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CORPORATION

CGB-CGBR-CGBN

REFRIGERATED & NON REFRIGERATED
TILT GLASS BAKERY MECHANDISERS

INSTALLATION / SERVICE INSTRUCTIONS

ENG. NO. 326042C

Dated July, 1989

Supersedes #326042B

Dated June, 1988

Section 2

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WARRANTY

REVISION CHANGES ("C")

1. R-502 Standard, page 3-1
2. Revised Control Settings, page 3-4

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

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SECTION 1**GENERAL INFORMATION****MODEL DESCRIPTION**

These service-type merchandisers have been specifically designed for bakery departments.

The full length, curved glass front on these models provides complete product visibility. They are available in either 59 or 78 inch lengths.

APPLICATION

The CGBN is non-refrigerated, designed to display fresh bakery products that have fast turnover and require no refrigeration.

The refrigerated bakery merchandisers are designed for use only in air conditioned stores where temperature and humidity are maintained at or below 75°F and 55% relative humidity.

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

MODEL	DESCRIPTION
CGB	Self-Contained Refrigerated Bakery Merchandiser
CGBN	Non-Refrigerated Bakery Merchandiser
CGBR	Remote Refrigerated Bakery Merchandiser

CROSS SECTIONS AND PLAN VIEWS

The cross sections and plan views follow.

CGBN
(59 & 78")

CAUTION:
SHELF LOAD LIMIT
40 POUNDS

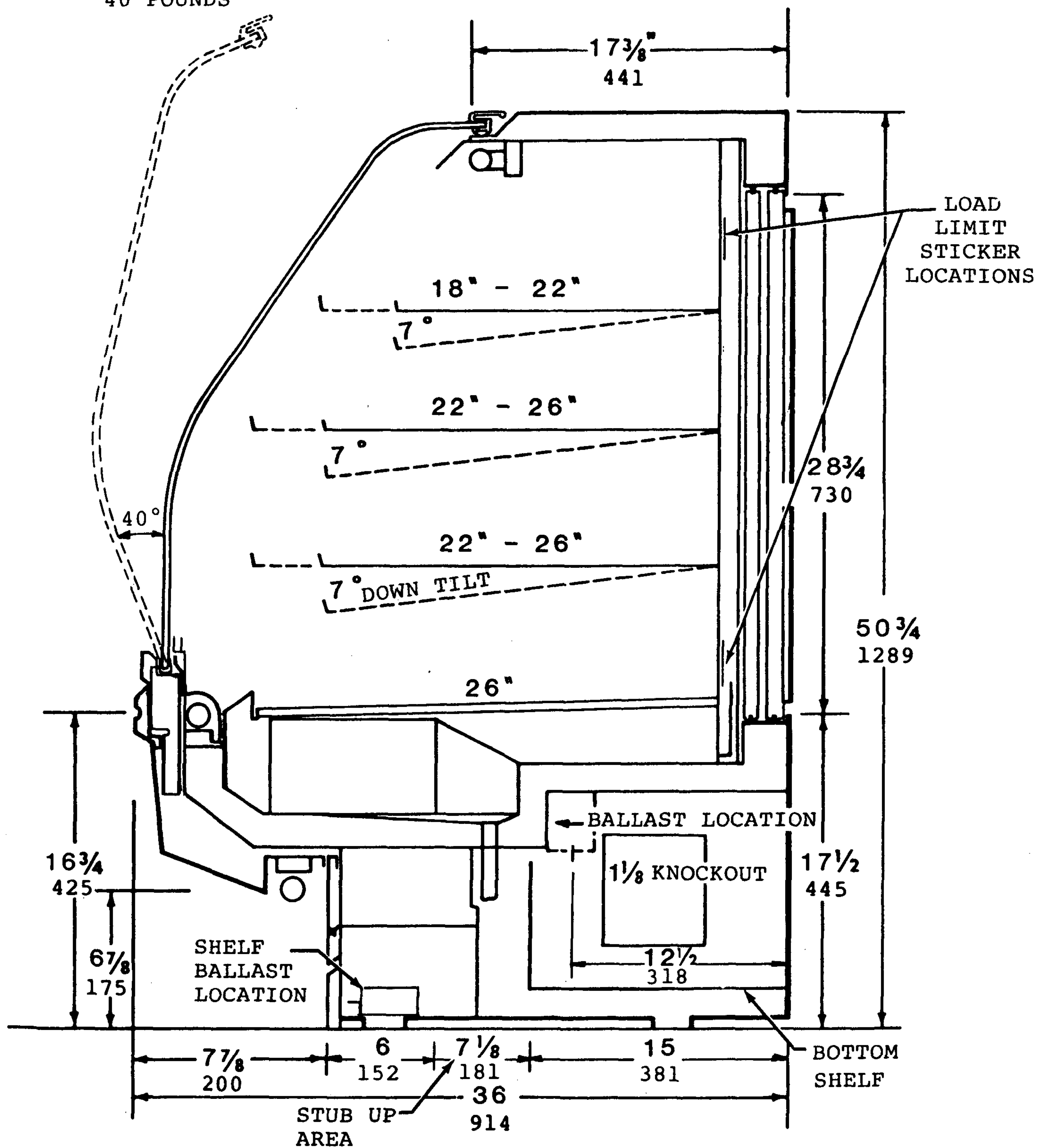
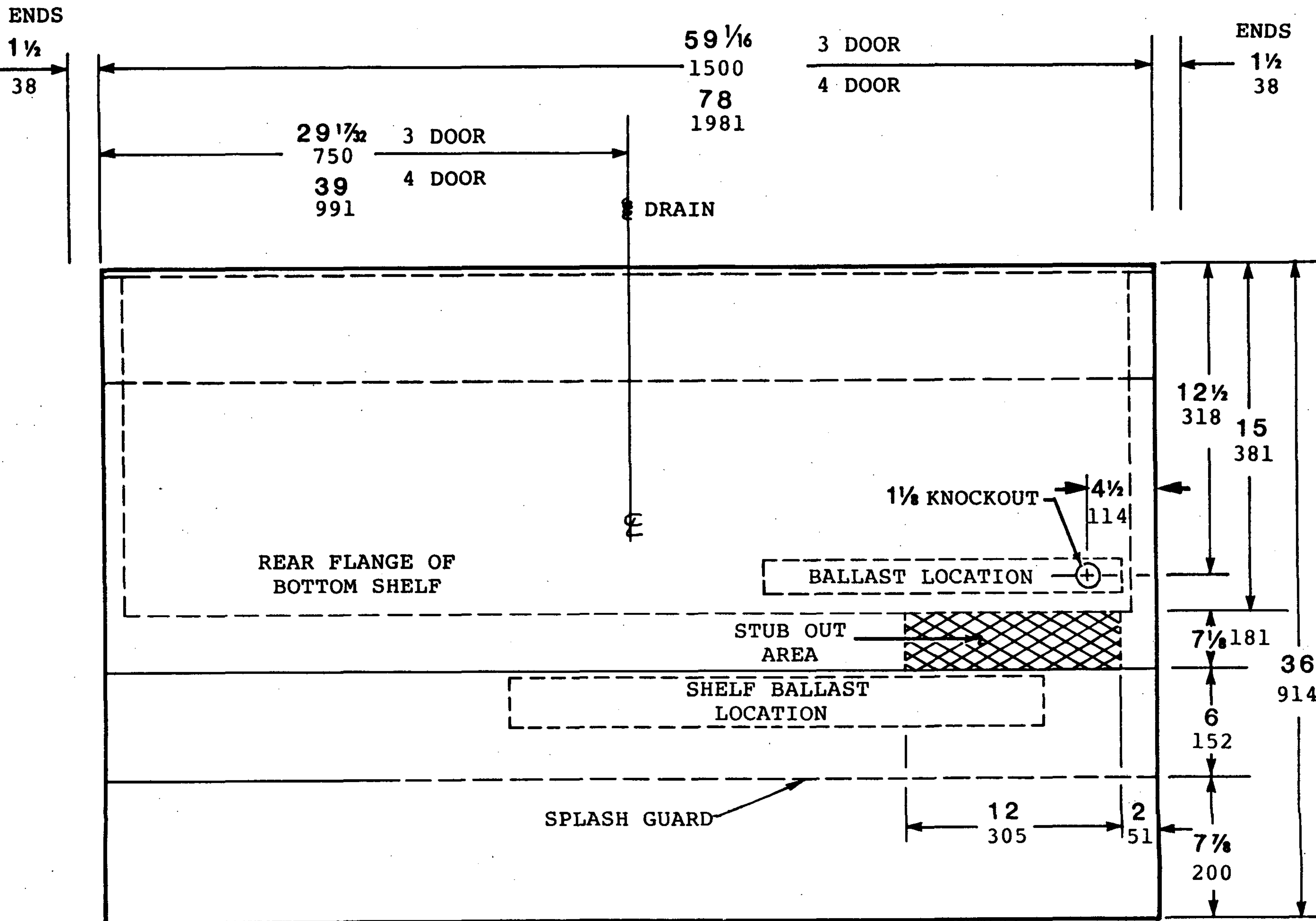


