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# BOTTOM MOUNT REFRIGERATORS & FREEZERS

## Installation, Operation and Maintenance Instructions

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### INSPECTION

When the equipment is received, all items should be carefully checked against the Bill of Lading to ensure all crates and cartons have been received. Do not sign the freight bill clear until the freight has been properly inspected for damage. All units should be inspected for damage including concealed damage by uncrating immediately. If any damage is found, it should be reported to the carrier at once, noted on the Bill of Lading and a claim should be filed with the carrier. This equipment has been inspected and tested in the manufacturing facility and has been crated in accordance with transportation rules and guidelines. The manufacturer is not responsible for freight loss or damages.

### INSTALLATION

**CAUTION: This unit uses a flammable refrigerant. Use care when handling and operating to avoid damaging the refrigerant tubing or increasing the risk of a leak.**

The unit has been secured to the shipping base with four bolts. Remove these bolts and separate the unit from the shipping base. Locate the casters or legs found inside the unit. Attach the casters or legs to the unit base by screwing them into the threaded fittings that were used to secure the shipping base. Use the wrench provided to tighten the casters to the unit. The casters with the brakes should be installed on the front of the unit. For proper drainage of condensate, the unit should be level when placed in its permanent location. Leveling shims are included in the accessories package in the cabinet. Loosen the casters and insert shims between caster and bottom of the unit. Re-tighten the caster.

The exterior of the cabinet and doors have been protected by a plastic covering. Peel this protective covering before installation. After removing the covering, clean the interior and exterior surfaces of the unit with soap and water and a rinse with clean water. Do not use chlorinated cleaners on the surfaces as they can cause corrosion.

If the door(s) have come out of alignment during shipping, they will need to be adjusted. This can be accomplished by opening the door(s) and loosening the screws that hold both the top and bottom hinges to the cabinet. After adjusting the door so it is aligned correct, tighten the screws to securely hold the hinges and door(s) in place.

The shelves and shelf clips are packaged inside the unit. Install the shelf clips on the pilasters inside the unit and set the shelves on the clips. The shelves are adjustable in 12.7mm (½inch) increments.

The refrigeration system located at the bottom of the unit requires free air access for proper operation. Allow a minimum of 180mm (7 inches) between the back of the cabinet and the wall. Do not locate the unit next to heat generating equipment or in direct sunlight.

Confirm that the proposed electrical outlet has the correct voltage, frequency and current carrying capacity for the requirements of the unit. This information is noted on the data plate on the inside left wall of the unit. The unit should be isolated on a circuit. Do not use an extension cord to get power to the unit.

## **OPERATION**

Once the unit is connected to the proper power supply, the display panel will be lit for two (2) seconds followed by a beep, the cabinet temperature will be displayed and the compressor will start to run. The compressor is running whenever 'COMP' is lit on the display. If the cabinet temperature is higher than +68°F(+15°C) (refrigerator) or +14°F(-5°C)(freezer), the display will read <Hi>. If the cabinet temperature is lower than +14°F(-2°C) (refrigerator) or -50°F(-40°C)(freezer), the display will read <Lo>. If the unit does not start immediately, check the power switch located on the bottom of the top grill. If the cabinet temperature is below +14°F (-10°C) (freezer) or +50°F (+10°C) (refrigerator) when the unit is plugged in, there will be a three minute delay before the compressor will start.

The interior light will come on when a door is opened. The top doors activate the light on half-door cabinets only. Note: the light is always on in the Glass Door models. If you want to turn off the light, use the light switch on the top grill.

Whenever a door is opened, the door open light on the display will be lit and the evaporator fans will stop. The fans will start three seconds after the door is closed. If a door is open for more than 30 seconds, the door open alarm will beep three times. If a door is open more than 60 seconds, the alarm beeps five times and if open more than five minutes, the alarm will beep continuously. On half-door cabinets only, the top doors activate this feature.

The electronic control has an alarm function to remind the operator to periodically clean the condenser coil. The condenser coil will collect dust and debris during normal operation. If left unclean, this will lead to poor performance, high energy consumption and possible compressor failure. Warranties do not cover failures related to condenser cleaning. At 6-month intervals, the display will blink "CL" and the buzzer will sound to remind the operator to clean the condenser coil. After one hour, the buzzer will stop but the display will continue to blink "CL". Refer to the 'MAINTENANCE' section of this manual to learn how to clean the condenser coil. The electronic control can be reset to normal operation by pressing the 'Mode/Set' and 'Verify' buttons at the same time for five seconds. Depending on conditions, the condenser coil may require more frequent cleaning.

