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**HUSSMANN**  
CORPORATION

## CWI

WIDE ISLAND REFRIGERATED  
MERCHANTISERS FOR CHEESE  
AND SAUSAGE PRODUCTS

# INSTALLATION / SERVICE INSTRUCTIONS

**ENG.NO. 302266G**

May, 1989  
Supersedes #302266E  
Dated April, 1988  
Section 1

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WARRANTY

REVISION CHANGES ("G")

New Fan Motor part number, page 16

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**

SECTION 1

GENERAL INFORMATION

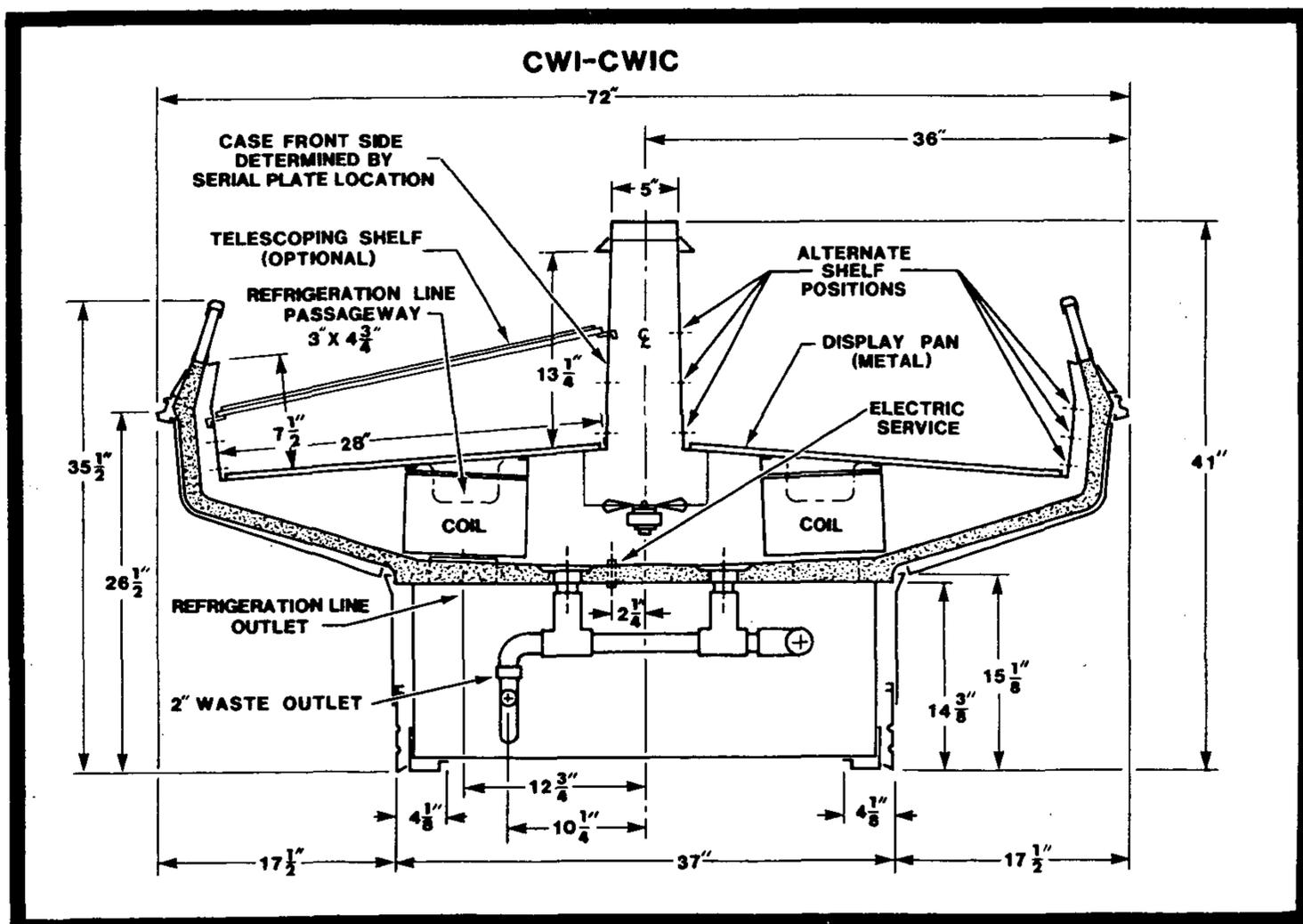
MODEL DESCRIPTION

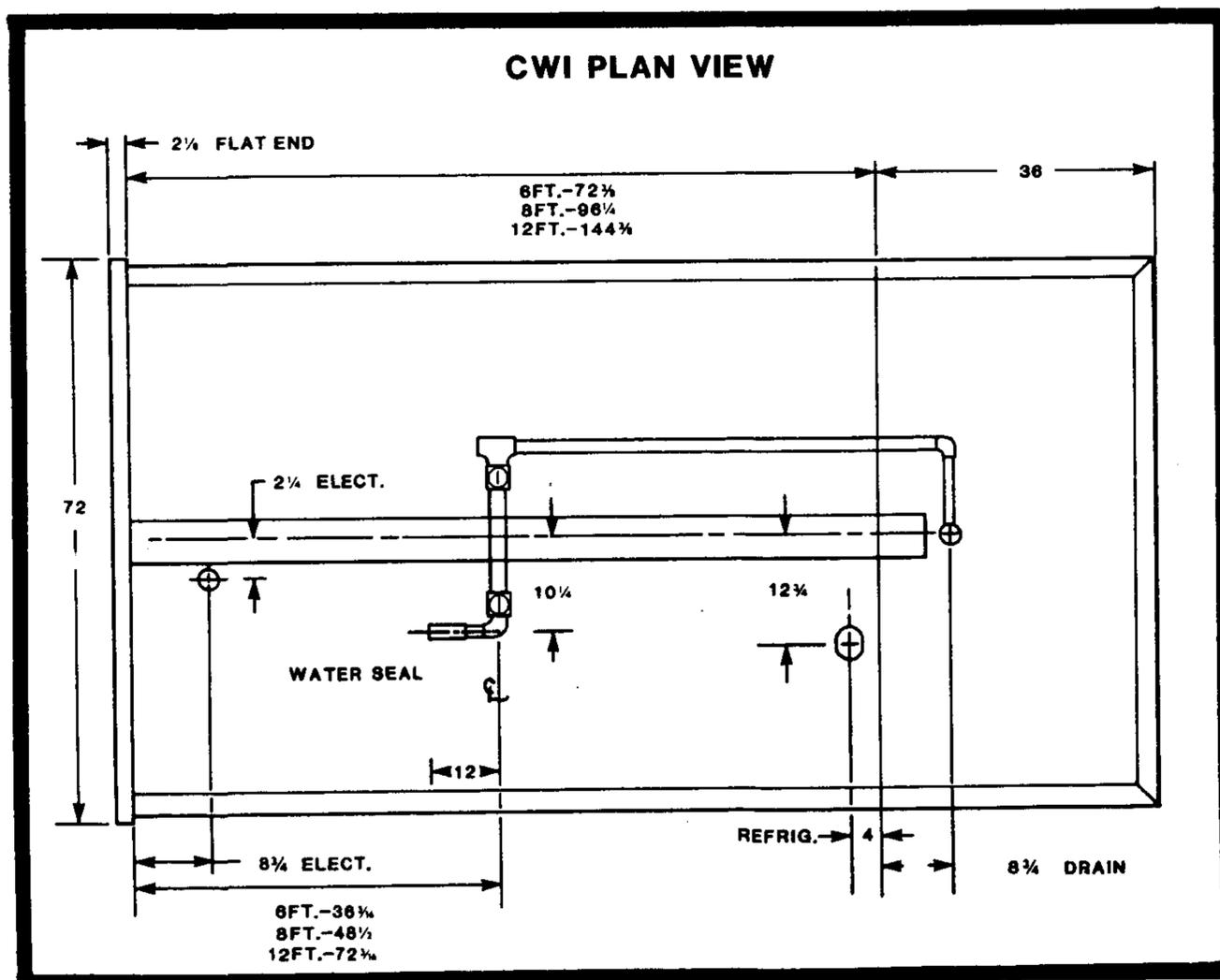
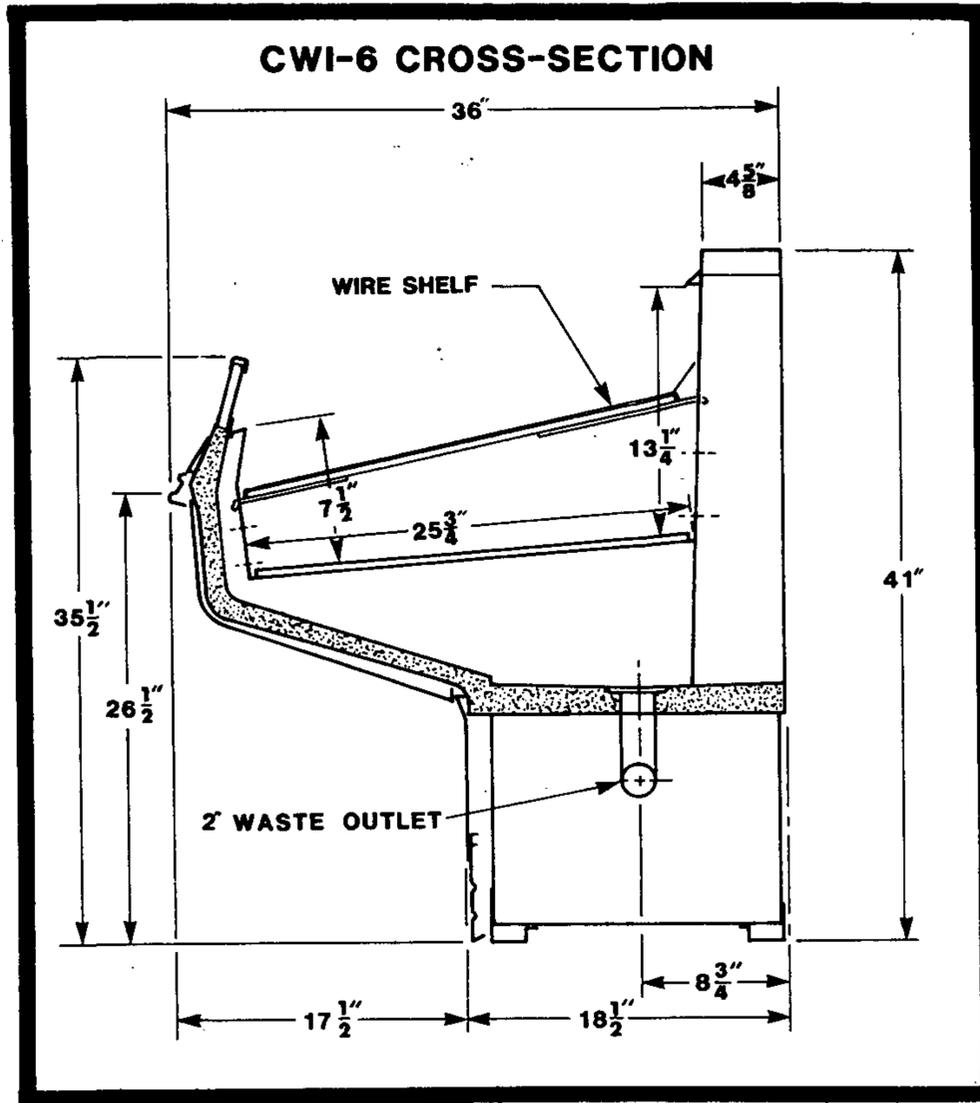
The CWI wide island refrigerated merchandiser is specifically designed to display and protect packaged cheese and sausage. The CWI is available in 6, 8' or 12' lengths. A 6' wrap around end model is also available which when ordered, will be factory joined to the parent 6', 8' or 12' model.

