Service Manual

FOR THE TURBOCHEF G5™ RAPID COOK OVEN

For further information, call
800.90TURBO
or
+1 214.379.6000

The information contained in this manual is important for the proper installation, use, maintenance, and repair of this oven. Follow these procedures and instructions to help ensure satisfactory baking results and years of trouble-free service.

Errors – descriptive, typographic, or pictorial – are subject to correction. Specifications are subject to change without notice.

Please carefully read this manual and retain it for future reference.

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IMPORTANT SAFETY INSTRUCTIONS

⚠ WARNING: When operating this oven, strictly adhere to the following safety precautions to reduce the risk of burns, electric shock, fire, injury, damage to oven or property near oven, or possible exposure to excessive microwave energy.

GENERAL SAFETY INFORMATION

- ✔ Read all instructions before using this appliance.
- ✔ Read and follow the specific "Precautions to be Observed Before and During Servicing to Avoid Possible Exposure to Excessive Microwave Energy" found on page ii.
- ✔ This appliance must be grounded. Connect only to a properly grounded outlet. See "Grounding Instructions" on page ii.
- ✔ Install or locate this appliance only in accordance with the provided installation instructions.
- ✔ This appliance should be serviced by qualified service personnel only. Contact the nearest authorized service facility for examination, repair, or adjustment.
- ✔ Keep the cord away from heated surfaces.
- ✔ Liquids, such as water, coffee, or tea are able to be overheated beyond the boiling point without appearing to be boiling. Visible bubbling or boiling when the container is removed from the microwave oven is not always present. THIS COULD RESULT IN VERY HOT LIQUID SUDDENLY BOILING OVER WHEN THE CONTAINER IS DISTURBED OR A UTENSIL IS INSERTED INTO THE LIQUID.
- ✔ WARNING: The contents of feeding bottles and baby food jars must be stirred or shaken and the temperature checked before consumption, in order to avoid burns (IEC 60335-2-90).
- ✔ Use this appliance only for its intended uses as described in this manual.
- ✔ Only use utensils that are suitable for use in microwave ovens (IEC 60335-2-90).
- ✔ DO NOT use corrosive chemicals or vapors in this appliance; it is not designed for industrial/laboratory use.
- x WARNING: DO NOT heat liquids or other foods in sealed containers (e.g., jars, whole eggs, etc.) since they are liable to explode.
- x DO NOT allow children to use this appliance.
- x DO NOT operate this appliance if it has a damaged cord or plug, is not working properly, or has been damaged or dropped. See "Power Cord Replacement" found on page ii.
- x DO NOT cover or block any openings on this appliance.
- x DO NOT store this appliance outdoors.
- x DO NOT use this product near water (e.g., near a kitchen sink, in a wet basement, near a swimming pool).
- x DO NOT immerse the cord or plug in water.
- x DO NOT let the cord hang over the edge of a table or counter.
- x DO NOT use a water jet for cleaning. See pages 5-6 in this manual for proper cleaning procedures.
- x This appliance is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction.

REDUCING FIRE RISK

- ✔ Remove wire twist-ties from paper or plastic bags used to facilitate cooking in the oven.
- ✔ If materials inside the oven ignite, keep the oven door closed, turn the oven off, and disconnect the power cord or shut off power at the fuse or circuit breaker panel.
- ✔ If smoke is observed, switch off or unplug the oven. Keep the door closed to stifle any flames.
- x DO NOT use the cook cavity for storage purposes.
- x DO NOT overcook food. Carefully attend to the oven if paper, plastic, or other combustible materials are placed inside the oven to facilitate cooking.
- x DO NOT leave paper products, cooking utensils, or food in the cavity when the oven is not in use.

SAVE THESE INSTRUCTIONS

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 oven is equipped with a cord that has a grounding wire with a grounding plug, which must be plugged into an outlet that is properly installed and grounded. Consult a qualified electrician or serviceman if uncertain about the ability to follow grounding instructions or if doubt exists as to whether the appliance is properly grounded.

x DO NOT use an extension cord. If the power cord is too short, have a qualified electrician or service agent install an outlet near the appliance.

⚠ WARNING: Improper grounding can result in risk of electric shock.

POWER CORD REPLACEMENT

If the power cord is damaged, it must be replaced by the manufacturer, its service agent, or a similarly qualified person.

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 connections.
(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. Refer to page 33 for leakage test procedures.

RF INTERFERENCE CONSIDERATIONS

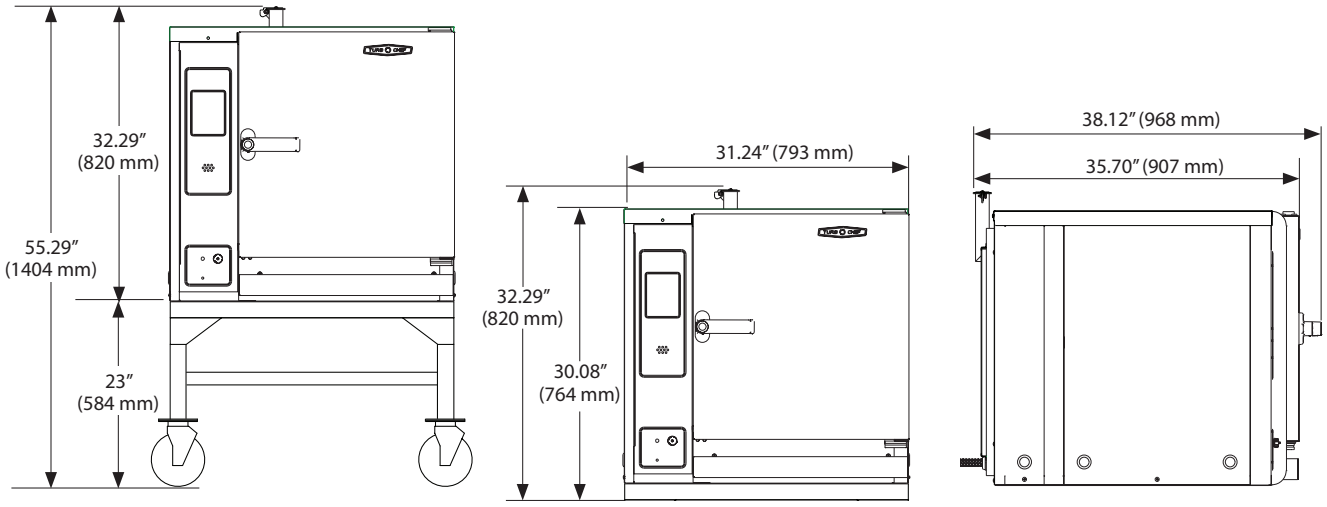
The G5 oven generates radio frequency signals. This device has been tested and was determined to be in compliance with applicable portions of FCC part 18 requirements and to the protection requirements of Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility at the time of manufacture. However, some equipment with sensitivity to signals below these limits may experience interference.

If your equipment experiences interference:

- ✔ Increase the physical separation between this oven and the sensitive equipment.
- ✔ If the sensitive device can be grounded, do so following accepted grounding practices.
- ✔ If battery-powered microphones are being affected, ensure that the batteries are fully charged.
- ✔ Keep sensitive equipment on separate electrical circuits if possible.
- ✔ Route intercom wires, microphone wires, speaker cables, etc. away from the oven.

SAVE THESE INSTRUCTIONS

Specifications and Installation



G5 Oven Dimensions

Theory of Operation

The TurboChef G5 oven maximizes throughput by cooking up to five shelves of food without compromising quality. Variable G5 cooking features include temperature selection, high-speed air convection, fan reverse, and microwave assist.

This manual includes instructions for installing, cleaning, and operating the G5 oven. If you have questions that are not addressed in this manual, contact Customer Support at 800.90TURBO (USA) or +1 214.379.6000 (International), or your Authorized Distributor.

Dimensions

Oven Dimensions

Height: 32.29” (820 mm)
Height with cart: 55.29” (1404 mm)
Width: 31.24” (793 mm)
Depth (footprint): 35.70” (907 mm)
Depth (door closed): 38.12” (968 mm)
Depth (door open): 57.12” (1451 mm)
Weight: 475 lb. (215 kg)

Cook Cavity Dimensions - Overall

Height: min: 3.25” (83 mm) per shelf
max: 18” (457 mm)
Width: 15” (381 mm)
Depth: 21” (533 mm)
Volume: min: 0.59 ft^3 (16.7 l) per shelf
max: 3.28 ft^3 (92.88 l)

Cooking Rack

Width: 14.6” (371 mm)
Depth: 18.1” (460 mm)
Max food height: 17” (432 mm)

Wall Clearance

Top: 2” (51 mm)
Sides: 2” (51 mm)

Certifications

cULus, UL EPH, FDA, TÜV

Oven Construction

Exterior

- 304 stainless steel side panels
- 430 stainless steel door
- Single-stage, locking door handle

Interior

- 316 stainless steel
- Welded and insulated cook chamber
- Removable baffle for easy cleaning

Electrical Specifications

TurboChef recommends a Type D circuit breaker for all installations outside the United States.

United States/Canada

Phase and voltage: 3 Phase, 208/240 VAC
Frequency: 50/60 Hz
Current draw: 42-45 Amp
Cord and plug: 4-Wire, NEMA 15-50P
Fuses: 20 Amp
Aux Breaker: 20 Amp

International

Phase and voltage: 3 Phase, 380-415 VAC
Frequency: 50 Hz
Current draw: 25-28 Amp
Cord and plug: 5-Wire, WYE (32A - 6H)
Fuses: 12 Amp
Aux Breaker: 20 Amp

* US/Canada models include a voltage transformer located on the I/O relay board that detects 208 or 240 VAC. The voltage transformer and K1 voltage selection relay work in conjunction to detect lack-of or over-voltage installations. They do not compensate for lack-of or over-voltage installations.

Installation

Install or locate this appliance only in accordance with the instructions below.

Unpacking Instructions

1. Remove the oven from its packaging.
2. Before throwing the packaging away, check it thoroughly for accessories and literature.

NOTE: Keeping the packaging is recommended in case the oven may be shipped to another location.

3. Check the cook cavity thoroughly for packaging, accessories, and oven literature.

Installing the Oven

1. The TurboChef G5 is mounted to a cart at the factory and shipped secured to the cart. Minimal to no lifting should be required.

⚠ WARNING: The oven weighs approximately 475 lb. (215 kg). If lifting is required, to prevent serious injury, at least four people are required for lifting.

2. Ensure the oven racks are properly installed.
3. Plug in the oven.

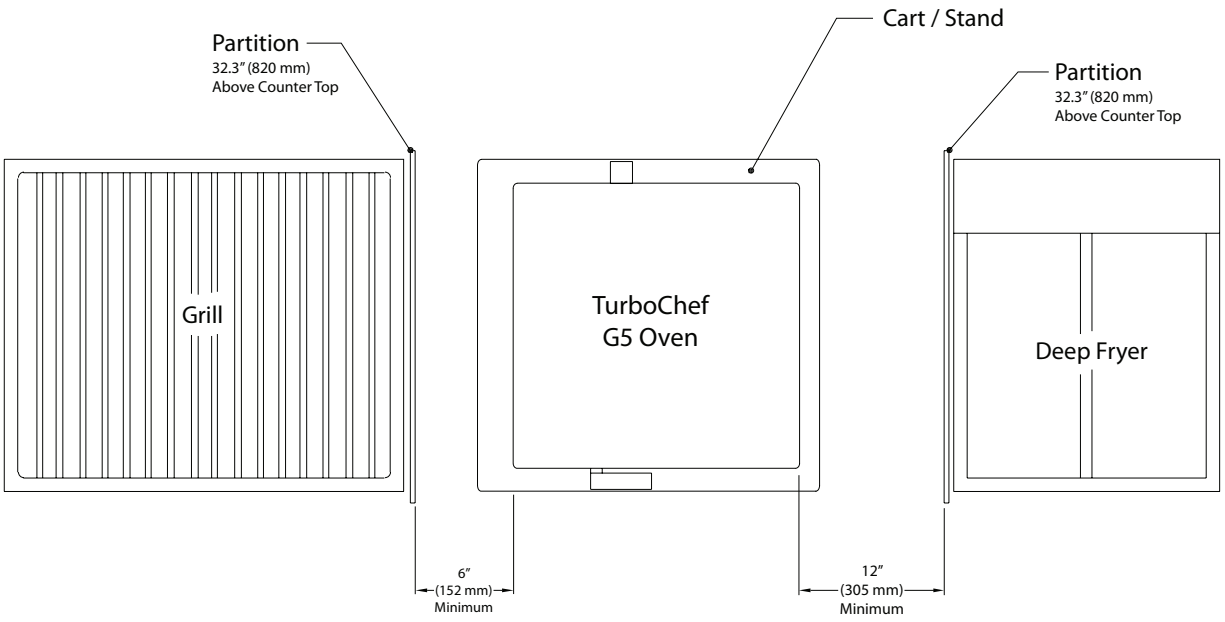
⚠ CAUTION: This oven is not intended for built-in installation (i.e., installing the oven in any structure that surrounds the oven by five or more sides). Be sure to provide a minimum of 2” (51 mm) clearance for all surfaces.

⚠ WARNING: Do not attempt to stack this oven without the proper stacking hardware. Contact the factory for more information.

Installation Near Open Heat Source

When placing a TurboChef oven near an open heat source (see illustration below), strictly adhere to the following:

- If the oven is being placed near a grill or stove, a divider must exist between the oven and the open heat source, with a minimum of 6" (152 mm) between the oven and the divider.
- If the oven is being placed near a fryer, a divider must exist between the oven and fryer, with a minimum of 12" (305 mm) between the oven and the divider.
- The height of the divider must be greater than or equal to the height of the oven (32.3" or 820 mm).
- Verify the oven location has a minimum 2" (51 mm) clearance on the top and each side.



Installation Near Open Heat Source

ChefComm Pro

Part Number: CON-7006

ChefComm Pro® lets you easily create menu settings on a computer and upload them to an oven via USB thumb drive. For more information, call TurboChef Customer Support at 800.90TURBO or +1 214.379.6000.

ChefComm Limited

Part Number: CON-7016

ChefComm Limited™ is a “read-and-transfer only” version of ChefComm Pro that helps ensure menu settings are easy to distribute, while preventing them from being changed at the store level.

Voltage Selection

For US/Canada oven models, the oven will detect 208 or 240 incoming voltage.

If incoming voltage for the store is different than the factory-preset voltage, the operator will be required to select either 208 or 240 after connecting power to the oven. The correct voltage will be enlarged on the screen, identifying which option to select.

Ventilation

The TurboChef G5 oven must be installed under a ventilation hood, in accordance with local HVAC codes and jurisdictions.

Daily Maintenance

Daily Maintenance

Follow the steps below when cleaning the G5 oven.

Supplies and Equipment

TurboChef® Oven Cleaner (Product #: 103180), TurboChef® Oven Guard (Product #: 103181), nylon scrub pad, cleaning towel, disposable gloves, protective eyewear, dust mask (optional)

Status Off =
Ready to Clean

Step 1: Cool the Oven

⚠ WARNING: The oven operates at temperatures up to 550°F (288°C) and may cause injury if not allowed to cool properly.

- Turn off the oven by touching "ESC" until the main power screen returns.
- Slightly open the oven door.
- Cooling takes approximately 40 minutes.

⚠ DO NOT clean the oven until the display reads "Status Off."

Step 2: Remove the Wire Racks

Step 3: Remove Large Food Particles

- Use a vacuum hose or damp towel.

Step 4: Spray Stains with Oven Cleaner

- Spray cleaner onto stains/debris build-up and allow it to set for five minutes.

⚠ DO NOT spray cleaner near the heater elements or convection fan blade.

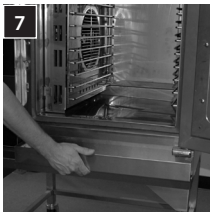
Step 5: Scrub Stains

- Scrub stains with a nylon scrub pad.

Continued on page 6...

Step 6: Wipe the Oven Cavity

- Wipe the oven cavity and door with a damp towel to collect any remaining cleaner residue.
- Thoroughly dry the cavity and door with a dry towel.



Step 7: Clean the Lower Tray

- Remove the lower tray to remove large particles and clean with a damp towel.

Step 8: Apply TurboChef Oven Guard

- Spray TurboChef Oven Guard onto a clean towel.
- Wipe the oven's interior walls and the inside of the oven door.

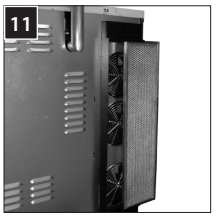
⚠ CAUTION: DO NOT spray Oven Guard directly into the cavity, as it may settle and build up on the heater elements or the convection fan blade, resulting in a non-warranty service call.

Step 9: Reinstall the Oven Racks

Step 10: Clean the Oven Exterior

- Wipe the oven exterior with a clean, damp towel.

⚠ CAUTION: DO NOT spray chemicals into any openings, such as the louvers on the back panel or the rear filter. Doing so can damage critical oven components, resulting in a non-warranty service call.



Step 11: Check the Rear Filter

- Remove the filter and rinse it gently in water.
- Reinstall the clean filter.
- If the filter is damaged, replace it using part number i5-9039.
- The oven is ready to turn on.

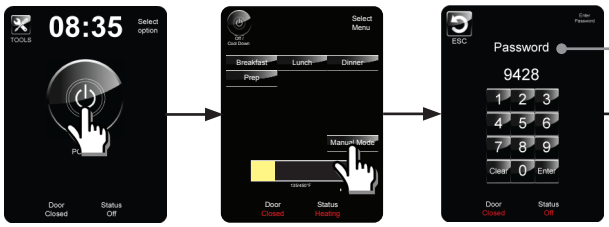
Oven Modes

- Manual Cook
- Menu Cook
- Menu Edit
- Manager

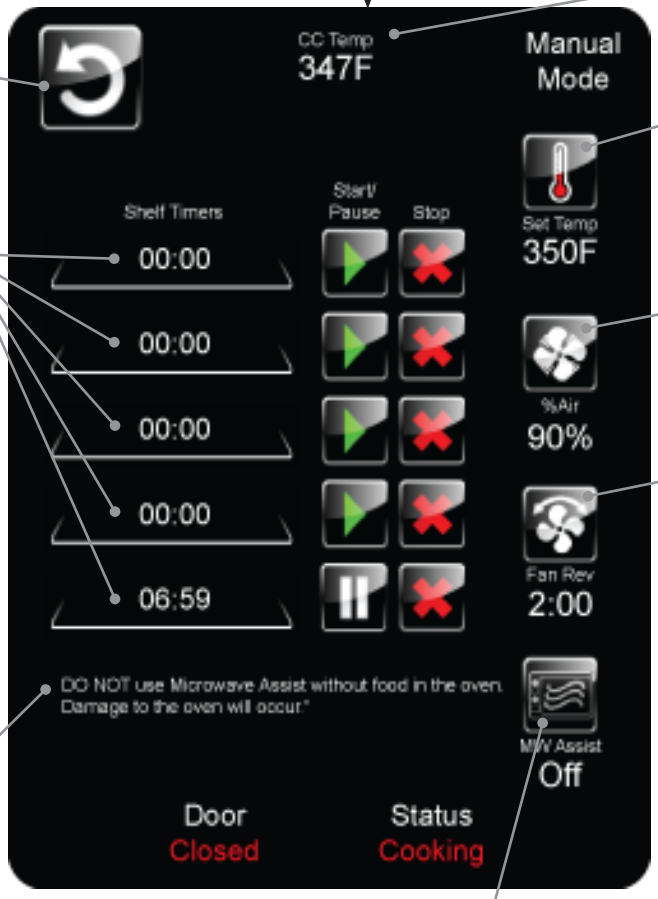
Manual Cook Mode

Manual Cook Mode allows cooking "on the fly," whereas Menu Cook Mode (page 8) allows cooking from pre-set cook settings.

NOTE: If the Manual Mode icon is not present, see pages 19 and 24 to make it appear.



If required, enter passcode 9428. See page 24 to enable/disable passcode options.



Oven temperature

Touch to exit Manual Mode.

Touch to add 30 seconds to a shelf timer, or hold to rapidly increase shelf timer.

Touch to set the temperature.

Touch to modify the fan speed.

Touch to clear a shelf timer.

Touch to begin counting down the shelf timer.

Touch to modify the fan reverse time.

While a shelf timer is counting down, touch to pause the shelf timer.

"Microwave Assist" note will appear after the oven has completed warming up.

Touch to set Microwave Assist to low, medium, high, or off. Microwave energizes only when the timer is set to greater than zero.

NOTE: Whenever the oven door is opened, the Microwave Assist is set to off and the microwave circuit de-energizes.

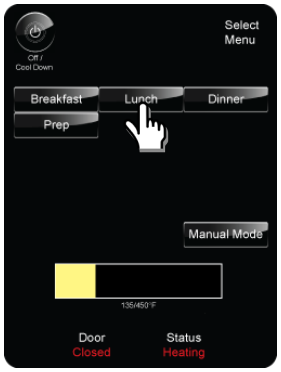
NOTE: Cook options are not available while the oven is heating up.

Menu Cook Mode

The oven is programmed with recipe settings at the time of manufacture and is ready to operate out of the box. New menu settings can be loaded via USB (page 25) or programmed manually (page 10).

1. Turn the oven on.

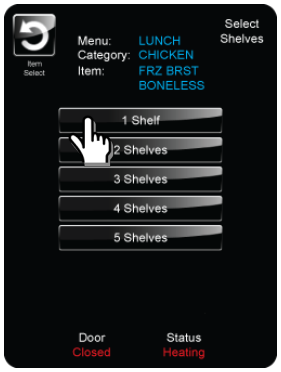
2. Select a menu, or select "Manual Mode" to enter Manual Cook Mode (see page 7 for details).



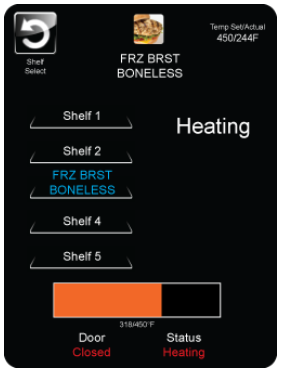
3. Select a food group. To view more groups, touch the arrow at the top of the screen.

4. Select an item. To view more items, touch the arrows at the top and bottom of the item list.

5. Select how many shelves of product will be cooked.

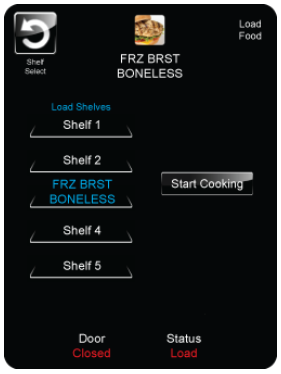


6. The oven may require additional heating time before cooking can begin. Progress is displayed at the bottom of the screen.



7. If the oven is heating up for the first time, it may require an additional "soak" time, to ensure the cavity walls retain enough heat so that cooking performance will not be affected.

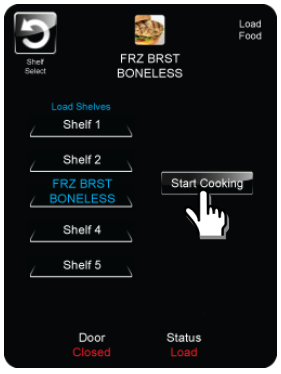
8. When the oven is done heating, place the food on the shelves as shown on the screen.



⚠ WARNING: Inside of oven and oven door are hot!

10. Cook the food:

a. Touch "Start Cooking."



b. The timer will begin counting down.

c. To pause cooking, touch the Pause icon.

To resume cooking, touch the Start icon.

d. To stop cooking immediately, touch the Stop icon.

e. When cooking is done, check the food or remove it from the oven.

⚠ WARNING: Inside of oven and oven door are hot!

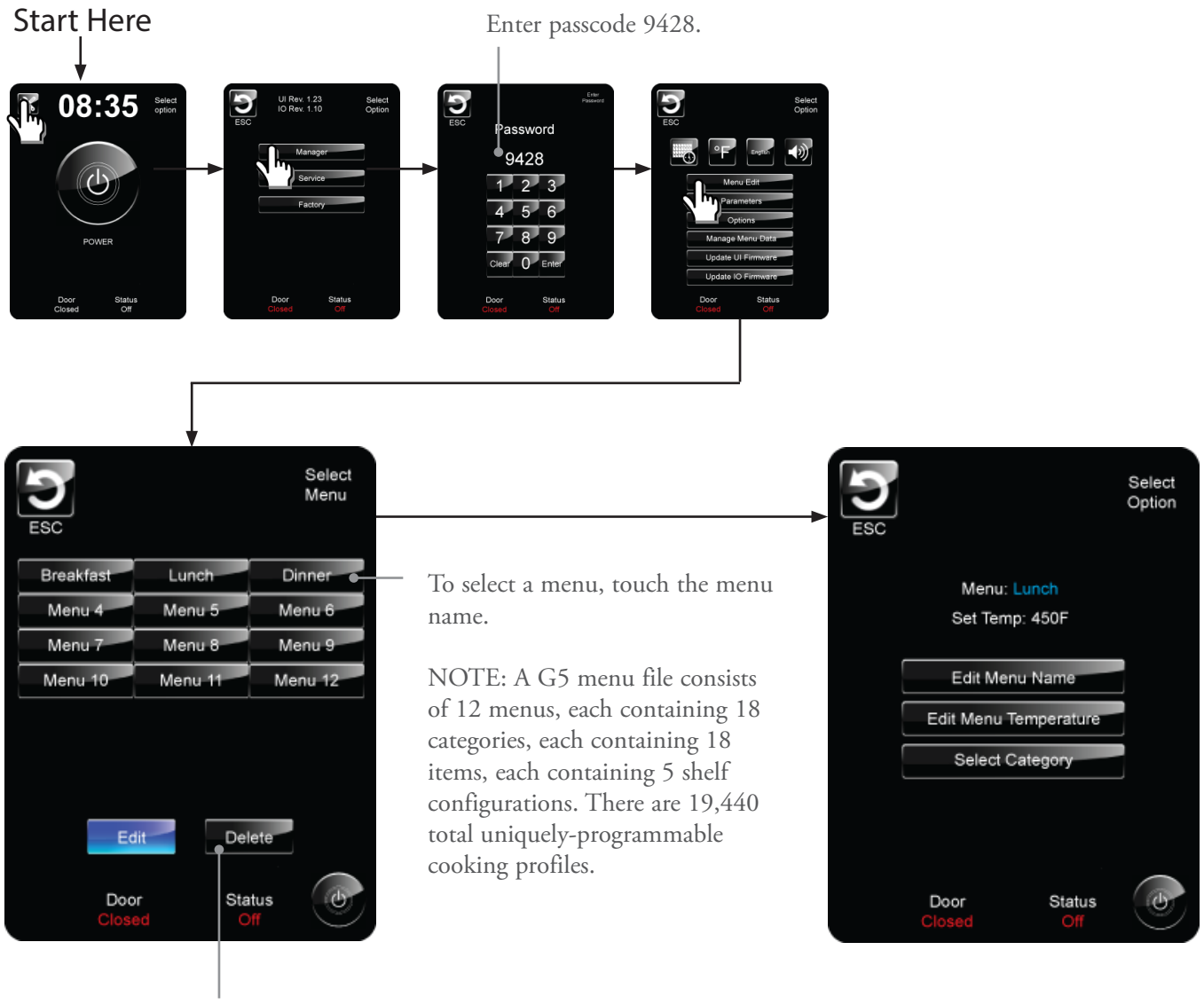
f. Additional options:

- Select "Cook More" if the inside of the food is not done.
- Select "Brown More" if the outside of the food needs more browning.
- Select "Cook + Brown" if both the inside and outside of the food require more cooking.
- To cook another batch of the same product, touch "Cook Another."
- To cook something else, or to select a different number of shelves for cooking the same product, touch "Cook Something Else."

