KitchenAid

TECHNICAL EDUCATION

MODELS:

KSSC36FKB00
KSSC36FKS00
KSSC36QKS00
KSSC42FKB00
KSSC42FKS00
KSSC42QKS00
KSSC48FKB00
KSSC48FKS00
KSSC48QKS00
KSSP36QKS00
KSSP42QKS00
KSSP48QKS00
KSSS36FKB00
KSSS36FKT00
KSSS36FKW00
KSSS36FKX00
KSSS36QKB00
KSSS36QKT00
KSSS36QKW00
KSSS36QKX00
KSSS42FKB00
KSSS42FKT00
KSSS42FKW00
KSSS42FKX00
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KSSS42QKT00
KSSS42QKW00
KSSS42QKX00
KSSS48FKB00
KSSS48FKT00
KSSS48FKW00
KSSS48FKX00
KSSS48QKB00
KSSS48QKT00
KSSS48QKW00
KSSS48QKX00

2001 K MODEL BUILT-IN SIDE-BY-SIDE REFRIGERATOR WITH VARIABLE CAPACITY COMPRESSOR

JOB AID 4317326A

FORWARD

This KitchenAid Job Aid, 2001 K Model Built-In Side-By-Side Refrigerator With Variable Capacity Compressor (Part No. 4317326A), provides the technician with information on the installation and service of the Built-In Side-By-Side Refrigerator. It is to be used as a training Job 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 Job Aid are typical and should be used for training purposes only. Always use the Wiring Diagram supplied with the product when servicing the unit.

GOALS AND OBJECTIVES

The goal of this Job Aid is to provide detailed information that will enable the service technician to properly diagnose malfunctions and repair the Built-In Side-By-Side Refrigerator.

The objectives of this Job Aid are 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.

WHIRLPOOL CORPORATION assumes no responsibility for any repairs made on our products by anyone other than Authorized Service Technicians.

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GENERAL

SAFETY FIRST

Your safety and the safety of others is very important.

We have provided many important safety messages in this Job Aid and on the appliance. Always read and obey all safety messages.

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, tell you how to reduce the chance of injury, and tell you what can happen if the instructions are not followed.

ELECTRICAL POWER SUPPLY & GROUNDING REQUIREMENTS

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all panels before operating.

Failure to do so can result in death or electrical shock.

⚠WARNING

Electrical Shock Hazard

Plug into a grounded 3-prong outlet.

Do not remove ground prong.

Do not use an adapter.

Do not use an extension cord.

Failure to follow these instructions can result in death, fire, or electrical shock.

⚠WARNING

Electrical Shock Hazard

Connect green ground wire to ground screw.

Failure to do so can result in death or electrical shock.

ANTI-TIP REQUIREMENTS

⚠WARNING

Tip Over Hazard

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

Keep doors taped closed until refrigerator is completely installed.

Use two or more people to move and install refrigerator.

Failure do so can result in death or serious injury.

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.

- 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 & SERIAL NUMBER DESIGNATIONS

MODEL NUMBER

MODEL NUMBER	K	SS	S	42	Q	K	X	0	0
PRODUCT GROUP									
K = KitchenAid Brand									
PRODUCT IDENTIFICATION									
BR = Bottom Mount Right Hand Hinge									
BL = Bottom Mount Left Hand Hinge									
SS = Side-By-Side Built-In									
MERCHANDISING SCHEME/SERIES									
C = Wrap Around Stainless Steel									
P = Factory Installed Panel Kit									
S = Framed Trim Kit (Panels Not Included)									
CAPACITY/ SIZE									
36 = 36″ Width									
42 = 42″ Width									
48 = 48″ Width									
FEATURES									
D = Ice & Water Dispensing									
F = Factory Installed Ice Maker w/Filter									
M = Factory Installed Ice Maker wo/Filter									
Q = Ice/Crushed Ice & Water Dispensing w/Filter									
YEAR OF INTRODUCTION									
K = 2001									
COLOR CODE									
X = No Color Used									
ENERGY POWER CONSUMPTION CHANGE									
0 = Original, 1 = 1st Change, 2 = 2nd Change, Etc.									
ENGINEERING CHANGE (NUMERIC)									
0 = Original, 1 = 1st Change, 2 = 2nd Change, Etc.									

SERIAL NUMBER

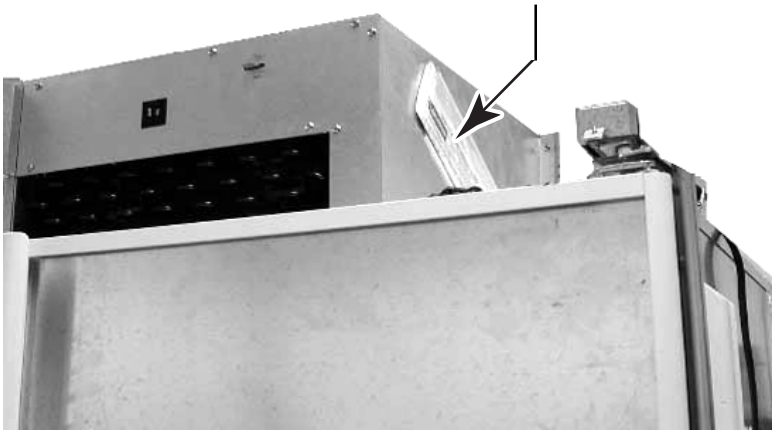
SERIAL NUMBER	Q	L	30	10003
MANUFACTURING SITE				
Q = LaVergne, TN				
YEAR OF PRODUCTION				
L = 2001				
WEEK OF PRODUCTION				
30th WEEK				
PRODUCT SEQUENCE NUMBER				

MODEL & SERIAL NUMBER LABEL AND TECH SHEET LOCATIONS

The Model/Serial Number Label and Tech Sheet locations are shown below.

Model & Serial Number Location (Freezer Compartment)

Tech Sheet Location (On Unit Compartment Cover)



SPECIFICATIONS

Model Number	KSSC36FKB	KSSC36FKS	KSSC36QKS
Model Description	Black Architect Series - Non-Disp. with water filter	Architect Series - Non-Dispenser with water filter	Stainless Steel Architect Series - Disp. - with water filter
Size-Configuration	36"	36"	36"
Refrigerator Volume (Cu Ft)	13	13	13
Freezer Volume (Cu Ft)	7.5	7.5	7.4
Crated Weight (lbs)	500	500	500
Refrigerant	134a	134a	134a
Standard Warranty (Months)	24	24	24
Full Liner And Sealed System Warranty (Months)	72	72	72
Sealed System Warranty (Months)	144	144	144

Model Number	KSSC42FKB	KSSC42FKS	KSSC42QKS
Model Description	Black Architect Series - Non-Dispenser with water filter	Architect Series - Non-Dispenser with water filter	Stainless Steel Architect - Dispenser with water filter
Size-Configuration	42"	42"	42"
Refrigerator Volume (Cu Ft)	13	15.6	15.7
Freezer Volume (Cu Ft)	9.1	9.1	8.9
Crated Weight (lbs)	552	552	552
Refrigerant	134a	134a	134a
Standard Warranty (Months)	24	24	24
Full Liner And Sealed System Warranty (Months)	72	72	72
Sealed System Warranty (Months)	144	144	144

Model Number	KSSC48FKB	KSSC48FKS	KSSC48QKS
Model Description	Black Architect Series - Non-Dispenser with water filter	Architect Series - Non-Dispenser with water filter	Stainless Steel Architect Series with Dispenser with Water Filter
Size-Configuration	48"	48"	48"
Refrigerator Volume (Cu Ft)	18.3	18.3	18.4
Freezer Volume (Cu Ft)	10.7	10.7	10.5
Crated Weight (lbs)	579	579	579
Refrigerant	134a	134a	134a
Standard Warranty (Months)	24	24	24
Full Liner And Sealed System Warranty (Months)	72	72	72
Sealed System Warranty (Months)	144	144	144

Model Number	KSSP36QKS	KSSP42QKS	KSSP48QKS
Model Description	Stainless Steel - Dispenser - Factory Installed Panels with water filter	Stainless Steel - Dispenser - Factory Installed Panels with water filter	Stainless Steel - Dispenser - Factory Installed Panels with Water Filter
Size-Configuration	36"	42"	48"
Refrigerator Volume (Cu Ft)	13	15.7	18.4
Freezer Volume (Cu Ft)	7.4	8.9	10.5
Crated Weight (lbs)	500	552	579
Refrigerant	134a	134a	134a
Standard Warranty (Months)	24	24	24
Full Liner And Sealed System Warranty (Months)	72	72	72
Sealed System Warranty (Months)	144	144	144

Model Number	KSSS36FKB	KSSS36FKT	KSSS36FKW
Model Description	Black Trim -Custom Panels Required-Non-Dispenser with water filter	Biscuit Trim -Custom Panels Required-Non-Dispenser with water filter	White Trim-Non-Dispenser-Custom Panels Required with water filter
Size-Configuration	36"	36"	36"
Refrigerator Volume (Cu Ft)	13	13	13
Freezer Volume (Cu Ft)	7.5	7.5	7.5
Crated Weight (lbs)	500	500	500
Refrigerant	134a	134a	134a
Standard Warranty (Months)	24	24	24
Full Liner And Sealed System Warranty (Months)	72	72	72
Sealed System Warranty (Months)	144	144	144

Model Number	KSSS36FKX	KSSS36QKB	KSSS36QKT
Model Description	Brushed Aluminum Trim -Custom Panels Required-Non-Dispenser with water filter	KitchenAid Black Dispenser Water Filter	KitchenAid Biscuit Dispenser Water Filter
Size-Configuration	36"	36" Side By Side	36" Side by Side
Refrigerator Volume (Cu Ft)	13	13	13
Freezer Volume (Cu Ft)	7.5	7.4	7.4
Crated Weight (lbs)	500	500	500
Refrigerant	134a	134a	134a
Standard Warranty (Months)	24	24	24
Full Liner And Sealed System Warranty (Months)	72	60	60
Sealed System Warranty (Months)	144	144	144

Model Number	KSSS36QKW	KSSS36QKX	KSSS42FKB
Model Description	KitchenAid White Dispenser with Water Filter	KitchenAid Black Dispenser with Water Filter	Black Trim - Non-Dispenser with water filter- Custom Panels Required
Size-Configuration	36" Side By Side	36" Side By Side	42"
Refrigerator Volume (Cu Ft)	13	13	15.6
Freezer Volume (Cu Ft)	7.4	7.4	9.1
Crated Weight (lbs)	500	500	552
Refrigerant	134a	134a	134a
Standard Warranty (Months)	24	24	24
Full Liner And Sealed System Warranty (Months)	60	60	72
Sealed System Warranty (Months)	144	144	144

Model Number	KSSS42FKT	KSSS42FKW	KSSS42FKX
Model Description	Biscuit Trim - Non-Dispenser with water filter- Custom Panels Required	White Trim - Non-Dispenser with water filter- Custom Panels Required	Brushed Aluminum Trim - Non-Dispenser with water filter- Custom Panels Required
Size-Configuration	42"	42"	42"
Refrigerator Volume (Cu Ft)	15.6	15.6	15.6
Freezer Volume (Cu Ft)	9.1	9.1	9.1
Crated Weight (lbs)	552	552	552
Refrigerant	134a	134a	134a
Standard Warranty (Months)	24	24	24
Full Liner And Sealed System Warranty (Months)	72	72	72
Sealed System Warranty (Months)	144	144	144

Model Number	KSSS42QKB	KSSS42QKT	KSSS42QKW
Model Description	KitchenAid Black Dispenser Water with Filter	KitchenAid Biscuit with Water Filter	KitchenAid White Water Filter
Size-Configuration	42" Side by Side	42" Side by Side	42" Side by Side
Refrigerator Volume (Cu Ft)	15.7	15.7	15.7
Freezer Volume (Cu Ft)	8.9	8.9	8.9
Crated Weight (lbs)	552	552	552
Refrigerant	134a	134a	134a
Standard Warranty (Months)	24	24	24
Full Liner And Sealed System Warranty (Months)	72	72	72
Sealed System Warranty (Months)	144	144	144

Model Number	KSSS42QKX	KSSS48FKB	KSSS48FKT
Model Description	Black Dispenser-Brushed Aluminum Trim-Custom Panels Required	Black Trim Model-Custom Panels Required-Non-Dispenser with water filter	Biscuit Trim Model-Custom Panels Required-Non-Dispenser with water filter
Size-Configuration	42"	48"	48"
Refrigerator Volume (Cu Ft)	15.7	18.3	18.3
Freezer Volume (Cu Ft)	8.9	10.7	10.7
Crated Weight (lbs)	552	579	579
Refrigerant	134a	134a	134a
Standard Warranty (Months)	24	24	24
Full Liner And Sealed System Warranty (Months)	72	72	72
Sealed System Warranty (Months)	144	144	144

Model Number	KSSS48FKW	KSSS48FKX	KSSS48QKB
Model Description	White Trim Model-Custom Panels Required-Non-Dispenser with water filter	Brushed Aluminum Trim Model-Custom Panels Required-Non-Dispenser with water filter	KitchenAid Black Dispenser Water with Filter
Size-Configuration	48"	48"	48" Side by Side
Refrigerator Volume (Cu Ft)	18.3	18.3	18.4
Freezer Volume (Cu Ft)	10.7	10.7	10.5
Crated Weight (lbs)	579	579	579
Refrigerant	134a	134a	134a
Standard Warranty (Months)	24	24	24
Full Liner And Sealed System Warranty (Months)	72	72	72
Sealed System Warranty (Months)	144	144	144

Model Number	KSSS48QKT	KSSS48QKW	KSSS48QKX
Model Description	KitchenAid Biscuit Dispenser with Water Filter	KitchenAid White Dispenser Water with Filter	KitchenAid Water Filter Black Dispenser-Brushed Aluminum Trim-
Size-Configuration	48" Side by Side	48" Side by Side	48" Side by Side
Refrigerator Volume (Cu Ft)	18.4	18.4	18.4
Freezer Volume (Cu Ft)	10.5	10.5	10.5
Crated Weight (lbs)	579	579	579
Refrigerant	134a	134a	134a
Standard Warranty (Months)	24	24	24
Full Liner And Sealed System Warranty (Months)	72	72	72
Sealed System Warranty (Months)	144	144	144

KITCHENAID® BUILT-IN REFRIGERATOR WARRANTY

TWO-YEAR FULL WARRANTY ON REFRIGERATOR

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

THIRD THROUGH SIXTH YEAR LIMITED WARRANTY

In third through sixth years from the date of installation, when this refrigerator is operated and maintained according to instructions attached to or furnished with the product, KitchenAid 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 KitchenAid designated service company.

SEVENTH THROUGH TWELFTH YEAR LIMITED WARRANTY

In seventh through twelfth years from date of installation, when this refrigerator is operated and maintained according to instructions attached to or furnished with the product, KitchenAid 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.

LIMITED LIFETIME WARRANTY

For the life of the product, when this refrigerator is operated and maintained according to instructions attached to or furnished with the product, KitchenAid will replace all Door Bins due to defective materials or workmanship.

KitchenAid will not pay for:

1. Service calls to correct the installation of the refrigerator, to instruct you how to use the 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 the refrigerator is used in other than normal, single-family household use.
3. Pickup and delivery. The 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 KitchenAid or KitchenAid Canada.
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.
8. Labor or parts installed by any non-designated service company during the full warranty period, unless approved by KitchenAid 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, except as stated above.

KITCHENAID AND KITCHENAID CANADA 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.

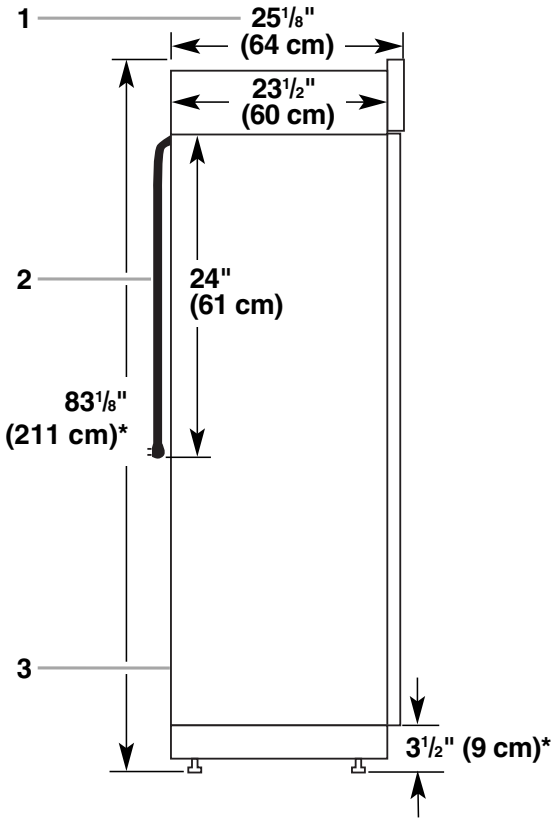
Outside the 50 United States and Canada, a different warranty may apply. Contact your authorized KitchenAid dealer to determine if another warranty applies.

If you need service, first see the “Troubleshooting” section of the Use & Care Guide. After checking “Troubleshooting,” additional help can be found by checking the “Assistance or Service” section or by calling the KitchenAid Customer Interaction Center, **1-800-422-1230** (toll-free), from anywhere in the U.S.A. In Canada, contact your designated KitchenAid Canada Appliance service company or call: **1-800-807-6777**.

INSTALLATION INFORMATION

PRODUCT DIMENSIONS

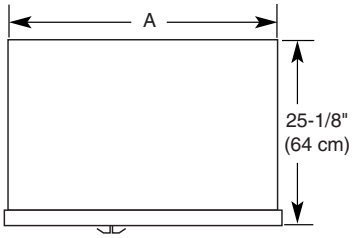
Side View



1. 25-1/8" (64 cm) dimension is to front of top grille
2. Power cord (24") (61 cm)
3. 5 ft. (1.5 m) water line tubing taped to back

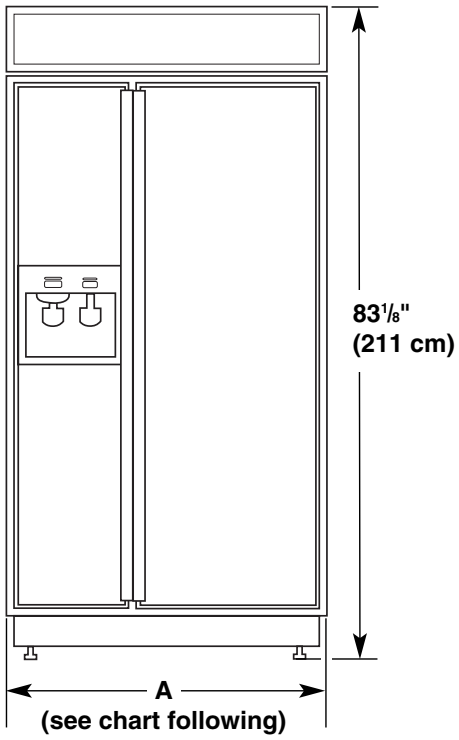
NOTE: (*) Dimensions shown are for leg levelers extended 1/8″ (3 mm) below the rollers. For levelers fully extended 1-1/4″ (32 mm) below the rollers, add 1-1/8″ (29 mm) to this dimension.

Top View



Model	Width A
36″ (91 cm) 42″ (106 cm) 48″ (122 cm)	35″ (89 cm) 41″ (104 cm) 47″ (119 cm)

Front View



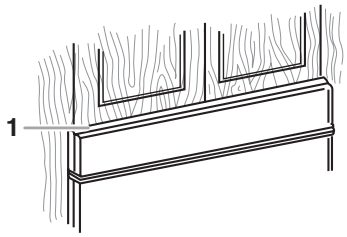
Width of Refrigerator

Model	Width A (as shown above)
36" (91 cm) 42" (106 cm) 48" (122 cm)	36-1/4" (92 cm) 42-1/4" (107 cm) 48-1/4" (123 cm)

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

Openings

The built-in refrigerator can be installed into a recessed opening in the cabinets, or at the end of cabinets using a side panel to enclose the refrigerator side. The installation requires a 1/2″ (12.7 mm) clearance to remove the top grille and for proper air flow.



1. A 1/2" (12.7 mm) space is required

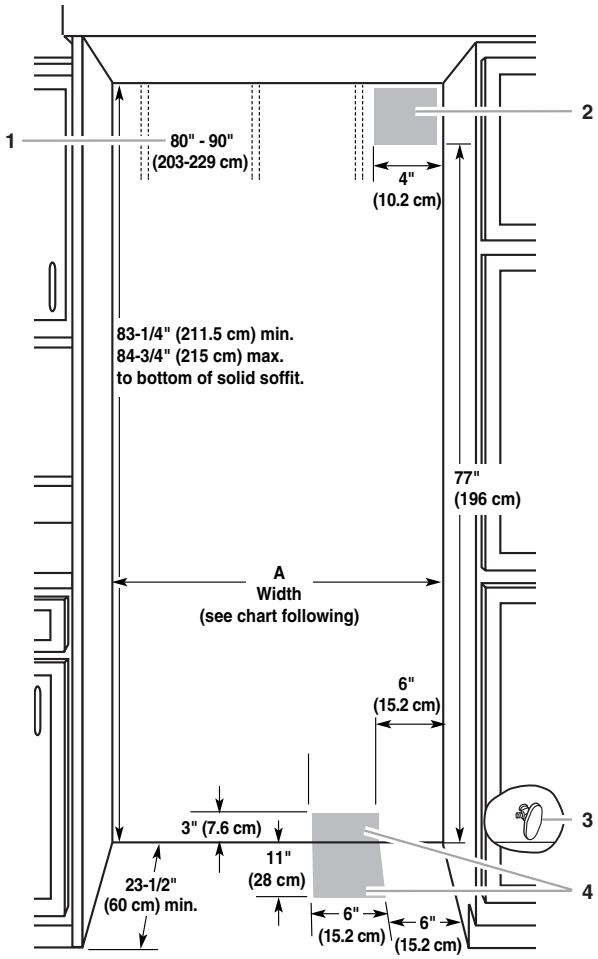
Wall studs must be located on the rear wall 80″ to 90″ (203 - 229 cm) above the floor.

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. See “Anti-Tip Boards” on page 2-3.