MODEL NOMENCLATURE	DESCRIPTION
CWIC-6	Refrigerated, Wide Island Merchandiser (6' Long)
CWI-8	Refrigerated, Wide Island Merchandiser (8' Long)
CWI-12	Refrigerated, Wide Island Merchandiser (12' Long)
CWI-6	Refrigerated, Wrap Around End Merchandiser

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.





SECTION 2INSTALLATIONSHIPPING DAMAGE

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

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.

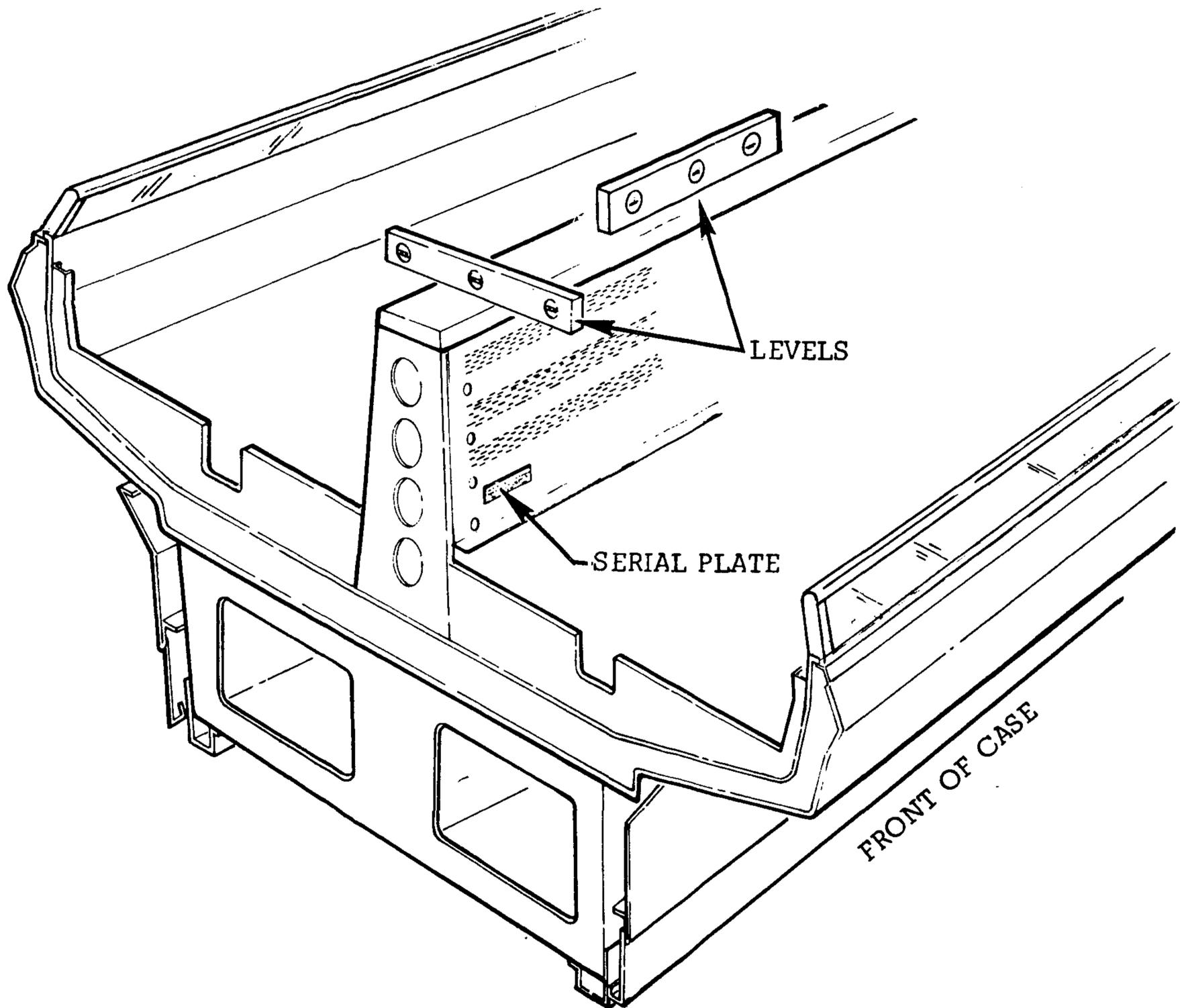
The front of these cases is readily identified by the location of the Serial Plate. (See following illustration.) Since all electrical and refrigeration connections will be made at the front side, they will need to be orientated according to the store plan layout.

JOINING

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

LEVELING

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 carpenters level as shown 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 adaptor are installed on the side opposite the water seal.

NOTE: PVC-DWV SOLVENT CEMENT IS RECOMMENDED. FOLLOW THE MANUFACTURERS INSTRUCTIONS.