Menu Edit Mode

Follow the steps below to access the “Menu Edit Mode” screen. From this screen, users can:

- Edit setting names
- Set menu temperature
- Edit icons
- Edit cook settings
- Test cook
- Delete menus, categories, and items



To select a menu, touch the menu name.

NOTE: A G5 menu file consists of 12 menus, each containing 18 categories, each containing 18 items, each containing 5 shelf configurations. There are 19,440 total uniquely-programmable cooking profiles.

⚠ CAUTION: If “Delete” is selected (blue), touching a menu will delete it from the oven. In this illustration, “Edit” is selected (blue).

Edit Menu Name

From the “Menu Edit Mode” screen (page 10), touch the “Edit Menu Name” icon.

Displays the menu selected.

Use keypad to type new name.

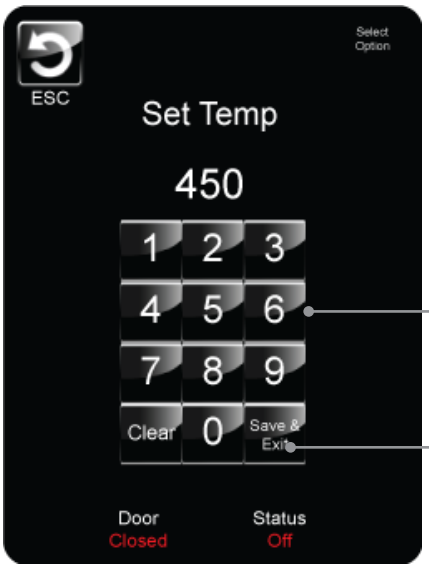
Touch to access special characters.

Use arrow keys to move the cursor without deleting existing text.

Touch “Enter” to save changes.

Edit Menu Temperature

From the “Menu Edit Mode” screen (page 10), touch the “Edit Menu Temperature” icon.

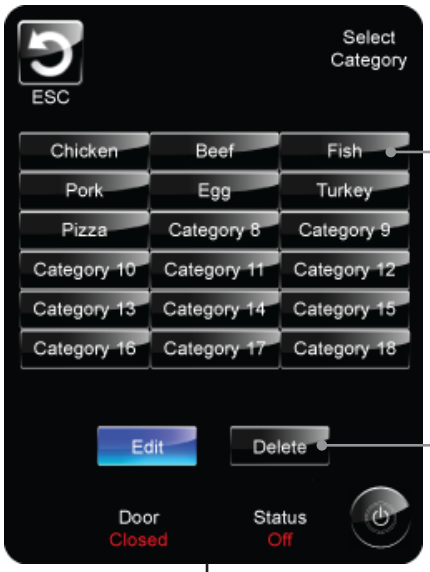


Use numeric keypad to enter new temperature.

Touch “Save & Exit” to save temperature.

Edit Category Name

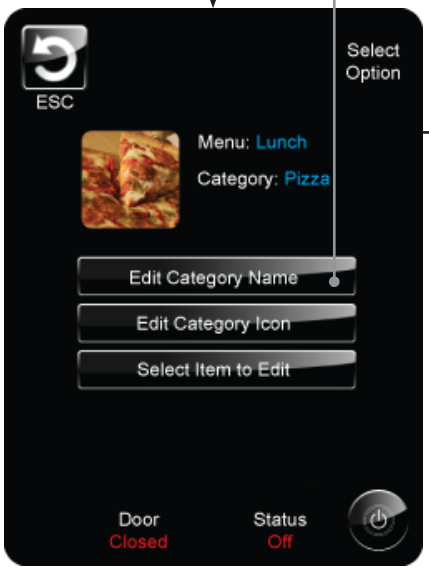
From the “Menu Edit Mode” screen (page 10), touch “Select Category” icon.



Touch a category name to access the screen below.

⚠ CAUTION: If “Delete” is selected (blue), touching a menu will delete it from the oven. In the adjacent illustration, “Edit” is selected (blue).

Touch “Edit Category Name”



Touch to save the new name.

Use keypad to type new name.

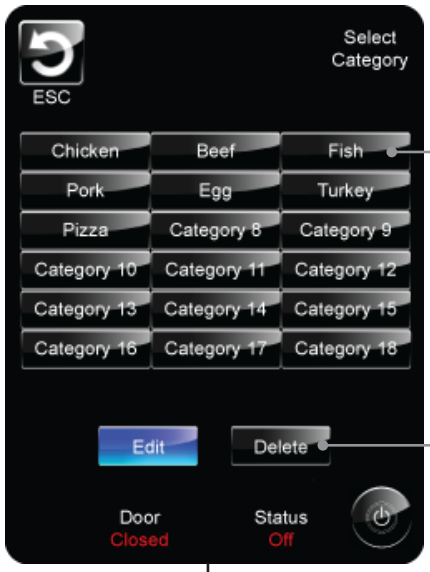
Touch to access special characters.

Use arrow keys to move the cursor without deleting existing text.

Edit Category Icon

Select Category

From the “Menu Edit Mode” screen (page 10), touch “Select Category” icon.



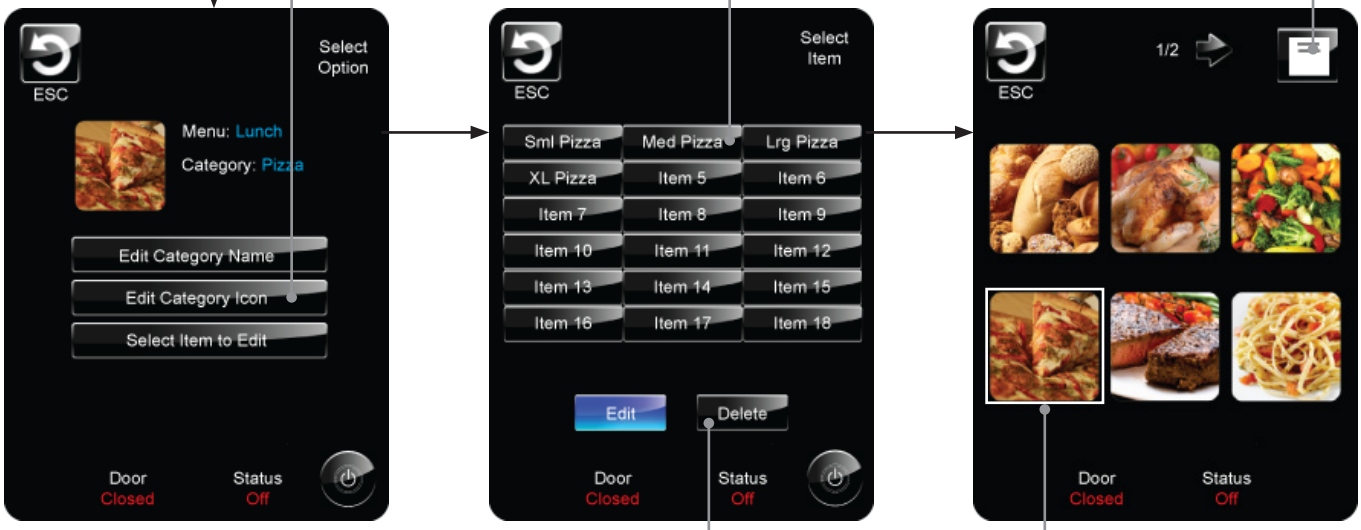
Touch a category name to access the screen below.

⚠ CAUTION: If “Delete” is selected (blue), touching a menu will delete it from the oven. In the adjacent illustration, “Edit” is selected (blue).

Touch “Edit Category Icon.”

Select the name of the category.

Touch to save the new icon.



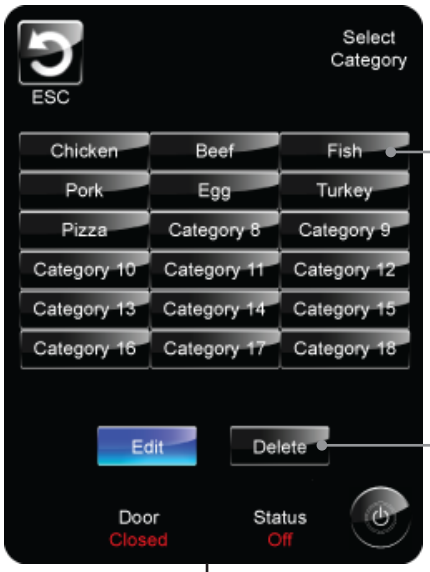
⚠ CAUTION: If “Delete” is selected (blue), touching a menu will delete it from the oven. In the adjacent illustration, “Edit” is selected (blue).

Touch an image to select it as the new category icon.

View Edit Recipe Screen

Select Category

From the “Menu Edit Mode” screen (page 10), touch “Select Category” icon.

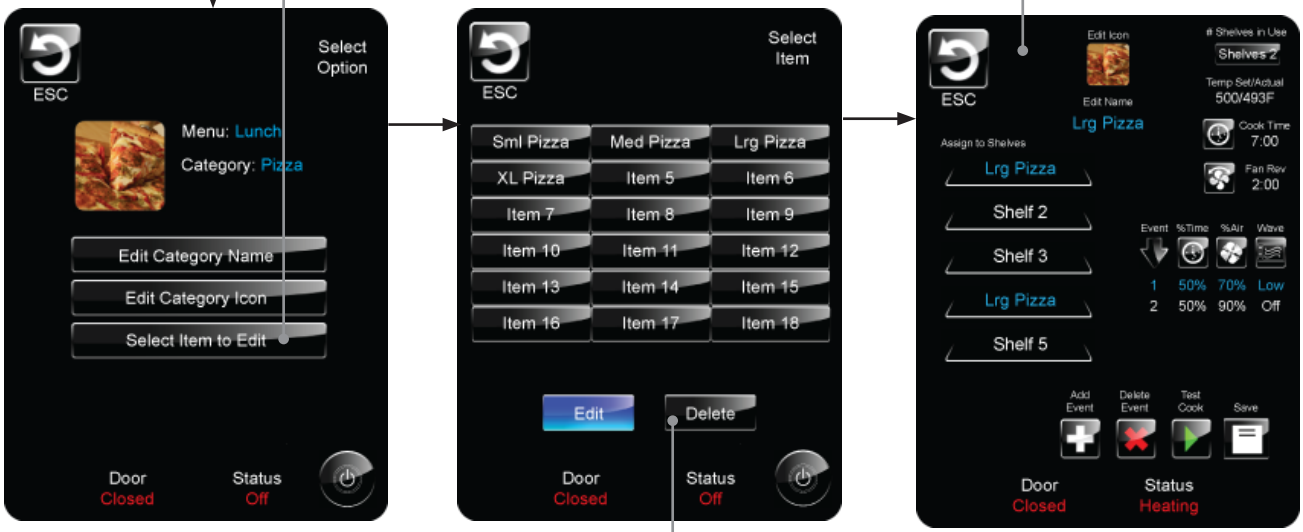


Touch a category name to access the screen below.

⚠ CAUTION: If “Delete” is selected (blue), touching a menu will delete it from the oven. In the adjacent illustration, “Edit” is selected (blue).

Touch “Select Item to Edit”

See adjacent page for a larger view.



⚠ CAUTION: If “Delete” is selected (blue), touching a menu will delete it from the oven. In the adjacent illustration, “Edit” is selected (blue).

Edit Recipe Screen Overview

From the “Edit Recipe Screen” users can:

- Edit recipe cook time
- Edit fan reverse time
- Edit recipe icon
- Edit recipe name
- Run a test cook cycle

Each food item includes up to five shelf configurations. The settings on the adjacent screen are for two shelves of product (i.e., “Shelves 2”).

NOTE: The sum of event time percentages must always equal 100. In this example, there are two events, each set to 50% of the cook time.

Touch “Save” when finished.

Events are phases of a cook cycle. Up to 6 events can be added, each with varying levels of air and microwave. Increase or decrease the amount of time for each event by changing the %Time.

NOTE: Event settings can be stored for up to 5 different shelf configurations (i.e., “shelves in use”) per item.

Edit Recipe Cook Time

From the “Edit Recipe” screen (pages 14-15), touch the cook time icon.

Touch to toggle between minutes and seconds (MM:SS) and hours and minutes (HH:MM).

Use numeric keypad to enter time.

Touch “Enter” to save time.

Edit Fan Reverse Time

From the “Edit Recipe” screen (pages 14-15), touch the fan reverse icon.

Use numeric keypad to input new fan reverse time.

Touch “Enter” to save new time.

Edit Recipe Icon

From the “Edit Recipe” screen (pages 14-15), touch “Edit Icon” located at the top-center of the screen.

Touch arrow to advance to the next screen.

Touch any icon to select it.

Edit Recipe Name

From the “Edit Recipe” screen (pages 14-15), touch “Edit Name” located at the top-center of the screen.

Use keypad to edit the recipe name.

Touch “Enter” to save new recipe name.

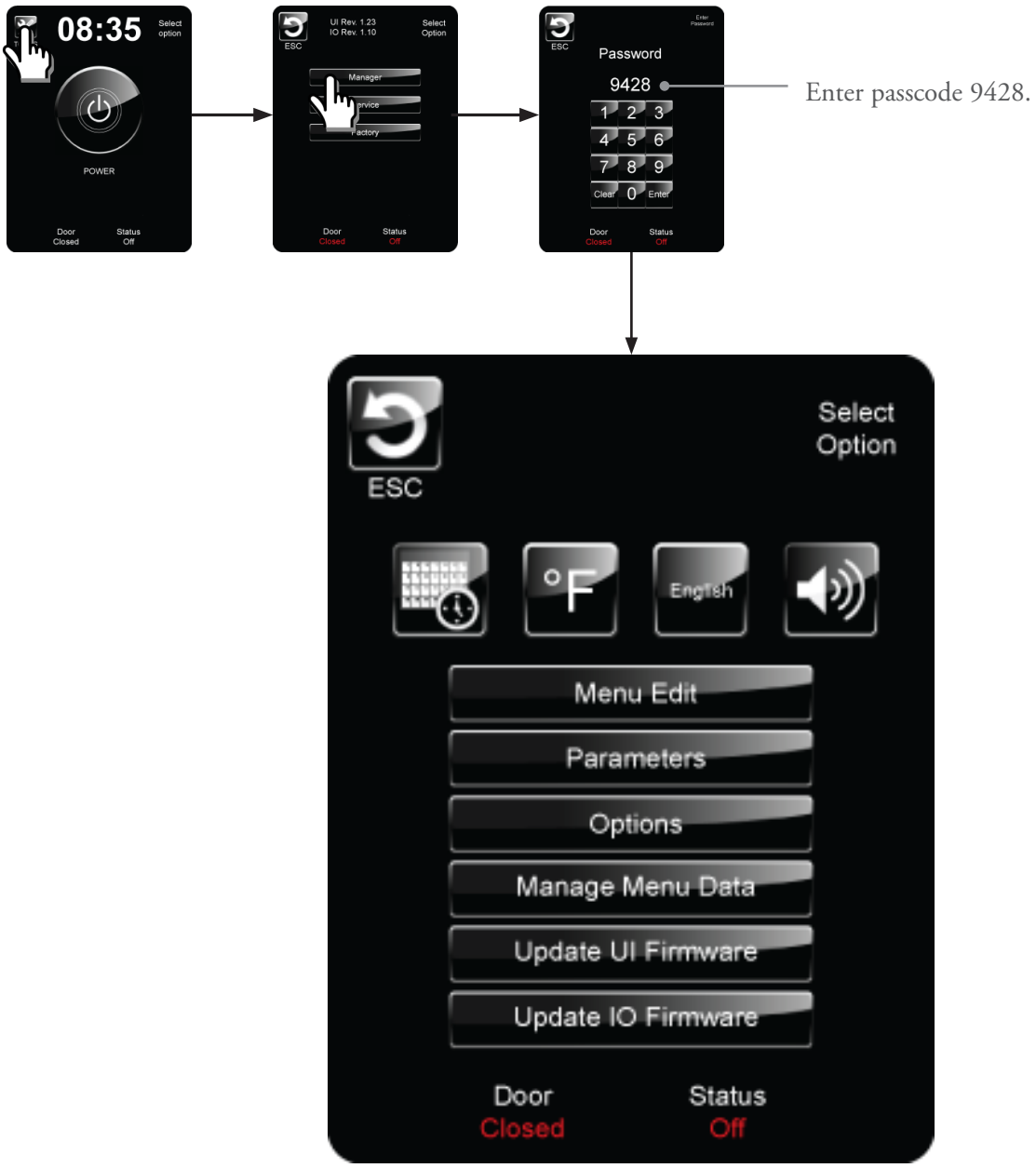
Run a Test Cook Cycle

From the “Edit Recipe” screen (pages 14-15), touch the green arrow icon.

Manager Mode

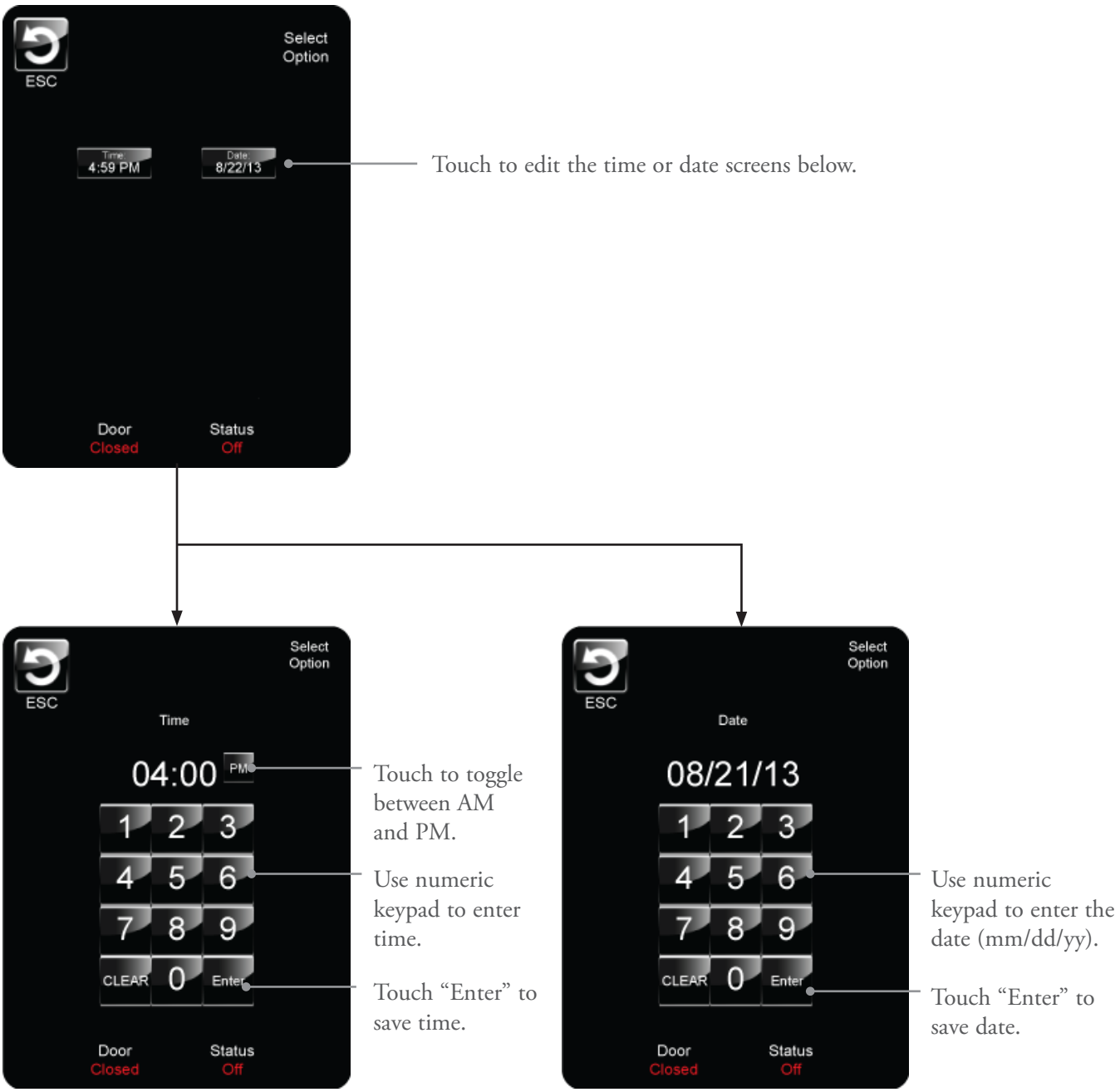
Follow the steps below to access the “Manager Mode” screen. From this screen, users can:

- Set calendar and time
- Set temperature to Fahrenheit/Celsius
- Set language to English/French
- Set speaker volume
- Load/save menu files
- Access “Menu Edit Mode”
- Set oven options
- Update oven firmware
- Set oven parameters



Set Calendar and Time

From the “Manager Mode” screen (page 19), touch the calendar/time icon to edit the time and date.



Set Fahrenheit/Celsius

The default for the temperature settings is Fahrenheit. From the “Manager Mode” screen (page 19), touch the °F icon.

Touch to save changes.

Touch to toggle between Fahrenheit (°F) and Celsius (°C). Touch the “Save” icon once the changes are made.

Set Language to English/French

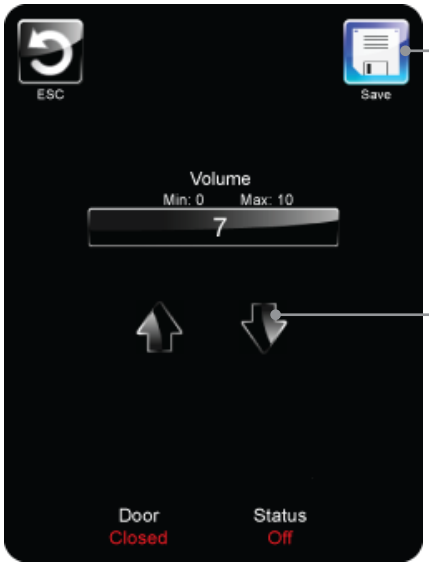
From the “Manager Mode” screen (page 19), touch English/French icon.

Touch to save changes.

Touch to toggle between English and French.
Touch the “Save” icon once the changes are made.

Set Speaker Volume

From the “Manager Mode” screen (page 19), touch the speaker icon.

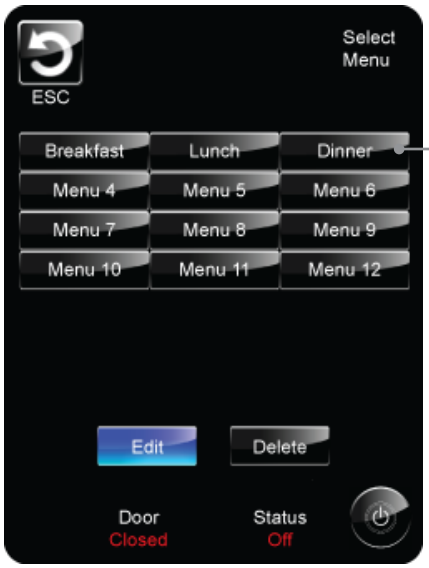


Touch to save changes.

Touch up or down arrow keys to increase or decrease the volume.

Menu Edit Mode

From the “Manager Mode” screen (page 19), touch the “Menu Edit” time icon to view the existing menu. See pages 10-18 for details on “Menu Edit Mode.”



NOTE: A G5 menu file consists of 12 menus, each containing 18 categories, each containing 18 items, each containing 5 shelf configurations. There are 19,440 total uniquely-programmable cooking profiles.

Set Oven Parameters

From the “Manager Mode” screen (page 19), touch the “Parameters” icon to edit:

Default Temperature
The temperature to which the oven preheats until a menu is selected (Menu Cook Mode, see page 8) or the set temperature is changed in Manual Cook Mode (see page 7).

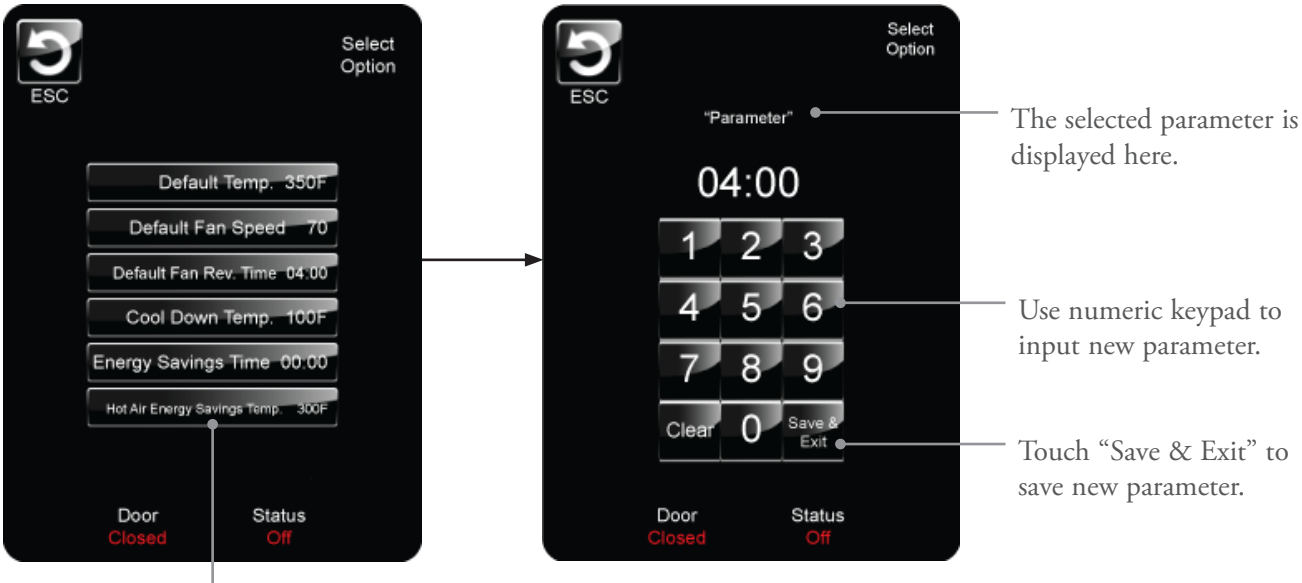
Default Fan
The fan speed to which the oven is set when the oven is cooling down.

Default Fan Rev Time
The interval of time between fan direction reversals.

Cool Down Temp
The temperature to which the cavity must cool before the cooling fan turns off.

Energy Savings Time
The oven will go into energy savings mode if idle for the amount of time entered here. A setting of 00:00 turns this feature off.

Hot Air Energy Savings Temperature
Temperature at which the oven will hold during “Energy Savings” mode.



The selected parameter is displayed here.

Use numeric keypad to input new parameter.

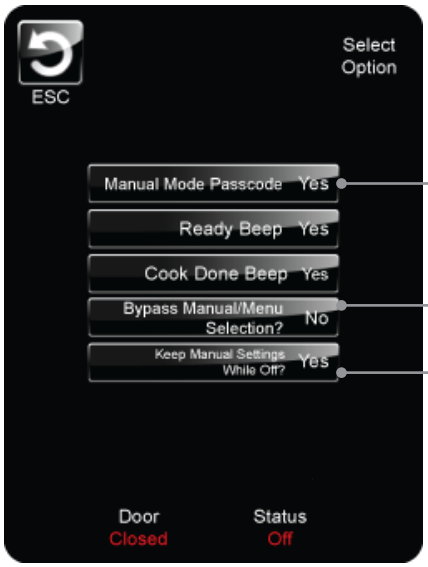
Touch “Save & Exit” to save new parameter.

Touch one of the icons above to select and edit it.

