



## **VC SERIES ELECTRIC CONVECTION OVENS**

### **Customer Maintenance Manual**

**SPECIFICATION SHEETS**

**INSTALLATION / OPERATION MANUALS**

**ADDITIONAL RESOURCES**

**SERVICE MANUALS**

**HOBART SERVICE PARTS STORE**

**CATALOG OF REPLACEMENT PARTS**

**O V E N S****VULCAN****VC3E SERIES  
SINGLE DECK ELECTRIC CONVECTION OVEN****Model VC3ED**

Shown with optional legs &amp; casters

**SPECIFICATIONS**

Single section, electric convection oven, Vulcan Model No. (VC3ED). Stainless steel front, sides and top. Painted legs. Independently operated removable stainless doors with double pane windows. Non-sag insulation applied to top, rear, sides, bottom. Porcelain enamel on steel oven interior measures 29" w x 22 $\frac{1}{8}$ " d x 20" h. One interior oven light. Five nickel plated oven racks measure 28 $\frac{1}{4}$ " x 20 $\frac{1}{2}$ ". Eleven position nickel plated rack guides with positive rack stops. Heated by electric solid sheath elements rated at 12.0 KW. Furnished with a two speed  $\frac{1}{2}$  H.P. oven blower motor. Oven cool switch for rapid cool down. 208/240V 60Hz 1 or 3 phase.

**Exterior Dimensions:**40" w x 40 $\frac{1}{8}$ " d (includes motor & door handles)

37" d (includes motor only)

54" h on 23 $\frac{3}{4}$ " legs (add 2" if on casters)**STANDARD FEATURES**

- Solid state temperature controls from 150° to 500°F.
- 60 minute timer with audible alarm.
- Stainless steel front, sides and top.
- Painted legs.
- Independently operated removable stainless steel doors with double pane windows.
- 12.5 total KW.
- $\frac{1}{2}$  H.P. two speed oven blower-motor.
- Moisture vent.
- Oven cool switch for rapid cool down.
- Porcelain enamel on steel oven interior.
- Five nickel plated oven racks with eleven rack positions.
- One year limited parts and labor warranty.
- Three year limited warranty on doors.

**OPTIONS**

- Stainless steel legs.
- Casters.
- 480V/60 Hz/1 or 3 phase.
- Second year extended limited parts and labor warranty.

**ACCESSORIES**

- Stainless steel rear motor enclosure.
- Extra oven rack(s).
- Rack hanger(s).
- Stainless steel drip pan.
- Stainless steel open stand with adjustable rack supports, stainless steel shelf and choice of adjustable feet or casters.
- Down draft flue diverter for direct vent connection.
- Heat shields for oven sides.

**VULCAN**

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P.O. Box 696 ■ Louisville, KY 40201 ■ Toll-free: 1-800-814-2028 ■ Local: 502-778-2791 ■ Quote &amp; Order Fax: 1-800-444-0602



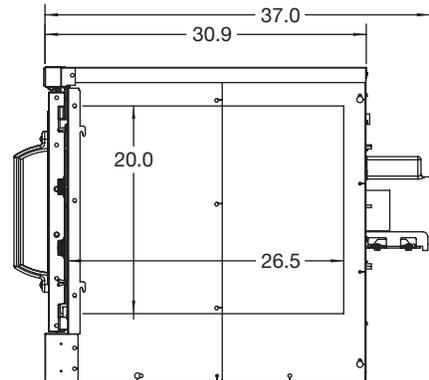
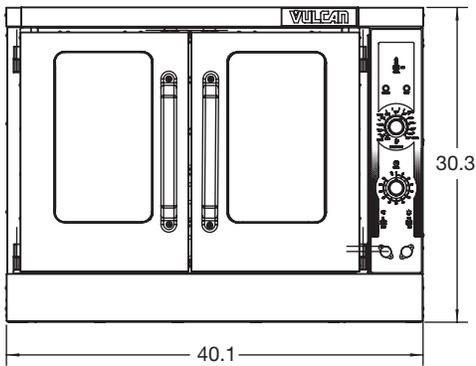
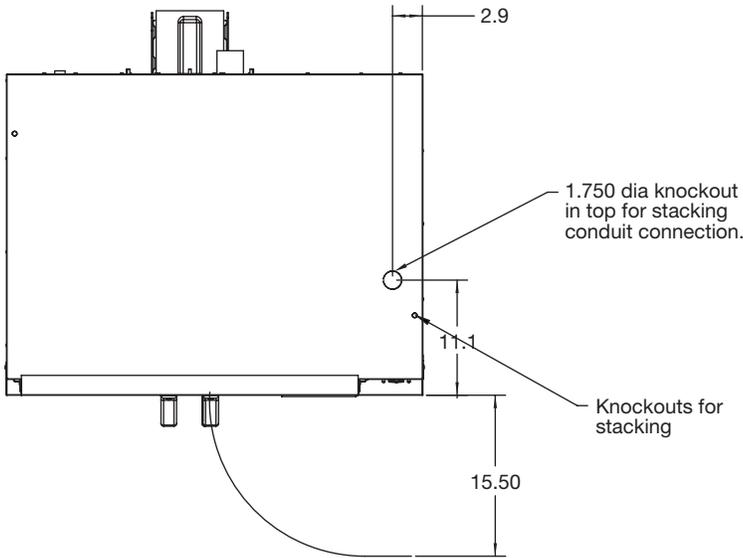
**VC3E SERIES**  
SINGLE DECK ELECTRIC CONVECTION OVEN

**OPTIONAL VOLTAGES**

480 volt, 60 Hz, 3 phase.

**CLEARANCES**

	Combustible	Non-Combustible
Rear	2"	2"
Right Side	4"	4"
Left Side	1"	1"



MODEL NO.	TOTAL CONN. KW	3 PHASE LOAD KW PER PHASE			NOMINAL AMPS PER LINE WIRE									WEIGHT					
					3 PHASE													1 PHASE	
					208 VOLT			240 VOLT			480 VOLT			208V	240V	LBS.	KG		
		X-Y	Y-Z	X-Z	X	Y	Z	X	Y	Z	X	Y	Z						
<b>VC3E</b>	12.5	4	4	4.5	35	33	35	33	29	33	14	15	15	60	52	337	153	286	130



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**NOTE:** In line with its policy to continually improve its products, Vulcan reserves the right to change materials and specifications without notice.

## OVENS

**VULCAN****VC4E SERIES**  
**SINGLE DECK ELECTRIC CONVECTION OVENS**

**Model VC4ED**  
Shown with optional casters

**SPECIFICATIONS**

Single section, electric convection oven, Vulcan Model No. (VC4ED) (VC4EC). Stainless steel front, sides and top. Painted legs. Independently operated stainless steel doors with double pane windows. Non-sag insulation applied to the top, rear, sides, bottom and doors. Porcelain enamel on steel oven interior measures 29"w x 22 $\frac{1}{8}$ "d x 20"h. Two interior oven lights. Five nickel plated oven racks measure 28 $\frac{1}{4}$ " x 20 $\frac{1}{2}$ ". Eleven position nickel plated rack guides with positive rack stops. Heated by electric solid sheath elements rated at 12 KW. Furnished with a two speed  $\frac{1}{2}$  H.P. oven blower-motor. Oven cool switch for rapid cool down. 208 or 240 volt, 60 Hz, 1 or 3 phase.

**Exterior Dimensions:**

40 $\frac{1}{4}$ "w x 41 $\frac{1}{8}$ "d (includes motor & door handles) 37 $\frac{3}{4}$ "d (includes motor only) x 54 $\frac{3}{4}$ "h on 23 $\frac{3}{4}$ " legs with feet. 23 $\frac{3}{4}$ " legs can adjust an additional 1" in length. Legs with casters are adjustable from 28" to 29 $\frac{1}{8}$ " in length.

NSF listed. UL listed. UL listed to Canadian safety standards.

- VC4ED** Solid state temperature controls adjust from 150° to 500°F. 60 minute timer with audible alarm.
- VC4EC** Computer controls with digital time and temperature readouts. 99-hour timer with audible alarm. Roast and Hold cycle. One hundred programmable menu selections. Shelf I.D. programming.

**STANDARD FEATURES**

- Stainless steel front, sides and top.
- Painted legs.
- Independently operated stainless steel doors with double pane windows.
- 12.5 total KW.
- $\frac{1}{2}$  H.P. two speed oven blower-motor.
- Moisture vent damper control.
- Oven cool switch for rapid cool down.
- Porcelain enamel on steel oven interior.
- Five nickel plated oven racks with eleven rack positions.
- One year limited parts and labor warranty.

**OPTIONS**

- Complete prison package.
  - Security screws only.
- Stainless steel legs.
- Casters.
- Simultaneous chain driven doors.
- 480V/60 Hz/1 or 3 phase.
- Second year extended limited parts and labor warranty.

**ACCESSORIES**

- Stainless steel rear motor enclosure.
- Extra oven rack(s).
- Rack hanger(s).
- Stainless steel drip pan.
- Stainless steel open stand with adjustable rack supports, stainless steel shelf and choice of adjustable feet or casters.
- Oven/steamer accessory kit. Includes stainless steel marine edge top. Requires 8" legs in lieu of standard legs.
- Down draft flue diverter for direct vent connection.

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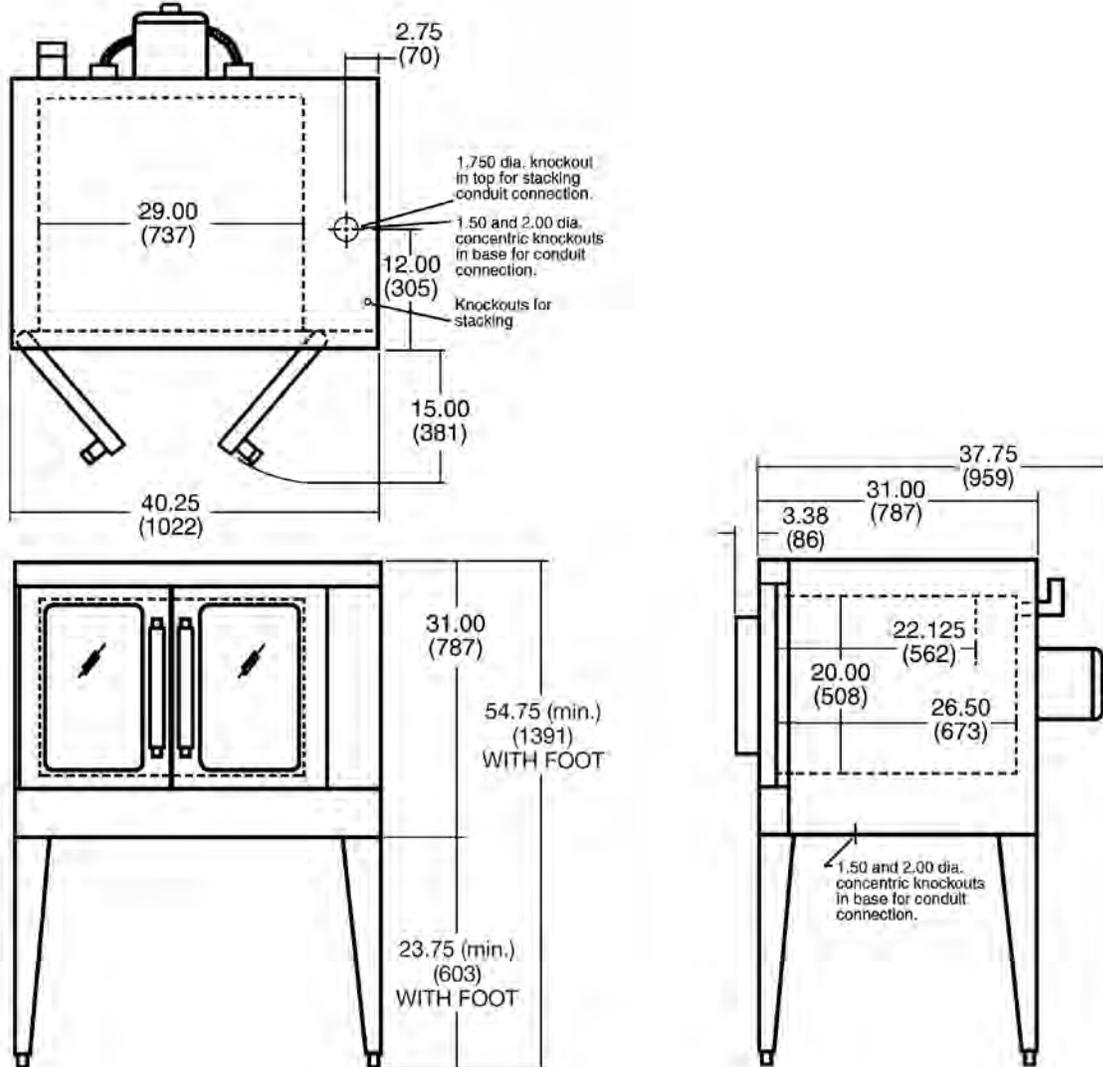
**VC4E SERIES**  
SINGLE DECK ELECTRIC CONVECTION OVENS

**OPTIONAL VOLTAGES**

- 480 volt, 60 Hz, 3 phase.
- 220/380 volt, 50 Hz, 1 phase, 3 wire.
- 220/380 volt, 50 Hz, 3 phase, 4 wire.
- 240/415 volt, 50 Hz, 3 phase, 4 wire.

**CLEARANCES**

	Combustible	Non-Combustible
Rear	2"	2"
Right Side	4"	4"
Left Side	1"	1"



MODEL NO.	TOTAL CONN. KW	3 PHASE LOAD KW PER PHASE			NOMINAL AMPS PER LINE WIRE									WEIGHT					
					3 PHASE			1 PHASE			WITH SKID & PACKAGING		WITHOUT SKID & PACKAGING						
		X-Y	Y-Z	X-Z	208 VOLT			240 VOLT			480 VOLT			208V	240V	LBS.	KG	LBS.	KG
		X	Y	Z	X	Y	Z	X	Y	Z	208V	240V	LBS.	KG	LBS.	KG			
<b>VC4E</b>	12.5	4	4	4.5	35	33	35	33	29	33	14	15	15	60	52	440	200	389	176



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## OVENS

**VULCAN****VC5E SERIES**  
**SINGLE DECK ELECTRIC CONVECTION OVEN****Model VC5ED**

Shown with legs and optional casters

**SPECIFICATIONS**

Single section, electric convection oven, Vulcan Model No. (VC5ED). Stainless steel front, sides and top. Painted legs. Independently operated removable stainless doors with double pane windows. Non-sag insulation applied to top, rear, sides, bottom. Porcelain enamel on steel oven interior measures 29" w x 22 $\frac{1}{8}$ " d x 20" h. One interior oven light. Five nickel plated oven racks measure 28 $\frac{1}{4}$ " x 20 $\frac{1}{2}$ ". Eleven position nickel plated rack guides with positive rack stops. Heated by electric solid sheath elements rated at 12.0 KW. Furnished with a two speed  $\frac{1}{2}$  H.P. oven blower motor. Oven cool switch for rapid cool down. 208/240V 60Hz 1 or 3 phase.

**Exterior Dimensions:**

40.1" w x 40" d (includes motor &amp; door handles)

37" d (includes motor only)

54" h on 23 $\frac{3}{4}$ " legs (add 2" if on casters)

- VC5ED** Solid state temperature dial controls adjust from 150° to 500°F with digital display enhancement. 5-hour timer with audible alarm.

**STANDARD FEATURES**

- Independently operated removable stainless steel doors with double pane windows.
- Gentle Bake mode selector switch.
- On-board diagnostics for easy servicing
- Five nickel plated grab-and-go oven racks with eleven rack positions.
- Stainless steel front, sides and top.
- Painted legs.
- 12.5 total KW.
- $\frac{1}{2}$  H.P. two speed oven blower-motor.
- Moisture vent.
- Oven cool switch for rapid cool down.
- Porcelain enamel on steel oven interior.
- One year limited parts and labor warranty.
- Three year limited warranty on doors.

**OPTIONS**

- Stainless steel legs.
- Casters.
- 480V/60 Hz/1 or 3 phase.
- Second year extended limited parts and labor warranty.

**ACCESSORIES**

- Stainless steel rear motor enclosure.
- Extra oven rack(s).
- Rack hanger(s).
- Stainless steel drip pan.
- Stainless steel open stand with adjustable rack supports, stainless steel shelf and choice of adjustable feet or casters.
- Down draft flue diverter for direct vent connection.
- Heat shields for oven sides.

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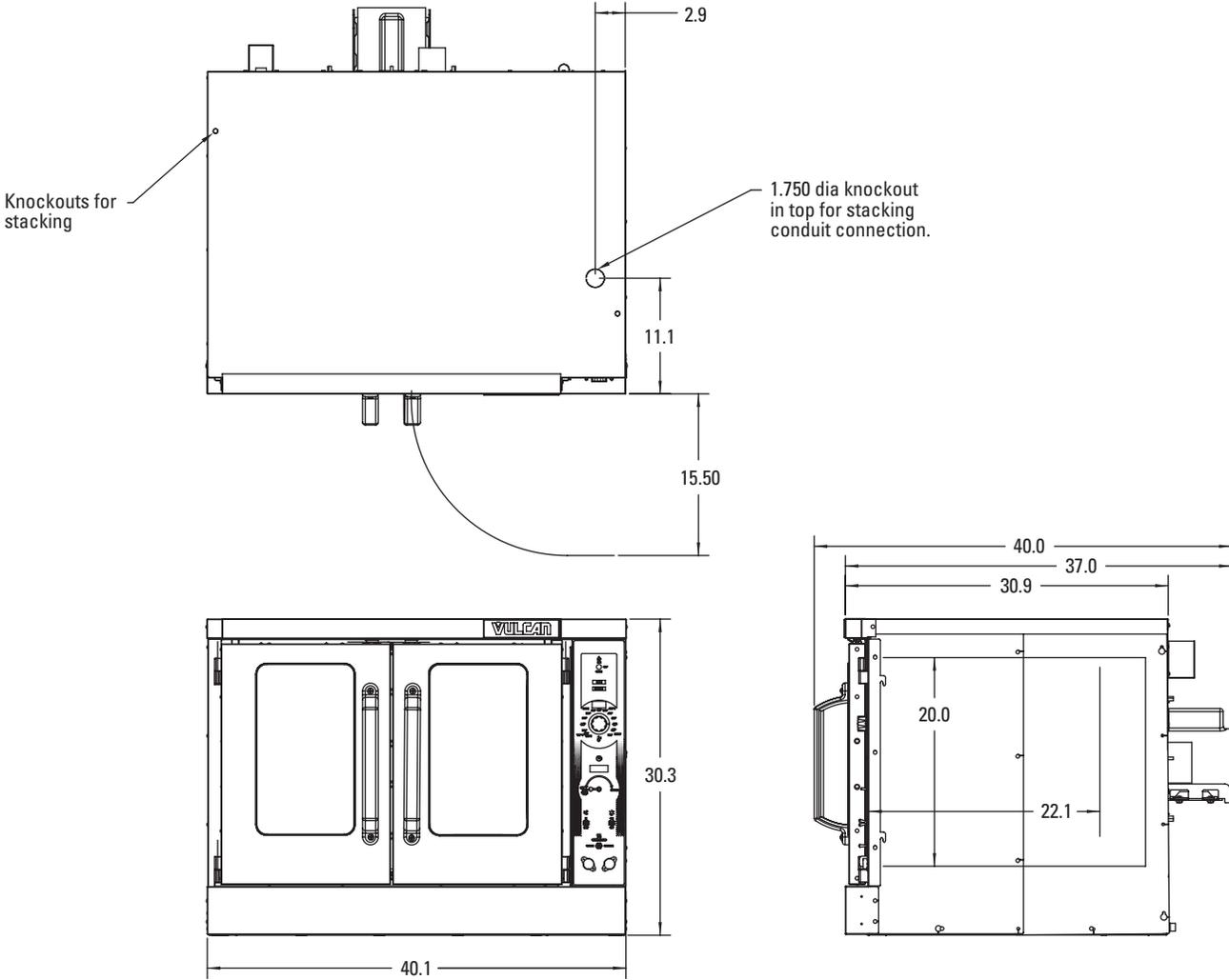
**VC5E SERIES**  
SINGLE DECK ELECTRIC CONVECTION OVEN

**OPTIONAL VOLTAGES**

480 volt, 60 Hz, 3 phase.

**CLEARANCES**

	Combustible	Non-Combustible
Rear	2"	2"
Right Side	4"	4"
Left Side	1"	1"



MODEL NO.	TOTAL CONN. KW	3 PHASE LOAD KW PER PHASE			NOMINAL AMPS PER LINE WIRE									WEIGHT					
					3 PHASE													1 PHASE	
					208 VOLT			240 VOLT			480 VOLT			208V	240V	LBS.	KG		
		X-Y	Y-Z	X-Z	X	Y	Z	X	Y	Z	X	Y	Z						
<b>VC5E</b>	12.5	4	4	4.5	35	33	35	33	29	33	14	15	15	60	52	337	153	286	130



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**O V E N S****VULCAN****VC6E SERIES  
SINGLE DECK, DEEP DEPTH  
ELECTRIC CONVECTION OVENS**

**Model VC6ED**  
Shown with optional casters

**SPECIFICATIONS**

Single section, deep depth electric convection oven, Vulcan Model No. (VC6ED) (VC6EC). Stainless steel front, sides and top. Painted legs. Independently operated stainless steel doors with double pane windows. Non-sag insulation applied to the top, rear, sides, bottom and doors. Porcelain enamel on steel oven interior measures 29"w x 26 $\frac{1}{8}$ "d x 20"h. Two interior oven lights. Five nickel plated oven racks per section measure 28 $\frac{1}{4}$ " x 24 $\frac{1}{2}$ ". Eleven position nickel plated rack guides with positive rack stops. Heated by electric solid sheath elements rated at 12 KW. Furnished with a two speed  $\frac{1}{2}$  H.P. oven blower-motor. Oven cool switch for rapid cool down. 208 or 240 volt, 60 Hz, 1 or 3 phase.

**Exterior Dimensions:**

40 $\frac{1}{4}$ "w x 45 $\frac{1}{8}$ "d (includes motor & door handles) 41 $\frac{3}{4}$ "d (includes motor only) x 54 $\frac{3}{4}$ "h on 23 $\frac{3}{4}$ " legs with feet. 23 $\frac{3}{4}$ " legs can adjust an additional 1" in length. Legs with casters are adjustable from 28" to 29 $\frac{1}{8}$ " in length.

NSF listed. UL listed. UL listed to Canadian safety standards.

- VC6ED** Solid state temperature controls adjust from 150° to 500°F. 60 minute timer with audible alarm.
- VC6EC** Computer controls with digital time and temperature readouts. 99-hour timer with audible alarm. Roast and Hold cycle. One hundred programmable menu selections. Shelf I.D. programming.

**STANDARD FEATURES**

- Stainless steel front, sides and top.
- Painted legs.
- Independently operated stainless steel doors with double pane windows.
- 12.5 total KW.
- $\frac{1}{2}$  H.P. two speed oven blower-motor.
- Moisture vent.
- Oven cool switch for rapid cool down.
- Porcelain enamel on steel oven interior.
- Five nickel plated oven racks with eleven rack positions.
- One year limited parts and labor warranty.

**OPTIONS**

- Complete prison package.
  - Security screws only.
- Stainless steel legs.
- Casters.
- Simultaneous chain driven doors.
- 480V/60 Hz/1 or 3 phase.
- Second year extended limited parts and labor warranty.

**ACCESSORIES**

- Stainless steel rear motor enclosure.
- Extra oven rack(s).
- Rack hanger(s).
- Stainless steel drip pan.
- Down draft flue diverter for direct vent connection.

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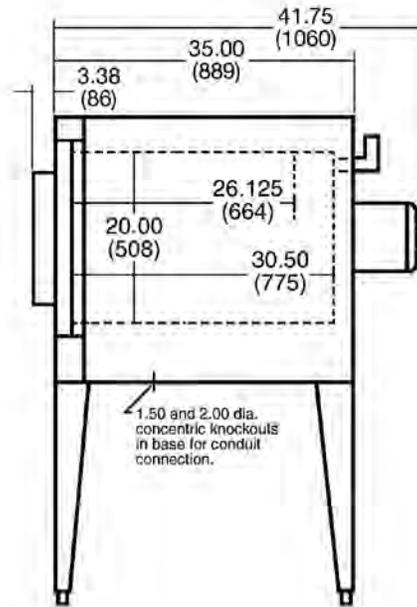
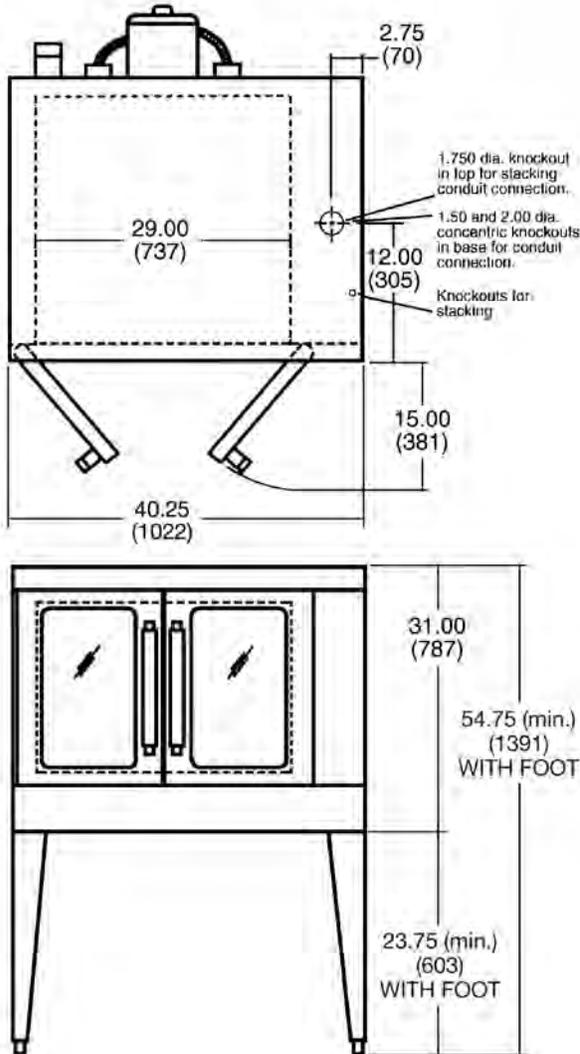
**VC6E SERIES**  
**SINGLE DECK, DEEP DEPTH**  
**ELECTRIC CONVECTION OVENS**

**OPTIONAL VOLTAGES**

- 480 volt, 60 Hz, 3 phase.
- 220/380 volt, 50 Hz, 1 phase, 3 wire.
- 220/380 volt, 50 Hz, 3 phase, 4 wire.
- 240/415 volt, 50 Hz, 3 phase, 4 wire.

**CLEARANCES**

	Combustible	Non-Combustible
Rear	2"	2"
Right Side	4"	4"
Left Side	1"	1"



MODEL NO.	TOTAL CONN. KW	3 PHASE LOAD KW PER PHASE		NOMINAL AMPS PER LINE WIRE												WEIGHT					
				3 PHASE												1 PHASE		WITH SKID & PACKAGING		WITHOUT SKID & PACKAGING	
				208 VOLT			240 VOLT			480 VOLT											
				X-Y	Y-Z	X-Z	X	Y	Z	X	Y	Z	X	Y	Z	208V	240V	LBS.	KG	LBS.	KG
<b>VC6E</b>	12.5	4	4	4.5	35	33	35	33	29	33	14	15	15	60	52	463	210	405	184		



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**O V E N S****VULCAN****VC33E SERIES  
DOUBLE DECK ELECTRIC CONVECTION OVENS**

**Model VC33ED**  
Shown with optional casters

**SPECIFICATIONS**

Double section, electric convection oven, Vulcan-Hart Model No. (VC33ED). Stainless steel front, sides, top and legs. Independently operated stainless steel doors with double pane windows. Non-sag insulation applied to the top, rear, sides, bottom and doors. Porcelain enamel on steel oven interiors measure 29"w x 22<sup>1</sup>/<sub>8</sub>"d x 20"h. One interior oven lights per section. Five nickel plated oven racks per section measure 28<sup>1</sup>/<sub>4</sub>" x 20<sup>1</sup>/<sub>2</sub>". Eleven position nickel plated rack guides with positive rack stops per section. Each section heated by electric solid sheath elements rated at 12 KW. Furnished with a two speed 1/2 H.P. oven blower-motor per section. Oven cool switch for rapid cool down. 208 or 240 volt, 60 Hz, 1 or 3 phase.

**Exterior Dimensions:**

40.1"w x 40.0"d (includes motor & door handles) 37.75"d (includes motor only) x 70"h on 8" legs.

NSF listed. UL listed.

- VC33ED** Solid state temperature controls adjust from 150° to 500°F. 60 minute timer with audible alarm.

**STANDARD FEATURES**

- Stainless steel front, sides, top and legs.
- Independently operated removable stainless steel doors with double pane windows.
- 25 total KW.
- 1/2 H.P. two speed oven blower-motor.
- Moisture vent.
- Oven cool switch for rapid cool down.
- Porcelain enamel on steel oven interiors.
- Five nickel plated oven racks with eleven rack positions per section.
- One year limited parts and labor warranty.

**OPTIONS**

- Casters.
- 480V/60 Hz/1 or 3 phase.
- Second year extended limited parts and labor warranty.

**ACCESSORIES**

- Stainless steel rear motor enclosure.
- Extra oven rack(s).
- Rack hanger(s).
- Stainless steel drip pan.
- Down draft flue diverter for direct vent connection.

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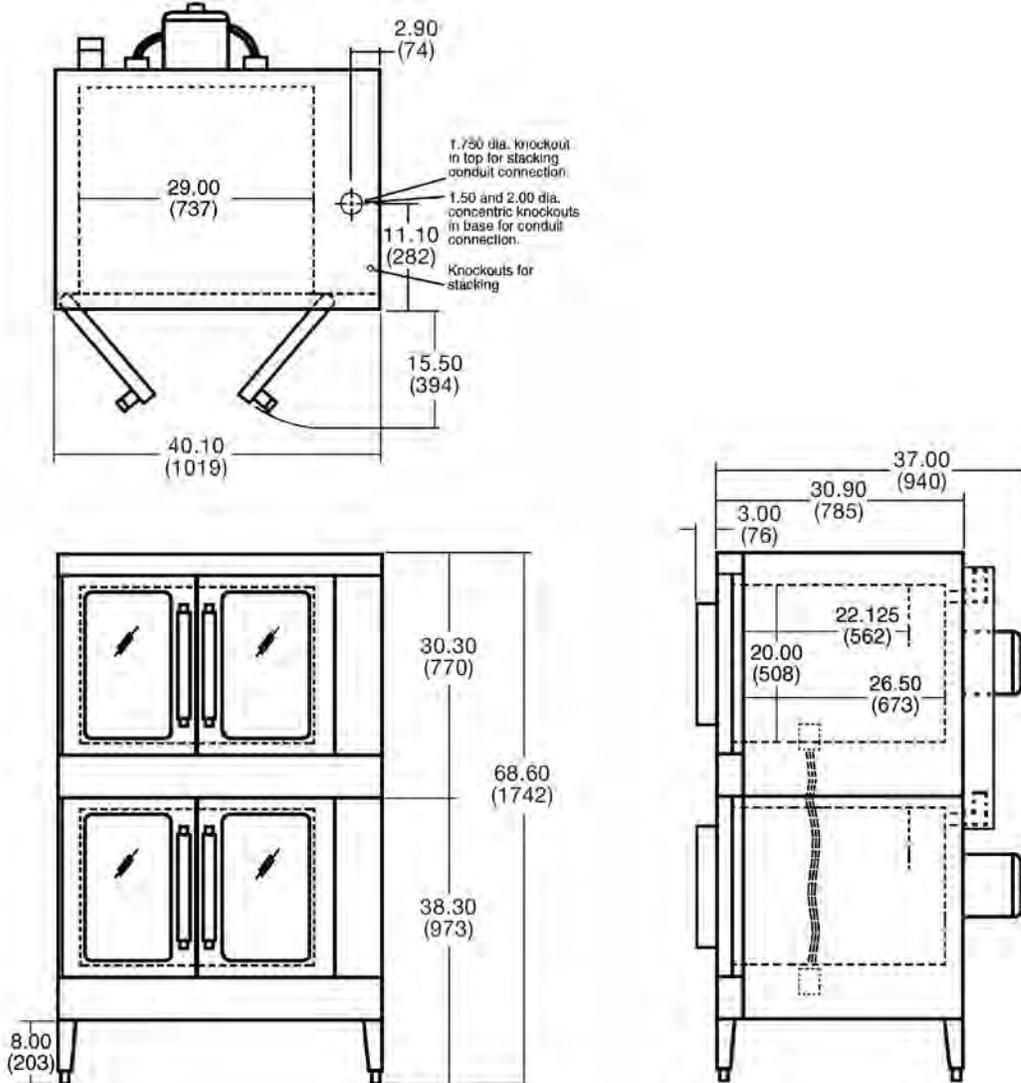
## VC33E SERIES DOUBLE DECK ELECTRIC CONVECTION OVENS

### OPTIONAL VOLTAGES

480 volt, 60 Hz, 3 phase.

### CLEARANCES

	Combustible	Non-Combustible
Rear	2"	2"
Right Side	4"	4"
Left Side	1"	1"



MODEL NO.	TOTAL CONN. KW	3 PHASE LOAD KW PER PHASE		NOMINAL AMPS PER LINE WIRE												WEIGHT					
				3 PHASE												1 PHASE		WITH SKIDS & PACKAGING		WITHOUT SKIDS & PACKAGING	
				208 VOLT			240 VOLT			480 VOLT											
				X-Y	Y-Z	X-Z	X	Y	Z	X	Y	Z	X	Y	Z	208V	240V	LBS.	KG	LBS.	KG
VC33E	25	8	8	9	70	66	70	66	58	66	28	30	30	120	104	674	306	572	260		



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**O V E N S****VULCAN****VC55E SERIES  
DOUBLE DECK ELECTRIC CONVECTION OVENS**

**Model VC55ED**  
Shown with optional casters

**SPECIFICATIONS**

Double section, electric convection oven, Vulcan Model No. (VC55ED). Stainless steel front, sides, top and legs. Independently operated stainless steel doors with double pane windows. Non-sag insulation applied to the top, rear, sides, bottom and doors. Porcelain enamel on steel oven interiors measure 29"w x 22 $\frac{1}{8}$ "d x 20"h. One interior oven lights per section. Five nickel plated oven racks per section measure 28 $\frac{1}{4}$ " x 20 $\frac{1}{2}$ ". Eleven position nickel plated rack guides with positive rack stops per section. Each section heated by electric solid sheath elements rated at 12 KW. Furnished with a two speed  $\frac{1}{2}$  H.P. oven blower-motor per section. Oven cool switch for rapid cool down. 208 or 240 volt, 60 Hz, 1 or 3 phase.

**Exterior Dimensions:**

40.1"w x 40.0"d (includes motor & door handles) 37.75"d (includes motor only) x 70"h on 8" legs.

NSF listed. UL listed.

- VC55ED** Solid state temperature dial controls adjust from 150° to 500°F with digital display enhancement. 5-hour timer with audible alarm.

**STANDARD FEATURES**

- Independently operated removable stainless steel doors with double pane windows.
- Gentle Bake mode selector switch.
- On-board diagnostics for easy servicing
- Five nickel plated grab-and-go oven racks with eleven rack positions per section.
- Stainless steel front, sides, top and legs.
- 25 total KW.
- $\frac{1}{2}$  H.P. two speed oven blower-motor.
- Moisture vent.
- Oven cool switch for rapid cool down.
- Porcelain enamel on steel oven interiors.
- One year limited parts and labor warranty.

**OPTIONS**

- Casters.
- 480V/60 Hz/1 or 3 phase.
- Second year extended limited parts and labor warranty.

**ACCESSORIES**

- Stainless steel rear motor enclosure.
- Extra oven rack(s).
- Rack hanger(s).
- Stainless steel drip pan.
- Down draft flue diverter for direct vent connection.

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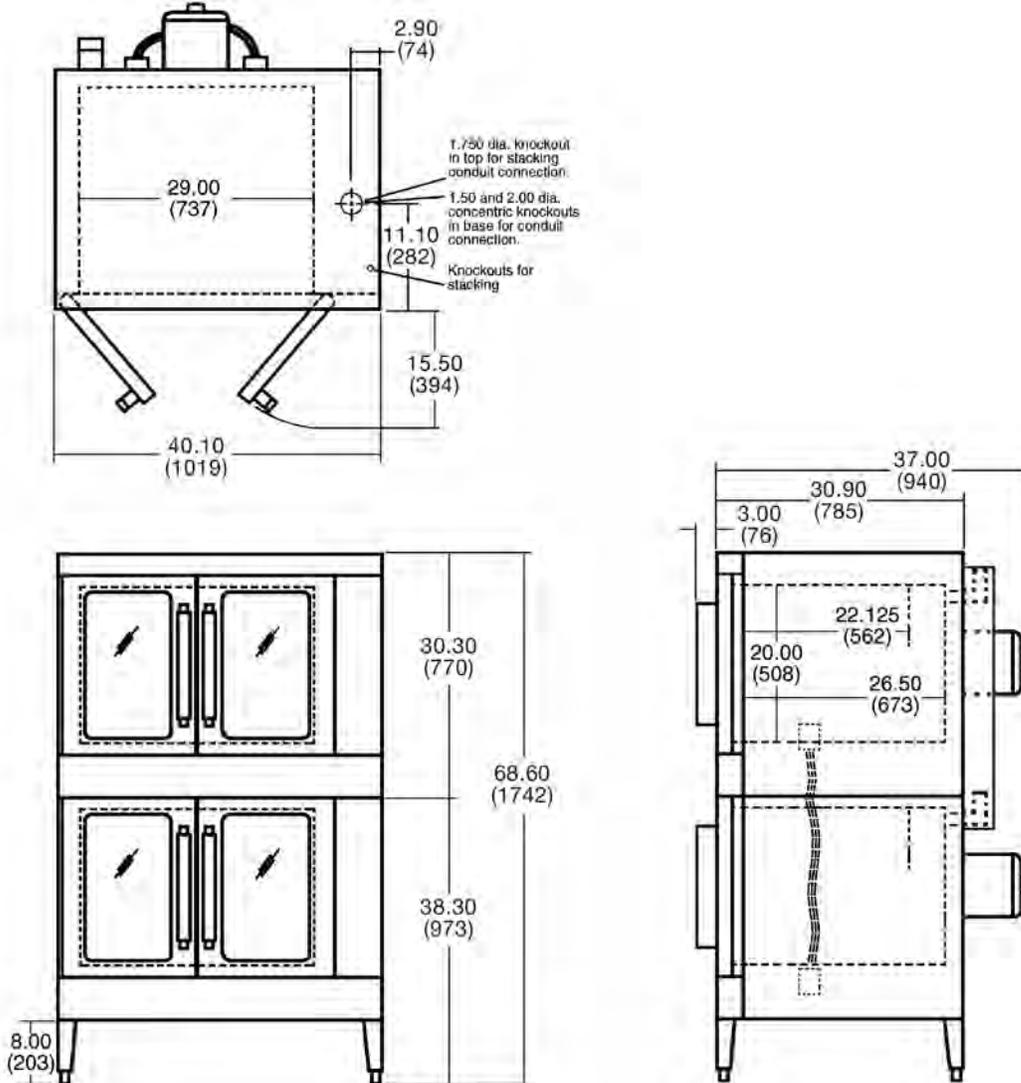
**VC55E SERIES**  
**DOUBLE DECK ELECTRIC CONVECTION OVENS**

**OPTIONAL VOLTAGES**

480 volt, 60 Hz, 3 phase.

**CLEARANCES**

	Combustible	Non-Combustible
Rear	2"	2"
Right Side	4"	4"
Left Side	1"	1"



MODEL NO.	TOTAL CONN. KW	3 PHASE LOAD KW PER PHASE			NOMINAL AMPS PER LINE WIRE									WEIGHT					
					3 PHASE									1 PHASE		WITH SKIDS & PACKAGING		WITHOUT SKIDS & PACKAGING	
		208 VOLT			240 VOLT			480 VOLT			208V	240V	LBS.			KG	LBS.	KG	
		X-Y	Y-Z	X-Z	X	Y	Z	X	Y	Z				X	Y				Z
<b>VC55E</b>	25	8	8	9	70	66	70	66	58	66	28	30	30	120	104	674	306	572	260



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**VULCAN**

*INSTALLATION &  
OPERATION MANUAL*

*VC3 SERIES  
ELECTRIC CONVECTION OVENS*

*MODEL  
VC3ED            ML-137013*



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# Installation, Operation and Care of VC3 SERIES ELECTRIC CONVECTION OVENS

KEEP THESE INSTRUCTIONS FOR FUTURE USE

Your Vulcan Electric Convection Oven is produced with quality workmanship and material. Proper installation, usage and maintenance of your oven 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.

## GENERAL

The VC3 Series Electric Convection Ovens feature a 500°F thermostat, timer, porcelain interior and a two-speed, 1/2 HP blower motor as standard equipment. Ovens equipped with standard voltages are 208 or 240 V, 60 Hz, single- or three-phase. Ovens equipped for 480 V, 60 Hz, single- or three-phase electrical specifications are optional.

The VC3 Oven is a single cavity oven furnished with five racks. Independently opening doors are standard. Oven light with on-off switch is standard.

An open stand with lower storage rack is available as an option.

Stacked ovens are furnished with either Stacking Kit 426983G1 (8" LEGS) or Stacking Kit 426984G1 (CASTER) for mounting one oven on top of the other.

Additional racks are available as accessories.

### FEATURES & OPTIONS

Model	Oven Interior Depth	Oven Exterior Depth	Thermostat	Timer	Roast & Hold	5 Hr. Timer	Stack Kit with Legs *	Stack Kit with Casters *	Legs with Feet	Legs with Casters	Stand with Rack & Feet	Stand with Rack & Casters
VC3ED	26 1/2" (67.3 cm)	41 1/2" (105.4 cm)	Solid State	1 Hr. Dial	NA	NA	Opt	Opt	Std.	Opt	Opt	Opt

\* With Two Stacked Ovens Only.

# INSTALLATION

## UNPACKING

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

Prior to installation, verify that the electrical service agrees with the specifications on the oven data plate, located on the inside of the top front cover.

Do not use the doors or their handles to lift the oven.

## LOCATION

**⚠ WARNING** The installation must allow adequate clearance for servicing and operation. For solid state and digitally controlled models there must be 18" (45cm) of clearance on the right side of the oven from any open flame. For all other clearances see table below.

Clearances (inches)		
	Combustible	Non-Combustible
Rear	2	2
Rt Side	4	4
Left Side	1	1

## INSTALLATION CODES AND STANDARDS

In the United States, install the oven in accordance with: 1) State and local codes; 2) National Electrical Code, NFPA-70 (latest edition) and 3) NFPA Standard #96, *Vapor Removal from Cooking Equipment* (latest edition), available from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

## INSTALLING BASIC OVEN

The basic oven must be installed on legs or mounted on a modular stand. Installations on concrete bases or other supports restricting air circulation underneath the oven is not advisable and may void the warranty. If using the modular stand, set the oven on the stand after unpacking.

## ASSEMBLING THE LEGS TO THE SINGLE OVEN

The legs must be installed on the bottom of the oven. Gently position the oven on its left side, taking care not to cause scratches or damage.

Attach each of the four leg assemblies to the bottom of the oven with the 24 bolts and lockwashers (six bolts and lockwashers per leg). Carefully raise the oven to its normal position.

## LEVELING

Adjust the legs to ensure that the oven racks are level in the final installed position.

## CASTERS

If the oven is to be installed on casters, assemble the casters to the legs provided. Then attach the caster-leg units to the oven at each corner using the 24 bolts and lockwashers. Place the locking casters on the front legs and nonlocking casters on the rear legs. Units on casters should be tethered to the building using the strain relief bracket shown in Figure 2.

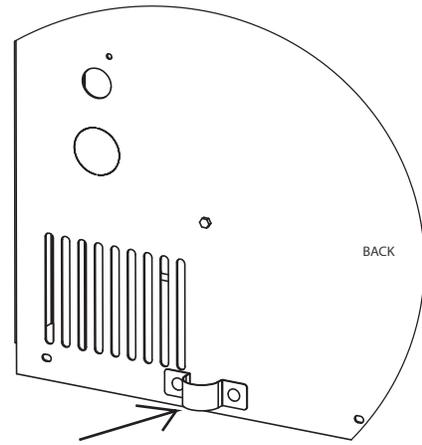


Fig. 2

## ASSEMBLING THE STAND TO THE OVEN

Attach each of the four leg assemblies to the bottom of the oven with the 24 bolts and lockwashers (six per leg). Carefully raise the oven to the normal position.

Attach the undershelf to the legs with eight bolts and lockwashers (two per leg).

Install the rack guides into the shelf at the desired locations (for pan or flat rack), then attach the rack supports to the top end of the rack guides. Attach rack supports to the leg assembly by removing one middle bolt and reattaching the back through the end holes in the rack support (Fig. 2).

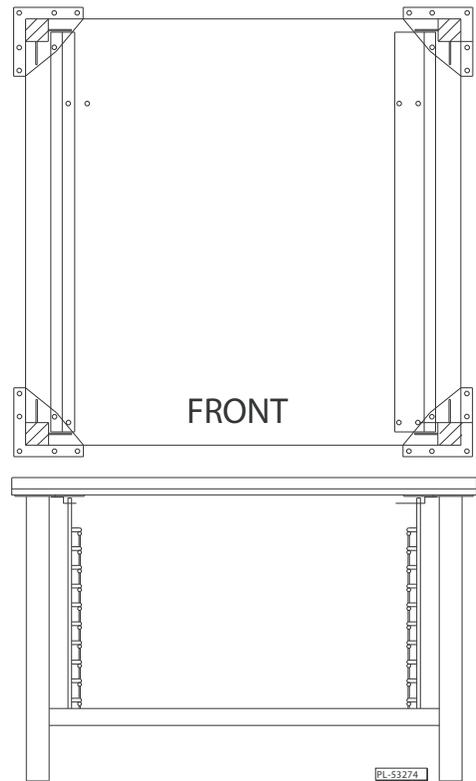


Fig. 3

## ELECTRICAL CONNECTIONS

**⚠ WARNING** Electrical and grounding connections must comply with the applicable portions of the National Electrical Code ANSI/NFPA70 (latest edition) and/or other local electrical codes.

**⚠ WARNING** Disconnect electrical power supply and place a tag at the disconnect switch to indicate that you are working on the circuit.

Remove the wiring compartment cover on the front of the oven. Remove the appropriate knockout on the bottom of the oven and attach the power supply conduit to the bottom of the oven.

Comply with the appropriate wiring diagram (located inside the right side panel) when making connections to the electrical supply lines. Use flexible conduit only.

Replace the wiring compartment cover and right side panel. Turn on the power supply.

## ELECTRICAL DATA

	TOTAL KW	208-240 V			480 V			NOMINAL AMPERES PER LINE WIRE									PHASE		
		3-PHASE LOADING			3-PHASE LOADING			208 V			240 V			480 V			208 V	240 V	480 V
		KW PER PHASE			KW PER PHASE														
		L1-L2	L2-L3	L1-L3	L1-L2	L2-L3	L1-L3	L1	L2	L3	L1	L2	L3	L1	L2	L3			
Single Oven	12.5	4	4	4.5	4	4	4.5	35	33	35	33	29	33	14.4	15.3	15.3	60	52	26
Stacked Oven	25	8	8	9	8	8	9	70	66	70	66	58	66	28.8	30.6	30.6	120	104	52

### ASSEMBLING STACKED OVENS

Unpack the ovens and the stack kit. Position the oven to be used as the bottom oven on its left side for access to the oven bottom, taking care not to scratch or damage it.

Attach the four leg assemblies with the 24 bolts and lockwashers (six per leg).

Place the lower oven (with legs) on the floor and remove two  $\frac{7}{16}$ " (11 mm) diameter knockouts on each side of the top cover.

Install two locating studs to the bottom of the top oven per stacking kit instructions.

Move the oven with legs to the installed position. Place the upper oven on top of the lower oven using the locating studs.

Remove the optional rear panel, if provided, from the TOP oven. Install the Stacking Flue (Fig. 3) with the four screws provided. Replace the top oven rear panel, if provided.

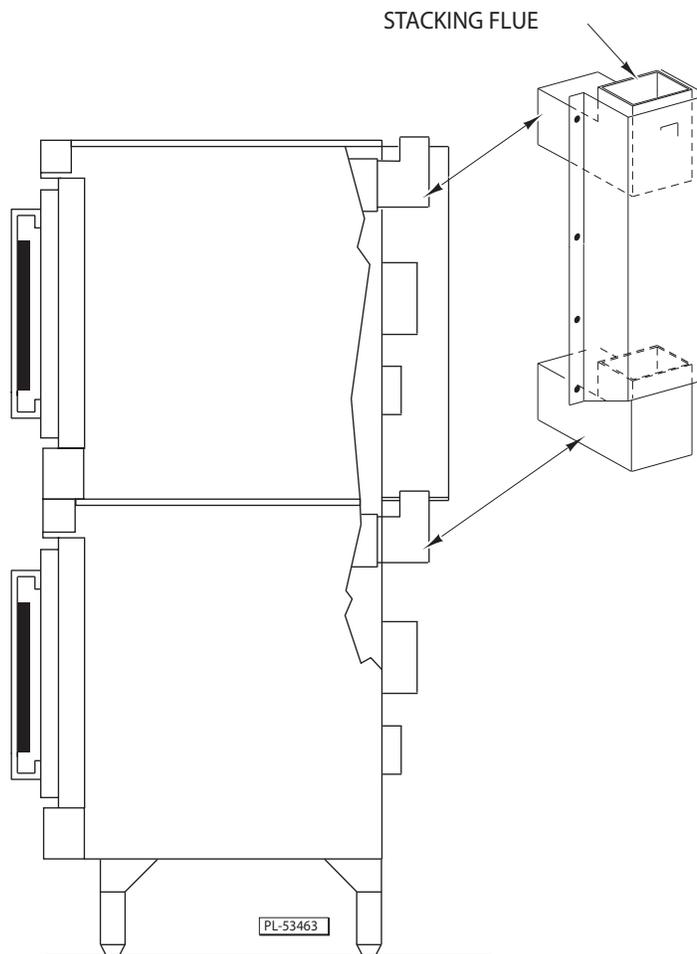


Fig. 4

## ELECTRICAL CONNECTIONS (Stacked Ovens)

**⚠ 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 that you are working on the circuit.

Make sure that the electrical power supply agrees with the specifications on the oven data plate, the wiring diagram on the oven and Electrical Data, page 5.

1. Wires to connect both ovens are provided with each oven (X, Y, Z). Carefully route these from top oven through the bushing (supplied with the stacking kit) through the electrical access knockout holes common to both ovens. Wires are at least 12 AWG with a 150 degree C rating.
2. Connect wires X, Y and Z from the upper oven to the lower oven per the wiring diagram. Attach the power supply conduit to the bottom of the lower oven. Connect the power supply leads to the line side of the terminal block on the bottom oven.
3. Finally, inspect and check all wiring and terminal connections for tightness or pinch points (cover on oven frame).
4. Refer to reference drawing 426986 supplied with the stacking kit for electrical connection instructions.
5. Refer to instructions supplied with the stacking kit for marking the combined electrical load information to the electrical data plate of the bottom oven.

## OPERATION

**⚠ WARNING** The oven and its parts are hot. Use care when operating, cleaning or performing any maintenance.

### CONTROLS



MOISTURE VENT DAMPER

- The vent is always open for VC3E to exhaust excess moisture.

MASTER SWITCH

- ON - Turns oven control circuits on.
- OFF - Turns oven control circuits off.
- OVEN COOL - Allows the fan motor to run with the doors ajar to speed oven cooling.

ON LIGHT

- Lit when MASTER SWITCH is turned to ON.

HEAT LIGHT

- Comes on and goes off when the heating elements cycle on and off.

TEMPERATURE

- Controls oven temperature.

TIMER

- Use to set the cooking time. Alarm sounds continuously when time has elapsed to 0. Turn the timer OFF to silence the alarm. The timer does not turn the oven off. Keep timer set to OFF when the oven is not in use.

FAN SPEED

- Adjust air velocity in the oven cavity.  
HI - Normal operating speed.  
LOW - Use this setting when cooking a delicate product like meringue, which could blow around in the oven.

LIGHTS

- ON - Turns the interior lights on.
- OFF - Turns the interior lights off.

## BEFORE FIRST USE

Before using the oven for the first time, it must be burned off to release any odors that might result from heating the new surfaces in the chamber.

1. Using a clean damp cloth, wipe the inside of the oven, including the racks.
2. Close the oven doors, turn the MASTER SWITCH to ON, turn the Thermostat to 300°F (149 °C) and allow the oven to cycle for 6 to 8 hours before turning the MASTER SWITCH to OFF.

## Preheating

1. Turn MASTER SWITCH to ON. Amber ON light will come on, indicating that power to oven is on.
2. Set Thermostat as desired. Refer to COOKING GUIDELINES for suggested temperatures and times for various products.
3. Prepare product and place in suitable pans. When white HEAT light goes off, oven has reached desired preheat temperature.

## Cooking

1. Open doors and load the product into the oven. Place pans in the center of the racks. Close doors.
2. Set the Timer. After the preset time lapses, turn Timer to OFF position to stop alarm.
3. When product is done, open doors and carefully remove cooked product from the oven. Care should be taken when wiping up any spills, as oven is still hot.

## End of Day

1. Turn Thermostat to OFF.
2. Turn MASTER SWITCH to OVEN COOL. Leave doors open while the fan is on to cool the oven.
3. When oven has cooled sufficiently, turn MASTER SWITCH to OFF and clean the oven.

## STANDARD COOKING TIME CHART

Product	Amount	Temp.	Time
Frozen Croissant Dough	1.75 oz	350°F (177 °C)	25 Min
Cinnamon Croissant	1.75 oz	350°F (177 °C)	35 Min.
Small Bread Loaves	1 Tray	350°F (177 °C)	30 Min.
Large Bread Loaves	1.5 lbs.	350°F (177 °C)	60 Min.
Sheet Cake	(1) 18x26" Tray	300°F (149 °C)	25 Min.
Scone Mix	1 Tray	350°F (177 °C)	30 Min.
Muffin Mix	1 Tray	350°F (177 °C)	30 Min.
Kaiser Rolls	1 Tray	350°F (177 °C)	16 Min.
Italian Bread	1 Tray	350°F (177 °C)	40 Min.
Danish Rounds*	1 Tray	350°F (177 °C)	30 Min.
Cream Cake*	1 Tray	350°F (177 °C)	60 Min.
Cookies	1 Tray	325°F (163 °C)	16 Min.

\*The maximum internal cooking temperature should be 190°F (88 °C).

### POWER OUTAGE

In case of a power outage, the oven will automatically shut down. When power is restored to the lines, the oven will resume its normal operation. However, if the oven is to be left unattended during a power outage, push the MASTER SWITCH to the OFF position. When power is restored to the lines, push MASTER SWITCH to the ON position, wait for the oven to preheat, then resume normal cooking operations.

### CLEANING

**⚠ WARNING** Disconnect electrical supply and place a tag at the disconnect switch to indicate that you are working on the oven before cleaning.

- Clean outside of the oven daily by wiping with a clean, damp cloth.
- Clean porcelain oven interior daily with soap or detergent and water. Rinse thoroughly and wipe dry with a soft, clean cloth.

**⚠ WARNING** Wait for oven doors to cool before washing. Splashing or submerging hot doors in water can cause the glass to shatter.

The doors (when cool) may be removed by opening 90 degrees and lifting up. Clean in a dishwasher or by hand. Allow to drip dry before replacing.

Stainless Steel Surfaces Hand Cleaning Instructions:

- Soap or detergent and water usually handle routine cleaning. Rinse thoroughly and dry with a soft, clean cloth.
- For burned-on foods and grease which resist simple soap and water cleaning, an abrasive cleanser (scouring powder) mixed into paste may be used. Apply with stainless steel wool or sponge, always rubbing with the grain.

# MAINTENANCE

**⚠ WARNING** The oven and its parts are hot. Use care when operating, cleaning or performing any maintenance.

**⚠ WARNING** Disconnect electrical supply and place a tag at the disconnect switch to indicate that you are working on the oven before maintenance.

The fan motor comes with sealed bearings and requires no lubrication.

Annually check the vent, when cool, to be sure it is free of obstructions.

## REPLACING LAMPS

1. Allow oven to cool.
2. Remove all racks by pulling forward, lifting up and out.
3. Remove the right rack guide by swinging to 45 degree angle and pulling out.
4. Pry the glass cover off by sliding a flat tool under the bottom lip of the cover.
5. Replace the bulb. Gloves should be worn while handling bulbs.
6. Reassemble glass cover and racks by reversing the disassembly procedure.

## SERVICE AND PARTS INFORMATION

To obtain service and parts information concerning your VC3 Series Oven, contact the Vulcan-Hart Service Depot in your area (refer to listing supplied with this oven) or Vulcan-Hart Company Service Department at the address or phone number shown on the front cover of this manual.

# INSTALLATION & OPERATION MANUAL

**ITW Food Equipment Group**

**VULCAN**

**HOBART**



## ELECTRIC CONVECTION OVENS

### MODELS

VC4ED  
VC4EC  
VC6ED  
VC6EC

HEC5  
HEC5D  
HEC5X  
HEC5DX

WKE  
WKED  
WKEC



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# Installation, Operation and Care of ELECTRIC CONVECTION OVENS

## KEEP THESE INSTRUCTIONS FOR FUTURE USE

Your Electric Convection Oven is produced with quality workmanship and material. Proper installation, usage and maintenance of your oven 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.

## GENERAL

The Electric Convection Ovens feature a 500°F thermostat, timer, porcelain interior and a two-speed, 1/2 HP blower motor as standard equipment. Ovens equipped with standard voltages are 208 or 240 V, 60 Hz, single- or three-phase. Ovens equipped for 480 V, 60 Hz, single- or three-phase electrical specifications are optional.

The Oven is a single cavity oven furnished with five racks. Independently opening doors are standard; simultaneously opening doors with chain mechanism underneath are optional. Oven lights with on-off switch are standard on all models.

An open stand with lower storage rack is available as an option.

Stacked ovens are furnished with either Stacking Kit 426983G1 (8" LEGS) or Stacking Kit 426984G1 (CASTER) for mounting one oven on top of the other.

Additional racks are available as accessories.

Features of the models are shown below:

### FEATURES & OPTIONS

Model	Oven Interior Depth	Oven Exterior Depth	Thermostat	Timer	Roast & Hold	5 Hr. Timer	Stack Kit with Legs *	Stack Kit with Casters *	Legs with Feet	Legs with Casters	Stand with Rack & Feet	Stand with Rack & Casters
Standard Electric	26 <sup>1</sup> / <sub>2</sub> " (67.3 cm)	41 <sup>1</sup> / <sub>2</sub> " (105.4 cm)	Solid State	1 Hr. Dial	NA	Opt.	Opt.	Opt.	Std.	Opt.	Opt.	Opt.
Standard Electric	26 <sup>1</sup> / <sub>2</sub> " (67.3 cm)	41 <sup>1</sup> / <sub>2</sub> " (105.4 cm)	Computer	24 Hr. Digital	Std.	NA	Opt.	Opt.	Std.	Opt.	Opt.	Opt.
Deep Electric	30 <sup>1</sup> / <sub>2</sub> " (77.5 cm)	45 <sup>1</sup> / <sub>2</sub> " (115.6 cm)	Solid State	1 Hr. Dial	NA	Opt.	Opt.	Opt.	Std.	Opt.	Opt.	Opt.
Deep Electric	30 <sup>1</sup> / <sub>2</sub> " (77.5 cm)	45 <sup>1</sup> / <sub>2</sub> " (115.6 cm)	Computer	24 Hr. Digital	Std.	NA	Opt.	Opt.	Std.	Opt.	Opt.	Opt.

\* With Two Stacked Ovens Only.

# INSTALLATION

## UNPACKING

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

Prior to installation, verify that the electrical service agrees with the specifications on the oven data plate, located on the inside of the top front cover.

Do not use the doors or their handles to lift the oven.

## LOCATION

The installation location must allow adequate clearances for servicing and proper operation. For solid state and digitally controlled models, there must be 18" (45 cm) of clearance on the right side of the oven from any open flame.

## INSTALLATION CODES AND STANDARDS

In the United States, install the oven in accordance with: 1) State and local codes; 2) National Electrical Code, NFPA-70 (latest edition) and 3) NFPA Standard #96, Vapor Removal from Cooking Equipment (latest edition), available from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

In Canada, install the oven in accordance with: 1) Local codes; 2) Canadian Electrical Code, CSA Standard C22.2 No. 1 (latest edition) and 3) Canadian Standard for Commercial Cooking Equipment CSA Standard C22.2 No.109 (latest edition).

## INSTALLING BASIC OVEN

The basic oven must be installed on legs or mounted on a modular stand. Installations on concrete bases or other supports restricting air circulation underneath the oven is not advisable and may void the warranty. If using the modular stand, set the oven on the stand after unpacking.

## ASSEMBLING THE LEGS TO THE SINGLE OVEN

The legs must be installed on the bottom of the oven. Gently position the oven on its left side, taking care not to cause scratches or damage.

Attach each of the four leg assemblies to the bottom of the oven with the 24 bolts and lockwashers (six bolts and lockwashers per leg). Carefully raise the oven to its normal position.

## LEVELING

Adjust the legs to ensure that the oven racks are level in the final installed position.

## CASTERS

If the oven is to be installed on casters, assemble the casters to the legs provided. Then attach the caster-leg units to the oven at each corner using the 24 bolts and lockwashers (six bolts and lockwashers per leg). Place the locking casters on the front legs and nonlocking casters on the rear legs.

## ASSEMBLING THE STAND TO THE OVEN

Attach each of the four leg assemblies to the bottom of the oven with the 24 bolts and lockwashers (six per leg). Carefully raise the oven to the normal position.

Attach the undershelf to the legs with eight bolts and lockwashers (two per leg).

Install the rack guides into the shelf at the desired locations (for pan or flat rack), then attach the rack supports to the top end of the rack guides. Attach rack supports to the leg assembly by removing one middle bolt and reattaching the back through the end holes in the rack support (Fig. 2).

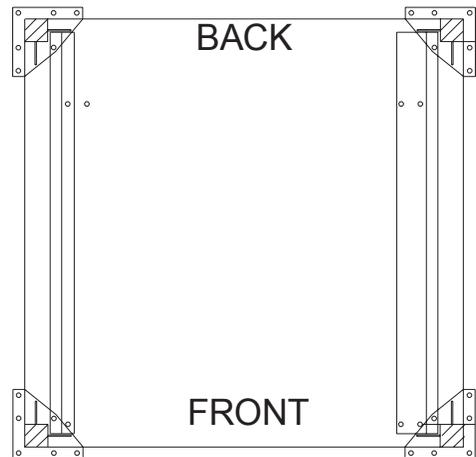


Fig. 2

## ELECTRICAL CONNECTIONS

**⚠ WARNING** ELECTRICAL AND GROUNDING CONNECTIONS MUST COMPLY WITH THE APPLICABLE PORTIONS OF THE NATIONAL ELECTRICAL CODE ANSI/NFPA70 (LATEST EDITION) AND/OR OTHER LOCAL ELECTRICAL CODES.

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

Remove the wiring compartment cover on the front of the oven. Remove the appropriate knockout on the bottom of the oven and attach the power supply conduit to the bottom of the oven.

Comply with the appropriate wiring diagram (located inside the right side panel) when making connections to the electrical supply lines.

Replace the wiring compartment cover and right side panel. Turn on the power supply.

## ELECTRICAL DATA

	TOTAL KW	208-240 V			480 V			NOMINAL AMPERES PER LINE WIRE											
		3-PHASE LOADING			3-PHASE LOADING			3-PHASE									1-PHASE		
		KW PER PHASE			KW PER PHASE			208 V			240 V			480 V			208 V	240 V	480 V
		L1-L2	L2-L3	L1-L3	L1-L2	L2-L3	L1-L3	L1	L2	L3	L1	L2	L3	L1	L2	L3			
Single Oven	12.5	4	4	4.5	4	4	4.5	35	33	35	33	29	33	14.4	15.3	15.3	60	52	26
Stacked Oven	25	8	8	9	8	8	9	70	66	70	66	58	66	28.8	30.6	30.6	120	104	52

## ASSEMBLING STACKED OVENS

Unpack the ovens and the stack kits. Position the oven to be used as the bottom oven on its left side for access to the oven bottom, taking care not to scratch or damage it.

Attach the four leg or caster assemblies with the 24 bolts and lockwashers (six per leg).

Place the lower oven (with legs or casters) on the floor and remove two  $\frac{7}{16}$ " (11 mm) diameter knockouts on each side of the top exterior panel. Remove knockout from top oven base.

Install two locating studs to the bottom of the top oven per stacking kit instructions.

Move the oven with legs or casters to the installed position. Place the upper oven on top of the lower oven using the locating studs.

Remove the optional rear panel, if provided, from the TOP oven. Remove top oven vent guard. Install the Stacking Flue (Fig. 3) with the four screws provided. Replace the top oven rear panel, if provided.

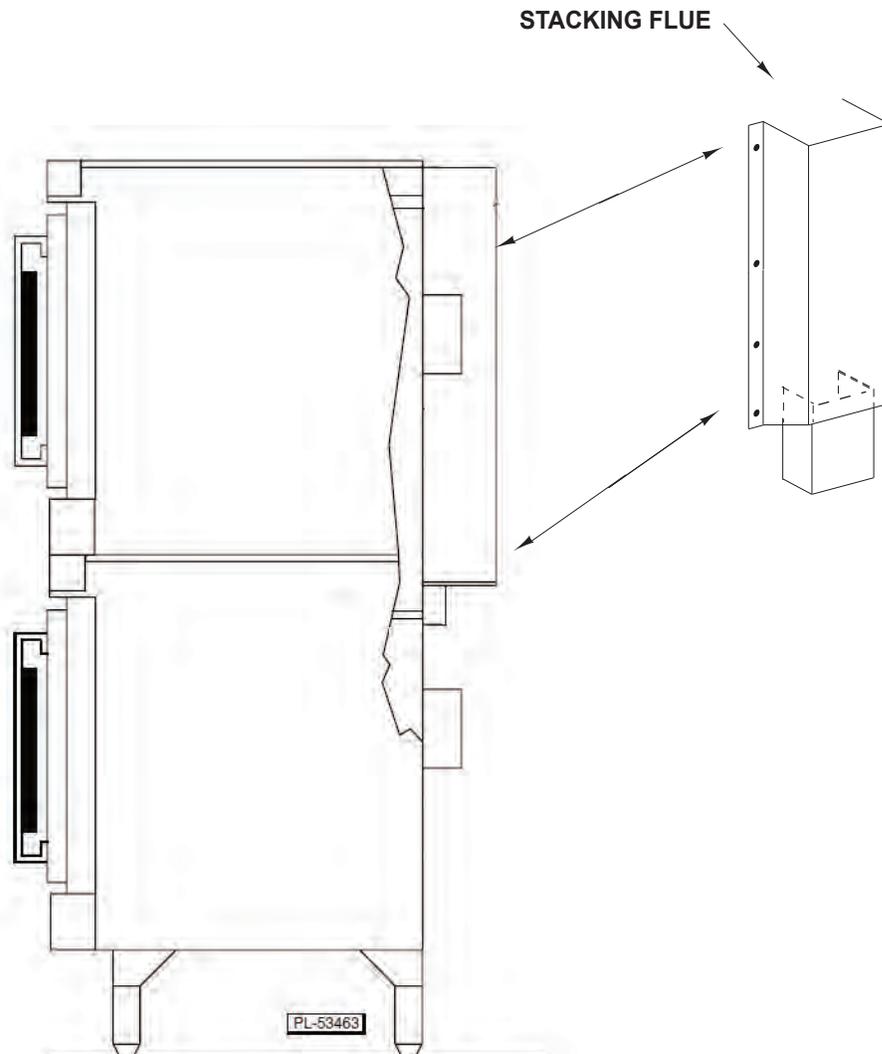


Fig. 3

## ELECTRICAL CONNECTIONS (Stacked Ovens)

**⚠ 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 THAT YOU ARE WORKING ON THE CIRCUIT.

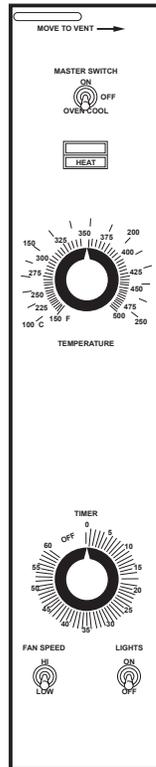
Make sure that the electrical power supply agrees with the specifications on the oven data plate, the wiring diagram on the oven and Electrical Data, page 5.

1. Wires to connect both ovens are provided with a separate wiring kit for stacked electric ovens. Carefully route these leads from the top oven through the bushing (supplied with another stacking kit) through the electrical access knockout holes common to both ovens.
2. Connect wires X, Y and Z from the upper oven to the lower oven per the wiring diagram. Attach the power supply conduit to the bottom of the lower oven. Connect the power supply leads to the line side of the terminal block on the bottom oven.
3. Finally, inspect and check all wiring and terminal connections for tightness or pinch points (cover on oven frame).
4. Refer to reference drawing 426986 supplied with the stacking kit for electrical connection instructions.
5. Refer to instructions supplied with the stacking kit for marking the combined electrical load information to the electrical data plate of the bottom oven.

# OPERATION

**⚠ WARNING** THE OVEN AND ITS PARTS ARE HOT. USE CARE WHEN OPERATING, CLEANING OR PERFORMING ANY MAINTENANCE.

## CONTROLS



PL-53491

- MOISTURE VENT DAMPER** – Open the damper to exhaust excess moisture. Close the damper when cooking dry products. Select settings between OPEN and CLOSED for optimum performance.
- MASTER SWITCH**
- ON - Turns oven control circuits on.
  - OFF - Turns oven control circuits off.
  - OVEN COOL - Allows the fan motor to run with the doors ajar to speed oven cooling.
- ON LIGHT (Amber)** – Lit when MASTER SWITCH is turned to ON.
- HEAT LIGHT (White)** – Comes on and goes off when the heating elements cycle on and off.
- TEMPERATURE** – Controls oven temperature.
- TIMER** – Use to set the cooking time. Alarm sounds continuously when time has elapsed to 0. Turn the timer OFF to silence the alarm. The timer does not turn the oven off. Keep timer set to OFF when the oven is not in use.
- FAN SPEED**
- Adjust air velocity in the oven cavity.
  - HI - Normal operating speed.
  - LOW - Use this setting when cooking a delicate product like meringue, which could blow around in the oven.
- LIGHTS**
- ON - Turns the interior lights on.
  - OFF - Turns the interior lights off.

## **BEFORE FIRST USE (All Models)**

Before using the oven for the first time, it must be burned off to release any odors that might result from heating the new surfaces in the chamber.

1. Using a clean damp cloth, wipe the inside of the oven, including the racks.
2. Close the oven doors, turn the MASTER SWITCH to ON, turn the Thermostat to 300°F (149°C) and allow the oven to cycle for 6 to 8 hours before turning the MASTER SWITCH to OFF.

## **USING ELECTRICAL MODELS**

### **Preheating**

1. Turn MASTER SWITCH to ON. Amber ON light will come on, indicating that power to oven is on.
2. Set Thermostat as desired. Refer to COOKING GUIDELINES for suggested temperatures and times for various products.
3. Prepare product and place in suitable pans. When white HEAT light goes off, oven has reached desired preheat temperature.

### **Cooking**

1. Open doors and load the product into the oven. Place pans in the center of the racks. Close doors.
2. Set the Timer. After the preset time lapses, turn Timer to OFF position to stop alarm.
3. When product is done, open doors and carefully remove cooked product from the oven. Care should be taken when wiping up any spills, as oven is still hot.

### **End of Day**

1. Turn Thermostat to lowest setting.
2. Turn MASTER SWITCH to OVEN COOL. Leave doors open while the fan is on to cool the oven.
3. When oven has cooled sufficiently, turn MASTER SWITCH to OFF and clean the oven.

# PROGRAMMABLE CONTROLS

## QUICK START / MANUAL SETTINGS



Turn the oven on and the display will show the last used setting.

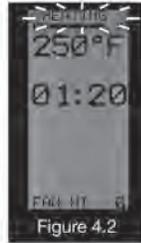
### TEMPERATURE:

1. Press the TEMP button, the set temperature will flash. (Fig. 1.2)
2. Enter the desired temperature using the keypad. The new temperature will flash. (If needed, press the TEMP key and hold for 3 seconds, to display the internal oven temperature. The actual internal oven temperature will continue to be displayed as long as the key is depressed and for 3 seconds after the key is released. The default temperature display is the set temperature.)
3. Press the button to accept.



### COOK TIME:

1. Press the TIME button, the set time will flash. (Fig. 2.2)
2. Enter the desired time in hours and minutes using the keypad. The new time will flash. (Example: Enter 1, display shows "00:01." Enter 120, display shows "01:20")
3. Press the button to accept or the key to cancel.



### FAN SPEED:

1. Press the FAN button to toggle through fan speeds: HI, LOW, or OFF. (Fig. 3.2) (If gas heat source is selected, choosing fan off will disable heat. Verify that this setting matches the heat source of your oven.)

### START COOK CYCLE:

1. Press the button. Display will show count down time. (More than 1 hour = HR:MIN, Less than 1 hour = MIN:SEC)

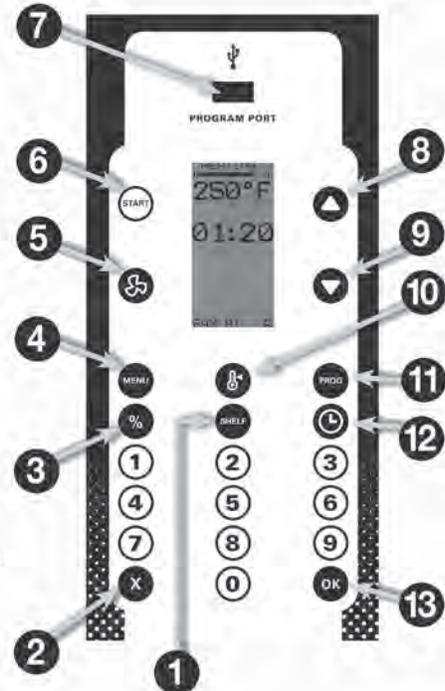
### ADD TIME FEATURE:

1. ADD TIME to the current cooking cycle by pressing any of the Number Pad keys.
2. You may add from 1 to 10 minutes by pressing a number pad key during the timing cycle of any cook time. (Note the "0" key represents 10 minutes of add time)

**NOTE:** When the actual temperature is more than 10°F, below set temperature, the display will say HEATING (Fig. 4.2), with a heating progress bar shown below the HEATING. When the actual temperature is less than 10°F, below the set point, the HEATING display will change to READY.

## DISPLAY PANEL GUIDE

- 1 **SHELF key**, used to assign menu items to up to 6 different shelves. The computer will track up to 6 menu items in 6 shelf positions.
- 2 **X key**, used to EXIT or cancel programming or operational functions.
- 3 **% key**, used to program the power level in 10% increments.
- 4 **MENU key**, used to select a menu item.
- 5 **FAN key**, used to set the fan speed.
- 6 **START key**, used to start a cooking timing cycle.
- 7 **PROG. PORT**, used with standard USB thumb drive, to import software updates and to upload cooking menus created externally with the C3700 menu editor.
- 8 **UP arrow**, used to scroll through menu and programming functions in the UP direction.
- 9 **DOWN arrow**, used to scroll through menu and programming functions in the DOWN direction.
- 10 **TEMP key**, used to set the cooking temperature, manually. Press and hold for 3 seconds to display the actual internal oven temperature.
- 11 **PROG key**, used to access all programming functions.
- 12 **TIME key**, used to set the cook time, manually.
- 13 **OK key**, used to accept programmed inputs.



## RECOMMENDED TEMPERATURES AND TIMES FOR ROASTING

Meat roasting is most satisfactory at temperatures of 225 to 325°F (107 to 163°C) for beef, lamb, poultry and ham; 325°F (163°C) for fresh pork as recommended by USDA and American Meat Institute.

A pan, approximately 12 x 20 x 1" (305 x 508 x 25 mm) full of water, may be placed in the oven bottom. This water supplies humidity to reduce shrinkage. Water should be added if necessary during roasting.

Roasting pans should be no deeper than necessary to hold drippings (usually 2 to 2½" (51 to 64 mm)).

Cooking time and shrinkage may vary with roasting temperature, cut, grade of meat and degree of doneness. Smaller cuts will generally show greater time savings than larger cuts at a given temperature.

### ROASTING TEMPERATURE CHART

PRODUCT	TEMP		APPROXIMATE TIMES
	°F	(°C)	
<b>Standing Rib Roast</b> — Oven Ready	250	(121)	3 to 4 Hrs. — Rare 4 to 4½ Hrs. — Med.
<b>Rolled Rib Roasts</b> — 20 to 22 lb (9.1 to 10 kg)	275	(135)	4 Hrs. — Med.
<b>Veal Roast</b> — 15 lb (6.8 kg)	300	(149)	3 Hrs. — Med. Well
<b>Turkeys</b> — 15 to 20 lb (6.8 to 9.1 kg)	300	(149)	3 Hrs.
<b>Meat Loaf</b> — 8 to 10 lb (3.6 to 4.5 kg)	350	(177)	45 to 60 Minutes

## COOKING HINTS

Forced air convection cooking is faster than conventional oven cooking, and therefore overcooking is more common. Do not cook products faster than is practical for the best results. Since forced air convection supplies heat to the surface of the product, the thicker or more massive a product is for its type, the longer it will take to absorb enough heat to cook.

The oven will cook or bake full or partial loads at standard recipe temperatures. As with any oven, you may wish to use a temperature of up to 25 F° (-4 C°) higher or lower than the recipe for the particular product result that you prefer.

When established, convection oven times and control settings should be noted on your recipe.

## SUGGESTED COOKING GUIDELINES

Recommended temperatures, times and number of racks are intended as a guide only. Adjustments must be made to compensate for variations in recipes, ingredients, preparation and personal preference in product appearance.

The oven does not require special recipes. Excellent results can be obtained from any good commercial recipe with reduced cooking times.

## COOKING GUIDELINES

The information in the Cooking Guidelines chart is suggested only. Cooking times for various products may be different depending on the brand, consistency and the chef's preferences for taste and presentation. The times below may require adjustments. Note the times and temperatures of your preferred results for future use. The preheating time for all of the following is 15 minutes. The computer control's Holding Temperature is preset at 150°F (66°C) and cannot be changed.

### COOKING GUIDELINES (HOLDING FEATURE)

Product	Amount lbs. (kg)	Cooking Temp. °F (°C)	Cooking Time Hours	Min. Hold Time Hours	Max. Internal Cook Temp. °F (°C)	Internal Hold Temp. °F (°C)
Prime Rib	20 (9.06)	225 (107)	5	4	140 (60)	
Rib Eye Boneless	12 (5.43)	225 (107)	3	4	140 (60)	
Top Round	20 (9.06)	225 (107)	5	4	140 (60)	
Steamship Round	20 (9.06)	225 (107)	7	2	140 (60)	
Bottom Round	20 (9.06)	225 (107)	5	8	140 (60)	
Boneless Strip Loin	12 (5.43)	225 (107)	3	4	140 (60)	
Whole Tenderloin	6 (2.71)	225 (107)	2	2	140 (60)	
Top Sirloin Butt	14 (6.34)	225 (107)	3	4	140 (60)	
Beef Short Ribs	10 (4.53)	225 (107)	4	4	165 (74)	
Cube Steaks	10 (5.43)	225 (107)	3	3	180 (82)	
Beef Back Ribs	30 (13.6)	225 (107)	5	4	175 (79)	
Beef Stew	10 (5.43)	225 (107)	4	6	175 (79)	150 (66)
Corned Beef	12 (5.43)	250 (121)	4	4	165 (74)	150 (66)
Fresh Ham	12 (5.43)	250 (121)	6	4	165 (74)	
Cooked Cured Ham	12 (5.43)	250 (121)	4	4	135 (57)	
Pork Back Ribs	10 (4.53)	250 (121)	5	3	175 (79)	150 (66)
Pork Spare Ribs	30 (13.6)	250 (121)	5	4	175 (79)	150 (66)
Fresh Sausages	10 (4.53)	225 (107)	2	5 (Max)	175 (79)	
Pre-Cooked Sausage	10 (4.53)	250 (121)	1 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub> (Max)	160 (71)	
Roast Suckling Pig	30 (13.6)	250 (121)	6	3	170 (77)	155 (68)
Bacon		350 (177)	40 min.		N/A	
Roasted Chicken	10 (4.56)	350 (177)	45 min.	N/A	165 (74)	
Chicken Pieces (per tray)	10 (4.56)	250 (121)	2 <sup>1</sup> / <sub>2</sub>	<sup>1</sup> / <sub>2</sub> (Max)	170 (77)	150 (66)
Whole Chickens (per chicken)	3.25 (1.47)	250 (121)	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>2</sub> (Max)	170 (77)	140 (60)
Whole Turkeys	20 (9.06)	230 (110)	6 <sup>1</sup> / <sub>2</sub>	12 (Max)	170 (77)	160 (71)
Bone In Turkey Breast	10 (4.53)	250 (121)	5	1	160 (71)	150 (66)
Roast Duckling (per duck)	4 (1.81)	350 (177)	1 <sup>1</sup> / <sub>2</sub>	3 (Max)	170 (77)	150 (66)
Rack of Lamb per tray	15 racks	250 (121)	3 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	160 (71)	
Lamb Shanks, Braised		250 (121)	4	4	180 (82)	150 (66)
Fish Filets	4-6 oz. (23g)	225 (107)	40 min.	4	160 (71)	
Clear Soups Steam Pan	1/1 Gastronomie or 12x20x4"	225 (107)	3	Overnight	175 (79)	150 (66)
Frozen Pizza	(2) 18" Pies	350 (177)	15 min.	2	175 (79)	160 (71)
Rice	1 Qt. dry	250 (121)	2	18	160 (171)	N/A
Baked Potatoes	90 CT.	350 (177)	1	1 <sup>1</sup> / <sub>2</sub>	200 (93)	170 (77)

## STANDARD COOKING TIME CHART

Product	Amount	Temp.	Time
Frozen Croissant Dough	1.75 oz.	350°F (177°C)	25 Min
Cinnamon Croissant	1.75 oz.	350°F (177°C)	35 Min.
Small Bread Loaves	1 Tray	350°F (177°C)	30 Min.
Large Bread Loaves	1.5 lbs.	350°F (177°C)	60 Min.
Sheet Cake	(1) 18x26" Tray	300°F (149°C)	25 Min.
Scone Mix	1 Tray	350°F (177°C)	30 Min.
Muffin Mix	1 Tray	350°F (177°C)	30 Min.
Kaiser Rolls	1 Tray	350°F (177°C)	16 Min.
Italian Bread	1 Tray	350°F (177°C)	40 Min.
Danish Rounds*	1 Tray	350°F (177°C)	30 Min.
Cream Cake*	1 Tray	350°F (177°C)	60 Min.
Cookies	1 Tray	325°F (163°C)	16 Min.

