

# MOTAK



**MCDC-59-2**

60", 25.3 sq. ft.

## **Refrigerated Bakery Case Instruction Manual**

This manual contains important information regarding your unit. Please read this manual thoroughly prior to equipment set-up, operation, and maintenance. Failure to comply with regular maintenance guidelines outlined in this manual may void the warranty.

## IMPORTANT SAFEGUARDS

Please pay close attention to the safety notices in this section. Disregarding these notices may lead to serious injury and/or damage to the unit.



### WARNING

#### DANGER:

- Risk of fire or explosion.
- Flammable refrigerant R290 used.
- To be repaired only by trained service personnel.
- **DO NOT** use mechanical devices to defrost refrigerator.
- **DO NOT** puncture refrigerant tubing.
- **DO NOT** pierce, burn or puncture unit.
- **DO NOT** store in a room with continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).

## ATTENTION

- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- **DO NOT** allow children to play with unit.
- **DO NOT** leave children unattended with unit, adult supervision required.
- **DO NOT** use this unit for anything other than intended use.
- **WARNING: DO NOT** use electrical appliances inside the food storage compartments of the appliance.
- **WARNING: NEVER** touch the compressor to avoid injury and burns.
- **DO NOT** overload outlet, to minimize shock and fire hazards.
- **DO NOT** spray the unit with water.
- **DO NOT** attempt to remove or repair any component.
- **DO NOT** attempt to alter or tamper with the electrical cord.
- If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.
- **DO NOT** rest unit on or against the electrical cord or plug.
- **DO NOT** damage the refrigerant circuit.
- **DO NOT** store any flammable and explosive gas or liquids inside the unit.
- The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
- The appliance shall be stored so as to prevent mechanical damage from occurring.
- **DO NOT** place anything heavy on top of the unit.
- **DO NOT** store medicine in unit.
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- **DO NOT** damage the power cables.
- **NEVER** block the air suction and outlet to allow air circulation and refrigeration capability.
- Maximum shelf load per shelf is 39.7 lbs. (18 kg).
- Adjust the shelf height for proper food storage.
- During normal operation, the emission noise level should not exceed 70dB(A).
- The climatic class of this unit is 4, the equipment is for use in ambient temperatures not exceeding 86°F (30°C), the recommended ambient temperature is 32°F - 53.6°F (0°C - 12°C).
- Cool the hot food down to room temperature before you put it into the refrigerator.
- Reduce opening doors and keep open time to minimum to keep a cold temperature inside the unit.
- Allow space between foods and avoid food congestion as it will influence the cooling effect.

# MOTAK

## TRANSPORTATION AND PLACEMENT

- **DO NOT** incline unit more than 45 degrees, to prevent compressor and system damage.
- Before use, remove all the packing material.
- Keep 4" (10 cm) of space from back and sides of unit, away from walls and enclosures.
- The unit should be put in well-ventilated, dry, indoor, flat, level location.
- Do not place in direct sunlight.
- The unit should be kept away from water, sink, heat source and any volatile, corrosive material.

## PROPER GROUNDING REQUIRED

- To minimize shock and fire hazards, make sure that the unit is properly grounded.

## POWER SOURCE

- After transportation wait 2 hours before plugging unit into power source.
- **DO NOT** plug or unplug the cord with wet hands, to minimize shock and fire hazards
- **UNPLUG UNIT BEFORE** maintenance and cleaning.
- When the unit will not be in use for a long period of time, disconnect the power first, then clean it.
- Avoid turning on and off the power too frequently.
- After unplugging the unit or power outage, wait at least 5 minutes before re-plugging and powering unit on. Failure to do so could cause damage to the compressor.
- **DO NOT** use an extension cord.
- The power supply should be 110-120V, 60Hz single phase AC with exclusive single phase three pin receptacle.

## DISPOSAL

- Dispose of properly in accordance with Federal or local regulations.
- Refer to local regulations regarding disposal of the appliance for its flammable gas.
- Before carrying out decommissioning procedure, it is essential that the technician is completely familiar with the equipment and all its detail. 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 is commenced.
- When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely. 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** 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.

