GE APPLIANCES
a Haier company

Technical Service Guide

February 2020

2019 Profile Door-in-Door Dual Drawer Bottom Freezer Refrigerators

PVD28BYNFS

PVD28BYNBFS

31-9326

Safety Information

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.

Warranty

For Warranty Information:

1. Go to http://products.geappliances.com
2. Search the model number.
3. Click on the Literature tab.
4. Click on Use and Care Manual.
5. Locate the Warranty page.

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Safety Requirements

GEA Factory Service Employees are required to use safety glasses with side shields, safety gloves and steel toe shoes for all repairs.

Plano Type Safety Glasses

Prescription Safety Glasses

Safety Glasses must be ANSI Z87.1-2003 compliant

Dyneema®Cut Resistant Glove

Cut Resistant Sleeve(s)

Electrically Rated Glove and Dyneema® Cut Resistant Glove Keeper

Steel Toed Work Boot

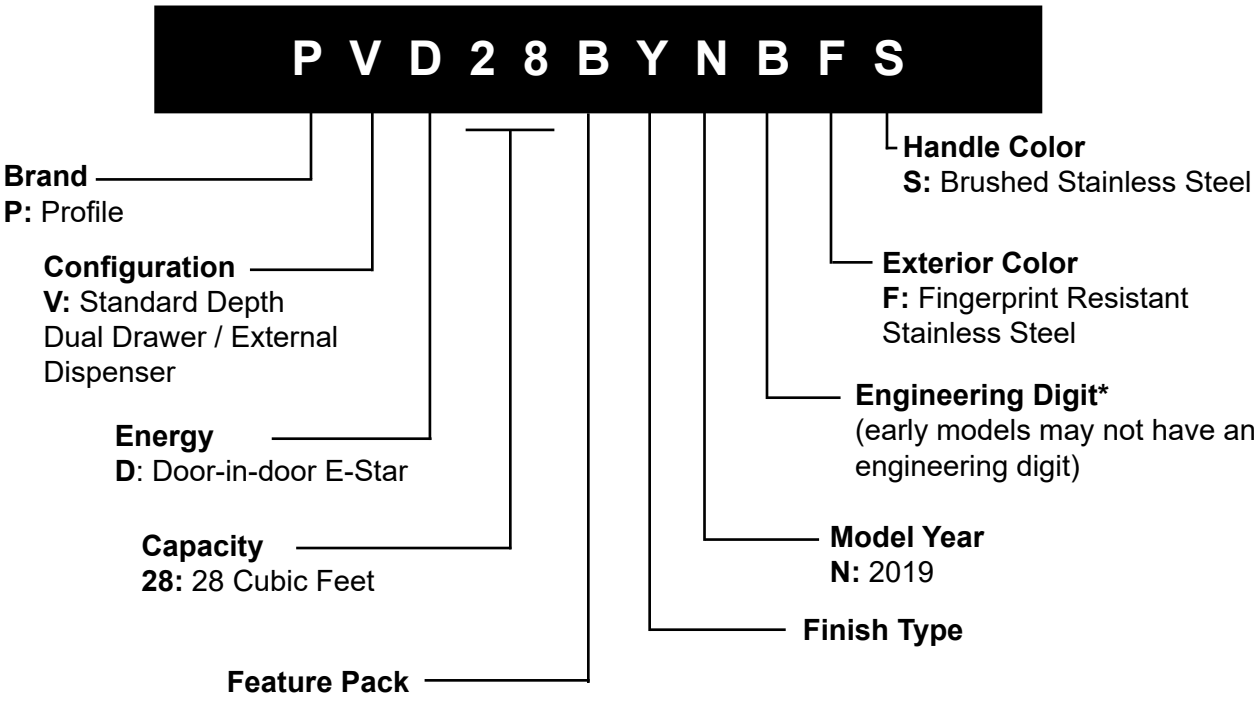
⚠ WARNING

Prior to disassembly of the refrigerator to access components, GE Factory Service technicians are REQUIRED to follow the Lockout / Tagout (LOTO) 6 Step Process:

Step 1 Plan and Prepare	**Step 4** Apply LOTO device and lock
Step 2 Shut down the appliance	**Step 5** Control (discharge) stored energy
Step 3 Isolate the appliance	**Step 6** “Try It” verify that the appliance is locked out

Nomenclature

Model Number



The nomenclature breaks down and explains what the letters and numbers mean in the model number.

Serial Number

The first two characters of the serial number identify the month and year of manufacture. The letter designating the year repeats every 12 years.

Example: FL123456S = March, 2018

A: JAN	2024: Z
D: FEB	2023: V
F: MAR	2022: T
G: APR	2021: S
H: MAY	2020: R
L: JUN	2019: M
M: JUL	2018: L
R: AUG	2017: H
S: SEP	2016: G
T: OCT	2015: F
V: NOV	2014: D
Z: DEC	2013: A

The Mini Manual is located under the left side of the center hinge cover.

The Model Serial ID Tag is located on the right side of the refrigerator compartment.

Specifications

⚠ WARNING **Electrical Shock Hazard**

Death or serious injury can result from failure to follow these instructions.

- **Service by a qualified service technician only.**
- Disconnect power before servicing this product.
- Reconnect all grounding devices after service.
- Replace all parts and panels before operating.

ELECTRICAL SPECIFICATIONS	
Max Defrost Control	
FF w/No Door Openings	16 hrs.
FZ w/No Door Openings	96 hrs.
TCO's (One Shot)	Open @ 170°F
FF Defrost Heater	120 VAC / 165Ω
FZ Defrost Heater	120 VAC / 66Ω
Fill Tube Heater	12.5 VDC / 270Ω
Mullion Heater	12.5 VDC / 16Ω
Isolation Water Valve	120 VAC / 0.41KΩ
Icemaker Water Valve	120 VAC / 0.39KΩ
Dispenser Water Valve	120 VAC / 0.39KΩ
Compressor Windings	120 VAC / 11Ω
Inverter	120 VAC / 2.5 to 5 VDC
Evaporator Fan	2 to 3 VDC (speed)
Condenser Fan	2 to 3 VDC (speed)
Ice Box Fan	2 to 3 VDC (speed)
Icemaker	120 VAC / 5 VDC
Duct Door Motor	12.5 VDC / 185Ω
Auger Motor	120 VDC / 125Ω
Door-In-Door Heater	12.5 VDC / 15Ω

NO LOAD PERFORMANCE		
CONTROL POSITION 0 / 37°F and		
AMBIENT TEMPERATURE OF	65°F	90°F
Fresh Food, °F	36 to 38	36 to 38
Frozen Food, °F	0 to 1	-3 to 0
Convertible Drawer @ 29 °F	28 to 30	27 to 29
Convertible Drawer @ 33 °F	33 to 35	32 to 34
Convertible Drawer @ 37 °F	37 to 39	36 to 38
Convertible Drawer @ 42 °F	42 to 44	41 to 43
Percent Running Time	50 to 90	80 to 100

REFRIGERATION SYSTEM	
Minimum Equalized Pressure	
@ 55°F	19.8 PSIG
@ 70°F	22 PSIG
@ 90°F	30.6 PSIG
R600a Refrig. Chg.	69 grams

Installation

Power Supply

The power cord of this appliance is equipped with a 3-prong (grounding) plug, that mates with a standard 3-prong (grounding) wall outlet to minimize the possibility of electric shock hazard from this appliance.

If the outlet is a standard 2-prong outlet, it is the responsibility and obligation of the owner to have it replaced with a properly grounded 3-prong wall outlet. An adapter should not be used.

A 115 VAC, 60 Hz, 15- or 20-amp fused, grounded electrical supply is required. This provides the best performance and also prevents overloading house wiring circuits which could cause a fire hazard from overheated wires.

WARNING: Do not, under any circumstances, cut or remove the third (ground) prong from the power cord. For personal safety, this appliance must be properly grounded.

The refrigerator should always be plugged into its own individual electrical outlet, that has a voltage rating that matches the rating plate.

Use of Extension Cords

Extension cords should not be used.

Refrigerator Location

Do not install the refrigerator where the temperature will go below 60°F, because it will not run often enough to maintain proper temperatures.

Do not install the refrigerator where the temperature will go above 100°F, because it will not perform properly.

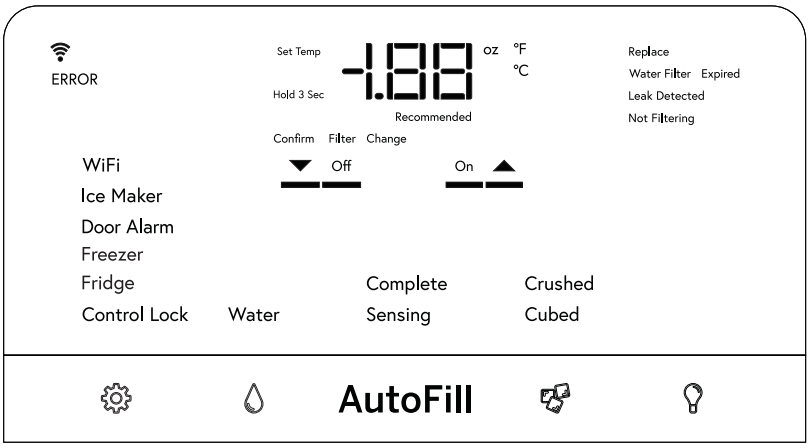
Install the refrigerator on a floor strong enough to support the refrigerator in a fully loaded condition.

Clearances

Allow the following clearances for ease of installation, proper air circulation, and plumbing and electrical connections.

- **Sides**: 1/8-inch (3-mm)
- **Top**: 1-inch (25-mm) Cabinet/Hinge Cover
- **Back**: 2-inches (50-mm)

Dispenser Board Controls



Settings (⚙): Press the settings symbol to scroll through appliance functions.

- **Control Lock**: Press On to lock out ice and water dispenser and all feature and temperature buttons. Press and hold Off for three seconds to deactivate.
- **Fridge**: Used to adjust refrigerator compartment temperature between 34˚F (1˚C) to 42˚F (6˚C).
- **Freezer**: Used to adjust freezer compartment temperature between 34˚F (1˚C) to 42˚F (6˚C).
- **Door Alarm**: Sounds an alert when the freezer or refrigerator doors have been left open for 2 minutes. Alarm can be snoozed by pressing any key. Press On or Off to deactivate the door alarm.
- **Ice Maker**

  Press On or Off to start/stop icemaker.
- **Wi-Fi**

  Press On or Off to activate Wi-Fi.

Water (💧): Press to select water to dispense when the paddle is pressed.

AutoFill: Press to initiate automatic sensing to fill from dispenser (see **AutoFill** in this section for more information).

Ice (🧊): Press to select crushed or cubed ice when the paddle is pressed.

Light (💡): Press to illuminate dispenser recess. A different chime will accompany each press.

Volume Control

The alert volume can be adjusted from high to low and off. Press the settings pad to navigate to "**Ice Maker**", then press and hold the ice cube and light bulb pads for three seconds.

Adjusting Temperature Settings

Refrigerator Compartment Temperature: Press the settings button until "**Fridge"** is highlighted. Press the "**Up**" or "**Down**" arrows pads to increase or decrease the temperature setting.

Freezer Compartment Temperature: Press the settings button until "**Freezer"** is highlighted. Press the "**Up**" or "**Down**" arrows pads to increase or decrease the temperature setting.

Fahrenheit / Celsius

Temperature display can be switched between Fahrenheit and Celsius. Press the settings pad to navigate to "**Fridge**" or "**Freezer**", then press and hold the ice cube and light bulb pads for three seconds.

Cooling System On/Off

Cooling System Off: Press the settings button until either "**Fridge"** or "**Freezer"** is highlighted. Then press and hold both "**Up**" and "**Down**" arrow pads simultaneously for 3 seconds. "**- -**" will be displayed when the system is off.

Cooling System On: Return to the "**Fridge"** or "**Freezer"** setting and pressing the "**On**" pad.

AutoFill

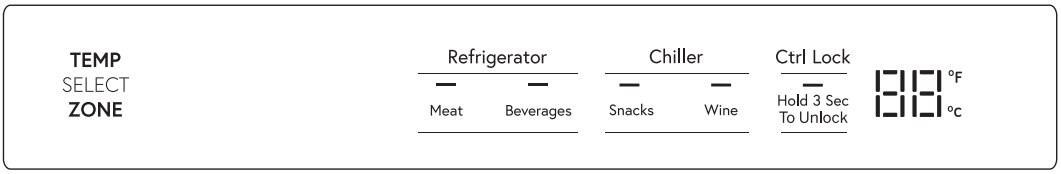
To use: Center the container on the recess tray as far back as possible without activating the paddle. Release the container and press the **AutoFill** pad.

To Cancel: Press the **AutoFill** pad.

Important AutoFill Facts:

- For optimum results, use a uniform container between 4-in. to 8-in. tall and 2-in. to 6-in. wide.
- Fill level and functionality may vary on containers taller than 8-in. or wider than 6-in.
- Container volumes may vary, if error message "Not Found" is given, try a different container.
- AutoFill will time out after 7 minutes.
- Handles, straws, and garnishes on the rim of the container may cause overfilling or variation in fill volumes.
- Splashing may occur depending on the location of the container, water flow rate, container shape, and ice cubes.
- Ice in container may affect fill volume. If issues are experiences, use less ice.
- AutoFill works best with household water pressure of 60 to 100 psi.
- Keep sensors clean with a damp cloth, and do not spray liquid or cleaners directly on sensors.

Convertible Drawer Controls



TempSelectZone settings are automatically locked. To change a setting, press and hold the **Ctrl Lock** pad for 3 seconds to unlock the control. After a different setting is selected, the control will automatically lock.

Refrigerator Settings

- **Meat**: Set temperature to 29˚F (-2˚C)
- **Beverage**: Set temperature to 33˚F (1˚C)

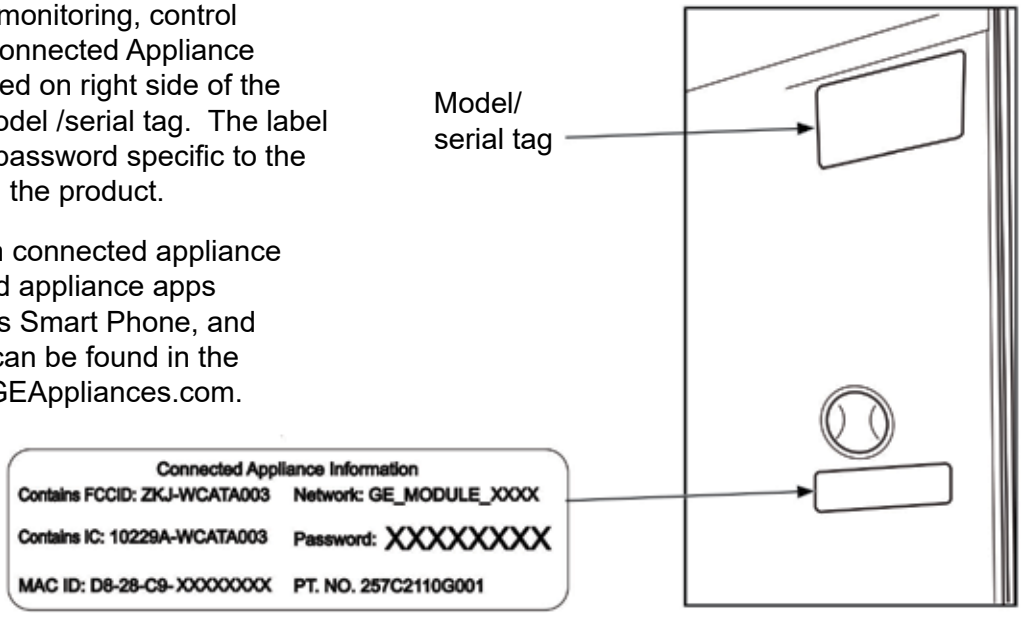
Chiller Settings

- **Snacks**: Set temperature to 37˚F (3˚C)
- **Wine**: Set temperature to 42˚F (6˚C)

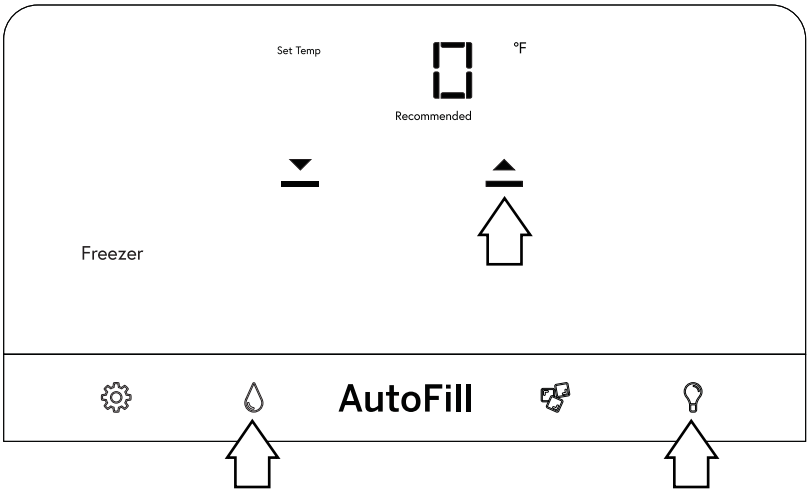
Wi-Fi Connect

The refrigerator can be connected to a Wi-Fi network, allowing it to communicate with a smart phone for remote monitoring, control and notifications. The Connected Appliance Information label is located on right side of the refrigerator below the model /serial tag. The label has the network ID and password specific to the Wi-Fi module installed in the product.

Additional information on connected appliance features, what connected appliance apps will work with the owner's Smart Phone, and connection instructions can be found in the owner's manual and at GEAppliances.com.



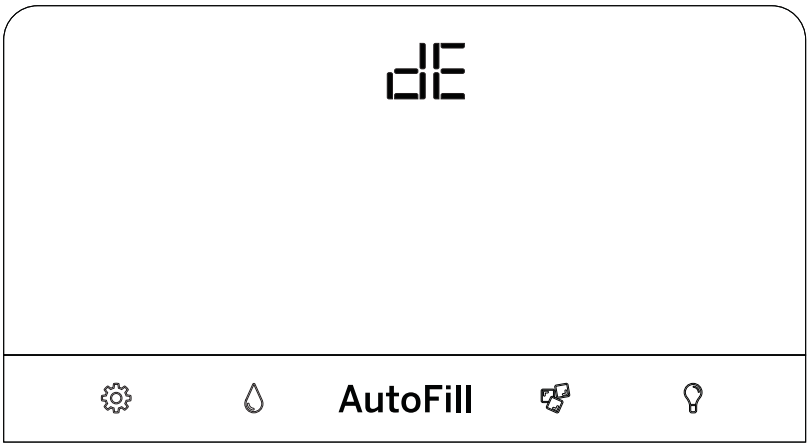
Demo Mode



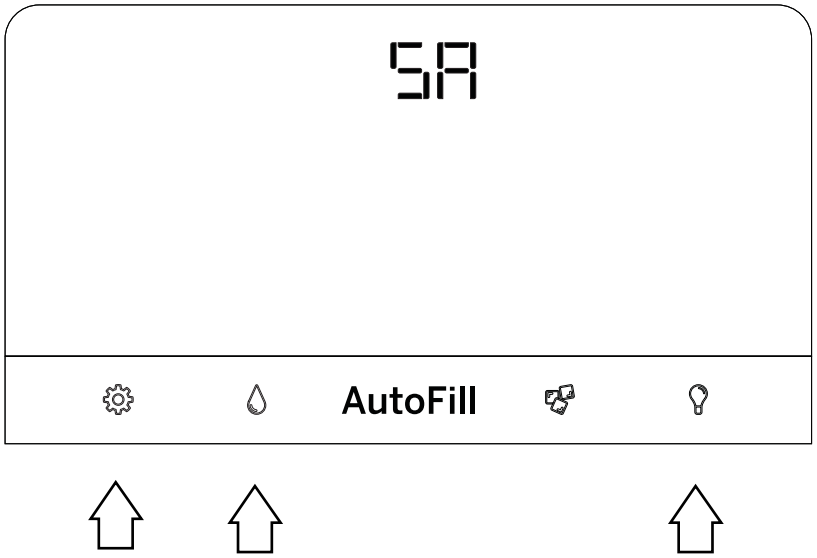
In Demo Mode, the settings can be adjusted but the cooling system is turned off.

Entering and Exiting the Demo Mode

To enter or exit the demo mode, navigate to "**Freeze**r" using the settings pad. Press and hold the **water, up arrow** and **light** pads simultaneously for 5 seconds. **dE** is briefly displayed when Demo Mode is successfully entered.



Sabbath Mode



Sabbath Mode is designed to eliminate changes in operations of the refrigerator due to human interactions. This mode is entered by the consumer during observance of the Sabbath or during specific religious holidays.

While in Sabbath Mode, the appliance will still operate normally. However, the appliance will not respond to any consumer actions.

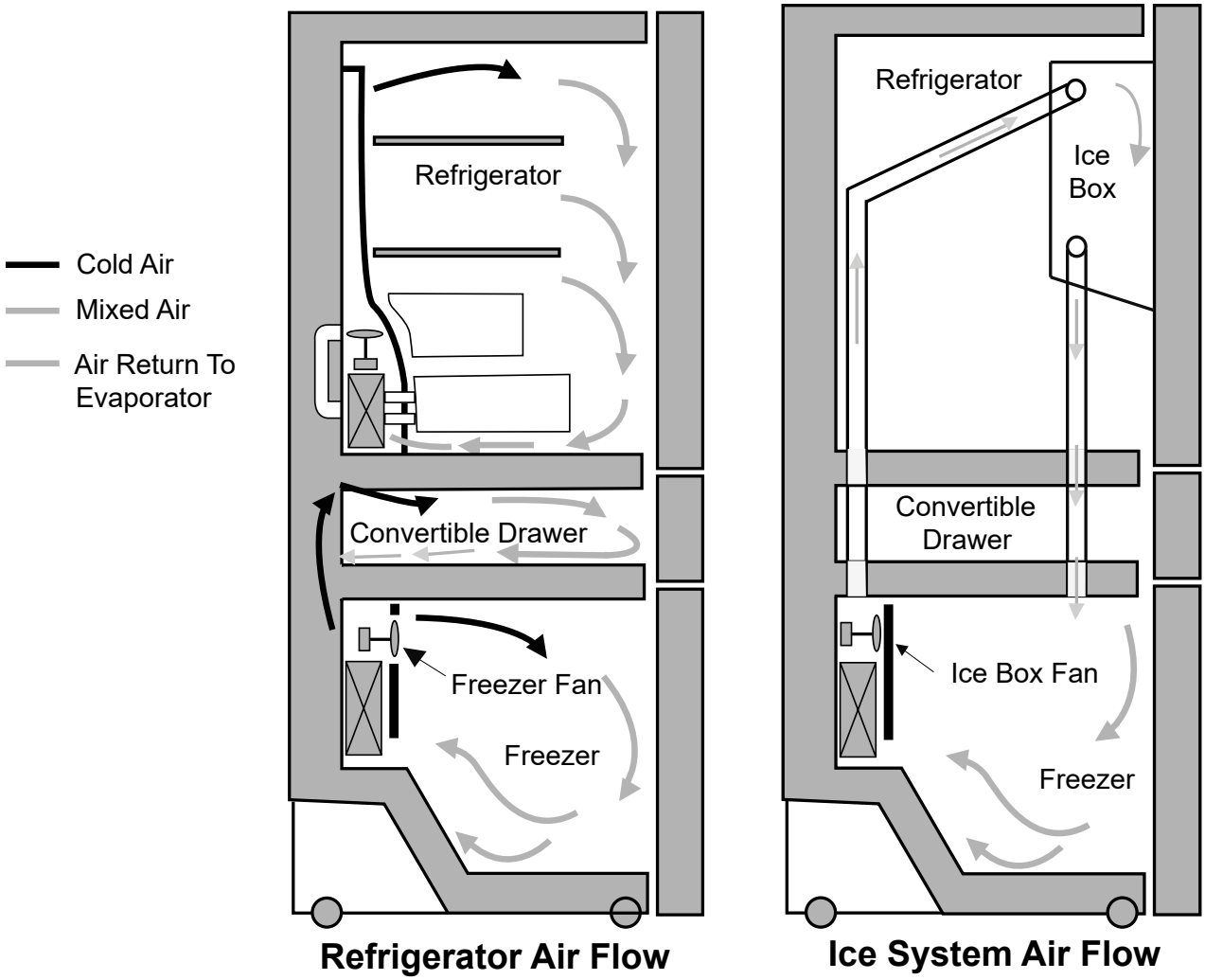
While in Sabbath Mode, it may be noticed that the fan is running when the door is opened; however, this is not a result of any interactions with the refrigerator. The fan will operate at random times. The defrost heater will continue to defrost the appliance and defrost will be activated on a timer. The defrost heater will not defrost as a result of door openings or any consumer actions.

DISPLAYS, **ALARMS** and **LIGHTS**: The main temperature control displays will be deactivated; therefore, they will not be lit, sound a tone or operate when touched. Door alarms will be disabled. Interior lights will always be off.

To turn on Sabbath Mode, press and hold the **Settings**, **Water,** and **Light** pads simultaneously for 3 seconds. The display shows **SA** when Sabbath has been successfully entered and stays in the display during the duration of Sabbath mode. Repeat the process to turn off Sabbath Mode. Temperature set point will be displayed. Sabbath mode will automatically exit 4 days after being entered.

Interior Airflow

Air Flow (Side View)



The refrigerator evaporator fan forces air through the evaporator into the refrigerator compartment. Air returns from the refrigerator compartment to the refrigerator evaporator via return vents located on the bottom of the evaporator cover.

The freezer evaporator fan forces air through the evaporator into the convertible and freezer compartments. Air enters the convertible compartment through an electronic damper and returns to the freezer through a duct in the rear of the convertible compartment. An additional ice box fan circulates air into and returns air from the ice box via ducts embedded in the cabinet foam insulation. Air returns from the freezer compartment to the freezer evaporator return vent located on the bottom of the evaporator cover.

Operation Overview

Normal Operating Characteristics

- Liner protection mode will turn on either the refrigerator or freezer fan if the doors or drawer are open for more than 3 minutes respectively.
- The condenser fan may run without the compressor operating.
- Fan(s) running without the compressor operating is normal.
- When either of the refrigerator doors are opened, the refrigerator fan will turn off.
- When the dispenser door is open, the ice box fan will turn off.
- When the freezer drawer is opened, the freezer fan will turn off.

Liner Protection Mode

- Liner protection mode is controlled by two timers.
- Timer #1 monitors door-open time. A 3-minute door-open count begins when the door is opened.
- If 3 minutes' elapse before the door is closed, the liner protection mode will become active.
- Once the door is closed, timer #1 resets and liner protection mode goes into standby.
- In standby, normal fan operation resumes and timer #2 begins a 3-minute door-closed count.
- If 3-minutes elapse without a door opening, liner protection mode will reset.
- If a door is opened within the timer #2 door-closed count, the remaining time in the door-closed count will be deducted from the timer #1 door-open count.

Refrigeration Operation

Models operate in the following states:

- Pull Down
- Cooling Operation
- Refrigerator Cycle Defrost
- Pre-Chill
- Refrigerator Only Heated Defrost
- Refrigerator and Freezer Heated Defrost
- Dwell
- Post Dwell

Pull Down

- Assuming the freezer set point is 0˚F, pull down occurs any time the appliance is plugged in and the freezer temperature is above 55˚F.
- The 3-way valve moves to the A position, delivering refrigerant to both the refrigerator and freezer evaporators. Compressor start is delayed for 20 seconds. The freezer fan is off, the refrigerator fan cycles 5 minutes off, 3 minutes on for 5 minutes. The refrigerator fan starts in the 5-minute off cycle.
- When the refrigerator reaches set point temperature, the 3-way valve will move to position B, delivering refrigerant to the freezer evaporator. The freezer fan starts on low speed and the refrigerator fan runs without cycling off and on.
- Fan speeds will vary with cabinet temperatures until the set temperature is obtained.
- After 6 hours of compressor run time (door openings times are not counted), both the refrigerator and freezer will enter a heated defrost cycle.

Cooling Operation

- When cooling is required, the main control board moves the 3-way valve to either the A position (supplying refrigerant to both refrigerator and freezer evaporators), or the B position (supplying only the freezer evaporator), depending upon compartment temperatures.
- The compressor and fan(s) are delayed for 3 minutes before restarting.
- When only the refrigerator temperature is satisfied, the 3-way valve will move to the B position (supplying only the freezer evaporator) to continue cooling the freezer. Refrigerator cycle defrost will begin.
- When the freezer and refrigerator temperatures are satisfied, the compressor and fans will turn off. The 3-way valve will move to the D position, shutting off refrigerant flow to both evaporators to improve efficiency and to reduce refrigerant sounds.
- After the accumulated compressor run time (including door openings) has been reached, the unit will begin the defrost pre-chill cycle.

NOTE: (1 second of refrigerator door-open time = 87 seconds of compressor run time.)

(1 second of freezer drawer-open time = 348 seconds of compressor run time.)

Refrigerator Cycle Defrost

- The refrigerator cycle defrost occurs between heated refrigerator defrost cycles to reduce excessive frost accumulations on the refrigerator evaporator.
- During the refrigerator cycle defrost, the evaporator fan runs and there is no refrigerant flow through the evaporator.
- The refrigerator cycle defrost does not use the refrigerator defrost heater.
- The refrigerator cycle defrost will occur any time the temperature in the refrigerator compartment has been satisfied. The refrigerator fan will run for 10 to 25 minutes (fan speed may be dependent on humidity levels), then cycle off if refrigerator temperatures are satisfied.
- The refrigerator cycle defrost does not occur when the compressor cycles off.

Defrost Pre-Chill

After accumulating 32 hours of compressor run time (actual compressor run time and door openings), the operating system will enter freezer pre-chill.

- The pre-chill will occur whether the last freezer defrost was normal or abnormal.
- Maximum pre-chill time is 10 minutes.
- Pre-chill will end if maximum time has occurred, setpoints have been reached, or the freezer evaporator has reach -30˚F (whichever occurs first).
- Any compressor run time prior to the beginning of pre-chill does not count in the pre-chill time.

Refrigerator Only Heated Defrost

- Refrigerator only heated defrost occurs after 32 hours of compressor run time.
- A freezer pre-chill will run before the refrigerator only heated defrost.
- Providing that the previous freezer and/or refrigerator heated defrost cycles were normal, the freezer will defrost with every third refrigerator defrost cycle.
- Refrigerator only heated defrost occurs 32, 64, and 96 hours after defrosting both the refrigerator and the freezer together unless the last freezer defrost was abnormal.
- If the last freezer defrost was abnormal (32 minutes), there will be only one refrigerator heated defrost before the next refrigerator/ freezer heated defrost instead of two.
- If the refrigerator defrost heater's ON time exceeds the normal defrost threshold of approximately 21 minutes, the defrost is considered abnormal. Abnormal defrost forces both the refrigerator and freezer into pre-chill after 6 hours of compressor run time (door openings not counted).

Freezer and Refrigerator Heated Defrost

- Following pre-chill, the heated freezer and heated refrigerator defrost cycle is initiated where both heaters will be on at the same time.
- The 3-way valve will move to the A position. The compressor will turn off. The condenser, freezer, and refrigerator fans will turn off.
- The refrigerator defrost heater remains on until the refrigerator evaporator is 44˚F (defrost termination temperature) or the maximum defrost time of 60 minutes is reached.
- The freezer defrost heater remains on until the freezer evaporator is 59˚F (defrost termination temperature) or the maximum defrost time of 60 minutes is reached.
- If either the refrigerator or freezer defrost heater's ON time exceeds the normal defrost threshold (21 minutes for refrigerator and 32 for freezer), the defrost is considered abnormal. Abnormal defrost forces both the refrigerator and freezer into pre-chill after 6 hours of compressor run time (door openings not counted).
- If the last freezer defrost was abnormal, there will be only one refrigerator heated defrost before the next refrigerator/freezer heated defrost instead of two.
- During defrost, if power is interrupted, the appliance will restart in the dwell state if the freezer evaporator temperature is above 59˚F (defrost termination temperature).
- After both defrost heaters turn off, the appliance will enter the dwell cycle.

Dwell Cycle

- After both defrost heaters have cycled off, the appliance will enter the dwell cycle.
- During the dwell cycle, the compressor and fans will remain off. The 3-way valve will move to the A position (both refrigerator and freezer open) and remain there for the entire cycle.
- The dwell cycle will terminate after 7 to 10 minutes (10 minutes for the refrigerator and 7 minutes for freezer).
- At the end of the dwell cycle, the compressor run timer for adaptive defrost is reset to 0 hours and the appliance enters the post-dwell cycle.
- If power is interrupted during the dwell cycle and the freezer temperature is greater than 59˚F (the freezer defrost termination temperature), the dwell cycle will start over.

Post Dwell Cycle

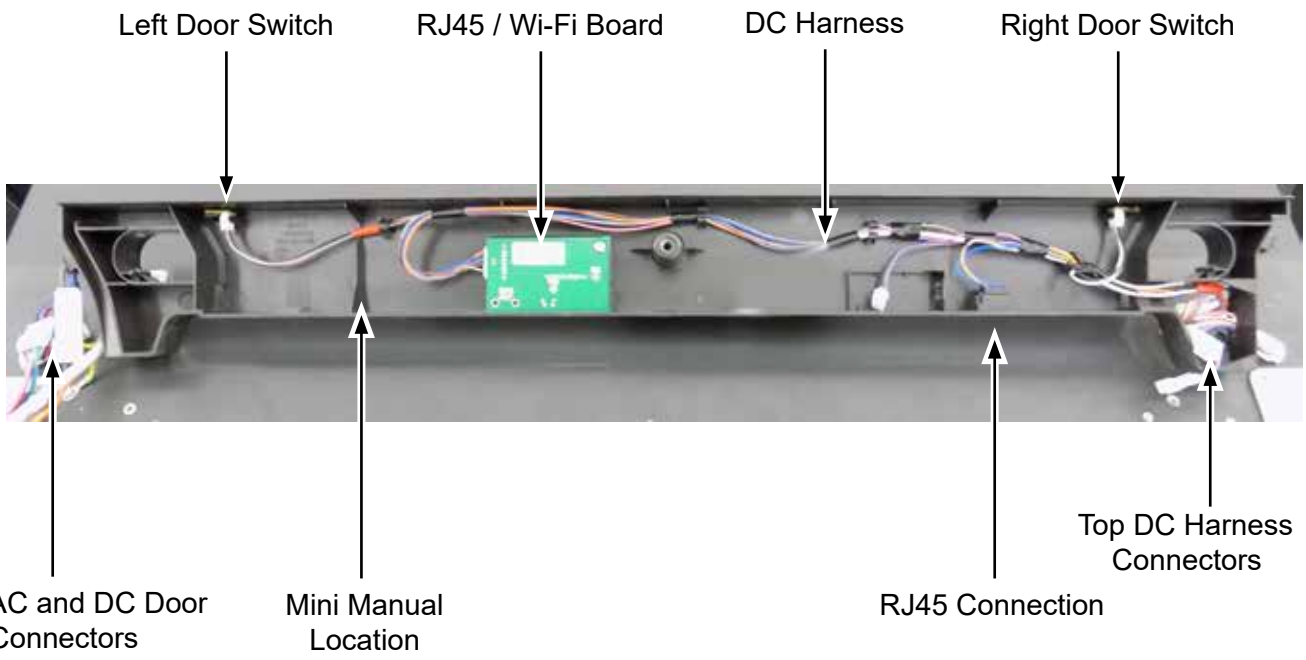
- Upon completion of the dwell cycle, the appliance will enter the post-dwell cycle.
- The 3-way valve will move to the A position.
- The compressor and condenser fan will start, but the refrigerator fan, and freezer fan will remain off.
- Post-dwell cycle will end when the freezer and refrigerator evaporators reach the post dwell exit temperature (2˚F for refrigerator evaporator and -10˚F for freezer evaporator), or the post-dwell time of 10 minutes has expired.
- Upon exit of post-dwell cycle, the control system will now operate all cooling components by its logic, and restarts the compressor run timer for adaptive defrost.

Refrigerator Cycle Defrost

Refrigerator Operation Summary

- Assuming the freezer set point is 0˚F. Pull down occurs any time the appliance is plugged in and the freezer temperature is above 55˚F.
- Cooling operation is the normal cycling of temperatures whether the last defrost was normal or abnormal.
- Refrigerator cycle defrost occurs when the 3-way valve turns off refrigerant flow to the refrigerator evaporator, but the freezer continues to cool.
- Pre-chill occurs before the freezer heated defrost.
- Refrigerator defrosts occur 32, 64, and 96 hours from the previous freezer and refrigerator heated defrost.
- Freezer heated defrost occurs every 96 hours of compressor run time.
- Dwell occurs after every heated defrost cycle.
- Post Dwell occurs after every dwell cycle.

Center Hinge Cover Components



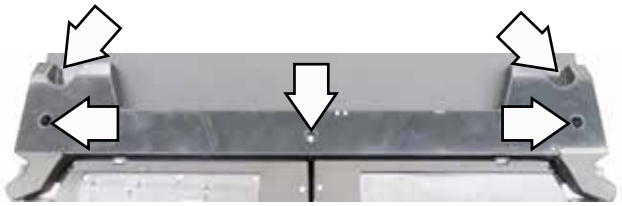
Note: The hinge cover components are shown with the hinge cover in the service position.

Hinge Cover

The hinge cover located on the top front of the refrigerator cabinet is made up of three parts. The left part covers the left hinge and door harness connectors. The center part houses both door switches, mini manual, RJ45 connector, and Wi-Fi board. The right part covers the right hinge and a harness connector from the cabinet to the top DC harness.

Hinge Cover Removal

1. Remove the five Phillips-head screws that hold the hinge cover to the cabinet. However, the left and right parts can be removed individually by removing its two screws, lifting the outside of the hinge cover up and away from the center.



2. Separate and remove the left and right parts from the center section of the hinge cover.
3. Unclip the harnesses and water line from the left side of the center cover.

4. Lift and invert the center part of the hinge cover, then place it in the service position on top of the refrigerator.

Hinge Cover Service Position

5. Disconnect the top DC harness connectors.

Door Switches

The hinge cover houses two door switches (one for each door). The door switches are magnetic reed-style switches. Both doors have a magnet at the top of the door to interact with the door switch. Each switch informs the main control board the status of each door. When a door is opened, the contacts in the switch close to return a 5 VDC signal to the main board.

Left Switch Diagnosing

Service Mode test **70** will display the status of the left switch (**0**: Closed, **1**: Open). If the switch is being tested with the hinge cover in the service position, place a magnet on the face of the hinge cover in front of the switch to close the switch contacts.

Main Board with Door Open

- J5 pin 3 (**brown**) to J7 pin 12 (**black**): 5 VDC
- J7 pin 4 (**pink**) to J7 pin 12 (**black**): 5 VDC

Main Board with Door Closed

- J5 pin 3 (**brown**) to J7 pin 12 (**black**): 5 VDC
- J7 pin 4 (**pink**) to J7 pin 12 (**black**): 0 VDC

Right Switch Diagnosing

Service Mode test **71** will display the status of the right switch (**0**: Closed, **1**: Open). If the switch is being tested with the hinge cover in the service position, place a magnet on the face of the hinge cover in front of the switch to close the switch contacts.

Main Board with Door Open

- J5 pin 3 (**brown**) to J7 pin 12 (**black**): 5 VDC
- J7 pin 3 (**white**) to J7 pin 12 (**black**): 5 VDC

Main Board with Door Closed

- J5 pin 3 (**brown**) to J7 pin 12 (**black**): 5 VDC
- J7 pin 3 (**white**) to J7 pin 12 (**black**): 0 VDC

(Continued next page)

Door Switch Removal

1. Put the hinge cover in the service position (see **Hinge Cover Removal** steps 1 to 4).
2. Push the locking tab away from the switch and slide the switch up to remove the switch from the cover.

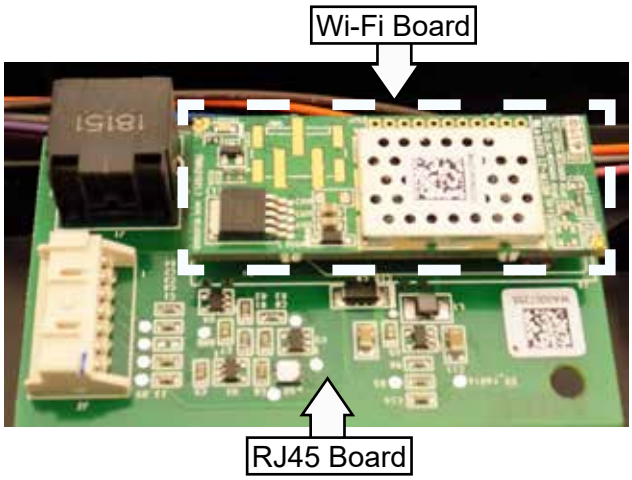
3. Disconnect the connector.

RJ45 Connector

The RJ45 connector is mounted to the backside of the hinge cover. The connector is part of the top center hinge cover and harness assembly. An addition RJ45 connection is location on the RJ45/Wi-Fi board. The RJ45 connector is the access point to update software using a Software Update Module (SUM) or a service diagnostic tool.

RJ45 / Wi-Fi Board

The Wi-Fi board allows the consumer to connect the appliance to a Wi-Fi network. Once connected, the appliance can communicate with a smart phone for remote monitoring, control and notifications. The board is soldered to the RJ45 connector and cannot be replaced separately.



RJ45 / Wi-Fi Board Diagnosing

A green communication LED should be blinking when the board is receiving the 5 VDC supply from the main board. Before changing the board, ensure the proper voltages are going to the RJ45 connector board. Voltages can also be checked at the main board.

Service Mode test **41** (see **Service Mode** section) will display Wi-Fi board information if the board is communicating to the main board.

J2 connector on RJ45 Board:

- Pin 4 (**yellow**) to pin 6 (**yellow/silver**): 5 VDC

J9 Connector on Main Board:

- Pin 10 (**blue/yellow**) to pin 13 (**yellow/silver**): 5 VDC

RJ45 / Wi-Fi Board Removal

The Wi-Fi board is soldered to the RJ45 board and cannot be replaced separately.

NOTE: RJ45/Wi-Fi board should come with new connected appliance information labels. When replacing the RJ45/Wi-Fi board remember to install the new label over the original.

1. Place the hinge cover in the service position (see **Hinge Cover Removal**, under **Hinge Cover** in this section).
2. Remove one Phillips-head screw and disconnect the wiring harness.

Door and Drawer Handles

Handles

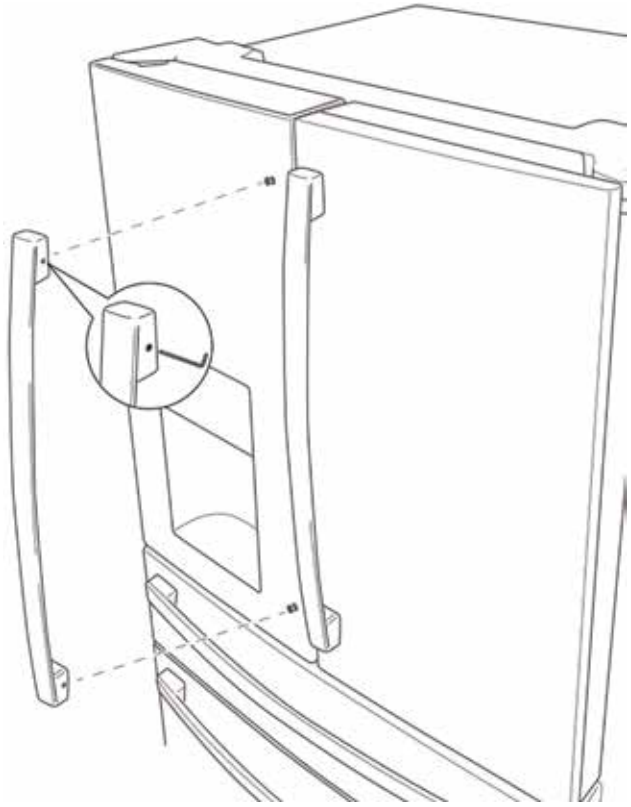
Handles are mounted to the doors and drawers with two set screws which tighten to mounting fasteners screwed into the door. If the mounting fasteners are loose the handle will need to be removed to tighten the fasteners.

