

Hoshizaki America, Inc.

Commercial Refrigerators & Freezers

Models
TempGuard® & SafeTemp®



“A Superior Degree
of Reliability”

www.hoshizaki.com

INSTRUCTION MANUAL



Issued: 2-12-2008
Revised: 5-22-2008

IMPORTANT

Only qualified service technicians should attempt to install, service, or maintain this unit. No installation, service, or maintenance should be undertaken until the technician has thoroughly read this Instruction Manual. Likewise, the owner/manager should not proceed to operate the unit until the installer has instructed them on its proper operation. Failure to install, operate, and maintain the equipment in accordance with this manual may adversely affect safety, performance, and warranty coverage.

Hoshizaki provides this manual primarily to assist qualified service technicians in the installation, maintenance, and service of the unit.

Should the reader have any questions or concerns which have not been satisfactorily addressed, please call, write, or send an e-mail message to the Hoshizaki Technical Support Department for assistance.

HOSHIZAKI AMERICA, INC.
618 Highway 74 South
Peachtree City, GA 30269

Attn: Hoshizaki Technical Support Department

Phone: 1-800-233-1940 Technical Service
(770) 487-2331

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E-mail: techsupport@hoshizaki.com

Web Site: www.hoshizaki.com

NOTE: To expedite assistance, all correspondence/communication **MUST** include the following information:

- Model Number _____
- Serial Number _____
- Complete and detailed explanation of the problem.

IMPORTANT

This manual should be read carefully before the unit is installed and operated. Only qualified service technicians should install, service, and maintain the unit. Read the warnings contained in this booklet carefully as they give important information regarding safety. Please retain this booklet for any further reference that may be necessary.

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I. Installation Instructions

IMPORTANT

Install in accordance with all applicable national, state, and local regulations.

A. Location

CAUTION

This unit is not intended for outdoor use. Normal operating ambient temperature should be within +45°F to +100°F (+7°C to +38°C). Operation of the unit, for extended periods, outside of this normal temperature range may affect unit performance.

For best operating results:

- The unit should be on a flat, level, and solid foundation.
- The unit should not be located in a corrosive environment.
- The unit should not be near ovens, grills, or other high heat producing equipment.
- The unit should be a minimum of 4 inches (11 cm) from side walls. More clearance may be necessary depending on the door combination of the unit.
- A minimum of 10 inches (25 cm) overhead clearance should be provided for proper ventilation.
- Position unit for convenient usage of front and rear doors.

B. Checks Before Installation

IMPORTANT

Refer to the nameplate for electrical specifications. The nameplate is located on the right side wall of the cabinet interior. For more electrical connection details, see "I.D. Electrical Connection." We reserve the right to make specification and design changes without prior notice.

- 1) Remove the shipping carton, tape, and packing material from the unit prior to installation (on Roll In and Roll Thru units, leave the internal packaging in place until the unit is in the final location). Inspect the equipment for any damage which may have occurred during shipment. Concealed damage claims must be filed with the carrier.
- 2) Remove all accessory containers before discarding the packing materials. Dispose of all packing materials in a proper and environmentally responsible manner.
- 3) To remove the unit from the skid:
 - (a) Move as close to the final location as possible.
 - (b) Remove the 5/8 in. bolts that secure the cabinet to the skid, then remove the cabinet from the skid.
 - (c) Block the cabinet securely at a height of 8 in. (20 cm) off the floor. Do not lay the unit down. (Not required for Roll In or Roll Thru units).

(d) Attach the adjustable legs or the casters provided to the bottom of the cabinet. (Not required for Roll In or Roll Thru units).

4. For Roll In and Roll Thru units only, remove the internal packaging. Be careful not to damage the unit when removing the internal packaging.

C. Setup

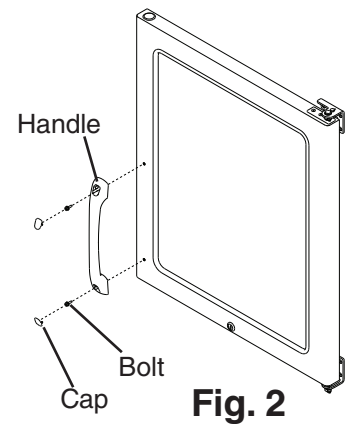
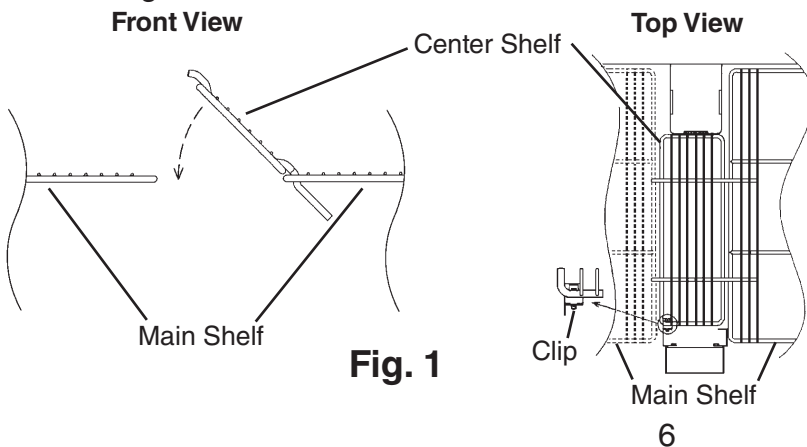
1. General

