
UNDERCOUNTER FREEZERS

Installation, Operation and Maintenance Instructions

INSPECTION

When the equipment is received, all items should be carefully checked against the bill of lading to insure all crates and cartons have been received. All units should be inspected for concealed damage by uncrating the units immediately. If any damage is found, it should be reported to the carrier at once 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. Manufacturer is not responsible for freight loss or damage.

INSTALLATION

GENERAL

After the unit crate and base have been removed, locate the legs or casters found in the interior of the cabinet. Attach the legs or casters to the unit base by screwing them into the same threaded fittings that were used to secure the crate base to the cabinet. Insure that they are screwed all the way into the base.

If for some reason the doors are not squared up on the cabinet, the doors can be adjusted. Opening the door(s) and loosening the screws that hold both the top and bottom hinges to the cabinet can accomplish this. After adjusting the door so that it is aligned correctly, tighten the screws to securely hold the hinges in place.

LOCATION

The refrigeration system located at the bottom of the cabinet requires free air access for proper operation. **Important:** The cabinet may be enclosed on two sides, however, there must be a minimum four inch clearance from the back of the cabinet to a wall, and from the bottom of the cabinet to the floor. **This model cannot be operated without the legs or casters in place, and the bottom of the cabinet cannot be enclosed.** The cabinet should be level when it is placed in its permanent location.

ELECTRICAL

Check the proposed outlet to be used to insure that the voltage, phase and current carrying capacity of the circuit from the electrical panel correspond to the requirements of the cabinet. **Never** use an extension cord. All inter wiring between the electrical panel and the unit must be done in accordance with the National Electric Code and all state and local codes. See the Serial Tag for all pertinent electrical information.

Observe all Warning Labels. Disconnect power supply when servicing equipment to eliminate injury from electrical shock or moving parts.

OPERATION

FORCED AIR UNIT COOLER MODELS

The undercounter series of freezers employ a unit cooler evaporator located inside the cabinet as the heat-removing source. Through the refrigeration process, heat is captured in the evaporator, transferred to the condensing unit located at the bottom of the cabinet, and expelled to the surrounding outside air. It is extremely important to maintain the minimum four-inch clearance as described in this manual under “Location” for the refrigeration process to function properly. **The cabinet cannot be operated without the legs or casters installed.**

After shutting the door on these freezer models, a short amount of time must be allowed before the door can be reopened. This is due to the tight seal maintained between the door and the cabinet. Waiting a few moments for the pressure to equalize permits the door to be opened easily.

With this freezer unit, a positive defrost is required to remove frost from the coil. This is accomplished by energizing heaters positioned on the coil surface. The time clock, refer to Figure 1, is factory set to allow four defrosts per day. **Note: Setting the correct time of day will be required to maintain these defrost periods.**

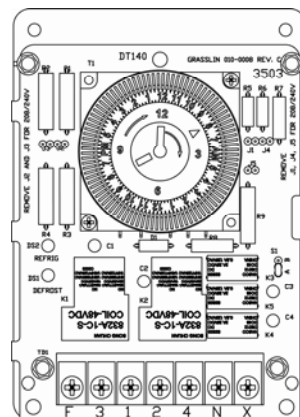
When the preset defrost time is reached, the time clock automatically terminates the refrigeration process by turning off the condensing unit and unit cooler fan motors, and energizes the defrost heaters. As the coil temperature increases, the frost begins to melt producing water that runs down the coil to the unit cooler drain pan and exits through the drain tube to the vaporizer. After all the frost has been removed and the coil temperature reaches approximately 50°F, the defrost is terminated through the action of the defrost termination control located on the unit cooler, and the refrigeration process resumes. In order to insure that any excess water remaining on the coil is not sprayed into the cabinet interior, and all heat generated by the defrost is removed, **the unit cooler fans will not operate until the coil temperature reaches approximately 25°F.**

ADJUSTMENTS

The timer switch is located behind the lower front panel. Remove the retainer screw and move the time forward to allow for adjustment.

1. Time clock adjustments:

Setting the correct time of day – To set the correct time of day, simply rotate the small inner-dial counterclockwise until the correct time of day on the large dial is opposite the “time” indicator. In referring to the drawing of the time clock, the correct time of day shown is 8:00 a.m.