When a door is closed on a cabinet that is running, an internal vacuum is created as the internal air is cooled and the door can be difficult to open for a while. These units incorporate a pressure relief valve that equalizes the vacuum to allow the door to be opened sooner.

## MAINTENANCE

All service should be performed by factory authorized personnel. All component parts will be replaced with like components to minimize the risk of possible ignition due to incorrect parts or improper service.

### Cleaning

Beginning with the initial installation, the interior surfaces of the cabinet should be periodically cleaned with a solution of warm water and baking soda. This solution will remove any odors from spillage that has occurred. The exterior of the cabinet should also be cleaned frequently with a commercial stainless steel cleaner, glass cleaner or mild soap solution. Do not use chlorinated cleaners on the stainless steel surfaces.

**Note: do not use stainless steel cleaner or other solvent-based chemicals on plastic parts (door handle or façade parts) as they could cause failure. Use mild soap and warm water on plastic parts.**

The door gaskets should be cleaned in place with a mild soap solution to extend their life.

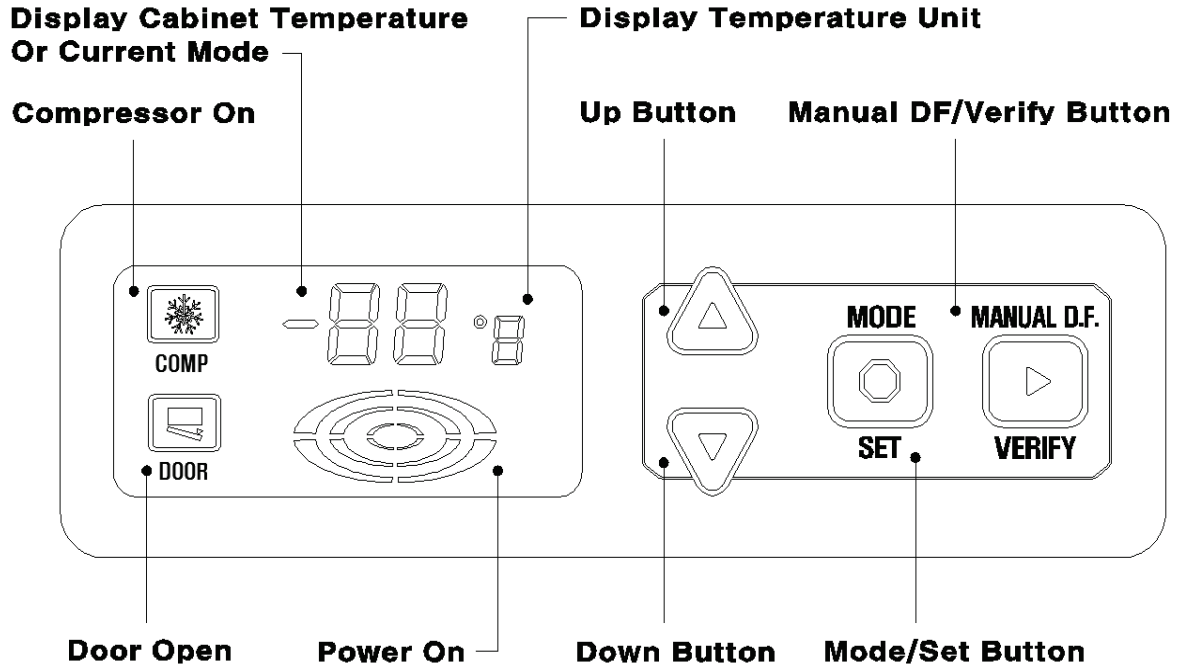
The shelving can be cleaned in a sink with a mild soap solution and a soft bristled brush.

