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FEDERAL INDUSTRIES
LMDM4878
INSTALLATION & OPERATIONS MANUAL

KEEP THIS MANUAL FOR FUTURE REFERENCE

Engineering and technical data are subject to change without notice.

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INTRODUCTION

Thank you for purchasing a Federal Industries display case. This manual contains important instructions for installing and servicing the LMDM Model. A repair parts list and wiring diagram is also included in the manual. Read these documents carefully before installing or servicing your case.

NOTICE

Read this manual before installing your case. Keep this 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 case.

NOTICE

Installation and service of the electrical components in the case must be performed by a licensed electrician.

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

DANGER

Improper or faulty hookup of electrical components in the case can result in severe injury or death.

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

REGISTRATION & SERIAL NUMBER

It's important to keep a record of the model and serial number of your merchandiser for warranty and part identification. Please write them here for your quick reference.

Register your product online! Visit our website at www.federalindustries.com and register your product today.

Case Model_____ Serial Number_____

We're here to provide you with the best possible experience with your new product, however, we cannot cover everything about your merchandiser in this manual, so if you have any additional questions or issues, please see the SERVICE INFORMATION PAGE to find who you should contact.

WARNING LABELS & SAFETY INSTRUCTIONS

This is the safety-alert symbol. When you see this symbol on your case or in the 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 procedures.

NOTICE TO EMPLOYERS

You must make sure that everyone who installs, uses, or services your case 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 warning and safety messages:

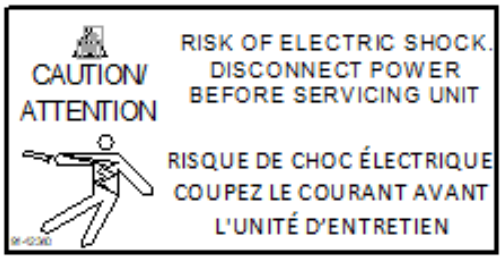
DANGER: Severe injury or death **will** occur if you ignore the message.

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

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

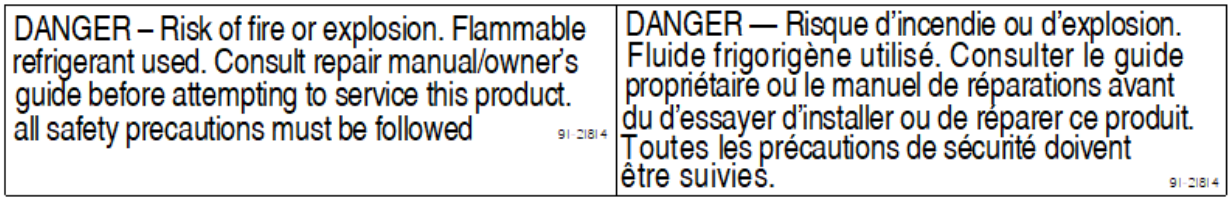
NOTICE: This is important installation, operation, or service information. If you ignore the message, you may damage your case.

The warning and safety labels shown throughout this manual are placed on your Federal Industries case at the factory. Follow all warning label instructions. If any warning or safety labels become lost or damaged, call our customer service department at 1(800) 356-4206 for replacements.



This label is located next to Panels covering electrical components.

This label is located near Fan Blades



This label is located by condensing unit

REFRIGERATION WARNING
INSTALLATION-REPAIR-DECOMMISSIONING

This is the Danger-Flammable symbol. When you see this symbol on your case or in the manual, be alert to the potential for risk of fire or explosion.

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

DANGER

Risk of fire or explosion. Flammable refrigerant used. To be repaired only by trained service personnel. Do not puncture refrigerant tubing. Dispose of properly in accordance with federal or local regulations

Consult repair manual/owner's guide before attempting to service this product. All safety precautions must be followed.

Follow handling instructions carefully in compliance with national regulations.

Auxiliary devices which may be ignition sources shall not be installed in the ductwork, other than auxiliary devices listed for use with the specific appliance.

Do not store explosive substances (such as aerosol cans with a flammable propellant) in this case.

Do not use an electrical appliance INSIDE the food storage compartments unless its type is recommended by manufacturer.

Flammable refrigerant type specified on case nameplate is on the serial label.

APPLIES TO R290 REFRIGERANT MODELS ONLY! Contains a charge of R290 refrigerant with a lower flammability limit (LFL) of .038kg/m^3. See table for amount of charge.

WARNING

-Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

-The appliance shall be stored in a room without continuously operating ignition sources

For example: open flames, an operating gas appliance or an operating electric heater.

-Do not pierce or burn.

-Be aware that refrigerants may not contain an odor.

MISE EN GARDE

-Ne pas utiliser de moyens autres que ceux recommandés par le fabricant pour accélérer le processus de dégivrage ou pour nettoyer l'appareil.

-L'appareil doit être entreposé dans un local ne contenant pas de sources d'inflammation permanentes (flammes nues, appareil à gaz ou dispositif de chauffage électrique en fonctionnement, par exemple).

-Ne pas percer ou brûler.

-Attention, les fluides frigorigènes peuvent ne pas dégager d'odeur.

3. Qualification: All refrigeration and electrical maintenance, service, and repair must be performed by a Certified Technician that is trained in the required flammable refrigerants safety procedures. Technicians must read the entire section "REFRIGERATION WARNINGS SECTION" of this manual.
Including but not limited to the following:
a) breaking into the refrigerating circuit.
b) opening of sealed components.
c) opening of ventilated enclosures.

4.**Checks to Area:** Prior to beginning work on systems containing FLAMMABLE REFRIGERANTS, safety checks are necessary to ensure that the risk of ignition is minimized prior to conducting work on the system.
-Capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparkling.
- No live electrical components and wiring are exposed while charging, recovering or purging the system.
- Continuity of earth bonding.

-Work shall be undertaken under a controlled procedure to minimize the risk of a flammable gas or vapor being present while the work is being performed.
-All maintenance staff and others working in the local area shall be instructed on the nature of the work being carried out. Work in confined spaces shall be avoided.
-The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e., non-sparking, adequately sealed, or intrinsically safe.

-If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available on hand. A dry chemical or CO2 fire extinguisher should be adjacent to the charging area.

-No person carrying out work in relation to a REFRIGERATING SYSTEM which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment shall be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.

-Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

-Where electrical components are being changed, they shall be fit for the purpose and to the correct specification so as to minimize the risk of possible ignition due to incorrect parts. At all times, the manufacturer’s maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer’s technical department for assistance.
The following checks shall be applied to installations using flammable refrigerants:
a) the actual REFRIGERANT CHARGE is in accordance with the room size within which the refrigerant containing parts are installed.
b) The ventilation machinery and outlets are operating adequately and are not obstructed.
c) Markings of the equipment continue to be visible and legible. Markings and signs that are illegible shall be corrected.
d) Refrigerating pipes or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing

-Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an An adequate temporary solution should be used. This shall be reported to the owner of the Initial safety checks shall include:

5. Repairs to sealed components

-During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

-Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc. Ensure that the apparatus is mounted securely.
Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the egress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.

-Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.
NOTE The use of silicon sealants can inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

8. Detection of flammable refrigerants: Under no circumstances shall potential ignition sources be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

The following leak detection methods are deemed acceptable for all refrigerant systems:

-Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity might not be adequate or might need recalibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.

-Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine can react with the refrigerant and corrode the copper pipework.
NOTE Examples of leak detection fluids are
– bubble method,
– fluorescent method agents.
If a leak is suspected, all naked flames shall be removed/extinguished.
If a leakage of refrigerant is found which requires brazing, all the refrigerants shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system
remote from the leak.

9. Removal and Evacuation: When breaking into the refrigerant circuit to make repairs-or for any other purpose-conventional procedures shall be used. However, for flammable refrigerants it is important that the best practice be followed, since flammability is a consideration. The following procedure shall be adhered to:

a. Safely remove refrigerant following local and national regulations.
b. Purge the circuit with inert gas.
c. Evacuate (optional for A2L).
d. Purge with inert gas (optional for A2L).
e. Open the circuit by cutting or brazing.

The refrigerant change shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems. For appliances containing flammable refrigerants, refrigerant purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen change is used, the system shall be vented down to atmospheric pressure to enable work to take place. Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.

10. Charging procedures: In addition to conventional charging procedures, the following requirements shall be followed.

a. Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
b. Cylinders should be kept in an appropriate position according to the instructions.
c. Ensure that the REFRIGERATING SYSTEM is earthed prior to charging the system with refrigerant.
d. Label the system when charging is complete (if not already).
e. Extreme care shall be taken not to overfill the REFRIGERATING SYSTEM.

11. Decommissioning: Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task commences.

a. Become familiar with the equipment and its operation.
b. Isolate the system electrically.
c. Before attempting the procedure, ensure that:
  i. Mechanical handling equipment is available, if required, for handling refrigerant cylinders.
  ii. All personal protective equipment is available and is being used correctly.
  iii. The recovery process is supervised at all times by a competent person.
  iv. Recovery equipment and cylinders conform to the appropriate standards.
d. Pump down the refrigerant system, if possible.

e. If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
f. Make sure that the cylinder is situated on the scales before recovery takes place.
g. Start the recovery machine and operate in accordance with instructions.
h. Do not overfill cylinders (no more than 80% volume liquid charge).
i. Do not exceed the maximum working pressure of the cylinder, even temporarily.
j. When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from the site properly and all isolation valves on the equipment are closed off.
k. Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.

12. Labeling: Equipment shall be labeled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

13.Recovery: When removing the refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.
When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e., special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valve in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, FLAMMABLE REFRIGERANTS. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect coupling and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of refrigerant release. Consult manufacturer if in doubt.
The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.
If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that FLAMMABLE REFRIGERANT does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

PRE-INSTALLATION PROCEDURES

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, 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 case 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 damaged item. Crating material must be retained to show the inspector from the truck line.

INSTALLATION INSTRUCTIONS

IMPORTANT: Read this Section of this manual located on page 5.
"REFRIGERATION WARNING &INSTALLATION-REPAIR-DECOMMISSIONING"
All refrigeration and electrical work must be performed by certified technicians.

The installation of the appliance and the refrigerant must only be performed by Federals approved Service or suitably qualified person.

Appliance to be installed in accordance with safety standards ANSI/ASHREA 15.
The appliance shall not be installed in public corridors or lobbies.

This case is designed for a class 2 environment.

Test room climate class	Dry bulb temperature [°F]	Relative Humidity [%]	Dew point [°F]	Water vapour mass in dry air [lbm water/lbm air]	Required Test Lab Temperature [°F]
2.0	71.6	65	59.36	0.0108	89.6

NSF TYPE 1 Temperature cannot exceed 75 deg F and 55% humidity.

LOCATING THE DISPLAY CASE

The case should be located where it is not subjected to the direct rays of the sun, heating ducts, grills, radiator, or ceiling fans, nor should it be located near open doors or main door entrances. Also, avoid locations where there is excessive air movement or air disturbances and avoid high humidity locations such as near cases with water misting or fogging devices. Failure to locate this case as stated will reduce the performance of your display and will affect temperature of interior of case and product.

