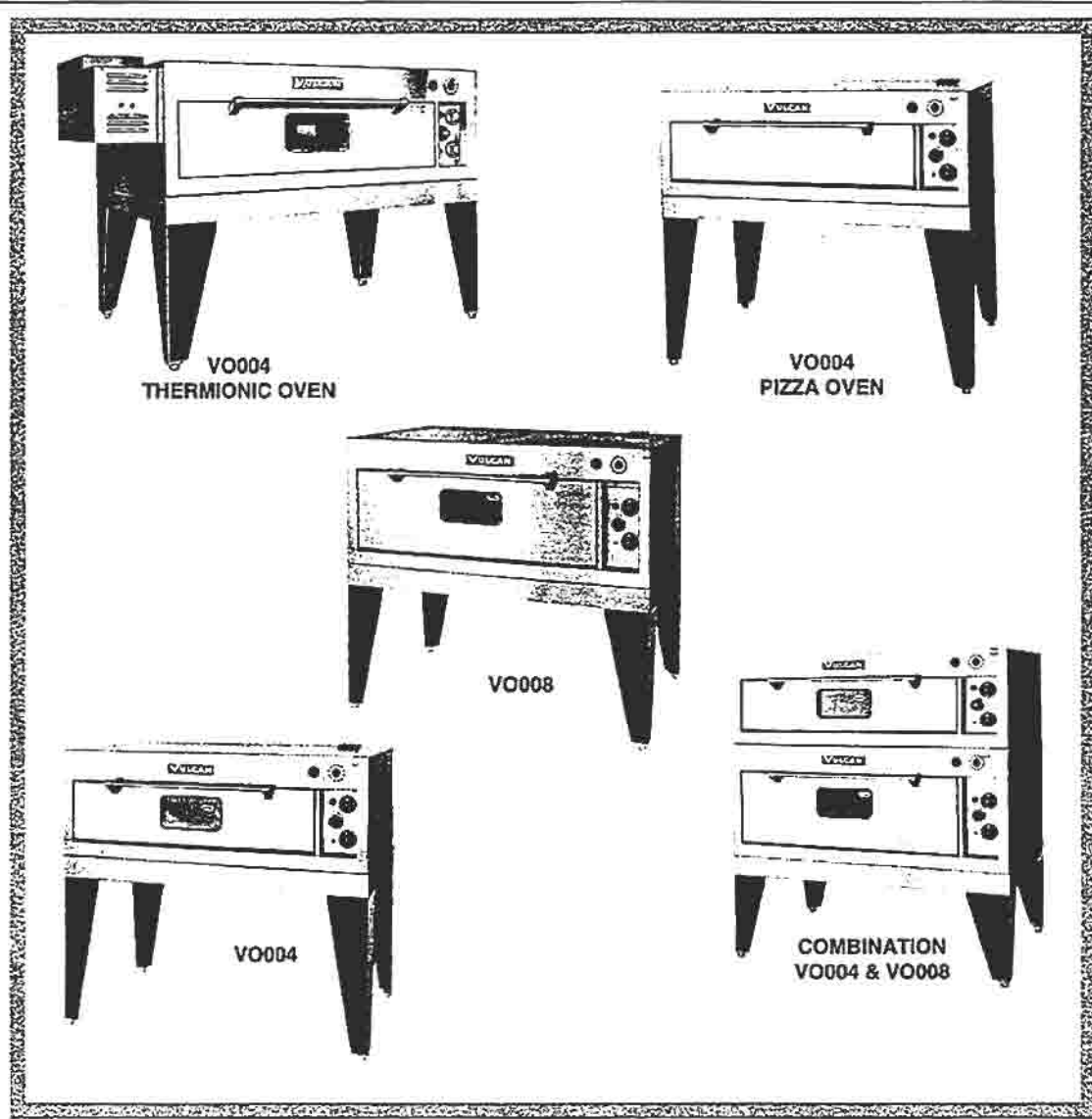


VULCAN

INSTALLATION AND OPERATION MANUAL FOR ELECTRIC BAKE AND ROAST OVENS MODELS VO004 & VO008



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INSTALLATION AND OPERATION MANUAL

ELECTRIC BAKE & ROAST OVENS

MODELS VO004 & VO008

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PLEASE KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE

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GENERAL

Your Vulcan-Hart Model VO004 and VO008 Ovens are available in one-, two-, or three-section units and may be installed with or without legs.

