

Thermador[®]



BUILT-IN REFRIGERATOR

SERVICE MANUAL

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PREFACE

This Thermador® Service Manual, “*Built-In Refrigerator*” (Part No. RH5001E), provides the technician with information on the installation, operation, and service of the Built-In Side-By-Side and Bottom Mount Refrigerators. It is to be used as a training aid and Service Manual. For specific information on the model being serviced, refer to the “*Use and Care Guide*” or “*Tech Sheet*” provided with the refrigerator.

The Wiring Diagrams and Strip Circuits used in this manual are typical and should be used for training purposes only. Always use the Wiring Diagram supplied with the product when servicing the unit.

The goal of this Service Manual is to provide detailed information that will enable the service technician to properly diagnose malfunctions and repair the Built-In Side-By-Side and Bottom Mount Refrigerators.

The objectives of this manual are to provide the servicer with all of the information necessary to:

- Understand and follow proper safety precautions.
- Successfully troubleshoot and diagnose malfunctions.
- Successfully perform necessary repairs.
- Successfully return the refrigerator to its proper operational status.

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REFRIGERATOR MODELS

The refrigerator models covered in this service manual are listed in Table P-1 below and shown in Figure P-1 on the following page.

Table P-1. Refrigerator Models

MODEL NUMBER	FEATURES
36" Built-In Refrigerator - Bottom Mount	
KBULT3651A/01	Stainless steel exterior, curved handles, left-hand door swing
KBURT3651A/01	Stainless steel exterior, curved handles, right-hand door swing
KBULT3661A/01	Stainless steel exterior, Professional handles, left-hand door swing
KBURT3661A/01	Stainless steel exterior, Professional handles, right-hand door swing
KBULT3671A/01	Custom panel, left-hand door swing
KBURT3671A/01	Custom panel, right-hand door swing
42" Built-In Refrigerator - Side-By-Side	
KBUDT4250A/01	Stainless steel exterior, curved handles, exterior dispensing
KBUI4250A/01	Stainless steel exterior, curved handles, internal ice maker
KBUDT4260A/01	Stainless steel exterior, Professional handles, exterior dispensing
KBUI4260A/01	Stainless steel exterior, Professional handles, internal ice maker
KBUDT4270A/01	Custom panel, exterior dispensing
KBUI4270A/01	Custom panel, internal ice maker
48" Built-In Refrigerator - Side-By-Side	
KBUDT4850A/01	Stainless steel exterior, curved handles, exterior dispensing
KBUI4850A/01	Stainless steel exterior, curved handles, internal ice maker
KBUDT4860A/01	Stainless steel exterior, Professional handles, exterior dispensing
KBUI4860A/01	Stainless steel exterior, Professional handles, internal ice maker
KBUDT4870A/01	Custom panel, exterior dispensing
KBUI4870A/01	Custom panel, internal ice maker

Figure P-1. Refrigerator Models



**ORGANIZATION OF
DOCUMENT**

This document is organized as follows:

- Chapter 1, *General Information*, illustrates how the safety messages are designated within this manual, lists model and serial number designations and explains where the model/serial numbers and tech sheets are located on each refrigerator. The Built-In Refrigerator warranty is also included in this chapter.
- Chapter 2, *Installation Information*, includes all the instructions required for installing, adjusting and leveling the Built-In Refrigerator.
- Chapter 3, *Theory of Operation*, provides information about the Built-In Refrigerator temperature controls, compressor and evaporator and modes and alarms. Also included is a brief explanation of the air circulation process within the refrigerator and a sealed system schematic.
- Chapter 4, *Component Access*, shows the location of each component and provides illustrated instructions for removing each component for servicing and repair.
- Chapter 5, *Component Testing*, provides detailed instructions for testing each component prior to and/or after service.
- Chapter 6, *Diagnostics & Troubleshooting*, explains how to enter the diagnostics mode and provides an extensive chart for troubleshooting problems which may occur in the refrigerator.
- Appendix A, *Wiring Diagrams & Strip Circuits*, provides wiring diagrams for the refrigerator components and includes illustrations of each strip circuit.
- Appendix B, *Tech Tips*, is a short list of tips that will aid in the servicing of certain parts within the Built-In Refrigerator.

This chapter illustrates how the safety messages are designated within this manual. The model and serial number designations are listed and the locations of the model/serial numbers and tech sheets on each refrigerator are provided. Also included in this chapter is the Built-In Refrigerator warranty.



In this chapter:

Safety First 1-2

Model & Serial Number Designations 1-5

Label & Tech. Sheet Locations 1-6

Thermador® Built-In Refrigerator Warranty 1-7

SAFETY FIRST

Your safety and the safety of others is very important.

We have provided many important safety messages in this manual and on the appliance itself. It is important that you always read and obey all safety messages.

The safety alert symbols and the messages which follow such symbols are shown in the figure below.

Figure 1-1. Safety Alert Symbols



This is the safety alert symbol.

This symbol alerts you to hazards that can kill or hurt you and others. All safety messages will follow the safety alert symbol and either the word “DANGER” or “WARNING”. These words mean:



DANGER

You can be killed or seriously injured if you don't immediately follow instructions.



WARNING



You can be killed or seriously injured if you don't follow instructions.


All safety messages will tell you:



- What the potential hazard is.
- How to reduce the chance of injury.
- What can happen if the instructions are not followed.

SAFETY FIRST (Cont'd)

The following labels illustrate the electrical power supply and grounding requirements.

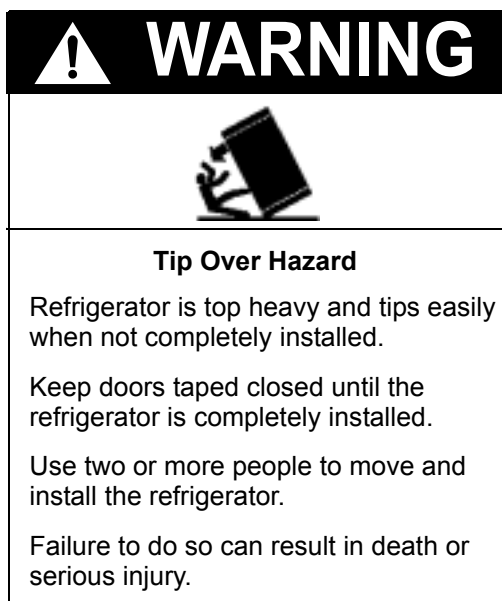
 WARNING

<p>Electrical Shock Hazard</p> <p>Disconnect power before servicing.</p> <p>Replace all parts & panels before operating.</p> <p>Failure to do so can result in death or electrical shock.</p>

 WARNING

<p>Electrical Shock Hazard</p> <p>Plug into a grounded 3-prong outlet.</p> <p>Do NOT remove ground prong.</p> <p>Do NOT use an adapter.</p> <p>Do NOT use an extension cord.</p> <p>Failure to follow these instructions can result in death, fire, or electrical shock.</p>

 WARNING

<p>Electrical Shock Hazard</p> <p>Connect green ground wire to ground screw.</p> <p>Failure to do so can result in death or electrical shock.</p>

SAFETY FIRST (Cont'd)

The following label illustrates the anti-tip requirements.

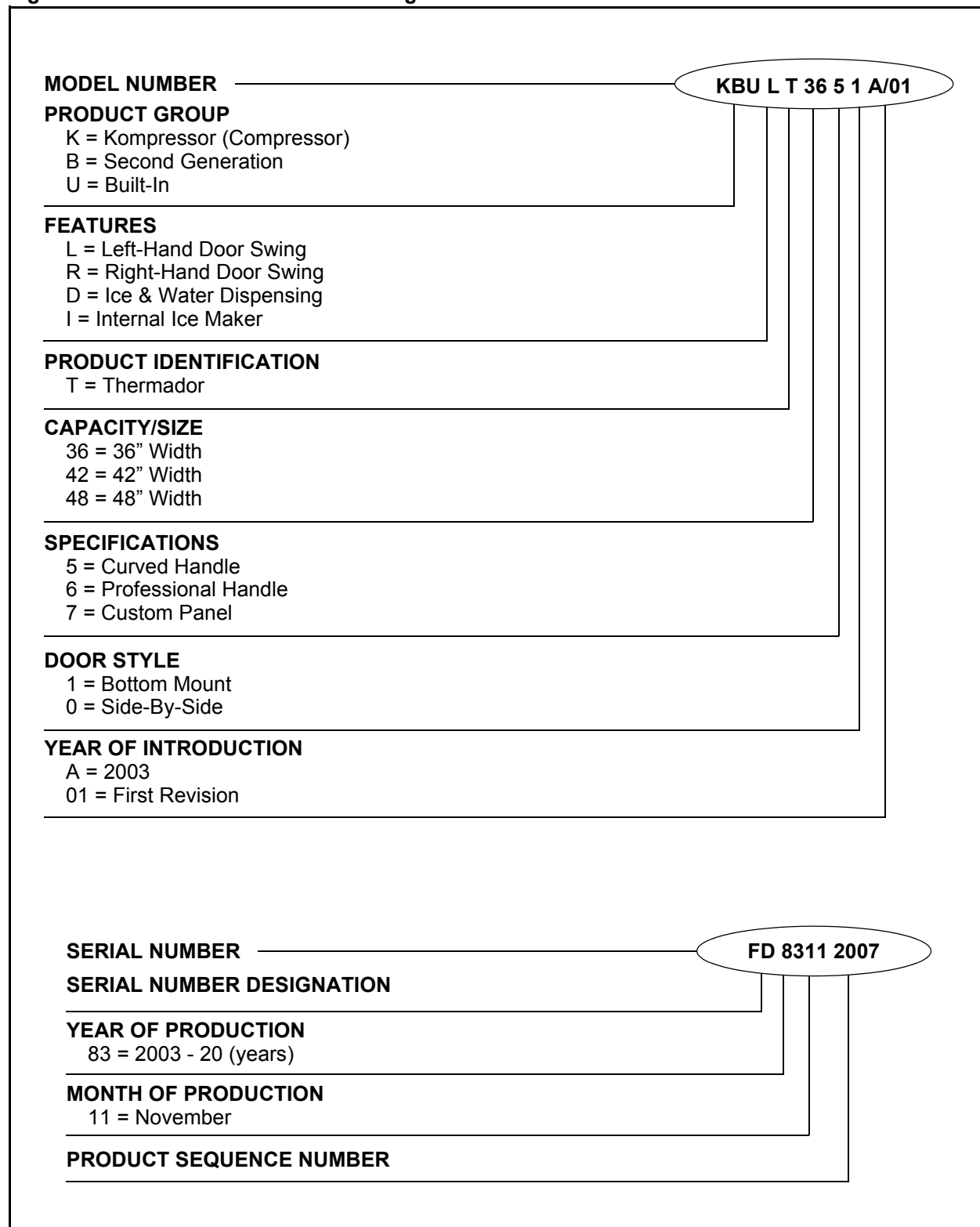
**Electrostatic Discharge (ESD)
Sensitive Electronics**

ESD problems are present everywhere. ESD may damage or weaken the electronic control assembly. The new control assembly may appear to work well after repair is finished, but failure may occur at a later date due to ESD stress. To prevent ESD damage, take the following precautionary measures:

- Use an antistatic wrist strap. Connect the wrist strap to a green ground connection point or unpainted metal in the appliance; or touch your finger repeatedly to a green ground connection point or unpainted metal in the appliance.
- Before removing the part from its package, touch the antistatic bag to a green ground connection point or unpainted metal in the appliance.
- Avoid touching electronic parts or terminal contacts. Handle the electronic control assembly by the edges only.
- When repackaging the failed electronic control assembly in an antistatic bag, observe the above instructions.

**MODEL AND SERIAL
NUMBER DESIGNATIONS**

The refrigerator model and serial number designations are shown in Figure 1-2 below.

Figure 1-2. Model & Serial Number Designations

LABEL AND TECH SHEET LOCATIONS

The model and serial number label and Tech Sheet locations are shown in Figure 1-3 below.

Figure 1-3. Model/Serial Number Label & Tech Sheet Locations



**THERMADOR BUILT-IN
REFRIGERATOR WARRANTY****TWO-YEAR FULL WARRANTY**

For two years from the date of purchase, when this refrigerator (excluding the water filter cartridges) is operated and maintained according to instructions attached to or furnished with the product, Thermador will pay for factory specified replacement parts and repair labor costs to correct defects in materials or workmanship. Service must be provided by a Thermador designated service company.

Water filter cartridge: 30-day limited warranty on water filter. For 30 days from the date of purchase, when this filter is operated and maintained according to instructions attached to or furnished with the product, Thermador will pay for replacement parts to correct defects in materials and workmanship.

**THIRD THROUGH SIXTH YEAR FULL WARRANTY ON SEALED
REFRIGERATION SYSTEM PARTS & LABOR**

In the third through sixth years from the date of purchase, when this refrigerator is operated and maintained according to instructions attached to or furnished with the product, Thermador will pay for factory specified replacement parts and repair labor costs to correct defects in materials or workmanship in the sealed refrigeration system. These parts are: compressor, evaporator, condenser, dryer, and connecting tubing. Service must be performed by a Thermador designated service company.

**SEVENTH THROUGH TWELFTH YEAR LIMITED WARRANTY ON
SEALED REFRIGERATION SYSTEM (PARTS ONLY)**

In the seventh through twelfth years from the date of purchase, when this refrigerator is operated and maintained according to instructions attached to or furnished with the product, Thermador will pay for factory specified replacement parts to correct defects in materials or workmanship in the sealed refrigeration system. These parts are: compressor, evaporator, condenser, dryer, and connecting tubing.

THERMADOR WILL NOT PAY FOR:

1. Service calls to correct the installation of your refrigerator, to instruct you how to use your refrigerator, to replace house fuses or correct house wiring or plumbing, to replace light bulbs, or to replace water filters other than as noted above.
2. Repairs when your refrigerator is used in other than normal, single-family household use.
3. Pickup and delivery. Your refrigerator is designed to be repaired in the home.
4. Damage resulting from accident, alteration, misuse, abuse, fire, flood, improper installation, acts of God, or use of products not approved by Thermador.
5. Any food or medicine loss due to product failure.
6. Repairs to parts or systems resulting from unauthorized modifications made to the appliance.
7. Removal and replacement of trim or decorative panels that interfere with servicing the product.

**THERMADOR BUILT-IN
REFRIGERATOR WARRANTY
(Cont'd)**

8. Labor or parts installed by any non-designated service company during the full warranty period, unless approved by Thermador *before* service is performed.
9. In Canada, travel or transportation expenses for customers who reside in remote areas.
10. Any labor costs during the limited warranty periods.

**THERMADOR SHALL NOT BE LIABLE FOR INCIDENTAL OR
CONSEQUENTIAL DAMAGES**

Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion or limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state-to-state, or province-to-province.

Outside the 50 United States and Canada, a different warranty may apply. Contact your authorized Thermador dealer to determine if another warranty applies.

If you need service, first see the “*Troubleshooting*” section of the “*Use and Care Guide*”. After checking “*Troubleshooting*”, additional help can be found by checking the “*Assistance or Service*” section of the same manual, or by calling the Thermador Customer Support Center, **1-800-735-4328** (toll-free), or Thermador Technical Assistance Center, **1-800-444-9091** (toll-free), from anywhere in the U.S.A.

This chapter includes all the instructions and information required for installing, adjusting and leveling the Built-In Refrigerator.



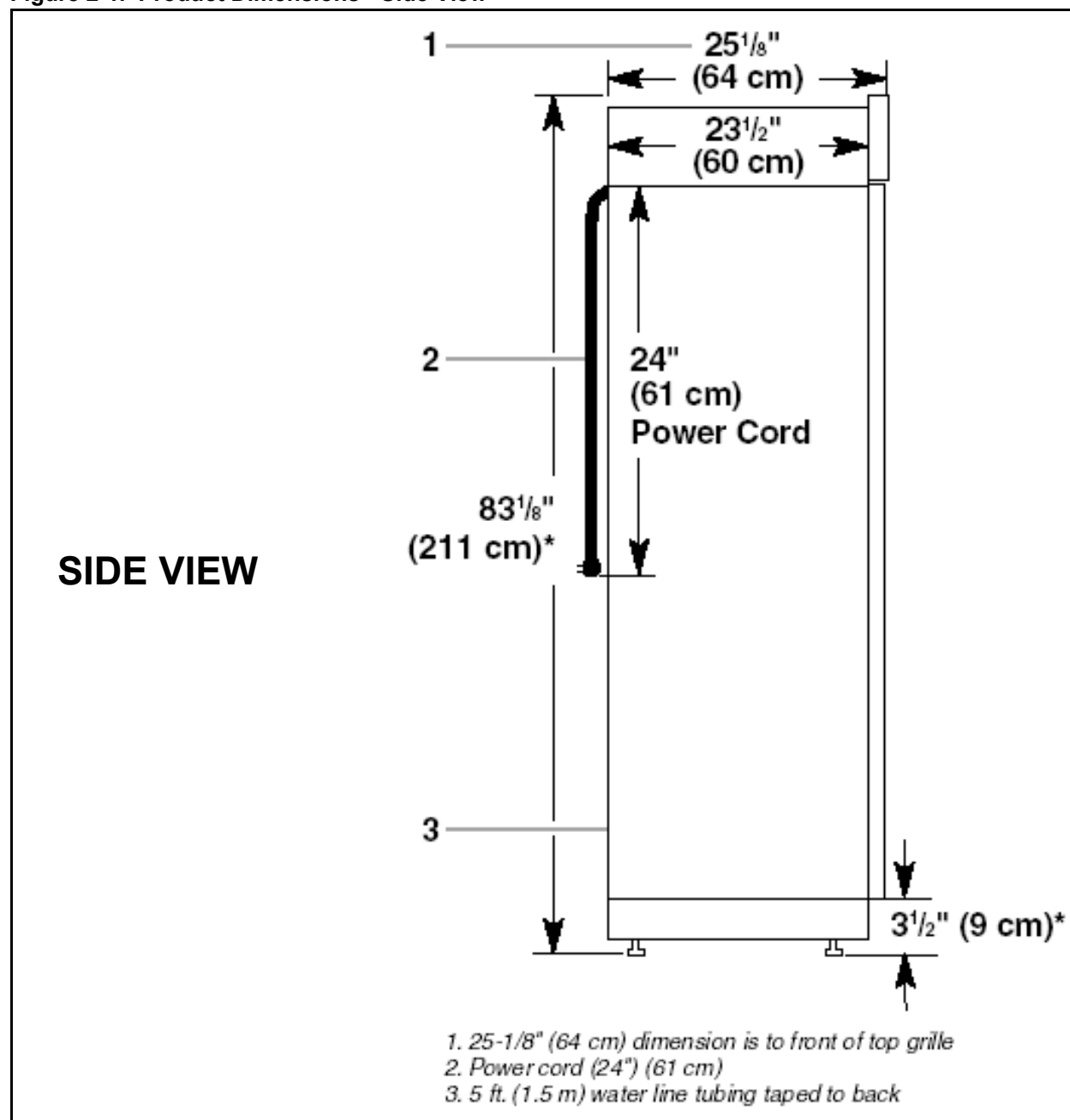
In this chapter:

Product Dimensions 2-2
Water Supply Requirements 2-6
Anti-Tip Boards 2-7
Lowering the Leveling Legs 2-8
Leveling the Refrigerator 2-9
Adjusting the Doors 2-10

PRODUCT DIMENSIONS

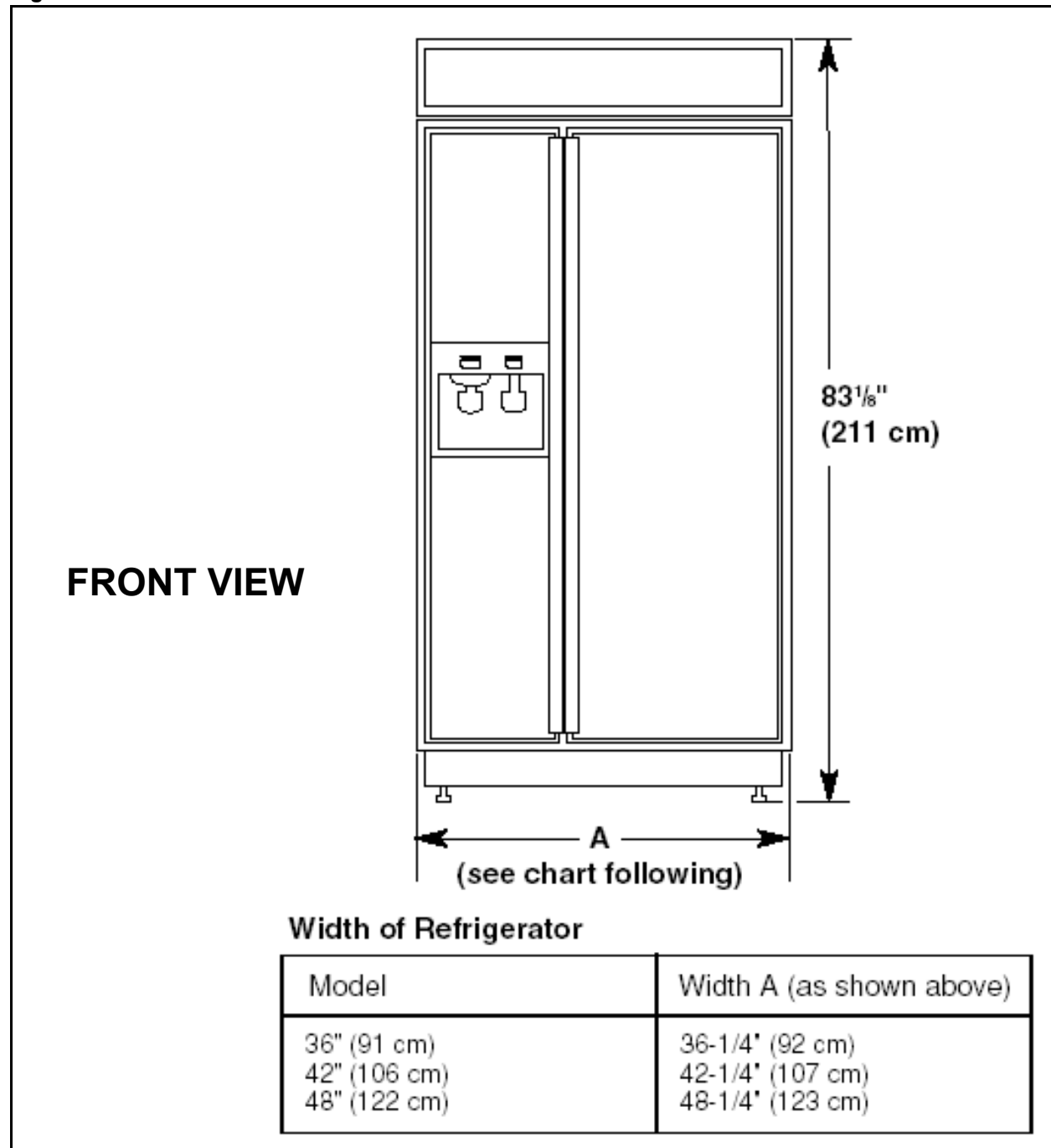
The dimensions of the Built-In Refrigerator are shown in Figures 2-1 through 2-3 below.

Figure 2-1. Product Dimensions - Side View



NOTE: (*) Dimensions shown are for leg levelers extended 1/8" (3 mm) below the rollers. For levelers fully extended 1-1/4" (32 mm) below the rollers, add 1-1/8" (29 mm) to this dimension.

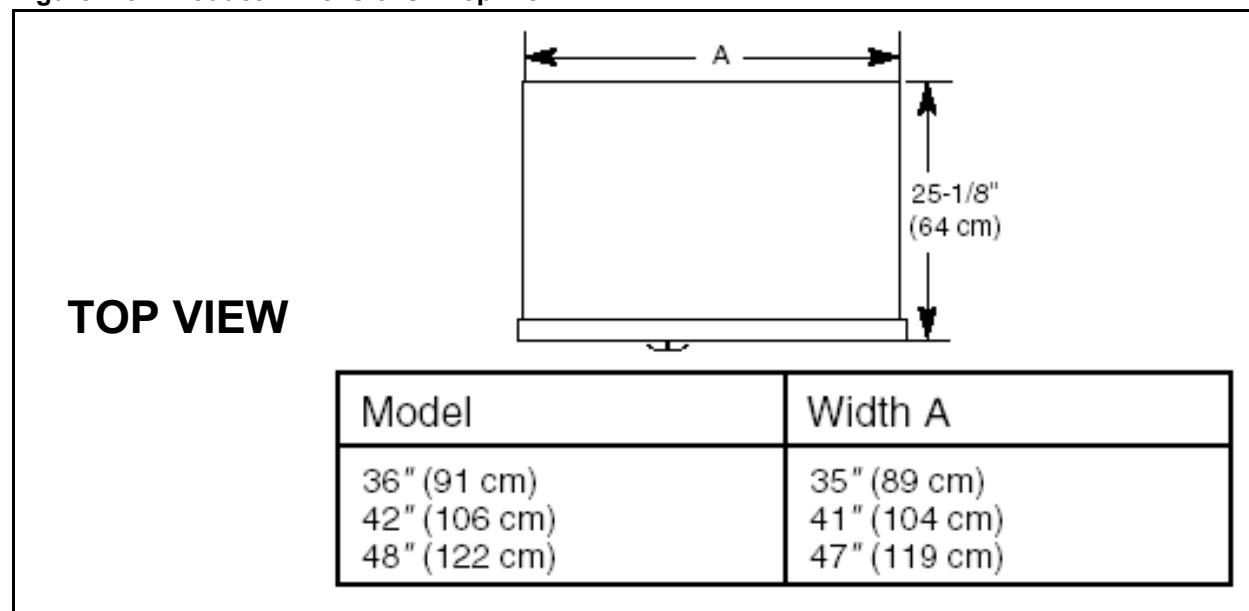
Figure 2-2. Product Dimensions - Front View



PRODUCT DIMENSIONS
(Cont'd)

NOTE: The width dimensions shown represent the distance from outside trim to inside trim.

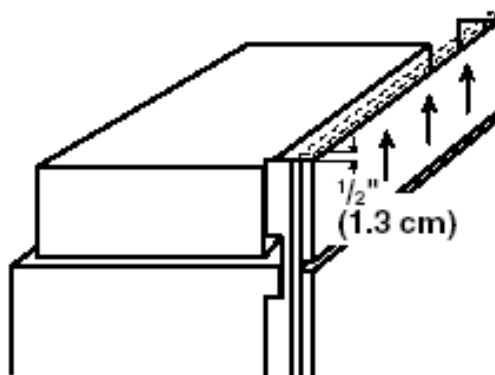
Figure 2-3. Product Dimensions - Top View

**Opening Dimensions**

The solid soffit must be within 1" (2.5 cm) maximum above the refrigerator. If the solid soffit is higher than 1" (2.5 cm) or one is not available, then the refrigerator must be braced to prevent tipping during use.

If the anti-tip boards are needed, they must be attached to the rear wall studs 83¼" to 84¼" (211 to 214 cm) above the floor (see the "Anti-Tip Boards" section on page 2-7 for more information).

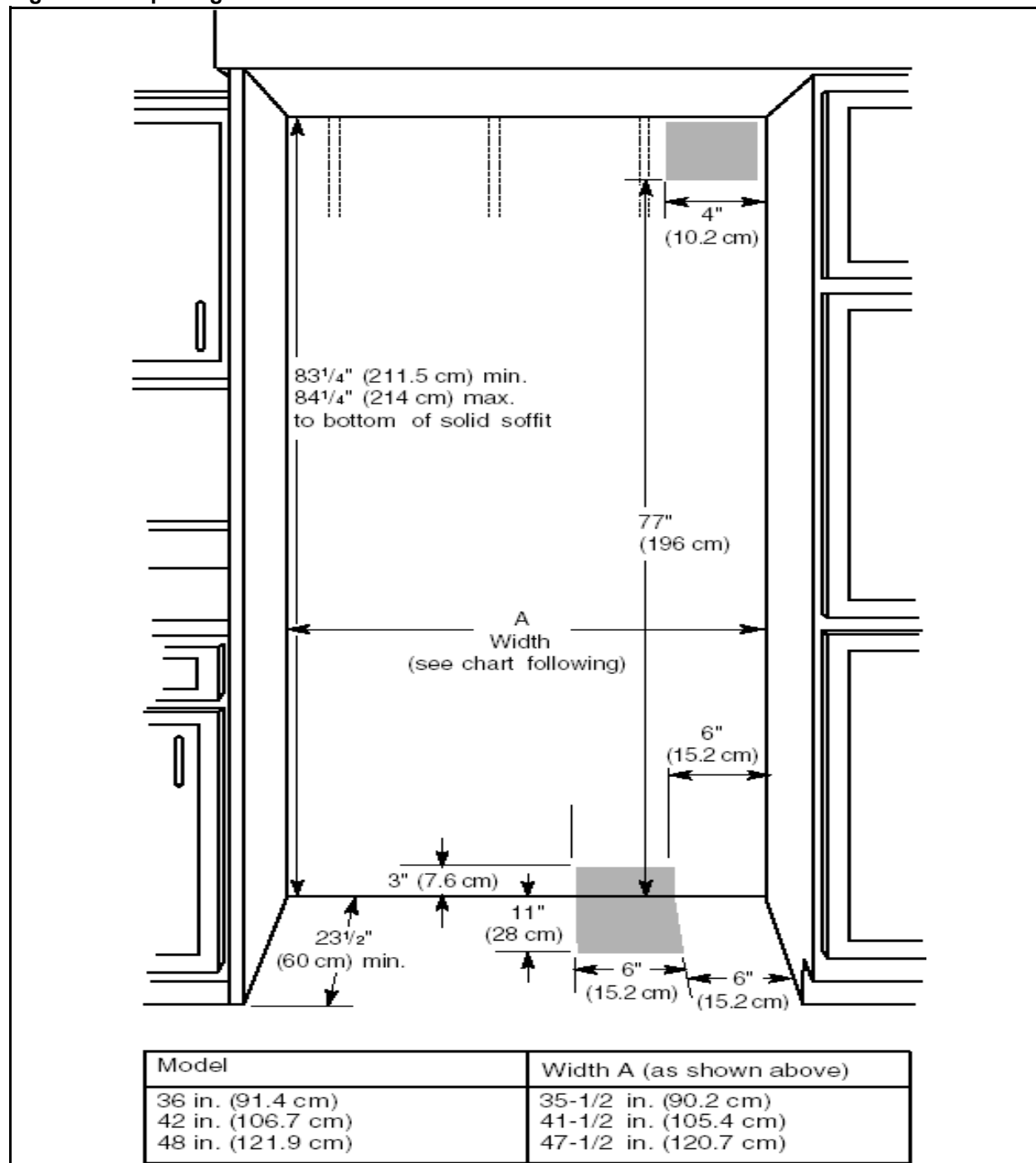
NOTE: A clearance of 1/2" (1.3 cm) must be maintained above the top grille in order for the top grille to be removed (refer to the illustration below).



Opening Dimensions (Cont'd)

A grounded 3-prong electrical outlet should be placed within 4" (10.2 cm) of the right-side cabinets or end panel and 77" (196 cm) from the floor.

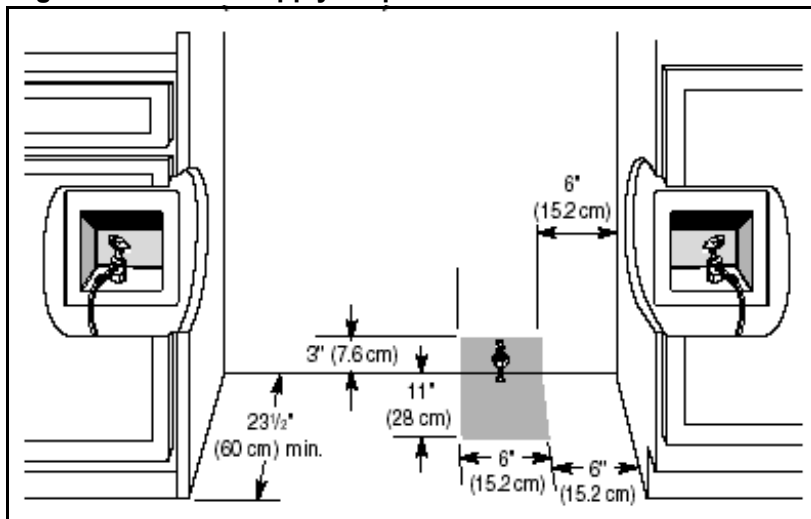
The water shutoff should be located in the base cabinet on either side of the refrigerator or some other easily accessible area. If the water shutoff valve is not in the cabinets, the plumbing for the water line can come through the floor or the back wall (see the "Water Supply Requirements" section on the next page for more information).

Figure 2-4. Opening Dimensions

WATER SUPPLY REQUIREMENTS

All installations must meet local plumbing code requirements. The water shutoff should be located in the base cabinet on either side of the refrigerator or some other easily accessible area. The right-hand side is recommended. The access hole through the right-hand side cabinet must be within 1/2" (12.7 mm) of the rear wall. (Refer to Figure 2-5 below for water supply requirements.)

Figure 2-5. Water Supply Requirements



If the water shutoff valve is not in the cabinets, the plumbing for the water line can come through the floor or the back wall. A 1/2" (12.7 mm) hole for plumbing should be drilled 6" (15.2 cm) to 12" (30.4 cm) from the right-hand side cabinet or panel. On the floor, the hole should be no more than 11" (28 cm) away from the back wall. On the wall, the hole should be no more than 3" (7.6 cm) up from the floor.

If this recommended water line location is used, no additional plumbing must be purchased. If additional tubing is needed, use copper tubing and check for leaks. Install the copper tubing only in areas where the household temperatures will remain above freezing.

Do not use a piercing-type or 3/16" (4.76 mm) saddle valve, which reduces water flow and clogs more easily.

NOTE: Any refrigerator dealer has a kit available with a 1/4" (6.35 mm) saddle-type shutoff valve, a union, and copper tubing. Before purchasing, make sure a saddle type valve complies with your local plumbing codes.

Cold Water Supply

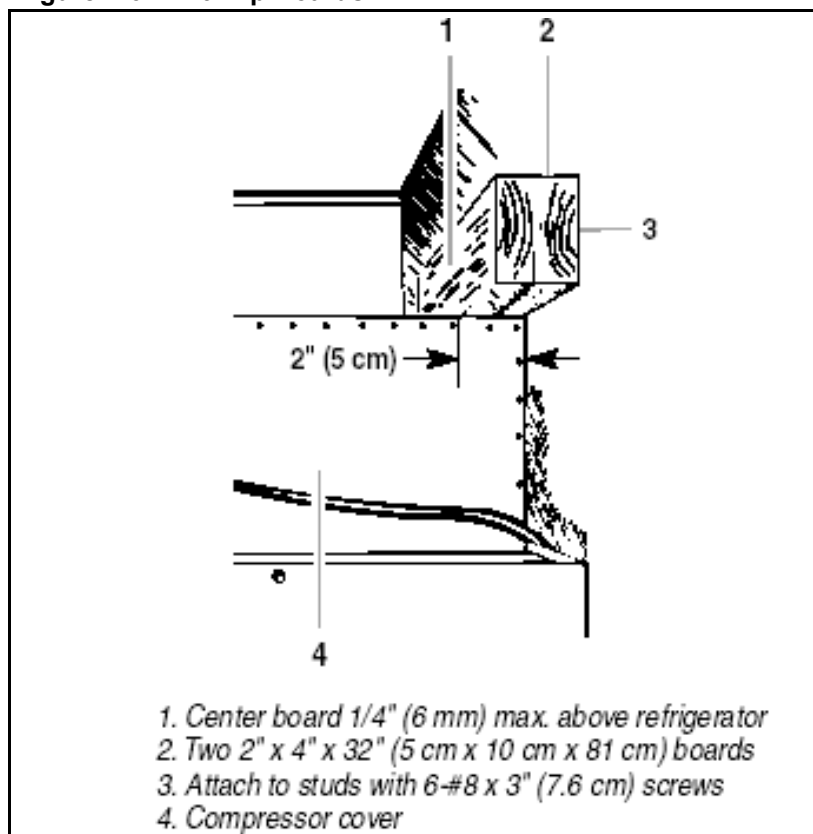
Connect the ice maker to a cold water line with water pressure between 15 and 100 psi (103 - 690 kPa).

ANTI-TIP BOARDS

IMPORTANT:

- The solid soffit must be within 1" (2.5 cm) maximum above the refrigerator (see Figure 2-6 below). If the solid soffit is higher than 1" (2.5 cm), or one is not available, prevent the refrigerator from tipping during use, as shown.
- It is recommended that the boards be installed before the refrigerator is installed.
- Boards must be long enough to fully cover the width of the compressor cover.
- Locate the boards so the bottom surface of the boards are 83¼" to 84¼" (211 to 214 cm) from the floor.
- During installation, raise the refrigerator up so there is 1/4" (6.4 mm) maximum between the top of the refrigerator and the bottom of the anti-tip boards. Do not crush the condenser cover when raising the rear leveling legs.

