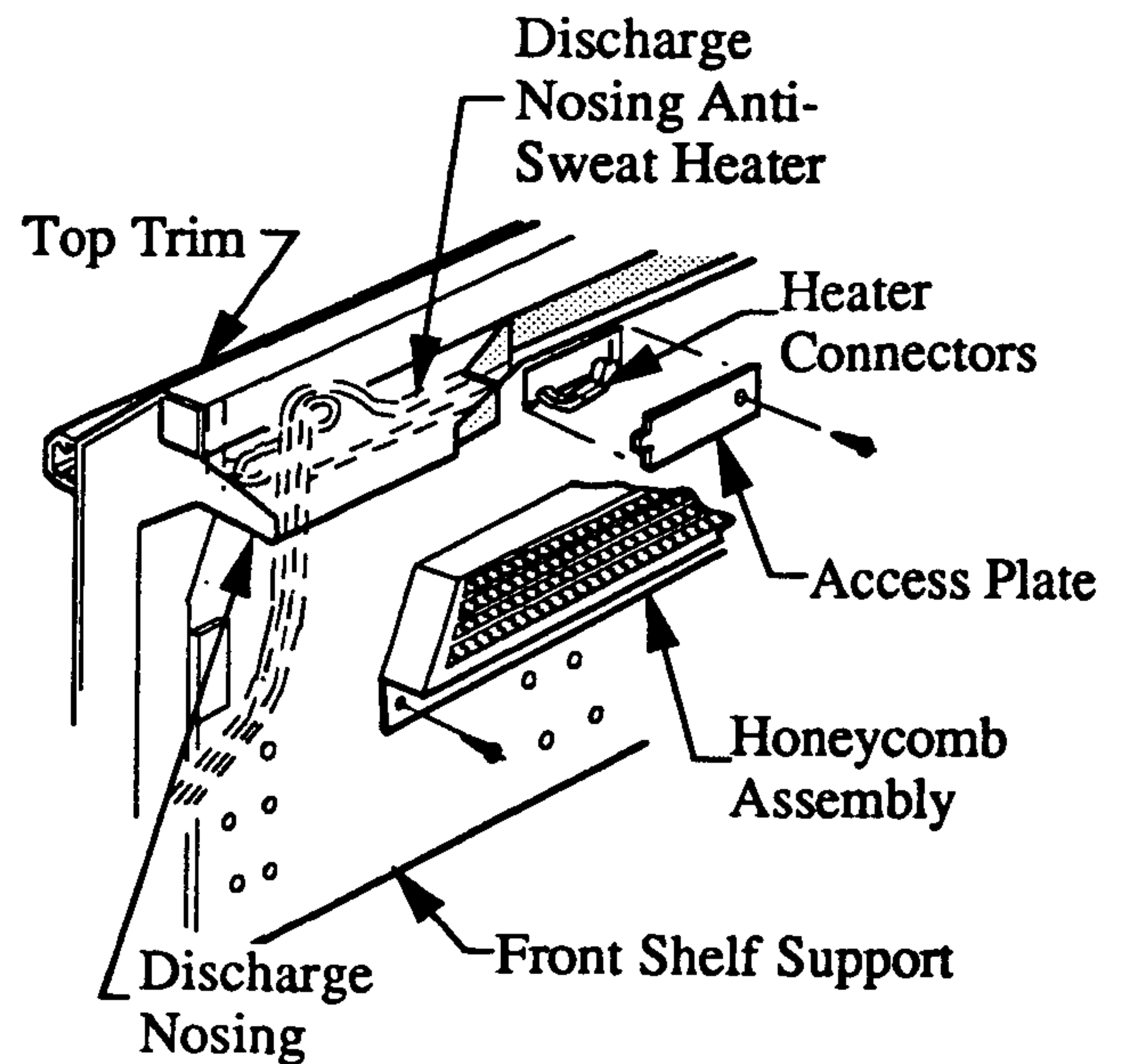
CAUTION: Do NOT remove heaters by cutting the heater wiring.
Disconnect heater at connector.

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.