Set Oven Options

From the “Manager Mode” screen (page 19), touch the “Options” icon to set:

- Manual Mode Passcode
- Ready Beep
- Cook Done
- Bypass Manual/Menu Selection
- Keep Manual Settings While Off



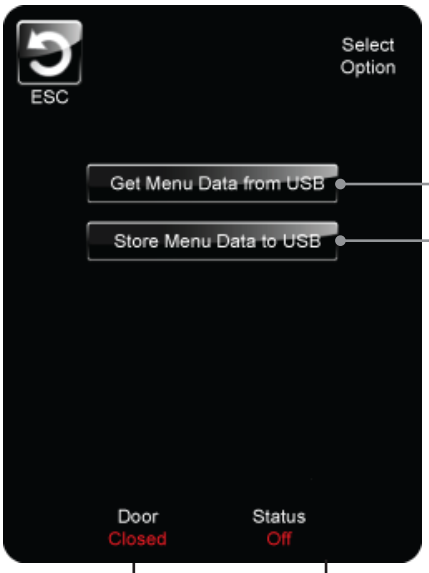
Yes = oven will require a passcode to access Manual Mode (page 7).

Yes = Manual Mode cannot be accessed.
No = Manual Mode can be accessed.

Yes = Last settings used in Manual Mode are saved.

Manage Menu Data

From the “Manager Mode” screen (page 19), touch the “Manage Menu Data” icon.



Touch to add a new menu to the oven.

Touch to download a menu from the oven.

USB Port beneath oven display

Touch “Get Menu Data from USB”

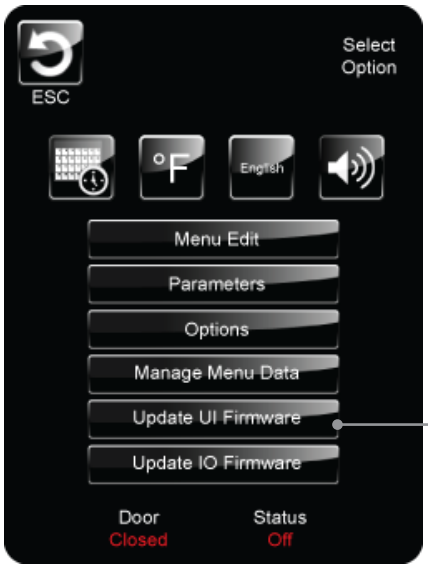
Touch “Store Menu Data to USB”

Display shows menus loaded to the thumb drive. Touch a menu name to load it to the oven.

Name the menu file to be saved to the thumb drive.

Update UI Firmware

From the “Manager Mode” screen (page 19), touch the “Update UI Firmware” icon. To download the latest G5 firmware, visit www.turbochef.com/firmware.



USB Port beneath oven display

Once the firmware has been downloaded from the TurboChef website and saved to a USB thumb drive, insert the thumb drive and touch the “Update UI Firmware” icon. The oven may take several minutes to complete the update.

NOTE: Some previous versions of the firmware may not have this icon. If the icon does not exist, unplug the oven, insert the thumb drive with the new firmware, and then plug the oven back in. The oven will detect the new firmware and begin loading it.

Update IO Firmware

From the “Manager Mode” screen (page 19), touch the “Update IO Firmware” icon. To download the latest G5 firmware, visit www.turbochef.com/firmware.

USB Port beneath oven display

Once the firmware has been downloaded from the TurboChef website and saved to a USB thumb drive, insert the thumb drive and touch the “Update IO Firmware” icon. The oven may take several minutes to complete the update.

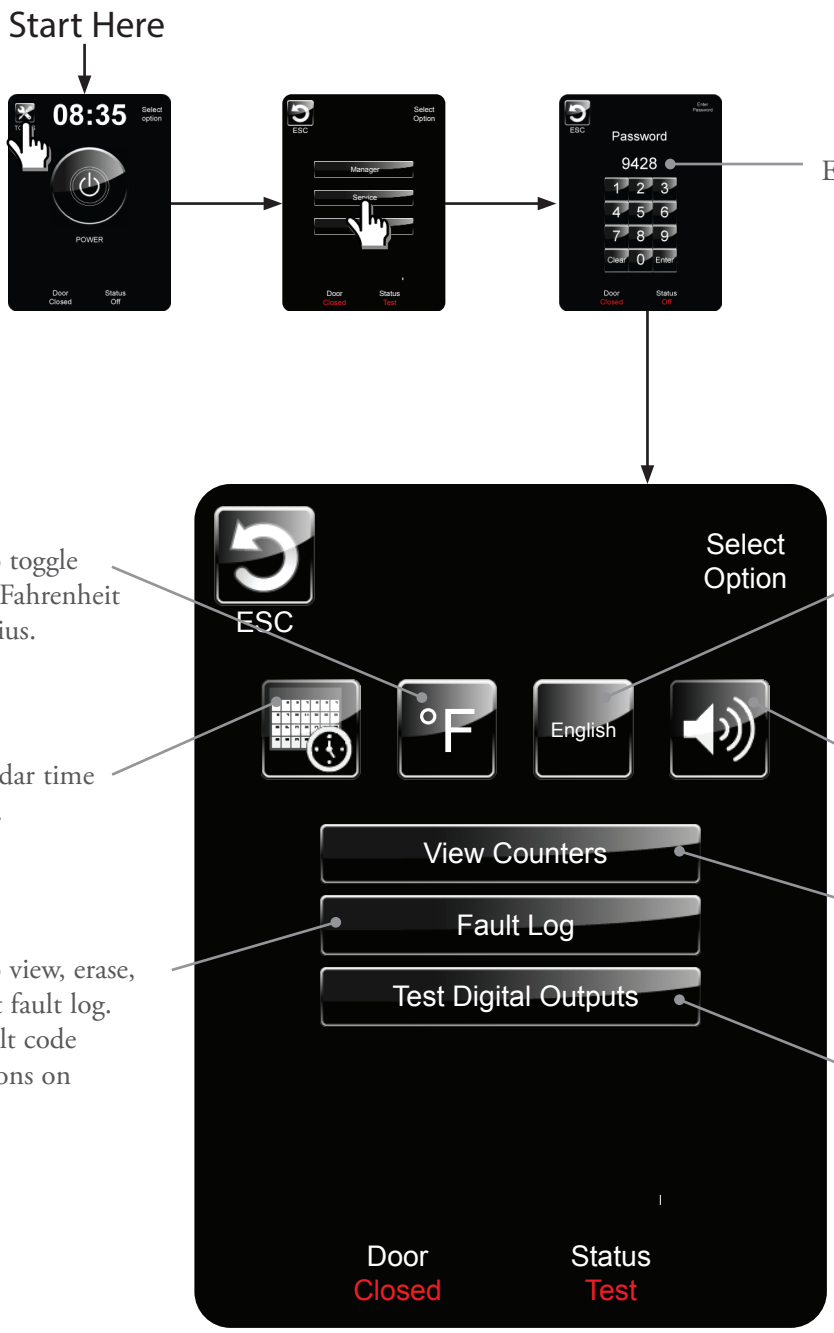
NOTE: Some previous versions of the firmware may not have this icon. If the icon does not exist, unplug the oven, insert the thumb drive with the new firmware, and then plug the oven back in. The oven will detect the new firmware and begin loading it.

Service Modes

- Digital Outputs

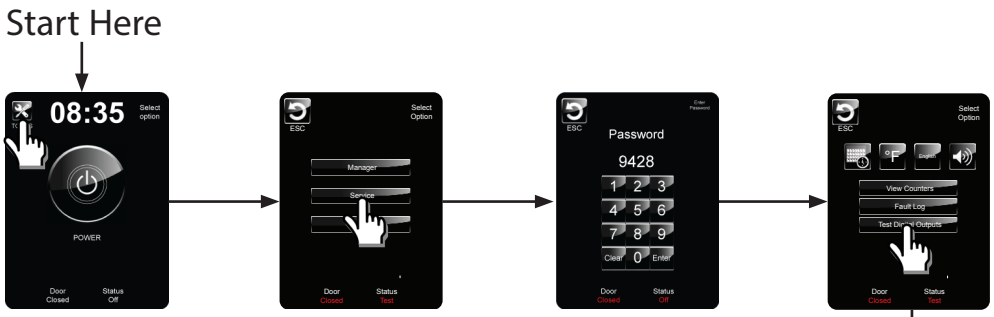
Service Mode

Service Mode allows access to troubleshooting and diagnostic screens.



Digital Outputs

Digital Outputs allows testing of oven system components.



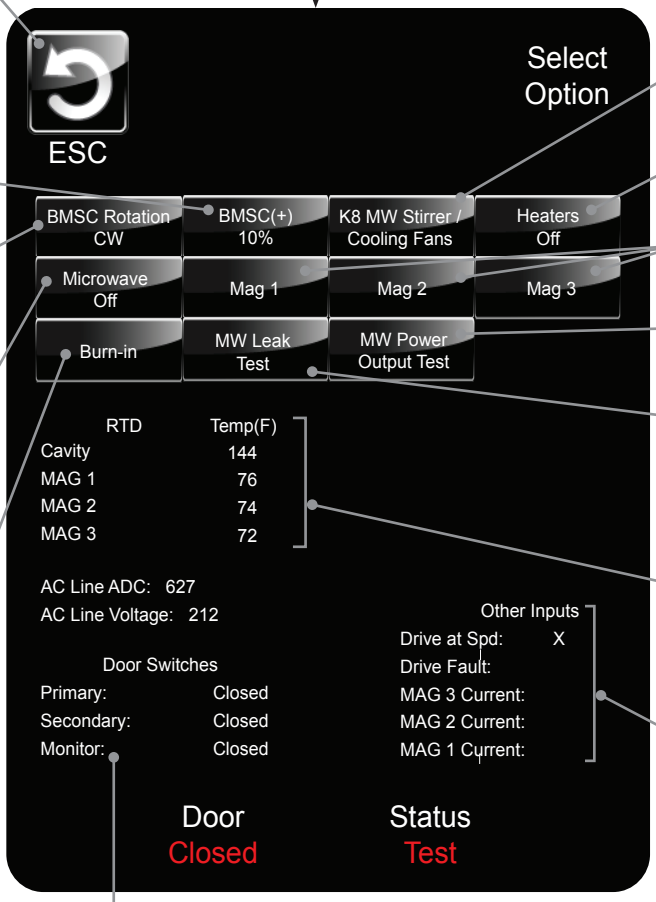
Touch to exit Digital Outputs screen.

Touch to increase the BMSC in increments of 10%. Pressing at 100% scrolls the number back to 10%.

Touch to toggle the motor direction between Clockwise (CW) and Counterclockwise (CCW).

Touch to set the Microwave to low, medium, high, or off.

Touch "Burn In" to begin a 30-minute burn in. This feature helps ensure the reliability of test results by adequately warming the cavity walls. Burn in is not usually required unless instructed by TurboChef.



Displays door switch status.

Touch to energize or de-energize K8.

Touch to turn the heaters off and on.

Touch to operate individual magnetrons.

Do not use - for manufacturer use only.

Touch to initiate a Microwave Leak Test (see page 33 for additional information).

Displays individual RTD probe(s) diagnostics.

When testing these inputs, an 'X' indicates that a component is operating.

Oven Systems

Convection System

The convection system rapidly heats and recirculates air into the cook cavity.

This section contains information about the following components:

- Convection fan
- Frequency drive
- Convection heater
- High-limit thermostat
- RTD (Cavity)
- Solid state relay

For information on accessing and removing parts, see the Appendix.

Blower Motor

The blower motor is 3 phase, thermally protected and reversible. Its top speed is approximately 1400 RPM at 5 HP, and it is controlled by a frequency drive controller.

Frequency Drive

The speed of the blower motor is controlled by the frequency output of the frequency drive. The frequency drive receives an input voltage (0-10 VDC) from the I/O control board and adjusts the frequency output to the blower motor. Refer to the oven schematic on pages 54-65 for voltage to RPM specifications.

Testing Procedure

⚠ CAUTION: Capacitors on the frequency drive may retain charge after power is removed. Wait for the capacitors to discharge for further safety. The display on the frequency drive will be blank once fully discharged.

⚠ WARNING: DO NOT connect incoming AC power to output terminals U, V, or W.

⚠ WARNING: DO NOT change or access parameters unless instructed by TurboChef. Changing the parameters to other than those preset by TurboChef can damage critical oven components.

1. Ensure that no faults appear on the display during the operation of the frequency drive. The control will display the frequency output if the system is operating correctly.

To	From	Description	Expected Resistance
Blue	Brown	Winding (A-B)	6.0-6.3 Ohms
Blue	Black	Winding (A-C)	6.0-6.3 Ohms
Brown	Black	Winding (B-C)	6.0-6.3 Ohms
Blue, Brown, or White	Ground	Winding to chassis	Open

Blower Motor Ohm Chart (Motor Windings)

2. Check the input voltage on terminals L1 and L2 (208-240 VAC) and the DC voltage input on terminals A1 and AC (0.1-10 VDC).
3. If no voltage is present, inspect the wire harness for damage or open circuit (pages 42 and 45).
4. If wire harness is intact and undamaged, the frequency drive is damaged or defective and must be replaced.

Convection Heater

The convection heater is a sheathed-style and is rated at 3000 watts at 208 VAC, with a resistance of 14.4 Ohms at room temperature. The convection heater is controlled by the solid state relay. For steps on testing the heater, see page 37.

High Limit Thermostat

The high limit thermostat is a 250 VAC, 3-pole, manual-reset thermostat with a trip point of 572ºF (300ºC). The thermostat interrupts power to the main convection heater in the event of an abnormal condition. Reset the high-limit thermostat by pressing the reset button on the front of the oven near the USB port.

RTD

The RTD probe measures temperature of product in the oven. If the measurement reads “999°F/C”, the RTD is open. See page 29 for troubleshooting.

RTD Testing Procedure:

1. Disconnect the RTD from the control harness (see pages 54-65).
2. Place the RTD in ice water for two minutes.
3. Take a resistance reading of the RTD.
4. If RTD resistance is not 100 Ω (+/- 2 Ω), the RTD is defective and must be replaced.

Solid State Relay

The solid state relay is a 3 channel, single control, 400 VAC, 75-amp relay. It switches power to the heater at a digital rate for accurate control at 208 and 240 VAC.

Troubleshooting

The following faults may occur in relation to the convection system:

- F1: Blower (see page 43)
- F2: Low Temp (see page 44)
- F8: Heat Low (see page 48)

The following cooking performance issues may occur in relation to the convection system:

- Inconsistent/Inaccurate Temperature Readings: (see page 50)
- Food not cooking properly (see page 52)

Oven Door

This section contains information about the following components:

- Oven door
- Interlock switches
- Relay (K5 - Monitor)
- Relay (K6 - Primary)
- Relay (K7 - Secondary)

This section also contains procedures for:

- Removing/reinstalling the oven door
- Adjusting the oven door
- Measuring RF leakage for microwave safety

For information on accessing and removing parts, see the Appendix.

The oven door assembly consists of a shunt plate, skin, and handle. Each of these items can be serviced and replaced independently.

⚠ NOTE: The proper fit and adjustment of the oven door is essential for safe and reliable oven operation.

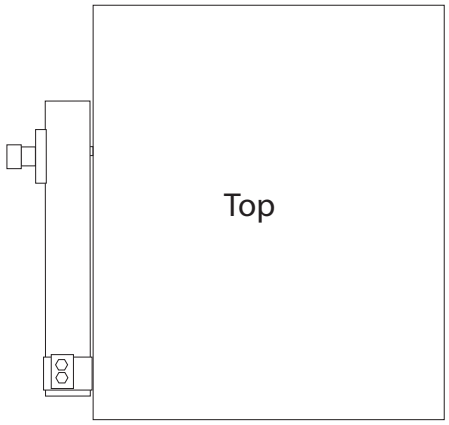
Replacing the Oven Door

To remove or reinstall the oven door, follow the steps below. For illustrations, see page A-6 of the Appendix.

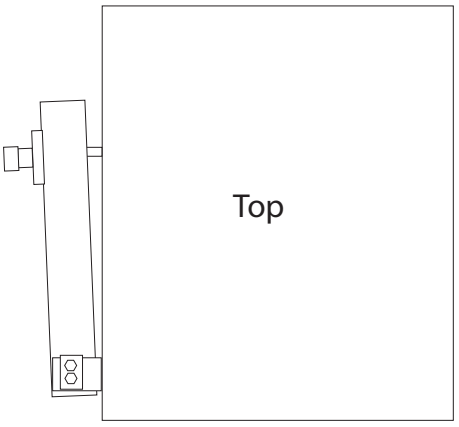
1. Ensure the oven has cooled to 150°F (66°C).
2. Remove the tray below the oven door. This will allow access to the bottom hex bolts securing the door to the hinge.
3. Open the oven door. This will ensure that strain is not placed on the strike pin when the door is removed from its hinges.
4. Remove the two hex bolts on the top-right, where the door meets the hinge.
5. Support the bottom of the door to prevent it from falling off, and remove the two hex screws on the bottom-right, where the door meets the hinge.
6. Remove the oven door.
7. Replace the oven door.
8. Complete a microwave leakage test (page 33).

Adjusting the Oven Door

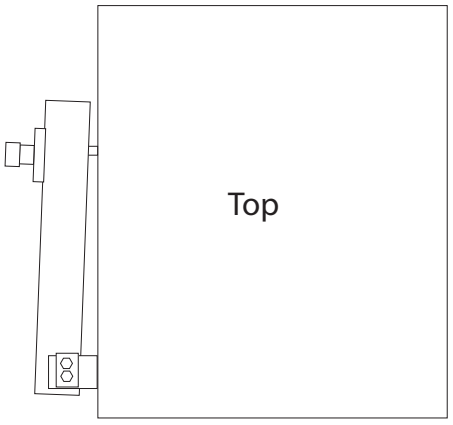
The oven door must be parallel to the oven frame. If it is not, it will not seat properly in the capture pin. See the below illustration; instructions continued on page 32.



Oven Door Aligned Properly



Oven Door Misaligned (A)



Oven Door Misaligned (B)

⚠ WARNING: This procedure is performed while the oven is hot. To avoid burns, be careful when adjusting the door.

1. Place the oven in manual cook mode (page 7) and allow it to warm up.
2. Close the oven door.
3. Loosen the hex screws at the top and bottom of the door hinge.
4. Adjust the position of the door/screws/slide bracket until the door is parallel to the oven frame and it seats properly in the capture pin.
5. Tighten the screws.
6. Perform a microwave leakage test (see page 33).

Interlock Switches

The primary, secondary, and monitor interlock switches engage and disengage in sequence to ensure a proper seal. When the door is opened, the primary (P) and secondary (S) switches are open, and the monitor (M) switch is closed. When the door is closed, the primary (P) and secondary (S) switches are closed, and the monitor (M) switch is open. The primary (P) and secondary (S) switches us N/O contacts, and the monitor (M) switch uses N/C contacts.

There is no adjustment procedure for the switches. If a switch is not opening or closing properly, replace the switch or verify the capture pin assembly is not damaged.

Relay - K5 Monitor

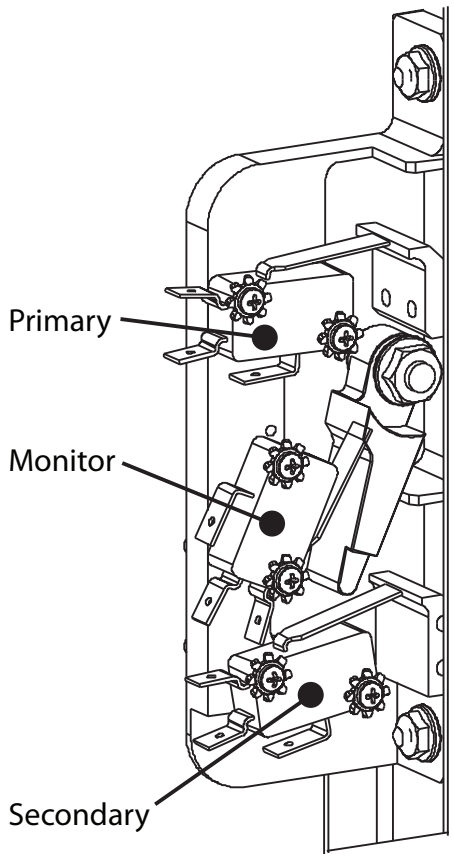
The K5 monitor relay is a fail safe for the power to the high-voltage transformers T1, T2, and T3. In the event of the door opening during microwave operation, the sole purpose of the K5 monitor relay is to short L1 to L2, L2 to L3, and L3 to L1 causing two of the three fuses to open (blow) immediately to ensure the microwave is disrupted until authorized repairs are completed.

Relay - K6 Primary

The K6 relay is a 240 VAC, 30 amp, double-pole, double-throw, 24 VDC relay coil. If the primary switch is opened during cooking, the K6 relay sends a signal to the control board to interrupt the microwave circuit and pause cooking.

Relay - K7 Secondary

The K7 relay is a 240 VAC, 30 amp, double-pole, double-throw, 24 VDC relay coil. If the secondary switch is opened during cooking, the K7 relay sends a signal to the control board to interrupt the microwave circuit and pause cooking.



Door Switch Identification

Measuring RF Leakage for Microwave Safety

⚠ WARNING: This procedure requires work with hot surfaces and water loads. To avoid burns, be careful when testing.

An RF (microwave) leakage test must be performed at the conclusion of the following service tasks:

- Door removal, replacement, and/or adjustment
- Waveguide removal and/or replacement
- Magnetron removal and/or replacement
- Door switch adjustment and/or replacement

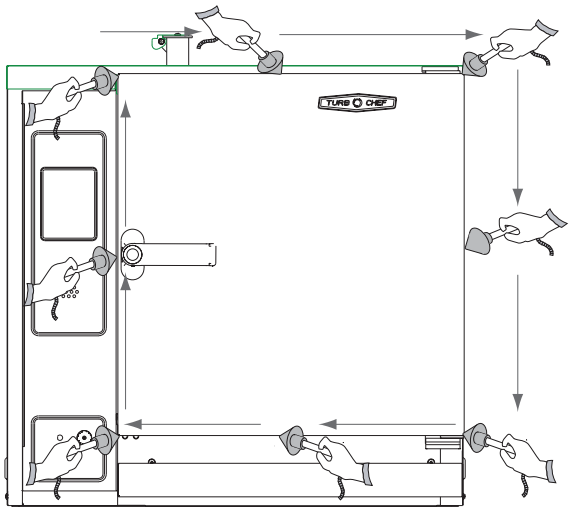
⚠ WARNING: If the unit fails the microwave leakage test (leakage greater than 5mW/cm^2), the oven must be taken out of service immediately until the defect is corrected. In addition, the CDRH Regulation 21 Subpart C, 1002.20 requires that leakage readings of over 5mW/cm^2 must be reported to the manufacturer.

To measure RF leakage,

1. Turn the oven on and allow it to warm up to the set temperature (approximately 15 minutes if the oven starts cold).
2. Once the oven has warmed up, go to the Digital Outputs screen (page 28). From the Digital Outputs screen, select "MW Leak Test" and follow the instructions on the screen (also detailed in the following steps).
3. Place a water load into the cook cavity. The water load must conform to the following specifications:
   - Volume: 275 ml ± 15 ml
   - Temperature: 68ºF ± 9ºF (20ºC ± 5ºC)
   - Vessel: Low form, 600 ml beaker with an inside diameter of approximately 3.35" (85 mm) and made of Pyrex or equivalent.
4. Close the oven door and press the Enter key. The microwave system will turn on.
5. Measure microwave emission around the door as shown in the adjacent illustration, moving the meter sensor at 0.5 inches/second.
6. As microwave leakage is observed while moving the sensor, note any meter spike areas that come close to 5mW/cm^2 for later re-measurement.
7. Replace the water load every 60 seconds until the test is completed, and also after scanning the door.
8. Close the oven door and return the meter probe to any "meter spike" areas and allow the probe to remain in the "spike" area for 17 seconds. Note the highest reading obtained.

NOTE: There may be several places on the door where this procedure needs to be done. If so, start out with a fresh water load each time a new area is measured, or if measurement of an area takes longer than 60 seconds.

10. After each test is complete, open the oven door and dispose of the hot water.



Troubleshooting

The following faults may occur in relation to the oven door:

- F4: Monitor (see page 46)

The following issues may occur in relation to the oven door:

- "Oven Door Open" message when door is closed (see page 49)

Microwave System

The G5 oven employs a microwave system with three magnetrons. In the case of an over-current situation, the F3 fuse will blow, shutting off the system immediately.

This section contains information about the following components:

- Capacitors
- Fuses
- High-voltage transformers
- High-voltage diodes
- Magnetrons
- Magnetron cooling fans
- Magnetron thermostats
- Relay (K2 - Mag 1)
- Relay (K3 - Mag 2)
- Relay (K4 - Mag 3)
- Relay (K8 - Cooling Fans and Stirrer)
- Stirrer
- Tri-Amp Board
- Waveguides

This section also contains procedures for:

- Testing a capacitor
- Testing a high-voltage diode
- Wiring the high-voltage transformers
- Testing a high-voltage transformer
- Testing a magnetron for an open/shorted filament

For information on accessing and removing parts, see the Appendix.

Capacitors

- Capacitor rating is 0.91uF, 2500 VDC for all 60 Hz installations (except Japan).
- Capacitor rating is 1.15uF, 2500 VDC for all 50 Hz installations.
- Capacitor rating is 0.85uF, 2500 VDC for 60 Hz Japan installations.

Testing a Capacitor

⚠ DANGER: Never attempt any measurement of the capacitors while they are enabled. Lethal voltage will be present. Measure only in compliance with these procedures.

1. Disconnect the oven from the power source.
2. Fully discharge the capacitor.
3. Isolate the capacitor from the circuit.
4. Check for an open or shorted capacitor by placing ohmmeter leads between the capacitor terminals:
   - Escalating ohm readings = capacitor OK
   - Constant infinite resistance = capacitor open
   - Constant very low resistance = capacitor shorted
5. If the capacitor is not open or shorted, set the meter to measure capacitance and again place the leads between the capacitor terminals. The meter reading should equal the label value, plus or minus 10%. If not, replace the capacitor.

Fuses

The F1, F2, and F3 fuses are 20-amp, ATMR, class CC for delta configurations and 12-amp, ATMR, class CC for WYE configurations.

The F1 fuse (via white wire) is designed to blow if an over-current situation is encountered by mag 1 or mag 3. The F2 fuse (via red wire) is designed to blow if an over-current situation is encountered by mag 1 or mag 2, and the F3 fuse (via black wire) is designed to blow if an over-current situation is encountered by mag 1 or mag 3.

High-Voltage Transformers

High-voltage transformers are ferro-resonant, which limits faulty currents and minimizes magnetron power changes due to input voltage changes. The high-voltage transformer supplies the high voltage for the voltage doubler circuit. The high-voltage transformers also preheat the magnetron filament, supplying approximately 3.15 VAC at 10 amps to each magnetron filament.

Wiring the High-Voltage Transformers

⚠ DANGER: Never attempt to wire or measure the secondary voltage values of the high-voltage transformers. Lethal voltage will be present.

The proper reinstallation of a high-voltage transformer is critical. Upon removing a high-voltage transformer, make sure to note where each wire was installed. Refer to the oven schematic (pages 54-65) for wiring detail.

As shown in the schematic, the G5 is a 3-phase system with L1 and L2 at T1, L2 and L3 at T2, and L3 and L1 at T3. The international model (5-wire, 400 VAC, 50 Hz) uses L1 and N for T1, L2 and N for T2, and L3 and N for T3. This places the magnetrons out-of-phase by 120º. It is essential for longevity that the high-voltage transformers and magnetron tubes remain 120º out-of-phase.

With the microwave system energized, the volt meter will read the incoming voltage (different readings for different electrical installations). If the meter reads 0 VAC, the high-voltage transformer's primary or secondary is open. If shorted, this would blow a fuse and the high-voltage transformer would need to be removed and replaced. As a last check, energize the microwave system and verify the voltages between the primary taps on each high-voltage transformer. The wiring issue must be corrected prior to returning the oven to service, as the voltages must be:

- U.S./CANADA: 208 VAC between 1 & 2 and 240 between 1 & 3.
- INTERNATIONAL: 230 VAC at terminal 1 and neutral at terminal 3

NOTE: The orange wire always goes to terminal 3 on US models.