Figure 2-6. Anti-Tip Boards



Installing the Anti-Tip Boards

To install the anti-tip boards, follow the steps below.

1. Mark the stud locations on the rear wall 83 $\frac{1}{4}$ " to 84 $\frac{1}{4}$ " (211 - 214 cm) above the floor.
2. Securely attach one or two 2" x 4" x 32" (5 cm x 10 cm x 81 cm) wood boards to the wall studs behind the refrigerator. Use six #8 x 3" (7.6 cm) or longer wood screws. The wood screws must be screwed into the studs at least 1-1/2" (3.8 cm). The boards must overlap the compressor cover.

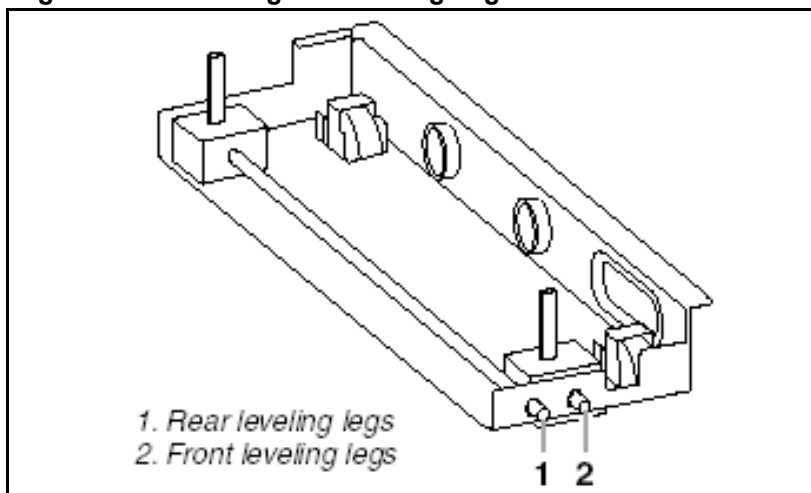
LOWERING THE LEVELING LEGS

All four leveling legs must contact the floor to support and stabilize the full weight of the refrigerator (see Figure 2-7 below). Rollers are for moving the refrigerator, and not for permanent support.

Use a socket wrench to turn the leveler legs on both sides of the refrigerator to the right (clockwise) until the refrigerator weight is supported by the legs. The rollers should be off the floor. To avoid cabinet damage, do not apply more than 50 in/lbs (58 cm/kg) of torque to the leveling legs.

It is recommended that the top of this unit be adjusted up to make contact with the anti-tip boards. If this adjustment is not made, the unit will have a tendency to rock or move each time the doors are opened.

Figure 2-7. Lowering the Leveling Legs



LEVELING THE REFRIGERATOR

To level the refrigerator, follow the steps below.

NOTE: Door panels must be installed before leveling.

1. Open the doors and place a level on top of the refrigerator frame. Check to see if the refrigerator is level from left to right (see Figure 2-8 below).
2. Use bolts to adjust the leveling legs until the refrigerator is level from left to right (see Figure 2-9 below).

Figure 2-8. Leveling the Refrigerator

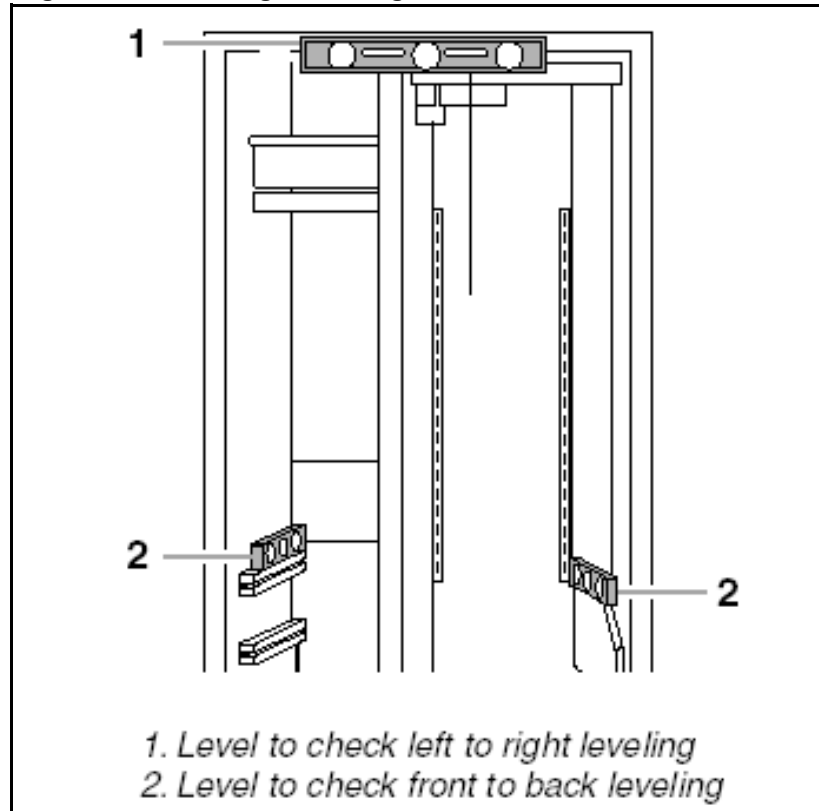
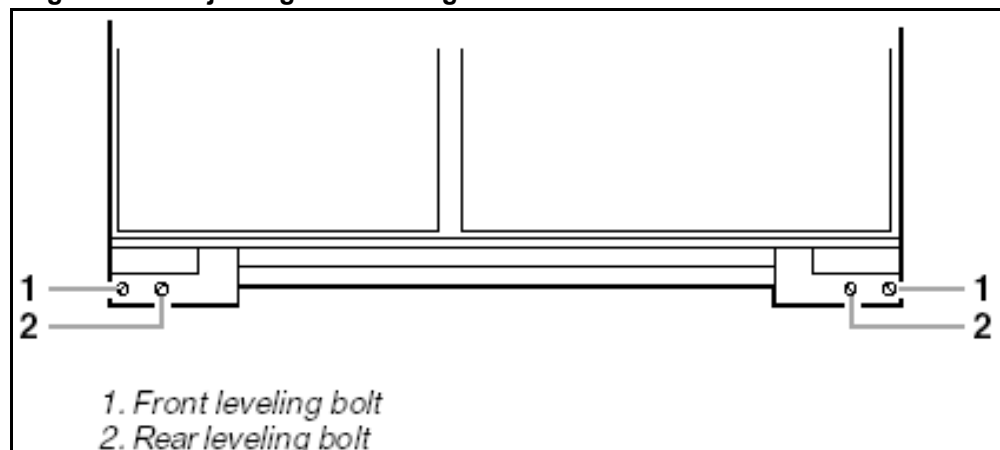


Figure 2-9. Adjusting the Leveling Bolts



LEVELING THE REFRIGERATOR (Cont'd)

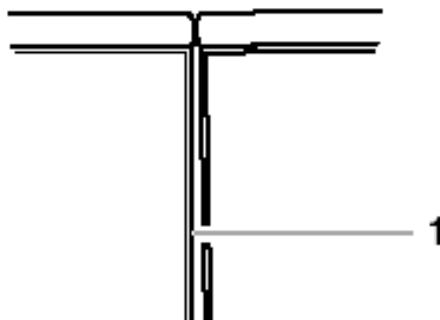
3. Place a level on the shelves and check to see if the refrigerator is level from front to back.
4. Use the leveling bolts to adjust the leveling legs until the refrigerator is level from front to back.
5. Make sure that all four leveling legs contact the floor and support the full weight of the refrigerator.
6. Make a final check to see that the refrigerator is level.

ADJUSTING THE DOORS

Use the following steps to adjust the door alignment to the left, right, in, or out.

1. Inspect the spacing of the gap between the freezer and refrigerator doors. Make sure that the spacing between the doors is the same distance at the top and bottom.

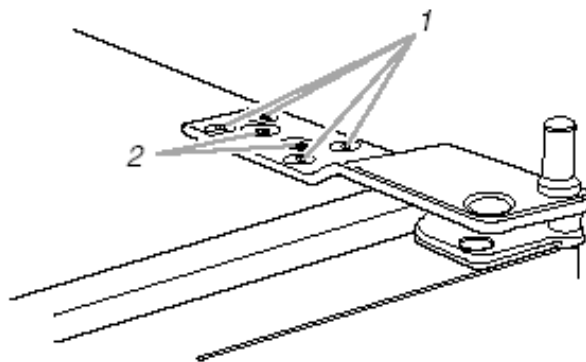
NOTE: The stainless steel refrigerator door should be 1 mm higher than the freezer door when unloaded.



1. Uneven door gap

2. If the door gap is uneven (as shown above), loosen the four T27 flat-head mounting screws on top of both hinges. Loosen the screws to the point that the hinge is movable, but there is friction when trying to move the hinge.

NOTE: Do not loosen the two 1/4" hexhead mounting screws.



*1. T27 flat-head mounting screws
2. 1/4 in. hex-head mounting screws*

ADJUSTING THE DOORS
(Cont'd)

3. Adjust the hinges so that the door gap is the same distance at the top and bottom. The bottom distance should be used as a template for the top.
4. Tighten the screws on both hinges.

Door Height Adjustment

Use the following steps to adjust the door height up or down after the doors have been leveled.

1. Open the freezer or refrigerator door and locate the hinge assembly at the bottom of the door. Remove the stop screw (as shown in Figure 2-10 below).

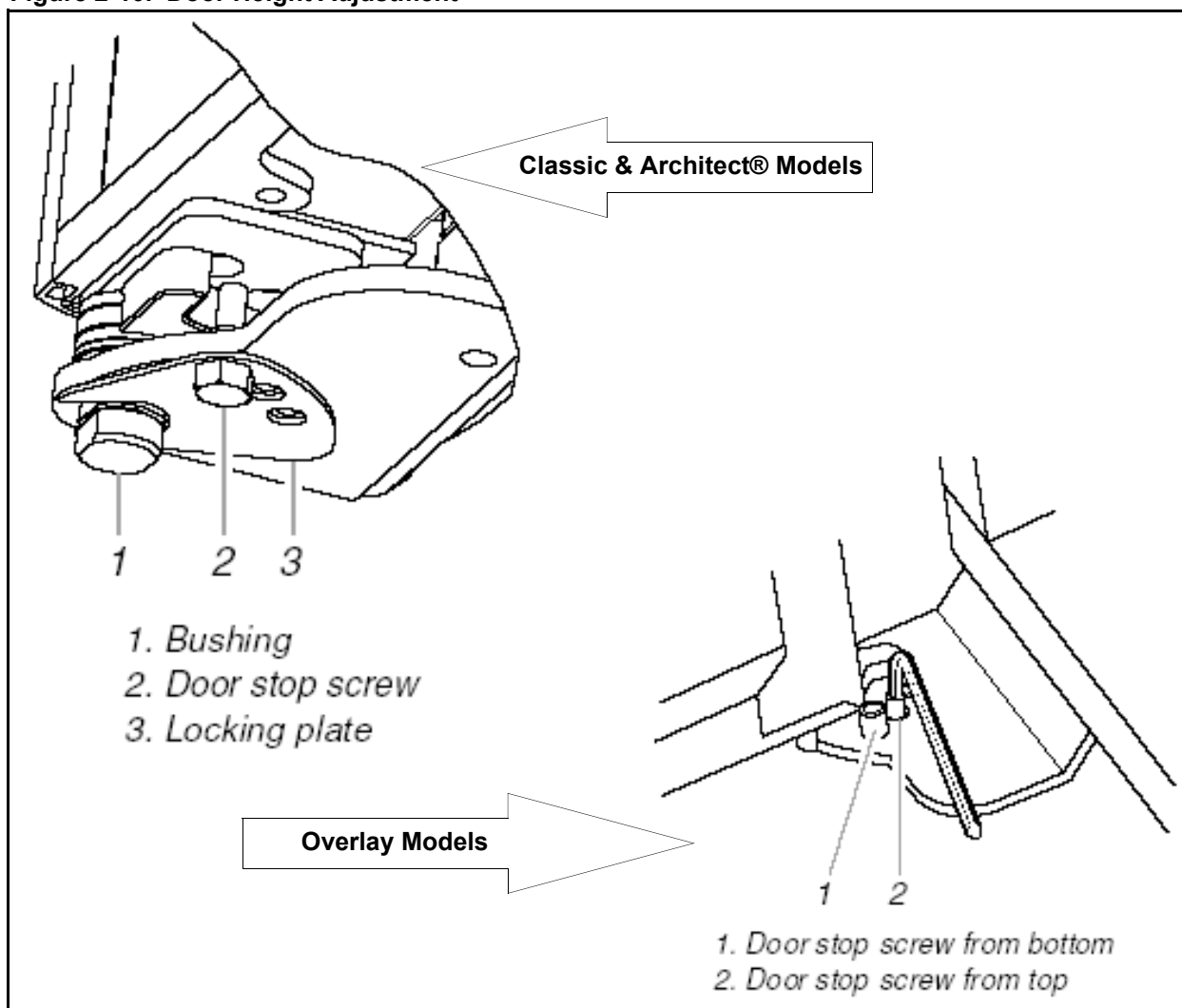
Classic & Architect® Models

Remove the door stop screw from the bottom side of the hinge.

Overlay Models

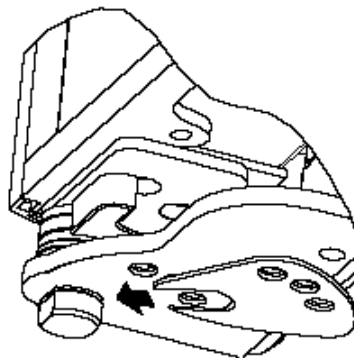
Remove the two door stop screws: one from the bottom side using a 3/8" open wrench, and one from the top side using an Allen wrench.

Figure 2-10. Door Height Adjustment



**Door Height Adjustment
(Cont'd)**

2. Remove the locking plate, as shown below.

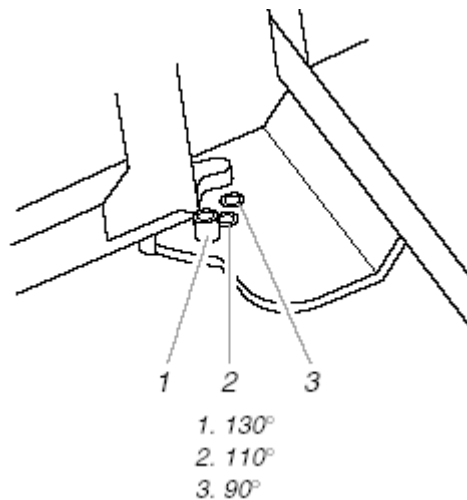


3. Turn the bushing located underneath the bottom of the hinge using the open-end wrench. Turning the bushing to the left (counterclockwise) will raise the door. Turning the bushing to the right (clockwise) will lower the door.
4. After adjusting, check the doors to make sure they are even at the top and bottom. If the doors are not even, continue to turn the bushing to adjust the door height.
5. Replace the locking plate.
6. Turn the bushing slightly to align the hinge and locking plate screw holes.
7. Replace the door stop screw or screws and tighten.
8. Make final recheck to make sure the doors are aligned and even.

Door Swing Adjustment

Adjust the door swing by following the steps below.

1. Open the refrigerator and freezer doors and make sure that they open freely. If a door opens too wide, remove the door stop screw(s) from the bottom hinge.
2. Hold the door open to a position that is less than 90°.
3. Replace the door stop screw(s) in the bottom hinge and tighten.



This chapter provides information about the Built-In Refrigerator temperature controls, compressor and evaporator and modes and alarms. Also included is a brief explanation of the air circulation process within the refrigerator and a sealed system schematic.



In this chapter:

Overview 3-2

Temperature Control 3-3

Compressor 3-4

Evaporator Fan & Air Door Delay 3-4

Air Door 3-4

Adaptive Defrost 3-4

Pulsed Defrost 3-5

Power Interruption 3-5

Failure Defaults 3-5

Electronic Control Terminal Shutoff 3-6

Max Cool Mode 3-6

Automatic Max Ice 3-6

Holiday Mode 3-7

Alarms 3-8

Master Alarm Reset 3-8

Sales Demonstration Mode 3-8

Air Circulation 3-9

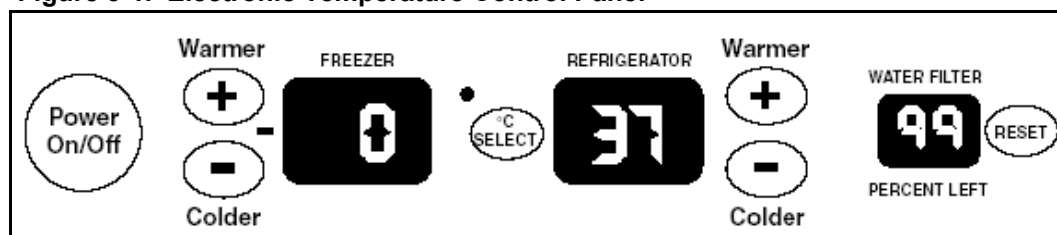
Sealed System Schematic 3-10

OVERVIEW

The Thermador Built-In Refrigerator Constant Flow Temperature Management System uses two thermistors to monitor temperature changes inside the refrigerator and freezer compartments. The electronic control panel (see Figure 3-1) manages the operation of the Variable Capacity Compressor (VCC), a variable speed evaporator fan motor, and a variable position air door. The air door allows independent temperature control of the refrigerator and freezer compartments.

The electronic control seeks the most efficient means possible to maintain temperatures as it controls the operation and speed of the compressor and the evaporator fan motor. Higher fan speed is used before increasing the compressor speed to minimize power consumption. A nearly constant run time is sought at the lowest possible fan and compressor speed.

Figure 3-1. Electronic Temperature Control Panel



Freezer temperatures can be set from 6°F to -5°F (-14°C to -21°C). Refrigerator temperatures can be set from 46°F to 34°F (8°C to 1°C). The Adaptive Defrost Control (ADC) portion of the electronic control utilizes “pulsed defrost” technology to perform the defrost function (see the “*Pulsed Defrost*” section on page 3-6).

The electronic control monitors the water valve for total elapsed time and gallons of water used. The number displayed on the Water Filter Indicator (WFI) is the percentage of filter usage remaining.

The numeric display can be set for Fahrenheit or Celsius and displays the actual temperatures. The display range for the refrigerator is from 27° to 70°F (-2.8°C to 21°C). The normal freezer display range is from -5°F to 70°F (-21°C to 21°C). Temperatures above or below these limits will be displayed at the corresponding temperature limit. During Max Cool, the freezer display will read -5°F (-21°C) and the refrigerator will read 34°F (1°C).

The display will show the temperature setting any time the actual temperature is within $\pm 6^\circ\text{F}$ of the customer setting. This will prevent concern over temperature fluctuations when the doors are opened. Press the temperature adjustment key to view the current temperature setting or to change the setting. When the temperature adjustment key is used to change the temperature setting, the display will brighten for 5 seconds.

Available features include:

- Water Filter Indicator (WFI)
- Max Cool
- Over-Temperature Alarm
- Holiday Mode

TEMPERATURE CONTROL

The electronic control checks the resistance of the thermistors and compares it to both the customer temperature settings and the last thermistor reading taken. This information is used to determine when to begin a cooling operation and if a change is necessary in the damper setting or the evaporator fan or compressor speed.

When a warm refrigerator is first put into a cooling mode, the air door partially opens and the compressor and evaporator fan motors start to run at maximum rpm. The air door will gradually move to its fully open position.

As the actual temperature in the refrigerator nears the selected temperature setting, the electronic control compares the temperatures in both compartments. The compartment that has the greatest need for cooling will control the speed of the evaporator fan motor.

**Freezer Temperature Control -
Increasing Temperature**

When the freezer calls for cooling, the compressor begins to run at minimum rpm (see the chart on the following page) and the evaporator fan begins to run at 2000 rpm. The compressor and evaporator speeds are continuously updated. Speed changes are made based on:

- The difference between the actual temperature and the selected temperature settings.
- The rate of temperature change.

If the temperature increases 4°F above the selected temperature setting, the evaporator fan speed begins to gradually increase. The evaporator fan motor reaches the maximum speed of 3000 rpm at 5°F above the selected temperature setting and the compressor speed begins to gradually increase. A maximum compressor speed of 4500 rpm will be reached at 9°F above the selected temperature setting.

**Freezer Temperature Control -
Decreasing Temperature**

When the freezer temperature begins to decrease, the process will reverse. The compressor speed decreases, followed by the evaporator fan speed.

**Refrigerator Temperature
Control - Increasing
Temperature**

When the refrigerator calls for cooling while the freezer is satisfied, the air door begins to open and the evaporator fan starts to run at minimum speed. If the temperature continues to rise, the air door will continue to open. If the temperature continues to rise after the air door is fully open, the evaporator fan speed will gradually increase to a maximum of 3000 rpm. If the temperature continues to rise, the compressor starts to run, or, if it has already been running, begins to increase in speed.

Refrigerator Temperature Control - Decreasing Temperature

As the refrigerator temperature approaches the selected setting, the control compares the temperatures in both compartments to determine which compartment will control the fan speed. If the freezer is further from the selected temperature setting, it controls the fan speed and the air door begins to close, thus, reducing the airflow to the refrigerator.

If the freezer is satisfied, the air door remains open and the fan speed begins to decrease. When the selected temperature setting is reached, the air door closes.

COMPRESSOR

The compressor generally cycles on and off according to the cut-in and cut-out temperatures of the freezer, however, the refrigerator can turn on the compressor if the evaporator fan is at maximum speed and the refrigerator temperatures are not dropping.

EVAPORATOR FAN & AIR DOOR DELAY

After defrost, an evaporator fan delay prevents unnecessary movement of warm, moist air through the refrigerator by chilling the evaporator prior to starting the fan. Immediately after defrost drip time, the compressor starts, but the evaporator fan is delayed for 8 minutes. Also, the air door remains closed during the 8 minute delay.

AIR DOOR

The air door is driven by a reversible DC stepper motor. The motor operates on a 12 vdc, peak-to-peak square wave. Voltage is delivered to the air door in a series of short pulses. It is not possible to obtain a reliable voltage reading with a VOM.

Separate windings are used to move the air door open or closed. The door can be in any one of 1800 positions from 0 to 90 degrees. The air door is used to fine-tune the air flow to the refrigerator.

The refrigerator temperature determines the opening of the air door. When the refrigerator requires cooling, if the evaporator fan motor is already running for the freezer, the air door partially opens and then, if necessary, adjusts. While the refrigerator is cooling, the door will be adjusting continuously to maintain or recover refrigerator temperature.

ADAPTIVE DEFROST

The adaptive defrost control allows the unit to enter a defrost mode only when it is needed. When powered up for the first time, the control initiates a defrost cycle after 8 hours of compressor run time. By monitoring the duration of defrost heating time and compressor run time, the control will continuously adapt the time between defrosts to optimize efficiency. Time between defrost periods will vary between 8 and 100+ hours.

Defrost will occur immediately when 8 hours have elapsed since the last defrost.

PULSED DEFROST

For the first 2 minutes of defrost, the heater is on continuously. It will then cycle off for 1 minute and back on for 2 minutes. The heater will continue to cycle at this ratio until the bimetal opens, or until 33 minutes has elapsed. At this point, heat is discontinued and a 4-minute “drip time” begins. This allows the water to drain before the unit returns to a cooling mode. Maximum defrost time, pulsed heat on/off time + drip time, is 37 minutes.

When entering a defrost cycle, if the bimetal is open, the time to defrost is reset to 8 hours and the control will time through the entire 37 minute defrost period. During diagnostics, this will allow a technician time to look for heater operation and, if necessary, bypass the bimetal.

POWER INTERRUPTION

After a power interruption, the following events will occur:

- The unit returns to the same operating mode and settings in use prior to the power interruption. If the unit was off, it remains off.
- Initially, the compressor, evaporator fan, and condenser fan motors will be off.
- The air door will close, and then adjust to the proper opening. The evaporator fan starts when the air door opens.
- The adaptive defrost control resets the compressor run time counter to 0, and if the freezer is above 20°F, the time to defrost is set to 8 hours.
- If the freezer temperature is below 12°F (-11.1°C), the compressor starts after a delay of 7 minutes. If the freezer temperature is above 12°F, the compressor starts immediately.

FAILURE DEFAULTS

In the event of a thermistor or keypad failure, the control uses one of the following default modes, which will continue until the failure is corrected.

Refrigerator Thermistor

If the control senses an open or a shorted thermistor, the air door and the evaporator fan motor will begin to operate on a timed on and off cycle based on current selected temperature settings. The evaporator fan motor will run when the air door is open.

At mid-settings of 37°F / 0°F, the air door will open for 16 minutes and close for 30 minutes. Setting the freezer colder, or the refrigerator warmer, will reduce the door-open time. Setting the freezer warmer, or the refrigerator colder, will increase the door-open time.

Freezer Thermistor	<p>If the control senses an open or a shorted thermistor, the compressor and the evaporator fan motor will begin to operate on a timed on and off cycle. The cycle time is based on current selected temperature settings.</p> <p>At mid-settings of 37°F / 3°C, the compressor and the evaporator fan motors will run for 35 minutes and be off for 25 minutes. Setting the freezer colder will increase the run time. Setting the freezer warmer will decrease the run time.</p> <p>The compressor will run at minimum speed. The evaporator fan will also run at minimum speed, unless the refrigerator compartment requests a higher speed.</p>
Keypad	<p>If the control detects that the keypad is not working, it reverts to the default temperature settings of 37°F (3°C) in the refrigerator and 0°F (-18°C) in the freezer.</p>
Evaporator Fan Motor	<p>If the evaporator fan motor malfunctions, the compressor will run for an indefinite period, except during the defrost periods. The “Call Service Alarm” will sound until the failure has been corrected.</p>
ELECTRONIC CONTROL THERMAL SHUTOFF	<p>The electronic control utilizes an on-board thermistor to shut the compressor off if the temperature rises above 160°F (71°C). When the temperature drops to 130°F (55°C), the compressor returns to normal operation. This cycle continues indefinitely until the cause of the high temperature has been corrected.</p> <p>If this cycle is repeated four times within 24 hours, the “Call Service” indicator lights and the alarm sounds.</p>
MAX COOL MODE	<p>“Max Cool” changes the refrigerator temperature setting to 34°F (1°C) and the freezer to -5°F (-21°C) for 24 hours. During “Max Cool”, the freezer and refrigerator temperature displays show the new temperature settings, not the actual temperatures.</p> <p>In most cases the motors run 100% for more than 1 hour. The control returns to the previous user setting after 24 hours, or any time the temperature settings are changed.</p>
AUTOMATIC MAX ICE	<p>“Automatic Max Ice” operates any time the ice maker water valve is energized. The duration of “Automatic Max Ice” is 1½ hours. During “Automatic Max Ice” the following occurs:</p> <ul style="list-style-type: none">• The freezer display shows the user temperature settings and not the actual temperature.• The freezer temperature setting changes to -5°F (-21°C).• The evaporator fan runs.• The compressor runs the entire 1½ hour mode.

HOLIDAY MODE

“Holiday Mode” may be used for the following occasions:

- On vacation.
- Religious observance (Sabbath Mode).

When “Holiday Mode” is selected, the corresponding green LED flashes for 2 seconds and then remains on to indicate that the feature is activated.

To activate “Holiday Mode”, do the following:

- Press and hold the Water Reset button.
- Immediately press and hold the Temp Select button for three seconds. This turns the interior lights off as well as the User Interface.
- The ice maker will still require manual turn off.
- Repeat this same procedure to restart the lights.

In “Holiday Mode” the following occurs:

- Temperature selections remain at the current setting, but are not displayed.
- The Water Filter Indicator is not displayed, but monitoring continues.
- The alarms are disabled.
- The ice maker is manually disabled.
- The interior lights are disabled.
- The temperature displays and all of the LEDs will be off, except for the “Holiday Mode” LED.
- The “Holiday Mode” LED will illuminate regardless of the door position.
- Keypad operation is disabled, with the exception of the “Holiday Mode” key, or the Power On/Off key.

“Holiday Mode” will be cancelled if one of the following occurs:

- Pressing the Power On/Off, or “Holiday Mode” keypads.
- Failure of both thermistors.
- No feedback from the evaporator fan motor.
- Temperatures that are 15°F above user settings in either compartment.

When “Holiday Mode” is cancelled, the “Holiday Mode” LED turns off, and the control reverts to the settings in use prior to activation. All inactive devices are restored, and the Water Filter Indicator is updated.

The Adaptive Defrost Control function is not effected by use of the “Holiday Mode”.

ALARMS

The following alarms will sound to alert the user that the refrigerator needs attention.

Over-Temperature Alarm

The Over-Temperature Alarm sounds and the indicator light flashes when either the refrigerator temperature exceeds 48°F (9°C) or the freezer temperature exceeds 15°F (-9°C) for over 1½ hours. The appropriate temperature display flashes to show the user which compartment is effected. The alarm stops if the temperature(s) returns to normal, but the red Over-Temperature indicator and temperature display will continue to flash (refer to the “*Master Alarm Reset*” section to reset the Over-Temperature Alarm).

Call Service Alarm

Call Service is a visual and audio signal that alerts the user that the refrigerator needs service. The Call Service Alarm will sound when:

- Both thermistors have failed.
- The evaporator fan motor loses its feedback signal.
- An over-temperature condition occurs for 3 hours or more.

Reset the Call Service Alarm using the Master Alarm Reset.

Door Open Alarm

If either door is left open for more than 10 minutes, the interior lights will be disabled, the “Door Open” icon will flash, and the alarm will sound. If the door is closed during the alarm operation, the alarm will reset, but the icon will continue to flash until the temperature in the refrigerator drops below 45°F (7°C) and the freezer is below 15°F (-9°C) (refer to the “*Master Alarm Reset*” section below to reset the Door Open Alarm).

MASTER ALARM RESET

Pressing the Over-Temperature Reset will turn off the audio alarm, but does not affect the indicator light the first time the Over-Temperature Reset is pressed. The indicator light will turn off once the Over-Temperature Reset is pressed a second time. The audio alarm will not sound again for the current condition that caused the alarm until a new condition occurs.

A Master Alarm Reset can be performed by turning the power to the refrigerator off and on again. If the condition that caused the alarm is still present, the indicator light will turn on again after the Over-Temperature Reset is pressed.

SALES DEMONSTRATION MODE

This mode provides a sequential display of the temperature displays and feature LEDs. To enter the “Demonstration Mode”, press and hold the “Max Cool” and Power On/Off keys for 2 seconds. If the refrigerator or freezer door is open for 10 minutes, the interior lights will turn off.

AIR CIRCULATION

In order to ensure the proper refrigerator and freezer compartment temperatures, air must be able to flow between the two sections.

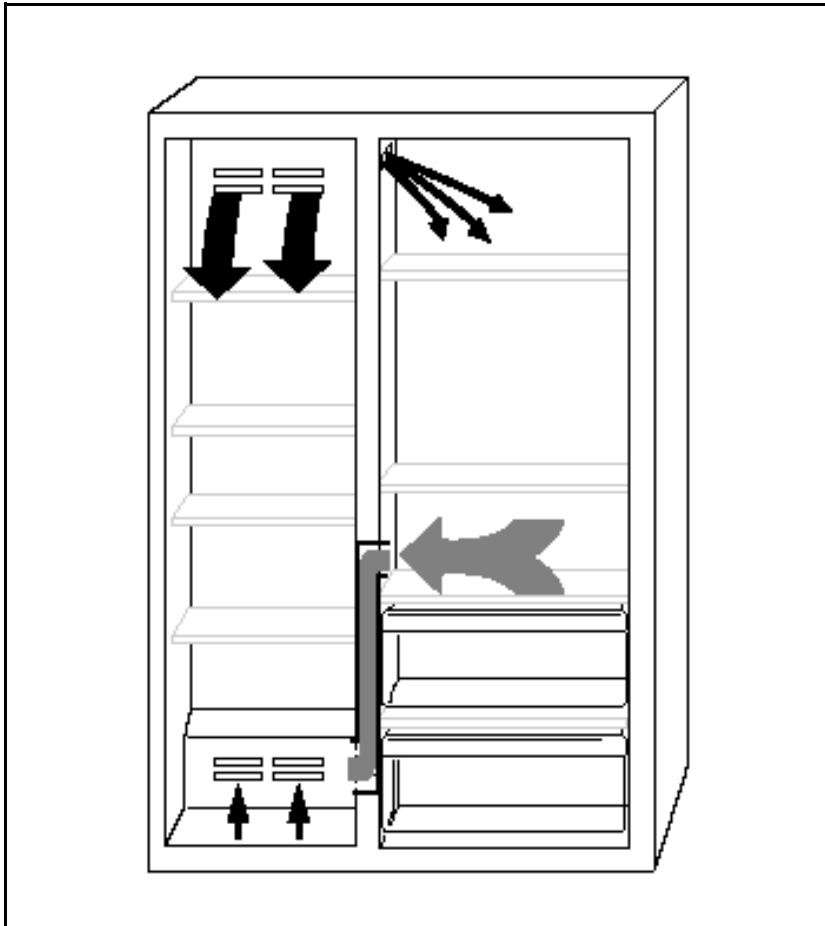
Air enters the bottom of the freezer compartment and moves up through the evaporator. Some of the cooled air from the evaporator is directed back into the freezer and the rest goes into the refrigerator through the motorized air door. The refrigerator air then returns to the freezer through the bottom air return (see Figure 3-2 below).

It is important not to block any of the vents with food items. If the vents are blocked, air flow will be restricted and the temperature management system will not function properly.

IMPORTANT:

Because air circulates between both sections, any odors formed in one section will transfer to the other. Keep both sections clean and wrap or cover foods tightly to prevent odors from occurring.

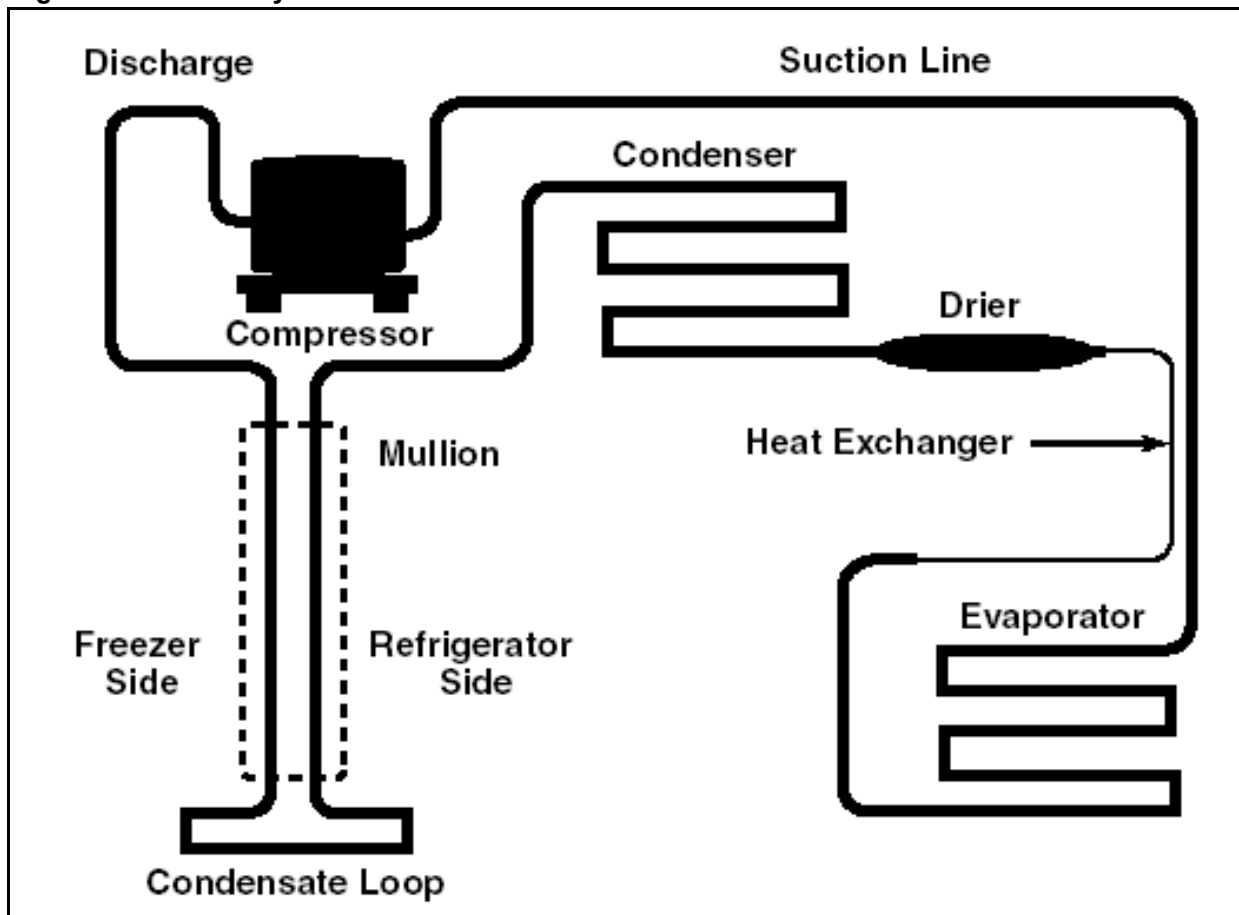
Figure 3-2. Air Circulation



**SEALED SYSTEM
SCHEMATIC**

The sealed system schematic is shown in Figure 3-3 below.