- 1) If the unit is supplied with an overflow pan or electrically heated condensate pan, install as outlined in "I.C.2. Overflow Pan" or "I.C.3. Electrically Heated Condensate Pan." After the pan is installed or if the unit does not use a pan, continue to step 2.
- 2) Visually check that the refrigerant lines do not rub or touch other lines or surfaces and that the fan blades turn freely.
- 3) Check that the compressor is snug on all mounting pads.
- 4) Position the unit in the selected location.
 - For units with legs, level in both the front-to-back and side-to-side directions. Turn the bottom portion of the legs to lower or raise them.
 - For units with casters, no adjustment is necessary.
 - For Roll In or Roll Thru units, seal the perimeter of the unit with NSF-approved, food-grade silicone and then see "I.C.4. Food Cart Ramp."
- 5) Install the shelves (if applicable) using the shelf support clips provided in the accessory pack. Indexing holes are provided on the pilasters in evenly spaced intervals to assist you in positioning the support clips at the same height. Two and three section units may be equipped with center shelves which should be installed after the main shelves are in place. The center shelf kit contains additional clip(s) which support the center shelf when the main shelves on one side of the cabinet are not aligned with the main shelves of the other side of the cabinet.* See Fig. 1.

WARNING

*Without this additional support, under adverse loading conditions, the shelf assembly could tip.

6) On units without pre-installed door handle(s), install the door handle(s) as illustrated. See Fig. 2.



2. Overflow Pan

(if applicable)

Units are supplied with an energy efficient automatic condensate water evaporation system. The overflow pan is supplied for the unlikely event that water cannot evaporate at a high enough rate. If water is found in the overflow pan, call your Hoshizaki Certified Service Representative for assistance. To install the overflow pan, follow the directions below.

- 1) Attach the overflow pan's brackets by engaging the tab on the bracket through the hole in the bottom of the unit and securing with the four mounting screws provided. See Fig. 3.
- 2) Slide the plastic pan into place under the vinyl hose on the back of the cabinet.

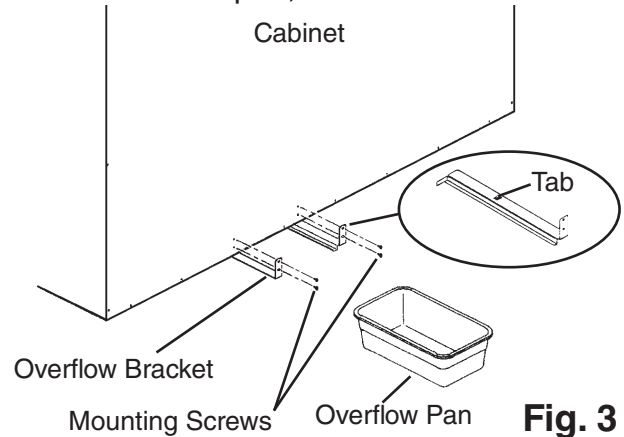


Fig. 3

3. Electrically Heated Condensate Pan

(if applicable)

The electrically heated condensate pan is used to evaporate condensate water from the unit. To install the electrically heated condensate pan, follow the directions below.

WARNING

Verify that power to the unit is disconnected before installing pan.

- 1) Remove the panel that covers the recess in the back of the unit. See Fig. 4.
- 2) Route the wire found in the recess in the back of the unit through the wire cover and install the wire cover to the unit.
- 3) Plug the cord (wire) routed in step 2 into the female plug of the heated pan.
- 4) Replace the panel to cover the recess in the back of the unit.
- 5) Clip the heated pan onto the mounting plate and attach to the panel that covers the recess in the back of the unit using the 4 screws provided.
- 6) Install the plug cover to the rear of the unit.

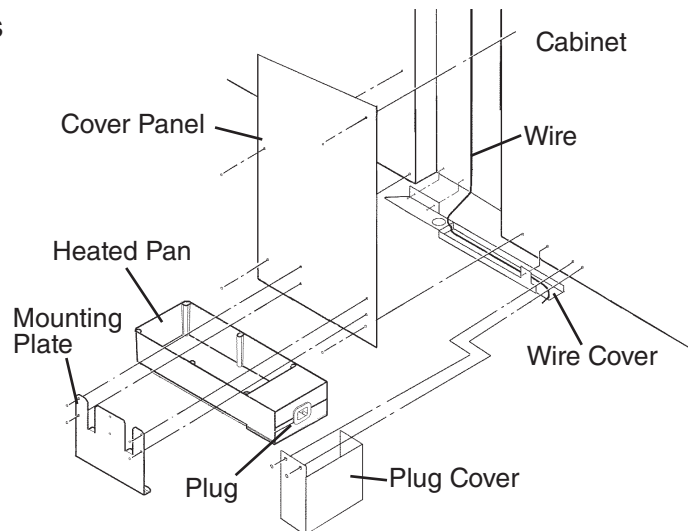


Fig. 4

4. Food Cart Ramp (Roll In and Roll Thru Units)

- 1) Attach the taper collars and countersunk screws to the body. See Fig. 5.
- 2) Attach the ramp filler to the food cart ramp, on the side opposite the door hinge.
- 3) Hook the food cart ramp over the taper collars.