Figure 1-1

CGBN PLAN VIEW



**CAUTION:
SHELF LOAD LIMIT
40 POUNDS**

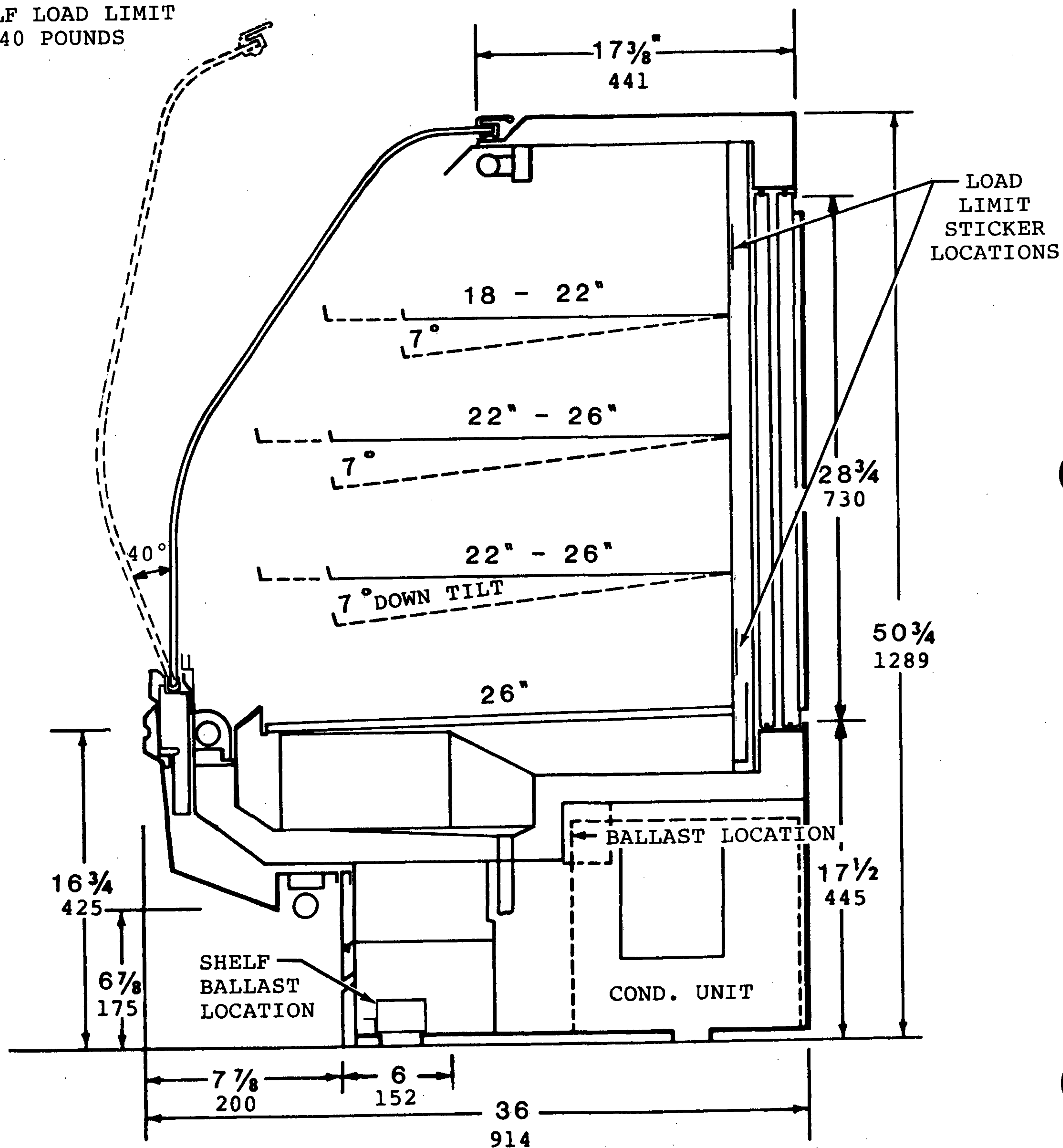
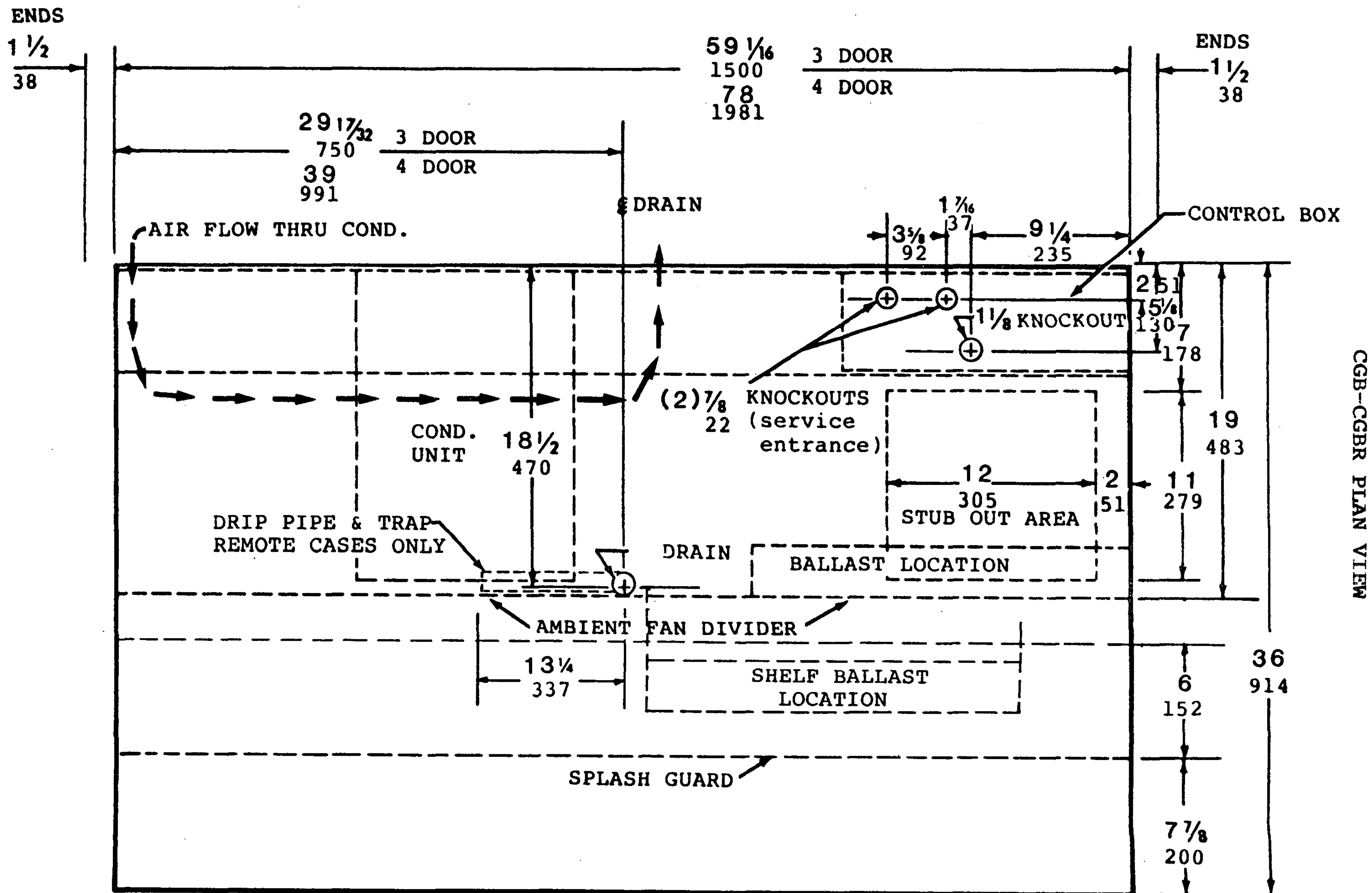
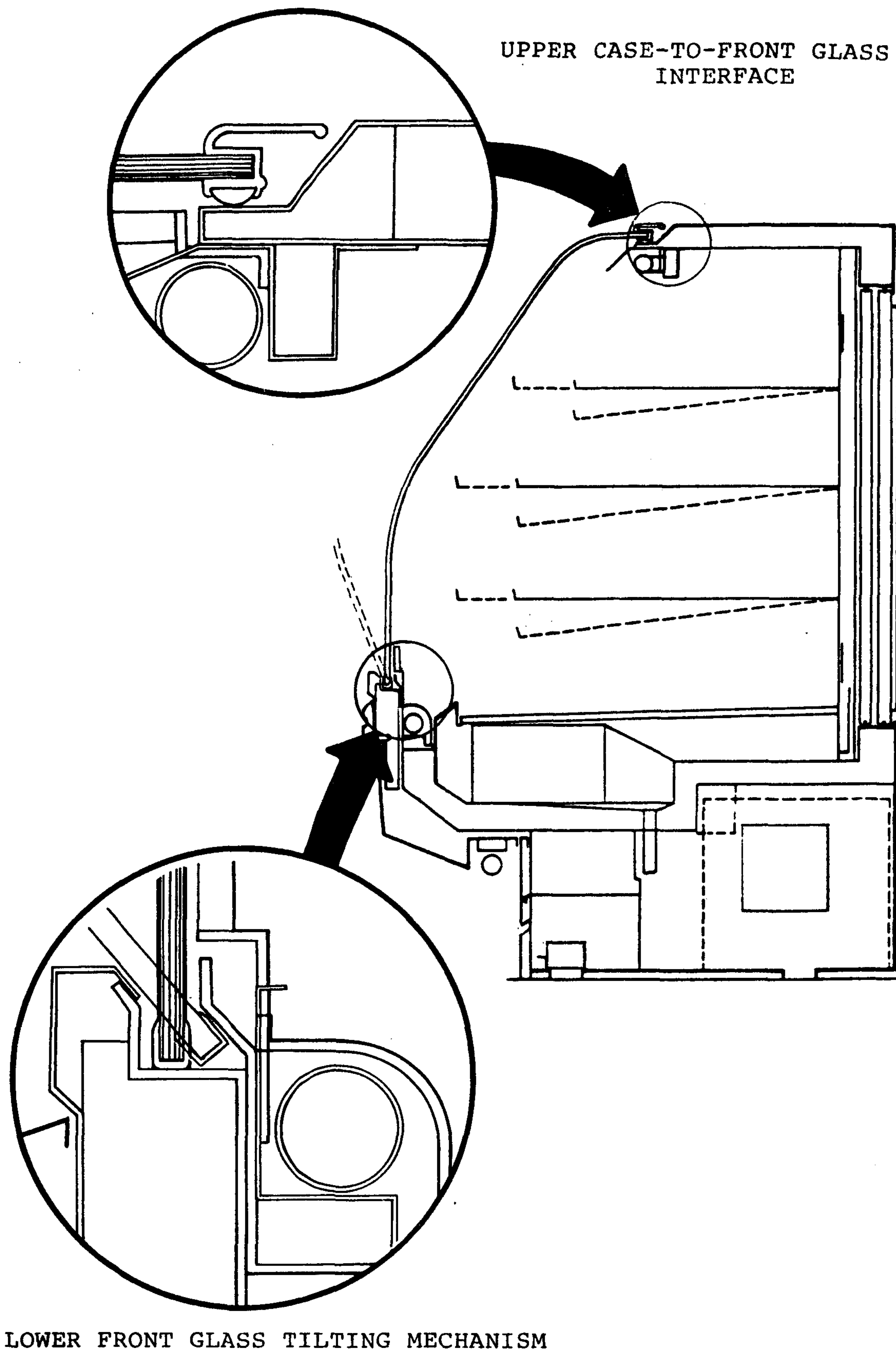


Figure 1-2





TILT GLASS BAKERY CASE CROSS-SECTION

Figure 1-3

SECTION 2

INSTALLATION

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 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 refrigerator as close as possible to its permanent location and then remove all packaging and shipping braces. Remove all separately packed accessories such as kits, shelves, etc.

BAG RACK SHIPPING BRACE

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

LOCATION

This refrigerator, like all other refrigerators, is sensitive to air disturbances. Air currents passing around the refrigerator will seriously impair its operation. Do not allow air conditioning, electric fans, open doors or windows, etc. to create air currents around this refrigerator.

LEVELING

Install the refrigerator level to insure proper operation of the refrigeration system and drainage of defrost water. Use a carpenter's level. Shims have been provided, if necessary.

ANCHORING

These cases may be anchored to the floor.

Anchoring Procedure

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

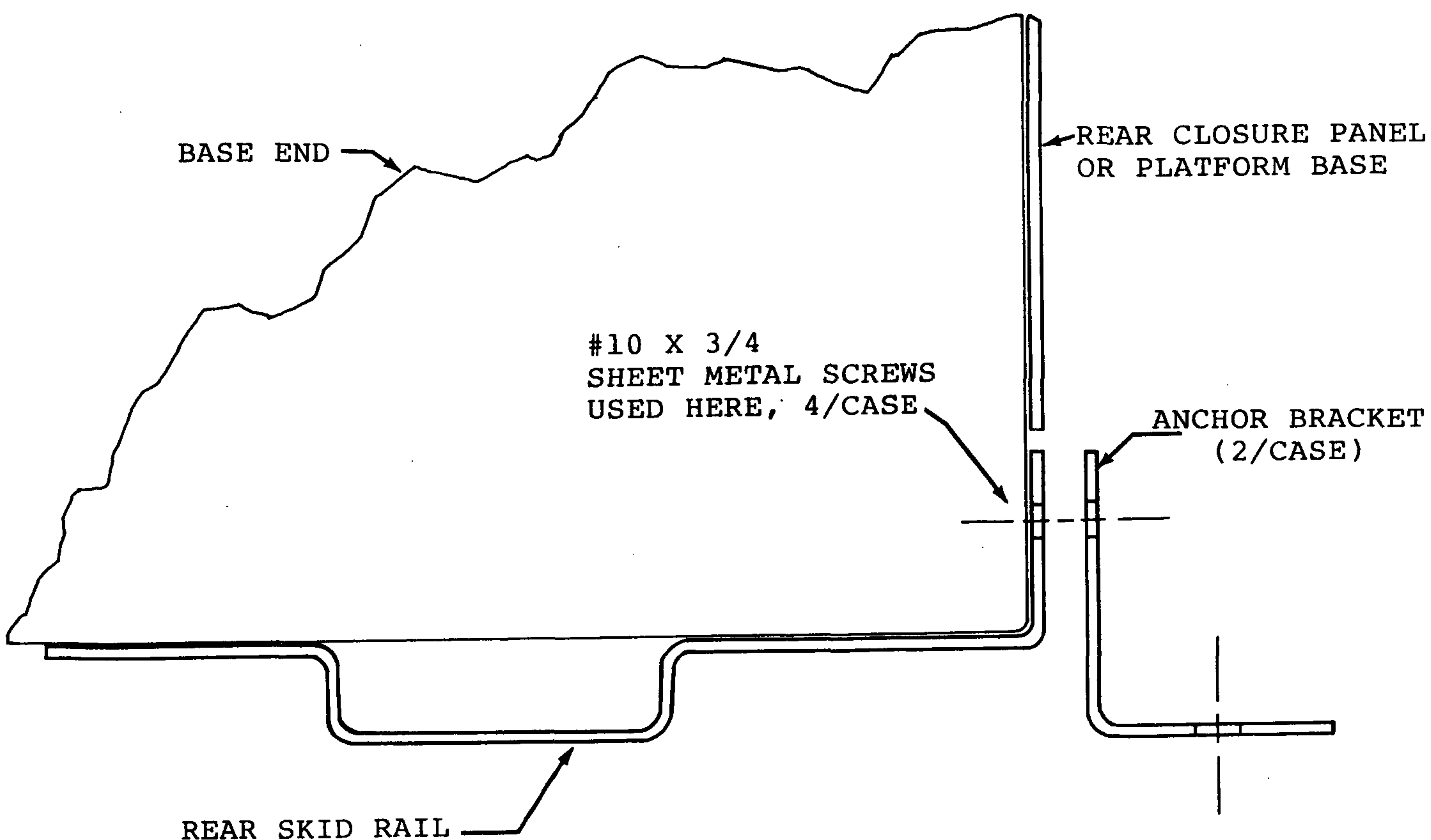


Fig. 2-1 Case Anchoring

JOINING

This refrigerator is of modular construction, which means that two or more may be joined in one continuous display requiring only one pair of end assemblies. To join, refer to the instructions sent with each kit. When joining the cases, it can be advantageous to remove the curved front glass, then joining crew can work from both the front and back of the case, See "FRONT GLASS CLEANING", p. 5-2.