## INSTALLATION WARNINGS:

- The appliance shall be installed in accordance with national wiring regulations
- The appliance is to be installed in accordance with the Safety Standard for Refrigeration Systems, ANSI/ASHRAE 15.

## Notice:

- \* Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry recognized assessment specification.
- \* Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.
- \* Component parts shall be replaced with like components so as to minimize the risk of possible ignition due to incorrect parts.

# MOTAK

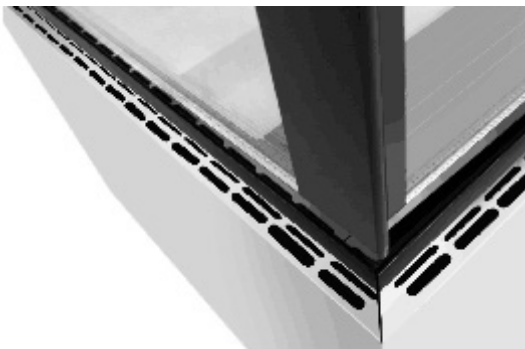
## INSTALLATION:

1. Unpack and remove all packaging before using the unit.
2. Plug unit into a 110-120V exclusive socket.
3. Don't tip over the unit more than 45° while moving it.
4. Install in a cool, dry environment with good ventilation, and without corrosive gas.
5. Do not install unit close to heat sources or directly under the sunlight.
6. Allow 4" (10 cm) of space between the wall and the sides and back of the unit.
7. Place on a clean, level surface.
8. Allow unit to come to temperature before storing food inside.

## STRUCTURE AND PARTS OF THE UNIT:



1. Glass Door
2. Glass Shelf
3. Air Suction
4. Air Outlet
5. Castor
6. Digital Temperature Control

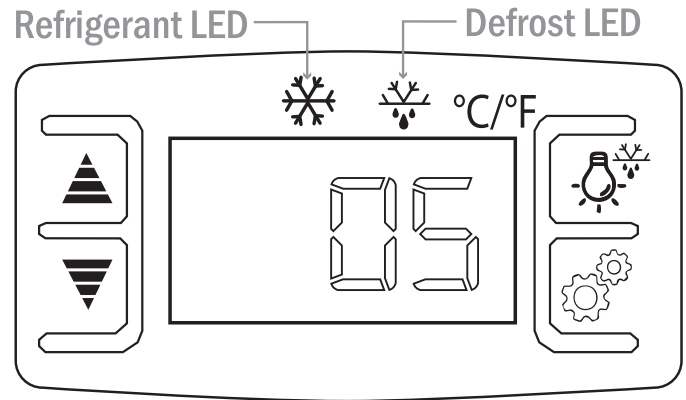


Close up of #4 Air Outlet

# MOTAK

## DIGITAL TEMPERATURE CONTROL

- Located on the back of the unit.
- It is a mini-sized and integrated intelligent controller and applicable to the compressor of one Hp.
- The main functions are:
  - \* Temperature Display
  - \* Temperature Control
  - \* Manual Automatic Defrost by Turning Off
  - \* Light Control
  - \* Value Storing
  - \* Self Testing
  - \* Parameter Locking



## CONTROL PANEL SETTINGS

MODE	FUNCTION	SET RANGE	DEFAULT
E1	Minimum SET POINT	-4 °F to Controlling Temp.	36°F
E2	Maximum SET POINT	Controlling Temp to 113°F	43°F
E3	Temperature. Hysteresis	1°F - 18°F	7°F
E4	Comp. Start Delay Time	0 to 10 Min	3 Min
E5	Offset on Room Temp	-9 to 9°F	-1
E6	Offset on Evaporation Temp.	-9 to 9°F	0
F1	Maximum Defrost Duration	1 to 60 Min	20 Min
F2	Defrost Interval Time	0 to 24 Hrs	4 Hrs
F3	Defrost Termination Temp.	32°F to 68°F	68°F
F4	Display During Defrost	0 = Normal Display	0
		1 = Last Value Before Defrost	
C1	Temperature Units	0 = °C, 1 = °F	1
COMPRESSOR TAKE-OFF TEMP.		From E1 to E2	36°F

