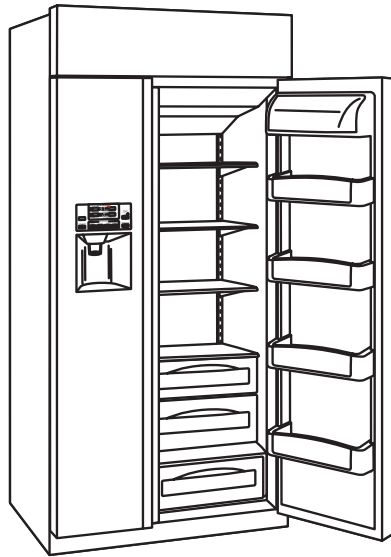




*GE Consumer & Industrial*

# TECHNICAL SERVICE GUIDE

**Profile 42" and 48" Built-In Side by  
Side Refrigerators**



## **MODEL SERIES:**

**PSB42LSRBV  
PSB42LGRWV  
PSB42LGRBV  
PSB48LSRBV  
PSB48LGRWV  
PSB48LGRBV**





## **IMPORTANT SAFETY NOTICE**

The information in this service guide is intended for use by individuals possessing adequate backgrounds of electrical, electronic, and mechanical experience. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

### **WARNING**

To avoid personal injury, disconnect power before servicing this product. If electrical power is required for diagnosis or test purposes, disconnect the power immediately after performing the necessary checks.

### **RECONNECT ALL GROUNDING DEVICES**

If grounding wires, screws, straps, clips, nuts, or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.

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*Technical Service Guide*  
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# Introduction

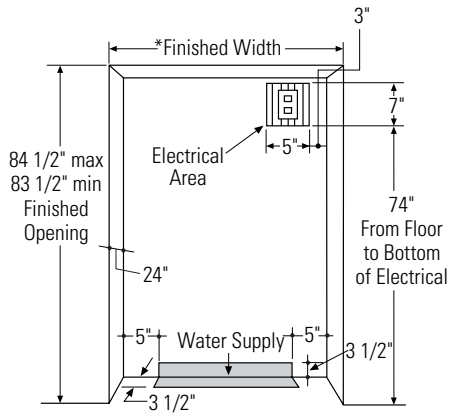
The new Profile Built-In Side by Side refrigerator has the following features:

- Separate freezer and fresh food evaporators are recessed into the machine compartment for increased efficiency and interior space savings.
- 3-Way valve directs refrigerant flow where needed.
- High-and low-side sealed system mufflers quiet the operation.
- Inverter is built into the power control board (PCB).
- Combined dispenser and temperature control board provides customer control and test mode operations.
- Dispenser cube motor and cam replaces solenoid-operated cube mechanism.
- Room ambient thermistor aids power control board (PCB) operation.
- Component electrical testing is performed at the machine compartment-mounted terminal block.
- Rear leveling mechanism is front-adjustable.



# Installation Example 42" Model

## THE INSTALLATION SPACE



\*The finished cutout width must be: 41-1/2" for 42" models

### Water and Electrical Locations

The opening must be prepared with the electrical and water supply located as shown.

### The cutout depth must be 24"

The refrigerator will project forward, slightly beyond adjacent cabinets, depending on your installation.

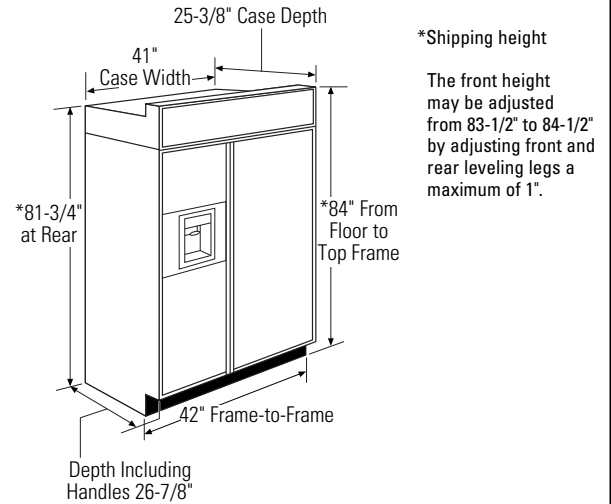
### Additional Specifications

- A 120 volt, 60Hz, 15 or 20 amp power supply is required. An individual properly grounded branch circuit or circuit breaker is recommended. Install a properly grounded 3-prong electrical receptacle recessed into the back wall. Electrical must be located on rear wall as shown.

**Note:** GFI (ground fault interrupter) is not recommended.

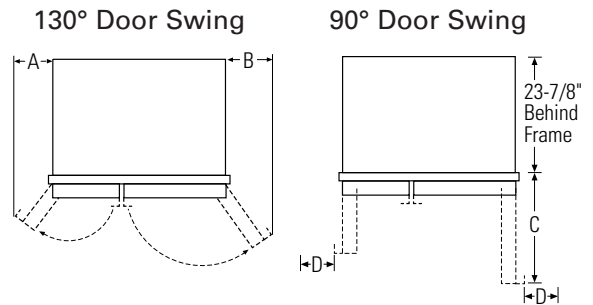
- Water line can enter the opening through the floor or rear wall. The water line installed should be 1/4" O.D. copper tubing or GE SmartConnect™ tubing between the cold water line and water connection location. The line should be long enough to extend to the front of the refrigerator. Installation of an easily accessible shutoff valve in the water line is required.

## DIMENSIONS AND CLEARANCES



### Product Clearances

These refrigerators are equipped with a 2 position door stop. The factory set 130° door swing can be adjusted to 90° if clearance to adjacent cabinets or walls is restricted.



Models	A	B	C	D
42"	12-3/16"	16"	24"	4"

Allow minimum clearances for Freezer door (Dimension A) and Fresh Food door (Dimension B) for a full 130° door swing and to allow for drawer removal.

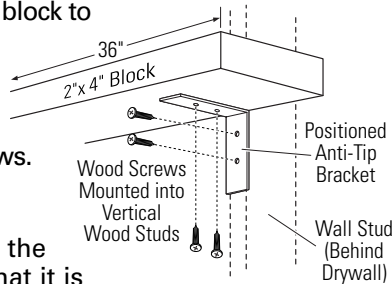
Four inch (4") minimum clearance is required when door swing is adjusted to 90°. If the 90° door stop position is used, drawer access is maintained, but drawer removal is restricted.

## INSTALL ANTI-TIP BRACKETS

### **⚠ WARNING:** ANTI-TIP PRECAUTIONS

The refrigerator is **Top-Heavy** and must be secured to prevent the possibility of tipping forward.

- Cut a 2" x 4" wood block 36" long, and secure the block to the mounting brackets provided, using #12 or #14 wood screws.
- Secure the brackets with wood block to the back wall so that it is 82" (or the rear installation height) from the finished floor. Use #12 or #14 wood screws.
- Screws must penetrate at least 1" into vertical wall studs.

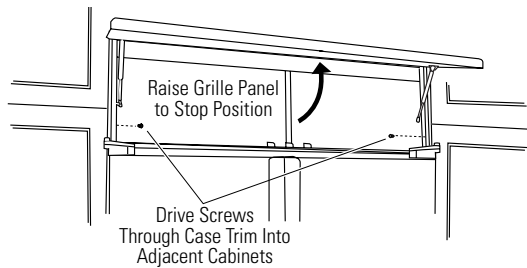


## SECURE REFRIGERATOR TO CABINETS

Whenever possible, perform this step for anti-tip security.

**The refrigerator must be secured to prevent tipping.**

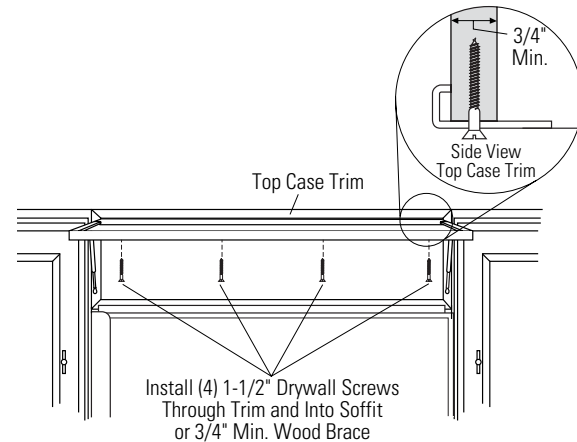
- Raise the grille panel to access case trim.
- Drive a screw through the trim and into the adjacent cabinet using holes provided.
- Follow the same procedure on the opposite side.



## ALTERNATE ANTI-TIP PRECAUTIONS

### SKIP THIS STEP WHEN USING ANTI-TIP BRACKETS

All Profile built-in refrigerators are **Top-Heavy**. They must be secured to prevent the possibility of tipping forward. Use this alternative method to secure the refrigerator whenever steel wall studs are encountered.



- Adjust height of refrigerator to match installation cutout opening 83-1/2" to 84-1/2". The refrigerator must be level and plumb with cabinets. The top case trim at the front is 2-1/8" higher than the rear and will overlap upper cabinets or cabinet trim.
- Open grille panel to access the top case trim.
- Use a 3/16" bit to drill 4 evenly spaced clearance holes through the metal top case trim.
- Use a 1/16" bit to drill pilot holes through the metal clearance holes and into wood soffit. The holes should be centered in the soffit or a 3/4" minimum wood brace. The brace spanning the enclosure must be securely fastened to cabinets on both sides.
- Install four 1-1/2" drywall screws into the pilot holes.

## CUSTOMIZATION BASICS:

### Framed Or Custom Panels

#### Stainless Steel Wrapped Models

42" wide model - PSB42LSRBV

#### Trimmed Models

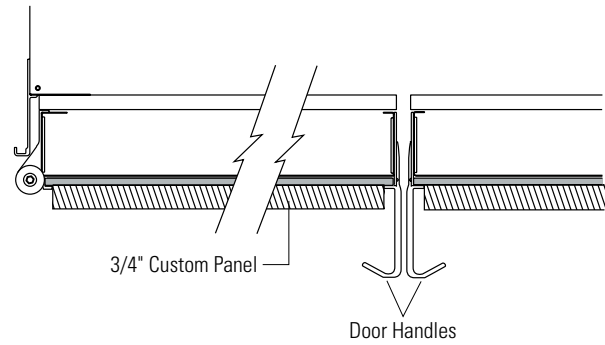
42" wide models - PSB42LGRWV, PSB42LGRBV

#### Stainless Steel Wrapped Refrigerators

Stainless Steel wrapped refrigerators have wrapped doors and grille panels, and beveled edges. These models are shipped ready for installation.

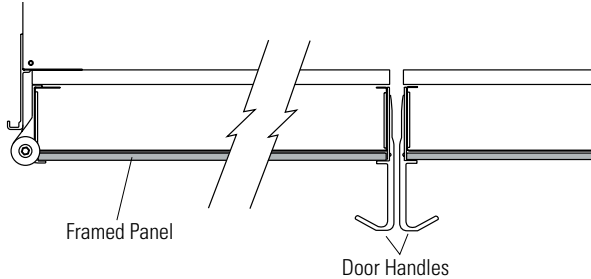
#### Door Handles

The handles can be used to accommodate both framed or custom panels.



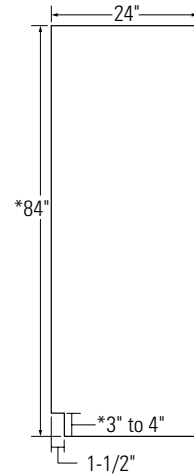
#### Trimmed Refrigerators

Trimmed refrigerators are designed to be customized with decorative panels. Field installed custom door and grille panels are required. You may install 1/4" thick custom panels from your cabinet manufacturer. The decorative panel slides into the factory installed trim. Or, order black and white accessory panels from your Profile dealer.



#### Side Panels

Side panels (not supplied) must be used whenever the sides of the refrigerator will be exposed.



\*Depending on installation height.

#### Accessory Panels

White and black accessory panels are available from your Profile dealer. Panels are cut to size and ready to install.

Models	White Acrylic	Black Acrylic
PSB42LGRWV	PSPK42DWW	
PSB42LGRBV		PSPK42DBB

# Technical Data

PSB42LGRBV, PSB42LGRWV, PSB42LSRBV PSB48LGRBV, PSB48LGRWV, PSB48LSRBV

**DISCONNECT POWER CORD BEFORE SERVICING**  
**IMPORTANT** - RECONNECT ALL GROUNDING DEVICES  
 All parts of this appliance capable of conducting electrical current are grounded. If grounding wires, screws, straps, clips, nuts or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.

### IMPORTANT SAFETY NOTICE

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### CAUTION

To avoid personal injury when servicing the condensing unit, stand on a ladder which will give enough support to allow removal of the top panel and safely allow access to service the unit.

### NO LOAD PERFORMANCE

Control Position	37-0°F and	
Ambient Temperature of:	<b>70°F</b>	<b>90°F</b>
Fresh Food °F	37-42	36-43
Frozen Food °F	(-2)-2	(-2)-5
Percent Running Time, %	35-45	65-75

### ELECTRICAL SPECIFICATIONS

Max Defrost Control	
w/No Door Openings	16 hrs
Evap Defrost Thermistor	68°F (FZ)..63°F (FF)
Electrical Rating: 115V AC 60 HZ	5.4 amp
Maximum Current Leakage	0.75 mA
Maximum Ground Path Resistance	0.1 Ω
Energy Consumption Model 42	50.5 KWh/mo
Energy Consumption Model 48	53.75 KWh/mo

### REFRIGERATION DIAGNOSIS

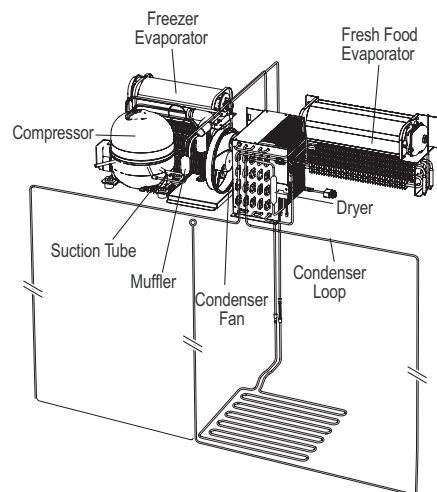
To access the **low pressure** side of the system, install a **WJ56X61** valve **only** on the process tube extending from the compressor case.

### COMPONENT RESISTANCE VALUES

FF fan motor	1600 Ω ± 20%
FZ fan motor	1600 Ω ± 20%
Condenser fan motor	1600 Ω ± 20%
Auger motor	3.7 Ω ± 15%
Cube motor	2091 Ω ± 10%
Cover motor	2091 Ω ± 10%
Defrost heater FZ	44 Ω ± 7%
Drain heater FZ	377 Ω ± 7%
Sub-heater FZ	1322 Ω ± 7%
Defrost heater FF	120 Ω ± 7%
Drain heater FF	440 Ω ± 7%
Fill-tube heater	2645 Ω ± 7%
Dispenser heater (Recess)	1889 Ω ± 7%
Compressor (between the different phase)	11.7 Ω ± 7% / 1 phase
3- way valve	40 ± 4 Ω / 1 phase
Water valve (Ice maker)	180 Ω ± 7%
Water valve (Dispenser)	325 Ω ± 7%

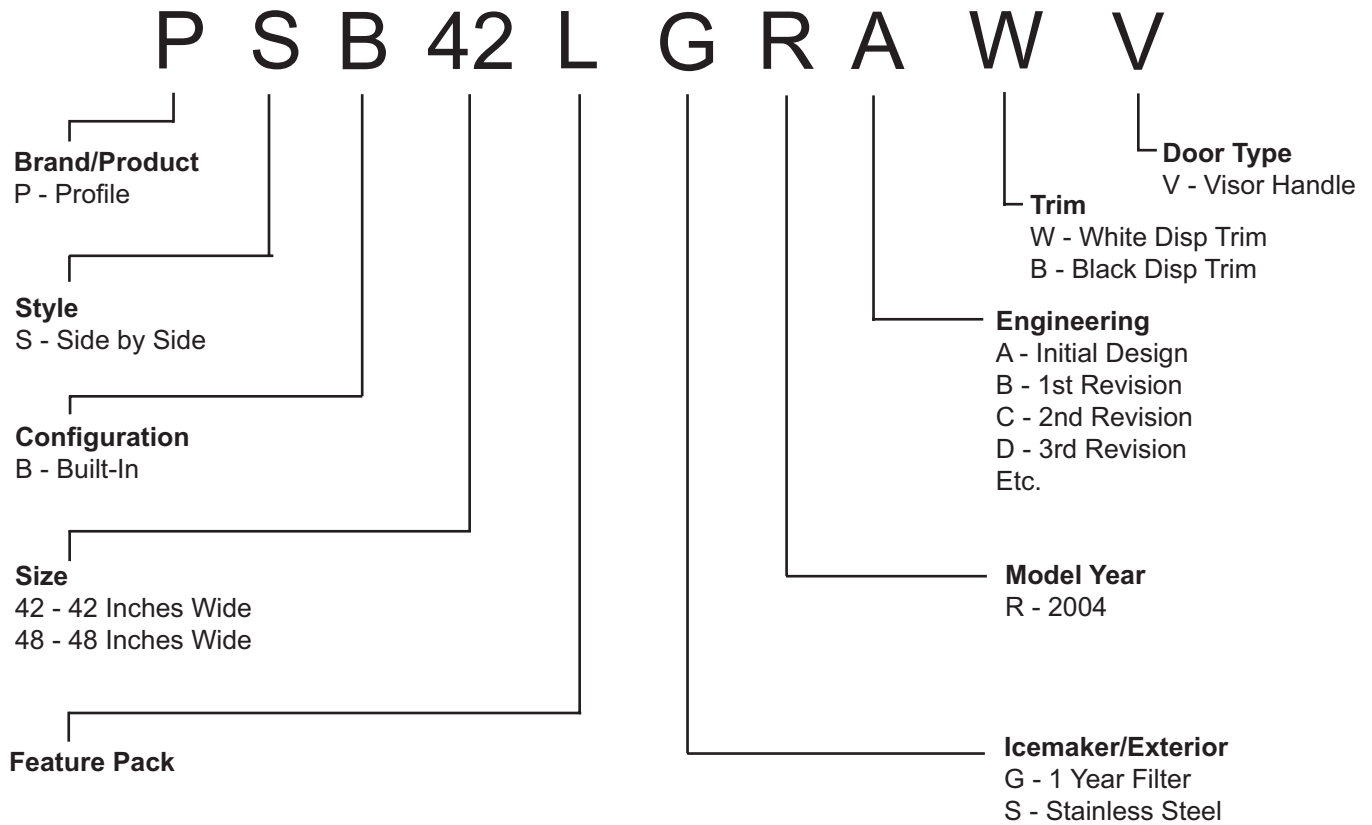
### REFRIGERATION SYSTEM

Refrigerant Charge (R134a)	8.11 ounces
Compressor	738-1270 BTU/hr
Minimum Compressor Capacity	
Vacuum	26 inches
Minimum Equalized Pressure	
@70°F	66 PSIG
@90°F	74 PSIG





# Nomenclature



## Nomenclature



The nomenclature plate is located at the top of the fresh food section on the right-side wall. It contains the model and serial numbers and specifies the minimum

installation clearances, electrical voltage, frequency, maximum amperage rating, and refrigerant charge.

### Mini-Manual

The mini-manual is located behind the grille panel at the top of the refrigerator. When service is completed, return the mini-manual to its original location for future use.

## Serial Number

The first two numbers of the serial number identify the month and year of manufacture.  
*Example: AG123456S = January, 2004*

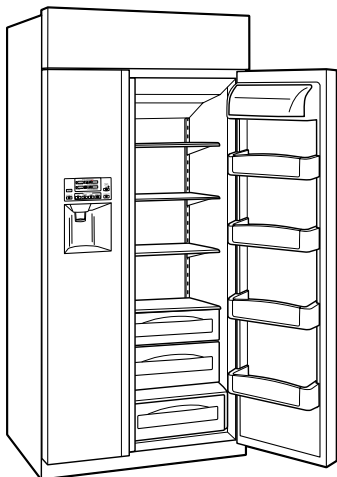
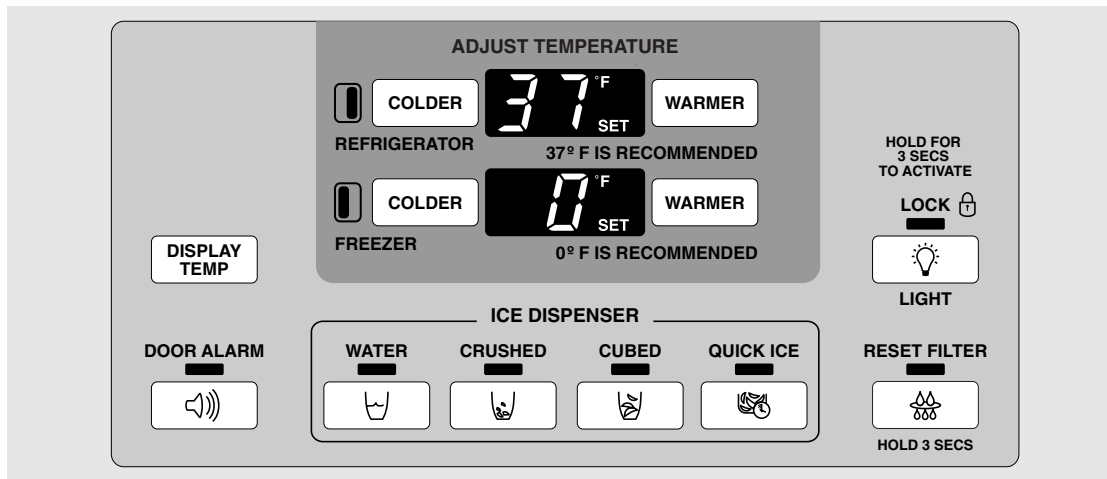
<b>A</b> - JAN	2005 - H
<b>D</b> - FEB	2004 - <b>G</b>
<b>F</b> - MAR	2003 - F
<b>G</b> - APR	2002 - D
<b>H</b> - MAY	2001 - A
<b>L</b> - JUN	2000 - Z
<b>M</b> - JUL	1999 - V
<b>R</b> - AUG	1998 - T
<b>S</b> - SEP	1997 - S
<b>T</b> - OCT	1996 - R
<b>V</b> - NOV	1995 - M
<b>Z</b> - DEC	1994 - L

The letter designating the year repeats every 12 years.

*Example:*

- T - 1974
- T - 1986
- T - 1998

# Control Features



The temperature controls are preset in the factory at **37°F** for the refrigerator compartment and **0°F** for the freezer compartment. Allow 24 hours for the temperature to stabilize to the preset recommended settings.

The temperature controls can display both the **SET** temperature as well as the actual temperature in the refrigerator and freezer. **The actual temperature may vary slightly from the SET temperature based on usage and operating environment.**

**NOTE:** The refrigerator is shipped with protective film covering the temperature controls. If this film was not removed during installation, remove it now.

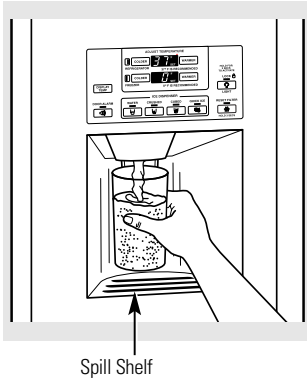
**To change the temperature,** press and release the **WARMER** or **COLDER** button. **SET** will illuminate in the display, as well as the set temperature. To change the temperature, tap either the **WARMER** or **COLDER** button (while **SET** is illuminated) until the desired temperature is displayed. Refrigerator temperatures can be adjusted between 34°F and 47°F and the freezer temperatures can be adjusted between -6°F and +8°F.

Once the desired temperature has been set, the temperature display will clear after 10 seconds.

To display the temperature, the **DISPLAY TEMP** button may be tapped.

Several adjustments may be required. Each time you adjust controls, allow 24 hours for the refrigerator to reach the temperature you have set.

## Icemaker Controls



### To Use the Dispenser

Select **CUBED** , **CRUSHED**  or **WATER** .

Press the glass gently against the middle of the dispenser pad.

The spill shelf is not self-draining. To reduce water spotting, the shelf and its grille should be cleaned regularly.

**If no water is dispensed when the refrigerator is first installed, there may be air in the water line system. Press the dispenser arm for at least two minutes to remove trapped air from the water line and to fill the water system. To flush out impurities in the water line, throw away the first six glassfuls of water.**

**⚠ CAUTION:** Never put fingers or any other objects into the ice crusher discharge opening.

### Locking the Dispenser

HOLD FOR  
3 SECS  
TO ACTIVATE

LOCK 



LIGHT

Press the **LOCK/LIGHT** button for 3 seconds to lock the dispenser and control panel. To unlock, press and hold the button again for 3 seconds.

### Dispenser Light

HOLD FOR  
3 SECS  
TO ACTIVATE

LOCK 



LIGHT

This button turns the **night light** on the dispenser on and off. The light also comes on when the dispenser pad is pressed. If this light burns out, it should be replaced with a 6 watt 12V maximum bulb.

### Quick Ice

QUICK ICE



When you need ice in a hurry, press this button to speed up ice production. This will increase ice production for the following 48 hours or until you press the button again.

### Door Alarm

DOOR ALARM



To turn the Door Alarm on, press the **DOOR ALARM** button once. The **ACTIVE** light will come on. To turn it off, press it again. When the **DOOR ALARM** is active, the **ACTIVE** light will flash if you open the door and beep if you keep the door open for more than 2 minutes. The light goes out and the beeping stops when you close the door.

**Note:** When **Quick Ice** is selected, the freezer temperature operates at -9°F for 48 hours or until **quick ice** is pressed again. There is no change of temperature on the display panel.

In the event of a power loss, if the freezer temperature is above 40°F, Quick Ice will not restart. Below 40°F, the refrigerator will return to the Quick Ice mode.

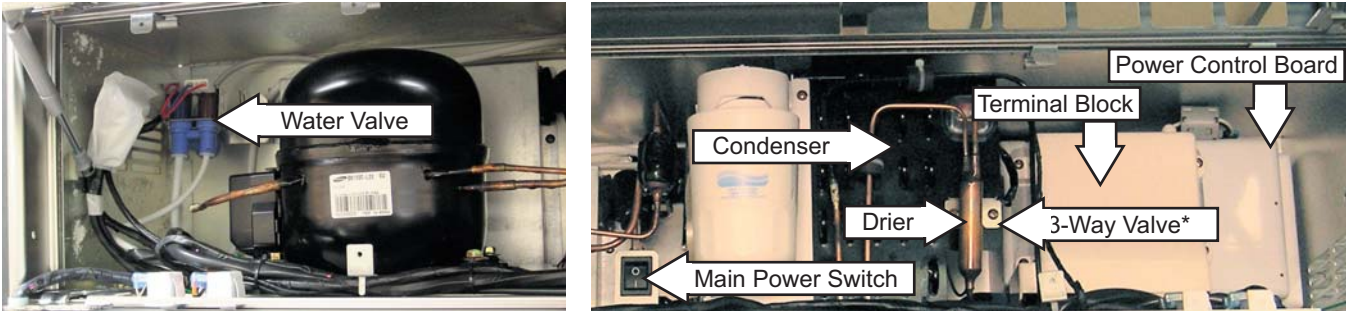
### Display after power failure:

After a power failure, the display will reset based on freezer temperature. If the freezer temperature is below 40°F, the display will retain the settings prior to power loss. The chart at the right describes the possible settings.

