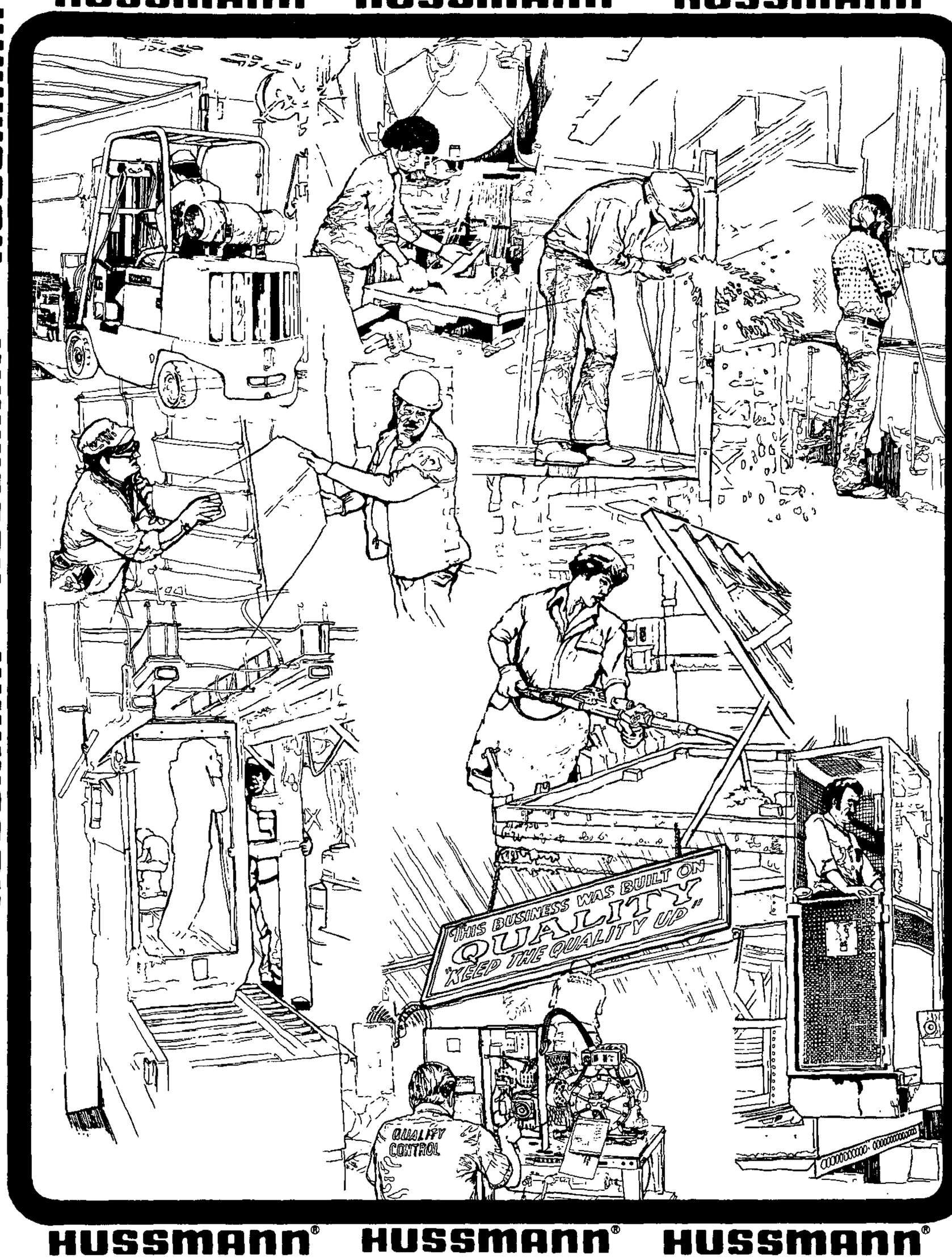
HUSSMANN®

CORPORATION



PWI - PWIN
PVWI - PVWIN

SELF - SERVICE PRODUCE MERCHANDISER

INSTALLATION / SERVICE INSTRUCTIONS

ENG. NO. 257919E
August, 1989
Supersedes #257919D
Dated March, 1989
Section 4

TABLE OF CONTENTS

REVISION CHANGES ("E")

New fan motor vendor part number, page 15

IMPORTANT
KEEP IN STORE FOR FUTURE REFERENCE

Quality that sets industry standards.

THIS MERCHANDISE 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) 298-4767

SECTION 1

GENERAL INFORMATION

MODEL DESCRIPTION

This instruction covers the single deck, wide island produce merchandisers listed in the table below. They are available in 6', 8' or 12' lengths, refrigerated or non-refrigerated and with or without a 6' wrap around end merchandiser.

The only difference between the PWI models and the PVWI models is the height of their center rail from the floor.

The PWI model is 41"
The PVWI is model is 46"

MODEL NOMENCLATURE	DESCRIPTION
PWIC6 PWI-8 or 12 PVWI	Refrigerated, Wide Island Produce Merchandiser
PWINC6 PWIN-8 or 12 PVWIN	Non-Refrigerated, Wide Island Produce Merchandiser
PWI-6 PVWI	Refrigerated Wrap Around End Produce Merchandiser
PWIN-6 PVWIN	Non-Refrigerated, Wrap Around End Produce Merchandiser

APPLICATION

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

SECTION 2

INSTALLATION

SHIPPING DAMAGE

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

If there is any damage, the carrier should be notified immediately and an inspection requested. The delivery receipt must be noted that equipment was received damaged. If damage is of a concealed nature, we suggest the carrier be contacted immediately or no later than three (3) days following delivery. A claim must be filed with the carrier by the consignee for all damages.

SHIPPING BRACES

Move the fixture as close as possible to its permanent location, then remove all shipping braces and their fasteners. Remove all separately packed accessories, such as joint kits, shelves, etc.

LOCATION

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

The front of these cases is readily identified by the location of the Serial Plate. (See following illustration.) Since all electrical and refrigeration connections will be made at the front side, they will need to be oriented according to the store plan layout.

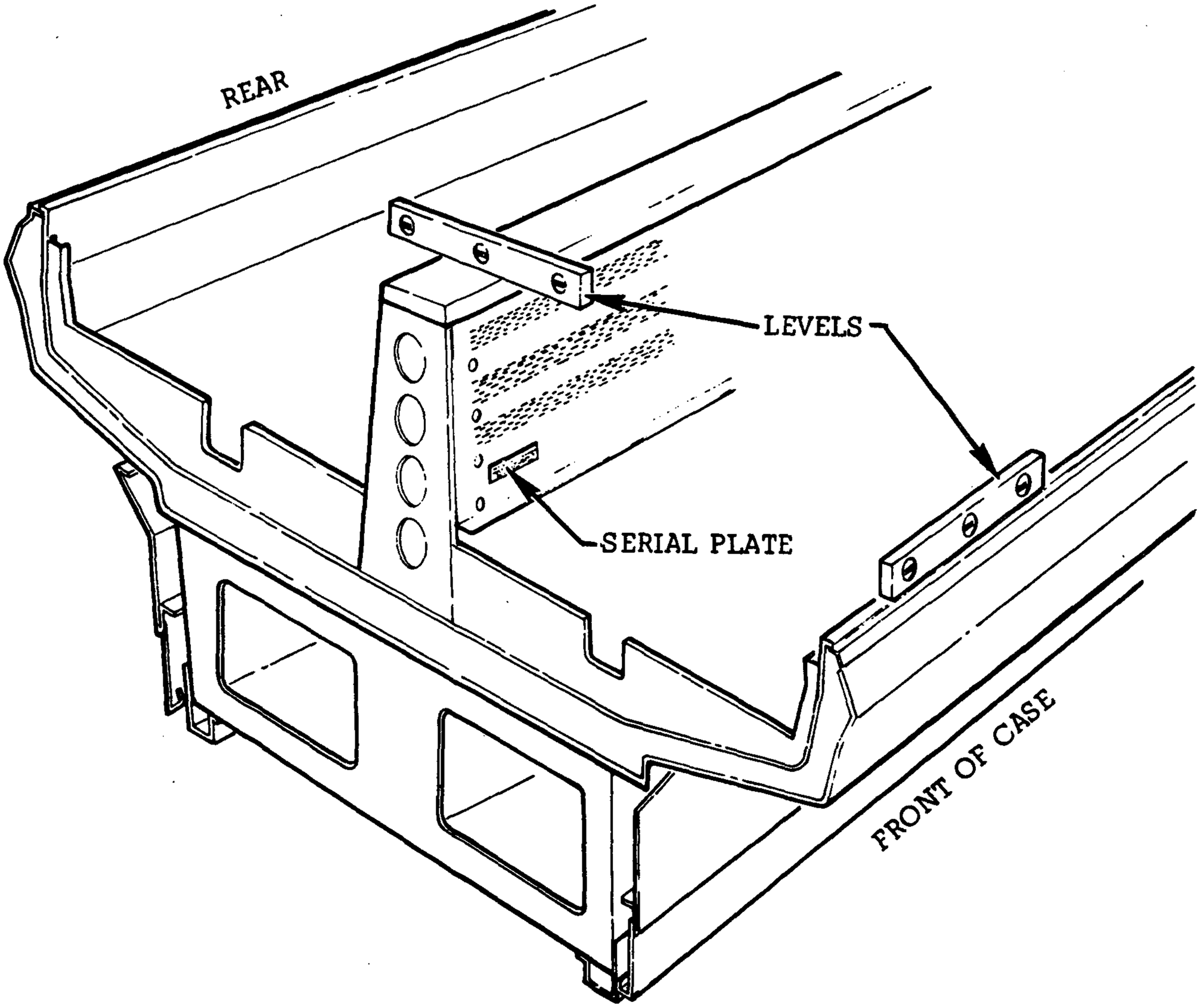
JOINING

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

LEVELING

Their physical setting and joining is covered in installation instructions contained in the End, Joint and Partition Kits. REFRIGERATORS MUST BE INSTALLED IN A LEVEL PLANE TO ALLOW PROPER OPERATION OF THE REFRIGERATOR COILS AND DRAINING OF DEFROST WATER.