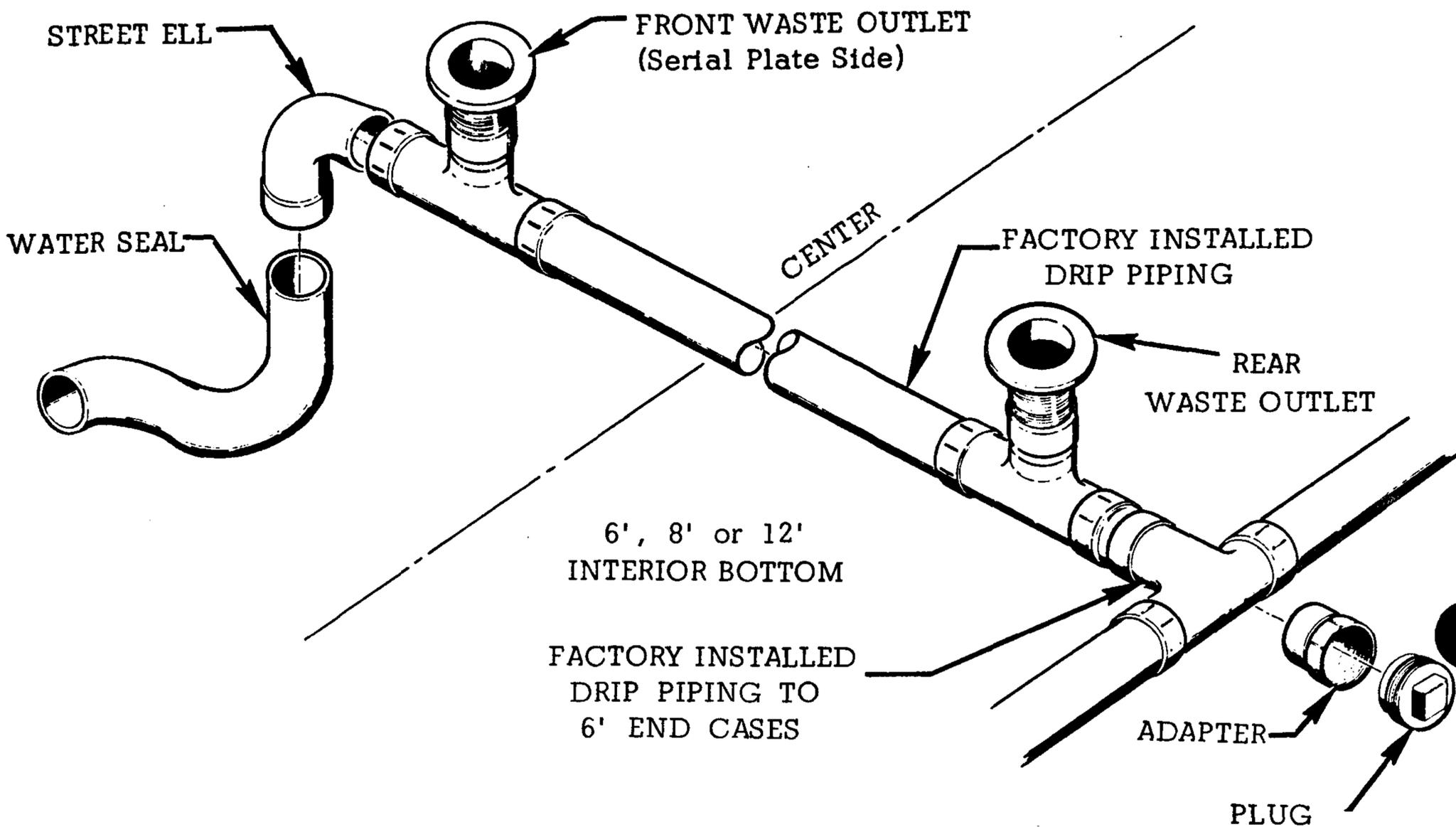
### DRIP PIPING

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-absorbant 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 the parent 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.

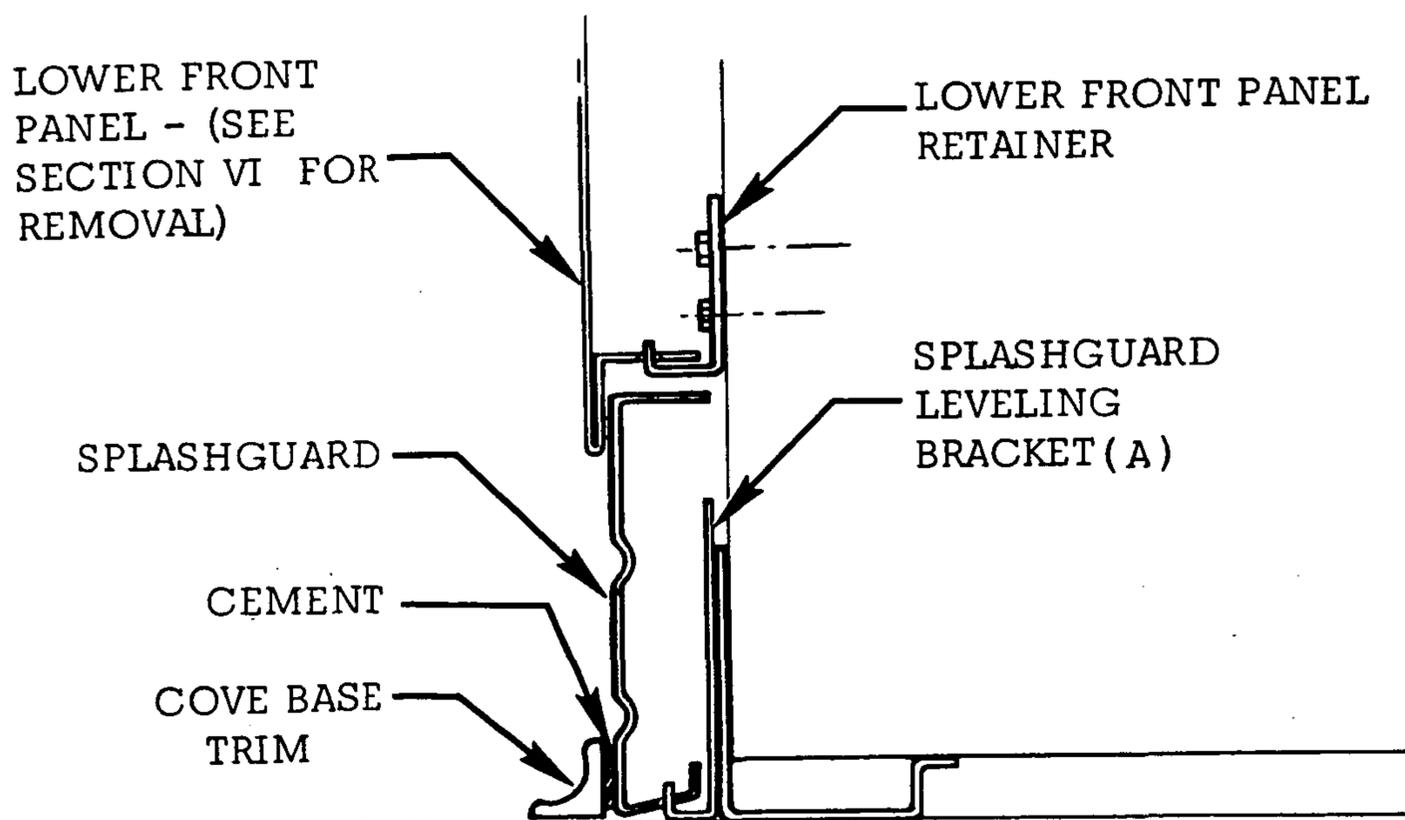
For fixtures that are to be elevated off the floor, install Elevating Member Splashguard Kit according to the instructions supplied with the kit.

## 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 Armstrong, 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.



**SECTION 3**  
**REFRIGERATION**

**REFRIGERANT**

These refrigerators will be equipped for operation on R-502 refrigerant unless otherwise specified on the factory order. The correct type of refrigerant will be stamped on the refrigerators serial plate located at the left hand end on the interior back liner.

**REFRIGERANT PIPING**

LINE SIZES:           Liquid Line.....3/8" OD  
                          Suction Line....7/8" OD

**OUTLET LOCATION**

The refrigerant line outlet is located at the right hand end of the refrigerator as viewed from the front beneath the display pans.

After connections have been made, seal this outlet thoroughly both on the inside and the outside. We recommend using an aerosol dispensed urethane type of insulation.

**MULTIPLEXING**

Piping of refrigerators operating on the same refrigeration system may be run from refrigerator to refrigerator through the end frame saddles provided for this purpose. **DO NOT RUN REFRIGERANT LINES THROUGH REFRIGERATORS THAT ARE NOT ON THE SAME REFRIGERATION SYSTEM** or poor refrigeration control and compressor failure can occur.

**LINE SIZING**

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

**OIL TRAPS**

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

**PRESSURE DROP**

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

**INSULATION**

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

REFRIGERATION PARTS LIST (Sporlan Nomenclature)