Control Function	Freezer<40°F	Freezer>40°F
Refrigerator Set Temperature	Previous Setting	Default 37°F
Freezer Set Temperature	Previous Setting	Default (0°F)
Door Alarm	Previous Setting	Previous Setting
Dispenser Option	Previous Setting	Default (Crushed Ice)
Quick Ice	Previous Setting	OFF
Reset Filter	Previous Setting	Previous Setting
Lock	Previous Setting	Previous Setting
Dispenser Light	Previous Setting	OFF

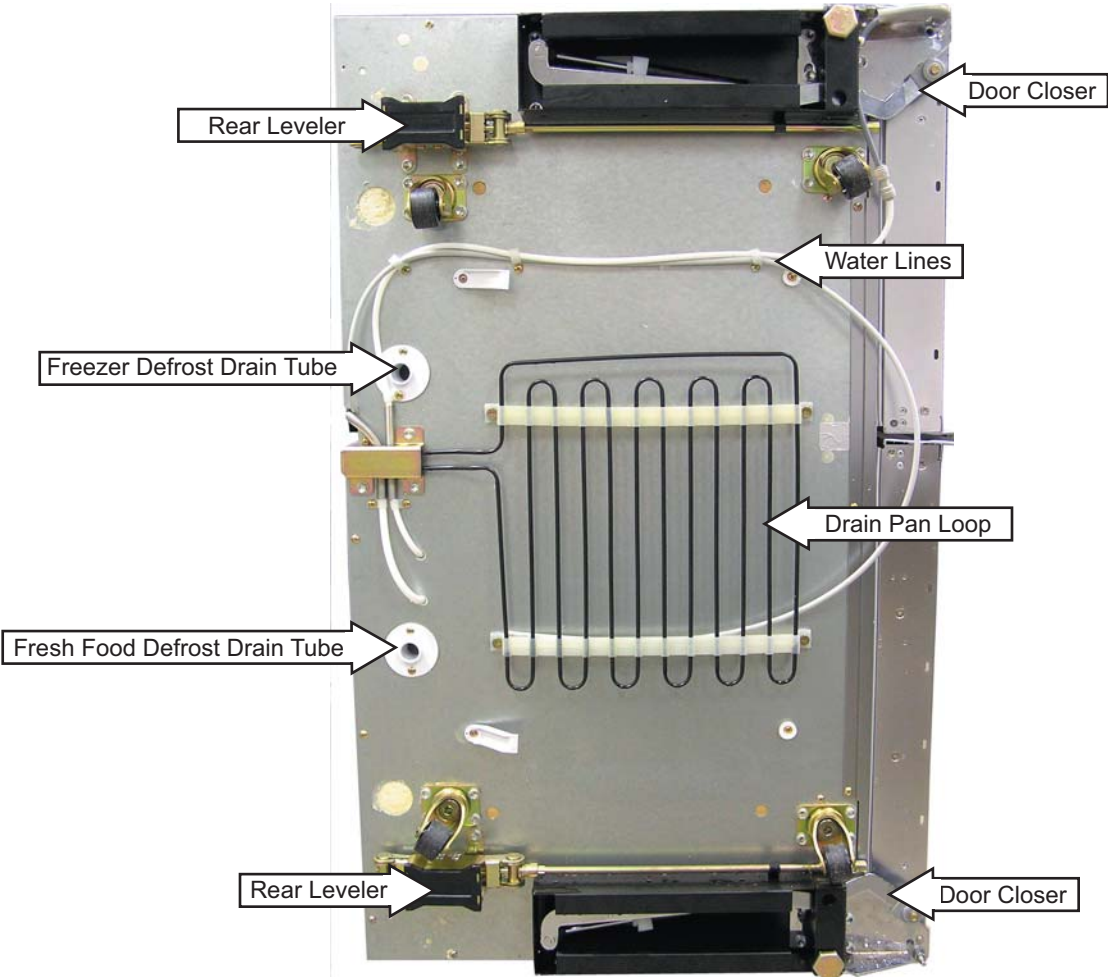
# Component Locator Views

## Machine Compartment



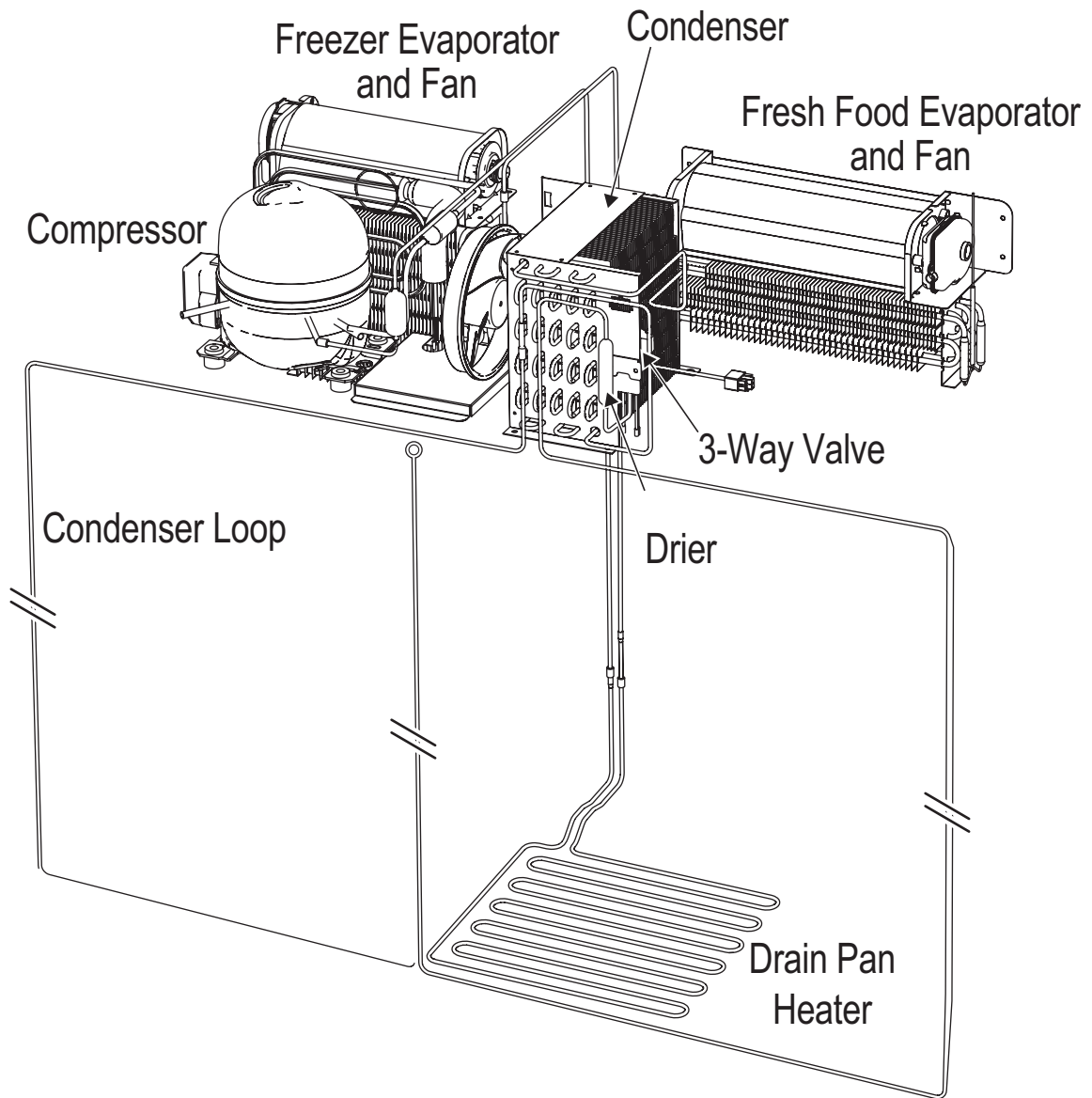
\*The 3-way valve is located behind the condenser front plate.

## Refrigerator (Bottom View, Drain Pan Removed)



# Refrigeration System

## Refrigeration Components

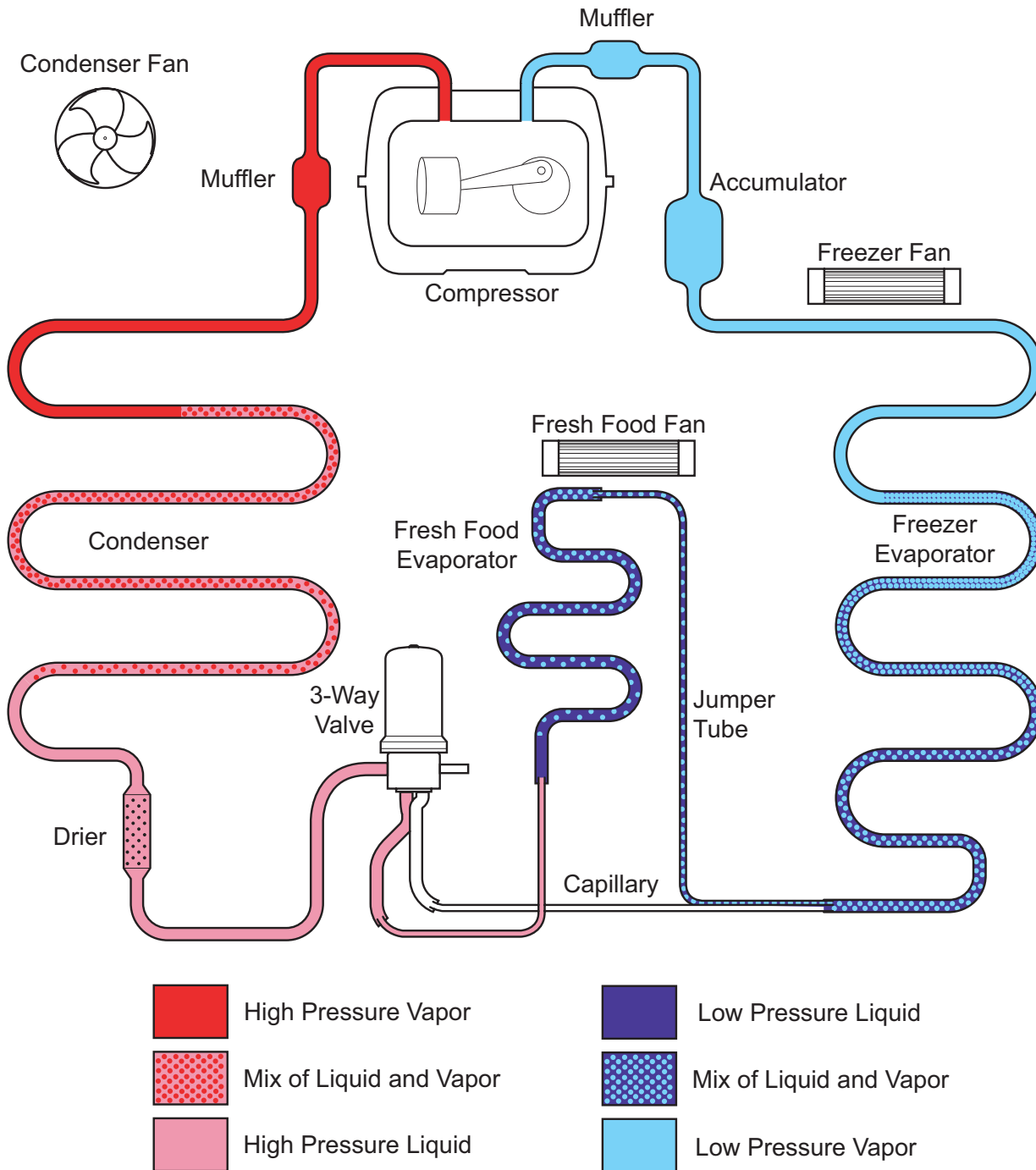


## Refrigerant Flow

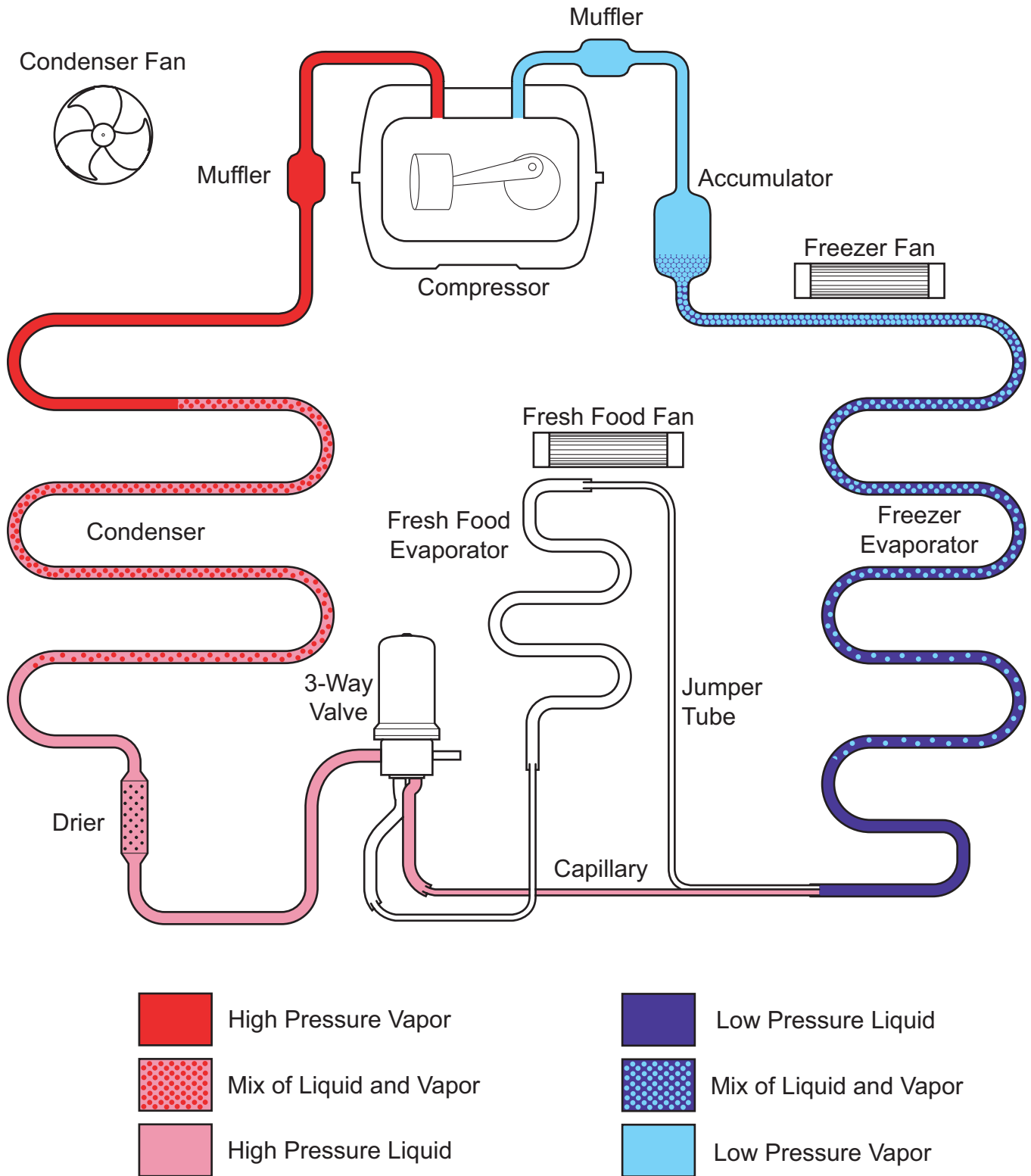
The compressor compresses R134a refrigerant, raising its pressure and temperature. Refrigerant vapor is pumped out the compressor discharge, down through the drain pan loop, up through the condenser coil, around the condenser loop, through the drier, and into the 3-way valve. By the time the refrigerant has reached the 3-way valve, it has completely condensed into a liquid. Depending upon whether the main control board opens the 3-way valve to the freezer evaporator

or the fresh food and freezer evaporators, refrigerant flows through the appropriate capillary tube and into the evaporator. As the high pressure liquid passes through the capillary and enters the low pressure evaporator, it quickly expands and evaporates. During evaporation, the refrigerant absorbs heat, becoming cold. At the outlet of the freezer evaporator, an accumulator captures any remaining liquid, allowing only low pressure vapor to return to the compressor through the suction line.

## FRESH FOOD AND FREEZER SECTION COOLING



# FREEZER SECTION COOLING



**Note:** The refrigerator will operate with the 3-way valve set for freezer only or set for fresh food and freezer. There is no 3-way valve setting for fresh food only. If the fresh food thermistor is not satisfied, but the freezer thermistor is satisfied, the refrigerator will still operate with the 3-way valve set in the fresh food and freezer mode.

## Evacuation and Charging Procedure

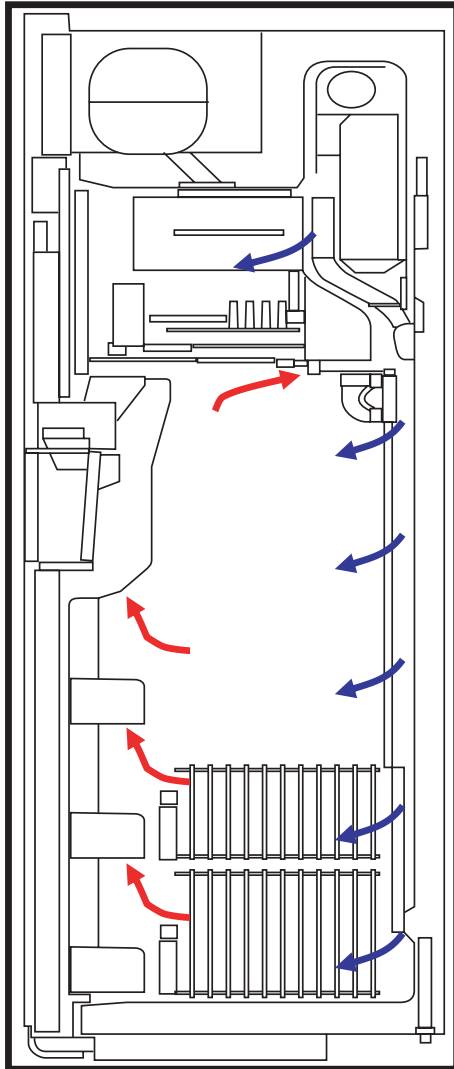
### WARNING:

- Before cutting or using a torch on refrigerant tubes, recover the refrigerant from the system using approved recovery equipment.
  - Never charge new refrigerant through the purge valve. This valve is always located on the high pressure side of the system.
  - Never apply heat from any source to a container of refrigerant. Such action will cause excessive pressure in the container.
  - Always wear goggles when working with refrigerants and nitrogen holding a charge in some replacement parts. Contact with these gases may cause injury.
1. Attach the hose from the R-134a charging cylinder to the process tube port on the compressor.
  2. Evacuate the system to a minimum 20-in. vacuum using the refrigerator compressor and recovery pump, which is attached to the new drier assembly.
  3. Turn off the recovery pump. Close the ball valve on the hose connected to the high-side port connection. Add 3 ounces of R-134a refrigerant to the system. Let the refrigerator operate and circulate the refrigerant for 5 minutes.
  4. Open the ball valve. Recover the purge/ sweep charge using the recovery pump and the refrigerator compressor until a 20-in. vacuum is attained. Close the ball valve and remove the recovery hose.
  5. Charge the system with the exact amount of R-134a refrigerant specified.
  6. Disconnect the power cord to the refrigerator. This allows the pressure to equalize. After 3 to 5 minutes, the low-side pressure will be positive and then the hose-to-charging port can be disconnected.
  7. Using an electronic leak detector, check all brazed joints and both schrader ports. Reinstall caps to schrader ports.

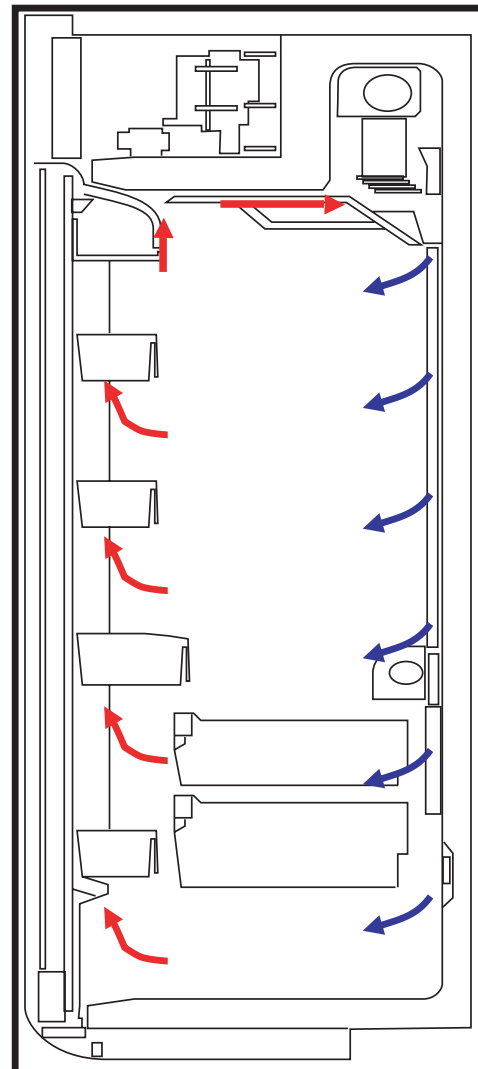


# Interior Airflow

## Freezer Air Flow



## Fresh Food Air Flow



→ Warm Circulated Air

→ Fresh Cold Air

**Note:** The fans are extremely quiet. Check for airflow at the icemaker air duct in the freezer and the top tower vent in the fresh food section. Fans turn off when the doors are opened (DC door switches control operation) and delay 10 seconds before restarting when the doors are closed again. The freezer door switch controls only the freezer fan. The fresh food door switch controls both the fresh food and freezer fan operation.

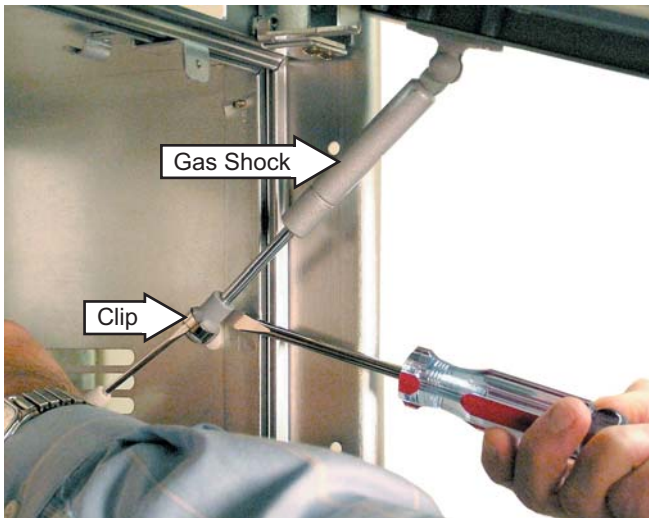
# Components

## Machine Compartment Access Door

The machine compartment access door is held in place by 2 hinges and 2 gas shocks.

**To remove the machine compartment access door:**

1. Remove the grille panel.
2. Remove the gas shocks from the cabinet:
  - a. Insert a small screwdriver under the retainer clip.
  - b. Pull the retainer inward to dislodge the gas shock from the pivot ball.
3. Remove the 2 screws from both hinges, then remove the machine compartment access door.



## Doors

The doors are of one-piece construction with foamed-in insulation.

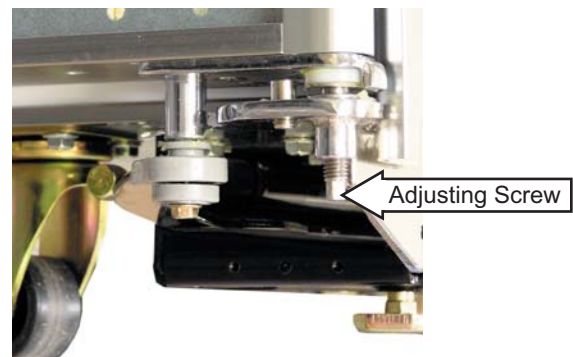
The inner and outer door panels cannot be separated and must be replaced as an assembly.

**Note:** On trimmed models, the maximum weight for the fresh food door panel is 70 pounds. The maximum weight for the freezer door panel is 30 pounds.

## Door Alignment

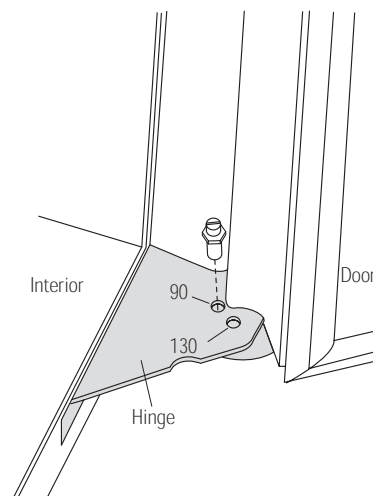
The freezer door is nonadjustable. The fresh food door has an adjustment screw at the bottom hinge. Use a  $\frac{7}{32}$ -in. socket or open-end wrench to turn the adjusting screw clockwise to raise the door, or counterclockwise to lower the door. A nylon plug, imbedded in the threads of the pin, prevents the pin from turning, unless a tool is used.

**Note:** Raising the fresh food door too high will cause the upper hinge to bind on the machine compartment access door.



## Door Stop

The refrigerator has a 2-position door stop. When space does not allow the door to swing open fully to 130°, the stop can be adjusted to a 90° door swing. The pin is factory installed in the 130° location. To change the stop location, use a flat-head screwdriver to move the stop pin.

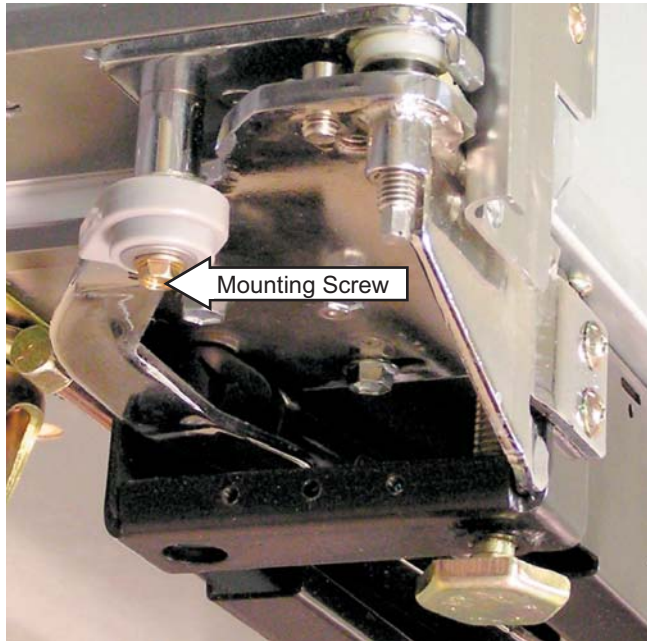


## Door Removal

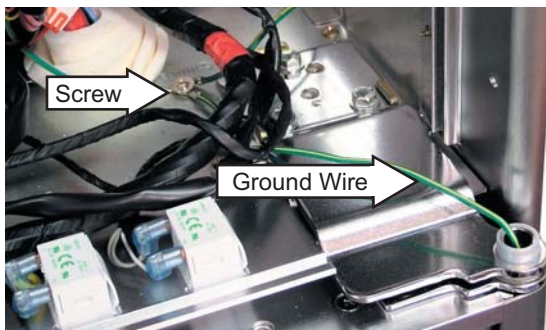
**WARNING:** Use the appropriate safety equipment and lifting techniques. Two persons may be required for door removal.

**Caution:** Use wood or a heavy plastic sheet to protect the floor where the door will be placed.

1. Remove the 8-mm mounting screw from the hinge arm link using a  $\frac{5}{16}$ -in. or 8-mm socket.



2. If removing the freezer door, shut off the water supply and disconnect the water line and electrical connectors. If removing the refrigerator door, disconnect the static ground wire from the grounding screw.

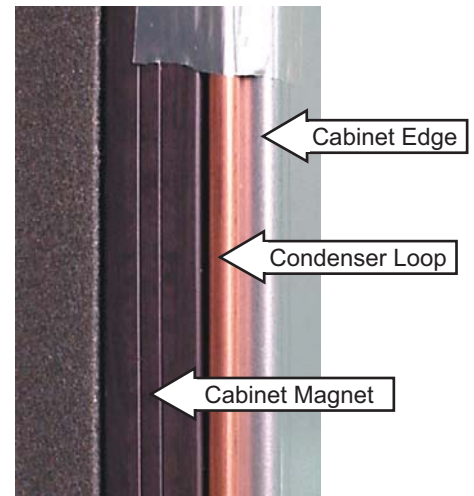


3. Remove the upper hinge.
4. Lift the door up and out.

## Door Gaskets

The fresh food and freezer doors have magnetic gaskets that create a positive seal to the front of the steel cabinet. The cabinet has magnets around the perimeter and center mullion under the front edge.

Shown With Plastic Liner Removed



The magnetic door gaskets are secured to the doors by a barbed edge that locks into a retainer channel.

### To remove and replace the door gasket:

1. Starting at any corner, pull the old gasket out of the retaining channel.
2. Soak the new gasket in warm water to make it pliable.
3. Push the barbed edge of the gasket into the retainer channel.



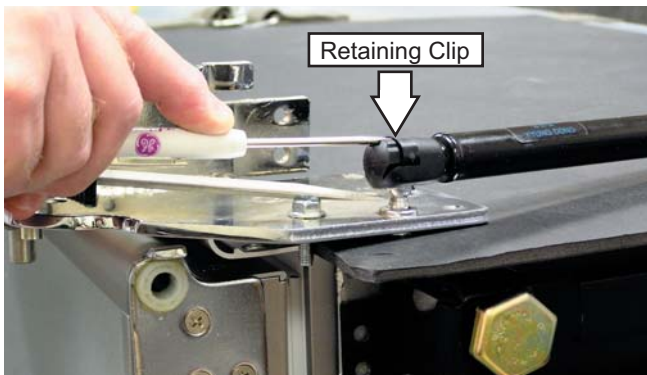
## Door Closer Assembly

Each door is equipped with a door closer assembly that provides a smooth closing action and prevents the door from being slammed shut. The assembly is connected to the bottom hinge.

When the door is open to a 90° position, it will automatically close. Beyond this position, the door will stay open.

### To remove the door closer assembly:

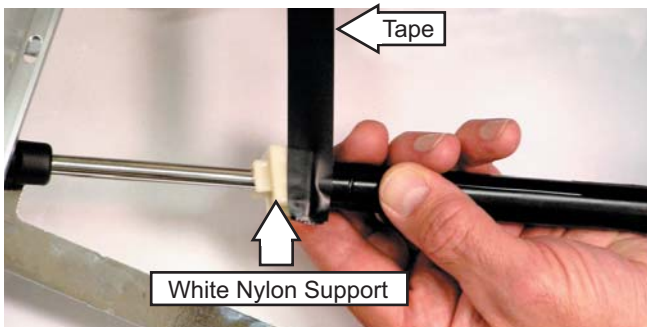
1. Remove the toe plate.
2. Remove the 8-mm mounting screw.
3. Insert a small screwdriver into the retaining clip at the bottom of the shock absorber and lift up (see photo).
4. Using a large screwdriver, lever the shock absorber off the pivot ball as shown.



