

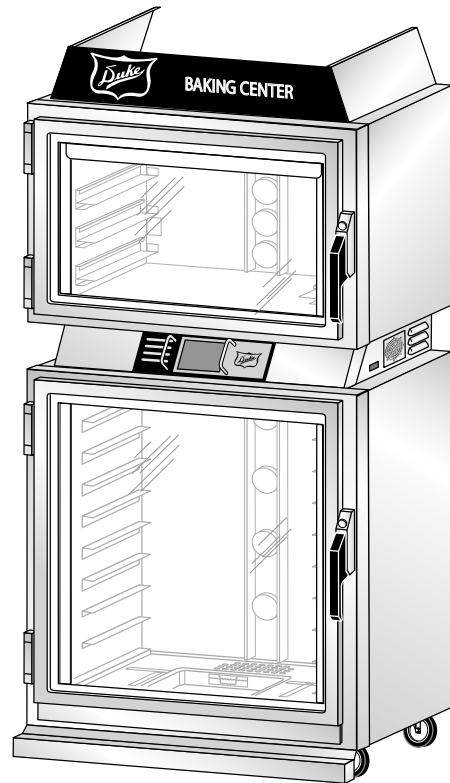


*Your Solutions Partner*

# PROOFER OVEN WITH TOUCH SCREEN CONTROLS (TSC)

MODELS

TSC-6/18



**Please read this manual completely before attempting to install, operate or service this equipment.**

This document is prepared for trained Duke service technicians. It is not to be used by anyone not properly qualified to perform these procedures.

This Service Manual is not all encompassing. If you have not been trained on servicing this product, be sure to read the manual completely before attempting servicing. Be sure all necessary tools, test equipment, and skills are available. Those procedures for which you do not have the proper skills and test equipment must be performed only by a qualified Duke trained service technician.

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## IMPORTANT WARNING AND SAFETY INFORMATION

THIS MANUAL HAS BEEN PREPARED FOR PERSONNEL QUALIFIED TO INSTALL ELECTRICAL EQUIPMENT, WHO SHOULD PERFORM THE INITIAL FIELD STARTUP AND ADJUSTMENTS OF THE EQUIPMENT COVERED BY THIS MANUAL.

READ THIS MANUAL THOROUGHLY BEFORE OPERATING, INSTALLING OR PERFORMING MAINTENANCE ON THE EQUIPMENT.

**⚠ WARNING** FAILURE TO FOLLOW ALL THE INSTRUCTIONS IN THIS MANUAL CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

**⚠ WARNING** IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

**⚠ WARNING** ELECTRICAL CONNECTIONS SHOULD BE PERFORMED ONLY BY A CERTIFIED PROFESSIONAL.

**⚠ WARNING** ELECTRICAL AND GROUNDING CONNECTIONS MUST COMPLY WITH THE APPLICABLE PORTIONS OF THE NATIONAL ELECTRIC CODE AND/OR ALL LOCAL ELECTRIC CODES. FAILURE TO COMPLY WITH THIS PROCEDURE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

**⚠ WARNING** BEFORE CONNECTING THE UNIT TO THE ELECTRICAL SUPPLY, VERIFY THAT THE ELECTRICAL AND GROUNDING CONNECTIONS COMPLY WITH THE APPLICABLE PORTIONS OF THE NATIONAL ELECTRIC CODE AND/OR OTHER LOCAL ELECTRICAL CODES. FAILURE TO COMPLY WITH THIS PROCEDURE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

**⚠ WARNING** BEFORE CONNECTING THE UNIT TO THE ELECTRICAL SUPPLY, VERIFY THAT THE ELECTRICAL CONNECTION AGREES WITH THE SPECIFICATIONS ON THE DATA PLATE. FAILURE TO COMPLY WITH THIS PROCEDURE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

**⚠ WARNING** UL73 GROUNDING INSTRUCTIONS: THIS APPLIANCE MUST BE CONNECTED TO A GROUNDED, METAL, PERMANENT WIRING SYSTEM. OR AN EQUIPMENT-GROUNDING CONDUCTOR MUST BE RUN WITH THE CIRCUIT CONDUCTORS AND CONNECTED TO THE EQUIPMENT-GROUNDING TERMINAL OR LEAD ON THE APPLIANCE. FAILURE TO COMPLY WITH THIS PROCEDURE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

**⚠ WARNING** APPLIANCES EQUIPPED WITH A FLEXIBLE ELECTRIC SUPPLY CORD, ARE PROVIDED WITH A THREE-PRONG GROUNDING PLUG. IT IS IMPERATIVE THAT THIS PLUG BE CONNECTED INTO A PROPERLY GROUNDED THREE-PRONG RECEPTACLE. FAILURE TO COMPLY WITH THIS PROCEDURE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

**⚠ WARNING** IF THE RECEPTACLE IS NOT THE PROPER GROUNDING TYPE, CONTACT AN ELECTRICIAN. DO NOT REMOVE THE GROUNDING PRONG FROM THE PLUG. FAILURE TO COMPLY WITH THIS PROCEDURE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

**⚠ WARNING** BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS PERFORM THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY WITH THIS PROCEDURE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

**⚠ WARNING** BEFORE REMOVING ANY SHEET METAL PANELS OR SERVICING THIS EQUIPMENT, ALWAYS PERFORM THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. BE SURE ALL CIRCUITS ARE DISCONNECTED. FAILURE TO COMPLY WITH THIS PROCEDURE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

**⚠ WARNING** DO NOT OPERATE THIS EQUIPMENT WITHOUT PROPERLY PLACING AND SECURING ALL COVERS AND ACCESS PANELS. FAILURE TO COMPLY WITH THIS PROCEDURE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

**⚠ WARNING** DO NOT USE OR STORE GASOLINE OR OTHER FLAMMABLE VAPORS OR LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

**⚠ WARNING** IN THE EVENT OF A POWER FAILURE, DO NOT ATTEMPT TO OPERATE THIS APPLIANCE. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

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## INTRODUCTION

### INSTALLATION

For detailed installation instructions, refer to the Owner's Manual (512792).

### OPERATION

For specific operating instructions, refer to the Owner's Manual (512792).

### CLEANING

For specific instructions, refer to the Owner's Manual (512792).

### SEQUENCE OF OPERATION

For specific instructions, refer to the Owner's Manual (512792).

### TOOLS

#### STANDARD

- Standard set of hand tools.
- Insulated Trim Pot Screwdriver
- VOM with AC current tester. (Any quality VOM or DVM with a sensitivity of at least 20,000 Ohms per Volt can be used.)
- A ladder or other appropriate item to stand on, if servicing the top of the unit.

## SPECIFICATIONS

US and Foreign Patents Pending TSC Model






Shipping Weight: Carton Box: 637 lbs / 288 kg

Shipping Weight: Wooden Crate: 772 lbs / 350 kg

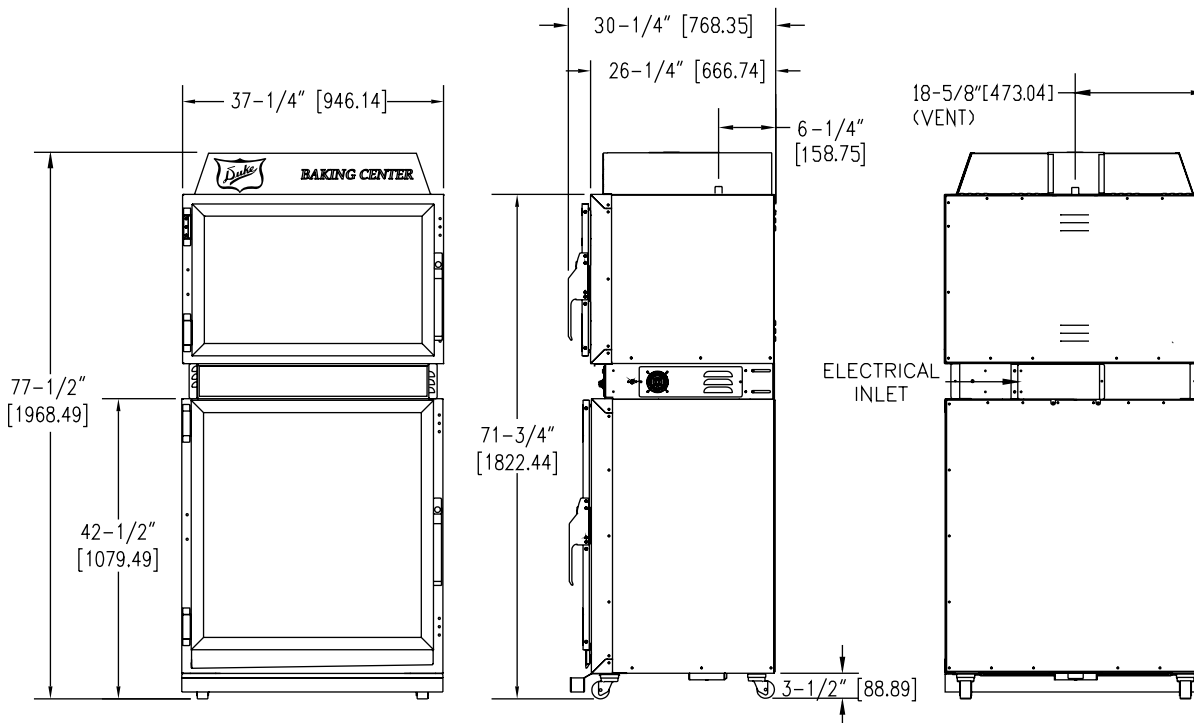
### Electrical Specifications

AC VOLTAGE	HZ	PHASE	WATTS	AMPERAGE
208	60	1	6650	32
208	60	3P	6650	32 ▲1
240	50/60	1	7200	30
240	60	3P	7200	30 ▲1
380 – 415	50	3N	7200	30 ▲2
▲1: L1<15A, L2<15A, L3<25A		▲2: L1<15A, L2<15A, L3<15A, N=Common		

**Compliance Declaration**

	Standard: UL197	File: KNGTE17421
	Standard: CSA-C22.2 No. 109	File: KNGT7.E17421
	Standard: ANSI / NSF 4	File: TSQT.E157479
	Directive 2006/95/EC: EN60335 -1:2002, A1, A2, A11, A12 EN 60335-2-42:2003	Directive 89/336/EEC: EN61000-6-1 EN61000-6-3
	WEEE RoHS Directive 2002/96/EC	

**Dimensions**



## REMOVAL AND REPLACEMENT OF COMPONENTS

### ELECTRICAL LOCKOUT/TAGOUT PROCEDURE



#### WARNING

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

The Electrical LOCKOUT/TAGOUT Procedure is used to protect personnel working on an electrical appliance. Before performing any maintenance or service that requires exposure to electrical components, follow these steps:

1. In electrical box, place appliance circuit breaker into OFF position.
2. Place a lock or other device on electrical box cover to prevent someone from placing circuit breaker ON.
3. Place a tag on electrical box cover to indicate that appliance has been disconnected for service and power should not be restored until tag is removed by maintenance personnel.
4. Disconnect appliance power cord from electrical outlet.
5. Place a tag on the cord to indicate that unit has been disconnected for service and power should not be restored until tag is removed by maintenance personnel.

### COVERS AND PANELS



#### WARNING

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

**CAUTION: Interior components and surfaces may be hot if the unit has been in recent use.**

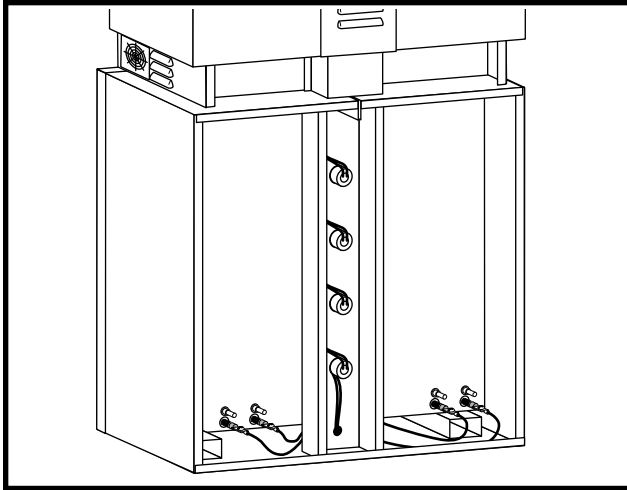
General Service Note: During its installation, this unit is required to be secured to the building structure. There is also a Restraining Device (a heavy, flexible metal cable) that was installed to prevent the unit from moving beyond a certain distance in order to prevent damage to the electrical conduit feeding it. Most service can be accomplished without moving the unit from its mounted position. However, if the unit is moved during service, then these securing devices must be reinstalled for continued protection against tip-over and to meet other compliance regulations.