WASTE OUTLET AND WATER SEAL

On CGB and CGBR refrigerated models, the waste outlet is centrally located and accessible from the rear of the refrigerator. For accessibility on the CGBN non-refrigerated model, remove the front splashguard assembly (See Figure 2-3). For refrigerated cases, field install the water seal/90° ell assembly shipped with the case, and attach 3/4 inch PVC drip piping in the desired orientation.

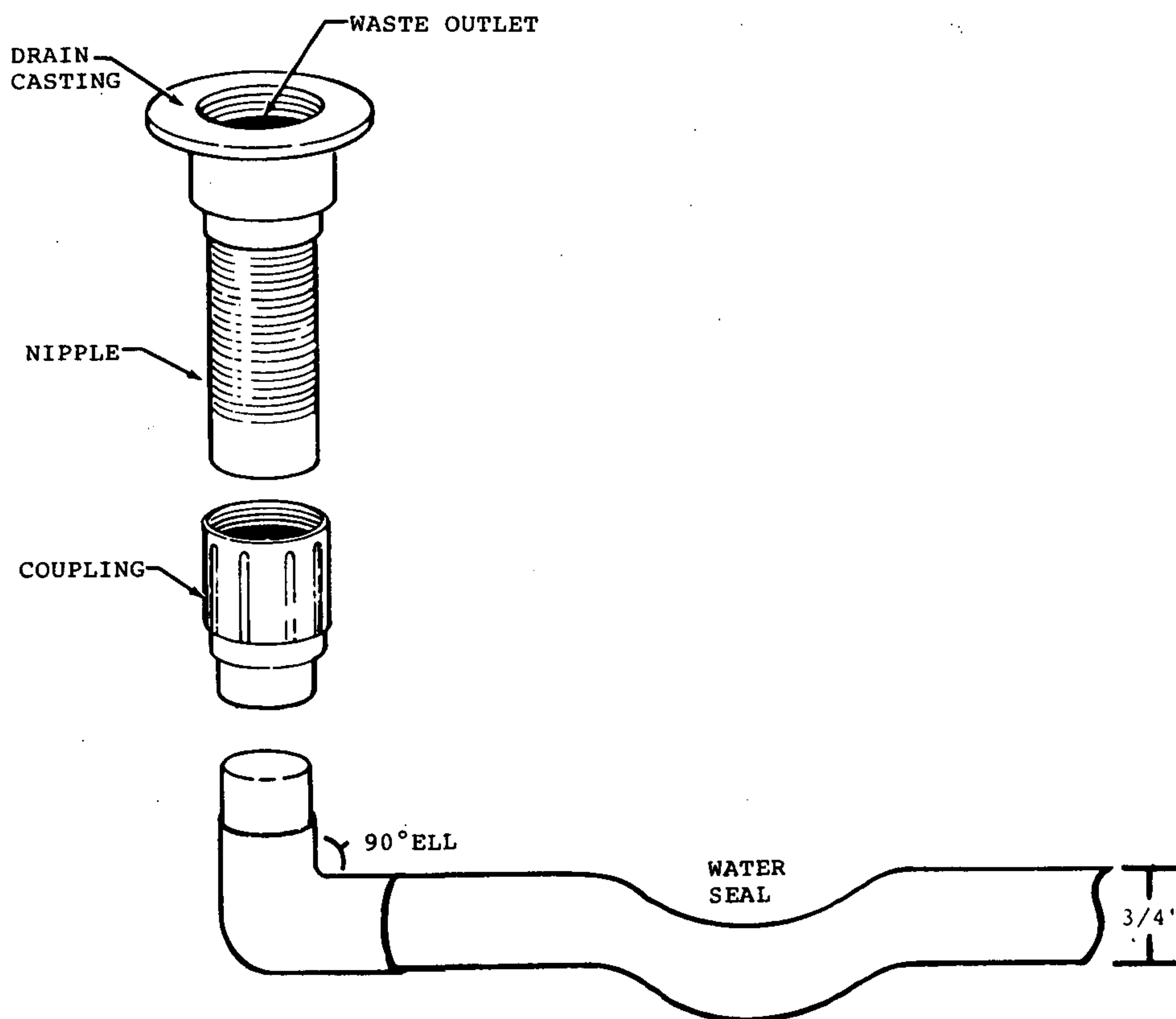


Figure 2-2 Waste Outlet and Water Seal

TO AVOID CONDENSATION PROBLEMS, INSULATE THE WATER SEAL.

PVC/DWV solvent cement is recommended for drip pipe installation. Follow the manufacturer's instructions.

DRIP PIPING

Improperly installed drip piping can interfere with the operation of the refrigerator and result in costly maintenance and product losses. To insure a proper installation, follow the drip piping recommendations listed below.

1. Use drip piping the same diameter of the pipe or waste outlet supplied with the refrigerator.
2. Use only a single water seal in any one run of drip piping. Double seals will act as an air lock and prevent draining.
3. Provide 1/8 inch per foot downhill slope. Support plastic pipe to maintain the slope and prevent sagging.
4. Avoid long piping runs that can interfere with the necessary slope.
5. Provide a suitable air break between the flood rim of the floor drain and the drip piping outlet.
6. Prevent drip pipes from freezing.
 - a. Install drip piping away from uninsulated suction lines. (Suction lines should be insulated.)
 - b. Provide a means to prevent freezing if drip pipes are installed in cold, dead air space areas, or between refrigerators or walls and refrigerators.

SPLASHGUARD/LOWER FRONT ASSEMBLY

A splashguard assembly is shipped with every refrigerator and is positioned on the front of the case in an uppermost position. After leveling and joining, remove the splashguard assembly to adjust the splashguard retainer as follows:

- Adjust the retainer on the lower base rail flush to the floor.
- Reposition the assembly up behind the front panel of the case and then down onto the retainer. See illustration below.

SEALING CASE TO FLOOR

For refrigerated models, sealing the splashguard to the floor is not recommended because it does not allow easy splashguard removal to service fan motors.

However, if required by local sanitation codes, or if the customer desires, the case may be sealed to the floor using a vinyl cove base trim. The size of the trim depends on how much the floor is out of level.

To install the trim to the splashguard retainer:

1. Remove the cove splashguard from the case.
2. Remove all dirt, wax, or grease from the front area of the retainer where adhesion is necessary.
3. Apply adhesive to the trim and install to the splashguard retainer so that trim is flush with the floor. See illustration below.
4. Allow proper drying time according to product directions.

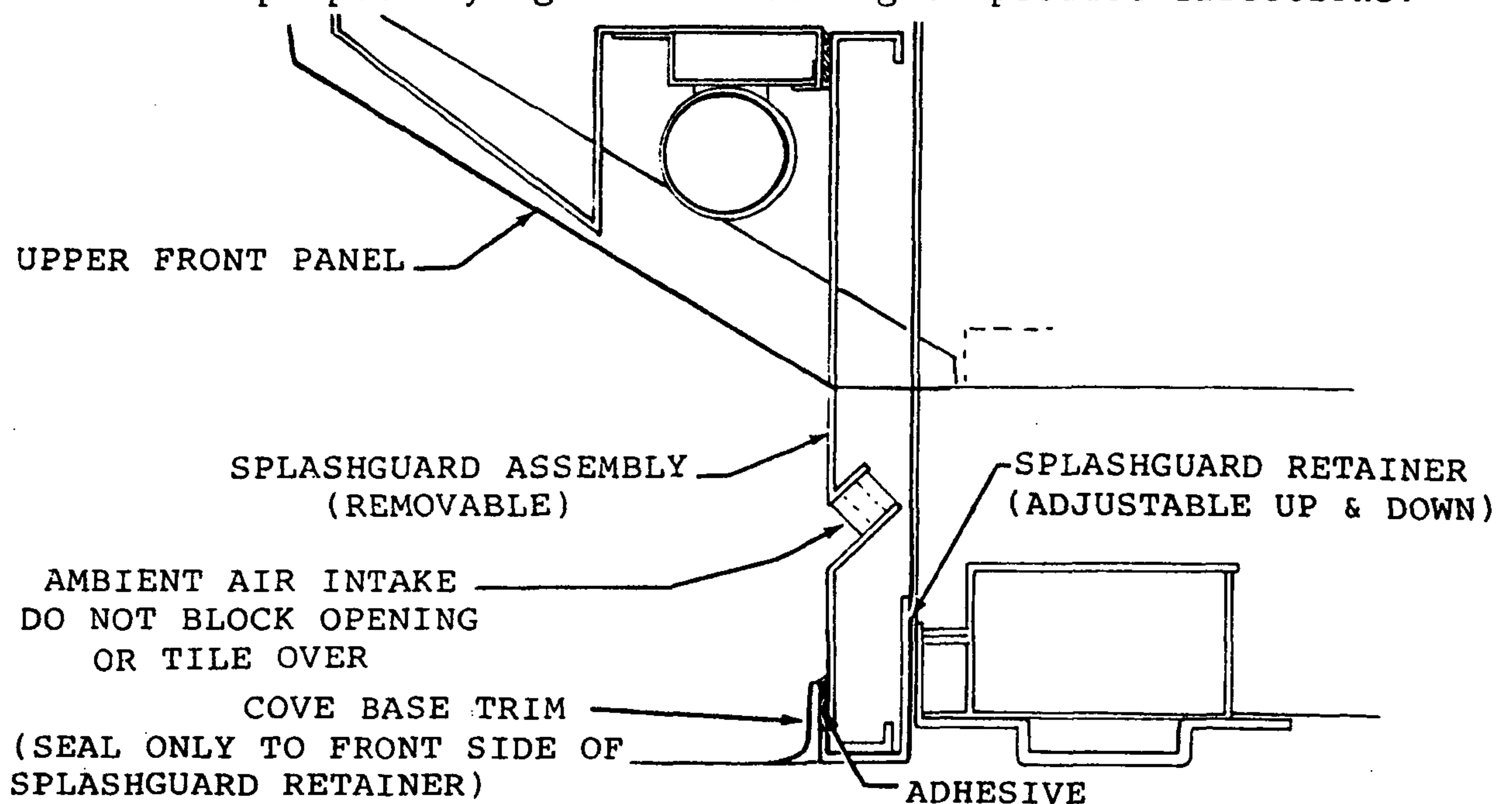


Figure 2-3 Sealing Case to Floor

TILING CASE FRONT

When tiling the case front, be certain the vented opening for the plenum ambient air intake is not blocked. Recommended molding is shown below. Improper blockage of the vent will adversely affect case operation.

REAR CLOSEOFF PANEL

To perform electrical and refrigeration work, remove the rear closure panel by loosening the sheet metal screws. Replace when work is complete. See Figure 3-2.

NOTE: CGB Model- Do not block the vent openings on the rear closure panel. These allow intake and exhaust air for the condensing unit.

SELF-CONTAINED (CGB) MODEL INSTALLATION

All system componentry is completely factory installed and the case needs only to be connected to a 120 volt/60hz electrical supply. Prior to electrical connection, perform the following:

Access to Connections and Compressor

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

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

OPTIONAL SHELF LIGHTS

For installation of optional shelf lights, see Lighting Section.

POST CONSTRUCTION CLEAN-UP

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

SECTION 3

REFRIGERATION

REFRIGERANT

The refrigerated models will be equipped for operation on R502 refrigerant unless otherwise specified on the factory order. The correct type of refrigerant is stamped on the refrigerator's serial plate located inside the case at the right rear end of the upper foam assembly.

REFRIGERANT PIPING

LINE SIZES: Liquid Line.....3/8" OD
 Suction Line....5/8" OD

OUTLET LOCATION

The refrigerant line outlet is located at the right hand end of the refrigerator 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 one refrigerator to the other 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

The suction and liquid lines should be clamped or taped together and insulated for of minimum of 30 ft from the refrigerator. Additional insulation is recommended wherever dripping condensation is objectionable.

REFRIGERATION PARTS LIST (Sporlan Nomenclature)

MODEL	TYPE OF DEFROST	REFRIG	REFRIG CHARGE	Balanced Port EXPANSION VALVE	CRANKCASE PRESS. REG	EPR SETTING
CGBR 59 and CGBR 78	TIME-PRESSURE	R502 R22 R12	n/a	BFRAC BFVAC BFFAC	n/a	n/a
CGB 59B and CGB 78B	TIME-PRESSURE	R12	3lb-2oz 4lb-2oz	FF 1/4 C	CRP-4	22 psig

CONTROLS AND ADJUSTMENTS

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

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

EXPANSION VALVE ADJUSTMENT

Expansion valves 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. 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 type) to the evaporator, one under the clamp holding the expansion valve bulb, and the other securely taped to the evaporator inlet line as close to the coil as practical. (See Figure 3-1) Some "hunting" of the valve is normal. The valve should be adjusted so that during the hunting the greatest difference between the two probes is 3° to 5° F for CGBR remote refrigerated cases.