5. Remove the door closer assembly by pulling it forward. Make certain to retain the white nylon shock absorber support.

### To install the door closer:

1. To make installation of the shock absorber easier, secure the white nylon support to the cylinder body with electrical tape .

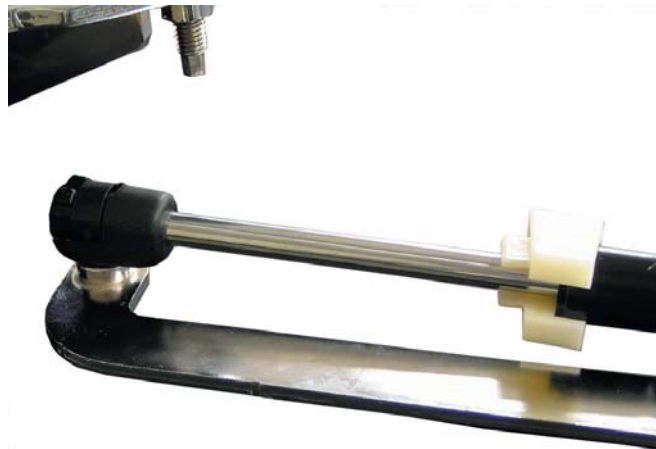


2. Ensure the opening on the white nylon support faces towards the inside of the cabinet.



3. Make sure the door closer assembly support is fully seated in the bracket to ensure alignment of ball and socket.

Shown from Installation Viewpoint



## Casters and Leveling

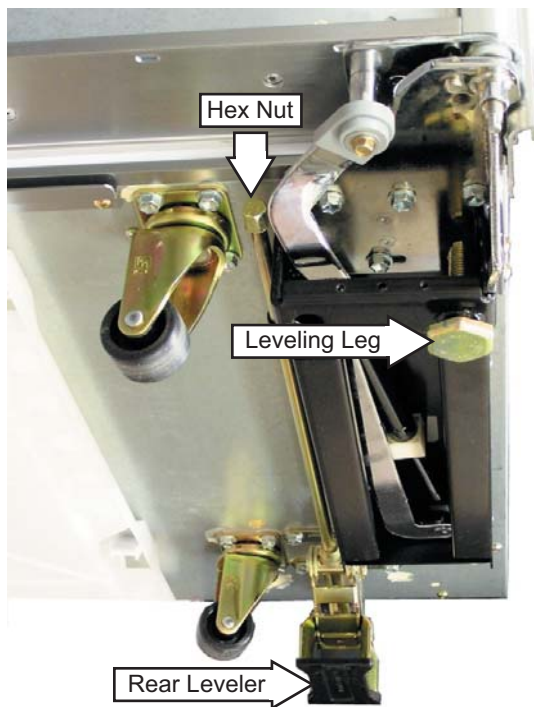
Leveling is provided by 2 adjustable rear levelers and 2 front leveling legs. The unit has 4 fixed casters that are used to position the refrigerator.

When adjusting the rear levelers, turn the  $\frac{7}{16}$ -in. hex nut, located above the front casters, clockwise to lower, or counterclockwise to raise.

When adjusting the front legs, use an open-end wrench and turn the front legs clockwise to lower, or counterclockwise to raise.

**Note:** The rear levelers and the 4 casters are each attached to the refrigerator with four 10-mm screws. To access the screws, raise or tilt the refrigerator.

Bottom Right Half of Refrigerator Shown



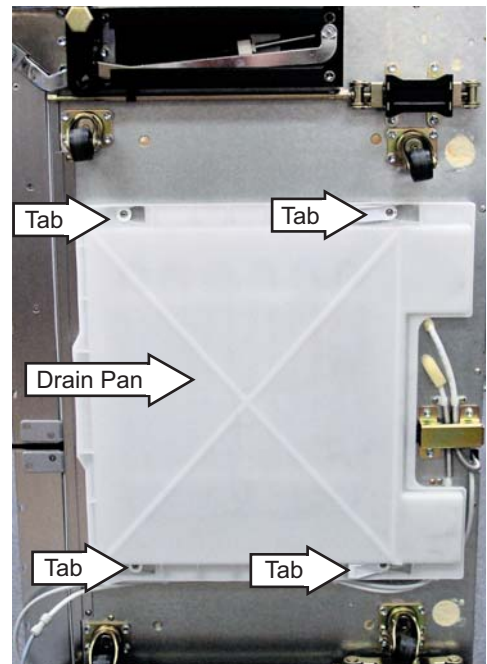
**Warning:** Use the appropriate safety equipment and lifting techniques. Two persons may be required.

## Drain Pan

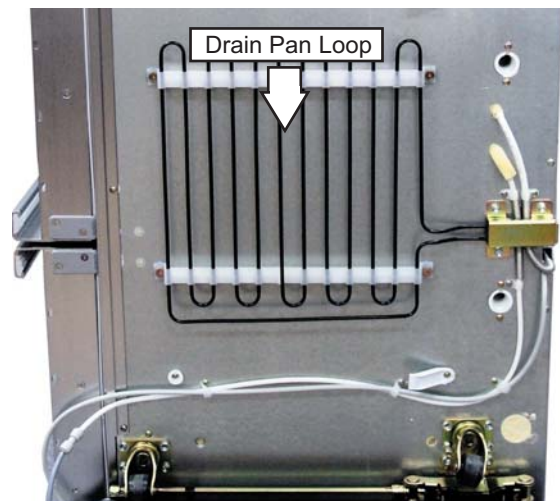
The drain pan can be removed for cleaning purposes.

### Drain pan removal:

1. Remove the toe plate.
2. To remove the drain pan, grasp the center of the drain pan and pull outward.
3. To install the drain pan, slide it back into position so the rear and front mounting tabs engage.
4. Firmly push the drain pan into position.



The defrost water in the pan is evaporated by use of a submersible serpentine coil, which is part of the sealed system. The tubing is copper coated with black paint.



## Power Control Board (PCB)

The PCB housing is attached to the rear wall of the machine compartment by 2 Phillips-head screws.

The PCB is enclosed inside a housing and mounted on the right side of the machine compartment behind the terminal block panel.

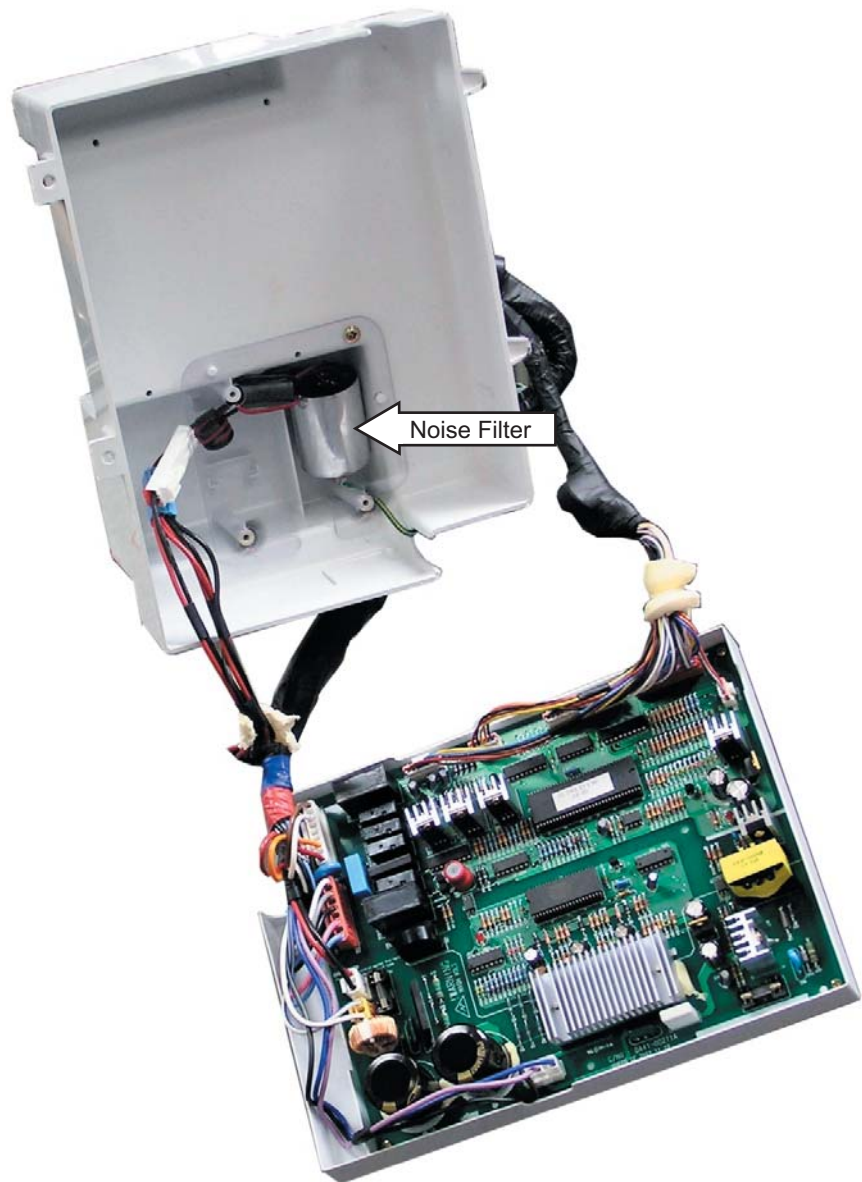
### Noise Filter

The noise filter is mounted in a recessed area in the PCB housing.

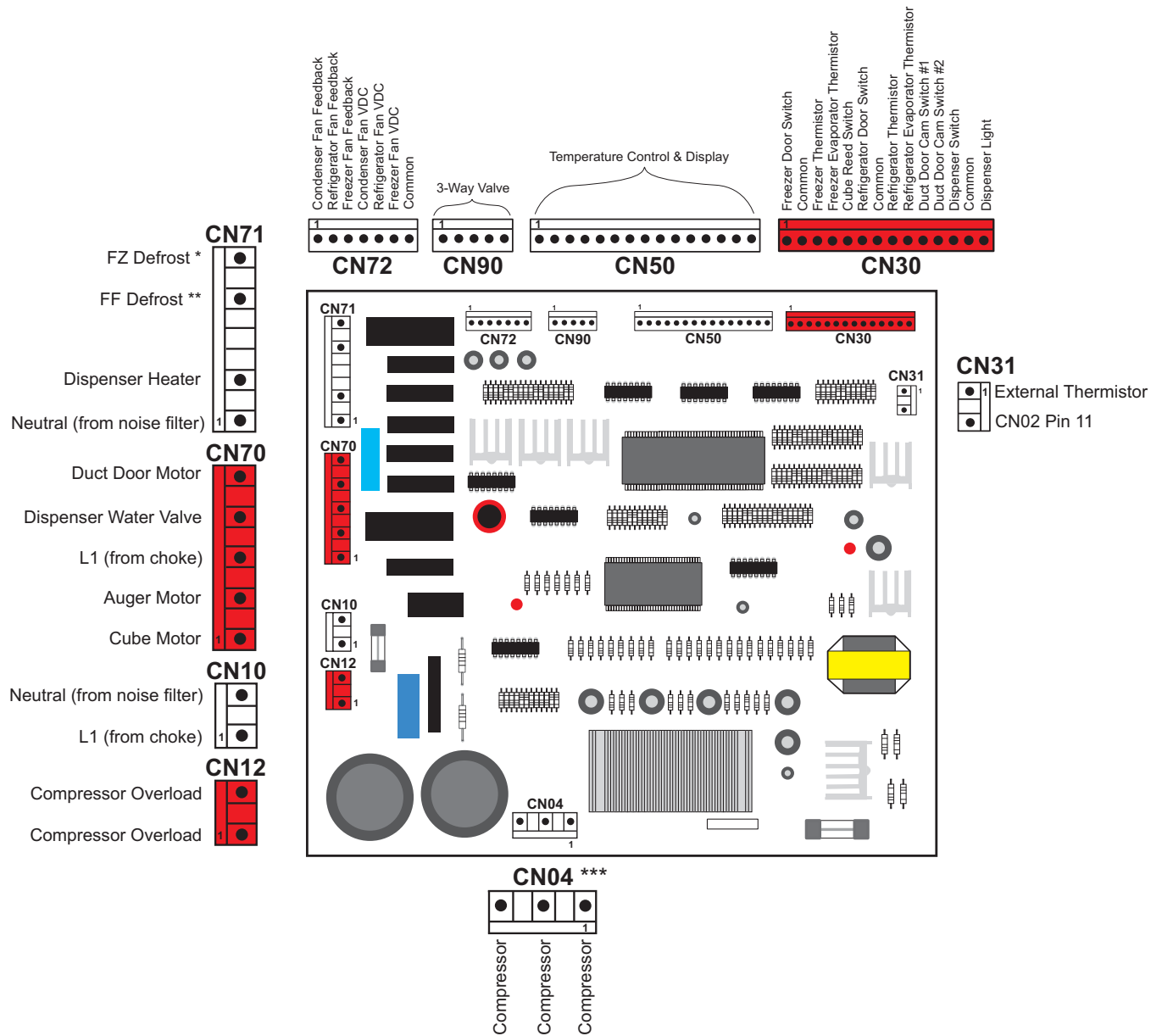
#### To access the noise filter:

1. Remove 3 screws from the filter cover.
2. Disconnect the 2 lead wires.
3. Remove the 13-mm hex nut at the end of the noise filter that holds the ground wire in place.

To check the noise filter, look for the epoxy molding to be broken or burnt by heat or a power surge. The noise filter resistance should be approximately  $500\text{K } \Omega$  between the black and red wires.



# Control Board Connector Locator



\* FZ Defrost - Freezer defrost circuit consists of the defrost heater, bi-metal thermostat, drain pan and tube heater and suction line drain pan heater.

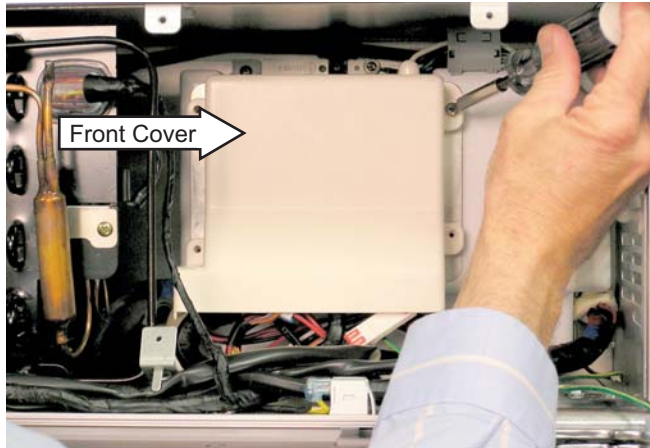
\*\* FF Defrost - Fresh food defrost circuit consists of the defrost heater, bi-metal thermostat, drain pan heater and icemaker fill tube heater.

\*\*\* CN04 on the control board connects to the CN8 connector on the terminal block panel.

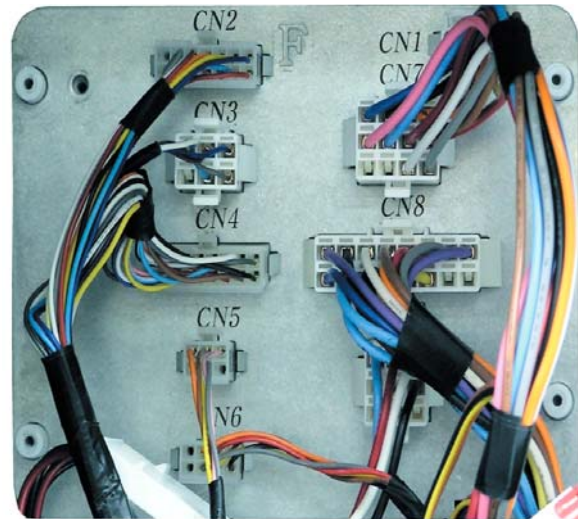
## Terminal Block Panel

The terminal block panel is located on the right side of the machine compartment and attached to the PCB housing cover. The terminal block consists of AC and DC wire harness connectors.

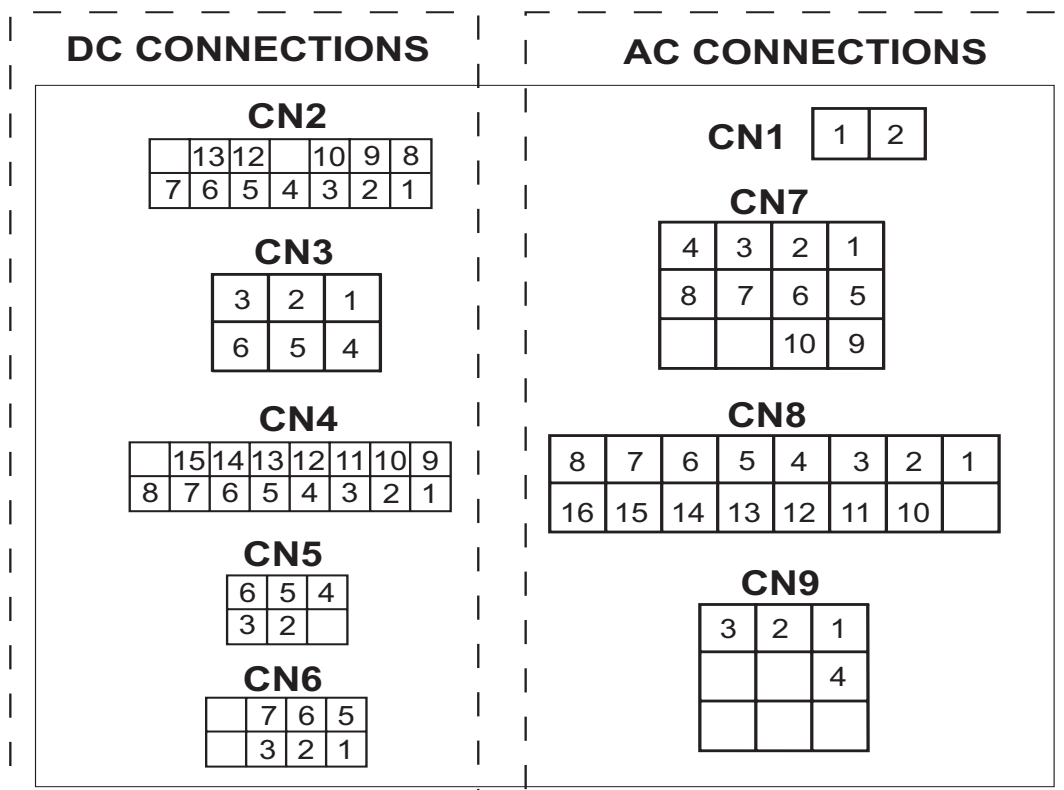
To access the wire harness connectors, remove the 4 Phillips-head screws that hold the front cover in place.



Terminal Block Panel with Cover Removed



## Connector Locator



**Note:** Throughout the service guide, reference to the terminal block connectors may or may not contain a zero (i.e., CN3 and CN03 are the same connector.)



# Connector Description

DC CONNECTIONS			
CON	PIN	DESCRIPTION	WIRE COLOR
CN2	1	Condenser Fan Feedback	Red
CN2	2	Condenser Fan VDC	Light Blue
CN2	3	Condenser Fan Common	Gray
CN2	4	3-Way Valve	Red
CN2	5	3-Way Valve	Black
CN2	6	FZ Door Switch	White/Yellow
CN2	7	FZ & FF Door Switch (Common)	Gray
CN2	8	3-Way Valve	Blue
CN2	9	3-Way Valve	Yellow
CN2	10	3-Way Valve	Orange
CN2	11	Empty	
CN2	12	External Thermistor	Red
CN2	13	FF Door Switch	White/Blue
CN2	14	Empty	

CN3	1	Duct Door Cam Switch #1	Blue
CN3	2	Duct Door Cam Switch #2	Purple
CN3	3	Dispenser Switch	White
CN3	4	Dispenser Components (Common)	Gray
CN3	5	Dispenser Light	Light Blue
CN3	6	Empty	

CN4	1	Temperature Control & Display	Black
CN4	2	Temperature Control & Display	Brown
CN4	3	Temperature Control & Display	Red
CN4	4	Temperature Control & Display	Orange
CN4	5	Temperature Control & Display	Yellow
CN4	6	Temperature Control & Display	Pink
CN4	7	Temperature Control & Display	Blue
CN4	8	Temperature Control & Display	Purple
CN4	9	Temperature Control & Display	Gray
CN4	10	Temperature Control & Display	White
CN4	11	Temperature Control & Display	Light Blue
CN4	12	Temperature Control & Display	White/Black
CN4	13	Temperature Control & Display	White/Red
CN4	14	Temperature Control & Display	White/Blue
CN4	15	Temperature Control & Display	White/Yellow
CN4	16	Empty	

CN5	1	Empty	
CN5	2	FF Fan & Thermistors (Common)	Gray
CN5	3	FF Thermistor	Yellow
CN5	4	FF Evaporator Thermistor	Pink
CN5	5	FF Fan Feedback	Brown
CN5	6	FF Fan VDC	Orange

CN6	1	FZ Fan Feedback	Black
CN6	2	FZ Fan VDC	Yellow
CN6	3	FZ Fan, Thermistors & Cube Switch (Common)	Gray
CN6	4	Empty	

AC CONNECTIONS			
CON	PIN	DESCRIPTION	WIRE COLOR
CN1	1	L1 (Switched thru Master Switch)	Black
CN1	2	Neutral (Switched thru Master Switch)	Red

CN7	1	FZ Defrost (Switched L1)	Brown
CN7	2	FZ Defrost (Neutral)	Orange
CN7	3	Icemaker (L1)	Black
CN7	4	Icemaker (Water) (Switched L1)	Blue
CN7	5	Icemaker (Neutral)	Red
CN7	6	Auger & Cube Motor (Switched Neutral)	P/Blue
CN7	7	Cube Motor (Switched L1)	Light Blue
CN7	8	Auger Motor (Switched L1)	Pink
CN7	9	FZ Light (L1)	Black
CN7	10	FZ Light (Switched Neutral)	White/Blue
CN7	11	Empty	
CN7	12	Empty	

CN8	1	Water Valve (Icemaker) (Switched L1)	Purple
CN8	2	Water Valve (Dispenser) (Switched L1)	Gray
CN8	3	Water Valve (Neutral) (Icemaker & Dispenser)	Red
CN8	4	Duct Door Motor & Dispenser Heater (Neutral)	Red
CN8	5	Dispenser Heater (Switched L1)	Brown
CN8	6	Duct Door Motor (Switched L1)	White
CN8	7	Compressor (3 Phase)	Black
CN8	8	Compressor (3 Phase)	Purple
CN8	9	Empty	
CN8	10	FZ Door Switch (Auger & Cube Motor)	P/Blue
CN8	11	FF Door Light Switch (Switched Neutral)	Yellow
CN8	12	FZ Door Light Switch (Switched Neutral)	Orange
CN8	13	FF Door Light Switch (L1)	Black
CN8	14	Compressor Overload (Pwr Supply Neutral)	Light Blue
CN8	15	Compressor Overload (Pwr Supply Neutral)	Light Blue
CN8	16	Compressor (3 Phase)	Blue

CN9	1	FF Defrost (Switched L1)	White
CN9	2	FF Defrost (Neutral)	Red
CN9	3	FF Lights (Switched L1)	Light Blue
CN9	4	FF Lights (Neutral)	Red
CN9	5	Empty	
CN9	6	Empty	
CN9	7	Empty	
CN9	8	Empty	
CN9	9	Empty	

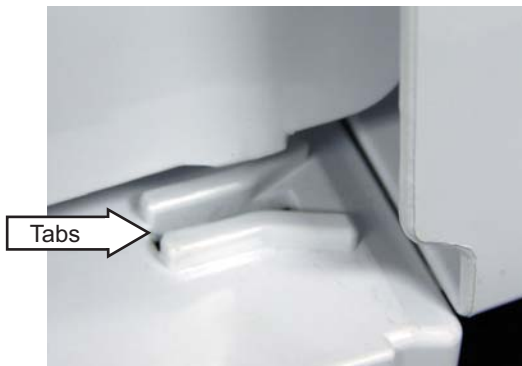
## Ice Bin and Icemaker

### Ice Bin

The ice bin holds approximately 7 pounds of ice, equivalent to about 230 cubes.

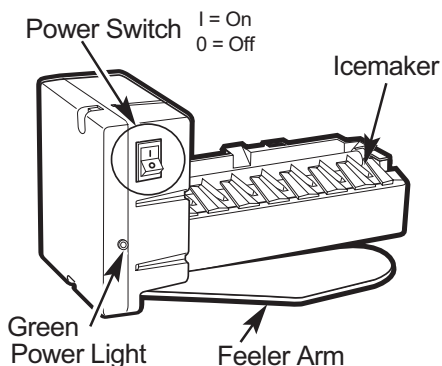


The ice bin can be removed by lifting it upward, to clear the tabs holding the bin in place, then pulling forward.



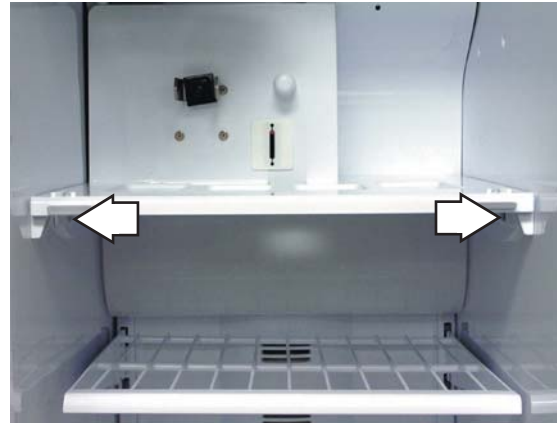
### Icemaker

The icemaker is mounted to the upper left wall of the freezer cabinet. Under normal operating conditions, the icemaker is capable of producing approximately 4.3 pounds of ice in a 24-hour period. During **quick ice**, the icemaker is capable of producing 5.5 pounds of ice in a 24-hour period.



### To remove the icemaker:

1. Remove the ice bin. Remove 2 front screws that hold the ice bin shelf in place.



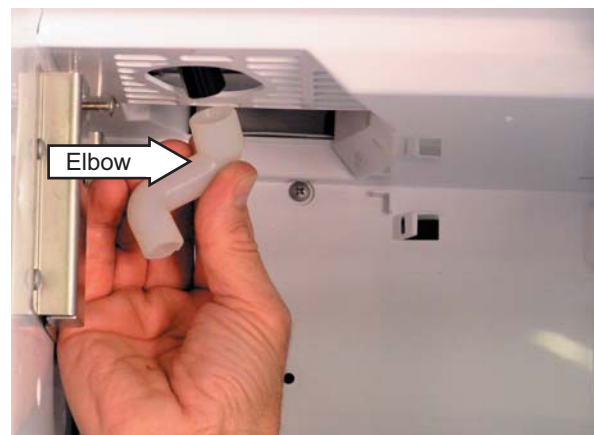
2. Pull the shelf forward to access the icemaker plug, then unplug the icemaker.
3. Remove the 2 screws that hold the icemaker in place. Remove the icemaker.

Check for 120 VAC to the icemaker at CN07 on the terminal block between pin #3 (power) and pin # 5 (neutral).

## Icemaker Fill Tube and Heater

### To remove the icemaker fill tube and heater:

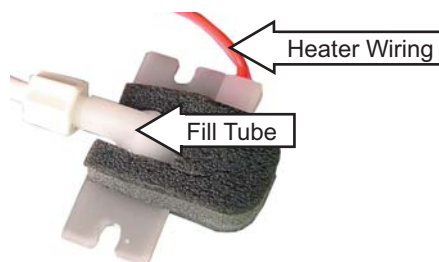
1. Remove the ice bin and icemaker (see *Ice Bin and Icemaker*).
2. Remove the elbow from the end of the fill tube.



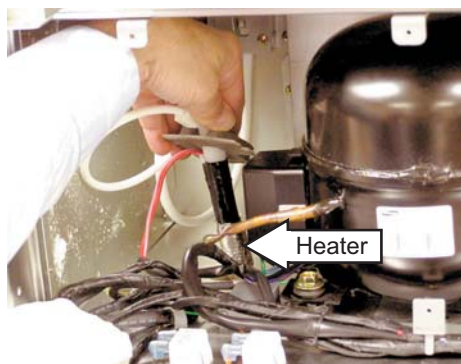
- In the machine compartment, remove the 2 screws from the fill tube cover (located beneath the water valve to the left of compressor).



- Disconnect the fill tube water line, then remove the fill tube from the cabinet.

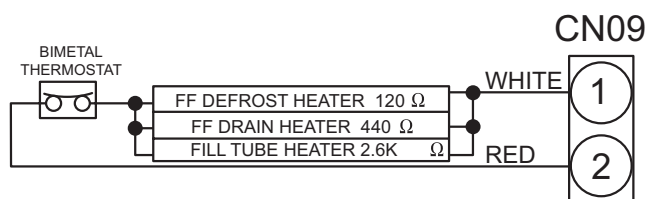


- The heater is attached to the fill tube and can be separated from the tube by removing the tape and foil.



**Note:** The heater is supplied with 120 VAC only during the fresh food evaporator defrost cycle. The fill tube heater is in parallel with the fresh food evaporator defrost heater and the fresh food drain heater. The fill tube heater is also referred to as the "PIPE HEATER" on some schematics and "SUB-HEATER FF" in early mini-manuals.

When the fresh food defrost cycle is initiated, check for 120 VAC at CN09 on the terminal block, between pin #1 and pin #2.