NOTE: Left and right handles are not the same.

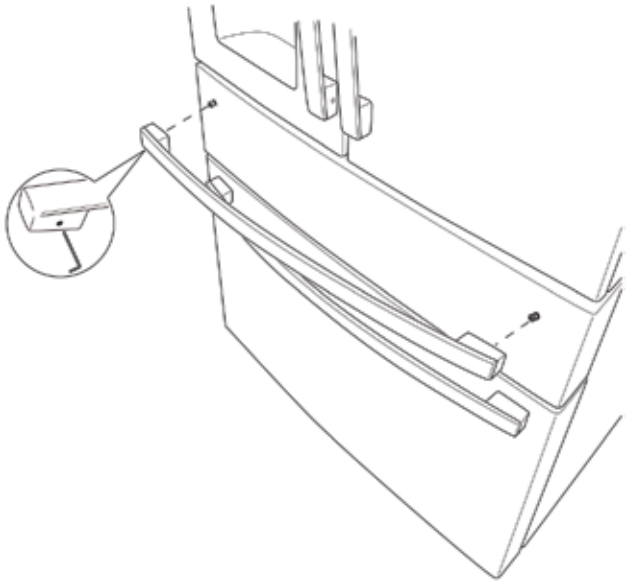
Handle Removal

1. Use a 1/8-in. Allen wrench to loosen the set screws.

Dispenser Door Handle Set Screw



Drawer Handle Set Screw



2. Pull the handle away from the door or drawer.

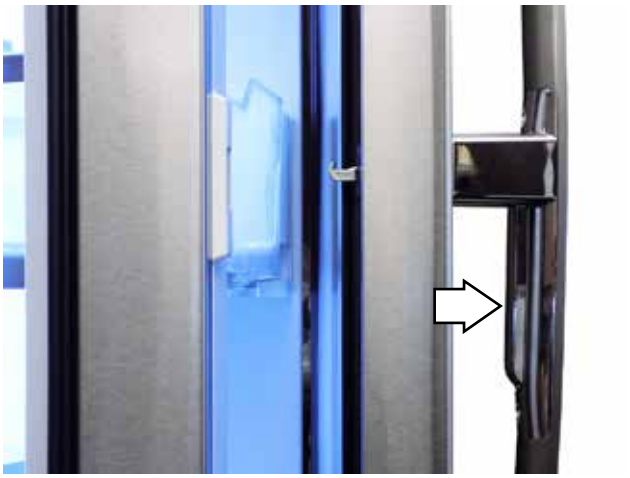
Door-In-Door Handle

The handle is mounted to the outer door with two set screws which tighten to mounting fasteners screwed into the door. If the mounting fasteners are loose, the handle will need to be removed to tighten the fasteners.

NOTE: Left and right handles are not the same.

Door-In-Door Door Handle Removal

1. Open the outer door by squeezing the Door-In-Door latch handle.



2. Use a 1/8-in. Allen wrench to loosen the set screws on the inside top and bottom of the handle.
3. Pull the handle away from the door.

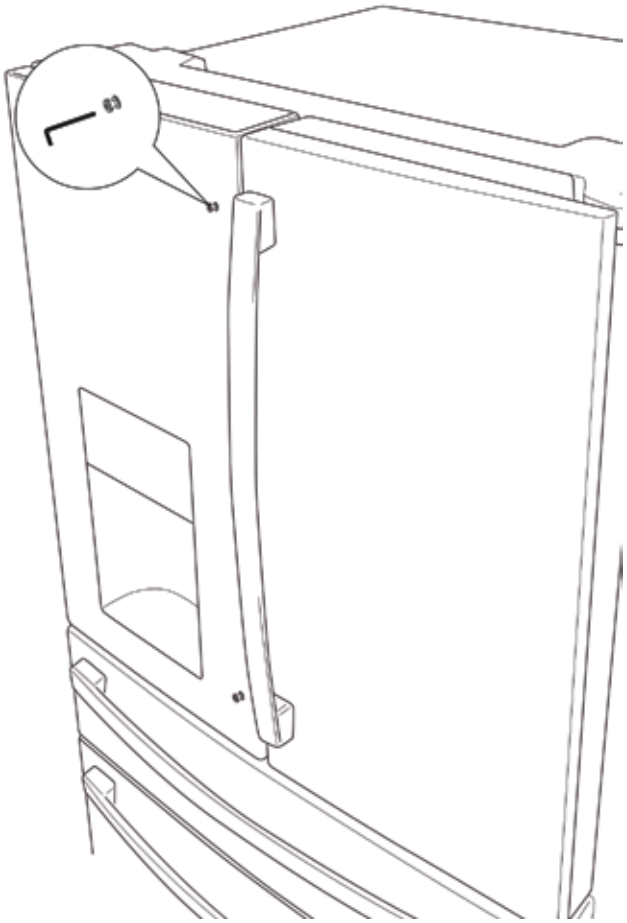
Handle Fasteners

The handles fasteners are mounted to the doors and drawers (professional models only). There are two fasteners per handle. If a mounting fastener is loose, the handle will need to be removed to tighten the fastener(s).

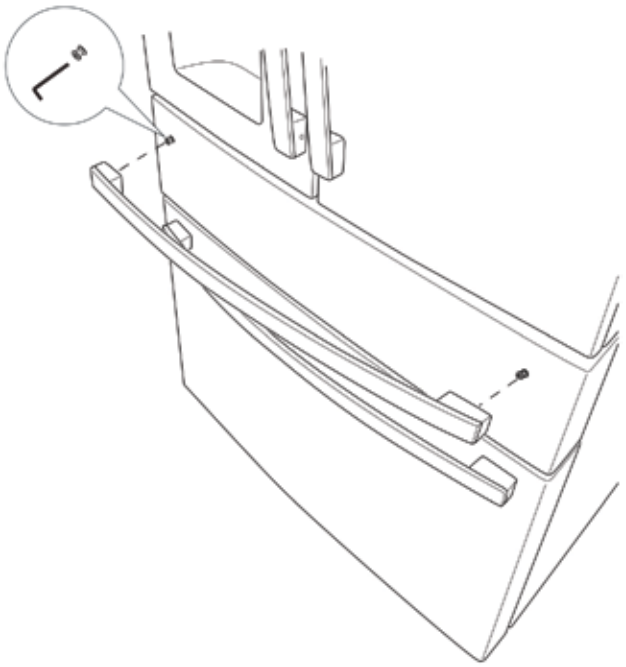
Handle Fastener Removal

1. Remove door handle.
2. Use a 3/16-in. Allen wrench to loosen the fastener.

Door Fastener



Drawer Fastener



Door and Drawer Gaskets

The doors and drawers all have magnetic gaskets (except the outer door gasket) that create a positive seal to the front of the steel cabinet. The magnetic gaskets are secured to the doors/drawer by a barbed edge that locks into a retainer channel.

Door and Drawer Gasket Removal and Replacement

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. Thoroughly dry the gasket.
4. Push the barbed edge of the gasket into the retainer channel.

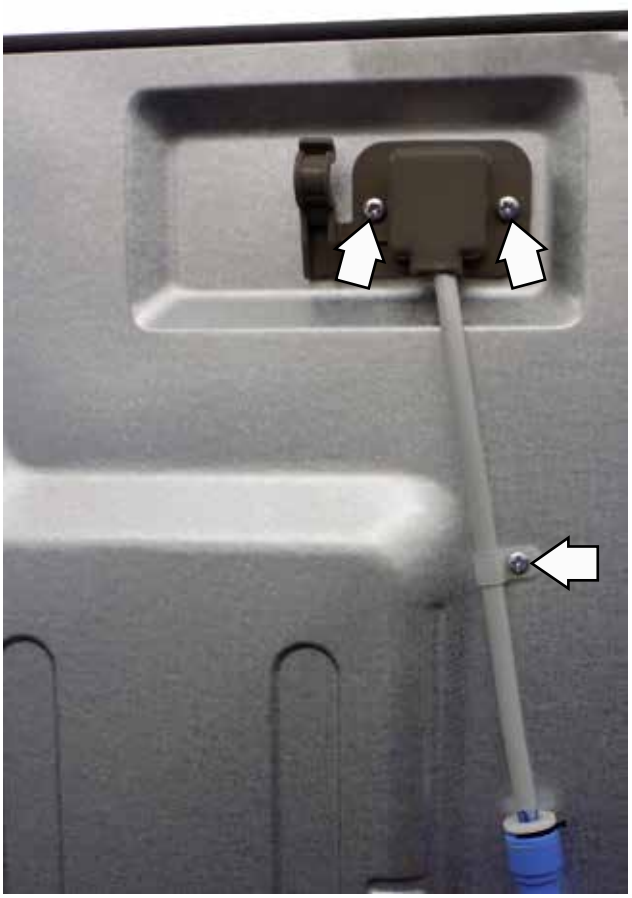
NOTE: A thin coat of petroleum jelly or paraffin wax can be applied to the hinge side of the gaskets to improve closure across the cabinet.

The refrigerator door gaskets have a left and right side. When installing a new gasket, ensure the wider ends at the top and bottom of the gasket (shown in the image to the right) are on the mullion side of the door. The outer door gasket is not the same at the frame door gasket (right door gasket).

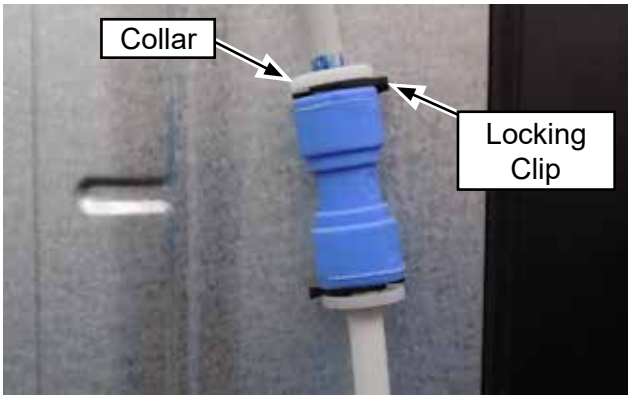
Dispenser Door

Dispenser Door Removal

1. Remove two Phillips-head screws to remove the water line cover and one Phillips-head screw from the water line clip on the rear of the appliance.



2. Remove the top plastic locking clip from the water line union.



3. Carefully push the collar in while pulling the water line out from the top of the union.

4. Remove the door bins.

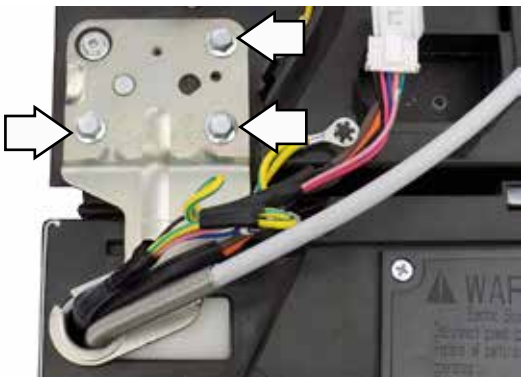
5. Remove the left door hinge cover (see **Hinge Cover** under the **Center Hinge Cover Components** section in this service guide).

6. Disconnect the AC and DC door harness connectors.

7. Remove one Phillips-head screw securing the ground wire harness to the hinge.

8. Pull the door water line from the top cabinet channel.

9. Remove three 5/16-inch hex-head screws and remove the hinge. (**Tip**: If the door is being reinstalled, just lift the hinge from the cabinet and leave the hinge inserted into the top of the door.)



NOTE: The lower door hinge pin and hinge are keyed and must be matched correctly for the door to self-close properly. For proper installation later, please follow the directions carefully.

10. Keeping the door as vertical as possible, open the door to 90 degrees+, then lift straight up from the bottom hinge.

Dispenser Door Installation

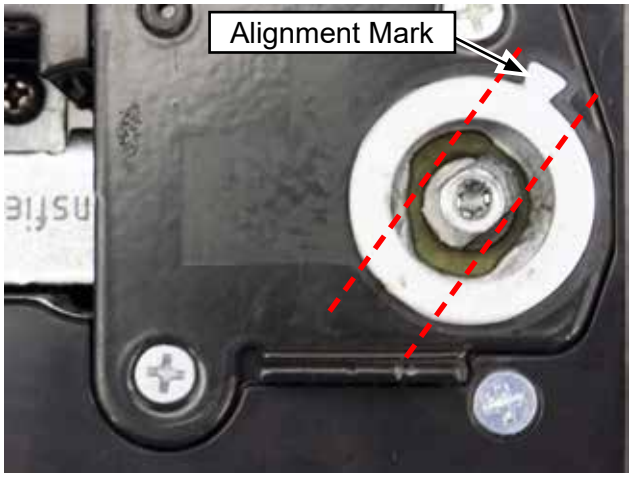
NOTE: To close correctly to the cabinet, the hinge pin must be properly aligned with the lower hinge.

1. With the left side door at 90 degrees+ to the front of the case, lower the refrigerator door onto the center hinge. Ensure that the door and hinge align correctly.
2. Rotate the door closed and make sure the pin on top of the articulating mullion engages the guide located at the top of the refrigerator compartment.
3. Install the top hinge, ground wire, and connect the wire harnesses.
4. Push the door water line through the top of the cabinet and reconnect the water line to the union.
5. Install the hinge cover.

If the door will not close after reinstalling, it will be necessary to remove and turn the door upside down, and check the alignment mark and pin. Rotate the door-closure mechanism hex-head screw to align mark and pin, and reinstall the door.

NOTE: Turn the closer pin on the door clockwise (CW).

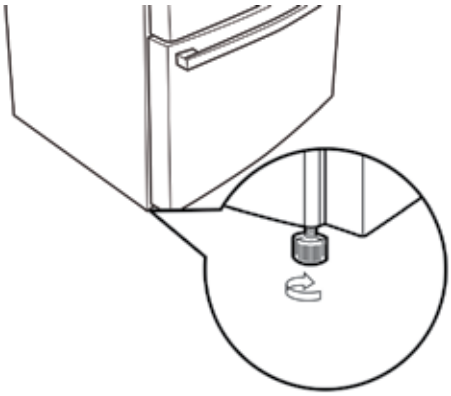
Using a 5/32-in. Allen wrench (some may be 1/4-in. hex), align the parallel flat surfaces of the hinge pin with the alignment mark on the hinge bushing of the door stop. Turn the closer pin on the door clockwise (CW).



With the pin set properly in this location, the door can now be remounted on the lower hinge with the door 90 degrees to the cabinet.

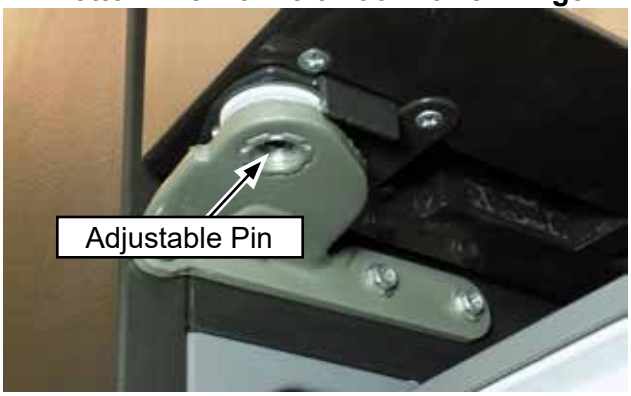
Dispenser Door Alignment

To correctly align doors, adjust front legs until they are extended to the floor. If door alignment line does not match, turn each leveling leg separately until the leveling matches across both doors.



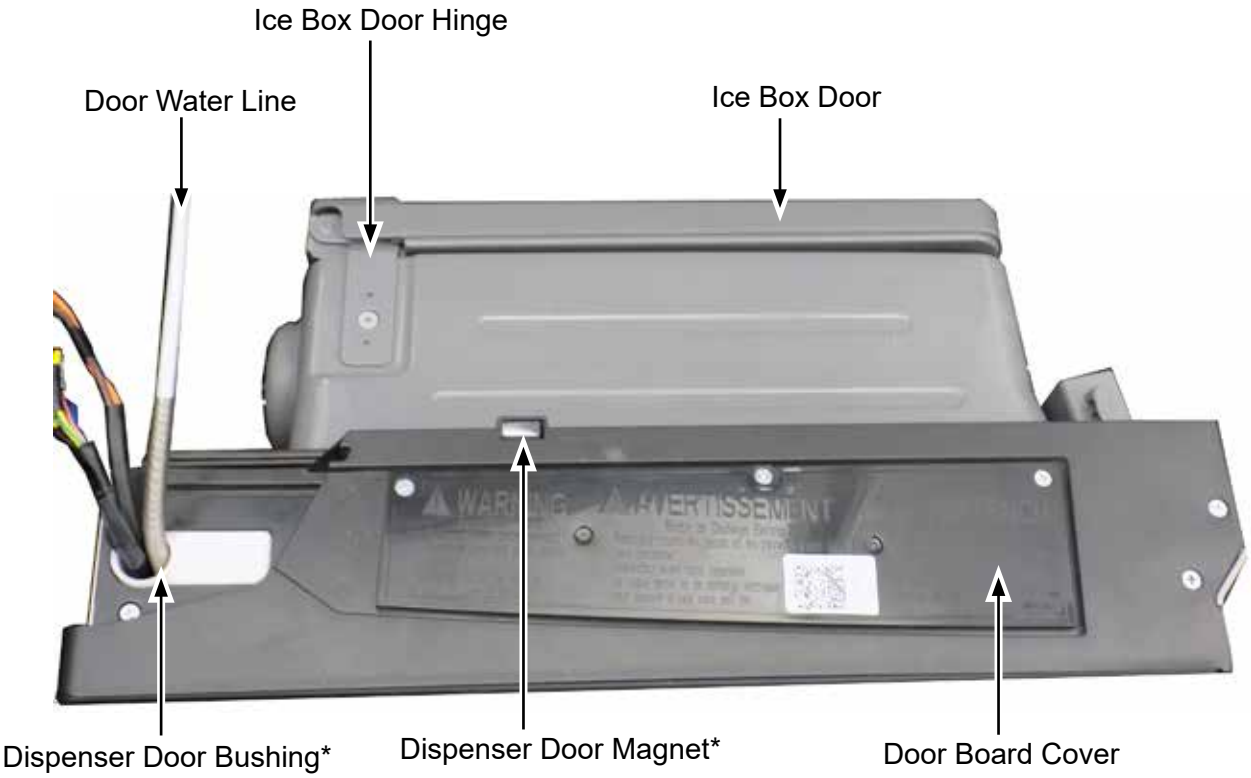
The lower door hinges, attached to the cabinet, have adjustable pins that allows leveling of the doors.

Bottom View of Left Door Lower Hinge



If the doors remain uneven after leveling the cabinet, turn the adjustable pin(s) to raise or lower either door until the doors are even. Use a 1/4-in. Allen wrench to turn the pin.

Dispenser Door Top View



*The dispenser door bushing and magnet are part of the dispenser door and cannot be replaced separately.

Door Board

The door board operates the dispenser and icemaker valves, auger motor, icemaker, fill tube heater, ice chute heater, ice box gasket heater, mullion heater, and convertible drawer LED.

Door Board Diagnosing

Door board voltages can be verified at the main control board or door board. If the white communication LED on the User Interface (UI) board is not illuminated (should be blinking), verify the board is receiving proper voltage before replacing the part.

CN1 Connector on Door Board

- Pin 11 (**red**) to pin 12 (**black**): 12.5 VDC
- Pin 11 (**red**) to pin 5 (**blue**): 12.5 VDC

CN2 Connector on Door Board

- Pin 1 (**orange**) to pin 6 (**brown**): 120 VAC

J6 Connector on Main Control Board

- Pin 3 (**red**) to pin 4 (**black**): 12.5 VDC
- Pin 3 (**red**) to pin 9 (**blue**): 12.5 VDC

Power Supply Board (CN3) and Main Control Board (J2) Connectors:

- CN3 pin 1 (**brown**) to J2 pin 5 (**blue**): 120 VAC

Door Board Removal

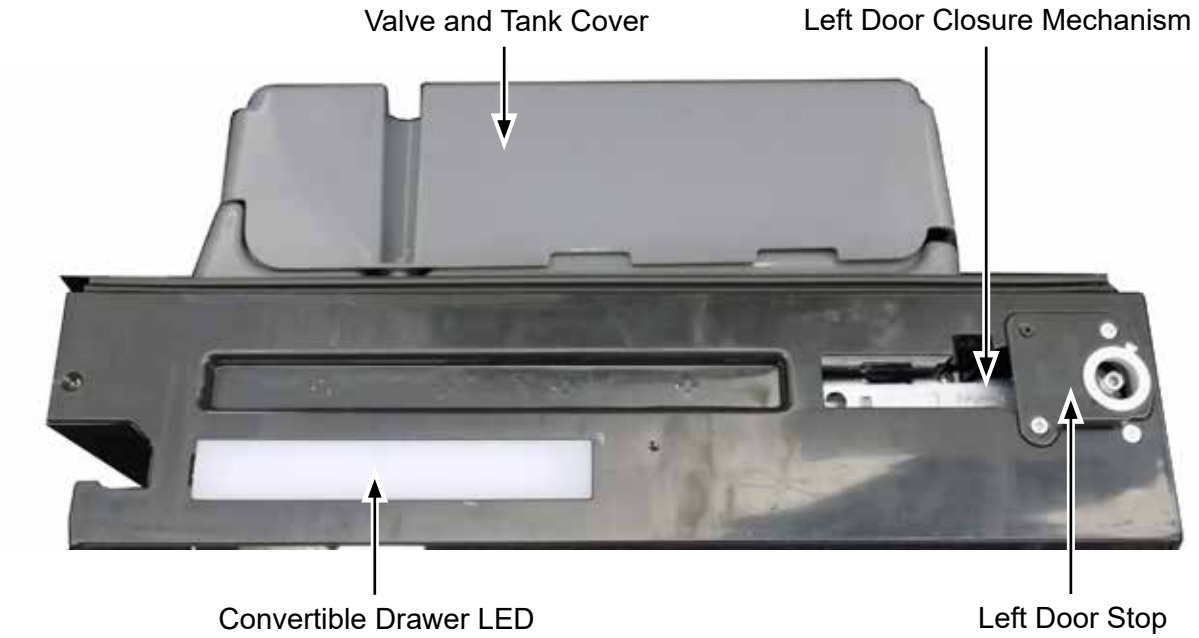
1. Remove three Phillips-head screws.

2. Tip the backside of the door board cover up, then slide the cover back to remove the cover from the front tabs of the door.

3. Tip the backside of the cover in the top recess of the door to access the door board connectors.

4. Disconnect the door board connectors.
5. Compress each of the five pins that attach the door board to the cover.

Dispenser Door Bottom View

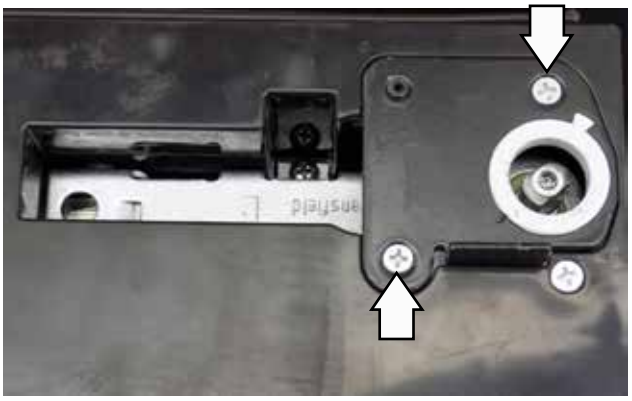


Left Door Stop

The dispenser door stop prevents the door from hitting the side of the cabinet.

Left Door Stop Removal

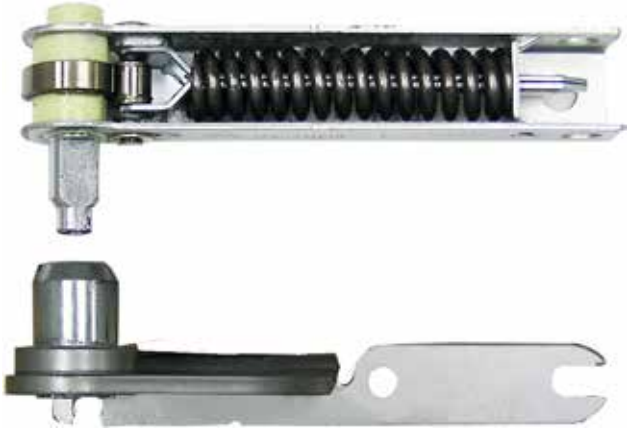
1. Remove the dispenser door.
2. Remove two Phillips-head screws.



3. Lift the door stop off the bottom of the door.

Left Door Closure Mechanism

Closure mechanisms used by the left and right doors are not the same. The left door closure mechanism has a spring loaded pin that engages the lower door hinge.



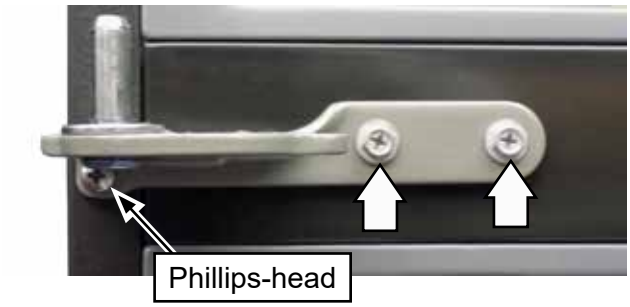
Left Door Closure Mechanism Removal

1. Remove the dispenser door.
2. Remove the door stop.
3. Remove one Phillips-head screw.

Left Door Bottom Hinge

Left Door Stop Removal

1. Remove the dispenser door.
2. Remove two 5/16-inch hex-head screw and one Phillips-head screws.

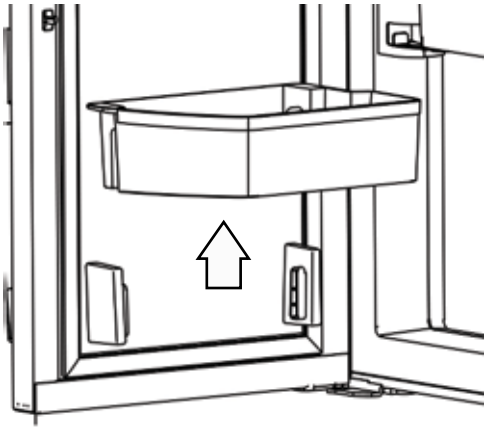


Left Door Bins

The dispenser door utilizes three bins. Each bin has a specific location on the door.

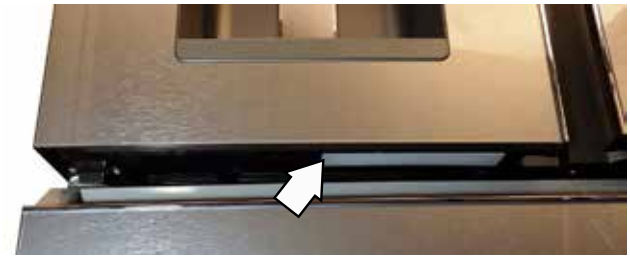
Left Door Bin Removal

- Lift up on the desired bin.



Convertible Drawer LED

The convertible drawer LED is located in the bottom of the dispenser door. The LED cover and LED are replaced together.



If either refrigerator door is open when the convertible drawer is opened, the convertible drawer LED's on the bottom of the left refrigerator door will not come on.

Convertible Drawer LED Diagnosing

Enter Service Mode (see **Service Mode** section) and select test **90** to test freezer LED operation. The LED will turn on regardless of the convertible drawer switch position.

LED Connector (with Convertible Drawer Open)

- **Gray** to **white**: 7.5 to 12.5 VDC*

CN6 on Door Board (with Convertible Drawer Open)

- Pin 1 (**gray**) to pin 3 (**white**): 7.5 to 12.5 VDC*

***NOTE**: When the convertible drawer is opened, the main board delivers 7.5 VDC to the LED board and gradually increases the voltage to 12.5 VDC for full brightness.

Convertible Drawer LED Removal

1. Open the dispenser door.
2. Use a flat-blade screw-driver to pry the right side of the LED cover down.

(Continued next page)

3. Lower the LED cover and disconnect the connector.

Dispenser Board

The dispenser board is used for temperature control and feature selection, and contains the speaker for the door alarm and button press tones. The dispenser board also has a built-in humidity sensor and ambient temperature sensor. The dispenser board provides the main board with the humidity sensor percentages and ambient temperatures.

Dispenser Board Diagnosing

Dispenser board voltages can be verified at the main board or dispenser board. If the white communication LED on the dispenser board is not illuminated (should be blinking), verify the board is receiving proper voltage before replacing the part. “nc” may appear in the in the dispenser board screen if there is no communication with the main board (check voltage to J901 pin 2). Humidity sensor percentages can only be checked though Service Mode using test 40. Ambient temperatures can only be checked though service mode using test 29.

J901 Connector on Dispenser Board

- Pin 4 (**pink**) to pin 6 (**green**): 12.5 VDC
- Pin 4 (**pink**) to pin 2 (**blue**): 12.5 VDC

J1 and J6 Connectors on Main Control Board

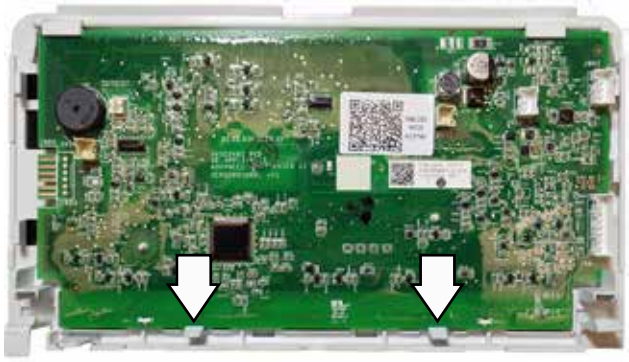
- J1 pin 2 (**red**) to J1 pin 4 (**black**): 12.5 VDC
- J6 pin 9 (**blue**) to J1 pin 4 (**black**): 12.5 VDC

Dispenser Board Removal

1. Remove one Phillips-head screw from below the dispenser board.

2. Pull two tabs on the bottom of the dispenser board to remove the board and display from the funnel bracket.

3. Disconnect the wiring connectors.
4. Push down on two tabs securing the dispenser board to the display and pull the bottom of the board away from the display.



Articulating Mullion

The articulating mullion is attached to the dispenser door, and provides a movable center mullion. With both refrigerator doors closed or only the right side door opened, the mullion stays in position. When the dispenser door is opened, the spring-loaded mullion is activated to fold against the handle side of the door liner.

The pin on top of the mullion and the track, located at the top center front of the refrigerator, ensures proper mullion bar alignment upon closure of the dispenser door.

Door Closed: Pin in Track

Door Opening: Pin Exiting Track

The articulating mullion consists of the mullion and heater. The articulating mullion is supplied as an assembly.

The heater operates on 12.5 VDC with the doors closed. Operation is based on room temperature and humidity.

Articulating Mullion Diagnosing

The resistance value of the heater is approximately 16-ohms. Voltage and resistance for the heater can be checked on the main control board. Service Mode test **86** will operate the heater.

CN6 Connector on Door Board

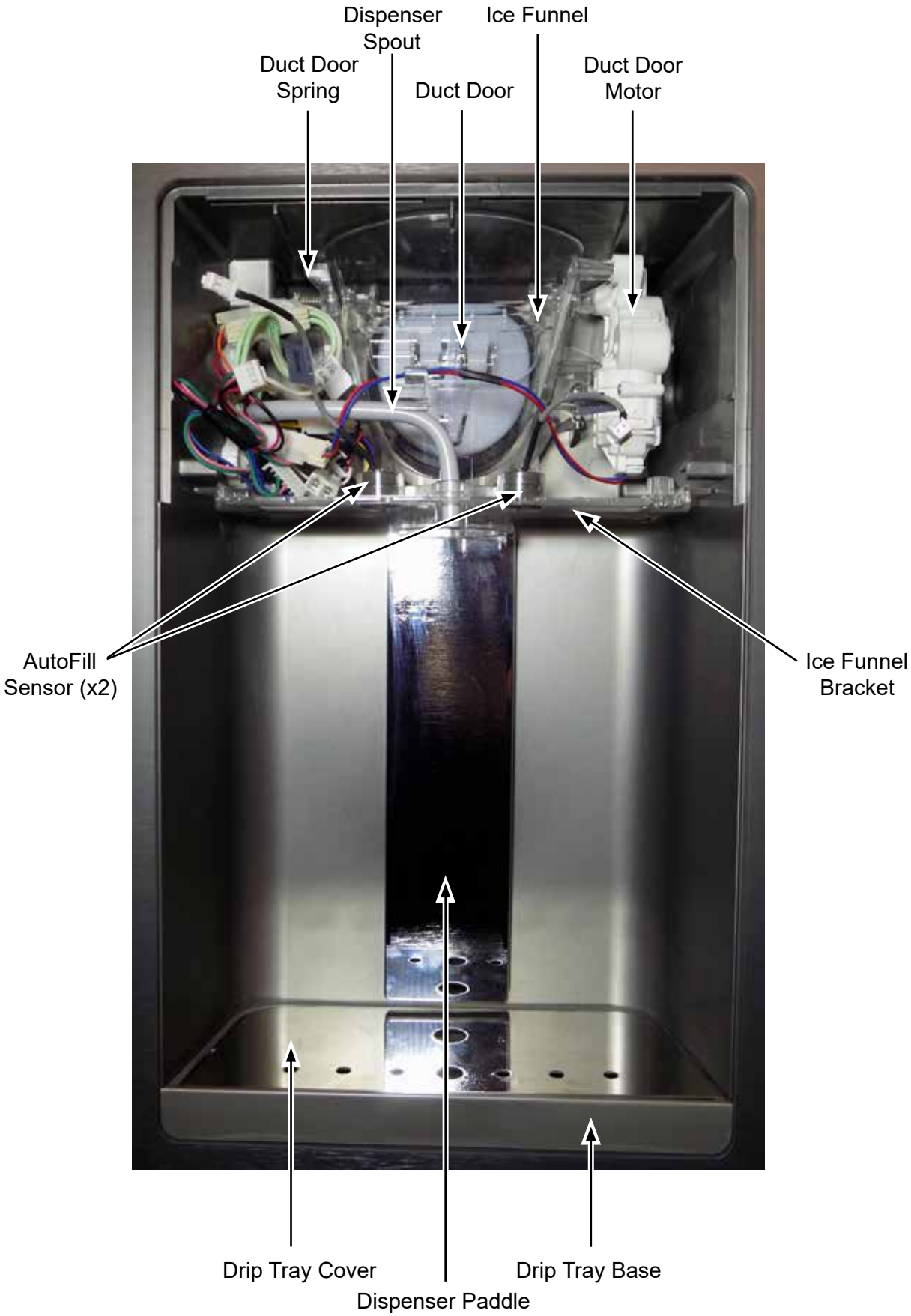
- Pin 7 (**pink**) to pin 8 (**black**): 12.5 VDC

Articulating Mullion Removal

1. Open the dispenser door and move the articulating door mullion to the door-closed position.
2. Remove the two Phillips-head screws from the wire harness cover.

3. Pull out and disconnect the wire harness found behind the wire harness cover.
4. Grasp the mullion and pull it vertically upward to release it from the top and bottom retainers.

Dispenser Recess Components



Drip Tray

The drip tray is made up of two pieces (drip tray cover and drip tray base). The drip tray sets in a recess in the dispenser door and can be easily removed for cleaning.

Drip Tray Cover Removal

- Lift the cover up and out of the tray base.

Drip Tray Base Removal

1. Remove the drip tray cover.
2. Tip the rear of the tray base up.
3. Slide the tray base out of the door recess.

Duct Door Motor

The duct door motor is a DC motor used to open and close the duct door. The motor has a resistance of 185-ohms and receives 12.5 VDC from the dispenser board when the paddle switch is activated or when the freezer drawer closes. Once the freezer temperature is below 50°F, the dispenser board will open the duct door for approximately 6 seconds after the freezer drawer closes to equalizes the pressure in the cabinet and allow the drawer to be reopened with ease. During dispense, once the paddle is releases the duct door will remain open for ~4 seconds. The duct door motor then receives -12.5 VDC briefly to close the duct door.

Duct Door Motor Diagnosing

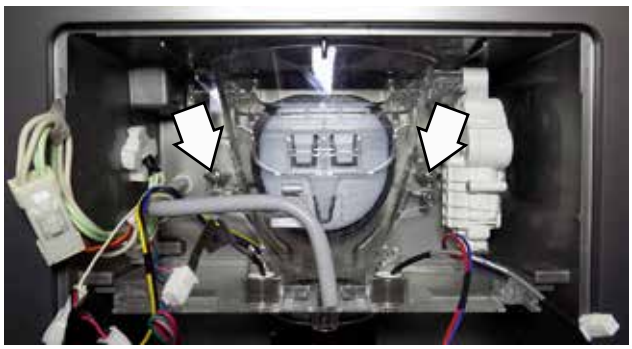
Use Service Mode test **43** can be used to check for operating voltage.

J902 Connector on Dispenser Board

- Pin 1 (**red**) to pin 2 (**black**): 12.5 VDC

Duct Door Removal

1. Remove the dispenser board.
2. Disconnect the duct door motor connector.
3. Lift the dispenser spout out of the ice funnel.
4. Remove the two Phillips-head screws to remove the ice funnel and funnel bracket from the recess.



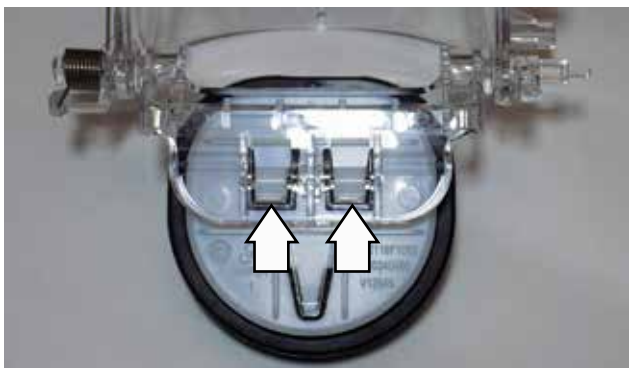
5. Remove two Phillips-head screws securing the motor to the ice funnel and pull the motor off the funnel.

Duct Door

The duct door will open to dispense ice and to act as a vacuum break (see **Duct Door Motor** section for additional information).

Duct Door Removal

1. Remove the dispenser board.
2. Remove the duct door motor.
3. Push up on two tabs and slide the duct door up and off the duct door arm.



Duct Door Spring

The duct door spring closes the duct door and keeps the door sealed tight to the chute opening.

Duct Door Spring Removal

1. Remove the dispenser board.
2. Remove the duct door motor.
3. Swing the duct door to the vertical position.

4. Push the duct door spring away from the duct door arm.

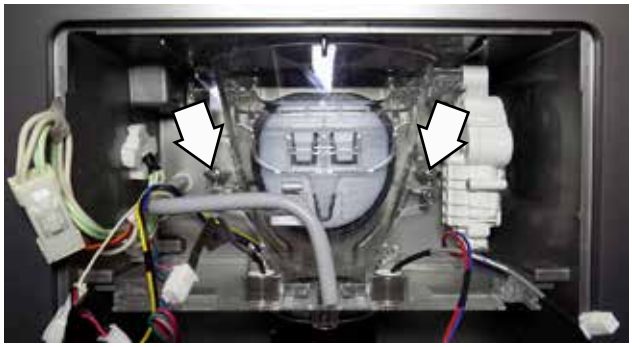
5. Pry the spring up and off the end of the duct door arm.

Ice Funnel

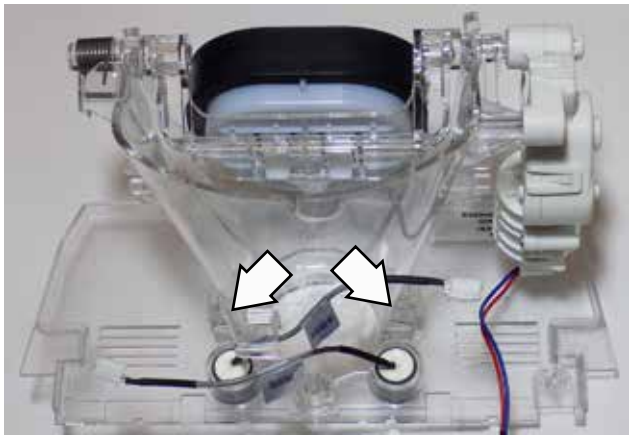
The ice funnel is connected to the ice funnel bracket. The funnel directs ice from the chute and is the mount for the duct door motor.

Ice Funnel Removal

1. Remove the dispenser board.
2. Disconnect the duct door motor connector.
3. Lift the dispenser spout out of the ice funnel.
4. Remove the two Phillips-head screws to remove the ice funnel and funnel bracket from the recess.



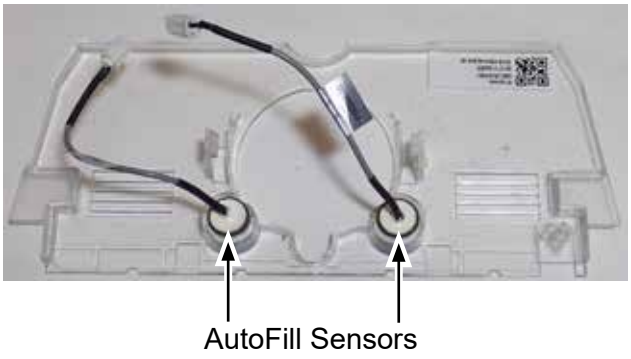
5. Release two tabs when the ice funnel and ice funnel bracket meet to separate the funnel and bracket.



6. Remove the duct door motor.

Ice Funnel Bracket

The ice funnel and AutoFill sensors mount to the ice funnel bracket. AutoFill sensors cannot be replaced separately from the bracket.



Ice Funnel Bracket Removal

- Follow Ice Funnel Removal, steps 1 through 5.

AutoFill Sensors

The AutoFill feature utilizes ultrasonic sensors to determine the fill level of a container without using the paddle during use. The sensors are located under the front of the ice funnel bracket and can only be replaced as part of the ice funnel bracket.

To use AutoFill:

1. Center the container on the drip tray and remove hand from the container.
2. Press **AutoFill**.

To Stop AutoFill:

- Press **AutoFill**.

Important Facts About AutoFill

- For optimum results, use a uniform container between 4 to 8 inches tall and 2 to 6 inches wide. Container should be as tall as the bottom sensors.
- Container shape, fill level and functionality may vary on containers taller than 8 inches.
- **AutoFill** will time out after 7 minutes.
- **AutoFill** will stop if there isn't a change in water level in 5 seconds.
- Handles and garnishes on the rim of the container my cause overfilling or variation in fill volumes.
- Splashing may occur depending on the location of the container, water flow rate, container shape, and ice cubes.
- Keep sensors clean with a clean damp cloth, and do not spray liquid or cleaners directly on sensors.
- **AutoFill** works best with household water pressure of 60 to 100 psi.
- Ice in containers may affect fill volume and it may be necessary to use less ice.

AutoFill Sensor Diagnosing

Use Service Mode test **03** can be used to check presence of a cup. If a cup is detected, "**PS**" is displayed on the dispenser board. After 3 seconds, the display will go blank if no cup has been detected.