With this adjustment, during a portion of the hunting the temperature difference between probes will be less than 3° F (at times as low as 0° F). Make adjustment of no more than one-half ($1/2$) turn of the valve stem at a time and wait for at least 15 minutes before rechecking the probe temperature and making further adjustment.

Self-contained (CGB) cases should be adjusted using the same technique with a temperature difference of 6° to 8° F.

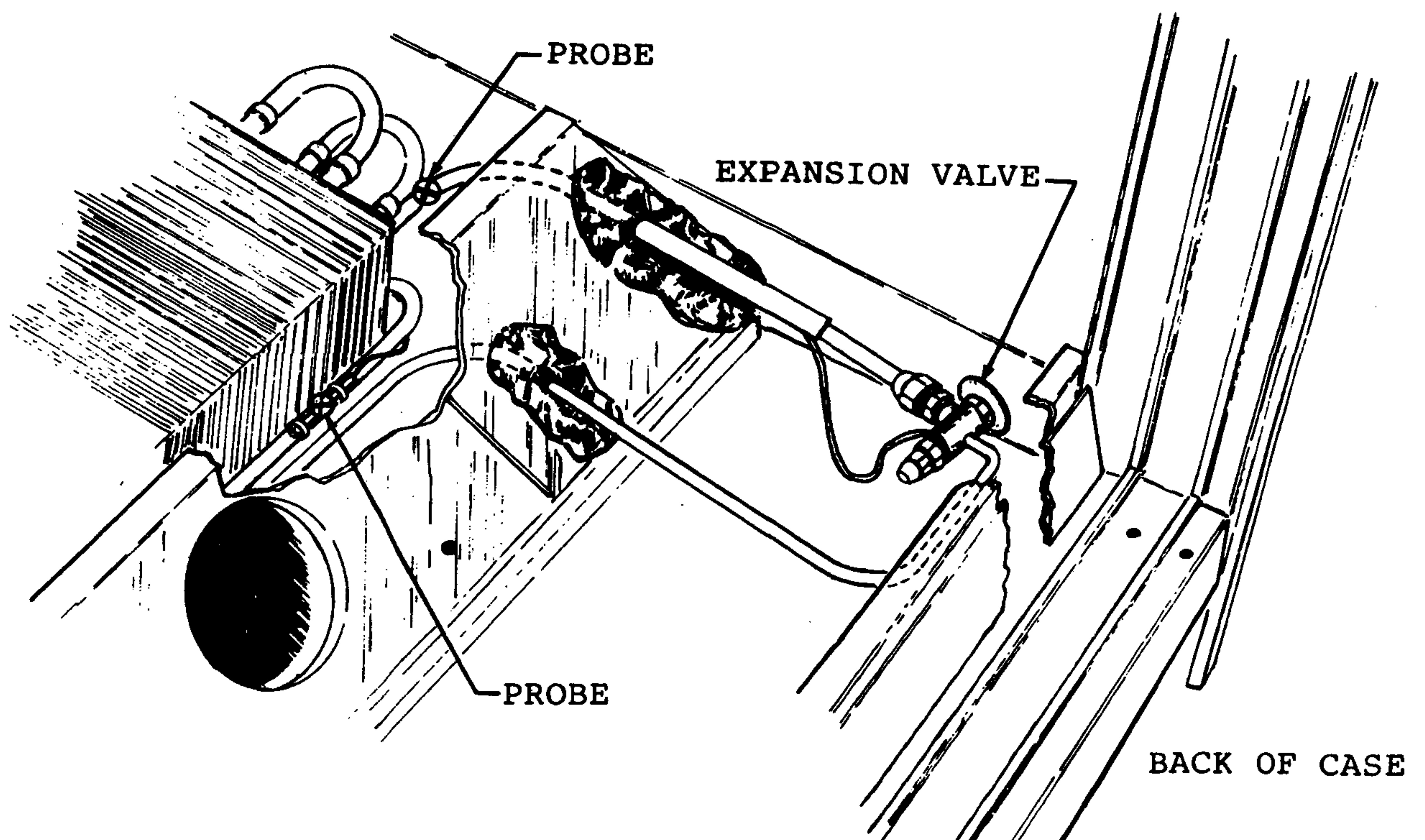


Figure 3-1 Expansion Valve and Probe locations.

CONVENTIONAL AND MIXED MULTIPLEXING

Refer to the following tables for conventional and mixed multiplexing:

CONVENTIONAL MULTIPLEXING

REFRIGERATION CONTROL ^{△1}					DEFROST CONTROL ^{△3}		
Model	Disch Air Temp ^{△2}	Refrig	Low Press. Control		Frequency	Failsafe (length)	Time-Pressure Termination
			Cut-out	Cut-in			
CGBR 59 and CGBR 78	30°F	R502	24 psig	62 psig	Every 12 hrs	40 min	96 psig

MIXED MULTIPLEXING

REFRIGERATION CONTROL ^{△1}			DEFROST CONTROL ^{△4}	
Model	Disch Air Temp ^{△2}	Refrig	Frequency	Length Off-Time
CGBR 59 and CGBR 78	30°F	R502	Every 12 Hours	40 min

^{△1} Refrigeration temperature can be controlled by a thermostat having a minimum differential of 5-1/2°F, with its sensing bulb installed in the discharge air leaving the evaporator.

^{△2} To adjust the refrigeration thermostat to control the discharge air temperature:

- Place a thermometer, or the sensing bulb of a temperature recording device, in the discharge air flue during times of reduced loads (lights off, lower ambients, etc.)
- Adjust the thermostat to desired discharge air temperature.
- Control of the recommended discharge air with an EPR is acceptable.

- △ 3 Conventional multiplexing defrosts are time initiated and pressure terminated; time terminated for outdoor units. The defrost timer on outdoor units must be a time terminated type and control a liquid line solenoid for pumpdown prior to defrost only. The failsafe then becomes the defrost length and must be increased 4 minutes to compensate for the pumpdown period.
- △ 4 Mixed multiplexing defrosts are time initiated and time terminated.

REFRIGERATION THERMOSTAT LOCATION

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

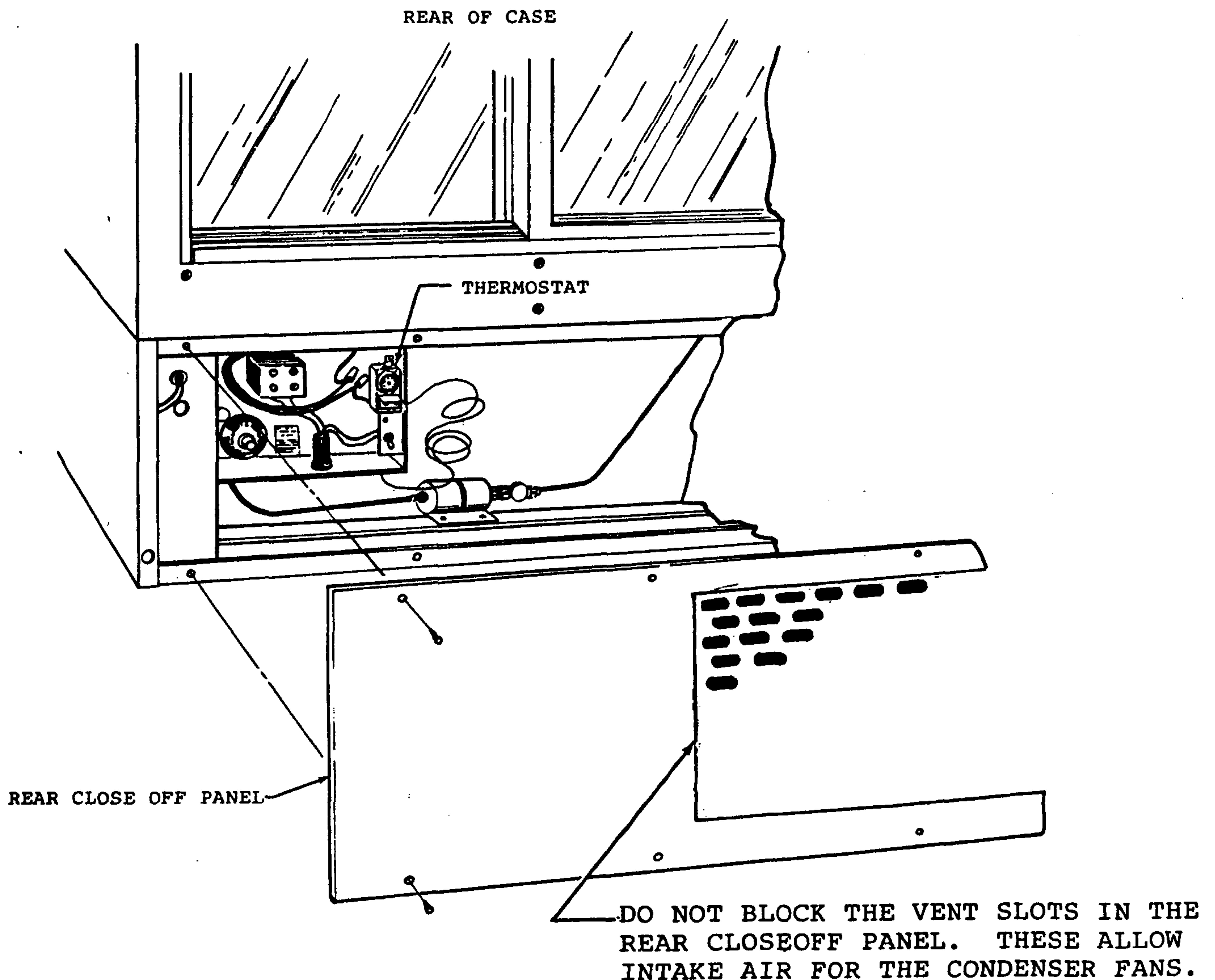


Figure 3-2 Refrigeration Thermostat Location

SECTION 4**ELECTRICAL****CONNECTIONS**

All connections for the refrigerator's electrical circuits are to be made in the electrical panel (ballast raceway for CGBN models).

WIRING IDENTIFICATION

All electrical circuits will be identified by color coded plastic bands which correspond to those listed in the following table.

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.

PINKREFRIG. THERMOSTAT LOW TEMP
LIGHT BLUEREFRIG. THERMOSTAT NORM. TEMP.
DARK BLUEDEFROST TERM. THERMOSTAT
PURPLEANTI-SWEAT HEATERS
BROWNFAN MOTORS

GREEN*GROUND
ORANGE OR TANLIGHTS
MAROONRECEPTACLES
YELLOWDEFROST HEATERS, 120V
RED*DEFROST HEATERS, 208V

* EITHER COLORED SLEEVE OR COLORED INSULATION

ELECTRICIAN NOTE: CASE MUST BE GROUNDED

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

SERIAL PLATE AMPERAGES

Serial plate amperes are the amperage figures that are stamped on the refrigerator's serial plate. All field wiring must be sized to the serial plate amperages, however, the actual amps may be less than that specified.

MODEL	120 VOLT, 60 HZ. CIRCUITS			
	TOTAL AMPS DRAW	FANS, ANTI- SWEAT HTRS △ AMPS △	LIGHTING △	
			STD. AMPS △	OPT. AMPS △
CGB59B △	13.4	6.1	0.8	2.75
CGB78B △	17.1	7.55	1.6	3.66
CGBR59	3.6	3.6	0.8	2.75
CGBR78	5.3	5.3	1.6	3.66
CGBN59	.36	.36	0.8	2.75
CGBN78	.36	.36	1.6	3.66

- △ All fans (ambient, evaporator, exhaust or condenser) and the heaters (anti-sweat and condensate) are wired internally through the control panel switch. No separate circuit is needed for these items.
- △ The anti-sweat heater used on the CGB and CGBR model cases is wired through the electrical panel in parallel with the remainder of the case's components (except lights). This heater can be cycled off by connecting it with an energy saving controller and has been tagged to indicate this option.
- △ Standard lighting is one full row of fluorescent lamps in top and bottom of the refrigerated compartment.
- △ The optional lighting amperage column applies when the case has the standard lighting, plus exterior front and shelf lighting.
- △ The light circuit has been separated from the rest of the case electrical circuits. Two power circuits will have to be supplied to each case regardless of application.
- 6 When the refrigeration thermostat is installed, it will need to be wired to the condensing unit terminal box.
- △ "B" suffix means 120V 1Ø, 60hz power supply for self-contained cases.