Use a 24 inch carpenter's level, as shown in illustration below, to level.



WASTE OUTLET AND WATER SEAL

The Waste Outlets are located at the center of these cases, one on each side. Each waste outlet will be interconnected with factory installed drip piping and when a 6' case is ordered, its waste outlet will also be interconnected as shown in the following illustration.

In addition to the factory installed piping, each 8' and 12' case will also be supplied with an Adapter, Plug, Street Ell, and a 2 inch Water Seal to be field installed. The street ell and water seal must be installed to prevent air leakage and insect entrance into the case. They may be installed on either side and may be oriented to run any direction. The plug and adapter are installed on the side opposite the water seal.

NOTE: PVC-DWV SOLVENT CEMENT IS RECOMMENDED. FOLLOW THE MANUFACTURER'S INSTRUCTIONS.

DRIP PIPING

NOTE: IMPROPERLY INSTALLED DRIP PIPING CAN SERIOUSLY INTERFERE WITH THE OPERATION OF THE REFRIGERATED EQUIPMENT AND RESULT IN COSTLY MAINTENANCE AND PRODUCT LOSS. BELOW ARE RECOMMENDATIONS WHICH SHOULD BE FOLLOWED WHEN INSTALLING DRIP PIPING.

1. Never use pipe smaller than the nominal diameter of the pipe supplied with the case.

2. Always provide as much down hill slope ("fall") as possible; 1/8 inch per foot is the preferred minimum.

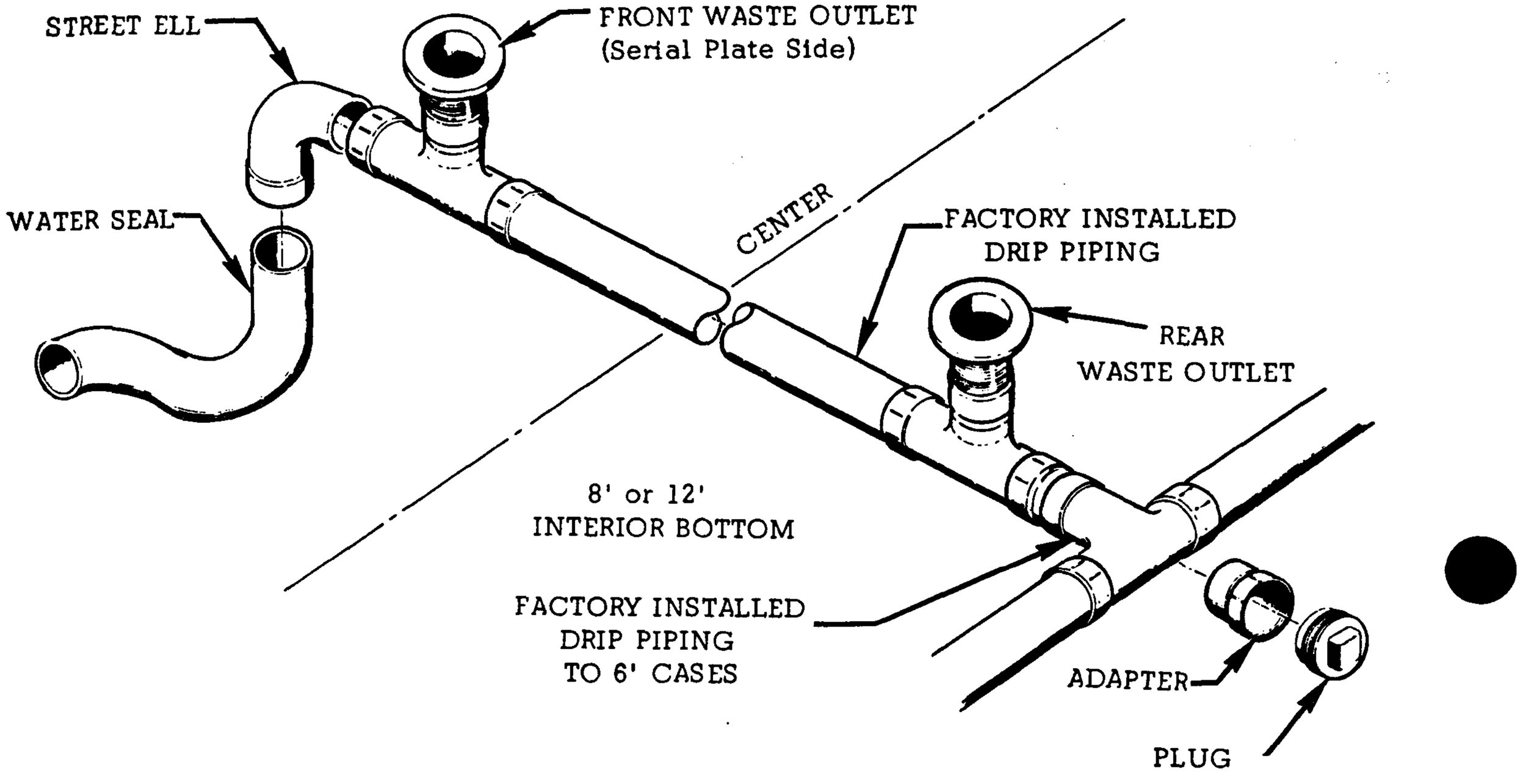
3. Avoid long runs of drip pipes which make it impossible to provide the "fall" necessary for good drainage.

4. Never use two water seals in series in any one drip pipe. Double water seals will cause an air lock and prevent draining.

5. Prevent drip pipes from freezing. Where pipes are located in a cold air space, provide means to prevent freezing.

   NEVER install drip pipes in contact with uninsulated suction lines. Suction lines should be insulated with a non-absorbent insulation such as Armstrong's Armaflex.

6. Provide a suitable air break between flood rim of floor drain and outlet of drip pipes.



When a 6' case is joined to both ends of an 8' or 12' case, all interconnecting piping of the six foot case will be complete and the water seal can only be installed to the front of the case as shown above.

INSTALLING SPLASHGUARD

The splashguard is shipped separately inside of each refrigerator. After cases have been leveled and joined and all drip piping, electrical and refrigeration work has been completed, install the splashguard. The Splashguard Leveling Bracket (Item A) has a maximum extension of one (1) inch for uneven floors. After adjusting brackets flush with the floor, position splashguard UP BEHIND THE FRONT PANEL FIRST, then position the lower portion over the previously adjusted brackets. See Illustration.

For fixtures that are to be elevated off the floor, install Elevating Member Splashguard Kit according to the instructions supplied with the kit.

