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# TOP 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( $\frac{1}{2}$ inch) increments.

The refrigeration system located at the top of the unit requires free air access for proper operation. Allow a minimum of 76mm (3 inches) between the back and top of the cabinet and the wall. Do not locate the unit next to heat generating equipment or in direct sunlight. Do not stack anything on top of the unit.

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. 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.

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 awhile. 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 facade 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.

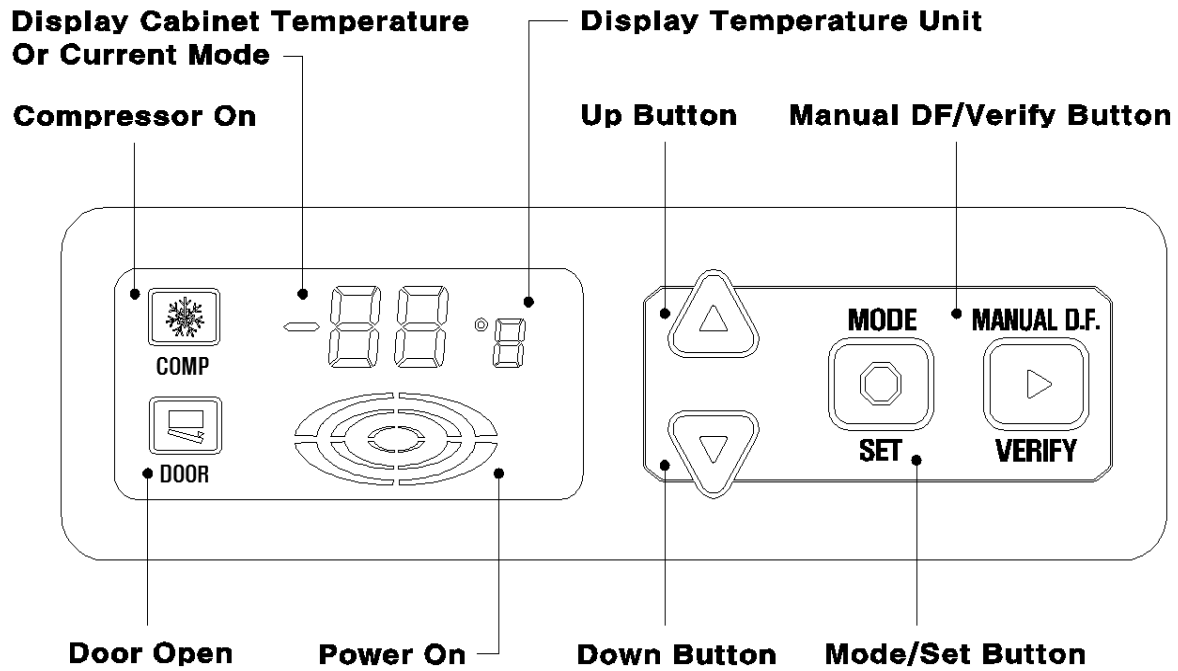
### Condenser Coil

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 do this, lift the top grill from the cabinet and secure it. 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. Lower the top grill and fix it with screw, then reconnect the device to the power source. 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.

