FULL LINE SWING GLASS DOOR MERCHANDISER FREEZERS

Installation, Operation and Maintenance Instructions

TABLE OF CONTENTS

INTRODUCTION

This manual contains important instructions for installing, using, and servicing a **Merchandiser Freezer** case. A parts list is included with this manual. Read all these documents carefully before installing or servicing your equipment.

STORE CONDITIONS

The **Merchandiser Freezer** cases are designed to operate in the controlled environment of an air-conditioned store. The store temperature should be at or below +75°F and a relative humidity of 55% or less. At higher temperature or humidity conditions, the performance of these cases may be affected and the capacity diminished.

The **Merchandiser Freezer** cases should not be positioned where it is directly exposed to rays of sun or near a direct source of radiant heat or airflow. This will adversely affect the case and will result in poor performance.

If this case is to be located against a wall, there should be at least 4" space between the wall and the back of the case. This space will allow for the circulation of air behind the case, which will prevent condensation on the exterior surfaces.

NOTICE

Read this manual before installing your cabinet. Keep the manual and refer to it before doing any service on the equipment. Failure to do so could result in personal injury or damage to the cabinet.

DANGER

Improper or faulty hook-up of electrical components on the refrigeration units can result in severe injury or death.

All electrical wiring hook-ups must be done in accordance with all applicable local, regional or national standards.

NOTICE

Installation and service of the refrigeration and electrical components of the cabinet must be performed by a refrigeration mechanic and/or a licensed electrician.

The portions of this manual covering refrigeration and electrical components contain technical instructions intended only for persons qualified to perform refrigeration and electrical work.

This manual cannot cover every installation, use or service situation. If you need additional information, call our Customer Service Department.

WARNING LABELS AND SAFETY INSTRUCTIONS

This symbol is the safety-alert symbol. When you see this symbol on your cabinet or in this manual, be alert to the potential for personal injury or damage to your equipment.

Be sure you understand all safety messages and always follow recommended precautions and safe operating practices.

NOTICE TO EMPLOYERS

You must make sure that everyone who installs, uses or services your cabinet is thoroughly familiar with all safety information and procedures.

Important safety information is presented in this section and throughout the manual. The following signal words are used in the warnings and safety messages:

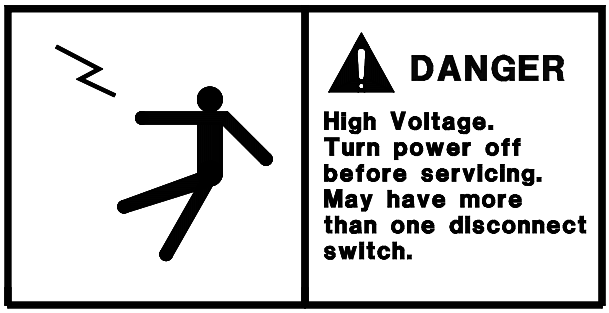
DANGER: Severe injury or death will occur if you ignore the message.

WARNING: Severe injury or death can occur if you ignore the message.

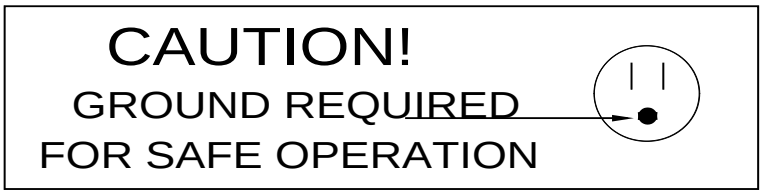
CAUTION: Minor injury or damage to your cabinet can occur if you ignore the message.

NOTICE: This is important installation, operation or service information. If you ignore the message, you may damage your cabinet.

The warning and safety labels shown throughout this manual are placed on your Products cabinet at the factory. Follow all warning label instructions. If any warning or safety labels become lost or damaged, call your customer service department for replacements.



This label is located on top of the electrical control label and on the wiring channel.



This label is attached to the cabinet power cord on models with a power cord.

PRE-INSTALLATION INSTRUCTIONS

INSPECTION FOR SHIPPING DAMAGE

You are responsible for filing all freight claims with the delivering truck line. Inspect all cartons and crates for damage as soon as they arrive. If damage is noted to shipping crates or cartons or if a shortage is found, note this on the bill of lading (all copies) prior to signing.

If damage is discovered when the cabinet is uncrated, immediately call the delivering truck line and follow up the call with a written report indicating concealed damage to your shipment. Ask for an immediate inspection of your concealed damage item. Crating material must be retained to show the inspector from the truck line.