Clearances

This case has a top mounted condensing unit and requires air movement above the case. The case must be operated in a room with a minimum of 8’ ceilings. This allows a minimum of 18” from top of case to ceiling, which allows the warm air to dissipate.

If this case is to be located against a wall there should be at least 6” between the case and the wall to allow air circulation from condensate pan. Failure to give adequate space may cause base area to form condensation.

REMOVING PACKAGING MATERIAL

Remove bubble wrap and packing material for all shelves and panel, brackets, etc. If it is necessary to remove tape residue from plastic materials, use cleaning compounds recommended in the cleaning section of this manual.

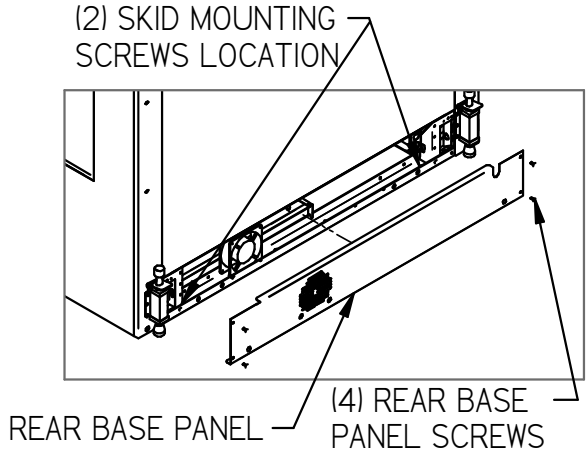
REMOVING CASE FROM SHIPPING SKID

There are (2) 1/4" screws located in the front base rail and (2) ¼ screws in the rear base rail that secure the case to the skid during shipping. The rear base panel and front kick plate will need to be removed to gain access to these screws.

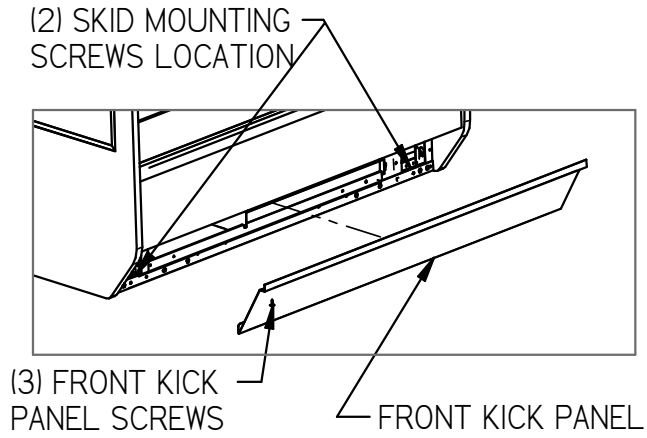
Remove the rear base panel by removing the (4) screws holding it to the back of the case. Use a 1/2 socket to remove the (2) skid mounting screws located in back base rail.

Remove the front kick plate by removing the (3) screws along the top of the kick panel. Tilt the top of the kick panel away from the base. The bottom of kick panel is setting on top of the base rail and will drop down and out of case
Use a 1/2 socket to remove the (2) skid mounting screws located in front base rail.

REAR BASE PANEL



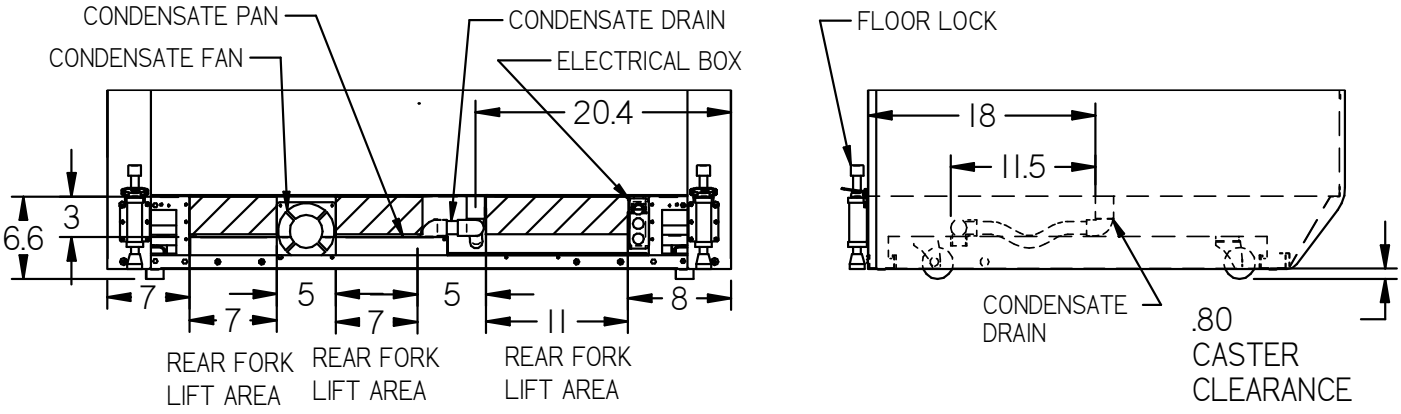
FRONT KICK PLATE



Remove the case from the skid and place on floor as described in "Lifting Case" section of this manual. Reinstall both the rear panel and the front kick plate. Note: This case has casters installed at factory to allow case to be moved to final location.

LIFTING CASE

CAUTION: Care must be taken not to damage or tip the case when removing it from the skid.



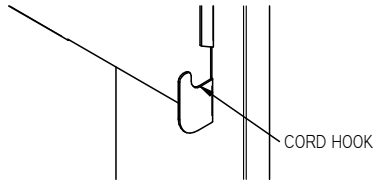
The case should be lifted off skid using a fork lift. The case must be lifted from the rear in the locations noted in picture above. Be sure case is balanced equally on forks. When sliding forks under case someone must be watching that forks do not hit and damage drain tube, condensate fan or condensate heater wires.

To prevent injury, it is not recommended to attempt lifting case manually. If lifting or jacking is required, remove rear base panel and front kick panel and grab under front and back lip of case tub.

MOVING CASE

CAUTION: **Do not push or pull against the clear acrylic deflector on front of case. Doing so can cause the acrylic to break.**
To prevent case from tipping or getting caught on high surfaces the rolling surface must be flat and even with no slope.

Before moving the case, it is important to hook the power cord up off floor to prevent running over the cord with the case. There is a cord hook strap provided on upper back of case. Loop cord over hook to prevent it from dragging.

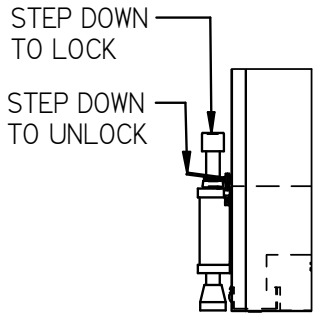


Casters are supplied from the Factory to allow the case to be moved to different locations. The case should roll easily over level surfaces by lightly pushing on back, sides of end panels. There is a condensate pan in the bottom section of the case that may have water in it. Push case slowly to prevent water from sloshing out of pan on to floor. If there is water on the floor after moving case, wipe it up immediately to prevent slipping. NOTE: There is only 5/8" ground clearance under case, so be aware of any high spots and door sills that could cause case to bottom out. When pushing over uneven surfaces it is very important to push slowly over bump and push below the end glass near the base of the unit.

LEVELING THE CASE

The case must be level to allow for proper drainage of condensate water from evaporator coil. It is important that the area the case is to be located is flat and level because there are no leveling feet to compensate for uneven surfaces.

FLOOR LOCKS



This case is supplied with factory installed floor locks on back of case to help prevent case to remain stationary.

-To lock floor lock: Step down on the top of the rubber foot to push
foot on to floor surface.

-To unlock floor lock: Step down on lever next to rubber foot and the foot will spring back to up position.

GENERAL ELECTRICAL & GROUNDING

IMPORTANT: Read this Section of this manual located on page 5.
"REFRIGERATION WARNING &INSTALLATION-REPAIR-DECOMMISSIONING"
All refrigeration and electrical work must be performed by certified technicians.

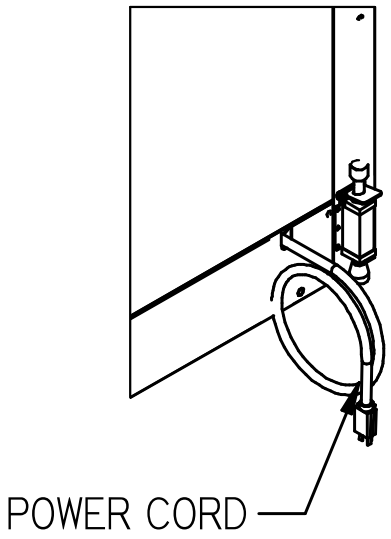
DANGER: Improper or faulty hookup of electrical components in the display case can result in severe injury or death.

POWER CORD

CORD CONNECTED			
	SELF CONTAINED		
MODEL	VOLTAGE	TOTAL AMPS	CORD STYLE
LMD4878SC	208-240/60/1	15	20AMP NEMA 6-20

A factory installed power cord is properly sized to the amperage requirements of the case. See the electrical data plate located on the rear exterior of the case for the proper circuit size for each case.
- The cord is factory installed and is protruding from the rear corner of the case as noted in below drawings.
-A separate circuit for each display case is required to prevent other appliances on the same circuit from overloading the circuit and causing malfunction.

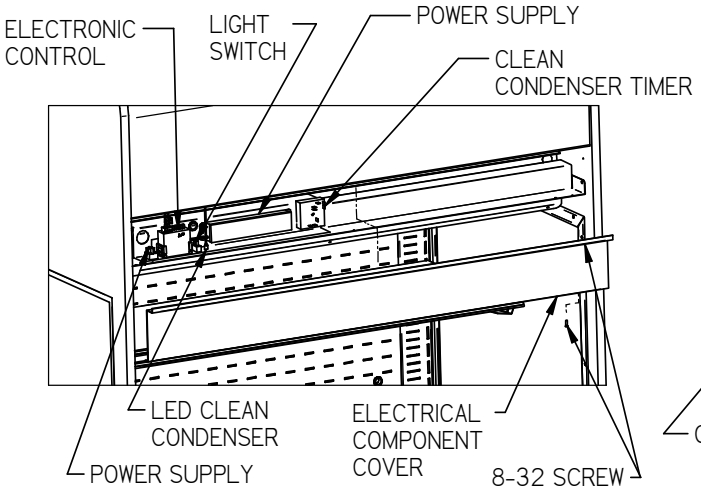
CAUTION Risk of Electric Shock. If the cord or plug becomes damaged, replace only with a cord and plug of the same type".