If error message "**Not Found**" is displayed, try a different container.

If the AutoFill feature is not working correctly, try cleaning the sensors prior to replacing them.

Paddle and Paddle Switch

- The paddle switch is a 2-position switch with three wires. It has a Normally Open (N.O.) and a Normally Closed (N.C.) contact.
- Both the door board and dispenser board look for a change of state of both contacts when the paddle is depressed before the selected function is activated.
- The door board monitors one of the contacts and the dispenser board monitors the other contact.
- The paddle and switch are attached to the dispenser recess with two top pins and two bottom tabs located inside.

Paddle Switch Diagnosing

Service mode test **78** will show the status of the paddle switch (**0**: not pressed; **1**: pressed).

Switch Connector:

Switch connector is located behind the dispenser board. The switch contacts can be ohmed at the following locations.

- **Yellow** to **blue**: Open contacts / Closed during paddle press
- **Blue** to **black**: Closed contacts / Open during paddle press

J903 Connector on Dispenser Board

Ohm the switch at the below pins.

- Pin 1 (**black**) to pin 3 (**red**): Open contacts / Closed during paddle press

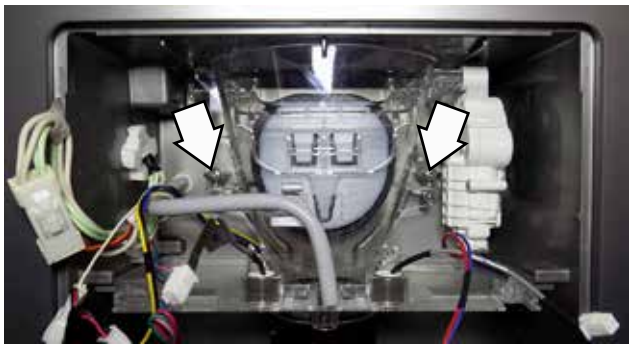
Connectors on Dispenser Board / Door Board

Ohm the switch at the below pins.

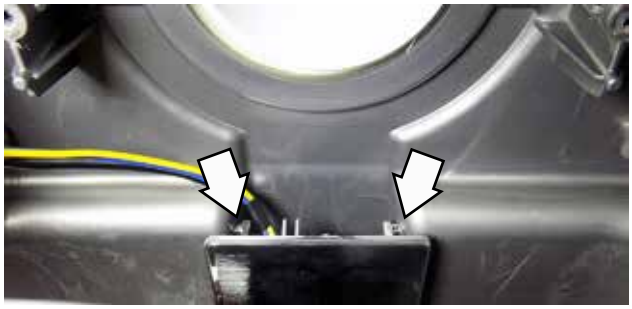
- Dispenser Board J903 pin 1 (**black**) to Door Board CN1 pin 6 (**white**): Closed contacts / Open during paddle press

Paddle and Switch Removal

1. Remove the dispenser board.
2. Disconnect the duct door motor connector.
3. Lift the dispenser spout out of the ice funnel.
4. Remove the two Phillips-head screws to remove the ice funnel and funnel bracket from the recess.

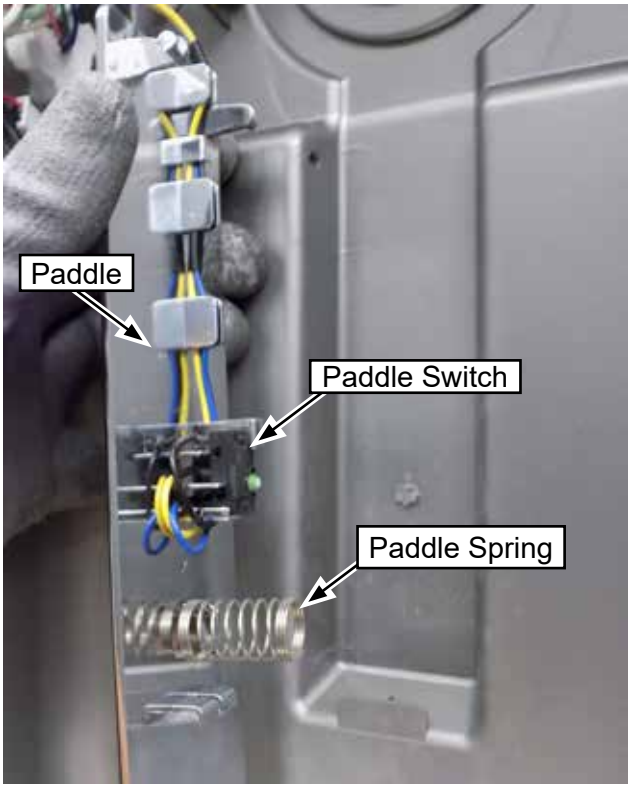


5. Using a small flat-blade screw-driver, gently pry inward and disengage each top pin from the dispenser recess and then pull the paddle up.

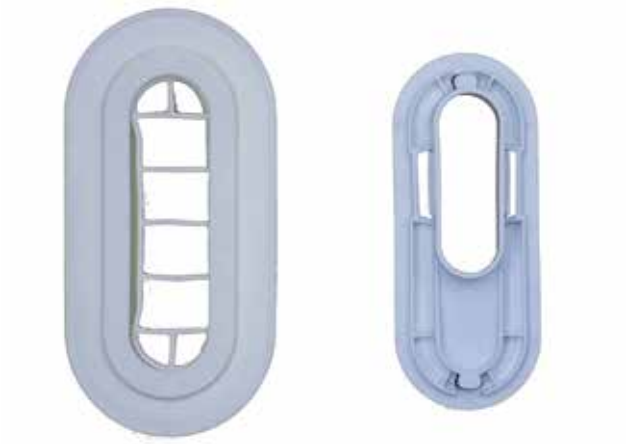


6. Tilt the top of the paddle out, then remove it from the dispenser recess.

NOTE: The paddle, spring, and switch are supplied as an assembly.



Ice Port Collar and Gaskets



Ice Port Gasket Ice Port Collar

The ice port collar and gaskets are located on the hinge side of the dispenser door. The collars attach the gaskets to the liner of the door. The gaskets seal the air inlet and air return passages of the ice box to the cabinet.

Ice Port Collar and Gasket Removal

1. Open the dispenser door.
2. Use a flat-blade screw-driver to pry the bottom of the desired collar and gasket away from the door liner.

3. Peel the gasket away off the collar.

NOTE: When installing the gasket over the collar, ensure the gasket is tucked behind the top and bottom tabs of the backside of the collar.

Ice Box Door

The ice box door assembly consists of the door, latch, and gasket. The gasket is not removable and the latch components are not available as a separate parts. Should either the gasket or latch components need to be replaced, the complete ice box door would be required.

The ice box door assembly is attached to the dispenser door with a top hinge and a lower hinge. The lower hinge point is part of the dispenser door.

Ice Box Door Removal

1. Remove the door bins from the ice box door.
2. Remove two Phillips-head screws for the top ice box door hinge.

3. Open the ice box door.
4. Lift the ice box door and top hinge off the lower ice box door hinge.

Ice Bucket

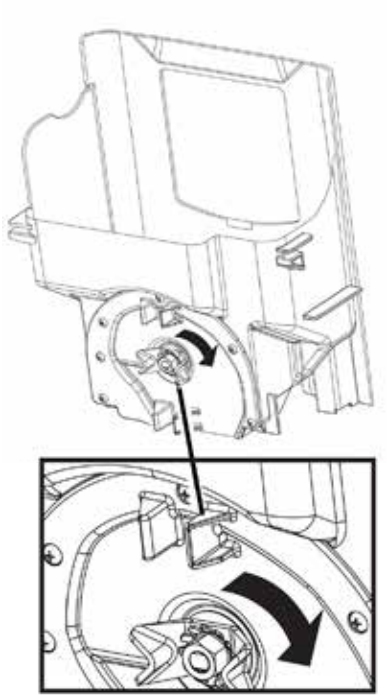
The ice bucket is capable of releasing and crushing ice depending on the directional rotation of the auger motor. The auger rotates clockwise (CW) for crushed ice, and counter-clockwise (CCW) for cubed ice dispense.

Ice Bucket Removal

1. Pull the door latch down and open the ice box door.
2. Lift and pull the bucket out of the ice box.

NOTE: Ice bucket and crusher available as an assembly.

NOTE: If the bucket cannot be reinstalled, rotate the ice bucket fork 1/4-turn clockwise (CW), then try again.



Ice Box Components

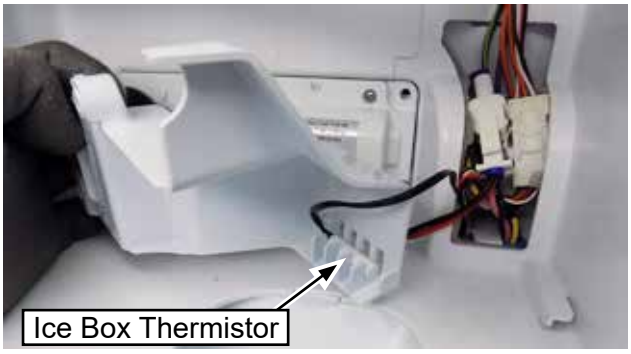
Ice Box Thermistor Cover

The ice box thermistor cover houses the ice box thermistor and connectors for the auger motor and icemaker. It is important for the thermistor to be clipped into the backside of the cover for proper ice production.

Ice Box Thermistor Cover Removal

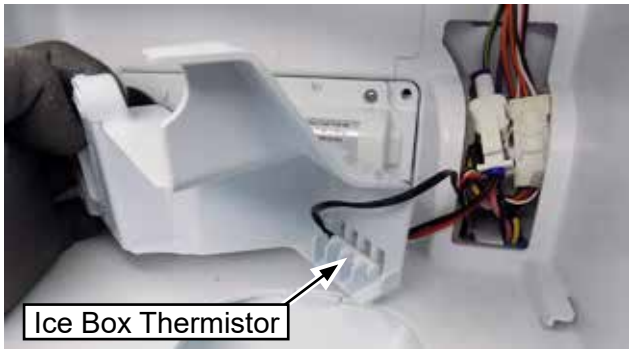
1. Remove the ice bucket.
2. Remove two Phillips-head screws.

3. Slide the cover away from the back of the ice box.
4. Unclip the thermistor from the backside of the cover.



Ice Box Thermistor

The ice box thermistor is clipped to the backside of the ice box thermistor cover.



The door board uses the thermistor to monitor the ice box temperature and report that temperature back to the main control board. The main board uses the thermistor reading to operate the ice box fan.

This thermistor does not have a connector to disconnect the thermistor from the liner. Follow **Ice Box Thermistor Replacement** steps to replace the thermistor.

Ice Box Thermistor Diagnosing

To accurately test the thermistor, place the thermistor in a glass of ice and water (approximately 33°F) for several minutes and check for approximately 6.5k ohms. Thermistor values chart is listed on the following page. Service Mode test **37** will display the thermistor temperature.

CN4 connector on Door Board

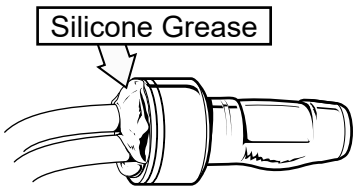
- Pin 3 (**black**) to pin 4 (**black**): 5 VDC
- Pin 3 (**black**) to pin 4 (**black**): (see chart on the next page) Ω

(Continued next page)

Ice Box Thermistor Values		
Temperature Degrees (°F)	**Temperature Degrees (°C)**	**Resistance in k-Ohms**
-13	-25	25.3 kΩ
-4	-20	18.9 kΩ
5	-15	14.3 kΩ
14	-10	10.9 kΩ
23	-5	8.3 kΩ
32	0	6.4 kΩ
41	5	5 kΩ
50	10	3.9 kΩ
59	15	3.1 kΩ
68	20	2.5 kΩ
77	25	2 kΩ
86	30	1.6 kΩ
95	35	1.3 kΩ
104	40	1.1 kΩ

Ice Box Thermistor Replacement

1. Remove the thermistor from the plastic clip.
2. Cut the thermistor wiring as close to the thermistor as possible.
3. Strip the outer insulation from the thermistor case harness back 1-inch. Strip the two internal wires back 3/16-inch for splicing.
4. Prepare the replacement thermistor by cutting the wiring 4 inches back from the thermistor and strip the wires back 3/16-inch.
5. Using two bell connectors (**Part #**: WR01X10466), splice the wiring. After the splices are complete, fill the bell connectors fully with silicone grease (**Part #**: WR97X163).



6. Snap the thermistor back into the plastic clip.

NOTE: It is important for the thermistor to be clipped into the backside of the cover for proper ice production.

Icemaker

The icemaker will produce seven cubes per cycle, or approximately 112 to 140 cubes in a 12-hour period, depending on the freezer compartment temperature, room temperature, number of door/drawer openings and other use conditions.

The icemaker will fill with water when it cools to 15°F (-10°C). A newly installed refrigerator may take 12 to 24 hours to begin making ice cubes.

If the refrigerator is operated before the water line connection is made to the unit, or if the water supply to an operating refrigerator is turned off, make sure that the icemaker is turned off. Once the water has been connected to the refrigerator, the icemaker may be turned on.

Throw away the first few batches of ice to allow the water line to clear.

Be sure nothing interferes with the sweep of the feeler arm.

When the bin fills to the level of the feeler arm, the ice maker will stop producing ice.

What is Normal:

- If ice is not used frequently, old ice cubes will become cloudy, taste stale and shrink.
- For several cubes to be joined together.
- To hear a buzzing sound each time the icemaker fills with water.

The icemaker is controlled by the door board. The board inside the icemaker does NOT control operation.

The door board will monitor the icemaker mold thermistor, rake and feeler arm sensors to operate the rake motor, heater and water valve.

The icemaker thermistor has a negative coefficient; an increase in temperature will cause a decrease in resistance.

Icemaker Sequence

The normal icemaker sequence is to fill the mold with water, wait until the water is frozen, harvest the ice, and then repeat the cycle.

To accomplish this sequence, three cycles are defined: **Freeze**, **Harvest** and **Water Fill**.

Freeze:	The Freeze cycle begins after a fill. Once the mold temperature drops below 32°F, the minimum time is 30-min. The mold temperature must also be below 19°F. Typical cycle time (including the harvest) is 37 to 42-min. **NOTE**: If the feeler arm reads the bucket as full, no Harvest will be initiated.
Harvest:	At the start of the Harvest cycle, the heater will turn on for a minimum of 30sec. After the 30sec, the rake motor begins to turn and a target temperature of 50°F is set. If needed, once 50°F has been reached, the heater turns off and allows the mold to cool to 32°F before turning back on. Once the rake motor has completed one full rotation, Water Fill is initiated.
Water Fill:	When the rake motor is back at the home position, Water Fill is initiated. The icemaker fills to 2.1oz (based on flow meter reading). After fill, the ice maker goes back to Freeze state.

The average time from fill to fill is 37 to 42 minutes.

Icemaker Diagnosing

Use Service Mode test **99** to cycle icemaker. Test **99** can be performed with the left door open to monitor the icemaker operation.

The service test will consist of a harvest cycle followed by a water fill cycle.

The harvest cycle will be entered immediately, regardless of mold temperature or feeler arm position.

The mold heater will be turned on for a minimum of 30 seconds.

At the end of the harvest cycle, a normal water fill cycle will be initiated.

After the water fill cycle, the icemaker will enter the freeze cycle.

During the service diagnostic test, the feeler arm position sensor and motor position sensor are tested by the door board software. The motor and water valves are energized and can be visually observed for diagnostic purposes.

Under normal operating conditions, the icemaker is capable of producing approximately 112 to 140 cubes (approximately 5 pounds of ice) in a 12-hour period. The rate of ice production depends on freezer and ice box compartment temperature, room temperature, number of door/drawer openings, and other use conditions.

Icemaker Mold Heater

The mold heater has a resistance of 110-ohms and receives 120 VAC from the door board to operate. Voltage and resistance for the heater can be checked on the door board. Service Mode test **97** will operate the heater. The test will operate the heater and the display will show the mold thermistor temperature.

CN2 Connector on the Door Board:

- Pin 1 (**orange**) to pin 3 (**blue**): 120 VAC

Icemaker Rake Motor

The door board operates the 2k ohm rake motor using 120 VAC. The icemaker delivers a 5 VDC signal to the door board when the rake is not in the home position. Service mode test **76** will operate the motor allowing both voltages to be checked.

(Continued next page)

Door Board Connectors

- CN2 pin 2 (**purple**) to CN2 pin 1 (**orange**): 120 VAC
- CN1 pin 7 (**black**) to CN1 pin 9 (**orange**): 5 VDC

Icemaker Mold Thermistor

The thermistor is used to progress the icemaker through the three stages of the icemaker sequence. The thermistor can be checked at the door board or by using service mode test **36**. The thermistor is part of the icemaker and cannot be replaced separately.

CN4 Connector on the Door Board

- Pin 1 (**red**) to pin 2 (**white**): (follow chart)

Temperature Degrees (°F)	Temperature Degrees (°C)	Resistance in Kilo-Ohms
-40	-40	204.7 kΩ
-4	-20	71.02 kΩ
14	-10	43.67 kΩ
32	0	27.7 kΩ
50	10	18.07 kΩ
68	20	12.11 kΩ
86	30	8.301 kΩ
140	60	3.011 kΩ

Icemaker Arm

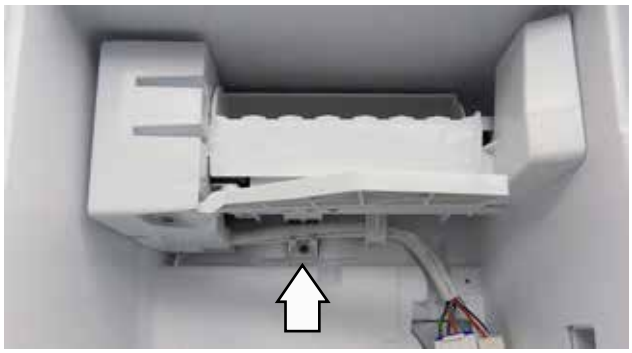
The icemaker delivers a 5 VDC signal to the door board when the arm is in (indicating the icebox is full). Service Mode test **77** will provide the status of the arm (0 is displayed when the arm is out indicating the bucket is not full and 1 is displayed when the arm is in indicating the bucket is full). Service mode test **76** will operate the rake motor and arm. The icemaker arm is part of the icemaker and cannot be replaced separately.

CN1 Connector on the Door Board

- Pin 7 (**black**) to pin 8 (**brown**): 5 VDC

Icemaker Removal

1. Remove the ice bucket.
2. Remove the ice box thermistor cover.
3. Disconnect the icemaker wire harnesses.
4. Remove the bottom center Phillips-head screw that attaches the icemaker to the ice box.



5. Lift and remove the icemaker.

Fill Tube / Fill Tube Heater

The icemaker fill tube and fill tube heater are foamed into the dispenser door. The fill tube heater can be checked at the door board or by using Service Mode test **84**.

The fill tube heater will always be energized unless one of the following conditions exist:

- Ice is being dispensed.
- Duct door motor is energized.
- Cooling is turned off.
- Appliance is in demo mode.

Fill Tube Heater Diagnosing

The fill tube heater has a resistance of 270-ohms. Voltage for the heater can be checked at the door board.

Door Board CN6 Connector

- Pin 4 (**orange**) to pin 6 (**red**): 12.5 VDC

Auger Motor

The auger is rotated by utilizing a DC reversible motor that is located in the ice box of the dispenser door. As shown below, the coupling rotates clockwise (CW) for crushed ice, and counter-clockwise (CCW) for cubed ice.

Auger Motor Diagnosing

The auger motor has a resistance of 125-ohms. Voltage for the motor can be checked at the door board and at the auger motor.

Door Board CN5 Connector

- Pin 1 (**black**) to pin 2 (**pink**): 120 VDC

Auger Motor Connector

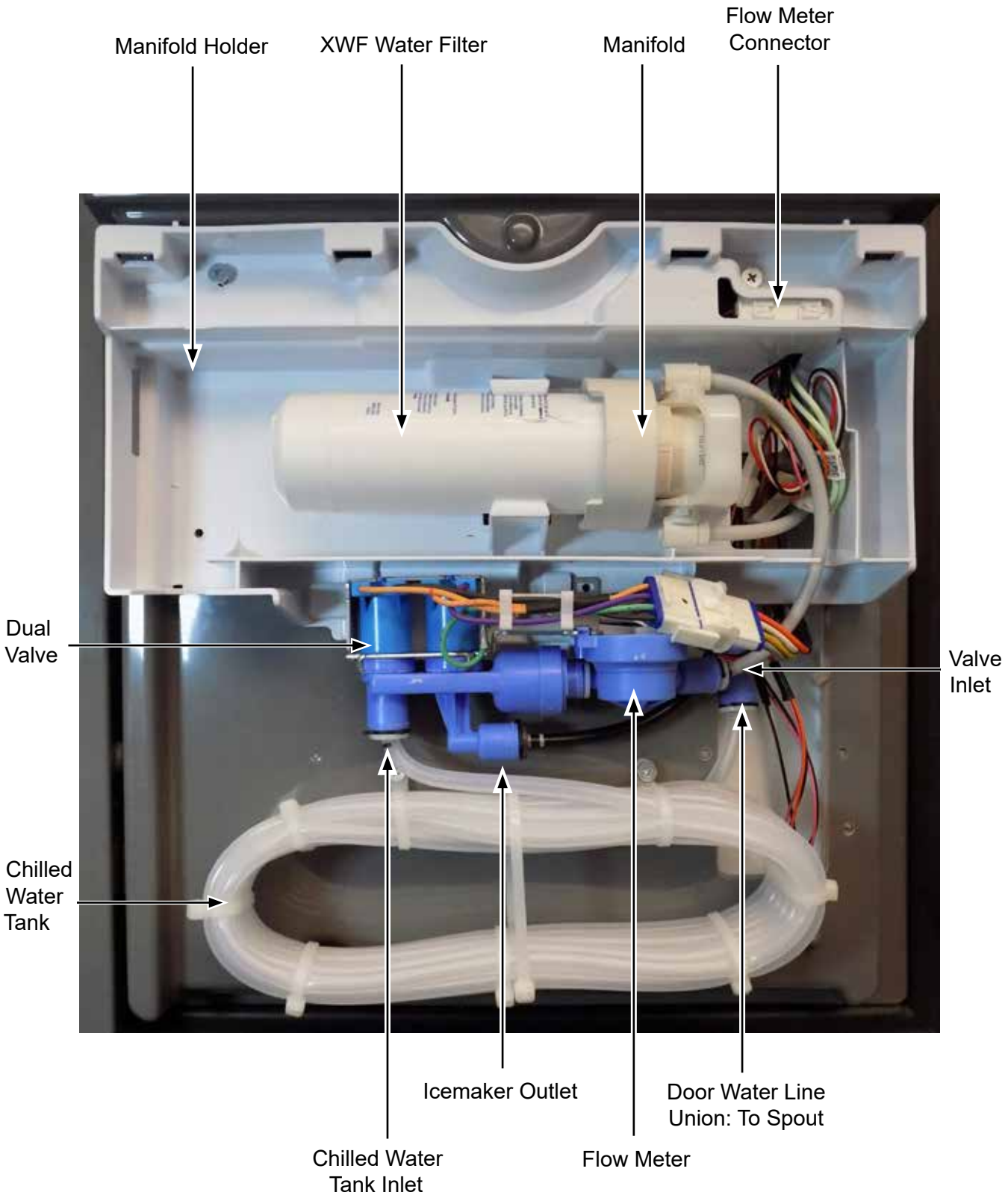
- **Red** to **black**: 120 VDC

Auger Motor Removal

1. Remove the ice bucket.
2. Remove the ice box thermistor cover.
3. Remove one Phillips-head screw.

4. Disconnect the auger motor wire harness.

Water Components: Inner Door



XWF Water Filter

The water filter cartridge is located in the dispenser door behind the rectangular access panel.

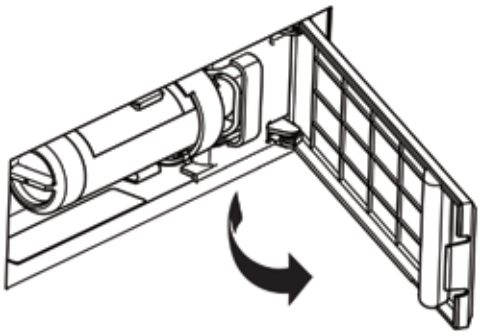
The **Replace Water Filter** message on the control panel will illuminate when the water filter needs to be replaced soon. The **Water Filter Expired** message will illuminate when the water filter needs to be replaced. The message should illuminate after 6 months, or after 170-gallons have been dispensed.

The main board calculates water usage based on feedback from the flow meter. The water filter can be replaced earlier if the flow of water to the dispenser or icemaker decreases. Once either message is illuminated, dispensing water will show **Confirm Filter Change**; do not confirm until the water filter is replaced.

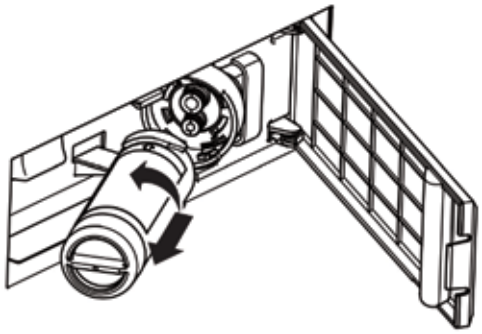
A bypass plug is available for testing purposes. The bypass plug may be used in place of the water filter should the consumer have a whole house filtration system or prefer not to use the filter. The bypass plug will not come with the appliance and will need to be ordered.

XWF Water Filter Removal

1. Open the water filter door.
2. Swing the filter out towards the now open filter door.



3. Slowly turn the filter a quarter turn to the left to release the filter from the manifold and pull the filter out of the manifold.



NOTE: Remove the water filter to immediately stop any water leak from the Icemaker/Dispenser system. The water filter manifold acts as a cut-off valve when the filter is removed and will prevent further leaking.

XWF Water Filter Installation

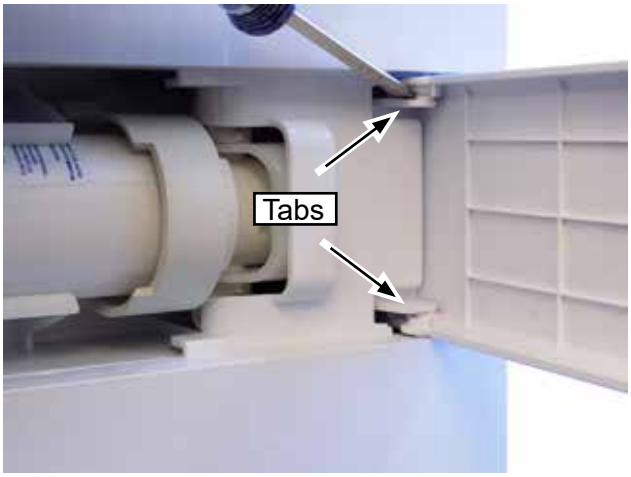
1. Line up the ports on the filter with the ports on the filter cartridge holder, and gently insert the filter.
2. Slowly turn the filter to the right until it stops. DO NOT OVERTIGHTEN. As the filter is turned, it will automatically adjust itself into position. The filter will move about a 1/4 turn or 90 degrees, until the filter cannot be turned, and the label faces outward.
3. Slowly push the filter up into the clips.
4. Close the filter door by gently pushing the door closed until the tabs lock into place.
5. Run water from the dispenser for 2 gallons or approximately 5 minutes to clear the system. Water may spurt out and air bubbles may be visible during this process. If water is not flowing, check to make sure the filter has been fully rotated to the right.
6. When dispensing water, press the button underneath the **Confirm Filter Change** message.

Water Filter Door

The water filter door swings out to provide access to the water filter compartment.

Water Filter Door Removal

1. Open the water filter door.
2. Use a flat-blade screw-driver to pry the upper or lower tab of the valve and tank cover free from the filter door.

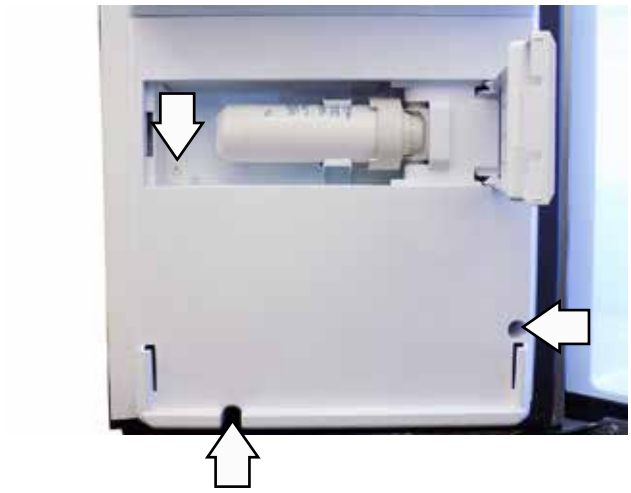


Valve and Tank Cover

The water filter door swings out to provide access to the water filter compartment.

Valve and Tank Cover Removal

1. Remove the bottom door bin.
2. Open the water filter door.
3. Remove three Phillips-head screws.



4. Tilt the bottom of the cover away from the door and pull down.

Dual Water Valve and Flow Meter

The dual water valve is located inside the dispenser door. The water valve supplies water to the icemaker and dispenser. Each coil on the water valve has an approximate resistance value of 390-ohms. The flow meter is also connected to the inlet side of the dual valve, although it cannot be replaced separately from the dual valve.

Icemaker Water Valve Diagnosing

Valve operation can be verified using service mode test **65**. While in the test, check for voltage at the 4-pin connector of the valve or at the door board.

CN2 Connector on Door Board

- Pin 4 (**white**) to pin 1 (**orange**): 120 VAC
- Pin 4 (**white**) to pin 1 (**orange**): .39 kΩ

Dispenser Water Valve Diagnosing

Valve operation can be verified using Service Mode test **68**. While in the test check for voltage at the 4-pin connector of the valve or at the door board.

CN2 Connector on Door Board

- Pin 5 (**gray**) to pin 1 (**orange**): 120 VAC
- Pin 5 (**gray**) to pin 1 (**orange**): .39 kΩ

Flow Meter Diagnosing

Valve operation can be verified using Service Mode test **42**. While in the test check for voltage at the 4-pin connector of the flow meter or at the door board. The door provides the flow meter with 5 VDC and the flow meter returns signal voltage that represents the flow rate being dispensed.

CN1 Connector on Door Board

- Pin 7 (**black**) to pin 1 (**pink**): 5 VDC
- Pin 7 (**black**) to pin 4 (**orange**): 0 to 5 VDC*

*Voltage will vary depending on flow rate during dispense.

- Pin 7 (**black**) to pin 1 (**pink**): 17.6 kΩ
- Pin 7 (**black**) to pin 4 (**orange**): 18.6 kΩ

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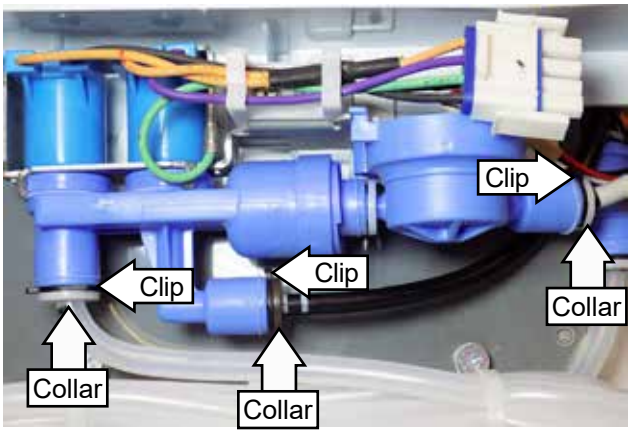
Dual Water Valve and Flow Meter Removal

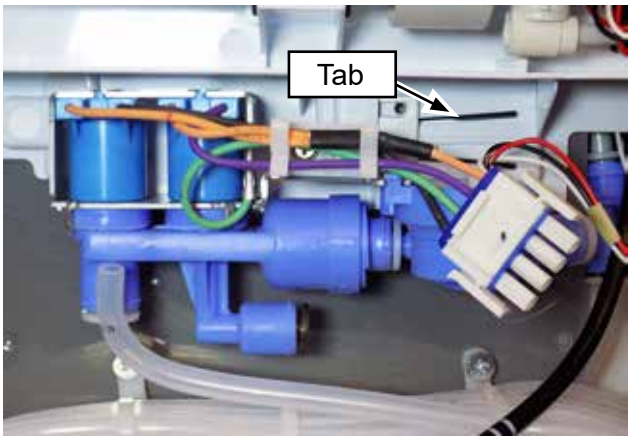
1. Remove the valve and tank cover.
2. Disconnect the dual valve 4-pin connector.
3. Push the plastic locking clips off the water valve couplings.



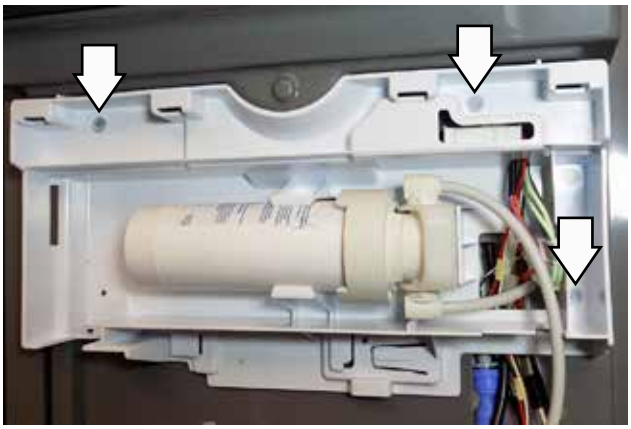
4. Push the collars in while pulling the water lines out from the couplings (example shown above).

NOTE: Locking clips must be reinstalled to prevent leaks. After the water line is removed from the connector, the locking clip can be reinstalled on the connector. The water line can then be inserted with the clip in place.

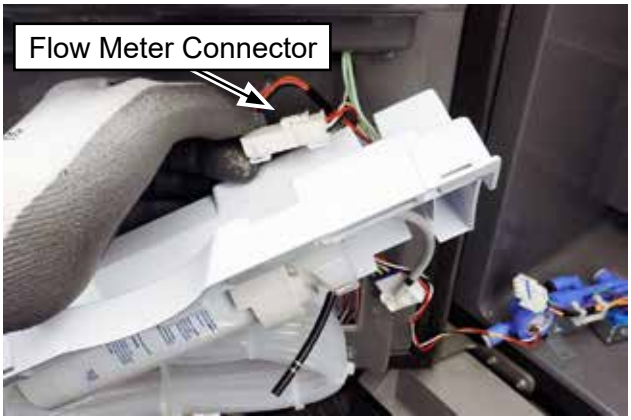
5. Push in the tab to the right of the water valve bracket, slide the valve assembly to the right, and remove the valve from the manifold holder.



6. Set the dual valve and flow meter on the floor of the refrigerator liner to proceed to the next steps for disconnecting the flow meter connector.
7. Remove three Phillips-head screws for the manifold holder.



8. Tip the manifold holder down to access the flow meter connector and disconnect the connector.

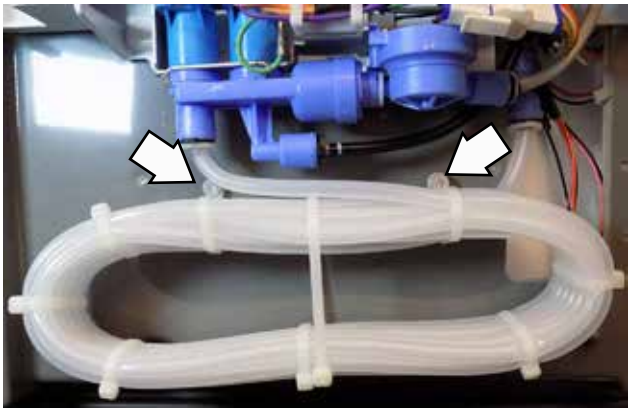


Chilled Water Tank

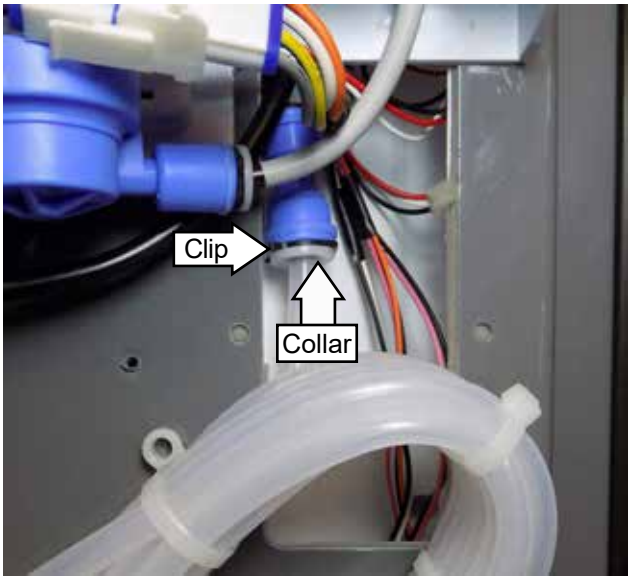
The coil style water tank is located inside the dispenser door, behind the tank and valve tray.

Chilled Water Tank Removal

1. Remove the bottom dispenser door bin.
2. Remove the valve and tank cover.
3. Remove two Phillips-head screws securing the tank to the door.



4. Remove the locking clip off the water valve outlet to the tank.
5. Push in the collar from the water valve outlet going to the tank while pulling the line out of the valve.
6. Remove the locking clip off the door water line union.



7. Push the collars in while pulling the water lines out from the couplings (example shown above).

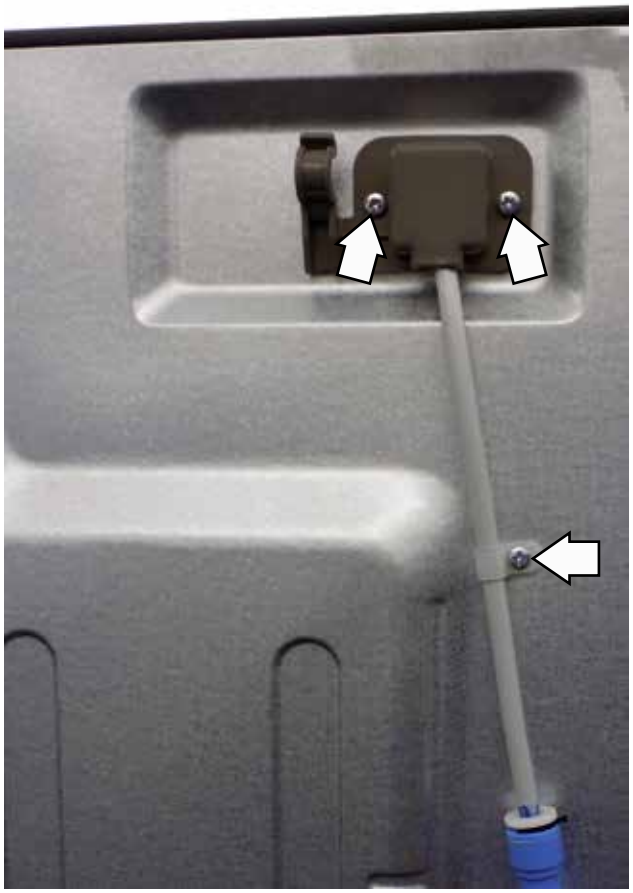
NOTE: Lock clips must be reinstalled to prevent leaks. After the water line is removed from the connector, the lock clip can be reinstalled on the connector. The water line can then be inserted with the clip in place.

Filter Manifold

The filter manifold connects the filter to the tubing coming from the isolation valve to the inlet of the flow meter on the dual valve assembly.

Filter Manifold Removal

1. Remove two Phillips-head screws to remove the water line cover and one Phillips-head screw from the water line clip on the rear of the appliance.



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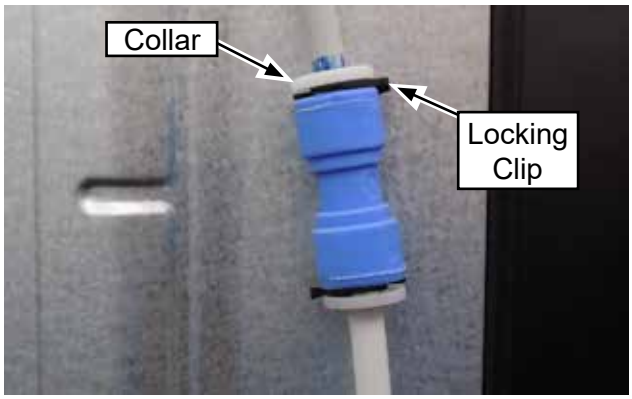
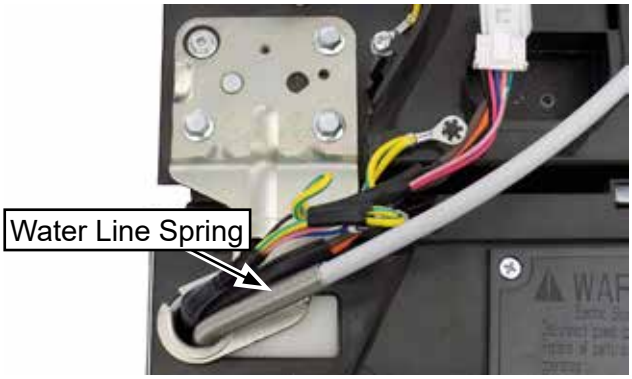
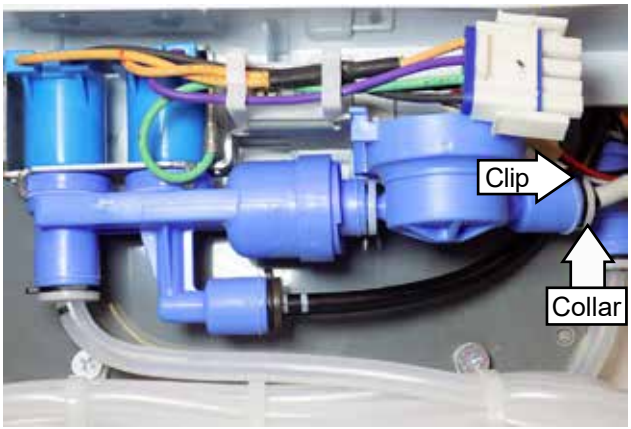
2. Remove the top plastic locking clip from the water line union.



3. Carefully push the collar in while pulling the water line out from the top of the union.
4. Remove the left hinge cover.
5. Pull the water line out of the top of the cabinet.
6. Slide the water line spring off the water line.



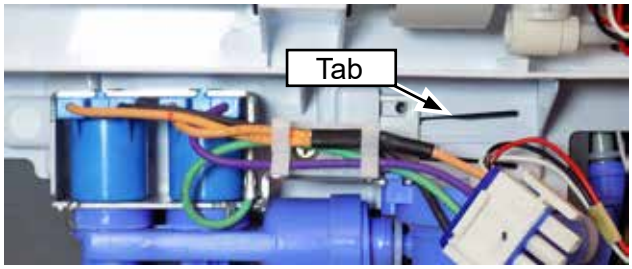
7. Remove the bottom dispenser door bin.
8. Remove the valve and tank cover.
9. Remove the water filter.
10. Remove the locking clip off the flow meter inlet.



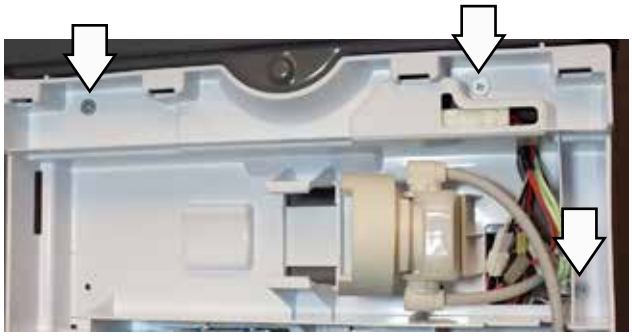
11. Push in the collar from the flow meter inlet while pulling the line out of the valve (shown above).