INSTALLATION INSTRUCTIONS

GENERAL INSTRUCTIONS

1. Be sure the equipment is properly installed by competent service people.

2. Keep the equipment clean and sanitary so it will meet your local sanitation codes. Clean the cabinet with a mild detergent and water, then rinse.

3. Rotate your stock so that older stock does not accumulate. This is especially important for ice cream. A "First-In, First-Out" rotation practice will keep the products in good salable condition.

4. Do not place product in the case when it is soft or partially thawed. Also, product should not be put in the case for at least 6 hours after it is started.

5. Stock cases as quickly as possible, exposing only small quantities to store temperatures for short periods of time.

6. When replacing burned out light bars, be sure that the electrical power to the lighting circuit is turned off.

NOTICE TO STORE OWNERS / MANAGERS

Moisture or liquid around or under the cabinet is a potential slip/fall hazard for persons walking by or working in the general area of the cabinet. Any cabinet malfunction or housekeeping problem that creates a slip/fall hazard around or under the cabinet should be corrected immediately.

If moisture or liquid is observed around or under the cabinet, an immediate investigation should be made by qualified personnel to determine the source of the moisture or liquid. The investigation should determine if the cabinet is malfunctioning or if there is a drainpipe leaking.

MECHANICAL

Remove front grille and check refrigeration lines to see that they are free (not touching each other or compressor). Spin condenser fan blade to see that it is free.

Remove cabinet from crate base and slide into location. Cabinet must be level from side to side and front to back for correct draining of coil pan and for self-closing doors to operate correctly. Allow minimum of 4” between back of cabinet and wall and between top of cabinet and ceiling for proper condensing unit air circulation.

To comply with Sanitation requirements the cabinet must be mounted on legs (6” high min.), casters, or the base must be sealed to the floor with an N.S.F. listed silicone sealant. When sealing to the floor, leveling bolts can be uses to assure the cabinet is level before applying silicone sealant.

ELECTRICAL

WARNING

Before servicing electrical components in the case or the doors or door frames make sure all power to case is off. Always use a qualified technician.

Check voltage and amps drawn on (**TABLE 2**) to determine proper line and fuse or circuit breaker size. Check power supply for low voltage.

For example: If voltage reads “230” with no load, and it drops below “207” when the compressor tries to start, it is an indication of too small supply wiring or too long to run.

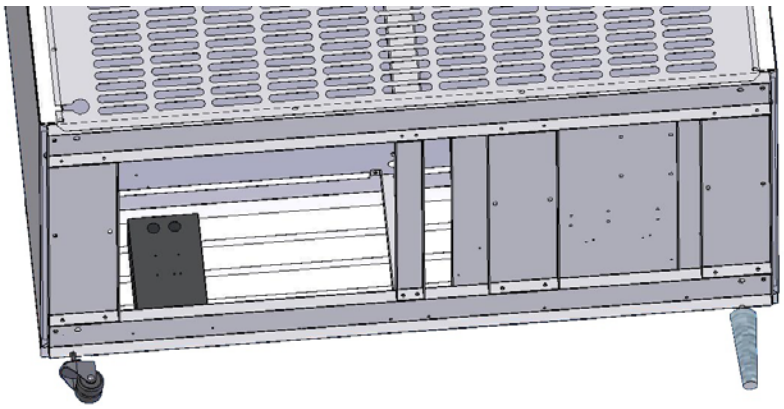
It is recommended that a separate circuit be run for each cabinet to prevent another appliance blowing the fuse or breaker, causing loss of product.

IMPORTANT

Models (3 door cabinet) are pre-wired internally with a 208-230V NEMA L14-20P plug and should only be plugged into a NEMA L14-20P recepticle. See wiring diagrams for more details. The cabinet should be grounded.

LEG / CASTER INSTALLATION

1. Screw legs / casters tightly into the rail base mounting holes.
2. Loose or tight the LEG / CASTER from each corner to make sure the cabinet is completely level.



DOORS

The cabinets have Anthony glass doors that are equipped with a patented TorqueMaster™ hinge system. The doors are easily adjusted using a flathead screwdriver (Fig.3).