Figure 3-3. Sealed System Schematic



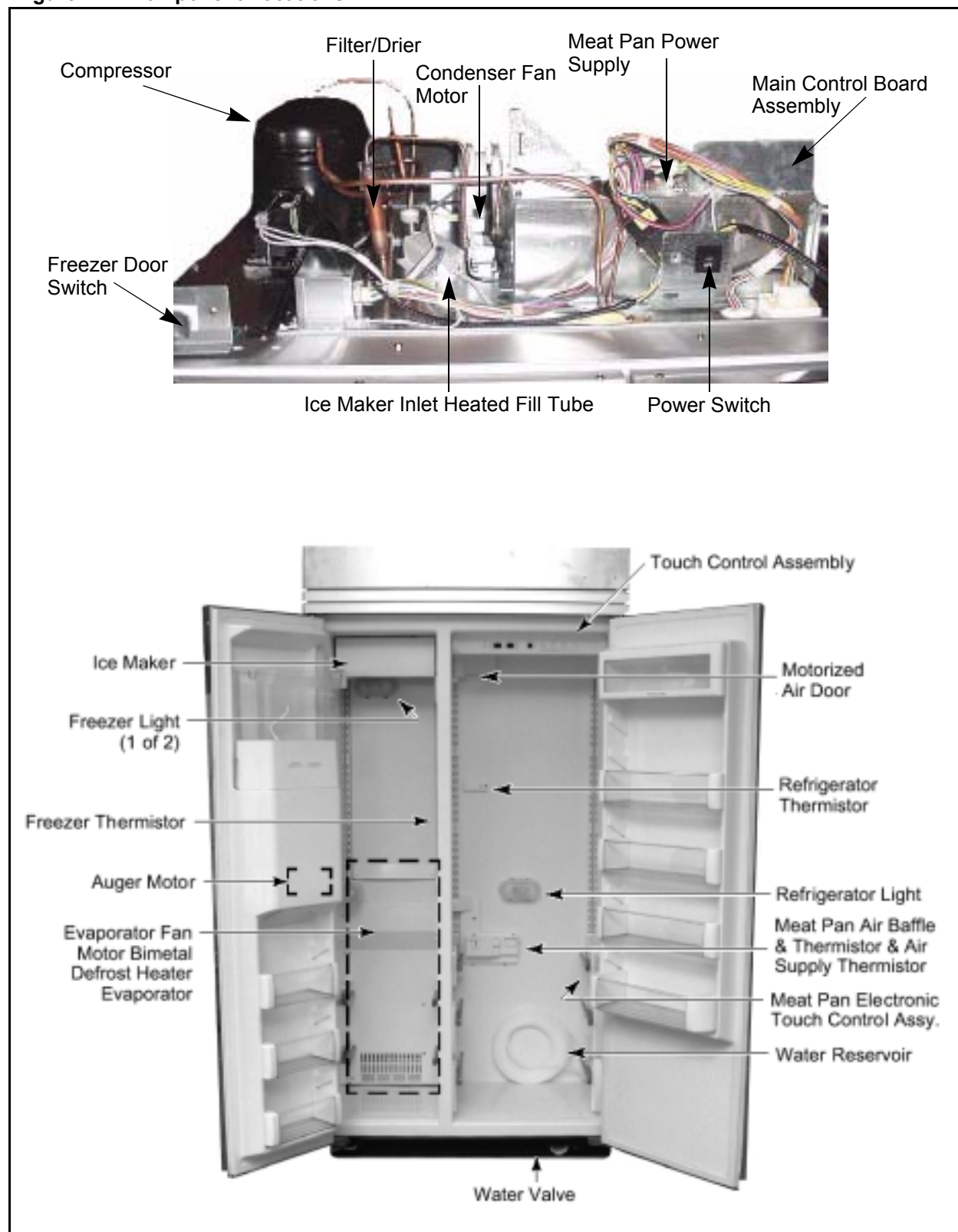
This chapter provides illustrated instructions on how to remove and service each component inside the refrigerator/freezer. The components and their locations are shown in Figure 4-1 on the following page.



In this chapter:



- Removing A Door Switch & the Power Switch* 4-3
- Removing the Condenser Fan Motor* 4-7
- Removing the Ice Maker Inlet Heated Fill Tube* 4-10
- Removing the Main Control Board Assembly* 4-12
- Removing the Electronic Meat Pan Power Supply Board* 4-14
- Removing the Compressor and Filter/Drier* 4-17
- Removing the Bimetal, the Evaporator Fan Motor, the Defrost Heater, and the Evaporator* 4-21
- Removing the Touch & Display Boards and the Motorized Air Door* 4-28
- Removing the Meat Pan Air Baffle & Thermistor, the Air Supply Thermistor, and the Meat Pan Electronic Touch Control Assembly* 4-32
- Removing A Thermistor* 4-38
- Removing the Ice Maker, the Emitter, and the Receiver* 4-40
- Removing the Auger Motor* 4-44
- Removing the Water Reservoir and Water Valve* 4-47
- Removing A Light Socket* 4-51
- Removing the Water and Ice Dispenser* 4-53
- Removing A Door* 4-59

Figure 4-1. Component Locations

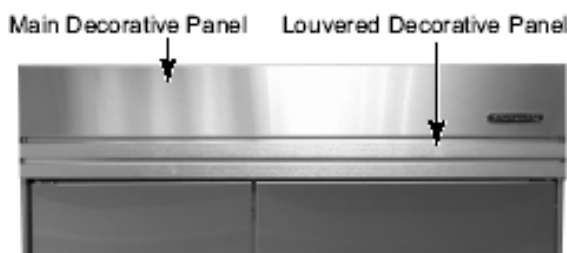


**REMOVING A DOOR SWITCH
AND THE POWER SWITCH**

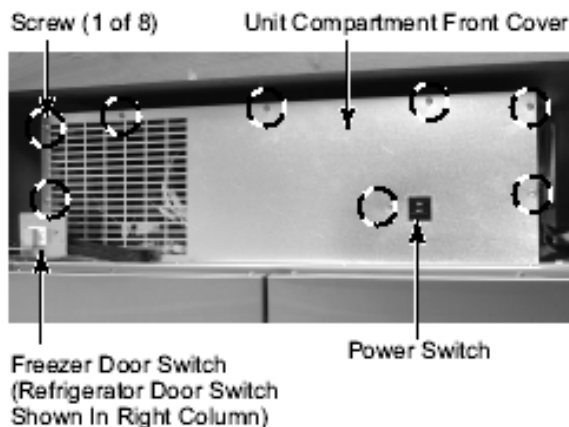
Follow the procedure below to remove a door switch and the power switch.

	WARNING
	
Electrical Shock Hazard	
Disconnect power before servicing.	
Replace all parts & panels before operating.	
Failure to do so can result in death or electrical shock.	

1. Unplug the refrigerator or disconnect the power.
2. Lift the main decorative panel to unhook it and remove the panel.
3. Lift and remove the louvered decorative panel.



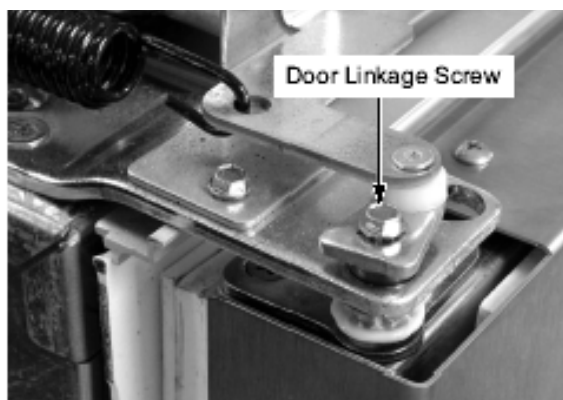
4. Remove the eight screws from the unit compartment front cover and pull the cover forward out of the way.



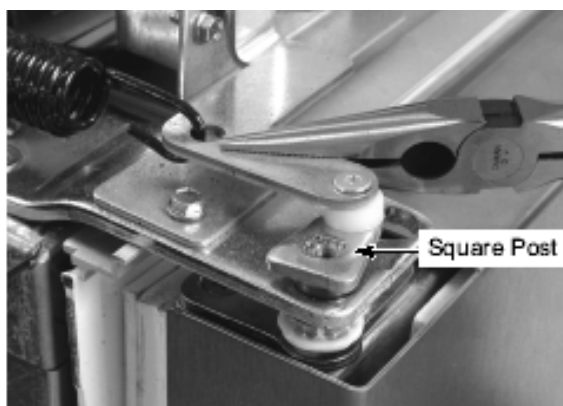
**REMOVING A DOOR SWITCH
AND THE POWER SWITCH
(Cont'd)****5. To remove a door switch:**

- a. With the door closed, remove the hex-head screw from the door linkage at the top of the door.

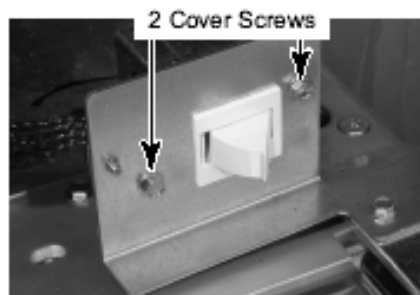
NOTE: The door spring will remain under slight tension when the door is closed.



- b. Use a pair of pliers and lift the end of the linkage off the square post.

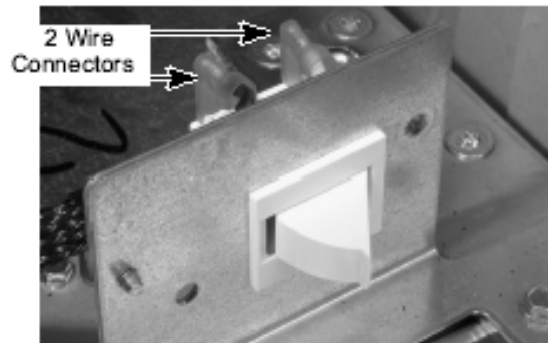


- c. Remove the two hex-head screws from the door switch cover and remove the cover.

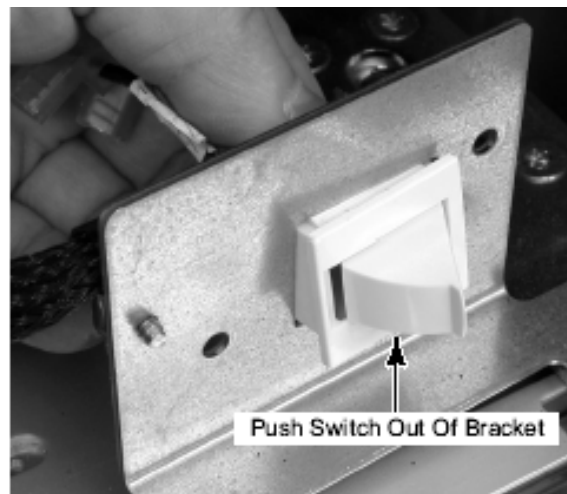


**REMOVING A DOOR SWITCH
AND THE POWER SWITCH
(Cont'd)**

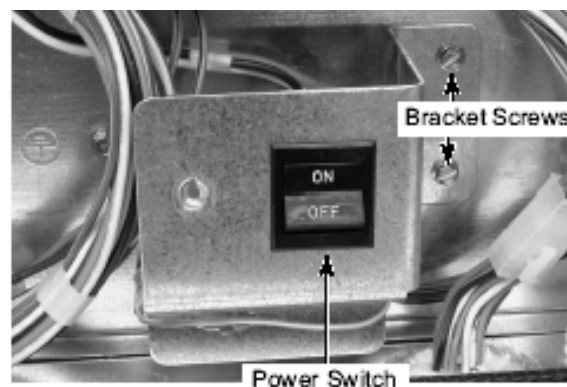
- d. Disconnect the wire connectors from the door switch terminals.



- e. Press against the locking tab on the switch body and push the switch out of the bracket.

**6. To remove the power switch:**

- a. Remove the two hex-head screws from the switch bracket and turn the bracket over so you can access the wires.

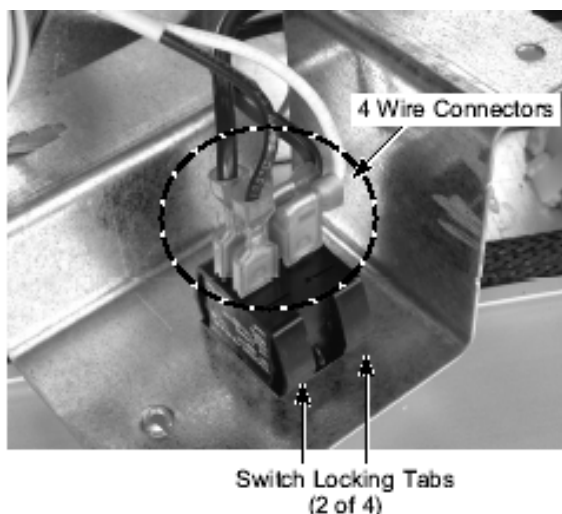


**REMOVING A DOOR SWITCH
AND THE POWER SWITCH
(Cont'd)**

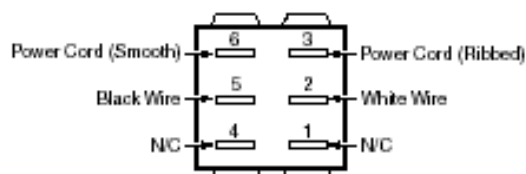
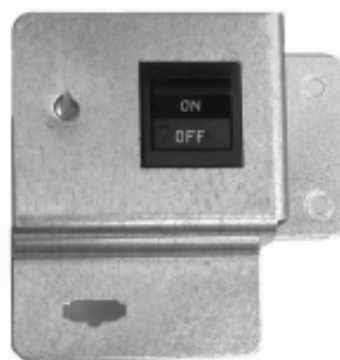
- b. Disconnect the wire connectors from the switch terminals.

NOTE: Be sure to reconnect the wires to the same terminal locations, as shown below.

- c. Press against the four locking tabs on the body of the power switch and push the switch out of the bracket.



**REASSEMBLY NOTE:**

When you reinstall the power switch in the bracket, be sure to position the switch with the On and Off markings as shown below. The switch wiring is also shown below. The terminal numbers are shown on the switch body.

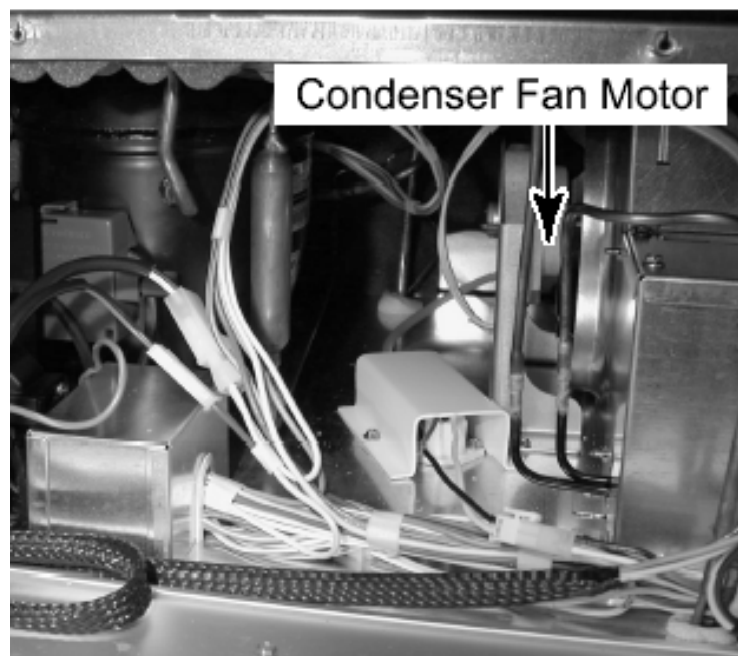


**REMOVING THE CONDENSER
FAN MOTOR**

Remove the condenser fan motor by following the procedure below.

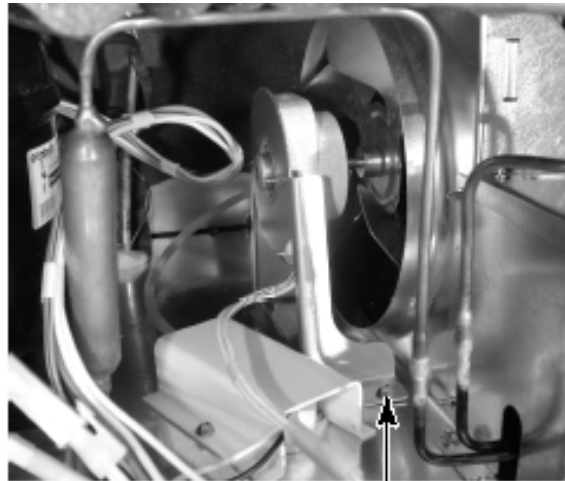
	WARNING
	
Electrical Shock Hazard Disconnect power before servicing. Replace all parts & panels before operating. Failure to do so can result in death or electrical shock.	

1. Unplug the refrigerator or disconnect the power.
2. Remove the main and louvered decorative panels (see page 4-3).
3. Remove the eight screws from the unit compartment front cover and pull the cover forward out of the way (see page 4-3).



**REMOVING THE CONDENSER
FAN MOTOR (Cont'd)**

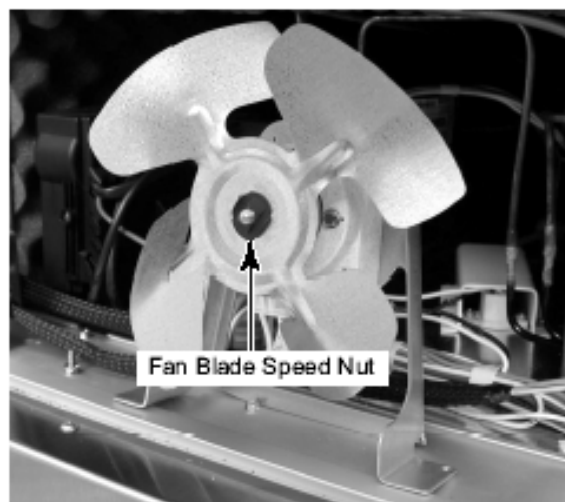
4. Remove the three hex-head screws (2 in front and 1 in back) from the condenser fan motor bracket (see below).



Condenser Fan Motor Screw (1 of 3)

5. Move the condenser fan motor assembly to the left and away from the condenser. Rotate the bottom of the bracket toward the rear of the unit and move the condenser fan motor assembly to the front.
6. Remove the speed nut from the condenser fan blade and remove the fan from the motor shaft.

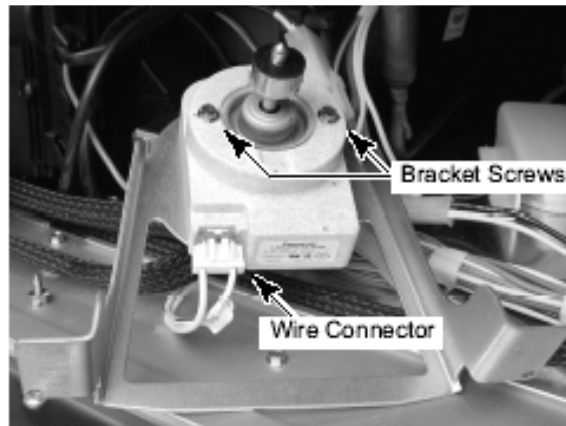
NOTE: When reinstalling the fan blade, be sure to position the blade with the nut side facing the front end of the motor shaft.



Fan Blade Speed Nut



**REMOVING THE CONDENSER
FAN MOTOR (Cont'd)**

7. Disconnect the wire connector from the condenser fan motor.
8. Remove the two hex-head screws from the condenser fan motor and remove the motor from the bracket.

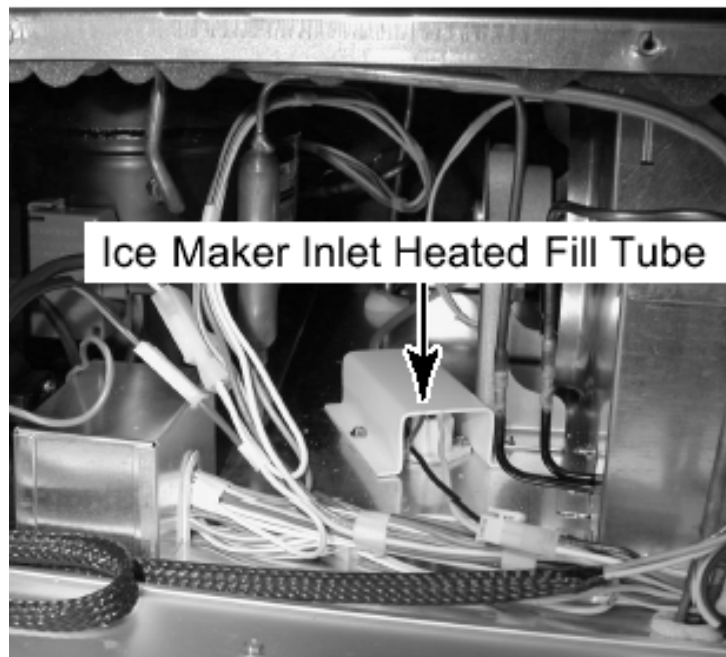


**REMOVING THE ICE MAKER
INLET HEATED FILL TUBE**

Remove the ice maker inlet heated fill tube by following the procedure below.

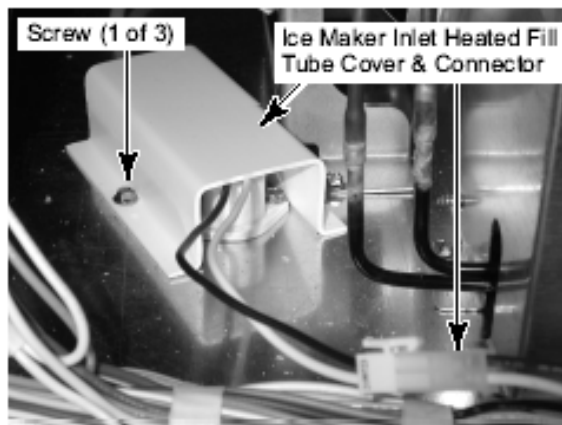
 WARNING

<p>Electrical Shock Hazard</p> <p>Disconnect power before servicing.</p> <p>Replace all parts & panels before operating.</p> <p>Failure to do so can result in death or electrical shock.</p>

1. Unplug the refrigerator or disconnect the power.
2. Remove the main and louvered decorative panels (see page 4-3).
3. Remove the eight screws from the unit compartment front cover and pull the cover forward out of the way (see page 4-3).

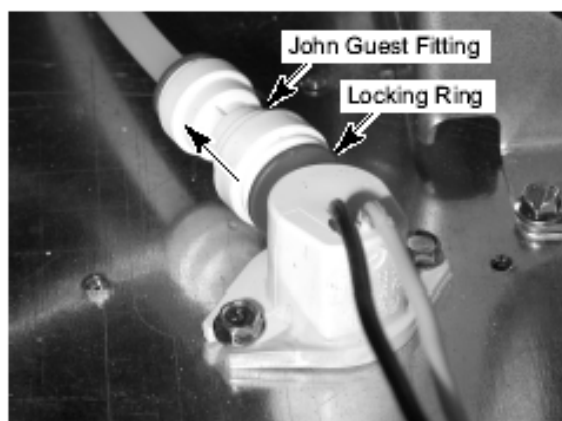


**REMOVING THE ICE MAKER
INLET HEATED FILL TUBE
(Cont'd)**

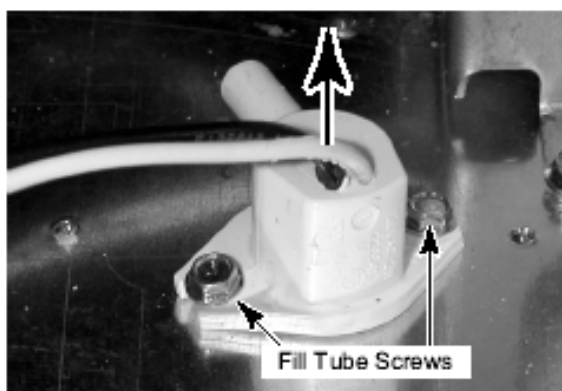
4. Disconnect the heated fill tube wire connector from the harness (see below).
5. Remove the three hex-head screws from the ice maker inlet heated fill tube cover and remove cover.



6. Press the front locking ring on the John Guest fitting and slide the fitting off of the inlet.





7. Remove the two hex-head screws from the ice maker inlet heated fill tube and pull the fill tube straight up and out of the unit.

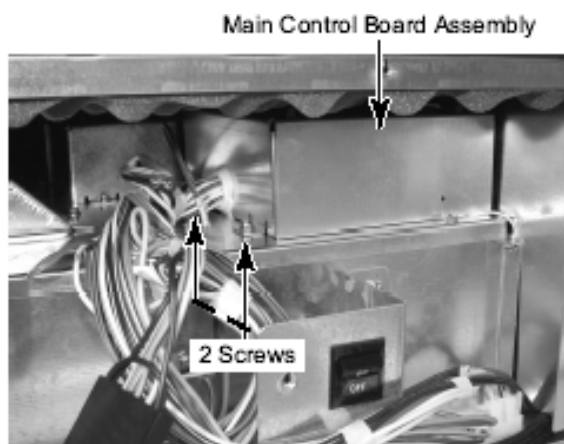


**REMOVING THE MAIN
CONTROL BOARD
ASSEMBLY**

Remove the main control board assembly by following the instructions below.

 WARNING

<p>Electrical Shock Hazard</p> <p>Disconnect power before servicing.</p> <p>Replace all parts & panels before operating.</p> <p>Failure to do so can result in death or electrical shock.</p>

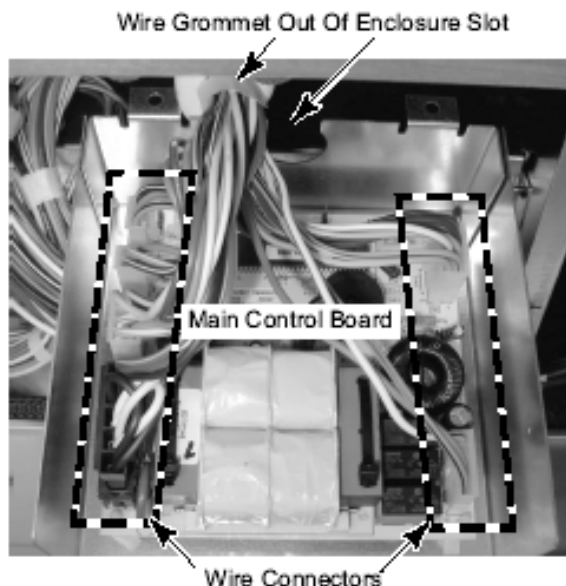
1. Unplug the refrigerator or disconnect the power.
2. Remove the main and louvered decorative panels (see page 4-3).
3. Remove the eight screws from the unit compartment front cover and pull the cover forward out of the way (see page 4-3).
4. Remove the two hex-head screws from the main control board assembly enclosure.



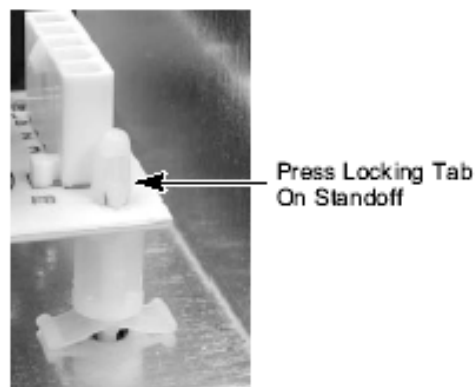
5. Slide the wire grommet out of the enclosure slot and position the assembly so that you can access the board.

**REMOVING THE MAIN
CONTROL BOARD
ASSEMBLY (Cont'd)**

6. Remove the wire connectors from the main control board assembly.





7. Remove the main control board from the five standoffs. Press the locking tab on each standoff to release the board. (Tip: A short piece of $\frac{1}{4}$ " copper tube pushed over the stand-off can aid in removal of the main board.)



NOTE: This main control board can be removed without pulling the refrigerator out of the cabinet.

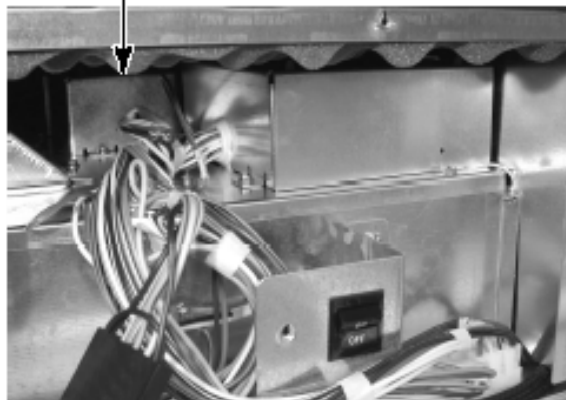
**REMOVING THE
ELECTRONIC MEAT PAN
POWER SUPPLY BOARD**

Remove the electronic meat pan power supply board by following the procedure below.

 WARNING

<p>Electrical Shock Hazard</p> <p>Disconnect power before servicing.</p> <p>Replace all parts & panels before operating.</p> <p>Failure to do so can result in death or electrical shock.</p>

1. Unplug the refrigerator or disconnect the power.
2. Remove the main and louvered decorative panels (see page 4-3).
3. Remove the eight screws from the unit compartment front cover and pull the cover forward out of the way (see page 4-3).

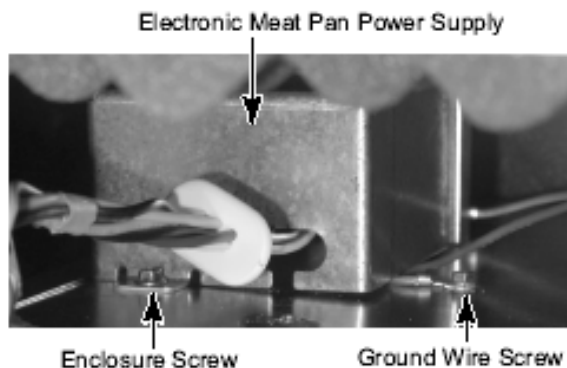
Electronic Meat Pan Power Supply



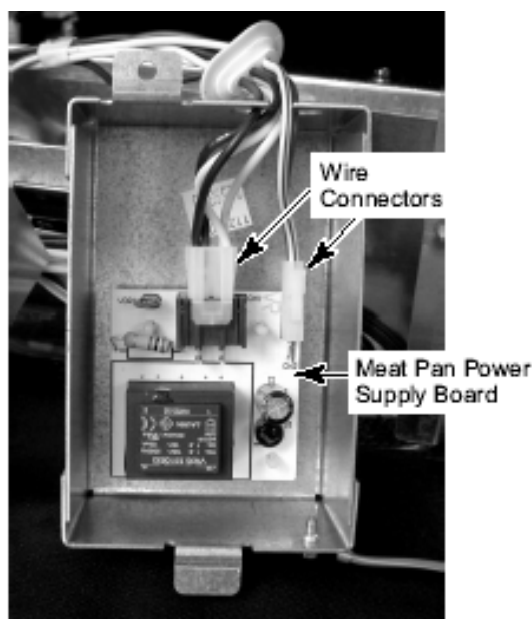
4. Remove the main control board assembly from the unit (see previous section).

**REMOVING THE
ELECTRONIC MEAT PAN
POWER SUPPLY BOARD
(Cont'd)**

5. Remove the hex-head mounting screw from the meat pan power supply board enclosure (see photo below).
6. Remove the hex-head screw from the meat pan power supply green ground wire at the chassis.





7. Pull the meat pan power supply assembly forward as far as it will go and turn it over so that you can access the board.
8. Disconnect the two wire connectors from the meat pan power supply board.
9. Remove the meat pan power supply board from the three standoffs. Press in the locking tab on each standoff to release the board.





**REMOVING THE
ELECTRONIC MEAT PAN
POWER SUPPLY BOARD
(Cont'd)**

10. Install the electronic meat pan power supply assembly in the unit and connect the green ground wire to the chassis with its hex-head screw.

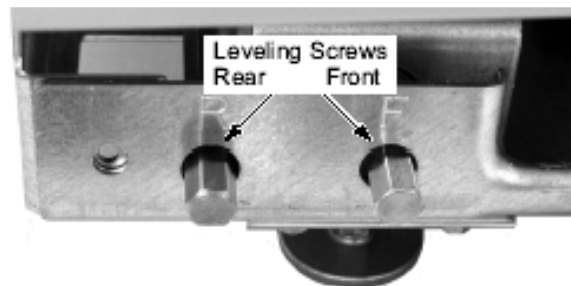
 WARNING

<p>Electrical Shock Hazard</p> <p>Connect green ground wire to ground screw.</p> <p>Failure to do so can result in death or electrical shock.</p>

**REMOVING THE
COMPRESSOR AND FILTER/
DRIER**

Remove the compressor and filter/drier by following the procedure below.


 WARNING

<p>Electrical Shock Hazard</p> <p>Disconnect power before servicing.</p> <p>Replace all parts & panels before operating.</p> <p>Failure to do so can result in death or electrical shock.</p>


1. Unplug the refrigerator or disconnect the power.
2. Remove the main and louvered decorative panels (see page 4-3).
3. Remove the eight screws from the unit compartment front cover and pull the cover forward out of the way (see page 4-3).
4. Use the leveling screws and lower the refrigerator onto the four rollers.



**REMOVING THE
COMPRESSOR AND FILTER/
DRIER (Cont'd)**

5. Pull the refrigerator out of its mounting location.

**WARNING**



Tip Over Hazard

Refrigerator is top heavy and tips easily when not completely installed.

Keep doors taped closed until the refrigerator is completely installed.

Use two or more people to move and install the refrigerator.

Failure to do so can result in death or serious injury.

6. Remove the eight screws from the unit compartment cover (two on the left side, four on the right side, and one in each of the rear corners).
7. Lift the unit compartment up and off of the unit.

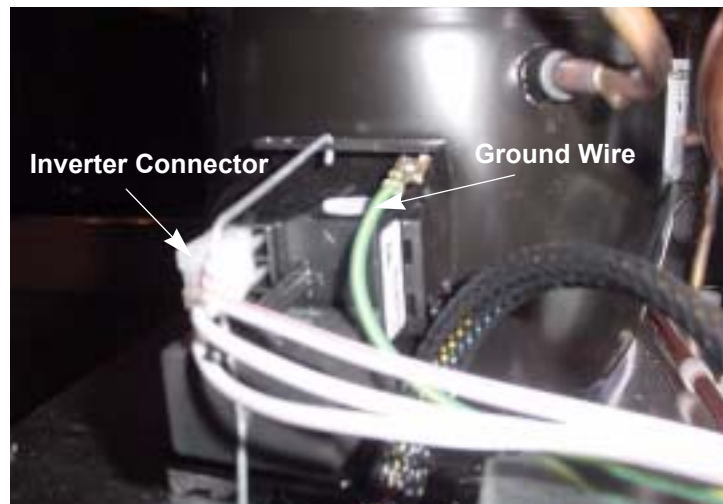


**REMOVING THE
COMPRESSOR AND FILTER/
DRIER (Cont'd)**

8. Remove the compressor terminal cover. To remove the cover, insert a flat-head screwdriver into the top slot, push down on the screwdriver to release the catch, and then rotate the cover forward at the top and lift it off of the bottom catch.
9. Loosen the strain relief from the compressor terminal cover and remove the wire.