### Proofer Rear Panel



#### WARNING


**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**



**Figure 1: Proofer – Rear Panel Removed**

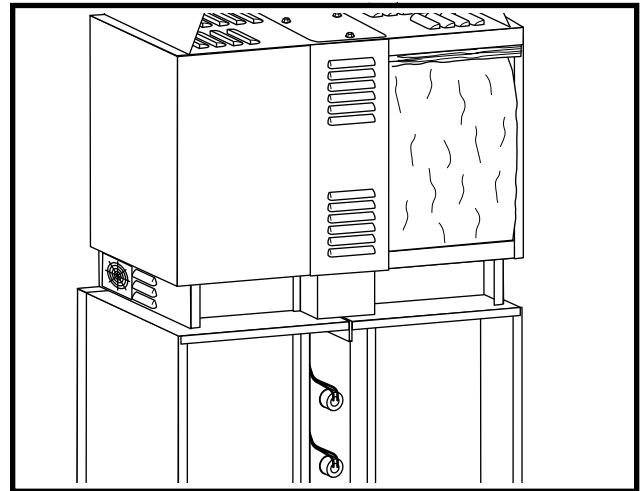
1. Place the unit's Power Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove all of the self-tapping sheet metal screws that secure the Rear Panel to the Proofer. Set aside for reuse.
3. Remove the Rear Panel to gain access to the components located at the rear of the Proofer.

**Oven Rear Panels**

 **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

The oven section of the unit has three rear panels. The Center Panel provides access to the Oven Light Fixtures and Oven Light Fixture wiring harness. Right and Left Panels provide access to the Oven Burner Element connections and Element wiring harnesses.




**Figure 2: Oven – Right Side Panel Removed**

1. Place the unit's Power Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the screws securing the Center Panel. Retain for reuse.
3. Remove the Center Panel to gain access to Light Fixtures and wiring harness.

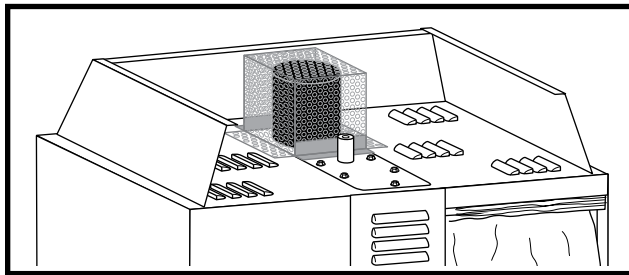
**Note:** The Center Panel side screws must be removed when removing either of the side panels.

4. Remove the screws securing the Side Panels. Retain for reuse.
5. Carefully remove the insulation to access to the Oven Burner Element connections and Oven Burner Element wiring harness. Retain the insulation for reuse.

### Oven Fan Cage and Wire Harness Cover

 **WARNING**


**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**



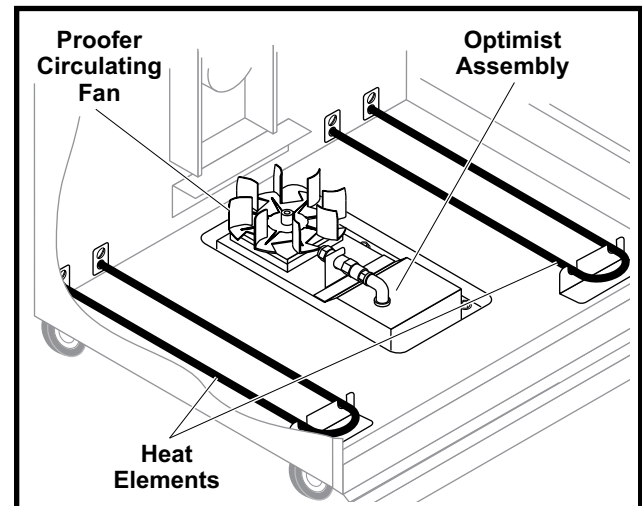
**Figure 3: Oven Fan Cage and Wire Harness Cover**

1. Place the unit's Power Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the four screws securing the Oven Fan Cage to top of the unit. Retain for reuse.
3. Remove the cage to gain access to the Oven Fan Motor.
4. Remove the screws securing the Oven Fan Wire Harness Cover to the top of the unit. Retain for reuse.
5. Remove the Oven Fan Wire Harness Cover to gain access to the wiring harness and connections.

### Proofer Floor Panel

 **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**




**Figure 4: View of Proofer Components with Floor Panel Removed**

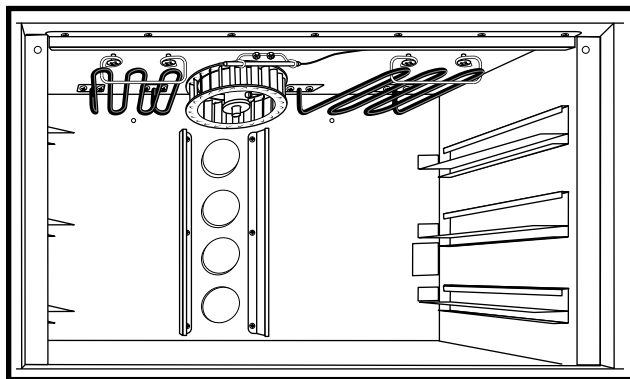
1. Place the unit's Power Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the screws securing the Proofer Floor Panel.
3. Slide the panel out through the front of the unit being careful not to damage the fan blades or optimist nozzle.

Access to the Proofer Heater Elements, Opti Mist Assembly, Proofer Circulating Fan is available with the Proofer Floor Panel removed.

### Oven Ceiling Panel

 **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**




**Figure 5: View of Oven Components with Ceiling Panel Removed**

1. Place the unit's Power Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the Oven Racks
3. Remove the screws securing the panel. Retain screws for reuse.
4. It may be necessary to pry the panel forward from the front of the unit. Be careful not to damage the fan blade when removing the panel.

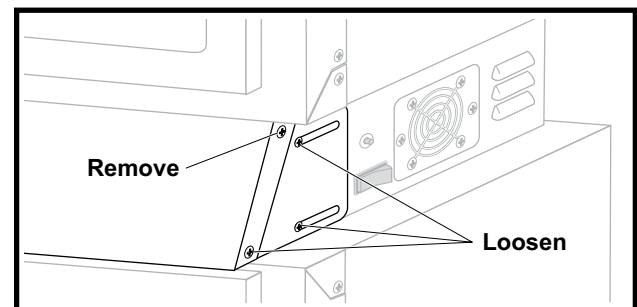
Access to Oven Heating Elements, Fan Blade, Oven RTD and Hi Limit Thermostat, is available with the Oven Ceiling Panel removed.

### Electrical Compartment Access Panel

 **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

It is not necessary to move the unit to gain access to the Electrical Component Compartment. It might become necessary to remove the unit from the wall if troubleshooting leads into other areas. Refer to the specific component section of this manual when replacing a component in the Electrical Compartment.

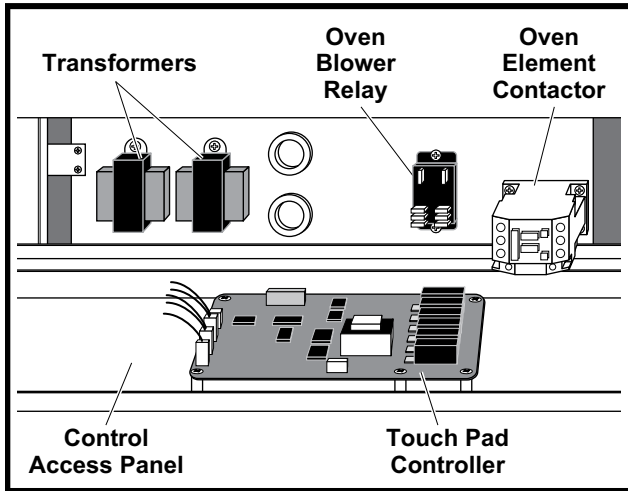


**Figure 6: Electrical Compartment Access Panel Screw Locations**

1. Place the unit's Power ON/OFF Switch in its OFF position and follow the proper Lockout/Tagout procedures.
2. Refer to the drawing and loosen the appropriate screws.
3. Also, referring to the drawing remove the two screws at the top of the Control Access Panel.
4. Pull the panel forward then pivot it downward.

**CAUTION: DO NOT power on the unit while the Control Panel is in the open position.**

- To troubleshoot for problems, use visual checks, an Ohmmeter, the proper Schematic for the version of the unit being serviced.




**Figure 7: Electrical Compartment Components**

**CAUTION: When closing the Control Panel, make sure that wires do not become pinched between the Control Panel and the cabinet surfaces.**

- Reverse steps 2 through 4 to secure the Control Access Panel.

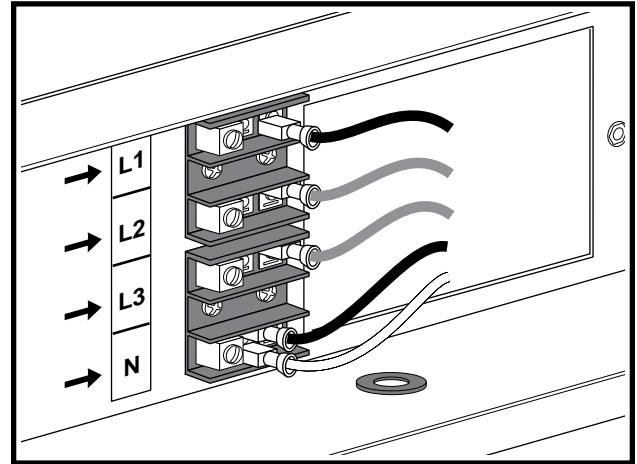
**AC Power Access Panel**

 **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

The AC Power Access Panel is located at the rear of the unit. It may be necessary to move the unit to gain access to this area. This unit makes use


of a restraining device to protect the power cable and water supply line.




**Figure 8: AC Access and Connect Block with Cover Removed**

- Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
- Remove the three screws securing the panel to the unit to gain access to the AC Power Connect Block.

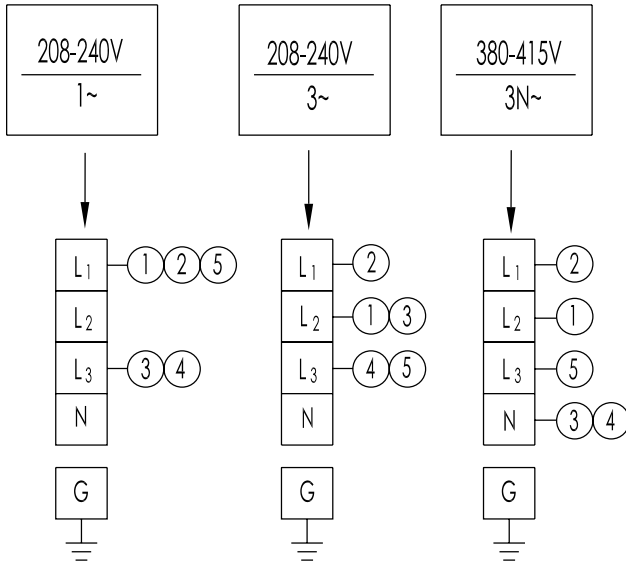
**AC INPUT VOLTAGE WIRING CONNECTIONS**

 **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

 **WARNING**

**IF ALUMINUM AC SUPPLY WIRE IS PRESENT, THE UNIT IS NOT PROPERLY WIRED AND MUST BE TAKEN OUT OF SERVICE UNTIL IT IS PROPERLY REWIRED USING COPPER WIRE.**

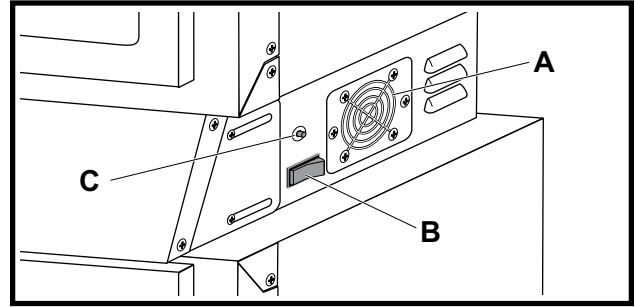


**Figure 9: Possible Wiring Block Configurations**

**Note:** Also refer to the TSC OVEN LINE SUPPLY WIRING diagrams at the back of this manual.


1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the AC Connect Block Cover Plate.
3. Use a Voltmeter to check for the presence of voltage.
4. With AC power removed and proper Lockout and Tagout procedures applied, ensure that the contacts on the connect block are properly tightened.

**Electrical Compartment Components**



**Figure 10: Cooling Fan, Power On/Off Switch and Hi Limit Thermostat**  
**A: Cooling Fan**  
**B: Power ON/OFF Switch**  
**C: Hi Limit Thermostat**

**Electrical Compartment Cooling Fan**

 **WARNING**


**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

This fan is mounted on the electrical compartment on the right side of the unit.

1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the two screws securing the Cooling Fan panel to the electrical compartment.
3. Tag and disconnect the cooling fan wires.
4. Remove the four nuts securing the fan to the panel. Retain the nuts for reuse.
5. Remove the fan.
6. Reverse this procedure to install the replacement fan.

7. Restore the unit to service and check for proper fan operation.

### Hi Limit Breaker




**WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

The Hi Limit Breaker is mounted above the ON/OFF Circuit Breaker on the right side of the electrical compartment.

1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the Electrical Compartment Cooling Fan to gain access to the Hi Limit Breaker.
3. Tag and disconnect the Hi Limit Breaker wires.
4. Remove the two screws securing the Hi Limit Thermostat.
5. Install the new Hi Limit Breaker.
6. Referring to the tags or the circuit schematic reconnect the Hi Limit Thermostat wires.
7. Reinstall the cooling fan.
8. Restore the unit to service and check for proper operation.

