ELECTRONIC CONTROL TERMINOLOGY & COMPONENT DESCRIPTIONS

All Wolf wall ovens utilize an electronic control system. The electronic control system monitors, regulates and controls a variety of functions. The control system also displays error codes to identify possible problems with the unit. The table below defines some of the basic electronic control system terminology and describes some of the electronic system components. An understanding of the following information is needed in order to comprehend the input operations and functions of the electronic control system.

Term / Component	Definition / Description
Oven Controller	The printed circuit board containing the microprocessor and logic inputs which communicates with the oven display, keyboard, stepper motor control board.
Relay Board	The printed circuit board containing the microprocessor, relays and electrical connections which control and monitor functions and operations of the unit.
Oven Display	A vacuum fluorescent display which shows oven temperature, cooking modes, error codes, cook times and stop time.
Stepper Motor Control Board	The printed circuit board containing a transformer and logic control to drive the stepper motor.
Control Panel Assembly	The head assembly containing the oven display(s) and keyboard.
Relays	The electrical components on the relay board that switch other components in the unit ON and OFF when instructed to do so by the microprocessor.
Microprocessor	An electrical component on the control board which receives electrical signals from other components, processes that information, then sends an electrical signal to the relays on the board to open or close, and other components in the unit to switch on or off.
Keyboard	An assembly of glass and mylar which connects into the upper oven display.
Error Codes	Number or word description which appears on the oven display if the unit experiences specific problems related to electrical signals supplied by the electrical components.
MDL	Motor door latch assembly which incorporates the latch motor drive, unlatch switch, latch switch and door switch.
RTD	The oven(s) temperature sensing device.
DLB	A component on the relay board which is a relay that connects and disconnects the L2 line to the elements when energized by logic from the oven controller.

UNIQUE ELECTRONIC CONTROL INPUT OPERATIONS

The following few pages illustrate electronic control input operations that you would not expect a customer to perform everyday. The input operations described are: Field Option Mode, Sabbath Mode, Delayed Start Mode, Probe Mode and Self-Clean Mode.

Field Option Mode

Field option mode allows for the user to adjust specific options of the oven controller, such as User Preference Offset *(adjusting temperature ± 35°),* Temperature Display Preference *(choosing between °F, Fahrenheit or °C, Celsius)* and Clock Display Preference (12 Hour Clock or 24 Hour Clock).

NOTE: Field Option Mode must be entered with the oven(s) turned OFF.

To initiate Field Option Mode, Press and hold the TEMPERATURE key for five seconds.

NOTE: Pressing the CLEAR key will cancel the Field Option Mode.

User Preference Offset

This option allows the user to offset a specific oven temperature ±35° in 1°F (Fahrenheit) increments. Once in Field Option Mode, press the number keys to input the numeric value of the offset and press the TEMPERATURE key to toggle between ±. The new offset is accepted ten seconds after the last key stroke or by pressing the ENTER key. (See Figure 3-1). Pressing the CLEAR key will cancel the Field Option Mode.

NOTE: Entering a positive number will increase oven temperature.

NOTE: User Preference Offset will only work for °F (Fahrenheit).
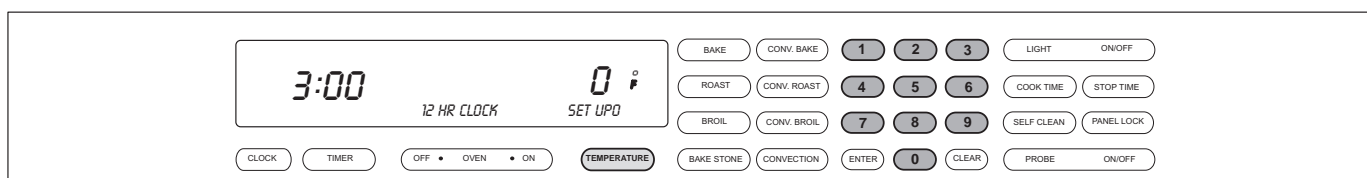

Figure 3-1. User Preference Offset. Press and HOLD the TEMPERATURE key for five seconds. Then, press the number keys to enter a new numeric value up to 35. Now, press the TEMPERATURE key to toggle between ±.

Temperature Display Preference

This option allows the user to choose how the temperature is displayed, °F (Fahrenheit) or °C (Celsius), and/or back again. Once in Field Option Mode, press the COOK TIME key to toggle between °C and °F. The new display, °C or °F is accepted ten seconds after the last key stroke or by pressing the ENTER key. **See Figure 3-2.** Pressing the CLEAR key will cancel the Field Option Mode.
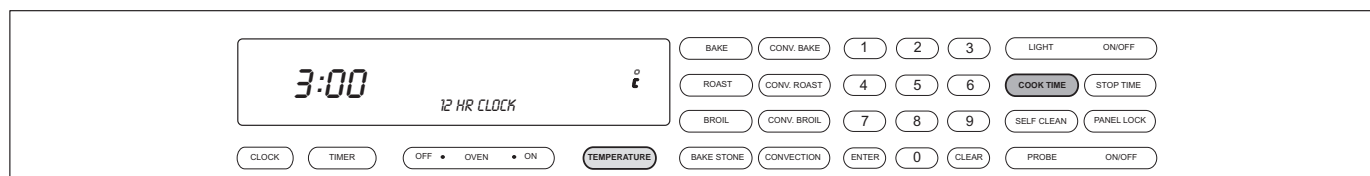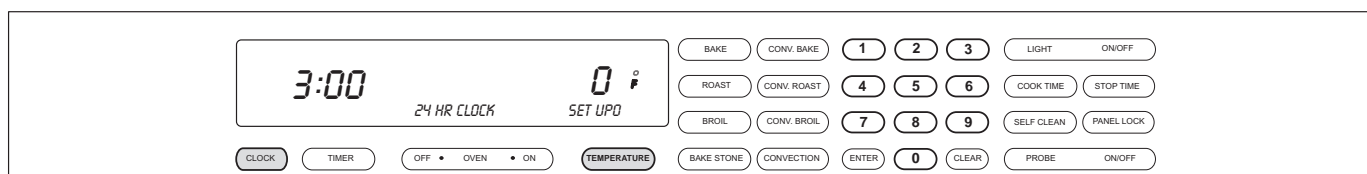

Figure 3-2. Temperature Display Preference. Must be in Field Option Mode. Now, press the COOK TIME key to toggle between °C and °F.

Clock Display Preference

This option allows the user to choose how the clock is displayed, 12 hour or 24 hour, and/or back again. Once in Field Option Mode, press the CLOCK key to toggle between 12 hour or 24 hour clock. The new display is accepted ten seconds after the last key stroke or by pressing the ENTER key. **See Figure 3-2.1.** Pressing the CLEAR key will cancel the Field Option Mode.

Figure 3-2.1. Clock Display Preference. Must be in Field Option Mode. Now, press the CLOCK key to toggle between 12 hour and 24 hour clock.

Sabbath Feature

Sabbath Feature was incorporated into the electronic control system for the observance of certain religious holidays. 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 or LOWER OVEN ON key for a double oven or OVEN ON key for a single oven. (See Figure 3-3). Turn on the interior oven lights by pressing the OVEN LIGHT ON key (Optional). 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 the number keys, then press ENTER. (See Figure 3-4). Now, press and hold the ENTER key for five seconds. The oven will chime twice and the word SAB-BATH appears in the display window. (See Figure 3-5). Repeat these steps above for each oven(s).

To exit the Sabbath Mode, press the UPPER or LOWER OVEN OFF key or the OVEN OFF key, depending on the model. (See Figure 3-6).

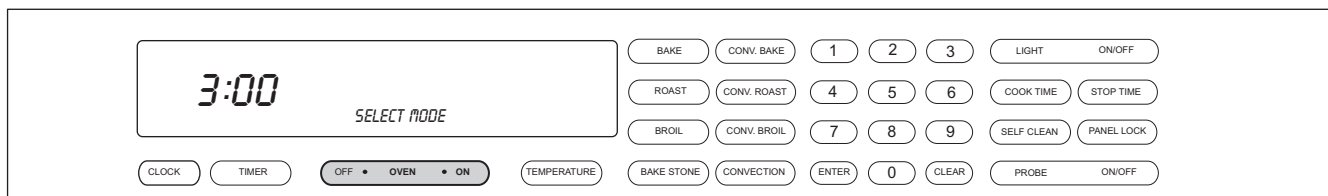*NOTE:* *The oven(s) will remain on until the Sabbath Mode is cancelled.*

**Figure 3-3. To initiate Sabbath Mode, the oven must be OFF. Press Oven ON key.
For Double Ovens select either Upper Oven ON key or Lower Oven ON key.**
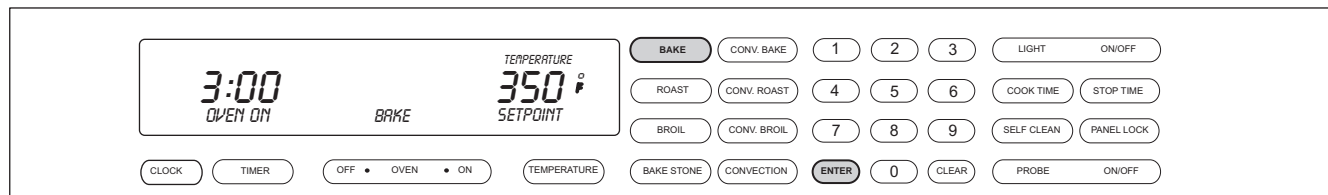
**Figure 3-4. Press the BAKE key.   A preset temperature of 350°F will be shown in the display.
To change temperature, immediately enter another temperature using the number keys. Then, press ENTER.**
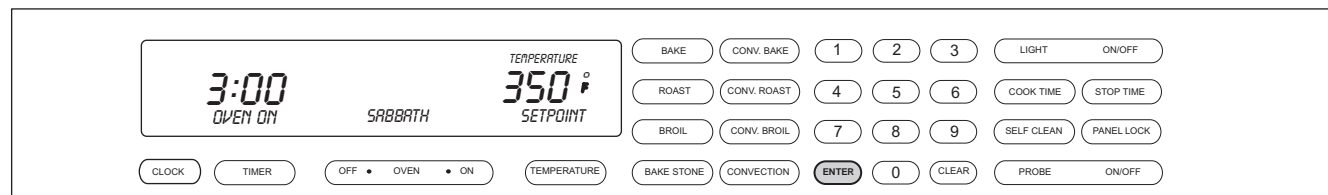
**Figure 3-5.   Now, press and HOLD THE ENTER key for 5 seconds.
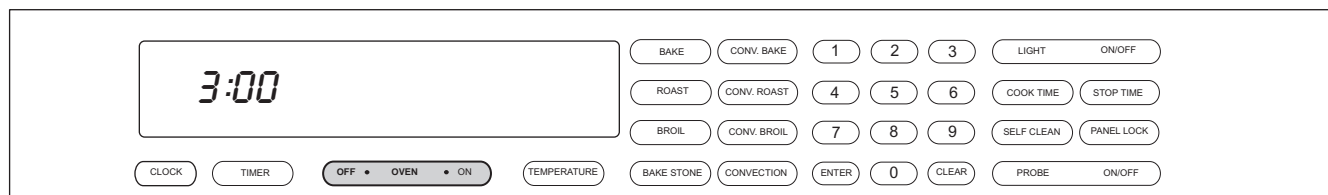The oven will chime twice and the word Sabbath appears in the display.**

**Figure 3-6. To exit Sabbath Mode. Press the Oven OFF key.
For Double Ovens select either Upper Oven OFF key or Lower Oven OFF key.**

Timed Cook Feature

Timed Cook Feature controls the automatic timing of the oven(s) ON and OFF function by setting the cooking time to start immediately and turn off when the desired cooking is complete. To accomplish timed cook, the time of day clock is used and therefore the correct time must be displayed prior to programming.

To initiate Timed Cook, the oven must be OFF. First press the Oven ON key. (See Figure 3-7). For Double Ovens press the Upper Oven ON key or the Lower Oven ON key. Now, press a desired cooking mode (example Bake Mode). A preset temperature of 350°F is shown in the display.   To change the temperature from 350°F, immediately enter another temperature using the number keys. (See Figure 3-8). Then, press the COOK TIME key. Then, enter the hours/minutes desired for cooking. The oven(s) will start heating after a five second delay or by pressing the ENTER key. (See Figure 3-9). To exit TIMED COOK feature, press the Oven OFF key. (See Figure 3-10). For the Double Oven, press the Upper Oven OFF key or the Lower Oven Off key.

NOTE: The oven should always be preheated in this mode. The oven will chime after the oven reaches preheat temperature.
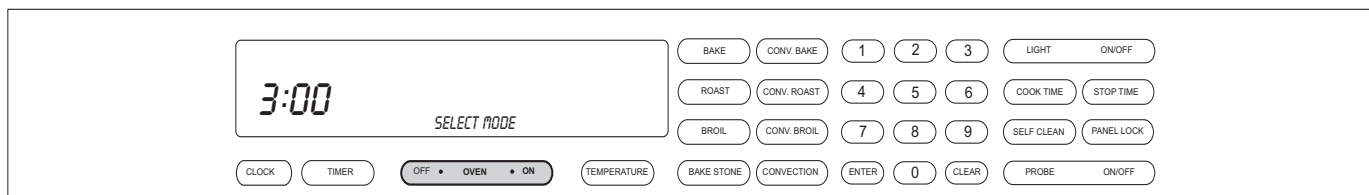

**Figure 3-7. To initiate Timed Cook Feature, the oven must be OFF. Press Oven ON key.
For Double Ovens select either Upper Oven ON key or Lower Oven ON key.**
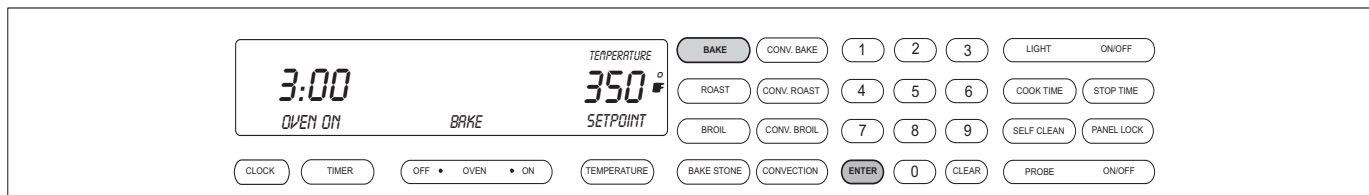

Figure 3-8. Press a desired Cooking Mode.   (Example: Bake Mode). A preset temperature of 350°F will be shown in the display. To change temperature, immediately enter another temperature using the number keys.
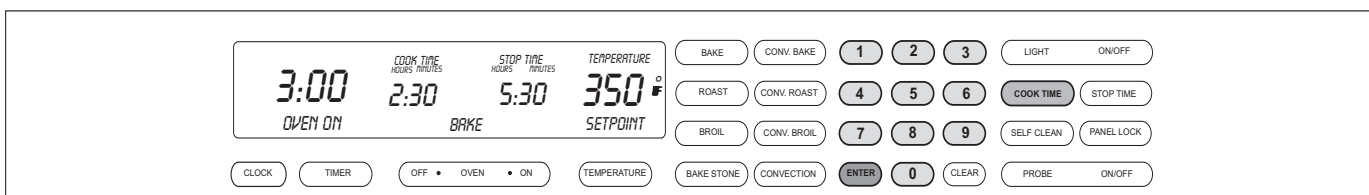

Figure 3-9. Now, press the Cook Time key. Now, enter the hours/minutes desired for cooking. The Stop Time will automatically be entered in the display. Then, press the ENTER key. The oven(s) will now start heating and then turn off when the cooking times has completed.
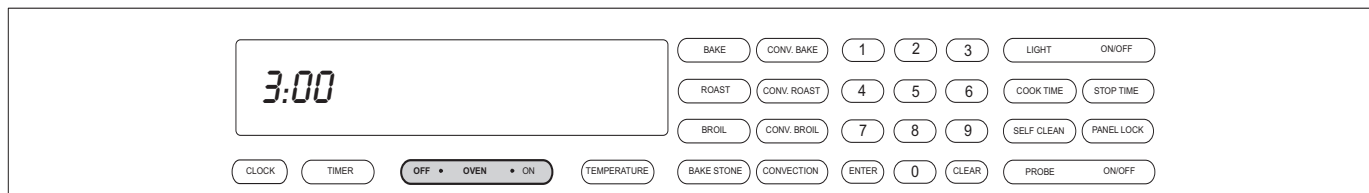

**Figure 3-10. To exit the Timed Cook Feature. Press the Oven OFF key.
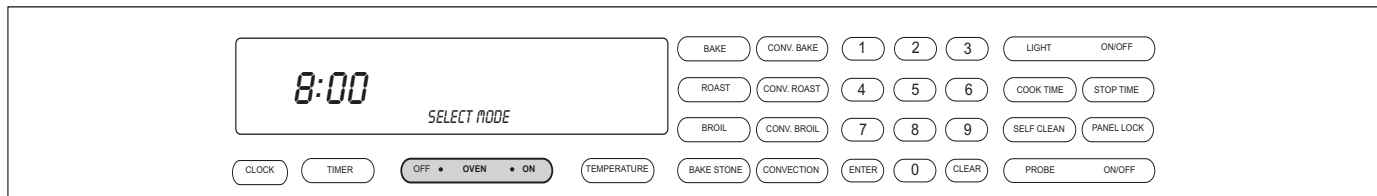For Double Ovens select either Upper Oven OFF key or Lower Oven OFF key.**

Delayed Start Feature

This feature controls the automatic timing of the oven(s) ON and OFF function by setting the cooking mode to start later in the day and turn off when the cooking is complete. It can also be set to turn off at a preset time. To accomplish delayed start and/or stop, the time of day clock is used and therefore the correct time must be displayed prior to programming.

NOTE: *This mode will work for all cooking modes except Broil, Convection Broil and Bake Stone Mode.*

To initiate Delayed Start Mode, the oven must be OFF. Press the Upper or Lower Oven ON key or the Oven ON key, depending on the model. (See Figure 3-11). Press the desired cooking mode key. (See Figure 3-12). To change preset temperature, immediately enter another temperature using the number keys.   Next, press Stop Time. Then, using the number keys, enter the time for which the oven needs to turns off. *Example: Set 6:00 for the time of day the oven turns off.* (See Figure 3-13). Then, enter the Cook Time using the number keys to set the hours/minutes the oven will stay on. *Example: Set 3:30 for the oven to remain on for 3-1/2 hours.* Now, press the ENTER key. (See Figure 3-14). The display appears as if the oven is on. To exit Delayed Start Mode, press Upper or Lower Oven OFF or Oven OFF key. (See Figure 3-15).

NOTE: *With the example used above, heating will not start for 3-1/2 hours prior to 6 o'clock which will be 2:30 on the time of day clock.*

Figure 3-11. To initiate Delayed Start Mode, Press Oven ON key.
For Double Ovens select either Upper Oven ON key or Lower Oven ON key.
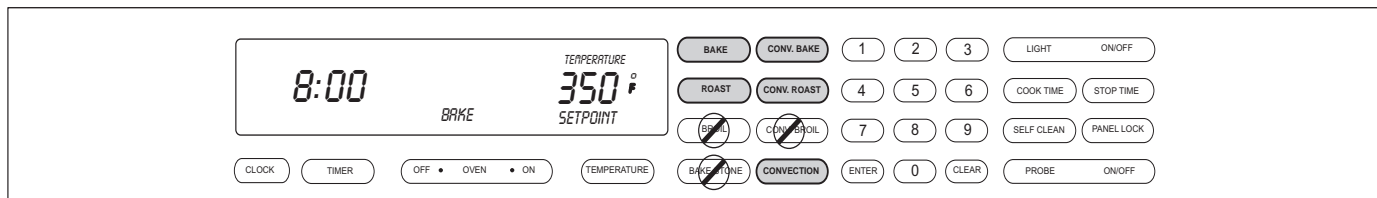

Figure 3-12. Press desired Cooking Mode. Bake, Roast, Convection Bake, Convection Roast or Convection.
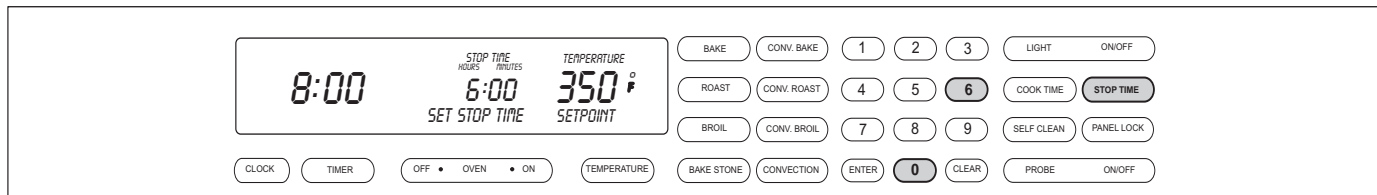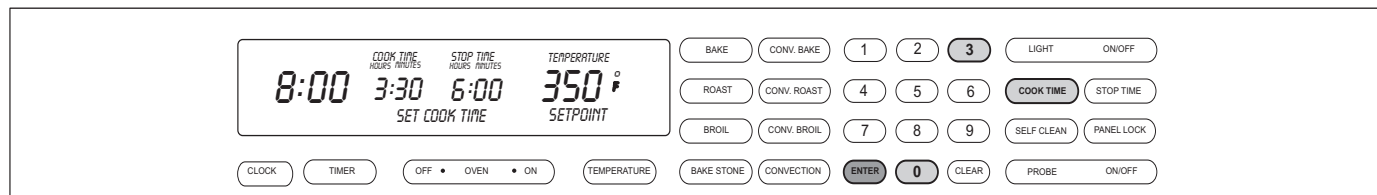*NOTE: Broil, Convection Broil and Bake Stone will not work in this mode.*

Figure 3-13. Press Stop Time. Then, using number keys, enter time of day to turn oven off. *Example 6:00*

Figure 3-14. Press Cook Time. Then, using number keys, enter hours/minutes the oven will stay on.
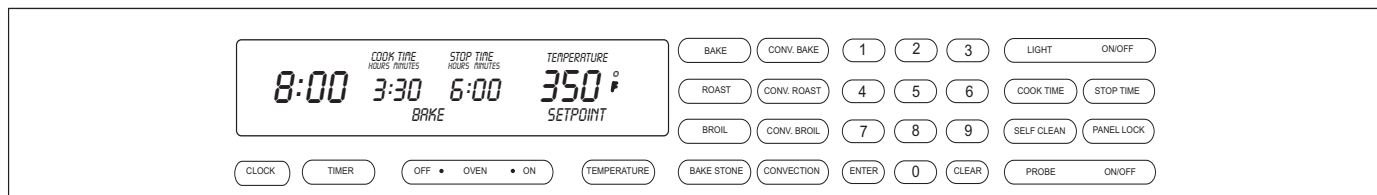***Example 3:30.* Now, press ENTER.**

Figure 3-15. Display appears as if oven is on.

Temperature Probe Feature

The Temperature Probe Feature is used to measure internal temperatures of the food being cooked. It is an accurate way to achieve the perfect doneness regardless of the type, cut or weight of food. When using the Temperature Probe Mode, program the recommended internal carving temperature, as found in the Use and Care Information Guide. (See Figure 3-16). The temperature should be reduced by five degrees when setting the Temperature Probe Mode.

USDA Internal Temperature Recommendations	
Beef, Lamb, Pork and Veal	**Poultry**
145°F Medium Rare	170°F Breast
160°F Medium	180°F Thigh
170°F Well Done	165°F Stuffing

Figure 3-16. USDA Internal Temperature Recommendations

To initiate Temperature Probe Mode, first preheat the oven. Now, the probe should be inserted into the thickest part of the product being cooked. Plug the probe connector into the oven receptacle (located on the top right side of the oven cavity), all the way until it snaps into place. Next, press the PROBE key. (See Figure 3-17). Now, using the number keys enter the recommended internal cooking temperature minus five degrees. (See Figure 3-18). Then, press ENTER. The word "Lo" appears in the display as the probe temperature, until the probe registers 100°F. (See Figure 3-19). Once the probe has registered 100°F, the display will start showing the degrees rising up to the programmed setting for the probe temperature. Once the probe temperature has been reached the oven will chime three times signaling the item being cooked is done. Now, unplug the probe connector from the oven receptacle. To exit the Temperature Probe Mode, press the Oven OFF key. For the double oven, press the Upper Oven OFF key or Lower Oven OFF key.

NOTE: The oven will continue to chime every thirty seconds until the probe has been removed from the oven receptacle.

NOTE: Oven temperature remains on even when temperature probe is unplugged.
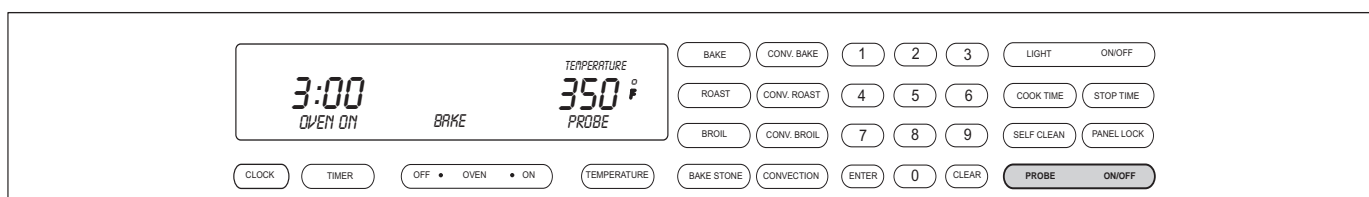
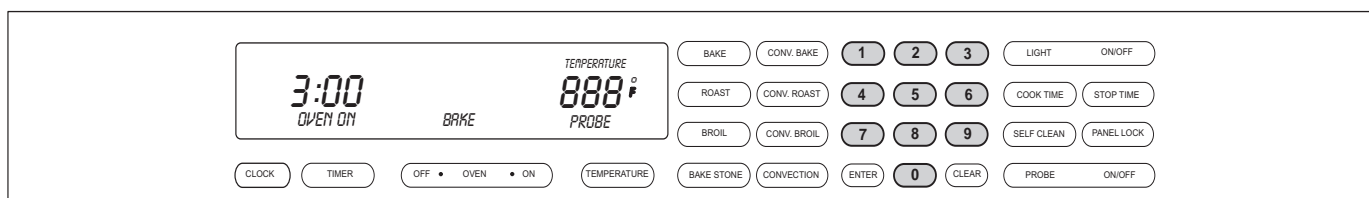Figure 3-17. To initiate Temperature Probe Mode, press PROBE key.

Figure 3-18. Using number keys, enter internal cooking temperature minus five degrees.
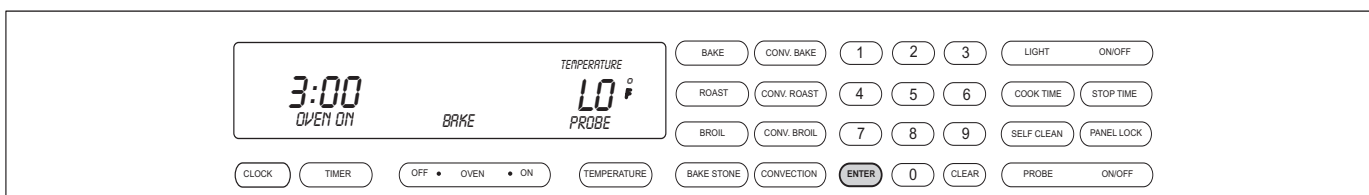
Figure 3-19. Press ENTER, the word Lo appears in the oven display.

Self-Clean Mode

In Self-Clean Mode (prior to 16000000), the oven is heated in graduated stages to a preset high temperature. The cycling of the bake and broil elements in Stage One last for the first twelve minutes. In Stage Two, the bake element cycles for 0 - 12 seconds and the broil element cycles for 12 - 60 seconds. The cycling of the elements in Stage Two continues until the high preset temperature of 850°F is obtained. During this process, food soil is burned off leaving some white ash residue.

NOTE: After 16000000 see Tech Data Section 6 for element cycling.

Once the Self-Clean Mode has been initiated the oven door locks, unless the Self-Clean Mode is used with the Delayed Start Mode. The oven door will remain locked until the oven temperature drops below 300°F.

NOTE: *If the Self-Clean Mode is stopped once it has been started, the door will remain locked until the temperature inside has cooled below 300°F.*

NOTE: *The average time for the Self-Clean Mode is three hours plus one hour to cool down.*

NOTE: *For model DO30 only one cavity can be self-clean at a time.*

NOTE: *For Model DO30, when self-cleaning one cavity the other cavity is non-functional until self-clean is finished.*

To initiate Self-Clean Mode, first the oven must be OFF. Press the Oven ON key. (See Figure 3-20). For Double Ovens, press the Upper Oven ON key or Lower Oven ON key. Next, press the SELF-CLEAN key. Follow instructions in display, if applicable, then press the ENTER key. (See Figure 3-21). Press ENTER key again to activate SELF-CLEAN. To exit the Self-Clean Mode, press the Oven OFF key. (See Figure 3-22). For Double Oven press the Upper Oven OFF key or the Lower Oven OFF key.

NOTE: *To use Self-Clean Mode with Delayed Start Mode, follow the instruction for Delayed Start Mode.*

To change the Self-Clean time for 3 to 4 hours. Press the Oven ON key. Next, press the SELF-CLEAN key. Then, press the COOKTIME key. Now, using the number keys enter the desired self-cleaning time. (Example: 3 hours 15 minutes). As long as the self-clean time is between 3 to 4 hours, the time can be entered. Then, press ENTER.
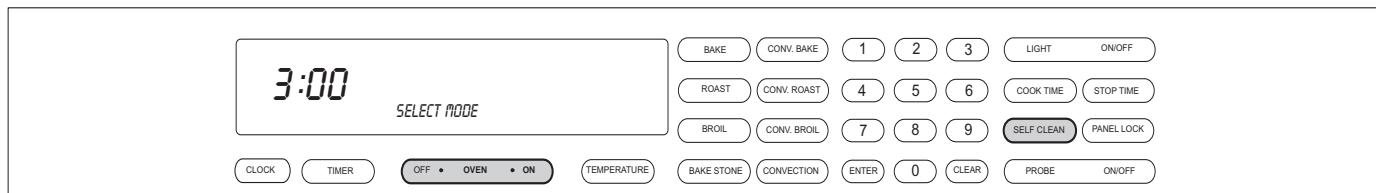
Figure 3-20. To initiate Self-Clean Mode, Press the Oven ON key.
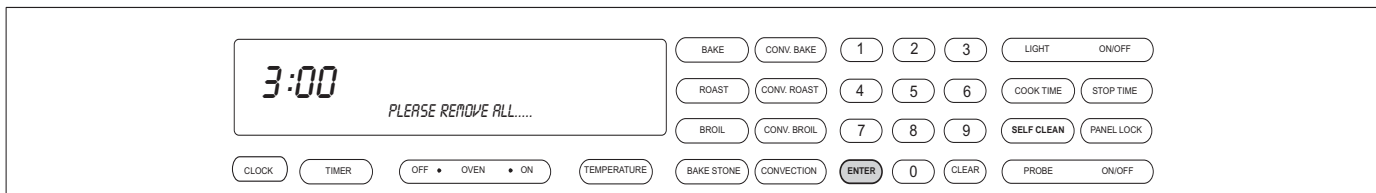For Double Oven, press the Upper Oven ON key or the Lower Oven ON key.

Figure 3-21. Press the SELF-CLEAN key. Scrolling display will instruct to remove racks, press the "ENTER" key to initiate SELF-CLEAN. Starting with serial #16000000 rack guides must also be removed.
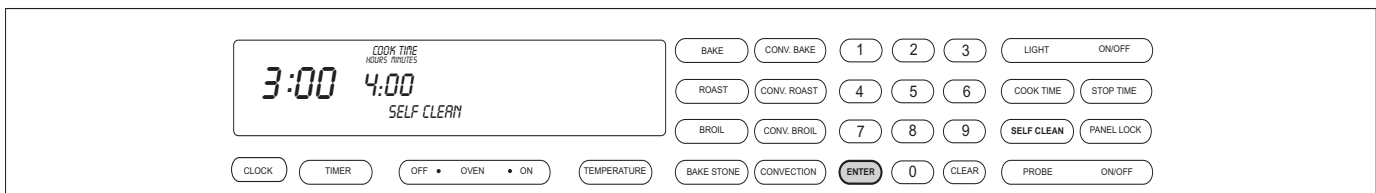
Figure 3-22. Press ENTER again to activate SELF-CLEAN.
To exit the Self-Clean Mode, press the Oven OFF key.
For Double oven, press the Upper Oven OFF key or the Lower Oven OFF key.

ELECTRONIC CONTROL INPUT OPERATIONS

The following few pages illustrate electronic control input operations that you might expect a customer to perform everyday. The input operations described are: Bake, Convection, Convection Bake, Broil, Convection Broil, Roast, Convection Roast and Bake Stone Mode.

NOTE: Oven will shut off 12 hrs after last control change except in Sabbath Mode.

Bake Mode

In Bake Mode both the hidden bake element and the broil element are used to heat the air and cycle to maintain temperature. The hidden bake element operates approximately 80 percent of the time and the broil element operates approximately 10 percent of the time. The oven(s) should always be preheated when using Bake Mode.

To initiate Bake Mode, the oven must be OFF. First press the Oven ON key. (See Figure 3-23). For Double Ovens press the Upper Oven ON key or the Lower Oven ON key. Now, press the BAKE key. A preset temperature of 350°F is shown in the display. The oven begins to heat after 5 seconds or by pressing the ENTER key. (See Figure 3-24). To change the temperature from 350°F, immediately enter another temperature using the number keys. Then, press the ENTER key. (See Figure 3-25). To exit the Bake Mode, press the Oven OFF key. (See Figure 3-26). For the Double Oven, press the Upper Oven OFF key or the Lower Oven Off key.

NOTE: The oven should always be preheated in this mode. The oven will chime after the oven reaches preheat temperature.
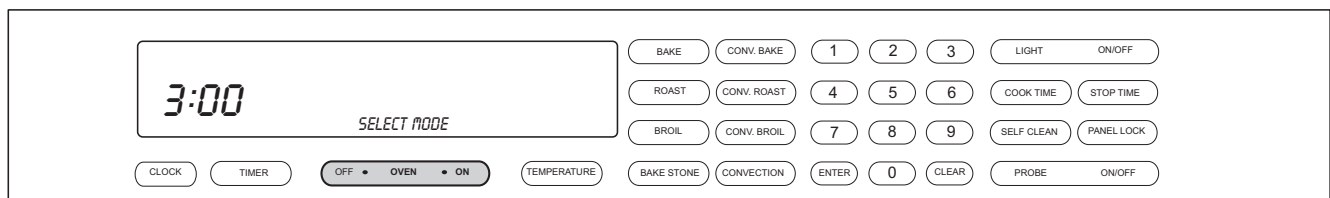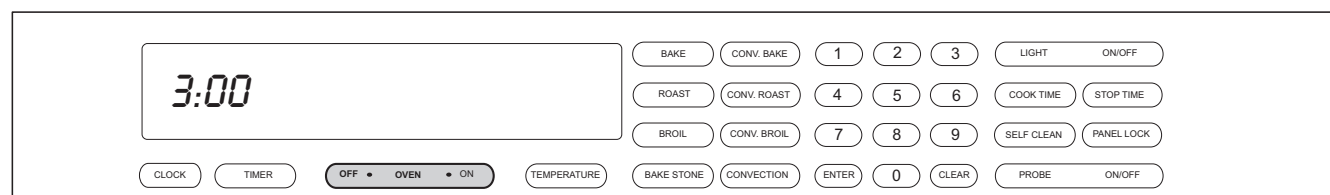

Figure 3-23. To initiate Bake Mode, Press the Oven ON key.
For Double Oven, press the Upper Oven ON key or the Lower Oven ON key.
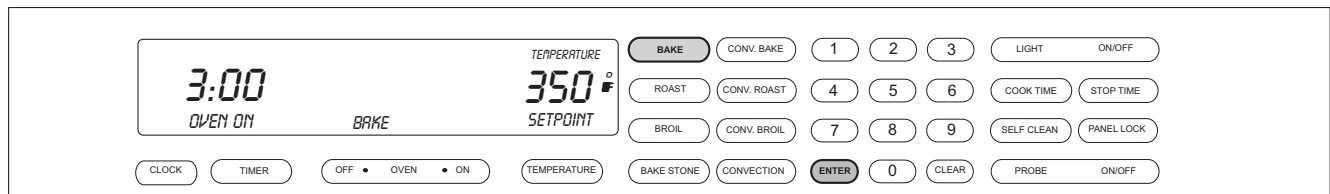
Figure 3-24. Press the BAKE key. A preset temperature of 350°F will be shown in the display.
The oven begins to heat after 5 seconds or by pressing the ENTER key.
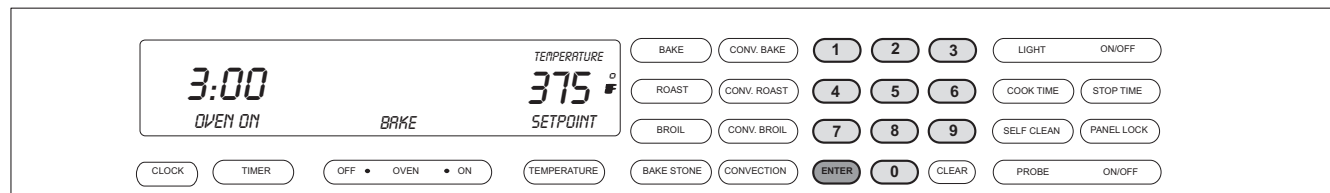
Figure 3-25. To change the preset temperature, immediately press the number keys to enter a new temperature.
Then, press the ENTER key.

Figure 3-26. To exit the Bake Mode, press the Oven OFF key.
For Double oven, press the Upper Oven OFF key or the Lower Oven OFF key.

Convection Mode

The Convection Mode uses dual convection fans, each with heating elements mounted on the back wall of the oven cavity. The convection fans move air sequential, throughout the entire oven cavity creating uniform air movement. This air movement makes it possible to cook on all six levels of the cooking racks simultaneously. The heating elements and convection fans are cycled sequentially (on and off), resulting in even browning.

NOTE: In Convection Mode, standard recipe temperature should be reduced by 25°F.

NOTE: The oven should always be preheated in this mode. The oven will chime after the oven reaches preheat temperature.

To initiate Convection Mode, the oven must be OFF. First, press the Oven ON key. (See Figure 3-27). For the Double Ovens, press the Upper Oven ON key or the Lower Oven ON key. Now, press the CONVECTION key. A preset temperature of 325°F will appear in the display. The oven begins to heat after 5 seconds or by pressing the ENTER key. (See Figure 3-28). To change the temperature from the preset 325°F, immediately enter another temperature using the number keys. Then, press the ENTER key. (See Figure 3-29). To exit the Convection Mode, press the Oven OFF key. (See Figure 3-30). For Double Ovens press the Upper Oven OFF key or the Lower Oven OFF key.
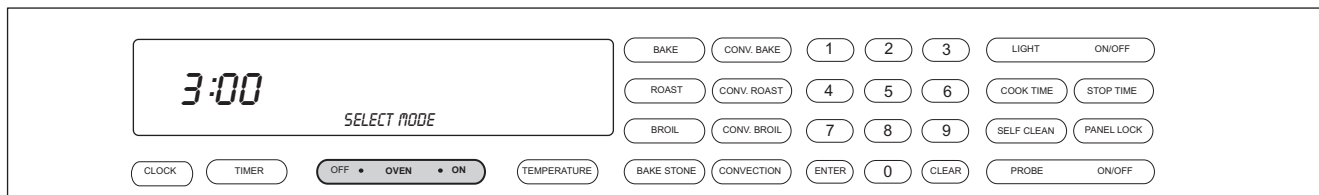
Figure 3-27. To initiate Convection Mode, Press the Oven ON key.
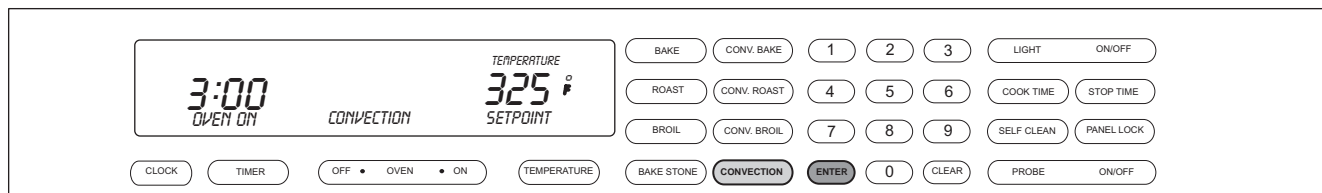**For Double Oven, press the Upper Oven ON key or the Lower Oven ON key.**

Figure 3-28. Press the CONVECTION key.   A preset temperature of 325°F will be shown in the display.
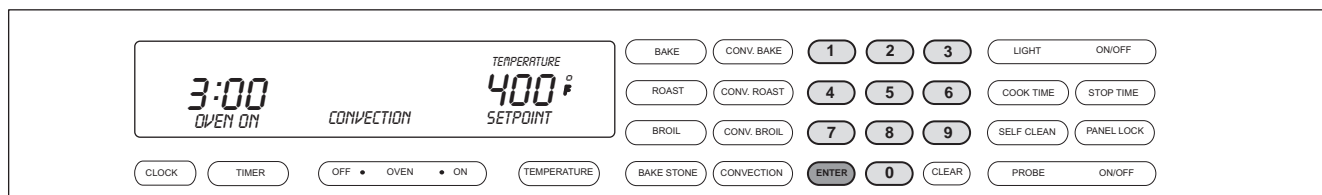**The oven begins to heat after 5 seconds or by pressing the ENTER key.**

Figure 3-29. To change the preset temperature, immediately press the number keys to enter a new temperature.
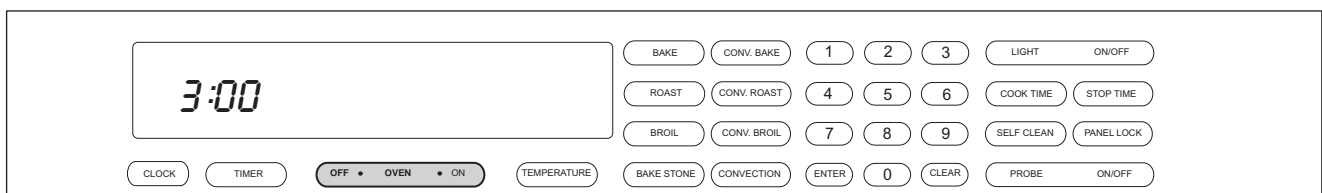**Then, press the ENTER key.**

Figure 3-30. To exit the Convection Mode, press the Oven OFF key.
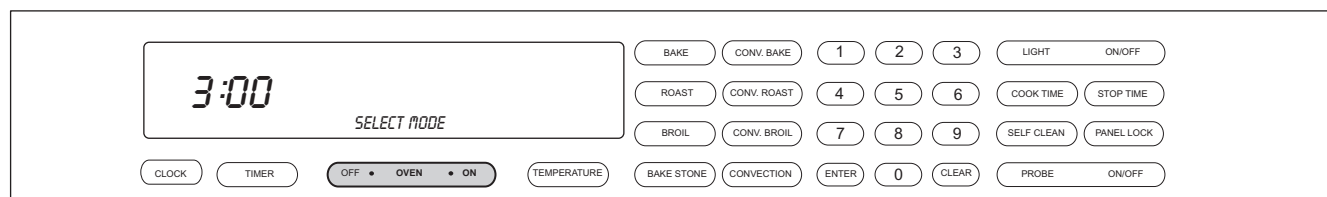**For Double oven, press the Upper Oven OFF key or the Lower Oven OFF key.**

Convection Bake Mode

Convection Bake Mode combines heat from two convection heating elements with some heat from the hidden bake element. The two convection fans and convection elements operate sequentially (on and off), to circulate the heat within the oven cavity. The added heat from the hidden bake element make this an ideal cooking mode for pie baking. In this mode the convection elements are on 45 percent of the time and the hidden bake element is on 90 percent of the time.

NOTE: In Convection Bake Mode, standard recipe temperature should be reduced by 25°F.

NOTE: The oven should always be preheated in this mode. The oven will chime after the oven reaches preheat temperature.

To initiate Convection Bake Mode, the oven must be OFF. First, press the Oven ON key. (See Figure 3-31). For the Double Ovens, press the Upper Oven ON key or the Lower Oven ON key. Now, press the CONVECTION BAKE key. A preset temperature of 375°F will appear in the display. The oven begins to heat after 5 seconds or by pressing the ENTER key. (See Figure 3-32). To change the temperature from the preset 375°F, immediately enter another temperature using the number keys. Then, press the ENTER key. (See Figure 3-33). To exit the Convection Mode, press the Oven OFF key. (See Figure 3-34). For Double Ovens press the Upper Oven OFF key or the Lower Oven OFF key.
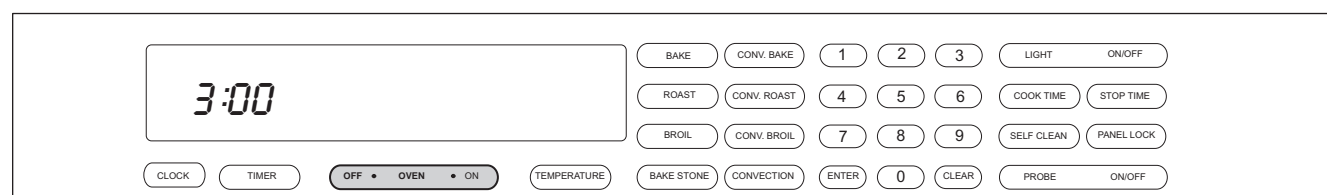

**Figure 3-31. To initiate Convection Bake Mode, Press the Oven ON key.
For Double Oven, press the Upper Oven ON key or the Lower Oven ON key.**
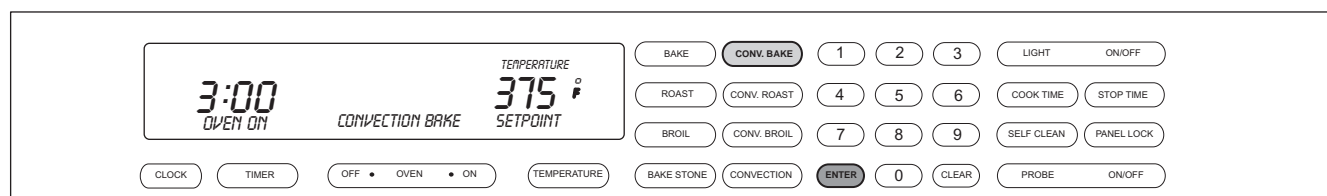
**Figure 3-32. Press the CONVECTION BAKE key. A preset temperature of 375°F will be shown in the display.
The oven begins to heat after 5 seconds or by pressing the ENTER key.**
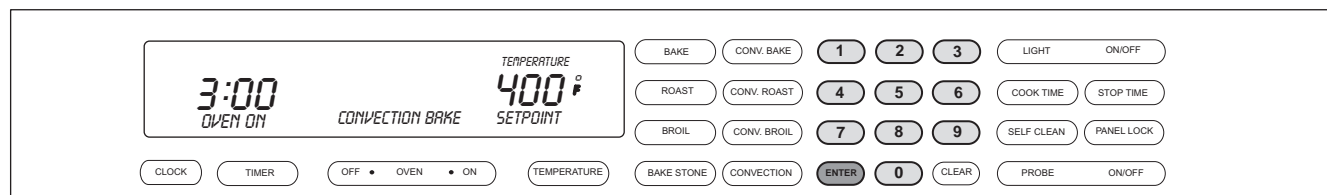
**Figure 3-33. To change the preset temperature, immediately press the number keys to enter a new temperature.
Then, press the ENTER key.**

**Figure 3-34. To exit the Convection Bake Mode, press the Oven OFF key.
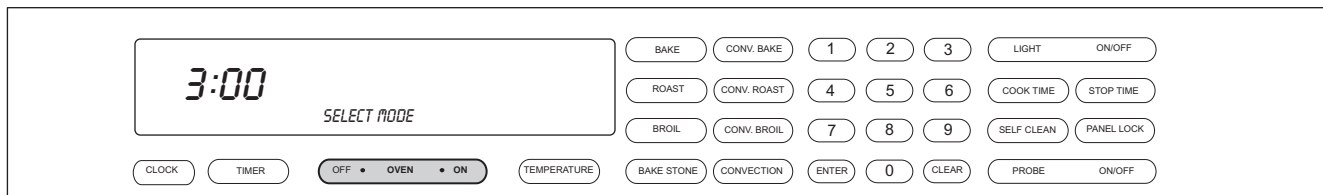For Double oven, press the Upper Oven OFF key or the Lower Oven OFF key.**

Broil Mode

In Broil Mode the top broil element is used to conduct an intense radiant heat which browns one side of the food being cooked. Food cooked in any of the Broil Modes must be turned to finish cooking and browning the other side. There are three Broil Level temperatures that can be used in this mode, Hi Broil, Medium Broil and Lo Broil.

NOTE: Preheat is never used in Broil Mode.

NOTE: The oven door MUST be closed during this mode.

To initiate Broil Mode, the oven must be OFF. First, press the Oven ON key. (See Figure 3-35). For the Double Ovens, press the Upper Oven ON key or the Lower Oven ON key. Now, press the BROIL key. A preset tempera- ture of 550° and the number "1" and the word HI will appear in the display. The broiler begins to heat after 5 sec- onds or by pressing the ENTER key. (See Figure 3-36). To change the preset temperature, immediately press the "2" key for Medium Broil at 450° or press the "3" key for Lo Broil at 350°F. Then, press the ENTER key. (See Figure 3-37). To exit the Broil Mode, press the Oven OFF key. (See Figure 3-38). For Double Ovens press the Upper Oven OFF key or the Lower Oven OFF key.

Figure 3-35. To initiate Broil Mode, Press the Oven ON key.
For Double Oven, press the Upper Oven ON key or the Lower Oven ON key.
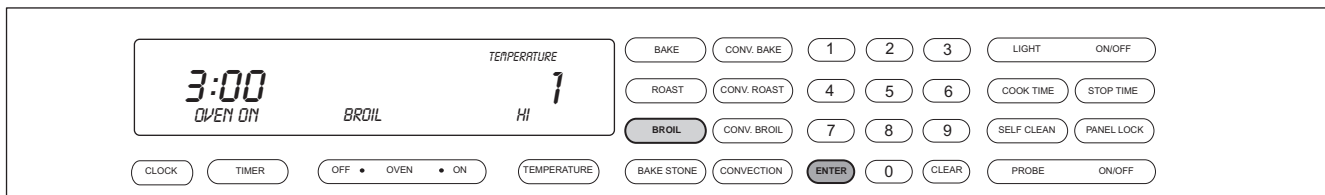
Figure 3-36. Press the BROIL key. A preset temperature of 550°F is selected and the number "1" and HI will be shown in the display. The oven begins to heat after 5 seconds or by pressing the ENTER key.
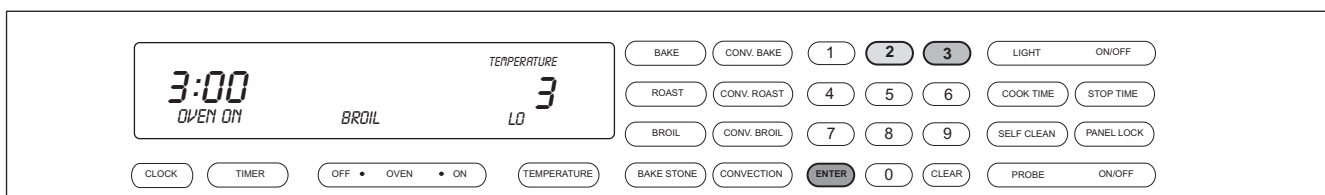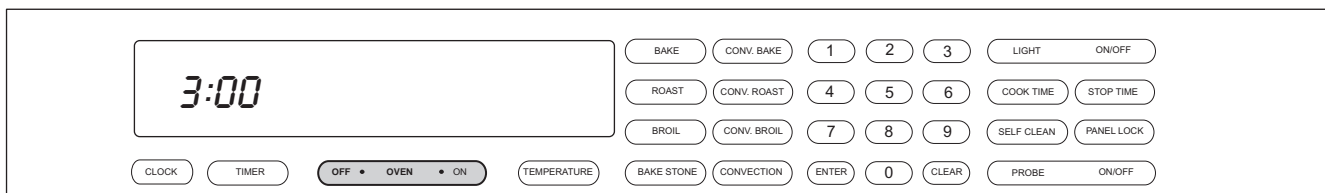
Figure 3-37. To change the preset temperature, immediately press the "2" key for Medium Broil at 450°F.
Press the "3" key for Low Broil at 350°F Then, press the ENTER key.

Figure 3-38. To exit the Broil Mode, press the Oven OFF key.
For Double oven, press the Upper Oven OFF key or the Lower Oven OFF key.
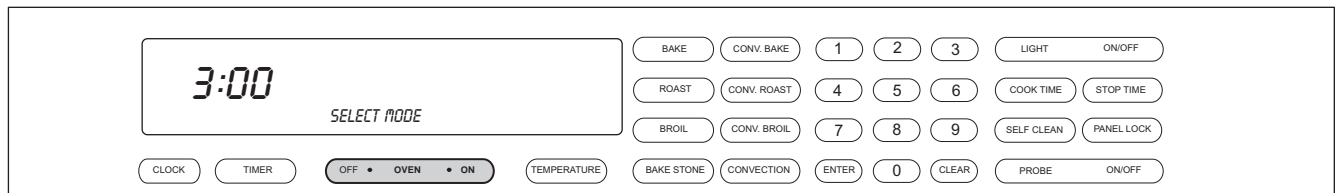
Convection Broil Mode

Convection Broil Mode uses intense radiant heat from the top broil element.   The convection fans also operate continuously to maintain air movement. Convection Broil Mode shortens broiling times for thicker cuts of meat. The intense radiant heat browns and sears the surface of the meat, while the convection fans keep the interior of the meat moist.

NOTE: Preheat is never used in Convection Broil Mode.

NOTE: The oven door MUST be closed during this mode.

To initiate Convection Broil Mode, the oven must be OFF. First, press the Oven ON key. (See Figure 3-39). For the Double Ovens, press the Upper Oven ON key or the Lower Oven ON key. Now, press the CONVECTION BROIL key.   A preset temperature of 550° and the number "1" and the word HI will appear in the display. The broiler begins to heat after 5 seconds or by pressing the ENTER key. (See Figure 3-40). To change the preset temperature, immediately press the "2" key for Medium Broil at 450° or press the "3" key for Lo Broil at 350°F. Then, press the ENTER key. (See Figure 3-41). To exit the Convection Broil Mode, press the Oven OFF key. (See Figure 3-42). For Double Ovens press the Upper Oven OFF key or the Lower Oven OFF key.

Figure 3-39. To initiate Convection Broil Mode, Press the Oven ON key.
For Double Oven, press the Upper Oven ON key or the Lower Oven ON key.
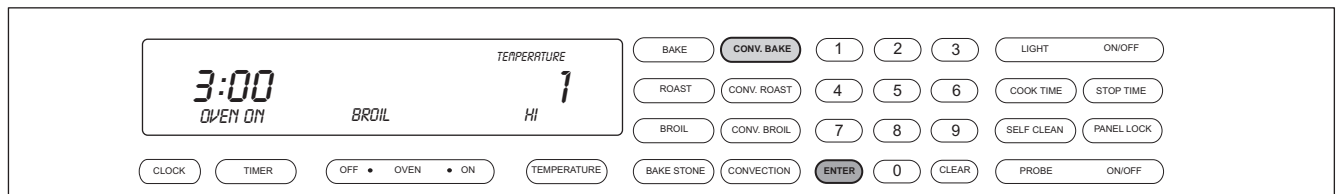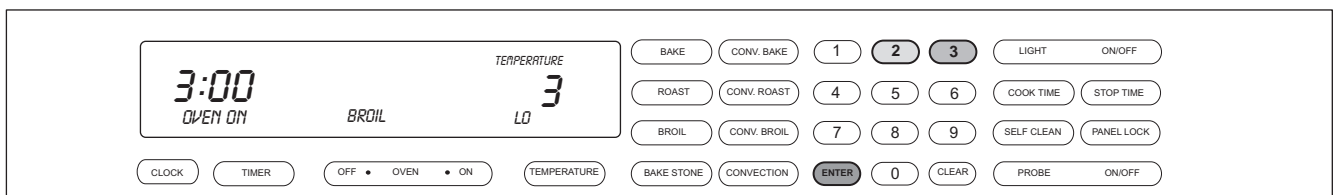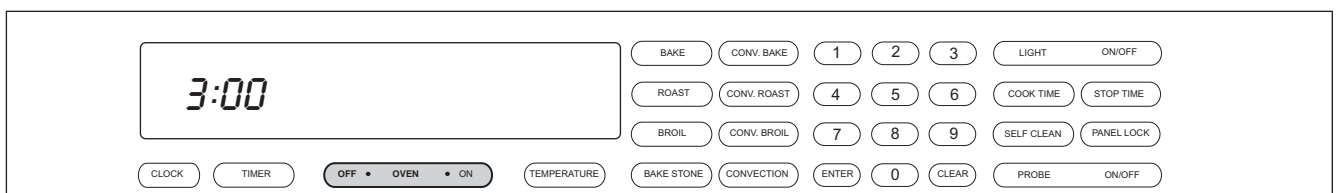
Figure 3-40. Press the CONVECTION BROIL key.   A preset temperature of 550°F is selected and the number "1" and HI will be shown in the display. The oven begins to heat after 5 seconds or by pressing the ENTER key.

Figure 3-41. To change the preset temperature, immediately press the "2" key for Medium Broil at 450°F. Press the "3" key for Low Broil at 350°F Then, press the ENTER key.

Figure 3-42. To exit the Convection Bake Mode, press the Oven OFF key.
For Double oven, press the Upper Oven OFF key or the Lower Oven OFF key.

Roast Mode

In Roast Mode both the hidden bake element and the broil element are cycled to maintain the desired temperature. The hidden bake element operates 75 percent of the time and the broil element operates 25 percent of the time. This mode is especially designed for roasting tender cuts of meat that need to be covered.

NOTE: The oven should always be preheated in this mode. The oven will chime after the oven reaches preheat temperature.

To initiate Roast Mode, the oven must be OFF. First press the Oven ON key. (See Figure 3-43). For Double Ovens press the Upper Oven ON key or the Lower Oven ON key. Now, press the ROAST key. A preset temperature of 350°F is shown in the display. The oven begins to heat after 5 seconds or by pressing the ENTER key. (See Figure 3-44). To change the temperature from 350°F, immediately enter another temperature using the number keys. Then, press the ENTER key. (See Figure 3-45). To exit the Roast Mode, press the Oven OFF key. (See Figure 3-46). For the Double Oven, press the Upper Oven OFF key or the Lower Oven Off key.
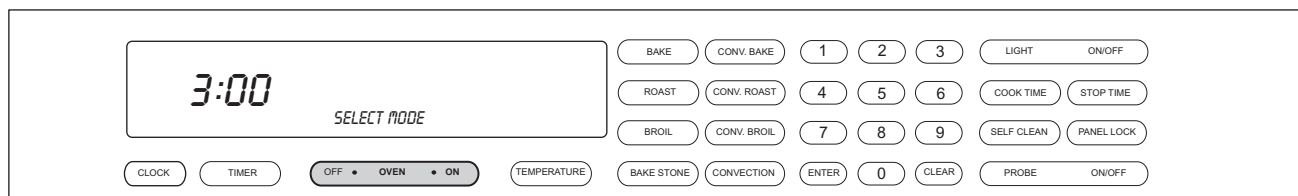
Figure 3-43. To initiate Roast Mode, Press the Oven ON key.
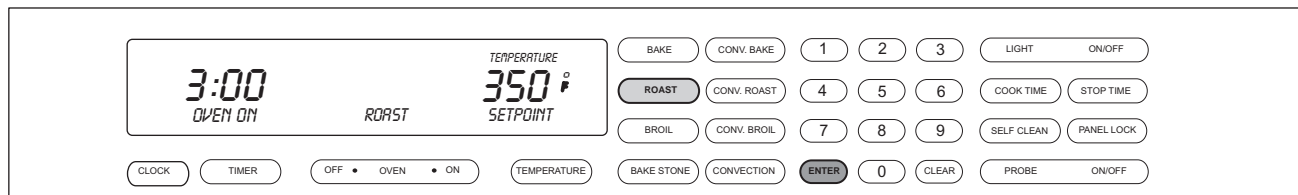**For Double Oven, press the Upper Oven ON key or the Lower Oven ON key.**

Figure 3-44. Press the ROAST key. A preset temperature of 350°F will be shown in the display.
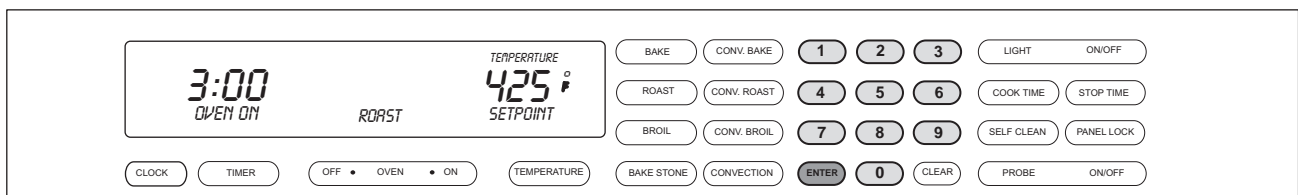**The oven begins to heat after 5 seconds or by pressing the ENTER key.**

Figure 3-45. To change the preset temperature, immediately press the number keys to enter a new temperature.
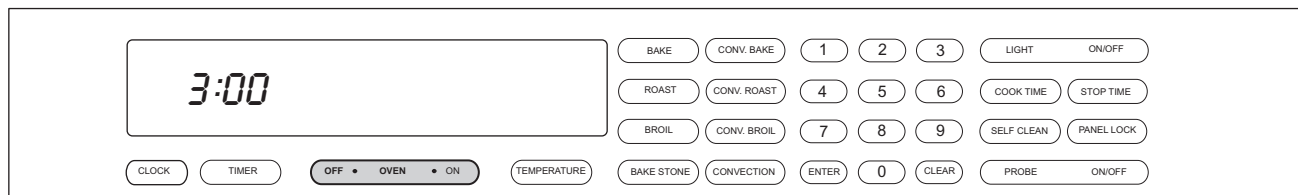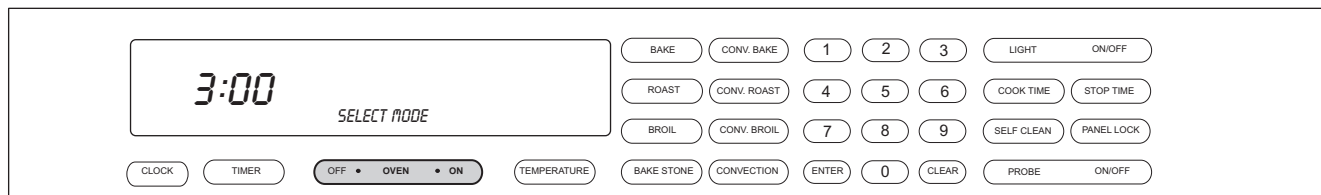**Then, press the ENTER key.**

Figure 3-46. To exit the Roast Mode, press the Oven OFF key.
For Double oven, press the Upper Oven OFF key or the Lower Oven OFF key.
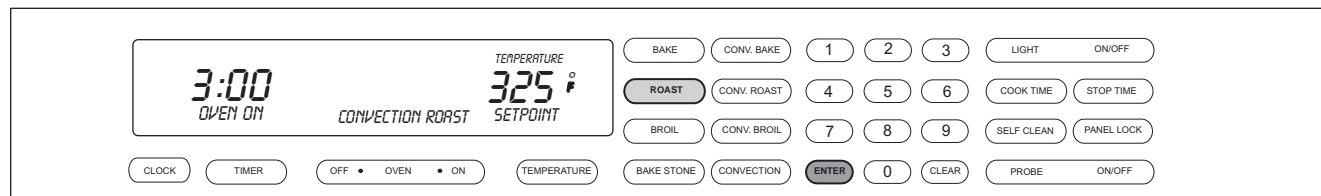
Convection Roast Mode

In Convection Roast Mode the dual convection fans with each convection element operate sequentially (on and off), along with the cycling of the top broil element. The convection elements are on 46 percent of the time and the broil element is on 16 percent of the time. The convection fans are on 100 percent of the time. This mode intensifies the convective and radiant heating. This combination gently browns the exterior and seals in juices making it perfect for roasting tender cuts of meat.

NOTE: *The oven should always be preheated in this mode. The oven will chime after the oven reaches preheat temperature.*
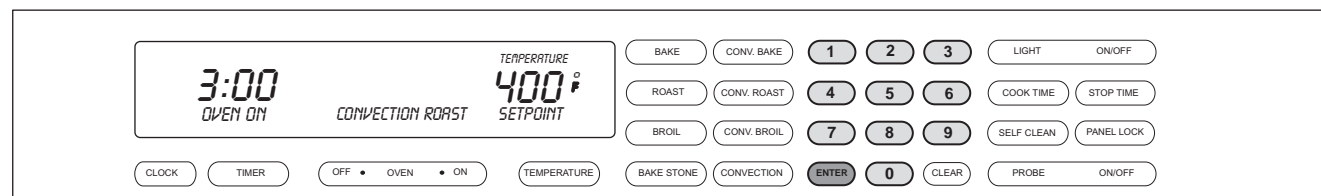
To initiate Convection Roast Mode, the oven must be OFF. First press the Oven ON key. (See Figure 3-47). For Double Ovens press the Upper Oven ON key or the Lower Oven ON key. Now, press the CONVECTION ROAST key. A preset temperature of 325°F is shown in the display. The oven begins to heat after 5 seconds or by pressing the ENTER key. (See Figure 3-48). To change the temperature from 325°F, immediately enter another temperature using the number keys. Then, press the ENTER key. (See Figure 3-49). To exit the Convection Roast Mode, press the Oven OFF key. (See Figure 3-50). For the Double Oven, press the Upper Oven OFF key or the Lower Oven Off key.

**Figure 3-47. To initiate Convection Roast Mode, Press the Oven ON key.
For Double Oven, press the Upper Oven ON key or the Lower Oven ON key.**

**Figure 3-48. Press the CONVECTION ROAST key.   A preset temperature of 325°F will be shown in the display.
The oven begins to heat after 5 seconds or by pressing the ENTER key.**

**Figure 3-49. To change the preset temperature, immediately press the number keys to enter a new temperature.
Then, press the ENTER key.**

**Figure 3-50. To exit the CONVECTION Roast Mode, press the Oven OFF key.
For Double oven, press the Upper Oven OFF key or the Lower Oven OFF key.**

Bake Stone Mode

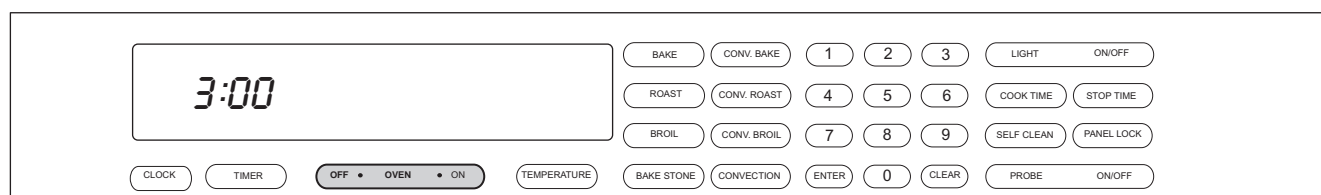In the Bake Stone Mode a specially designed oven rack and heating element are used along with a ceramic stone. Mounted directly underneath the ceramic bake stone is a heating element. This bake stone element along with the convection fans and the broil element help produce a hot enough environment necessary to cook on the ceramic stone.

In this mode the bake stone element is on 58 percent of the time and the broil element is on 42 percent of the time. The convection fans are on 42 percent of the time, sequential in this mode. To use the Bake Stone, remove all oven racks from the oven. Remove the bake stone element plug, located on the back wall of the oven cavity and just below the convection fan baffle plate. Insert the bake stone element into the receptacle. Slide the bake stone rack onto the rack guide number one position. Place the bake stone on the rack with its lip hanging over the front edge of the rack.

NOTE: The oven should always be preheated in this mode. The oven will chime after the oven reaches preheat temperature.

NOTE: On units Starting with serial #16000000, the heating element and recepticle have been eliminated.

To initiate Bake Stone Mode, the oven must be OFF. First press the Oven ON key. (See Figure 3-51). For Double Ovens press the Upper Oven ON key or the Lower Oven ON key. Now, press the BAKE STONE key. A preset temperature of 400°F is shown in the display. The oven begins to heat after 5 seconds or by pressing the ENTER key. (See Figure 3-52). To change the temperature from 400°F, immediately enter another temperature using the number keys. Then, press the ENTER key. (See Figure 3-53). To exit the Bake Stone Mode, press the Oven OFF key. (See Figure 3-54). For the Double Oven, press the Upper Oven OFF key or the Lower Oven Off key.
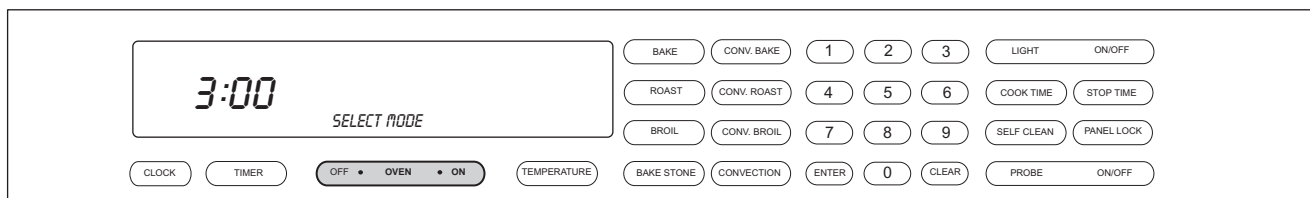

Figure 3-51. To initiate Bake Stone Mode, Press the Oven ON key.
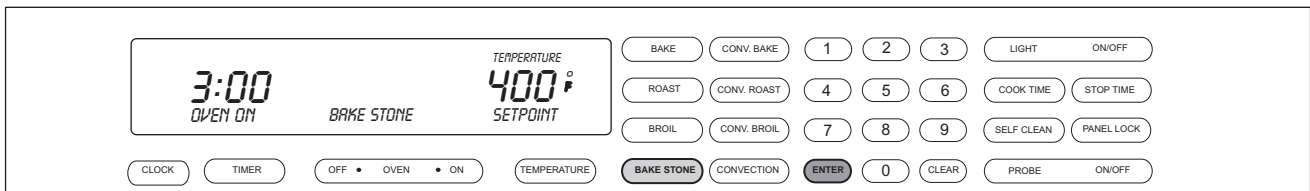**For Double Oven, press the Upper Oven ON key or the Lower Oven ON key.**

Figure 3-52. Press the BAKE STONE key.   A preset temperature of 400°F will be shown in the display.
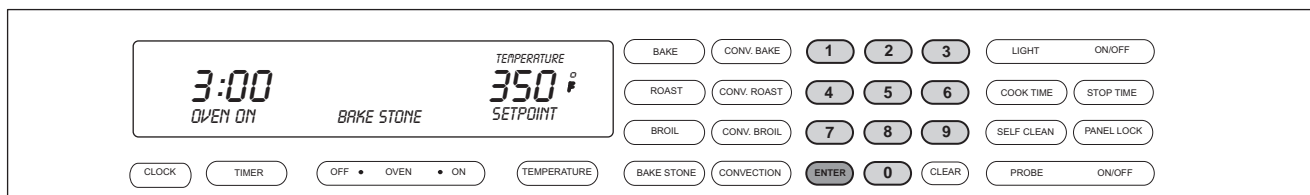**The oven begins to heat after 5 seconds or by pressing the ENTER key.**

Figure 3-53. To change the preset temperature, immediately press the number keys to enter a new temperature.
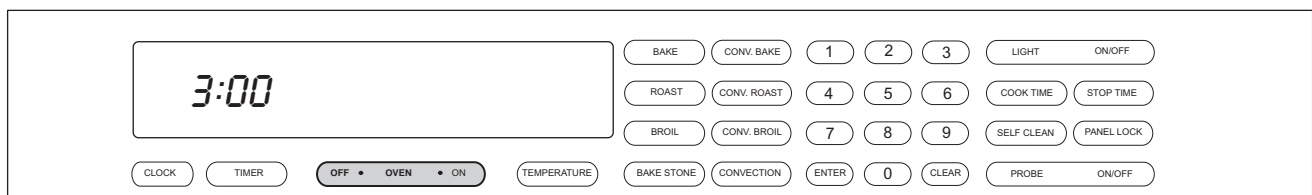**Then, press the ENTER key.**

Figure 3-54. To exit the BAKE STONE Mode, press the Oven OFF key.
For Double oven, press the Upper Oven OFF key or the Lower Oven OFF key.
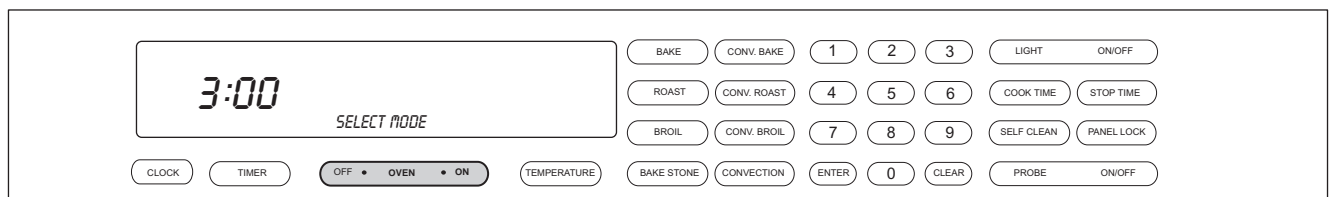
Dehydration Feature

This feature allows for slowly drying out food for preservation and other cooking uses. This requires an optional accessory package.

To initiate the Dehydration Feature, the oven must be OFF. First press the Oven ON key. (See Figure 3-55). For Double Ovens press the Upper Oven ON key or the Lower Oven ON key. Now, press and hold the CONVECTION key for 3 seconds. A preset temperature of 160°F is shown in the display. The oven begins to heat after 5 seconds or by pressing the ENTER key. (See Figure 3-56). To change the temperature from 160°F, immediately enter another temperature using the number keys. Then, press the ENTER key. (See Figure 3-57). To exit the Dehydration Mode, press the Oven OFF key. (See Figure 3-58). For the Double Oven, press the Upper Oven OFF key or the Lower Oven Off key. *Dehydration is between 110°F - 160°F (43.3°C - 71.1°C).*

NOTE: Never preheat for Dehydration Feature.

NOTE: Optional accessory package, not supplied with unit must be used.

**Figure 3-55. To initiate Dehydration Feature, Press the Oven ON key.
For Double Oven, press the Upper Oven ON key or the Lower Oven ON key.**

Figure 3-56. Press and Hold the CONVECTION key for 3 seconds or press CONVECTION and enter a temperature within range.   A preset temperature of 160°F will be shown in the display. The oven begins to heat after 5 seconds or by pressing the ENTER key.

Figure 3-57. To change the preset temperature, immediately press the number keys to enter a new temperature. Then, press the ENTER key.

**Figure 3-58. To exit the Dehydration Feature, press the Oven OFF key.
For Double oven, press the Upper Oven OFF key or the Lower Oven OFF key.**

Proof Feature

How PROOF feature works: A combination of Broil, Convection and Bake elements are used to heat and balance the air to maintain temperature. This feature is ideal for proofing bread dough. The oven does not allow the temperature to be set above 110°F (43.3°C). If the oven temperature is above 130°F(55°C), "HOT" will be indicated on the control panel. The user should open the oven door to allow the oven to cool down below 120°F(50°C) to prevent from destroying the yeast.

To initiate PROOF Feature, the oven must be OFF. First press the Oven ON key. (See Figure 3-59). For Double Ovens press the Upper Oven ON key or the Lower Oven ON key. Now, press and hold the BAKE key for 3 seconds. A preset temperature of 85°F (29.4°*C)* is shown in the display. The oven begins to heat after 5 seconds or by pressing the ENTER key. (See Figure 3-60). To change the temperature from 85°F, immediately enter another temperature using the number keys. Then, press the ENTER key. (See Figure 3-61). To exit the PROOF Feature, press the Oven OFF key. (See Figure 3-62). For the Double Oven, press the Upper Oven OFF key or the Lower Oven Off key. *PROOF is between 85°F - 110°F (29.4°C - 43.3°C).*

**Figure 3-59. To initiate Proof Mode, Press the Oven ON key.
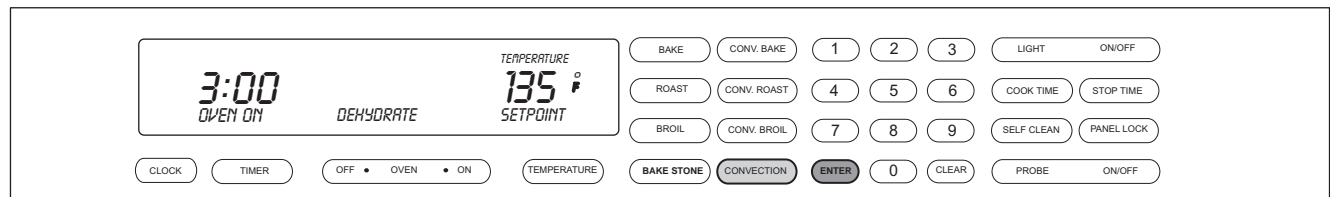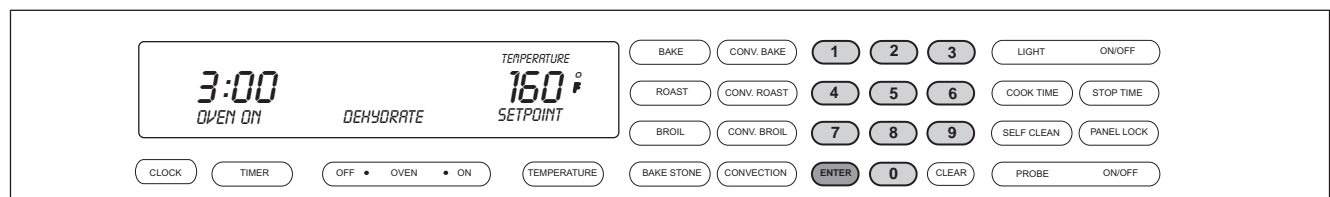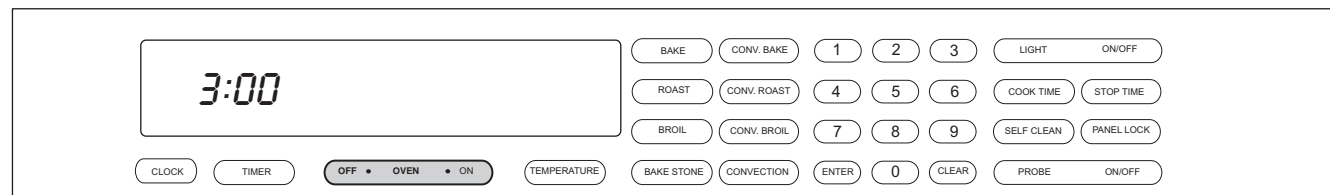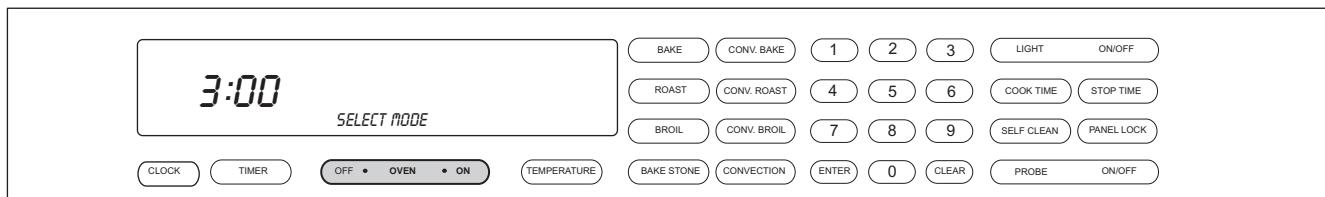For Double Oven, press the Upper Oven ON key or the Lower Oven ON key.**

Figure 3-60. Press and Hold the CONVECTION key for 3 seconds or press CONVECTION and enter a temperature within range.   A preset temperature of 85°F will be shown in the display. The oven begins to heat after 5 seconds or by pressing the ENTER key.

Figure 3-61. To change the preset temperature, immediately press the number keys to enter a new temperature. Then, press the ENTER key.

**Figure 3-62. To exit the Proof Mode, press the Oven OFF key.
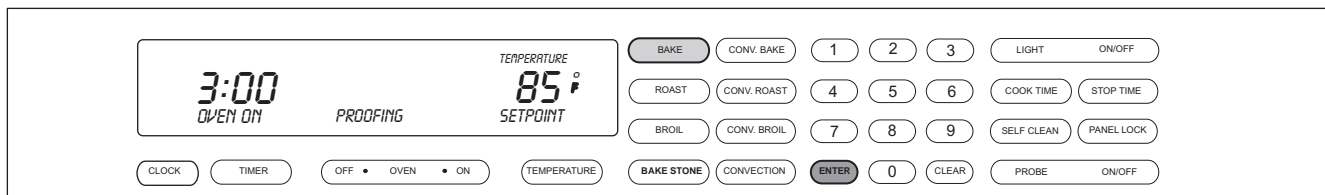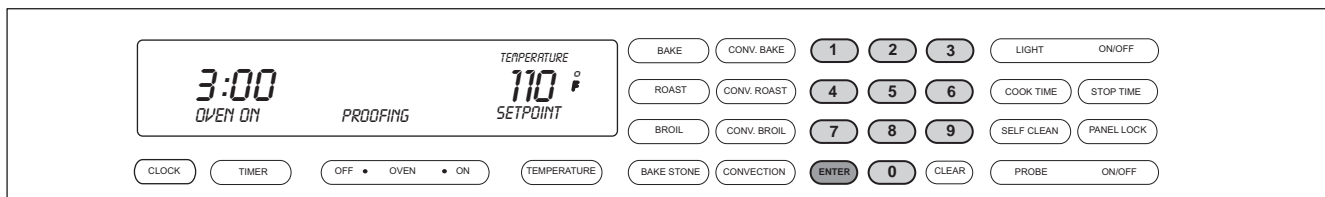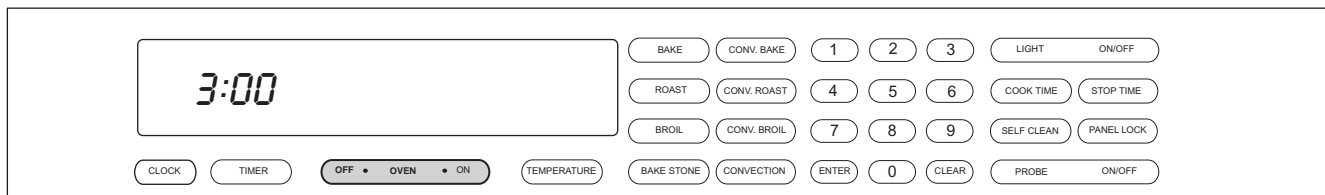For Double oven, press the Upper Oven OFF key or the Lower Oven OFF key.**

3-18

Panel Lock

When the electronic control panel is visible, the oven is operational. When initiating the panel lock feature all modes and key pads will be non functional except oven OFF touch pad and PANEL LOCK touch pad. This keeps it child safe and prevents oven from accidentally being turned on.

Setting Panel Lock:

  • Press and hold Panel Lock touch pad for 3 seconds. Two beeps will be heard and oven display will show PANEL LOCKED for 5 seconds.
  • To exit Panel Lock, press and hold Panel Lock touch pad for 3 seconds. A beep will be heard and oven display will read PANEL UNLOCKED for 5 seconds.

Time of Day Clock

Immediately after the oven is powered up, set the 12-hour clock to the current time of day. It must be reset after a power failure. The clock is visible on the panel during all modes. If the timer is set, the clock will not be visible in the display window.

Setting the time of day:

  • Touch Clock pad.
  • Touch Number pads to set current time of day.
  • Touch Clock or Enter to start clock.

DIAGNOSTIC MODE

Diagnostic Mode allows the Service Technician to inspect the functionality of the Oven Controller and Relay boards. Entering a key combination on the oven touch pad will allow the Service Technician to enter 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.

NOTE: *The Double Oven stores a total of fourteen errors. Seven errors for the Upper Oven and seven errors for the Lower Oven.*

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

Double Wall Oven Keyboard:

The Double Wall Oven controls consist of 1 double oven controller, 2 relay boards, 1 upper oven display, 1 lower oven display, 1 double wall oven keyboard, 1 stepper motor control board, 1 MRCP Drive Plate.
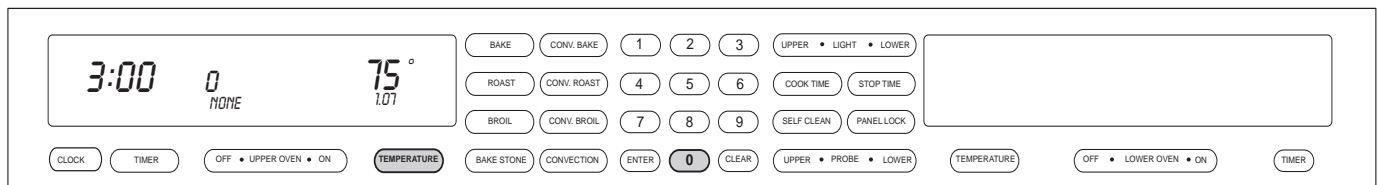

Figure 3-63. Double Wall Oven Keyboard

Single Wall Oven Keyboard:

The Single Wall Oven controls consist of 1 single oven controller, 1 relay board, 1 upper oven display, 1 single wall oven keyboard, 1 stepper motor control board, 1 MRCP Drive Plate.
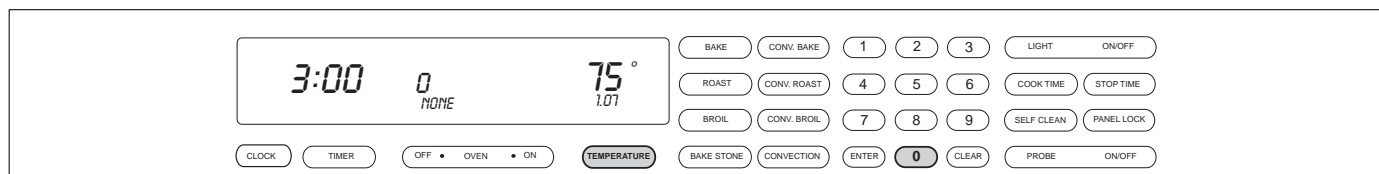

Figure 3-64. Single Wall Oven Keyboard

INITIATING DIAGNOSTIC MODE

UPPER OVEN

To initiate Diagnostic Mode for the Upper Oven, the oven must be OFF. Then press and hold the TEMPERATURE key and the 0 "ZERO" key for 3 seconds, then release both keys. (See Figure 3-65).

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

LOWER OVEN

To initiate Diagnostic Mode for the Lower Oven, the oven must be OFF. Then press and hold the TEMPERATURE key and the 0 "ZERO" key for 3 seconds, then release both keys. (See Figure 3-66).

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

SINGLE OVEN

To initiate Diagnostic Mode for the Single Oven, the oven must be OFF. Then press and hold the TEMPERATURE key and the 0 "ZERO" key for 3 seconds, then release both keys. (See Figure 3-67).

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

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.

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.
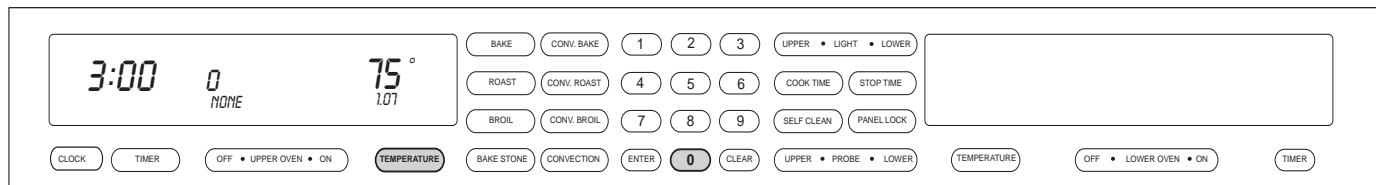
Figure 3-65. Initiate Diagnostic Mode Upper Oven - Press and hold the TEMPERATURE key and the "0" key.
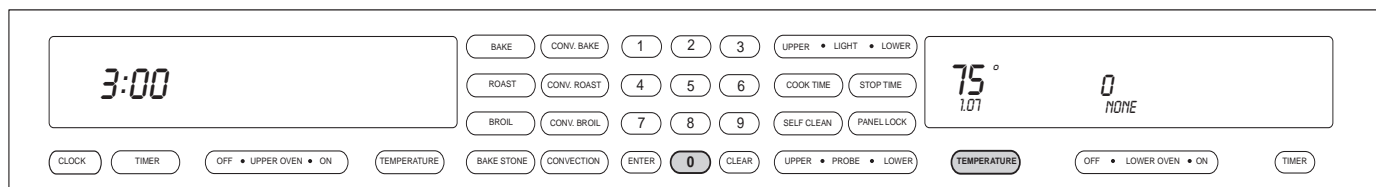
Figure 3-66. Initiate Diagnostic Mode Lower Oven - Press and hold the TEMPERATURE key and the "0" key.
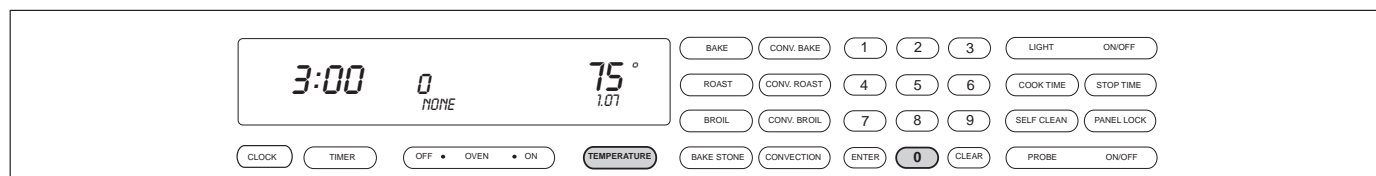
Figure 3-67. Initiate Diagnostic Mode Single Oven - Press and hold the TEMPERATURE key and the "0" key.

POSSIBLE ERROR INDICATORS

The last occurring error will be shown in the text area of the Display board. Pressing the ENTER key will cycle through the last occurring seven errors for the oven. The Double Wall Oven stores a total of 14 errors, seven for the upper oven and seven for the lower oven. Pressing the COOK TIME and STOP TIME keys will clear the last seven errors for the oven.
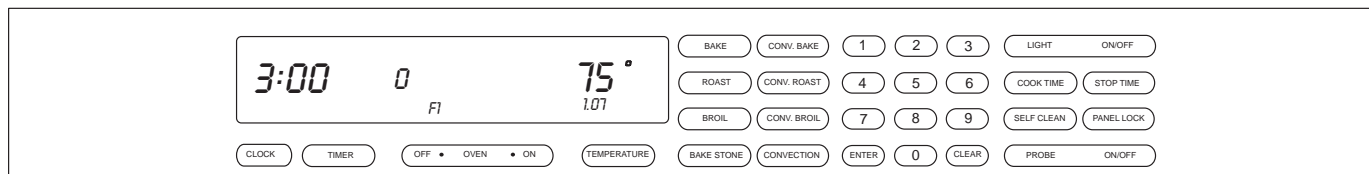
Figure 3-68. F1 - Door lock or unlock switches not sensed within 60 seconds while driving the door lock motor. This error indicates a motor door lock (MDL) failure.
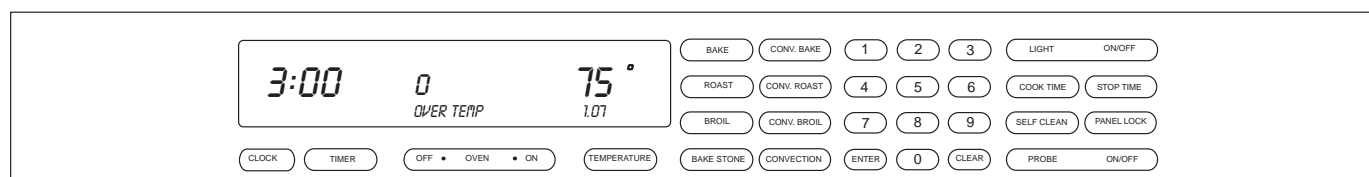
Figure 3-69. Over Temperature Alarm - Over temperature occurs when the oven reaches a temperature of 630°F for an unlocked door and 930°F for a locked door. This error indicates a runaway temperature.
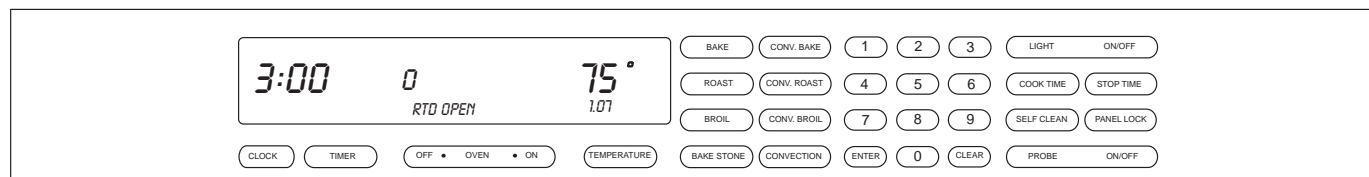
Figure 3-70. Open Circuit Detected on RTD Oven Sensor - This error may indicate an RTD failure.
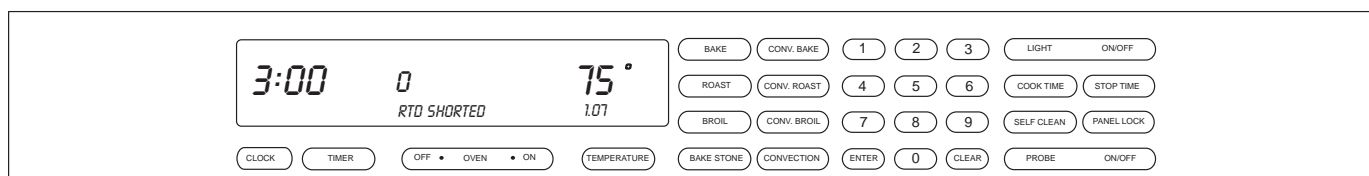
Figure 3-71. Shorted Circuit Detected on RTD Oven Sensor - This error may indicate an RTD failure.
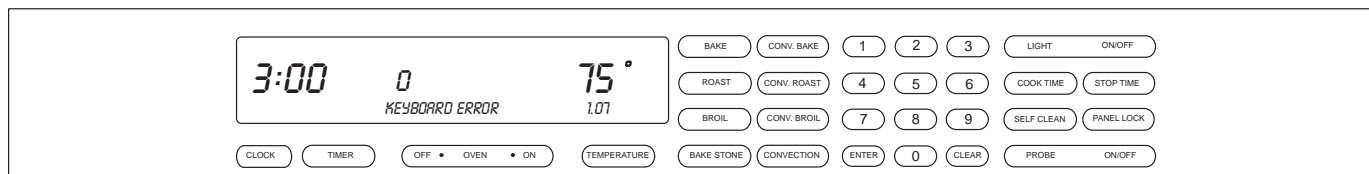
Figure 3-72. Key Communications Error - This error is reported by display board.
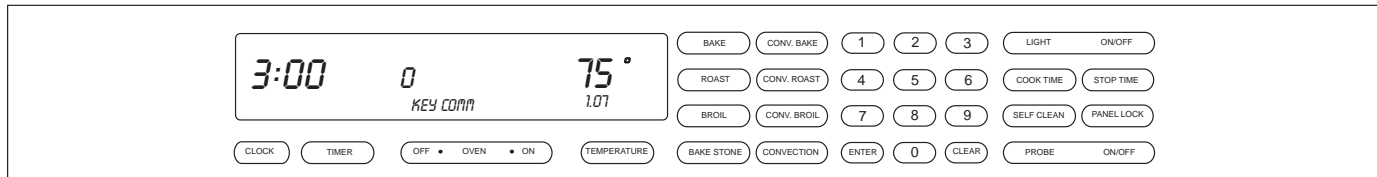
Figure 3-73. Keyboard Reporting Errors on Key(s) - This error indicates a failure between the Oven Controller and the Head Assembly. (Reported by Display)
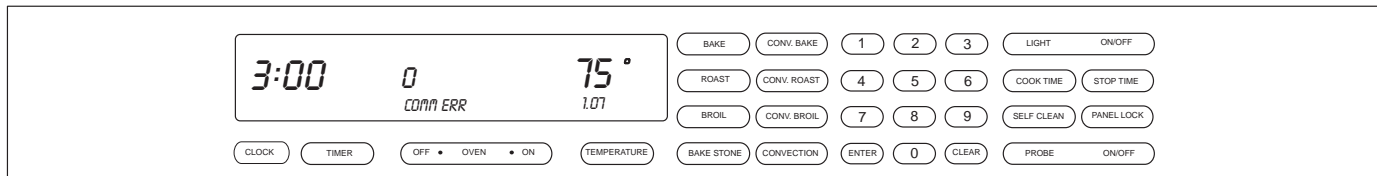
Figure 3-74. Communication Lost with the Oven Controller Board - This error indicates a Head Assembly failure or connecting cable fault. (Reported by Oven Controller)
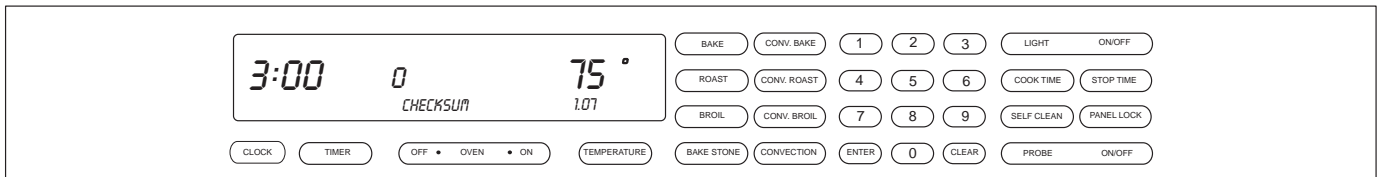
**Figure 3-75. Eeprom Checksum is incorrect - Checked at power up, and when OVEN OFF key is pressed. This error indicates an Oven Controller failure.**
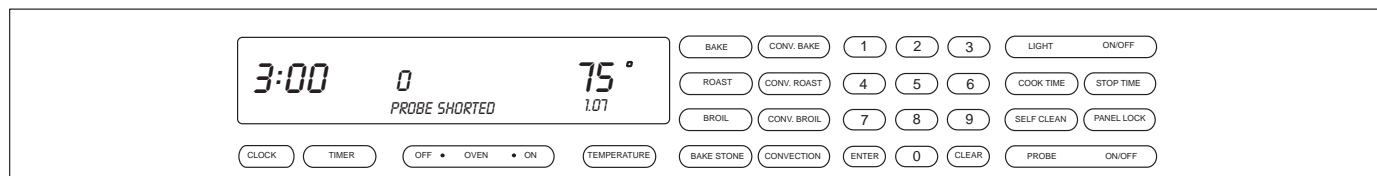
Figure 3-76. Meat Probe Sensed as being Shorted - This error occurs if the meat probe is not inserted all of the way. This error may indicate a meat probe failure.
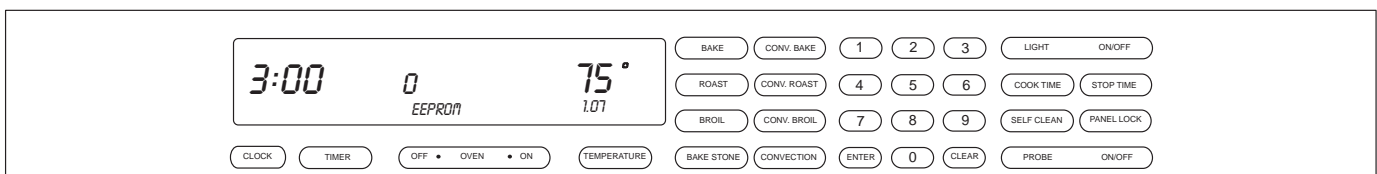
Figure 3-77. Cannot Read or Write to the Eeprom - This error indicates an Oven Controller failure.

```
  3:00        0              75°
            SENSOR CAL        1.07
```

BAKE · CONV. BAKE · 1 2 3 · LIGHT · ON/OFF
ROAST · CONV. ROAST · 4 5 6 · COOK TIME · STOP TIME
BROIL · CONV. BROIL · 7 8 9 · SELF CLEAN · PANEL LOCK
CLOCK · TIMER · OFF • OVEN • ON · TEMPERATURE · BAKE STONE · CONVECTION · ENTER · 0 · CLEAR · PROBE · ON/OFF

Figure 3-78. Analog to Digital Error during Calibration Phase - This error indicates an Oven Controller failure.

```
  3:00        0              75°
            CONTROL COM       1.07
```

BAKE · CONV. BAKE · 1 2 3 · LIGHT · ON/OFF
ROAST · CONV. ROAST · 4 5 6 · COOK TIME · STOP TIME
BROIL · CONV. BROIL · 7 8 9 · SELF CLEAN · PANEL LOCK
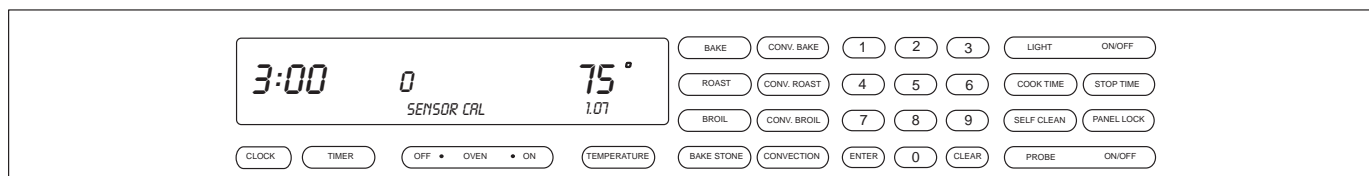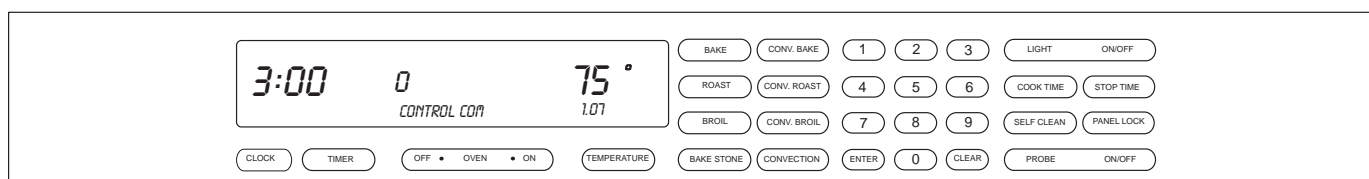CLOCK · TIMER · OFF • OVEN • ON · TEMPERATURE · BAKE STONE · CONVECTION · ENTER · 0 · CLEAR · PROBE · ON/OFF

Figure 3-79. Communication Lost with the Oven Control Board - This error indicates a Oven Controller failure. (Reported by the Display)
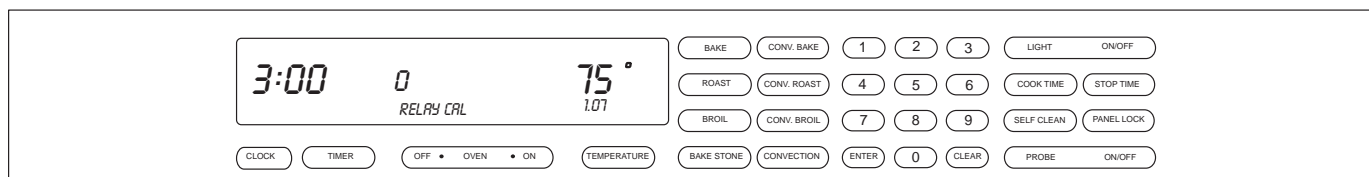
```
  3:00        0              75°
            RELAY CAL         1.07
```

BAKE · CONV. BAKE · 1 2 3 · LIGHT · ON/OFF
ROAST · CONV. ROAST · 4 5 6 · COOK TIME · STOP TIME
BROIL · CONV. BROIL · 7 8 9 · SELF CLEAN · PANEL LOCK
CLOCK · TIMER · OFF • OVEN • ON · TEMPERATURE · BAKE STONE · CONVECTION · ENTER · 0 · CLEAR · PROBE · ON/OFF

Figure 3-80. Relay Phase Calibration Failed - This error indicates a relay timing problem with the relay board.

```
  3:00        0              75°
            RELAY STUCK       1.07
```

BAKE · CONV. BAKE · 1 2 3 · LIGHT · ON/OFF
ROAST · CONV. ROAST · 4 5 6 · COOK TIME · STOP TIME
BROIL · CONV. BROIL · 7 8 9 · SELF CLEAN · PANEL LOCK
CLOCK · TIMER · OFF • OVEN • ON · TEMPERATURE · BAKE STONE · CONVECTION · ENTER · 0 · CLEAR · PROBE · ON/OFF
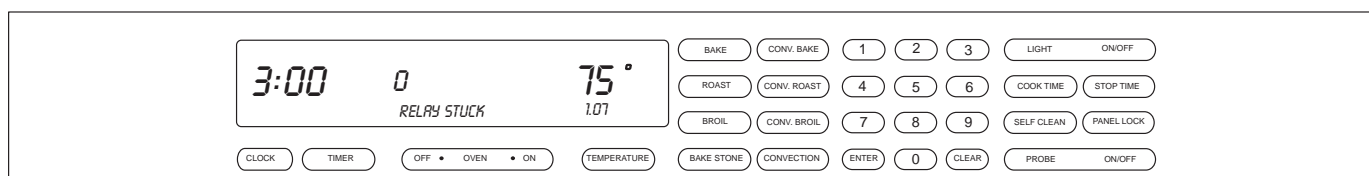
Figure 3-81. Power Relay Shorted - Sensed as being closed when it should be open by current sensor on the oven controller. This error indicates a failure of a Relay Board.

```
  3:00        0              75°
            COOL FAN          1.07
```

BAKE · CONV. BAKE · 1 2 3 · LIGHT · ON/OFF
ROAST · CONV. ROAST · 4 5 6 · COOK TIME · STOP TIME
BROIL · CONV. BROIL · 7 8 9 · SELF CLEAN · PANEL LOCK
CLOCK · TIMER · OFF • OVEN • ON · TEMPERATURE · BAKE STONE · CONVECTION · ENTER · 0 · CLEAR · PROBE · ON/OFF

Figure 3-82. Cooling Fan failure. Error indicates a failure of the cooling fan or circuit.

Figure 3-83. SPI communication lost with main controller reported by the display head, indicating the control head cannot find the main controller. This error would indicate a bad main controller.
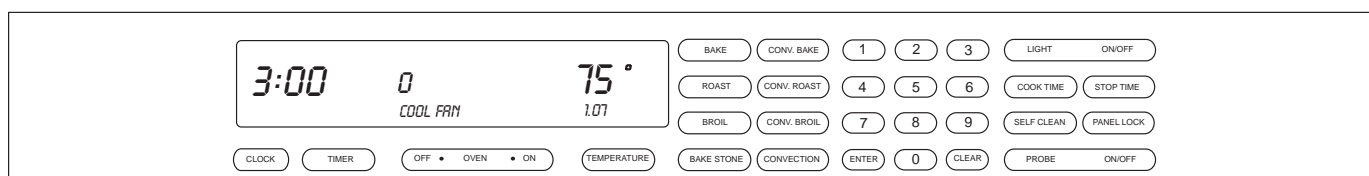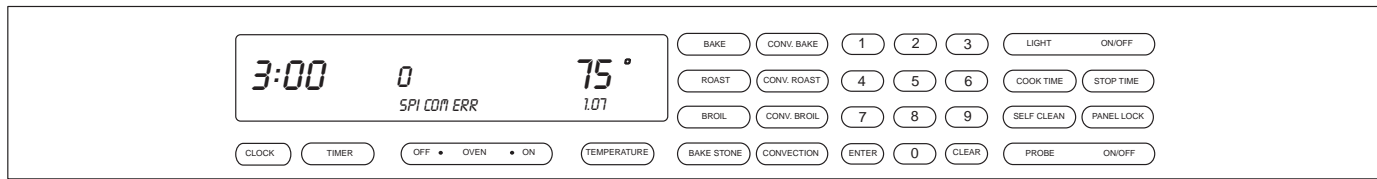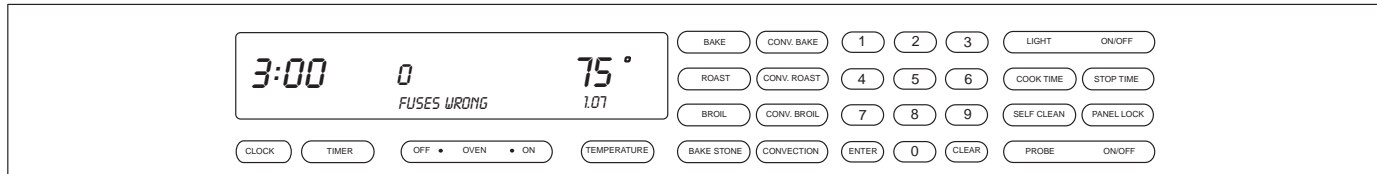

Figure 3-83. Controller configurations settings incorrect or code protection is disabled. "OFF" clears error. If error will not clear, replace main controller.

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 last key stroke or when the CLEAR key is pressed.

Key Pressed	Relay(s) activated	Display Response
Bake	Inner Bake Element	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

Figure 3-84. Element Testing Chart

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 SEE *NOTE
Convection Roast	Oven Light	Light turns on	Not applicable
Self Clean	Cool Fan Low	Cool Fan Low	COOL FAN LO
0	Cool Fan High	Cool Fan High	COOL FAN HI
Key 7	Left Convection Fan	Left Convection Fan	L CONV ON
Key 9	Right Convection Fan	Right Convection Fan	R CONV ON
Panel Lock	Fan Apparency logging	Used on units prior to serial number 11100847 which used *fan apparency switches.*	"L" = Fan apparency switch *Note: No display means no fan apparency switches.*

Figure 3-85. Fans and Motors Testing Chart

*** NOTE:** Prior to running this test on units produced after August 2007, Temperature Display Preference must be set to °F. If this is not done, the °C will never shut off even if MDL switch is functioning properly. If Temperature Display Preference is changed so this test can be run, do not forget to reset it after the test is run.*

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.