* ***The tension needs to be checked and set when first install.***

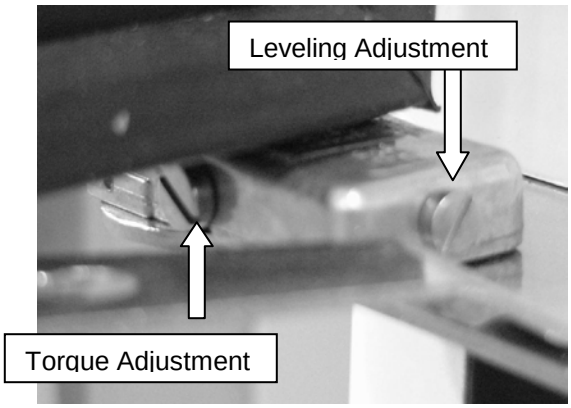


Figure 3

GRILL

To remove bottom grill, unscrew the 2 screws on the bottom for the grill then drop the grill down from the key-slot hole and pull out. (See Figure 4)

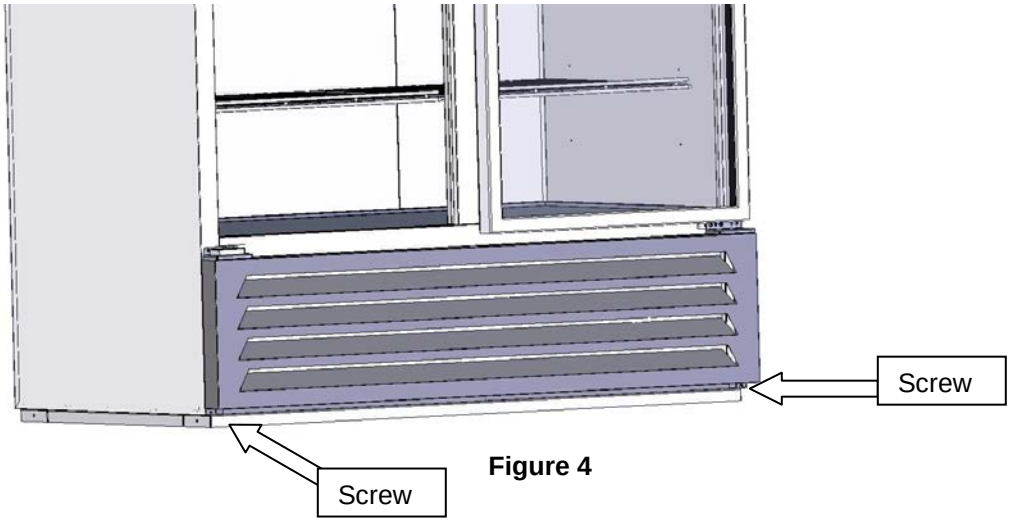


Figure 4

ELECTRONIC REFRIGERATION CONTROL

DESCRIPTION

Fig.1 — Front panel

i Info / Setpoint button.

Manual defrost / Decrease button.

INDICATIONS

Thermostat output

Fan output

RL3 Auxiliary output

II° Activation of 2nd parameter set

Alarm

M Increase / manual activation button.

Exit / Stand-by button.

OPERATION

DISPLAY

During normal operation, the display shows either the temperature measured or one of the following indications:

DEF	Defrost in progress	**HI**	Room high temperature alarm
REC	Recovery after defrost	**LO**	Room low temperature alarm
OFF	Controller in stand-by	**E1**	Probe T1 failure
CL	Condenser clean warning	**E2**	Probe T2 failure
DO	Door open alarm		

INFO MENU

The information available in this menu is:

T1	Instant probe 1 temperature	**TLO**	Minimum probe 1 temperature recorded
T2	Instant probe 2 temperature	**CND**	Compressor working weeks
THI	Maximum probe 1 temperature recorded	**LOC**	Keypad state lock

Compressor When power is first turned on the controller will go through the start-up. After the start-up delay the compressor comes on. The LED indicator stays on while compressor relay is energized. Display will show actual box temperature. Picture above is the display layout. The compressor will be cycled off when the actual box temperature reaches its set point. The compressor indicator will be off.

Fan The fans will run constantly except when a defrost is initiated. When in defrost mode the fans are off until the end of the defrost and the 2 minute drip time has passed. There is 2 minutes delay after a defrost before the fan comes on. If the Evaporator temperature is 35 ^{o}F or below the controller will override the fan delay. FAN LED indicator is on while fan relay is energized.

Defrost The control uses time defrost with 4 defrost per day. The defrost setting can be reset for special applications. During defrost the display will show dEF and the defrost LED indicator will be on. The control begins timing the defrost when power is turned on. Four defrosts per day means it will occur every 6 hours. Example: to have defrost occur at 8am, 2pm, 8pm, and 2am then power up at one of these four times.