### ON/OFF Circuit Breaker




**WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

The ON/OFF Circuit Breaker is located next to the Electrical Compartment Cooling Fan on the right side of the unit.

1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the Electrical Compartment Cooling Fan to gain access to the Power ON/OFF Switch.
3. Tag and disconnect the Power ON/OFF Switch wires.
4. Crimp the spring tabs on the switch and push it out of the electrical compartment.
5. Feed the switch wires through the hole where the old switch was removed and reconnect them referring to the tags or circuit schematic.
6. Push the switch into the hole, making sure it locks into position.
7. Reinstall the cooling fan.
8. Restore the unit to service and check for proper operation.

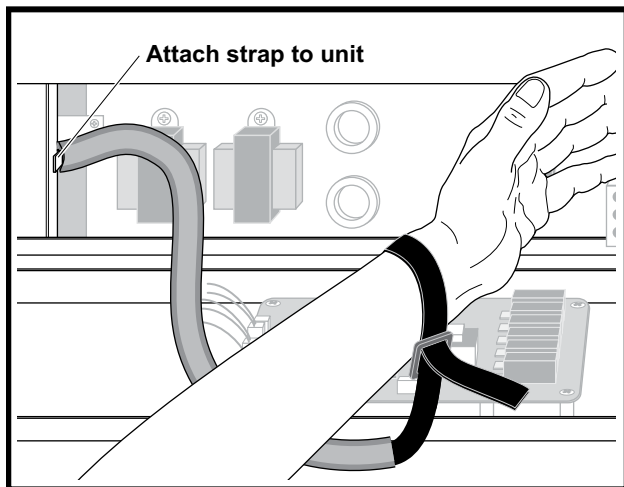
## Touchpad Controller

 **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

**CAUTION: An ESD Wrist Strap is required when replacing Touchpad Controller.**

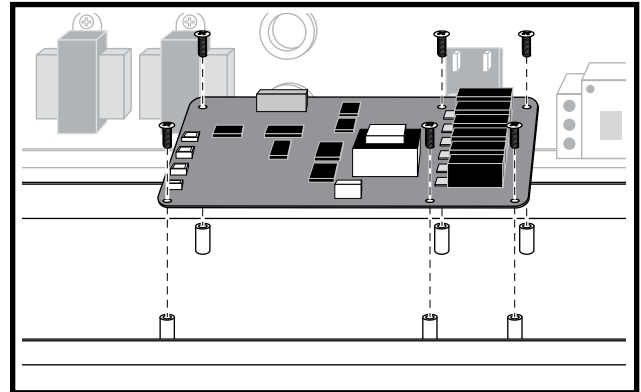
1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Open the Control Access Panel; refer to the Panels and Covers section of the manual for instructions.



**Figure 11: Properly Connected ESD Wrist Strap**

3. Properly connect the ESD Wrist Strap to the unit and secure it properly on the wrist.
4. Unplug all wire harnesses connected to the Touchpad Controller.

5. Remove the six screws securing the Touchpad Controller to the Control Access Panel.

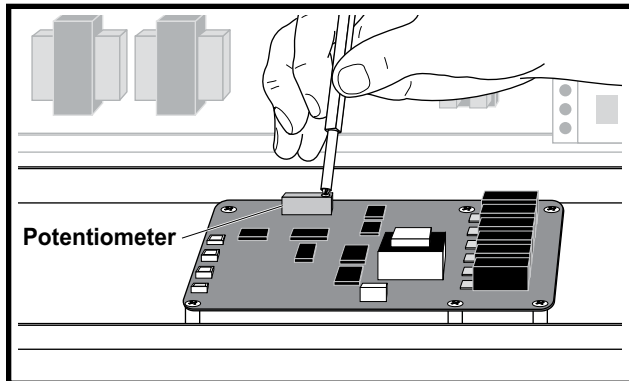


**Figure 12: Touchpad Controller**

6. Lift the Touchpad Controller off of its mounts.
7. Unpack the new Touchpad Controller; make sure the ESD wrist strap is properly attached for this procedure.
8. Attach the new Touchpad Controller; be sure to line up the screw holes properly. Do not over-tighten the screws.
9. Reconnect all of the Touchpad Controller's wire harnesses.
10. Close the Electrical Compartment Access Panel but DO NOT reattach or tighten the screws.
11. Restore power to the unit and ensure unit.
12. Place the Power ON/OFF Switch in its on position.
13. Touch the screen on the Touchpad Control to access the main menu.
14. Observe the brightness of the screen.
15. If screen brightness is OK, Place Power ON/OFF Switch in its OFF position, remove the ESD wrist strap from the unit, reattach the screws removed from the access panel and tighten the remaining screws.

If the brightness requires adjustment go to step 18.

16. Ensure ESD wrist device is properly connected before starting this procedure.
17. Place the Power ON/OFF Switch in its ON position and touch the Touchpad Controller to display the main menu.
18. Open Electrical Compartment Access Panel.



**Figure 13: Brightness Adjustment Potentiometer**

19. Using an insulated Trim Pot Screwdriver, turn Brightness Adjustment Potentiometer clockwise to darken the display or counterclockwise to brighten the display.

**CAUTION: DO NOT TURN THE ADJUSTMENT POTENTIOMETER ALL THE WAY IN EITHER DIRECTION AS THIS WILL CAUSE PERMANENT DAMAGE TO THE CONTROL BOARD.**

20. After the adjustment is complete, place the Power ON/OFF Switch in its OFF position.
21. Remove the ESD device, close the compartment, reattach and tighten all of the screws removed or loosened earlier.
22. Restore the unit to power and check it for proper operation.

**Note:** It may be necessary to program the new Touchpad Controller.

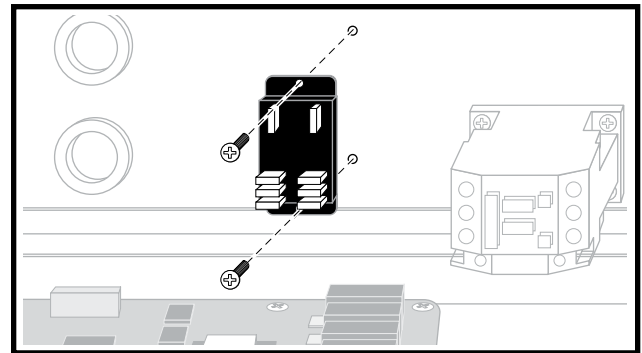
## Oven Blower Relay



**WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**


1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Open the Electrical Compartment Access Panel, refer to the Panels and Covers section of the manual for instructions.
3. Tag and disconnect the Oven Blower Relay wires.
4. Remove the screws securing the relay to the inner wall of Electrical Compartment.



**Figure 14: Oven Blower Relay**

5. Reusing the screws, attach the Oven Blower Relay to the inner wall of the Electrical Compartment.
6. Referring to the tags or the proper schematic connect the Oven Blower Relay wiring.
7. Restore power to the unit and verify that the Oven Blower Relay is working properly by Opening the Oven Door. The Oven Blower turn off when the door is opened.

**Proofer and Oven Light Transformers**

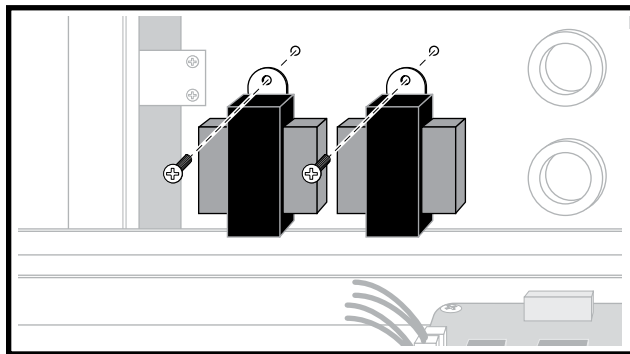
 **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

The Proofer and Oven lights use two separate transformers. Test the transformer in question before replacing it.

**Note:** The Proofer Lights are equipped with a circuit breaker that protects the transformer from overheating if lights with improper wattage ratings have been installed. Check this circuit breaker before replacing the transformer. Refer to the Proofer Lights Circuit Breaker section of this manual.


1. Place the Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Open the Electrical Compartment Access Panel, refer to the Panels and Covers section of the manual for instructions.
3. Tag and disconnect the failed transformer wires.
4. Remove the screws securing the transformer to the inner wall of Electrical Compartment.



**Figure 15: Proofer & Oven Light Transformers**

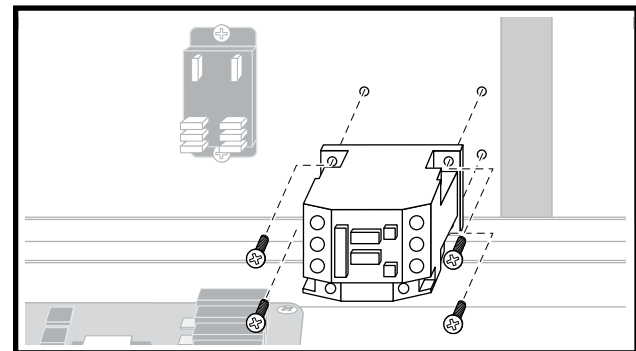
5. Reusing the screws, attach the new transformer to the inner wall of the Electrical Compartment.
6. Referring to the tags connect the new transformer's wiring.
7. Restore power to the unit and verify that the Proofer/Oven lights are working properly.

**Oven Element Contactor**

 **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**


1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Open the Electrical Compartment, refer to the Panels and Covers section of the manual for instructions.
3. Tag and disconnect the Oven Element Contactor wires.
4. Remove the screws securing the contactor to the inner wall of electrical compartment.



**Figure 16: Oven Element Contactor**

5. Reusing the screws, attach the new contactor to the inner wall of the electrical compartment.
6. Referring to the tags or the proper schematic connect the Oven Element Contactor wiring.
7. Restore power to the unit and verify that the Oven Elements are working properly.

### Oven Door Safety Switch



**WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

**Note:** The Oven Door Safety Switch is connected in series the Oven Blower Relay. Check both components for continuity before starting this procedure.

1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Open the electrical compartment; refer to the Panels and Covers section of the manual for instructions.
3. Tag and disconnect the Oven Door Safety Switch wires.
4. Remove the screws securing the safety switch to the oven frame.
5. Pull switch down and out of the Oven Frame.
6. Reverse this procedure to install a new Oven Door Safety Switch.
7. Restore power to the unit, turn the oven on and open the oven door. If the switch is working properly the oven blower will turn off and the oven lights will light.

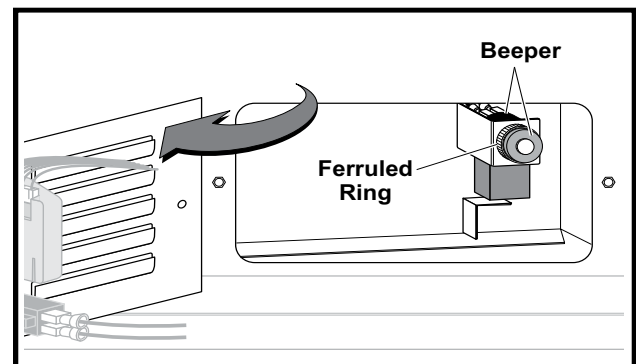
### Beeper


**WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

Beeper is located behind the louvered vent on the electrical compartment on the left side of the unit.


1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the two screws securing the louvered vent to the electrical compartment.
3. Move the louvered vent out of the way being careful not to damage the USB port wires or the Proofer Oven Lights Circuit Breaker.



**Figure 17: Beeper Location**

4. Unscrew ferruled ring on Beeper being careful not to twist the beeper and damage its wires.
5. Remove the Beeper from its mount.
6. Disconnect the wires.
7. Reverse this procedure to install the replacement Beeper.
8. Restore the unit's power and test the Beeper for proper operation.

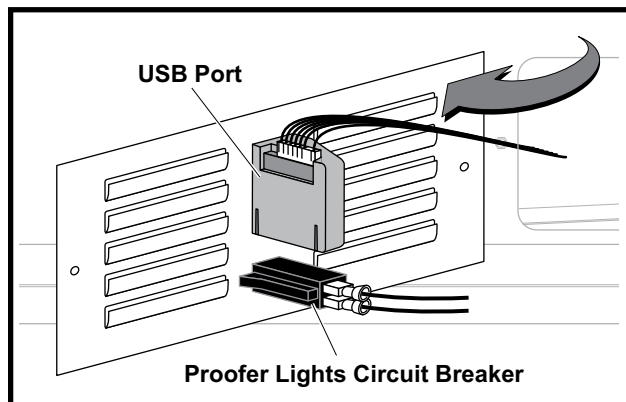
### Proofer Lights Circuit Breaker

 **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

Before changing the Proofer Lights Circuit check the Proofer Lights Transformer for continuity.


**Note:** The Proofer Oven Light Bulbs must not be larger the 10 Watts.



**Figure 18: Proofer Lights Circuit Breaker and USB Port**

1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the two screws securing the louvered vent to the electrical compartment.
3. Disconnect Proofer Lights Circuit Breaker Wires.
4. Crimp the flanges on both sides of the breaker and push it off of the louvered panel.
5. Reverse this procedure to install the new Proofer Lights Circuit Breaker.
6. Restore the unit to it's power source and check for proper Proofer Lights operation.