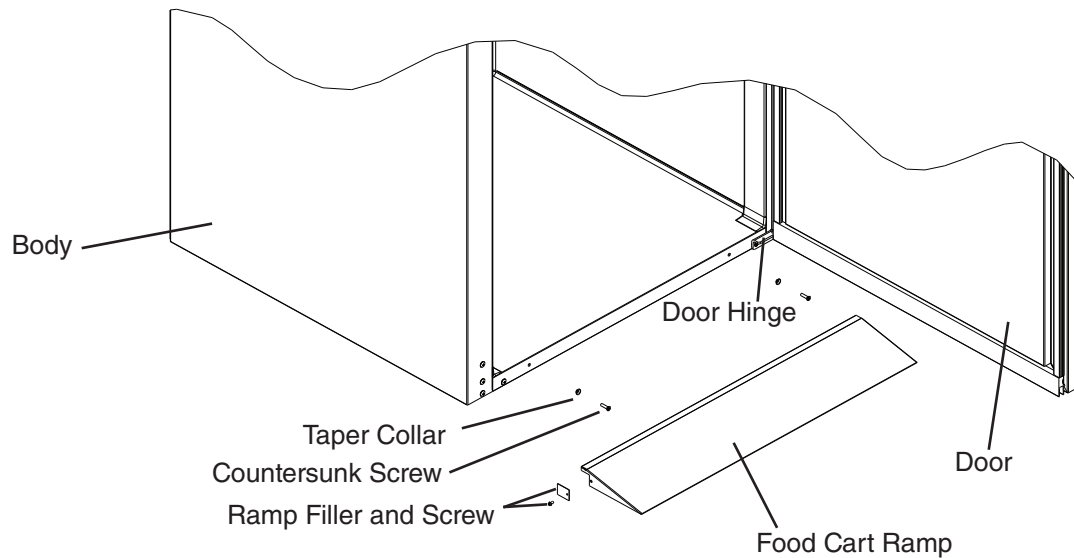


Fig. 5

D. Electrical Connection

WARNING

1. Make sure the power switch is off before making electrical connections to reduce the risk of electric shock.
2. Failure to use a proper breaker or fuse can result in a tripped breaker, blown fuse, or damage to existing wiring. This could lead to heat generation or fire.
3. The connections must be made to an independent power supply or receptacle in accordance with national, state, and local electrical code requirements and this Instruction Manual. Branching off the power cord, using an extension cord, or sharing a single power supply with other appliances may result in electric shock, heat generation, or fire.
4. This unit should be disassembled or repaired only by a qualified service technician to reduce the risk of electric shock or fire.
5. Do not make any alterations to the unit. Alterations could result in water leak, electric shock, or fire.
6. Do not damage the power cord. It should not be altered, jerked, bundled, weighed down, pinched, or tangled. Such actions could result in electric shock or fire. To unplug the unit, be sure to pull the attachment plug and do not jerk the power cord.
7. To reduce the risk of electric shock, do not touch the attachment plug or power switch with damp hands.

- Electrical connections must be installed in accordance with applicable national, state, and local regulations.
- The maximum allowable voltage variation is ± 10 percent of the nameplate rating.
- Cord-connected units should only be plugged into a 115 volt $\pm 10\%$, 60 Hz circuit with a national and local electrical code approved, grounded wall receptacle. An independent circuit with its own circuit breaker (HACR type) or fuse (LP-CC type) should be provided. Refer to the nameplate for the proper electrical specifications.
- Hardwired units should only be wired into the proper conduit, with its own circuit breaker (HACR type) or fuse (LP-CC type). Electrical connection must be made in accordance with the instructions on the "WARNING" tag, provided with the pig tail leads in the junction box. Miswiring results in severe damage to the unit. Refer to the nameplate for the proper electrical specifications.
- Usually an electrical permit and services of a licensed electrician are required.

E. How to Open the Front Panel

- 1) Push the front panel up approximately 1/2 inch (1.3 cm) until it is disengaged from the locking collars and stops. See Fig. 6.
- 2) Rotate the panel up and away from the face of the unit until it stops once more.
- 3) Pull the front panel forward until the hinge assembly is in the locked position.