Testing a High-Voltage Transformer

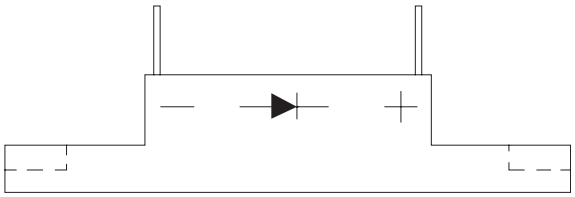
⚠ DANGER: Never attempt to measure the secondary voltage values of the HV transformers. Lethal voltage will be present.

1. Disconnect the AC power source and discharge the high-voltage capacitors.
2. Disconnect all the wires in question going to and from the transformer.
3. Use an ohmmeter to check the resistance of the primary and secondary winding. Refer to the table below to determine if the transformer is operating properly. If the resistance is different than the table indicates, replace the transformer.

High Voltage Transformers	Primary Voltage, Frequency, Taps, and Resistance	Secondary Taps and Resistance	Filament Secondary and Resistance
RWD-3032	208 VAC, 50/60 Hz, 1 & 2, 1.2 Ω 240 VAC, 50/60 Hz, 1 & 3, 1.4 Ω	4, Ground, 70–72 Ω	Solid red wires 5 & 6, 0.1–0.2 Ω
102103	230 VAC, 50 Hz, 1 & 2, 0.972–1.188 Ω	3, Ground, 57.52–70.30 Ω	

High-Voltage Diodes

The high-voltage diode (see below) is assembled by connecting several 1000-1500 volt semi-conductor diodes in a series to increase the reverse voltage capability. In the circuit, the high-voltage diode conducts to prevent the filament voltage from becoming positive, thus as the high-voltage winding of the transformer goes to a peak of 2400 volts, the high-voltage capacitor is charged to 2400 volts.



When the high-voltage winding starts to go toward negative, the high-voltage diode becomes non-conducting with the charged high-voltage capacitor in series with the high-voltage winding. When the transformer gets to its negative peak of -2400 volts, the voltage applied to the filament is -4500 volts. The high-voltage diodes are rated at 16 kVDC.

Testing a High-Voltage Diode

⚠ DANGER: Never attempt to measure high voltage directly. Death or serious injury could result.

1. Disconnect the oven from the power source.
2. Fully discharge the capacitors.
3. Connect the voltage meter in series with high-voltage diode.
4. Using a multimeter set to DC voltage, connect one meter lead to one side of a 9-volt battery and the other lead to one side of the high-voltage diode.
5. Connect the other side of the 9-volt battery to the other side of the high-voltage diode. DC voltage should be present on the meter in only one direction.
6. Switch the meter leads on the high-voltage diode, which will cause the opposite reading to be visible. Depending on the voltage of the battery, voltage between 5-7 VDC should be present in only one direction and 0-0.1 VDC in the other direction.

Magnetrons

Magnetrons supply the RF energy at 2.45 GHz and begin to oscillate when they are supplied with approximately 4.1 kVDC at approximately .350 mA. During operation, each magnetron will output a nominal 1 kW of power.

Perform a microwave leakage test (page 33) after installing a new magnetron or reinstalling an old one.

⚠ CAUTION: Do not allow debris to enter the waveguides when servicing the magnetrons.

Magnetron Cooling Fans

Three magnetron cooling fans (located behind the rear oven panel) are actuated by the K8 relay when the magnetrons are in operation, and remain on for four minutes and fifteen seconds after the magnetrons turn off. They operate at:

- 208/240 VAC (60 Hz with voltage sensing)
- 220 VAC (60 Hz with no voltage sensing)
- 230 VAC (50 Hz installations)

Magnetron Thermostats

The magnetron thermostats are “open-on rise.” They are designed to open at 270°F (132°C), which triggers an F5 fault.

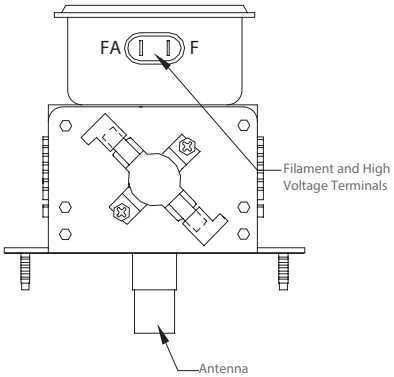
NOTE: The magnetron thermostats are wired in series. If one opens, the control will switch off all three magnetrons until the open thermostat closes. The thermostats are self-resetting.

Testing a Magnetron for an Open/Shorted Filament

⚠ DANGER: The only safe way to test a magnetron is by a resistance test of its filament. Never attempt to measure the magnetron using any other method while the microwave system is on. Death or serious injury could occur.

1. Disconnect the AC power source and discharge the high-voltage capacitors.

2. Isolate the magnetron from the circuit by removing the wires from the F and FA terminals (see below).
3. An ohmmeter connected between the filament terminals (F, FA) should indicate a reading of less than 1 ohm (see below).



4. A continuity check between either filament terminal and the magnetron chassis should indicate an infinite resistance (open).

⚠ CAUTION: Do not allow debris to enter the waveguides when servicing the magnetrons.

Relay - K2, K3, K4 Anode

The K2, K3, and K4 relays are 240 V, 30 amp, DPDT type with a 24 VDC coil. They provide power to the T1-1, T2-1, and T3-1 legs of the high-voltage transformers T1, T2, and T3, respectively.

Relay - K8 Magnetron Cooling Fans

The K8 relay is 240 V, 30 amp, DPDT type with a 24 VDC coil. It switches power to the magnetron cooling fans and stirrer motor when the magnetron filaments are actuated or when the RTD measures 150° F or greater. There is no timer control for the circuit.

Tri-Amp Board

The tri-amp board contains three current transformers for sensing magnetron current to K2, K3, and/or K4. Mag 1 is measured at the top CT (white wire), mag 2 at the middle CT (red wire), and mag 3 at the bottom CT (black wire).

Waveguides

The waveguides channel microwave into the cook cavity. If debris or contamination gets into the waveguides, the life of the magnetrons may be shortened. Be careful to not allow debris into the waveguides when servicing the magnetrons or stirrer assembly.

Troubleshooting

The following faults may occur in relation to the microwave system:

F3-1 - Mag 1 current low
F3-2 - Mag 2 current low
F3-3 - Mag 3 current low

F5-1 - Mag 1 over temperature
F5-2 - Mag 2 over temperature
F5-3 - Mag 3 over temperature

The following issues may occur in relation to the microwave system:

- Electrical component failure (blank or scrambled display, damaged control board, etc.)
- Food not cooking properly (see page 52)
- Fuse blown (see page 34)

Control System

This section contains information about the following components:

- User interface
- Relay I/O board
- Speaker
- USB port

User Interface

The G5 employs a resistive touch-screen display as the primary user interface. 24 VDC is supplied from the control board through the 4-pin power data cable. 24 VDC is used for the backlighting and logic systems.

Relay I/O Board

The relay board signals each oven component based on commands from the keypad. 24 VDC can be measured at pin 2 of the J7 connector to confirm control voltage is being applied.

Speaker

The speaker provides audible feedback to the oven operator whenever a key is pressed or a task (such as a cook cycle) is completed.

USB Port

The USB port allows the user to upload or download menu settings to a USB storage device.

Troubleshooting

The control system could potentially be related to the cause of any fault (see pages 41-48 for detailed fault troubleshooting).

The control system might also be related to any issue diagnosed in the section “Non-Fault Code Troubleshooting” on pages 49-52.

Electrical Components

This section contains information about the following components:

- Circuit breaker
- Electrical compartment cooling fan
- Electrical compartment cooling fan thermostat
- EMI filter
- Power supply, 24 VDC
- Relay (K1 - Voltage)
- 24 VAC transformer
- Wire harness(es)

Circuit Breaker

The auxiliary breaker is a 20-amp breaker that is designed to trip in case any component within the auxiliary circuit (fans, stirrer, BMSC, relays, etc.) experiences an over-current situation.

Electrical Compartment Cooling Fan

The electrical compartment cooling fan is actuated by the cooling fan thermostat when the temperature of the electrical compartment reaches 120ºF (49ºC).

Electrical Compartment Cooling Fan Thermostat

The cooling fan thermostat actuates the electrical compartment cooling fan when the electrical compartment temperature reaches 120ºF (49ºC).

EMI Filter

The EMI filter helps suppress the amount of RF interference emitted by the oven.

Power Supply

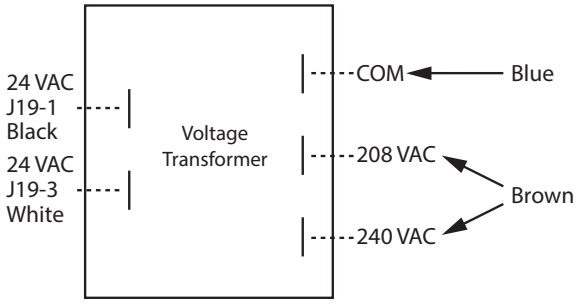
The power supply outputs 24 VDC at 50 watts to the control board and relays.

Relay - K1 Voltage

The K1 relay is a 240 VAC, 30 amp, three-pole, double-throw, 24 VDC relay coil. Operational in North America only, it switches between 208 and 240 VAC on the HV transformer taps (depending on incoming voltage). Through the voltage transformer, the oven defaults to the 240V position and switches to 208 if less than 227 volts is detected.

24 VAC Transformer

For North America models only. Voltage selection is completed at the time of manufacture; however, if incoming voltage for the store is different than the preset voltage, the operator will be required to switch the taps to either 208 or 240 before plugging the oven in.



Wire Harness

The wire harness distributes power to the oven's electrical components. See pages 54-65 for a schematic.

Troubleshooting

The electrical components could potentially be related to the cause of any fault (see pages 41-48 for detailed fault troubleshooting).

The control system might also be related to any issue diagnosed in the section "Non-Fault Code Troubleshooting" on pages 49-52.

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Troubleshooting

Overview of Troubleshooting

This section contains information on the following:

- Fault code descriptions
- Fault code troubleshooting
- Non-fault code troubleshooting

View the fault log from the Service Mode screen (page 27). For information and illustrations on replacing components, see the appendix.

Fault Code Descriptions

F1: Blower Running Status Bad

This fault is displayed when running status is not detected for a continuous 30-second time period. If a fault is detected, the control will terminate a cook cycle and display "F1: Blower."

A one-second "stop and retry" occurs 15 seconds into this 30-second time period. If the restart is successful, the fault code will be cleared from the display. The fault is also cleared from the display at the onset of cooking or when the blower motor digital output is tested (page 16).

F2: Cook Temperature Low

This fault is displayed if the cook cavity temperature is more than 84°F (47°C) below the set temperature during a cook cycle.

The fault is cleared from the display at the onset of cooking if the cook cavity temperature is within 84°F (47°C) of the set temperature or when the heater is turned on when testing digital outputs (page 16).

F3 (-1, -2, -3): Magnetron Current Low

This fault is displayed when less than 10 amps of current is detected at the tri-amp board (see schematic, page 44) for magnetron 1, 2, or 3 after it has been on for at least 10 seconds. The fault is monitored when the microwave is on during a cook cycle or while testing digital outputs (page 16).

The fault is cleared from the display at the onset of a cook cycle if the current transformer on the tri-amp board detects 10 amps, or when the magnetrons are successfully energized while testing digital outputs (page 16).

F4: Door Monitor Defective

This fault is displayed when the control detects that the monitor interlock switch opens before the primary or secondary interlock switches open. This fault will blow the F3 fuse if the microwave high voltage system is energized when the fault occurs. The fault is cleared from the display when the oven is powered off and then back on.

For switch identification, see page 20. To view a schematic, see page 42-45. The fault is monitored during a cook cycle when the microwave is on, as well as when testing digital outputs (page 16).

F5 (-1, -2, or-3): Magnetron Over Temperature

This fault is displayed when magnetron 1, 2, or 3 thermostat reaches 270°F (132°C).

The thermostat will reset automatically; the magnetron thermostats are wired in series. The fault is cleared from the display at the onset of a cook cycle if the thermostat is closed.

F8: Heat Low

This fault displays when the oven is warming up if the cook cavity temperature fails to rise at least 14°F (7°C) within a given 30 seconds.

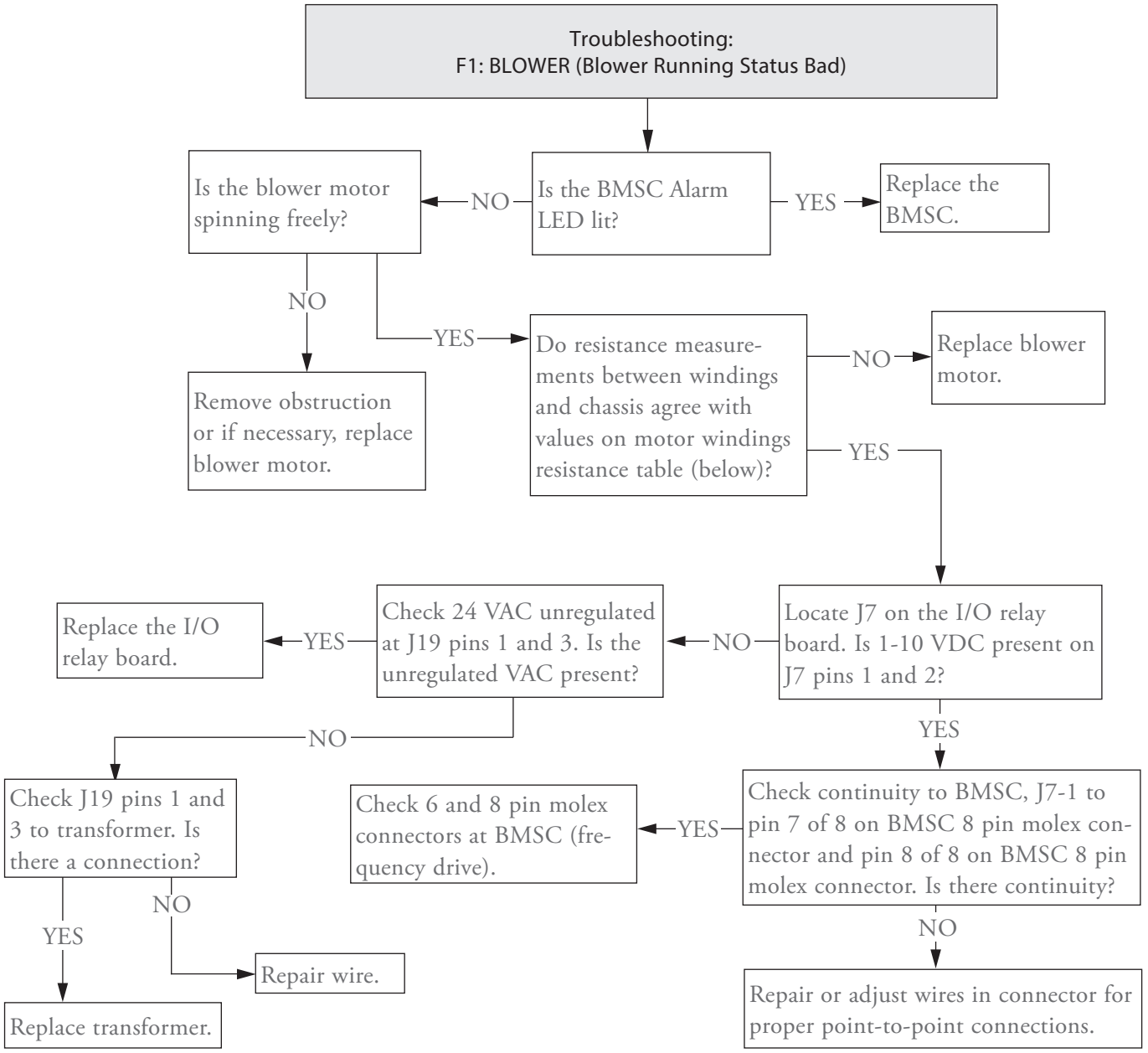
Fault Code and Description	When Active				Refer to...
	Warmup	Idle	Cooking	Test Digital Outputs	
F1: Blower Running Status Bad	✔	✔	✔	✔	Page 43
F2: Cook Temperature Low			✔		Page 44
F3 (-1, -2, -3): Magnetron 1, 2, or 3 Current Low			✔	✔	Page 45
F4: Door Monitor Defective			✔	✔	Page 46
F5 (-1, -2, or -3): Magnetron 1, 2, or 3 Over Temperature			✔	✔	Page 47
F8: Heat Low	✔				Page 48

Fault codes are listed in order of hierarchy. For example, if during cooking the oven experiences an F1 and F2 fault, the oven will report only the F1 fault because the software will halt all actions upon discovering the F1 fault.

All fault conditions except F8 will terminate a cook cycle upon discovery.

Fault Code Troubleshooting

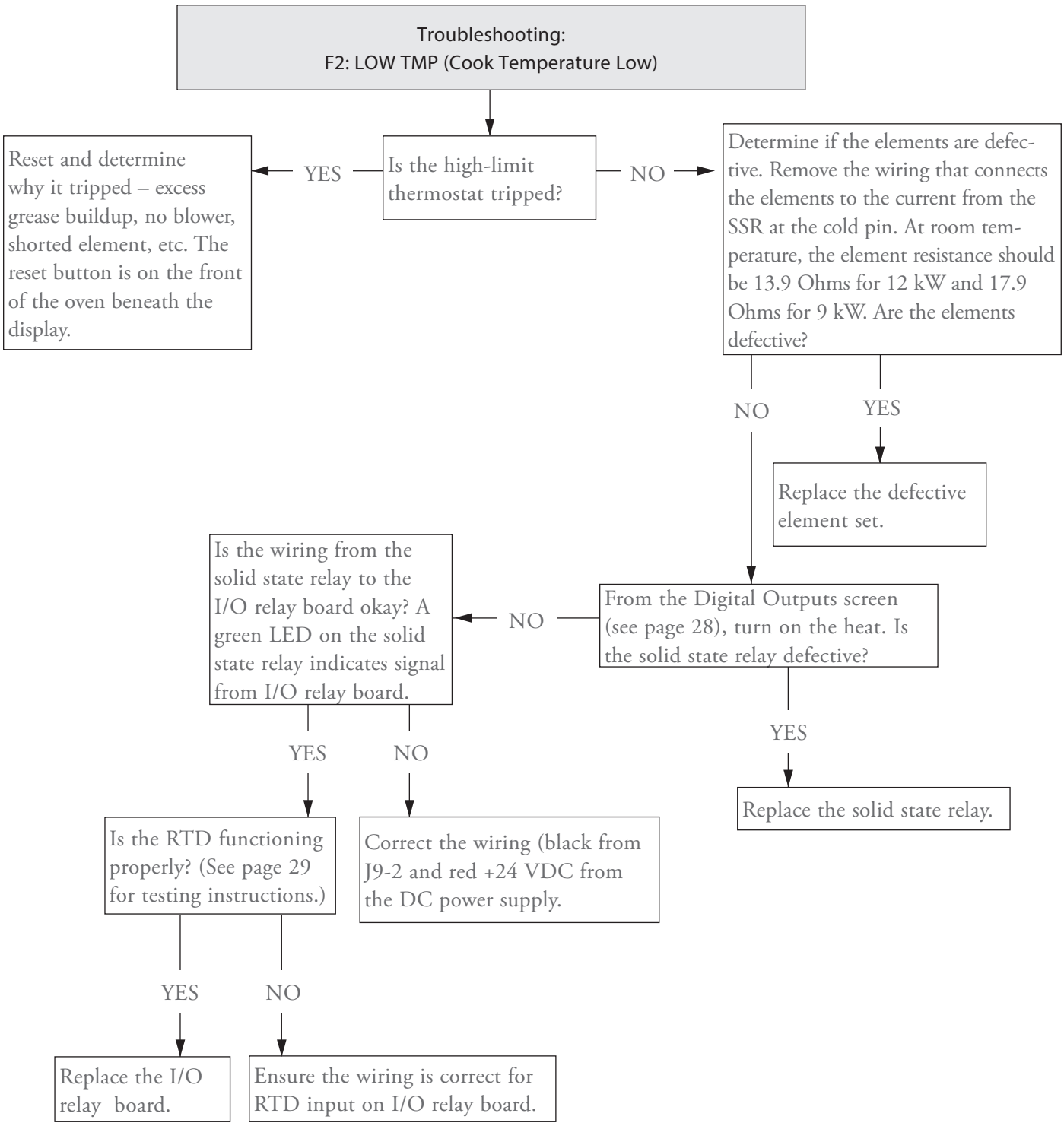
For instructions on testing G5 oven components, refer to the oven systems section (pages 29-39). To locate oven components for testing, adjustment, or replacement, see the Appendix.

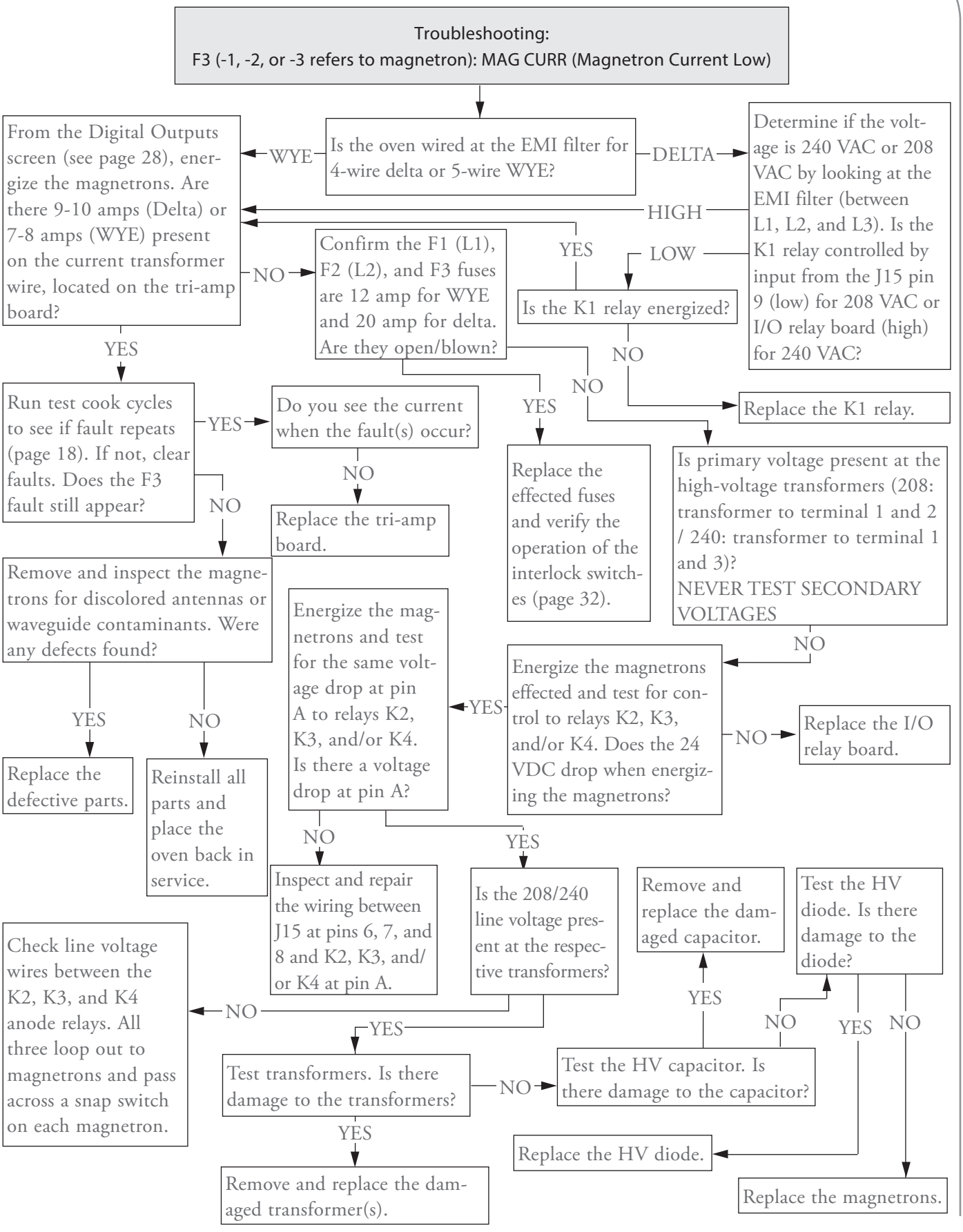


Pin Number	To	From	Description	Expected Resistance
1	Brown	Blue	Winding (A-B)	6.0-6.5 Ohms
2	Blue	Black	Winding (B-C)	6.0-6.5 Ohms
3	Black	Brown	Winding (C-A)	6.0-6.5 Ohms
1, 2, and 3	Black, Red, or White	Green/Ground	Windings to Chassis	Open – ∞ Ohms

Motor Windings Resistance Table

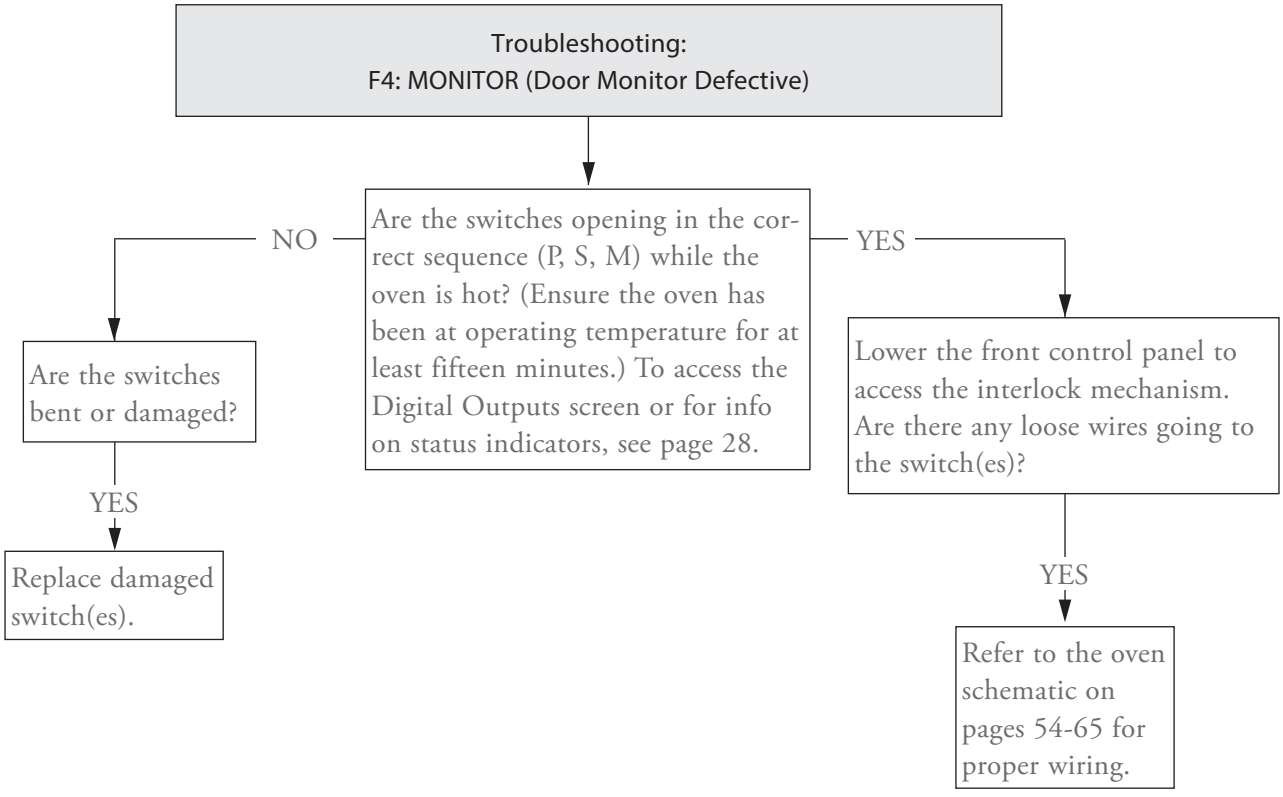
NOTE: Refer to the oven schematic on pages 54-65 for more details.

