



Service Manual

FOR THE TURBOCHEF® i5™ 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.

©2008-2010 TurboChef Technologies, Inc.

Table of Contents

Safety Instructions

General Safety Information	i
Reducing Fire Risk	i
Grounding Instructions	ii
Power Cord Replacement	ii
Precautions to be Observed Before and During Servicing to Avoid Possible Exposure to Excessive Microwave Energy	ii
RF Interference Considerations	ii

Specifications and Installation

Theory of Operation	1
Certifications	1
Dimensions	1
Oven Construction	1
Electrical Specifications	2
Unpacking Instructions	3
Lifting and Placing the Oven	3
Installation Near Open Heat Source	4
Optional Installation Items	4
Voltage Selection	6
Ventilation Requirements	6

Daily Maintenance

	7
--	---

Oven Controls and Cooking

Oven Controls	9
Cooking	10
Step 1: Turn the Oven On	10
Step 2: Select Cook Temperature	10
Step 3: Warming Up	10
Step 4: Soaking	11
Step 5: Ready to Cook or “Idle”	11
Step 6: Adjusting the Time	11
Step 7: Cooking	11
Step 8: Remove Food from Oven	12
Step 9: Additional Cooking Options	12
Step 10: Cooling Down	12

Info Mode

Overview of the Info Mode	13
Viewing Cook Counter/Time Logs	13
Viewing the Fault Log	13
Viewing the Service Numbers	14
Resetting the Oven	14

Options Screen	14
Setting the Language	14
Setting the Date/Time	14
Adjusting the Volume	14
Setting the F2 Alarm	15
Making a Copy of the Oven Menu	15
Updating the Oven Menu	15
Updating the Oven Firmware	15

Test Mode

Test Mode - Testing Oven Parts	16
Status Indicators	16
Fault Log	16
Turning Diagnostic Mode On/Off	16
Manufacturing Mode	17
Microwave Leakage Test (How to Use Oven for Testing)	17
Microwave Power Test	17
Burn-In	17
Serial Number Edit	17
Changing Temperature Measurement Setting	17
Self Test	17
Volt On	18
Erase/Default Oven Settings	18

Edit Mode

Overview of the Edit Mode	19
Changing Set Temperatures	19
Changing Food Group/Item Name	20
Changing Recipe Settings	20

Oven Systems

Convection System	21
Blower Motor (Bottom)	21
Blower Motor (Top)	21
Blower Motor Controller (BMSC)	21
Heater Element	21
Jetplate (Bottom)	21
Jetplate (Top)	21
Stirrer Motor and Assembly	21
Convection System Troubleshooting	22
Oven Door	22
Removing/Reinstalling the Oven Door	22
Adjusting the Oven Door	22
Interlock Switches	24
Adjusting the Door Switches	24
Hinges and Counter-Balance Assembly	24
Adjusting the Counter-Balance Assembly	24
Measuring RF Leakage for Microwave Safety	25
Oven Door Troubleshooting	26

Microwave System	27
Capacitors	27
Testing a Capacitor	27
Filament Transformers	27
Wiring the Filament Transformers	27
High-Voltage Transformers	28
Wiring the High-Voltage Transformers	28
Testing a Filament or High-Voltage Transformer	28
High-Voltage Diodes	28
Testing a High-Voltage Diode	29
Magnetrons	30
Testing a Magnetron for an Open/Shorted Filament	30
Stirrer Motor and Assembly	30
Wave Guides	30
Microwave System Troubleshooting	30
Control System	31
Control Board	31
Display	31
Electrical Compartment Cooling Fans	31
Electrical Compartment Cooling Fan Thermostat	31
Electrical Compartment Thermocouple	31
EMI Filter	31
Fuses	31
High-Limit Thermostat	32
Keypad	32
Magnetron Cooling Fans	32
Magnetron Thermostats	32
Power Supply	32
Relay - K1 Filament	32
Relay - K2 Anode	32
Relay - K3 Monitor	32
Relay - K6 Voltage	32
Relay - K7 Magnetron Cooling Fan	32
Relay - K8 Stirrer Motor	32
RTD	33
Smart Card Reader	33
Solid State Relay - K4/K5 Heater	33
Speaker	33
USB Port	33
Voltage Sensor	33
Wire Harness	33
Control System Troubleshooting	33
Filtering System	34
Catalytic Converter	34
Drain Pan	34
Air Filter	34
Vent Catalyst	34
Filtering System Troubleshooting	34

Troubleshooting

Overview of Troubleshooting	35
Fault Code Descriptions	35
Fault Code Troubleshooting - F1 Blower Running Status Bad	37
Fault Code Troubleshooting - F2 Cook Temperature Low	38
Fault Code Troubleshooting - F3 Magnetron Current Low	39
Fault Code Troubleshooting - F4 Door Monitor Defective	40
Fault Code Troubleshooting - F5 Magnetron Over Temperature	40
Fault Code Troubleshooting - F6 Electrical Compartment Temperature High	41
Fault Code Troubleshooting - F7 Open RTD	41
Fault Code Troubleshooting - F8 Heat Rise Low	42
Fault Code Troubleshooting - F9 Cook Cavity Temperature High	42
Non-Fault Code Troubleshooting - No Keypad Input	43
Non-Fault Code Troubleshooting - “Door Open” Message when Door is Closed	43
Non-Fault Code Troubleshooting - No Display (Screen is Blank)	44
Non-Fault Code Troubleshooting - Food Not Cooking Properly	45
Non-Fault Code Troubleshooting - “Read Fail” Message when Loading a Menu	46
Non-Fault Code Troubleshooting - “Write Fail” Message when Loading a Menu	47
Non-Fault Code Troubleshooting - “Defective Media” Message When Oven is Plugged in or Restarted	48

Oven Schematic	49
----------------	----

Appendix - Replacing Oven Components

Comprehensive Table of Oven Components	A-1
Replacing Items - No Cover Removal Required	A-3
Replacing Items - Opening Top Cover Required	A-5
Replacing Items - Removing Top Cover Required	A-7
Replacing Items - Removing Left Side Cover Required	A-9
Replacing Items - Removing Right Side Cover Required	A-11
Replacing Items - Removing/Opening Multiple Covers Required	A-12

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 properly grounded outlet. See "Grounding Instructions" found on page ii.
- ✓ Install or locate this appliance only in accordance with the provided installation instructions.
- ✓ Some products such as whole eggs and sealed containers (e.g., closed glass jars) may explode and should not be heated in this oven.
- ✓ Use this appliance only for its intended uses as described in this manual.
- ✓ This appliance should be serviced only by qualified service personnel. Contact the nearest authorized service facility for examination, repair, or adjustment.
- ✓ Keep 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 LIQUIDS SUDDENLY BOILING OVER WHEN THE CONTAINER IS DISTURBED OR A UTENSIL IS INSERTED INTO THE LIQUID.**
- ✓ 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.
- x DO NOT allow children to use this appliance. Children should be supervised to ensure that they do not play with the appliance.
- x DO NOT use corrosive chemicals or vapors in this appliance - it is not designed for industrial or laboratory use.
- 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 cord or plug in water.
- x DO NOT let cord hang over the edge of table or counter.
- x DO NOT use a water jet for cleaning. See the Maintenance section (pages 7-8) for proper cleaning procedures.

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 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.

- ✕ DO NOT use an extension cord. If the power cord is too short, have a qualified electrician or serviceman 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 pages 25-26 for leakage test procedures.

RF Interference Considerations

The i5 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 electro-magnetic 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.

Specifications and Installation

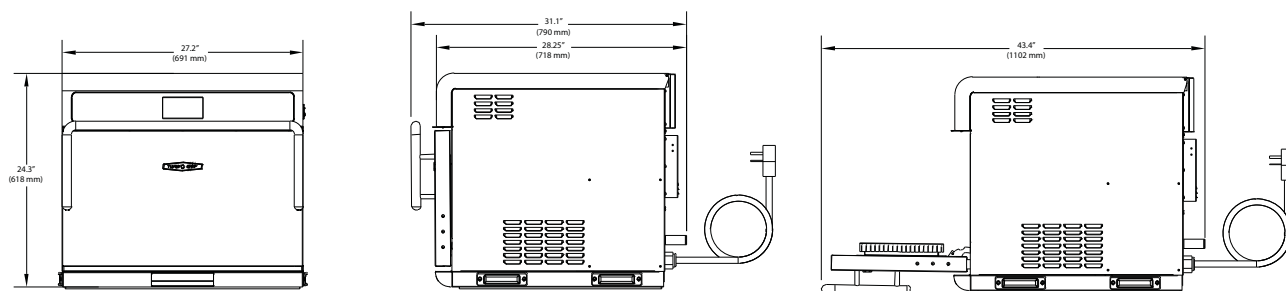


Figure 1: i5 Oven Dimensions

Theory of Operation

The i5 rapid cook oven combines precisely-controlled impinged air and microwave energy to create higher heat transfer rates than conventional ovens. Top-launched microwave and impinged air are stirred to further ensure even heat distribution, while impinged air enters the cavity from the top and bottom, generated by dual independently-controlled blower motors. The combination of this technology with the size of the cook cavity allows for higher throughput than other batch ovens.

This manual includes instructions for servicing, troubleshooting, installing, cleaning, and operating the i5 oven. If you have questions that are not addressed in this manual, contact Technical Service (800.90TURBO, +1 214-379-6000) or your Authorized Distributor.

Certifications

cULus, UL EPH, TÜV, CE, FDA



Dimensions

Oven Dimensions

Height: 24.3" (618 mm)
 Width: 27.2" (691 mm)
 Depth (door closed): 28.25" (718 mm)
 Depth (door open): 43.4" (1102 mm)
 Weight: 275 lbs (125 kg)

Cook Cavity Dimensions

Height: 10" (254 mm)
 Width: 24" (610 mm)
 Depth: 16" (406 mm)
 Volume: 2.22 ft³ (63 liters)

Clearances

Top: 16" (406 mm)
 Sides: 2" (51 mm)

NOTE: This oven is not stackable.

Oven Construction

Exterior

- Two-tone stainless steel front, top and sides
- 304 stainless steel removable grease pan
- Ergonomic door handle
- Rubber seal for surface mounting
- Side handles for lifting

Interior

- 304 stainless steel interior
- Fully-insulated cook chamber
- Removable rack with dual setting option
- Top and bottom jetplates

Electrical Specifications

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

Single Phase

i5 US model (i5-9500-1)*

208/240 VAC, 60 Hz, 48 Amps

Max Input: 9500/11500 watts

Plug: NEMA 6-50P

i5 BK model (i5-9500-6-BK)

220 VAC, 60 Hz, 48 Amps

Max Input: 10000 watts

Plug: IEC 309, 3-pin

i5 LA model (i5-9500-7-LA)

220 VAC, 60 Hz, 48 Amps

Max Input: 10000 watts

Plug: NEMA 6-50P

i5 UK model (i5-9500-2-UK)

230 VAC, 50 Hz, 48 Amps

Max Input: 10000 watts

Plug: IEC 309, 3-pin

i5 JK model (i5-9500-8-JK) - 50 Hz (i5-9500-10-JK) - 60 Hz

200 VAC, 50 or 60 Hz, 46 Amps

Max Input: 9000 watts

Plug: PSE-marked, 3-blade

Multi Phase

i5 DL (USA) model (i5-9500-14-DL)*

208/240 VAC, 60 Hz, 30 Amps

Max Input: 9500/11500 watts

Plug: NEMA 15-30P

i5 KW model (i5-9500-12-KW)

400 VAC, 60 Hz, 19 Amps

Max Input: 10000 watts

Plug: IEC 309, 5-pin

i5 BD model (i5-9500-16-BD)

220 VAC, 60 Hz, 28 Amps

Max Input: 10000 watts

Plug: IEC 309, 4-pin

i5 ED model (i5-9500-3-ED)

230 VAC, 50 Hz, 28 Amps

Max Input: 10000 watts

Plug: IEC 309, 4-pin

i5 LD model (i5-9500-15-LD)

220 VAC, 60 Hz, 28 Amps

Max Input: 10000 watts

Plug: NEMA 15-30P

i5 SD model (i5-9500-13-SD)

230 VAC, 60 Hz, 28 Amps

Max Input: 10000 watts

Plug: IEC 309, 4-pin

i5 EW model (i5-9500-4-EW)

400 VAC, 50 Hz, 19 Amps

Max Input: 10000 watts

Plug: IEC 309, 5-pin

i5 JD model (i5-9500-9-JD) - 50 Hz (i5-9500-11-JD) - 60 Hz

200 VAC, 50 or 60 Hz, 25 Amps

Max Input: 10000 watts

Plug: PSE-marked, 4-blade

i5 AU model (i5-9500-5-AU)

400 VAC, 50 Hz, 19 Amps

Max Input: 10000 watts

Plug: Clipsal 5-pin

* North America models include a voltage sensor that detects 208 or 240 VAC. The voltage sensor does not compensate for lack-of or over-voltage installations.

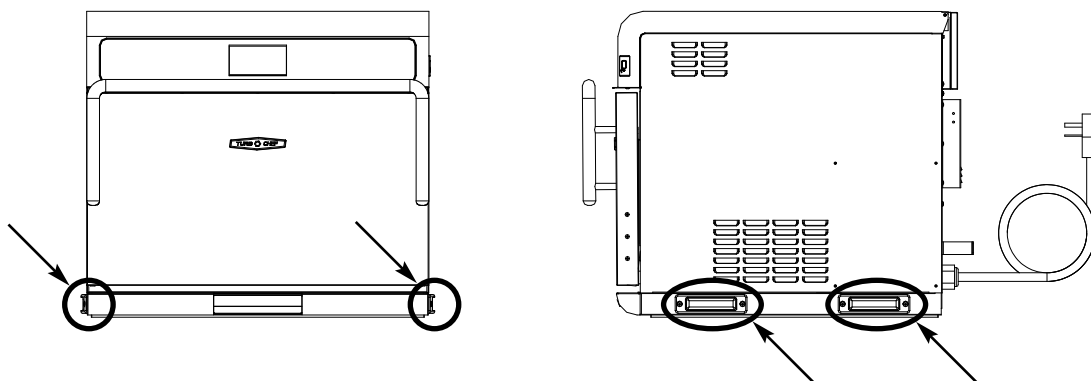


Figure 2: Hand Grip Locations

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

Unpacking Instructions

1. Remove oven from packaging.
2. Before discarding packaging, check thoroughly for accessories, consumables, and literature.
3. Discard packaging.
4. Check cook cavity thoroughly for accessories, consumables, and literature.
5. Discard any packaging in cook cavity.

Lifting and Placing the Oven

! **WARNING:** Oven weighs approximately 275 lbs (125 kg). Never lift with fewer than two people.

! **WARNING:** Lift only using the provided hand grips. Never lift the oven by the door handle or by its base.

! **WARNING:** The oven must be properly placed on a table or countertop at all times. TurboChef will not recognize a fallen oven as a warrantable claim and is not liable for any injuries that may result.

! **WARNING:** 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 sides and 16" (406 mm) clearance for the top.

1. Prepare a surface that is at least 30" (762 mm) deep and capable of supporting 280 lb. (127 kg). If installing onto an oven cart, make sure the wheels/casters are locked.
2. Position one or more persons at the front and rear of the oven.
3. Place hands into grips (see Figure 2) and lift.
4. Place the oven on the prepared surface or cart, ensuring no edges are hanging off the sides.
5. Install the oven rack.
6. Plug in the oven.

NOTE: The oven is primarily serviced through its top. **DO NOT** install shelving directly over the unit. The operator will be responsible for service charges incurred as a result of added time required to access the top of the oven.

Installation Near Open Heat Source

See Figure 3, page 5.

When placing a TurboChef oven near an open heat source, 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 (24.3" or 618 mm).
- Verify oven location has a minimum 16" (406 mm) clearance on top and minimum 2" (51 mm) of clearance on each side.

Optional Installation Items

See Figure 4, page 5.

TurboChef Oven Carts

- Part Number: [NGC-1217-1](#)
Height: 24" (610 mm)
Width: 27.8" (706 mm)
Depth: 26.625" (676 mm)
- Part Number: [NGC-1217-2](#)
Height: 17.3" (439 mm)
Width: 27.8" (706 mm)
Depth: 26.625" (676 mm)
- Part Number: [NGC-1217-3](#)
Height: 32" (813 mm)
Width: 27.8" (706 mm)
Depth: 26.625" (676 mm)

TurboChef Stacking Stand

- Part Number: [i5-9369](#)
Height: 44.6" (1133 mm)
Width: 32.5" (826 mm)
Depth: 26.5" (673 mm)

NOTE: The stacking stand can only be used with the 17.3" (439 mm) oven cart (P/N: [NGC-1217-2](#)).

Oven Restraint Kit

Part Number: [TC3-0242](#)



WARNING: The Oven Restraint Kit will not prevent the oven from falling off a counter top if the oven is pulled off or allowed to slide off the edge. Installation instructions are included with the kit.

ChefComm Pro ([CON-7006](#))

ChefComm Pro empowers any user of a TurboChef oven to easily and efficiently create menu settings on a computer and transfer them to an oven via smart card or USB device.

ChefComm Limited ([CON-7016](#))

ChefComm Limited is a "read-and-transfer only" version of ChefComm Pro that helps ensure carefully-crafted settings are easy to distribute globally, while providing the peace of mind that they will not be altered.

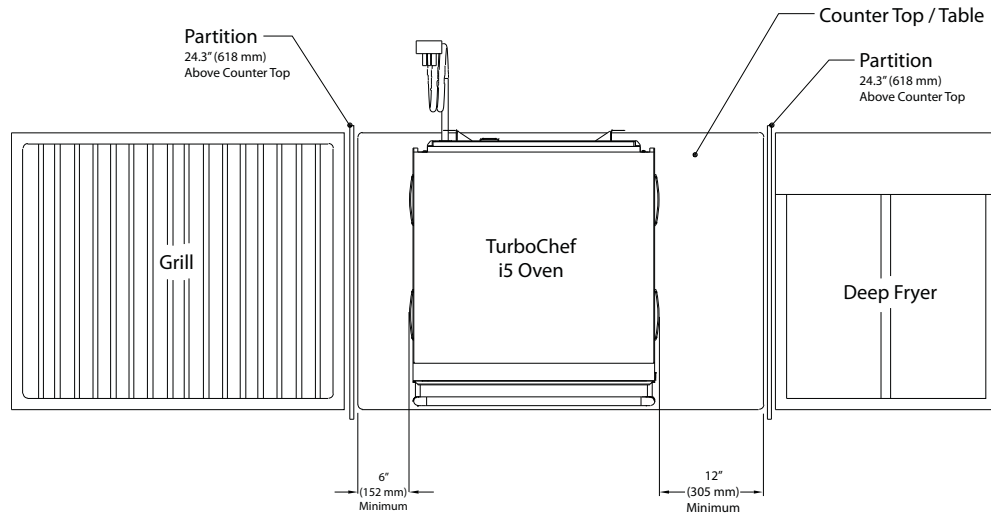


Figure 3: Installation Near Open Heat Source

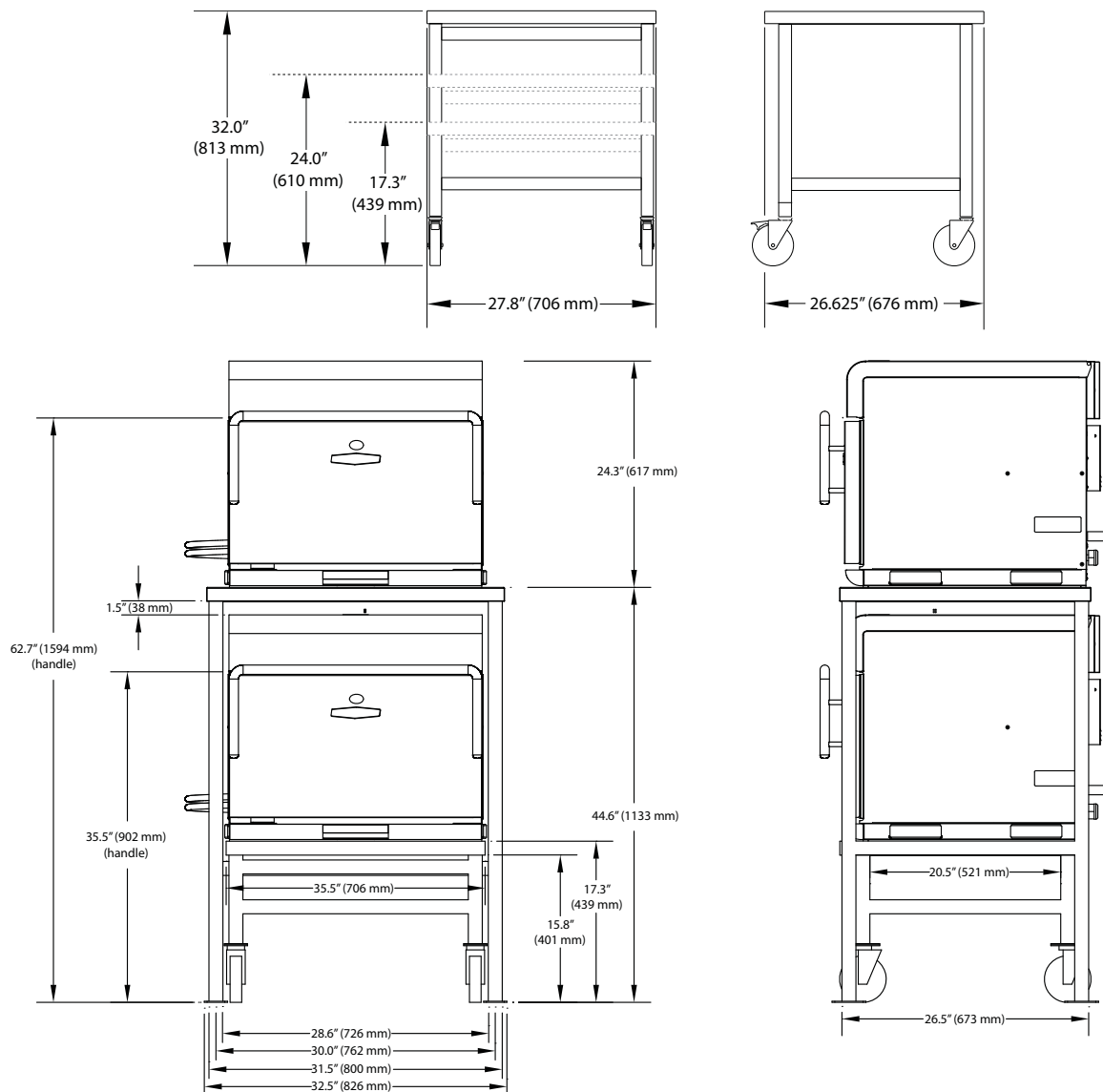


Figure 4: Oven Carts and Stacking Stand Dimensions

Voltage Selection

For North America oven models, the oven will detect 208 or 240 incoming voltage.

The initial voltage selection is typically completed before the oven is used by the customer. However, if incoming voltage for the store is different than the preset voltage, the operator will be required to select either 208 or 240 after pressing the On/Off key to turn on the oven. The correct voltage will be enlarged on the screen, identifying which option to select (Figure 5, below).

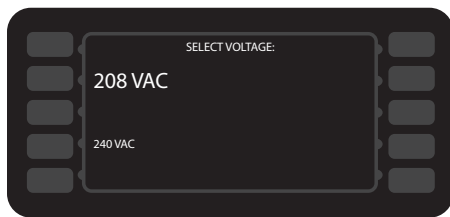


Figure 5: Selecting Voltage

Ventilation Requirements

The TurboChef model i5 oven has been approved by Underwriter's Laboratory for ventless operation (UL 710B, KNLZ listing) for all food items except for foods classified as "fatty raw proteins." Such foods include bone-in, skin-on chicken, raw hamburger meat, raw bacon, raw sausage, steaks, etc. If cooking these types of foods, consult local HVAC codes and authorities to ensure compliance with ventilation requirements.

NOTE: In no event shall the manufacturer assume any liability for damages or injuries resulting from installations which are not in compliance with the instructions and codes previously listed.

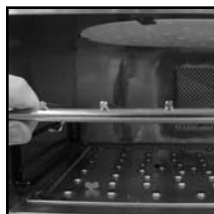
Daily Maintenance

Daily Maintenance

The following steps will help maintain your i5 Oven. Use only TurboChef Oven Cleaner and Oven Guard. The use of any other cleaning products can damage critical oven components, resulting in a non-warranty service call.



Step 1



Step 2



Step 3



Step 4



Step 5



Step 6

Supplies and Equipment

- TurboChef Oven Cleaner (Part Number: [103180](#))
- TurboChef Oven Guard (Part Number: [103181](#))
- Nylon scrub pad, cleaning towel, disposable gloves, protective eyewear, dust mask (optional), *pair of tongs wrapped with towel (optional - see step 11)

Step 1: Prepare the Oven

⚠ WARNING: The oven operates at approximately 500°F (260°C) and may cause injury if not allowed to cool properly.

- Turn off the oven by pressing the On/Off key.
- Slightly open the oven door. Cooling takes approximately 40 minutes.
- DO NOT attempt to clean the oven until the oven displays "Oven Off."

Step 2: Remove and Clean the Wire Rack

⚠ WARNING: Be sure the oven interior is cool before you remove the wire rack.

- Wash, rinse, sanitize, and dry the wire rack.

Step 3: Remove and Clean the Lower Jetplate

- Unscrew the two thumb screws on the lower jetplate.
- Lift the lower jetplate by gripping the thumb screws.
- Remove the lower jetplate.
- Wash, rinse, sanitize, and dry the lower jetplate.

Step 4: Remove and Clean the Lower Air Diverter

- Remove the lower air diverter.
- Wash, rinse, sanitize, and dry the lower air diverter.

⚠ WARNING: DO NOT discard the lower air diverter. The oven will not work without the lower air diverter installed.

Step 5: Wipe the Oven Interior

- Wipe any large particles from the oven interior with a damp towel.