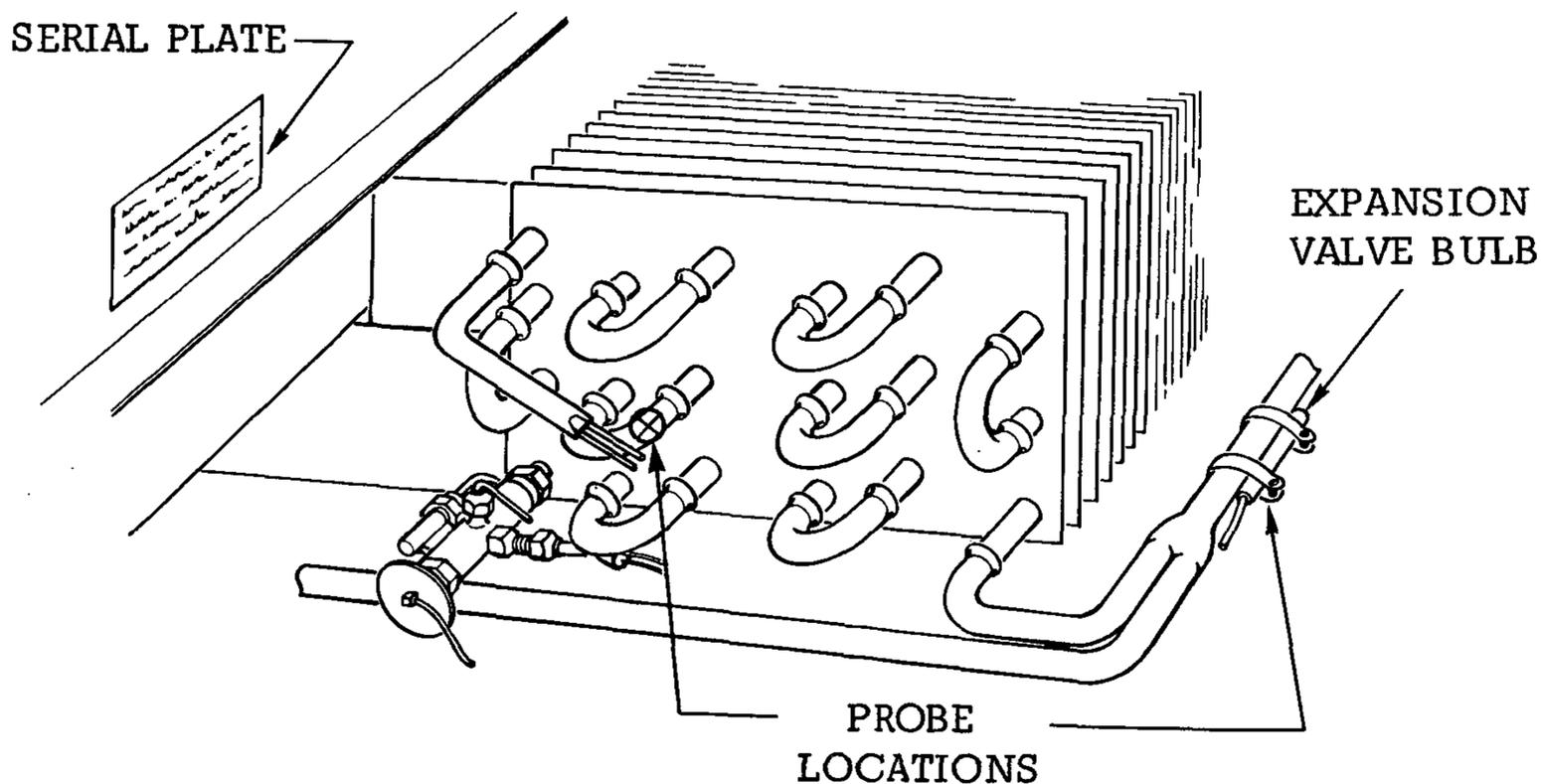
CASE MODEL	TYPE OF REFRIGERANT	EXPANSION VALVE	DISTRIBUTOR	
			OFF-TIME	* KOOLGAS
CWIC-6	R-502	BFRE-A-C	D115-2- $\frac{1}{4}$ -1	D116-2- $\frac{1}{4}$ -1 (3/8)
	R-22	BFVE-A-C	D115-2- $\frac{1}{4}$ -1	D116-2- $\frac{1}{4}$ -1 (3/8)
	R-12	BFFE-A-C	D115-2- $\frac{1}{4}$ -1 $\frac{1}{2}$	D116-2- $\frac{1}{4}$ -1 $\frac{1}{2}$ (3/8)
CWI-8	R-502	BFRE-A-C	D115-2- $\frac{1}{4}$ -2	D116-2- $\frac{1}{4}$ -1 (3/8)
	R-22	BFVE-A-C	D115-2- $\frac{1}{4}$ -1 $\frac{1}{2}$	D116-2- $\frac{1}{4}$ -1 $\frac{1}{2}$ (3/8)
	R-12	BFFE-A-C	D115-2- $\frac{1}{4}$ -1 $\frac{1}{2}$	D116-2- $\frac{1}{4}$ -2 $\frac{1}{2}$ (3/8)
CWI-12	R-502	BFRE-A-C	D115-2- $\frac{1}{4}$ -2	D116-2- $\frac{1}{4}$ -2 (3/8)
	R-22	BFVE-A-C	D115-2- $\frac{1}{4}$ -2	D116-2- $\frac{1}{4}$ -2 (3/8)
	R-12	BFFE-C-C	D115-2- $\frac{1}{4}$ -2 $\frac{1}{2}$	D116-2- $\frac{1}{4}$ -2 $\frac{1}{2}$ (3/8)

\* These refrigerant distributors are provided with a special 3/8" side outlet port which allows the liquid condensed in the coil during defrost to bypass the expansion valve and flow into the liquid line.

### 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 than 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.



**REFRIGERATION AND DEFROST CONTROLS FOR CONVENTIONAL MULTIPLEXING**

**With Indoor Condensing Units:** Refrigeration temperature may be controlled either by a low pressure control or a refrigeration thermostat (Optional). Thermostatic control is preferred since it will provide a more constant year-around temperature. The thermostat may be field or factory installed, must have a differential of 3°F to 6°F and have its sensing bulb located to monitor the air leaving the evaporator. One thermostat per condensing unit is required and should be wired into the compressor motor contactor's control circuit.

Defrosts are time initiated and pressure terminated.

**With Outdoor Condensing Units:** Refrigeration temperature must be controlled by a refrigeration thermostat. This thermostat may be field or factory installed, have a differential of 3°F to 6°F and have its sensing bulb located to monitor the air leaving the evaporator. One thermostat per condensing unit is required and should be wired into the compressor motor contactors control circuit.

Defrosts are time initiated and terminated. The defrost timer should control a liquid line solenoid valve for system pump-down during defrost only.

MODEL	REFRIGERATION CONTROLS						DEFROST CONTROLS		
	Temperature Of Discharge Air (1)	Refrigerant	LOW PRESSURE CONTRL SETTINGS				TIMER SETTINGS		Termination Pressure
			(2) If used to control temperature		If thermostat is used to control temperature (3)		Defrost Frequency	Fail-Safe (length)	
Cut-Out	Cut-Out	Cut-In	Cut-Out	Cut-In	Defrost Frequency	Fail-Safe (length)			Termination Pressure
CWI	26° F	R-502	36 psig	54 psig	20 psig	32 psig	Every 6 Hours	56 min.	98 psig

(1) Measure discharge air temperature at the center of the discharge honeycomb. If thermostat is used for control of fixture temperature, set the thermostat to open its contacts at the discharge air temperature given in the table.

(2) Adjust the cut-out on the low pressure control to stop the compressor at the discharge air temperature given in the table. Final adjustment should be made after refrigerator is stocked.

(3) These settings are acceptable for outdoor unit application when the coldest expected ambient does not go below 0°F. If colder ambients are expected, set control accordingly per Hussmann condensing unit installation instructions #103654.

**REFRIGERATION AND DEFROST CONTROLS FOR MIXED MULTIPLEXING**

Refrigeration temperature may be controlled by either a refrigeration thermostat or a CDA valve (Close on Drop in Air temperature). The CDA valve, if used, will be installed at the condensing unit with its sensor mounted in the refrigerator in the same location as the refrigeration thermostat bulb sensor. For complete wiring and adjustment information refer to the Instruction manual furnished with the condensing unit.

Defrost will be off-time as standard or Koolgas if ordered as an option. Both will be time initiated and time terminated.

APPLICATION (MODEL)	REFRIGERATION CONTROL (1)	DEFROST CONTROL TIMER SETTINGS		
	DISCHARGE AIR TEMPERATURE	Defrost Times	Length of Defrost	
			Off-Time	KOOLGAS
CWI	26° F	Every 6 hours	56 min.	14 min. (2)

(1) Discharge air temperature is to be measured by attaching a service thermometer to the discharge honeycomb at the center of the case. Adjust the refrigeration control (CDA valve or refrigeration thermostat) to maintain the discharge air temperature shown.

(2) KOOLGAS defrost is time initiated and time terminated. The defrost lengths listed above are based upon laboratory testing but operation under actual store conditions may require that they be lengthened to accomplish a thorough defrost. Some of the store conditions that can contribute to a longer defrost are: low head pressure, long runs of refrigerant lines, store ambient, fixture temperature operating lower than that recommended, seasonal ambient changes, etc.

Each system shown on the store legend must have staggered defrost to maintain stable compressor loading and sufficient supply of defrost gas.

SECTION 4ELECTRICALCONNECTIONS

All electrical connections are made in the electrical entrance box located at the left hand end of the refrigerator, behind the lower front panel. See Service Tips section for removal of the lower front panel.

WIRING IDENTIFICATION

Leads for all electrical circuits are identified by colored plastic bands which correspond to the "color code sticker" located near the electrical entrance box.

"COLOR CODE STICKER"COLOR CODE

PINK	- Refrigeration thermostat, low temperature	Orange or TAN	- Lights
LIGHT BLUE	- Refrigeration thermostat, normal temperature	MAROON	- Receptacles
DARK BLUE	- Defrost termination thermostat	YELLOW	- Defrost heaters, 120v
PURPLE	- Anti-sweat heaters	RED *	- Defrost heaters, 208v
BROWN	- Fan motors		
GREEN*	- Ground		

\* Either colored band or colored insulation.

