



**ELECTRONIC CONTROL
INFORMATION BOOKLET**

**Wall Oven
Wall Oven-2 & Wall Oven-3
E-Series Wall Oven
Warming Drawer (WWD30)
Electric & Induction Cooktop
Dual Fuel & Dual Fuel-3**

NOTE: *If more detailed information on the electronic controls is needed, reference the appropriate Wolf Technical Service Manual.*

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WALL OVENS

UNIQUE ELECTRONIC CONTROL INPUT OPERATIONS

- **FIELD OPTION MODE** - In this mode you can access User Preference Offset and Temperature Display Preference features.

User Preference Offset

- ~ Unit must be off.
- ~ Press and Hold the TEMPERATURE Key for 5 sec.
- ~ Press the number keys to enter a new numeric value up to 35.
- ~ Pressing the TEMPERATURE key will toggle between \pm .

Temperature Display Preference

- ~ Unit must be off.
- ~ Press and Hold the TEMPERATURE Key for 5 sec.
- ~ Press the COOK TIME key to toggle between $^{\circ}\text{F}$ and $^{\circ}\text{C}$.

- **SABBATH FEATURE**

- ~ Unit must be off.
- ~ Press OVEN ON key.
- ~ Turn interior lights ON or OFF. (Optional)
- ~ Press BAKE key. Change preset temperature if desired.
- ~ Press ENTER key.
- ~ Now press and hold the ENTER key for 5 sec. Units chimes twice and the word SABBATH appears in the display.

- **TIME COOK FEATURE**

- ~ Unit must be off.
- ~ Press OVEN ON key.
- ~ Press desired cooking mode (Example: Bake Mode).
- ~ Change preset temperature if desired by using the number keys.
- ~ Press the COOK TIME key. Enter the hours/minutes desired for cooking.
- ~ Press the ENTER key. Oven starts heating and will then shut off when the desired cook time has been reached.

- **DELAYED START FEATURE**

- ~ Unit must be off.
- ~ Press the OVEN ON key.
- ~ Press the desired cooking mode. (Broil, Convection Broil and Bake Stone Mode will not work in this mode).
- ~ Press the STOP TIME key. Using the number keys enter the time of day to turn the oven off.
- ~ Press the COOK TIME key. Using the number keys enter the hours/minutes the oven will stay on.
- ~ Press the ENTER key.

- **TEMPERATURE PROBE FEATURE**

- ~ Oven must first be preheated.
- ~ Insert Temperature Probe into Probe Receptacle.
- ~ Press PROBE key.
- ~ Using the number keys, enter internal cooking temperature minus 5°.
- ~ Press the ENTER key.

- **SELF-CLEAN MODE**

- ~ Unit must be off.
- ~ Press OVEN ON key.
- ~ Press the SELF-CLEAN key.
- ~ Press the ENTER key.

- **To change Self-Clean time for 2 to 4 hours**

- ~ Unit must be off
- ~ Press the OVEN ON key.
- ~ Press the SELF-CLEAN key.
- ~ Press the COOK TIME key.
- ~ Enter the desired self-clean time using the number keys.
(Example: 3 hours 15 minutes)
- ~ Press the ENTER key.

NOTE: *Self-clean can also be used with the Delayed Start feature. Refer to the Delayed Start instructions.*

NOTE: *On current product with the scrolling display, an additional "ENTER" key stroke will be needed to activate "Self-clean" mode.*

BASIC ELECTRONIC CONTROL INPUT OPERATIONS

- **BAKE MODE**

- ~ Unit must be off.
- ~ Press the OVEN ON key.
- ~ Press the BAKE key.
- ~ Change preset temperature if desired.
- ~ Press the ENTER key.

- **CONVECTION BAKE MODE**

- ~ Unit must be off.
- ~ Press the OVEN ON key.
- ~ Press the CONVECTION BAKE key.
- ~ Change preset temperature if desired.
- ~ Press the ENTER key.

- **CONVECTION MODE**

- ~ Unit must be off.
- ~ Press the OVEN ON key.
- ~ Press the CONVECTION key.
- ~ Change preset temperature if desired.
- ~ Press the ENTER key.

- **BROIL MODE**

- ~ Unit must be off.
- ~ Press the OVEN ON key.
- ~ Press the BROIL key.
- ~ Change preset temperature if desired.
(#1 HI, #2 MED and #3 LO)
- ~ Press the ENTER key.

- **CONVECTION BROIL MODE**

- ~ Unit must be off.
- ~ Press the OVEN ON key.
- ~ Press the CONVECTION BROIL key.
- ~ Change preset temperature if desired.
(#1 HI, #2 MED and #3 LO)
- ~ Press the ENTER key.

- **ROAST MODE**

- ~ Unit must be off.
- ~ Press the OVEN ON key.
- ~ Press the ROAST key.
- ~ Change preset temperature if desired.
- ~ Press the ENTER key.

- **CONVECTION ROAST MODE**

- ~ Unit must be off.
- ~ Press the OVEN ON key.
- ~ Press the CONVECTION ROAST key.
- ~ Change preset temperature if desired.
- ~ Press the ENTER key.

- **BAKE STONE MODE**

- ~ Unit must be off.
- ~ Press the BAKE STONE key.
- ~ Change preset temperature if desired.
- ~ Press the ENTER key.

DIAGNOSTIC MODE

In Diagnostic Mode the last seven errors that have occurred to the oven controlling all the relays on the relay board and controller feedback of temperature and switches will be displayed.

A Double Oven can store fourteen error codes. Seven for the upper oven and seven for the lower oven.

- **UPPER OVEN**

- ~ Unit must be off.
- ~ Press and Hold the TEMPERATURE key and the 0 “ZERO” key for 3 seconds.
- ~ Release both keys.

- **LOWER OVEN**

- ~ Unit must be off.
- ~ Press and Hold the TEMPERATURE key and the 0 “ZERO” key for 3 seconds.
- ~ Release both keys.

- **SINGLE OVEN**

- ~ Unit must be off.
- ~ Press and Hold the TEMPERATURE key and the 0 “ZERO” key for 3 seconds.
- ~ Release both keys.

NOTE: *To toggle from one error code to another, the ENTER key must be pressed. The ENTER key will need to be pressed seven times to make sure there are no other codes.*

NOTE: *Diagnostic Mode will end 2 minutes after the last key stroke or by pressing the CLEAR key.*

NOTE: *To clear any error codes, the oven must be in diagnostic mode. Pressing the COOK TIME and STOP TIME key at the same time will clear the error codes recorded. This must be performed after the unit is serviced.*

TESTING THE OVEN RELAY BOARD

ELEMENT TESTING

First access Diagnostic Mode. once in Diagnostic Mode, the Technician can press a key to activate an element. The element relay and the double line breaker(DLB) will close to complete a 240/208 VAC circuit through a specific element. If the Oven Controller detects the current running through the closed circuit, OVEN ON will be illuminated on the corresponding display.

NOTE: *Diagnostic Mode will end 2 minutes after the last key stroke or when the CLEAR key is pressed.*

Key Pressed	Relay(s) activated	Display Response
Bake	Inner Bake Element and Right Convection Fan*	Oven On Illuminated
Broil	Broil Element	Oven On Illuminated
Bake Stone	Bake Stone Element	Oven On Illuminated
Convection Bake	Outer Bake Element and Left Convection Fan*	Oven On Illuminated
Convection Broil	Right Convection Element	Oven On Illuminated
Convection	Left Convection Element	Oven On Illuminated

NOTE: *The current sensor only detects the element circuits, not the fans.*

FANS AND MOTORS

First access Diagnostic Mode. Once in Diagnostic Mode, the technician can press a key to activate a fan or a motor. The fan and motor relays will close to complete a 120 VAC circuit through a specific fan or motor. If the Oven Controller detects the functionality through switches, an indicator will be illuminated on the corresponding display.

NOTE: *Diagnostic Mode will end 2 minutes after last key stroke or when the CLEAR key is pressed.*

Key Pressed	Relay(s) activated	Action	Display Response
Roast	Motor Door Lock (MDL)	MDL switch in open position	Degree (°) Icon Illuminated
		MDL in transition	Degree and Centigrade Icon Off
		MDL switch in closed position	Centigrade (°C) Icon Illuminated
Convection Roast	Oven Light	Light turns on	Not applicable
Self Clean	Cool Fan Low	Fan Apparency Switch activated	Fahrenheit °(F) Icon Illuminated
		Fan Apparency Switch not activated	Fahrenheit Icon Off
0	Cool Fan High	Fan Apparency Switch activated	Fahrenheit Icon (°F) Illuminated
		Fan Apparency Switch not activated	Fahrenheit Icon Off
Bake	Inner Bake Element and Right Convection Fan	Right Convection Fan activated, Inner Bake Element activated	Oven On Illuminated
Convection Bake	Outer Bake Element and Left Convection Fan activated	Left Convection Fan Outer Bake Element activated	Oven On Illuminated

RTD TESTING

First access Diagnostic Mode. Once in Diagnostic Mode, the RTD temperature as read by the Oven Controller is shown in the corresponding display.

NOTE: *Diagnostic Mode will end 2 minutes after the last key stroke or when the CLEAR key is pressed.*

PROBE TESTING

First access Diagnostic Mode. Once in diagnostic Mode, the Probe temperature as read by the Oven Controller is shown in the Stop Cook digits in the corresponding display. If the Probe has not been inserted, "0" will be shown as the Probe temperature. If the Probe has not been completely inserted creating a short circuit of the Probe, "998" will be shown as the Probe temperature.

ERROR CODE CHART

ERROR CODE	POSSIBLE CAUSE	TEST / ACTION
F1	Door Lock or Unlock Switches not sensed within 60 seconds while driving the door lock motor	Ohm door lock switches. Replace MDL (Motor Door Lock) Assembly
OVER TEMP	Over temperature occurs when the oven reaches a temperature of 630 °F for an unlocked door and 930°F for a locked door	Ohm RTD sensor, replace if bad. If RTD good replace Relay board.
RTD OPEN	Open circuit detected on RTD Oven Sensor	Replace RTD Sensor
RTD SHORTED	Shorted circuit detected on the RTD Sensor	Replace RTD Sensor
KEYBOARD ERROR	Key communication error	Replace Control Panel Assembly
KEY COMM	Failure between the Oven Controller and the Control Panel Assembly	Check flat flex cable between control panel assembly and oven controller for bad connection. Replace Oven Controller.
COMM ERR	Communication lost with the oven controller	Replace Control Panel Assembly
CHECKSUM	Self check done at power up, and when the oven off key is pressed.	Replace Oven Controller
PROBE SHORTED EEPROM	Temperature probe failure Cannot read or write to Eeprom	Replace Temperature Probe Replace Oven Controller

ERROR CODE CHART

ERROR CODE	POSSIBLE CAUSE	TEST / ACTION
SENSOR CAL	Analog to Digital error during calibration phase	Replace Oven Controller
CONTROL COM	Communication lost with the oven controller	Check flat flex cable between control panel assembly and oven controller for bad connection. Replace Oven Controller.
RELAY CAL	Relay phase calibration failed the timing problem with the relay on the relay board	Replace relay board ONLY if the error is noted for consecutive times when in diagnostic mode
RELAY STUCK	Power relay shorted - sensed as being closed when it should be open by current sensor on the oven controller	Replace Relay Board
COOL FAN	Cooling fan apparency switch is reporting cooling fan failure. Could be a failure either of the cooling fan or fan apparency switch	Check fan apparency switch, may have to make an adjustment. Ohm cooling fan, replace if defective.

TESTING THE WALL OVEN-2 RELAY BOARD

ELEMENT TESTING

First access Diagnostic Mode. Once in Diagnostic Mode, the Technician can press a key to activate an element. The element relay and the double line breaker(dlb) will close to complete a 240/208 VAC circuit through a specific element. If the Oven Controller detects the current running through the closed circuit, OVEN ON will be illuminated on the corresponding display.

NOTE: *Diagnostic Mode will end 2 minutes after the last key stroke or when the CLEAR key is pressed.*

Key Pressed	Relay(s) activated	Display Response
Bake	Inner Bake Element and	Oven On Illuminated
Broil	Broil Element	Oven On Illuminated
Bake Stone	Bake Stone Element	Oven On Illuminated
Convection Bake	Outer Bake Element and	Oven On Illuminated
Convection Broil	Right Convection Element	Oven On Illuminated
Convection	Left Convection Element	Oven On Illuminated

NOTE: *The current sensor only detects the element circuits, not the fans.*

Ohm Testing Elements at Relay Board

This procedure will allow the service technician to ohm any of the elements directly at the relay board.

At the relay board, pull the wire off of the terminal DLB/E11. This is done to keep from ohming the relay board. It does not take the High Limit out of the equation, but if the technician DOES NOT get an ohm reading from the DLB lead to all of the element leads, then, there is a problem with the High Limit.

To eliminate the High Limit when taking ohm readings, the MDL cover will need to be removed. Then, remove the wire from High Limit switch that goes to the elements. Now, take the ohm reading from that wire at the High Limit to the desired element wire at the relay board.

Right Convection Element: PR5/E5 to DLB/E11 wire

Left Convection Element: PR2/E5 to DLB/E11 wire

Outer Bake Element: PR4/E8 to DLB/E11 wire

Inner Bake Element: PR3/E6 to DLB/E11 wire

Bake Stone Element: PR6/E10 to DLB/E11 wire

Broil Element: PR1/E4 to DLB/E11 wire

Fans and Motors

First access Diagnostic Mode. Once in Diagnostic Mode, the technician can press a key to activate a fan or a motor. The fan and motor relays will close to complete a 120 VAC circuit through a specific fan or motor. If the Oven Controller detects the functionality through switches, an indicator will be illuminated on the corresponding display.

NOTE: *Diagnostic Mode will end 2 minutes after last key stroke or when the CLEAR key is pressed.*

Key Pressed	Relay(s) activated	Action	Display Response
Roast	Motor Door Lock	(MDL)	MDL switch in open position Degree Icon (°) Illuminated MDL in transition Degree and Centigrade Icon Off MDL switch in closed position Centigrade Icon (°C) Illuminated
Conv. Roast	Oven Light	Lights on	Not applicable
Self Clean	Cool Fan Low	Fan Low	COOL FAN LO
0	Cool Fan High	Fan High	COOL FAN HI
Key 7	Left Conv. Fan	Fan ON	L CONV ON
Key 9	Right Conv Fan	Fan ON	R CONV ON
Panel Lock	Fan Apparency log	*See Note	"L" = Fan apparency switch Note: <i>No display means no Apparency Switches.</i>
* NOTE: <i>Used on units prior to serial number 11100847 which used fan apparency switches.</i>			

Fan Apperancy Logging (Enable or Disable)

1. Put the unit into field test mode. (Press and hold the **"TEMPERATURE"** and **"0"** key simultaneously for 3 seconds)
2. If fan apperancy logging is enabled, an **"L"** will be displayed in the stop time number segment area.
3. Press the panel **"LOCK"** key to disable this feature. The **"L"** should disappear, disabling the fan apperancy logging feature. The error should not reoccur.

NOTE: *Clear the error from memory by pressing the **"COOK TIME"** and **"STOP TIME"** simultaneously.*

RTD Testing

First access Diagnostic Mode. Once in Diagnostic Mode, the RTD temperature as read by the Oven Controller is shown in the corresponding display.

NOTE: *Diagnostic Mode will end 2 minutes after last key stroke or when the CLEAR key is pressed.*

Probe Testing

First access Diagnostic Mode. Once in Diagnostic Mode, the Probe temperature as read by the Oven Controller is shown in the Stop Cook digits in the corresponding display. If the Probe has not been inserted, "0" will be shown as the Probe temperature. If the Probe has not been completely inserted creating a short circuit of the Probe, "998" will be shown as the Probe temperature.

NOTE: *Diagnostic Mode will end 2 minutes after last key stroke or when the CLEAR key is pressed.*

ERROR CODE CHART		
ERROR CODE	POSSIBLE CAUSE	TEST / ACTION
F1	Door Lock or Unlock Switches not sensed within 60 seconds while driving the door lock motor	Ohm door lock switches. Replace MDL (Motor Door Lock) Assembly
OVER TEMP	Over temperature occurs when the oven reaches a temperature of 630 °F for an unlocked door and 930°F for a locked door	Ohm RTD sensor, replace if bad. If RTD good replace Relay board.
RTD OPEN	Open circuit detected on RTD Oven Sensor	Replace RTD Sensor
RTD SHORTED	Shorted circuit detected on the RTD Sensor	Replace RTD Sensor
KEYBOARD ERROR	Key communication error	Replace Control Panel Assembly
KEY COMM	Failure between the Oven Controller and the Control Panel Assembly	Check flat flex cable between control panel assembly and oven controller for bad connection. Replace Oven Controller.
COMM ERR	Communication lost with the oven controller	Replace Control Panel Assembly
CHECKSUM	Self check done at power up, and when the oven off key is pressed.	Replace Oven Controller
PROBE SHORTED	Temperature probe failure	Re-seat probe Replace Temperature Probe
EEPROM	Cannot read or write to Eeprom	Replace Oven Controller
SENSOR CAL	Analog to Digital error during calibration phase	Replace Oven Controller
CONTROL COM	Communication lost with the oven controller	Check flat flex cable between control panel assembly and oven controller for bad connection. Replace Oven Controller.
RELAY CAL	Relay phase calibration failed the timing problem with the relay on the relay board	Replace relay board ONLY if the error is noted four consecutive times when in diagnostic mode
RELAY STUCK	Power relay shorted - sensed as being closed when it should be open by current sensor on the oven controller	Replace Relay Board
COOL FAN	Cooling fan failure	Ohm cooling fan, replace if defective.
SPI COMM	Communication lost with the oven control board	Check flex ribbon cable from head assembly to oven control board, unplug and replug. Troubleshoot using flow chart and end of Section 6
LOWER RELAY	Lower oven shift register feedback has indicated a failure	Perform troubleshooting using flow chart at end of Section 6
FUSES WRONG	Controller configuration settings incorrect or code protection is disabled.	"OFF" Clears error. If error will not clear, replace main controller.

E-SERIES WALL OVEN

The following information is intended as a quick reference only. Refer to E-Series Technical Service Manual 807792 for complete technical information.

E-SERIES Acronym Chart

ACRONYM	ALTERNATE	DESCRIPTION	ALT. DESC.
CRC		Cyclical Redundancy Check	
DLB		Double Line Break	
DLL		L2 Relay on Relay Board	
EON		End of Cycle	
FMEA		Failure Mode/Effects Analysis	
HSWD		High Side Watch Dog	
HV	HIV	High Voltage Micro	
LATE		Lower Auxiliary Time Display	
LCD		Liquid Crystal Display	
LIL	LILA	Lower Information Line	Display Phrase
LV	LOV	Low Voltage Micro	
MDL	MDS	Motor Door Lock	
MTD		Main Temperature Display	
RM	RMA	Relay Module	
RTF	RTD	Resistive Thermal Device	
S/N		Serial Number	
SPI		Serial Peripheral Interface	
TCO		Thermal Cut-out	
TOD	TODD	Time of Day mode	Idle Mode
UATD		Upper Auxiliary Time Display	
UIL	URL	Upper Information Line	
UIM	UM	Upper Interface Module	

UNIQUE ELECTRONIC CONTROL INPUT OPERATIONS:

User Option Mode

User option mode is activated by pressing and holding CLOCK key for 3 seconds. (Use following keys to navigate through menu)

ENTER Key: Moves to next selection in order described below, saving any changes. If at last selection, returns to first selection.

CLEAR Key: Moves to previous selection. Any changes made to current selection are discarded. If current selection is first (language), returns to idle mode.

OFF Key: Either OFF key will exit User Settings Menu and return to Idle. Any changes made to current selection are discarded.

Language Selection (LILA will display "SELECT LANGUAGE")
ENGLISH - 1, GERMAN - 2, FRENCH – 3, SPANISH – 4, ITALIAN - 5

Temperature Display Preference

User will be prompted with the following message: "SELECT TEMPERATURE UNITS". PRESS 1 – F, PRESS 2 – C

User Preference Offset

If a double oven, upper oven offset will be prompted first, followed by lower oven offset. Current offset will be shown on MTD, along with proper temperature units. This will be replaced with digits entered by user. UATD will always show currently accepted value for upper oven offset, and, if a double oven, LATE will show lower oven offset. There is a maximum offset of $\pm 35\text{F}$, or $\pm 19\text{C}$. Invalid entries will be rejected with an invalid entry beep and initial offset will again be displayed.

Single oven: "ENTER TEMPERATURE OFFSET. TOGGLE +/- USING TIMED COOK KEY. PRESS ENTER TO CONTINUE".

Double oven: "ENTER TEMPERATURE OFFSET FOR (UPPER/LOWER OVEN). TOGGLE +/- USING TIMED COOK KEY. PRESS ENTER TO CONTINUE". Pressing enter will cause user option mode to advance to next step.

NOTE: Entering a positive number will increase the oven temperature.

UNIQUE ELECTRONIC CONTROL INPUT OPERATIONS: (Cont.)

Clock Display Preference

LILA will display "SELECT 12/24 HOUR CLOCK. (PRESS 1 – 12 HR, PRESS 2 – 24 HR). The clock type selected will be displayed in MTD as "12Hr" or "24Hr" as appropriate.

Backlight Brightness Setting

LILA will display "SELECT BACKLIGHT BRIGHTNESS. PRESS 1 - LOW, PRESS 2 - MEDIUM, PRESS 3 - HIGH

LCD Contrast Selection

LILA will display "SELECT LCD CONTRAST LEVEL 1-9. PRESS ENTER TO CONTINUE". The URL will display current level as appropriate: 1-9, with 5 being default setting. The MTD will display 8888 at current contrast setting.

Beeper Tone Selection

LILA will display "SELECT BEEPER TONE. (1 - LOW, 2 - MEDIUM, 3 - HIGH). URL will display current level as appropriate: LOW, MEDIUM, or HIGH. Pitch of beeper will adjust as appropriate.

Sabbath Feature

NOTE: *Once Sabbath Mode has been entered, all of the oven functions have been disabled except the OFF key.*

To initiate Sabbath feature, the oven must be OFF. Press UPPER/LOWER key for a double oven to choose oven being used. Turn on interior oven lights by pressing the OVEN LIGHT key. Press the BAKE or ROAST key. A preset temperature of 350° will be shown in the display. To change temperature, immediately enter another temperature using number keys, then press ENTER. Now, press and hold ENTER key for five seconds. The oven will chime twice and "SABBATH" appears in LIL. Repeat these steps above for each oven or cavity. Exit Sabbath Mode, press the UPPER or LOWER OVEN OFF key or the OVEN OFF key, depending on model.

NOTE: *The oven(s) will remain on until Sabbath Mode is cancelled.*

DIAGNOSTICS/SHOWROOM MENU MODE:

Pressing the Timer key for 3 seconds while both cavities are in Idle mode, or from Showroom mode.

Press 1 = Diagnostics Mode

Press 1 = Self Test*

Press 2 = Manual Test

Press 3 = Error History

Press 4 = Version Info

Press 5 = Statistics

Press 2 = Showroom Mode

Press 2 = Toggle showroom mode on/off

Self Test*

Entry into Auto Self Test will be allowed by entering Diagnostics/Showroom Mode and choosing Self Test from the Service Mode Entry menu.

Pressing ENTER from initial Auto Self Test menu will start test. URL displays "SELF TEST ACTIVE". Lower Information Line (LILA) displays "Testing... please wait". While test is active, CLEAR key will stop testing and return to the initial Auto Self Test menu. All other keys are inactive except OFF and LOCK keys, which are always active during diagnostics.

When testing is completed, the Upper Information Line displays "SELF TEST RESULTS". The LILA shows the results scrolling if necessary. The CLEAR key is used to return to the initial Auto Self Test menu.

- a. If no problems are found, LILA will display "Self Test Passed".
- b. If an error is found, Service instruction associated with error will be shown in the LILA. Some instructions reference a particular cavity - "Upper" or "Lower" will be shown as needed to indicate cavity in question.
- c. Load presence errors may be detected and will be shown if there are no higher priority errors detected. If this is the case, the LILA will display the standard error phrase associated with these failures.

E-SERIES Manual Test Mode

Enter into the Manual Test by entering Diagnostics/Showroom Mode (Press and hold TIMER 3 Seconds) and choosing the Manual Test from the Service Mode Entry menu (Key Press 2).

NOTE: If a communication failure with the Relay Module exists, Manual Test entry will be inhibited and an appropriate message displayed in the LILA.

NOTE: Double Oven will default to upper cavity upon entry, press Upper/Lower key to select cavity being tested.

Component Testing Chart:

Key Press	Relay Active	Action	Display Response
Key 6	Cooling Fan	Cooling Fan	Cool Fan Test On
Key 7	Motor Door Lock	MDS sw open position	MDS is open
	Motor Door Lock	MDS in transition	Up arrow illuminated
	Motor Door Lock	MDS sw closed position	Up arrow illuminated
Key 8	Left Conv Fan	Left Conv Fan	Lft Conv Fan Test On
Key 9	Right Conv Fan	Right Conv Fan	Rt Conv Fan Test On
Up/Lwr	Not applicable	Switch cavity	
Oven Light	Oven Light	Light turns on	Lights Test On
Timed Cook	Beeper	Beeper	Beeper Test On
Lock	None	Rtrn to initial Svc Menu	Not applicable

Element Testing Chart:

Key Press	Relay(s) Activated	Display Response (Upr and Lwr Info Lines)	
Bake	Inner Bake Element	Inner Bake Element On	Bake to toggle
Broil	Broil Element	Broil Element	Broil to toggle
Conv Bake	Outer Bake Element	Outer Bake Element	Conv. Bake to toggle
Conv Broil	Rt Conv Element	Right Conv. Element	Conv. Broil to toggle
Conv	Lft Conv Element	Left Conv. Element	Conv. to toggle

E-SERIES Technical Data Chart

Part Description	Part #	Voltage	Amperage	Watts	Ohms
Motorized Latch	808582	240		4	12000
Temp Sensor - Upr	808584				1091 75°F
Temp Sensor - Lwr	807940				1091 75°F
Oven Light	808636	12		20	1500
Element, Conv	POA	240	9.02 to 10.43	2165 to 2503	23 to 26.6
Element, Conv		208	7.82 to 9.04	1626 to 1881	23 to 26.6
Fan, Conv CCW	POA	240		55	8.8K
Fan, Conv CW	POA	240		55	8.8K
Element, Bake Out	808626	240	6.15 to 7.74	1476 to 1857	31 to 39
Element, Bake In		240	6.86 to 8.28	1646 to 1987	29 to 35
Element, Bake Out		208	5.33 to 6.71	1109 to 1395	31 to 39
Element, Bake In		208	5.94 to 7.17	1236 to 1491	29 to 35
Upper Cooling Fan	808580	240		65	850
Lower Cooling Fan	808611	240		80	720
Temperature Probe	808641				34,000 90°F
Transformer (Sec.)	808574	240 ~ 12	3.33	40 VA	3.60
Element, Broil 30"	808643	240	12.97 to 15.7	3113 to 3766	15.3 to 18.5
Element, Broil 30"		208	11.24 to 13.6	2338 to 2827	15.3 to 18.5

WARNING

POWER MUST BE SHUT OFF TO AVOID ELECTRICAL SHOCK WHEN PERFORMING THE FOLLOWING TESTS.

E-SERIES Element Ohm Testing

Element	Wire #	Plug	Terminal	Ohm Test	Wire #	Plug	Terminal
Upper Right Convection or Single Oven	11-E10	P13	3	↔	9-RCvtE9	P12	6
Upper Left Convection or Single Oven	11-E10	P13	3	↔	7-LCvtE8	P12	1
Upper Broil or Single Oven	5-E5	P11	4	↔	4-BroilE4	P11	1
Upper Outer Bake or Single Oven	5-E5	P11	4	↔	2-ObakeE3	P10	4
Upper Inner Bake or Single Oven	5-E5	P11	4	↔	1-lbakeE2	P10	1
Lower Broil	16-E25	P15	4	↔	15-BroilE24	P15	1
Lower Outer Bake	16-E25	P15	4	↔	13-ObakeE23	P14	4
Lower Inner Bake	16-E25	P15	4	↔	12-lbakeE22	P14	1

E-SERIES Error Code Chart

Priority	Displayed Phrase	Service Instruction
2	RTD Open	(Upper/Lower) RTD failure (device or wiring)
2	RTD Shorted	
2	Temp Probe Short	(Upper/Lower) Meat Probe failure (device or wiring)
3	No Inner Bake element detect	Check specified element & wiring
3	No Outer Bake element detect	
3	No Broil element detect	
3	No Lt Conv element detect	
3	No Rt Conv element detect	
3	No MDL detect	Check specified MDL & wiring
3	No Left Convection Fan detect	Check specified fan & wiring
3	No Rt Convection Fan detect	
3	No Cooling Fan detect	
3	No Oven Light detect	Check specified oven light transformer & wiring
2	Lock inputs invalid	Check door motor assy & wiring
2	Lock/Door inputs invalid for Clean	
2	MDL run timeout	
2	TCO detect as open	Check air flow, verify cooling fan operational
2	Brownout error	Check home wiring, voltages, replace Relay Module
2	Inner Bake relay shorted	Check connections, replace Relay Module of the oven indicated
3	RM Ambient Thermistor shorted	Check connections, replace Relay Module of the oven indicated
3	RM Line Voltage A/D error	
2	MDL circuitry error	
2	RM FMEA circuitry error	

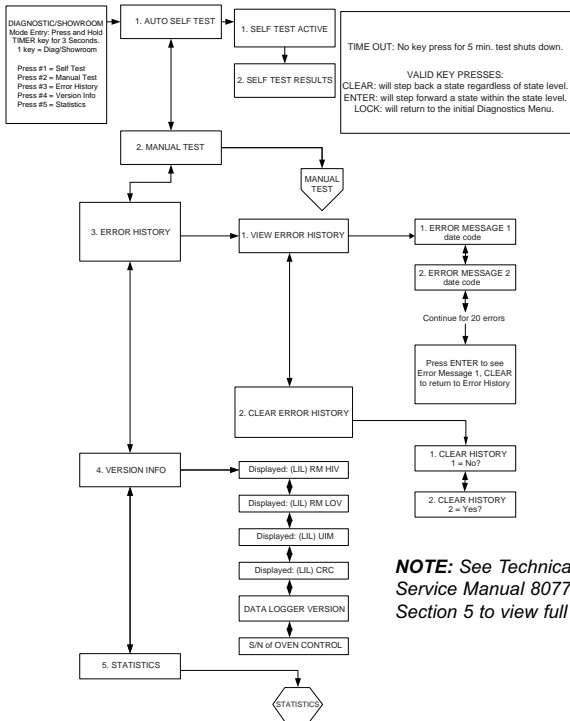
E-SERIES Error Code Chart (cont.)

Priority	Displayed Phrase	Service Instruction
2	Outer Bake relay shorted	Check connections, replace Relay Module of the oven indicated
2	Broil relay shorted	
2	Left Convect relay shorted	
2	Right Convect relay shorted	
2	MDL relay shorted	
3	Left Convect Fan triac shorted	
3	Right Convect Fan triac shorted	
3	Cooling Fan triac shorted	
3	Oven Light relay shorted	
2	DLB1 shorted	
2	DLB2 shorted	
3	Aux DLB shorted	
3	Inner Bake relay open	
3	Outer Bake relay open	
3	Broil relay open	
3	Left Convect relay open	
3	Right Convect relay open	
3	MDL relay open	
3	Left Convect Fan triac open	
3	Right Convect Fan triac open	
2	Cooling Fan triac open	
3	Oven Light relay open	
2	DLB1 relay or TCO open	
2	DLB2 relay open	
2	Aux DLB open	
2	RTD Circuitry error	
3	RM EE checksum error	
3	HIV SPI com err detected by RM control	
3	HIV SPI com err detected by HV-micro	
3	HIV micro feedback error	
1	RM LOV fuse error	
3	RM HIV fuse error	
2	HSWD active, should be inactive	
2	HSWD inactive, should be active	
3	RM Ambient Thermistor open error	

E-SERIES Error Code Chart (cont.)

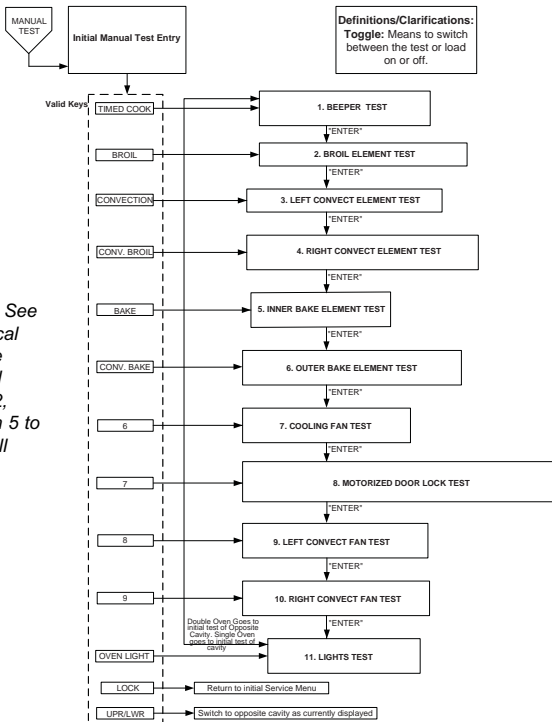
Priority	Displayed Phrase	Service Instruction
1	Keypad circuit error	Check keypad & connections
1	Keypad comm error detected by the UIM	
1	Keypad comm error detected by the Keypad	
1	Keypad FMEA error	
1	Keypad EE CRC error	
3	Keypad mains sync error	
3	UIM EE checksum error	Replace UIM Module
1	UIM configuration data CRC error	
1	UIM fuse error	
3	UIM ambient thermistor open error	
3	UIM ambient thermistor shorted error	
1	LCD module error	
2	Communications error detected by the UIM	Check com harness, replace Relay Module
2	Communications error detected by the RM	Check com harness, replace UIM Module
2	Overtemp error - door unlocked	Check door motor assy & wiring, replace Relay Module
2	Overtemp error - door locked	Replace Relay Module
2	RM Ambient overtemp error	Check air flow, verify cooling fan operational, replace relay module
2	UIM Ambient overtemp error	Check air flow, verify cooling fan operational, replace UIM.
3	Self-clean rate-of rise error	Check oven for leaks, insulation problems. Run diagnostics, look for open outputs or loads

E-SERIES Diagnostic/Showroom Entry Menu Flow Chart



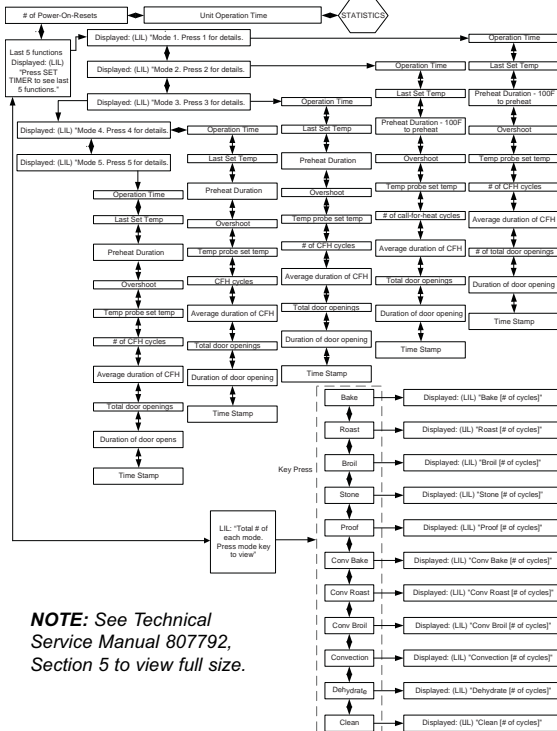
NOTE: See Technical Service Manual 807792, Section 5 to view full size.

E-SERIES Diagnostic/Showroom Manual Menu Flow Chart



NOTE: See *Technical Service Manual 807792, Section 5 to view full size.*

E-SERIES Diagnostic/Showroom Statistics Menu Flow Chart



NOTE: See *Technical Service Manual 807792, Section 5* to view full size.

WARMING DRAWER (WWD30)

FIELD SERVICE MODE UNIQUE KEYSTROKES:

KEYPRESS	TEMP DISPLAY	TIMER DISPLAY
Enter Diagnostics	rE (Sr if in showroom mode)	0018 (Meaning revision 1.8)
TIMER	Err	10
TIMER	Err	20
TIMER	Err	30
TIMER	Err	40
TIMER	Err	50
TIMER	Err	60
TIMER	Con (Control On Time) 1:60 = 16000 hr. (See note below)	
TIMER	ELE (Element On Time) 95:00 = 950000 hr. (See note below)	
TIMER	FAn (Fan On Time) 12:60 = 126000 hrs. use (See note below)	
TIMER	Dor (Drawer Open/Close) 1:60 = 16000 cycles (See note below)	
TIMER	119 (Current Temp)	deg

NOTE: A colon (:) signifies the need to add two zeros (0) to the time shown. (i.e. 1:60 = 16000)






ERROR CODE TROUBLESHOOTING GUIDE:

ERROR CODE	CAUSE	TEST / ACTION
10 (Invalid Checksum Error)	Incorrect checksum	Replace Control Board
20 (Thermistor Open)	Temperature >300°F	In FSM (Field Service Mode), view temperature as view by thermistor. Verify wiring ok to element. Replace Thermistor if ok.
30 (Thermistor Short)	Temperature <-30°F	In FSM (Field Service Mode), view temperature as view by thermistor. Verify wiring ok to element. Replace Thermistor if ok.
40 (Element Sensing)	<5° change in temperature over 10 minutes of continuous call for heat. Occurs only during preheat mode and the door is closed.	If unit outdoors and temperature below freezing point, instruct on unit limitations. Verify Thermal Cutout is not open. Verify Element is not open. Replace TCO or Element if open.
50 (Door Switch)	Door switch closed when the keypad is being operated or unit turned on.	Check operation of Door Switch with Ohm meter. Replace if defective.
60 (Stuck Relay)	Drawer temperature rises to 250°F in any mode/state.	Check ambient Temp and installation. Check TCO. Replace if opened. Replace Relay Board.
70 (Cable Open)	Cable wires that activate element or fan relays on power board are not making connection.	Check connection of comm cable. Use Figure 5-1 to check voltage and/or ohm reading of cable. If open, replace.


























NOTE: After correcting problem, errors must first be cleared in Field Service Mode before controls will refresh error display. To clear error codes logged, press and hold "TIMER" up and down arrow keys for 5 seconds, while in Field Service Mode.

WARMING DRAWER (WWD30)

FIELD SERVICE MODE FUNCTIONAL TEST KEYSTROKES:

KEYPRESS	TEMP DISPLAY	TIMER DISPLAY	"ON" INDICATOR
TEMP 	ELE	Func	ON (Relay closed, Element on)
TEMP 	ELE	Func	OFF (Relay Opens, Element Off)
TEMP 	Fan	Func	ON (Relay closed, Fan turns on)
TEMP 	Fan	Func	OFF (Relay Opens, Fan turns Off)
TEMP 	Dor	CLOS if Drawer Closed / OPEN If Drawer Open	

MODE/FUNCTION UNIQUE KEYSTROKES:

MODE/FUNCTION	KEY PRESSES to ENTER
Diagnostic Mode	 &  &  5 Seconds
Resetting Error Codes in Diagnostic Mode	TIMER  &  5 Seconds
Sabbath Mode	 5 Seconds
Showroom Mode	 &  &  5 Seconds
HIGH Preset Change (Range of 80°F to 200°F) (Press HIGH for 5 seconds again to save changes)	 Followed by  5 Seconds
MED Preset Change (Range of 80°F to 200°F) (Press MED for 5 seconds again to save changes)	 Followed by  5 Seconds
LOW Preset Change (Range of 80°F to 200°F) (Press LOW for 5 seconds again to save changes)	 Followed by  5 Seconds
PROOF Preset Change (Range of 80°F to 110°F only) (Press PROOF for 5 seconds again to save changes)	 Followed by  5 Seconds
Temperature Scale Change Mode	TEMP  &  5 Seconds
Display Contrast Change Mode	TIMER  &  5 Seconds
LED Back Lighting Change Mode	TEMP  & TIMER  5 Seconds
Temperature Offset Mode	TEMP  & TIMER  5 Seconds

ELECTRIC COOKTOPS

DIAGNOSTIC MODE

Diagnostic mode allows the Service Technician to inspect the functions of the cooktop controls. In diagnostic mode the last eight error codes that have been recorded by the cooktop control can be accessed. A total of **15** different modes can be accessed, once diagnostic mode has been initiated.

Initiating Different Modes

To initiate diagnostic mode, the unit needs to be in the “**LOCK**” mode. Then, press and hold the “**OFF**” keypad for 5 seconds. The cooktop controls will now enter into diagnostic Mode 1.

NOTE: *If the “OFF” keypad is not released after 7 seconds, the diagnostic mode will be cancelled and the unit will return to the “OFF” mode.*

NOTE: *If any other input signals are detected from the keypad, the unit will not enter diagnostic mode.*

NOTE: *When in diagnostic mode all heating units are off.*

NOTE: *The unit will exit diagnostic mode if no inputs are detected from the keypad in 20 seconds.*

NOTE: *If the “OFF” keypad is pressed again anywhere within the diagnostic program, the unit returns to the “LOCK” mode of operation.*

NOTE: *There will be no audible signals during the diagnostic mode.*

Mode 1 - Checking the LEDs

In this mode, **ALL** LEDs will blink at a rate of .75 seconds ON and .25 seconds OFF. This includes the “LOCK” LED as well as the Zone indicators for the surface units.

Mode 2 - Checking the Cooling Fan

To enter Mode 2 while engaged in diagnostic mode, touch the “ON/OFF” or “+” keypad on the left front control. When this is done the result will be:

- The bar lights on the left front control will illuminate **2 LEDs** and flash at the rate mentioned in Mode 1.
- The bar lights for the left rear control will illuminate **ALL** LEDs and flash at the rate mentioned in Mode 1.
- The cooling fan relay will close, causing the cooling fan to turn on.
- When the “-” keypad for the left rear control is touched, all bar lights on the left rear control will turn off and the cooling fan will turn off.
- When the “+” keypad for the left rear control is touched, all bar lights on the left rear control will illuminate and the cooling fan will turn on.

Mode 3 - Checking the Electronic Hardware Version

To enter Mode 3 while engaged in diagnostic mode, touch the “+” keypad on the left front control. When this is done the result will be:

- The bar lights on the left front control will illuminate **3 LEDs** and flash at the rate mentioned in Mode 1.
- The bar lights on the left rear control will illuminate four groups of four LEDs and flash at the rate mentioned in Mode 1. The illuminated bar lights are displayed as Hex Decimal Characters. (See Figure 1).

Mode 4 - Checking the Ambient Temperature of Thermistor on Power Board

To enter Mode 4 while engaged in diagnostic mode, touch the “+” keypad on the left front control. When this is done the result will be:

- The bar lights on the left front control will illuminate **4 LEDs** and flash at the rate mentioned in Mode 1.
- The bar lights on the left rear control will illuminate a number of LEDs based on the temperature of the thermistor on the power board, using four Hex Decimal Characters and flash at the rate described in Mode 1. (See Figure 2).

Mode 5 - Checking Heat Sink Thermistor on Power Board

To enter Mode 5 while engaged in diagnostic mode, touch the “+” keypad on the left front control. When this is done the result will be:

- The bar lights on the left front control will illuminate **5 LEDs** and flash at the rate mentioned in Mode1.
- The bar lights on the left rear control will illuminate a number of LEDs based on the temperature of the heat sink thermistor on the power board using four Hex Decimal Characters and flash at the rate described in Mode 1. (See Figure 2).

Mode 6 - Checking the Lid Switch on the Cover

To enter Mode 6 while engaged in diagnostic mode, touch the “+” keypad on the left front control. When this is done the result will be:

- The bar lights on the left front control will illuminate **6 LEDs** and flash at the rate mentioned in Mode1.
- The bar lights on the left rear control will illuminate **4 LEDs** in hex decimal form, based on the Lid Switch status (open or closed) and flash at the rate mentioned in Mode1. (See Figure 3).

NOTE: *If the numbers are between 580 to 748, the Lid switch is open.*

NOTE: *If the numbers are between 239 to 443, the Lid Switch is closed.*

NOTE: *Any other numbers other than 580 to 748 and 239 to 443, mean error.*

Mode 7 - Last Error Code Recorded to Eeprom

To enter Mode 7 while engaged in diagnostic mode, touch the “+” keypad on the left front control. When this is done the result will be:

- The bar lights on the left front control will illuminate **6 LEDs** and flash at the rate mentioned in Mode1.
- The bar lights on the left rear control will illuminate **0-6 LEDs** based on the last error code recorded to the Eeprom, and flash at the rate mentioned in Mode1. If error codes were recorded, bar lights 1-6 will correspond to one of six possible error codes.

NOTE: If no error codes were recorded, zero bar lights will illuminate.

Mode 8-14 - Preceding Error Codes Recorded to Eeprom

To enter the corresponding Mode (8-14), touch the “+” keypad on the left front control. When this is done the result will be:

- The bar lights on the left front control will illuminate the number of LEDs according to the corresponding mode (8-14).
- The bar lights on the left rear control will illuminate **0-6 LEDs** based on the next to last error code recorded to the Eeprom and flash at the rate mentioned in Mode1. Each additional Mode will indicate the preceding error code recorded to the Eeprom. If error codes were recorded, bar lights 1-6 will correspond to one of six possible error codes.

NOTE: If no error codes were recorded, zero bar lights will illuminate.

NOTE: There can be a total of eight error codes recorded.

Mode 15 - Checking Software Version - (Not available for 15”)

To enter Mode 15 while engaged in diagnostic mode, touch the “+” keypad of the left front control. When this is done the result will be:

- The bar lights on the left front control will illuminate **15 LEDs** and flash at the rate described in Mode1.
 - The bar lights on the left rear control will illuminate four groups of four LEDs in Hex Decimal form based on the software version present in the unit and flash at the rate mentioned in Mode1.
- (See Figure 4).

INTERPRETING HEX DECIMAL CODE

The bar lights located on the control panel are divided into four different groups. These four groups have numeric values. (See Figure 1). When the bar lights are illuminated, the numeric value for each group needs to be added together.

NOTE: When reading the bar lights, they are always read from left to right and from Most Significant to Least Significant numeric value. **Example: 8-4-2-1.**

When the sum of those numbers added together are from 10 - 15, then a letter is assigned in place of that sum.

Example: 10 = A; 11 = B; 12 = C; 13 = D; 14 = E and 15 = F.

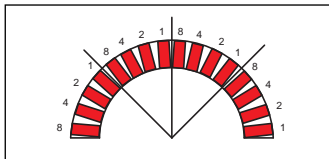


Figure 1. Bar Lights Divided into Four Groups.

In Figure 2, you see an example of bar lights that could be illuminated. When reading the bar lights according to Most Significant to Least Significant numeric value, they add up to:

$$2 + 1 = \underline{3}; 4 + 1 = \underline{5} \text{ and } 8 + 4 = \underline{12} \text{ or } \underline{C}.$$

So you have **3 - 5 - C**. Now, look at the chart (See Figure 5), to find the value of **35C**. The value of **35C = 43.3 °C**.

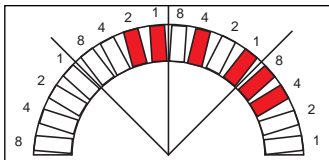


Figure 2. Interpretation of Bar Lights.

NOTE: To convert °C to °F, use this formula: $(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$.

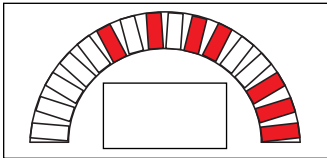


Figure 3. Example of Possible Bar Lights. Displayed for Lid Switch.

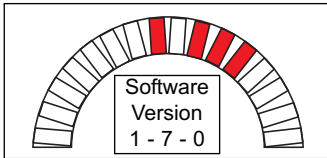


Figure 4. Example of Software Version.

Temperature °C / Hex Decimal Chart

Hex	Tem	Hex	Tem	Hex	Tem	Hex	Tem
3D4	10.1	3B9	21.0	39E	29.0	383	35.5
3D3	10.6	3B8	21.3	39D	29.3	382	35.7
3D2	11.1	3B7	21.7	39C	29.5	381	35.9
3D1	11.5	3B6	22.0	39B	29.8	380	36.1
3D0	12.0	3B5	22.3	39A	30.0	37F	36.4
3CF	12.5	3B4	22.6	399	30.3	37E	36.6
3CE	12.9	3B3	23.0	398	30.5	37D	36.8
3CD	13.3	3B2	23.3	397	30.8	37C	37.0
3CC	13.8	3B1	23.6	396	31.0	37B	37.2
3CB	14.2	3B0	23.9	395	31.3	37A	37.4
3CA	14.6	3AF	24.2	394	31.5	379	37.6
3C9	15.0	3AE	24.5	393	31.8	378	37.8
3C8	15.5	3AD	24.8	392	32.0	377	38.1
3C7	15.9	3AC	25.1	391	32.3	376	38.3
3C6	16.3	3AB	25.4	390	32.5	375	38.5
3C5	16.6	3AA	25.7	38F	32.7	374	38.7
3C4	17.0	3A9	26.0	38E	33.0	373	38.9
3C3	17.4	3A8	26.3	38D	33.2	372	39.1
3C2	17.8	3A7	26.5	38C	33.4	371	39.3
3C1	18.2	3A6	26.8	38B	33.7	370	39.5
3C0	18.5	3A5	27.1	38A	33.9	36F	39.7
3BF	18.9	3A4	27.4	389	34.1	36E	39.9
3BE	19.3	3A3	27.7	388	34.4	36D	40.1
3BD	19.6	3A2	27.9	387	34.6	36C	40.3
3BC	20.0	3A1	28.2	386	34.8	36B	40.5
3BB	20.3	3A0	28.5	385	35.0	36A	40.7
3BA	20.7	39F	28.7	384	35.3	369	40.9

Figure 5. Temperature °C / Hex Decimal Chart

Temperature °C / Hex Decimal Chart

Hex	Tem	Hex	Tem	Hex	Tem	Hex	Tem
368	41.1	34D	46.0	332	50.5	317	54.7
367	41.2	34C	46.2	331	50.7	316	54.8
366	41.4	34B	46.4	330	50.8	315	55.0
365	41.6	34A	46.5	32F	51.0	314	55.1
364	41.8	349	46.7	32E	51.1	313	55.3
363	42.0	348	46.9	32D	51.3	312	55.4
362	42.2	347	47.0	32C	51.5	311	55.6
361	42.4	346	47.2	32B	51.6	310	55.7
360	42.6	345	47.4	32A	51.8	30F	55.9
35F	42.8	344	47.5	329	51.9	30E	56.0
35E	42.9	343	47.7	328	52.1	30D	56.2
35D	43.1	342	47.9	327	52.2	30C	56.3
35C	43.3	341	48.1	326	52.4	30B	56.5
35B	43.5	340	48.2	325	52.6	30A	56.6
35A	43.7	33F	48.4	324	52.7	309	56.8
359	43.9	33E	48.6	323	52.9	308	56.9
358	44.0	33D	48.7	322	53.0	307	57.1
357	44.2	33C	48.9	321	53.2	306	57.2
356	44.4	33B	49.0	320	53.3	305	57.3
355	44.6	33A	49.2	31F	53.5	304	57.5
354	44.8	339	49.4	31E	53.6	303	57.6
353	44.9	338	49.5	31D	53.8	302	57.8
352	45.1	337	49.7	31C	53.9	301	57.9
351	45.3	336	49.9	31B	54.1	300	58.1
350	45.5	335	50.0	31A	54.2	2FF	58.2
34F	45.7	334	50.2	319	54.4	2FE	58.3
34E	45.8	333	50.3	318	54.5	2FD	58.5

Figure 5. Temperature °C / Hex Decimal Chart Continued

Temperature °C / Hex Decimal Chart

Hex	Tem	Hex	Tem	Hex	Tem	Hex	Tem
2FC	58.6	2E1	62.4	2C6	66.0	2AB	69.5
2FB	58.8	2E0	62.5	2C5	66.1	2AA	69.7
2FA	58.9	2DF	62.7	2C4	66.3	2A9	69.8
2F9	59.1	2DE	62.8	2C3	66.4	2A8	69.9
2F8	59.2	2DD	62.9	2C2	66.5	2A7	70.0
2F7	59.3	2DC	63.1	2C1	66.7	2A6	70.2
2F6	59.5	2DB	63.2	2C0	66.8	2A5	70.3
2F5	59.6	2DA	63.3	2BF	66.9	2A4	70.4
2F4	59.8	2D9	63.5	2BE	67.1	2A3	70.5
2F3	59.9	2D8	63.6	2BD	67.2	2A2	70.7
2F2	60.0	2D7	63.7	2BC	67.3	2A1	70.8
2F1	60.2	2D6	63.9	2BB	67.5	2A0	70.9
2F0	60.3	2D5	64.0	2BA	67.6	29F	71.1
2EF	60.5	2D4	64.1	2B9	67.7	29E	71.2
2EE	60.6	2D3	64.3	2B8	67.8	29D	71.3
2ED	60.7	2D2	64.4	2B7	68.0	29C	71.4
2EC	60.9	2D1	64.5	2B6	68.1	29B	71.6
2EB	61.0	2D0	64.7	2B5	68.2	29A	71.7
2EA	61.2	2CF	64.8	2B4	68.4	299	71.8
2E9	61.3	2CE	64.9	2B3	68.5	298	71.9
2E8	61.4	2CD	65.1	2B2	68.6	297	72.1
2E7	61.6	2CC	65.2	2B1	68.7	296	2.2
2E6	61.7	CB	65.3	2B0	68.9	295	72.3
2E5	61.8	2CA	65.5	2AF	69.0	294	72.5
2E4	62.0	2C9	65.6	2AE	69.1	293	72.6
2E3	62.1	2C8	65.7	2AD	69.3	292	72.7
2E2	62.3	2C7	65.9	2AC	69.4	291	72.8

Figure 5. Temperature °C / Hex Decimal Chart Continued

Temperature °C / Hex Decimal Chart

Hex	Tem	Hex	Tem	Hex	Tem	Hex	Tem
290	73.0	275	76.4	25A	79.7	23F	83.1
28F	73.1	274	76.5	259	79.8	23E	83.2
28E	73.2	273	76.6	258	80.0	23D	83.3
28D	73.3	272	76.7	257	80.1	23C	83.5
28C	73.5	271	76.9	256	80.2	23B	83.6
28B	73.6	270	77.0	255	80.3	23A	83.7
8A	73.7	26F	77.1	254	80.5	239	83.8
289	73.8	26E	77.2	253	80.6	238	83.9
288	74.0	26D	77.4	252	80.7	237	84.1
287	74.1	26C	77.5	251	80.8	236	84.2
286	74.2	26B	77.6	250	81.0	235	84.3
285	74.3	26A	77.7	24F	81.1	234	84.4
284	74.5	269	77.9	24E	81.2	233	84.6
283	74.6	268	78.0	24D	81.3	232	84.7
282	74.7	267	78.1	24C	81.5	231	84.8
281	74.9	266	78.2	24B	81.6	230	84.9
280	75.0	265	78.3	24A	81.7	22F	85.1
27F	75.1	264	78.5	249	81.8		
27E	75.2	263	78.6	248	82.0		
27D	75.4	262	78.7	247	82.1		
27C	75.5	261	8.8	246	82.2		
27B	75.6	260	79.0	245	82.3		
27A	75.7	25F	79.1	244	82.5		
279	75.9	25E	79.2	243	82.6		
278	76.0	25D	79.3	242	82.7		
277	76.1	25C	79.5	241	82.8		
276	76.2	25B	79.6	240	83.0		

Figure 5. Temperature °C / Hex Decimal Chart Continued

POSSIBLE ERROR CODES

Error 1: Ambient Temperature High

The ambient temperature read by the control exceeds the ERROR TEMPERATURE limit ($85^{\circ}\text{C} + x$) specified in EEPROM, or the temperature sensor input has failed.

Error 2: Heatsink Temperature High

The heatsink temperature read by the control exceeds the ERROR TEMPERATURE limit ($110^{\circ}\text{C} + x$) specified in EEPROM, or the temperature sensor input has failed.

Error 3: Ambient and Heatsink Temperature High

The ambient temperature read by the control exceeds the HIGH TEMPERATURE limit (85°C) and the heatsink temperature read by the control exceeds the HIGH TEMPERATURE limit (110°C) specified in EEPROM.

Error 4: Ambient Thermistor Open

The reading from the ambient temperature thermistor exceeds the open circuit limit specified in EEPROM.

Error 5: Heatsink Thermistor Open

The reading from the heatsink temperature thermistor exceeds the open circuit limit specified in EEPROM.

Error 6: Sensor Short

Two or more circuits for the various safety sensors are shorted together.

Error 7: Element Supervisor Fail

The element supervisor circuit has failed on or off. The supervisory circuit will be monitored at all times (once per second in both idle and active states).

Error 8: Glass-touch Keypad Fail

Communications with the Glass-Touch interface chip have failed.

Error 9: Off Key Error

An error was detected with the global off key.

INDUCTION COOKTOP

DIAGNOSTIC MODE

Diagnostic mode allows the Service Technician to determine the cause of the failure. In diagnostic mode only the last error code is displayed.

To initiate diagnostic mode, the unit must be in the "LOCK" mode. Then, press and hold the universal "OFF" keypad for 5 seconds. The cooktop controls will now enter into diagnostic Mode.

In diagnostics mode, zone LED bars will illuminate and display the last error code logged.

NOTE: If no errors were recorded, no LED's will be illuminated. Unit will beep and return to "OFF" mode.

NOTE: If the "OFF" keypad is not released after 7 seconds, the diagnostic mode will be cancelled and the unit will return to the "OFF" mode.

NOTE: If any other input signals are detected from the keypad, the unit will not enter diagnostic mode.

NOTE: When in diagnostic mode all heating units are off.

NOTE: The unit will exit diagnostic mode if no inputs are detected from the keypad in 20 seconds.

NOTE: If the "OFF" keypad is pressed again anywhere within the diagnostic program, the unit returns to the "LOCK" mode of operation.

NOTE: There will be no audible signals during the diagnostic mode.

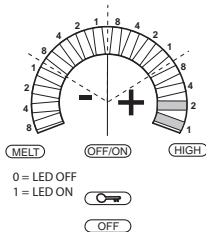
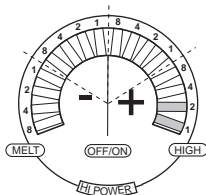
INTERPRETING HEX DECIMAL CODE

The front zone bar light uses the first four LED's from the right (LED 16) to left (LED 1) to display the HEX DECIMAL code used to determine the error code. Each LED has a corresponding numeric value that needs to be added together to determine the corresponding error code. (See Figure 6)

When the sum of the corresponding numeric value of the illuminated LED totals 10 - 13, then a letter is assigned in placed of that sum. **Example: 10 = A; 11 = B; 12 = C; 13 = D.**

NOTE: The troubleshooting guide list the corresponding illuminated LED's. (See Figure 7)

NOTE: Error code may appear in either display or both simultaneously.



Example above indicates 0011. Add corresponding numbers together (2 + 1 = 3). 3 means F3 (Error 3)

Figure 6. Example of Error Code F3.

INDUCTION COOKTOP

ERROR CODE	LED ON				POSSIBLE CAUSE	CORRECTIVE ACTION
	13	14	15	16		
F1	0	0	0	1	Shorted Temperature Sensor on front Cooking Zone	Check connection. Replace front element
F2	0	0	1	0	Open Temperature Sensor on front Cooking Zone	Check connection. Replace front element
F3	0	0	1	1	Shorted Temperature Sensor on rear Cooking Zone	Check connection. Replace rear element.
F4	0	1	0	0	Open Temperature Sensor on rear Cooking Zone	Check connection. Replace rear element.
F5	0	1	0	1	Shorted Temperature Sensor as check on transistors	Check connections. Replace generator.
F6	0	1	1	0	Open Temperature Sensor as check on transistors	Check connections. Replace generator.
F7	0	1	1	1	Temperature of electronics exceeded 158°F (70 ° C) during operation.	Check installation of unit. Check for proper ventilation.
F8	1	0	0	0	If the Temperature Sensor's are interchanged during the assembly or after a service call.	Verify and correct Temperature Sensor connections.
F9	1	0	0	1	Mains voltage Vrms < 180 V.	Check Line Voltage Replace Control Board
FA	1	0	1	0	Time out communication	Replace Generator Assy.
FB	1	0	1	1	Check sum error	Replace Generator Assy.
FC	1	1	0	0	Boost Led Error	Replace Control Board
FD	1	1	1	0	Lock Led Error	Replace Control Board

Figure 7. Troubleshooting guide.

DUAL FUEL RANGES ELECTRONIC CONTROL INPUT OPERATIONS

Time of Day Clock

- Press the CLOCK key on display panel, “CLOCK” will flash on and off.
- Press the up or down arrow touch pad to increase or decrease the time. Stop when correct time of day shows in display window.
- Press the CLOCK touch pad or ENTER touch pad to set clock. Two beeps will be heard when time has been entered.

NOTE: *By holding down desired arrow touch pad, counter will rapidly toggle through the numbers.*

NOTE: *Time will change from am to pm by passing the 12:00 mark.*

Oven Timer

- Press TIMER touch pad.
- Press the arrow up or arrow down touch pad to increase or decrease desired time in hours and minutes.
- Press ENTER touch pad or TIMER touch pad to start timer.

NOTE: Two beeps will be heard. The oven will chime, time will continually flash when timing is complete.

NOTE: To exit oven timer function, press TIMER touch pad, then press CLEAR touch pad twice to clear time and return to clock.

FIELD OPTION MODE

UPO (User Preference Offset)

- Press and hold the CLOCK touch pad for 5 seconds.
- Turn the knob to the left or right to increase or decrease the UPO in 1° increments as much as $\pm 35^\circ$.

Changing Clock to 24 Hours

- Press and hold CLOCK touch pad on display panel for 5 seconds.
- Press CLOCK touch pad to change from 24 hour to 12 hour or vice versa.
- Press the ENTER touch pad or after short delay the clock will set by default.

Fahrenheit to Celsius

- Press and hold the CLOCK touch pad on display panel for 5 seconds.
- Press the COOKTIME touch pad to change from °F and °C or visa versa.
- Press the ENTER touch pad on the display panel or after short delay °F or °C will set by default.

COOKING MODES

Bake Mode

NOTE: *Bake Stone Element must be removed during all cooking modes excepts Bake Stone Mode.*

- Turn oven function selector bezel counter clockwise to BAKE..
- To change temperature, immediately turn oven selector knob right to increase temperature or left to decrease oven temperature setting. Oven will turn on after 2 seconds or press ENTER touch pad.
- To exit Bake Mode, turn oven function selector bezel to OFF.

Bake Stone Mode

- Turn oven function selector bezel clockwise to STONE.
- To change temperature, immediately turn oven selector knob right to increase temperature or left to decrease oven temperature setting. Oven will turn on after 2 seconds or press ENTER touch pad.
- To exit Bake Stone Mode, turn oven function selector bezel to OFF.

Broil Mode

- Turn oven function selector bezel counter clockwise to BROIL.
- To change temperature, immediately turn oven selector knob left to decrease to "br2" for 450°F (230°C)-Med Broil or "br3" for 350°F (175°C)-Low Broil. Oven will turn on after 2 seconds or press ENTER touch pad.
- To exit Broil Mode, turn oven function selector bezel to OFF.

Convection Mode

- Turn oven function selector bezel clockwise to the dark area on dial marked CONV.
- To change temperature, immediately turn oven selector knob right to increase temperature or left to decrease oven temperature setting. Oven will turn on after 2 seconds or press ENTER touch pad.
- To exit Convection Mode, turn oven function selector bezel to OFF.

Convection Bake Mode

- Turn oven function selector bezel clockwise to dark area on dial marked BAKE.
- To change temperature, immediately turn oven selector knob right to increase temperature or left to decrease oven temperature setting. Oven will turn on after 2 seconds or press ENTER touch pad.
- To exit Convection Bake Mode, turn oven knob bezel to OFF.

Convection Broil Mode

- Turn oven function selector bezel clockwise to dark area on dial marked BROIL.
- To change temperature from, br1, immediately turn oven selector knob left to decrease oven setting to "br2" 450°F (230°C)-Med Broil or "br3" 350°F (175°C)-Low Broil. Oven will turn on after 2 seconds or press ENTER touch pad.
- To exit Convection Broil Mode, turn oven function selector bezel to OFF.

Convection Roast Mode

- Turn oven function selector bezel clockwise to dark area on dial marked ROAST.
- To change temperature, immediately turn oven selector knob right to increase temperature or left to decrease temperature setting. Oven will turn on after 2 seconds or press ENTER touch pad.
- To exit Convection Roast Mode, turn oven function selector bezel to OFF.

Roast Mode

- Turn oven function selector bezel clockwise to dark area on dial marked ROAST .
- To change temperature, immediately turn oven selector knob right to increase temperature or to left to decrease oven temperature setting. Oven will turn on after 2 seconds or press ENTER touch pad.
- To exit Roast Mode, turn oven control knob to OFF.

OVEN FEATURES

Dehydration Feature

- Turn oven function selector bezel clockwise to CONV.
- Turn oven selector knob to left until “deH” shows in display window, this is at 170° (75°C)F.
- Release the oven selector knob.
- Turn oven selector knob left to the desired dehydration temperature.