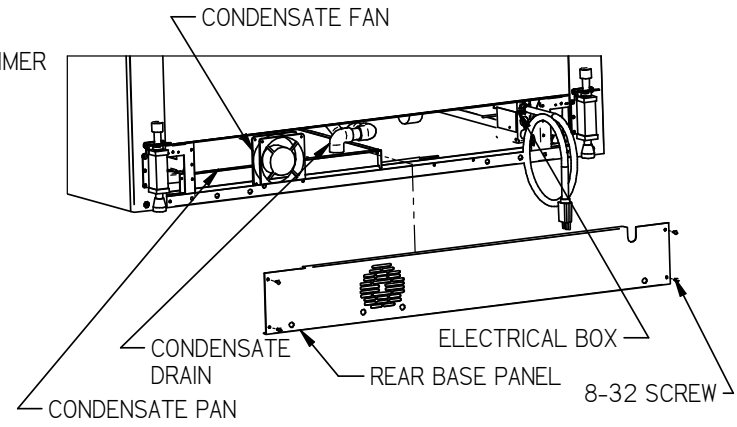
PANEL REMOVAL FOR ELECTRICAL ACCESS

DANGER: Electric shock hazard. Disconnect power before removing panels. Do not operate unit with panels removed. Panels must be in place when operating unit

Electrical Component Cover



Rear Base Panel



Electrical Component Cover

The electrical component cover can be removed to access lighting components and controls. Remove the front 8-32 screws holding the electrical component cover to front of case. Slide the cover down and out through the front of case opening.

Rear Base Panel

The rear base panel can be removed to access the main electrical box and condo pan components. Remove the rear base panel by removing the (4) 8-32 screws holding it to the back of case.

REFRIGERATION

CHARGE AND SETTINGS

WITH ELECTRONIC CONTROL	LMDM4878SC
Refrigerant	R290
Low Pressure Switch Cut In	15 psi
Low Pressure Switch Cut Out	4 psi
High Pressure Switch Cut Out	350 psi

SELF-CONTAINED REFRIGERATION OPERATION

The unit temperature is controlled by an electronic control that senses air temperature and turns refrigeration on and off as required to maintain proper temperature.

The electronic control will also sense a frosted coil that requires a defrost cycle and shuts off refrigeration until defrost is complete. There are also a defined number of scheduled defrosts that also shut the refrigeration off to insure a full defrost.

CONDENSATE EVAPORATOR PAN

IMPORTANT: Read this Section of this manual located on page 5.
"REFRIGERATION WARNING &INSTALLATION-REPAIR-DECOMMISSIONING"
All refrigeration and electrical work must be performed by certified technicians.

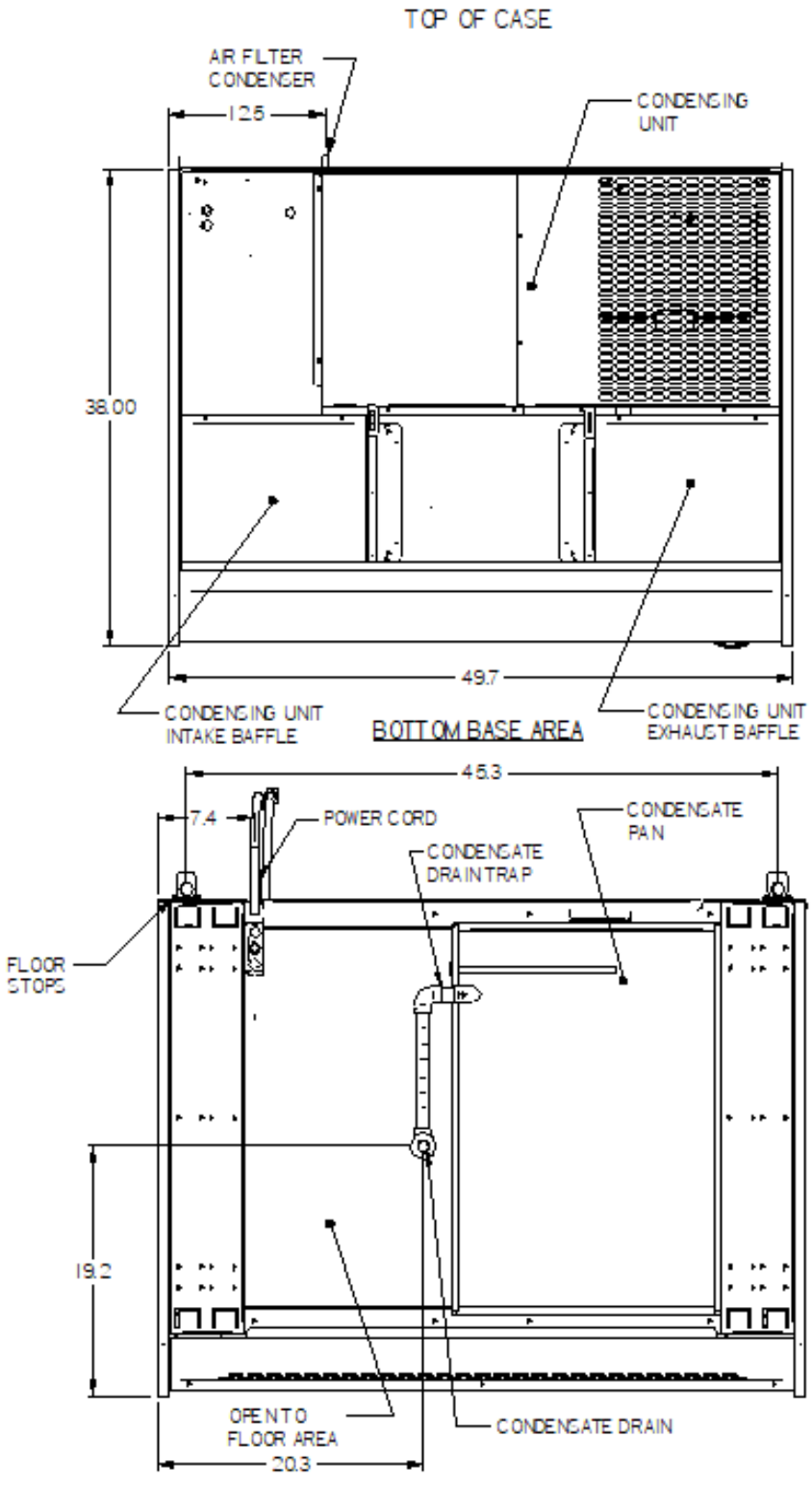
NOTICE: During normal defrost cycles, steam from the condensate evaporator may be visible around the case.
Do not use other means to defrost coil other than recommended by manufacturing

The standard Self-Contained case is furnished with an electric condensate evaporator. Plumbing connections are not required.

Make sure that the drain line has not been dislodged during shipment and that the drain trap terminates properly over the water reservoir.

Water may slosh out when case is being moved. Wipe up water on floor immediately to prevent slipping.

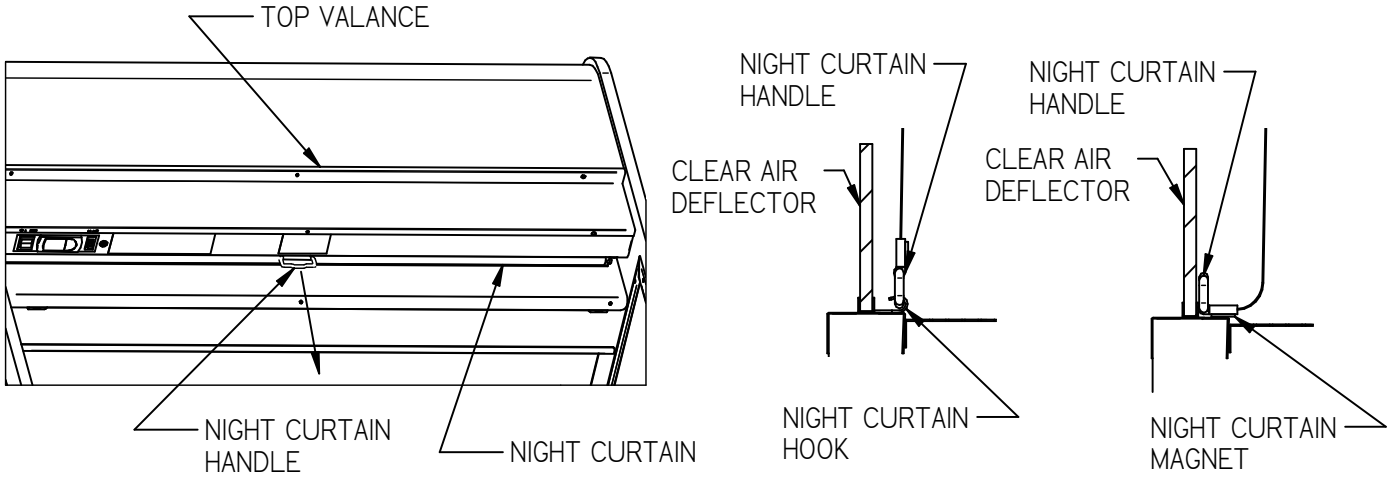
BASE COMPONENT LAYOUT



FEATURE OPERATION

NIGHT CURTAIN OPERATION

The Night Curtain is standard on all LMDM models. It is provided to conserve energy when case is not being used.
NOTE: To prevent sweating the Night Curtain must be closed before rolling down the optional Roll Down Cover or Installing the optional Security Cover.



CLOSING:

There are magnets along the back side of night curtain handle that are used to hold the curtain open and hold the curtain closed. Some model configurations must use a hook at the bottom to hold the curtain in the closed position.

1. Grab Night Curtain Handle located behind the top valance. Pull the night curtain out away from the case to disengage magnets. Pull the night curtain down the front of case opening.
2. MAGNET MODELS: Roll the handle forward so the magnets catch on metal lip behind the clear air deflector.
   HOOK MODELS: Using the tips of your fingers attach the handle to the Night Curtain Hook located behind clear air deflector.

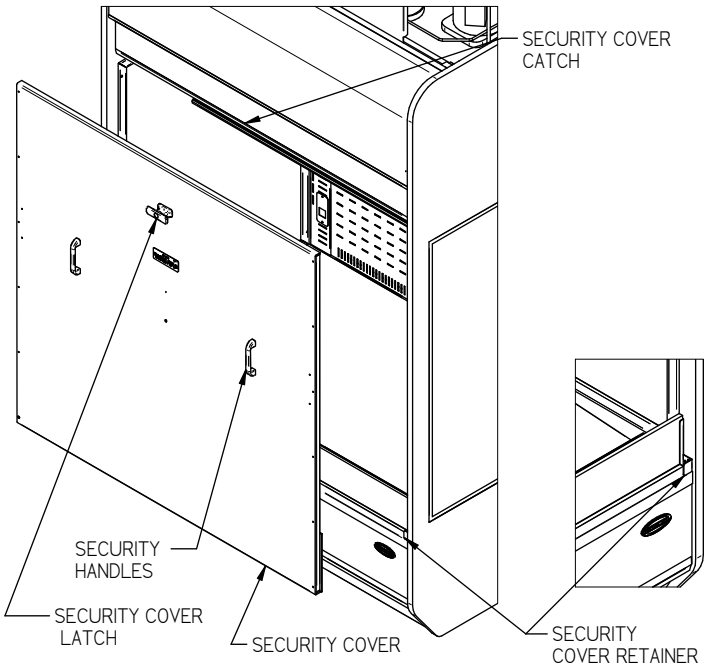
OPENING:

1. Detach the Night Curtain from the bottom of case by either unhooking the handle or pulling the magnet free from metal lip.
2. While holding the Night Curtain Handle allow the night curtain to roll up slowly. Important: Do not let go of Night Curtain Handle until Night Curtain is completely open.