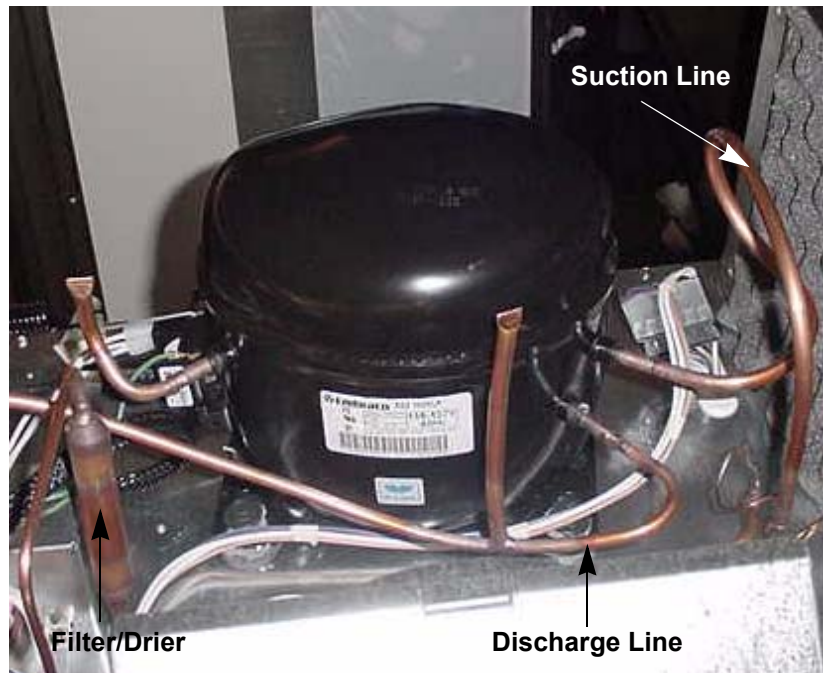


10. Disconnect the green ground wire and the 3-pin inverter output connector from the compressor pins.



**REMOVING THE
COMPRESSOR AND FILTER/
DRIER (Cont'd)**



11. Access the sealed system and discharge the refrigerant into an approved recovery system.
12. Unbraid the suction and discharge lines from the compressor.
13. Cut the filter/drier from the system (do NOT use a torch to remove the filter/drier).



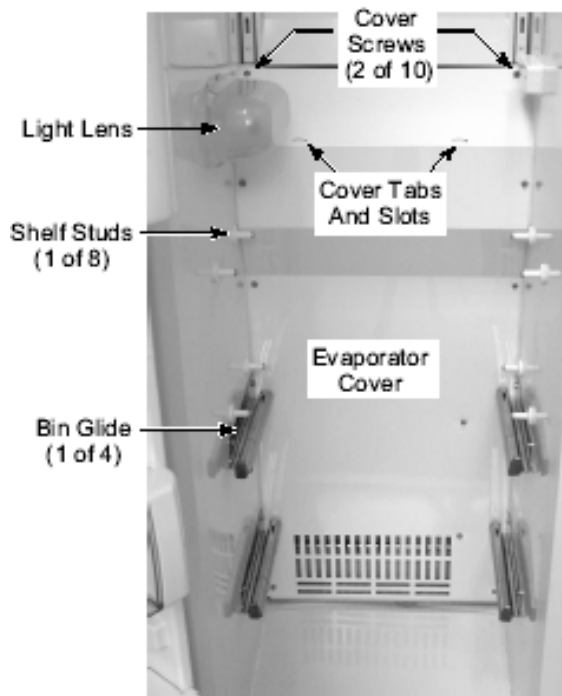
14. Remove the four mounting bolts and the rubber grommets from the compressor.
15. Lift the old compressor from the refrigerator and replace it.

**REMOVING THE BIMETAL,
EVAPORATOR FAN MOTOR,
DEFROST HEATER &
EVAPORATOR**

Remove the compressor and filter/drier by following the procedure below.

	WARNING
	
Electrical Shock Hazard	
Disconnect power before servicing.	
Replace all parts & panels before operating.	
Failure to do so can result in death or electrical shock.	

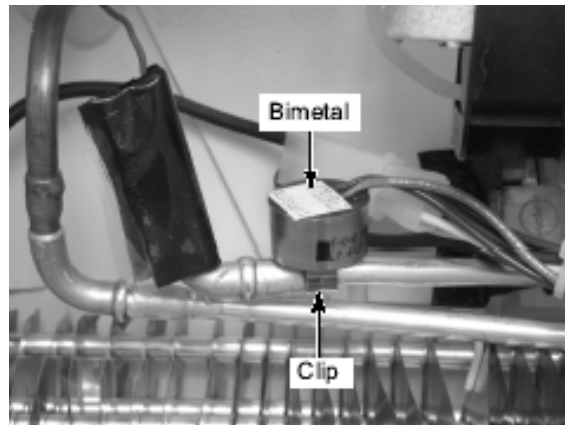
1. Unplug the refrigerator or disconnect the power.
2. Open the freezer door (refer to the photo below).



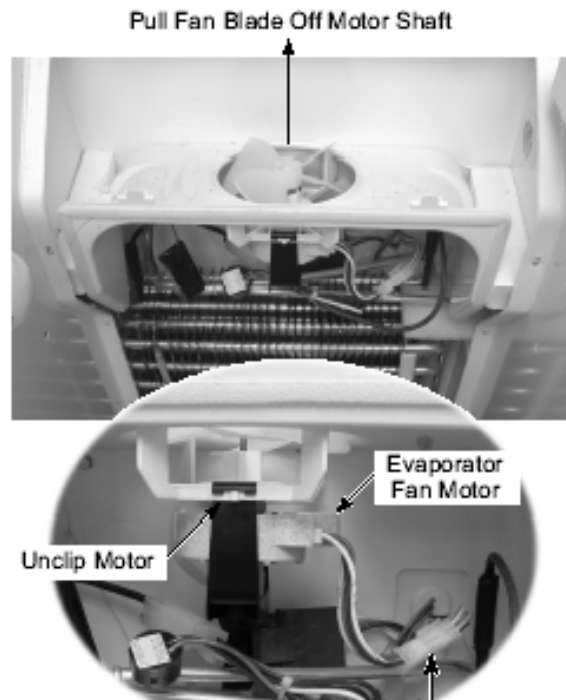
3. Unhook the tabs on the lens of the lower freezer light and remove it from the liner.
4. Remove the bins and shelves from in front of the evaporator cover.
5. Remove all of the shelf mounting studs.

**REMOVING THE BIMETAL,
EVAPORATOR FAN MOTOR,
DEFROST HEATER &
EVAPORATOR (Cont'd)**

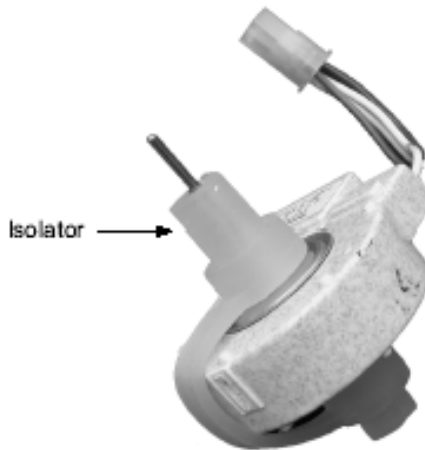
6. Remove the two screws from each of the four bin glides and remove the glides from the sides of the freezer liner.
7. Remove the ten hex-head screws from the evaporator cover.
8. Lift and unhook the two evaporator cover slots from the chassis tabs and pull the cover out of the freezer.
9. **To remove the bimetal:**
 - a. Unclip the bimetal from the evaporator inlet tubing.
 - b. Follow the instructions that were supplied with the replacement bimetal to connect the wires.



10. **To remove the evaporator fan motor:**
 - a. Pull the fan blade off of the motor shaft.
 - b. Unclip the motor.
 - c. Disconnect the wire connector from the harness (see photo on following page).

**REMOVING THE BIMETAL,
EVAPORATOR FAN MOTOR,
DEFROST HEATER &
EVAPORATOR (Cont'd)**

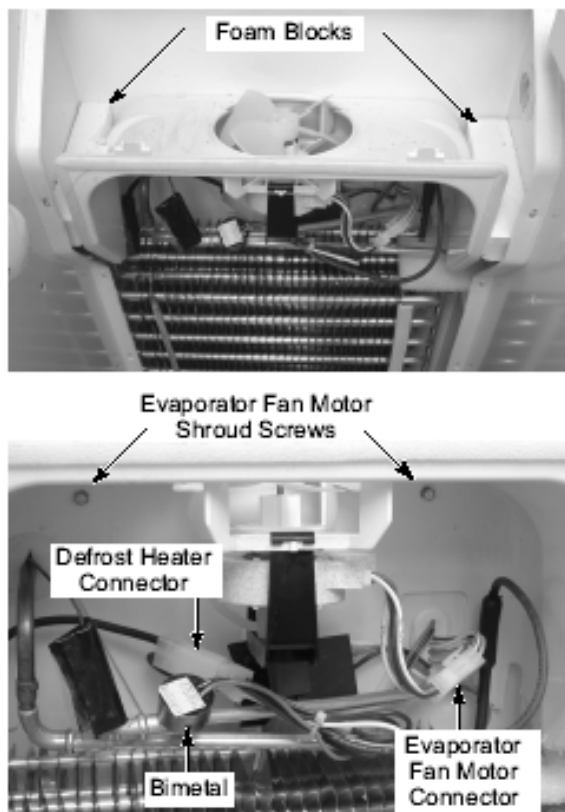
- d. Remove the isolator from the motor.

**11. To remove the defrost heater:**

- a. Remove the two hex-head screws from the evaporator fan motor shroud.
- b. Unclip the bimetal from the evaporator inlet tubing.
- c. Disconnect the defrost heater and evaporator fan motor connectors from the wiring harness.

**REMOVING THE BIMETAL,
EVAPORATOR FAN MOTOR,
DEFROST HEATER &
EVAPORATOR (Cont'd)**

- d. Remove the evaporator fan motor shroud and the two side foam blocks.



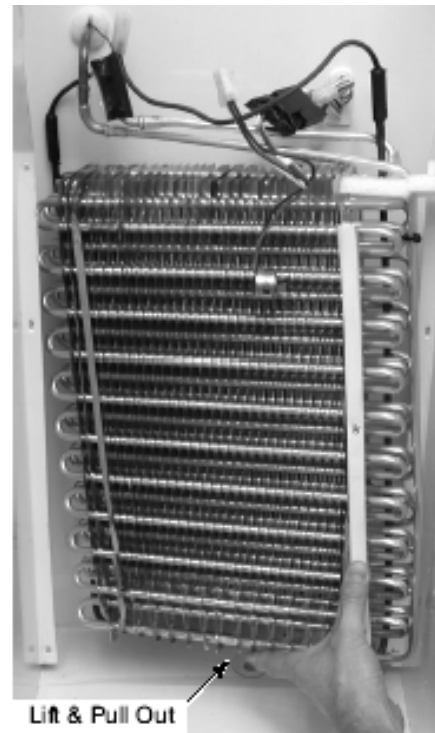
- e. **36" Models Only:** Remove the hex-head screws from the right evaporator cover mounting bracket and remove the bracket. Be careful not to drop the screws down the drain hole at the bottom of the liner. Cover the hole with a cloth.



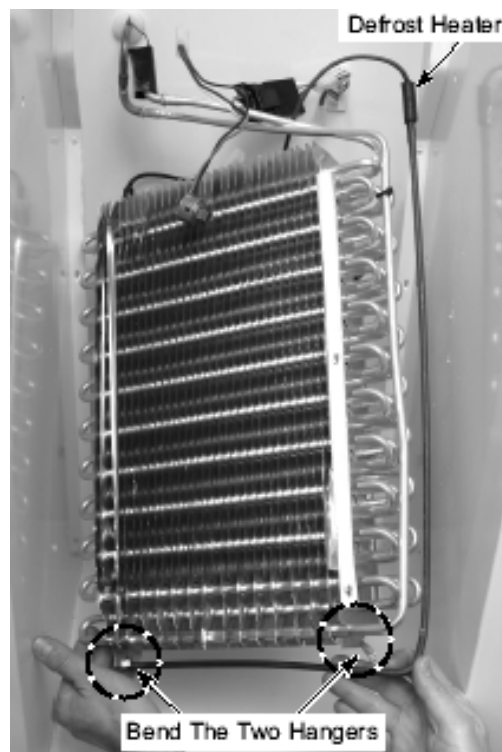
NOTE: Be very careful not to over-bend the refrigerant tubing.

**REMOVING THE BIMETAL,
EVAPORATOR FAN MOTOR,
DEFROST HEATER &
EVAPORATOR (Cont'd)**

- f. Lift the evaporator up slightly and unhook it from the liner, then pull the bottom of the evaporator toward the front of the unit.

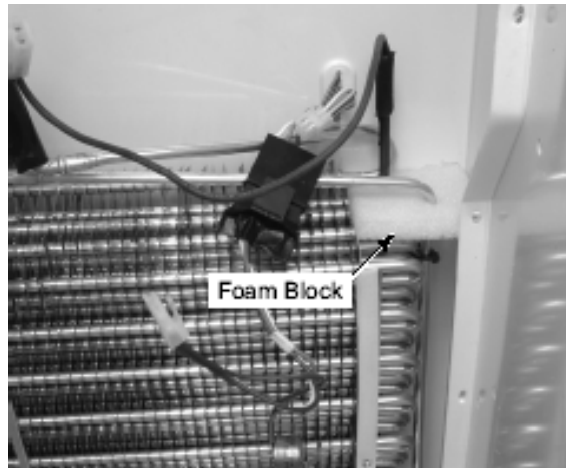


- g. Bend the two hangers at the bottom of the evaporator and remove the heater from the hangers.

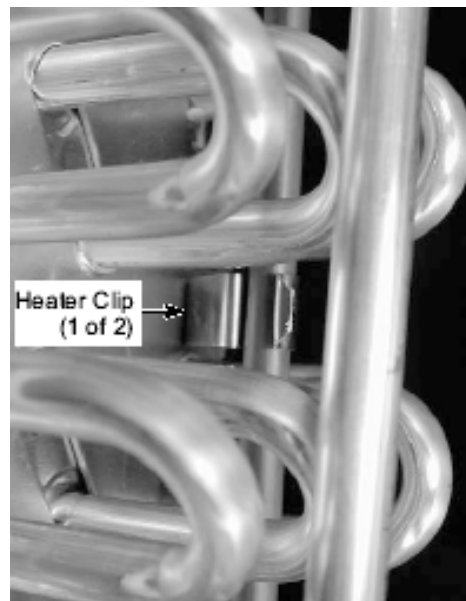


**REMOVING THE BIMETAL,
EVAPORATOR FAN MOTOR,
DEFROST HEATER &
EVAPORATOR (Cont'd)**

- h. Remove the foam block from the right side of the evaporator.

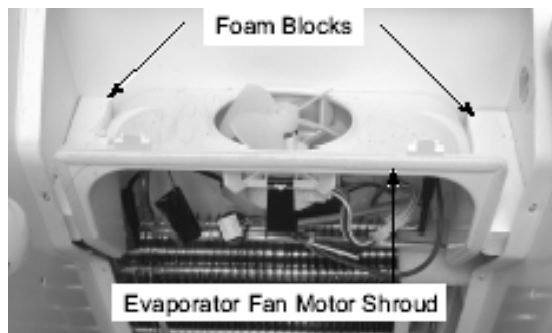


- i. Unfasten the defrost heater from the two metal clips on the right side of the evaporator and slide the defrost heater down and off of the evaporator.



**REMOVING THE BIMETAL,
EVAPORATOR FAN MOTOR,
DEFROST HEATER &
EVAPORATOR (Cont'd)****DEFROST HEATER REASSEMBLY NOTES:**

- The evaporator fan motor shroud has a foam block on each side. Note the position of these blocks in the photo below and make sure that you reinstall them correctly.

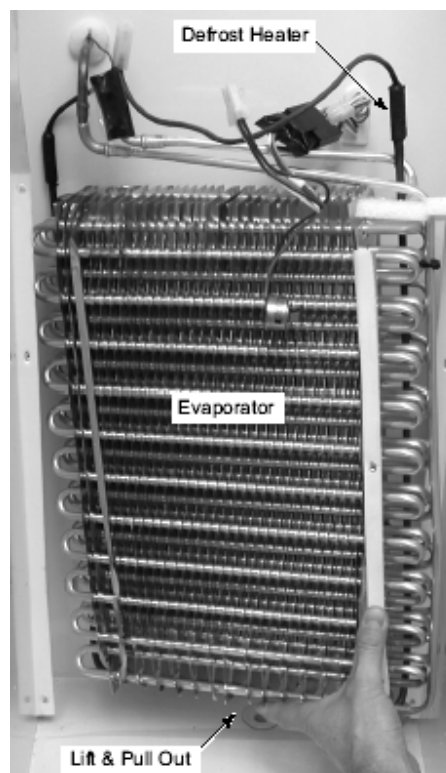


- Be sure to reinstall the foam block on the right side of the evaporator as shown in photo "h" on the previous page.

12. To remove the evaporator:



- Remove the defrost heater from the evaporator (refer back to step 11).
- Access the sealed system and discharge the refrigerant into an approved recovery system.
- Remove and replace the evaporator.

NOTE: Refer to the "Defrost Heater Reassembly Notes" (above) when reinstalling the evaporator.

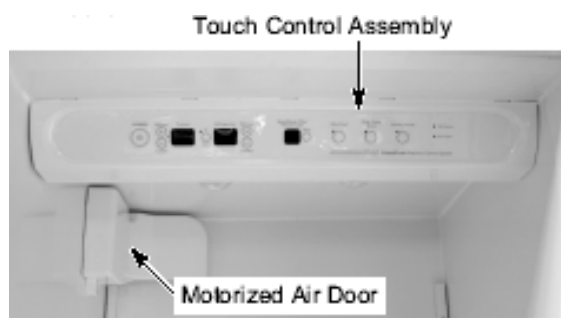


**REMOVING THE TOUCH AND
DISPLAY BOARDS & THE
MOTORIZED AIR DOOR**

Remove the touch and display boards and the motorized air door by following the procedure below.

 WARNING

Electrical Shock Hazard Disconnect power before servicing. Replace all parts & panels before operating. Failure to do so can result in death or electrical shock.

1. Unplug the refrigerator or disconnect the power.
2. Open the refrigerator door and remove the items from the top shelf. If necessary, remove the top shelf so that you can easily access the touch control assembly or the motorized air door. The locations are shown below.

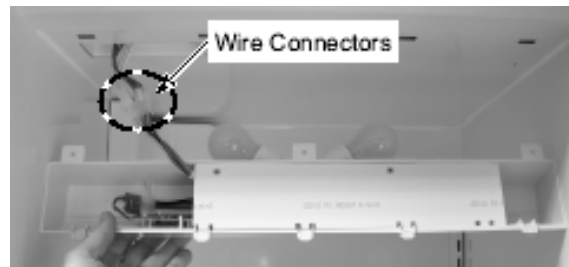


3. **To remove the touch and display boards:**
 - a. Remove the three hex-head screws from the back of the touch control assembly and lower the assembly.

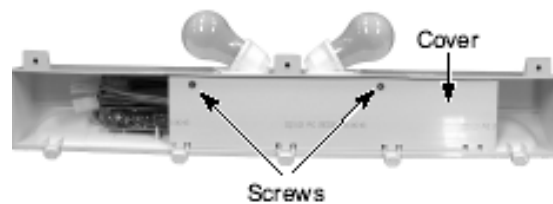


**REMOVING THE TOUCH AND
DISPLAY BOARDS & THE
MOTORIZED AIR DOOR
(Cont'd)**

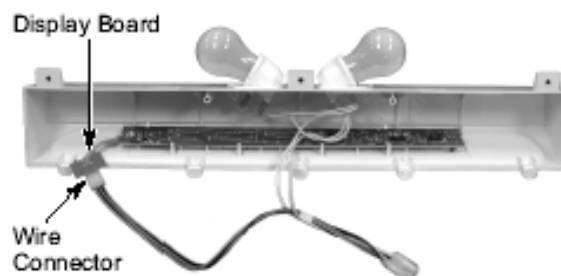
- b. Disconnect the two wire connectors from the touch control assembly and remove the assembly from the refrigerator.



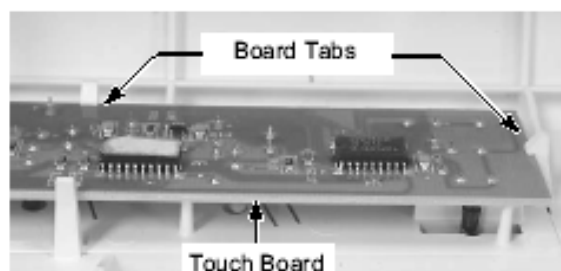
- c. Remove the two screws from the plastic cover and remove the cover from the touch control panel.



- d. Disconnect the wire connector from the end of the display board.



- e. Unclip the touch board from the locking tabs and remove the board.

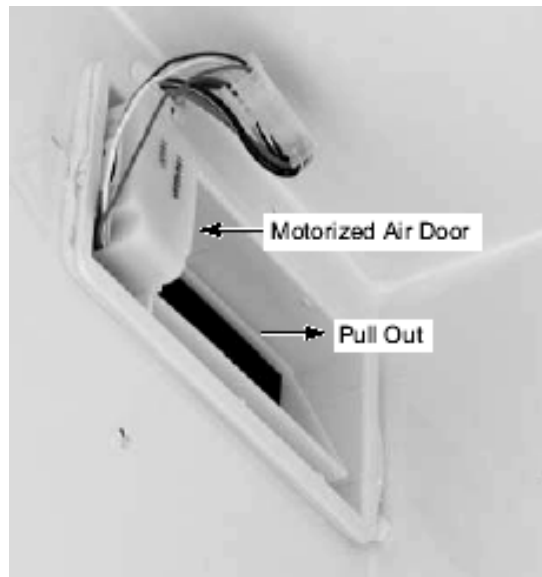


**REMOVING THE TOUCH AND
DISPLAY BOARDS & THE
MOTORIZED AIR DOOR
(Cont'd)**

4. **To remove the motorized air door:**
 - a. Remove the hex-head screws from the motorized air door cover and remove the cover.



- b. Pull the motorized air door out of the refrigerator liner opening.



**REMOVING THE TOUCH AND
DISPLAY BOARDS & THE
MOTORIZED AIR DOOR
(Cont'd)**

- c. Disconnect the wire connector from the motorized air door and remove it.



REASSEMBLY NOTE:

Be sure to position the motorized air door with the motor and wires as shown in the photo on the previous page.



**REMOVING THE MEAT PAN
AIR Baffle & THERMISTOR,
AIR SUPPLY THERMISTOR
AND MEAT PAN
ELECTRONIC TOUCH
CONTROL ASSEMBLY**

Remove the meat pan air baffle and thermistor, the air supply thermistor and the meat pan electronic touch control assembly by following the instructions below.

	WARNING
	
<p>Electrical Shock Hazard</p> <p>Disconnect power before servicing.</p> <p>Replace all parts & panels before operating.</p> <p>Failure to do so can result in death or electrical shock.</p>	

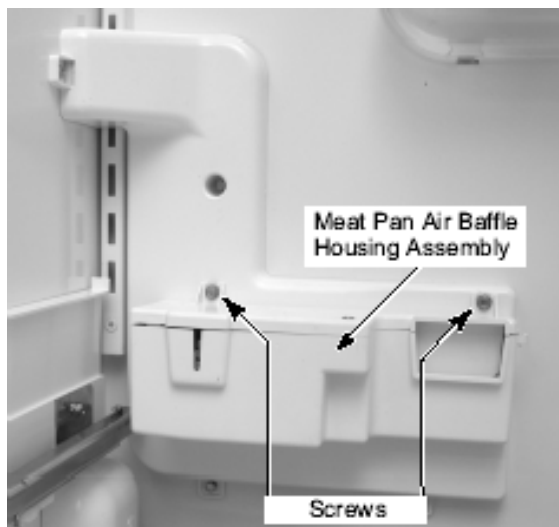
1. Unplug the refrigerator or disconnect the power.
2. Remove the meat pan and glass cover from the refrigerator.



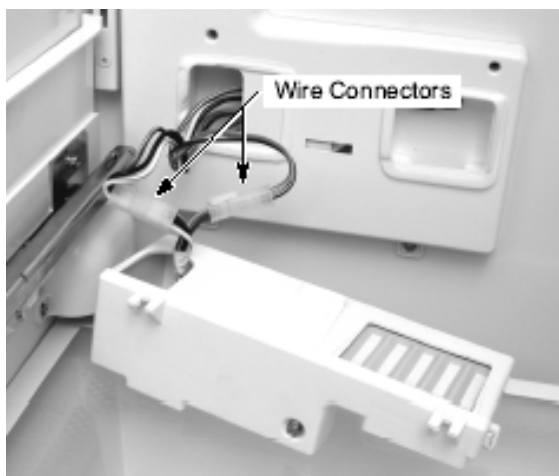
Meat Pan W/Glass Cover

**REMOVING THE MEAT PAN
AIR BAFFLE & THERMISTOR,
AIR SUPPLY THERMISTOR
AND MEAT PAN
ELECTRONIC TOUCH
CONTROL ASSEMBLY
(Cont'd)**

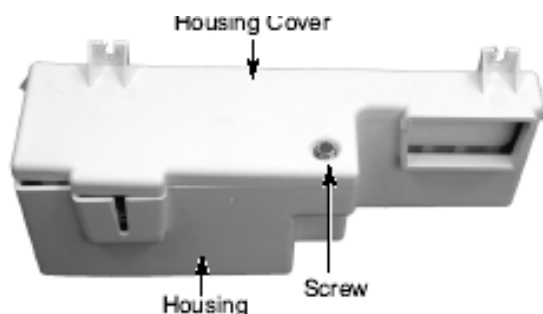
3. **To remove the meat pan air baffle and thermistor:**
 - a. Remove the two screws from the baffle housing assembly, then tilt the top of the assembly forward and pull the bottom tab from the slot.



- b. Disconnect the two wire connectors from the harness and remove the air baffle housing assembly from the refrigerator.

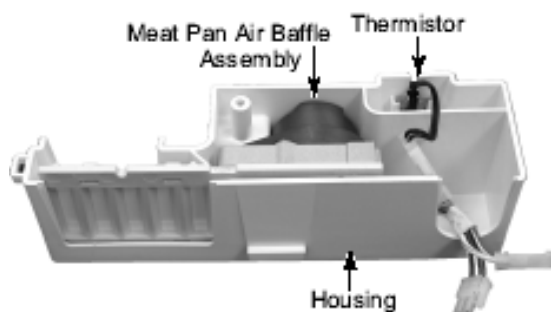


- c. Remove the screw from the cover and remove the cover from the baffle housing.



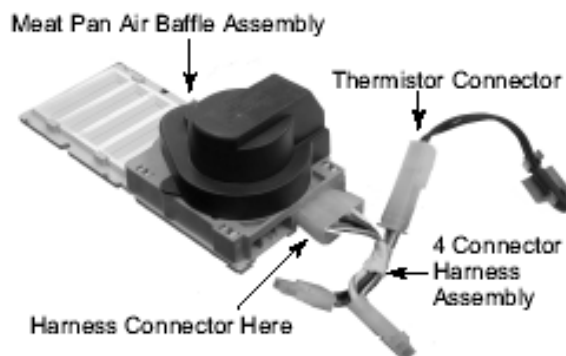
**REMOVING THE MEAT PAN
AIR BAFFLE & THERMISTOR,
AIR SUPPLY THERMISTOR
AND MEAT PAN
ELECTRONIC TOUCH
CONTROL ASSEMBLY
(Cont'd)**

- d. Pull the meat pan air baffle assembly and thermistor out of the housing.



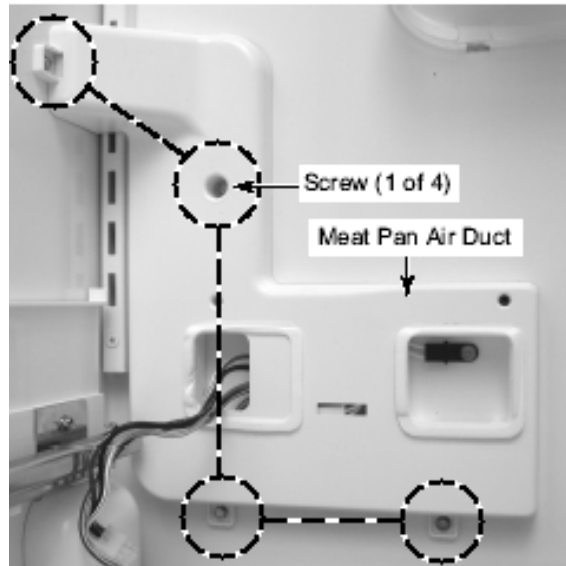
- e. Disconnect the meat pan thermistor connector from the harness.
- f. Disconnect the four connector harness assembly from the housing.

NOTE: Make sure that you reconnect the harness to the indicated meat pan air baffle assembly connector as shown below.



**REMOVING THE MEAT PAN
AIR Baffle & THERMISTOR,
AIR SUPPLY THERMISTOR
AND MEAT PAN
ELECTRONIC TOUCH
CONTROL ASSEMBLY
(Cont'd)**

4. **To remove the air supply thermistor:**
 - a. Remove the meat pan air baffle assembly (see previous section).
 - b. Remove the four screws from the meat pan air duct and remove the duct.

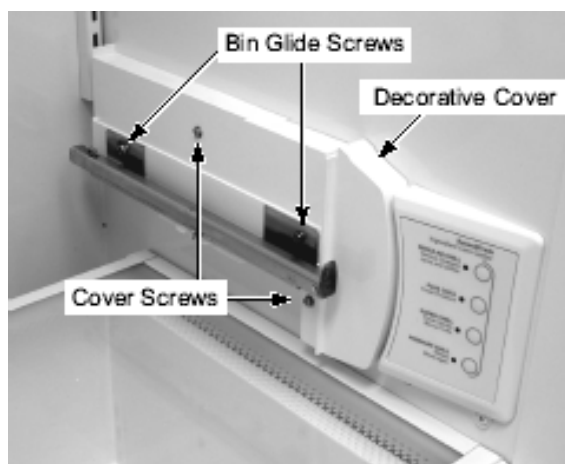


- c. Remove the screw from the air supply thermistor.
 - d. Disconnect the air supply thermistor connector from the harness and remove the thermistor.

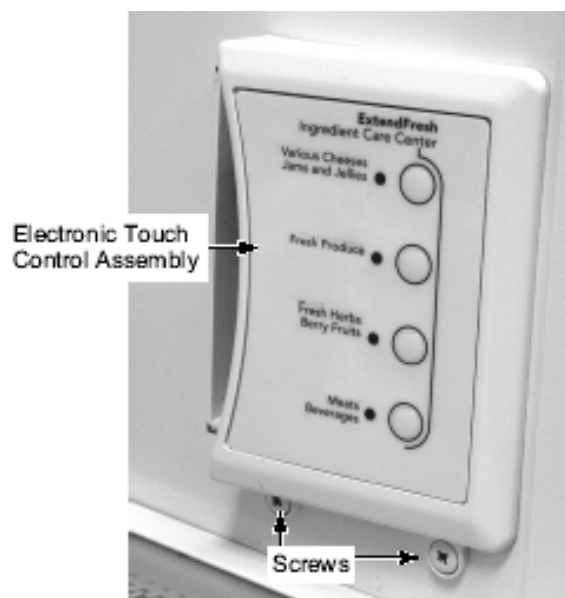


**REMOVING THE MEAT PAN
AIR BAFFLE & THERMISTOR,
AIR SUPPLY THERMISTOR
AND MEAT PAN
ELECTRONIC TOUCH
CONTROL ASSEMBLY
(Cont'd)**

5. **To remove the meat pan electronic touch control assembly:**
 - a. Remove the meat pan air baffle assembly from the unit (see step 3).
 - b. Remove the two screws from the bin glide and remove the glide.
 - c. Remove the two screws from the decorative cover and remove the cover.

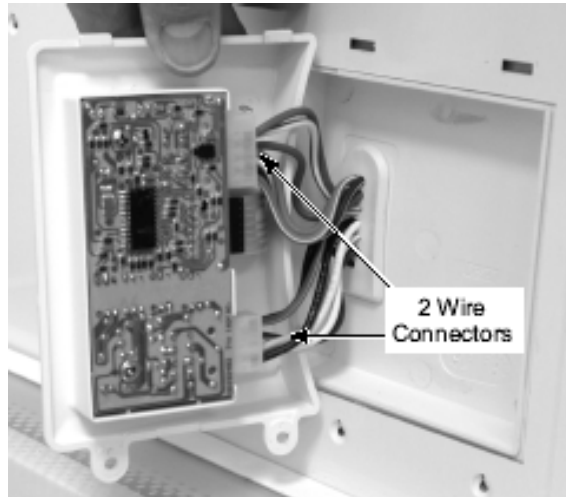


- d. Remove the two screws from the meat pan electronic touch control assembly.





**REMOVING THE MEAT PAN
AIR BAFFLE & THERMISTOR,
AIR SUPPLY THERMISTOR
AND MEAT PAN
ELECTRONIC TOUCH
CONTROL ASSEMBLY
(Cont'd)**

- e. Lift the assembly from the bottom and pull it out, then unclip the top and pull it out so that you can access the wiring.
- f. Disconnect the two harness connectors from the board and remove the assembly.



REMOVING A THERMISTOR

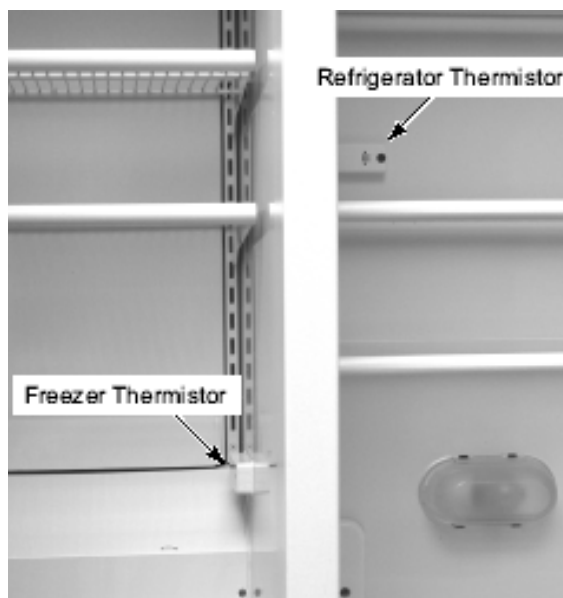
To remove a thermistor, follow the instructions below.

	WARNING
	
Electrical Shock Hazard Disconnect power before servicing. Replace all parts & panels before operating. Failure to do so can result in death or electrical shock.	

1. Unplug the refrigerator or disconnect the power.

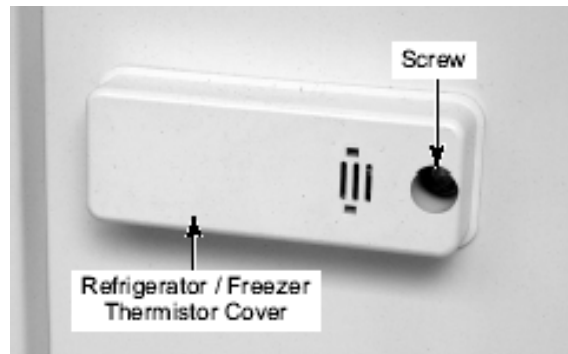
NOTE: The refrigerator and freezer thermistors are identical and are removed in the same manner.

2. Depending on the thermistor, open the freezer or refrigerator door and remove any items from the shelf that are in front of the thermistor. It may be necessary to remove the shelf as well. The thermistor locations are shown below.

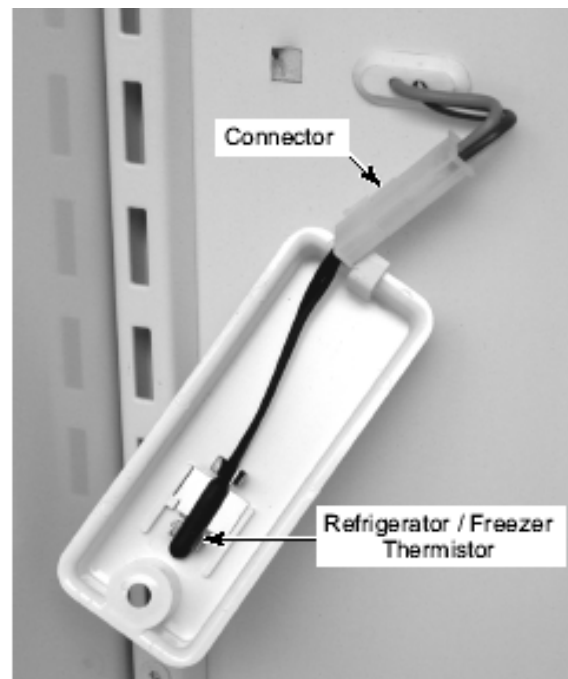


**REMOVING A THERMISTOR
(Cont'd)**

3. Remove the hex-head screw from the thermistor cover. Pull the cover forward at the screw end and unhook the tab from the slot at the other end of the thermistor cover.