NOTE: Lock clips must be reinstalled to prevent leaks. After the water line is removed from the connector, the lock clip can be reinstalled on the connector. The water line can then be inserted with the clip in place.

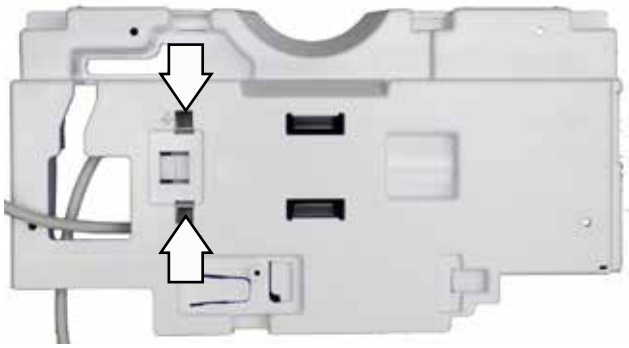
12. Push in the tab to the right of the right water valve bracket, slide the valve assembly to the right, and remove the valve from the manifold holder. It is not necessary to disconnect the harness or water lines from the valve.



13. Remove three Phillips-head screws from the manifold holder.



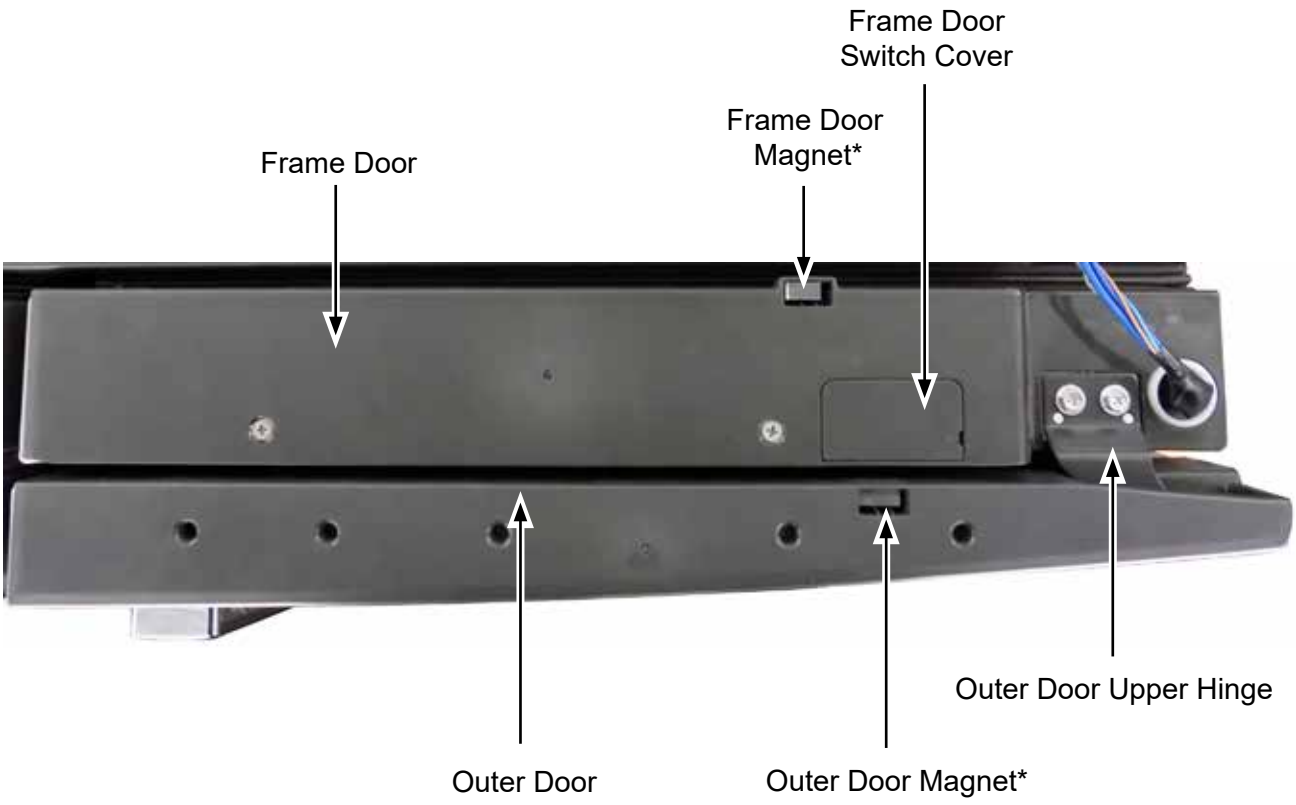
14. Pull the manifold holder down and pull the manifold inlet line out of the door.
15. Release two tabs on the backside of the manifold holder to remove the manifold.



Door-In-Door

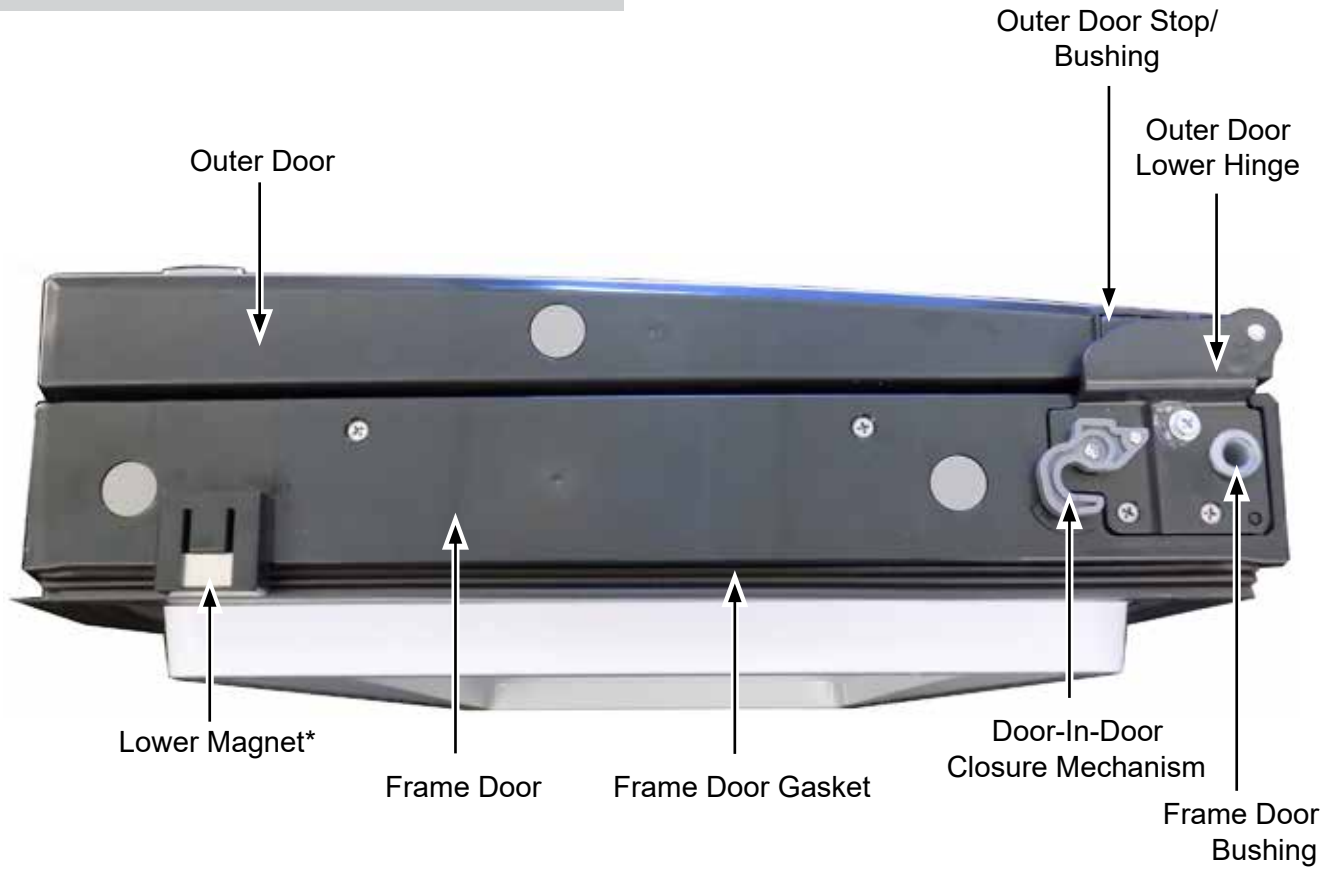

Outer Door
Outer Door Magnet
Frame Door
Dairy Bin
Frame Door Gasket
Magnetic Catch
Latch
Swivel Bin
Latch Handle
Outer Door Gasket
Stainless Steel Panel
Outer Door Bin
Lower Magnet

Door-In-Door Top View



*Magnets are part of the frame door and outer door assemblies and cannot be replaced separately.

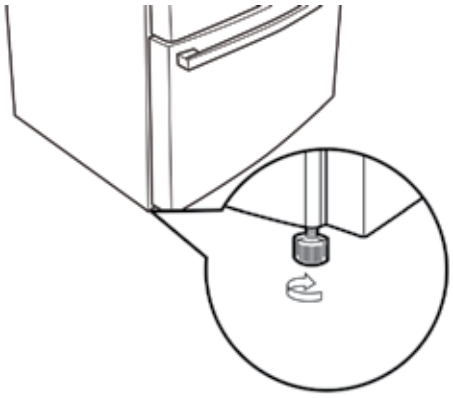
Door-In-Door Bottom View



*Lower magnet is part of the frame door and cannot be replaced separately.

Door-In-Door Alignment

To correctly align doors, adjust front legs until they are extended to the floor. If the top of the doors do not align up, turn each leveling leg separately until the leveling matches across both doors.



The frame door lower hinge bracket, attached to the cabinet, has an adjustable pin that allows leveling of the door.

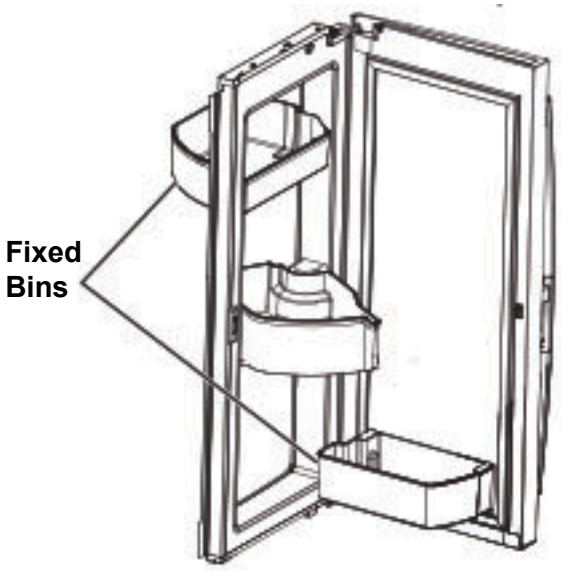
NOTE: The outer door cannot be raised or lowered by itself, the outer door and frame door must be raised or lowered together.

Bottom view of frame door lower hinge

If the doors remain uneven, turn the adjustable pin to raise or lower the door-in-door to match the left door. If the doors still do not align, adjust the pin in the dispenser door hinge. See **Dispenser Door Alignment**, in the **Dispenser Door** section of this service guide. Use a 1/4-in. Allen wrench to turn the pin.

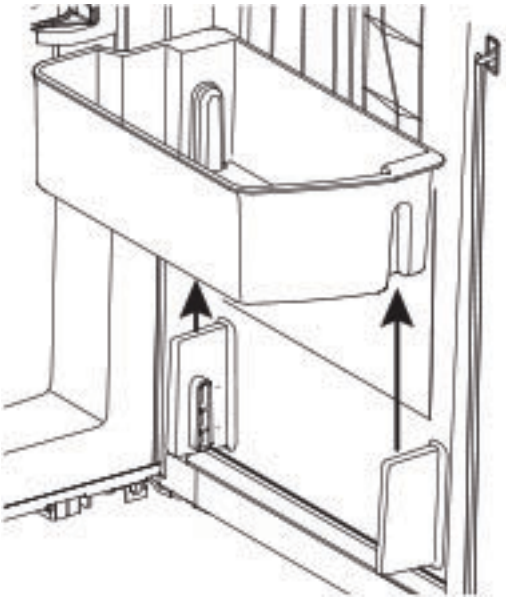
Door-In-Door Fixed Bins

The Door-In-Door has two fixed bins. One bin is attached to the outer door and the other is attached to the frame door.



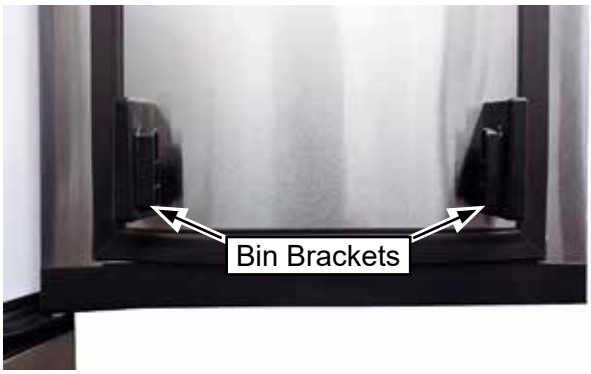
Door-in-Door Fixed Bin Removal

- Lift the bin straight up.



Outer Door Bin Bracket

The lower fixed bin connects to the outer door by two brackets that mount to the outer door. The bin brackets can be replaced separately from the outer door.



Outer Door Bin Bracket Removal

1. Remove the lower door in door bin.
2. Remove one Phillips-head screw.

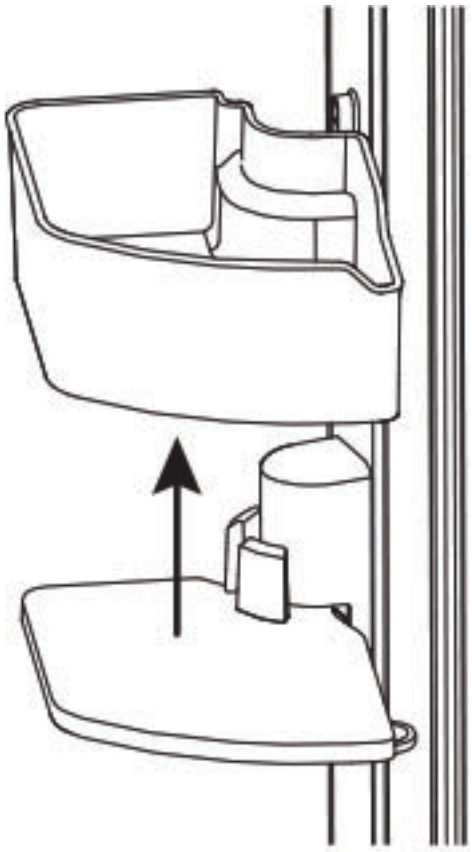
3. Lift the bin bracket up then pull the bracket away from the inside of the outer door.

Swivel Bin

The Door-In-Door has one swivel bin in the middle of the door. The bin rests on the swivel bin base which attaches to the frame door.

Swivel Bin Removal

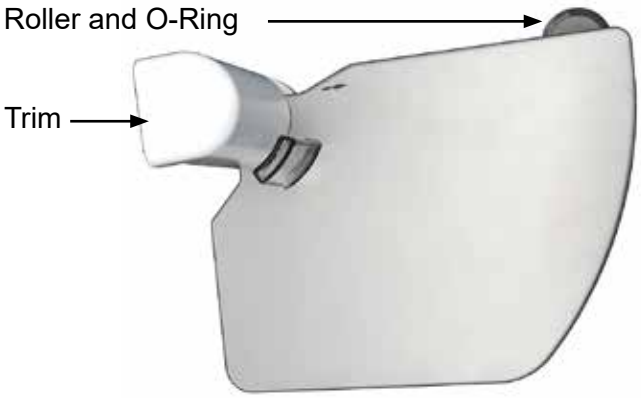
1. Open the outer door.
2. Rotate the bin outward.
3. Lift the bin straight up.



Swivel Bin Base

The swivel bin base supports the rotating bin and attatches to the frame door. The rotating bin base allows the bin to be swung out when the outer door is open. Once open, the bin does not need to be pushed back into the frame door before closing the door. The roller at the bottom of the swivel bin's base prevents damage to the interior stainless steel panel. As the outer door closes, the roller moves across the stainless steel panel allowing for smooth bin and door closure.

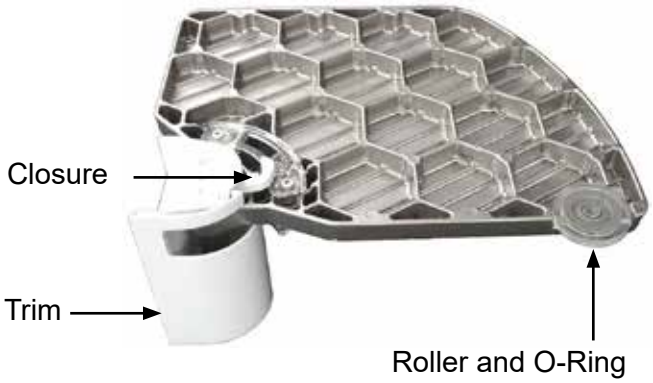
Swivel Bin Base (Top View)



O-Ring and Trim

The O-ring and trim are replaceable components of the swivel bin base but also come with the swivel bin base. The O-ring can be easily removed by rolling the O-ring off the roller wheel.

Swivel Bin Base (Bottom View)

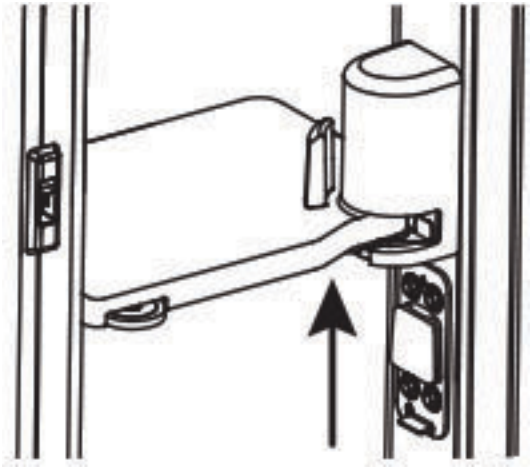


Swivel Bin Closure

The swivel bin base has a cam-style closure mechanism located on the bottom of the base. The closure mechanism and the roller wheel for the O-ring are not replaceable components, if either component is damaged the complete swivel bin base would need to be replaced.

Swivel Bin Base Removal

1. Open the outer door.
2. Remove the swivel bin.
3. Put hand under the base and lift up.



Swivel Bin Base Trim Removal

4. Remove the swivel bin base.
5. Release the locking tab at the top of the inside trim with a flat-blade screw-driver.

6. Slide the trim up.
7. Pull the side of the trim which the locking tab was previously released from away from the bin base.

Outer Door

The outer door provides quick access to items in the door bins and supports the lower bin. The outer door uses the magnetic catch attached to the frame door as a door closure. The inside of the door features a stainless steel panel that is not replaceable. If the inner panel is damaged, the outer door will need to be replaced.

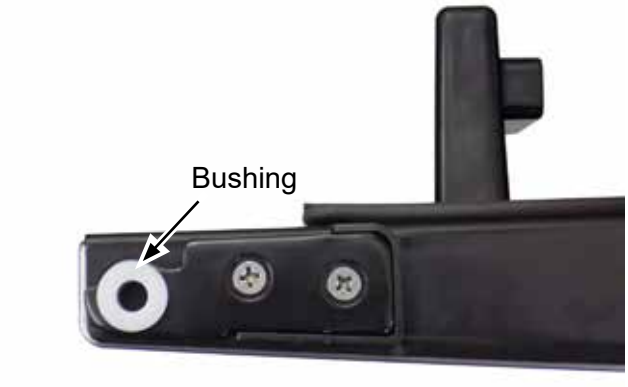
Outer Door Removal

1. Remove the lower bin.
2. Remove the right hinge cover (two Phillips-head screws).
3. Open the frame door and outer door together to access the upper outer door hinge screws.
4. Remove two 5/16-in. hex-head screws from the upper outer door hinge. Do not remove the hinge in this step, but keep the doors together. The locating hinge pins will keep the door in place until it is ready to be safely removed.

5. Close the frame and outer doors.
6. Squeeze the latch handle to release the latch while keeping a hand on the handle (this prevents the outer door from sliding to the left into the dispenser door when the hinge is removed) and open the outer door.
7. Lift up and on the outer door to release the top hinge from the location pins. Then pull the outer door up and away from the frame door to remove the door from the outer door lower hinge.

Outer Door Bushing

The outer door bushing is inserted into the outer door stop and outer door.

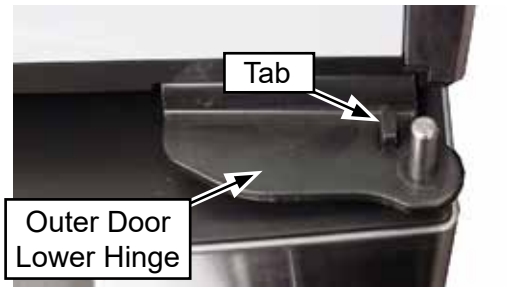


Outer Door Bushing Removal

1. Remove the outer door.
2. Use a flat-blade screw-driver or putty-knife to pry the bushing out of the door stop and door. **NOTE**: The bushing may not come off with the outer door during outer door removal. If the bushing isn't found on the bottom of the outer door, check to see if the bushing is over the pin of the outer door lower hinge.

Outer Door: Door Stop

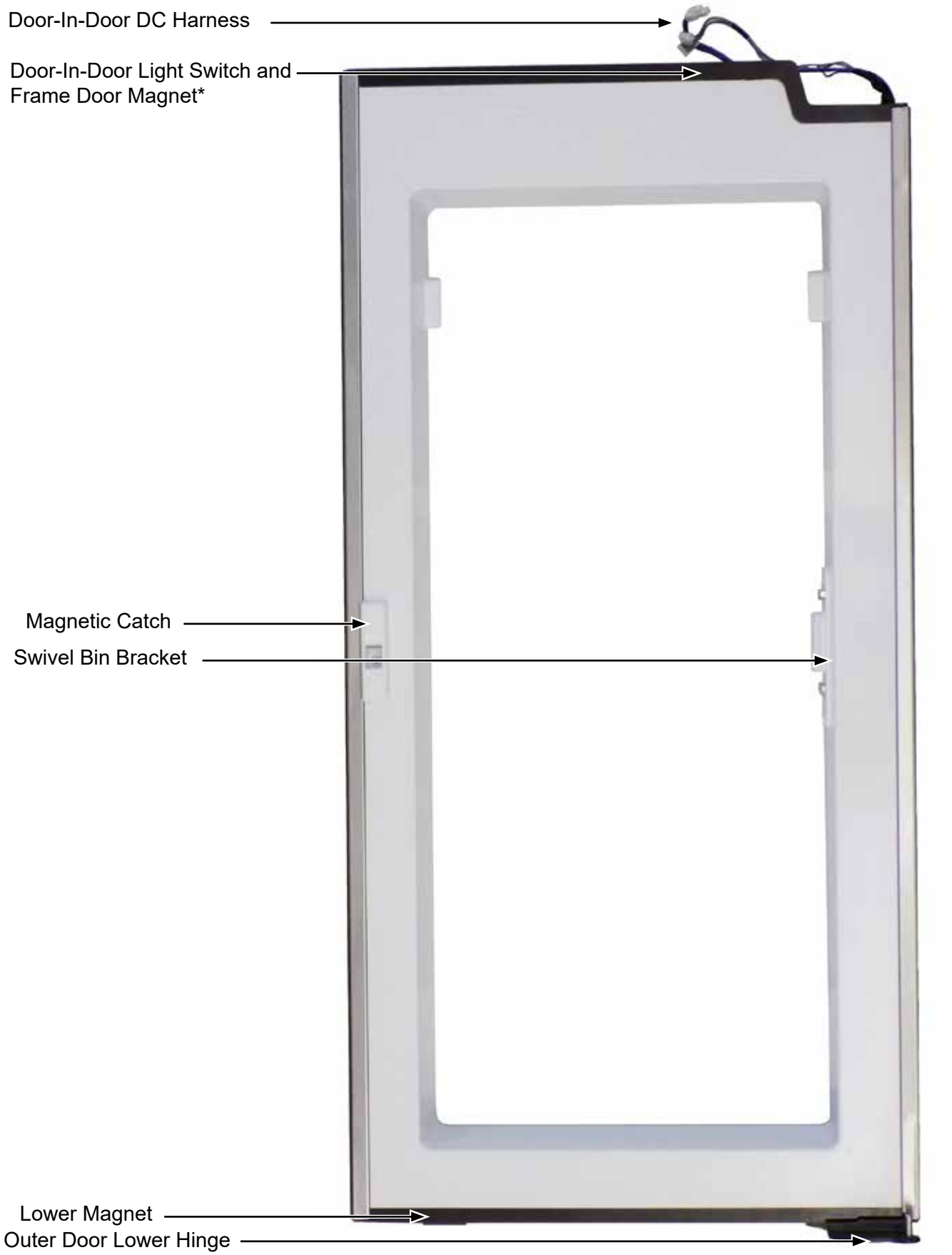
The door stop for the outer door is located on the bottom of the outer door. The stop makes contact with a raised tab on the outer door lower hinge to prevent the outer door from opening too far.



Outer Door: Door Stop Removal

1. Remove the outer door.
2. Remove outer door bushing (if not present see **NOTE** in step 2 of **Outer Door Bushing Removal**.
3. Remove two Phillips-head screws.

Frame Door Front View



*Door-in-door light switch and frame door magnet are located inside the top of the frame door. Both are part of the frame door assembly.

Door-In-Door Light Switch

The door-in-door light switch is located in the top of the frame door under the frame door switch cover. The reed-style switch is actuated by a magnet built in to the top of the outer door.

Door-In-Door Light Switch Diagnosing

Service Mode test **114** will display the status of the door-in-door switch (**0**: Closed, **1**: Open). If the switch is being tested with the outer door open, place a magnet on the frame door to close the switch contacts.

J7 Connector on Main Board w/ Outer Door Open

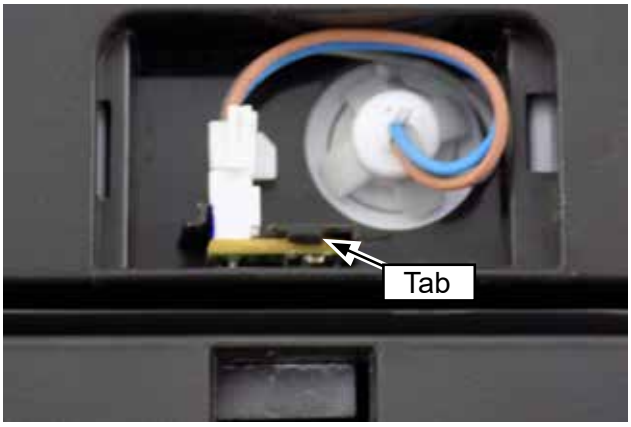
- Pin 7 (**pink**) to pin 12 (**black**): 5 VDC
- Pin 5 (**blue**) to pin 12 (**black**): 5 VDC

J7 Connector on Main Board w/ Outer Door Closed

- Pin 7 (**pink**) to pin 12 (**black**): 5 VDC
- Pin 5 (**blue**) to pin 12 (**black**): 0 VDC

Door-In-Door Light Switch Removal

1. Using a small flat-blade screw-driver or putty-knife, pry the right side of the frame door switch cover up to remove the cover.
2. Push the tab of the frame door back and lift the switch out of the top of the frame door.

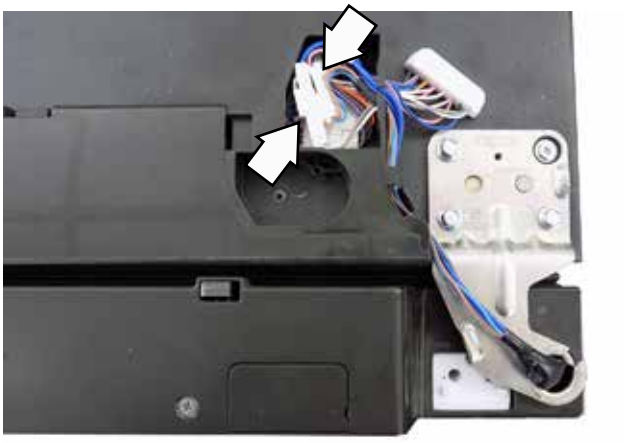


Frame Door

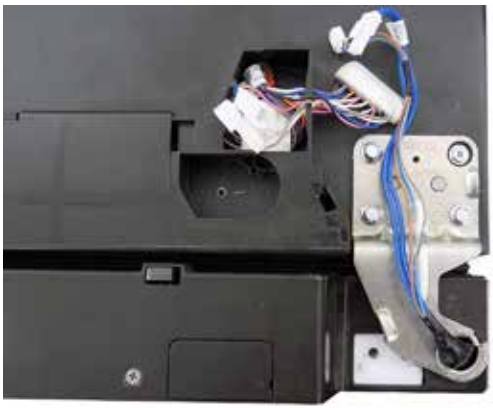
The frame door is an assembly consisting of the frame door heater, swivel bin bracket, frame door magnet, and lower magnet. The gasket for the frame door is not part of the frame door assembly, but does utilize the same part as the dispenser door gasket.

Frame Door Removal

1. Removal all door-in-door door bins.
2. Remove outer door.
3. Disconnect frame door heater and door-in-door light switch connectors.



4. Remove the frame door wiring harnesses from the center hinge cover (make note of the wire routing for reinstallation).
5. Remove three 5/16-inch hex-head screws and remove the hinge.



6. Lift up on the frame door to remove the frame from the lower hinge.

Frame Door Heater

The frame door has a 15-ohm heater within its structure. The heater operates on 12.5 VDC with the doors closed. Operation is based on room temperature and humidity. The frame door will be on when the articulating mullion heater is on. Since the heater is foamed into the frame door, it is necessary to replace the frame door assembly if the frame door heater should fail.

Frame Door Heater Diagnosing

Check the resistance valve of the heater from the connector, under the right hinge cover. To verify voltage to the heater, use Service Mode test **86** and check at the following points:

Main Board

- J8 Pin 7 (**white**) to J12 pin 14 (**gray**): 12.5 VDC

Door-In-Door 2-Pin Connector

- **Blue** to **blue**: 12.5 VDC

Magnetic Catch

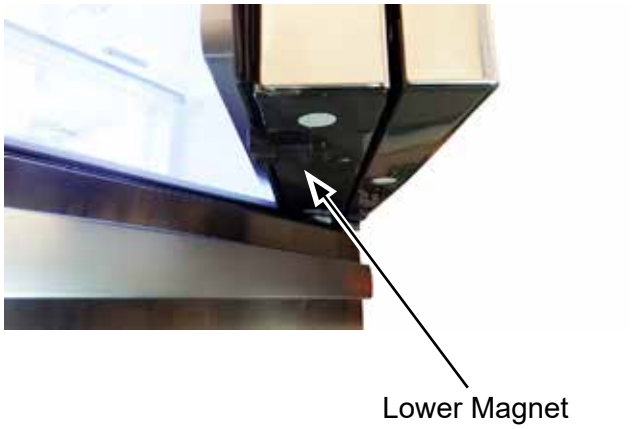
The magnetic catch provides the door-in-door handle with a latch point. It also aids door closure when the outer door is in close proximity with the frame door.

Magnetic Catch Removal

- Remove one Phillips-head screw in the center of the catch.

Lower Magnet

The lower magnet is on the left side of the frame door. The magnet assists in keeping the frame door closed to the case while the outer door is in use. A missing magnet in the bottom of the door may cause the frame door to pull away from the case when the outer door swings into the outer door stop.

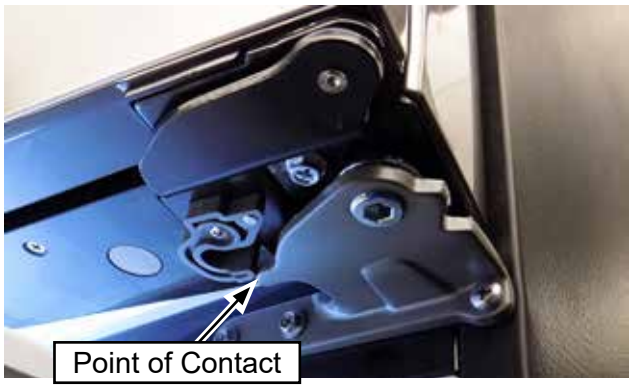


The lower magnet is part of the frame door, and should the housing holding the magnet become damaged or the magnet is missing, the frame door will need to be replaced.

Frame Door Closure Mechanism

Closure mechanisms used by the left and right doors are not the same. The right door utilizes a cam-style closure that interacts with the bottom right door hinge.

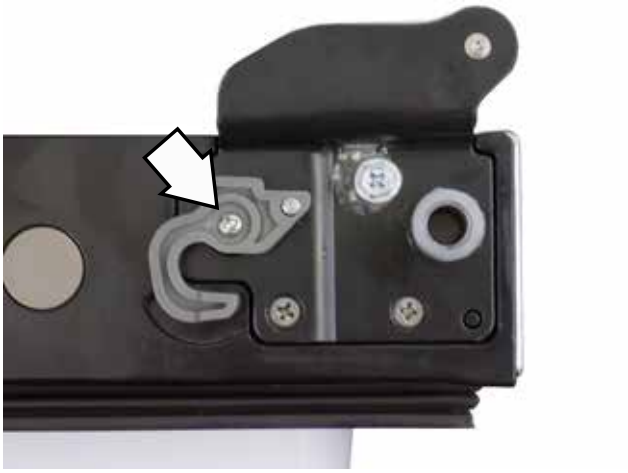
Once the door is within 3 inches from closing, the cam rolls over the end of the hinge to pull the door closed.



The picture above shows the point of contact between the cam and hinge. If the door is closed too softly, the cam won't roll over the end of the hinge and will stop at the point of contact.

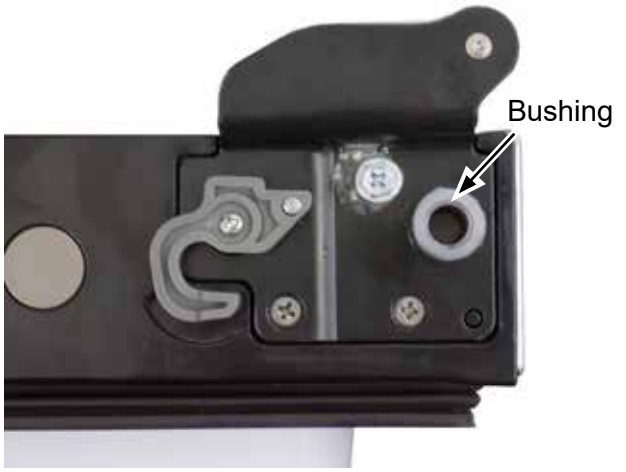
Frame Door Closure Mechanism Removal

1. Remove the door-in-door bins.
2. Remove the outer door.
3. Remove the frame door.
4. Remove one Phillips-head screw.



Frame Door Bushing

The frame door bushing is inserted into the lower outer door hinge and frame door.



Frame Door Bushing Removal

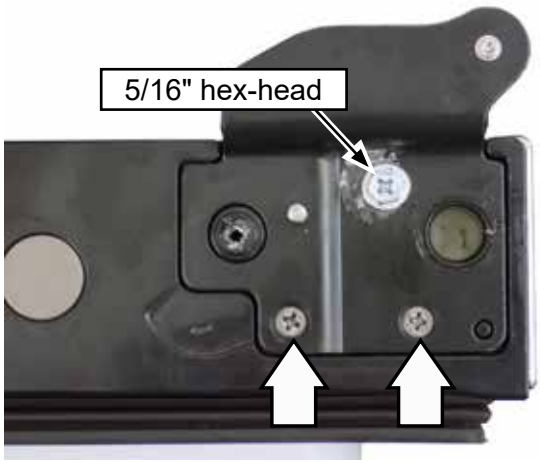
1. Remove the door-in-door bins.
2. Remove the outer door.
3. Remove the frame door.
4. Use a flat-blade screw-driver or putty-knife to pry the bushing out of the lower outer door hinge and frame door.

Outer Door Lower Hinge and Frame Door Stop

The outer door lower hinge is connected to the bottom of the frame door. The hinge also acts as the door stop for the frame door. When the frame door is fully opened, the outer door lower hinge comes in contact with the lower frame door hinge to prevent the door from opening too far.

Outer Door Lower Hinge Removal

1. Remove the door-in-door bins.
2. Remove the outer door.
3. Remove the frame door.
4. Remove the frame door closure mechanism.
5. Remove the frame door bushing.
6. Remove one 5/16-inch hex-head screws and two Phillips-head screw.

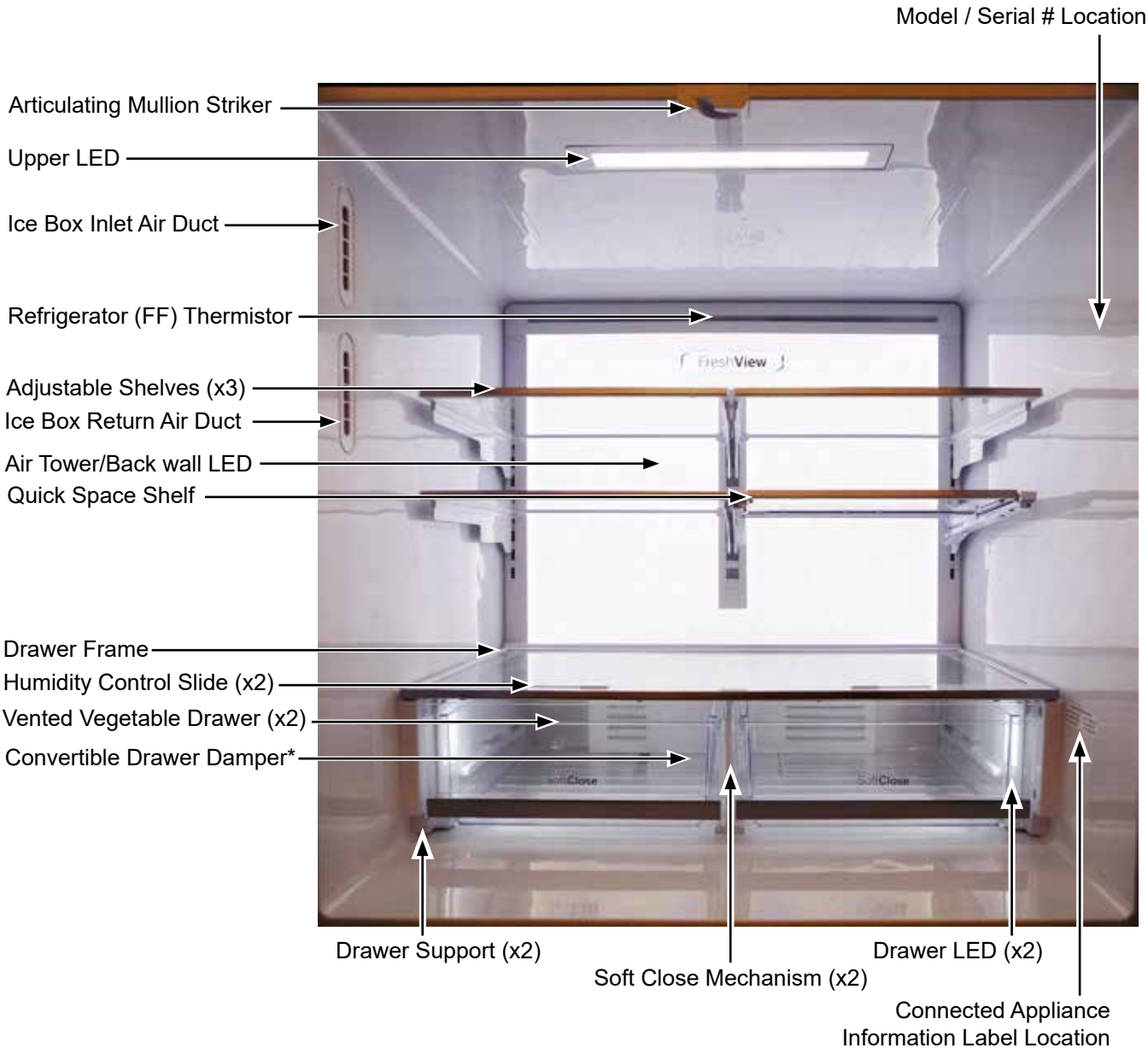


Right Door Bottom Hinge

Right Door Stop Removal

1. Follow **Frame Door Removal** steps under **Frame Door** in this section.
2. Remove two 5/16-inch hex-head screw and one Phillips-head screws.

Refrigerator Compartment



*Convertible drawer damper located in the bottom-middle of the refrigerator compartment.

Articulating Mullion Striker

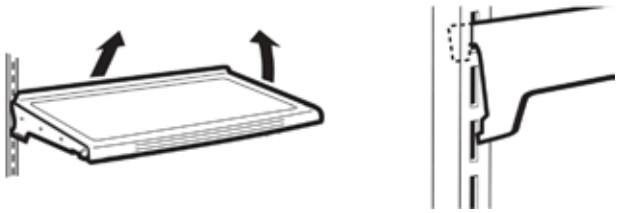
The top of the articulating mullion engages with the mullion striker to open and close the mullion. When the articulating mullion does not make contact with the mullion striker, the dispenser door may need to be raised. The articulating mullion striker is part of the liner and cannot be replaced.

Adjustable Shelves

The refrigerator has four adjustable shelves. One of the shelves is a quick space shelf. Each shelf can be raised or lowered.

Adjustable Shelf Removal

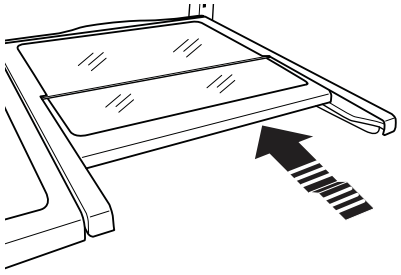
1. Tilt the front of the shelf up.
2. Lift the rear of the shelf up to disengage the top hooks of the shelf from the center and side tracks.



3. Pull the shelf out from the refrigerator.

Quick Space Shelf

The refrigerator has one adjustable quick space shelf. The front of the shelf pushes back under the back of the shelf to provide additional height for items on the shelf below.



The shelf can be raised or lowered.

Quick Space Shelf Removal

The quick space shelf removes in the same manner as the full depth adjustable shelves.

Vegetable Drawers (Bins)

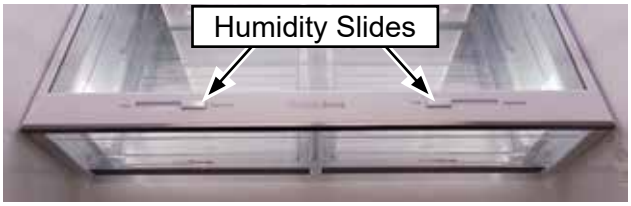
The refrigerator has two drawers. Excess water may accumulate in the bottom of the drawers or under the drawers and should be wiped dry.

Vegetable Drawer Removal

1. Slide the desired drawer out to the stop position.
2. Lift the front of the drawer up and out of the refrigerator.

Drawer Frame / Drawer Frame Glass

The drawer frame rests on top of the drawer supports. The left and right side of the frame have humidity control slides. Humidity slides can be set to vegetables or fruit. The humidity slides are replaceable separately from the drawer frame.