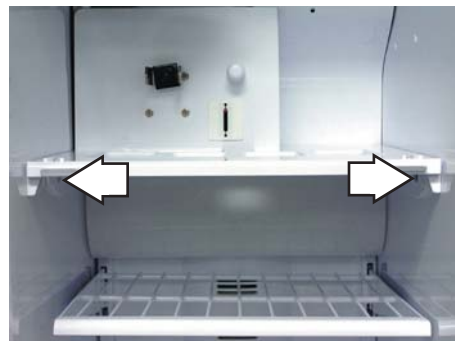


## Auger Motor

The auger motor is mounted to the ice bin shelf.

**To access the auger motor:**

- Remove the ice bin (see *Ice Bin and Icemaker*).
- Remove the 2 screws that hold the ice bin shelf in place.



- Pull the shelf forward to expose the electrical connectors.
- Disconnect the auger motor wire harness and remove the ice bin shelf.
- Unsnap the auger motor cover to access the auger motor. The auger motor is held in place by 4 Phillips-head mounting screws.



The auger motor operates on 120 VAC and has a resistance of approximately 3.7  $\Omega$ .

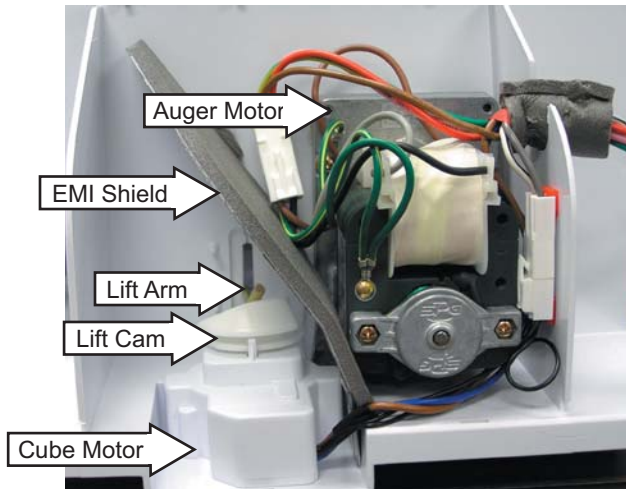
To check the supply voltage to the auger motor, select **CUBED** on the ice dispenser control panel, then press the dispenser pad to close the switch. Check for 120 VAC at CN07 on the terminal block between pin #6 and pin #8.

## Cube Motor and Cube Reed Switch

The cube motor replaces the cube solenoid assembly and is mounted to the ice container shelf.

### To access the cube motor and reed switch:

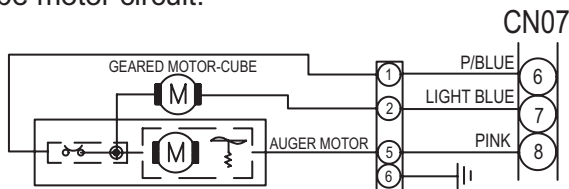
1. Unsnap the cover.
2. Remove the 2 screws that attach the cube motor assembly to the ice bin shelf.
3. Disconnect the wire harness.



The EMI shield prevents electrical interference from the auger motor from affecting the operation of the cube motor reed switch. Make sure the shield is in place before replacing the cover.

The cube motor operates on 120 VAC and has a resistance of approximately 2K  $\Omega$ .

**Note:** The auger motor thermal overload is in the cube motor circuit.

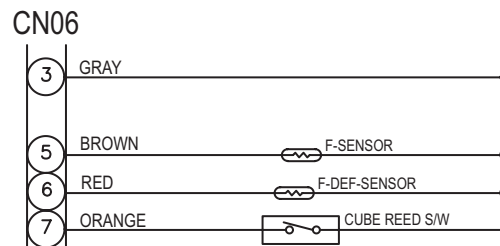


To check the supply voltage to the cube motor, select **CUBED** on the ice dispenser control panel, then press the dispenser pad to close the switch. Check for 120 VAC at CN07 on the terminal block between pin #6 and pin #7.

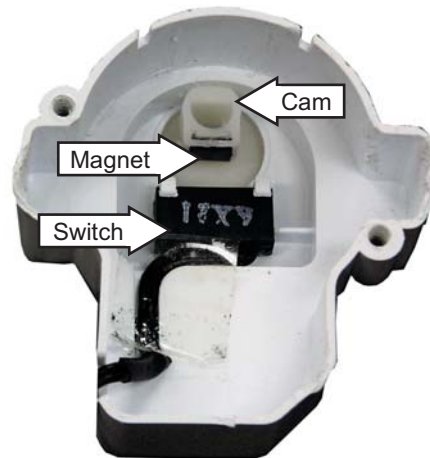
The cube reed switch is mounted to the cube motor housing. A small magnet is attached to the motor lift cam. The magnetic operation of the reed switch informs the power control Board (PCB) of the position of the cube motor lift cam.

### To check the cube reed switch:

1. Select **CUBED** on the ice dispenser control panel, then press the dispenser pad to close the switch.
2. Check for 5 VDC at CN06 on the terminal block between pin #3 and pin #7.
3. Select **CRUSHED** on the ice dispenser control panel, then check for 0 VDC at the same pin location with the dispenser switch in the closed position.



### Shown with Motor Removed



**Note:** The motor, cam, reed switch, and harness are replaced as a complete assembly.

## Dispenser Control Panel

The dispenser control panel contains the control module and room ambient thermistor. The panel is available in black or white. Stainless steel models come with black trim. To remove the dispenser control panel on stainless steel front models, insert a flat-bladed screwdriver and lift the frame outward to release the 15 retaining hooks from the freezer door. Protect the freezer door with cloth or tape to prevent marring the surface.

To remove the dispenser frame on trimmed models, remove the door handle first, then slide out the top panel. The dispenser cover can then be removed by pulling it away from the door front.

**Note:** Some force is required to remove the trim frame.

**Stainless Steel Front**

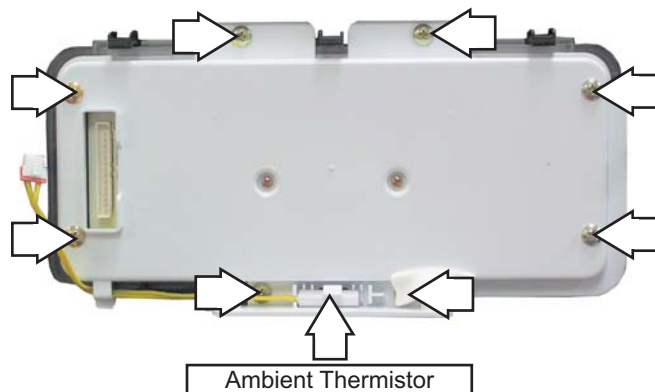


**Trimmed Front**



## Control Module

- The control module is located on the back of the dispenser control panel.
- The control module is held in place by 8 Phillips-head screws.
- The ambient thermistor is clipped to the bottom of the module housing.

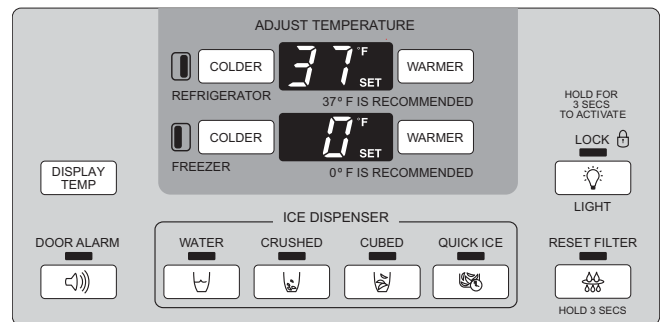


## Testing the Dispenser Control Pads

Run the HMI Self-Test **0 6** (see **Service Diagnostics**). If any portion of the test fails, the control module pads can be tested at the CN04 connector on the terminal block (see **Terminal Block Panel**).

Disconnect the CN04 connector and read the resistance between the wires to the control module. When each pad is pressed, a reading of approximately 10K  $\Omega$  should be present between the pins as shown in the chart below.

As an example, when the REFRIGERATOR COLDER pad is pressed, 10K  $\Omega$  should be present between the purple and white/blue wires (pin #8 and pin #14).



Pad Description	Pin	Wire	Pin	Wire
REFRIGERATOR COLDER	8	Purple	14	White/Blue
REFRIGERATOR WARMER	9	Gray	14	White/Blue
FREEZER COLDER	10	White	14	White/Blue
FREEZER WARMER	11	Light Blue	14	White/Blue
DISPLAY TEMP	12	White/Black	14	White/Blue
DOOR ALARM	13	White/Red	14	White/Blue
WATER	8	Purple	15	White/Yellow
CRUSHED	9	Gray	15	White/Yellow
CUBE	10	White	15	White/Yellow
QUICK ICE	11	Light Blue	15	White/Yellow
RESET FILTER	12	White/Black	15	White/Yellow
LIGHT/LOCK	13	White/Red	15	White/Yellow

## Ice Dispenser

The water, crushed ice, and cubed ice functions are controlled by the power control board (PCB).

To select a function, press the appropriate pad on the dispenser. The LED will light to identify the selection. To dispense the selected item, depress the dispenser pad located in the recessed area. With any ice selection, the duct door motor and cam will open the chute door, and upon release, delay its closure. A motor and cam replace the more familiar duct door solenoid.

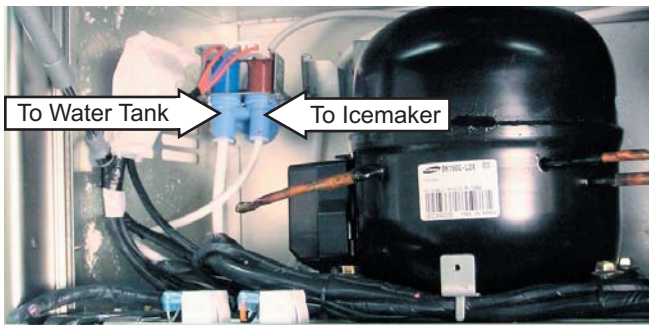
When **CUBED** is selected on the ice dispenser control panel, the cube motor behind the ice bin rotates. The motor cam lifts a linkage arm allowing the ice to bypass the crusher blades. A motor and cam replace the ice cube solenoid.

### Dispenser Light

The light bulb is a 6-watt 12 VDC bulb (WR02X10675). Check for 12 VDC at CN03 on the terminal board, between pin #4 and pin #5, with the dispenser switch in the closed position.

## Water Valve and Water Tank

The water valve is mounted in the left section of the machine compartment.



The incoming water line is routed under the unit, up the back of the refrigerator cabinet, into the machine compartment, through the GWF water filter, and into the inlet of the water valve.

From the water valve, 2 low-pressure water lines independently supply water to the icemaker and water tank.

The icemaker water line is routed from the water valve, through the machine compartment, and to the icemaker fill tube. The water tank line is routed from the water valve, through the back of the machine compartment, down the back of the cabinet, through the bottom of the unit, and into the fresh food compartment where it is attached to the water tank. The water tank holds approximately 35 oz of water.

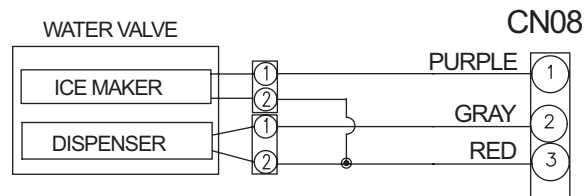
The door dispenser supply line is routed from the cold water tank, through the bottom of the unit, and into the freezer door.

The dispenser valve (blue coil) delivers filtered water through the water tank to the freezer door dispenser. The coil has a resistance of approximately 325  $\Omega$ .

The icemaker valve (brown coil) delivers filtered water directly to the icemaker. The coil has a resistance of approximately 180  $\Omega$ .

The dispenser coil receives 120 VAC from CN08, between pin #2 (when **WATER** is selected) and CN08, pin #3 (neutral).

The icemaker coil receives 120 VAC from terminal block location CN08, between pin #1 (when the icemaker is calling for fill water) and CN08, pin #3 (neutral).



**Note:** The water filter should NOT be installed if the home has a water filtration system in place (reverse osmosis filter system, etc.) Replace the filter with the bypass plug.

### To replace the water valve:

**Note:** Some water may leak from the water supply line and valve when they are disconnected.

1. Shut off the water supply to the unit.
2. Open the machine compartment and remove the grille panel.
3. Remove the single Phillips-head screw that holds the water valve in place.
4. Disconnect the wiring harness connector and 3 water lines from the water valve.

### To replace the chilled water tank:

**Note:** Some water may leak from the water supply line and valve when they are disconnected.

1. Shut off the water supply to the unit.
2. Remove the 2 Phillips-head screws from the chilled water tank.
3. Cut the water lines leaving enough line to reconnect. Use 2 unions ( $\frac{5}{16}$ -in. x  $\frac{5}{16}$ -in.), part # WR02X10471.

### Approximate water temperature by the glass:

- Room Ambient at 76°F (24°C).
- 8-ounce glass.
- One-minute interval between dispensing water.

1st glass	53°F	12°C	5th glass	66°F	19°C
2nd glass	48°F	9°C	6th glass	69°F	21°C
3rd glass	52°F	11°C	7th glass	71°F	22°C
4th glass	57°F	14°C	8th glass	73°F	23°C

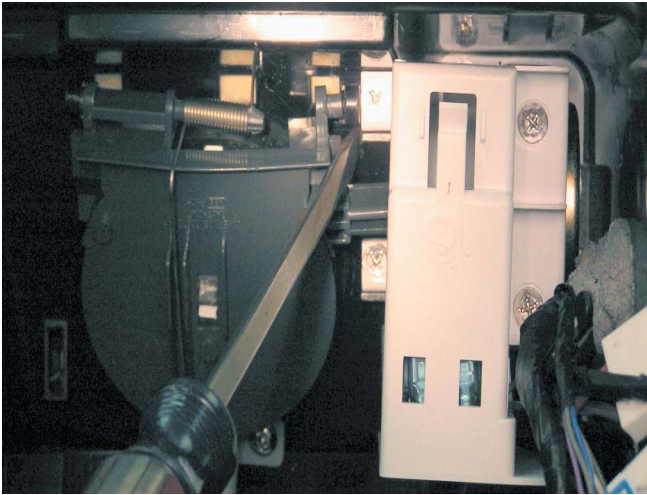


## Duct Door Assembly

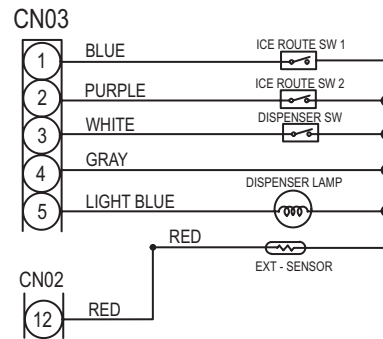
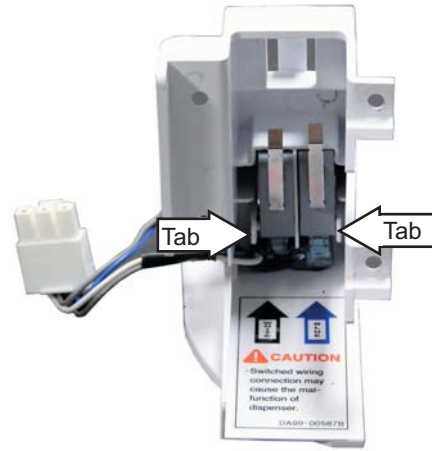
### Duct Door

The dispenser control panel must be removed before removing the duct door.

Insert a flat-blade screwdriver between the duct door (top right corner) and the switch housing. Use the screwdriver to slide the door to the left, until the hinge pin is free.

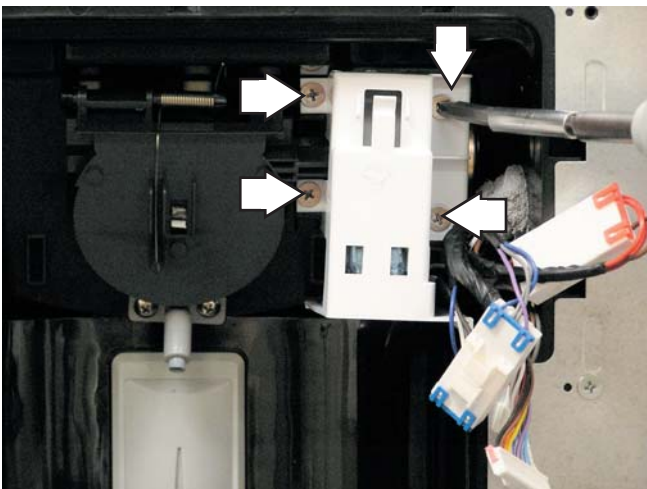


The duct door motor switches are held in place by 2 tabs.



### Duct Door Motor Switch Housing

The dispenser motor operates through 2 switches located in a housing at the top, right corner of the dispenser cavity. The dispenser motor switch housing is held in place by 4 Phillips-head screws.

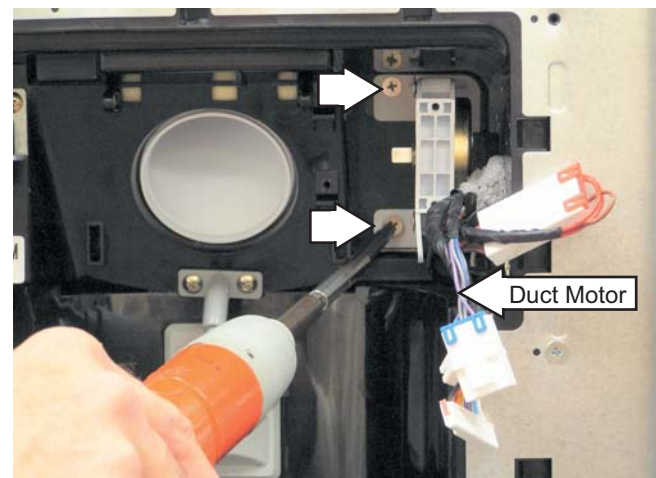


### Duct Door Motor

The duct door motor rotates an eccentrically shaped plastic cam which operates the duct door.

#### To remove the duct door motor:

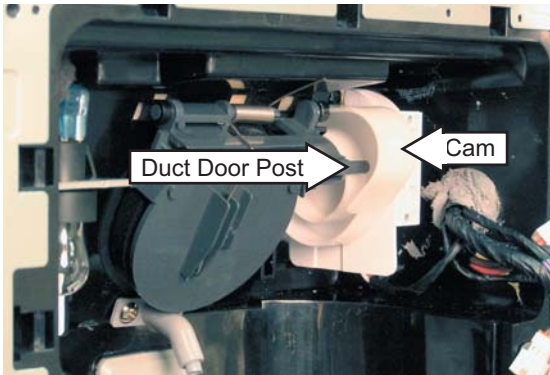
1. Manually rotate the motor cam until the cam lobe points forward.
2. Remove the 2 Phillips-head screws from the motor mounting bracket. (Photo shown with cam removed.)



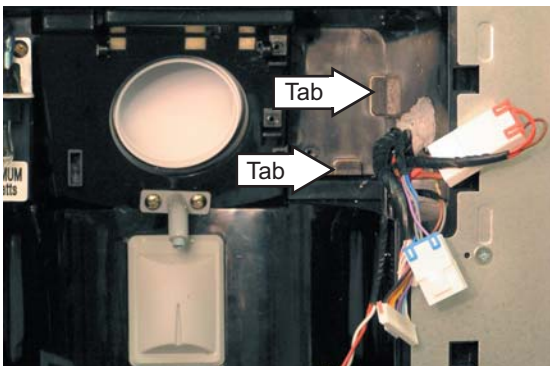


- Slide motor assembly to the left to clear the rear mounting tabs.
- Pull the motor forward while rotating it clockwise.
- Disconnect the motor wire connector.

**Caution:** When assembling, ensure the duct door post is in the outer channel of the cam, to avoid damage to the duct door and/or cam.

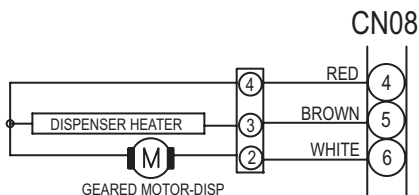


**Caution:** When installing the motor, ensure the motor mount is behind the side and bottom tabs, or damage to the cam will occur.



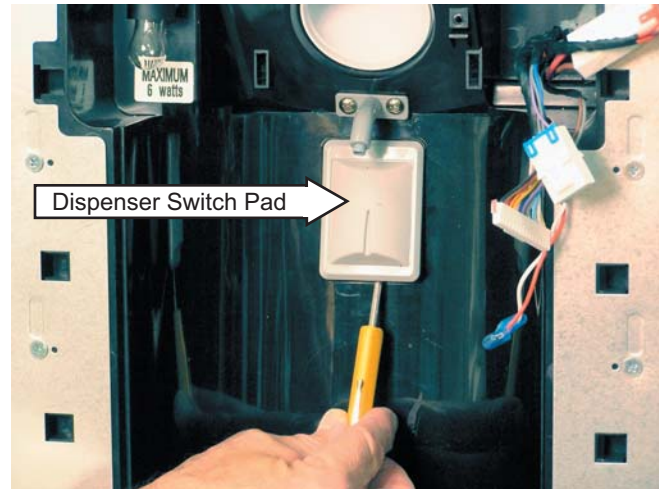
**Note:** Before reapplying power, remove the switch housing and rotate the motor cam clockwise by hand to ensure proper door/cam operation. To avoid motor gear damage, DO NOT rotate the motor cam counterclockwise.

The duct door motor operates at 120 VAC when energized by the power control board (PCB). The motor has resistance of approximately 2K  $\Omega$ . Check at CN08 on the terminal board, between pin # 4 (neutral) and pin # 6.

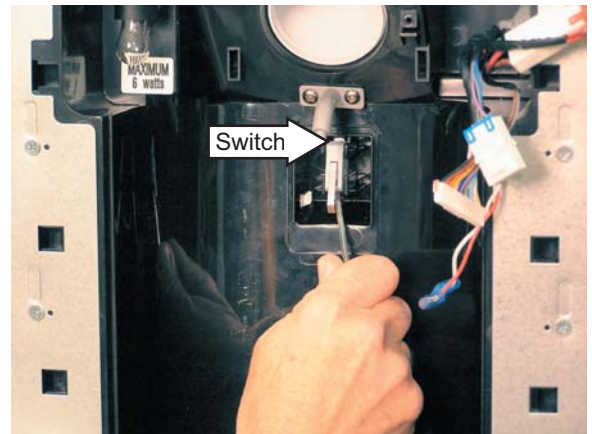


## Dispenser Switch

The dispenser switch pad must be removed to access the dispenser switch. Insert a flat-blade screwdriver into the bottom slot of the dispenser switch pad and lift up.



To remove the switch, lift it up at the bottom (see photo) with a screwdriver. Release the switch from the tabs at the top.



The switch is a normally open switch. Check for 5 VDC at CN03 on the terminal board, between pin #3 and pin #4, when the dispenser switch is open.

## Dispenser Heater

The dispenser cavity heater is non serviceable. If defective, the freezer door must be replaced.

The amount of time the heater is energized is based on ambient temperature (provided by the ambient thermistor). Below 46°F (8°C), the heater is constantly on. Between 46°F (8°C) and 80°F (27°C), the heater cycles on and off with the compressor. Between 80°F (27°C) and 98°F (37°C), the heater cycles on for 5 minutes and off for 5 minutes, while the compressor is running. When the compressor is off, the heater cycles on for 5 minutes and off for 25 minutes. Above 98°F (37°C), the heater cycles on and off, with the compressor.

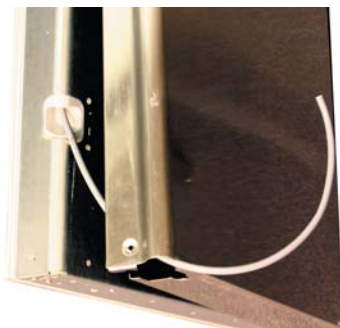
Check for 120 VAC at CN08 on the terminal block, between pin #4 and pin #5, when the heater should be energized or when the refrigerator is in test mode **0 9** (see **Service Diagnostics**). Heater resistance is approximately 1.9K Ω.

## Door Water Line Replacement

To remove the existing water line, remove the screws from the water line retainer at the dispenser, then pull the retainer off the tubing.

From the bottom of the door, disconnect the water line and pull it down and out.

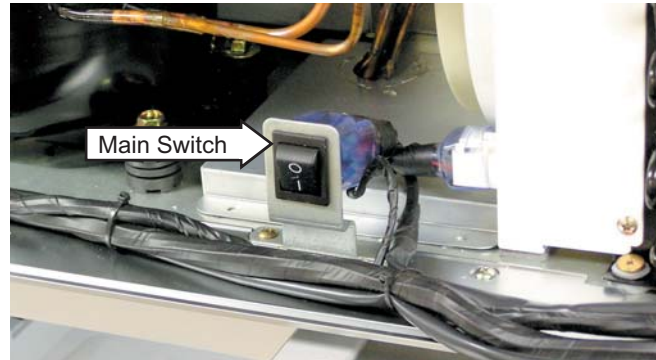
To install the new water line, soak the new line in hot water (to make it pliable) and insert it into the door at the dispenser location. Feed the water line into the door, until it emerges through the bottom hinge as shown in the photo below. (The stainless steel panel is shown pulled away from the door for clarity).



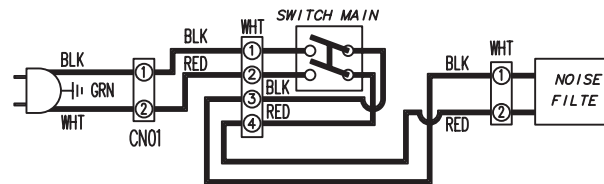
**Note:** On custom panel models, it may be necessary to remove the door handle and slide the panel to the right to feed the water line past the bend.

## Main Switch

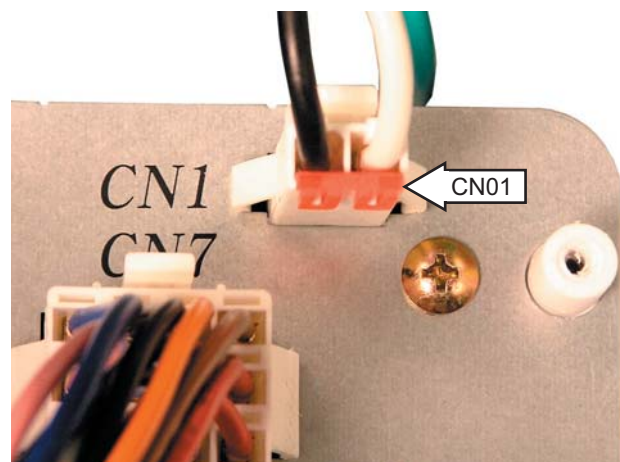
The main switch is mounted to a bracket at the front of the machine compartment. The main switch opens both the line voltage and neutral side to the refrigerator.



When the refrigerator is plugged in, the line voltage and neutral is supplied at CN01, between pin #1 and pin #2.

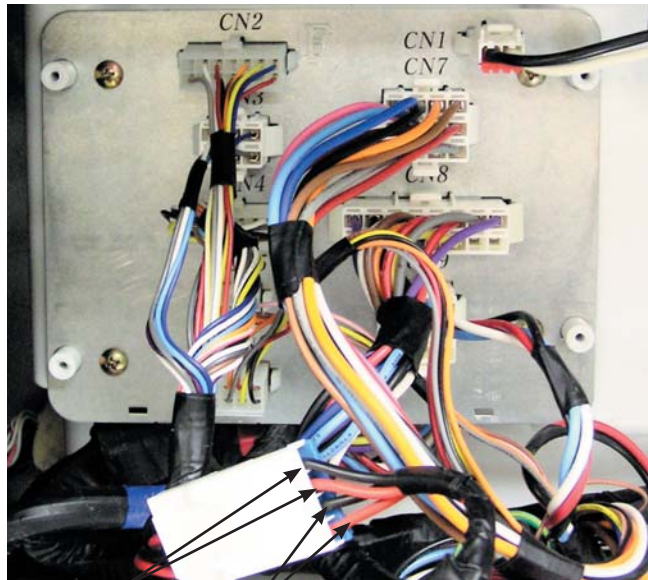


**Caution:** Do NOT connect or disconnect CN1 connector with power applied. Always turn off power at the main switch to avoid arcing at connector terminals.



**Note:** If the refrigerator is dead (no lights or component operation), check for power to CN1. Ensure the main switch is operating correctly. Check for loose connectors at the terminal block.

To check power to the main switch, check for 120 VAC between the black and red wires on the connector shown below.



Power to Main Switch  
Power Return from Main Switch

## Compressor

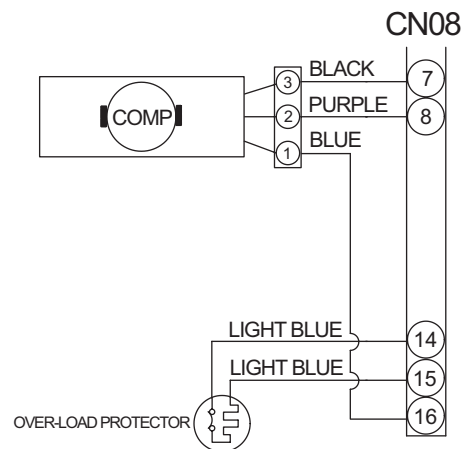
The refrigerator contains a variable speed inverter compressor (2200 to 3800 RPM). The inverter is part of the main power control board (PCB). The compressor will start (if required) one minute after power is applied to the refrigerator. Compressor operation is determined by the fresh food and freezer thermistors.