Step 6: Clean the Oven Interior

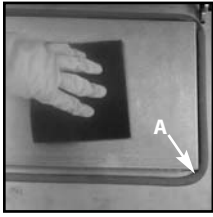
- Spray oven cleaner onto the top, bottom, and sides of the oven interior.

⚠ CAUTION: DO NOT spray oven cleaner into the holes on the back oven wall. Doing so can damage critical oven components, resulting in a non-warranty service call.

- Allow Oven Cleaner to penetrate stains for five minutes.
- Clean the oven interior with a nylon scrub pad.

⚠ CAUTION: DO NOT apply excessive pressure when wiping the top ceramic jetplate; breakage will result in a non-warranty service call.

⚠ CAUTION: DO NOT remove the top ceramic jetplate; breakage will result in a non-warranty service call.



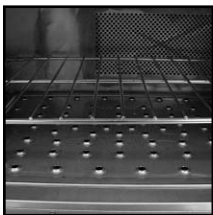
Step 7



Step 8



Step 9



Step 10



Step 11



Step 12



Step 13

Step 7: Clean and Dry the Oven Door

- ⚠ CAUTION: DO NOT spray cleaner directly onto the oven door gasket (A) or saturate it with water.
- ⚠ CAUTION: DO NOT scrub, scrape, or attempt to clean the oven door gasket (A). Doing so may cause the door to not close properly, resulting in a non-warranty service call.
 - Clean the oven door with oven cleaner and a nylon scrub pad.
 - Wipe the oven door with a damp towel.

Step 8: Rinse the Oven Interior

- ⚠ CAUTION: DO NOT use a hose or water jet for cleaning. Doing so can damage critical oven components, resulting in a non-warranty service call.
- Rinse the oven interior with clean water.
- Thoroughly dry the oven interior with a clean towel.

Step 9: Apply TurboChef Oven Guard

- Spray Oven Guard onto a clean towel.
- Wipe the oven's interior walls and the inside of the oven door.
- ⚠ CAUTION: DO NOT apply Oven Guard to the oven door gasket. Doing so may damage the gasket, resulting in a non-warranty service call.

Step 10: Reinstall Components

- Reinstall the lower air diverter.
- Reinstall the lower jetplate. Screw in the two thumb screws to lock the lower jetplate in place.
- Reinstall the wire rack and close the oven door.

Step 11: Clean the Drain Pan

- If required, remove the lower front panel.
- Remove the drain pan entirely from the bottom of the oven.
- Wipe down* the inside of the area the drain pan fits within.
- Empty, clean, and reinstall the drain pan and, if required, the lower front panel.
- ⚠ CAUTION: Ensure the drain pan's outer edge/ lower front panel is flush with the door panel (i.e., not sticking out). Failure to do so will damage the oven door, resulting in a non-warranty service call.

Step 12: 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 side panels or the rear vent catalyst housing. Doing so can damage critical oven components, resulting in a non-warranty service call.

Step 13: Clean the Air Filter (once per week)

- Remove the air filter from the back panel.
- Gently wash by hand in the sink or rinse with hot water.
- ⚠ CAUTION: DO NOT use a water jet. Doing so will shorten the life of the filter.
- Reinstall the air filter, or replace it if large holes are present or if the mesh is becoming detached from the frame.
- ⚠ CAUTION: DO NOT operate the oven without the air filter in place.

Oven Controls and Cooking

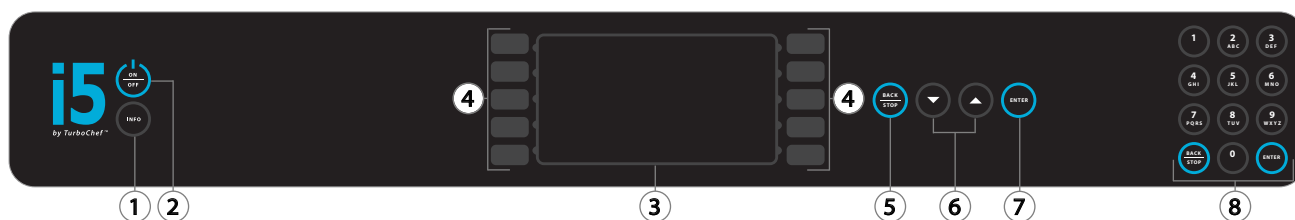


Figure 6: Oven Controls

Oven Controls

1. Info Key

When the oven is off or cooling down, press to access the Info Mode (see page 13).

2. On/Off Key

Press to turn the oven on (begin warmup) or off (cool down), or to exit Info Mode (page 13).

3. Display

The display shows information relevant to the current oven operation and/or user options.

4. Soft Keys

There are ten soft keys - five to the left and right of the display. Press a soft key to select an option adjacent to that key on the display.

NOTE: Soft keys are labeled L1-L5 and R1-R5 in this manual (where applicable) for identification purposes.

5. Up and Down Keys

When the oven is ready to cook (i.e., warmed up and waiting for a cook command), press the Up or Down key to view additional food groups or items.

When the oven is in the Info Mode (see page 13), press to navigate between screens 1 and 2.

When editing a food item, press to navigate between editable fields (Figure 30, page 20).

6. Back/Stop Key

When the oven is cooking, press the Back/Stop key to immediately terminate a cook cycle. When the oven is ready to cook (i.e., warmed up and waiting for a cook command), or in the Info Mode (see page 11), press the Back/Stop key to return to the previous screen.

7. Enter Key

Press the Enter key when saving changes to food item settings (Figure 30, page 20), or whenever instructed by the oven screen.

8. Numeric Keypad

Use the numeric keypad to enter access passwords or modify cook settings (Figure 30, page 20). The numeric keypad also contains a Back/Stop key and an Enter key, which are functionally identical to Items 5 and 6.

Cooking

The oven is preprogrammed with recipe settings at the time of manufacture and is ready to operate out of the box. If these settings are erased, new menu settings must be either loaded via smart card/USB drive (page 15) or programmed manually (pages 19-20). The oven will not cook unless settings are present.

Note that the steps below are not always sequential. Typically, multiple items will be cooked before cooling the oven (Step 10).

Step 1: Turn the Oven On

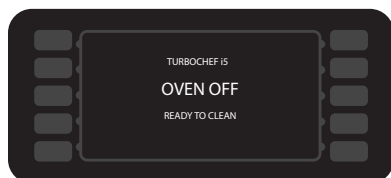


Figure 7: Oven Off

When the oven is off (Figure 7), the oven temperature has receded below 150°F (66°C), but the display and keypad remain on.

Press the On/Off key to turn the oven on.

Step 2: Select Cook Temperature



Figure 8: Cook Temperature Select

The oven can store either one or two cook temperatures. To select a temperature, press the adjacent soft key.

Each temperature has 10 food groups assigned to it, and each group consists of 10 food items (100 items per temperature). The operator will only be able to cook items associated with the selected temperature; to cook other items on the menu, a new temperature must be selected.

NOTE: If both temperature settings are the same, this screen will be bypassed and access to all 200 food items will be allowed.

Step 3: Warming Up



Figure 9: Warming Up

During this step, the oven warms to the selected or pre-set temperature.

Step 4: Soaking

Once the oven temperature reaches the set point, the oven will continue to warm for eight minutes to ensure the cook cavity surfaces absorb enough heat so as to not affect cooking results. This process is called “soaking.”

Step 5: Ready to Cook or “Idle”

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

1. Place the food into the oven.
2. Select a food group by pressing its adjacent soft key, or press the Up or Down key for additional food groups, if available.
3. Select an item to cook by pressing its adjacent soft key.

Step 6: Adjusting the Time

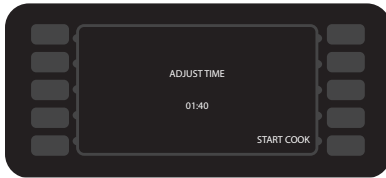


Figure 10: Adjust Time

The Adjust Time option is turned off by default. If you want the ability to modify the cook time before each cook cycle, this feature can be turned on from the “Options” screen (see page 14).

1. If the “Adjust Time” screen appears, change the cook time if needed by using the number keys.
2. Press Enter or bottom-right soft key to confirm and begin cooking.

Step 7: Cooking

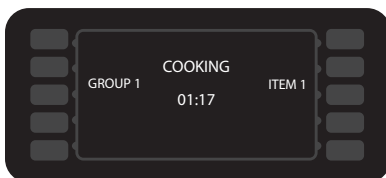


Figure 11: Cooking

NOTE: To immediately terminate a cook cycle, press the Back/Stop key.

NOTE: If the oven door is opened during a cook cycle, the cycle will pause until the door is closed and “Resume” is selected.

Step 8: Remove Food from Oven

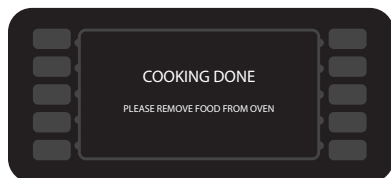


Figure 12: Cooking Done

 **WARNING:** Dish and inside of oven/oven door are hot!

Open the oven door and check/remove food.

Step 9: Additional Cooking Options

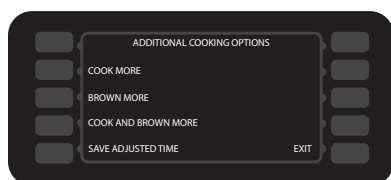


Figure 13: Additional Cooking Options

The “Additional Cooking Options” screen is turned off by default. If you want the ability to cook a product a little beyond the standard cook time, you can enable this feature from the “Options” screen (see page 14).

If the “Additional Cooking Options” screen appears and the food product requires more cooking:

- Select “cook more” if the inside of the food item is undercooked.
- Select “brown more” if the outside of the food item requires more browning or crispness.
- Select “cook and brown more” if both the inside and outside of the food item are not done.
- Select “save adjusted time” to save any change to the cook time made during Step 6. Note that this option is not available if “Adjust Time” is disabled.
- Select “exit” to return to the food group selection screen.

Step 10: Cooling Down

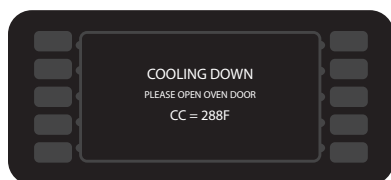


Figure 14: Cooling Down

When finished cooking for the day, press the On/Off key to turn the oven off and begin cooling down.

During this step, the oven blows cool air into the cook cavity to return it to approximately 150°F (66°C), at which point the oven is safe to clean.

Info Mode

Test Mode

Edit Mode

Overview of the Info Mode

The Info Mode serves four main purposes:

1. To display oven information.
2. To provide access to Test Mode and additional diagnostic tools for service technicians.
3. To turn oven options and features on/off.
4. To update oven settings.

To access the Info Mode, simply press the Info key when the oven is either off or cooling down. To toggle between screens 1 and 2, press the Up or Down key.

From screen 1 of the Info Mode (Figure 15):

- View the oven serial number
- View the oven software version
- View the menu part number and revision
- View the last temperature selected to cook
- View the electrical compartment temperature
- Scroll through counters (total cook time, magnetron time, total oven on time, and cook counter)
- View the operating voltage (North America models only)
- Access the fault log
- Access service phone numbers

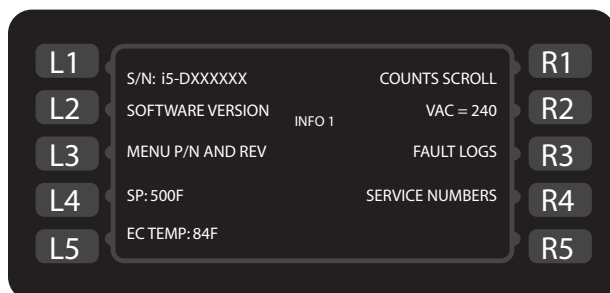


Figure 15: Info Mode Screen 1

From screen 2 of the Info Mode (Figure 16):

- Access Test Mode
- Access the “Options” screen
- Set the language (not available on all models)
- Set the date/time
- Increase/decrease the tone volume (sound)
- Access the “Load Menu” screen
- Turn the F2 Alarm on or off (page 14 for details)

Viewing Cook Counter/Time Logs

From the Info Mode (Figure 15), press the R1 soft key:

- Once to display total cook time.
- Twice to display total magnetron time.
- Three times to display total “oven on” time.
- Four times to display the cook counter.

Viewing the Fault Log

Figures 17-18. For more information on faults, see pages 35-36. To zero the fault counters, select Clear All.

From the Info Mode (Figure 15), press the R3 soft key to view the fault log (Figure 17). To view a detailed log of each fault occurrence (Figure 18), press the soft key adjacent to the fault code.

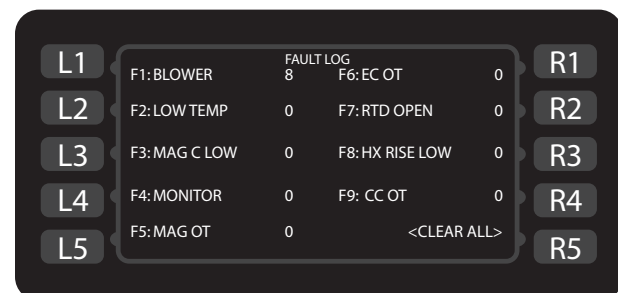


Figure 17: Fault Log

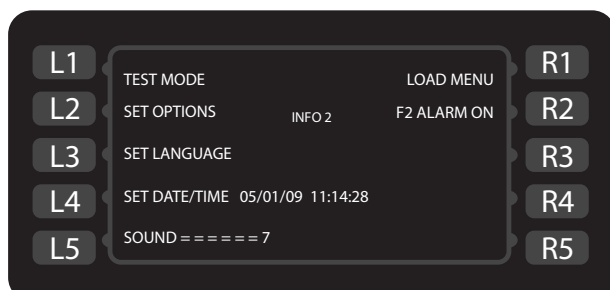


Figure 16: Info Mode Screen 2

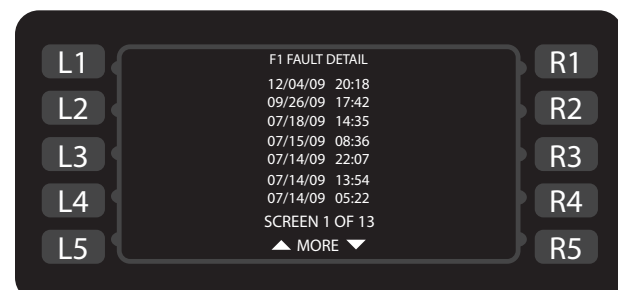


Figure 18: Fault Detail

Viewing the Service Numbers

From the Info Mode (Figure 15, page 13), press the R4 soft key to view technical support contact info.

Resetting the Oven

Resetting the oven is one way to potentially clear an error message, should one occur. When the oven is cooling down or off, press and hold the INFO key for 5 seconds.

Options Screen

From screen 2 of the INFO MODE (Figure 16, page 13), press the L2 soft key to access the Options screen (Figure 19). When prompted, enter the password 9 4 2 8 and press the Enter key.

From the Options screen, the following oven options can be turned on or off:

- Adjust Time screen (see cooking step 6, page 11 for more details)
- Cook More screen (see cooking step 9, page 12 for more details)
- Edit Mode (see page 19 for more details)
- Load Menu screen (see page 15 for more details)
- Demo Mode (TurboChef use only)
- DHCP (TurboChef use only)
- Oven Type: Ensure this option is set to "i5."

Setting the Language

NOTE: Not available on some oven models.

From screen 2 of the INFO MODE (Figure 16, page 13), press the L3 soft key to set a different language. Each

time L3 is pressed, a different language is selected in the following order: English (default), Spanish, French, German, Portuguese, Italian, Russian, Greek, Polish.

Setting the Date/Time

Having an accurate date and time is important for logging oven counts, diagnostics, and fault conditions, should any occur. The oven time and date are set at the time of manufacture; however, the operator may at some point be required to make an adjustment.

From screen 2 of the INFO MODE (Figure 16, page 13), press the L4 soft key to access the "Set Date/Time" screen (Figure 20).

To set the date and time,

1. Use the L3 and R3 soft keys (middle left and middle right) to navigate between fields.
2. Use the numeric keypad to enter the month, day, and year, followed by the hour and minute.

NOTE: The clock is a 24-hour clock (e.g., 20:30 = 8:30 PM).

3. Select "Save" to save your changes or "Cancel" to cancel and exit the screen.

NOTE: The oven will not retain the time if it is left unplugged for two or more weeks.

Adjusting the Volume

From screen 2 of the INFO MODE (Figure 16, page 13), press the L5 soft key to adjust the beeper volume.

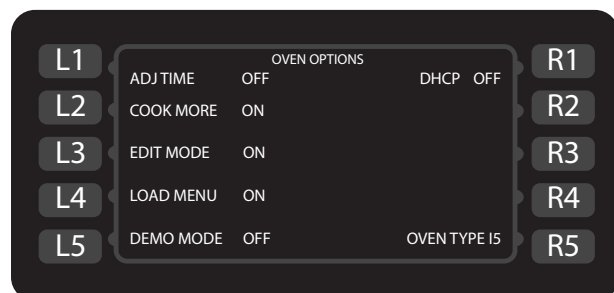


Figure 19: Options Screen

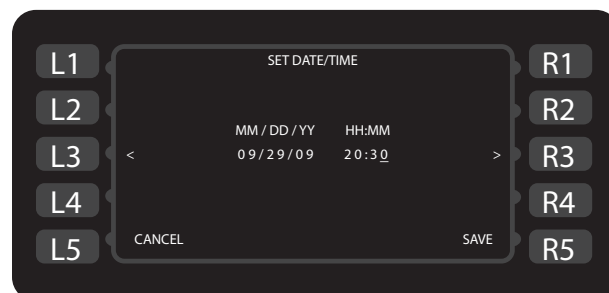


Figure 20: Set Date/Time

Setting the F2 Alarm

Under normal operation, the F2 alarm will terminate a cook cycle if the CC temperature falls below 84°F (47°C) of the set point. Turning off the F2 alarm will prevent a cook cycle from being terminated if the fault is discovered. In either event, the fault will be logged for service purposes and should necessitate a service call.

To turn the F2 alarm on or off, press the R2 soft key from the Info 2 screen (Figure 16, page 13).

Making a Copy of the Oven Menu

From screen 2 of the INFO MODE (Figure 16, page 13), press the R1 soft key to access the Load Menu screen.

NOTE: This feature can be turned on or off via the “Options” screen (Figure 19, page 14).

To save a copy of the oven menu to a smart card,

1. Insert the smart card (Figure 21).
2. Press the L2 soft key “Save to Card.”
3. Verify the oven beeps and reads “FINISHED.”

To save a copy of the oven menu to a USB drive,

1. Insert the USB drive (Figure 21).
2. Press the L5 soft key “Save to USB.”
3. Verify the oven beeps and reads “FINISHED.”

Updating the Oven Menu

From screen 2 of the INFO MODE (Figure 16, page 13), press the R1 soft key to access the Load Menu screen.

NOTE: This feature can be turned on or off via the “Options” screen (Figure 19, page 14).

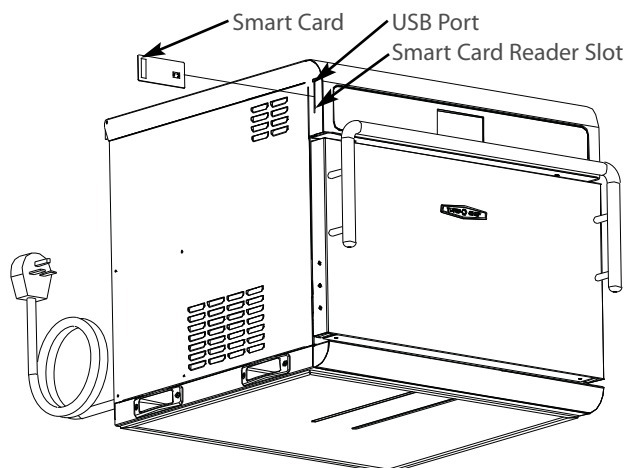


Figure 21: Inserting Smart Card/USB Device

To load a menu to the oven via smart card,

1. Insert the smart card (Figure 21).
2. Press the L1 soft key “Load from Card.”
3. Verify the oven beeps and reads “FINISHED.”

To load a menu via USB drive,

1. Verify the menu on the USB drive is named MENU.BIN.
2. Verify the menu on the USB drive is in a folder named TC_MENU. This folder must not be a sub-folder of any other folder.
3. Insert the USB drive (Figure 21).
4. Press the L4 soft key “Load from USB.”
5. Verify the oven beeps and reads “FINISHED.”

Updating the Oven Firmware

Updating the oven firmware whenever TurboChef releases a new version will help ensure the oven maintains the best possible functionality. Updates can be obtained from www.turbochef.com (link at bottom of screen), and loaded to smart cards via ChefComm. Physical copies can also be ordered and shipped. Contact TurboChef for more details.

CAUTION: Depending on the type of display installed (VFD or TFT) the oven will use a different firmware version. The oven will be inoperable if the incorrect firmware is installed

- Ovens with a VFD display must use [i5-3205](#).
- Ovens with a TFT display must use [i5-3206](#).

From the Oven Off screen,

1. Insert the smart card (see Figure 21).
2. While the oven is either cooling down or off, press and hold the Info key until the oven resets (approximately 5 seconds).
3. When the oven beeps one long high tone, the load was successful. Remove the card and if a second card was provided, insert it.
4. When the oven beeps one long high tone, remove the second card to begin the reboot process.
5. When the oven restarts and the display turns on, the update is complete. Remove the smart card.
6. Verify the oven type is set to “i5” (Figure 19).

NOTE: If the update is unsuccessful, the display will remain off and the oven will beep one long, low tone. If this occurs, repeat the above procedure. If the update fails multiple times, contact TurboChef.

CAUTION: The oven will be inoperable if the firmware update is unsuccessful!

Test Mode - Testing Oven Parts

From screen 2 of the INFO MODE (Figure 16, page 13), press the L1 soft key to access TEST MODE (Figure 22). When prompted, enter the password 9 4 2 8 and press the Enter key. From TEST MODE, the oven's components can be tested independently, or a comprehensive/selective self-test can be run. Unless otherwise specified, idle airflow is set to 10% and the stirrer motor is turned on.

Top and Bottom Blower

Each blower can be tested independently of the other, at any speed setting. While one blower is being tested, the other will remain at 10% idle airflow.

Press the L2 soft key (Figure 22) to increase top blower speed in 10% increments.

Press the L3 soft key (Figure 22) to increase bottom blower speed in 10% increments.

Heaters

Press and hold the L4 soft key (Figure 22) to turn on the heaters. They will turn off upon releasing the L4 soft key.

Magnetron Test

Press and hold the L5 soft key (Figure 22) to turn on the magnetrons. To turn off the magnetrons, simply let go of the L5 soft key.

Stirrer

Press the R1 soft key (Figure 22) to turn the stirrer on/off.

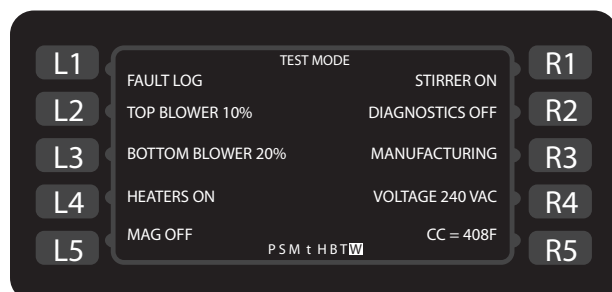


Figure 22: Test Mode

Status Indicators

Figure 22. The status indicators are located at the bottom of the TEST MODE screen, and consist of:

- P = Primary switch (backlit = open)
- S = Secondary switch (backlit = open)
- M = Monitor switch (backlit = open)
- t = Magnetron thermostat (backlit = open)
- H = Heaters (backlit = off)
- B = Bottom blower (backlit = off)
- T = Top blower (backlit = off)
- W = Microwave (backlit = off)

In Figure 22:

- All three door switches are engaged (closed).
- Magnetron thermostat is closed.
- The heaters are on.
- Both blower motors are on.
- Microwave is not being used.

Fault Log

Press the L1 soft key (Figure 22) to access the fault log.

This fault log is identical to the one accessible from INFO MODE screen 1 (Figure 17, page 13).

Turning Diagnostic Mode On/Off

Press the R2 soft key (Figure 22) to place the oven in DIAGNOSTIC MODE. When in DIAGNOSTIC MODE, the oven displays additional cooking parameters during a cook cycle, including:

- Event currently being cooked
- Time left per event
- % wave, % top air, % bottom air
- Status indicators
- Group and recipe name
- Actual cook cavity temperature
- Set point temperature

For normal oven operation, ensure DIAGNOSTIC MODE is turned off.

Manufacturing Mode

Press the R3 soft key (Figure 22, page 16) to place the oven in MANUFACTURING MODE (Figure 23). When in MANUFACTURING MODE, the following tests and settings can be accessed:

- Microwave leakage test
- Microwave power test
- Burn in
- Serial number edit
- Temperature measurement (F or C)
- Self test
- Erase/default oven settings

Microwave Leakage Test

Press the L1 soft key (Figure 23) to initiate the microwave leakage test. The oven will warm up to 500°F (260°C). When warmup is complete, insert the water load. Follow the steps on pages 25-26.

Microwave Power Test

This test should only be performed by the manufacturer.

Burn-In

Press the L3 soft key (Figure 23) to initiate a 25-minute burn-in. This feature helps ensure all cavity walls reach thermal equilibrium before testing is conducted.

Serial Number Edit

Press the L4 soft key (Figure 23) to access the “Edit Serial Number” screen (Figure 24). To edit the serial number:

- Use the number/letter keys to change a character. After one second, the cursor will advance to the next character.
- Press the R3 soft key to advance to next character.
- Press the L3 soft key to return to previous character.
- Press the R5 soft key to save the changes or the L5 soft key to cancel.

Changing Temperature Measurement Setting

Press the L5 soft key (Figure 23) to change the temperature to either Fahrenheit or Celsius.

Self Test

Press the R1 soft key (Figure 23) to access Self Test. From the “Self Test” screen (Figure 25):

- L1 soft key initiates a comprehensive self test. The oven will check the door switches, blowers, magnetrons, and heaters in sequence.
- L2 soft key initiates a door switch test only.
- L3 soft key initiates a blower test only.
- L4 soft key initiates a magnetron test only.
- L5 soft key initiates a heater test only.

When each test completes, the oven will display PASS or FAIL.

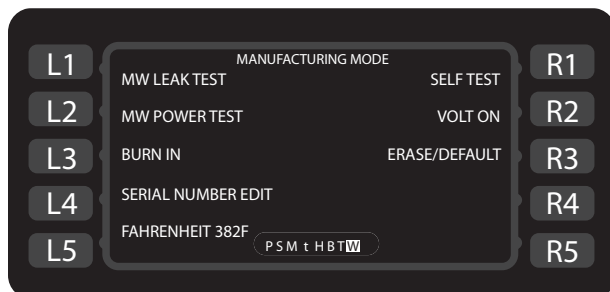


Figure 23: Manufacturing Mode

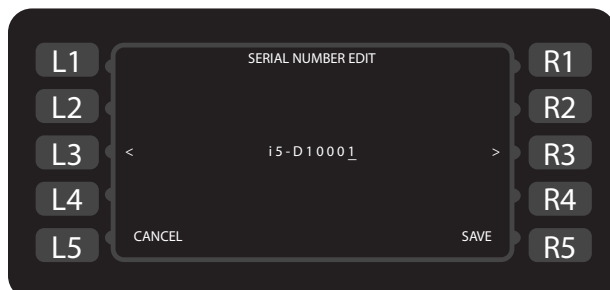


Figure 24: Serial Number Edit

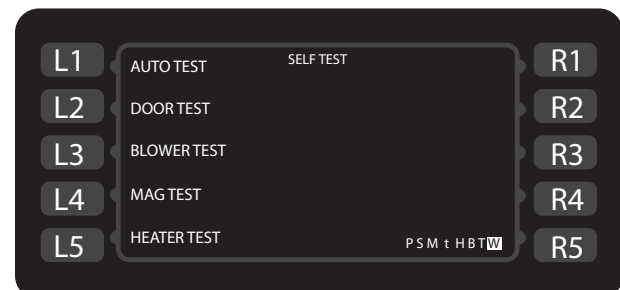


Figure 25: Self Test

Volt On

This setting should not be changed in the field unless instructed by TurboChef. Press the R2 soft key (Figure 23, page 17) to enable/disable the voltage from displaying in INFO MODE. Typically, this setting is disabled for ovens installed outside the United States.

Erase/Default Oven Settings

⚠ CAUTION: Settings cannot be retrieved once an erase option is confirmed.

Press the R3 soft key (Figure 23, page 17) to access the Erase screen. From the Erase screen (Figure 26),

- Press the L2 soft key to erase counters and fault logs.
- Press the R2 soft key to erase counters, fault logs, menu settings, temperature settings, serial number, date, and time. Doing so will also default all oven options (page 14 for more detail) to OFF, with the exception of “load menu.”

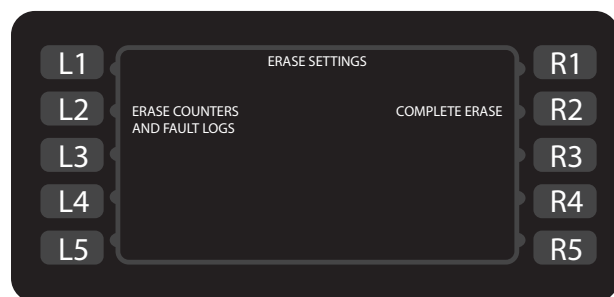


Figure 26: Erase Settings

Overview of the Edit Mode

The EDIT MODE serves three main purposes:

1. To edit set temperatures.
2. To edit names of food groups and recipes.
3. To edit recipe settings.

To access the EDIT MODE,

1. When the oven is off or cooling down, press the Info key.
2. Press the Down key to access screen 2 and select “Set Options.”
3. Enter the password 9 4 2 8 and press ENTER.
4. From the Set Options screen, press the R3 soft key to turn Edit Mode on.
5. Press the On/Off key to exit the Options screen.
6. Press the On/Off key again to enter EDIT MODE.

Changing Set Temperatures

The i5 oven can store two set temperatures. Think of each temperature as a “block” of 10 food groups with 10 items each, or 100 items per temperature.

If a menu was loaded via smart card or USB (page 15), the temperatures are already set - they need not be changed. **The set temperature should never be changed during normal operation.**

Changing the set temperatures is not advised to compensate for over-cooking or under-cooking. Rather, consult your authorized distributor or TurboChef Customer Service if recipe settings are not cooking as desired.

To change a set temperature,

1. Place the oven in EDIT MODE (see adjacent).
2. Select the temperature to change by pressing the adjacent soft key (Figure 27).
3. Using the number keys, enter the new set temperature (valid temperature range is 350-525°F (175-275°C)).
4. Press the Enter key to confirm the change, or the Back/Stop key to cancel.

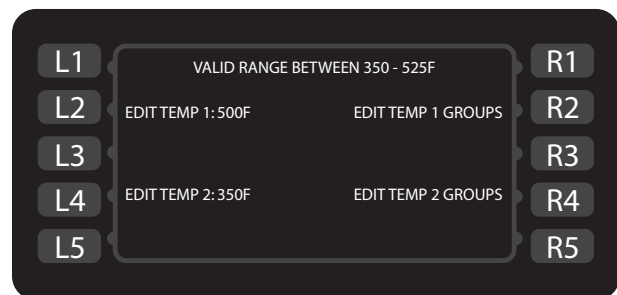


Figure 27: Temperature Edit Screen

Changing Food Group/Item Name

- To change a food group or item name,
1. Place the oven in EDIT MODE (see page 19).
 2. Select a “block” of food groups by pressing the corresponding right-side soft key (Figure 27, page 19).
 3. Select the group that contains the item(s) you want to edit (Figure 28).
 4. Select an item to edit (Figure 29).
 5. From the “Recipe Edit” screen (Figure 30), edit the food group name:
 - Use the numeric keypad to change a character.
 - Press R1 soft key to advance to the next character.
 - Press L1 soft key to return to the previous character.
 - Press the R3 soft key to save changes.
 6. Edit the item name:
 - Press the Down key to move to the “Item Name” field.
 - Use the instructions provided in step 5 to edit the item name.



Figure 28: Select Food Group



Figure 29: Select Recipe to Edit

Changing Recipe Settings

To access the Recipe Edit screen, follow the steps in the adjacent section titled *Changing Food Group/Item Name*.

- To change recipe settings,
1. From the Recipe Edit screen (Figure 30), press the Down key to move the cursor to the desired “Event Setting” field.
- NOTE: To help make navigation easier, the currently-selected field will be displayed in the top-right corner of the display. In Figure 30, the cursor is in the “% Time” column.
2. Use the number keys to adjust event settings:
 - % Time (0-100% in 1% increments). The sum of the percentages across eight events must equal 100.
 - % Top Blower (10-100% in 10% incr.)
 - % Bottom Blower (10-100% in 10% incr.)
 - % Microwave (0-100% in 10% incr.)
 3. Press the R4 “Time” soft key (or press the Down key) to move the cursor to the total time field.
 4. Use the number keys to adjust the cook time.
 5. Press the R3 soft key to save changes.

NOTE: For the save to take effect, the cursor must be advanced past the field that was last edited.

6. If desired, press the R5 soft key to test the new settings. The oven may require time to warm up.
7. When all editing is complete, return to the Options screen and turn off the EDIT MODE (see page 14) to allow access to regular cook mode.

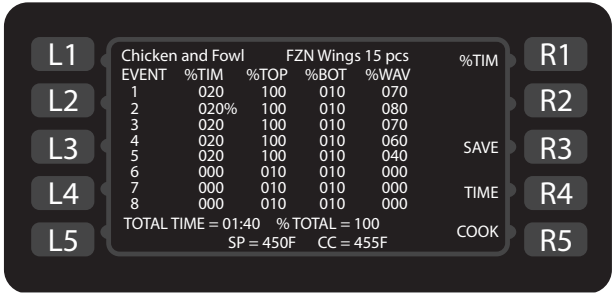


Figure 30: Recipe Edit Screen

Oven Systems

Convection System

The convection system is designed to rapidly heat, clean, and recirculate air into the cook cavity.

This section contains information about the following components:

- Blower motor (bottom)
- Blower motor (top)
- Blower motor controller
- Heater element
- Jetplate (bottom)
- Jetplate (top)
- Stirrer motor and assembly

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

Blower Motor (Bottom)

The bottom convection motor is a brushless AC switch reluctance type. Its top speed is 7100 RPM at 1 HP. The motor is controlled by a proprietary controller and spins clockwise.

The bottom blower motor can be tested in TEST MODE (see page 16).

Blower Motor (Top)

The top convection motor is a brushless AC switch reluctance type. Its top speed is 7100 RPM at 1 HP. The motor is controlled by a proprietary controller and spins counterclockwise.

The top blower motor can be tested in TEST MODE (see page 16).

Blower Motor Controller (BMSC)

The motor controller is proprietary and will only operate the convection motors described above. It is controlled via 0-10 VDC speed command from the control board. The blower motor controller can be tested in TEST MODE by testing the blower motors (see page 16). For additional F1 fault troubleshooting, see page 37.

Heater Element

There are two main convection heaters, each rated at 3000 watts at 208 VAC with a resistance of 14.4 ohms. The convection heater is controlled by the K4/K5 solid state relay.

The heater element can be tested in TEST MODE (see page 16).

Older oven models use a finned heater while recently manufactured models use a helical heater. If a finned heater fails, the entire heater assembly must be replaced with the newer helical heater assembly (i5-3214) since the helical heaters require a different mounting plate.

Jetplate (Bottom)

The bottom jetplate channels air that is generated from the bottom blower motor into the cook cavity.

Jetplate (Top)

The top jetplate channels air that is generated from the top blower motor. This air passes through a stirrer before entering the cook cavity through the jetplate holes.



CAUTION: The top jetplate is ceramic. Be careful when removing or reinstalling it.

Stirrer Motor and Assembly

The stirrer is responsible for evenly distributing hot air and microwave that are launched from the top of the oven into the cook cavity. The stirrer is driven by a motor that remains on during a cook cycle or when the oven is in TEST MODE. The stirrer motor turns off when the cook cavity temperature recedes below 150°F (66°C).

The stirrer motor can be tested in TEST MODE (see page 16).



CAUTION: Be careful to not allow debris into the waveguides when servicing the stirrer assembly.

Convection System Troubleshooting

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

- F1: Blower (see page 37)
- F2: Low Temp (see page 38)
- F6: EC Temp (see page 41)
- F7: Thermo (see page 41)
- F8: Heat Low (see page 42)
- F9: CC Temp (see page 42)

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

- Food not cooking properly (see page 45)

Oven Door

This section contains information about the following components:

- Oven door
- Interlock switches
- Hinges and counter-balance assembly

This section also contains procedures for:

- Removing/reinstalling the oven door
- Adjusting the oven door
- Adjusting the oven door switches
- Adjusting the counter-balance assembly
- Measuring RF leakage for microwave safety

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

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

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

Removing/Reinstalling the Oven Door

To remove or reinstall the oven door, follow the steps below. For illustrations, see page A-4.

1. Ensure the oven has cooled to 150°F (66°C).
2. Open the oven door to its full open position.
3. Locate and remove the #8-32 screws (3 per side).
4. Carefully remove the oven door by pulling the door away from the oven. It will slide off the hinges and the hinge blocks will stay in place. See Figure A-1, page A-4.
5. To reinstall or fit a new door, carefully slide it back over the hinge blocks and replace the 6 #8-32 screws (3 each side).
6. Verify that the door is parallel to the oven frame. If it is not parallel, adjust the door per the instructions below.
7. From TEST MODE (page 16), check the status indicators P, S, and M to verify the switches engage (door closed) and disengage (door open) properly. If they do not, adjust the switches per the instructions on page 24.
8. Complete a MW leakage test (pages 25-26).

Adjusting the Oven Door

Ensuring the oven door is parallel to the cavity frame is essential for safe and proper oven operation. If the door is misaligned, follow the proceeding steps.



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

1. Turn the oven on and warm it to its operating temperature. If two temperatures are present, warm the oven to the higher of the two temperatures.
2. Remove the oven side panels.
3. Remove the switch assemblies from each side.
4. Loosen the four screws that hold the hinge assembly to the gusset plates (Figure 31A).

5. Slide the door in and out of the cavity, making sure the gaps between the door and cavity face are the same distance on each side. Figures 31B and 31C show misaligned doors.
6. Tighten the four screws and open/close the door multiple times to confirm adjustment.
7. Reinstall the door switches.
8. With the door closed, set the left side switch (primary) so the paddle is closed but not pushing or binding on itself.
9. Set the right side switches (secondary and monitor) so they are completely closed but not pushing or binding on themselves.
10. Turn the oven on and enter TEST MODE (page 16 for more details).
11. Observe the status indicators when opening and closing the door and confirm the sequence (PSM open, MSP closed). If necessary, adjust the switches (page 24) and reconfirm the sequence.
12. Reinstall the side panels.
13. Perform a MW Leak Test (pages 25-26).

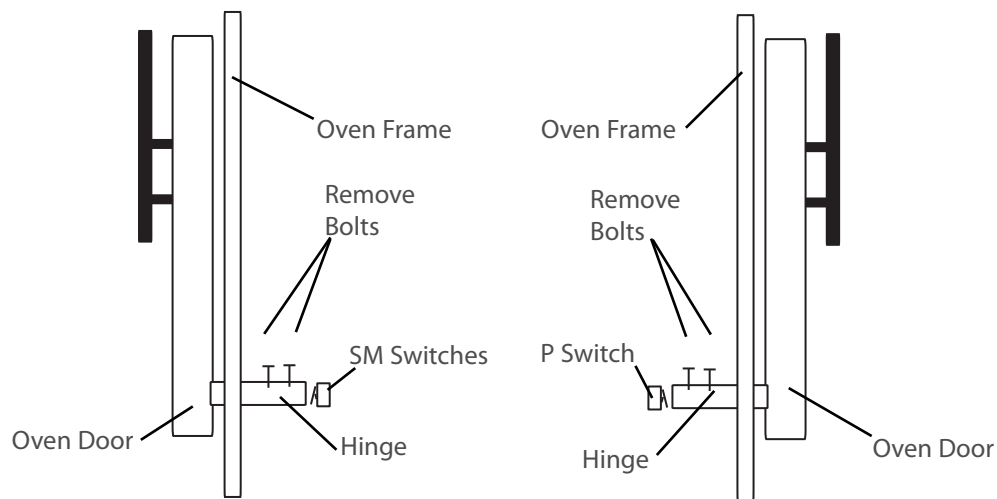


Figure 31A: Properly Adjusted Door - Side Views

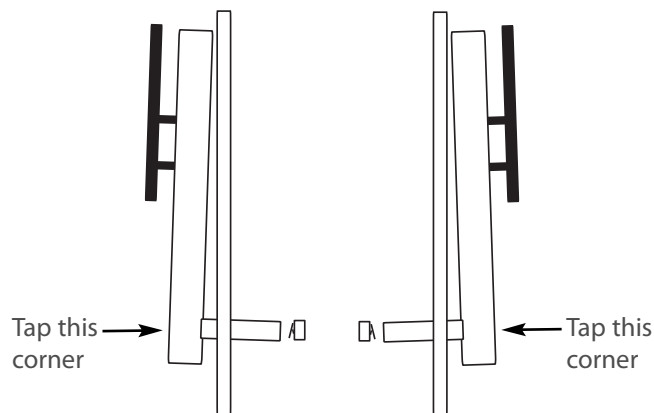


Figure 31B: Door Misaligned 1 - Side Views

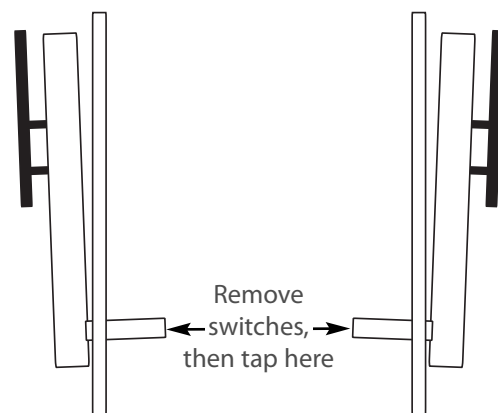


Figure 31C: Door Misaligned 2 - Side Views

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 switch sequence is P, S, M. Subsequently, the sequence is M, S, P when the door is closed.

Adjusting the Door Switches

Proper door switch sequence is critical. The safety interlock system is designed to disable the microwave circuit (blow F3 fuse) if the monitor door switch opens before the primary or secondary switches during microwave operation. Verifying the door switches sequence is highly recommended when servicing an oven with a blown F3 fuse.

 **WARNING:** This procedure requires work while the oven is hot. To avoid burns, be careful when adjusting the door switches.

1. Ensure the oven door is closed.
2. Verify the oven door is adjusted properly and the oven is at operating temperature before attempting to adjust the door switches. If the oven has multiple set temperatures, use the highest temperature. If a door adjustment is required, refer to pages 22 and 23 for details.
3. If an open door switch is not allowing the oven to preheat, remove the side panels and loosen and move both the left and right door switch brackets to close the switches.

NOTE: Step 3 is not a completed repair. Proper switch operation must be confirmed before putting the oven into service; continue to step 4.

4. With the oven at operating temperature, enter TEST MODE (page 16) to view the status indicators of the primary, secondary, and monitor door switches.
5. Adjust the position of the door switches/brackets to ensure the proper sequence.

NOTE: Opening the door must show the sequence as P, S, M. Closing the door must show the opposite sequence M, S, P. After final adjustments, retighten the hex bolts and confirm the brackets are secure.

6. Reinstall the side panels.
7. Perform a MW leakage test (page 25)

Hinges and Counter-Balance Assembly

The door hinges and counter-balance assembly ensure the door consistently opens and closes smoothly. The counter-balance assembly also allows the door to remain open at convenient positions; i.e., partially open, fully open.

Adjusting the Counter-Balance Assembly

Adjustments either increase or decrease the amount of counter-pressure being applied to the door.

 **WARNING:** This procedure requires work while the oven is hot. To avoid burns, be careful when adjusting the counter-balance assembly.

NOTE: In Figure 32, some oven components have been removed for clarity. The adjustment procedure must be performed with the counter-balance and hinges installed to the oven chassis.

1. Heat the oven to operating temperature.
2. Ensure the door is adjusted properly and closed. Refer to page 22 “Adjusting the Oven Door.”
3. Remove both side panels.
4. Remove both left and right side door switch assemblies for access to the adjustment area.
5. Remove the last gusset screws (closest to the switch assemblies) for tool access.
6. Use adjustment tool P/N [i5-9387](#) to check the distance between the bracket and counter-balance assembly (see Figure 32).
7. Insert the adjustment tool and use a 3/32” hex wrench to tighten the adjustment screw against the bracket so the tool cannot slide out.
8. Loosen the screw just enough to allow the tool to be removed.
9. Repeat steps 5-8 for the other side.
10. Reinstall the gusset screws and tighten.
11. Reinstall the door switch assemblies, verifying the switches are in the closed position (i.e., snug against the actuator).
12. Warm up the oven, allowing the additional 8 minute “soak” to achieve thermal equilibrium in the cook cavity.
13. Adjust the door switches to ensure the proper opening and closing sequence (details adjacent).
14. Reinstall all components and side panels.
15. Test for microwave leakage before returning the oven into service (page 25).

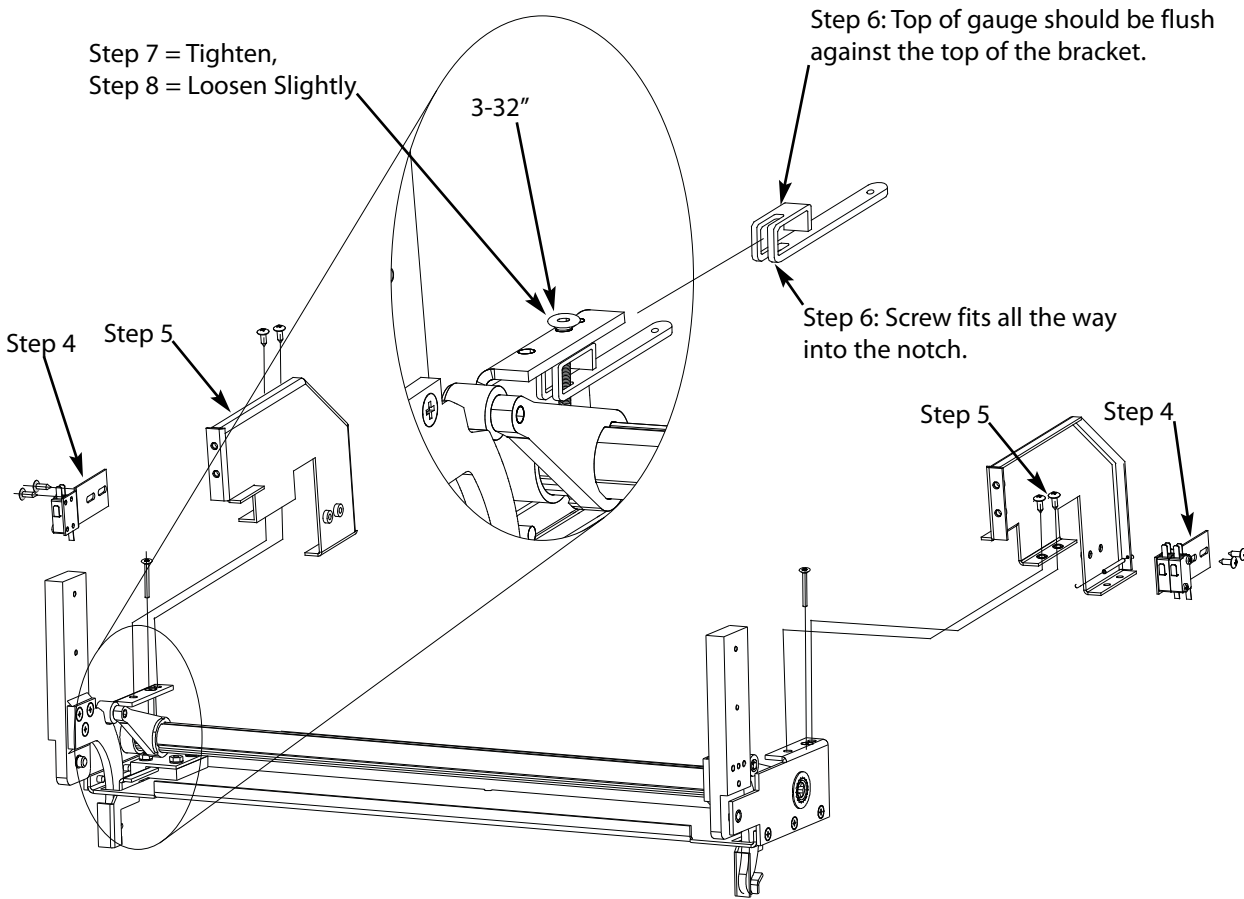


Figure 32: Counter Balance Adjustment

Measuring RF Leakage for Microwave Safety

⚠ WARNING: Procedure requires work while the oven and water loads are hot. As a result, exercise extreme caution when testing.

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

- Door removal, replacement and/or adjustment
- Wave guide removal and /or replacement
- Magnetron removal and/or replacement
- Door switch adjustment and/or replacement
- Counter-balance assembly adjustment and/or replacement

⚠ WARNING: If the unit fails the microwave leakage test (leakage greater than $5\text{mW}/\text{cm}^2$), 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 $5\text{mW}/\text{cm}^2$ must be reported to the manufacturer.

To measure RF leakage,

1. Place the oven in WARMING UP MODE (page 10, steps 1-3) 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, place the oven in TEST MODE (see page 16). From TEST MODE, select "MFG Mode."
3. From the Manufacturing Mode screen, select "MW Leak Test" and follow the instructions on the screen (also detailed in following steps).

Continued on page 26.

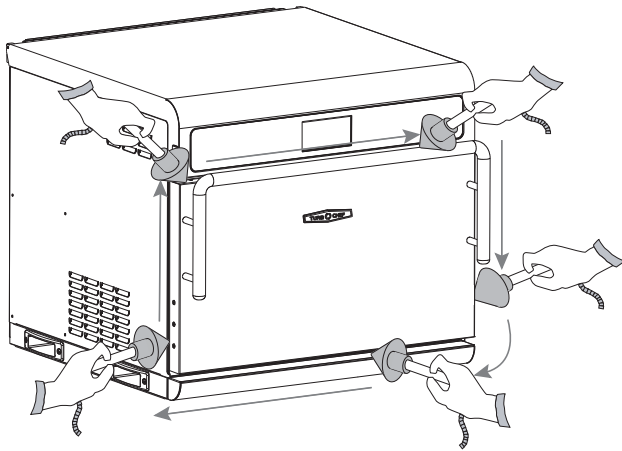


Figure 33: Survey Meter Placement

4. Place a water load into the cook cavity. Water load must conform to the following specifications:
 - Volume: 275 ml $\pm$ 15 ml
 - Temperature: 68°F $\pm$ 9°F (20°C $\pm$ 5°C)
 - Vessel: Low form, 600 ml beaker with an inside diameter of approximately 3.35" (85 mm) and made of Pyrex or equivalent.
5. Close the oven door and press the Enter key. The microwave system will turn on.
6. Position the microwave survey meter where the door seals to the oven frame, moving it while testing as shown in Figure 33.
7. Measure microwave emission around the door, moving the meter sensor at 0.5 inches (1.3 cm)/second. As microwave leakage is observed while moving the sensor, note any meter spike areas that come close to 5mW/cm² for later re-measurement.
8. Replace the water load every 60 seconds until the test is completed, and also after scanning the door.

9. 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 that require this procedure. If so, start out with a freshwater 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.

Oven Door Troubleshooting

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

- F4: Monitor (see page 40)

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

- "Cook Door Open" message when door is closed (see page 43).

Microwave System

Older i5 oven models employ two independent microwave systems (left and right). In the case of an over-current situation relative to the left system, the F3 fuse will blow. In the case of an over-current situation relative to the right system, the F4 fuse will blow.

i5 ovens with serial numbers after 00501 are not equipped with an F4 fuse. Both the left and right systems are wired to the F3 fuse. In the case of an over-current situation, the F3 fuse will blow, shutting off both systems immediately.

This section contains information about the following components:

- Capacitors
- Filament transformers
- High-voltage Diodes
- High-voltage Transformers
- Magnetrons
- Stirrer motor and assembly
- Waveguides

This section also contains procedures for:

- Testing a capacitor
- Wiring the filament transformers
- Testing a high-voltage diode
- Wiring the high-voltage transformers
- Testing a filament or 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. Remove the top cover of the oven.
3. Fully discharge the capacitor.
4. Isolate the capacitor from the circuit.
5. Check for an open or shorted capacitor by placing ohmmeter leads between the capacitor terminals:
 - Rising/escalating ohm readings = capacitor OK
 - Constant infinite resistance = capacitor open
 - Constant very low resistance = capacitor shorted
6. 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.

Filament Transformers

For better operation and reliability, the oven uses separate transformers in order to preheat the magnetron filament.

The control energizes the filament transformers for approximately five seconds prior to energizing the Microwave Circuit via the high-voltage transformers. When in operation, the filament transformers supply approximately 3.15 VAC at 10 amps to each magnetron filament. The filament transformers are controlled via the K1 relay.

Wiring the Filament Transformers

 **DANGER:** Never attempt to measure the secondary voltage values of the filament transformers when they are enabled. Lethal voltage will be present.

The installation of filament transformers is straightforward. Filament transformers are wired in-phase and in-line. Refer to the schematic on page 49, detailing the proper wiring.

To verify correct wiring (North America), measure the voltages between terminals 1 & 2 and 1 & 3 on FT1 and FT2. The voltages must be 208 and 240 VAC respectively.

Continued on page 28.

NOTE: The terminals with the orange dot or the orange wire always go to Terminal 3 on US models.

To verify correct wiring (International), measure the voltage between the taps on FT1 and FT2. The voltage must be 220 VAC (Latin America), 200 VAC (Japan), or 230 VAC (International).

High-Voltage Transformers

High-voltage transformers are a ferro-resonant design which limits fault currents and minimizes magnetron power changes due to input voltage changes. The high-voltage transformer supplies the high voltage for the voltage doubler circuit. They are controlled via the K2 relay.

Wiring the High-Voltage Transformers

 **DANGER:** Never attempt to wire or measure the secondary voltage values of the high-voltage transformers while they are enabled. 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 (page 49) detailing the proper wiring.

As shown in the schematic, transformers are installed mirror opposite and wired 180° out-of-phase. It is essential for longevity that the high-voltage transformers remain 180° out-of-phase. This can be checked by placing a volt meter across terminals T1-1 and T2-1 (primary voltage).

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 transformers are most likely wired in-phase. As a last check, energize the microwave system and verify the voltages between the taps on each high-voltage transformer.

The wiring issue must be corrected prior to returning the oven to service, as the voltages must be:

- NORTH AMERICA: 208 VAC between 1 & 2 and 240 between 1 & 3.
- LATIN AMERICA: 220 VAC
- JAPAN: 200 VAC
- INTERNATIONAL: 230 VAC

NOTE: The terminals with the orange dot/orange wire always go to terminal 3 on USA models.

Testing a Filament or HV Transformer

 **DANGER:** Never attempt to measure the secondary voltage values of the transformers when they are connected to the magnetron circuit. Lethal voltage will be present.

1. Disconnect the AC power source.
2. Remove the top cover of the oven and discharge the high-voltage capacitors.
3. Disconnect all the wires in question going to the transformer.
4. Use an ohmmeter to check the impedance of the primary and secondary winding. Refer to the adjacent resistance table to determine if the transformer is OK. If the resistance is different than the table indicates, replace the transformer.

High-Voltage Diodes

The high-voltage diode (Figure 34) 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.

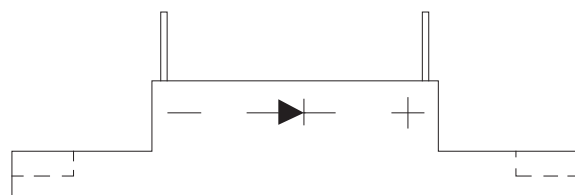


Figure 34: High Voltage Diode

High Voltage Transformers	Primary Voltage, Frequency, Taps, and Resistance	Secondary Taps and Resistance
NGC-3062-1	208 VAC, 60 Hz, 1 & 2, 0.819–1.001 Ω 240 VAC, 60 Hz, 1 & 3, 0.972–1.188 Ω	4, Ground, 53.60–65.52 Ω
NGC-3062-2	230 VAC, 50 Hz, 1 & 2, 0.972–1.188 Ω	3, Ground, 57.52–70.30 Ω
NGC-3062-3	200 VAC, 50/60 Hz, 1 & 2, 0.784–0.958 Ω	3, Ground, 55.75–68.13 Ω
Filament Transformers	Primary Voltage, Frequency, Taps, and Resistance	Secondary Taps and Resistance
NGC-3061-1	208 VAC, 60 Hz, 1 & 2, 17.49–21.37 Ω 240 VAC, 60 Hz, 1 & 3, 20.61–25.19 Ω	4, 5, very low resistance - if reading is open, transformer has failed.
NGC-3061-2	230 VAC, 50 Hz, 1 & 2, 18.99–23.21 Ω	3, 4, very low resistance - if reading is open, transformer has failed.
NGC-3061-3	200 VAC, 50/60 Hz, 1 & 2, 15.70–19.18 Ω	3, 4, very low resistance - if reading is open, transformer has failed.

High Voltage and Filament Transformer Resistance Table

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. Remove the top cover of the oven.
3. Fully discharge the capacitors.
4. Connect the voltage meter in series with diode.
5. 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 diode.
6. Connect the other side of the 9-volt battery to the other side of the diode. DC voltage should only be present on the meter in one direction.
7. Switch the meter leads on the 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

Figure 35. 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.

If replacement is required, conduct a microwave leakage test (pages 25-26) after installation of new magnetron.

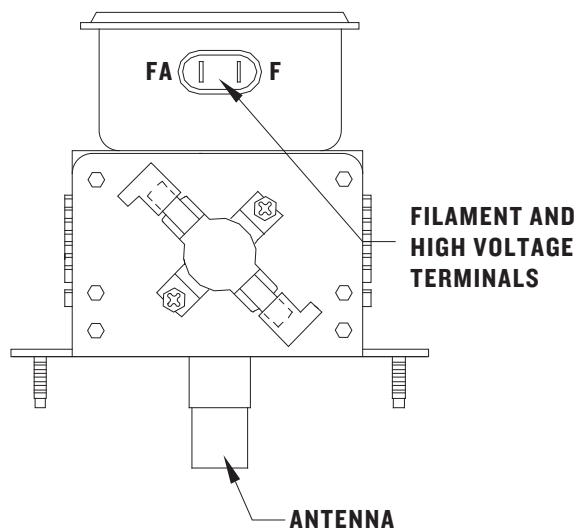


Figure 35: Magnetron

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.
2. Remove the top cover of the oven and discharge the high-voltage capacitors.
3. Isolate the magnetron from the circuit by removing the wires from the F and FA terminals (Figure 35).

4. An ohmmeter connected between the filament terminals (F, FA) should indicate a reading of less than 1 ohm. Figure 35.
5. A continuity check between either filament terminal and the magnetron chassis should indicate an infinite resistance (open).

⚠ CAUTION: Be careful to not allow debris into the wave guides when servicing the magnetrons.

Stirrer Motor and Assembly

The stirrer is responsible for evenly distributing hot air and microwaves that are launched from the top of the oven into the cook cavity. The stirrer is driven by a motor that remains on during a cook cycle or when the oven is in TEST MODE. The stirrer motor turns off when the cook cavity temperature recedes below 150°F (66°C).

The stirrer motor can be tested in TEST MODE (see page 16).

⚠ CAUTION: Be careful to not allow debris into the waveguides when servicing the stirrer assembly.

Waveguides

The waveguides channel microwaves 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.

Microwave System Troubleshooting

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

- F3: Magnetron Current Low (see page 39)
- F5: Magnetron Over Temperature (see page 40)

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 45)

Control System

This section contains information about the following components:

- Control board
- Display
- Electrical compartment cooling fans
- Electrical compartment cooling fan thermostat
- Electrical compartment thermocouple
- EMI Filter
- Fuses
- High-limit thermostat
- Keypad
- Magnetron cooling fans
- Magnetron thermostats
- Power Supply
- Relay (K1 - Filament)
- Relay (K2 - Anode)
- Relay (K3 - Monitor)
- Relay (K6 - Voltage)
- Relay (K7 - Mag fan)
- Relay (K8 - Stirrer)
- RTD
- Smart card reader
- Solid state relay (K4/K5 - Heater)
- Speaker
- USB port
- Voltage sensor
- Wire harness

Control Board

The control board controls each electrical component of the oven. See page 49 for a schematic. 24 VDC can be measured at pin 2 of the J7 connector.

Display

The TFT high-resolution display is the primary user interface. Older oven models may be equipped with a VFD display. If the display needs to be replaced (either VFD or TFT), use the TFT display service kit ([i5-3207](#)).

Electrical Compartment Cooling Fans

The cooling fans (located in the rear of the oven) are actuated by the cooling fan thermostat when the temperature of the electrical compartment reaches 120°F (49°C).

Electrical Compartment Cooling Fan Thermostat

The cooling fan thermostat actuates the rear cooling fans when the electrical compartment temperature reaches 120°F (49°C).

Electrical Compartment Thermocouple

The electrical compartment thermocouple measures the temperature of the electrical compartment. If the temperature of the electrical compartment is above 158°F (70°C), an F6: EC TEMP fault will display. The control board checks the temperature of the electrical compartment once every 60 seconds.

The electrical compartment thermocouple cannot be replaced on its own if it fails; rather, the control board must be replaced.

EMI Filter

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

Fuses

i5 ovens with serial numbers after 00501 are equipped with three fuses. The F1 and F2 fuses are 12-amp, ATMR. The F3 fuse is 20-amp ATMR.

Older i5 oven models may be equipped with four 12-amp ATMR fuses.

The F1 fuse (via blue wire) or F2 fuse (via brown wire) is designed to blow in case of an over-current situation relative to the following components:

- BMSC motor controller
- Electrical compartment cooling fans
- Filament transformers
- Magnetron cooling fan
- Power supply
- Stirrer motor

The F3 fuse is designed to blow in case of an over-current situation relative to the microwave system (magnetrons, HV transformers, diodes, capacitors), or a failure with the door interlock switches. See page 24 for door switch adjustment details.

If the oven is equipped with an F4 fuse, the F3 fuse controls the left microwave system while the F4 fuse controls the right microwave system.

High Limit Thermostat

The high limit thermostat is a 250 VAC, 3-pole, manual-reset thermostat with a trip point of 572°F (300°C). 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 (Figure 36).

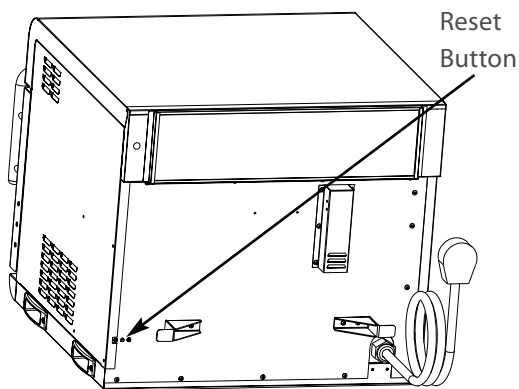


Figure 36: High-Limit Reset Button

Keypad

The keypad is a 7 x 10 matrix membrane switch. For details on key functions, see page 9.

Magnetron Cooling Fans

The magnetron cooling fans supply air to the magnetrons, and are actuated by the K7 relay. They operate at:

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

Magnetron Thermostats

The magnetron thermostats are “open-on rise.” They are designed to open at 212°F (100°C), which triggers an F5 fault.

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

Power Supply

The power supply outputs 24 VDC at 40 watts to the control board and relays.

Relay - K1 Filament

The K1 relay is a 240 VAC, 30 amp, double-pole, double-throw, 24 VDC relay coil. It switches power to the magnetron filament transformers.

Relay - K2 Anode

The K2 relay is a 240 VAC, 30 amp, double-pole, double-throw, 24 VDC relay coil. It switches power to the magnetron high-voltage transformers.

Relay - K3 Monitor

The K3 relay is a 240 VAC, 30 amp, double-pole, double-throw, 24 VDC relay coil. It shorts L1 and L2 if the monitor switch opens before the primary or secondary switches.

Relay - K6 Voltage

The K6 relay is a 30-amp, three-pole, double-throw, 24 VDC relay coil. Utilized in North America only, it switches between 208 and 240 VAC on the high-voltage transformer and filament transformer taps (depending on incoming voltage). Through the voltage sensor, the oven defaults to the 240V position and switches to 208 if less than 222 volts is detected. 230V/400V international ovens and all Japan models utilize the N.C. contacts of this relay to power the magnetron circuit.

Relay - K7 Magnetron Cooling Fan

The K7 relay is a 240 VAC, 30 amp, double-pole, double-throw, 24 VDC relay coil. It switches power to the magnetron cooling fans when the magnetron filaments are actuated. The control board switches off power after 4 minutes, 15 seconds.

NOTE: The 4:15 timer starts over each time the magnetron filaments are actuated.

Relay - K8 Stirrer Motor

The K8 relay is a 240 VAC, 30 amp, double-pole, double-throw, 24 VDC relay coil. It switches power to the stirrer motor.

RTD

The RTD is a resistance temperature detector used to detect the cavity temperature. If the display reads “999°F/C”, the RTD is open, resulting in an F7 fault. See page 41 for troubleshooting.

Testing Procedure

1. Disconnect power from the oven.
2. Open the top cover of the oven, ensuring the supports are in place, and remove the right-side cover.
3. Disconnect the RTD from the control board and remove it from the heater assembly.
4. Place the RTD in ice water for two minutes.
5. Take a resistance reading of the RTD.
6. If RTD resistance is not 100 Ω, RTD is defective and must be replaced.

NOTE: Use Figure 37 below to determine resistance readings at temperatures other than freezing.

Smart Card Reader

The smart card reader allows the oven operator to load menu or firmware updates from a smart card. An oven's menu can also be saved to a smart card. For instructions, see page 15.

Solid State Relay - K4/K5 Heater

The solid state relay is a 240 VAC, dual 40-amp relay. K4 (right) switches power to heater 1. K5 (left) switches power to heater 2.

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 oven operator to load menu or firmware updates from a USB drive. An oven's menu can also be saved to a USB drive. For instructions, see page 15.

Voltage Sensor

For North America oven models, the oven will detect 208 or 240 incoming voltage.

The initial voltage selection is typically completed before the oven is used by the customer. However, if incoming voltage for the store is different than the preset voltage, the operator will be required to select either 208 or 240 after pressing the On/Off key to turn on the oven. The correct voltage will be enlarged on the screen, identifying which option to select.

Wire Harness

The wire harness distributes power to the oven's electrical components. See page 49 for a schematic.

Control System Troubleshooting

Potentially, any fault may occur in relation to the control system. See section “Fault Code Troubleshooting,” pages 37-42.

Potentially, any one of the issues diagnosed in the section “Non-Fault Code Troubleshooting” may occur in relation to the control system. See section “Non-Fault Code Troubleshooting,” pages 43-48.

°F	0°	+20°	+40°	+60°	+80°	+100°	+120°	+140°	+160°	+180°	+200°
0°	90.03Ω	97.39Ω	101.74Ω	106.07Ω	110.38Ω	114.68Ω	118.97Ω	123.24Ω	127.50Ω	131.74Ω	135.97Ω
+200°	135.97Ω	140.18Ω	144.38Ω	148.57Ω	152.74Ω	159.90Ω	161.04Ω	165.17Ω	169.29Ω	173.39Ω	177.47Ω
+400°	177.47Ω	181.54Ω	185.60Ω	189.64Ω	193.67Ω	197.69Ω	201.69Ω	205.67Ω	209.64Ω	213.60Ω	217.54Ω
+600°	217.54Ω	221.47Ω	225.38Ω	229.28Ω	233.17Ω	237.04Ω	240.90Ω	244.74Ω	248.57Ω	252.38Ω	256.18Ω

°C	0°	+10°	+20°	+30°	+40°	+50°	+60°	+70°	+80°	+90°	+100°
0°	100.00Ω	103.90Ω	107.79Ω	111.67Ω	115.54Ω	119.40Ω	123.24Ω	127.07Ω	130.89Ω	134.70Ω	138.50Ω
+100°	138.50Ω	142.29Ω	146.06Ω	149.82Ω	153.58Ω	157.31Ω	161.04Ω	164.76Ω	168.46Ω	172.16Ω	175.84Ω
+200°	175.84Ω	179.51Ω	183.17Ω	186.82Ω	190.45Ω	194.07Ω	197.69Ω	201.29Ω	204.88Ω	208.45Ω	212.02Ω
+300°	212.02Ω	215.57Ω	219.12Ω	222.65Ω	226.17Ω	229.67Ω	233.17Ω	236.65Ω	240.13Ω	243.59Ω	247.04Ω

Figure 37: Temperature/Resistance Relationship Class B. Resistance @ 0°C = 100.0, Alpha = 0.003850

Filtering System

This section contains information about the following components:

- Catalytic converter
- Drain pan
- Air Filter
- Vent catalyst

Catalytic Converter

The catalytic converter, a VOC type catalyst, is located behind the rear cook cavity wall and is responsible for cleaning the recirculating airflow. The catalyst functions by substantially lowering the combustion temperature of grease entrained in the air path to approximately the same temperature of the airflow, thus the grease burns and breaks down into CO₂ and H₂O as it passes through the catalytic converter. The catalyst will operate most efficiently at temperatures above 475°F (246°C).

The catalytic converter is self-cleaning. Under normal conditions, it does not need to be cleaned and is not considered to be a component that requires scheduled maintenance. Furthermore, the catalyst material is very sensitive to certain chemical compounds. Irreversible damage can occur if the catalyst is exposed to cleaning chemicals containing phosphates, NaOH, silicates, Na and Potassium Salts. These chemicals are found in most commercial degreasers and cleaners; therefore, use only TurboChef Oven Cleaner when cleaning the oven.

Drain Pan

The drain pan collects debris as it is flushed through the bottom of the cook cavity.

Older i5 oven models utilize a drain pan and lower front panel that allows removal of the drain pan without removing the front cover. This style of drain pan and lower front panel are obsolete. They have been replaced with a new covered lower front panel (i5-9282) and a recessed drain pan (i3-9252).

The recessed drain pan is functionally the same as the old-style drain pan and can be used with the old-style lower front panel; however, there are visual differences since it is designed to fit with the new covered lower front panel.

The new covered lower front panel is not compatible with the old-style drain pan. If the old-style lower front panel is replaced with the new covered lower front panel, the old-style drain pan must be replaced with the recessed drain pan.

Air Filter

The filter is located on the back of the oven. It helps prevent debris from getting into the electrical compartment. This component requires scheduled maintenance and occasional replacement, as it must be kept clean and in good working condition to ensure proper air circulation to the electrical components of the oven. See page 8, step 13 for detailed instructions.

Vent Catalyst

In addition to the main catalytic converter, the i5 oven contains an additional catalyst in the vent tube path. This catalyst further assists in the breakdown of grease and particulate matter before the excess air enters the atmosphere.

Filtering System Troubleshooting

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

- F9: CC Temp (if the catalyst is clogged with grease and debris - see page 42)
- Fire in the cook cavity (if catalytic converter is clogged due to oven not being cleaned regularly).
- Electrical component failure (if filter is not present or is clogged).
- Undesirable flavor transfer.
- Undesirable odor emissions.

Troubleshooting

Overview of Troubleshooting

This section contains information on the following:

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

For information on accessing TEST MODE, see page 16. For information and illustrations on replacing components, see the appendix.

Fault Code Descriptions

To view the fault log:

1. When the oven is off or cooling down, press the INFO key.
2. Press the R3 soft key to view the fault counters.
3. To view a detailed log of each fault occurrence, press the soft key adjacent to the fault code.

F1: Blower Running Status Bad

This fault is displayed when the motor controller indicates no running status.

The motors and motor controller are monitored continuously in all modes with special handling in the TEST MODE (see page 16). If a fault is detected, the control will terminate a cook cycle and display “F1: Blower.”

Upon turning on the oven, the control will attempt to restart the motors. If the restart of both motors 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 a blower motor is tested in TEST MODE.

F2: Cook Temperature Low

This fault is displayed if the cook cavity temperature is more than 84°F (47°C) below the set temperature after five seconds into 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 tested in TEST MODE (see page 16).

NOTE: The F2 alarm can be turned off to prevent the cook cycle from being interrupted. See page 14 for details.

F3: Magnetron Current Low

This fault is displayed when the current transformer (CT) on the I/O control board detects less than 10 amps. The fault is monitored when the microwave is on during a cook cycle or in TEST MODE.

The fault is cleared from the display at the onset of a cook cycle if the CT detects 10 amps or when the magnetrons are successfully energized in TEST MODE.

F4: Door Monitor Defective

This fault is displayed when the control detects that the monitor interlock switch unlatches before the primary or secondary interlock switches. In addition, this fault will blow the F3 fuse (F3 and F4 fuse for ovens equipped with an F4 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.

NOTE: See the oven schematic, page 49. The fault is monitored during a cook cycle and in TEST MODE when the microwave is on.

F5: Magnetron Over Temperature

This fault is displayed when either magnetron thermostat reaches 212°F (100°C).

The thermostats will reset automatically, and are wired in series. The fault is cleared from the display at the onset of a cook cycle if the thermostat is closed or when the magnetrons are successfully tested in TEST MODE.

F6: Electrical Compartment Temperature High

This fault is displayed when the EC thermocouple exceeds 158°F (70°C). The EC temperature is monitored once per minute.

The fault is cleared from the display if on the next check, the EC thermocouple temperature is below the indicated limit.

F7: RTD Open

This fault is displayed when the control detects that the RTD is “open” for more than two continuous minutes. The display will show a reading of “999°F/C,” indicating the RTD is open.

The fault is cleared when the control detects ohms in a proper range. See Figure 37, page 33 for an ohm/temperature chart.

F8: Heat Low

This fault displays during WARMING UP or TEST MODE if the cook cavity temperature fails to rise at least 14°F (7°C) within a given 30 seconds.

F9: Cook Cavity Temperature High

This fault will signal that the catalyst has “flashed” due to excessive grease. The fault occurs when the RTD senses +650°F (343°C) for more than 40 seconds but less than 2 minutes. The fault will only appear in the fault log and will not terminate a cook cycle upon discovery.

Fault Code and Description	When Active				Refer to...
	Warmup	Idle	Cooking	Test Mode	
F1: Blower Running Status Bad	✓	✓	✓	✓	Page 37
F2: Cook Temperature Low			✓		Page 38
F3: Magnetron Current Low			✓	✓	Page 39
F4: Door Monitor Defective			✓	✓	Page 40
F5: Magnetron Over Temperature			✓	✓	Page 40
F6: EC Temperature High	✓	✓	✓	✓	Page 41
F7: RTD Open	✓	✓	✓	✓	Page 41
F8: Heat Low	✓				Page 42
F9: Cook Cavity Temperature High			✓	✓	Page 42

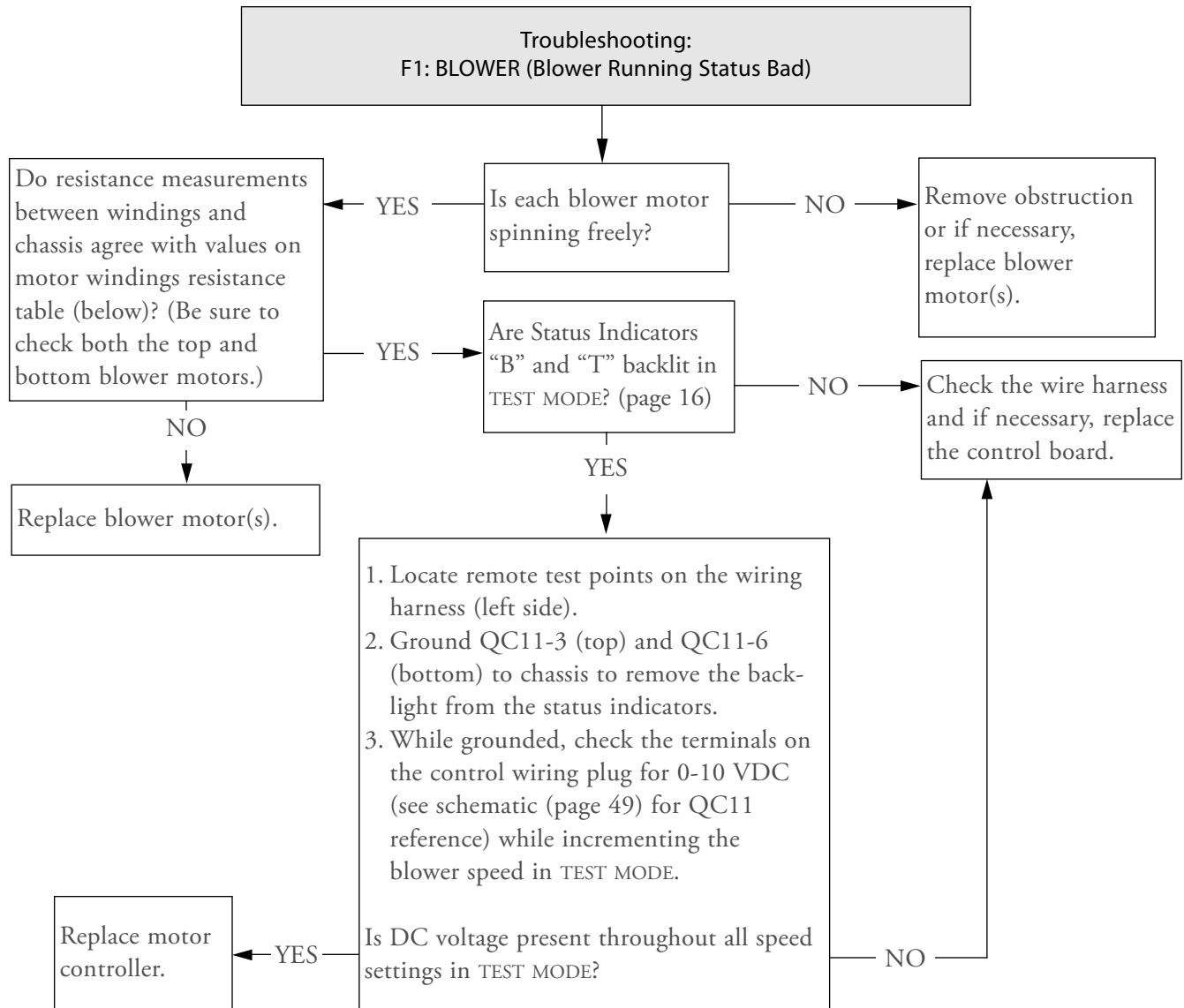
Figure 38: Fault Code Table

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.

