

**nemco**<sup>®</sup> | FOOD  
EQUIPMENT

## SERVICE MANUAL



6900-( )-( )

**HIGH SPEED SANDWICH PRESS**

# CAUTION

## PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

- (a) Do not operate or allow the oven to be operated with the door open.
- (b) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
  - (1) interlock operation.
  - (2) proper door closing.
  - (3) seal and sealing surfaces (arcing, wear, and other damage).
  - (4) damage to or loosening of hinges and latches.
  - (5) evidence of dropping or abuse.
- (c) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, wave guide or transmission line, and cavity for proper alignment, integrity, and connection.
- (d) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.
- (e) A microwave leakage check to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

# ELECTRICAL INSTALLATION

For all cord connected appliances:

## GROUNDING INSTRUCTIONS

This appliance must be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This appliance is equipped with a cord having a grounding wire with a grounding plug. The plug must be plugged into an outlet that is properly installed and grounded.

**WARNING** — Improper use of the grounding can result in the risk of electric shock.

Consult a qualified electrician or Serviceman if the grounding instructions are not completely understood or if doubt exists as to whether the appliance is properly grounded.

Do not use an extension cord. If the power supply cord is too short, have a qualified electrician or serviceman install an outlet near the appliance.

For a permanently connected appliance:

## GROUNDING INSTRUCTIONS

This appliance must be connected to a grounded, metallic, permanent wiring system, or an equipment grounding conductor should be run with the circuit conductors and connected to the equipment grounding terminal or lead on the appliance.

# SAFETY INSTRUCTIONS

## **PLEASE READ THIS ENTIRE PAGE BEFORE BEGINNING ANY SERVICE ACTIVITIES**

This manual is to assist the authorized service agent that has been trained by NEMCO on the proper service procedures for this appliance.

If at any time the service agent is unsure how to properly or safely service the sandwich press; they should contact NEMCO immediately for instructions.

**All service technicians should check the microwave emission of the appliance using a calibrated microwave survey meter before they begin any repairs.**

**The technician should check to make sure the sandwich press isn't emitting microwaves when it shouldn't be.**

**The control should be checked to see if the control is running a menu cycle.**

**If it is determined that the service covers are needed to be removed, the oven should be unplugged from its power receptacle, and the HV capacitors should be discharged using a high voltage insulated 10 MΩ resistor before performing service. Please NOTE: Turning the power switch off will not completely protect the servicer from electrical shock.**

**If the microwave circuit must be operated with the service covers removed; DO NOT put any appendage near any part of the HV circuit. Incidental contact with any part of the HV circuit while the magnetrons are running WILL result in BODILY HARM or DEATH.**

**After service is completed, all the following MUST be checked before the sandwich press is plugged in:**

- The device is correctly wired.
- All wiring is properly routed to avoid sharp edges or pinch points.
- All grounding points are properly secured and are in good condition.
- The lid closes properly.
- All the interlock switches function correctly, and are opening/closing in the correct order.
- The thermocouple wires have been correctly connected to the control board.

**Once the sandwich press is plugged in, the following MUST be checked before allowing the customer to operate the device:**

- Verify that all the buttons on the control are functioning.
- Make sure the microwave emissions is less than 5 mW/cm<sup>2</sup>, adjust the choke placement as needed.
- Check the electrical current of the sandwich press.
- Verify that the specified exterior clearances are being used.

# PRODUCT SPECIFICATIONS

Model Number: 6900-VVV-CC

Supply Voltage	Frequency	Supply	Customer	Country
VVV			CC	
208 = 208V 240 = 240V	60 Hz	L1+L2+Gnd (US 30A Plug) L1+L2+Gnd (Canada 50A Plug) L1+L2+Gnd (US/Canada 30A Plug)	GM=General Market	US/Canada

<b>Power</b>	<b>208V or 240V</b>	<b>208V 60Hz 28Amps 240V 60Hz 24Amps</b>
<b>Power Output</b>	<b>Microwave (combined) Microwave (combined) Heaters (combined)</b>	<b>2000W – Rated 1400W - Output 2000W – 1000W (each)</b>
<b>External Dimensions With The Upper Enclosure Open</b>	<b>Height</b>	<b>29 inches (737mm)</b>
	<b>Width</b>	<b>14.5 inches (368mm)</b>
	<b>Depth</b>	<b>31 inches (787mm)</b>
<b>Weight</b>	<b>Total</b>	<b>135 lbs</b>
<b>Exterior Construction</b>	<b>Material</b>	<b>430 Stainless Steel</b>

# INSTALLATION INSTRUCTIONS

## Power Supply Requirements

The sandwich press MUST be connected to a properly grounded receptacle that is correctly rated for the current listed on the device's product label or MUST be hard-wired to the supply with a proper ground.

The sandwich press should be connected to its own power circuit (**Type C or Time Delay circuit breaker**). Connecting this device to a circuit that is shared with other appliances could cause the circuit breaker to trip when appliances with high inrush current turns on.

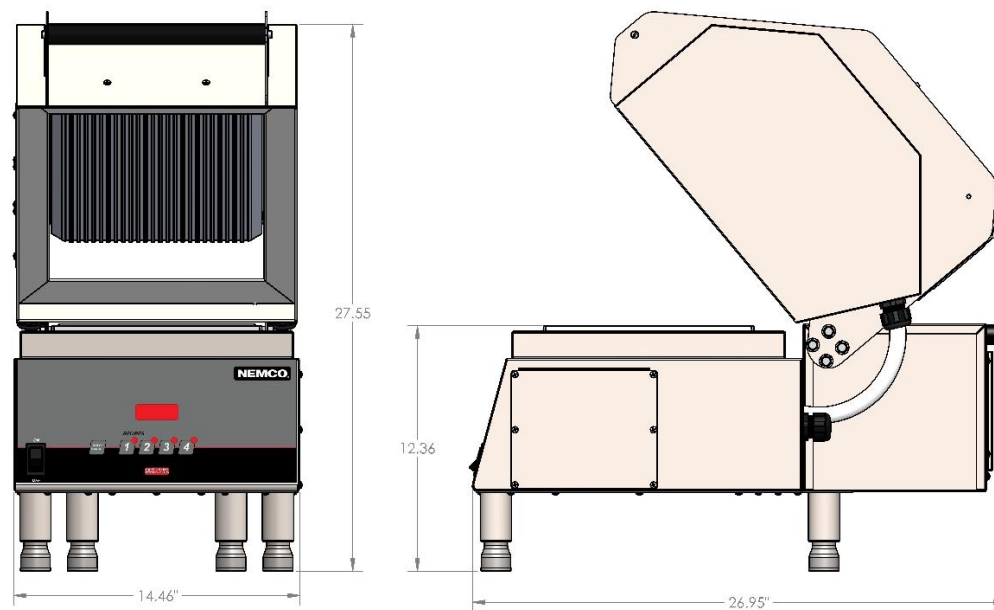
## Ground Requirements

This device MUST be connected to a ground that meets or exceeds building codes. DO NOT install the sandwich press in a location that doesn't have a proper ground. Doing so could result in serious injury or DEATH.

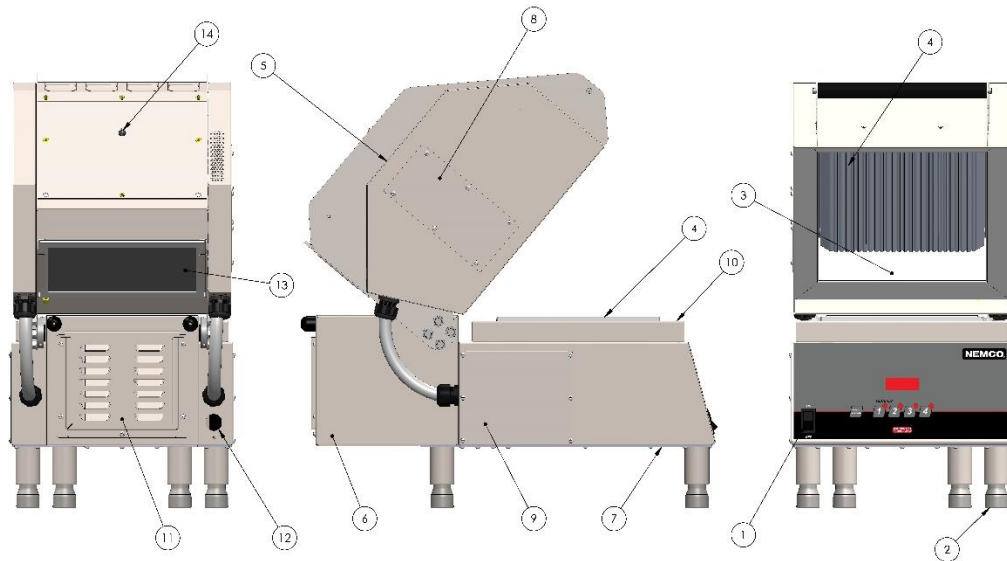
## Appliance Positioning

To maintain sufficient ventilation for the sandwich press, you must have at least 2 inches (51mm) of clearance on all sides of the unit and at least 2 inches above the upper enclosure when it is open. There must also be at least 2" of clearance behind the flexible conduit with upper enclosure opened and closed.

Make sure that there isn't any heat sources such as fryers, ranges, griddles, etc. If the sandwich press must be located next to a before mentioned heat source, then a heat shield should be constructed between the appliances to protect the sandwich press from the extreme heat and grease. Ignoring this warning will result in voiding the manufacturer's warranty.

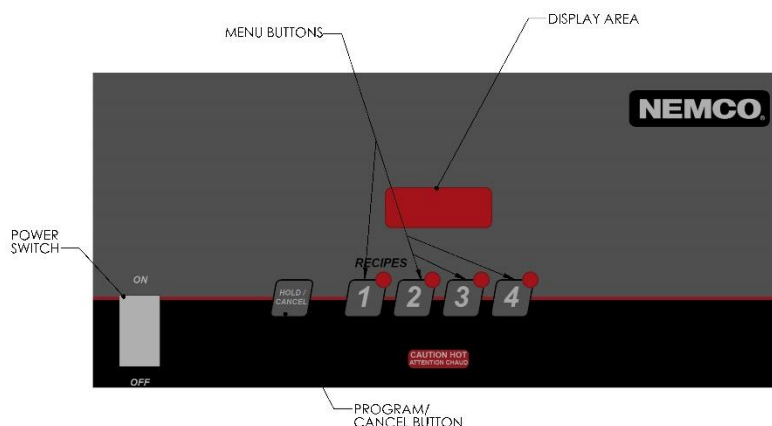


## FEATURES



1. *On/Off Switch* – This gives the user the ability to turn the appliance On or Off. **Note: this does NOT turn power off to every internal component.**
2. *Adjustable Legs* – Gives the installer the ability to level the press as needed.
3. *Sandwich Press Cavity* – The cavity is constructed with stainless steel and a nonstick coating.
4. *Heating Platens* – These can be grooved or flat heating surfaces. The upper platen is able to float to allow for even surface contact for varying height of food items.
5. *Steam Vent* - Allows steam to escape the cavity.
6. *Specification Plate* – This plate shows the ratings for this device along with, model & serial number, and NEMCO contact information.
7. *USB Port* – This port is used to load menu files with an approved USB flash drive.
8. *Cover, Steam Vent Cleanout* – This cover is removable with standard tools to allow for cleaning inside the steam vent.
9. *Panels, Side Access* – These panels are located on the RH and LH side of the lower enclosure to give service technicians access.
10. *Microwave Choke Assembly* – This assembly contains the lower heating platen and is removable to allow access to the lower enclosure. **Note: If this is removed, then its location will need to be set correctly to ensure microwave leakage is within safe ranges.**
11. *Panel, rear Access* – This panel gives a service technician access to the rear enclosure.
12. *Power Cord* – Is located at the back of the lower enclosure.
13. *Cooling Fans* – These are located behind the top enclosure filter and need to be kept clear of obstructions to ensure the magnetrons stay cool.
14. *Release, Upper Heater Platen* – This is turned a quarter turn to drop the upper heater platen down for cleaning and service.

# CONTROL FEATURES



**POWER SWITCH** – Toggle switch to “ON” to energize the control. Turning the switch to “OFF” will power down the control and cancel any menu.

**MENU BUTTONS** – Pressing any of the menu buttons will cause the red circle next to the corresponding button to illuminate. Once the lid is closed; the sandwich press will run the selected program.

**DISPLAY AREA** – This area will display temperatures, menu time, and error codes.

**HOLD/CANCEL** – This button is pressed to cancel a menu before it is finished (this function is disabled for certain customers).

## Description of error messages

Error Code	Description	Possible Cause
Err1	No menu file is loaded	A menu file was never loaded.
Err2	Incompatible menu file	Menu file isn't saved as a .csv file or the formatting is wrong within the file.
Err3	Preheat temperature is out of range	The preheat temperature is greater than 500°F.
Err4	Menu temperature is out of range	The menu temperature is greater than 500°F.
Err5	The number of stages in a menu is greater than 15	Too many menu stages.
Err6	A single stage time is greater than 3599 seconds (59min 59s)	A stage time is greater than 1 hour.
Err7	Illegal microwave setting.	One or more of the stages has a microwave setting that is something other than “On” or “Off”.
Err8	Sum of stage times programmed for a menu item is greater than 3599 seconds	The sum of stage times is greater than 1 hour.
Err9	Corrupted menu data in non-volatile memory	Problem with the control, not the menu file.
Prob	Either or both temperature probes are open or not connected	A thermocouple wire has broken or disconnected.

# COMPONENT LOCATIONS

## UPPER CAVITY

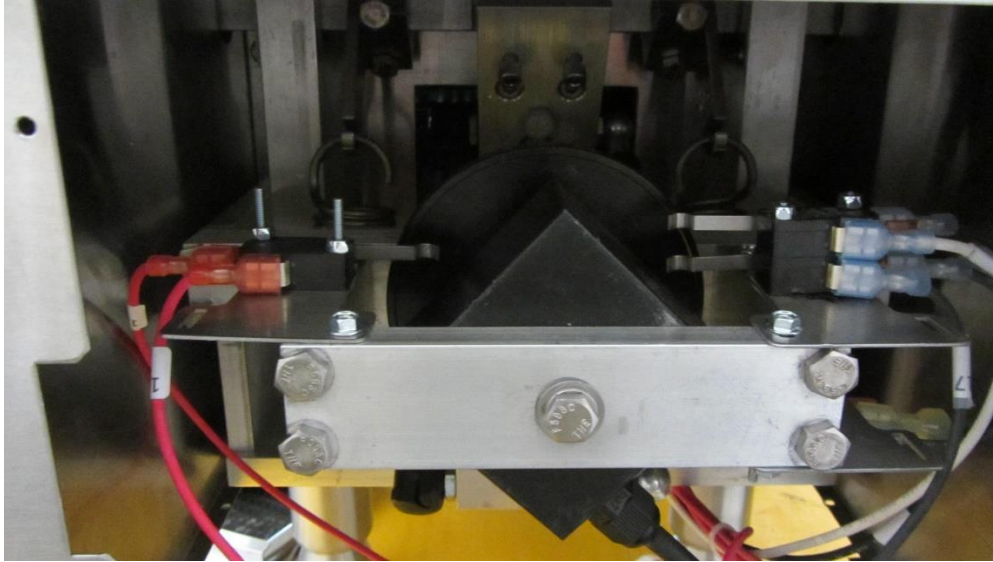


MAGNETRONS - MAGNETRON HIGH LIMIT SWITCHES - HEATER PLATE  
RELEASE MECHANISM & HEIGHT ADJUSTMENT COLLAR



MAGNETRON COOLING FANS - UPPER HEATER PLATE THERMOCOUPLE  
CONNECTION

REAR ENCLOSURE

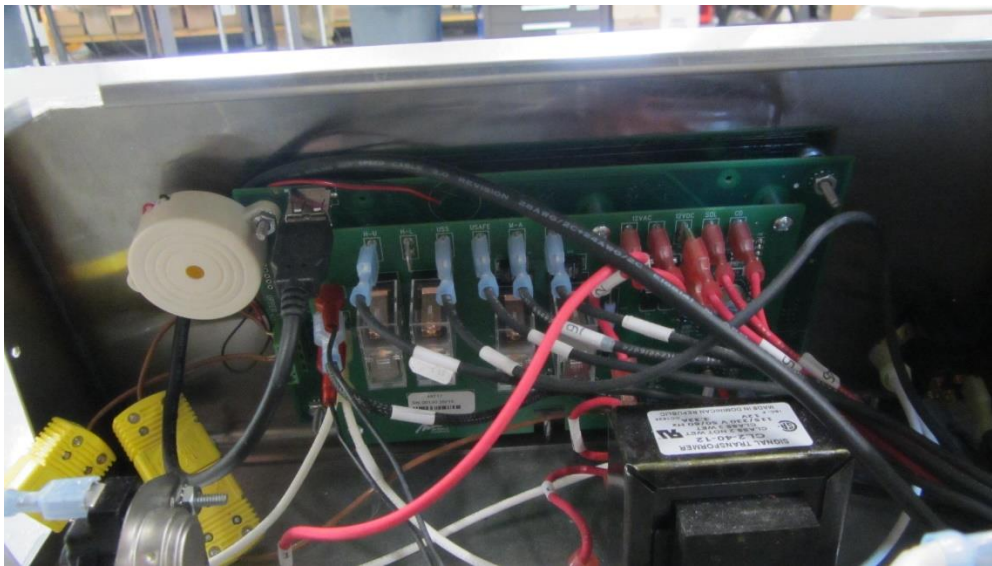


ELECTROMAGNET - MAGNET SWITCH – PRIMARY, SECONDARY, &  
INTERLOCK SWITCHES – LID SPRINGS – LID DAMPENER – GAS SHOCK

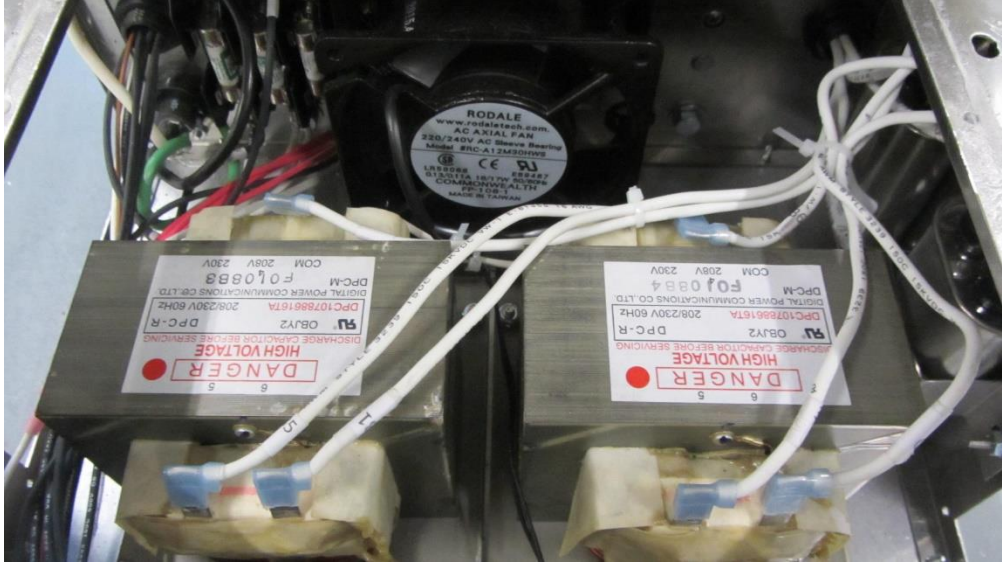
LOWER ENCLOSURE



LINE FUSES (30A) – INTERLOCK FUSE (20A)



CONTROL BOARD – BUZZER – 12V TRANSFORMER – HIGH LIMIT THERMOSTAT (MANUAL RESET) – FUSE, CONTROL BOARD (3A) – HEATER PLATE THERMOCOUPLE CONNECTIONS – POWER SWITCH



HIGH VOLTAGE TRANSFORMERS – COOLING FAN



CAPCITORS - DIODES

# MICROWAVE EMISSION TEST

## WARNING

Microwave emission testing must be performed after this appliance is serviced. The emission should be less than 5mW/cm<sup>2</sup>; contact NEMCO if the emissions is higher than 5mW/cm<sup>2</sup>. Written records must be taken of repairs made and of the emission readings that were taken to fulfill the requirements set by the DHHS and Canada's Health and Welfare regulation.

### Read all the below procedures and notes before checking the microwave emission level:

- A microwave survey meter that is calibrated to operate and measure at 2,450 MHz must be used.
- It is important to set survey meters to its highest operating range and then adjust to lower scales to ensure that emission readings are taken on the most sensitive scale.
- All microwave survey meter probes must be held on the handle grip area. Holding the probes outside this area could affect the emission readings.
- When checking emissions, the probe should not be moved any faster than 1 inch/second (2.5 cm/second) with meter set to its fastest response setting.
- Always hold the probe at a right angle from area being measured using the Styrofoam cone to space the probe from the point being measured.
- Microwave leakage should not be higher than 5.0mW/cm<sup>2</sup>.

### Measuring procedure

1. Make sure a copy of the customer's menu is available; create a menu with the menu temperature and warm up temperature set to 60, and with only one stage set to 60 seconds with both magnetrons set to "On". Load this into the sandwich press (**Note:** loading a menu file into the control will erase the previously stored menu files).
2. Put 275mL of cold water in a glass or ceramic bowl that is small enough to allow the sandwich press to close.
3. Place the bowl of water in the center of the cavity.
4. Verify that the microwave leakage meter is on and set correctly.
5. Press the menu button that corresponds to the newly created menu and close the lid.
6. Wait 5 seconds after the menu begins and then start checking the microwave emissions.
7. If more time is needed after the menu cycle ends; replace the water and run the menu again.
8. Record the maximum leakage reading and reprogram the sandwich press with the customers menu.
9. Verify that the appliance preheats and functions properly before returning its operation back over to the customer.

# COMPONENT TESTING (Page 1)

## WARNING

The microwave circuit in this appliance is extremely dangerous. DO NOT take any voltage measurements from the magnetron, HV capacitor, HV transformer, or filament transformer while the sandwich press is running. Doing so could result in serious injury or DEATH!

## WARNING

The HV capacitors hold a high voltage charge even when the appliance is not running a menu cycle and for a short period of time after the sandwich press is unplugged. Disconnect the oven from incoming power before attempting any repairs.

**SEE SAFETY INSTRUCTIONS**

## HV Transformer Test Method

1. Disconnect the sandwich press from its power source.
2. Discharge the HV capacitors.
3. Disconnect all connections from the HV transformer.
4. Use a digital multi-meter to check the resistance of the windings and compare them to the below chart.

208V Winding between #1 and #2	Approximately 1 $\Omega$
240V Winding between #1 and #3	Approximately 1 $\Omega$
High Voltage Winding between Ground	Approximately 61 $\Omega$

## Filament Transformer Test Method

1. Disconnect the sandwich press from its power source.
2. Discharge the HV capacitors.
3. Disconnect all connections from the Filament transformer.
4. Use a digital multi-meter to check the resistance of the windings and compare them to the below chart.

Filament Winding (check terminals on end of wires)	Less than 1 $\Omega$
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# COMPONENT TESTING (Page 2)

## WARNING

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## WARNING

The HV capacitors hold a high voltage charge even when the appliance is not running a menu cycle and for a short period of time after the sandwich press is unplugged. Disconnect the oven from incoming power before attempting any repairs.

**SEE SAFETY INSTRUCTIONS**

## High Voltage Capacitor Test Method

1. Disconnect the sandwich press from its power source.
2. Discharge the HV capacitors.
3. Disconnect all connections from the HV capacitor.
4. Use a digital multi-meter to check the resistance and compare them to the below chart.

Between Terminals	Approximately 10 MΩ and/or 1uF
Between Each Terminal and Capacitor Body	Open Circuit

## Magnetron Test Method

1. Disconnect the sandwich press from its power source.
2. Discharge the HV capacitors.
3. Disconnect all connections from the magnetron.
4. Use a digital multi-meter to check the resistance and compare them to the below chart.

Between Terminals	Less than 1 Ω
Between Each Terminal and Magnetron Body	Open Circuit

## High Voltage Diode Test Method

1. Disconnect the sandwich press from its power source.
2. Discharge the HV capacitors.
3. Disconnect all connections from the HV diode.
4. Use a 500V resistance meter to check the resistance and compare them to the below chart.

Conducts only one way	Pass
Open circuit both ways	Fail
Short circuit both ways	Fail
Conducts one way, but leaks some the other way	Fail

# COMPONENT TESTING (Page 3)

## WARNING

The microwave circuit in this appliance is extremely dangerous. DO NOT take any voltage measurements from the magnetron, HV capacitor, HV transformer, or filament transformer while the sandwich press is running. Doing so could result in serious injury or DEATH!

## WARNING

The HV capacitors hold a high voltage charge even when the appliance is not running a menu cycle and for a short period of time after the sandwich press is unplugged. Disconnect the oven from incoming power before attempting any repairs.

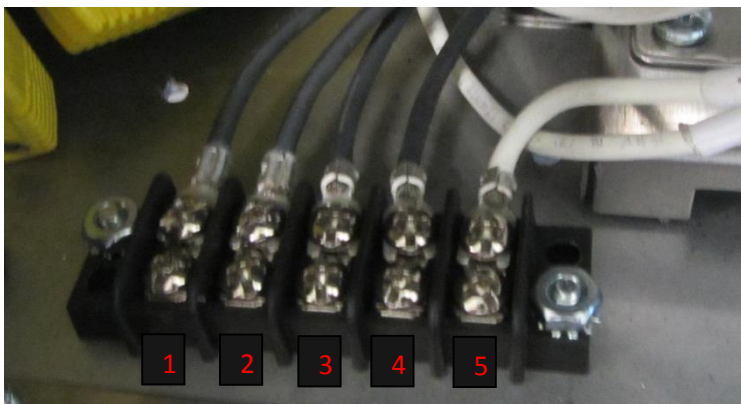
## SEE SAFETY INSTRUCTIONS

### Upper & Lower Heater Relay Test Method

1. Remove the right side access panel.
2. Measure voltage across position 1 on terminal block and neutral, position 5, on terminal block for upper heater plate. Line voltage should be present during Pre-Heat.
3. Measure voltage across position 2 on terminal block and neutral, position 5, on terminal block for lower heater plate. Line voltage should be present during Pre-Heat.

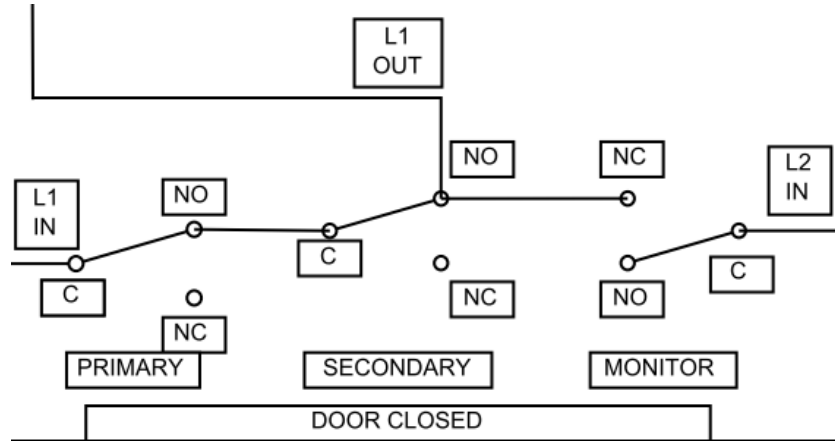
### Interlock System Test Method

1. Remove the right side access panel.
2. Measure voltage across position 3 on terminal block and neutral, position 5, on terminal block. Line voltage should be present at all times while press is on.
3. Place a damp towel on lower heater plate and select a menu.
4. Pull lid down to start the cook cycle. While cycle is running, measure voltage across position 4 on terminal block and neutral, position 5, on terminal block. Line voltage should be present while the press is in operation. Once lid opens, no line voltage should be present.



# DOOR INTERLOCK SWITCH ADJUSTMENT (P. 1)

The microwave circuit goes through an interlock switch system of 2 interlock switches and 1 monitor switch that prevents the generation of microwaves when the upper enclosure is open.



## Primary and Secondary Interlock Switches

All of the L1 line voltage for the microwave circuits goes through the primary and secondary switches. The primary switch will open the circuit when the door is open, thus eliminating the L1 supply to the transformers. The secondary switch opens the circuit in the event that the primary switch has failed closed.

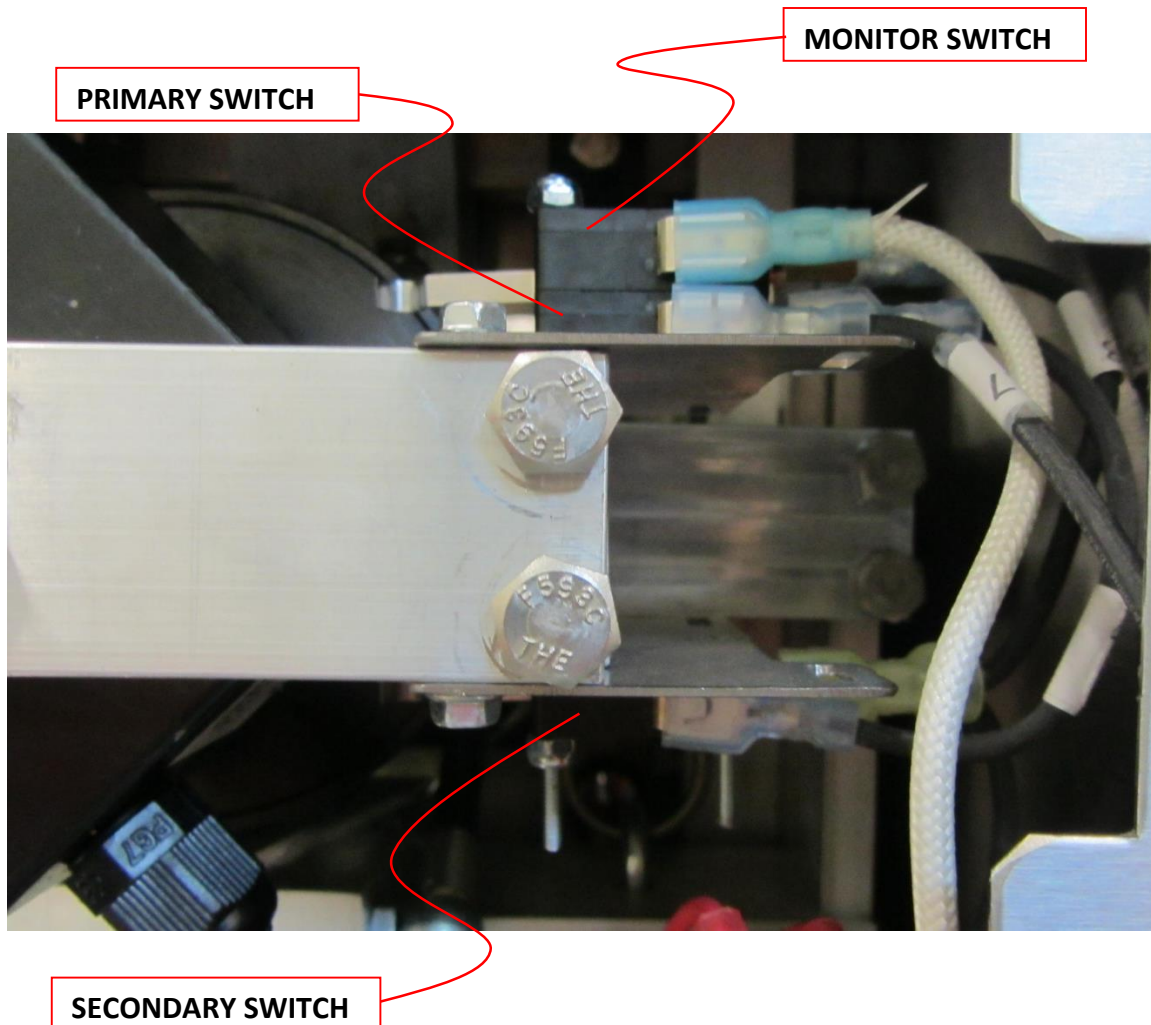
## Monitor Switch

The monitor switch will send L2 to L1 that is coming from the secondary switch in the event that both the primary and secondary switches have failed closed, which will create a short circuit and will blow the microwave fuse and/or the main fuses. This will disable the generation of microwaves.

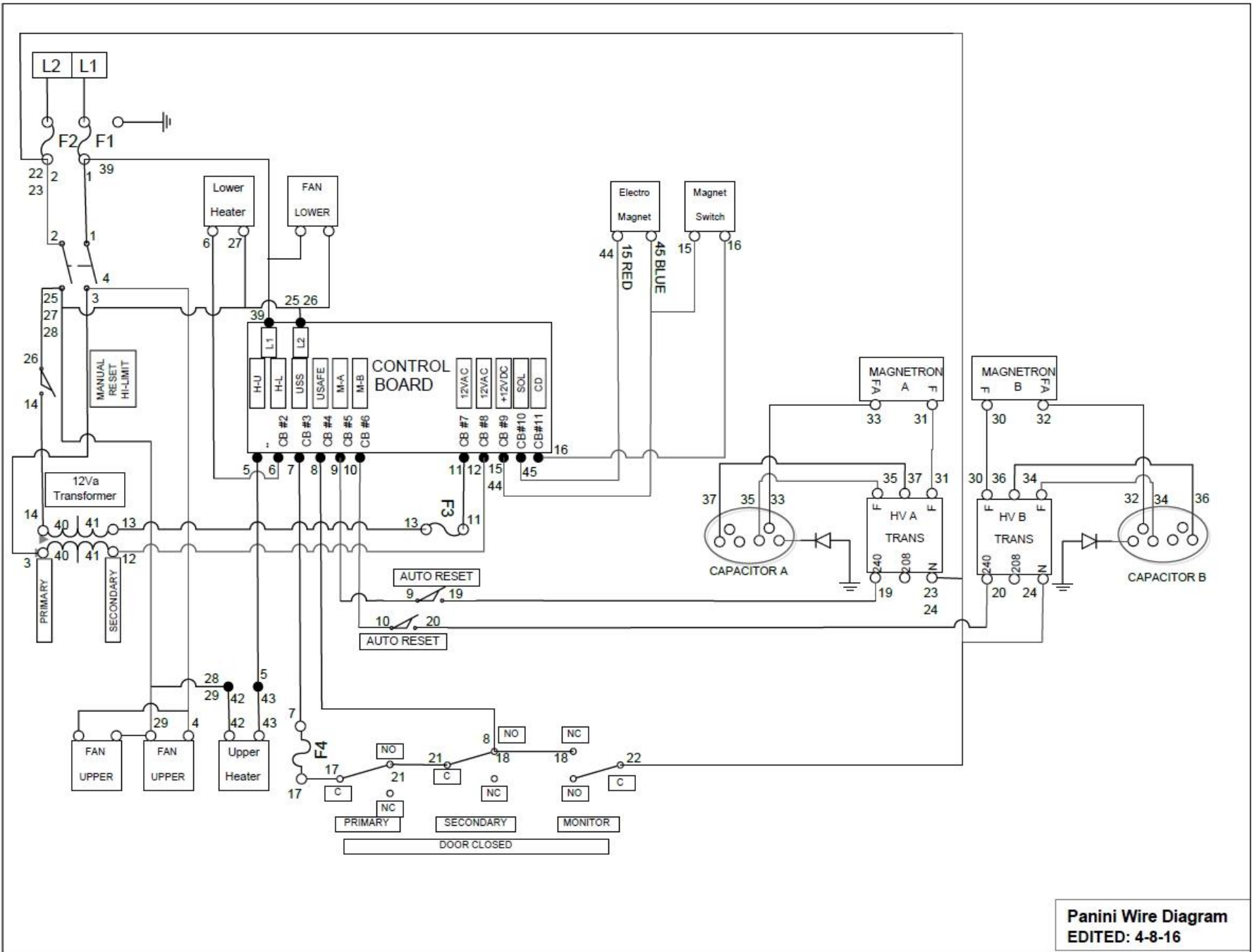
## Note:

In the event that the microwave fuse has blown, then the fuse and all the interlock switches MUST be replaced (switches may have been damaged from the high current from the short) and reset before returning operation of the oven to the user.

# DOOR INTERLOCK SWITCH ADJUSTMENT (P. 2)



1. Disconnect the press from the power supply.
2. Loosen (2) screws on each of the switch brackets.
3. Place a ½" spacer on the front ledge of the press and pull down the lid.
4. With the lid pulled down push the bottom switch bracket in towards the magnet disc until it is engaged. After the switch is engaged, tighten down both screws.
5. Replace the ½" spacer with a ¼" spacer.
6. Pull the lid back down and push the top switch bracket in until both switches are engaged.
7. Once the switches are engaged, tighten down the screws on the switch bracket.



**Panini Wire Diagram**  
 EDITED: 4-8-16

# TROUBLE SHOOTING GUIDE

<i>SYMPTOM</i>	<i>POSSIBLE CAUSE</i>
No power	Check to ensure press is plugged in. Check wall receptacle for power & proper voltage. Check 30A line fuses.
Press has power, but board is not lit	Check 3A control board fuse. Check manual reset high limit thermostat. Check wire connections on 12V transformer and control board.
Lid will not lock down	Ensure that all 4 legs are level. Be sure lid is being pulled all the way down. Ensure that magnet disc is contacting the magnet when the lid is down. Ensure control board is supplying power to magnet. Ensure magnet disc is engaging magnet switch. Ensure a recipe is selected before lid is being pulled down.
Lid locking, but cycle is not starting	Check to ensure interlock switches are all being engaged. Check 20A interlock fuse. Ensure lever arms on switches are not bent. Check interlock system.
Lid is not opening	Ensure lid is not rubbing on lower heater plate. Ensure springs are intact. Add magnet cover.
"Prob" error on board	Check all thermocouple connections.
Heater plates not heating	Check all electrical connections. Check resistance of both elements.
Low microwave power	Ensure HV Transformer is operating correctly. Ensure capacitor is functional. Ensure diode is functional. Ensure wave guide glass is clean and free of debris. Ensure top cooling fans are running and hi-limit switches are closed.
Bread not toasting	Ensure heater plates are both functioning. Ensure that top plate is making contact with bread.
"Err" code on board	Refer to error code label or error code table.