REMOVABLE SECURITY COVER OPERATION (OPTIONAL)

Security Cover allows product to remain in case while case is unattended. It must be removed and stored in different location while case is in use.

NOTE: When using optional Security Cover the Night Curtain must be pulled down to the closed position. See Night Curtain Section.



Removing

1. Use key provided to unlock Security Cover Latch.
2. Turn Security Cover Latch vertical to unhook it from Security Cover Catch.
3. Grab Security Cover Handles, tilt top of Security Cover away from case, and lift Security Cover up so the Security Cover bottom corners lift out of the Security Cover Retainers located in the bottom corners of case opening.

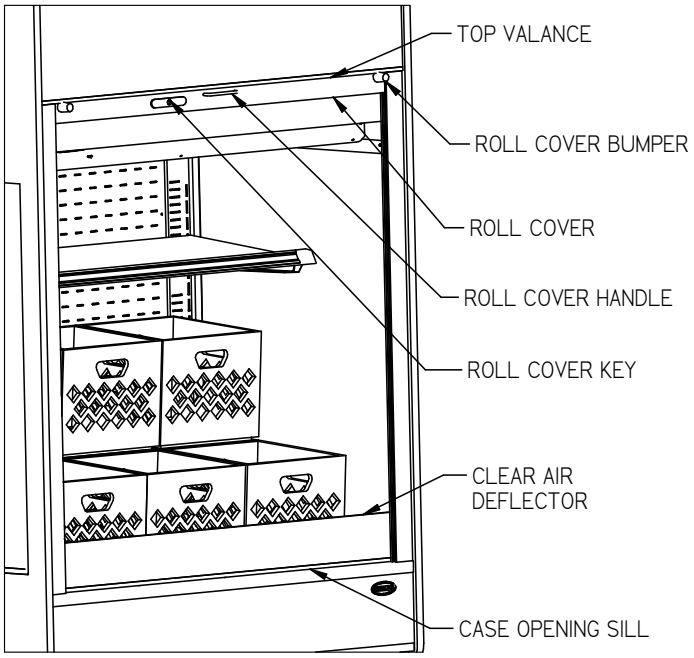
Installing

1. **Close Night Curtain as described in Night Curtain section**.
   IMPORTANT: Night Curtain must be closed or condensation will form on front of Security Cover.
2. Grab Security Cover Handles and place bottom of Security Cover corner behind the Security Cover Retainers, located in the bottom corners of case opening.
3. Tilt top of Security Cover into case opening until it hits the Security Cover Catch.
4. Use key provided to lock Latch in horizontal position.

ROLL COVER OPERATION (OPTIONAL)

The Roll Down Cover rolls down over product to allow product to remain in case while case is unattended and it rolls up out of the way while case is in use.

NOTE: When using optional Roll Cover the Night Curtain must be pulled down to the closed position. See Night Curtain Section.



Rolling Down

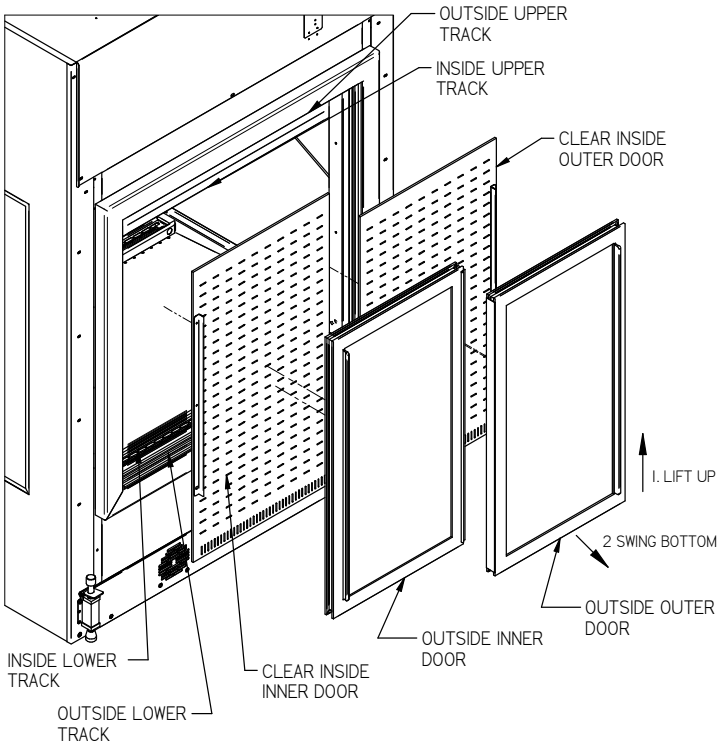
1. **Close Night Curtain as described in Night Curtain section**.
   IMPORTANT: Night Curtain must be closed or condensation will form on front of Roll Down Cover.
2. Grab Roll Cover Handle and pull cover down until it stops on the Case Opening Sill of case opening. The Roll Cover will be in front of the Clear Air Deflector.
3. Use the provided Roll Cover Key to lock the Roll Cover Latch in the down position.

Rolling Up

1. Use the Roll Cover Key provided to unlock the Roll Cover Latch.
2. Grab and pull up on the Roll Cover Handle. The Roll Cover has a spring assist to make it easy to open. Hold onto Roll Cover Handle until the Roll Cover Bumpers hit the Top Valance of case.

REAR DOOR (OPTIONAL)

IMPORTANT: Do not leave either the inner or outer doors open. Both inner and outer doors must always be closed during operation. Only open the doors for a short time to load case and then close both the inner and outer doors immediately.



1. Start with the Outside Outer Door and lift the door upward until the bottom edge of door clears the Outside Lower Track. Swing the bottom of the door outward and down out of Outside Upper Track.
2. Remove the Outside Inner Door using the same procedure.
3. Remove the Clear Inside Outer Door by lifting the door upward until the bottom edge of door clears the Inside Lower Track. Swing the bottom of the door outward and down out of Inside Upper Track.
4. Remove the Clear Inside Inner Door using the same procedure.
5. Reverse this procedure for door reinstallation starting with the Clear Inner Inside Door followed by the Clear Inner Outside Door. Note: The row of vertical slots must be at the bottom of the door as shown in the above picture. Check that the doors slide freely.
6. Reinstallation the outside doors starting with the Outside Inner Door followed by the Outside Outer Door.

Note: None of the doors are interchangeable and they must be replaced in the same location that they were removed from.

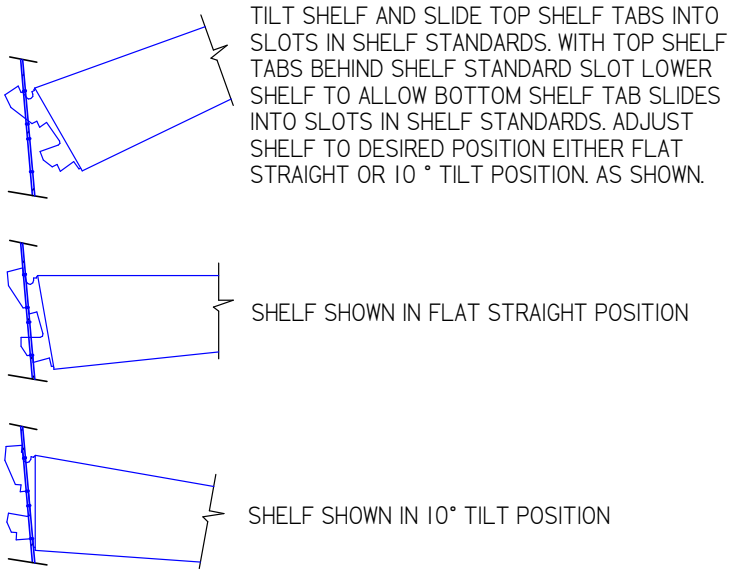
SHELVING

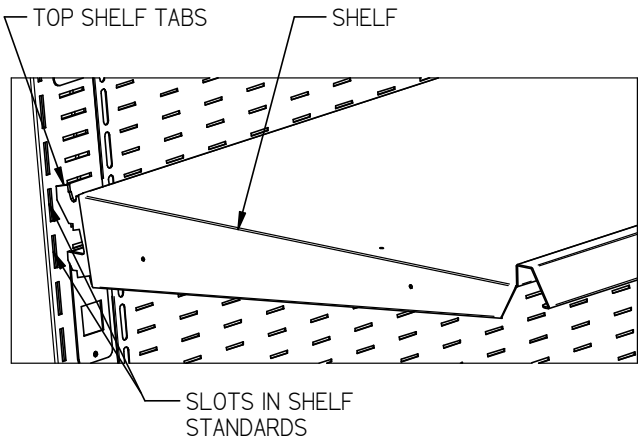
The LMDM has 1 tiers of solid metal shelves as standard.
Some cases may be provided with additional optional shelves. These shelves may be different depth than the standard shelf. If the shelves have different depths the deepest shelf goes on the bottom and shallowest goes on the top.

The shelf or shelves can be adjusted up or down to suit product needs. They can also be placed in a flat position or tilted at 10deg angle. To adjust shelf follow the instruction in the illustration below.

Start with the bottom shelf and determine desired shelf location. The shelves are adjustable in 1 5/8" increments and can be set in either a flat straight position or in a 10deg tilt position.

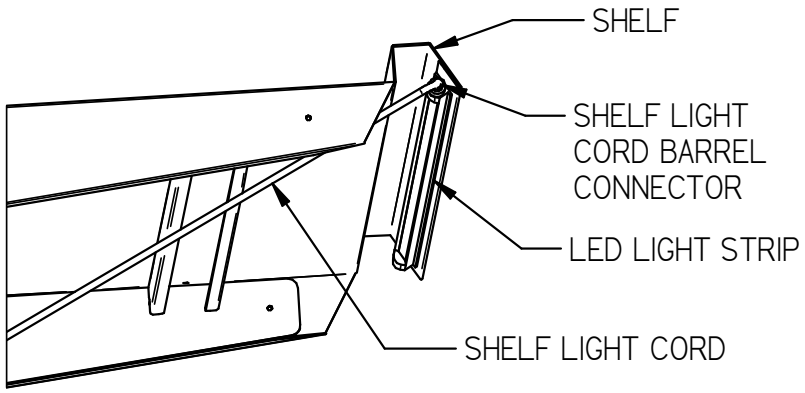
The shelf light is attached to the front underside of the shelf. The shelf light will need to be unplugged from the back upright of case before moving shelf. Once shelf is moved the light can be plugged into any of the (3) receptacles located on back upright. See LED Shelf and Top Lights section of this manual for more information.