A grounded electrical outlet should be placed in the top shaded area, 4″ (10.2 cm) from the right side of the cabinets or end panel.

The water shutoff should be located in the base cabinet on either side of the refrigerator. The right side is recommended. The access hole through the right cabinet must be within 1/2″ (12.7 mm) of the rear wall.

A 1/2″ (12.7 mm) hole for plumbing should be within the bottom shaded area. The water line can be through the floor or wall. If the recommended water line location is used, no additional plumbing is necessary.



1. Stud location
2. Grounded electrical outlet location
3. Recommended water shutoff valve location
4. Plumbing hole and water line location (wall or floor)

Width of Opening:

Model	Width A (as shown above)
36" (91.4 cm) 42" (106.7 cm) 48" (121.9 cm)	35-1/2" (90.2 cm) 41-1/2" (105.4 cm) 47-1/2" (120.7 cm)

WATER SUPPLY REQUIREMENTS

IMPORTANT:

- If you turn the refrigerator on before the water line is connected, turn the ice maker off.
- All installations must meet local plumbing code requirements.
- Use copper tubing and check for leaks. Install copper tubing only in areas where temperatures will remain above freezing.

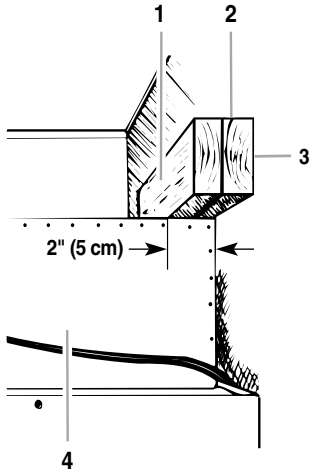
A kit is available with a 1/4″ (6.35 mm) saddle-type shutoff valve, a union, and copper tubing. Before purchasing the kit, make sure that a saddle-type valve complies with local plumbing codes. Do not use a piercing-type or a 3/16″ (4.76 mm) saddle valve because they reduce water flow and clog easily.

Connect the ice maker to a cold water line with water pressure between 15 and 100 psi (103 - 690 kPa). If you have questions about water pressure, contact the water utility company.

ANTI-TIP BOARDS

IMPORTANT:

- 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, 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 84″ (213 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.



1. Center board 1/4" (6 mm) max. above refrigerator
2. Two 2" x 4" x 32" (5 cm x 10 cm x 81 cm) boards
3. Attach to studs with 6-#8 x 3" (7.6 cm) screws
4. Compressor cover

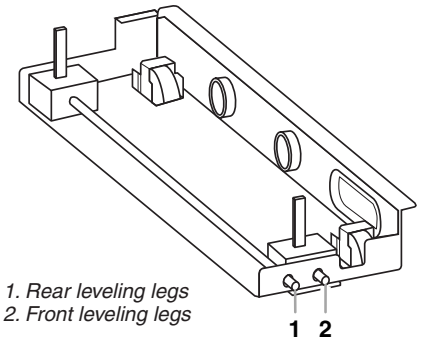
To Install The Anti-Tip Boards:

1. Mark the stud locations on the rear wall 80″ to 90″ (203 - 229 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. Rollers are for moving the refrigerator, and not for permanent support.

Use a socket wrench to turn the leg levelers 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.

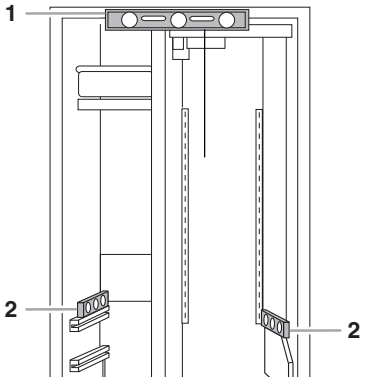


1. Rear leveling legs
2. Front leveling legs

LEVELING THE REFRIGERATOR

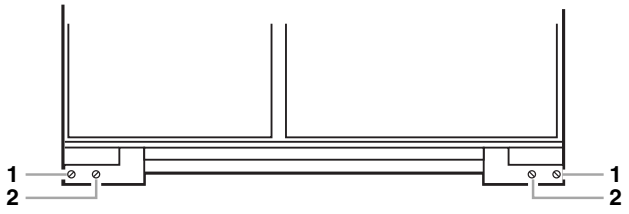
NOTE: Door panels must be installed before leveling.

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.



1. Level to check left to right leveling
2. Level to check front to back leveling

2. Use the leveling bolts to adjust the leveling legs until the refrigerator is level from left to right.



1. Rear leveling bolt
2. Front leveling bolt

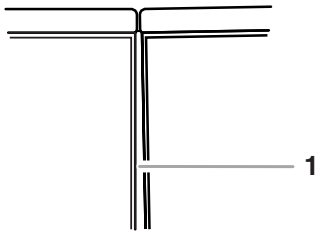
3. Place a level on the shelves and check to see if the refrigerator is level from front to back.
4. Use the leveling bolts to adjust the leveling legs until the refrigerator is level from front to back.
5. Make sure that all four leveling legs contact the floor and support the full weight of the refrigerator.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

ADJUSTING THE DOORS

Door Alignment

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

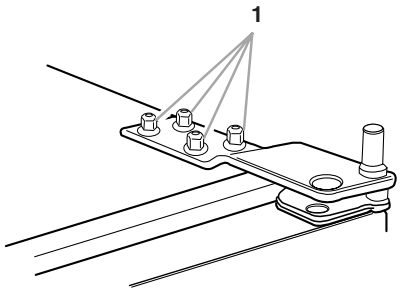
1. Inspect the spacing of the gap between the freezer and refrigerator doors. Make sure that the spacing between the doors is the same distance at the top and bottom.



1. Uneven door gap

2. If the door gap is uneven, the side trim must be removed so that you can see the entire door gasket liner. Remove the six phillips screws holding the side trim.

3. Loosen the four 3/8″ hex-head screws on top of both door hinges.



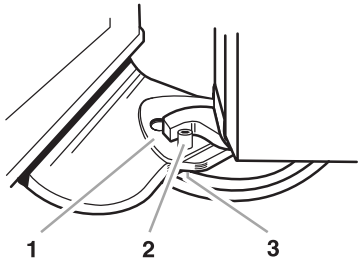
1. Mounting screws

4. Adjust the hinges so that the door gap is the same distance at the top and bottom.
5. Check the side door gasket gap. Make sure that the distance is the same at the top and bottom. Adjust the hinges, as necessary.
6. Recheck the front door gap spacing to make sure that it is properly aligned and even.
7. Tighten the top hinge screws securely.
8. Reinstall the side door trim.

Door Height Adjustment

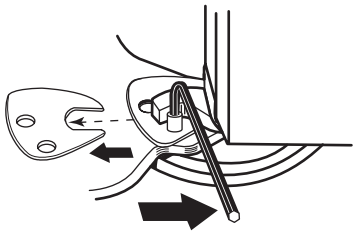
Use the following steps to adjust the door height up or down after the doors have been leveled.

1. Open the freezer or refrigerator door and locate the hinge assembly at the bottom of the door.

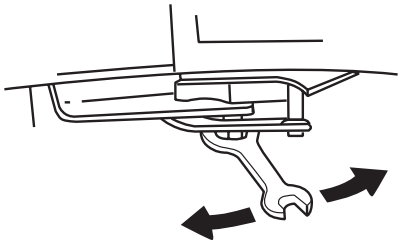


1. Locking plate
2. Door stop screw
3. Bushing

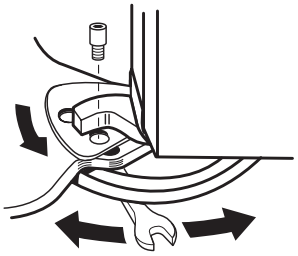
2. Use an allen wrench and remove the door stop screw and locking plate from the bottom door hinge.



3. Use an open-end wrench and turn the bushing, located under the bottom of the hinge, to the left to raise the door, or to the right to lower the door.

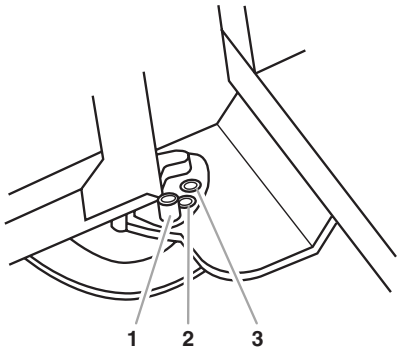


4. Replace the locking plate and door stop screw. Turn the bushing slightly to align the hinge and locking plate screw holes.



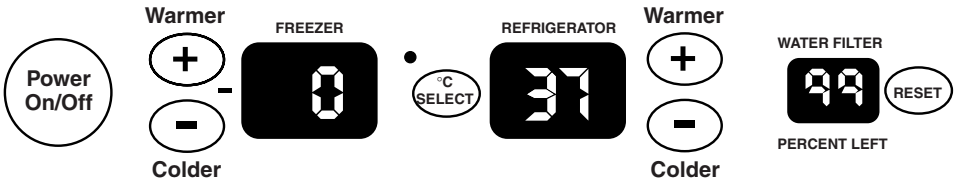
Door Swing Adjustment

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 from the bottom hinge.
2. Move the door to the desired open position, and then reinstall the door stop screw at one of the three holes that is closest to the desired position.



1. Door stoop setscrew (130° position)
2. 110 ° position.
3. 90 ° position.

THEORY OF OPERATION



THE ELECTRONIC TEMPERATURE CONTROL PANEL

OVERVIEW

The KitchenAid Built-In Refrigerator Constant Flow Temperature Management System uses two thermistors to monitor temperature changes inside the refrigerator and freezer compartments. The electronic control 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.

Freezer temperatures can be set from 9°F to –9°F (–13°C to –23°C). Refrigerator temperatures can be set from 46°F to 32°F, (8°C to 0°C).

The Adaptive Defrost Control (ADC) portion of the electronic control utilizes “pulsed defrost” technology to perform the defrost function (see page 3-4).

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°F to 70°F. The normal freezer display range is from –9°F to 70°F. Temperatures above or below these limits will be displayed at the corresponding temperature limit. During Max Cool, the freezer display will read –10°F, and the refrigerator will read 32°F.

The display will show the temperature setting any time the actual temperature is within ±6°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
- 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 — Temperature Increasing

When the freezer calls for cooling, the compressor begins to run at minimum rpm, (see the chart on page 3-3), 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 — Temperature Decreasing

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

Refrigerator Temperature Control — Temperature Increasing

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 — Temperature Decreasing

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 main control board supplies a 5 vdc, peak-to-peak square wave, at 54 to 150 Hz, to the inverter board. A standard VOM will read approximately 2.5 vdc. The inverter board supplies the variable capacity compressor with three-phase 230 vac. Varying the frequency to the inverter board, and not the voltage, changes the speed of the compressor. The compressor can run at speeds of 1620 to 4500 rpm.

NOTE: It is not necessary, nor is it recommended, to test the output of the inverter board.

While the compressor is running, its speed is continuously updated. Speed is determined after analyzing two factors:

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

Minimum compressor speed is based on the freezer's selected temperature setting, as shown in the following chart.

Freezer Temperature Setting (°F)	Compressor Minimum Speed
9 to –2	1620 rpm
–3	1800 rpm
– 4	2000 rpm
–5	2200 rpm
–6	2400 rpm
–7	2600 rpm
–8	2800 rpm
–9	3000 rpm
–10	3200 rpm

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.

COMPRESSOR PROTECTION

To protect the compressor and maintain efficiency, minimum compressor off time is programmed into the control. When the compressor turns off, a minimum of 7 minutes must elapse before allowing a restart.

The inverter board utilizes a current limiting device and thermal protection that eliminates the need for a compressor mounted thermal protector.

EVAPORATOR FAN MOTOR

The evaporator fan motor is a 12 vdc, variable speed motor. The motor has four wires:

- A blue wire provides feedback to monitor the speed of the motor.
- A red wire provides a constant 12 vdc.
- A yellow wire provides a variable voltage of between 5 vdc and 17 vdc to control the motor speed from 2000 to 3000 rpm.
- A white wire provides a common return.

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 at 4500 rpm, but the evaporator fan is delayed for 8 minutes. The air door remains closed for 8 minutes following defrost.

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 airflow 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 adjusts, if necessary. 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 the compressor has run at 4000 rpm or greater for 1 hour, and 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, 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

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.

At mid-settings of 37°F / 0°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.

The compressor will run at minimum speed. The evaporator fan will also run at minimum speed, unless the refrigerator compartment requests a higher speed.

Keypad

If the control detects that the keypad is not working, it reverts to the default temperature settings of 37°F in the refrigerator, and 0°F in the freezer.

Evaporator Fan Motor

If the evaporator fan motor malfunctions, the compressor will run at 4500 rpm for an indefinite period, except during the defrost periods. The “Call Service Alarm” will sound until the failure has been corrected.

ELECTRONIC CONTROL THERMAL SHUTOFF

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.

If this cycle is repeated four times within 24 hours, the “Call Service” indicator lights, and the alarm sounds.

MAX COOL MODE

Max Cool changes the refrigerator temperature setting to 32°F (0°C) and the freezer to –10°F (–23°C) for 24 hours. During Max Cool, the freezer and refrigerator temperature displays show the new temperature settings, not the actual temperatures.

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.

AUTOMATIC MAX ICE

Automatic Max Ice operates any time the ice maker water valve is energized. The duration of Automatic Max Ice is 1-1/2 hours. During Automatic Max Ice the following occurs:

- The freezer display shows the user temperature settings and not the actual temperature.
- The freezer temperature setting changes to –9°F (–23°C).
- The evaporator fan runs at 3000 rpm.
- The compressor runs the entire 1-1/2 hour mode. Speed is determined by the difference between actual freezer temperature and -9°F (-23°C).

HOLIDAY MODE

The Holiday Mode may be used for the following occasions:

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

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

In the 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 audible signals are disabled.
- The ice maker is 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.

The 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 the 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.

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 1-1/2 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. Pushing the Over-Temperature Reset key turns off the Alarm and/or indicator, and resets the Over-Temperature Timer to zero.

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.

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). Pressing the Over-Temperature Alarm/Reset key resets the Alarm and the flashing Icon.

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

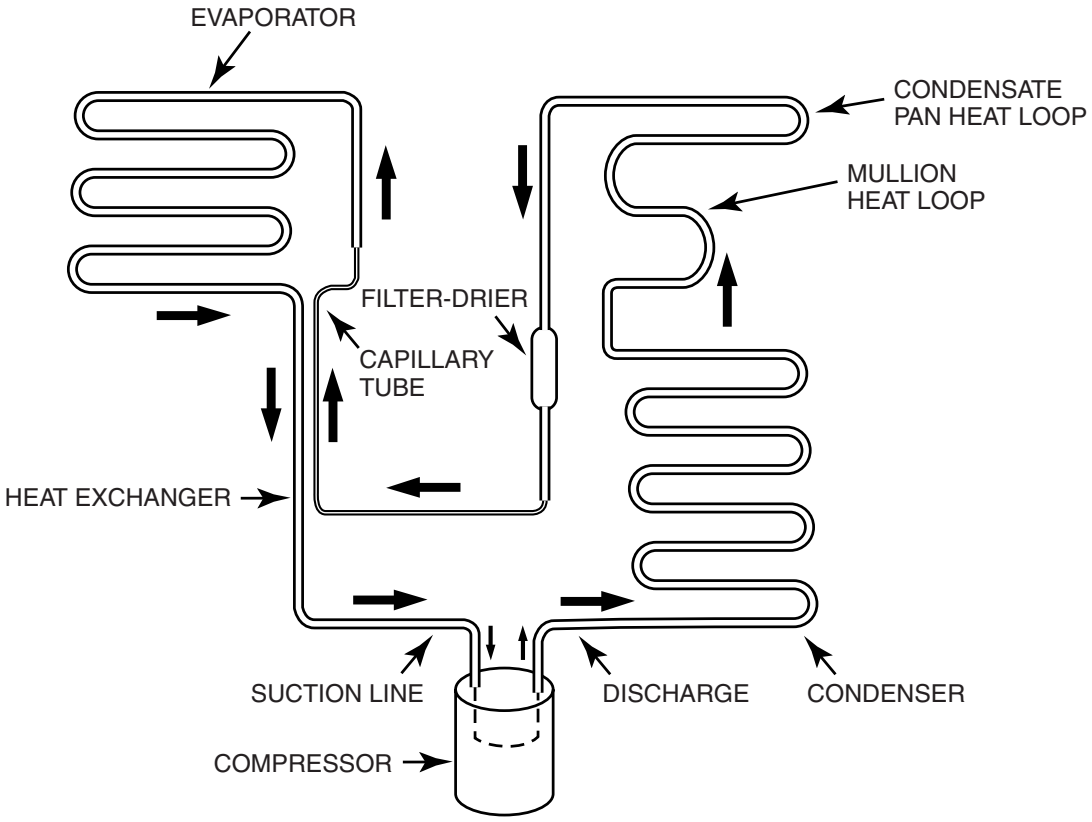
In order to ensure the proper refrigerator and freezer compartment temperatures, air must be able to flow between the two sections.

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 the illustration below).

It is important not to block any of the vents with food items. If the vents are blocked, airflow 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.

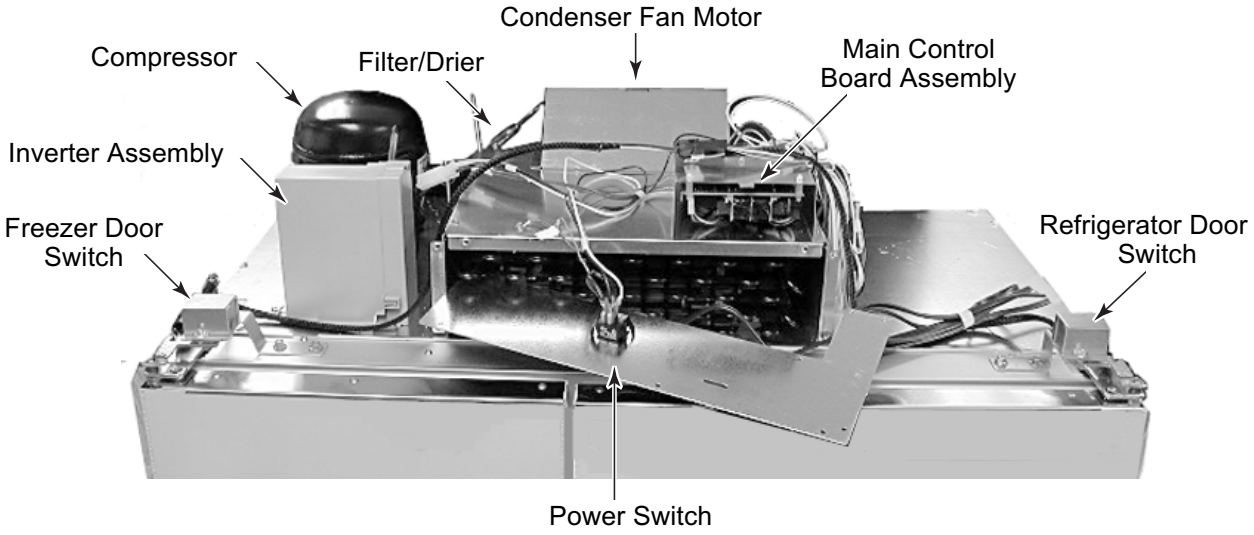
SEALED SYSTEM SCHEMATIC

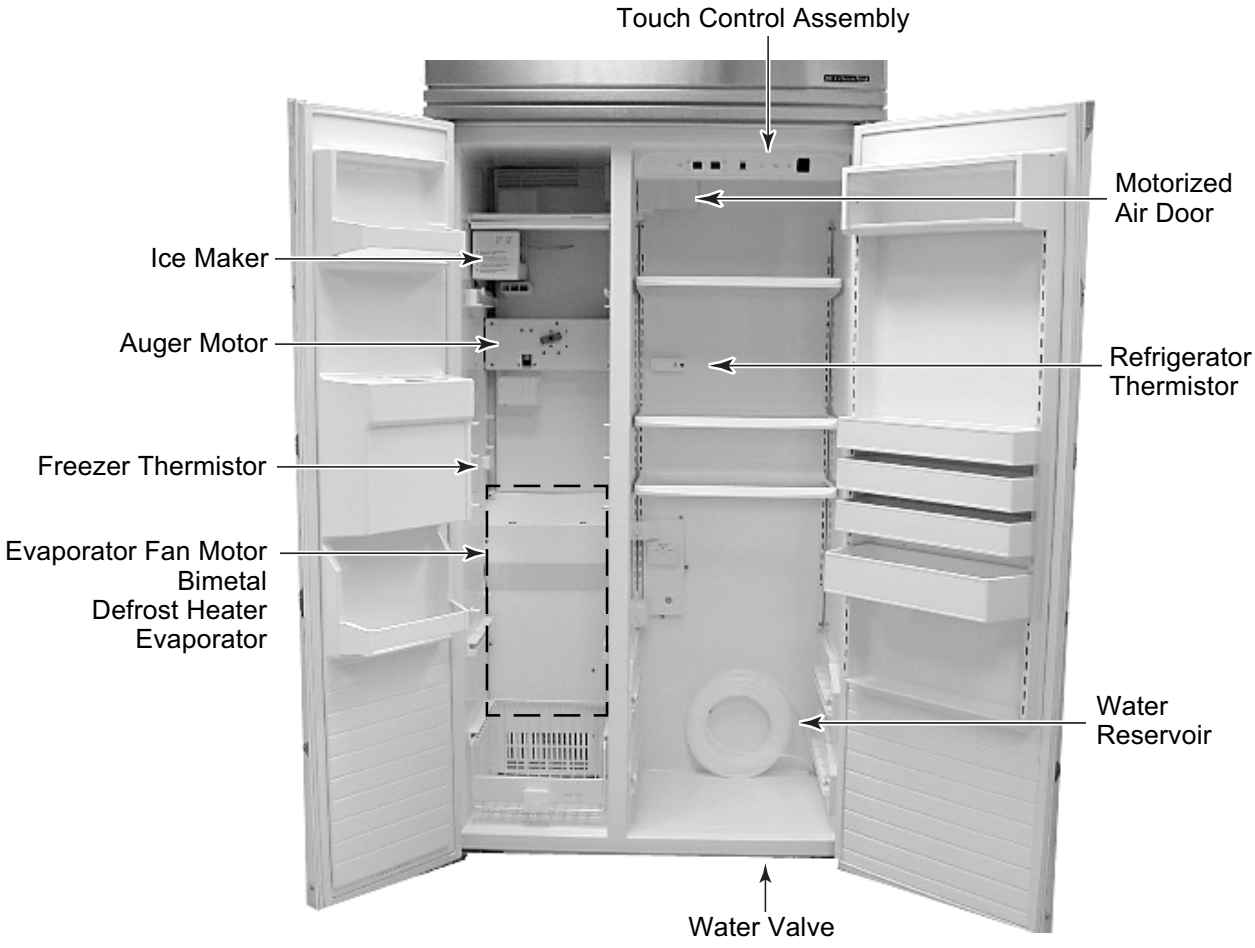


COMPONENT ACCESS

This section instructs you on how to service each component inside the refrigerator/freezer. The components and their locations are shown below.

COMPONENT LOCATIONS





REMOVING THE UNIT COMPARTMENT COVER

⚠WARNING

Electrical Shock Hazard

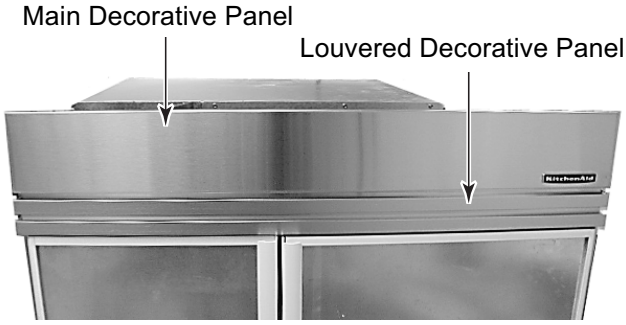
Disconnect power before servicing.

Replace all panels before operating.

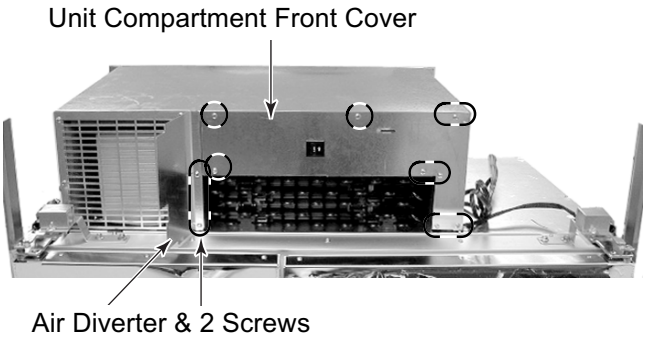
Failure to do so can result in death or electrical shock.

NOTE: Sharp edges may be present.

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.

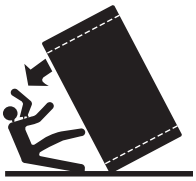


4. Remove the two hex-head screws from the air diverter and remove the diverter.
5. Remove the nine hex-head screws from the unit compartment front cover, and pull the cover forward out of the way.



NOTE: If there is less than 3″ above the top of the unit compartment cover, perform Method A to remove the cover. If there is at least 3″ above the top of the unit compartment cover, Method B will allow you to remove the cover without pulling out the refrigerator.

⚠WARNING



Tip Over Hazard

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

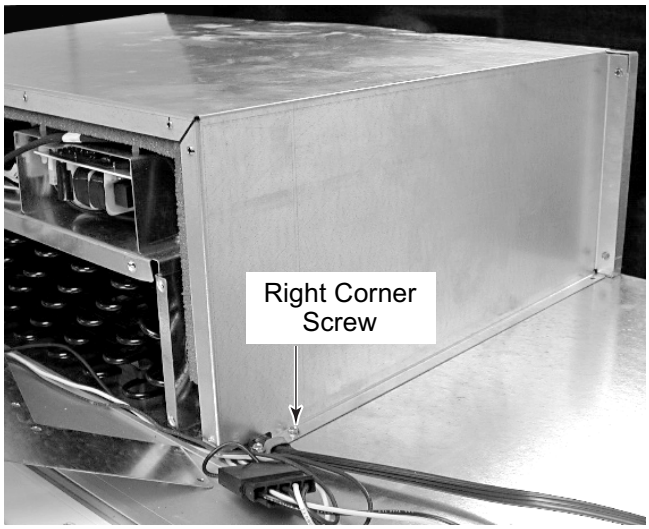
Keep door taped closed until refrigerator is completely installed.

Use two or more people to move and install refrigerator.

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

METHOD A

1. Pull the refrigerator out of its mounting location so you can access the rear of the unit.
2. Remove the left and right hex-head screws (one on each side) from the front corners of the unit compartment cover.

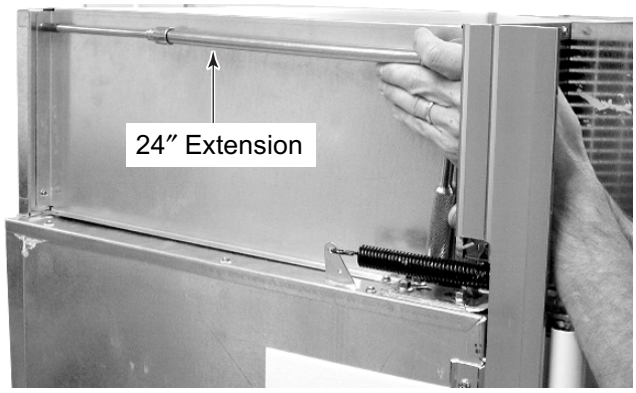


3. Remove the left and right hex-head screws from the rear channels of the unit compartment cover.

4. Lift the unit compartment cover up, and pull it forward off the refrigerator.

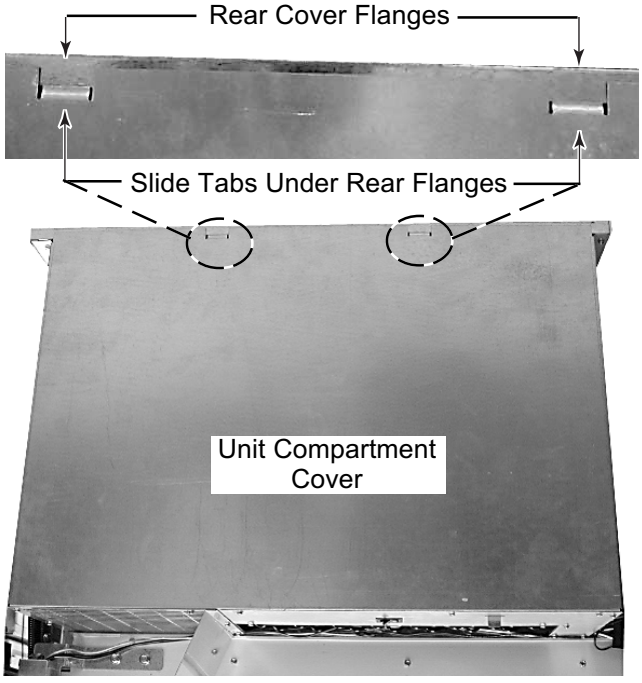
METHOD B

1. Remove the left and right hex-head screws (one on each side) from the front corners of the unit compartment cover (see the top left photo).
2. Remove the four hex-head screws (two on each side) from the rear flanges of the unit compartment cover. NOTE: You will need a 24″ hex-head socket extension with a magnetic tip to remove these screws.



3. Lift the unit compartment cover up, and pull it forward off the refrigerator.

REASSEMBLY NOTE: When you reinstall the unit compartment cover, make sure that the two unit compartment cover tabs slide under the rear cover flange, as shown below. This will provide the proper air flow.



REMOVING A DOOR SWITCH, THE POWER SWITCH, THE INVERTER ASSEMBLY, AND THE MAIN CONTROL BOARD ASSEMBLY

⚠WARNING

Electrical Shock Hazard

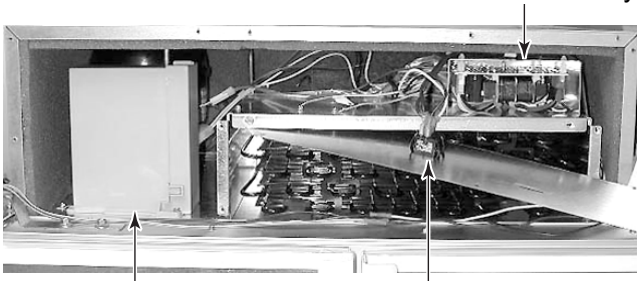
Disconnect power before servicing.

Replace all panels before operating.

Failure to do so can result in death or electrical shock.

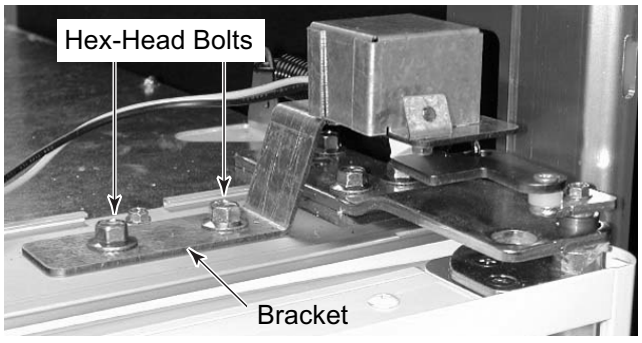
NOTE: Sharp edges may be present.

1. Unplug the refrigerator or disconnect the power.
2. Remove the main and louvered decorative panels (see page 4-2).

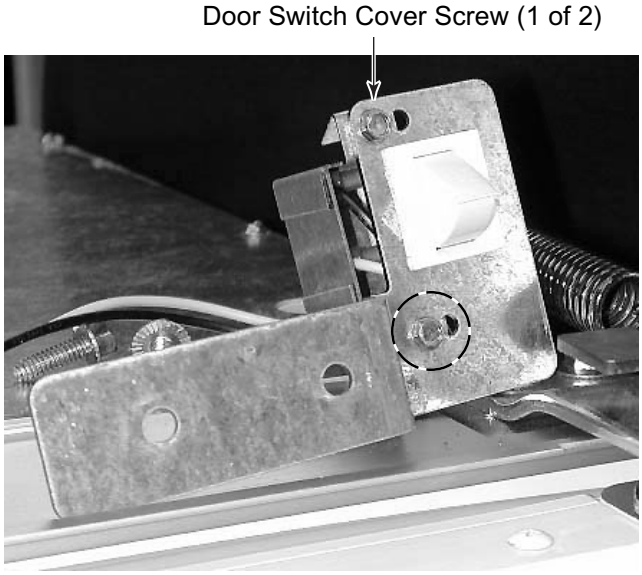


3. **To remove a door switch (Original Design):**

   a) Remove the two hex-head bolts from the door switch bracket and turn the bracket over.

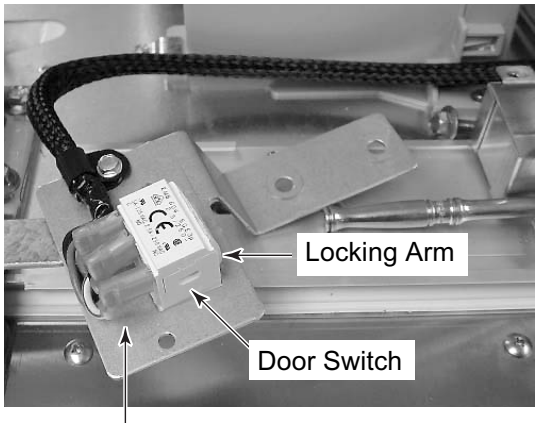


   b) Remove the two hex-head screws from the door switch cover and remove the cover.



   c) Disconnect the wire connectors from the door switch terminals.

   d) Press in on the locking arms and push the switch out of the bracket.



4. **To remove a door switch (Revised Design):**

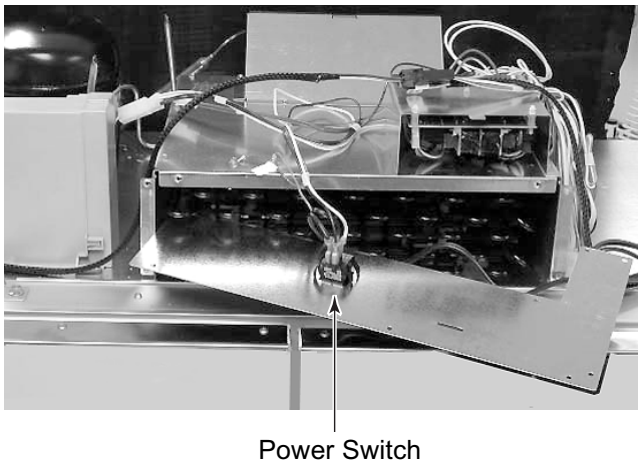
a) Remove the two hex-head screws from the door switch cover and remove the cover.

b) Disconnect the wire connectors from the door switch terminals.

c) Press in on the locking arms and push the switch out of the bracket.

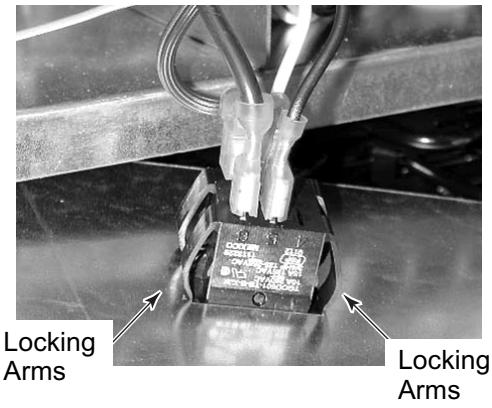
5. **To remove the power switch:**

a) Remove the unit compartment front cover, pull the cover forward, and turn it over (see step 5 on page 4-2 for the procedure).



b) Remove the four wire connectors from the power switch terminals.

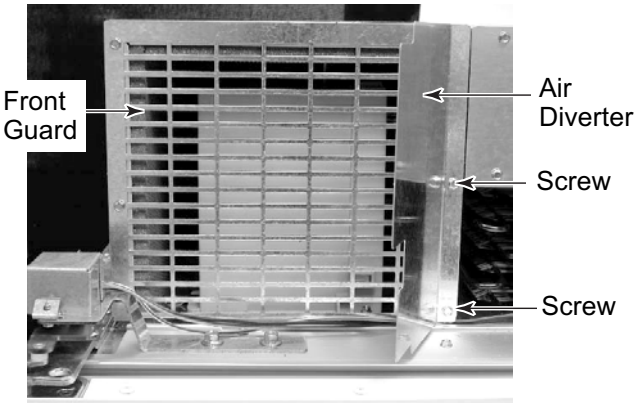
c) Press in on the locking arms and push the switch out of the cover opening.



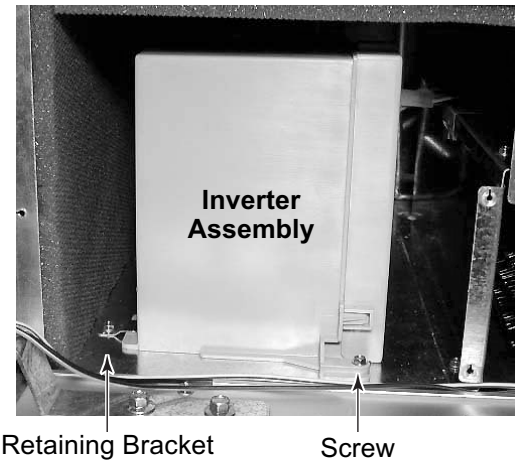
6. **To remove the inverter assembly:**

a) Remove the two hex-head screws from the air diverter and remove the diverter.

b) Remove the three remaining hex-head screws from the front guard and remove the guard.

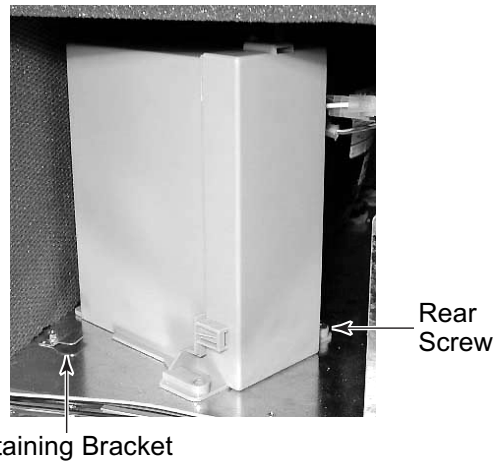


c) Remove the hex-head screw from the front of the inverter assembly.

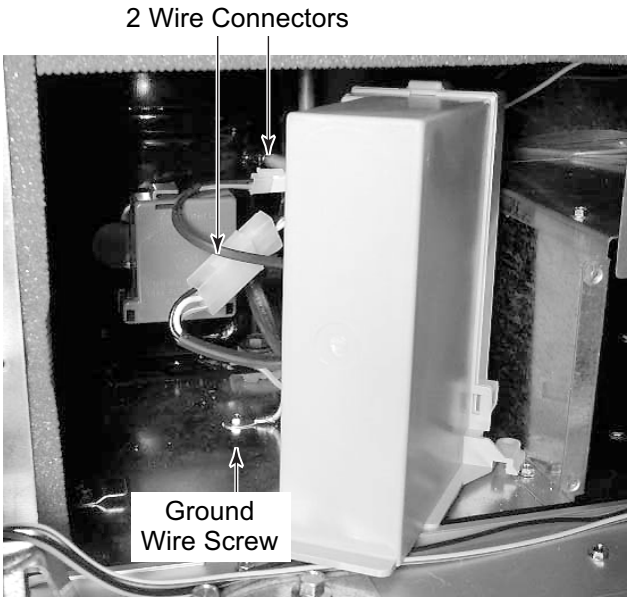


Continued on the next page.

d) Pull the inverter assembly forward so it is free of the retaining bracket, rotate the box so you can access the rear mounting screw, and remove the screw.



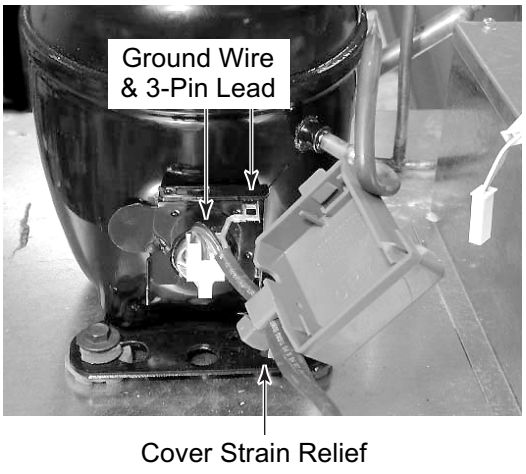
e) Disconnect the two wire connectors and the hex-head screw from the green ground wire coming from the inverter assembly.



f) Remove the compressor terminal cover. To remove the cover, insert a flat-bladed 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 the bottom catch.

g) Disconnect the green ground wire and the 3-pin inverter output lead from the compressor.

h) Loosen the strain relief screw from the compressor terminal cover, remove the wire, and remove the inverter assembly.



⚠WARNING

Electrical Shock Hazard

Connect green ground wire to ground screw.

Failure to do so can result in death or electrical shock.

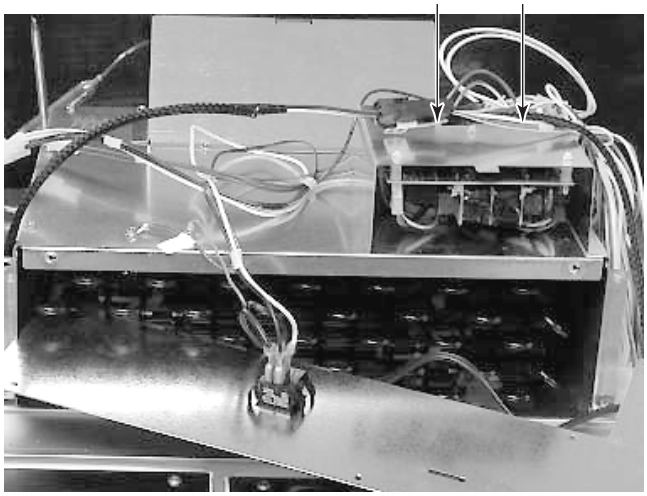
REASSEMBLY NOTE: Be sure to reconnect the green ground wires; one to the compressor terminal, and the other to the chassis (see the previous steps).

7. **To remove the main control board assembly:**

   a) Remove the unit compartment cover (see pages 4-2 & 4-3 for the procedures).

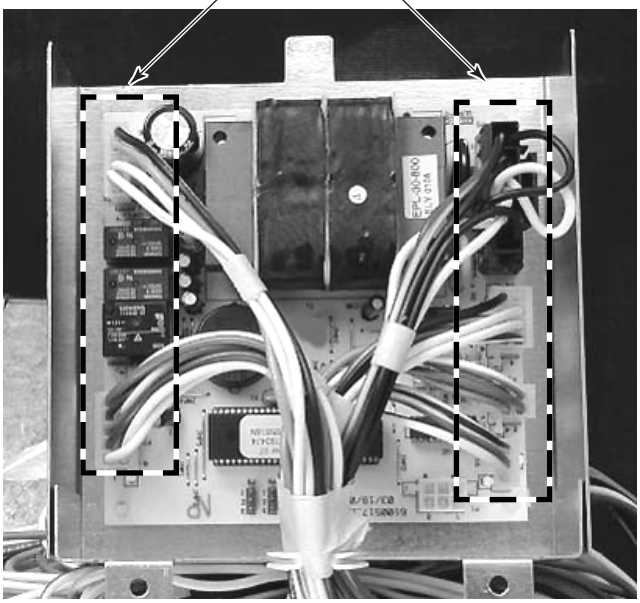
   b) Remove the two hex-head screws from the rear of the main control board assembly enclosure, and position it so you can access the board.

Screws At Rear Of Enclosure

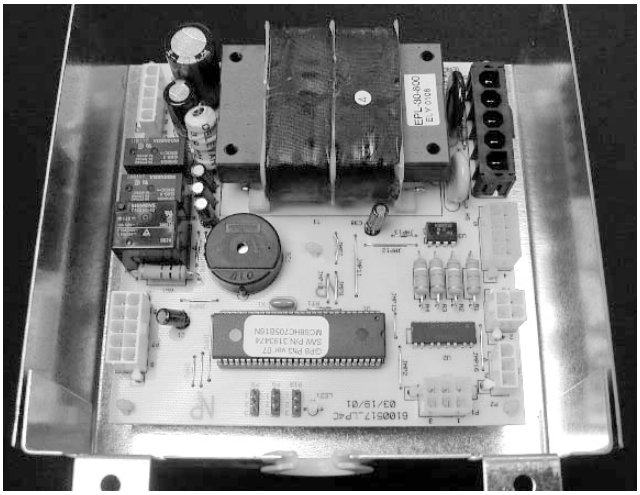


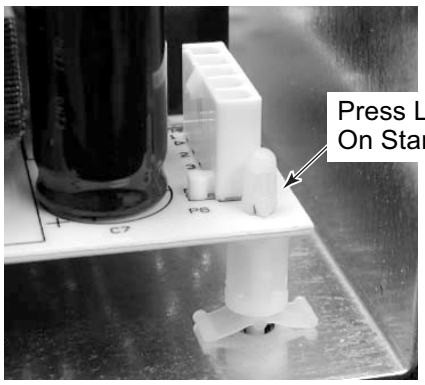
   c) Remove the wire connectors from the main control board assembly.

Wire Connectors



   d) Remove the main control board from the five standoffs. Press in on the locking tab on each standoff to release the board.





Press Locking Tab On Standoff

REMOVING THE CONDENSER FAN MOTOR

⚠WARNING

Electrical Shock Hazard

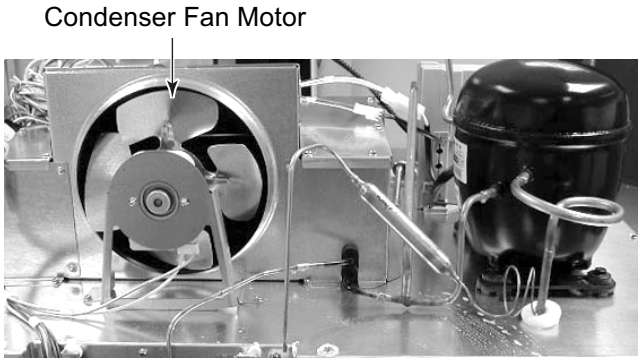
Disconnect power before servicing.

Replace all panels before operating.

Failure to do so can result in death or electrical shock.

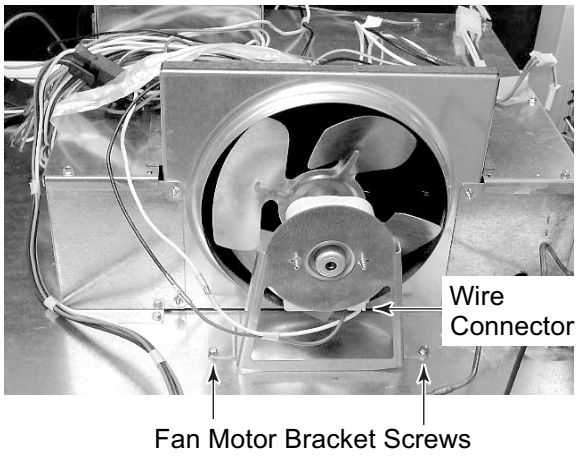
NOTE: Sharp edges may be present.

1. Unplug the refrigerator or disconnect the power.
2. Remove the main and louvered decorative panels (see page 4-2).
3. Remove the unit compartment cover (see pages 4-2 & 4-3 for the procedures).

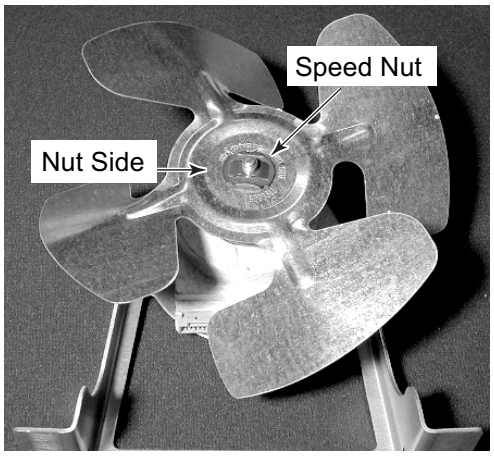


Viewed From Back Of Unit

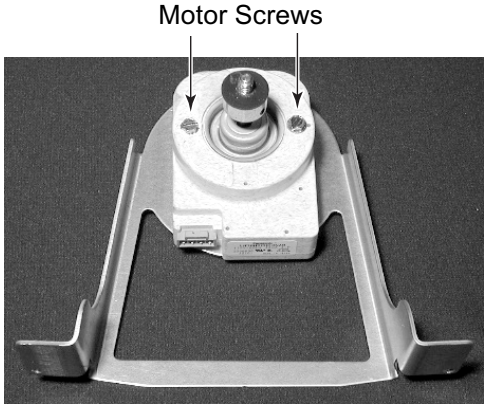
4. Remove the two hex-head screws from the fan motor bracket (see the photo at the top of the next column).
5. Disconnect the wire connector from the condenser fan motor.



6. Lay the condenser fan motor on a work surface with the fan blade facing up.
7. Remove the speed nut from the condenser fan blade and remove the blade from the motor shaft. NOTE: Be sure to position the fan blade with the “Nut Side” facing as shown when you reinstall it later.



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



REMOVING THE COMPRESSOR AND FILTER/DRIER

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all panels before operating.

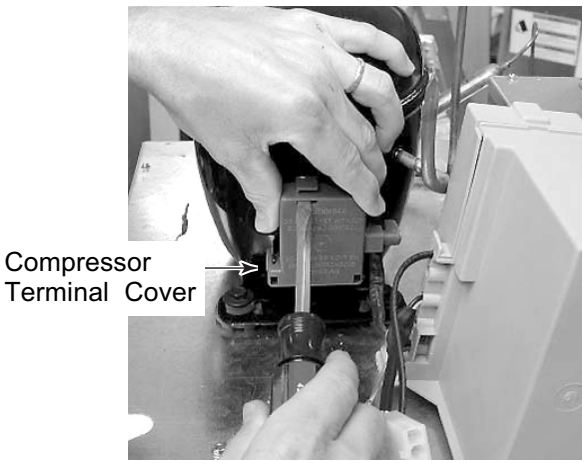
Failure to do so can result in death or electrical shock.

NOTE: Sharp edges may be present.

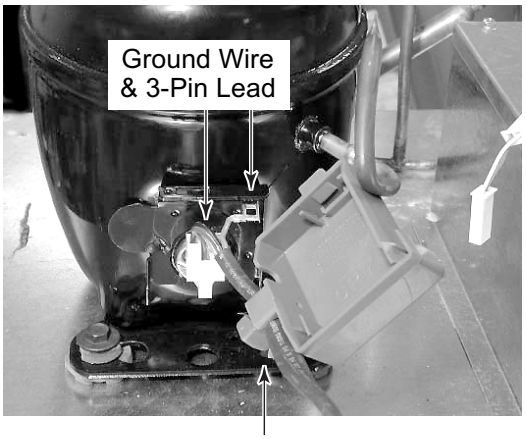
1. Unplug the refrigerator or disconnect the power.
2. Remove the main and louvered decorative panels (see page 4-2).
3. Remove the unit compartment cover (see pages 4-2 & 4-3 for the procedures).

NOTE: The compressor location is shown on page 4-8.

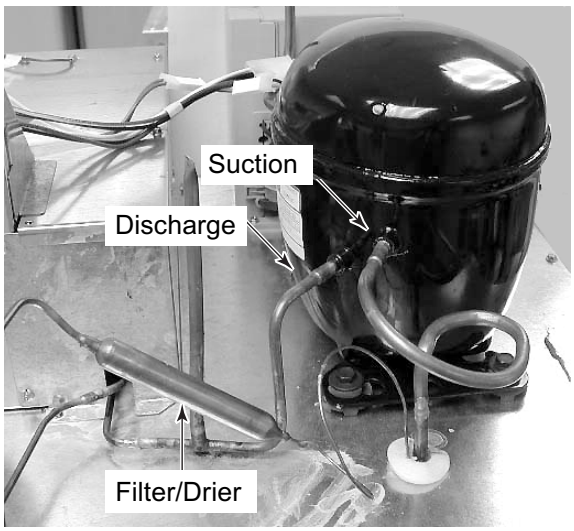
4. Remove the compressor terminal cover. To remove the cover, insert a flat-bladed screwdriver into the top slot, push down on the screwdriver to release the catch, and then rotate the cover forward at the top and lift it off the bottom catch.



5. Disconnect the green ground wire and the 3-pin inverter output lead from the compressor (see the photo at the top right).
6. Loosen the strain relief screw from the compressor terminal cover and remove the wire.



7. Access the sealed system and discharge the refrigerant into an approved recovery system.
8. Unbraze the suction and discharge lines from the compressor.
9. Cut the filter/drier from the system (do not use a torch to remove the filter/drier).



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

REMOVING THE BIMETAL, THE EVAPORATOR FAN MOTOR, THE DEFROST HEATER, AND THE EVAPORATOR

⚠WARNING

Electrical Shock Hazard

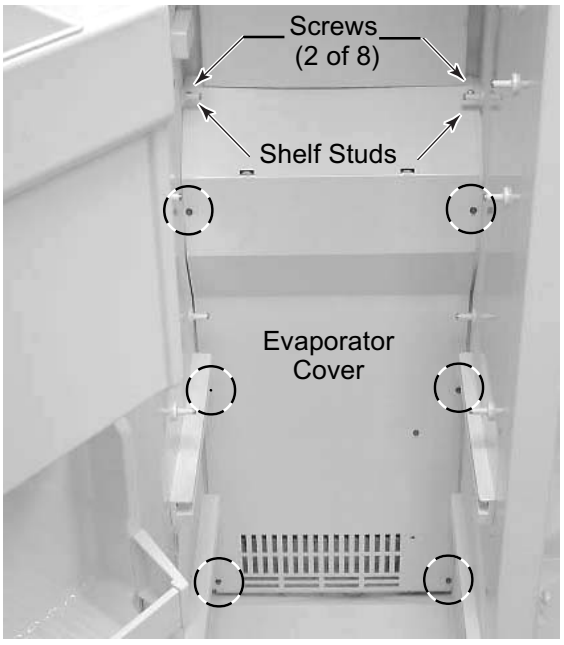
Disconnect power before servicing.

Replace all panels before operating.

Failure to do so can result in death or electrical shock.

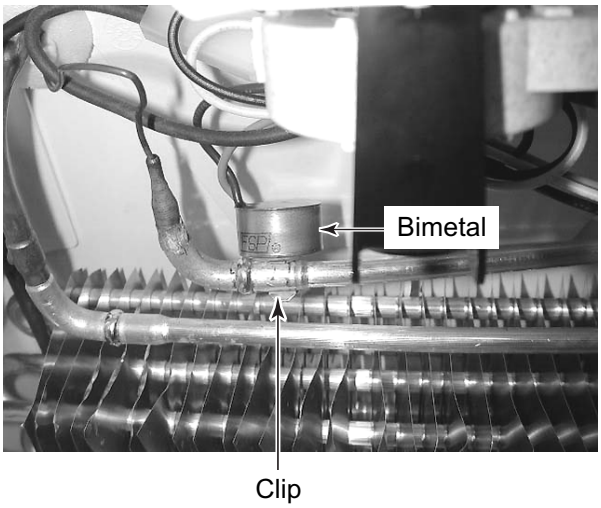
NOTE: Sharp edges may be present.

1. Unplug the refrigerator or disconnect the power.
2. Open the freezer door.
3. Remove the freezer shelves that are over the evaporator cover.
4. Remove the indicated two shelf mounting studs.



5. Remove the eight hex-head screws from the evaporator cover.
6. Lift and unhook the two evaporator cover tabs, then lower the cover until the top edge clears the air duct, and slide the cover up and out of the freezer.

7. **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.

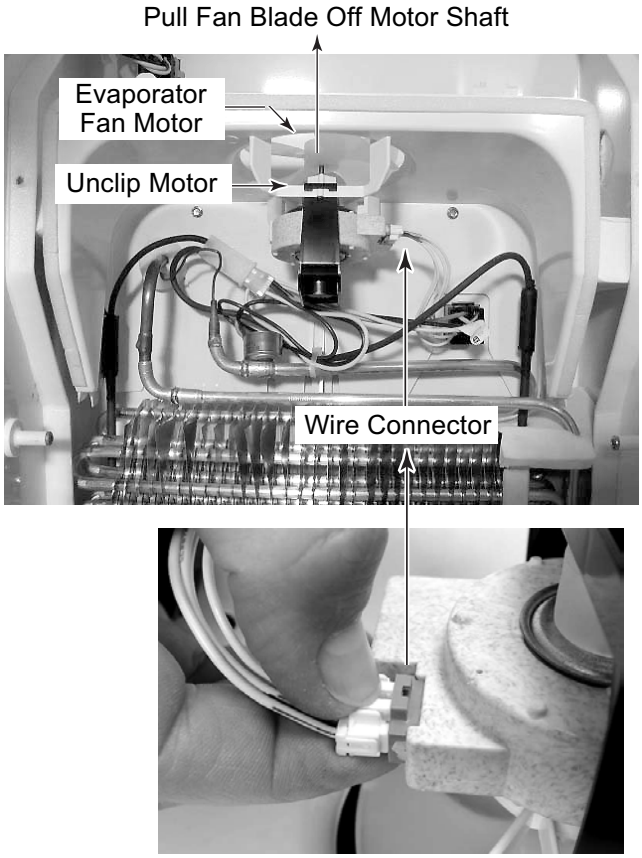


8. **To remove the evaporator fan motor:**

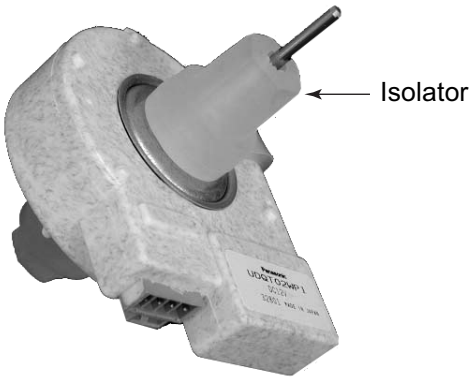
a) Pull the fan blade off the motor shaft.

b) Unclip the motor.

c) Disconnect the wire connector from the terminals.



d) Remove the isolator from the motor.

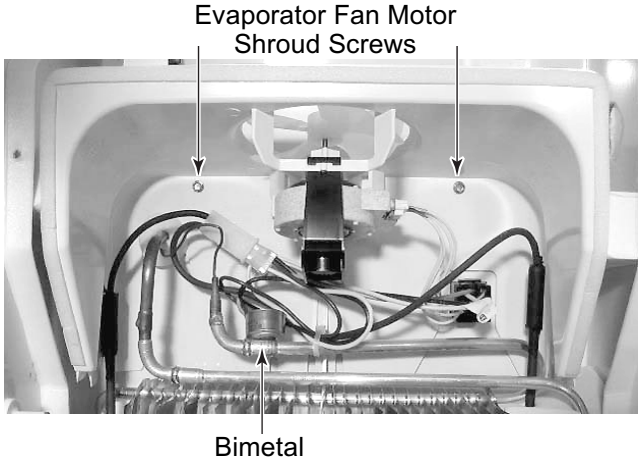


9. **To remove the defrost heater:**

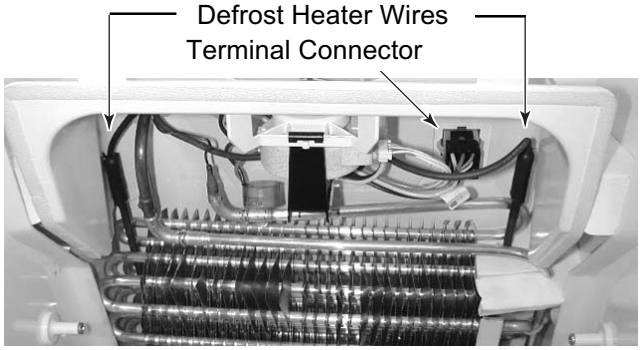
a) Remove the two hex-head screws from the evaporator fan motor shroud.

b) Lift the evaporator fan motor shroud and disconnect the evaporator fan motor connector (see the photo to the left).

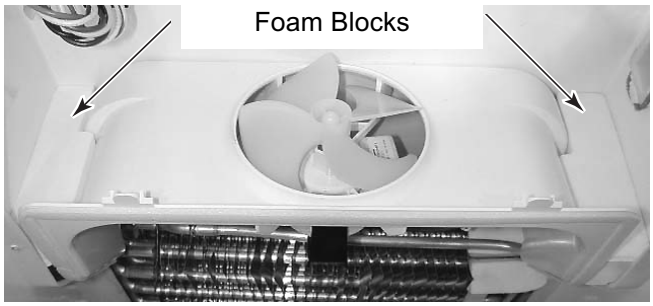
c) Unclip the bimetal from the evaporator inlet tubing.



d) Disconnect the terminal connector and the two defrost heater wires from the harness connector.

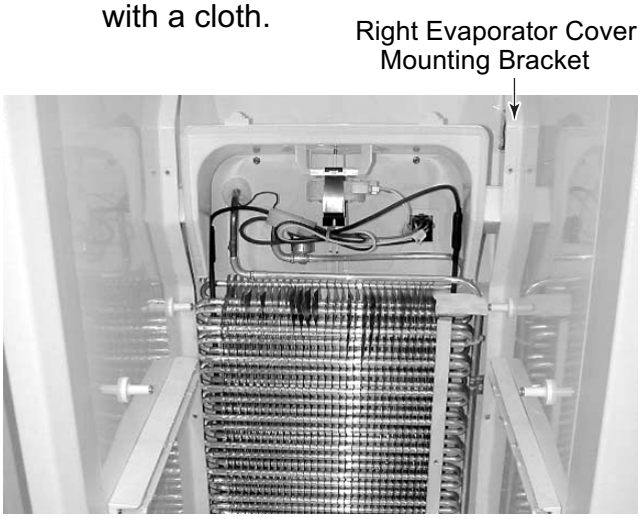


e) Remove the evaporator fan motor shroud and the two side foam blocks.

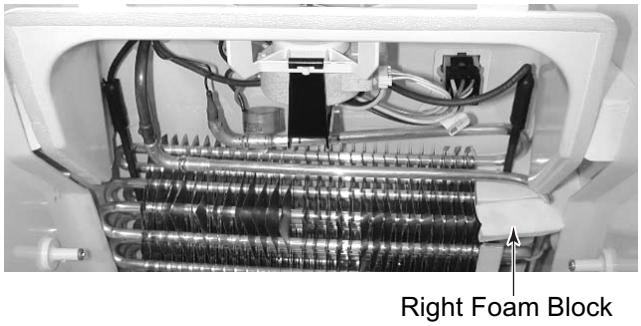


Continued on the next page.

f) 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.

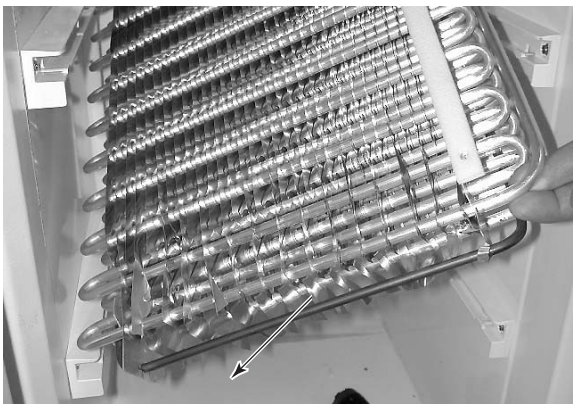


g) Remove the foam block from the right side of the evaporator.

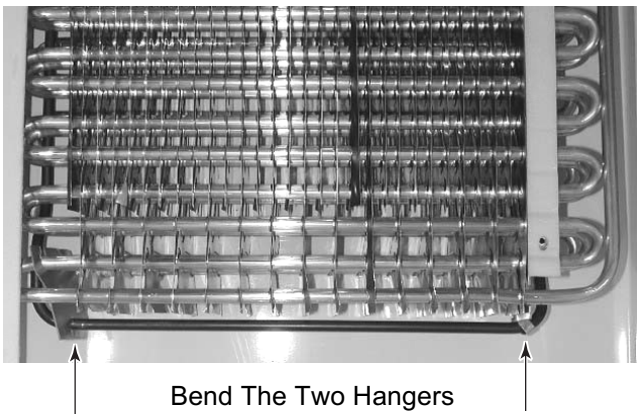


NOTE: Be very careful not to over-bend the refrigerant tubing.

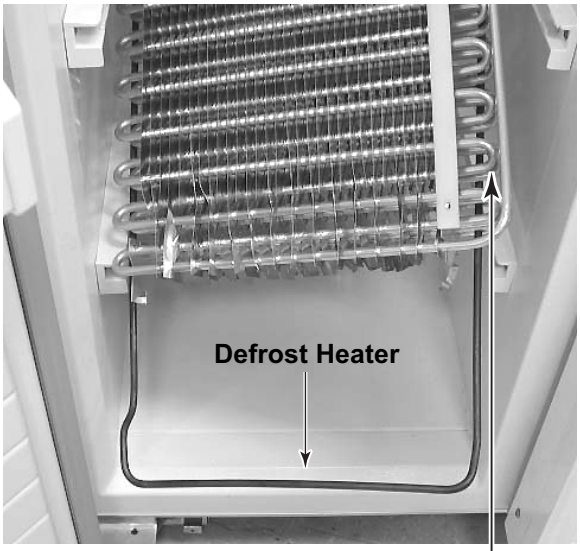
h) Lift the evaporator up slightly and unhook it from the liner, then pull the bottom of the evaporator toward the front of the unit.

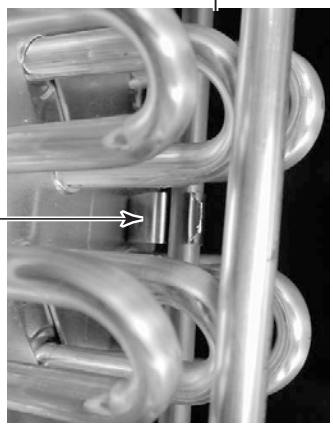


i) Bend the two hangers at the bottom of the evaporator.

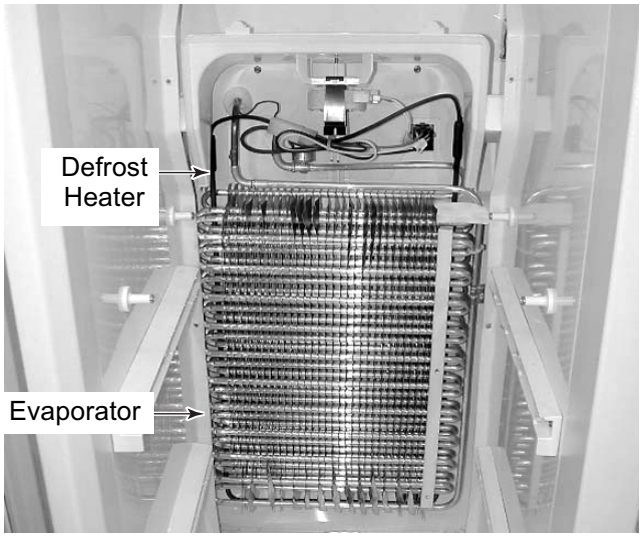


j) Unfasten the two metal clips from the right side, and slide the defrost heater down and off the evaporator.



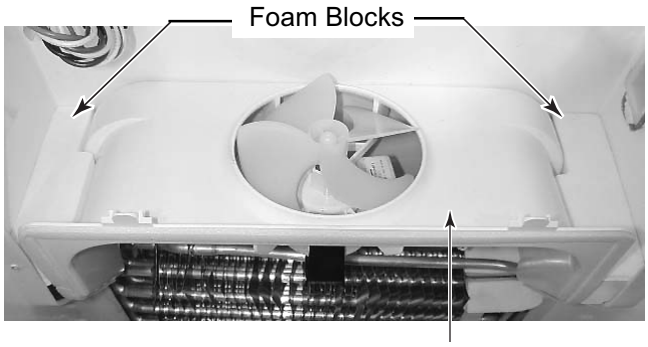


10. **To remove the evaporator:**
    a) Remove the defrost heater from the evaporator (see pages 4-11 & 4-12).
    b) Access the sealed system and discharge the refrigerant into an approved recovery system.
    c) Remove and replace the evaporator.

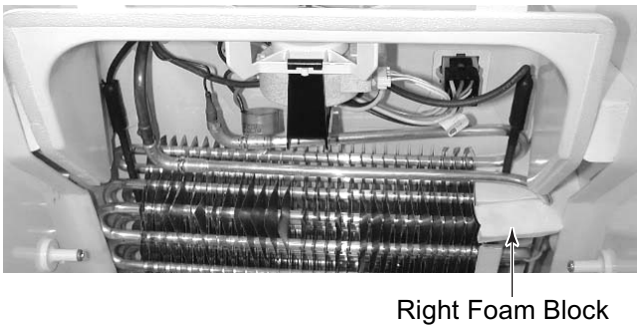


REASSEMBLY NOTES:

1. The evaporator fan motor shroud has a foam insert on each side. Note the position of these inserts in the photo and reinstall them correctly, as shown.



2. Be sure to reinstall the right foam block at the location shown below.



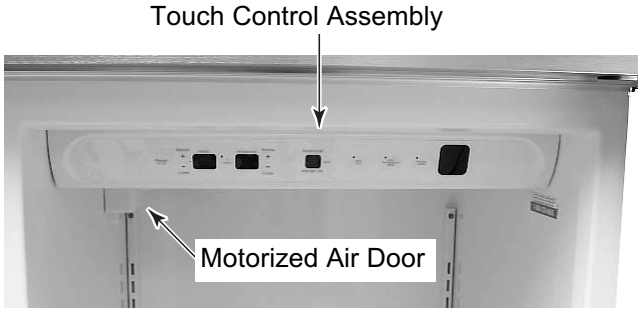
REMOVING THE TOUCH/DISPLAY BOARD & THE MOTORIZED AIR DOOR

⚠WARNING

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

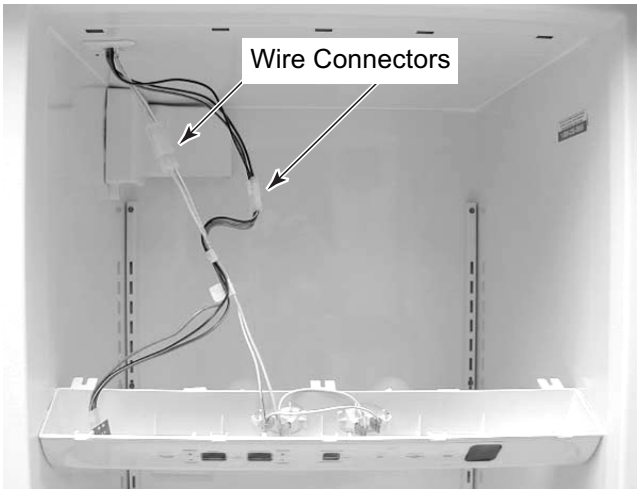
NOTE: Sharp edges may be present.

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 you can easily access the touch control assembly or the motorized air door. The locations are shown below.

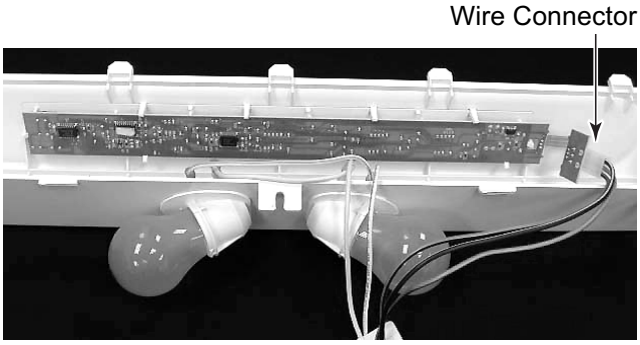


3. **To remove the touch/display board:**
   a) Remove the three hex-head screws from the back of the touch control assembly and lower the assembly.

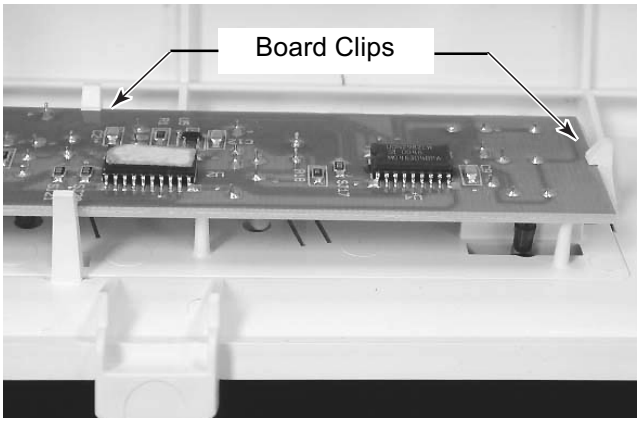
   b) Disconnect the two wire connectors from the touch control assembly and remove the assembly from the refrigerator.



   c) Disconnect the wire connector from the end of the touch/display board.

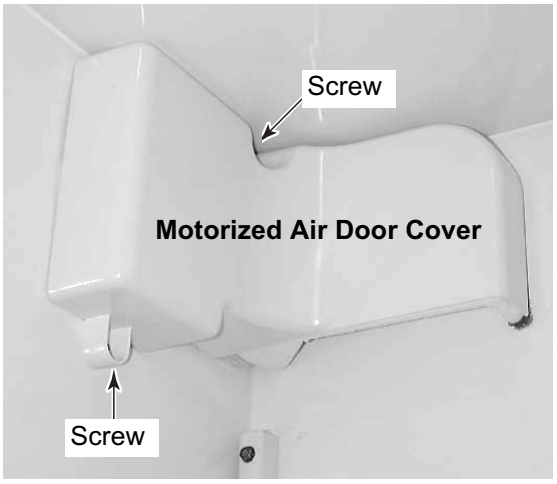


   d) Unclip the touch/display board from the locking tabs and remove the board.



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.

c) Disconnect the wire connector from the motorized air door and remove it. RE-ASSEMBLY NOTE: Be sure to position the motorized air door with the motor and wires as shown in the bottom left photo.

REMOVING THE ICE MAKER AND THE AUGER MOTOR & CRUSH/CUBE SOLENOID

⚠WARNING

Electrical Shock Hazard

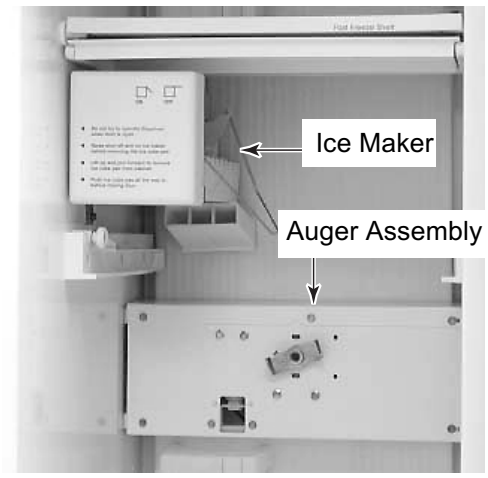
Disconnect power before servicing.

Replace all panels before operating.

Failure to do so can result in death or electrical shock.

NOTE: Sharp edges may be present.

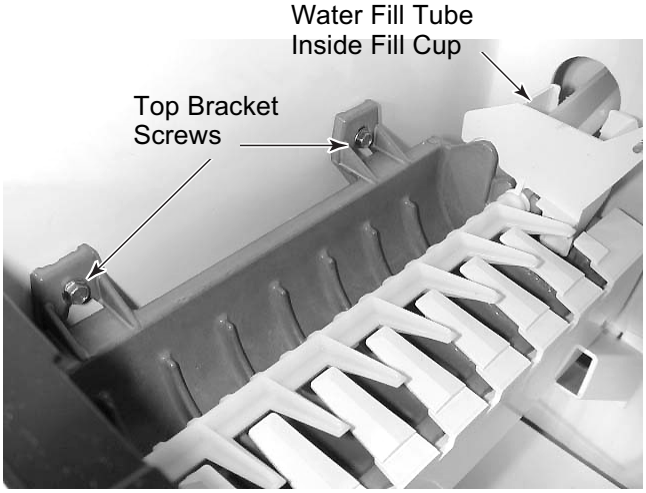
1. Unplug the refrigerator or disconnect the power.
2. Open the freezer door and remove the ice maker shelf and the ice bin.



3. **To remove the ice maker:**
   a) Remove the bottom screw from the ice maker bracket.

Bottom Bracket Screw

   b) Loosen the two top ice maker bracket screws.
   c) Lift the brackets at the top of the ice maker off the screws, disconnect the electrical harness connector, and remove the ice maker.

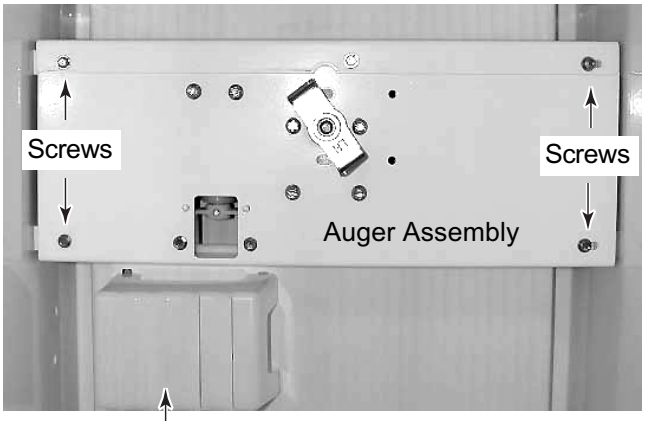


NOTE: When you reinstall the ice maker, make sure that the end of the water fill tube is positioned inside the fill cup (see the photo above).

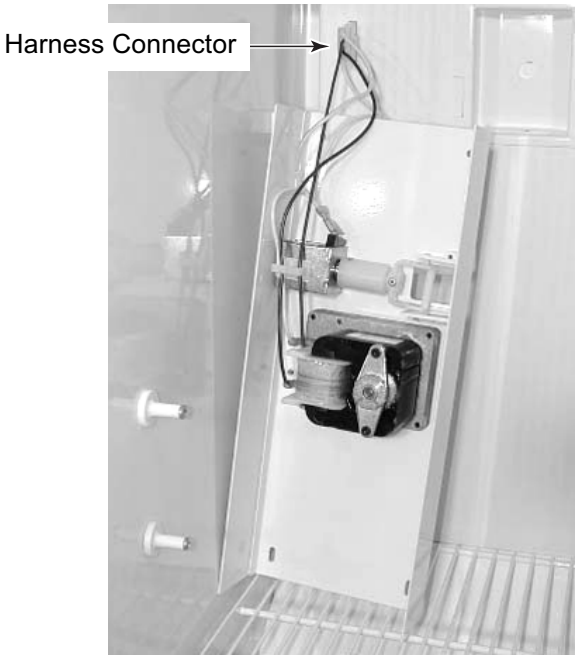
4. **To remove the auger motor or crush/ cube solenoid:**

a) Remove the light shield and the bulb from the socket.

b) Remove the four hex-head screws from the auger assembly and pull the assembly forward.

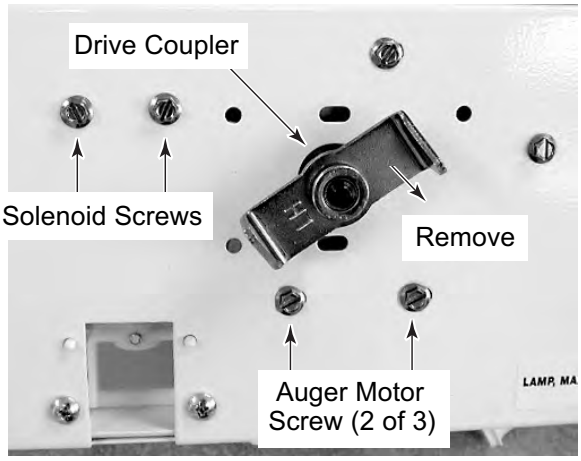


c) Disconnect the electrical harness connector, and remove the auger assembly.



d) To remove the auger, unscrew the drive coupler (left-hand threads) and remove it from the motor shaft.

e) Remove the three auger motor hex-head screws from the housing.

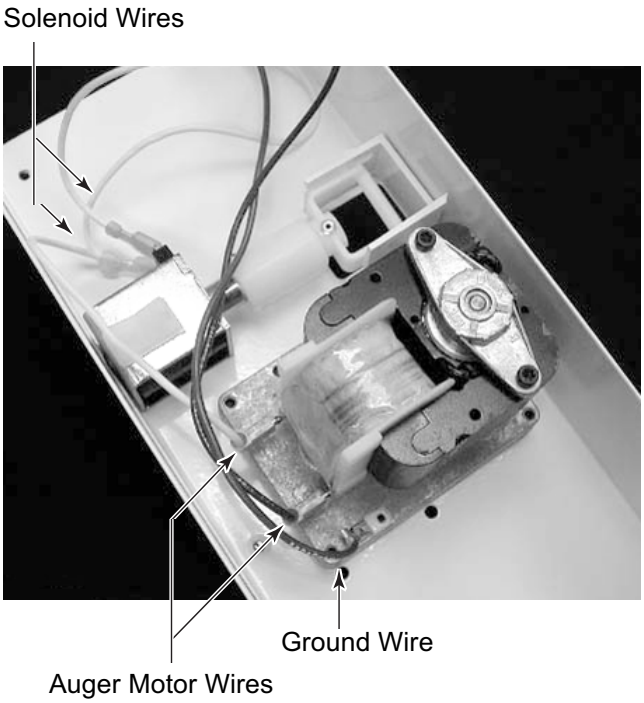


f) Disconnect the wires from the auger motor terminals.

g) Disconnect the wires from the solenoid terminals.

h) Remove the green ground wire from the ground terminal.

i) To remove the crush/cube solenoid, remove the two hex-head mounting screws from the housing (see above).



REMOVING A THERMISTOR

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all panels before operating.

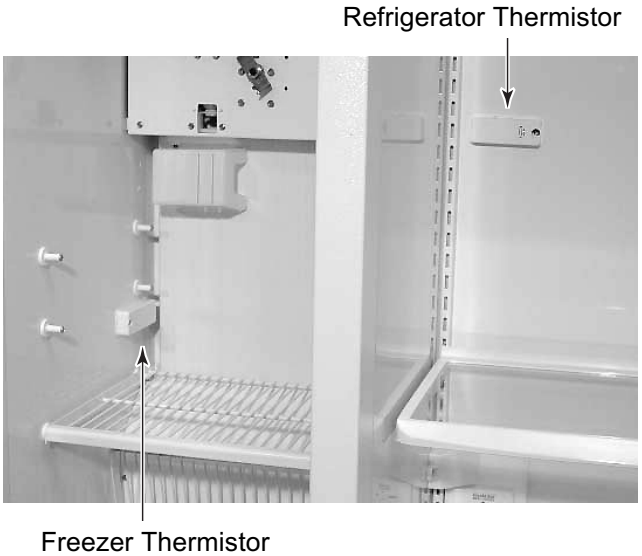
Failure to do so can result in death or electrical shock.

NOTE: Sharp edges may be present.

1. Unplug the refrigerator or disconnect the power.

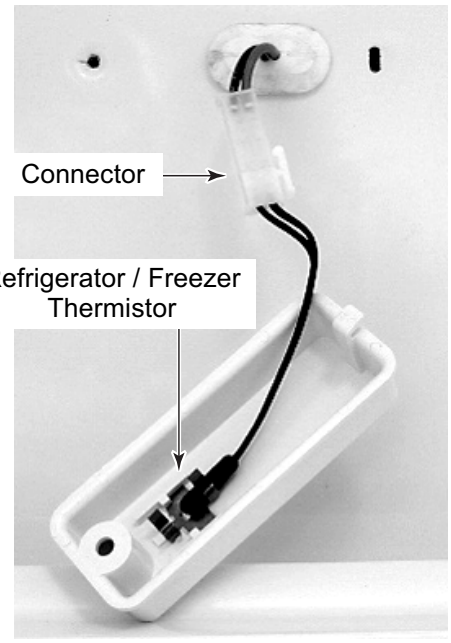
NOTE: The refrigerator and freezer thermistors are identical and are removed in the same manner.

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.



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 A LIGHT SOCKET

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all panels before operating.

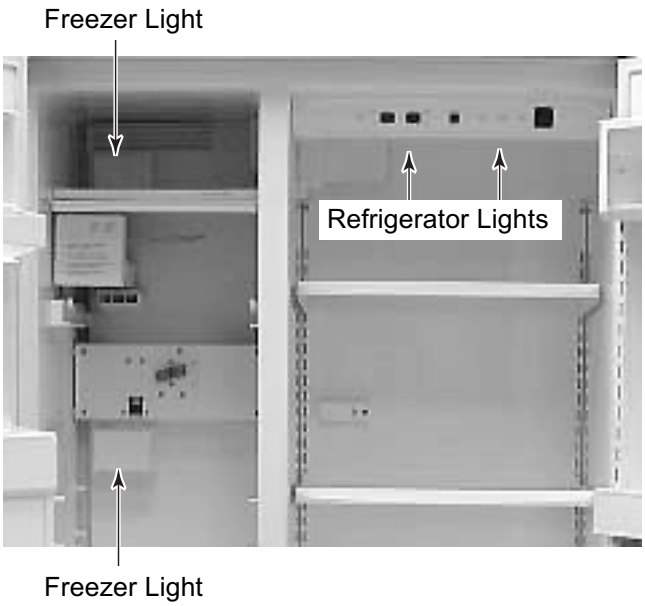
Failure to do so can result in death or electrical shock.

NOTE: Sharp edges may be present.

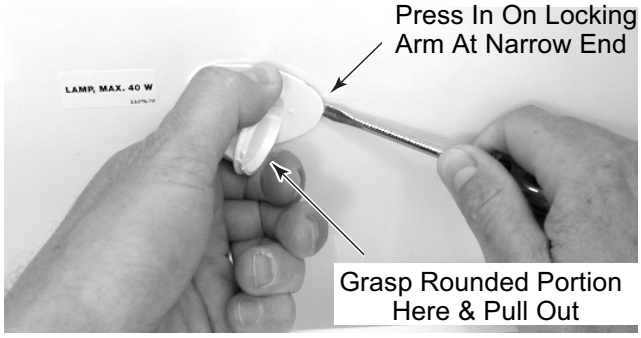
1. Unplug the refrigerator or disconnect the power.

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

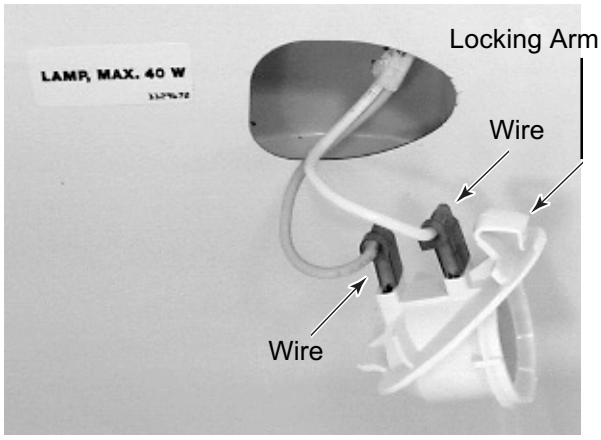
2. Depending on the light, open the freezer or refrigerator door, and remove any items from the shelf that are in front of the light. It may be necessary to remove the shelf as well. The light locations are shown below.



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 (see the photo below) with a screwdriver blade. Pull out on the socket until it disengages from the opening.



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



REMOVING THE WATER RESERVOIR

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all panels before operating.

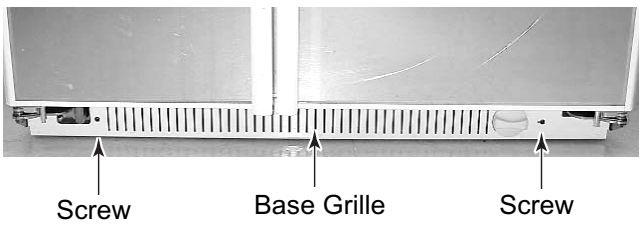
Failure to do so can result in death or electrical shock.

NOTE: Sharp edges may be present.

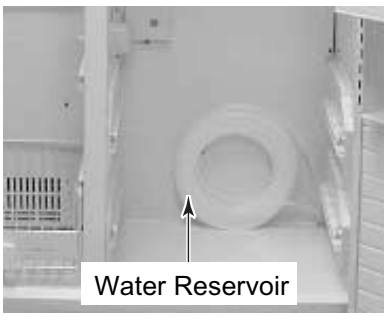
1. Unplug the refrigerator or disconnect the power.

NOTE: If the water reservoir tubing located inside the refrigerator compartment becomes damaged, you can cut and splice a new reservoir in its place using two 5/16″ unions (**#4388201**). If the tubing located under the refrigerator is defective, it will be necessary to remove the unit from its mounting location to repair it. If that is the case, use the following procedure.

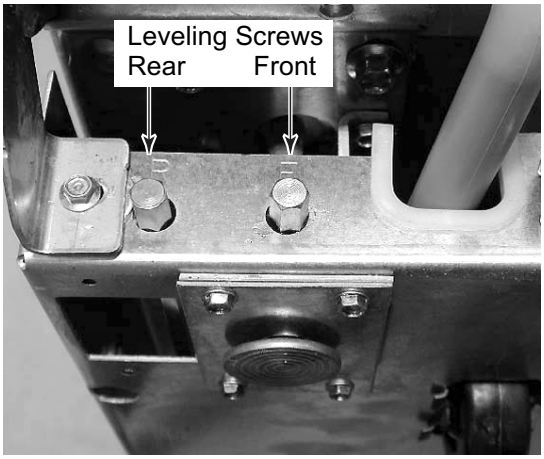
2. Remove the two screws from the base grille and remove the grille.



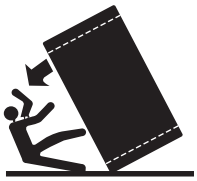
NOTE: The water reservoir and water valve locations are shown below.



3. Use the leveling screws and lower the refrigerator onto the four rollers.



⚠WARNING



Tip Over Hazard

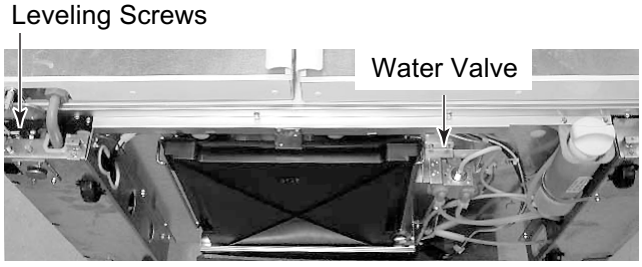
Refrigerator is top heavy and tips easily when not completely installed.

Keep door taped closed until refrigerator is completely installed.

Use two or more people to move and install refrigerator.

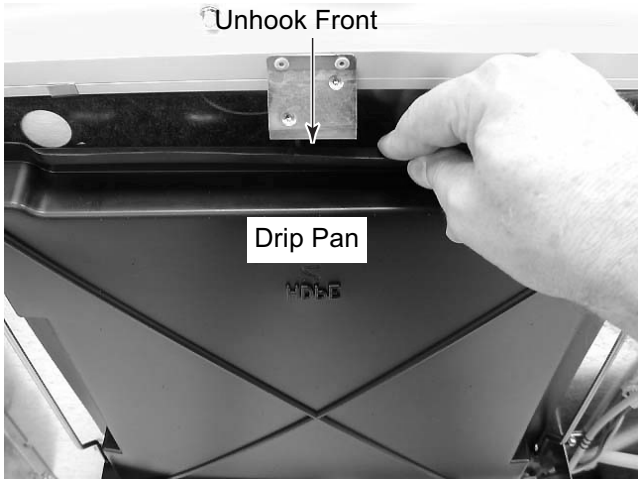
Failure to do so can result in death or serious injury.

4. Pull the refrigerator out of its mounting location.

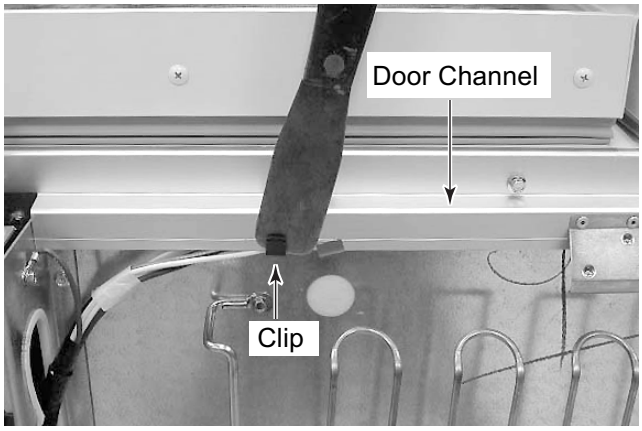


Unit Shown Tipped Back 45˚

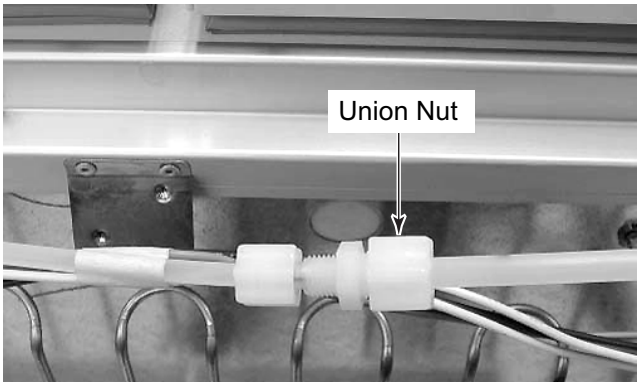
5. Unhook the front edge of the drip pan and pull it out the front of the refrigerator.



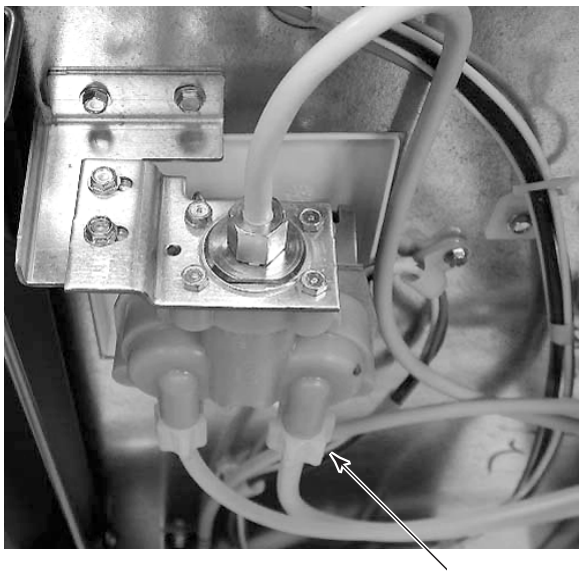
6. Use a putty knife, slide the retainer clips off the door channel, and pull the water line out from under the channel.



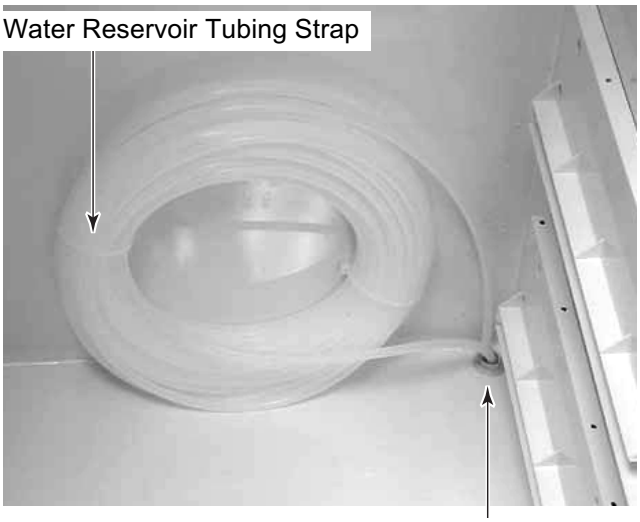
7. Position a container to catch the water in the next step.
8. Disconnect the nut from the union and remove the nut from the end of the water reservoir tubing.



9. Reach under the front of the refrigerator and remove the water reservoir outlet tubing nut from the water valve and remove the nut from the end of the tubing.



10. Remove the crisper and bottom shelves from the refrigerator compartment.
11. Remove the hex-head screw from the water reservoir tubing strap.
12. Pull the ends of the water reservoir tubing up through the grommet.



REMOVING THE WATER VALVE

⚠WARNING

Electrical Shock Hazard

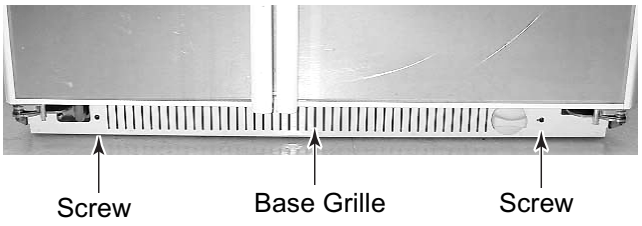
Disconnect power before servicing.

Replace all panels before operating.

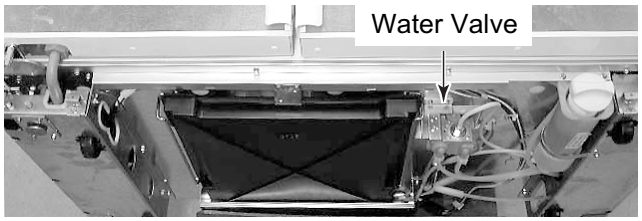
Failure to do so can result in death or electrical shock.

NOTE: Sharp edges may be present.

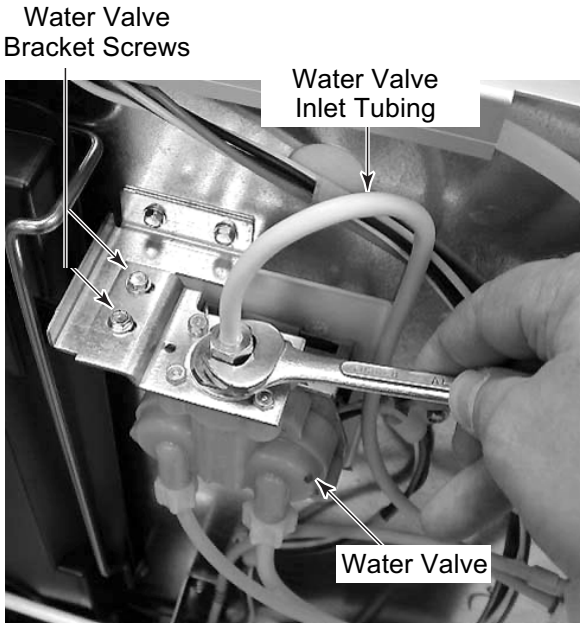
1. Unplug the refrigerator or disconnect the power.
2. Remove the two screws from the base grille and remove the grille.
3. Turn off the water supply to the refrigerator.



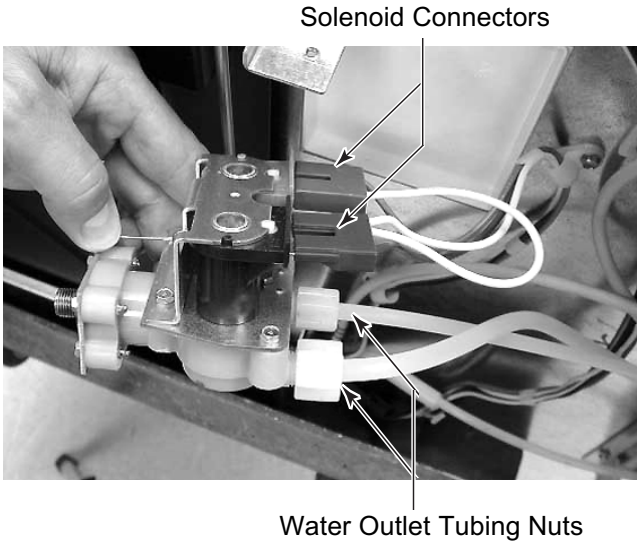
NOTE: The water valve location is shown below.



4. Position a container to catch the water in the next step.
5. Disconnect the 1/2″ nut from the water valve inlet.
6. Remove the two hex-head mounting screws from the water valve mounting bracket.



7. Pull the water valve forward and disconnect the water outlet tubing nut(s).
8. Disconnect the solenoid connector(s) from the water valve terminal(s).



REMOVING THE WATER & ICE DISPENSER

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all panels before operating.

Failure to do so can result in death or electrical shock.

NOTE: Sharp edges may be present.

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

Drip Tray

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. Refer to step 3 for paneled doors, or step 4 for stainless steel trimless doors, to remove either type of front panel.

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 & ice dispenser.

Top Channel

Bottom Channel

   d) Proceed to step 5 on the next 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 & ice dispenser.
   b) Use a rubber mallet, and hit the block while you pull out at the bottom, so that the cover tab releases the panel from the dispenser housing.

Wood Block →

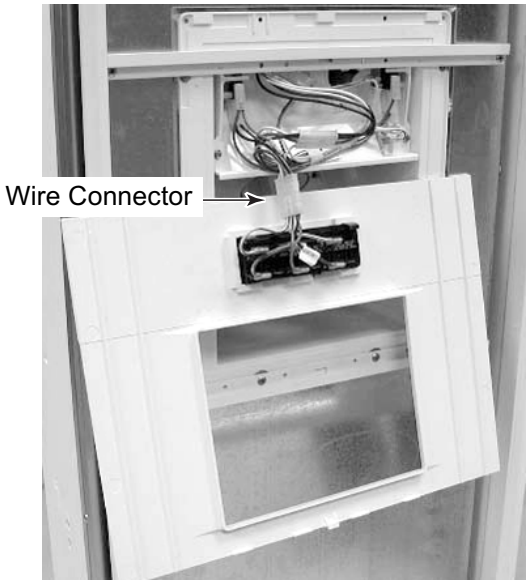
Continued on the next page.

c) Repeat the previous step for the other corner of the front panel.

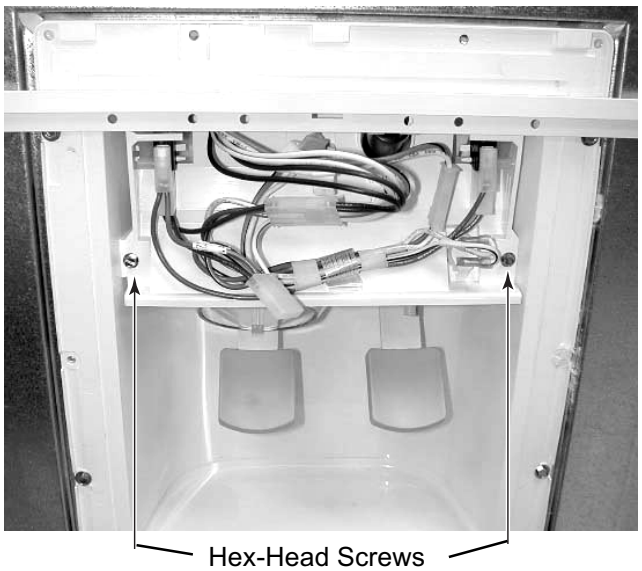
d) Pull the bottom of the front panel out and then down to remove it from the dispenser.

5. **To remove the dispenser:**

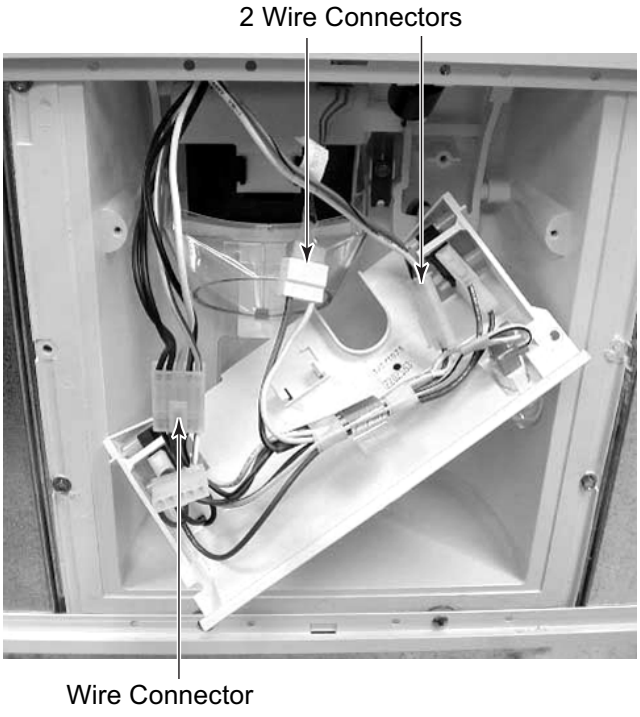
a) Disconnect the front panel wire connector and remove the panel.



b) Remove the two hex-head screws from the switch subpanel, pull the panel forward, and turn it over.

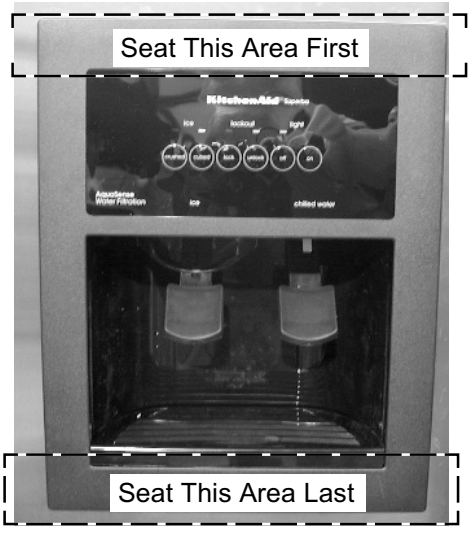


c) Disconnect the three wire connectors and remove the subpanel.



REASSEMBLY NOTE: To reinstall the front panel on stainless steel trimless doors:

1. Fit the top edge of the panel into the door opening.
2. Place a folded towel over the top edge of the panel and hit it with the rubber mallet you used earlier to seat it in the door.
3. Place the folded towel along the bottom edge of the front panel and seat it with the mallet.



REMOVING A DOOR GASKET

⚠WARNING

Electrical Shock Hazard

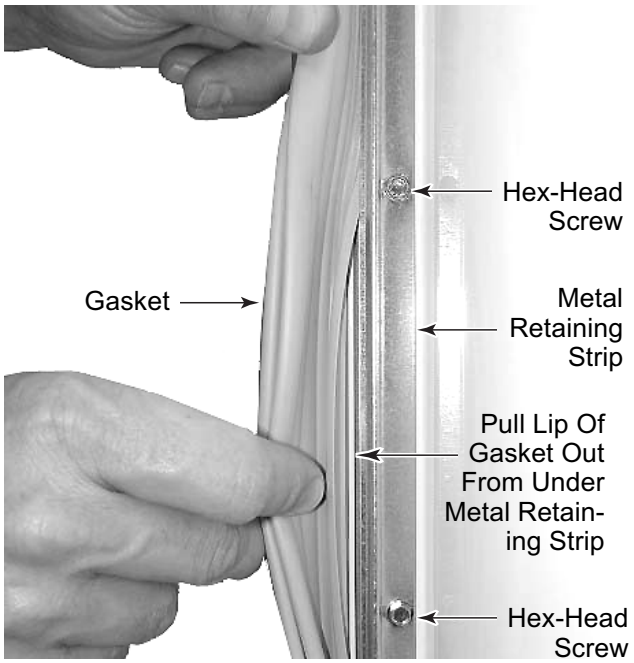
Disconnect power before servicing.

Replace all panels before operating.

Failure to do so can result in death or electrical shock.

NOTE: Sharp edges may be present.

1. Unplug the refrigerator or disconnect the power.
2. Open the door for the gasket you intend to replace.
3. Fold the door gasket back and loosen the hex-head screws around the perimeter of the door.
4. Pull the lip of the gasket out from under the metal retaining strip and remove the gasket.



5. Starting at the top of the door, install the new door gasket by sliding the lip of the gasket under the metal retaining strip.
6. Tighten the top of the metal retaining strip just enough to hold the gasket in place.
7. Starting at the center of the gasket on the right side, work toward the top of the door, and slide the lip of the gasket under the metal retaining strip, tightening the strip as you go. Make sure that the back edge of the gasket butts up against the handle bracket from top to bottom.
8. Close the door and check the gasket to make sure that it seals tightly against the frame. If the gasket is buckled, loosen the metal retaining strip, and smooth the area.
9. Tighten all of the hex-head screws securely.

REMOVING THE FREEZER OR REFRIGERATOR DOOR

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all panels before operating.

Failure to do so can result in death or electrical shock.

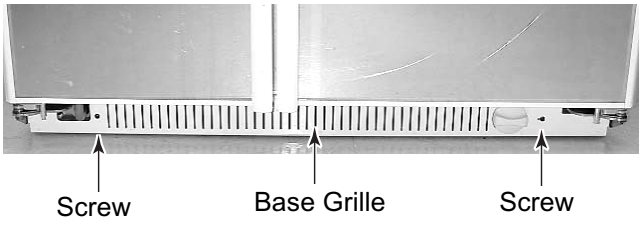
NOTE: Sharp edges may be present.

1. Unplug the refrigerator or disconnect the power.
2. Remove the main and louvered decorative panels (see page 4-2).

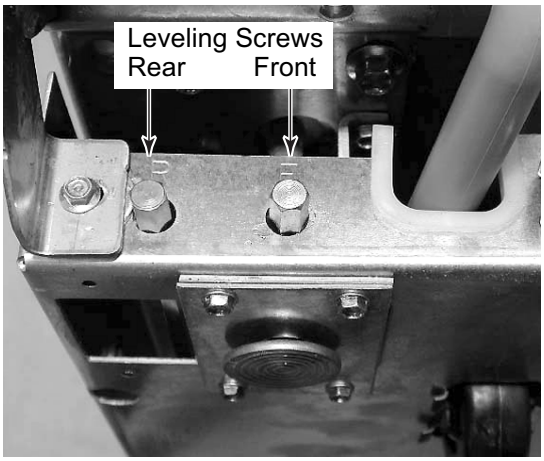
NOTE: If the freezer door has a water and ice dispenser, it will be necessary to remove the refrigerator from its mounting location in order to disconnect the wiring harness. To do this, perform step 3. If the freezer door does not have a water and ice dispenser, skip step 3, and proceed to step 4, on page 4-28.

3. **To remove a freezer door with a water & ice dispenser:**

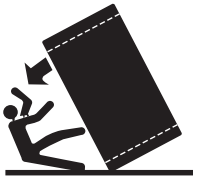
   a) Remove the two screws from the base grille and remove the grille.



   b) Use the leveling screws and lower the refrigerator onto the four rollers.