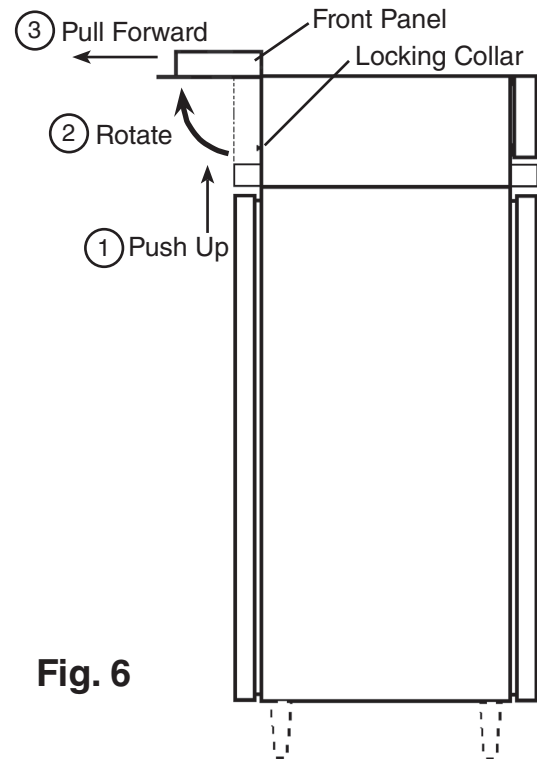


Fig. 6

F. Door Reversal (except heated glass doors)

This unit is provided with a cabinet design which, after being delivered to the installation location, permits changing the door swing of doors from left to right or right to left. To change the door swing, special accessories are required. If installed improperly, the doors will not close and seal correctly. Contact your local Hoshizaki distributor, or the Hoshizaki Technical Support Department at 1-800-233-1940, if door reversal is desired.

G. Final Checklist

- 1) Is the unit level? On a Roll In or Roll Thru unit, is the perimeter of the unit sealed with NSF-approved, food-grade silicone?
- 2) Is the unit in a site where the ambient temperature is within +45°F to +100°F (+7°C to +38°C) all year around?
- 3) Is there at least 10 inches (25 cm) overhead clearance for proper ventilation?
- 4) Have the shipping carton, tape, and packing material been removed from the unit?
- 5) Has the unit been checked for shipping damage?
- 6) Has the power supply been checked or tested against the nameplate rating? Has a proper ground been installed to the unit?
- 7) If the unit is supplied with an overflow pan or electrically heated condensate pan, has it been properly installed?
- 8) Have the refrigerant lines been checked to make sure they do not rub or touch other lines or surfaces? Have the fan blades been checked to make sure that they turn freely? Are the compressor hold-down bolts snug?
- 9) Have the shelves (if applicable) been properly installed?
- 10) Have the door handles (if applicable) been properly installed?
- 11) If the unit utilizes a food cart ramp, has it been properly installed?
- 12) Has the end user been given the instruction manual, and instructed on how to operate the unit and the importance of the recommended periodic maintenance?
- 13) Has the end user been given the name and telephone number of a Hoshizaki Certified Service Representative?
- 14) Has the warranty card been filled out and forwarded to the factory for warranty registration?

II. Operating Instructions

A. Operation

IMPORTANT

1. Do not leave the doors open.
2. Open and close the doors with care. Doors opened too quickly or forcefully may cause injury or damage to the unit or surrounding equipment.
3. To prevent deformation or cracks, do not spray insecticide onto the plastic parts or let them come into contact with oil.
4. To avoid damage to the gasket, use only the door handle (do not grab the top of the door directly) when opening and closing.

WARNING

1. To reduce the risk of electric shock, do not touch the attachment plug or power switch with damp hands.
2. Do not hang on or push down on the doors. The doors might be damaged, fall off, or the unit could tip over, causing injury.
3. Do not store any volatile or flammable substances, such as benzene, ether, alcohol, adhesives, or LPG in the unit. They are potential sources of explosion or fire.
4. Do not throw anything onto the shelves or load any single shelf with more than 120 lb (54.5 kg) of product. They might fall off and cause injury.
5. Do not store food or food containers near the air outlet. They might freeze up and crack or break causing a risk of injury or contamination of other food.
6. Do not use combustible spray or place volatile and flammable substances near the unit. They might catch fire.
7. Do not place anything on top of the unit. Foreign objects or moisture could enter the unit and result in electric shock or fire. Blockage of airflow could also negatively affect performance and damage the equipment.

B. Startup

CAUTION

All parts are factory adjusted. Improper adjustments may result in failure or loss of product.

Supply power to the unit. Open the front panel for access to the power switch—located on the front of the control box—and move the switch to the "ON" position. Allow the unit to pull down prior to loading it with food products.

IMPORTANT

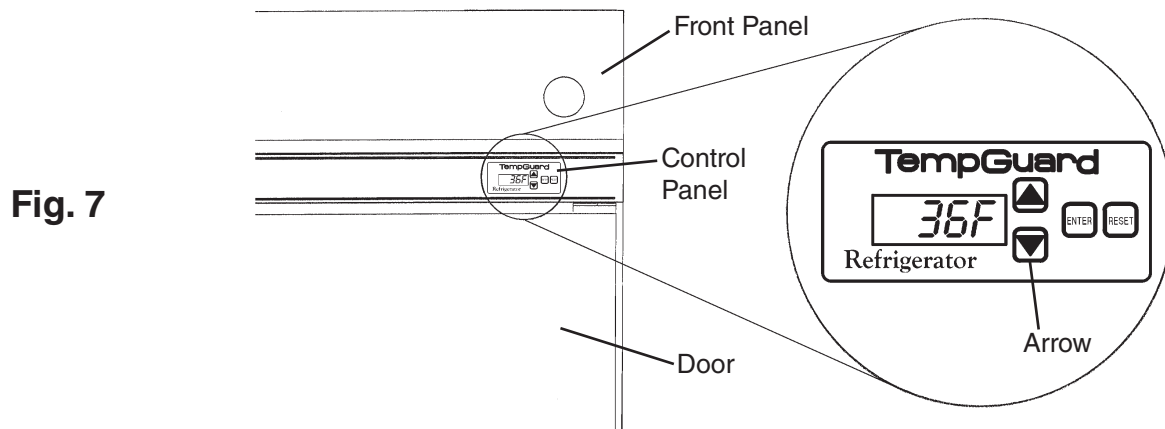
- TempGuard Refrigerators and Freezers: At startup, there is a 2 1/2 minute delay before the compressor starts.
Note: On Dual Temp units, there is a delay of approximately 10 seconds between one compressor start (i.e. freezer) and the next compressor start (i.e. refrigerator).
- SafeTemp Refrigerators: At startup, there is a 2 minute delay before the compressor starts.
- SafeTemp Freezers: At startup, a defrost is initiated.