### Condenser Coil

Disconnect the unit from power prior to cleaning the condenser coil. Periodic cleaning of the condenser coil will aid the heat transfer of the refrigeration system and increase its efficiency. ***Cleaning is recommended a minimum of every 6 months.*** To accomplish this, remove the lower front grill from the cabinet. The condenser coil is located behind the grill. Use a soft bristled brush to remove any dirt particles that are on the fins of the condenser coil. Use a vacuum cleaner or compressed air to remove the loosened particles. Replace the lower front grill and reconnect the unit to power. Failure to clean the condenser coil can lead to performance loss and compressor failure.

# ELECTRONIC CONTROL

## 1. ELECTRONIC CONTROLLER DISPLAY PANEL LAYOUT



Display	Description
St	Temperature Setting Mode
di	Temperature Differential Setting Mode
th	Cabinet Temperature Verification Mode
dt	Defrost Frequency Setting Mode
tb	Rapid Freeze Mode (Freezers Only)
dF	Forced Defrost Mode
SE	Temperature Unit Converter mode (°F ↔ °C)

※ In converting Temperature Unit (°F ↔ °C), 1°F (1°C) deviation can occur.

## ELECTRONIC CONTROL SETTINGS

### Setting Temperature-

The temperature set point is adjustable from -22°F(-30°C) to +8°F(-10°C) for the freezers and +25°F(+2°C) to +50°F(+10°C) for refrigerators. The default set point is -5°F(-20°C) for freezers, +36°F(+4 °C) for solid door refrigerators and +35°F(+4 °C) for glass door refrigerators.

To set or adjust the cabinet temperature;

- Press 'Mode/Set' button.
- Press 'Up' or 'Down' button until <St> is displayed.
- Press 'Mode/Set' button to display current temperature set point.
- Press 'Up' or 'Down' buttons until desired set point is displayed.
- Press 'Mode/Set' button to set the new value.
- Press 'Up' or 'Down' button until <th> is displayed.
- Press 'Verify' button to return to display cabinet temperature.

### Setting Temperature Differential-

The temperature differential is the amount of swing that the cabinet temperature does either side of the temperature set point. If the temperature set point is +36°F(+4°C) and the temperature differential is +8°F(+4°C), the compressor will start when the control shows +40°F(+6°C) and stop when the control shows +32°F(+2°C). The default temperature differential set point is +8°F(+4°C) and the range is +4°F(+2°C) to +16°F(+10°C).

To set the temperature differential;

- Press 'Mode/Set' button.
- Press 'Up' or 'Down' button until <di> is displayed.
- Press 'Mode/Set' button to see current temperature differential setting.
- Press 'Up' or 'Down' button until the desired value is displayed.
- Press 'Mode/Set' button to set the value.
- Press 'Up' or 'Down' button until <th> is displayed.
- Press 'Verify' button to return to display cabinet temperature.

### **Rapid Freeze Mode (Freezers Only)**

When in rapid freeze mode the compressor will run continuously for 120 minutes and then return to normal operation and set points.

#### **To Start Rapid Freeze Mode;**

- Press 'Mode/Set' button.
- Press 'Up' or 'Down' button until <tb> is displayed.
- Press 'Mode/Set' button for two seconds to start rapid freeze.

#### **To Stop Rapid Freeze;**

During rapid freeze, press 'Mode/Set' button for two seconds. <tb> will flash five times and then return to normal operation.

### **Setting Defrost Frequency-**

The unit is preset to defrost every 6 hours for freezers ; 12 hours for refrigerators. The defrost frequency can be set from 4 to 12 hours with a two hour interval. During defrost <dF> is displayed instead of cabinet temperature.

To set defrost frequency;

- Press 'Mode/Set' button.
- Press 'Up' or 'Down' button until <dt> is displayed.
- Press 'Mode/Set' button to see current defrost frequency setting.
- Press 'Up' or 'Down' button until desired value is displayed.
- Press 'Mode/Set' button to set the value.
- Press 'Up' or 'Down' button until <th> is displayed.
- Press 'Verify' button to return to display cabinet temperature.

### **Setting Forced Defrost-**

To start a forced defrost;

- Press 'Mode/Set' button.
- Press 'Up' or 'Down' button until <dF> is displayed.
- Press 'Manual DF' for 2 seconds to start a forced defrost.

To stop a forced defrost;

During a forced defrost, press 'Manual DF' button for 2 seconds to stop a forced defrost. <dF> will flash five times and then return to normal operation.