SEALING SPLASHGUARD TO FLOOR

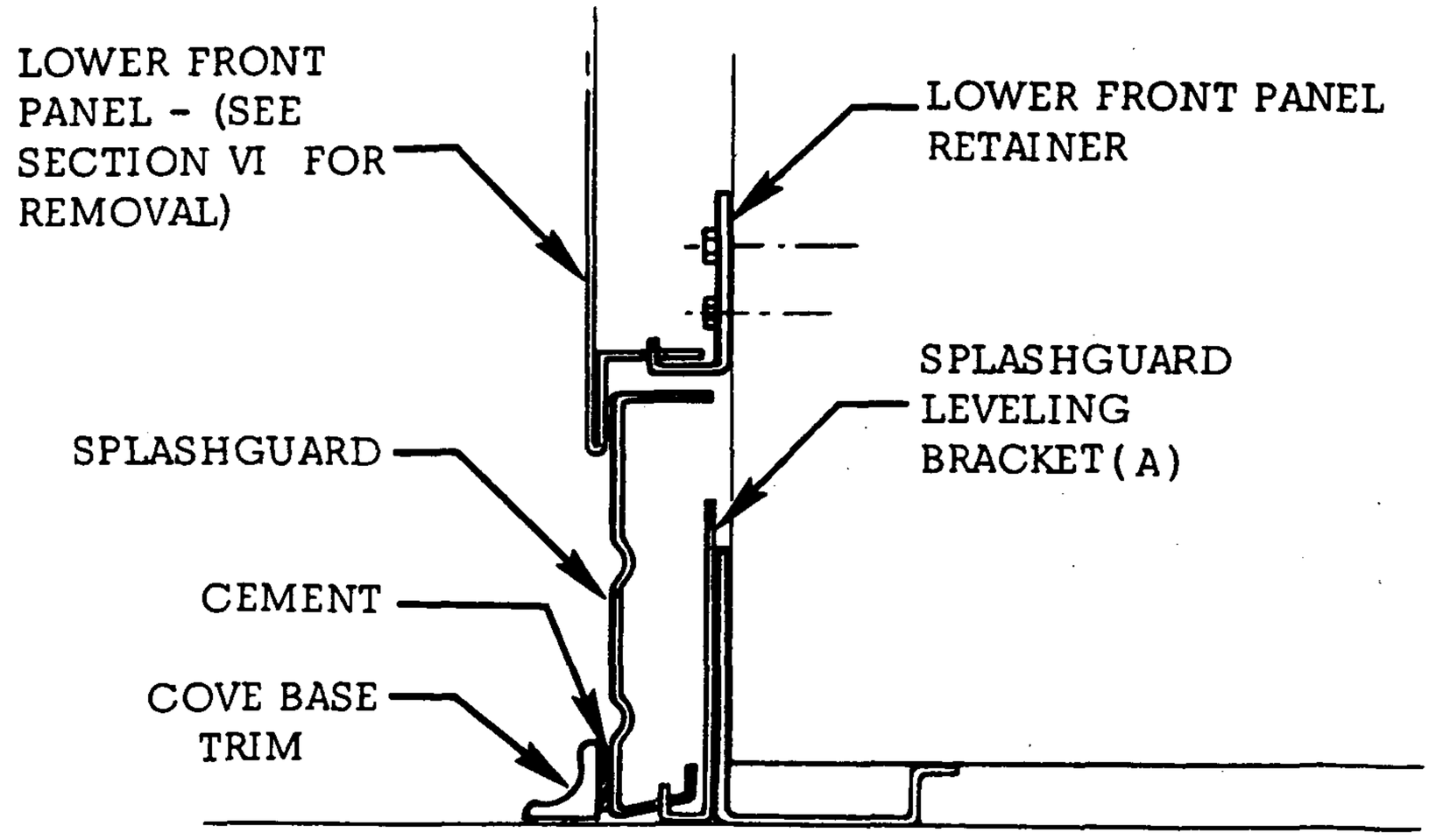
If required by local sanitary codes or if customer so desires, splashguards may be sealed to the floor using a Vinyl Cove Base Trim such as produced by Armstront, Kentile, Johnson, etc., from local floor covering supplier,(see illustration below). The size needed will depend on how much the floor is out of level.

When installing the cove base trim to the splashguard:

STEP 1. Remove all dirt, wax and grease from surface area of splashguard where adhesion will be necessary. This will insure a good, secure installation.

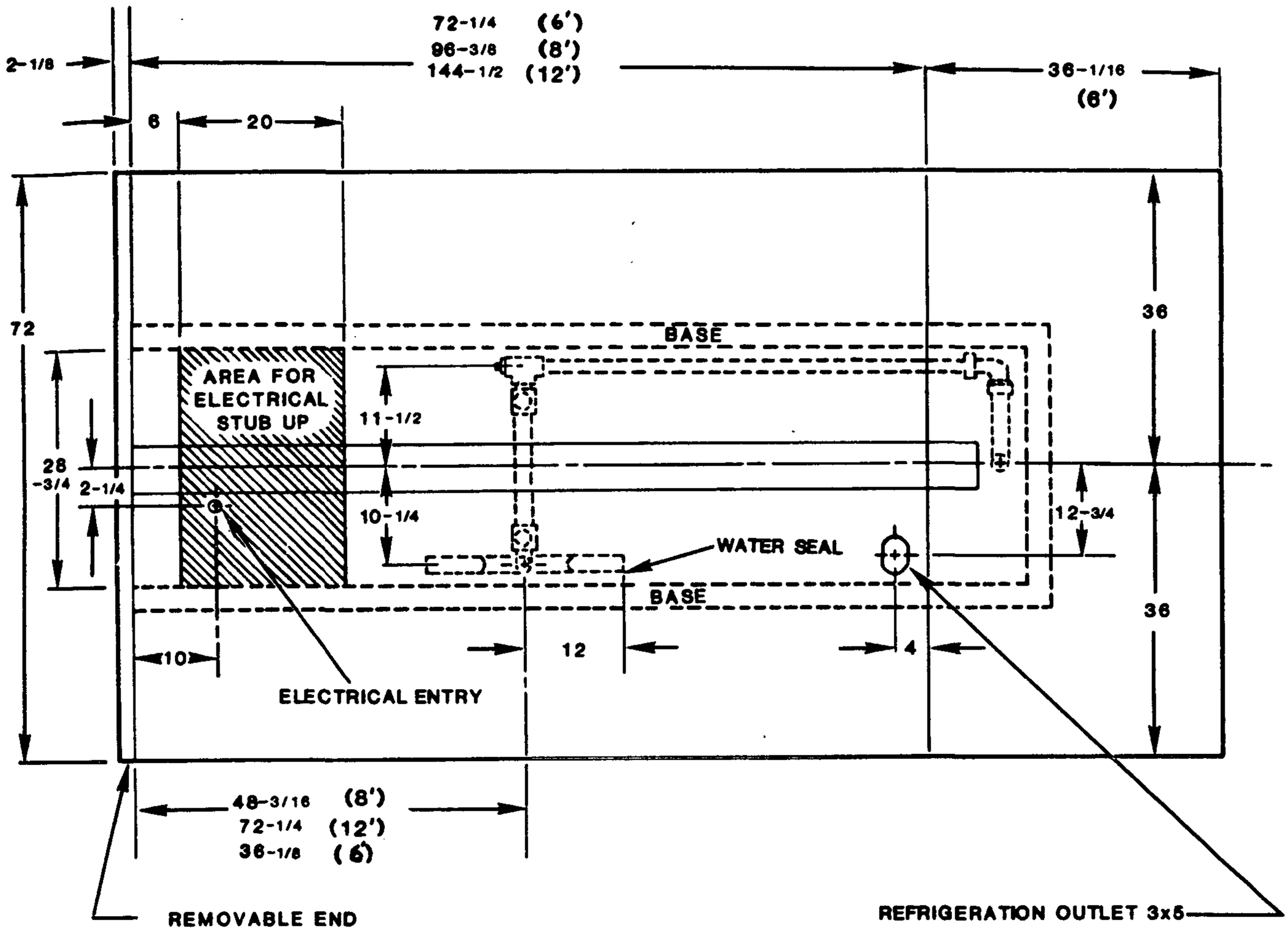
STEP 2. Apply a good contact cement to the cove base trim and allow the proper drying time according to directions supplied with cement.

STEP 3. Install cove base trim so that it is lying flush with store floor.

