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DM & DMD

Multideck Dairy and Delicatessen
Merchandisers

INSTALLATION / SERVICE INSTRUCTIONS

P/N 258552L

February, 1994
Section 5

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Revisions ("L")

1. Parts List, Page ii.
2. Plan View and Cross Sections, Page 1-2.
3. Installing Splashguard, Page 2-6.
4. Revised Control Settings, Page 3-2.
5. Removed TEV and Distributor Chart.
6. Field Wiring and Electrical Data, Page 4-2.
7. Electrical Schematics, Page 4-3.

IMPORTANT

KEEP IN STORE FOR FUTURE REFERENCE

Quality that sets industry standards

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

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REPLACEMENT PARTS LIST

ii

		Part	
	Item	Number	Description
1.	0047000	Fan Motor, Dairy Only	
		120V, 9W, CW	
		GE #KSM51ECG3799	
	0045781	Fan Motor, Deli Only	
		120V, 30W, CW	
		GE #5KSP51GL-295HS	
2.	0124150	Fan Blade, Dairy Only	
		embossing toward motor	
		Morrill #FV800 CW 30S	
	0135659	Fan Blade, Deli Only	
		embossing toward motor	
		Torrington JU-850-G CW	
		Air Drive AD8CW50VB-6	
3.	0147091	Ballast 1 lamp	
		GE #8G3900	
4.	0137843	Ballast 2 lamps	
		GE #8G1141 WT	
5.	0143354	Ballast 1 lamp, Shelf	
		GE #6G1075	
6.	0137846	Fluorescent Lamp, 8 Foot	
		F96T12/CW/HO	
7.	0137847	Fluorescent Lamp, 12 Foot	
		F72T12/CW/HO	
8.	0020725	Fluorescent Lamp, Shelf	
		F40T12 CWX	
9.	0137880	Refrigeration Thermostat	
		WR #1609-103	
10.	0113625	Defrost Termination Thermostat	
		Penn #A19GD-21	
11.	0131434	Defrost Heater, 8 Foot Only	
		208V, 5.2 A, 40Ω	
	0131435	Defrost Heater, 12 Foot Only	
		208V, 7.8A, 27Ω	

GENERAL INFORMATION

1-1

MODEL DESCRIPTIONS

The DM and DMD models are multideck refrigerated merchandisers designed for Dairy and Delicatessen products. Both models are available in three different lower front heights: 18 inch, 22 1/2 inch (A), and 27 inch (H). Dairy modes may be ordered with either front (Z) stocking or rear (X) stocking capabilities.

The rear stocking models are designed to be installed against an opening in the cooler wall. These models have rear sliding doors through which the product can be stocked directly from the cooler.

This instruction covers the merchandisers listed below. Basic design features are listed to the right of each case. ALL MODELS ARE AVAILABLE IN EITHER 8 OR 12 FOOT LENGTHS AND ALL HAVE 5 LEVELS (4 SHELVES). A variety of merchandising accessories are available, see page 5-3.

DM(8 or 12)Z	Multideck Dairy, 18 inch front, front loading
DM(8 or 12)ZA	Multideck Dairy, 22 1/2 inch front, front loading
DM(8 or 12)ZH	Multideck Dairy, 27 inch front, front loading
DM(8 or 12)X	Multideck Dairy, 18 inch front, rear loading
DM(8 or 12)XA	Multideck Dairy, 22 1/2 inch front, rear loading
DM(8 or 12)XH	Multideck Dairy, 27 inch front, rear loading

DMD(8 or 12)Z	Multideck Deli, 18 inch front, front loading
DMD(8 or 12)ZA	Multideck Deli, 22 1/2 inch front, front loading
DMD(8 or 12)ZH	Multideck Deli, 27 inch front, front loading

APPLICATION

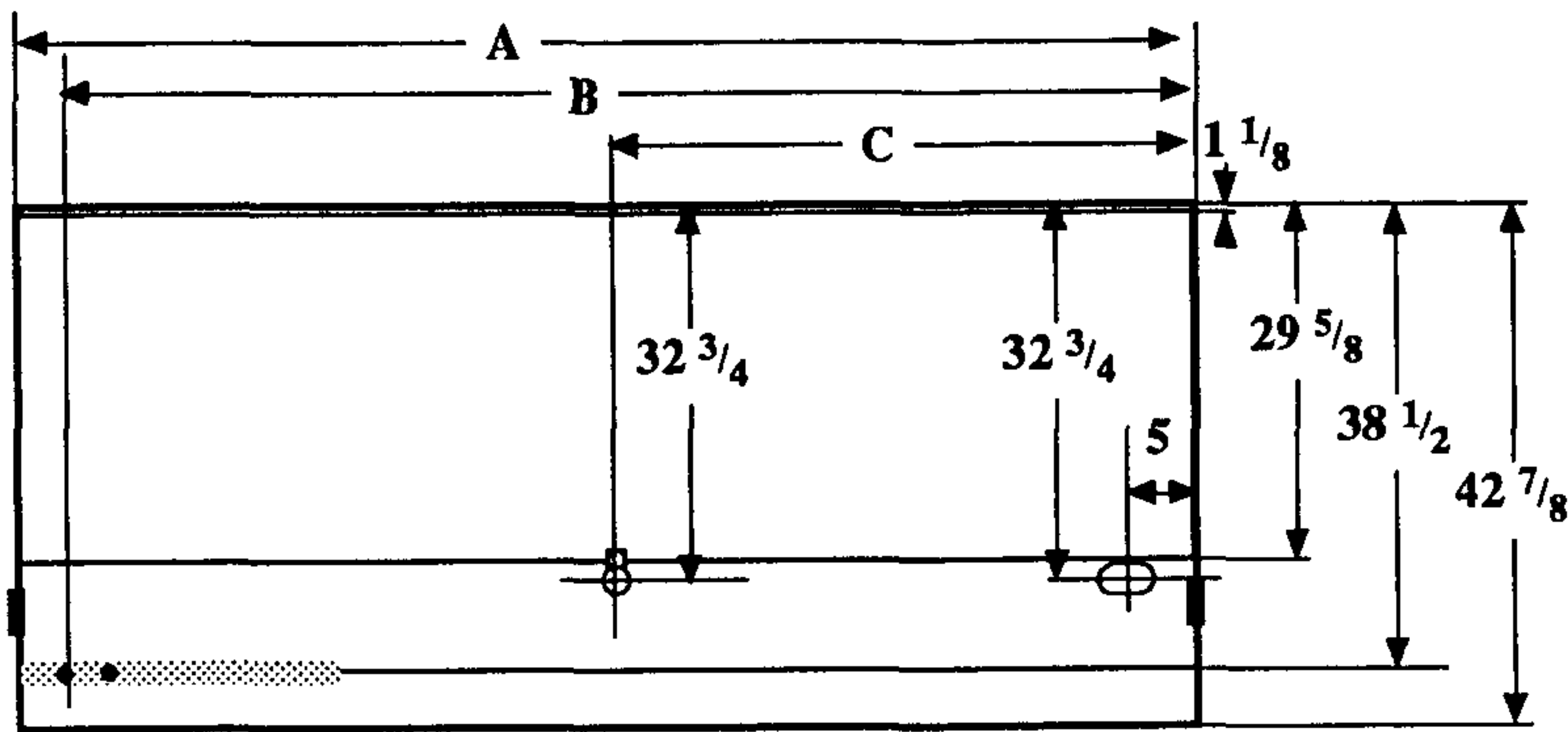
These medium temperature merchandisers are designed for displaying dairy or delicatessen products in air conditioned stores where temperature and humidity are maintained at or below 75°F dry bulb temperature and 55% relative humidity.

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

GENERAL INFORMATION

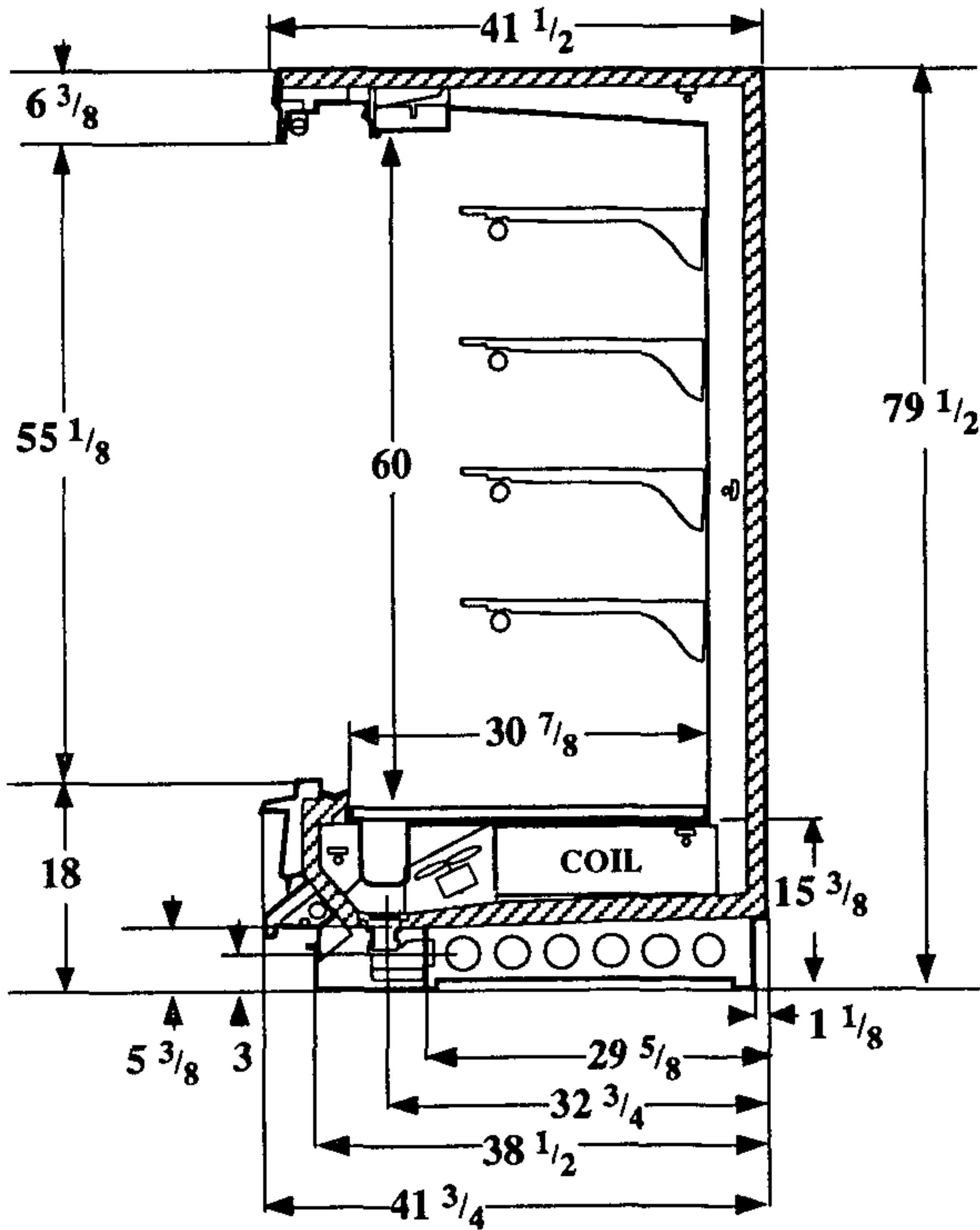
1-2

DM-Z	DM-X	DMD-Z
DM-ZA	DM-XA	DMD-ZA
DM-ZH	DM-XH	DMD-ZH

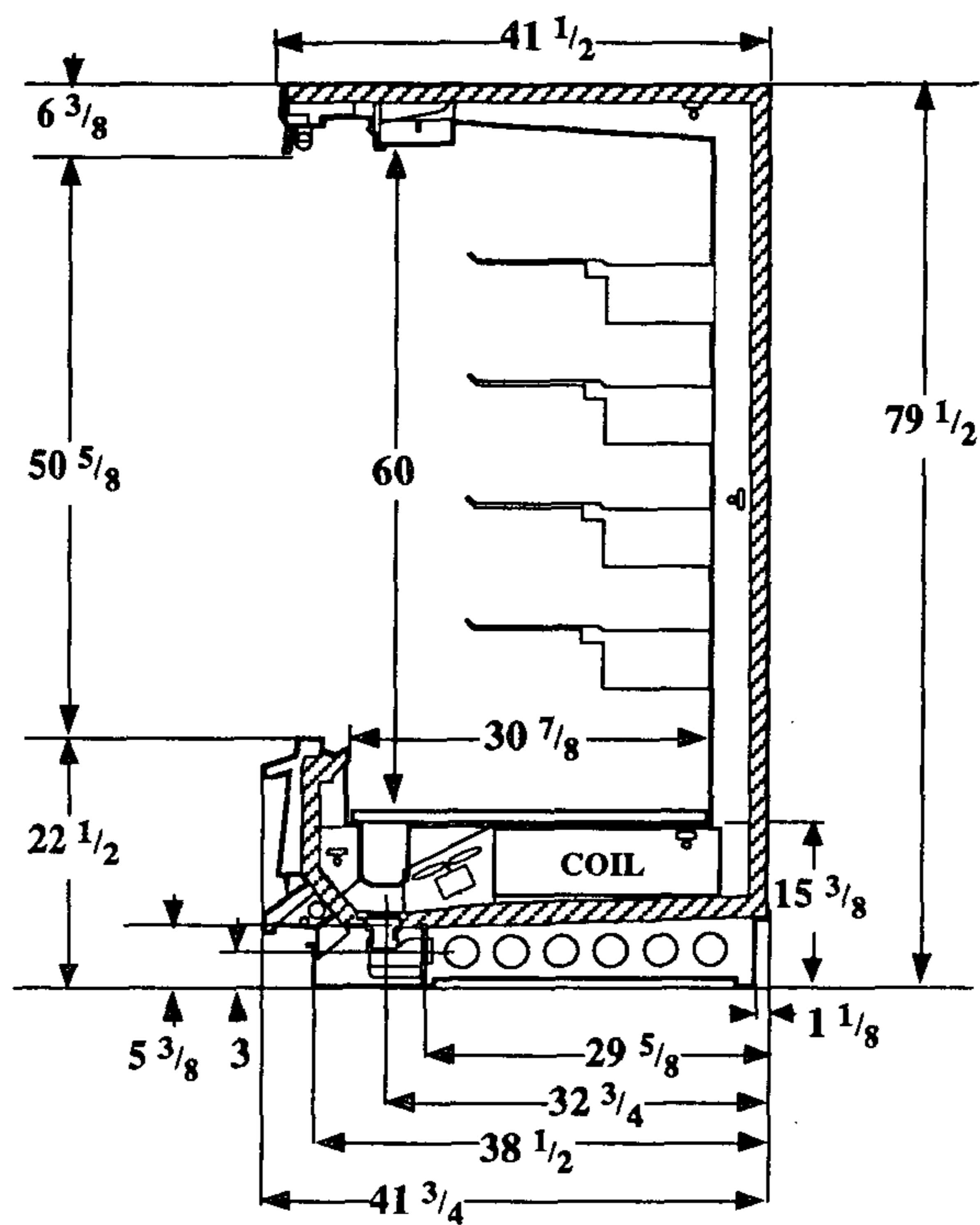


Electrical Service	Dimension	8' Case	12' Case
Waste Outlet	A	96 1/4	144 3/8
Refrigeration Outlet	B	92	140 1/8
Passageway Port	C	48 1/8	72 1/8