4. Disconnect the 2-wire connector and remove the thermistor.



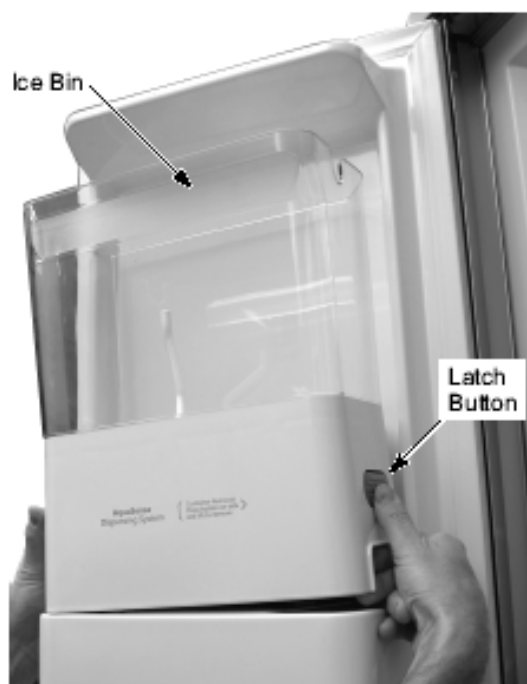
**REMOVING THE ICE MAKER,
EMITTER & RECEIVER**

To remove the ice maker, the emitter and the receiver, follow the instructions below.

 WARNING

<p>Electrical Shock Hazard</p> <p>Disconnect power before servicing.</p> <p>Replace all parts & panels before operating.</p> <p>Failure to do so can result in death or electrical shock.</p>

1. Unplug the refrigerator or disconnect the power.
2. Open the freezer door.
3. Remove the ice bin from the freezer door by pressing in on the latch button and lifting the bin off of the door shelf.

NOTE: The ice bin disassembly is shown in the “Tech Tips” in Appendix B.

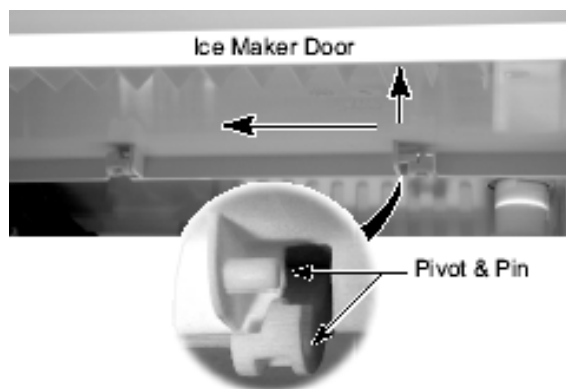


**REMOVING THE ICE MAKER,
EMITTER & RECEIVER
(Cont'd)**

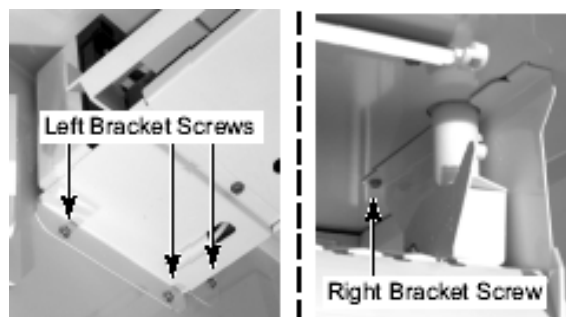
4. **To remove the ice maker:**
 - a. Close the spring-loaded emitter door and open the ice maker door.



- b. Push the ice maker door to the left so that the right pin disengages from the pivot arm, then lift the pin out of the pivot and remove the left pin.

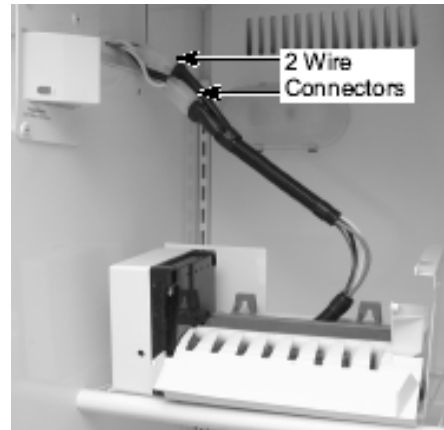


- c. Remove the three screws from the left side of the ice maker bracket and the single screw from the right side.

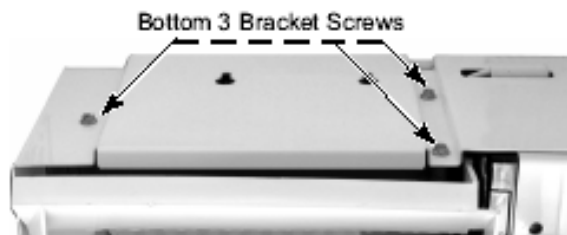


**REMOVING THE ICE MAKER,
EMITTER & RECEIVER
(Cont'd)**

- d. Disconnect the two ice maker connectors from the freezer wiring harness and remove the ice maker from the freezer.



- e. Remove the three hex-head screws from the bottom of the ice maker bracket and remove the bracket from the ice maker.



5. **To remove the emitter module:**

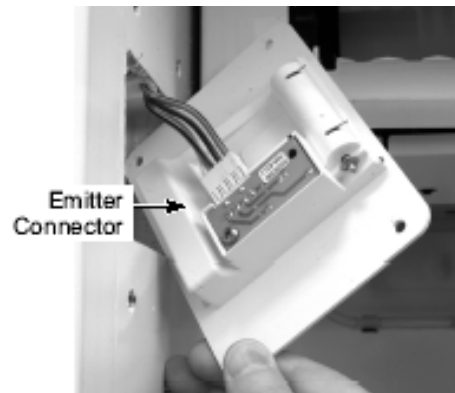
NOTE: The emitter and receiver are replaced as a set.

- a. Remove the three screws from the emitter module and pull it out of the freezer liner opening.



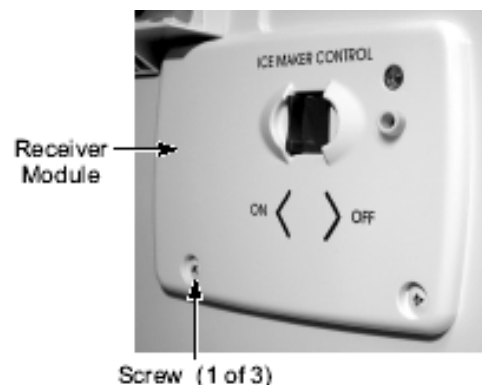
**REMOVING THE ICE MAKER,
EMITTER & RECEIVER
(Cont'd)**

- b. Disconnect the harness connector from the emitter module board and remove the module.

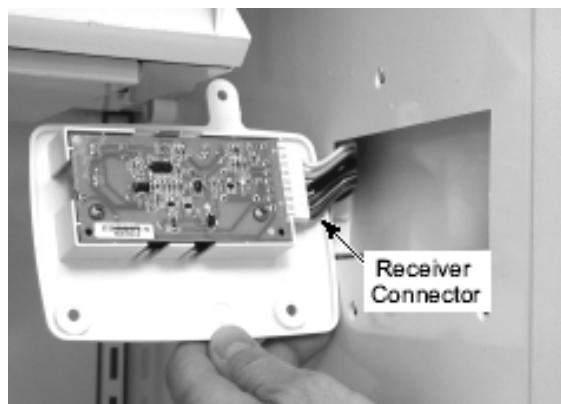
**6. To remove the receiver module:**

NOTE: The emitter and receiver are replaced as a set.

- a. Remove the three screws from the receiver module and pull it out of the freezer liner opening.





- b. Disconnect the harness connector from the receiver module board and remove the module.

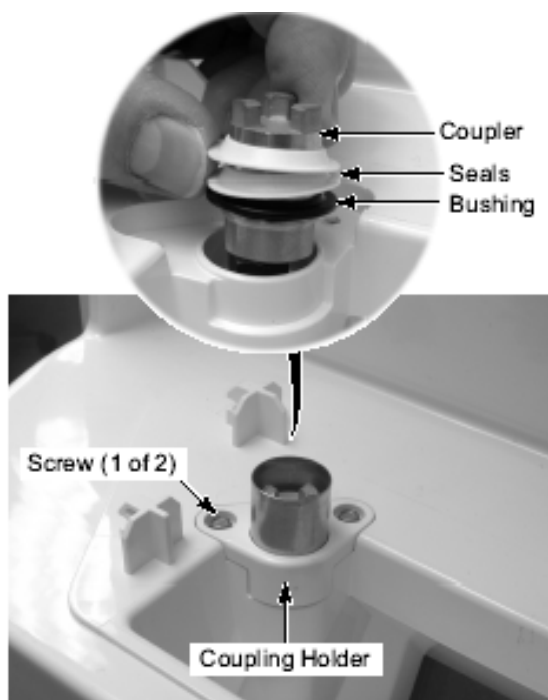


REMOVING THE AUGER MOTOR

To remove the auger motor, follow the instructions below.

	WARNING
	
Electrical Shock Hazard	
Disconnect power before servicing.	
Replace all parts & panels before operating.	
Failure to do so can result in death or electrical shock.	

1. Unplug the refrigerator or disconnect the power.
2. Open the freezer door.
3. Remove the ice bin from the freezer door (see previous section).
4. Remove the two screws from the hex drive shaft coupling holder and remove the coupling assembly.
5. Pull the coupler, seals, and bushing from the hex drive shaft.

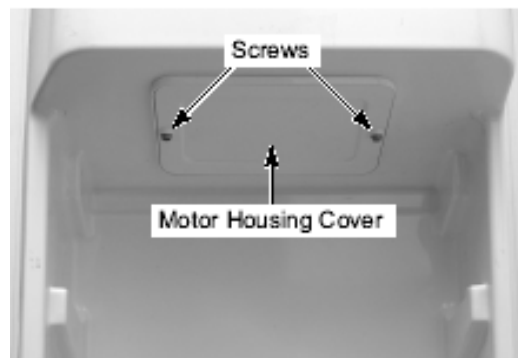


REMOVING THE AUGER MOTOR (Cont'd)

6. Remove the spring from the top of the hex drive shaft.



7. Remove the containers from the freezer door so that you can access the motor housing cover.
8. Remove the two screws from the motor housing cover and remove the cover.

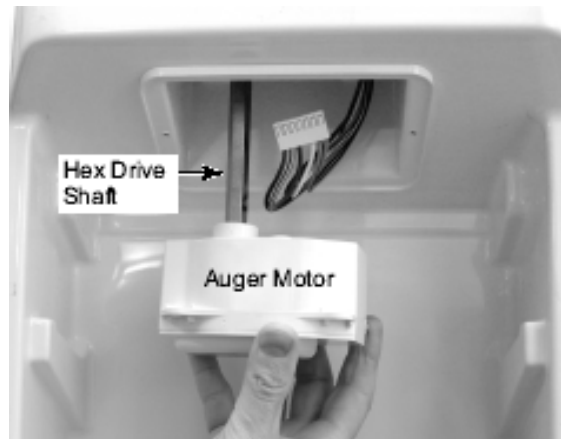


9. Disconnect the harness connector from the motor terminals.
10. Remove the four screws from the auger motor bracket.





REMOVING THE AUGER MOTOR (Cont'd)

11. Allow the motor and hex drive shaft to drop down and remove them from the unit. Then, pull the hex drive shaft out of the motor.

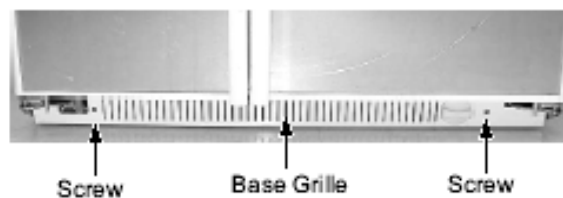


**REMOVING THE WATER
RESERVOIR AND WATER
VALVE**

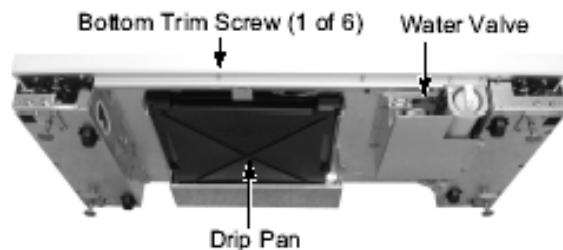
To remove the water reservoir and water valve, follow the instructions below.

	WARNING
	
Electrical Shock Hazard Disconnect power before servicing. Replace all parts & panels before operating. Failure to do so can result in death or electrical shock.	

1. Unplug the refrigerator or disconnect the power.
2. Turn off the water supply to the refrigerator.
3. Remove the two screws from the base grille and remove the grille.

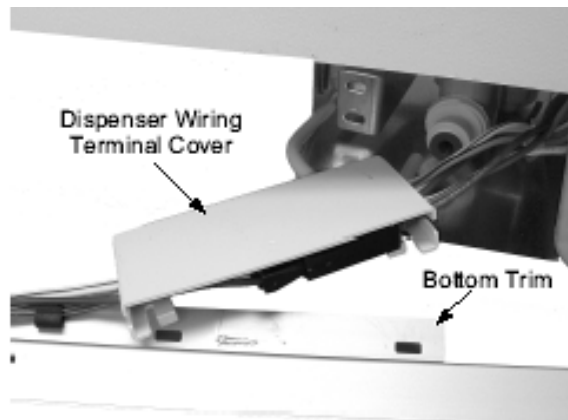


4. Remove the six screws from the bottom trim and remove the trim and the drip pan.

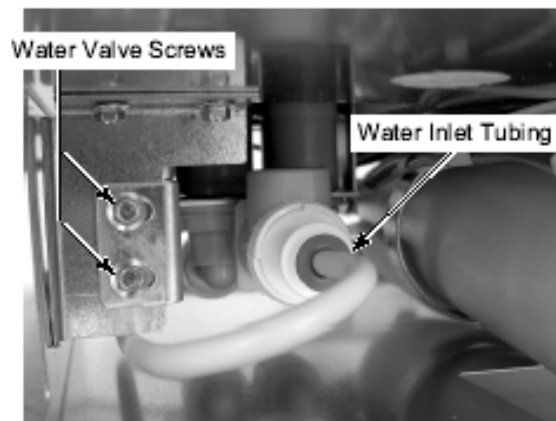


**REMOVING THE WATER
RESERVOIR AND WATER
VALVE (Cont'd)**

5. Unclip the wires and remove the dispenser wiring terminal cover. Then, disconnect the dispenser wiring connectors.



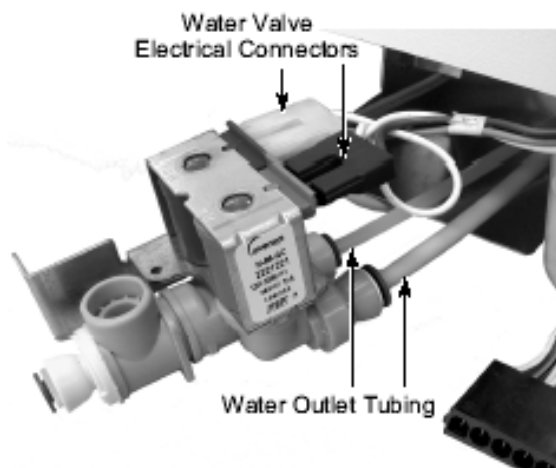
6. Position a container to catch the water in the next step.
7. Push in on the John Guest retaining ring and remove the water inlet tubing from the water valve.
8. Remove the two screws from the water valve and pull the valve forward as far as possible.



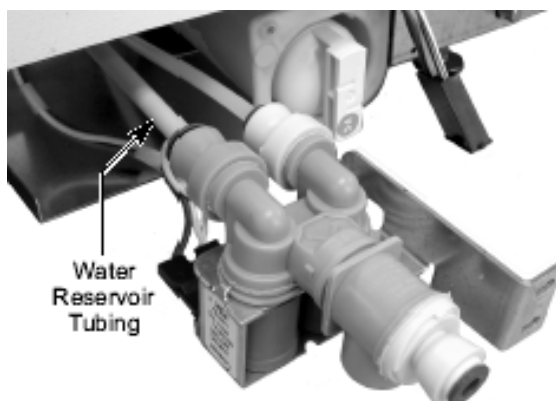
REMOVING THE WATER RESERVOIR AND WATER VALVE (Cont'd)**9. To remove the water valve:**

- a. Push in on the John Guest retaining rings and remove the two water outlet tubes from the water valve.
- b. Disconnect the electrical connectors from the water valve solenoids and remove the water valve.

NOTE: The electrical connectors have different sized terminals so that they cannot be interchanged on the solenoids.

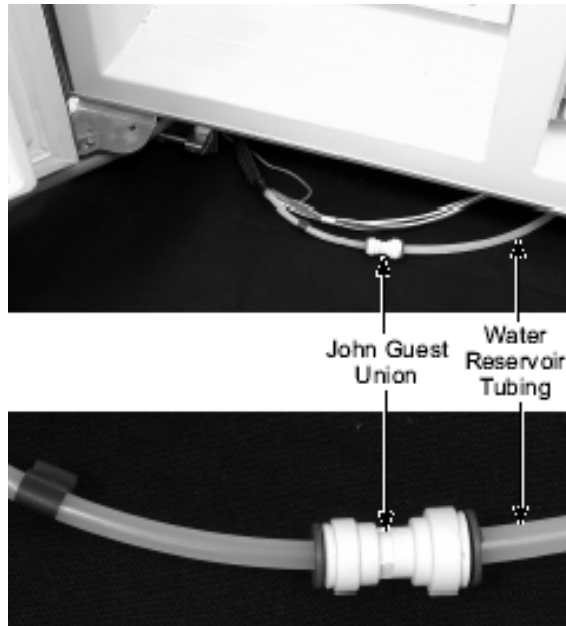
**10. To remove the water reservoir:**

- a. Push in on the John Guest retaining rings and remove the water reservoir tubing from the water valve.
- b. Remove the other end of the water reservoir tubing from the John Guest union.

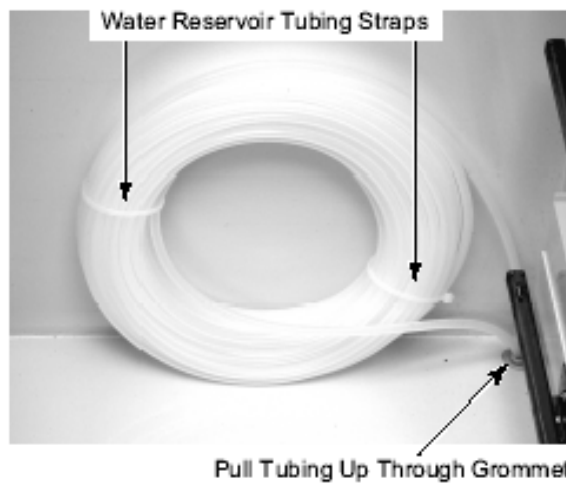


REMOVING THE WATER RESERVOIR AND WATER VALVE (Cont'd)

- c. Disconnect the water reservoir tubing from the John Guest union at the bottom of the refrigerator.





- d. Remove the crisper and the bottom shelves from the refrigerator compartment.
- e. Remove the hex-head screw from the water reservoir tubing straps.
- f. Pull the ends of the water reservoir tubing up through the grommet.



REMOVING A LIGHT SOCKET

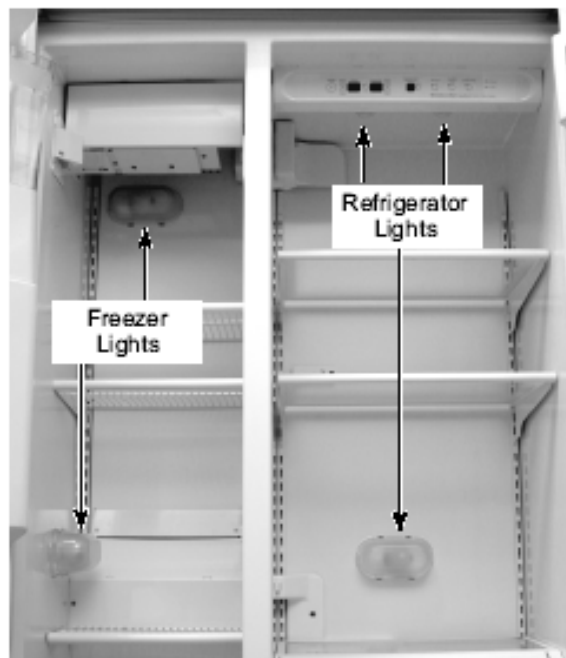
To remove a light socket, follow the instructions below.

	WARNING
	
Electrical Shock Hazard	
Disconnect power before servicing.	
Replace all parts & panels before operating.	
Failure to do so can result in death or electrical shock.	

1. Unplug the refrigerator or disconnect the power.

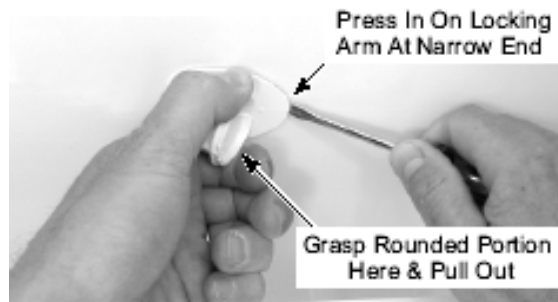
NOTE: The refrigerator and freezer light sockets are identical and are removed in the same manner.

2. Depending on the light, open the freezer or refrigerator door and remove any items from the shelf that are in front of the light. It may be necessary to remove the shelf as well. The light locations are shown below.

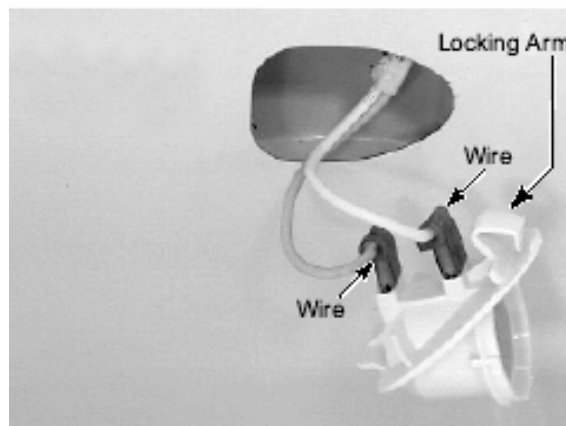


**REMOVING A LIGHT SOCKET
(Cont'd)**

3. Remove the light shield.
4. Remove the bulb from the socket.
5. Grasp the light socket by the rounded portion and pull out on the narrow end while pressing the locking arm with a screwdriver blade (as shown in photo below). Pull out on the socket until it disengages from the opening.





6. Disconnect the two wires from the light socket terminals.



REMOVING THE WATER AND ICE DISPENSER

To remove the water and ice dispenser, follow the instructions below.

	WARNING
	
Electrical Shock Hazard Disconnect power before servicing. Replace all parts & panels before operating. Failure to do so can result in death or electrical shock.	

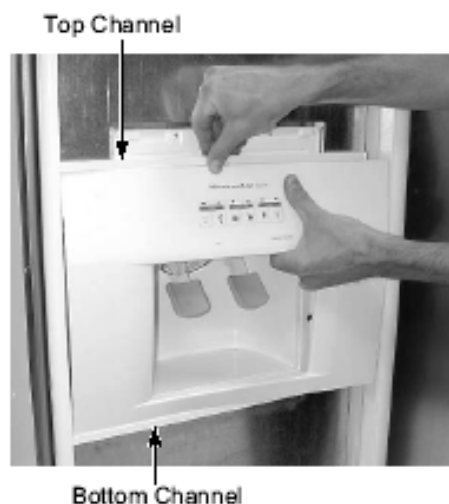
1. Unplug the refrigerator or disconnect the power.
2. Remove the drip tray from the water and ice dispenser.



NOTE: There are two types of water and ice dispensers: one for doors with panels, and the other for stainless steel, trimless doors. The front panels for each type of door are removed differently. To remove either type of front panel, refer to the next step for paneled doors and to step 4 for stainless steel, trimless doors.

REMOVING THE WATER AND ICE DISPENSER (Cont'd)

3. **For paneled doors:**
 - a. Partially open the freezer door.
 - b. Remove the screws from the freezer door handle and remove the handle.
 - c. Bow the front panel out at the center and remove it from the top and bottom channels of the water and ice dispenser.

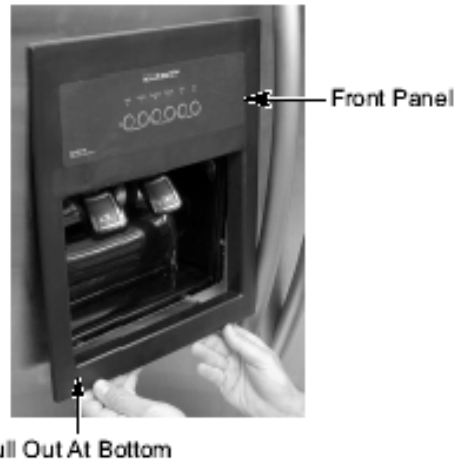


- d. Proceed to step 5 (on the following page) to remove the dispenser.
4. **For stainless steel, trimless doors:**
 - a. Position a wood block along the bottom edge at the left corner of the water and ice dispenser.
 - b. Using a rubber mallet, hit the block while you pull out at the bottom so that the tab releases the panel from the dispenser housing.



REMOVING THE WATER AND ICE DISPENSER (Cont'd)

- c. Repeat the previous step for the other corner of the front panel.
- d. Pull the bottom of the front panel out and then down to remove it from the dispenser.

**5. To remove the dispenser:**

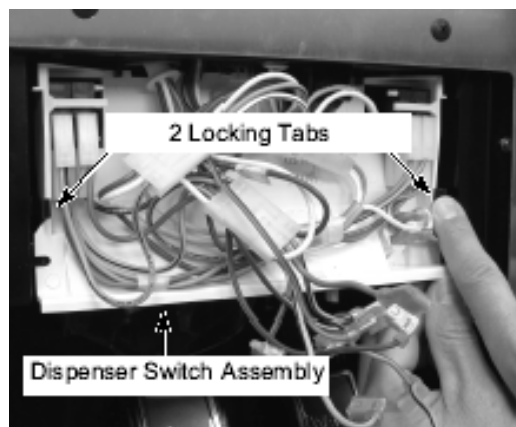
- a. Disconnect the wire connectors from the switch pack terminals and remove the front panel.

NOTE: The wire colors are marked next to each terminal on the switch pack.

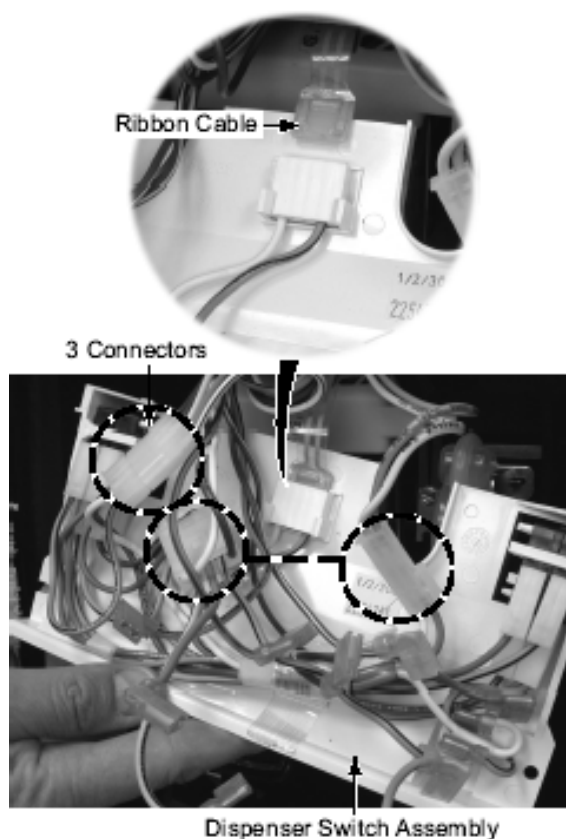


**REMOVING THE WATER AND
ICE DISPENSER (Cont'd)**

- b. Push the two locking tabs to unlock them and pull the dispenser switch assembly down and forward.

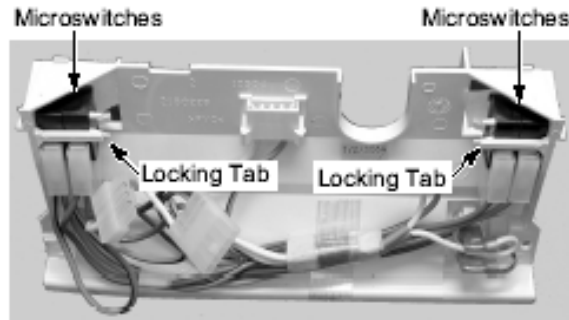


- c. Disconnect the three wire connectors and the ice door heater ribbon cable from the dispenser switch assembly. Remove the assembly.

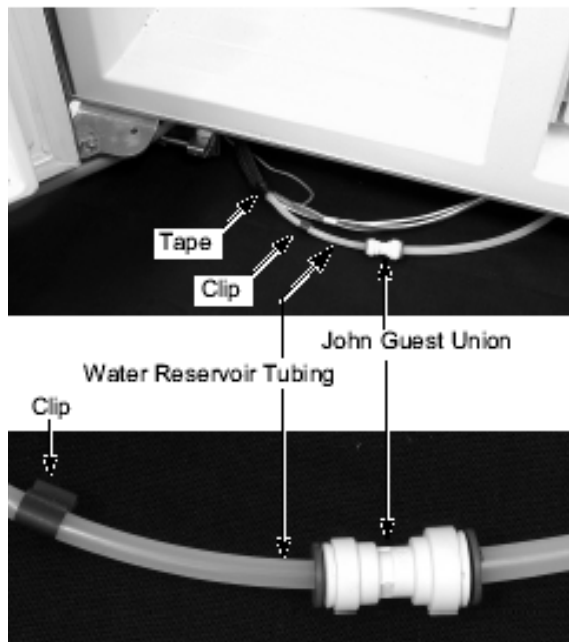


**REMOVING THE WATER AND
ICE DISPENSER (Cont'd)**

6. **To remove a microswitch:**
 - a. Push the two locking tabs to unlock the microswitch and slide the switch off of the pins.
 - b. Disconnect the wire connectors from the switch terminals.

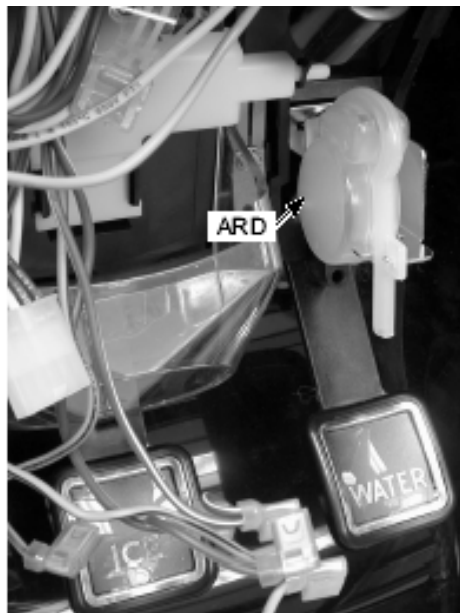


7. **To remove the Anti-Run-On device (ARD):**
 - a. Disconnect the 1/4" tubing from the John Guest union at the bottom of the refrigerator.
 - b. Remove the clip and tape from the 1/4" tubing.



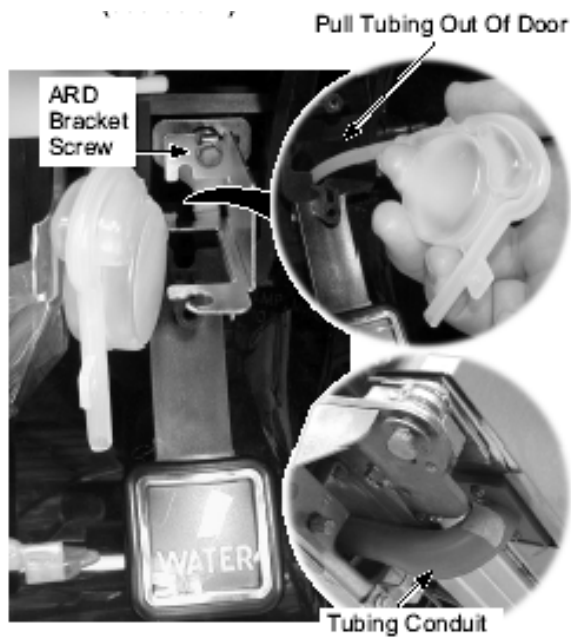
**REMOVING THE WATER AND
ICE DISPENSER (Cont'd)**

- c. Push the ARD off of the retaining bracket.





- d. Remove the hex-head screw from the ARD retaining bracket and remove the bracket.
- e. Feed the 1/4" tubing from the bottom and pull the ARD and tubing out of the door.

NOTE: The tubing may be easier to remove if you remove the tubing conduit from the bottom of the freezer door (see below).

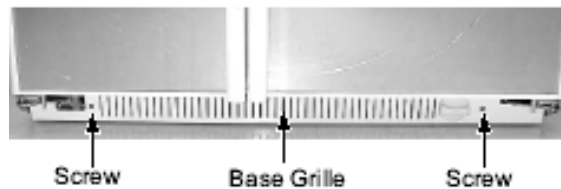


REMOVING A DOOR

To remove a door, follow the instructions below.

	WARNING
	
Electrical Shock Hazard Disconnect power before servicing. Replace all parts & panels before operating. Failure to do so can result in death or electrical shock.	

1. Unplug the refrigerator or disconnect the power.
2. Turn off the water supply to the refrigerator.
3. Remove the two screws from the base grille and remove the grille.

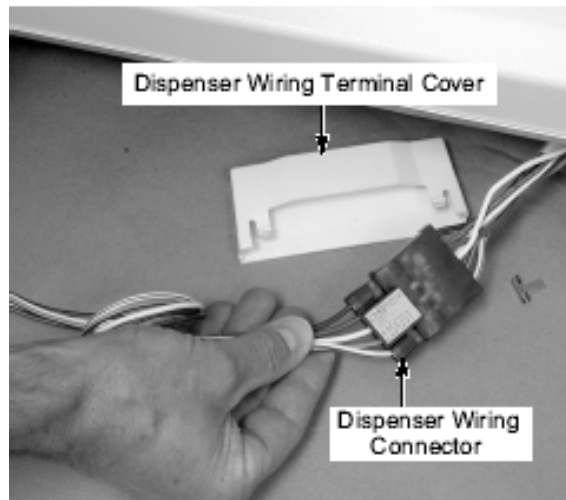


4. Remove the items from the door shelves.

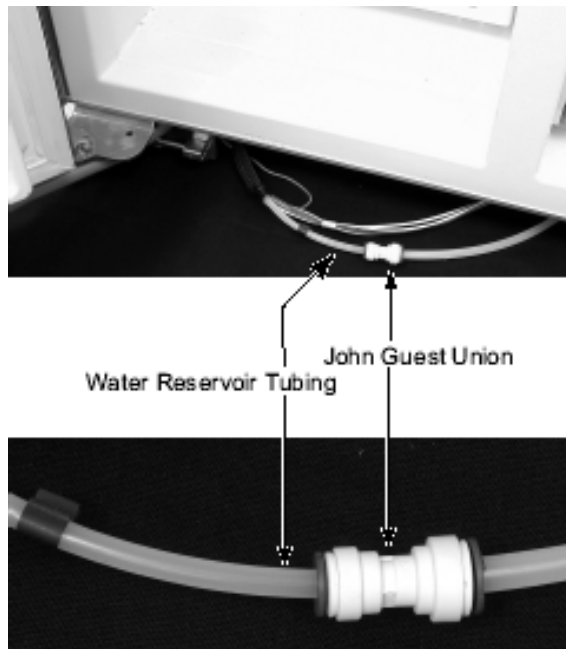
NOTE: If you are removing a dispenser model freezer door, perform steps 5 and 6. If you are removing a refrigerator door or a non-dispenser freezer door, proceed to step 7.

REMOVING A DOOR (Cont'd)

5. Unclip the dispenser wiring terminal cover from the bottom of the unit. Then, disconnect the dispenser wiring connector (see below).



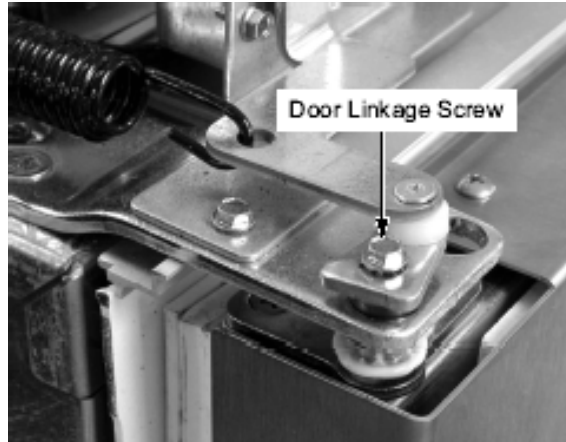
6. Disconnect the water reservoir tubing from the John Guest union at the bottom of the unit.