MANUAL DEFROST

Defrosting may also be induced manually by pressing the defrost button for 3 seconds. Once initiated, the unit will go through a normal defrost and drip time pull down cycle.

HOW TO CHANGE THE SETPOINT

- Press button ⇕ for at least half second, to display the setpoint value.
- By keeping button ⇕ pressed, use button ▼ or ▲ to set the desired value (adjustment is within the minimum **SPL** and the maximum **SPH** limit).
- When button ⇕ is released, the new value is stored.

HOW TO CHANGE a parameter value

- The setup menu is accessed by pressing button X+i for 5 seconds.
- With button ▼ or ▲ select the parameter to be modified.
- Press button i to display the value.
- By keeping button i pressed, use button ▼ or ▲ to set the desired value.
- When button i is released, the newly programmed value is stored and the following parameter is displayed.
- To exit from the setup, press button X or wait for 30 seconds.

LIST OF PARAMETERS

TABLE 1

Display Symbol	Parameters	Range	Factory Setting
SP	Temperature Set Point	SPL…SPH	-10°F or -15°F
HYS	Temperature Differential	1 to 255°F	10°
SPL	Minimum Temperature limit setpoint	-50…SPH	-15°F
SPH	Maximum Temperature limit setpoint	SPH…120°	30°F
AHA	High Temperature alarm	-50…120°	45°F
ALA	Low Temperature Alarm	50…120°	-30F
ATD	Temperature Alarm Delay	0…120min	30min
DFR	Number of Defrost Cycle per 24hr	0…24	4/day
DLI	Defrost Termination Temperature	-50…120°	55°F
DTO	Maximum Defrost Duration	1…120min	30min

ELECTRICAL CONNECTIONS

The controller is provided with a screw terminal block to connect cables with a cross section up to 2,5 mm^2. Before connecting cables make sure the power supply complies with the control's requirements. Separate the probe cables from the power supply cables, and the outputs and the power connections. Do not exceed the maximum current allowed on each relay. In case of heavier loads use a suitable external relay or contactor.

PROBE CONNECTIONS

The probes shall be mounted with the bulb upwards to prevent damage due to casual liquid infiltration. It is recommended to place the thermostat probe away from air streams to correctly measure the average room temperature. Place the defrost termination probe among the evaporator fins in the coldest place, where most ice is formed, far from heaters or from the warmest place during defrost to prevent premature defrost termination.