C. Cabinet Temperature

1. TempGuard Models

a) Temperature Display

- The cabinet temperature is displayed on the control panel. See Fig. 7. The display default is °F, but it can be changed to read °C. To change, see "II.C.1.c) Changing the Temperature Display Scale (°F or °C)".
- The cabinet temperature is updated every 20 seconds.



b) Adjusting the Temperature Setpoint

The temperature setpoint is the value for the average cabinet temperature. The temperature differential for the compressor to turn on and off is $\pm 3^{\circ}\text{F}$ of the setpoint. For example, setpoint = 36°F , compressor on at 39°F , compressor off at 33°F . If necessary, adjust the setpoint temperature as follows:

- 1) Press and hold the up/down arrows simultaneously for 3 seconds. The current temperature setpoint will be displayed.
- 2) To change the setpoint, press the up/down arrows until the desired value is displayed. For refrigerators, the cabinet temperature is adjustable between 36°F and 50°F (2.2°C and 10°C). The factory default is 36°F (2.2°C). For freezers, the cabinet temperature is adjustable between -10°F and 25°F (-23.3°C and -3.9°C). The factory default is -3°F (-19.4°C).
- 3) Press "ENTER" to set the value and view the next setting. If no change in the value is desired, press "ENTER", and the next setting will be displayed. At the end of the sequence, press "ENTER", and the unit will return to normal display mode.

Important Note: For the change to take effect, you must cycle through the menu until you return to the normal display.

c) Changing the Temperature Display Scale ($^{\circ}\text{F}$ or $^{\circ}\text{C}$)

To change the display scale, follow the steps below.

- 1) Press and hold the up/down arrows simultaneously for 3 seconds. Press "ENTER" until the F or C temperature display scale is displayed.
- 2) To change the temperature display, press the up/down arrows until the desired scale is displayed. The factory default is $^{\circ}\text{F}$.
- 3) Press "ENTER" to set the value and return to normal display mode.

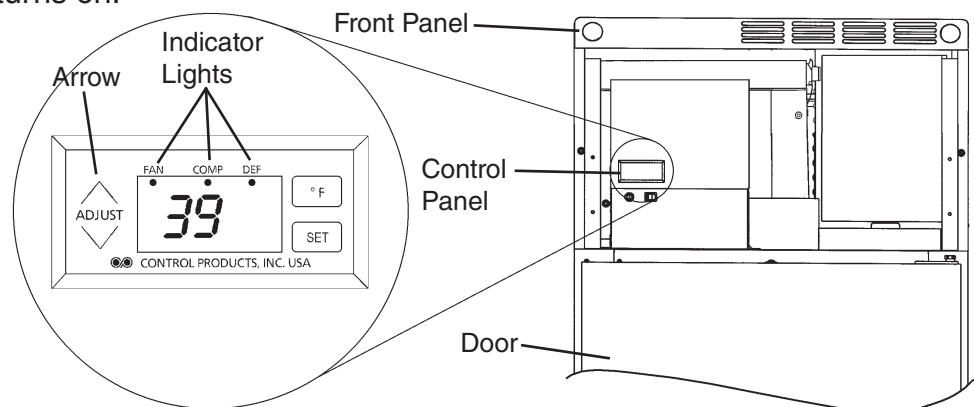
Important Note: For the change to take effect, you must return to the normal display.

2. SafeTemp Models

a) Temperature Display

- The cabinet temperature is displayed on the control panel. See Fig. 8. The cabinet temperature is displayed in $^{\circ}\text{F}$ only.
- The cabinet temperature is updated every 2 seconds.
- When the fan or compressor is energized or defrost is initiated, the corresponding indicator light turns on.

Fig. 8



b) Temperature Setpoint

The temperature setpoint is the temperature at which the compressor comes on. For refrigerators, the temperature differential for the compressor to turn off is -5°F. For freezers, the temperature differential for the compressor to turn off is -6°F. If necessary, adjust the setpoint temperature as follows:

- 1) Press "SET." The display reads: **SP1**
- 2) Press "SET." The display reads: **Current Setpoint**
- 3) Use the up/down arrows to change the setpoint. For refrigerators, the cabinet temperature is adjustable between 37°F and 55°F. The factory default is 39°F. For freezers, the cabinet temperature is adjustable between -10°F and 28°F. The factory default is -1°F for 1-section freezers and 0°F for 2-section freezers.
- 4) Press "SET" to save. If no button is pressed in 15 seconds, the display will return to normal, and the setpoint will remain unchanged.

c) Changing the Temperature Display Scale (°F or °C)

The cabinet temperature on SafeTemp models can be displayed in °F only.