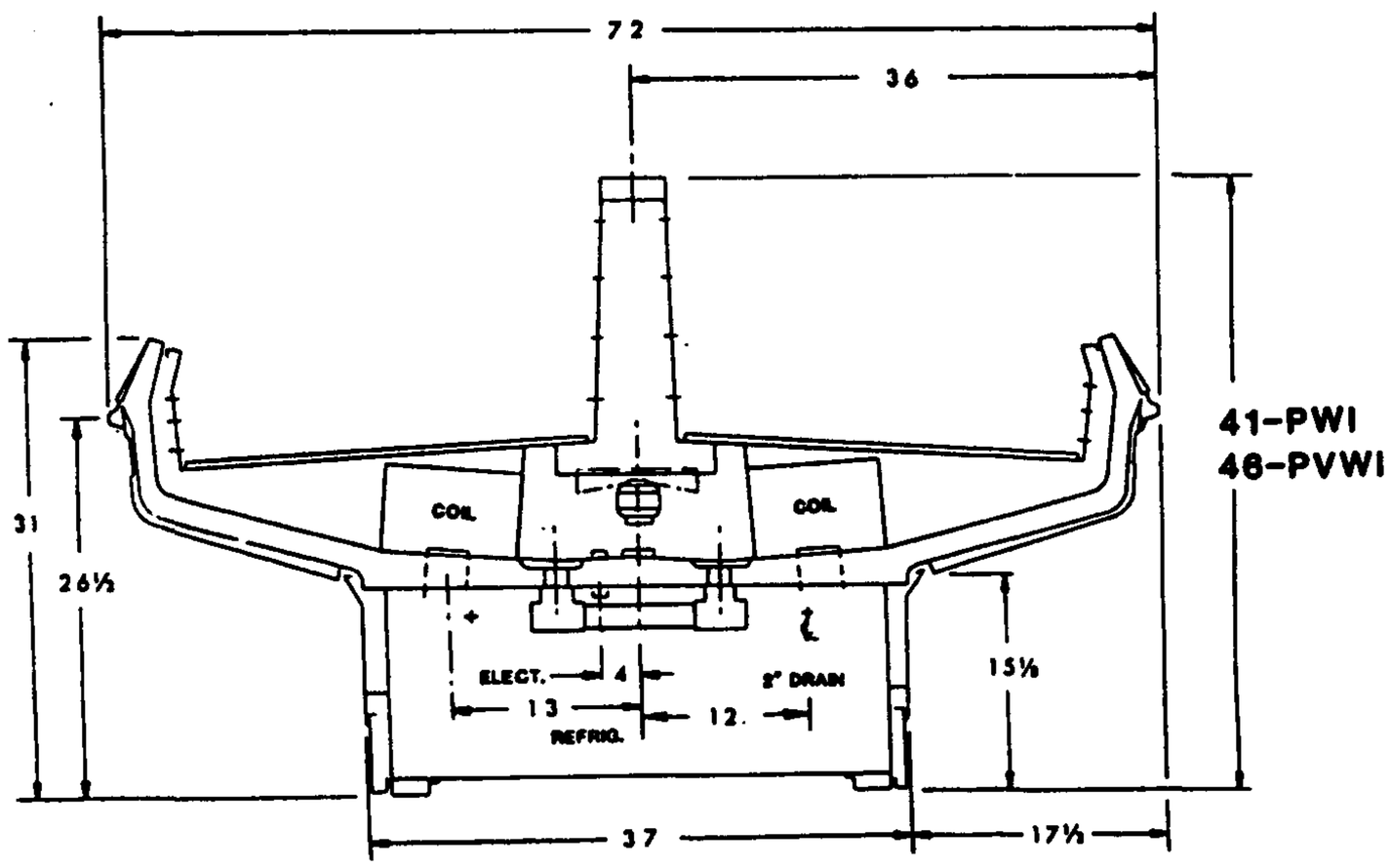


PLAN VIEW

PWI & PWIN
PVWJ & PVWIN



PWI - PVWI



WIDE ISLAND PRODUCE

SECTION 3

REFRIGERATION

NOTE: THIS SECTION APPLIES TO PWIC6, PVWIC6, PWI & PVWI-8 or 12' MODELS ONLY

REFRIGERANT TYPES

These refrigerators will be supplied equipped for operation on R-502 refrigerant unless otherwise specified on the Purchase Order. See Serial Plate located as shown on Page 4 for proper type refrigerant.

REFRIGERANT PIPING

Refrigerant line connection sizes:

LIQUID LINE _____ 3/8" O D

SUCTION LINE _____ 7/8" O D

These connections are to be made in the front coil compartment at the right-hand end (facing front).

Piping for refrigerators operating on the same refrigeration system may be run inside through the end frame openings. DO NOT RUN REFRIGERANT LINES OF REFRIGERATORS CONNECTED TO ONE CONDENSING UNIT OR REFRIGERATION SYSTEM THROUGH THOSE CONNECTED TO ANOTHER CONDENSING UNIT OR REFRIGERATION SYSTEM.

The refrigerant line outlet (3" x 5") is located in the front, bottom at the right-hand end. Remove the necessary amount of insulation to route the lines through the opening. AFTER CONNECTIONS ARE MADE, THE OUTLETS MUST BE THOROUGHLY SEALED BOTH INSIDE AND OUTSIDE.

For a rapid and thorough seal, we recommend that these 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 case with a butyl caulking to prevent absorption of moisture during cleaning or when case is defrosting.

Refrigerant lines should be sized as shown on the refrigeration legend furnished by the owner; if a legend has not been furnished, refer to Section 4 of the Hussmann Application Engineering manual for guidance.

1. PIPING INSULATION:

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

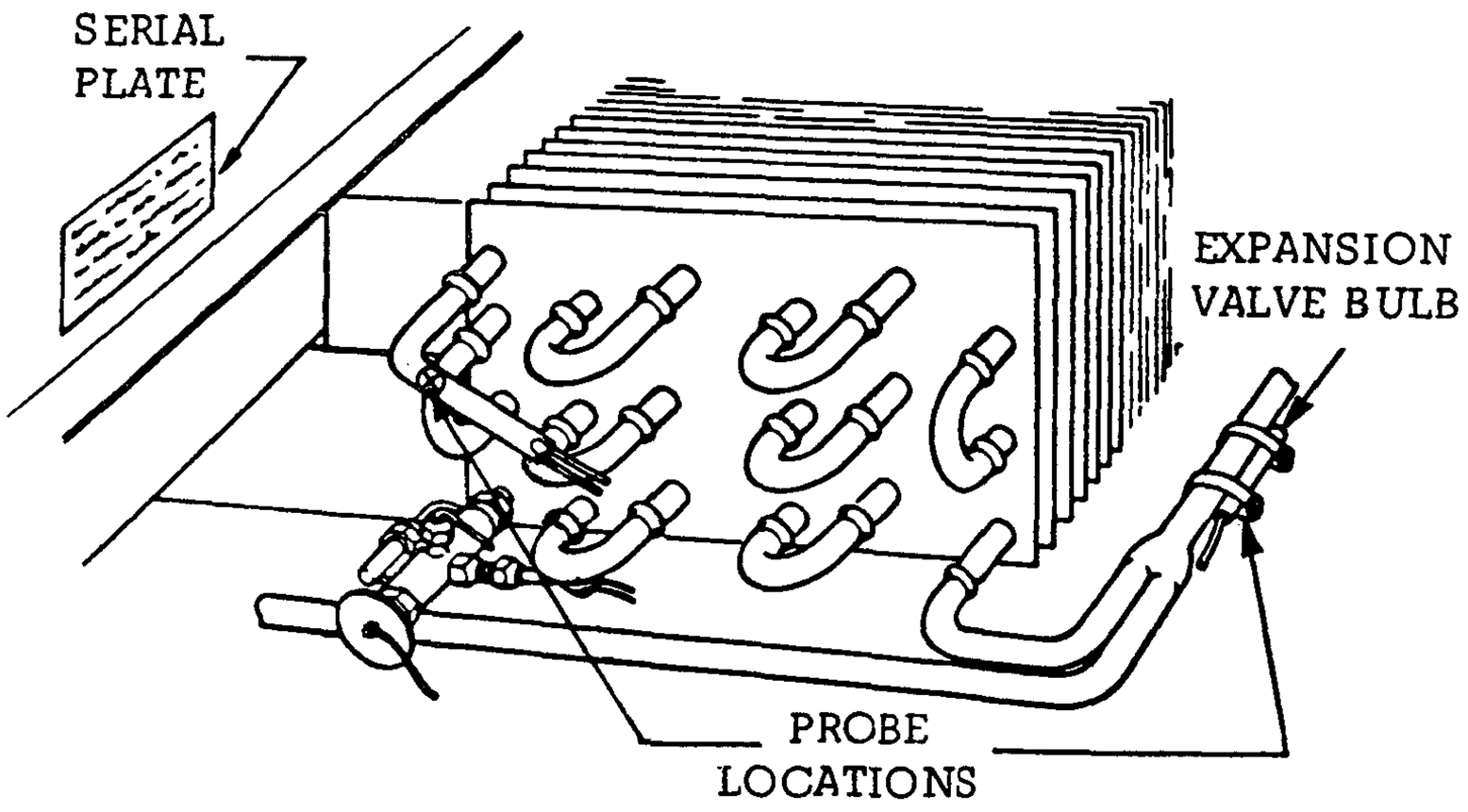
2. PRESSURE DROP:

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

EXPANSION VALVE ADJUSTMENT

The expansion valve, located at the left-hand end under the display pans, must be adjusted to a setting which will fully feed the evaporator. To achieve the proper setting the refrigerator must first have been in operation long enough to have reached the approximate intended operating temperature and air flow should not be restricted by heavy frost formation on the evaporator. Adjust valves as follows:

Attach two sensing probes (either thermocouple or thermistor types) to the evaporator, one under the clamp holding the expansion valve bulb and the other securely taped to one of the return bends two-thirds (2/3) through the evaporator circuit (see sketch below). 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°F to 5°F. With this adjustment, during a portion of the hunting the temperature difference between the probes may be less then 3°F, at times as low as 0°F. Make adjustment of no more than one-half (1/2) turn at a time of the valve stem and wait for at least fifteen minutes before rechecking the probe temperatures and making further adjustments.



CASE MODEL	TYPE OF REFRIGERANT	EXPANSION VALVE	DISTRIBUTOR	
			OFF-TIME	KOOLGAS
PWI-8 PVWI-8	R-502 R-22 R-12	BFRE A C BFVE A C BFFE A C	D115-2-¼-1½ D115-2-¼-1 D115-2-¼-1½	D116-2-⅜-1½ (3/8) D116-2-⅜-1 (3/8)
PWI-12 PVWI-12	R-502 R-22 R-12	BFRE C C BFVE A C BFFE C C	D115-2-¼-2 D115-2-¼-1½ D115-2-¼-2	D116-2-⅜-2 (3/8) D116-2-⅜-1½ (3/8)
PWIC6 PVWIC6	R-502 R-22 R-12	BFRE A C BFVE A C BFFE A C	D115-2-⅛-1 D115-2-⅛-½ D115-2-⅛-1	D116-2-⅜-1 (3/8) D116-2-⅜-½ (3/8)

REFRIGERATION CONTROLS

CONTROL TYPE		CONTROL SETTINGS				
		TYPE REFRIGERATION SYSTEM				
		CONVENTIONAL MULTIPLEXING				MIXED MULTIPLEXING
		INDOOR UNIT 1			OUTDOOR UNIT	
TYPE TEMP. CONTROL		LOW PRESSURE		THERMOSTAT	THERMOSTAT	
TYPE DEFROST CONTROL		LOW PRESSURE	TIMER	TIMER	TIMER	TIMER
LOW PRESSURE (R-502, psig)	CUT-OUT	47 - 54 [2]	47 - 54	33	(5)	- - -
	CUT-IN	83	60 to 63	60 to 63		- - -
THERMOSTAT (CUT-OUT) 3		- - -	- - -	32°F to 33°F	32°F to 33°F	- - -
C.D.A. VALVE		- - -	- - -	- - -	- - -	32°F to 33°F 6
DEFROST TIMER 4	DEFROST FREQUENCY		Every 8 hrs.	Every 8 hrs.	Every 8 hrs.	Every 8 hrs.
	DEFROST LENGTH (or Fail-safe)	- - -	40 min.	40 min.	46 min.	46 min.
	TERMINATION PRESSURE	- - -	83 psi	83 psi	- - -	- - -

1. Preferred means of temperature control is by a thermostat.

2. The settings shown are approximate due to variables such as pressure drop and machine sizing. Care and good judgement must be used in deciding on the exact cut-out setting since the condensing unit must cycle at least every 8 hours during even the warmest summer weather; if the cut-out setting is too low failure to cycle will result, evaporator will become blocked with frost, fixture refrigeration will cease and compressor may be damaged due to refrigerant flood-back. Final adjustment must be made after the refrigerators are stocked; discharge air temperature will be warmer in an empty refrigerator than in one that is stocked.

REFRIGERATION CONTROLS (Continued)

3. Thermostat should have a differentail of 3°F to 5°F and have its bulb fastened to the fan plenum behind the front evaporator. Set thermostat to open at the discharge air temperature shown; air temperature is measured at the top row of moire grille that feeds air into the main or bottom display compartment. See Section VI, Service Tips, for information on access to the thermostat for adjustment. Frequently the condensing unit is sized to produce warmer discharge air temperature than shown during the summer months. For these installations where the condensing unit does not have sufficient capacity to produce the discharge air temperatures shown, the steps to follow in adjusting the thermostat are:

   Step 1. Measure the discharge air temperature.
   Step 2. Slowly raise the thermostat setting until it opens.
   Step 3. Lower the thermostat setting by the number of degrees the air temperature is above 32°F.

4. With Conventional Multiplexing, the defrost should be pressure terminated for indoor type units (Paragon 8245-20B). For mixed multiplexing, defrost should be time terminated.

5. With outdoor type condensing units, the thermostat must be wired to compressor motor contactor and defrost timer must control a liquid line solenoid valve (pump-down cycle). See Installation Instruction #103654 for additional information about controls and their settings for outdoor type units.

6. Refrigeration temperature is controlled by a C.D.A. valve, (Close on Drop in Air Temperature). See C.D.A. valve Instruction Manual furnished with the condensing unit for complete adjustment information.

SECTION 4

ELECTRICAL

CONNECTIONS

All electrical connections are made at the left-hand end of the fixture in the electrical entrance box behind the lower front panel. See Section 6 for re - moval of lower front panel.

LEADS FOR ALL ELECTRICAL CIRCUITS ARE IDENTIFIED BY A COLORED PLAS - TIC BAND: NEUTRAL WIRE FOR EACH CIRCUIT HAS EITHER WHITE INSULA- TION OR A WHITE PLASTIC SLEEVE IN ADDITION TO THE COLORED BAND.

Light Blue -	Refrigeration Thermostat, Normal Temperature	Brown -	- Fan Motors
Green *	- Ground	Orange or Tan	- Lights

*Either colored band or colored insulation.

CAUTION: THE FIXTURE MUST BE ELECTRICALLY GROUNDED. ALL WIRING AND CONNECTIONS MUST COMPLY WITH NEC AND LOCAL CODES.

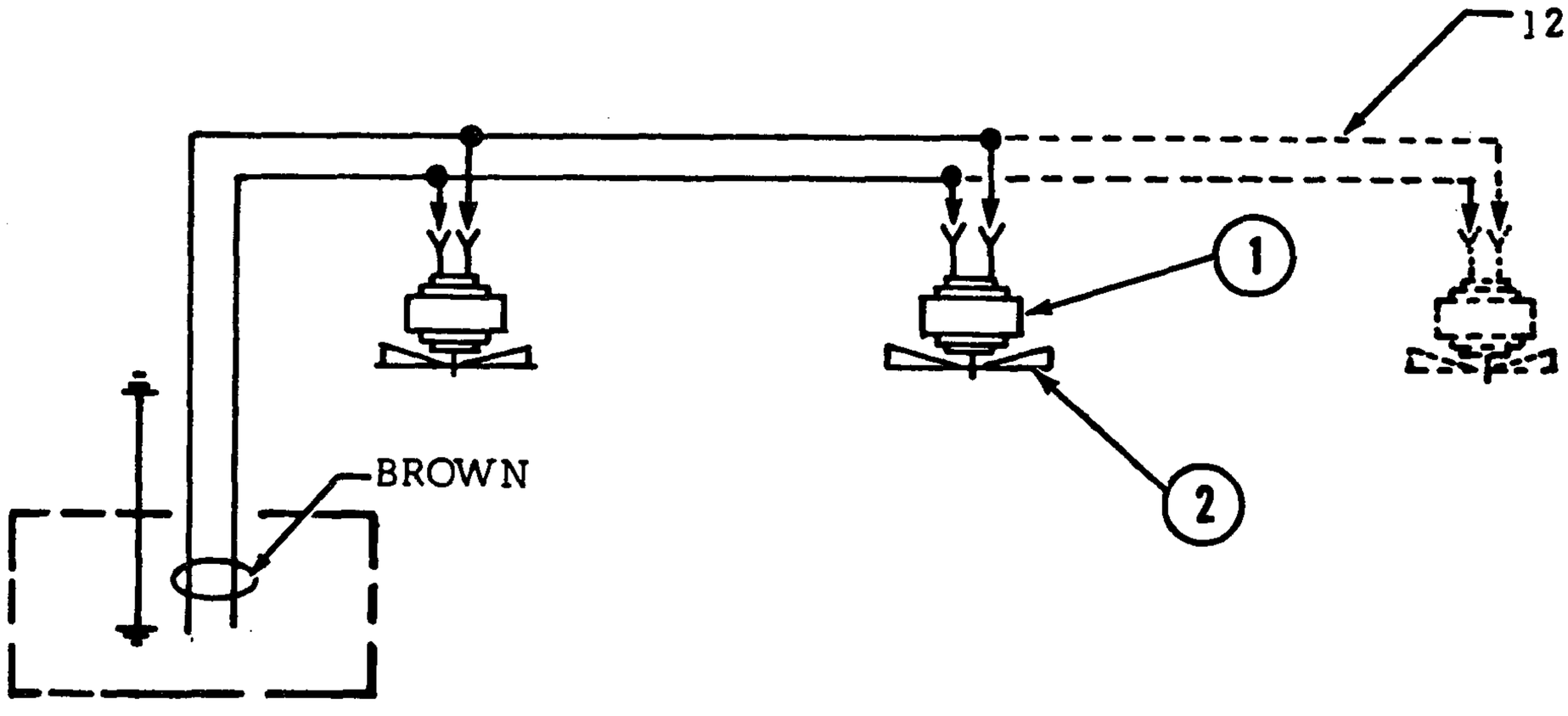
SERIAL PLATE AMPERAGES

(DOMESTIC) CASE MODEL	120 volt, 60 Hertz			
	FANS (1)			
	6' END	6'	8'	12'
PWI - PVWI	--	1.6	1.6	2.3
PWIN - PVWIN	--	--	--	--

(EXPORT) CASE MODEL	220 volt, 50/60 Hertz			
	FANS (1)			
	6 END	6'	8'	12'
PWI - PVWI	--	0.8	0.8	1.1
PWIN - PVWIN	--	--	--	--

1. These are the amperage values stamped on the refrigerators Serial Plate. All field installed wiring must be sized to the Serial Plate Amperages, however, the actual amps may be less than that specified.