FINAL CHECK LIST

A. Check operating pressures.

B. Check electrical requirements of unit to supply voltage.

C. Set temperature control for desired temperature range.

D. Check sight glass for proper refrigerant charge, if provided.

E. Check system for proper defrost settings and operation.

F. Check condensing unit for vibrating or rubbing tubing. Dampen and clamp as required.

G. All valves should be completely opened counter-clockwise.

H. Check packing nuts on all service valves.

I. Replace all service valve caps and latch unit covers.

J. Check and set the door tension at the Torque Adjustment.

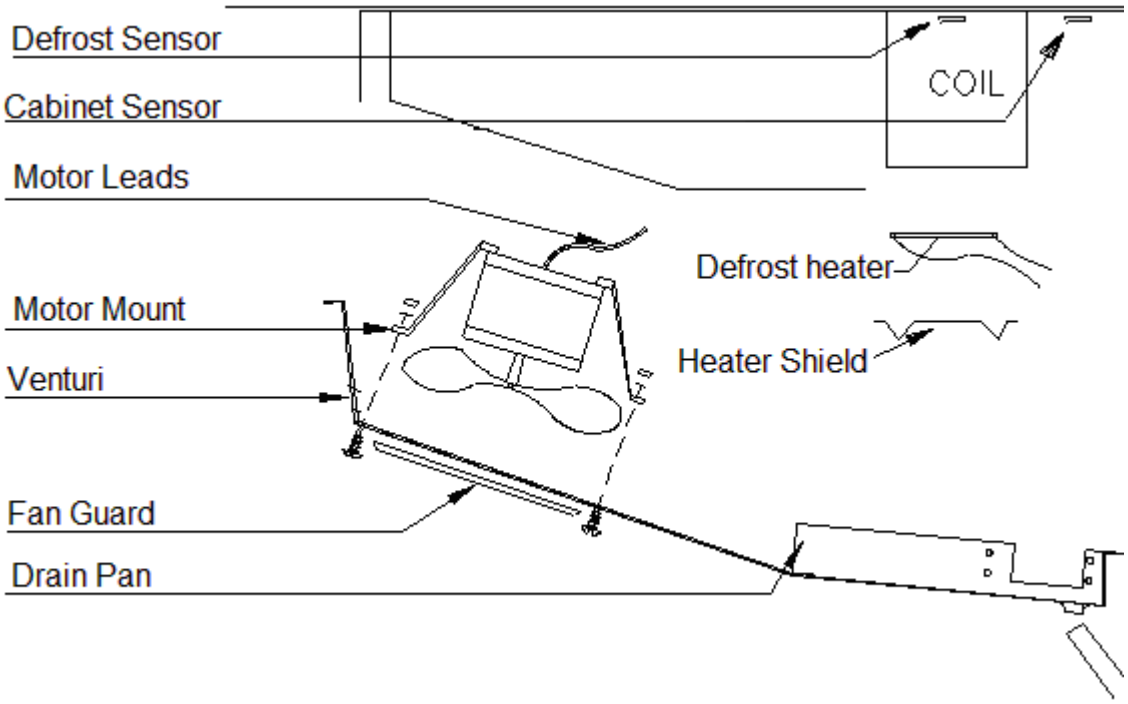
SERVICE INSTRUCTION

1. High head pressure and high back pressure:
    A. Condenser coil clogged or restricted
    B. Condenser fan motor defective.
    C. Air discharge in rear of cabinet restricted.
2. Low back pressure and low head pressure:
    A. Restriction in system.
    B. Refrigerant undercharged.
    C. Leak in system
3. Pressure normal – cabinet warm:
    A. Coil blocked with frost (see #4).
    B. Refrigerant undercharged.
    C. Control set too warm.
4. Cabinet not cycling – coil blocked with frost:
    A. Defective temperature controller.
    B. Refrigerant overcharged.
    C. Location too hot.
    D. Condenser clogged.
    E. Condenser fan motor defective.
    F. Defrost heater not operating.
5. Copressor starts and runs – but cycles on overload:
    A. Low voltage
    B. Relay defective.
    C. Overload defective.
    D. High head pressure (see #1).

Temperature sensor, defrost heater and fan motor replacement

Before making any change, technician should:

1. Disconnect power to the cabinet
2. Remove screws from venturi and pull down



To change a temperature sensor (cabinet sensor or defrost sensor), simply disconnect the sensor wires from the controller and replace the new sensor in the original position. Use plastic tie to tighten the zone sensor. Insert the sensor for defrost termination firmly into top-center of the evaporator coil, in between the fins. Make sure the sensor wires do not touch or are not close to any heater rods.

To change defrost heater – remove screws from drain pan and pull down – remove screws from coil mounting straps – spring straps open – remove heater shield – pull heater out of slots in coil fins.

To change fan motor – disconnect fan motor leads – remove screws from fan guards and motor mounts.

PARTS LIST

The table below gives componet part numbers. Use this chart when ordering replacement parts for your cabinets.
Always Advise Cabinet Serial Number When Ordering Parts