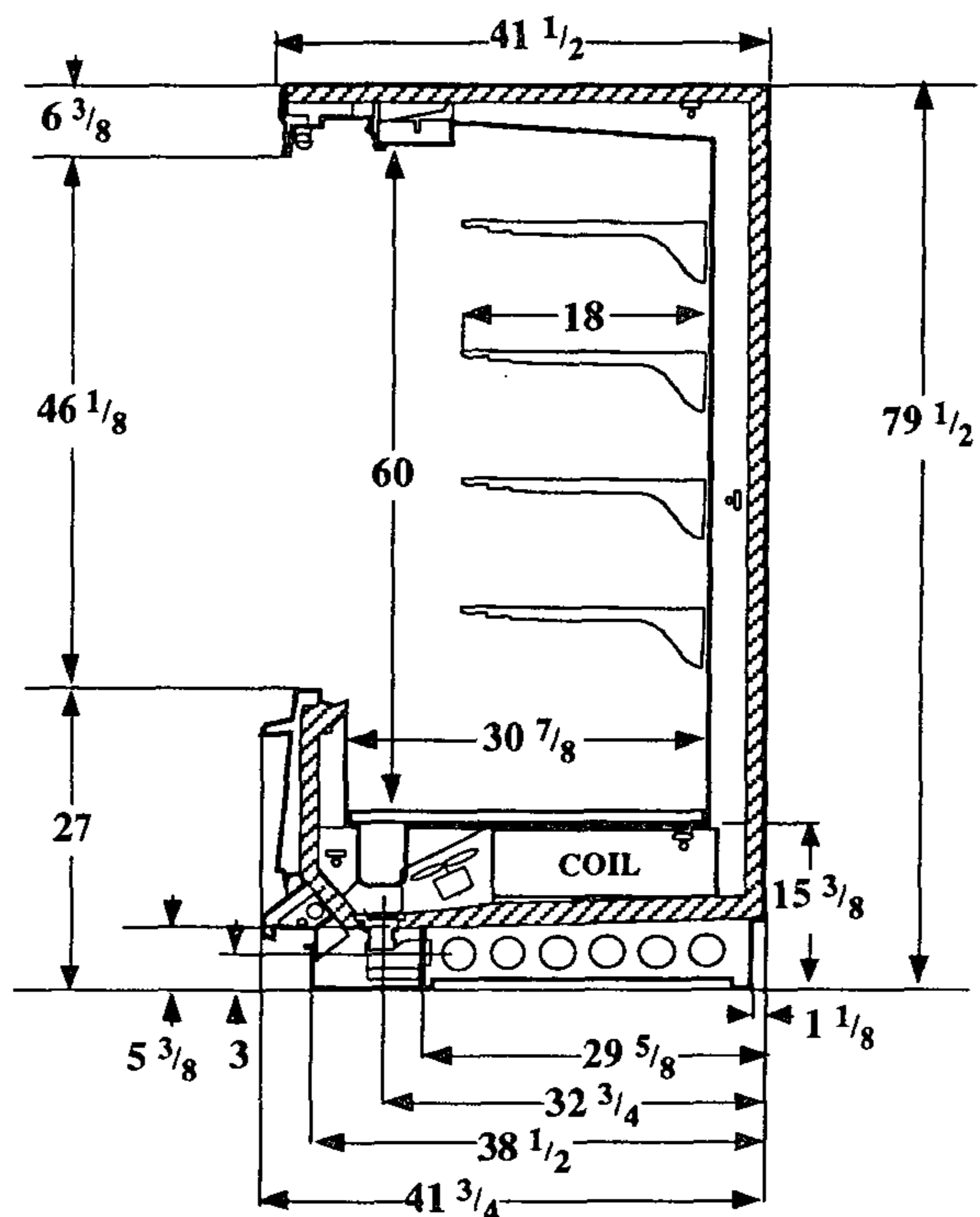
DM-Z	DM-X	DMD-Z
------	------	-------



DM-ZA DM-XA DMD-ZA



DM-ZH DM-XH DMD-ZH



INSTALLATION

2-1

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 merchandiser 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. REMOVE AND DISCARD THE SHIPPING SCREWS AT EACH END OF THE FAN PLENUM. The plenum is hinged for easy access to the area beneath the evaporator.

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.

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 the merchandisers will seriously impair their operation. Do NOT allow air conditioning, electric fans, open doors or windows, etc. to create air currents around merchandisers.

To prevent sweating on the exterior surfaces of merchandisers, there must be A MINIMUM CLEARANCE OF 4 INCHES between the merchandiser and other fixtures or walls.

INSTALLATION

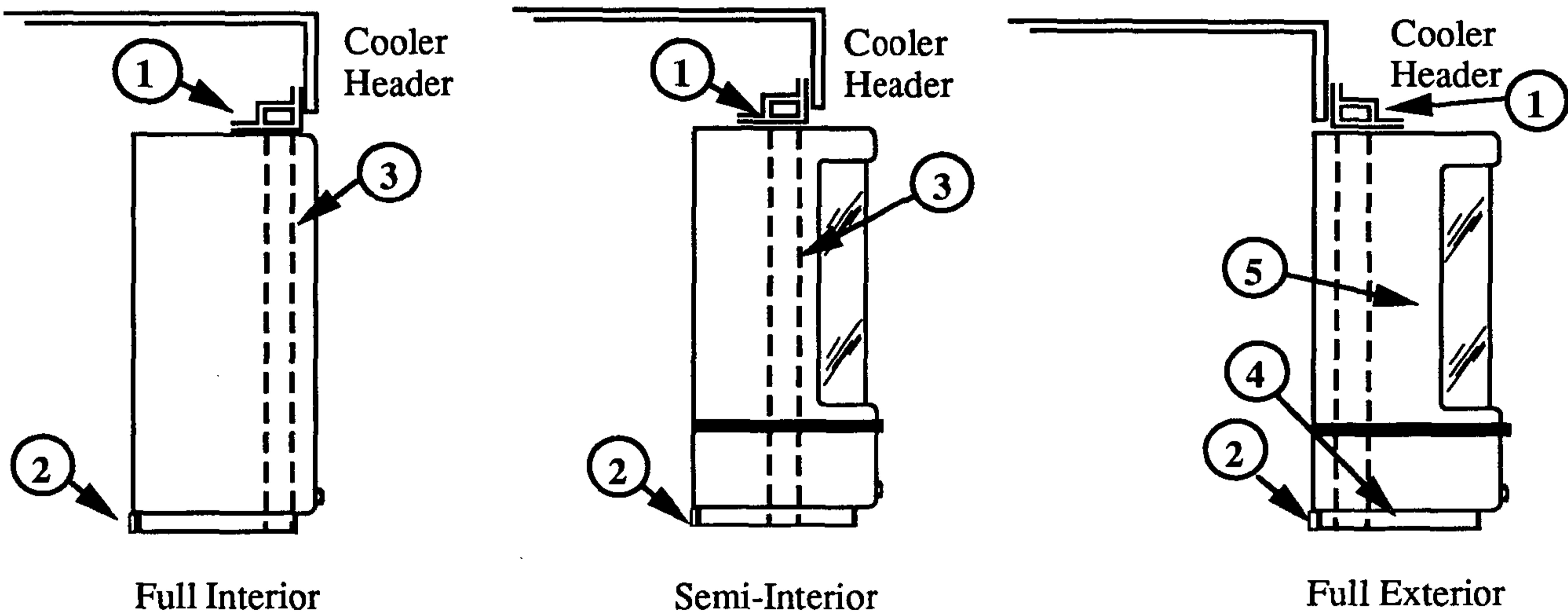
2-2

Rear Loading Merchandisers Only

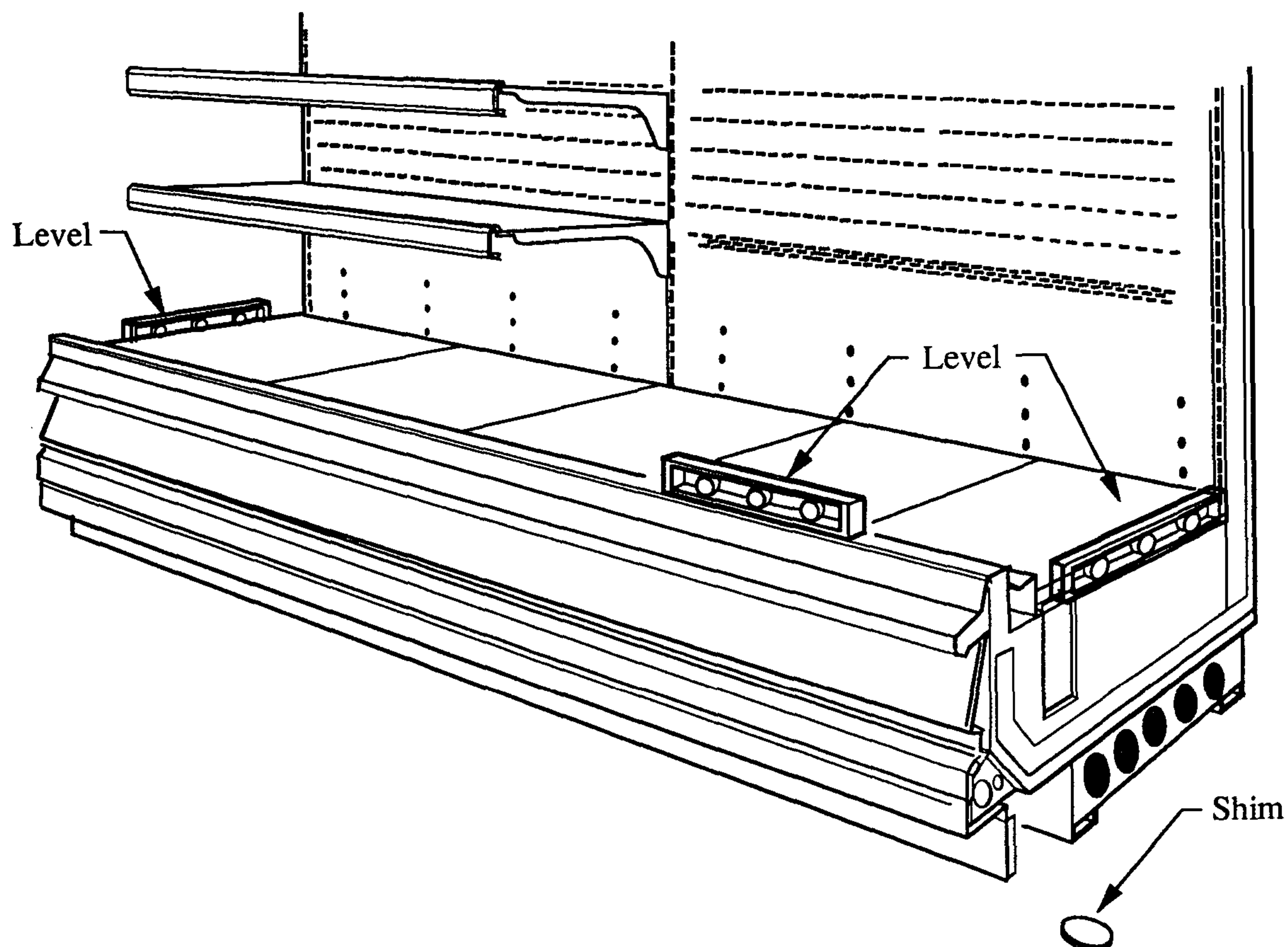
The rear loading models should be located in the cooler wall opening in the positions shown in the illustration below. The space between the cooler wall and the merchandiser, and along the base of the merchandiser that protrudes inside the cooler must be closed off with insulated panels, such as those provided in the Hussmann Closure Kits.

Spillage of milk, juices, etc. will occur in the cooler and if this spillage is allowed to flow beneath the merchandiser foul odors will permeate the cooler and the sales area since it is extremely difficult to clean beneath these merchandisers.

To maintain proper sanitation conditions, we suggest that the base rail of these fixtures be thoroughly sealed to the cooler floor wherever spillage might leak under the merchandiser.



Item	Description
1 and 2	Cooler to merchandiser close-off kit. To install, see kit instructions.
3 and 4	End close-off—merchandiser inserted. To install, see kit instructions.
5	End close-off—merchandiser outside. To install, see kit instructions.



LEVELING

Merchandisers must be installed level to ensure proper operation of the refrigeration system and to ensure proper drainage of defrost water. When leveling merchandisers, use a carpenter's level as shown. Leveling shims or wedges are provided with each merchandiser for use if needed.

NOTE: BEGIN LINEUP LEVELING FROM THE HIGHEST POINT OF THE STORE FLOOR.

JOINING

Sectional construction means that two or more merchandisers may be joined in line yielding one long continuous display requiring only one pair of ends. Joint kits and instructions are shipped with each merchandiser.