WIRING DIAGRAMS

Wiring diagrams are located inside the case control panel. Typical wiring diagrams are shown in this section.

NOMENCLATURE**FIGURE**

CGBN59	4-1
CGBN78	4-2
CGBR59	4-3
CGBR78	4-4
CGB59B	4-5
CGB78B	4-6

OTHER:

CONVENTIONAL MULTI-PLEXING INDOOR TYPE	FIGURE 4-7
CONVENTIONAL MULTI-PLEXING OUTDOOR TYPE	FIGURE 4-8

See replacement parts list for items numbered on the following wiring diagrams.

HUSSMANN WIRING DIAGRAM

CGBR59

4415-0329970A

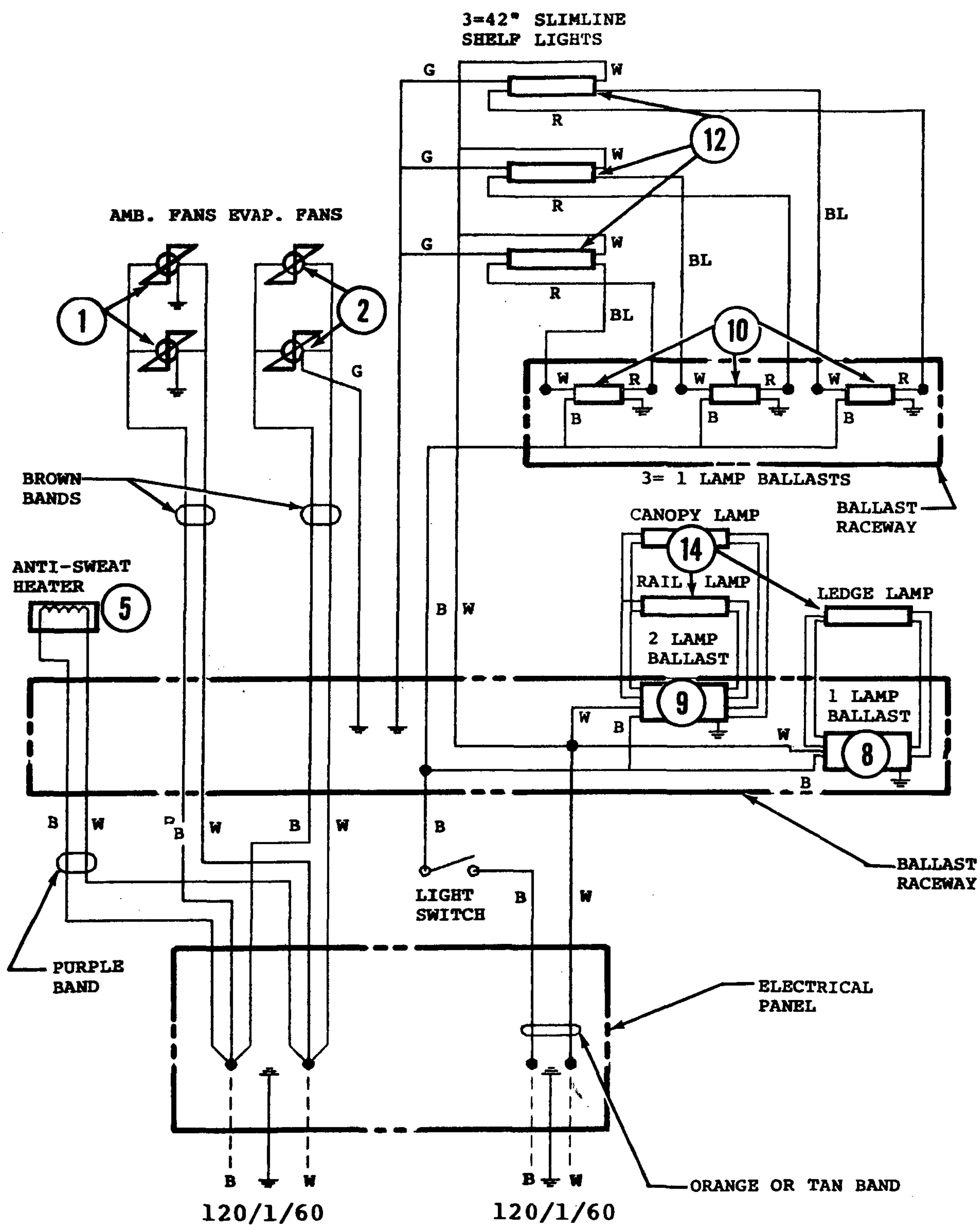


Figure 4-3

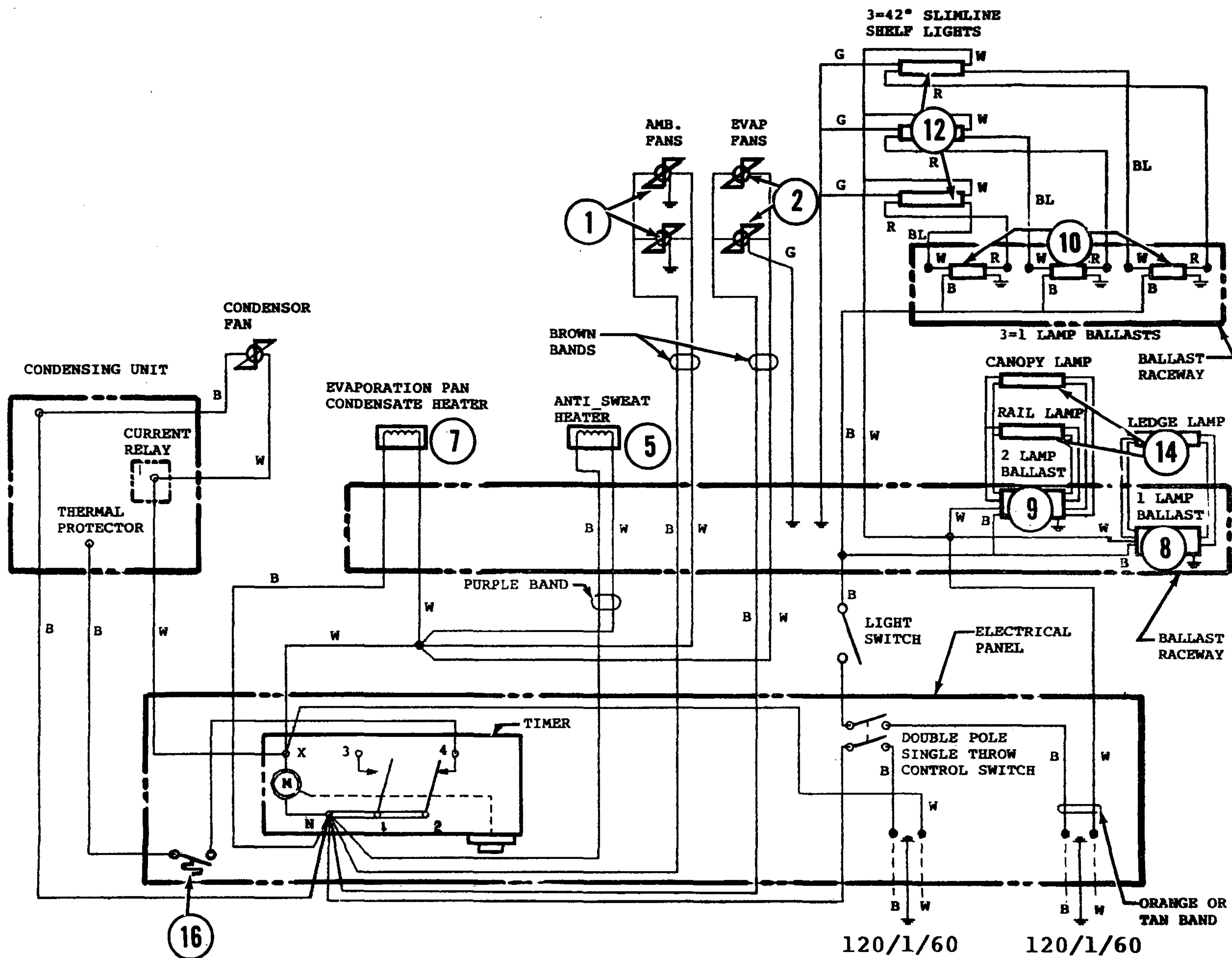


Figure 4-5

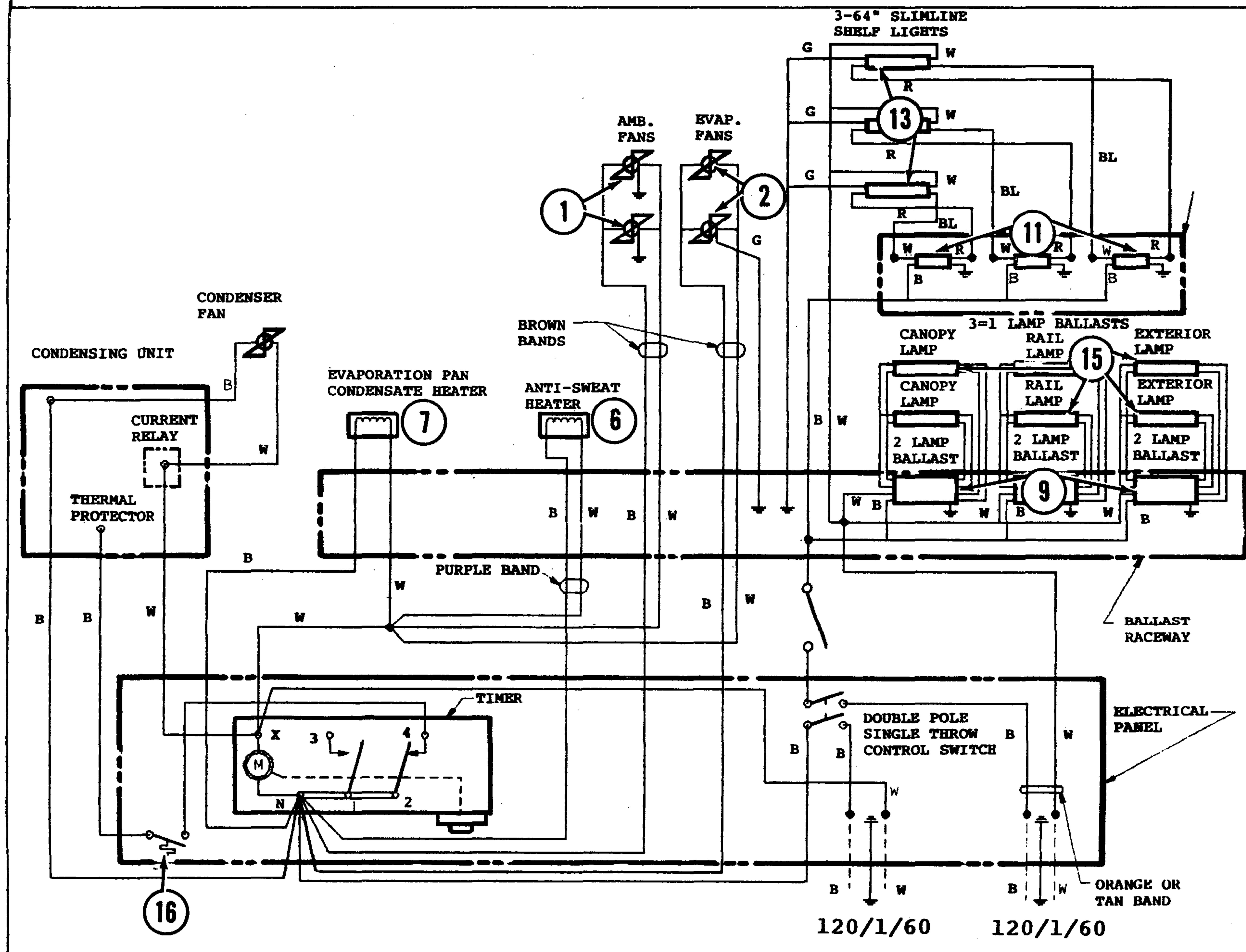
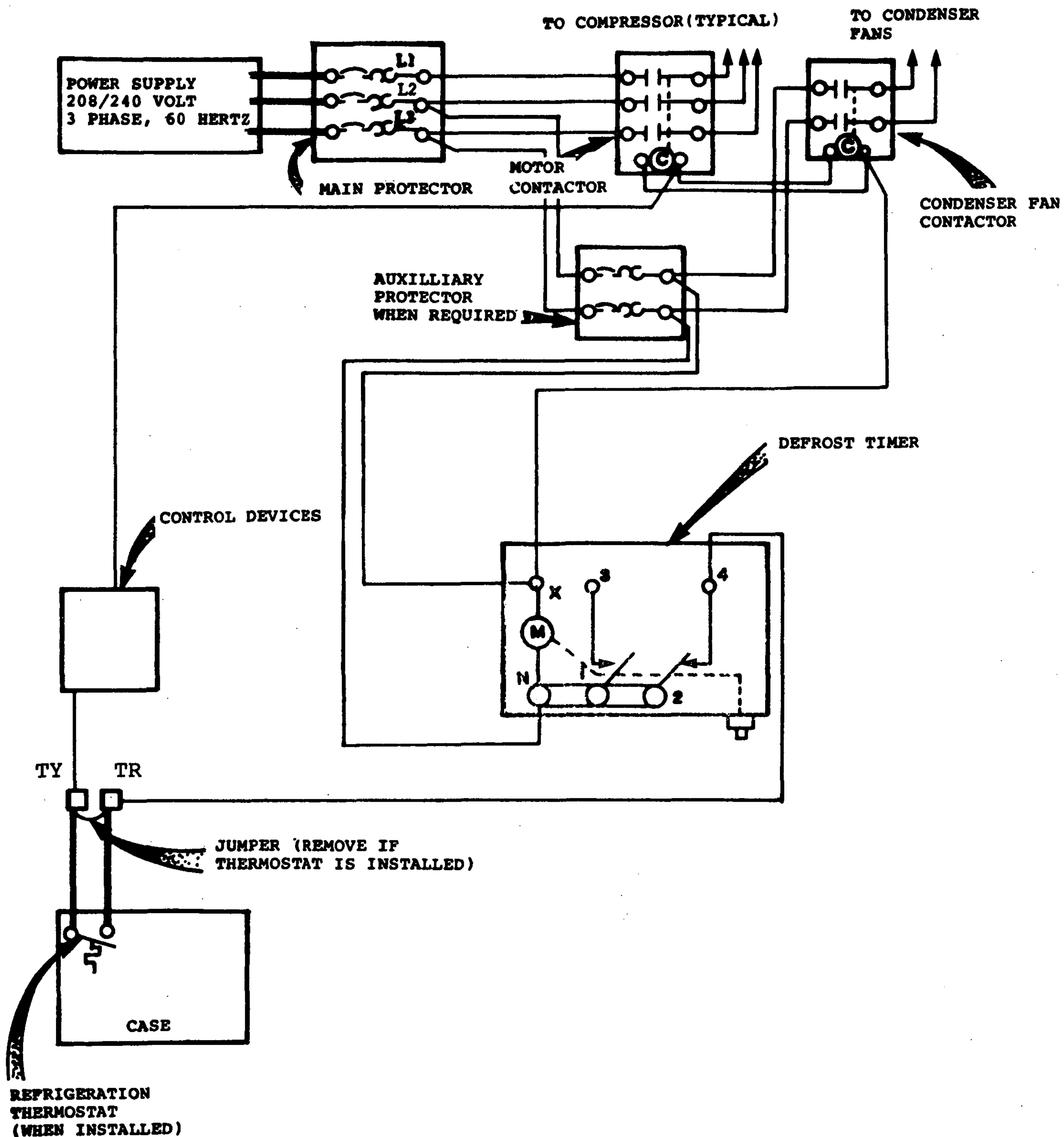