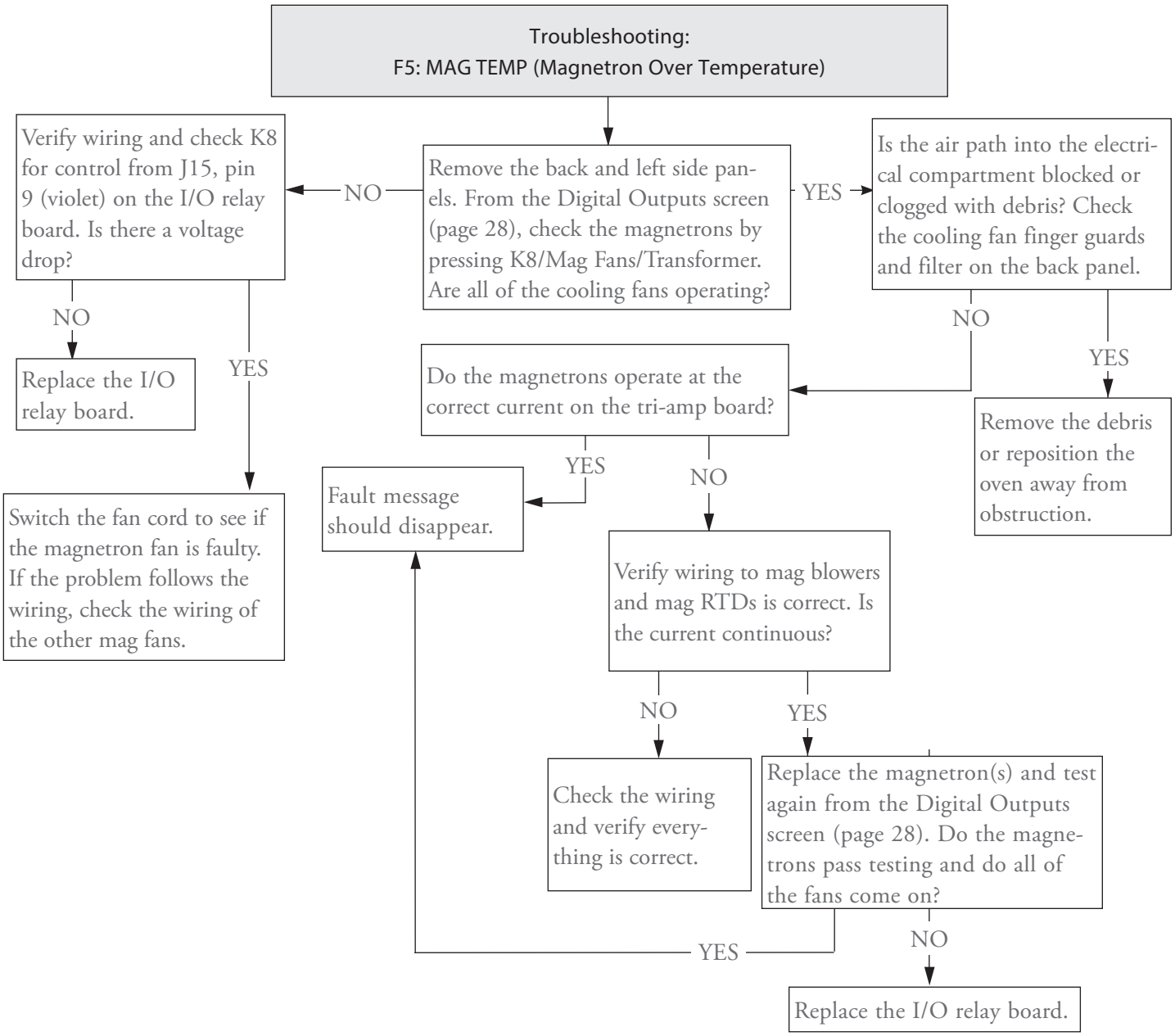


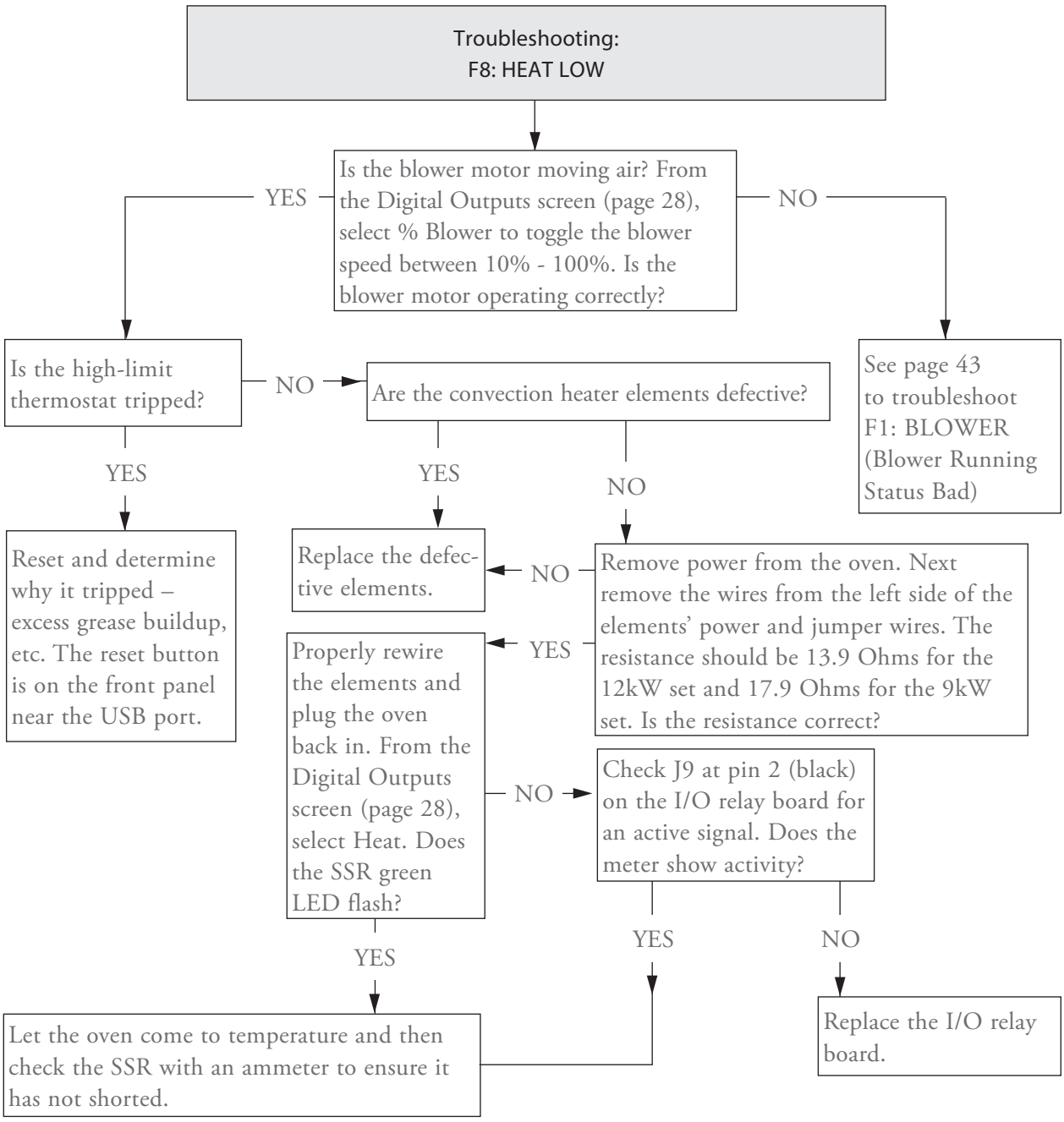

Troubleshooting:
F3 (-1, -2, or -3 refers to magnetron): MAG CURR (Magnetron Current Low)
Is the oven wired at the EMI filter for 4-wire delta or 5-wire WYE?
WYE
DELTA
From the Digital Outputs screen (see page 28), energize the magnetrons. Are there 9-10 amps (Delta) or 7-8 amps (WYE) present on the current transformer wire, located on the tri-amp board?
NO
YES
Determine if the voltage is 240 VAC or 208 VAC by looking at the EMI filter (between L1, L2, and L3). Is the K1 relay controlled by input from the J15 pin 9 (low) for 208 VAC or I/O relay board (high) for 240 VAC?
HIGH
LOW
Confirm the F1 (L1), F2 (L2), and F3 fuses are 12 amp for WYE and 20 amp for delta. Are they open/blown?
YES
NO
Is the K1 relay energized?
NO
YES
Replace the K1 relay.
Run test cook cycles to see if fault repeats (page 18). If not, clear faults. Does the F3 fault still appear?
YES
NO
Do you see the current when the fault(s) occur?
YES
NO
Replace the tri-amp board.
Replace the effected fuses and verify the operation of the interlock switches (page 32).
Is primary voltage present at the high-voltage transformers (208: transformer to terminal 1 and 2 / 240: transformer to terminal 1 and 3)?
NEVER TEST SECONDARY VOLTAGES
NO
Remove and inspect the magnetrons for discolored antennas or waveguide contaminants. Were any defects found?
YES
NO
Replace the defective parts.
Reinstall all parts and place the oven back in service.
Energize the magnetrons and test for the same voltage drop at pin A to relays K2, K3, and/or K4. Is there a voltage drop at pin A?
YES
Energize the magnetrons effected and test for control to relays K2, K3, and/or K4. Does the 24 VDC drop when energizing the magnetrons?
NO
Replace the I/O relay board.
NO
YES
Inspect and repair the wiring between J15 at pins 6, 7, and 8 and K2, K3, and/or K4 at pin A.
Is the 208/240 line voltage present at the respective transformers?
Remove and replace the damaged capacitor.
Test the HV diode. Is there damage to the diode?
Check line voltage wires between the K2, K3, and K4 anode relays. All three loop out to magnetrons and pass across a snap switch on each magnetron.
NO
YES
YES
NO
YES
NO
Test transformers. Is there damage to the transformers?
NO
Test the HV capacitor. Is there damage to the capacitor?
YES
Replace the HV diode.
Replace the magnetrons.
Remove and replace the damaged transformer(s).

Warm oven to operating temperature for at least fifteen minutes. From the Digital Outputs screen (page 28), view the status indicators. Open and close the door repeatedly. The primary, secondary, and monitor interlock switches engage and disengage in sequence to ensure a proper seal. When the door is open, the primary (P) and secondary (S) switches are open, and the monitor (M) switch is closed. When the door is closed, the primary (P) and secondary (S) switches are closed, and the monitor (M) switch is open.

NOTE: The order between the primary and secondary switches does not matter. When closing the door, the monitor must open before the primary and secondary switches close. When opening the door, the primary and secondary switches must open before the monitor closes.

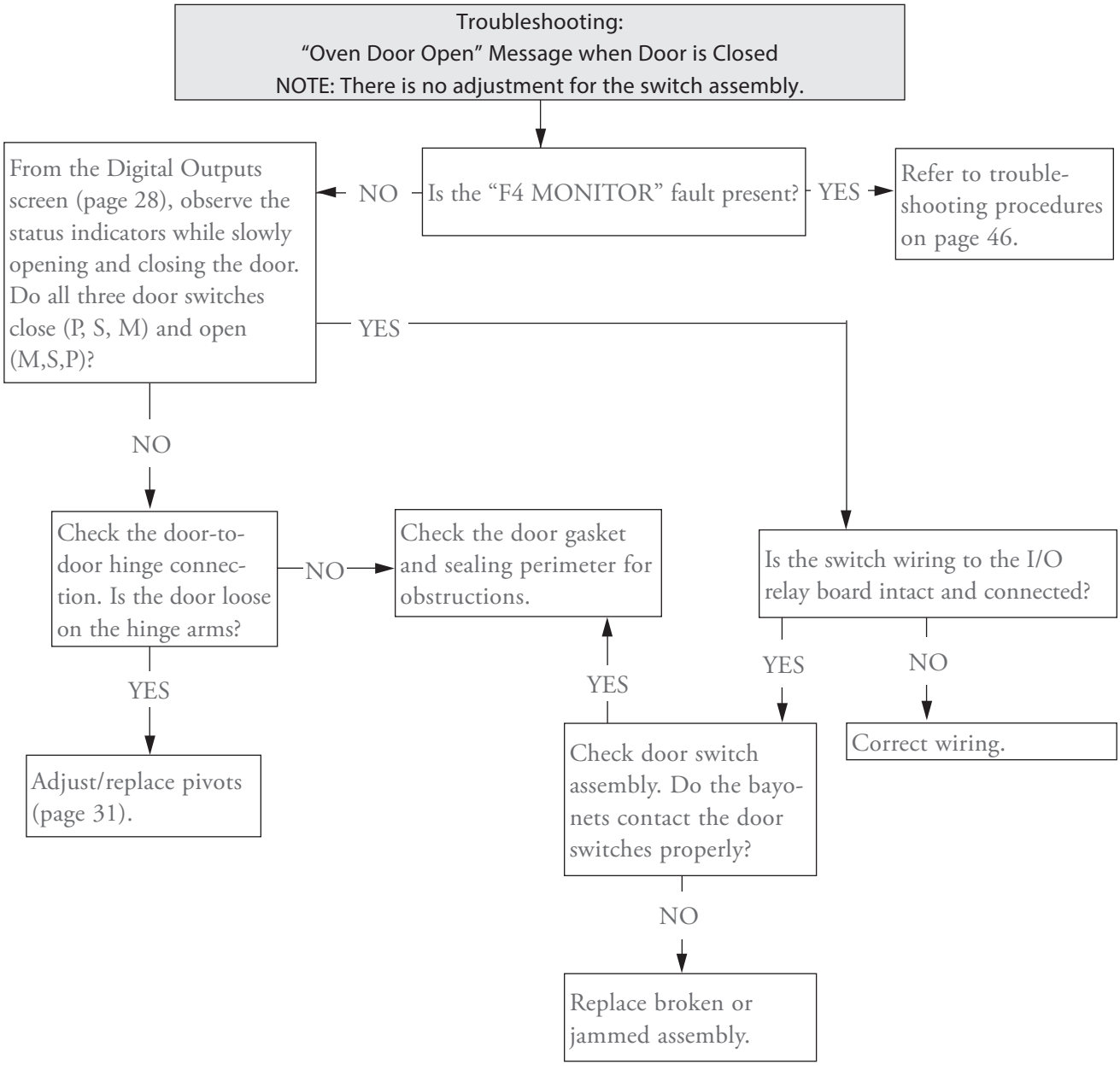


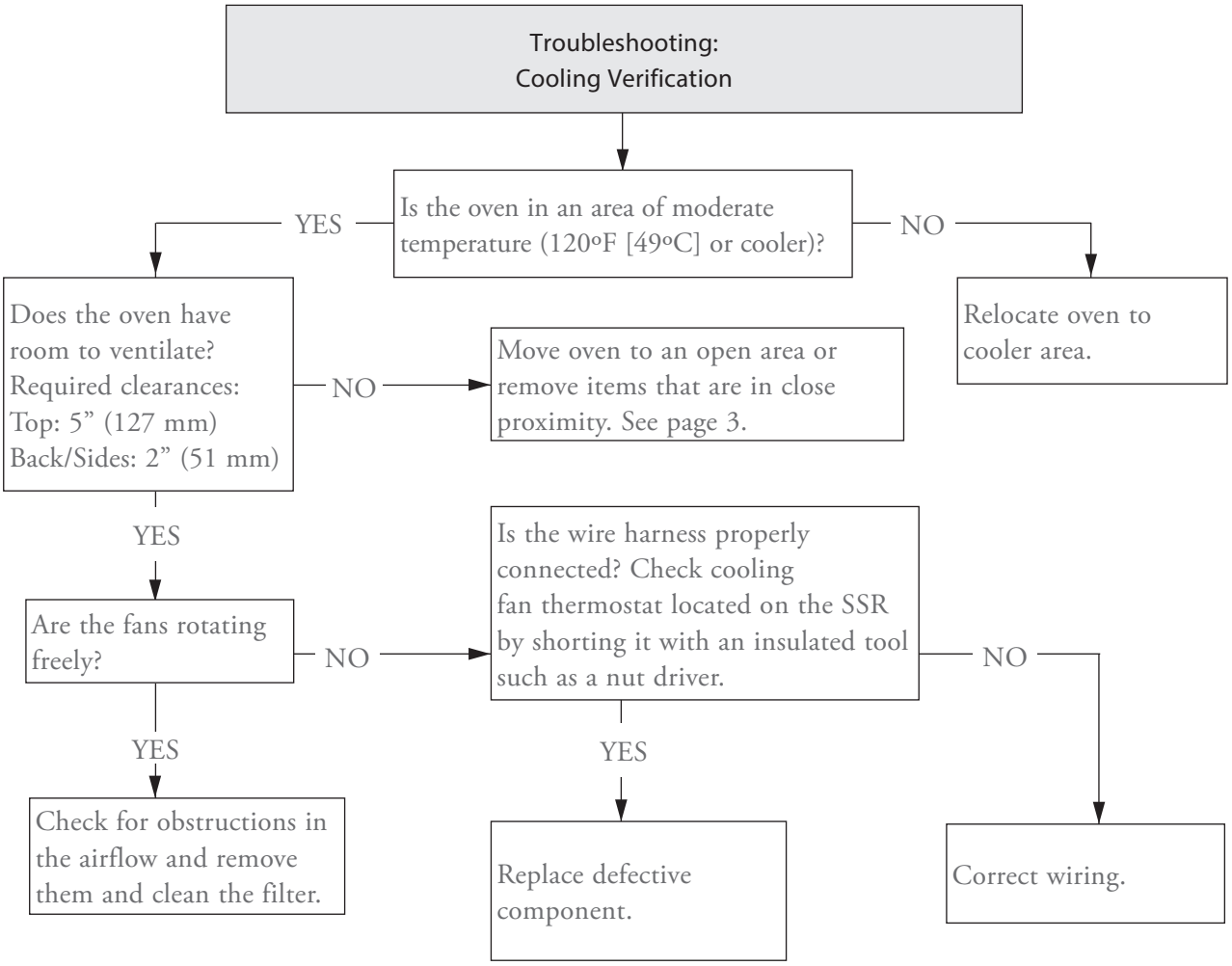

Troubleshooting:
F5: MAG TEMP (Magnetron Over Temperature)
Remove the back and left side panels. From the Digital Outputs screen (page 28), check the magnetrons by pressing K8/Mag Fans/Transformer. Are all of the cooling fans operating?
NO
Verify wiring and check K8 for control from J15, pin 9 (violet) on the I/O relay board. Is there a voltage drop?
NO
Replace the I/O relay board.
YES
Switch the fan cord to see if the magnetron fan is faulty. If the problem follows the wiring, check the wiring of the other mag fans.
YES
Is the air path into the electrical compartment blocked or clogged with debris? Check the cooling fan finger guards and filter on the back panel.
NO
Do the magnetrons operate at the correct current on the tri-amp board?
YES
Fault message should disappear.
NO
Verify wiring to mag blowers and mag RTDs is correct. Is the current continuous?
NO
Check the wiring and verify everything is correct.
YES
Replace the magnetron(s) and test again from the Digital Outputs screen (page 28). Do the magnetrons pass testing and do all of the fans come on?
YES
NO
Replace the I/O relay board.
YES
Remove the debris or reposition the oven away from obstruction.

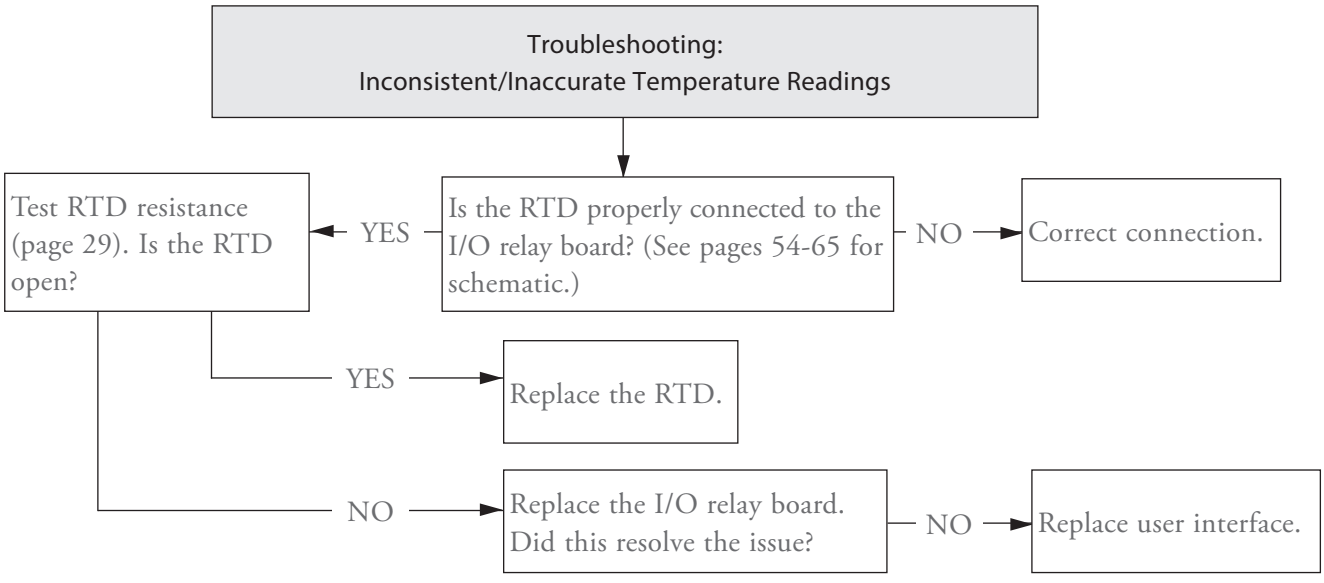

Troubleshooting:
F8: HEAT LOW
Is the blower motor moving air? From the Digital Outputs screen (page 28), select % Blower to toggle the blower speed between 10% - 100%. Is the blower motor operating correctly?
YES
NO
See page 43 to troubleshoot F1: BLOWER (Blower Running Status Bad)
Is the high-limit thermostat tripped?
NO
Are the convection heater elements defective?
YES
YES
NO
Reset and determine why it tripped – excess grease buildup, etc. The reset button is on the front panel near the USB port.
Replace the defective elements.
NO
Remove power from the oven. Next remove the wires from the left side of the elements' power and jumper wires. The resistance should be 13.9 Ohms for the 12kW set and 17.9 Ohms for the 9kW set. Is the resistance correct?
YES
Properly rewire the elements and plug the oven back in. From the Digital Outputs screen (page 28), select Heat. Does the SSR green LED flash?
NO
Check J9 at pin 2 (black) on the I/O relay board for an active signal. Does the meter show activity?
YES
NO
YES
Let the oven come to temperature and then check the SSR with an ammeter to ensure it has not shorted.
Replace the I/O relay board.

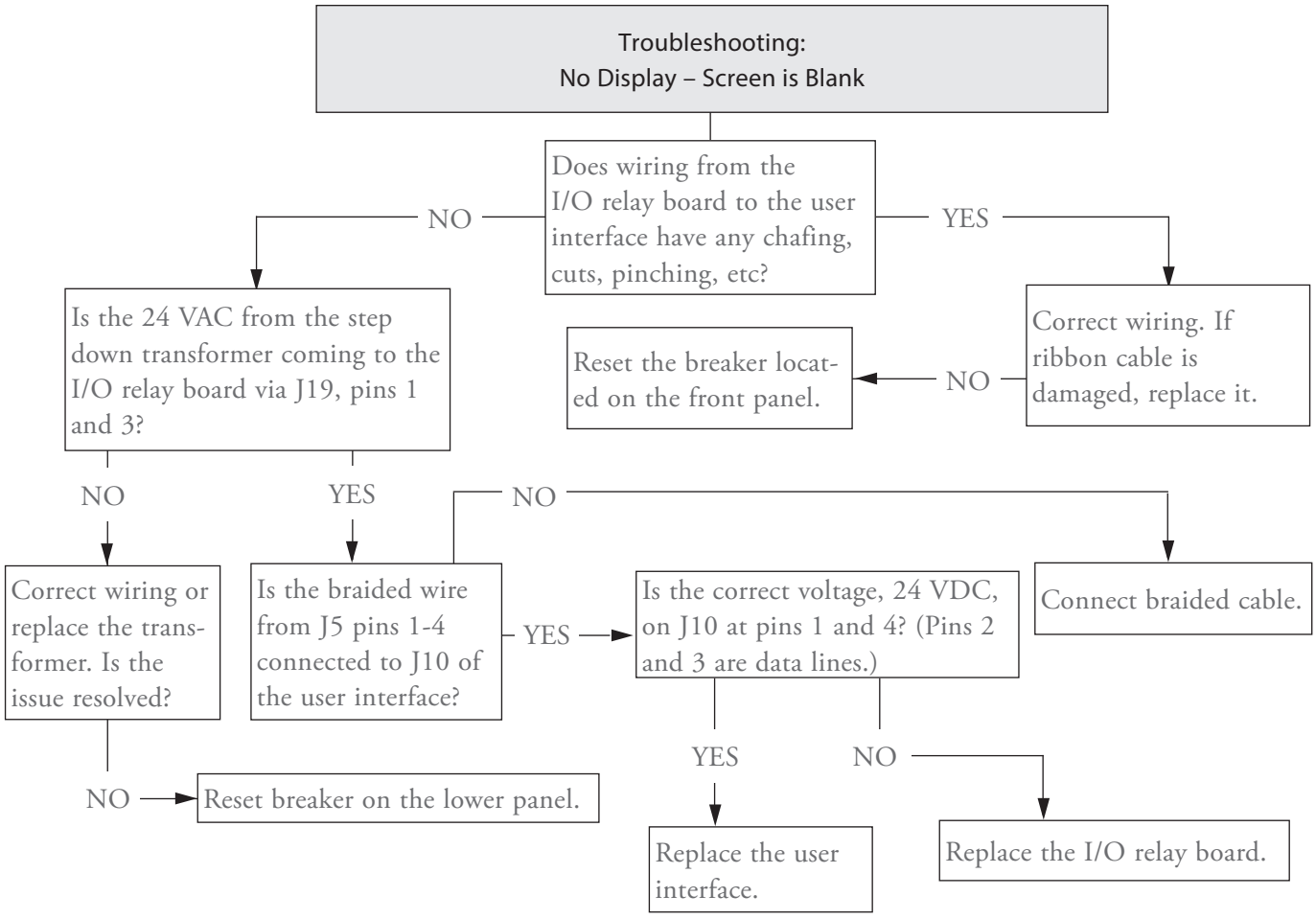
Non-Fault Code Troubleshooting

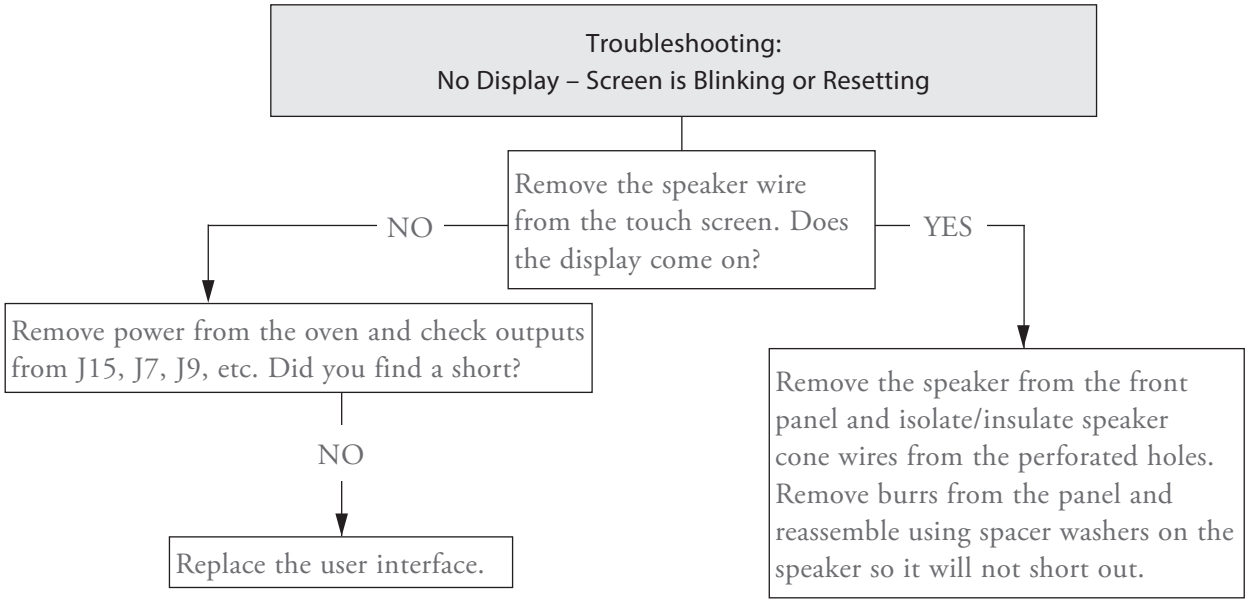
This section provides troubleshooting tips for issues that may occur independently of an oven fault.