The frame glass easily removes from the frame for cleaning or replacement. It is not necessary to remove the drawers to remove the frame.

Drawer Frame / Drawer Frame Glass Removal

1. Lift up the front of the drawer frame.

2. Tip the frame to one side and pull the drawer frame out the refrigerator.
3. Push the backside of the glass away from the frame.

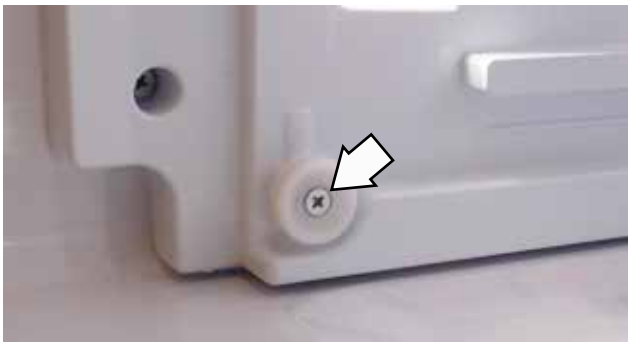
4. Lift the glass away from the front of the frame.

Drawer Rollers

Rollers attached to the drawers or drawer supports can be replaced.

Drawer Roller Removal

Use a Phillips-head screw-driver to remove the desired roller.

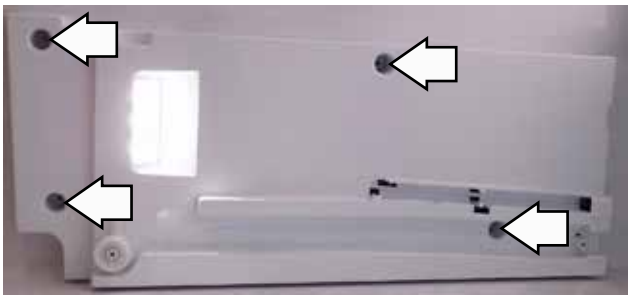


Side Drawer Supports

A bin LED board and drawer roller are mounted to each side drawer support. The drawers and drawer frame are supported by the drawer supports.

Side Drawer Support Removal

1. Remove the drawer frame.
2. Remove the drawer for the side being replaced.
3. Remove four Phillips-head screws.

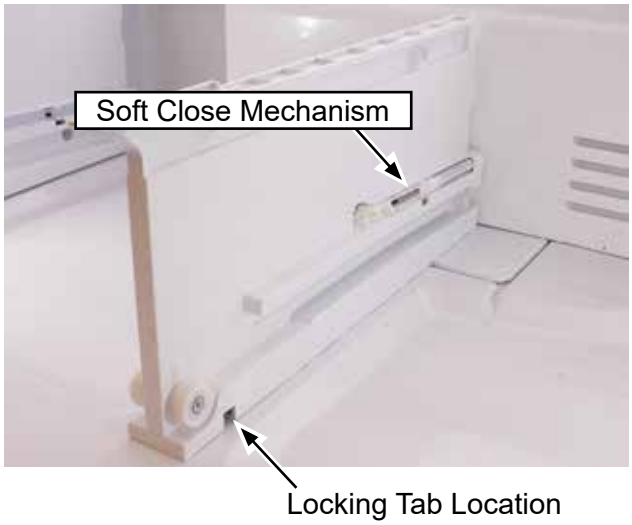


4. Carefully tip the front of the support away from the liner.
5. Disconnect the bin LED connector.
6. Pull the support forward and away from the side of the liner.
7. Remove the bin LED and lens with a flat-blade screw-driver.

Center Drawer Support

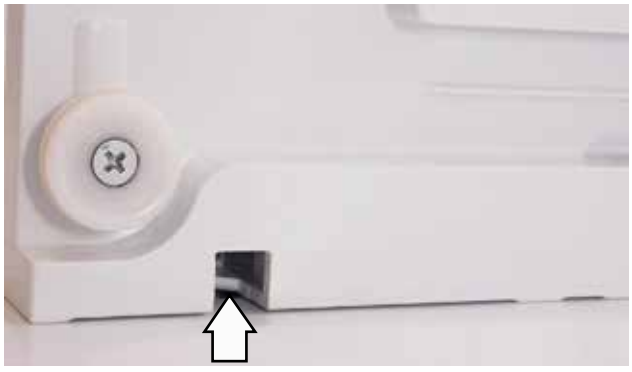
The center drawer support supports both drawers and drawer frame. Soft close mechanisms are attached to the left and right sides of the center drawer support. The soft close mechanisms are a part of the center drawer support and cannot be replaced separately.

The center drawer support locks into the bottom of the refrigerator compartment with one locking tab. The tab is located at the right front of the support.



Center Drawer Support Removal

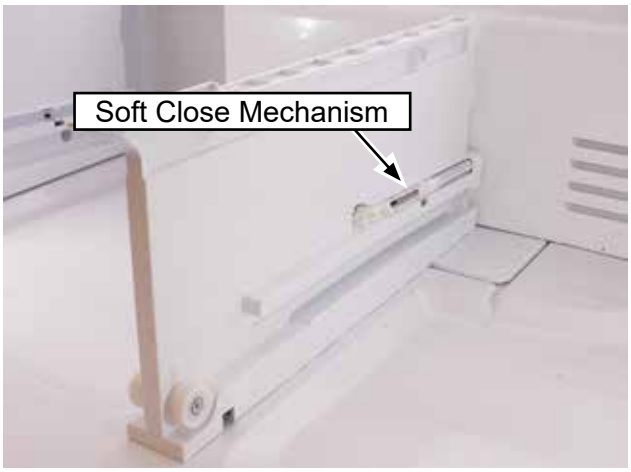
1. Remove the drawer frame.
2. Remove both refrigerator drawers.
3. Use a flat-blade screw-driver to pry the locking tab up.



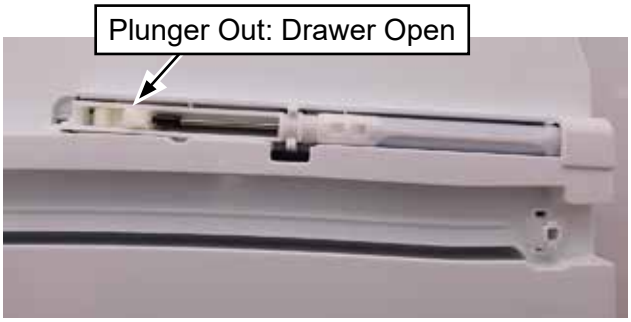
4. While prying the locking tab up, slide the center support away from the back wall.

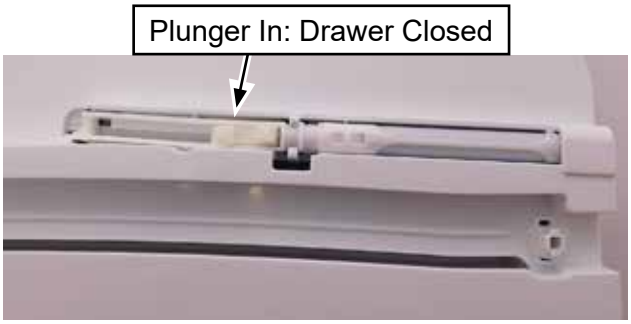
Soft Close Mechanisms

Soft close mechanisms are attached to the left and right sides of the center drawer support. The soft close mechanisms give the vegetable drawers a slow, smooth self-closing action when the drawers are pushed in.



The soft close mechanisms are a part of the center drawer support and cannot be replaced separately.





Bin LED Boards

Two LED boards illuminate the refrigerator drawers. When one or both of the refrigerator doors are opened, the main board delivers VDC to the LED boards and gradually increases the voltage for full brightness. One LED board can be found in each side drawer support. The LED lens and LED board cannot be replaced separately.

Bin LED Board Diagnosing

Enter Service Mode (see **Service Mode** section) and select test **91** to test refrigerator LED operation. The LED's will turn on regardless of the position of the refrigerator door switches.

J11 on Main Board w/ Door Open (Left LED)

- Pin 2 (**red**) to pin 6 (**pink**): 3.5 to 12.5 VDC*

J11 on Main Board w/ Door Open (Right LED)

- Pin 2 (**red**) to pin 7 (**pink**): 3.5 to 12.5 VDC*

3-Pin Connector at Cabinet with Door Open

- **Red** to **pink**: 3.5 to 12.5 VDC*

***NOTE**: When one or both of the refrigerator doors are opened, the main board delivers 3.5 VDC to the LED boards and gradually increases the voltage to 12.5 VDC for full brightness.

Bin LED Board Removal

1. Remove the drawer frame.
2. Remove the drawer for the side being replaced.
3. Using a flat-blade screw-driver, carefully pry the top of the LED lens away from the drawer support.

4. Disconnect the 3-pin connector.

Ceiling LED Board

The ceiling LED board assists the backwall lighting to illuminate the front of the refrigerator compartment. When one or both of the refrigerator doors are opened, the main board delivers VDC to the LED board and gradually increases the voltage for full brightness.

Ceiling LED Board Diagnosing

Enter Service Mode (see **Service Mode** section) and select test **91** to test refrigerator LED operation. The LED's will turn on regardless of the position of the refrigerator door switches.

Main Board with Door Open

- J9 pin 7 (**white**) to J11 pin 8 (**gray**): 3.5 to 12.5 VDC*

3-Pin Connector at Cabinet

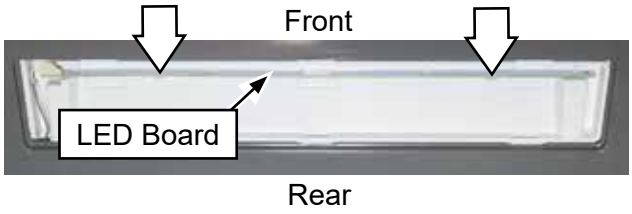
- **Gray** to **white**: 3.5 to 12.5 VDC*

***NOTE**: When one or both of the refrigerator doors are opened, the main board delivers 3.5 VDC to the LED board and gradually increases the voltage to 12.5 VDC for full brightness.

Ceiling LED Board Removal

1. Using a thin putty-knife, push in and down on the ceiling LED lens in front of the three triangles stamped on the lens frame. (Triangles have been darkened in the image below to aid in locating.)

2. Tip the front of the lens down and pull away from the ceiling (the rear of the lens will need to be inserted into the liner first when reinstalling).
3. Push back on two tabs and lower the LED board.



4. Disconnect the 3-pin connector.

Air Tower / Back Wall LED

The air tower is mounted to the back wall of the refrigerator. The air tower is also the back wall light and refrigerator evaporator cover. If the back wall LED needs to be replaced, replace the air tower assembly.

The refrigerator thermistor and refrigerator fan are mounted to the air tower. The refrigerator fan pushes air up the middle of the air tower and out the top of the air tower.

Removal of the air tower is required to access the refrigerator fan, fan connector, back wall LED connector, side cantilever tracks, and convertible drawer damper.

Back Wall LED Diagnosing

Enter Service Mode (see **Service Mode** section) and select test **91** to test refrigerator LED operation. The LED's will turn on regardless of the position of the refrigerator door switches.

Main Board with Door Open

- J9 pin 6 (**red**) to J11 pin 3 (**black**): 7.5 to 12.5 VDC*

3-Pin Connector at Cabinet

- **Red** to **black**: 7.5 to 12.5 VDC*

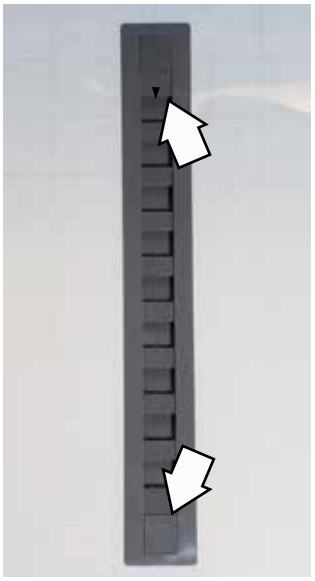
***NOTE**: When one or both of the refrigerator doors are opened, the main board delivers 7.5 VDC to the LED board and gradually increases the voltage to 12.5 VDC for full brightness.

Air Tower Removal

1. Remove all refrigerator shelves and drawers.
2. Remove the drawer frame and HCS cover.
3. Remove the center drawer support.

(Continued next page)

4. Using a flat-blade screw-driver, remove the two screw covers from the center cantilever track. (During reassembly, make sure the arrows stamped into the screw covers are pointed towards the center of the air tower. Arrows are darkened in image to right to show location.)



5. Remove two Phillips-head screws at the top and bottom of the center cantilever track.

6. Pull the top of the air tower away from the back wall to unclip the air tower.

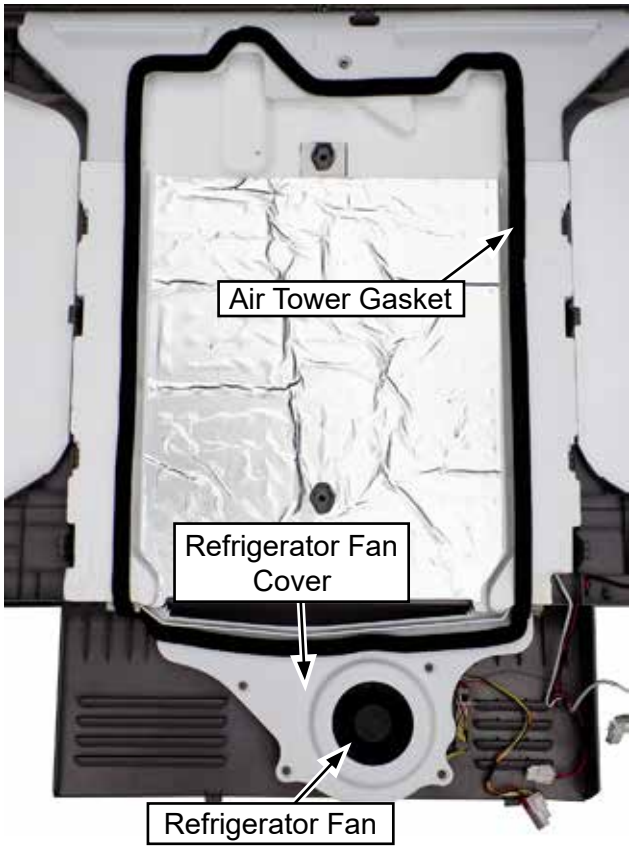
7. Continue lowering the top of the air tower, lower the left side first to lay the air tower down in the refrigerator compartment.

8. With the air tower lowered, reach in the compartment and disconnect the fan and thermistor connectors.

9. Remove the air tower from the compartment.

Refrigerator (FF) Fan

The refrigerator fan located at the bottom of the air tower and is mounted to the backside of the air tower.



The refrigerator fan will operate at three speeds with RPM feedback to the control. The speed range of the refrigerator fan is 1400 RPM to 1800 RPM.

Refrigerator Fan Diagnosing

Enter Service Mode (see **Service Mode** section) and select test **47** to test refrigerator fan operation. The RPM value should be displayed on the dispenser board (20 seconds for each fan speed). Voltages for the fan can be checked at the fan connector or at the J4 and J8 connectors on the main board.

Low Speed: ~1,400 RPM

Medium Speed: ~1,600 RPM

High Speed: ~1,800 RPM

(Continued next page)

Fan Connector

- **Red** to **black**: 12.5 VDC
- **Yellow** to **black**: 2 to 4 VDC*
- **White** to **black:** 2 to 3 VDC*

***NOTE:** (Voltage dependent on fan speed when fan is on, will be 0 VDC when fan is off).

Main Board

- J8 pin 2 (**black**) to J8 pin 5 (**red**): 12.5 VDC
- J8 pin 2 (**black**) to J4 pin 5 (**yellow**): 2 to 4 VDC*
- J8 pin 2 (**black**) to J4 pin 6 (**white**): 2 to 3 VDC*

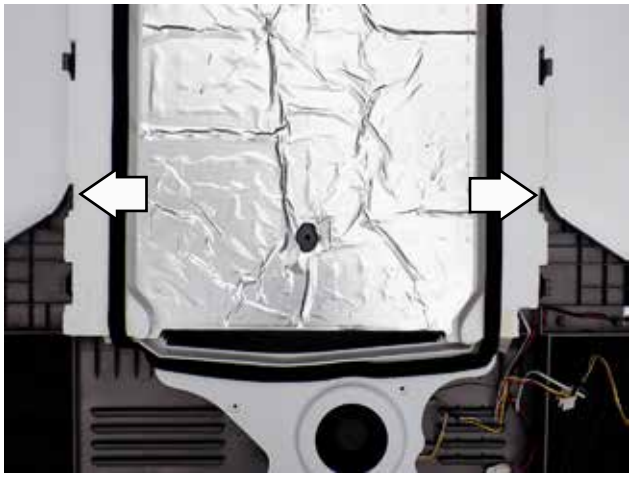
***NOTE**: (Voltage dependent on fan speed when fan is on, will be 0 VDC when fan is off).

Refrigerator Fan Removal

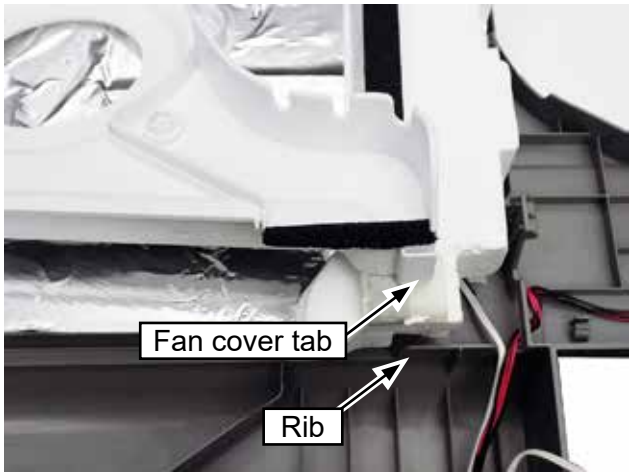
1. Follow **Air Tower Removal** steps under **Air Tower / Back Wall LED** in this section of the service guide.
2. Unwrap the fan harness from the backside of the air tower cover.

3. Remove four Phillips-head screws.

4. Spread the lower two tabs securing the air tower foam to the air tower cover.

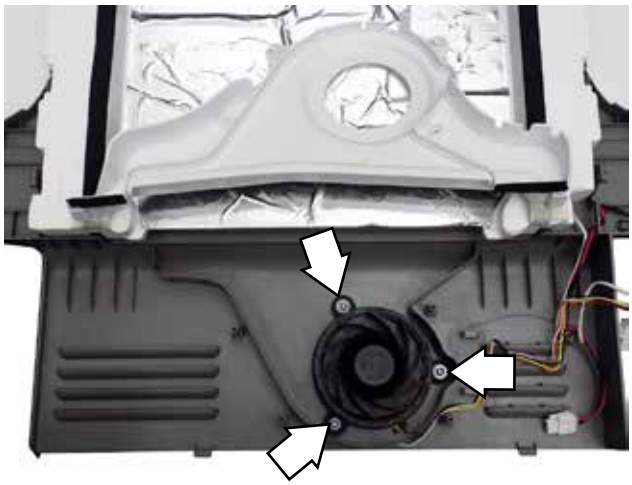


5. Lift the foam away from the air tower cover enough to lift the fan cover tabs away from the ribs on the air tower. (In the picture below, the fan cover is already folded up (step 6) to show the tab and rib.)



NOTE: During reassembly, the fan cover tabs need to slide over the air tower ribs.

6. Fold the fan cover up (this keeps the air tower gasket in one piece and undamaged) and remove three Phillips-head screws.



Refrigerator (FF) Thermistor

The refrigerator air thermistor is located in the top of the air tower. The main board uses the thermistor to monitor and regulate the compartment temperature.

Refrigerator Thermistor Diagnosing

To accurately test a thermistor, place the thermistor in a glass of ice and water (approximately 33°F) for several minutes and check for approximately 6.5k ohms. The thermistor values chart is listed below. Service mode test **24** will display the thermistor temperature.

J5 connector on Main Board:

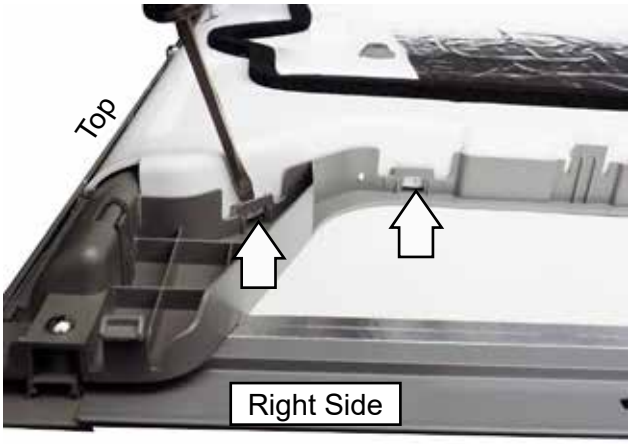
- Pin 1 (**brown**) to pin 18 (**pink**): 5 VDC
- Pin 1 (**brown**) to pin 18 (**pink**): (see chart) Ω

Refrigerator Thermistor Values		
Temperature Degrees (°F)	Temperature Degrees (°C)	Resistance in k-Ohms
-13	-25	24.9 kΩ
-4	-20	18.7 kΩ
5	-15	14.1 kΩ
14	-10	10.7 kΩ
23	-5	8.2 kΩ
32	0	6.4 kΩ
41	5	4.9 kΩ
50	10	3.9 kΩ
59	15	3.1 kΩ
68	20	2.4 kΩ
77	25	2 kΩ
86	30	1.6 kΩ
95	35	1.3 kΩ
104	40	1 kΩ

Refrigerator Thermistor Removal

1. Follow **Air Tower Removal** steps under **Air Tower / Back Wall LED** in this section of the service guide.
2. Unwrap the thermistor harness (**red** and **black** wires) from the backside of the air tower cover.
3. Remove one Phillips-head screw at the top of the air tower.

4. Use a flat-blade screw-driver to release four tabs (two on each side) of the upper air duct.



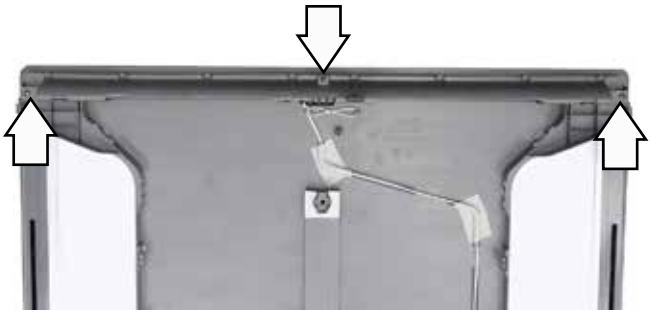
5. Remove four Phillips-head screws for the fan cover.

(Continued next page)

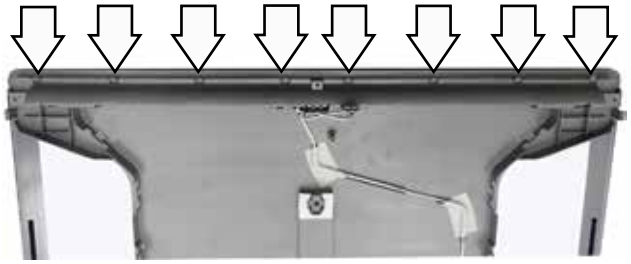
6. Spread four tabs securing the air tower foam to the air tower cover.

7. Lift the air tower foam and fan cover away from the air tower cover.

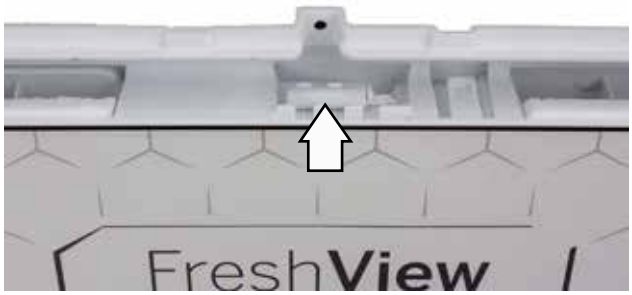
8. Remove three Phillips-head screws from the air tower top trim.



9. Release eight tabs securing the top trim to the air tower cover and remove the top trim.



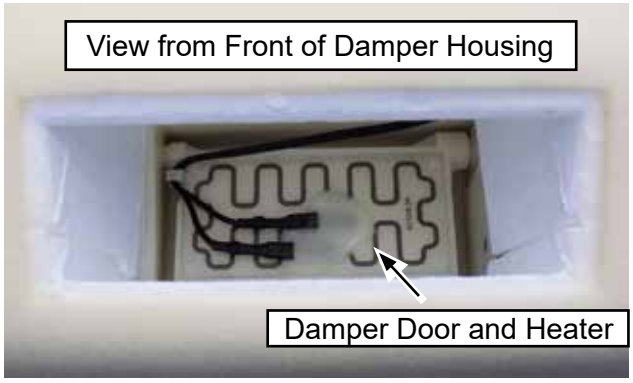
10. Unclip the thermistor from the front of the air tower cover.



Convertible Drawer Damper and Heater

The convertible drawer damper is located in the rear floor of the refrigerator compartment. Removal of the air tower is required to access the damper. The main board opens the damper to allow freezer air into the convertible drawer based on convertible drawer thermistor temperatures.

The convertible damper heater is located on the backside of the damper door. The 280-ohm DC heater prevents the damper door and damper duct from freezing.



The damper motor, damper heater, front and rear damper gaskets, and damper housing come as an assembly.

Convertible Drawer Damper Diagnosing

Enter service mode (see service mode section) and select test **45** to test damper operation. The damper will open for 10 seconds, then close.

J12 Connector on Main Board

- Pin 9 (**blue**) to pin 10 (**white**): 410 Ω
- Pin 11 (**red**) to pin 12 (**yellow**): 410 Ω

Damper Connector

- **Blue** to **white**: 410 Ω
- **Red** to **yellow**: 410 Ω

(Continued next page)

Convertible Damper Heater Diagnosing

Enter Service Mode (see **Service Mode** section) and select test **88** to test convertible damper heater operation.

Main Board

- J9 pin 4 (**brown**) to J12 pin 3 (**gray**): 280 Ω
- J9 pin 4 (**brown**) to J12 pin 3 (**gray**): 12.5 VDC

Convertible Damper Heater Connector

- **Black** to **black**: 280 Ω
- **Black** to **black**: 12.5 VDC

Convertible Drawer Damper Removal

1. Follow **Air Tower Removal** steps.
2. Pry the front of the damper cover up and remove the cover.

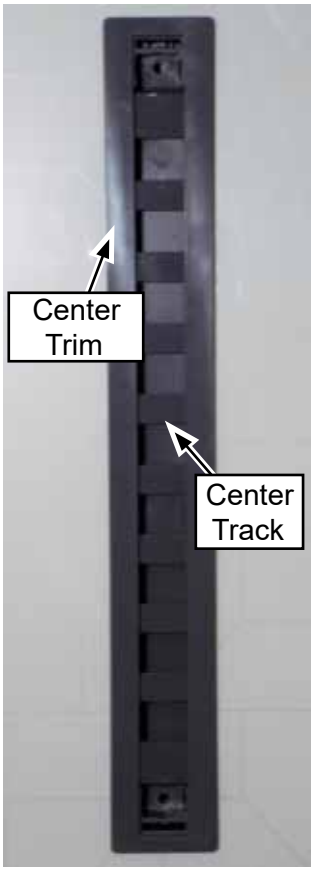
3. Disconnect the damper connector.
4. Lift the damper housing from the floor of the refrigerator using the two indents in the damper housing.

Cantilever Tracks

Three cantilever tracks support the adjustable shelves. The center track is in the middle of the air tower and the side tracks are mounted to the liner behind the air tower.

Center Cantilever Track Removal

1. Follow **Air Tower Removal** steps 1 through 5 under **Air Tower / Back Wall LED** in this section of the service guide.
2. Pull the center trim around the track away from the air tower to remove the center trim. Slide the track up to raise the track over a tab in the bottom center track opening of the air tower.



3. Pull the bottom of the center track away from the air tower and slide the track down and out of the top of the air tower opening.

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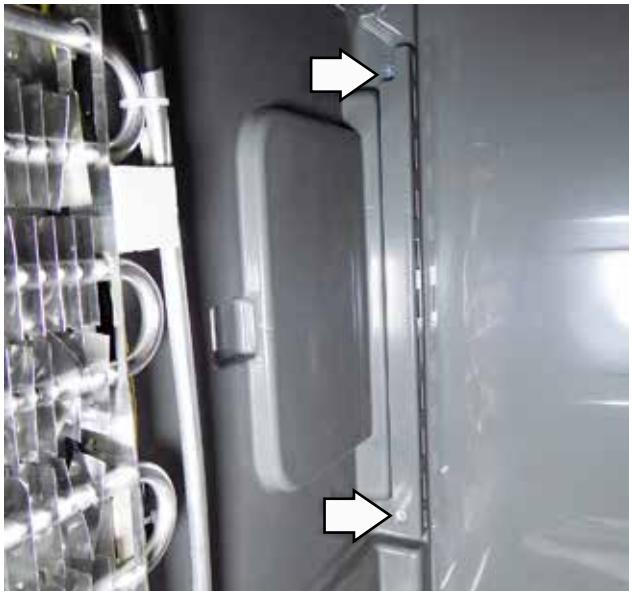
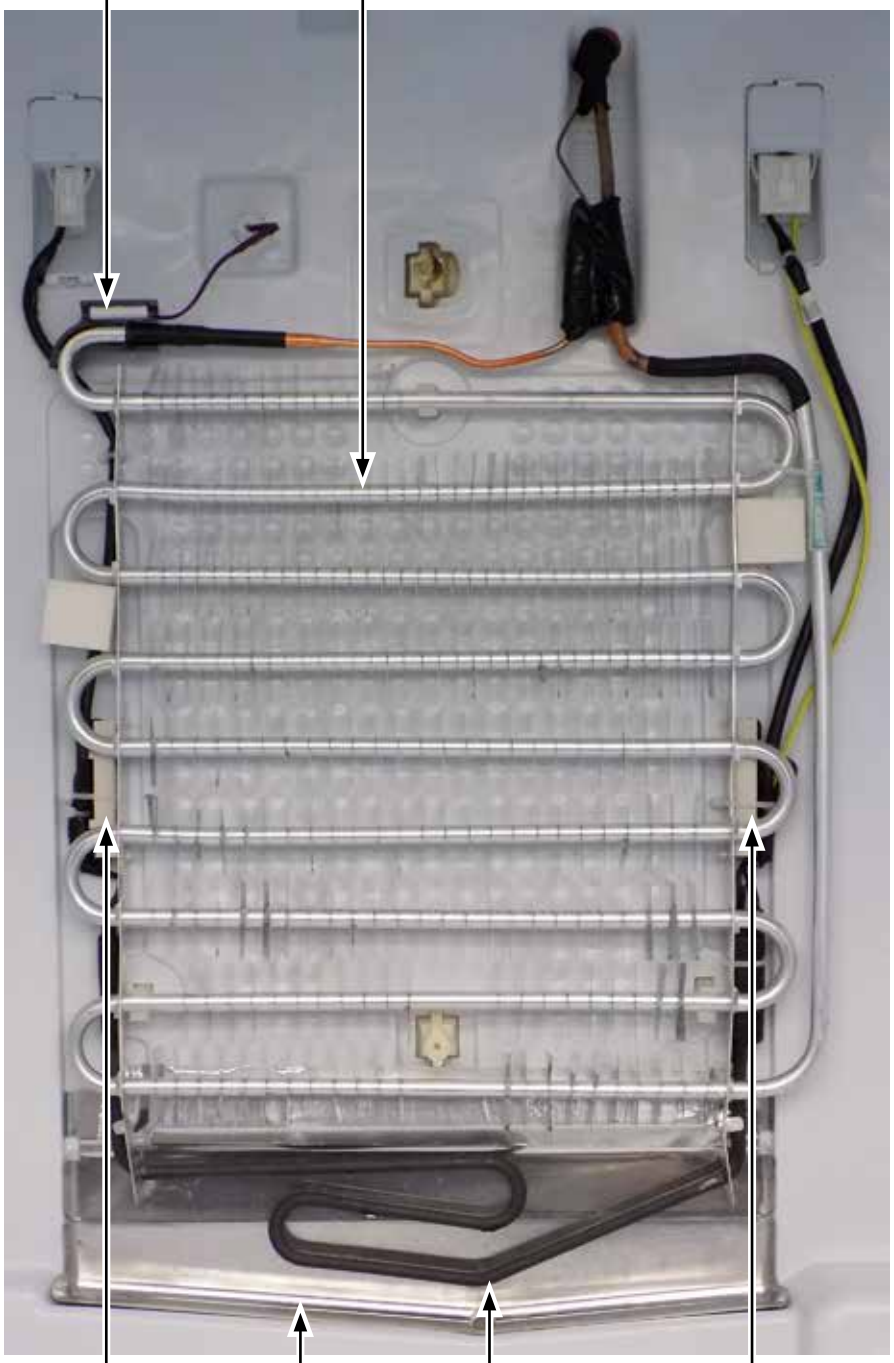
Side Cantilever Track Removal

1. Remove the air tower.
2. Remove two Phillips-head screws to remove each side cantilever track from the liner.

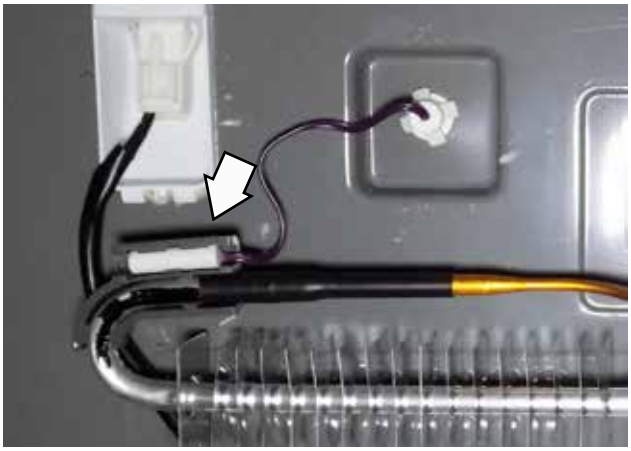


Refrigerator Evaporator Components



Refrigerator (FF) Evaporator Thermistor

The refrigerator evaporator thermistor is attached to the inlet (capillary) side of the evaporator with a plastic clip.



The thermistor monitors the evaporator temperature for defrost control. When the thermistor reaches a temperature of 44°F, the main board will terminate refrigerator defrost.

This thermistor does not have a connector to disconnect the thermistor from the liner. Follow **Refrigerator Evaporator Thermistor Replacement** steps to replace the thermistor.

Refrigerator Evaporator Thermistor Diagnosing

To accurately test the thermistor, place the thermistor in a glass of ice and water (approximately 33°F) for several minutes and check for approximately 6.5k ohms. See the **Refrigerator Evaporator Thermistor Values** chart. Service Mode test **26** will display the thermistor temperature.

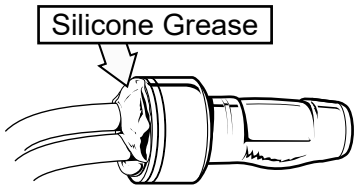
J5 Connector on Main Board

- Pin 13 (**black**) to pin 16 (**black**): 5 VDC
- Pin 13 (**black**) to pin 16 (**black**): (see chart) Ω

Refrigerator Evaporator Thermistor Values		
Temperature Degrees (°F)	**Temperature Degrees (°C)**	**Resistance in k-Ohms**
-13	-25	25.3 kΩ
-4	-20	18.9 kΩ
5	-15	14.3 kΩ
14	-10	10.9 kΩ
23	-5	8.3 kΩ
32	0	6.4 kΩ
41	5	5 kΩ
50	10	3.9 kΩ
59	15	3.1 kΩ
68	20	2.5 kΩ
77	25	2 kΩ
86	30	1.6 kΩ
95	35	1.3 kΩ
104	40	1.1 kΩ

Refrigerator Evaporator Thermistor Replacement

1. Remove the thermistor from the plastic clip.
2. Cut the thermistor wiring as close to the thermistor as possible.
3. Strip the outer insulation from the thermistor case harness back 1-inch. Strip the two internal wires back 3/16-inch for splicing.
4. Prepare the replacement thermistor by cutting the wiring 4-inches back from the thermistor and strip the wires back 3/16-inch.
5. Using two bell connectors (**Part #**: WR01X10466), splice the wiring. After the splices are complete, fill the bell connectors fully with silicone grease (**Part #**: WR97X163).



6. Snap the thermistor back into the plastic clip.

Refrigerator Thermal Cut-Outs (TCO)

The refrigerator defrost heater assembly uses two one-shot thermal cut-outs (TCO's). The refrigerator TCO's are attached to the left and right sides of the evaporator with plastic holders.

The thermal cut-outs will open and de-energize the heater whenever the evaporator temperature reaches approximately 170°F.

Refrigerator TCO Diagnosing

The refrigerator TCO's are part of the refrigerator defrost heater. See **Refrigerator Defrost Heater Diagnosing** section of this guide.

Refrigerator TCO Removal

The refrigerator TCO's are part of the refrigerator defrost heater. See **Refrigerator Defrost Heater Removal** section of this guide.

Refrigerator (FF) Defrost Heater

The defrost heater is a Calrod-style heater. It is located at the bottom of the refrigerator evaporator. It is held in place by two tabs on the evaporator brackets. The heater comes as an assembly with the heater harness and TCO's.

The defrost heater has an approximate resistance value of 165-ohms.

Refrigerator Defrost Heater Diagnosing

The defrost heater circuit can be checked at the main board. To check voltage at the points below, use the refrigerator defrost heater test **53** from Service Mode.

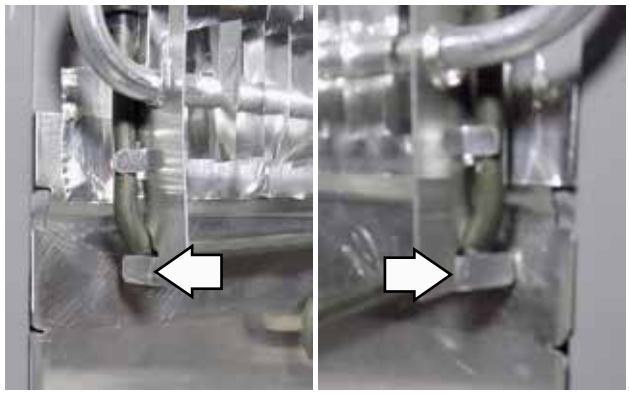
J3 Connector on Main Board

- Pin 3 (**orange**) to pin 4 (**red**): 120 VAC
- Pin 3 (**orange**) to pin 4 (**red**): 165Ω

Refrigerator Defrost Heater Removal

1. Remove the shelves.
2. Remove the refrigerator evaporator cover (see the **Refrigerator Evaporator Cover** section).
3. Disconnect the refrigerator defrost heater connectors from the case.
4. Use a flat-blade screw-driver to pry the TCO holders from the evaporator brackets.

5. Bend the left and right tabs out and away from the evaporator.



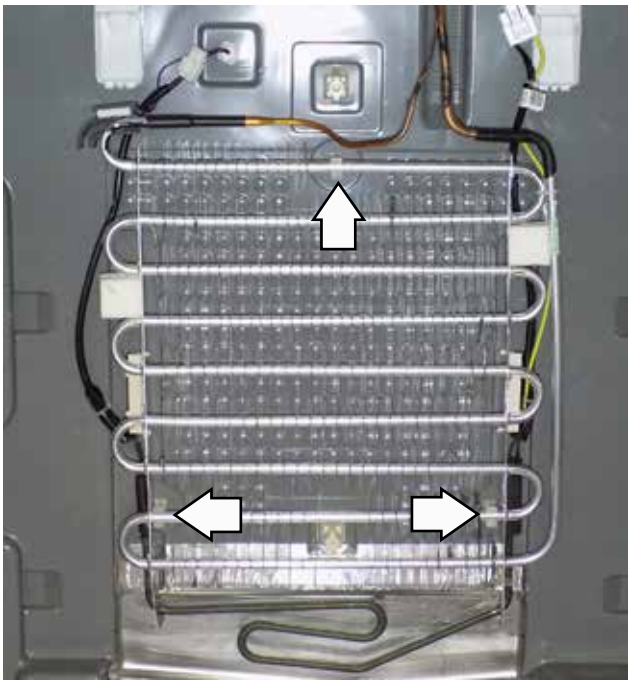
6. Lower the defrost heater to remove it from the evaporator.

Refrigerator Evaporator

The evaporator coil is an aluminum set of coils located in the refrigerator. The refrigerant in the aluminum coils pulls the heat energy from the air circulated across it by the evaporator fan causing the air to become cold.

Refrigerator Evaporator Removal

1. Remove the shelves.
2. Remove the refrigerator evaporator cover (see the **Refrigerator Evaporator Cover** section).
3. Remove the refrigerator evaporator thermistor.
4. Disconnect the refrigerator defrost heater connectors from the case.
5. Follow evacuation procedure and disconnect the capillary and suction tubes from the evaporator.
6. Unclip the evaporator by pulling the evaporator away from the back of the refrigerator (the clips are located in the top center, and lower left and right corners).



7. Remove the defrost heater from the evaporator.

Convertible Drawer Front

Convertible Drawer Control

The convertible drawer control is located on the top of the convertible drawer front. The control is made up of the overlay and convertible control board. TempSelectZone settings on the control are automatically locked. To change a setting, press and hold the **Ctrl Lock** pad for 3 seconds to unlock the control. The control has four possible settings:

Refrigerator Settings

- **Meat**: Set temperature to 29˚F (-2˚C)
- **Beverage**: Set temperature to 33˚F (1˚C)

Chiller settings

- **Snacks**: Set temperature to 37˚F (3˚C)
- **Wine**: Set temperature to 42˚F (6˚C)

Convertible Drawer Control Diagnosing

Convertible control drawer voltages can be verified at the main board or convertible drawer control. If the white communication LED on the board is not illuminated (should be blinking), verify the board is receiving proper voltage before replacing the part.

CN2 Connector on Convertible Drawer Board

- Pin 2 (**blue**) to pin 1 (**brown**): 12.5 VDC
- Pin 2 (**blue**) to pin 3 (**yellow**): 12.5 VDC

Main Control Board

- J6 pin 2 (**blue**) to J10 pin 1 (**brown**): 12.5 VDC
- J6 pin 2 (**blue**) to J6 pin 8 (**pink**): 12.5 VDC

Convertible Drawer Control Removal

1. Open the convertible drawer or both refrigerator doors.
2. Insert a thin putty-knife between the right side of the control and drawer top.
3. Gently pry the control out of the drawer.

4. Disconnect the 3-pin connector.

Convertible Drawer Front

The freezer drawer front is inserted into alignment slots (one on each side) and attached to the slide assemblies with 4 bolts (two on each side).

Convertible Drawer Front Removal

1. Remove the convertible drawer basket.
2. Remove four 5/16-in. hex-head bolts (two on each side) that attach the drawer front to the slide and brackets.

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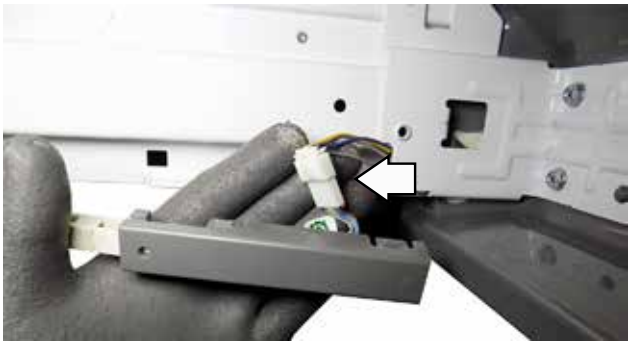
3. Use a flat-blade screw-driver to pry the chain harness cover away from the slide and bracket.