Number of defrosts per day – The time is factory set to defrost the evaporator at 2:00 a.m., 8:00 a.m., 2:00 p.m., and at 8:00 p.m. The four settings should provide adequate defrosting for even the most heavily used system. If more defrosts are required, remove a knurled slotted screw from the holder, insert the screw into the time slot on the large dial where a defrost is desired, and tighten. Insure that an equal time exists between each defrost pin. If experience shows that the four set defrost periods are more than necessary, one or more of the knurled setscrews may be removed. **At least one of the knurled setscrews must be located on the large lower dial at all times.**

Fail Safe Feature – On the small, upper dial there is a pointer that is used to set a 100% fail-safe feature. The fail-safe of the timer is factory set at 30 minutes, indicating that the system will revert to cooling thirty minutes after a normal defrost cycle began should a malfunction occur.

The fail-safe feature is a safety mechanism and should never be used to control the length of the defrost period. This feature is provided to protect the contents of the freezer from damage should the system fail to revert to the cooling cycle because of mechanical difficulties. No adjustment of this device should ever be necessary. **Lengthening the fail-safe time will not lengthen the defrost cycle.**

2. **Cold control adjustment** – To increase or decrease the internal cabinet temperature, rotate the cold control, located on the unit cooler, to the desired setting.

Caution: If the cabinet's door(s) remains open for too long it could cause excessive frost to build up on the evaporator causing airflow through the coil to be restricted and the coil to not properly defrost.

COLD WALL MODEL

This cold wall model employs evaporator tubing embedded in the sidewalls, back and top of the unit. During the refrigeration process, heat is removed through the evaporator tubing and expelled through the condensing unit. Because of the cold wall design, it will be necessary to occasionally manually defrost the freezer models. First, remove all the contents and relocate to another freezer. Next, unplug the unit and open the door. Wipe the cabinet dry when defrosting is complete.

Caution: Never use a sharp object to remove the frost build-up.

Cold Control Adjustment

The temperature control knob is located behind the lower front panel. To make a small increase or decrease in the internal cabinet temperature, rotate the control knob as needed.

MAINTENANCE

PERIODIC CLEANING

Beginning with the initial installation, the interior surfaces of the cabinet should be periodically wiped down with a solution of warm water and baking soda. This solution will remove any odors from spillage that may have occurred. The exterior of the cabinet should also be cleaned frequently with a commercial grade of glass cleaner. **Caution:** Never use an abrasive or alkaline solution to clean these units. Wipe dry after cleaning.

Observe all Warning Labels. Disconnect power supply to eliminate electrical shock and injury from moving parts when servicing equipment.

Important: Monthly cleaning of the condenser coil located at the bottom of the cabinet should be done. This cleaning will aid the heat transfer characteristics of the refrigeration system and increase its efficiency. Dust, dirt and lint will tend to accumulate on the fins of the condensing unit. This obstruction will affect the flow of air through the condenser, thereby lowering the efficiency of the system. A wire brush or a brush with stiff bristles can be used to loosen these particles that are attached to the fins so that they may be removed with a vacuum cleaner. **Failure to keep the condenser coil clean and clear of obstructions could result in temperature loss and damage to the compressor.**

These units are equipped with the vaporizer pan that is located in the rear base of the cabinet and can be accessed from the back of the cabinet. The pan should be cleaned routinely to prevent mold or bacteria buildup. To clean the pan, remove the two hex head screws from the bracket holding the pan in place. Carefully remove the pan, taking care not to break the drain tube going into the pan. Remove any water and particles that may be in the pan. Clean thoroughly. Return the pan to its position, making sure the drain tube is properly placed in the pan. Reattach the bracket. All moving parts have been permanently lubricated and will generally require no maintenance.