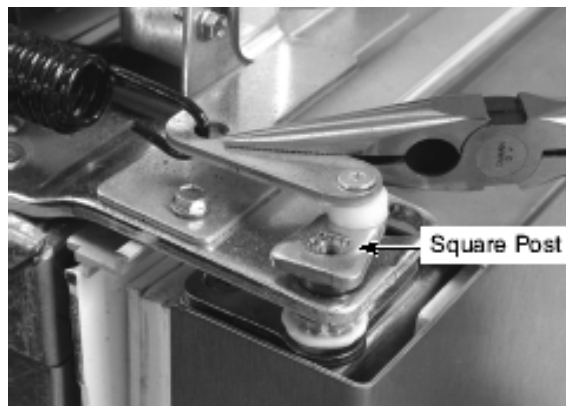
REMOVING A DOOR (Cont'd)

7. With the door closed, remove the hex-head screw from the door linkage at the top of the door.

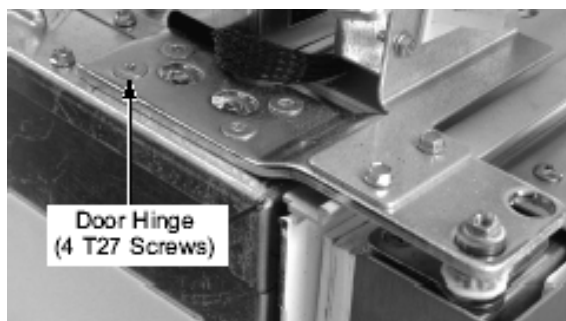
NOTE: The door spring will remain under slight tension when the door is closed.



8. Use a pair of pliers and lift the end of the linkage off of the square post.



9. Place a support under the door to prevent it from falling.
10. Remove the four T27 screws from the door hinge.
11. Lift the door so that the bottom hinge is off of the pin and remove the door.



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This chapter provides detailed instructions for testing each component prior to and/or after service. Before testing any of the components, perform the following checks:

- Control failure can be the result of corrosion on connectors. Therefore, disconnecting and reconnecting wires will be necessary throughout test procedures.
- All tests/checks should be made with a VOM or DVM having a sensitivity of 20,000 ohms per volt DC or greater.
- Check all connections before replacing components, looking for broken or loose wires, failed terminals, or wires not pressed into connectors far enough.
- Resistance checks must be made with the power cord unplugged from the outlet, and with the wiring harness or connectors disconnected.



In this chapter:

Thermistor 5-2
Evaporator Fan Motor 5-4
Condenser Fan Motor 5-5
Compressor 5-6
Motorized Air Door 5-8
Defrost Heater & Bimetal 5-9
Main Control Board 5-10
Power Switch 5-12
Door Switch 5-13
Air Supply Thermistor 5-14
Water Valve Solenoid 5-15
Checking the Auger Motor 5-16
Ice Maker Inlet Heated Fill Tube 5-18
Meat Pan Air Baffle Motor and Thermistor 5-19

THERMISTOR

Follow the procedure below to test a thermistor. (Refer to the previous chapter for the procedure for servicing a thermistor.)

**WARNING****Electrical Shock Hazard**

Disconnect power before servicing.
Replace all parts & panels before
operating.
Failure to do so can result in death or
electrical shock.

1. Run the diagnostics tests (see next chapter) and test the thermistor(s) in steps 1 and 2.

NOTE: For accurate temperature/resistance readings, continue with the remaining steps to check the resistance of the thermistor(s).

2. Unplug the refrigerator or disconnect the power.
3. Disconnect the thermistor wire connector from the main harness.
4. Set the ohmmeter to the R x 1K scale.
5. Insert the ohmmeter test leads into the two connector pins of the thermistor connector.

THERMISTOR (Cont'd)

6. Depending on the temperature, the meter should indicate within the approximate range, as shown in the chart below.

TEMPERATURE (°F)	RESISTANCE OHMS (APPROX.)	TEMPERATURE (°F)	RESISTANCE OHMS (APPROX.)
-5	25900-27500	45	5930-6300
0	22100-23500	50	5190-5510
5	18900-20000	55	4550-4830
10	16200-17200	60	4000-4240
15	13900-14800	65	3520-3730
20	12000-12800	70	3100-3300
25	10400-11000	75	2740-2910
30	8990-9550	80	2430-2580
32	8750	85	2160-2290
35	7800-8290	90	1920-2030
40	6800-7220		

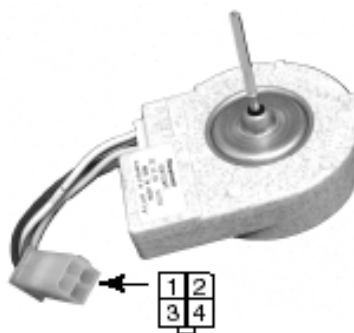
NOTE: If the resistance of the thermistor(s) was normal, perform the following voltage test.



1. Set the voltmeter to read a maximum voltage of 10 volts DC.
2. Connect power to the refrigerator and allow it to enter "Cooling Mode".
3. With the thermistor disconnected and the refrigerator in "Cooling Mode", touch the voltmeter test leads to the thermistor main harness connector pins. The meter should indicate approximately 5 volts DC.

If the voltage was not present, check for a thermistor output at the main control board (see the "Main Control Board" section of this chapter).

EVAPORATOR FAN MOTOR

Follow the procedure below to test an evaporator fan motor. (Refer to the previous chapter for the procedure for servicing an evaporator fan motor.)



 WARNING	
	<p>Electrical Shock Hazard</p> <p>Disconnect power before servicing. Replace all parts & panels before operating. Failure to do so can result in death or electrical shock.</p>

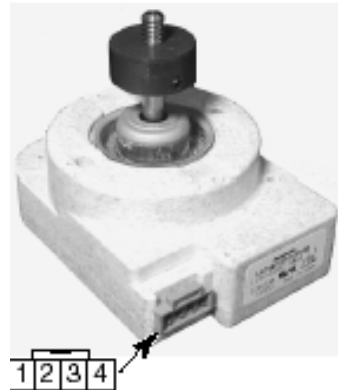
1. Run the diagnostics tests (see next chapter) and check for the proper operation of the evaporator fan motor in step 3.

NOTE: During the evaporator fan motor operation 12 volts at the red and white wires will be present anytime the fan motor is operating. The remaining steps will allow you to check the resistance of the evaporator fan motor.

2. Unplug the refrigerator or disconnect the power.
3. Disconnect the wire connector going to the evaporator fan motor.
4. Set the ohmmeter to the R x 10K scale.
5. Touch the ohmmeter test leads to pins 1 (white wire) and 4 (red wire) of the evaporator fan motor connector. The meter should indicate approximately 1400 to 1700 Ω .

CONDENSER FAN MOTOR

Follow the procedure below to test a condenser fan motor. (Refer to the previous chapter for the procedure for servicing a condenser fan motor.)

**! WARNING****Electrical Shock Hazard**

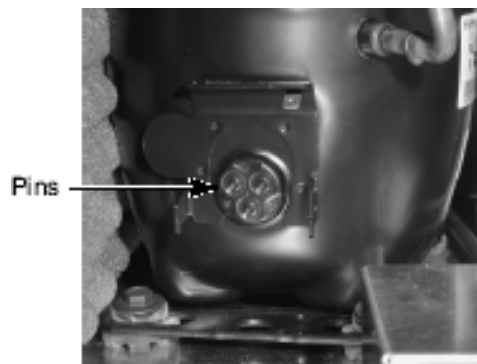
Disconnect power before servicing.
Replace all parts & panels before
operating.
Failure to do so can result in death or
electrical shock.



1. Run the diagnostics tests (see next chapter) and check for the proper operation of the condenser fan motor in step 4.

NOTE: During the condenser fan motor operation, 120 volts AC will be present at pins 1 and 4.

COMPRESSOR

Follow the procedure below to test the compressor. (Refer to the previous chapter for the procedures for servicing the compressor.)



 WARNING	
	<p style="text-align: center;">Electrical Shock Hazard</p> <p>Disconnect power before servicing. Replace all parts & panels before operating. Failure to do so can result in death or electrical shock.</p>

1. Run the diagnostics tests (see next chapter) and check for the proper operation of the compressor in step 5.

NOTE: If the compressor does not operate, perform the following steps.

2. Connect power to the refrigerator and allow it to enter "Cooling Mode".
3. While the refrigerator is in "Cooling Mode", the main control board voltages should be as shown in the chart below.
4. Set the voltmeter to read the voltages shown in the chart.
 - Double-check P7-3 and P7-8 on the main control board for 3 to 6 volts DC. If the voltage is not present, replace the main control board.
 - If the 3 to 6 volts DC is present at the main control board, continue with step 5.

COMPONENT	INPUT/OUTPUT LOCATIONS	VOLTAGES
Main Control Board	P7-3 (Red) & P7-8 (Red/White)	3 to 6 Volts DC

COMPRESSOR (Cont'd)

5. Unplug the refrigerator or disconnect the power.
6. Disconnect the wire connector going to the compressor.
7. Set the ohmmeter to the R x 1 scale.
8. Touch the ohmmeter test leads to any two pins. The meter should indicate approximately 6 to 7 Ω . Check between each set of pins to test all three windings.
9. Set the ohmmeter to the highest scale.
10. Touch one ohmmeter test lead to the cabinet ground and the other test lead to each of the three compressor terminals. The meter should indicate an open circuit (infinite).

MOTORIZED AIR DOOR

Follow the procedure below to test the motorized air door. (Refer to the previous chapter for the procedure for servicing the motorized air door.)

**WARNING****Electrical Shock Hazard**

Disconnect power before servicing.
Replace all parts & panels before
operating.
Failure to do so can result in death or
electrical shock.

1. Run the diagnostics tests (see next chapter) and check for the proper operation of the air door in step 6.

NOTE: A 12 volts DC square wave is supplied to the air door in a series of short pulses. It is not possible to obtain a reliable voltage reading with a VOM. The remaining steps will allow you to check the resistance of the air door motor.

2. Unplug the refrigerator or disconnect the power.
3. Disconnect the motorized air door wire connector from the main harness.
4. Set the ohmmeter to the R x 10 scale.
5. Touch one of the ohmmeter test leads to the motorized air door connector with the yellow wire and the other test lead to the red wire. The meter should indicate approximately 375 to 425 Ω .
6. Touch one of the ohmmeter test leads to the motorized air door connector with the white wire and the other test lead to the blue wire. The meter should indicate approximately 375 to 425 Ω .

**DEFROST HEATER &
BIMETAL**

Follow the procedure below to test the defrost heater and bimetal. (Refer to the previous chapter for the procedures for servicing the defrost heater and bimetal.)

**WARNING****Electrical Shock Hazard**

Disconnect power before servicing.
Replace all parts & panels before
operating.
Failure to do so can result in death or
electrical shock.

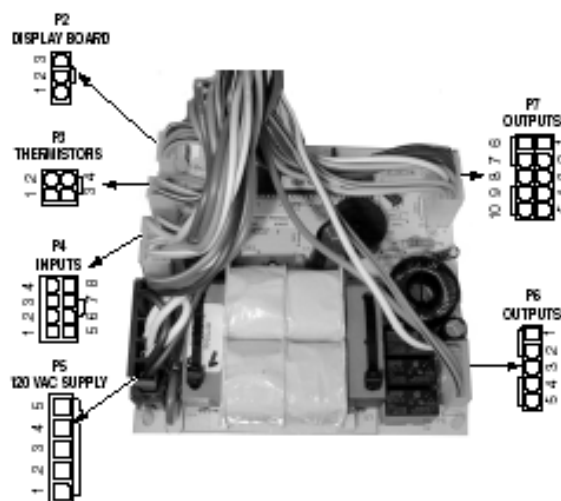
1. Run the diagnostics tests (see next chapter) and check for the proper operation of the defrost heater and bimetal in step 7.



NOTE: If the bimetal is closed, the voltage at the defrost heater terminals will be 120 volts AC. The remaining steps will allow you to check the resistance of the defrost heater and bimetal.

2. Unplug the refrigerator or disconnect the power.
3. Disconnect one of the wires going to the defrost heater.
4. Set the ohmmeter to the R x 1 scale.
5. Touch the ohmmeter test leads to the defrost heater terminals. The meter should indicate approximately 19 to 27 Ω .
6. Touch the ohmmeter test leads to the defrost bimetal wire connectors. The meter should indicate as follows:
 - With the bimetal below 20°F, the meter should indicate continuity (0 Ω).
 - With the bimetal above 50°F, the meter should indicate an open circuit (infinite).

MAIN CONTROL BOARD

Follow the procedure below to test the main control board. (Refer to the previous chapter for the procedure for servicing the main control board.)



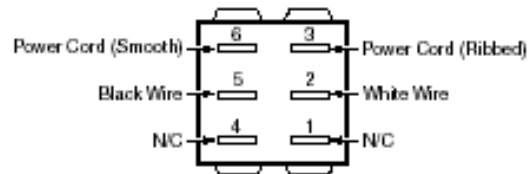
 WARNING	
	<p style="text-align: center;">Electrical Shock Hazard</p> <p>Disconnect power before servicing. Replace all parts & panels before operating. Failure to do so can result in death or electrical shock.</p>

NOTE: See the chart on the following page for the main control board test specifications.

PLUG	PIN #	DESCRIPTION	OUTPUT	CONDITION
P2	1	Communication Line	N/A	
	2	Display Voltage	12 VDC	Measured at pins 2 & 3
	3	GND	GND	
P3	1	Ref. Thermistor	GND	
	2	Frz. Thermistor	GND	
	3	Ref. Thermistor Output	5 VDC	Measured at pins 1 & 3
	4	Frz. Thermistor Output	5 VDC	Measured at pins 2 & 4
P4	1	Ref. Door Sw Enable	120 VAC	
	2	Frz. Door Sw Enable	120 VAC	
	3		N/A	
	4	Ref. Door Input	120 VAC	Voltage present when door is open
	5	Ice Maker Valve Input	120 VAC	Voltage present when ice maker is energized
	6	Dispenser Valve Input	120 VAC	Voltage present when dispenser valve is energized
	7	Bimetal Input	120 VAC	Voltage present when bimetal is closed
	8	Frz. Door Input	120 VAC	
P5	1	AC GND	AC GND	
	2	AC L1	120 VAC	
	3	AC Neutral	AC Neutral	
	4	AC Neutral	AC Neutral	
	5	AC L1	120 VAC	
P6	1	Condenser Fan	120 VAC	Voltage present when condenser fan is on
	2		N/A	
	3		N/A	
	4	Defrost Heater	120 VAC	Voltage present when defrost heater is on
	5	Ice Maker Enable	120 VAC	Voltage present when I/M bail arm is down & I/M is active
P7	1	Air Door		
	2	Air Door		
	3	Compressor Drive	3-6 VDC	Measured at pins 3 & 8
	4	Evap. Fan Feedback	N/A	
	5	Evap. Fan Constant	12 VDC	Measured at pins 5 & 9
	6	Air Door		
	7	Air Door		
	8	Compressor Drive	3-6 VDC	Measured at pins 3 & 8
	9	Evap. Fan Ground	Evap. GND	
	10	Evap. Fan Run Voltage	5-12 VDC	Measured at pins 9 & 10

POWER SWITCH

Follow the procedure below to test the power switch. (Refer to the previous chapter for the procedure for servicing the power switch.)

**WARNING****Electrical Shock Hazard**

Disconnect power before servicing.
Replace all parts & panels before operating.
Failure to do so can result in death or electrical shock.

1. Unplug the refrigerator or disconnect the power.
2. Disconnect the wires going to the power switch.
3. Set the ohmmeter to the R x 1 scale.
4. Press the switch rocker to the indicated position, then touch the ohmmeter test leads to the following switch terminals. The meter should indicate as shown:
 - a. **OFF** - 2 and 3 = open (infinite).
 - b. **OFF** - 5 and 6 = open (infinite).
 - c. **ON** - 2 and 3 = continuity (0 Ω).
 - d. **ON** - 5 and 6 = continuity (0 Ω).

DOOR SWITCH

Follow the procedure below to test the door switch. (Refer to the previous chapter for the procedure for servicing the door switch.)

**WARNING****Electrical Shock Hazard**

Disconnect power before servicing.
Replace all parts & panels before operating.
Failure to do so can result in death or electrical shock.

1. Unplug the refrigerator or disconnect the power.
2. Disconnect one of the wires going to the door switch.
3. Set the ohmmeter to the R x 1 scale.
4. Touch the ohmmeter test leads to the N.O. and COM door switch terminals. The meter should indicate an open circuit (infinite).
5. Press the door switch actuator button and the meter should indicate continuity (0 Ω).
6. Touch the ohmmeter test leads to the N.C. and COM door switch terminals. The meter should indicate continuity (0 Ω).



NOTE: The door switches are normally closed.

7. Press the door switch actuator button and the meter should indicate an open circuit (infinite).

AIR SUPPLY THERMISTOR

Follow the procedure below to test the air supply thermistor. (Refer to the previous chapter for the procedure for servicing the air supply thermistor.)



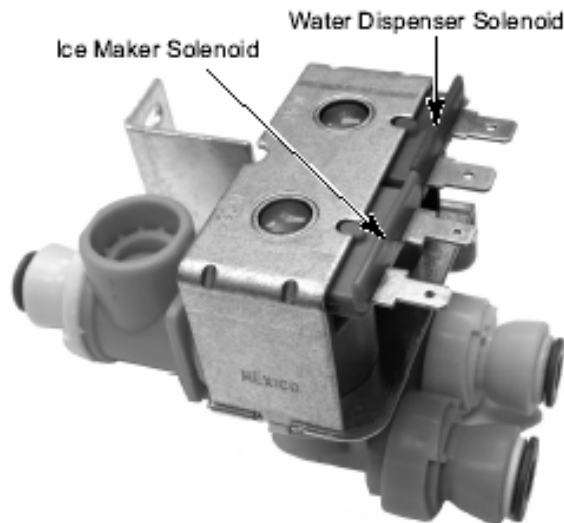
 WARNING	
	<p style="text-align: center;">Electrical Shock Hazard</p> <p>Disconnect power before servicing. Replace all parts & panels before operating. Failure to do so can result in death or electrical shock.</p>

1. Unplug the refrigerator or disconnect the power.
2. Disconnect the thermistor wire connector from the main harness.
3. Set the ohmmeter to the R x 1K scale.
4. Insert the ohmmeter test leads into the two connector pins of the thermistor connector.
5. Depending on the temperature, the meter should indicate within the approximate range, as shown in the chart below.

TEMPERATURE (°F)	RESISTANCE OHMS (APPROX.)	TEMPERATURE (°F)	RESISTANCE OHMS (APPROX.)
-5	41000-43600	45	4200-4500
0	31700-33600	50	3500-3700
5	24600-26200	55	2900-3100
10	19300-20500	60	2400-2550
15	15200-16200	65	2000-2150
20	12100-12900	70	1700-1800
25	9700-10300	75	1450-1525
30	7800-8300	80	1200-1300
32	7401	85	1050-1100
35	6300-6700	90	880-945
40	5200-5500		

WATER VALVE SOLENOID

Follow the procedure below to test the water valve solenoid. (Refer to the previous chapter for the procedure for servicing the water valve solenoid.)


**WARNING****Electrical Shock Hazard**

Disconnect power before servicing.
Replace all parts & panels before
operating.
Failure to do so can result in death or
electrical shock.

1. Unplug the refrigerator or disconnect the power.
2. Disconnect the wire connectors from the water valve solenoid terminals.
3. Set the ohmmeter to the R x 1K scale.
4. Touch the ohmmeter test leads to the terminals of the ice maker solenoid. The meter should indicate approximately 160 to 170 Ω .
5. Touch the ohmmeter test leads to the terminals of the water dispenser solenoid. The meter should indicate approximately 330 to 355 Ω .

CHECKING THE AUGER MOTOR

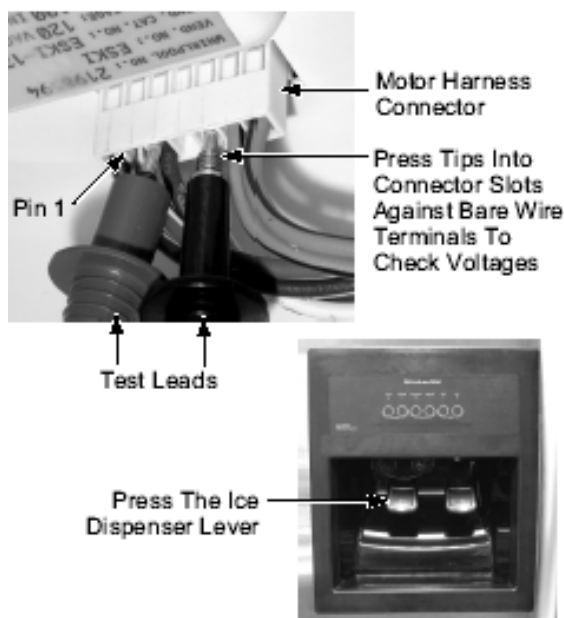
Follow the procedure below to test the auger motor. (Refer to the previous chapter for the procedure for servicing the auger motor.)

 WARNING	
	Electrical Shock Hazard Voltage is present during these tests.

To check voltages at the motor for crushed or cubed ice operation: (Voltage readings may vary depending on the supply voltage and the type of test equipment being used.)

1. Open the freezer door and remove the ice bucket from the door.
2. Tape or block the freezer door switch closed

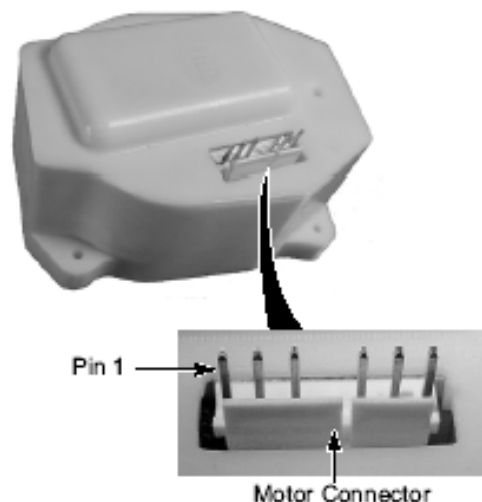
NOTE: When you are instructed to make a reading at the motor connector, press the tips of the red and black test leads into the indicated harness connector slots so they touch the bare metal wire connectors (see the photos below). Reach around the front of the door and press the ice dispenser lever to activate the dispenser switch.



3. Press the **Unlocked** button on the water and ice dispenser front panel.
4. Touch the AC meter's test leads to wire harness pins 3 and 5, then press the ice dispenser lever. The meter should indicate 115 VAC.

CHECKING THE AUGER MOTOR (Cont'd)

5. Touch the DC meter's black test lead to wire harness pin 6 and the red test lead to pin 7. Then, press the ice dispenser lever. The meter should indicate $+115 \text{ VDC} \pm 10\%$.
6. Press the **Crushed** ice button on the water and ice dispenser front panel.



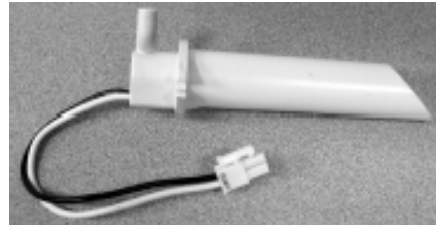
7. Touch the DC meter's black test lead to wire harness pin 1 and the red test lead to pin 2, then press the ice dispenser lever. The meter should indicate $+115 \text{ VDC} \pm 10\%$.
8. Press the **Cube** ice button on the water and ice dispenser front panel.
9. Touch the DC meter's red test lead to wire harness pin 1 and the black test lead to pin 2, then press the ice dispenser lever. The meter should indicate $+115 \text{ VDC} \pm 10\%$.
10. Remove the tape from the door switch.

+115 VDC	7	To Switch Pack (OR/BU)
-115 VDC	6	To Switch Pack (PK/BK)
Neutral	5	(WH)
	4	No Connection
L1 (115 VAC)	3	(BU)
Motor (115 VDC)	2	From Switch Pack (RD/WH)
Motor (115 VDC)	1	From Switch Pack (BR/WH)

Wire Harness Pinouts

**ICE MAKER INLET HEATED
FILL TUBE**

Follow the procedure below to test the ice maker inlet heated fill tube. (Refer to the previous chapter for the procedure for servicing the ice maker inlet heated fill tube.)

**! WARNING****Electrical Shock Hazard**

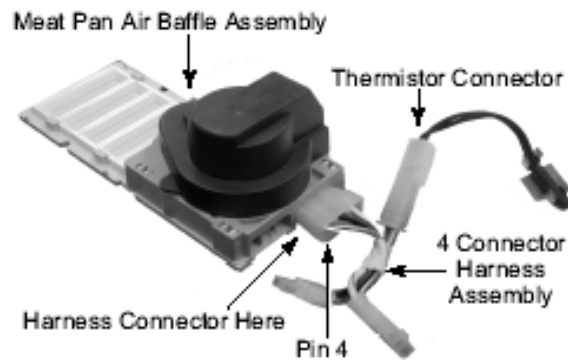
Disconnect power before servicing.
Replace all parts & panels before
operating.
Failure to do so can result in death or
electrical shock.

NOTE: The heated fill tube will be energized for 90 minutes after each ice maker harvest and fill.

1. Unplug the refrigerator or disconnect the power.
2. Disconnect the ice maker inlet heated fill tube wire connector from the main harness.
3. Set the ohmmeter to the R x 1K scale.
4. Insert the ohmmeter test leads into the two connector pins of the ice maker inlet heated fill tube connector. The meter should indicate approximately 7200 Ω .

**MEAT PAN AIR BAFFLE
MOTOR AND THERMISTOR**

Follow the procedure below to test the meat pan air baffle motor and thermistor. (Refer to the previous chapter for the procedures for servicing the meat pan air baffle motor and thermistor.)

**WARNING****Electrical Shock Hazard**

Disconnect power before servicing.
Replace all parts & panels before
operating.
Failure to do so can result in death or
electrical shock.

1. Unplug the refrigerator or disconnect the power.
2. Disconnect the meat pan air baffle motor and thermistor wire connectors from the main harness.
3. Set the ohmmeter to the R x 1K scale.
4. Touch the ohmmeter test leads to connector pins 5 and 6 of the meat pan air baffle motor. The meter should indicate approximately $8450 \Omega \pm 6\%$.

**MEAT PAN AIR BAFFLE
MOTOR AND THERMISTOR
(Cont'd)**

5. Touch the ohmmeter test leads to the two connector pins of the meat pan air baffle thermistor. The meter should indicate within the approximate range, as shown in the chart below.

TEMPERATURE (°F)	RESISTANCE OHMS (APPROX.)	TEMPERATURE (°F)	RESISTANCE OHMS (APPROX.)
-5	25900-27500	45	5930-6300
0	22100-23500	50	5190-5510
5	18900-20000	55	4550-4830
10	16200-17200	60	4000-4240
15	13900-14800	65	3520-3730
20	12000-12800	70	3100-3300
25	10400-11000	75	2740-2910
30	8990-9550	80	2430-2580
32	8750	85	2160-2290
35	7800-8290	90	1920-2030
40	6800-7220		

This chapter explains how to enter the diagnostics mode and provides charts for troubleshooting problems which may occur in the refrigerator.



In this chapter:

Pre-Diagnostics Checks 6-2

Diagnostics Mode 6-2

Water Filter Input (WFI) Test 6-3

*Electronic Temperature-Controlled Meat Pan
Diagnostics* 6-4

Troubleshooting Chart 6-5

PRE-DIAGNOSTICS CHECKS

Before entering the Diagnostics Mode, perform the following pre-diagnostics checks.

- Confirm the refrigerator and freezer temperatures before beginning other checks.
- See if the compressor, evaporator and condenser fans are running.
- Check the position of the air door.

**DIAGNOSTICS MODE**

The Diagnostics Mode is used to:

- Check the refrigerator & freezer thermistors.
- Operate the evaporator fan motor.
- Operate the condenser fan motor and compressor.
- Check the defrost bimetal and heater.

To enter the Diagnostics Mode, the control must be turned on and be in a normal cooling mode.

Both the Power On/Off and the "Water Filter Reset" keys must be functional. The refrigerator display shows the step number. The results of the checks are displayed on the water filter status indicator. After 20 minutes, the control will default from the Diagnostics Mode to a normal cooling mode.

To enter the Diagnostics Mode:

- Press and hold the "Water Filter Reset" keypad and then immediately press and hold the "Power" keypad. Continue to press both keypads for 3 seconds, or until you hear a beep.

To advance the diagnostics sequence:

- To advance to the next step in the sequence, press and hold the "Water Filter Reset" key for 2 seconds or until you hear a beep. The Diagnostics Chart on the next page shows the step number and the component being tested in each step.

SERVICE TIP:

If the control does not respond, it may be necessary to remove power from the entire appliance for a few seconds. Reapply power and perform the service diagnostics routine again to verify that the control is working properly.

Table 6-1. Service Diagnostics Mode Chart

STEP NO.	COMPONENT TESTED	SUGGESTED DIAGNOSTICS ROUTINE	WATER FILTER COMPONENT STATUS INDICATOR
1	Freezer Thermistor	Step 1 and Step 2 are internal board tests, which means the main controller board will check the resistance value of each thermistor and display the results on the water filter status indicator.	01 Pass
2	Refrigerator Thermistor		02 Thermistor Open 03 Thermistor Short
3	Evaporator Fan Motor	Step 3 is an internal board test, which means that the main control board will automatically verify if the evaporator fan motor is working properly. In step 3, the evaporator fan motor will automatically have its speed set to run at 2500 rpm. If the motor does not reach this pre-selected speed, the WFI display will indicate "02".	01 Fan Motor On 02 Fan Motor On/Improper Speed
4	Condenser Fan Motor	Step 4 is a visual inspection test. When step 4 is selected, if the motor is not functioning, verify that 120 VAC is between line and neutral at the condenser fan motor connection (white/red and white wires).	01 Condenser Fan Motor Energized
5	Compressor	Step 5 should turn on the compressor within a 7 second window and will run at full speed. NOTE: If the compressor does not turn on during this step, wait 7 minutes and recheck the compressor.	01 Compressor On 02 Compressor Off
6	Air Baffle Motor	Step 6 is a visual inspection test. When step 6 is selected, if the damper motor is operating correctly, the damper will attempt to open fully.	01 Air Door Open
7	Defrost Heater & Bimetal	Step 7 is a visual inspection test. When step 7 is selected, the heater will energize if the bimetal is closed and the WFI display will indicate "01". If the heater does not energize, the bimetal may be open and will need to be bypassed for the heater to operate. WARNING: If the bimetal is bypassed for testing (if applicable), do not overheat the evaporator area.	01 Defrost Heater Energized/ Bimetal Closed 02 Defrost Heater Energized/ Bimetal Open

WATER FILTER INPUT (WFI) TEST

To confirm that the water valves are being monitored by the WFI control, follow the procedures listed:

Testing The Dispenser Valve Input

1. Open the refrigerator door.
2. Depress the refrigerator light switch.
3. Place a container under the water spout.
4. Activate the water dispenser.
5. Read the WFI display. "00" indicates a normal input.

**WATER FILTER INPUT (WFI)
TEST (Cont'd)**
Testing The Ice maker Valve Input

1. Open the refrigerator door.
2. Depress the refrigerator light switch.
3. Activate the ice maker and wait for a water fill.
4. Read the WFI display during the fill. "99" indicates a normal input.

**ELECTRONIC
TEMPERATURE-
CONTROLLED MEAT PAN
DIAGNOSTICS**

Before entering the Service Diagnostics, lift the shelf so that you can view the air baffle.

To enter into Service Diagnostics Mode, press and hold the "Fresh Produce" and "Meats" buttons for at least 4 seconds and then release the buttons. The buzzer will beep 3 times and the control will enter Step 1 of the Service Diagnostics Mode.

Press the "Various Cheeses" button to advance to each of the remaining steps.

To exit the Service Diagnostics Mode while in step 4, press and release the "Various Cheeses" button. The buzzer will beep, and the control will enter the "Various Cheeses Mode".

If all of the tests pass, the control will return to Various Cheeses Mode. If any of the tests fail, the succeeding tests do not need to be performed and the LED corresponding to the failed step will blink.

A fast blink LED will repeatedly turn on and off for 0.6 seconds.

A slow blink LED will repeatedly turn on and off for 0.2 seconds.

NOTE: If the time elapsed exceeds 20 minutes while in the Diagnostics Mode, the mode will be exited and the Various Cheeses Mode will be entered.

STEP #	COMPONENT DESCRIPTION	LED	TEST RESULTS	LED DISPLAY
1	Pan Thermistor	Various Cheeses	Pass	LED on solid
			Fail - Open	Slow blink
			Fail - Shorted	Fast blink
2	Evap. Thermistor	Fresh Produce	Pass	LED on solid
			Fail - Open	Slow blink
			Fail - Shorted	Fast blink
3	Open Air Baffle	Fresh Herbs	Pass	LED on solid
			Fail - Baffle did not cycle	LED blinking
4	Close Air Baffle	Meats	Pass	LED on solid
			Fail - Baffle did not cycle	LED blinking

Table 6-2. Troubleshooting Chart

PROBLEM	POSSIBLE CAUSE	TEST PROCEDURE
Refrigerator Compartment (RC) Too Warm	RC control set too warm.	See "Control Setting" section.
	RC thermistor.	See "RC Thermistor" section.
	Refrigerator light not shutting off.	See "Door Switch" section.
	Air door stuck closed or inoperable.	See "Air Door" section.
	Blocked air flow.	Check for any restriction to the air flow in the RC and FC.
	Warm FC temperature.	Cold air for the RC is drawn from the FC. Check for proper FC temperatures (see "FC Compartment Too Warm").
	Reversed air door wiring.	See "Air Door" section.
	Evaporator fan not running or not running up to speed.	See "Evaporator Fan" section.
	Frost blocking evaporator air flow.	See "Evaporator Fan" section.
	Main control board.	See "Main Control Board" section.
	Compressor not operational.	See "Compressor" section.
	Condenser fan not operational.	See "Condenser Fan" section.
Refrigerator Compartment (RC) Too Cold	RC control set too cold.	See "Control Setting" section.
	RC thermistor.	See "RC Thermistor" section.
	Air door stuck open.	See "Air Door" section.
	Air door seal missing, damaged or reversed.	A missing seal will let cold evaporator air bypass the air door.
	Reversed thermistor wiring.	See "RC Thermistor" section.
	Main control board.	See "Main Control Board" section.
Freezer Compartment (FC) Too Warm	FC control set too warm.	See "Control Setting" section.
	FC thermistor.	See "FC Thermistor" section.
	Freezer light not shutting off.	See "Door Switch" section.
	Evaporator fan not running.	See "Evaporator Fan" section.
	Condenser fan not running.	See "Condenser Fan" section.
	Frost blocking evaporator air flow.	See "Evaporator Fan" section.
	Thermistor wires reversed.	See "FC Thermistor" section.
	Main control board.	See "Main Control Board" section.
	Compressor not operational.	See "Compressor" section.

Table 6-2. Troubleshooting Chart (Cont'd)

PROBLEM	POSSIBLE CAUSE	TEST PROCEDURE
Freezer Compartment (FC) Too Cold	FC control set too cold.	See "Control Setting" section.
	Temperatures are -5°F in the FC and 34°F in the RC.	Refrigerator operating in the "Max Cool" mode. Press the "Max Cool" button to return to normal operation.
	FC thermistor.	See "FC Thermistor" section.
	Main control board.	See "Main Control Board" section.
"Call Service" Icon Lights and Alarm is Sounding	RC is over 48°F or the FC is over 15°F for more than 3 hours.	See "Over Temperature" section.
	Failed thermistors.	See "RC & FC Thermistor" sections.
No Display, No Interior Lights, Can Not Change Settings	Holiday Mode.	Press the "Holiday Mode" button to return to normal mode.
	The FC or RC doors have been open for more than 10 minutes.	See "Door Open" section.
	Door light switch problem.	See "Door Switch" section.
No Display, Can Not Change Settings	If the display & the evaporator fan do not operate, the evaporator fan jumper wiring is incorrect.	See "Evaporator Fan" section.
	Touch/display board has lost power connection.	See "Touch/Display Board" section.
	Main control board is not supplying power to the user interface.	See "Main Control Board" section.
Product is Noisy	The noise is coming from the freezer section. The evaporator fan motor is binding, hitting, misaligned or vibrating.	See "Evaporator Fan" section.
	The noise is coming from the unit compartment section. Condenser fan blade is hitting.	See "Condenser Fan" section.
	The noise is coming from the unit compartment section. Compressor is noisy.	See "Compressor" section.
Overtemp Alarm	Temperatures are 48°F in the RC or 15°F in the FC for more than 1-1½ hours.	See "Over Temperature" section.
	The compressor is not operating.	See "Compressor" section.