NOTE: *Dehydration is usually between 110°F - 150°F (45°C - 65°C).*

- To exit Dehydration Mode, turn oven function selector bezel to OFF.

Delayed Start Feature - (To Start Cooking Now)

- Turn oven function selector bezel to the desired mode.
- Press STOP TIME touch pad.
- Press up or down arrow touch pad on the display panel to increase or decrease the desired stop time.
- Press the ENTER touch pad.

NOTE: *Cook time will automatically be entered and unit will start heating.*

- To change cook time, press COOK TIME touch pad, then use arrow touch pads on the display panel to increase or decrease the desired amount of cooking time.
- Press ENTER touch pad.
- To exit Delayed Start Feature, turn oven function selector bezel to OFF.

Delayed Start Feature - (To Start Cooking Later)

- Turn oven function selector bezel to the desired mode.
- Press COOK TIME touch pad.
- Press up or down arrow touch pad on the display panel to increase or decrease the desired cook time.
- Press STOP TIME touch pad, then use arrow touch pads on the display panel to increase or decrease the stop time.
- Press the ENTER touch pad.
- To exit Delayed Start Feature, turn oven function selector bezel to OFF.

Probe Feature

NOTE: *Preheat oven in desired mode.*

- Insert probe connector into receptacle, inside oven cavity.
- PROBE will appear on display panel. Probe temperature is preset to 160°F (70°C).
- To change probe temperature, immediately turn oven selector knob right to increase probe temperature or left to decrease probe temperature setting.
- Press ENTER touch pad or after 2 seconds oven will turn on by default.

NOTE: *Probe temperature will flash in oven selector knob when temperature has been reached.*

- To exit, turn oven function selector bezel to OFF.

Sabbath Feature

- Turn oven function selector bezel to either the BAKE or ROAST mode.
- To change preset temperature if needed, press OVEN LIGHT touch pad to turn oven lights on or off.
- Press and hold ENTER touch pad on display panel for 5 seconds. Oven chimes twice and the word “SAb” appears in the display window on the oven selector knob.
- To exit Sabbath Feature, turn oven function selector to OFF.

NOTE: *Oven remains on until this mode is cancelled.*

Self-Clean Feature

- Turn oven function selector bezel to CLEAN.
- Press ENTER touch pad on the control panel or turn the oven selector knob in either direction until "CLn" appears in display window.

NOTE: *The oven automatically sets for 4 hours. Self-clean feature is now enabled and “CLn” will be displayed in the oven selector knob display window.*

- To exit Self-Clean Feature, turn oven function selector bezel to OFF.
- On model DF48 and DF60 Self-Clean Feature works on only one cavity at a time.
- If self-cleaning a cavity on model DF48 and DF60, the other cavity cannot be used for cooking.

DIAGNOSTIC MODE

Initiating Diagnostic Mode

- Oven function selector bezel must be in the OFF position.
- Press and hold CLOCK touch pad and TIMER touch pad for 3 seconds.
- Turn the oven selector knob to the right seven separate times, this will toggle from error code 1 thru 7. To return to error code number one, turn oven selector knob to the left seven separate times.

NOTE: *The software version will be displayed in the hours and minutes display of the clock.*

NOTE: *Once diagnostic mode is entered, there is a 2 minute time out, which is restarted each time a key is pressed.*

- To clear error codes once unit has been fixed, press the CLEAR key.
- To exit Diagnostic Mode, press the ENTER touch pad.

ERROR CODE CHART

ERROR CODE	POSSIBLE CAUSE	TEST / ACTION
01	Door Lock or Unlock Switches not sensed within 60 seconds while driving the door lock motor	Perform motorized door lock test procedure in diagnostic mode. Ohm door lock switches. Replace MDL Assembly if defective.
02	Over temperature occurs when the oven reaches a temperature of 630 °F for an unlocked door and 950°F for a locked door	Ohm RTD sensor, replace if defective. If RTD good replace oven controller.
03	Open circuit detected on RTD Oven Sensor	Ohm RTD sensor, replace if defective. If RTD good replace oven controller.
04	Shorted circuit detected on the RTD Sensor	Ohm RTD sensor, replace if defective. If RTD good replace oven controller.
07	Communications lost from ECH to Control Board	Check connecting cable. Rpl ECH if cable is good
08	EEPROM checksum is incorrect. Checked at power up	Replace oven controller.
09	Meat probe being sensed as shorted	Initiated diagnostic mode and check meat probe. Ohm meat probe, check reading with Tech Data.
0B	Analog to Digital error during calibration phase	Replace oven controller
0C	Communication lost with oven controller	Replace oven controller
0E	Power relay shorted Failure of element circuit Failure of relay drive circuitry	Replace relay board Replace relay board Replace relay board

TESTING THE OVEN RELAY BOARD

Element Testing

First access diagnostic mode. Once in diagnostic mode, the technician can turn the oven function selector bezel to activate an element. The element relay and the double line breaker(dlb) will close to complete a 240/208 VAC circuit through a specific element. If the oven controller detects the current running through the closed circuit, the **CFH light will be illuminated.

NOTE: *Diagnostic Mode will end 2 minutes after last key stroke or when the CLEAR key is pressed.*

Turn Bezel (Cooking Mode)	Relay(s) Activated	Response
Stone <small>(Use "PROOF" for 18" Cavity)</small>	Left Convection Element	**CFH Indicator Light Illuminates
Clean	Right Convection Element	**CFH Indicator Light Illuminates
Conv	Bake Stone Element <i>(must be plugged in)</i>	**CFH Indicator Light Illuminates
Conv Roast	Inner Bake Element	**CFH Indicator Light Illuminates
Conv Broil	Broil Element	**CFH Indicator Light Illuminates
Conv Bake	Outer Bake Element	**CFH Indicator Light Illuminates

** Call For Heat

RTD Testing

First access Diagnostic Mode. Once in diagnostic mode, the RTD temperature is shown in display window of oven selector knob. If the RTD is open, "Err 03" will be shown in the display of the electronic control housing. If the RTD is shorted, "Err 04" will be shown in the display of the electronic control housing.

NOTE: *Diagnostic mode will end 2 minutes after last key stroke or when the ENTER touch pad is pressed.*

Probe Testing

First access Diagnostic Mode. Next, press the PROBE touch pad (*this will switch the readout to probe temperature as shown in the display window of the oven selector knob*). If the probe has not been inserted, "out" will be shown as the probe temperature in the display window of the oven selector knob. If the probe is shorted, "Err 09" will be shown in the display of the electronic control housing.

NOTE: *Diagnostic Mode will end 2 minutes after last key stroke or when the ENTER key is pressed.*

Fans and Motors

First access Diagnostic mode. Once in diagnostic mode, turn the oven function selector bezel or press a designated touch pad on the Electronic Control Housing to activate a fan or a motor. The fan and motor relays will close to complete a 120 VAC circuit through a specific fan or motor. If the oven controller detects the functionality through switches, the **CFH indicator light will be illuminated.

NOTE: *Diagnostic mode will end 2 minutes after last key stroke or when the ENTER key is pressed.*

Fan and Motor Testing Chart

Turn Bezel or Press Touch Pad on ECH	Relay(s) Activated	Action	Response
Broil	Right Convection Fan	Right Convection Fan Turns ON	Right Convection Fan ON
Roast	Left Convection Fan & 18" Cavity	Left Convection Fan Turns ON	Left Convection Fan ON
Bake	Oven Light	Activates Oven Light	Oven Light Turns On
Cook Time	Lo Cooling Fan	Cooling Fan Turns ON	Cooling Fan On At Low Speed
Stop Time	High Cooling Fan		Cooling Fan On At High Speed
Clock <i>NOTE: For DF48 and DF60 "CLOCK" Cycles left MDL. Use "TIMER" to cycle right MDL.</i>	Motor Door Lock (MDL)	MDL Switch in Closed Position	"P" Icon Appears
		MDL Switch in Transition	No Icon in Display
		MDL Switch in open Position	"A" Icon Appears
Probe	Probe		Meat Probe Temperature is Shown in Display Window of Oven Selector Knob
Clear			Clears All Stored Errors from EEPROM
Enter			Exits Diagnostic Mode

Technical Data Chart

Part Description	Voltage	Amperage	Watts	Ohms
Motorized Latch	120		4	2900
Temperature Sensor				1091 @ 75°F
Oven Light	12	1 to 2	20	.6
Element, Convection	240	10	2400	24
Element, Convection	208	8.7	1803	24
Fan, Convection CCW	120	.46	55	8.8
Fan, Convection CW	120	.46	55	8.8
Element, Bake-18"	240	6.04	1450	39.7
Element, Bake-18"	208	5.2	1082	39.7
Element, Bake Outer	240	4.166	1000	57.6
Element, Bake Inner	240	5	1200	48
Element, Bake Outer	208	3.6	750	57.6
Element, Bake Inner	208	4.33	900	48
Cooling Fan	120		65	HI 9.7/LO 12.8
Meat Probe				34,000 @ 90°F
Element, Bake Stone	240	14.6	3500	16.4
Element, Bake Stone	208	12.7	2640	16.4
Transformer	120 to 12	3.33	40	
Element, Broil 18"	240	8.33	2000	28.8
Element, Broil 18"	208	7.2	1500	28.2
Element, Broil 30"	240	15	3600	16
Element, Broil 30"	208	13	2704	16
Element, Broil 36"	240	16.6	4000	14.4
Element, Broil 36"	208	14.4	3004	14.4
Solenoid, Single				185 to 215