Fault codes F1 - F5 and F7 will terminate a cook cycle upon discovery.

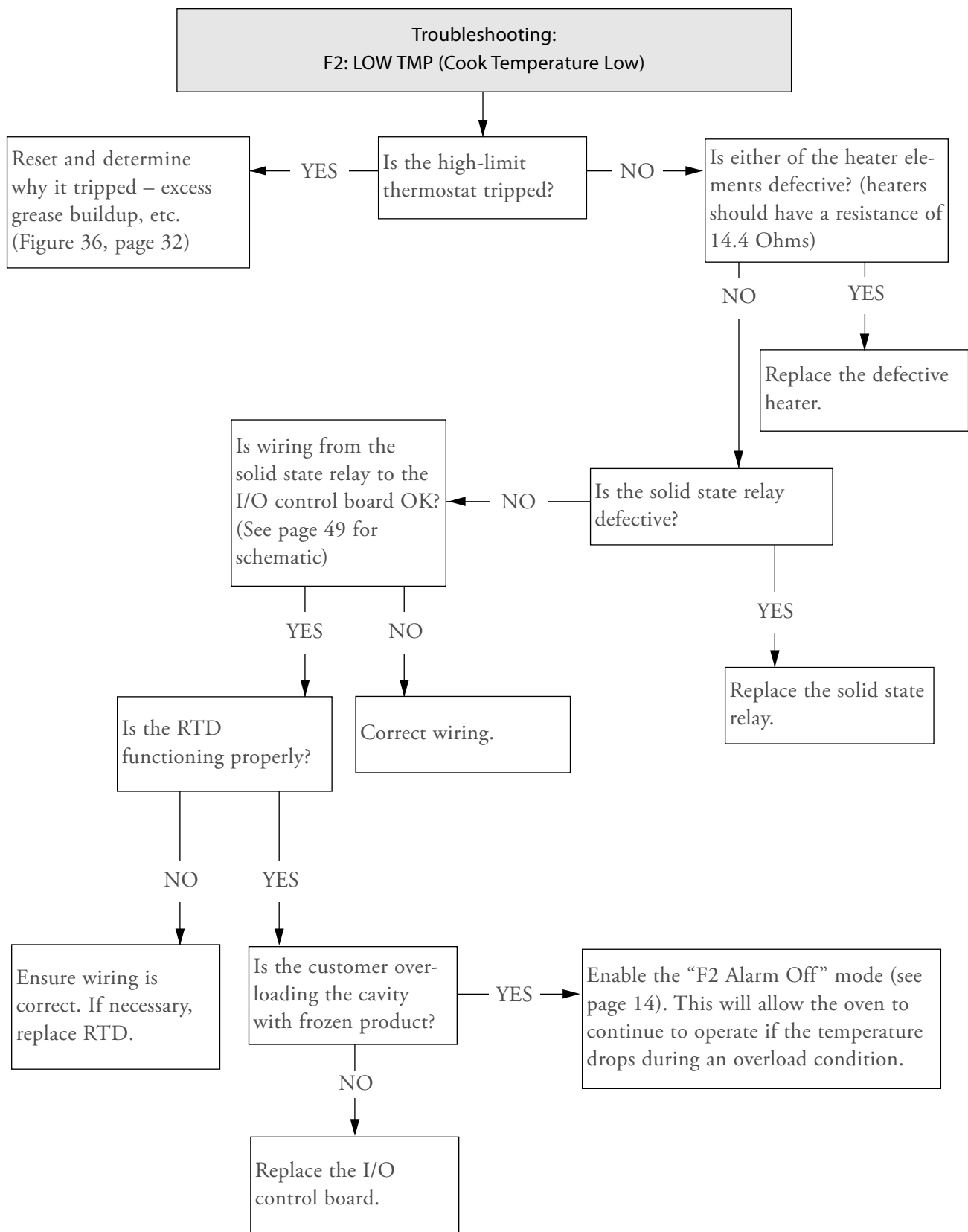
Fault Code Troubleshooting

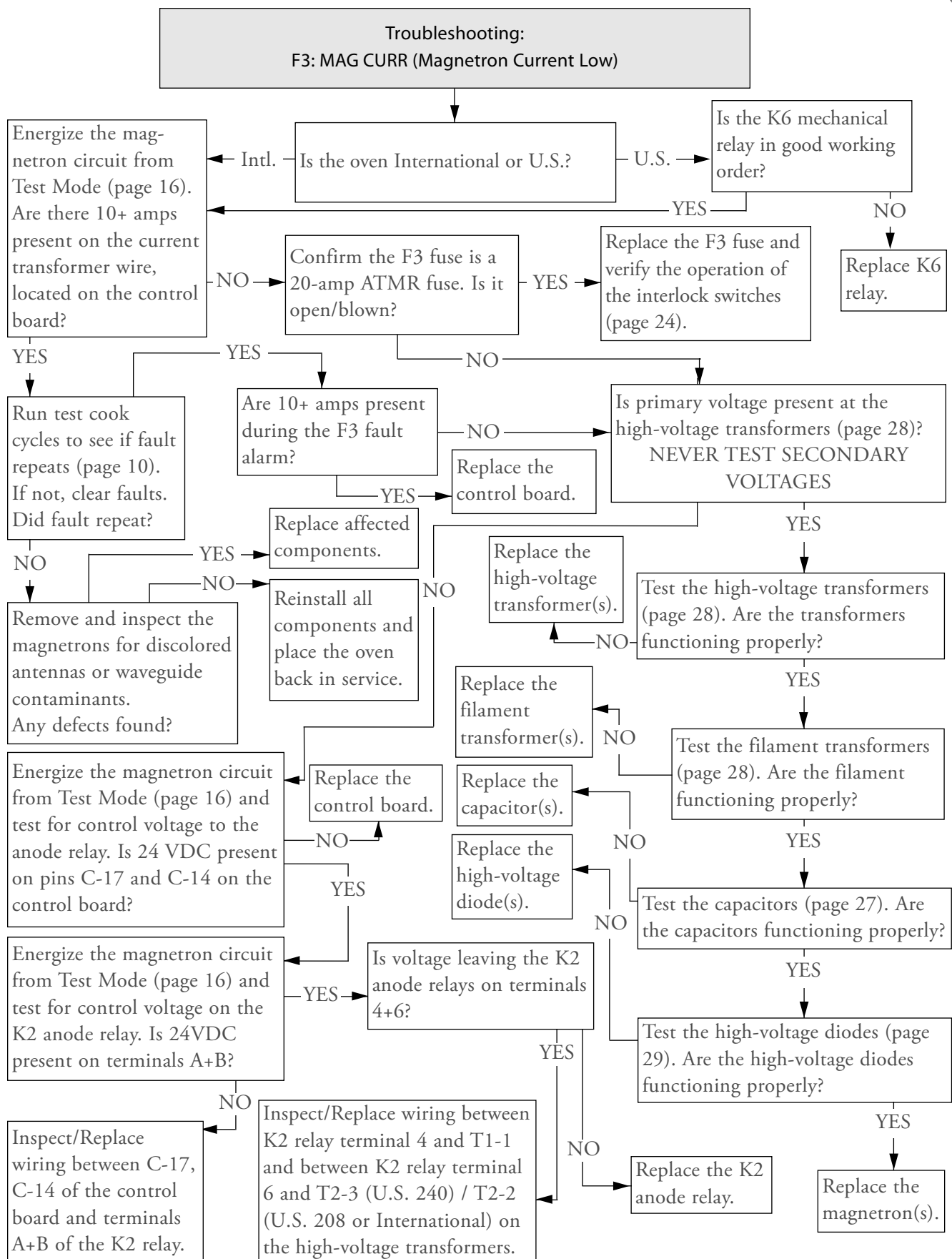
From TEST MODE, you can run oven diagnostics and check fault counts. To access TEST MODE or turn on Diagnostic mode, see page 16. For illustrations on removing/replacing oven components, see the appendix at the end of this manual.

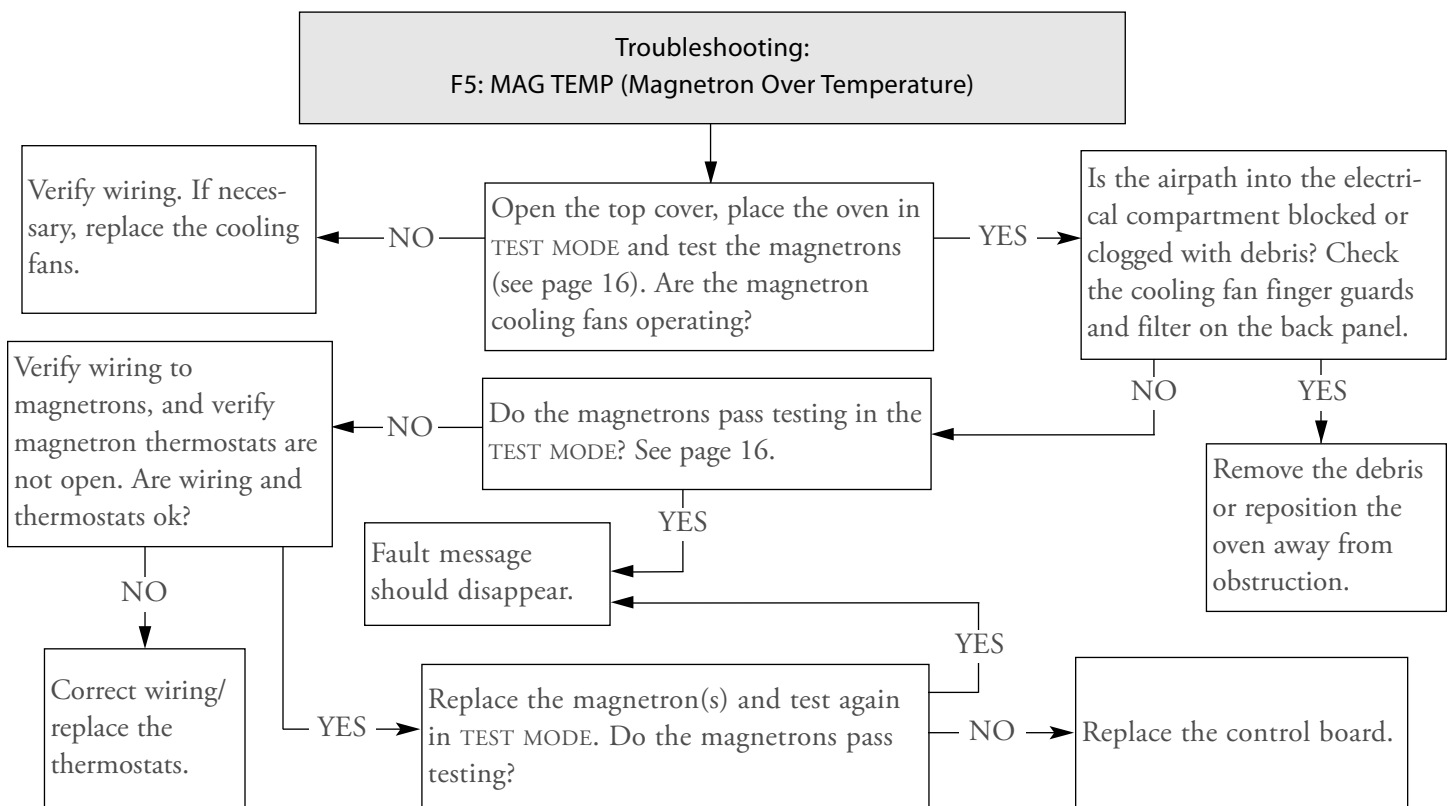
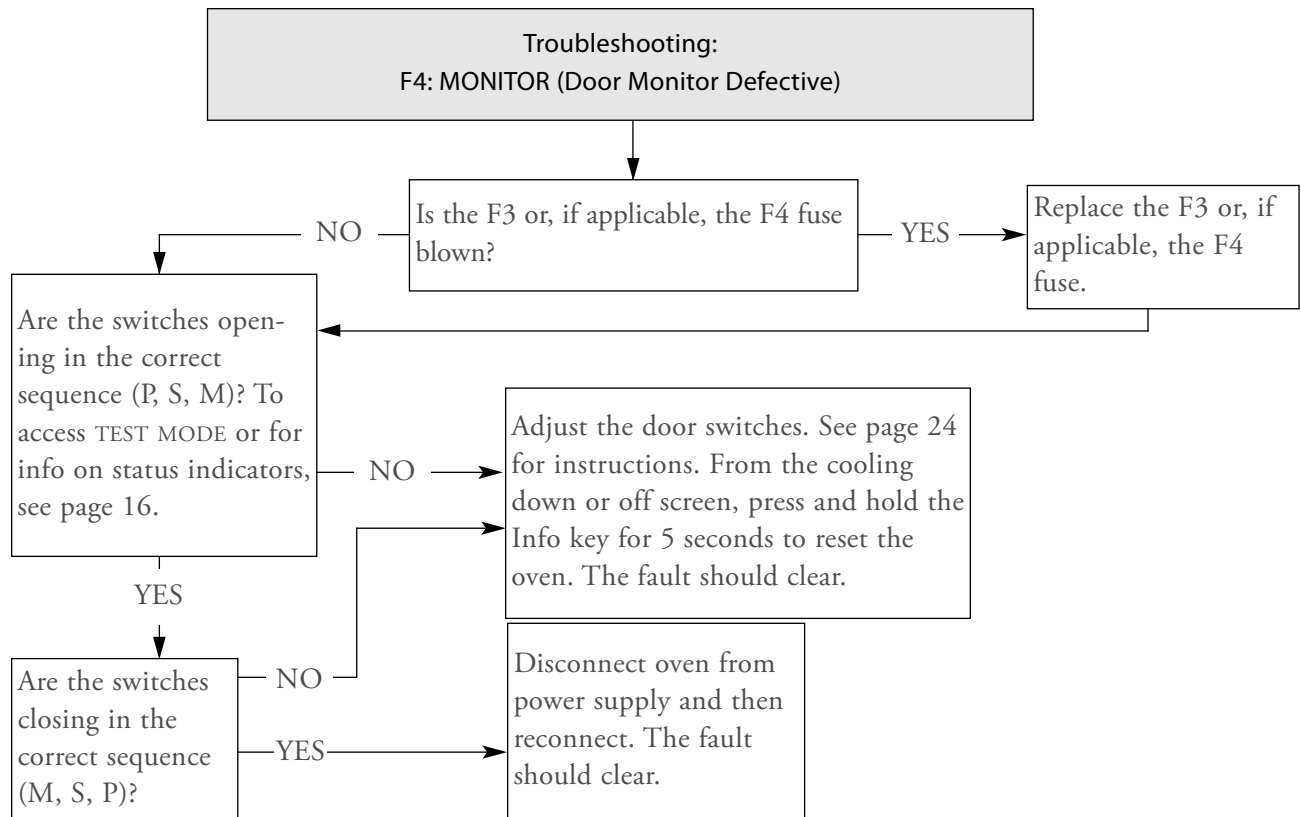


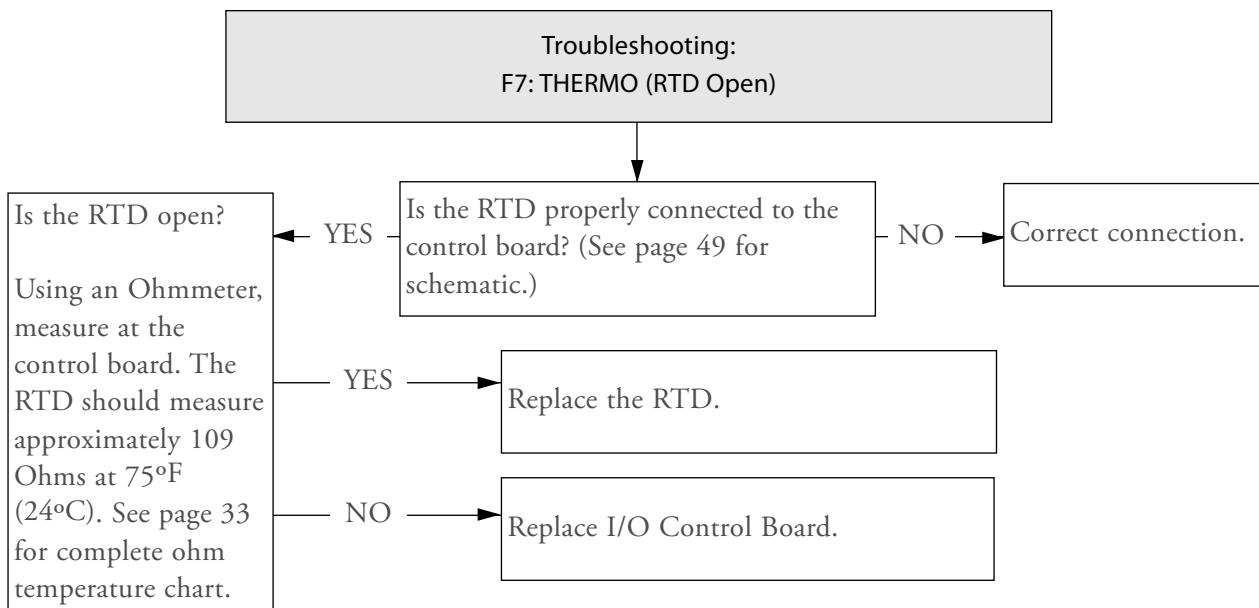
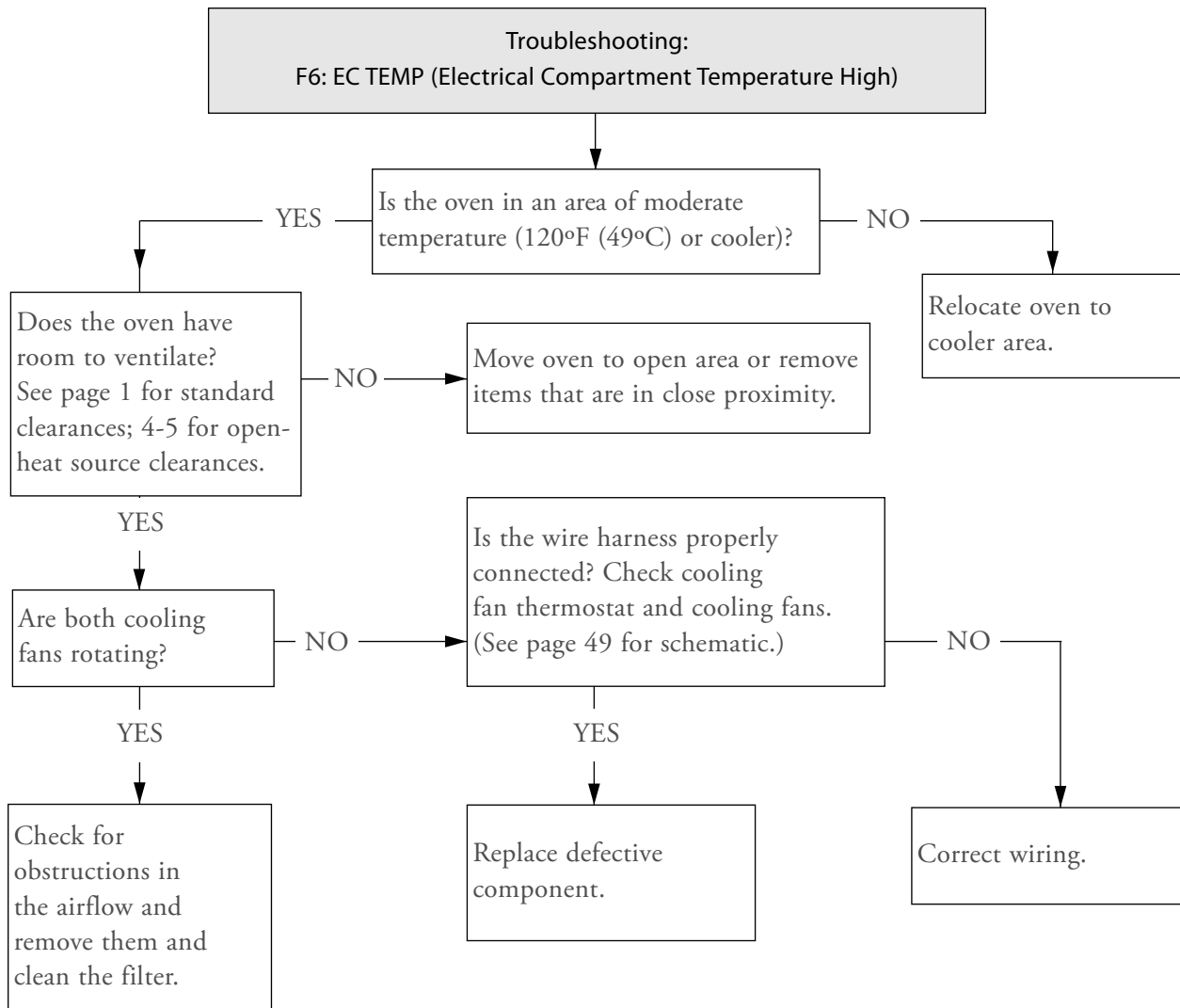
To	From	Description	Expected Resistance
Black	Red	Winding (A-B)	5.9-7.3 Ohms
Black	White	Winding (A-C)	5.9-7.3 Ohms
Red	White	Winding (B-C)	5.9-7.3 Ohms
Black, Red, or White	Green	Windings to Chassis	Open

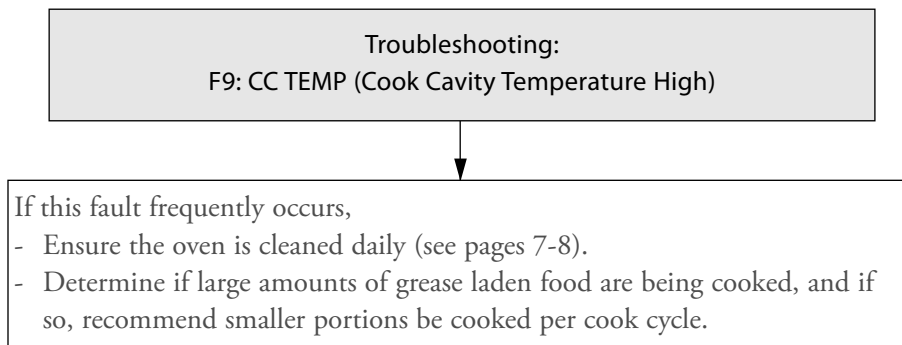
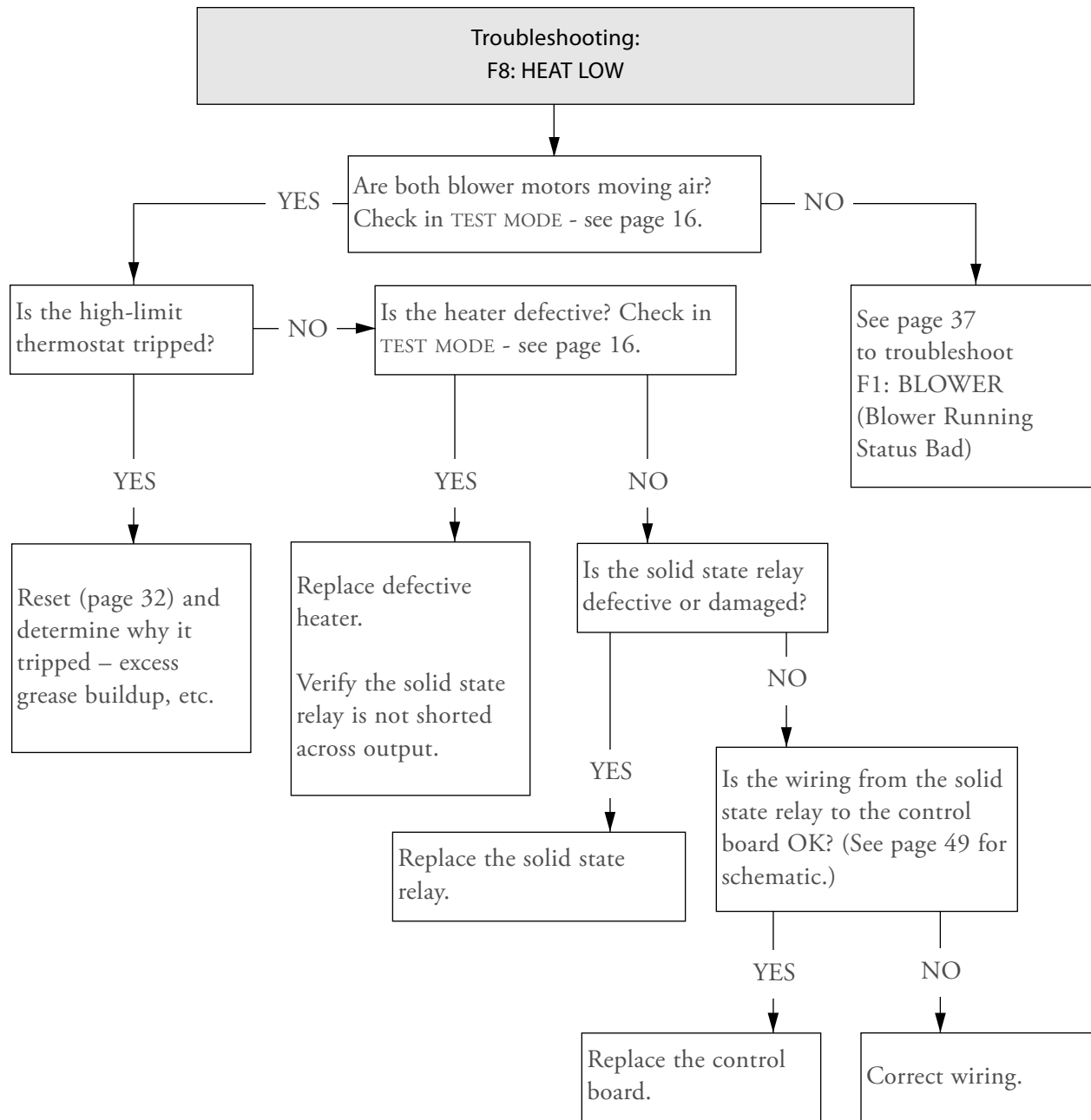
Figure 39: Motor Windings Resistance Table