MAINTENANCE SERVICE AND ANALYSIS GUIDE
REFRIGERATION SYSTEMS – ALL MODELS

<u>MALFUNCTION</u>	<u>POSSIBLE CAUSE</u>	<u>SOLUTION</u>
Compressor will not start – no hum	<ol style="list-style-type: none"> 1. Unplugged or power off 2. Fuse blown or removed 3. Overload tripped 4. Control stuck open 5. Wiring incorrect 	<ol style="list-style-type: none"> 1. Plug in service cord or turn on power 2. Replace fuse 3. Determine reasons and correct 4. Repair or replace 5. Check wiring against the diagram
Compressor will not start – hums but trips on overload protector	<ol style="list-style-type: none"> 1. Improperly wired 2. Low voltage to the unit 3. Starting capacitor defective 4. Relay failing to close 	<ol style="list-style-type: none"> 1. Check wiring against the diagram 2. Determine reason and correct 3. Determine reason and replace 4. Determine reason, correct or replace
Compressor starts and runs, but short cycles on overload protector	<ol style="list-style-type: none"> 1. Low voltage to unit 2. Overload defective 3. Excessive head pressure 4. Compressor hot – warm ambient conditions 	<ol style="list-style-type: none"> 5. Determine reason and correct 6. Check current, replace overload protector 7. Check ventilation or restriction in refrigeration system 8. Check refrigerant charge, fix leak if necessary
Compressor operates long or continuously	<ol style="list-style-type: none"> 1. Short of refrigerant 2. Control contact stuck 3. Evaporator coil iced 4. Restriction in refrigeration system 5. Dirty condenser 	<ol style="list-style-type: none"> 1. Fix leak, add charge 2. Repair or replace 3. Determine cause, defrost manually 4. Determine location and remove restriction 5. Clean condenser
Compressor runs fine, but short cycles	<ol style="list-style-type: none"> 1. Overload protector 2. Cold control 3. Overcharge 4. Air in system 5. Undercharge 	<ol style="list-style-type: none"> 1. Check wiring diagram 2. Differential too close – widen 3. Reduce charge 4. Purge and recharge 5. Fix leak, add refrigerant
Starting capacitor open, shorted or blown	<ol style="list-style-type: none"> 1. Relay contacts stuck 2. Low voltage to unit 3. Improper relay 	<ol style="list-style-type: none"> 1. Clean contacts or replace relay 2. Determine reason and correct 3. Replace
Relay defective or burned out	<ol style="list-style-type: none"> 1. Incorrect relay 2. Voltage too high or too low 	<ol style="list-style-type: none"> 1. Check and replace 2. Determine reason and correct
Refrigerated space too warm	<ol style="list-style-type: none"> 1. Control setting too high 2. Refrigerant overcharge 3. Dirty condenser 4. Evaporator coil iced 5. Not operating 6. Air flow to condenser or evaporator blocked 7. Warm ambient conditions 	<ol style="list-style-type: none"> 1. Reset control 2. Purge refrigerant 3. Clean condenser 4. Determine reason and defrost 5. Determine reason, replace if necessary 6. Remove obstruction for free air flow – no storage on top of walk-in 7. Ambient conditions should be 90° or less
Standard Temperature System freezes the product	<ol style="list-style-type: none"> 1. Control setting is too low 2. Control points stuck 	<ol style="list-style-type: none"> 1. Reset the control 2. Replace the control
Objectionable noise	<ol style="list-style-type: none"> 1. Fan blade hitting fan shroud 2. Tubing rattle 3. Vibrating fan blade 4. Condenser fan motor rattles 5. General vibration 6. Worn fan motor bearings 	<ol style="list-style-type: none"> 1. Reform or cut away small section of shroud 2. Locate and reform 3. Replace fan blade 4. Check motor bracket mounting, tighten 5. Compressor suspension bolts not loosened on applicable models – loosen them 6. Replace fan motor
Water overflowing from evaporator drain pan or condensate vaporizer pan	<ol style="list-style-type: none"> 1. Air leak between Capsule Pak™ and walk-in panel 2. Drain line from evaporator drain pan to condensate vaporizer is blocked with foreign material 3. Drain line from evaporator drain pan to condensate vaporizer is blocked with ice 4. Walk-in operating in high humidity environment (heavy door usage) 	<ol style="list-style-type: none"> 1. Check that Capsule Pak™ is properly set in panel opening 2. Clean blockage from inside of the drain line 3. Check that drain line heater (on freezers) is working and repair or replace as required. 4. Plumb drain line from evaporator to floor drain or replace hot gas vaporizer with electric vaporizer. Consult factory for further information.