Figure 4-6

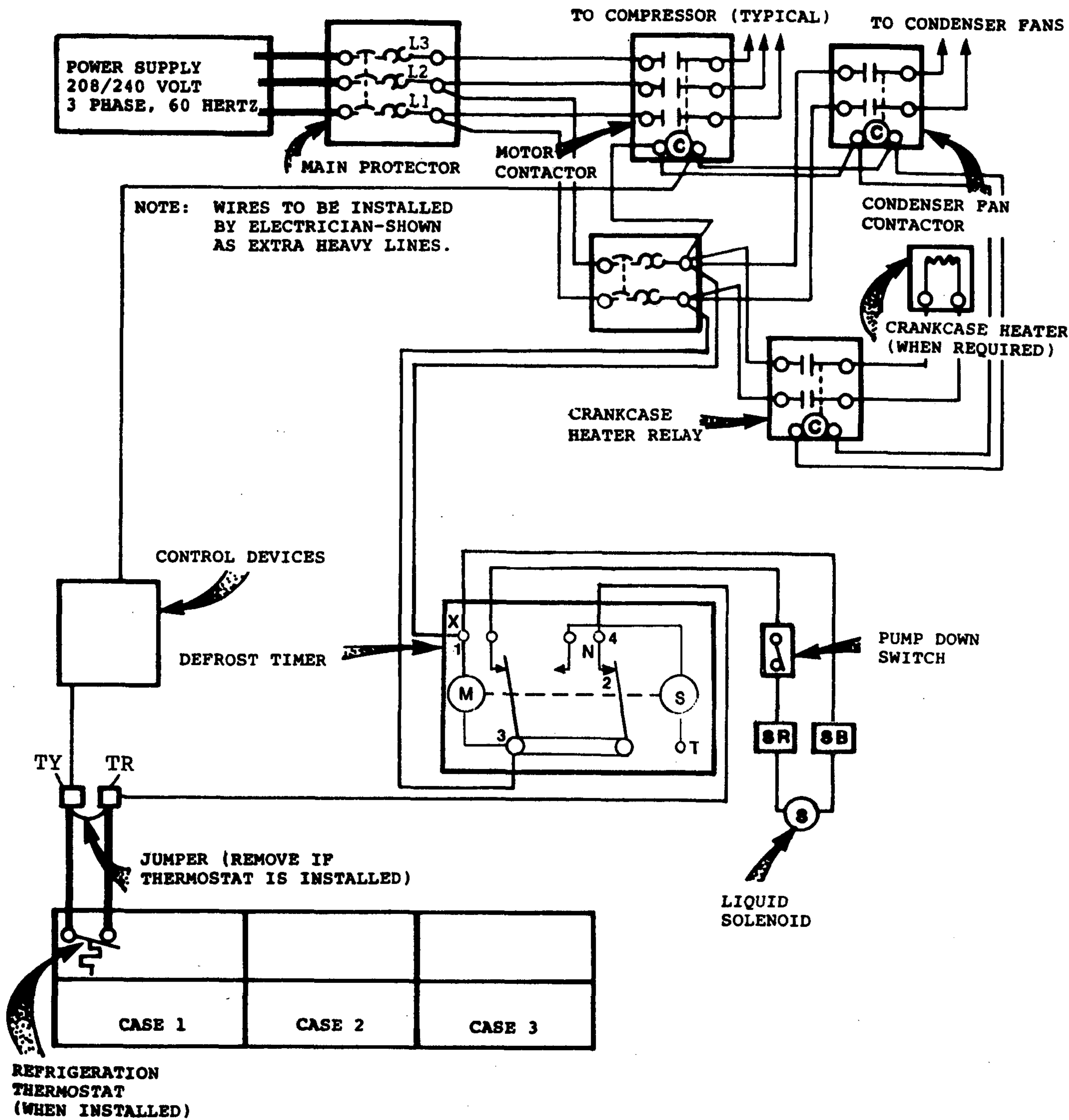
CONVENTIONAL MULTIPLEXING-INDOOR TYPE UNIT CONDENSING UNIT & CONTROL PANEL WIRING DIAGRAM



WARNING: REFRIGERATOR MUST BE GROUNDED

Figure 4-7

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



WARNING: REFRIGERATOR MUST BE GROUNDED

Figure 4-8

CGB ELECTRICAL DATA

The refrigeration thermostat is wired directly to the condensing unit terminal box. (See Figure 3-2).

Since the condenser fan is to operated continuously, the fan's power lead should be removed from the unit's internal protector. The lead is spliced (at the factory) directly to the time clock "N" terminal in the case electrical panel.

REPLACEMENT PARTS LIST

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>
1.	Fan Motor, 9W, CW, 120V EMS #S4BEB9E12	4011-0301264
2.	Fan Motor, 14W, CCW, 120V Rotron #MU2A4	4211-0325369
3.	Fan Motor, 11W, CCW, 120V Rotron #SU2A1	4011-0326081
4.	Fan Blade, Raised embossing toward motor, FV700 CW30P	4411-0320114
5.	Anti-Sweat Heater-CGB59 120V, 2.7 amps, 45.2 OHMS	4311-0309624
6.	Anti-Sweat Heater-CGB78 120V, 3.9 amps, 30.2 OHMS	4311-0309626
7.	Condensate Heater- Self-Contained 120V 350W, 2.9 Amps	4211-0309791
8.	Ballast, 1-Lamp GE # 8G1063W	4211-0143354
9.	Ballast, 2-Lamp GE #8G3905W	4211-0147089
10.	Ballast, 1-Lamp GE #8G3742W	4211-0324396
11.	Ballast, 1-Lamp GE #8G3922W	4211-0324397
12.	Lamp, 42" SGL PIN GE #F42T6/N/RS	4211-0324398
13.	Lamp, 64" SGL PIN GE #F64T6/N/RS	4211-0324399
14.	Lamp, 48" Fluorescent F40T12/N/RS	4011-0113694
15.	Lamp, 36" Fluorescent F30T12/N/RS	4011-0257779
16.	Thermostat, Adjustable WR 1710-4	4111-0261933

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>PART NO.</u>
17	Condensing Unit, 1/3 H.P. Copeland, FBAL-A034-IAA-001	4016-0327849
18	Condensing Unit, 1/2 H.P. Copeland FBAL-A050-IAA-001	4016-0327850

SECTION 5

USER INFORMATION

STOCKING

Do not place any product into these refrigerators until all controls have been adjusted and they are operating at the proper temperature. Care should be taken to place the bakery trays all the way to the front lip of the wire shelf. This avoids blocking the rear refrigerated air discharge. The load limit decals are affixed to the interior of the refrigerator. Again, AIR DISCHARGE AND RETURN AIR FLUE MUST BE UNOBSTRUCTED AT ALL TIMES TO PROVIDE PROPER REFRIGERATION.

There is also a row of vents located at the base of the front glass, just above the front rubrail. These vents allow a gentle air flow across the front glass from the ambient fans that prevents any condensation on the glass. DO NOT PLACE ANY SIGNS OR OTHER RESTRICTIVE OBJECTS ON THE FRONT OF THE REFRIGERATOR THAT WILL BLOCK THESE VENTS.

SHELVES

Wire shelves in 18 or 22 inch size are available with or without lights. the shelf support is designed for either horizontal or angular (7 degree) product display. Each display level is movable forward and backward within a 4 inch range. Brass wire shelves should not be used for refrigerated display.

CARE AND CLEANING

Long life and satisfactory performance of any equipment are dependent upon the care given to it. To insure long life, proper sanitation and minimum maintenance costs, the refrigerator should be thoroughly cleaned often.

CLEANING PRECAUTIONS

WHEN CLEANING, DO NOT USE A HOSE WITH HIGH WATER PRESSURE AND NEVER INTRODUCE WATER FASTER THAN THE WASTE OUTLET CAN CARRY IT AWAY.

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

TO PRESERVE THE ATTRACTIVE FINISH, USE WARM WATER AND A MILD DETERGENT TO WASH THE EXTERIOR SURFACES. DO NOT USE ABRASIVE CLEANERS OR STEEL WOOL SCOURING PADS AS THESE WILL MAR THE FINISH.

SOME CLEANING AND SANITIZING SOLUTIONS CONTAIN A MINERAL OIL BASE WHICH WILL DISSOLVE THE BUTYL SEALANTS USED IN THIS REFRIGERATOR, THESE SHOULD NOT BE USED.

HOW TO CLEAN

The INTERIOR may be cleaned with most domestic detergents, amonia based cleaners and sanitizing solutions. To clean:

- A. Remove all product from the display area.
- B. Thoroughly clean all surfaces with soap and hot water.
- C. Rinse with hot water, but do not flood.
- D. Apply the sanitizing solution according to the manufacturer's directions.
- E. Dry completely before resuming operation.

The fan plenum is hinged and can be easily raised opening the area beneath the plenum. The lower display decks are removable through the rear service doors by lifting them up and off the front and rear shelf supports. The interior bottom of the case is an easy to clean, corrosion resistant material designed for maximum sanitation. Any domestic soaps, detergents and even amonia-based cleaners are recommended. Sanitizing solutions will not harm the interior bottom, however, these solutions should be used according to the manufactuer's directions.

For self-contained (CGB) cases, the condensate, pan located in the unit compartment of the case, should be monitored for overflow conditions. After cleaning and rinsing, purge the pan of any standing water.

