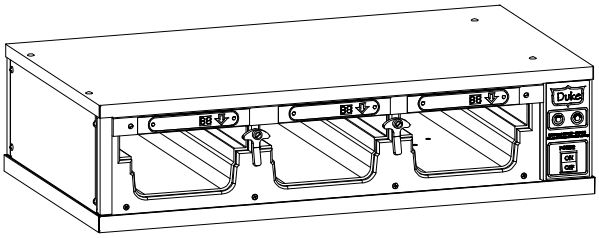
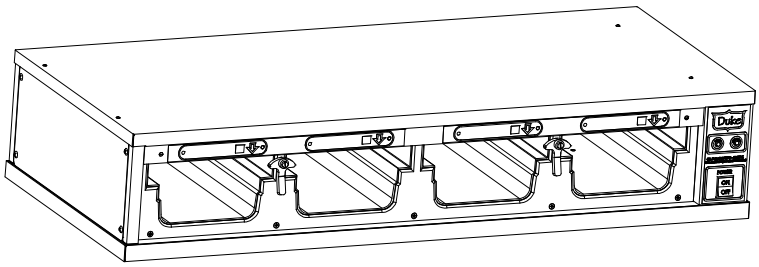
Operators and Service Manual

Product Holding Cabinet

U.S. Patent 6175099, 6262394
Other U.S. and Foreign Patents Pending



FWM3-13



FWM3-14

For information or technical assistance, call:
TOLL FREE
(800) 735-DUKE (3853)
or
(314) 231-1130

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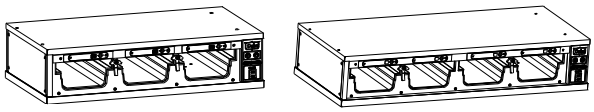


Manufacturer's Introduction

The Duke Product Holding Cabinet was developed in response to need for extended food-holding capabilities to provide consistently high, "just cooked" food quality.

The Duke Product Holding Cabinet utilizes Duke's patented "heat sink" holding technology that provides even heat distribution to food pans through the bottom and sides. This allows pre-cooked foods to be held for extended periods without noticeable degradation of quality, reducing food scrap/waste.

The self contained, individually formed, sealed compartments of the Duke Product Holding Cabinet eliminates food odor and taste transfer. Because the compartments are sealed and formed to the shape of the pan, no disassembly is required for cleaning and product changes.

The unique design of the Duke Product Holding Cabinet allows single temperature operation for all existing product groups. This 190° F approved temperature is preset at the factory. This reduces the likelihood of inconsistent performance between locations.

The Duke Product Holding Cabinet was also designed to rethermalize food product. A thermostat setting of 200°F minimum is required for rethermalization. See instructions on page 8 for thermostat adjustment. **NOTE:** Only qualified service persons should modify control temperature presets.

Supplier Name: **Duke Manufacturing Co.**
Address: 2305 N. Broadway
St. Louis, MO 63102

Model #: FWM3-13-120
FWM3-13-208
FWM3-13-230
FWM3-13-240

FWM3-14-120
FWM3-14-208
FWM3-14-230
FWM3-14-240

Serial #: _____
Date Received:
Date Installed:
Telephone: (800) 735-DUKE (3853)
(314) 231-1130
Fax: (314) 231-5074
Service Referral #:
Local Service Name _____

Local Service # _____

Installation requirements

Power Connection: See diagrams on pages 3.

!CAUTION!
Risk of fire or electric shock. Replace only with Manufacturer's cord set or equivalent.

U.S. Patent. Other US and Foreign Patents Pending
Model FWM3-13YM1

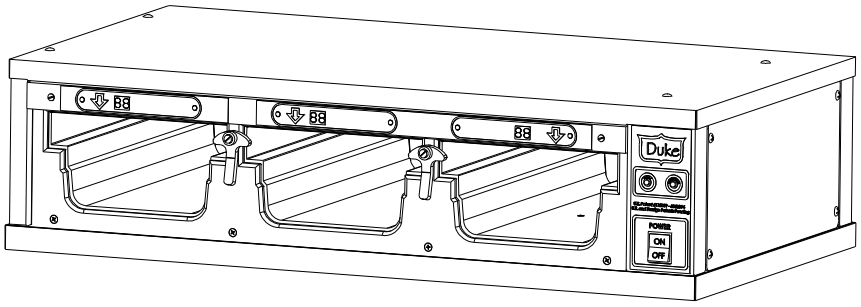
Shipping Weight: **Shipping Cube:**	75lbs/34.1 Kg 33"X20"X12"	
Electrical	FWM3-13YM1-120	120 V, 5 A, 600 W, 50/60 Hz
	FWM3-13YM1-208	208 V, 4.3 A, 900 W, 50/60 Hz
	FWM3-13YM1-230CE	230 V, 3.9 A, 900 W, 50/60 Hz
	FWM3-13YM1-240	240 V, 3.8 A, 900 W, 50/60 Hz