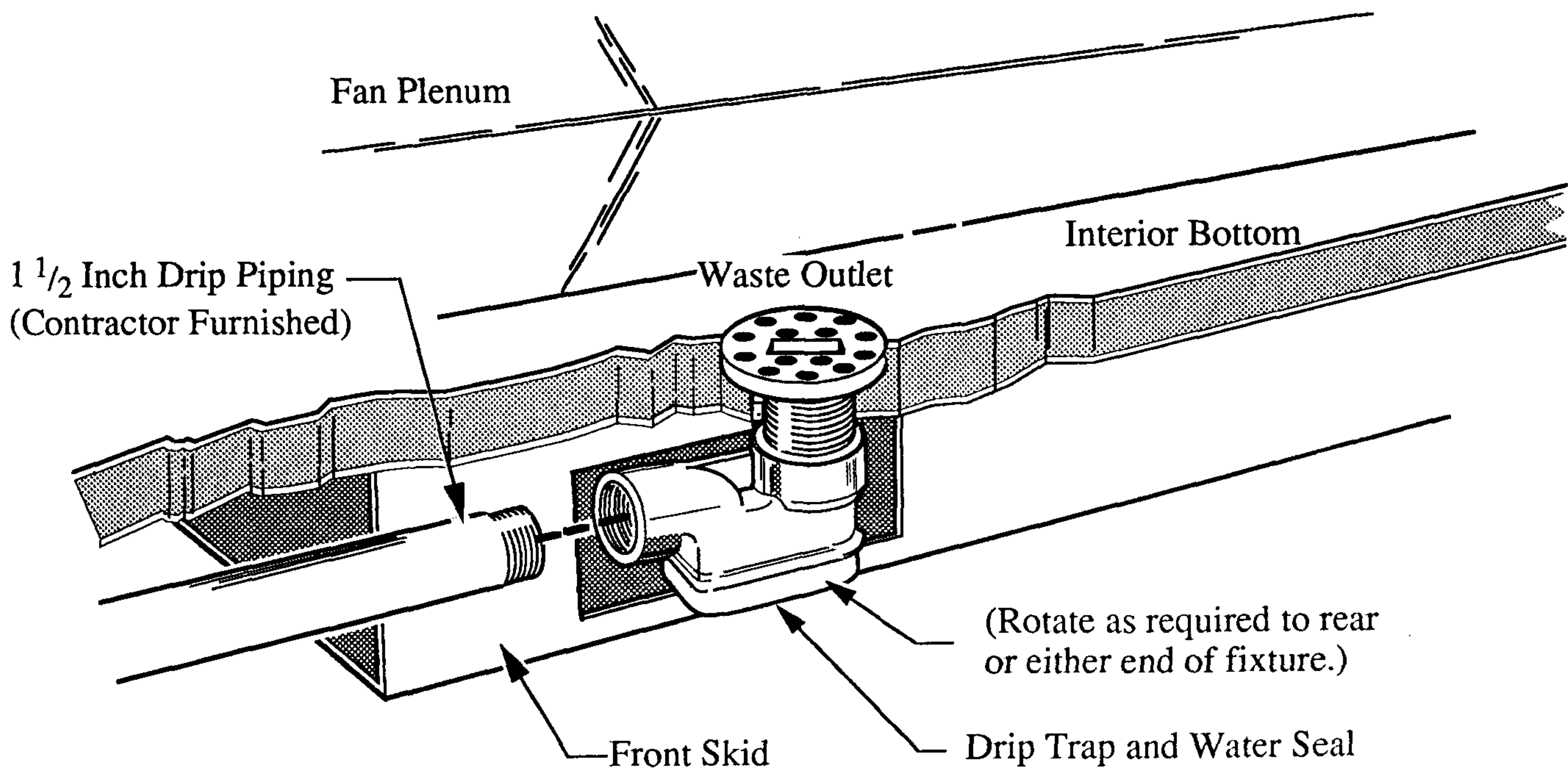
INSTALLATION

2-4

INSTALLING DRIP PIPING

Poorly or improperly installed drip pipes can seriously interfere with the merchandiser's 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 $\frac{1}{8}$ inch 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.

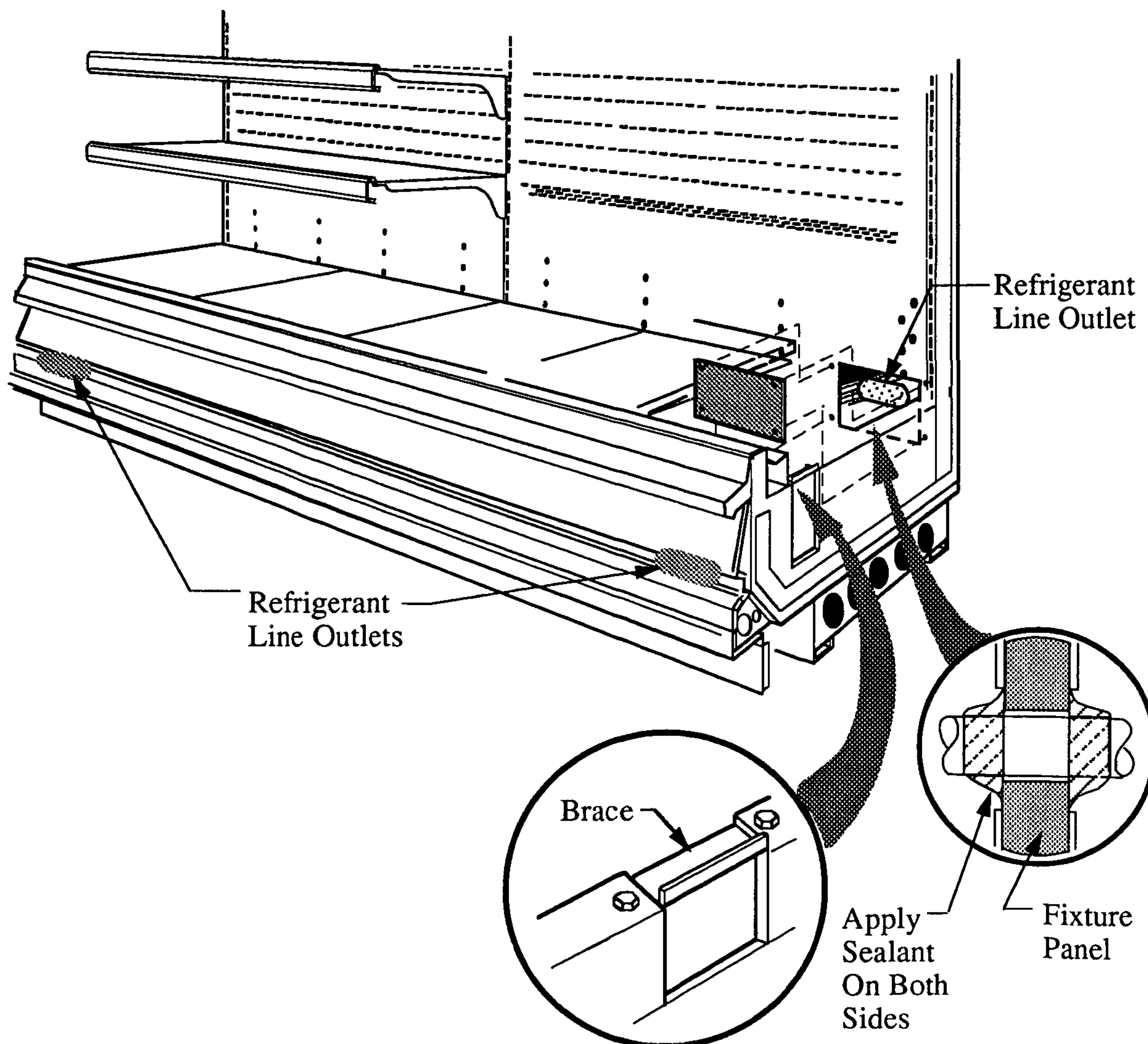


SEALING REFRIGERANT PORT

For a rapid and thorough seal, we recommend that the refrigeration outlets be sealed using an aerosol dispensed urethane insulation. After the urethane has been applied and has set, it should be sealed over on the inside of the merchandiser with a butyl caulking to prevent absorption of moisture during cleaning or when merchandiser is defrosting. See illustration below.

MULTIPLEXING SADDLE BRACES

Replace the multiplexing saddle braces after refrigerant lines have been installed. These braces provide a stop for the display pans and if not replaced the display pans can shift creating gaps and poor refrigeration performance.



INSTALLATION

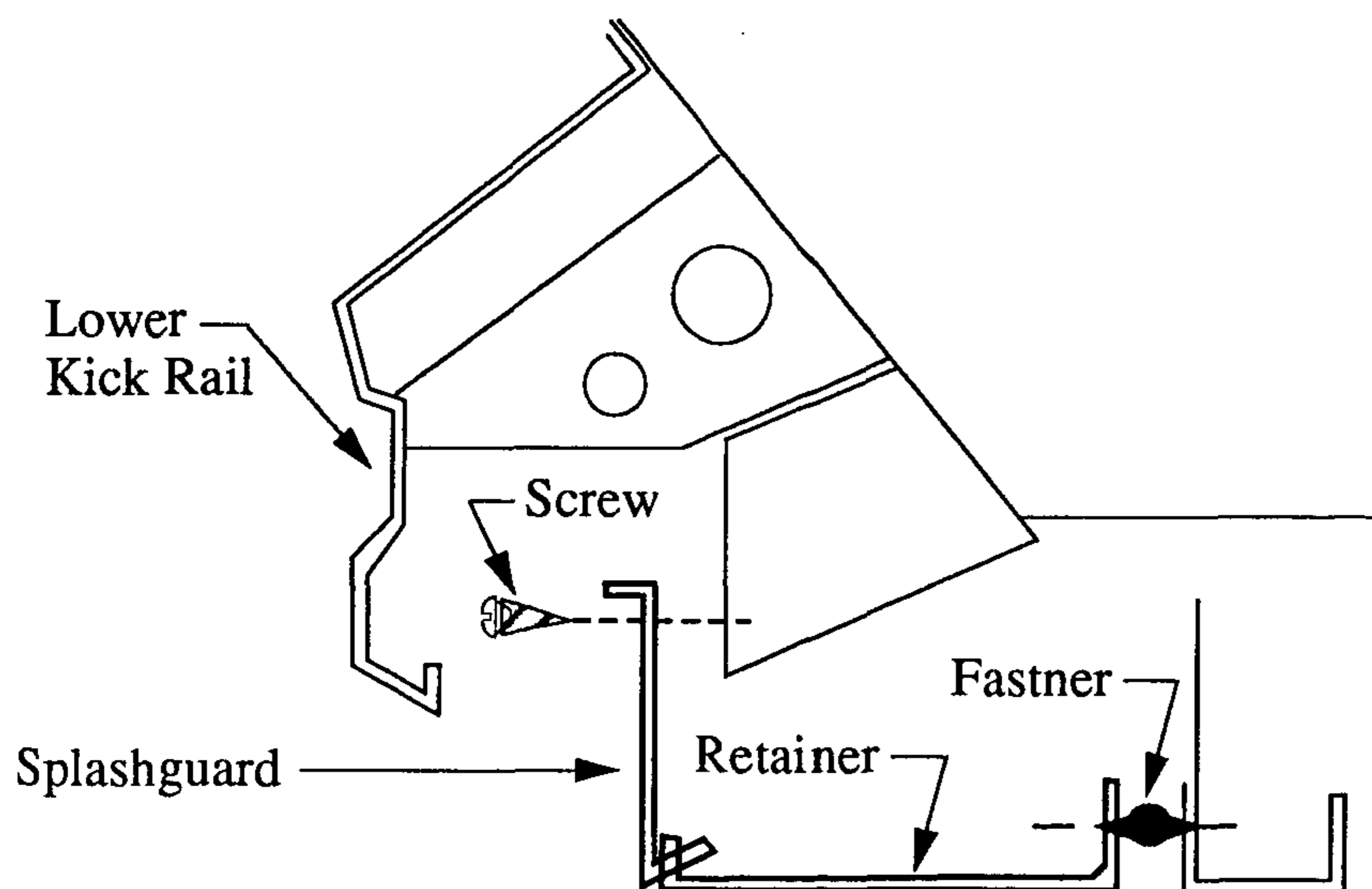
2-6

INSTALLING SPLASHGUARD

The splashguard is shipped inside each merchandiser. **AFTER** merchandisers have been leveled and joined, and all drip piping, electrical and refrigeration work has been completed, install the splashguard.

To install the splashguard:

1. Press one end of the Fastener into each Retainer. Then position the fastener with attached retainer into the base rail of the merchandiser. Tap the end of the retainers with a hammer to be sure the fasteners are seated completely.
2. Grasp the Splashguard at midpoint along its lower edge. Insert the upper edge of the splashguard under the Lower Kick Rail and the lower edge onto the retainers.
3. Fasten the upper edge of the splashguard to the merchandiser using #8 x $\frac{1}{2}$ Truss Head Screws.