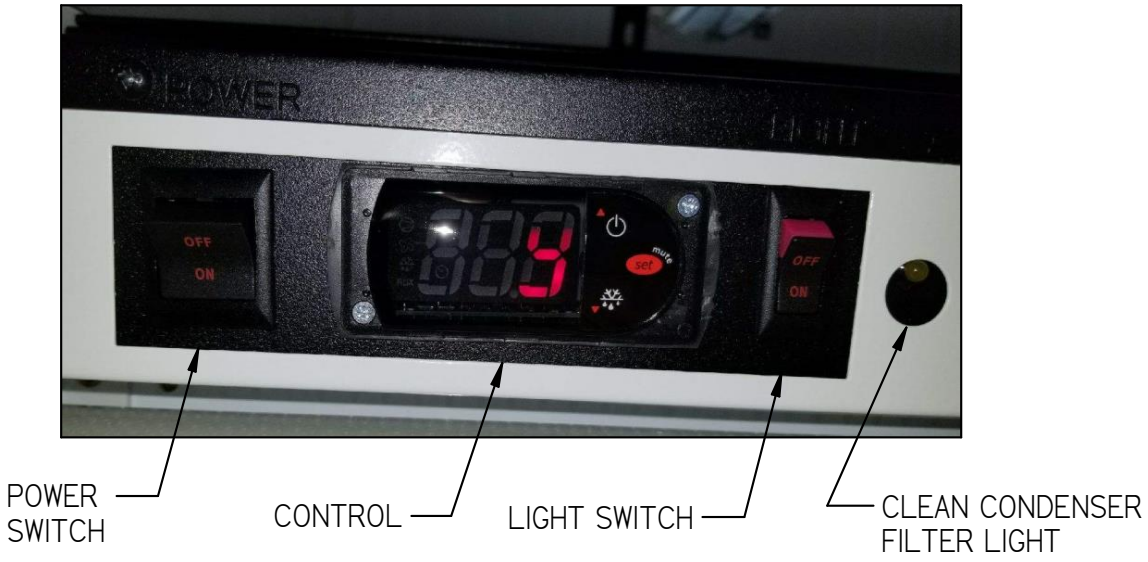


LED LIGHTS

1. The shelf light(s) are attached to the front underside of the shelf and the top light is in front of the air discharge diffuser. They are held in place with double sided adhesive. If light must be replaced the old adhesive must be removed with adhesive remover and new adhesive must be used with new Led light.
2. The round barrel connector on shelf light cords are plugged in to the end of the LED light strips. Align the straight male barrel connector on cord with the round receptacle hole in the end of the LED light strip and push firmly into place.



3. Remove the cap from the appropriate female light receptacle located on back wall of case and plug the 90-degree end of light cord into the receptacle. There is a flat on the plug and the receptacle so it can only be plugged in at correct position.
   NOTE: If the socket is not being used for a shelf light, the cap must be plugged into socket to prevent contamination and moisture out of the socket.
4. Hook any extra cord into notch on end of shelf support and notch on back flange of shelf to keep it out of the way as shown.



CONTROL DESCRIPTION

Controls are located in the upper left side of case above the display case opening.

Power Switch

The unit has a power switch that turns off power to the entire unit, including the condenser unit and the lights.

Electronic Temperature Control

The electronic temperature control allows the user to adjust the temperature of the display merchandiser to their needs.

Light Switch

The unit has a light switch that turns on and off the interior lights of unit.

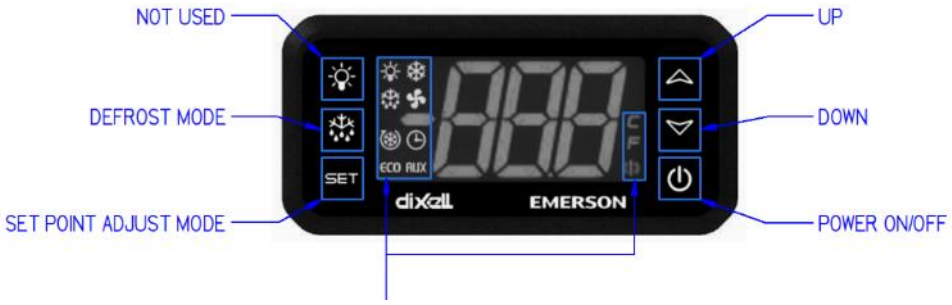
Clean Condenser Filter Light

LED Light flashes when Condenser coil needs cleaning. See “Cleaning Condenser Filter” section of this manual

SETTING ELECTRONIC TEMPERATURE CONTROL

Button Overview

	Power on/off: Press and hold to turn system on or off.
SET	Set: Press and hold to enter the set point adjustment menu.
	Defrost: Press and hold to initiate a manual defrost.
	Up: Change set points when in set point adjustment menu. When not in set point menu, shows maximum temperature of the display probe.
	Down: Change set points when in set point adjustment menu. When not in set point menu, it shows minimum temperature of the display probe.



Display indication symbols

	On	Compressor on
	Flashing	Minimum compressor off time in progress
	On	Unit in defrost mode
	Flashing	Defrost delay
	On	Condenser fan running
	Flashing	Minimum condenser fan off time in progress
	On	Alarm occurring. See the error code section below.
°C/°F	On	Indicates temperature unit of measure.

Powering on control

To turn refrigeration control power on, press and hold "⏻" for approx. three seconds. When the control power turns on, the display will read the cabinet probe temperature. The compressor and condenser fan run indicators (❄ & 🌀) will illuminate on the display, meaning that the compressor and condenser fan are running. (Note: the control may already be in the on mode when shipped from factory).

To turn refrigeration control power to off, press and hold "⏻" for approx. three seconds. When the control powers off the display will read "OFF". When refrigeration control is in the off-mode cabinet lights and evaporator fans will still operate, but the compressor will not turn on causing the case to gradually reach room temperature.

Adjusting the set point

The set point is what determines how cold the display case will hold food and beverage. To adjust the set point press the "SET" button. Then press "^" button to increase the set point number (colder) or press the "v" button to decrease the set point number (warmer). There are nine (9) available set points numbers, the higher the number of the set point, the colder the display case will run, with setting "9" being the coldest and setting "1" being the warmest. Once you have chosen your desired setting press the "SET" button again to confirm your choice. The control cutout temperature for the selected setpoint will briefly be displayed if the setpoint is changed.

Entering manual defrost mode

The control is programmed to automatically initiate a defrost by two different methods, involving time and temperature, as outlined in the "Defrost Cycle" section (Pg.) of "ELECTRONIC CONTROL PARAMETERS AND EXPLANATION OF OPERATION." While it is uncommon that the automatic defrost cycles would insufficiently defrost the case, a Manual Defrost mode is available if this situation arises.

Note: The control will not allow the initiation of a manual defrost within 30 minutes of completion of another defrost cycle, manual or automatic.

To initiate the manual defrost press and hold the "❄" button approx. three seconds. The defrost is initiated when the defrost mode indicator ❄ illuminates on the display. The control display will then return to reading the probe temperature. When the defrost mode indicator ❄ turns off the defrost is complete and the compressor will turn on automatically and the compressor and condenser fan indicator will be shown (❄ & 🌀).

Error codes

It is possible for error codes to be displayed on the control screen. In the event of a malfunction an alarm will sound and the alarm indicator 🔔 will be displayed. An error code or codes will flash intermittently on the display. If there are multiple codes, the display will continuously cycle through them.

Mute: You may mute the alarm by pressing any button. The red alarm symbol 🔔 and all error codes will still be displayed. When the fault is remedied, the control will return to normal operation and will automatically clear the codes from the display.

Display	Description	Cause	Resolution
"P1"	Air discharge temperature probe failure	Probe signal is interrupted or short-circuited	• Check to ensure probe wires and quick disconnect are secure in control. • Check probe resistance to table below. If 0 resistance is present, check wiring insulation. If infinite resistance is present, check for breaks in wiring (meter will likely read overload or very high in the mega-ohm range). • Ensure that probes are wired per the wiring diagram provided. Replace probe if other remedies fail, or if probe resistance deviates from "Table 3" below.
"P2"	Defrost temperature probe failure		

TEMPERATURE PROBE COMMON RESISTANCE CHART			
Probe Temp	**Maximum Resistance [kΩ]**	**Normal Resistance [kΩ]**	**Minimum Resistance [kΩ]**
32°F(0°C)	27.83	27.28	26.74
77°F(25°C)	10.1	10	9.9
212°F(100°C)	1	0.97	0.94

Electronic Control Operation

Operation

The control uses two sensors, one located in the air stream and one located on the evaporator coil. The sensor located in the air stream is referred to as the temperature control sensor. The sensor located on the evaporator coil is referred to as the defrost probe. The temperature control sensor is located on the inner ceiling behind the honeycomb air discharge. The sensor location is critical for proper operation on the unit. Do not move or relocate this sensor.

The coil sensor is strapped to the evaporator coil. This sensor location is critical for proper operation of the unit. Do not move or relocate this sensor.

Defrost Cycle

The control is programmed to initiate defrost via two different methods. There are 4 programmed defrost cycles in the case which will initiate a defrost cycle every 8.6 hours. The unit does not have a time clock so the defrost cycles cannot be set for any specific time of day.

The unit also has an 'On demand' defrost feature that will initiate a defrost when the temperature differential between the defrost probe and the control probe is high. Once initiated the defrost cycle will terminate automatically based on the defrost probe temp.

If a manual defrost is required, one can be initiated by pressing and holding down the defrost mode button for three (3) seconds. This is typically unnecessary and should only be performed if special circumstances require it.

INITIAL START-UP

After all the checks outlined in the installation section of this manual have been made, the case is ready to be put into service. Turn on the Power at the breaker box and flip the Power Switch and Light Switch on unit to the on position.
At start up from a warm unit, it is recommended that the temperature control is set at a warm setting, such as 1 on the control. After the unit has gone through several cycles, turn the control to a mid-range setting, then to a colder setting if necessary to maintain desired product temperature

NOTICE: This refrigerated display case is designed to operate in a maximum environment of 75 DEG. F and 55% relative humidity. Exceeding these limits will cause poor case performance and excessive sweating.

PLACING PRODUCT INTO CASE

- Do not exceed 150 pounds of weight per shelf and 275 pounds on deck.
Heavy product should be distributed evenly across the entire shelving area.
- Determine desired shelving location before placing product in case. Product must be removed to readjust shelf location.
- Allow a minimum of 2" between top of product and bottom of shelf.
- Do not overhang the front or rear of shelves with product. Improper clearance in front and rear of shelf will block the refrigerated airflow and will cause product loss.
-Do not block the slots along the front and rear air discharge slots. Covering these slots will block the refrigerated airflow and could cause product loss.
-The display deck is removable for cleaning and can become dislodged in shipment. To ensure proper airflow and performance of the case, make sure that the display deck is pushed completely down.
-Allow refrigerated models to run for at least two hours before placing pre-chilled product into unit.