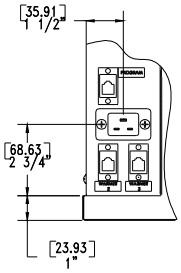
LISTED COMMERCIAL COOKING APPLIANCE 509L

INDEXER COMMERCIAL APPARIEL DE QUISINE

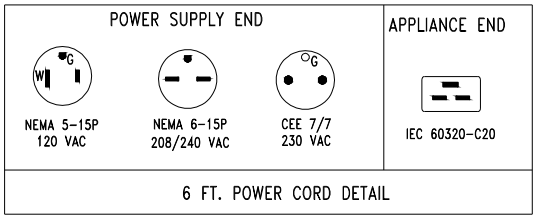
CLASSIFIED ALSO CLASSIFIED BY UNDERWRITERS LABORATORIES INC. IN ACCORDANCE WITH NSF NO. 4 1999

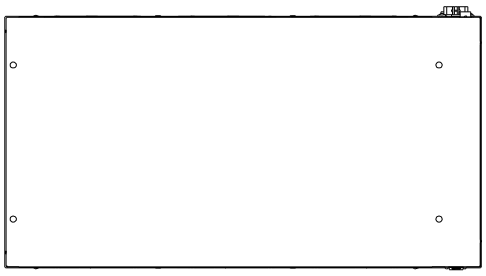
CE



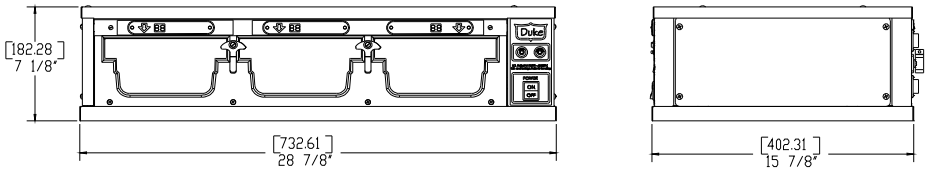


APPLIANCE INLET DETAIL





TOP VIEW



FRONT VIEW SIDE VIEW

U.S. Patent 6175099, 6262394
Other U.S. and Foreign Patents Pending
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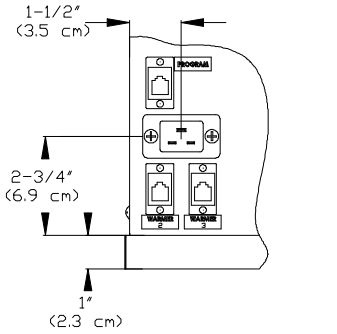
314-231-1130

Figure 1 FWM Specification Sheet

Model FWM3-14

Shipping Weight:	92 lbs/41.7 Kg	
Electrical:	FWM3-14-120 FWM3-14-208 FWM3-14-230 FWM3-14-240	120 V, 6.7 A, 800 W, 50/60 Hz 208 V, 5.8 A, 1200 W, 50/60 Hz 230 V, 5.2 A, 1200 W, 50/60 Hz 240 V, 5.0 A, 1200 W, 50/60 Hz



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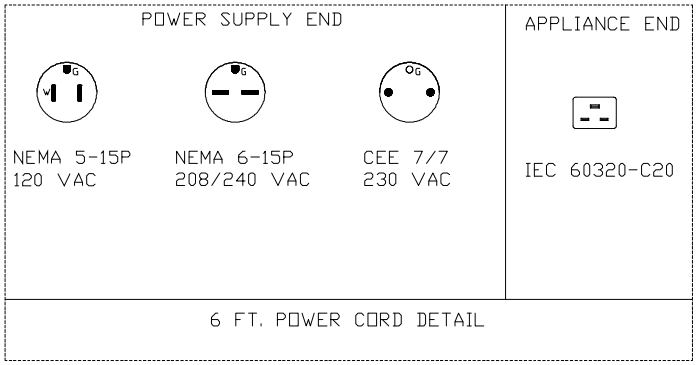

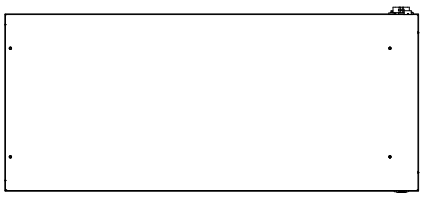

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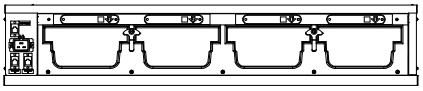
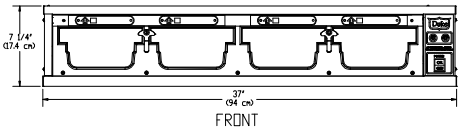
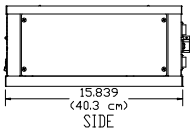