CAUTION

**THE REFRIGERATOR MUST BE ELECTRICALLY GROUNDED. ALL WIRING AND CONNECTIONS MUST COMPLY WITH N.E.C. AND ANY LOCAL CODES.**

**SERIAL PLATE AMPERAGES**

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

MODEL	120 VOLT, 60 HERTZ ELECTRICAL CIRCUITS	
	Fans & Anti-Sweat Heaters	Lights 
CWI-6	-----	-----
CWIC-6	2.5 amps	6.5 amps
CWI-8	2.9 amps	6.5 amps
CWI-12	4.2 amps	9.2 amps

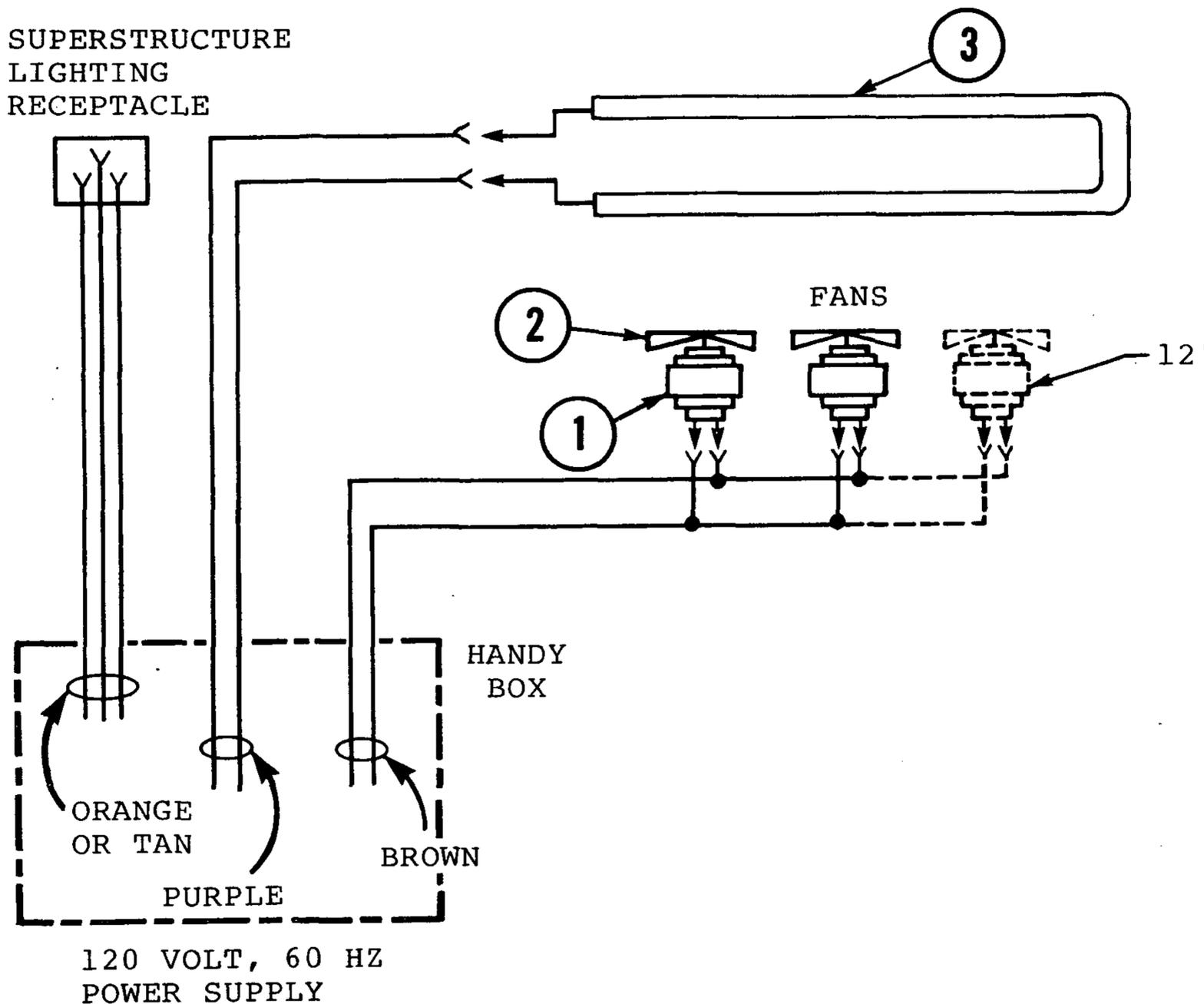
 The lighting circuit should be separate from the one for the fan motors to prevent the fans from being turned off by mistake when store lighting is turned off. **FAN MOTORS MUST OPERATE CONTINUOUSLY.**

The amperage figure shown for the light circuit contains the requirements for the maximum number of lighted shelves.