Table 6-2. Troubleshooting Chart (Cont'd)

PROBLEM	POSSIBLE CAUSE	TEST PROCEDURE
Product Does Not Run	Control powered off?	Press the "Power on/off" button for 2 seconds. If there is no response, unplug the refrigerator for 30 seconds. Plug in refrigerator and check for normal operation. Failed control board. Run diagnostic test.
	No power to the control board.	Verify power to the control board by using the diagram.
Indicator Light & Alarm Continue to Activate After Service Has Been Performed	The indicator lights have not been reset.	See "Alarm Reset" section.
Air Door	Stuck closed.	Run control diagnostics to check the air door operation in step 6. A 12 volt square wave is supplied to the air door in a series of short pulses. It is not possible to obtain a reliable voltage reading with a VOM. Check for the air door binding with the cover. Check the resistance of the air door motor on the air door connector. The yellow wire to the red wire should have a resistance reading of 375 - 425 Ω . The white wire to the blue wire should have a resistance reading of RD 375 - 425 Ω .
	Inoperative.	
	Reversed wiring.	Reversed wiring at the air door or at the control board will cause the air door to operate exactly contrary to the needs of the refrigerator. Verify the air door and cabinet wiring is correct. DO NOT DISCONNECT THE AIR DOOR WHILE THE CYCLE IS IN PROGRESS.
	Stuck open.	Look for any kind of mechanical blockage.
Alarm Reset	The indicator lights and alarm continue to activate after service has been performed.	Pressing the OVER TEMPERATURE RESET will shut off the audio alarm, but this does not affect the indicator light the first time the OVER TEMPERATURE RESET is pressed. The indicator light will shut off once the OVER TEMPERATURE RESET is pressed the second time. The audio alarm will not sound again for the current condition that caused the alarm until a new condition occurs or until a Master Alarm Reset is performed. A Master Alarm Reset can be performed by pressing the POWER (ON/OFF) twice or by turning the power to the refrigerator off and on again. The indicator light will reactivate after the OVER TEMPERATURE RESET is pressed if the condition that caused the alarm is still present.

Table 6-2. Troubleshooting Chart (Cont'd)

PROBLEM	POSSIBLE CAUSE	TEST PROCEDURE
Call Service Alarm	Both thermistors have failed.	Call service is a visual and audio signal that alerts the customer that the refrigerator needs service but only for specific failure modes, none of which are necessarily related to performance. Run control diagnostics to check the operation of components. If a particular component is not operating properly, see that individual component's section.
	An over-temp condition occurs for 3 hours or more.	
	Call service indicator only, no audible alarm.	The alarm needs to be reset. Press the OVER TEMPERATURE RESET button to deactivate the call service indicator (see "Alarm Reset" section).
Compressor	Inoperative.	Check to make sure that it is not on the 7 minute delay. Ohm the compressor. The compressor should be 6 to 7 Ω . If no resistance is present, replace compressor.
	Noisy.	If a mechanical clanking noise is evident, replace the compressor.
Condenser Fan	Not operational/not running.	Run control diagnostics to check condenser fan operation in step 4. Voltage should be present at pin 1 of connector 6 of the main control board during operation (see the "SXS Dispenser Wiring Diagram" in Appendix A).
	Blocked.	
	Noisy.	Check for blade hits. Check the mounting system.
Control Setting	RC control set too warm.	Change to a colder temperature setting. A mid point setting will deliver approximately 37°F in the RC, and 0°F in the FC in most usage and ambient conditions.
	FC control set too warm.	
	RC control set too cold.	Change to a warmer temperature setting. A mid point setting will deliver approximately 37°F in the RC, and 0°F in the FC in most usage and ambient conditions.
	FC control set too cold.	
Door Open Alarm	No display, no interior lights.	If either door is open for more than ten minutes, the control will turn off the light circuit. This includes the control user interface in the RC. The user interface is powered down when the RC door is closed and is inactive. The Door Open indicator light will flash and an audio alarm will sound. The probable cause is a failure of the light switch actuator to cause the switch to change position.

Table 6-2. Troubleshooting Chart (Cont'd)

PROBLEM	POSSIBLE CAUSE	TEST PROCEDURE
Door Switch	No display, no interior lights.	The actuating mechanism of the light switch is attached directly to the top door hinge pin. If the door is set low, the actuator blade may not contact the rocker style light switch. The quickest repair is to raise the affected door until the mechanism operates properly. Align the second door to match the first. Make sure the metal is clean.
	RC control set too warm.	
	FC control set too warm.	
Evaporator Fan	Not running.	Run control diagnostics to check the evaporator fan operation in step 3. The evaporator fan receives voltage from the main control board. Voltage should be present at pins 1, 2, 6 & 7 of connector 7 of the main control board during operation (see the "SXS Dispenser Wiring Diagram" in Appendix A). A failed evaporator fan motor or any condition that can mimic a failed motor will cause the control to run the compressor 100%. If voltage is still present and the evaporator fan is still not operating, check the evaporator fan jumper harness wiring (see "Evaporator Fan-Improper Wiring" section below). If corrosion is present on the terminals, replace the evaporator fan jumper harness.
	Not running up to speed.	
	Open evaporator fan feedback circuit.	
	Frost blocking evaporator air flow.	Run control diagnostics to check the defrost system operation in step 7. The test mode can be used for a manual defrost cycle to clear the coil. A frost load is the result of one or more doors being left open and can take several days to clear.
	Improper wiring.	Verify that the wires connecting from the square connector of the evaporator fan jumper harness to the bimetal harness are properly connected. WH/V to WH, YL/BU to BU, YL/BK to YL, and YL/RD to RD. If wiring is incorrect, order evaporator fan kit.
	Noisy.	<p><i>Binding</i> - Check for the evaporator fan to be misaligned and for the wire harness to be pulling on the evaporator fan.</p> <p><i>Hitting</i> - Check to see if the fan blade is hitting the scroll and realign.</p>

Table 6-2. Troubleshooting Chart (Cont'd)

PROBLEM	POSSIBLE CAUSE	TEST PROCEDURE
Freezer Thermistor	Inoperative.	Check the wires and connectors. The thermistor may be out of range. Run control diagnostics to check the FC thermistor operation in step 1. Check resistance given in the "SXS Dispenser Wiring Diagram" in Appendix A. If the thermistor circuit is open, the control will initiate default run time to hold temperatures until service can be performed.
	Reversed wiring.	Although extremely remote, the thermistor wires can be reversed in the connector at the main control boards. A quick way to confirm this is to remove the FC thermistor, initiate control diagnostics and look for a "2" in step 1, which is an indication of an open circuit for the FC thermistor.
Main Control Board	FC or RC compartment too warm.	Check for loose terminals or connectors at the main control board. Voltage should be present at the respective pin of the respective connector of the main control board during operation (see the "SXS Dispenser Wiring Diagram" in Appendix A for component and pin locations). If the proper voltage to the component in question is not present from the respective pin location on the main control board during operation, replace the main control board.
	FC or RC compartment too cold.	
	No display, no interior lights, can not change settings.	
	Product does not run.	Voltage should be present at pins 2 & 3 and 4 & 5 of connector 5 of the main control board during operation (see the "SXS Dispenser Wiring Diagram" in Appendix A). This connection supplies the main control board with power. If the proper voltage to the main control board is not present, check the cabinet wiring and power cord. If the proper voltage to the main control board is present and the product still does not run, replace the main control board.
	Evaporator fan motor does not run.	Jump the red to yellow wire in the evaporator fan motor harness to check the 12 VDC fan operation. If the fan runs after jumping the wire, replace the main control board.

Table 6-2. Troubleshooting Chart (Cont'd)

PROBLEM	POSSIBLE CAUSE	TEST PROCEDURE
Touch/Display Board	No display, no interior lights, can not change settings.	Verify that the touch/display board connection and wiring to the cabinet is correct.
Overtemp Alarm	Temperatures are 48°F in the RC, or 15°F in the FC for more than 1-1½ hours.	The overtemp alarm is a visual and audio signal that alerts the customer to unacceptably warm temperatures in either compartment for more than 1-1½ hours. The trigger points are 48°F in the RC, or 15°F in the FC. The corresponding temperature display will flash to indicate the problem compartment. The audio alarm stops if the temperatures return to normal but the visual alarm will continue to flash until reset.
Refrigerator (RC) Thermistor	Inoperative.	Check the wires and connectors. The thermistor may be out of range. Run control diagnostics to check the RC thermistor operation in step 2. Check resistance given in the diagram in Appendix A. If the thermistor circuit is open, the control will initiate the default run time to hold temperatures until service can be performed.
	Reversed wiring.	Although extremely remote, the thermistor wires can be reversed in the connector at the main control boards. A quick way to confirm this is to remove the RC thermistor, initiate control diagnostics and look for a "2" in step 2, which is an indication of an open circuit for the RC thermistor.

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APPENDIX A

**WIRING DIAGRAMS & STRIP
CIRCUITS**

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WIRING DIAGRAMS

The following pages contain the wiring diagrams for the Built-In Side-By-Side and Bottom Mount Refrigerators.