Model VO004 is a bake oven; Model VO008 is a roast oven. VO004 and VO008 Ovens may be combined to provide the versatility of both baking and roasting operations.

VO004 and VO008 Oven model numbers can have the following suffixes:

- T - Top Oven
- M - Middle Oven
- B - Bottom Oven
- P - Pizza Oven

Tubular heating elements are located at the top of the oven chamber and under the deck. Removable decks provide even heat throughout the entire deck surface and are of one-piece air cushion steel or deck plate. The heat is applied to the product inside the oven by conduction (through the bottom deck), radiation (through the exposed top heating elements), and in Thermionic models equipped with a fan, through convection.

Your Vulcan oven is produced with quality workmanship and material. Proper installation, usage and maintenance will result in many years of satisfactory performance.

The manufacturer suggests that you thoroughly read this entire manual and carefully follow all of the instructions provided.

INSTALLATION

Before installing the oven, check the electrical service to make sure it agrees with the specifications on the oven data plate located on front frame flange below control panel. If the supply and equipment requirements do not agree, do not proceed with the installation. Contact your dealer or Vulcan-Hart Company immediately without proceeding to the next step.

UNCRATING

This oven was carefully inspected before leaving the factory. The transportation company assumes full responsibility for safe delivery upon acceptance of this shipment.

Immediately after unpacking the oven, check it for possible shipping damage. If the oven is found to be damaged after unpacking, save the packaging material and contact the carrier within 15 days of delivery.

INSTALLATION CODES AND STANDARDS

In the United States, your Vulcan-Hart oven must be installed in accordance with state and local codes, or in the absence of local codes, with the National Electrical Code ANSI/NFPA-70 (latest edition).

In Canada, your Vulcan-Hart oven must be installed in accordance with local codes, or in the absence of local codes, with the Canadian Electrical Code Part 1, CSA Standard C22.1 (latest edition) available from The Canadian Standards Assn., 178 Rexdale Blvd., Rexdale, Ontario, Canada M9W 1R3.

ASSEMBLY

1. Locate the ovens as close to the installation location as possible.
2. Uncrate bottom deck and base section.

3. Uncrate legs and fasten legs to base section with the hex head bolts, nuts and washers provided.
4. If there are two sections of oven, uncrate the top oven; if there are three sections, uncrate the middle oven.
5. Place the base section in its installation position if sufficient work access exists or as near its installation position as possible. Place a piece of 1" lumber (approximately 1" x 4" x 60") across the top of the base section.
6. Lift the middle or top oven up onto the base section. Slide the oven forward until the tabs (Fig. 1) on the body sides engage behind the base section front top.
7. Remove the lumber and lower the rear of the oven onto the base section. Make sure that the vent stacks engage properly.
8. Fasten sides to base section front with the flat head bolts (Fig. 1) provided. Fasten backs with sheet metal screws (Fig. 1) provided.

9. Repeat Steps 4 through 7 to install top deck of a three-section oven.

10. If oven is not in place, move it to its final installed position.

NOTE: When installing a new oven section without base on a previously installed oven section or sections, the main top should be removed and the new deck installed as in Steps 4 through 7. The main top should then be reinstalled, making sure that the vent stack engages with the vent cover and that the two long screws (Fig. 1) are replaced halfway along the main top sides.

LEVELING

Using a 24" level, check on the top oven deck, inside the oven, that the ovens are level. Level oven to within $\frac{1}{8}$ " front-to-back and side-to-side by turning the adjustable feet. If oven is not equipped with adjustable feet, level by using metal shims under the legs or at oven base corners.

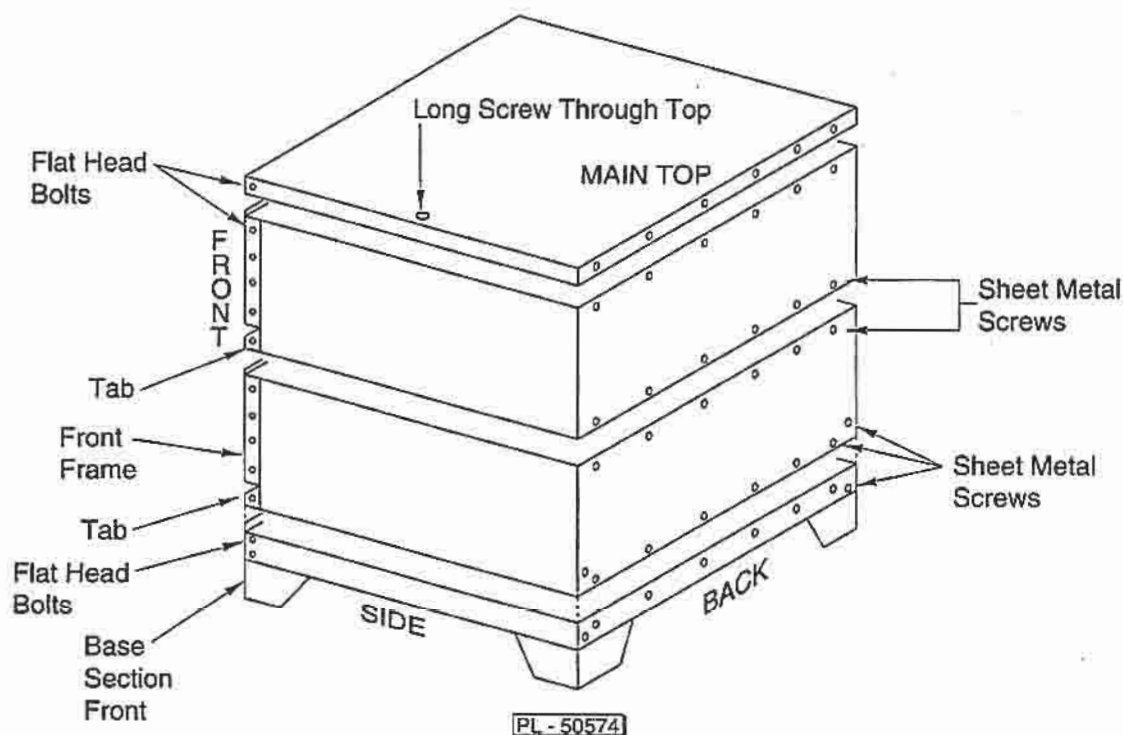


Fig. 1

ELECTRICAL CONNECTIONS

WARNING: ELECTRICAL AND GROUNDING CONNECTIONS MUST COMPLY WITH THE APPLICABLE PORTIONS OF THE NATIONAL ELECTRICAL CODE AND/OR OTHER LOCAL ELECTRICAL CODES.

WARNING: DISCONNECT ELECTRICAL POWER SUPPLY AND PLACE A TAG AT THE DISCONNECT SWITCH TO INDICATE YOU ARE WORKING ON THE CIRCUIT.

Ensure that the electrical supply agrees with the specifications on the data plate before making wiring connections.

Bring conduit containing the proper supply wire to the oven. Select the size and type of field wire in accordance with National Electrical Code suitable for carrying the equipment's rated amps and voltage. Use field wires suitable for 75°C on ovens carrying more than 80 amps. The conduit can be brought into the oven either through the clearance hole in the back and terminated on the

bracket behind the breaker box, or from the bottom of the oven and terminated on the main bottom beneath the terminal block.

Connect the supply leads to the field terminal block, and the green, grounded lead to the labeled ground lug.

On multiple deck ovens, bring the leads connected to the terminal block and the 2-pole porcelain block (on ovens equipped with lights) of the top section through the hole between the ovens and connect them to the lower section ovens as shown in the wiring diagram located on the control panel cover of each specific model.

The oven is now ready for operation. Turn the supply voltage on, the thermostats to mid positions, the 3-heat switches to HI position and measure the amp reading in each line. Compare the amp reading you obtained with the expected nominal values shown in the table on the wiring diagram mounted to the back of the switch panel cover. With proper installation, the two values should match very closely.

ELECTRICAL DATA CHART

NOMINAL AMPS. PER LINE WIRE

ALL MODEL VO004 & MODEL VO008 OVENS															
No. of Ovens	208V			3 Phase 240V			480V			1 Phase 208V 240V		Total Conn KW	3 Phase Loading KW Per Phase		
	X	Y	Z	X	Y	Z	X	Y	Z				X-Y	Y-Z	X-Z
	1	30	18	18	26	15	15	14	7.5	7.5	35		30	7.2	3.6
2	30	45	45	26	39	39	14	20	20	69	60	14.4	3.6	7.2	3.6
3	60	60	60	52	52	52	26	26	26	104	90	21.6	7.2	7.2	7.2

NOTE: When installing a new oven section without base on a previously installed oven section or sections, the wiring from the decks to the terminal block should be

rearranged to conform with the diagram for the arrangement which then exists. Check to ensure that the electrical service to the ovens is sufficient for the added load.

OPERATION

WARNING: THE OVENS AND THEIR PARTS ARE HOT. USE CARE WHEN OPERATING, CLEANING OR SERVICING THE OVENS.

CONTROLS

Two 3-Heat Switches — 4-position switches (OFF, LOW, MEDIUM, HIGH) that independently control the top and bottom heating elements for each oven section.

Thermostat — maintains overall interior temperature. Temperature ranges are as follows:

<u>Model</u>	<u>Temperature Range</u>
VO004 Bake Oven	150-550°F
VO008 Roast Oven	150-550°F
VO004P Pizza Oven	300-700°F

Signal Light — when lit, indicates heating elements are providing heat to the oven.

Timer — a 60-minute timer is provided on each oven section.

Damper Control Lever — mounted on each section and regulates moisture and releases cooking vapor through a vent.

Toggle Switch (in all except pizza ovens) — turns interior oven lights on and off.

BEFORE FIRST USE

Clean oven decks with a soft brush.

To release any paint fumes or moisture content, set the thermostat at 300°F and the 3-heat switches to MEDIUM. Allow ovens to operate for 6 to 8 hours with the damper wide open.

PREHEATING

Set both top and bottom 3-heat switches to HIGH and the thermostat to the temperature desired. The signal light will light and remain lit until the selected temperature is reached. Keep the door and damper closed while preheating.

Preheat time to 350°F is about 20 minutes. To ensure optimum heat saturation of the oven chamber, allow approximately an additional 20 minutes before loading.

LOADING THE OVEN

Load product quickly to prevent heat loss from the open oven door. Position pans in rows from rear to front of oven, starting from the right wall. Pans should not touch each other or the walls of the oven; at least 2" clearance is needed to permit air circulation between and around pans.

COOKING

Close oven door and set timer to desired cooking time. Where intermediate oven racks are used for baking (in all-purpose ovens), it is usually necessary to increase the bottom 3-heat switch setting and the time. If both rack and deck are loaded, it may be necessary to move the pans (rack-to-deck and deck-to-rack) when baking is one-half to two-thirds done to obtain desirable top and bottom browning.

Keep door opening during baking to a minimum for best product results. Bake and roast ovens are provided with a light and a door window which may be used to check baking progress as necessary.

MEAT ROASTING

Conventional Ovens

A balanced oven and 3-heat switch position of HIGH and HIGH are suggested, with the temperature control setting at the low temperature of 225-325°F, as recommended by the American Meat Institute and the Department of Agriculture. High top heat results in well colored or caramelized finish to meats.

When roasting fowl and a heavily browned appearance is not desired, the top oven switch should be set at MEDIUM or LOW.

The use of a meat thermometer is recommended for all roasting operations.

Thermionic Model

When roasting with the power blower ON, it is advisable to place two small pans of water (about one pint of water in each) on the deck near the front corners of the oven to maintain proper humidity and reduce shrinkage.

Appreciable time and shrinkage savings can be obtained with Thermionic roasting. Up to 50% time savings may

be realized, depending on temperature, size (thickness), fat cover, the variety (beef, lamb, chicken, pork, etc.) and cut of the product.

Shrinkage is usually reduced by 10% to 20%. Example: A bottom round beef roast, 325°F oven temperature, will be well done (165-180°F internal temperature) in about 40% less time. A full rolled rib at 225°F oven temperature, rare to medium rare (125-135°F internal temperature), will show no time savings, but a shrinkage saving of from 10% to 20%.

OPERATING HINTS

Stagger preheat periods of oven sections and use a minimum of electricity for other purposes while preheating:

Preheat to cooking temperature.

Avoid excessive door opening; also avoid direct air current on oven.

Load oven decks to capacity at one time (small loads are uneconomical).

Keep lower edge of door free of charred food particles.

Clear decks of carbonized foods after each loading.

Start day's baking with products that require the lowest temperature.

Do not connect oven vent to exhaust ducts.

Do not open damper more than necessary to carry off steam; this may cause uneven baking.

Do not use thermometers to measure oven heat. If performance is not satisfactory, have the oven checked by your local Vulcan-Hart authorized servicer.

CLEANING

WARNING: DISCONNECT ELECTRICAL POWER SUPPLY BEFORE CLEANING.

Stainless steel oven fronts may be cleaned with a damp cloth. Stubborn soil may be removed with detergent.

Porcelain oven linings and door linings may be cleaned with an oven cleaner compound or with a cloth dampened with detergent solution. Rinse thoroughly and dry with a soft clean cloth.

Inspection and light windows may be cleaned as the oven liner or with a mild abrasive. Scouring powder should be used only with great care. It will scratch and fog the glass, and it is easy to build up accumulations of excess scouring powder which can damage the oven and is extremely difficult to remove.

Silvertone surfaces may be cleaned with a cloth dampened with detergent solution. Rinse thoroughly and dry with a soft clean cloth.

Steel decks may be removed and scoured at the pot sink. After scouring, the steel decks should be lightly but thoroughly coated with oil and allowed to season in the oven at 450°F for 30 minutes to an hour. This seasoning will lessen sticking of spillage and inhibit rust.

Oven deck plates should be brushed and scraped regularly. A combination oven brush and scraper does a good job. Turning the deck every 30 days will keep it clean looking.

Spillage is more easily removed if lightly sprinkled with salt and the oven heated to 450°F for approximately 30 minutes.

HEAVY DUTY ELECTRIC OVEN BAKING CHART

This baking chart is a guide only. Recipes, mixing procedures, utensils used and individual standards of doneness, browning, etc., can result in variations in the precise time, temperature and switch settings necessary to produce a satisfactory product.

High product quality can be obtained and maintained only if all phases of the baking operation are properly performed.

Variation in ingredients, under or overmixing, holding time before baking, etc., affect texture, consistency and the basic quality of the product.

Product	Temp. °F	Conventional Top	Switch Setting Bottom	Time In Minutes
Cakes, Angel & Sponge Cake	300-325	LO or MED	LO or MED	40-60
Cupcakes	350-400	MED	MED	15-30
Layer and Sheet Cakes	350-380	MED or LO	MED or LO	25-40
Cookies	325-350	LO or MED	LO or MED	10-20
Pies, Pastries, Fruit Pies	375-450	MED or LO	MED	30-60
Meringue Pies	425-450	HI	OFF	5-10
Pie Shells	400-450	MED or LO	MED or LO	15-25
Puff Pastries	400	MED	MED	25-40
Quick Breads, Muffins, Biscuits	425-475	MED	MED	10-20
Corn Bread	425-475	MED or HI	MED	20-40
Corn Muffins	400-475	MED or HI	MED	15-30
Muffins, Plain & Fruit	375-425	MED	MED	20-40
Yeast Breads, Rolls, Loaf Bread	375-425	MED or LO	MED	30-60
Rolls	400-450	MED	MED	12-30
Sweet Rolls	375-425	LO or MED	MED	15-30
Special Products, Brown & Serve Rolls	400-450	MED	MED	8-15
Casseroles	300-325	MED	MED	30-45
Pizza	500-600	HI	MED or HI	6-15
Toasted Sandwiches	400-425	HI	HI or MED	10-15
Special Meats, Chicken, Oven Broil	400-425	HI	MED or LO	30-45
Hamburgers	400-425	HI	HI or MED	15-20

MEAT ROASTING GUIDE

SWITCH SETTINGS: For best results, set both oven switches on HIGH, with the temperature control at the indicated setting. Measured top heat provides excellent coloring and a caramelized finish to meats, but where a browned appearance is not desired (as in roasting fowl), the upper oven switch should be set to MEDIUM, LOW, or OFF.

The data in this chart is of a general nature. Many factors, such as size of bone, thickness of meat, temperature at time of roasting, individual taste as to degree of doneness, etc., must be taken into consideration. Pan selection and cooking times will also be governed by total weight and number of pieces. Use a meat thermometer to check internal meat temperatures.

Fully Thawed Type of Meat	Temp. Setting °F	Internal Meat Temp. °F	Minutes Per Lb.
BEEF			
Standing Rib 7 Rib, 20-25 Lb.	300	Rare 125°F Med. 140°F Well 150°F	13 15 17
Rolled Rib 7 Rib, 16-18 Lb.	250	Well 150°F	25
Rump or Chuck, 18-23 Lb.	300	140-170	20-30
LAMB			
Leg, 7-8 Lb.	300	180	30-35
Shoulder	300	180	40-45
PORK			
Ham, Leg, 15 Lb.	350	185	30-35
Ham, Boned, 15 Lb.	350	185	30-35
Boston Butt	350	185	45-50
Cured Ham, 20 Lb.	300	160	15-18
VEAL			
Leg, 25 Lb.	300	170	18-20
Shoulder, 15 Lb.	300	170	25
Shoulder, Rolled, 10 Lb.	300	170	35-40
POULTRY			
Chicken, Dressed, 4-6 Lb.	250-300	190	35-40
Duck, Dressed, 5-8 Lb.	300	190	25-30
Turkey, Dressed, 14-19 Lb.	300	190	20-25

THERMIONIC OVEN BAKING CHART

This baking chart is a guide only. Recipes, mixing procedures, utensils used and individual standards of doneness, browning, etc., can result in variations in the precise time, temperature and switch settings necessary to produce a satisfactory product.

High product quality can be obtained and maintained only if all phases of the baking operation are properly performed. Variation in ingredients, under or overmixing, holding time before baking, etc., affect texture, consistency and the basic quality of the product.