## CONTROL PANEL SETTINGS

TEST ROOM CLIMATE CLASS	DRY BULB TEMP.		RELATIVE HUMIDITY (%)	DEW POINT		WATER VAPOR MASS IN DRY AIR
	°F	°C		°F	°C	
0	68	20	50	48.74	9.3	7.3
1	60.8	16	80	54.68	12.6	9.1
8	75.2	24	55	57.92	14.4	10.2
2	71.6	22	65	59.36	15.2	10.8
3	77	25	60	62.06	16.7	12.0
4	86	30	55	68	20.0	14.8
6	80.6	27	70	69.98	21.1	15.8
5	104	40	40	75.02	23.9	18.8
7	95	35	75	86	30.0	27.3

**Note:** The water vapor mass in dry air is one of the main points influencing the performance and the energy consumption of the cabinets. Therefore the order of the climate class in the table is based on the water vapor mass column. See also Annex B to compare lab and store conditions.

# MOTAK

## ADJUSTING THE CONTROLS

<b>SET TEMPERATURE</b>	<ol style="list-style-type: none"> <li>1. Press Down ▼ for 10s until display shows "ON" which means the controller is unlocked for adjusting all parameters.</li> <li>2. Press "SET" for 6s until display flashes E1.</li> <li>3. Then press "SET" again, and it will show E2, E3, E4 until C1</li> <li>4. When display shows C1, press Up ▲ to change it. * 0 means °C, 1 means °F.</li> <li>5. Do not press the buttons for 10s then the number is fixed.</li> <li>6. Press Down ▼ for 10s until display shows "OFF", the controller is locked again and customers can't change parameters.</li> <li>7. After controller is locked, press "SET" again quickly, then it will show 36 which is the compressor take-off temperature.</li> <li>8. Press Up ▲ or Down ▼ to change it from E1 to E2, so compressor take-off temperature will also be changed.</li> </ol>
<b>LIGHTING</b>	<ul style="list-style-type: none"> <li>• Press "LIGHT" button to turn light ON and OFF.</li> </ul>
<b>MANUAL START / STOP DEFROST:</b>	<ul style="list-style-type: none"> <li>• Press "LIGHT" button and hold for 6 seconds to defrost or stop defrost.</li> </ul>
<b>REFRIGERANT LED</b>	<ul style="list-style-type: none"> <li>• During refrigeration, the LED is on.</li> <li>• When the cold room temp. is constant, the LED flashes.</li> </ul>
<b>DEFROST LED</b>	<ul style="list-style-type: none"> <li>• During defrosting, the LED is on; When it stops defrosting, the LED is off.</li> </ul>
<b>DIGITAL CONTROLLER RESET</b>	<ul style="list-style-type: none"> <li>• When display shows "Disorder", press Down ▼ button for 2 seconds until buzzer rings.</li> <li>• Quickly press Up ▲ button for 6 seconds until buzzer rings again.</li> <li>• The display will flash for 3 seconds and it restores factory setting.</li> </ul>

## SPECIFICATIONS

<b>Coolant and Injection Quantity (g)</b>	R290 (130 g)
<b>General Rated Input Power (W)</b>	420
<b>Type of Climate</b>	4
<b>Refrigeration Temperature (°F)</b>	32-53.6
<b>Electric Shock Protection Class</b>	
<b>Total Effective Volume (L)</b>	470 L
<b>Net Weight (lbs.)</b>	401.2
<b>Rated Voltage (V)</b>	110-120~
<b>Rated Current (A)</b>	4.5
<b>Rated Frequency (Hz)</b>	60
<b>Overall Dimension (in) (W x D x H)</b>	60.6" x 27.1" x 47.2"

## MAINTENANCE AND CLEANING

- The unit should be cleaned regularly and periodical maintenance is necessary..
- **WARNING:** Disconnect power cord before cleaning any parts of the unit.
- Keep the power supply and lower part of connect wires away from water to avoid electricity leakage.

# MOTAK

- **DO NOT** use boiling water, acid, chemicals, petrol and oil, or dirt-removing powder.
- **DO NOT** use steel wool, caustic soap, abrasive cleaners, or bleach.
- **NEVER** use damaged plug or loose socket, to prevent from electric shock or short circuit.
- **NEVER** flush the refrigerator.
- **NEVER** use alkali detergent, soap, gasoline, acetone or brush.
- **NOTE:** The glass breaks easily. Keep the glass far from children.