WIRING DIAGRAM
120 VOLT CIRCUIT
PWIC6, PWI 8' and 12'
PVWIC6, PVWI8' and 12'

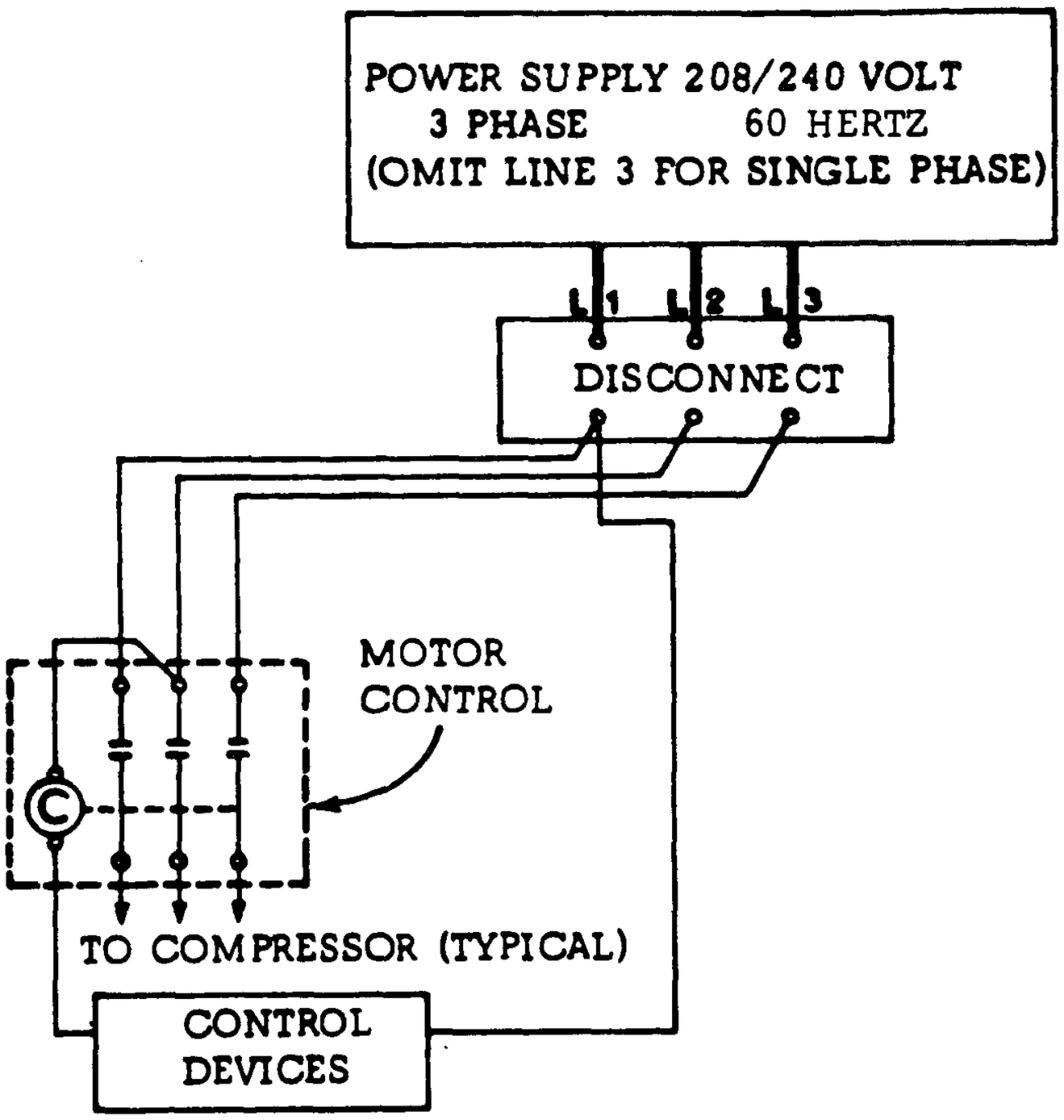


REFRIGERATORS MUST BE GROUNDED

ELECTRICAL REPLACEMENT PARTS

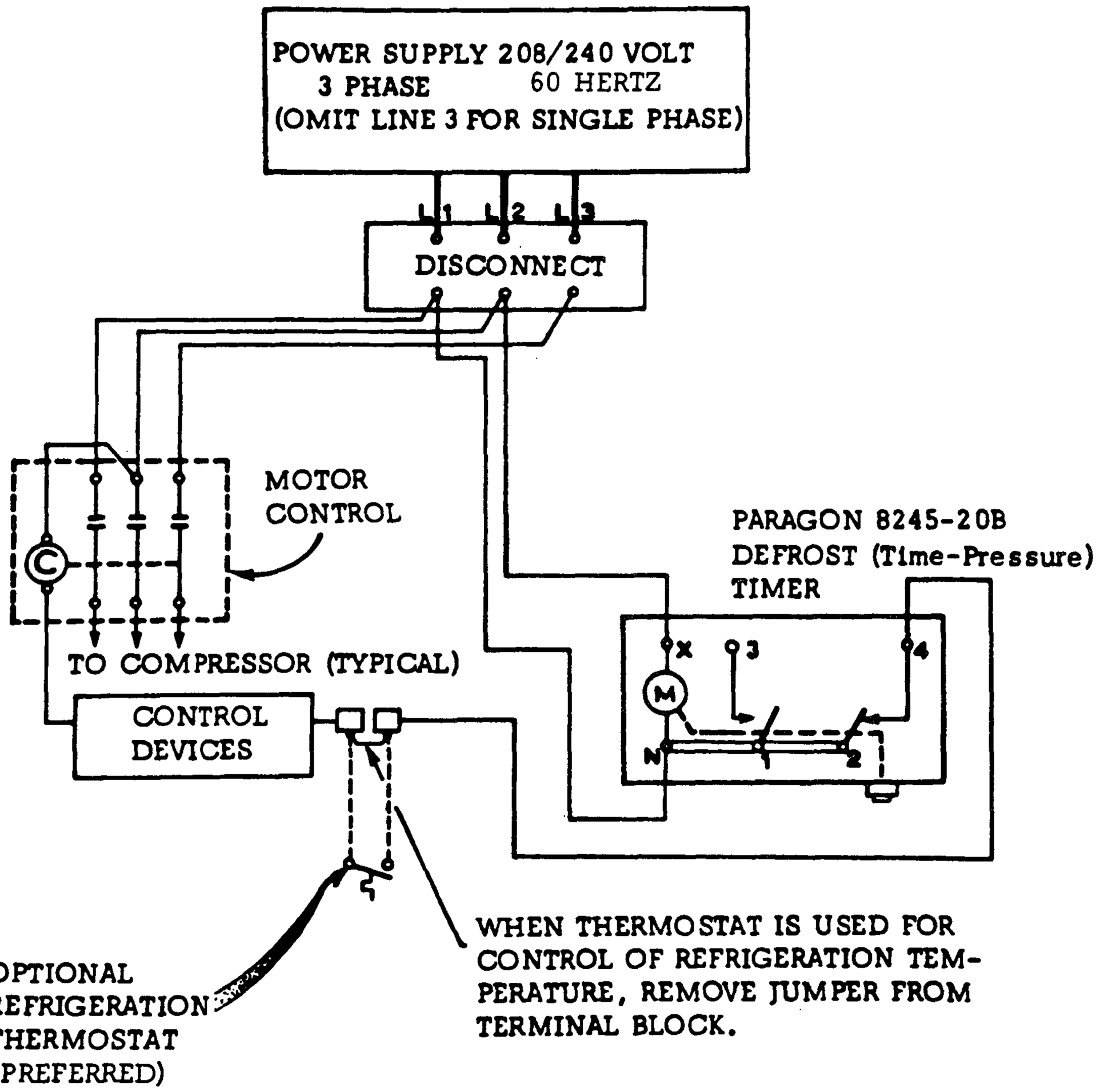
ITEM NO.	PART NUMBER	DESCRIPTION
1.	47000	Fan Motor - GE #5KSM51ECG3799 9W CW 120V
2.	141073	Fan Blade - Morrill FV800 CW 40P Embossing away from motor

Typical wiring diagram for the condensing unit (Conventional Multiplexing) with Off-Cycle Defrost.



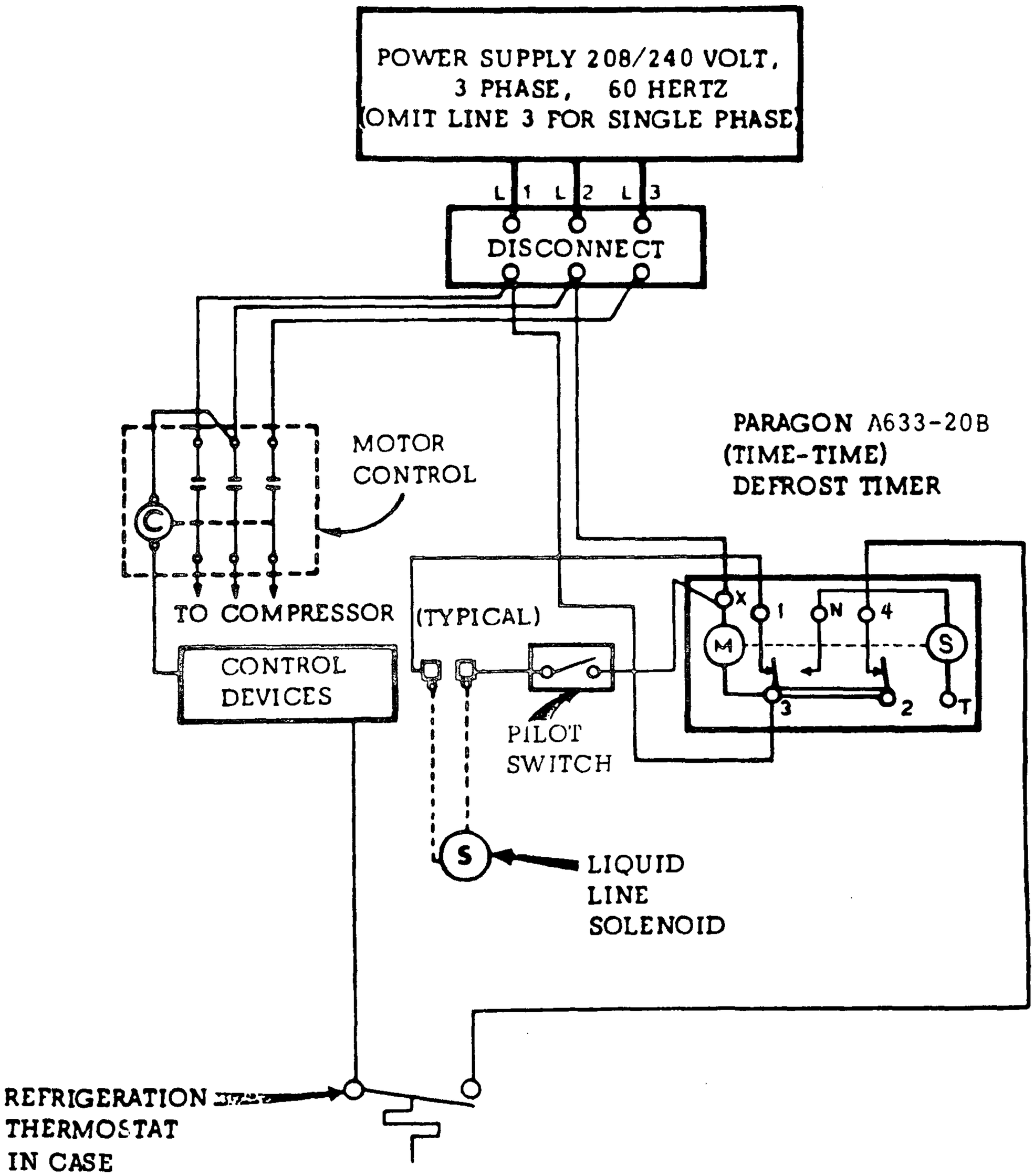
REFRIGERATORS MUST BE GROUNDED

Typical wiring diagram for the condensing unit (Conventional Multiplexing) with Timed Defrost.



REFRIGERATORS MUST BE GROUNDED

CONVENTIONAL-OUTDOOR TYPE CONDENSING UNIT CONTROL PANEL WIRING DIAGRAM WITH TIME - TIME TYPE DEFROST TIMER



REFRIGERATORS MUST BE GROUNDED

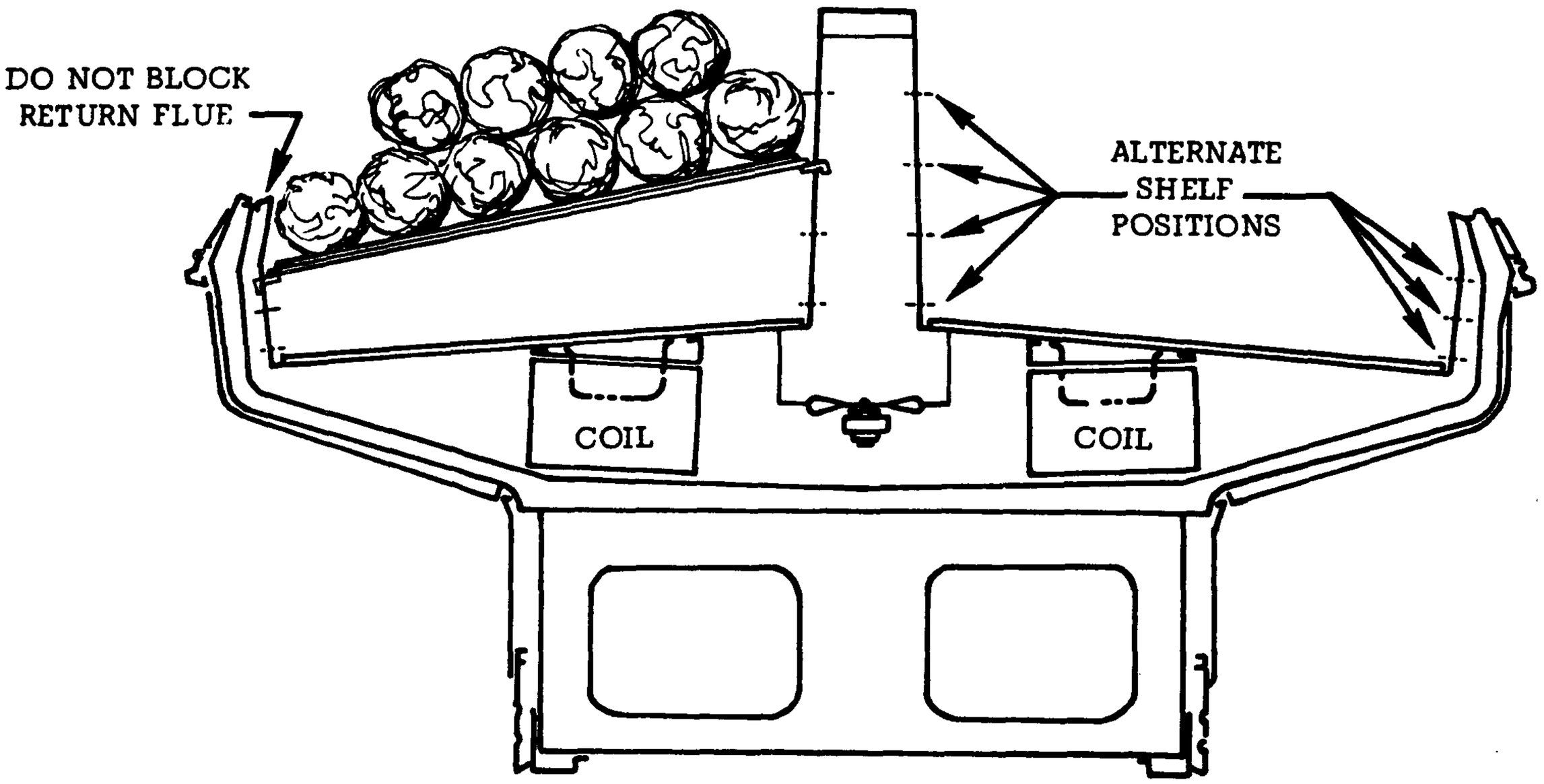
SECTION 5

USER'S INSTRUCTIONS

STOCKING

Merchandise should not be placed in this refrigerator until all refrigeration controls have been adjusted and refrigerator is at proper operating temperature.

At no time should the refrigerator be stocked beyond the load limits indicated on the fixture.



CARE AND CLEANING

Long life and satisfactory performance of any equipment is dependent upon the care given to it. To insure long life, proper sanitation and minimum maintenance costs, the fixture should be thoroughly cleaned, debris removed and the interior washed down monthly.

To facilitate quick and complete cleaning, this refrigerator has been designed with removable front shelf supports. These supports are removable in four foot sections without the need for tools by simply lifting each section up and off of the shoulder rivets located at both ends of each section.

The interior bottom of each fixture is of easy to clean, corrosion resistant material designed for maximum sanitation. All domestic detergents, even ammonia base cleaners are recommended. Sanitizing solutions will not harm the case interior bottom, however, these sanitizers should be used according to the manufacturer's directions.

CAUTION: DO NOT USE STEAM OR EXTREMELY HOT WATER TO WASH THE INTERIOR BOTTOM OF THESE CASES.

To prevent mold and mildew, "BAC-GARD" manufactured by Holliston Laboratories, Inc., may be used for killing bacteria and odors. "ONE STROKE ENVIRON" manufactured by Vestal Laboratories, Division of W. R. Grace and Company, may also be used.

When cleaning, do not use a hose with high water pressure and never introduce water into the fixture faster than the drip pipe can carry it away.

To preserve the exterior finish of the fixture, use warm water and a mild detergent.

DO NOT USE ABRASIVE CLEANERS OR STEELWOOL SCOURING PADS AS THESE WILL MAR THE FINISH.

