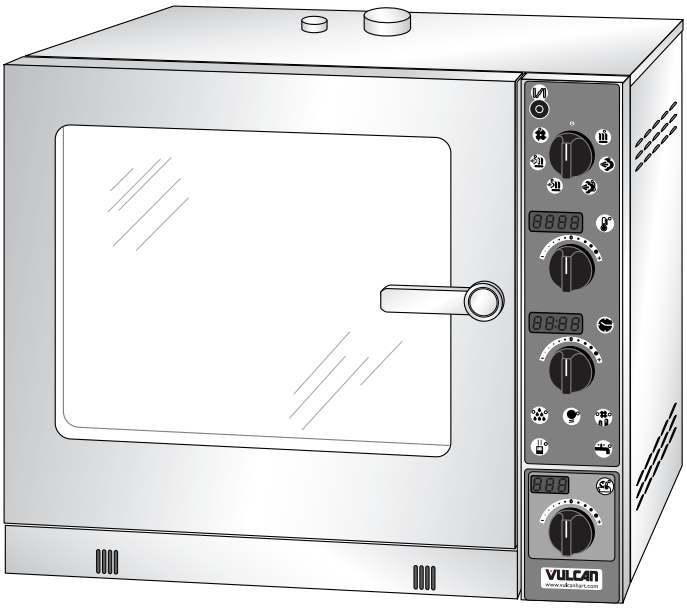
INSTALLATION & OPERATION MANUAL

ELECTRIC COMBINATION OVEN



MODELS

CEM6U	*ML-138076*
CEM10U	*ML-138077*
CEM20U	*ML-138078*

For additional information on Vulcan-Hart or to locate an authorized parts and service provider in your area, visit our website at www.vulcanequipment.com

VULCAN-HART
DIVISION OF ITW FOOD EQUIPMENT GROUP, LLC
WWW.VULCANEQUIPMENT.COM

3600 NORTH POINT BLVD.
BALTIMORE, MD 21222

FORM 37466 (09-10)

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INSTALLATION, OPERATION AND CARE OF ELECTRIC COMBI OVEN

SAVE THESE INSTRUCTIONS FOR FUTURE USE

GENERAL

Vulcan electric combination ovens are produced with quality workmanship and material. Proper installation, usage and maintenance will result in many years of satisfactory performance. It is suggested that you thoroughly read this entire manual and carefully follow all of the instructions provided.

It is a convection oven and a pressureless steam oven combined into one. The steam is generated inside the oven and circulated by a fan. With the combined oven/steamer, three cooking processes are available: Steam, hot air, and combination. The combined oven may be used to perform these types of cooking:

- Steam Cooking
- Baking
- Stewing
- Browning
- Grilling
- Braising
- Pre-Cooking
- Reheating
- Defrosting

Unpacking

Each oven is inspected before leaving the factory. The transportation company assumes full responsibility for safe delivery upon acceptance of the shipment.

Immediately after delivery, unpack and check for shipping damage. If the oven is damaged, save the packing material and contact the carrier immediately. There is a fifteen-day limitation on filing freight damage claims with the freight company. Freight damage is not covered under warranty.

INSTALLATION

Before installing, verify that the electrical supply agrees with the specifications on the data plate located on the lower front corner of the right side panel. If the supply and equipment requirements do not agree, do not proceed with the installation. Contact your dealer or Vulcan-Hart immediately.

This oven is shipped pre-wired with one of the following voltages: 208/60/3, 240/60/3 or 480/60/3 VAC.

INSTALLATION CODES AND STANDARDS

In the United States of America, the oven must be installed in accordance with:

1. State and local codes.
2. National Electrical Code, ANSI/NFPA-70 (latest edition). Copies may be obtained from The National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.
3. *Vapor Removal from Cooking Equipment*, (NFPA-96, latest edition) available from NFPA.

In Canada, Vulcan-Hart ovens must be installed in accordance with:

1. Local Codes
2. Canadian Electrical Code (CSA C22.2 No. 3, latest edition) available from the Canadian Standards Association, 5060 Spectrum Way, Mississauga, Ontario, Canada L4W 5N6

COMBINATION OVEN STAND ASSEMBLY INSTRUCTIONS

Unpacking

Each Combination Oven Stand is inspected before leaving the factory. The transportation company assumes full responsibility for safe delivery upon acceptance of the shipment.

Immediately after delivery unpack and check for shipping damage. If the stand is damaged, save the packing material and contact the carrier immediately. There is a fifteen-day limitation on filing freight damage claims with the freight company. Freight damage is not covered under warranty.

Assembly

NOTE: Discard washers from kit.

Follow these procedures to properly assemble the Adjustable Combination Oven Stand.

1. Remove the adjustable feet from the bottom of the stand.

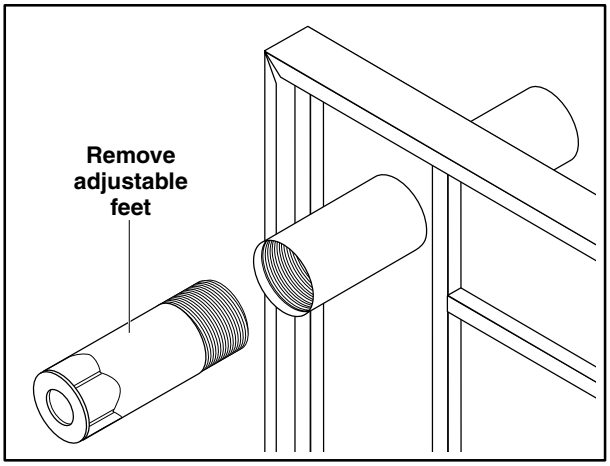

Figure 1: Stand Foot Removal

2. Using the 10 mm Allen wrench, loosen but do not remove the cap screw securing the leg support to the stand base.

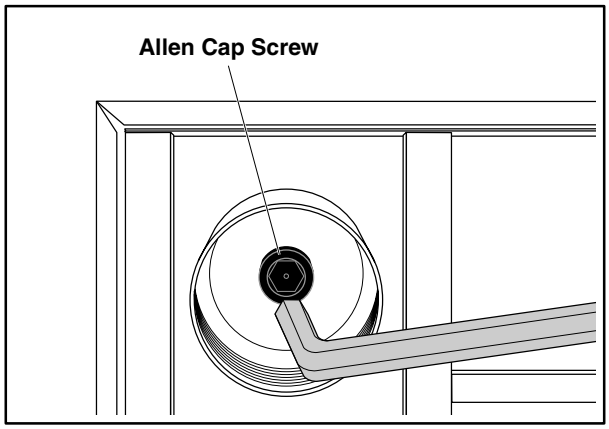

Figure 2: Allen Cap Screw Location

3. Push the leg onto the leg support and turn the leg until the threaded holes are visible. Insert the bolts and tighten them. Repeat this step on each leg.
4. Once the legs are installed each leg must be rotated so that the threaded holes, for the tray support, face each other (front and rear). These holes are used to mount a tray support once the oven is installed on the stand. The tray support will be installed after the oven is installed on the stand. If tray support is not used, insert the plastic plugs into the four holes in the base.

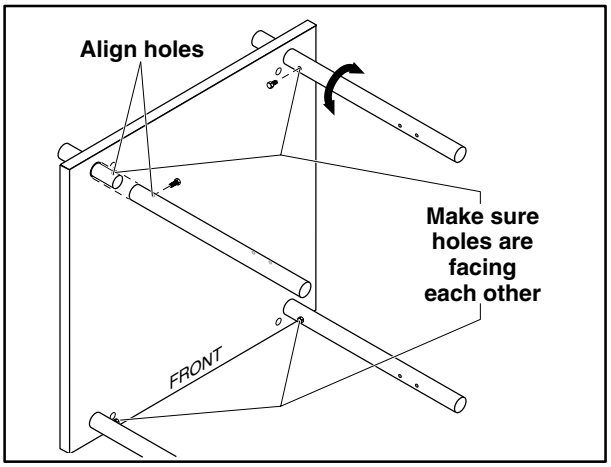

Figure 3: Leg with Threaded Holes in Proper Position

5. Tighten the Allen Cap screws in the base of each leg.
6. Reattach the adjustable feet. The stand is now ready for oven installation.

7. Install tray support (if supplied) after oven is installed onto stand. Use the four knurled screws to secure the support to the legs.