## CLEAN OUTSIDE

1. Dip soft cloth in mild, neutral detergent to clean the outside of the refrigerator.
2. Wipe dry with soft cloth.

## CLEAN INSIDE

1. Remove shelves and wipe with warm water.
2. Use soft cloth to wipe the interior of the unit.
3. Wipe dry with soft cloth. Replace shelves.

## IF SHUTTING DOWN UNIT FOR A LONG TIME

- Take all food out.
- Unplug the wall socket.
- Clean both inside and outside of the unit thoroughly.
- Open the door until the unit is completely dry.

## LAMP REPLACEMENT IN THE LIGHT BOX

- If the LED lamp is damaged, it must be replaced by the manufacturer, its service agent.

## TROUBLE SHOOTING

- Before requesting any service on your unit, please check the following points.
- Please note that this guide serves only as a reference for solutions to common problems.
- Contact local service agent for help if simple trouble shooting does not solve the problems.

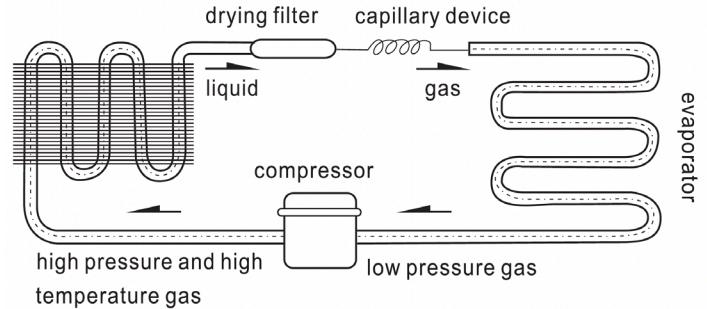
ISSUE	POSSIBLE CAUSE / REMEDY
<b>NO REFRIGERATION</b>	<ul style="list-style-type: none"><li>• Is the plug in socket well?</li><li>• Is the fuse broken?</li><li>• Is there no power?</li></ul>
<b>UNSATISFACTORY REFRIGERATION</b>	<ul style="list-style-type: none"><li>• Is it under direct sun light?</li><li>• Is there any heat source nearby?</li><li>• Is the surrounding ventilation bad?</li><li>• Does the door close well?</li><li>• Is the door open for a long time?</li><li>• Is the door seal strip deformed or damaged?</li><li>• Is food congested or too much?</li><li>• Does food block the air suction or outlet?</li><li>• Regulate the temperature controller.</li></ul>
<b>TOO MUCH NOISE / TOO LOUD</b>	<ul style="list-style-type: none"><li>• The refrigerator is not level.</li><li>• The refrigerator contacts wall or other matter.</li><li>• There is loose part in refrigerator.</li></ul>

## THE FOLLOWING ARE NOT FAULTS:

- The murmur of water is heard when the refrigerator is working. This is a normal phenomenon as the coolant is circulating in the system.
- During the rainy season, condensation might be found on the outside of the refrigerator. This is not a fault, it is caused by high humidity. Wipe it dry with a soft cloth.

## PRINCIPLE OF REFRIGERATION SYSTEM AND ELECTRIC CIRCUIT DIAGRAM

The principle of compression refrigeration consists of "compression", "condensation", "throttling" and "vaporization". The compression is undertaken by compressor, the condensation is completed by condenser, the throttling valve is executed by capillary and the vaporization is implemented by evaporator. When the coolant is circulating in the closed refrigeration system, the compressor sucks coolant, which has absorbs heat in evaporator, the coolant becomes a high pressure and high temperature gas. In condenser, it dissipates heat in air, while the coolant is re-liquefied and throttled in capillary and then enters into evaporator with low pressure. The liquefied coolant quickly boils and vaporizes into gas when the pressure suddenly drops. Meanwhile, it absorbs heat inside the refrigerator. And the compressor sucks the low pressure and low temperature gaseous coolant. It is circulating in this way up to realization of intended refrigeration.



## CIRCUIT DIAGRAM