\*The maximum internal cooking temperature should be 190°F (88°C).

## POWER OUTAGE

In case of a power outage, the oven will automatically shut down. When power is restored to the lines, the oven will resume its normal operation. However, if the oven is to be left unattended during a power outage, push the MASTER SWITCH to the OFF position. When power is restored to the lines, push MASTER SWITCH to the ON position, wait for the oven to preheat, then resume normal cooking operations.

## CLEANING

**WARNING:** DISCONNECT ELECTRICAL SUPPLY AND PLACE A TAG AT THE DISCONNECT SWITCH TO INDICATING THAT YOU ARE WORKING ON THE OVEN BEFORE CLEANING.

- Clean outside of the oven daily by wiping with a clean, damp cloth.
- Clean porcelain oven interior daily with soap or detergent and water. Rinse thoroughly and wipe dry with a soft, clean cloth.

## Optional Stainless Steel Oven Interior

Soap or detergent and water usually handle routine cleaning. Rinse thoroughly and dry with a soft, clean cloth.

For burned-on foods and grease which resist simple soap and water cleaning, an abrasive cleanser (scouring powder) mixed into a paste may be used. Apply with stainless steel wool or sponge, always rubbing with the grain.

This treatment is equally effective for "heat tint" (slightly darkened areas caused by oxidation). Again, remember to rub in the direction of the polish lines. Rinse with clear water and dry with a soft cloth.

# MAINTENANCE

**⚠ WARNING** The oven and its parts are hot. Use care when operating, cleaning or servicing the oven.

**⚠ WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

## LUBRICATION

The fan motor comes with sealed bearings and requires no lubrication.

## VENT

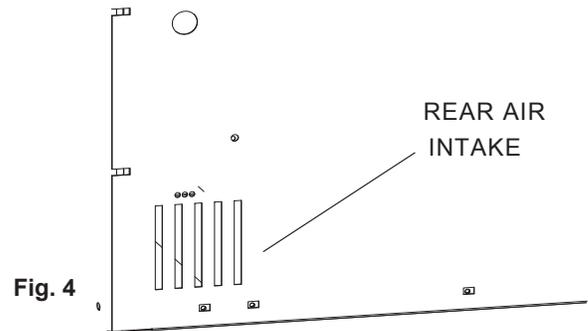
Periodically check the flue, when the oven is cool, to be sure it is free of obstructions.

## AIR INTAKE

Rear air intake slots and holes should be cleaned with a damp cloth regularly. FIG 4.

**⚠ WARNING**

**The rear air intakes must be kept clear.  
Noncompliance may lead to component failure.**



## REPLACING SIDE MOUNTED LAMPS

1. Allow oven to cool.
2. Remove all racks by pulling forward, lifting up and out.
3. Remove the right rack guide by lifting up and pulling out.
4. Pry glass cover off by sliding a flat tool under the bottom lip of the cover.
5. Replace the bulb. Gloves should be worn while handling bulbs.
6. Reassemble glass cover and racks by reversing the disassembly procedure.

## REPLACING REAR MOUNTED LAMPS

1. Allow oven to cool.
2. Remove all racks by pulling forward, lifting up and out.
3. Unscrew glass dome from light body.
4. Replace the bulb.
5. Reassemble glass dome and racks.

## SERVICE AND PARTS INFORMATION

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

# VULCAN

## INSTALLATION & OPERATION MANUAL

### VC5 SERIES ELECTRIC CONVECTION OVENS

MODEL

VC5ED

ML-137047



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# Installation, Operation and Care of VC5 SERIES ELECTRIC CONVECTION OVENS

KEEP THESE INSTRUCTIONS FOR FUTURE USE

Your Vulcan Electric Convection Oven is produced with quality workmanship and material. Proper installation, usage and maintenance of your oven 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.

## GENERAL

The VC5 Series Electric Convection Ovens feature a 500°F thermostat, 5 hour timer, porcelain interior and a two-speed, 1/2 HP blower motor as standard equipment. Ovens equipped with standard voltages are 208 or 240 V, 60 Hz, single- or three-phase. Ovens equipped for 480V, 60 Hz, single- or three-phase electrical specifications are optional.

The VC5 Oven is a single cavity oven furnished with five racks. Independently opening doors are standard. Oven light with on-off switch is standard.

An open stand with lower storage rack is available as an option.

Stacked ovens are furnished with either Stacking Kit 426983G1 (8" LEGS) or Stacking Kit 426984G1 (CASTER) for mounting one oven on top of the other.

Additional racks are available as accessories.

### FEATURES & OPTIONS

Model	Oven Interior Depth	Oven Exterior Depth	Thermostat	Timer	Roast & Hold	5 Hr. Timer	Stack Kit with Legs *	Stack Kit with Casters *	Legs with Feet	Legs with Casters	Stand with Rack & Feet	Stand with Rack & Casters
VC5ED	26 1/2" (67.3 cm)	41 1/2" (105.4 cm)	Solid State	5 Hr. Dial	NA	Std.	Opt	Opt	Std.	Opt	Opt	Opt

\* With Two Stacked Ovens Only.

# INSTALLATION

## UNPACKING

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

Prior to installation, verify that the electrical service agrees with the specifications on the oven data plate, located on the right side of the bottom front cover.

Do not use the doors or their handles to lift the oven.

## LOCATION

**⚠ WARNING** The installation must allow adequate clearance for servicing and operation. For solid state and digitally controlled models there must be 18” (45cm) of clearance on the right side of the oven from any open flame. For all other clearances see table below.

Clearances (inches)		
	Combustible	Non-Combustible
Rear	2	2
Rt Side	4	4
Left Side	1	1

## INSTALLATION CODES AND STANDARDS

In the United States, install the oven in accordance with: 1) State and local codes; 2) National Electrical Code, NFPA-70 (latest edition) and 3) NFPA Standard #96, *Vapor Removal from Cooking Equipment* (latest edition), available from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

## INSTALLING BASIC OVEN

The basic oven must be installed on legs or mounted on a modular stand. Installations on concrete bases or other supports restricting air circulation underneath the oven is not advisable and may void the warranty. If using the modular stand, set the oven on the stand after unpacking.

## ASSEMBLING THE LEGS TO THE SINGLE OVEN

The legs must be installed on the bottom of the oven. Gently position the oven on its left side, taking care not to cause scratches or damage.

Attach each of the four leg assemblies to the bottom of the oven with the 24 bolts and lockwashers (six bolts and lockwashers per leg). Carefully raise the oven to its normal position.

## LEVELING

Adjust the legs to ensure that the oven racks are level in the final installed position.

## CASTERS

If the oven is to be installed on casters, assemble the casters to the legs provided. Then attach the caster-leg units to the oven at each corner using the 24 bolts and lockwashers. Place the locking casters on the front legs and nonlocking casters on the rear legs. Units on casters should be tethered to the building using the strain relief bracket shown in Figure 2.

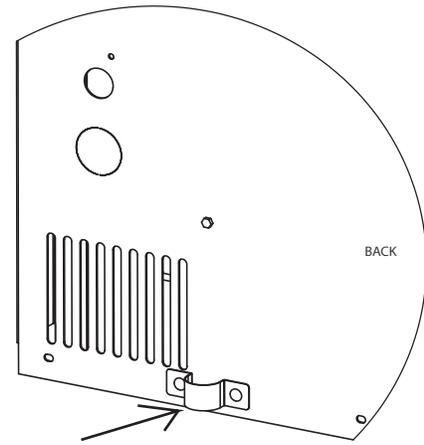


Fig. 2

## ASSEMBLING THE STAND TO THE OVEN

Attach each of the four leg assemblies to the bottom of the oven with the 24 bolts and lockwashers (six per leg). Carefully raise the oven to the normal position.

Attach the undershelf to the legs with eight bolts and lockwashers (two per leg).

Install the rack guides into the shelf at the desired locations (for pan or flat rack), then attach the rack supports to the top end of the rack guides. Attach rack supports to the leg assembly by removing one middle bolt and reattaching the back through the end holes in the rack support (Fig. 2).

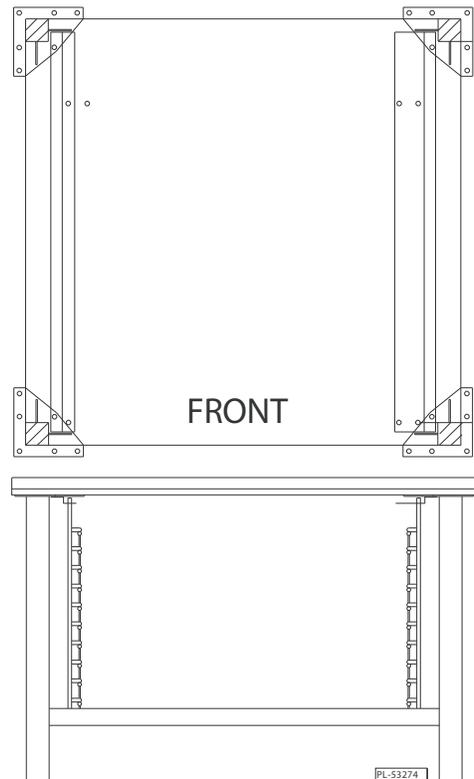


Fig. 3

## ELECTRICAL CONNECTIONS

**⚠ WARNING** Electrical and grounding connections must comply with the applicable portions of the National Electrical Code ANSI/NFPA70 (latest edition) and/or other local electrical codes.

**⚠ WARNING** Disconnect electrical power supply and place a tag at the disconnect switch to indicate that you are working on the circuit.

Remove the wiring compartment cover on the front of the oven. Remove the appropriate knockout on the bottom of the oven and attach the power supply conduit to the bottom of the oven.

Comply with the appropriate wiring diagram (located inside the right side panel) when making connections to the electrical supply lines. Use flexible conduit only.

Replace the wiring compartment cover and right side panel. Turn on the power supply.

## ELECTRICAL DATA

	TOTAL KW	208-240 V			480 V			NOMINAL AMPERES PER LINE WIRE														
		3-PHASE LOADING			3-PHASE LOADING			3 PHASE									1 PHASE					
		KW PER PHASE			KW PER PHASE			208 V			240 V			480 V			208 V	240 V	480 V			
		L1-L2	L2-L3	L1-L3	L1-L2	L2-L3	L1-L3	L1	L2	L3	L1	L2	L3	L1	L2	L3						
Single Oven	12.5	4	4	4.5	4	4	4.5	35	33	35	33	29	33	14.4	15.3	15.3	60	52	26			
Stacked Oven	25	8	8	9	8	8	9	70	66	70	66	58	66	28.8	30.6	30.6	120	104	52			

### ASSEMBLING STACKED OVENS

Unpack the ovens and the stack kits. Position the oven to be used as the bottom oven on its left side for access to the oven bottom, taking care not to scratch or damage it.

Attach the four leg or caster assemblies with the 24 bolts and lockwashers (six per leg).

Place the lower oven (with legs or casters) on the floor and remove two  $\frac{7}{16}$ " (11 mm) diameter knockouts on each side of the top exterior panel. Remove knockout from top oven base.

Install two locating studs to the bottom of the top oven per stacking kit instructions.

Move the oven with legs or casters to the installed position. Place the upper oven on top of the lower oven using the locating studs.

Remove the optional rear panel, if provided, from the TOP oven. Remove top oven vent guard. Install the Stacking Flue (Fig. 4) with the four screws provided. Replace the top oven rear panel, if provided.

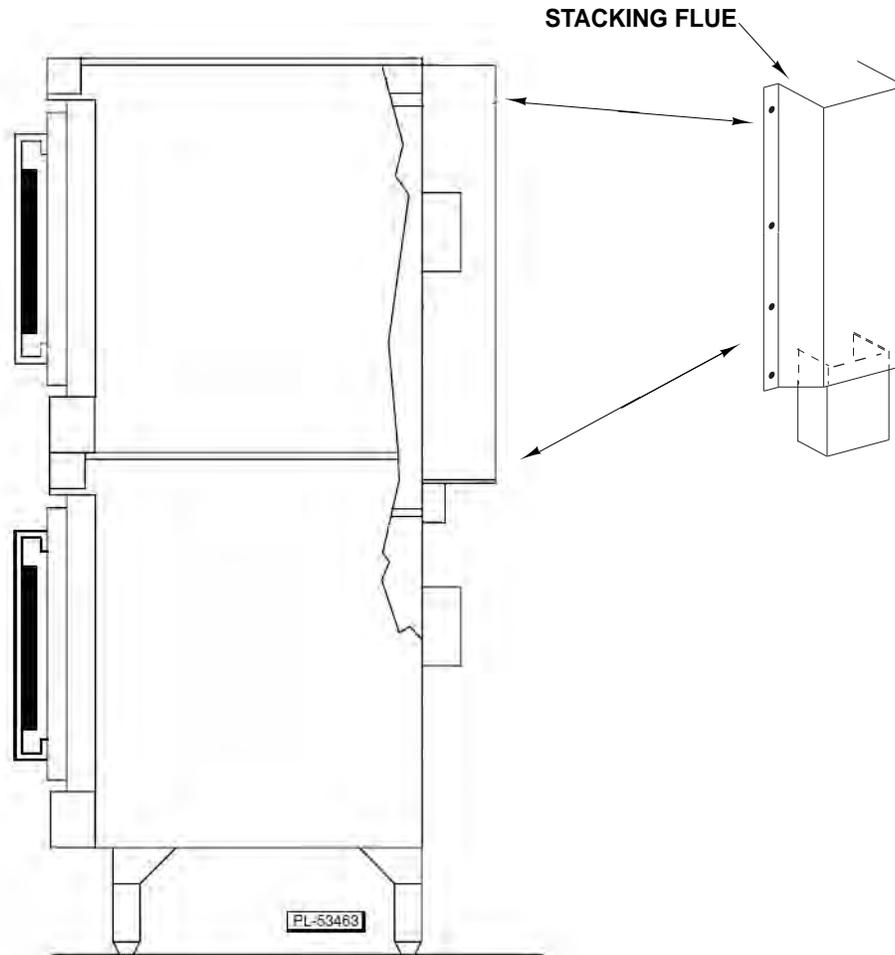


Fig. 4

## ELECTRICAL CONNECTIONS (Stacked Ovens)

**⚠ 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 that you are working on the circuit.

Make sure that the electrical power supply agrees with the specifications on the oven data plate, the wiring diagram on the oven and Electrical Data, page 5.

1. Wires to connect both ovens are provided with a separate wiring kit for stacked electric ovens. Carefully route these leads from the top oven through the bushing (supplied with another stacking kit) through the electrical access knockout holes common to both ovens.
2. Connect wires X, Y and Z from the upper oven to the lower oven per the wiring diagram. Attach the power supply conduit to the bottom of the lower oven. Connect the power supply leads to the line side of the terminal block on the bottom oven.
3. Finally, inspect and check all wiring and terminal connections for tightness or pinch points (cover on oven frame).
4. Refer to reference drawing 426986 supplied with the stacking kit for electrical connection instructions.
5. Refer to instructions supplied with the stacking kit for marking the combined electrical load information to the electrical data plate of the bottom oven.

# OPERATION

**⚠ WARNING** The oven and its parts are hot. Use care when operating, cleaning or performing any maintenance.

## CONTROLS



- MOISTURE VENT DAMPER
- The vent is always open for VC5E to exhaust excess moisture.
- MASTER SWITCH
- ON - Turns oven control circuits on.
  - OFF - Turns oven control circuits off.
  - OVEN COOL - Allows the fan motor to run with the doors ajar to speed oven cooling.
- ON LIGHT
- Lit when MASTER SWITCH is turned to ON.
- HEAT LIGHT
- Comes on and goes off when the heating elements cycle on and off.
- TEMPERATURE
- Controls oven temperature.
- TIMER
- Use to set the cooking time. Alarm sounds continuously when time has elapsed to 0. Turn the timer counter clockwise 1/2 rotation to silence the alarm.
- FAN SPEED
- Adjust air velocity in the oven cavity.
  - HI - Normal operating speed.
  - LOW - Use this setting when cooking a delicate product like meringue, which could blow around in the oven.
- LIGHTS
- ON - Turns the interior light on.
  - OFF - Turns the interior light off.
- GENLE MODE
- Select "NORMAL" for 100% Power and "GENTLE" for 75% Power.

## BEFORE FIRST USE

Before using the oven for the first time, it must be burned off to release any odors that might result from heating the new surfaces in the chamber.

1. Using a clean damp cloth, wipe the inside of the oven, including the racks.
2. Close the oven doors, turn the MASTER SWITCH to ON, turn the Thermostat to 300°F (149 °C) and allow the oven to cycle for 6 to 8 hours before turning the MASTER SWITCH to OFF.

## Preheating

1. Turn MASTER SWITCH to ON. Amber ON light will come on, indicating that power to oven is on.
2. Set Thermostat as desired. Refer to COOKING GUIDELINES for suggested temperatures and times for various products.
3. Prepare product and place in suitable pans. When white HEAT light goes off, oven has reached desired preheat temperature.

## Cooking

1. Open doors and load the product into the oven. Place pans in the center of the racks. Close doors.
2. Set the Timer. After the preset time lapses, turn Timer to OFF position to stop alarm.
3. When product is done, open doors and carefully remove cooked product from the oven. Care should be taken when wiping up any spills, as oven is still hot.

## End of Day

1. Turn Thermostat to OFF.
2. Turn MASTER SWITCH to OVEN COOL. Leave doors open while the fan is on to cool the oven.
3. When oven has cooled sufficiently, turn MASTER SWITCH to OFF and clean the oven.

## STANDARD COOKING TIME CHART

Product	Amount	Temp.	Time
Frozen Croissant Dough	1.75 oz	350°F (177 °C)	25 Min
Cinnamon Croissant	1.75 oz	350°F (177 °C)	35 Min.
Small Bread Loaves	1 Tray	350°F (177 °C)	30 Min.
Large Bread Loaves	1.5 lbs.	350°F (177 °C)	60 Min.
Sheet Cake	(1) 18x26" Tray	300°F (149 °C)	25 Min.
Scone Mix	1 Tray	350°F (177 °C)	30 Min.
Muffin Mix	1 Tray	350°F (177 °C)	30 Min.
Kaiser Rolls	1 Tray	350°F (177 °C)	16 Min.
Italian Bread	1 Tray	350°F (177 °C)	40 Min.
Danish Rounds*	1 Tray	350°F (177 °C)	30 Min.
Cream Cake*	1 Tray	350°F (177 °C)	60 Min.
Cookies	1 Tray	325°F (163 °C)	16 Min.

\*The maximum internal cooking temperature should be 190°F (88 °C).

### POWER OUTAGE

In case of a power outage, the oven will automatically shut down. When power is restored to the lines, the oven will resume its normal operation. However, if the oven is to be left unattended during a power outage, push the MASTER SWITCH to the OFF position. When power is restored to the lines, push MASTER SWITCH to the ON position, wait for the oven to preheat, then resume normal cooking operations.

### CLEANING

**⚠ WARNING** Disconnect electrical supply and place a tag at the disconnect switch to indicate that you are working on the oven before cleaning.

- Clean outside of the oven daily by wiping with a clean, damp cloth.
- Clean porcelain oven interior daily with soap or detergent and water. Rinse thoroughly and wipe dry with a soft, clean cloth.

**⚠ WARNING** Wait for oven doors to cool before washing. Splashing or submerging hot doors in water can cause the glass to shatter.

The doors (when cool) may be removed by opening 90 degrees and lifting up. Clean in a dishwasher or by hand. Allow to drip dry before replacing.

Stainless Steel Surfaces Hand Cleaning Instructions:

- Soap or detergent and water usually handle routine cleaning. Rinse thoroughly and dry with a soft, clean cloth.
- For burned-on foods and grease which resist simple soap and water cleaning, an abrasive cleanser (scouring powder) mixed into paste may be used. Apply with stainless steel wool or sponge, always rubbing with the grain.

# MAINTENANCE

**⚠ WARNING** The oven and its parts are hot. Use care when operating, cleaning or servicing the oven.

**⚠ WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

## LUBRICATION

The fan motor comes with sealed bearings and requires no lubrication.

## VENT

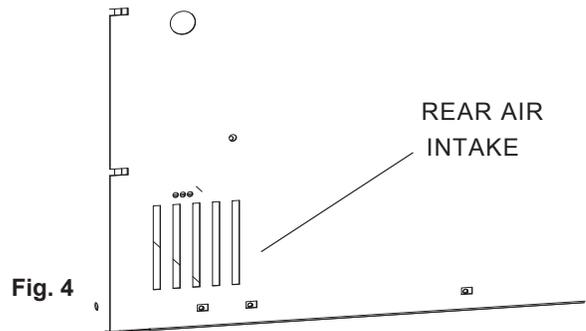
Periodically check the flue, when the oven is cool, to be sure it is free of obstructions.

## AIR INTAKE

Rear air intake slots and holes should be cleaned with a damp cloth regularly. FIG 4.

**⚠ WARNING**

**The rear air intakes must be kept clear.  
Noncompliance may lead to component failure.**



## REPLACING SIDE MOUNTED LAMPS

1. Allow oven to cool.
2. Remove all racks by pulling forward, lifting up and out.
3. Remove the right rack guide by lifting up and pulling out.
4. Pry glass cover off by sliding a flat tool under the bottom lip of the cover.
5. Replace the bulb. Gloves should be worn while handling bulbs.
6. Reassemble glass cover and racks by reversing the disassembly procedure.

## SERVICE AND PARTS INFORMATION

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

# CONVECTION OVEN

## COMPUTER CONTROLS GUIDE



Proud supporter of you.®



No worries.



DONE TO PERFECTION.

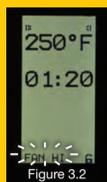
### QUICK START / MANUAL SETTINGS



Turn the oven on and the display will show the last used setting.

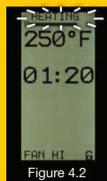
#### TEMPERATURE:

1. Press the TEMP **Ⓟ** button, the set temperature will flash. (Fig. 1.2)
2. Enter the desired temperature using the keypad. The new temperature will flash. (If needed, press the TEMP key and hold for 3 seconds, to display the internal oven temperature. The actual internal oven temperature will continue to be displayed as long as the key is depressed and for 3 seconds after the key is released. The default temperature display is the set temperature.)
3. Press the **OK** button to accept.



#### COOK TIME:

1. Press the TIME **Ⓢ** button, the set time will flash. (Fig. 2.2)
2. Enter the desired time in hours and minutes using the keypad. The new time will flash. (Example: Enter 1, display shows "00:01." Enter 120, display shows "01:20")
3. Press the **OK** button to accept or the **X** key to cancel.



#### FAN SPEED:

1. Press the FAN button to toggle through fan speeds: HI, LOW, or OFF. (Fig. 3.2) (If gas heat source is selected, choosing fan off will disable heat. Verify that this setting matches the heat source of your oven.)

#### START COOK CYCLE:

1. Press the **START** button. Display will show count down time. (More than 1 hour = HR:MIN, Less than 1 hour = MIN:SEC)

#### ADD TIME FEATURE:

1. ADD TIME to the current cooking cycle by pressing any of the Number Pad keys.
2. You may add from 1 to 10 minutes by pressing a number pad key during the timing cycle of any cook time. (Note the "0" key represents 10 minutes of add time)

**NOTE:** When the actual temperature is more than 10°F, below set temperature, the display will say HEATING (Fig. 4.2), with a heating progress bar shown below the HEATING. When the actual temperature is less than 10°F, below the set point, the HEATING display will change to READY.

## START PROGRAMMING MODES



To begin programming, Press the **PROG** button, to display the **SYSTEM MENU**.

The available choices are:

1. Menu Programming
2. USB
3. System Diagnostics
4. Settings

### 1 MENU PROGRAMMING



Press the **1** button on the keypad. The display to the left appears.

Use the up down arrows to select a page of menu items. Once you see the menu item you wish to edit, press the number on the key pad that corresponds to the menu item to be edited.

The display to the left appears, with "NAME" flashing. The following items can be edited:

- NAME
- COOK TEMPERATURE
- COOK TIME
- POWER %
- HOLD FUNCTION
- HOLD TEMPERATURE

Once a menu item is displayed, you can edit any or all of the displayed functions. The item to be edited will be the item name that is flashing. Use the up down arrows to select the function to edit. When it is flashing, press the **OK** button.

**NAME:** The cursor will flash over the first letter location. Use the up down arrows to change the letters and numbers in the space. The up down arrows run through the alphabet, down increases the letters, up decreases the letters.

After selecting the character for the name location, press the **OK** button to proceed to the next location. Once the name is as you would like it, press and hold the **OK** button for three (3) seconds to save the name and move on to the next item.

Use the up down arrows to select the next function to edit. When it is flashing, press the **OK** button.

**COOK TEMPERATURE:** The display will flash, the 3 digit number for the set temperature. Press the numbers on the key pad that corresponds to the temperature of the menu item. After selecting the 3 digit temperature, press the **OK** button to proceed.

Use the up down arrows to select the next function to edit. When it is flashing, press the **OK** button.

**COOK TIME:** The display will flash time as "00:00" Hours : Minutes. Press the numbers on the key pad that corresponds to the time of the menu item. (Example: Enter 1, display shows "00:01." Enter 120, display shows "01:20")

After selecting the correct time, press the **OK** button to proceed.

Use the up down arrows to select the next function to edit. When it is flashing, press the **OK** button.

**POWER %:** The current power level will flash.

Press the number on the key pad that corresponds to the Power level required for the menu item. Each number on the pad represents a 10% power level. 1=10%. 2=20%...0=100%. After selecting the correct power level, press the **OK** button to proceed.

Use the up down arrows to select the next function to edit. When it is flashing, press the **OK** button. (NOTE: Default setting is 100%)

**FAN:** The fan speed will flash.

Use the up down arrows to scan between speeds. "HI", "LO" and "OFF". After selecting the correct fan speed, press the **OK** button to proceed. [note: gas ovens will not cook with the fan set to off.]

Use the up down button arrows to select the next function to edit. When it is flashing, press the **OK** button.

**HOLD FUNCTION:** "ON" or "OFF" will flash.

Use the up down arrows to scan between HOLD ON or HOLD OFF. After selecting the hold function, press the **OK** button to proceed.

Use the up down button arrows to select the next function to edit. When it is flashing, press the **OK** button.

**HOLD TEMPERATURE HTMP:** The display will flash, the 3 digit number for the HOLD temperature. Press the numbers on the key pad that correspond to the temperature of the menu item. The hold temperature can only be set to a temperature between 100°F and 200°F. (If attempted to set the Hold temperature below 100°F, it will give you a hold temperature of 100°F. If attempted to set the Hold temperature above 200°F, it will give you a hold temperature of 200°F). After selecting the 3 digit temperature, press the **OK** button to proceed.

After editing the menu item, and the display shows all of your preferences, press the **X** button, to exit the edit function. The screen to the left appears.

Press the **X** button again to exit the system menu window. Press the **X** button again to exit.



Figure 4



Figure 5



Figure 6



Figure 7



Figure 8



Figure 9



Figure 10

### 2 USB

Press **1** to select "LOAD MENU." (Fig. 4) Press the number on the key pad that corresponds to the menu of choice. (Fig. 5) The menu is loaded and the display returns to (Fig. 4)

Press **2** to store a menu on the computer to a USB. To assign a name to the program, follow the instructions for "NAME:" in menu programming above. (Fig. 6)

### 3 SYSTEM DIAGNOSTIC

Press the **3** button on the keypad for system diagnostics. (Fig. 7)

Press **1** for output tests. Display shows the status of FAN, HEAT relay and ALARMS. (Fig. 8)

Press **2** for input tests. Display shows the status of DOOR, V1, V2, act. Temp. software boot date. (Fig. 9)

### 4 SETTINGS

Press **4** for settings menu. (Fig. 10)

Press **2** to toggle to change from white on black to black on white.

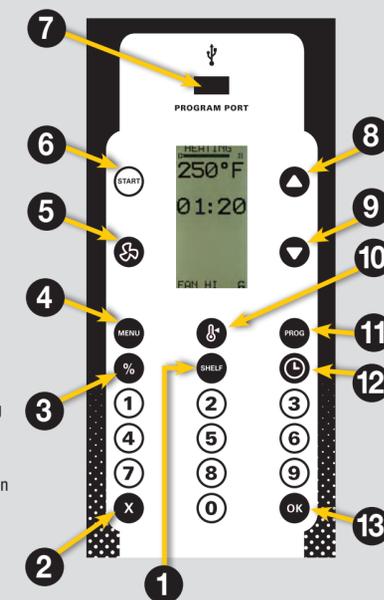
Select **1** to change the volume of the alarm.

Select **3** to change the contrast of the display.

Press **4** to toggle to switch from GAS to ELEC. heat source. (If gas heat source is selected, choosing fan off will disable heat. Verify that this setting matches the heat source of your oven.)

### DISPLAY PANEL GUIDE

- 1 **SHELF** key, used to assign menu items to up to 6 different shelves. The computer will track up to 6 menu items in 6 shelf positions.
- 2 **X** key, used to EXIT or cancel programming or operational functions.
- 3 **%** key, used to program the power level in 10% increments.
- 4 **MENU** key, used to select a menu item.
- 5 **FAN** key, used to set the fan speed.
- 6 **START** key, used to start a cooking timing cycle.
- 7 **PROG. PORT**, used with standard USB thumb drive, to import software updates and to upload cooking menus created externally with the C3700 menu editor.
- 8 **UP** arrow, used to scroll through menu and programming functions in the UP direction.
- 9 **DOWN** arrow, used to scroll through menu and programming functions in the DOWN direction.
- 10 **TEMP** key, used to set the cooking temperature, manually. Press and hold for 3 seconds to display the actual internal oven temperature.
- 11 **PROG** key, used to access all programming functions.
- 12 **TIME** key, used to set the cook time, manually.
- 13 **OK** key, used to accept programmed inputs.



### SHELF TIMER USAGE

Choose either **PRE-PROGRAMMED** or **MANUAL** shelf programming methods. Follow steps 1-3 then **SHELF PROGRAMMING** steps 4-9

#### STEPS 1-3



Figure 1.1

#### Pre-Programmed Menus:

- 1 Press the **MENU** button, a list of 10 menu items will appear. (Fig. 1.1) Press the up down arrows to scroll through the 10 pages of 10 menus saved to the C3700. (100 menu items total)
- 2 Once you find the menu item you require, press the number on the number pad that is shown in front of the menu item in the display.
- 3 The display will show (Fig. 2.1)



Figure 2.1

#### Manual Shelf Timing:

- 1 Determine the temperature of all of the items to be cooked on all of the shelves. There can be only one set temperature.
- 2 Press the TEMP **Ⓟ** button, the temperature displayed will flash. Use the number pad to enter the desired cook temperature then press the **OK** button to set the temperature.
- 3 Press the TIME **Ⓢ** button, the time displayed will flash. Use the number pad to enter the desired cook time, press the **OK** button to set the time.

OR

#### STEPS 4-9

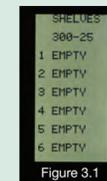


Figure 3.1

- 4 Press the SHELF **Ⓢ** button.
- 5 The display will show the status of all 6 shelves. If nothing has been sent to a shelf, its status is "EMPTY". (Fig. 3.1)

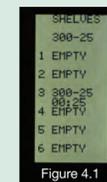


Figure 4.1

- 6 Determine which shelf you want this menu item to be cooked on.
- 7 Press the button, on the number pad, that corresponds to the shelf of choice. Open the oven doors, place the menu item on the selected shelf, close the door and press the **START** button.
- 8 The shelf time for the selected shelf will start counting down. (Fig. 4.1)



Figure 5.1

To add an additional item, follow steps 1 - 8 above, selecting a different shelf. You can use the same menu item or choose a different menu item. When you access the "MENU" button, only those menu items with the same cook temperature will be available for selection, after you have selected a

menu item for a shelf. This is because the oven cannot maintain multiple temperatures. All menu items must be the same temperature when using the shelf function.

You can repeat this process for up to 6 different shelves. All ovens do not have a 6 shelf capacity. Some products require spacing between racks that allow for less than 5 shelves. You must decide the shelf spacing for a given cooking cycle. You must determine the order of the shelves. 1-5, bottom to top or 1-5, top to bottom. The computer does not know where the shelves are, only that you have selected them.

The shelf display will show all shelves counting down simultaneously. (Fig. 5.1)

To cancel the times on the shelf display, while the times are displayed as above, press the number pad that corresponds to the shelf time to be cancelled and hold it for 3 seconds. Pressing 1 through 6 and holding each for 3 seconds will return the shelf display to "EMPTY" (Fig. 3.1).

Following you will find instructions on how to shut down your Vulcan cooking equipment for an extended period, and how to safely restart equipment after idle.

Always refer to the procedures as instructed in the Installation & Operation manual for your specific model. Manuals may be found by visiting the Vulcan website and clicking on RESOURCES at the top right of the home page.

Always remember that cooking equipment and its parts are hot. Use care when operating, cleaning or performing maintenance.

For additional product resources, please visit <https://www.vulcanequipment.com/>.

## CONVECTION OVENS

### EXTENDED SHUTDOWN – ALL MODELS

1. A thorough cleaning of the oven, both interior and exterior.
  - a. Clean and clear the rear air intake.
  - b. Check exhaust vent for blockage.
  - c. Wipe down the interior and door glass with a damp rag.
    - i. Cool down oven.
    - ii. Remove oven racks.
    - iii. Lift rack guides on either side of oven off of holders. Racks and guides may be run through dishwasher while oven cavity is being cleaned.
    - iv. Clean with soap and water using non-metallic scouring pad, if necessary. If dirt and grease have accumulated, a mild ammonia solution or commercial oven cleaner such as Easy-Off or Dow may be used.
  - d. Wipe down the exterior and door glass with a damp rag.
    - i. Cool down oven.
    - ii. Wipe exposed, cleanable surface when cool with a mild detergent and hot water. Dry thoroughly with a clean cloth.
    - iii. Stubborn stains may be removed by using a non-metallic abrasive pad, rubbing in the direction of the metal's grain. If necessary, for particularly heavy deposits, you may mix a thin paste of water and scouring powder and apply it with a sponge. Be careful to apply light pressure and remember to rub only in the direction of the grain in the metal.
    - iv. The control panel surface is easily cleaned with hot water, soap and a soft cloth. Do not use hard abrasives, solvent type materials or metallic scouring pads since these will scratch or cloud the surface.
    - v. Never spray the perforated areas or control panel with steam or water, as this will allow moisture into the control cavity, which could damage electrical components.
  - e. Maintain fan area.
    - i. If aluminum foil is routinely used to wrap food or cooking vessels during oven operation, the following preventative maintenance must be performed:
      1. Remove oven racks and rack guides.
      2. Check blower wheel and air baffle for particles of aluminum foil or food deposits.
2. Inspect the oven for any signs of excessive wear and tear and order replacement parts (e.g. door glass assemblies, door roller latch, burner tube and spark igniter).
3. Shut off gas supply.
4. Shut off electric supply.
5. Leave oven doors slightly open.



Model VC5G  
Shown with optional casters

## **CONVECTION OVENS** *(CONTINUED)*

### **RESTART FROM EXTENDED SHUTDOWN – ALL MODELS**

1. Schedule a qualified gas service technician to be onsite upon restart if kitchen has been down for more than 30 days.
  - a. Check all gas equipment in kitchen for gas leaks.
2. Check the entire kitchen and all gas equipment for gas leaks prior to starting any equipment.
3. Clean the unit.
4. Inspect the unit: look for rusted tubes, frayed wires, check door latches
5. Follow the Hobart Start-Up guide.



## VC3ED FULL SIZE ELECTRIC CONVECTION OVEN

VC3ED

ML-137013

### - NOTICE -

This Manual is prepared for the use of trained Vulcan Service Technicians and should not be used by those not properly qualified.

This manual is not intended to be all encompassing. If you have not attended a Vulcan Service School for this product, you should read, in its entirety, the repair procedure you wish to perform to determine if you have the necessary tools, instruments and skills required to perform the procedure. Procedures for which you do not have the necessary tools, instruments and skills should be performed by a trained Vulcan Service Technician.

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# GENERAL

## INTRODUCTION

FEATURES				
MODEL	CAVITY DEPTH	TEMPERATURE CONTROL	DOORS (50/50)	COOK TIMER
VC3ED	26.5"	Solid State	Independent	1-Hour Dial
<b>NOTE:</b> Stainless steel doors with window (standard)				

## INSTALLATION

Refer to OPERATORS MANUAL for procedures related to Installation, Operation and Cleaning.

## OPERATION

Refer to OPERATORS MANUAL for procedures related to Installation, Operation and Cleaning.

## CLEANING

Refer to OPERATORS MANUAL for procedures related to Installation, Operation and Cleaning.

## LUBRICATION

- Cavity blower motor has sealed bearings and requires no additional lubrication.

- HUSKEY™ TF-1000 grease or equivalent high temperature non-stick grease.

## TOOLS

### Standard

- Standard set of hand tools
- VOM with ability to measure micro amp current. VOM with minimum of NFPA-70E CAT III 600V, UL/CSA/TUV listed. Sensitivity of at least 20,000 ohms per volt. Meter leads must also be rated at CAT III 600V.
- Gear Puller to remove blower
- Temperature tester (thermocouple type)
- Manometer
- RTV sealant, 736 DOW silicone high temp (P/N 542133) or equivalent

## SPECIFICATIONS

AMPERAGE - 3 PHASE/ 60HZ							
MODEL	TOTAL POWER (KW)	PER LINE <sup>1</sup>			RECOMMENDED CIRCUIT PROTECTION <sup>2</sup>		
		208V	240V	480V	208V	240V	480V
VC3ED	12.5	35	33	15	45	40	20
NOTES:	<sup>1</sup> Amperage values in the table are nominal. Tolerance is +5/-10%.						
	<sup>2</sup> Complied in accordance with National Electric Code, ANSI/NFPA 70, latest edition						

AMPERAGE - 1 PHASE/ 60HZ							
MODEL	TOTAL POWER (KW)	PER LINE <sup>1</sup>			RECOMMENDED CIRCUIT PROTECTION <sup>2</sup>		
		208V	240V	480V	208V	240V	480V
VC3ED	12.5	60	52	26	80	70	35
<b>NOTES:</b>	<sup>1</sup> Amperage values in the table are nominal. Tolerance is +5/-10%. <sup>2</sup> Complied in accordance with National Electric Code, ANSI/NFPA 70, latest edition.						

SPECIFICATION SHEET

# REMOVAL AND REPLACEMENT PARTS

## COVERS AND PANELS



**WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

### Bottom Front Cover

1. The bottom front cover is secured with four (4) screws, two on each side of cover. Remove these screws then remove cover from oven.

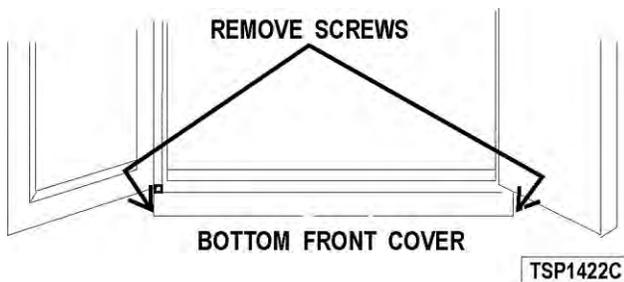


Fig. 1

2. Reverse procedure to install. Verify bottom cover is seated under front plate.

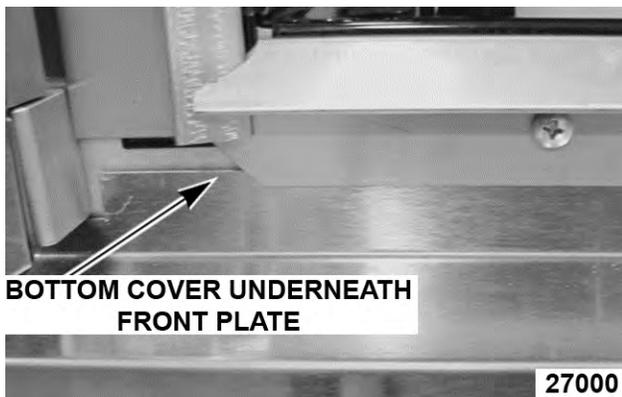


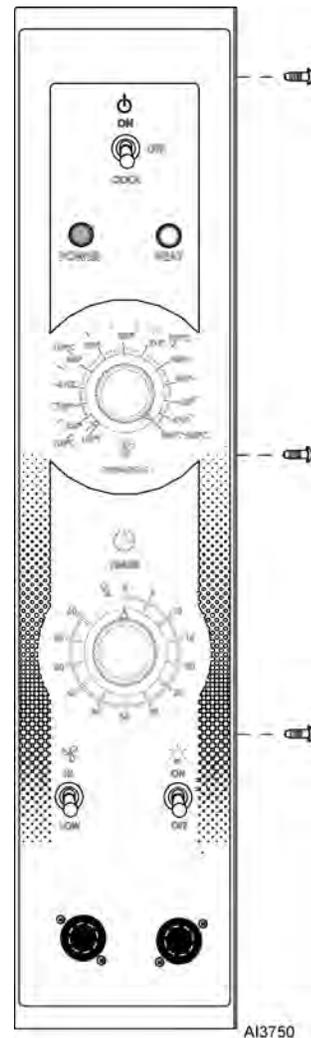
Fig. 2



**WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

### Control Panel

1. Remove three (3) screws on the right side which secure the control panel then left up and pull away.



Control Panel Cover

2. Disconnect temperature probe leads from solid state temperature control.
3. Disconnect fuse wires.
4. Unplug wire harness connector to control panel components.
5. Reverse procedure to install.

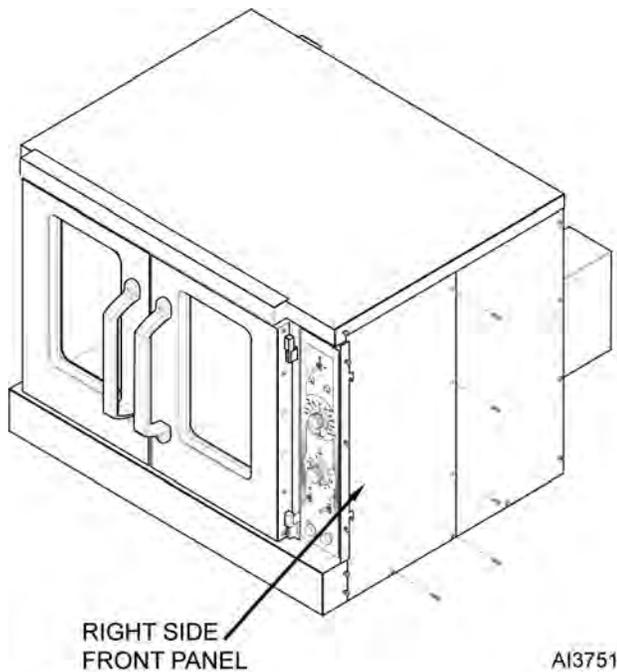


**WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

### Right Side - Front Panel

1. Loosen two screws near front of oven, which secure bottom front cover.

2. Loosen screws on left side of front panel and top cover screw.
3. Remove screws along right side and bottom of front panel.



**Fig. 4**

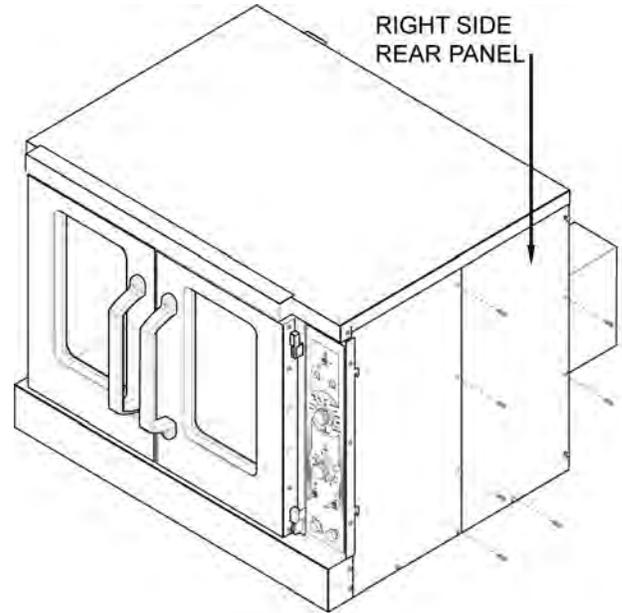
4. Slide right side front panel out.
5. Reverse procedure to install.



**⚠ WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

**Right Side - Rear Panel**

1. Remove two middle screws along right side of rear panel.
2. Remove screws along left side of rear panel.
3. Remove bottom screws on rear panel.
4. Loosen top and bottom screw along right side of rear panel.



**Fig. 5**

5. Slide right side rear panel up and to the right to remove.
6. Reverse procedure to install.



**⚠ WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

**Left Side Panel**

1. Remove screws along right side, middle left side, and bottom on left side panel.
2. Loosen screws on top and bottom on left side of panel.
3. Loosen two screws near front of oven, which secure bottom front cover.

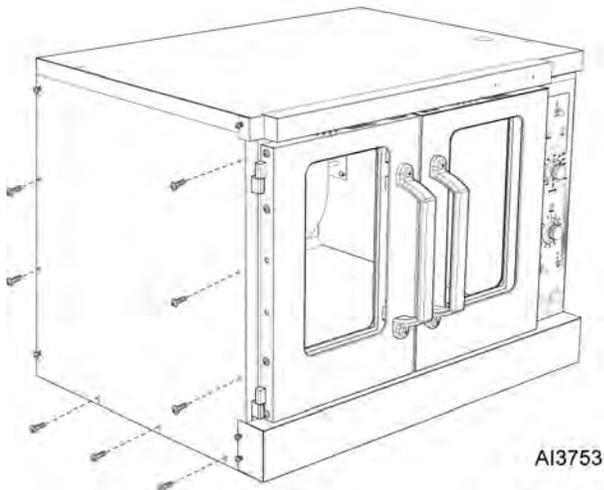


Fig. 6

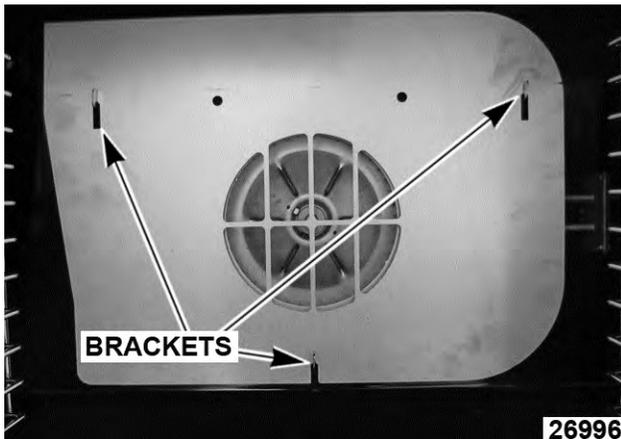
4. Lift up and pull away to remove.
5. Reverse procedure to install.



**⚠ WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

**Fan Cover**

1. Remove racks.
2. Lift fan cover up and out of oven.



Fan Cover Removal

3. Reverse procedure to install.

**CONTROL PANEL COMPONENTS**



**⚠ WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

**Removable Components**

1. Remove the CONTROL PANEL.
2. Remove the component being replaced.
3. Reverse the procedure to install the replacement component, then check oven for proper operation.

**COMPONENT PANEL COMPONENTS**



**⚠ WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

**Removable Components**

1. Remove the RIGHT SIDE - FRONT PANEL.

**NOTE:** If right side panel is not accessible, this component can be serviced by removing the CONTROL PANEL.

2. Disconnect the wire leads to the component being replaced.
3. Remove the component.
4. Reverse the procedure to install the replacement component and check oven for proper operation.

**TEMPERATURE PROBE**



**⚠ WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Remove the RIGHT SIDE - FRONT PANEL.

**NOTE:** If right side - front panel is not accessible, this component can be serviced by removing the CONTROL PANEL.

Disconnect the probe leads from the solid state temperature control.

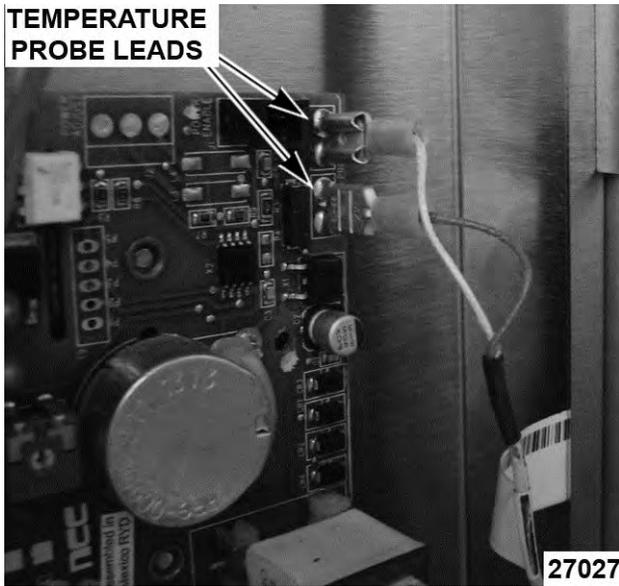


Fig. 8

2. Remove upper panel and pull out insulation cut-away.

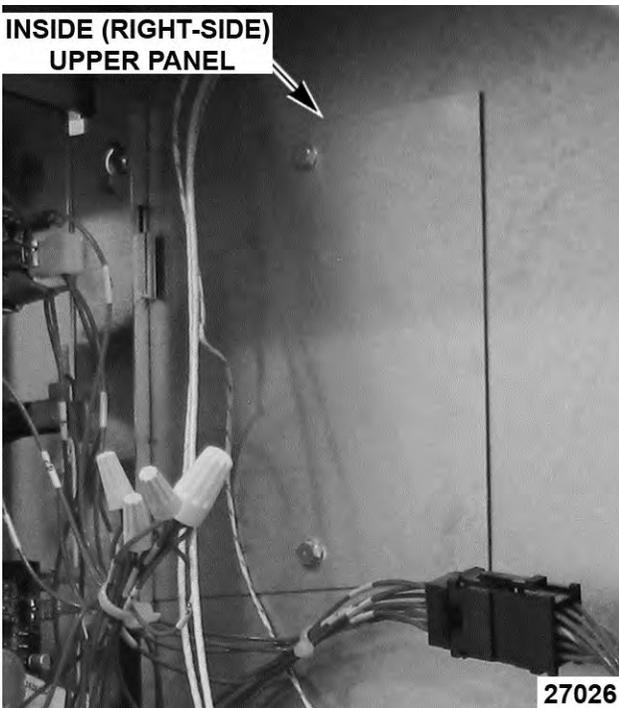


Fig. 9

3. Remove the racks from inside cavity.
4. Remove the probe guard.

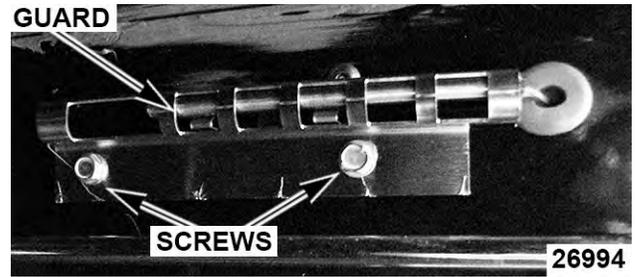


Fig. 10

5. Remove probe by pushing it through the oven wall and down through upper panel into the control panel area.

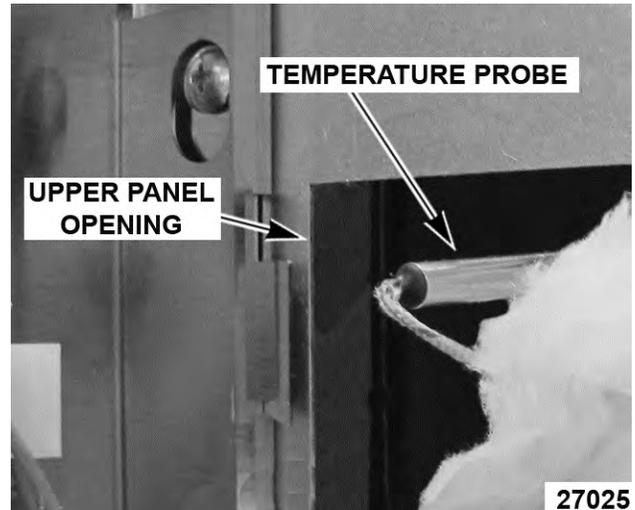


Fig. 11

6. Reverse the procedure to install the replacement probe.
7. Adjust the temperature control as outlined under SOLID STATE TEMPERATURE CONTROL CALIBRATION under Service Procedures and Adjustments.

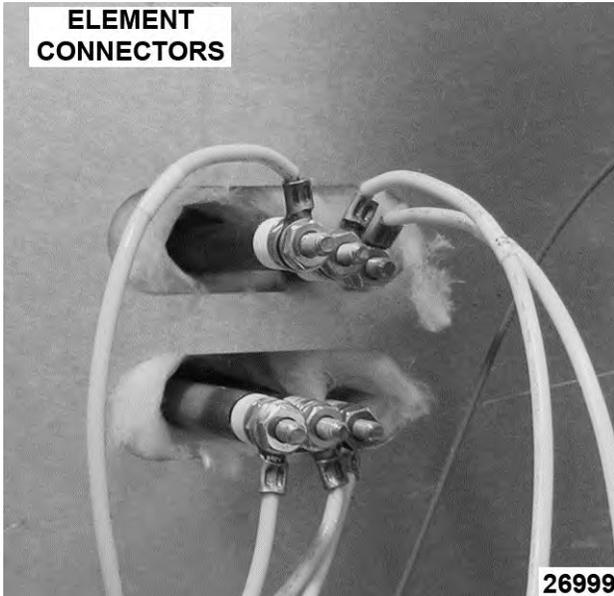
## HEATING ELEMENTS



**⚠ WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

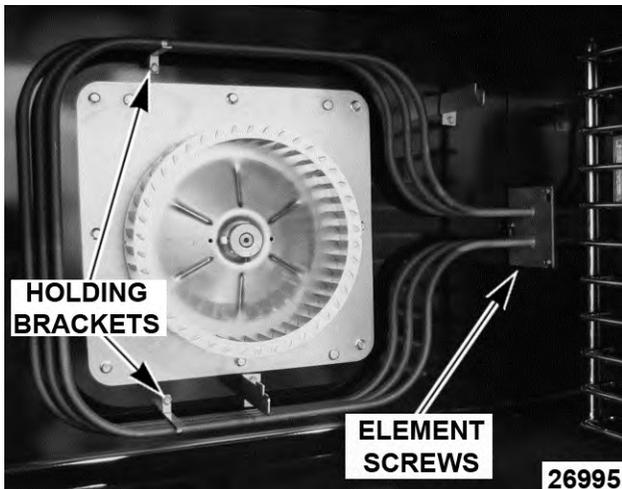
1. Remove RIGHT SIDE - REAR PANEL.
2. Disconnect element wire connectors.

**ELEMENT CONNECTORS**



**Fig. 12**

3. Remove racks from cavity.
4. Remove FAN COVER.  
Loosen element screws on side wall.
5. Remove screws on back wall holding brackets.
6. Pull elements forward, then away from right wall.



**Heating Element**

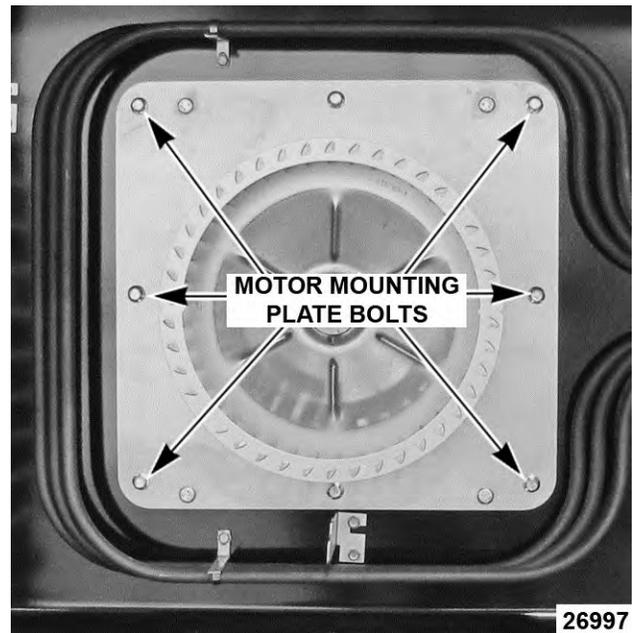
7. Reverse the procedure to install the replacement heating element.

**BLOWER AND MOTOR**



**⚠ WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Take out the racks and rack supports.
2. Lift off FAN COVER.
3. If replacing:
  - A. **Blower Only** - Loosen bolts on blower hub and using a bearing puller, remove blower from motor shaft.
    - 1) Reverse procedure to install and adjust blower position as outlined under BLOWER ADJUSTMENT under Service Procedures and Adjustments.
  - B. **Motor** - perform step 3A and continue procedure.
4. Remove bolts that secure the motor mounting plate to the rear wall.



**Fig. 14**

5. Place a piece of cardboard on the bottom of the oven cavity to protect its surface from any damage during motor assembly removal.
6. Pull the motor assembly into the oven cavity and place it on the cardboard.
7. Remove the junction box cover from the motor, disconnect lead wires and remove the conduit.

8. Remove motor mounting bolts and flat washers then lift the motor from the mounting plate.
9. Position the replacement motor on the motor mounting plate and install mounting bolts and washers. Hand tighten mounting bolts only.

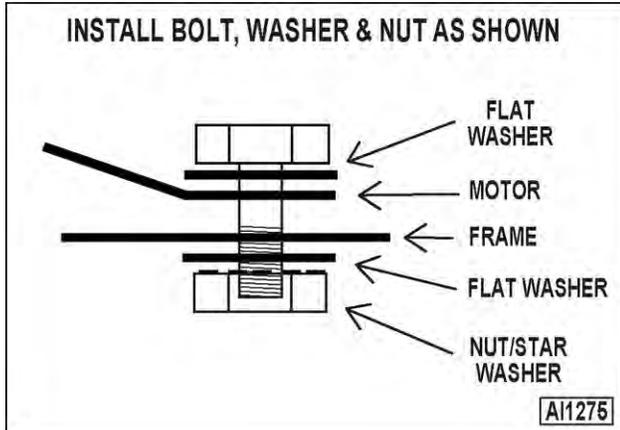


Fig. 15

10. Reconnect lead wires at the motor, replace conduit and junction box cover.

**NOTE:** Check data plate on motor for wiring schematic. The motor must rotate **clockwise** when viewed from the shaft end.

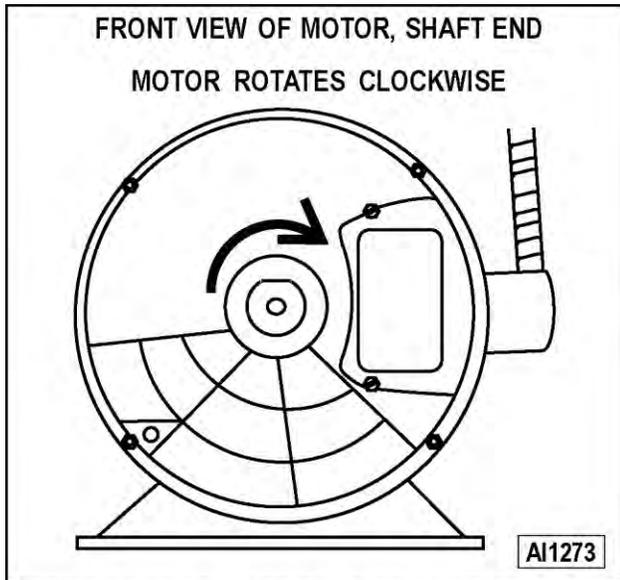


Fig. 16

11. Slide blower onto motor shaft until hub is flush with end of shaft then tighten bolts.
12. Adjust motor position until blower is parallel to motor mounting plate as outlined under BLOWER ADJUSTMENT under Service Procedures and Adjustments.
13. Position motor mounting plate on the rear wall and secure with screws and washers.

14. Replace the baffle panel.
15. Remove cardboard from the bottom of the oven cavity.
16. Check oven for proper operation then replace rack guides and racks.

## DOOR SWITCH



**WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Remove the BOTTOM FRONT COVER.
2. Unscrew nut holding door switch.
3. Pull door switch and washer out through bottom panel opening.

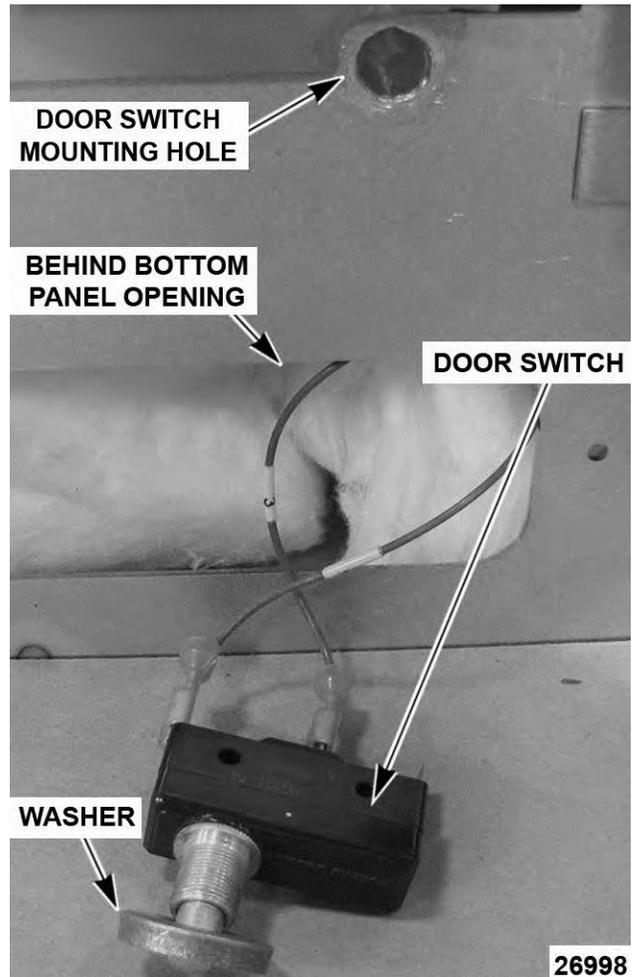


Fig. 17

4. Disconnect the lead wires to the door switch.
5. Reverse procedure to install the replacement switch.

## ROLLER LATCH ASSEMBLY (INDEPENDENT DOORS)



**WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Remove the screws that attach roller latch assembly to door.

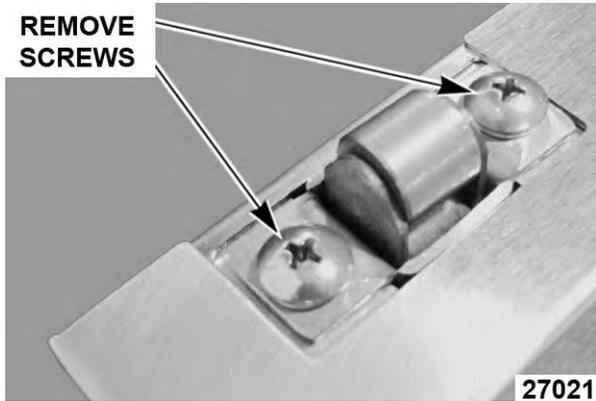


Fig. 18

2. Reverse procedure to install.

## DOOR REMOVAL

1. Open door to a 90° angle.
2. Lift door up off hinges to remove.



Fig. 19

3. Reverse the procedure to install the replacement door and check oven for proper operation.

## HIGH LIMIT THERMOSTAT



**WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Take out racks from the oven.
2. Remove the high limit thermostat cover/mounting plate from inside the oven cavity at the top.

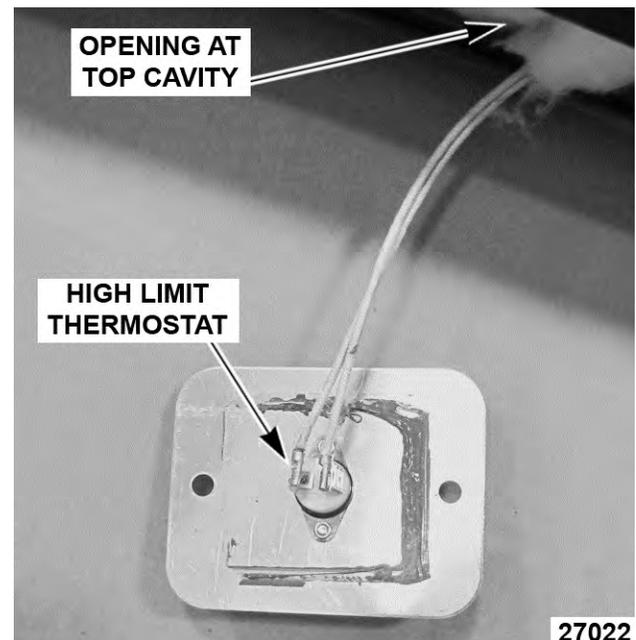


Fig. 20

3. Disconnect lead wires from high limit thermostat.

**NOTE:** Remove the old RTV sealer from the cover and mating surfaces inside the oven cavity and apply new high temperature RTV sealer before installing.

4. Reverse procedure to install.

## INTERIOR LIGHTS



**WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

**NOTICE** Do not touch the Halogen lamp with bare hands. If lamp is exposed to oil from the skin, the life will be reduced. Ensure lamp is free from oil and dirt before replacing.

### Bulb Replacement

1. Pull lamp cover off.
2. Grasp lamp using a clean cloth and remove from lamp assembly.



Fig. 21

3. Reverse procedure to install new bulb.

### Lamp Assembly Replacement

1. Remove racks in cavity.
2. Pull lamp cover off.
3. Remove RIGHT SIDE - REAR PANEL.

Insert screw driver and push lamp assembly out into cavity.

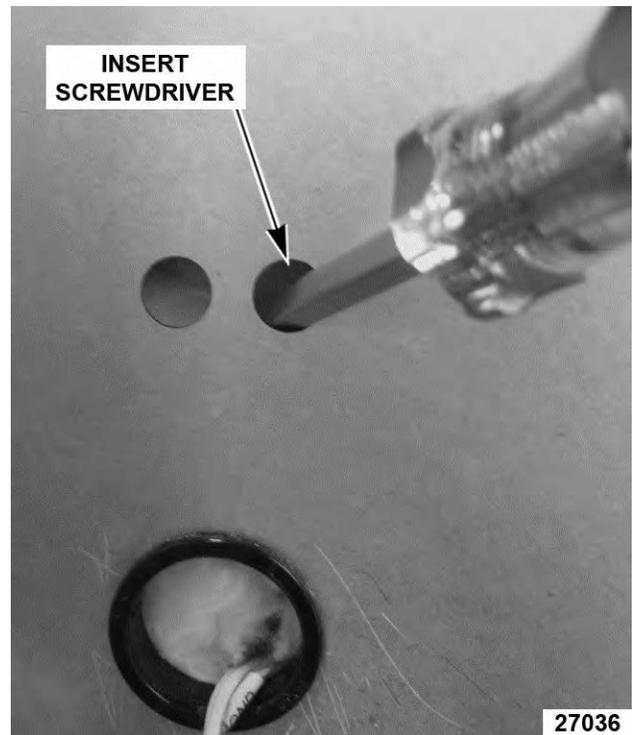


Fig. 22

4. Disconnect wires.
5. Reverse procedure to install new lamp assembly.

## COOLING FAN



**WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Remove the RIGHT SIDE - FRONT PANEL.

**NOTE:** If right side - front panel is not accessible, this component can be serviced by removing the CONTROL PANEL.

2. Remove wire nuts from fan wire connections.

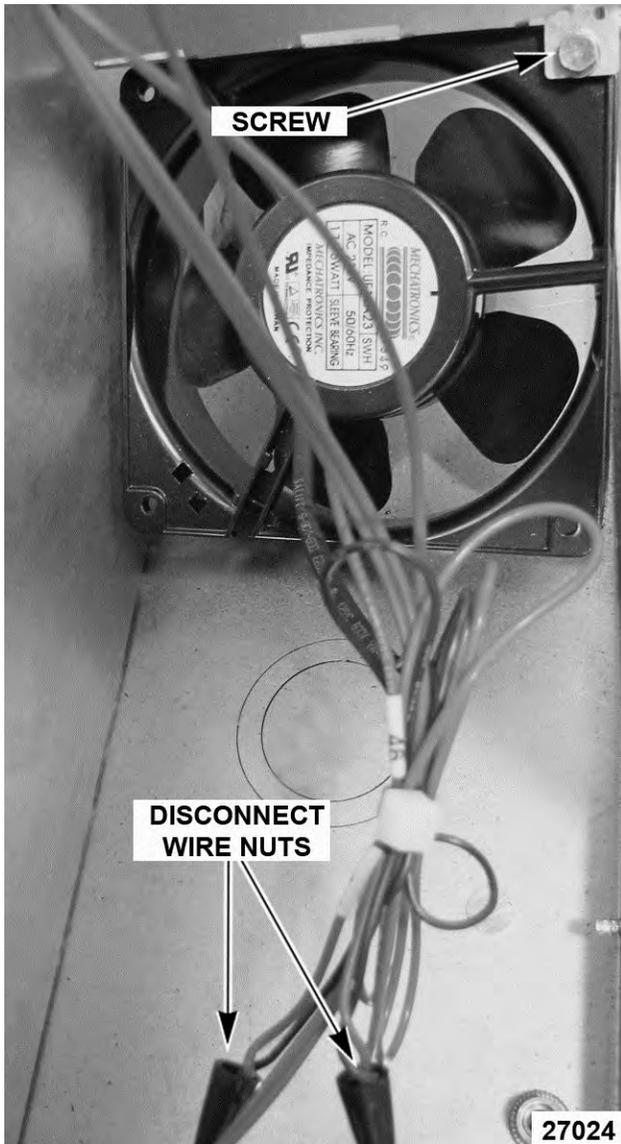


Fig. 23

3. Loosen the tab screw holding the fan to the component panel. Rotate the tab so that the fan will clear and remove the fan.
4. Reverse the procedure to install the replacement fan and check for proper operation.

**NOTE:** The fan must be installed so air is pulled from outside the rear of the oven and blown into the control area. The arrow on the fan body indicates "air flow" direction and should be pointing toward the controls.

# SERVICE PROCEDURES AND ADJUSTMENTS

## SOLID STATE TEMPERATURE CONTROL TEST



**⚠ WARNING** Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times and follow Arc Flash procedures. If test points are not easily accessible, disconnect power and follow Lockout/Tagout procedures, attach test equipment and reapply power to test.

1. Remove the RIGHT SIDE - FRONT PANEL.

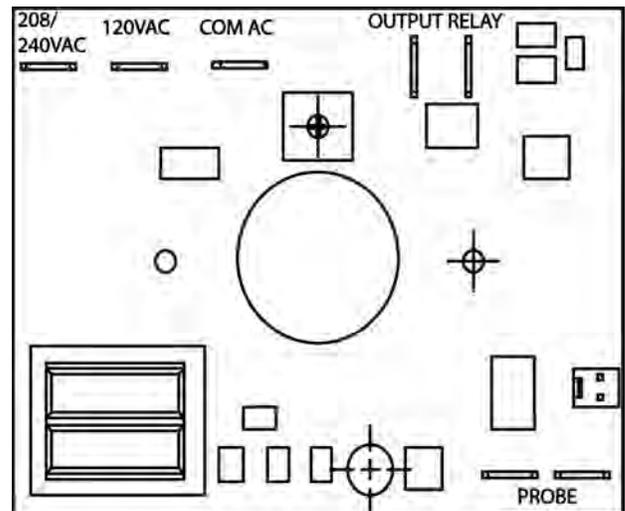
**NOTE:** If right side panel is not accessible, this component can be serviced by removing CONTROL PANEL.

2. Place a thermocouple in the geometric center of the oven cavity.

**NOTE:** Oven temperature must be below 450°F.

**NOTE:** If oven is equipped with "Cook and Hold" option, set to Cook (normal cooking) before continuing.

3. Set the temperature control to the maximum setting.
4. Check machine data plate for correct voltage to oven. Refer to diagram below for proper terminal locations and voltages before checking the control. Use the correct terminals for the corresponding voltage.
5. Turn the power switch to ON.



AI3754

**Fig. 24**

6. Check for proper voltage across terminals COM AC to 120VAC or COM AC to 208-240VAC for power to the control.
  - A. If correct, proceed to step 7.
  - B. If incorrect, problem is **not** with the temperature control. See TROUBLESHOOTING.
7. Check relay voltages on the board:
  - A. For 120VAC controls - check across OUTPUT RELAY terminal (left side) to 120 VAC terminal for input to the internal relay. Check across OUTPUT RELAY terminal (right side) to 120 VAC for output from the internal relay.
  - B. For 208-240VAC controls - check across OUTPUT RELAY terminal (left side) to 208-240 VAC terminal for input to the internal relay. Check across OUTPUT RELAY RELAY terminal (right side) to 208-240 VAC for output from the internal relay.
    - 1) If input voltage to the internal relay is correct, proceed to step 8. If input voltage to the internal relay is not present, problem is not with the temperature control. See TROUBLESHOOTING.

- 2) If output voltage from the internal relay is correct proceed to step 8. If output voltage from the internal relay is not correct, check temperature probe as outlined under TEMPERATURE PROBE TEST (SOLID STATE CONTROL).

- 8. Set the temperature control to the minimum setting.

**NOTE:** Oven temperature **must** be above 300°F.

- 9. Check for zero (0) volts AC across terminals OUTPUT RELAY terminal (right side) to 120 VAC or OUTPUT RELAY terminal (right side) to 208-240 VAC for no output from the internal relay.

- A. If correct, temperature control is functioning properly.
- B. If incorrect, check temperature probe as outlined under TEMPERATURE PROBE TEST (SOLID STATE CONTROL).

- 1) If temperature probe is OK:
  - a. Turn the power switch OFF.



**WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

- b. Replace the temperature control and check calibration as outlined under SOLID STATE TEMPERATURE CONTROL CALIBRATION.

### TEMPERATURE PROBE TEST (SOLID STATE CONTROL)



**WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

**NOTE:** The temperature probe used in conjunction with the Solid State Temperature control is an RTD (resistance temperature detector) of the Thermistor type. As temperature increases the resistance value decreases.

- 1. Remove the RIGHT SIDE - FRONT PANEL.

**NOTE:** If right side panel is not accessible, this component can be serviced by removing CONTROL PANEL.

- 2. Place a shielded thermocouple in the geometric center of the oven cavity and determine the temperature in the oven cavity.
- 3. Remove the probe lead wires from the solid state temperature control.
- 4. Test the probe with an multimeter.
  - A. If the measured resistance values are inside the given tolerance then the probe is functioning properly.
  - B. If the measured resistance values are outside the given tolerance then replace the probe and retest.
    - 1) Check oven for proper operation.
- 5. Reverse procedure to install.

TEMP (°F)	OHMS *	TEMP (°F)	OHMS *
77	90,000	360	822
240	4,077	380	656
260	3,016	400	529
280	2,266	425	424
300	1,726	450	334
320	1,332	475	266
340	1,041		
* Resistance in ohms ± 10%			

### SOLID STATE TEMPERATURE CONTROL CALIBRATION

#### Calibration Steps

- 1. Place a thermocouple in the geometric center of the oven cavity.
- 2. Set the ON / OFF / OVEN COOL switch to ON.
- 3. Set the temperature controller dial to 350°F.
- 4. Allow the oven temperature to stabilize (minimum three heating cycles).
- 5. Record the temperature at which the Heat lamp comes ON (heating starts) and goes OFF (heating stops). This is the control differential. Heat lamp OFF temp - Heat lamp ON temp = Control Differential.
- 6. The nominal control differential should be less than 20°F.

- A. If the control differential is less than 20°F, the temperature control circuit is functioning properly. Proceed to step 7.
  - B. If the control differential is more than 20°F, check the temperature probe as outlined under Temperature Probe Test.
  - C. If the control differential is more than 20°F and the probe passes the test parameters, then temperature controller is malfunctioning. Install a new temperature controller and run calibration steps again.
7. Calculate the average oven temperature by adding the actual minimum temperature to the actual maximum temperature and dividing by 2.

**EXAMPLE:**

Oven set to 350°F.

Actual minimum oven temperature = 335°F

Control turns on at 334°F

Actual maximum oven temperature = 347°F

Control turns off at 340°F

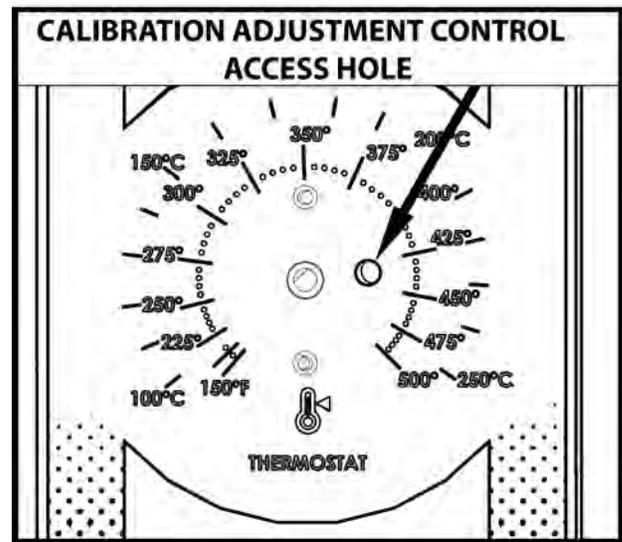
$$335 + 347 = 682$$

$$682 / 2 = 341 \text{ (the control is } 9^\circ\text{F out of calibration)}$$

$$340 - 334 = 6^\circ\text{F Control Differential}$$

$$347 - 335 = 12^\circ\text{F Oven Temperature Differential.}$$

- A. If the average oven temperature is within +/- 5°F from the dial setting, no calibration is necessary.
  - B. If the average oven temperature is not within +/- 5°F, calibration is recommended.
8. Loosen the set screw on the temperature controller and carefully remove the knob from the shaft, without rotating the shaft. This will expose the calibration adjustment control access hole in the front panel.



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**Fig. 25**

9. Monitor the internal oven temperature and determine at what temperature the control should turn on to give you the required minimum temperature (Example:  $350 - 341 = 9$ ;  $334 + 9 = 341$ . 341°F is the temperature at which you would wish the controller to turn on).
10. After allowing the oven to operate through several cycles (minimum 3 cycles), monitor the temperature as it falls to the desired turn on point. Using a small screw driver, adjust the calibration adjustment until the controller turns on at the desired turn on temperature.
11. The calibration control is adjusted clockwise in order to increase the set temperature and counter clockwise to decrease the set temperature.
12. The controller has only +/- 25°F of adjustment. 1/4 turn of the calibration adjustment represents approximately 20°F shift in calibration.

## HEATING ELEMENT TEST



**⚠ WARNING** Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times and follow Arc Flash procedures. If test points are not easily accessible, disconnect power and follow Lockout/Tagout procedures, attach test equipment and reapply power to test.

1. Turn the power switch ON and set the oven temperature control to the highest setting.
2. Measure the voltage at the heating element terminals and verify it against the data plate voltage.
  - A. If voltage is incorrect, find the source of the problem.
  - B. If voltage is correct, check current draw (amps) through the heating element lead wires.

**NOTE:** This method is preferred over a resistance check when a clamp on type amp meter is available.

- 1) If current draw is correct then heating element is functioning properly. See Heating Element Values table.
- 2) If current draw is not correct, turn the power switch OFF and disconnect the electrical supply to the oven.
  - a. Replace heating element, then proceed to step 3.
- C. If unable to check current draw, a resistance check may indicate a malfunctioning element.
  - 1) Turn the power switch OFF and disconnect the electrical supply to the oven.
  - 2) Remove the lead wires from the heating element and check resistance (ohms). See Heating Elements Values table.
3. Check for proper operation.

HEATING ELEMENT VALUES				
VOLT.	KW PER ELEMENT	AMPS PER ELEMENT		OHMS PER ELEMENT
		1 PH	3 PH	
208	4	19	19	10
240	4	16.5	16.5	14.5
480	4	8	8	57
<b>NOTES:</b>	1. Values in the table are nominal. Tolerance is +5/-10%. 2. Voltage values are @ 60HZ. 3. Resistance values (ohms) are @ room temperature.			

## BLOWER ADJUSTMENT



**⚠ WARNING** Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Remove the blower motor and mounting assembly by following steps 1 through 7 as outlined under BLOWER AND MOTOR under Removal and Replacement of Parts.
2. Loosen the motor mounting bolts.
3. Adjust the motor position until the blower is parallel to and 1/4 inch away from the motor mounting plate. Check for squareness of the blower to the motor mounting plate at the top, bottom, left and right of the blower.
  - A. If the blower is square then tighten motor mounting bolts and proceed to step 4.
  - B. If the blower is not square continue adjusting until proper spacing is achieved then tighten motor mounting bolts.

**NOTE:** If necessary, place shims between motor and frame.

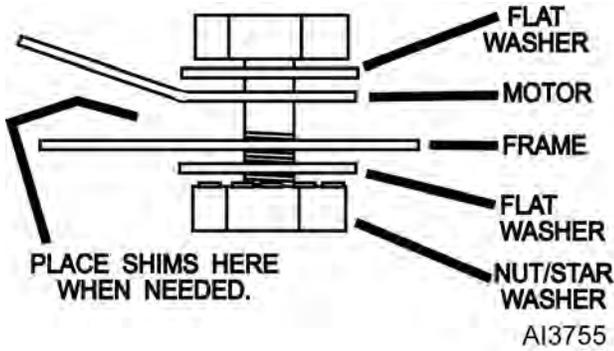


Fig. 26

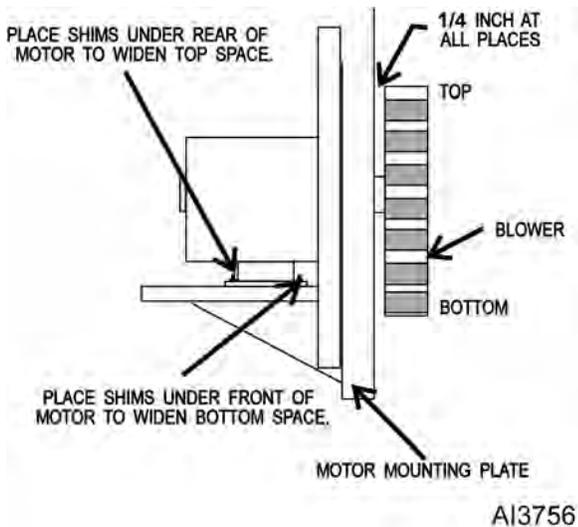


Fig. 27

4. Reverse the procedure to install.

### DOOR STRIKE ADJUSTMENT (INDEPENDENT DOORS)

1. Open the doors and inspect door strike for proper shape.
  - A. Bend strike plate.

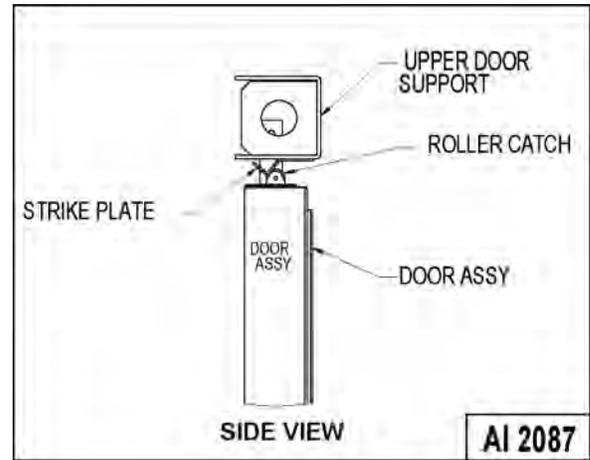


Fig. 28

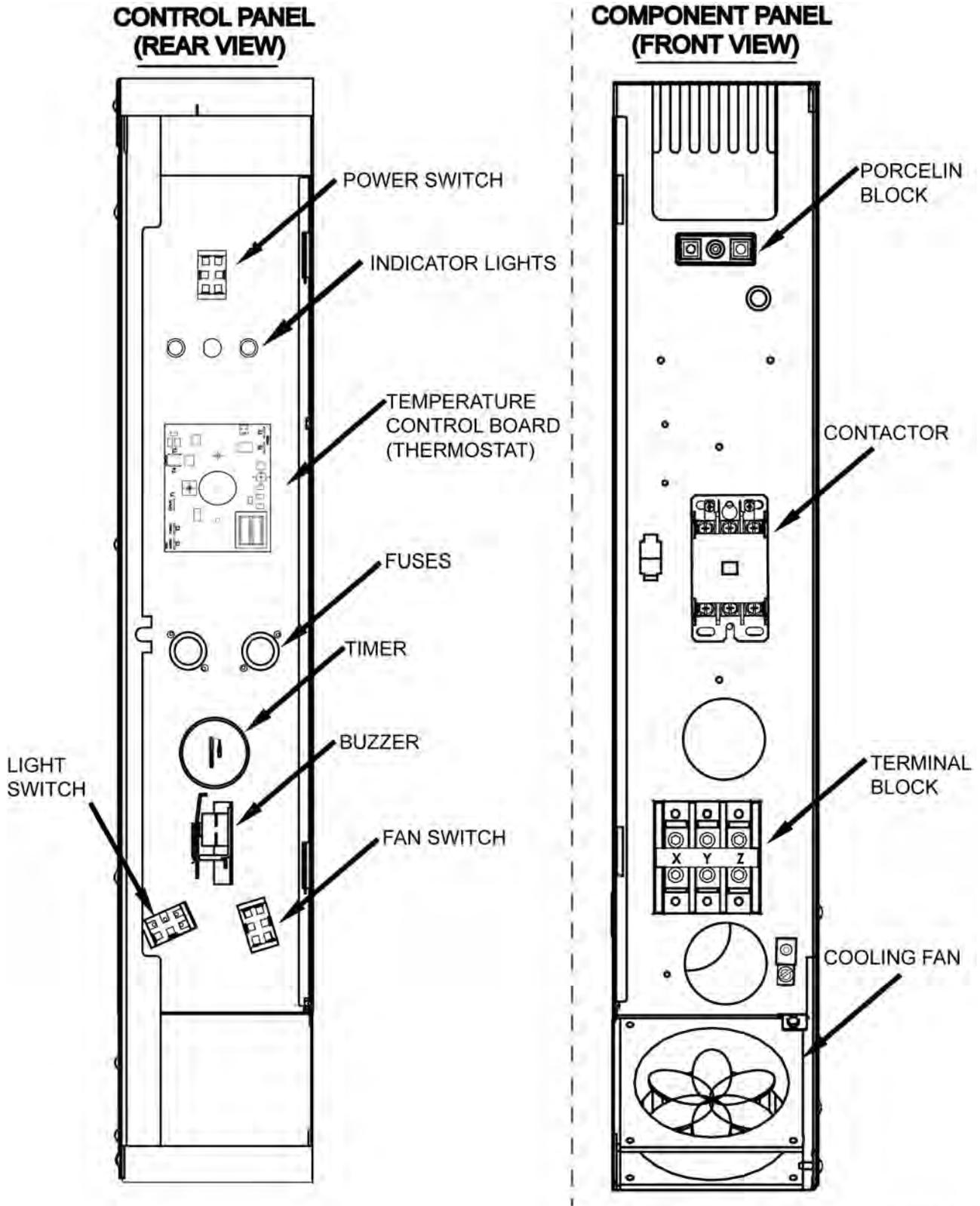
2. Open and close the doors several times while observing the roller latch and strike plate operation.
  - A. Replace roller latch if malfunctioning as outlined under ROLLER LATCH ASSEMBLY (INDEPENDENT DOORS) and adjust as outlined in this procedure.
3. Each oven door should open with a force of 8 to 25 pounds when pulled at the handle. The adjustments must allow the doors to remain closed during normal operation and allow opening without exertion by the user.

# ELECTRICAL OPERATION

## COMPONENT FUNCTION

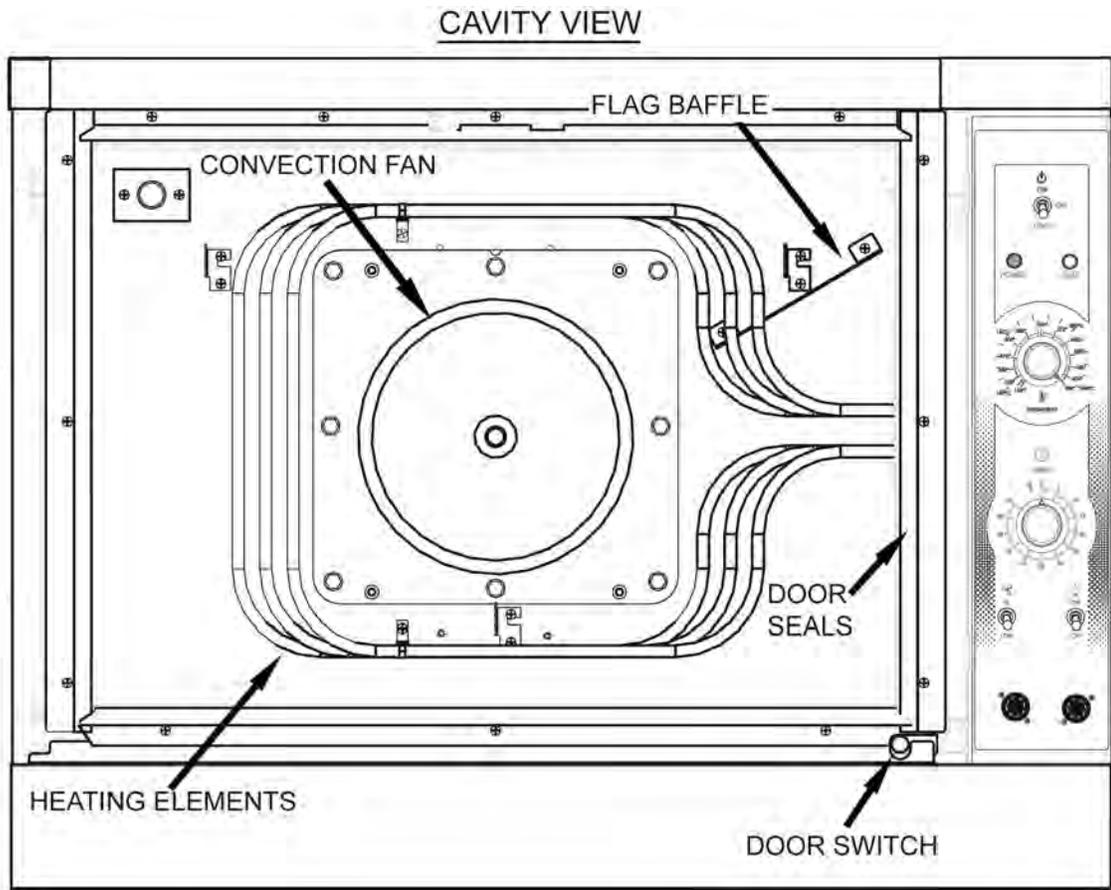
<b>Power Switch (S1) . . . .</b>	Determines the mode of operation; ON, OFF, or COOL down.
<b>Oven Light Switch (S3) .....</b>	Controls the oven cavity lights.
<b>Fan Speed Switch (S2) .....</b>	Controls blower motor speed between High and Low settings.
<b>Alarm/Buzzer .....</b>	Signals the end of a "Cook" cycle when cooking time expires.
<b>Cook Timer .....</b>	Counts the "Cook" time of the product and signals the buzzer at the end of the cycle.
<b>Door Switch .....</b>	Allows the oven to operate when the doors are closed but stops the oven from operating when the doors are opened.
<b>Blower Motor .....</b>	Operates the oven cavity blower (convection fan).
<b>Transformer .....</b>	Provides 240VAC power to the oven control circuit and blower motor (480VAC models only).
<b>Solid State Temperature Control .....</b>	Monitors temperature sensor and regulates the oven cavity temperature by controlling 1CON to energize the heating elements when the control calls for heat.
<b>High Limit Thermostat .....</b>	Protects the oven from temperatures above 550°F by removing power from the heating circuit. Auto resets at 500°F.
<b>1C .....</b>	Provides power to heating elements when energized. 1C is energized by the temperature control when a call for heat is made.
<b>Power ON Light .....</b>	Lit whenever the power switch (S1) is turned to ON or Cool Down mode.
<b>Heat Light .....</b>	Lit whenever temperature control is calling for heat.
<b>Temperature Probe ...</b>	Senses the oven temperature for the solid state temperature control or computer control. On oven models using the solid state control, converts the temperature into a resistance value which is monitored by the temperature control board. The probe is an RTD (resistance temperature detector) of the Thermistor type. As temperature increases the resistance value decreases.
<b>Cooling Fan .....</b>	Circulates cooler air from outside the oven to cool components in the control area.
<b>Fuses .....</b>	Protect control circuit.

**COMPONENT LOCATION**



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Fig. 29



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Fig. 30

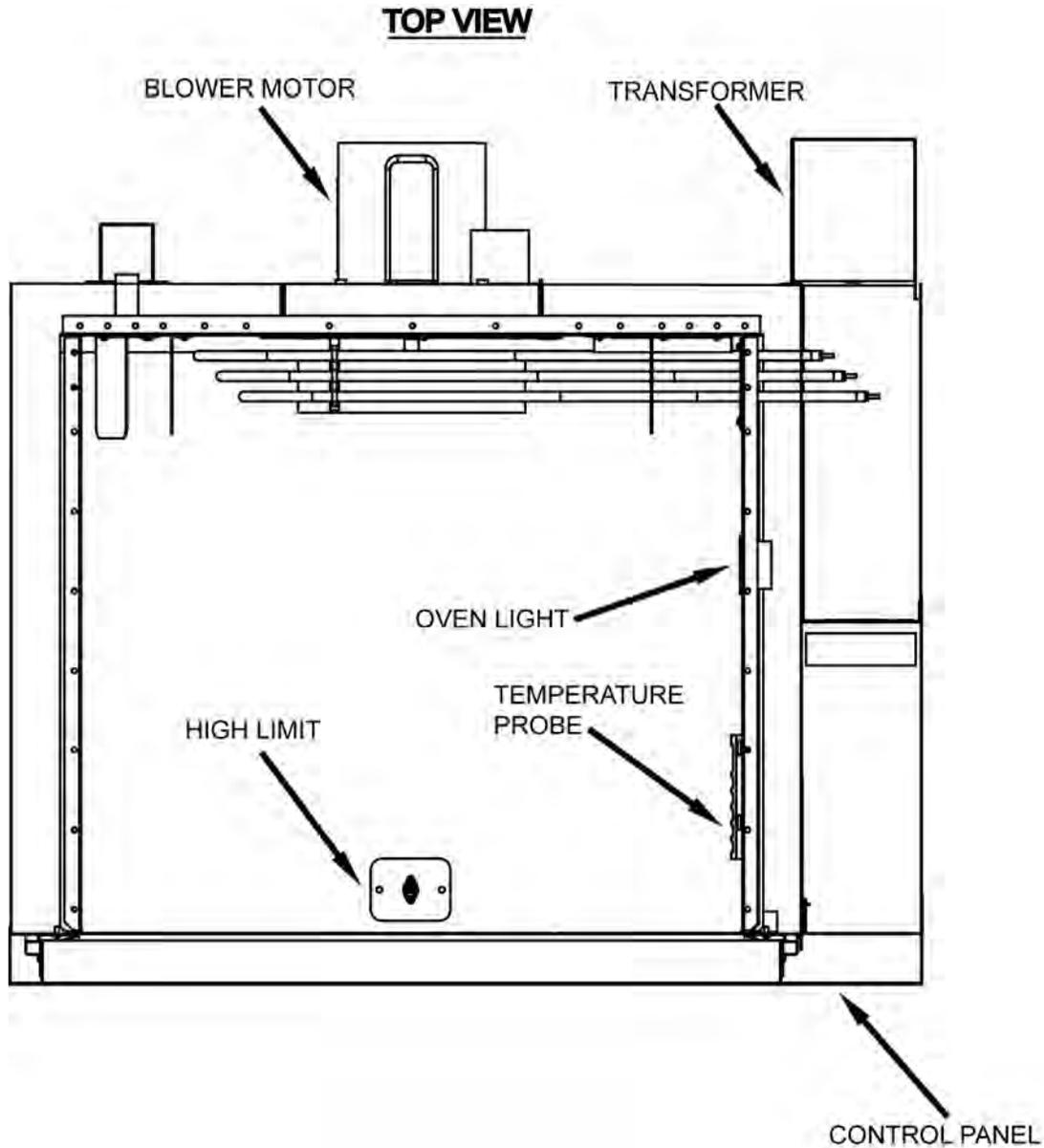


Fig. 31

## SEQUENCE OF OPERATION

### Cook Cycle

1. Conditions.
  - A. Oven connected to correct voltage and is properly grounded.
  - B. Power switch (S1) OFF.
  - C. Temperature dial set to lowest temperature (fully CCW).
  - D. High limit thermostat CLOSED.
2. Power switch (S1) turned ON.
  - A. Power ON light (Amber) comes ON.
  - B. Solid state temperature control energized.
    - 1) Heating elements powered and heating starts.
    - 2) 1C coil energized.
    - 3) Heat light (Clear) comes on.
  - E. Oven doors closed (door switch contacts CLOSED).
  - F. Oven cavity temperature below 140°F.

C. Blower motor energized.

**NOTE:** Motor speed (Hi/Low) depends on position of fan speed switch (S2).

D. Component cooling fan energized.

E. Power to oven cavity light switch (S3) wire #1. Turns cavity lights ON/OFF; does not affect "Cook" cycle.

3. Set temperature dial to desired "Cook" temperature.

4. Oven reaches set temperature.

A. Temperature control de-energizes internal relay and the normally open (N.O.) contacts OPEN.

1) Heat light goes out.

2) 1C coil de-energized.

a. Power removed from heating elements and heating stops.

5. The oven will continue to cycle on the temperature control until the doors are opened or power switch (S1) is turned to the OFF or COOL down position.

#### Timer Cycle, Cooking

**NOTE:** The "Cook" timer operates independently of the heating cycle. Additional time can be set or the timer can be turned OFF throughout the cooking cycle.

1. With the power switch turned ON, power is supplied to "Cook" timer terminal 1.

2. Set "Cook" timer to desired time.

A. Contacts 1 & 3 close, timer motor is energized and timing "down" begins.

3. Time expires on "Cook" timer.

A. Contacts 1 & 3 open, timer motor is de-energized and timing stops.

B. Contacts 1 & 4 close.

1) Buzzer energized and sounds.

**NOTE:** The buzzer continues to sound until the timer dial is set to the OFF position or additional time is set.

#### Cool Down Cycle

1. Conditions.

A. Oven is ON.

B. Oven cavity temperature needs to be lowered.

C. Doors are open (door switch contacts OPEN).

D. Fan speed switch (S2) set to "Hi".

2. Power Switch (S1) turned to COOL DOWN.

A. Power ON light (Amber) goes out.

B. Convection fan motor energized.

3. If doors are CLOSED (door switch contacts CLOSED):

A. Power ON light (Amber) comes ON.

B. Component cooling fan energized.

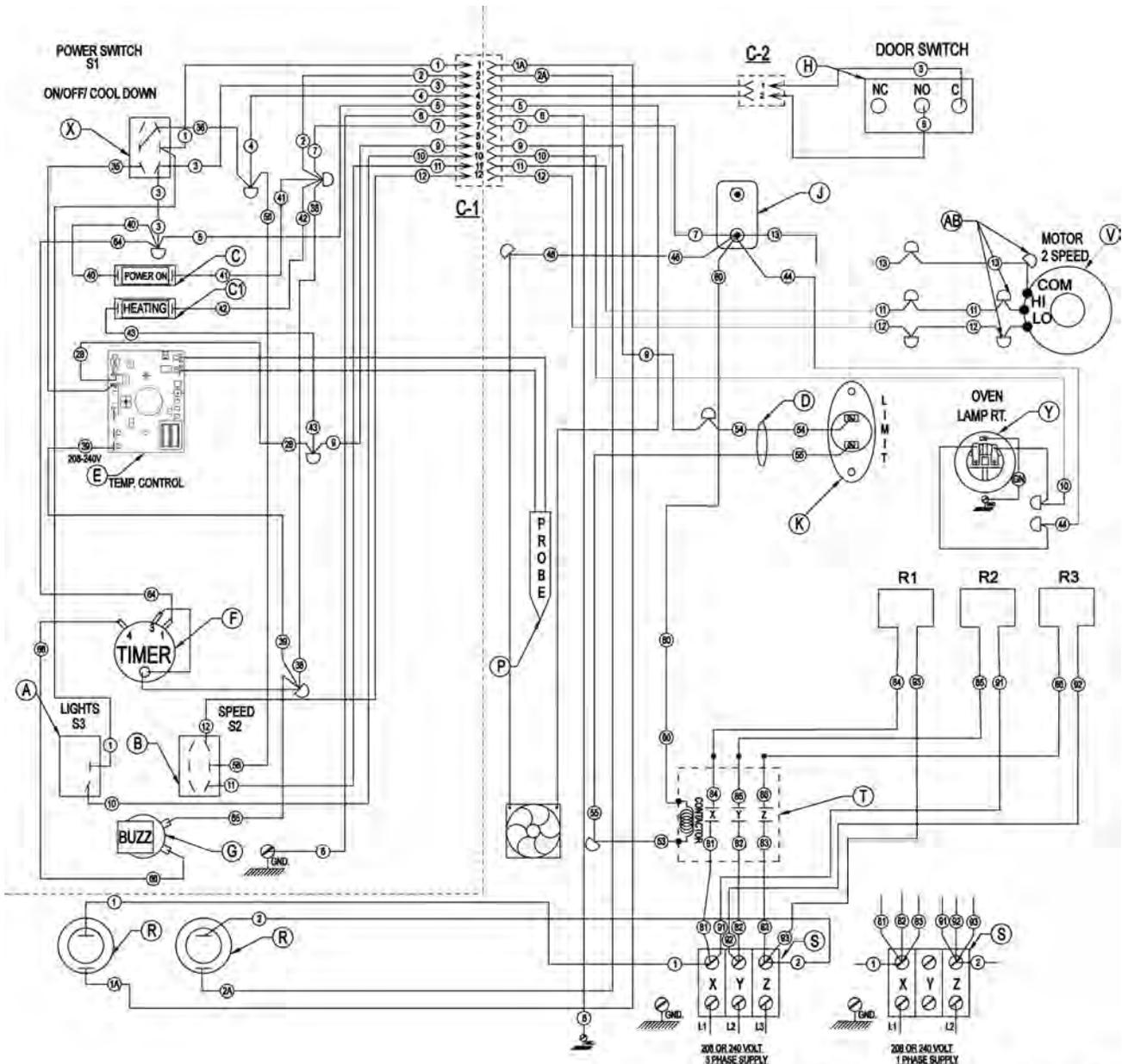
C. Power is supplied to:

1) "Cook" timer terminal 1. If a time is dialed, timer will operate and buzzer will sound when timer reaches zero.

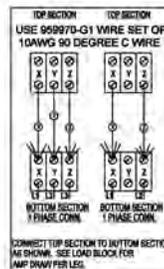
2) Oven cavity light switch (S3) wire #1. Turns cavity lights ON/OFF; does not affect Cool down cycle.

4. The oven will remain in this condition until the power switch (S1).

**SCHEMATICS AND WIRING DIAGRAMS**



DERIVED FROM 960055 Rev C  
VC3ED 208-240V WIRING DIAGRAM



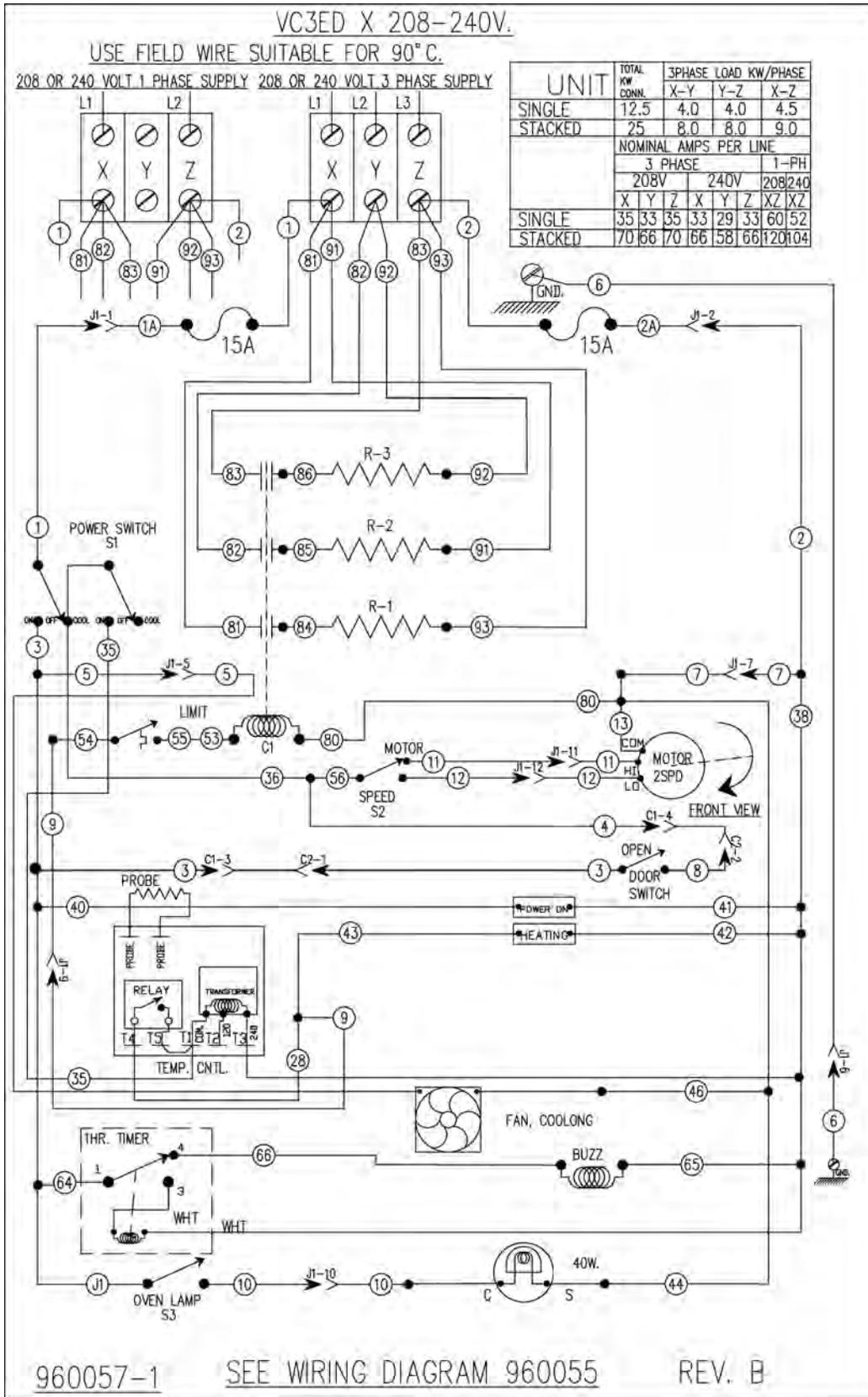
UNIT	TOTAL KW CONN.	3PHASE LOAD KW/PHASE		
		X-Y	Y-Z	X-Z
SINGLE	12.5	4.0	4.0	4.5
STACKED	25	8.0	8.0	9.0
NOMINAL AMPS PER LINE				
		3 PHASE		
		208V	240V	208/240
		X	Y	Z
SINGLE	35	33	33	29
STACKED	70	66	70	58

SEE SCHEMATIC DECAL 960057-1

A13749

**VC3ED 208-240V Wire Diagram**

<b>VC3ED 208-240V WIRE DIAGRAM TABLE</b>	
<b>ITEM</b>	<b>DESCRIPTION</b>
A	SWITCH, TOGGLE S.P.S.T
B	FAN SWITCH, TOGGLE D.P.D.T
C	LIGHT, 250V, CLEAR
C1	LIGHT, 250V, CLEAR
D	WIRE SET, LIMIT SWITCH
E	TEMP. CONTROL - NCC
F	TIMER, 230 VOLT (1-HR, 60 HZ.) (5-HR, 60 HZ.)
G	BUZZER 230 VOLT
H	DOOR SWITCH, 2HP
J	BLOCK,PORCELIAN ASSEMBLY
K	LIMIT CONTROL 550F
L	ELEMENT ASSY, 12.5 KW (240 VOLT) (208 VOLT)
P	PROBE,THERMISTOR
R	FUSE & HOLDER 15A
S	TERMINAL BLOCK 3 POLE
T	CONTACTOR 40A 3 POLE
V	MOTOR 1/2 HP. 2 SPEED G.E.
X	SWITCH, TOGGLE D.P.D.T. (CO)
Y	OVEN LAMP, 40W, 230V
AB	WIRE NUT BLUE

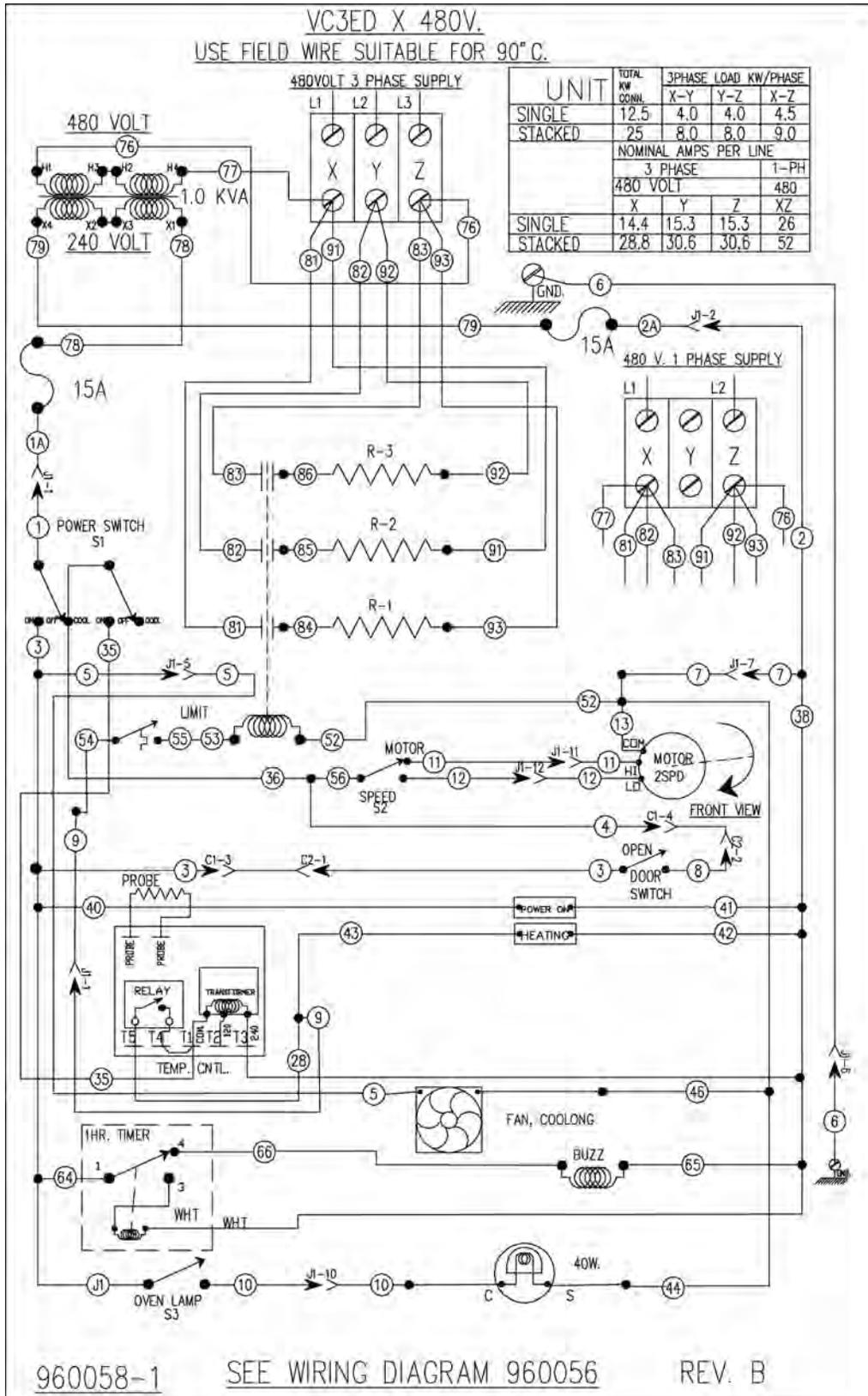


AI3757

VC3ED 208-240V SCHEMATIC



<b>VC3ED 480V WIRE DIAGRAM TABLE</b>	
<b>ITEM</b>	<b>DESCRIPTION</b>
E	TEMP. CONTROL - NCC
F	TIMER, 230 VOLT (1-HR, 60 HZ.) (5-HR, 60 HZ.)
G	BUZZER 230 VOLT
H	DOOR SWITCH, 2HP
J	BLOCK,PORCELIAN ASSEMBLY
K	LIMIT CONTROL 550F
L	LCOE ELEMENT ASSY, 12.5 KW (208 VOLT) (240 VOLT)
P	PROBE,THERMISTOR
R	FUSE & HOLDER 15A
S	TERMINAL BLOCK 3 POLE
T	CONTACTOR 40A 3 POLE
V	MOTOR 1/2 HP. 2 SPEED G.E.
X	SWITCH, TOGGLE D.P.D.T. (CO)
Y	OVEN LAMP, 40W, 230V
AB	WIRE NUT BLUE
AC	WIRE SET, LIMIT SWITCH
AD	TRANSFORMER, 480 TO 240V



AI3776

**VC3ED 480V SCHEMATIC**

# TROUBLESHOOTING



**⚠ WARNING** Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times and follow Arc Flash procedures. If test points are not easily accessible, disconnect power and follow Lockout/Tagout procedures, attach test equipment and reapply power to test.

## VC3ED

SYMPTOMS	POSSIBLE CAUSES
Blower motor doesn't run with power switch in "ON" "COOL DOWN" or position.	<ol style="list-style-type: none"> <li>1. Line voltage incorrect.</li> <li>2. Fuse.</li> <li>3. Power switch (S1) malfunction.</li> <li>4. Fan speed switch (S2) malfunction.</li> <li>5. Interconnecting wiring malfunction.</li> <li>6. Motor inoperative.</li> </ol>
Blower motor doesn't run with power switch "ON", but oven heats.	<ol style="list-style-type: none"> <li>1. Door switch malfunction.</li> <li>2. Fan speed switch (S2) malfunction.</li> <li>3. Interconnecting wiring malfunction.</li> <li>4. Motor inoperative.</li> </ol>
Blower motor doesn't run in "Cool Down", but runs OK in "ON" position.	<ol style="list-style-type: none"> <li>1. Power switch (S1) malfunction.</li> <li>2. Interconnecting wiring malfunction.</li> </ol>
Excessive Heat in oven.	<ol style="list-style-type: none"> <li>1. Temperature probe malfunction.</li> <li>2. Temperature control not calibrated.</li> <li>3. Contactor malfunction.</li> <li>4. Heating element(s) malfunction.</li> </ol>
Low heat in oven.	<ol style="list-style-type: none"> <li>1. Line voltage incorrect.</li> <li>2. High limit thermostat OPEN.</li> <li>3. Contactor malfunction.</li> <li>4. Heating element(s) malfunction.</li> <li>5. Temperature probe malfunction.</li> <li>6. Temperature calibration.</li> </ol>
Timer inoperative or not functioning properly.	<ol style="list-style-type: none"> <li>1. Interconnecting wiring malfunction.</li> <li>2. Timer malfunction.</li> </ol>
Component cooling Fan does not run.	<ol style="list-style-type: none"> <li>1. Interconnecting wiring malfunction.</li> <li>2. Fan motor inoperable.</li> </ol>

SYMPTOMS	POSSIBLE CAUSES
Uneven Cooking.	<ol style="list-style-type: none"> <li>1. Convection fan motor speed/direction.</li> <li>2. Air flow baffle missing or damaged.</li> <li>3. Line voltage incorrect.</li> <li>4. High limit thermostat malfunction.</li> <li>5. Contactor malfunction.</li> <li>6. Heating element(s) malfunction.</li> <li>7. Doors out of adjustment.</li> <li>8. Door roller out of adjustment or broken.</li> <li>9. Door seals damaged.</li> <li>10. Fan cover not properly seated in mounting brackets.</li> </ol>
Intermittent operation problems.	<ol style="list-style-type: none"> <li>1. Cooling fan malfunction.</li> <li>2. Wiring connections loose.</li> <li>3. High ambient temperatures.</li> </ol>
Oven will not turn on.	<ol style="list-style-type: none"> <li>1. Line voltage incorrect.</li> <li>2. Control circuit fuses OPEN.</li> <li>3. Power switch (S1) inoperative.</li> <li>4. Transformer inoperative (480V only).</li> </ol>
No heat, convection fan motor runs.	<ol style="list-style-type: none"> <li>1. High limit thermostat OPEN.</li> <li>2. Temperature probe malfunction.</li> <li>3. Heating element malfunction.</li> <li>4. Contactor malfunction.</li> <li>5. Temperature control malfunction.</li> </ol>
No power to temperature control.	<ol style="list-style-type: none"> <li>1. Power switch (S1) in "Cool Down".</li> <li>2. Door switch malfunction.</li> </ol>
Door does not seal or shut properly	<ol style="list-style-type: none"> <li>1. Doors out of adjustment.</li> <li>2. Door catch roller out of adjustment or broken (independent doors).</li> <li>3. Door seals damaged.</li> </ol>



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## VC4E & VC6E Series Full Size Electric Convection Ovens

VC4ES	ML-126743
VC4ED	ML-126744
VC4EC	ML-126745
VC6ES	ML-126746
VC6ED	ML-126747
VC6EC	ML-126748

### - NOTICE -

This Manual is prepared for the use of trained Hobart Service Technicians and should not be used by those not properly qualified.

This manual is not intended to be all encompassing. If you have not attended a Hobart Service School for this product, you should read, in its entirety, the repair procedure you wish to perform to determine if you have the necessary tools, instruments and skills required to perform the procedure. Procedures for which you do not have the necessary tools, instruments and skills should be performed by a trained Hobart Service Technician.

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# SERVICE UPDATES

## SERVICE UPDATES - VC4E / VC6E

June 2019

- Added SERVICE PROGRAMMING AND TESTING.

October 2018

- HEATING ELEMENTS Starting at Serial Number 481916864
- BLOWER AND MOTOR Starting at Serial Number 481916864

- INTERIOR LIGHTS (Rear Mounted, Round)
- INTERIOR LIGHTS (Side Mounted, Square)
- DOOR ADJUSTMENT
- OVEN DOORS (INDEPENDENT DOORS) Starting at Serial Number 481916783
- OVEN DOORS (SIMULTANEOUS DOORS) Starting at Serial Number 481916783
- COMPONENT LOCATION
- SCHEMATICS AND WIRING DIAGRAMS

## TIS DOCUMENT LIST - VC4E AND VC6E

SERVICE TAB	
Document Title	Document Type
VC4E and VC6E Service Manual	Service Manual
NCC Temp Control with Harness	Service Kit Instructions (SKI)

SERVICE TAB (Multimedia)	
Document Title	Document Type
3700 Oven Quick Start Guide	Operator
Repair Flood-Damaged Equipment	Service Bulletin
VC3, VC4ED, and VC6ED & VC6EC Series Electric Convection Ovens I&O Manual	
VC3, VC4, and VC6 Series Electric Convection Oven Operator	Operator
Fundamentals of Gas	Service Instructions
TSB 1037A Hobart to Vulcan "Common" Model Cross Reference List	Technical Service Bulletin (TSB)
Convection Oven Computer Control Guide	Operator
Rating Plate Locationson Current Vulcan-Hart/Wolf Range Equipment	Technical Service Bulletin (TSB)
Convection Ovens Gas and Electric	Service Instructions
SB770R Door Latch Change on Full Size Convection Ovens (VC4, VC6, SG, WKG, & WKE)	Technical Service Bulletin (TSB)
SB880 Independent Door Handle Assembly for Convection Ovens	Technical Service Bulletin (TSB)
SB930 Convection Oven Door Switch Replacement for Wolf Challenger XL and the Vulcan Endurance Gas Ranges	Technical Service Bulletin (TSB)
TSB 0368 Fast Thermostatic Controlled Convection Ovens	Technical Service Bulletin (TSB)
TSB 0652C Digital Countdown Timer Change - Convection Ovens	Technical Service Bulletin (TSB)
TSB 0872 Full Size Convection Oven-Door chain Adjustment Not Holding	Technical Service Bulletin (TSB)
TSB 0874 Full Size Convection Ovens - Lighting & Cooling Fan	Technical Service Bulletin (TSB)
TSB 0934 Gas Convection Ovens, Blower Motor & Wheel Change	Technical Service Bulletin (TSB)

<b>SERVICE TAB (Multimedia)</b>	
TSB 0934 Programmable Controls - 355452-2 (Rev. 4.0)	Technical Service Bulletin (TSB)
All Half Size & Full Size Unites w/Independent Opening Doors -Enhanced Door Catch Info.	Technical Service Bulletin (TSB)
Watlow 734C Computer Control	Technical Service Instructions (TSI)
Vulcan & Wolf Gas Convection Ovens with White Rodgers Gas Valve	Technical Service Instructions (TSI)

<b>PARTS TAB</b>	
<b>Document Title</b>	<b>Document Type</b>
Part Catalog for VC4E and VC6E	Parts Catalog

<b>DIAGRAMS TAB</b>	
<b>Document Title</b>	<b>Document Type</b>
HGC5, DGC5, VC4G, WKGD Series	Wiring Diagram

# GENERAL

## INTRODUCTION

Procedures in this manual will apply to all models unless specified. Pictures and illustrations can be of any model unless the picture or illustration needs to be model specific.

FEATURES				
MODEL	CAVITY DEPTH	TEMPERATURE CONTROL	DOORS (50/50)	COOK TIMER
VC4ES <sup>4</sup>	26.5"	Mechanical (KX)	Independent (see note 1,2)	1-Hour Dial
VC4ED	26.5"	Solid State	Independent (see note 1,3)	1-Hour Dial
VC4EC	26.5"	Computer	Independent (see note 1,3)	24-Hour Digital
VC6ES <sup>4</sup>	30.5"	Mechanical (KX)	Independent (see note 1,2)	1-Hour Dial
VC6ED	30.5"	Solid State	Independent (see note 1,3)	1-Hour Dial
VC6EC	30.5"	Computer	Independent (see note 1,3)	24-Hour Digital
<b>NOTES:</b>	<sup>1</sup> Simultaneous doors are optional (with or w/o window). <sup>2</sup> Stainless steel doors w/o window (standard). <sup>3</sup> Stainless steel doors with window (standard) <sup>4</sup> In February 2001, this model was discontinued.			

OPTIONS		
MODEL	COOK TIMER	ROAST & HOLD
VC4ES <sup>4</sup>	5-Hour Dial	N/A
VC4ED	5-Hour Dial	N/A
VC4EC	Built in	Built in
VC6ES <sup>4</sup>	5-Hour Dial	N/A
VC6ED	5-Hour Dial	N/A
VC6EC	Built in	Built in

## INSTALLATION

Refer to the Instructions Manual F31159 for detailed installation instructions on single or stacked ovens.

## OPERATION

Refer to the Instructions Manual F31159 for specific operating instructions.

## CLEANING

Refer to the Instructions Manual F31159 for specific cleaning instructions.

## LUBRICATION

- Cavity blower motor has sealed bearings and requires no additional lubrication.
- Huskey's TF1000 grease or equivalent high temperature non-stick grease.

## TOOLS

**Standard**

- Standard set of hand tools
- VOM with A.C. current tester (Any quality VOM with a sensitivity of at least 20,000 ohms per volt can be used)
- Gear Puller to remove blower
- Temperature tester (thermocouple type)

**Special**

- Manometer
- Clamp on amp meter
- Spring force gauge, pull type with a minimum 30 pound full scale range (purchase locally)
- RTV sealant, 736 DOW silicone high temp (P/N 542133) or equivalent

## SPECIFICATIONS

AMPERAGE - 3 PHASE/ 60HZ							
MODEL	TOTAL POWER (KW)	PER LINE <sup>1</sup>			RECOMMENDED CIRCUIT PROTECTION <sup>2</sup>		
		208V	240V	480V	208V	240V	480V
VC4ES VC4ED VC4EC VC6ES VC6ED VC6EC	12.5	35	33	15	45	40	20
<b>NOTES:</b>	<sup>1</sup> Amperage values in the table are nominal. Tolerance is +5/-10%. <sup>2</sup> Complied in accordance with National Electric Code, ANSI/NFPA 70, latest edition						

AMPERAGE - 1 PHASE/ 60HZ							
MODEL	TOTAL POWER (KW)	PER LINE <sup>1</sup>			RECOMMENDED CIRCUIT PROTECTION <sup>2</sup>		
		208V	240V	480V	208V	240V	480V
VC4ES VC4ED VC4EC VC6ES VC6ED VC6EC	12.5	60	52	26	80	70	35
<b>NOTES:</b>	<sup>1</sup> Amperage values in the table are nominal. Tolerance is +5/-10%. <sup>2</sup> Complied in accordance with National Electric Code, ANSI/NFPA 70, latest edition.						

# REMOVAL AND REPLACEMENT OF PARTS

## COVERS AND PANELS



### WARNING

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

### Top Front Cover

1. The top front cover is secured with four (4) screws, two on each side of cover. Remove these screws then remove the cover from the oven.

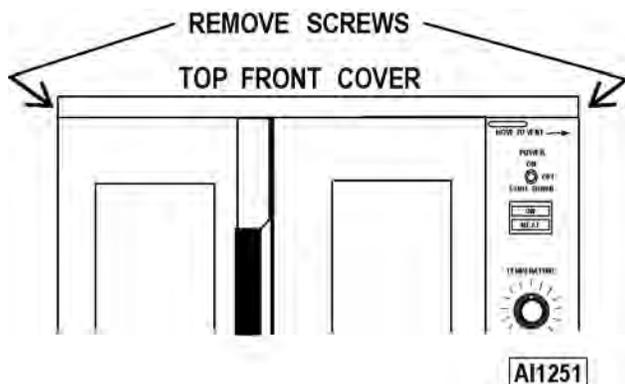


Fig. 1

2. Reverse the procedure to install.

### Bottom Front Cover

1. The bottom front cover is secured with four (4) screws, two on each side of cover. Remove these screws then remove the cover from the oven.

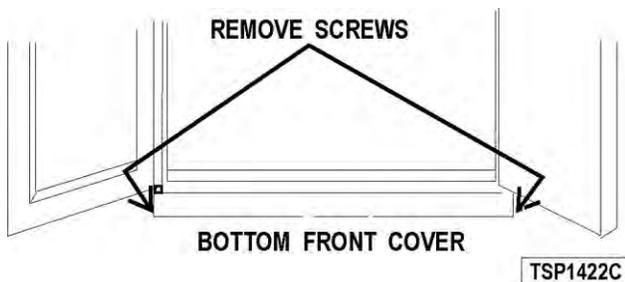


Fig. 2

2. Reverse the procedure to install.

### Control Panel

1. Remove three (3) screws on the right side which secure the control panel then pull the panel away from the oven.

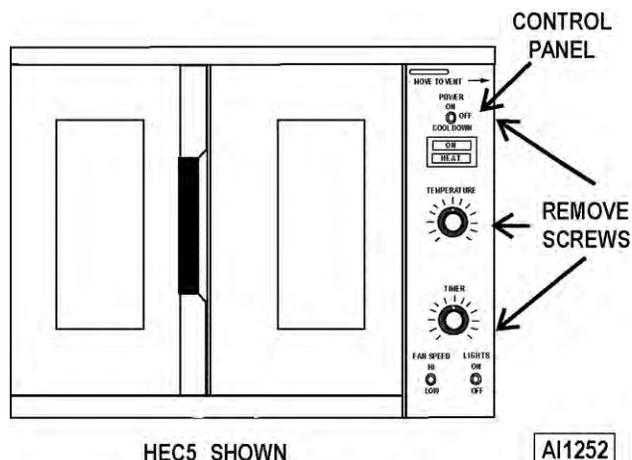


Fig. 3

**NOTE:** If the oven has a mechanical (KX type) thermostat, it must be removed from the control panel first, before removing the control panel.

2. Disconnect the temperature probe leads from the solid state temperature control.
3. Unplug the wire harness connector to the control panel components.
4. Reverse the procedure to install.

### Right Side Panel

1. Remove the two screws near front of oven, which secure the bottom front cover and control panel.
2. Remove the remaining seven screws securing the right side panel.

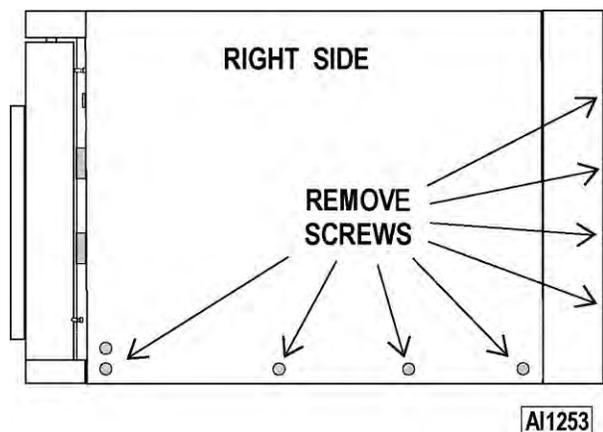


Fig. 4

3. Pull the right side panel out at the bottom then down to remove.
4. Reverse the procedure to install.

### Left Side Panel

1. Remove the screws which secure the left side of the top front cover, bottom front cover and control panel.
2. Remove the seven screws securing the left side panel.

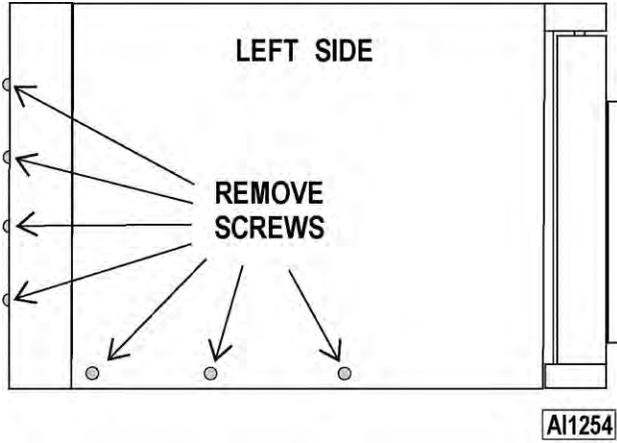


Fig. 5

3. Pull the left side panel out at the bottom then down to remove.
4. Reverse the procedure to install.

### CONTROL PANEL COMPONENTS

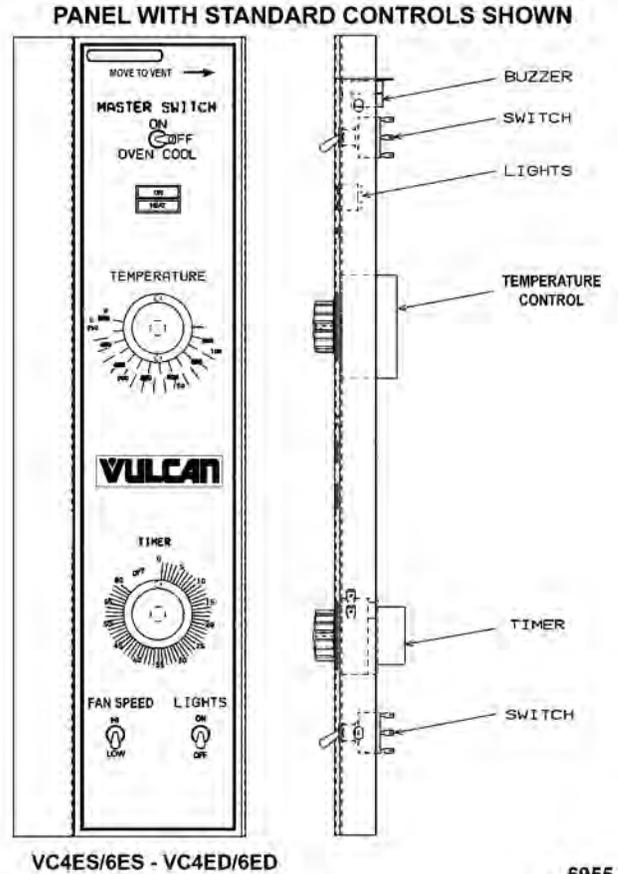


**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

#### Removable Components

1. Remove the control panel as outlined under COVERS AND PANELS.
2. Remove the component being replaced.
3. Reverse the procedure to install the replacement component, then check oven for proper operation



VC4ES/6ES - VC4ED/6ED

6955

Fig. 6

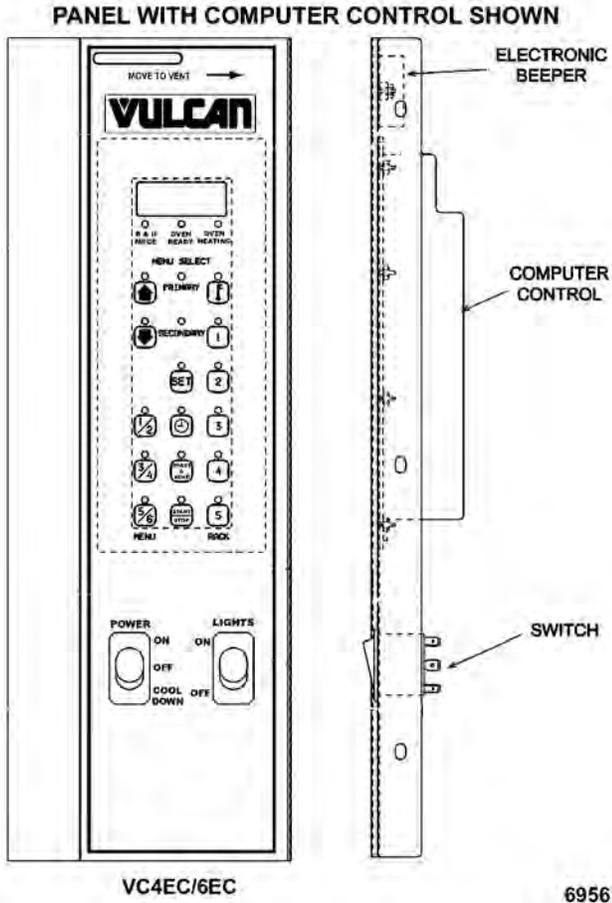


Fig. 7

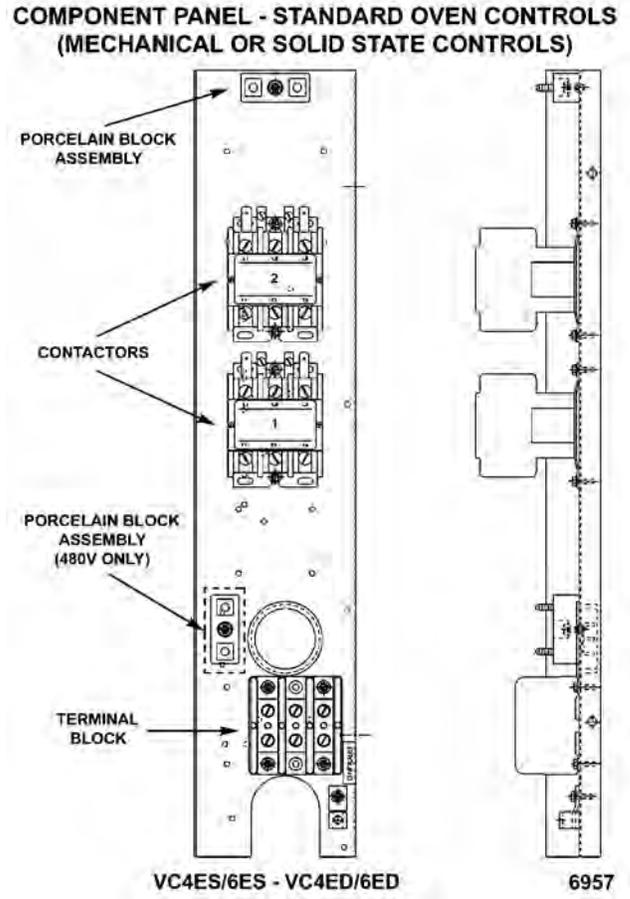


Fig. 8

## COMPONENT PANEL COMPONENTS



### **WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

### Removable Components

1. Remove the right side panel as outlined under COVERS AND PANELS.

**NOTE:** If right side panel is not accessible, this component can be serviced by removing the control panel as outlined under COVERS AND PANELS.

2. Disconnect the wire leads to the component being replaced.
3. Remove the component.
4. Reverse the procedure to install the replacement component and check oven for proper operation.

**COMPONENT PANEL - COMPUTER CONTROL**

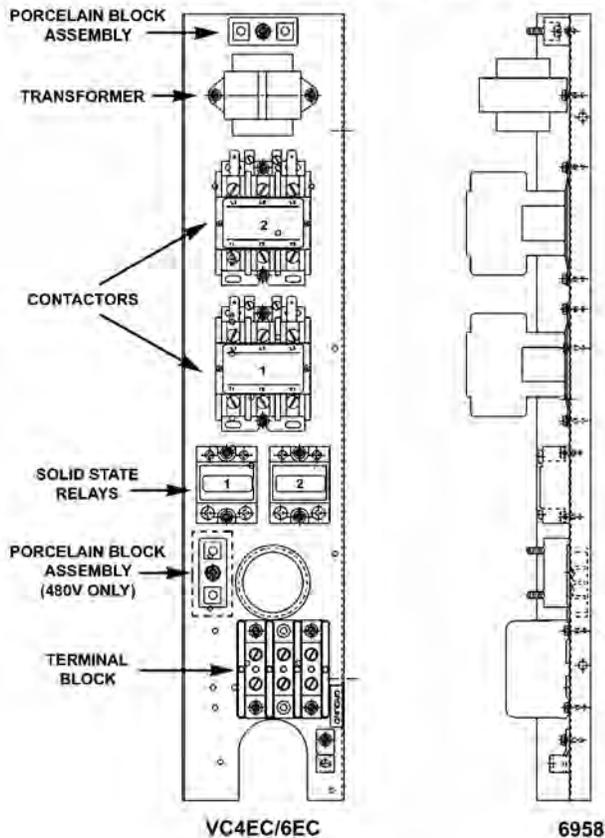


Fig. 9

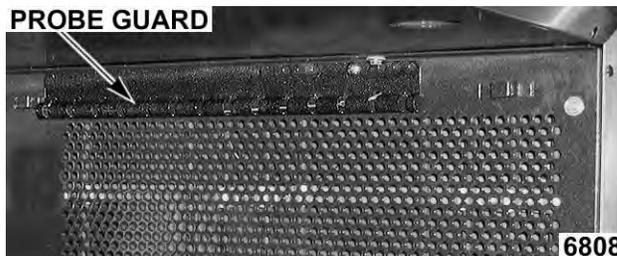


Fig. 10

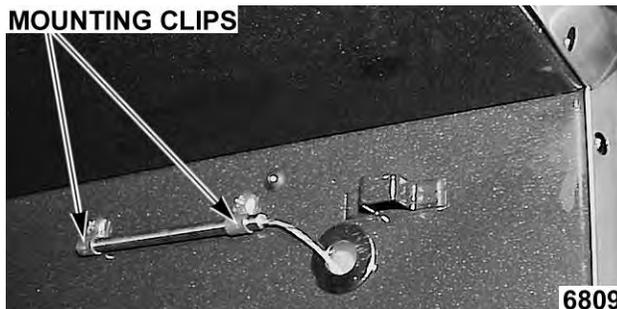


Fig. 11

5. Remove probe by pushing it through the oven wall and into the control panel area.

**NOTE:** The hole in the oven cavity wall does not line up straight with the oven cavity outer shell, therefore the probe must be removed at an angle.

6. Reverse the procedure to install the replacement probe.

**NOTICE**

When installing a 2nd generation guard, the tip of the probe should be located near the center of the large cutout, as shown in (fig link). The end with the wire attached should be protected by the guard. It is possible to damage the probe/wire with force from a tray if probe is not protected properly.



Fig. 12

7. Adjust the temperature control as outlined under SOLID STATE TEMPERATURE CONTROL CALIBRATION in SERVICE PROCEDURES AND ADJUSTMENTS.

**TEMPERATURE PROBE (SOLID STATE CONTROL)**



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

1. Remove the right side panel as outlined under COVERS AND PANELS.

**NOTE:** If right side panel is not accessible, this component can be serviced by removing the control panel as outlined under COVER AND PANELS.

2. Disconnect the probe leads from the solid state temperature control.
3. Remove the racks and right rack support.
4. Remove the probe guard or mounting clips.

**1st Generation Guard Shown**

**HEATING ELEMENTS Ending at  
Serial Number 481916863**



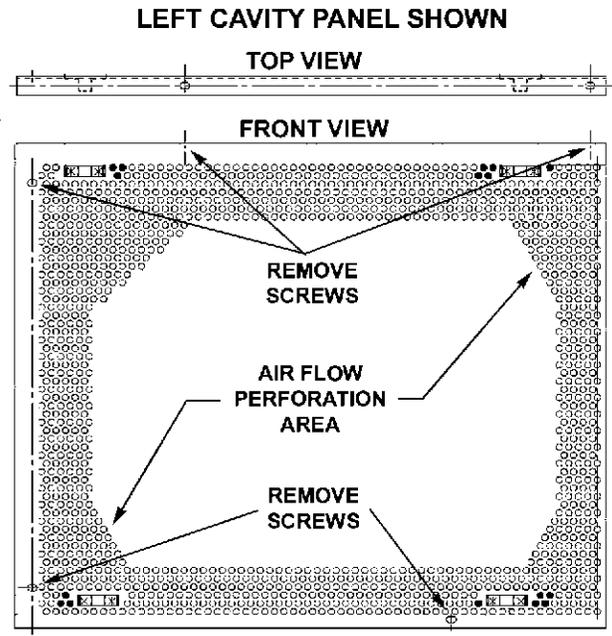
**⚠ WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

**NOTE:** Starting with production in October, 2001, the top cavity panel will have 3/4" square holes for easier element removal. Ovens manufactured prior to this date have 1/2" round holes that sometimes make it difficult to remove elements thru the cavity. A serial number cut off will **not** be available. Follow the procedures for element removal as outlined below.

**Front Access**

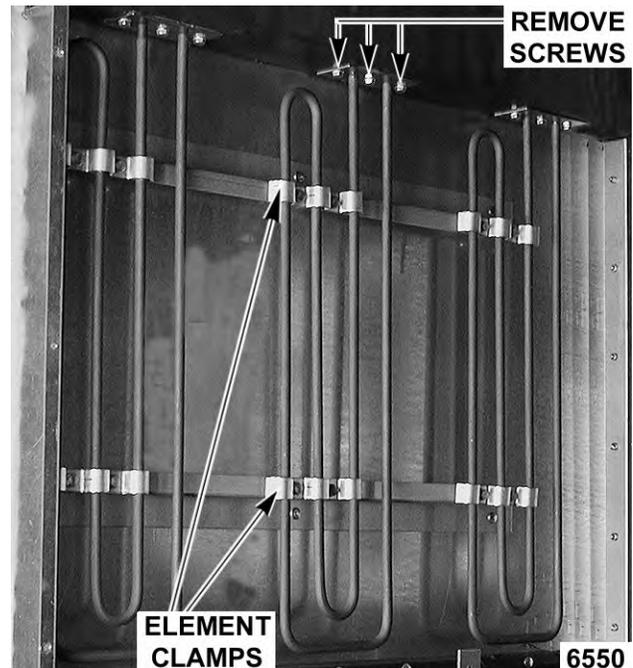
1. Remove the oven racks and rack supports.
2. Remove the "top" door seal from the oven.
3. Determine if the heating element to replace is on the **left** or **right** side in the oven cavity. The element locations from front to back are: Right side - R1, R2 & R3; Left side - R4, R5 & R6.
  - A. Measure the current draw of the heating elements as outlined under HEATING ELEMENT TEST in SERVICE PROCEDURES AND ADJUSTMENTS.
4. From inside the oven cavity, remove the perforated panel from the same side of the element being replaced.



6803

**Fig. 13**

- A. If removing the right side panel, also remove the probe guard or mounting clips.
- B. Run the probe wire thru the panel opening before lifting panel out.
5. From the element being replaced, remove the hold down clamps, the mounting bracket screws at the top, then remove the element.



**Fig. 14**

**NOTE:** The mounting bracket is sealed with RTV which may still hold the element after the screws are removed. Also, in some cases, the ring terminal

connected to the element may interfere with easy removal. If access to the left side panel and/or the top panel is available, see ALTERNATE ACCESS.

6. Disconnect the lead wires from the element.
7. Clean RTV residue from the mating surface inside the oven, apply new high temperature RTV to the heating element mounting bracket and reverse procedure to install.
8. Check for proper operation.

#### Alternate Access

**NOTE:** If the heating element is not easy to remove from inside the oven cavity, and access to the left side panel and/or the top panel is available, this alternate removal method may be used.

**NOTE:** On stacked ovens, if the bottom oven is being serviced and the heating element to replace is on the right side, the ovens must be unstacked to access the heating element terminals through the top. Once unstacked, follow the removal procedure below.

1. Perform steps 1 thru 4 under FRONT ACCESS.
2. If the element is on the **left side**:
  - A. the insulation at the top to expose the element terminals.
  - B. Remove the lead wires from the element being replaced. Proceed to step 4.
3. If the element is on the **right side**:
  - A. Remove the top panel and pull back the insulation to expose the element terminals.
  - B. Remove the lead wires from the element being replaced.
4. clamps holding the element vertical, the screw's securing mounting bracket at the top, and then remove the element.

**NOTE:** The mounting bracket is sealed with RTV which may still hold the element after the screws are removed.

5. Clean RTV residue from the mating surface inside the oven, apply new high temperature RTV to the heating element mounting bracket and reverse procedure to install.
6. Check for proper operation.

## HEATING ELEMENTS Starting at Serial Number 481916864



### ⚠ WARNING

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Remove racks.
2. Remove RIGHT SIDE PANEL(S).
3. Remove nuts (1, Fig. 15) from element wiring connections.

### NOTICE

Use second wrench on nut (2, Fig. 15) behind terminal when removing or installing to prevent element stud from twisting and getting damaging.

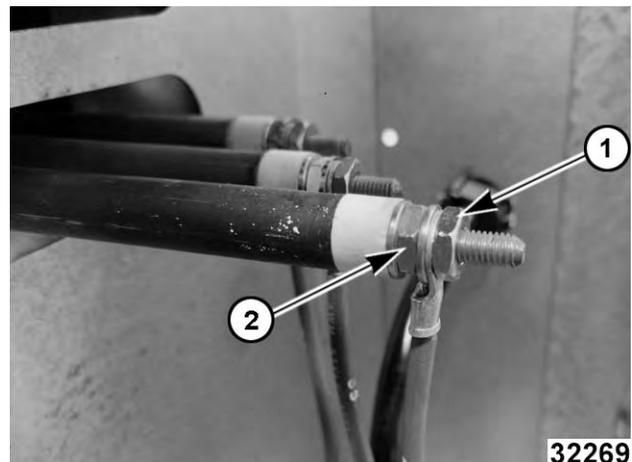


Fig. 15

4. Remove top baffle.

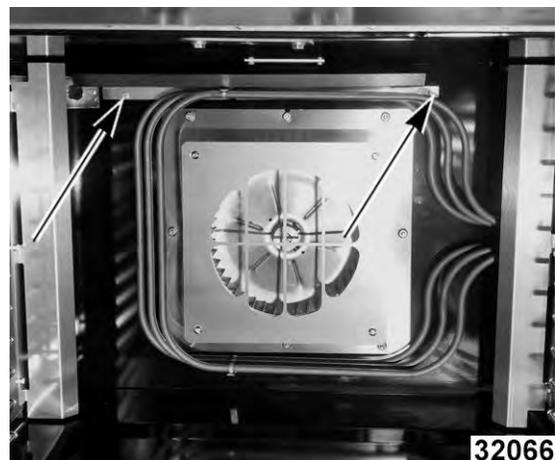
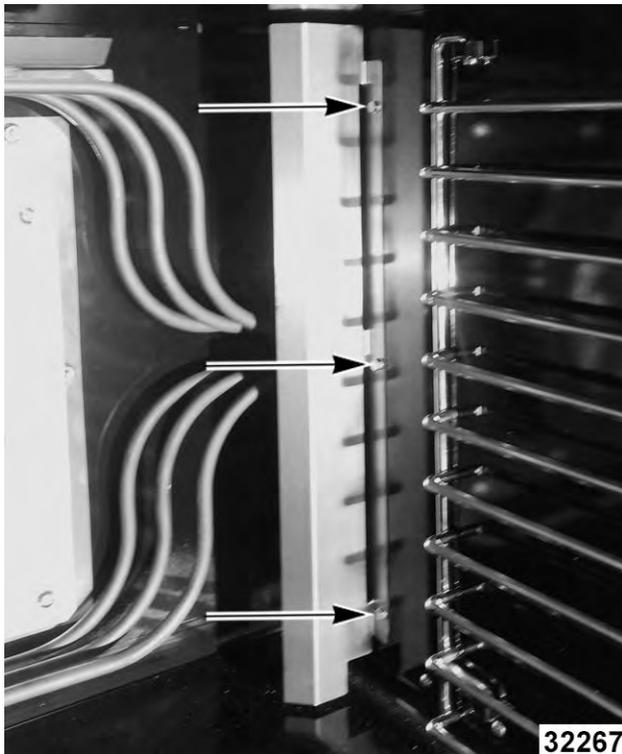


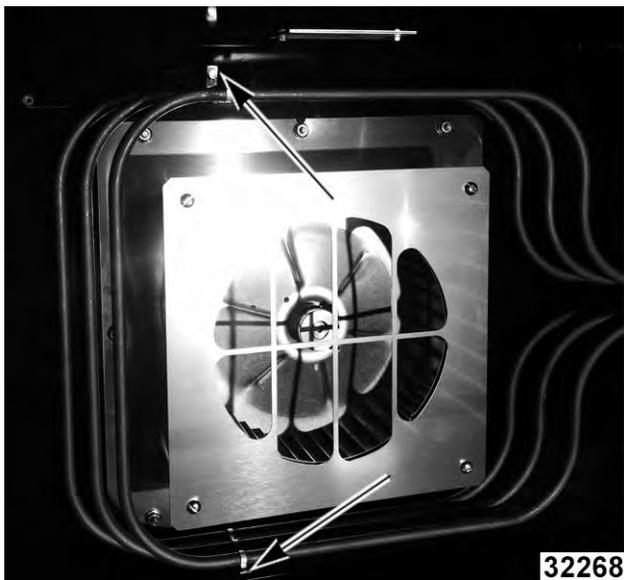
Fig. 16

5. Remove side baffle.



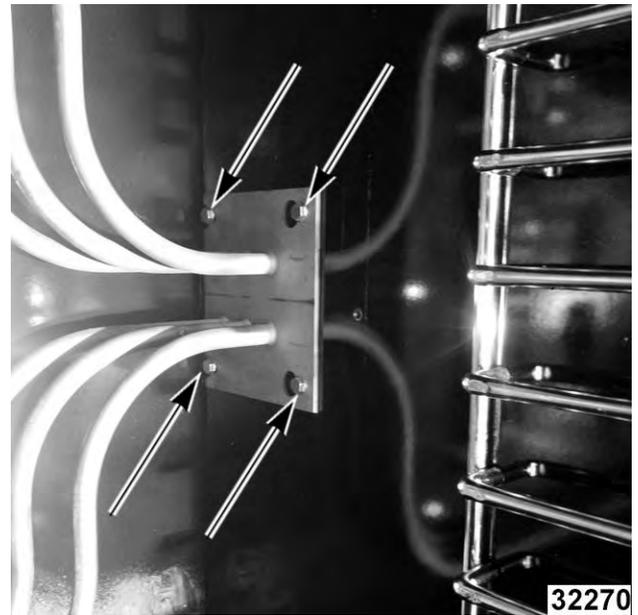
**Fig. 17**

6. Remove element support brackets.



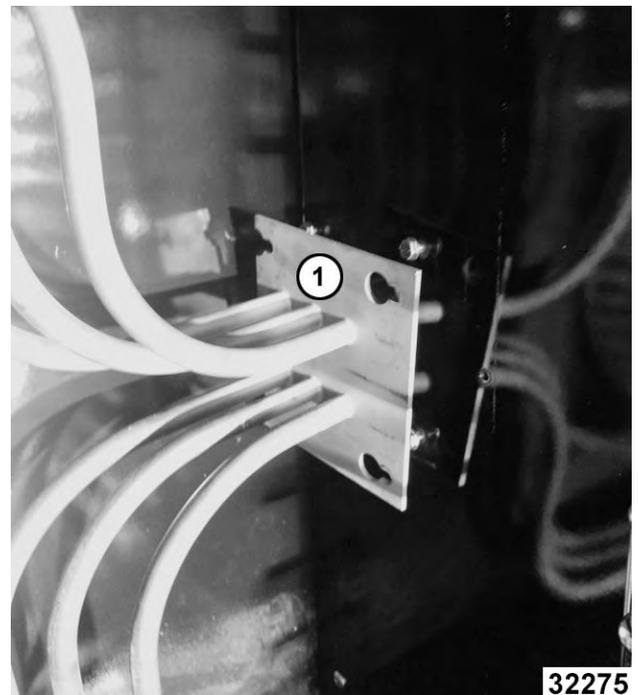
**Fig. 18**

7. Loosen all element mounting plate hex head screws.



**Fig. 19**

8. Slide element mounting plate (1, Fig. 20) over to release from cavity wall and remove elements from oven.



**Fig. 20**

9. Reverse procedure to install.
10. Verify operation.

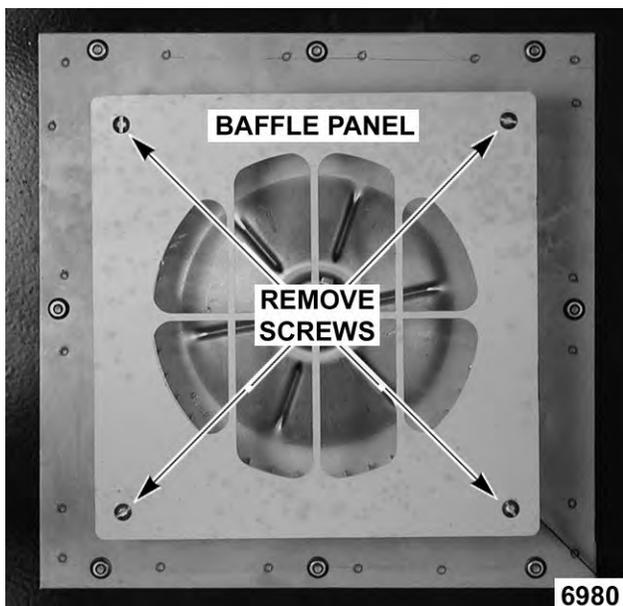
**BLOWER AND MOTOR Ending at Serial Number 481916863**



**⚠ WARNING**

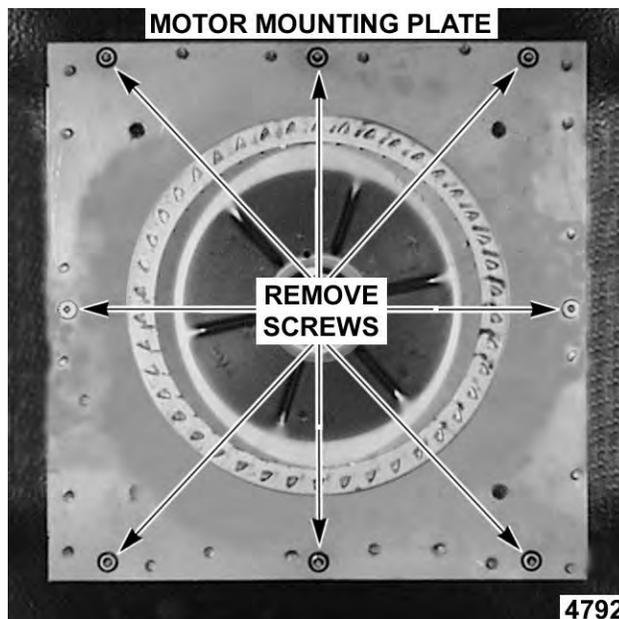
Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

1. Take out the racks and rack supports.
2. Remove screws securing baffle panel and remove the panel.



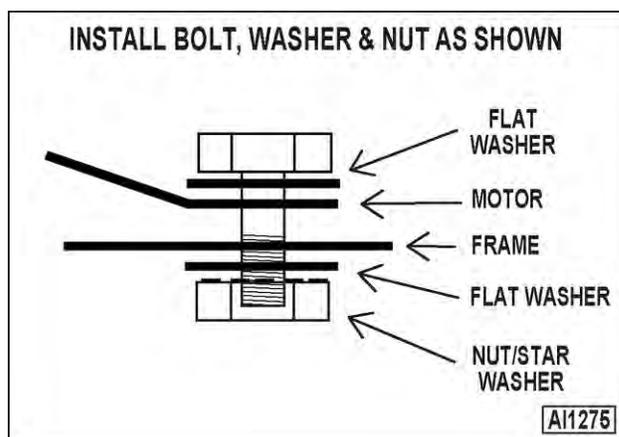
**Fig. 21**

3. If replacing:
  - A. Blower Only - Loosen set screws on blower hub and using a bearing puller, remove blower from motor shaft.
    - 1) Reverse procedure to install and adjust blower position as outlined under BLOWER ADJUSTMENT in SERVICE PROCEDURES AND ADJUSTMENTS.
  - B. Motor - perform step 3A and continue procedure.
4. Remove the nuts that secure the motor mounting plate to the rear wall.



**Fig. 22**

5. Place a piece of cardboard on the bottom of the oven cavity to protect its surface from any damage during motor assembly removal.
6. Pull the motor assembly into the oven cavity and place it on the cardboard.
7. Remove the junction box cover from the motor, disconnect lead wires and remove the conduit.
8. Remove motor mounting bolts and flat washers then lift the motor from the mounting plate.
9. Position the replacement motor on the motor mounting plate and install mounting bolts and washers. Hand tighten mounting bolts only.



**Fig. 23**

10. Reconnect lead wires at the motor, replace conduit and junction box cover.

**NOTE:** Check data plate on motor for wiring schematic. The motor must rotate **clockwise** when viewed from the shaft end.

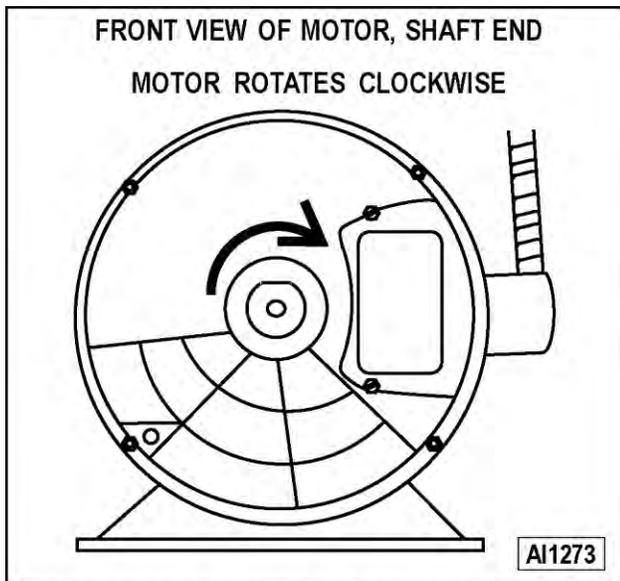


Fig. 24

11. Slide blower onto motor shaft until hub is flush with end of shaft then tighten set screws.
12. Adjust motor position until blower is parallel to motor mounting plate as outlined under BLOWER ADJUSTMENT in SERVICE PROCEDURES AND ADJUSTMENTS.
13. Position motor mounting plate on the rear wall and secure with nuts and washers.
14. Replace the baffle panel.
15. Remove cardboard from the bottom of the oven cavity.
16. Check oven for proper operation then replace rack guides and racks

**BLOWER AND MOTOR Starting at Serial Number 481916864**



**⚠ WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Remove HEATING ELEMENTS.
2. Disconnect motor harness (1, Fig. 25).

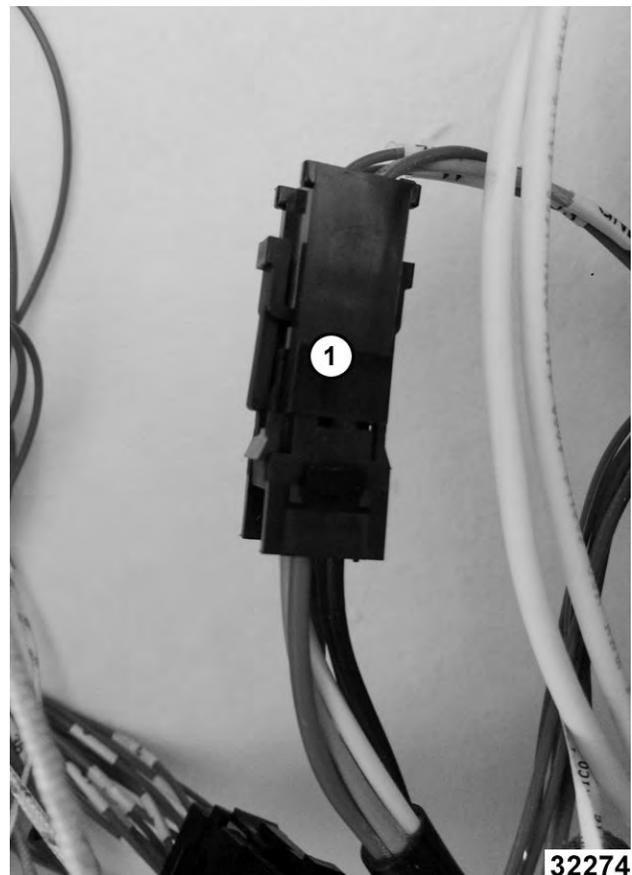


Fig. 25

3. Pinch cord grip together to remove from rear panel.

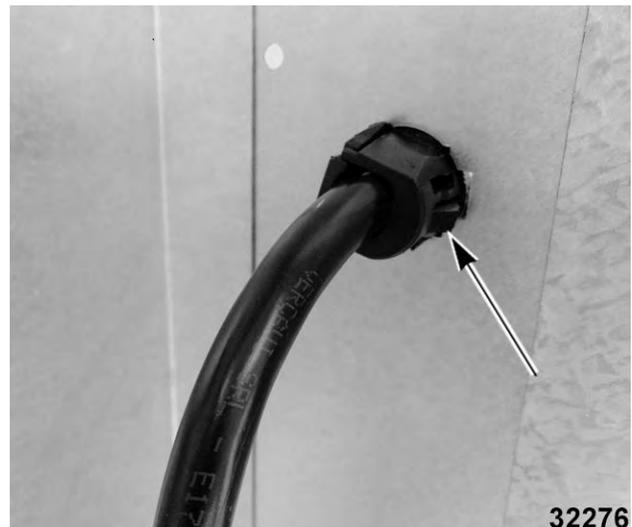


Fig. 26

4. Push motor wiring harness/cord out hole in rear panel.
5. Remove blower baffle screws (2, Fig. 27) if applicable.

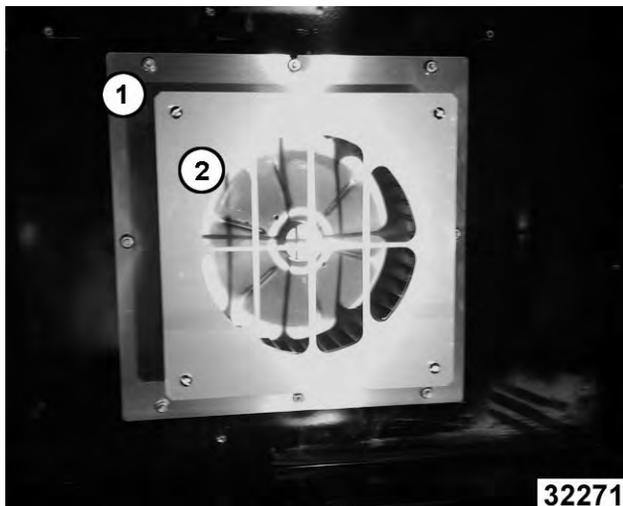


Fig. 27

6. Remove motor mounting plate nuts (1, Fig. 27).
7. Place a piece of cardboard on bottom of oven cavity to protect its surface from any damage during motor assembly removal.
8. Pull motor assembly into oven cavity and place on cardboard.
9. Remove motor mounting bolts and washers and lift motor off mounting plate.

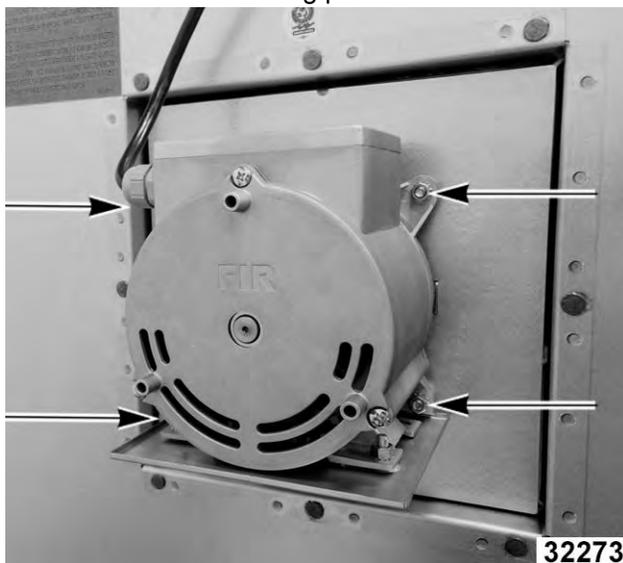


Fig. 28

**NOTE:** Motor graphics are shown with motor installed.

10. Remove drip pan from motor and install onto replacement motor.



Fig. 29

11. Reverse procedure to install.
12. Verify operation.

## DOOR SWITCH



### **WARNING**

**Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.**

1. Remove the top front cover as outlined under COVERS AND PANELS.
2. Disconnect the lead wires to the door switch.
3. Remove the switch.

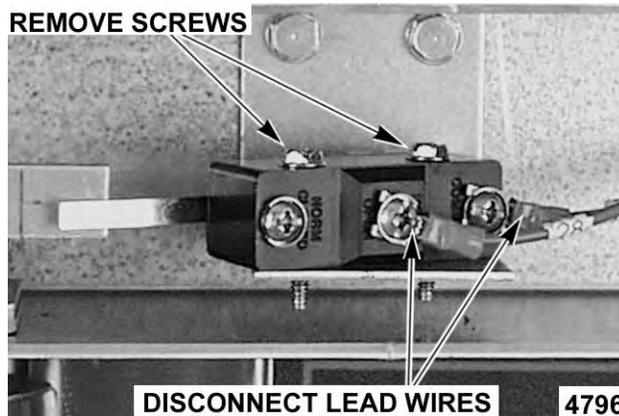


Fig. 30

4. Reverse procedure to install the replacement switch and check for proper adjustment as outlined under DOOR SWITCH ADJUSTMENT in SERVICE PROCEDURES AND ADJUSTMENTS.

## DOOR WINDOW



### **⚠ WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

1. Remove the screws at the top and bottom of door.

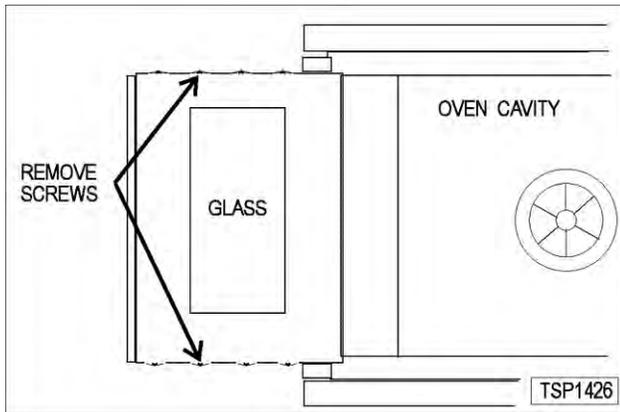


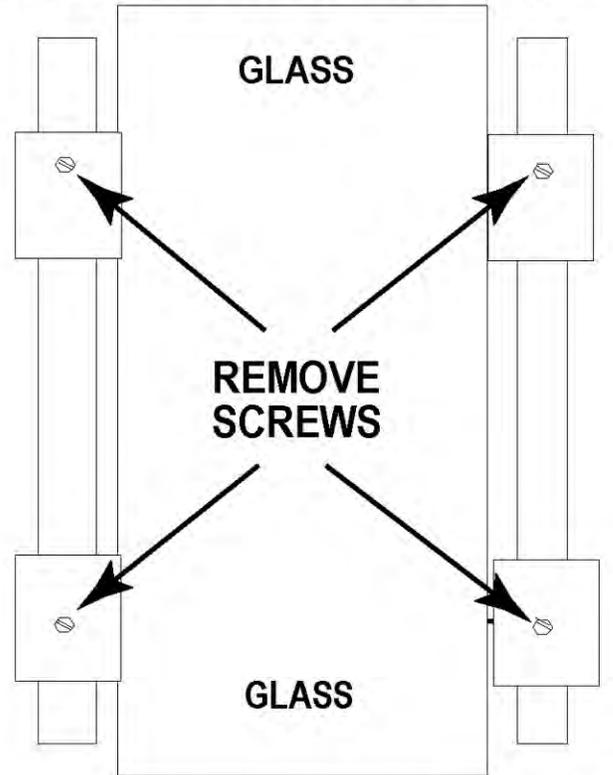
Fig. 31

2. Independent doors:
  - A. Remove the door handle then remove the outer door panel.
  - B. Lift out the inner door panel and window assembly.

**NOTE:** Left door only - remove door seal from the inside edge of the door.

3. Simultaneous doors:
  - A. If replacing window on the left door, remove the handle from the front of the door then remove door seal from the inside edge of the door.
    - 1) Lift out the inner door panel and window assembly.
    - 2) If replacing window on the right door, remove the screws along the inside edge (if applicable) of the door then remove the inner door panel and window assembly.
4. Remove the screws securing the window "tabs" to the door bracket and lift the window assembly out from the door frame.

## INNER DOOR PANEL ASSEMBLY



**TSP1427**

Fig. 32

5. Reverse procedure to install the replacement window.

## OVEN DOORS AND BEARINGS (INDEPENDENT DOORS) Ending at Serial Number 481916782



### **⚠ WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

1. Remove the top front cover and bottom front cover as outlined under COVERS AND PANELS.
2. Remove the door switch lever.

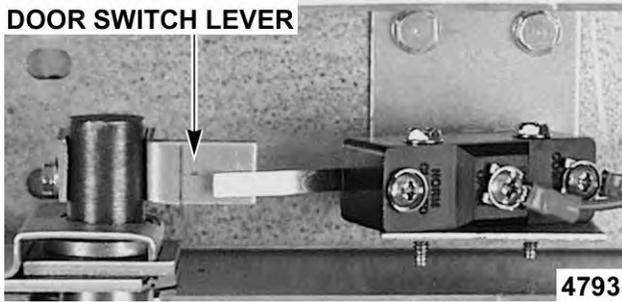


Fig. 33

3. Remove the lower door seal strip to expose the mounting screws of the door assembly.
4. Remove the two (2) lower sill bolts by the lower door shaft and the four (4) counter-sunk screws from the lower sill.

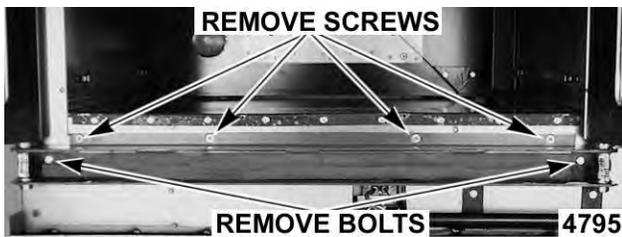


Fig. 34

**NOTE:** The door assembly is heavy and will drop down once the last screw is removed. If removing door assembly with-out assistance, use caution.

5. Tilt the top of the door slightly forward and lift the door up until the bottom of the door shaft clears the opening in the sill.
6. Lay the door flat to prevent damage.
7. The top and bottom bearings are now accessible for inspection and/or replacement if needed.
  - A. If bearings are ok, proceed to step 8.
  - B. If replacing the top bearing, remove the top bearing retainer and top bearing.

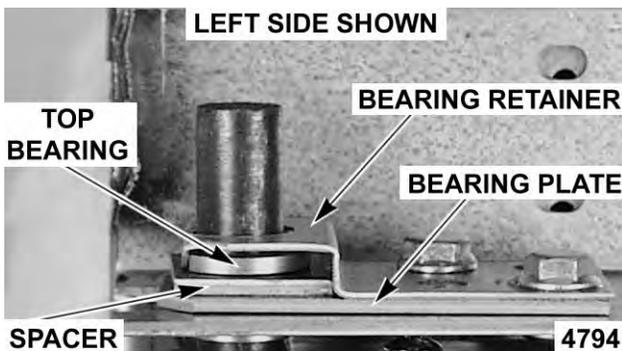


Fig. 35

- C. If replacing the bottom bearing, remove it from the door shaft or the lower sill opening.

8. Reverse procedure to install door assembly and check for proper adjustment as outlined under DOOR ADJUSTMENT and DOOR SWITCH ADJUSTMENT in SERVICE PROCEDURES AND ADJUSTMENTS.

### OVEN DOORS (INDEPENDENT DOORS) Starting at Serial Number 481916783



**⚠ WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Remove TOP FRONT COVER.
2. If servicing right side door, remove door switch lever (1, Fig. 36).

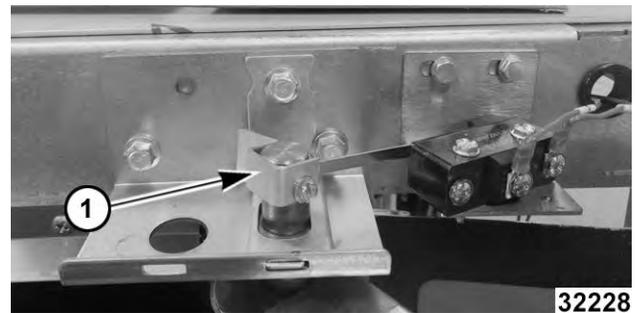


Fig. 36

3. While supporting door, remove hex bolts holding upper bearing retainer (1, Fig. 37 ) and upper shaft bracket (2, Fig. 37).

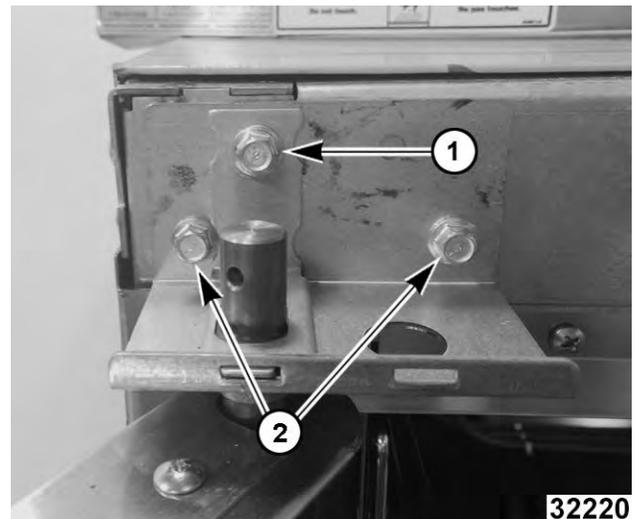


Fig. 37

4. Lift door off lower shaft bracket.

**NOTICE**

Lay door on flat protective surface to service.

5. Reverse procedure to install.
6. Perform DOOR ADJUSTMENT if servicing right side door.

**OVEN DOORS (SIMULTANEOUS DOORS) Ending at Serial Number 481916783**



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

**Assembly Removal**

1. Remove the top front cover and bottom front cover as outlined under COVERS AND PANELS.
2. Remove the door switch lever.

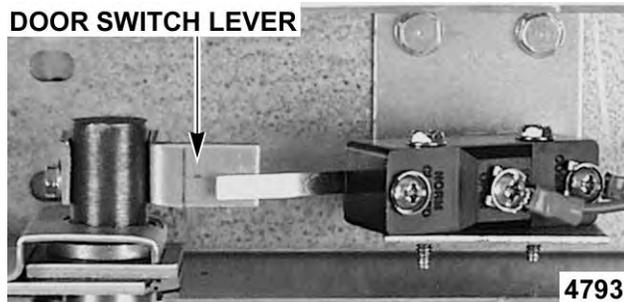


Fig. 38

3. Remove the top bearing retainers and top bearings.

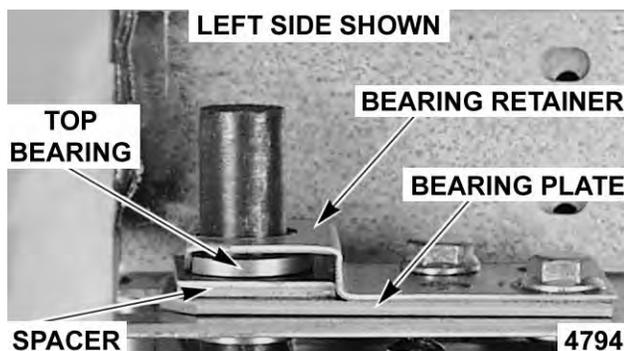


Fig. 39

4. Remove the lower door seal strip to expose the mounting screws of the door assembly.

- A. Remove the two (2) lower sill bolts by the lower door shaft and the four (4) counter-sunk screws from the lower sill.

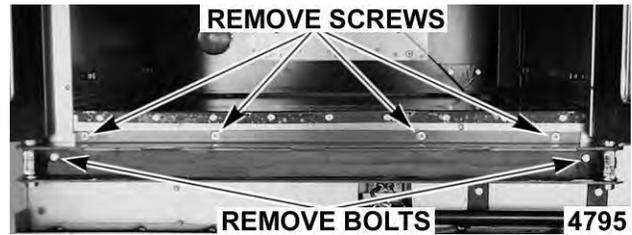


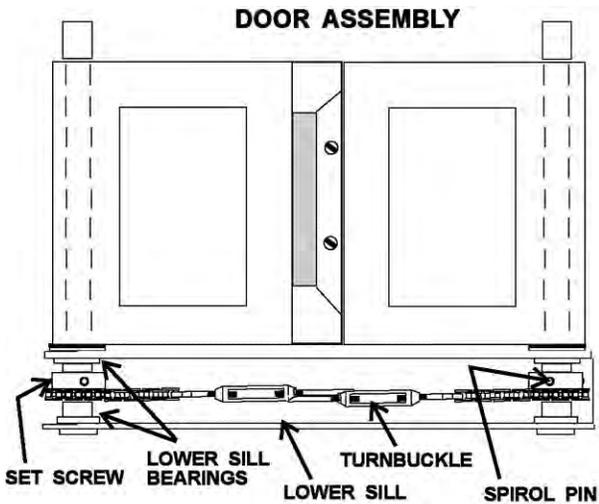
Fig. 40

**NOTE:** The door assembly is heavy and will drop down once the last screw is removed. If removing door assembly with-out assistance, use caution.

5. Lift up on the door assembly and swing the right side out then move the assembly to the left to clear the slots in the upper door sill.
6. Lay the door assembly on a flat cushioned surface for disassembly.
7. Reverse procedure to install door assembly and check for proper adjustment as outlined under DOOR ADJUSTMENT, DOOR CHAIN ADJUSTMENT (SIMULTANEOUS DOORS) and DOOR SWITCH ADJUSTMENT in SERVICE PROCEDURES AND ADJUSTMENTS.

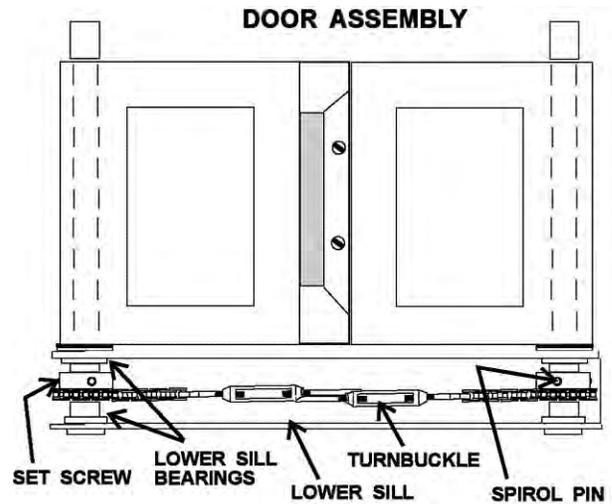
**Disassembly**

1. Remove the door assembly as outlined in OVEN DOORS (SIMULTANEOUS) under ASSEMBLY REMOVAL.
2. Remove the door chain by loosening one of the turnbuckles.
3. Loosen the set screw on the sprocket of door being replaced.
4. Drive out the spirol pin from the sprocket of door being replaced.
5. Remove the door from lower sill bearings and sprocket.



**SIMULTANEOUS DOORS SHOWN** TSP1425

**Fig. 41**



**SIMULTANEOUS DOORS SHOWN** TSP1425

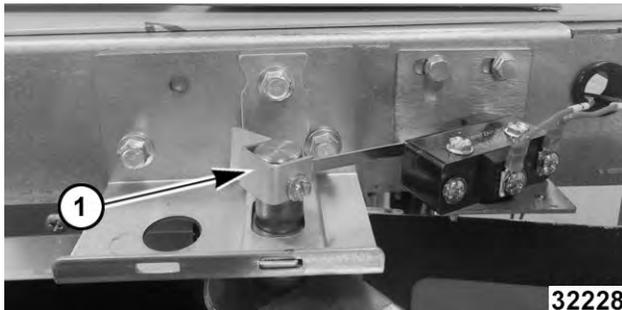
**Fig. 43**

- A. Door assembly parts are now accessible for inspection and/or replacement if necessary.
- 6. Reverse procedure to re-assemble the door assembly parts and check for proper adjustment as outlined under DOOR CHAIN ADJUSTMENT (SIMULTANEOUS DOORS) in SERVICE PROCEDURES AND ADJUSTMENTS.

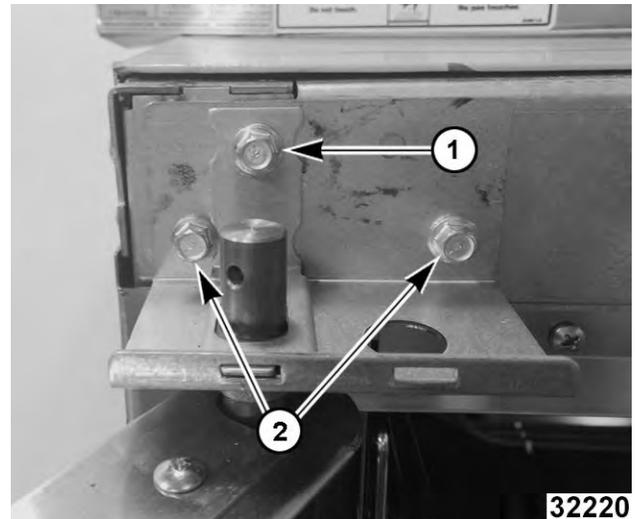
- 4. Loosen the set screw on the sprocket of door being replaced (Fig. 43).
- 5. Drive out the spiral pin from the sprocket of door being replaced (Fig. 43).
- 6. While supporting door, remove hex head bolts holding upper bearing retainer (1, Fig. 44) and upper shaft bracket (2, Fig. 44).

**OVEN DOORS (SIMULTANEOUS DOORS) Starting at Serial Number 481916783**

- 1. Remove TOP FRONT COVER and BOTTOM FRONT COVER.
- 2. Remove door switch lever.



**Fig. 42**



**Fig. 44**

- 3. Remove door chain by loosening one of the turnbuckles (Fig. 43).

- 7. Remove door(s) from lower sill bearings and sprocket Fig. 43.

**NOTICE**

Lay door on flat protective surface to service.

- 8. Reverse procedure to install.

**NOTICE**

Verify spacers are reassembled as found when removed.

9. Perform door adjustments.

- A. DOOR ADJUSTMENT .
- B. DOOR CHAIN ADJUSTMENT (SIMULTANEOUS DOORS) .
- C. DOOR SWITCH ADJUSTMENT .

**ROLLER LATCH ASSEMBLY (INDEPENDENT DOORS)**

**NOTE:** For units with serial number starting with 48 made after 8/12/07 and serial number starting with 54 made after 8/26/07.



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

- 1. Remove the screws that attach roller latch assembly to door.

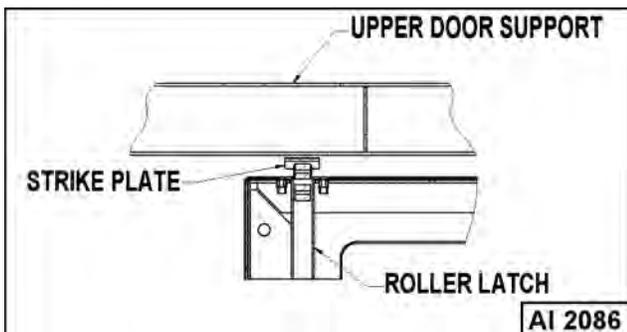


Fig. 45

- 2. Reverse procedure to install.

**DOOR CATCH ROLLER ASSEMBLY (INDEPENDENT DOORS)**

**NOTE:** For units with serial number starting with 48 made before 8/13/07 and serial number starting with 54 made before 8/27/07.



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

- 1. Remove the top front cover as outlined under COVERS AND PANELS.
- 2. Remove the catch roller assembly.

**FRONT VIEW**

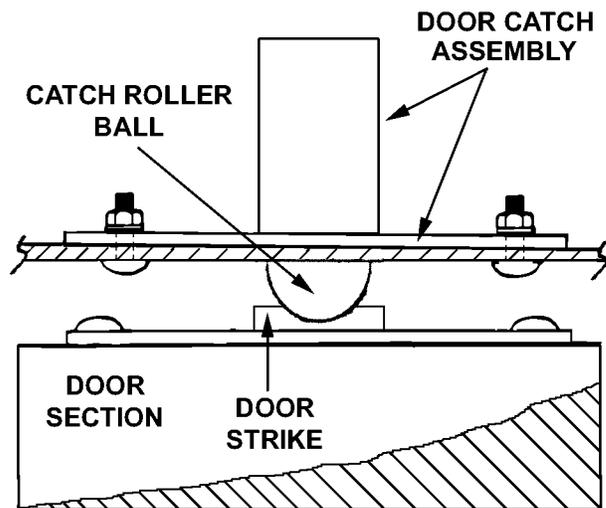


Fig. 46

- 3. Reverse procedure to install.
- 4. Adjust the catch roller as outlined under DOOR CATCH (ROLLER) ADJUSTMENT (INDEPENDENT DOORS) in SERVICE PROCEDURES AND ADJUSTMENTS.

**MECHANICAL (KX) THERMOSTAT**



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

- 1. Remove the racks and right rack support.
- 2. Remove the thermostat knob and mounting screws from the control panel and then remove the control panel.

- Remove the probe guard from the oven cavity wall.

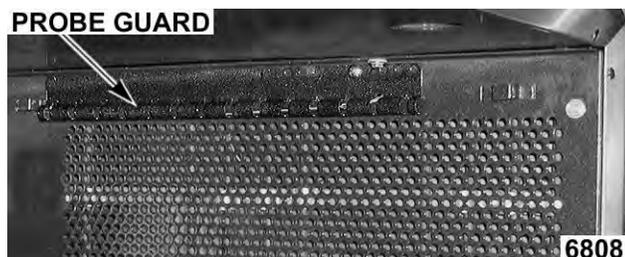


Fig. 47

**NOTE:** When installing probe guard, the probe should not extend beyond the guard.

- Remove the thermostat bulb from the oven cavity by pushing it through the oven wall and into the control panel area.

**NOTE:** The hole in the oven cavity wall does not line up straight with the oven cavity outer shell, therefore the probe must be removed at an angle.

- Reverse the procedure to install.
- Adjust the thermostat as outlined under MECHANICAL (KX) THERMOSTAT CALIBRATION in SERVICE PROCEDURES AND ADJUSTMENTS.

## HIGH LIMIT THERMOSTAT



### WARNING

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

- Take out racks from the oven.
- Remove the high limit thermostat cover/mounting plate from inside the oven cavity at the top.

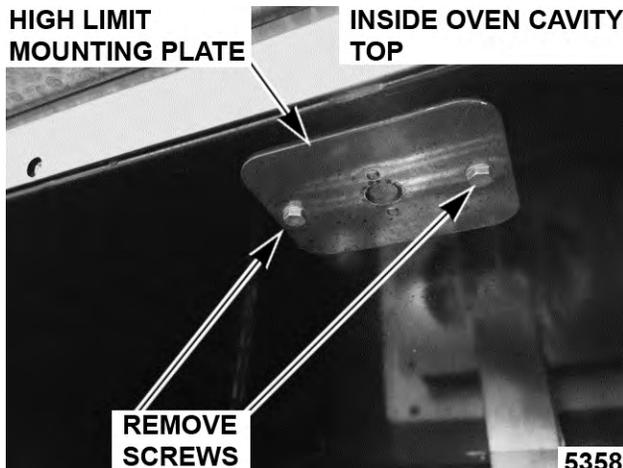


Fig. 48

- Disconnect lead wires from high limit thermostat then remove high limit thermostat from cover/ mounting plate.

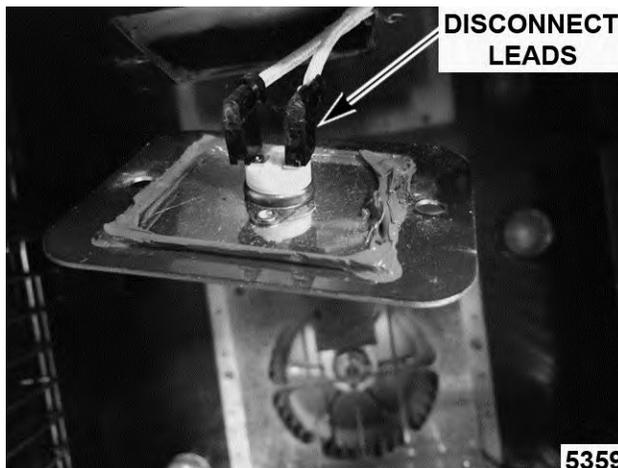


Fig. 49

**NOTE:** Remove the old RTV sealer from the cover and mating surfaces inside the oven cavity and apply new high temperature RTV sealer before installing.

- Reverse procedure to install.

## INTERIOR LIGHTS (Rear Mounted, Round)



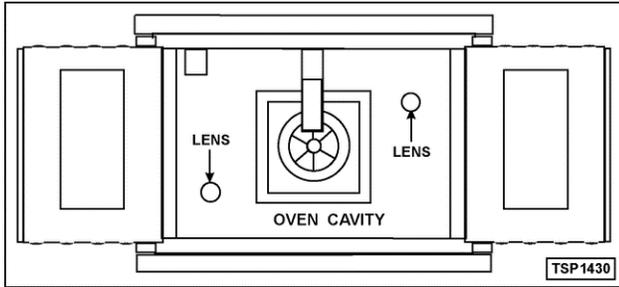
### WARNING

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

### Lamp

- Remove racks.
- Unscrew glass lens for the light being replaced then unscrew bulb.

**NOTE:** Use a cloth when handling bulb so you do not leave fingerprints on bulb.



**Fig. 50**

3. Replace bulb then reverse procedure to install.

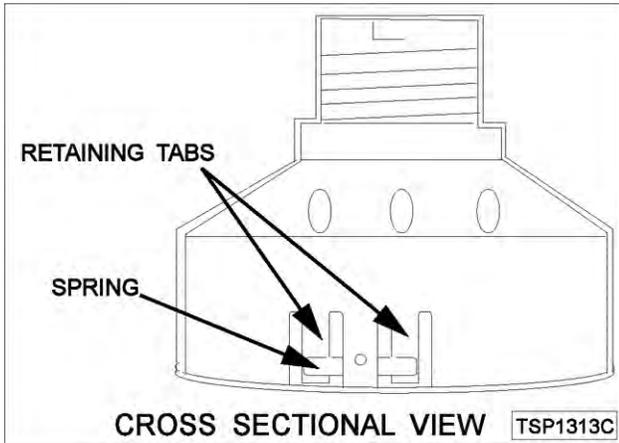


**⚠ WARNING**

**Disconnect the electrical power to the machine and follow lockout / tagout procedures.**

**Lamp Assembly**

1. Remove lens and bulb.
2. Remove springs from retaining tabs (2 places) on the socket.



**Fig. 51**

3. Depress retaining tabs and pull socket out from the oven, far enough to disconnect lead wires.
4. Remove socket from the oven.
5. Attach lead wires to the replacement socket.
6. Insert socket into the hole in oven and push until socket is held in place by retaining tabs.
7. Install light bulb and lens.
8. Check for proper operation.

**INTERIOR LIGHTS (Side Mounted, Square)**

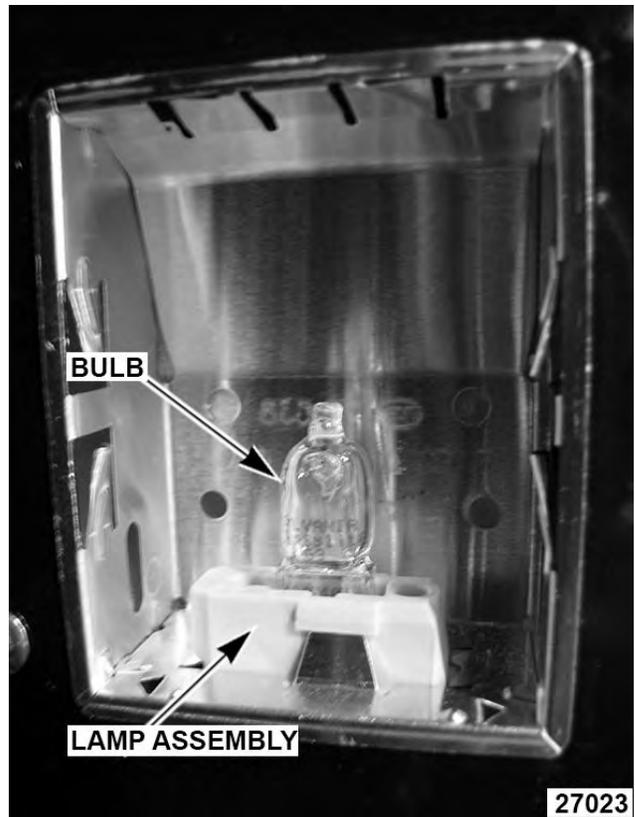
**Bulb Replacement**



**⚠ WARNING**

**Disconnect the electrical power to the machine and follow lockout / tagout procedures.**

1. Remove racks and right-side hand rack guide.
2. Pull lamp cover off.
3. Grasp lamp using a clean cloth and remove from lamp assembly.



**Fig. 52**

4. Reverse procedure to install new bulb.

**NOTE:** Verify gasket (1, Fig. 53) is flat on lamp cover and not damaged.

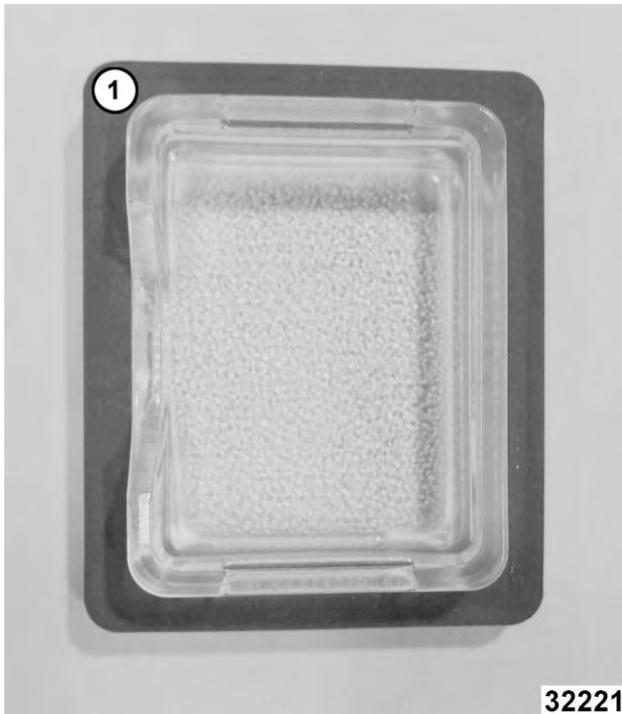


Fig. 53

Lamp Assembly Replacement



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Remove racks.
2. Remove BULB if reusing.
3. Lift right side rack guide off oven cavity.
4. Pull lamp cover off from the top or bottom.
5. Insert narrow blade screwdriver into tab and bend out to release. Repeat with second tab.

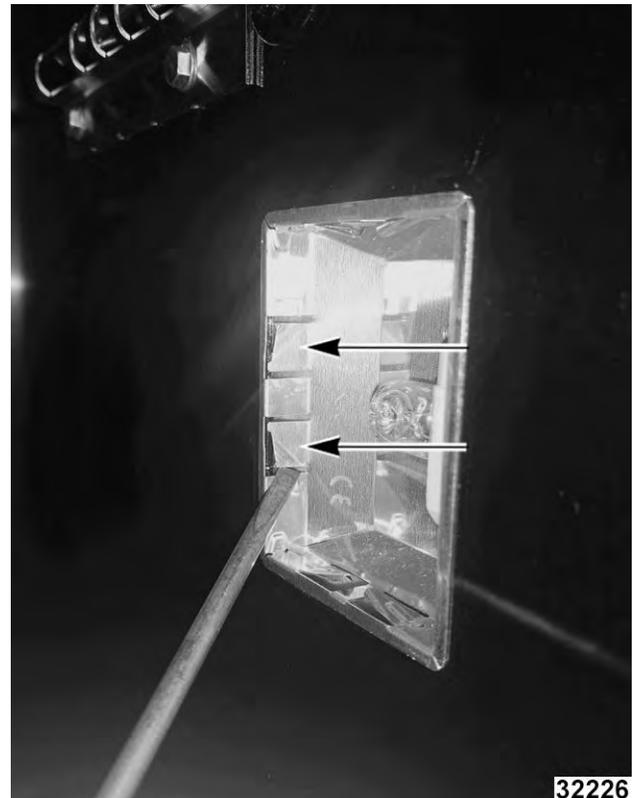


Fig. 54

6. Pull lamp housing out of oven cavity.
7. Disconnect wires.

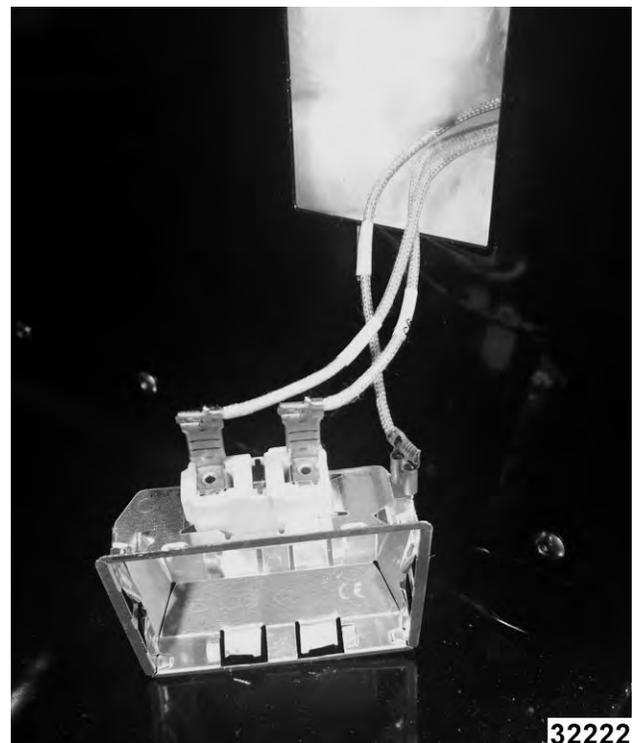


Fig. 55

8. Reverse procedure to install.

**NOTE:** Verify gasket (1, Fig. 56) is flat on lamp cover and not damaged.

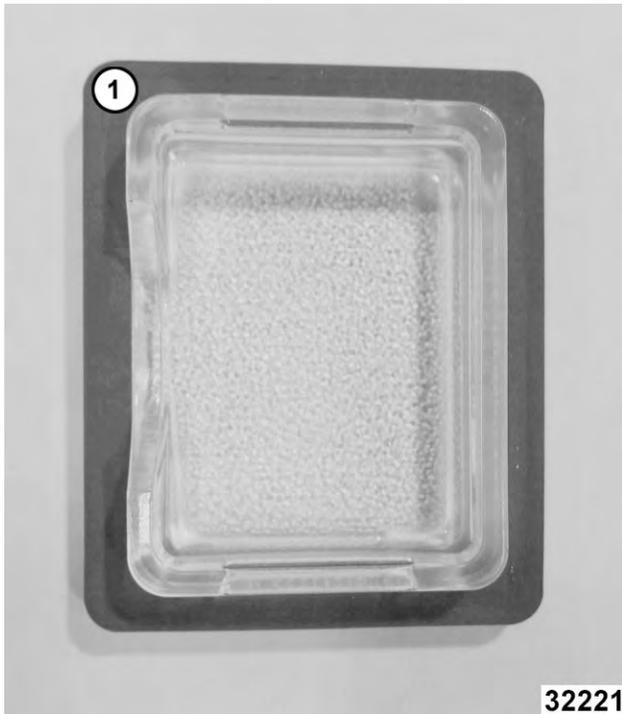


Fig. 56

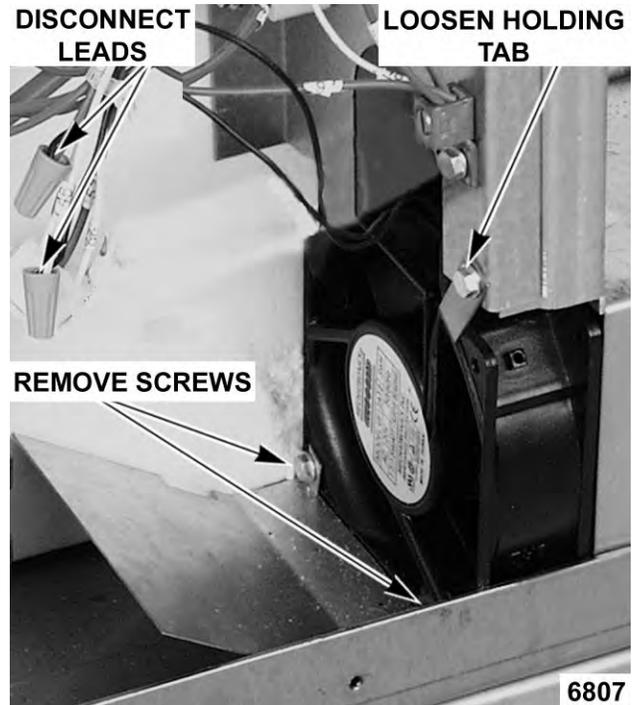


Fig. 57

## COOLING FAN



### **WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

1. Remove the right side panel as outlined under COVERS AND PANELS.

**NOTE:** If right side panel is not accessible, this component can be serviced by removing the control panel as outlined under COVERS AND PANELS.

2. removing wire nuts.
3. Remove the screws securing the air deflector to the fan then loosen the tab screw holding the fan to the component panel. Rotate the tab so that the fan will clear and remove the fan.

4. Reverse the procedure to install the replacement fan and check for proper operation.

**NOTE:** The fan must be installed so air is pulled from outside the rear of the oven and blown into the control area. The arrow on the fan body indicates "air flow" direction and should be pointing toward the controls.

**NOTE:** Ensure fan is seated "squarely" against the air tube and the oven bottom.

**NOTE:** The air deflector should be angled upwards at approximately 30 degrees to properly direct the air flow.

# SERVICE PROCEDURES AND ADJUSTMENTS



## ⚠ WARNING

Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times and follow Arc Flash procedures. If test points are not easily accessible, disconnect power and follow Lockout/Tagout procedures, attach test equipment and reapply power to test.

## SOLID STATE TEMPERATURE CONTROL CALIBRATION

### UNITS BEFORE JUNE 2013

1. Place a thermocouple in geometric center of oven cavity.
2. Set ON-OFF-COOL DOWN switch to ON.
3. Set temperature control dial to 350°F.
4. Allow oven temperature to stabilize (normally 3 cycles).
5. Record temperature at which Heat lamp goes OFF and comes ON for at least two complete heating cycles.
6. Calculate differential by subtracting temperature indicated when lamp goes out from temperature indicated when lamp comes on.

**Differential = Heat lamp OFF - Heat lamp ON**

**Example: 360° (lamp off) - 340° (lamp on) = 20°**

- A. Calculated differential should be **less** than 20°F.
  - 1) If differential is **less** than 20°F, temperature control circuit is functioning properly.
    - a. Proceed to Step 7.
  - 2) If differential is **more** than 20°F:
    - a. Check temperature probe as outlined under TEMPERATURE PROBE TEST (SOLID STATE CONTROL).
    - b. If probe is functioning properly then temperature control is malfunctioning.
      - a) Install a replacement temperature control and check calibration.

7. Calculate average temperature by adding temperature indicated when lamp goes out to temperature indicated when lamp comes on and dividing this answer by 2.

**$[Temp. (lamp\ off) + Temp. (lamp\ on)] \div 2 = Average\ Temp.$**  Example:  $(360^\circ + 340^\circ) \div 2 = 350^\circ$

- A. If average temperature is **less** than 10°F from dial setting, thermostat is properly calibrated.
- B. If average temperature is **more** than 10°F from dial setting, thermostat calibration must be adjusted.
  - 1) Loosen temperature control knob set screw and remove knob from stem.
  - 2) Loosen temperature control mounting screws only enough to rotate control.
    - a. Place thumb and forefinger on mounting screw heads, apply pressure and slightly rotate screw heads (body of control) in slot. Rotate *clockwise* to increase temperature and *counterclockwise* to decrease.
    - b. Center stem (Fig. 58) in opening and re-tighten temperature control mounting screws.

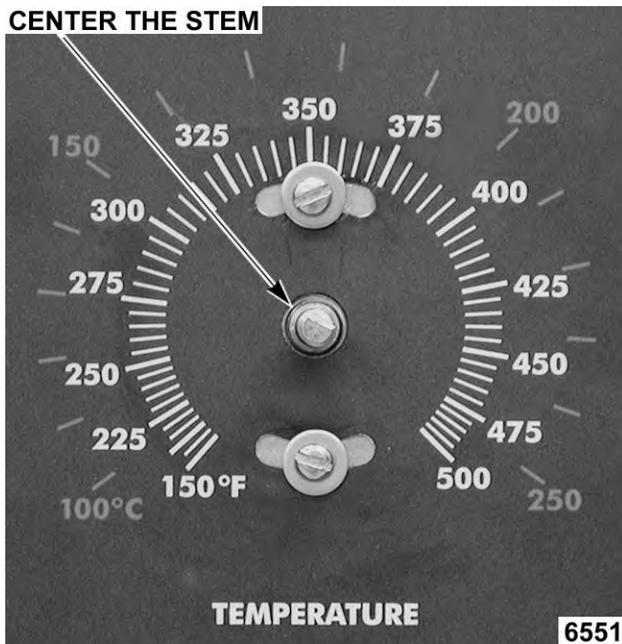


Fig. 58

- c. Replace knob and re-tighten set screw.
- d. Rotate knob to lowest temperature setting then back to 350°F.
- e. Repeat average temperature calculation in Step 7.

**NOTE:** Allow oven to cycle at least two times between adjustments before performing calculation.

- a) If average temperature still differs **more** than 10°F from dial setting, adjust thermostat calibration until average temperature is within tolerance.
- C. If above adjustment cannot be obtained, replace temperature control and check calibration.

**UNITS AFTER JUNE 2013**

1. Place a thermocouple in geometric center of oven cavity.
2. Set ON-OFF-COOL DOWN switch to ON.
3. Set temperature control dial to 350°F.
4. Allow oven temperature to stabilize (normally 3 cycles).
5. Record temperature at which Heat lamp goes OFF and comes ON for at least two complete heating cycles.

6. Calculate differential by subtracting temperature indicated when lamp goes out from temperature indicated when lamp comes on.

**Differential = Heat lamp OFF - Heat lamp ON**

**Example: 360° (lamp off) - 340° (lamp on) = 20°**

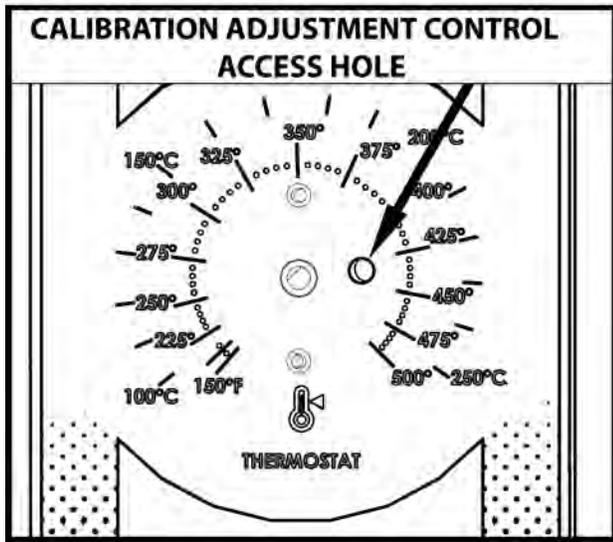
- A. Calculated differential should be **less** than 20°F.
  - 1) If differential is **less** than 20°F, temperature control circuit is functioning properly.
    - a. Proceed to Step 7.
  - 2) If differential is **more** than 20°F:
    - a. Check temperature probe as outlined under TEMPERATURE PROBE TEST (SOLID STATE CONTROL).
    - b. If probe is functioning properly then temperature control is malfunctioning.
      - a) Install a replacement temperature control and check calibration.

7. Calculate average temperature by adding temperature indicated when lamp goes out to temperature indicated when lamp comes on and dividing this answer by 2.

**[Temp. (lamp off) + Temp. (lamp on)] ÷ 2 = Average Temp. Example: (360° + 340°) ÷ 2 = 350°**

- A. If average temperature is **less** than 10°F from dial setting, thermostat is properly calibrated.
- B. If average temperature is **more** than 10°F from dial setting, thermostat calibration must be adjusted.
  - 1) Loosen temperature control knob set screw and remove knob from stem.
  - 2) Access adjustment potentiometer located at 3 o'clock position (Fig. 59).

**NOTE:** If no access hole exists in overlay, you may carefully create one.



AI3777

Fig. 59

- a. Turn *clockwise* to increase, *counterclockwise* to decrease temperature
- b. Repeat average temperature calculation in Step 7.

**NOTE:** Allow oven to cycle at least two times between adjustments before performing calculation.

- a) If average temperature still differs **more** than 10°F from dial setting, adjust thermostat calibration until average temperature is within tolerance.
- C. If above adjustment cannot be obtained, replace temperature control and check calibration.

## MECHANICAL (KX) THERMOSTAT CALIBRATION

1. Place a thermocouple in the geometric center of the oven cavity.
2. Set the power switch to ON.
3. Set the thermostat dial to 350°F.
4. Allow the oven temperature to stabilize (normally 3 cycles).
5. Record the temperature when the thermostat cycles OFF and ON for at least three complete cycles.

6. Calculate the differential by subtracting the temperature indicated when heat lamp goes out from temperature indicated when heat lamp comes on.

*Differential - Heat lamp OFF - Heat lamp ON.*  
*Example: 360° (lamp off) - 340° (lamp on) = 20°*

- A. The differential calculated should be less than 30°F.
  - 1) If the differential is 30°F or less, the thermostat is functioning properly.
    - a. Proceed to step 7.
  - 2) If the differential is more than 30°F, the thermostat is malfunctioning.
    - a. Install a replacement thermostat and check calibration.

7. Calculate the average temperature by adding the temperature indicated when the heat lamp goes out to the temperature indicated when the heat lamp comes on and dividing this answer by 2.

*[Temp. (lamp off) + Temp. (lamp on)] ÷ 2 = Average Temp.* *Example: 360° + 340° ÷ 2 = 350°*

- A. If the average temperature is 15°F or less from the dial setting, the thermostat is properly calibrated.
- B. If the average temperature is more than 15°F of the dial setting, the thermostat calibration **must** be adjusted.
  - 1) Remove the thermostat knob.
  - 2) Hold the thermostat shaft and turn the inner set screw *clockwise* to decrease temperature or *counterclockwise* to increase temperature (¼ turn = 35°F).

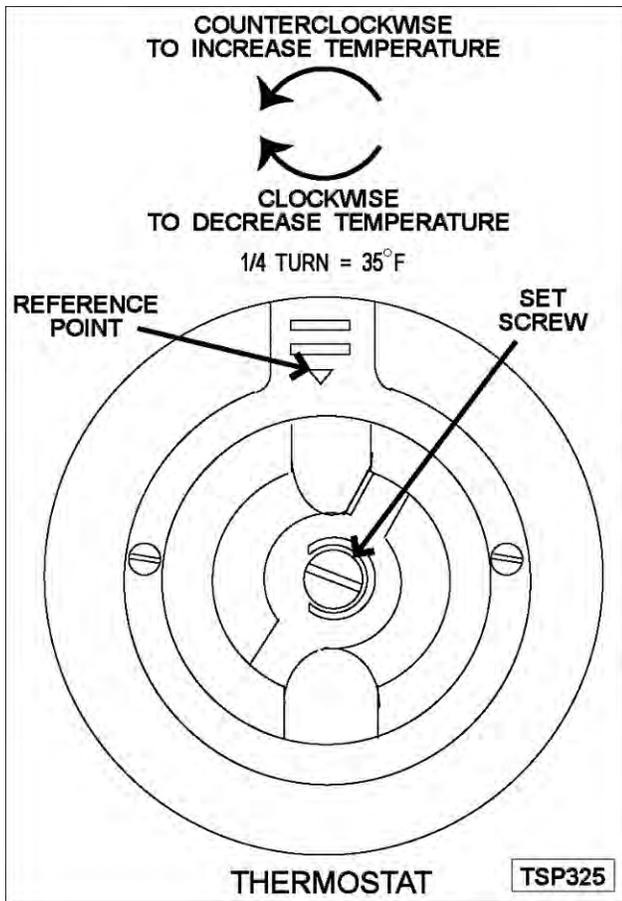


Fig. 60

8. Replace the knob and verify the setting is still at 350°F.
9. Repeat step 7 until the average temperature is within tolerance.

**NOTE:** Allow the oven to cycle at least two times between adjustments before performing the calculation.

- A. After the final adjustment is made and the average temperature is within tolerance, remove the knob and apply a nonpermanent type sealer around the head of the set screw

10. If the above adjustment cannot be obtained:

- A. Turn the power switch OFF.



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

- B. Install a replacement thermostat and check calibration.

**SOLID STATE TEMPERATURE CONTROL TEST**



**WARNING**

Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times and follow Arc Flash procedures. If test points are not easily accessible, disconnect power and follow Lockout/Tagout procedures, attach test equipment and reapply power to test.

1. Remove the RIGHT SIDE PANEL.

**NOTE:** If right side panel is not accessible, this component can be serviced by removing CONTROL PANEL.

2. Place a thermocouple in the geometric center of the oven cavity.

**NOTE:** Oven temperature must be below 450°F.

**NOTE:** If oven is equipped with "Cook and Hold" option, set to Cook (normal cooking) before continuing.

3. Set the temperature control to the maximum setting.
4. Check machine data plate for correct voltage to oven. Refer to diagram below for proper terminal locations and voltages before checking the control. Use the correct terminals for the corresponding voltage.
5. Turn the power switch to ON.

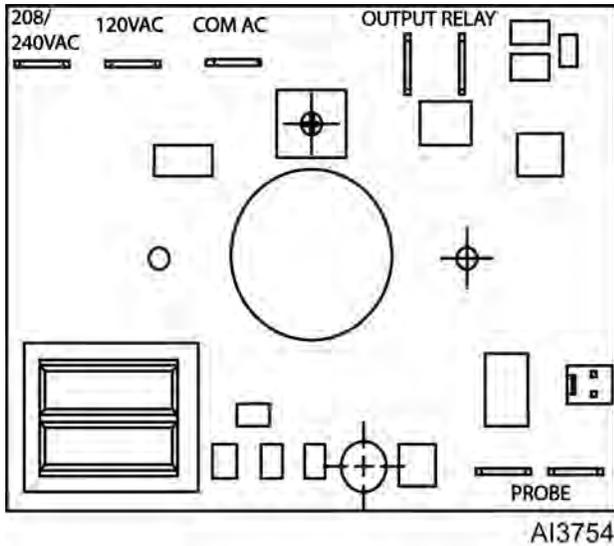


Fig. 61

6. Check for proper voltage across terminals COM AC to 120VAC or COM AC to 208-240VAC for power to the control.
  - A. If correct, proceed to step 7.
  - B. If incorrect, problem is **not** with the temperature control. See TRUBLESHOOTING.
7. Check relay voltages on the board:
  - A. For 120VAC controls - check across OUTPUT RELAY terminal (left side) to 120 VAC terminal for input to the internal relay. Check across OUTPUT RELAY terminal (right side) to 120 VAC for output from the internal relay.
  - B. For 208-240VAC controls - check across OUTPUT RELAY terminal (left side) to 208-240 VAC terminal for input to the internal relay. Check across OUTPUT RELAY terminal (right side) to 208-240 VAC for output from the internal relay.
    - 1) If input voltage to the internal relay is correct, proceed to step 8. If input voltage to the internal relay is not present, problem is not with the temperature control. See TRUBLESHOOTING.
    - 2) If output voltage from the internal relay is correct proceed to step 8. If output voltage from the internal relay is not correct, check temperature probe as outlined under TEMPERATURE PROBE TEST (SOLID STATE CONTROL).

8. Set the temperature control to the minimum setting.

**NOTE:** Oven temperature **must** be above 300°F.

9. Check for zero (0) volts AC across terminals OUTPUT RELAY terminal (right side) to 120 VAC or OUTPUT RELAY terminal (right side) to 208-240 VAC for no output from the internal relay.
  - A. If correct, temperature control is functioning properly.
  - B. If incorrect, check temperature probe as outlined under TEMPERATURE PROBE TEST (SOLID STATE CONTROL).
    - 1) If temperature probe is OK:
      - a. Turn the power switch OFF.



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

- b. Replace the temperature control and check calibration as outlined under SOLID STATE TEMPERATURE CONTROL CALIBRATION.

**TEMPERATURE PROBE TEST (SOLID STATE CONTROL)**



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

**NOTE:** The temperature probe used in conjunction with the Solid State Temperature control is an RTD (resistance temperature detector) of the Thermistor type. As temperature increases the resistance value decreases.

1. Remove the right side panel as outlined under COVERS AND PANELS in REMOVAL AND REPLACEMENT OF PARTS.

**NOTE:** If right side panel is not accessible, this component can be serviced by removing the control panel as outlined under COVERS AND PANELS.

2. Place a shielded thermocouple in the geometric center of the oven cavity and determine the temperature in the oven cavity.
3. Remove the probe lead wires from the solid state temperature control.
4. Test the probe with an ohmmeter.
  - A. If the measured resistance values are inside the given tolerance then the probe is functioning properly.
  - B. If the measured resistance values are outside the given tolerance then replace the probe and retest.
    - 1) Check oven for proper operation.

5. Reverse procedure to install.

TEMP (°F)	OHMS *	TEMP (°F)	OHMS *
77	90,000	360	822
240	4,077	380	656
260	3,016	400	529
280	2,266	425	424
300	1,726	450	334
320	1,332	475	266
340	1,041		
* Resistance in ohms ± 10%			

## HEATING ELEMENT TEST



**⚠ WARNING**

**Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.**

1. Turn the power switch ON and set the oven temperature control to the highest setting.
2. Measure the voltage at the heating element terminals and verify it against the data plate voltage.
  - A. If voltage is incorrect, find the source of the problem.
  - B. If voltage is correct, check current draw (amps) through the heating element lead wires.
 

**NOTE:** This method is preferred over a resistance check when a clamp on type amp meter is available.

    - 1) If current draw is correct then heating element is functioning properly.
    - 2) If current draw is not correct, turn the power switch OFF and disconnect the electrical supply to the oven.
      - a. Replace HEATING ELEMENTS Ending at Serial Number 481916863.
  - C. If unable to check current draw, a resistance check may indicate a malfunctioning element.
    - 1) Turn the power switch OFF and disconnect the electrical supply to the oven.
    - 2) Remove the lead wires from the heating element and check resistance (ohms).
3. Check for proper operation.

SIDE MOUNTED ELEMENTS			
VOLTAGE	AMPS PER ELEMENT	KW PER ELEMENT	OHMS PER ELEMENT
208 (red)	9.6	2	21.6
240 (blue)	8.3	2	28.8
480 (yellow)	4.1	2	115.2

SIDE MOUNTED ELEMENTS			
VOLTAGE	AMPS PER ELEMENT	KW PER ELEMENT	OHMS PER ELEMENT
<b>NOTES:</b>	1. Values in the table are nominal. Tolerance is +5/-10%.		
	2. Voltage values are @ 60HZ		
	3. Resistance values (ohms) are @ room temperature.		
	4. Color coding located on the one corner of mounting bracket.		

REAR MOUNTED ELEMENTS			
VOLTAGE	AMPS PER ELEMENT	KW PER ELEMENT	OHMS PER ELEMENT
208	19.2	4	10.8
240	16.6	4	14.4
480	8.3	4	57.6
<b>NOTES:</b>	1. Values in the table are nominal. Tolerance is +5/-10%.		
	2. Voltage values are @ 60HZ		
	3. Resistance values (ohms) are @ room temperature.		
	4. Replaced as a set, check individually.		

## BLOWER ADJUSTMENT



### WARNING

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

- Remove the blower motor and mounting assembly by following steps 1 through 7 as outlined under BLOWER AND MOTOR in REMOVAL AND REPLACEMENT OF PARTS.
- Loosen the motor mounting bolts.
- Adjust the motor position until the blower is parallel to and 1/4 inch away from the motor mounting plate. Check for squareness of the blower to the motor mounting plate at the top, bottom, left and right of the blower.
  - If the blower is square then tighten motor mounting bolts and proceed to step 4.
  - If the blower is not square continue adjusting until proper spacing is achieved then tighten motor mounting bolts

**NOTE:** If necessary, place shims between motor and frame.

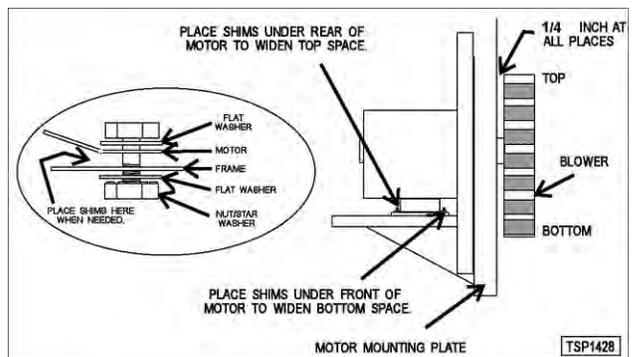


Fig. 62

- Reverse the procedure to install.

## DOOR ADJUSTMENT

- Check the doors to make sure they have a .125 (1/8") gap between them and that the vertical edge of the door is parallel to the vertical door seal. If the doors are not positioned in this manner, adjust the doors as described.

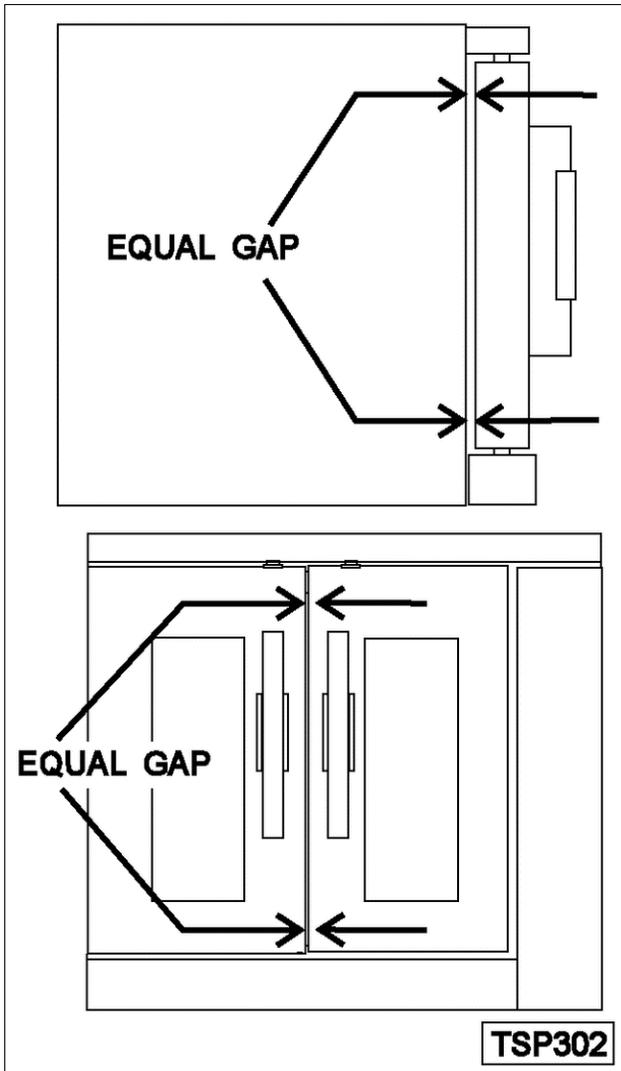


Fig. 63

2. Remove the TOP FRONT COVER.
3. Loosen the screws/bolts that secure the upper door brackets just enough to allow door movement.

Figure Shown below (Left Side) is ending at Serial Number 481916782.

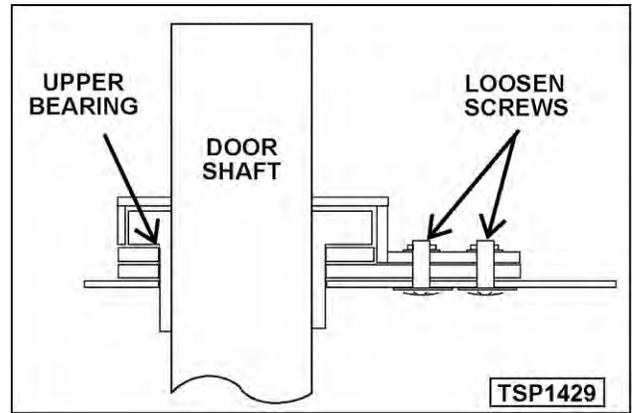


Fig. 64

Figure shown below (Left Side) is starting at Serial Number 481916783.

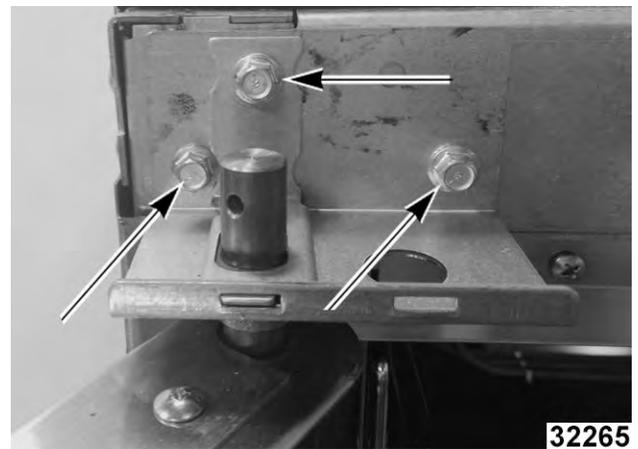


Fig. 65

4. Move the door until proper alignment is achieved then tighten the screws/bolts on the upper door bearing hardware.
5. Repeat Step 3 and Step 4 on the opposite door, if necessary.
6. Install TOP FRONT COVER.

### DOOR STRIKE ADJUSTMENT (INDEPENDENT DOORS)

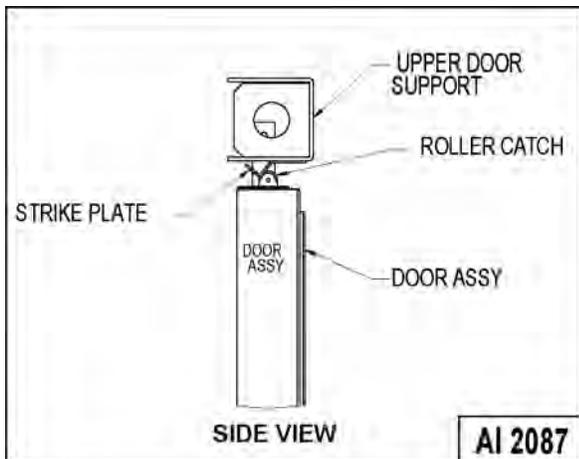
**NOTE:** For units with serial number starting with 48 made after 8/12/07 and serial number starting with 54 made after 8/26/07.



**⚠ WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

1. Remove top front cover as outline under COVERS AND PANELS in REMOVAL AND REPLACEMENT OF PARTS.
2. Open the doors and inspect door strike for proper shape.
  - A. Replace if bent. Do not bend strike plate.
  - B. If adjustment is necessary, loosen fasteners, close doors and insure contact between door inner surface and upper horizontal seal. Slide door strike plate until contact with roller latch is made. Tighten strike plate fasteners



**Fig. 66**

3. Open and close the doors several times while observing the roller latch and strike plate operation.
  - A. Replace roller latch if malfunctioning as outlined under ROLLER LATCH ASSEMBLY (INDEPENDENT DOORS) and adjust as outlined in this procedure.
4. Each oven door should open with a force of 8 to 25 pounds when pulled at the handle. The adjustments must allow the doors to remain closed during normal operation and allow opening without exertion by the user.

**DOOR CATCH ROLLER ADJUSTMENT (INDEPENDENT DOORS)**

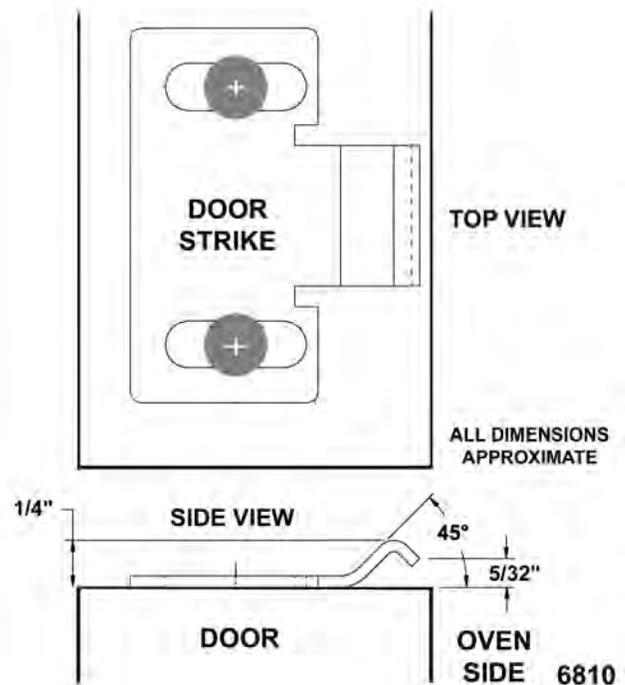
**NOTE:** For units with serial number starting with 48 made before 8/13/07 and serial number starting with 54 made before 8/27/07.



**⚠ WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

1. Remove the top front cover as outline under COVERS AND PANELS in REMOVAL AND REPLACEMENT OF PARTS.
2. Open the doors and inspect the door strike for proper shape.



**Fig. 67**

- A. Replace if bent and adjust as outlined in this procedure.
3. Open and close the doors several times while observing the catch roller operation.
  - A. Replace if malfunctioning and adjust as outlined in this procedure.

**NOTE:** Shims may be required under the door strike to raise it, before the proper door tension adjustment can be set.

4. Apply lubricant around the spring. See LUBRICATION under GENERAL.
5. Close the doors and check them for proper alignment.
  - A. Doors should be centered and parallel at the top and bottom, in the oven cavity opening. See DOOR ADJUSTMENT.
6. With the doors closed, observe the position of the catch roller "ball" in relation to the door strike.
  - A. Ensure the catch roller "ball" is centered (left to right) to the door strike.
    - 1) Adjust alignment, if necessary.
  - B. Open the right side door and view the left side door catch roller and strike. Ensure the door catch roller "ball" is resting upon the angular surface of the door strike. Repeat on the opposite door.
    - 1) If adjustment is necessary, loosen the mounting screws then slide the door strike from "front to back" until the roller rests upon the angular surface of the door strike. Tighten screws and check operation.
    - 2) If proper adjustment cannot be achieved, add shims beneath the door strike. Repeat step 6 thru this step.

**NOTE:** DO NOT BEND THE DOOR STRIKE.

7. Each oven door should open with a force of 8 to 25 pounds when pulled at the handle. See TOOLS under GENERAL.
  - A. Adjust catch roller tension as follows:
    - 1) Turn the set screw inside the catch assembly housing *clockwise* to increase tension on the catch roller and *counterclockwise* to decrease tension on the catch roller.

**NOTE:** The amount of tension on the catch roller determines the opening force of the door.

- 2) Continue adjustment until proper door operation is achieved.

### SIDE VIEW CUTAWAY

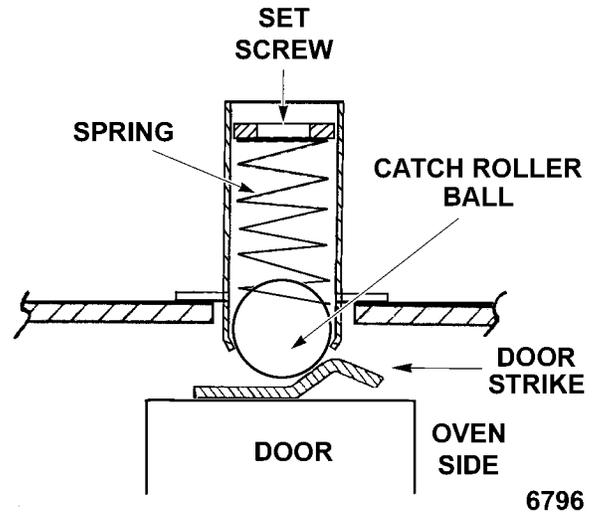


Fig. 68

### DOOR SWITCH ADJUSTMENT



#### **WARNING**

**Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.**

1. Remove the top front cover as outlined under COVERS AND PANELS in REMOVAL AND REPLACEMENT OF PARTS.
2. Door operation:
  - A. Independent doors - The switch actuator should be operated by the switch lever when the right door is between 1" and 1 1/2" from being closed.
  - B. Simultaneous doors - The switch actuator should be operated by the switch lever when the right door is 1/2" from being closed.
3. If adjustment is necessary, bend the switch actuator to obtain the proper setting.

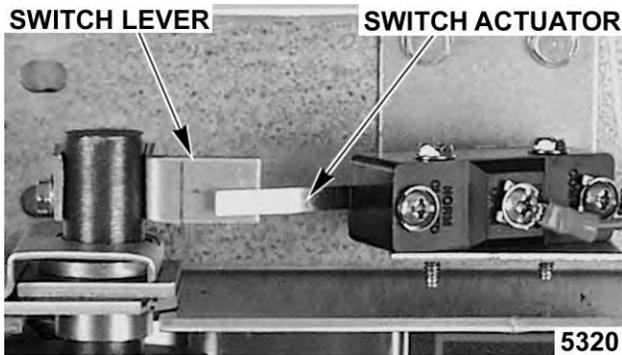


Fig. 69

4. Install the top front cover.
5. Apply power to the oven and check for proper operation.

## DOOR CHAIN ADJUSTMENT (SIMULTANEOUS DOORS)

### Introduction

When the oven doors are in proper adjustment, as the doors come together, the right door will lead the left door in closing by about 1/4 inch. The doors will feel like they are self closing the last 1/2 inch of travel.

### Procedure

1. Remove the lower sill cover as outline under COVERS AND PANELS in REMOVAL AND REPLACEMENT OF PARTS.
2. Close doors and check door chain for factory setting.
  - A. Turnbuckles should be 5 to 5 1/2 inches apart.
  - B. Short eye bolt should be connected to the end of the chain that goes to the front of the sprocket.
  - C. 2 links of the chain should not be engaged at the rear of the sprocket.
  - D. Chain must be tight enough that the doors move simultaneously when opened or closed.
  - E. When the doors are opened, the turnbuckles will move away from each other.
  - F. The stop cable must be positioned where it moves freely and does not get pinched.
3. Position door chain assembly to factory setting if the conditions in step 2 are not met.

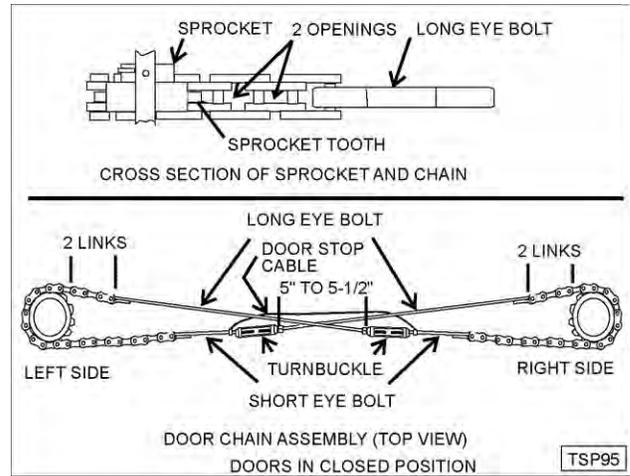


Fig. 70

4. If right door does not lead the left door in closing:
  - A. Loosen locknuts on both turnbuckles.
  - B. Loosen left turnbuckle.
  - C. Tighten right turnbuckle.
  - D. Tighten locknuts on both turnbuckles.
5. If the right door leads the left door by more than 3/8 inch:
  - A. Loosen locknuts on both turnbuckles.
  - B. Loosen right turnbuckle.
  - C. Tighten left turnbuckle.
  - D. Tighten locknuts on both turnbuckles.
6. Check door for proper operation.

**NOTE:** The locknuts must be tight during testing or the adjustment will not hold.

- A. If doors do not close properly, repeat step 4, 5 and 6.
- B. If doors operate properly, continue to step 7.
7. Install the lower front cover.

## COMPUTER CONTROL

### Operation

Refer to the Instructions Manual F31159 for specific operating instructions.

### Setup Mode

**NOTE:** Use the setup mode to verify that the control is configured to the factory settings which result in the proper operation of the oven. If the CAL1 parameter is other than zero, determine if it is still needed before resetting to zero. See COMPUTER CONTROL TEMPERATURE CALIBRATION.

**NOTICE**

Changing the C\_F, InP1, rL1 & rH1 parameters will default **all** menus to the factory settings.

1. Use this key sequence to access the setup mode.

Up arrow; Rack 1; Temperature; Temperature;  
Down arrow; Rack 1



**Fig. 71**

2. Once in the setup mode the display will alternate between the parameter and programmed data.
  - To change data to the factory setting, use the arrow keys.
  - To select the next parameter, press the Rack 1 key.
  - After the last Parameter and Data is viewed, press the Rack 1 key a final time to exit the setup mode and return to operations mode. The current set point temperature will be displayed.
  - After 1 minute of no key activations, the control will return to operation mode.
3. Listed are the parameters and data you should find.

MENU	ALTERNATING ON DISPLAY	
	PARAMETER	DATA
Celsius_Fahrenheit	C_F	F
Guard Band	gb	4000
Temperature Compensation	tcnP	OFF
Input Type 1	InP1	J
Range Low 1	rL1	75
Range Hight 1	rH1	500
Hysteresis	HYS1	3
Calibration Offset	CAL1	0
Exit Setup Mode and return to Operation Mode.	Set point temperature is displayed or if call for heat, dashes(---) displayed.	

**Probe Test**

If the oven is not heating or displaying the proper temperature, the temperature probe may be malfunctioning. Determine if the probe is good or causing the operational problem. Temporarily, disconnect the existing probe lead wires from the computer control and connect the lead wires from a known good "J" type thermocouple. Secure the sensing end of the thermocouple near the probe.

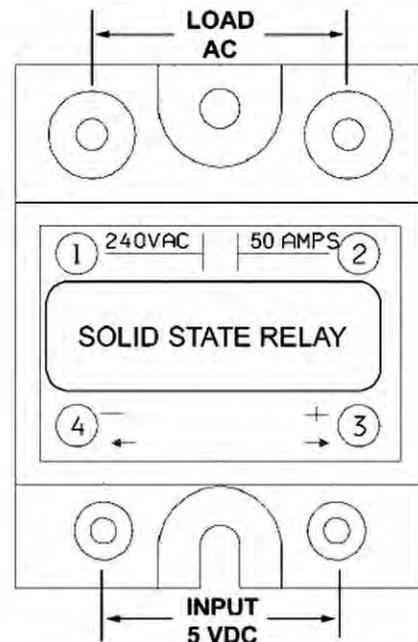
Turn the power switch ON and set the dial to 350°F.

If the oven reaches the set temperature and cycles with the temporary thermocouple, then the existing probe is malfunctioning. Replace temperature probe with the correct part and check for proper operation.

**Solid State Relay Test**

The solid state relays "SSR1 or SSR2" supply power to the blower motor "high" or "low" fan speed terminals when the SSR is energized by the output voltage from the computer.

To test solid state relay "SSR1" (high fan speed), the computer control should be in the "Normal Cooking Mode". To test solid state relay "SSR2" (low fan speed), the computer control should be in the "Roast & Hold Mode".



**Fig. 72**

1. Remove the right side panel as outlined under COVERS AND PANELS.
2. Turn the power switch ON.
  - A. If the blower motor comes on, the SSR is functioning properly.

- B. If the blower motor does not come on, proceed to step 3.
- 3. Check for +5 VDC on the input side of SSR (terminals 3 & 4).
  - A. If +5 VDC is present, continue to step 4.
  - B. If no voltage is present, computer control is not functioning properly.
- 4. Check for proper input voltage on the load side of SSR terminal 1 and the power connection on the other side of the supply.
  - A. On 208 & 240 volt ovens, the supply connection is on the terminal block (L2 for single phase, L3 for three phase). The measured voltage should be identical to the supply.
  - B. On 480 volt ovens, the supply connection is on the secondary side of the 480V transformer, terminal X4 (wire # 79).  
The measured voltage should be 240 volts.
- 5. If input voltage is correct on the load side of SSR terminal 1, proceed to step 6.
  - A. If input voltage is **not** correct, find the source of the problem.
- 6. Check output voltage on the load side of SSR terminal 2.
  - A. If voltage is correct, SSR is functioning properly.
  - B. If no voltage is present on the load side of SSR terminal 2, the SSR is **not** functioning properly.
- 7. Turn the power switch OFF.



**WARNING**

**Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.**

- 8. Replace the SSR and check for proper operation.

**COMPUTER CONTROL TEMPERATURE CALIBRATION**

- A. If the set point temperature is 350°F, proceed to step 4.
- B. If the set point temperature is other than 350°F, proceed to step 3 to change the temperature.
- 3. Press the set key then temperature key to enter the temperature set mode.
  - A. The display will alternate between the term "StPt" (set point) and the current oven temperature setting.
  - B. Press the up or down arrow keys to make the proper selection.
  - C. Press the set key again to save the change and exit the temperature set mode.
- 4. Allow the oven temperature to stabilize (normally 3 cycles).
- 5. Compare the controls set point temperature to the thermocouple meter reading when the heat light goes out.
  - A. A temperature variance **more** than 5°F indicates an adjustment is needed.
    - 1) To make the adjustment, proceed to step 6.
    - 2) If temperature variance is **less** than 5°F, computer control is functioning properly.
- 6. Enter the setup mode as outlined in SETUP MODE under COMPUTER CONTROL.
  - A. Advance through the menu until CAL1 (Calibration Offset) appears.
    - 1) If the thermocouple reading is higher than set point temperature, press the down arrow key and enter a **negative** offset value that is equal to the number of degrees above the 5°F tolerance.
    - 2) If the thermocouple reading is lower than set point temperature, press the up arrow key and enter a **positive** offset value that is equal to the number of degrees below the 5°F tolerance.
    - 3) Exit the setup mode.
- 7. Allow the oven to cycle at least two times between adjustments.
  - A. If the temperature variance still differs more than 5°F from the set point, verify the correct calibration offset value was entered and retained.

1) ) Adjust the calibration offset value as outlined in step 6, until the cycling temperature is within tolerance.

B. If the above adjustment cannot be obtained:

C. Turn the power switch OFF.



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

D. Replace the computer control and check for proper operation.

**COMPUTER CONTROL OPERATIONAL TEST**

The computer controls "Calibration Mode" is used to manually test:

- Outputs of the control
- Keypad functionality
- Verify display and LEDs functionality

Additionally, if a problem is encountered during the output test, a "Restore Factory Settings" option is available.

**NOTICE**

The calibration mode contains several adjustable parameters that must **not** be changed. For the "CALY" (Calibration) Parameter, the default data option selected must be "no".

Listed below are the parameters and data you should find in the calibration Mode.

MENU	ALTERNATING ON DISPLAY	
	PARAMETER	DATA
Calibrate (must display no)	CALY	no
Logic Output Test (see step 3)	LgOt* *g displays as a 9	0
Logic Inputs "LI" (Factory Only)	LI	21
Keyboard (see step 4)	HEY	0

MENU	ALTERNATING ON DISPLAY	
	PARAMETER	DATA
Display Test (All segments of display and the LED's are tested)	—	sequence of characters in display window
Exit Calibration Mode and return to Operation Mode	Set point temperature is displayed or if call for heat, dashers (---) displayed.	

**NOTE:** While in the calibration mode, on all parameters except the Logic Output Test (LgOt), the control outputs will be OFF.

- To change the programmed data, use the arrow keys.
- To select the next parameter, press the Rack 1 key.
- At the end of the test, the control automatically exits the Calibration Mode and returns to the Operation Mode.
- After 1 minute of no key activations, the control will return to operation mode.

1. Use this key sequence to access the calibration mode. Up arrow; Down arrow; Rack 1; Down arrow; Temperature; Rack 1.

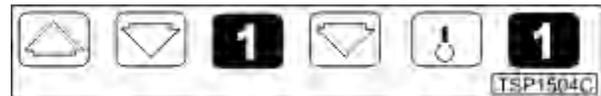


Fig. 73

2. Once in the calibration mode the display will alternate between the parameter and programmed data. The computer control outputs are turned OFF.

- A. Convection fan stops.
- B. Heating stops.

**NOTE:** If the control was calling for heat when the calibration mode was entered, heating will resume after exiting the test mode.

3. Press the Rack 1 key to accept the default "no" under the "CALY" (calibrate) parameter and advance the display menu to the "LgOt" (logic output) test. In this mode, the control and logic outputs can be turned ON for testing only.

- A. Use the arrow keys to change the display to the appropriate number for testing. Each test starts automatically, several seconds after number is selected.

- 1) #0 - All control outputs are OFF (fan & heat OFF).
- #1 - Heat comes ON (2CON is energized).
- #5 - Convection fan comes ON (High or Low speed SSR is energized).
- #8 - Electronic beeper (external) sounds.

- B. If the output tests are completed successfully, proceed to step 4.
- C. If the output tests are **not** completed successfully, find the source of the problem. If the problem cannot be repaired, replace the component and check for proper operation.

4. Press the Rack 1 key twice to advance past the "LI" (Logic Inputs test) and reach the "HEY" (keyboard) test.

- A. Press the desired key to display the corresponding hexadecimal code. This code is used internally by the control to identify the key being pressed. See table below.

KEY	CODE	KEY	CODE
Up Arrow	40	Start/Stop	4
Down Arrow	80	Temp	20
½ menu	800	Rack 1	10 *
¾ menu	4000	Rack 2	400
5/6 menu	2	Rack 3	2000
Set	200	Rack 4	1
Time	1000	Rack 5	8
Roast & Hold	8000		

**\* Displays 10 momentarily then alternates between Hey and 0. If pressed again, advances to the next test.**

- B. If the code displayed is not correct for the key pressed, then the keyboard is malfunctioning.

- 1) Turn the power switch OFF.



**WARNING**

**Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.**

- C. Replace the computer control and check for proper operation.

- 5. Press the Rack 1 key to advance the display menu to the "dISP" (display) test. A test sequence automatically runs on the display and control LEDs for a visual verification that all segments in the LED display and the internal LEDs are functioning.
- 6. At the end of the test, the control exits the calibration mode and returns to the Operation Mode.

**Restore Factory Settings**

**NOTE:** If the computer control does not appear to be functioning properly, do not restore factory settings until verifying the control is configured properly as outlined in SETUP MODE under COMPUTER CONTROL and performing the COMPUTER CONTROL OPERATIONAL TEST as outlined in the above section.

- 1. Enter the "Calibration Mode" by using the key sequence stated in step 1 under COMPUTER CONTROL OPERATIONAL TEST.
  - A. The computer control outputs are turned OFF.
  - B. The display will alternate between "CALY" and "no".
- 2. Press the up or down arrow key until the "rEst" parameter displays.
- 3. Press the Rack 1 key and "no" displays.
- 4. Press the up or down arrow key to change the display to "YES".
- 5. Press the Rack 1 key to select this data option and then advance the menu to the "LgOt" (logic output test).

**NOTE:** The "g" in LgOt displays as a "9".

- 6. Press the Rack 1 key twice to advance past the "LI" (Logic Inputs test) and the "HEY" (keyboard) test.
- 7. The "dISP" (display) test sequence automatically runs.
- 8. At the end of the test, the control exits the calibration mode and returns to the Operation Mode.
- 9. Enter the "SETUP MODE" as outlined under COMPUTER CONTROL and perform the procedure.

## SERVICE PROGRAMMING AND TESTING

**NOTE:** Press X to go back to previous screen. User interface system menu program instructions for **MENU PRG** and **USB** are located in COMPUTER CONTROLS GUIDE.

### SYSTEM DIAGNOSTIC

1. Press **Program**.



Fig. 74

2. Press number **3** for **SYS DIAG**.

- System Diagnostic menu will appear.

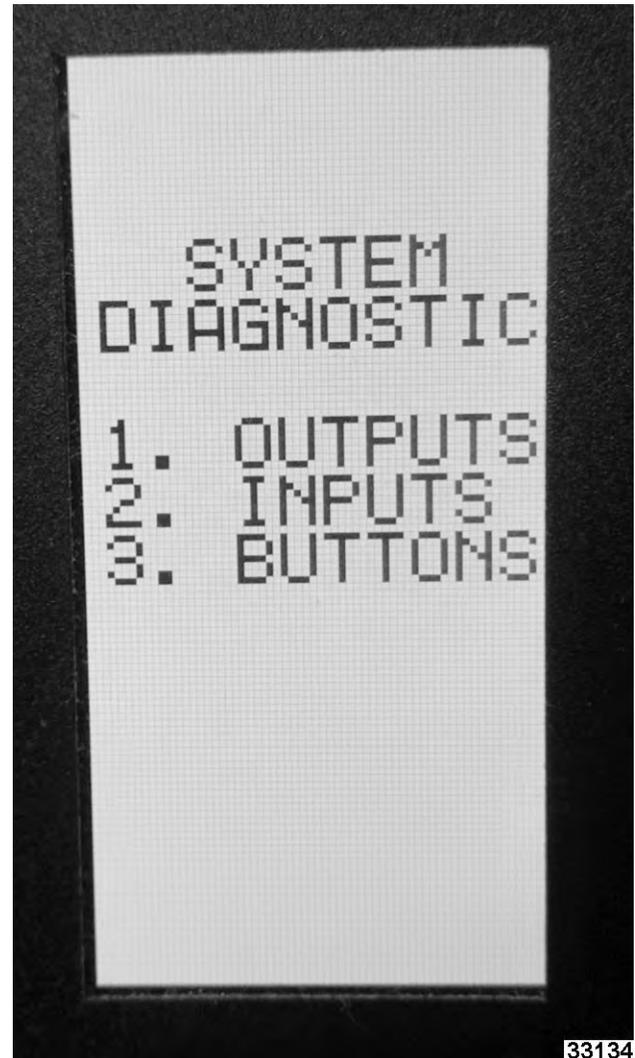


Fig. 75

- 1. OUTPUTS



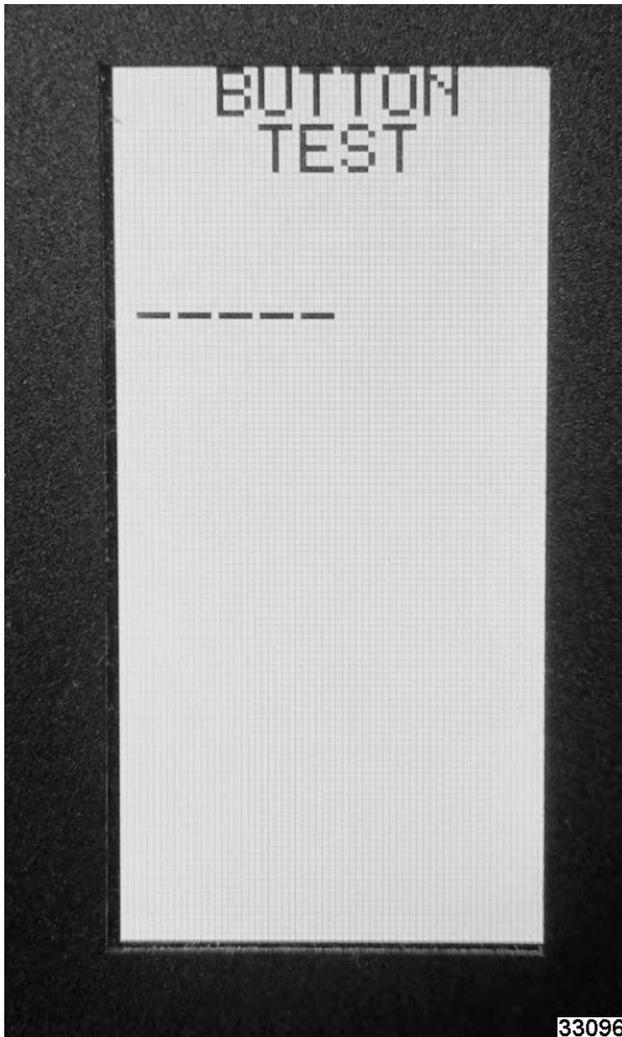
Fig. 76

- Press corresponding number for testing function selection.  
Example: Press 1 to test Fan function.
- **2. INPUTS**



Fig. 77

- Check status of a function.  
Example: Door is open or close.
- **3. BUTTONS**



**Fig. 78**

- Button test verifies each button is programmed and working. Example: Push a button on the keypad to verify it is connected and working. Each buttons function shows on display.

**SYSTEM SETTINGS**

1. Press **Program**.



**Fig. 79**

2. Press **4** for **SETTINGS**.
  - System Settings menu will appear.



Fig. 80

- Press corresponding number to change settings. Example: Press **4** to change **HEAT** to Electric.

**SETTING TEMPERATURE OFFSET**

- Check center of oven temperature with temperature tester.
- Press number **6**.
- Use arrow keys to offset **DISPLAY** temperature setting to match center of oven temperature.

# ELECTRICAL OPERATION

## COMPONENT FUNCTION

<b>Power Switch (S1) . . . .</b>	Determines the mode of operation; ON, OFF, or COOL DOWN.
<b>Oven Light Switch (S2) . . . . .</b>	Controls the oven cavity lights.
<b>Fan Speed Switch (S3) . . . . .</b>	Controls blower motor speed between High and Low settings (VC4ES/6ES and VC4ED/6ED only).
<b>Alarm/Buzzer . . . . .</b>	Signals the end of a "Cook" cycle when cooking time expires.
<b>Cook Timer . . . . .</b>	Counts the "Cook" time of the product and signals the buzzer at the end of the cycle (VC4ES/6ES and VC4ED/6ED only).
<b>Door Switch . . . . .</b>	Allows the oven to operate when the doors are closed but stops the oven from operating when the doors are opened.
<b>Blower Motor . . . . .</b>	Operates the oven cavity blower (convection fan).
<b>Transformer (T1) . . . . .</b>	Provides 24VAC power to the Computer Control (VC4EC/6EC only).
<b>Transformer (T2) . . . . .</b>	Provides 240VAC power to the oven control circuit and blower motor (480VAC models only).
<b>Solid State temperature Control . . . . .</b>	Monitors temperature sensor and regulates the oven cavity temperature by controlling 2CON to energize the heating elements when the control calls for heat.
<b>High Limit Thermostat . . . . .</b>	Protects the oven from temperatures above 550°F by removing power from the heating circuit. Auto resets at 500°F.
<b>Computer Control . . . .</b>	Monitors temperature sensor and regulates the oven cavity temperature by controlling 2CON to energize the heating elements when the control calls for heat. Also, counts the "Cook" time (normal cooking) of the product and signals the electronic alarm at the end of the cycle. If "Roast" & "Hold" mode is selected, when the "Cook" (then hold) time expires, the oven heating stops and the oven enters "Hold" mode. Once the oven cavity temperature drops to 150°F, the heat comes back on and the oven cycles at this temperature to hold the cooked product. Cook & Hold is standard on computer models. The selected mode also determines the fixed blower speed of High for "Cook" and Low for "Roast & Hold".
<b>SSR1 &amp; SSR2 . . . . .</b>	When SSR1 is energized by computer control, connects power to blower motor for High fan speed operation in normal "Cook" mode. In "Roast & Hold" Mode only, SSR1 is de-energized and SSR2 is energized by computer control and connects power to blower motor for Low fan speed operation (VC4EC/6EC only).
<b>1CON &amp; 2CON . . . . .</b>	Provides power to heating elements when both are energized. 1CON is energized when power switch is turned ON. 2CON is energized by the temperature control when a call for heat is made.
<b>Power ON Light . . . . .</b>	Lit whenever the power switch (S1) is turned to ON or Cool Down mode.
<b>Heat Light . . . . .</b>	Lit whenever temperature control is calling for heat.
<b>Temperature Probe . . . .</b>	Senses the oven temperature for the solid state temperature control or the computer control. On oven models using the solid state control, converts the temperature into a resistance value which is monitored by the temperature control board. The probe is an RTD (resistance temperature detector) of the Thermistor type. As temperature increases the resistance value decreases. On oven models using the computer control, the probe is a "J" type thermocouple.

- Mechanical Temperature Control KX thermostat** ..... Regulates the oven cavity temperature by controlling 2CON to energize the heating elements when the control calls for heat (VC4ES/6ES only).
- Cooling Fan** ..... Circulates cooler air from outside the oven to cool components in the control area.
- Fuses** ..... Protect control circuit.

**COMPONENT LOCATION**

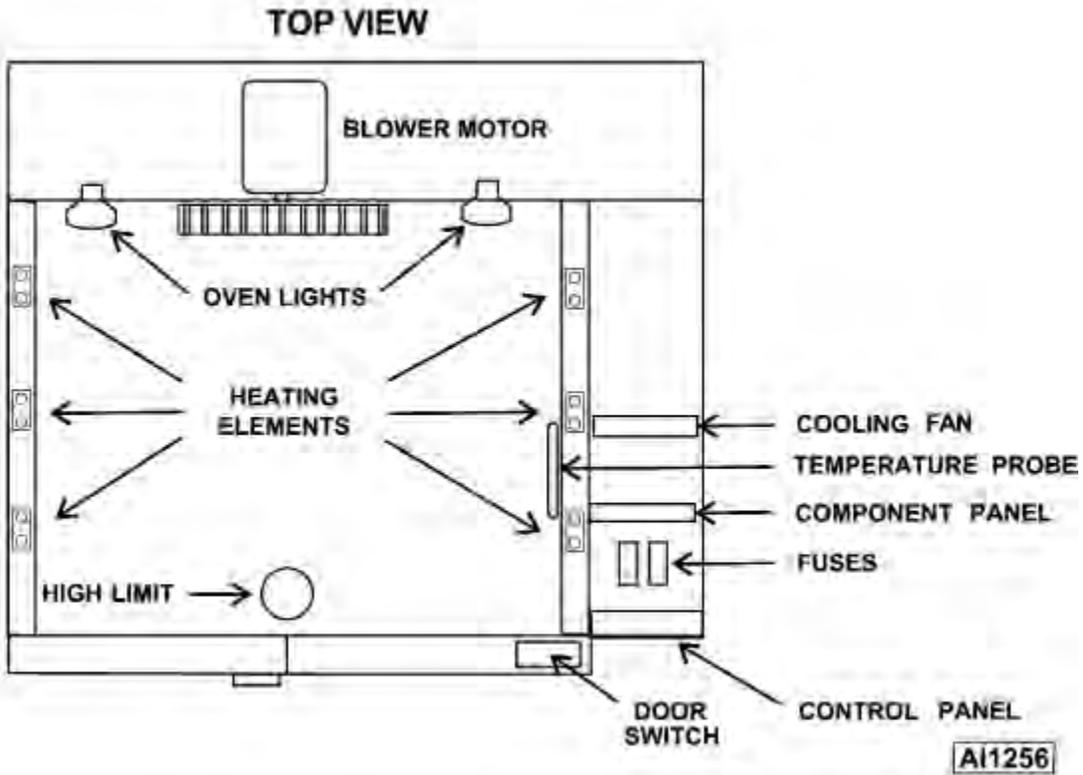
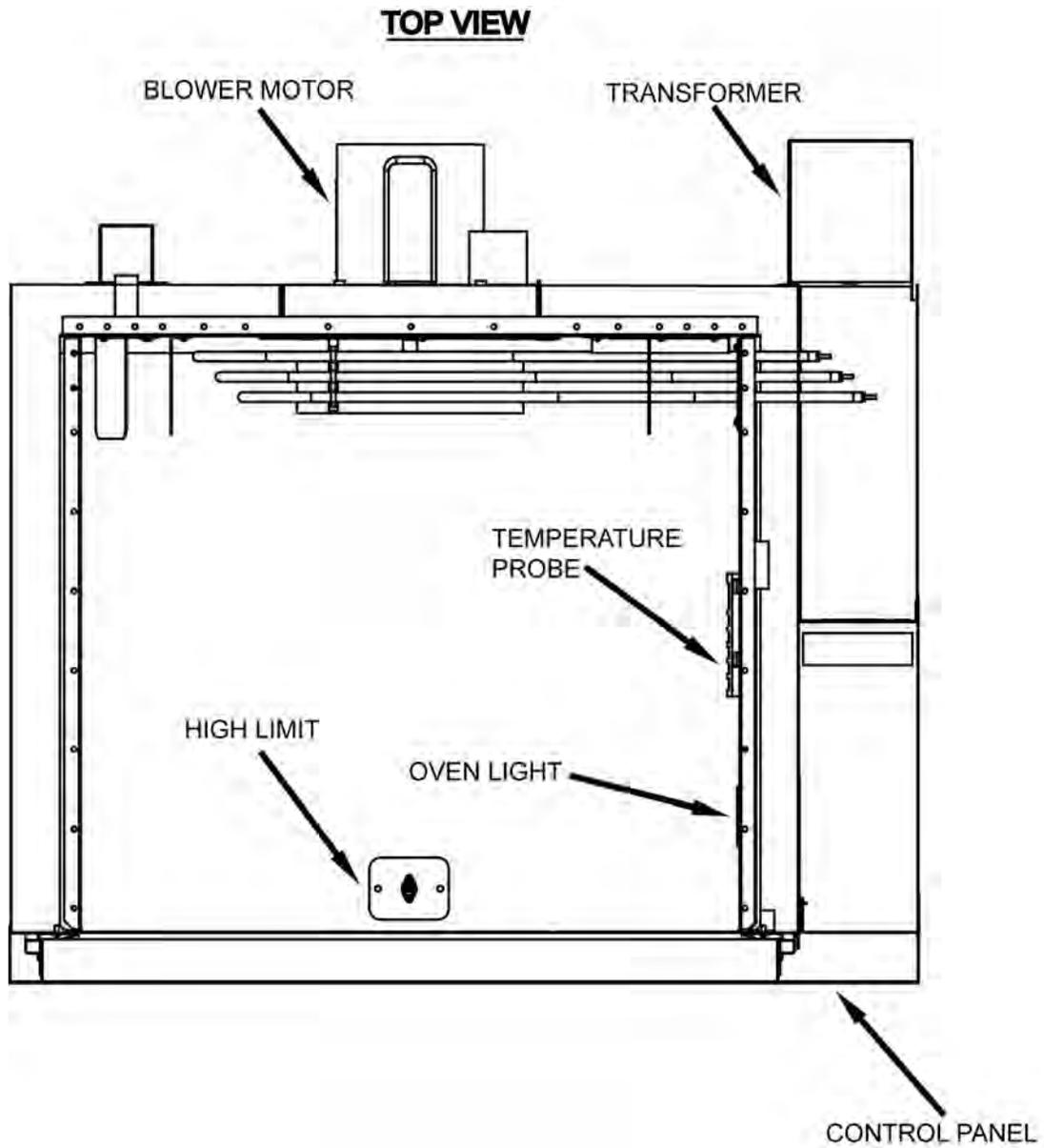
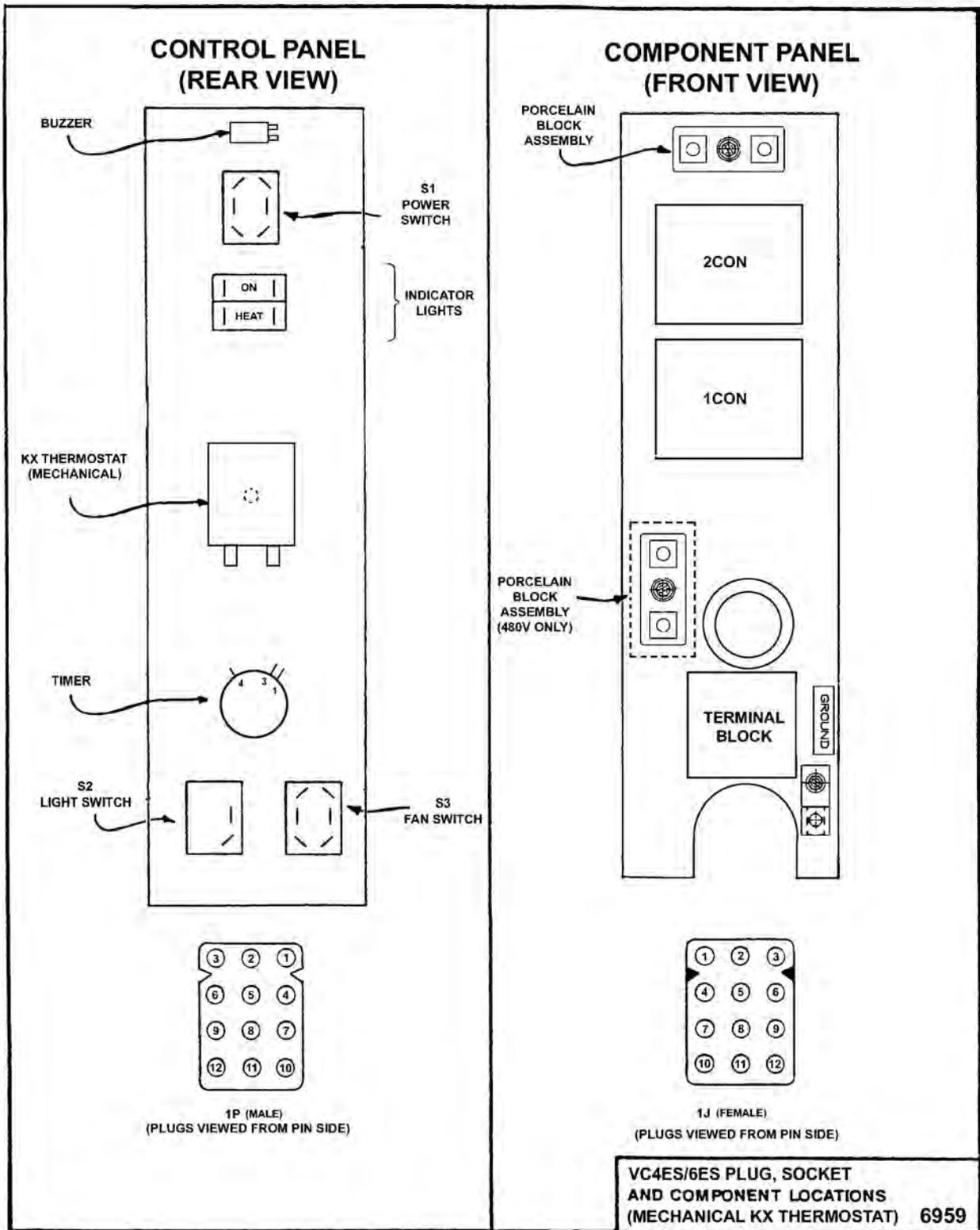


Fig. 81

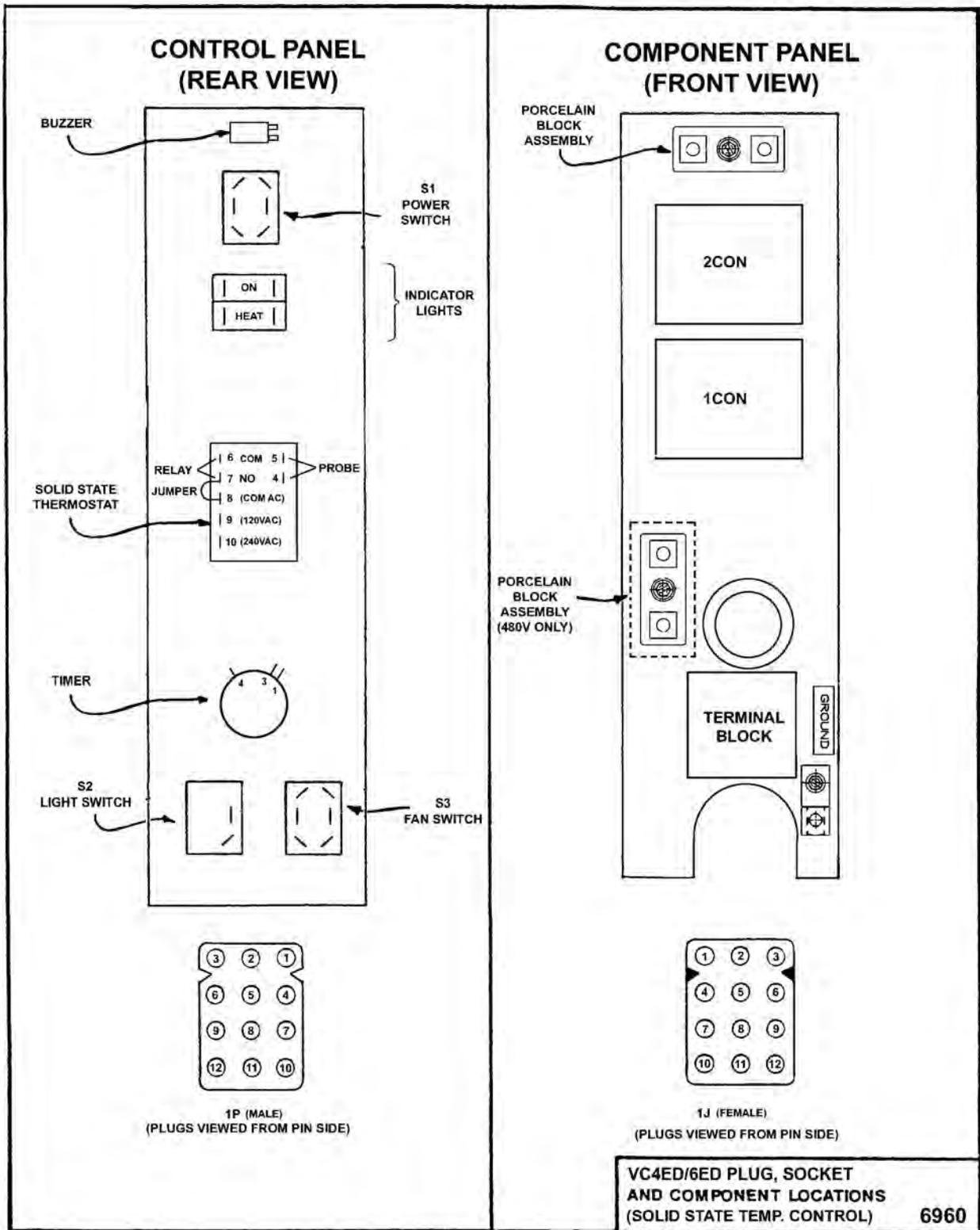


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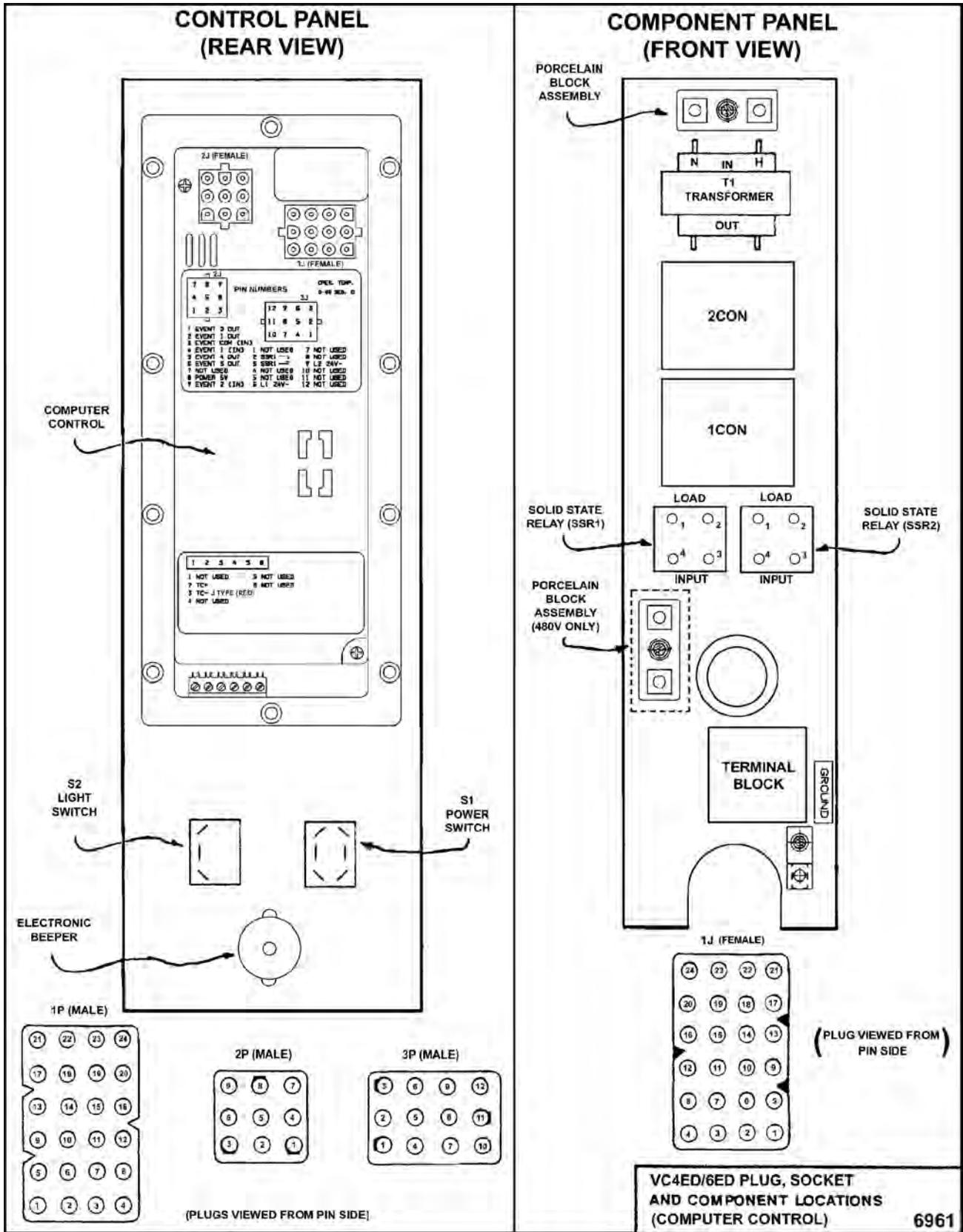
STARTING AT SERIAL NUMBER 481916864



VC4ES/6ES with Mechanical KX thermostat - Plug, Socket and Components



VC4ED/6ED with Solid State Control - Plug, Socket and Components



VC4EC/6EC - Plug, Socket and Components (Roast & Hold Standard)

## SEQUENCE OF OPERATION - VC4ES, VC6ES with Mechanical KX Thermostat

Refer to diagram 6962 for electrical sequence of operation.

### Cook Cycle

1. Conditions.
  - A. Oven connected to correct voltage and is properly grounded.
  - B. Power switch (S1) OFF.
  - C. Temperature dial set to lowest temperature (fully CCW).
  - D. High limit thermostat CLOSED.
  - E. Oven doors closed (door switch contacts CLOSED).
  - F. Oven cavity temperature below 140°F.
2. Power switch (S1) turned ON.
  - A. Power ON light (Amber) comes ON.
  - B. 1CON coil energized.
  - C. Blower motor energized. NOTE: Motor speed (Hi/Low) depends on position of fan speed switch (S3).
  - D. Component cooling fan energized.
  - E. Power to oven cavity light switch (S3) wire #1. Turns cavity lights ON/OFF and does not affect "Cook" cycle.
3. Set thermostat to desired "Cook" temperature and thermostat CLOSES.
  - A. Heating light (Clear) comes ON.
  - B. 2CON coil energized.
    - 1) Heating elements powered and heating starts.
4. Oven reaches set temperature and thermostat OPENS.
  - A. Heat light goes out.
  - B. 2CON coil de-energized.
    - 1) Power removed from heating elements and heating stops.
5. The oven will continue to cycle on the thermostat until the doors are opened or the power switch (S1) is turned to the OFF or COOL DOWN position.

## SEQUENCE OF OPERATION - VC4ED, VC6ED with Solid State Temperature Control

Refer to diagram 6964 for electrical sequence of operation.

### Cook Cycle

1. Conditions.
    - A. Oven connected to correct voltage and is properly grounded.
    - B. Power switch (S1) OFF.
    - C. Temperature dial set to lowest temperature (fully CCW).
    - D. High limit thermostat CLOSED.
    - E. Oven doors closed (door switch contacts CLOSED).
    - F. Oven cavity temperature below 140°F.
  2. Power switch (S1) turned ON.
    - A. Power ON light (Amber) comes ON.
    - B. 1CON coil energized.
    - C. Solid state temperature control energized.
      - 1) Heating light (Clear) comes ON. 2) 2CON coil energized.
      - 2) 2CON coil energized.
        - a. Heating elements powered and heating starts.
    - D. Blower motor energized.
- NOTE:** Motor speed (Hi/Low) depends on position of fan speed switch (S3).
- E. Component cooling fan energized.
  - F. Power to oven cavity light switch (S3) wire #1. Turns cavity lights ON/OFF; does not affect "Cook" cycle.
3. Set temperature dial to desired "Cook" temperature.
  4. Oven reaches set temperature.
    - A. Temperature control de-energizes internal relay and the normally open (N.O.) contacts OPEN.
      - 1) Heat light goes out.
      - 2) 2CON coil de-energized.

- a. Power removed from heating elements and heating stops.
5. The oven will continue to cycle on the temperature control until the doors are opened or power switch (S1) is turned to the OFF or COOL DOWN position.

### Timer Cycle, Cooking

#### (KX Thermostat or Solid State Control)

**NOTE:** The "Cook" timer operates independently of the heating cycle. Additional time can be set or the timer can be turned OFF throughout the cooking cycle.

1. With the power switch turned ON, power is supplied to "Cook" timer terminal 1.
2. Set "Cook" timer to desired time.
  - A. Contacts 1 & 3 close, timer motor is energized and timing "down" begins
3. Time expires on "Cook" timer .
  - A. Contacts 1 & 3 open, timer motor is deenergized and timing stops.
  - B. Contacts 1 & 4 close.
    - 1) Buzzer energized and sounds.

**NOTE:** The buzzer continues to sound until the timer dial is set to the OFF position or additional time is set.

### Cool Down Cycle

#### (KX Thermostat or Solid State Control)

1. Conditions.
  - A. Oven is ON.
  - B. Oven cavity temperature needs to be lowered.
  - C. Doors are open (door switch contacts OPEN).
  - D. Fan speed switch (S3) set to "Hi".
2. Power Switch (S1) turned to COOL DOWN.
  - A. Power ON light (Amber) goes out.
  - B. Convection fan motor energized.

**NOTE:** Fan speed switch (S3) can be set to operate at high or low fan speed.

3. If doors are CLOSED (door switch contacts CLOSED):
  - A. Power ON light (Amber) comes ON.
  - B. 1CON coil is energized but heating elements are not powered.
  - C. Component cooling fan energized.

D. Power is supplied to:

- 1) "Cook" timer terminal 1. If a time is dialed, timer will operate and buzzer will sound when timer reaches zero.
- 2) Oven cavity light switch (S3) wire #1. Turns cavity lights ON/OFF; does not affect "Cool down" cycle.

4. The oven will remain in this condition until the power switch (S1) is turned to the OFF or ON position.

## SEQUENCE OF OPERATION - VC4EC, VC6EC (Computer Control)

Refer to diagram [6966](#) for electrical sequence of operation.

### Cook Cycle

1. Conditions.
  - A. Oven connected to correct voltage and is properly grounded.
  - B. Power switch (S1) OFF.
  - C. Computer control is setup properly and ready to use. NOTE: The set point temperature of the computer control will be the last temperature that was set.
  - D. High limit thermostat CLOSED.
  - E. Oven doors closed (door switch contacts CLOSED).
  - F. Oven cavity temperature below 140°F.
2. Power switch (S1) turned ON.
  - A. 1CON coil energized.
  - B. 24VAC transformer (T1) is energized.
    - 1) Computer control is energized and performs a power ON self test before energizing outputs. If the control passes self test, then the outputs are energized and operation sequence continues. If control does not pass self test then the corresponding error code is displayed.
  - C. Component cooling fan energized.
  - D. Power is connected to:
    - 1) Terminal 1 on solid state relay 1 (SSR1 - load side) and solid state relay 2 (SSR2 - load side).

- 2) Pin 3 (C3-3) on computer control (input "IN-2").
  - 3) Oven cavity light switch (S2). Turns cavity lights ON/OFF; does not affect "Cook" cycle.
3. Computer control senses oven cavity temperature through probe input. With the oven cavity temperature below set point, the output from pin C3-2 is activated.
    - A. Oven "Heat Light" on the control comes ON.
    - B. 2CON coil energized.
      - 1) Heating elements powered and heating starts.
    - C. The controls 5VDC output from pins C2-2 (-) and C2-8 (+) is activated and SSR1 relay is energized.
      - 1) Convection fan motor is energized (High speed).
  4. Oven reaches set point temperature.
    - A. Computer control de-activates the output from pin C3-2.
      - 1) 2CON coil de-energized.
        - a. Power removed from heating elements and heating stops.
    - B. Oven "Heat Light" on the control goes out.
    - C. Oven "Ready Light" on the control comes ON.
    - D. Electronic beeper sounds momentarily.
  5. The oven will continue to cycle on the computer control until the doors are opened or power switch (S1) is turned to the OFF or COOL DOWN position.

### Temperature and Time Cycle (Cooking)

**NOTE:** The computers internal "Cook" timer operates independently of the heating cycle. Additional time can be set or the timer can be stopped and re-started throughout the cooking cycle. Refer to the Instructions Manual for specific operating instructions of the oven Computer Control.

### Roast and Hold Cycle

**NOTE:** For a detailed explanation of the "Roast & Hold" mode, refer to the [Instructions Manual F31159](#) as outlined under SETTING THE OVEN FOR ROAST & HOLD and ROAST & HOLD OPERATION. In "Roast & Hold" mode, the operation of the computer control is identical to the normal Cook Cycle with these exceptions:

1. Oven "Roast & Hold" light on the control comes ON.
2. Convection fan will operate at Low speed, throughout the "Roast & Hold" cycle.
  - A. The computer control 5VDC output from pins C2-2 (-) and C2-8 (+) is de-activated and SSR1 relay is de-energized.
    - 1) Power is removed from convection fan motor high speed terminal.
  - B. The computer control 5VDC output from pins C2-1 (-) and C2-8 (+) is activated and SSR2 relay is energized.
    - 1) Power is applied to the convection fan motor low speed terminal.
3. Beeper sounds momentarily to indicate the end of first stage cooking (oven operates normally at the temperature and time selected until time expires).
4. The display flashes HOLD as the oven enters HOLD mode. This is also considered second stage cooking (oven heating stops but product continues to cook on residual heat).
  - A. Convection fan motor is de-energized.
5. After the oven temperature drops below 150°F, the heat comes back ON and cycles as needed, to maintain the "Hold" temperature of 150°F.
  - A. Convection fan motor energized (Low speed).
6. The oven continues to cycle in this manner until one of the following occurs:
  - A. The "Roast & Hold" mode is turned OFF.
  - B. Power switch (S1) is turned to the OFF or COOL DOWN position.

### Cool Down Cycle

1. Conditions.
  - A. Oven is ON.
  - B. Oven cavity temperature needs to be lowered.
  - C. Doors are open (door switch contacts OPEN).
  - D. Power switch (S1) set to either ON or OFF.
2. Power Switch (S1) turned to COOL DOWN.
  - A. Power is connected through power switch (S1) to the convection fan motor high speed terminal.

- 1) Convection fan motor energized (High speed).
3. The oven will continue to operate in COOL DOWN mode until the power switch (S1) is turned to the OFF or ON position.

## SCHEMATICS AND WIRING DIAGRAMS

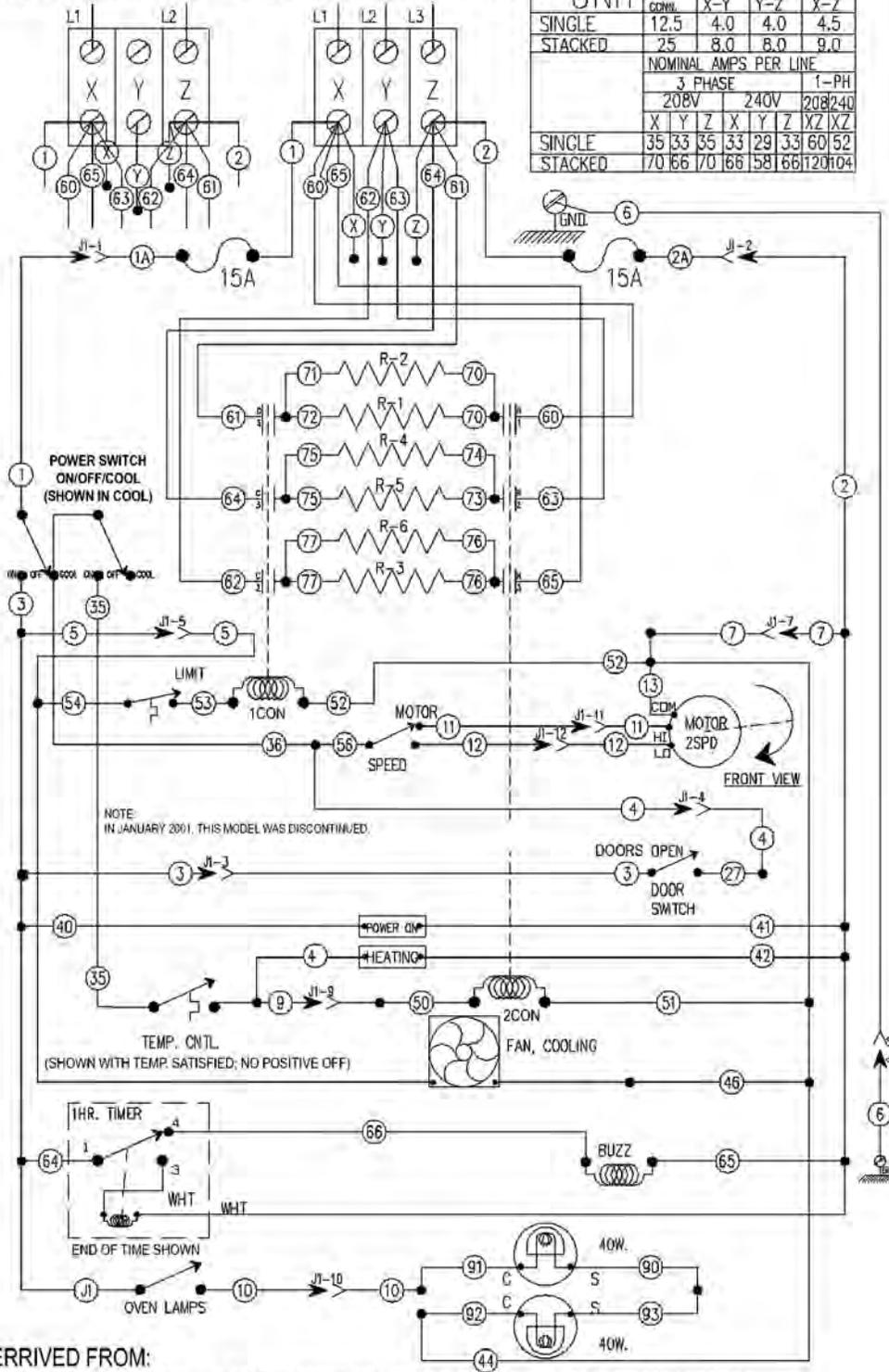
<a href="#">VC4ES, VC6ES with Mechanical (KX) Controls, 208-240V Schematics</a>
<a href="#">VC4ES, VC6ES with Mechanical (KX) Controls, 208-240V Wiring Diagram</a>
<a href="#">VC4ES, VC6ES with Mechanical (KX) Controls, 480V Schematic</a>
<a href="#">VC4ES, VC6ES with Mechanical (KX) Controls, 480V Wiring Diagram</a>
<a href="#">VC4ED, VC6ED with Solid State Temperature Control, 208-240V Schematic</a>
<a href="#">VC4ED, VC6ED with Solid State Temperature Control, 208-240V Schematic - Starting at Serial Number 481916864</a>
<a href="#">VC4ED, VC6ED with Solid State Temperature Control, 208-240V Wiring Diagram</a>
<a href="#">VC4ED, VC6ED, with Solid State Temperature Control, 208-240V Wiring Diagram - Starting at Serial Number 481916864</a>
<a href="#">VC4ED, VC6ED with Solid State Temperature Control, 480V Schematic</a>
<a href="#">VC4ED, VC6ED with Solid State Temperature Control, 480V Wiring Diagram</a>
<a href="#">VC4EC, VC6EC Computer Control, 208-240V (Roast &amp; Hold Standard) Schematic</a>
<a href="#">VC4EC, VC6EC Computer Control, 208-240V (Roast &amp; Hold Standard) Wiring Diagram</a>
<a href="#">VC4EC, VC6EC Computer Control, 480V (Roast &amp; Hold Standard) Schematic</a>
<a href="#">VC4EC, VC6EC Computer Control, 480V (Roast &amp; Hold Standard) Wiring Diagram</a>

VC4ES & VC6ES 208-240V.

USE FIELD WIRE SUITABLE FOR 90° C.

208 OR 240 VOLT 1 PHASE SUPPLY 208 OR 240 VOLT 3 PHASE SUPPLY

UNIT	TOTAL KW CONV.	3PHASE LOAD KW/PHASE		
		X-Y	Y-Z	X-Z
SINGLE	12.5	4.0	4.0	4.5
STACKED	25	8.0	8.0	9.0
NOMINAL AMPS PER LINE				
		3 PHASE		1-PH
		208V	240V	208/240
		X	Y	Z
SINGLE	35	33	29	33
STACKED	70	66	58	66

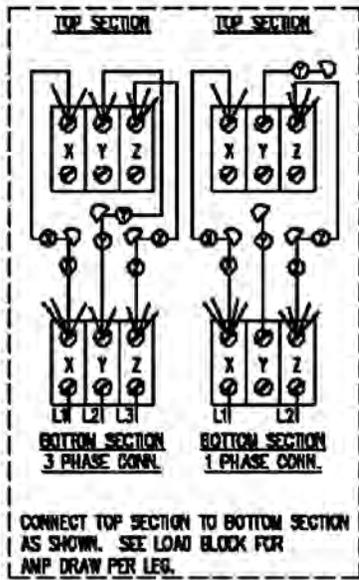


NOTE: IN JANUARY 2001, THIS MODEL WAS DISCONTINUED.

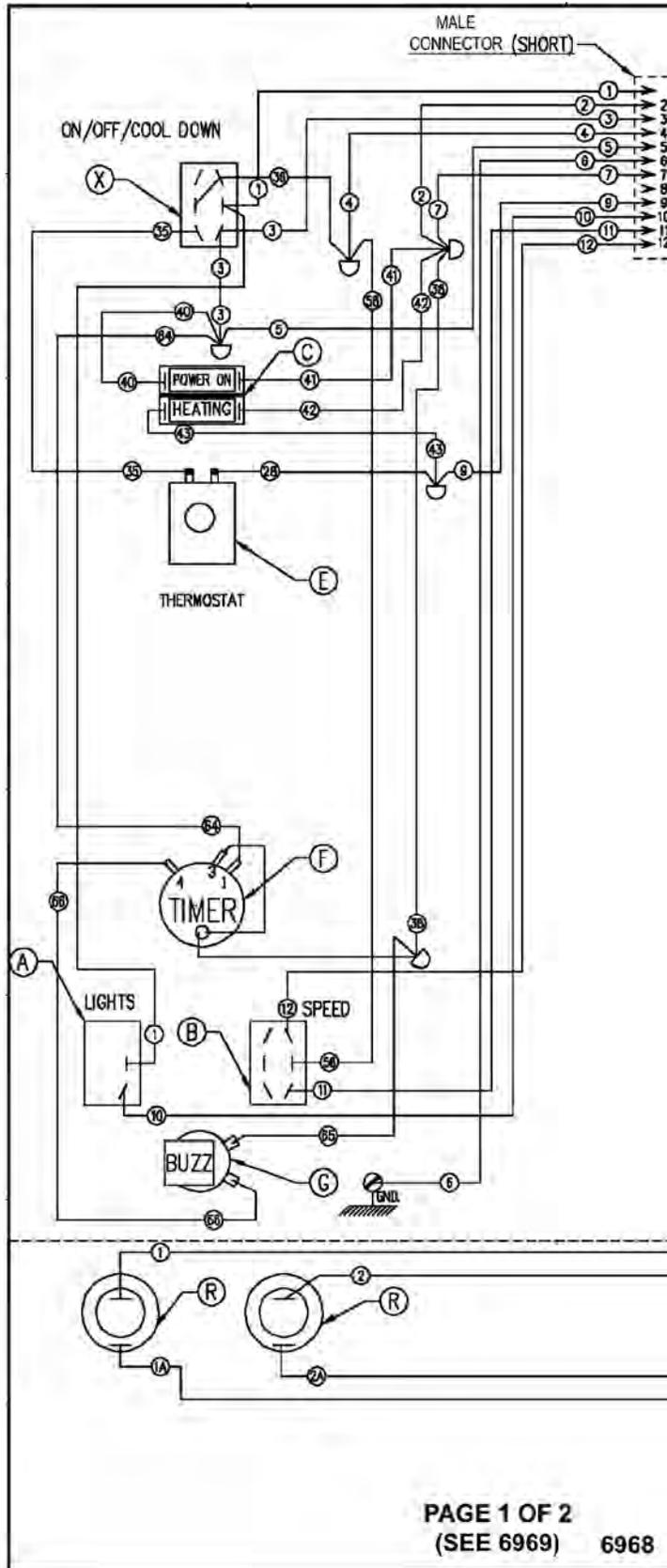
DERRIVED FROM: 426661-1 REV. C SEE WIRING DIAGRAM 426660 (6968, 6969)

6962

VC4ES, VC6ES with Mechanical (KX) Controls, 208-240V



9	AB	WIRE NUT BLUE	-
2	Y	LAMP ASSEMBLY 120V, 40V.	-
1	X	SWITCH, TOGGLE D.P.D.T. (CD)	-
1	V	MOTOR 1/3 HP. 2 SPEED G.E.	-
2	T	CONTACTOR 40A 3 POLE	-
1	S	TERMINAL BLOCK 3 POLE	-
2	R	FUSE & HOLDER 15A	HOLDER FUSE
6	L	ELEMENT, 2.0 KW	208 VOLT 240 VOLT
1	K	LIMIT CONTROL 530F	-
1	J	BLOCK/PORCELAIN ASSEMBLY	-
1	H	SWITCH, LIMIT (COOD)	-
1	G	BUZZER 230 VOLT	-
1	F	TIMER, 230 VOLT	1-HR, 60 HZ. 5-HR, 60 HZ.
1	E	TEMP. CONTROL "KX-112"	-
1	D	FAN, COOLING 230 V.	-
1	C	LIGHT, "POWER ON," "HEATING" 250V.	-
1	B	SWITCH, TOGGLE D.P.D.T.	-
1	A	SWITCH, TOGGLE S.P.S.T.	-
ENG.	PT.	DESCRIPTION	REV.



PAGE 1 OF 2  
(SEE 6969) 6968

VC4ES, VC6ES with Mechanical (KX) Control, 208-240V

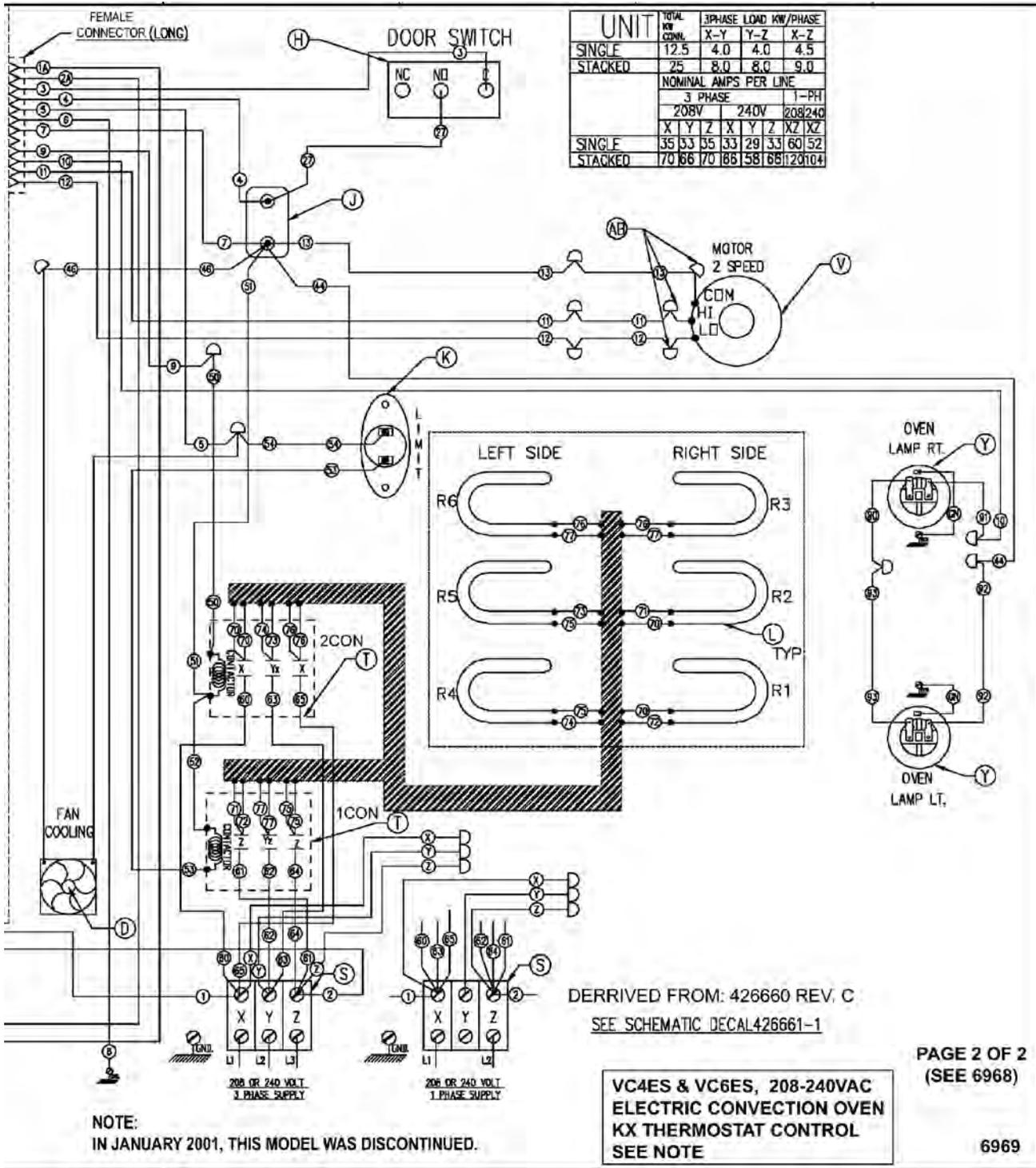
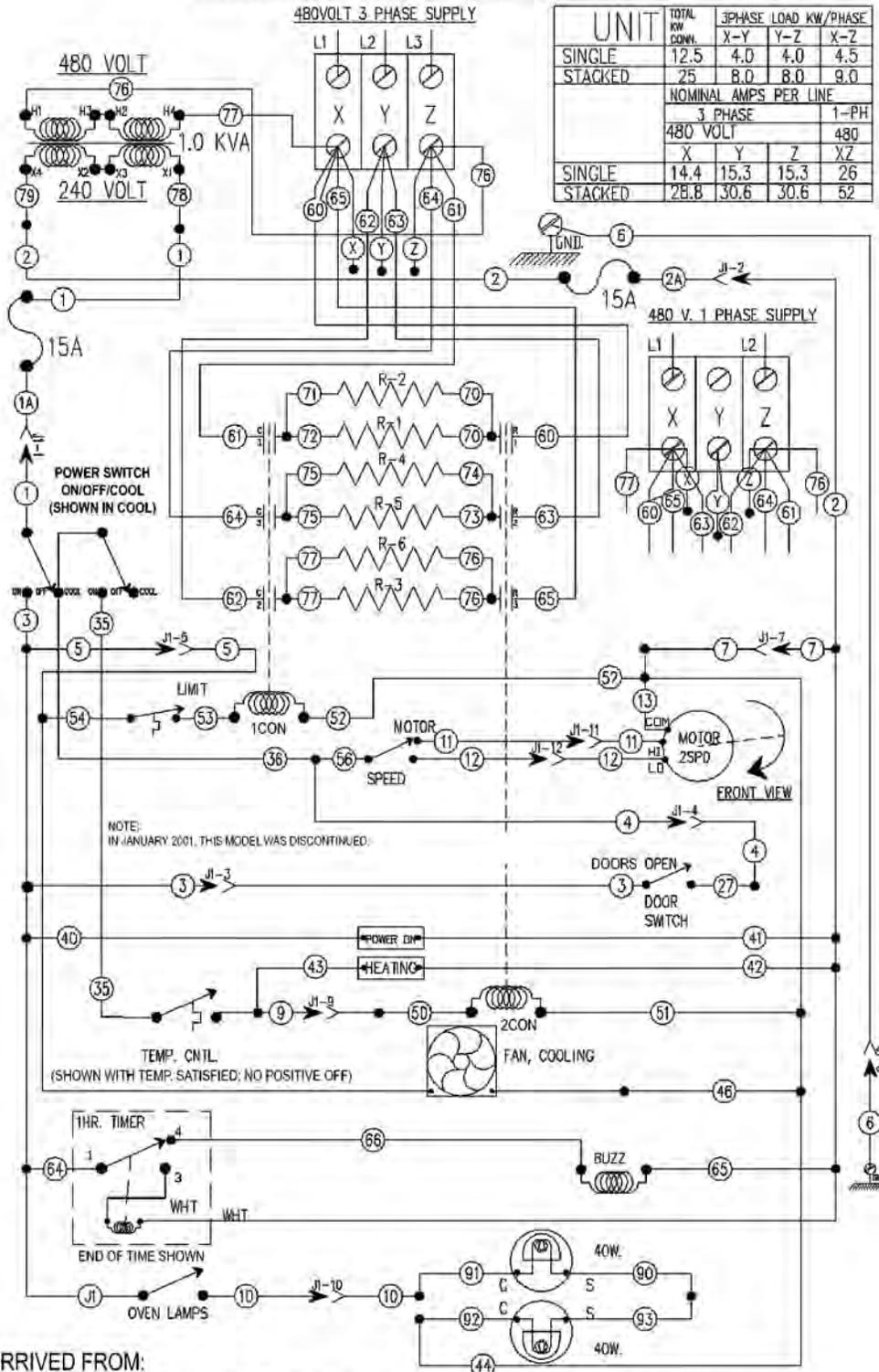


Fig. 88

VC4ES & VC6ES 480V.

USE FIELD WIRE SUITABLE FOR 90° C.

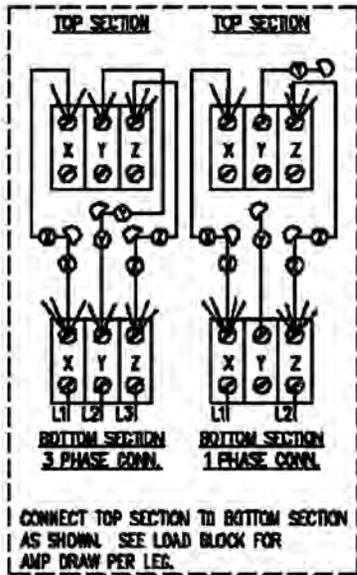


UNIT	TOTAL KW CONN.	3PHASE LOAD KW/PHASE		
		X-Y	Y-Z	X-Z
SINGLE	12.5	4.0	4.0	4.5
STACKED	25	8.0	8.0	9.0
		NOMINAL AMPS PER LINE		
		3 PHASE		
		480 VOLT		
		X	Y	Z
SINGLE	14.4	15.3	15.3	26
STACKED	28.8	30.6	30.6	52

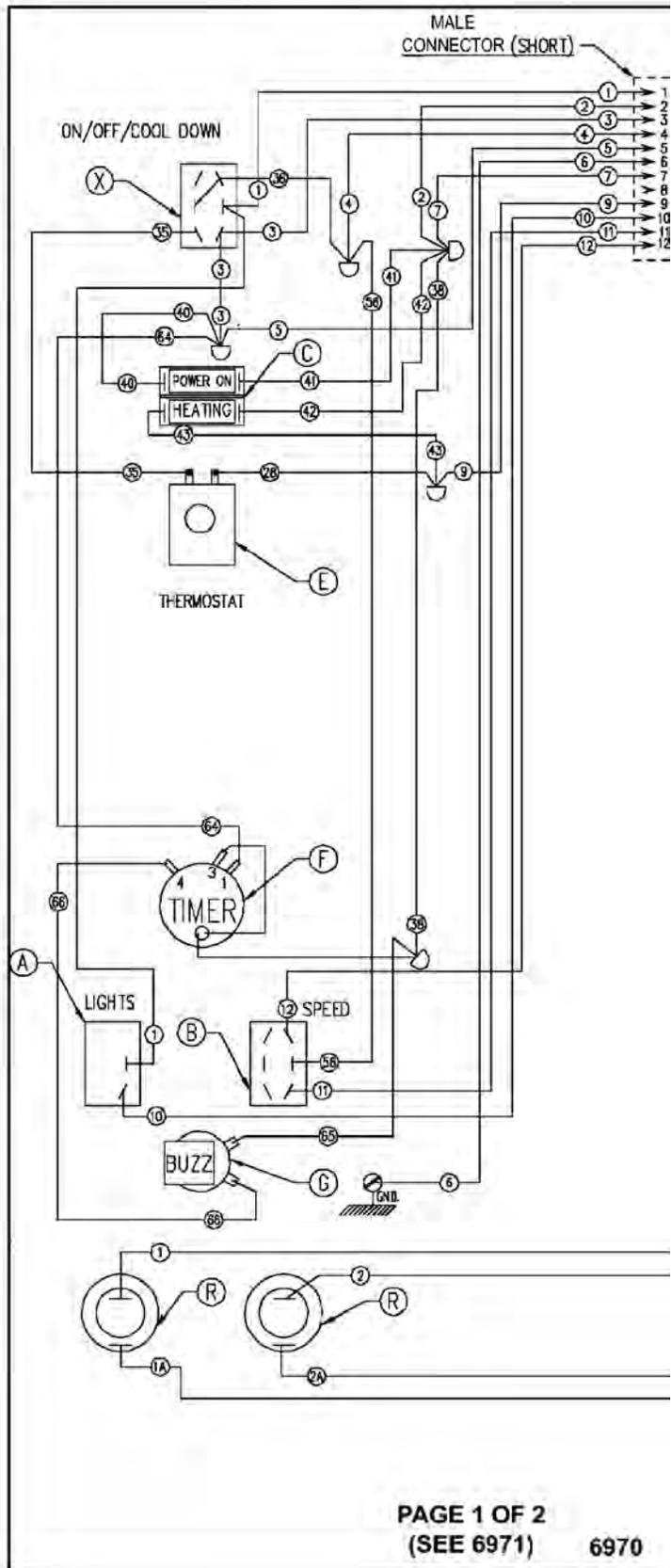
DERRIVED FROM: 426663-1 REV. C SEE WIRING DIAGRAM 426662 (6970, 6971)

VC4ES, VC6ES with Mechanical (KX) Controls, 480V

6963



9	AB	WIRE NUT BLUE	-
1	Z	TRANSFORMER 1KVA 480-240 V.	-
2	Y	LAMP ASSEMBLY 120V. 40W.	-
1	X	SWITCH, TOGGLE D.P.D.T. (CO)	-
1	V	MOTOR 1/3 HP. 2 SPEED GE.	-
2	T	CONTACTOR 40A 3 POLE	-
1	S	TERMINAL BLOCK 3 POLE	-
2	R	FUSE & HOLDER 15A	HOLDER FUSE
6	L	ELEMENT, 2.0 KW. 480V.	-
1	K	LIMIT CONTROL 550F	-
2	J	BLOCK, PORCELAIN ASSEMBLY	-
2	H	SWITCH, LIMIT (DOOR)	-
1	G	BUZZER 230 VOLT	-
1	F	TIMER, 230 VOLT	1-HR, 60 HZ. 5-HR, 60 HZ.
1	E	TEMP. CONTROL "KX-112"	-
1	D	FAN, COOLING 230 V.	-
1	C	LIGHT, "POWER ON", "HEATING" 250V.	-
1	B	SWITCH, TOGGLE D.P.D.T	-
1	A	SWITCH, TOGGLE S.P.S.T	-
REQ.	PT.	DESCRIPTION	QTY.



PAGE 1 OF 2  
(SEE 6971) 6970

VC4ES, VC6ES with Mechanical (KX) Control, 480V

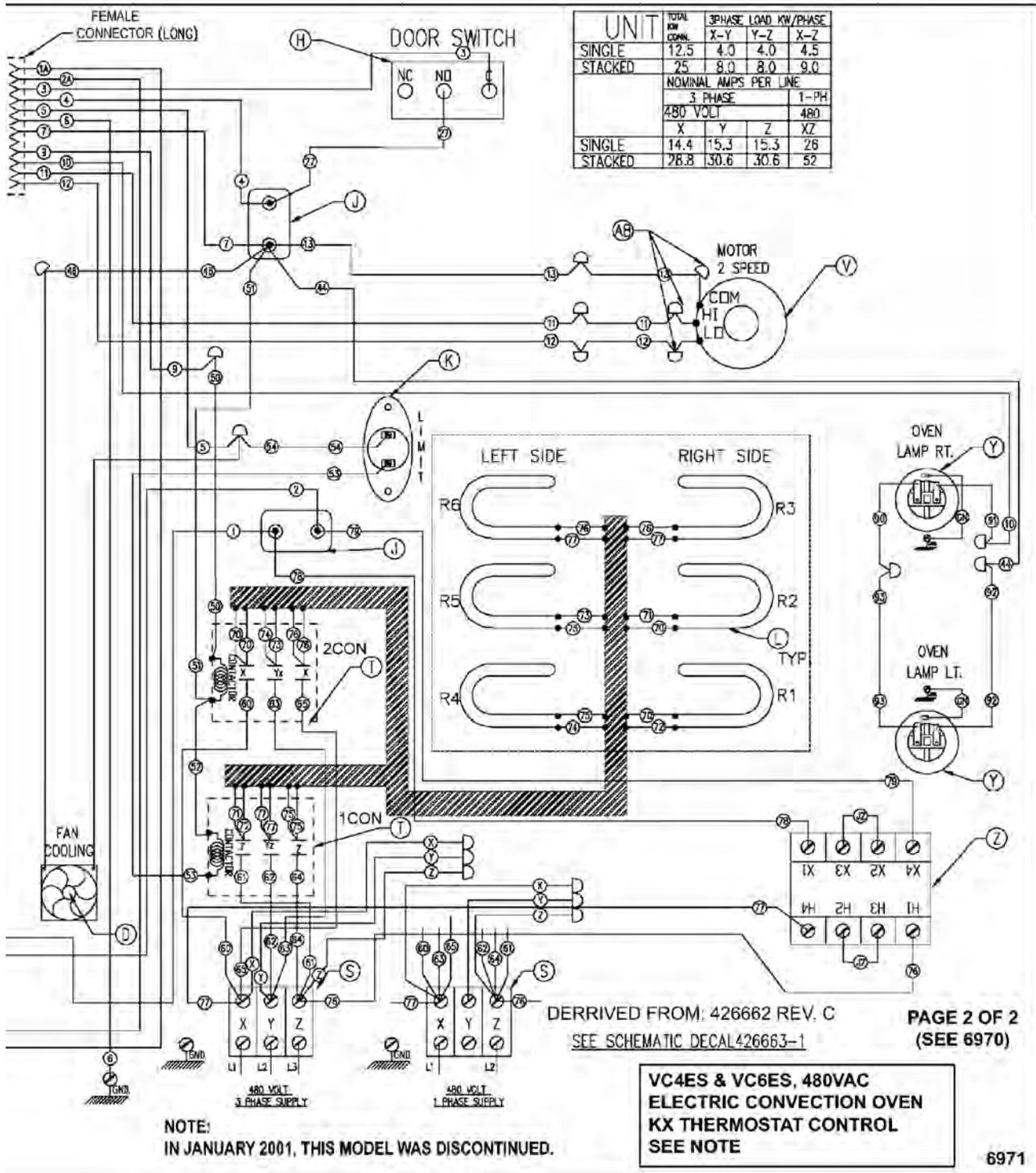
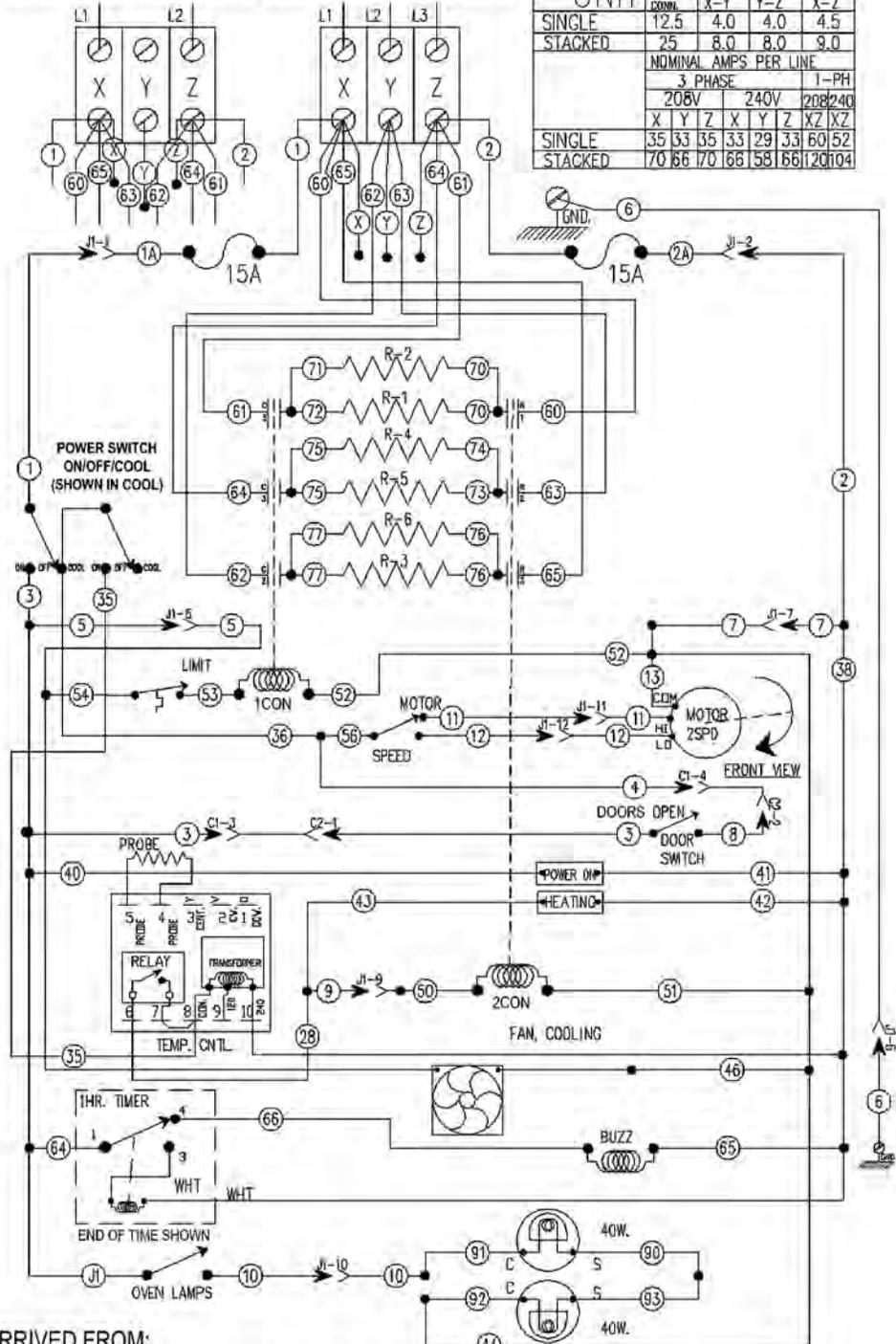


Fig. 91

VC4ED & VC6ED 208-240V.

USE FIELD WIRE SUITABLE FOR 90° C.  
 208 OR 240 VOLT 1 PHASE SUPPLY 208 OR 240 VOLT 3 PHASE SUPPLY

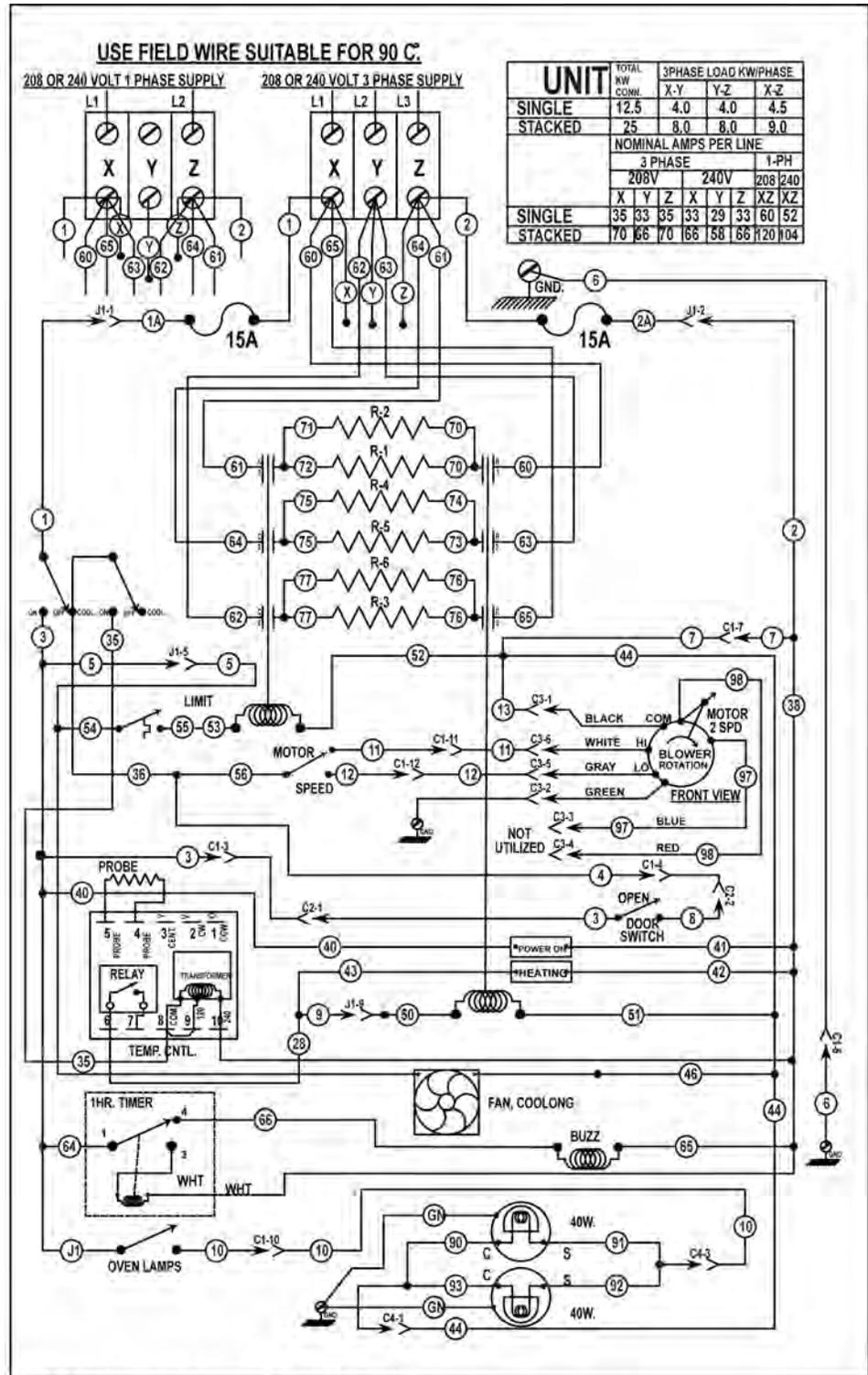
UNIT	TOTAL KW CONN.	3PHASE LOAD KW/PHASE		
		X-Y	Y-Z	X-Z
SINGLE	12.5	4.0	4.0	4.5
STACKED	25	8.0	8.0	9.0
		NOMINAL AMPS PER LINE		
		3 PHASE		1-PH
		208V	240V	208/240
		X	Y	Z
SINGLE	35	33	35	33
STACKED	70	66	70	66



DERIVED FROM:  
 426667-1 REV. D SEE WIRING DIAGRAM 426666 (6972, 6973)

6964

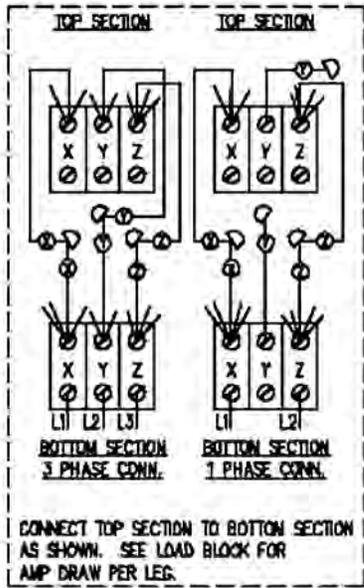
VC4ED, VC6ED with Solid State Temperature Control, 208-240V Schematic



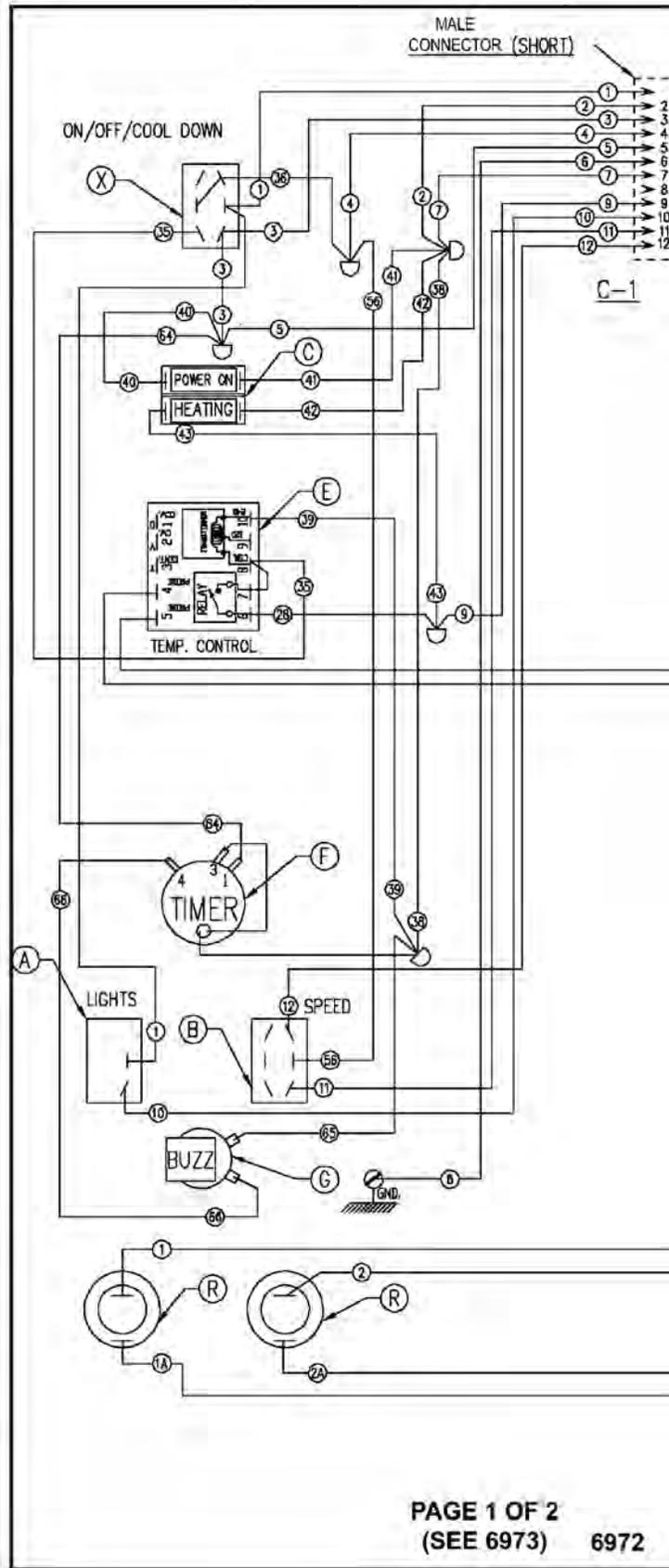
**WKED & X.VC4ED & 6.HEC5 & X 208-240V.**  
**DERIVED FROM 426667-1 Rev F**

**A14899**

**VC4ED, VC6ED with Solid State Temperature Control, 208-240V - STARTING AT SERIAL NUMBER 481916864**

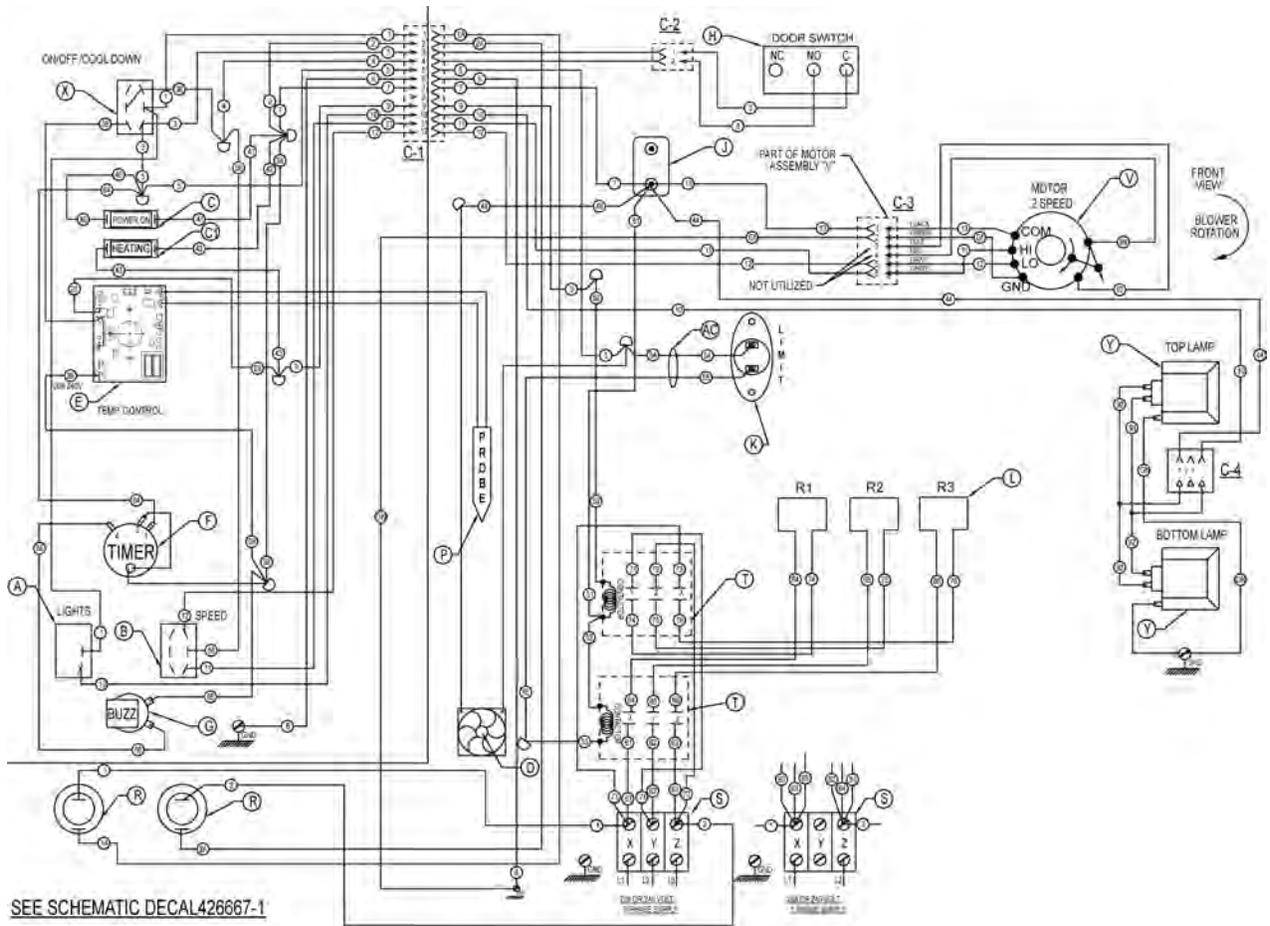


9	AB	WIRE NUT BLUE	-
2	Y	LAMP ASSEMBLY 120V, 40W.	-
1	X	SWITCH, TOGGLE D.P.D.T. (CO)	-
1	V	MOTOR 1/3 HP, 2 SPEED G.E.	-
2	T	CONTACTOR 40A 3 POLE	-
1	S	TERMINAL BLOCK 3 POLE	-
2	R	FUSE & HOLDER 15A	HOLDER FUSE
1	P	PROBE, THERMISTOR	-
6	L	ELEMENT, 2.0 KW	208 VOLT 240 VOLT
1	K	LIMIT CONTROL 550F	-
1	J	BLOCK, PORCELAIN ASSEMBLY	-
1	H	SWITCH, LIMIT (DOOR)	-
1	G	BUZZER 230 VOLT	-
1	F	TIMER, 230 VOLT	1-HR, 60 HZ. 5-HR, 60 HZ.
1	E	TEMP. CONTROL "G-5"	-
1	D	FAN, COOLING 230 V.	-
1	C	LIGHT, "POWER ON", "HEATING" 250 V.	-
1	B	SWITCH, TOGGLE D.P.D.T.	-
1	A	SWITCH, TOGGLE S.P.S.T.	-
REQ.	TY.	DESCRIPTION	QTY.



PAGE 1 OF 2  
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VC4ED, VC6ED with Solid State Temperature Control, 208-240V



SEE SCHEMATIC DECAL426667-1

HEC5 & X, VC4ED & 6, WKED & X 208-240V  
 DERIVED FROM 426666

AI4892

**VC4ED, VC6ED with Solid State Temperature Control, 208-240V - STARTING AT SERIAL NUMBER 481916864**

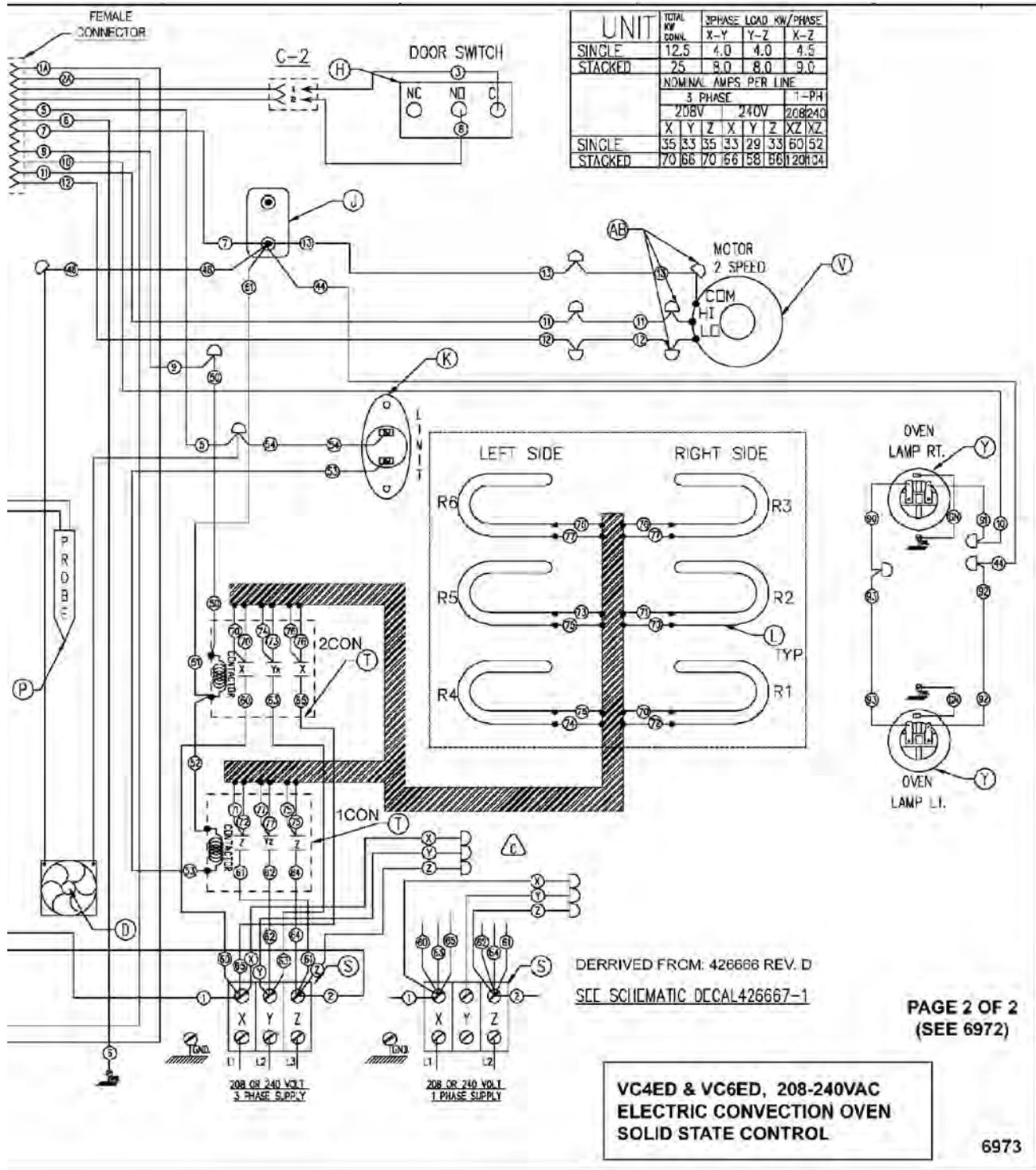
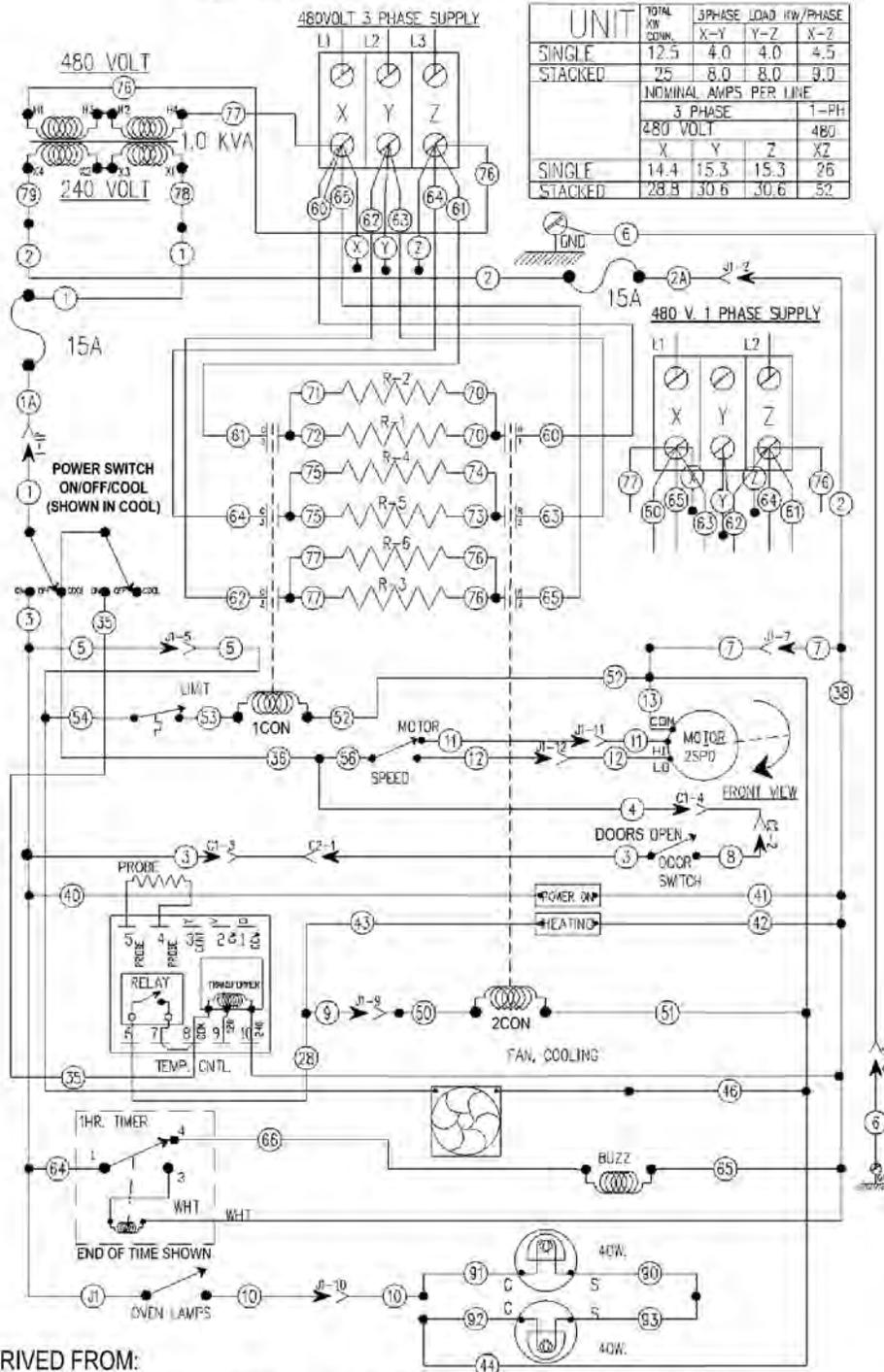


Fig. 96

VC4ED & VC6ED, 208-240VAC  
ELECTRIC CONVECTION OVEN  
SOLID STATE CONTROL

VC4ED & VC6ED 480V

USE FIELD WIRE SUITABLE FOR 90°C.

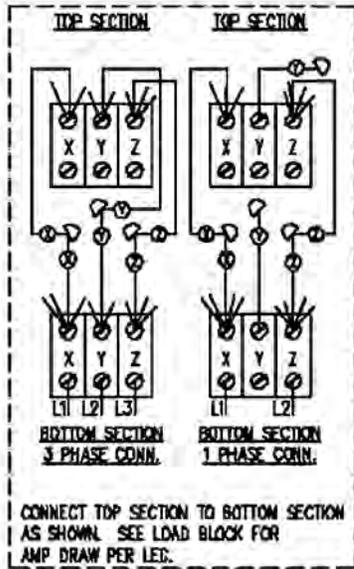


UNIT	TOTAL KW CONN.	3PHASE LOAD KW/PHASE		
		X-Y	Y-Z	X-Z
SINGLE	12.5	4.0	4.0	4.5
STACKED	25	8.0	8.0	9.0
		NOMINAL AMPS PER LINE		
		3 PHASE		
		480 VOLT		
		X	Y	Z
SINGLE	14.4	15.3	15.3	26
STACKED	28.8	30.6	30.6	52

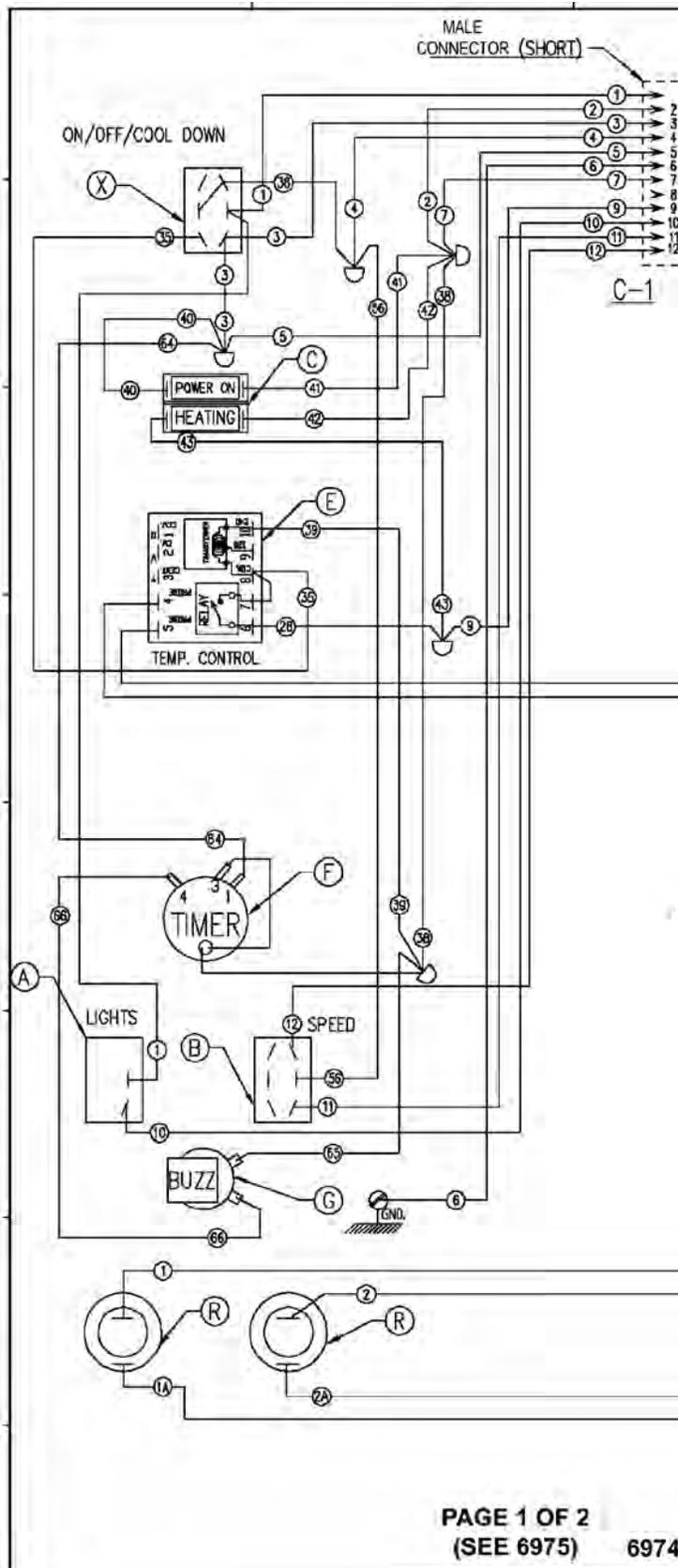
DERRIVED FROM:  
426669-1 REV. D SEE WIRING DIAGRAM 426668 (6974, 6975)

6965

VC4ED, VC6ED with Solid State Temperature Control, 480V



9	AB	WIRE NUT BLUE	-
1	Z	TRANSFORMER 1KVA 480-240 V.	-
2	Y	LAMP ASSEMBLY 120V, 40W.	-
1	X	SWITCH, TOGGLE D.P.D.T. (CD)	-
1	V	MOTOR 1/3 HP. 2 SPEED G.E.	-
2	T	CONTACTOR 40A 3 POLE	-
1	S	TERMINAL BLOCK 3 POLE	-
2	R	FUSE & HOLDER 15A	HOLDER FUSE
1	P	PROBE, THERMISTOR	-
6	L	ELEMENT, 2.0 KW, 480V.	-
1	K	LIMIT CONTROL 550F	-
2	J	BLOCK, PORCELAIN ASSEMBLY	-
1	H	SWITCH, LIMIT (DOOR)	-
1	G	BUZZER 230 VOLT	-
1	F	TIMER, 230 VOLT	!-HR, 60 HZ. S-HR, 60 HZ.
1	E	TEMP. CONTROL "G-5"	-
1	D	FAN, COOLING 230 V.	-
1	C	LIGHT, "POWER ON," "HEATING" 250V.	-
1	B	SWITCH, TOGGLE D.P.D.T	-
1	A	SWITCH, TOGGLE S.P.S.T	-
REQ.	QTY.	DESCRIPTION	FIG.



VC4ED, VC6ED with Solid State Temperature Control, 480V

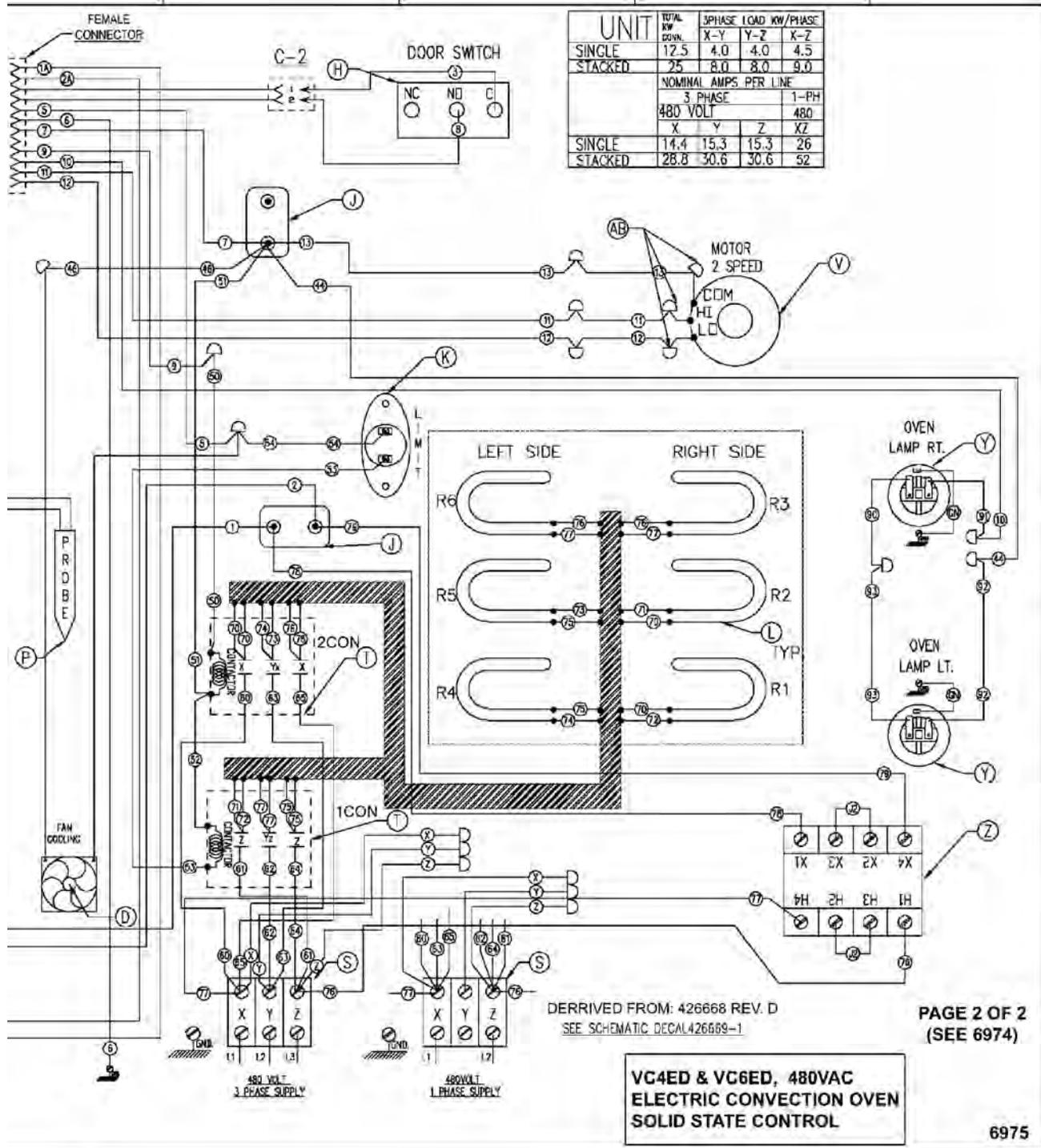
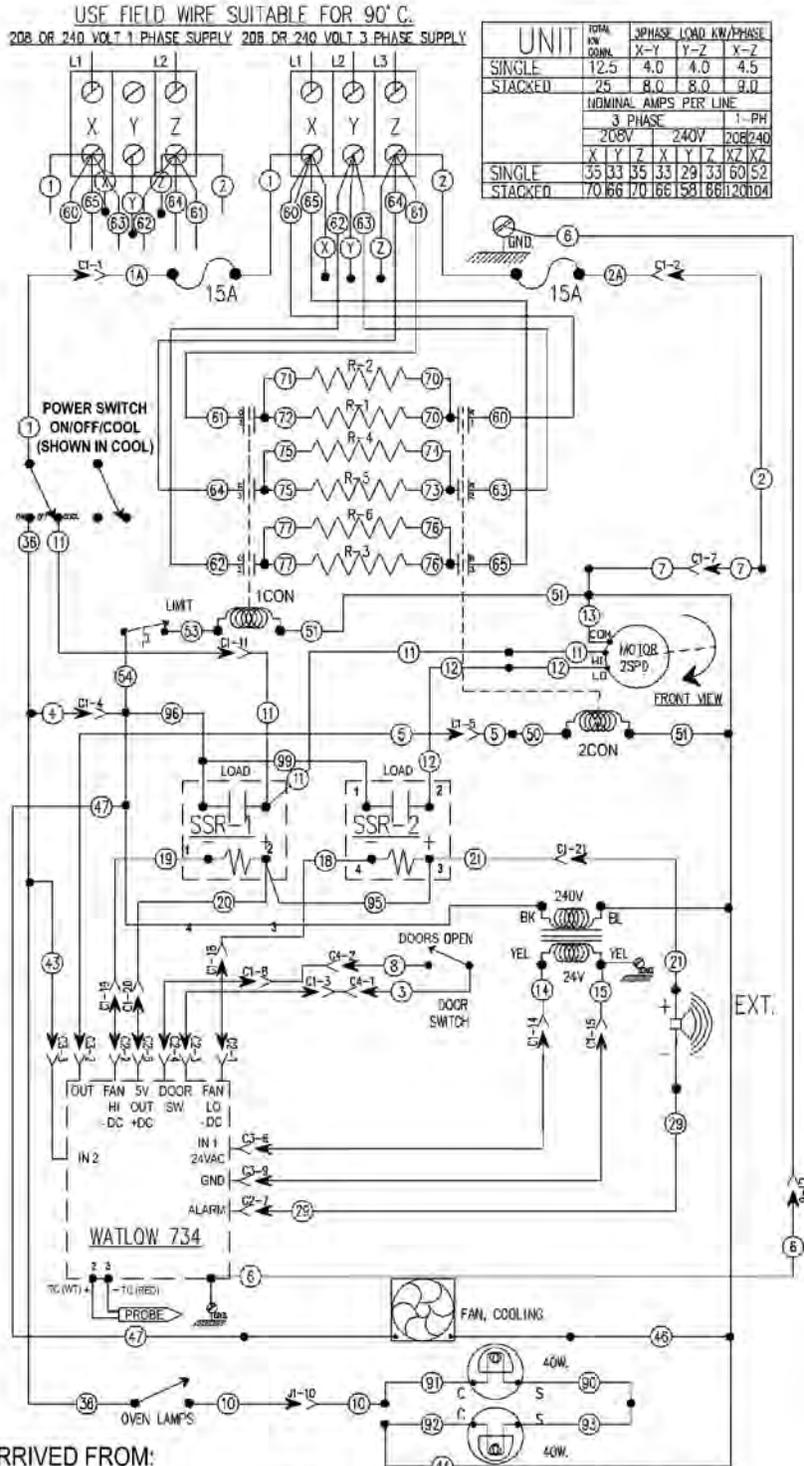


Fig. 99

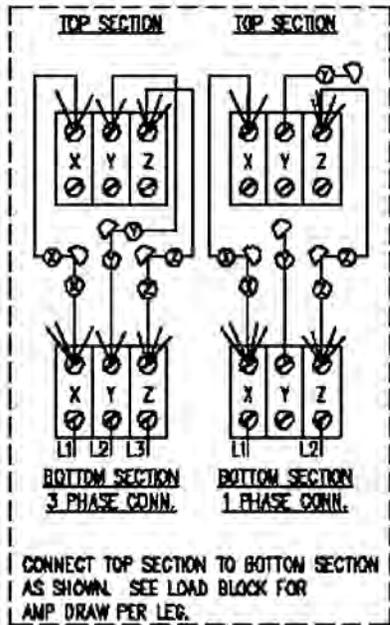
VC4EC & VC6EC 208-240V.



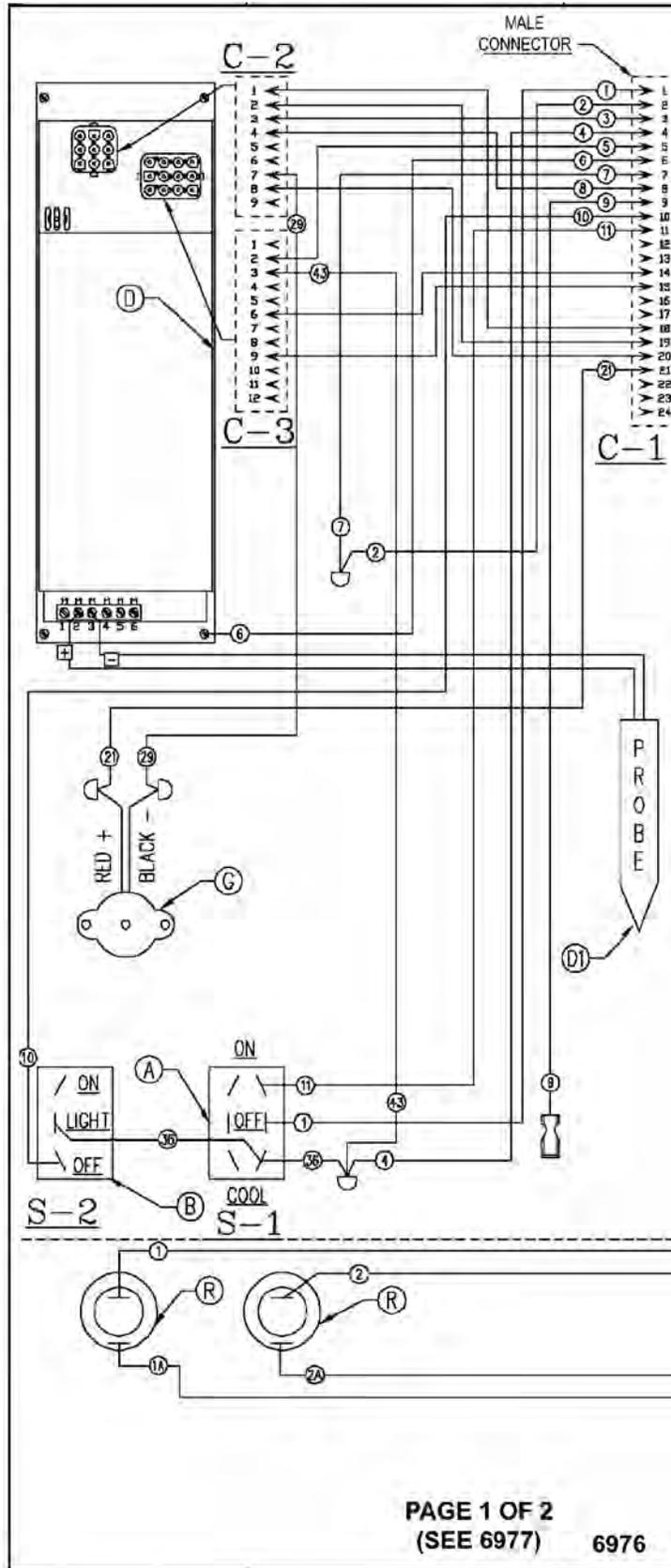
DERRIVED FROM:  
 426673-1 REV. D SEE WIRING DIAGRAM 426672 (6976, 6977)

6966

VC4EC, VC6EC Computer Control, 208-240V (Roast & Hold Standard)



9	AB	WIRE NUT BLUE	-
2	Y	LAMP ASSEMBLY 120V. 40W.	-
1	V	MOTOR 1/3 HP. 2 SPEED G.E.	-
2	T	CONTACTOR 40A 3 POLE	-
1	S	TERMINAL BLOCK 3 POLE	-
2	R	FUSE & HOLDER 15A	HOLDER FUSE
1	P	TRANSFORMER, 240/24 40VA	-
6	L	ELEMENT, 2.0 KW	208 VOLT 240 VOLT
1	K	LIMIT CONTROL 550F	-
1	J	BLOCK, PORCELAIN ASSEMBLY	-
1	H	SWITCH, LIMIT (DOOR)	-
1	G	ALARM 12 V. DC	-
2	F	RELAY, SOLID STATE 50A	-
1	E	FAN, COOLING 230 V.	-
1	III	PROBE, THERMOCOUPLE	-
1	D	CONTROLLER WATLOW 734	-
1	B	SWITCH, OVEN LIGHT	-
1	A	SWITCH, MAIN POWER O.P.D.T. CENT.OFF-	-
REQ.	QTY.	DESCRIPTION	FIG.



VC4EC, VC6EC Computer Control, 208-240V (Roast & Hold Standard)

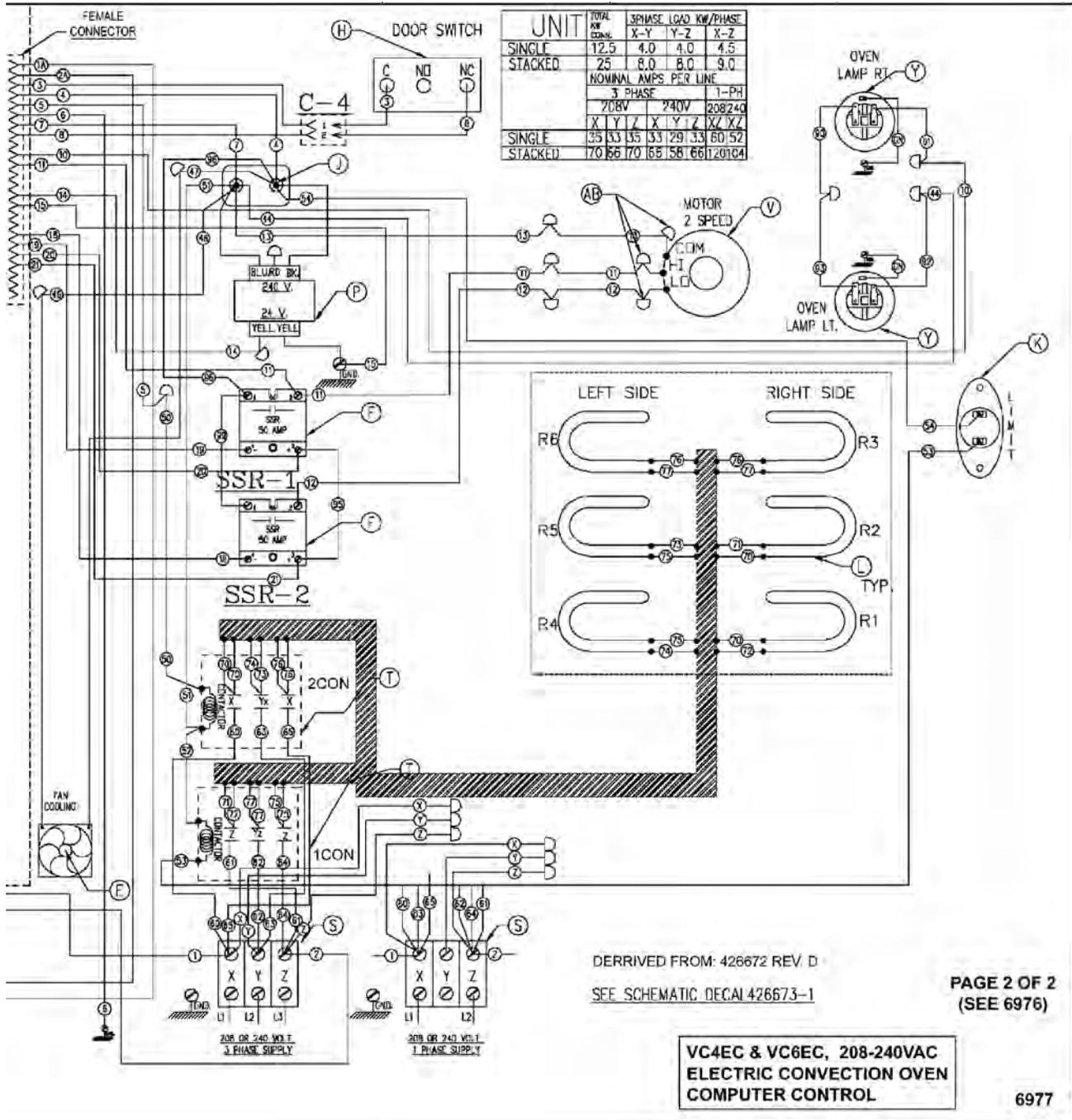
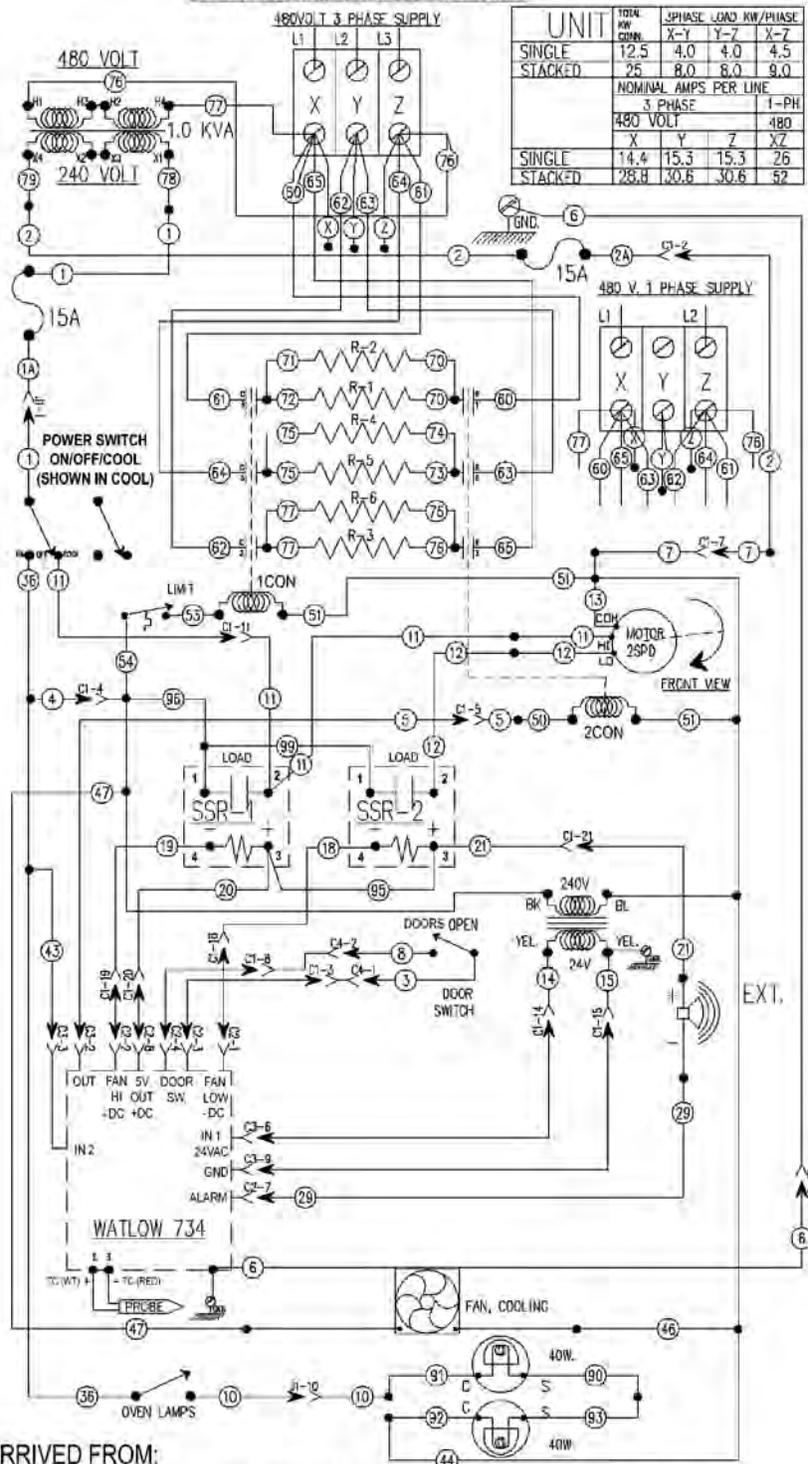


Fig. 102

VC4EC & VC6EC 480V.

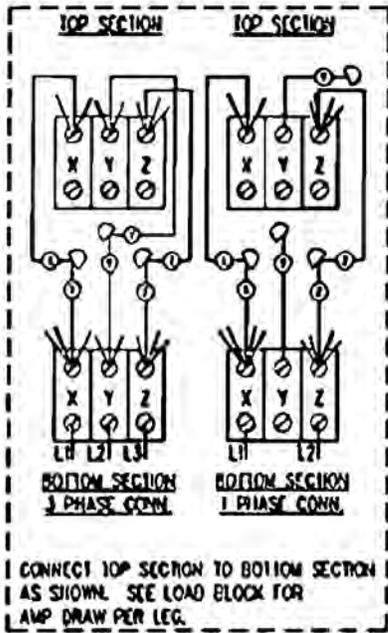
USE FIELD WIRE SUITABLE FOR 90° C.



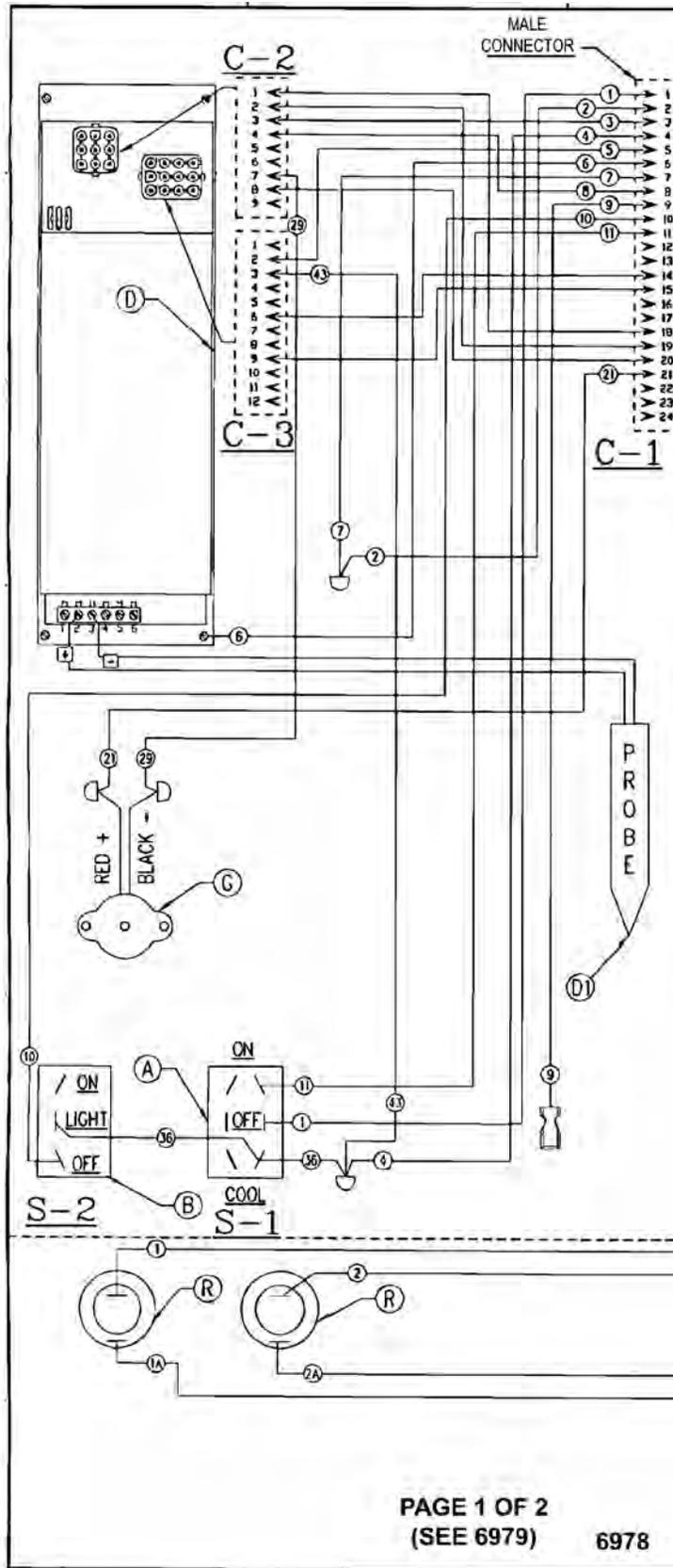
DERIVED FROM:  
426675-1 REV. D SEE WIRING DIAGRAM 426674 (6978, 6979)

6967

VC4EC, VC6EC Computer Control, 480V (Roast & Hold Standard)



9	AB	WIRE NUT BLUE	-
1	Z	TRANSFORMER 1KVA 480-240 V.	-
2	Y	LAMP ASSEMBLY 120V 40W.	-
1	V	MOTOR 1/3 HP 2 SPEED G.E.	-
2	T	CONTACTOR 40A 3 POLE	-
1	S	TERMINAL BLOCK 3 POLE	-
2	R	FUSE & HOLDER 15A	HOLDER FUSE
1	P	TRANSFORMER, 240/24 40VA	-
6	L	ELEMENT, 2.0 KW. 480V.	-
1	K	LIMIT CONTROL 550F	-
2	J	BLOCK, PORCELAIN ASSEMBLY	-
1	H	SWITCH, LIMIT (DOOR)	-
1	G	ALARM 12 V. DC.	-
2	F	RELAY, SOLID STATE 50A	-
1	E	FAN, COOLING 230 V.	-
1	DI	PROBE, THERMOCOUPLE	-
1	D	CONTROLLER WATLOV 734	-
1	B	SWITCH, OVEN LIGHT	-
1	A	SWITCH, MAIN POWER D.P.D.T. CENT.OFF.	-
REQ.	IT.	DESCRIPTION	PK.



VC4EC, VC6EC Computer Control, 480V (Roast & Hold Standard)

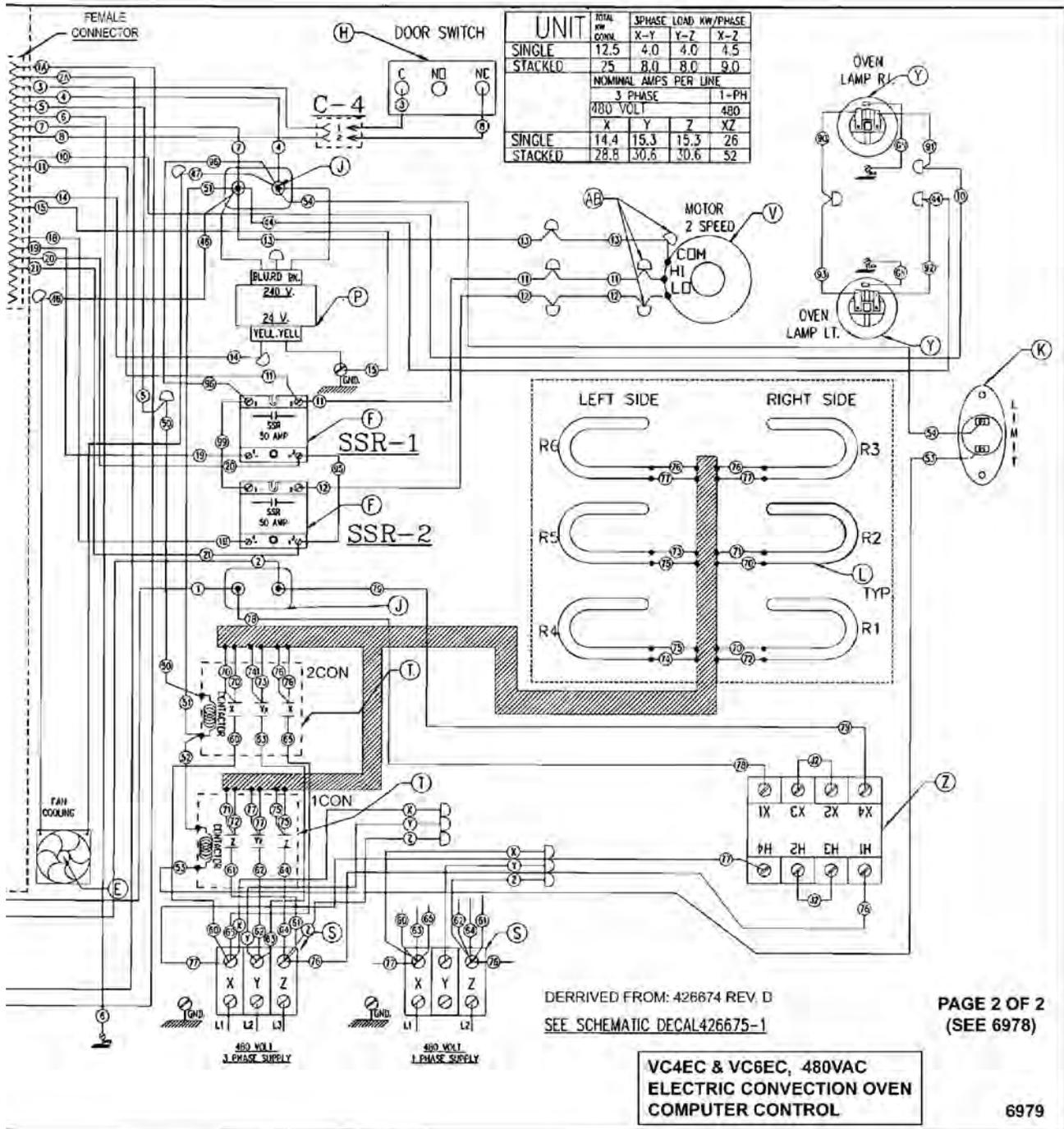


Fig. 105

# TRUBLESHOOTING

## **⚠ WARNING**

Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times. If test points are not easily accessible, disconnect power and follow lockout / tagout procedures, attach test equipment and reapply power to the test.

### ALL MODELS

SYMPTOMS	POSSIBLE CAUSES
Blower motor doesn't run with power switch in "ON" "COOL DOWN" or position.	<ol style="list-style-type: none"> <li>1. Line voltage incorrect.</li> <li>2. Power switch (S1) malfunction.</li> <li>3. Fan speed switch (S3) malfunction.</li> <li>4. Interconnecting wiring malfunction.</li> <li>5. Motor inoperative.</li> </ol>
Blower motor doesn't run with power switch "ON", but oven heats.	<ol style="list-style-type: none"> <li>1. Door switch malfunction.</li> <li>2. Interconnecting wiring malfunction.</li> <li>3. Motor inoperative.</li> </ol>
Blower motor doesn't run in "Cool Down", but runs ok in "ON" position.	<ol style="list-style-type: none"> <li>1. Power switch (S1) malfunction.</li> <li>2. Fan speed switch (S3) malfunction.</li> <li>3. Interconnecting wiring malfunction.</li> </ol>
Excessive or low heat in oven.	<ol style="list-style-type: none"> <li>1. Line voltage incorrect.</li> <li>2. Heating element malfunction.</li> <li>3. Contactor malfunction.</li> <li>4. Convection Fan motor malfunction.</li> <li>5. Temperature probe malfunction or mechanical thermostat malfunction.</li> <li>6. Temperature control not calibrated.</li> <li>7. Temperature control malfunction.</li> </ol>
Mechanical Timer inoperative or not functioning properly.	<ol style="list-style-type: none"> <li>1. Interconnecting wiring malfunction.</li> <li>2. Line voltage incorrect.</li> <li>3. Timer malfunction.</li> </ol>
Component cooling Fan does not run.	<ol style="list-style-type: none"> <li>1. Motor inoperable.</li> <li>2. Interconnecting wiring malfunction.</li> </ol>
Uneven Cooking.	<ol style="list-style-type: none"> <li>1. Convection Fan motor speed/direction.</li> <li>2. Air flow Baffles missing or damaged.</li> <li>3. Line voltage incorrect.</li> <li>4. Heating element(s) malfunction.</li> <li>5. Contactor malfunction.</li> </ol>

SYMPTOMS	POSSIBLE CAUSES
Intermittent operation problems.	<ol style="list-style-type: none"> <li>1. High ambient temperatures.</li> <li>2. Wiring connections loose.</li> <li>3. Cooling fan malfunction.</li> </ol>
No power to oven controls.	<ol style="list-style-type: none"> <li>1. Main circuit breaker OPEN.</li> <li>2. Control circuit fuses OPEN.</li> <li>3. Power switch (S1) inoperative.</li> <li>4. Transformer (T2) inoperative (480V only).</li> </ol>
No heat, convection fan motor runs.	<ol style="list-style-type: none"> <li>1. High limit thermostat OPEN.</li> <li>2. Heating element malfunction.</li> <li>3. Contactor malfunction.</li> <li>4. Temperature control malfunction.</li> </ol>
No power to temperature control.	<ol style="list-style-type: none"> <li>1. Power switch (S1) in "Cool Down".</li> <li>2. Door or door switch open.</li> </ol>
Door does not seal or shut properly	<ol style="list-style-type: none"> <li>1. Doors out of adjustment.</li> <li>2. Door chain out of adjustment or broken (simultaneous doors).</li> <li>3. Door catch roller out of adjustment or broken (independent doors).</li> <li>4. Door seals damaged.</li> </ol>

**COMPUTER CONTROL MODELS ONLY**

SYMPTOM	POSSIBLE CAUSES
Oven does not heat.	<ol style="list-style-type: none"> <li>1. High limit switch open.</li> <li>2. Temperature probe malfunction.</li> <li>3. Computer control malfunction.</li> </ol>
High limit thermostat shutting OFF heat.	<ol style="list-style-type: none"> <li>1. Temperature probe malfunction.</li> <li>2. Computer control malfunction.</li> </ol>
Oven not hot enough.	<ol style="list-style-type: none"> <li>1. Temperature probe malfunction.</li> <li>2. Computer control range high (rH1) setting to low. See <u>SETUP MODE</u> under COMPUTER CONTROL.</li> <li>3. Computer control malfunction.</li> </ol>

SYMPTOM	POSSIBLE CAUSES
Blower motor doesn't run with power switch in "ON" or "COOL DOWN" position.	<ol style="list-style-type: none"> <li>1. Line voltage incorrect.</li> <li>2. Power switch (S1) malfunction.</li> <li>3. Fan speed switch (S3) malfunction.</li> <li>4. Solid state relay (SSR) malfunction. See <u>SOLID STATE RELAY TEST</u> under COMPUTER CONTROL.</li> <li>5. Interconnecting wiring malfunction.</li> <li>6. Motor inoperative.</li> <li>7. Computer control malfunction. See <u>COMPUTER CONTROL OPERATIONAL TEST</u>.</li> </ol>

**Error Codes**

In the display window, the error code will alternate between the code and the oven cavity temperature or dashes if the oven is calling for heat (heat light on). The exact error code displayed will depend on the priority assigned to the problem in the EPROM'S software. The lower the error code number, the higher the priority. If more than one problem occurs at the same time, the error code assigned to the higher priority problem will be displayed. Refer to the error code table below to solve the problem. If the lower priority problem still exists, the next error code will be displayed. When the condition causing the error is resolved, normal oven operation can resume.

**NOTE:** To check a "Setup Parameter" and its corresponding "Data Value", see SETUP MODE under COMPUTER CONTROL.

**NOTE:** If the cause of the error is not apparent, check for these conditions as they may also cause errors to occur: Electrical noise or a noise event, excess environmental moisture or temperature, or vibration.

CODE & PROBLEM	PROBABLE CAUSE	SOLUTION
Er01 - ROM checksum error	Internal ROM malfunction	Cycle power
Er02 - RAM checksum error	Internal RAM malfunction	Cycle power
Er03 - Ambient sensor error	Ambient temperature is below 32°F	Check ambient temperature at the control.
Er04 - Configuration error	Microprocessor malfunction	Cycle power
Er05 - EPROM error <sup>1</sup>	Power loss while storing data	Cycle power
Er06 - Zone 1 A/D underflow error	<ul style="list-style-type: none"> <li>• Incorrect sensor type</li> <li>• Measuring temperature outside the sensor range</li> </ul>	<ul style="list-style-type: none"> <li>• Check the InP1 setup parameter. Verify it matches your sensor.</li> <li>• Check sensor and connections for a reversed or open sensor. If the condition causing the error is resolved, the error will clear.</li> </ul>

CODE & PROBLEM	PROBABLE CAUSE	SOLUTION
Er07 - Zone 1 A/D overflow error	Open sensor	<ul style="list-style-type: none"> <li>• Check the InP1 setup parameter. Verify it matches your sensor.</li> <li>• Check sensor and connections for a reversed or open sensor. If the condition causing the error is resolved, the error will clear.</li> </ul>
Er10 - Stack overflow error	Microprocessor malfunction	<ul style="list-style-type: none"> <li>• Cycle power</li> <li>• Check sensor and connections for a reversed or open sensor</li> </ul>
Er11 - Open sensor error	Open sensor	<ul style="list-style-type: none"> <li>• Check the InP1 setup parameter. Verify it matches your sensor.</li> <li>• Check sensor and connections for a reversed or open sensor</li> </ul>
Er12 - Shorted sensor	<ul style="list-style-type: none"> <li>• Incorrect sensor type</li> <li>• Measuring temperature outside the sensor range</li> </ul>	<ul style="list-style-type: none"> <li>• Check the InP1 setup parameter. Verify it matches your sensor.</li> <li>• Check sensor and connections for a reversed or open sensor</li> </ul>
<p><sup>1</sup> Should only see when a new EPROM is installed and powered for the first time.</p>		



## VC5ED FULL SIZE ELECTRIC CONVECTION OVEN

VC5ED

### - NOTICE -

This Manual is prepared for the use of trained Hobart Service Technicians and should not be used by those not properly qualified.

This manual is not intended to be all encompassing. If you have not attended a Hobart Service School for this product, you should read, in its entirety, the repair procedure you wish to perform to determine if you have the necessary tools, instruments and skills required to perform the procedure. Procedures for which you do not have the necessary tools, instruments and skills should be performed by a trained Hobart Service Technician.

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# SERVICE UPDATES

## SERVICE UPDATES

### December 2019

- Added ERROR CODES.

### August 2018

- Updated BLOWER AND MOTOR.
- Updated BLOWER ADJUSTMENT.
- Updated WIRING DIAGRAMS.
- Updated TEMPERATURE CONTROL BOARD FAULT INDICATOR.
- Added SCHEMATICS.

# GENERAL

## INTRODUCTION

FEATURES				
MODEL	CAVITY DEPTH	TEMPERATURE CONTROL	DOORS (50/50)	COOK TIMER
VC5ED	26.5"	Solid State	Independent	Digital

**NOTE:** Stainless steel doors with window (standard).

## OPERATION

Refer to Installation & Operation manual for procedures related to Installation, Operation and Cleaning. <https://my.vulcanfeg.com/resourcecenter/vulcanwolfberkel/default.aspx>

## CLEANING

Refer to Installation & Operation manual for procedures related to Installation, Operation and

Cleaning. <https://my.vulcanfeg.com/resourcecenter/vulcanwolfberkel/default.aspx>

## LUBRICATION

- Cavity blower motor has sealed bearings and requires no additional lubrication.
- Lithium grease for catches on door.

## SPECIFICATIONS

AMPERAGE - 3 PHASE/ 60HZ							
MODEL	TOTAL POWER (KW)	PER LINE <sup>1</sup>			RECOMMENDED CIRCUIT PROTECTION <sup>2</sup>		
		208V	240V	480V	208V	240V	480V
VC5ED	12.5	35	33	15	45	40	20

**NOTES:**  
<sup>1</sup> Amperage values in the table are nominal. Tolerance is +5/-10%.  
<sup>2</sup> Complied in accordance with National Electric Code, ANSI/NFPA 70, latest edition

AMPERAGE - 1 PHASE/ 60HZ							
MODEL	TOTAL POWER (KW)	PER LINE <sup>1</sup>			RECOMMENDED CIRCUIT PROTECTION <sup>2</sup>		
		208V	240V	480V	208V	240V	480V
VC5ED	12.5	60	52	26	80	70	35

**NOTES:**  
<sup>1</sup> Amperage values in the table are nominal. Tolerance is +5/-10%.  
<sup>2</sup> Complied in accordance with National Electric Code, ANSI/NFPA 70, latest edition.

SPECIFICATION SHEET

## TOOLS

Standard

1. Standard set of hand tools.
2. VOM with minimum of NFPA-70E CATIII 600V, UL/CSA/TUV listed. Sensitivity of at least 20,000 ohms per volt. Meter leads must also be rated at CAT III 600V.
3. Clamp on type amp meter with minimum of NFPA-70E CAT III 600V,UL/CSA/TUV listed.
4. Temperature tester (thermocouple type).
5. ESD (Electrostatic discharge) Protection Kit.

**Special**

1. Gear Puller to remove blower.
2. RTV sealant, 736 DOW silicone high temp (P/N 542133) or equivalent.

# REMOVAL AND REPLACEMENT OF PARTS

## COVERS AND PANELS



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

### Bottom Front Cover

1. Remove four screws, two from each side of bottom cover, then remove cover from oven.

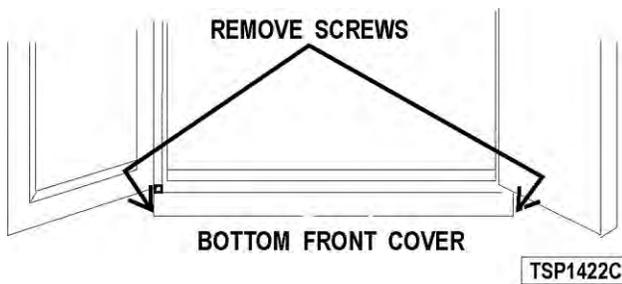


Fig. 1

2. Reverse procedure to install. Verify bottom cover is seated under front plate.

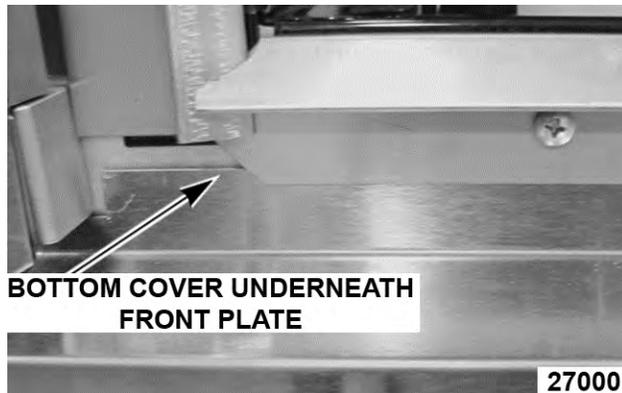


Fig. 2

### Right Side - Front Panel



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Loosen two screws near front of oven, which secure bottom front cover.
2. Loosen screws on left side of front panel and top cover screw.

3. Remove screws along right side and bottom of front panel.

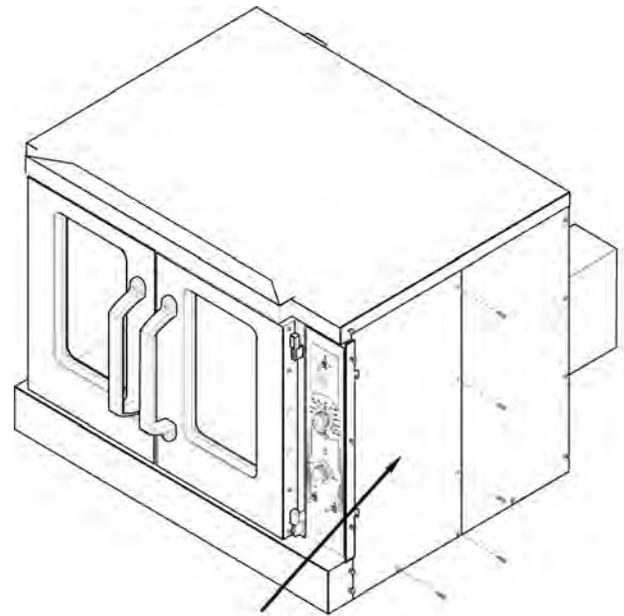


Fig. 3

4. Slide right side front panel out.
5. Reverse procedure to install.

### Right Side - Rear Panel



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Remove two middle screws along right side of rear panel.
2. Remove screws along left side of rear panel.
3. Remove bottom screws on rear panel.
4. Loosen top and bottom screw along right side of rear panel.

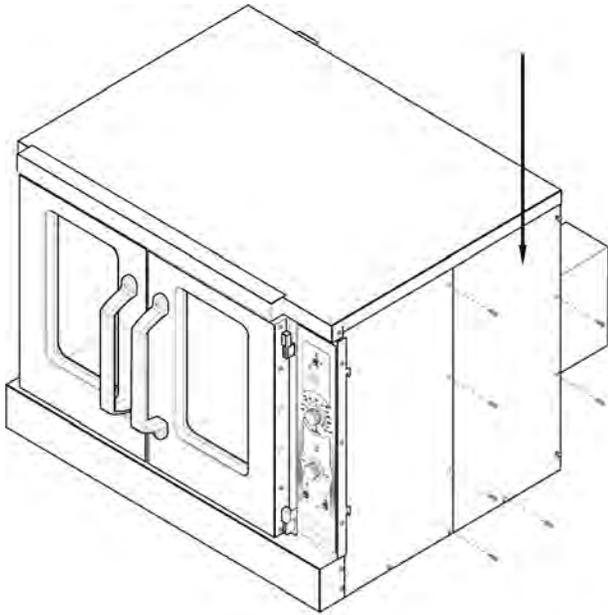


Fig. 4

5. Slide right side rear panel up and to the right to remove.
6. Reverse procedure to install.

**Left Side Panel**

1. Remove screws along right side, middle left side, and bottom.
2. Loosen screws on top and bottom on left side of panel.
3. Loosen two screws near front of oven, which secure bottom front cover.

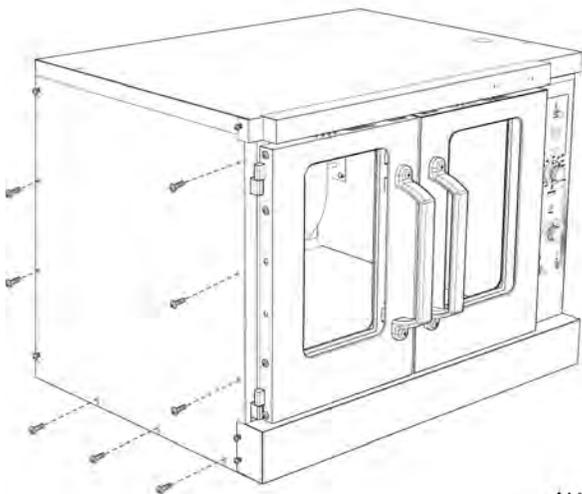


Fig. 5

4. Lift up and pull away to remove.
5. Reverse procedure to install.

**Control Panel**



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Remove three screws on right side which secure control panel, then lift up and pull away.

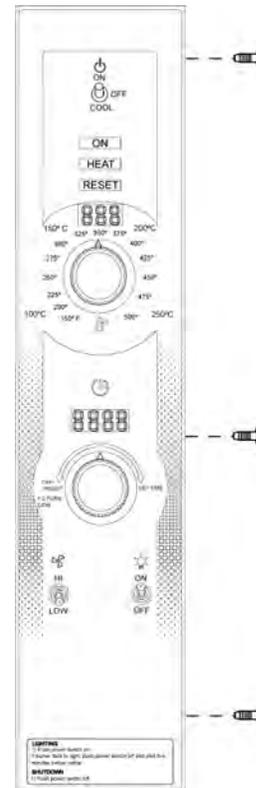


Fig. 6

2. Disconnect temperature probe leads from solid-state temperature control.
3. Unplug wire harnesses connector to control panel components.
4. Unplug Ground wire from control panel.
5. Reverse procedure to install.

**FAN COVER**



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Remove racks.

- Lift fan cover up and out of oven.

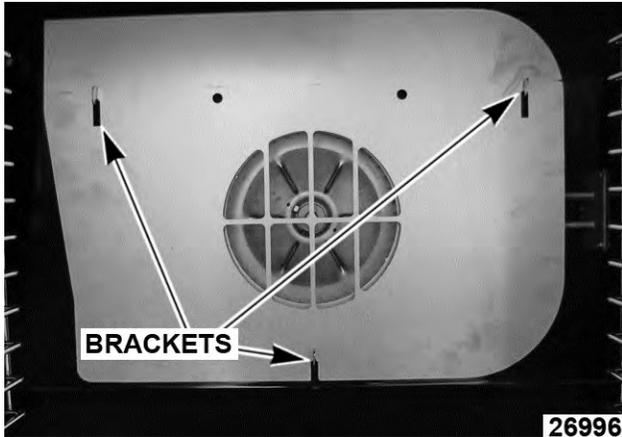


Fig. 7

- Reverse procedure to install.

## CONTROL PANEL COMPONENTS



### **WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

- Remove CONTROL PANEL.
- Remove component being replaced.
- Reverse procedure to install replacement component.
- Check oven for proper operation.



AI4055

Fig. 8

**NOTE:** Panel with standard controls shown.

## COMPONENT PANEL COMPONENTS



### **WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

- Remove RIGHT SIDE PANEL.

**NOTE:** If right side panel is not accessible, this component can be service by removing CONTROL PANEL.

- Disconnect wire leads to component being replaced.
- Remove component.
- Reverse procedure to install component.
- Check oven for proper operation.

## TEMPERATURE PROBE



### ⚠ WARNING

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Remove RIGHT SIDE PANEL.

**NOTE:** If right side - front panel is not accessible, this component can be serviced by removing CONTROL PANEL.

2. Disconnect the probe leads (1, Fig. 9) from the solid state temperature control.



Fig. 9

3. Remove the racks from inside cavity.
4. Remove the probe guard.

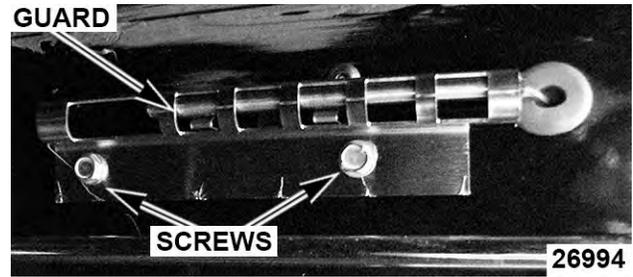


Fig. 10

5. Remove probe by pushing it through the oven wall opening (2, Fig. 9) in control panel area.
6. Reverse the procedure to install the replacement probe.
7. Adjust the temperature control. Refer to: SOLID STATE TEMPERATURE CONTROL TEST.

## HEATING ELEMENTS



### ⚠ WARNING

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

1. Remove RIGHT SIDE - REAR PANEL.
2. Disconnect element wire connectors.

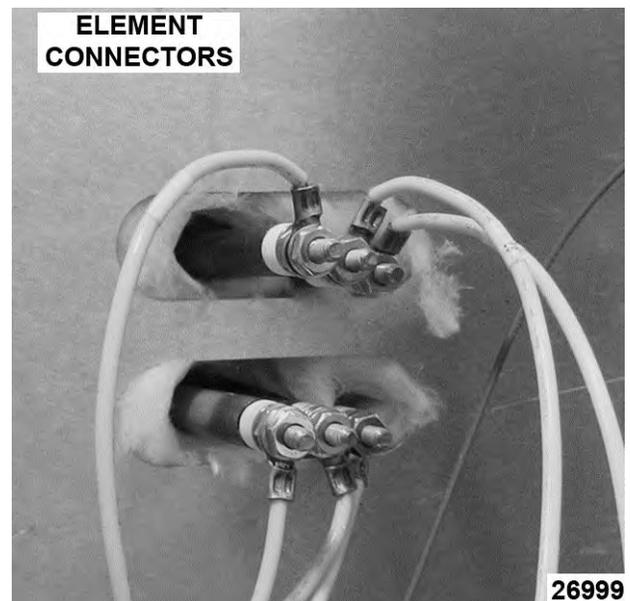


Fig. 11

3. Remove racks from cavity.
4. Remove FAN COVER.  
Loosen element screws on side wall.
5. Remove screws on back wall holding brackets.

- Pull elements forward, then away from right wall.

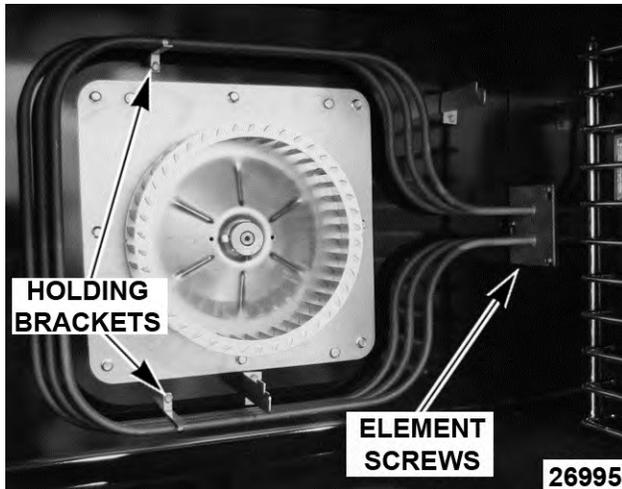


Fig. 12

- Reverse the procedure to install the replacement heating element.

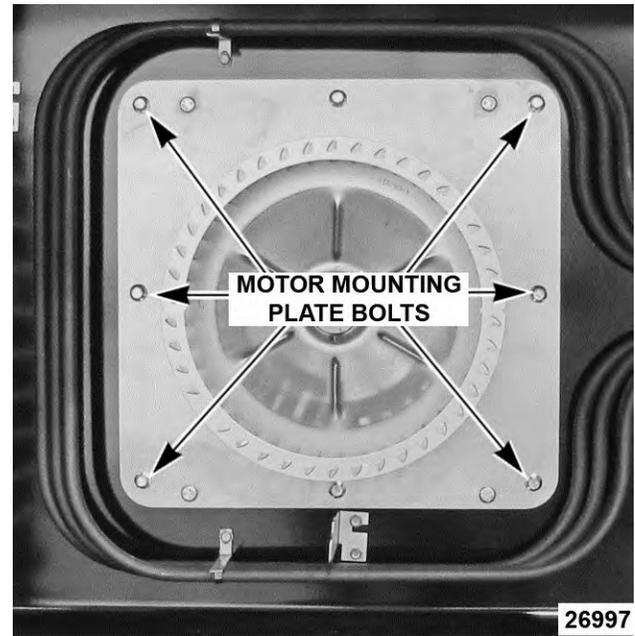


Fig. 13

## BLOWER AND MOTOR



### ⚠ WARNING

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

- Remove racks and rack supports.
- Lift off FAN COVER.
- If replacing:
  - Blower Only** - Loosen bolts on blower hub and using a bearing puller, remove blower from motor shaft.
    - Reverse procedure to install and perform BLOWER ADJUSTMENT.
  - Motor** - perform step 3A and continue procedure.
- Remove bolts that secure motor mounting plate to the rear wall.

- Place a piece of cardboard in bottom of oven cavity to protect its surface from any damage during motor assembly removal.
- Pull motor assembly into the oven cavity and place on cardboard.
- Remove junction box cover from motor, disconnect lead wires and remove the conduit.
- Remove motor mounting fasteners then lift motor from mounting plate.
- Position the replacement motor on the motor mounting plate and install fasteners. Hand tighten mounting bolts only.

**1ST GENERATION STACK UP SHOWN IN Fig. 14**

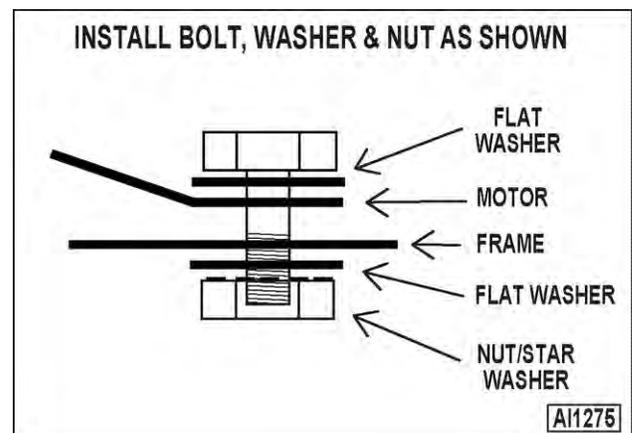
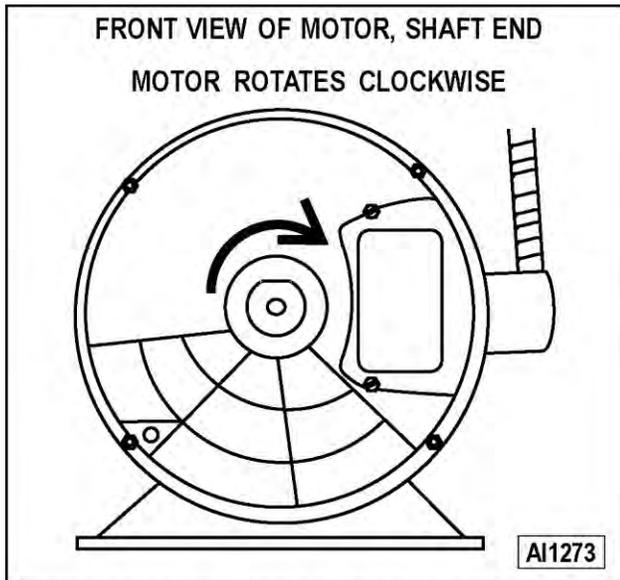


Fig. 14

- Reconnect lead wires at the motor, replace conduit and junction box cover.

**NOTE:** Check data plate on motor for wiring schematic. The motor must rotate **clockwise** when viewed from the shaft end.



**Fig. 15**

11. Slide blower onto motor shaft until hub is flush with end of shaft then tighten bolts.
12. Adjust motor position until blower is parallel to motor mounting plate, Refer to: BLOWER ADJUSTMENT.
13. Position motor mounting plate on the rear wall and secure with screws.
14. Replace baffle panel.
15. Remove cardboard from the bottom of oven cavity.
16. Check oven for proper operation then replace rack guides and racks.

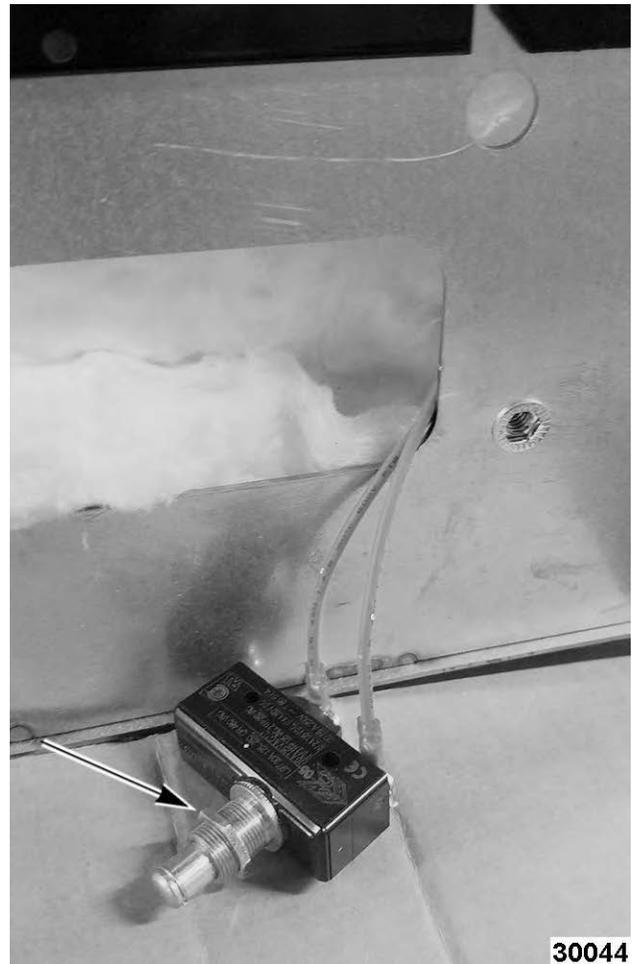
## DOOR SWITCH



### **⚠ WARNING**

**Disconnect the electrical power to the machine and follow lockout / tagout procedures.**

1. Remove BOTTOM FRONT COVER.
2. Unscrew nut (Fig. 16) holding door switch.
3. Pull door switch and washer out through bottom panel opening.



**Fig. 16**

4. Disconnect lead wires to door switch.
5. Reverse procedure to install replacement switch.

## ROLLER LATCH ASSEMBLY (INDEPENDENT DOORS)



### **⚠ WARNING**

**Disconnect the electrical power to the machine and follow lockout / tagout procedures.**

1. Remove the screws that attach roller latch assembly to door.

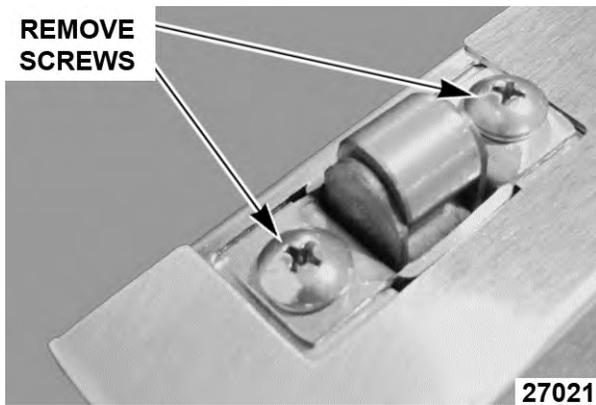


Fig. 17

- Reverse procedure to install.

## DOOR REMOVAL

- Open door to a 90° angle.
- Lift door up off hinges to remove.



Fig. 18

- Reverse the procedure to install the replacement door and check oven for proper operation.

## HIGH LIMIT THERMOSTAT



### ⚠ WARNING

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

- Take out racks from the oven.

- Remove the high limit thermostat cover/mounting plate from inside the oven cavity at the top.

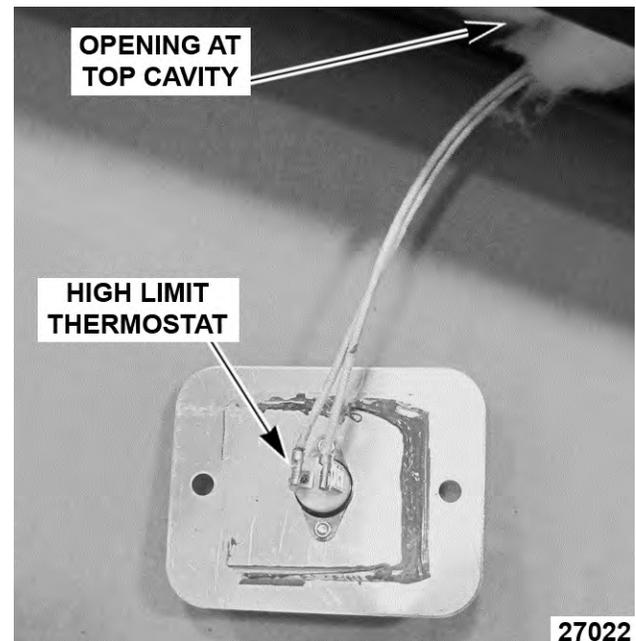


Fig. 19

- Disconnect lead wires from high limit thermostat.

**NOTE:** Remove the old RTV sealer from the cover and mating surfaces inside the oven cavity and apply new high temperature RTV sealer before installing.

- Reverse procedure to install.

## INTERIOR LIGHTS



### ⚠ WARNING

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

### NOTICE

Do not touch the Halogen lamp with bare hands. If lamp is exposed to oil from the skin, the life will be reduced. Ensure lamp is free from oil and dirt before replacing.

### Bulb Replacement

- Pull lamp cover off.
- Grasp lamp using a clean cloth and remove from lamp assembly.

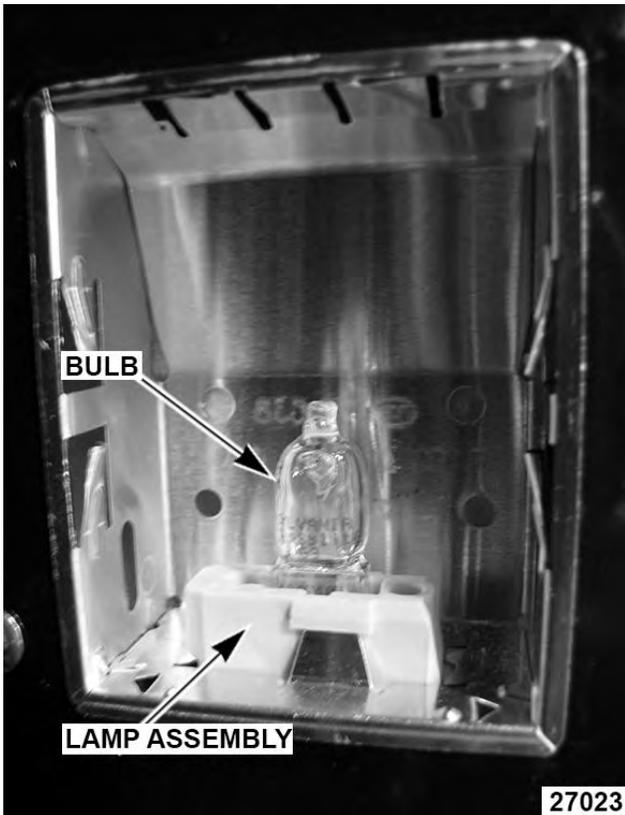


Fig. 20

- Reverse procedure to install new bulb.

**Lamp Assembly Replacement**

- Remove racks in cavity.
- Pull lamp cover off.
- Remove RIGHT SIDE REAR PANEL.

Insert screw driver and push lamp assembly out into cavity.

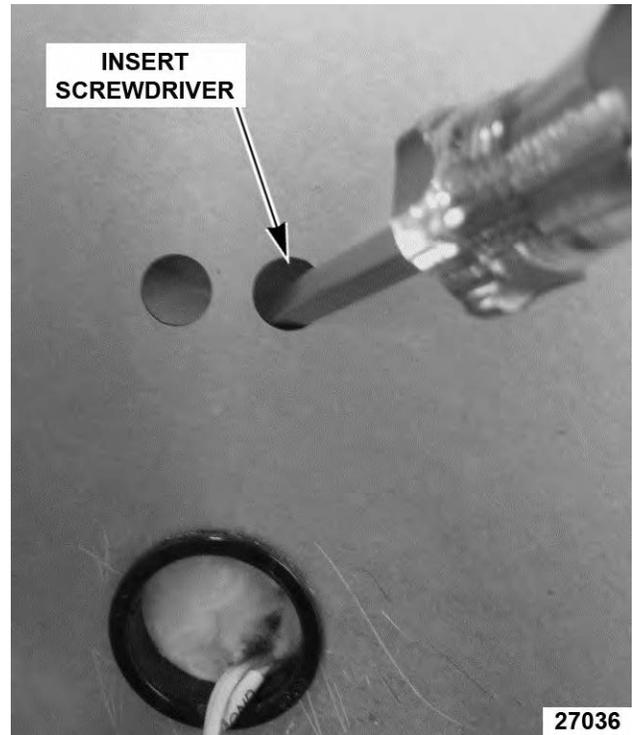


Fig. 21

- Disconnect wires.
- Reverse procedure to install new lamp assembly.

**COOLING FAN**



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

- Remove RIGHT SIDE FRONT PANEL.

**NOTE:** If right side - front panel is not accessible, this component can be serviced by removing the CONTROL PANEL.

- Remove wire nuts from fan wire connections.

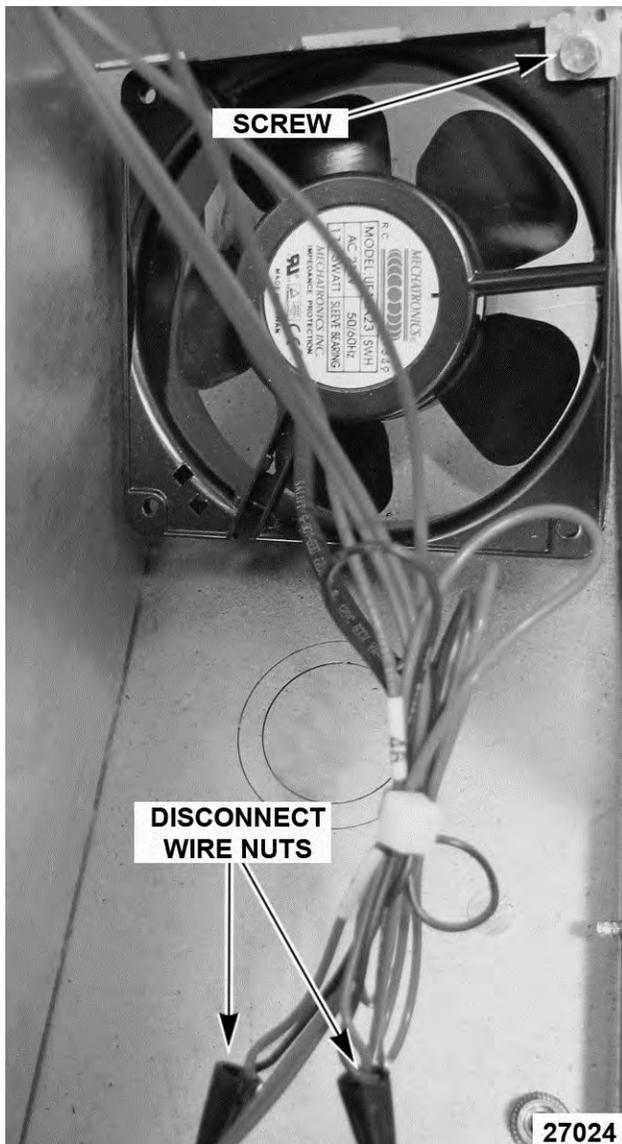


Fig. 22

3. Loosen the tab screw holding the fan to the component panel. Rotate the tab so that the fan will clear and remove the fan.
4. Reverse the procedure to install the replacement fan and check for proper operation.

**NOTE:** The fan must be installed so air is pulled from outside the rear of the oven and blown into the control area. The arrow on the fan body indicates "air flow" direction and should be pointing toward the controls.

# SERVICE PROCEDURES AND ADJUSTMENTS

## TEMPERATURE CONTROL CALIBRATION



### ⚠ WARNING

Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times and follow Arc Flash procedures. If test points are not easily accessible, disconnect power and follow Lockout/Tagout procedures, attach test equipment and reapply power to test.

**NOTE:** The temperature control module has a programmable offset that can be applied to the set temperature. This can be adjusted in 5 degree increments up to 20 degrees in either direction.

1. Place a thermocouple in geometric center of oven cavity.
2. Remove RIGHT SIDE FRONT PANEL to view back of temperature control board.
3. Turn oven on and set to 350° Fahrenheit.
4. Watch the red fault indicator. If light comes on see TEMPERATURE CONTROL BOARD FAULT INDICATOR for troubleshooting tips. If light stays off go to next step.
5. Allow oven to stabilize (typically 3 cycles)
6. Record temperature when heat light goes off and comes on for at least 2 cycles.
7. Calculate differential by subtracting temperature when lamp goes out from temperature when lamp comes on.

**Differential = (Heat Lamp OFF - Heat Lamp ON)**

- If differential is less than 20 degrees, temperature control circuit is functioning properly. If it is more than 20 degrees, turn off oven and replace TEMPERATURE PROBE.
- Repeat CALIBRATION steps. Calculate average temperature (Heat Lamp OFF temperature + Heat Lamp ON temperature divided by 2).

**Average = (Heat Lamp OFF + Heat lamp on divided by 2)**

- If Average is less than 10° Fahrenheit from dial setting, thermostat is properly calibrated.
- If it is more than 10° Fahrenheit, then complete following steps.

1. Remove temperature control knob.



**Fig. 23**

2. Press and hold both + (plus) and the – (minus) buttons for 3 seconds.

**NOTE:** Power light will start blinking and display will show current offset.

3. Push “+” or “-“ button to increase or decrease offset.

**NOTE:** Each press will change offset by 5 degrees.

**NOTE:** After 5 seconds of no activity controller will automatically exit calibration mode.

## SOLID STATE TEMPERATURE CONTROL TEST



### **⚠ WARNING**

Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times and follow Arc Flash procedures. If test points are not easily accessible, disconnect power and follow Lockout/Tagout procedures, attach test equipment and reapply power to test.

1. Remove RIGHT SIDE FRONT PANEL.

**NOTE:** If right side panel is not accessible, this component can be serviced by removing CONTROL PANEL.

2. Place a thermocouple in the geometric center of oven cavity.

**NOTE:** Oven temperature must be below 450°F.

3. Set the temperature control to the maximum setting.
4. The green indicator light will flash once every 3 seconds if the board is receiving power. If it is off the problem is not with the Temperature Control Board. Refer to "TROUBLESHOOTING".
5. If the red fault indicator comes on count the number of times it flashes and check TEMPERATURE CONTROL BOARD FAULT INDICATOR table to identify fault code.

## TEMPERATURE CONTROL BOARD FAULT INDICATOR



### **⚠ WARNING**

Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times and follow Arc Flash procedures. If test points are not easily accessible, disconnect power and follow Lockout/Tagout procedures, attach test equipment and reapply power to test.



**LED FAULT INDICATOR LIGHT ON BOARD**

Flash Codes	Description	Action
1	Open Probe	Verify probe is plugged in. Replace <u>TEMPERATURE PROBE</u> .
2	Shorted Probe	Replace <u>TEMPERATURE PROBE</u> .
3	No Heat	Run <u>TEMPERATURE PROBE TEST</u> .
4	PCB Overheat	Verify cooling fan works. Clean air intake at back of oven.
5	No Output	Replace temperature control PCB. Refer to: <u>CONTROL PANEL COMPONENTS</u>
6	Output Shorted	Replace temperature control PCB. Refer to: <u>CONTROL PANEL COMPONENTS</u>

## TEMPERATURE PROBE TEST



### ⚠ WARNING

Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times and follow Arc Flash procedures. If test points are not easily accessible, disconnect power and follow Lockout/Tagout procedures, attach test equipment and reapply power to test.

Degrees (Fahrenheit)	Resistance
77°	90k - 100k
200°	8354
250°	3794
300°	1903
250°	1032
400°	609
450°	374
500°	241

- Place a shielded thermocouple in center of oven cavity.
- Turn oven on and set to 350° Fahrenheit.
- Remove temperature control knob.
- Hold down "-" (minus) button for 3 seconds to enter diagnostic mode.

**NOTE:** Display should now show oven temperature reported by probe.

- Allow temperature to stabilize (typically 3 cycles).
  - If thermocouple temperature is within 5° Fahrenheit of display temperature, probe is functioning properly.
  - If temperature difference between thermocouple and display is greater than 5 degrees but less than 20° Fahrenheit, refer to: TEMPERATURE CONTROL CALIBRATION to calibrate.

- If temperature difference is greater than 20° Fahrenheit turn off oven, replace TEMPERATURE PROBE, then repeat TEMPERATURE PROBE TEST.

## HEATING ELEMENT TEST



### ⚠ WARNING

Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times and follow Arc Flash procedures. If test points are not easily accessible, disconnect power and follow Lockout/Tagout procedures, attach test equipment and reapply power to test.

- Turn the power switch ON and set the oven temperature control to the highest setting.
- Measure the voltage at the heating element terminals and verify it against the data plate voltage.
  - If voltage is incorrect, find the source of the problem.
  - If voltage is correct, check current draw (amps) through the heating element lead wires.

**NOTE:** This method is preferred over a resistance check when a clamp on type amp meter is available.

- If current draw is correct then heating element is functioning properly. See HEATING ELEMENT VALUES table.
- If current draw is not correct, turn the power switch OFF and disconnect the electrical supply to the oven.
  - Replace heating element, then proceed to step 3.
- If unable to check current draw, a resistance check may indicate a malfunctioning element.
  - Turn the power switch OFF and disconnect the electrical supply to the oven.
  - Remove the lead wires from the heating element and check resistance (ohms). See HEATING ELEMENT VALUES table.

3. Check for proper operation.

HEATING ELEMENT VALUES				
VOLT.	KW PER ELEMENT	AMPS PER ELEMENT		OHMS PER ELEMENT
		1 PH	3 PH	
208	4	19	19	10
240	4	16.5	16.5	14.5
480	4	8	8	57

**NOTES:**

1. Values in the table are nominal. Tolerance is +5/-10%.
2. Voltage values are @ 60HZ.
3. Resistance values (ohms) are @ room temperature.

### BLOWER ADJUSTMENT



**WARNING**

Disconnect the electrical power to the machine and follow lockout / tagout procedures.

**For Ovens Built Before 4/19/18**

1. Loosen the motor mounting bolts.
2. Adjust the motor position until the blower is parallel to and 1/4 inch Fig. 26 away from the motor mounting plate. Check for squareness of blower to the motor mounting plate at the top, bottom, left and right of the blower.
  - A. If blower is square then tighten motor mounting bolts and proceed to STEP 3.
  - B. If blower is not square continue adjusting until proper spacing is achieved then tighten motor mounting bolts.

**NOTE:** If necessary, place shims between motor and frame.

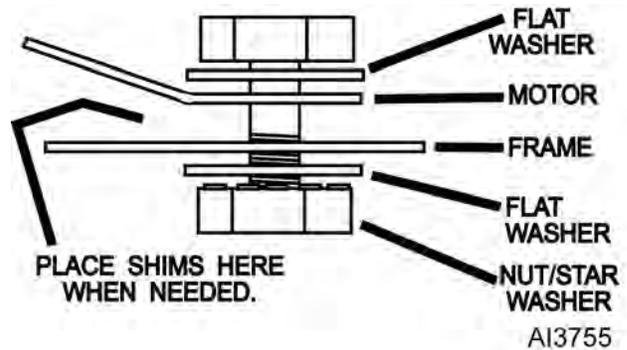


Fig. 25

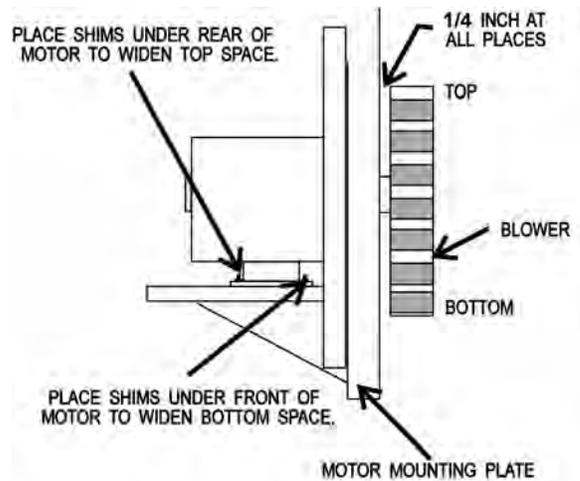


Fig. 26

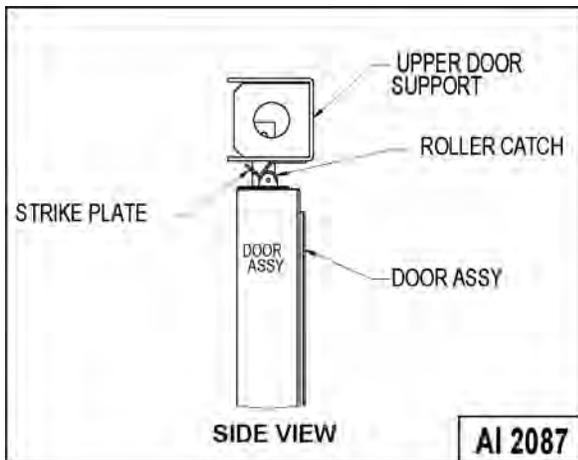
3. Reverse procedure to install.

**For Ovens Built After 4/19/18**

1. Loosen blower set screws.
2. Adjust position until blower is 1/4 inch from motor mounting plate (Fig. 26).
3. Tighten set screws.
4. Reverse procedure to install.
5. Check for proper operation.

### DOOR STRIKE ADJUSTMENT (INDEPENDENT DOORS)

1. Open the doors and inspect door strike for proper shape.
  - A. Bend strike plate.



**Fig. 27**

2. Open and close the doors several times while observing the roller latch and strike plate operation.
  - A. Replace ROLLER LATCH ASSEMBLY (INDEPENDENT DOORS) if malfunctioning.
3. Each oven door should open with a force of 8 to 25 pounds when pulled at the handle. The adjustments must allow the doors to remain closed during normal operation and allow opening without exertion by the user.

# ELECTRICAL OPERATION

## COMPONENT FUNCTION

<b>Power Switch (S1) . . . .</b>	Determines the mode of operation; ON, OFF, or COOL down.
<b>Oven Light Switch (S3) .....</b>	Controls the oven cavity lights.
<b>Fan Speed Switch (S2) .....</b>	Controls blower motor speed between High and Low settings.
<b>Alarm/Buzzer .....</b>	Signals the end of a "Cook" cycle when cooking time expires.
<b>Cook Timer .....</b>	Counts the "Cook" time of the product and signals the buzzer at the end of the cycle.
<b>Door Switch .....</b>	Allows the oven to operate when the doors are closed but stops the oven from operating when the doors are opened.
<b>Blower Motor .....</b>	Operates the oven cavity blower (convection fan).
<b>Transformer .....</b>	Provides 240VAC power to the oven control circuit and blower motor (480VAC models only).
<b>Solid State Temperature Control .....</b>	Monitors temperature sensor and regulates the oven cavity temperature by controlling 1CON to energize the heating elements when the control calls for heat.
<b>High Limit Thermostat .....</b>	Protects the oven from temperatures above 550°F by removing power from the heating circuit. Auto resets at 500°F.
<b>1CON .....</b>	Provides power to heating elements when energized. 1C is energized by the temperature control when a call for heat is made.
<b>Power ON Light .....</b>	Lit whenever the power switch (S1) is turned to ON or Cool Down mode.
<b>Heat Light .....</b>	Lit whenever temperature control is calling for heat.
<b>Temperature Probe ...</b>	Senses the oven temperature for the solid state temperature. The probe is an RTD (resistance temperature detector) of the Thermistor type. As temperature increases the resistance value decreases.
<b>Cooling Fan .....</b>	Circulates cooler air from outside the oven to cool components in the control area.
<b>Fuses .....</b>	Protect control circuit.

**COMPONENT LOCATION**

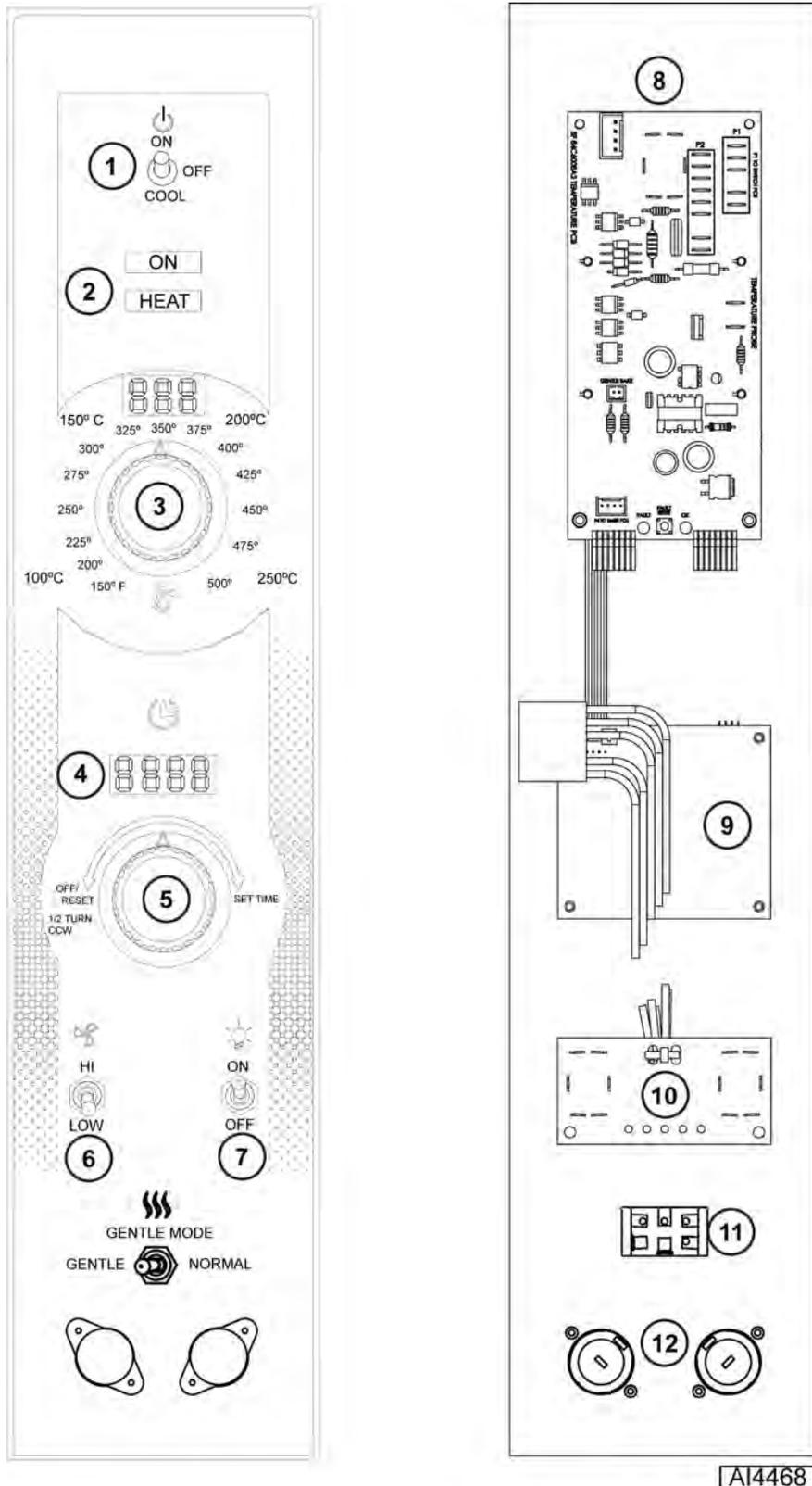


Fig. 28

<b>CONTROL PANEL</b>	
1	ON/ OFF / COOL Switch
2	ON / HEAT / RESET Lights
3	Temperature Dial
4	Digital Time Readout
5	Timer
6	HI / LOW Fan Setting
7	Light ON / OFF Switch
8	Temperature Control Board
9	Timer Board
10	Light and Fan Speed Switch Board
11	Gentle Bake Switch
12	Fuses

**CONTROL PANEL DIGITAL TEMPERATURE READOUT**



Fig. 29

**CONTROL PANEL DIGITAL TIME READOUT**



Fig. 30

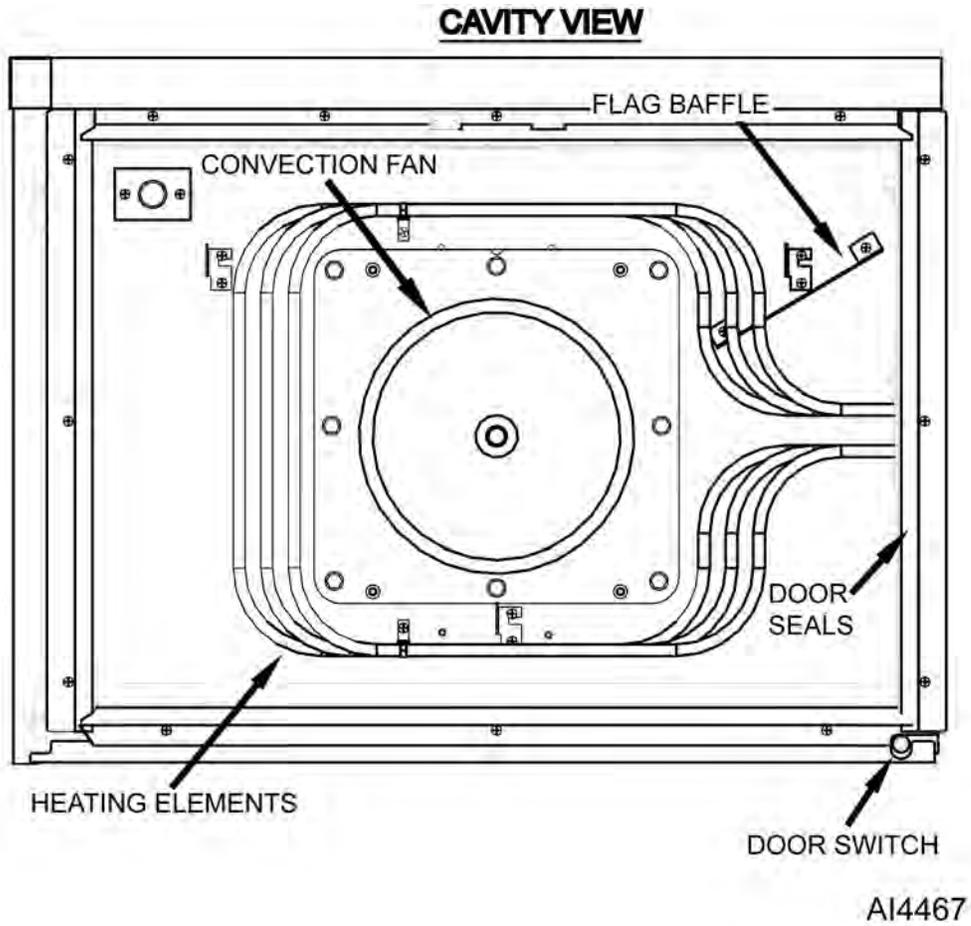


Fig. 31

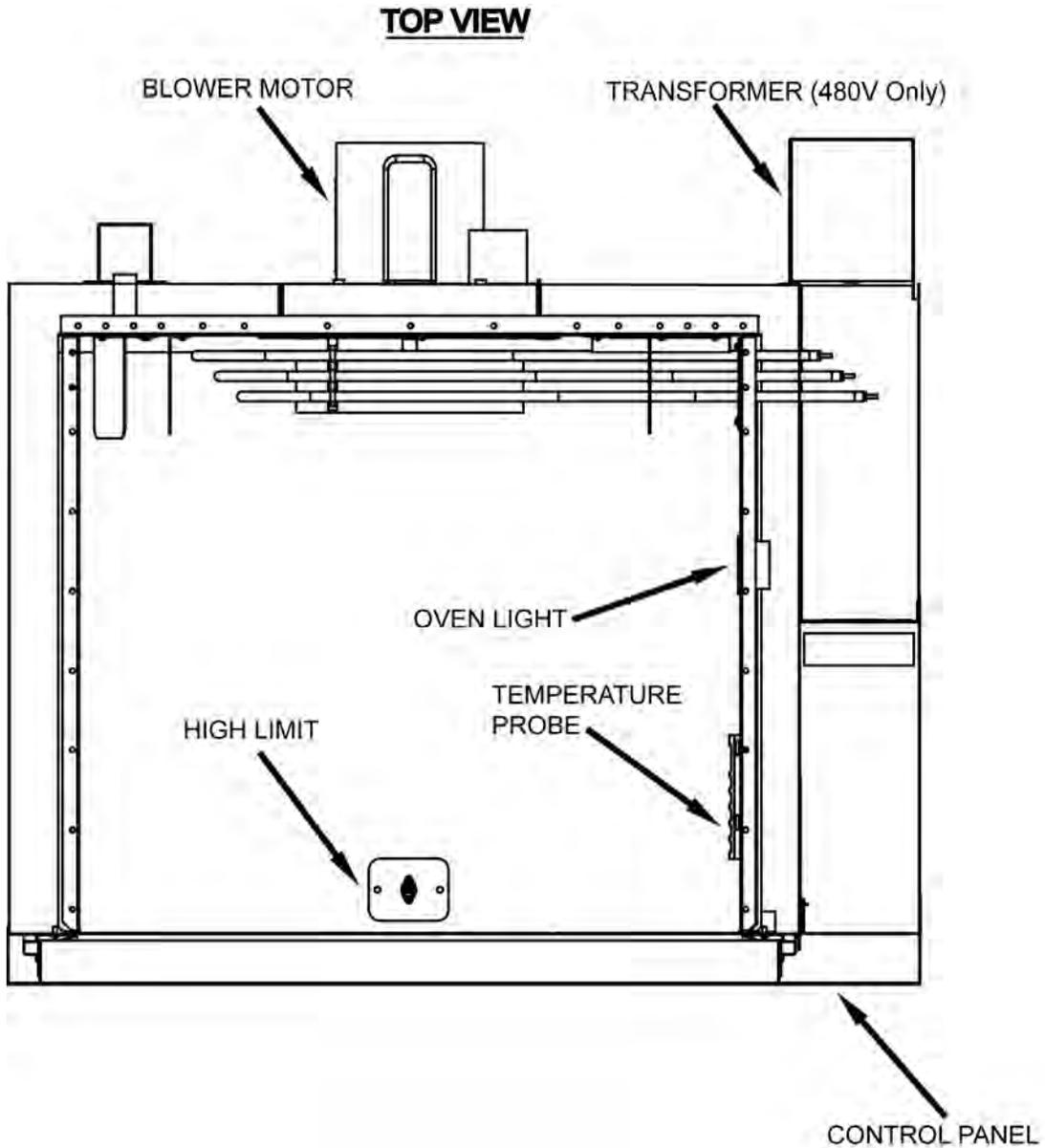


Fig. 32

## SEQUENCE OF OPERATION

### Cook Cycle

1. Conditions.

- A. Oven connected to correct voltage and is properly grounded.
- B. Power switch (S1) OFF.
- C. Temperature dial set to lowest temperature (fully counterclockwise).
- D. High limit thermostat CLOSED.

- E. Oven doors closed (door switch contacts CLOSED).
  - F. Oven cavity temperature below 140°F.
2. Power switch (S1) turned ON.
- A. Power ON light (Amber) comes ON.
  - B. Solid state temperature control energized.
    - 1) Heating elements powered and heating starts.
    - 2) 1C coil energized.
    - 3) Heat light (Clear) comes on.

C. Blower motor energized.

**NOTE:** Motor speed (Hi/Low) depends on position of fan speed switch (S2).

D. Component cooling fan energized.

E. Power to oven cavity light switch (S3) wire #1. Turns cavity lights ON/OFF; does not affect "Cook" cycle.

3. Set temperature dial to desired "Cook" temperature.

4. Oven reaches set temperature.

A. Temperature control de-energizes internal relay and the normally open (N.O.) contacts OPEN.

1) Heat light goes out.

2) 1C coil de-energized.

a. Power removed from heating elements and heating stops.

5. The oven will continue to cycle on the temperature control until the doors are opened or power switch (S1) is turned to the OFF or COOL down position.

#### Timer Cycle, Cooking

**NOTE:** The "Cook" timer operates independently of the heating cycle. Additional time can be set or the timer can be turned OFF throughout the cooking cycle.

1. With the power switch turned ON, power is supplied to "Cook" timer terminal 1.

2. Set "Cook" timer to desired time.

A. Contacts 1 & 3 close, timer motor is energized and timing "down" begins.

3. Time expires on "Cook" timer.

A. Contacts 1 & 3 open, timer motor is de-energized and timing stops.

B. Contacts 1 & 4 close.

1) Buzzer energized and sounds.

**NOTE:** The buzzer continues to sound until the timer dial is set to the OFF position or additional time is set.

#### Cool Down Cycle

1. Conditions.

A. Oven is ON.

B. Oven cavity temperature needs to be lowered.

C. Doors are open (door switch contacts OPEN).

D. Fan speed switch (S2) set to "Hi".

2. Power Switch (S1) turned to COOL DOWN.

A. Power ON light (Amber) goes out.

B. Convection fan motor energized.

3. If doors are CLOSED (door switch contacts CLOSED):

A. Power ON light (Amber) comes ON.

B. Component cooling fan energized.

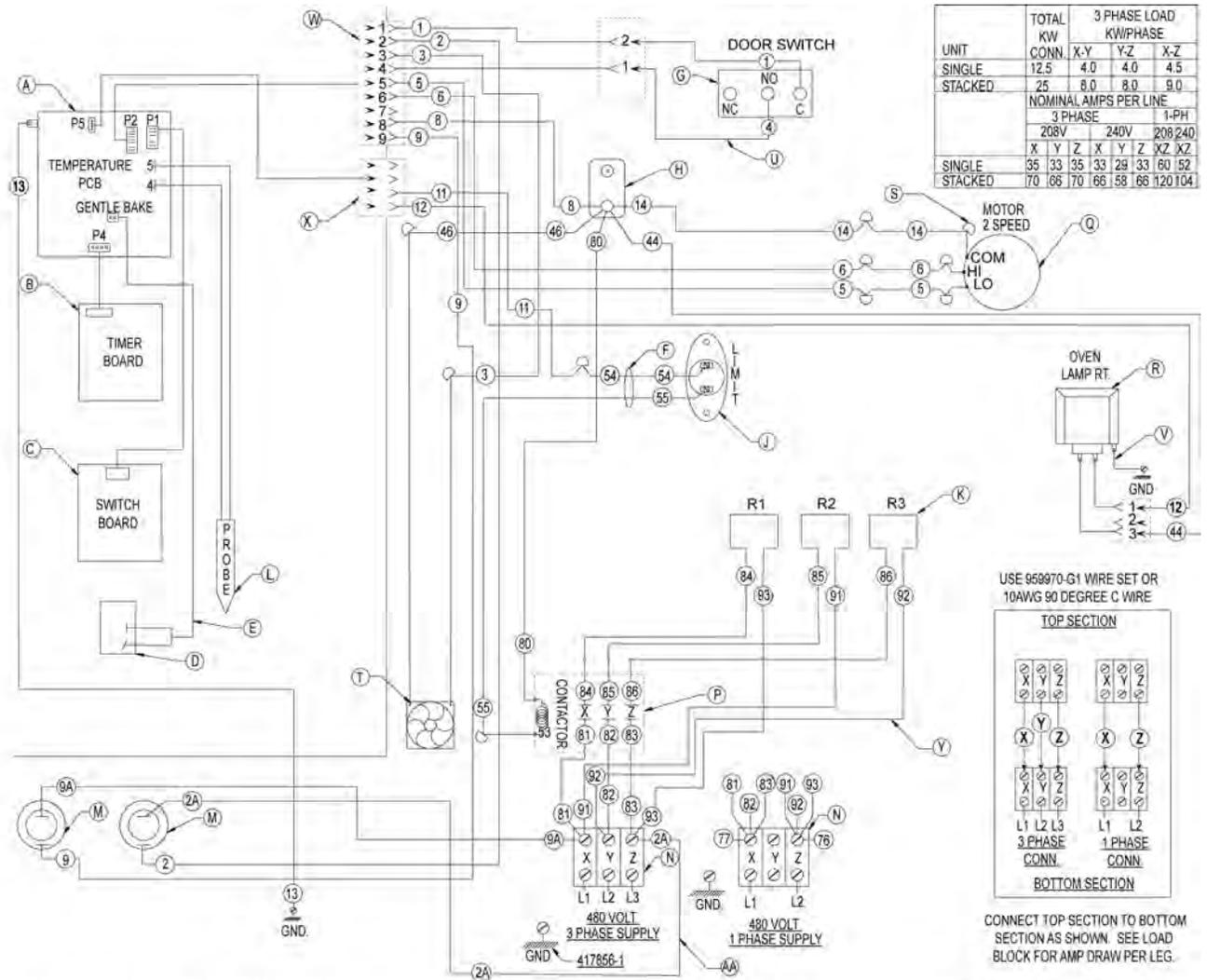
C. Power is supplied to:

1) "Cook" timer terminal 1. If a time is dialed, timer will operate and buzzer will sound when timer reaches zero.

2) Oven cavity light switch (S3) wire #1. Turns cavity lights ON/OFF; does not affect Cool down cycle.

4. The oven will remain in this condition until the power switch (S1).

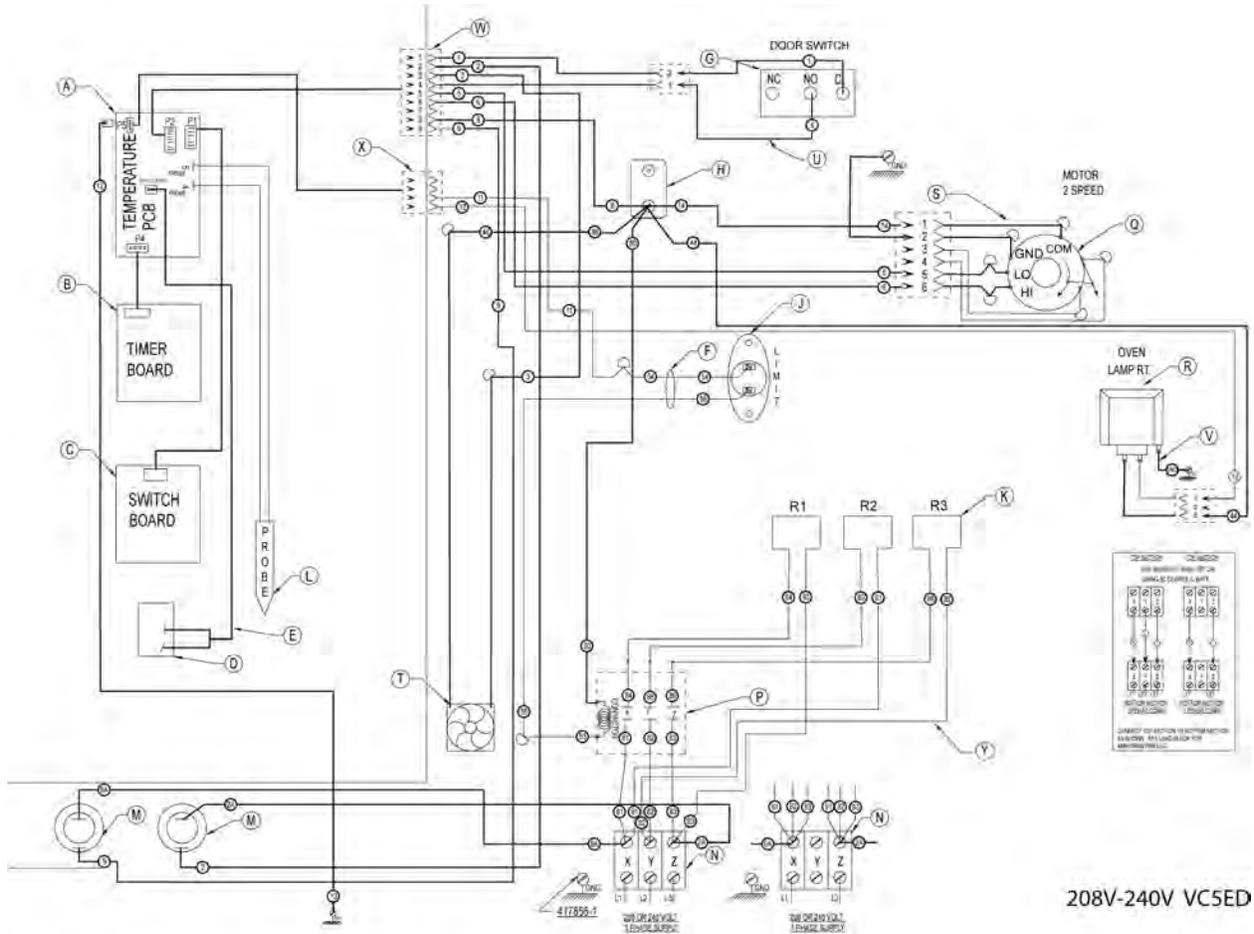
**WIRING DIAGRAMS**



DERIVED FROM WIRE DIAGRAM 961523

208V-240V VC5ED AI4381

**208-240V Wiring Diagram - Ovens Built Before 4/19/18**



DERIVED FROM WIRE DIAGRAM 961523 Rev. C

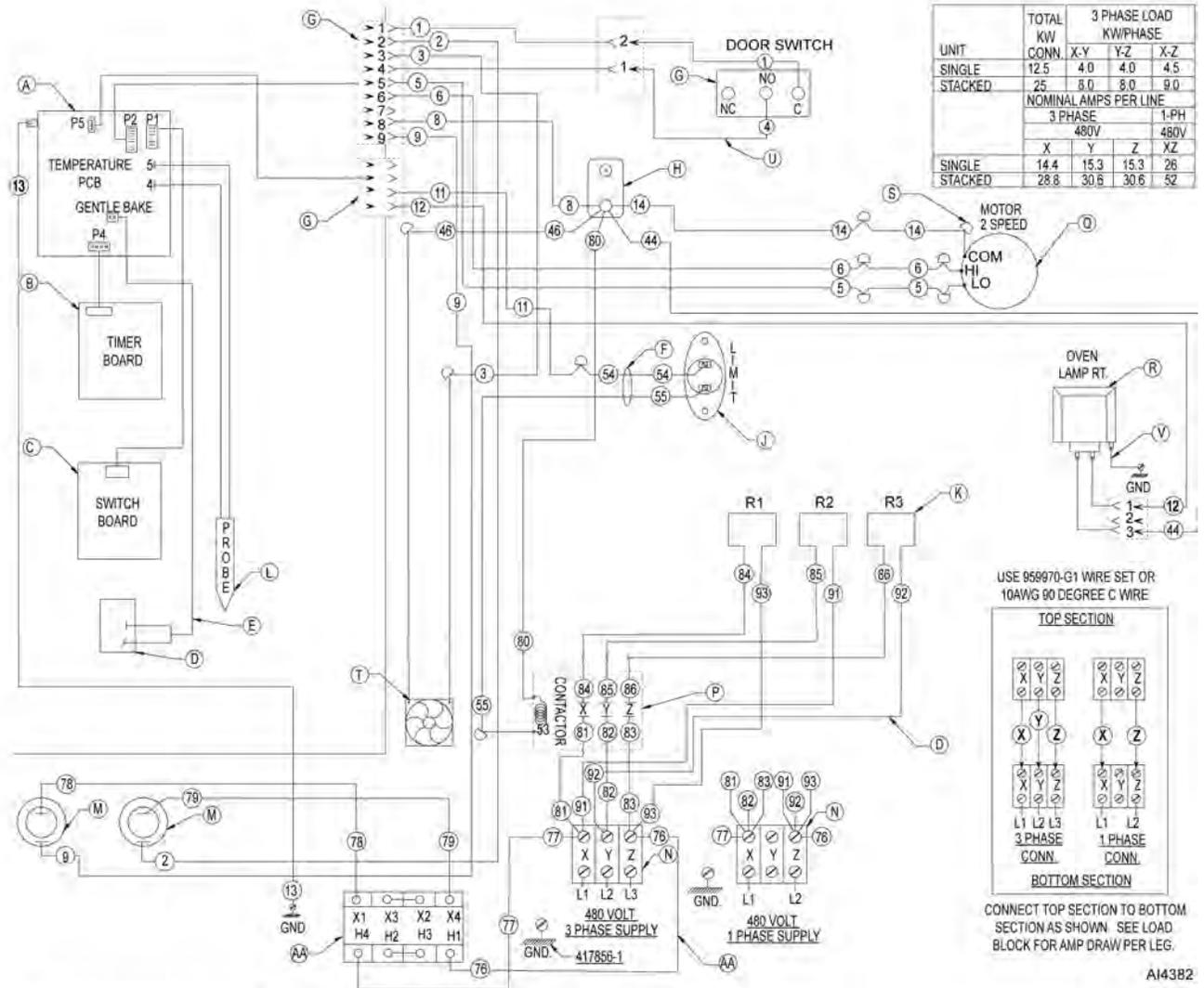
AI4858

**208-240V Wiring Diagram - Ovens Built After 4/19/18**

<b>VC5ED 208-240V Wiring Diagram</b>	
A	ASSY, TEMP, CONTROL BOARD - TEMP
B	ASSY, TIMER BOARD
C	ASSY, SWITCH BOARD
D	SWITCH, TOGGLE S.P.S.T
E	LCOE GENTLE BAKE WIRE HARNESS
F	WIRE SET, LIMIT SWITCH
G	LCOG DOOR SWITCH, 2HP
H	BLOCK, PORCELAIN ASSEMBLY
J	LIMIT CONTROL 550F
K	LCOE ELEMENT ASSY, 12KW
L	PROBE, THERMISTOR
M	FUSE & HOLDER 15A
N	TERMINAL BLOCK 3 POL
P	CONTACTOR 40A 3 POLE
Q	MOTOR 1/3 HP. 2 SPEED G.E.

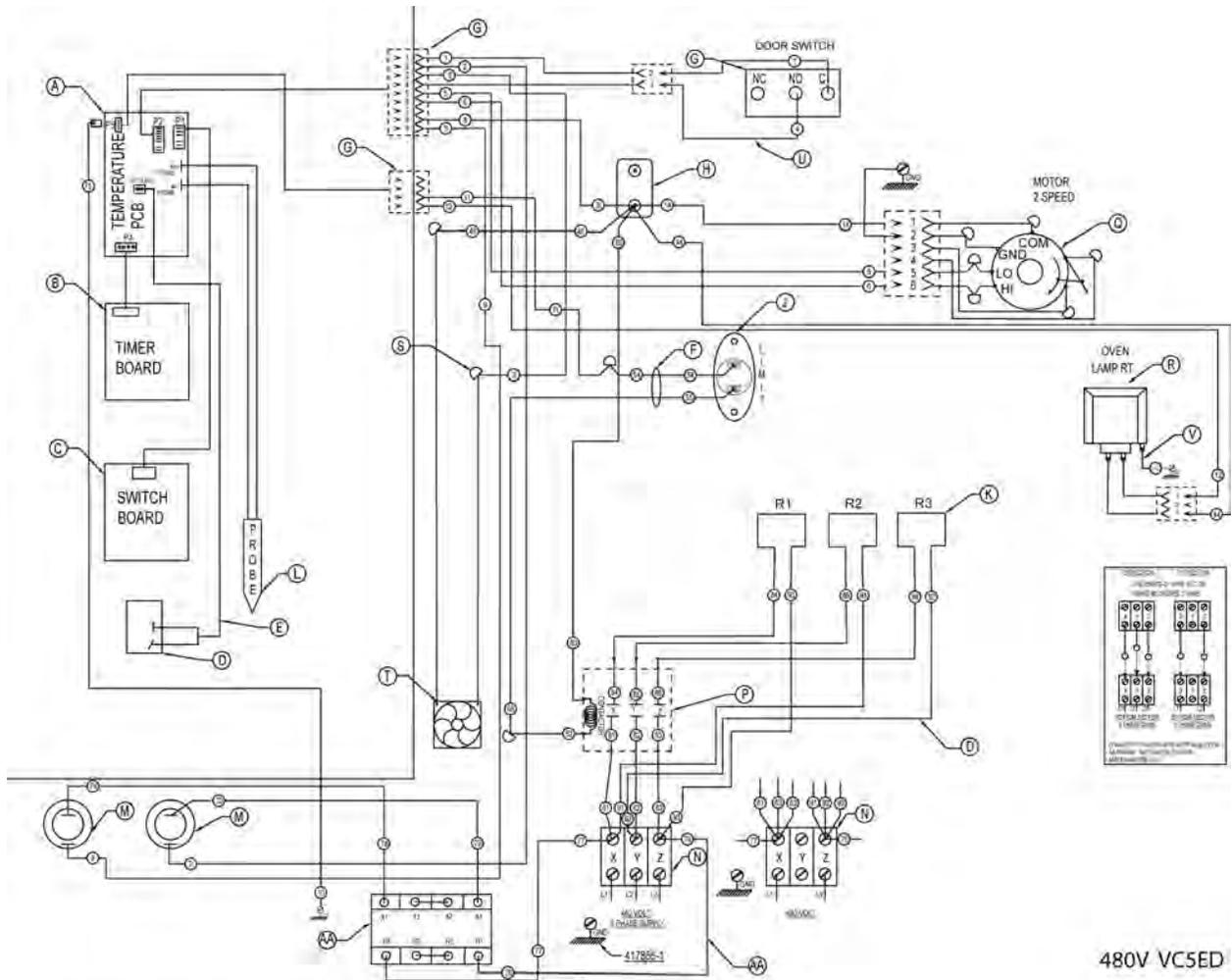
**VC5ED 208-240V Wiring Diagram**

R	LCOE OVEN LAMP, 40W, 230V
S	WIRE NUT BLUE
T	FAN, COOLING
U	LCOE DOOR SWITCH HARNESS
V	LCOE LIGHT GND WIRE
W	LCOE ACTUATOR HARNESS ASSY
X	LCOE SENSING HARNESS ASSY
Y	LCOE WIRE SET, SF
Z	TRANSFORMER, 480V TO 240V
AA	LCOE 480V WIRE SET



DERIVED FROM WIRE DIAGRAM 961524

**480 VAC Wiring Diagram - Ovens Built before 4/19/18**



480V VC5ED

DERIVED FROM WIRE DIAGRAM 961524

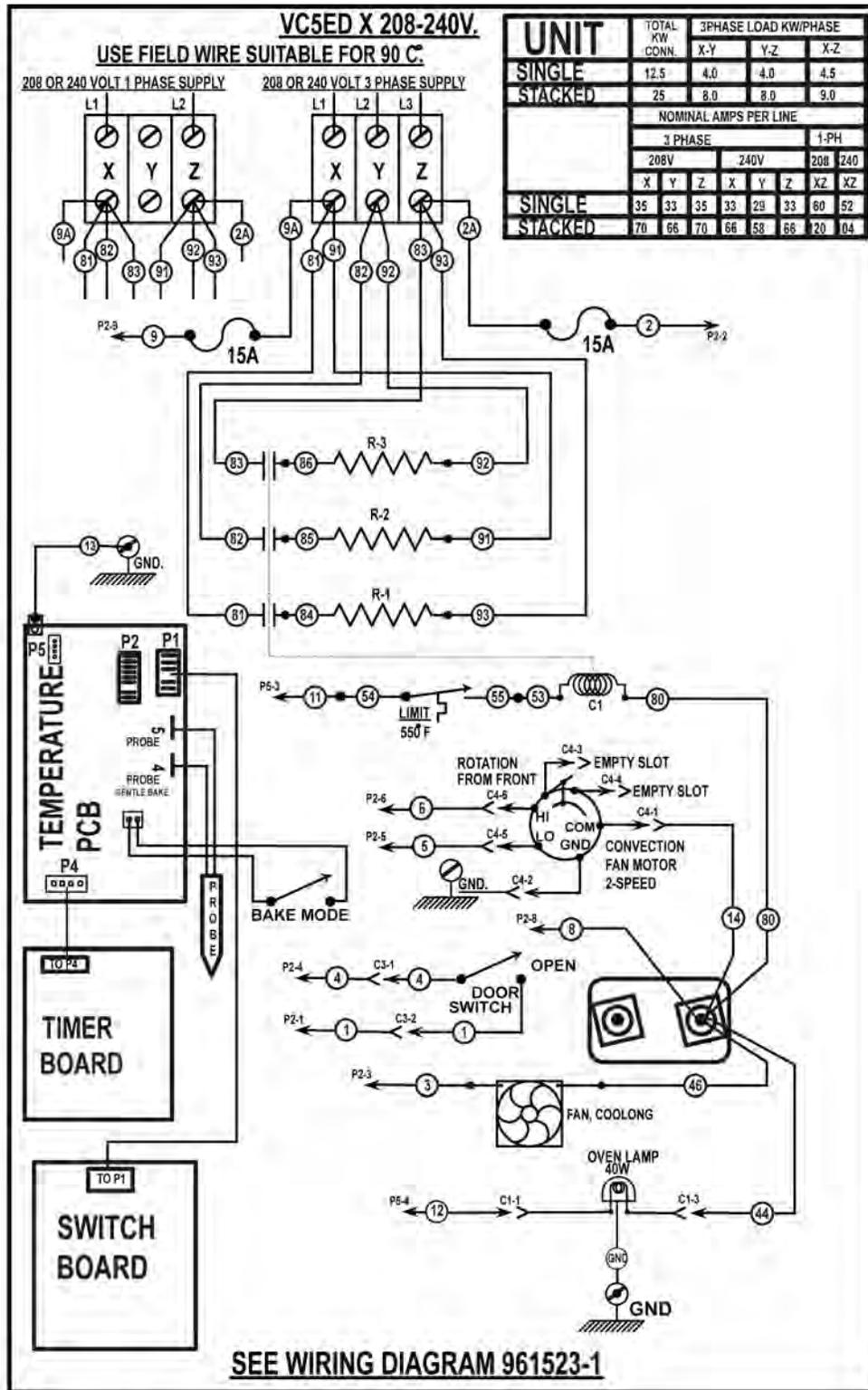
AI4860

**480 VAC Wiring Diagram - Ovens Built After 4/19/18**

VC5ED 208-240V Wiring Diagram	
A	ASSY, TEMP, CONTROL BOARD - TEMP
B	ASSY, TIMER BOARD
C	ASSY, SWITCH BOARD
D	SWITCH, TOGGLE S.P.S.T
E	LCOE GENTLE BAKE WIRE HARNESS
F	WIRE SET, LIMIT SWITCH
G	LCOG DOOR SWITCH, 2HP
H	BLOCK, PORCELAIN ASSEMBLY
J	LIMIT CONTROL 550F
K	LCOE ELEMENT ASSY, 12KW
L	PROBE, THERMISTOR
M	FUSE & HOLDER 15A
N	TERMINAL BLOCK 3 POL

<b>VC5ED 208-240V Wiring Diagram</b>	
P	CONTACTOR 40A 3 POLE
Q	MOTOR 1/3 HP. 2 SPEED G.E.
R	LCOE OVEN LAMP, 40W, 230V
S	WIRE NUT BLUE
T	FAN, COOLING
U	LCOE DOOR SWITCH HARNESS
V	LCOE LIGHT GND WIRE
W	LCOE ACTUATOR HARNESS ASSY
X	LCOE SENSING HARNESS ASSY
Y	LCOE WIRE SET, SF

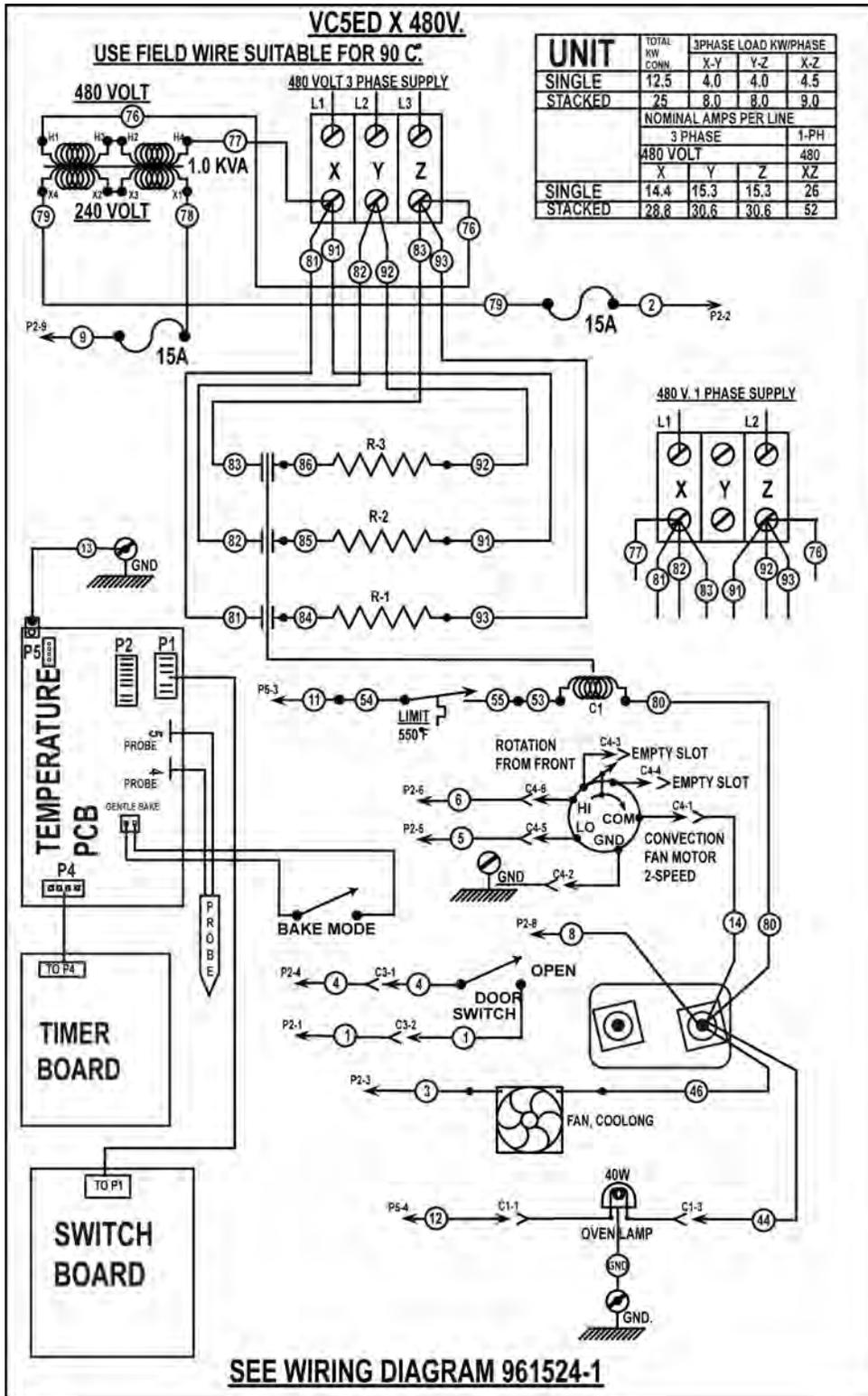
**SCHEMATICS**



DERIVED FROM 961525-1 Rev. C

A14859

208-240V SCHEMATIC



DERIVED FROM WIRE DIAGRAM 961526-1 Rev. C

AI4861

480V SCHEMATIC

# TROUBLESHOOTING



## ⚠ WARNING

Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times and follow Arc Flash procedures. If test points are not easily accessible, disconnect power and follow Lockout/Tagout procedures, attach test equipment and reapply power to test.

## ERROR CODES

**NOTE:** Error codes will be on temp display as well as the blink code from the LED on back of board.



Fig. 39

ERROR #	ERROR	POSSIBLE CAUSES
1	OPEN TEMPERATURE PROBE	<ol style="list-style-type: none"> <li>1. Temperature probe failure.</li> <li>2. Temperature control board failure.</li> </ol>
2	SHORTED TEMPERATURE PROBE	<ol style="list-style-type: none"> <li>1. Temperature probe failure.</li> <li>2. Temperature control board failure.</li> </ol>

ERROR #	ERROR	POSSIBLE CAUSES
3	<p>NO TEMPERATURE INCREASE</p> <p><b>NOTE:</b> This means the oven has been calling for heat for 8 minutes and the temperature control board has not measured an increase.</p>	<p><b>If elements are on and heating properly:</b></p> <ol style="list-style-type: none"> <li>1. Temperature control board failure.</li> </ol> <p><b>If elements are not on:</b></p> <ol style="list-style-type: none"> <li>1. Contactor failure.</li> <li>2. Elements failure.</li> <li>3. Temperature control board failure.</li> <li>4. High Limit is open.</li> </ol>
4	<p>PCB OVERHEAT</p> <p><b>NOTE:</b> This means the temperature control board is experiencing temperatures above its rated limit. This can reduce the life of oven control components.</p>	<ol style="list-style-type: none"> <li>1. Clogged rear air intake.</li> <li>2. Cooling fan failure.</li> </ol>
5	NO OUTPUT	<ol style="list-style-type: none"> <li>1. Temperature control board failure.</li> </ol>
6	OUTPUT SHORTED	<ol style="list-style-type: none"> <li>1. Temperature control board failure.</li> </ol>

**VC5ED**

SYMPTOMS	POSSIBLE CAUSES
Blower motor doesn't run with power switch in "ON" or "COOL DOWN" or position.	<ol style="list-style-type: none"> <li>1. Line voltage incorrect.</li> <li>2. Fuse.</li> <li>3. Power switch (S1) malfunction.</li> <li>4. Fan speed switch (S2) malfunction.</li> <li>5. Interconnecting wiring malfunction.</li> <li>6. Motor inoperative.</li> </ol>
Blower motor doesn't run with power switch "ON", but oven heats.	<ol style="list-style-type: none"> <li>1. Door switch malfunction.</li> <li>2. Fan speed switch (S2) malfunction.</li> <li>3. Interconnecting wiring malfunction.</li> <li>4. Motor inoperative.</li> </ol>
Blower motor doesn't run in "Cool Down", but runs OK in "ON" position.	<ol style="list-style-type: none"> <li>1. Power switch (S1) malfunction.</li> <li>2. Interconnecting wiring malfunction.</li> </ol>
Excessive Heat in oven.	<ol style="list-style-type: none"> <li>1. Temperature probe malfunction.</li> <li>2. Temperature control not calibrated.</li> <li>3. Contactor malfunction.</li> <li>4. Heating element(s) malfunction.</li> </ol>

SYMPTOMS	POSSIBLE CAUSES
Low heat in oven.	<ol style="list-style-type: none"> <li>1. Line voltage incorrect.</li> <li>2. High limit thermostat OPEN.</li> <li>3. Contactor malfunction.</li> <li>4. Heating element(s) malfunction.</li> <li>5. Temperature probe malfunction.</li> <li>6. Temperature calibration.</li> </ol>
Timer inoperative or not functioning properly.	<ol style="list-style-type: none"> <li>1. Interconnecting wiring malfunction.</li> <li>2. Timer malfunction.</li> </ol>
Component cooling Fan does not run.	<ol style="list-style-type: none"> <li>1. Interconnecting wiring malfunction.</li> <li>2. Fan motor inoperable.</li> </ol>
Uneven Cooking.	<ol style="list-style-type: none"> <li>1. Fan cover not properly seated on hooks.</li> <li>2. Convection Fan motor speed/direction.</li> <li>3. Air flow baffles (Flag, Cavity or Vertical) missing or damaged.</li> <li>4. Line voltage incorrect.</li> <li>5. High limit thermostat malfunction.</li> <li>6. Contactor malfunction.</li> <li>7. Heating element(s) malfunction.</li> <li>8. Doors out of adjustment.</li> <li>9. Door roller out of adjustment or broken.</li> <li>10. Door seals damaged.</li> </ol>
Intermittent operation problems.	<ol style="list-style-type: none"> <li>1. Cooling fan malfunction.</li> <li>2. Wiring connections loose.</li> <li>3. High ambient temperatures.</li> </ol>
Oven will not turn on.	<ol style="list-style-type: none"> <li>1. Line voltage incorrect.</li> <li>2. Control circuit fuses OPEN.</li> <li>3. Power switch (S1) inoperative.</li> <li>4. Transformer inoperative (480V only).</li> </ol>
No heat, convection fan motor runs.	<ol style="list-style-type: none"> <li>1. Temperature inside oven less than 50° F.</li> <li>2. Temperature probe malfunction.</li> <li>3. Temperature control malfunction.</li> <li>4. High limit thermostat OPEN.</li> <li>5. Contactor malfunction.</li> <li>6. Heating element malfunction.</li> </ol>
No power to temperature control.	<ol style="list-style-type: none"> <li>1. Power switch (S1) in "Cool Down".</li> <li>2. Door switch malfunction.</li> </ol>

SYMPTOMS	POSSIBLE CAUSES
Door does not seal or shut properly.	<ol style="list-style-type: none"> <li>1. Doors out of adjustment.</li> <li>2. Door catch roller out of adjustment or broken (independent doors).</li> <li>3. Door seals damaged.</li> </ol>
Wrong temperature on display.	<ol style="list-style-type: none"> <li>1. Temp board diagnostic buttons are stuck down. Loosen two bottom screws attaching temp board to control panel.</li> </ol>

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# CATALOG OF REPLACEMENT PARTS

## VC3ED CONVECTION OVEN

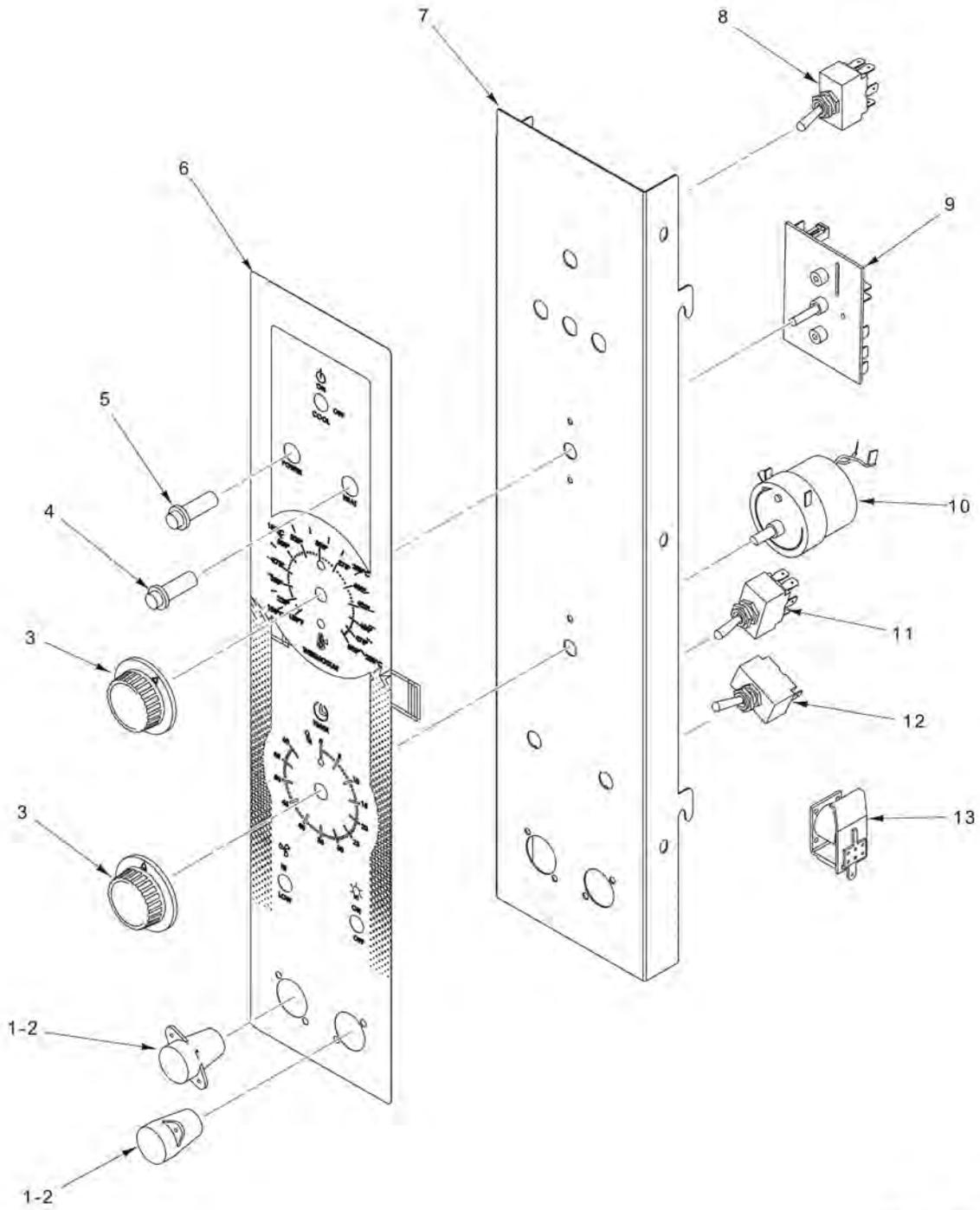
ML-137013





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5	CONTROL PANEL
7	ELECTRICAL COMPONENTS AND HEATING ELEMENT
9	CONVECTION MOTOR
11	DOOR ASSEMBLY
13	PANELS

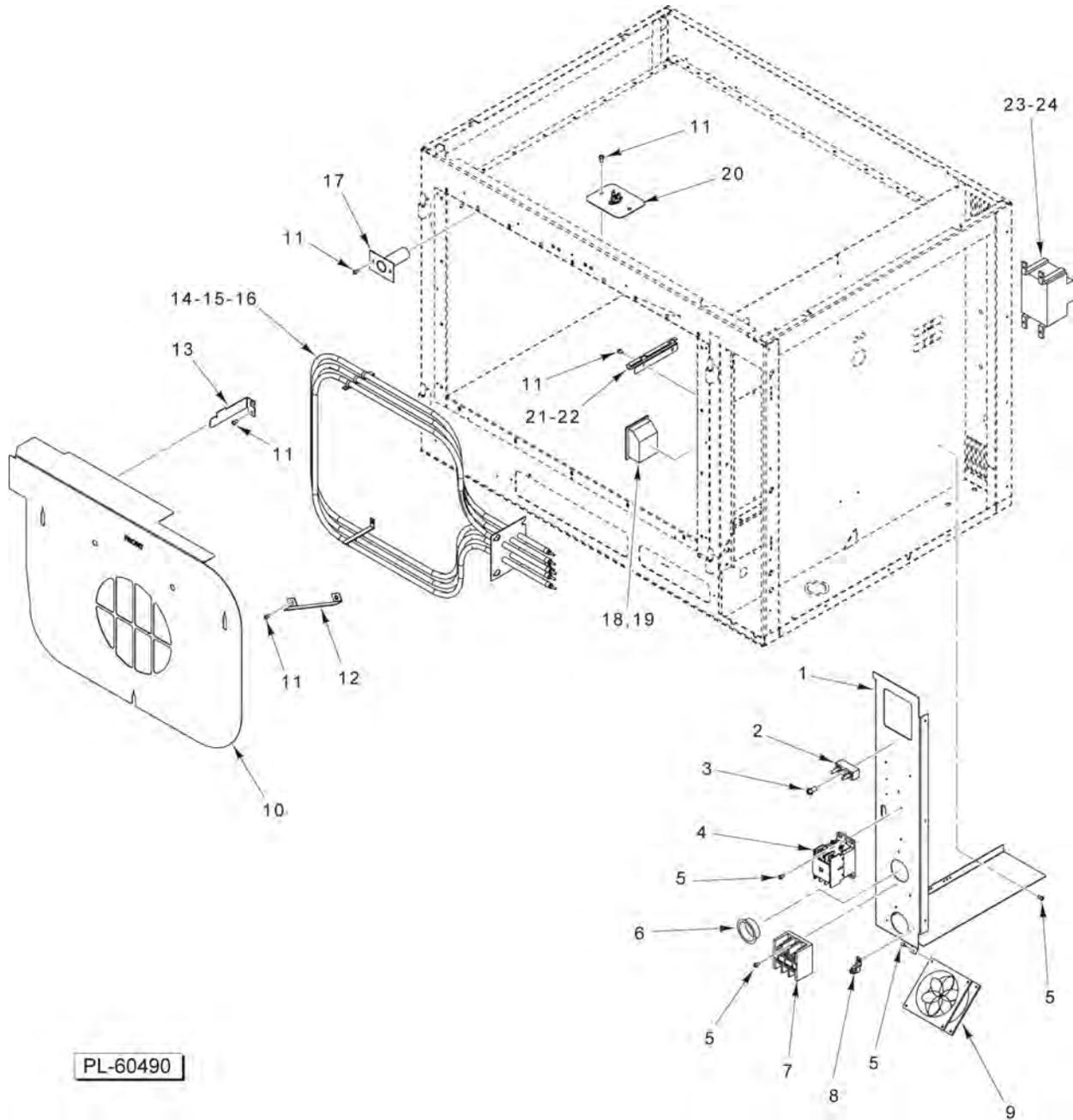


PL-60489

**CONTROL PANEL**

**CONTROL PANEL**

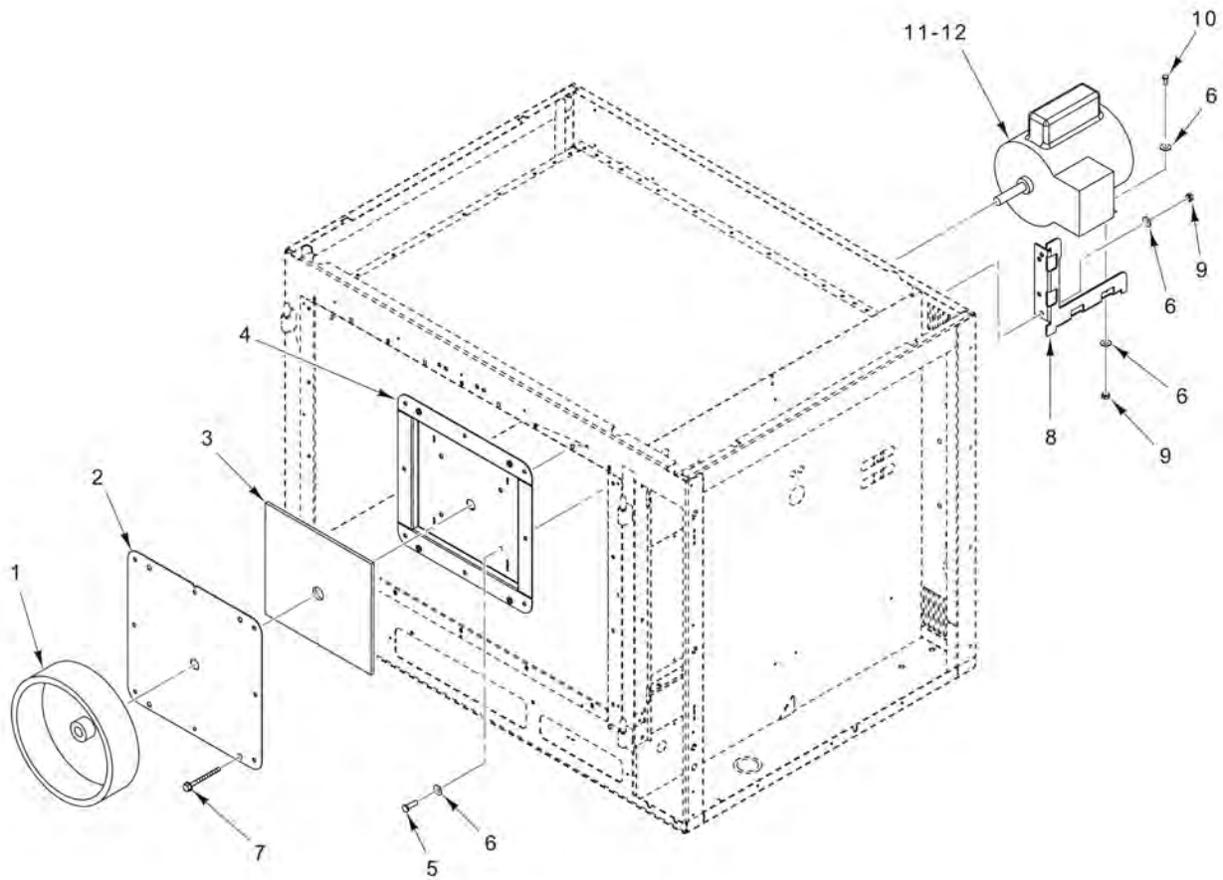
ILLUS.	PART NO.	NAME OF PART	AMT.
1	FE-019-40	Fuse (15 Amp., 600 V.).....	2
2	FE-023-55	Holder - Fuse (15 Amp., 300 V.).....	2
3	00-411242-00001	Knob.....	2
4	00-959961-00001	Light (250 V.) (Clear).....	1
5	00-959960-00001	Light (250 V.) (Amber).....	1
6	00-959892-00001	Overlay.....	1
7	00-959706-00001	Panel - Weldment.....	1
8	00-340324-00008	Switch (4P.D.T.).....	1
9	00-428897-00008	Board - Temperature Control, NCC.....	1
10	00-411690-00002	Timer (200-240 V.) (60 Hz.) (1-Hr.).....	1
11	00-340324-00009	Switch (D.P.D.T.).....	1
12	00-340324-00012	Switch (S.P.S.T.).....	1
13	00-411499-00003	Buzzer (230 V.).....	1



**ELECTRICAL COMPONENTS AND HEATING ELEMENT**

## ELECTRICAL COMPONENTS AND HEATING ELEMENT

ILLUS.	PART NO.	NAME OF PART	AMT.
PL-60490			
1	00-959693-00001	Panel - Component.....	1
2	00-417934-000G1	Block Assy. - Porcelain.....	1
3	SD-034-52	Self-Tapping Screw 8-32 x 1 Hex Washer Hd., Type T.....	AR
4	00-411497-000C7	Contactora (3-Pole) (50 Amp., 230 V.).....	1
5	SD-032-07	Self-Tapping Screw 10-24 x 1/2 Hex Washer Hd., Type TT.....	AR
6	FE-024-23	Bushing - Electrical (Snap).....	2
7	00-410472-00008	Block - Terminal (3-Pole).....	1
8	00-417856-00001	Lug - Grounding (With Set Screw).....	1
9	00-424940-00002	Fan - Cooling (230 V.).....	1
10	00-959859	Cover - Fan.....	1
11	SD-039-78	Self-Tapping Screw.....	AR
12	00-960052-00001	Baffle.....	1
13	00-959908-00001	Hook - Fan Cover.....	3
14	00-959747-00001	Element - Heating (208 V.).....	1
15	00-959747-00002	Element - Heating (240 V.).....	1
16	00-959747-00003	Element - Heating (480 V.).....	1
17	00-354431-00001	NLA - Obsolete--Flue Assy.....	1
18	00-959957-00001	Light Assy. (240 V.).....	1
19	00-961291-00002	Bulb - Halogen (230V) (240V / 40W).....	1
20	00-958827-000G1	Thermostat (High Limit) (With Mounting Plate).....	1
21	00-499278-00001	Guard - Probe.....	1
22	00-353589-00001	Probe Temperature (SST) Solid State.....	1
23	00-411500-00015	Transformer (480 V. to 240 V.).....	1
24	00-960054-000G1	Wire Set (480 V. Only).....	1

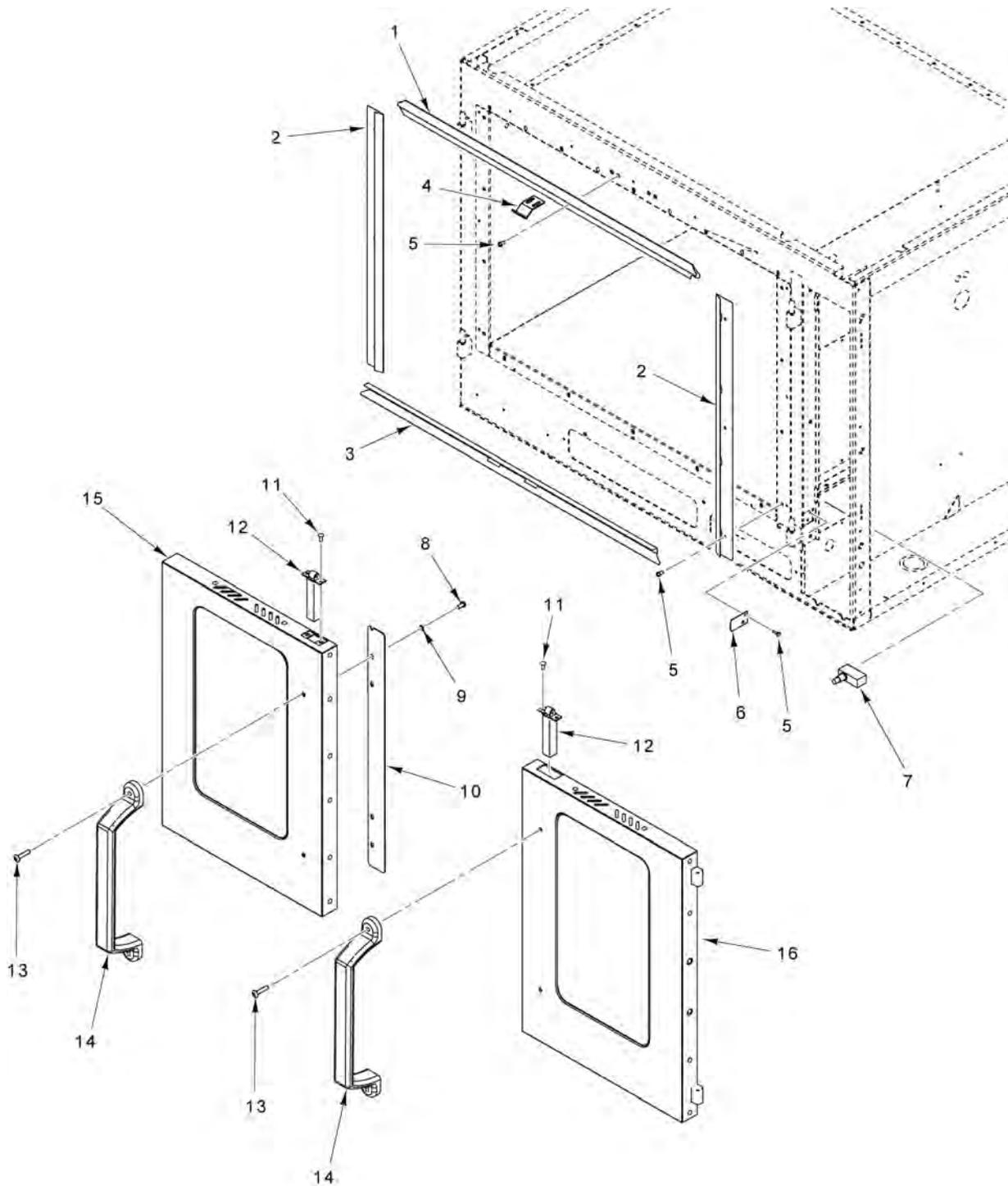


PL-60491

### CONVECTION MOTOR

### CONVECTION MOTOR

ILLUS. PL-60491	PART NO.	NAME OF PART	AMT.
1	00-415780-00003	Wheel - Blower (60 Hz.).....	1
2	00-959698	Cover - Motor.....	1
3	00-959955-00001	Insulation.....	1
4	00-959695	Mount - Motor.....	1
5	SC-113-65	Cap Screw 5/16-18 x 1-1/4 Hex Hd.....	4
6	WS-029-46	Washer.....	16
7	SC-132-01	Screw.....	8
8	00-959803	Bracket - Motor Support.....	2
9	NS-046-86	Nut Assy. 5/16-18 KEPS Hex.....	8
10	SC-113-78	Cap Screw 1/4-20 x 3/4 Hex Hd.....	4
11	00-342285-00001	Bushing - Plastic.....	1
12	00-358516-00002	Motor 1/2 Hp. (2-Speed) (208-240 V., 50/60 Hz., 1 Ph.).....	1

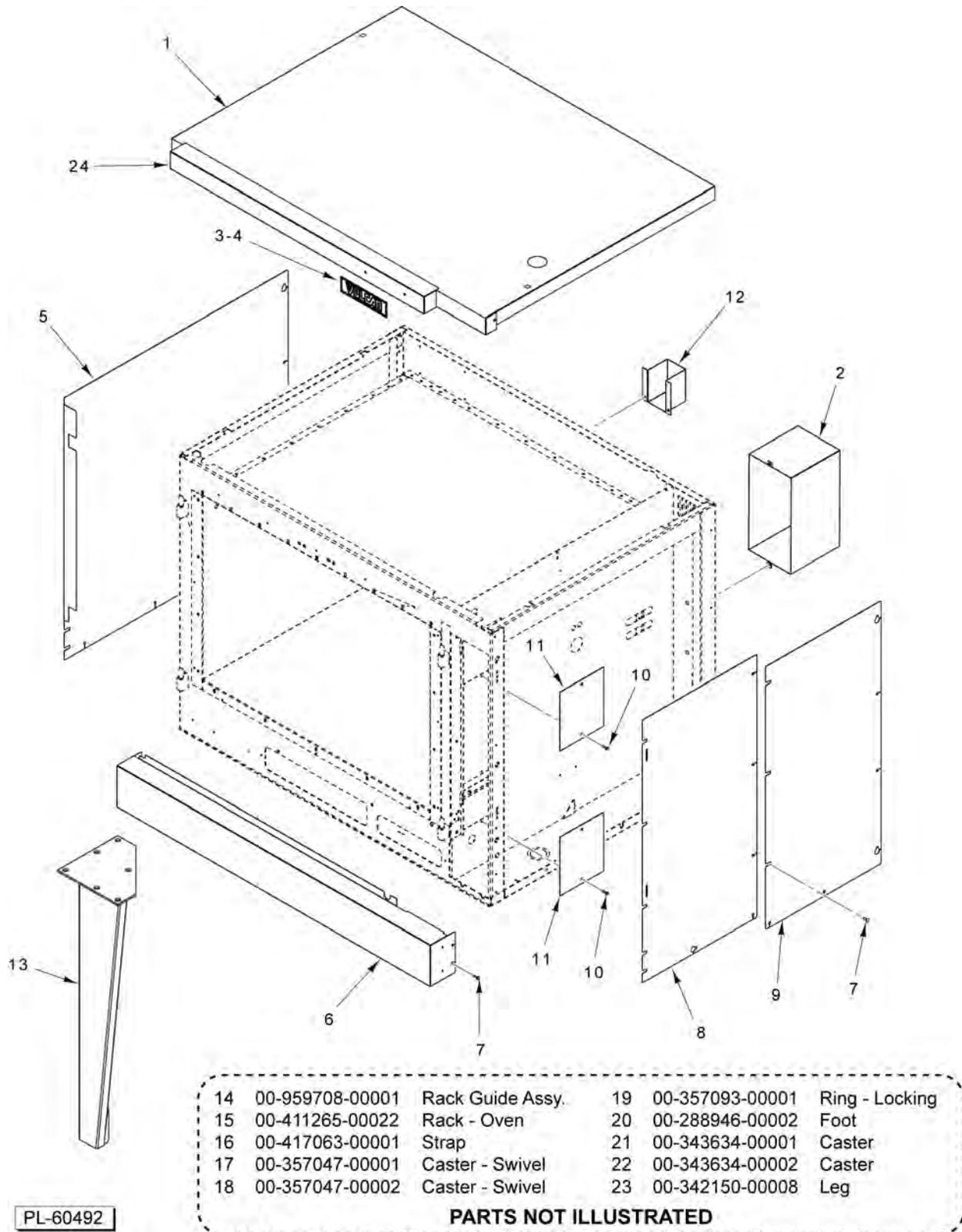


PL-60493

**DOOR ASSEMBLY**

**DOOR ASSEMBLY**

<b>ILLUS.</b>	<b>PART NO.</b>	<b>NAME OF PART</b>	<b>AMT.</b>
<b>PL-60493</b>			
1	00-959770	Seal - Door (Top).....	1
2	00-959771	Seal - Door (Side).....	2
3	00-959772	Seal - Door (Bottom).....	1
4	00-497585-00001	Plate - Strike.....	2
5	SD-039-78	Self-Tapping Screw.....	AR
6	00-959843	Stop - Door.....	1
7	00-960053-00001	Switch - Door.....	1
8	SC-113-78	Cap Screw 1/4-20 x 3/4 Hex Hd.....	4
9	WL-013-14	Lockwasher 1/4 Internal Shakeproof.....	4
10	00-959780	Seal - Center Door (LH Door).....	1
11	SC-115-51	Mach. Screw 10-32 x 1/2 Phil. Truss Hd.....	4
12	00-497586	Latch - Roller.....	2
13	00-959087-00001	Screw 1/4-20 x 1-1/4 Black Hd.....	4
14	00-957108	Handle.....	2
15	00-959798-000G1	Door Assy. (Left) (Incls. Items 8 thru 14).....	1
16	00-959799-000G1	Door Assy. (Right) (Incls. Items 11 thru 14).....	1



**PANELS**

## PANELS

ILLUS. PL-60492	PART NO.	NAME OF PART	AMT.
1	00-959689	Panel - Top.....	1
2	00-427082	Cover (480 V. Transformer).....	1
3	00-957916-00001	Nameplate - Vulcan (7-1/4 In.).....	1
4	NS-047-79	Pal Nut 3/16.....	2
5	00-959688	Panel - Side (LH).....	1
6	00-959922-00001	Trim - Cosmetic Bottom.....	1
7	SD-008-27	Self-Tapping Screw 10-16 x 1/2 Phil. Truss Hd., Type B.....	AR
8	00-959794	Panel - Access.....	1
9	00-959793	Panel - Side (RH).....	1
10	SD-032-07	Self-Tapping Screw 10-24 x 1/2 Hex Washer Hd., Type TT.....	4
11	00-959769	Cover - Access.....	2
12	00-427617-00001	Flue - Deflector.....	1
13	00-424157-000G7	Leg Assembly for Caster and Foot (Painted Black).....	4
14	00-959708-00001	Rack Guide Assy.....	AR
15	00-411265-00022	Rack Assy.....	AR
16	00-417063-00001	Strap - Tie Down.....	AR
17	00-357047-00001	Caster - Swivel (Without Brake).....	AR
18	00-357047-00002	Caster - Swivel (With Brake).....	AR
19	00-357093-00001	Ring - Locking.....	AR
20	00-288946-00002	Foot - Adjustable (1-5/8) (SST).....	AR
21	00-343634-00001	Caster (Swivel With Brake) (7.5 In.) (Double Stack Only).....	AR
22	00-343634-00002	Caster (Rigid) (7.5 In.) (Double Stack Only).....	AR
23	00-342150-00005	Leg (8 In.) (Double Stack Only).....	AR
24	00-960051-00001	Trim - Front.....	1





