



MHC-1 Holding Cabinet Series 86000

Service, Installation and Operation Manual

Please read this manual completely before attempting to install or operate this equipment!

Notify carrier of damage!

Inspect all components immediately.



**Important Information
Read Before Use
Please Save These Instructions!**

December 2013



Important Warning And Safety Information



WARNING

Read This Manual Thoroughly Before Operating, Installing, Or Performing Maintenance On The Equipment.



WARNING

Failure To Follow Instructions In This Manual Can Cause Property Damage, Injury Or Death.



WARNING

Do Not Store Or Use Gasoline Or Other Flammable Vapors Or Liquids In The Vicinity Of This Or Any Other Appliance.



WARNING

Unless All Cover And Access Panels Are In Place And Properly Secured, Do Not Operate This Equipment.



WARNING

This Appliance Is Not Intended For Use By Persons Who Lack Experience Or Knowledge, Unless They Have Been Given Supervision Or Instruction Concerning Use Of The Appliance By A Person Responsible For Their Safety.



WARNING

This Appliance Is Not To Be Played With.



WARNING

Do Not Clean With Water Jet.



WARNING

Do Not Use Electrical Appliances Inside The Food Storage Compartment Of This Appliance.



CAUTION

Observe the following:

- Minimum clearances must be maintained from all walls and combustible materials.
- Keep the equipment area free and clear of combustible material.
- Allow adequate clearance for air openings.
- Operate equipment only on the type of electricity indicated on the specification plate.
- Unplug the unit before making any repairs.
- Retain this manual for future reference.

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Receiving And Inspecting The Equipment

Care should be taken during unloading so the equipment is not damaged while being moved into the building.

1. Visually inspect the exterior of the package and skid or container. Any damage should be noted and reported to the delivering carrier immediately.
2. If damaged, open and inspect the contents with the carrier.
3. In the event that the exterior is not damaged, yet upon opening, there is concealed damage to the equipment notify the carrier. Notification should be made verbally as well as in written form.
4. Request an inspection by the shipping company of the damaged equipment. This should be done within 10 days from receipt of the equipment.
5. Check the lower portion of the unit to be sure legs are not bent.
6. Freight carriers can supply the necessary damage forms upon request.
7. Retain all packaging material until an inspection has been made or waived.

Serial Number Information

MHC-1 holding cabinet serial numbers are located on the data plate that also includes the model number. The data plate is located on the rear of the unit.

Always have the serial number of your unit available when calling for parts or service.

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Warranty Information

Visit http://www.mercoproducts.com/minisite/service/warranty_info to:

- Register your product for warranty.
- Verify warranty information.
- View and download a copy of your warranty.

Regulatory Certifications

120V Models are certified by:



Underwriters Laboratories Sanitation



**Underwriters Laboratories (UL)
Underwriters Laboratories of Canada (ULC)**

230V Models are certified by:



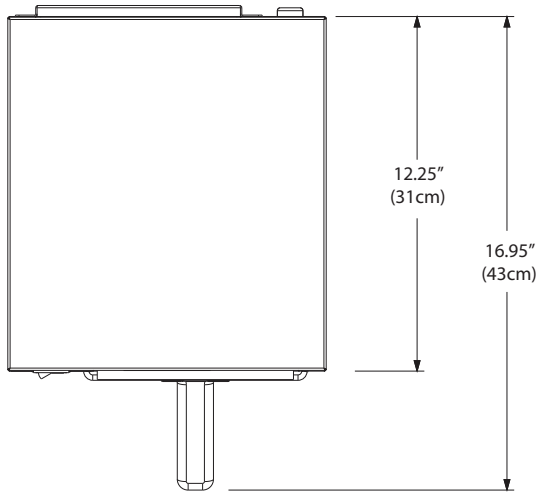
Underwriters Laboratories Sanitation



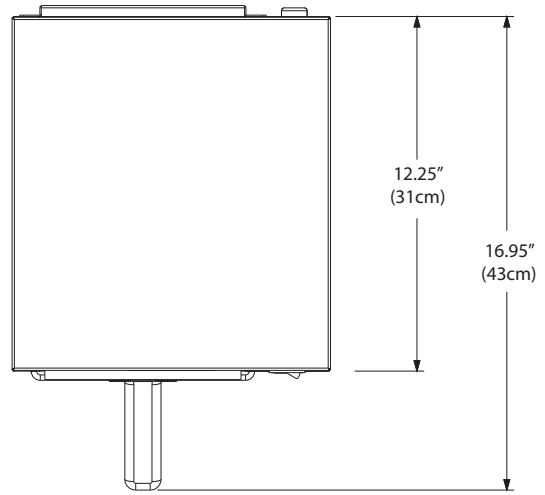
**European Conformity
Technical Inspection Association**

Specifications

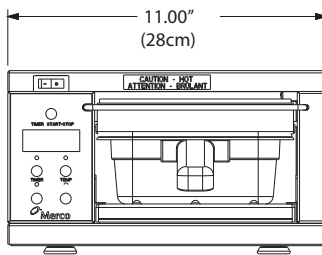
Specifications							
Item/Sku	Model/Description	Control Side	V-Hz-Ph	Amps	Watts	Plug Type	Ship Weight
86007	MHC-1	Left	120-60-1	3.0	360	NEMA 5-15P	10lbs/5kg
86007-CE	MHC-1	Left	230-50-1	1.6	360	BS 1363/A	10lbs/5kg
86009	MHC-1	Right	120-60-1	3.0	360	NEMA 5-15P	10lbs/5kg
86009-CE	MHC-1	Right	230-50-1	1.6	360	BS 1363/A	10lbs/5kg



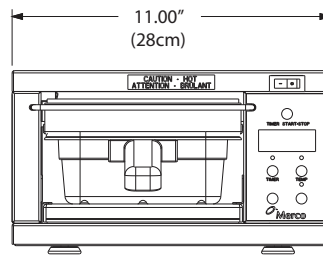
Plan View
86007 & 86007-CE



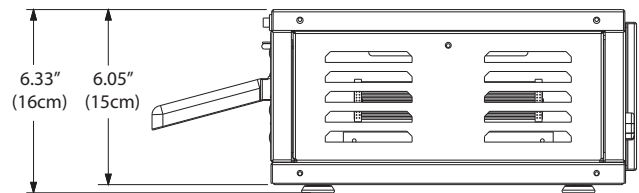
Plan View
86009 & 86009-CE



Elevation View
86007 & 86007-CE



Elevation View
86009 & 86009-CE

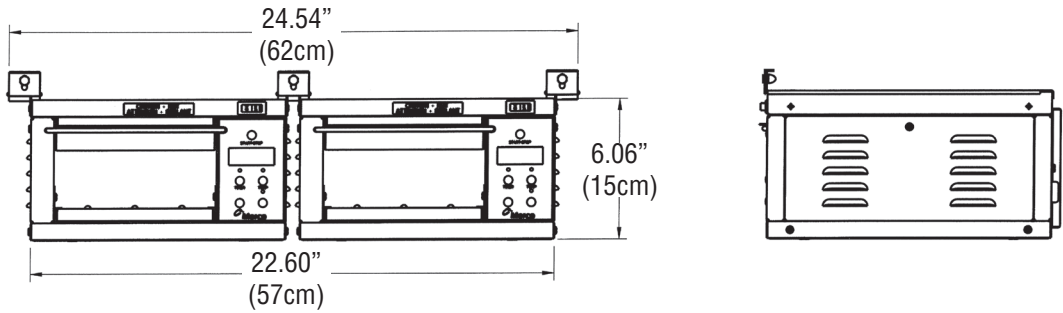


Plan View
All Items

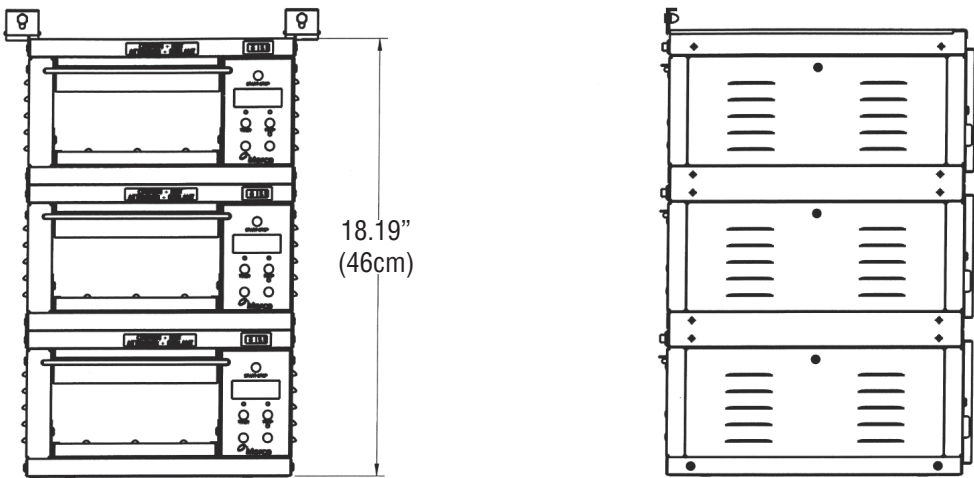
Specifications, continued

The MHC-1 may be stacked in multiple configurations. In addition to the single unit, the MHC-1 may be stacked a maximum of three (3) high or “triple-stack.” There is no limit to the horizontal configuration of MHC-1 units. The dimensional drawings below provide additional measurements concerning these configuration options.

Horizontal Configuration



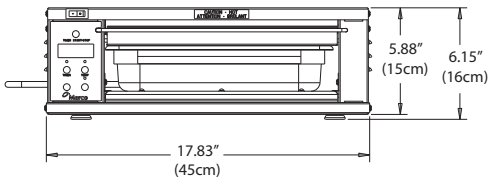
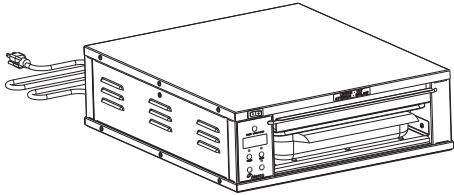
Triple-Stack Configuration



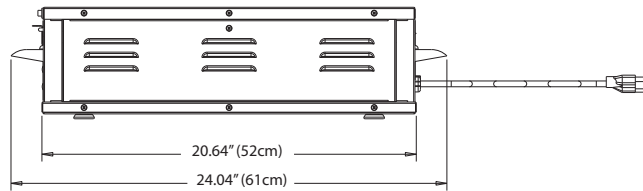
Specifications

Specifications						
Item/Sku	Model/Description	V/Hz/Ph	Amps	Watts	Nema Plug	Ship Weight
86012	MHC-1F	120/60/1	8.83	1060	5-20P	28lbs/13kg

The MHC-1F may be stacked a maximum of two (2) high. There is no limit to the horizontal configuration of MHC-1F units.



Elevation View



End View

Installation

Site Preparation

Choose a well-ventilated location. Place the holding cabinet on a suitable table or counter capable of supporting the weight of 10 lbs. or 4.54 kg. The power supply must be in accordance with the specifications on the data plate located on the rear of the appliance. If installing multiple MHC-1 units, do not exceed the maximum allowable circuit amperage as determined by local code. The unit must be positioned so that the unit's plug is accessible.

Installation

MHC-1 installation kit #MER86103 for items 86007, 86007-CE, 86009 & 86009-CE includes:

- Two (2) – Shelf Mounting Brackets / PN: MER90000061
- Four (4) – Shelf Stacking Brackets / PN: MER70000135
- Two (2) – Angle Mount Brackets / PN: MER70000134

This installation will require ¼-20 stainless steel studs with washers and nuts (not included). Quantities are dependent on the number of unit configurations being installed.



Do not stack more than three MHC-1 units together in the vertical configuration.

The MHC-1 Holding Cabinet may be installed in a vertical configuration up to three units high. It is important to read and thoroughly understand these instructions prior to installation.

1. Stack MHC-1 units on top of one another to create a vertical configuration as shown below (Figure A). With units stacked and aligned properly, remove the top cover screws and bottom cover screws from the sides of each unit (Figure B). If you are not attaching two or three units in a vertical configuration, as shown below, disregard Step 1 and move directly to Step 3.

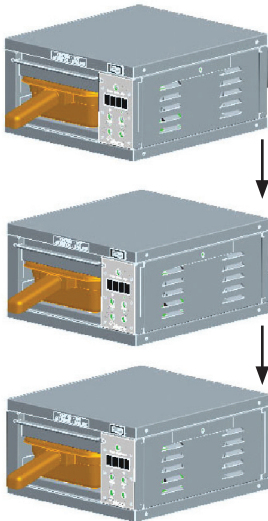


Figure A

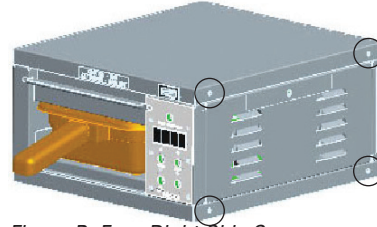


Figure B, Four Right Side Screws

2. Using the Cover Screws that were removed in step 1, attach the MHC-1 units together using the shelf stacking brackets provided (Figure C).



Figure C, Two Shelf Stacking Brackets

3. Attach the two (2) angle-mount brackets to the top cover of the top MHC-1 unit (Figure D).

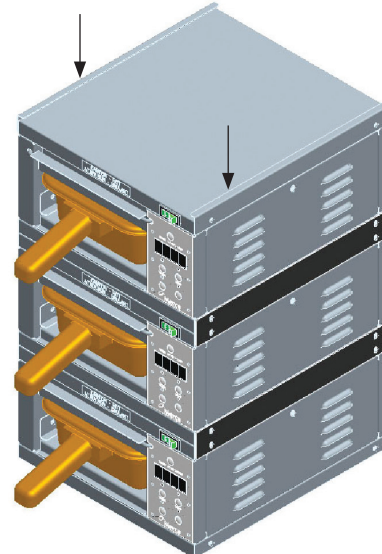


Figure D, Two Angle Mount Brackets

Installation, continued

- To properly install the MHC-1 unit, take the mounting template (Figure E) and place under shelf or cabinet where you would like the unit installed. (Note: The bend in template should rest against the front of the shelf or cabinet.) Mark the locations for stud placement via the template holes.



Shelf mounting brackets must be level prior to tightening.

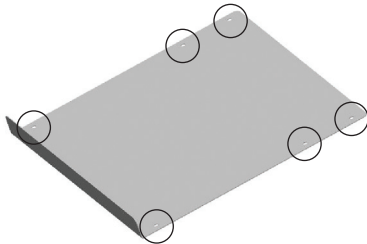


Figure E, Six Template Hole Locations



When mounting multiple stacks together, the center shelf mounting bracket will be a common bracket for multiple stacked configurations. As a result, when marking stud locations for the second stacked configuration, the template will overlap with the first set of holes because they will use the common bracket. See Figure F below.

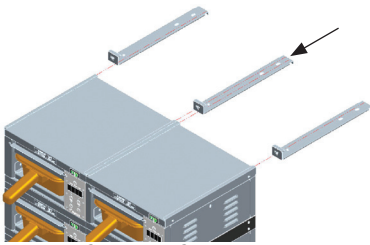


Figure F, Common/Center Bracket

- With stud locations marked, attach studs with stud gun. Insert nut and washer on each stud. Then insert shelf mounting brackets followed by another washer and nut. NOTE: Studs should be 1/4-20 stainless steels Studs, washers and nuts are not included.

- With shelf mounting brackets level and securely attached to kitchen shelving, slide the MHC-1 stacked configuration into the shelf mounting brackets (Figure G). NOTE: Each end of the shelf mounting brackets has stop brackets that are designed to slide up and down. These stop brackets are designed to hold the stacked configuration in place and to keep it from sliding forward or backwards off of the shelf mounting brackets. Make sure that all four (4) stop brackets have been lowered into their proper position.

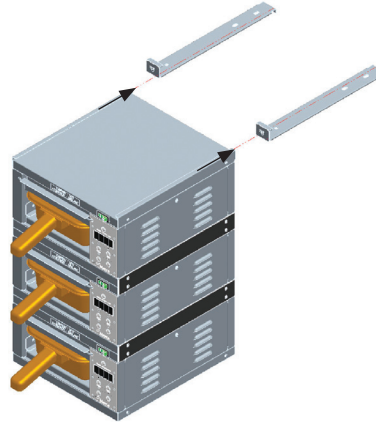
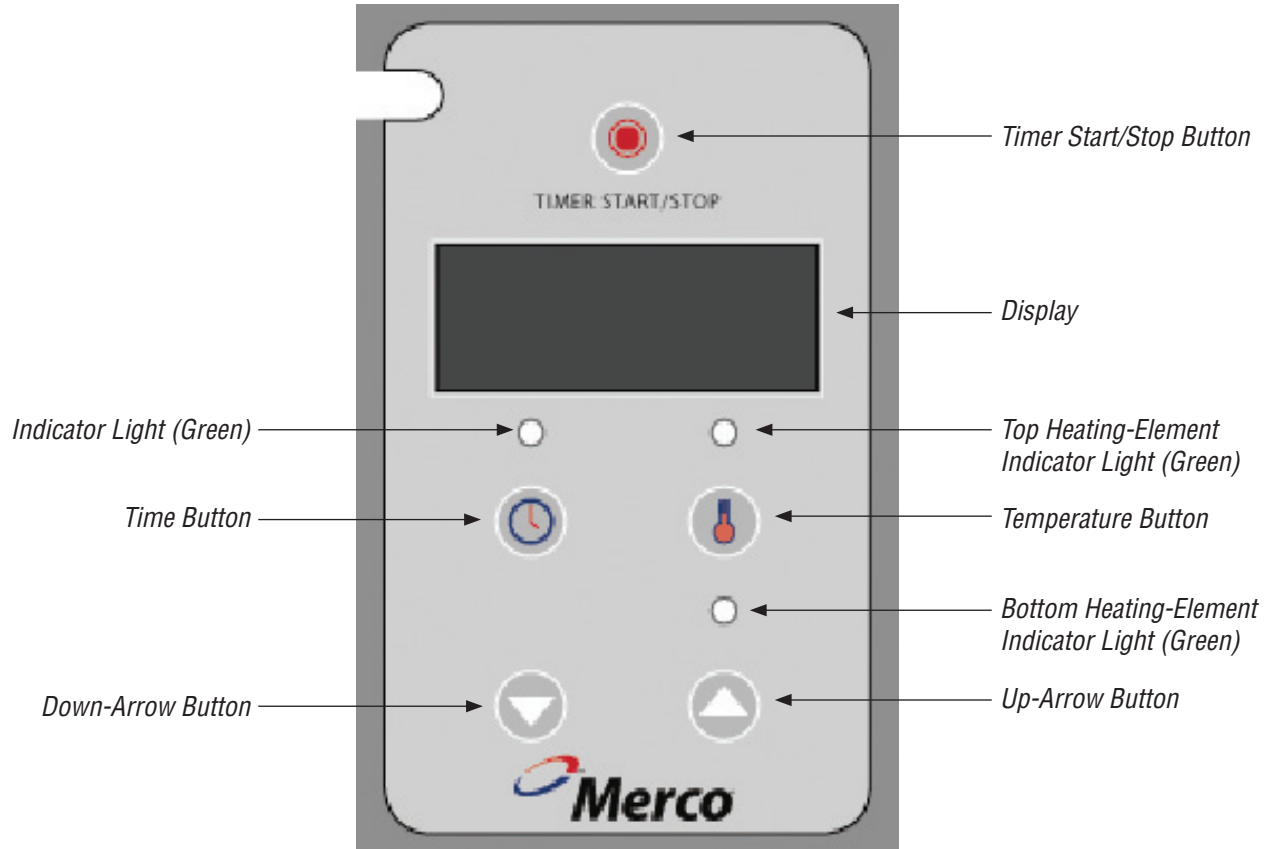


Figure G, Shelf Mounting Brackets

NOTE: For illustration purposes, the cabinet/shelf has not been shown in this illustration.

- Installation is complete. MHC-1 units may now be plugged into their appropriate power sources for operation.

Control Panel



Operation

The Merco Holding Cabinet has been designed to afford foodservice operators the ability to cook menu components in advance and then gently store that product in the holding bin until an order is received. Once that order has been placed, the crew can assemble the order using hot and fresh menu components from the holding bins. This allows for operators to “serve to order,” helping increase speed of service while maintaining high product quality standards.

The Holding Bin Controller is, at all times, operating in one of two modes:

- Normal Mode
- Programming (Menu or Product) Mode

Normal Mode

This is the normal mode of operation.

Action	Operator Instructions
Turn unit On	Push Power On/Power Off button. Green Power button will illuminate in on position.
Load bin with product and start timer	Pull product bin out, load product and reinsert bin. Push Start/Stop button until the display time begins countdown. Timer alarm (beeping sound) will sound at end of timer.
Silence alarm, empty bin and stop timer	Press Start/Stop button to silence alarm. Pull product bin out and remove product. Reinsert bin. The display will indicate ready mode (---).

Operation, continued

Normal Display Mode	Description
Ready Display	Bin display is shown as ---- to indicate that bin is ready for use.
Time or Temperature Display	To read the current preset time and temperature settings, simply press either the time or temperature button. You may determine the preset temperature settings for either the upper or lower heater elements by continuously pressing the temperature button. This will toggle between the top and bottom readings which are shown by the illuminated indicator lights (see Control Panel Illustration for more information).
Timer Alarm	Display shows 000 and the alarm will beep continuously until timer is stopped. The alarm is silenced by pressing the Start/Stop button. Once the alarm is silenced, the display will show the Ready display (----).

Programming Mode

Programming mode will allow the operator to program time and upper and lower heating element temperature. Product Programming is preset at the factory to the following settings:

Time: 2:00 minutes

Temperature Top Element: 220°F

Temperature Bottom Element: 200°F

Step	Action	Programming Instructions
1	Enter product programming mode	Press and release the Temperature button once to show current temperature. Press and hold the Up-Arrow button. The temperature reading will begin flashing, you are now in programming mode. You will time out of programming mode after approximately three (3) seconds of inactivity.
2	Program temperature setting	After you have entered the programming mode, press the Temperature button to toggle between the upper and lower heating elements. The upper or lower Heating-Element Indicator Light will illuminate to describe which heating element is being programmed. Simply press the Up-Arrow button or Down-Arrow Button to change settings.
3	Program time settings	While in programming mode, simply press and release the Time button followed by either the Up-Arrow button or Down-Arrow button to change settings.
4	Save programmed settings	To save the settings being programmed, simply allow the unit to time-out of the programming mode. This is done by allowing approximately three (3) seconds of inactivity. After approximately 3 seconds of inactivity the display will stop flashing. The unit is now in normal operation and cannot be reprogrammed until re-entering the Product Programming mode.

Maintenance



Disconnect power supply before servicing or cleaning this unit. Safeguard power so it cannot be accidentally restored. Failure to do so could result in serious injury.



Unit must be cool to touch and disconnected from power source prior to cleaning. Do not use power-cleaning equipment, steel wool, or wire brushes on stainless steel or painted surfaces.

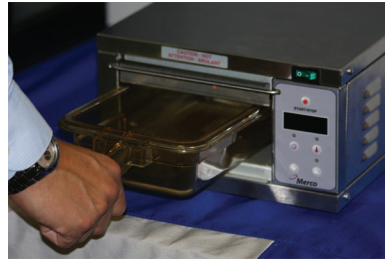


This appliances plug is the disconnect device and, as such, the unit must be installed so that the plug is accessible.

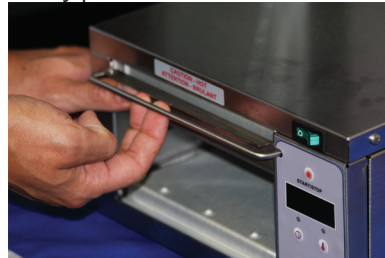
Merco Holding Cabinets are designed for easy cleaning and minimum maintenance. The stainless steel outer case requires nothing more than a daily wiping with a damp cloth. If, however, an excessive amount of food particles/grease are allowed to collect, a non-abrasive cleaner (hot sudsy water) may be used. The Product Holding Bin and Bin Lid may be cleaned via dishwasher or with warm soapy water. Care must be taken to prevent water or cleaning compounds from getting on internal parts, especially the switches on the control panel.

Bin Lid Removal Instructions

1. Remove bin.



2. Gently pull retention rod.



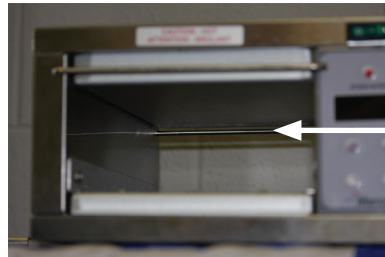
3. Lower front of bin lid.



4. Remove bin lid.



5. Instal in reverse order.



Rear Retaining Rod

Note: When installing the bin lid, be sure back end of lid rests on the rear retaining rod, otherwise the lid will not rest properly on the bin.

Maintenance, continued

Stainless Steel Care and Cleaning

To prevent discoloration or rust on stainless steel several important steps need to be taken. First, we need to understand the properties of stainless steel. Stainless steel contains 70-80% iron, which will rust. It also contains 12-30% chromium, which forms an invisible passive film over the steel's surface, which acts as a shield against corrosion. As long as the protective layer is intact, the metal is still stainless. If the film is broken or contaminated, outside elements can begin to breakdown the steel and begin to form discoloration or rust. Proper cleaning of stainless steel requires soft cloths or plastic scouring pads.

NEVER USE STEEL PADS, WIRE BRUSHES OR SCRAPERS!

Cleaning solutions need to be alkaline based or non-chloride cleaners. Any cleaner containing chlorides will damage the protective film of the stainless steel. Chlorides are also commonly found in hard water, salts, and household and industrial cleaners. If cleaners containing chlorides are used be sure to rinse repeatedly and dry thoroughly. Routine cleaning of stainless steel can be done with soap and water. Extreme stains or grease should be cleaned with a non-abrasive cleaner and plastic scrub pad. Always rub with the grain of the steel. There are stainless steel cleaners available which can restore and preserve the finish of the steels protective layer. Early signs of stainless steel breakdown are small pits and cracks. If this has begun, clean thoroughly and start to apply stainless steel cleaners in attempt to restore the passivity of the steel.



Never use an acid based cleaning solution! Many food products have an acidic content, which can deteriorate the finish. Be sure to clean the stainless steel surfaces of ALL food products. Common items include, tomatoes, peppers and other vegetables.

Plastic Tray Cleaning

Food-approved detergents can be used if they are diluted per manufacturer's directions and adequately rinsed away prior to high temp drying cycle. Basic alcohols such as isopropyl are acceptable for hard-to-remove stains. Otherwise, do not use organic solvents.

Environmental stress cracking has occurred, proper dilution and rinsing per manufacturers' directions are mandatory.

Label Definitions



Caution Hot Surfaces



Protective Earth Ground



Equipotentiality Ground

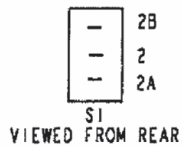
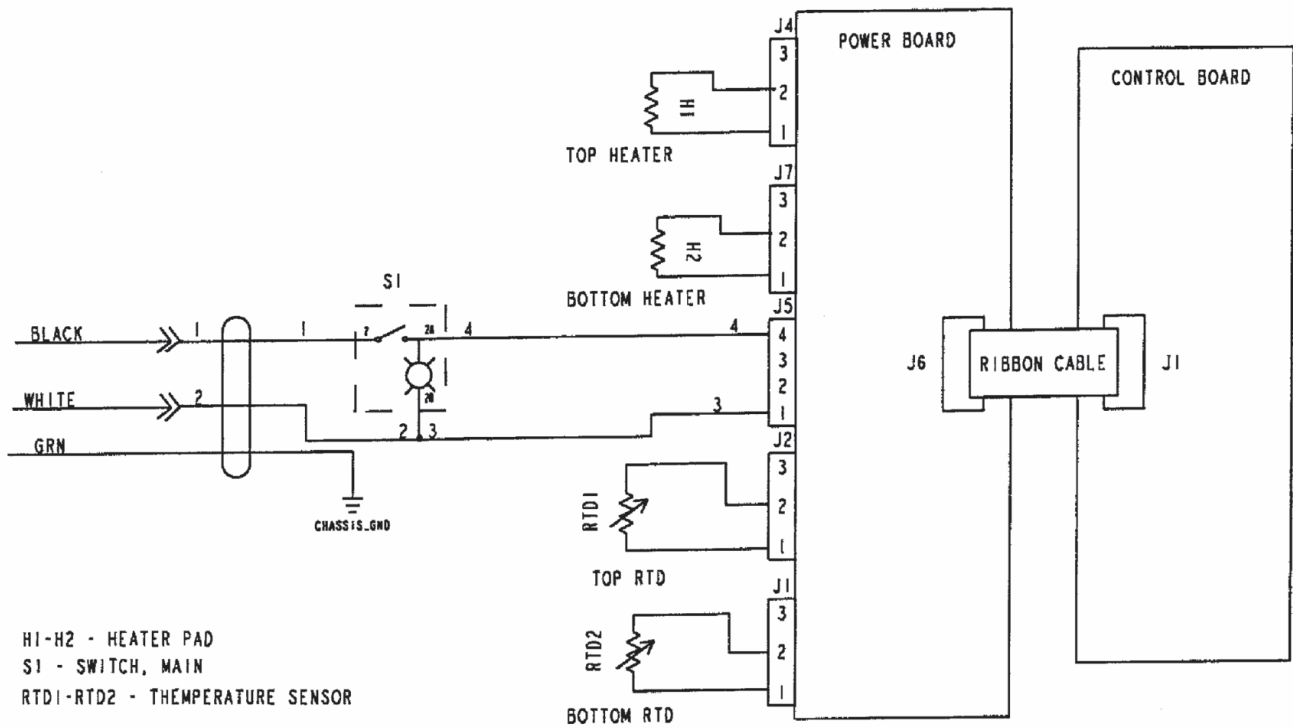


Earth Ground

Troubleshooting

<i>Symptom</i>	<i>Possible Cause</i>	<i>Evaluation</i>
Holding Cabinet will not heat	Incoming Power Supply	Verify power cord is secured firmly in receptacle. Measure the incoming voltage. Check circuit breakers. Reset if required. Call power company if needed.
	Power Switch	Check continuity between switch terminals. Replace switch as needed.
	Power Board	Make sure wires are connected properly including ribbon cable. Check ground wire (green wires) including main power cable. Make sure the unit is grounded properly. If everything is right, replace the control board.
Unit doesn't reach desired temperature	Thermocouple	Check for continuity in circuit.
	Heat Element	Compare cavity temperature with display reading. Insert temperature probe into center of cavity. Acceptable temperature variation is +/- 20° from display reading. Check for loose connection. Check the Amp draw on each element for proper load. Check specification table for rating information. If the amp draw is high or low, check the individual elements for opens, shorts and proper resistance. WITH POWER OFF: To check resistance of the elements, remove all leads from the elements and use a digital multimeter. The element resistance should be 120V – 87 ohms. Replace heating element (shelf) as needed.
		Check thermostat (common wire). Please note that if thermostat is bad, both circuits will be bad.
Temperature is too high	Thermocouple	Check for incorrectly wired thermocouple. Thermocouple wire polarities are reversed.
	Heat Element	Compare cavity temperature with display reading. Insert temperature probe into center of cavity. Acceptable temperature variation is +/- 20° from display reading. Check for loose connection. Check the Amp draw on each element for proper load. Check specification table for rating information. If the amp draw is high or low, check the individual elements for opens, shorts and proper resistance. WITH POWER OFF: To check resistance of the elements, remove all leads from the elements and use a digital multimeter. The element resistance should be 120V – 87 ohms. Replace heating element (shelf) as needed.
Display reads unusual characters		Make sure wires are connected properly (grounded).
		If wires are grounded properly, new control board is needed.
On/Off switch doesn't light (but unit works properly)	Power Switch	Check wiring to switch.