Figure A-1. Bottom Mount Wiring Diagram

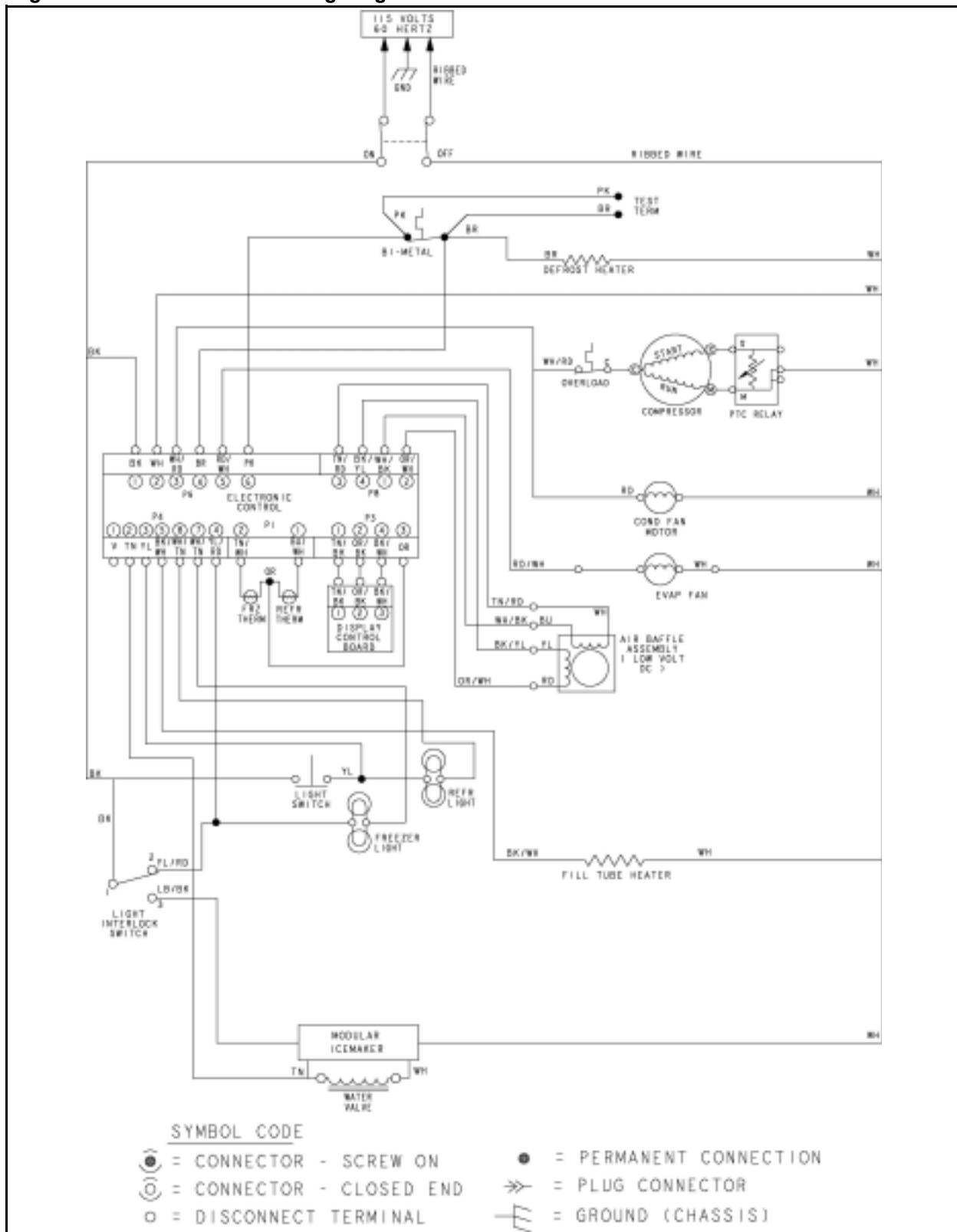


Figure A-2. Bottom Mount Schematic

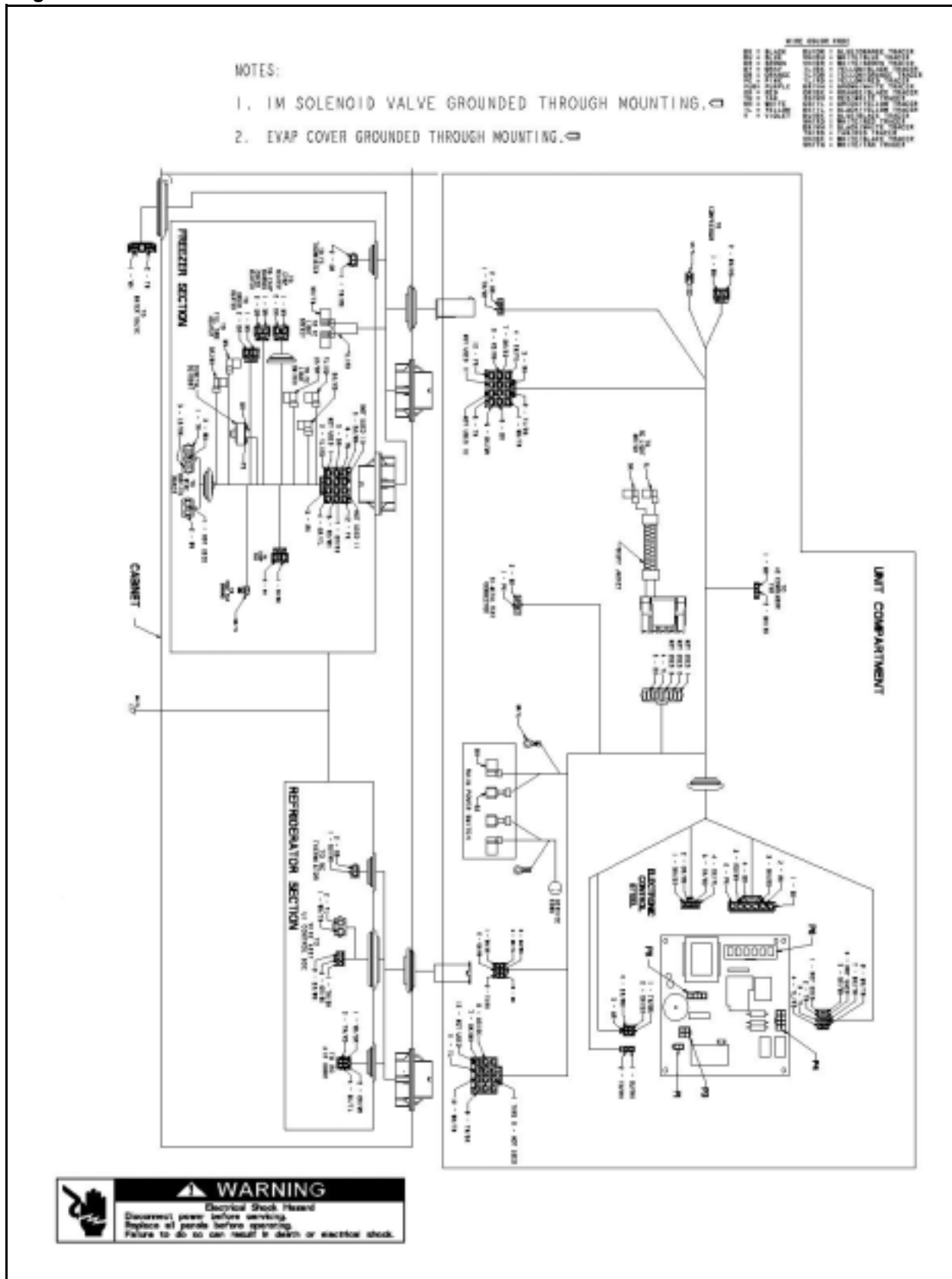


Figure A-3. Side-By-Side Non-Dispenser Wiring Diagram

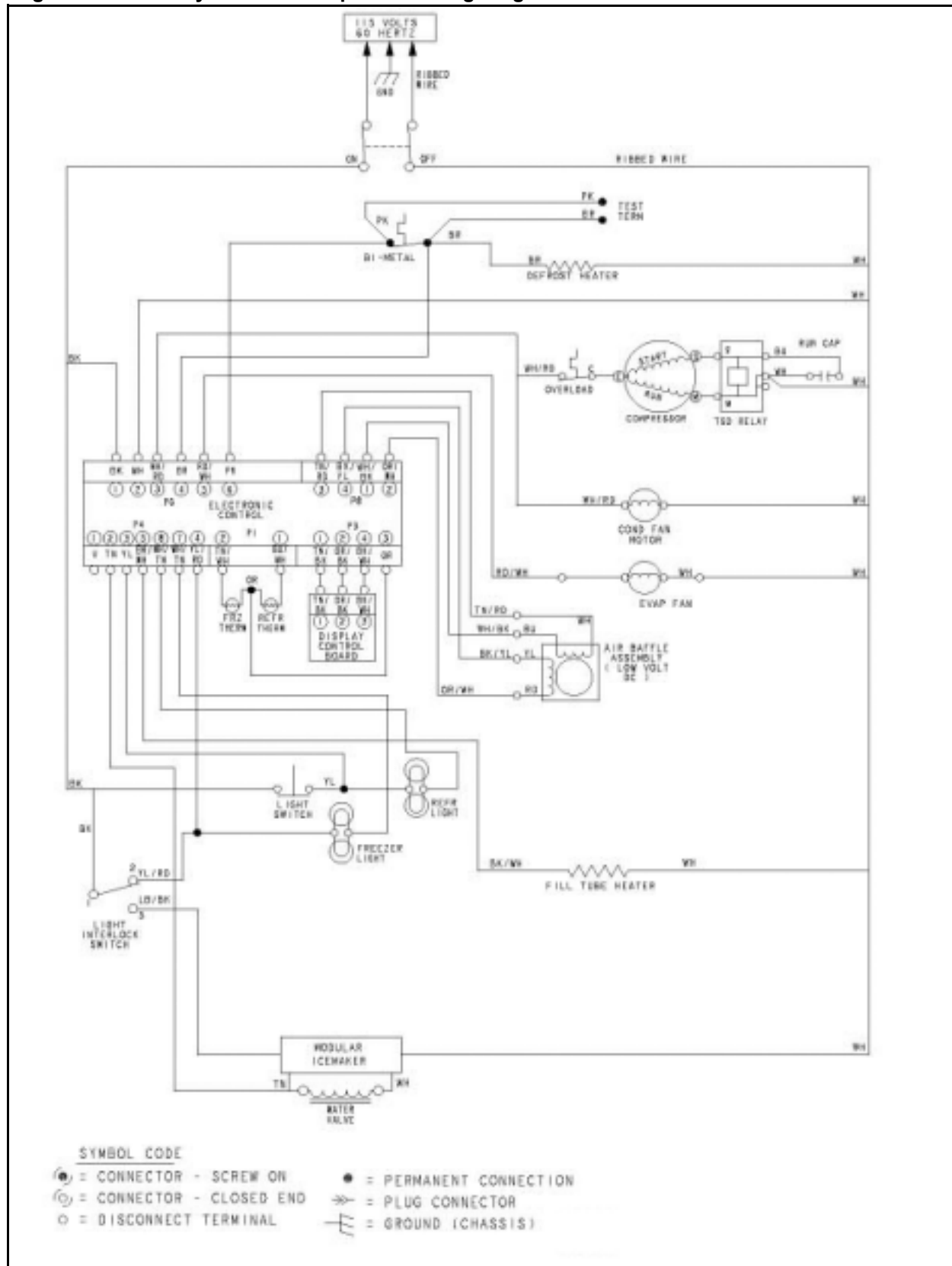


Figure A-4. Side-By-Side Non-Dispenser Schematic

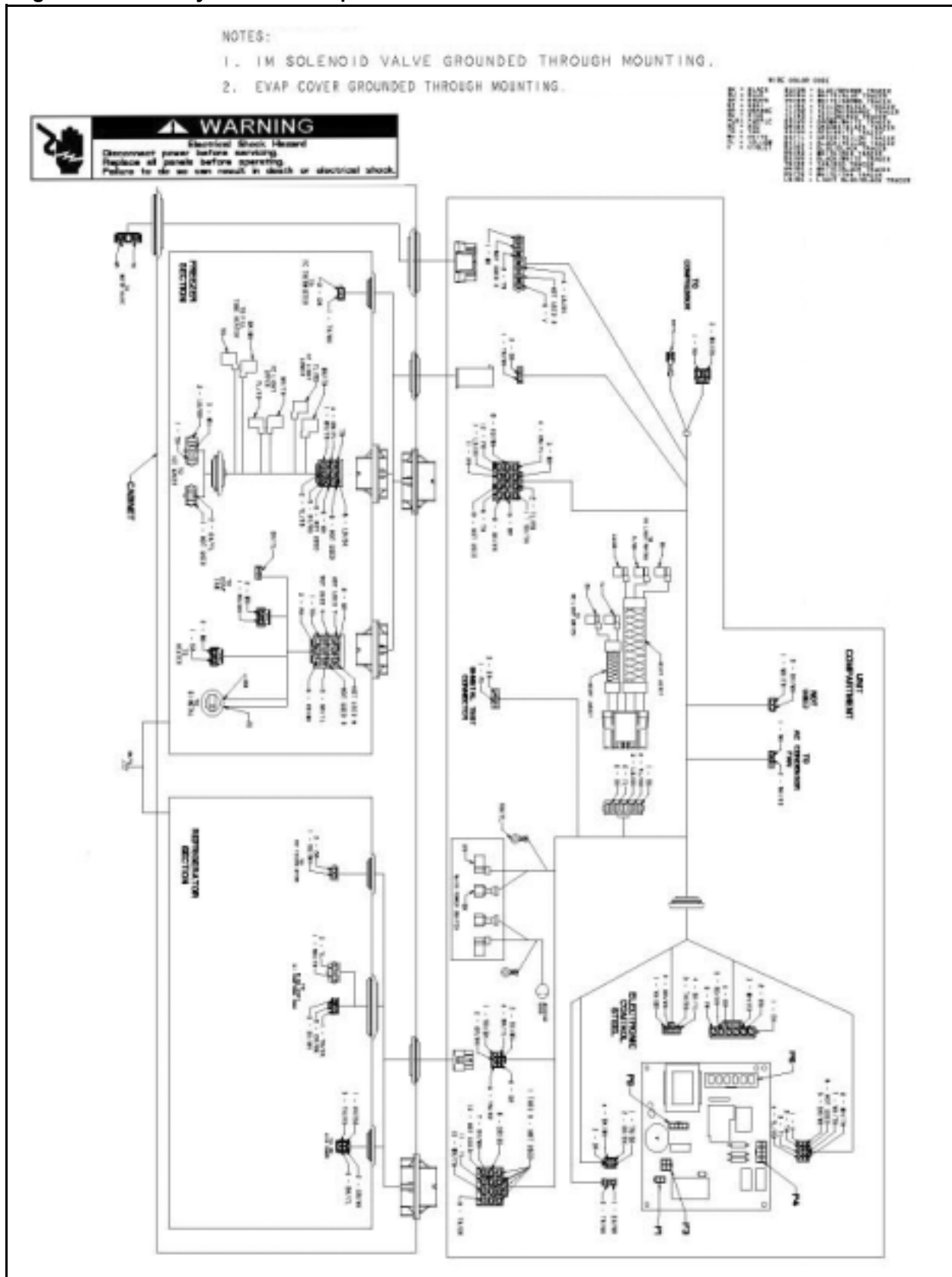


Figure A-5. Side-By-Side Dispenser Wiring Diagram

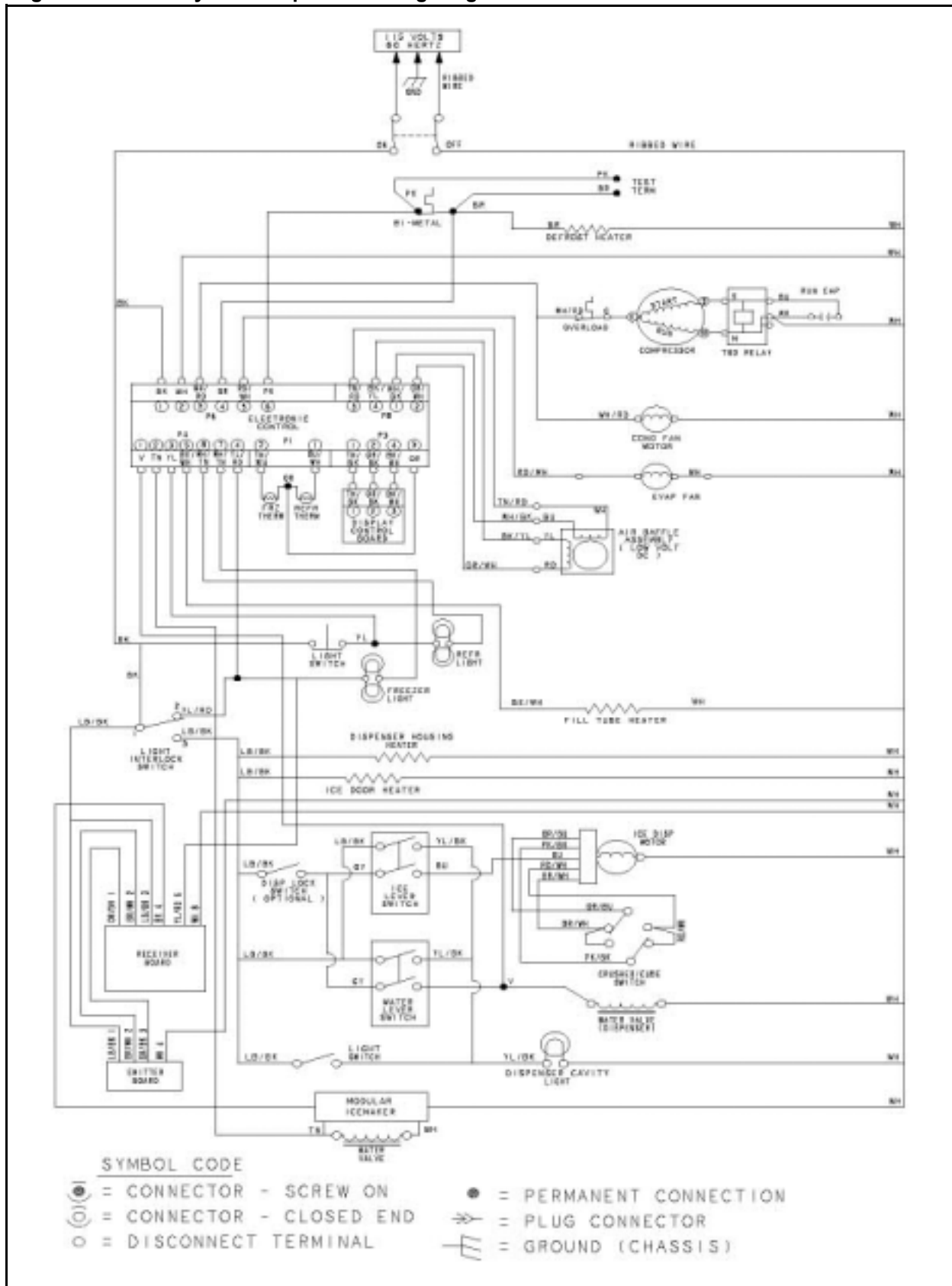


Figure A-6. Side-By-Side Dispenser Schematic

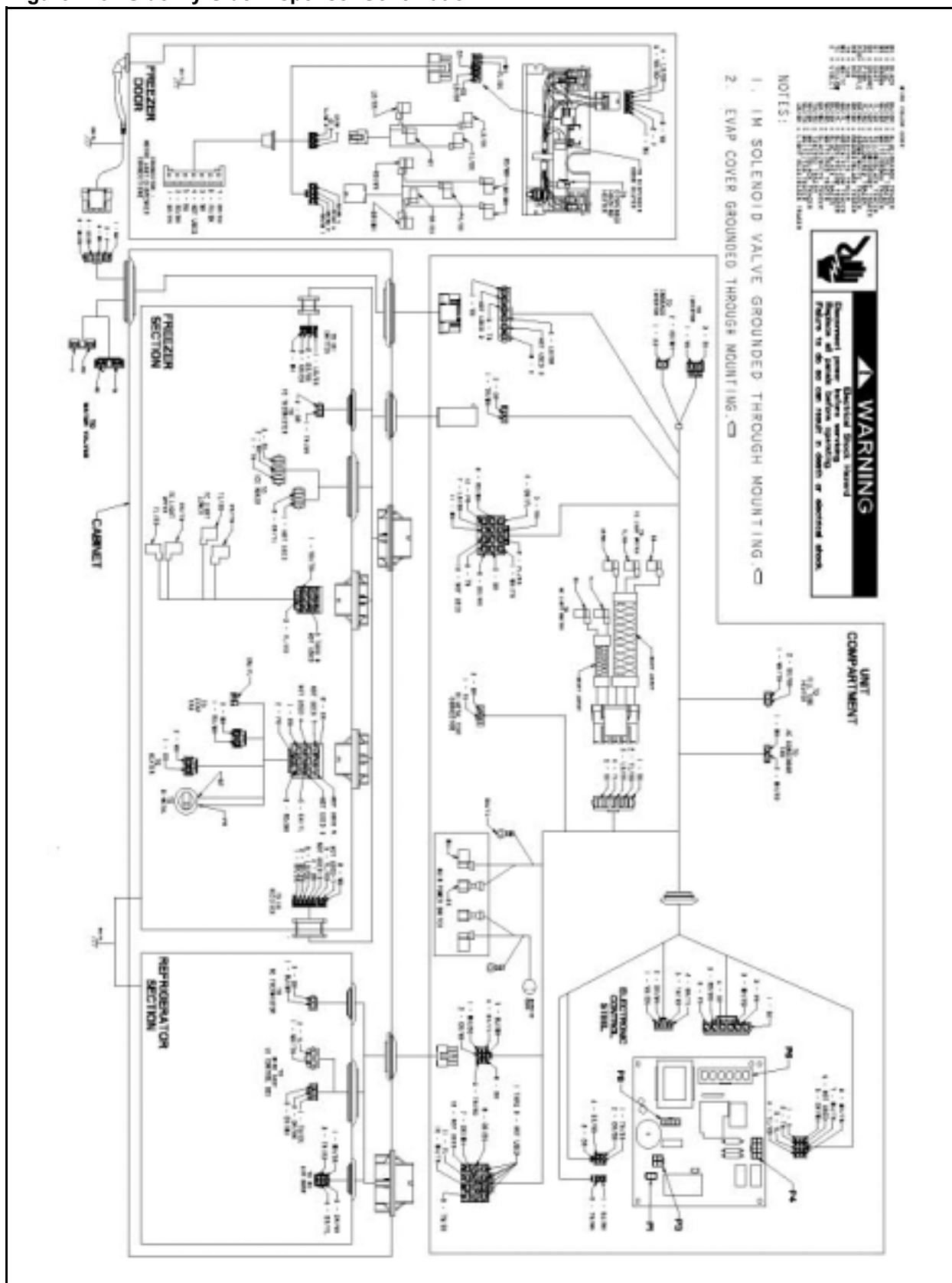


Figure A-7. Electronic Temperature-Controlled Meat Pan Diagram

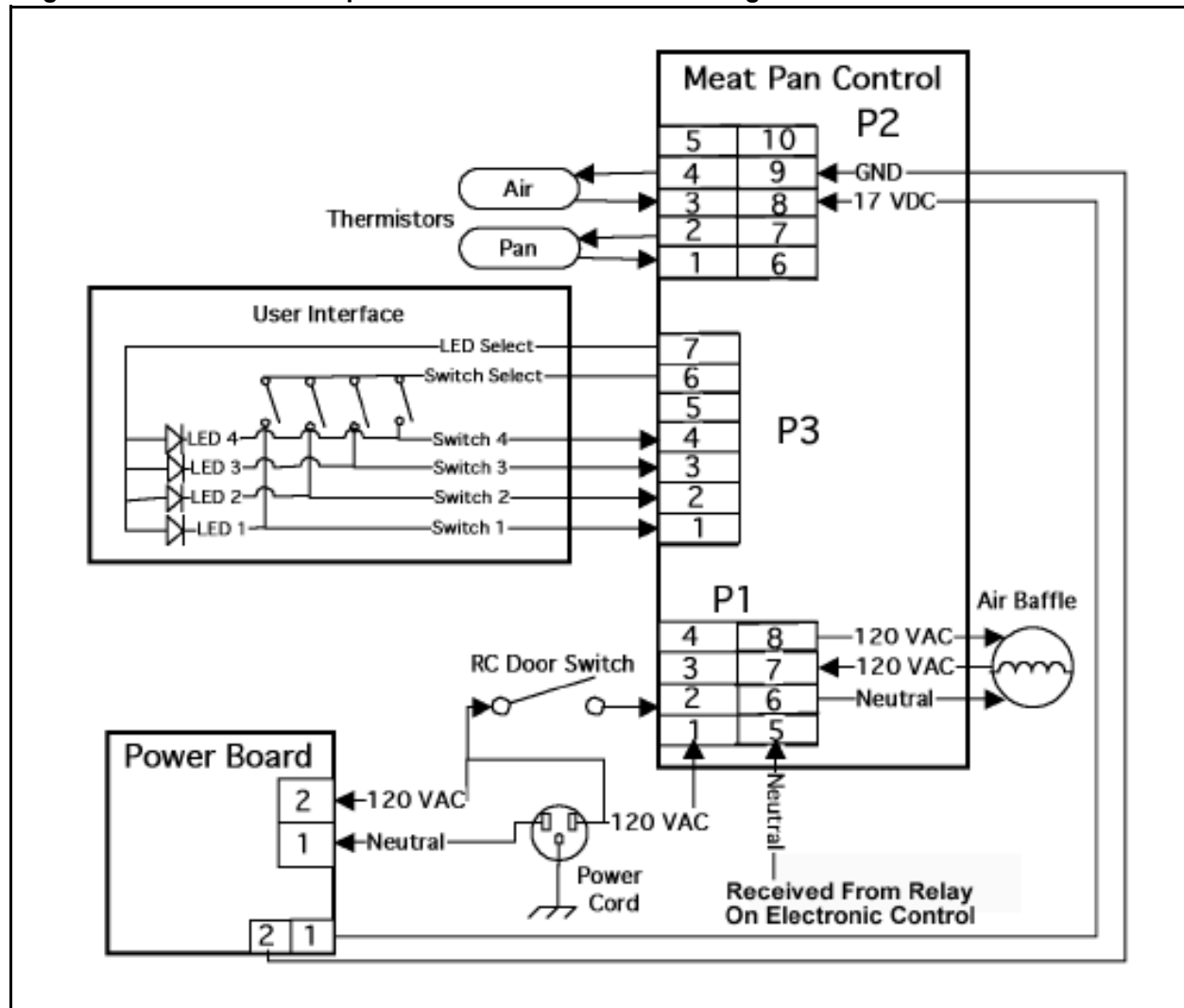


Figure A-8. Side-By-Side Tubing Joint Diagram

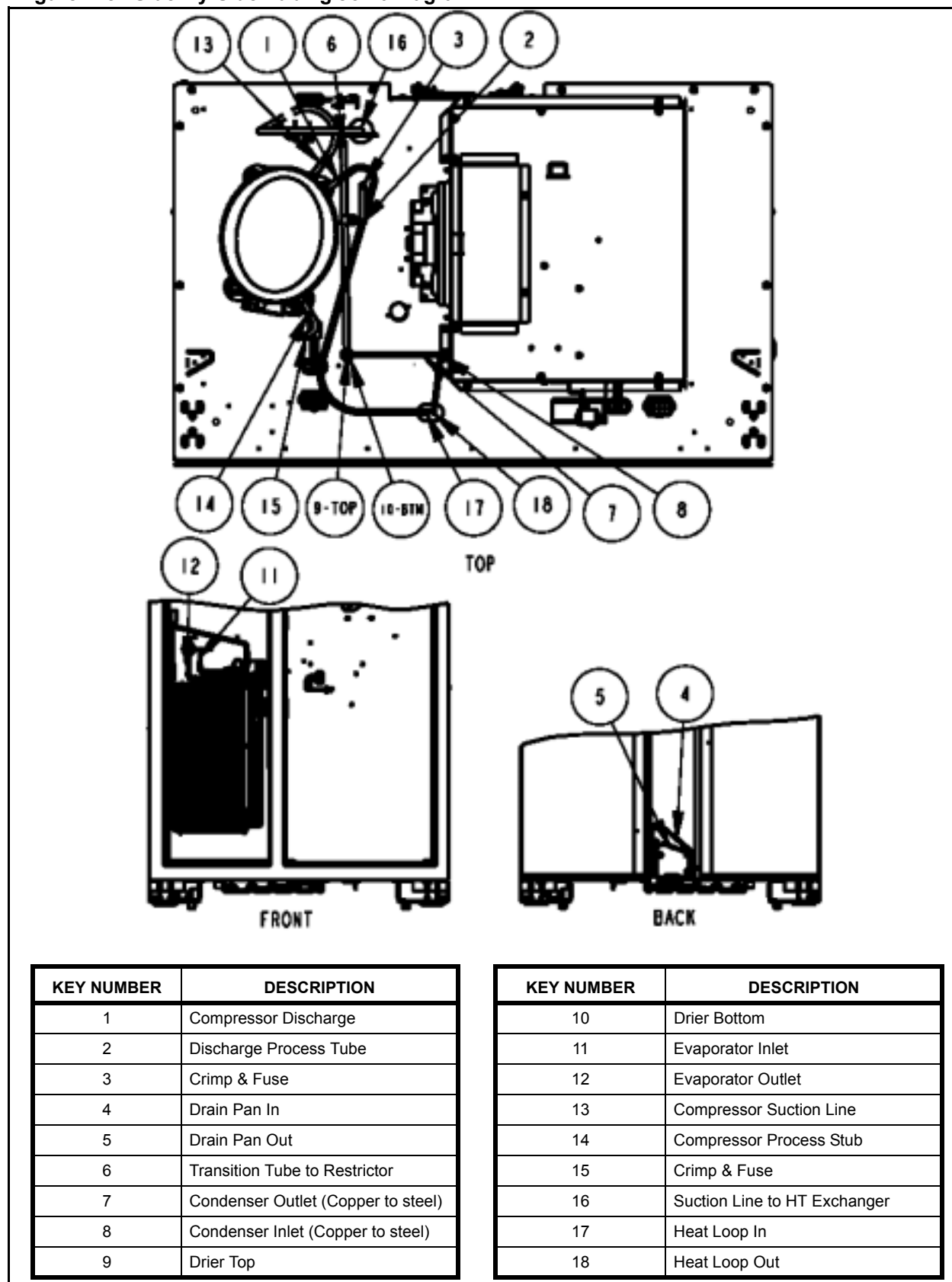
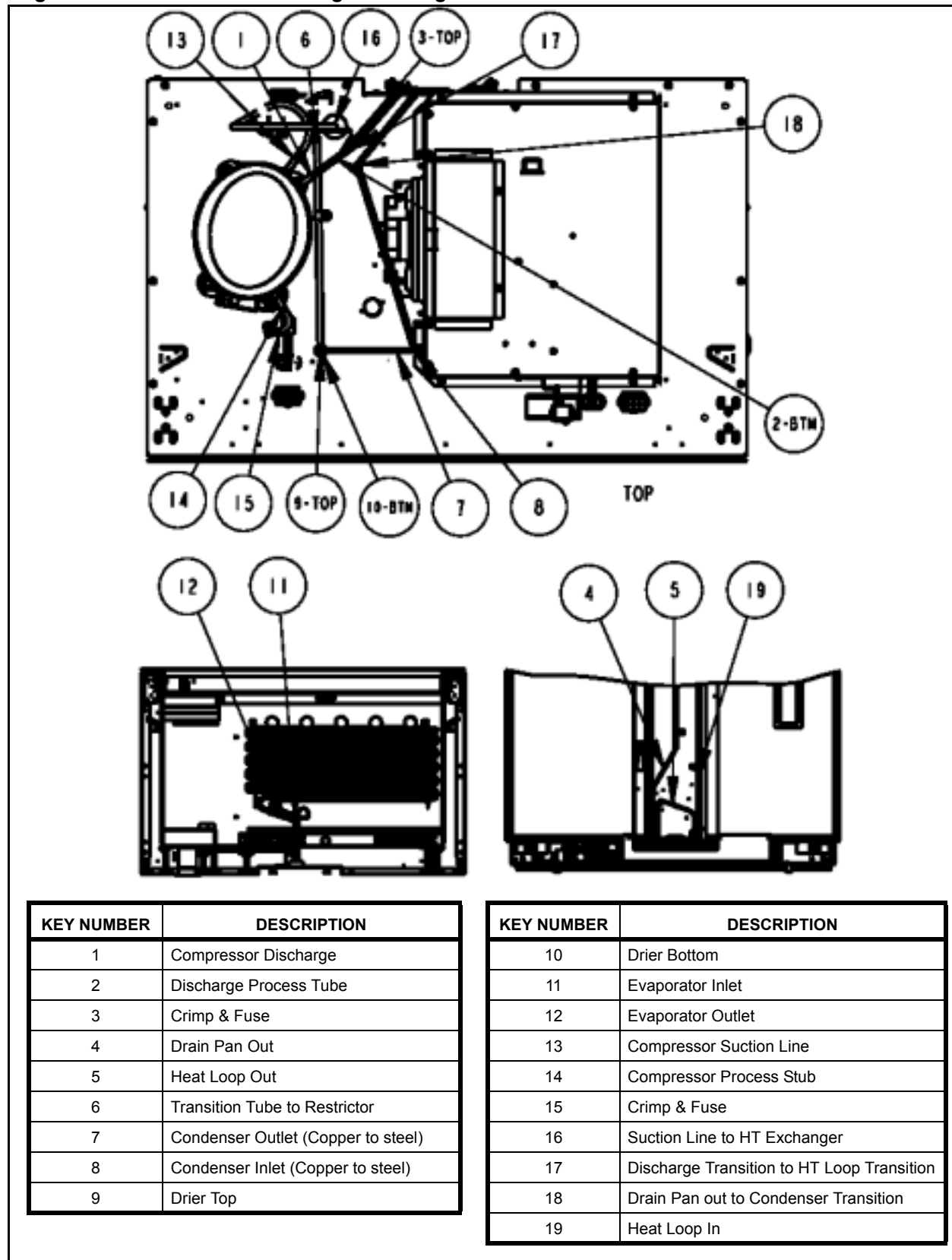


Figure A-9. Bottom Mount Tubing Joint Diagram



STRIP CIRCUITS

The following pages contain the strip circuits for the Built-In Side-By-Side Refrigerators with the ice and water dispensers on the door.

Figure A-10. Cooling Circuits

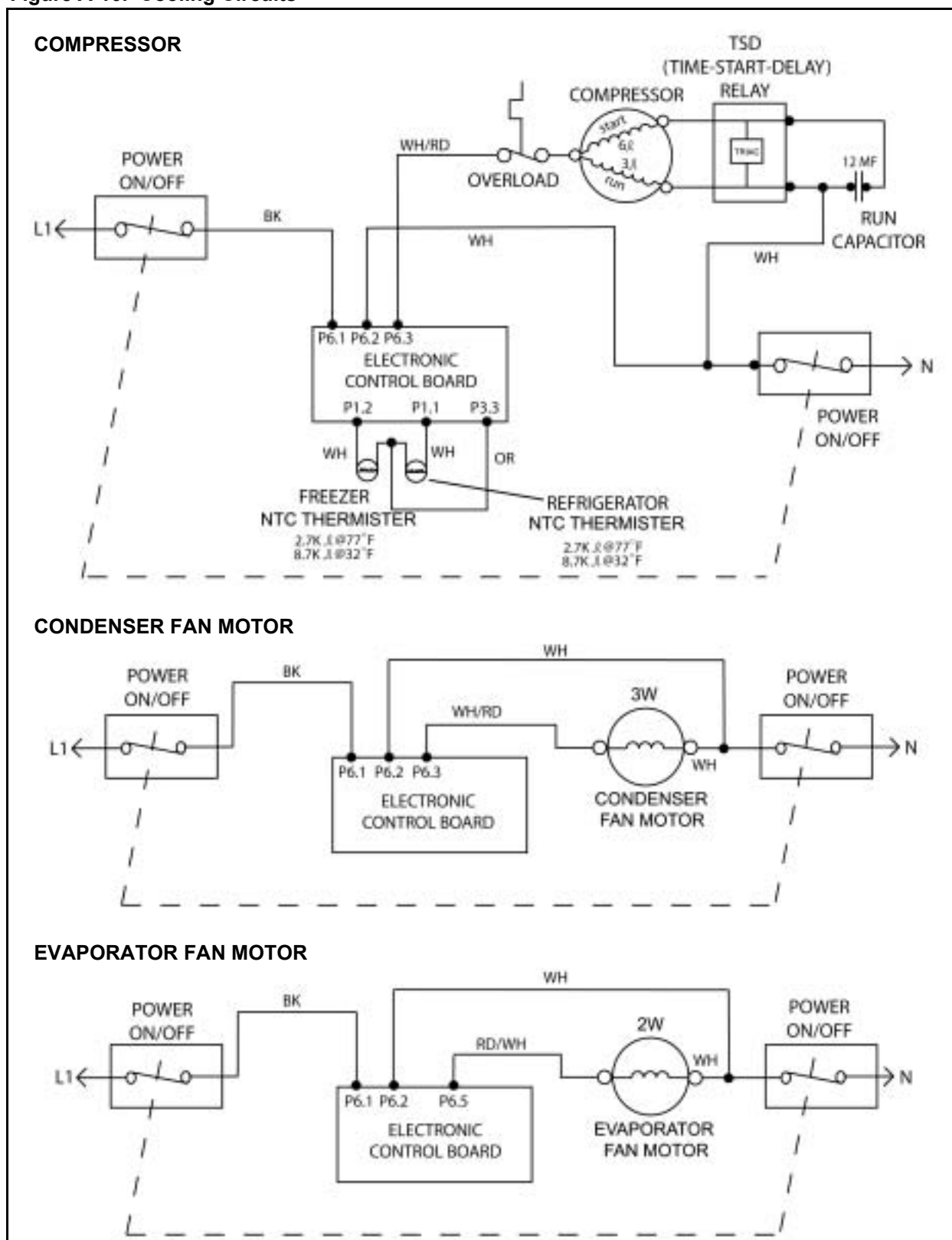


Figure A-11. Defrost Cycle

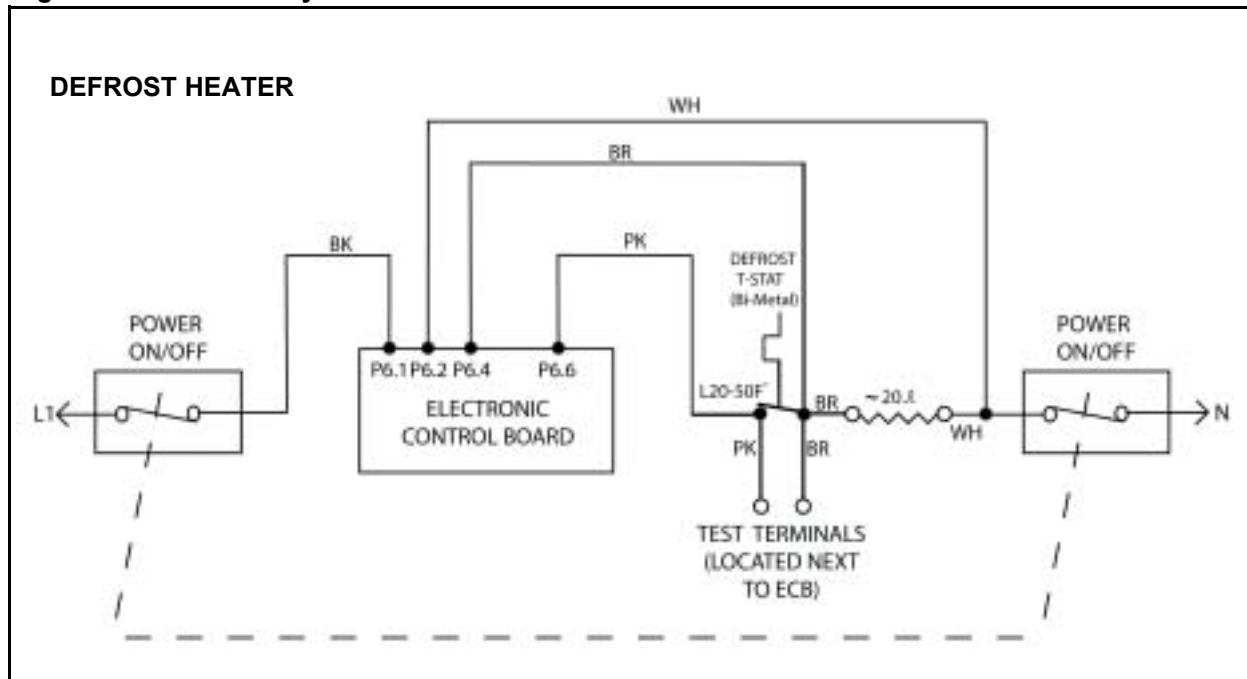


Figure A-12. Electronic Control Enabled Circuits

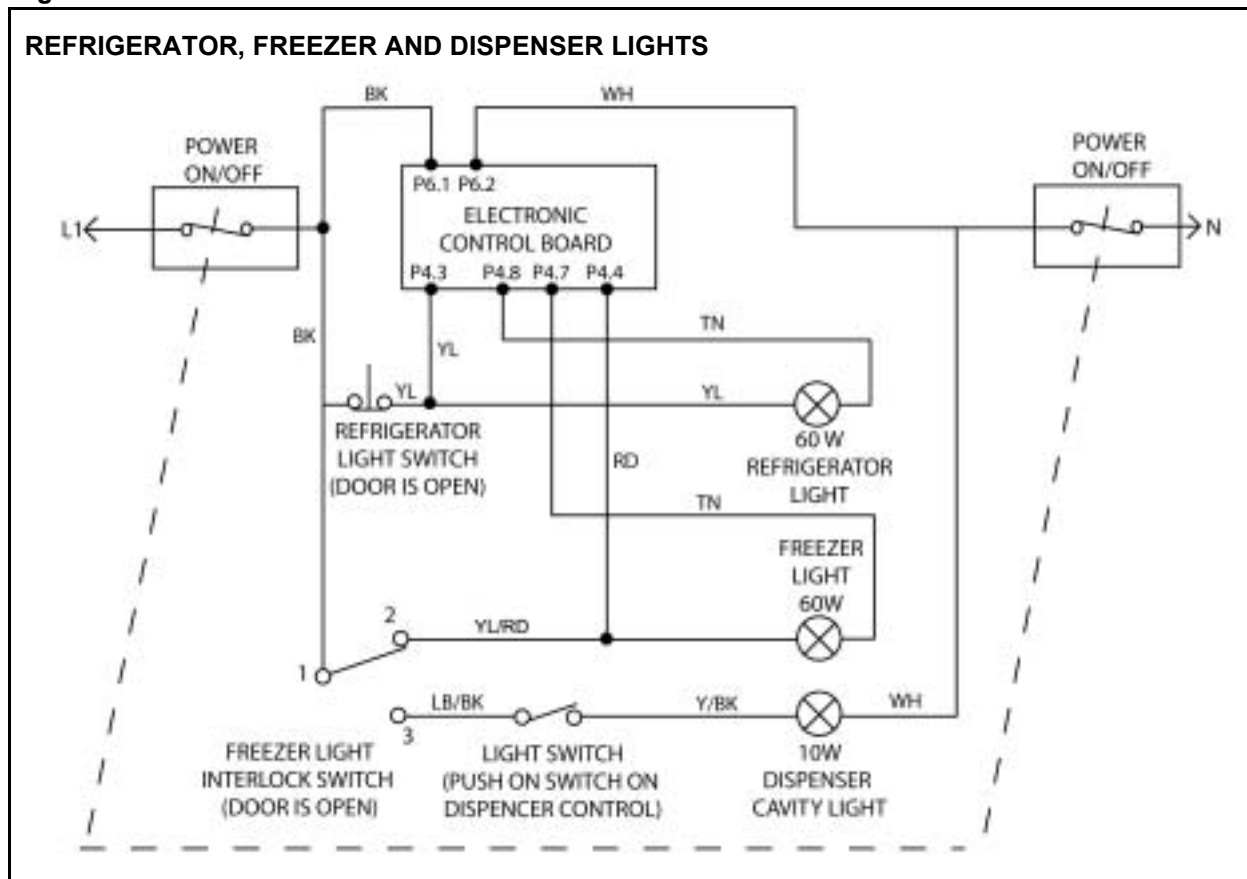


Figure A-13. Icemaker and Ice Water Valve Circuit

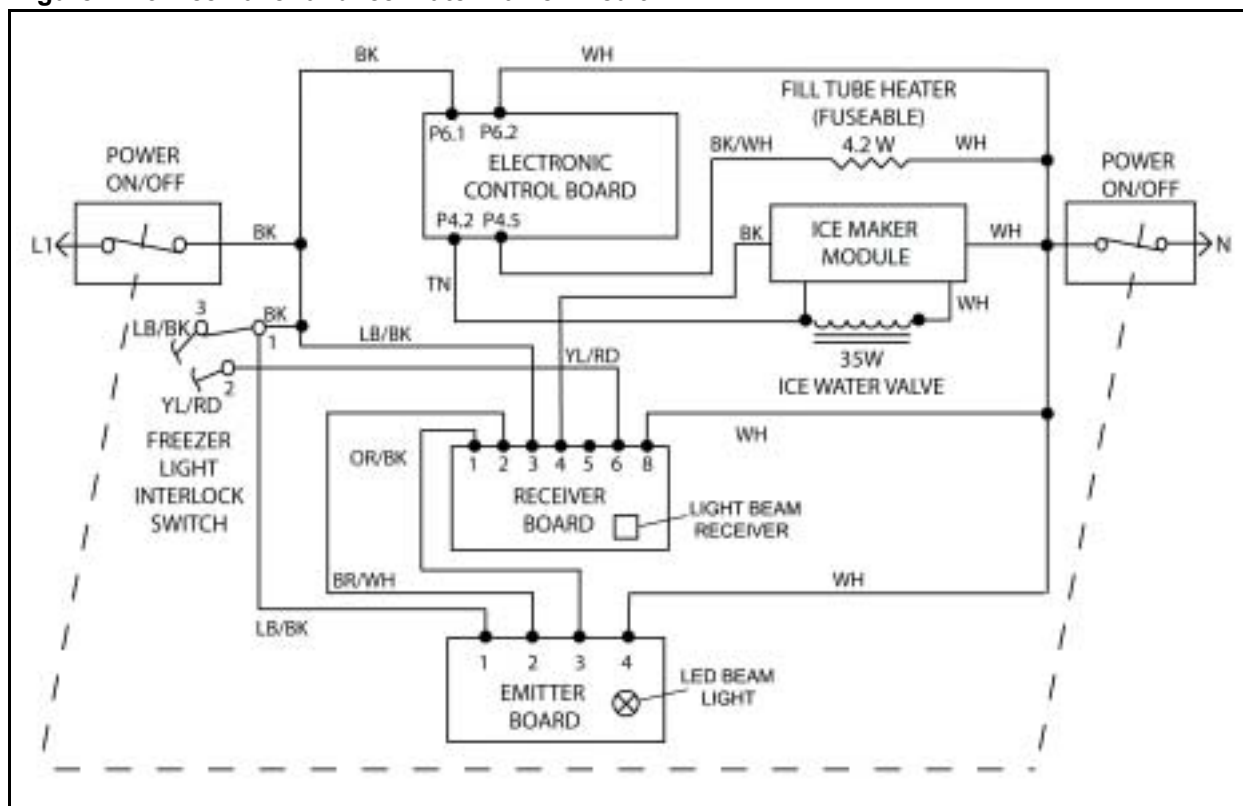


Figure A-14. Dispenser Water Valve Circuit

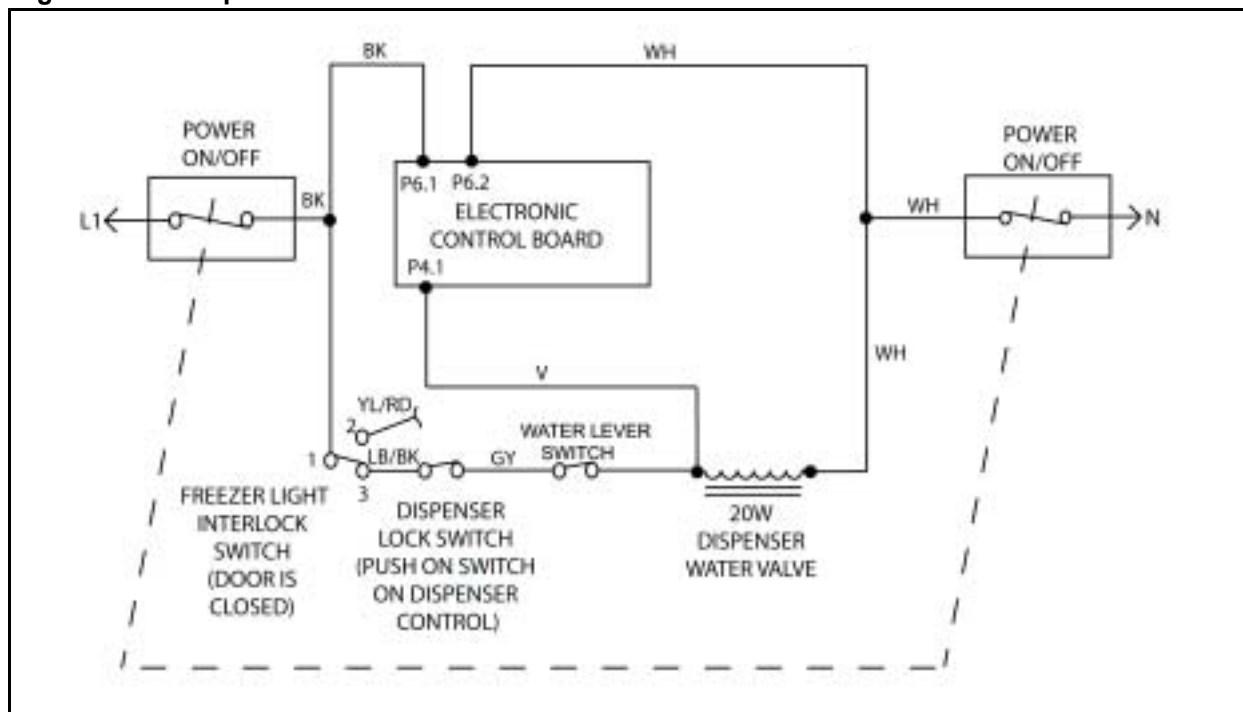


Figure A-15. Air Baffle Circuit

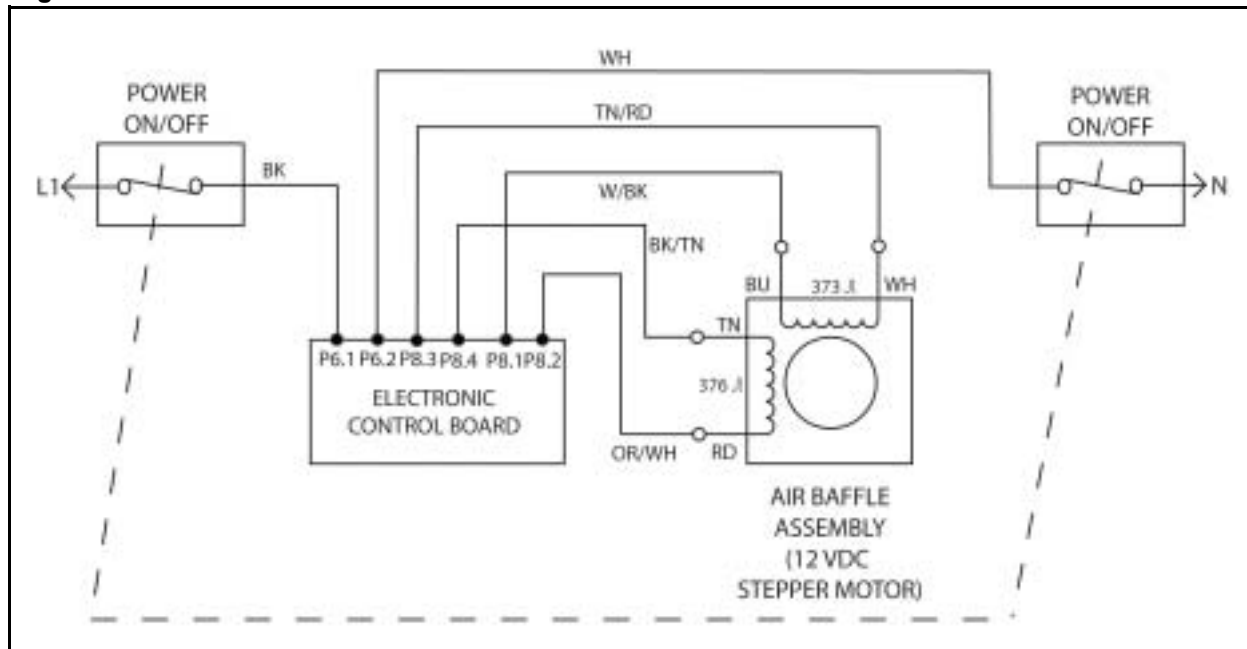
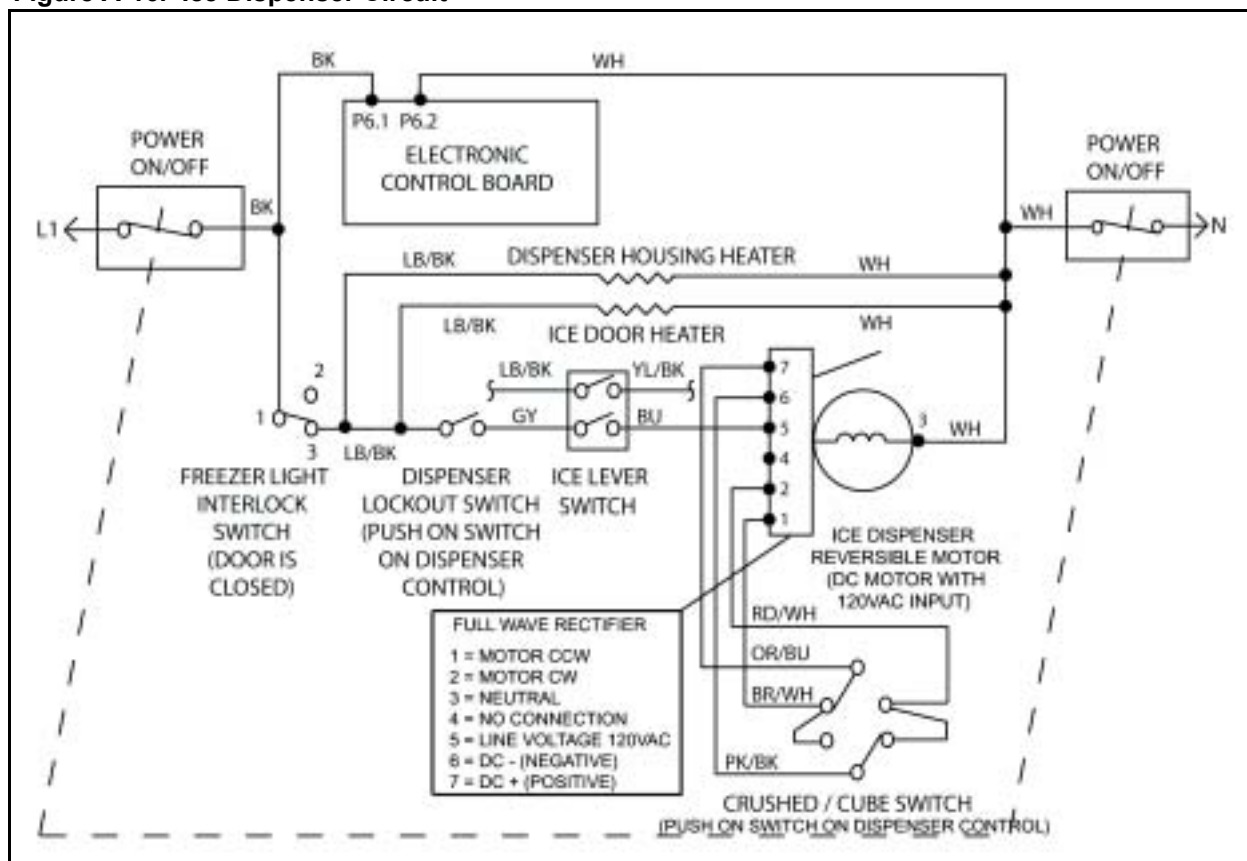


Figure A-16. Ice Dispenser Circuit



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APPENDIX B

TECH TIPS

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**SERVICING THE ICE BIN
AUGER ASSEMBLY**

This Appendix contains a short list of tips that will aid in the servicing of certain parts within the Built-In Refrigerator.

Follow the instructions below to service the ice bin auger assembly.

1. Open the freezer door.
2. Remove the ice bin from the door by pressing in on the release button and lifting it off of the platform.
3. Place the ice bin on a work surface with the bottom facing up.

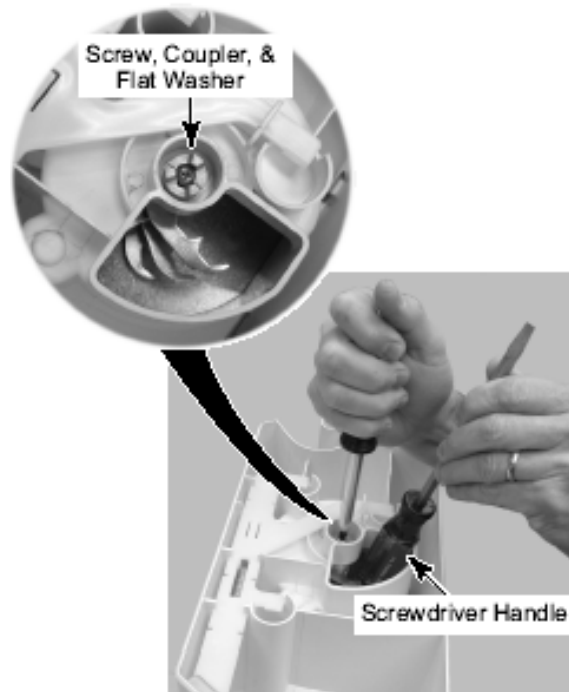
**Auger Disassembly**

To disassemble the auger, follow the instructions below.

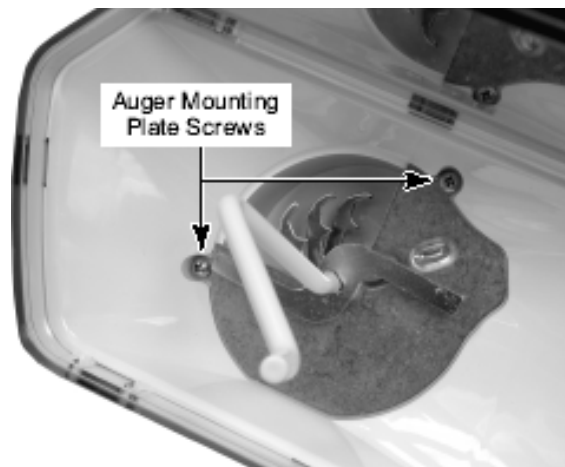
1. Insert a screwdriver handle into the auger blade area to prevent the blades from turning when you remove the screw in the next step (see photo on the following page).
2. Remove the screw from the auger assembly coupling and pull the coupler and flat washer off of the end of the shaft.

NOTE: The screw may be difficult to remove if there is sealant applied to the threads.

Auger Disassembly (Cont'd)

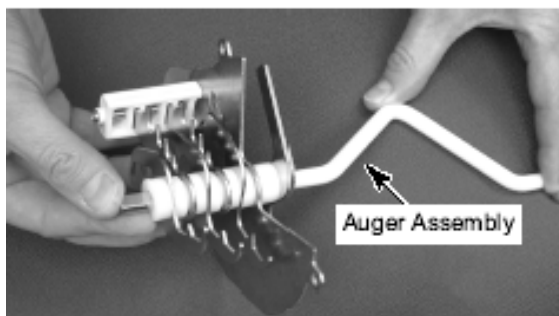


3. Turn the ice bin over to its upright position.
4. Remove the two screws from the auger mounting plate.



Auger Disassembly (Cont'd)

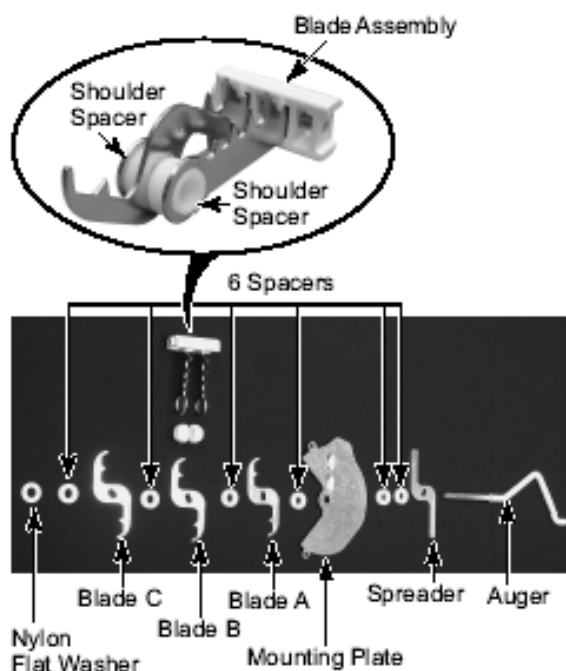
5. **IMPORTANT:** The auger assembly is now loose and the ice crusher blades and spacers will slide off of the auger shaft if you do not hold them in place. Reach inside the bin and lift the mounting plate just enough so that you can grasp the end of the auger shaft. Then, lift the auger assembly out of the bin and lay it on the work surface (see photo below).



6. Remove the auger components from the auger shaft and lay them, in order, on your work surface for easy reassembly.

REASSEMBLY NOTE:

Make sure that you position the mounting plate and the blade assembly (oval inset) on the auger shaft properly (see photo above).

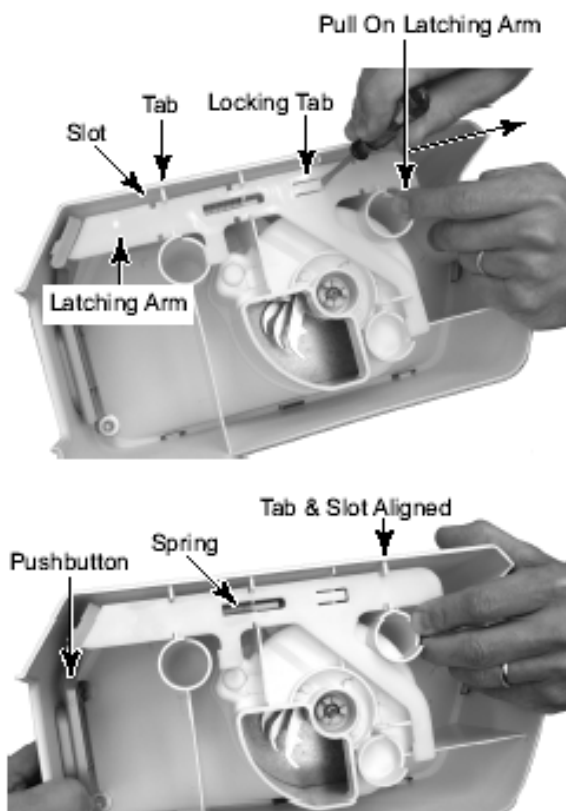


**LATCH ASSEMBLY
REMOVAL**

To remove the latch assembly, follow the instructions below.

1. Use a small screwdriver and insert the blade under the locking tab of the latching arm.
2. Pull on the latching arm while prying up on the locking tab and align the slots in the arm with the tabs of the bin. Then, lift the arm and remove it.

NOTE: The latching arm spring and push button will come loose when the arm is removed.



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This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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