FRONT GLASS CLEANING

The front glass may be tilted forward or removed from the case for cleaning purposes. See Fig. 1-1.

It is recommended that the glass remain on the case for cleaning and that the glass itself not be used as a support mechanism during this process.

Extreme care should be exercised if the glass is to be removed from the case. Necessary measures should be taken to avoid contact between the glass and any other surfaces (for example, do not lay the glass lite directly on the floor).

Glass can be removed by lifting the lite vertically from its resting position. No less than two people should perform this operation. The glass can be returned to the case in much the same manner as it was removed.

Soap and water or any non-abrasive glass cleaning agent may be used to clean the curved front glass, inside and outside.

There is however, a clear mylar film bonded to the inside surface of the glass. DO NOT damage this film by using abrasive cleaners or other sharp objects when cleaning. Use only soft cloths or sponges when cleaning.

LIGHTED SHELF CLEANING

WHEN CLEANING THE LIGHTED SHELVES WIPE DOWN WITH A DAMP CLOTH OR SPONGE. DO NOT ALLOW WATER TO ENTER THE LIGHT CHANNEL. DO NOT USE A HOSE OR SUBMERGE THE SHELVES IN WATER.

SECTION 6LIGHTING**-WARNING-**

ALWAYS DISCONNECT THE ELECTRICAL POWER AT THE MAIN DISCONNECT WHEN SERVICING OR REPLACING ANY ELECTRICAL COMPONENT OF THIS REFRIGERATOR.

INSTALLING SHELF LIGHT FIXTURES

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

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

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

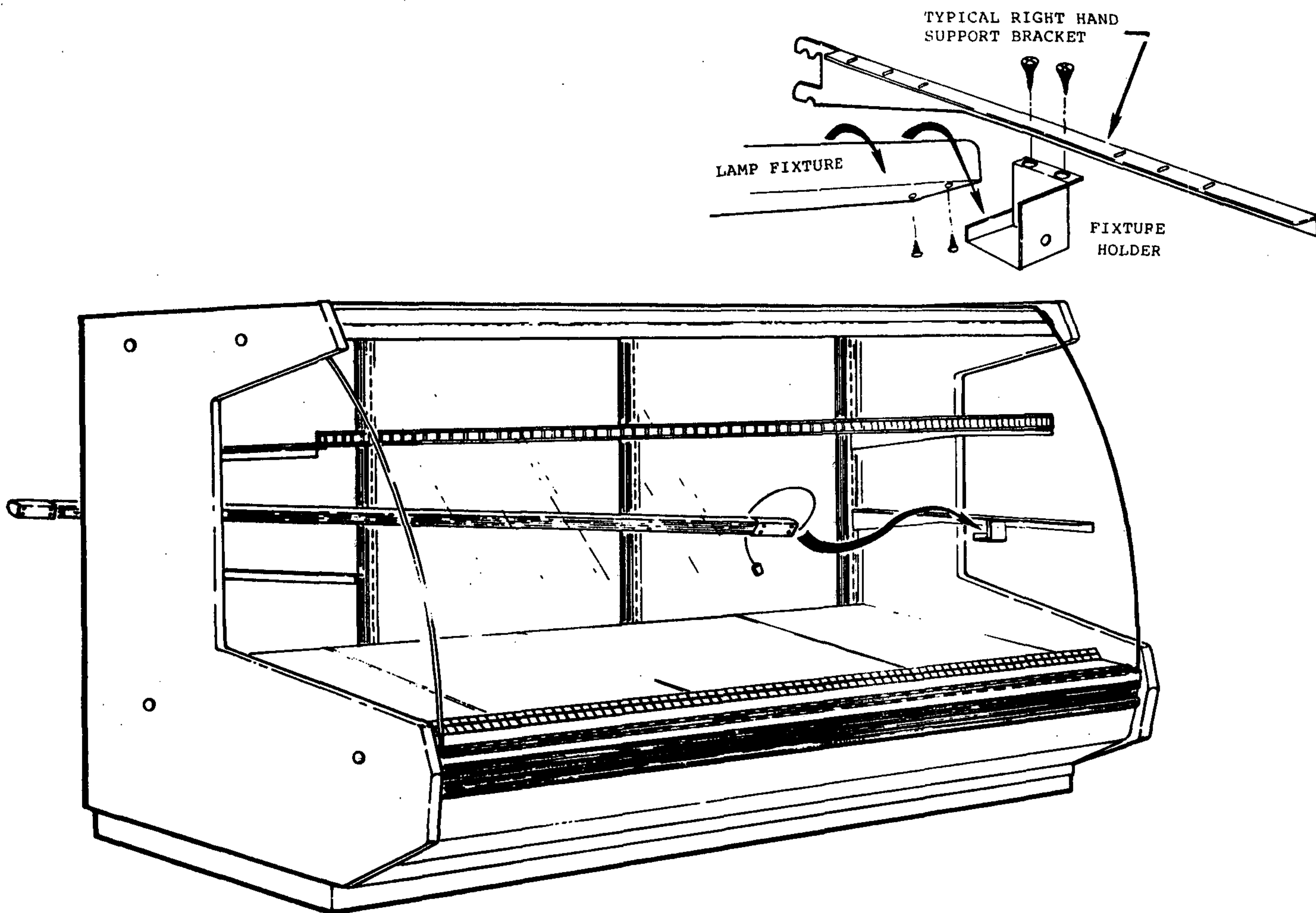


Figure 6-1 Installing Optional Display Shelf Lighting

REPLACING CANOPY AND EXTERIOR LAMPS**TURN OFF CASE ELECTRICAL POWER BEFORE REPLACING 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 shield and end caps over the lamp.

THE TRADITIONAL METHOD OF TWISTING THE LAMP TO REMOVE IT AFTER IT IS INSTALLED, IS NO LONGER NECESSARY. TO REMOVE A LAMP: SIMPLY PUSH THE LAMP AWAY FROM THE LAMP HOLDER. TO INSTALL: ALIGN THE END CAPS OVER THE LAMP HOLDERS AND GENTLY PRESS ON, A SLIGHT SNAP WILL BE FELT AS THE LAMP IS SEATED.

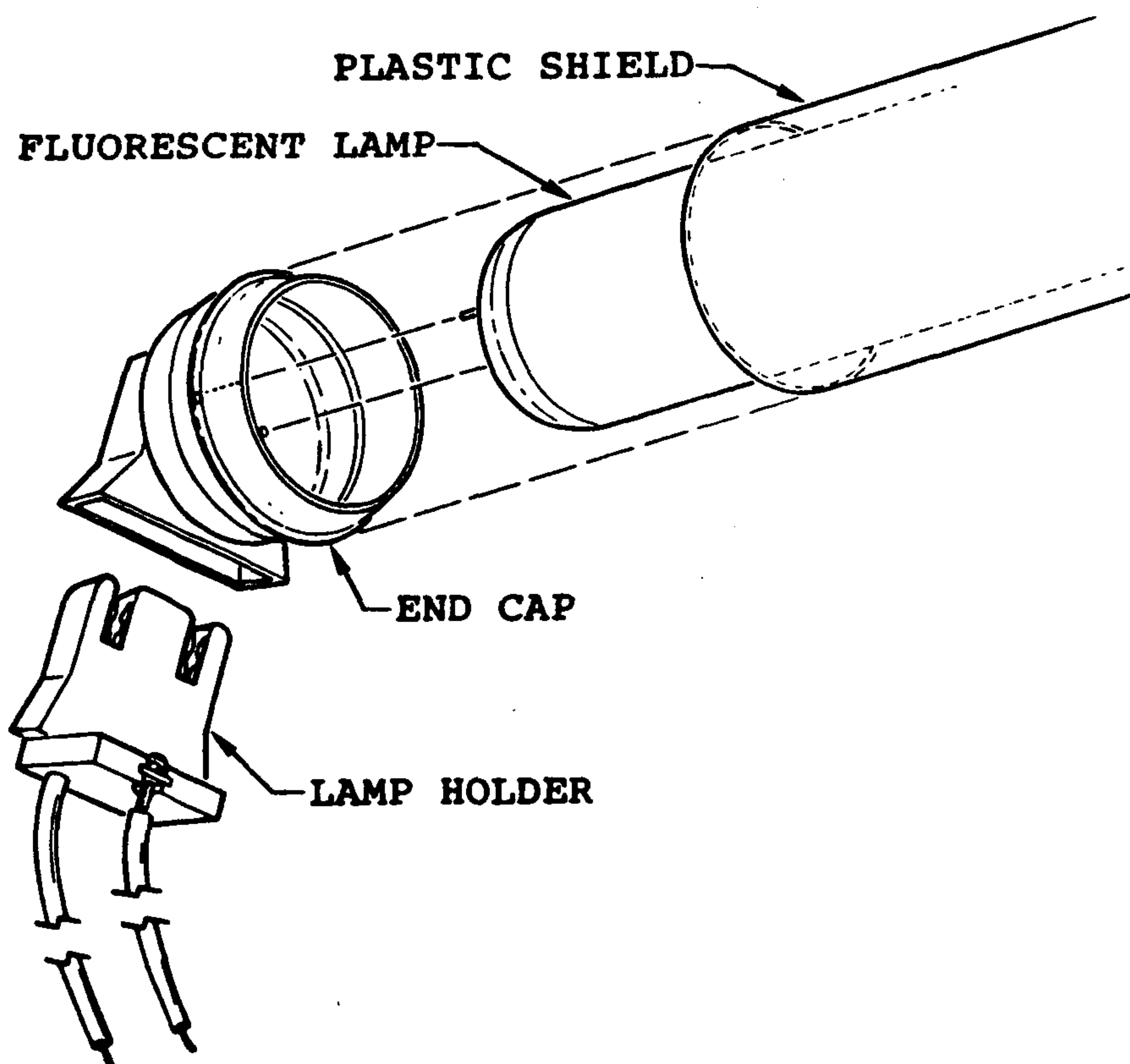


Figure 6-2 Standard and Exterior Lamp Assembly

REPLACING LOWER INTERIOR LAMPS**TURN OFF CASE ELECTRICAL POWER BEFORE REPLACING LAMPS.****REMOVAL**

1. To replace an interior fluorescent lamp, remove the shelves that will allow access to the lamp.
2. Remove the interior lamp protective shield by gently pushing down and rolling it back toward the rear of the case. See illustration below.
3. Remove the lamp by pulling the lamp and its end caps away from the case out of the lamp holders.

REPLACEMENT

4. Place the end caps onto a new lamp and align the caps over the lamp holder. Press down until a slight snap is felt seating the lamp.
5. Replace the lamp protective shield.