Wiring Diagram

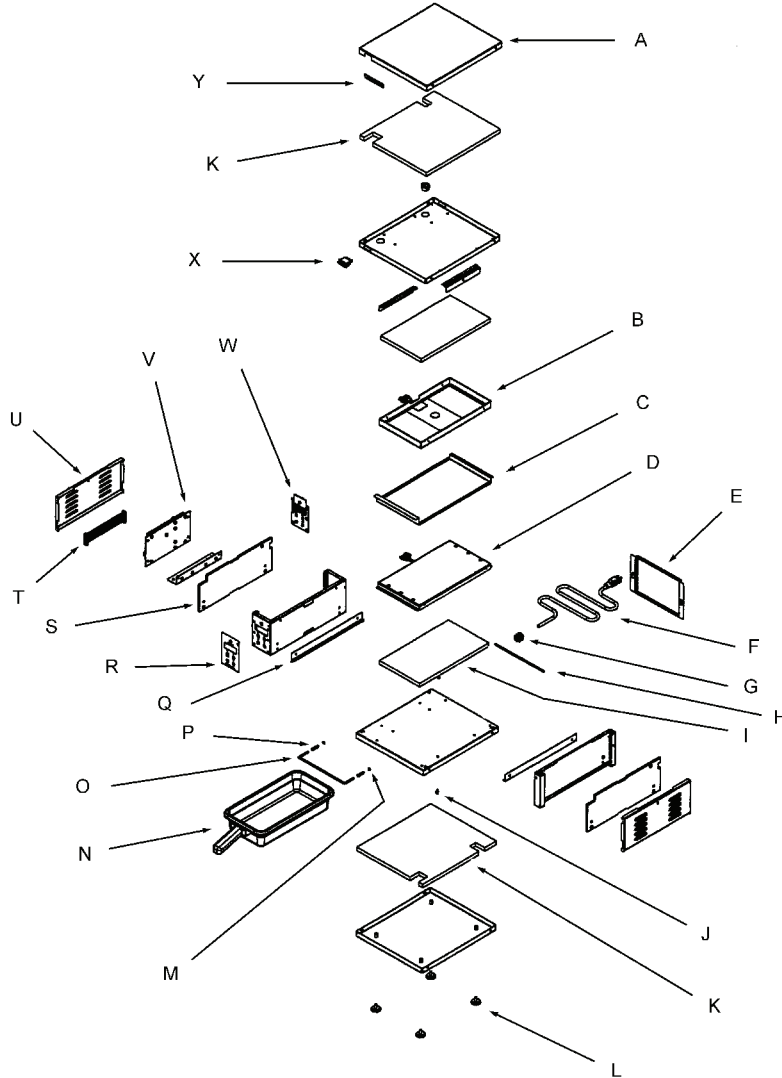


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Sequence Of Operation

Power Supply	Electrical power is supplied to the unit by a 3 conductor service for single phase. 120VAC Black conductor is hot. White conductor is neutral. Green and yellow conductor is ground. Power is permanently supplied to the main power switch.
Heating Circuit	Closing the main power switch supplies voltage to the power board and control board. The control is set to the desired temperature. The control then intermittently supplies 120VAC through the power board to the heater plates. Temperature is then controlled by the two temperature sensors sending a reference signal back to the control board.

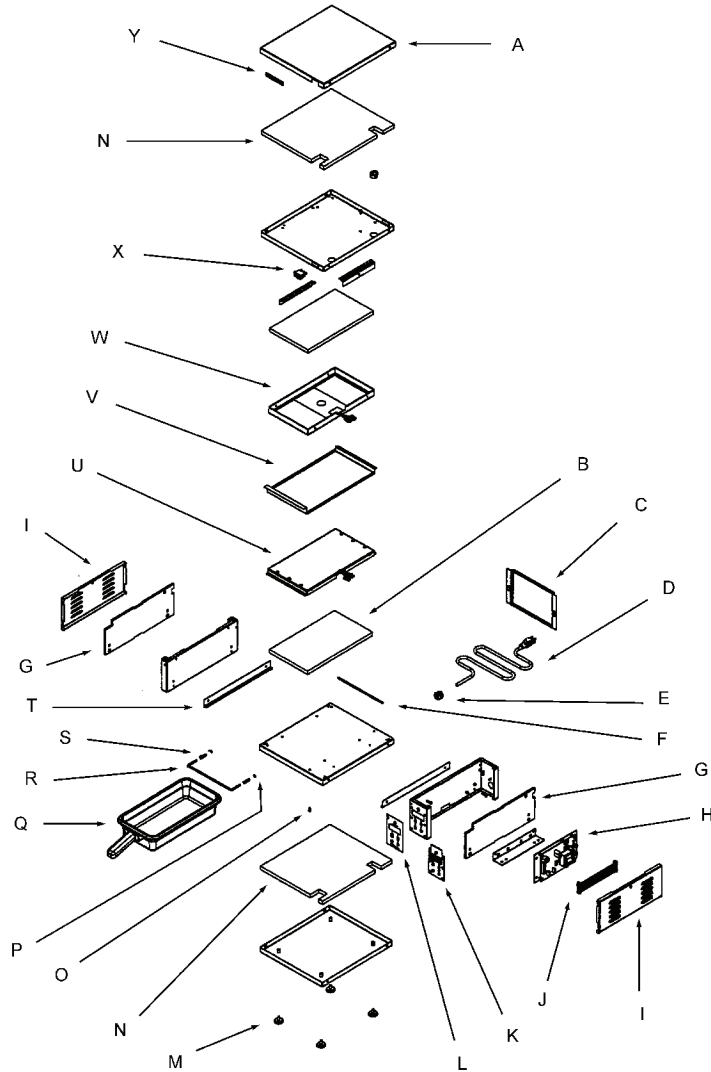
86007 & 86007-CE Replacement Parts



Key	Part Number	Part Description
A	MER340000	Top Cover Panel
B	MER340021	Upper Heater Subassembly, 120V
	MER90000654	Upper Heater Assembly, 230V
C	MER340020	Universal Tray Seal Panel
D	MER340019	Lower Heater Subassembly, 120V
	MER90000653	Lower Heater Assembly, 230V
E	MER340002	Rear Cover Panel
F	MER340095	Cordset, 120V
	MER100004598	Cordset, 230V
G	MER000170SP	Heyco Strain Relief Grommet
H	MER340004	Rear Retention Rod
I	MER340001	Heater Insulation Plate
J	MER340013	Hex Washer
K	MER340012	Top/Bottom Insulation
L	MER340011	Leg

Key	Part Number	Part Description
M	MER340014	E-Style External Retaining Ring
N	MER340015	Plastic Tray
O	MER340016	Front Retention Rod
P	MER340017	Spring
Q	MER340018	Heater Plate Bracket
R	MER340107	Control Panel Label
S	MER340005	Side Insulation
T	MER340008	Ribbon Cable Subassembly
U	MER340007	Side Cover Panel
V	MER340006	Power Controller
W	MER340009	System Controller
X	MER340022	Illuminated Green Rocker Switch, 120V
	MER100004595	Switch, 230V units
Y	MER340023	Caution-Hot Label
-	MER10001682	Pan Insert

86009 & 86009-CE Replacement Parts

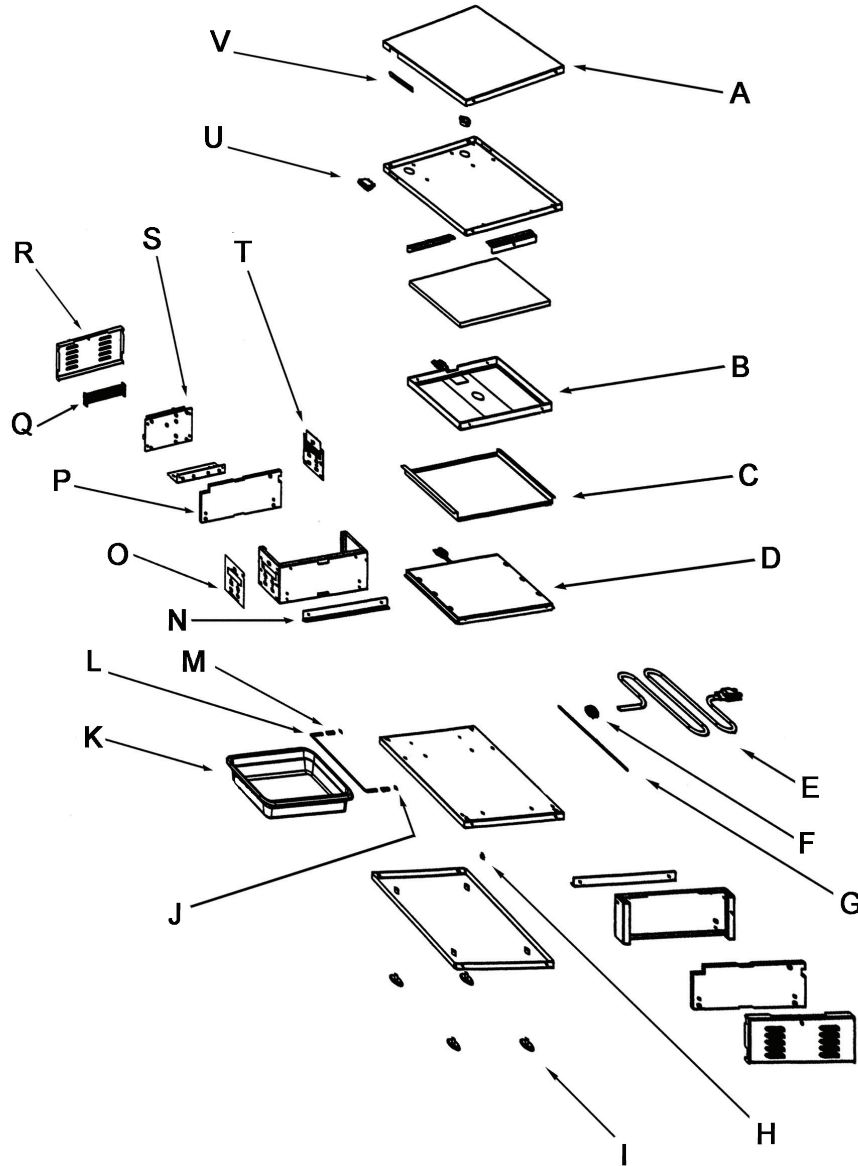


Key	Part Number	Part Description
A	MER340000	Top Cover Panel
B	MER340001	Heater Insulation Plate
C	MER340002	Rear Cover Panel
D	MER340095	Cordset, 120V
	MER100004598	Cordset, 230V
E	MER000170SP	Heyco Strain Relief Grommet
F	MER340004	Rear Retention Rod
G	MER340005	Side Insulation
H	MER340006	Power Controller
I	MER340007	Side Cover Panel
J	MER340008	Ribbon Cable Subassembly
K	MER340009	System Controller
L	MER340107	Control Panel Label
M	MER340011	Leg
N	MER340012	Top/Bottom Insulation

Key	Part Number	Part Description
O	MER340013	Hex Washer
P	MER340014	E-Style External Retaining Ring
Q	MER340015	Plastic Tray
R	MER340016	Front Retention Rod
S	MER340017	Spring
T	MER340018	Heater Plate Bracket
U	MER340019	Lower Heater Subassembly, 120V
	MER90000653	Lower Heater Assembly, 230V
V	MER340020	Universal Tray Seal Panel
W	MER340021	Upper Heater Subassembly, 120V
	MER90000654	Upper Heater Assembly, 230V
X	MER340022	Illuminated Green Rocker Switch
	MER100004595	Switch, 230V units
Y	MER340023	Caution-Hot Label
-	MER10001682	Pan Insert



86012 Replacement Parts



Key	Part Number	Part Description
A	MER70003300	Top Cover Panel
B	MER000-CRG-0042	Upper Heater Subassembly
C	MER70003308	Universal Tray Seal Panel
D	MER000-CRG-0041	Lower Heater Subassembly
E	MER340095	Cordset, 120V
F	MER000170SP	Heyco Strain Relief Grommet
G	MER10005468	Rear Retention Rod
H	MER340013	Hex Washer
I	MER340011	Leg
J	MER340014	E-Style External Retaining Ring
K	MER10005473	Plastic Tray
L	MER000-CQQ-0041	Retention Rod Assembly

Key	Part Number	Part Description
M	MER340017	Spring
N	MER70003309	Heater Plate Bracket
O	MER340107	Control Panel Label
P	MER340005	Side Insulation
Q	MER340008	Ribbon Cable Subassembly
R	MER7003310	Side Cover Panel
S	MER340006	Power Controller
T	MER340009	System Controller
U	MER340022	Illuminated Green Rocker Switch,
V	MER340023	Caution-Hot Label
-	MER70003349	Full Pan Insert
	MER10005478	Insulation Kit

Replacement Instructions

Heat Shelf Replacement

1. Disconnect power.
2. Take out screws holding L Brackets in cavity.
3. Disconnect thermocouple and all power connections to board. Mark all wires for reassembly.
4. Take out power board.
5. Take out shelf mounting screws from both sides.
6. Remove shelves and feed wiring out of unit.



Be careful to avoid tearing the aluminum foil while working with wire connections.

7. Reassemble in reverse order.

Control Board Replacement



When replacing U.I. board, be sure ribbon cable is connected so that blue wire is facing towards interior of unit.

1. Remove four (4) screws.
2. Disconnect ribbon cable.
3. Remove board.
4. Reassemble in reverse order.



Thank you for choosing Merco!

Help is a phone call away. Help our team of professional, courteous customer service reps by having your model number and serial number available at the time of your call (800) 733-8829.

Model: _____ S/N: _____

Installation Date: _____



For a list of Merco's authorized parts depots, visit our website at www.mercoproducts.com

Register your Merco warranty online.
Go to www.mercoproducts.com
under the service tab to complete.



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