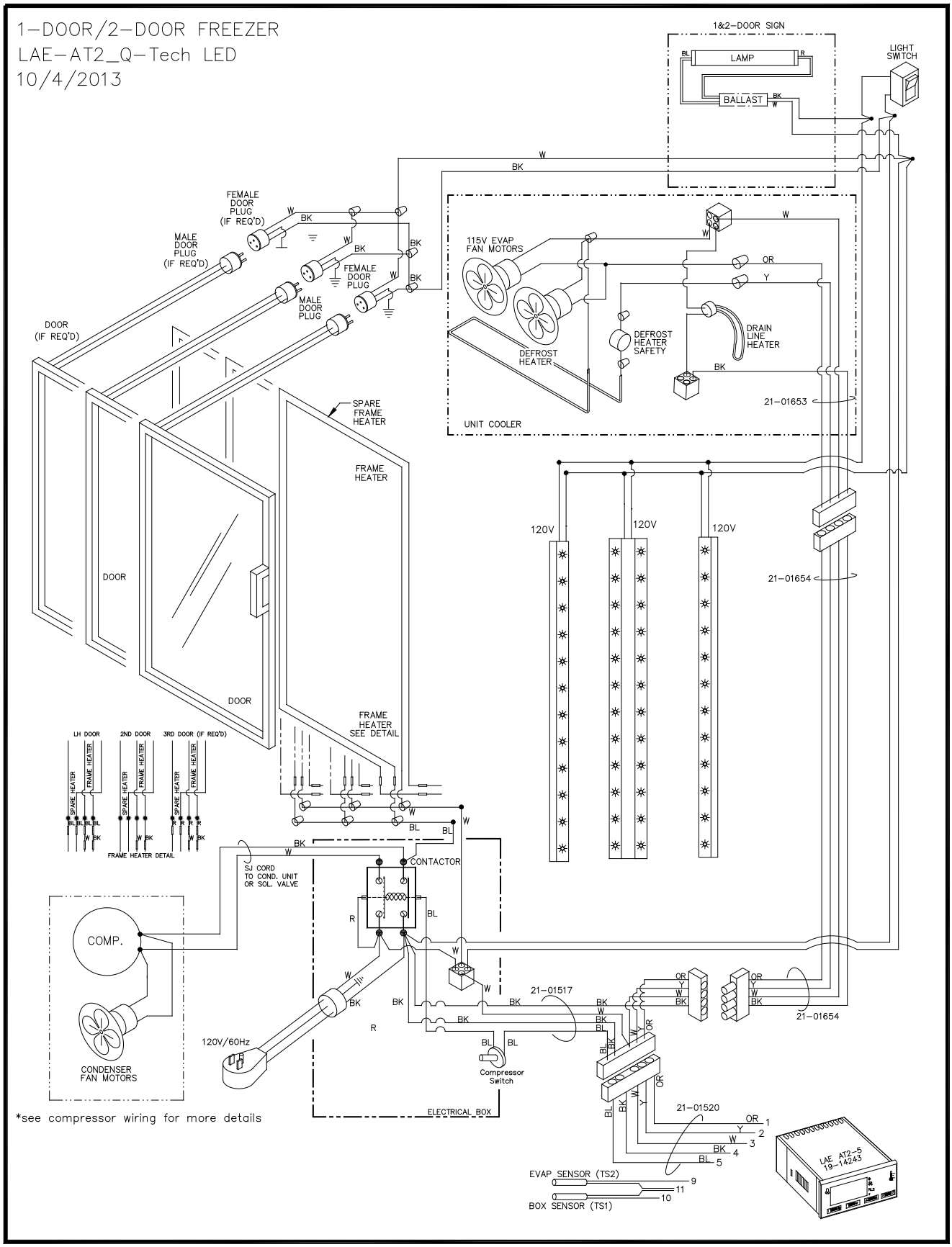
PART	PART #	CABINET MODEL
BALLAST (ALL)	155494	ALL
BULB (1 DR)	155495	NLGFP23 & 27
BULB (2 DR)	155496	NLGFP48
BULB (3 DR)	155497	NLGFP74-HG
LAMP HOLDER (ALL)	155498	ALL
LED LIGHT BAR **SINGLE** (1 DR)	155499	NLGFP23 & 27
LED LIGHT BAR **SINGLE** (3 DR HINGED)	155499	NLGFP74
LED LIGHT BAR **DOUBLE** (2 & 3 DR HINGED)	155500	NLGFP48 & 74-HG
FEMALE DR PLUG (FRZRS ONLY)	155503	NLGFP23, 27, 48, & 74
LIGHT SWITCH (ALL)	155504	ALL
EXPANSION VALVE (1 DR FRZRS)	157674	NLGFP23 & 27-HG
EXPANSION VALVE (2 & 3 DR FRZRS)	157675	NLGFP48 & 74-HG
EVAP COIL (1 DR FRZRS)	159174	NLGFP23 & 27-HG
EVAP COIL (2 DR FRZRS)	159176	NLGFP48HG
EVAP COIL (3 DR FRZRS)	159177	NLGFP74HG
EVAP FAN BLADES (ALL)	155725	ALL
EVAP FAN MOTORS	159173	NLGFP23 & 27-HG
EVAP FAN MOTORS	155726	NLGFP48 & 74-HG
EVAP FAN GUARDS (ALL)	155727	ALL
COMP (1 DOOR FRZRS)	155731	NLGFP23 & 27-HG
COMP (2 DOOR FRZRS)	155732	NLGFP48-HG
COMP (3 DOOR FRZRS)	155733	NLGFP74-HG
COND COIL (1 DR FRZRS)	155734	NLGFP23 & 27-HG
COND COIL (2 & 3 DR FRZRS)	155736	NLGFP48 & 74-HG
COND FAN MOTOR (1 & 2 DR FRZRS)	155737	NLGFP23, 27, & 48-HG
COND FAN MOTOR (3 DR FRZRS)	155739	NLGFP74-HG
COND FAN BLADE (1, 2, 3, DR FRZRS)	155740	NLGFP23, 27, 48, & 74-HG
DRIER (ALL FRZRS)	155743	NLGFP23, 27, 48, & 74-HG