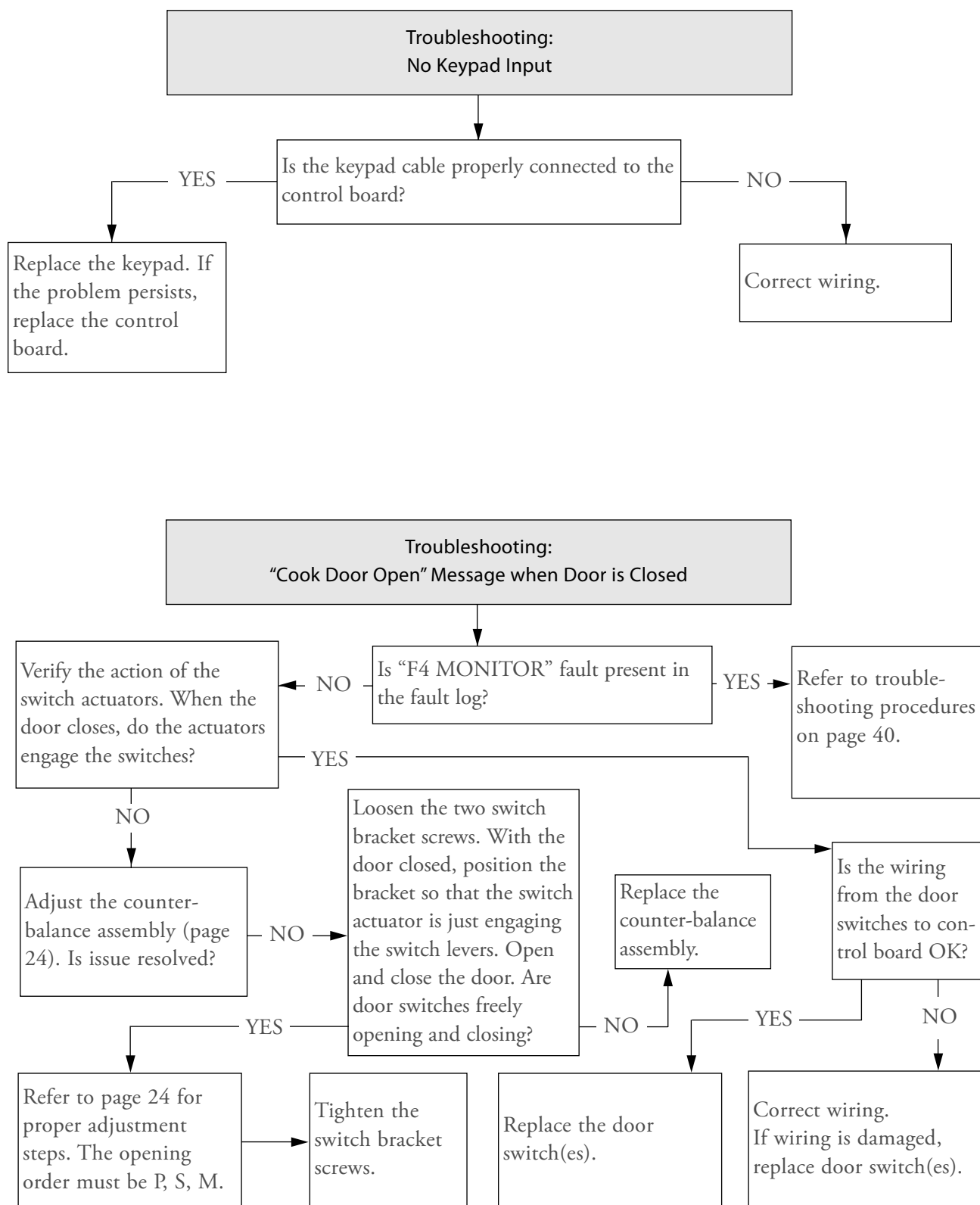


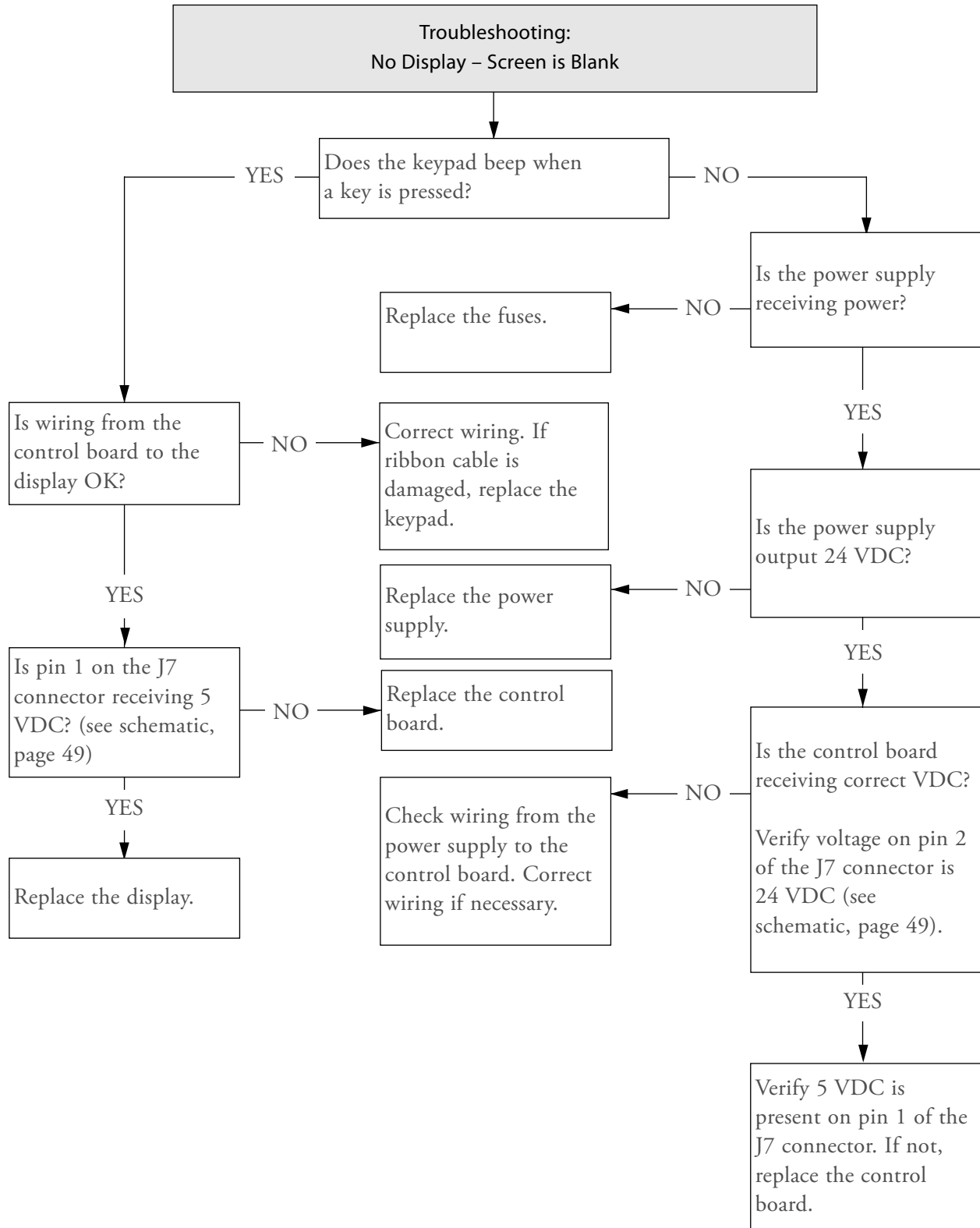


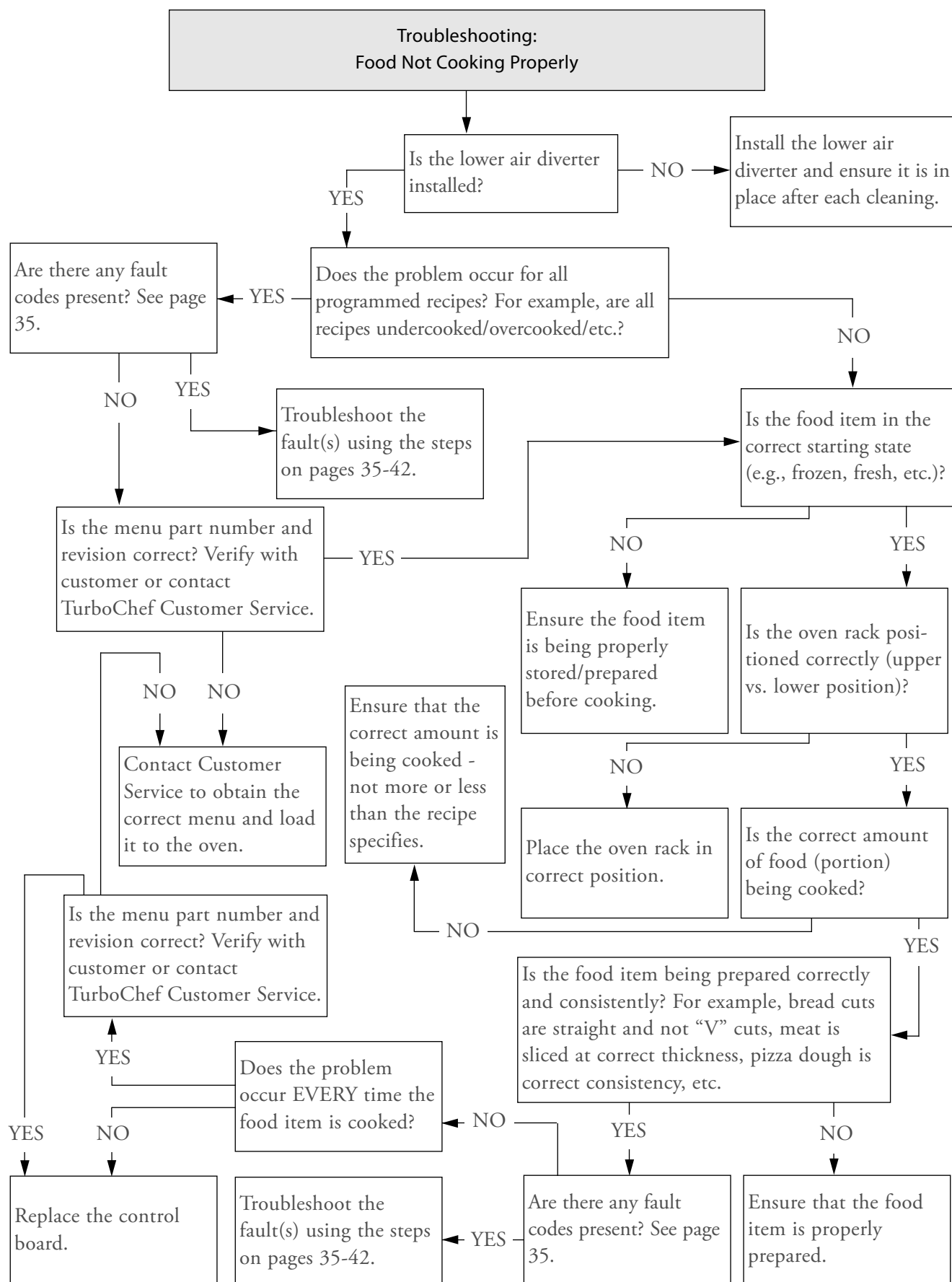


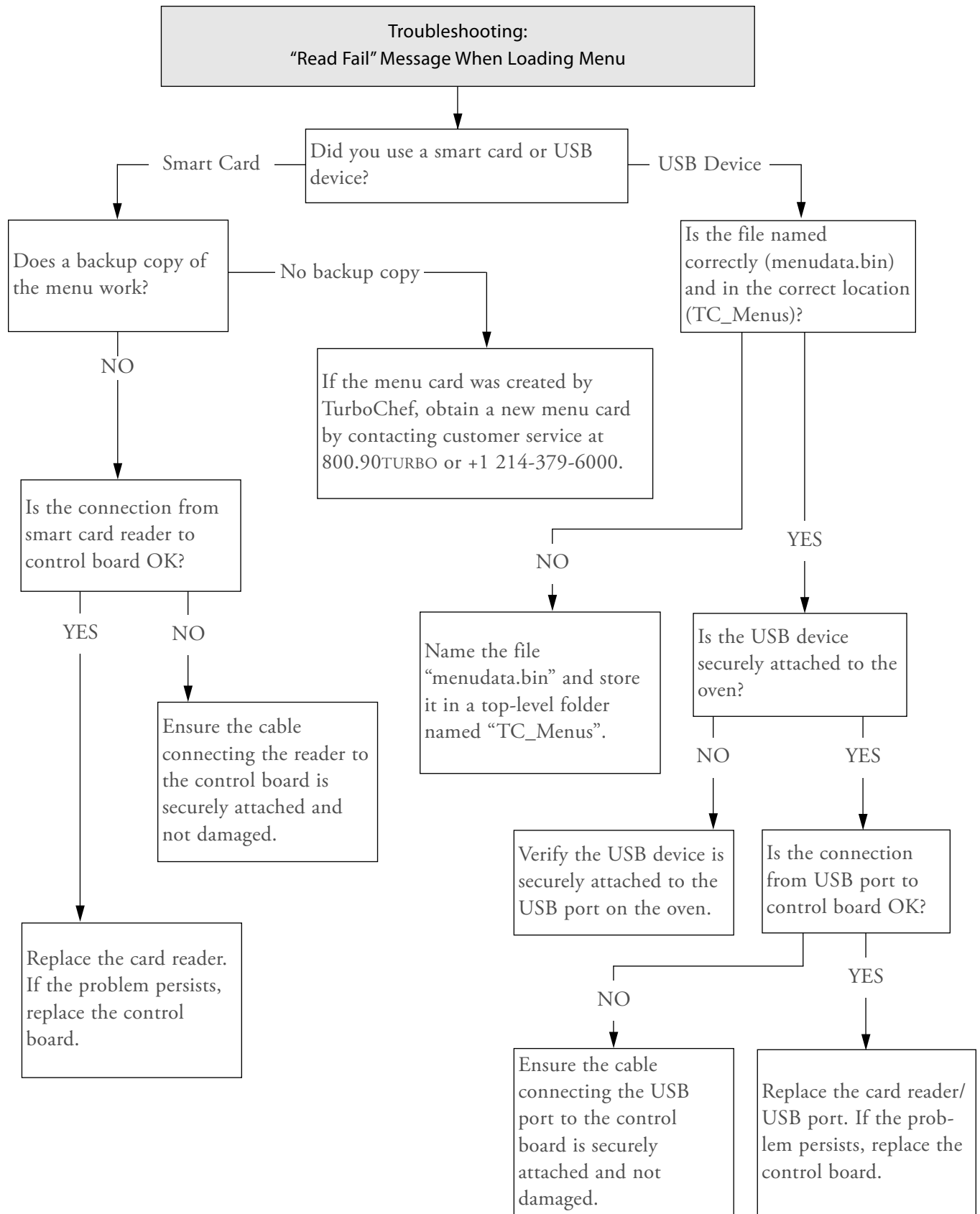
Non-Fault Code Troubleshooting

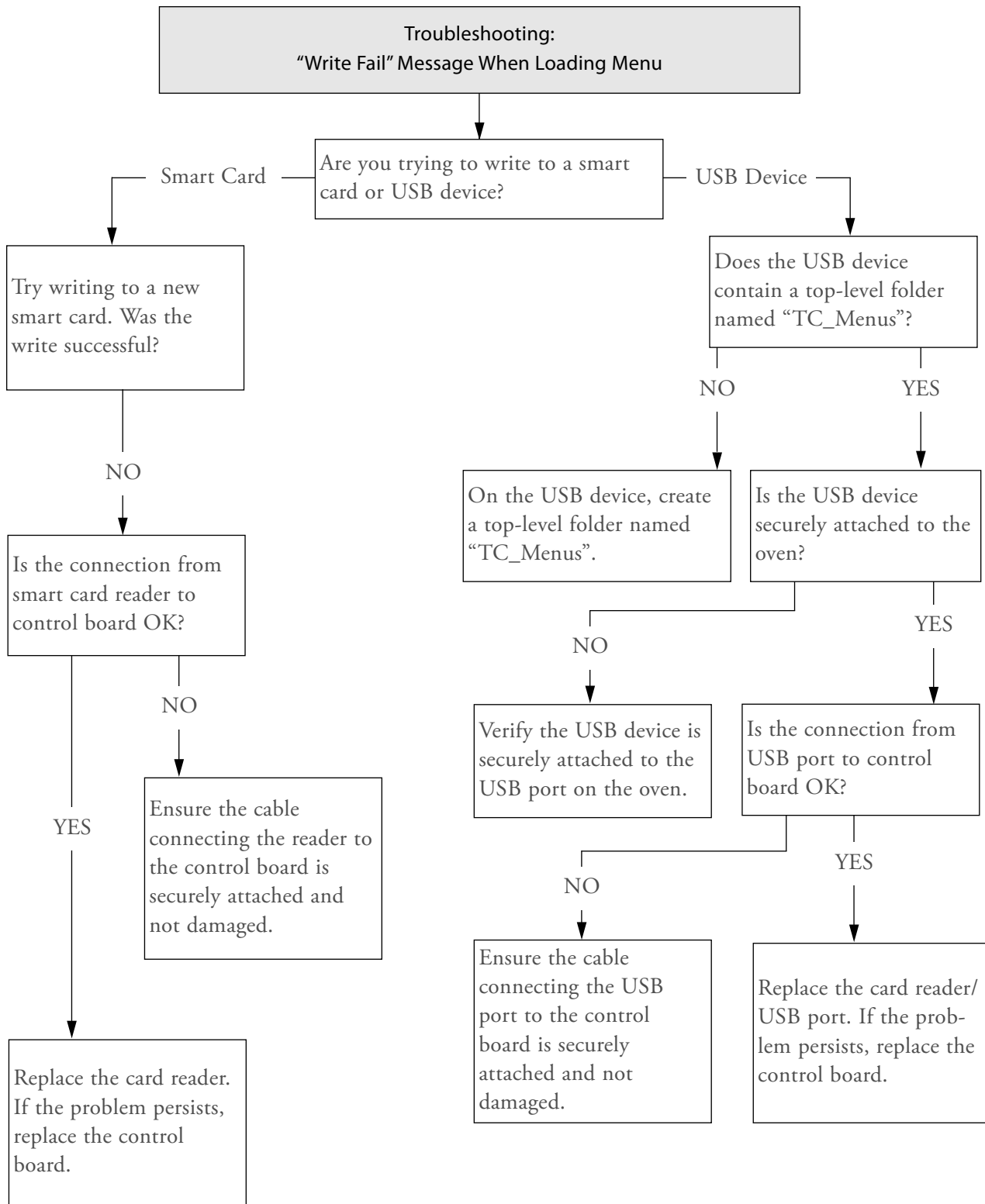
This section provides troubleshooting tips for issues that may occur independently of an oven fault.

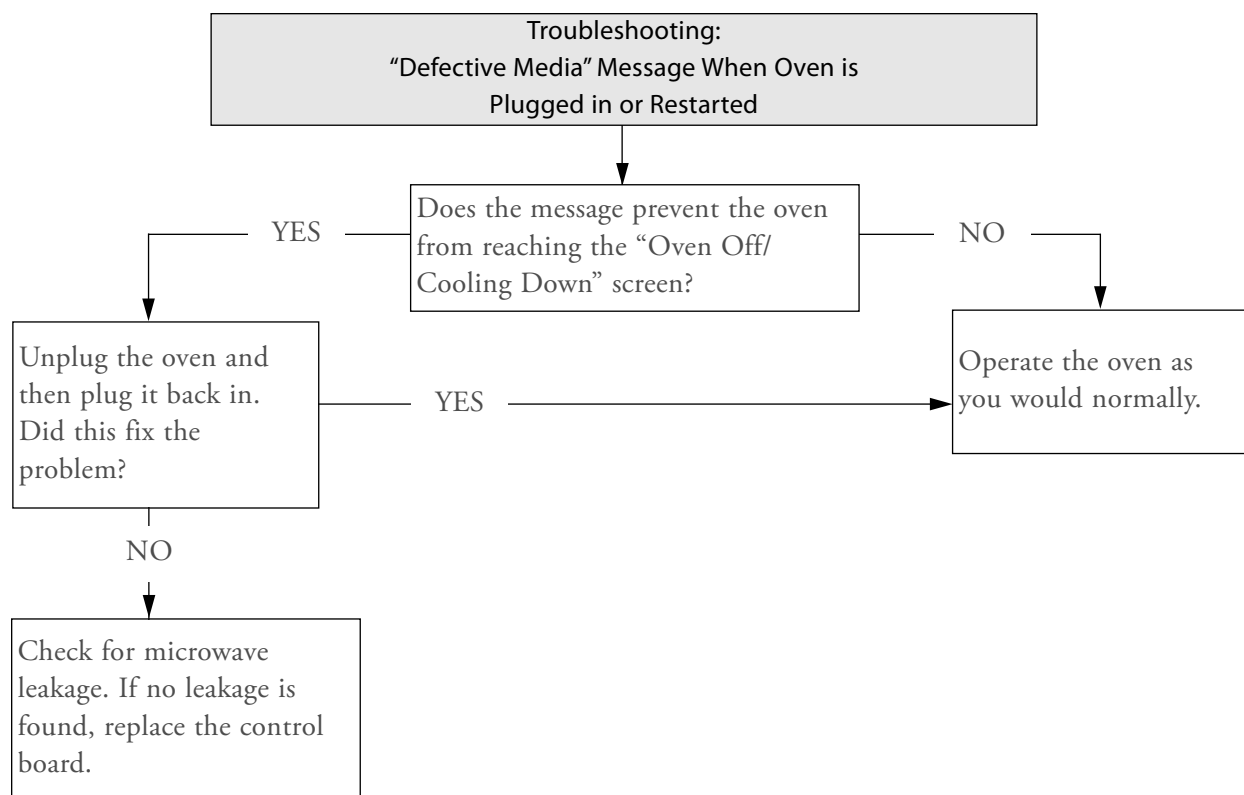




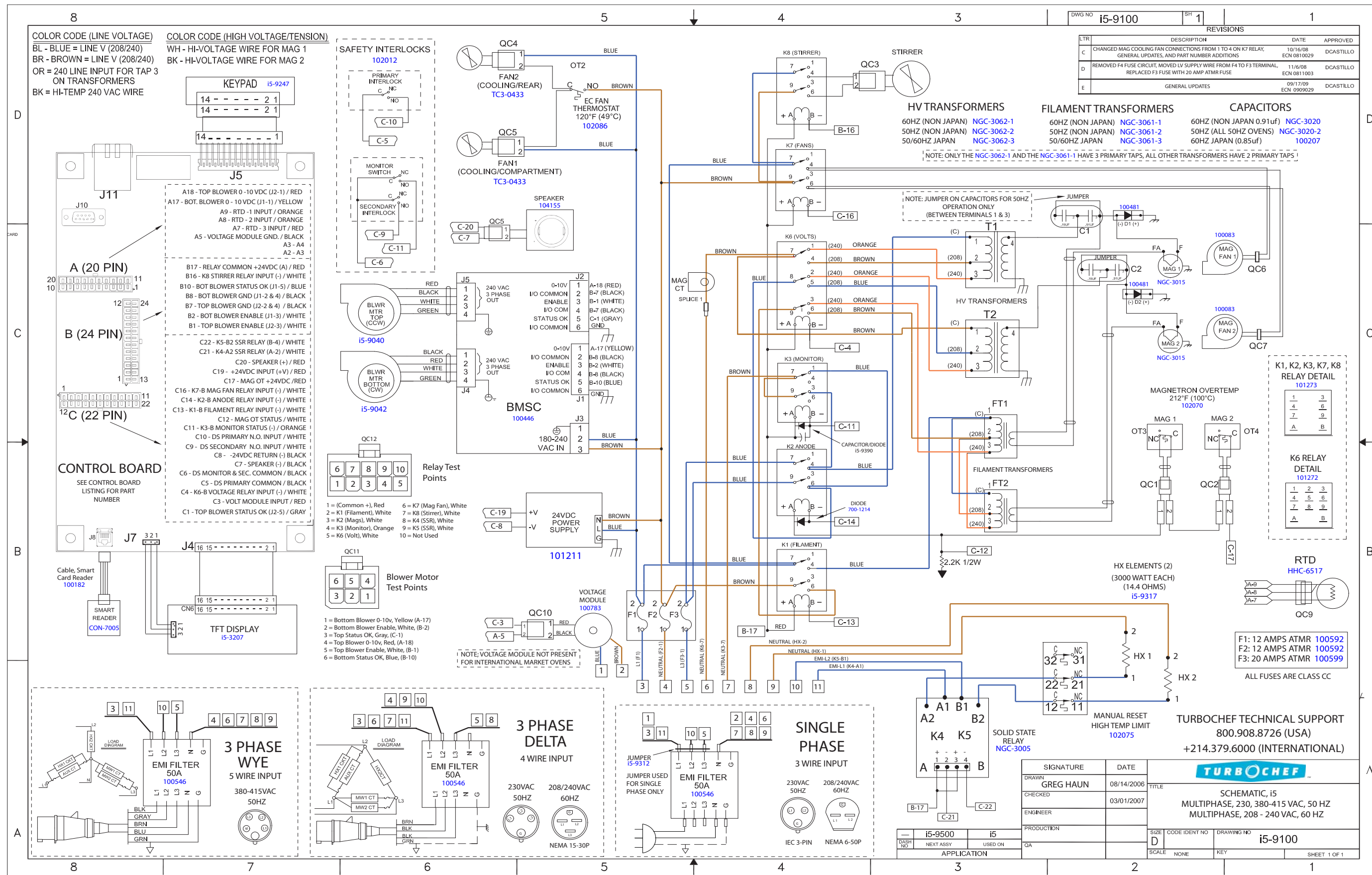








Oven Schematic



*This page intentionally
left blank.*

Appendix - Replacing Oven Components

Comprehensive Table of Oven Components



DANGER: Before replacing any oven component, ensure the oven is removed from any power source. Replacing a component while the oven is plugged in can result in serious injury or death.