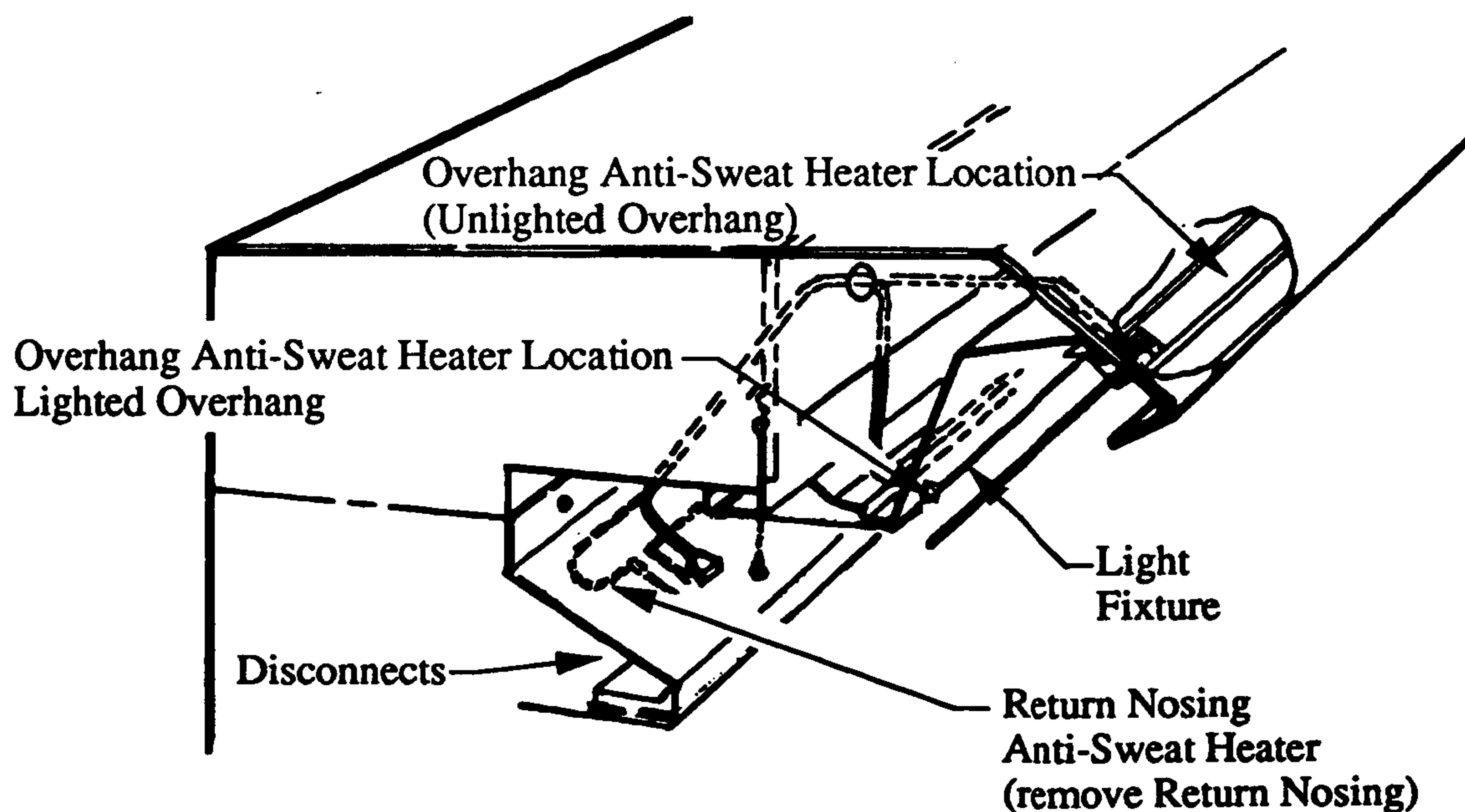