### **Setting Temperature Unit**

Setting the temperature unit and temperature control is possible. (°F↔°C)

To select the temperature unit

- Press 'Mode/Set' button.
- Press 'Up' or 'Down' button until <SE> is displayed.
- Press 'Mode/Set' button and the current temperature unit is flashing.
- Press 'Up' or 'Down' button and set the desired temperature unit. (°F↔°C)
- Press 'Mode/Set' button to set the value.
- Press 'Up' or 'Down' button until <th> is displayed.
- Press 'Verify' button to return to display cabinet temperature.

# TROUBLESHOOTING

Problem	Possible Cause	Remedy
Compressor will not start	Power connection failure	Check power cord and plug it in
	Power switch is in 'off' position	Move it to 'on' position
The unit does not refrigerate well	Temperature set point is too high	Correct temperature set point
	The door is opened too frequently	
	Loading of too much warm or moist product	
	Not enough ventilation	Move the unit in a well ventilated place with at least 180mm (7 inches) of clearance on all sides
	Condenser is clogged	Clean it
Condensation on cabinet exterior	High humidity air can result in condensation	Wipe with cloth

# SPECIFICATIONS

PRODUCT		Solid Full/Half Door Freezer			Solid Full/Half Door Refrigerator		
MODEL		F23-S	F49-S	F72-S	R23-S	R49-S	R72-S
Capacity		650 ℓ (23 ft <sup>3</sup> )	1,385 ℓ (49 ft <sup>3</sup> )	2,035 ℓ (72 ft <sup>3</sup> )	650 ℓ (23 ft <sup>3</sup> )	1,385 ℓ (49 ft <sup>3</sup> )	2,035 ℓ (72 ft <sup>3</sup> )
Exterior Dimensions (including Casters & Door handles)	(W)	695 mm (27.4")	1,400 mm (55.2")	1,980 mm (78.0")	695 mm (27.4")	1,400 mm (55.2")	1,980 mm (78.0")
	(D)	838mm (33")			838mm (33")		
	(H)	2,127 mm (83.7")			2,127 mm (83.7")		
Swing Doors		1	2	3	1	2	3
Shelves		4	8	12	4	8	12
Compressor		3/5HP	3/4HP	1HP	3/8HP	3/8HP	3/8HP
Power Voltage		115V	115V	115V	115V		
Plug In-Installation		NEMA 5-15P		NEMA 14-20P	NEMA 5-15P		
Amps		8.0	10.5	14.5	7.5	7.5	7.5
Range of Temperature		Below -18°C (0°F)			0°C ~ 4°C (+32°F ~ +40°F)		
Refrigerant		R290			R290		
		100g (3.5 oz)	130g (4.6 oz)	140g (4.9 oz)	70g (2.5 oz)	90g (3.2 oz)	120g (4.2 oz)
Product Weight		124 kg (273 lb)	194 kg (428 lb)	255 kg (562 lb)	121 kg (267 lb)	186 kg (410 lb)	253 kg (558 lb)

- Above specifications are subjected to change without prior notice for quality improvement.



# SPECIFICATIONS

PRODUCT		Glass Door Refrigerator		
MODEL		R23-G	R49-G	R72-G
Capacity		650 ℓ (23 ft <sup>3</sup> )	1,385 ℓ (49 ft <sup>3</sup> )	2,035 ℓ (72 ft <sup>3</sup> )
Exterior Dimensions (including Casters & Door Handles)	(W)	695 mm (27.4")	1,400 mm (55.2")	1,980 mm (78.0")
	(D)	835 mm (32.9")		
	(H)	2,127 mm (83.7")		
Swing Doors		1	2	3
Shelves		4	8	12
Compressor		3/8HP	3/8HP	3/8HP
Power Voltage		115V		
Plug In-Installation		NEMA 5-15P		
Amps		7.5	7.5	7.5
Range of Temperature		0°C ~ 4°C (+32°F ~ +40°F)		
Refrigerant		R290	R290	
		70g (2.5 oz)	90g (3.2 oz)	120g (4.2 oz)
Product Weight		126 kg (278 lb)	200 kg (441 lb)	271 kg (597 lb)

■ Above specifications are subjected to change without prior notice for quality improvement.