### USB Port


 **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

The USB port is located on the louvered vent on the left side of the electrical compartment.

1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the two screws securing the louvered vent to the electrical compartment.
3. Refer to figure 18 and unplug the wire harness to the USB port.
4. Crimp the flanges on both sides of the USB Port and push it off of the louvered panel.
5. Reverse procedure to install new USB Port.
6. Restore the unit to it's power source and check the USB Port for proper operation.

### Proofer and Oven Halogen Lamps

 **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**



**WARNING**

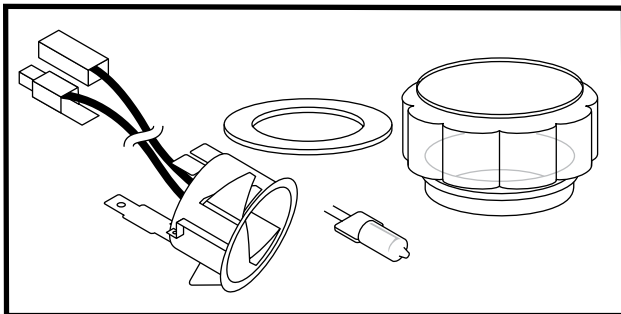
**THE UNIT MAY BE HOT, ALLOW IT TO COOL FOR AT LEAST 30 MINUTES BEFORE PROCEEDING.**

**CAUTION:** Avoid touching the glass envelope of a Halogen bulb with your fingers as this will cause premature failure of the bulb. If the bulb has been touched, clean it off with an alcohol wipe.



**WARNING**

**REPLACEMENT BULBS MUST NOT EXCEED 10 WATTS. HIGHER WATTAGE BULBS WILL CAUSE DAMAGE TO THE TRANSFORMERS.**



**Figure 19: Halogen Lamp Assembly**

Replacing an internal Lamp does not require removal of any panels or covers.

1. Place the Power ON/OFF Switch in its OFF position.
2. Unscrew and remove the Lens Cover and Lens Gasket.
3. Unplug the failed bulb.
4. Insert the new bulb into its socket, avoid touching the glass bulb with your fingers. Use a cloth or cloth gloves when installing a new bulb. If bulb is touched use an alcohol wipe to clean it.

5. Briefly turn unit on and check for proper bulb lighting.
6. Turn unit off.
7. Place the Lens Gasket on the Lens Cover. Make sure it is centered properly. If Lens Gasket is damaged replace it.
8. Screw the Lens Cover over the Bulb tight making sure the Lens Gasket seals against the Light Socket.
9. Replace any racks removed during this procedure.
10. Return the unit to service; ensure it is operating correctly.

**Proofer Heat Elements**

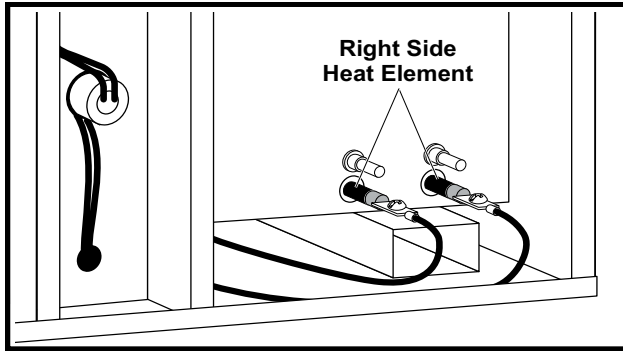


**WARNING**

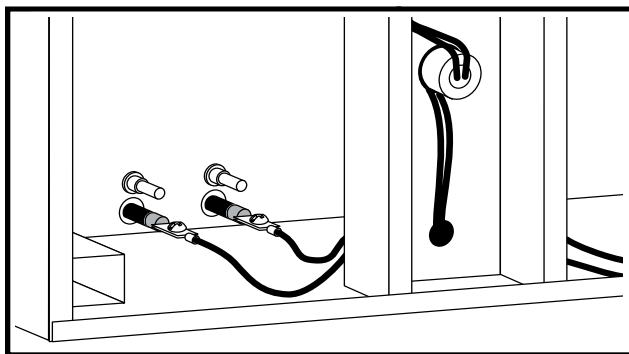
**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

There are two Heater Elements, one on the left rear and one on the right rear of the Proofer section. It is not necessary to replace both elements if only one has failed.

1. Remove the Proofer Rear Panel. Refer to the Panels and Covers section of this manual for specific instructions.
2. Remove the Proofer Floor Panel. Refer to the Panels and Covers section of this manual for specific instructions.
3. Tag and disconnect the wires from the suspect Proofer Heat Element.

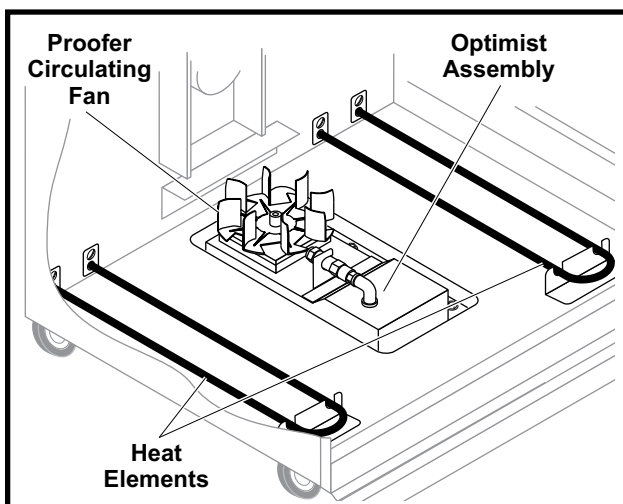


**Figure 20: Proofer Heat Element Connections – Right Side Rear**



**Figure 21: Proofer Heat Element Connections – Left Side Rear**


4. Using an Ohmmeter check for continuity; if element tests OK, repeat procedure on other element.
5. Remove two screws, one at each end of the heater element. Retain screws for reuse.



**Figure 22: Location of Proofer Heat Elements**

6. Pull the Proofer Heater Element away from the back wall.
7. Reverse the procedure to install the replacement Proofer Heater Element.
8. Tighten the heater element connections to 30 inch pounds torque.
9. Temporarily restore power to the unit and verify both Proofer Elements are working properly.
10. Place Power ON/OFF Switch back in the OFF position.
11. Replace the Proofer Floor Panel and Proofer Back Panel.
12. Restore the unit to its power source.

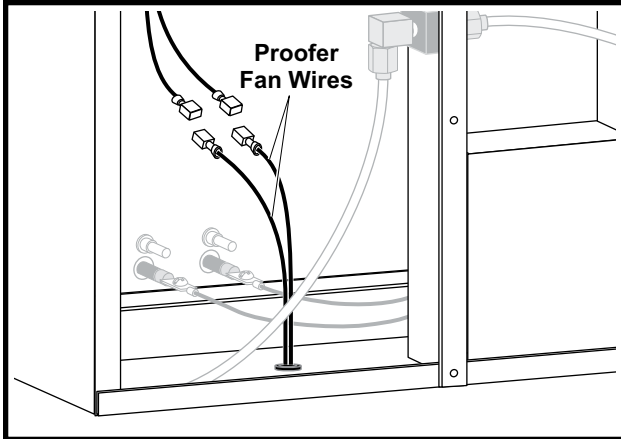
**Proofer Circulation Fan**

 **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

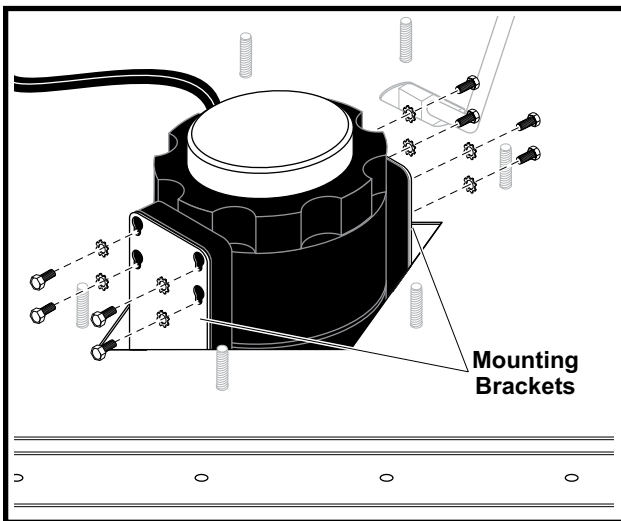
The Proofer Circulation Fan is located in the floor of the Proofer. The floor panel must be removed to gain access to the Proofer Circulation Fan.

1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the Proofer Floor Panel. Refer to the Panels & Covers section of this manual for specific instructions.
3. Remove the Proofer Back Panel. Refer to the Panels & Covers section of this manual for specific instructions.
4. Disconnect the Proofer Circulation Fan wires, located at the back of the Proofer.



**Figure 23: Circulation Fan Wires**


5. Using the correct Allen wrench remove the fan blade.
6. Remove the eight hex head screws that secure the fan and mister mounting plate to the floor of the proofer.
7. Using a putty knife carefully pry the mounting plate away from the silicone sealer used to seal it to the floor.
8. Carefully lift the mounting plate being careful not to damage the water line to the mister.



**Figure 24: Bottom View of Circulation Fan**

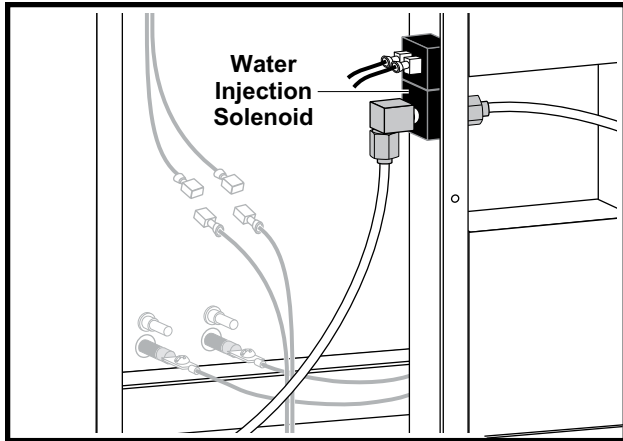
9. Remove the eight hex head screws that secure the fan motor to its mounting brackets and remove the fan. Make sure the silicone rubber grommet comes out with the fan.
10. Place the silicon rubber grommet on the shaft of the new fan motor.
11. Attached the motor to its mounting brackets.
12. Reinstall the mounting plate to the floor of the oven. Make sure the fan wires and the water line are not damaged during this operation. Use heat resistant silicone sealer on the mounting plate to prevent water leaks.
13. Reconnect the fan wires.
14. Temporarily restore the power to the unit and check for proper fan operation
15. Place the Power ON/OFF Switch back in the OFF position.
16. Reattach the rear panel.
17. Reattach the Proofer Floor.
18. Restore the unit to its power source.

### Water Injection Solenoid

 **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

The Water Injection Solenoid is located in the back of the unit if the Proofer section. Before replacing the Water Injection Solenoid try cleaning the Optimist Nozzle and filter. Water flow can be tested with the Optimist Nozzle removed, this should be done prior to replacing the Water Injection Solenoid



**Figure 25: Water Injection Solenoid Location**

1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the Proofer rear panel. Refer to the Panels & Covers section of this manual for specific instructions.
3. Turn off the water supply.
4. Disconnect the solenoid wires.
5. Remove water supply lines at the solenoid.
6. Remove Water Injection Solenoid from unit.
7. Install the new Water Injection Solenoid.
8. Reattach the water lines.
9. Reconnect the solenoid wires.
10. Turn water supply on and check for leaks.
11. Temporarily restore power to the unit.
12. Turn the unit on.
13. Check the Optimist Nozzle for water. This may take a few seconds as the system purges the air out of the water lines.
14. If OK, turn power off.
15. Reattach all panels.
16. Restore power to the unit and ensure it is operating correctly.

## Humidity Sensor

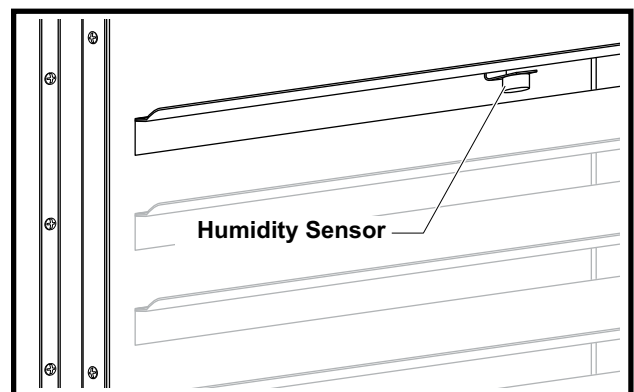


**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

\*OVENS MANUFACTURED PRIOR TO 2/21/2012 – Part numbers 512772 “Sensor, Relative Humidity” and 512780 “PCB Relative Humidity”, have been replaced by 512298 “ASM, Humidity Sensor”. Part number **600289** “Kit, TSC Relative Humidity Sensor Replacement”, is available as a replacement for these parts. The kit contains the components and instructions required to upgrade to the 512298 assembly.