4. Disconnect the chain harness connector.



5. Lift the drawer front and drawer front brackets from the alignment slots in the slide and brackets.

6. Place the drawer front on a protected surface.

NOTE: When installing the freezer drawer front, make sure the drawer alignment tabs are placed inside the alignment slots before installing the four 5/16-in. hex-head bolts.

Adjusting the Convertible Drawer Front Gaps

An adjustment set screw changes the pitch of the drawer front.

1. Loosen the four 5/16-in. hex-head bolts (two on each side) that attach the drawer front to the slide and brackets.

2. Adjust the 3/32-in. Allen set screw clockwise (CW) if the gap at the top is too big.

3. Adjust the set screw counter-clockwise (CCW) if the gap at the bottom is too big.

4. Tighten the two screws on each side (right and left).

5. Recheck the gaps and repeat steps 1 to 4, if required.

Convertible Drawer Bracket

Two brackets are mounted to the inside of the drawer front that are used to secure the drawer to the slide and brackets.

Convertible Drawer Bracket Removal

1. Remove the convertible drawer basket.
2. Remove the convertible drawer front.
3. Remove three 5/16-in. hex-head screws.

Freezer LED

The freezer LED is located in the bottom of the convertible drawer front. The LED cover and LED are replaced together.

Freezer LED Diagnosing

Enter Service Mode (see **Service Mode** section) and select test **92** to test freezer LED operation. The LED will turn on regardless of the freezer drawer switch position.

LED Connector (with Freezer Drawer Open)

- **Gray** to **white**: 7.5 to 12.5 VDC* (see **NOTE**)

J11 on Main Board (with Freezer Drawer Open)

- Pin 1 (**white**) to pin 4 (**gray**): 7.5 to 12.5 VDC*

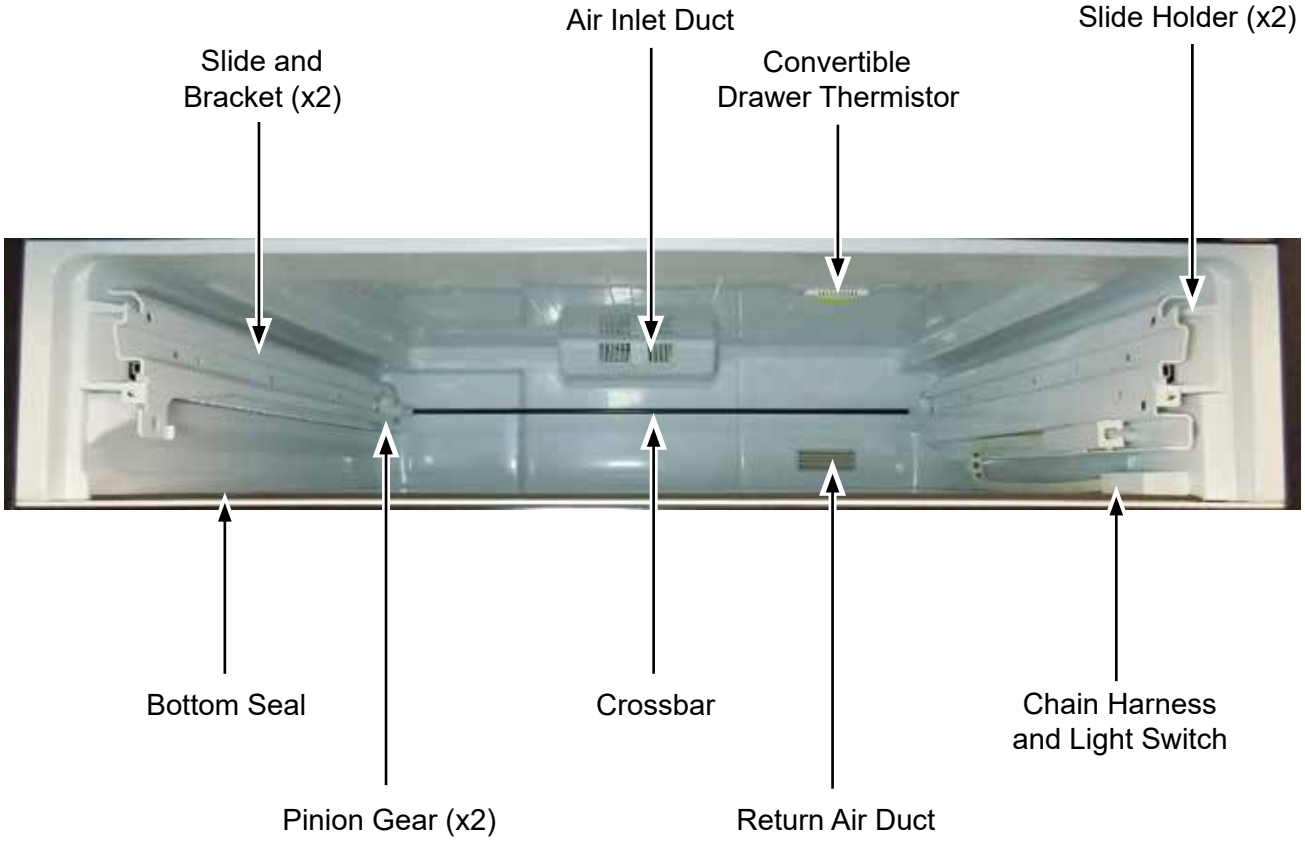
*__NOTE__: When the freezer drawer is opened, the main board delivers 7.5 VDC to the LED board and gradually increases the voltage to 12.5 VDC for full brightness.

Freezer LED Removal

1. Open the convertible drawer.
2. Use a flat-blade screw-driver to pry the right side of the LED cover down.

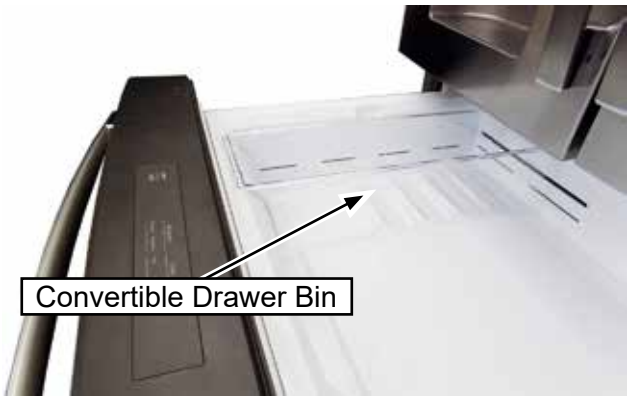
3. Lower the LED cover and disconnect the connector.

Convertible Drawer Compartment



Convertible Drawer Basket

The convertible drawer basket has one clear bin for can beverage storage.



The convertible drawer bin is replaceable. To remove the convertible drawer bin, lift the bin out of the convertible drawer basket.

Convertible Drawer Basket Removal

1. Pull the freezer drawer front to full extension.
2. Remove the basket by lifting up and out on the front of the basket.

Crossbar: Convertible Drawer

The crossbar helps stabilize the convertible drawer and keeps the slide and brackets even during drawer operation. The crossbar will need to be removed to remove slide and brackets, and slide holders.

Crossbar Removal

1. Remove the convertible drawer front (see **Convertible Drawer Front Removal** section).
2. Remove the convertible drawer basket.
3. Push the crossbar clip off the crossbar.

4. Slide the crossbar to the left to remove the bar from the right drawer gear.

5. Lift the now disengaged right side up and slide the bar to the right to remove the left side from the left gear.

Pinion Gears: Convertible Drawer

The crossbar is held in place with two gears which roll across the bottom of the slide holders during drawer operation. Left and right gears are NOT the same, the left side is longer than the right.

The gears clip to the slide and brackets. If the part of the slide and bracket that the gear clips to is broken, the slide and bracket will need to be replaced.

Pinion Gear Removal

1. Remove the convertible drawer front (see **Convertible Drawer Front Removal** section).
2. Remove the convertible drawer basket.
3. Remove the crossbar (see **Crossbar Removal** section).
4. Using a flat-blade screw-driver, gently pry the pinion gear off the slide and bracket.

Convertible Drawer Slide and Bracket

The convertible drawer utilizes two closure mechanisms that automatically pull the drawer shut when it is within 1-inch of the closed position.

The mechanisms are built into the ends of the two convertible drawer slide and brackets and are not replaceable as a separate part.

Convertible Drawer Slide and Bracket Removal

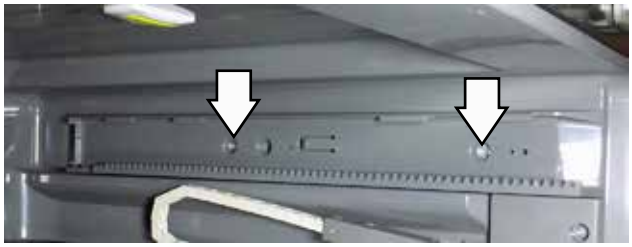
1. Remove the convertible drawer front (see **Convertible Drawer Front** section).
2. Remove the convertible drawer basket (see **Convertible Drawer Basket Remova**l sections).
3. Remove the crossbar (see **Crossbar Removal** section).
4. Pull the slide and bracket out to the stop position.
5. Press in the lock tab and pull the slide and bracket straight out from the slide holder.

Slide Holders: Convertible Drawer

The drawer slide holders secure the slide and brackets. The pinion gear also uses the holders to roll forward and backward across.

Slide Holder Removal

1. Follow **Convertible Drawer Slide and Bracket Removal** steps.
2. Remove two recessed 5/16-in. hex-head screws from the slide holder.



3. Pull the slide holder away from the liner.

Chain Harness

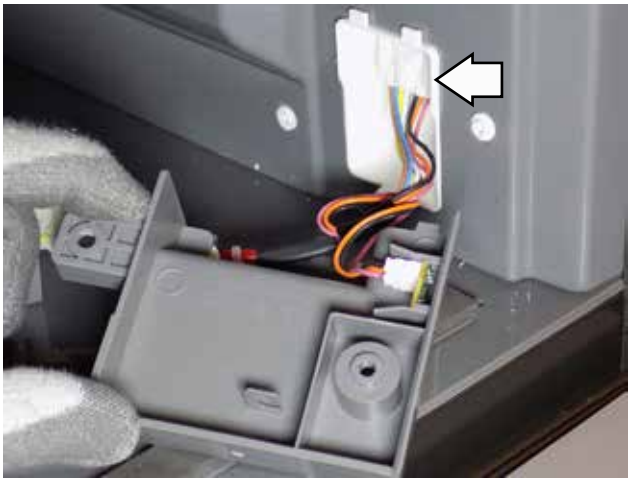
The convertible drawer front harness is protected by a plastic chain.

The chain prevents the harness from getting caught in the slide and bracket during opening and closing of the drawer. The harness comes as an assembly to include the connector covers and convertible drawer light switch.

Chain Harness Removal

1. Follow **Convertible Drawer Slide and Bracket Removal** steps in this section.
2. Remove the slide holder above the chain harness.
3. Remove two Phillips-head screws.

4. Disconnect the cabinet connector



Convertible Drawer Light Switch

The convertible drawer light switch is located inside the chain harness cabinet connector cover.

The reed style switch is actuated by a magnet built into the convertible drawer front.

Magnet foamed into convertible drawer front

Convertible Drawer Light Switch Diagnosing

The convertible drawer light circuit can be checked at the main board. Check voltage at the points below. Service Mode test **73** will display the status of the drawer switch (**0**: Closed, **1**: Open). If the switch is being tested with the chain harness cabinet connector cover removed from the liner, place a magnet on the face of the cover in front of the switch to close the switch contacts.

J7 Connector on Main Board w/ Drawer Open

- Pin 7 (**pink**) to pin 10 (**black**): 5 VDC
- Pin 2 (**orange**) to pin 10 (**black**): 5 VDC

J7 Connector on Main Board w/ Drawer Closed

- Pin 7 (**pink**) to pin 10 (**black**): 5 VDC
- Pin 2 (**orange**) to pin 10 (**black**): 0 VDC

Convertible Drawer Switch Removal

1. Follow **Chain Harness Removal** steps.
2. Disconnect the 3-pin connector and use a flat-blade screw-driver to pry the switch out of the chain harness cover.

Convertible Drawer (CD) Thermistor

The convertible drawer thermistor is located in the ceiling of the convertible drawer compartment. The main board uses the thermistor to monitor the convertible drawer temperature.

This thermistor does not have a connector to disconnect the thermistor from the liner. Follow **Convertible Drawer Thermistor Removal** and **Convertible Drawer Thermistor Replacement** steps to replace the thermistor.

Convertible Drawer Thermistor Diagnosing

To accurately test a thermistor, place the thermistor in a glass of ice and water (approximately 33°F) for several minutes and check for approximately 6.5k ohms. The thermistor values chart is listed below. Service Mode test **32** will display the thermistor temperature.

J5 connector on Main Board

- Pin 9 (**white**) to pin 10 (**white**): 5 VDC
- Pin 9 (**white**) to pin 10 (**white**): (see chart) Ω

Convertible Drawer Thermistor Values		
Temperature Degrees (°F)	**Temperature Degrees (°C)**	**Resistance in k-Ohms**
-13	-25	24.9 kΩ
-4	-20	18.7 kΩ
5	-15	14.1 kΩ
14	-10	10.7 kΩ
23	-5	8.2 kΩ
32	0	6.4 kΩ
41	5	4.9 kΩ
50	10	3.9 kΩ
59	15	3.1 kΩ
68	20	2.4 kΩ
77	25	2 kΩ
86	30	1.6 kΩ
95	35	1.3 kΩ
104	40	1 kΩ

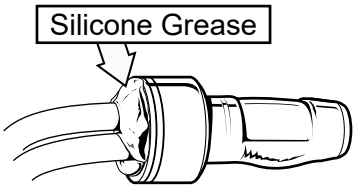
Convertible Drawer Thermistor Removal

1. Remove the convertible drawer front (see the **Convertible Drawer Front** section).
2. Remove the convertible drawer thermistor cover using a flat-blade screw-driver.

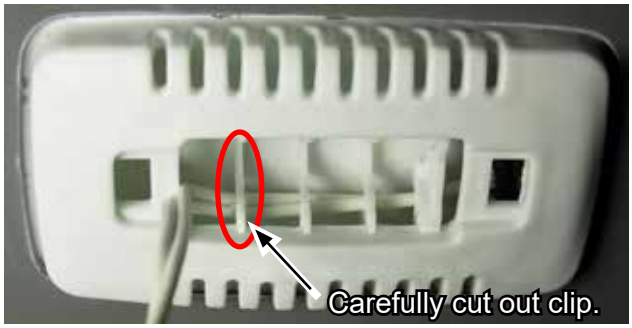
3. Use a flat-blade screw-driver to pry the thermistor from the housing.
4. Pull the thermistor wiring out of the housing.

Convertible Drawer Thermistor Replacement

1. Follow **Convertible Drawer Thermistor Removal** steps.
2. Cut the thermistor wiring as close to the thermistor as possible.
3. Strip the outer insulation from the thermistor case harness back 1-inch. Strip the two internal wires back 3/16-inch for splicing.
4. Prepare the replacement thermistor by cutting the wiring 4 inches back from the thermistor and strip the wires back 3/16-inch.
5. Using two bell connectors (**Part #**: WR01X10466), splice the wiring. After the splices are complete, fill the bell connectors fully with silicone grease (**Part #**: WR97X163).



6. Remove the far left thermistor clip from the housing (this provides room for WR01X10466 bell connectors and wiring to be tucked back up in the housing).



7. Clip the thermistor into the housing and reinstall the thermistor cover.

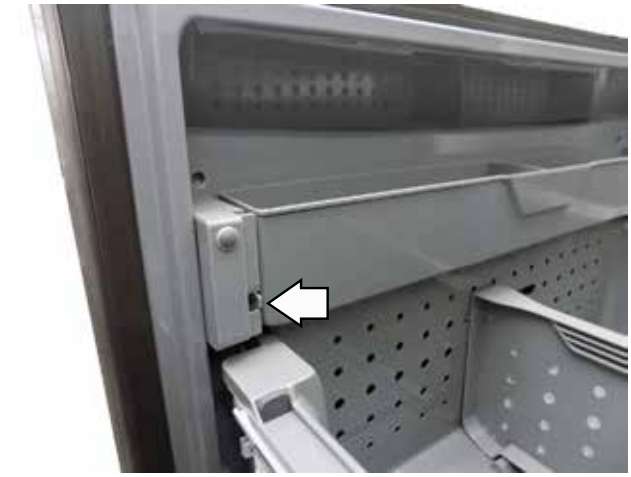
Freezer Drawer Front

Tilt-out Bin

The freezer drawer has a tilt-out bin mounted to the drawer.

Tilt-out Bin Removal

1. Push the plastic tab to the outside on either the left or right side bin bracket to release the bin hinge pin.



2. Lift up on the bin to remove it from the brackets.

NOTE: The bin has the left and right sides marked inside the bin corners in the circled areas with a raised L and R.

Tilt-out Bin Brackets

The tilt-out bin brackets are part of the freezer drawer front and cannot be replaced separately.

Freezer Drawer Front

The freezer drawer front is inserted into alignment slots (one on each side) and attached to the slide assemblies with four bolts (two on each side).

Freezer Drawer Front Removal

1. Remove the drawer bin, upper basket, lower basket (see **Freezer Drawer Bin** and **Upper and Lower basket** sections).

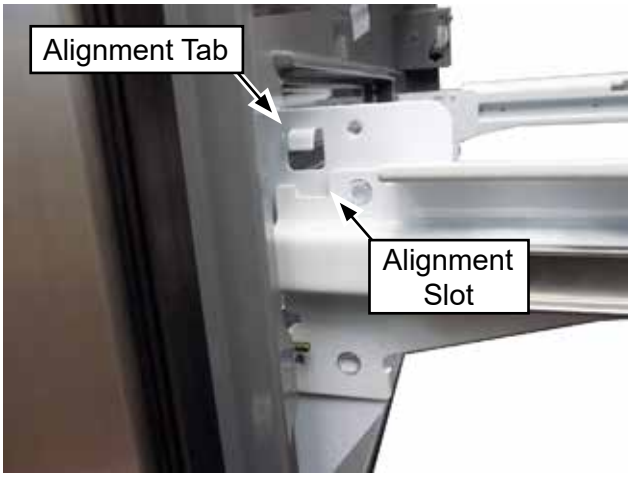
2. Remove four 5/16-in. hex-head bolts (two on each side) that attach the drawer front to the slide assemblies.

(Continued next page)

3. Lift the drawer front and drawer front brackets from the alignment slots in the slide and brackets.

4. Place the drawer front on a protected surface.

NOTE: When installing the freezer drawer front, make sure the drawer alignment tabs are placed inside the alignment slots before installing the four 5/16-in. hex-head bolts.



An adjustment set screw changes the pitch of the drawer front.

Adjusting the Freezer Drawer Front Gaps

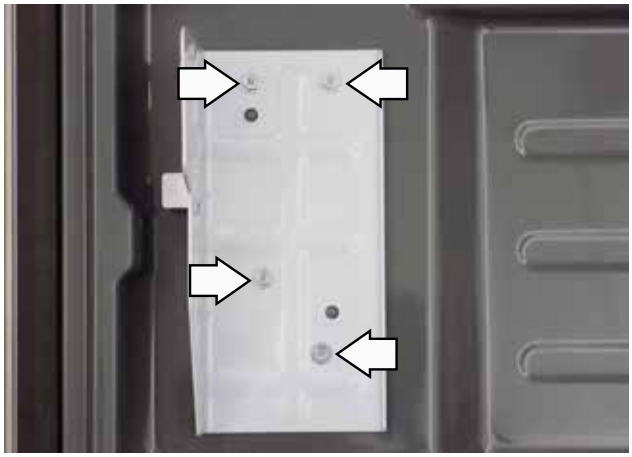
1. Loosen the four 5/16-in. hex-head bolts (two on each side) that attach the drawer front to the slide and brackets.
2. Adjust the 3/32-in. Allen set screw clockwise (CW) if the gap at the top is too big.
3. Adjust the set screw counter-clockwise (CCW) if the gap at the bottom is too big.
4. Tighten the two screws on each side (right and left).
5. Recheck the gaps and repeat steps 1 to 4, if required.

Freezer Drawer Brackets

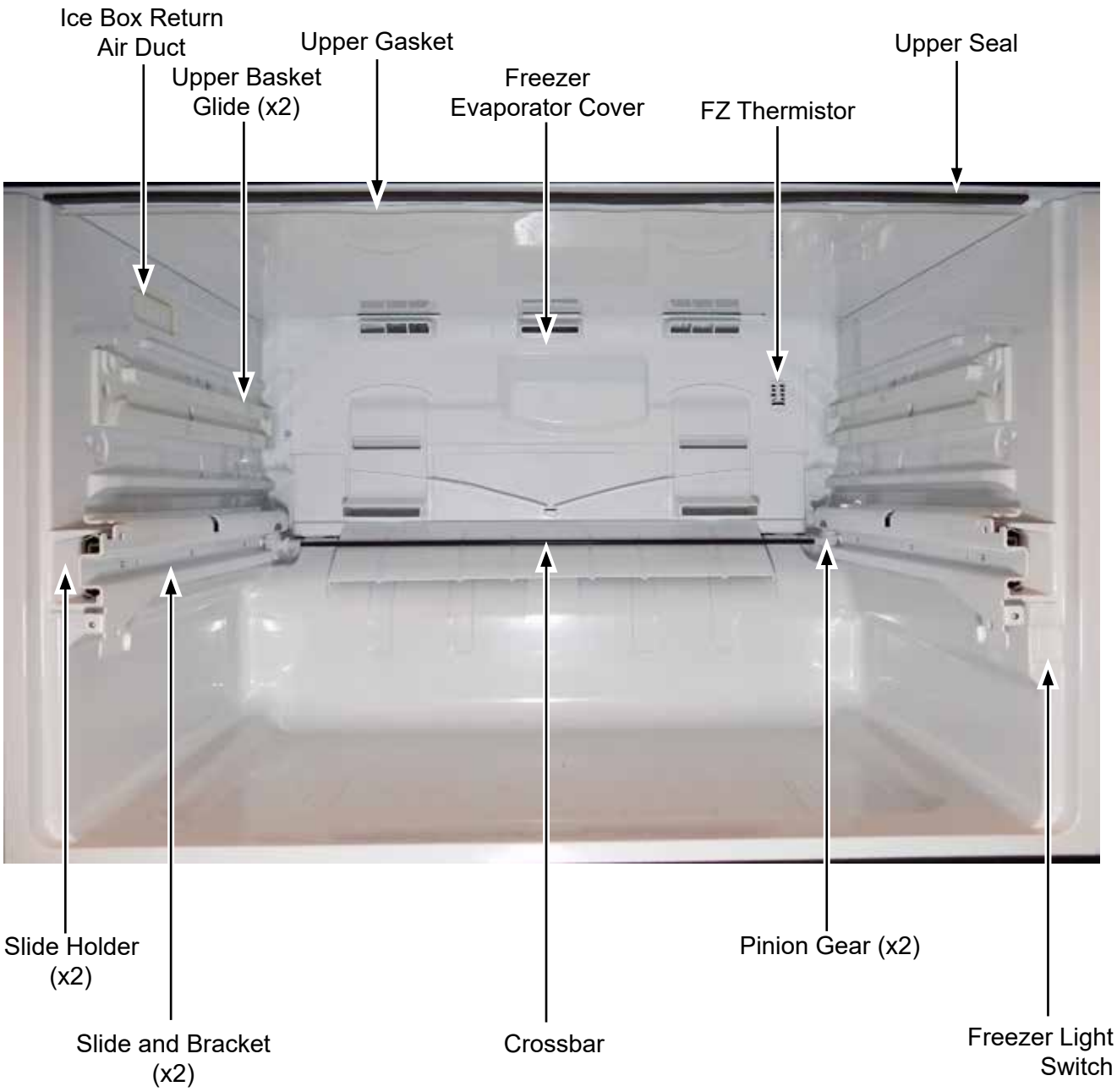
The freezer drawer front uses two brackets to connect to the slide and brackets.

Freezer Drawer Bracket Removal

1. Remove the drawer bin, upper basket, lower basket (see **Freezer Drawer Bin** and **Upper and Lower basket** sections).
2. Remove the freezer drawer front.
3. Remove four 5/16-in. hex-head screws.



Freezer Compartment

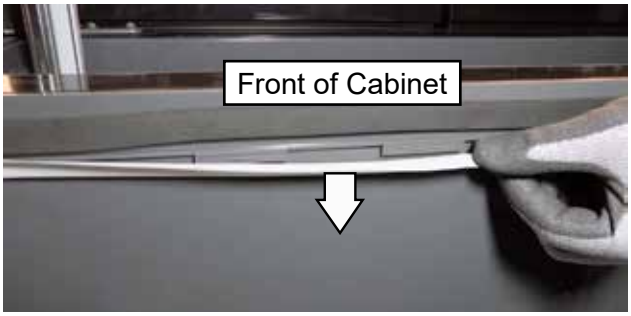


Upper Gasket

The upper gasket pushes into the top of the freezer liner.

Upper Gasket Removal

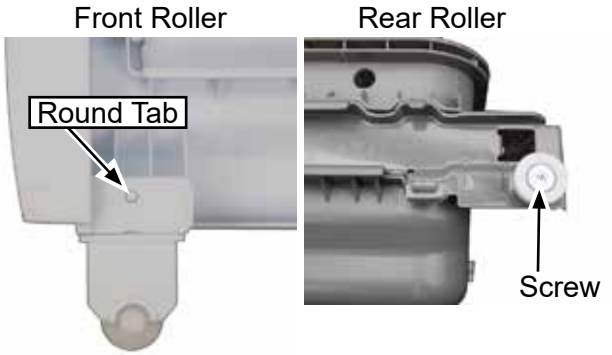
- Push the gasket back to remove it from the liner.



Upper Basket

The upper basket pulls out with the lower basket. The front rollers of the basket roll across the sides of the lower basket.

Upper baskets have removable front and rear rollers. Push in on the round tab while pulling down on the roller to remove front rollers and use a Phillips-head screw-driver to remove rear rollers.

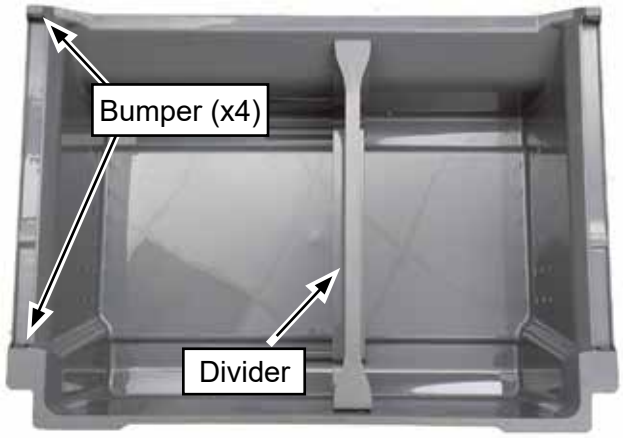


Upper Basket Removal

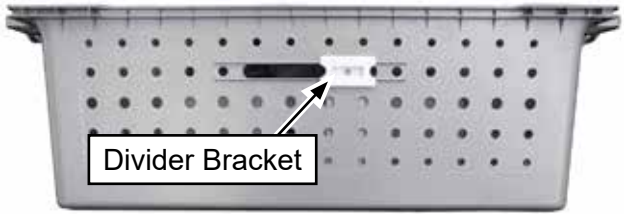
1. Pull the freezer drawer front to full extension.
2. Fully extend the upper basket.
3. Remove the basket by lifting up and out on the front of the basket.

Lower Basket

The basket pulls out with the drawer front. The lower basket has a replaceable sliding divider and bumpers.



The sliding divider is held in place with two divider brackets (one on the front and one on the rear of the basket). Each bracket is secured with one Phillips head screw.



Bumpers will pull through the basket by extending (stretching) the tail of the bumper while pulling the bumper forward and out of the hole in the basket.

Lower Basket Removal

1. Pull the freezer drawer front to full extension.
2. Remove the upper basket.
3. Lift the basket up off the lower basket slide and brackets.

Upper Basket Glide

Upper baskets glides are located on the left and right sides of the freezer liner. The supports are used to support the upper basket and allow the backside of the upper basket to slide forward and back.

Upper Basket Glide Removal

1. Remove the freezer drawer front.
2. Remove the upper basket.
3. Using a Phillips screw-driver, remove the roller.

4. Remove two Phillips-head screws.

5. Pull the glide away from the liner.

NOTE: Repeat removal procedure on the opposite side if necessary.

Crossbar: Freezer

The crossbar helps stabilize the lower drawer and keeps the drawer slide assemblies even during drawer operation. The crossbar will need to be removed to remove slide and brackets, and slide holders.

Crossbar Removal

1. Remove the upper and lower freezer baskets (see **Upper and Lower Basket Removal** sections).
2. Remove the freezer drawer front (see **Drawer Front Removal** section).
3. Push the crossbar clip off the crossbar.

4. Slide the crossbar to the left to remove the bar from the right drawer gear.

5. Lift the now disengaged right side up and slide the bar to the right to remove the left side from the left gear.

Pinion Gears: Freezer

The crossbar is held in place with two gears which roll across the bottom of the slide holders during drawer operation. Left and right gears are NOT the same, the left side is longer than the right.

The gears clip to the lower basket slide and brackets. If the part of the slide and bracket that the gear clips to is broken, the slide and bracket will need to be replaced.

Pinion Gear Removal

1. Remove the upper and lower freezer baskets.
2. Remove the freezer drawer front (see **Drawer Front Removal** section).
3. Remove the crossbar (see **Crossbar Removal** section).
4. Using a flat-blade screw-driver, gently pry the pinion gear off the lower basket slide and bracket.

Lower Basket Slide and Bracket

The freezer drawer utilizes two closure mechanisms that automatically pull the drawer shut when it is within 1-inch of the closed position.

The mechanisms are built into the ends of the two freezer drawer slide and brackets and are not replaceable as a separate part.

Lower Basket Slide and Bracket Removal

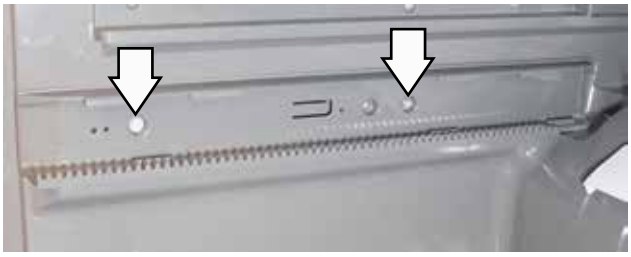
1. Remove the upper and lower baskets.
2. Remove the freezer drawer front.
3. Remove the crossbar (see **Crossbar Removal** section).
4. Pull the slide and bracket out to the stop position.
5. Press in the lock tab and pull the slide and bracket straight out from the slide holder.

Slide Holders: Freezer

The drawer slide holders secure the slide and brackets. The pinion gear also uses the holders to roll forward and backward across.

Slide Holder Removal

1. Follow **Lower Basket Slide and Bracket Removal** steps.
2. Remove two recessed 5/16-in. hex-head screws from the slide holder.



3. Pull the slide holder away from the freezer wall.

Freezer Light Switch

The freezer light switch is located on the right front of the freezer cabinet. The reed style switch is actuated by a magnet built into the freezer drawer front.

Magnet foamed into freezer drawer front.

Freezer Light Switch Diagnosing

The freezer light switch circuit can be checked at the main board. Check voltage at the below points. Service Mode test **72** will display the status of the drawer switch (**0**: Closed, **1**: Open). If the switch is being tested with the switch and cover removed from the liner, place a magnet on the face of the cover in front of the switch to close the switch contacts.

J7 Connector on Main Board w/ Drawer Open

- Pin 7 (**pink**) to pin 10 (**black**): 5 VDC
- Pin 1 (**blue**) to pin 10 (**black**): 5 VDC

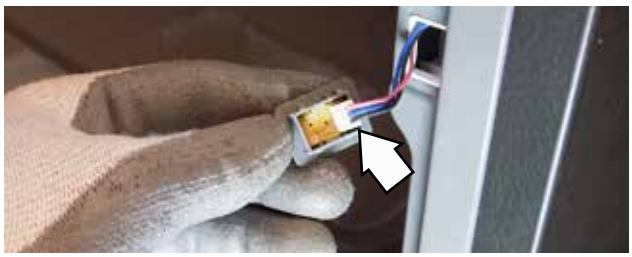
J7 Connector on Main Board w/ Drawer Closed

- Pin 7 (**pink**) to pin 10 (**black**): 5 VDC
- Pin 1 (**blue**) to pin 10 (**black**): 0 VDC

Freezer Light Switch Removal

1. Open the freezer drawer.
2. Remove the freezer basket.
3. Using a flat-blade screw-driver or a putty-knife, gently pry the freezer switch cover away from the cabinet liner.

4. Disconnect the 3-pin connector.



Freezer Evaporator Cover

The freezer evaporator cover is held to the back wall of the freezer with two Phillips-head screws.

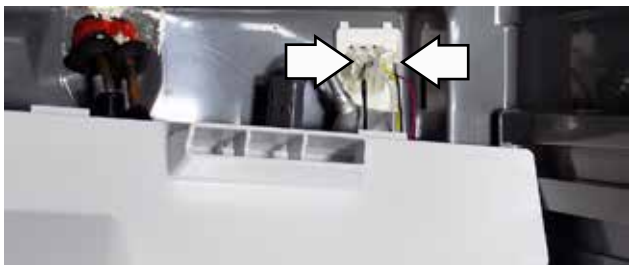
Freezer Evaporator Cover Removal

1. Remove the upper basket and lower baskets.
2. Remove the freezer drawer front.
3. Remove the crossbar.
4. Remove two Phillips-head screws.

5. Lift the bottom of the cover to release three bottom tabs, then pull cover out from the back wall. Slowly lower the cover to access the freezer thermistor and freezer fan connectors*.

***Caution**: Wires behind cover are short, slowly remove the cover or damage may occur to the wiring.

6. Disconnect the freezer thermistor and freezer fan connectors.



Freezer (FZ) Thermistor

The freezer air thermistor is located in the right side of the freezer evaporator cover. The main board uses the thermistor to monitor and regulate the freezer temperature.

Freezer Thermistor Diagnosing

To accurately test a thermistor, place the thermistor in a glass of ice and water (approximately 33°F) for several minutes and check for approximately 6.5k ohms. Thermistor values chart is listed below. Service Mode test **27** will display the thermistor temperature.

J5 connector on Main Board

- Pin 7 (**brown**) to pin 14 (**orange**): 5 VDC
- Pin 7 (**brown**) to pin 14 (**orange**): (see chart) Ω

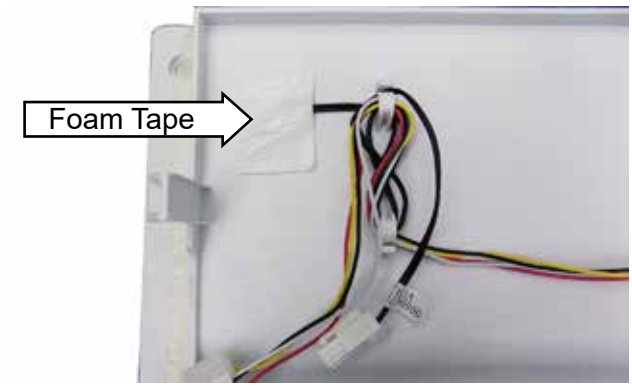
Freezer Thermistor Values		
Temperature Degrees (°F)	**Temperature Degrees (°C)**	**Resistance in k-Ohms**
-13	-25	25.3 kΩ
-4	-20	18.9 kΩ
5	-15	14.3 kΩ
14	-10	10.9 kΩ
23	-5	8.3 kΩ
32	0	6.4 kΩ
41	5	5 kΩ
50	10	3.9 kΩ
59	15	3.1 kΩ
68	20	2.5 kΩ
77	25	2 kΩ
86	30	1.6 kΩ
95	35	1.3 kΩ
104	40	1.1 kΩ

Freezer Thermistor Removal

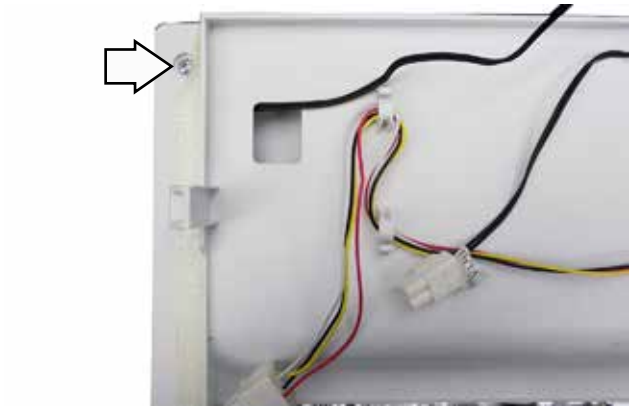
1. Remove the freezer drawer front (see the **Freezer Drawer Front** section).
2. Remove the freezer evaporator cover.

(Continued next page)

3. Uncoil the freezer thermistor wiring from the backside of the evaporator cover and remove the foam tape (setting it aside for reassembly).

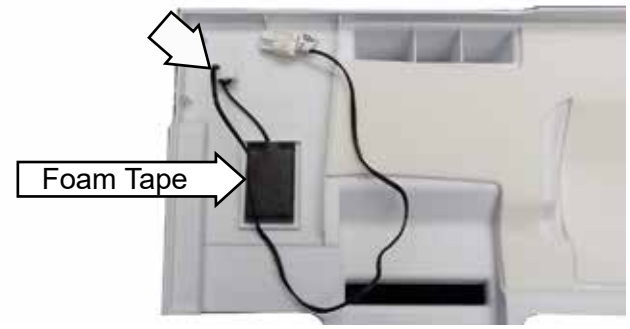


4. Remove one Phillips-head screw from the corner of the evaporator cover.

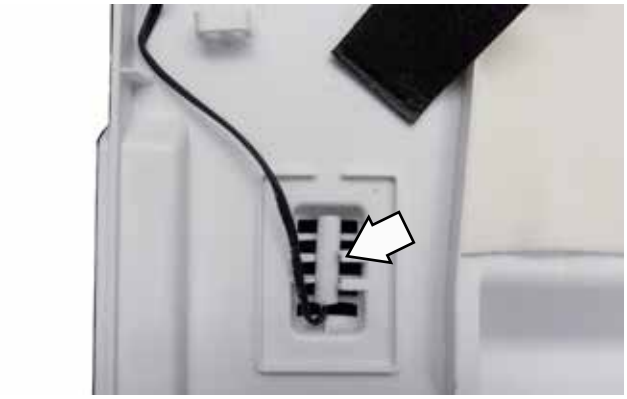


5. Using a flat-blade screw-driver or putty-knife and pry open the top of the evaporator cover.

6. Unwrap the thermistor wire from the inside of the cover and remove the foam tape covering the thermistor (setting it aside for reassembly).



7. Pull the thermistor from the tabs of the evaporator cover.



Freezer Fan

The freezer fan is attached to the evaporator cover, and utilizes a fan cover to direct airflow.

The freezer fan will operate at three speeds with RPM feedback to the control. The freezer fan speed range is 1,700 RPM to 2,000 RPM.

Freezer Fan Diagnosing

Enter Service Mode (see **Service Mode** section) and select test **48** to test freezer fan operation. The RPM valve should be displayed on the dispenser board (20 seconds for each fan speed). Voltages for the fan can be checked at the fan connector or at the main board.

- **Low Speed**: ~1,700 RPM
- **Medium Speed**: ~1,800 RPM
- **High Speed**: ~2,000 RPM

Fan Connector

- **Red** to **Black**: 12.5 VDC
- **Yellow** to **Black**: 2 to 4 VDC*
- **White** to **Black**: 2 to 3 VDC*

***NOTE**: (Voltage dependent on fan speed when fan is on, will be 0 VDC when fan is off).

Main Board

- J9 pin 3 (**black**) to J8 pin 6 (**red**): 12.5 VDC
- J9 pin 3 (**black**) to J4 pin 7 (**yellow**): 2 to 4 VDC*
- J9 pin 3 (**black**) to J4 pin 8 (**white**): 2 to 3 VDC*

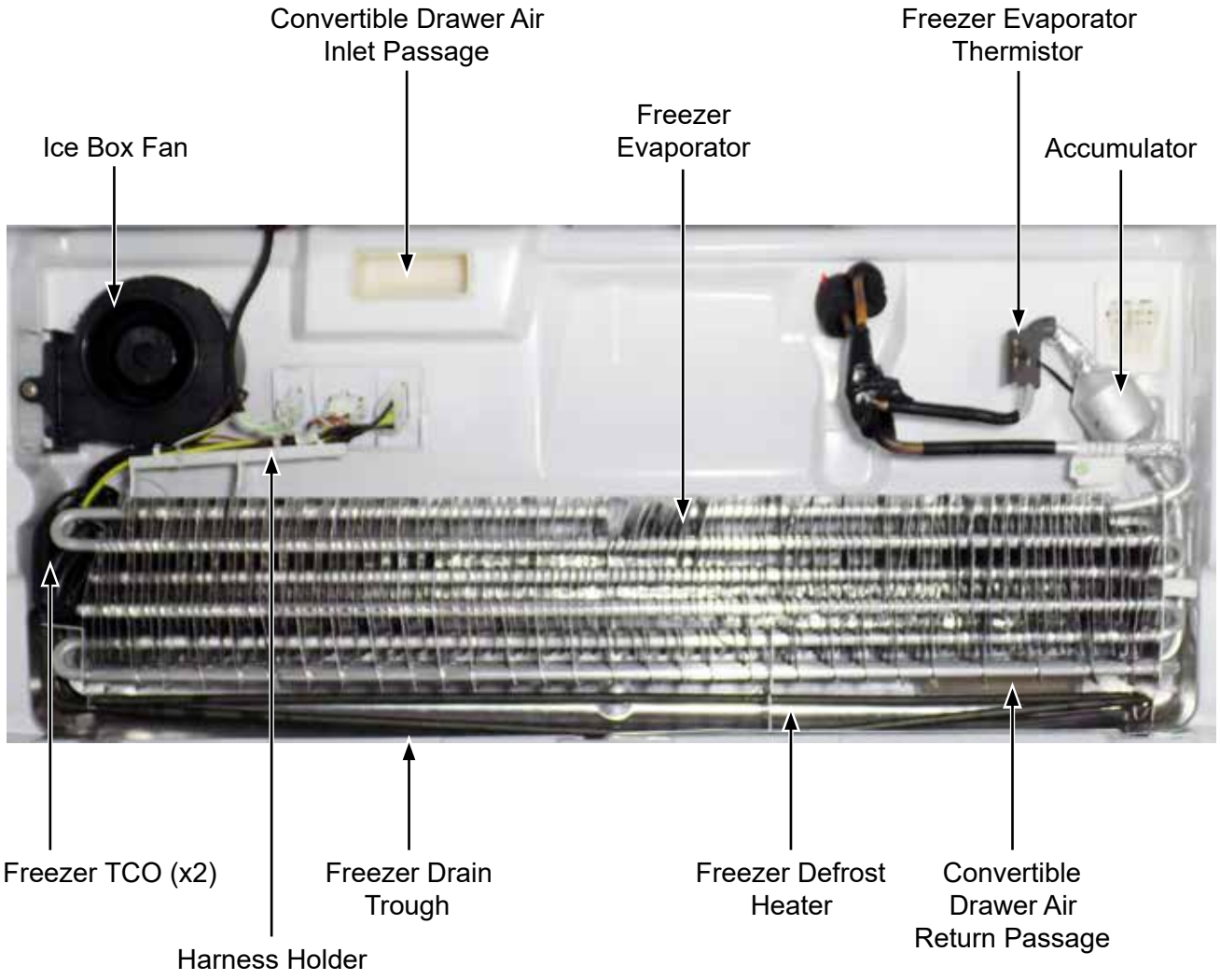
***NOTE**: (Voltage dependent on fan speed when fan is on, will be 0 VDC when fan is off).