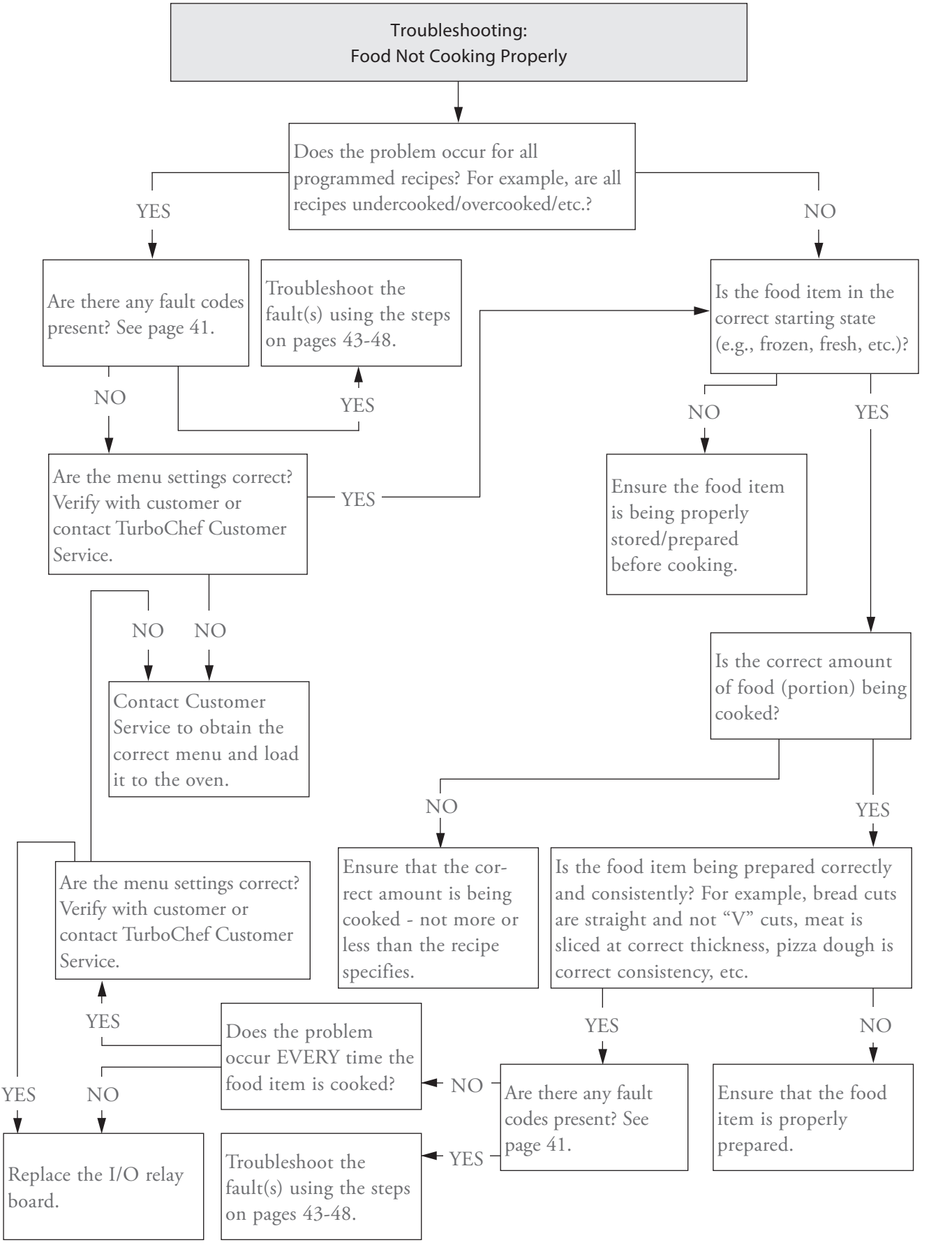



Troubleshooting:
Cooling Verification
Is the oven in an area of moderate temperature (120ºF [49ºC] or cooler)?
YES
NO
Relocate oven to cooler area.
Does the oven have room to ventilate? Required clearances: Top: 5" (127 mm) Back/Sides: 2" (51 mm)
NO
Move oven to an open area or remove items that are in close proximity. See page 3.
YES
Are the fans rotating freely?
NO
Is the wire harness properly connected? Check cooling fan thermostat located on the SSR by shorting it with an insulated tool such as a nut driver.
NO
YES
Check for obstructions in the airflow and remove them and clean the filter.
YES
Replace defective component.
Correct wiring.


Troubleshooting:
Inconsistent/Inaccurate Temperature Readings
Test RTD resistance (page 29). Is the RTD open?
YES
Is the RTD properly connected to the I/O relay board? (See pages 54-65 for schematic.)
NO
Correct connection.
YES
Replace the RTD.
NO
Replace the I/O relay board. Did this resolve the issue?
NO
Replace user interface.


Troubleshooting:
No Display – Screen is Blank
Does wiring from the I/O relay board to the user interface have any chafing, cuts, pinching, etc?
NO
YES
Is the 24 VAC from the step down transformer coming to the I/O relay board via J19, pins 1 and 3?
Reset the breaker located on the front panel.
NO
Correct wiring. If ribbon cable is damaged, replace it.
NO
YES
NO
Correct wiring or replace the transformer. Is the issue resolved?
Is the braided wire from J5 pins 1-4 connected to J10 of the user interface?
YES
Is the correct voltage, 24 VDC, on J10 at pins 1 and 4? (Pins 2 and 3 are data lines.)
Connect braided cable.
NO
Reset breaker on the lower panel.
YES
NO
Replace the user interface.
Replace the I/O relay board.


Troubleshooting:
No Display – Screen is Blinking or Resetting
Remove the speaker wire from the touch screen. Does the display come on?
NO
YES
Remove power from the oven and check outputs from J15, J7, J9, etc. Did you find a short?
Remove the speaker from the front panel and isolate/insulate speaker cone wires from the perforated holes. Remove burrs from the panel and reassemble using spacer washers on the speaker so it will not short out.
NO
Replace the user interface.


Troubleshooting:
Food Not Cooking Properly
Does the problem occur for all programmed recipes? For example, are all recipes undercooked/overcooked/etc.?
YES
NO
Are there any fault codes present? See page 41.
Troubleshoot the fault(s) using the steps on pages 43-48.
NO
YES
Are the menu settings correct? Verify with customer or contact TurboChef Customer Service.
YES
Is the food item in the correct starting state (e.g., frozen, fresh, etc.)?
NO
YES
Ensure the food item is being properly stored/prepared before cooking.
NO
NO
Contact Customer Service to obtain the correct menu and load it to the oven.
Is the correct amount of food (portion) being cooked?
NO
YES
Ensure that the correct amount is being cooked - not more or less than the recipe specifies.
Is the food item being prepared correctly and consistently? For example, bread cuts are straight and not "V" cuts, meat is sliced at correct thickness, pizza dough is correct consistency, etc.
YES
NO
Are the menu settings correct? Verify with customer or contact TurboChef Customer Service.
YES
Does the problem occur EVERY time the food item is cooked?
NO
Are there any fault codes present? See page 41.
Ensure that the food item is properly prepared.
YES
NO
YES
Replace the I/O relay board.
Troubleshoot the fault(s) using the steps on pages 43-48.

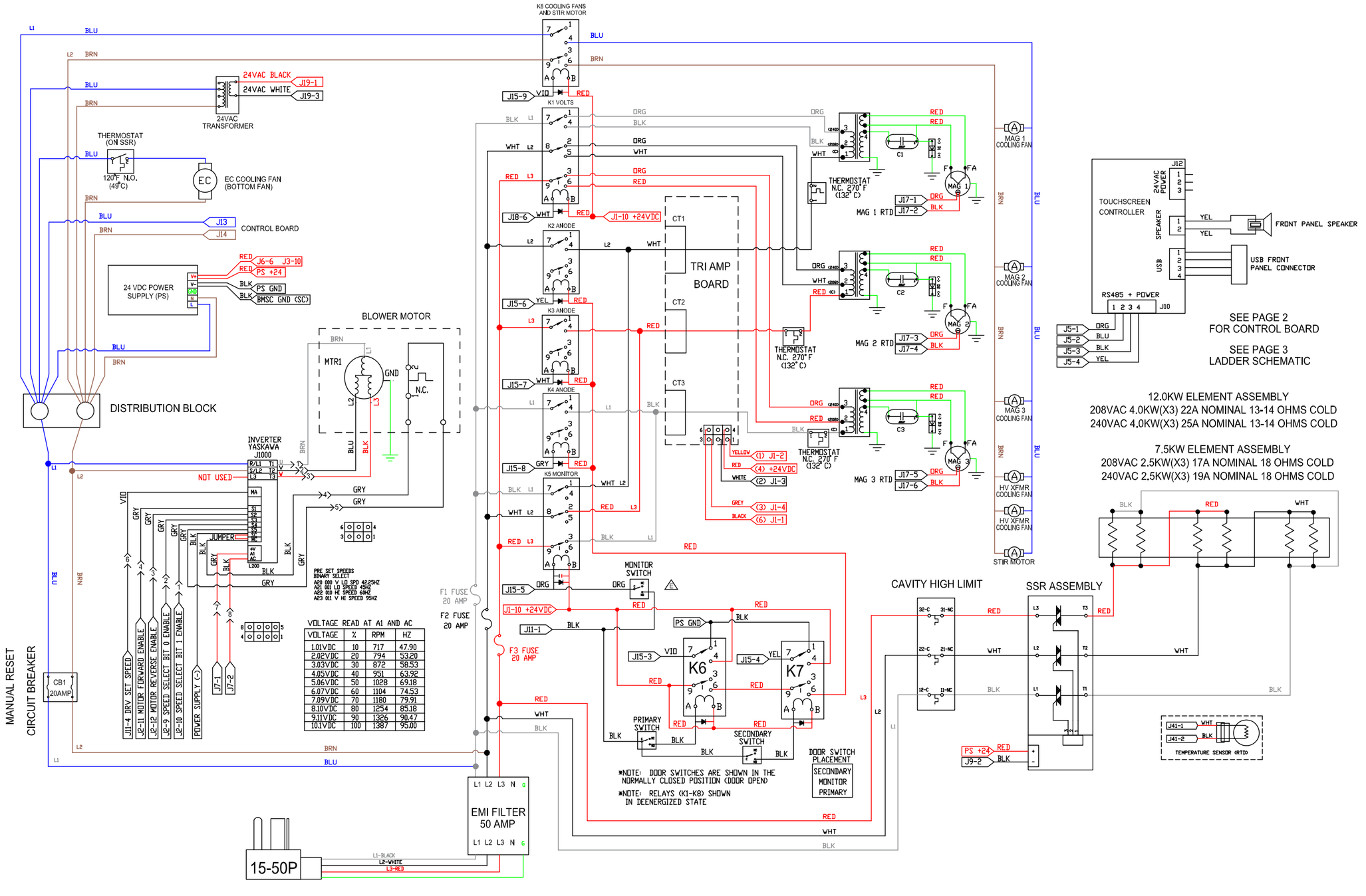
Oven Schematic

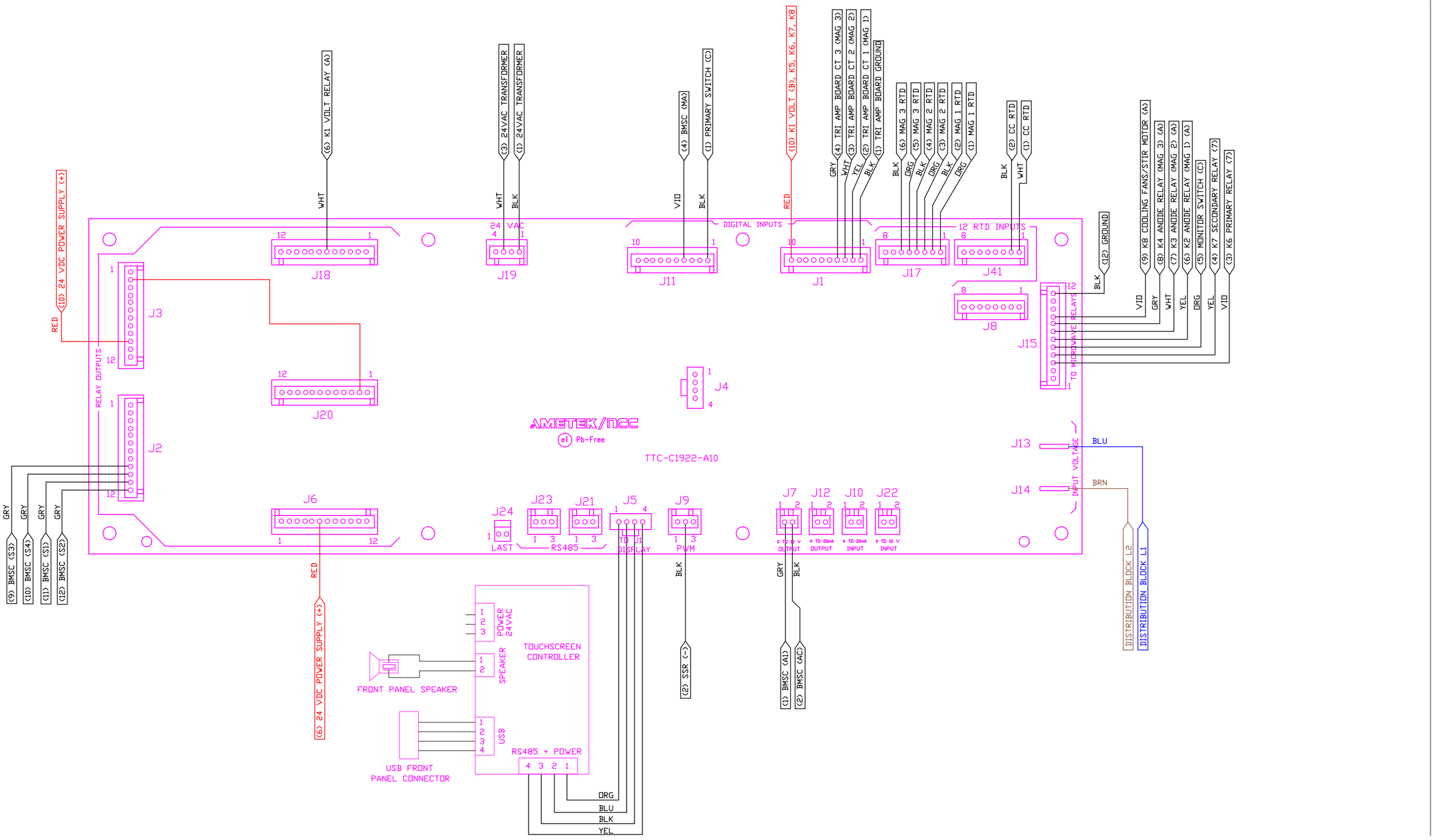
G5 Oven Schematic

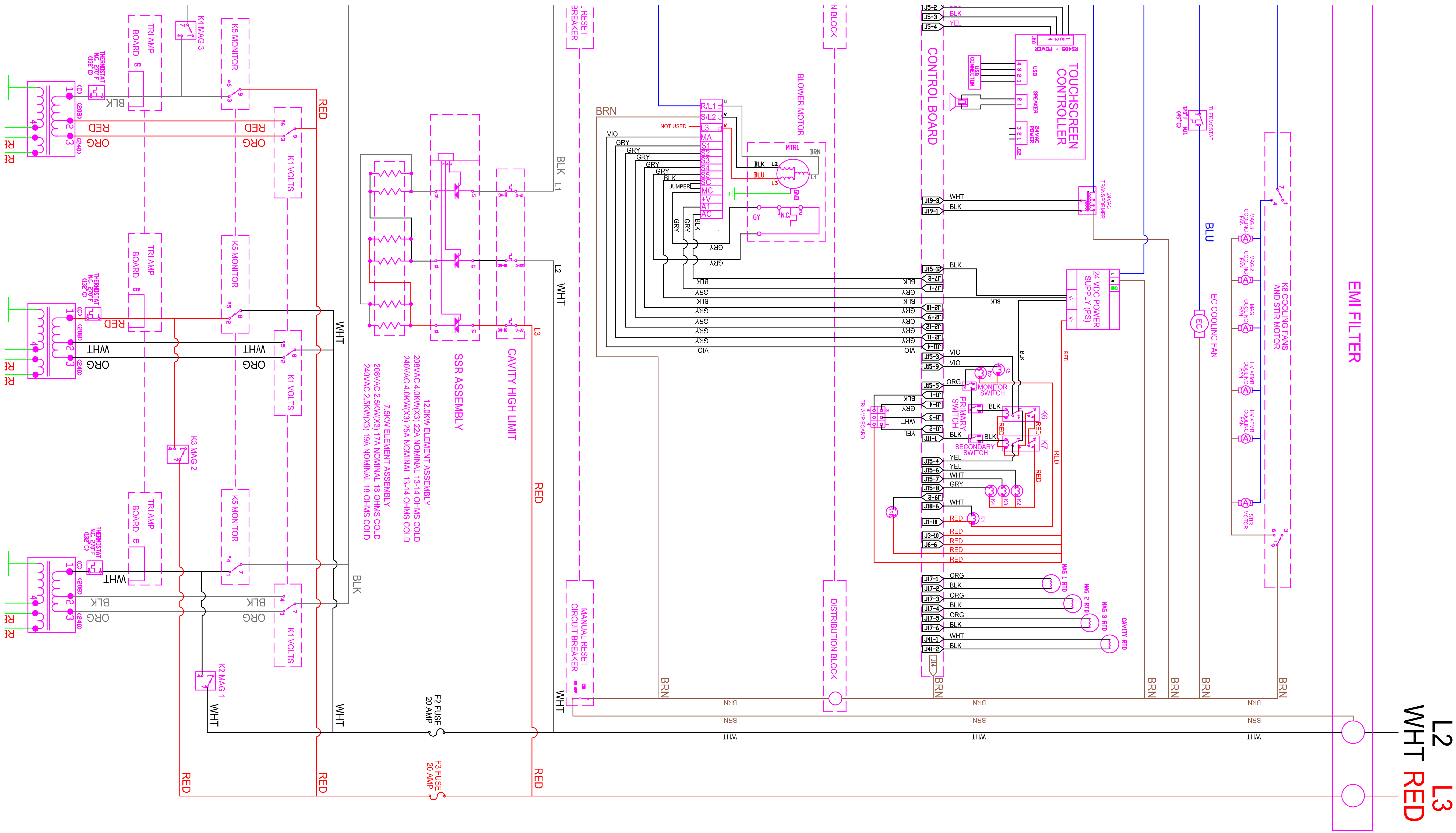
This section provides an overall wiring schematic for the G5 oven.

The following drawings are provided:

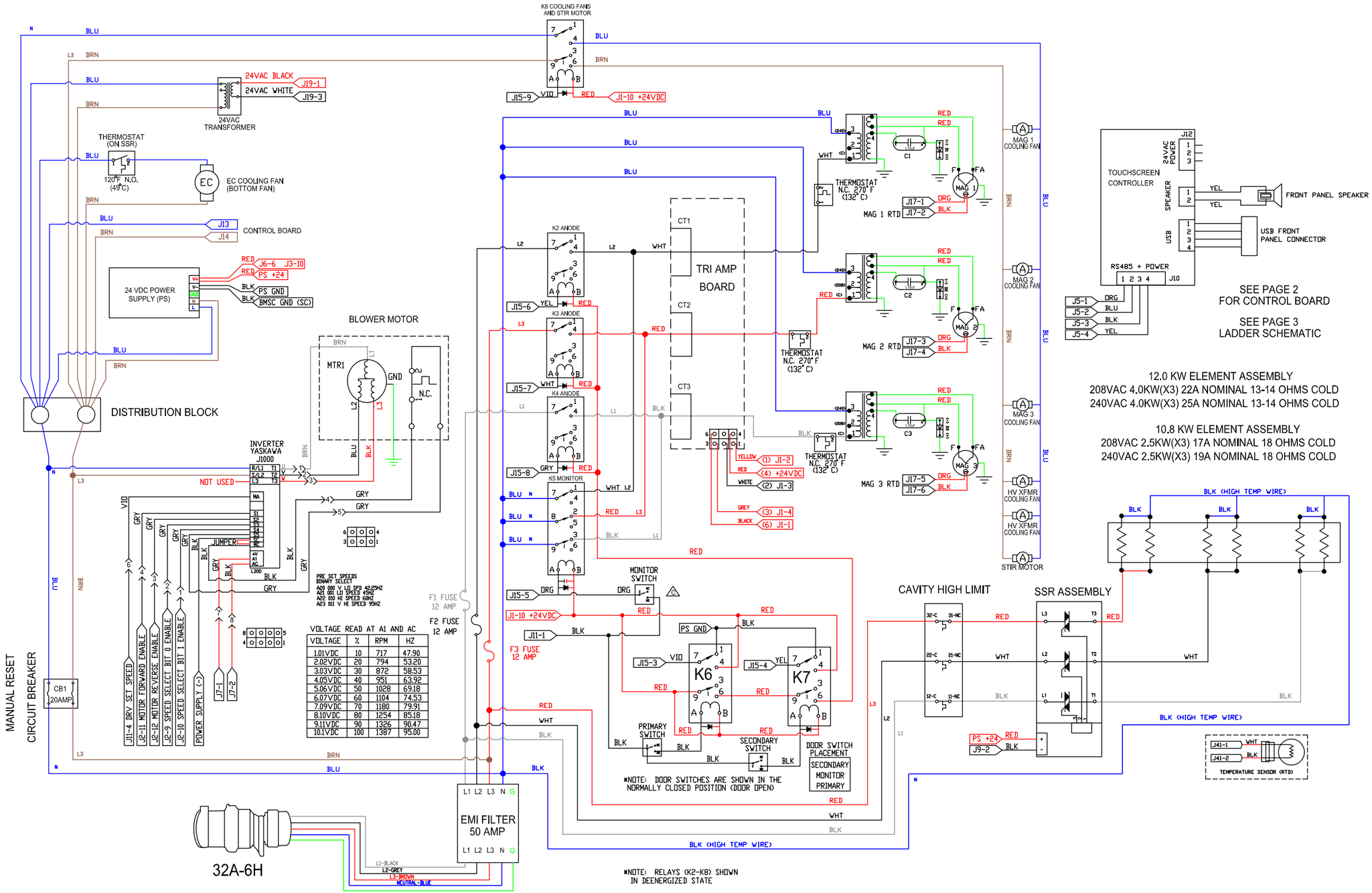
Schematic: U.S. and Canada

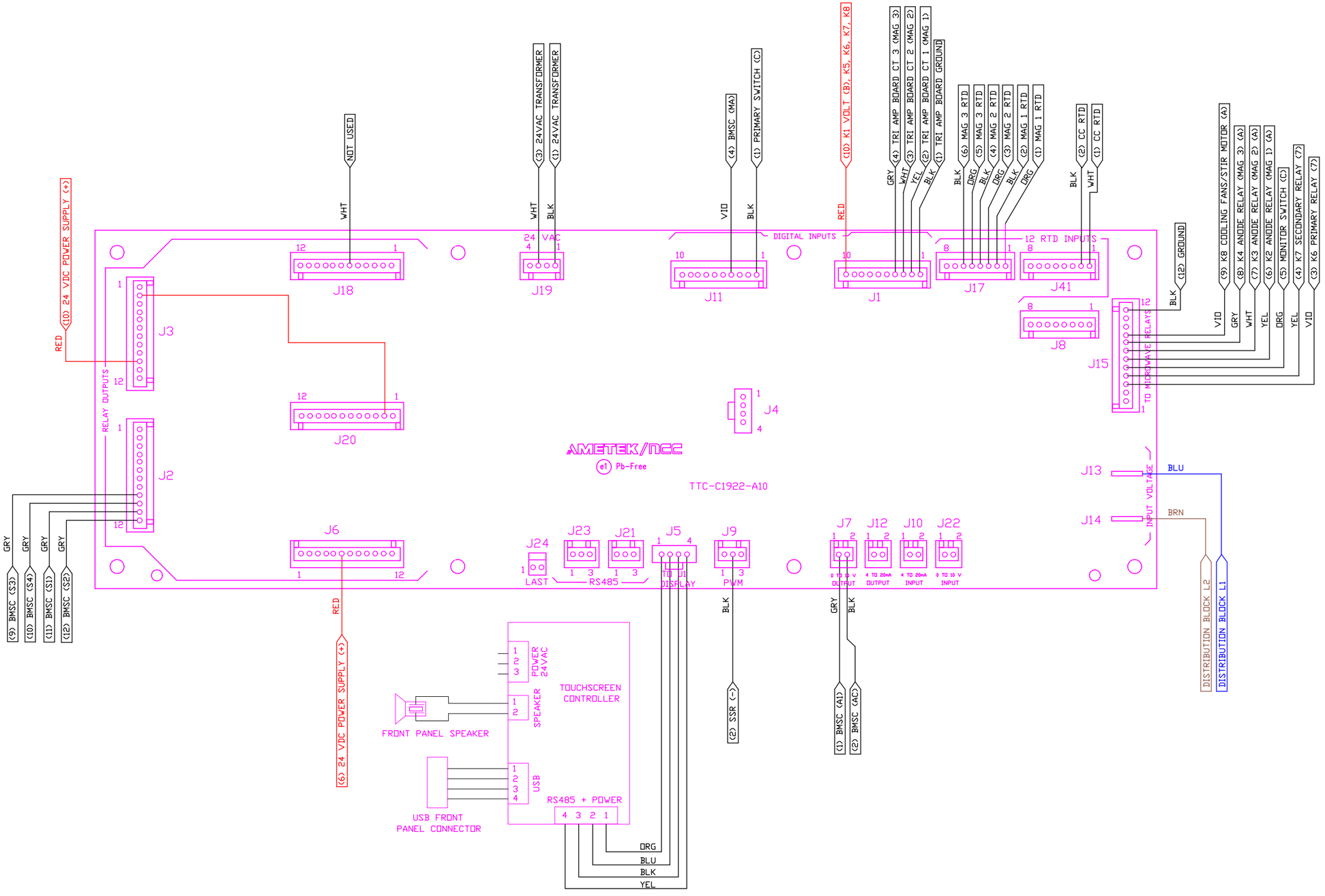


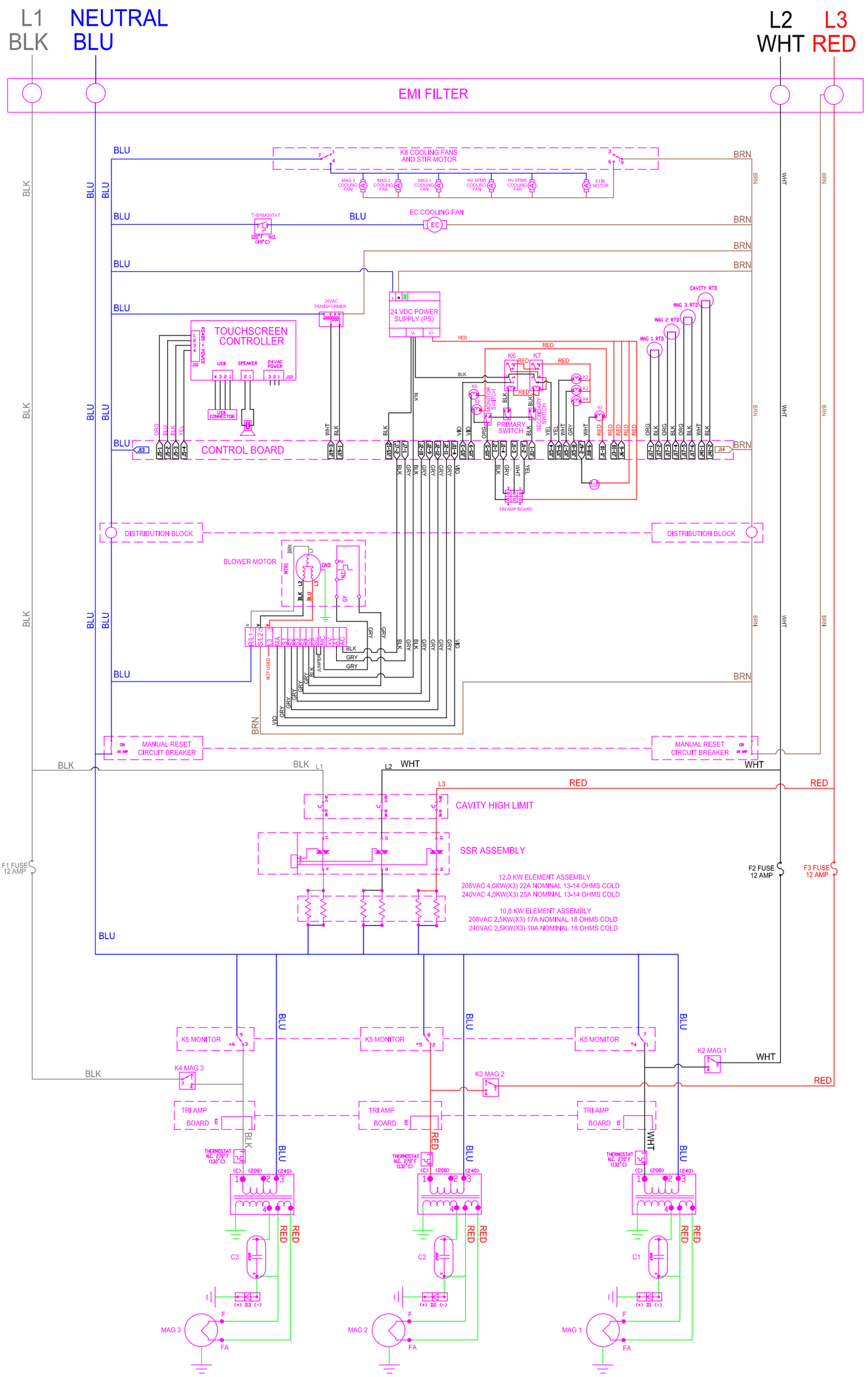

(10) 24 VDC POWER SUPPLY (+)
RED
J3
J2
RELAY OUTPUTS
(9) BMSC (S3)
(10) BMSC (S4)
(11) BMSC (S1)
(12) BMSC (S2)
GRY
J18
(6) K1 VOLT RELAY (A)
WHT
J19
(3) 24VAC TRANSFORMER
(1) 24VAC TRANSFORMER
WHT
BLK
24 VAC
J11
(4) BMSC (MA)
(1) PRIMARY SWITCH (C)
VIO
BLK
DIGITAL INPUTS
J1
(10) K1 VOLT (B), K5, K6, K7, K8
RED
(4) TRI AMP BOARD CT 3 (MAG 3)
(3) TRI AMP BOARD CT 2 (MAG 2)
(2) TRI AMP BOARD CT 1 (MAG 1)
(1) TRI AMP BOARD GROUND
GRY
WHT
YEL
BLK
J17
(6) MAG 3 RTD
(5) MAG 3 RTD
(4) MAG 2 RTD
(3) MAG 2 RTD
(2) MAG 1 RTD
(1) MAG 1 RTD
BLK
ORG
12 RTD INPUTS
J41
(2) CC RTD
(1) CC RTD
BLK
WHT
J8
(12) GROUND
BLK
J15
TO MICROWAVE RELAYS
(9) K8 COOLING FANS/STIR MOTOR (A)
(8) K4 ANODE RELAY (MAG 3) (A)
(7) K3 ANODE RELAY (MAG 2) (A)
(6) K2 ANODE RELAY (MAG 1) (A)
(5) MONITOR SWITCH (C)
(4) K7 SECONDARY RELAY (7)
(3) K6 PRIMARY RELAY (7)
VIO
GRY
WHT
YEL
ORG
YEL
VIO
J4
AMETEK/NCC
e1 Pb-Free
TTC-C1922-A10
J13
J14
INPUT VOLTAGE
BLU
BRN
DISTRIBUTION BLOCK L2
DISTRIBUTION BLOCK L1
J6
(6) 24 VDC POWER SUPPLY (+)
RED
J24
LAST
J23
J21
RS485
J5
TO UI DISPLAY
J9
PWM
(2) SSR (-)
BLK
J7
0 TO 10 V OUTPUT
J12
4 TO 20mA OUTPUT
J10
4 TO 20mA INPUT
J22
0 TO 10 V INPUT
GRY
BLK
(1) BMSC (A1)
(2) BMSC (AC)
POWER 24VAC
SPEAKER
TOUCHSCREEN CONTROLLER
FRONT PANEL SPEAKER
USB
USB FRONT PANEL CONNECTOR
RS485 + POWER
4 3 2 1
ORG
BLU
BLK
YEL


EMI FILTER
L2
WHT
L3
RED
SSR ASSEMBLY
CAVITY HIGH LIMIT
12.0KW ELEMENT ASSEMBLY
208VAC 4.0KW(X3) 22A NOMINAL 13-14 OHMS COLD
240VAC 4.0KW(X3) 25A NOMINAL 13-14 OHMS COLD
7.5KW ELEMENT ASSEMBLY
208VAC 2.5KW(X3) 17A NOMINAL 18 OHMS COLD
240VAC 2.5KW(X3) 19A NOMINAL 18 OHMS COLD
CONTROL BOARD
TOUCHSCREEN CONTROLLER
BLOWER MOTOR
DISTRIBUTION BLOCK
MANUAL RESET CIRCUIT BREAKER
F2 FUSE 20 AMP
F3 FUSE 20 AMP
24 VDC POWER SUPPLY (PS)
EC COOLING FAN
K8 COOLING FANS AND STIR MOTOR
TRI AMP BOARD
K5 MONITOR
K1 VOLTS
K4 MAG 3
K3 MAG 2
K2 MAG 1
MONITOR SWITCH
PRIMARY SWITCH
SECONDARY SWITCH
BRN
BLK
WHT
RED
ORG
BLU

Schematic: International




(10) 24 VDC POWER SUPPLY (+)
RED
J3
RELAY OUTPUTS
J2
J18
NOT USED
WHT
J19
24 VAC
(3) 24VAC TRANSFORMER
(1) 24VAC TRANSFORMER
WHT
BLK
J11
DIGITAL INPUTS
(4) BMSC (MA)
(1) PRIMARY SWITCH (C)
VIO
BLK
J1
(10) K1 VOLT (B), K5, K6, K7, K8
RED
(4) TRI AMP BOARD CT 3 (MAG 3)
(3) TRI AMP BOARD CT 2 (MAG 2)
(2) TRI AMP BOARD CT 1 (MAG 1)
(1) TRI AMP BOARD GROUND
GRY
WHT
YEL
BLK
J17
12 RTD INPUTS
(6) MAG 3 RTD
(5) MAG 3 RTD
(4) MAG 2 RTD
(3) MAG 2 RTD
(2) MAG 1 RTD
(1) MAG 1 RTD
BLK
DRG
J41
(2) CC RTD
(1) CC RTD
BLK
WHT
J8
J15
TO MICROWAVE RELAYS
(12) GROUND
BLK
(9) K8 COOLING FANS/STIR MOTOR (A)
(8) K4 ANODE RELAY (MAG 3) (A)
(7) K3 ANODE RELAY (MAG 2) (A)
(6) K2 ANODE RELAY (MAG 1) (A)
(5) MONITOR SWITCH (C)
(4) K7 SECONDARY RELAY (7)
(3) K6 PRIMARY RELAY (7)
VIO
GRY
WHT
YEL
DRG
YEL
VIO
J20
J4
AMETEK/NCC
e1 Pb-Free
TTC-C1922-A10
J13
J14
INPUT VOLTAGE
BLU
BRN
DISTRIBUTION BLOCK L2
DISTRIBUTION BLOCK L1
J6
J24
LAST
J23
J21
RS485
J5
TO DISPLAY
J9
PWM
J7
0 TO 10 V OUTPUT
J12
4 TO 20mA OUTPUT
J10
4 TO 20mA INPUT
J22
0 TO 10 V INPUT
GRY
GRY
GRY
GRY
(9) BMSC (S3)
(10) BMSC (S4)
(11) BMSC (S1)
(12) BMSC (S2)
RED
(6) 24 VDC POWER SUPPLY (+)
BLK
(2) SSR (-)
GRY
BLK
(1) BMSC (A1)
(2) BMSC (A2)
POWER 24VAC
SPEAKER
TOUCHSCREEN CONTROLLER
FRONT PANEL SPEAKER
USB
USB FRONT PANEL CONNECTOR
RS485 + POWER
4 3 2 1
DRG
BLU
BLK
YEL


L1
BLK
NEUTRAL
BLU
L2
WHT
L3
RED
EMI FILTER
K8 COOLING FANS AND STIR MOTOR
MAG 3 COOLING FAN
MAG 2 COOLING FAN
MAG 1 COOLING FAN
HV XFMR COOLING FAN
HV XFMR COOLING FAN
STIR MOTOR
THERMOSTAT
EC COOLING FAN
24VAC TRANSFORMER
24 VDC POWER SUPPLY (PS)
TOUCHSCREEN CONTROLLER
USB
SPEAKER
24VAC POWER
CONTROL BOARD
DOOR SENSOR SWITCH
PRIMARY SWITCH
SECONDARY SWITCH
CAVITY RTD
MAG 3 RTD
MAG 2 RTD
MAG 1 RTD
TRI AMP BOARD
DISTRIBUTION BLOCK
DISTRIBUTION BLOCK
BLOWER MOTOR
MANUAL RESET CIRCUIT BREAKER
MANUAL RESET CIRCUIT BREAKER
CAVITY HIGH LIMIT
SSR ASSEMBLY
12,0 KW ELEMENT ASSEMBLY
208VAC 4,0KW(X3) 22A NOMINAL 13-14 OHMS COLD
240VAC 4,0KW(X3) 25A NOMINAL 13-14 OHMS COLD
10,8 KW ELEMENT ASSEMBLY
208VAC 2,5KW(X3) 17A NOMINAL 18 OHMS COLD
240VAC 2,5KW(X3) 19A NOMINAL 18 OHMS COLD
F1 FUSE 12 AMP
F2 FUSE 12 AMP
F3 FUSE 12 AMP
K5 MONITOR
K4 MAG 3
K3 MAG 2
K2 MAG 1
TRI AMP BOARD
THERMOSTAT
MAG 3
MAG 2
MAG 1
C3
C2
C1
F
FA

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Appendix: Replacing Oven Components

Replacing Oven Components

This appendix provides illustrations for removing serviceable items, as well as the item numbers and descriptions for those items. It also includes the item numbers and descriptions for the hardware used to secure each component to the oven chassis.

The appendix is divided into the following sections:

If you have any questions that are not addressed in this manual or appendix, please contact TurboChef Customer Service at 800.90TURBO or +1 214.379.6000.

Oven Exterior

⚠ DANGER: Before removing any oven part, be sure the oven has completed "cooling down" and is removed from the power source.

NOTE: Oven door, air filter, and oven racks not shown for clarity.

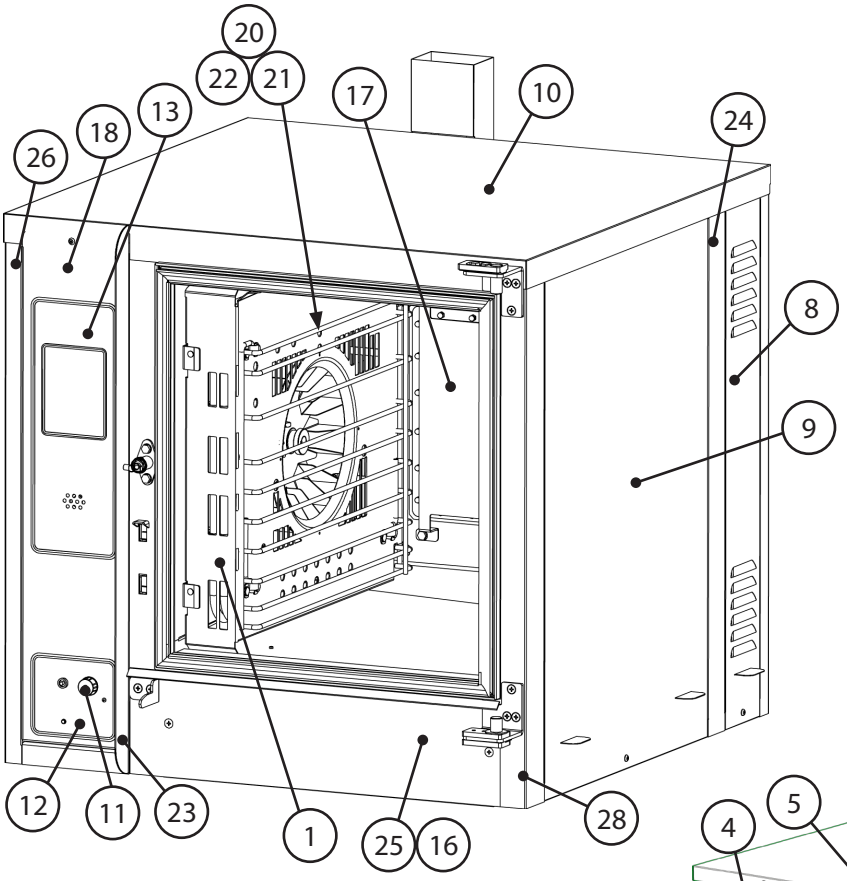

Figure A-1: Exterior, Front

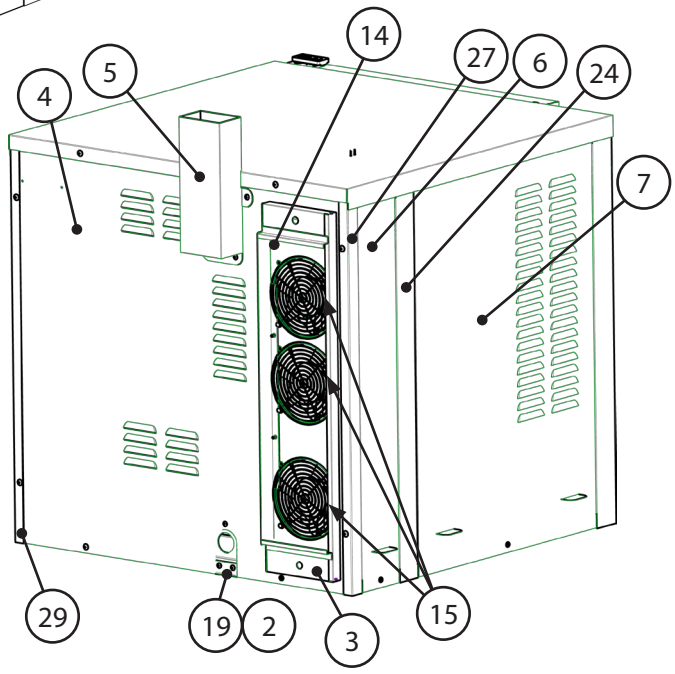

Figure A-2: Exterior, Rear

Figure Reference #	Item Description	Item Part Number	Hardware Description	Hardware Part Number(s)
1	Baffle	G5-9118	None	N/A
2	Bracket, Power Cord	G5-9035	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl	101688 (x3)
3	Bracket, Rear Fan	G5-9116	Screw, #10-32 X .38 LG, 100 Deg, Pflhd, SS	101401 (x4)
4	Cover, Back	G5-9030	Screw, #10-32 x 3/8, Phtrh, SS Screw, #10-32 X 1/2, Btn Hd, Torx w/ Post, Cres	101692 (x7) / 100104 (x1)
5	Cover, Exhaust Vent	G5-9065	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl	101688 (x4)
6	Cover, Left Rear with Tabs	G5-9063	Screw, #10-32 X 1/2, Btn Hd, Torx w/ Post, Cres	100104
7	Cover, Left Side with Louvers	G5-9066	Screw, #10-32 X 1/2, Btn Hd, Torx w/ Post, Cres	100104
8	Cover, Right Rear with Louvers	G5-9067	Screw, #10-32 X 1/2, Btn Hd, Torx w/ Post, Cres	100104
9	Cover, Right Side with Tabs	G5-9062	Screw, #10-32 X 1/2, Btn Hd, Torx w/ Post, Cres	100104
10	Cover, Top	G5-9053	None	N/A
11	Cover, USB	100427	None	N/A
12	Decal, Lower	G5-9034	None	N/A
13	Decal, Upper	G5-9033	None	N/A
14	Filter, Air	i5-9039	None	N/A
15	Guard, Finger (x3)	100086	Screw, Hex Hd, #10-32 x 1/2 Lg, Cres, Type 23	101408 (x2 ea)
16	Gutter	G5-9107	None	N/A
17	Match Plate	G5-9281	Screw, 1/4-20 x .50, Hex Serr Washer Hd, SS	101394 (x4)
18	Panel, Control	G5-9043	Tape, Teflon, Gore-Tex, 1/4 X .04 Thk	102019 (as required)
19	Power Cord	Contact Factory	None	N/A
20	Rack (x5)	G5-9168	None	N/A
21	Rack Support, Left	G5-9247	None	N/A
22	Rack Support, Right	G5-9248	None	N/A
23	Trim, Center	G5-9102	None	N/A
24	Trim, Frame (x2)	G5-9101	None	N/A
25	Trim, Front	G5-9110	Screw, Pfh, SS, 82°, 1/4-20 X 1/2 Lg	101424 (x2)
26	Trim, Left Front Corner	G5-9103	None	N/A
27	Trim, Left Rear	G5-9106	None	N/A
28	Trim, Right Front	G5-9104	None	N/A
29	Trim, Right Rear	G5-9105	None	N/A

Convection System

⚠ DANGER: Before removing any oven part, be sure the oven has completed "cooling down" and is removed from the power source.

NOTE: For clarity, some components have been removed from the illustrations below.

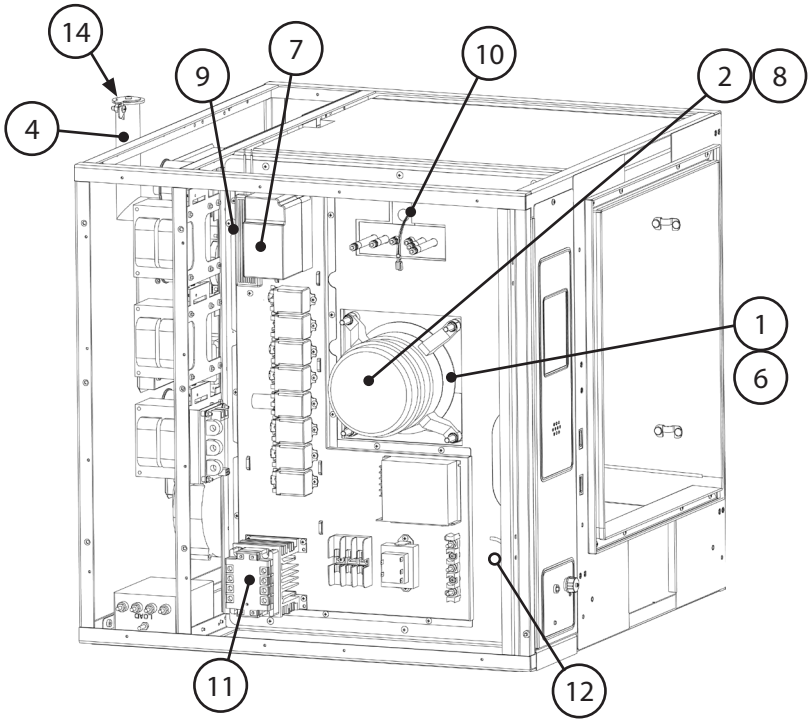

Figure A-3: Electrical Compartment

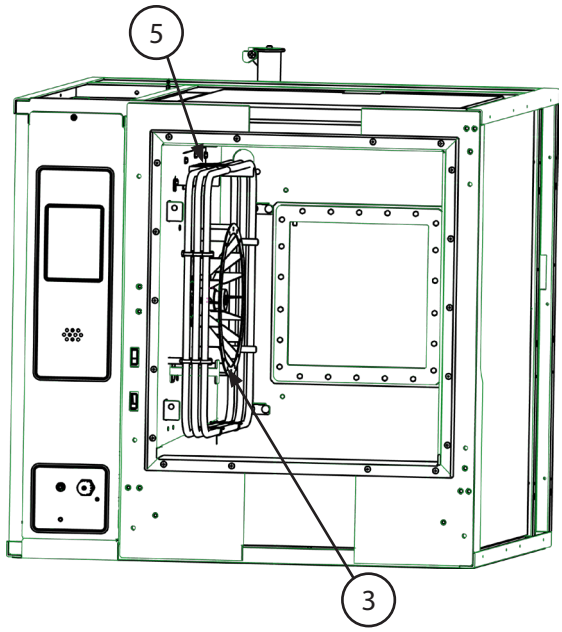

Figure A-4: Interior, Baffle Removed

Figure Reference #	Item Description	Item Part Number	Hardware Description	Hardware Part Number(s)
1	Bracket, Motor Mount	G5-9138	Nut, 1/4 - 20, Serr Hex Flange, Plated	100906 (x4)
2	Convection Fan	G5-9141	Spacer, G5, Blower Motor Nut, Hex Washer Hd, 5/16 - 18	G5-9139 (x4) 100904 (x4)
3	Convection Wheel	G5-9140	Key Stock, 3/16" Square X 1.75" Long, 316 SS Shaft, Rotary Seal Cover, Bearing	103699 G5-9144 G5-9145
4	Exhaust Vent	G5-9021	Nut, 1/4-20, Serr Hex Flange, Zinc	100906 (x5) 101018 102021
5	Heater	G5-9148	Screw, #10-32 x 3/8, Hex, Serr SS Gasket, RF, Mesh Be/Cc, Wpsa	101397 (x9) 102021
6	Insulation, Convection Motor	G5-9264	None	N/A
7	Inverter Drive	100451	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl	101688 (x2)
8	Plate, Blower Insulation	G5-9142	See G5-9141	See G5-9141
9	Resistor, Motor Braking	100452	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl	101688 (x2)
10	RTD, G5, 1000 OHM	G5-9090	Tape, High-Temp 2.5 Inch	102026
11	SSR with Heatsink	G5-9064	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl	101688 (x4)
12	Thermostat Clamp (x2)	NGC-1152	Nut, #8-32, Kep, Ext Tooth, SS	102962 (1 ea)
13	Thermostat, 3 Pole, High Limit	102075	Screw, M4 X 8mm LG, PFH 90 DEG, Steel-Zinc Nut, #6-32, Kep, Ext Tooth, SS Bracket, High-Limit	101735 (x2) 102961 (x2) G5-9054
14	Vent Cap	G5-9023	Screw, 1/4 - 20 X 3/4, Truss, Phil, Ms, Sst Washer, Flat, SS, Sm Pattern, 1/4" ID, 1/2" Od Nut, Hex, Locking, 1/4" X 20, Not Nylon	101399 102252 (x2) 101008
Not Shown	Housing, Motor Shaft Seal	G5-9143	None	N/A
Not Shown	Washer, Wave Spring	102436	None	N/A
Not Shown	Brass Plate, Shaft Seal	G5-9146	None	N/A
Not Shown	Sealing Block, Motor	NGC-1024	None	N/A
Not Shown	Seal, Rotary Shaft	G5-9144	None	N/A
Not Shown	Bearing Cover	G5-9145	Screw, #10 - 32 X 3/4, PPH SEMS Screw, #10 - 32 X 1", PPH SEMS Nut, #10 - 32, Kep, Ext Tooth	102937 (x2) 102938 (x2) 102963 (x2)

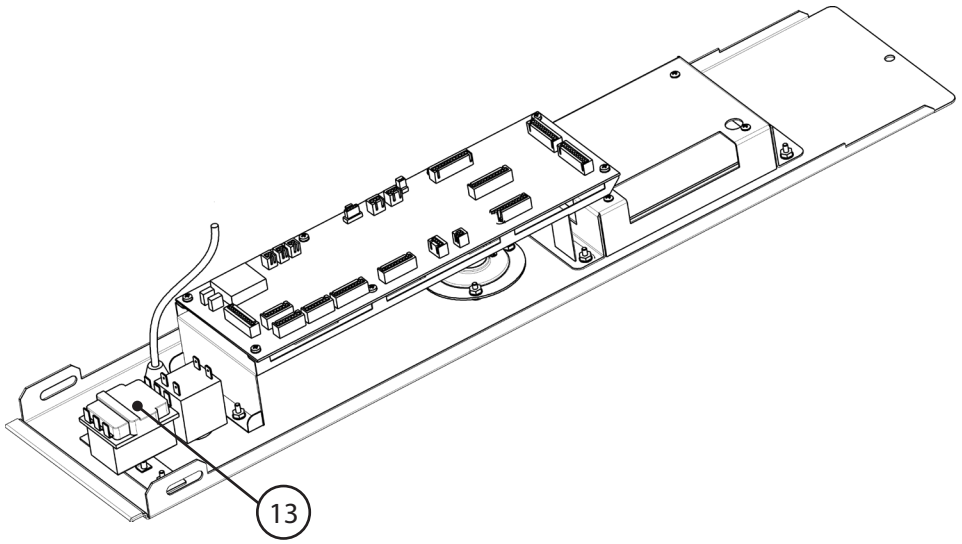

Figure A-5: Control Panel

Oven Door and Related Parts

⚠ DANGER: Before removing any oven part, be sure the oven has completed "cooling down" and is removed from the power source.

NOTE: For clarity, some components have been removed from the illustrations below.