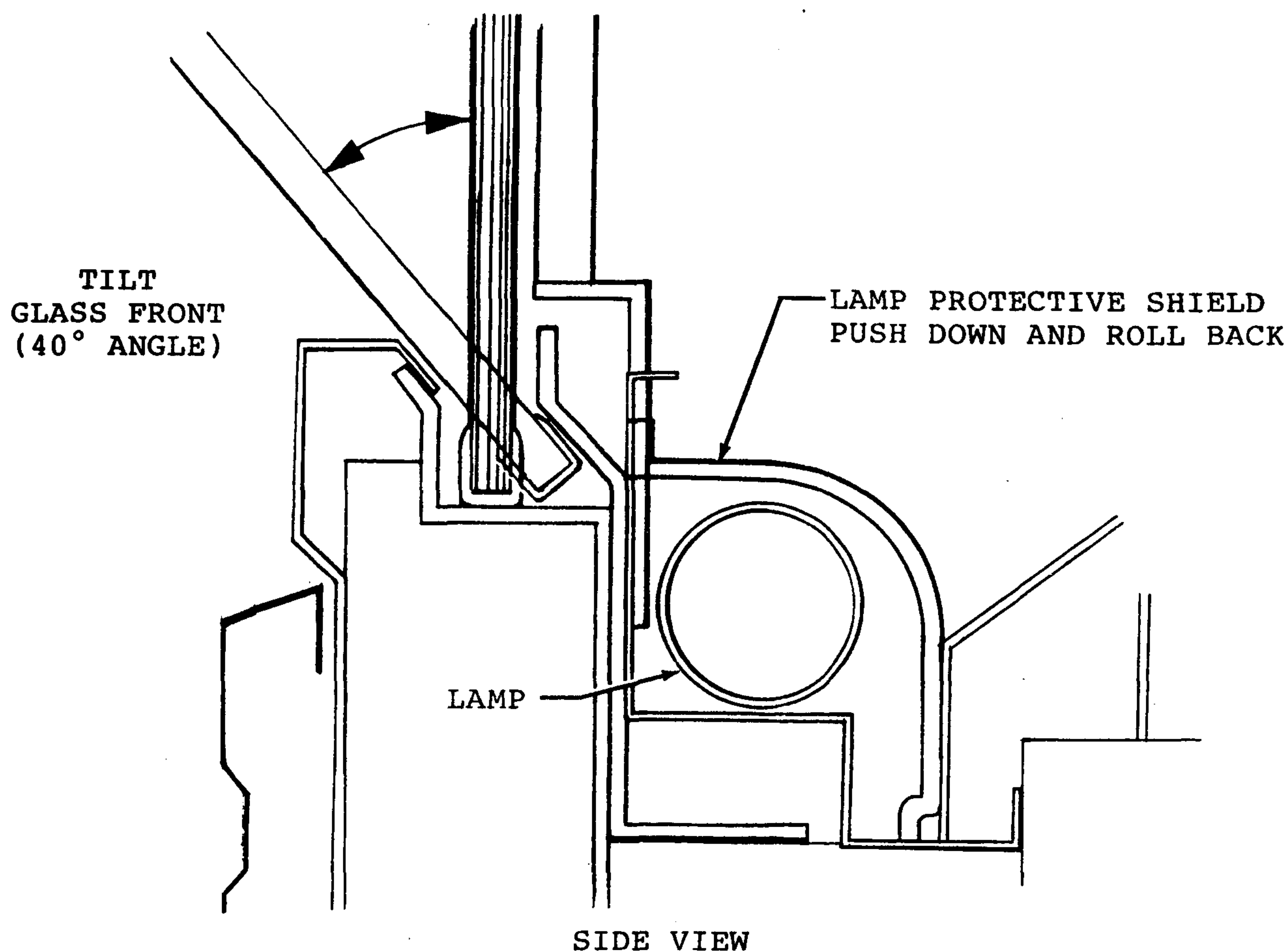


Figure 6-3 Lower Interior Lamp Assembly

REPLACING SHELF LAMPS

1. Turn light switch to the off position prior to replacing or installing any lighting components.
2. Disconnect the proper light fixture by removing the fixture power cord from the socket in the right rear interior corner of the case. (See Figure 6-1).
3. Carefully lift the fixture out of its retaining brackets and remove it from the case through either the right or lefthand rear service door.
4. Place the fixture on a flat surface to remove the clear plastic protective shield. Carefully insert one finger between the fixture socket and the protective shield. Use the opposite hand to "Pinch" the lens cover (and simultaneously holding the fixture in place) while lifting with the inserted finger.
5. When the shield has been separated from the fixture at one end, remove it by slowly pulling the remainder of the shield away from the fixture.
6. Replace the lamp by depressing the spring loaded socket at one end of the fixture and swinging the opposite end of the lamp from its formerly fixed position.
7. Insert the new lamp in the spring loaded socket, depressing the socket, until the opposite end of the lamp will properly enter the stationary light socket.
8. Return the lamp shield to its original position by lightly pinching it in from each side and inserting the shield flanges into the fixture channel. Continue this procedure along the total length of the lamp shield until it is in place. The shield should be in the proper position if this is done correctly.
9. Return the fixture to the case.

SECTION 7SERVICE TIPS**-WARNING-**

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 THE FANS, HEATERS, THERMOSTATS AND FLUORESCENT LAMPS.

EVAPORATOR FANS (Refrigerated Models Only)

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

AMBIENT FANS (Refrigerated Models Only)

The ambient fans are located at the front of the refrigerator behind the lower front panel. Should these fans or blades need servicing, **ALWAYS REPLACE THE FAN BLADES SO THAT THE EMBOSSED SIDE OF THE BLADE IS INSTALLED TOWARD THE MOTOR.**

For access to the fans:

- Remove the splashguard assembly by lifting up and off from the retainer and tilting the assembly out and away from the retainer.
- Disconnect the fan harness. The plenum may be removed, if necessary, by unfastening the front and rear supports which attach the plenum to the lengthwise baffle.

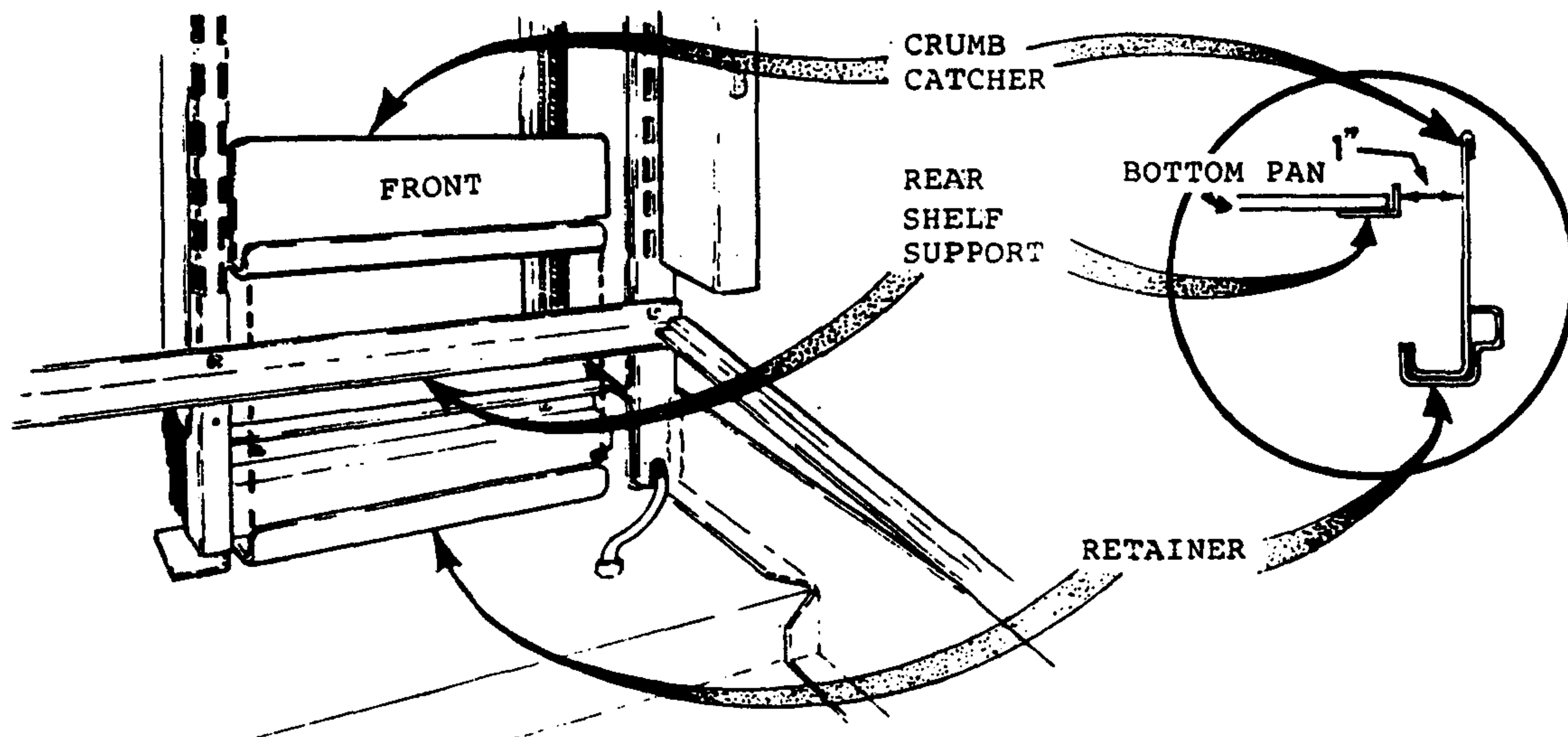
CGB CRUMB CATCHERAPPLICATION OF THE CRUMB CATCHER

The CGB comes with a crumb catcher device which sits in a retainer at the back of the case. The purpose of the crumb catcher is to trap food particles which would otherwise accumulate in the bottom over time and increase the frequency of cleaning.

INSTALLATION OF THE CRUMB CATCHER

The CGB crumb catcher is labeled on one side "FRONT" and the other side "BACK". Some earlier shipments did not have the labels on the crumb catchers, in which case the illustration below should help the installer.

Incorrect positioning of the crumb catcher on refrigerated models can obstruct the air flow and proper refrigeration will be reduced or eliminated to the product compartment. Be certain that the 1 inch gap between the REAR SHELF SUPPORT and CRUMB CATCHER is present as shown below.



REPLACING RETURN NOSING ANTI-SWEAT HEATER
(Refrigerated Models Only)

TURN OFF CASE ELECTRICAL POWER BEFORE REMOVING HEATER.

The heater is located behind the lower front cover panel of these refrigerators. See Figure 7-1. For access to the heater:

1. Remove the splashguard assembly by lifting it out of the retainer.
2. Remove the fluorescent lamp, if so equipped.
3. Remove sheet metal screws holding the upper front cover panel to the case.
4. Lift cover panel out of its retainer track.
5. Disconnect faulty heater at its supply connections.

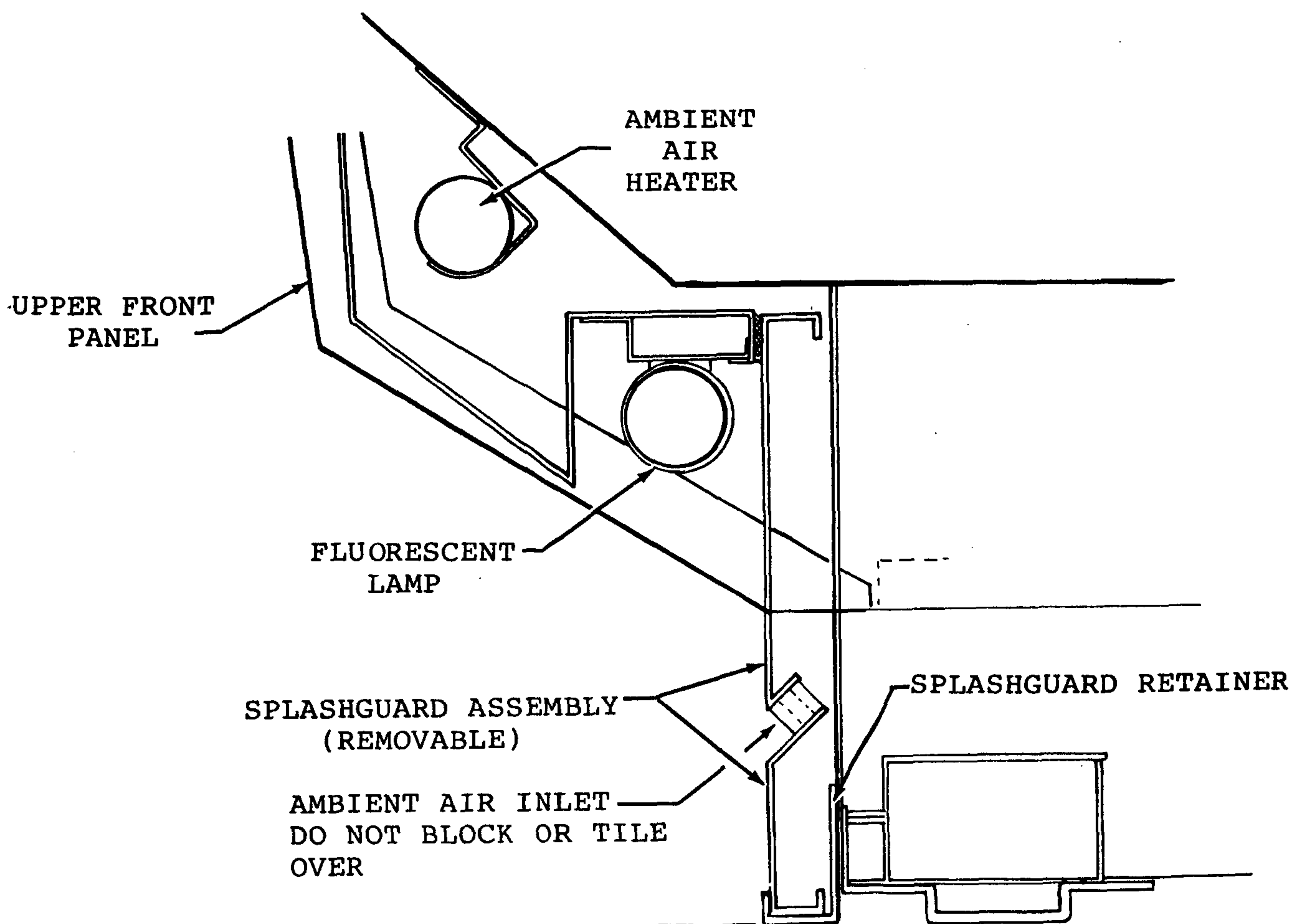


Figure 7-1 Ambient Air Anti-Sweat Heater Access

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