NOTE: For hardware, see the illustrations contained in this appendix.

To Replace This...		First Remove This...					
Item	Part Number	No Covers (Page A-3)	No Covers- Open Top (Page A-5)	Top Cover (Page A-7)	Left Side Cover (Page A-9)	Right Side Cover (Page A-11)	Items Obstructing Access
Blower Motor (Bottom)	I5-9042				✓		EMI Filter, EMI Fil Brkt
Blower Motor (Top)	I5-9040				✓		EMI Filter, EMI Fil Brkt
Blower Wheel (Bottom)	103550				✓		Blower Motors
Blower Wheel (Top)	103551				✓		Blower Motors
Capacitor, High-Voltage	100232			✓			Capacitor Clamps
Capacitor Clamp	100134			✓			
Catalytic Converter	I5-9066					✓	RTD and Heater Assy
Control Board	I5-3208-1			✓			
Cooling Fan (Exterior)	TC3-0433			✓			Filter, Filter Brkt, Finger Guard
Cooling Fan (Interior)	TC3-0433			✓			
Cooling Fan Finger Guard	100086			✓			Filter, Filter Bracket
Cooling Fan, Magnetron	100083			✓			
Cooling Fan (Magnetron) Bracket	I5-9263			✓			
Diodes, High-Voltage	100481			✓			
Display, TFT	I5-3207			✓			
Display, VFD	OBSOLETE			✓			
Door Assembly*	I5-9308	✓					
Door Gasket	I5-9309	✓					Shunt Plate
Door Handle	I5-9253	✓					Door Skin
Door Skin	I5-9109	✓					Door
Drain Pan	OBSOLETE	✓					
Drain Pan, Recessed	I3-9252	✓					Lower Front Panel, Covered
EMI Filter	100546				✓		
EMI Filter Bracket	I5-9257				✓		
Filter, Air	I5-9039	✓					
Filter Bracket	I5-9060	✓					
Firmware Upgrade, TFT Display	I5-3206	✓					
Firmware Upgrade, VFD Display	I5-3205	✓					
Fuse, F1, 12-amp	100592		✓				
Fuse, F2, 12-amp	100592		✓				
Fuse, F3, 12-amp	100592		✓				
Fuse, F3, 20-amp	100599		✓				
Fuse, F4, 12-amp	100592		✓				
Fuse Holder	103548		✓				Fuses
Hand Grip	I5-9256	✓					
Heat Shield/Support Bracket	I5-9224		✓				
Heat Slinger	102708				✓		Blower Motors
Heater Assembly	i5-3214					✓	RTD
Heater, Helical	i5-9381					✓	RTD, Heater Plate
Helper Spring, Interlock Switch (Left)	i5-9397					✓	
Helper Spring, Interlock Switch (Right)	i5-9397				✓		

* See page A-12 through A-13 for removing door, hinge components, magnetrons, magnetron thermostats, or waveguides.

A-2 APPENDIX - REPLACING OVEN COMPONENTS

To Replace This...		First Remove This...					
Item	Part Number	No Covers (Page A-3)	No Covers- Open Top (Page A-5)	Top Cover (Page A-7)	Left Side Cover (Page A-9)	Right Side Cover (Page A-11)	Items Obstructing Access
Hinge, Bracket, Slide, LHS	I5-9196				✓	✓	Door, Switches
Hinge, Bracket, Slide, RHS	I5-9195				✓	✓	Door, Switches
Hinge, Cam, Weldment, LHS	I5-9313				✓	✓	Door, Switches
Hinge, Cam, Weldment, RHS	I5-9314				✓	✓	Door, Switches
Hinge, Guide, Switch Slide, Lower	I5-9316				✓	✓	Door, Switches
Hinge, Guide, Switch Slide, Upper	I5-9315				✓	✓	Door, Switches
Hinge, Gusset, LHS	I5-9178				✓	✓	Door, Switches
Hinge, Gusset, RHS	I5-9179				✓	✓	Door, Switches
Hinge Module, Base	I5-9193				✓	✓	Door, Switches
Hinge, Torsion Bar	I5-9144				✓	✓	Door, Switches
Hinge, Weldment, Countrblnce Bracket, LHS	I5-9326				✓	✓	Door, Switches
Hinge, Weldment, Countrblnce Bracket, RHS	I5-9327				✓	✓	Door, Switches
Interlock Switch (Monitor)	102012					✓	
Interlock Switch (Primary)	102012				✓		
Interlock Switch (Secondary)	102012					✓	
Jetplate (Bottom)	I5-3200	✓					Rack
Jetplate (Top)	I5-3204	✓					
Keypad	I5-9247		✓				
Lower Front Panel	OBSOLETE	✓					Drain Pan
Lower Front Panel, Covered	I5-9282	✓					
Magnetron (Left)*	NGC-3015			✓	✓		
Magnetron (Right)*	NGC-3015			✓		✓	
Motor Controller	100446			✓			
Power Cord	I5-9127				✓		
Power Supply	101211		✓				Pwr Supply Brkt
Power Supply Bracket	I5-9280		✓				
Rack	I5-9168	✓					
Rack Support	I5-9165	✓					Rack
Relay (K1 - Filament)	101273		✓				
Relay (K2 - Anode)	101273		✓				
Relay (K3 - Monitor)	101273		✓				
Relay (K6 - Voltage)	101272		✓				
Relay (K7 - Mag Fan)	101273		✓				
Relay (K8 - Stirrer)	101273		✓				
Relay Bracket	I5-9261		✓				
Relay, Solid State (K4/K5 - Heaters)	101286		✓				
RTD, Cook Cavity	HHC-6517					✓	
Shunt Plate Assembly	I5-9307	✓					Door
Smart Card/USB Port	CON-7005			✓			Control Board
Speaker	104155		✓				
Stirrer	I5-9154	✓					Top Jetplate
Stirrer Coupling Hub	104132			✓			Stirrer Motor
Stirrer Coupling Spider Insert	104306			✓			Stirrer Motor
Stirrer Motor	100884			✓			Stirrer Mtr Bracket
Stirrer Motor Bracket	I5-9075			✓			

* See page A-12 through A-13 for removing door, hinge components, magnetrons, magnetron thermostats, or waveguides.

To Replace This...		First Remove This...					
Item	Part Number	No Covers (Page A-3)	No Covers- Open Top (Page A-5)	Top Cover (Page A-7)	Left Side Cover (Page A-9)	Right Side Cover (Page A-11)	Items Obstructing Access
Stirrer Shaft	I5-9151			✓			Stir Mtr, Brkt, Top Jetplate, Stirrer
Stirrer Shaft, Support	I5-9152			✓			Stir Mtr, Brkt, Top Jetplate, Stirrer
Thermostat, Cooling Fans	102086			✓			
Thermostat, High-Limit	102075			✓			Filter, Filter Bracket
Thermostat, Magnetron (Left)*	102070			✓	✓		Magnetron (Left)
Thermostat, Magnetron (Right)*	102070			✓		✓	Magnetron (Right)
Transformer, Filament	NGC-3061-1			✓			
Transformer, High-Voltage	NGC-3062-1			✓			
Vent Catalyst Foil Pack	RWD-9191	✓					Vent Tube Cover
Vent Tube Cover	I5-9209	✓					Heat Chnl Wldmt
Voltage Sensor	100783				✓		
Waveguide (Left)*	I5-3210			✓	✓		Mag, FT/Diode Bracket, Capacitor, WG Gasket
Waveguide (Right)*	I5-3210			✓		✓	Mag, FT/Diode Bracket, Capacitor, WG Gasket
Waveguide Gasket (Left)*	I5-9331			✓	✓		Mag, FT/Diode Bracket, Capacitor, WG Gasket
Waveguide Gasket (Right)*	I5-9331			✓		✓	Mag, FT/Diode Bracket, Capacitor, WG Gasket
Weldment, Heat Channel, Vent Tube	NGC-1397	✓					

* See page A-12 through A-13 for removing door, hinge components, magnetrons, magnetron thermostats, or waveguides.

Replacing Items - No Cover Removal Required (Figures A-1, A-2)



CAUTION: Before removing/installing any component, make sure it is disconnected from the wire harness (where applicable).



NOTE: Hardware listed is required for installing component to oven.

Figure Reference #	Item Description	Item Part Number	Hardware Description	Hardware Part Number(s)
1	Door Assembly*	I5-9308	Screw, #8-32 x 3/8, PFH, 100 Deg, SS	102809 (qty 6)
2	Door Gasket	I5-9309	None	None
3	Door Handle	I5-9253	Screw, 1/4-20 x .25 lg, Serrated Hex	102947 (qty 4)
4	Door Skin	I5-9109	Screw, 6-32 x .38, PFH, 100 Deg, SS	101430 (qty 9)
5	Drain Pan, Recessed	I3-9252	None	None
6	Filter, Air	I5-9039	None	None
7	Filter Bracket	I5-9060	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH Plug, Knockout, 1/2", Black	A) 101688 (qty 6) B) 101191 (qty 1)
8	Hand Grip	I5-9256	Screw, #8 X 1/2, Serrated, PHTRH, Black Oxide	101691 (qty 2)
9	Jetplate (Bottom)	I5-3200	Screws and Mounting Clips, Fast Lead	I5-3201

Figure Reference #	Item Description	Item Part Number	Hardware Description	Hardware Part Number(s)
10	Jetplate (Top)	I5-3204	None	None
11	Lower Front Panel, Covered	i5-9282	None	None
12	Rack	I5-9168	None	None
13	Rack Support	I5-9165	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 4)
14	Shunt Plate Assembly	I5-9307	Screw, 6-32 x .38, PFH, 100 Deg, SS	101430 (qty 9)
15	Stirrer	I5-9154	A) Screw, #10-32 x 1/2, PPH, SS B) Washer, Lock, #10 Ext Tooth, Cres	A) 101460 (qty 1) B) 102260 (qty 1)
16	Vent Catalyst Foil Pack	RWD-9191	None	None
17	Vent Tube Cover	I5-9209	Screw, #6 x 1/2, PPHD, Drill Point, SS	101687 (qty 2)
18	Weldment, Heat Chnl, Vent Tube	NGC-1397	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 6)

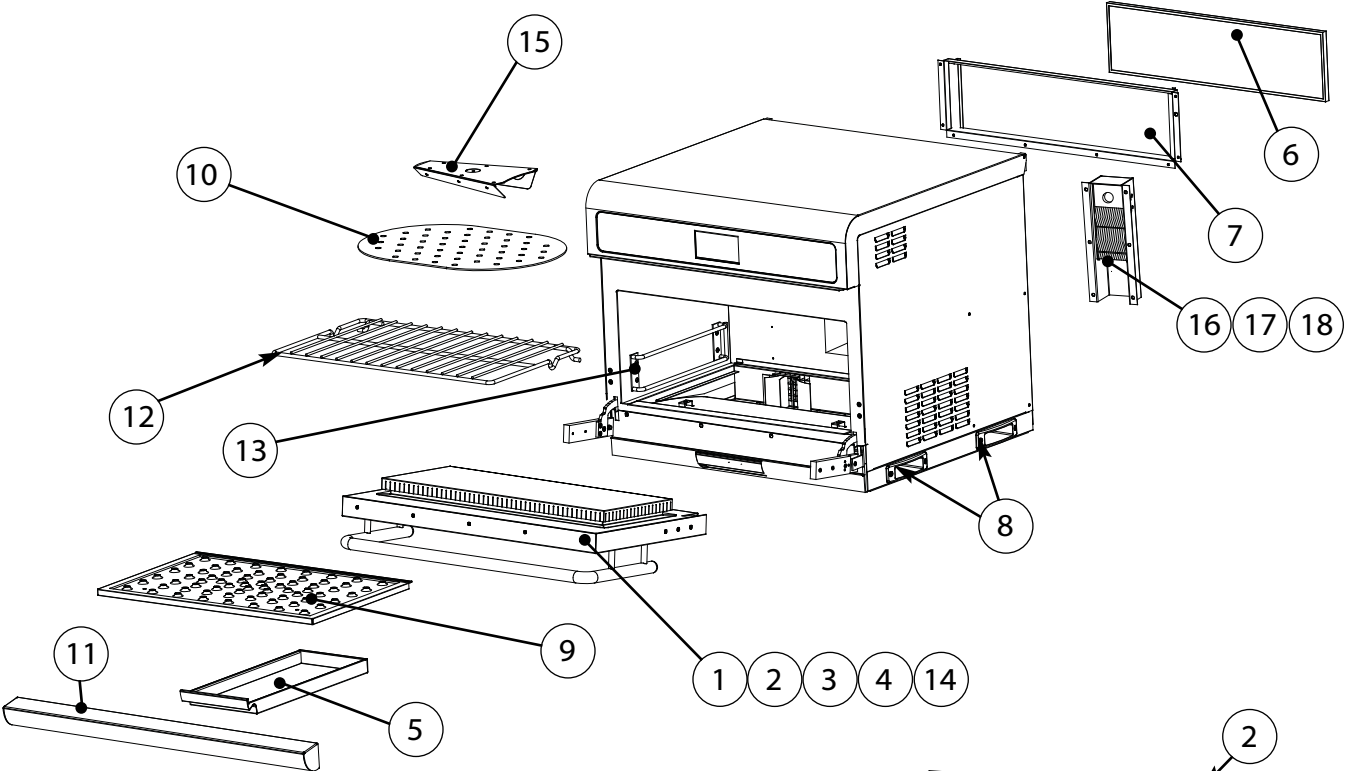


Figure A-1: No Cover Removal Required

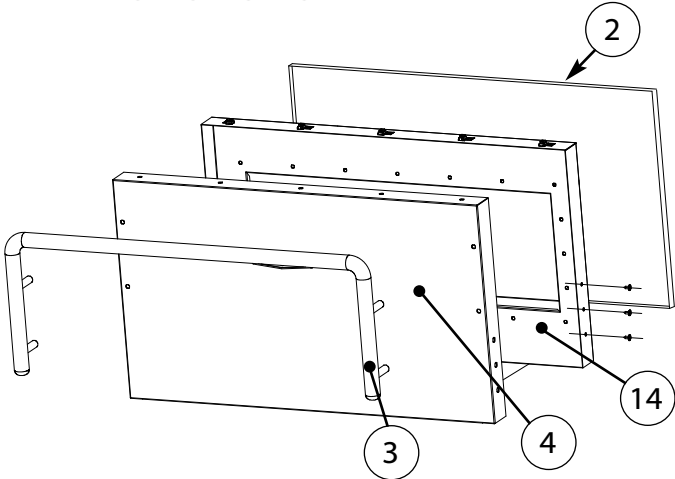


Figure A-2: Door Assembly Detail

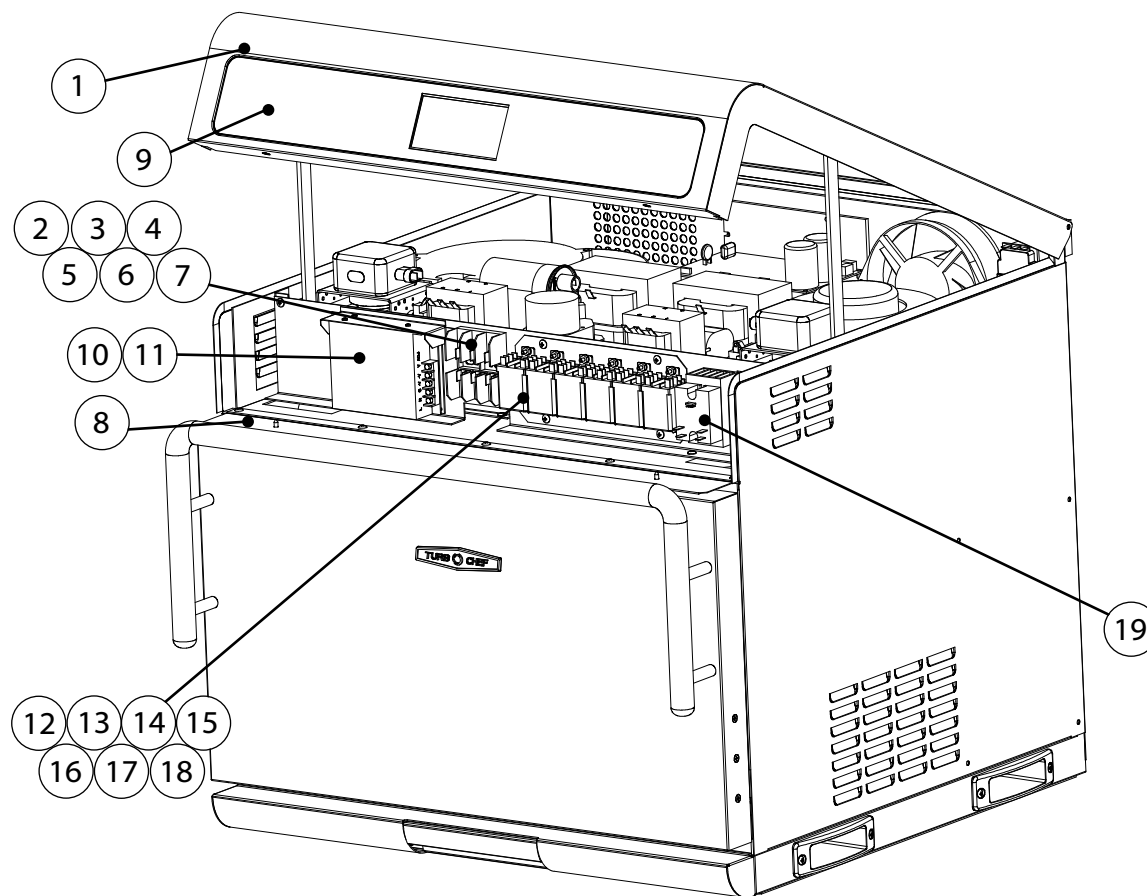


Figure A-3: Opening Top Cover Required

Replacing Items - Opening Top Cover Required (Figure A-3)

-  **DANGER:** Before replacing any oven component, ensure the oven is removed from any power source. Replacing a component while the oven is plugged in can result in serious injury or death.
-  **CAUTION:** Before removing/installing any component, make sure it is disconnected from the wire harness (where applicable).
-  **NOTE:** Hardware listed is required for installing component to oven.

To open the top cover:

1. Open the oven door.
2. The top cover is secured to the heat shield via 2 sheet metal screws (above the oven door). Remove these screws.
3. Open the top cover.
4. Secure the support arms in place.

Figure Reference #	Item Description	Item Part Number	Hardware Description	Hardware Part Number(s)
1	Cover, Top	I5-9243	Screw, #10-32 x 3/8 lg, PFLH, 100 Deg, SS	101401 (qty 2)
2	Fuse, F1, 12-amp	100592	None	None
3	Fuse, F2, 12-amp	100592	None	None
4	Fuse, F3, 12-amp †	100592	None	None
5	Fuse, F3, 20-amp †	100599	None	None
6	Fuse, F4, 12-amp †	100592	None	None
7	Fuse Holder	103548	Screw, #8-32 x 3/8, PPHD, Int Sems, SS	102921 (qty 4)
8	Heat Shield/Support Bracket	I5-9224	Screw, Torx Head, Sh Mtl, 3/8, Cres	102752 (qty 2)
9	Keypad*	I5-9247	None	None
10	Power Supply	101211	Screw, M3 x 8mm, Sems, PPHD, Cres	103444 (qty 3)
11	Power Supply Bracket	I5-9280	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 2)
12	Relay (K1 - Filament)	101273	Nut, Keps, Hex, #6-32, Ext Tooth, Cres	102961 (qty 2)
13	Relay (K2 - Anode)	101273	Nut, Keps, Hex, #6-32, Ext Tooth, Cres	102961 (qty 2)
14	Relay (K3 - Monitor)	101273	Nut, Keps, Hex, #6-32, Ext Tooth, Cres	102961 (qty 2)
15	Relay (K6 - Voltage)	101272	Nut, Keps, Hex, #6-32, Ext Tooth, Cres	102961 (qty 2)
16	Relay (K7 - Mag Fan)	101273	Nut, Keps, Hex, #6-32, Ext Tooth, Cres	102961 (qty 2)
17	Relay (K8 - Stirrer)	101273	Nut, Keps, Hex, #6-32, Ext Tooth, Cres	102961 (qty 2)
18	Relay Bracket	I5-9261	Screw, #8 x 3/8 PH Mod Truss, Cres	101682 (qty 4)
19	Relay, Solid State (K4/K5 - Heaters)	101286	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 2)

* NOTE: Additional keypad detail on Figure A-6, page A-8.

† NOTE: i5 ovens with serial numbers after 00501 are not equipped with 12-amp F3 and F4 fuses, instead they are equipped with a single 20-amp F3 fuse. Older oven models may still be equipped with the 12-amp F3 and F4 fuses.

Replacing Items - Removing Top Cover Required (Figures A-4, A-5, A-6)

-  **DANGER:** Before replacing any oven component, ensure the oven is removed from any power source. Replacing a component while the oven is plugged in can result in serious injury or death.
-  **CAUTION:** Before removing/installing any component, make sure it is disconnected from the wire harness (where applicable).
-  **NOTE:** Hardware listed is required for installing component to oven.

To remove the top cover:

1. Open the top cover (see page A-5 for instructions).
2. Remove the hinge screws located near the back of each side of the top cover.
3. Detach the support braces from the oven frame. (The should remain attached to the top panel.)

-  **CAUTION:** When detaching the support braces, be sure to support the top cover to prevent it from collapsing onto the components in the electrical compartment.

4. Remove the top panel and place it somewhere safe.

-  **CAUTION:** The top cover has critical components attached. Handle it carefully.