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 12 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 76mm(3 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 Door Freezer			Solid Full Door Refrigerator		
MODEL		TF23-S	TF49-S	TF72-S	TR23-S	TR49-S	TR72-S
Capacity		560 ℓ (19.8ft <sup>3</sup> )	1,236 ℓ (43.7ft <sup>3</sup> )	1,912ℓ (67.5ft <sup>3</sup> )	560 ℓ (19.8ft <sup>3</sup> )	1,236 ℓ (43.7ft <sup>3</sup> )	1,912ℓ (67.5ft <sup>3</sup> )
Exterior Dimensions (including Casters, Door handles)	(W)	690 mm (27.2")	1,390 mm (54.7")	2,090 mm (82.3")	690 mm (27.2")	1,390 mm (54.7")	2,090 mm (82.3")
	(D)	Cabinet - 790mm (31.1") / 840mm (33.1")					
	(H)	2,098 mm (82.6") – 4" Casters					
Swing Doors		1	2	3	1	2	3
Shelves		3	6	9	3	6	9
Compressor		1/2HP	3/4HP	3/4HP	3/8HP	3/8HP	3/8HP
Power Voltage		115V / 60Hz					
Plug In-Installation		NEMA 5-15P					
Amps		6.2A	7.0A	8.5A	3.5A	3.7A	4.5A
Range of Temperature		Below -18°C(0°F)			0°C ~ 4°C (+32°F ~ +40°F)		
Refrigerant		R-290					
		40g (1.42 oz)	105g (3.7oz)	145g (5.1oz)	35g (1.24oz)	50g (1.77 oz)	70g (2.47 oz)
Product Weight		120 kg (265 lb)	178 kg (392 lb)	250 kg (551 lb)	112 kg (247lb)	167 kg (368lb)	234 kg (516lb)

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



## NOTICE

- This equipment is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge unless they have been given supervision or instructions concerning the use of this equipment and the hazards involved by a person responsible for their safety.
- The special instructions for those person (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, are not included in this manual and are not required to be included.

## **WARNING**

This unit use R-290 (propane) as a refrigerant. This hydrocarbon refrigerant is highly environmentally compatible but also is flammable and combustible. Please read this manual thoroughly before installing and operating the unit. Please cautious measures to avoid risk of fire or explosion.

**PLEASE REFER TO THE LABEL INSIDE THE CABINET TO CHECK REFRIGERATION TYPE AND VOLUME.**



**DANGER** - RISK OF FIRE OR EXPLOSION. FLAMMABLE REFRIGERANT USED. TO BE REPAIRED ONLY BY TRAINED SERVICE PERSONNEL. DO NOT PUNCTURE REFRIGERANT TUBING.

**CAUTION** - RISK OF FIRE OR EXPLOSION. FLAMMABLE REFRIGERANT USED. CONSULT REPAIR MANUAL/OWNER'S GUIDE BEFORE ATTEMPTING TO INSTALL OR SERVICE THIS PRODUCT. ALL SAFETY PRECAUTIONS MUST BE FOLLOWED.

**CAUTION** - RISK OF FIRE OR EXPLOSION DUE TO PUNCTURE OF REFRIGERANT TUBING; FOLLOW HANDLING INSTRUCTIONS CAREFULLY. FLAMMABLE REFRIGERANT USED.

**CAUTION** - RISK OF FIRE OR EXPLOSION. DISPOSE OF PROPERLY IN ACCORDANCE WITH FEDERAL OR LOCAL REGULATIONS. FLAMMABLE REFRIGERANT USED.



**DANGER** – Risk Of Fire or Explosion. Flammable Refrigerant Used. Do Not Use Mechanical Devices To Defrost Refrigerator. Do Not Puncture Refrigerant Tubing.

 **WARNING**

- Handle the unit with care in order to avoid any serious damage to the refrigeration system.
- The refrigerant tubing, condenser, and evaporator coils are easily prone to damage while handling, moving, installing, and cleaning the unit, which may lead to fire or even explosion.
- Refrigerant squirting out of the pipes could ignite or cause an eye injury. If a leak is detected, avoid any open flames or potential sources of ignition and air out the room in which the appliance is standing for several minutes.
- Never start up an appliance showing any signs of damage. When in doubt, contact a qualified service professional.
- In case of any hazardous activities such as fire or explosion, move the unit away from any source of ignition to a well ventilated area.
- Further service and repair must be done by a qualified technician who is familiar with the safety standards, and also has thorough understanding and knowledge of the flammable refrigerants.
- Any and all technicians handling these units must be equipped with proper personal protection and equipment and follow applicable safety measures and precautions to avoid risk of fire or explosion.