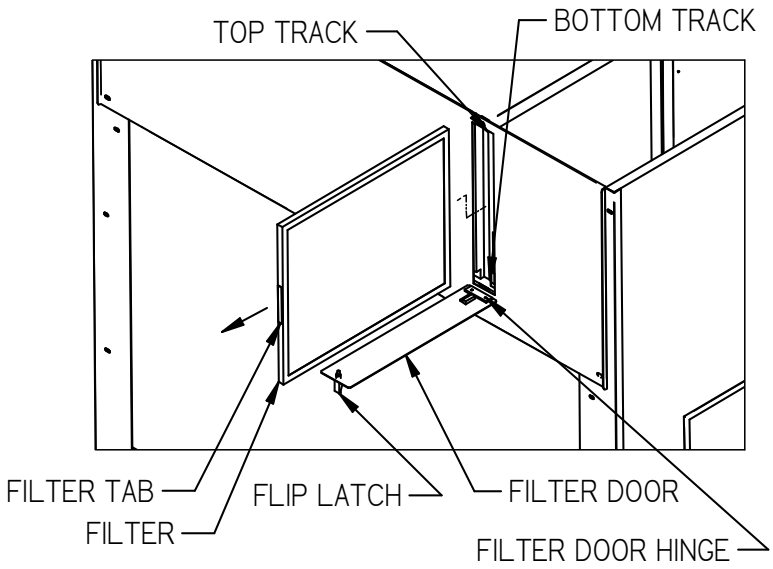
NOTICE: CASE MUST BE STOCKED WITH PRE-CHILLED PRODUCT 38°F OR COLDER.

NOTICE: This refrigerated display case is designed to operate in a maximum environment of 75 DEG. F and 55% relative humidity. Exceeding these limits will cause poor case performance and sweating of glass panels.

MAINTENANCE

IMPORTANT: Read this Section of this manual located on page 5.
"REFRIGERATION WARNING &INSTALLATION-REPAIR-DECOMMISSIONING"
All refrigeration and electrical work must be performed by certified technicians.

CLEANING CONDENSER FILTER



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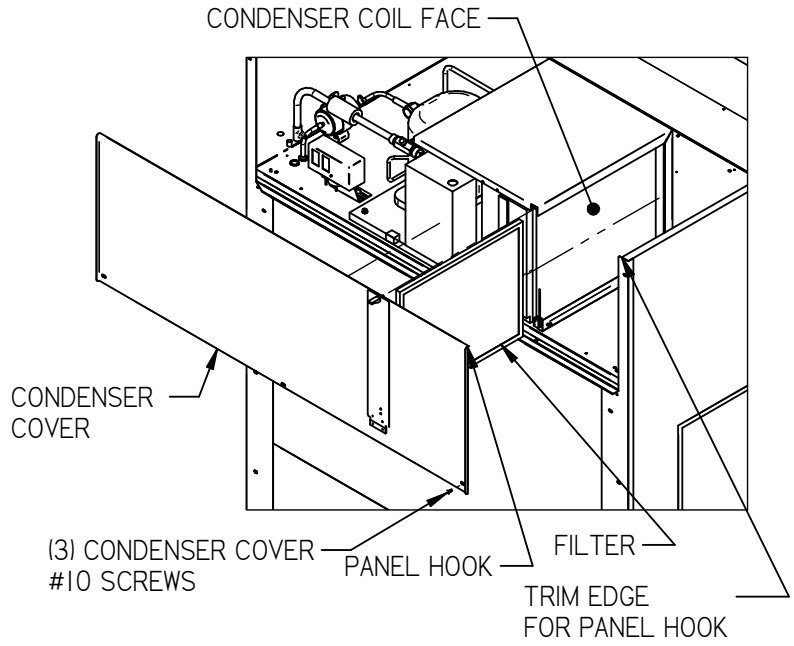
This refrigerated case is equipped with a reusable condenser coil filter. It is important that this filter be cleaned monthly to maintain proper refrigeration performance and prevent compressor failure. There is a flashing LED indicator on control panel that will flash if the filter is not cleaned at 45day intervals. **FAILURE TO CLEAN THE CONDENSER FILTER WILL VOID THE COMPRESSOR WARRANTY.**

1. Locate condenser air Filter Door on the back upper Condenser Cover Panel. Open the filter door by flipping the Flip Latch lever up and hinging the Filter Door down.
2. Grab the Filter Tab on the side of the Filter and slide Filter out of opening in panel.
3. Wash the Filter using warm soapy water. Rinse the filter and let it dry.
   NOTE: Do not clean the filter in a dishwasher.
4. Apply a generous coat of filter adhesive to both sides of the Filter. Recommended filter adhesive is Federal Ind. PN 22-21164 available from Partstown. The filter is pre-coated from the factory with this product.
   NOTE: Failure to coat the filter with a fresh coat of filter adhesive after cleaning will cause ineffective filter operation. This will lead to plugging of the condenser coil, affecting refrigeration performance and can cause compressor failure
5. Reinstall the Filter by sliding it back into the opening in panel. Be sure filter is in the Top and Bottom Track guides.
6. Close the hinged Filter Door up so the Flip Latch is in the top hole on the Condenser Cover. Flip the Flip Latch lever down to secure Filter Door in the closed position.

IMPORTANT: It is also necessary to check and clean the front of the condenser coil every 6 months or as necessary. Refer to the instructions outlined in Condenser Cleaning section of this manual.

CLEANING THE CONDENSER FILTER



NOTICE: **Despite the presence of the filter, it is also necessary to clean the face of condenser coil every 6 months to insure proper refrigeration performance and prevent compressor failure. FAILURE TO CLEAN CONDENSER COIL WILL VOID COMPRESSOR WARRANTY.**

1. Remove the Condenser Cover located on the upper back section of the case by removing the (3) #10 screws. Lift the Condenser Cover up until the Panel Hook clears the Trim Edge on each side of case.
2. Remove the Filter by sliding it out of tracks and clean it as outlined in Cleaning Condenser Filter section.
3. Vacuum the Condenser Coil Face, moving the vacuum nozzle vertically. **NOTE: Be careful not to bend or otherwise damage the condenser coil fins. Moving the vacuum nozzle horizontally will cause the fins to bend. Bent coil fins will affect condensing unit performance.**
4. Reinstall the Filter.
5. Reinstall the Condenser Cover by hooking Panel Hook over Trim Edge and installing the (3) #10 screws. (Do not over tighten screws)

CLEANING INSTRUCTIONS

DAILY CLEANING

The case should be cleaned thoroughly, as described in the weekly cleaning section, before it is used for the first time.

NOTICE:	**Avoid splashing or soaking any electrical components with water to prevent electrical damage to the case.**

NOTICE:	**Shut off lights, disconnect power and remove all products from case. Allow sufficient time for the unit to reach room temperature before proceeding with cleaning.**

NOTICE:	**Remove all products from the case before proceeding with cleaning procedure.**

NOTICE:	**Acrylic air deflector requires special washing procedures to prevent hazing and yellowing of material. Clean as described in "Acrylic Air Deflector Cleaning" section of this manual.**

Note: For major spills or foreign material buildup use complete weekly cleaning instructions.

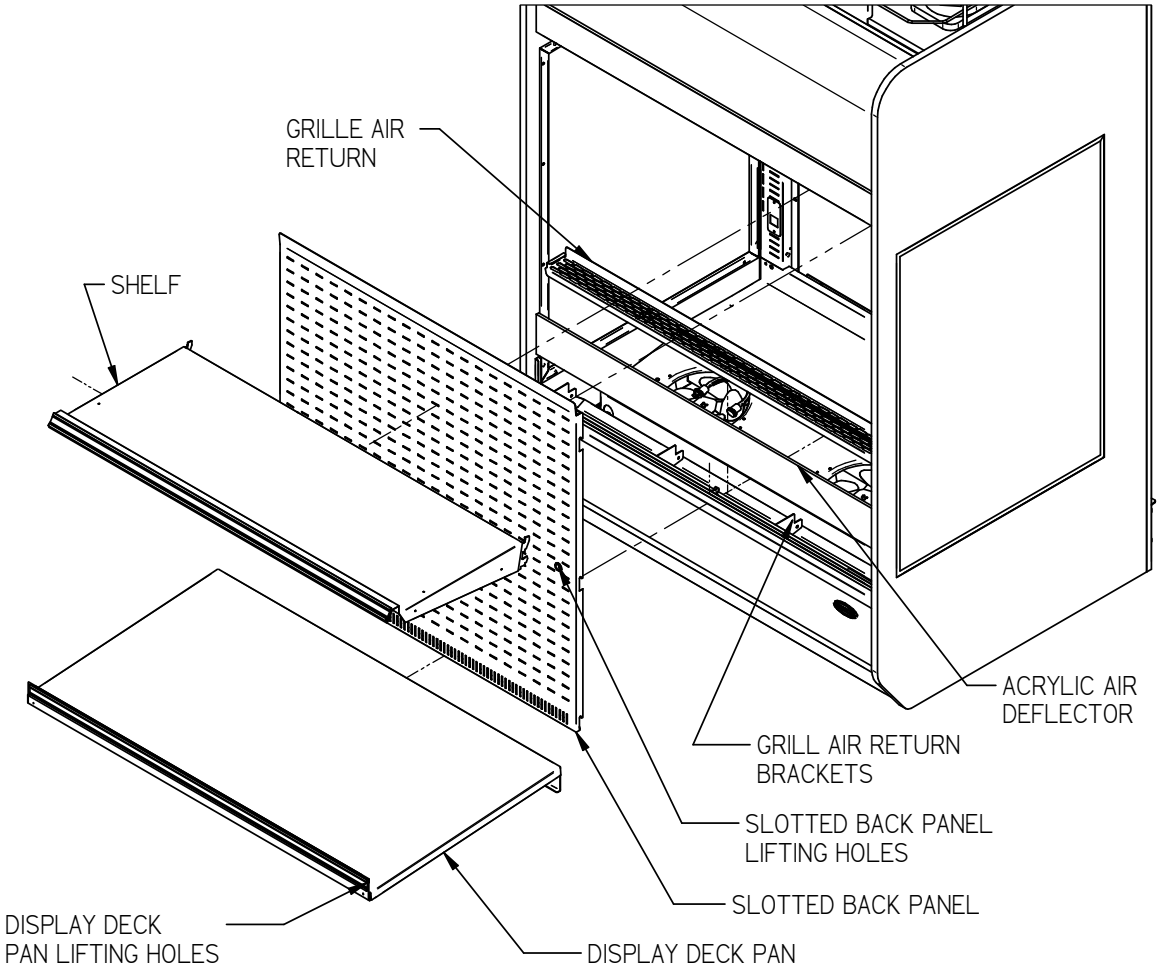
Note: Detergents are not recommended and do not use abrasive cleaners or pads to prevent scratching of surfaces.