D. Defrost

1. TempGuard Models

a) For Refrigerators

This unit uses an off-cycle defrost. When a sensor in the evaporator coil reaches the initiation setpoint, the unit enters defrost. When the sensor reaches the termination setpoint, the unit ends defrost. After defrost, there is a 5 minute delay before the compressor will start.

Units with a control board of revision level R23 or later (board revision level can be seen on display at power up) also feature an adjustable time-initiated defrost along with the normal temperature-initiated defrost.

The time-initiated defrost is factory set for normal conditions. Before changing this setting, contact the Hoshizaki Technical Support Department at 1-800-233-1940 for recommendations. If necessary, adjust the time-initiated defrost frequency as follows:

- 1) Press and hold the up/down arrows simultaneously for 3 seconds. Press "ENTER" until the dF frequency is displayed.
- 2) To change the time-initiated defrost frequency, press the up/down arrows until the desired value is displayed. The defrost frequency is adjustable between 0 and 12 defrosts per 24 hours. The factory default is 0.
- 3) Press "ENTER" to set the value and view the next setting. If no change in the value is desired, press "ENTER" and the unit will return to normal display mode.

Important Note: For the change to take effect, you must cycle through the menu until you return to the normal display.

Note: The change in the defrost setting will take effect after the next defrost based on the previous setting. To make this change in interval timing take effect immediately, turn the unit off and back on. The next time-initiated defrost will take effect "x" hours after power is resupplied. For example, if the setting is dF 6, x=4 and the next defrost will take place 4 hours from the time that power is supplied.

b) For Freezers

This unit is preset at the factory to defrost 6 times per day for general conditions. Note that the defrost is a heated defrost, and therefore will have a tendency to raise the cabinet temperature. Cabinet temperature is not displayed during defrost; "dEF" is displayed in its place. When a sensor in the evaporator coil reaches the termination setpoint, the unit ends defrost. After defrost, there is a 5 minute delay before the compressor will start.

Before changing the defrost frequency setting, contact the Hoshizaki Technical Support Department at 1-800-233-1940 for recommendations. If necessary, adjust the defrost frequency as follows:

- 1) Press and hold the up/down arrows simultaneously for 3 seconds. Press "ENTER" until the dF frequency is displayed.
- 2) To change the time-initiated defrost frequency, press the up/down arrows until the desired value is displayed. The defrost frequency is adjustable between 1 and 8 defrosts per 24 hours. The factory default is 6.
- 3) To save the value, press "ENTER" repeatedly until you have cycled through the menu and the unit returns to the normal display mode. If you do not cycle through the menu and no button is pressed in 15 seconds, the display will return to normal and the defrost frequency will remain unchanged.

Note: The change in the defrost setting will take effect after the next defrost based on the previous setting. To make this change in interval timing take effect immediately, turn the unit off and back on. The next defrost will take effect "x" hours after power is resupplied. For example, if set df 6, x=4, the next defrost will take place 4 hours from the time that power is applied.

2. SafeTemp Models

a) For Refrigerators

This unit uses an off-cycle defrost. A sensor in the evaporator coil determines the need for a defrost. When the sensor reaches the initiation setpoint, the unit enters defrost. When the unit reaches the termination setpoint, the unit ends defrost. After defrost, there is a 5 minute delay before the compressor will start. The off-cycle defrost requires no programming; it automatically initiates and terminates.

b) For Freezers

This unit is preset at the factory to defrost 6 times per day for general conditions. Note that the defrost is a heated defrost, and therefore will have a tendency to raise the cabinet temperature. Cabinet temperature is not displayed during defrost; "dEF" is displayed in its place. When a sensor in the evaporator coil reaches the termination setpoint, the unit ends defrost. After defrost, there is a 5 minute delay before the compressor will start. When the compressor starts, the display changes to "rEC". Once the cabinet thermistor drops to 15°F above the setpoint, the display reverts back to cabinet temperature.

E. Food Storage

- This unit is designed only for temporary storage of food. Employ sanitary methods. Use for any other purposes (for example, storage of chemicals or medical supplies such as vaccine and serum) could cause deterioration of stored items.
- Do not block the air inlet and outlet or cooling performance may be reduced.
- Do not pack the cabinet tightly with food. Allow some space between items/containers to ensure good air flow. Also allow space between food product and interior surfaces.
- Do not put warm or hot foods in the unit. Let them cool first, or they will raise the cabinet temperature and could deteriorate other foods in the cabinet or overload the unit.
- All foods should be wrapped in plastic film or packed in a container. Otherwise foods may dry up, pass their smells onto other foods, cause frost to develop, result in poor unit performance, or increase the likelihood of cross-contamination. Certain dressings and food ingredients, if not stored in containers, may accelerate corrosion of the evaporator, resulting in failure.
- On Roll In or Roll Thru units, before rolling the food cart into the cabinet, ensure that all food containers are arranged evenly and not protruding beyond the cart.
- On Roll In or Roll Thru units, place the food trays evenly from the bottom first on the food cart to reduce the risk of tipping the food cart.