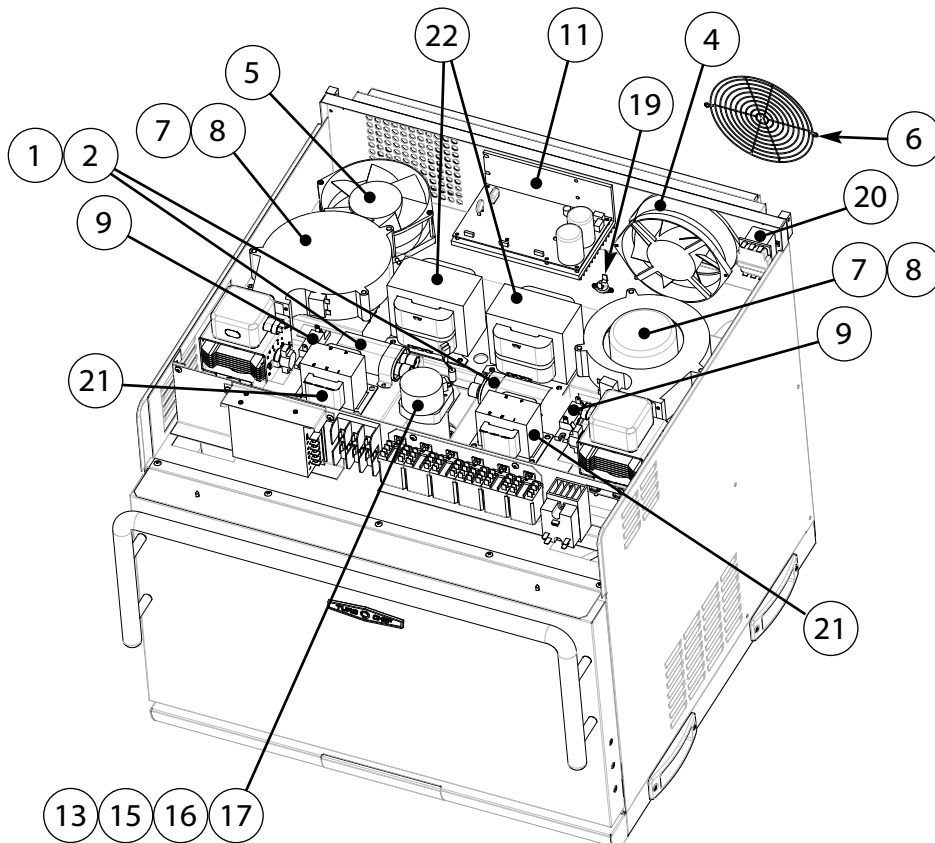


Figure A-4: Removing Top Cover Required

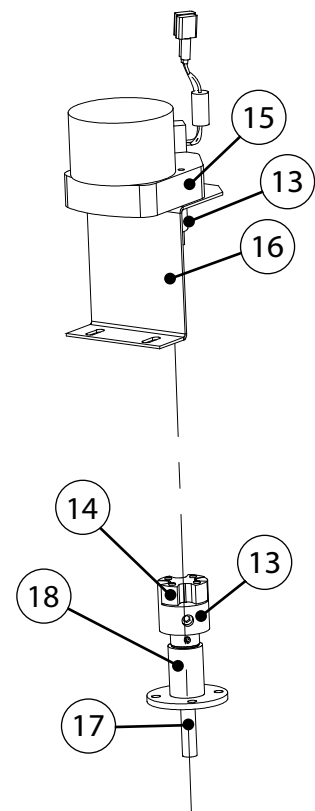


Figure A-5: Stirrer Motor and Assembly Detail

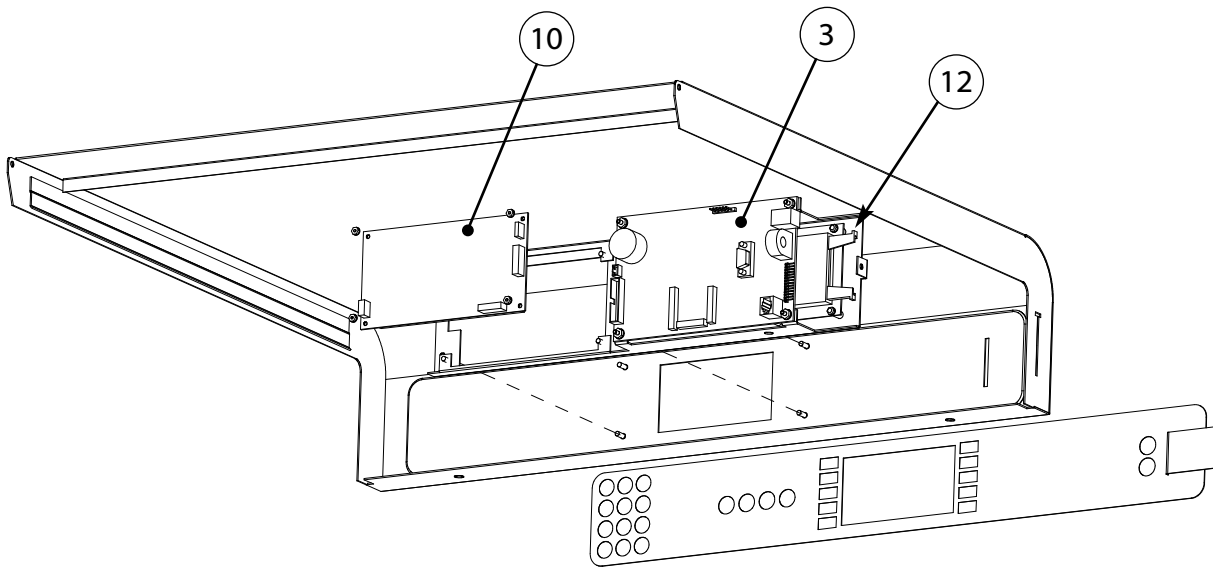


Figure A-6: Top Cover Detail

Figure Reference #	Item Description	Item Part Number	Hardware Description	Hardware Part Number(s)
1	Capacitor, High-Voltage	100232	None	None
2	Capacitor Clamps	100134	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 2)
3	Control Board	I5-3208-1	Nut, Keps, Hex, #6-32, Ext Tooth, Cres	102961 (qty 4)
4	Cooling Fan (Exterior)	TC3-0433	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 2)
5	Cooling Fan (Interior)	TC3-0433	Screw, #8-32 x 2 1/2 Lg, PPHD, SS	101661 (qty 2)
6	Cooling Fan Finger Guard	100086	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 2)
7	Cooling Fan, Magnetron	100083	A) Screw, #10-32 x 2 1/4, PPH, SS B) Washer, Lock, #10 Int Tooth, Cres	A) 101484 (qty 3) B) 102290 (qty 3)
8	Cooling Fan (Magnetron) Bracket	I5-9263	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 4)
9	Diode, High-Voltage	100481	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 2)
10	Display, TFT	I5-3207	Nut, Keps, Hex, #4-40, Ext Tooth	102960 (qty 4)
11	Motor Controller	100446	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 4)
12	Smart Card/USB Port	CON-7005	A) Standoff, Round, .12 ID, .25 OD x .375" B) Nut, Keps, Hex, #4-40, Ext Tooth	A) 101923 (qty 4) B) 102960 (qty 4)
13	Stirrer Coupling Hub (qty 2 per oven)	104132	Set Screw (Provided)	None
14	Stirrer Coupling Spider Insert	104306	None	None
15	Stirrer Motor	100884	Screw, M4 x 0.7 x 8, PPHD, Int Tooth, SS	101672 (qty 2)
16	Stirrer Motor Bracket	I5-9075	Screw, M4 x 0.7 x 8, PPHD, Int Tooth, SS	101672 (qty 2)
17	Stirrer Shaft	I5-9151	None	None
18	Stirrer Shaft, Support	I5-9152	None	None
19	Thermostat, Cooling Fans	102086	Screw, #6 x 1/2, PPHD, Drill Point, SS	101687 (qty 2)
20	Thermostat, High-Limit	102075	Screw, M4 x 0.7 x 8, PPHD, Int Tooth, SS	101672 (qty 2)
21	Transformers, Filament	NGC-3061-1	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 4)
22	Transformers, High-Voltage	NGC-3062-1	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 4)

Replacing Items - Removing Left Side Cover Required (Figures A-7, A-8)

 **DANGER:** Before replacing any oven component, ensure the oven is removed from any power source. Replacing a component while the oven is plugged in can result in serious injury or death.

 **CAUTION:** Before removing/installing any component, make sure it is disconnected from the wire harness (where applicable).

 **CAUTION:** Be careful to not tear the insulation when servicing components. Always reset the insulation properly before reinstalling the side panel.

 **NOTE:** Hardware listed is required for installing component to oven.

To remove the left side cover, remove the screws securing the panel to the oven frame. To re-install the left side cover, you may need to open the top cover (see page A-5).

Figure Reference #	Item Description	Item Part Number	Hardware Description	Hardware Part Number(s)
1	Blower Motor (top)	I5-9040	Nut, 1/4 - 20, Serr Hex Flange, Plated	100906 (qty 4)
2	Blower Motor (bottom)	I5-9042	Nut, 1/4 - 20, Serr Hex Flange, Plated	100906 (qty 4)
3	Blower Wheel (top)	103551	None	None
4	Blower Wheel (bottom)	103550	None	None
5	Cover, Left Side	I5-9301	Screw, #8 Serr, PHD Truss, Black Oxide	101691 (qty 5)
6	EMI Filter	100546	Screw, M5 x 8, PPHD, Sems, SS	101707 (qty 4)
7	EMI Filter Bracket	I5-9257	Screw, #10-32 x 3/4 lg, PPH Sems, Int Th	102937 (qty 2)
8	Heat Slinger	102708	None	None
9	Helper Spring, Interlock Switch*	i5-9397	None	None
10	Interlock Switch, Primary*	102012	Screw, #4-40 x 1", PPH, Sems	102903 (qty 2)
11	Mounting Bracket, Interlock Switch*	I5-9272	Screw, #10-32 x 3/4 lg, PPH Sems, Int Th	102937 (qty 2)
12	Power Cord	I5-9127	None	None
13	Voltage Sensor	100783	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 1)

* NOTE: For more interlock switch detail, see Figure A-11, page A-13.

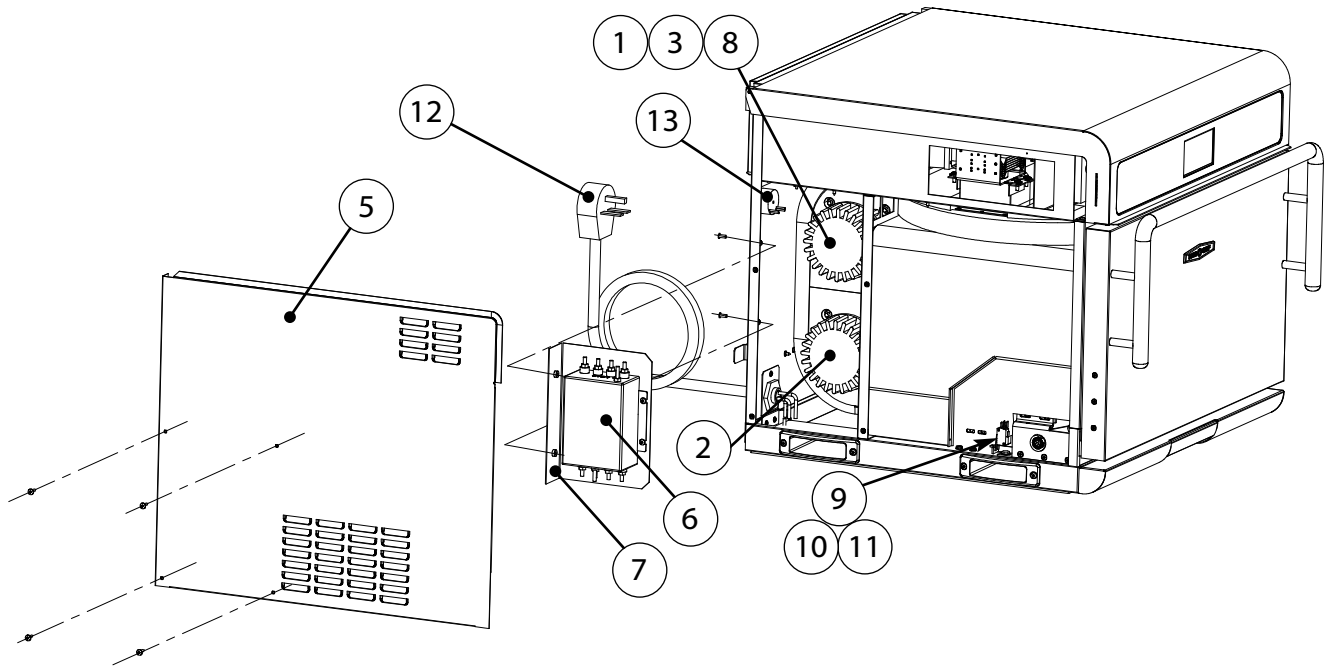


Figure A-7: Removing Left Side Cover Required

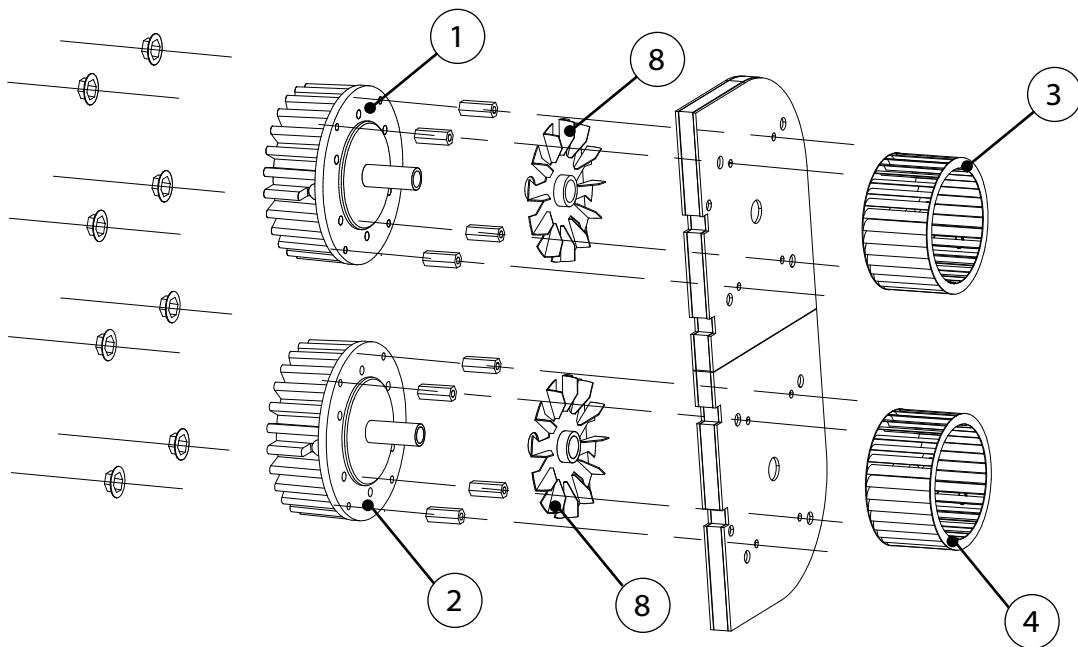


Figure A-8: Blower Motor Assembly

Replacing Items - Removing Right Side Cover Required (Figure A-9)

-  **DANGER:** Before replacing any oven component, ensure the oven is removed from any power source. Replacing a component while the oven is plugged in can result in serious injury or death.
-  **CAUTION:** Before removing/installing any component, make sure it is disconnected from the wire harness (where applicable).
-  **NOTE:** Hardware listed is required for installing component to oven.

To remove the right side cover:

1. Remove the screws securing the panel to the oven frame.
2. Remove the right side cover.

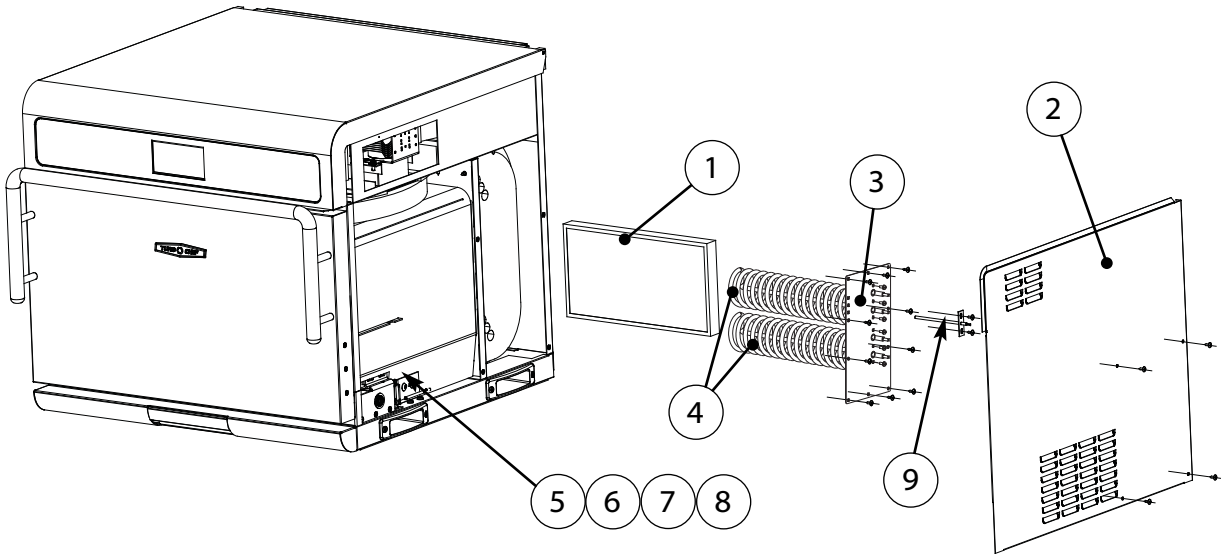


Figure A-9: Removing Right Side Cover Required

Figure Reference #	Item Description	Item Part Number	Hardware Description	Hardware Part Number(s)
1	Catalytic Converter	i5-9066	None	None
2	Cover, Right Side	i5-9302	Screw, #8, Serr PPHD, Truss, Black Oxide	101691 (qty 5)
3	Heater Assembly †	i5-3214	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 10)
4	Heater, Helical (qty 2 per oven)	i5-9381	Screw, #8-32 x 3/8, PPHD, INT SEMS, SS	102921 (qty 3 per heater)
5	Helper Spring, Interlock Switch*	i5-9397	None	None
6	Interlock Switch - Monitor*	102012	Screw, #4-40 x 1", PPH, Sems	102903 (qty 2)
7	Interlock Switch - Secondary*	102012	Screw, #4-40 x 1", PPH, Sems	102903 (qty 2)
8	Mounting Bracket, Interlock Switch*	i5-9272	Screw, #10-32 x 3/4 lg, PPH Sems, Int Th	102937 (qty 2)
9	RTD, Cook Cavity	HHC-6517	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 2)

* NOTE: For more interlock switch detail, see Figure A-11, page A-13.

† NOTE: The Heater Assembly service kit (i5-3214) is only used for replacing the older style finned heater assembly. The service kit includes two Helical Heaters and the Heater Plate.

Replacing Items - Removing/Opening Multiple Covers Required (Figures A-10, A-11)



DANGER: Before replacing any oven component, ensure the oven is removed from any power source. Replacing a component while the oven is plugged in can result in serious injury or death.



CAUTION: Before removing/installing any component, make sure it is disconnected from the wire harness (where applicable).



NOTE: Hardware listed is required for installing component to oven.

To remove the left side cover, see page A-9.

To remove the right side cover, see page A-11.

To open the top cover, see page A-5.

Figure Reference #	Item Description	Item Part Number	Hardware Description	Hardware Part Number(s)
1	Hinge, Bracket, Slide, LHS	I5-9196	Nut, Keps, Hex, #8-32, Ext Tooth, Cres	102962 (qty 4)
2	Hinge, Bracket, Slide, RHS	I5-9195	Nut, Keps, Hex, #8-32, Ext Tooth, Cres	102962 (qty 4)
3	Hinge, Cam, Weldment, LHS	I5-9313	Washer, Nylon, Hingepin	C0504 (qty 1)
4	Hinge, Cam, Weldment, RHS	I5-9314	Washer, Nylon, Hingepin	C0504 (qty 1)
5	Hinge, Guide Block, Top	i5-9394	Nut, Keps, Hex, #8-32, Ext Tooth, Cres	102962 (qty 4)
6	Hinge, Guide Block, Bottom	i5-9393	None	None
7	Hinge, Gusset, LHS	I5-9178	Nut, 1/4 - 20, Serr, Hex Flange, Plated Steel	100906 (qty 2)
8	Hinge, Gusset, RHS	I5-9179	Nut, 1/4 - 20, Serr, Hex Flange, Plated Steel	100906 (qty 2)
9	Hinge Module, Base	I5-9193	None	None
10	Hinge, Torsion Bar	I5-9144	Spacer, Adjustment	Call TurboChef
11	Hinge, Weldmt, Ctrblnce Brkt, LHS	I5-9326	Screw, 10-32 x 3/8 lg, PFLH, 100 Deg, SS	101401 (qty 3)
12	Hinge, Weldmt, Ctrblnce Brkt, RHS	I5-9327	Screw, 10-32 x 3/8 lg, PFLH, 100 Deg, SS	101401 (qty 3)
13	Magnetron (Left)	NGC-3015	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 4)
14	Magnetron (Right)	NGC-3015	Screw, Sh Mtl #8 x 1/2, Serrated PHTRH	101688 (qty 4)
15	Thermostat, Magnetron (Left)	102070	Screw, Sh Mtl, Drill Point, 6-32 x 3/8, PPHD, Zinc	101684 (qty 2)
16	Thermostat, Magnetron (Right)	102070	Screw, Sh Mtl, Drill Point, 6-32 x 3/8, PPHD, Zinc	101684 (qty 2)
17	Waveguide (Left)	I5-3210	Nut, Keps, Hex, #10-32, Ext Tooth, Cres	102963 (qty 9)
18	Waveguide (Right)	I5-3210	Nut, Keps, Hex, #10-32, Ext Tooth, Cres	102963 (qty 9)
19	Waveguide Gasket (Left)	I5-9331	None	None
20	Waveguide Gasket (Right)	I5-9331	None	None

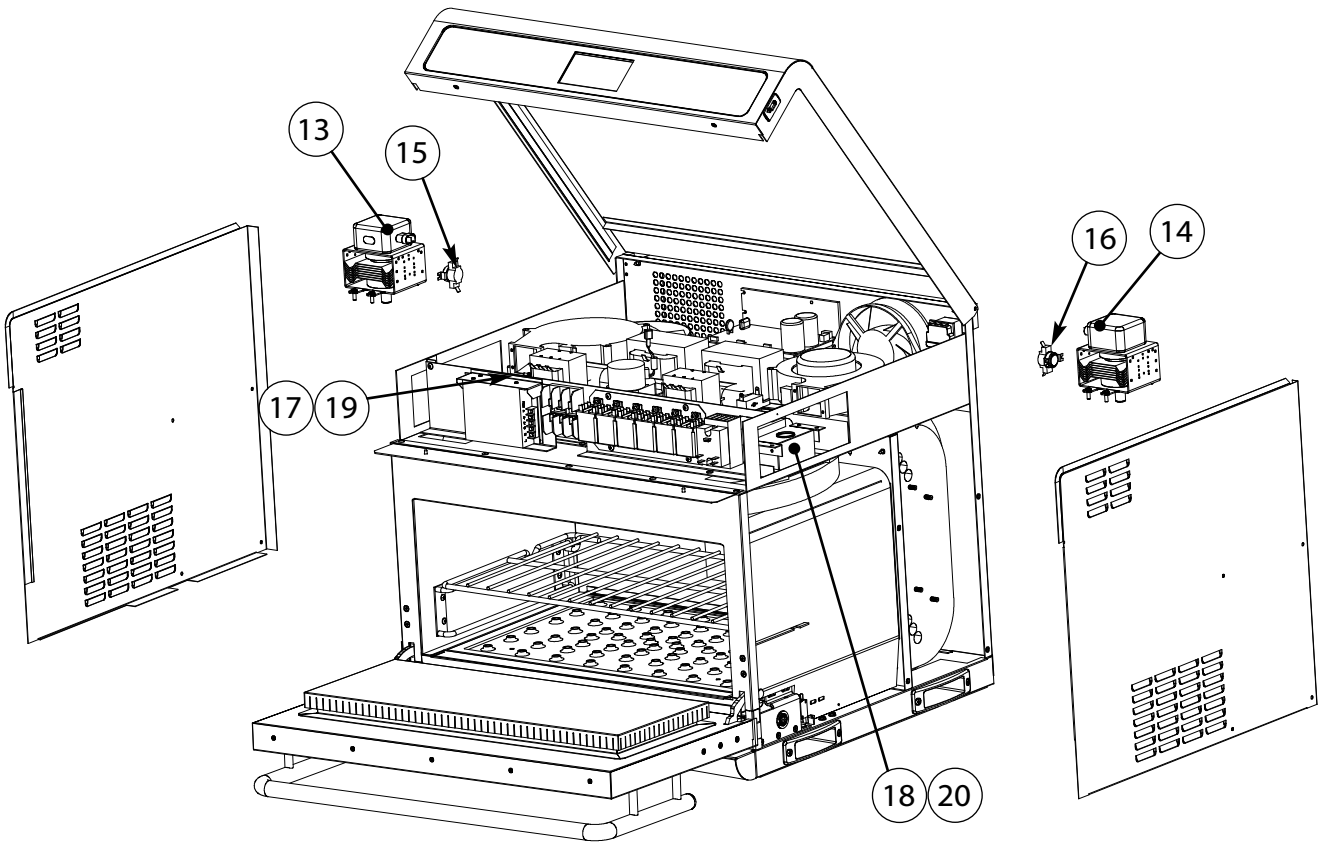


Figure A-10: Removing/Opening Multiple Covers Required

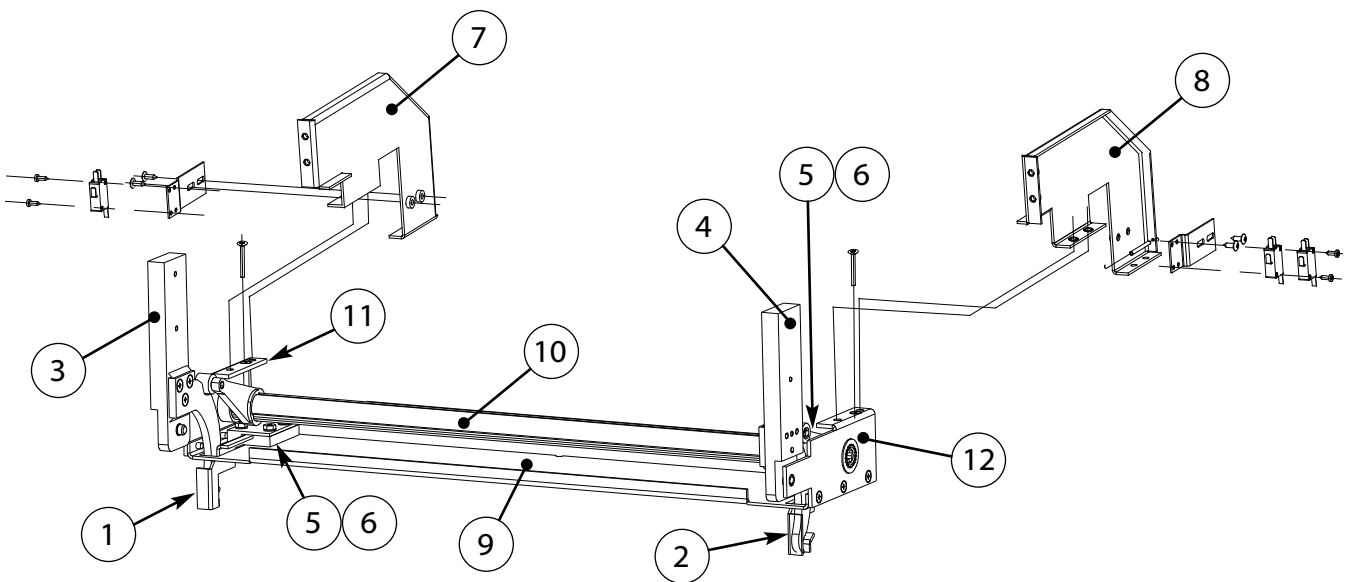


Figure A-11: Counter Balance Assembly, Hinge, and Switch Detail

For service or information:

WITHIN NORTH AMERICA CALL

Customer Service *at* 800.90TURBO or

OUTSIDE NORTH AMERICA CALL

+1 214-379-6000 or Your Authorized Distributor



Global Operations

4240 International Pkwy, Suite 105
Carrollton, Texas 75007 USA
+1 214-379-6000 PHONE
+1 214-379-6073 FAX

Customer Support

1-800-90TURBO
+1 214-379-6000
turbochef.com