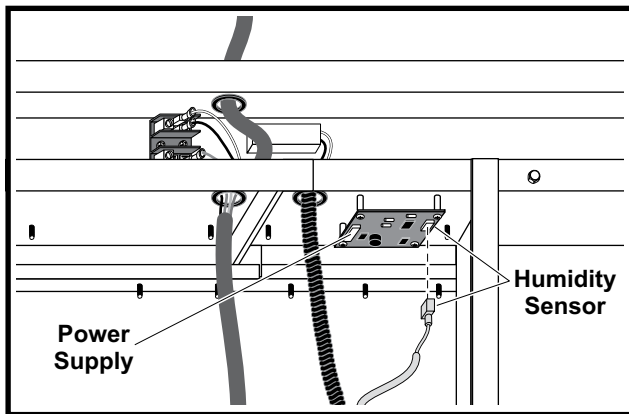
Also See Duke Publication 512017 “TSC 6/18 HUMIDITY PROBE REPLACEMENT INSTRUCTIONS FOR DUKE KIT #600289.

The Humidity Sensor is located inside the Proofer Cabinet on the upper left side of the inside wall.



**Figure 26: Location of Humidity Sensor**

1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the Proofer rear panel. Refer to the Panels & Covers section of this manual for specific instructions.
3. Remove the four screws securing the left side tray support panel and remove the panel.
4. Unplug the sensor from the Humidity PC Board. The PC board is mounted on the back of the unit just below the power connections.



**Figure 27: Location of the Humidity PC Board**

5. Carefully remove the old Humidity Sensor. It is secured to the side by two sheet metal screws.
6. Feed the new Humidity Sensor wires through the hole in the side wall and reattach the sheet metals screws.
7. Connect the sensor wires.
8. Reattach tray support and Proofer rear panel.
9. Restore the unit to its power source and verify it is operating correctly.

### Humidity PC Board



#### **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

The Humidity PC Board is found on the back of the unit just below the power connection. It is mounted on the underside of the Proofer top panel. See figure 27 for proper location.

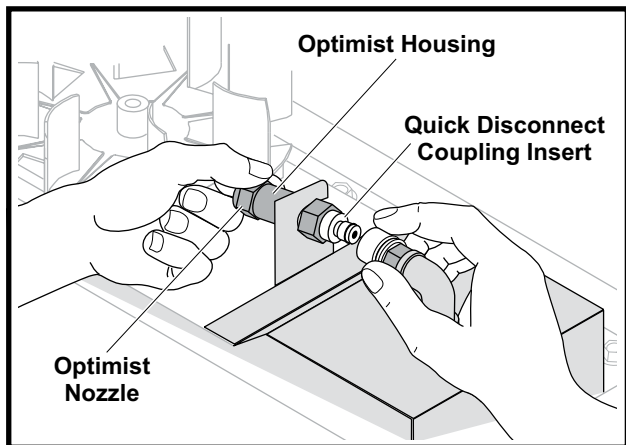
1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the Proofer rear panel. Refer to the Panels & Covers section of this manual for specific instructions.
3. Unplug the Humidity Sensor harness and the Power Supply Harness.
4. Remove four screws securing the Humidity PC Board to the unit. Remove PC board. Note: the risers may come off as well. Save these for reuse when installing the new PC board.
5. Install the new Humidity PC Board, make sure to mount it using the risers.
6. Connect the power wire harness and the Humidity Sensor harness.
7. Reattach the rear Proofer panel.
8. Restore the unit to its power source and ensure it is operating properly.

**Optimist Nozzle**

**Note:** It is not necessary to disconnect the unit from its power source for this procedure.

Also see Duke Publication 512419 for this procedure.

1. Turn power to the Proofer off by using the Touch Screen Display. It is not necessary to turn off water supply to the unit.
2. Remove necessary racks and the Proofer Floor Panel to gain access to the Optimist Nozzle assembly.
3. Use quick disconnect lever to remove the coupling and nozzle assembly by pushing lever down and sliding the assembly straight out.




**Figure 28: Optimist Nozzle Quick Disconnect**

4. Remove the Quick Disconnect Coupling from the Optimist Nozzle.
5. Remove the Coupling Body.
6. Place Teflon tape on the threads of the new Coupling Body and the new Quick Disconnect Coupling.
7. Using the appropriate open end wrench reattach the Coupling Body to the pipe elbow in the Proofer floor.
8. Using the appropriate wrenches screw the new Quick Disconnect Coupling onto the new Optimist Nozzle.
9. Using the quick disconnect feature attach Optimist Nozzle assembly to Coupling Body.

10. Using the Touch Screen Display, turn the Proofer on, allow the water system to purge and check for proper Optimist Nozzle spray.
11. Using the Touch Screen Display, turn the Proofer off and wait for the fan to stop turning.
12. Reattach the Proofer Floor Panel and slide in all of the racks removed earlier.

**Oven Heat Elements**

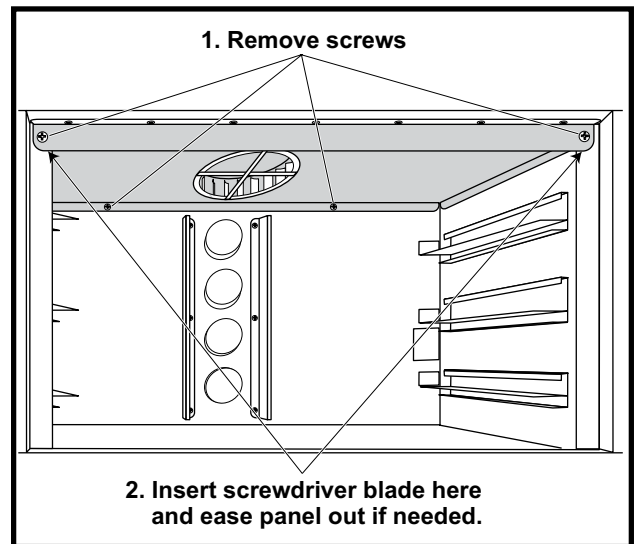


**WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

There are two Oven Heat Elements, one on each side of oven. The elements are behind the Oven Ceiling Panel.

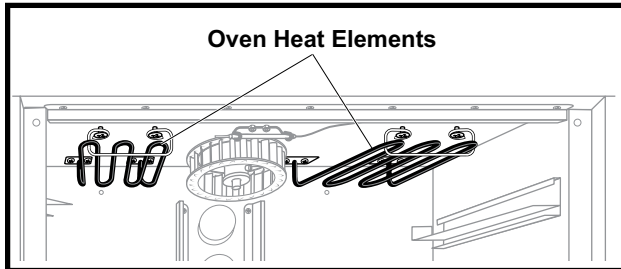
1. Place the unit's Power Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the Oven Ceiling Cover; refer to the PANELS AND COVERS section of this manual for specific instructions.



**Figure 29: Oven Ceiling Panel Removal**

**CAUTION: Use care when removing the Oven Ceiling Panel to prevent damage to the fan blades.**

- Remove four screws, two at each end of the suspect element. Retain the screws for reuse.



**Figure 30: View of Oven with Oven Ceiling Panel Removed**

- Remove the wire form supports.
- Drop the element away from the top wall, being careful not to damage the wire connected to each end of the element. It may be necessary to prior the element free as a heat resistant silicone sealer may have been used on the element plate.

**Caution: Pull enough wire through holes so as to not have it pull back into hole when it is removed, as that will likely require you to remove a top panel in order to retrieve the wire.**

- Tag and disconnect the element wires.
- Using an Ohmmeter, check the element for continuity.
- Repeat these steps on the remaining element if needed.
- Connect the element wires. Torque the wire connections to the elements to 30 inch pounds of torque.
- Install the elements, use a heat resistant silicone sealer on the element plates and reattach the supporting wire forms.
- Reattach the Oven Ceiling Panel and replace any racks removed during this procedure.
- Restore the unit to its power supply, turn the oven on using the Touch Pad Display and ensure it is working properly.

## Oven Blower Motor

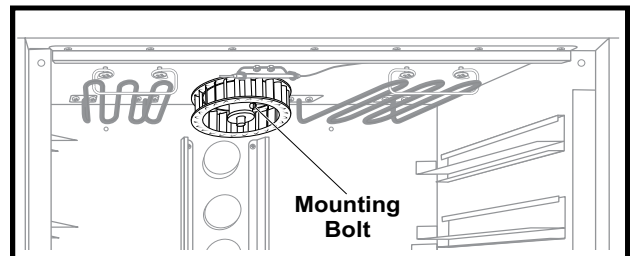


**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

**CAUTION: Removing the Oven Circulation Fan requires the use of a ladder. Use ladder safety protocols while working on this area of the unit.**

Oven Blower Motor is located on the top of unit.


- Place the unit's Power Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
- Remove the Oven Fan Cage and Wire Harness Cover on the top of the unit. Refer to the PANELS AND COVERS section of this manual for specific instructions.
- Remove the Oven Ceiling Panel; refer to the PANELS AND COVERS section of this manual for specific instructions.
- Tag and disconnect wires to blower motor.
- Using an Ohmmeter test the motor for short circuits or open conditions. If motor fails these tests, it must be replaced.
- Remove bolt that secures the Oven Fan Wheel to blower motor. Retain the bolt for reuse.




**Figure 31: Oven Fan Wheel Mounting Bolt**

7. Remove the Oven Fan Wheel.
8. Remove the four bolts securing the Oven Blower Motor to the top of the Oven.
9. Lift motor out of unit from the top. Use caution and be careful as the fan motor is heavy.
10. Remove Blower Motor Start Capacitor and test it before replacing the motor. See the OVEN BLOWER MOTOR START CAPACITOR section of this manual for testing capacitor.
11. Replace the motor if it is defective.
12. Using the tags or referring to the proper schematic, reconnect the wires.
13. Reattach the fan wheel.
14. Reattach panels and covers removed earlier.
15. Restore power to the unit, turn the oven on and ensure the fan is operating correctly.

### Oven Blower Motor Start Capacitor

 **WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

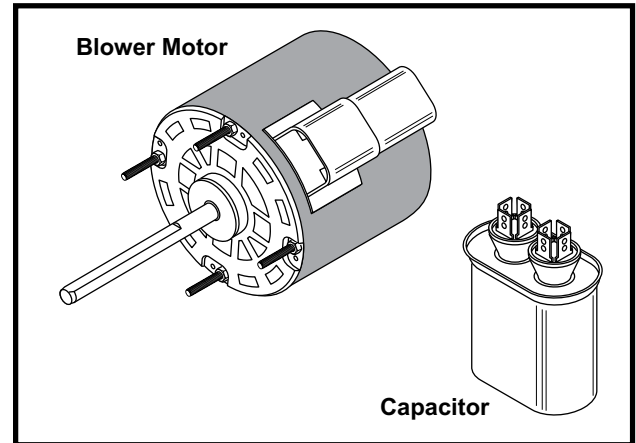
 **WARNING**

**SHOCK HAZARD: THE CAPACITOR MAY CARRY A CHARGE. IT MUST BE PROPERLY DISCHARGED BEFORE HANDLING ITS CONNECTIONS.**

The Oven Blower Motor Start Capacitor is mounted on the fan motor. The fan motor must be removed to gain access to the capacitor refer to steps 1 through 9 of the OVEN BLOWER MOTOR section of this manual for removal of the blower motor.

**Note:** These procedures assume the motor has been previously removed.

1. With the blower motor removed from the unit, remove the capacitor housing cover and slide the capacitor out the housing. Be careful not to damage the wires.



**Figure 32: Blower Motor & Capacitor**

2. Discharge the capacitor by shorting a screwdriver with an insulated handle across the capacitor terminals.
3. Tag and disconnect wires from the capacitor.
4. Using an Ohm Meter set on 1K Ohms test the capacitor, it should start at zero and rapidly go to infinity.
5. If the capacitor fails this test, it must be replaced, if the capacitor passes this test the blower motor is defective and must be replaced per the instructions in the OVEN BLOWER MOTOR section of this manual.
6. Using the tags connect the capacitors wires.
7. Insert the capacitor into its housing on the blower motor.
8. Install the blower motor.
9. Referring to the tags or correct schematic, reconnect the blower motor wires.
10. Attach the Blower Wheel.
11. Install the Oven Ceiling panel.
12. Restore power to the unit and turn the oven on using the Touch Screen Control, ensure the fan is operating correctly.

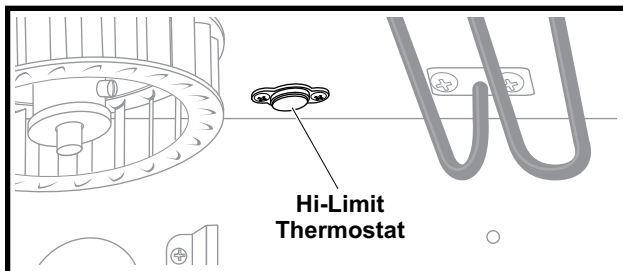
## Oven High Limit Thermostat



**WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

The Oven High Limit Thermostat is located under the Oven Ceiling Panel at the rear center of the oven.



**Figure 33: Location of Oven Hi Limit Thermostat**

1. Place the unit's Power Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Remove the Oven Ceiling Panel; refer to the PANELS AND COVERS section of this manual for specific instructions.
3. Remove the two screws securing the Oven Hi Limit Thermostat. Retain the screws for reuse.
4. Pull the Oven Hi Limit Thermostat down far enough to gain access to its wires. Be careful not to damage wires when pulling on them.
5. Tag and disconnect the Oven Hi Limit Thermostat wires.
6. Reverse these procedures to install a new Oven Hi Limit Thermostat.

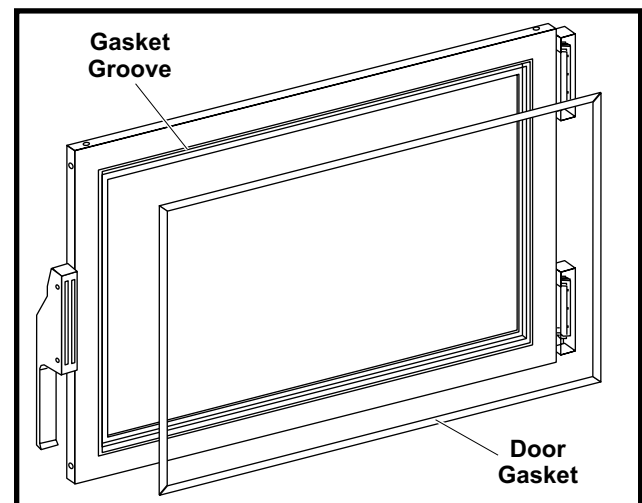
## DOOR GASKET REPLACEMENT



**WARNING**

**BEFORE PERFORMING ANY SERVICE THAT INVOLVES ELECTRICAL CONNECTION OR DISCONNECTION AND/OR EXPOSURE TO ELECTRICAL COMPONENTS, ALWAYS FOLLOW THE ELECTRICAL LOCKOUT/TAGOUT PROCEDURE. DISCONNECT ALL CIRCUITS. FAILURE TO COMPLY CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.**

1. Place the unit's Power Switch in its OFF position.
2. Remove the old gasket by pulling it out of the groove in the door frame.
3. Clean groove with a screwdriver or other flat-bladed tool to remove any dirt or gasket pieces.
4. Press the new gasket into the groove. Make sure it is fully seated in the groove and flat against the door frame.



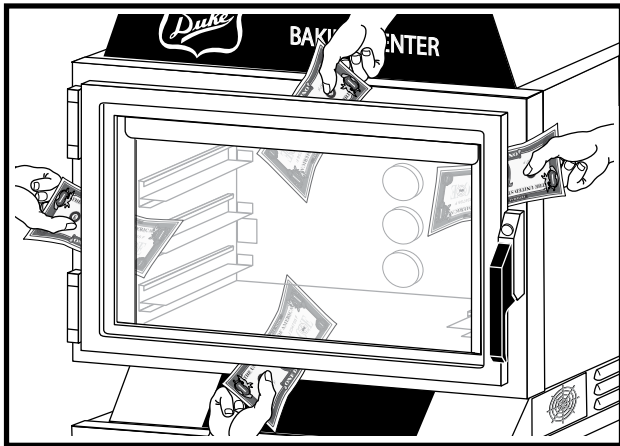
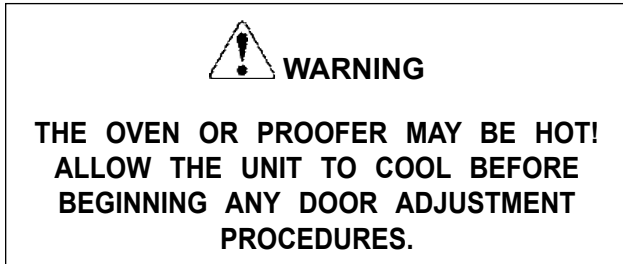
**Figure 34: Door and Gasket**

5. Check the door adjustment to make sure there are not any leaks or that the new gasket is not compressed too much, making the door hard to close. Refer to the DOOR GASKET COMPRESSION CHECK section of this manual for further instructions.

## ADJUSTMENTS

### DOOR GASKET COMPRESSION CHECK

The Door Gasket Compression Check may be performed on all styles of Proofer Oven doors.

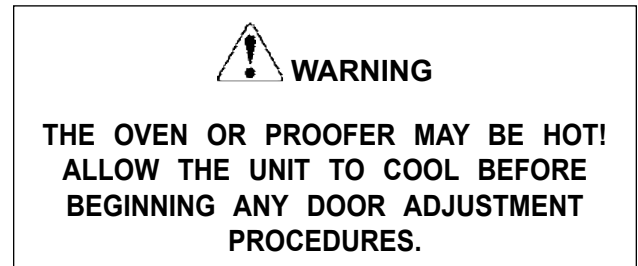


**Figure 35: Door Gasket Compression Check**

Perform the following procedure to determine if door adjustments are necessary:

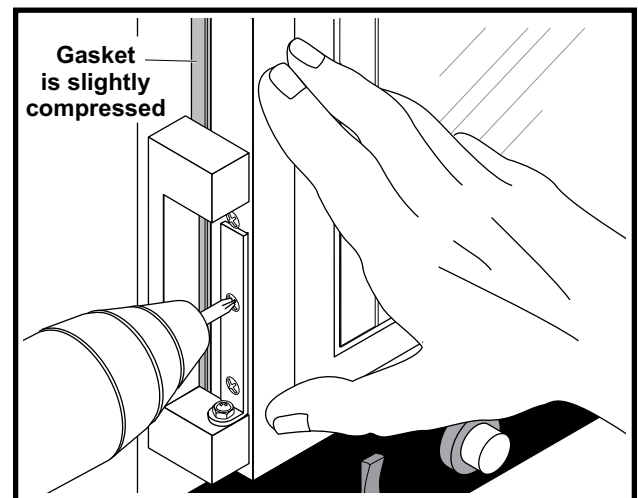
1. Close the door with a dollar bill between the gasket and the front of the oven. There should be resistance when the dollar bill is pulled free of the door.
2. Perform this check in several places and readjust the door if necessary using one or both of the procedures below.

### PROOFER DOOR GASKET ADJUSTMENT



To adjust the door on the hinge side, use this procedure:

1. With the door closed, remove the hinge covers and loosen (don't remove) the six screws that hold the hinges to the door.



**Figure 36: Door Hinge Adjustment**

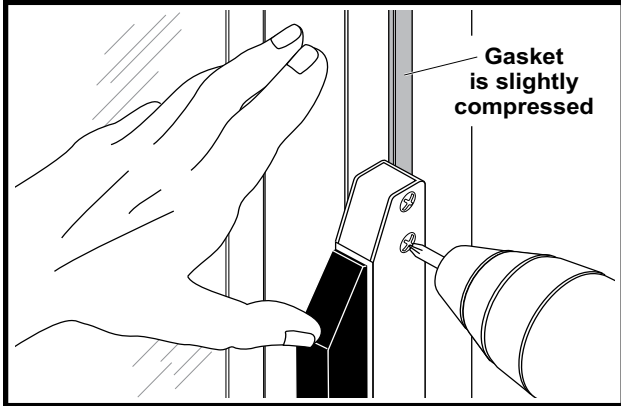
2. With the screws loosened, the door can be move in and out on its frame. Move the door to the desired position.

Note: When adjusting the doors in and out position, don't over compress the gasket. This will cause the door to bind on the hinge side.

3. Once the door is positioned properly, tighten the screws and replace the hinge covers.

The door can also be adjusted on the handle side:


1. Loosen, but do not remove, the two screws that hold the handle in place.



**Figure 37: Door Handle Adjustment**

2. Adjust the handle to its proper position.
3. Tighten the screws.

**OVEN AIR WASH DOOR ADJUSTMENT**



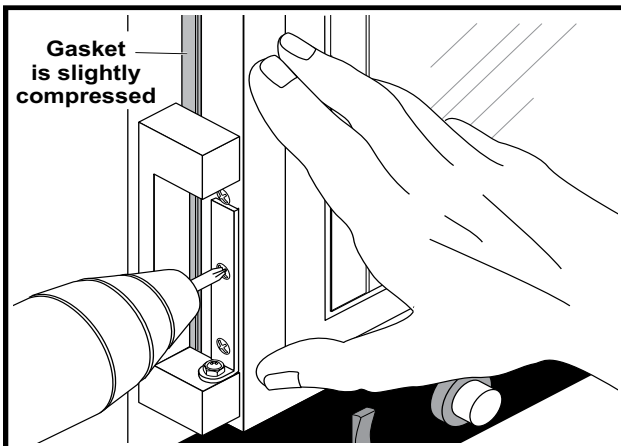
**WARNING**

**THE OVEN OR PROOFER MAY BE HOT!  
ALLOW THE UNIT TO COOL BEFORE  
BEGINNING ANY DOOR ADJUSTMENT  
PROCEDURES.**

**Air Wash Door Adjustment – Hinge Side**

To adjust the Hinge Side of the door:

1. If open, close and latch the door.
2. Remove the Hinge Covers.
3. Loosen the screws on the hinges.



**Figure 38: Proper Hinge Side Adjustment**

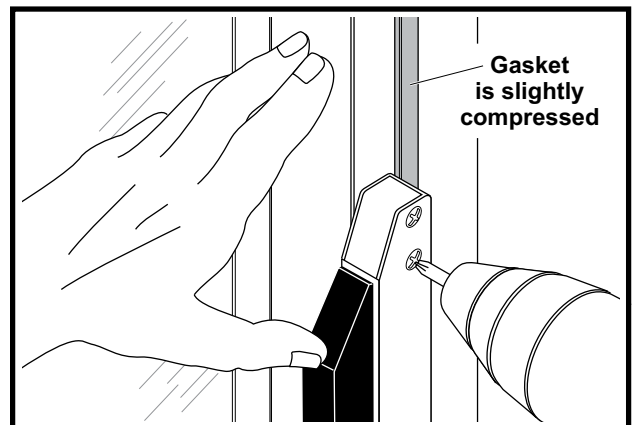
4. Adjust the door position by moving the doorframe to seal any gap between the gasket and the oven front near the hinges. Tighten the hinge screws.
5. Perform the DOOR GASKET COMPRESSION CHECK.
6. If needed, repeat the above procedure or go to step 7. Otherwise, replace the Hinge Covers.
7. Perform the Air Wash Door Adjustment – Handle Side procedure, below. (Do not replace the hinge covers yet.)

**CAUTION: Be careful not to over-compress the gasket or it will cause the door to bind near the hinges.**

**Air Wash Door Adjustment – Handle Side**

To adjust the Handle Side of the door, use this procedure.

1. If open, close and latch the door. Ensure that the inner and outer doors are latched together.
2. Loosen the screws along the outer edge of the Door Handle.
3. Adjust the door position by moving the doorframe to seal any gap between the gasket and the oven front near the handle.
4. Tighten the screws.




**Figure 39: Proper Door Handle Side Adjustment**

5. Perform the DOOR GASKET COMPRESSION CHECK


6. If needed, repeat the above procedure or go to the AIR WASH DOOR ADJUSTMENT – HINGE SIDE procedure.
7. If the Door Handle Adjustment Slots become exposed, use Silicone Sealer to seal the openings.
8. Install the Hinge Covers if they were removed.

**CAUTION:** Be careful not to over-compress the gasket or it will cause the door to bind near the hinges.

**TOUCH SCREEN DISPLAY  
BRIGHTNESS ADJUSTMENT**

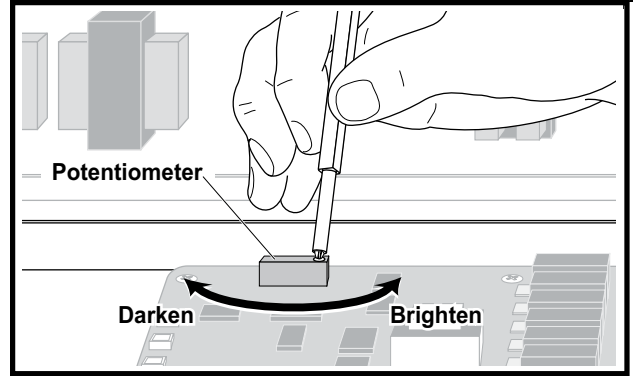
 **WARNING**

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 **WARNING**

**PROPER ESD PROCEDURES SHOULD BE FOLLOWED WHILE HANDLING THE CONTROL PCB &/OR THE CONTROL & BEZEL ASSEMBLY WHEN REMOVED FROM THE UNIT.**

A potentiometer (pot) located on the upper left component side of the Touch Screen control PCB sets the brightness of the display.



**Figure 40: Brightness POT Location**

1. Place the unit's Power ON/OFF Switch in its OFF position, and follow the proper Lockout/Tagout procedures.
2. Open the Electrical Compartment Access Panel; refer to the Panels and Covers section of the manual for instructions.
3. Place the Power ON/OFF Switch in its ON position and touch the Touchpad Controller to display the main menu.
4. Using an insulated Trim Pot Screwdriver, turn the Brightness Adjustment Potentiometer clockwise to darken the display or counterclockwise to brighten the display.