F. Perimeter Frame Heater

This unit is equipped with a perimeter frame heater. This prevents the formation of condensate on the front frame and rear frame (Pass Thru and Roll Thru) of the unit under high humidity conditions. If operating the unit under conditions where condensate will not form, these heaters may be turned off using the switch on the control box.

G. Safety Devices

1. High Pressure Switch

- If pressure on the high-side of the unit exceeds Hoshizaki specifications, a high pressure switch activates and interrupts power to the compressor relay. This power interruption shuts down the compressor.
- The high pressure switch resets automatically.

2. Compressor Short Cycle Timer

a) *TempGuard Models*

There is a 2 1/2 minute minimum off-time and on-time for the compressor.

- Any time the compressor is started, it will keep running for a minimum of 2 1/2 minutes.
- Any time the compressor is turned off, it will stay off for a minimum of 2 1/2 minutes.
Note: Time may vary with high pressure switch activation.

b) *SafeTemp Models*

There is a 2 minute minimum off-time and on-time for the compressor.

- Any time the compressor is started, it will keep running for a minimum of 2 minutes.
- Any time the compressor is turned off, it will stay off for a minimum of 2 minutes.
Note: Time may vary with pressure switch activation.

3. Compressor Protector

- If a combined temperature/ampere value is above the limit specified by the compressor manufacturer, a protector operates independently to turn off the compressor. The compressor restarts when this protector has reset.
- The compressor protector resets automatically.
- If the condenser fan is operating and the compressor is off, it is likely that the protector has operated.

4. Defrost Protection

For freezers, primary defrost termination is controlled by the defrost thermistor. However, two additional safeties are also present:

- Defrost Time Termination - 1 hour maximum
- Defrost Backup Temperature Termination - Measured by a separate device that is in-line with the heater(s) and independent of the control board.

H. Shutdown and Long Storage

WARNING

1. When preparing the unit for long storage, prevent the doors from closing to reduce the risk of children getting trapped.
2. To reduce the risk of electric shock, do not touch the attachment plug or power switch with damp hands.
3. To unplug the unit, be sure to pull the attachment plug and do not jerk the power cord. It could be damaged and cause fire or electric shock.
4. When shutting down the unit for more than one week, turn off the power switch and unplug the unit.
5. Do not plug in/unplug the unit to start/stop operation. Make sure the power switch is off before plugging in or unplugging the unit to reduce the risk of electric shock.

- 1) Before shutting down the unit, move the stored food into another refrigerator or freezer.
- 2) Open the front panel and move the power switch to the "OFF" position. The unit will shut down.
- 3) Unplug the unit.
- 4) Close the front panel.

IMPORTANT

When preparing the unit for long storage, clean the cabinet interior, door gaskets, and shelves. See "III.A. Cleaning and Maintenance Instructions" for details.

III. Cleaning and Maintenance Instructions

A. Cleaning

WARNING

1. Do not splash water directly onto the unit. This might cause short circuit, electric shock, corrosion, or failure.
2. When cleaning or inspecting the unit, turn off the power switch and unplug or disconnect power to the unit to reduce the risk of electric shock by unexpected entrance of water into the unit, or injury by any moving parts.
3. Before using a sanitizer such as inert soap and sodium hypochlorite (chlorine bleach), thoroughly read the manufacturer's instructions on its proper usage.

IMPORTANT

1. To prevent damage to the painted or plastic surfaces, do not use the following: thinner, benzine, alcohol, petroleum, soap powder, polishing powder, alkaline cleaner, acid, scouring pad and especially those strong cleaners for use on a ventilating fan or a cooking range. Also, to prevent corrosion, do not use sodium hypochlorite (chlorine bleach) on the stainless steel surfaces.
2. Use a clean cloth for cleaning.
3. Before cleaning the cabinet interior, move the stored foods into another clean refrigerator or freezer.

1. Exterior

Wipe the exterior occasionally with a clean, soft cloth. Use a damp cloth containing a neutral cleaner to wipe off oil or dirt buildup.

2. Interior

Spills should be wiped up promptly to avoid unpleasant odors. The cabinet interior should be cleaned periodically with a mild soap or detergent and warm water.

3. Door Gaskets

Door gaskets should be cleaned regularly with mild soap and warm water to remove dirt and grease.

4. Shelves

Remove and clean regularly.

5. Glass Door

Wipe the exterior occasionally with a clean, soft cloth. Use a damp cloth containing a neutral cleaner to wipe off oil or dirt build up.

B. Maintenance

1. Air Filter(s)

Plastic mesh air filter(s) remove dirt and dust from the air, and keep the condenser from getting clogged. As the filter(s) get clogged, the unit's performance will be reduced.

Check the filter(s) at least twice a month. When clogged, use warm water and a neutral cleaner to wash the filter(s).

2. Condenser(s)

Check the condenser(s) (located behind the air filter(s)) once a year and use a brush or vacuum cleaner to clean the condenser(s) as required.

3. Power Supply Connection

If the plug or power cord is damaged, contact a Hoshizaki Certified Service Representative immediately and ask for repairs.

All other maintenance or service on this unit should be performed in accordance with the Hoshizaki Service Manual by a qualified service technician.