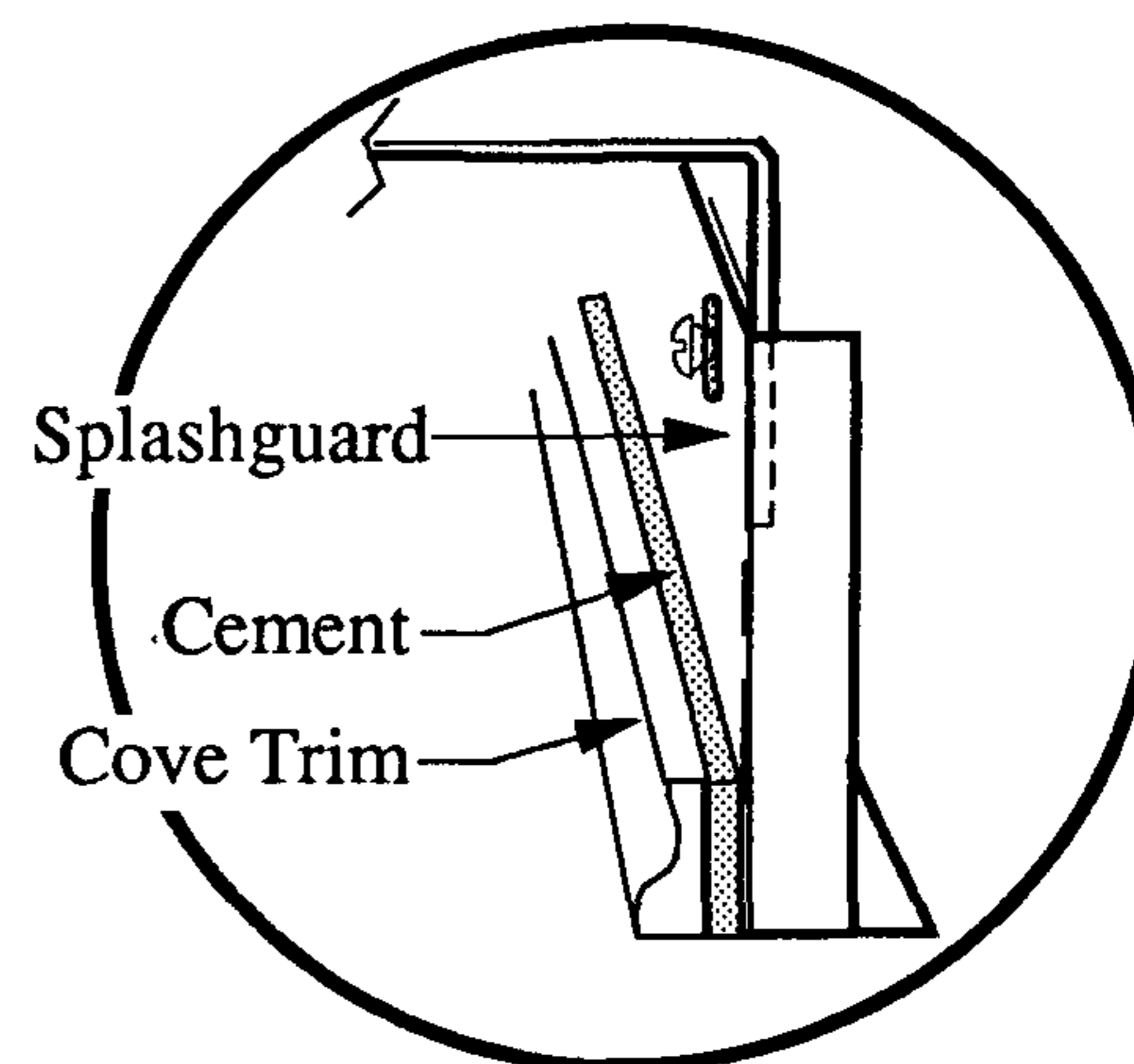


SEALING SPLASHGUARDS TO FLOOR

IF REQUIRED by local sanitation codes or if desired by the customer, the splashguards 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.



Sealing Splashguard to Floor

REFRIGERATION

3-1

REFRIGERANT

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

REFRIGERANT PIPING

Connection Sizes

Liquid Line	$\frac{3}{8}$ inches OD
Suction Line	$1 \frac{1}{8}$ inches 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 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.

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 either the Hussmann Conventional or Systems Application 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

With GAS Defrost

The suction and liquid lines should NOT contact each other and should be insulated separately for a minimum of 30 feet from the merchandiser.

With OTHER Than Gas Defrost

The suction and liquid lines should be clamped or taped together and insulated for a minimum of 30 feet from the merchandiser.

With EITHER of Above

Additional insulation for the balance of the liquid and suction lines is recommended wherever condensation drippage is objectionable or the lines are exposed to ambient conditions.

REFRIGERATION

3-2

CONTROL SETTINGS

Conventional Single Compressor

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

Merchandiser temperature may be controlled by the condensing unit's low pressure control or by a thermostat with a 3–5°F differential. It will be wired to control the compressor motor contactor.

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

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

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		
	Dairy	Deli
Discharge Air °F	32	32
Evaporator °F	21	18
Fan Cycling CI/CO		
Gas Defrost ONLY °F	N/A	N/A
Defrost Data		
Frequency Hrs	8	6
Electric		
Temp Term °F	48	48
Failsafe Min	26	26
Gas		
Duration Min	14	14
Offtime		
Duration Min	40	40
When Thermostat Controls Temperature		
Low Pres Backup Control (PSIG)		
	CI/CO	CI/CO
R-22	37/27	34/24
R-502	45/35	42/32
Indoor Condenser Pres Defrost Term(PSIG)		
R-22	82	82
R-502	96	96

Parallel Compressor Rack

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

Merchandiser temperature must be controlled by a thermostat or a CDA. The CDA sensor will be mounted in the same location as a thermostat sensing bulb. The CDA valve and control board will be mounted on the rack.

Standard Off Time and optional Gas defrost are time terminated. 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		
	Dairy	Deli
Discharge Air °F	32	32
Evaporator °F	21	18
Fan Cycling CI/CO		
Gas Defrost ONLY °F	N/A	N/A
Defrost Data		
Frequency Hrs	8	6
Electric		
Temp Term °F	48	48
Failsafe Min	26	26
Gas		
Duration Min	14	14
Offtime		
Duration Min	40	40

REFRIGERATION

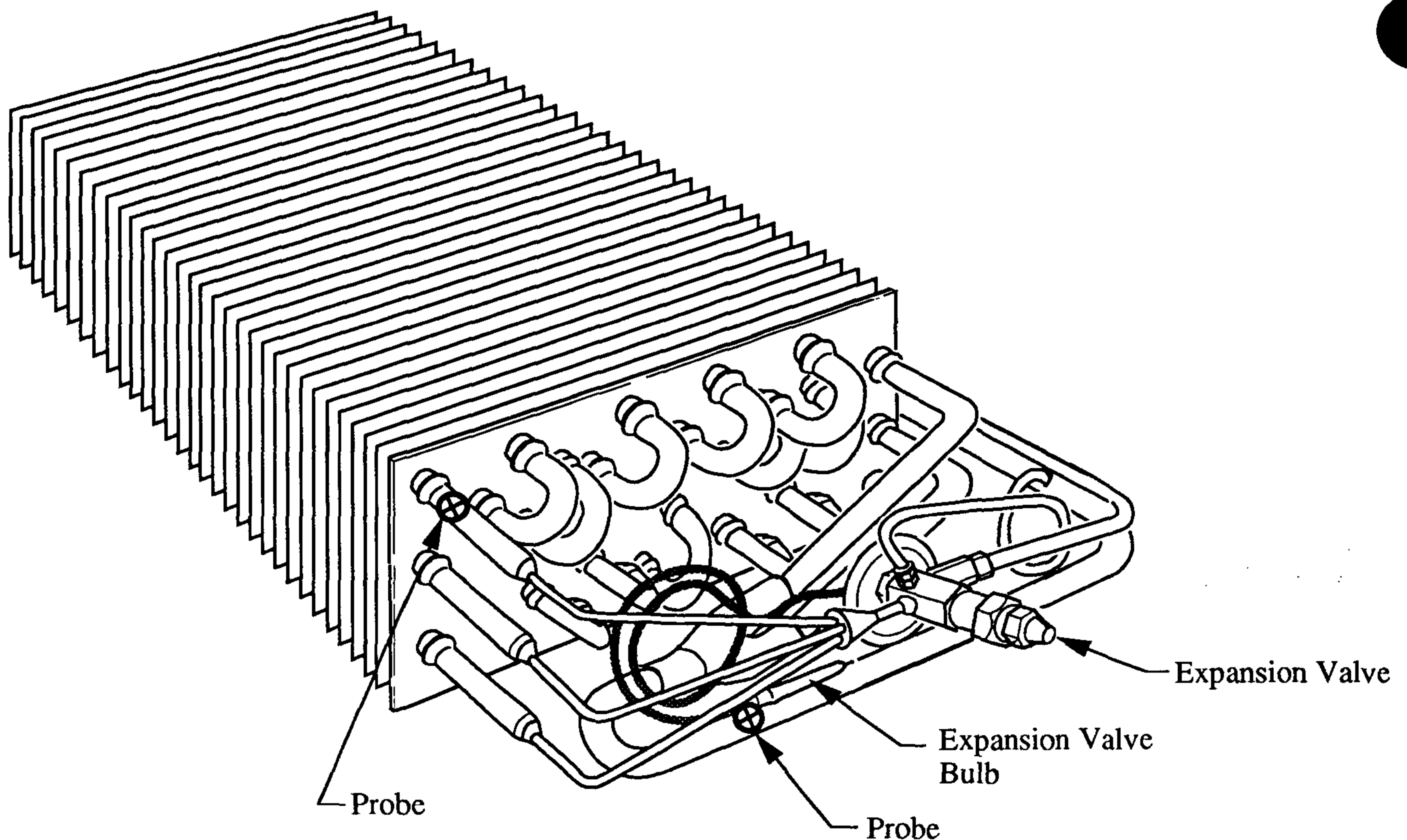
3-4

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. Position one under the clamp holding the expansion valve bulb; securely tape the other 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 low as 0°F). Make adjustments of no more than 1/4 turn for Balanced Port TEV and 1/2 turn for "G" Body TEV at a time. Wait for at least 15 minutes before rechecking the probe temperature and making further adjustments.



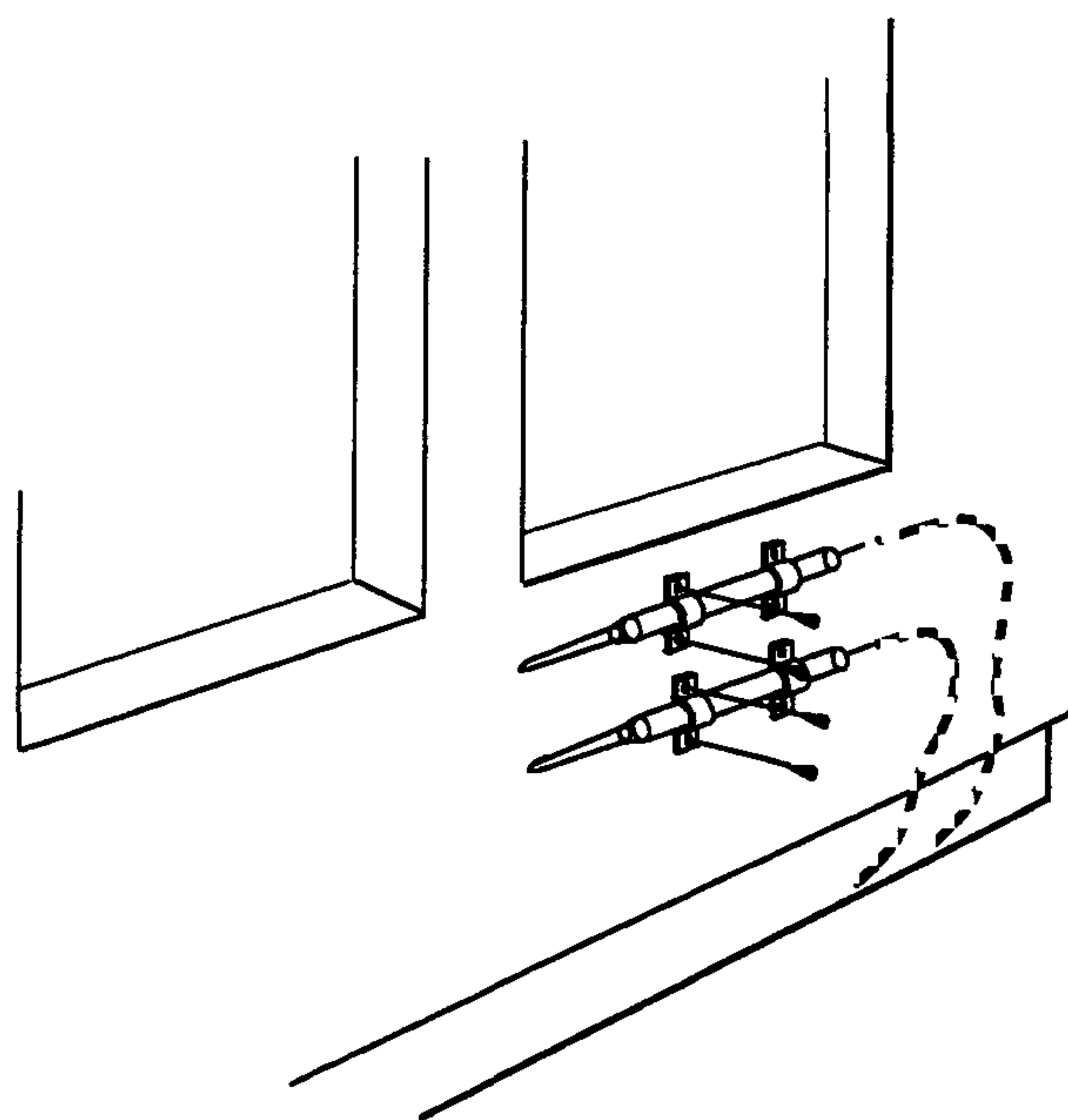
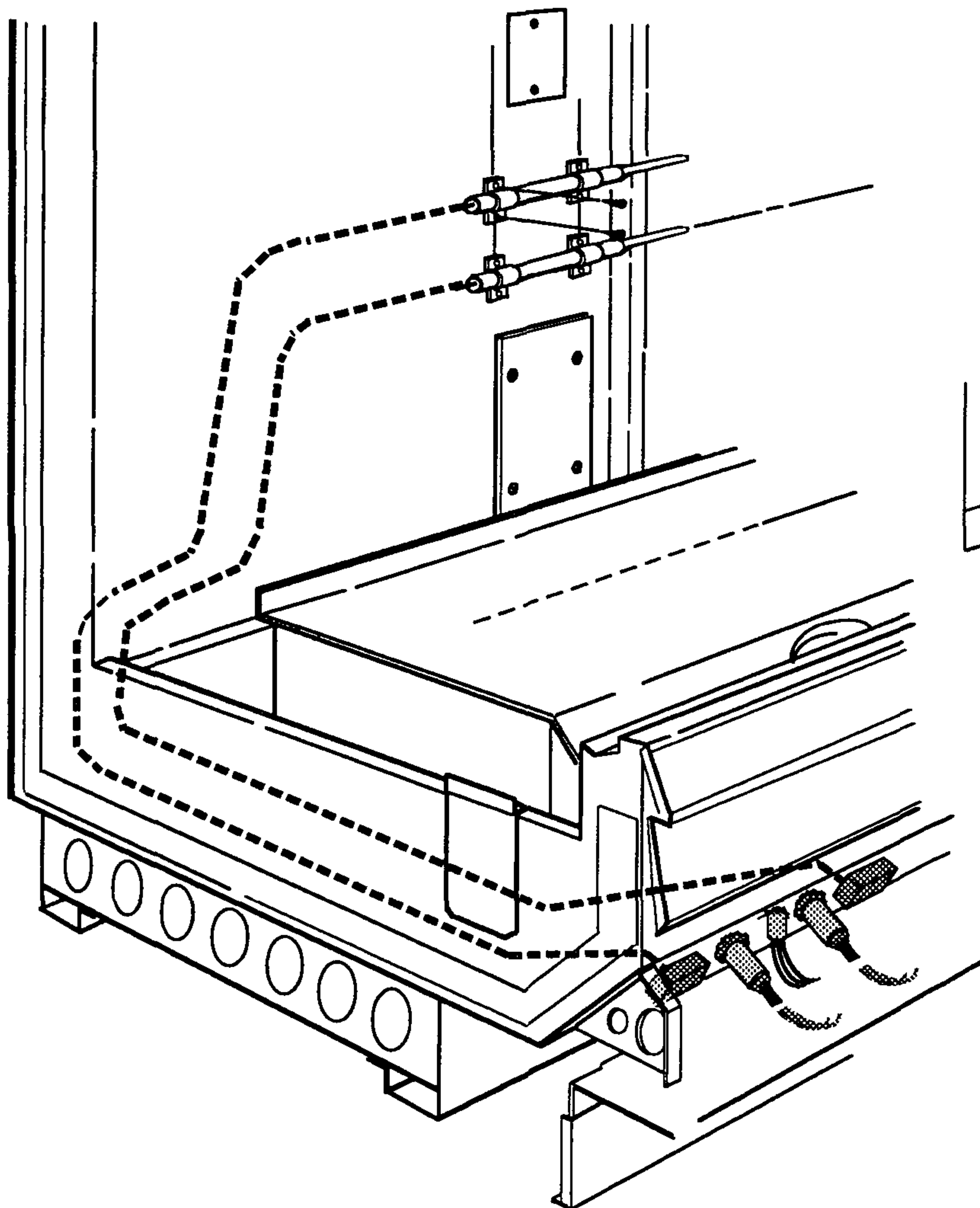
REFRIGERATION THERMOSTAT

Factory installation of optional thermostat is shown below. The thermostat body is located under the overhang at the left end of the merchandiser. The bulb is located above the coil approximately 40 inches from the merchandiser's left-hand end. See illustration below.