⚠WARNING



Tip Over Hazard

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

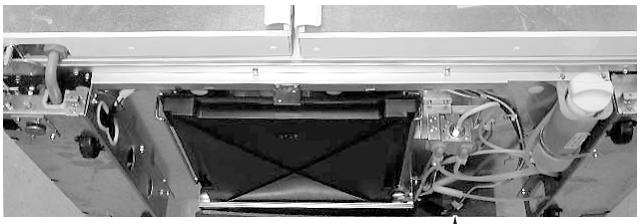
Keep door taped closed until refrigerator is completely installed.

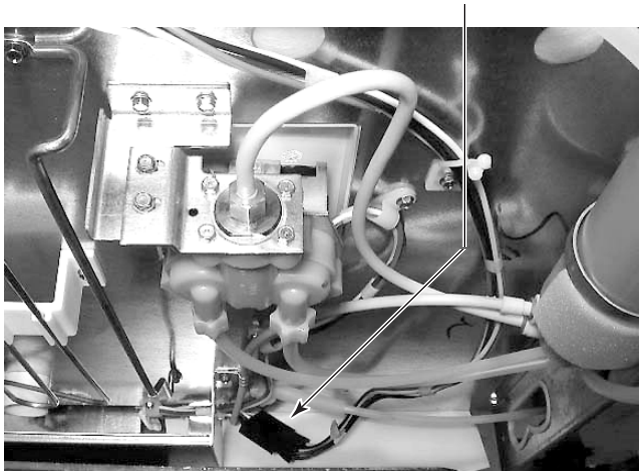
Use two or more people to move and install refrigerator.

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

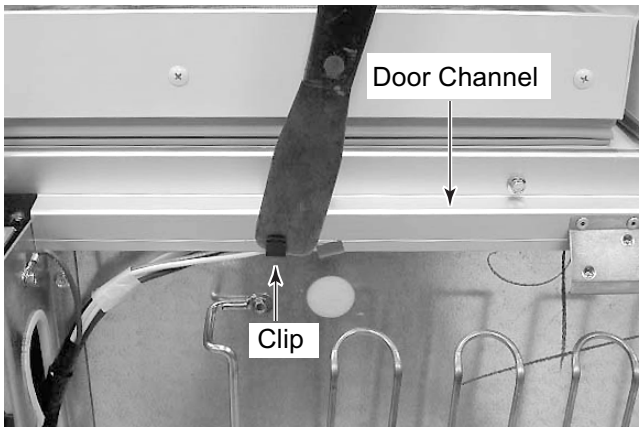
   c) Pull the refrigerator out of its mounting location.

d) Disconnect the water & ice dispenser electrical harness connector at the back of the refrigerator.



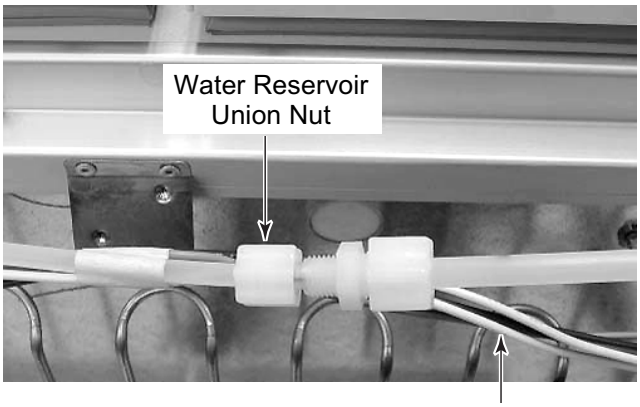


e) Use a putty knife, slide the retainer clips off the door channel, and pull the wiring and water line out from under the channel.



f) Position a container to catch the water in the next step.

g) Disconnect the water reservoir tubing nut at the union and remove the nut from the end of the tubing.



h) Remove the hex-head screw from the green ground wire on the water & ice dispenser wiring harness.

⚠WARNING

Electrical Shock Hazard

Connect green ground wire to ground screw.

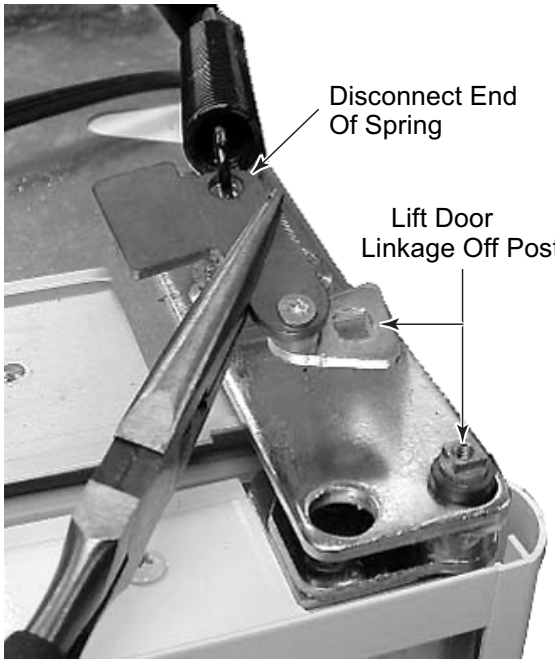
Failure to do so can result in death or electrical shock.

Continued on the next page.

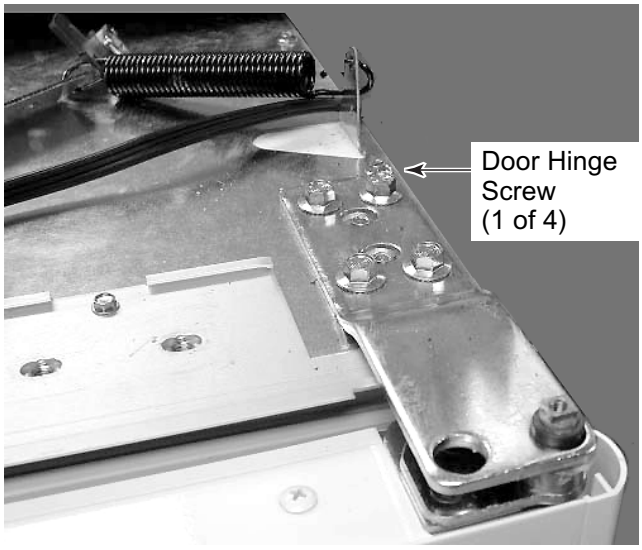
4. Remove the door switch & bracket for the refrigerator or freezer door (see page 4-4 for the procedure).
5. With the door closed, remove the hex-head screw from the door linkage at the top of the door.

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

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



7. Place a support under the door that you are removing to prevent it from falling.
8. Remove the four hex-head screws from the door hinge.



9. Grasp the door firmly and lift it off the bottom hinge pin.

COMPONENT TESTING

Before testing any of the components, perform the following checks:

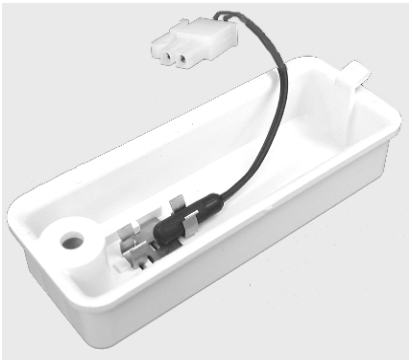
- The most common cause for control failure is corrosion on connectors. Therefore, disconnecting and reconnecting wires will be necessary throughout test procedures.
- Check all connections before replacing components, looking for broken or loose wires, failed terminals, or wires not pressed into connectors far enough.
- Resistance checks must be made with power cord unplugged from outlet, and with wiring harness or connectors disconnected.

⚠WARNING

Electrical Shock Hazard

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

THERMISTOR



Refer to page 4-18 for the procedure for servicing a thermistor.

1. Run the diagnostics tests (see page 6-1) and test the thermistors in steps 01 and 02.

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 test probes into the two connector pins of the thermistor connector.
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 the “cooling” mode.
3. With the thermistor disconnected and the refrigerator in the cooling mode, touch the voltmeter test probes 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 page 5-5).

⚠WARNING

Electrical Shock Hazard

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

EVAPORATOR FAN MOTOR

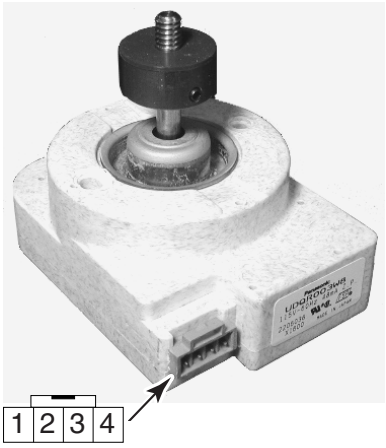
Refer to page 4-10 for the procedure for servicing the evaporator fan motor.

1. Run the diagnostics tests (see page 6-1) and check for the proper operation of the evaporator fan motor in step 03.

NOTE: During the evaporator fan motor operation, 5 to 17 volts DC will be present at the yellow and white wires. A constant 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 probes to pins 1 and 4 of the evaporator fan motor connector. The meter should indicate approximately 1400 to 1700 Ω.

CONDENSER FAN MOTOR



Refer to page 4-8 for the procedure for servicing the condenser fan motor.

1. Run the diagnostics tests (see page 6-1) and check for the proper operation of the condenser fan motor in step 04.

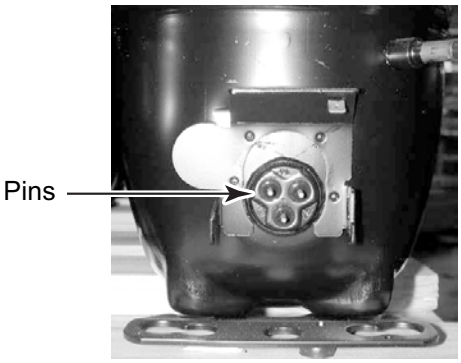
NOTE: During the condenser fan motor operation, 120 volts AC will be present at pins 1 and 4.

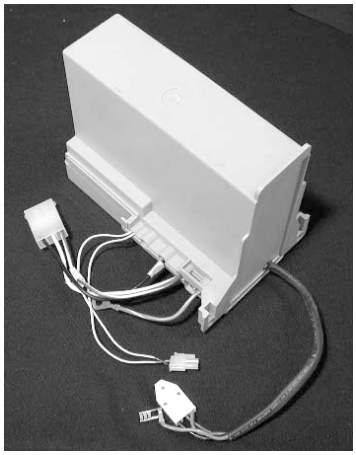
⚠WARNING

Electrical Shock Hazard

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

COMPRESSOR & INVERTER





Refer to pages 4-4 and 4-9 for the procedures for servicing the inverter and compressor.

1. Run the diagnostics tests (see page 6-1) and check for the proper operation of the compressor in step 05.

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

2. Connect power to the refrigerator and allow it to enter the “cooling” mode.
3. While the refrigerator is in the cooling mode, the inverter and main control board voltages should be as shown in the chart below.
4. Set the voltmeter to read the voltages shown in the chart.
   - If the 3 to 6 volts DC is **not** present at the inverter red/white and red wires, 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.
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 meter leads to any two pins. The meter should indicate approximately 9 to 10 Ω. Check between each set of pins to test all three windings.
9. Set the ohmmeter to the highest scale.
10. Touch one meter lead to the cabinet ground and the other lead to each of the three compressor terminals. The meter should indicate an open circuit (infinite).

COMPONENT	INPUT/ OUTPUT LOCATIONS	VOLTAGES
Inverter	Red/White & Red Wires	3 To 6 Volts DC
	Black & White Wires	120 Volts AC
Main Control Board	P7-3 (Red) & P7-8 (Red/White)	3 To 6 Volts DC

⚠WARNING

Electrical Shock Hazard

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

MOTORIZED AIR DOOR

Refer to page 4-14 for the procedure for servicing the motorized air door.

1. Run the diagnostics tests (see page 6-1) and check for the proper operation of the air door in step 06.

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 test probes to the motorized air door connector with the yellow wire and the other test probe to the white wire. The meter should indicate approximately 400 to 450 Ω.
6. Touch one of the test probes to the motorized air door connector with the red wire and the other test probe to the blue wire. The meter should indicate approximately 400 to 450 Ω.

DEFROST HEATER & BIMETAL

Refer to page 4-10 for the procedure for servicing the defrost heater and bimetal.

1. Run the diagnostics tests (see page 6-1) and check for the proper operation of the defrost heater and bimetal in step 07.

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 probes to the defrost heater terminals.
6. The meter should indicate approximately 19 to 27 Ω.
7. Touch the ohmmeter test probes 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).

⚠WARNING

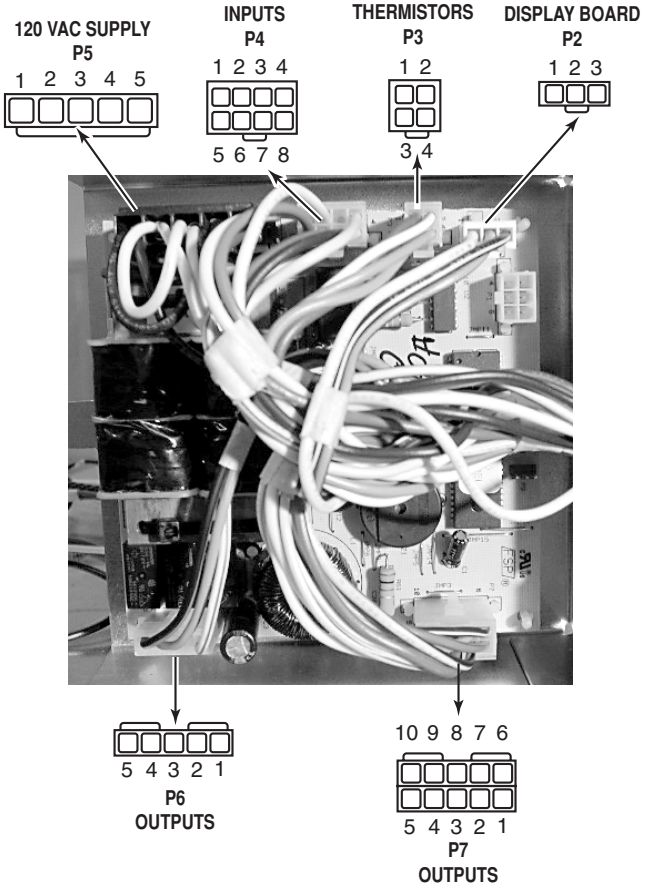
Electrical Shock Hazard

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

MAIN CONTROL BOARD

Refer to page 4-4 for the procedure for servicing the main control board.

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



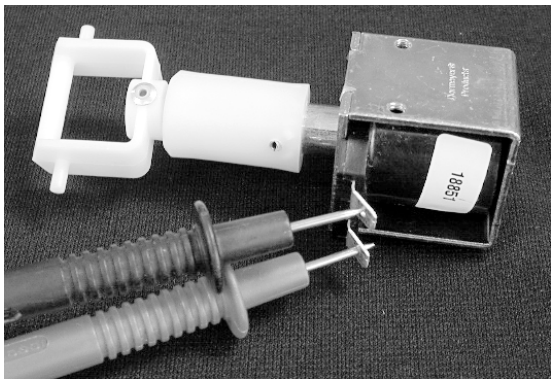
PLUG	PIN #	DESCRIPTION	OUTPUT	CONDITION
P2	1	Communication Line	N/A	
	2	Display Voltage	12 VDC	Measured at pins 2 & 3
	3	GND	GND	
P3	1	Ref. Thermistor	GND	
	2	Frz. Thermistor	GND	
	3	Ref. Thermistor Output	5 VDC	Measured at pins 1 & 3
	4	Frz. Thermistor Output	5 VDC	Measured at pins 2 & 4
P4	1	Ref. Door 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

⚠WARNING

Electrical Shock Hazard

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

CRUSH/CUBE SOLENOID



Refer to page 4-16 for the procedure for servicing the crush/cube solenoid.

1. Unplug the refrigerator or disconnect the power.
2. Disconnect one of the wires going to the solenoid.
3. Set the ohmmeter to the R x 1 scale.
4. Touch the ohmmeter test probes to the solenoid terminals.
5. The meter should indicate approximately 35 to 45 ohms.

ICE MAKER AUGER MOTOR

Refer to page 4-16 for the procedure for servicing the ice maker auger motor.

1. Unplug the refrigerator or disconnect the power.
2. Disconnect one of the wires going to the auger motor.
3. Set the ohmmeter to the R x 1 scale.
4. Touch the ohmmeter test probes to the auger motor terminals.
5. The meter should indicate approximately 2 to 4 ohms.

⚠WARNING

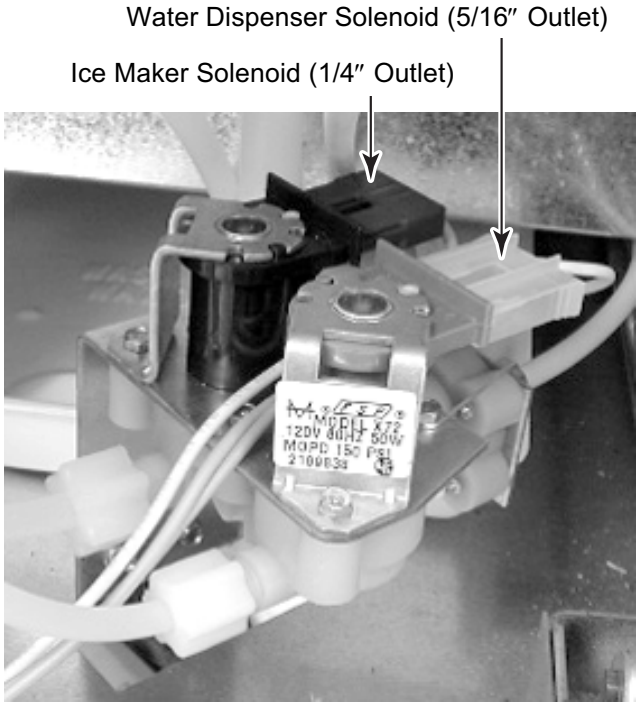
Electrical Shock Hazard

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

WATER VALVE SOLENOID

Refer to page 4-22 for the procedure for servicing the water valve.

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 1 scale.
4. Touch the ohmmeter test probes to the terminals of the ice maker solenoid. The ohmmeter should indicate approximately 160 to 170 Ω.
5. Touch the ohmmeter test probes to the terminals of the water dispenser solenoid. The ohmmeter should indicate approximately 330 to 355 Ω.



DOOR SWITCH

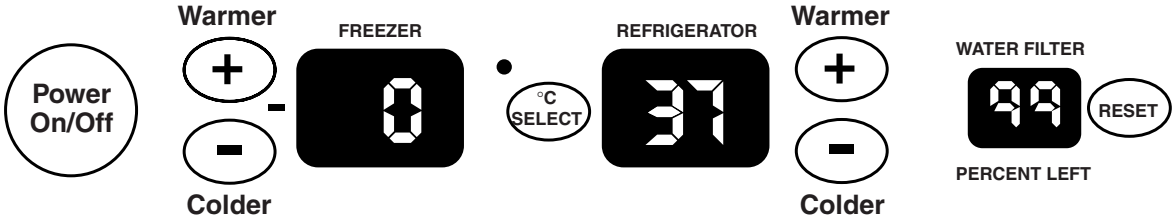
Refer to page 4-4 for the procedure for servicing a door switch.

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 probes to the N.O. and COM door switch terminals.
5. The meter should indicate an open circuit (infinite).
6. Press the door switch actuator button and the meter should indicate continuity (0 Ω).
7. Touch the ohmmeter test probes to the N.C. and COM door switch terminals.
8. The meter should indicate continuity (0 Ω). NOTE: The door switches are normally-closed.
9. Press the door switch actuator button and the meter should indicate an open circuit (infinite).

— NOTES —

DIAGNOSIS & TROUBLESHOOTING

DIAGNOSIS



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 at 3000 rpm.
- 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.

DIAGNOSTICS CHART

Step	Component Tested	Result*	Comment
01	FreezerThermistor	01	Thermistor is within normal range.
		02	Thermistor is open or less than –20°F.
		03	Thermistor is shorted or greater than 115°F.
02	Refrigerator Thermistor	01	Thermistor is within normal range.
		02	Thermistor is open or less than 10°F.
		03	Thermistor is shorted or greater than 115°F.
03	Evaporator Fan Motor	01	Evaporator Fan Motor is On at correct speed.
		02	Evaporator Fan Motor is On at incorrect speed.
04	Condenser Fan Motor	01	Condenser Fan Motor is On.
05	Compressor	01	Compressor is On at 4500 rpm.
		02	Compressor is Off waiting for minimum (7 minute) Off delay.
06	Air Door	01	Air Door fully opens. **
07	Bimetal/Defrost Heater	01	Defrost Heater is energized, bimetal closed.
		02	Bimetal open. †

Press the "Water Filter Reset" to exit diagnostics.

* Shown on the Water Filter Indicator display.

** The air door will close at step 01, and reset to the correct opening after exiting diagnostics.

† The bimetal may be bypassed with an insulated jumper.

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.

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.

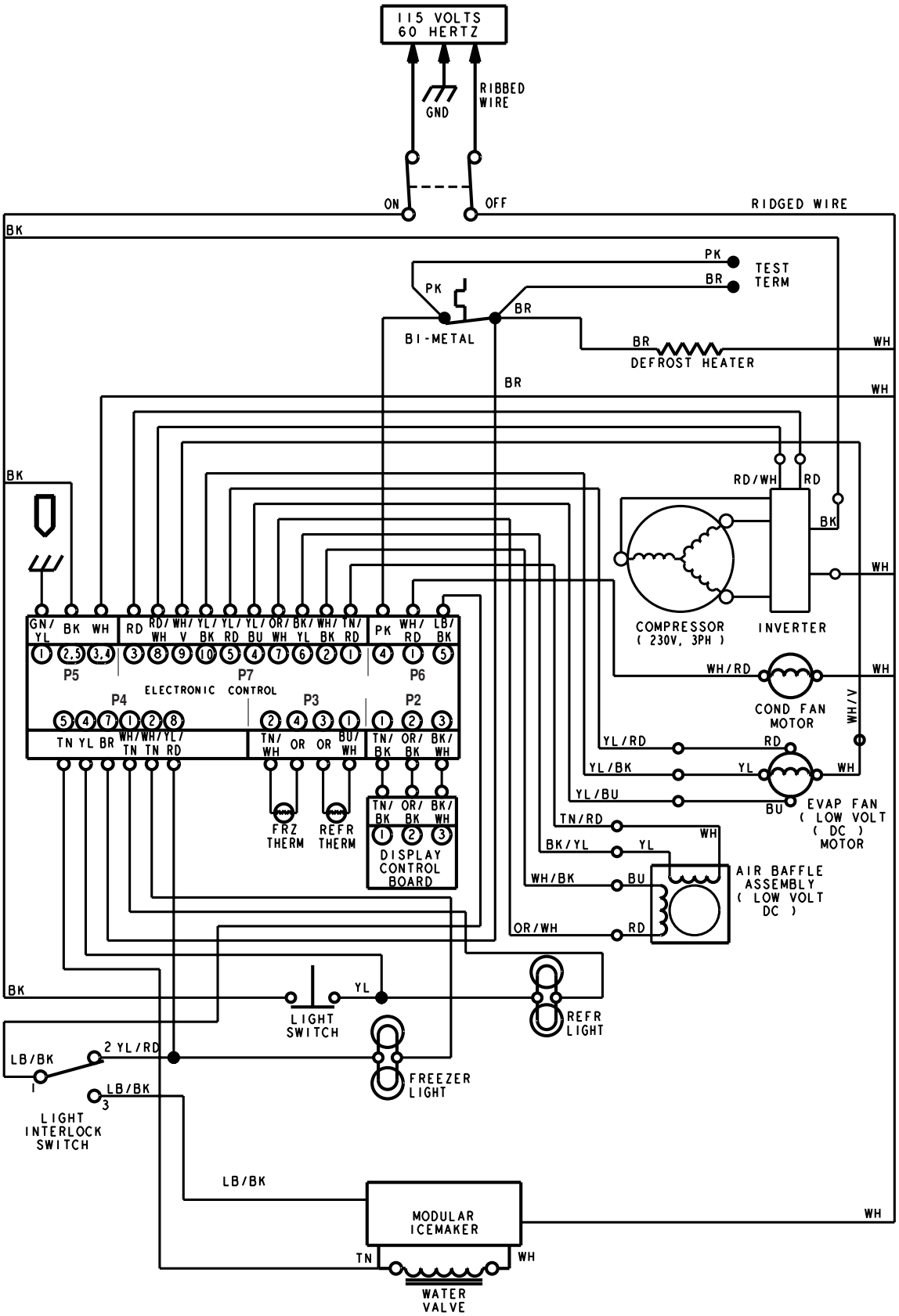
TROUBLESHOOTING CHART

PROBLEM	POSSIBLE CAUSE	TEST PROCEDURE-ACTION
Condenser fan runs but the compressor will not start.	No DC control voltage from main PCB to the inverter board.	See "Component Testing" section for main PCB test procedure.
	Control voltage wires loose or reversed.	Check connections and repair as needed.
	Compressor.	See "Component Testing" section for compressor/inverter test procedure.
	Inverter board.	See "Component Testing" section for compressor/inverter test procedure.
Refrigerator compartment too warm.	Refrigerator control set too warm.	Set to a lower temperature.
	Refrigerator thermistor.	Check wires and connectors. Run diagnostics and if a defective thermistor is indicated, confirm with ohms test. See "Component Testing".
	Air door stuck closed or inoperative.	Look for ice or other blockage in air door. Run diagnostics test to operate air door.
	Evaporator fan motor not running.	Run diagnostics test to operate the evaporator fan motor. Check for a blocked fan blade and repair as necessary. Check for 5-17vdc from pin P7-9 to P7-10. If voltage is correct, replace the motor.
	Blocked air flow.	Check air door outlet and air returns for blockage.
	Warm freezer compartment.	See "Freezer compartment too warm."
Refrigerator compartment too cold.	Refrigerator control set too cold.	Set to a higher temperature.
	Refrigerator thermistor.	Check wires and connectors. Run diagnostics and if a defective thermistor is indicated, confirm with ohms test. See "Component Testing".
	Air door stuck open or inoperative.	Look for ice or other blockage in air door. Run diagnostics test to operate air door. Check for proper DC input voltage. If voltage is normal and door will still not operate, replace air door.
	Air door seal missing or damaged.	Repair or replace seal.
	Main PC board.	Run diagnostics test to operate air door.
Freezer compartment too warm.	Freezer control set too warm.	Set to a lower temperature.
	Freezer thermistor.	Check wires and connectors. Run diagnostics and if a defective thermistor is indicated, confirm with ohms test. See "Component Testing".
	Evaporator fan motor not running.	Run diagnostics test to operate the evaporator fan motor. Check for a blocked fan blade and repair as necessary. Check for 5-17vdc from pin P7-9 to P7-10. If voltage is correct, replace the motor.
	Condenser fan motor not running.	Check for a blocked fan blade and repair as necessary. See "Component Testing" section for condenser fan motor test procedure.
	Frost blocking evaporator.	Run diagnostics test to operate defrost system. Test defrost heater and bi-metal.
Freezer compartment too cold.	Freezer control set too cold.	Set to a higher temperature.
	Refrigerator operating in the Max Cool or Automatic Max Ice Mode (see page 3-5).	Normal operation.
	Freezer thermistor.	Check wires and connectors. Run diagnostics and if a defective thermistor is indicated, confirm with ohms test. See "Component Testing".
	No evaporator fan motor feedback.	The fan motor will run at 3000 rpm.
"Call Service" icon lights and/or alarm is activated.	Main control board is over temperature.	Look for blocked condenser air flow or inoperative condenser fan motor.
	Refrigerator over 48°F or freezer over 15°F for 3 hours.	Run diagnostics and test operation of all components.
	Both thermistors failed.	Run diagnostics and test thermistors and thermistor leads.
	No feedback from evaporator fan motor.	Run diagnostics and test fan motor and/or wiring.
Refrigerator runs too long.	Normal.	It is designed for this refrigerator to run almost constantly at the lowest possible compressor speed. Starting and stopping the compressor uses more power than continuous low rpm operation. Instruct customer.
No temperature display, no interior lights.	Unit is set for Holiday Mode.	Press the Holiday Mode key to cancel operation.
	Either door open for over 10 minutes.	Close door and/or check door switches.

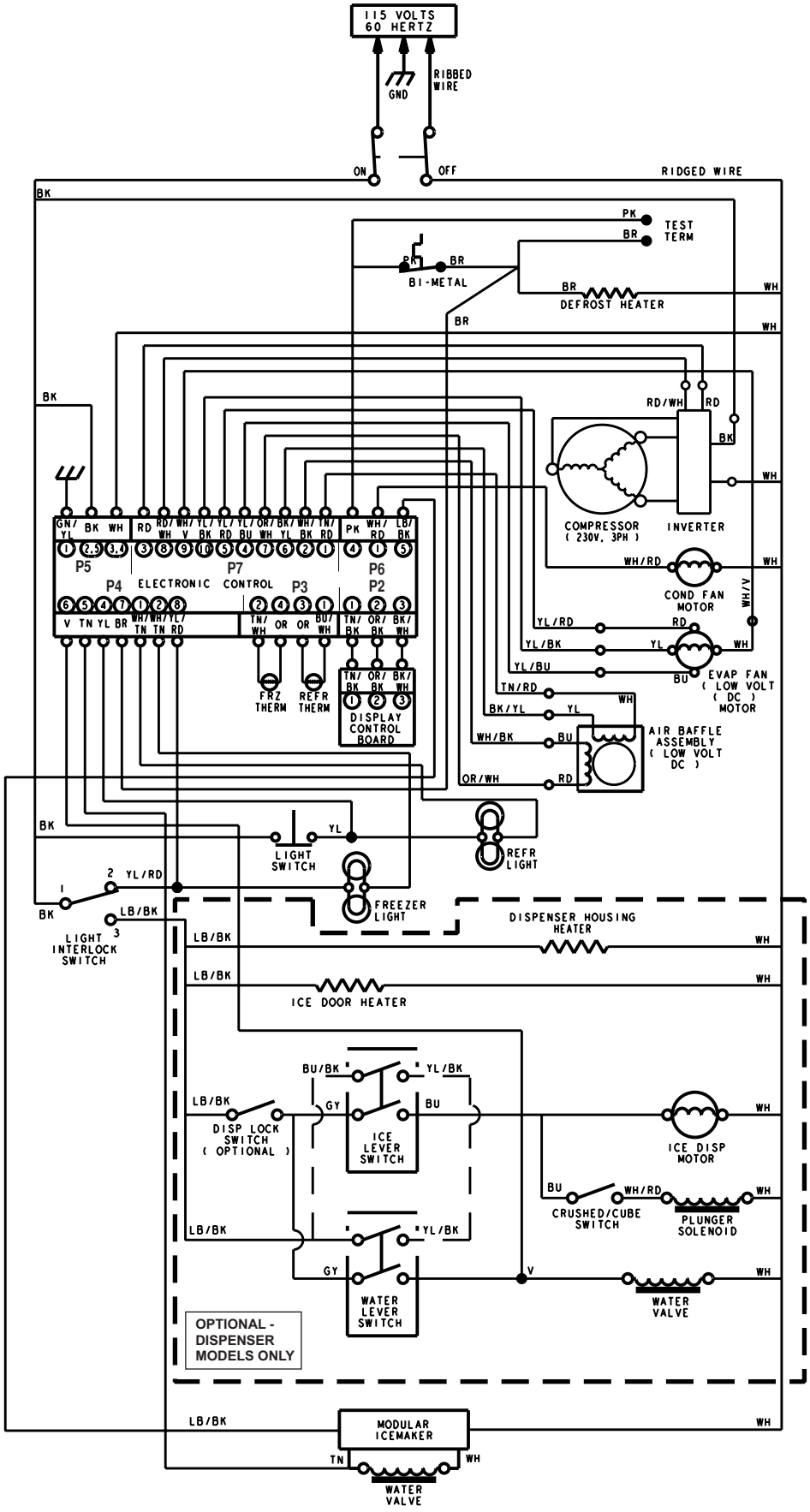
— NOTES —

WIRING DIAGRAMS & STRIP CIRCUITS

WIRING DIAGRAM—BOTTOM MOUNT



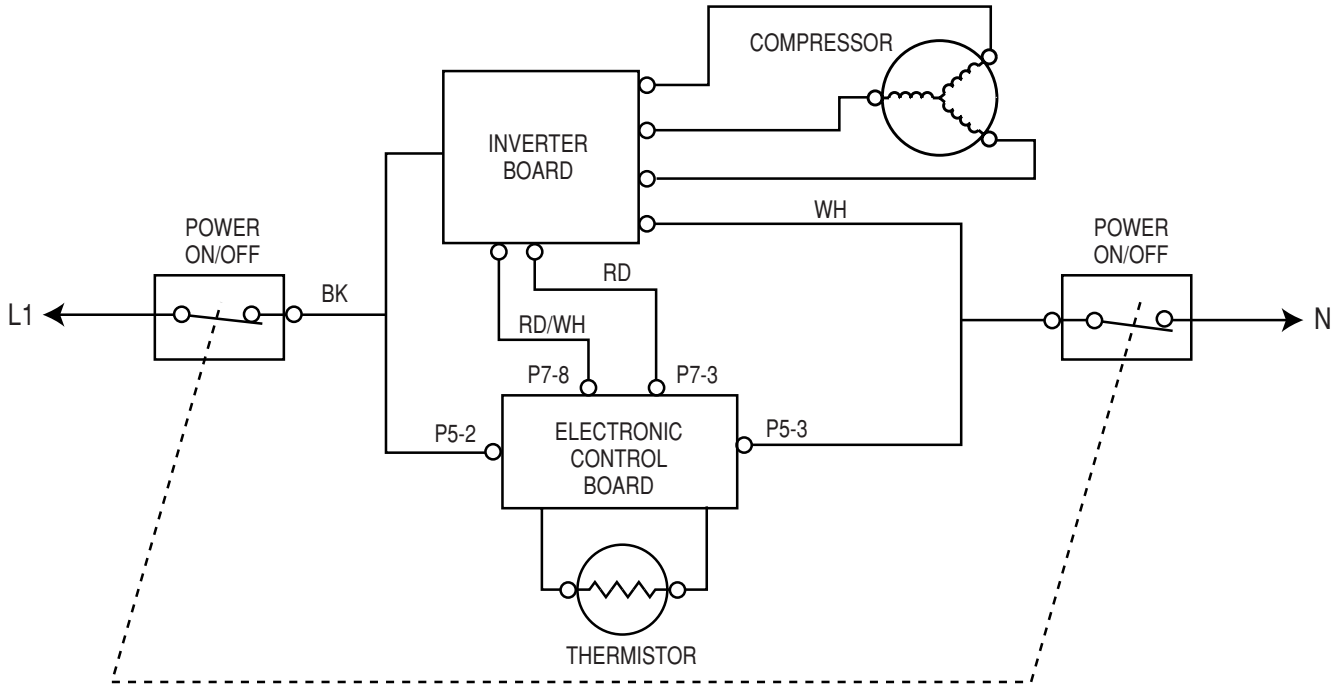
WIRING DIAGRAM—SIDE-BY-SIDE MODELS



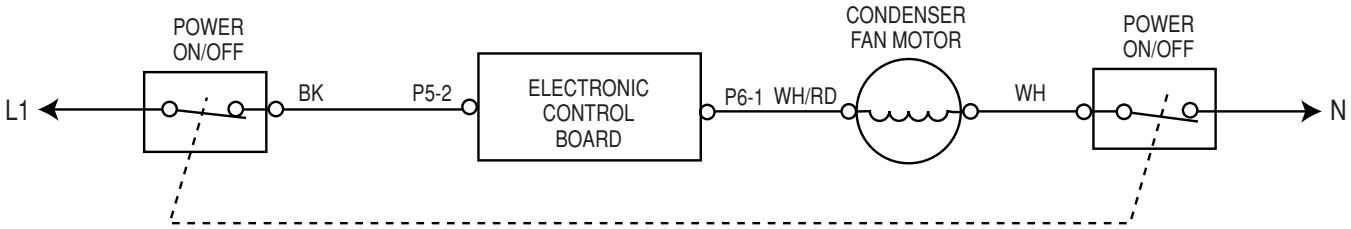
STRIP CIRCUITS

COOLING CIRCUITS

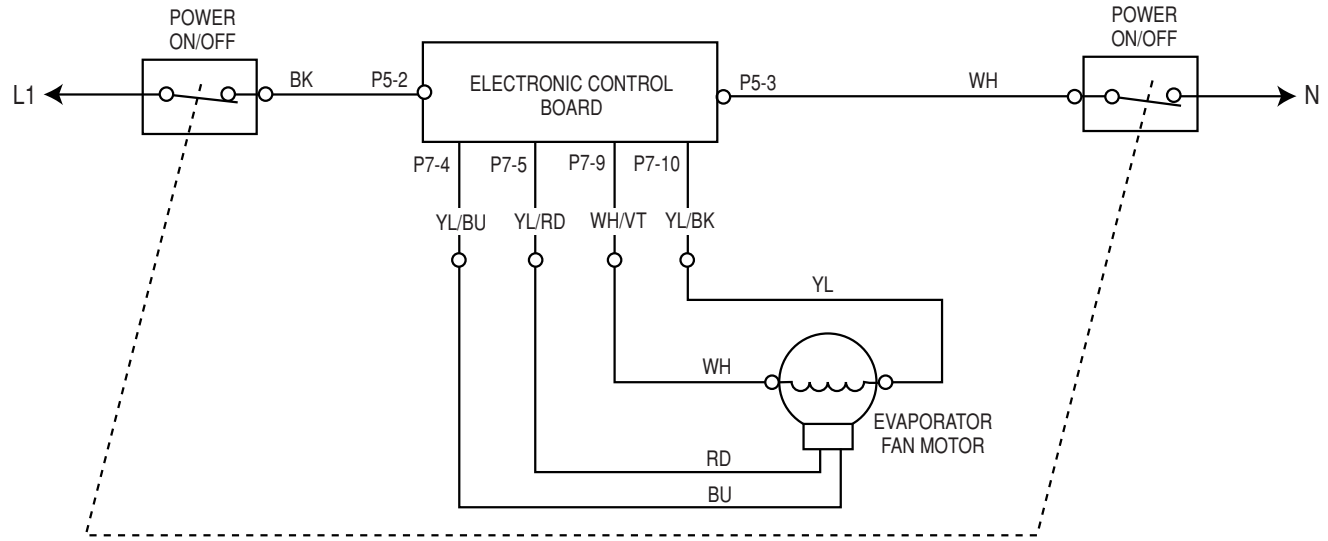
COMPRESSOR



CONDENSER FAN MOTOR

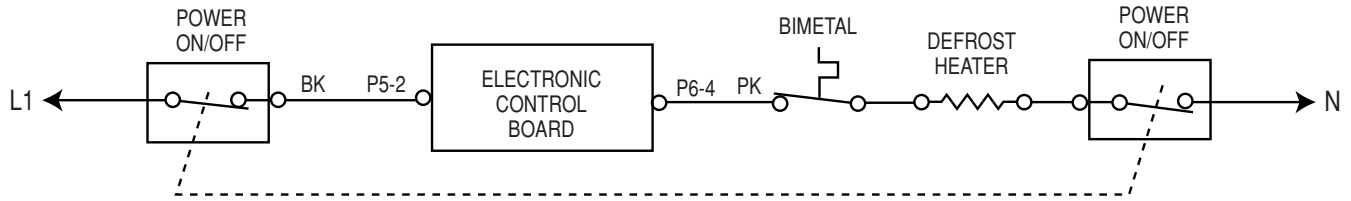


EVAPORATOR FAN MOTOR



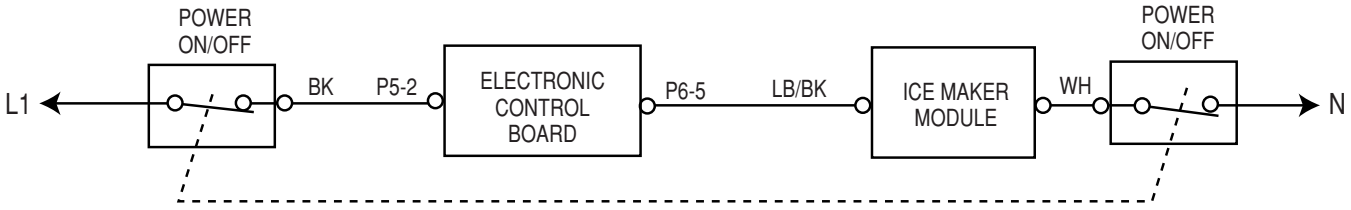
DEFROST CYCLE

DEFROST HEATER

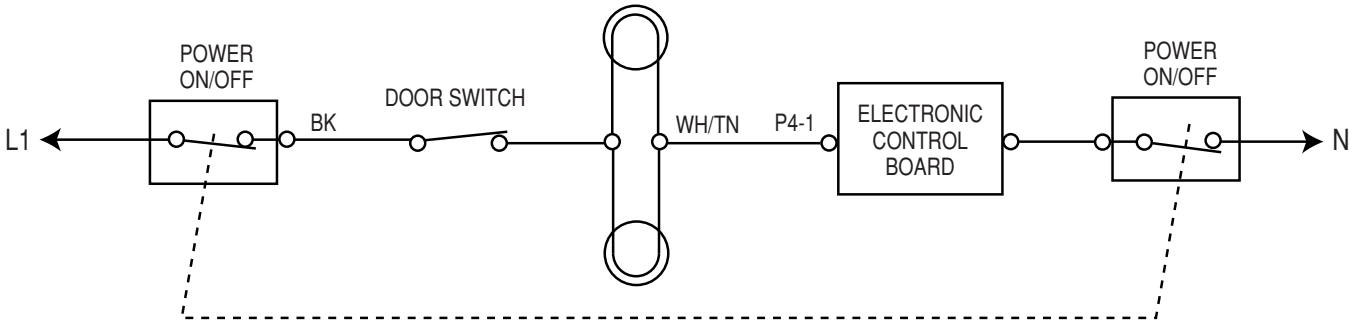


ELECTRONIC CONTROL ENABLED CIRCUITS

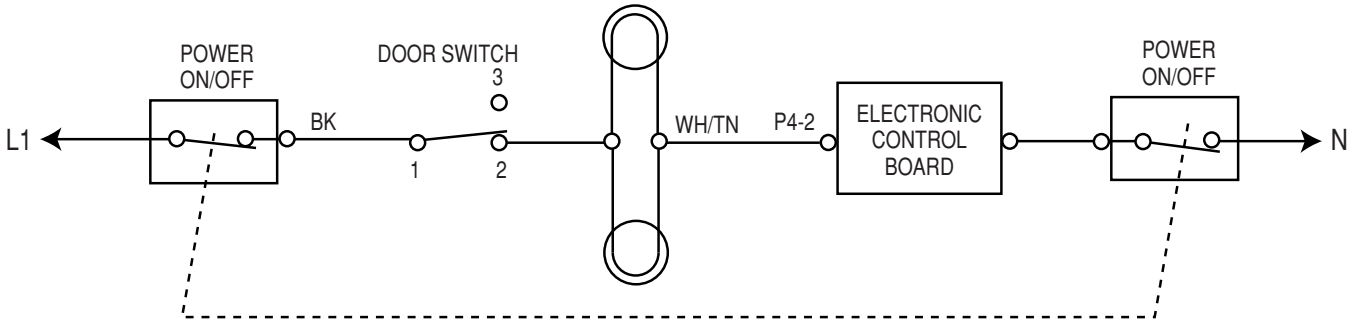
ICE MAKER



REFRIGERATOR LIGHT



FREEZER LIGHT



— NOTES —

— NOTES —

— NOTES —

PRODUCT SPECIFICATIONS
AND
WARRANTY INFORMATION SOURCES

IN THE UNITED STATES:

FOR PRODUCT SPECIFICATIONS AND WARRANTY INFORMATION CALL:

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FOR ROPER PRODUCTS: 1-800-447-6737

FOR TECHNICAL ASSISTANCE WHILE AT THE CUSTOMER'S HOME CALL:

THE TECHNICAL ASSISTANCE LINE: 1-800-253-2870

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