IV. Troubleshooting

— WARNING —

1. This unit should be disassembled or repaired only by a qualified service technician to reduce the risk of injury, electric shock, or fire.
2. Do not make any alterations to the unit. This could cause water leak, electric shock, or fire.
3. To reduce the risk of electric shock, do not touch the attachment plug or power switch with damp hands.
4. In case of insufficient refrigeration performance, move the stored food product into another unit to prevent its deterioration.

A. Alarm Code Appears in Display

1. TempGuard Models

If an error occurs, the alarm code and cabinet temperature are displayed in 2-second intervals and an alarm sounds. When an error occurs, check the error code and follow the instructions below.

| Alarm Signals | | | |
|---------------|---------------------------|--|---|
| Alarm Code | Alarm Sound | Problem | Reset Options |
| E1 | 3 beeps every ten seconds | <p>High Temperature Alarm</p> <p>Cabinet temperature has exceeded the setpoint temperature by 10°F (5.6°C) for more than 2 hours.</p> | <p>Press "RESET."</p> <p>If the temperature has returned to the setpoint range, the alarm will be silenced and "E1" will clear.</p> <p>If the temperature has not returned to the setpoint range, the alarm will be silenced for 5 minutes and "E1" will continue to flash.</p> <p>If obvious corrections such as closing doors and cleaning the air filter and/or condenser do not bring temperature back in range, call a qualified service technician.</p> |
| E2 | 4 beeps every ten seconds | <p>Low Temperature Alarm</p> <p>Cabinet temperature has remained below the setpoint temperature by 8°F (4.4°C) for more than 1 hour.</p> | <p>Press "RESET."</p> <p>If the temperature has returned to the setpoint range, the alarm will be silenced and "E2" will clear.</p> <p>If the temperature has not returned to the setpoint range, the alarm will be silenced for 5 minutes and "E2" will continue to flash.</p> <p>If obvious corrections do not bring the temperature back in range, call a qualified service technician.</p> |

| Alarm Signals | | | |
|---|---------------------------|--|--|
| Alarm Code | Alarm Sound | Problem | Reset Options |
| E4 | 6 beeps every ten seconds | High Pressure Alarm Compressor discharge pressure is outside of the normal operating range. The high pressure switch has been triggered 3 or more times in 1 hour. The air filter and/or condenser may need cleaning. | Clean the air filter and/or condenser if necessary. Press "RESET." If the high pressure switch resets automatically, the alarm will be silenced and "E4" will clear. If the high pressure switch trips 5 times in 1 hour, the compressor will stop and will not re-start. A service technician must be called. After the 5th pressure trip, the alarm can be silenced for 1 hour by pressing "RESET." |
| E6 | 8 beeps every ten seconds | High Voltage Alarm Line voltage has been too high for at least 10 seconds. To protect the compressor, the compressor has shut down. | The alarm automatically resets when acceptable voltage is detected. Press "RESET" to silence the alarm for 5 minutes. If this alarm occurs frequently, call a qualified service technician. |
| E7 | 9 beeps every ten seconds | Low Voltage Alarm Line voltage has been too low for at least 10 seconds. To protect the compressor, the compressor has shut down. | The alarm automatically resets when acceptable voltage is detected. Press "RESET" to silence the alarm for 5 minutes. If this alarm occurs frequently, call a qualified service technician. |
| E8 | Constant buzzer | Cabinet Temperature Sensor Malfunction Alarm Cabinet temperature sensor has failed. | Call a qualified service technician. During alarm, press "RESET" to silence the buzzer for 5 minutes. |
| E9 | Constant buzzer | Defrost Temperature Sensor Malfunction Alarm Defrost temperature sensor has failed. | Call a qualified service technician. During alarm, press "RESET" to silence the buzzer for 5 minutes. |
| CF | 1 beep every ten seconds | Clogged Filter Alarm Condenser temperature is outside of normal operating range. Air filter and/or condenser require cleaning. | Clean the air filter and/or condenser. Allow time for the sensor to reset, then press "RESET." During alarm, press "RESET" to silence the alarm for 2 hours. If this alarm occurs frequently, call a qualified service technician. Failure to take action when this alarm activates could result in damage to the compressor. |
| door (except units with heated glass doors) | 2 beeps every ten seconds | Door Alarm Display Only: Door open. Both Display and Beeps: Door open longer than 3 minutes. | Close the door. During alarm, press "RESET" to silence the buzzer for 3 minutes. |

2. SafeTemp Models

There are no alarms on SafeTemp models.

B. Poor Cooling Performance

- Door(s) opened too often.
- Door(s) left open. Close.
- Too packed with food or air inlet/outlet blocked. Allow some space between items/containers to ensure good air flow.
- Warm or hot foods inside. Take them out until they cool down more.
- Ambient temperature too high. Avoid installation near high heat producing equipment or exposure to direct sunlight.
- Cabinet temperature setting too high. Readjust it to a lower temperature.
- Unit in defrost process. The cabinet temperature may rise temporarily during defrost cycle, but this will not affect the food inside.

C. Condensation

- Door(s) left open. Close.
- Ambient humidity too high. Condensation may occur on a humid or rainy day. Wipe off occasionally.

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