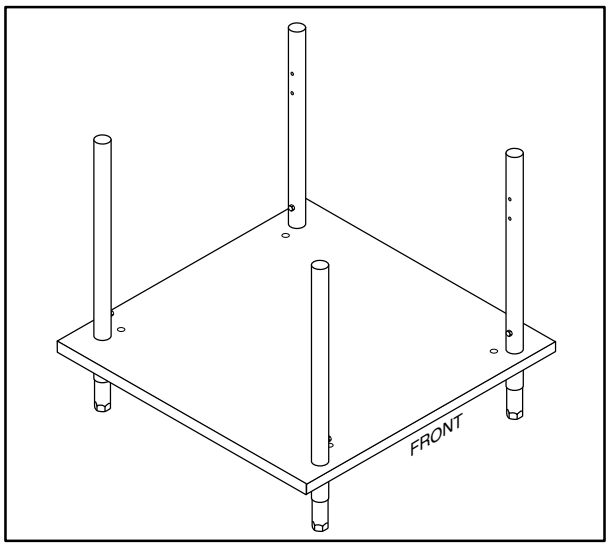

Figure 4: Assembled Combination Oven Stand

LOCATION

Allow space for operating the oven. Do not obstruct the ventilation port above the oven. To provide ventilation access, allow 1" of clearance on the left side of the oven and 2 1/2" clearance on the rear side of the oven. A minimum of 18" must be provided on the right side of the oven for operation, cleaning and service. An optional heat shield assembly is required if the clearance is less than 18" on the right side of the oven.

LEVELING

Position the oven in its final installed location. Place a level on the horizontal area of the cabinet. Adjust the feet to level the oven in both the left-to-right and front-to-rear directions.

ELECTRICAL SPECIFICATIONS

The data plate is located on the front lower right side of the oven.

Electrical Specifications Chart

Model	Voltage	Amperage	Kilowatts	Phase
CEM6U	208	26	9.4	3
CEM6U	240	25	10.3	3
CEM6U	480	11	9.4	3
CEM10U	208	43	15.5	3
CEM10U	240	40	16.8	3
CEM10U	480	19	15.5	3
CEM20U	208	54	19.5	3
CEM20U	240	48	24.0	3
CEM20U	480	27	22.1	3

POWER SUPPLY

Connect the power supply as follows:

⚠ WARNING Electrical and grounding connections must comply with applicable portions of the National Electrical Code and/or other local electrical codes.

⚠ WARNING Disconnect the electrical power to the machine and follow Lockout/ Tagout procedures.

1. Remove the right side panel from the oven. The panel is held on by two screws on the bottom and one screw on the top near the back edge.
2. Wire to be sized per the National Electric Code. Use copper wire rated for 125°C max.
3. Route the power supply cable through the cable strain relief.
4. Connect the power supply cable to the terminal block as shown on the label below the terminal block.
5. Fasten the cable clamp firmly.
6. Reinstall the right side panel.

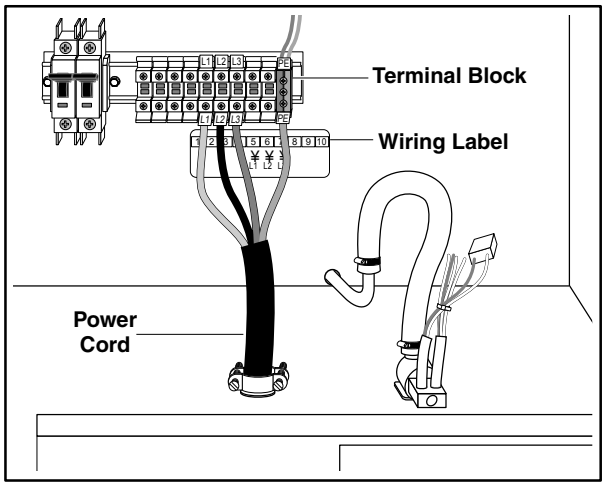

Figure 5: Power Supply Cable Connection

Grounding

The oven must be properly grounded. Connect the ground conductor to the terminal block in the position indicated on the terminal block label.

⚠ WARNING Plumbing connections must comply with applicable sanitary, safety and plumbing codes.

WATER REQUIREMENTS

Proper water quality can improve the taste of the food prepared in the oven, reduce liming in the oven cavity and extend equipment life. Local water conditions vary from one location to another. Ask your municipal water supplier for details about your local water supply prior to installation.

Presence of sediment, silica, excess chlorides or other dissolved solids may lead to a recommendation for alternate form(s) of water treatment. Test the water with a TDS meter or the test strip included with the oven. Other factors affecting steam generation are iron content, amount of chlorination and dissolved gasses.

Water Treatment

A local water treatment specialist should be consulted before installing steam generating equipment. It is recommended that you have your water tested.

Supply Pressure	20-60 psig
Hardness*	Less than 3 grains
Silica	Less than 13 ppm
Total Chlorine/ Chloramine**	0 ppm
Chlorides***	Less than 30 ppm
PH Range	7 – 8
Undissolved Solids	Less than 5 microns

* 17.1 ppm = 1 grain of hardness

** Total Chlorine of 4.0 ppm is the max limit for the building water supply. A carbon block filter must still be used to remove all Chlorine and Chloramines from the water. Failure to do so will result in corrosion and rust in the cooking cavity which is not covered under warranty.

*** If the Chlorides exceed 30 ppm and the oven is used more than 8 hours during the day in steam or combination mode the cavity will require rinsing every 8 hours. Failure to do so will result in corrosion and rusting of the oven cavity and interior parts. RO water treatment system can be installed to eliminate chlorides from the water and reduce the hardness.

If the water supply fails to meet these standards, it will be necessary to install a water treatment system.

The use of strainers or filters will not remove minerals from the water

Water Supply Connection

Connect the treated cold water supply line, min of 3/8" ID, to the 3/4" garden hose inlet on the underside of the Combi Oven. Connect the untreated cold water supply line to the 3/4" garden hose, also on the underside of the Combi Oven. Refer to Figures 6 and 7.

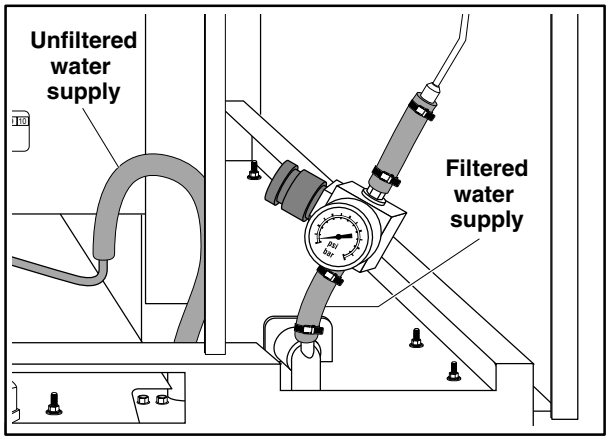

Figure 6: Water Supply Connection for CEM6U and CEM10U

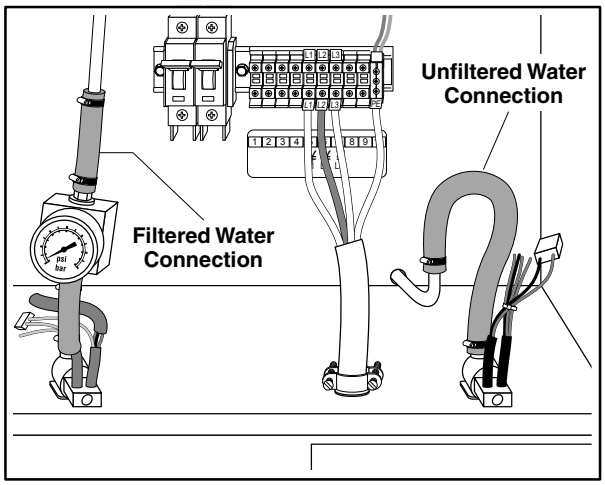

Figure 7: Water Supply Connections for CEM20U

A water filter system is required for the water supply line going to the treated water inlet of your Combi Oven. Follow the recommendations for use and installation instructions shipped with the water filter. If a water filter is not installed, the Combi Oven warranty is limited.

NOTE: Failure to properly connect the water lines will result in equipment failure that is not covered under warranty.

A manual shutoff valve must be provided in a convenient location near the Combi Oven.

Filter System

- In addition to filtration for the control of solids, you must have a carbon block filter installed and maintained. Carbon block filters remove the chlorine and chloramines disinfectants from the water. Chlorine/ chloramines will erode the oven cavity, rack guides, racks, and internal components, which is not covered under warranty. Check with your local water treatment specialist for proper sizing and replacment intervals for the carbon block cartridge.
- Water feed lines to the oven must be flushed before final connection. Particles in the water could clog tubing and components that supply water for steam production and drain cooling. If the water supply is not free of sediment or cloudy after several minutes of flushing, a sediment filter must be installed before use.
- If you have purchased a water filter system from Vulcan-Hart, please follow the instructions provided with the filter system. At the time of installation you must register your Combi Oven at **www.vulcanhart.com/filterreg** or use the reply card supplied with your unit. You will need to register your Combi Oven at each filter change to insure your standard and extended warranty is maintained.