**CAUTION: DO NOT TURN THE ADJUSTMENT POTENTIOMETER ALL THE WAY IN EITHER DIRECTION AS THIS WILL CAUSE PERMANENT DAMAGE TO THE CONTROL BOARD.**

5. Once the adjustment is complete, place the Power ON/OFF Switch in its OFF position.
6. Close After and secure the Electrical Compartment Access Panel.
7. Restore the unit to its power source and ensure that the Touch Screen Display is working properly and has the correct brightness adjustment.

## TEMPERATURE CALIBRATION PROCEDURE

The TSC Baking Center maintains temperature set points at the center of the oven and proofer sections. The TSC temperature sensors and controller PCB are factory calibrated for an offset response to equate the center chamber temperatures to the TSC displayed values.

The temperature sensors are tight tolerance components and the offset temperature response is factory programmed in the TSC controller's nonvolatile memory allowing interchange of sensors, controller PCB's, and/or control software revision upgrades without temperature calibration impact.

Field recalibration will only be required if the factory settings were manually field modified. Should temperature calibration of the unit be in question, the following procedure is necessary to return the unit to proper calibration.

Equipment:

FLUKE Model 54 Thermometer with two J-type thermocouples or equivalent test equipment with +/-1% tolerance

Procedure:

- Install a thermocouple in the center of the middle rack of the proofer and oven; close the oven and proofer doors.
- Turn on the TSC's oven and proofer sections and allow the unit to operate for a minimum of 15 minutes
- Enter the TSC screen button selections for temperature calibration screens (press/hold "OVEN", enter PIN Code 1790, select oven or proofer sensor)
- Monitor the TSC displayed temperatures until they reach set points of 350°F for the oven and 105°F for the proofer
- When the TSC displayed temperature falls 2°F below set points (348°F oven and 103°F proofer), adjust the +/- buttons on the TSC screen until the TSC displayed value matches the thermocouple meter.
- Repeat the process a minimum of two times with a minimum of 15 minutes to stabilize after each calibration adjustment.

Oven Middle 3rd rack center

Proofer Middle 5th rack center

Press & hold "OVEN" button on main recipe screen to enter PIN Code screen. Enter 1 7 9 0

SPECIAL FUNCTIONS-PIN Number Entry

PIN CODE 1790

EXIT CLEAR ENTER

Select "OVEN SENSOR" for oven temperature calibration. Select "PROOFER SENSOR" for proofer temperature calibration.

SENSOR SETUP FUNCTIONS

OVEN SENSOR SCREEN CAL

PROOFER SENSOR DIAGNOSTICS

HUMIDITY SENSOR MONITOR STATUS

CANCEL

Adjust the +/- buttons for the displayed temperature to equal the thermocouple meter only when displayed temperature falls to 2°F below set point. Adjust oven temperature at 348°F.

Oven RTD Adjust

OVEN SENSOR (F)

350.0 - +

EXIT CANCEL SAVE

Adjust the +/- buttons for the displayed temperature to equal the thermocouple meter only when displayed temperature falls to 2°F below set point. Adjust proofer temperature at 103°F.

Proofer RTD Adjust

PROOFER SENSOR (F)

105.0 - +

EXIT CANCEL SAVE

## MAINTENANCE

### STAINLESS STEEL CARE

#### Cleaning

Stainless steel contains 70-80% iron, which will rust if not properly maintained. It also contains 12-30% chromium, which forms an invisible passive, protective film that shields against corrosion. If the film remains intact, the stainless steel will remain intact. However, if the film is damaged, the stainless steel can break down and rust. To prevent stainless steel breakdown, follow these steps:

**CAUTION: Never use any metal tools. Scrapers, files, wire brushes or scouring pads (except for stainless steel scouring pads) will mar the surface.**

**CAUTION: Never use steel wool, which will leave behind particles that rust.**

**CAUTION: Never use acid-based or chloride-containing cleaning solutions, which will break down the protective film.**

**CAUTION: Never rub in a circular motion.**

**CAUTION: Never leave any food products or salt on the surface. Many foods are acidic. Salt contains chloride.**

For routine cleaning, use warm water, mild soap or detergent and a sponge or soft cloth.

For heavy-duty cleaning, use warm water, a degreaser and a plastic, stainless steel or Scotch-Brite pad.

Always rinse thoroughly. Always rub gently in the direction of the steel grain.

#### Preserving & Restoring

Special stainless steel polishing cleaners can preserve and restore the protective film.

Preserve the life of stainless steel with a regular application of a high quality stainless steel polishing cleaner as a final step to daily cleaning.

If signs of breakdown appear, restore the stainless steel surface. First, thoroughly clean, rinse and dry the surface. Then, on a daily basis, apply a high-quality stainless steel polish according to manufacturer's instructions.

#### Heat Tint

Darkened areas, called heat tint, may appear on stainless steel exposed to excessive heat, which causes the protective film to thicken. It is unsightly but is not a sign of permanent damage.

To remove heat tint, follow the routine cleaning procedure. Stubborn heat tint will require heavy-duty cleaning.

To reduce heat tint, limit the exposure of equipment to excessive heat.

### WATER FILTER REPLACEMENT



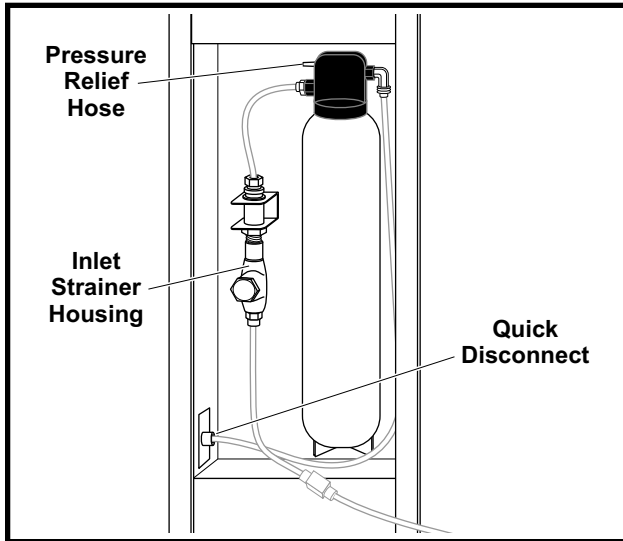
#### WARNING

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The water filter located at the rear of the unit in the Proofer Section.

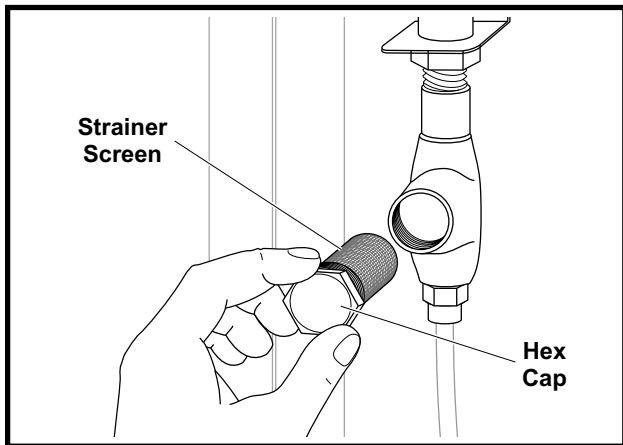
1. Turn off water supply to oven.
2. Disconnect Wall Brackets if installed.
3. Using the Touch Screen Display, turn off power to Proofer Oven.

4. Remove old filter by rotating cartridge clockwise slowly until pressure starts to release, stop and let pressure and excess water drain through pressure release hose. Once water has stopped draining, continue turning to the left and pull downward.



**Figure 41: Water Filter**

5. Install new filter by removing sanitary cap from top of new Cartridge, insure two black O Rings are in place, then lift up into filter head and rotate Cartridge 1/4 turn counter clockwise until it comes to a complete stop.
6. Remove Inlet Strainer by loosening Hex cap on Inlet strainer Housing.



**Figure 42: Inlet Strain & Screen**

7. Remove and flush the strainer screen with warm water.
8. Replace strainer screen and Hex Cap.
9. Flush 2 gallons of water through the new filter before using proofer to purge air from filter.
10. Remove hose from bottom of proofer by removing red retention clip then push in quick disconnect fitting and pull hose out.
11. Place hose into a bucket and turn on water. It will take a minute for the filter to fill before water flows out of hose into container.



**Figure 43: Purging Air From Water Filter**

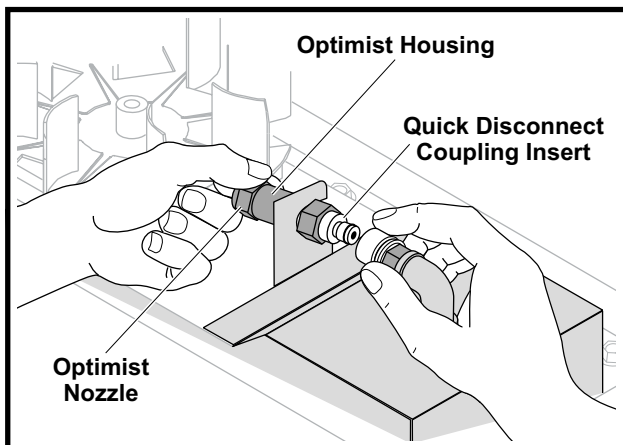
12. Once filter is flushed with 2 gallons of water, turn off water supply again, insert hose into quick disconnect, replace red retention clip by slightly pulling hose.
13. Turn water supply on and check for leaks at connection fittings and Inlet Strainer Housing Hex Cap.
14. Reconnect Wall Brackets if installed.
15. Turn on power to Proofer Oven using the Touch Screen Display

## CLEANING THE OPTIMIST NOZZLE

**Note:** It is not necessary to disconnect the unit from its power source for this procedure.

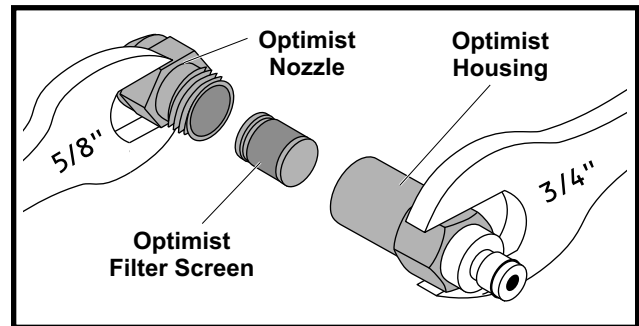
Also see Duke Publication 512419 for this procedure.

1. Turn power to the Proofer off by using the Touch Screen Display. It is not necessary to turn off water supply to the unit.
2. Remove necessary racks and the Proofer Floor Panel to gain access to the Optimist Nozzle assembly.
3. Use quick disconnect lever to remove the coupling and nozzle assembly by pushing the lever down and sliding assembly straight out.



**Figure 44: Optimist Nozzle Quick Disconnect**

4. Use 3/4" and 5/8" wrenches to remove the nozzle from its body, remove, clean and re-install the filter.



**Figure 45: Optimist Nozzle Disassembled**

5. Soak nozzle in vinegar for 4-8 hours. Wipe residue from nozzle and rinse in clean water. Do not insert objects into nozzle outlet as this can change the water spray performance. Replace nozzle assembly if mineral deposits from hard water cannot be removed.
6. Reinstall nozzle by inserting into quick-connect fitting until fully seated.
7. Using the Touch Screen Display, turn the Proofer on, allow the water system to purge and check for proper Optimist Nozzle spray.
8. Using the Touch Screen Display, turn the Proofer off and wait for the fan to stop turning. Reattach the Proofer Floor Panel and slide in all of the racks removed earlier.