1. Dip a rag in warm soapy water and ring it out thoroughly. Wipe the complete interior of case and dry with soft dry towel.
2. The remaining exterior surface should be wiped down using any ammoniated cleaners or soapy warm water and dried with soft dry towel.
3. **IMPORTANT: Cleaning the clear acrylic plastic front air deflector requires special care to prevent hazing and yellowing of material**. **Clean as described in "Acrylic Air Deflector Cleaning" section of this manual.**
   NEVER USE paper towels (wet or dry) for cleaning or drying and never use a dry towel.
   NEVER USE glass cleaner of any kind.
   Lightly dust (not wipe) surface with a damp Micro Fiber towel or chamois. The surface can then be washed using a small amount of dishwashing detergent such as Dawn or Joy and lukewarm water. Use a Micro Fiber towel or chamois, applying only light pressure. The cloth or chamois must be kept free of grit by frequently rinsing. Rinse surface with clear water and dry by blotting with a damp Micro Fiber towel or chamois.

WEEKLY CLEANING

NOTICE:	**Shut off lights and disconnect power and remove all products from case. Allow sufficient time for the unit to reach room temperature before proceeding with cleaning.**
NOTICE:	**Avoid splashing or soaking any electrical components with water to prevent electrical damage to the case.**
NOTICE:	**Remove all products from case before proceeding with cleaning procedure.**
NOTICE:	**Acrylic front air deflector requires special washing procedures to prevent hazing and yellowing of material.**

Note: Detergents are not recommended and do not use abrasive cleaners or pads to prevent scratching of surfaces.



1. Remove the Acrylic Air Deflector by lifting it up and out of Air Deflector Retainer. Clean as described:

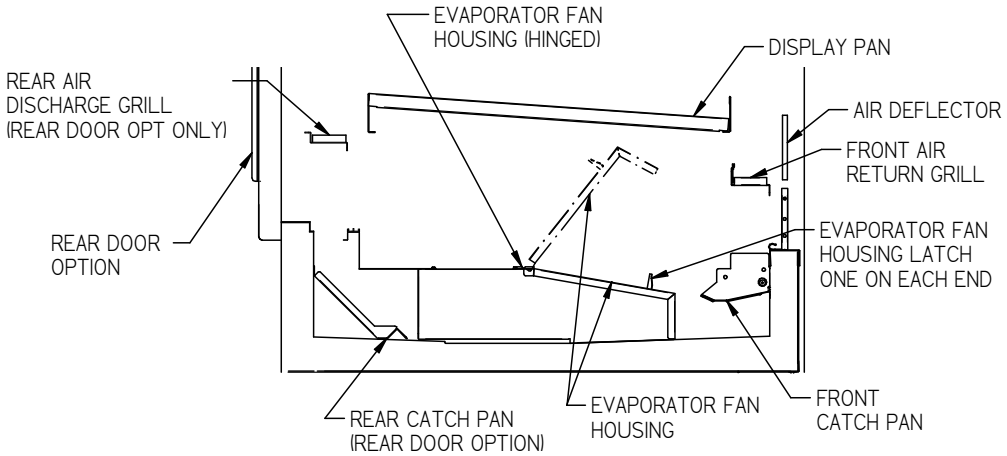
IMPORTANT: Cleaning the clear acrylic plastic front air deflector requires special care to prevent hazing and yellowing of material. **Clean as described in "Acrylic Air Deflector Cleaning" section of this manual.**

NEVER USE paper towels (wet or dry) for cleaning or drying and never use a dry towel.

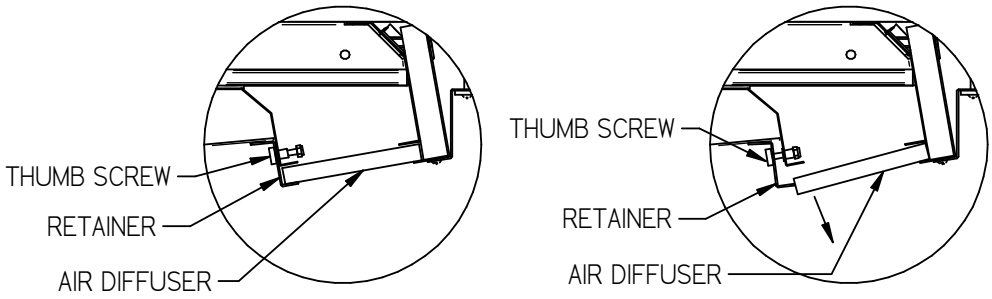
NEVER USE glass cleaner of any kind.

Lightly dust (not wipe) surface with a damp Micro Fiber towel or chamois. The surface can then be washed using a small amount of dishwashing detergent such as Dawn or Joy and lukewarm water. Use a Micro Fiber towel or chamois, applying only light pressure. The cloth or chamois must be kept free of grit by frequently rinsing. Rinse surface with clear water and dry by blotting with a damp Micro Fiber towel or chamois.

2. On cases supplied with optional rear door remove the outer and inner rear doors as described in "Rear Door" section of this manual. Clean both outer and inner door tracks with soapy warm water.
3. Remove interior Shelf and Shelf Lights from unit as described in the "LED Lights" section of this manual.
4. Remove the Front Air Return Grille (and the Rear Air Discharge Grille on cases with rear door option). Remove grilles by lifting on the flanges located at each end of grille.
5. Remove the Display Deck Pan from the unit by grabbing the lifting holes located on front lip of Display Deck Pan and lifting it up and out of unit.
6. Remove the Slotted Back Panel from unit by lifting it up until the bottom of panel clears the evaporator cover and remove from case. Be careful not to hit the side panels or top light housing.
7. Dip a rag in warm soapy water and ring out thoroughly. Clean all shelves, Display Deck(s), Grill Air Return and Slotted Back Panel. Dry all items with soft dry towel.
8. Clean the entire interior of the case using warm soapy water. Wipe off all soapy water with a damp cloth and allow to dry. (DO NOT use solvents such as Acetone, Benzene, Carbon Tetrachloride, and Lacquer Thinners)



9. Clean under the Evaporator Fan Housing and Drain area by lifting the (2) Evaporator Fan Housing latch levers up and swinging the hinged Evaporator Fan Housing up and out of the way.
10. Clean the Front Catch Pan and rear catch pan on rear door models.

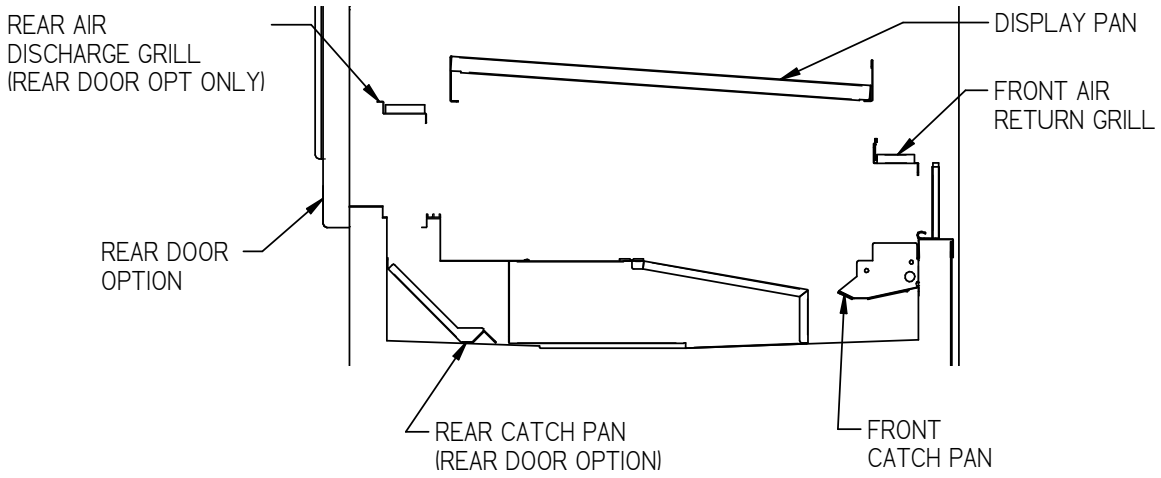


11. Remove the honeycomb air diffuser(s) from upper air duct track. Loosen thumb screws on Retainer located behind diffuser. Retainer will drop down allowing diffuser to be pulled out of case.
12. Clean honey comb air diffuser with warm soapy water and a brush. Rinse thoroughly and allow to dry.
13. Reassemble all components in reverse order.

NOTE: Depending on the amount of usage and spillage of foreign material, some fasteners may have to be removed and parts disassembled to allow proper cleaning of the unit.

CATCH PAN CLEANING

This case is provided with a Front Catch Pan on all cases and an additional Rear Catch Pan for cases with rear door option. The Catch Pans are provided to catch milk when a carton breaks open while inside of case.
If a spill is observed these Catch Pans must be cleaned immediately. The volume of milk they hold is minimal and if any milk overflows catch tray it will run over into heated condensate pan. This will cause milk to sour and smell.



1. Remove the Front Air Return Grille and the Rear Air Discharge Grille on cases with rear door option. Remove grilles by lifting up on the flanges located at each end of grille.
2. Remove the Display Deck Pan from unit by grabbing the lifting holes located on front lip of Display Deck Pan and lifting it up and out of unit.
3. Soak up spilled milk from catch pan with a sponge and do a final clean with warm soapy water and a fresh rag.
4 Wash the Grilles and Display Deck Pan with warm soapy water and reassemble components in reverse order.

SERVICE INFORMATION

CAUTION
RISK OF ELECTRIC SHOCK

DISCONNECT POWER BEFORE SERVICING UNIT

Before any service work is performed on the case, make sure all power is disconnected to the case.

IMPORTANT: Read this Section of this manual located on page 5.
"REFRIGERATION WARNING &INSTALLATION-REPAIR-DECOMMISSIONING"
All refrigeration and electrical work must be performed by certified technicians.

To find a service company in your area, please visit our website at www.federalindustries.com. There you can also find self-service tools to help you get the answers you need faster!

For Warranty Service Requests & ALL Technical Support please contact:

- **Phone: (800) 356-4206 and choose the Tech Support/Warranty Option**
- **Email: Service@federalind.com**

For Warranty Compressors please contact the Parts Department:

- **Phone: (800) 356-4206 and choose the Warranty Parts Option**
- **Email: Parts@Federalind.com**

Partstown

Federal Industries has partnered with Parts Town for ALL Non-Warranty Part Identification, Pricing, Lead Times, Orders & Freight Quotes. Please contact Parts Town directly if you need parts:

- **Website: PartsTown.com**
- **Email: CustomerService@PartsTown.com**
- **Phone: 833-809-8188**

Special Service Situations

IMPORTANT: Read this Section of this manual located on page 5.
"REFRIGERATION WARNING &INSTALLATION-REPAIR-DECOMMISSIONING"
All refrigeration and electrical work must be performed by certified technicians.