WIRING DIAGRAM

CWI

FANS & ANTI-SWEAT HEATERS

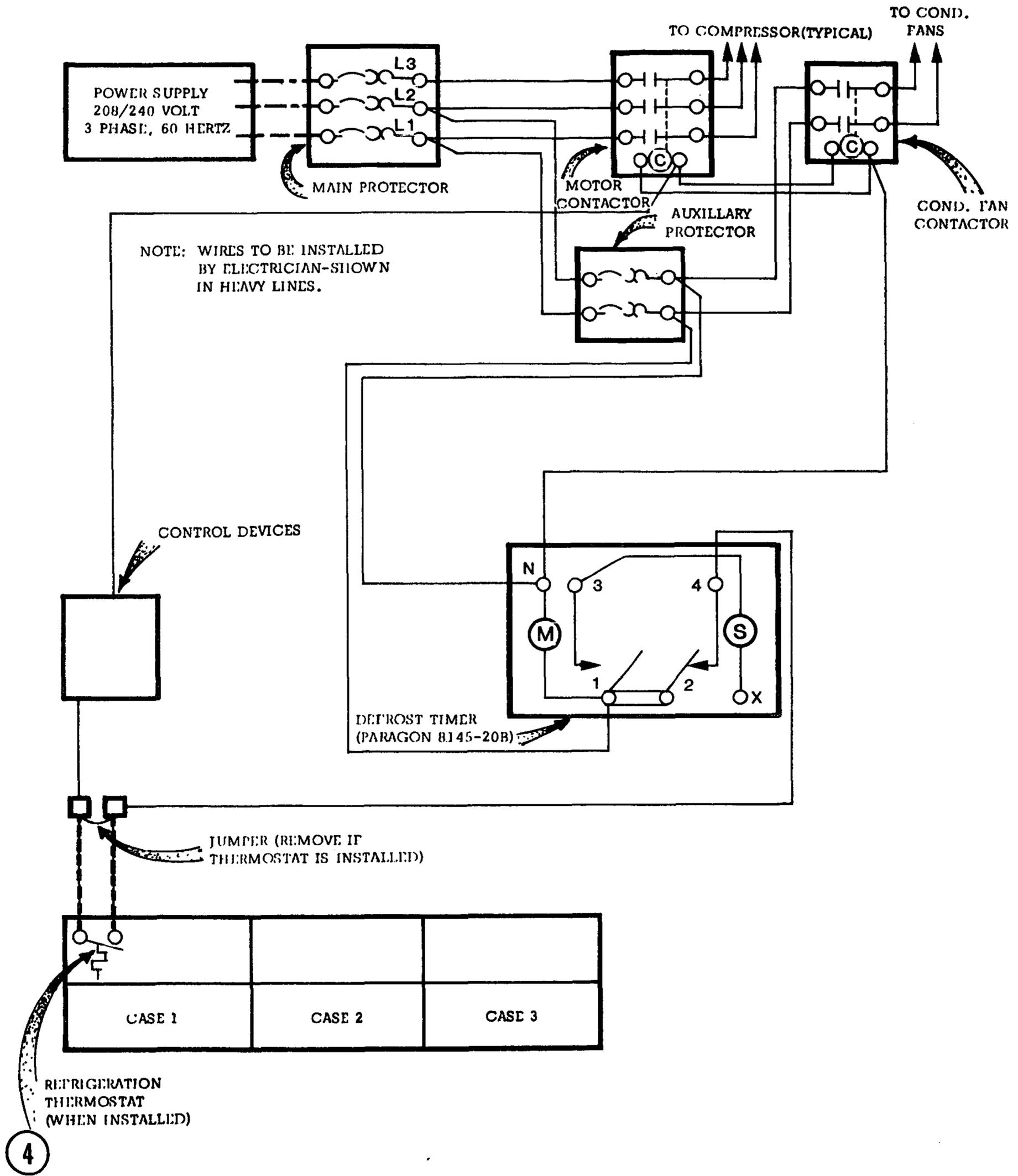


REFRIGERATORS MUST BE GROUNDED

ELECTRICAL REPLACEMENT PARTS

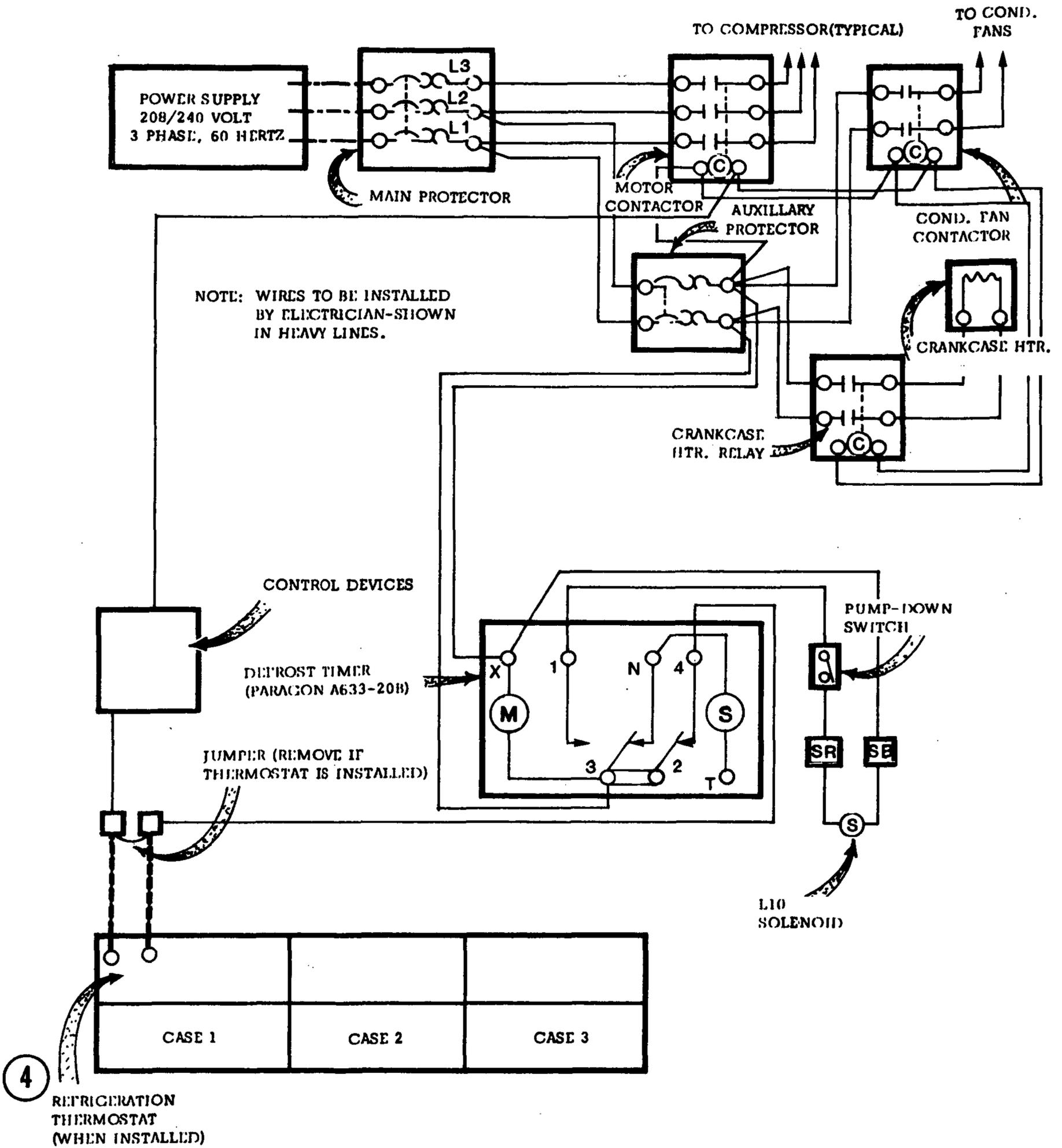
<u>ITEM NO.</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1.	047000	Fan Motor - GE #KSM51ECG3799 9W CW 120v.
2.	261609	Fan Blade - Morrill #FV800 CW 20P Embossing away from motor
3.	310900	Center Rail Anti-Sweat Heater-CWIC-6 120v., 104 ohms, 1.15 Amp.
	302212	Center Rail Anti-Sweat Heater-CWI-8 120v., 80 ohms, 1.5 amp.
	302213	Center Rail Anti-Sweat Heater-CWI-12 120v., 57.1 ohms, 2.1 amp.
4.	137880	Refrigeration Thermostat (Optional) W.R. #1609-103

CONVENTIONAL MULTIPLEXING - INDOOR TYPE UNIT  
CONDENSING UNIT & CONTROL PANEL WIRING DIAGRAM



WARNING  
REFRIGERATOR MUST BE GROUNDED

CONVENTIONAL MULTIPLEXING - OUTDOOR TYPE UNIT  
CONDENSING UNIT & CONTROL PANEL WIRING DIAGRAM



WARNING  
REFRIGERATOR MUST BE GROUNDED

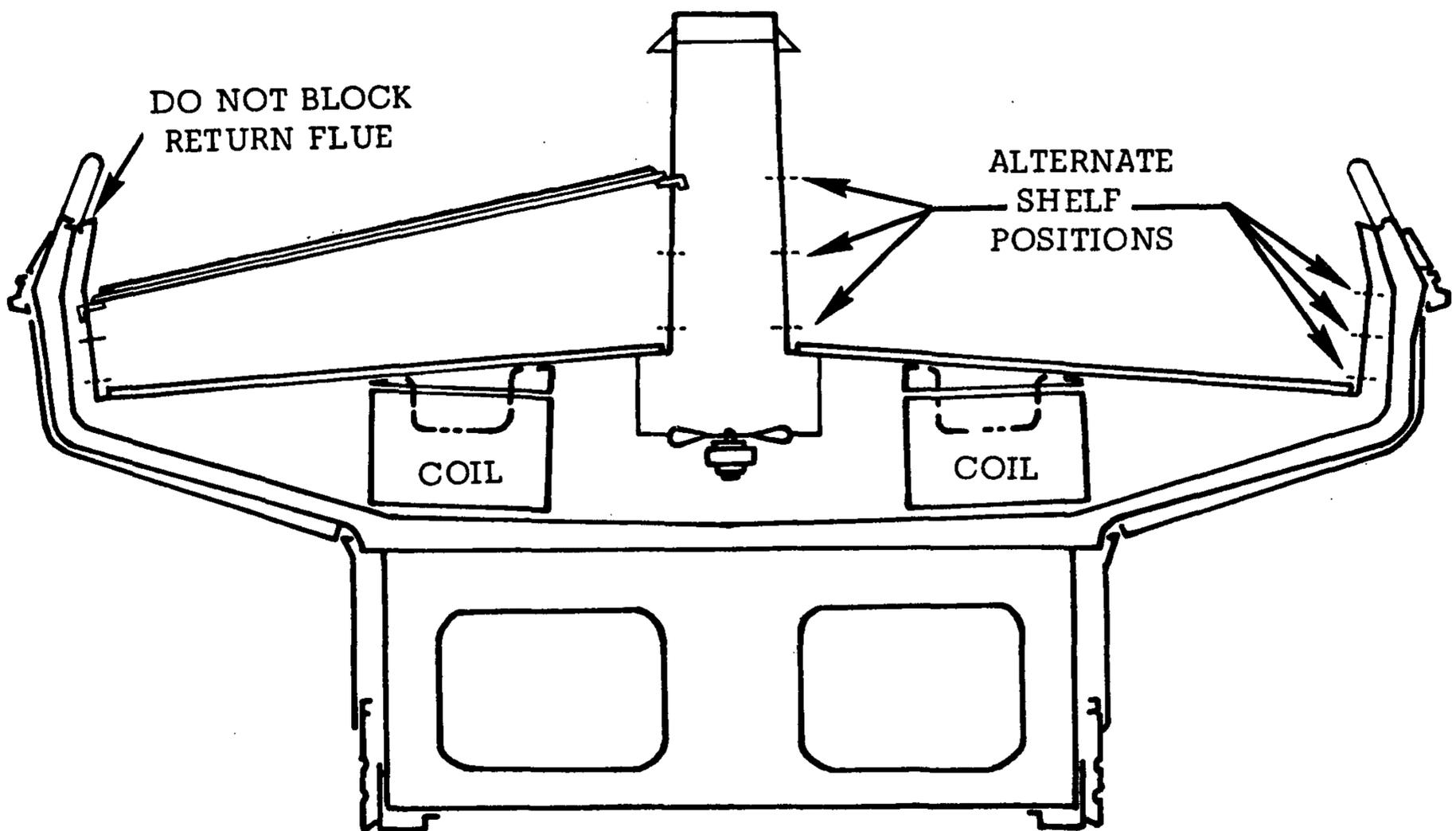
SECTION 5

USERS INFORMATION

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 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 manufacturers 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 STEEL WOOL SCOURING PADS AS THESE WILL MAR THE FINISH.**