## TROUBLESHOOTING

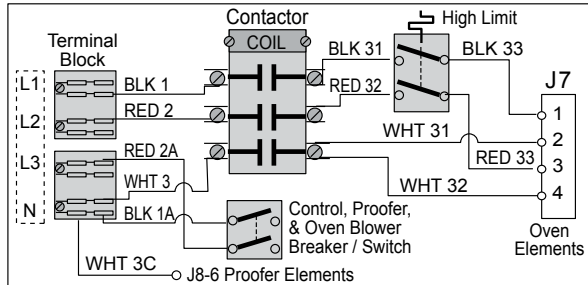
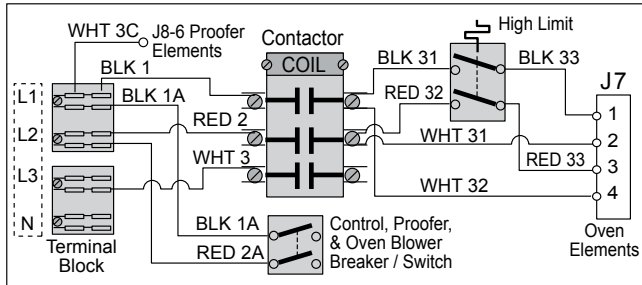
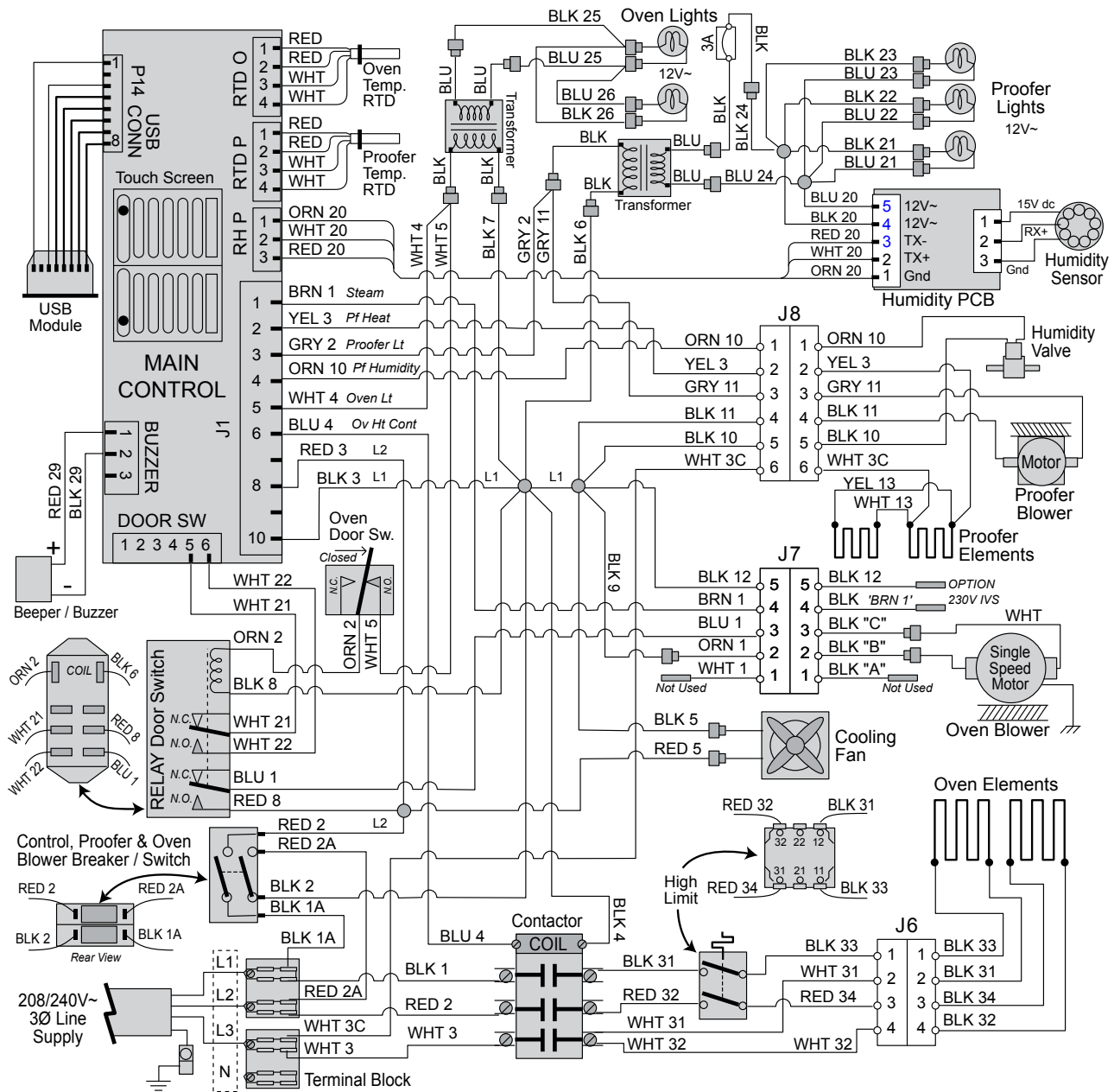
SYMPTOM	CAUSE	REMEDY
Unit does not turn on	Power ON/OFF Breaker not in On Position.  No Power to unit.  Touch Screen Control Defective.	Place ON/OFF Breaker in ON position.  Check Breaker at Breaker Box.  Replace Touch Screen Control.
Oven/Proofer Lights not working	Power ON/OFF Breaker not in ON position.  No Power to unit.	Place the Power ON/OFF Breaker in ON position.  Check Breaker at Breaker Box.
Oven Lights work but Proofer Lights not working	Proofer Lights Circuit Breaker is open.  Defective Proofer Lights Transformer.	Reset Proofer Lights Circuit Breaker. If problem persists, check lights – lights should not exceed 10 Watts.  Replace transformer.
Proofer Lights work but Oven Lights not working	Defective Oven Lights Transformer.	Replace transformer.
Proofer Humidity insufficient	Humidity not set properly on Touch Screen Control.  Water supply not turned on.  Optimist Nozzle dirty/clogged.  Defective Water Injection Solenoid.  Defective Humidity Sensor.  Defective Humidity PC Board.	Set/reset humidity using Screen Pad Control.  Turn on water supply.  Clean Optimist Nozzle and filter.  Replace Water Injection Solenoid.  Replace Humidity Sensor.  Replace Humidity PC Board.
Proofer Humidity too High	Humidity not set properly on Touch Screen Control.  Optimist Nozzle damaged.  Defective Humidity Sensor.  Defective Humidity PC Board.	Set/reset humidity using Touch Screen Control.  Replace Optimist Nozzle assembly.  Replace Humidity Sensor.  Replace Humidity PC Board.
Proofer does not heat	Proofer door not closed.  Proofer not turned on.  Proofer temperature not set correctly.  Defective heater element/s.	Ensure door is closed and seals properly.  Turn Proofer on using Touch Screen Control.  Set/reset temperature using Touch Screen Control.  Replace defective heater element/s.
Proofer does not proof evenly	Door not sealing properly.  Debris caught in fan blade.  Defective Door Gaskets.  Defective Circulation Fan.	Adjust door hinges and/or handle.  Clean fan blades.  Replaces gaskets.  Replace Circulation Fan.

SYMPTOM	CAUSE	REMEDY
Oven does not heat.	Oven not turned on. Temperature not set. Hi Limit Breaker requires reset. Defective Hi Limit Thermostat Defective Oven Heat Element/s	Use Touch Screen Control to turn oven on. Use Touch Screen Control to set/reset oven temperature. Reset Hi Limit Breaker. Replace Hi Limit Thermostat. Replace Oven Heat Element/s.
Oven Blower does not operate	Oven door open. Defective Oven Door Safety Switch. Defective Oven Blower Relay. Defective fan motor.	Ensure oven door is properly closed. Replace Oven Door Safety Switch. Replace Oven Blower Relay. Replace motor.
Oven does not bake evenly	Door not sealing properly. Defective door gaskets. Debris in Blower Wheel. Blower not running. One oven heat element not working.	Adjust door. Replace gaskets. Clean Blower Wheel. See Oven Blower does not operate troubleshooting. Replace defective heater.
Proofer/Oven Beeper not audible	Beeper turned off. Defective Beeper.	Using Touch Screen Control, turn beeper on. Replace Beeper.
Electrical Compartment Cooling Fan not operating.	Loose fan wires. Defective fan motor.	Check wiring. Replace fan motor.
Can't upload baking/proofing program to Touch Screen Controller.	Program not loaded correctly on jump drive. Loose connection on Touch Screen Control. Defective USB port.	Reload program and try uploading again. Check USB connection on Touch Screen Control. Replace USB port.
Oven/Proofer Working but no display.	Display brightness setting incorrect.	Adjust display brightness.
Oven/Proofer ON/OFF switch in ON position no display no heat	Main power not on. Touch Screen not activated. Defective Touch Screen Control.	Check breaker box. Turn on using Touch Screen Control. Replace Touch Screen Control.

# ELECTRICAL SCHEMATIC

## WIRING DIAGRAM – TSC 6/18 & TSC 3/9

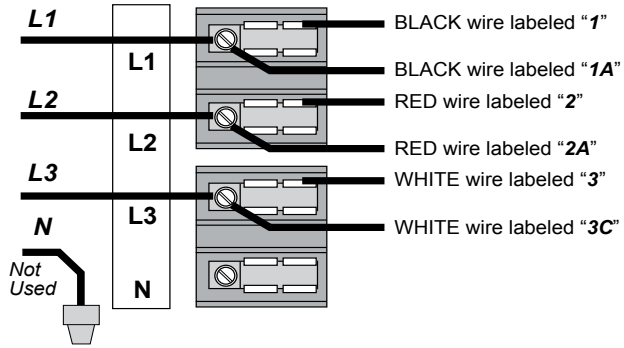
P/N: 512773 Rev. D



# TSC OVEN LINE SUPPLY WIRING

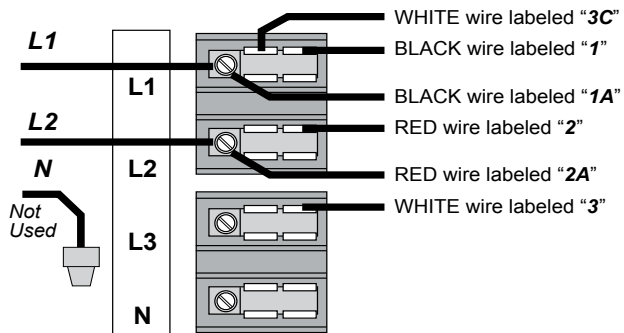
**Terminal Block Connection: 3 Phase**

**LINE SUPPLY:**  
 3 Phase 208V  
 or 3 Phase 240V  
 L1 to L2 - 208V / 240V  
 L1 to L3 - 208V / 240V  
 L2 to L3 - 208V / 240V  
 L1 to N - 120V  
 L2 to N - 120V  
 L3 to N - 120V  
 N (neutral) not used



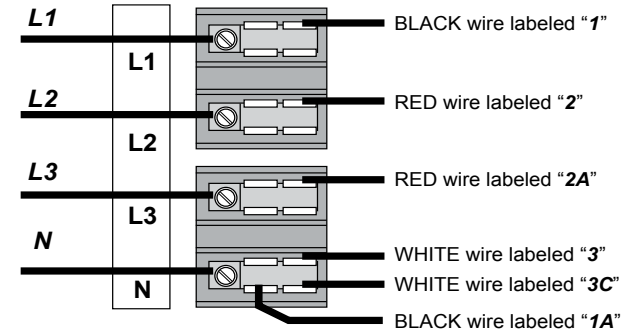
**Terminal Block Connection: Single Phase**

**LINE SUPPLY:**  
 Single Phase 208V  
 or Single Phase 240V  
 L1 to L2 - 208V / 240V  
 L1 to N - 120V  
 L2 to N - 120V  
 N (neutral) not used

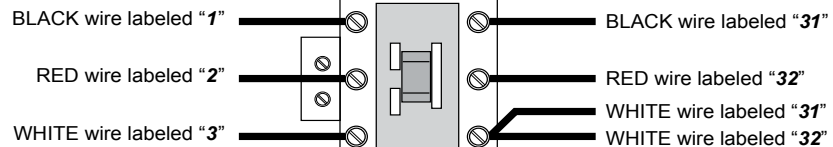


**European Only Terminal Block Connection: 400V 3P w/N**

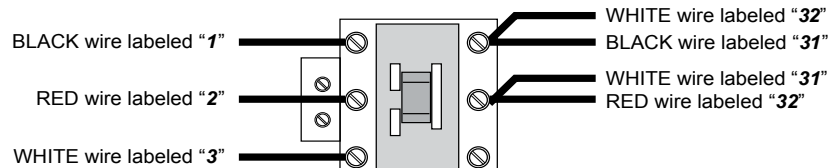
**LINE SUPPLY:**  
 3 Phase 400V 50Hz  
*(International ONLY)*  
 L1 to L2 - 400V  
 L1 to L3 - 400V  
 L2 to L3 - 400V  
 L1 to N - 230V  
 L2 to N - 230V  
 L3 to N - 230V



**Oven Contactor Connection: 3 Phase**



**Oven Contactor Connection: Single Phase**



## CUSTOMER ASSISTANCE

To aid in reporting this unit in case of loss or theft, please record below the model number and serial number located on the unit. We also suggest you record all the information listed and retain for future reference.

MODEL NUMBER _____	SERIAL NUMBER _____
DATE OF PURCHASE _____	
DEALER _____	TELEPHONE _____
SERVICER _____	TELEPHONE _____

### NORTH AMERICA & LATIN AMERICA

Duke Manufacturing Company  
2305 N. Broadway  
St. Louis, MO 63102  
Phone: 314-231-1130  
Toll Free: 1-800-735-3853  
Fax: 314-231-5074

### CONTINENTAL EUROPE

EU Headquarter Office  
Duke Manufacturing  
CR s.r.o. Vitavska 219,  
Stechovice 25207  
Phone: +420 257-741-033

### UK & IRELAND

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Unit 10, Greendale Business Park  
Woodbury Salterton  
Exeter  
Devon - UK EX5 1EW  
Tel: 01395 234140  
FAX: 01395 234154

### ASIA

Asia Office  
Duke Food Service Equipment  
(shanghai) Company Limited  
1F, Building #17-2,  
658 Nong Jin Zhong Road  
Shanghai, China 200335  
Tel: +86 21 6876 9272  
Fax: +86 21 33600628

**TO ACCESS INTERNET: [www.dukemfg.com](http://www.dukemfg.com)**

Please provide the following information when you write or call: model number, serial number, date of purchase, your complete mailing address (including zip code), and description of the problem.



*Your Solutions Partner*

## **Duke Manufacturing Co.**

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Toll Free: 1-800-735-3853  
Fax: 314-231-5074  
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Shanghai, China 200335  
Tel: +86 21 6876 9272  
Fax: +86 21 33600628**

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