NOTE: When a Refrigeration Thermostat is installed, a pair of wires is required from the refrigerator to the Condensing Unit.

DEFROST TERMINATION THERMOSTAT

Factory installation of optional Defrost Termination Thermostat is shown below. This thermostat is an adjustable type with the thermostat body and bulb located as shown in the illustration below.



ELECTRICAL

4-1

CONNECTIONS

All wiring must be in compliance with NEC and local codes. All electrical connections are to be made in the electrical raceway behind the lower bumper rail at the left-hand end of the merchandiser.

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 merchandiser's raceway.

WIRING COLOR CODE

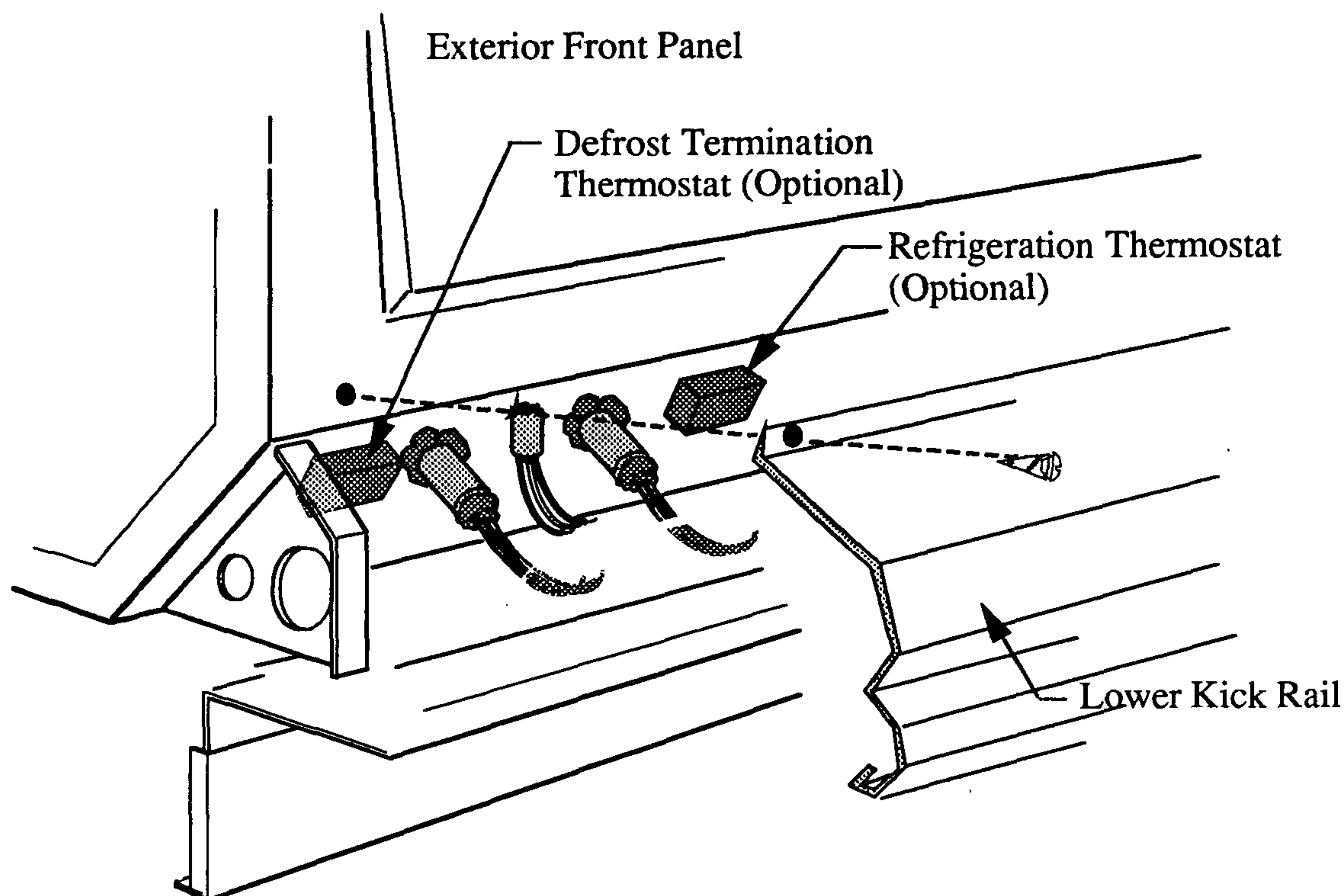
Leads for all electrical circuits are identified by a colored plastic band: neutral wire for each circuit has either White insulation or a White plastic sleeve in addition to the color band.

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



NOTE: After wiring is connected make certain that the merchandiser's wiring access holes are sealed in place so that the refrigerated air does not leak out.

ELECTRICAL

4-2

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. The component amperes listed below are taken from the Hussmann Merchandiser Data Book; ALWAYS CHECK THE SERIAL PLATE.

Electrical Data

Model	120V 1PH 60Hz				208V 1PH 60Hz Optional Defrost Heater
	Fans	Lights	Option	Option	
	Standard	Option			
	(1)	(2)	(3)	(4)	
Dairy					
8 foot	1.40	6.50	7.35	8.65	5.2
12 foot	2.10	9.70	11.60	13.50	7.8
Deli					
8 foot	3.20	6.50	7.35	8.65	5.2
12 foot	4.80	9.70	11.60	13.50	7.8

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

Each column applies to light configurations listed below:

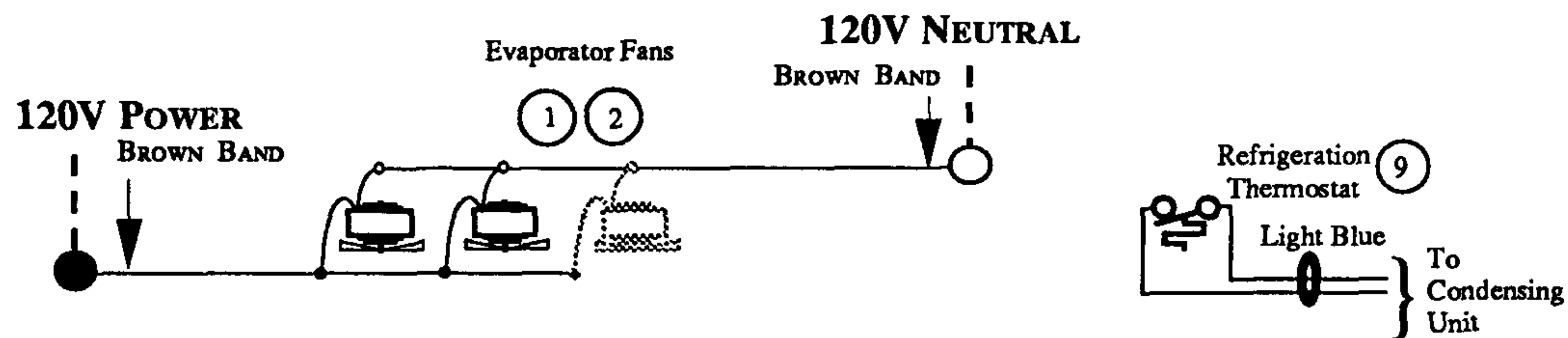
NOTE: Amperages listed include a FULL COMPLEMENT OF LIGHTED SHELVES. If the merchandiser is ordered WITHOUT A SHELF LIGHTING HARNESS (this does NOT apply to unlighted shelves) deduct 5.2 amps from values listed for 8 foot merchandisers and 7.8 amps from values listed for 12 foot merchandisers.

- (2) One row of canopy fluorescent lamps.
- (3) Two rows of fluorescent lamps in canopy, or one in canopy plus one optional front rail light.
- (4) Two rows of fluorescent lamps in canopy, and optional front rail lighting.

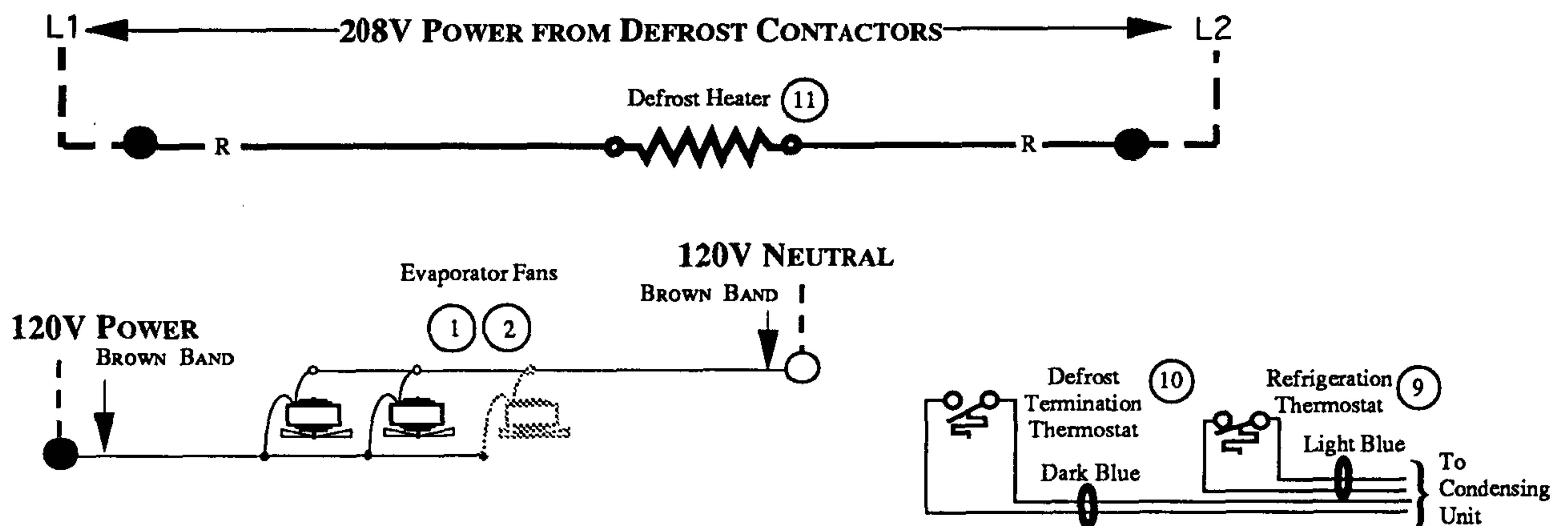
CAUTION: When multiplexing merchandisers equipped with defrost heaters, if branch circuit overcurrent protection is larger than the individual merchandiser's defrost circuit load, then additional supplemental overcurrent protection may be required per NEC Articles 210 and 240.

DM & DMD Fan and Heater Circuits

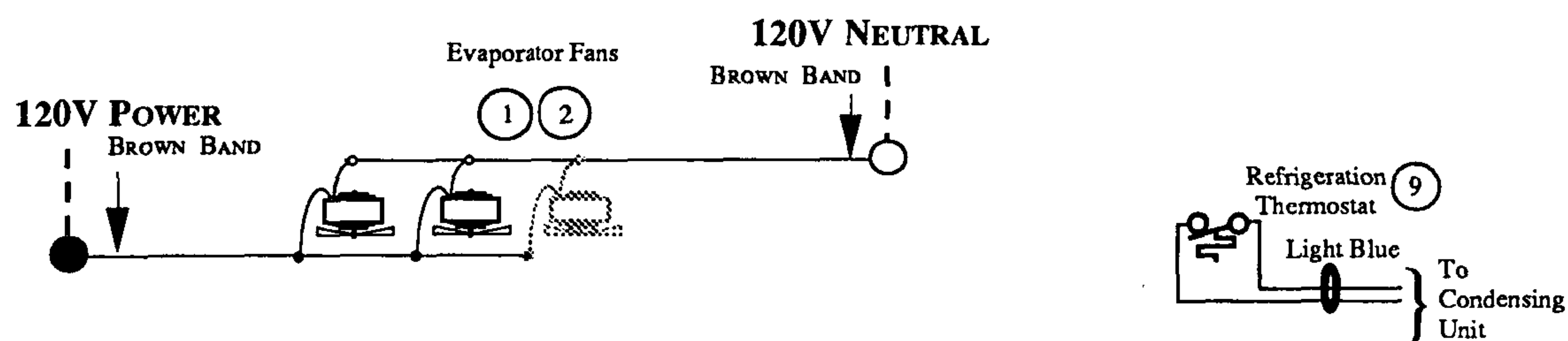
Offtime Defrost (standard)



Electric Defrost (optional)



Gas Defrost (optional)



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. Broken line indicates field wiring. Grayed components in 12 foot models only.

CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS

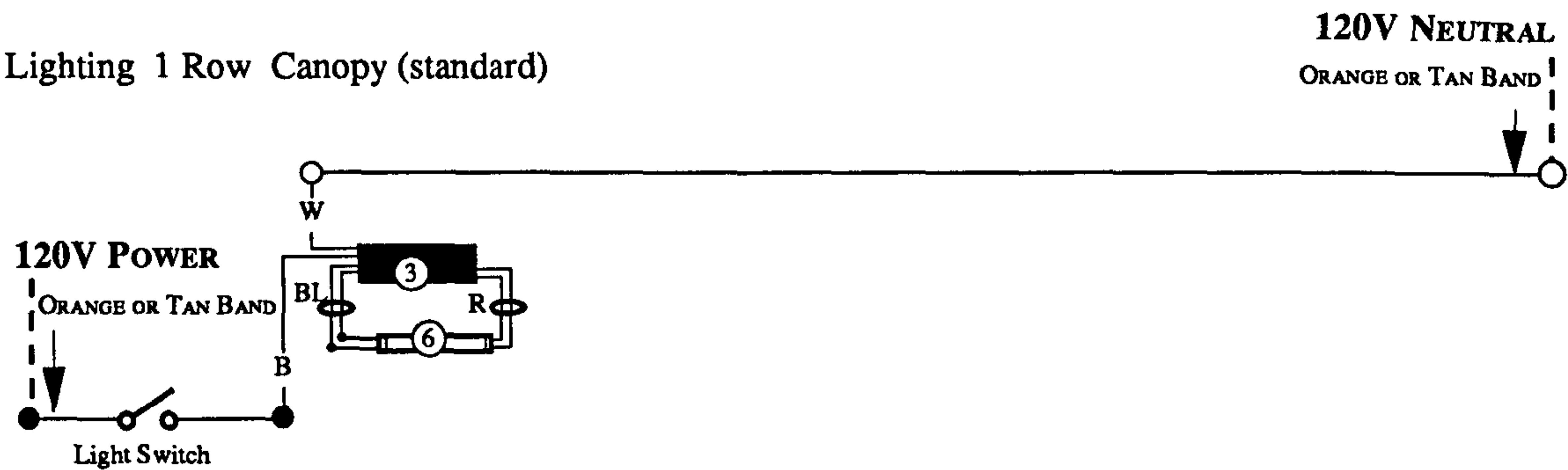
R = Red

● = 120V POWER ○ = 120V NEUTRAL

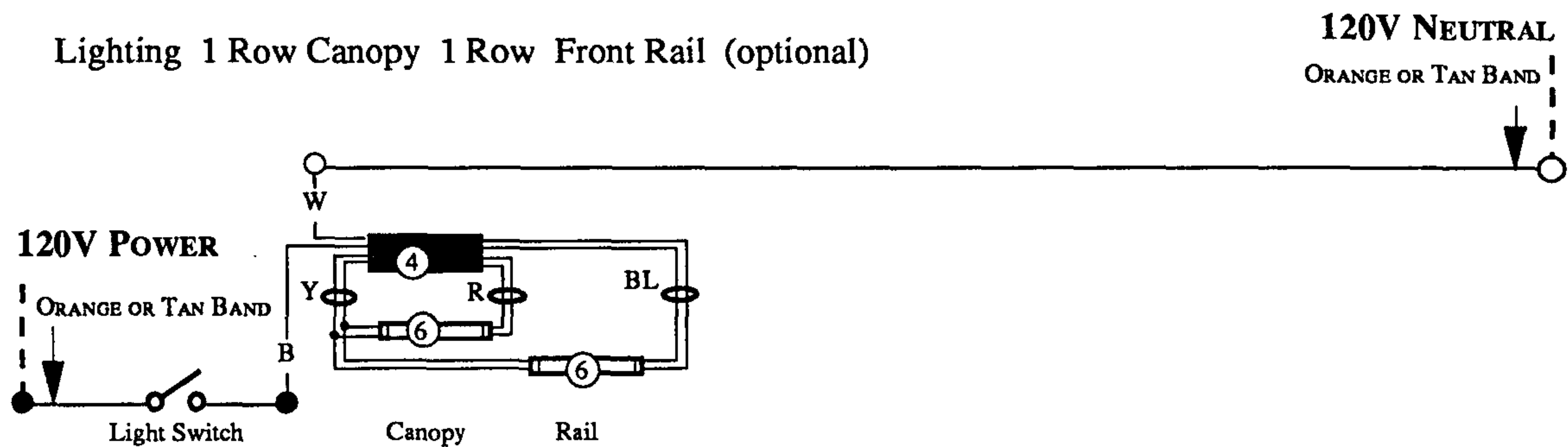
8 Foot DM & DMD - Light Circuits

CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS

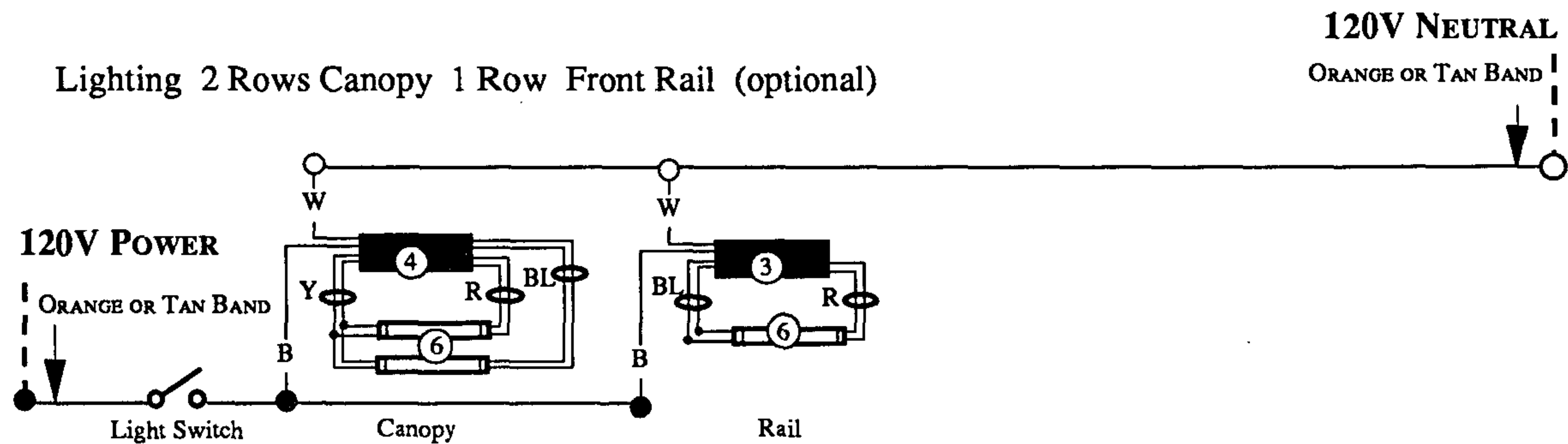
Lighting 1 Row Canopy (standard)



Lighting 1 Row Canopy 1 Row Front Rail (optional)



Lighting 2 Rows Canopy 1 Row Front Rail (optional)



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. Broken line indicates field wiring. Optional shelf lighting uses one single light ballast per shelf. Canopy lighting uses both one and two light ballasts.

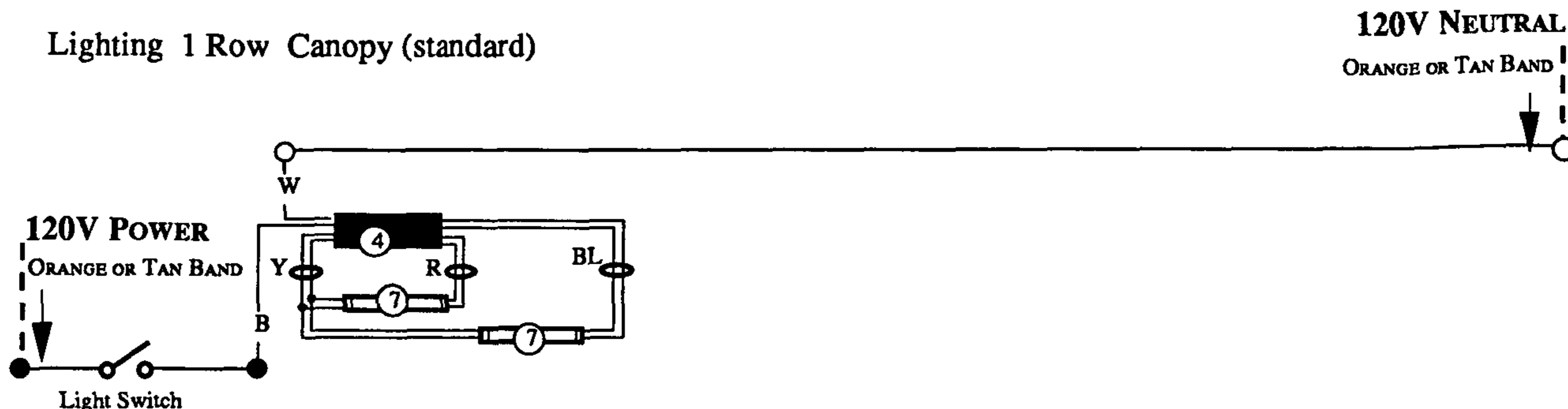
R = Red Y = Yellow BL = Blue B = Black W = White

● = 120V POWER ○ = 120V NEUTRAL

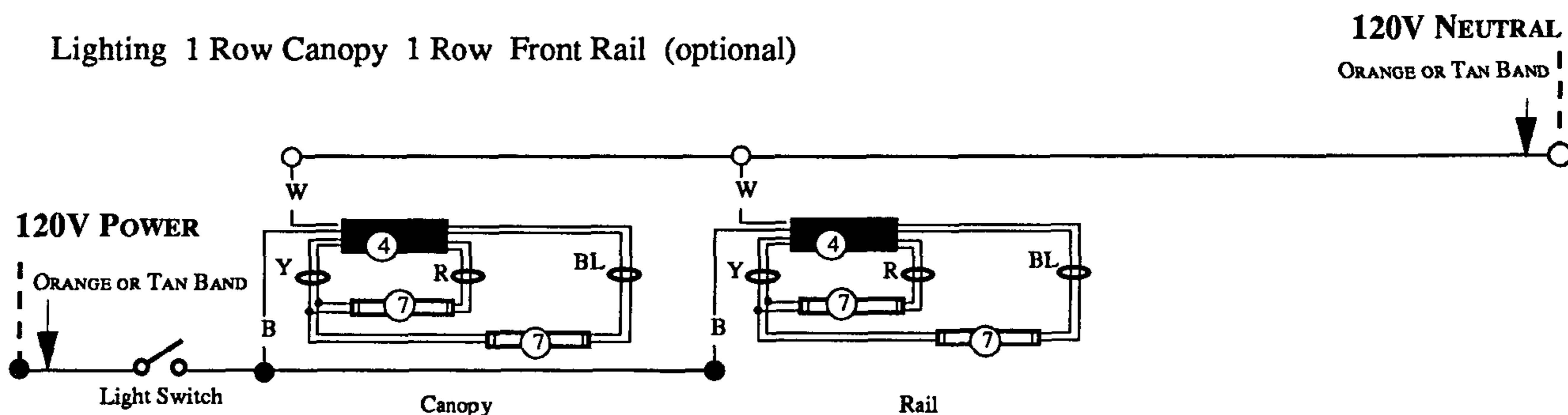
12 Foot DM & DMD - Light Circuits

CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS

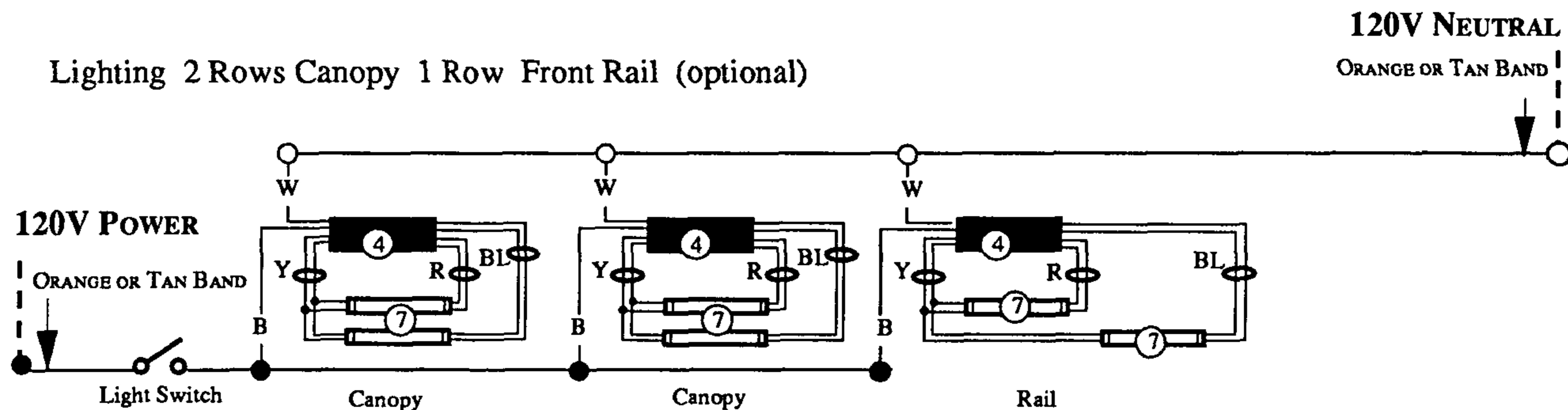
Lighting 1 Row Canopy (standard)



Lighting 1 Row Canopy 1 Row Front Rail (optional)



Lighting 2 Rows Canopy 1 Row Front Rail (optional)



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. Broken line indicates field wiring. Optional shelf lighting uses one single light ballast per shelf. Canopy lighting uses both one and two light ballasts.