REAR



FRONT



SIDE

LISTED COMMERCIAL COOKING APPLIANCE 509L

INDEXER COMMERCIAL APPARIEL DE QUISINE

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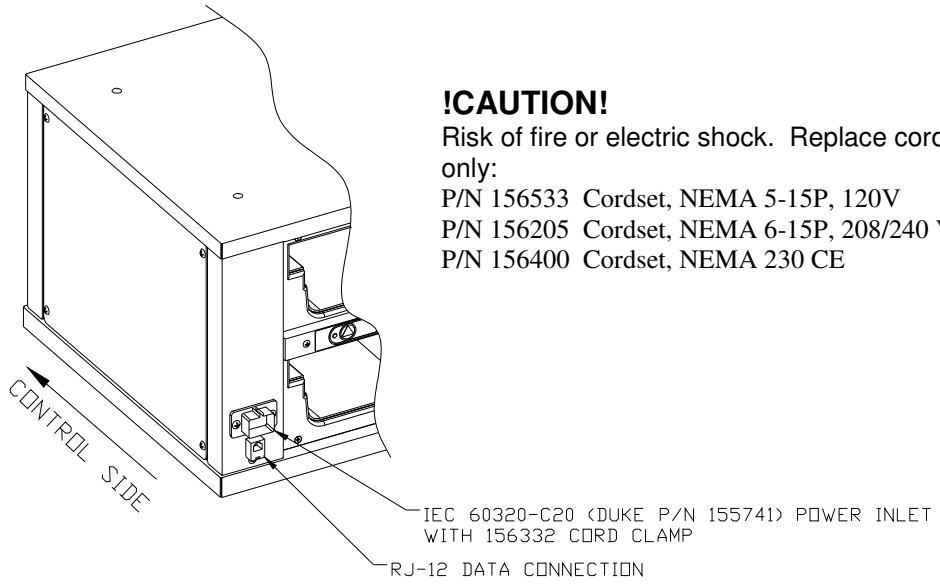
CE

Installation Instructions

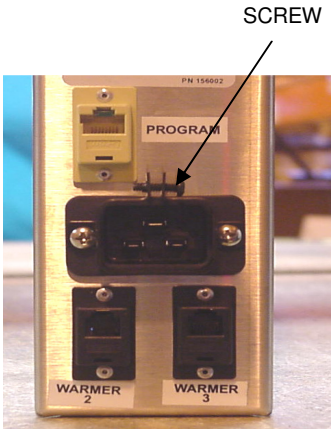
1. Place warmer module onto stable surface.
2. **Attach power supply cord to IEC 60320 C20 using approved cordset.**
3. Follow instructions in the Operators Manual PERIODIC MAINTENANCE, CHECKLIST AND CLEANING GUIDE.



!CAUTION!

Risk of fire or electric shock. Replace cord with the following Duke cordsets only:

P/N 156533 Cordset, NEMA 5-15P, 120V
P/N 156205 Cordset, NEMA 6-15P, 208/240 V
P/N 156400 Cordset, NEMA 230 CE

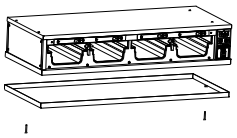


The proper way to connect the power cord is to loosen the screw, push the cord fully into the holder and then retighten the screw.

Stacking Units

The FWM3-13 & FWM3-14 Product Holding Cabinet is designed to allow limited stacking capabilities. This section outlines how to safely stack the holding cabinet.

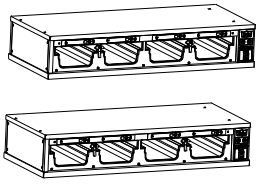
Step 1

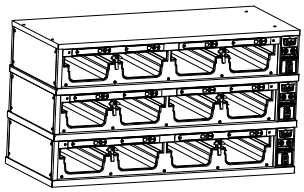


Remove the base pan from all holding cabinets, except for bottom unit, that are to be stacked. The pan is held in place by two screws on the bottom of the unit.

Step 2

Place bottom unit into position then stack the next unit on top. The top of the lower holding cabinet rests inside of the base of the upper unit.





WARNING!

TIP HAZARD! Do not exceed 3 holding cabinets per stack. Do not place holding cabinet stacks on surfaces that may easily tip over.

U.S. Patent 6175099, 6262394
Other U.S. and Foreign Patents Pending
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314-231-1130

Unit to Unit Communication Connections

Each unit with an ICC Timer Control can control up to two additional units (those without ICC Timer Control). The following are the field connections for these units. The program connection is used with the ICC provided Palm Pilot programming device.

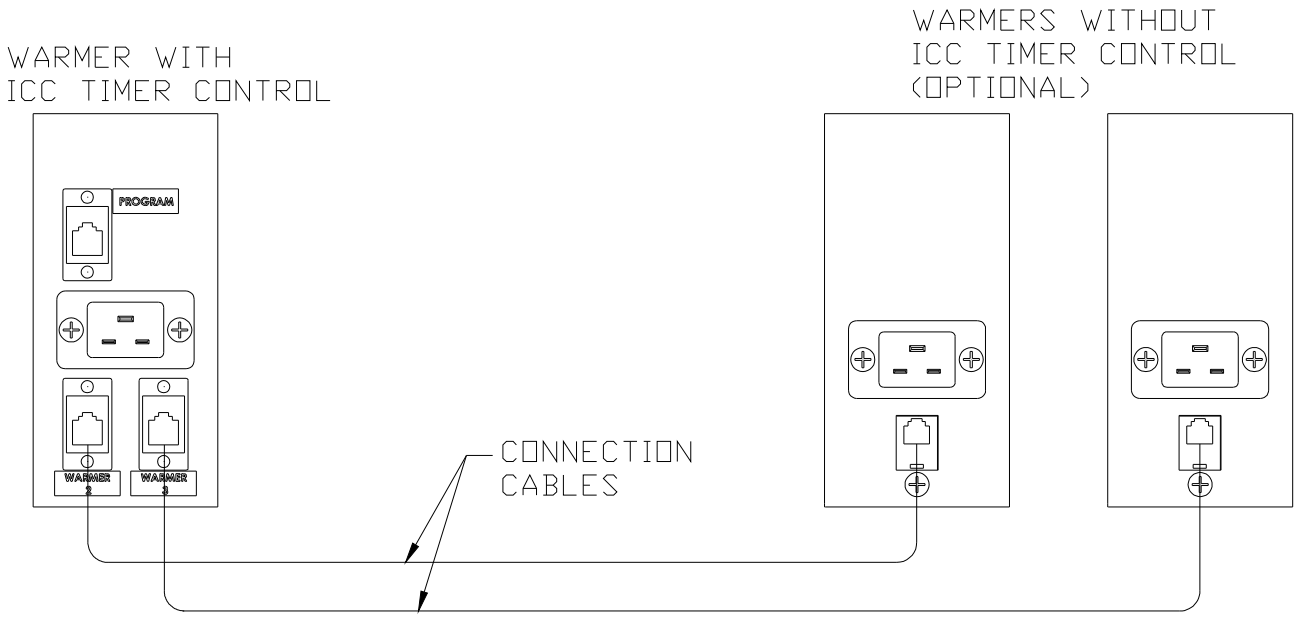
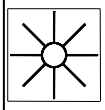


Figure 2

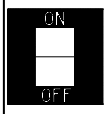
Periodic Maintenance, Checklist And Cleaning Guide

DAILY



Opening Checklist

1. Ensure proper **Pan Covers** are inserted into the correct locations for fried and broiled products.
2. Place the **Power Switch**, located on the front of the Product Holding Cabinet, to the ON position.
3. Ensure both top and bottom **HEAT Lights** are illuminated.
4. Allow the Product Holding Cabinet to heat for at least 20 min. or until the **HEAT Lights** cycle off.

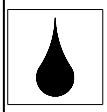


Operation Instructions/Adjustments

1. If the **SERVICE Light** illuminates during operation of the Product Holding Cabinet, discontinue use of the affected shelf until the module is serviced.
2. Operate using Menu Bar as outlined in the Menu Scoreboard Operators Manual.

Closing Checklist

1. Turn power switch OFF.
2. Remove all pans and pan covers.
3. Allow to cool for approximately 30 minutes.
4. Clean Product Holding Cabinet as outline in the Daily Cleaning Instructions.



Cleaning Instructions

1. Wipe down the interior and exterior of the Product Holding Cabinet with warm water and mild detergent using a soft cloth. Do not use excessive amounts of water.
2. Clean pans and pan covers using mild detergent and warm water. Ensure all soap is rinsed from plastic pans and pan covers.

<u>Caution!</u>

Electrical shock hazard. Do not wash with water jet or hose.
Do not use caustic cleaners, acids, ammonia products or abrasive cleaners or abrasive cloths. These can damage the stainless steel and plastic surfaces.
!Warning!
Bottom and sides of warmer wells are very hot and cool slowly.

REVISED:
Feb. 21, 2005

Troubleshooting

There are no user serviceable parts on the Duke Product Holding Cabinet. If a malfunction occurs, ensure unit is plugged in then check all switches and circuit breakers. If the malfunction still exists, contact your Duke Manufacturing Company authorized service agent or call 1-800-735-3853.

Electronic Control Fault Indications

The Service Light is located on the front of the control next to the heat light (see Figure 3). It provides an indication to alert the operator to failures in the heater circuit. When a Service Light is on, the unit should not be used until the cause of the fault is corrected by a qualified service technician. The fault conditions that could cause the control to turn the service light on are as follows:

1. **Over – Temperature Fault -** An over-temperature fault occurs when the control senses that the temperature is higher than the specified factory preset temperature. This occurs when the power is not removed from the heating element after the has achieved the preset temperature, causing the control to turn on the service light. The auxiliary thermostat prevents the temperature from exceeding safe levels by regulating the temperature to a maximum of 250° F.
2. **Under – Temperature Fault -** An under-temperature fault occurs when the control senses that the unit temperature is lower than the specified factory preset temperature for more than 30 minutes continuously. This occurs when heating element circuit opens or the RTD Feedback signal is faulty, causing the control to turn on the service light.

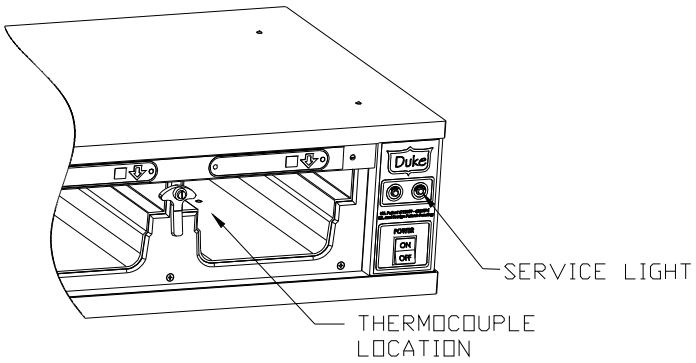


Figure 3

Temperature Check Procedure

1. A digital temperature meter that has been calibrated must be used to get an accurate temperature reading. Use a thermocouple surface temperature probe to measure temperatures.
2. **No pans should be in wells during the pre-heat and temperature check**. Pre-heat the warmer for 30 minutes before taking any temperature readings. Do not take readings unless the cavity has been empty for 30 minutes. This will allow the temperature to stabilize and will prevent false readings.
3. The warmer cavity should be cleaned and empty before the temperature is checked. Avoid any air drafts that might flow through the cavity.
4. Locate the surface temperature probe on the bottom of the first cavity in the geometric center. The first cavity is the one closest to the control panel (see Figure 3). Make sure the probe is making good contact with the surface while taking readings.
5. All temperature controls exhibit a swing in temperature as the control cycles on and off while regulating to the set point. The correct calibration temperature is the average of several readings taken over a period of 20 minutes after the warmer has been pre-heated. The average temperature should be ± 5°F from the set point.

U.S. Patent 6175099, 6262394
Other U.S. and Foreign Patents Pending
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Control Programming

The electronic temperature control is pre-set at the factory to maintain the temperature at the bottom center of the pan cavity at 190° F +/- 5° F. This temperature is the result of many hours of laboratory food testing. There are no operator temperature adjustments that can be made. Because the electronic control uses a platinum type RTD sensor, routine calibration is not required.

!DANGER!
LIVE ELECTRICAL COMPONENTS.
ONLY QUALIFIED SERVICE PERSONS SHOULD MODIFY CONTROL TEMPERATURE PRESETS.

Temperature Programming

1. Remove cover from control side of the Holding Cabinet and turn the Holding Cabinet on.
2. Locate the pushbutton S1 and S2 on the rear of the control. (see Figure 4.1)
3. Press and hold S1 until any LED on the rear of the control illuminates. (approximately 5 seconds)
4. Observe the LEDs on the front of the unit, (Figure 4.2). Press and release S1 on the back of the control until the heat light on the front of the unit flashes.

NOTE: To comply with NSF sanitation requirements, do not set the control preset temperature below 190° F.

5. Press and release S2 until the sum of the LED values illuminated on the rear of the board match the desired pre-set temperature.
6. Press and hold S1 until no LED on the rear of the control is illuminated and the lights on the front of the board no longer flash.
7. Replace cover on control side of the Holding Cabinet.

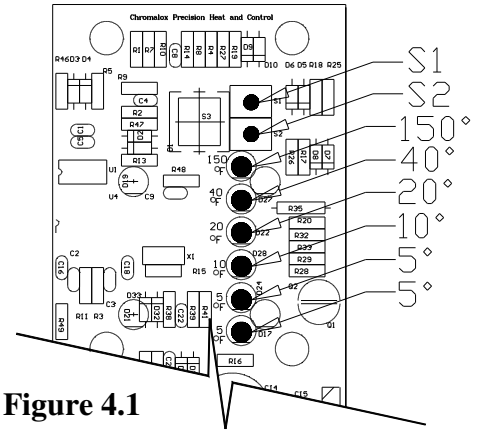

Figure 4.1

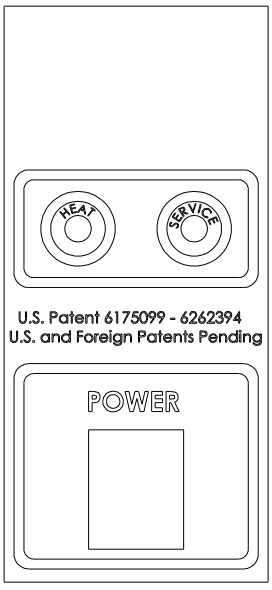

Figure 4.2

Parts Lists and Illustrations

Locator	P/N	Description	Qty Per 1x3	Qty Per 1x4
1	157501	PAN STATUS KEYBOARD FWM3-13, DIGITAL, FRONT	1	
	157502	PAN STATUS KEYBOARD FWM3-13, DIGITAL, BACK	1	
	156348	PAN STATUS KEYBOARD FWM3-14, DIGITAL, FRONT		1
	157524	PAN STATUS KEYBOARD FWM3-14, DIGITAL/DAYPART, FRONT		1
	156349	PAN STATUS KEYBOARD FWM3-14, DIGITAL, BACK		1
	157525	PAN STATUS KEYBOARD FWM3-14, DIGITAL/DAYPART, BACK		1
2	600109	KIT, FWM CONTROLLER	1	1
3	155749	TRANSFORMER 208/240 VAC	1	1
	156838	TRANSFORMER 230 VAC		
	156316	TRANSFORMER 120 VAC		
4	155741	RECEPTACLE ELECTRIC	1	1
5	156616	COUPLER 6X6 RJ12	2	2
6	156617	COUPLER, 8X8 RJ45	1	1
7	156059	CONNECTOR SPECIAL T	1	1
8	156527	SWITCH, LIGHTED, DPST, 16A	1	1
* 9	157503	CONTROL, ICC TIMER, DIGITAL, W/LOUD SOUNDER FWM3-13	1	
	157526	CONTROL, ICC TIMER, DIGITAL/DAYPART, W/LOUD SOUNDER FWM3-14		1
10	157506	FACE PLATE WITH GASKET, FWM3-13	2	
	156854	FACE PLATE WITH GASKET, FWM3-14		2
11	156285	LATCH,PAN	4	4
12	156288	SCREW SHOULDER	4	4
13	0653638	SCREW 1/4-20 X 3/4	4	4
14	155750	RTD 1K OHM THIN	1	1
15	156564	ELEMENT FOIL HEAT FWM3-13-120	3	
	156301	ELEMENT FOIL HEAT FWM3-13-208	3	
	156611	ELEMENT FOIL HEAT FWM3-13-230CE	3	
	156565	ELEMENT FOIL HEAT FWM3-13-240	3	
	156566	ELEMENT FOIL HEAT FWM3-14-120		4
	156752	ELEMENT FOIL HEAT FWM3-14-208		4
	156318	ELEMENT FOIL HEAT FWM3-14-230CE		4
	155755	ELEMENT FOIL HEAT FWM3-14-240		4
16	155753	THERMOSTAT AUXILIARY	1	1
17	155680	NUT #8-32 KEPS	2	2
18	155873	LID, FOODWARMER VENTED (FRIED)(GRAY)	AR	AR
19	155876	LID,FOODWARMER SOLID (BROILED)(BLACK)	AR	AR
20	156666	CABLE, 26 IN., (FOR INTERCONNECTING UNITS)(NOT SHOWN)	AR	AR
21	156533	CORDSET, NEMA 5-15P, 120V (NOT SHOWN)	1	1
	156421	CORDSET, NEMA 6-15P, 208/240V (NOT SHOWN)		
	156400	CORDSET, 230V CE (NOT SHOWN)		
22	156938	TERMINAL BLOCK	1	1

*** Note: These ICC Timer Controls will need to be manually programmed at the time of installation.**

Parts Lists and Illustrations (Continued)

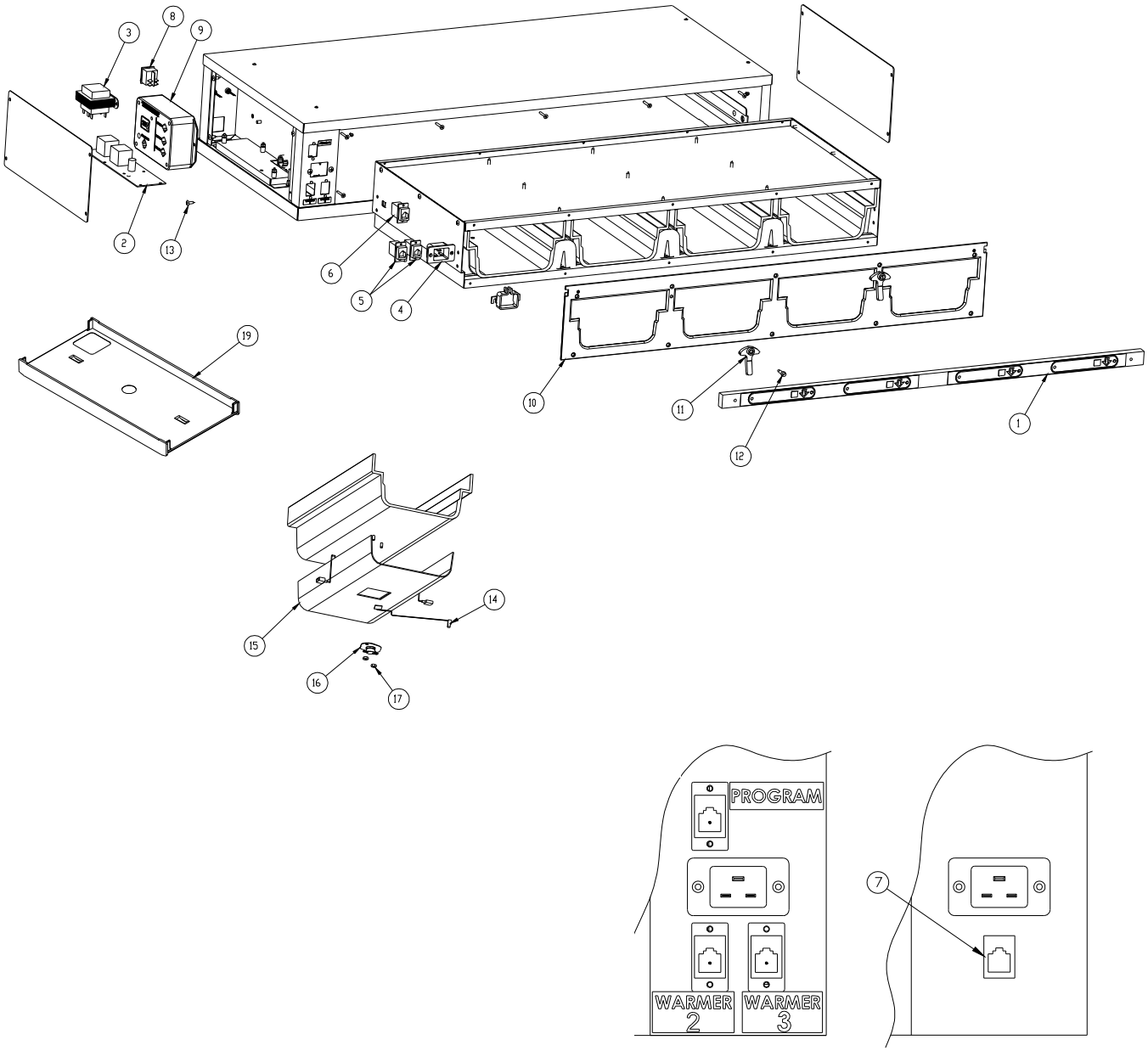

Figure 5, FWM Product Holding Cabinet Exploded View

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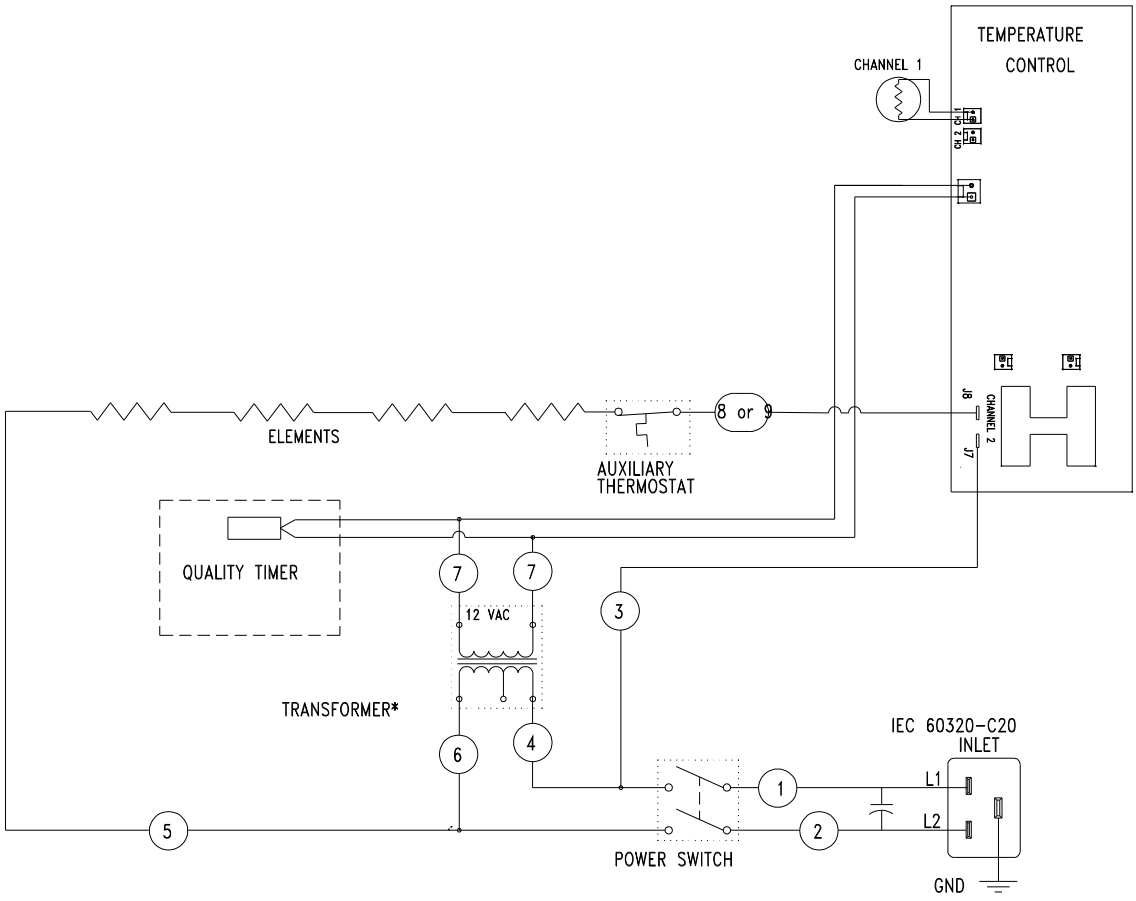
Wiring Schematics