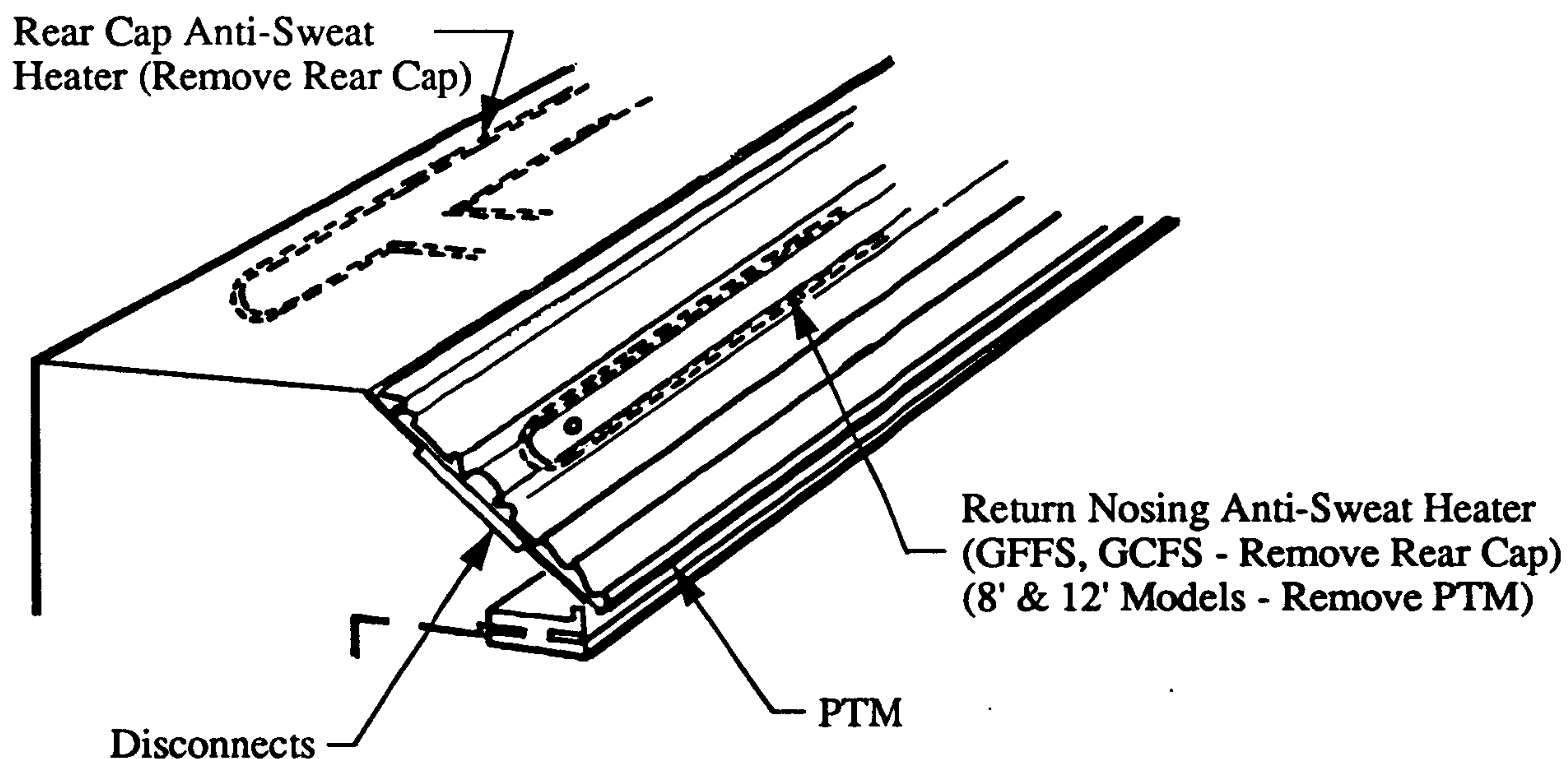
Discharge Nosing Heater