R = Red Y = Yellow BL = Blue B = Black W = White

● = 120V POWER ○ = 120V NEUTRAL

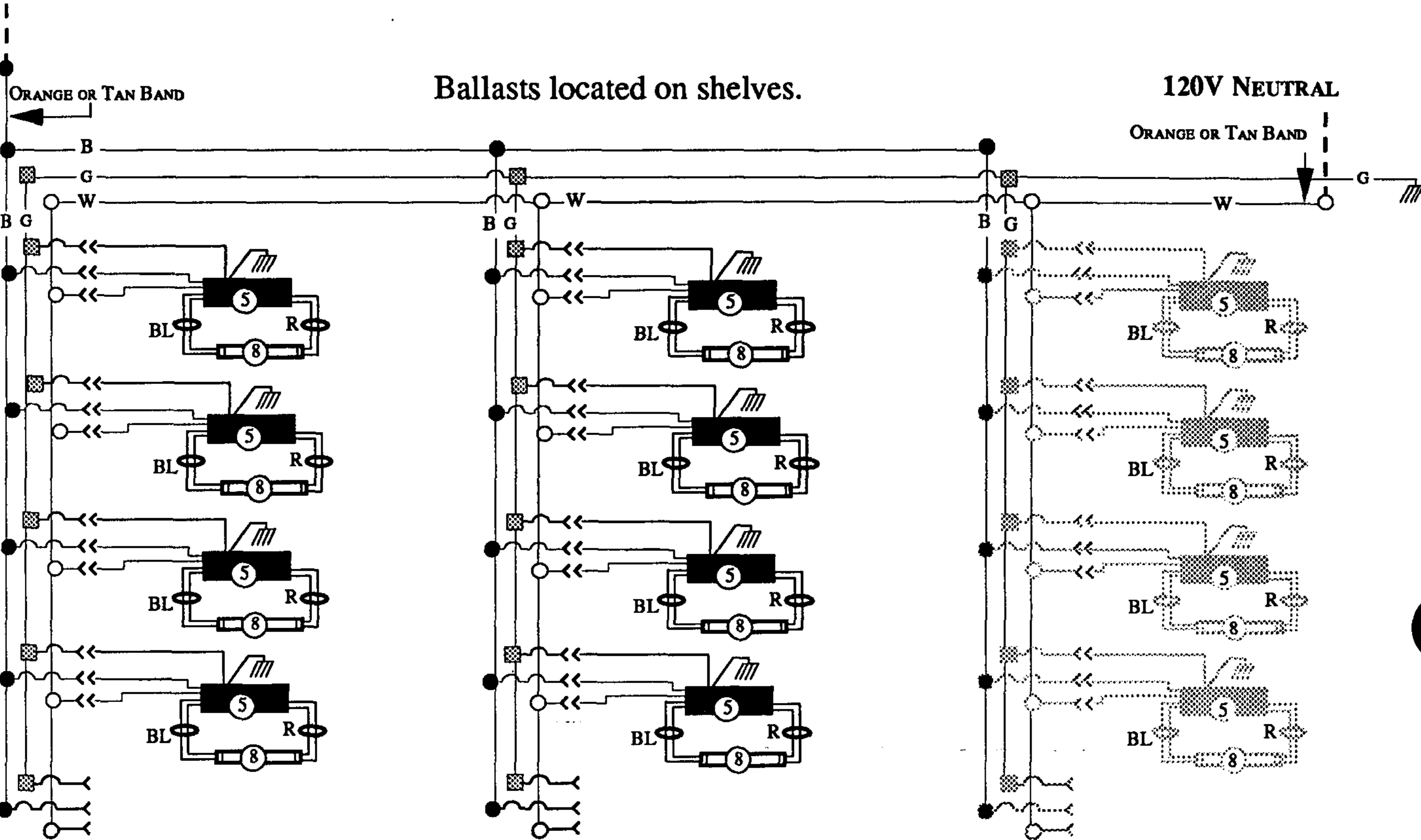
DM & DMD Shelf Light Circuits (optional)

CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS

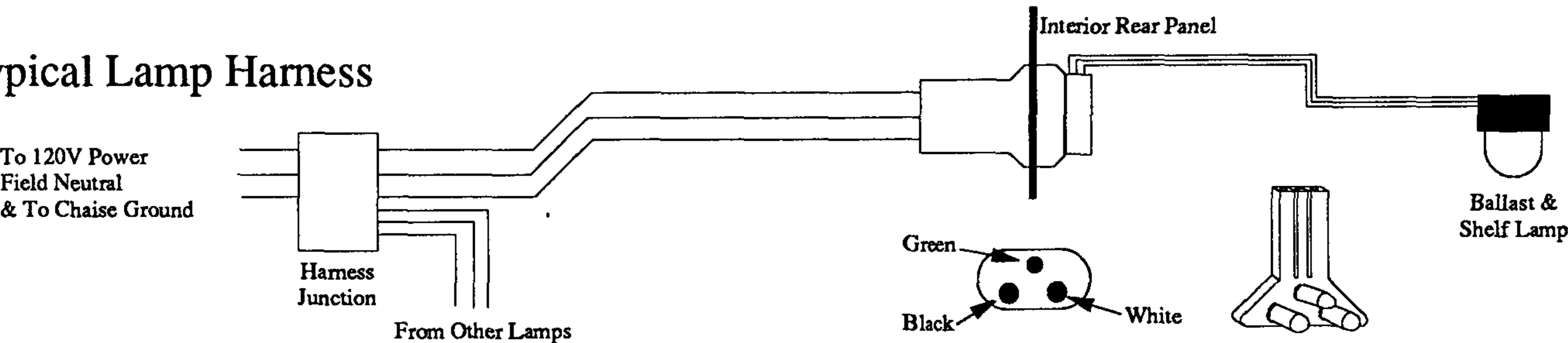
Lighting Shelves 1 Single Lamp Ballast per Shelf

NOTE: DM and DMD merchandisers use a five shelf wiring harness, but we only recommend four shelves.

120V POWER



Typical Lamp Harness



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. Broken line indicates field wiring. Optional shelf lighting uses one single light ballast per shelf. Canopy lighting uses both one and two light ballasts. Grayed components in 12 foot models only.

R = Red Y = Yellow BL = Blue B = Black G = Green W = White
● = 120V POWER ○ = 120V NEUTRAL ■ = GROUND

USER INFORMATION

5-1

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.

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.

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 NOT Use:

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

- 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.**

- 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.**

USER INFORMATION

5-2

SHELF ALIGNMENT

Taped to one of the shelves of each merchandiser is a small plastic bag containing shelf alignment strips. These strips are designed to enhance the appearance of the shelves by aligning the front edge of each shelf with that of an adjacent shelf. See illustration.

When installing the shelves on the merchandisers:

1. Insert one of the alignment strips into the slot behind the front edge of each shelf.
2. After all shelves are installed, slide the strip across the shelf joint wherever two shelves are adjacent. This will lock them together.

NOTE: Some PTM styles are pop riveted to the shelf. In these instances, the alignment strips must be cut in half before inserting them into the shelf.

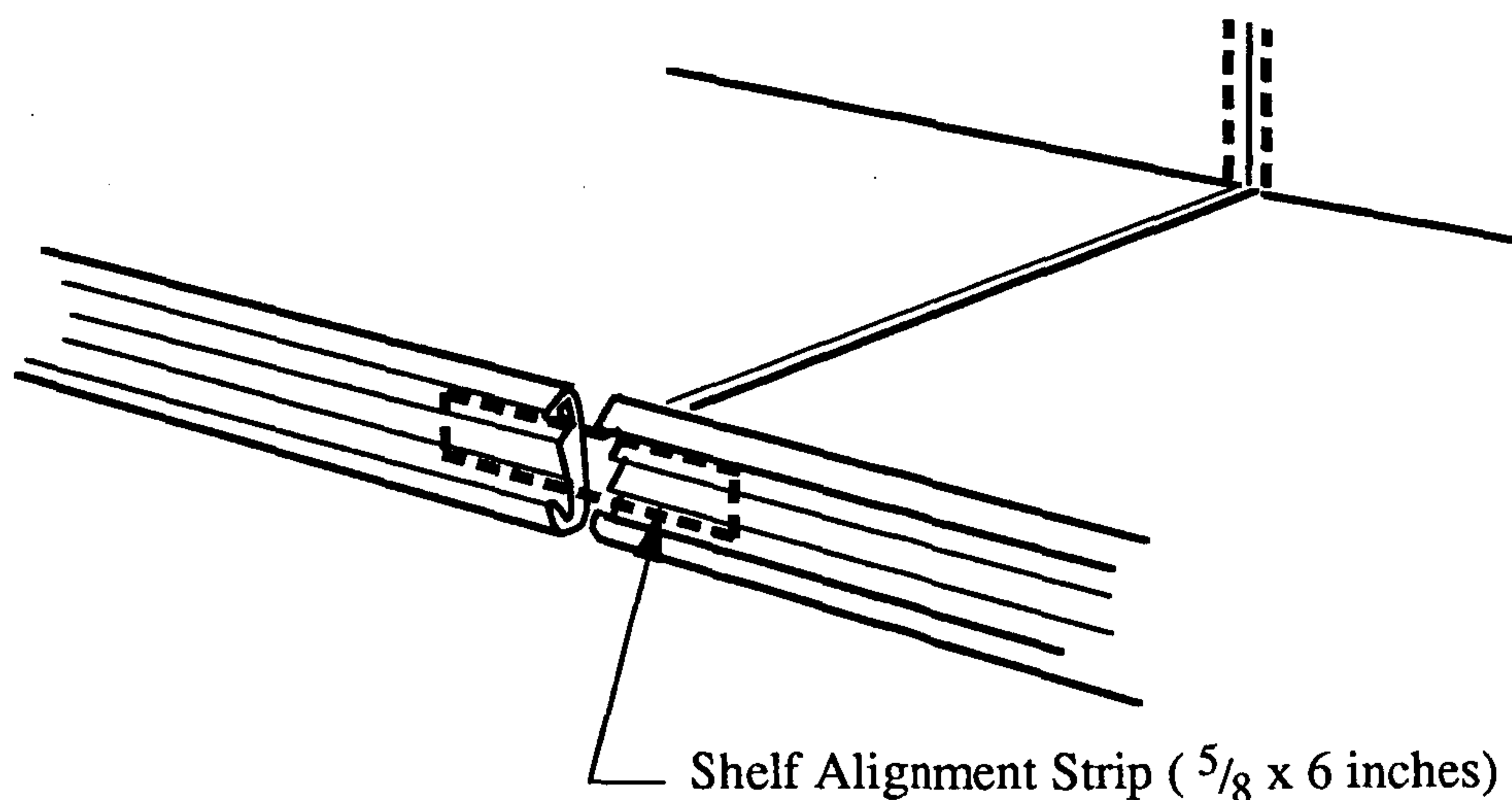
STOCKING

Product should NOT be placed in merchandisers until all refrigeration controls have been adjusted and merchandisers are at proper operating temperature.

At no time should merchandisers be stocked beyond the load limits indicated on the inside of each merchandiser. Shelf life of perishables will be short if load limit (marked on ends) is violated.

The shelves for the multideck models have a designed load limit of 200 pounds per shelf.

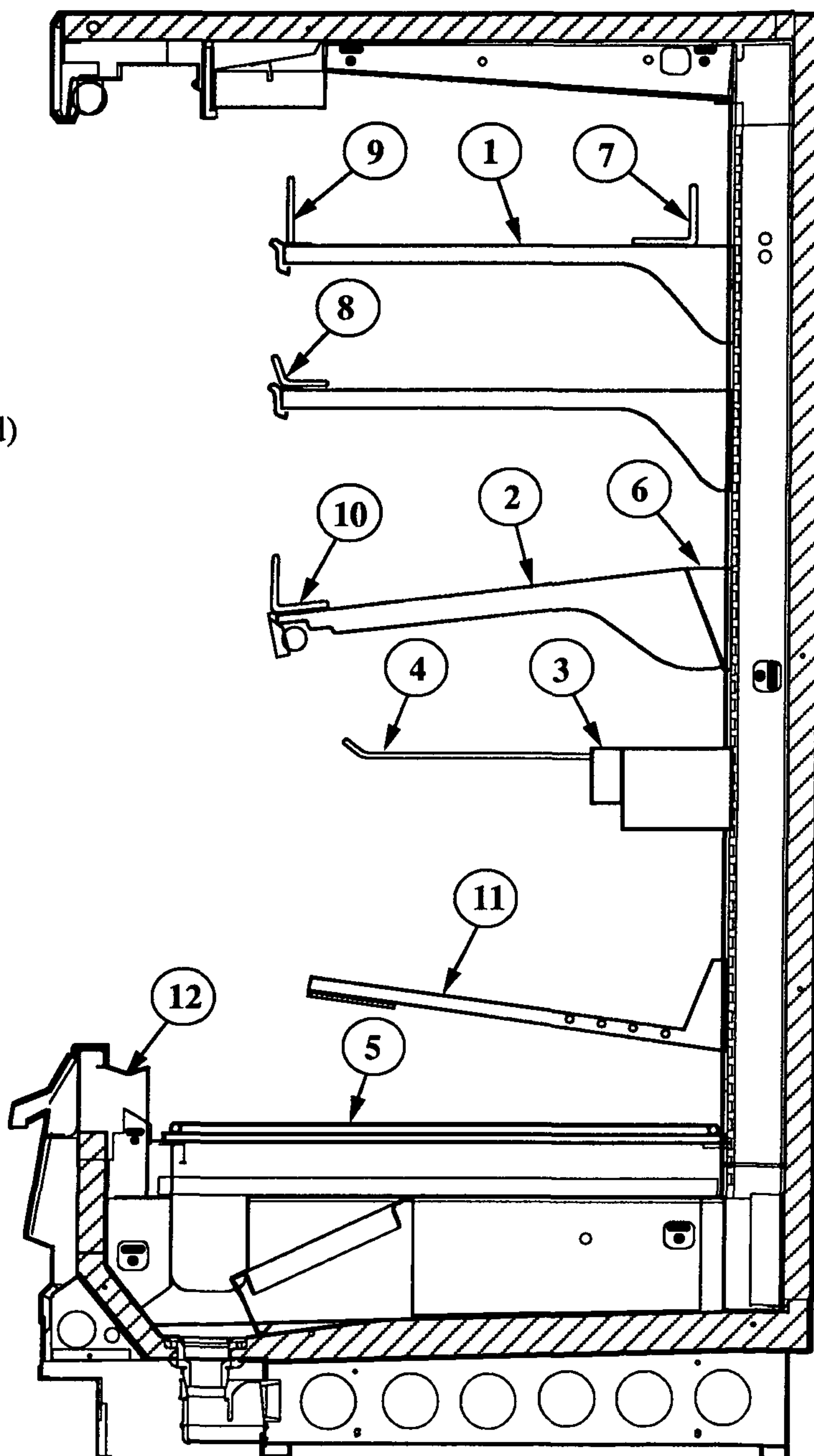
When stocking, keep packages and signs off the lower return grill. Air discharge and return air grills MUST BE UNOBSTRUCTED AT ALL TIMES to provide proper refrigeration and air circulation performance.