Product	CONVENTIONAL				THERMIONIC			
	Temp. °F	Switch Setting		Time In Min.	Temp. °F	Switch Setting		Time In Min.
		Top	Bottom			Top	Bottom	
CAKES AND COOKIES								
Angel & Sponge Cake	300-325	LO or MED	LO or MED	40-60	Little or No Improvement			
Cupcakes	350-400	MED	MED	15-30	375-425	HI	MED	6-15
Layer & Sheet Cake	350-380	MED or LO	MED or LO	25-40	375-425	HI or MED	MED or LO	12-18
Cookies	325-350	LO or MED	LO or MED	10-20	-	-	-	-
PIES AND PASTRIES								
Fruit Pies	375-450	MED or LO	MED	30-60	Little or No Improvement			
Meringue Pies	425-450	HI	OFF	5-10	-	-	-	-
Pie Shells	400-450	MED or LO	MED or LO	15-25	425-475	HI or MED	MED or LO	7-15
Puff Pastry	400	MED	MED	25-40	450	HI	MED	12-18
QUICK BREADS AND MUFFINS								
Biscuits	425-475	MED	MED	10-20	450-500	HI	MED or HI	4-8
Corn Bread	425-475	MED or HI	MED	20-40	450-500	HI	MED	10-20
Corn Muffins	400-475	MED or HI	MED	15-30	425-500	HI	MED	5-15
Muffins, Plain & Fruit	375-425	MED	MED	20-40	400-475	HI	MED	10-20
YEAST BREADS AND ROLLS								
Loaf Bread	375-425	MED or LO	MED	30-60	400-450	MED or LO	MED	15-30
Rolls	400-450	MED	MED	12-30	425-500	HI	HI or MED	4-15
Sweet Rolls	375-425	LO or MED	MED	15-30	400-450	MED	MED	7-18

Product	CONVENTIONAL				THERMIONIC			
	Temp. °F	Switch Setting		Time In Min.	Temp. °F	Switch Setting		Time In Min.
		Top	Bottom			Top	Bottom	
SPECIAL MEATS								
Chicken, Oven Broil	400-425	HI	MED or LO	30-45	450	HI	MED	15-25
Hamburgers	400-425	HI	HI or MED	15-20	450	HI	HI	6-10
Steak, 1" or Less Med. to Rare	—	—	—	—	450-500	HI	HI or MED	10-20
SPECIAL PRODUCTS								
Au Gratin	450-550	HI	LO or OFF	5-15	450-550	HI	LO or OFF	4-10
Brown & Serve Rolls	400-450	MED	MED	8-15	425-475	HI	MED	4-8
Casseroles	300-325	MED	MED	30-45	—	—	—	—
Cream Puffs & Popovers	—	—	—	—	450	HI	MED	13-18
Pizza	500-600	HI	MED or HI	6-15	500-550	HI	MED or HI	4-9
Toast	450-550	HI	MED or HI	8-12	450-500	HI	HI	4-6
Toasted Sandwiches	400-425	HI	HI or MED	10-15	450-500	HI	HI or MED	5-10
TV Dinners (Without Mashed Potatoes)	400-425	HI	MED or HI	20-40	450-500	HI	MED or HI	10-15

TROUBLESHOOTING GUIDE

Unsatisfactory browning of the products baked is often caused by incorrect installation or operation. The most common problems and their causes are listed below.

PROBLEM	CAUSES
Bottom of product burned-top light, or vice versa	<ol style="list-style-type: none">1. Incorrect switch positions. Use next lowest position for overbrowned surface and/or next highest for light surface.2. Oven heated to temperature above proper baking temperature and insufficient time allowed for cooling. Approximate cooling times for 25°F drop with door open: <p style="text-align: center;">Tile Deck: 25 Min.; Steel Deck: 10 Min.</p>3. Products placed on rack at chart-suggested switch setting. Suggested switch settings are for pans directly on deck.4. Baking on both rack and deck in roast ovens without switching pans when half done (see COOKING in this manual).5. Baking at consistently high temperatures.
Light sides, back, or front	<ol style="list-style-type: none">1. Frequent door opening.2. Insufficient preheat time to saturate oven, or insufficient time allowed when increasing temperature for different product.3. Pans touching oven sides or back. Place pans not less than 2" from sides and 3" from door.
Light front and dark back	<ol style="list-style-type: none">1. Frequent door opening during baking period. Inspect products through glass in door with inspection light. Establish baking time and leave door closed until time has elapsed.2. Excessive hooding pulling too much air through vent system.3. Drafts blowing directly on oven front.
Uneven or spotty browning	<ol style="list-style-type: none">1. Warped or dented pans.2. Accumulation of spillage on deck.3. Oven deck not level.4. Pans of different finish or color.

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