Freezer Fan Removal

1. Remove the freezer drawer front (see the **Freezer Drawer Front** section).
2. Remove the freezer evaporator cover.
3. Uncoil the fan harness from the back side of the evaporator cover.

4. Spread the two tabs at the top of the fan and pull the fan away from the evaporator cover.

Freezer Evaporator Components



Ice Box Fan

The ice box fan is connected to the ice box inlet duct behind the evaporator cover. The icemaker fan will operate at three speeds with RPM feedback to the control. The fan speed range is 1,500 RPM to 1,800 RPM.

Ice Box Fan Diagnosing

Enter Service Mode (see **Service Mode** section) and select test **50** to test icemaker fan operation. The RPM value should be displayed on the dispenser board (20 seconds for each fan speed). Voltages for the fan can be checked at the fan connector or at the main board.

- **Low Speed**: ~1,500 RPM
- **Medium Speed**: ~1,700 RPM
- **High Speed**: ~1,800 RPM

Fan Connector

- **Red** to **black**: 12.5 VDC
- **Yellow** to **black**: 2 to 4 VDC*
- **White** to **black**: 2 to 3 VDC*

***NOTE:** (Voltage dependent on fan speed when fan is on, will be 0 VDC when fan is off).

Main Board

- J8 pin 1 (**black**) to J8 pin 4 (**red**): 12.5 VDC
- J8 pin 1 (**black**) to J4 pin 1 (**yellow**): 2 to 4 VDC*
- J8 pin 1 (**black**) to J4 pin 2 (**white**): 2 to 3 VDC*

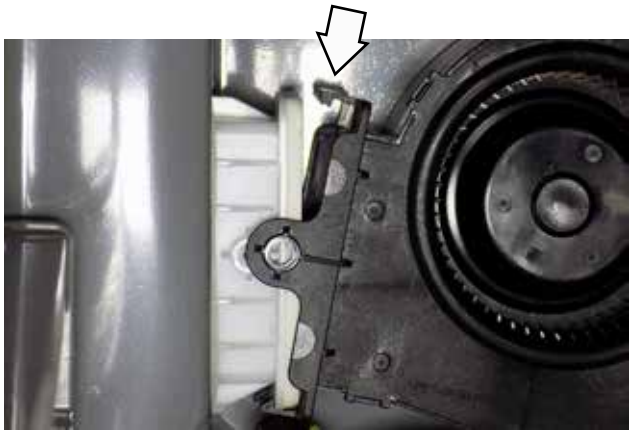
***NOTE**: (Voltage dependent on fan speed when fan is on, will be 0 VDC when fan is off).

Ice Box Fan Removal

1. Remove the upper basket and lower baskets.
2. Remove the freezer drawer front.
3. Remove the freezer evaporator cover.
4. Disconnect the connector from the back wall.

5. Remove one Phillips-head screw.

6. Use a flat-blade screw-driver to release the top tabs securing the fan to the air duct. Tip the fan away from the duct and remove the fan.



Freezer Evaporator Thermistor

The freezer evaporator thermistor is attached to the accumulator side of the evaporator with a plastic clip.

The thermistor monitors the evaporator temperature for defrost control. When the thermistor reaches a temperature of 59°F, the main board will terminate freezer defrost.

This thermistor does not have a connector to disconnect the thermistor from the liner. Follow **Freezer Evaporator Thermistor Replacement** steps to replace the thermistor.

Freezer Evaporator Thermistor Diagnosing

To accurately test a thermistor, place the thermistor in a glass of ice and water (approximately 33°F) for several minutes and check for approximately 6.5k ohms. Testing points are listed to below and the thermistor values chart is listed in the next column. Service Mode test **28** will display the thermistor temperature.

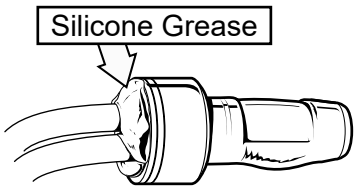
J5 Connector on Main Board

- Pin 11 (**black**) to pin 12 (**black**): 5 VDC
- Pin 11 (**black**) to pin 12 (**black**): (see chart in the right column) Ω

Freezer Evaporator Thermistor Values		
Temperature Degrees (°F)	**Temperature Degrees (°C)**	**Resistance in k-Ohms**
-13	-25	25.3 kΩ
-4	-20	18.9 kΩ
5	-15	14.3 kΩ
14	-10	10.9 kΩ
23	-5	8.3 kΩ
32	0	6.4 kΩ
41	5	5 kΩ
50	10	3.9 kΩ
59	15	3.1 kΩ
68	20	2.5 kΩ
77	25	2 kΩ
86	30	1.6 kΩ
95	35	1.3 kΩ
104	40	1.1 kΩ

Freezer Evaporator Thermistor Replacement

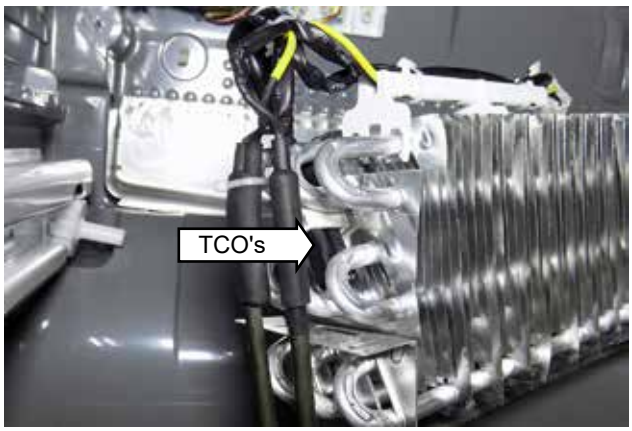
1. Remove the thermistor from the plastic clip.
2. Cut the thermistor wiring as close to the thermistor as possible.
3. Strip the outer insulation from the thermistor case harness back 1-inch. Strip the two internal wires back 3/16-inch for splicing.
4. Prepare the replacement thermistor by cutting the wiring 4 inches back from the thermistor and strip the wires back 3/16-inch.
5. Using two bell connectors (**Part #**: WR01X10466), splice the wiring. After the splices are complete, fill the bell connectors fully with silicone grease (**Part #**: WR97X163).



6. Snap the thermistor back into the plastic clip.

Freezer Thermal Cut-outs (TCO)

The freezer defrost heater assembly uses two one-shot thermal cut-outs (TCO's). The freezer TCO's are attached to the left side of the evaporator with a plastic clip.



The thermal cut-outs will open and de-energize the heater whenever the evaporator temperature reaches approximately 170°F.

Freezer TCO Diagnosing

The freezer TCO's are part of the freezer defrost heater. See **Freezer Defrost Heater Diagnosing** section of this guide.

Freezer TCO Removal

The freezer TCO's are part of the freezer defrost heater. See the **Freezer Defrost Heater Removal** section of this guide.

Freezer Defrost Heater

The defrost heater is a Calrod-style heater. It is located at the bottom of the freezer evaporator. It is held in place by five tabs on the evaporator brackets. The heater comes as an assembly with the heater harness and TCO's.

The freezer defrost heater has an approximate resistance value of 66-ohms.

Freezer Defrost Heater Diagnosing

The defrost heater circuit can be checked at the main board. To check voltage at the below points use the freezer defrost heater test **60** from Service Mode.

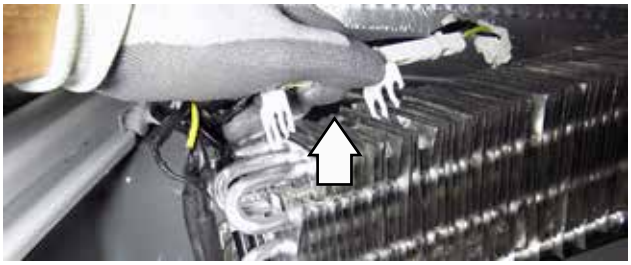
J3 Connector on Main Board

- Pin 1 (**orange**) to pin 2 (**red**): 66Ω
- Pin 1 (**orange**) to pin 2 (**red**): 120 VAC

Freezer Defrost Heater Removal

1. Remove the upper basket and lower baskets.
2. Remove the freezer drawer front.
3. Remove the freezer evaporator cover.
4. The freezer evaporator is clipped to the back wall. Carefully pull the evaporator away from the wall and swing the left side out.

5. Lift up on the harness to remove the harness holder from the top of the evaporator.



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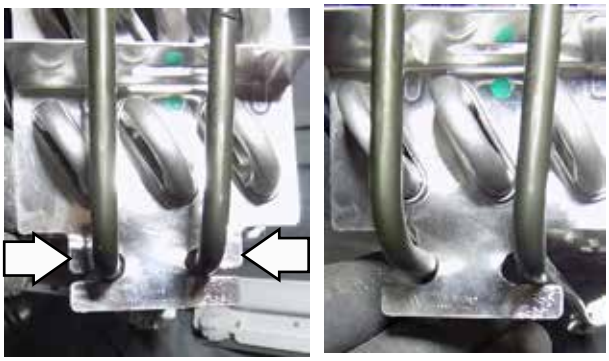
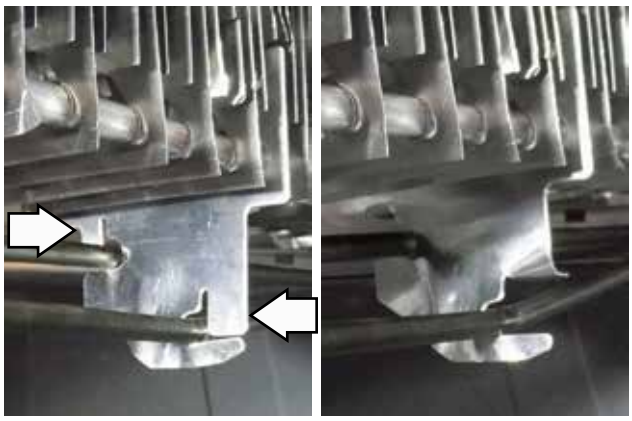
6. Pull the TCO's out of the TCO holder.

7. Bend the tabs on the left side of the evaporator bracket up.



8. Bend the tabs on the center evaporator bracket up.



9. Bend down the tab on the right evaporator bracket and remove the heater from the evaporator.

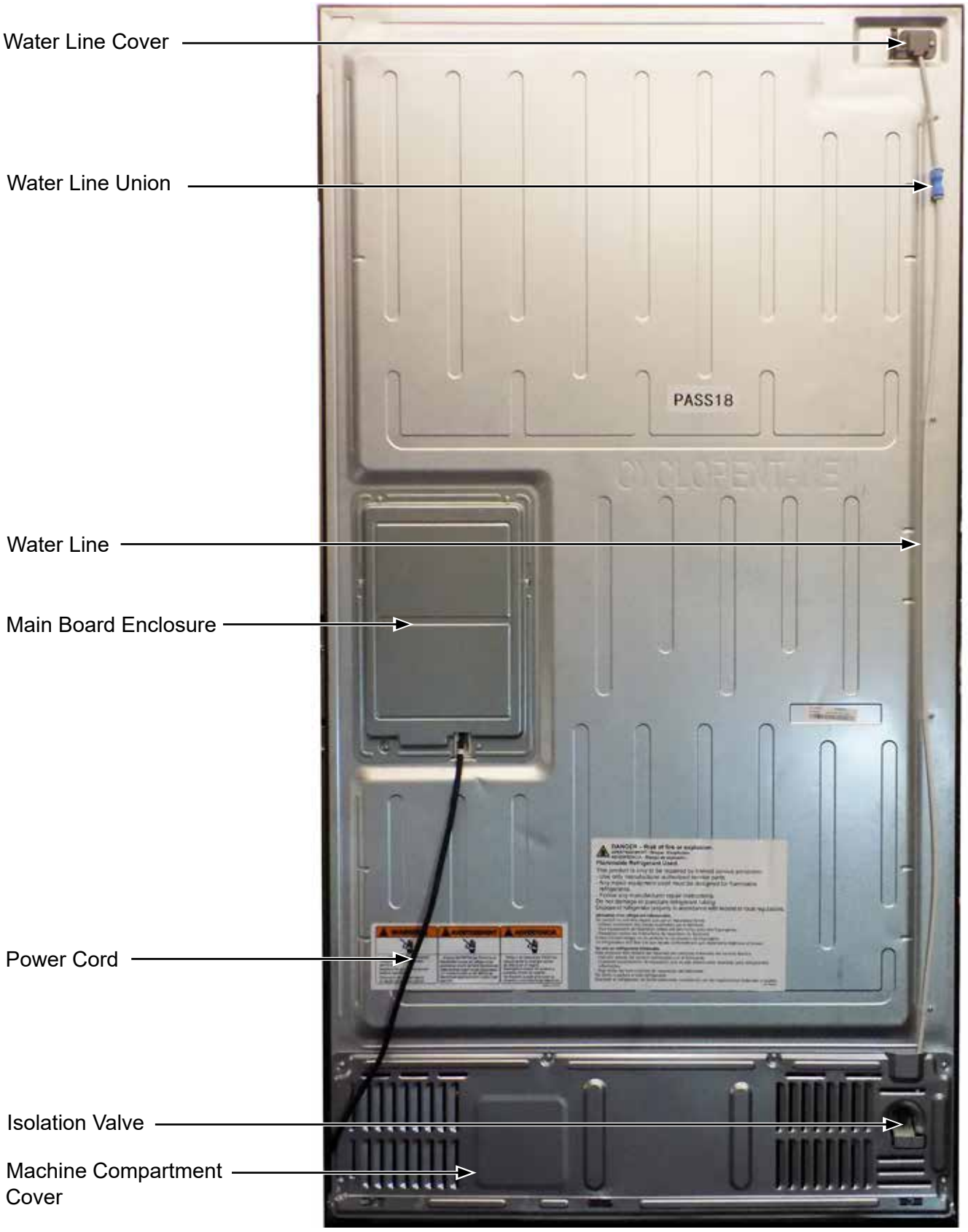
Freezer Evaporator

The freezer evaporator coil is an aluminum set of coils located in the freezer. The refrigerant in the aluminum coils pulls the heat energy from the air circulated across it by the evaporator fan, causing the air to become cold. The accumulator is also part of the evaporator.

Freezer Evaporator Removal

1. Remove the upper and lower baskets.
2. Remove the freezer drawer front.
3. Remove the freezer evaporator cover (see the **Freezer Evaporator Cover** section).
4. Remove the freezer evaporator thermistor.
5. Disconnect the freezer defrost heater connector from the case.
6. Follow evacuation procedure and disconnect the capillary and suction tubes from the evaporator.
7. Unclip the left and right sides of the evaporator by pulling the evaporator away from the back of the freezer (the clips are located in the upper left and right corners).
8. Remove the defrost heater from the evaporator.

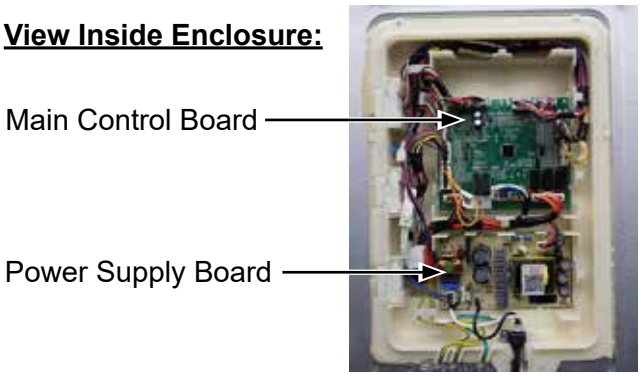
Rear View


Water Line Cover
Water Line Union
PASS18
Water Line
Main Board Enclosure
Power Cord
Isolation Valve
Machine Compartment Cover

Board Enclosure Cover

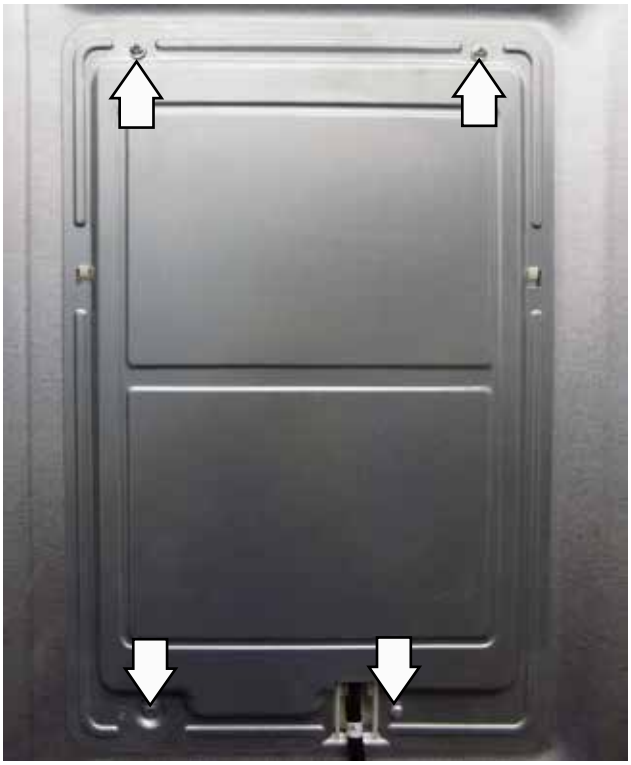
Viewed from the rear, the board enclosure is located on the back left side of the case. The enclosure houses the power and main control boards.

View Inside Enclosure:



Board Enclosure Cover Removal

1. Remove four Phillips-head screws.



2. Slide the cover up to release the cover from the left and right enclosure tabs.

Power Cord

The power cord of this appliance is equipped with a 3-prong (grounding) plug, that mates with a standard 3-prong (grounding) wall outlet to minimize the possibility of electric shock hazard from this appliance.

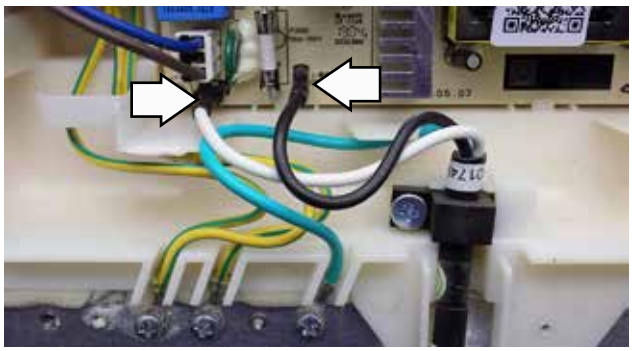
If the outlet is a standard 2-prong outlet, it is the responsibility and obligation of the owner to have it replaced with a properly grounded 3-prong wall outlet. An adapter should not be used.

A 115 VAC, 60 Hz, 15- or 20-amp fused, grounded electrical supply is required. This provides the best performance and also prevents overloading house wiring circuits which could cause a fire hazard from overheated wires.

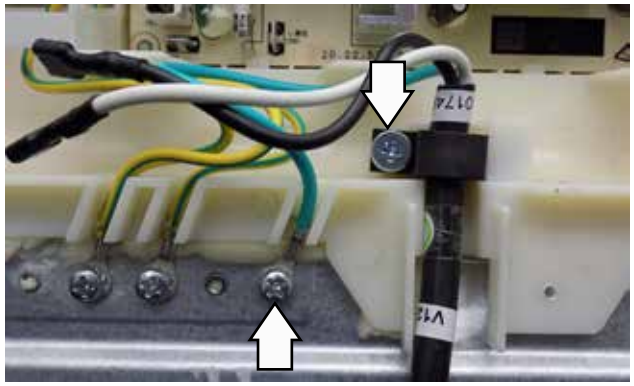
WARNING: Do not, under any circumstances, cut or remove the third (ground) prong from the power cord. For personal safety, this appliance must be properly grounded.

Power Cord Removal

1. Disconnect the power cord plug from the house outlet.
2. Remove the board enclosure cover.
3. Remove the L1 and neutral wires from the power supply board.



4. Remove two Phillips-head screws.



Power Supply Board

The power supply board is installed in the board enclosure found on the backside of the appliance. The power supply board supplies 120 VAC to the main control board, door board, and inverter from the CN3 connector. DC voltage of 12.5 volts is also supplied to the main control board from CN5.

Power Supply Board Diagnosing

The power supply board has a 16A fuse soldered to the lower left corner. This fuse should not be attempted to be replaced. If the fuse is open, replace the power supply board.

Power Cord

- L1 (**black**) to Neutral (**white**): 120 VAC

If voltage is not present, check the house supply and/or the power cord.

Power Supply Board

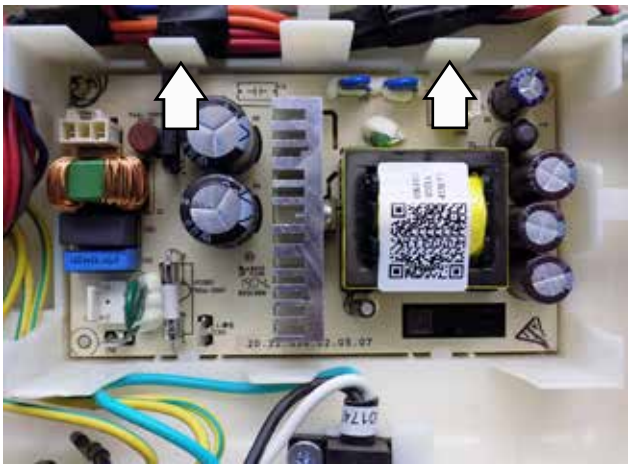
- CN3 pin 1 (**brown**) to CN3 pin 3 (**blue**): 120 VAC

Check for 120 VAC at CN1 to CN2. If 120 VAC is missing there, then check house supply or continuity of the power cord.

- CN5 pin 1 (**red**) to CN5 pin 2 (**black**): 12.5 VDC

Power Supply Board Removal

1. Disconnect the power to the appliance.
2. Remove the board enclosure cover.
3. Disconnect all wire connectors from the board.
4. Push up on two retaining tabs while pulling the top of the board away from the enclosure.



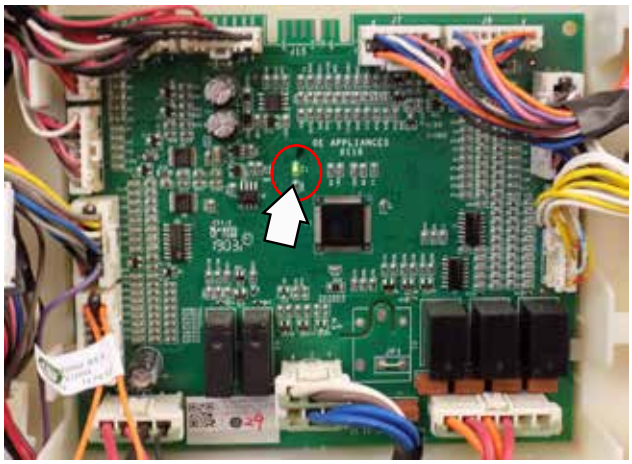
Main Control Board

The main control board is installed in the board enclosure found on the backside of the appliance. The main control board operates the following outputs:

- Door board, convertible board, Wi-Fi board, and inverter.
- Freezer temperature control using compressor, fans and 3-way valve
- Refrigerator temperature control using compressor, fans, and 3-way valve
- Convertible drawer control using the convertible drawer damper
- Variable fan speed control with RPM feedback for the condenser, refrigerator, freezer, and ice box fans
- Freezer and refrigerator evaporator defrost control
- Control of the isolation water valve
- Door switch input voltage.
- Control of the interior LED lighting in the refrigerator compartment

Main Control Board Diagnosing

Main control board voltages can be verified at the J1, J2, and J6 connectors on the main control board. If the white communication LED on the board is not illuminated (should be blinking), verify the board is receiving proper voltage before replacing the part.



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Main Control Board

- J2 pin 2 (**brown**) to J2 pin 6 (**blue**): 120 VAC

If 120 VAC is missing from J2, check the house supply before replacing the main control board.

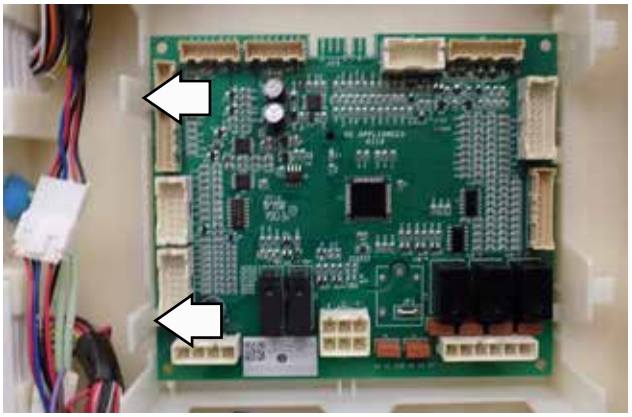
- J1 pin 1 (**red**) to J1 pin 3 (**black**): 12.5 VDC

If 12.5 VDC is missing from J1 pins 1 to 3, check the power supply board before replacing the main control board.

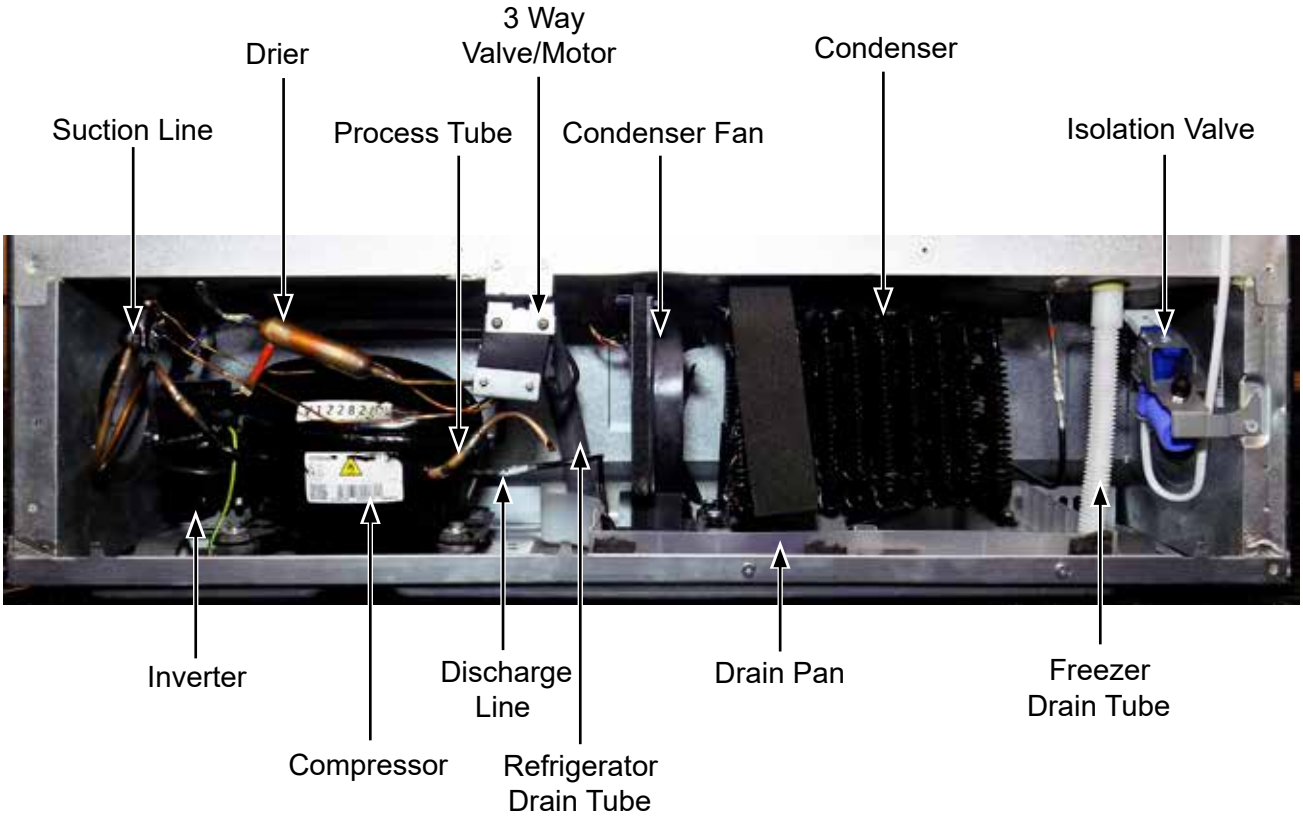
- J1 pin 2 (**red**) to J1 pin 4 (**black**): 12.5 VDC
- J1 pin 2 (**red**) to J6 pin 9 (**blue**): 12.5 VDC
- J6 pin 3 (**red**) to J6 pin 4 (**black**): 12.5 VDC
- J6 pin 3 (**red**) to J6 pin 9 (**blue**): 12.5 VDC

Main Control Board Removal

1. Disconnect the power to the appliance.
2. Remove the board enclosure cover.
3. Disconnect all wire connectors from the board.
4. Push two retaining tabs to the left while pulling the left side of the board away from the enclosure.



Machine Compartment

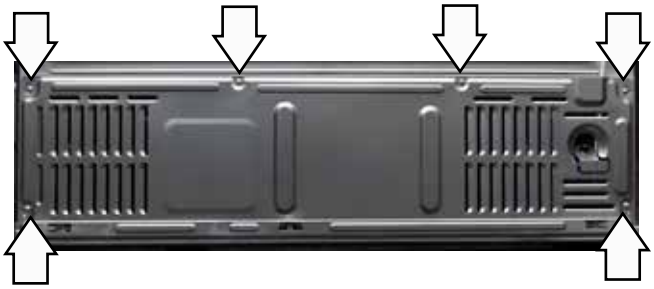


Machine Compartment Cover

The machine compartment cover will need to be removed to access the machine compartment components.

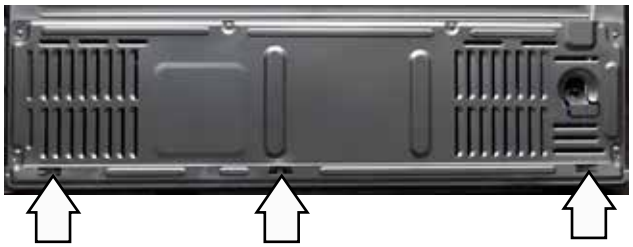
Machine Compartment Cover Removal

1. Remove six Phillips-head screws.



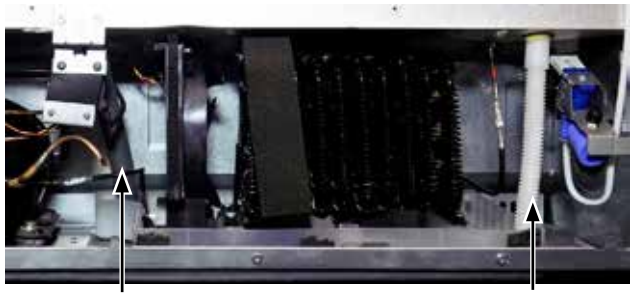
2. Lift the cover up from three raised tabs of the base pan.

NOTE: When installing the machine compartment cover, be sure to place the three base pan tabs inside the cover before installing screws.



Drain Tubes

The freezer and refrigerator evaporators have separate drain tubes that exit into the drain pan under the condenser.



Refrigerator Drain Tube

Freezer Drain Tube

Drain Tube Removal

- Pull down on the drain tube to disconnect it from the top of the machine compartment.

Inverter

The inverter is the power source for the compressor and controls the compressor speed. The inverter receives 120 VAC and 5 VDC from the main board. The main board uses the DC voltage to communicate to the inverter what speed to run the compressor.

Inverter Diagnosing

Using one of two Service Mode cooling tests (**95** or **96**) will turn on the compressor to verify proper voltages to the inverter. **Voltage out of the inverter must not be checked.**

CN3 on Power Supply Board

- Pin 1 (**brown**) to pin 3 (**blue**): 120 VAC

J12 on Main Board

- Pin 1 (**red**) to pin 2 (**black**): 2.5 VDC

DC connector to Inverter

- **Red** to **black**: 2.5 VDC (w/ inverter connected)
- **Red** to **black**: 4 to 5 VDC (w/ inverter disconnected)

Check the resistance of the compressor windings, each winding should have a resistance of 11-ohms. If the resistance is not correct or a winding is open or shorted to the case of the compressor, replace the compressor; otherwise replace the inverter if the voltages are present to the inverter.

NOTE: Sometimes compressor failure can lead to damage to the inverter, and it may be necessary to replace both the inverter and compressor.

Inverter Removal

1. Disconnect power to the appliance.
2. Remove the machine compartment cover.

(Continued next page)

3. Remove two Phillips-head screws (one secures the inverter to the compressor the other removes the inverter ground wire from the base pan).

4. Disconnect the AC and DC inverter harness connectors.

5. Lift the inverter up and tilt to the left.

6. Using a flat-blade screw-driver, gently pry the inverter connector off of the compressor pins.

7. Pull inverter from the machine compartment. (It may be necessary to carefully bend the suction line toward the cabinet.)

8. Disconnect the ground wire from the terminal on the compressor.

Compressor

The R600a compressor is variable speed. The compressor operates at high, medium, and low speeds. Speeds are controlled by the inverter based on voltages delivered by the main control board.

WARNING: During normal operation, the temperature of the compressor may be hot. Use caution to avoid injury and wear Kevlar® gloves or equivalent protection.

Compressor Diagnosing

Using one of two Service Mode cooling tests (**95** or **96**) will turn on the compressor to verify proper voltages to the inverter. **Voltage out of the inverter must not be checked.**

CN3 on Power Supply Board

- Pin 1 (**brown**) to pin 3 (**blue**): 120 VAC

J12 on Main Board

- Pin 1 (**red**) to pin 2 (**black**): 2.5 VDC

DC Connector to Inverter

- **Red** to **black**: 2.5 VDC (w/ inverter connected)
- **Red** to **black**: 4 to 5 VDC (w/ inverter disconnected)

Check the resistance of the compressor windings, each winding should have a resistance of 11-ohms. If the resistance is not correct or a winding is open or shorted to the case of the compressor, replace the compressor; otherwise replace the inverter if the voltages are present to the inverter.

(Continued next page)

NOTE: Sometimes compressor failure can lead to damage to the inverter, it may be necessary to replace both the inverter and compressor.

Compressor Removal

1. Remove R600a refrigerant from the system (follow the **Evacuation and Charging Procedure**, under **Replacing R600a Sealed System Components** in this service guide).
2. Follow **Inverter Removal** steps, under **Inverter** in this section.
3. Disconnect suction and discharge lines.
4. Remove three 1/2-inch bolts securing the compressor to the base pan.

5. Pull the compressor out of the machine compartment.

3-Way Valve Coil

The 3-way valve coil is attached to the top of the 3-way valve.

3-Way Valve Coil Diagnosing

Service Mode tests **95** and **96** can be used to check initial valve movement, which can be felt by placing a hand on top of the valve. The resistance values of the coil can be checked by removing J10 and J12 connectors from the main board.

Main Board Connectors

- J10 pin 4 (**red**) to J12 pin 8 (**brown**): 41Ω
- J10 pin 4 (**red**) to J12 pin 7 (**yellow**): 41Ω
- J10 pin 4 (**red**) to J12 pin 6 (**blue**): 41Ω
- J10 pin 4 (**red**) to J12 pin 5 (**gray**): 41Ω

- J12 pin 8 (**brown**) to J12 pin 7 (**yellow**): 82Ω
- J12 pin 8 (**brown**) to J12 pin 6 (**blue**): 82Ω
- J12 pin 8 (**brown**) to J12 pin 5 (**gray**): 82Ω
- J12 pin 7 (**yellow**) to J12 pin 6 (**blue**): 82Ω
- J12 pin 7 (**yellow**) to J12 pin 5 (**gray**): 82Ω
- J12 pin 6 (**blue**) to J12 pin 5 (**gray**): 82Ω

3-Way Valve Coil Removal

The 3-way valve coil is part of the 3-way valve. Follow **3-Way Valve Removal** steps, under **3-Way Valve** in this section to replace the valve and coil.

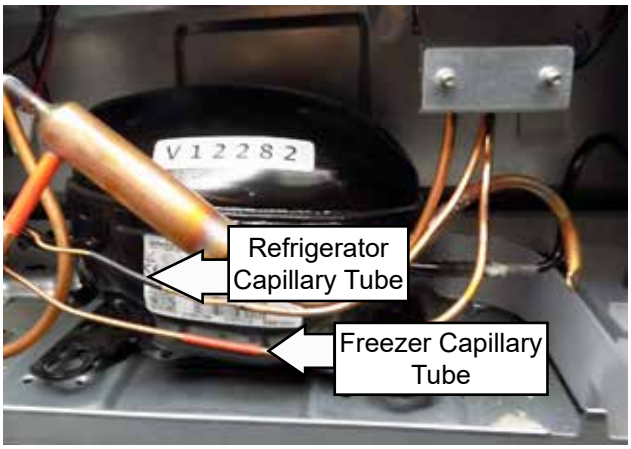
3-Way Valve

The 3-way valve is located in the machine compartment between the compressor and the condenser fan.

The capillary tubes on the appliance are color coded on the tubing.

The refrigerator capillary tube is color coded **BLACK**.

The freezer capillary tube is color coded **RED**.



The 3-way valve is used to direct refrigerant flow.

The four different valve positions are referred to by the letters **A**, **B**, **C**, and **D**.

A	*Open to the refrigerator and freezer evaporators in series (refrigerant flows through the refrigerator evaporator and then into the freezer evaporator).*
B	*Open to the freezer evaporator only.*
C	*Open to both the refrigerator and freezer evaporators via the individual capillary tubes (This position is not currently used on these models for cooling.)*
D	*Closed to both refrigerator and freezer evaporators during the off cycle (this is also called the home position).*

3-Way Valve Diagnosing

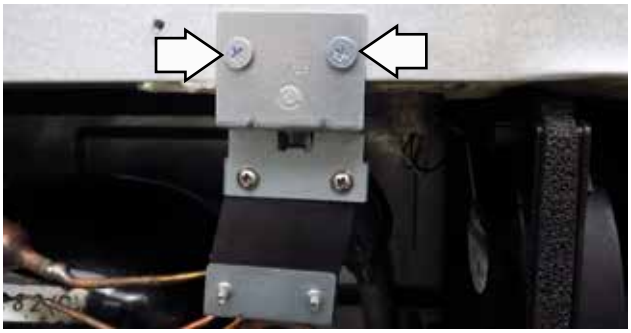
Service Mode tests **95** and **96** can be used to check valve operation. When selecting test **95** and **96**, check the 3-way valve coil by placing a hand on top of the valve and feeling for movement.

In test **95**, the compressor will be on with the 3-way valve in the refrigerator and freezer position. The refrigerator (FF) evaporator thermistor temperature will be displayed.

In test **96** the compressor will be on with the 3-way valve in the freezer only position. The freezer (FZ) evaporator thermistor temperature will be displayed.

3-Way Valve Removal

1. Remove the machine compartment cover (see **Machine Compartment Cover** section).
2. Remove two Phillips-head screws that attaches the 3-way valve bracket to the cabinet.



3. Disconnect the 3-way valve motor connector.
4. Follow evacuation procedures (see the **Evacuation and Charging Procedure**, under **Replacing R600a Sealed System Components** in this service guide) and disconnect the capillary lines and drier from the 3-way valve.

Condenser Fan

The condenser fan is located in the machine compartment between the 3-way valve and the condenser.

The condenser fan will operate at 1,050 RPM to 1,150 RPM with RPM feedback to the control. Low and medium speeds will operate at the same RPM value.

Condenser Fan Diagnosing

Enter Service Mode (see **Service Mode** section) and select test **49** to test condenser fan operation. The RPM valve should be displayed on the dispenser board (20 seconds for each fan speed). Voltages for the fan can be checked at the fan connector or at the main control board.

- **Low Speed**: ~1,050 RPM
- **Medium Speed**: ~1,050 RPM
- **High Speed**: ~1,150 RPM

Fan Connector

- **Red** to **black**: 12.5 VDC
- **Yellow** to **black**: 2 to 4 VDC (speed voltage)*
- **White** to **black**: 2 to 3 VDC (feedback voltage)*

***NOTE:** (Voltage dependent on fan speed when fan is on, will be 0 VDC when fan is off).

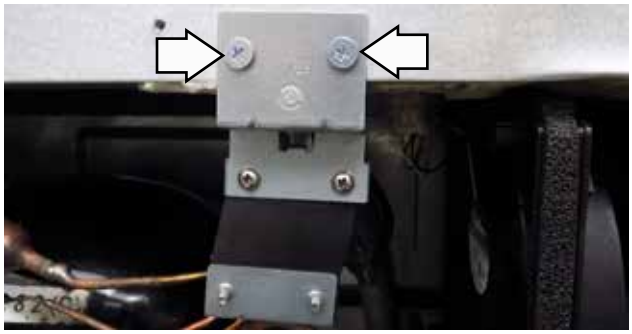
Main Board Connectors

- J9 pin 2 (**black**) to J10 pin 2 (**red**): 12.5 VDC
- J9 pin 2 (**black**) to J4 pin 9 (**yellow**): 2 to 4 VDC*
- J9 pin 2 (**black**) to J4 pin 10 (**white**): 2 to 3 VDC*

***NOTE**: (Voltage dependent on fan speed when fan is on, will be 0 VDC when fan is off).

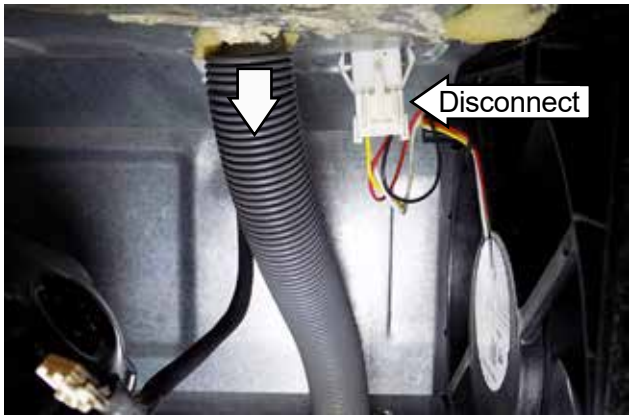
Condenser Fan Removal

1. Remove the machine compartment cover (see the **Machine Compartment Cover** section).
2. Remove two Phillips-head screws from the 3-way valve bracket.



3. Disconnect the 3-way valve motor connector.
4. Carefully swing the 3-way valve away from the machine compartment a few inches.

5. Pull down on the refrigerator drain tube to remove the drain tube from the top of the machine compartment and disconnect the condenser fan connector.



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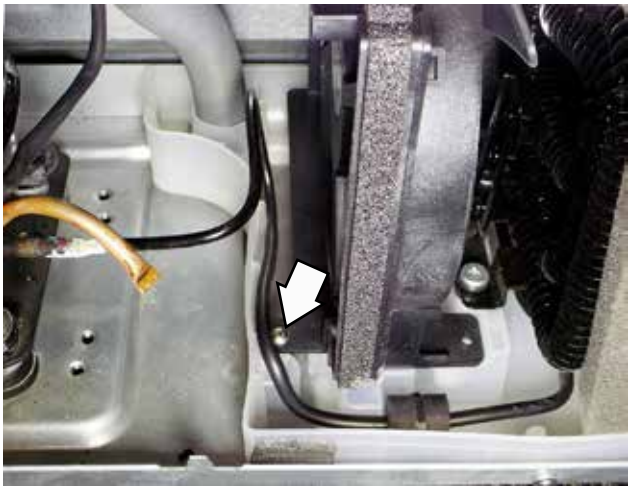
6. Carefully reposition the discharge line to the left of the fan to the outside of the drain pan.