THERMOMETER (ALL)	155744	ALL
LAE CONTROLLER (ALL FRZRS)	155746	NLGFP23, 27, 48, & 74-HG
LAE SENSOR T1 (ALL FRZRS)	155747	NLGFP23, 27, 48, & 74-HG
LAE SENSOR T2 (ALL FRZRS)	155748	NLGFP23, 27, 48, & 74-HG
DOOR - LH (23" FRZRS)	155752	NLGFP23-HG
DOOR - RH (23" FRZRS)	159376	NLGFP23-HG
DOOR - LH (27" FRZRS)	155753	NLGFP27-HG
DOOR - RH (27" FRZRS)	159377	NLGFP27-HG
DOOR - LH (48" & 74" FRZRS)	155754	NLGFP48 & 74-HG
DOOR - RH (48" & 74" FRZRS)	155756	NLGFP48 & 74-HG
PILASTER (ALL)	155759	ALL
PILASTER CLIPS (ALL)	155760	ALL
WALL GUARD (ALL)	155761	ALL
SHELVES (23" CABINETS) WHITE	155762	NLGFP23-HG
SHELVES (27" CABINETS) WHITE	155763	NLGFP27-HG
SHELVES (2 & 3 DOOR SIDES) WHITE	155764	NLGFP48 & 74-HG
SHELVES (3 DR CENTER) WHITE	155763	NLGFP74-HG
CASTERS (4) 3" DIAMETER (1 & 2 DOOR)	155766	NLGFP23,27, & 48-HG
CASTERS (6) 3" DIAMETER (3 DOOR)	155767	NLGFP74-HG
LEGS (4) 6" (1 & 2 DOOR)	155768	NLGFP23,27, & 48-HG
LEGS (6) 6" (3 DOOR)	155769	NLGFP74-HG
LEFT HAND HINGE KIT	155723	NLGFP23,27,48, & 74-HG
RIGHT HAND HINGE KIT	155724	NLGFP48, 74-HG
DEFROST HEATER	155697	NLGFP23 & 27-HG
DEFROST HEATER	155700	NLGFP48-HG
DEFROST HEATER	155701	NLGFP74-HG
DRAIN LINE HEATER	155698	NLGFP23,27,48, & 74-HG
DEFROST HEATER SAFETY	155699	NLGFP23,27,48, & 74-HG