SECTION 6

SERVICE TIPS

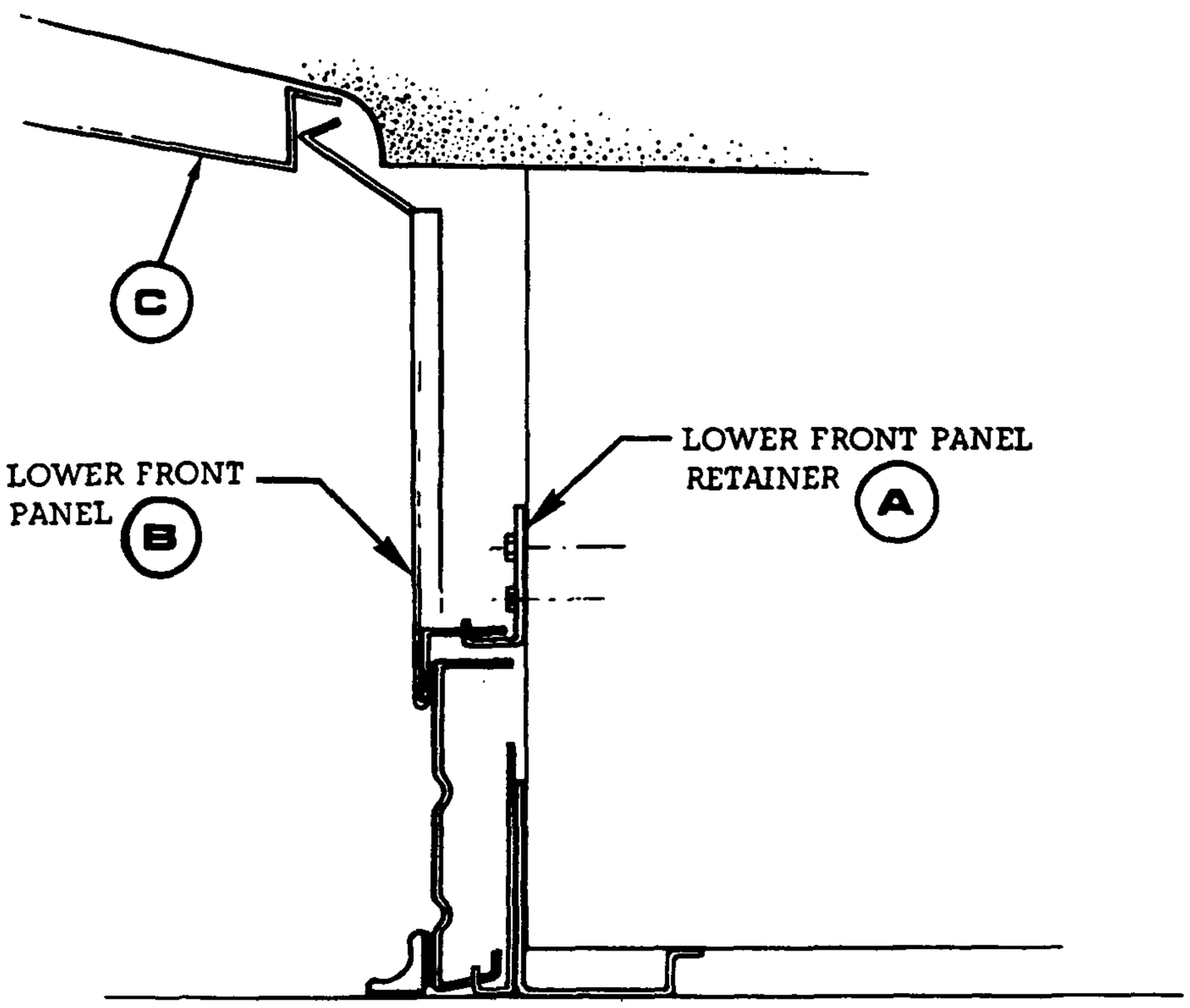
REMOVAL AND REPLACEMENT OF LOWER FRONT PANEL

A. TO REMOVE PANEL:

1. Slide panel upward off Retainer (A).
2. Pivot lower end of panel outward from fixture.
3. Remove Panel (B).

B. TO REPLACE PANEL:

1. Insert upper edge of Panel (B) under the Exterior Upper Front Panel (C).
2. Pivot lower edge of Panel (B) toward fixture.
3. Slide Panel upward, then lower into position onto Retainer(A).



REFRIGERATION THERMOSTAT & CDA VALVE SENSOR LOCATION

When these optional items are factory installed, they will be installed as shown below. Both the CDA sensor and refrigeration thermostat bulb will be fastened to the fan plenum cover on the serial plate side of the case beneath the display pans and approximately 24" from the left-hand end of the case.

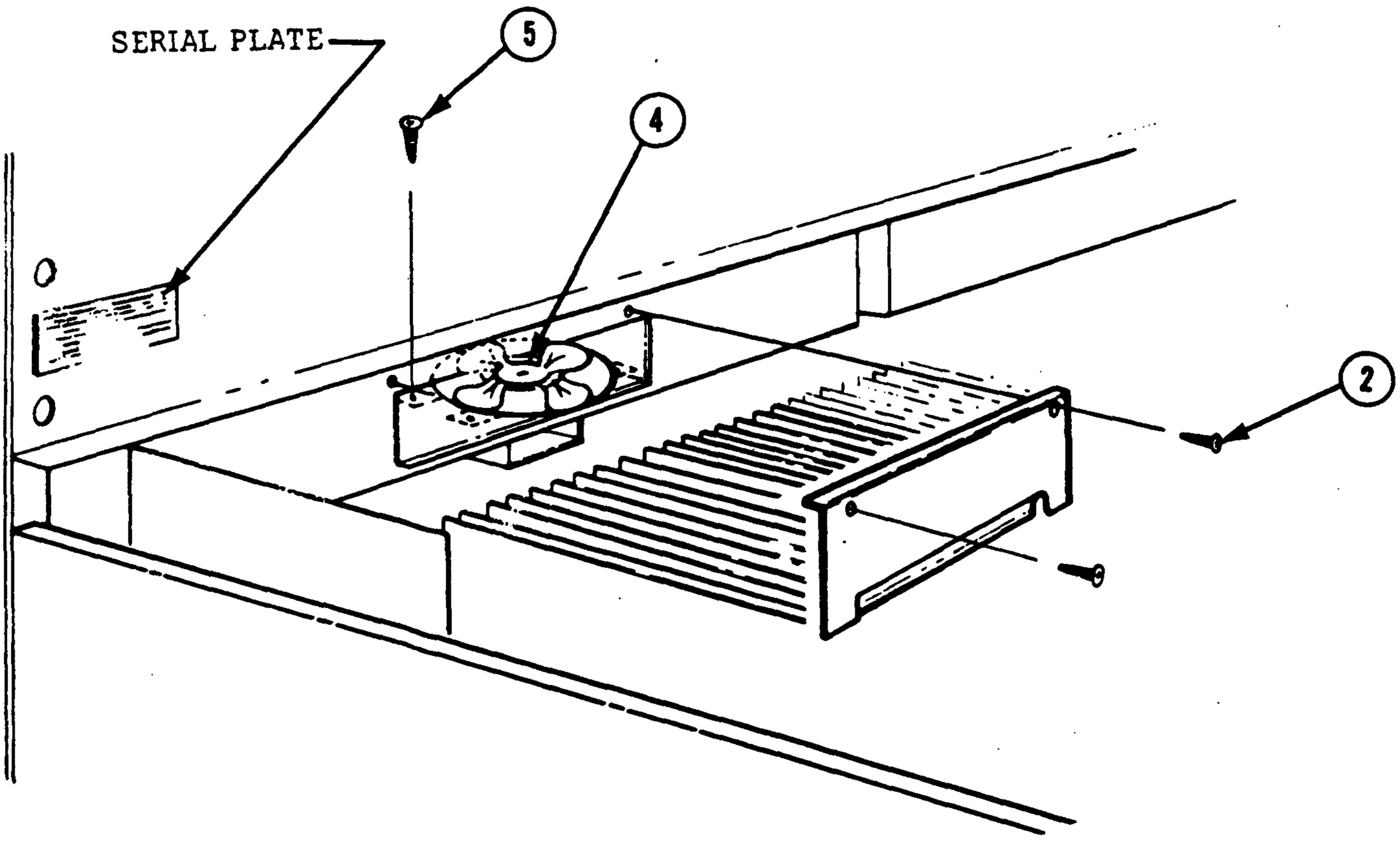
The sensor leads and the capillary tube of the thermostat will be routed down the plastic nipple to the bottom of the case.

An access panel will be provided in the lower front for adjustment of the refrigeration thermostat.

FAN MOTOR AND FAN BLADES

IMPORTANT: FAN BLADE EMBOSSING TO FACE AWAY FROM MOTOR. DO NOT REVERSE WHEN REPLACING.

1. Remove the bottom display pans from the serial plate side of the case.
2. Remove the access panel from the fan plenum.
3. Disconnect fan motor from wiring harness.
4. Remove fan blade.
5. Remove screws which hold fan bracket to plenum.
6. Slide motor and bracket out from beneath plenum.
7. 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

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 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