7. Remove one Phillips-head screw.



8. Slide the condenser fan out to the end of the drain pan.

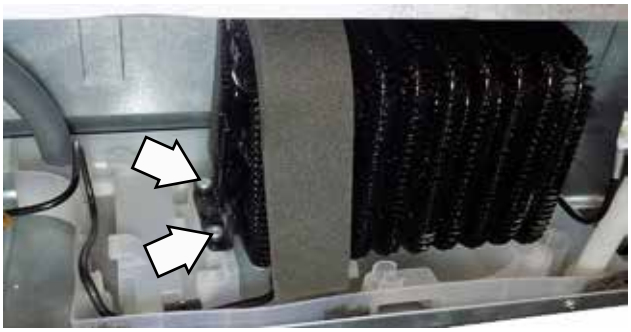
9. Tip the condenser fan to the left and pull the fan out of the machine compartment.

Condenser

The condenser is a steel wrapped coil which the appliance uses to exchange heat from inside the cabinet to outside the cabinet.

Condenser Removal

1. Remove the machine compartment cover.
2. Remove the condenser fan (see **Condenser Fan Removal**).
3. Follow evacuation procedures (see the **Evacuation and Charging Procedure**) and disconnect the discharge line from the compressor and line going to the case.
4. Remove four Phillips-head screws.



5. Lift the condenser out of the drain pan.

Isolation Water Valve

The isolation valve is operated by the main control board. The valve supplies water to the filter and prevents the filter from being under constant house water pressure. The valve coil has an approximate resistance value of .41k ohms.

Isolation Water Valve Diagnosing

Valve operation can be verified using Service Mode test **55**. While in the test check for voltage at the 2-pin connector of the valve or at the main board.

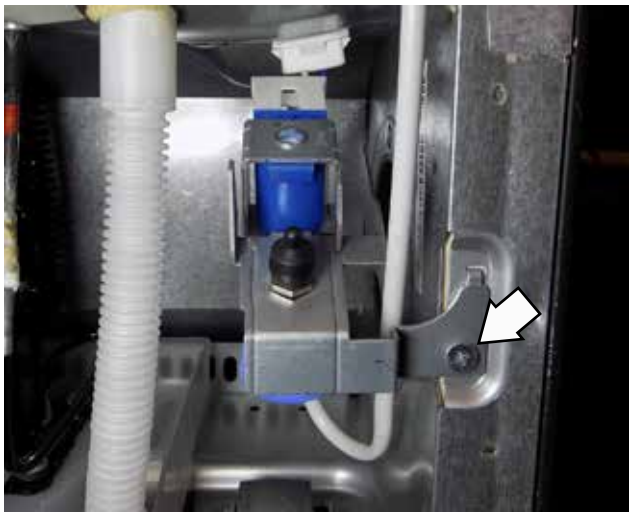
Main Board

- J2 pin 1 (**white**) to J2 pin 6 (**blue**): 120 VAC
- J2 pin 1 (**white**) to J2 pin 6 (**blue**): .41kΩ*

*When checking the resistance valve from the main control board, disconnect the J2 connector.

Isolation Water Valve Removal

1. Shut off the water supply to the refrigerator, then remove the 1/2-in. hex-nut that attaches the water supply line to the isolation water valve.
2. Remove the machine compartment cover (see **Machine Compartment Cover**).
3. Remove one Phillips-head screw and valve from the cabinet.



4. Disconnect the water valve wire harness.
5. Remove the plastic lock clip from the coupling.

6. Carefully push the collar in while pulling the water line out from the valve.

Refrigeration System

The compressor compresses R600a 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 refrigerator 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.

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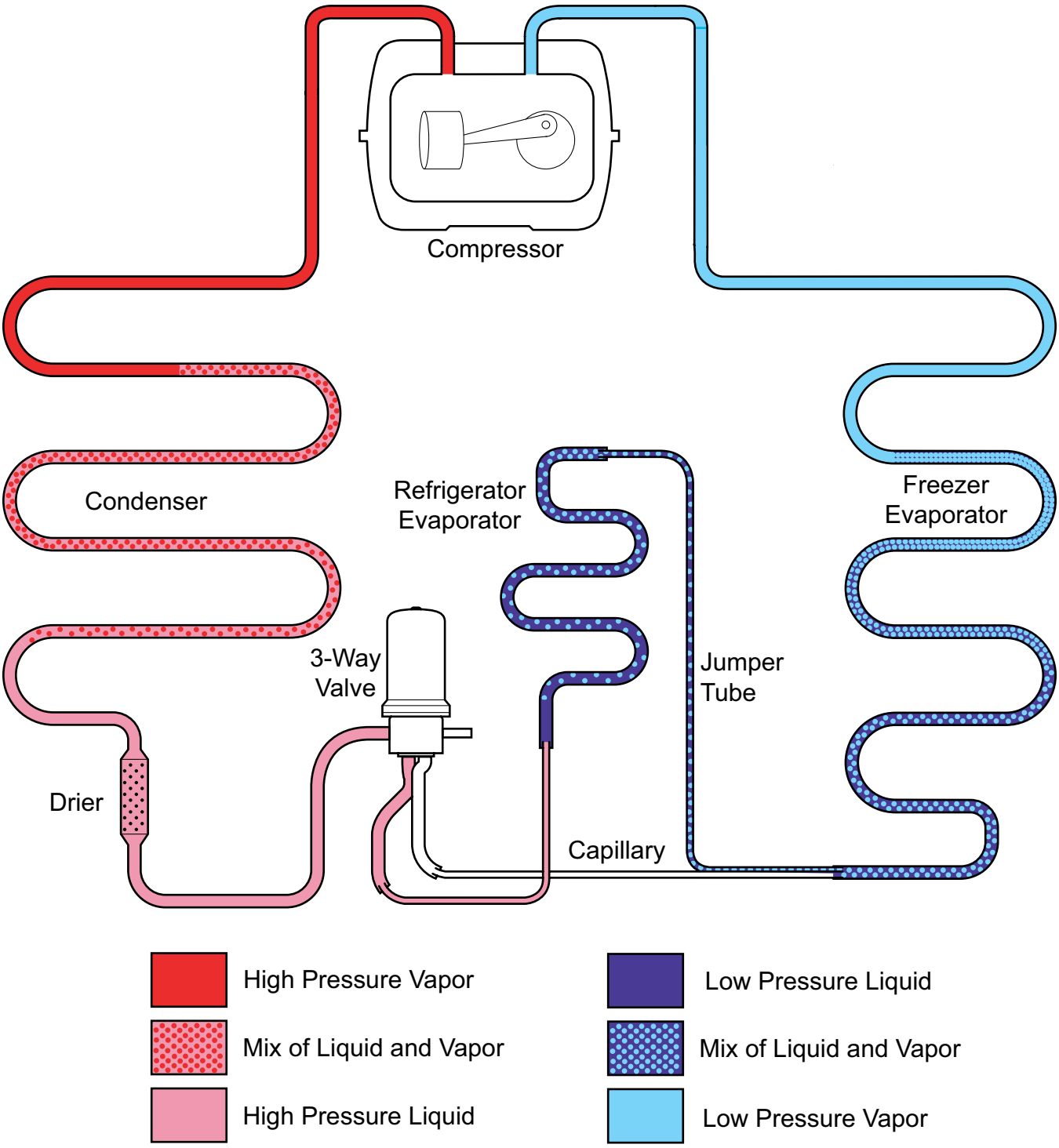
REFRIGERATOR AND FREEZER SECTION COOLING: Position A



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

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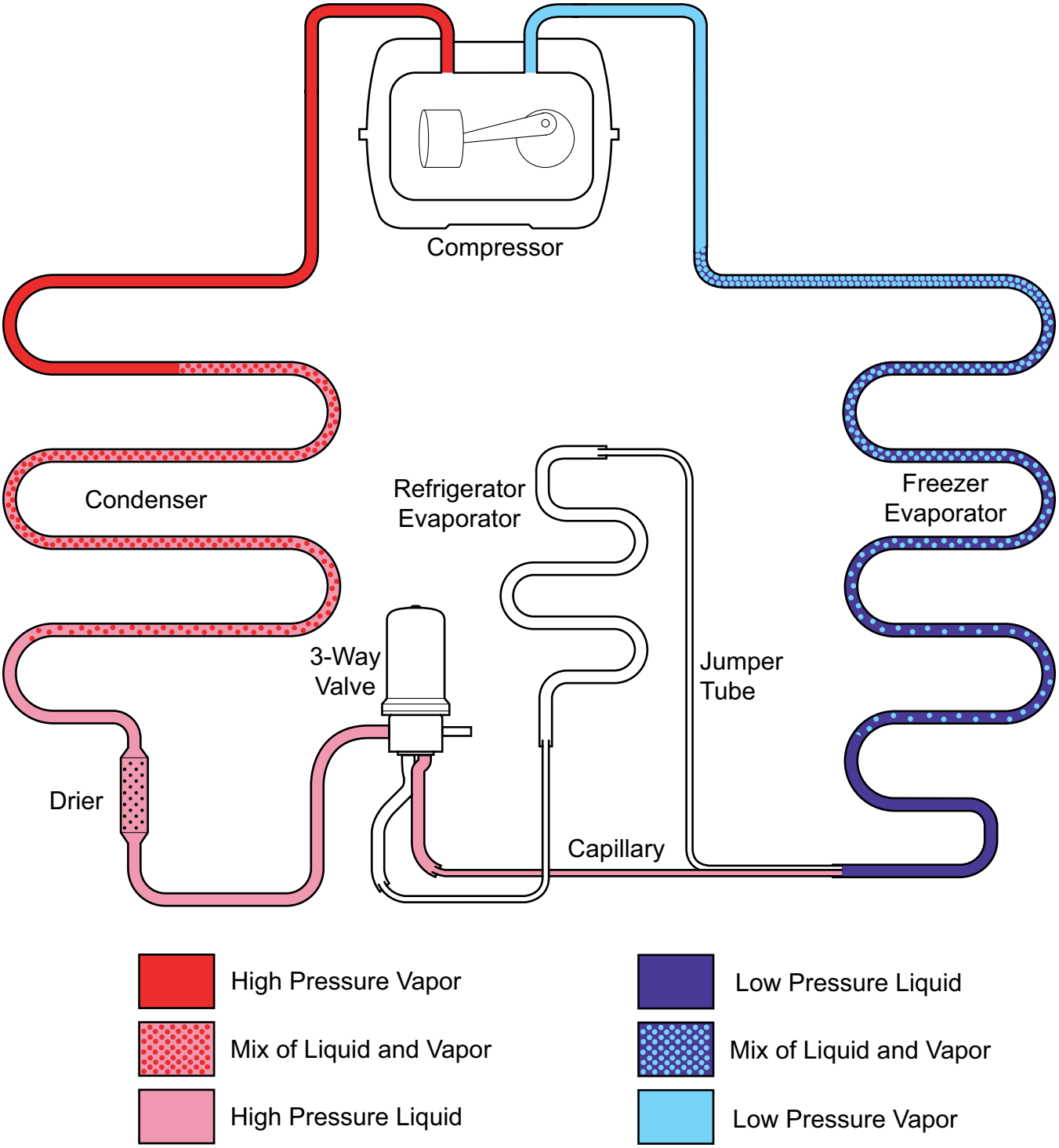
FREEZER SECTION COOLING: Position B



Replacing R600a Sealed System Components

The following information covers the evacuation and charging procedure for R600a sealed system work.

- Factory service technicians should NEVER use a torch when servicing sealed systems which use R600a refrigerant.
- The use of LOKRING is the recommended and preferred method to repair R600a systems by GE Appliances, should it be necessary.
- 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 appropriate PPE (Personal Protective Equipment) when working with refrigerants and nitrogen holding a charge in some replacement parts. Contact with these gases may cause injury.

Evacuation and Charging Procedure

1. Confirm the refrigerator contains R600a using model/serial rating plate.
2. Use a combustible gas detector, check the area under the front of the refrigerator and inside at the evaporator for the presence of R600a.
3. Leaving the detector ON, pull the refrigerator out and check for escaped R600a at floor level behind the refrigerator.
4. Disconnect power to the refrigerator and remove the machine compartment cover.
5. Using the combustible gas detector, check for leaks in and around the machine compartment.
6. Connect a single hose with pressure gauge onto the compressor process tube.
7. Tap the filter drier process stub with a hose either vented outside or into an approved recovery bag.
8. Reconnect power to evacuate any R600a in the system and ensure the compressor will pull a vacuum of great than 25-in. hg.
9. Continue following standard R600 Sealed System Repair processes.

Important: Once repairs are complete, always check using the combustible gas detector that the repair was successful and there are no refrigerant leaks.

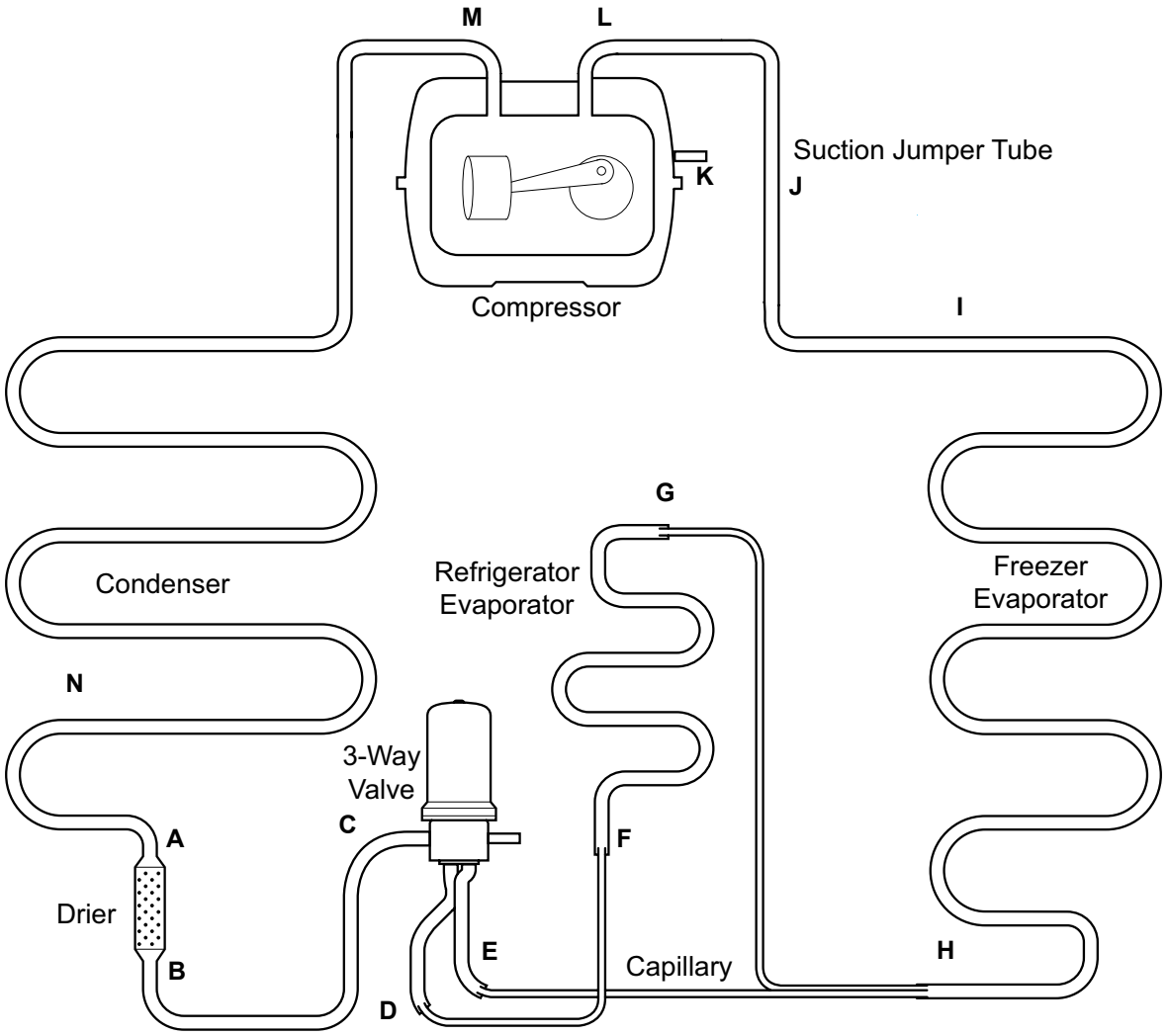
LOKRING

The LOKRING repair method utilizes a tool with a ratchet action that provides proper compression on the LOKRING connector to connect tubing instead of brazing. The repair method uses a solution called LOKPREP as a sealant to fill any scratches, grooves or imperfections on the surface of the tubing.

LOKRING Rules

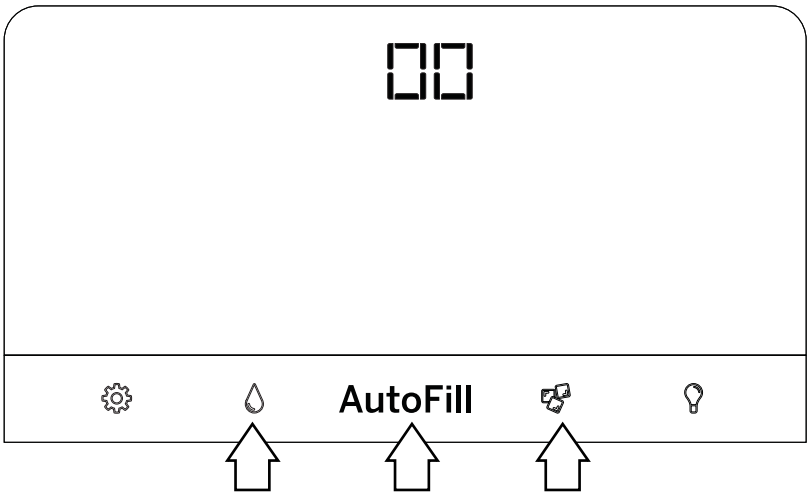
- There must have at least 1 1/8-in. of straight tubing on either side of the cut point.
- Clean the tubing using a circular motion (3M Scotch-Brite™ is recommended).
- The tubing must be clean, dry and free of paint, epoxy, oil and dirt.
- Use only a tubing cutter and cut all the way through the tubing to prevent burrs.
- Apply three drops of LOKPREP to each end of the tubing, staying 1/8-in. from the end.
- Tubing must “bottom-out” at the internal stop when placed in the connector.
- Rotate the fitting at least one complete revolution to evenly distribute LOKPREP.
- LOKPREP should not be used after the expiration date.
- There is 1 minute to compress the connector once LOKPREP has been applied.
- Make certain the connector is seated properly in the jaws and the tool is straight and aligned with the tubing to prevent an improper joint.
- After connector is compressed, do not move the tubing or joint for at least 10 minutes.
- Wipe the tool jaws clean after each use.

Connection Locations



ID	Component	Location	Size	GEA Part #
A	Drier	Inlet	6-mm x 4-mm	WR97X10033
B	Drier	Outlet	6-mm x 4-mm	WR97X10033
C	3-Way Valve	Inlet	4-mm x 4-mm	WR97X10137
D	3-Way Valve	Outlet (refrigerator)	3-mm x 2-mm	WR97X10140
E	3-Way Valve	Outlet (freezer)	3-mm x 2-mm	WR97X10140
F	Refrigerator Evaporator	Inlet (capillary)	3.5-mm x 3.5-mm	WR97X10143
G	Refrigerator Evaporator	Outlet	8-mm x 6-mm	WR97X10036
H	Freezer Evaporator	Inlet	8-mm x 8-mm AL	WR97X30616
I	Freezer Evaporator	Outlet	8-mm x 8-mm AL	WR97X30616
J	Suction Jumper Tube	Inlet (case suction line)	6-mm x 6-mm	WR97X10031
K (*)	Compressor	Process Stub (suction)	8-mm x 6-mm	WR97X10036
L	Compressor	Low Side (suction)	8-mm x 6-mm	WR97X10036
M	Compressor	High Side (discharge)	7-mm x 5-mm	WR97X25268
N	Condenser/Hot Gas Loop	Inlet (hot gas loop)	5-mm x 4-mm	WR97X10075
*	When Adding Access Valve	Process Stub	6-mm x 6-mm	WR97X10031

Service Mode



Enter Service Mode by pressing and holding **Water**, **AutoFill**, and **Ice** buttons simultaneously for 3 seconds.

The display will show **00** in the temperature display. All the components will turn off. The 3-way valve will go to home position and the damper will close.

Use the up and down arrows to navigate to the designated test. Holding an arrow button will speed up scrolling though the available test modes.

Pressing any button other than the up and down arrows will enter the selected test.

To turn off and exit any test, press any button other than the up and down arrows.

Run test **16** to exit Service Mode and normal operation will resume. If no further tests are performed within 15 minutes, Service Mode will service and normal operation will resume.

The appliance will return to normal operation if power is cycled while in Service Mode.

Service Mode Tests

Temp. Display	Mode	Comments
00	Show Fault Codes	
01	Clear Fault Codes	Clears all fault codes
02	Dispenser Self-Test Mode	Turns on all LED's and 7-segment displays on the dispenser board for testing.
03	Presence Detection Test	Test if presence sensing is functional. When a container is detected, "PS" is displayed. After 3 seconds of no container detection, display will go blank.
07	Degrees °C Mode	Changes Display to Degrees °C
08	Degrees °F Mode	Changes Display to Degrees °F
14	Force Refrigerator/Freezer Defrost	Starts a refrigerator and freezer defrost
15	Exits all Defrost	Forces defrost to the idle state
16	Exit All Tests	Resets all boards in the system
17	Door Board Version Test	Communication test that displays the software version if the test passes. If test fails and there is no communication, displays “— —”.
18	Dispenser Board Version Test	
19	Convertible Drawer Board Version Test	
21	Wi-Fi Module Version Test	
23	Main Control Board Version Test	
24	Refrigerator Thermistor Test	Displays unfiltered thermistor temperature (display of “— —” indicates open/shorted or not present) Example: 10 27 = 10.27 degrees (display of 300 or -41 indicates open/shorted or not present)
26	Refrigerator Evaporator Thermistor Test	
27	Freezer Thermistor Test	
28	Freezer Evaporator Thermistor Test	
29	Ambient Temperature Test	
32	Convertible Drawer Thermistor Test	
36	Icemaker Mold Body Thermistor Test	
37	Ice Box Thermistor Test	
40	Humidity Sensor Test	Displays current humidity in %
42	Flow Meter Test	Displays the flow from last dispense
43	Duct Door Motor Test	Opens duct door for 10 seconds then closes it.
45	Convertible Drawer Damper Test	Opens the damper for 10 seconds then closes it.
47	Refrigerator Fan Test	Display fan speed at low, medium, and high speed (20 seconds for each speed).
48	Freezer Fan Test	
49	Condenser Fan Test	
50	Icemaker Fan Test	
53	Refrigerator Defrost Heater Test	Turns on the load.
54	Convertible Drawer Compensation Heater Test	
55	Isolation Valve Test	
56	Ice Port Heater Test	
60	Freezer Defrost Heater Test	

(Continued next page)

Temp. Display	Mode	Comments
61	Compressor Relay Test	Turns on the load.
65	Icemaker Water Valve Test	
66	Icemaker Rake Motor Test	
68	Dispenser Water Valve Test	
70	Read Left Refrigerator Door Status	Returns the Input Status (**0**: Closed, **1**: Open)
71	Read Right Refrigerator Door Status	
72	Read Freezer Drawer Status	
73	Internal Dispenser Switch Status	
76	Read Icemaker Rake Status	Returns the input status (**0**: Not Home, **1**: Home)
77	Read Icemaker Arm Status	Returns the Input Status (**0**: Not Full, **1**: Full)
78	Read Paddle Switch Status	Returns the Input Status (**0**: Not Pressed, **1**: Pressed)
82	Read Refrigerator Door Over Current Flag 1	Returns the Input Status (**0**: Not tripped)
83	Read Refrigerator Door Over Current Flag 2	
84	Turn On Fill Tube Heater Test	Turns on the Load
85	Dispenser Recess Heater Test	
86	Articulating Mullion Heater Test	
87	Door-In-Door Heater Test	
88	Convertible Damper Heater Test	
89	Ice Box Gasket Heater Test	
90	Convertible Drawer Lights Test	Turns lights on at 100% duty cycle
91	Refrigerator Lights Test	
92	Freezer Lights Test	
93	Freezer Defrost Heater Test with Feedback	Turns on freezer defrost heater displays FZ evaporator thermistor temperature
94	Refrigerator Defrost Heater Test with Feedback	Turns on refrigerator defrost heater displays FF evaporator thermistor temperature
95	Refrigerator Cooling Test	Compressor on, 3-way valve in Refrigerator/ Freezer position, Condenser (high), refrigerator fan (low), display FF evaporator thermistor temperature
96	Freezer Cooling Test	Compressor on, 3-way valve in Freezer only position, Condenser (high), freezer fan (low), display FZ evaporator thermistor temperature
97	Icemaker Heater Test	Turns on icemaker heater, displays icemaker mold temperature. Heater turns off at 50°F.
99	Icemaker Full Cycle Test	Icemaker full cycle test
110	Main Board Parameter	Displays version
112	Isolation and Icemaker Valve Test	Turns on isolation and icemaker valves for 3 seconds.
113	Isolation and Dispenser Valve Test	Turns on isolation and dispenser valves for 3 seconds.
114	Read Door-In-Door Switch Status	Returns the Input Status (**0**: Closed, **1**: Open)

Fault Codes

Accessing Fault Codes

Fault codes can be retrieved through service mode test **00**. Enter Service Mode by pressing and holding **Water**, **AutoFill**, and **Ice** buttons simultaneously for 3 seconds.

The display will show **00** in the temperature display. All the components will turn off. The 3-way valve will go to home position and the damper will close.

Once at **00** press any key, except the temperature adjustment buttons, to run test.

In test **00**, the information will scroll in the two digit display.

"**rEAd**" will be displayed when test **00** has been successfully entered.

When a fault code has been saved, "**F**" will be displayed first then the fault code number, "**o**" is displayed then how many times the fault occurred, and finally "**d**" then the number of days the fault last occurred.

Use the up and down arrows to scroll through additional faults. A two-tone sound is audible when the final fault code is displayed.

Exit test **00** by pressing any button other than the up and down arrows.

Service Mode test **01** will clear all faults.

Run test **16** to exit Service Mode and normal operation will resume. If no further tests are performed within 15 minutes, Service Mode will service and normal operation will resume.

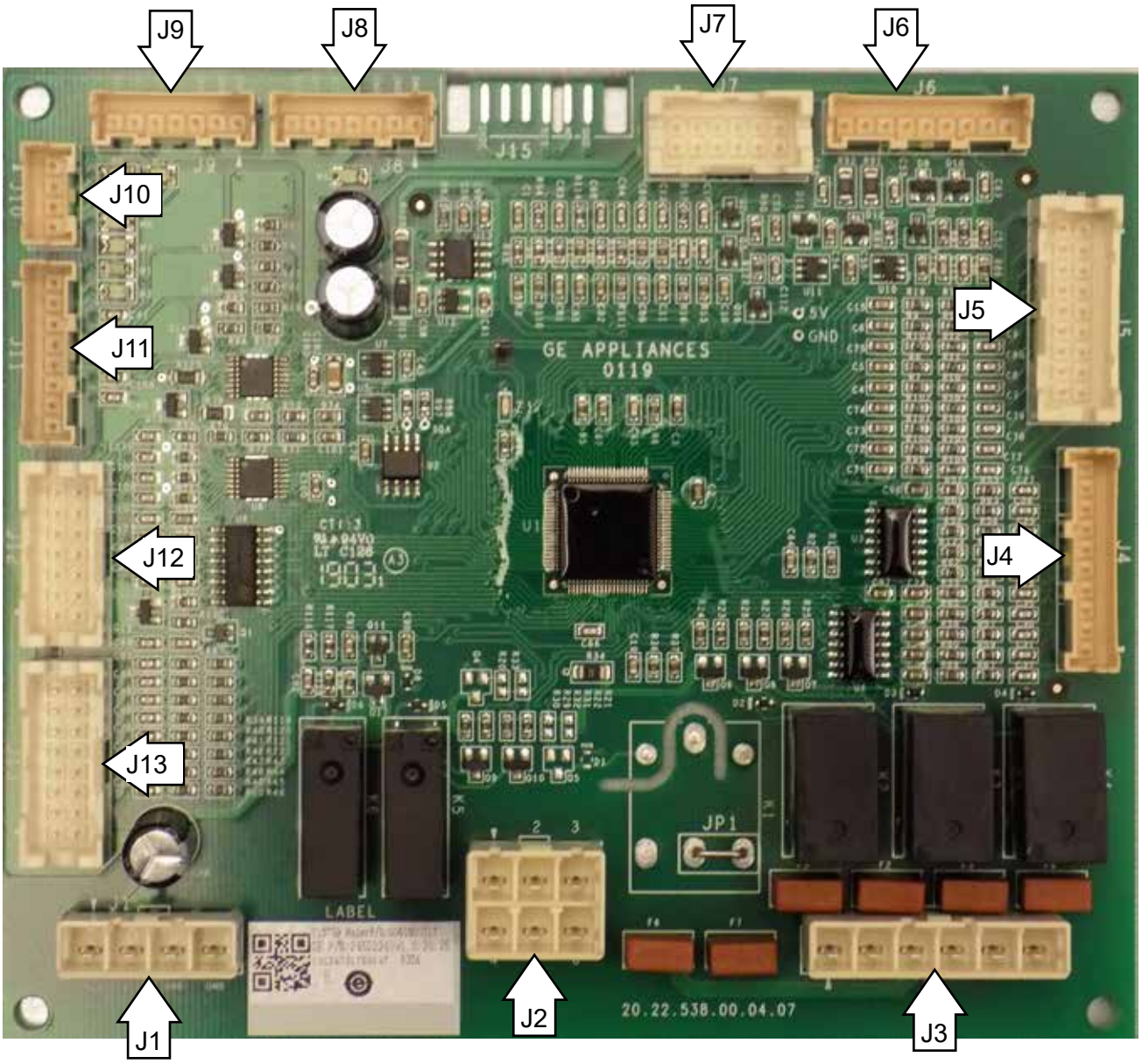
Fault Code List

Group	Display	Fault Code Definition
Thermistors (0001 to 0099)	0001	Refrigerator (FF) thermistor reading out of range.
	0003	Freezer (FZ) thermistor reading out of range.
	0004	Freezer (FZ) evaporator thermistor reading out of range.
	0006	Refrigerator (FF) evaporator thermistor reading out of range.
	0008	Ambient temperature reading out of range.
	0009	Humidity sensor reading out of range.
	0010	Icemaker mold body thermistor reading out of range.
Fans (0100 to 0199)	0100	Freezer (FZ) fan feedback missing when fan is running.
	0101	Freezer (FZ) fan feedback present when fan is off.
	0102	Freezer (FZ) fan cannot reach target RPM.
	0103	Condenser fan feedback missing when fan is running.
	0104	Condenser fan feedback present when fan is off.
	0105	Condenser fan cannot reach target RPM.
	0106	Refrigerator (FF) fan feedback missing when fan is running.
	0107	Refrigerator (FF) fan feedback present when fan is off.
	0108	Refrigerator (FF) fan cannot reach target RPM.
	0109	Ice box fan feedback missing when fan is running.
	0110	Ice box fan feedback present when fan is off.
	0111	Ice box fan cannot reach target RPM.
Defrost System (0200 to 0299)	0200	Freezer defrost heater on for max time. (Check FZ evap thermistor fault 0004)
	0201	Refrigerator defrost heater on for max time. (Check FF evap thermistor fault 0006)
	0202	Five consecutive freezer abnormal defrosts.
	0203	Five consecutive refrigerator abnormal defrosts.
Sealed System (0300 to 0399)	0300	Excessive compressor run time.
	0301	Cooling system was on and the compressor remained off for 3 hours.
	0302	N/A
	0303	Refrigerator temperature exceeded (setpoint + 20˚F).
	0304	Freezer temperature exceeded (setpoint + 20˚F).
	0307	N/A
	0308	3-way valve lost
	0311	Convertible drawer damper stuck closed.
	0312	Convertible drawer damper stuck open.
	0313	Convertible drawer temperature exceeded (setpoint + 20˚F).
	0314	Convertible drawer freezing when set to warm.
	0315	3-way valve cooling not detected in refrigerator evaporator.
	0316	3-way valve cooling not detected in freezer evaporator.
Main Board (0400 to 0499)	0400	DC voltage out of range.
	0402	N/A
	0403	Main board software fault (replace board).
	0404	Main board hardware fault (replace board).

(Continued next page)

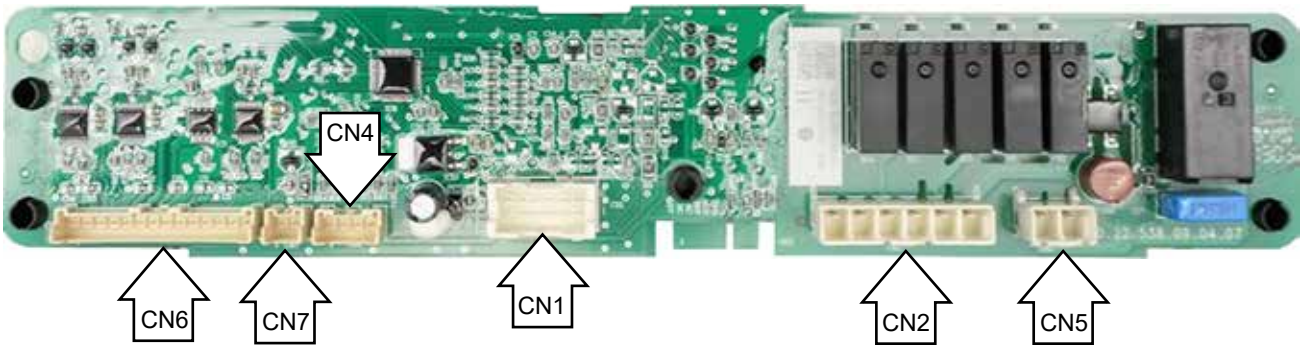
Group	Display	Fault Code Definition
Door Board (500 to 599)	0501	Flow meter signal missing.
	0502	Flow meter pulsing with no water dispense.
	0503	Ice/water stops dispensing based on time (7-minute time out).
	0505	N/A
	0506	N/A
	0507	Paddle switch input missing when main board has received a message it was pressed.
	0508	Paddle switch input present when main board has not received a message it was pressed.
	0511	Ice mold temperature invalid.
	0512	Ice box thermistor temperature invalid.
	0515	Door board relay driver is shorted (replace door board).
Icemaker (0600 to 0699)	0601	Icemaker harvest is greater than 10 minutes.
	0602	3 out of last 10 Icemaker harvests were greater than 10 minutes.
	0603	Icemaker harvest not complete after 30 minutes.
	0604	Icemaker no water supply detected.
	0605	Icemaker continues to sense a full bucket after an ice dispense.
External Interaction (0700 to 0799)	0700	Stuck keys on dispenser board.
	0713	A refrigerator door open for 15 minutes without being closed.
	0714	A refrigerator door open for 60 minutes in the last 24 hours.
	0715	100 left door openings in the last 24 hours.
	0716	100 right door openings in the last 24 hours.
	0717	Freezer drawer open for 15 minutes continuously.
	0718	Freezer drawer open for 60 total minutes in the last 24 hours.
	0719	100 freezer drawer openings in the last 24 hours.
	0721	AutoFill sensors detect an object present over several hours. Sensors may be dirty and overfilling may occur. Attempt to clean AutoFill sensors before replacing.
	0722	AutoFill initialization failed.
	0723	Capacitive touch controlled reset.
	0726	Convertible drawer open for 15 minutes without closing.
	0727	Convertible drawer open for 60 minutes in the last 24 hours.
	0728	100 convertible drawer openings in the last 24 hours.
	0729	Stuck keys on convertible drawer board.
	0731	Convertible drawer board communication error.
	0732	Door board communication error.
	0733	Dispenser board communication error.
	0734	Door-in-door open for 15 minutes continuously.
	0735	Door-in-door open for 60 minutes in the last 24 hours.
	0736	100 door-in-door openings in the last 24 hours.
	0737	AutoFill termination by no water level change.
	0738	AutoFill terminated by keypad before fill completed.
	0739	AutoFill terminated by target removal before fill completed.
	0740	AutoFill terminated by EMI noise.

Main Control Board Connector Locator



Power Board Connector Locator

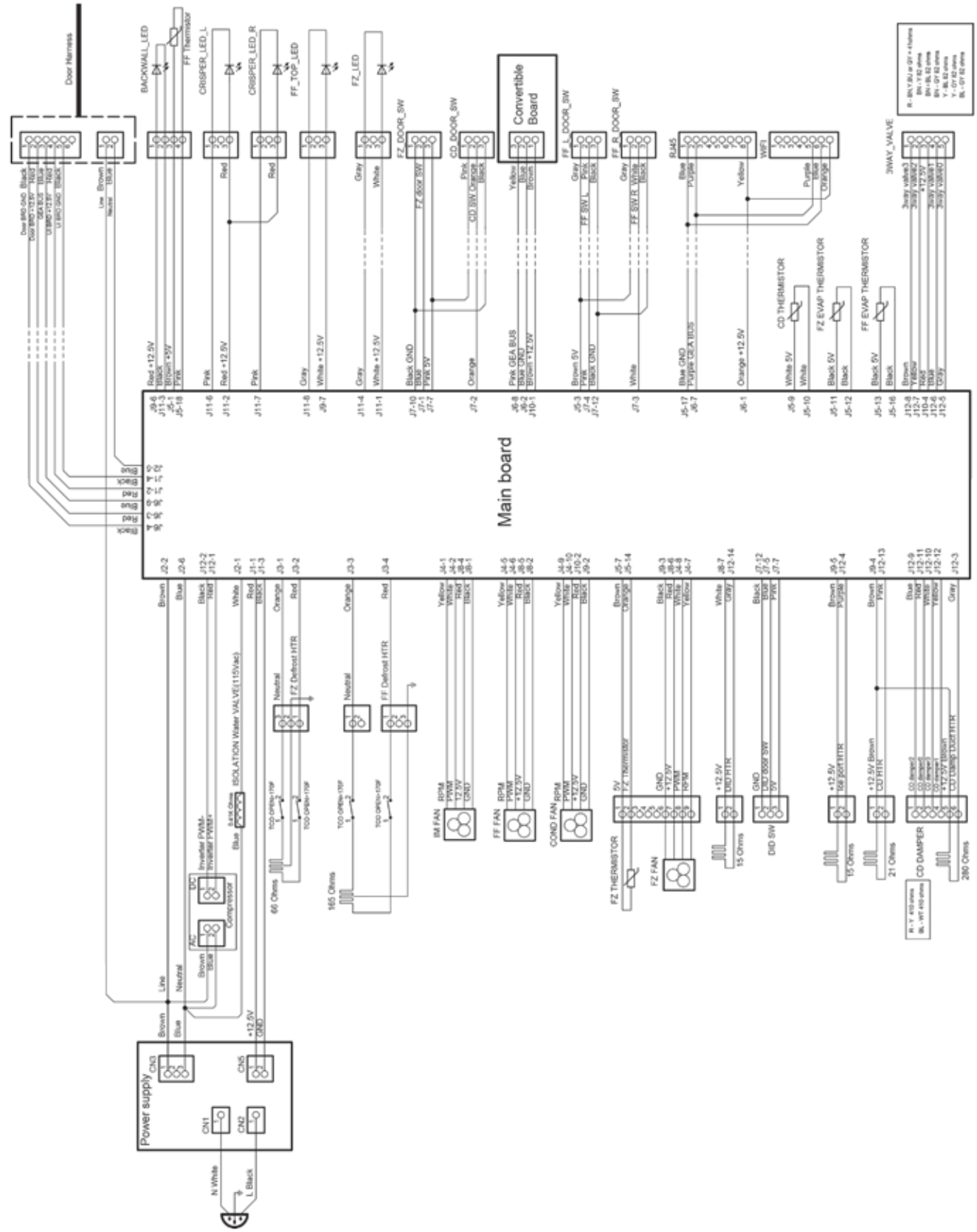
Door Board Connector Locator



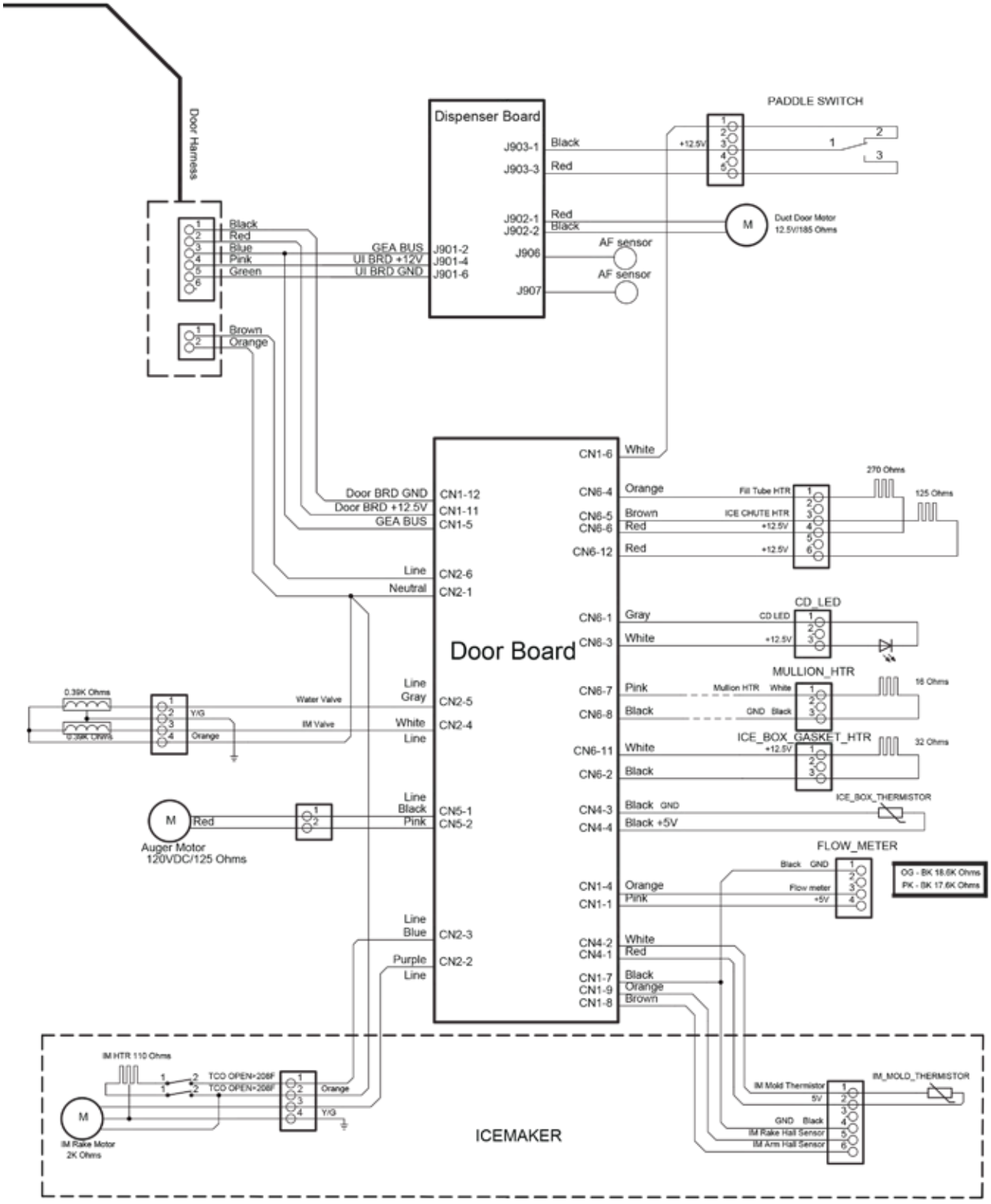
Dispenser Board Connector Locator

Schematics

Main Control Board / Cabinet Schematic



Door Schematic



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