MERCHANDISING ACCESSORIES

These models feature complete flexibility in the merchandising of dairy and deli products. Available options are shown below.

- | Item | Description |
|------|---------------------------------------|
| 1. | Display Shelf (non-lighted) |
| 2. | Display Shelf (lighted) |
| 3. | Stub Shelf |
| 4. | Peg Bar |
| 5. | Wire Display Rack |
| 6. | Shelf Adapter, 15° slant |
| 7. | Rear Product Stop |
| 8. | Front Product Stop |
| 9. | Front Wire Product Stop |
| 10. | Slanted Shelf Front Wire Product Stop |
| 11. | Egg Insert Shelves |
| 12. | Front Rail Lighting |



SERVICE

6-1

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.

REPLACING FAN BLADE

The evaporator fans are located at the center front, directly beneath the display pan. Should the fans or blades ever need servicing, ALWAYS REPLACE THE FAN BLADES WITH THE RAISED EMBOSSED SIDE OF THE BLADE INSTALLED TOWARD THE MOTOR.

REPLACING FLUORESCENT LAMPS

Fluorescent lamps 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.

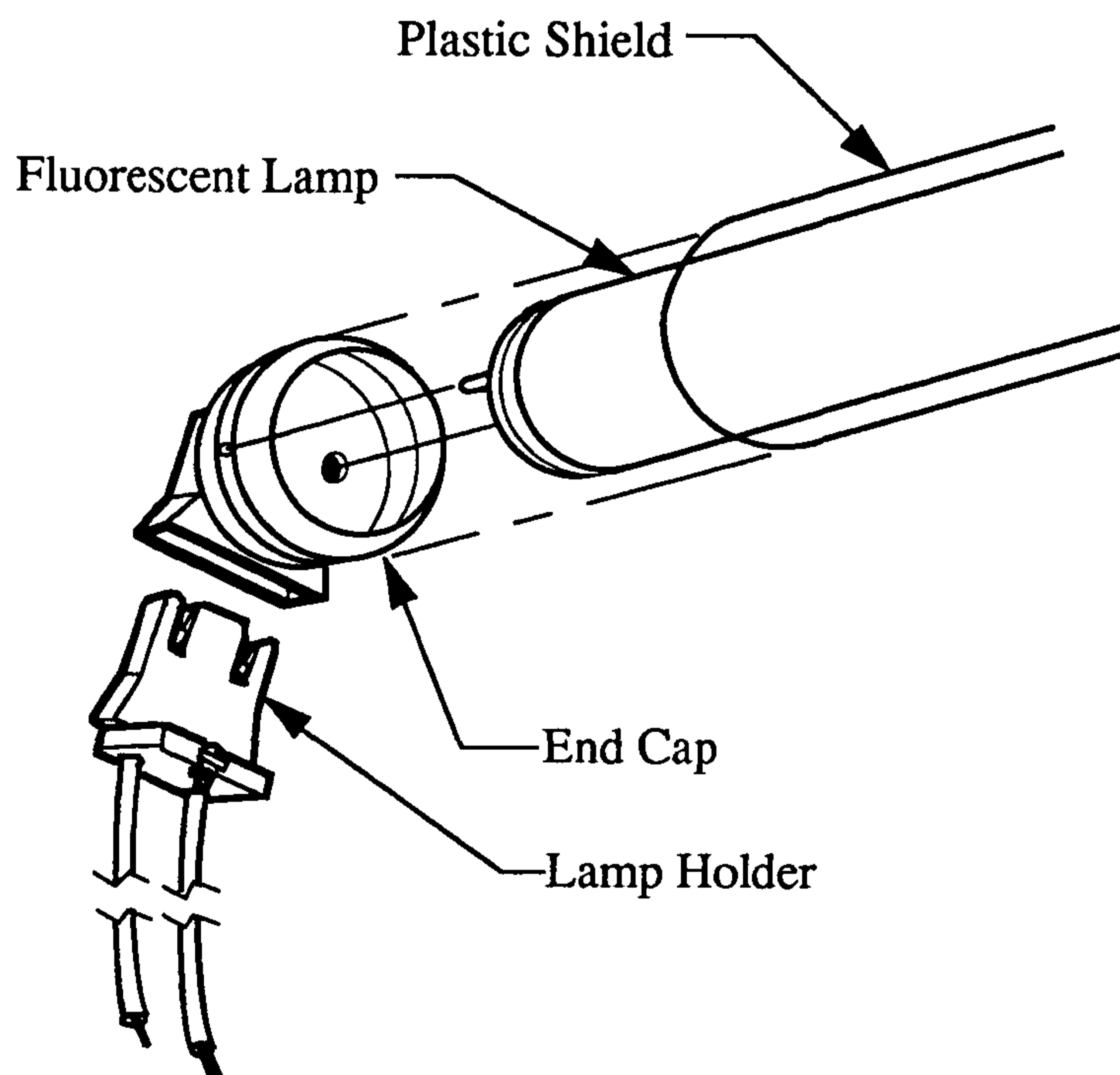
NOTE: Do NOT twist the lamp.

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.



SERVICE

6-2

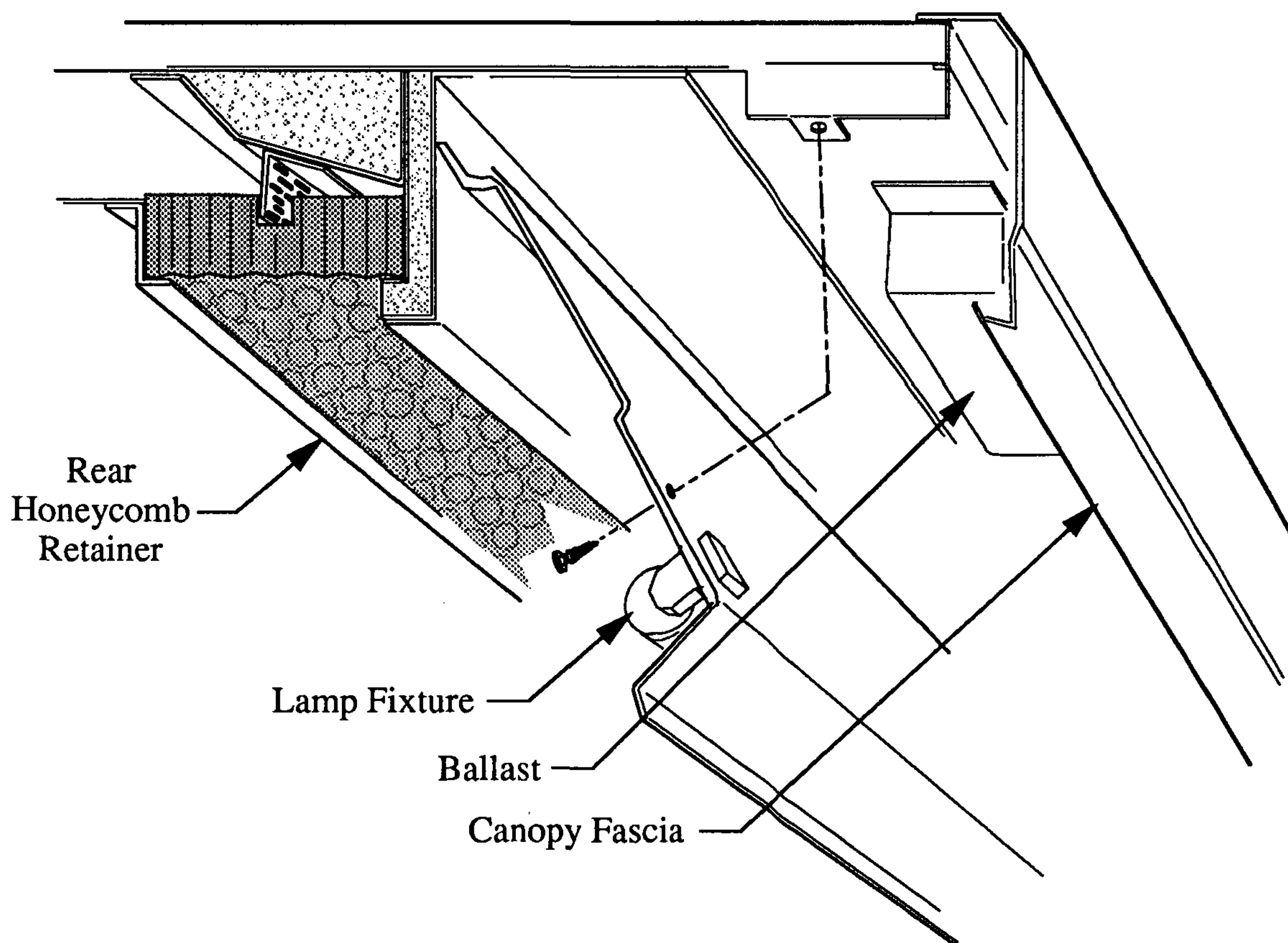
REPLACING CANOPY BALLAST

1. Disconnect power to the merchandiser.
2. Remove all fluorescent lamps from the canopy.
3. Remove sheet metal screws along the underside of the light fixture.
4. Grasping the light panel at the area where the top of the panel and the top of the merchandiser meet, pull back and down until the panel is free of support brackets and swings freely.
5. Replace ballast and reassemble parts in reverse order.

CLEANING HONEYCOMB ASSEMBLIES

Honeycombs should be cleaned every six months. Dirty honeycombs will cause merchandisers to perform poorly. The honeycombs may be cleaned with a vacuum cleaner. Soap and water may be used if all water is removed from the honeycomb cells before replacing. Be careful not to damage the honeycombs.

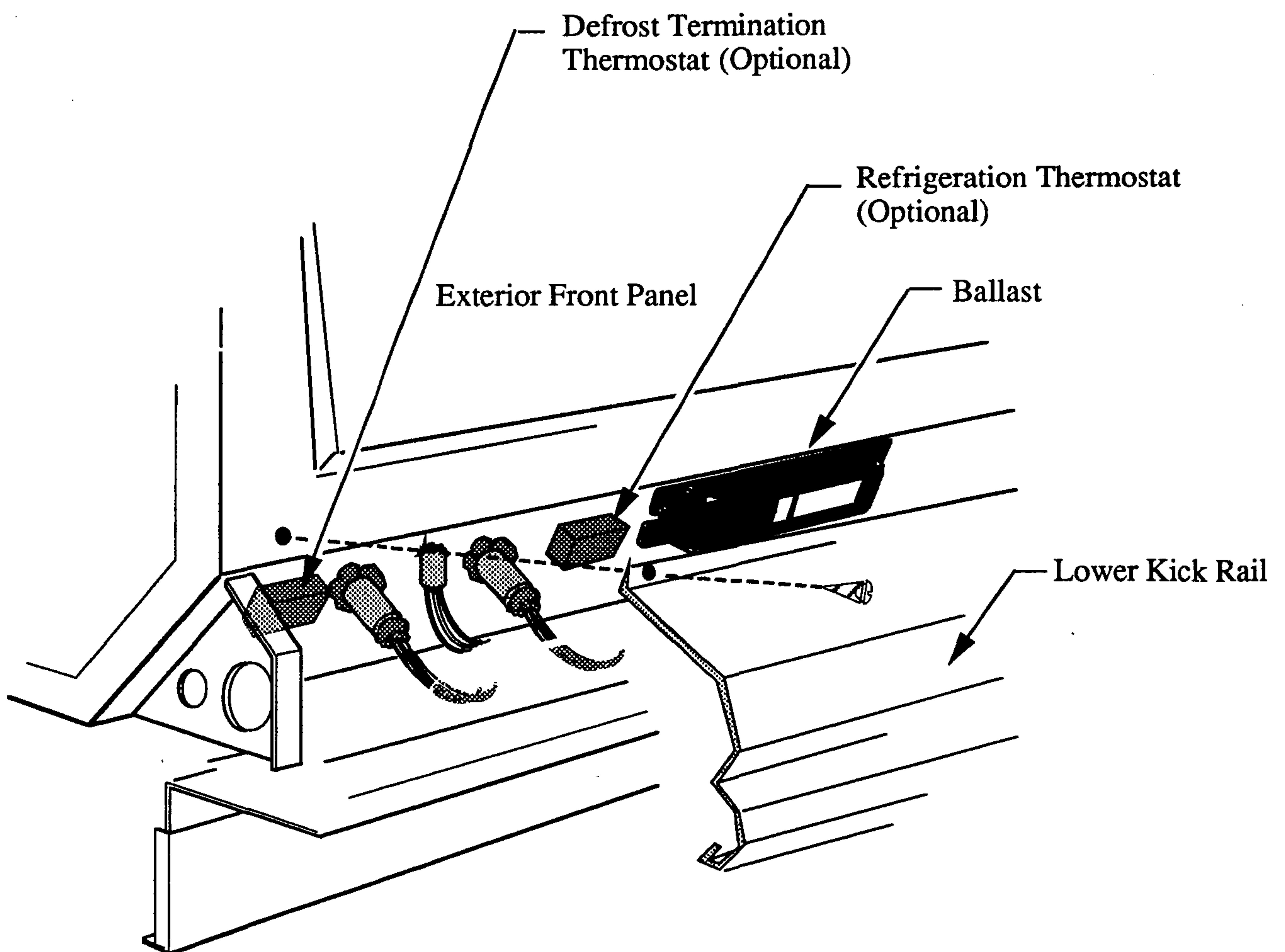
1. Remove the rear retainer.
2. Holding the honeycomb sections in place, back off the retainer from the honeycomb.
3. Clean and dry the honeycomb.
4. After cleaning replace in reverse order of removal.



REPLACING FRONT RAIL BALLAST

This ballast is located behind the lower kick rail at the left-hand end of the merchandiser. For access to the ballast:

1. Disconnect the electrical power to the light fixture.
2. Remove the lower kick rail.



SERVICE

6-4

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

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.

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