There are rare occasions when the refrigerant charge must be evacuated from a case in order to perform service work. In those situations, Federal Industries recommends that the refrigerant charge be evacuated into a recovery system to prevent the possibility of hydrofluoro olefin (HFOC's) from being released into the atmosphere.

If moisture or liquid is observed around or under a Federal Industries case, an immediate investigation should be made by qualified personnel to determine the source of the moisture or liquid. The investigation made should determine if the case is malfunctioning or if there is a simple housekeeping problem.

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

PRE-SERVICE CHECKLIST

You may avoid the cost and inconvenience of an unnecessary service call by first reviewing this checklist of frequently encountered situations that can cause unsatisfactory case performance.

CAUTION:	**Before servicing case, turn off power at the main breaker of fuse box.**

Case Does Not Operate

Check for disconnected power supply.
Check for tripped breaker on blown fuse.
Check that the thermostat display is on and that the green indicator light is lit.

Lights Do Not Operate

Check that light switch is on.
Check for tripped breaker or blown fuse.
Check that light housing cords are plugged in correctly to sockets in the back wall of case.

Case Temperature Too Warm

Check that the cold air inlet and outlet slots are not blocked.
Check for a blocked or dirty condenser coil.
Check for cold airflow. Lack of adequate cold airflow could indicate a defective evaporator fan or a blocked evaporator coil. Check that paper or foreign materials are not blocking evaporator. If the evaporator coil is blocked due to excessive frost, put into manual defrost. Excessive frost can buildup overtime if the case is set too cold or if there is excessive humidity in the store.
Check all the fans in the evaporator compartment and tower are running.

Case Sweating Note: Some interior sweating is normal on this case.

Check room ambient – Case is designed to operate in an environment not to exceed 75ºF and 55% relative humidity.
Check all the fans in the evaporator compartment are running.

Overflow of Condensate Pan

Check that drain in bottom of tub floor is not plugged.
Check that drain trap to the condensate pan is not plugged

Overflow of Optional Condensate Pump:

Check that drain in bottom of tub floor is not plugged.
Check that drain trap to the condensate pan is not plugged
Check that drain lines from pump is not plugged or pinched.
Check to see that pump float is operating correctly.
Verify that pump is plugged in and has power.
Replace pump if still not pumping condensate.

SALE & DISPOSAL

IMPORTANT: Read this Section of this manual located on page 5.
"REFRIGERATION WARNING &INSTALLATION-REPAIR-DECOMMISSIONING"
All refrigeration and electrical work must be performed by certified technicians.

If you the owner sells or gives away this Federal Industries case it is the owner's responsibility to make sure that all safety labels and the Installation-Service Manual are included with it. If you need replacement labels or manuals, Federal Industries will provide them free of charge. Contact the customer service department at Federal Industries at (800) 356-4206.

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

If you sell or give away your Federal Industries case, you should evacuate the refrigerant charge before shipment. Federal Industries recommends that the charge be evacuated into a recovery system to prevent the possibility of HFO's from being released into the atmosphere.

Refrigerant Recovery/Recycling/Disposal

When recycling or discarding case, refrigerants MUST BE handled according to local, state and federal codes, requirements and regulations.

If disposing of a refrigerated case that uses ozone depleting chemicals in its refrigeration system, make sure the refrigerant is removed by a qualified service technician and properly disposed of.

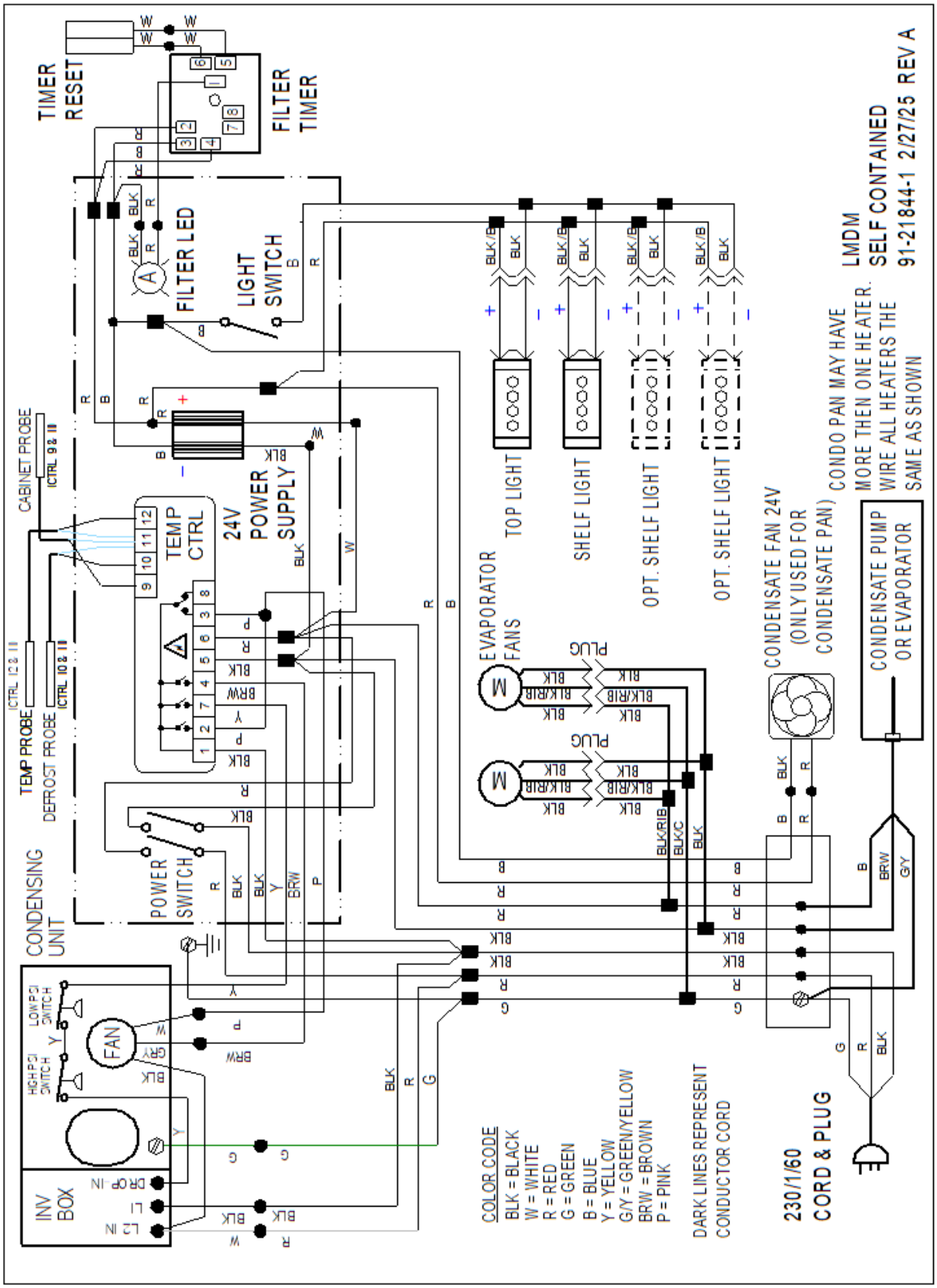
If you intentionally release refrigerant into the atmosphere, you may be subject to fines or other penalties (under regulation mandated by environmental regulators and/or legislative edict.)

PARTS LIST

ELECTRICAL COMPONENTS		
	QTY	PART#
CONTROL, TEMP, DIXEL 230V	1	32-21342-32
TEMPERATURE PROBE	2	32-19866
SWITCH,ROCKER LIGHT22A	1	41-11066
SWITCH,ROCKER POWER 22A	1	41-18186
RECEPTACLE,WHITE	3	43-19080-A
PLATE,RECEPT SHELF LIGHT WH	3	M-10167-2A
POWER SUPPLY 24V 60W	1	39-20986
LED,24V 35k	2	42-20871-42C35
CORD,SHELF LED WH	1	43-20862-6W
CORD,TOP LED WH	1	43-20868-3W
HARNESS,5 LIGHT	1	43-20147
TIMER,DIRTY COND	1	41-20988
SWITCH,MAGNET DIRTY COND	1	41-20991
LED,DIRTY COND YELLOW	1	40-20992
REFRIGERATION		
MOTOR, EVAP FAN 1600	2	41-21237-16
HARNESSWIRE,DOUBLE FAN	1	43-21501
TXV,BBIOE-1/2-C	1	32-21750
COIL,EVAP MULTI DECK	1	33-21288-22
CONDENSING UNIT	1	30-21766
COMPRESSOR	1	30-21766-COMP
CONDONSATE PAN ASSY	1	SA5965
CONDENSATE HEATER 600W 230V	2	40-19392
CONDENSATE FAN 24V	1	41-20955
SWELL LATCH FAN HOUSING	2	66-13640
HINGE,PLASTIC FAN HOUSING	3	66-14094
MISC COMPONENTS		
PANEL,END (X =COLOR REQD)	2	SA5958-XL
PANEL,END (X =COLOR REQD)	2	SA5958-XR
PANEL,END GLASS	2	50-21177
PANEL,END GLASS REFLECTIVE	1	50-21177-1
PANEL,LAMINATE FRONT (COLOR REQD)	1	W11723-1
PANEL,END LAM (X =COLOR REQD)	1	68-21165-XL
PANEL,END LAM (X =COLOR REQD)	1	68-21165-XR
LEG LEVELER,1/2-13 X 2.5	4	65-11486
CASTER RECESSED,2-1/2"	4	65-17352
AIR DIFFUSER	2	W11724-1
THERMOPLASTIC DRAIN	1	84-70225
DRAIN ASSY,TUBE	1	SA5966
SHELF,ASSY 17" (X =COLOR REQD)	5	SA5979-5X
DEFLECTOR,AIR FRONT	1	15-20030-1
NIGHT CURTAIN	1	65-19464
SECURITY COVER (OPTIONAL) (COVER ONLY)	1	SA5980-1
DECAL,CATION ELECTRICAL SHOCK	2	91-12340
LOGO,FEDERAL	1	91-72523
REAR DOORS (OPTIONAL)		
DOOR OUTER, OUTSIDE (CLEAR/GRAY)	1	53-21169-1
DOOR OUTER, INSIDE (CLEAR/GRAY)	1	53-21170-1
DOOR OUTER, OUTSIDE (REFL/GRAY)	1	53-21169-1A
DOOR OUTER, INSIDE (REFL/GRAY)	1	53-21170-1A
DOOR TRACK OUTER ASSY (GRAY)	2	57-21168-1
DOOR INNER (CLEAR PLASTIC)	2	53-21170-1
DOOR INNER HANDLE	2	M21180
DOOR TRACK INNER BOTTOM (ALUM)	2	M16477-5
DOOR TRACK INNER TOP (ALUM)	2	M16476-5

WIRING DIAGRAMS

LMDM48



REV	CHANGE RECORD	APP'D	DATE	ECN#
-	RELEASED	ADC	2/21/25	3938

California Residents Only.

WARNING

This product can expose you to chemicals including chromium which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov