

# **VULCAN**

## *INSTALLATION & OPERATION MANUAL*

### *HEAVY DUTY ELECTRIC BROILER SERIES*

#### *MODELS*

<i>VB 21</i>	<i>ML-052312</i>
<i>VB 21C</i>	<i>ML-052312</i>
<i>VB 25</i>	<i>ML-052313</i>
<i>VB 73</i>	<i>ML-052249</i>
<i>VB 221</i>	<i>ML-052315</i>
<i>VB 221C</i>	<i>ML-052315</i>
<i>VB 225</i>	<i>ML-052316</i>
<i>VTMB 221</i>	<i>ML-052314</i>
<i>VTMB 221C</i>	<i>ML-052314</i>



# TABLE OF CONTENTS

GENERAL .....	3
INSTALLATION .....	4
Unpacking .....	4
Installation Codes and Standards .....	4
Location .....	4
Electrical Connections .....	4-5
Electrical Data Chart .....	5
Electrical Tests .....	6
Leveling .....	6
OPERATION .....	7
Controls .....	7
Before First Use .....	8
Using the Broiler .....	8
Using the Oven .....	8-9
Time, Temperature & Switch Chart for Baking .....	10
Cleaning .....	11
MAINTENANCE .....	12
Service and Parts Information .....	12

# Installation, Operation and Care of MODELS VTMB22, VTMB2, VB2S & VB21 HEAVY DUTY ELECTRIC BROILERS

## KEEP THESE INSTRUCTIONS FOR FUTURE USE

### GENERAL

Your Vulcan-Hart Heavy Duty Electric Broiler is produced with quality workmanship and material. Proper installation, usage and maintenance of your broiler will result in many years of satisfactory performance.

Vulcan-Hart Company suggests that you thoroughly read this entire manual and carefully follow all of the instructions provided.

Model VB Ovens are provided with one rack as standard equipment.

<b>MODEL</b>	<b>DESCRIPTION</b>
VB 21	Single section broiler with standard oven below
VB 25	Single section broiler with storage space below
VB 225	Double section broilers with storage space below
VTMB 2	Modular single section broiler
VTMB 22	Modular double section broiler
VB 73	Backshelf broiler for mounting over a 3-ft. (91 cm) range
VB 21C	Single section broiler with convection oven below
VB 221	Double section broiler with standard oven below
VB 221C	Double section broilers with convection oven below

# INSTALLATION

## UNPACKING

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

Remove all shipping wire, wood blocking, and accessories.

Before installing, verify that the electrical service agrees with the specifications on the rating plate located as follows: VTMB units - on the control panel front; VB21 - behind the oven door on the breaker box cover; and VB2S - behind the door panel of the storage cabinet base. If the supply and equipment requirements do not agree, contact your dealer or Vulcan-Hart immediately.

## INSTALLATION CODES AND STANDARDS

Your Vulcan broiler must be installed in accordance with:

1. State and local codes, or in the absence of local codes, with:
2. National Electrical Code ANSI/NFPA-70 (latest edition).

## LOCATION

Position the broiler in its installation position. The area around the broiler should be kept free and clear of all combustible materials.

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

Bring conduit containing the proper supply wire (size and type in accordance with latest edition of the National Electrical Code ANSI/NFPA-70) to the broiler. Use wire suitable for 167°F ( 75°C) on broilers carrying more than 80 amps. On Models VB2S, VB22S, VB21 and VB221, the conduit enters into the broiler through the 2" (51mm) hole located in the bottom of the broiler. On Models VTMB2 and VTMB22, the conduit enters through the clearance hole provided in the back and is terminated on the vertical panel behind the terminal block.

Connect the supply leads to the terminal block and the green grounding lead to the labeled ground lug.

Broilers designed for 220/380 or 240/415 volts require voltage supplies with grounded neutral (3 phase, 4 wire; or 1-phase, 3-wire).

Broilers wired for 3-phase service may be changed to 1-phase (or vice versa) by simply relocating two of the four broiler leads on the terminal block as shown in the wiring diagram. (1-phase not available on 480 volt models.)

All required broiler wiring diagrams are packaged separately in a clear plastic ziplock bag and shipped with the broiler.

## ELECTRICAL DATA CHART

### STANDARD VOLTAGES - 208 VOLTS OR 240 VOLTS 60 Hz 1 PHASE - 480 VOLTS 60 Hz 3 PHASE ONLY

MODEL DESCRIPTION	VOLTS 60 Hz	TOTAL KW CON.	3-PHASE LOADING			NOMINAL AMPS PER LINE											
			KW PER PHASE			1-PHASE		3-PHASE									
			X-Y	Y-Z	X-Z	208V	240V	208V			240V			480V			
			X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z			
VB2S Broiler w/Storage Base	208-240-480	12.0	3	6	3	58	50	25	37	37	22	32	32	16	11	16	
VB21 Broiler w/Oven	208-240-480	18.7	6	6	6.7	90	78	53	50	53	45	43	45	23	21.5	23	
VB22S Dbl.Broiler w/Storage	208-240-480	24.0	9	9	6	115	100	62	74	62	54	65	54	32	27	27	
VB221 Dbl.Broiler w/Oven	208-240-480	30.7	12	10	8.7	148	128	86	91	78	74	79	67	40	37	34	

### STANDARD VOLTAGES - 208 VOLTS OR 240 VOLTS 60 Hz 1 PHASE OR 3 PHASE - 480 VOLTS 60 Hz 3 PHASE ONLY

MODEL DESCRIPTION	VOLTS 60 Hz	TOTAL KW CON.	3-PHASE LOADING			NOMINAL AMPS PER LINE											
			KW PER PHASE			1-PHASE		3-PHASE									
			X-Y	Y-Z	X-Z	208V	240V	208V			240V			480V			
			X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z			
VTMB2 Single Broiler	480	12.0	3	3	6	—	—	—	—	—	—	—	—	—	16	11	16
VTMB2 Single Broiler	208-240	12.0	3	6	3	58	50	25	37	37	22	32	32	—	—	—	
VTMB22 Double Broiler	480	24.0	9	6	9	—	—	—	—	—	—	—	—	32	27	27	
VTMB22 Double Broiler	208-240	24.0	9	9	6	115	100	62	74	62	54	65	54	—	—	—	

## BROILERS WITH CONVECTION OVENS

"N/A" BROILERS NOT AVAILABLE IN 480V 1 PHASE

MODEL	TOTAL KW CONN.	3-PHASE LOAD			3-PHASE LOAD			NOMINAL AMPS PER LINE WIRE											
		KW PER PHASE			KW PER PHASE			3 PHASE									1 PHASE		
		208 & 240V			480V			208V			240V			480V			208V	240V	480V
		X-Y	Y-Z	X-Z	X-Y	Y-Z	X-Z	X	Y	Z	X	Y	Z	X	Y	Z	XYZ	XYZ	XYZ
VB21C	19.0	4.2	7.2	7.6	7.2	7.2	4.6	65	53	54	43	41	53	21	26	21	91	79	40
VB221C	31.0	10.2	10.2	10.6	7.2	13.2	10.6	87	85	87	75	74	75	32	337	43	149	129	N/A

## **ELECTRICAL TESTS**

Turn each switch from LOW through HIGH and verify that it controls the heating elements correctly.

### **Free Standing Models - 208V & 240V**

Left switch controls front element, LOW-HIGH  
Right switch controls rear element, LOW-HIGH

### **Free Standing Models - 480V**

Left switch controls two front elements  
Right switch controls two rear elements:  
    LOW = 2 elements on LOW  
    MED = 1 element on HIGH and 1 element OFF  
    HIGH = 2 elements on HIGH

### **Model VB73 - 208V & 240V**

Top switch controls left element, LOW-HIGH  
Bottom switch controls right element, LOW-HIGH

### **Model VB73 - 480V**

One switch controls 2 elements:  
    LOW = left and right elements on LOW  
    MED = left element OFF, right element on HIGH  
    HIGH = left and right elements on HIGH

## **LEVELING**

Using a carpenter's level placed on top of the broiler, adjust the feet of the broiler so that the broiler is level front-to-back and side-to-side.

# OPERATION

**WARNING:** THE BROILER AND ITS PARTS ARE HOT. BE CAREFUL WHEN OPERATING, CLEANING OR SERVICING THE BROILER.

## CONTROLS

### Broiler

- Infinite Load Switches — Two switches independently control the front and rear heating elements in 208 and 240 volt models. The switch located on the left-hand side of the switch panel controls the percent on-time of the two front elements, and the switch located on the right-hand side of the switch panel controls the two rear elements. The percent on-time of the infinite load control varies from approximately 10% in the VERY LOW position to 100% in the HIGH position.
- 3-Heat, 4-Position Switch — On 480 volt models, each of the two non-cycling 3-heat, 4-position switches control independently the front and rear sections of the broiler. Input varies from full power at the HIGH position (both elements connected in parallel) to MED position (one element only on) to LO position (both elements connected in series).
- Grid Handle — The distance of the grid surface from the elements is controlled by the pull-and-release grid handle at the right of the broiler. This grid handle locks in 13 positions over the 6" (152 mm) grid travel.

The operator can, by independent setting of each switch, provide a wide range of broiler temperatures depending on the type and location of the broiling product.

### Oven

- 3-Heat Switches — Two switches (located on the right side of the switch panel, on each side of the thermostat) independently control the top and bottom heating elements. At HIGH position, the maximum element power is utilized (elements connected in parallel); at MED position, only one of the two elements is on (about  $\frac{1}{2}$  power); at LO position, the two elements are connected in series (about  $\frac{1}{4}$  power); at the OFF position, both elements are completely turned off.
- Thermostat — Controls the temperature of the oven from 175°F to 550°F (79°C to 288°C).
- Indicator Light — (Mounted next to the thermostat.) When lit, the thermostat is calling for heat, and when off, indicates the desired temperature is reached.

When the thermostat is turned on, it provides power to the two 3-heat switches, which in turn, according to their setting, independently turn the top and bottom heating elements on and off. Thus, while the thermostat controls and maintains the oven temperature around the desired set temperature, the 3-heat switches control the rate of temperature build-up.

## **BEFORE FIRST USE**

Before using for the first time, clean the broiler or oven with detergent and water. Rinse thoroughly and wipe dry with a soft clean cloth.

### **Seasoning (Oven Models Only)**

Lightly, but thoroughly, coat the oven steel deck with cooking oil and allow it to season in the oven at 450°F (232°C) for 30 minutes to 1 hour. This seasoning will lessen sticking of spillage and inhibit rust.

## **USING THE BROILER**

### **Preheating**

At full input, the elements will heat to broiling radiance in approximately 5 minutes. The broiler will saturate for full loading in 10 to 15 minutes at full input.

### **Grid**

The grid is the V bar type, which permits easy scraping with a steak turner during operation. Drippings from the broiling food go through the grid onto the drip shield and into the grease collector.

### **Grease Collector**

The grease collector collects grease and waste which is diverted by the tilt of the drip shield. DO NOT allow the grease collector to overflow. The grease collector should be emptied when three-quarters full to reduce the possibility of spillage.

## **USING THE OVEN**

### **Preheating**

Set top and bottom 3-heat switches to HIGH. Set thermostat to desired baking temperature. The indicator light will light and remain lit until the oven reaches temperature. The oven may be loaded when the indicator light goes off the first time; however, it is desirable to allow the indicator light to go on and off at least twice so the oven is thoroughly heated and will brown baked products evenly. After the first cycle (oven indicator light on and off), set the 3-heat switches as desired for baking. (Refer to TIME, TEMPERATURE & SWITCH SETTING CHART FOR BAKING.)

While it is recommended that you set the 3-heat switches to the HIGH position in order to preheat the oven to the desired temperature, it is necessary for some baking products to turn the 3-heat switch controlling the top elements to the MED or LO position in order to reduce the amount of radiant heat applied to the particular product. This will eliminate burning of the top portion of the product.

### **Loading**

Load the oven as rapidly as possible to prevent excessive heat loss. Place pans directly on the deck and in rows back to front, beginning on the right, then the next row, etc., until oven deck is full. Do not place pans closer to the door than 3" (76 mm). Do not let the pans touch the sides or back of the oven or each other.

### **Baking**

Approximate cooking times are given in recipe directions or are shown on the TIME, TEMPERATURE & SWITCH SETTING CHART FOR BAKING shown below. When baking on the rack, it may be necessary to set the bottom switch at HIGH.

### **Meat Roasting**

Meat roasting is best performed in a balanced oven. Switch positions of HIGH and HIGH are suggested, with the temperature control setting at the low temperature recommended by the American Meat Institute and the Department of Agriculture. Top heat results in a well colored or carmelized finish to meats. When roasting fowl and a heavily browned appearance is not desired, the top oven switch should be set at MED or LO. The use of a meat thermometer is strongly recommended for all meat roasting operations.

## TIME, TEMPERATURE & SWITCH SETTING CHART FOR BAKING

This baking chart is a guide only. Recipes, mixing procedures, utensils 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., can affect the texture, consistency and the basic quality of the product.

PRODUCT	TEMPERATURE		TIME	SWITCH SETTINGS	
	(F°)	(C°)	(MIN.)	TOP	BOTTOM
Bread	375 – 425	191 – 218	35 – 50	MED	MED
Rolls	375 – 425	191 – 218	20 – 30	MED	MED
Cake, Layer	350 – 375	177 – 191	20 – 30	MED	MED
Cup Cakes	375 – 400	190 – 204	15 – 20	MED	MED
Cake, Loaf	350 – 375	177 – 191	20 – 30	MED	MED
Angel Cake	300 – 335	149 – 168	35 – 50	MED	MED
Corn Bread	400 – 425	204 – 218	25 – 30	HI	MED
Fruit Pies	400 – 425	204 – 218	40 – 60	MED	MED
Meringue Pies	425 – 450	218 – 232	5 – 8	HI	OFF
Browning Biscuits	400 – 425	204 – 218	12 – 18	MED	MED

## **CLEANING**

**WARNING:** DISCONNECT ELECTRICAL POWER SUPPLY BEFORE CLEANING.

Do not use Dawn dish detergent to clean the interior or exterior of the unit.

Stainless steel oven fronts may be cleaned with a damp cloth. Stubborn soil may be removed with a detergent and water. Rinse thoroughly and wipe dry with a soft clean cloth.

Porcelain oven linings and door linings may be cleaned with a cloth dampened with detergent or oven cleaners.

Empty the grease collector and clean in a sink.

Silvertone surfaces may be cleaned with a cloth dampened with a detergent solution. An occasional application of silicone base auto polish will help to maintain a "like new" appearance.

Steel decks may be removed and scoured at the sink. After scouring, the steel decks should be reseasoned (see BEFORE FIRST USE in this manual).

# MAINTENANCE

**WARNING:** THE BROILER AND ITS PARTS ARE HOT. BE CAREFUL WHEN OPERATING, CLEANING OR SERVICING THE BROILER.

## SERVICE AND PARTS INFORMATION

To obtain service and parts information concerning these broilers, contact the Vulcan-Hart Service Depot in your area (refer to listing supplied with the broiler), or Vulcan-Hart Company Service Department at the address or phone number shown on the front cover of this manual.