Should the compressor fail to start when required, check the compressor windings and associated wiring harness BEFORE checking for a power control board (PCB) problem. The compressor resistance between each pin should be approximately 12  $\Omega$ . Measure the resistance at CN08, between pin #7 (black wire), pin #8 (purple wire), and pin #16 (blue wire).

A thermal overload, designed to protect the compressor, is mounted within the compressor terminal cover. The overload will open at 257°F (125°C) and close at 156°F (69°C). The overload should be checked at CN08, between the pin #14 and pin #15 (light blue wires).

**Note:** An open compressor overload will prevent the main control board from operating. If voltage is present at CN01, and the refrigerator is dead (except for the interior lights), check to make certain the thermal overload is closed.

## Compressor Circuit

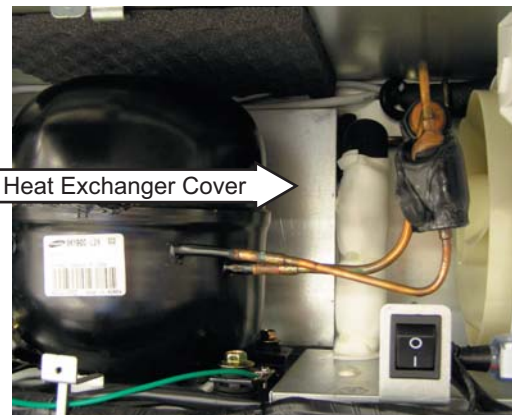


## Refrigerant Charge

The refrigerant used in the sealed system is R134a. Proper system charge is 8.11 oz.

## Heat Exchanger

The heat exchanger is located at the rear of the machine compartment, behind the compressor. The tubing is coiled and foamed into a galvanized cover. A replacement heat exchanger and cover come as a complete assembly.

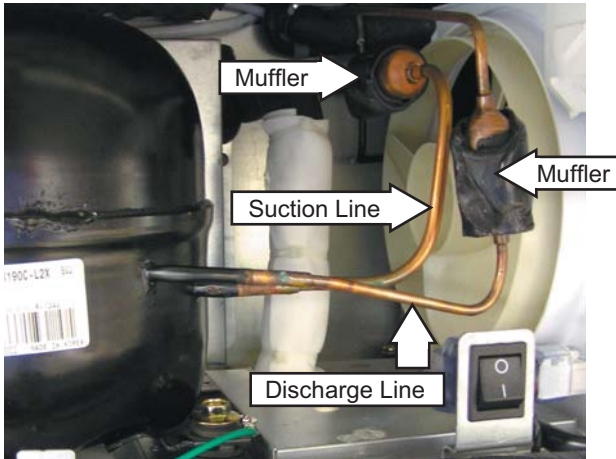


Shown with Cover Cut Open



## Mufflers

The sealed system has 2 mufflers to reduce noise, one in the suction line and one in the compressor discharge line.



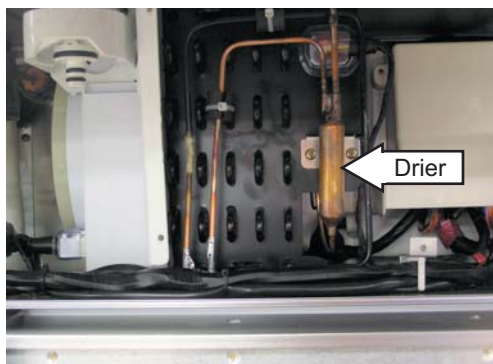
Mufflers Cross-Cut View



## Drier

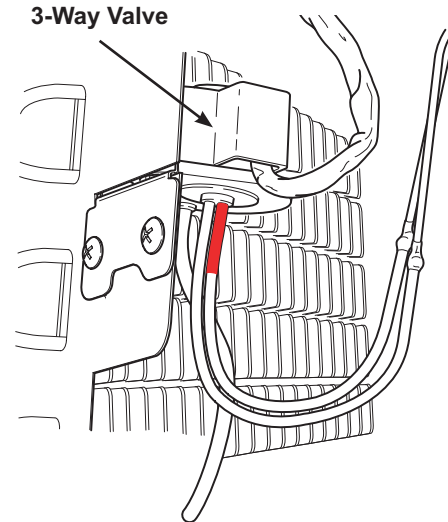
The drier is positioned vertically in the center of the machine compartment. A short jumper tube runs from the drier to the 3-way valve behind it. The standard replacement drier is WR86X93. Use the filter drier WR86X96 if the system has been contaminated.

**Note:** When the compressor first cycles off, the drier surface may have moisture beads and feel cold to the touch. This is normal due to the refrigerant equalizing through the evaporators.

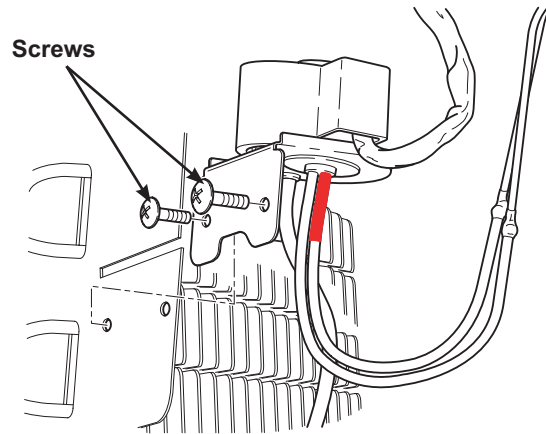


## 3-Way Valve

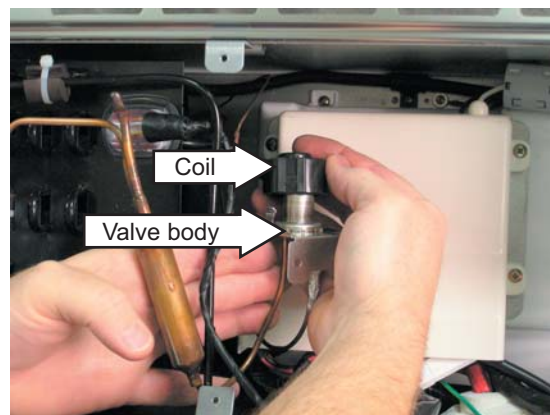
The 3-way valve directs the refrigerant flow to the two evaporators as needed, and is controlled by the power control board (PCB). It is located on the right side of the condenser, behind the condenser's front plate.



The 3-way valve is held in place by 2 Phillips-head screws.



The valve is composed of a magnetic coil and valve body.



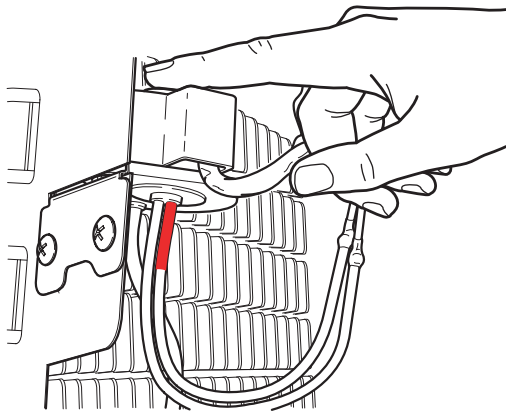
## Testing

To test whether the 3-way valve is receiving a signal from the power control board:

1. Turn the power OFF at the main switch for at least 10 seconds.
2. Place a finger on top of the valve.

**Caution:** Be careful of the condenser fan and any exposed wires.

3. Turn the main switch back on. You should feel movement, and you may hear the 3-way valve move to the home position.
4. If movement is detected, the power control board and valve coil should be OK.



Check for proper resistance of the valve coil windings at the coil harness.

Orange - Gray = 40 Ω

Blue - Gray = 40 Ω

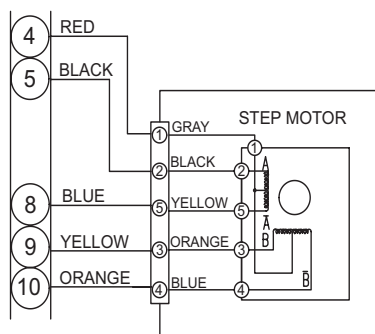
Orange - Blue = 80 Ω

Gray - Black = 40 Ω

Gray - Yellow = 40 Ω

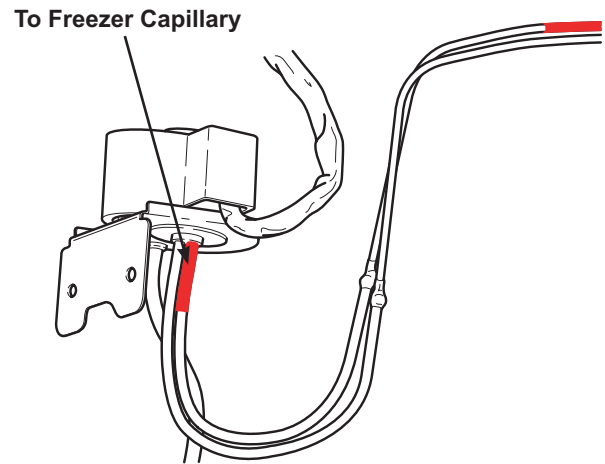
Yellow - Black = 80 Ω

## CN02

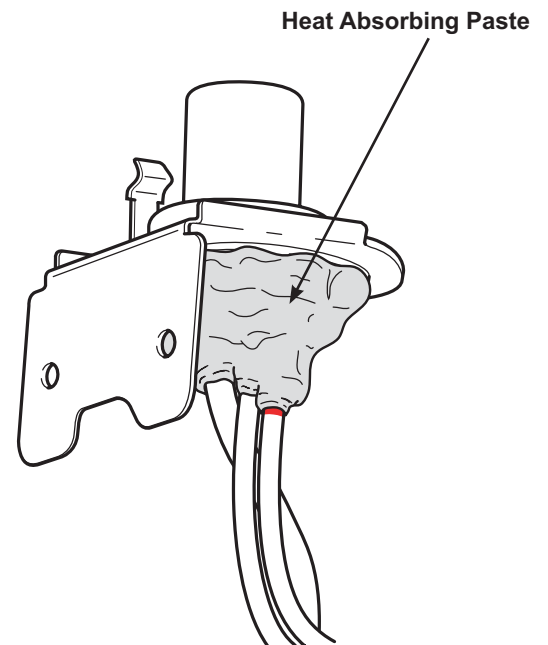


## Replacement

When replacing the 3-way valve, note the red sleeve on the valve tube. This tube connects to the freezer capillary. The corresponding freezer capillary has red paint above the braze joint.



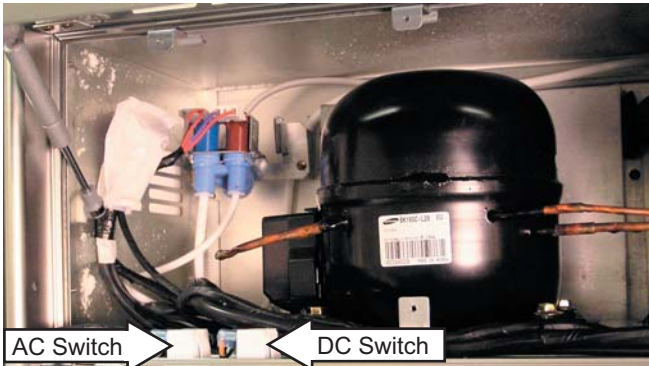
The 3-way valve is extremely sensitive to heat. When brazing, thoroughly cover the valve base with heat absorbing paste (part # WR5X8927). Make certain to direct the flame away from the valve body.



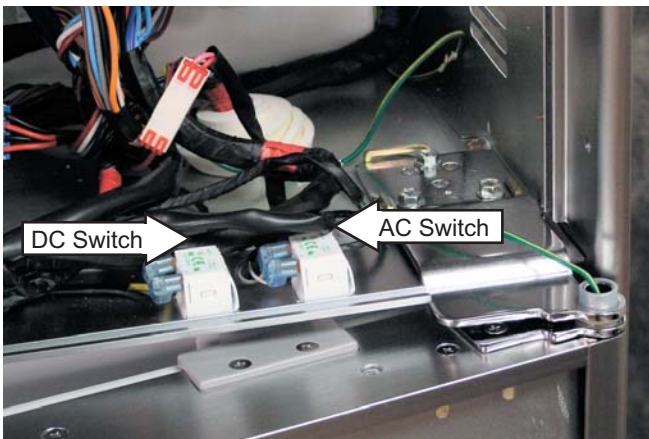
## Door Switches

The refrigerator is equipped with an AC and a DC switch above each door. The switches are located inside the machine compartment.

Freezer Door



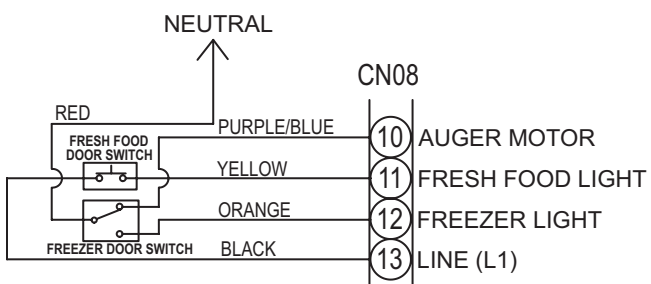
Fresh Food Door



The AC switch, above the freezer door, controls the freezer interior lights and the auger motor operation. The freezer light is switched through the neutral side of the line.

The AC switch, above the fresh food door, controls the fresh food interior lights.

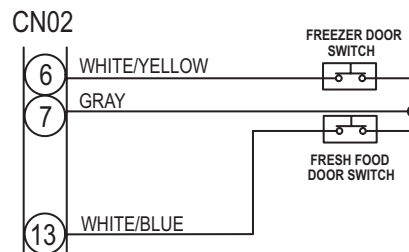
## AC DOOR SWITCHES



The DC switches provide “door open” information to the power control board (PCB).

**Note:** The fans turn off when the doors are opened (DC door switches control operation) and delay 10 seconds before restarting when the doors are closed again. The freezer door switch controls only the freezer fan. The fresh food door switch controls both the fresh food and freezer fan operation.

## DC DOOR SWITCHES



## Interior Lights

Both the fresh food and freezer interior lights use 120 VAC, 40-watt incandescent bulbs. There are 4 bulbs (160 watts) in the fresh food section, and 2 bulbs (80 watts) in the freezer section.

Freezer bulb voltage is checked at CN07 on the terminal block. Test for voltage between pin #9 and pin #10.

**Note:** Pin #10 is only at neutral when the freezer door AC switch has closed contacts (door open).

Fresh food bulb voltage is checked at CN09 on the terminal block. Test for voltage between pin #4 (neutral) and pin #3.

**Note:** Pin #3 is only at line voltage (120 VAC) when the fresh food AC door switch has closed contacts (door open).

**WARNING:** The center terminal of the freezer light socket is energized whenever the refrigerator is plugged in and the main switch is closed, regardless of door position.

## Thermistors

The main control board uses input from 5 thermistors:

- Ambient
- Freezer
- Fresh Food
- Freezer Evaporator
- Fresh Food Evaporator

The thermistors have a negative coefficient. As the temperature increases, the thermistor's resistance decreases.

### Testing

The most accurate method of testing a thermistor is to place it in a glass of ice water for several minutes. The thermistor should read approximately 13K  $\Omega$  in the glass of 33°F ice water.



**Note:** Thermistors can also be checked for an open or shorted condition by using the diagnostic mode (see *Service Diagnostics*).

### Ambient Thermistor

The ambient thermistor measures room temperature and is clipped to the back of the dispenser cover. Check for thermistor resistance (see *Thermistor Chart*) by disconnecting the harness at CN03 and testing between pin #4 (gray wire) and pin #6 (red wire) on the harness.

### Freezer Air Thermistor

The freezer air thermistor is clipped to the inside of the evaporator cover.

Check for thermistor resistance (see *Thermistor Chart*) by disconnecting the harness at CN06 and testing between pin #3 (gray wire) and pin #5 (brown wire) on the harness.

### Fresh Food Air Thermistor

The fresh food air thermistor is clipped to the inside of the ceiling cover. Check for thermistor resistance (see *Thermistor Chart*) by disconnecting the harness at CN05 and testing between pin #2 (gray wire) and pin #3 (yellow wire) on the harness.

### Freezer Evaporator Thermistor

The evaporator thermistor is mounted in a copper sleeve on the top, right corner of the evaporator.

Check for thermistor resistance (see *Thermistor Chart*) by disconnecting the harness from CN06 and testing between the pin #3 (gray wire) and pin #6 (red wire) on the harness.

### Fresh Food Evaporator Thermistor

The fresh food evaporator thermistor is mounted in a sleeve on the left side of the evaporator.

Check for thermistor resistance (see *Thermistor Chart*) by disconnecting the harness at CN05 and testing between pin #2 (gray wire) and pin #4 (pink wire) on the harness.

### Thermistor Chart

°F	Resistance In Ohms (K $\Omega$ )	°C
-9	37K	-23
-6	34K	-21
0	29K	-18
6	25K	-14
32	13K	0
37	12K	3
50	8.8K	10
77	5K	25
86	4.2K	30
95	3.5K	35

### Thermistor Emergency Operation

If the freezer thermistor opens (or shorts), the unit defaults to the freezer evaporator thermistor. The compressor and freezer fan cycle off when the freezer evaporator temperature is -22°F (-30°C) or colder. The compressor and freezer fan cycle on when the freezer evaporator temperature is -2°F (-19°C) or warmer.

If the fresh food thermistor opens (or shorts), the fresh food cooling operation defaults to the freezer thermistor. Refrigerant will flow through the fresh food evaporator any time the freezer evaporator is cooling. The fresh food fan will cycle off once the fresh food evaporator thermistor reaches 5°F (-15°C) or colder.

## Defrost Cycles

The refrigerator incorporates two different methods of defrost. Once the compressor has accumulated 2 hours of compressor run time, and certain conditions are satisfied, the fresh food evaporator goes through a "natural defrost" cycle. In addition, at a specific time interval, both the fresh food and freezer evaporators go through a "heated defrost" cycle.

### Natural Defrost (Fresh Food Only)

Once the fresh food temperature is satisfied, natural defrost occurs on the fresh food evaporator, if the following conditions have been met:

- The compressor has accumulated 2 hours of run time.
- The ambient room temperature is above 66°F (19°C).
- The freezer temperature is satisfied.

If the above conditions have been met, when the fresh food temperature is satisfied, and the compressor cycles off, the 3-way valve will open to both the fresh food and freezer evaporators. This allows the refrigerant within the system to equalize back through the evaporators. This warm thermal mass (refrigerant) flowing through the evaporators helps to remove any frost buildup on the fresh food evaporator (it has very little impact on the freezer evaporator due to the freezer temperature). In addition, when the fresh food evaporator thermistor is below 23°F (-5°C), the fresh food evaporator fan will run to help move air across the evaporator. Once the thermistor reaches 28°F (-2°C), the fan will cycle off.

**Note:** If the compressor is still cooling the freezer section when the fresh food cycles off, or the ambient room temperature is below 66°F (19°C), natural defrost will not occur.

### Heated Defrost

In normal cooling operation (normal food load, door openings, etc.), the power control board (PCB) will energize the fresh food defrost heater every 5 hours of compressor running time and the freezer defrost heater every 10 hours of compressor running time.

For example, after approximately 10 accumulated hours of compressor running time, the freezer evaporator will have gone through one defrost cycle, and the fresh food evaporator will have gone through two defrost cycles.

The fresh food heater cycles off when the fresh food evaporator thermistor reaches 63°F (17°C). The freezer heater cycles off when the freezer evaporator thermistor reaches 68°F (20°C). The compressor and fans do not operate when either section is defrosting, regardless of the cabinet temperature. There is a 10-minute dwell period after the heater cycles off.

**Note:** Upon initial power-up, the fresh food and freezer go into heated defrost simultaneously, after 4 hours of accumulated compressor run time.

During unusual cooling situations where there are no door openings (such as vacations), the time between heated defrost cycles may increase. If the ambient room temperature is above 82°F (28°C) and there are no door openings, the fresh food defrost occurs every 8 hours, and the freezer defrost occurs every 16 hours. If the ambient room temperature is below 82°F (28°C), defrost occurs at the normal intervals – fresh food defrost every 5 hours and freezer defrost every 10 hours of accumulated compressor run time.

### Thermistor Error Defrost Operation

If either evaporator thermistor fails (open or shorted), the power control board (PCB) defaults to a timed defrost cycle based on cabinet temperature.

If the freezer evaporator thermistor fails (open or shorted) and the freezer temperature is below 27°F (-3°C), the freezer defrost heater will be energized for 20 minutes. If the freezer temperature is above 27°F (-3°C), the heater will not come on.

If the fresh food evaporator thermistor fails (open or shorted) and the fresh food temperature is below 68°F (20°C), the fresh food defrost heater will be energized for 10 minutes. If the fresh food temperature is above 68°F (20°C), the heater will not come on.

During thermistor error operation, the control defaults to fresh food defrost every 5 hours and freezer defrost every 10 hours of accumulated compressor run time.



## Fans

All 3 fans (condenser, freezer, and fresh food) are variable-speed DC fans. The speed of each fan is controlled by an algorithm in the power control board (PCB) and determined by many factors, such as room ambient, thermal load, temperature settings, number of door openings, etc. The fans are extremely QUIET, and determining fan speed is very difficult. As a general rule, if the voltage measured at the fan is within limits and airflow is felt through the vents, assume the fans are working correctly.

**Note:** The fans will run on a 9-volt battery for testing purposes. Use the two higher voltage pins as described in the following procedures.

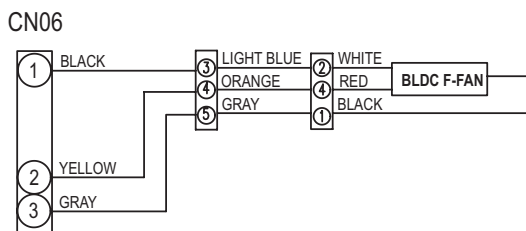
### Freezer Evaporator Fan

The freezer fan assembly is mounted directly to the freezer evaporator. The fan assembly (motor, blower and housing) is available as a separate part or complete and preassembled on a new freezer evaporator.

Operation of the freezer fan is also affected by room temperature. If the ambient thermistor senses a temperature of 82°F (28°C) or higher, the freezer fan will delay 5 minutes (after the compressor has started) before starting and circulating the freezer air. Below 82°F (28°C), the fan will start immediately with the compressor.

The freezer evaporator fan motor supply voltage can be checked at CN06 on the terminal block.

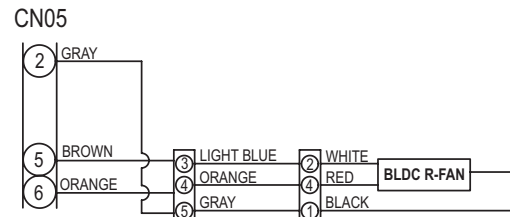
When the power control board (PCB) is energizing the fan, check for approximately 8 to 11 VDC at CN06, between pin #2 and pin #3, and approximately 2.25 VDC, between pin #1 and pin #3.



### Fresh Food Evaporator Fan

The fresh food fan assembly is mounted directly to the fresh food evaporator. The fan assembly (motor, blower, and housing) is available as a separate part or complete and preassembled on a new fresh food evaporator.

The fresh food evaporator fan motor supply voltage can be checked at CN05 on the terminal block. When the power control board (PCB) is energizing the fan, check for approximately 7 to 8 VDC between pin #2 and pin #6, and approximately 2 VDC between pin #2 and pin #5 at CN05.



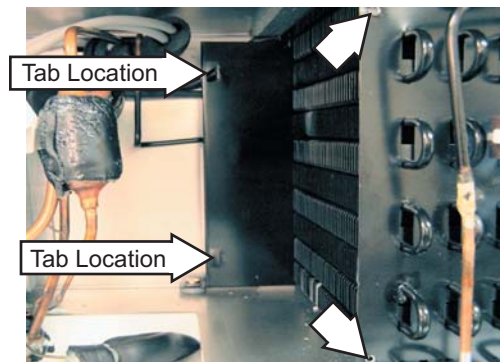
### Condenser Fan Assembly

Ambient temperature affects the operation of the condenser fan. If the room temperature is less than 45°F (7°C), the condenser fan will not run when the compressor is on. If the temperature is between 45°F (7°C) and 50°F (10°C), the fan will start 5 minutes after the compressor has started. Above 50°F (10°C) (or if the ambient thermistor is open or shorted), the condenser fan is synchronized with the compressor.



The condenser fan assembly is held in place by 2 Phillips-head screws at the front and 2 tabs at the rear. The 2 tabs are inserted into the rear condenser mounting plate. The 2 front screws attach the shroud assembly to the front condenser plate. (See photo below.)

Shown with Condenser Fan Assembly Removed



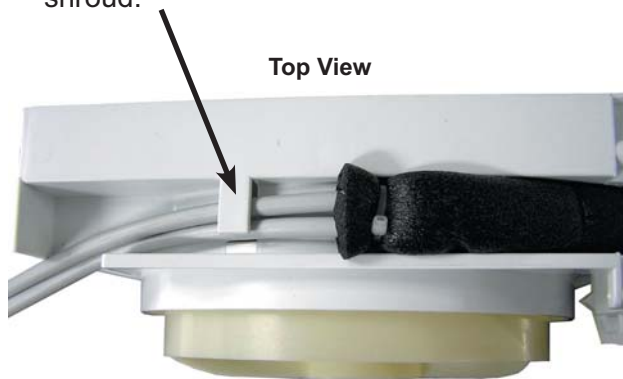
The 3-bladed fan can be removed without removing the complete fan assembly.

The fan rotates counterclockwise as viewed from the motor shaft end. It is held in place by a spring retention clip.

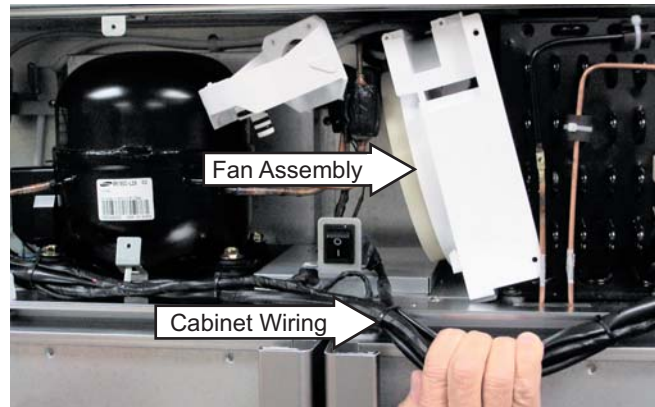


**To remove the condenser fan assembly:**

1. Remove the water filter cartridge.
2. Remove the 2 Phillips-head screws from the water filter receptacle.
3. Remove the 2 Phillips-head screws from the front of the shroud assembly and disconnect the fan wiring.
4. Bend the 2 wire retention tabs back to release the wire harness.
5. Pull the fan forward and tilt it to the left to release the 2 water filter tubes from the channel at the top of the condenser fan motor shroud.

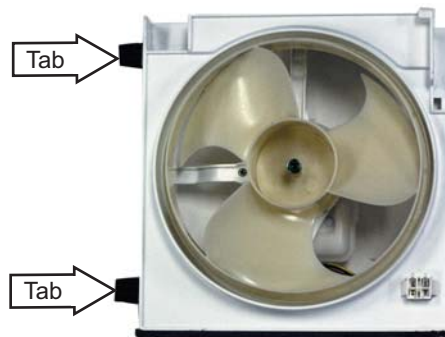


6. Pull the cabinet wiring down as shown in the photo below. Carefully pull the condenser fan assembly out of the machine compartment.



**Installing the condenser fan assembly:**

1. Secure the wires to the condenser fan shroud to prevent interference with the fan blade rotation.
2. Ensure the rubber tab covers are in place when reinstalling the condenser fan assembly.

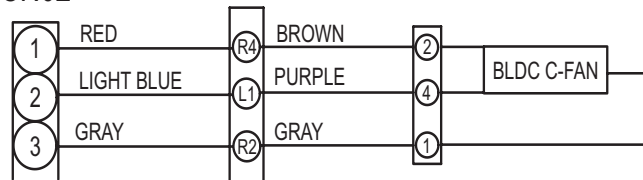


3. Ensure water filter lines are fully seated into the top channel of the water filter housing bracket.

**Voltage Checks**

When the power control board (PCB) is energizing the fan, check for approximately 9 to 10 VDC between pin #2 and pin #3 at CN02 on the terminal block. Check for approximately 2 VDC between pin #1 and pin #3 at CN02.

**CN02**



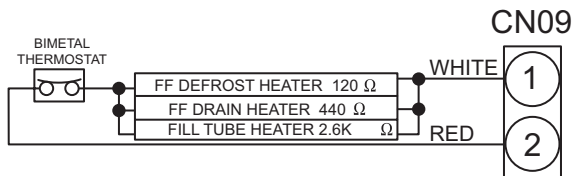
## Fresh Food Heater Testing

The fresh food evaporator defrost heater, evaporator drain pan heater, and icemaker fill tube heater are in a parallel circuit. The heaters are in series with the bimetal defrost safety thermostat.

Check for a combined resistance of 91  $\Omega$  at CN09 on the terminal block, between pin #1 and pin #2, when the defrost safety thermostat is closed.

When the fresh food is in the defrost test mode **1 4** (see **Service Diagnostics**) check for 120 VAC at CN09 on the terminal block, between pin #1 and pin #2.

**Note:** Access to the evaporator is necessary to complete testing of the above components, with exception of the icemaker fill tube heater.



- The resistance value of the defrost heater is approximately 120  $\Omega$ .
- The resistance value of the drain pan heater is approximately 440  $\Omega$ .
- The resistance value of the icemaker fill tube heater (referred to as the "PIPE HEATER ICE WATER" on some schematics) is approximately 2.6K  $\Omega$ .
- The defrost safety thermostat is a bimetal type which will open at 140°F (60°C) and will reset at 104°F (40°C).

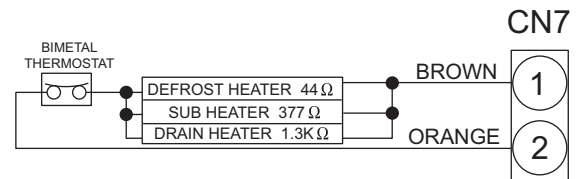
## Freezer Heater Testing

The freezer evaporator defrost heater, suction line drain pan heater, and the evaporator drain pan/drain tube heater are in a parallel circuit. The heaters are in series with the bimetal defrost safety thermostat.

Check for a combined resistance of approximately 38  $\Omega$  at CN07, on the terminal block, between pin #1 and pin #2.

When the freezer is in defrost test mode **1 4** (see **Service Diagnostics**), check for supply voltage of 120 VAC at CN07 on the terminal block, between pin #1 and pin #2.

**Note:** Access to the evaporator is necessary to complete testing of the above components, with the exception of the suction line drain pan heater.



- The resistance value of the defrost heater is approximately 44  $\Omega$ .
- The resistance of the suction line drain pan heater (referred to as the "DRAIN HEATER" on some schematics) is approximately 1.3K  $\Omega$ .
- The resistance value of the evaporator drain pan and drain tube heater (referred to as the "SUB HEATER" on some schematics) is approximately 377  $\Omega$ .
- The defrost safety thermostat is a bimetal type which will open at 140°F (60°C) and will reset at 104°F (40°C).

## Freezer Evaporator Assembly

The freezer evaporator assembly consists of an evaporator, defrost and drain heaters, defrost safety thermostat, thermistor, and fan assembly. All the parts are available as a complete replacement assembly, or the components are available individually.

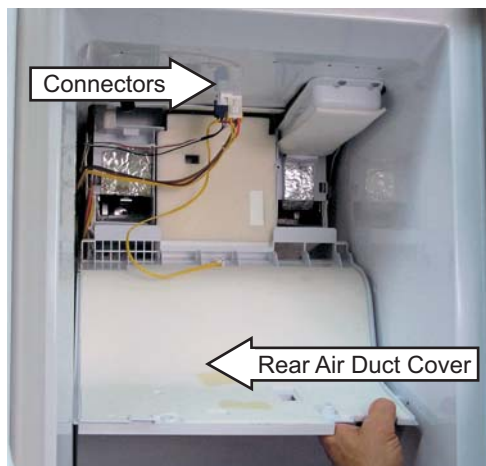
All components are housed together and installed in a recessed compartment in the freezer ceiling.

### To access the freezer evaporator assembly:

1. Remove the ice container shelf, then remove the icemaker.
2. Remove 4 Phillips-head screws that hold the top air duct cover in place.



3. Remove auger motor and cube motor connectors from the freezer evaporator cover.
4. Remove the 2 Phillips-head screws that hold the rear air duct cover in place, then pull it down.
5. Disconnect all the electrical connectors from the ceiling.



6. Remove the rear air duct cover.
7. Remove the 2 Phillips-head screws from the suction line drain pan and heater assembly. Disconnect the associated wiring.

**Note:** The suction line drain pan heater has a resistance value of 1.3K  $\Omega$ .

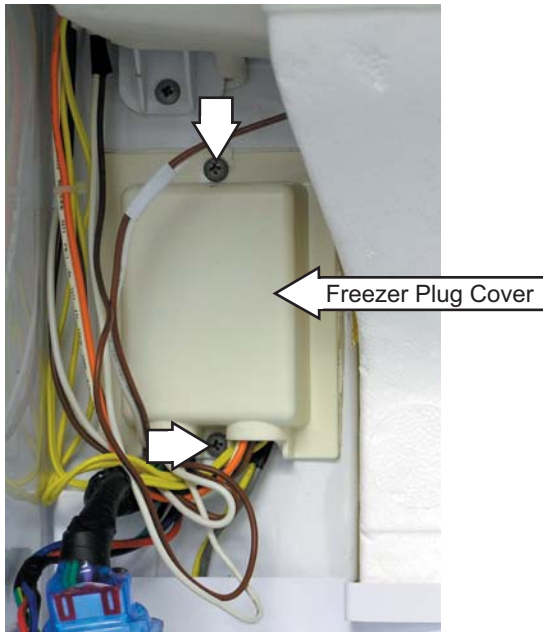


8. Carefully remove the styrofoam air duct.

**Note:** The styrofoam air duct is held in place by adhesive.



9. Remove the 2 Phillips-head screws that hold the freezer plug cover in place, then remove the freezer plug cover.

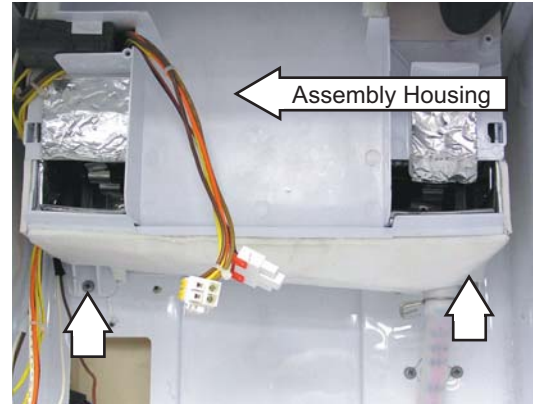


10. Disconnect the freezer evaporator wiring.



**Note:** When installing plug cover, place wiring connectors inside the cover, then mount the plug cover to the wall.

11. Remove the 2 Phillips-head screws that hold the freezer evaporator assembly housing in place.



12. Lower the evaporator assembly into the freezer compartment.



13. Place the freezer shelf in the top position. Place the evaporator assembly on the shelf.



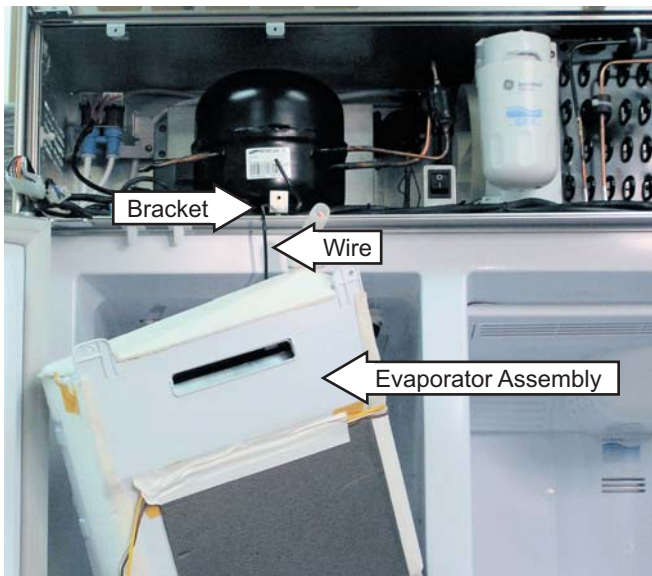
**Caution:** Refrigerant lines may be damaged if the evaporator assembly is left unsupported.

## Freezer Evaporator Fan Assembly

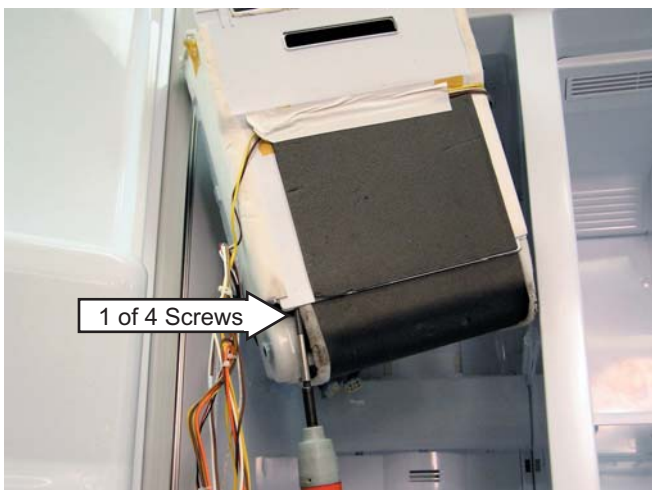
The freezer evaporator fan assembly consists of a 2-speed DC fan motor, blower wheel, and housing. It is mounted on top of the evaporator.

### To remove the freezer evaporator fan assembly:

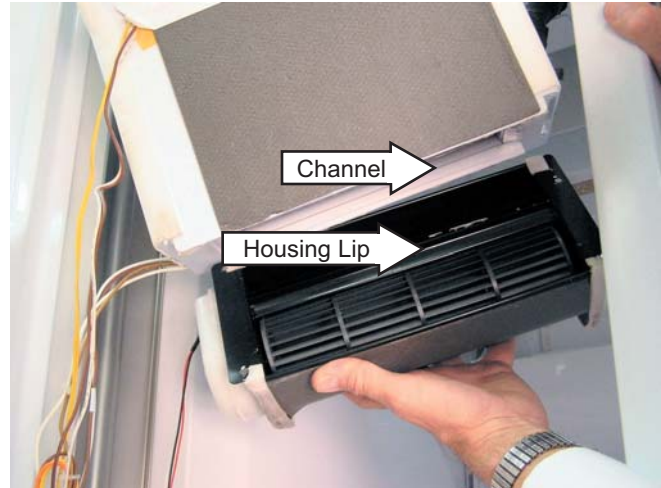
1. Access the freezer evaporator assembly. (See *Freezer Evaporator Assembly*.)
2. To access the fan assembly screws, support the evaporator assembly from the machine compartment grille mounting bracket with a bent wire hook (see photo).



3. Remove the 4 Phillips-head screws that hold the evaporator fan assembly in place. Remove the evaporator fan assembly.



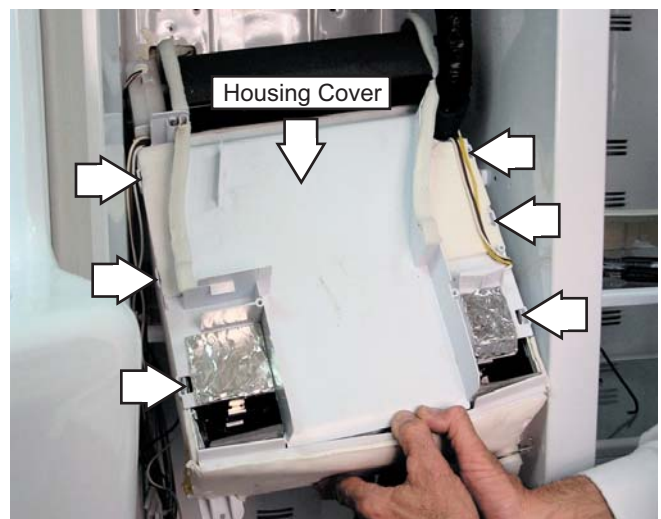
**Note:** When installing the fan assembly, ensure that the housing lip inserts into the channel.



## Freezer Evaporator

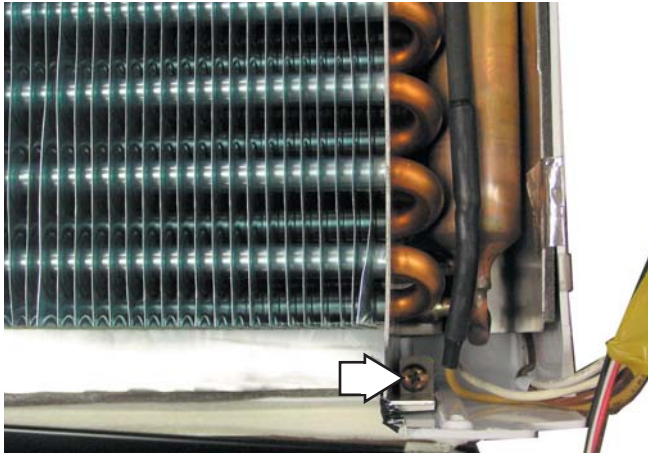
### To access the freezer evaporator:

1. Access the freezer evaporator assembly. (See *Freezer Evaporator Assembly*.)
2. Remove the freezer evaporator fan assembly. (See *Freezer Evaporator Fan Assembly*.)
3. Place the freezer shelf in the top position. Place the evaporator assembly on the shelf. (Note the position of all wiring prior to disassembly.)
4. Starting at one corner, use a screwdriver and unlock the 6 tabs from the housing cover.



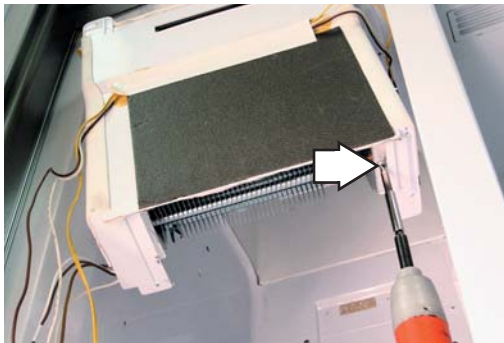
**WARNING:** The evaporator fins are very sharp. Wear Kevlar gloves when handling.

5. Remove the single Phillips-head screw at the corner of the evaporator.



6. To access the remaining Phillips-head screw that holds the evaporator in place, suspend the evaporator from the machine compartment grille mounting bracket with a bent wire hook. Remove the screw.

**Note:** The screw may be covered by foil.



7. Lift the evaporator from the housing.



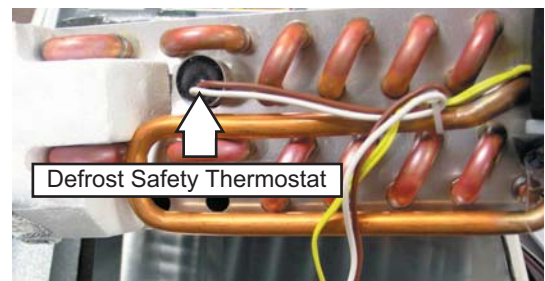
## Freezer Evaporator Components

**To access the freezer evaporator components:**

1. Access the freezer evaporator assembly. (See *Freezer Evaporator Assembly*.)
2. Remove the freezer evaporator fan assembly. (See *Freezer Evaporator Fan Assembly*.)
3. Access the freezer evaporator. (See *Freezer Evaporator*.)

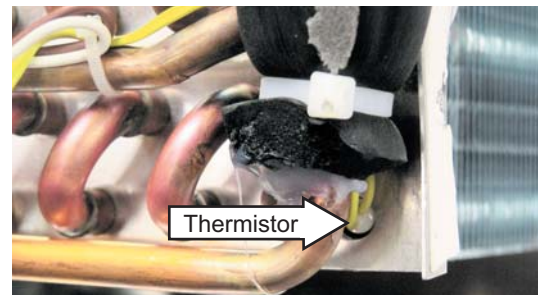
### Defrost Safety Thermostat

To remove the defrost safety thermostat, remove the single Phillips-head screw from the thermostat mounting bracket. Separate the thermostat from the bracket.



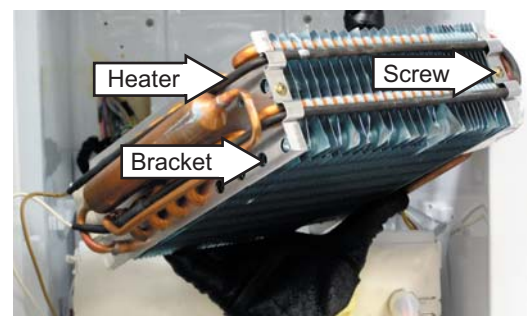
### Freezer Evaporator Thermistor

To remove the freezer evaporator thermistor, pull it straight out from its mounting tube.



### Defrost Heater

To remove the defrost heater, remove the 2 Phillips-head screws from the evaporator defrost heater mounting brackets. Separate the defrost heater from the evaporator.



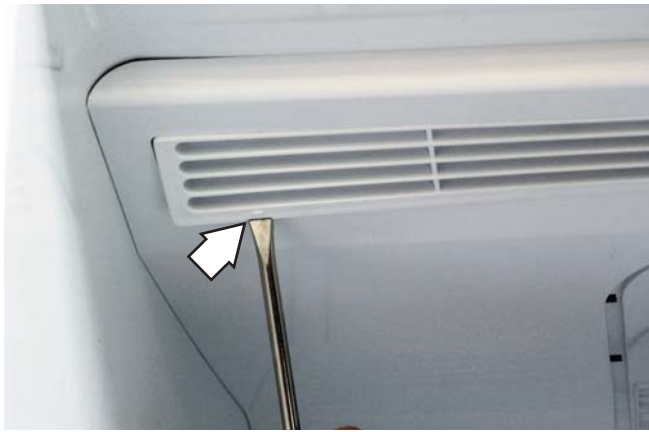
## Fresh Food Evaporator Assembly

The fresh food evaporator assembly consists of an evaporator, defrost and drain heaters, bimetal defrost safety thermostat, thermistor, and evaporator fan assembly.

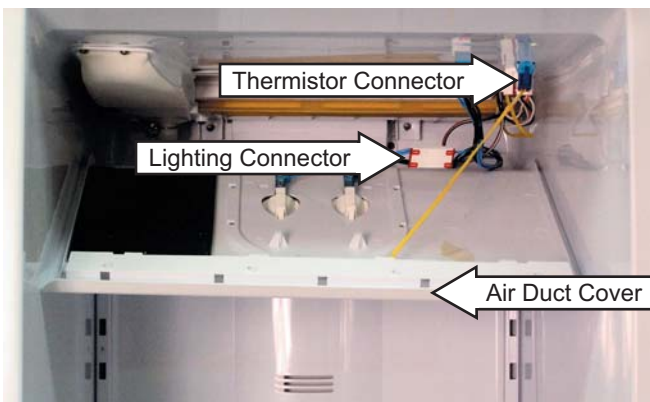
All components are housed together and installed in the refrigerator interior in a recessed compartment in the refrigerator ceiling. This compartment extends vertically into the machine compartment.

### To access the fresh food evaporator assembly:

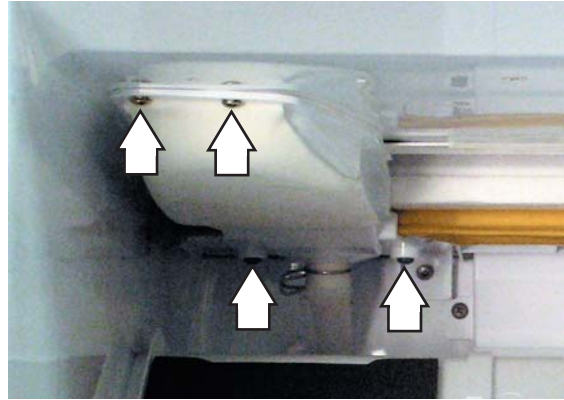
1. Remove the fresh food grille cover by inserting a flat-blade screwdriver into the slot (see photo) and lifting up.



2. Remove 4 Phillips-head screws from the fresh food air duct cover. Pull the front of the cover down.
3. Disconnect the thermistor and lighting connector. Remove the fresh food air duct cover.



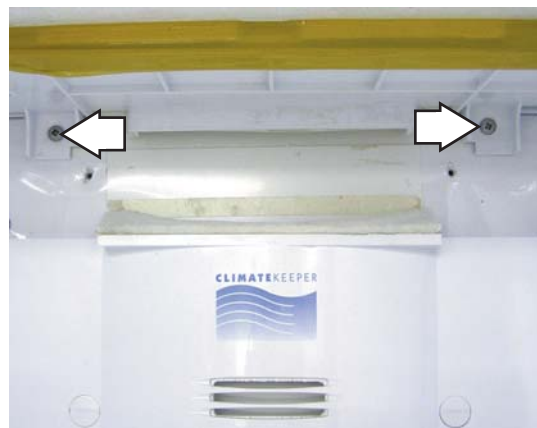
4. Remove the 4 Phillips-head screws that hold the refrigerator suction line drain assembly in place. Remove the assembly.



5. Remove the 2 Phillips-head screws that hold the fresh food upper duct cover assembly in place. Remove the upper duct cover.



6. Disconnect the remaining electrical connectors.
7. Remove 2 Phillips-head screws from the fresh food evaporator housing.





8. Lower the evaporator assembly into the fresh food compartment.



9. Place the fresh food shelf in the top position. Place the evaporator assembly on the shelf.

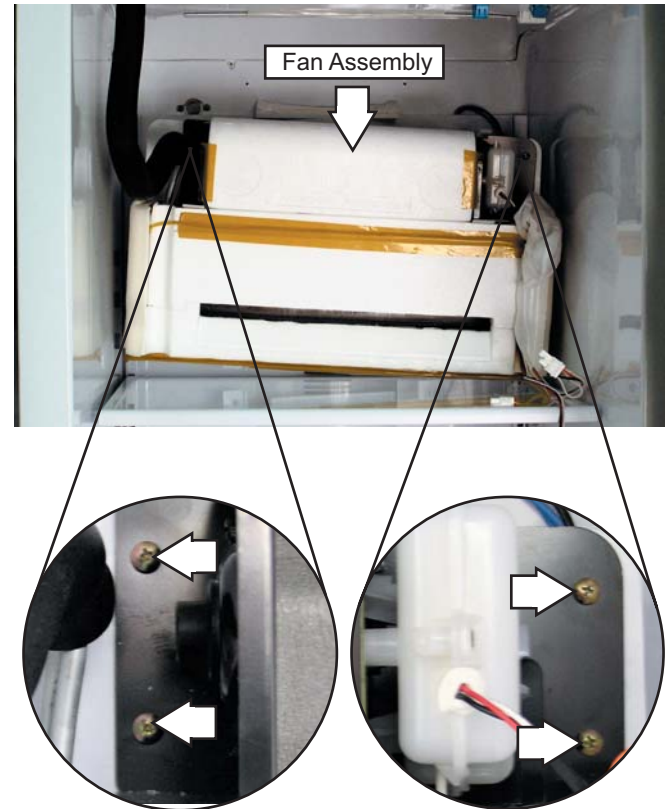


**Caution:** Refrigerant lines may be damaged if the evaporator assembly is left unsupported.

## Fresh Food Evaporator Fan Assembly

To remove the fresh food evaporator fan assembly:

1. Access the fresh food evaporator assembly. (See *Fresh Food Evaporator Assembly*).
2. The fan assembly is attached to the evaporator assembly with 4 Phillips-head screws (2 on each side of the fan assembly). Remove the 4 screws that hold the fan assembly in place.



3. Separate the fan assembly from the evaporator assembly.

## Fresh Food Evaporator

To access the fresh food evaporator:

1. Access the fresh food evaporator assembly. (See *Fresh Food Evaporator Assembly*.)
2. Remove the fresh food evaporator fan assembly. (See *Fresh Food Evaporator Fan Assembly*.)
3. Remove the tape from the front of the Styrofoam cover. Note the position of the wires under the tape. The tape must be replaced after repair.
4. Remove the Styrofoam cover.

**WARNING:** The evaporator fins are very sharp. Wear Kevlar gloves when handling.

5. Remove the 2 Phillips-head screws that hold the fresh food evaporator in place (Fig. 1 and Fig. 2).

Fig. 1

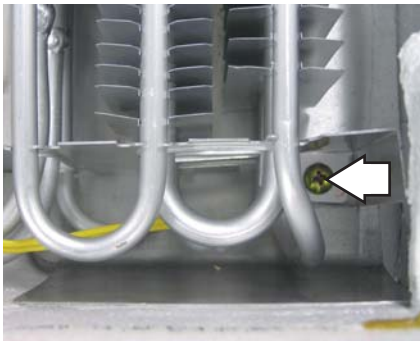
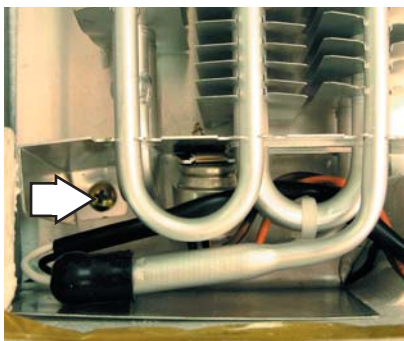


Fig. 2



6. Disconnect the 2 electrical connectors and lift the fresh food evaporator from the housing.

**WARNING:** The evaporator fins are very sharp. Wear Kevlar gloves when handling.

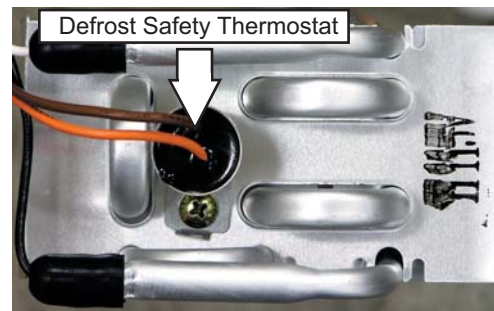
## Fresh Food Evaporator Components

To access the fresh food evaporator components:

1. Access the fresh food evaporator assembly. (See *Fresh Food Evaporator Assembly*.)
2. Remove the fresh food evaporator fan assembly. (See *Fresh Food Evaporator Fan Assembly*.)
3. Access the fresh food evaporator. (See *Fresh Food Evaporator*.)

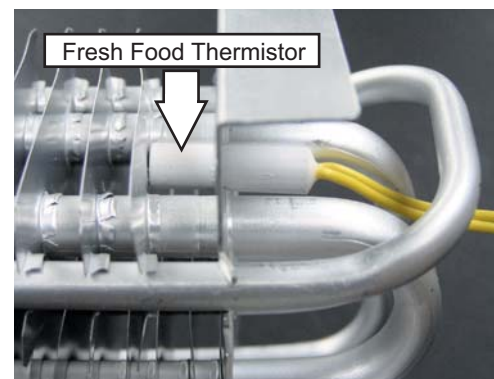
### Defrost Safety Thermostat

To remove the defrost safety thermostat, remove the single Phillips-head screw from the thermostat mounting bracket. Separate the defrost thermostat from the bracket.



### Fresh Food Evaporator Thermistor

To remove the fresh food evaporator thermistor, pull it straight out from its mounting tube.



**Note:** The defrost heater is not available separately and only comes as a part of the evaporator assembly.

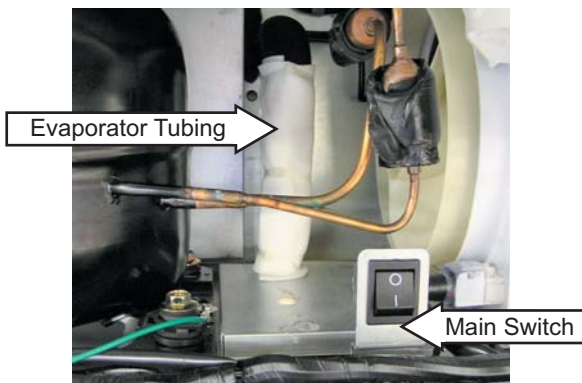
## Replacing the Freezer or Fresh Food Evaporator

The freezer evaporator can be replaced as a complete unit, including the defrost components and fan assembly, or it can be replaced as an individual component.

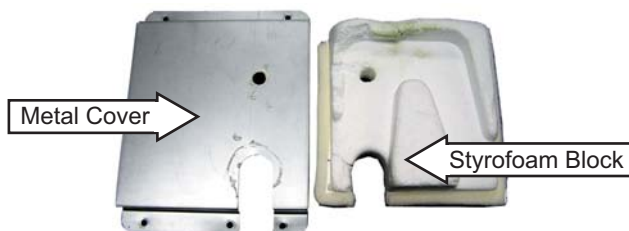
The fresh food evaporator can be replaced as a complete unit or as an assembly consisting of the evaporator and defrost heater (the fresh food defrost heater is not available separately).

### To replace the freezer or fresh food evaporator:

1. Access the specific evaporator as described in *Fresh Food Evaporator Assembly* or *Freezer Evaporator Assembly*.
2. In the machine compartment, remove the screws that hold the main switch in place. Move the main switch out of the way to provide better access to the evaporator tubing.

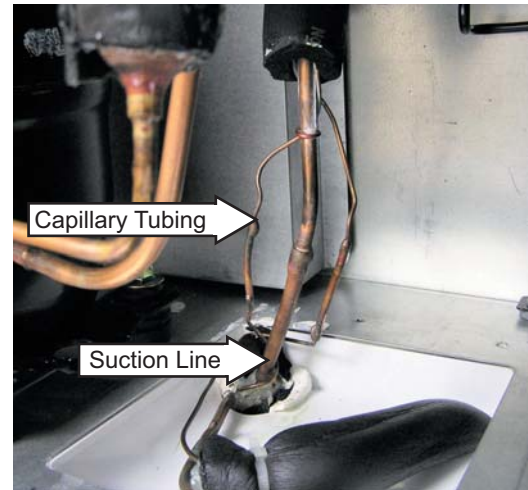


3. Remove the condenser fan assembly from the compartment. (See *Fans*.)
4. Remove the 5 Phillips-head screws holding the metal cover over the Styrofoam block (see photo below). Remove the metal cover.
5. Remove the Styrofoam block from the base of the evaporator tubing.