1. TURN OFF POWER TO ANTI-SWEAT HEATER CIRCUIT.
2. Remove top trim.
3. Remove discharge nosing.
4. Remove honeycomb and access plate.
5. Unplug heater at disconnect.
6. Remove heater.
7. Install new heater in reverse order of removal.



Return Nosing, Rear Cap or Rear Overhang Heaters

1. TURN OFF POWER TO ANTI-SWEAT HEATER CIRCUIT.
2. See illustrations for location of heaters and disconnect plugs.
3. Remove items as noted for access to heater.
4. Unplug heater at disconnect.
5. Remove heater.
6. Install new heater in reverse order of removal.



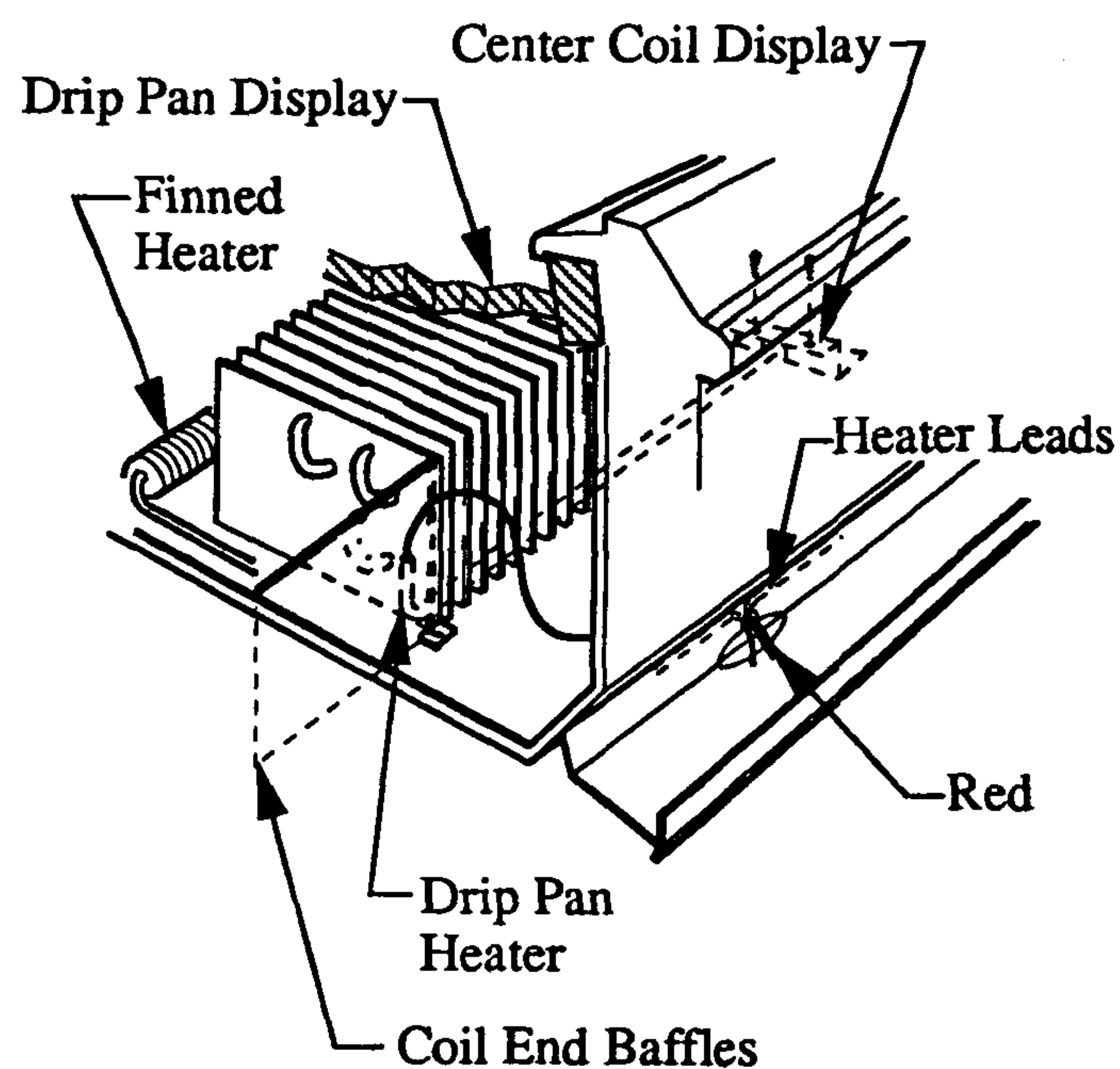
REPLACING DEFROST HEATERS

Finned Heater

1. Turn off power circuit.
2. Remove display pans.
3. Disconnect heater leads from connections inside electrical raceway (left front corner of merchandiser.)
4. Remove heater.
5. Install new heater in reverse order of removal. (Be sure to reconnect heater leads to correct condensing unit circuit.)

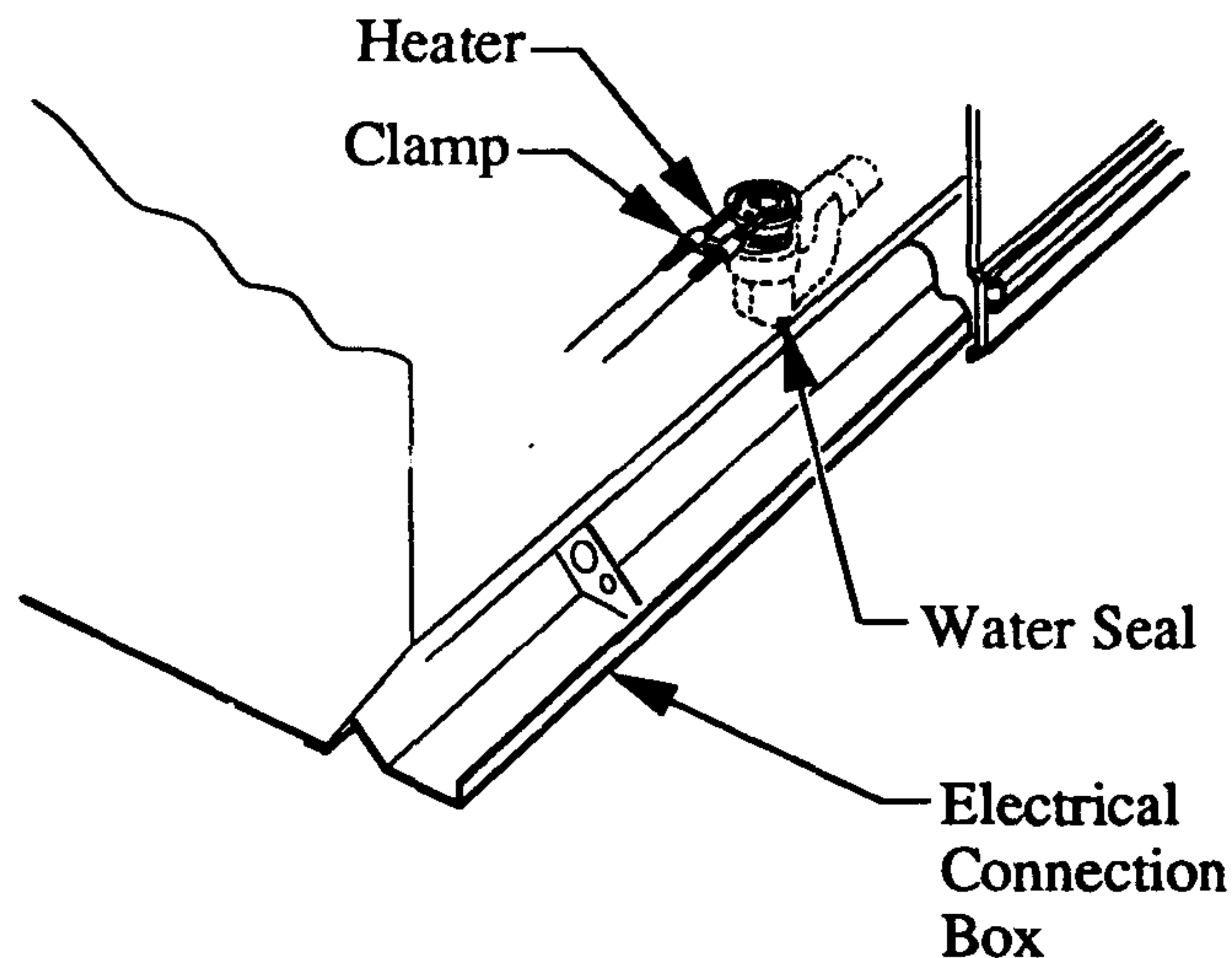
Drip Pan Heater

1. Turn off power circuit.
2. Loosen the front retainer nut of the coil at both ends.
3. It may be necessary to remove the coil end baffles.
4. Slide the drain pan heater and retainer out from under front of coil
5. Disconnect heater leads from connections inside electrical raceway (left front corner of merchandiser.)
6. Remove heater.
7. Install new heater in reverse order of removal. (Be sure to reconnect heater leads to correct circuit.)



REPLACING WASTE OUTLET HEATER (GAS DEFROST)

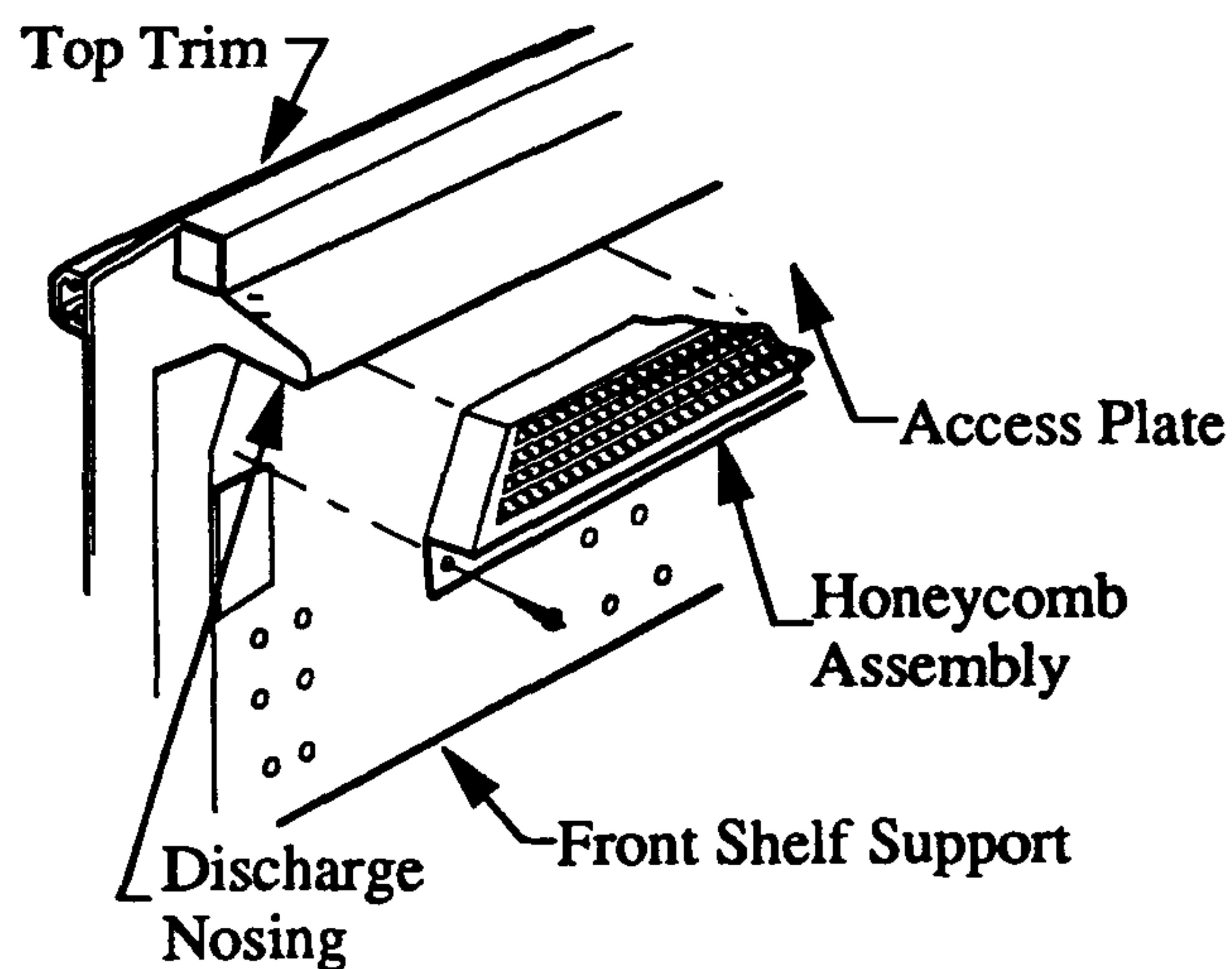
1. TURN OFF POWER TO HEATER CIRCUIT.
2. Unscrew clamps holding heater.
3. Disconnect heater from fan and anti-sweat heater 120 volt circuit.
4. Remove heater.
5. Install new heater in reverse order of removal. (Be sure to reconnect heater leads to correct circuit.)



CLEANING OR REPLACING HONEYCOMB

To remove the discharge honeycomb:

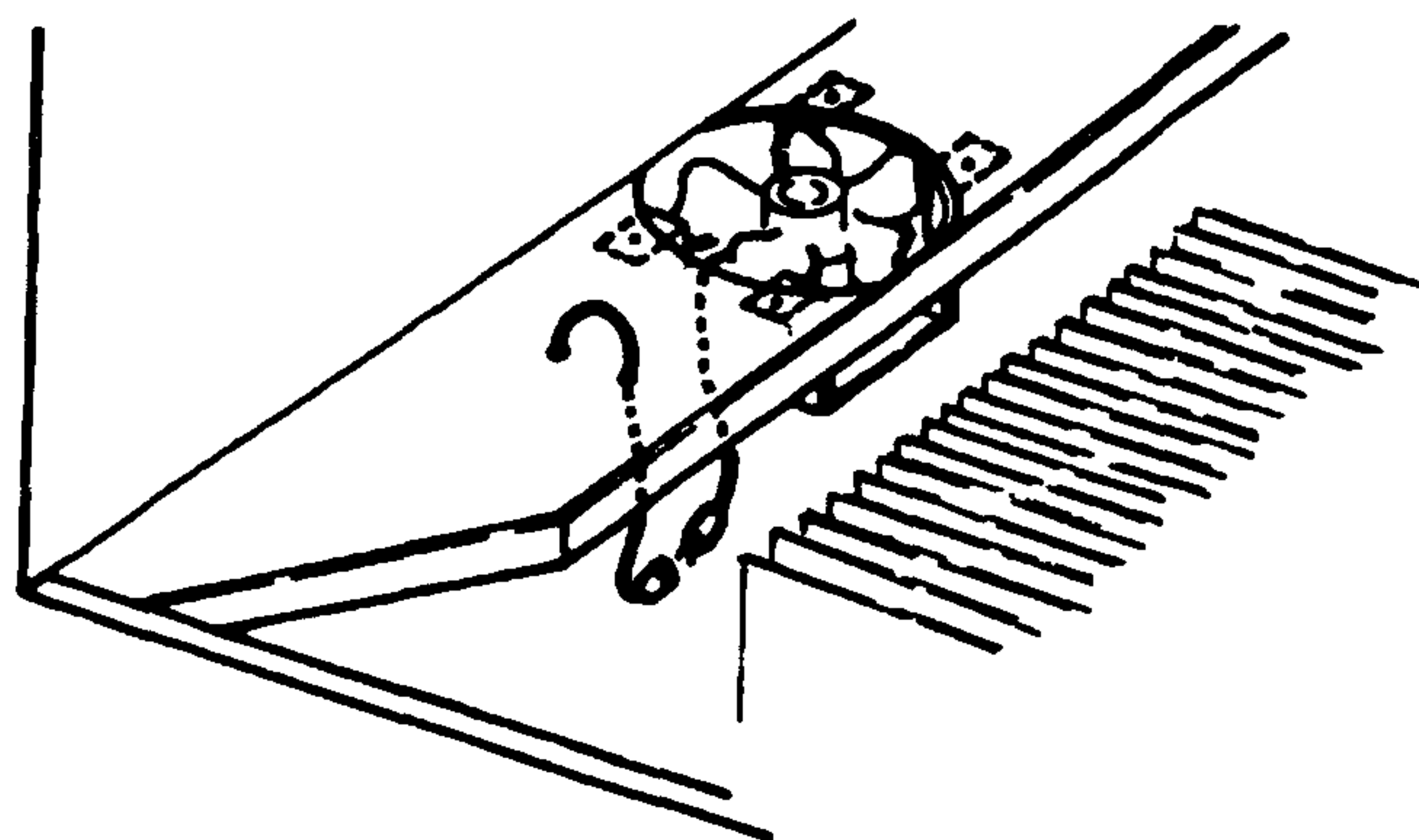
1. Remove screws which fasten the honeycomb discharge assembly to the front shelf support (directly below the honeycomb assembly).
2. Remove the honeycomb discharge assembly.
3. To clean the honeycomb use either a vacuum or soap and water. Be sure to rinse the honeycomb and dry it thoroughly prior to replacing it in the merchandiser.
4. Install honeycomb discharge assembly in reverse order. Be sure honeycomb is nested behind plastic extrusion.



REPLACING FAN MOTORS AND BLADES

The evaporator fans are located directly beneath the display pans. Should the fans or blades ever need servicing, always replace the fan blades with the raised embossed side of the blade toward the motor.

1. Remove bottom display pans.
2. Disconnect fan from wiring harness.
3. Remove fan blade.
4. Remove screws which hold fan bracket to plenum.
5. Lift bracket and motor up and out through fan plenum.
6. Replace in reverse order.



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
(616) 243-2531

X-Ergon
1570 E. Northgate
P.O. Box 2102
Irving, TX 75062
(800) 527-9916

NOTE:

Hussmann Aluminum melts at1125° F
Aladdin 3-in-1 rod at732° F
X-Ergon Acid core at455° F
Factory Solder at aluminum
to copper transitions855° 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.