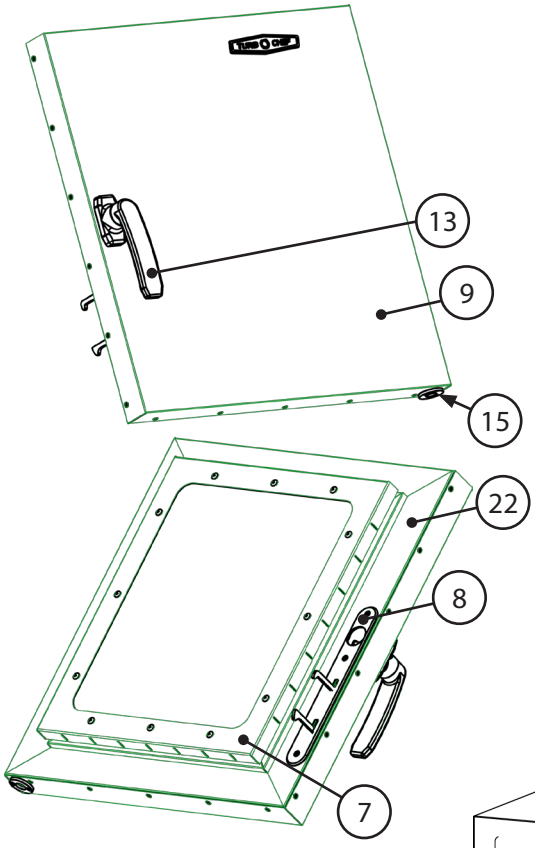

Figure A-6: Door Detail

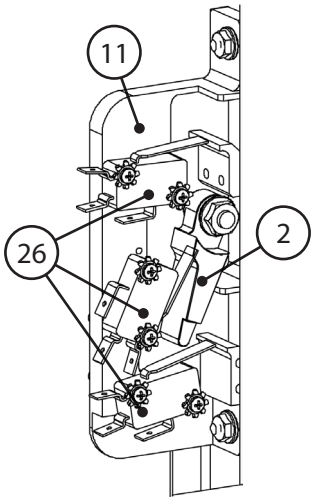

Figure A-7: Door Switch Assembly

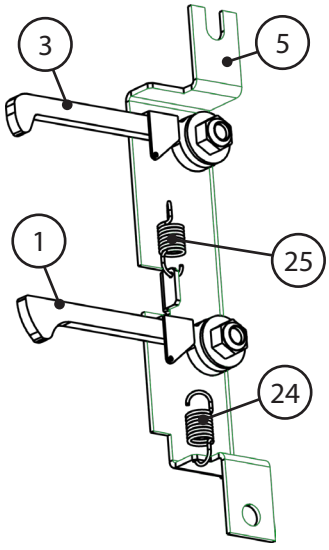

Figure A-8: Door Latch Assembly

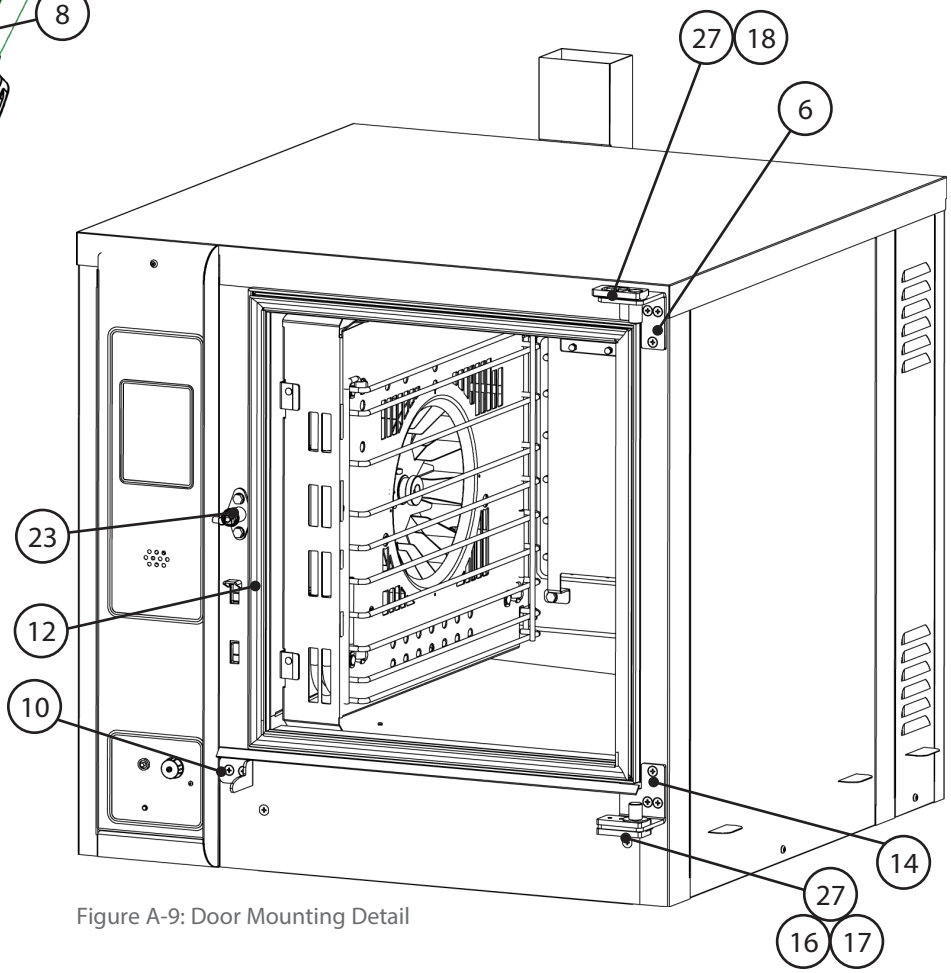

Figure A-9: Door Mounting Detail

Figure Reference #	Item Description	Item Part Number	Hardware Description	Hardware Part Number(s)
1	Actuator, Lower Switch	G5-9214	Bearing, Flange .25 X .375 X .375L, Bronze Washer, Flat, 1/4", SS Nut, Hex, Locking, 1/4" X 20, Not Nylon	100047 102200 101008
2	Actuator, Monitor Switch	G5-9079	Bearing, Flange .25 X .375 X .375L, Bronze SHLD Screw, #10-32, 1/4X1/2L, Skt Hd, SS Washer, Thrust, 1/4" Id x 1/16 Thk, Bronze Screw, #4-40 X 5/8 Lg, Pphd, Sems	100047 100102 103474 102902
3	Actuator, Upper Switch	G5-9213	Bearing, Flange .25 X .375 X .375L, Bronze Washer, Flat, 1/4", SS Nut, Hex, Locking, 1/4" X 20, Not Nylon	100047 102200 101008
See Page A-12	Assy, Capacitor Monitor Relay	i5-9390	None	N/A
5	Bracket, Door Switch	G5-9208	Nut, 1/4 - 20, Serr Hex Flange, Plated	100906 (x2)
6	Bracket, Hinge, Door, Top	G5-9193	1/4-20x1/2 FL phil m/s 18-8 100-Deg	101392 (x3)
7	Choke, Door	G5-9187	Screw, #10-32 x 3/8, Phtrh, SS	101692 (x14)
8	Cover, Door Latch	G5-9083	Screw, #8-32x.5", Pfh,100 Deg, SS	102810 (x3)
9	Cover, Door, Outer	G5-9042	Screw, #8-32x.5", Pfh,100 Deg, SS	102810 (x22)
10	Door Guide	G5-9032	1/4-20x1/2 FL phil m/s 18-8 100-deg	101392 (x2)
11	Frame, Door switch	G5-9077	Shld Screw, #10-32, 1/4X1/2L, Skt Hd, SS	100102 (x2)
12	Gasket, Door	G5-9309	None	N/A
13	Handle, Door Latch	102776	Screw, #10-32 x 3/8, Hex, Serr SS	101397 (x3)
14	Hinge, Bottom	G5-9190	1/4-20x1/2 FL phil m/s 18-8 100-deg	101392 (x3)
15	Plate, Door Bearing	G5-9189	Screw, #8-32x.5", Pfh,100 deg, SS	102810 (x2)
16	Plate, Hinge Bearing	G5-9197	See G5-9191	See G5-9191
17	Plate, Hinge Pin, Bottom	G5-9191	Screw, 1/4-20 x 5/8, Hex Hd, Cres Washer, Bronze Thrust, .63 Id x 1.188 Od x .063 Thk Washer, 1/4 Split Lock	101367 (x2) 102435 102400 (x2)
18	Plate, Hinge Pin, Top	G5-9194	Screw, 1/4-20X3/8" Lg Hex Serr Flange	102948 (x2)
See Page A-12	Relay, K5, Monitor	101272	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl Diode Modification	101688 (x2) 700-1214 (x1)
See Page A-12	Relay, K6, Primary	101273	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl Diode Modification	101688 (x2) 700-1214 (x1)
See Page A-12	Relay, K7, Secondary	101273	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl Diode Modification	101688 (x2) 700-1214 (x1)
22	Skin, Door, Inner	G5-9186	See G5-9042	See G5-9042
23	Spacer, Door Latch	G5-9200	Striker, Door Handle Screw, 1/4-20 X 3/4 Hex Wahser Hd Serr, Cres Screw, #10-32 X 1/4", Soc Set Cp SST	102770 (x1) 101396 (x2) 101710 (x2)
24	Spring, Extension, 1" LG x 7.66#	101863	None	N/A
25	Spring, Extension, 1" x 8.92#	101864	None	N/A
26	Switch, Door	102013 (x3)	Screw, #4-40 X 5/8 Lg, Pphd, Sems	102902 (x2 ea)
27	Washer, Hinge	G5-9196 (x2)	See G5-9191 or G5-9194	See G5-9191 or G5-9194

Microwave System

⚠ DANGER: Before removing any oven part, be sure the oven has completed "cooling down" and is removed from the power source.

NOTE: For clarity, some components have been removed from the illustrations below.

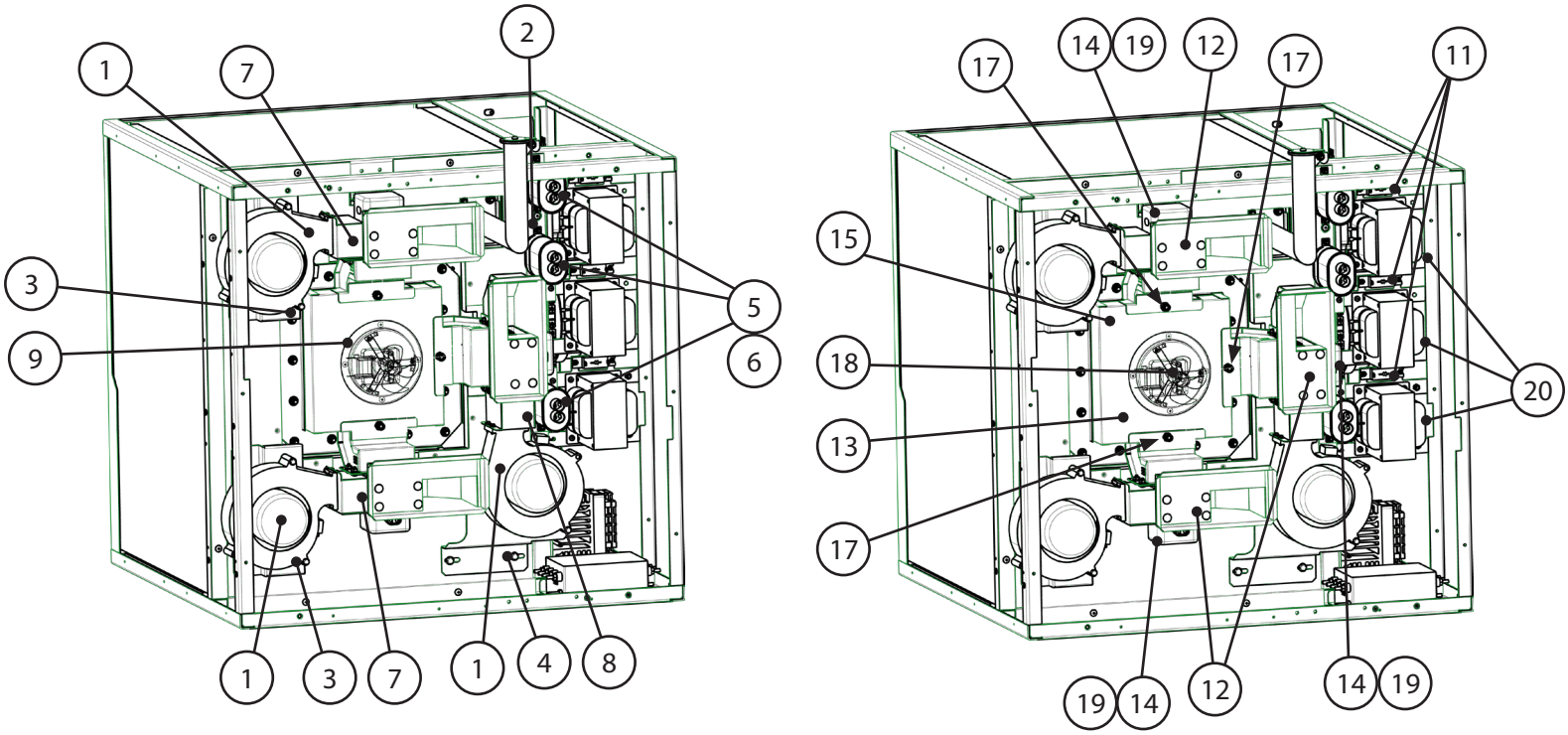

Figure A-10: Microwave Assembly

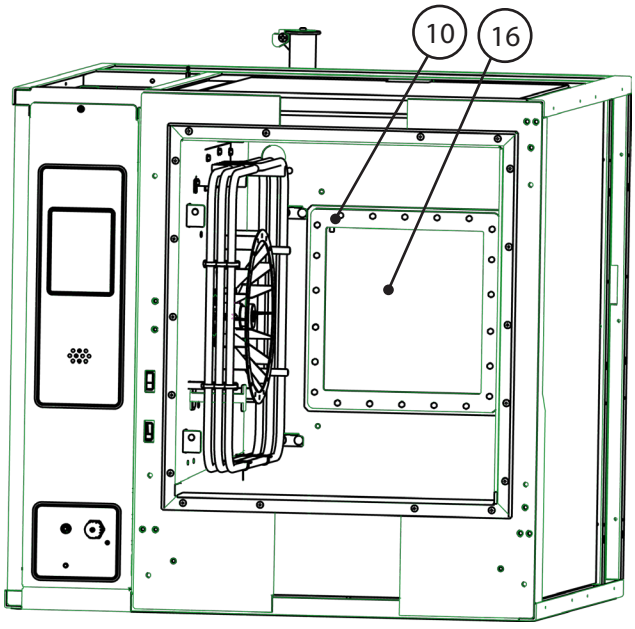

Figure A-11: Interior, Baffle Removed

Figure Reference #	Item Description	Item Part Number	Hardware Description	Hardware Part Number(s)
1	Blower, Magnetron #1 (x3)	100083	Screw, #10-32 X 2.5 Lg, Hwh, Zinc Pltd	101727 (x2)
2	Bracket, High Voltage Capacitor	G5-9222	Screw #8-32 X 3/8, Pphd, Sems, SS	102921 (x3)
3	Bracket, Magnetron Fan 1 & 3 (x2)	G5-9249	Screw, 1/4 X .63, Hex Wshr Hd, Pltd Steel	101386 (x2)
4	Bracket, Magnetron Fan 2	G5-9246	Screw, 1/4 X .63, Hex Wshr Hd, Pltd Steel	101386 (x2)
5	Capacitor, High Voltage (x3)	100214	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl	101688 (x1 ea)
6	Clamp, Capacitor (x3)	100134	Nut, #8-32, Kep, Ext Tooth, SS	102962 (x2 ea)
7	Cooling Duct, Magnetron 1 & 3 (x2)	G5-9011	None	N/A
8	Cooling Duct, Magnetron 2	G5-9014	None	N/A
9	Cover, insulation, Microwave Launcher (Not Shown)	G5-9114	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl	101688 (x6)
10	Cover, Stirrer Mounting	G5-9172	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl	101688 (x4)
11	Cover, Waveguide	G5-9049	Tape, Teflon, Gore-Tex, 1/4 X .04Thk	102019 (as required)
12	Diode, High Voltage (x3)	100481	Screw, Sems, #6-32 X 1/2, Int Tooth, Pph, Cres	102912 (x2 ea)
13	Exit Duct, Magnetron (x3)	G5-9012	Plug, Hole, Cook Door Screw, Hex Hd, #10-32 x 1/2 Lg, Cres, Type 23	101191 (x4) 101408 (x4)
See Page A-12	Fuse, 20 amp, Class CC, ATMR (x3)	100599	None	N/A
See Page A-12	Fuseblock	103566	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl	101688 (x2)
14	Insulation, Launcher Side (x2) (Not Shown)	G5-9265	None	N/A
15	Magnetron (x3)	100862	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl	101688 (x8)
16	Microwave Launcher	G5-9175	Nut, 1/4-20, Serr Hex Flange, Zinc	100906 (x13)
See Page A-12	Relay, K2, Mag 1	101273	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl Diode Modification	101688 (x2) 700-1214 (x1)
See Page A-12	Relay, K3, Mag 2	101273	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl Diode Modification	101688 (x2) 700-1214 (x1)
See Page A-12	Relay, K4, Mag 3	101273	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl Diode Modification	101688 (x2) 700-1214 (x1)
See Page A-12	Relay, K8, Motors	101273	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl Diode Modification	101688 (x2) 700-1214 (x1)
17	Retainer, Waveguide Cover	G5-9089	Nut, 8-32, Acorn, SS	100912 (x22)
18	Set Screw, Waveguide (x3)	101773	None	N/A
19	Stirrer Motor	G5-9172	Screw, #6-32 X 3/16", Soc Set Cp Sst Nut, #6-32, Small Pattern, Ext Tooth, Keps, SS Plate, Rotating Choke	101721 (x1) 102966 (x3) G5-9173 (x1)
20	Thermostat, 270F, Open on Rise (x3)	104228	Screw, #6 X 3/8, Pph, Drill Point, Zinc Cho-Therm 1674, Insulator (3/4 X 3/4)F	101684 (x2) NGC-1163 (x1)
21	Transformer, High Voltage (x3)	104137	Screw #8-32 X 3/8, Pphd, Sems, SS	102921 (x4 ea)

Controls System

⚠ DANGER: Before removing any oven part, be sure the oven has completed “cooling down” and is removed from the power source.

NOTE: For clarity, some components have been removed from the illustrations below.

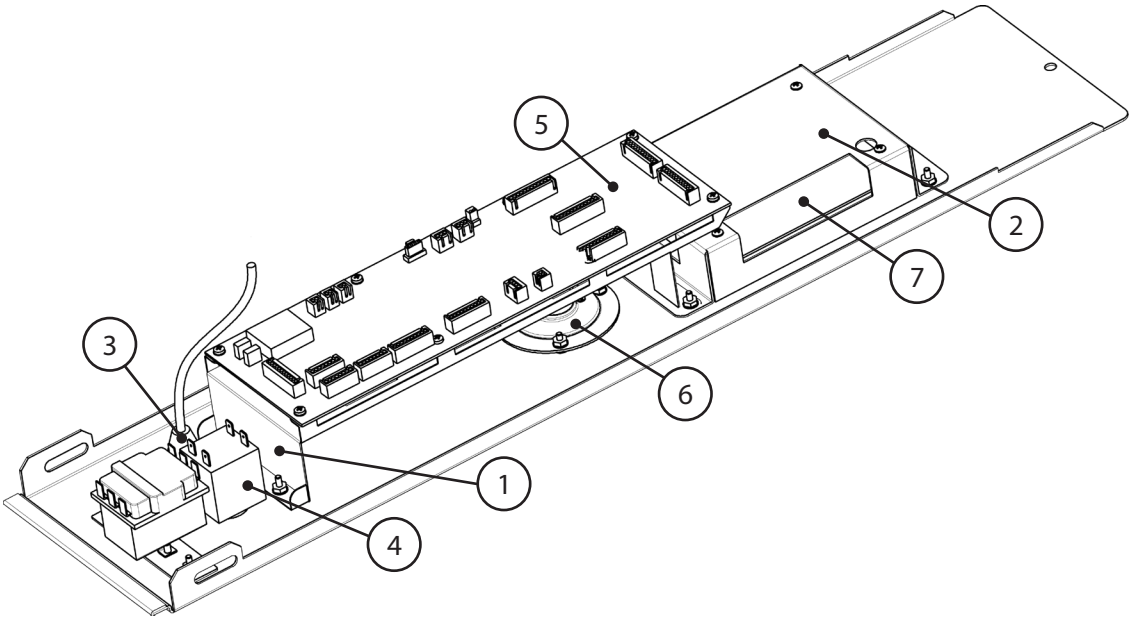

Figure A-12: Control Panel

Figure Reference #	Item Description	Item Part Number	Hardware Description	Hardware Part Number(s)
1	Bracket, Control Board	G5-9047	Nut, #6-32, Kep, Ext Tooth, SS	102961 (x4)
2	Bracket, Touch Screen Display	G5-9113	Nut, #6-32, Kep, Ext Tooth, SS	102961 (x4)
3	Cable, USB	103196	None	N/A
4	Circuit Breaker	103175	None	N/A
5	Control Board	CON-7044	Screw, 6-32 X 3/8 Pan Phil M/S 18-8 Sems Int Lw	102911 (x8)
6	Speaker	G5-9112	Retainer, Speaker Nut, #6-32, Kep, Ext Tooth, SS Washer, Flat, Uss, #6, 18-8	G5-9111 102961 (x3) 102170 (x3)
7	Touch Screen, VGA Display	CON-7046	Screw, #6-32 X 1/2 Lg Pph SS	101570 (x4)
See page A-5	Thermostat, 3 Pole, High Limit	102075	Screw, M4 X 8mm LG, PFH 90 DEG, Steel-Zinc Nut, #6-32, Kep, Ext Tooth, SS Bracket, High-Limit	101735 (x2) 102961 (x2) G5-9054

Electrical System

⚠ DANGER: Before removing any oven part, be sure the oven has completed "cooling down" and is removed from the power source.

NOTE: For clarity, some components have been removed from the illustrations below.

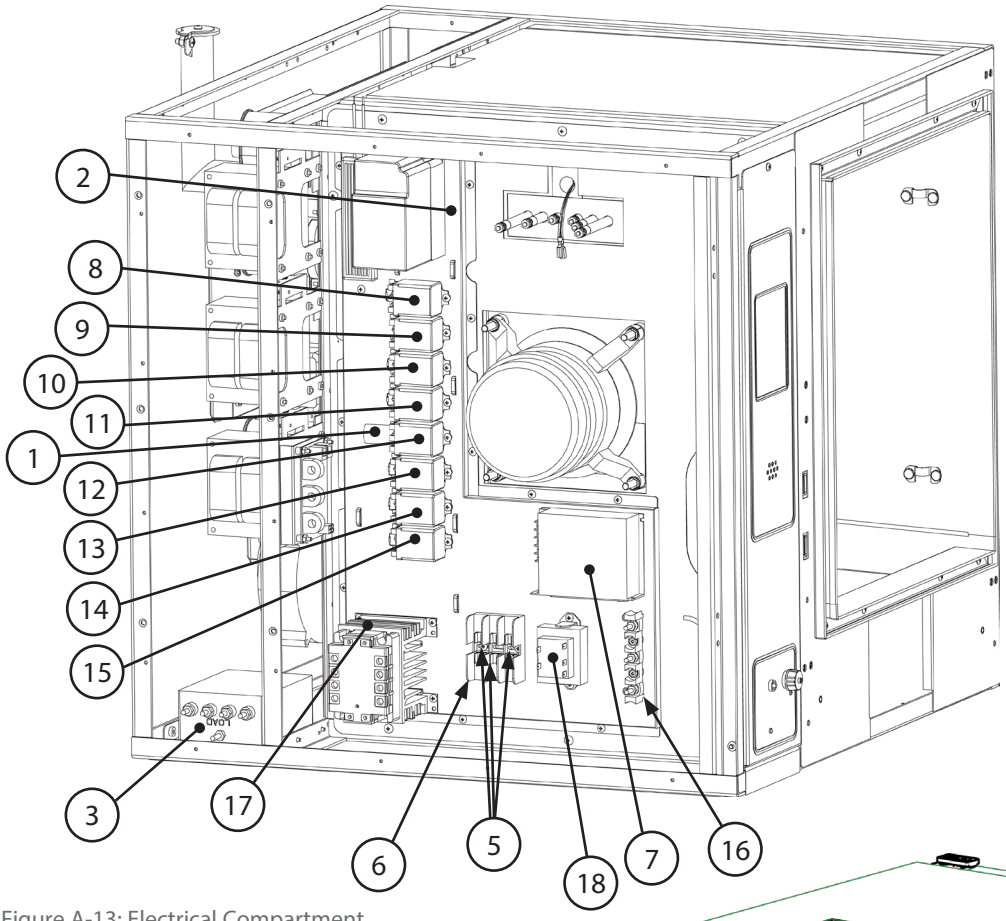

Figure A-13: Electrical Compartment

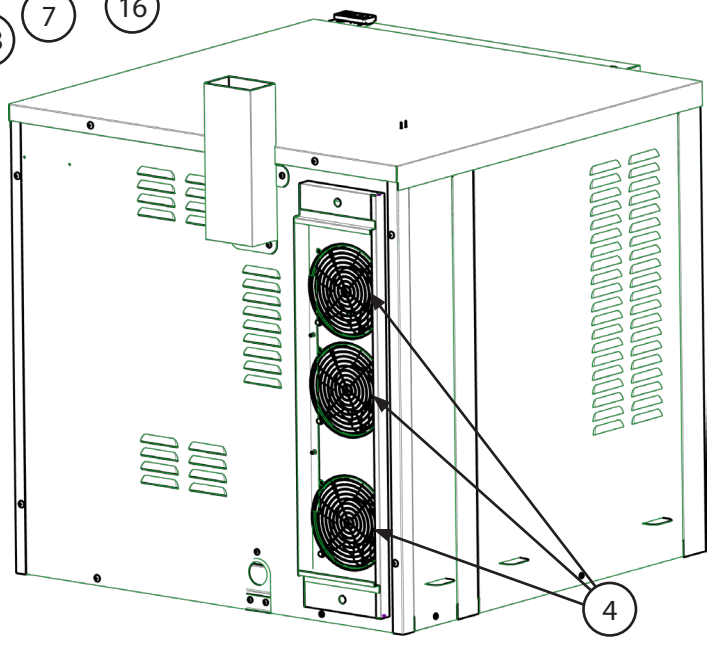

Figure A-14: Exterior, Rear

Figure Reference #	Item Description	Item Part Number	Hardware Description	Hardware Part Number(s)
1	Assembly, Capacitor Monitor Relay	i5-9390	None	N/A
2	Bracket, Electrical	G5-9026	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl	101688 (x8)
3	EMI Filter, 50 Amp	G5-9037	Screw, #10-32 X .38 LG, 100 Deg, Pflhd, SS	101401 (x2)
4	Fan, Cooling (x3)	TC3-0433	Screw, 10-32 x 1/2, PPHD Type F Thread Cutting, SS	101694 (x2 ea)
5	Fuse, 20 amp, Class CC, ATMR (x3)	100599	None	N/A
6	Fuseblock	103566	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl	101688 (x2)
7	Power Supply, 24VDC, 1.8A	101211	Screw, M3 X 8mm, Pph, Sems, Cres	103444 (x3)
8	Relay, K1, Voltage Select	101272	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl Diode Modification	101688 (x2) 700-1214 (x1)
9	Relay, K2, Mag 1	101273	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl Diode Modification	101688 (x2) 700-1214 (x1)
10	Relay, K3, Mag 2	101273	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl Diode Modification	101688 (x2) 700-1214 (x1)
11	Relay, K4, Mag 3	101273	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl Diode Modification	101688 (x2) 700-1214 (x1)
12	Relay, K5, Monitor	101272	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl Diode Modification	101688 (x2) 700-1214 (x1)
13	Relay, K6, Primary	101273	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl Diode Modification	101688 (x2) 700-1214 (x1)
14	Relay, K7, Secondary	101273	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl Diode Modification	101688 (x2) 700-1214 (x1)
15	Relay, K8, Motors	101273	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl Diode Modification	101688 (x2) 700-1214 (x1)
16	Terminal Block	102049	Screw, #10-32 X 3/4 Lg, Pph Sems, Int Tth	102937 (x2)
17	Thermostat, 120F, Close On Rise	102086	Screw, #6 X 3/8, Pph, Drill Point, Zinc	101684 (x2)
18	Transformer, 40VA, 208-240 P/245	102107	Screw, #8 x 1/2, Serr Ph Truss Hd, Sheet Mtl	101688 (x2)

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