* CONNECT WIRE #4 TO 240V TERMINAL FOR 240VAC AND 230VAC CE UNITS (SHOWN)
CONNECT WIRE #4 TO 208V TERMINAL FOR 208 VAC UNITS
120 VAC UNITS USE A 120V TRANSFORMER

Figure 6, FWM Internal Wiring Schematic

Wiring Schematics (Continued)

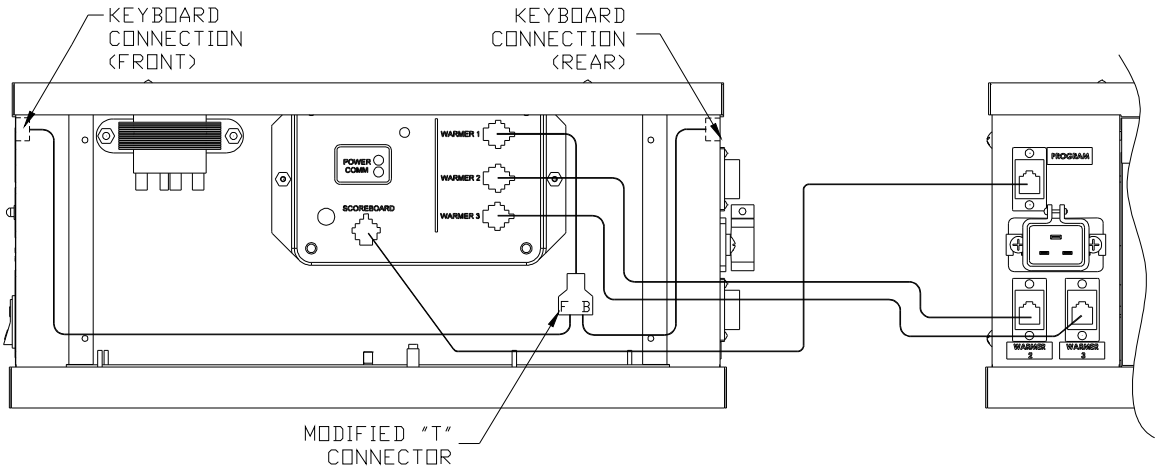


Figure 7.1, Interface Cable Schematic with ICC Timer Control

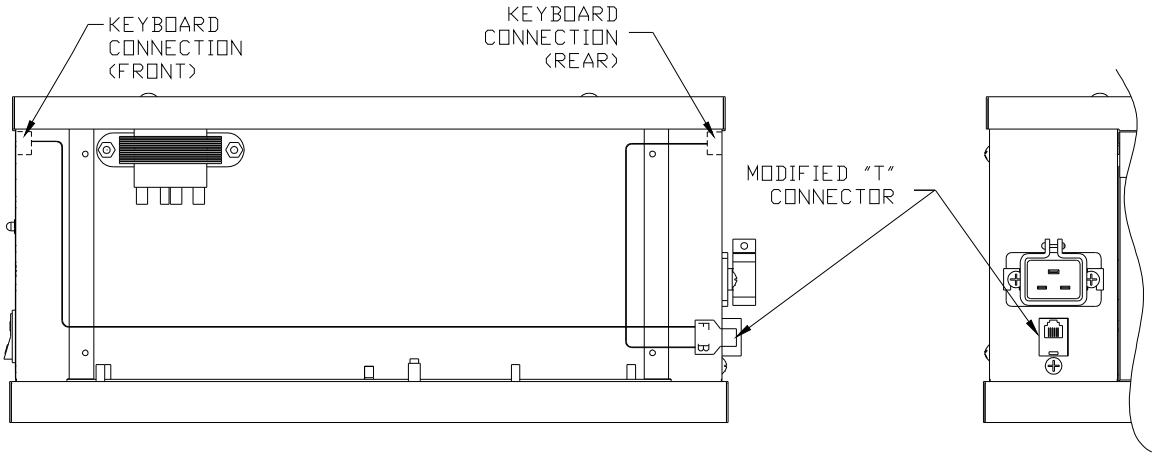


Figure 7.2, Interface Cable Schematic without ICC Timer Control