**Note:** Adhesive may be holding the Styrofoam block in place after the metal cover is removed.

6. Carefully cut and remove the insulation on the suction line and capillary tubing to expose the solder joints.



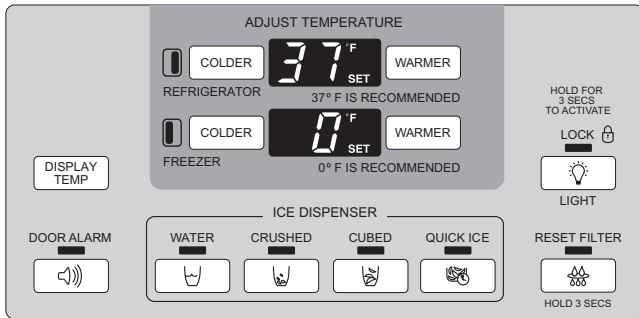
**Note:** Save the insulation to rewrap the refrigerant tubing after brazing.

7. Recover the refrigerant. (See *Evacuation and Charging Procedures*).
8. Disconnect the suction line and capillary of the specific evaporator to be replaced. Note the position of the tubing within the machine compartment. Pull the evaporator tubing down from the cabinet and remove the evaporator.
9. Install the new evaporator and carefully bend the tubing to the correct position. Braze the suction line and capillary tubing.
10. Replace the drier (part # WR86X93) and install a process valve (part # WJ56X61) at the compressor.
11. Reinstall the remaining components within the cabinet section while the braze joints are cooling.
12. Charge the system with the exact amount of refrigerant (8.11 oz.) specified on the rating plate
13. Check for refrigerant leaks at all joints.
14. Reinstall insulation around the tubing. Wrap with tape to provide a good airtight seal.
15. Reinstall Styrofoam block and metal cover.
16. Check refrigerator for proper operation.

# Service Diagnostics

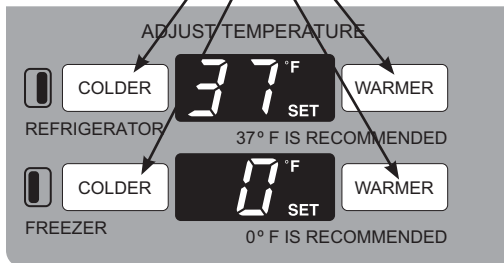
## Diagnostic Mode

1. To enter the diagnostic mode, the temperature display must be lit up. If the temperature display is not lit, press any pad on the overlay.



2. Press the 2 **COLDER** and 2 **WARMER** pads simultaneously for three seconds. The **FREEZER** and **REFRIGERATOR** displays will change to **0 0**.

### Press Simultaneously



3. To select a test mode:
  - a. Enter a numeric value (see **Test Mode Chart**) on the **FREEZER** display using the **COLDER** or **WARMER** pad.

**Note:** The **COLDER** pad decreases the numeric value. The **WARMER** pad increases the numeric value.

- b. Enter a numeric value (see **Test Mode Chart**) on the **REFRIGERATOR** display using the **COLDER** or **WARMER** pad.

4. Once the displays indicate a test mode, press any pad on the temperature board overlay, other than the **COLDER** or **WARMER** pads, to enter that mode.

**Note:** A test mode must be selected within 30 seconds of entering the diagnostic mode or it will time out, normal refrigerator operation will resume, and the displays will turn off. Once a test mode is selected, the display will flash to confirm the mode selected.

5. At the end of a test session, to exit the diagnostic mode, do one of the following:

- Enter **1** on the **FREEZER** display and **5** on the **REFRIGERATOR** display. Press any pad other than the **COLDER** or **WARMER** pads to execute a system restart.
- Enter **1** on the **FREEZER** display and **6** on the **REFRIGERATOR** display. Press any pad other than the **COLDER** or **WARMER** pads to exit the service diagnostic test mode.
- Recycle power to the unit through the main switch. As a cautionary measure, the system will automatically time out of the diagnostic mode after 15 minutes of inactivity. In the diagnostics mode, the unit can be tested under different conditions.

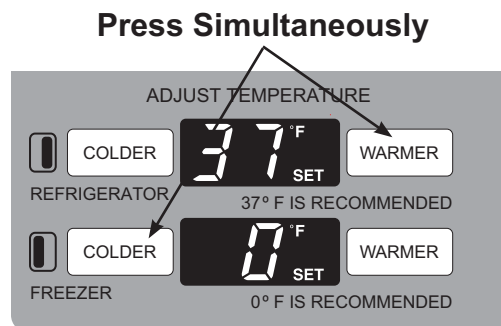
## Test Mode Chart

FZ Display	FF Display	Mode	Comments
0	1	Showroom Mode	See Note #1.
0	2	Do Not Use	
0	3	Do Not Use	
0	4	Do Not Use	
0	5	Do Not Use	
0	6	HMI Self-Test	See Note #2.
0	7	Control and Sensor Self-Test	See Note #3.
0	8	Do Not Use	
0	9	Dispenser Recess Heater Test	Turn the dispenser heater ON for 30 seconds.
1	0	Do Not Use	
1	1	Fan Speed Test	Each fan will run for 5 seconds.
1	2	100% RunTime	See Note #4.
1	3	Do Not Use	
1	4	Toggle the State of Defrost	See Note #5.
1	5	Refrigerator Reset	Causes a system reset except for defrost.
1	6	Test Mode Exit	Exit test mode.
1	7	Do Not Use	
1	8	Do Not Use	

### Note #1 (Showroom Mode)

In the showroom mode, the compressor and fans do not operate. The fresh food and freezer lights operate as normal (ON when door is opened). The dispenser and dispenser display operate as normal. Temperature set points can be changed. Press the **DISPLAY TEMP** pad to display the actual cabinet temperature. To exit the showroom mode, cycle power OFF or enter test mode **1 5** to reset the unit.

**Note:** The showroom mode can also be entered outside of the service mode by simultaneously pressing the **COLDER** pad on the **FREEZER** display and the **WARMER** pad on the **REFRIGERATOR** display for 3 seconds (the display must be lit before pressing the pads).



### Note #2 (HMI Self-Test)

Once the HMI self-test is started, all of the LEDs and seven segment LEDs will illuminate. The **COLDER** pad turns off the seven segment LEDs and the **WARMER** pad turns off the **SET** LED for both the **FREEZER** and **REFRIGERATOR** displays.

When all the available LEDs have been turned off for that specific temperature board, the **COLDER** and **WARMER** pads on the **REFRIGERATOR** display must be held simultaneously for 3 seconds to exit the HMI self-test. This can be done any time during the test.

*(Continued next page)*

### Note #3 (Control and Sensor System Self-Test)

This test does a check on all thermistors, fans, and defrost circuits. The thermistor test will display pass, open or shorted. The fan and defrost tests will display pass or fail. Once this test is invoked, the test mode will stop flashing and the numbers from 1 to 10 (corresponding to the chart below) will appear on the HMI display.

1	FZ Room Sensor	6	FZ Fan Error
2	FZ Defrost Sensor	7	FF Fan Error
3	FF Room Sensor	8	Condenser Fan Error
4	FF Defrost Sensor	9	FZ Defrost Error
5	Ambient Sensor	10	FF Defrost Error

For each test, the HMI will respond by displaying the following:

P = Pass

F = Fail

O = Open Thermistor Circuit

S = Short Thermistor Circuit

The control will display an **O** if the thermistor value is greater than 149.2K  $\Omega$  (-58°F (-50°C)). The control will display a **S** if the thermistor value is less than 1.34K  $\Omega$  (149°F (65°C)).

### Note #4 (100% Run Time)

This test runs the sealed system 100% of the time and will automatically time out after 1 hour. Cycle power OFF or enter test mode **1 5** to reset and exit this mode.

**Note:** The 3-way valve position during 100% run time depends on the fresh food temperature. If the fresh food temperature is satisfied, the 3-way valve opens to the freezer evaporator only. If it is not satisfied, the valve opens to the fresh food evaporator and refrigerant flows through both evaporators.

### Note #5 (Toggle the State of Defrost)

Any time a pad on the temperature board (other than the **COLDER** and **WARMER** pads) is pressed, the status of the defrost heaters will toggle in the following sequence:

1. Fresh food heater ON.
2. Fresh food and freezer heaters ON.
3. Fresh food and freezer heaters OFF.

Pressing the pad a fourth time will cycle through the sequence again. During the sequence, heater current can be measured.

- Fresh food heater - approximately 1.2 amps when measured at the CN01 connector black wire.
- Fresh food and freezer heaters - approximately 4 amps when measured at the CN01 connector black wire.

# Troubleshooting Notes

Problem	Action
Refrigerator HMI displays a temperature of 80°F (27°C), even though the temperature in the refrigerator section is correct.	The HMI may display 80°F (27°C) if the refrigerator thermistor (air) is either open or shorted. Run service diagnostics (Test <b>0 7</b> ) to confirm.
Freezer HMI displays -25°F (-32°C), even though the temperature in the freezer section is correct.	The HMI may display -25°F (-32°C) if the freezer thermistor (air) is open. Run service diagnostics (Test <b>0 7</b> ) to confirm.
Freezer HMI displays 80°F (27°C), even though the temperature in the freezer section is correct.	The HMI may display 80°F (27°C) if the freezer thermistor (air) is shorted. Run service diagnostics (Test <b>0 7</b> ) to confirm.
Unit is dead (except for interior lights). CN1 connector reads 120VAC.	Check the compressor overload. Control board will not receive voltage if the overload is open.
Ambient air thermistor fails service diagnostics test. HMI displays open circuit.	Check the thermistor connection behind the HMI display to see if the pins are pushed out of the connector.

# Schematics

PSB42LGRBV

PSB42LGRWV

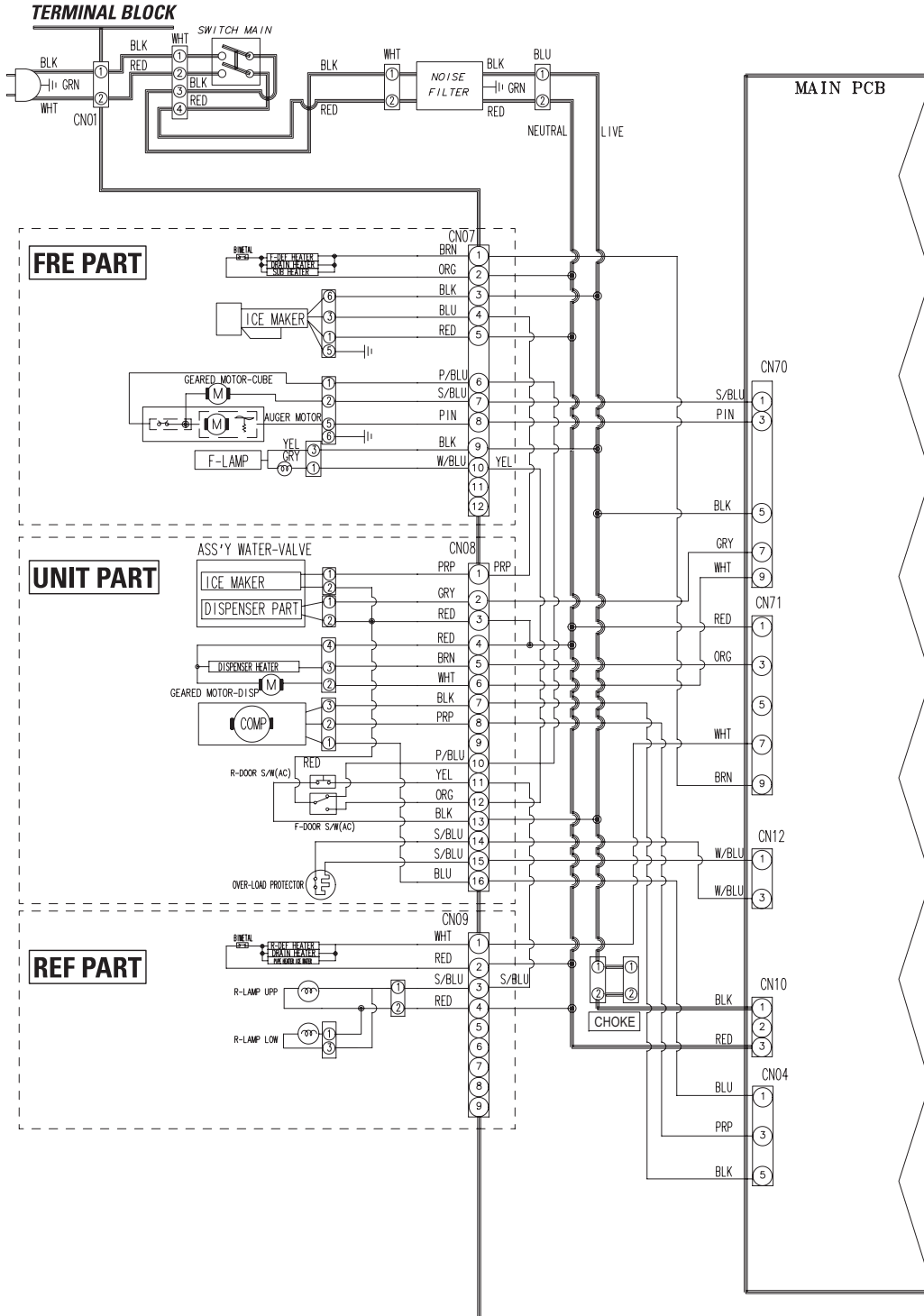
PSB42LSRBV

PSB48LGRBV

PSB48LGRWV

PSB48LSRBV

## AC Section

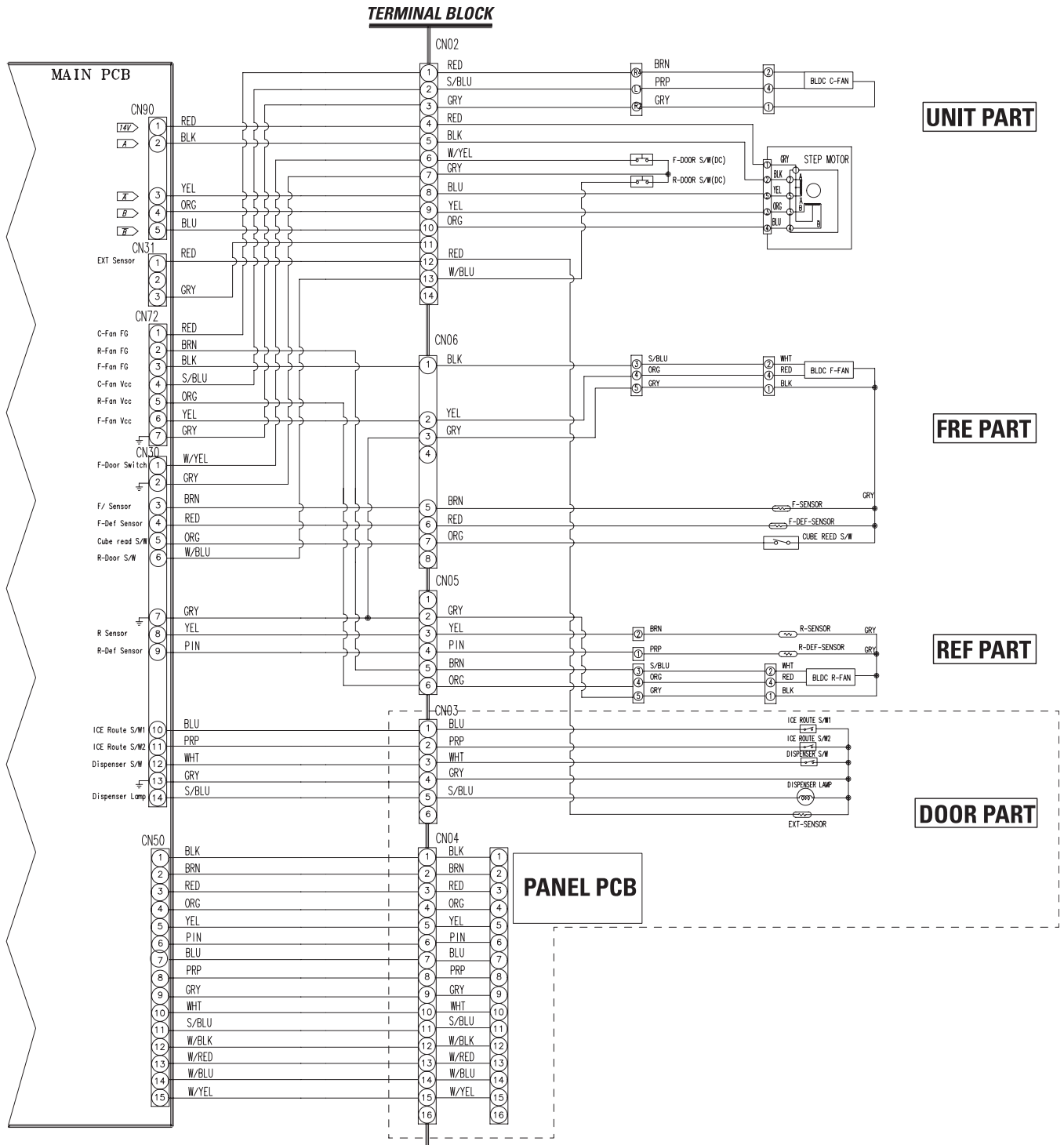


(Part 1)



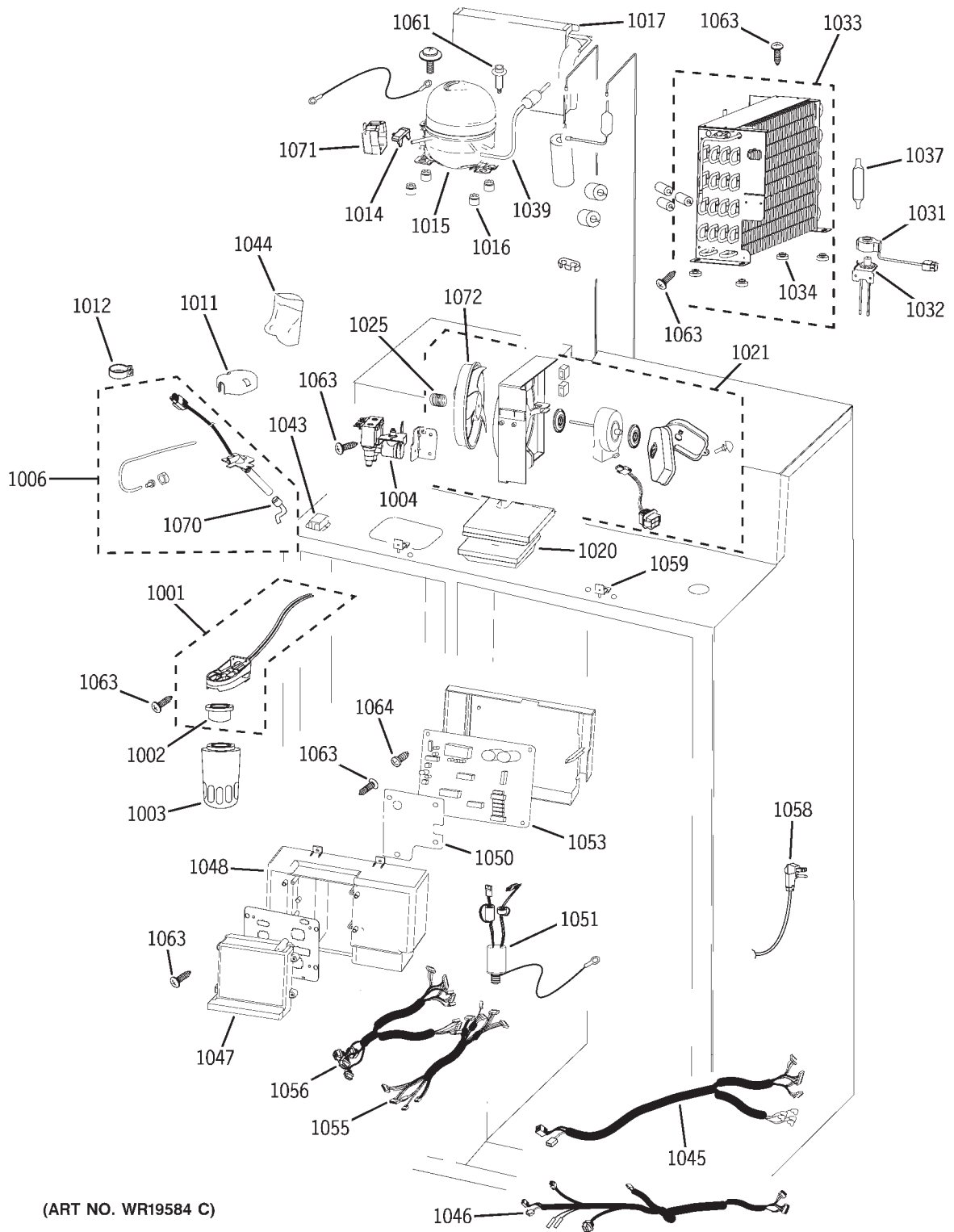
# Schematics (Part 2)

## DC Section





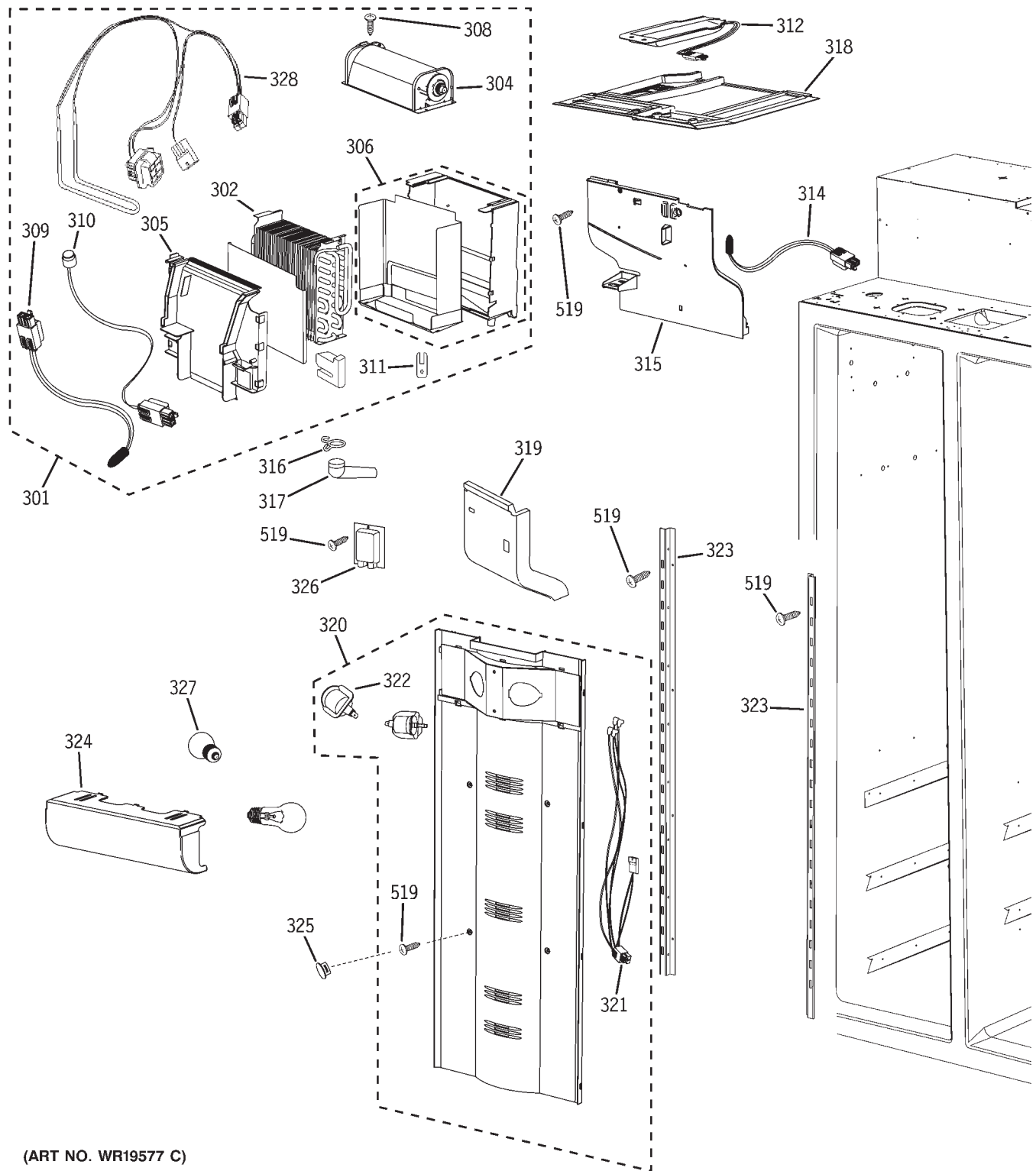
PSB42LSRBV Shown



(ART NO. WR19584 C)