Filter purchase invoices and maintenance records must be provided with warranty claims.

DRAIN CONNECTION

NOTICE In order to avoid any backpressure in the oven, do not make a solid connection to any drain. Failure to do so can damage the oven and will void the warranty.

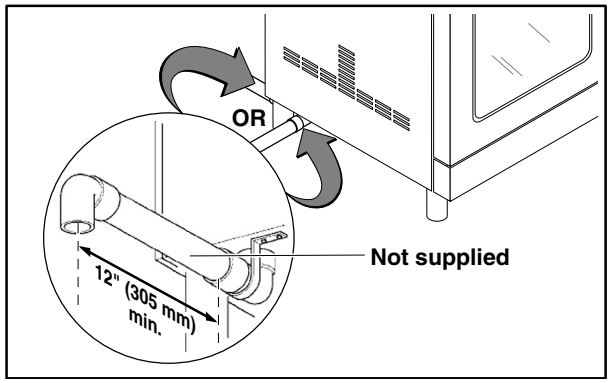

Figure 8: Drain Connection

The 1¼" NPT threaded fitting on the drain outlet must be extended a minimum of 12" (305 mm) – maximum of 72" (1829 mm) away from the Comb Oven base, to an open air gap type drain. Do not reduce the 1¼" NPT drain piping throughout its length.

Provide a suitable floor sink with a minimum depth of 12" (305 mm). The floor sink is NOT to be directly under the oven and should be at a distance so that steam vapors will not enter the Combi Oven from underneath. The drain should slope down away from the oven ¼" for every foot of drain pipe length. The drain pipe should be either iron or copper. DO NOT use PVC pipe; PVC pipe may lose its rigidity or glue may fail.

In order to avoid any back pressure in the oven, do not connect solidly to any drain connection.

VENT HOOD

Local codes may require the oven to be located under an exhaust hood. Information on the construction and installation of ventilating hoods may be obtained from Vapor Removal from Cooking Equipment, NFPA Standard No. 96 (latest edition).

BEFORE FIRST USE

Before using the oven for the first time, it must be “burned in” to release any odors that might result from heating the new surfaces in the oven. Remove the racks and rack guides and thoroughly clean in sink with soap and water. Thoroughly clean with soap and water the interior of the oven. Refer to cleaning instructions in this manual. Operate the oven at maximum thermostat setting for 45 minutes in Convection Mode.

Make sure the hinged back of the oven cavity is completely closed and the thumb screws are secured properly.

Install the rack guides and racks.

OPERATION

⚠ WARNING The oven and its parts are hot. Use care when operating, cleaning or servicing the oven. The cooking compartment contains live steam. Stay clear while opening the door.

OPERATING CONTROLS LOCATION

The Control Panel consists of the following controls, which are explained in the OPERATING CONTROLS FUNCTION section of this manual:

1. Oven Vent Valve
2. Oven Convection fan
3. Cooking Selector Knob
4. Warming - Rethermalization
5. Combination Cooking
6. Off
7. Convection Cooking
8. Steam Cooking
9. Thermostat Controlled Steam Cooking
10. Oven Temperature Display (LED)
11. Oven Temperature Adjustment Knob
12. Oven Temperature Button
13. Oven Time Display (LED)
14. Oven Time Adjustment Knob
15. Oven Timer Button
16. Humidity Control (Spritzer), (Humidity Injector)
17. Oven Light Button
18. Fan Speed Selector Button (Full & Half Speed)

Optional Internal Product Probe

19. Internal Product Probe Temperature Display (LED)
20. Internal Product Probe Temperature Adjustment Knob
21. Internal Product Probe Button Control panel.

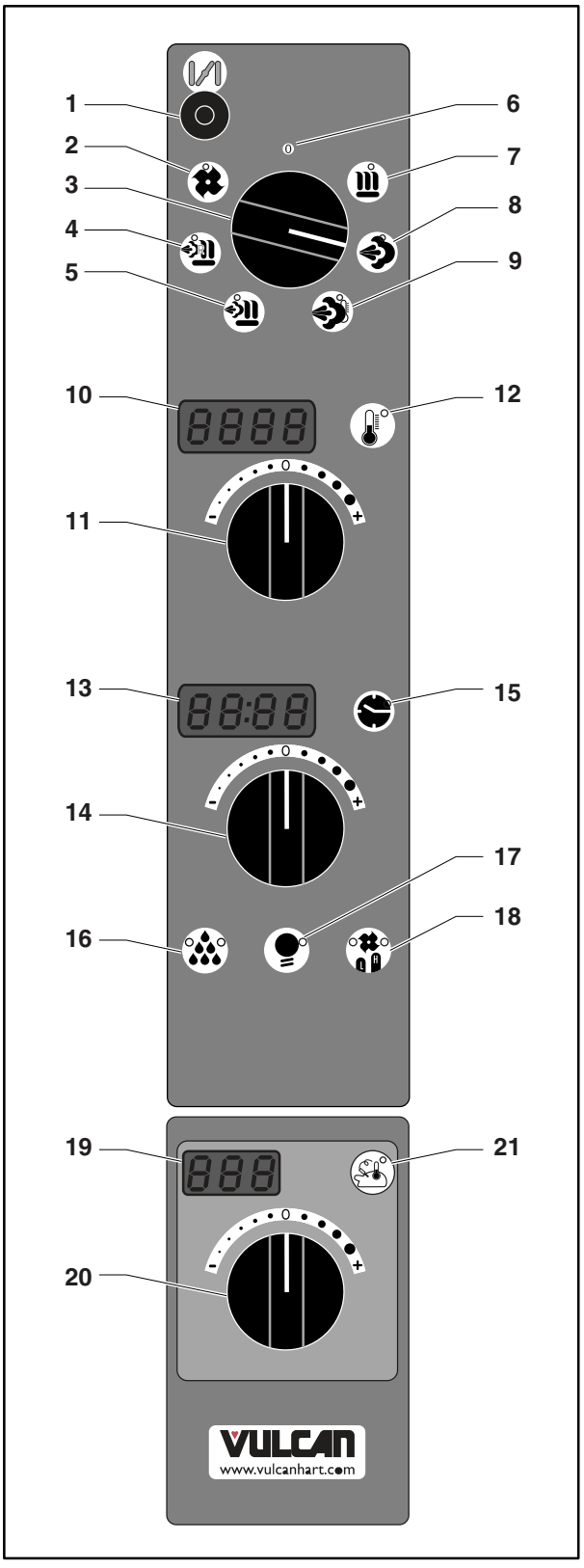

Figure 9: Operating Control Location

Oven Vent Valve

The Oven Vent Valve opens or closes the Vent to adjust the amount of steam venting from the oven. Pull the Oven Vent Valve out to open it. Push it in to close it.

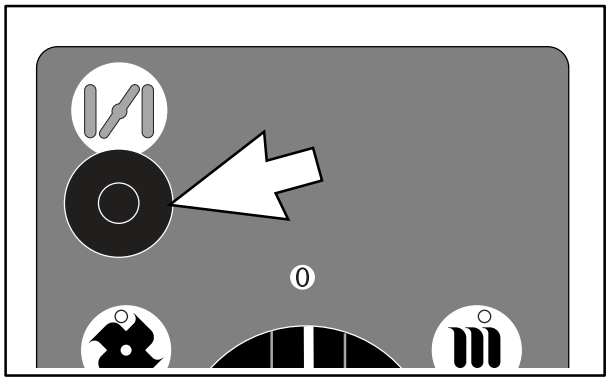

Figure 10: Oven Vent Valve

Oven Convection Fan

When the Oven Convection Fan is on, the LED will be illuminated. The Oven Convection Fan can be used to rapidly lower the oven temperature. The Oven Timer Adjustment Knob must be set to continuous, or a specific time must be set, and the door must be closed in order for the Oven Convection Fan to operate.

For quicker cool down, press the Humidity Control button twice. This injects approximately 5 gal/h of water into the oven, cooling it faster.

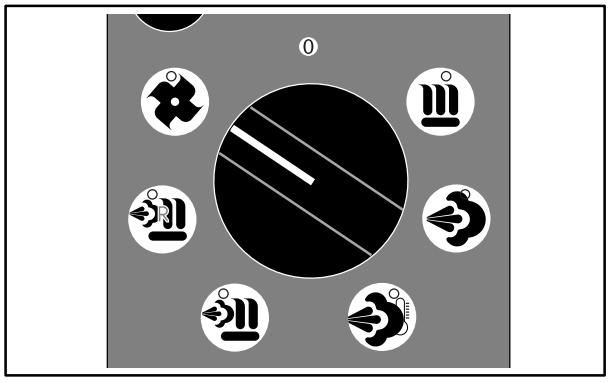

Figure 11: Oven Convection Fan

Cooking Selector Knob

The Cooking Selector Knob has seven selectable positions corresponding to the different cooking modes of the oven, or the off position as shown. When a cooking mode is selected, the respective LED light will flash and after a few seconds, the control panel will illuminate, indicating that the oven is prepared for cooking.

NOTE: Select the desired cooking mode at least ten minutes prior to cooking to allow the oven to pre-heat and be ready for cooking.

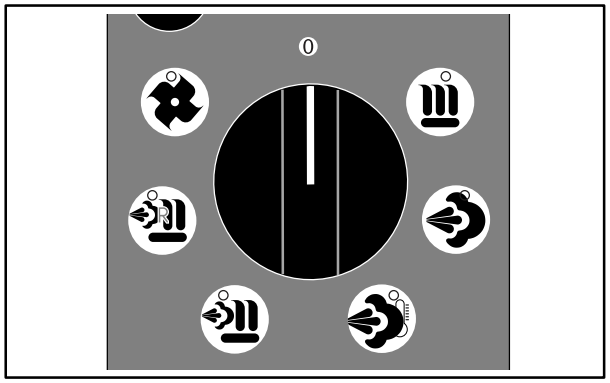

Figure 12: Cooking Selector Knob

Warming - Rethermalization Mode

Use the rethermalization mode to warm-up (rethermalize) refrigerated foods. Warming is accomplished in the combined mode at a temperature range of 210°F (100°C) to 518°F (270°C) on low speed.

Cold food shall not be added to the unit for rethermalization while hot food is being held.

The Oven Timer Adjustment Knob must be set to continuous, or a specific time must be set, and the door must be closed in order for the Oven Convection Fan to operate.

NOTE: It is recommended that the Vent Valve remain open while warming food.

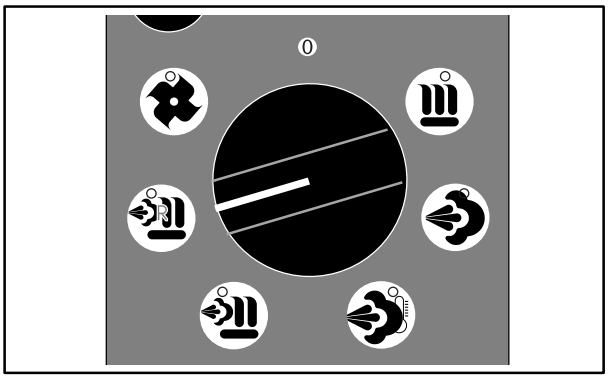

Figure 13: Warming - Rethermalization

Combined Cooking

The temperature range for combined cooking is from 212°F (100°C) to 518°F (270°C). The default value is 302°F (150°C). This cooking method combines the benefits of steam and convection. With combined cooking, cooking time can be reduced from 5% to 50% even for foods such as potatoes, carrots, etc. With combined cooking it is possible to steam foods and then glaze them to make them crispy. Foods such as roasts, hams, etc., minimize their loss of weight and moisture. Foods cook quickly and brown evenly while keeping the product moist and flavorful.

The Oven Timer Adjustment Knob must be set to continuous, or a specific time must be set, and the door must be closed in order for the Oven Convection Fan to operate.

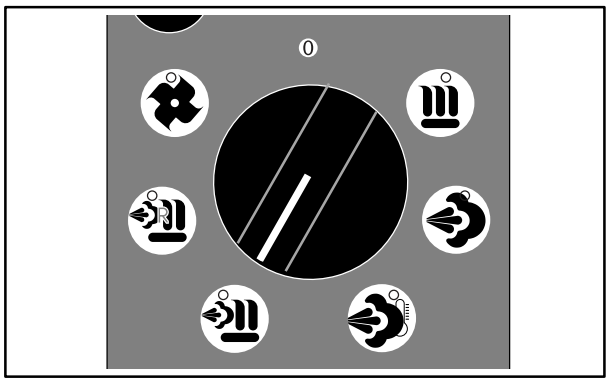

Figure 14: Combined Cooking

Convection Cooking

For cooking temperatures ranging from 68°F (20°C) to 518°F (270°C), hot air is evenly distributed in the oven by a convection fan. The default value is 302°F (150°C). This method of cooking is ideal for baking, roasting, toasting and grilling.

The Oven Timer Adjustment Knob must be set to continuous, or a specific time must be set, and the door must be closed in order for the Oven Convection Fan to operate.

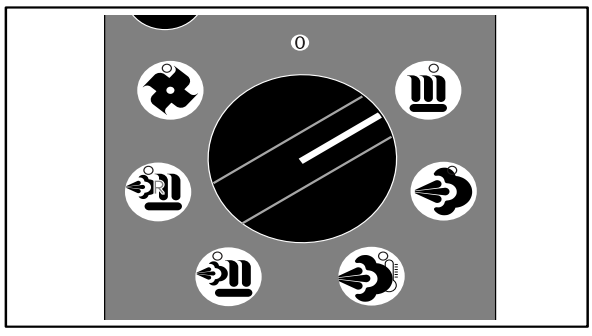

Figure 15: Convection Cooking

Steam Cooking

The main advantage of steaming is the nutritional values are maintained. It is the most efficient means of cooking and the food does not lose its moisture. Steaming is conducted at 212°F (100°C). In the steam mode the convection fan does not start until the oven reaches 176°F (80°C).

The Oven Timer Adjustment Knob must be set to continuous, or a specific time must be set, and the door must be closed in order for the Oven Convection Fan to operate.

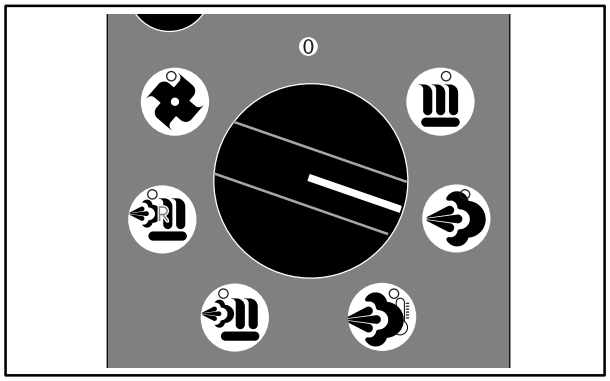

Figure 16: Steam Cooking

Thermostat Controlled Steam Cooking

The temperature range for thermostatically controlled steam cooking is from 68°F (20°C) to 210°F (99°C). This method of cooking is ideal for foods that have already been processed, portioned and vacuum packaged. The main advantages of this method of cooking are the ability to cook in batches, food is preserved longer, there is minimal weight loss and the nutritional values are maintained.

Adjustment Knob must be set to continuous, or a specific time must be set, and the door must be closed in order for the Oven Convection fan to operate.

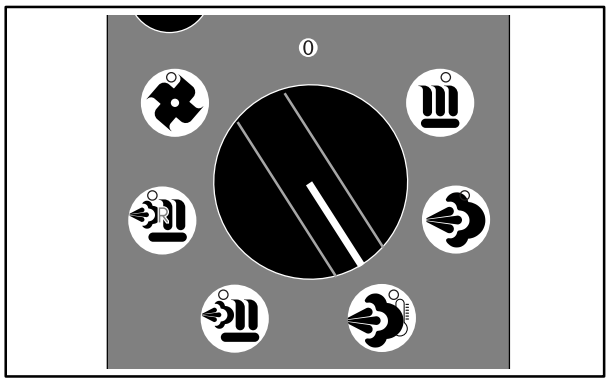

Figure 17: Thermostat Controlled Steam Cooking

Oven Temperature Display

After selecting the desired cooking method, the Oven Temperature Display will display the default temperature. The default temperature is 302°F (150°C) During cooking, the display will indicate the set temperature of the oven.

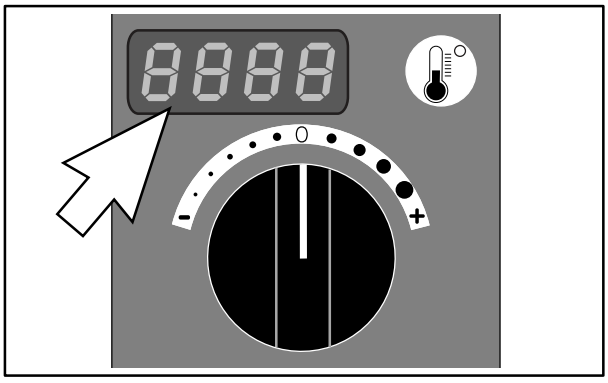

Figure 18: Oven Temperature Display

Temperature Ranges		
Mode	**°F**	**°C**
Steam	212°F	100°C
Rethermalization	210–518°F	100–270°C
Combined	212–518°F	100–270°C
Convection	68–518°F	20–270°C

Oven Temperature Button

During a cooking cycle, press the Oven Temperature Button to display current oven temperature.

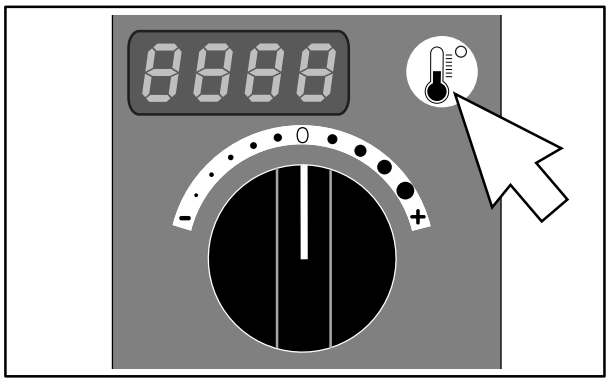

Figure 19: Oven Temperature Button

Oven Temperature Selector Knob

The Oven Temperature Selector Knob is used to change the desired oven cooking temperature. Press the Oven Temperature Button, then turn the Oven Temperature Selector Knob clockwise to increase or counter clockwise to decrease setting. The Oven Temperature Button must be pressed to change the temperature during operation.

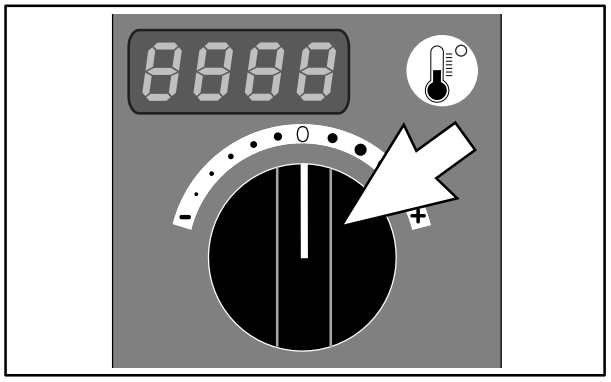

Figure 20: Oven Temperature Selector Knob

Oven Timer Button

The Oven Timer button is used to change the timer display and to silence the audible end of the cook cycle alarm. During cooking, the timer displays the remaining time. Pushing the Oven Timer button toggles the display to the oven set time.

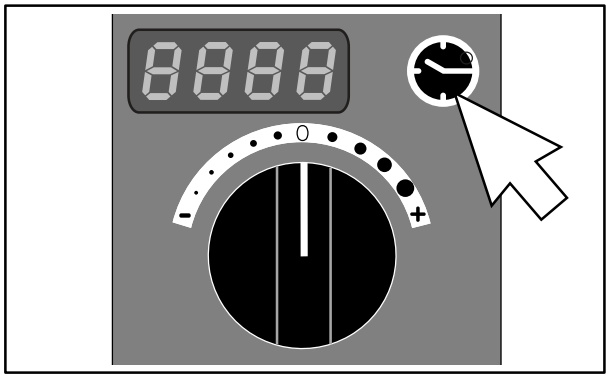

Figure 21: Oven Timer Button

Oven Timer Adjustment Knob

The Oven Timer Adjustment Knob is used to change the desired oven cooking time. To adjust the time, turn the timer knob clockwise to increase the time or counterclockwise to decrease the time. The oven can also be placed in continuous cooking mode by turning the Oven Timer Adjustment Knob counterclockwise until “Cont” displays.

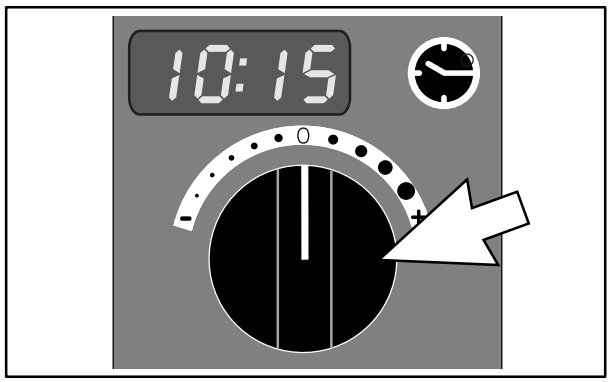

Figure 22: Oven Timer Adjustment Knob

Humidity Control

The Humidity Control button controls the level of moisture in the oven. This is essential for cooking products with low moisture content such as bread, biscuits, cakes and soft items. The Humidity Control button is also used to prevent roasts from burning or losing their moisture. The Humidity Control button has two positions. Pressing the button once (the left LED will illuminate) injects approximately 1 Gal/h (4 l/h) of water into the oven while cooking. Pressing the button again (the right LED will illuminate) injects approximately 5 Gal/h (18 l/h) of water into the oven while cooking. To turn the Humidity Control off, press the button again (both LED lights will extinguish).

NOTE: The humidity control button only works in Convection Cooking and Oven Convection Fan modes.

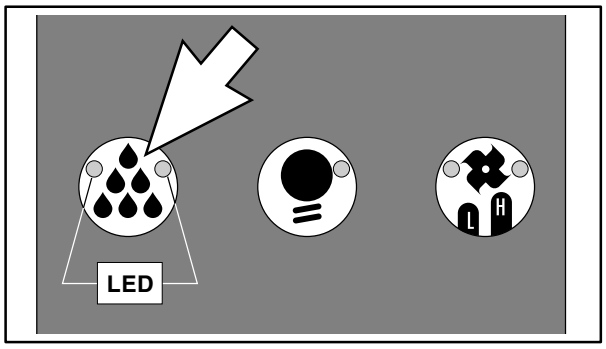

Figure 23: Humidity Control

Oven Light Button

The Oven Light button turns the oven light on or off when the oven is on.

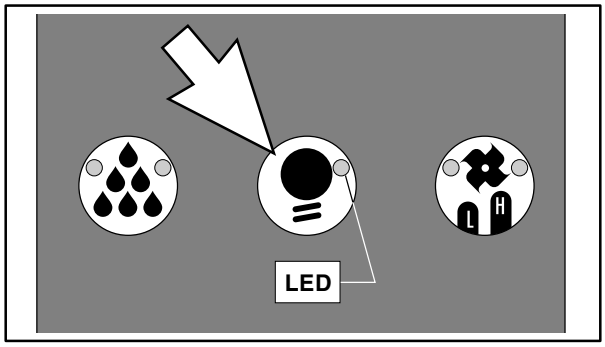

Figure 24: Oven Light

Fan Speed Selector

The Fan Speed Selector controls the speed of the Oven Convection Fan. This makes it possible to reduce the amount of air in the oven for cooking delicate items that require less airflow. The button has two positions; Low speed and High speed. High is used for fast cooking while Low is used for cooking delicate items or for steaming. The LED lights in the corner of the button correspond to the fan speed selected. Pressing the button once will select the Low Speed setting and the left LED will be illuminated. Pressing the button again will select the High Speed setting and the right LED will be illuminated.

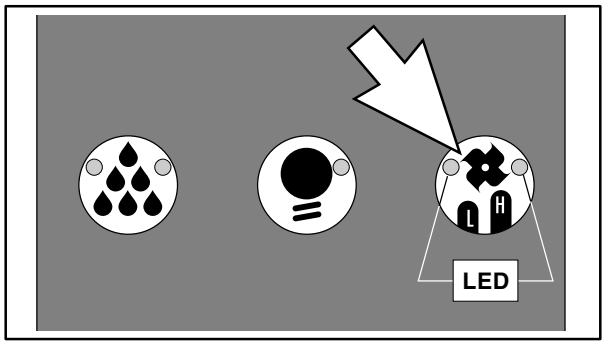

Figure 25: Fan Speed Selector

Internal Product Probe Temperature Selector Knob

The optional Internal Product Probe that can be attached to maintain specific internal cooking temperatures. The temperature range is from 68°F (20°C) to 210°F (99°C). For such items as roast-beef, pâté, etc., the internal cooking temperature is important to maintain. By using the Internal Product Probe, the oven will switch off when the desired internal cooking temperature is reached. Setting the temperature for the Internal Product Probe disables the cook time timer. The Internal Product Probe can be used with all the optional cooking methods: steaming, convection cooking, combined cooking. The internal temperature guide for cooking with the Internal Product Probe can be found on page 21.

The Internal Product Probe Temperature Selector Knob controls the desired internal cooking temperature sensed by the Internal Product Probe. To adjust the desired internal temperature, turn the selector knob clockwise to increase the internal temperature or counterclockwise to decrease the internal temperature.

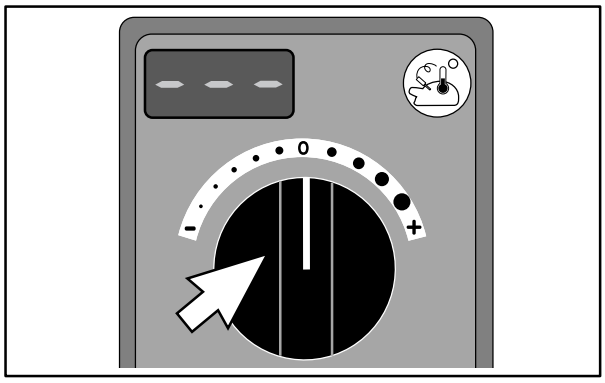

Figure 26: Internal Product Probe Temperature Selector Knob (if Installed)

Internal Product Temperature Probe Button

Press the Internal Product Temperature Probe Button to display the current internal temperature of the product being cooked.

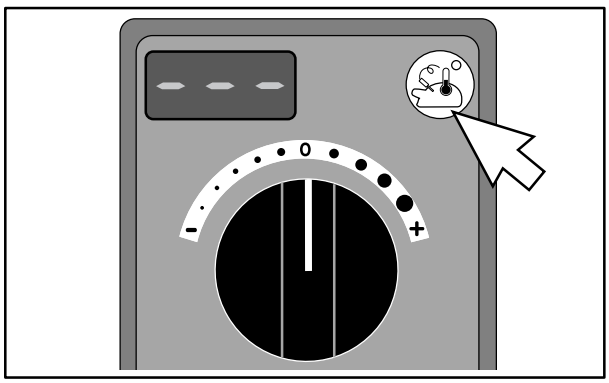

Figure 27: Internal Product Temperature Probe Button (if Installed)

COOKING

Make sure the hinged back of the oven cavity is completely closed and the thumb screws are secured properly.

To start up oven:

1. Select the desired cooking mode.
2. Select the desired cooking time by turning the selector knob clockwise to the desired time. The Oven Timer Adjustment Knob must be set to continuous, or a specific time must be set, and the door must be closed in order for the Oven Convection Fan to operate.

Turning the timer knob counterclockwise until "Cont" displays will place the oven in continuous cooking mode.

When the desired time is reached the oven will stop, an audible alarm will sound for one (1) minute and the display will change to "End".

3. To cancel the audible alarm, press the Timer Display button.

In order to set a new cooking time, the Timer Display button must first be pressed.

4. To cancel continuous cooking, place the Oven Timer Knob to zero or turn the Cooking Selector Knob to 0.

In the 212°F (100°C) steam mode, the convection fan will not come on until the oven temperature reaches 176°F (80°C). This allows the product to be cooked when the fan is not on.

The oven is equipped with a cooling fan for the internal components. It will start when the oven is on and stop approximately ten (10) minutes after the oven is turned off.

Cooking with the Internal Product Temperature Probe

To cook using the Internal Product Temperature Probe:

1. Insert the probe into the product to be cooked. Place the tip of the probe in or near the center of the product.
2. Place the product with probe in place, in or near the center of the oven.
3. Remove the protective cap and insert the probe electrical connector into the probe connection on the oven as shown below (Figure 28).

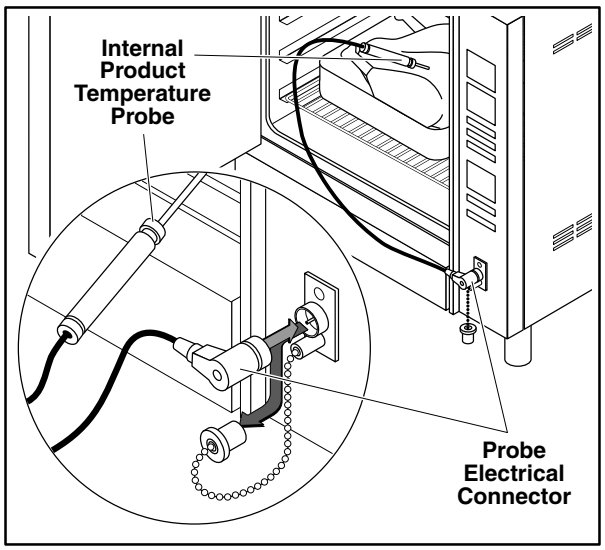

Figure 28: Cooking with the Internal Product Temperature Probe

4. Close the oven door.
5. Select the desired cooking method.
6. Push the Internal Product Temperature Probe LED button. The button LED will illuminate. The display will show a pre-set temperature and the minute counter display will be deactivated.
7. Select the desired internal cooking temperature. After a few seconds, the oven will begin cooking and the product internal temperature will be displayed.
8. During the cooking cycle, the minute counter will display the amount of elapsed time.
9. Cooking will stop when the product internal temperature reaches the desired set temperature.

If the probe exceeds 212°F (100°C) "OVL" (Overtemp) will show in the display.

The oven will automatically enter the Cook and Hold Mode when the desired product internal temperature is reached.

If the Internal Product Temperature Probe is hot at the start of the cooking cycle due to oven pre-heating, the display will flash until the actual temperature of the food is displayed and then cooking will commence.

Cook and Hold

Cook and Hold is only available when using the Internal Product Temperature Probe. At the end of the cooking cycle, the product is kept warm without its temperature falling below 158°F (70°C). The oven will maintain 158°F (70°C) as long as the product is in the hold mode. The display will flash “Hold” for ten (10) minutes. If the oven is not switched off or the product removed after ten (10) minutes, the display will change to a steady “Hold”. The Timer Display button can be pressed to see how long the product has been in Hold mode. To exit the Cook and Hold mode, turn the Selector Knob to 0.

NOTE: If probe is removed without changing the cooking mode alarm *PGNO* will display. When changing from probe to time cooking, you must switch the mode to time or *PGNU* will display.

DISPLAYING AND MODIFYING COOKING SETTINGS

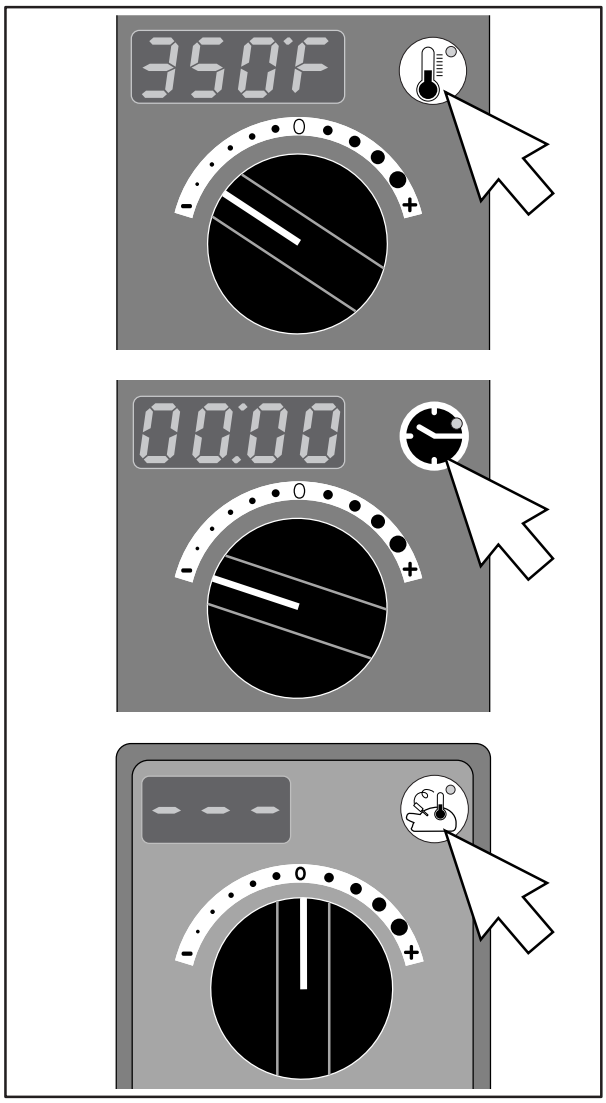

Figure 29: Cooking Settings

Cooking Settings

The setting can be changed at any time by pressing one of the buttons displayed in Figure 29. When selected, the appropriate LED will illuminate. The display will show either the oven temperature, the set time or the Internal Product Temperature Probe temperature. After a few seconds, the LED will extinguish and the display will change back to the previous display.

Change Cooking Settings

To change either the set temperature, timer or internal temperature while cooking:

1. Press the relevant button and the LED will illuminate.
2. Turn the knob.

After a few seconds, the new parameter will be accepted and the LED will extinguish.

Manually Lowering The Oven Temperature

To manually lower the oven temperature:

1. Close the oven door.
2. Turn selector knob to Oven Convection Fan position and open vent.
3. Select the desired temperature.
4. The oven temperature will lower to the desired temperature set.

Automatically Lowering Oven Temperature

If steaming or thermostatic steaming is selected while the oven is still hot, water is injected into the oven. This is so that the oven temperature can be lowered quickly and prevents food from being cooked at too high of a temperature.

DAILY SHUTDOWN

1. Place the Selector Knob to 0 (OFF).
2. Clean the oven interior.
3. Leave door open.

EXTENDED SHUTDOWN

1. Perform DAILY SHUTDOWN procedure.
2. Turn off the circuit breakers.
3. Turn off the water supply.
4. Thoroughly clean the oven interior, door seals, etc.
5. Leave door open.

Safe Cooking Temperatures

After desired cooking temperature is reached, remove meat from heat source and let stand 10 to 15 minutes before carving. The amount of time required for resting varies with the size of the cut of your meat. During this resting time, the meat continues to cook (meat temperature will rise 5 to 20 degrees after it is removed from the heat source) and the juices redistribute.

NOTE: For additional information on safe cooking temperatures, refer to USDA Safe Food Handling.

Beef and Lamb		
Roasts, Steaks & Chops		
Rare	120 to 125°F (49 to 52°C)	Center is bright red, pinkish toward the exterior portion.
Medium Rare	130 to 135°F (55 to 57°C)	Center is very pink, slightly brown toward the exterior portion.
Medium	140 to 145°F (60 to 63°C)	Center is light pink, outer portion is brown.
Medium Well	150 to 155°F (66 to 68°C)	Not pink.
Well Done	160°F (71°C) and above	Steak is uniformly brown throughout.
Ground Meat	160 to 165°F (71 to 74°C)	No longer pink but uniformly brown throughout.
Beef Brisket	160°F (71°C) and above	
Casseroles and Left overs	165°F (74°C)	
Poultry		
Poultry (Chicken & Duck)	165°F (74°C)	Cook until juices run clear.
Turkey	165°F (74°C)	Juices run clear – leg moves easily.
Stuffing (cooked alone or in turkey)	165°F (74°C)	
Pork		
Roasts, Steaks & Chops		
Medium	140 to 145°F (60 to 63°C)	Pale pink center.
Well Done	160°F (71°C) and above	Steak is uniformly brown throughout.
Pork ribs, pork shoulders, and pork loin	160°F (71°C) and above	Medium to well done.
Sausage (raw)	160°F (71°C)	No longer pink.
Ham Raw	160°F (71°C)	
Pre cooked	140°F (60°C)	
Seafood		
Fish (steaks, filleted or whole)	140°F (60°C)	Flesh is opaque, flakes easily.
Tuna, Swordfish, & Marlin	125°F (52°C)	Cook until medium rare. (Do not overcook or the meat will become dry and lose its flavor.)
Shrimp		
Medium size, boiling	3 to 4 minutes	Cook until medium rare. (Do not overcook or the meat will become dry and lose its flavor.)
Large size, boiling	5 to 7 minues	Cook until medium rare. (Do not overcook or the meat will become dry and lose its flavor.)
Jumbo size, boiling	7 to 8 minutes	Cook until medium rare. (Do not overcook or the meat will become dry and lose its flavor.)
Lobster		
Boiled, whole 1 lb.	12 to 15 minutes	Meat turns red and opaque in center when cut.
Broiled, whole 1 1/2 lbs.	3 to 4 minutes	Meat turns red and opaque in center when cut.
Steamed, whole 1 1/2 lbs.	15 to 20 minutes	Meat turns red and opaque in center when cut.
Baked, tails each	15 minutes	Meat turns red and opaque in center when cut.
Broiled, tails each	9 to 10 minutes	Meat turns red and opaque in center when cut.
Scallops		
Bake	12 to 15 minutes	Milky white or opaque, and firm.
Broil		Milky white or opaque, and firm.
Clams, Mussels & Oysters		Point at which their shells open – throw away any that do not open.

CLEANING

NOTE: Do not use any cleaners (soaps, detergents, disinfectants) that contain chlorine or chlorides.

OVEN DRAINS

To keep the oven drain free of blockage:

1. Inspect the oven drain daily for any blockage.
2. Remove any particles or debris from the perforated strainer daily (more often if needed).

After cooking greasy foods or seafood:

1. Make a solution of warm water and detergent and pour ½ gallon (1.9 liters) of it down into the compartment drain.
2. Rinse by pouring ½ gallon (1.9 liters) of hot water down the drain.

OVEN COMPARTMENT

Daily

1. Remove the oven racks and rack guides.
2. Wash the inside of the oven compartment with a solution of warm water and detergent.
3. Rinse with warm water.
4. Remove the drain hole cover and wash with a solution of warm water and non-chloride detergent.
5. Rinse with warm water.

Weekly

1. Thoroughly clean the exposed surfaces (sides, front, door and top) with a damp cloth.
2. Polish with a clean cloth.
3. To remove discolorations, use a nonabrasive cleaner.

Door Gasket

1. Clean the gasket-sealing surface of the oven doors to remove food acids for maximum gasket life. Do not use any solvents or sharp instruments.
2. Wash with a cloth moistened in a solution of mild detergent and warm water.
3. Rinse with a fresh cloth moistened with warm water to remove all traces of detergent.
4. Wipe dry with a clean cloth.

NOTICE Never apply food oils or petroleum lubricants directly to the door gasket. Petroleum-based solvents and lubricants will reduce the gasket life.

Leave Oven Door Open

Leave the oven door slightly open when the oven is not in use. When the oven is idle, never latch the door and apply pressure to the door gasket. Leaving the gasket under pressure can cause permanent deformation and reduce the gasket life.

STAINLESS STEEL EQUIPMENT CARE AND CLEANING

Contrary to popular belief, stainless steels ARE susceptible to rusting.

Corrosion on metals is everywhere. It is recognized quickly on iron and steel as unsightly yellow/orange rust. Such metals are called “active” because they actively corrode in a natural environment when their atoms combine with oxygen to form rust.

Stainless steels are passive metals because they contain other metals, like chromium, nickel and manganese that stabilize the atoms. 400 series stainless steels are called ferritic, contain chromium, and are magnetic; 300 series stainless steels are called austenitic, contain chromium and nickel; and 200 series stainless, also austenitic, contains manganese, nitrogen and carbon. Austenitic types of stainless are not magnetic, and generally provide greater resistance to corrosion than ferritic types.

With 12-30 percent chromium, an invisible passive film covers the steel’s surface acting as a shield against corrosion. As long as the film is intact and not broken or contaminated, the metal is passive and stainless. If the passive film of stainless steel has been broken, equipment starts to corrode. At its end, it rusts.

Enemies of Stainless Steel

There are three basic things which can break down stainless steel’s passivity layer and allow corrosion to occur.

1. Mechanical abrasion
2. Deposits and water
3. Chlorides

Mechanical abrasion means those things that will scratch a steel surface. Steel pads, wire brushes and scrapers are prime examples.

Water comes out of the faucet in varying degrees of hardness. Depending on what part of the country you live in, you may have hard or soft water. Hard water may leave spots, and when heated leave deposits behind that if left to sit, will break down the passive layer and rust stainless steel. Other deposits from food preparation and service must be properly removed.

Chlorides are found nearly everywhere. They are in water, food and table salt. One of the worst chloride perpetrators can come from household and industrial cleaners.

So what does all this mean? Don’t Despair!

Here are a few steps that can help prevent stainless steel rust.

1. **Use the proper tools.**

   When cleaning stainless steel products, use non-abrasive tools. Soft cloths and plastic scouring pads will not harm steel’s passive layer. Stainless steel pads also can be used, but the scrubbing motion must be in the direction of the manufacturer’s polishing marks.

2. **Clean with the polish lines**

   Some stainless steel comes with visible polishing lines or “grain.” When visible lines are present, always scrub in a motion parallel to the lines. When the grain cannot be seen, play it safe and use a soft cloth or plastic scouring pad.

3. **Use alkaline, alkaline chlorinated or non-chloride-containing cleaners.**

   While many traditional cleaners are loaded with chlorides, the industry is providing an ever-increasing choice of non-chloride cleaners. If you are not sure of chloride content in the cleaner used, contact your cleaner supplier. If your present cleaner contains chlorides, ask your supplier if they have an alternative. Avoid cleaners containing quaternary salts; it also can attack stainless steel and cause pitting and rusting.

4. **Treat your water.**

   Though this is not always practical, softening hard water can do much to reduce deposits. There are certain filters that can be installed to remove distasteful and corrosive elements. To insure proper water treatment, call a treatment specialist.

5. **Keep your food equipment clean.**

   Use alkaline, alkaline chlorinated or non-chloride cleaners at recommended strength. Clean frequently to avoid build-up of hard, stubborn stains. If you boil water in stainless steel equipment, remember the single most likely cause of damage is chlorides in the water. Heating cleaners that contain chlorides has a similar effect.

6. **Rinse, rinse, rinse.**

   If chlorinated cleaners are used, rinse and wipe equipment and supplies, and dry immediately. The sooner you wipe off standing water, especially when it contains cleaning agents, the better. After wiping equipment down, allow it to air dry; oxygen helps maintain the stainless steel's passivity film.

7. **Never use hydrochloric acid (muriatic acid) on stainless steel.**

8. **Regularly restore/passivate stainless steel.**

Recommended cleaners for specific situations

JOB	CLEANING AGENT	COMMENTS
Routine cleaning	Soap, ammonia, detergent, Medallion	Apply with cloth or sponge
Fingerprints & smears	Arcal 20, Lac-O-Nu Ecoshine	Provides barrier film
Stubborn stains & discoloration	Cameo, Talc, Zud, First Impression	Rub in direction of polish lines
Grease & fatty acids, blood, burnt-on-foods	Easy-off, De-Grease It Oven Aid	Excellent removal on all finishes
Grease & oil	Any good commercial detergent	Apply with sponge or cloth
Restoration/Passivation	Benefit, Super Sheen	

Review

1. Stainless steels rust when passivity (film-shield) breaks down as a result of scrapes, scratches, deposits and chlorides.
2. Stainless steel rust starts with pits and cracks.
3. Use the proper tools. Do not use steel pads, wire brushes or scrapers to clean stainless steel.
4. Use non-chlorinated cleaners at recommended concentrations. Use only chloride- free cleaners.
5. Soften your water. Use filters and softeners whenever possible.
6. Wipe off cleaning agent(s) and standing water as soon as possible. Prolonged contact causes eventual problems.

To learn more about chloride-stress corrosion and how to prevent it, contact the equipment manufacturer or cleaning materials supplier.

Developed by Packer Engineering, Naperville, Ill., an independent testing laboratory.

Provided courtesy of NAFEM.

MAINTENANCE

⚠ WARNING The oven and its parts are hot. Use care when operating, cleaning or servicing the oven. The cooking compartment contains live steam. Stay clear while opening the door.

Water Treatment System

A water treatment system is recommended for the combination oven. Refer to the supplier's manual for normal maintenance procedures for proper scale-free operation.

Removal of Lime Scale Deposits

The oven cavity should be delimed when symptoms occur (see Troubleshooting Chart). This is in accordance with the minimum preventive maintenance schedule required by warranty.

Items required (not provided):

- Deliming material (Recommended product Scale Release™)
- Plastic or rubber gloves
- Safety goggles or face shield
- Measuring cup
- 1-gallon container for mixing the deliming solution

NOTICE Deliming solution may cause the surface of aluminum measuring tools to tarnish or etch.

Door Gasket Replacement

Call your local service agent to replace the gasket.

Oven Light Replacement

NOTICE Do not touch new bulb glass with bare hand.

1. Remove the oven rack and rack guides to gain access to the light/s.
2. Remove the screws securing the light lens to the cabinet.
3. Carefully remove the lens avoid damaging the lens gasket.
4. Remove and replace the defective light bulb.
5. If the gasket has come loose, secure it.
6. Reinstall the lens cover making sure the gasket is properly seated.

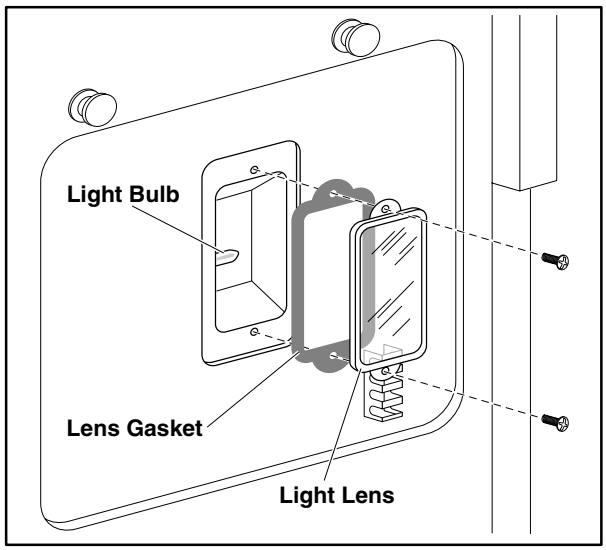

Figure 30: Oven Light

MESSAGES AND ALARMS

Messages

When applicable, the Oven Timer LED will display the following messages:

LCD DISPLAY MESSAGE	DESCRIPTION
door	The oven door is open, or the door drip tray is not in place or is missing.
ConT	The Selector Knob has been rotated counterclockwise and the oven has been placed in continuous operation mode.
HoLd (Flashing)	Cook cycle is complete and oven is entering the Cook and Hold mode.
HoLd (Steady)	The oven is in Cook and Hold mode.
End	Cooking has ended.

Alarms

When applicable, the Control Panel LED will display the following alarms:

LCD ALARM DISPLAY	DESCRIPTION
P1 no	Oven temperature sensor broken or disconnected.
P6no	Internal Product Probe is broken and/or disconnected (it is still possible to operate the oven without the Internal Product Probe).
P7no	Oven internal electrical compartment temperature has exceeded 158°F (70°C).
noT	Convection Fan Motor failure
*oF	Internal Product Probe temperature has exceeded 210°F (99°C).
*oLT	The power supplied to the oven is either too high or too low for proper operation.
*EEP	Invalid parameter entry.
OVF	The internal product probe temperature has exceeded 212°F (use symbol)/ 100°C.

*** IMPORTANT:** If any of the last three alarms are displayed, it is recommended that an Authorized Vulcan-Hart service provider be called to examine and/or repair the oven.

TROUBLESHOOTING

Problem	Possible Cause / Suggested Corrective Action
Oven not heating/steaming	No main power source / Check power source or circuit breaker. Cooking Selector Knob in 0 position / Turn Selector Knob to the desired cooking operation. Door is open / Close the door.
Oven door leaks	Damaged door gasket / Check door gasket for damage. If adjustment or replacement is needed, contact your Authorized Vulcan-Hart service provider. Damage to gasket sealing surface / Contact your Authorized Vulcan-Hart service provider.
Oven does not cook evenly	Products may be too close together / Check to make sure there is good air circulation between the products.
Product is dry	Product humidity too high / Set Humidity Control to proper setting. Oven temperature too high / Set oven to correct temperature to product being cooked.
Water accumulates in the oven compartment	Plugged drain or screen / Remove the cover from the oven drain and check for any obstructions. Oven not leveled properly / See leveling instructions in the INSTALLATION section of this manual.
Water not being supplied to the oven	Water Manual Shutoff Valve is off / Turn the Manual Shutoff Valve on. Water pressure too low / Check water supply pressure. Water filter is plugged / Refer to water filter manual. If symptom persists, contact your Authorized Vulcan-Hart service provider. Valve inlet screen is clogged / Contact your Authorized Vulcan-Hart service provider.
Unit shuts down while operating	Hi Limit trip / Contact your Authorized Vulcan-Hart service provider.

SERVICE AND PARTS INFORMATION

To obtain service and parts information, contact the Vulcan-Hart Service Agency in your area or refer to our website www.vulcanequipment.com for a complete listing of authorized service and parts providers.

When calling for service the following information must be available:

- Model Number
- Serial Number
- Manufacture Date (MD)
- Voltage