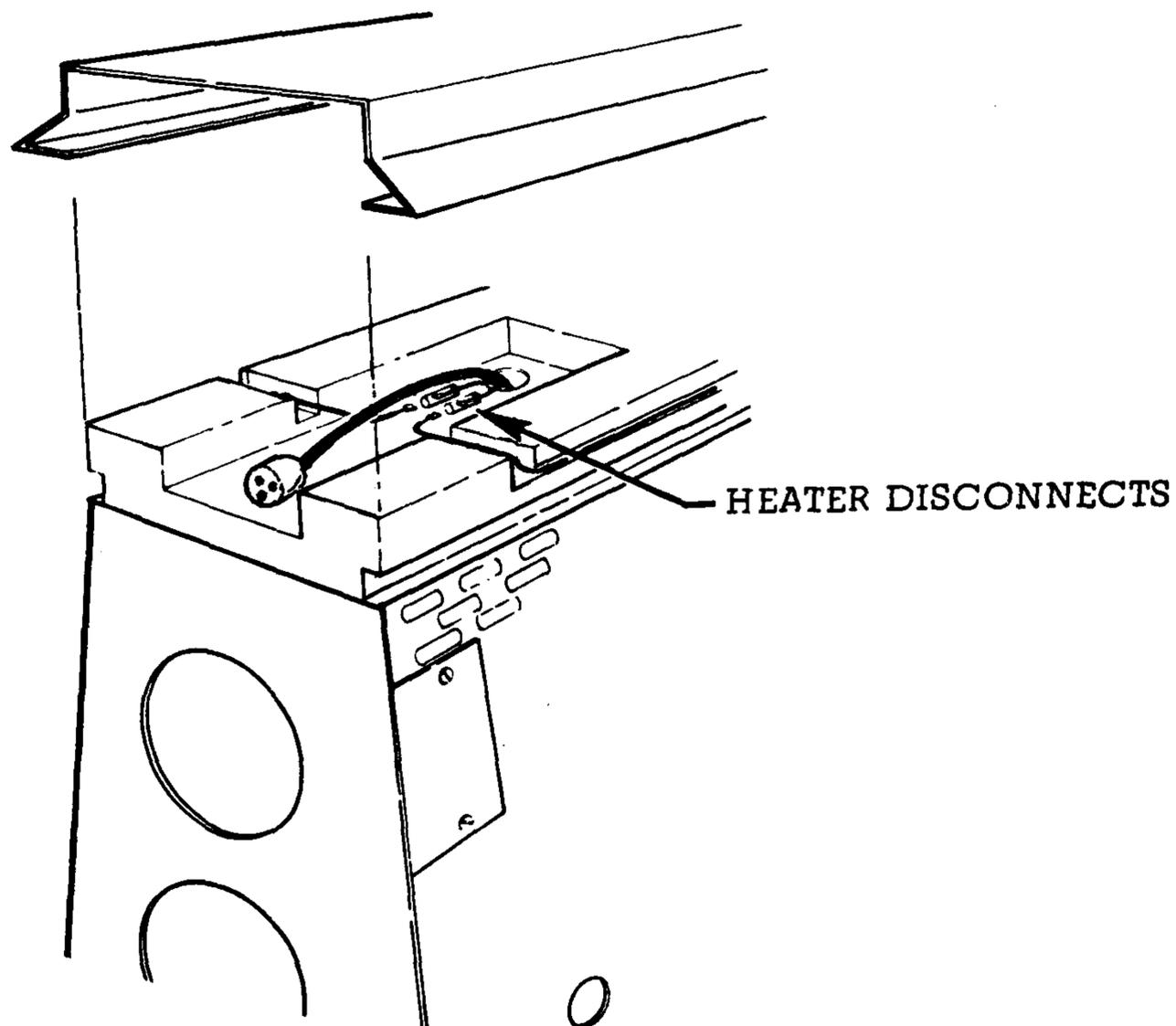
SECTION 6SERVICE TIPSW A R N I N G

ALWAYS DISCONNECT THE ELECTRICAL POWER AT THE MAIN DISCONNECT WHEN SERVICING OR REPLACING ANY ELECTRICAL COMPONENT OF THIS REFRIGERATOR. THIS INCLUDES, BUT IS NOT LIMITED TO SUCH ITEMS AS FANS, HEATERS AND THERMOSTATS.

CENTER RAIL ANTI-SWEAT HEATER

1. Disconnect 120 volt power source.
2. Remove center rail cover and any joint trims.
3. Disconnect heater from harness at left end of case.
4. Remove heaters from channels.
5. Replace in reverse order of removal.

NOTE: MAKE CERTAIN THAT HEATER IS IN THE CHANNELS AND THE ALUMINUM GROUND STRAP AT EACH END OF CENTER RAIL IS IN PLACE BEFORE REPLACING CENTER RAIL COVER.

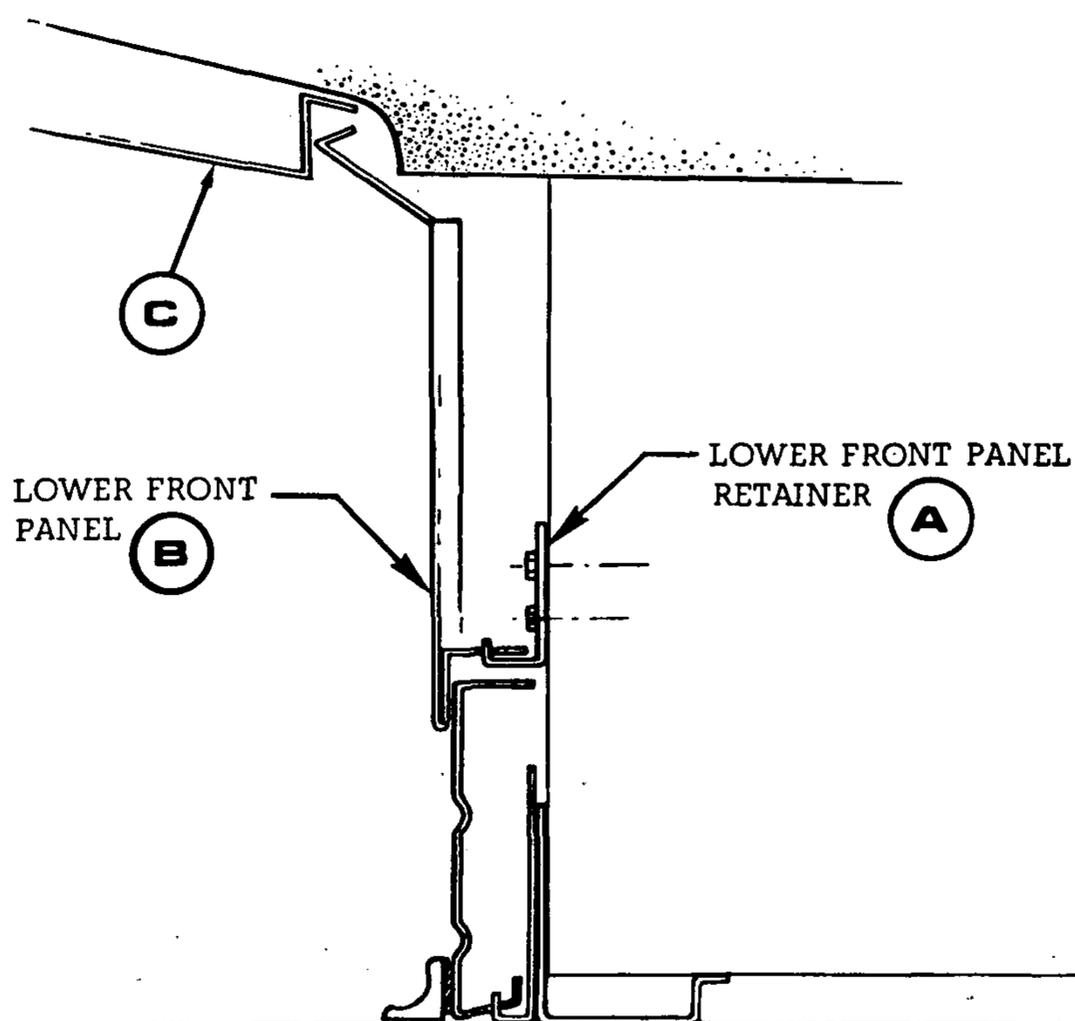


REMOVAL AND REPLACEMENT OF LOWER FRONT PANELA. TO REMOVE PANEL:

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

B. TO REPLACE PANEL:

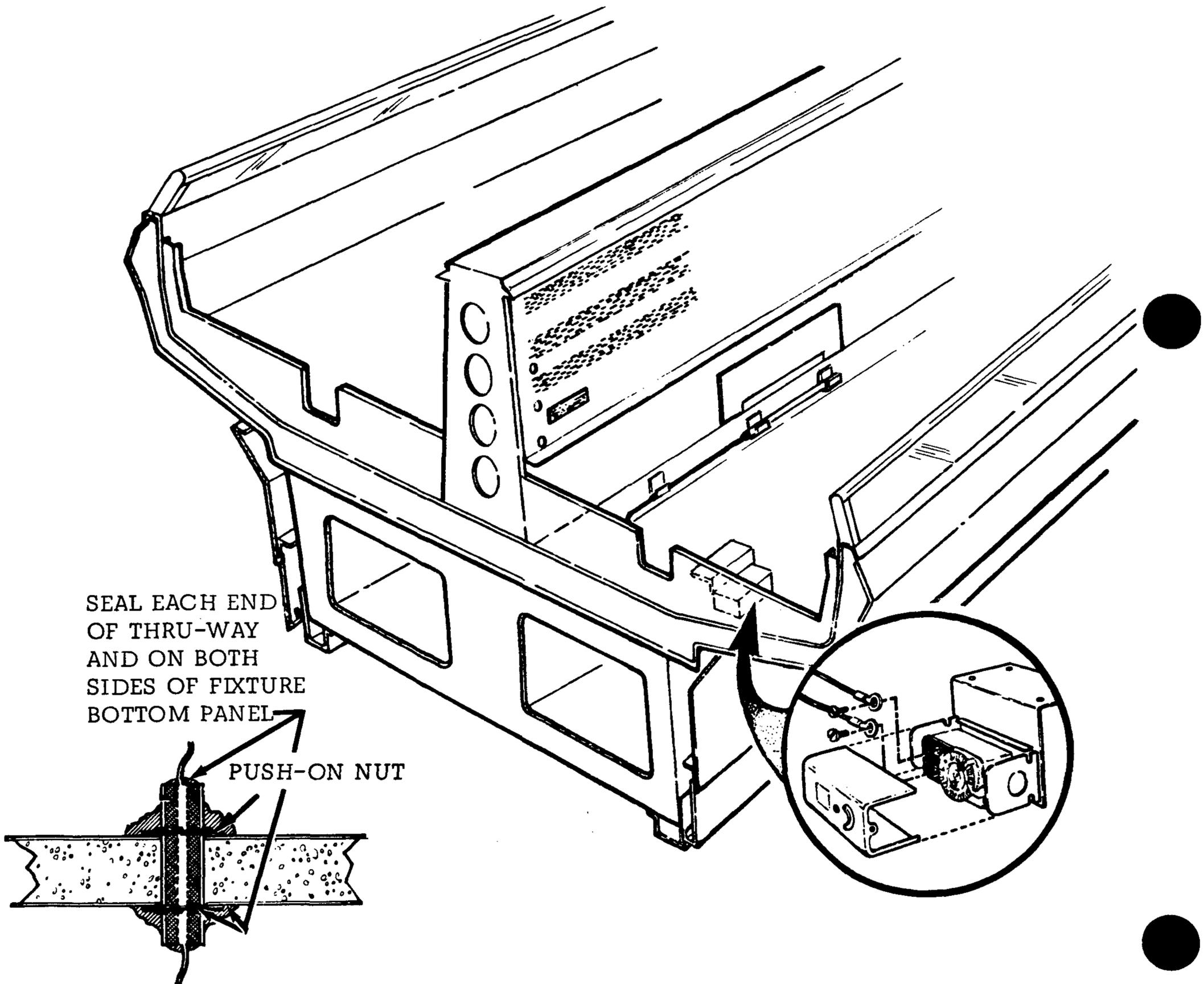
1. Insert upper edge of Panel (B) under the Exterior Upper Front Panel (C).
2. Pivot lower edge of Panel (B) toward fixture.
3. Slide Panel upward, then lower into position onto Retainer (A).



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.

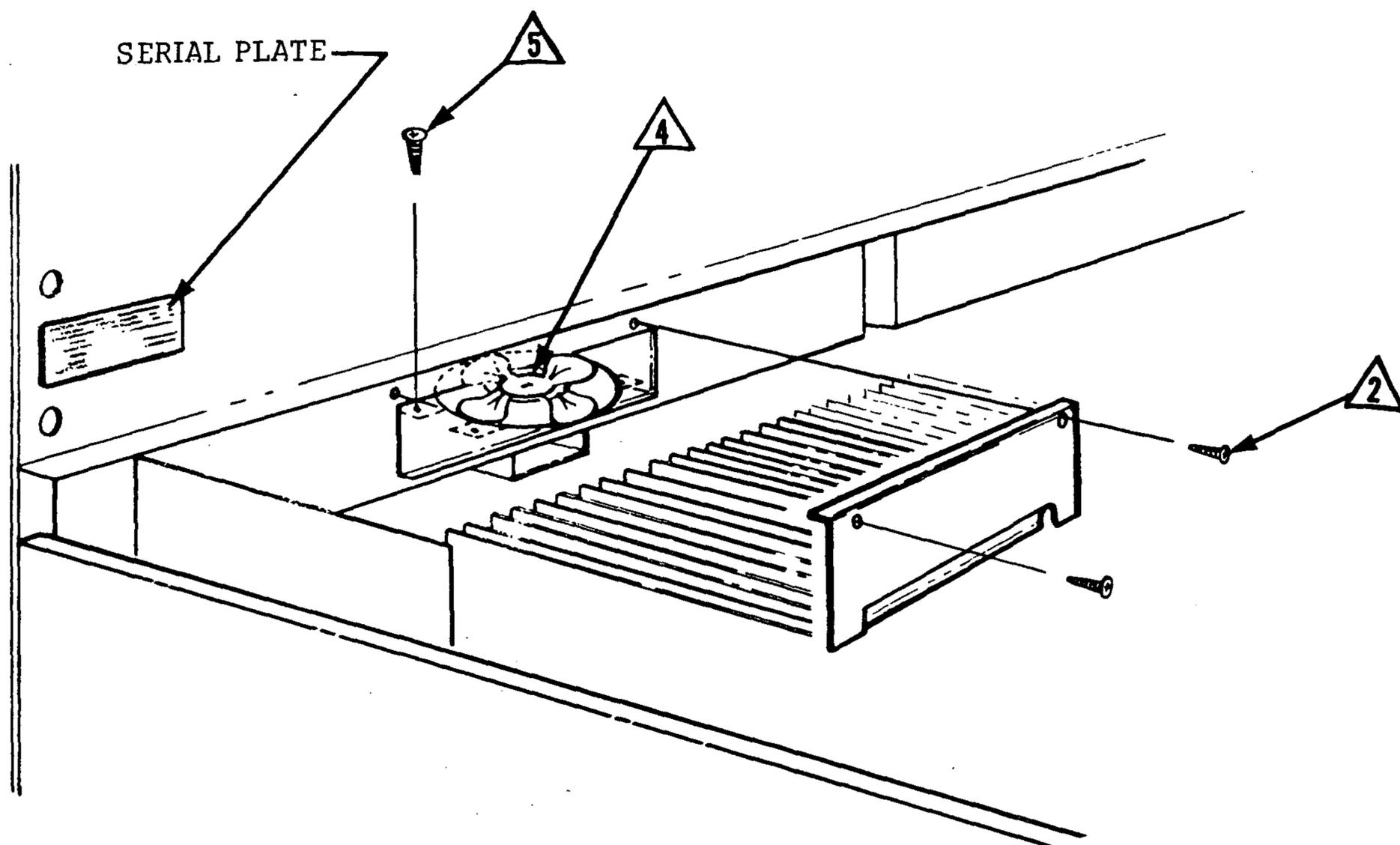
The sensor leads and the capillary tube of the thermostat will be routed down the plastic nipple to the bottom of the case.



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 refrigerated cases may be easily repaired in the field. Materials for repair are found at refrigeration wholesalers.

Hussmann recommends the following solders and techniques:

1. Zinc based 720°F solder. This solder makes a strong durable repair and is also cathodic protection, preventing corrosion of the tubing near the repair. This does not need a coating over the solder area. It may be 95% to 98% zinc with the remainder aluminum. Solders in this group are made by:

Platt Brothers  
Box 1030  
Waterbury, CT  
(203) 753-4194

New Products, Inc.  
269 Freeman Street  
Brooklyn, NY 11222

Mathiessen and Hegler Zinc Company  
Lasalle, IL

Three major differences between soldering aluminum and copper must be followed for best results. a. The heat must be applied on the opposite side of the tube from the solder. b. While keeping the solder molten, wire brush under the solder pool. c. Move the flame back and forth along the tube to prevent melting the tube.

2. Solders with lower melting point (600°F or less). Solders that contain metals other than the zinc and aluminum combination above will require a protective coating. This coating must be flexible to withstand defrosts. Windshield sealant by 3M, sold in auto parts stores, is one good material.
3. Solder/flux the same technique may be used with all these solder/flux systems. Heat from the back side of the tube, keep rubbing the solder on the fluxed repair area until it melts. Continue heating carefully until the solder flows, wetting the tube. Wash flux off with very hot water, dry, coat with windshield sealant. Use two coats and extend coat at least 1" each way from the solder to be sure of good coverage.

Some solder manufacturers are:

#505 Solder and #505 Flux:

Allweld Alloys  
2027 Laura Avenue  
Huntington Park, Ca  
(213) 583-9004

Alu-Sol 45D Multicore Solder:

Multicore Solders  
Westbury, CT 11590  
(516) 334-7450

Strongset #509 (5) and 509 Flux:

All-State Welding Alloys Co.  
Toronto, Canada

Eutector-Alutin 51-S Solder and  
Alutin 51 Flux:

Eutectic Corporation  
40-45 172 nd Street  
Flushing, NY