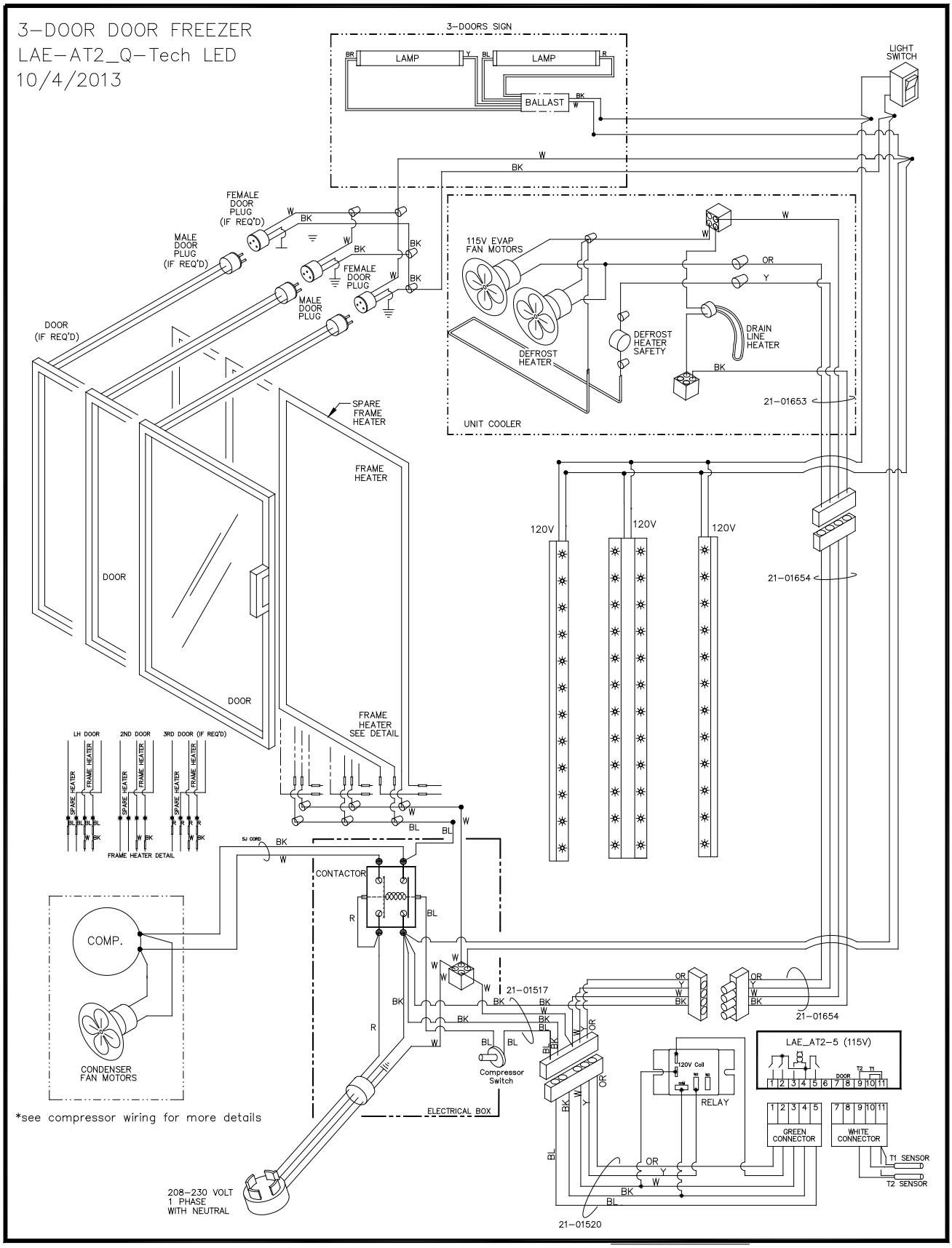
SALE AND DISPOSAL

OWNER RESPONSIBILITY

If you sell or give away your cabinet, you must make sure all safety labels and the IOM Instructions are included with it. If you need replacement labels or manuals, contact the Customer Service Department and we will provide them at no charge.

The customer service department should be contacted at the time of sale or disposal of your cabinet so records may be kept of its new location.


1-DOOR/2-DOOR FREEZER
LAE-AT2_Q-Tech LED
10/4/2013
1&2-DOOR SIGN
LAMP
BALLAST
LIGHT SWITCH
FEMALE DOOR PLUG (IF REQ'D)
MALE DOOR PLUG (IF REQ'D)
FEMALE DOOR PLUG
MALE DOOR PLUG
DOOR (IF REQ'D)
115V EVAP FAN MOTORS
DEFROST HEATER
DEFROST HEATER SAFETY
DRAIN LINE HEATER
UNIT COOLER
21-01653
SPARE FRAME HEATER
FRAME HEATER
DOOR
DOOR
120V
120V
120V
21-01654
LH DOOR
2ND DOOR
3RD DOOR (IF REQ'D)
FRAME HEATER DETAIL
FRAME HEATER SEE DETAIL
SJ CORD TO COND. UNIT OR SOL. VALVE
CONTACTOR
COMP.
CONDENSER FAN MOTORS
120V/60Hz
Compressor Switch
ELECTRICAL BOX
21-01517
21-01654
21-01520
EVAP SENSOR (TS2)
BOX SENSOR (TS1)
LAE AT2-5 19-14243
*see compressor wiring for more details


3-DOOR DOOR FREEZER
LAE-AT2_Q-Tech LED
10/4/2013
3-DOORS SIGN
LAMP
LAMP
BALLAST
LIGHT SWITCH
FEMALE DOOR PLUG (IF REQ'D)
MALE DOOR PLUG (IF REQ'D)
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MALE DOOR PLUG
DOOR (IF REQ'D)
115V EVAP FAN MOTORS
DEFROST HEATER
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DRAIN LINE HEATER
21-01653
UNIT COOLER
SPARE FRAME HEATER
FRAME HEATER
DOOR
DOOR
120V
120V
120V
21-01654
LH DOOR
2ND DOOR
3RD DOOR (IF REQ'D)
FRAME HEATER DETAIL
FRAME HEATER SEE DETAIL
SJ CORD
CONTACTOR
COMP.
CONDENSER FAN MOTORS
*see compressor wiring for more details
21-01517
21-01654
Compressor Switch
ELECTRICAL BOX
LAE_AT2-5 (115V)
RELAY
120V Coil
GREEN CONNECTOR
WHITE CONNECTOR
T1 SENSOR
T2 SENSOR
208-230 VOLT 1 PHASE WITH NEUTRAL
21-01520