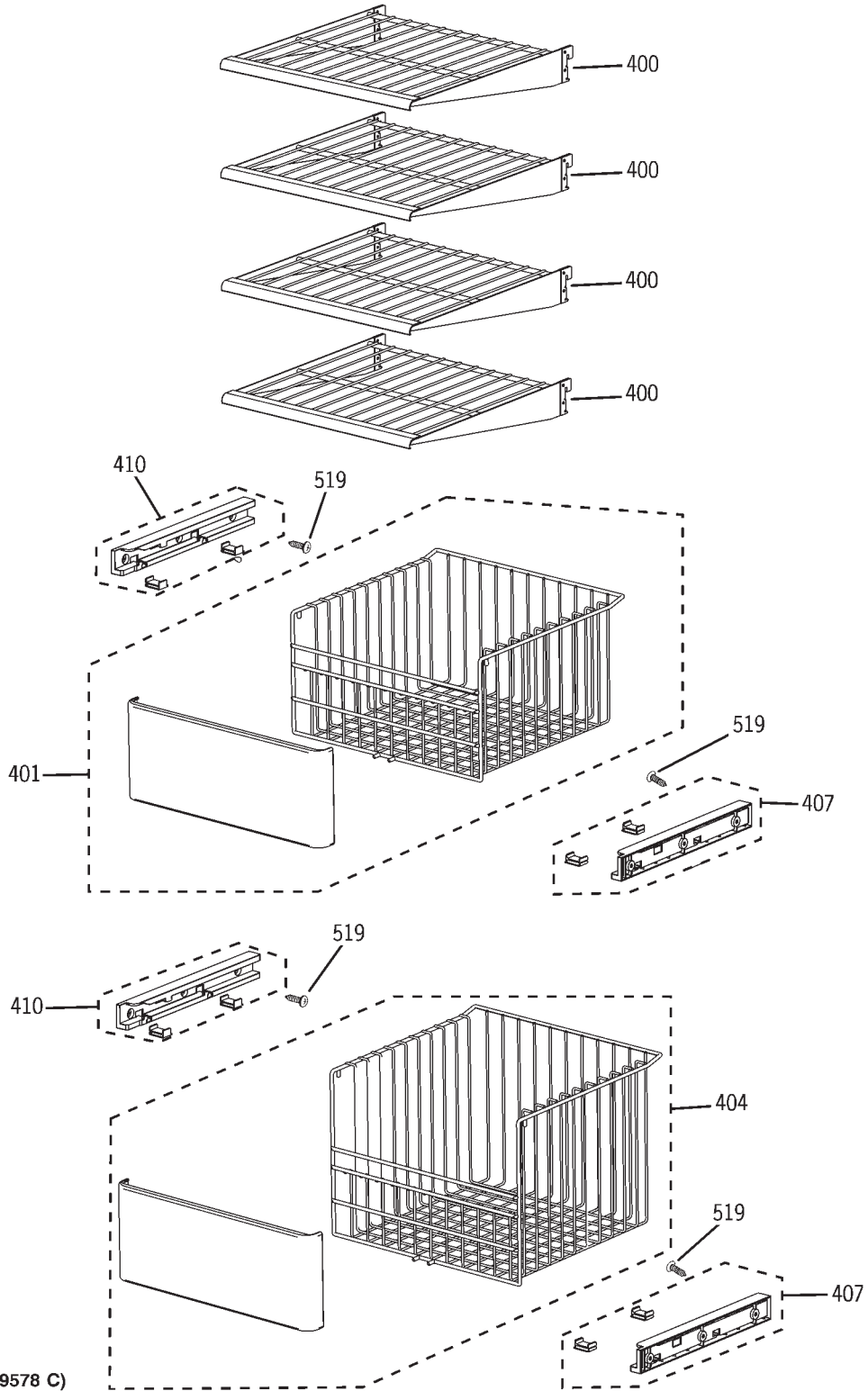


PSB42LSRBV Shown



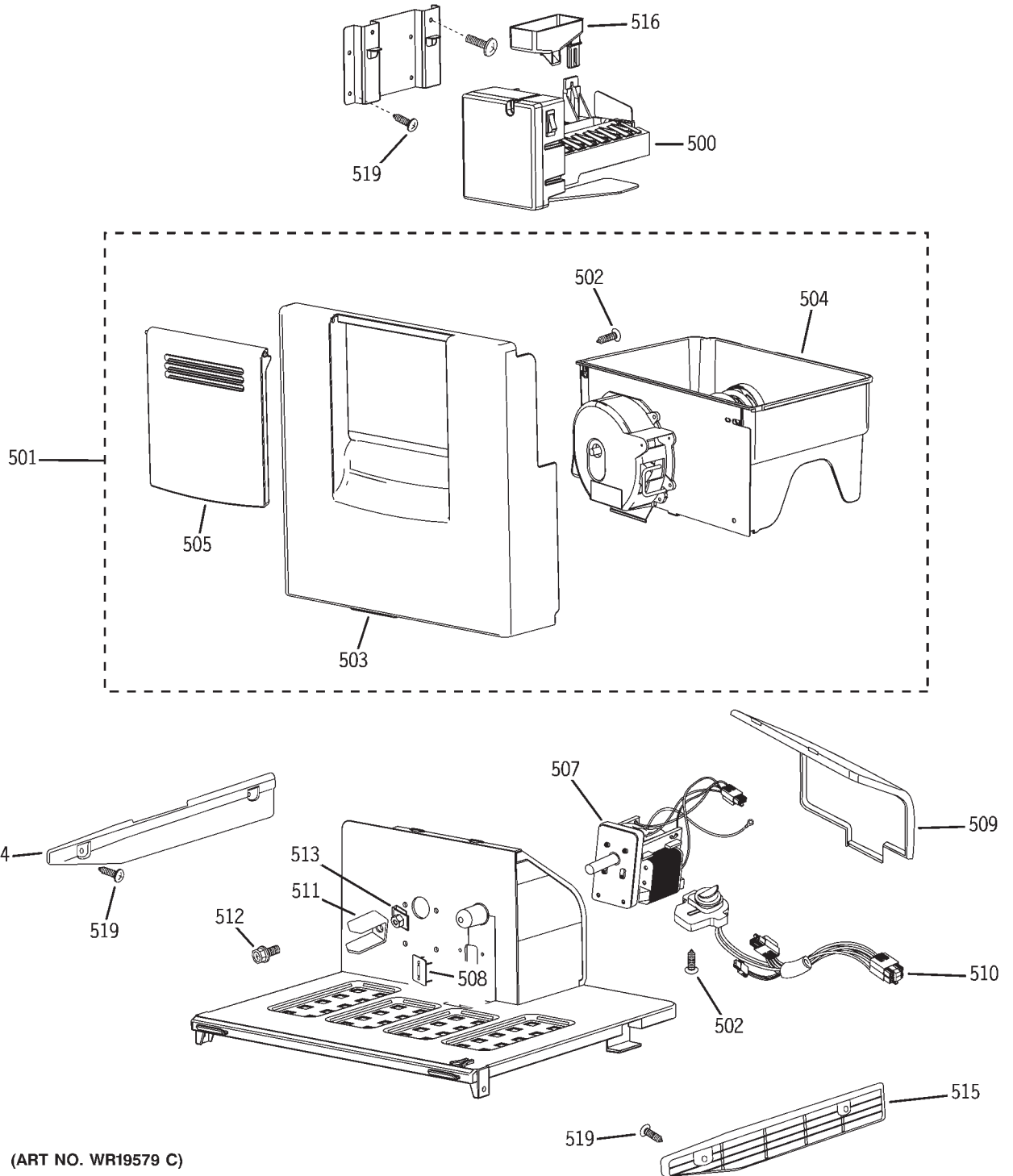
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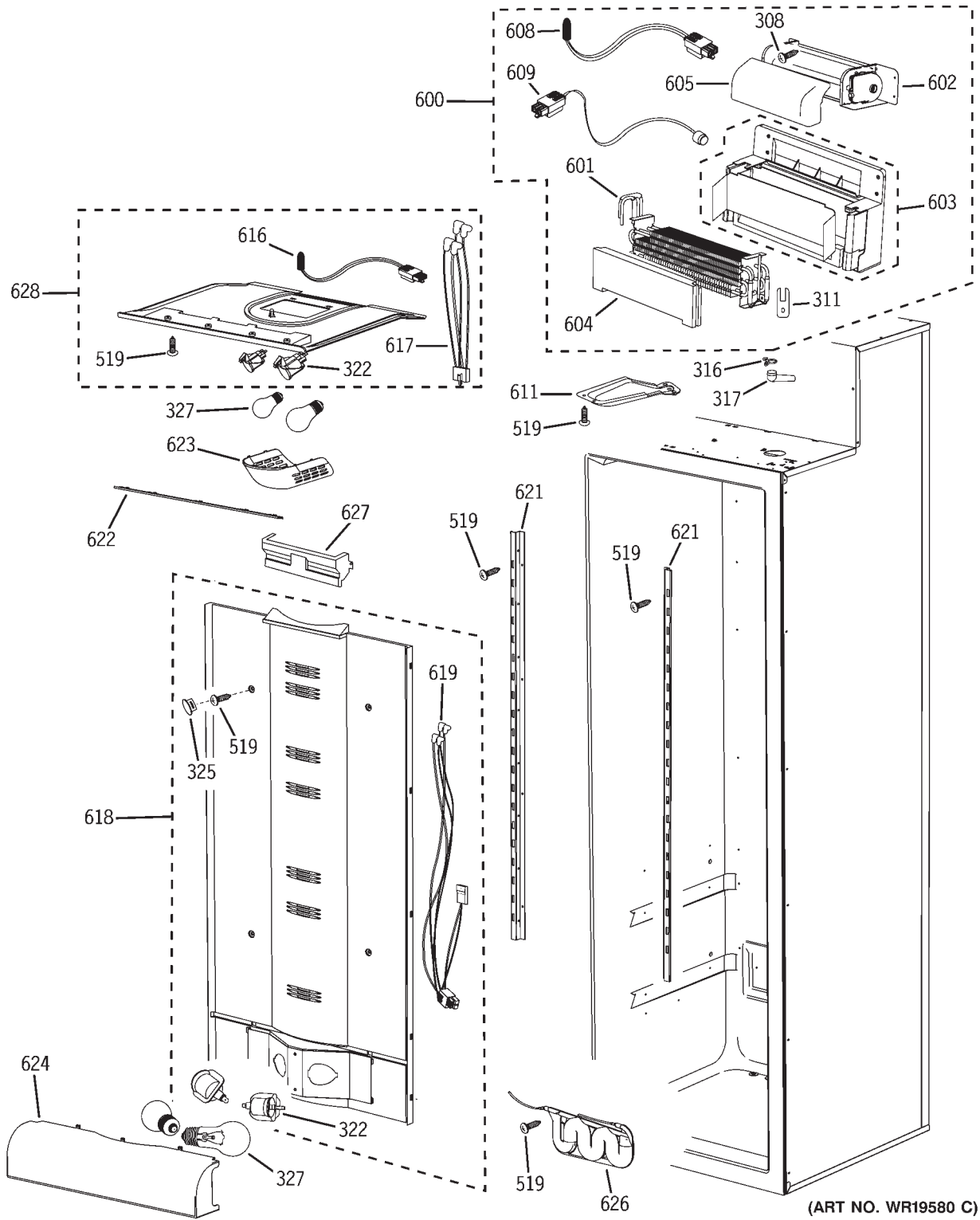


(ART NO. WR19578 C)

PSB42LSRBV Shown



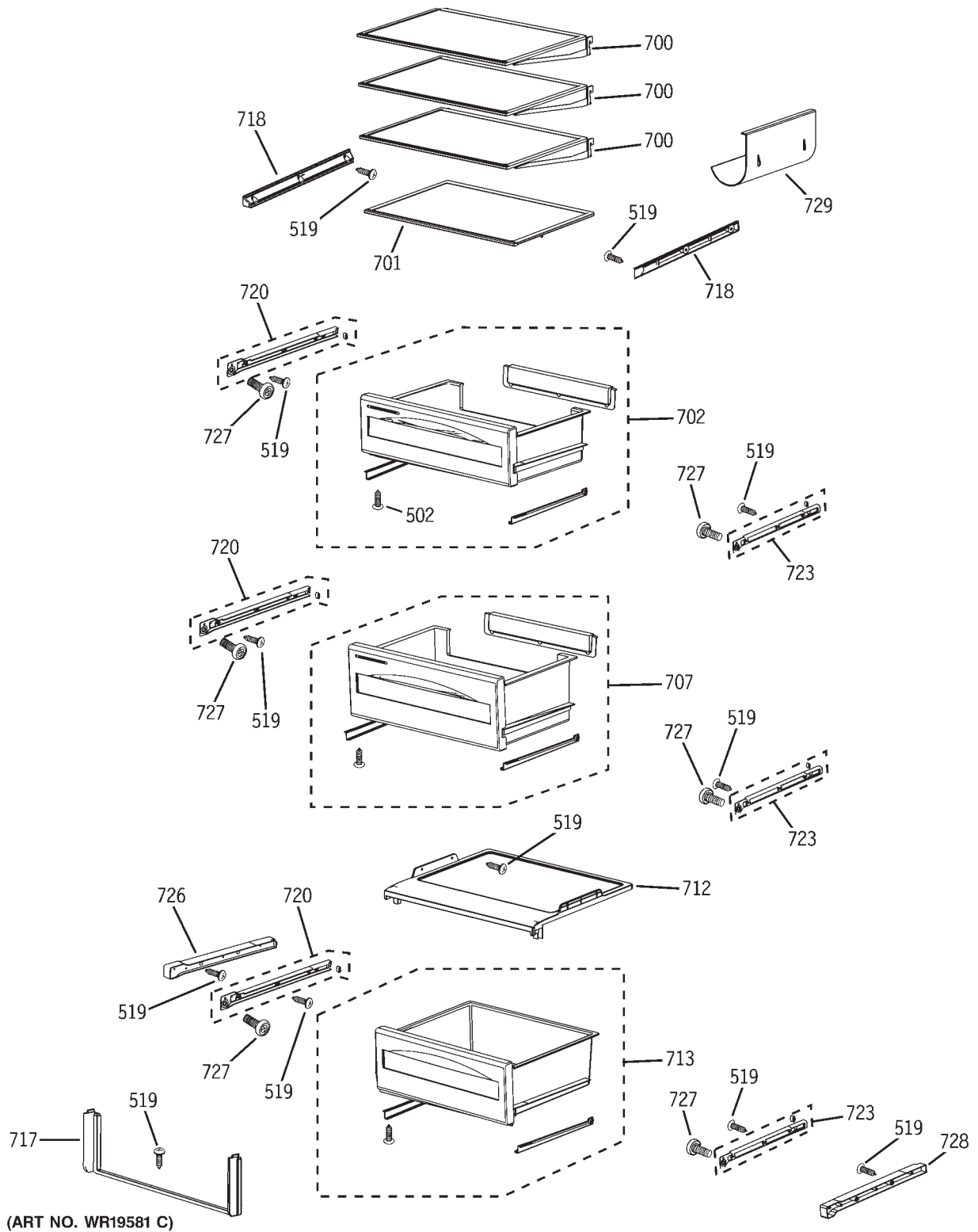
PSB42LSRBV Shown



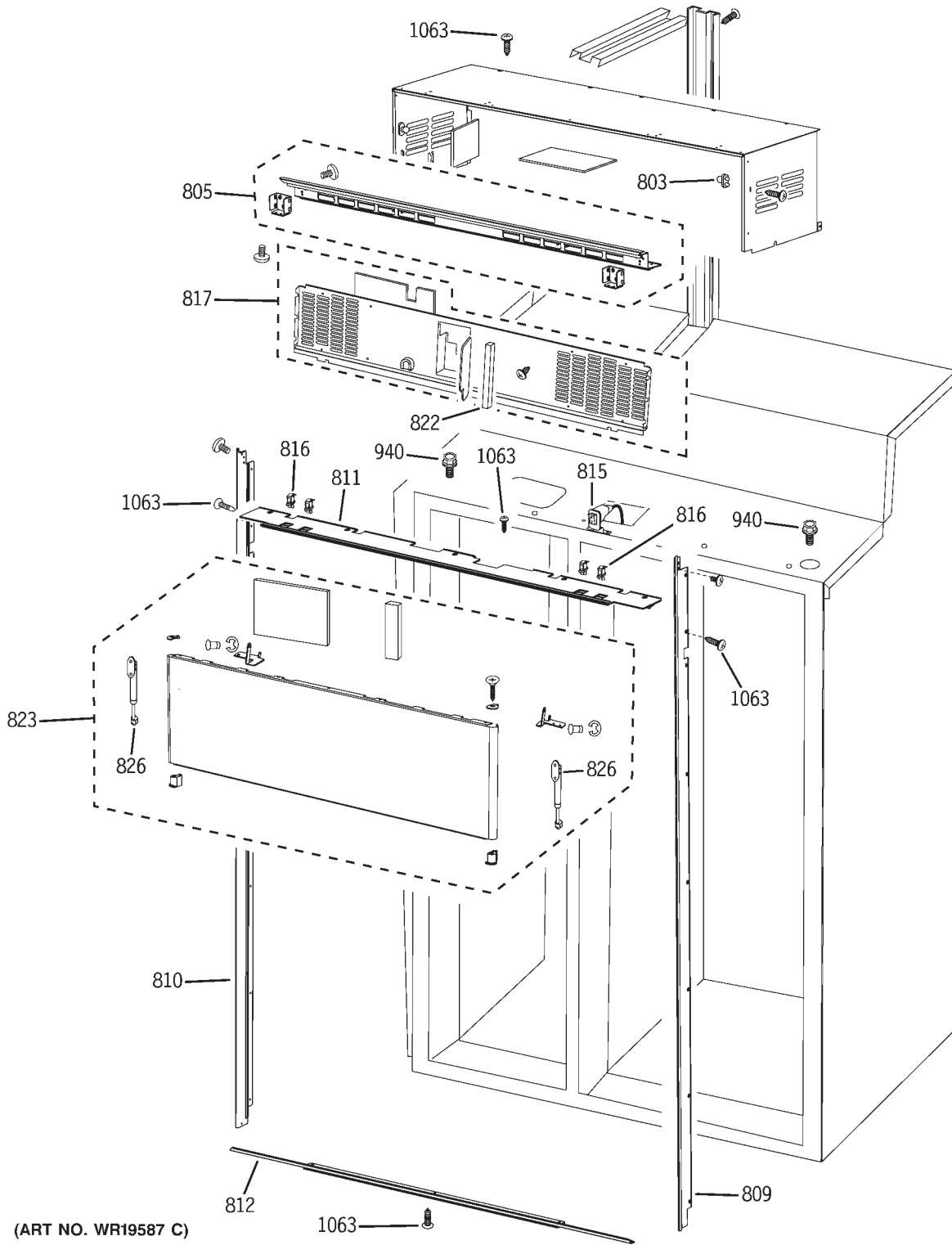
(ART NO. WR19580 C)



PSB42LSRBV Shown



PSB42LSRBV Shown





VIEW NUMBER	CATALOG NUMBER	DESCRIPTION	QUANTITY
0001	31-46170	INSTALLATION INSTRUCTION	1
0001	31-51582	MINI MANUAL	1
0001	49-60296-1	USE & CARE MANUAL	1
0100	WR78X11086	DOOR ASM FZ SS	1
0101	WR02X11890	TUBE-WATER LINE A	1
0103	WR23X10396	SWITCH-MICRO	1
0104	WR02X11891	CAP-TUBE WATER LINE	1
0105	WR02X11892	CAP-CHUTE ICE	1
0106	WR02X11894	BRKT-SOCKET LAMP DISP	1
0107	WR02X11893	SOCKET LAMP DISP	1
0108	WR49X10106	DISP UPGRADE KIT BK	1
0109	WR17X11763	FUNNEL BK	1
0110	WR17X11746	DUCT DOOR ASM	1
0111	WR17X11764	MICROS/HRNS/SUPT ASM BK	1
0112	WR02X11930	SCREW-TAPPING	2
0113	WR02X10675	LAMP-INCANDESCENT	1
0115	WR02X11895	STRIKE SWITCH	2
0116	WR02X11896	DOOR STOP	1
0117	WR02X11897	ASM BRACKET HINGE LOW	1
0118	WR02X11898	SCREW-SPECIAL	12
0119	WR24X10162	GASKET DOOR ASM FZ	1
0120	WR13X10350	SHIM HINGE-UPP,R	1
0121	WR17X11768	CONTROL DISPENSER BK	1
0124	WR17X11772	TRIM DISPENSER	1
0125	WR02X11929	COVER LAMP-DISPENSER	1
0126	WR50X10062	SENSOR TEMP-EXT	1
0127	WR17X11770	GRILLE RECESS BK	1
0128	WR17X11771	TRAY-DISP BK	1
0129	WR13X10343	HINGE UPPER FZ	1
0132	WR12X10705	ASM HANDLE DOOR	2
0139	WR02X11902	QUICK CONNECTOR TUBING	1
0142	WR71X10599	DOOR MODULE FZ	3
0143	WR60X10180	MOTOR & CAM - DUCT DOOR	1
0144	WR02X11943	TRIM PAD CRADLE	1
0145	WR02X11945	PAD CRADLE	1
0146	WR01X10468	SCREW-TAPPING	74
0200	WR78X11087	DOOR ASM FF SS	1
0201	WR02X11899	BRACKET HINGE-UPPER FF	1
0202	WR13X10351	SHIM HINGE-UPP,L	1
0203	WR02X11900	STOPPER DOOR FF	1
0205	WR02X11901	BRACKET HINGE BOTTOM FF	1
0206	WR24X10163	GASKET DOOR ASM FF	1
0215	WR02X11903	THIMBLE HINGE UPPER	2
0216	WR13X10345	HINGE-UPP R	1
0218	WR22X10051	BIN/DOOR DAIRY ASM	1
0220	WR22X10050	COVER DOOR-DAIRY	1
0221	WR71X10600	GUARD ASM FF	3
0222	WR02X11904	SNUGGER	3
0223	WR71X10601	GUARD-GALLON	1
0224	WR02X11905	SNUGGER LG	1
0301	WR85X10064	COMPLETE EVAP ASM FZ	1
0302	WR85X10062	EVAP/DEFROST HTR FZ ASM	1

VIEW NUMBER	CATALOG NUMBER	DESCRIPTION	QUANTITY
0304	WR60X10176	MOTOR FAN ASM FZ	1
0305	WR17X11730	CASE EVAP FZ FRONT	1
0306	WR17X11731	EVAP CASE REAR FZR	1
0308	WR02X11871	SCREW-TAPPING	14
0309	WR50X10056	THERMISTOR - FZ EVAP	1
0310	WR50X10057	THERMOSTAT DEFROST FZ	1
0311	WR02X11872	BRACKET THERMOSTAT FZ	2
0312	WR51X10082	DRAIN/HEATER ASM FZ	1
0314	WR50X10058	THERMISTOR - FZ	1
0315	WR17X11732	COVER EVAP FZ	1
0316	WR02X11873	CLAMP HOSE	2
0317	WR02X11874	DRAIN CONNECTOR	2
0318	WR17X11733	COVER AIR DUCT ASM FZ	1
0319	WR02X11875	DUCT FOAM UPPER FZ	1
0320	WR02X11876	COVER DUCT FZ	1
0321	WR23X10393	HARNESS LAMP FZ	1
0322	WR02X10732	SOCKET LAMP	6
0323	WR17X11734	RACK SHELVING FZ	2
0324	WR02X11877	SHIELD LAMP FZ	1
0325	WR02X11878	CAP-SCREW	8
0326	WR02X11879	PLUG COVER FZ	1
0327	40A15	LAMP-INCANDESCENT	6
0328	WR50X10063	DEFROST HEATER FZ	1
0400	WR71X10596	SHELF WIRE ASM	4
0401	WR21X10099	ASM-BASKET WIRE UPPER	1
0404	WR21X10100	ASM-BASKET WIRE LOW	1
0407	WR17X11727	RAIL RH BASKET FZ	2
0410	WR17X11728	RAIL LH BASKET FZ	2
0500	WR30X10012	ICE MAKER ASM	1
0501	WR30X10056	ICE BUCKET ASM W/FRONT	1
0502	WR02X11865	SCREW-TAPPING	25
0503	WR17X11722	ICE BUCKET FRONT	1
0504	WR30X10057	ICE BUCKET ASM	1
0505	WR17X11723	ICE BUCKET DOOR	1
0507	WR60X10175	MOTOR AUGER	1
0508	WR02X11867	COVER LEVER ARM	1
0509	WR02X11868	COVER-MOTOR AUGER	1
0510	WR60X10178	MOTOR & SWITCH ASM CUBE	1
0511	WR02X11869	DRIVE FORK AUGER	1
0512	WR02X11870	SCREW-SPECIAL	4
0513	WR02X11957	J-NUT	1
0514	WR17X11724	RAIL LH AUGER	1
0515	WR17X11725	RAIL RH AUGER	1
0516	WR29X10065	FILL CUP IM	1
0519	WR02X11866	SCREW-TAPPING	96
0600	WR85X10065	COMPLETE EVAP ASM FF	1
0601	WR85X10063	EVAP/DEFROST HTR ASM FF	1
0602	WR60X10179	FAN MOTOR ASM FF	1
0603	WR17X11739	EVAP CASE ASM FF	1
0604	WR02X11884	COVER EVAP FRONT FF	1
0605	WR82X10099	INSULATION EVAP MTR FF	1

VIEW NUMBER	CATALOG NUMBER	DESCRIPTION	QUANTITY
0608	WR50X10059	THERMISTOR FF EVAP	1
0609	WR50X10060	THERMOSTAT DEFROST FF	1
0611	WR02X11885	DRAIN TROUGH ASM FF	1
0616	WR50X10061	THERMISTOR FF	1
0617	WR23X10394	HARNESS UPPER LIGHTS FF	1
0618	WR17X11741	COVER DUCT ASM FF	1
0619	WR23X10395	HARNESS LOWER LIGHTS FF	1
0621	WR17X11742	TRACK SHELVING FF	2
0622	WR02X11886	COVER-GRILLE FF	1
0623	WR02X11887	SHIELD LAMP UPPER FF	1
0624	WR02X11888	SHIELD LAMP LOWER FF	1
0626	WR17X11743	WATER TANK ASM	1
0627	WR17X11744	COVER DUCT UPPER FF ASM	1
0628	WR17X11808	HSNG UPPER LIGHT ASM FF	1
0700	WR71X10597	SHELF GLASS FF	3
0701	WR71X10598	SHELF GLASS FF LOWER	1
0702	WR32X10495	PAN VEG UPPER	1
0707	WR32X10496	PAN VEG MID	1
0712	WR32X10497	COVER VEG PAN LOWER	1
0713	WR32X10498	PAN VEG LOWER	1
0717	WR02X11880	SUPPORT LOWER VEG PAN	1
0718	WR17X11735	RAIL LOWER GLASS SHELF F	2
0720	WR17X11736	RAIL VEG PANS LH	3
0723	WR17X11737	RAIL VEG PANS RH	3
0726	WR02X11881	SUPPORT RAIL LH	1
0727	WR02X11882	ROLLER VEG PAN	6
0728	WR02X11883	SUPPORT RAIL RH	1
0729	WR17X11738	SHELF-WINE	1
0803	WR02X11889	SHOCK POST	2
0805	WR17X11759	TRIM FRAME UPPER	1
0809	WR38X10343	TRIM FRAME RH	1
0810	WR38X10344	TRIM FRAME LH	1
0811	WR38X10346	TRIM LIGHT SWITCHES	1
0812	WR38X10345	TRIM FRAME BOTTOM	1
0815	WR23X10401	SWITCH ASM MAIN	1
0816	WR23X10175	SWITCH DOOR	4
0817	WR82X10098	ACCESS COVER	1
0822	WR02X11922	FOAM SEAL	1
0823	WR74X10192	ASM GRILLE	1
0826	WR02X11923	GAS SHOCK	2
0900	WR13X10346	COMPLETE HINGE ASM LH	1
0904	WR02X11906	SHOCK ABSORBER LH	1
0908	WR13X10347	HINGE ARM LINK LH	1
0909	WR13X10348	COMPLETE HINGE ASM RH	1
0913	WR02X11907	SHOCK ABSORBER RH	1
0918	WR13X10349	HINGE ARM LINK RH	1
0920	WR02X11908	KIT FASTENER ASM HINGE	2
0925	WR17X11752	LEVELING JACK REAR	2
0926	WR02X11909	CASTER ASM	4
0927	WR02X11910	THIMBLE HINGE LOWER	2
0929	WR17X11762	CONDENSER DRAIN PAN	1

VIEW NUMBER	CATALOG NUMBER	DESCRIPTION	QUANTITY
0931	WR02X11925	SUPPORT DRAIN PAN REAR	2
0932	WR17X11753	CONDENSER SUPPORT ASM	2
0935	WR17X11754	DRAIN PAN	1
0936	WR17X11755	PANEL TOE KICK	1
0937	WR02X11911	COVER-WATER LINE	1
0938	WR01X10460	SCREW-MACHINE	2
0939	WR01X10461	SCREW-TAPPING	16
0940	WR01X10462	BOLT 10MM	37
0945	WR02X11947	SUPPORT DRAIN PAN FRONT	2
1001	WR17X11756	FILTER HEAD	1
1002	WR02X11912	PLUG BYPASS FILTER	1
1003	GWF	WATER FILTER	1
1004	WR57X10040	WATER VALVE ASM	1
1004	WR57X10032	WATER VALVE ASM	1
1006	WR02X11913	FILL TUBE ASM	1
1011	WR02X11914	COVER FILL TUBE ASM	1
1012	WR02X11927	CLAMP	1
1014	WR07X10088	RELAY PROTECTOR O/L	1
1015	WR87X10115	COMPRESSOR	1
1016	WR02X11915	GROMMET-COMP	4
1017	WR17X11757	HEAT EXCHANGER ASM	1
1020	WR02X11916	FOAM INSULATION BLOCK	1
1021	WR60X10177	CONDENSER FAN ASM	1
1025	WR01X10436	RETAINING SPRING FAN	1
1031	WR57X10059	3 WAY VALVE COIL	1
1032	WR57X10054	3-WAY VALVE	1
1033	WR84X10068	CONDENSER ASM	1
1034	WR02X11917	GROMMET-COND	4
1037	WR86X0093	DRIER	1
1039	WR02X11918	TUBING SUCTION LINE	1
1043	WR02X11928	COVER-CONNECTOR	1
1044	WR02X11926	BAG ENVELOPE-PE	1
1045	WR23X10397	HARNESS AC ASM	1
1046	WR23X10398	HARNESS DC ASM	1
1047	WR02X11919	COVER-HOUSING	1
1048	WR17X11758	COVER-PCB PANEL	1
1050	WR02X11920	COVER-NOISE FILTER	1
1051	WR09X10121	NOISE FILTER	1
1053	WR55X10428	MAIN PCB ASM	1
1055	WR23X10399	HARNESS AC ASM	1
1056	WR23X10400	HARNESS AC ASM	1
1058	WR23X10300	POWER CORD	1
1059	WR02X11921	BRACKET ACCESS COVER	2
1061	WR01X10437	BOLT COMPRESSOR	4
1063	WR01X10463	SCREW-TAPPING	25
1064	WR01X10464	SCREW-TAPPING	4
1070	WR02X11948	FILL TUBE EXT	1
1071	WR02X11949	COVER RELAY	1
1072	WR60X10181	BLADE CONDENSER FAN	1

# Warranty



All warranty service provided by our Factory Service Centers, or an authorized Customer Care® technician. To schedule service, on-line, 24 hours a day, visit us at [GEAppliances.com](http://GEAppliances.com), or call 800.GE.CARES (800.432.2737).

<b>For The Period Of:</b>	<b>GE Will Replace:</b>
<b>Two Years</b> From the date of the original purchase	<b>Any part</b> of the refrigerator which fails due to a defect in materials or workmanship. During this <b>full two-year warranty</b> , GE will also provide, <b>free of charge</b> , all labor and in-home service to replace the defective part.
<b>Five Years</b> From the date of the original purchase	<b>Any part of the sealed refrigerating system</b> (the compressor, condenser, evaporator and all connecting tubing) which fails due to a defect in materials or workmanship. During this <b>full five-year sealed refrigerating system warranty</b> , GE will also provide, <b>free of charge</b> , all labor and in-home service to replace the defective part in the sealed refrigerating system.
<b>Limited Additional Seven Years</b> From sixth to twelfth year after original purchase date of the refrigerator	<b>Any part of the sealed refrigerating system</b> (the compressor, condenser, evaporator and all connecting tubing) which fails due to a defect in materials or workmanship. During this <b>limited additional seven-year sealed refrigerating system warranty</b> , GE will provide, <b>free of charge</b> , replacement parts.
<b>Thirty Days</b> From the original purchase date of the refrigerator	<b>Any part</b> of the water filter cartridge which fails due to a defect in materials or workmanship. During this <b>limited thirty-day warranty</b> , GE will also provide, <b>free of charge</b> , a replacement water filter cartridge.

## What GE Will Not Cover:

- Service trips to your home to teach you how to use the product.
- Improper installation, delivery or maintenance.
- Failure of the product if it is abused, misused, or used for other than the intended purpose or used commercially.
- Loss of food due to spoilage.
- Replacement of house fuses or resetting of circuit breakers.
- Damage caused after delivery.
- Replacement of the water filter cartridge due to water pressure that is outside the specified operating range or due to excessive sediment in the water supply.
- Replacement of the light bulbs or water filter cartridge other than as noted above.
- Damage to the product caused by accident, fire, floods or acts of God.
- Incidental or consequential damage caused by possible defects with this appliance.

*This warranty is extended to the original purchaser and any succeeding owner for products purchased for home use within the USA. In Alaska, the warranty excludes the cost of shipping or service calls to your home.*

*Some states do not allow the exclusion or limitation of incidental or consequential damages. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. To know what your legal rights are, consult your local or state consumer affairs office or your state's Attorney General.*

**Warrantor: General Electric Company, Louisville, KY 40225**