# CATALOG OF REPLACEMENT PARTS



## VC4E & VC6E ELECTRIC CONVECTION OVENS

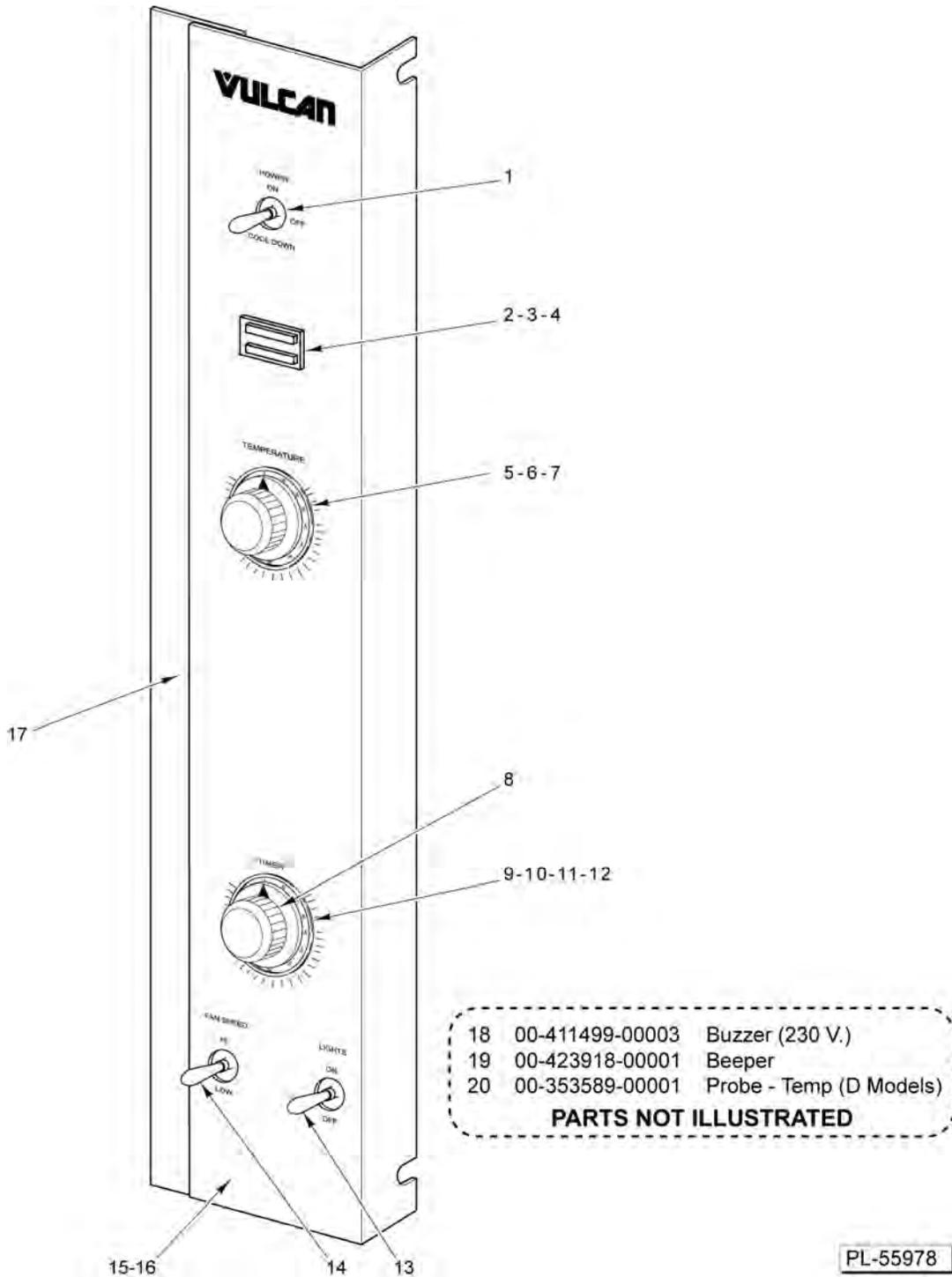
ML-126743  
ML-126744  
ML-126745  
ML-126746  
ML-126747  
ML-126748

VC4ES  
VC4ED  
VC4EC  
VC6ES  
VC6ED  
VC6EC



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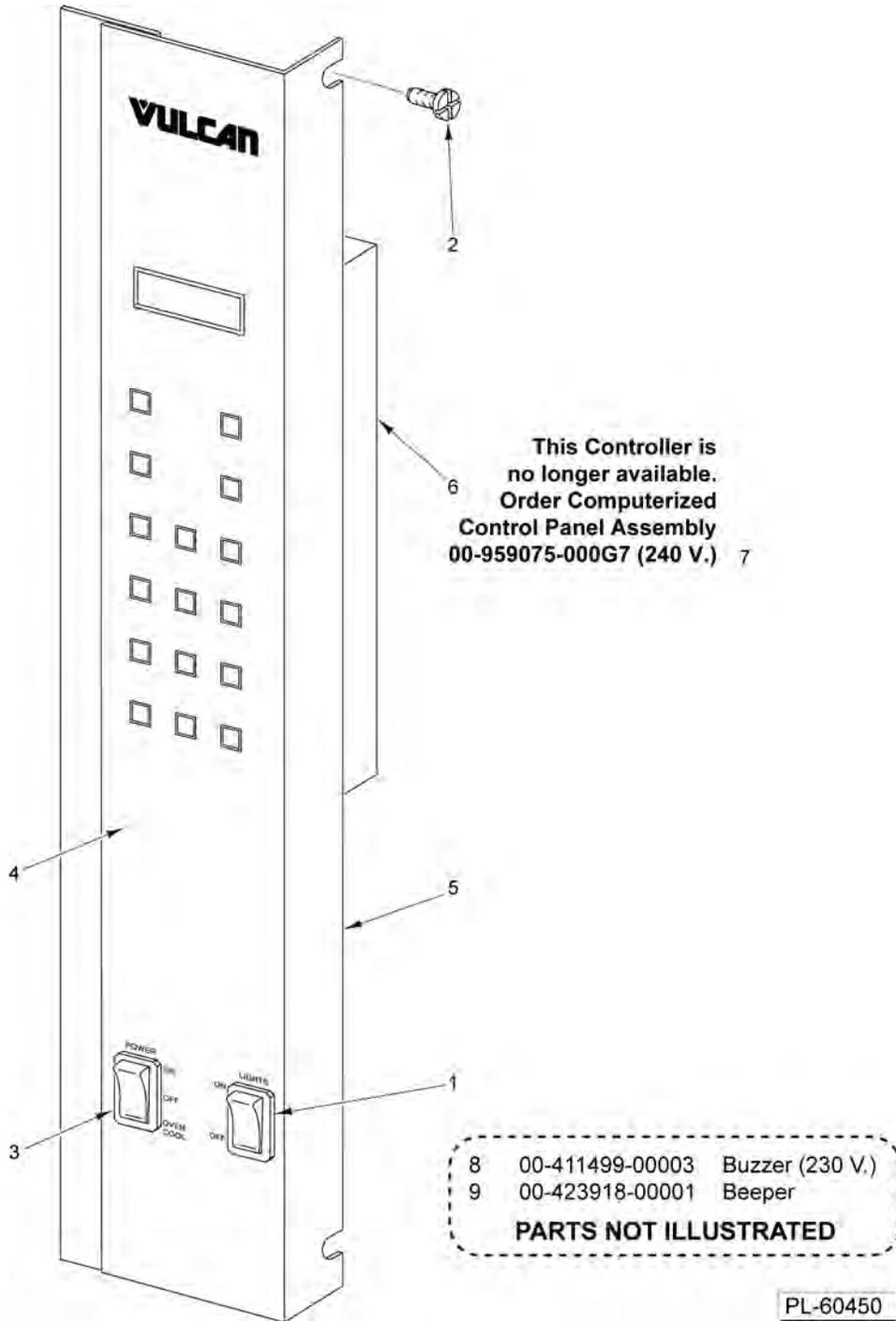
5	CONTROL PANEL (ML-126743, ML-126744, ML-126746, & ML-126747)
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19	OVEN PANELS (RH SIDE) (CURRENT CONSTRUCTION)
21	CONVECTION MOTOR (CURRENT CONSTRUCTION) (STARTING 3-19-18)
23	SIMULTANEOUSLY OPENING DOOR ASSEMBLY (PREVIOUS CONSTRUCTION)
25	SIMULTANEOUSLY OPENING DOOR ASSEMBLY (CURRENT CONSTRUCTION)
27	INDEPENDENTLY OPENING DOOR ASSEMBLY (PREVIOUS CONSTRUCTION)
29	INDEPENDENTLY OPENING DOOR ASSEMBLY (CURRENT CONSTRUCTION)



**CONTROL PANEL**  
**(ML-126743, ML-126744, ML-126746, & ML-126747)**

**CONTROL PANEL**  
**(ML-126743, ML-126744, ML-126746, & ML-126747)**

ILLUS. PL-55978	PART NO.	NAME OF PART	AMT.
1	00-340324-00008	Switch (4P.D.T.) (On/Off/Cooldown).....	1
2	00-913102-00161	Light - Indicator (Double).....	1
3	00-354575-00007	Light - Indicator (Amber).....	1
4	00-354575-00009	Light - Indicator (Clear).....	1
5	00-411242-00001	Knob.....	1
6	00-913149	Kit - Temperature Control (With Harness).....	1
7	00-411506-00003	Thermostat (Before Feb. 2001).....	1
8	00-411242-00001	Knob.....	1
9	00-411690-00002	Timer (200-240 V.) (60 Hz.) (1-Hr.).....	1
10	00-411690-00004	Timer (240 V.) (60 Hz.) (5-Hr.).....	1
11	00-411690-00005	Timer (240 V.) (50 Hz.) (1-Hr.).....	1
12	00-411690-00006	Timer (240 V.) (50 Hz.) (5-Hr.).....	1
13	00-340324-00012	Switch (S.P.S.T.) (On/Off).....	1
14	00-340324-00009	Switch (D.P.D.T.) (Hi/Low).....	1
15	00-426855-00001	Overlay - Panel (D Models).....	1
16	00-426719-00001	Overlay - Panel (S Models).....	1
17	00-499296-000G1	Panel - Weldment.....	1
18	00-411499-00003	Buzzer (230 V.).....	1
19	00-423918-00001	Electronic Beeper.....	1
20	00-353589-00001	Probe - Temp (D Models).....	1

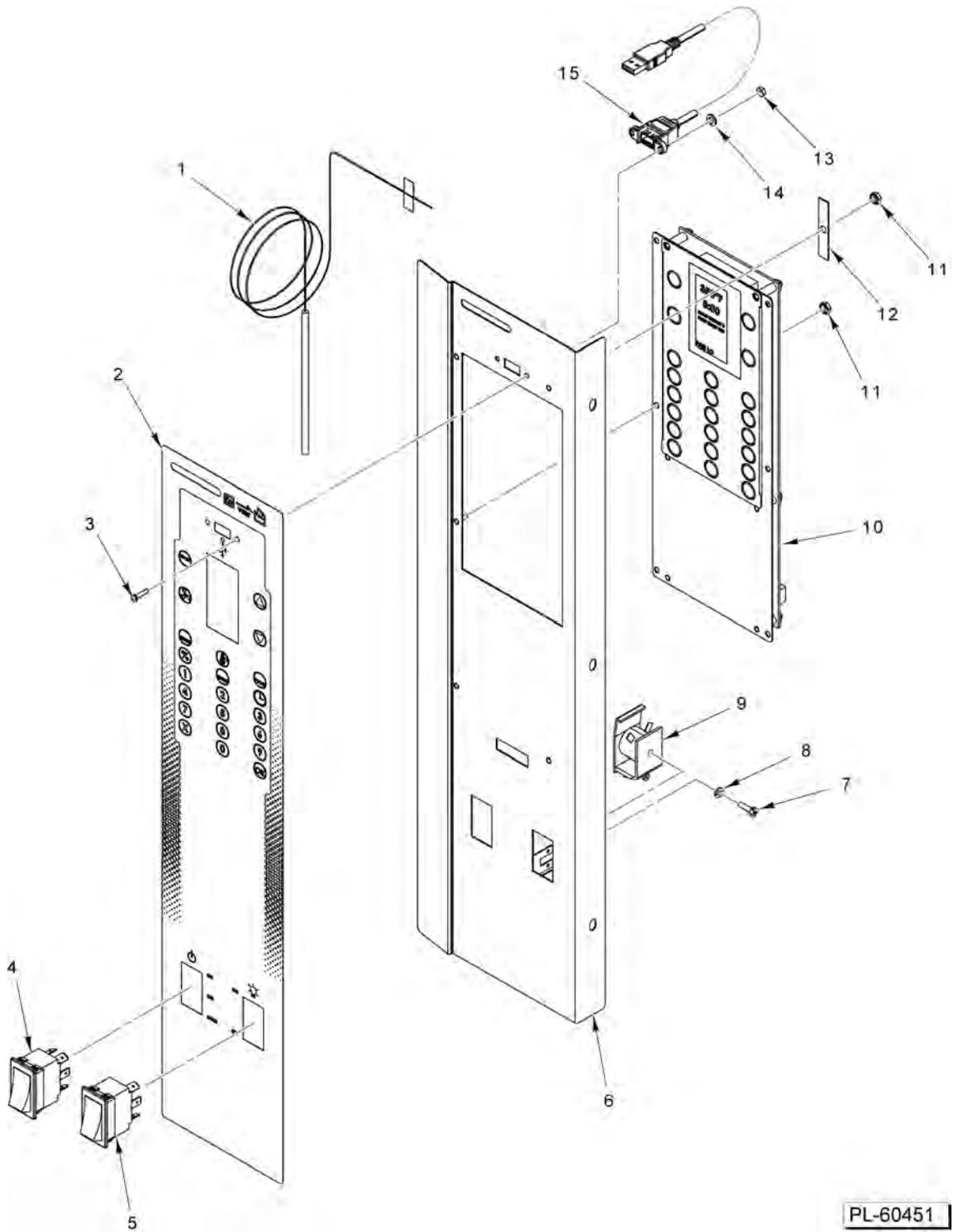


**CONTROL PANEL  
(ML-126745 & ML-126748) (PREVIOUS)**

**CONTROL PANEL  
(ML-126745 & ML-126748) (PREVIOUS)**

ILLUS.	PART NO.	NAME OF PART	AMT.
PL-60450			
1	00-358628-00002	Switch - Rocker (2-Position).....	1
2	SD-037-02	Self-Tapping Screw 10-16 x 1/2 Hex Washer Hd., Type AB.....	3
3	00-358628-00001	Switch - Rocker (3-Position).....	1
4	00-426930-00001	Overlay - Control Panel.....	1
5	00-424842-000G1	Panel - Weldment.....	1
*6		Controller.....	1
7	00-959075-000G7	Panel - Control Assy. (Complete).....	1
8	00-411499-00003	Buzzer (230 V.).....	1
9	00-423918-00001	Electronic Beeper.....	12

\* (No Longer Available, order Item 7.)

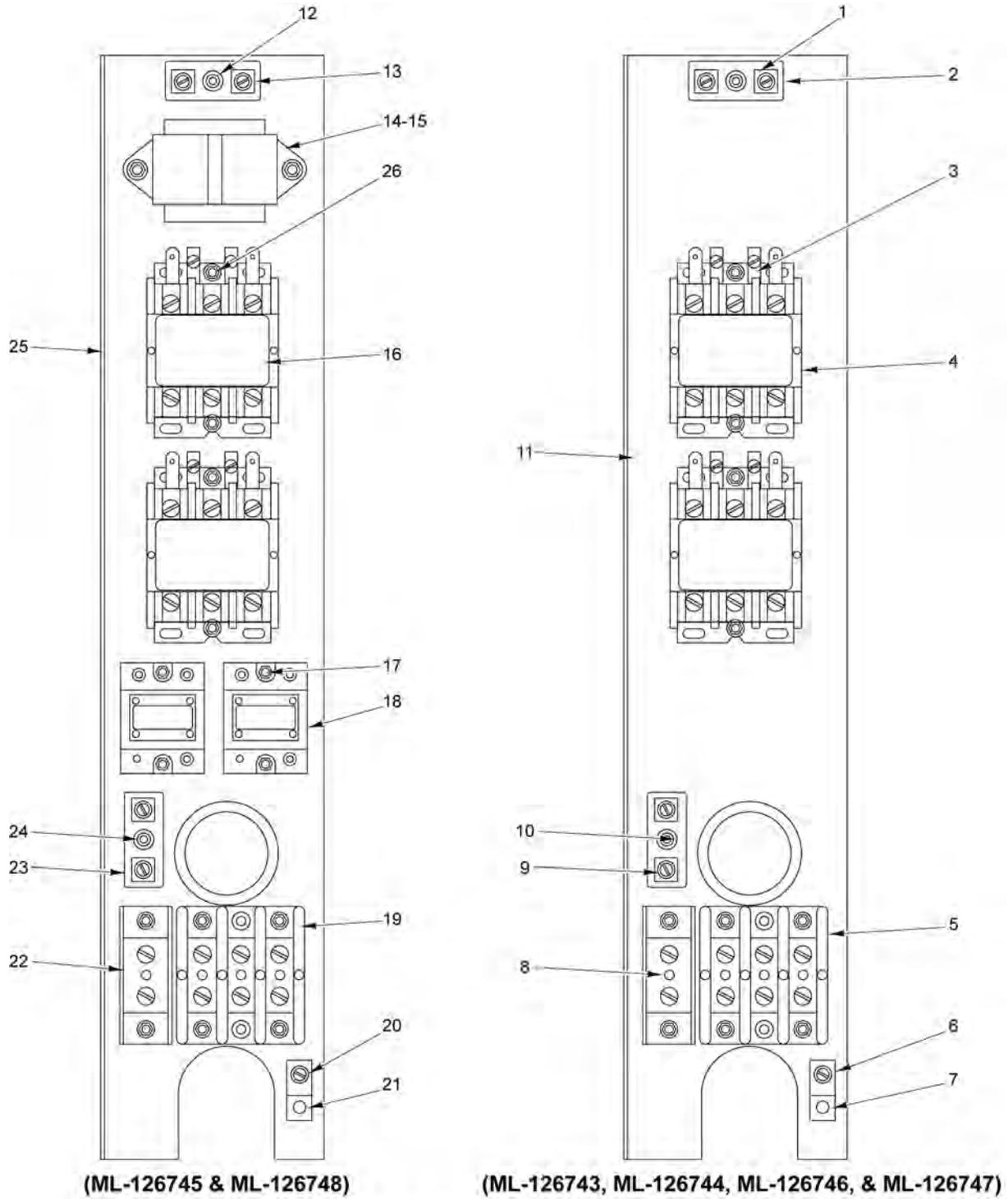


PL-60451

**CONTROL PANEL  
(ML-126745 & ML-126748) (CURRENT)**

**CONTROL PANEL  
(ML-126745 & ML-126748) (CURRENT)**

ILLUS. PL-60451	PART NO.	NAME OF PART	AMT.
1	00-920883-00003	Probe - Temperature (C Models).....	1
2	00-959113-00002	Overlay (Vulcan).....	1
3		Mach. Screw 4-40 x 1/2 Phil. Pan Hd.....	2
4	00-358628-00001	Switch - Rocker (3-Position).....	1
5	00-358628-00002	Switch - Rocker (2-Position).....	1
6	00-959074	Panel - Weldment.....	1
7	SC-114-83	Mach. Screw 6-32 x 1/4 Slotted Pan Hd. (SST).....	1
8	WL-003-12	Lockwasher #8 Helical.....	1
9	00-411499-00003	Buzzer (230 V.).....	1
10	00-959077-00001	Controller - Cooking (NCC).....	1
11	NS-046-89	Nut Assy. 6-32 Hex.....	AR
12	00-959110-00001	Plate.....	2
13		Nut 4-40 Hex.....	2
14		Lockwasher.....	2
15	00-959000-000G1	Cable Assy. (USB) (1 Ft.) (Incls. Items 3, 14, & 15).....	1



27 FE-019-40 Fuse (15 Amp.)  
 28 FE-023-55 Holder - Fuse  
**PARTS NOT ILLUSTRATED**

PL-55979

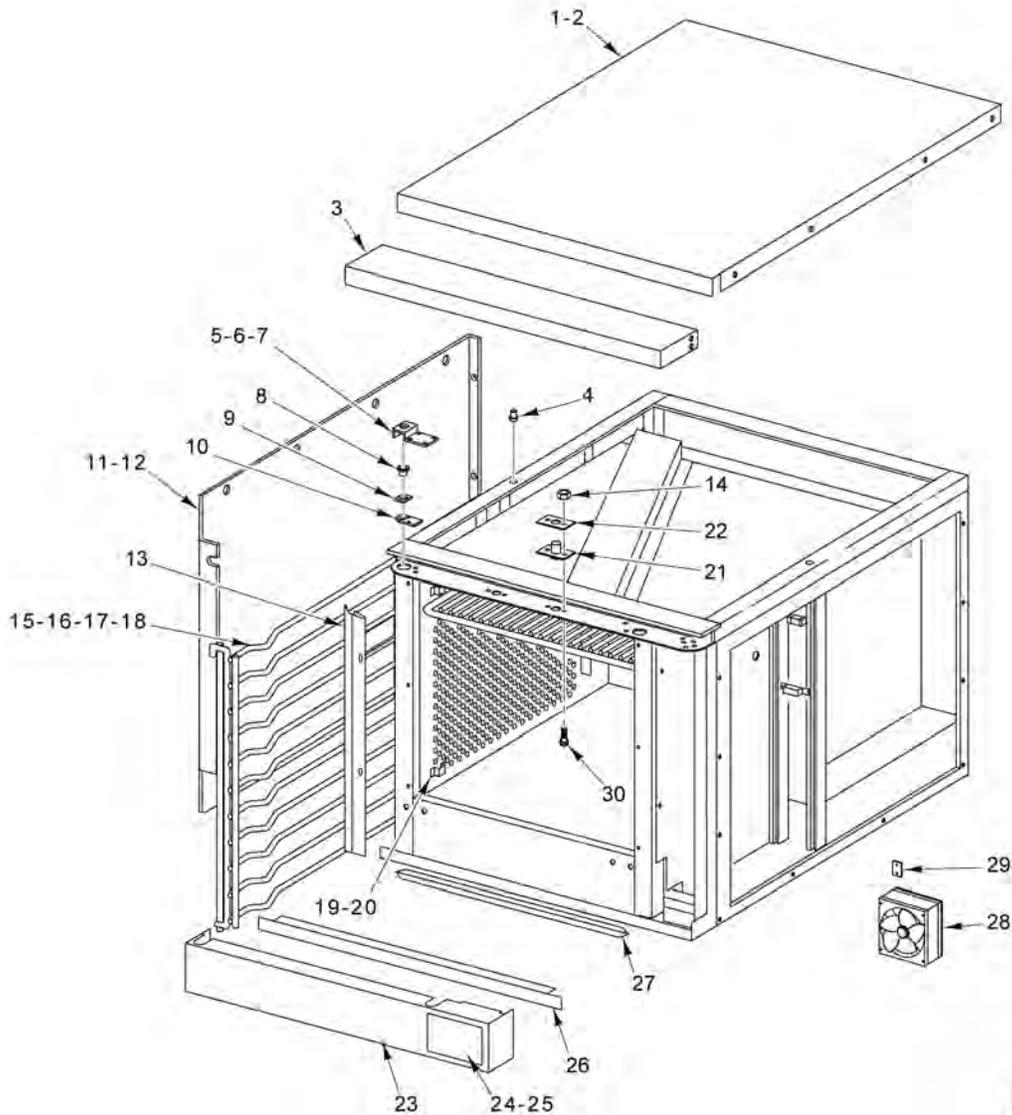
**COMPONENT PANEL**

**COMPONENT PANEL**

ILLUS. PL-55979	PART NO.	NAME OF PART	AMT.
1	SD-034-52	Self-Tapping Screw 8-32 x 1 Hex Washer Hd., Type T.....	1
2	00-417934-000G1	Block Assy. - Porcelain.....	1
3	SD-032-07	Self-Tapping Screw 10-24 x 1/2 Hex Washer Hd., Type TT.....	4
4	00-411497-000C5	Contacto (3-Pole) (40 Amp., 208-240V).....	2
5	00-410472-00008	Block - Terminal (3-Pole).....	1
6	SD-032-07	Self-Tapping Screw 10-24 x 1/2 Hex Washer Hd., Type TT.....	1
7	00-417856-00001	Lug - Grounding (With Set Screw).....	1
8	00-410472-00009	Block - Terminal (1-Pole).....	1
9	00-417934-000G1	Block Assy. - Porcelain.....	1
10	SD-034-52	Self-Tapping Screw 8-32 x 1 Hex Washer Hd., Type T.....	1
11	00-422155-00001	Component Panel.....	1
12	SD-034-52	Self-Tapping Screw 8-32 x 1 Hex Washer Hd., Type T.....	1
13	00-417934-000G1	Block Assy. - Porcelain.....	1
14	00-421758-000G2	Transformer (208-240 V.) (24 V. Output) (Before November 11, 2002).....	1
15	00-421758-000G4	Transformer Assy. (After November 11, 2002).....	1
16	00-411497-000C5	Contacto (3-Pole) (40 Amp., 208-240V).....	2
17	SD-034-52	Self-Tapping Screw 8-32 x 1 Hex Washer Hd., Type T.....	4
18	00-821875-00002	Relay - Solid State (50 Amp.).....	2
19	00-410472-00008	Block - Terminal (3-Pole).....	1
20	SD-032-07	Self-Tapping Screw 10-24 x 1/2 Hex Washer Hd., Type TT.....	1
21	00-417856-00001	Lug - Grounding (With Set Screw).....	1
22	00-410472-00009	Block - Terminal (1-Pole).....	1
23	00-417934-000G1	Block Assy. - Porcelain.....	1
24	SD-034-52	Self-Tapping Screw 8-32 x 1 Hex Washer Hd., Type T.....	1
25	00-422155-00001	Component Panel.....	1
26	SD-032-07	Self-Tapping Screw 10-24 x 1/2 Hex Washer Hd., Type TT.....	4
27	FE-019-40	Fuse (15 Amp., 600 V.).....	2
28	FE-023-55	Holder - Fuse (15 Amp., 300 V.).....	2

31	00-424172-00001	Leg - Set (PTD)	40	00-355154-00002	Pan - Drip
32	00-424172-00002	Leg - Set (SST)	41	00-355154-00003	Pan - Drip
33	00-424157-000G7	Leg (PTD)	42	00-417063-00001	Strap
34	00-342150-00005	Leg (For Double Stack)	43	00-357093-00001	Ring - Locking
35	00-343634-00001	Caster	44	00-288946-00002	Foot
36	00-343634-00002	Caster	45	SC-113-76	Screw
37	00-357047-00001	Caster - Swivel	46	00-425428-00001	Foot (Adjustable)
38	00-357047-00002	Caster - Swivel	47	00-357919-00001	Kit - Door Seal (Flexible)
39	00-346357-00001	Thermostat - High Limit			

**PARTS NOT ILLUSTRATED**



PL-55974

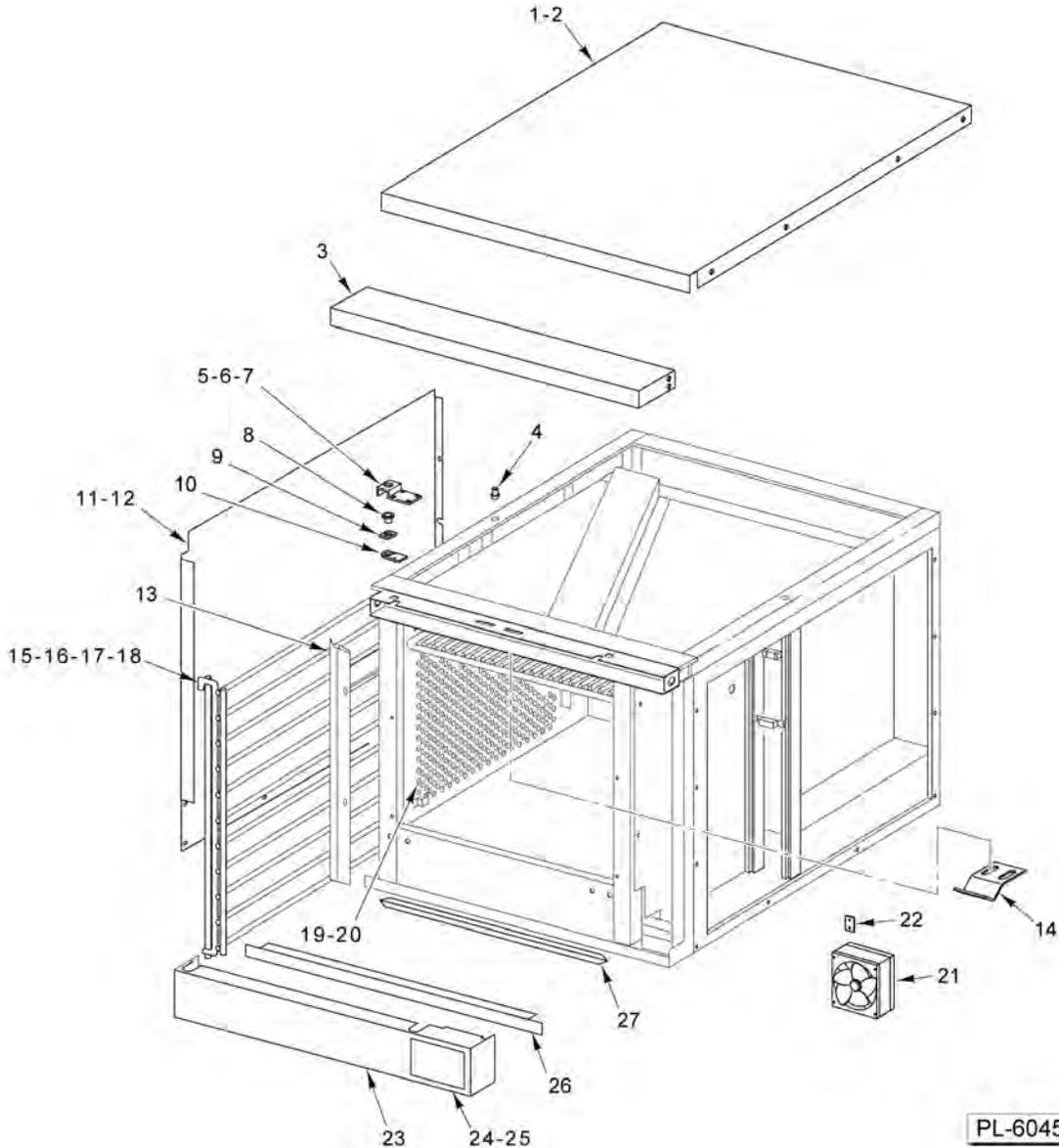
**OVEN PANELS  
(LH SIDE)  
(PREVIOUS CONSTRUCTION)**

**OVEN PANELS  
(LH SIDE)  
(PREVIOUS CONSTRUCTION)**

ILLUS.	PART NO.	NAME OF PART	AMT.
PL-55974			
1	00-424141-00002	Top (SST) (ML-126743, ML-126744, & ML-126745).....	1
2	00-424229-00002	Top (SST) (ML-126746, ML-126747, & ML-126748).....	1
3	00-421799-00001	Top - Front.....	1
4	00-339337-00001	Stud - Locating.....	2
5	00-353484-00001	Plate - Retainer.....	2
6	SC-053-41	Mach. Screw 1/4-20 x 1/2 Slotted Truss Hd. (SST).....	4
7	NS-038-08	Lock Nut 1/4-20 x 1 Hex.....	4
8	00-347080-00002	Bearing - Door Shaft.....	2
9	00-353482-00001	Spacer.....	2
10	00-353483-00001	Plate - Upper Door Bearing.....	2
11	00-424142-00002	Panel - Outer (SST) (LH) (ML-126743, ML-126744, & ML-126745).....	1
12	00-424230-00002	Panel - Outer (SST) (LH) (ML-126746, ML-126747, & ML-126748).....	1
13	00-423842-000G1	Seal - Vertical Door (Set) (LH & RH).....	1
14	NS-038-03	Lock Nut 10-32 SP.....	2
15	00-342141-00001	Rack - Support (LH) (ML-126743, ML-126744, & ML-126745).....	1
16	00-342141-00002	Rack - Support (RH) (ML-126743, ML-126744, & ML-126745).....	1
17	00-342141-00003	Rack - Support (LH) (ML-126746, ML-126747, & ML-126748).....	1
18	00-342141-00004	Rack - Support (RH) (ML-126746, ML-126747, & ML-126748).....	1
19	00-913102-00222	Kit - Cavity Assy. (Side).....	1
20	00-913102-00223	Kit - Cavity Assy. (Side) (Porcelain).....	1
21	00-347545-00001	Catch Assy. - Door.....	1
22	00-423848-00001	Shim - Door Strike.....	AR
23	00-423766-000G1	Trim - Bottom W/Access Door Assy. (Incls. Items 24 & 25).....	1
24	00-423758-00001	Door - Access Trim.....	1
25	00-425199-00001	Fastener - Nylon (Push-In).....	2
26	00-424865-00001	Cover - Trim.....	1
27	00-357507-00001	Seal - Horizontal Door (30-1/2 In. Long) (Top & Bottom).....	2
28	00-424940-00002	Fan - Cooling (230 V.).....	1
29	00-425433-00001	Fan - Clip.....	1
30	SC-115-51	Mach. Screw 10-32 x 1/2 Phil. Truss Hd.....	2
31	00-424172-00001	Leg - Set (25-3/4 In.) (PTD).....	1
32	00-424172-00002	Leg - Set (25-3/4 In.) (SST).....	1
33	00-424157-000G7	Leg Assembly for Caster and Foot (Painted Black).....	4
34	00-342150-00005	Leg (8 In.) (Double Stack).....	4
35	00-343634-00001	Caster (Swivel With Brake) (7.5 In.).....	2
36	00-343634-00002	Caster (Rigid) (7.5 In.).....	2
37	00-357047-00001	Caster - Swivel (Without Brake).....	2
38	00-357047-00002	Caster - Swivel (With Brake).....	2
39	00-346357-00001	Thermostat - High Limit (Thermodisc).....	1
40	00-355154-00002	Pan - Drip (VC4).....	1
41	00-355154-00003	NLA - Obsolete--Pan - Drip (VC6).....	1
42	00-417063-00001	Strap - Tie Down.....	4
43	00-357093-00001	Ring - Locking (Used with Item 33).....	4
44	00-288946-00002	Foot - Adjustable (1-5/8) (SST) (Used with Item 33).....	4
45	SC-113-76	Cap Screw 1/4-20 x 1 Hex Hd (Used with legs).....	16
46	00-425428-00001	Foot - Adjustable (Used with Item 34).....	4
47	00-357919-00001	Kit - Door Seal.....	1

28	00-424172-00001	Leg – Set (PTD)	37	00-355154-00002	Pan - Drip
29	00-424172-00002	Leg – Set (SST)	38	00-355154-00003	Pan - Drip
30	00-424157-000G7	Leg (PTD)	39	00-417063-00001	Strap
31	00-342150-00005	Leg (For Double Stack)	40	00-357093-00001	Ring - Locking
32	00-343634-00001	Caster	41	00-288946-00002	Foot
33	00-343634-00002	Caster	42	SC-113-76	Screw
34	00-357047-00001	Caster - Swivel	43	00-425428-00001	Foot (Adjustable)
35	00-357047-00002	Caster - Swivel	44	00-357919-00001	Kit - Door Seal (Flexible)
36	00-346357-00001	Thermostat – High Limit			

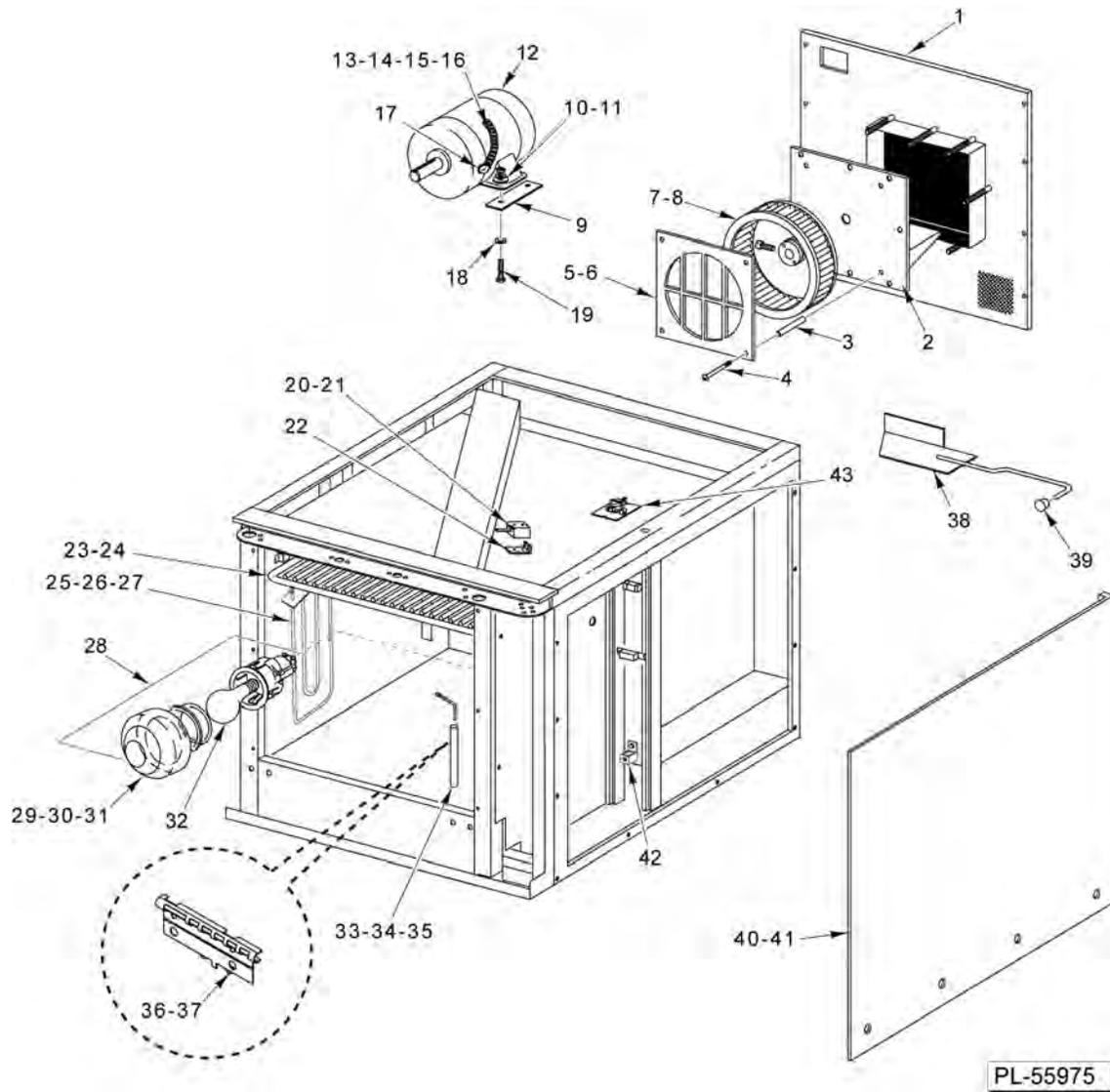
**PARTS NOT ILLUSTRATED**



**OVEN PANELS  
(LH SIDE)  
(PREVIOUS CONSTRUCTION)  
(BEFORE 3/19/18)**

**OVEN PANELS  
(LH SIDE)  
(PREVIOUS CONSTRUCTION)  
(BEFORE 3/19/18)**

ILLUS. PL-60452	PART NO.	NAME OF PART	AMT.
1	00-424141-00002	Top (SST) (ML-126743, ML-126744, & ML-126745).....	1
2	00-424229-00002	Top (SST) (ML-126746, ML-126747, & ML-126748).....	1
3	00-421799-00001	Top - Front.....	1
4	00-339337-00001	Stud - Locating.....	2
5	00-353484-00001	Plate - Retainer.....	2
6	SC-053-41	Mach. Screw 1/4-20 x 1/2 Slotted Truss Hd. (SST).....	4
7	NS-038-08	Lock Nut 1/4-20 x 1 Hex.....	4
8	00-347080-00002	Bearing - Door Shaft.....	2
9	00-353482-00001	Spacer.....	2
10	00-353483-00001	Plate - Upper Door Bearing.....	2
11	00-499302-00001	Side - Left Body (ML-126743, ML-126744, & ML-126745).....	1
12	00-499303-00001	Side - Left Body (ML-126746, ML-126747, & ML-126748).....	1
13	00-423842-000G1	Seal - Vertical Door (Set) (LH & RH).....	1
14	00-497585-00001	Plate - Strike.....	1
15	00-428104-00001	Guide - Rack (LH) (ML-126746, ML-126747, & ML-126748).....	1
16	00-428104-00002	Guide - Rack (RH) (ML-126743, ML-126744, & ML-126745).....	1
17	00-428104-00003	Guide - Rack (LH) (ML-126743, ML-126744, & ML-126745).....	1
18	00-428104-00004	Guide - Rack (RH) (ML-126746, ML-126747, & ML-126748).....	1
19	00-913102-00222	Kit - Cavity Assy. (Side).....	1
20	00-913102-00223	Kit - Cavity Assy. (Side) (Porcelain).....	1
21	00-424940-00002	Fan - Cooling (230 V.).....	1
22	00-425433-00001	Fan - Clip.....	1
23	00-499299-000G1	Trim - Bottom W/Access Door (Incls. Items 24 & 25).....	1
24	00-499297-00001	Door - Lower Access Trim.....	1
25	00-425199-00001	Fastener - Nylon (Push-In).....	2
26	00-424865-00001	Cover - Trim.....	1
27	00-357507-00001	Seal - Horizontal Door (30-1/2 In. Long) (Top & Bottom).....	2
28	00-424172-00001	Leg - Set (25-3/4 In.) (PTD).....	1
29	00-424172-00002	Leg - Set (25-3/4 In.) (SST).....	1
30	00-424157-000G7	Leg Assembly for Caster and Foot (Painted Black).....	4
31	00-342150-00005	Leg (8 In.) (Double Stack).....	4
32	00-343634-00001	Caster (Swivel With Brake) (7.5 In.).....	2
33	00-343634-00002	Caster (Rigid) (7.5 In.).....	2
34	00-357047-00001	Caster - Swivel (Without Brake).....	2
35	00-357047-00002	Caster - Swivel (With Brake).....	2
36	00-346357-00001	Thermostat - High Limit (Thermodisc).....	1
37	00-355154-00002	Pan - Drip (VC4).....	1
38	00-355154-00003	NLA - Obsolete--Pan - Drip (VC6).....	1
39	00-417063-00001	Strap - Tie Down.....	4
40	00-357093-00001	Ring - Locking (Use with Item 30).....	4
41	00-288946-00002	Foot - Adjustable (1-5/8) (SST) (Use with Item 30).....	4
42	SC-113-76	Cap Screw 1/4-20 x 1 Hex Hd (Use with legs).....	16
43	00-425428-00001	Foot - Adjustable (Use with Item 31).....	4
44	00-357919-00001	Kit - Door Seal.....	1

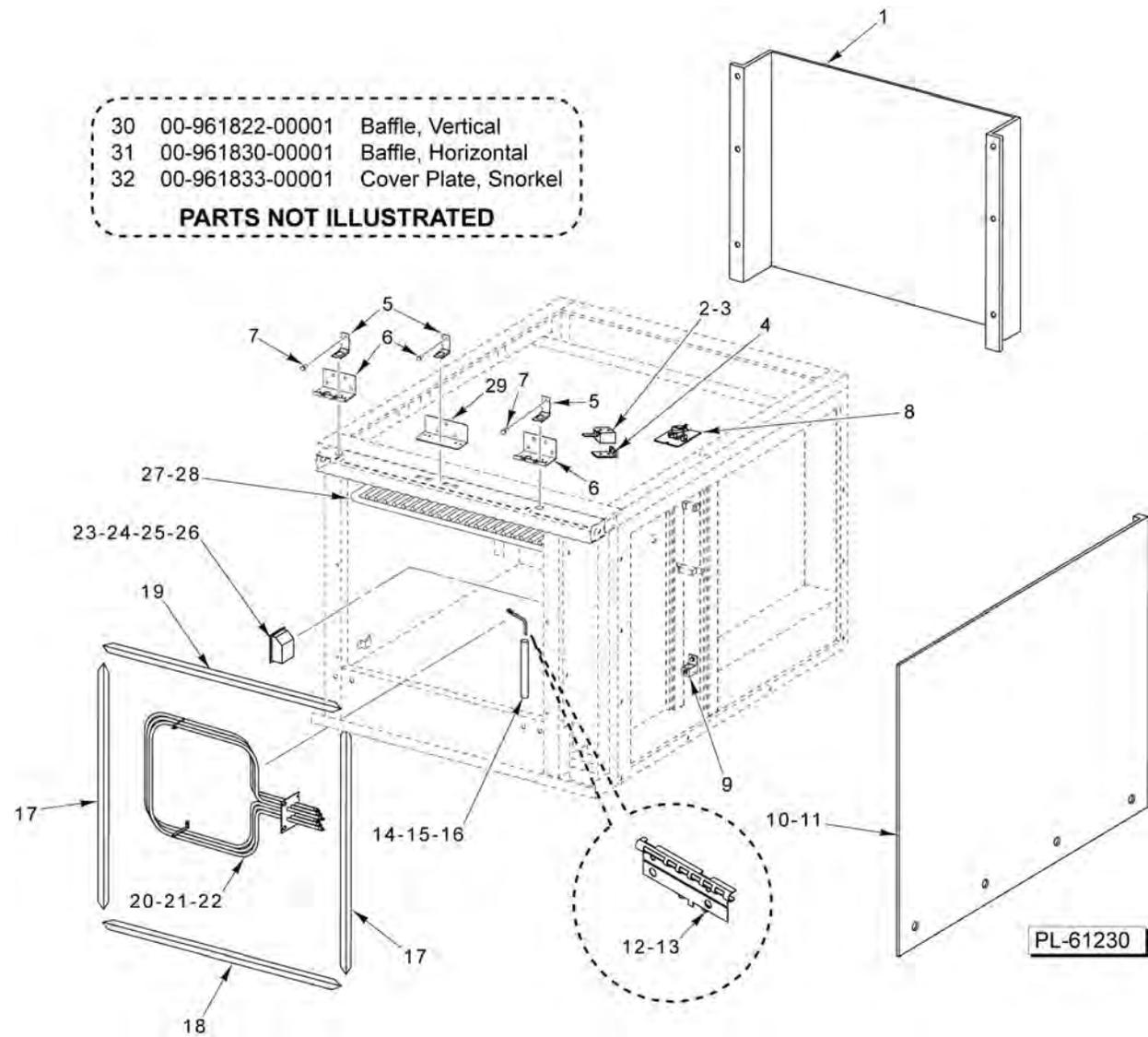


PL-55975

**OVEN PANELS & MOTOR  
(PREVIOUS CONSTRUCTION)  
(BEFORE 3-19-18)**

**OVEN PANELS & MOTOR  
(PREVIOUS CONSTRUCTION)  
(BEFORE 3-19-18)**

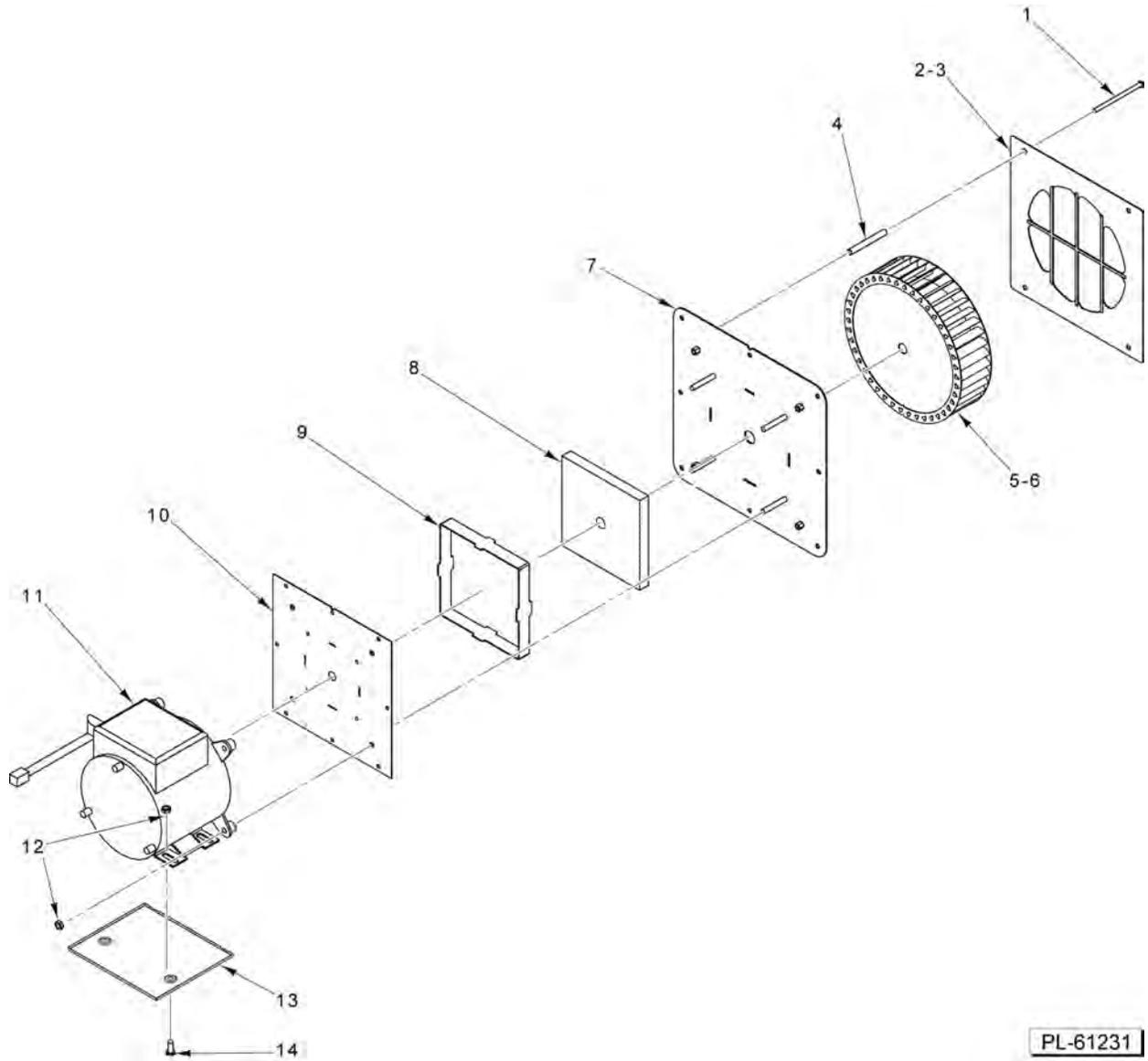
ILLUS. PL-55975	PART NO.	NAME OF PART	AMT.
1	00-426839-000G1	Panel Assy. - Back.....	1
2	00-423289-000G1	Motor Mount.....	1
3	00-411289-00004	Spacer - Fan Housing.....	4
4	SC-120-15	Mach. Screw 1/4-20 x 4 Rd. Hd.....	4
5	00-411136-00004	Cover - Fan (60 Hz.).....	1
6	00-411136-00003	Cover - Fan (50 Hz.).....	1
7	00-415780-00003	Wheel - Blower (60 Hz.).....	1
8	00-415780-00005	Wheel - Blower (50 Hz.).....	1
9	00-358723-00001	Spacer - Steel.....	2
10	WS-029-46	Washer.....	4
11	NS-046-86	Nut Assy. 5/16-18 KEPS Hex.....	4
12	00-358516-00002	Motor 1/2 Hp. (2-Speed) (208-240 V., 50/60 Hz., 1 Ph.).....	1
13	FE-006-05	Lock Nut 1/2.....	1
14	00-414540-00B35	Conduit 3/8 x 35 In. Lg.....	1
15	00-342285-00001	Bushing - Plastic.....	2
16	FE-002-03	Connector - Conduit 3/8 TS Straight.....	1
17	FE-002-52	Connector - Conduit 3/8 TS 90 Degree.....	1
18	WS-029-46	Washer.....	4
19	SC-113-65	Cap Screw 5/16-18 x 1-1/4 Hex Hd.....	4
20	00-411496-000F1	Switch - Micro.....	1
21	SD-034-47	Self-Tapping Screw 6-32 x 1 Hex Washer Hd., Type T.....	2
22	00-425324-00001	Bracket - Door Switch.....	1
23	00-411265-00022	Rack Assy. (ML-126743, ML-126744, & ML-126745).....	AR
24	00-411265-00010	Rack Assy. (ML-126746, ML-126747, & ML-126748).....	AR
25	00-426635-00001	Element (2000 Watts) (208 V.).....	6
26	00-426635-00002	Element (2000 Watts) (240 V.).....	6
27	00-426635-00003	Element (2000 Watts) (480 V.).....	6
28	00-913102-00032	Kit - Lamp & Housing (250 V.).....	2
29	00-423832-00001	Cover - Lamp Electrical.....	2
30	01-1000V7-00027	Lamp - Oven (Complete) (Lens, Base, & 120V Bulb) Use Lens Only.....	1
31	00-357036-00003	Lens - Lamp.....	1
32	01-1000V7-00028	Bulb, Oven, 40W, 120V.....	2
33	00-353589-00001	Probe Temperature (SST) (ML-126743, ML-126744, ML-126746, & ML-126747).....	1
34	00-920883-00001	Probe (ML-126745 & ML-126748).....	1
35	00-342132-00002	Guard - Probe.....	1
36	SD-032-07	Self-Tapping Screw 10-24 x 1/2 Hex Washer Hd., Type TT.....	2
37	00-959753-00001	Probe Guard & Retainer.....	1
38	00-426804-000G1	Vent Slide Assy. (Incls. Item 39).....	1
39	00-341564-00003	Handle - Slide.....	1
40	00-424140-00002	Panel - Outer (RH) (SST) (ML-126743, ML-126744, & ML-126745).....	1
41	00-424228-00002	Panel - Outer (RH) (SST) (ML-126746, ML-126747, & ML-126748).....	1
42	00-417856-00001	Lug - Grounding (With Set Screw).....	1
43	00-958827-000G3	Kit - Oven Limit Assy.....	1



**OVEN PANELS  
 (RH SIDE)  
 (CURRENT CONSTRUCTION)**

**OVEN PANELS  
(RH SIDE)  
(CURRENT CONSTRUCTION)**

ILLUS. PL-61230	PART NO.	NAME OF PART	AMT.
1	00-424840-00002	Panel - Back (SST) (Optional).....	1
2	00-411496-000F1	Switch - Micro.....	1
3	SD-034-47	Self-Tapping Screw 6-32 x 1 Hex Washer Hd., Type T.....	2
4	00-425324-00001	Bracket - Door Switch.....	AR
5	00-961587-00001	Clip - Hold Down.....	2
6	00-961656-00001	Support - Door (Upper).....	2
7	00-922154	Screw 1/4-20 x 1 Hex Hd.....	2
8	00-958827-000G3	Kit - Oven Limit Assy.....	1
9	00-417856-00001	Lug - Grounding (With Set Screw).....	1
10	00-424140-00002	Panel - Outer (RH) (SST) (ML-126743, ML-126744, & ML-126745).....	1
11	00-424228-00002	Panel - Outer (RH) (SST) (ML-126746, ML-126747, & ML-126748).....	1
12	SD-032-07	Self-Tapping Screw 10-24 x 1/2 Hex Washer Hd., Type TT.....	2
13	00-959753-00001	Probe Guard & Retainer.....	1
14	00-353589-00001	Probe Temperature (SST) (ML-126743, ML-126744, ML-126746, & ML-126747).....	1
15	00-920883-00001	Probe (ML-126745 & ML-126748).....	1
16	00-342132-00002	Guard - Probe.....	1
17	00-959771-00001	Seal - Door (Side).....	2
18	00-959772-00001	Seal - Door (Bottom).....	1
19	00-959770-00001	Seal - Door (Top).....	1
20	00-959747-00001	Element - Heating (208 V.).....	1
21	00-959747-00002	Element - Heating (240 V.).....	1
22	00-959747-00003	Element - Heating (480 V.).....	1
23	00-960194-00001	Oven Lamp (40W) (120 V.).....	2
24	00-961766-00001	Oven Lamp (40W) (240 V.).....	2
25	00-961291-00001	Bulb - Halogen (120V).....	AR
26	00-961291-00002	Bulb - Halogen (230V).....	AR
27	00-411265-00022	Rack Assy. (ML-126743, ML-126744, & ML-126745).....	AR
28	00-411265-00010	Rack Assy. (ML-126746, ML-126747, & ML-126748).....	AR
29	00-961658-00001	Support - Door Catch.....	1
30	00-961822-00001	Baffle, Vertical.....	1
31	00-961830-00001	Baffle, Horizontal.....	1
32	00-961833-00001	Cover Plate, Snorkel.....	1

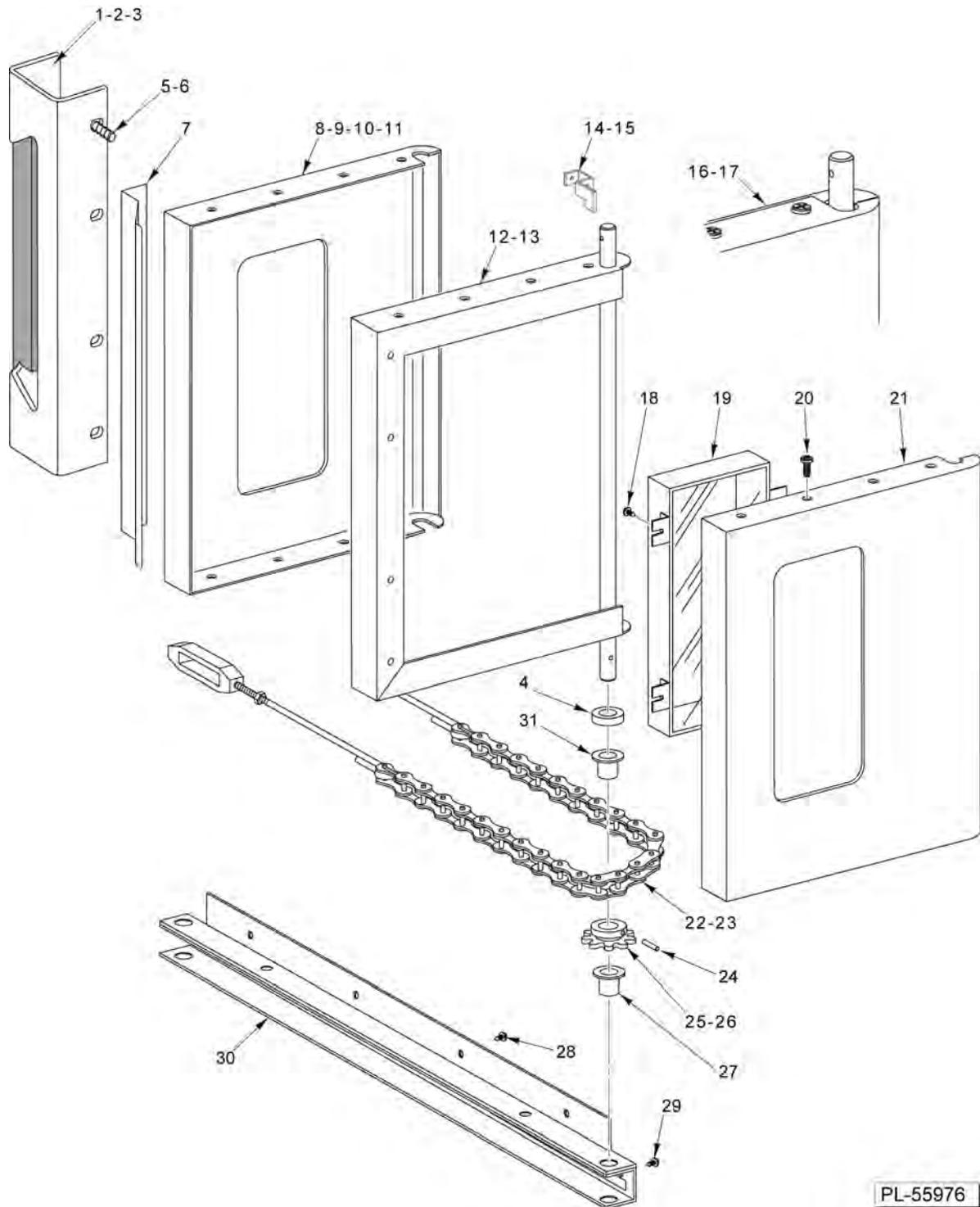


PL-61231

**CONVECTION MOTOR  
(CURRENT CONSTRUCTION)  
(STARTING 3-19-18)**

**CONVECTION MOTOR  
(CURRENT CONSTRUCTION)  
(STARTING 3-19-18)**

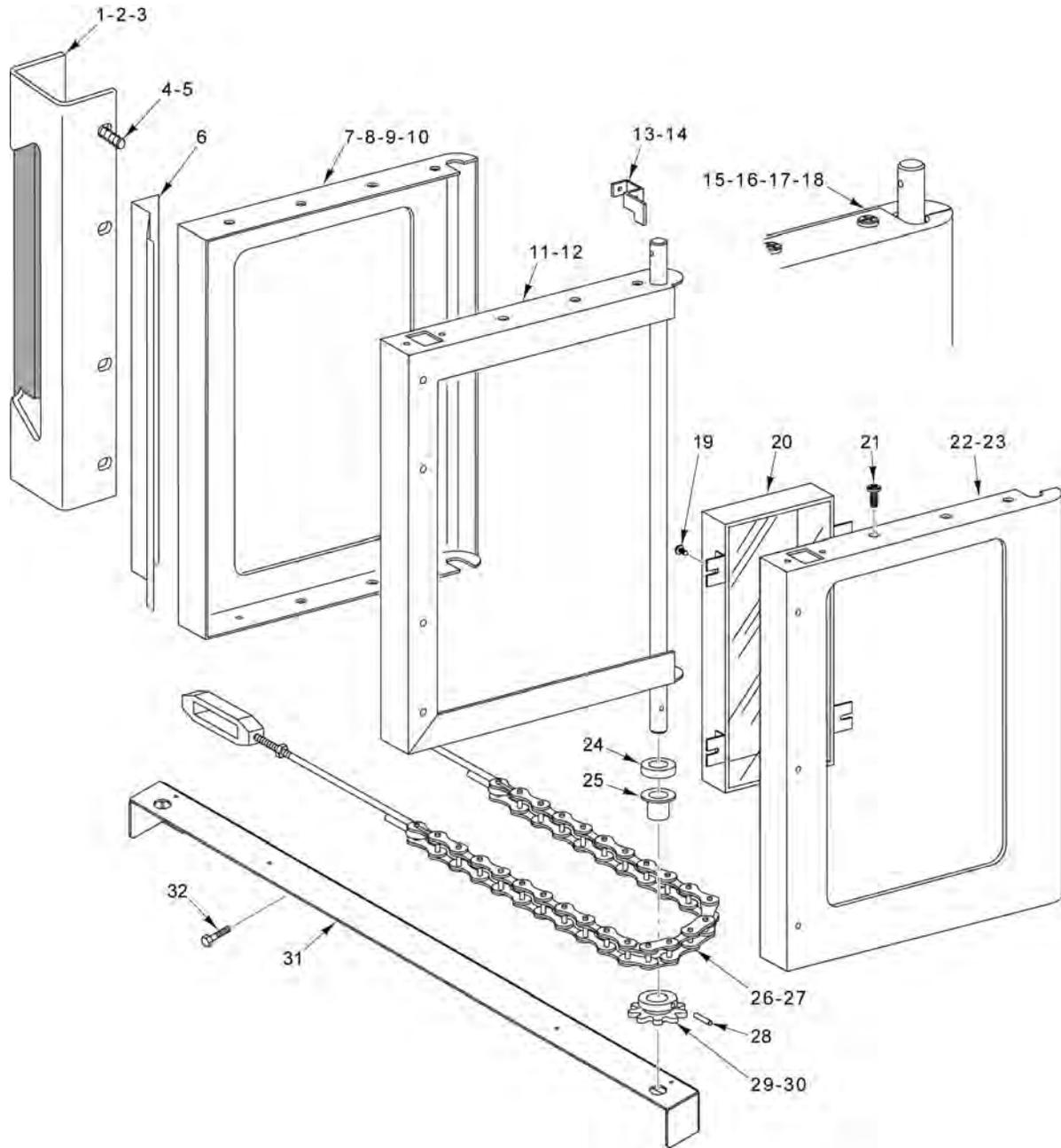
ILLUS. PL-61231	PART NO.	NAME OF PART	AMT.
1	SC-120-15	Mach. Screw 1/4-20 x 4 Rd. Hd.....	4
2	00-411136-00003	Cover - Fan (50 Hz.).....	1
3	00-411136-00004	Cover - Fan (60 Hz.).....	1
4	00-411289-00004	Spacer - Fan Housing.....	4
5	00-415780-00005	Wheel - Blower (50 Hz.).....	1
6	00-415780-00003	Wheel - Blower (60 Hz.).....	1
7	00-961671-000G1	Mount - Motor (Front) Motor Harness Included with Motor.....	1
	00-962168-000G1	Motor Harness.....	AR
8	00-342159-00033	Insulation (28 x 33 x 1 In.).....	AR
9	00-960963-00001	Mount - Motor, Wrapper.....	1
10	00-961668-00001	Mount - Motor (Rear).....	1
11	00-961739-000G2	Motor, 208-240 VAC, 0.5 HP.....	1
12	NS-046-86	Nut Assy. 5/16-18 KEPS Hex.....	6
13	00-961831-00001	Pan - Drip, Motor.....	1
14	SC-037-75	Cap Screw 5/16-18 x 3/4 Hex Hd.....	2



**SIMULTANEOUSLY OPENING DOOR ASSEMBLY  
(PREVIOUS CONSTRUCTION)**

**SIMULTANEOUSLY OPENING DOOR ASSEMBLY  
(PREVIOUS CONSTRUCTION)**

ILLUS.	PART NO.	NAME OF PART	AMT.
PL-55976			
1	00-356562-00001	Handle - Door.....	1
2	00-421923-000G1	Grip - Set.....	1
3	SC-113-98	Mach. Screw 10-24 x 1/2 Hex Washer Hd.....	3
4	00-343143-00002	Washer.....	2
5	SC-041-01	Cap Screw 1/4-20 x 3/4 Hex Hd. (SST).....	4
6	WL-019-37	Lockwasher 1/4 Internal.....	4
7	00-356550-00001	Latch - Friction.....	1
8	00-421913-00003	Panel - Outer Door (LH) (W/Window).....	1
9	00-421913-00001	Panel - Outer Door (RH) (W/Window).....	1
10	00-421913-00004	Panel - Outer Door (LH) (W/O Window).....	1
11	00-421913-00002	Panel - Outer Door (RH) (W/O Window).....	1
12	00-421904-000G2	Frame Assy. - Door (LH).....	1
13	00-421905-000G1	Frame Assy. - Door (RH).....	1
14	00-424163-00001	Lever - Door Switch.....	1
15	SD-034-52	Self-Tapping Screw 8-32 x 1 Hex Washer Hd., Type T.....	1
16	00-424730-00001	Door Assy. (LH) (W/Window).....	1
17	00-424731-00001	Door Assy. (RH) (W/Window).....	1
18	SD-034-62	Self-Tapping Screw 10-32 x 1/2 Hex Washer Hd., Type T.....	4
19	00-358534-00001	Window Assy.....	1
20	SD-034-22	Self-Tapping Screw 10-16 x 5/8 Phil. Truss Hd., Type AB.....	9
21	00-358532-00001	Panel - Inner Door (W/Window).....	1
22	00-343608-00002	Door Chain & Turnbuckle Assy.....	2
23	00-352667-00001	Cable - Door Stop.....	1
24	PS-004-11	Spirol Pin 3/16 x 1-1/4 Heavy.....	2
25	00-342166-00001	Sprocket - Door Shaft.....	2
26	SC-047-28	Set Screw 1/4-28 x 3/8 Hex Hdls., Cup Pt. (Use Loctite 242).....	2
27	00-347080-00002	Bearing - Door Shaft.....	2
28	SC-022-40	Mach. Screw 1/4-20 x 3/4 Phil. Flat Hd. (SST).....	4
29	SC-113-90	Mach. Screw 1/4-20 x 3/4 Hex Hd.....	2
30	00-357846-00001	Channel - Door Sill Weldment.....	1
31	00-347080-00002	Bearing - Door Shaft.....	2

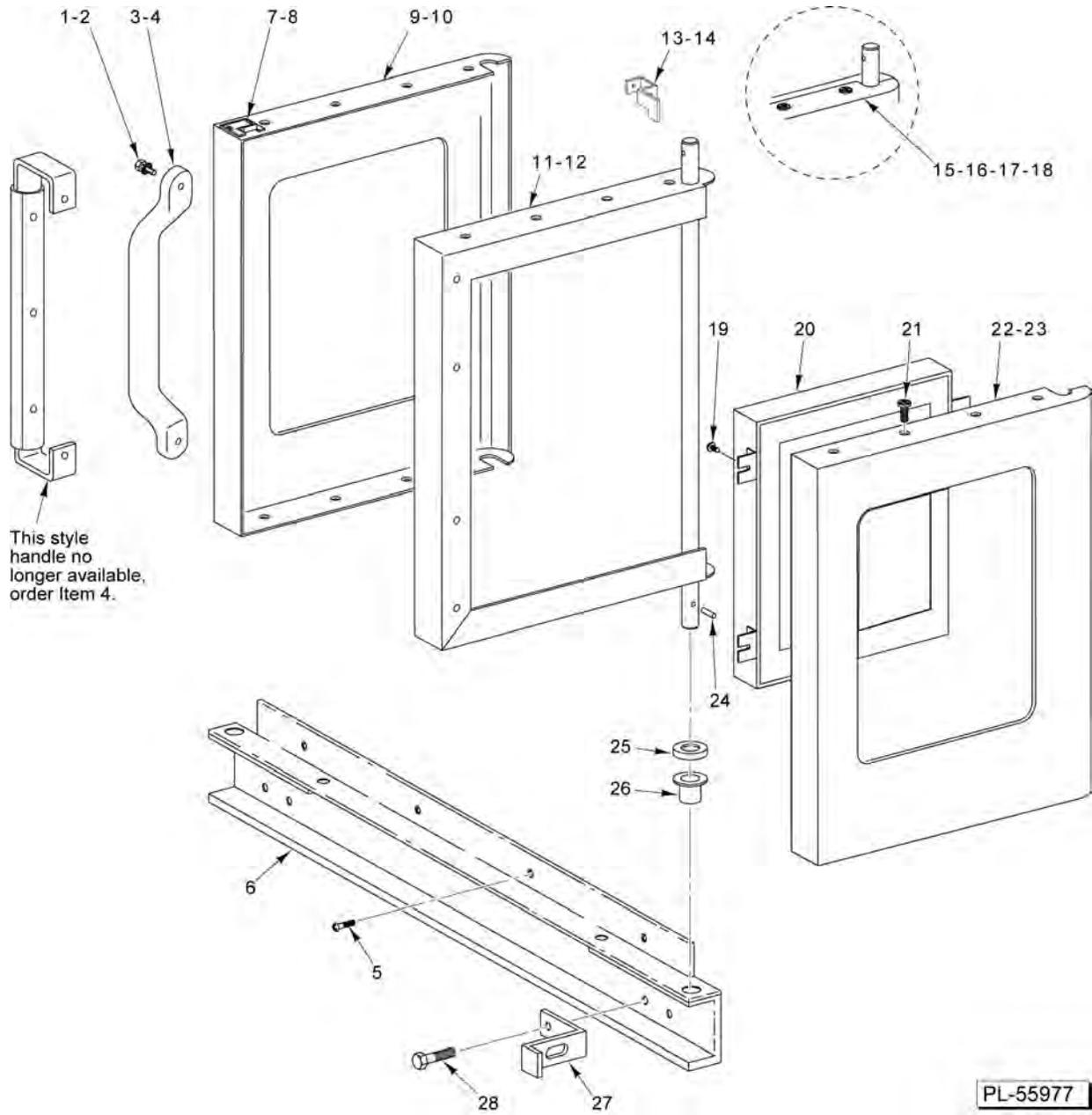


PL-60453

**SIMULTANEOUSLY OPENING DOOR ASSEMBLY  
(CURRENT CONSTRUCTION)**

**SIMULTANEOUSLY OPENING DOOR ASSEMBLY  
(CURRENT CONSTRUCTION)**

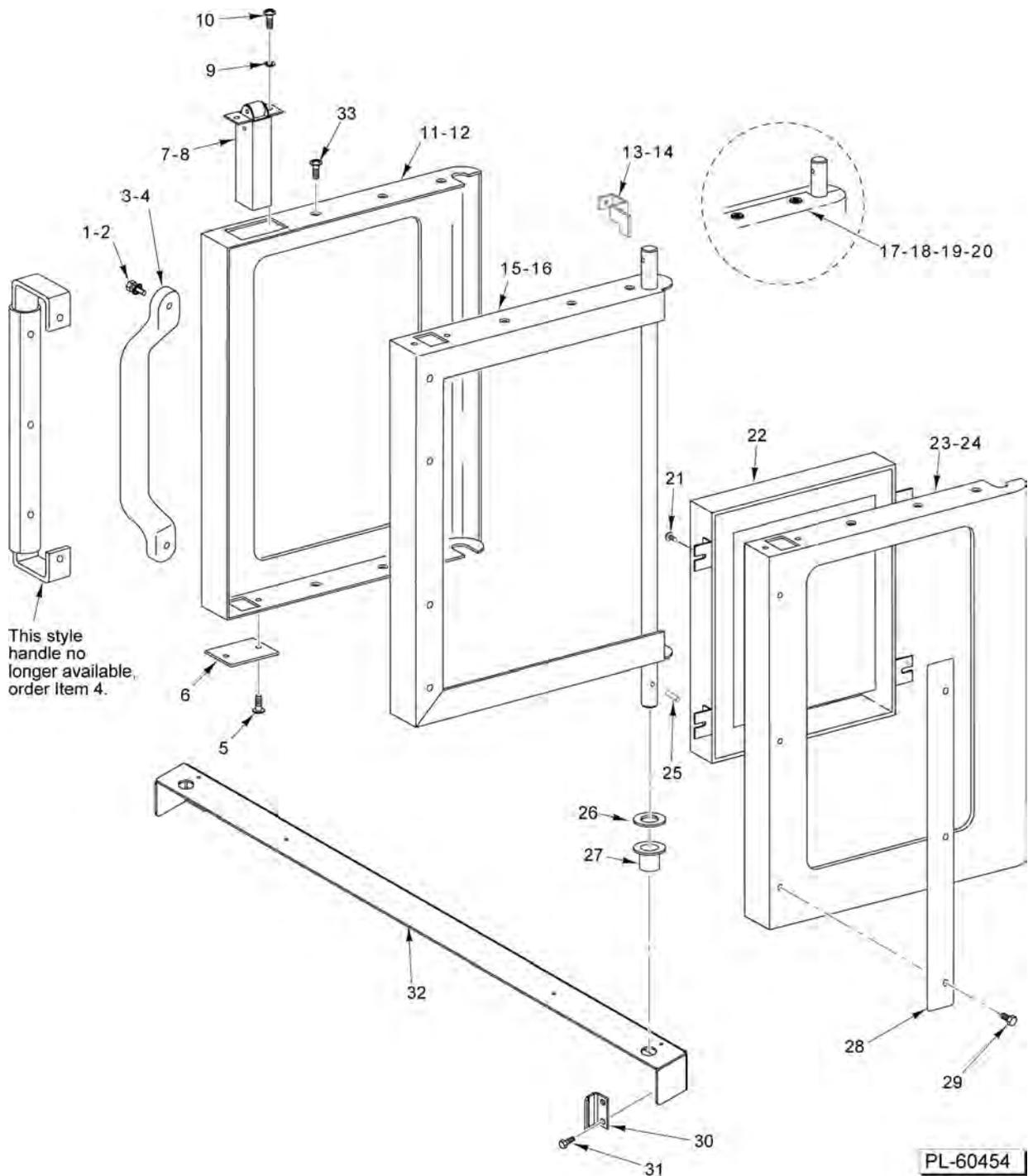
ILLUS. PL-60453	PART NO.	NAME OF PART	AMT.
1	00-356562-00001	Handle - Door.....	1
2	00-421923-000G1	Grip - Set.....	1
3	SC-113-98	Mach. Screw 10-24 x 1/2 Hex Washer Hd.....	3
4	SC-041-01	Cap Screw 1/4-20 x 3/4 Hex Hd. (SST).....	4
5	WL-019-37	Lockwasher 1/4 Internal.....	4
6	00-356550-00001	Latch - Friction.....	1
7	00-421913-00003	Panel - Outer Door (LH) (W/Window).....	1
8	00-421913-00001	Panel - Outer Door (RH) (W/Window).....	1
9	00-421913-00004	Panel - Outer Door (LH) (W/O Window).....	1
10	00-421913-00002	Panel - Outer Door (RH) (W/O Window).....	1
11	00-421904-000G2	Frame Assy. - Door (LH).....	1
12	00-421905-000G1	Frame Assy. - Door (RH).....	1
13	00-424163-00001	Lever - Door Switch.....	1
14	SD-034-52	Self-Tapping Screw 8-32 x 1 Hex Washer Hd., Type T.....	1
15	00-499289-000G1	Door Assy. (LH) (W/Window).....	1
16	00-499289-000G2	Door Assy. (LH) (W/O Window).....	1
17	00-499290-000G1	Door Assy. (RH) (W/Window).....	1
18	00-499290-000G2	Door Assy. (RH) (W/O Window).....	1
19	SD-034-62	Self-Tapping Screw 10-32 x 1/2 Hex Washer Hd., Type T.....	4
20	00-358534-00001	Window Assy.....	1
21	SD-034-22	Self-Tapping Screw 10-16 x 5/8 Phil. Truss Hd., Type AB.....	9
22	00-358532-00001	Panel - Inner Door (W/Window).....	1
23	00-358533-00003	Panel - Inner Door (W/O Window).....	1
24	00-343143-00002	Washer.....	2
25	00-347080-00002	Bearing - Door Shaft.....	2
26	00-343608-00002	Door Chain & Turnbuckle Assy.....	2
27	00-352667-00001	Cable - Door Stop.....	1
28	PS-004-11	Spirol Pin 3/16 x 1-1/4 Heavy.....	2
29	00-342166-00001	Sprocket - Door Shaft.....	2
30	SC-047-28	Set Screw 1/4-28 x 3/8 Hex Hdls., Cup Pt. (Use Loctite 242).....	2
31	00-961294-00001	Support - Lower Door.....	1
32	00-922154	Screw 1/4-20 x 1 Hex Hd.....	4



**INDEPENDENTLY OPENING DOOR ASSEMBLY  
(PREVIOUS CONSTRUCTION)**

**INDEPENDENTLY OPENING DOOR ASSEMBLY  
(PREVIOUS CONSTRUCTION)**

ILLUS. PL-55977	PART NO.	NAME OF PART	AMT.
1	00-959087-00001	Screw 1/4-20 x 1-1/4 Black Hd.....	2
2	WL-013-14	Lockwasher 1/4 Internal Shakeproof.....	2
3	00-957108-00001	Handle - Molded (Black).....	1
4	00-913102-00179	Kit - Handle (Incls. Items 1, 2, & 3).....	1
5	SC-022-40	Mach. Screw 1/4-20 x 3/4 Phil. Flat Hd. (SST).....	4
6	00-357846-00001	Channel - Door Sill Weldment.....	1
7	00-423847-00001	Strike - Door.....	1
8	SD-034-22	Self-Tapping Screw 10-16 x 5/8 Phil. Truss Hd., Type AB.....	2
9	00-358600-00001	Panel - Outer Door (W/Window).....	1
10	00-358600-00002	Panel - Outer Door (W/O Window).....	1
11	00-421905-000G1	Frame Assy. - Door (RH).....	1
12	00-421904-000G2	Frame Assy. - Door (LH).....	1
13	00-424163-00001	Lever - Door Switch.....	1
14	SD-034-52	Self-Tapping Screw 8-32 x 1 Hex Washer Hd., Type T.....	1
15	00-358529-00005	Door Assy. (LH) (W/Window).....	1
16	00-358529-00006	Door Assy. (LH) (W/O Window).....	1
17	00-358530-00003	Door Assy. (RH) (W/Window).....	1
18	00-358530-00004	Door Assy. (RH) (W/O Window).....	1
19	SD-034-62	Self-Tapping Screw 10-32 x 1/2 Hex Washer Hd., Type T.....	4
20	00-358534-00001	Window Assy.....	1
21	SD-034-22	Self-Tapping Screw 10-16 x 5/8 Phil. Truss Hd., Type AB.....	8
22	00-358532-00001	Panel - Inner Door (W/Window).....	1
23	00-358533-00003	Panel - Inner Door (W/O Window).....	1
24	PS-004-11	Spirol Pin 3/16 x 1-1/4 Heavy.....	1
25	00-343143-00002	Washer.....	2
26	00-347080-00002	Bearing - Door Shaft.....	1
27	00-424158-00001	Door Stop.....	1
28	SC-113-90	Mach. Screw 1/4-20 x 3/4 Hex Hd.....	2



**INDEPENDENTLY OPENING DOOR ASSEMBLY  
(CURRENT CONSTRUCTION)**

**INDEPENDENTLY OPENING DOOR ASSEMBLY  
(CURRENT CONSTRUCTION)**

ILLUS. PL-60454	PART NO.	NAME OF PART	AMT.
1	00-959087-00001	Screw 1/4-20 x 1-1/4 Black Hd.....	2
2	WL-013-14	Lockwasher 1/4 Internal Shakeproof.....	2
3	00-957108-00001	Handle - Molded (Black).....	1
4	00-913102-00179	Kit - Handle (Incls. Items 1, 2, & 3).....	1
5	SD-034-22	Self-Tapping Screw 10-16 x 5/8 Phil. Truss Hd., Type AB.....	2
6	00-499264-00001	Plate - Latch Cutout.....	1
7	00-497586-00001	Latch - Door Roller.....	1
8	00-347545-00001	Catch Assy. - Door (Ball Style) (Not Shown).....	1
9	WL-019-35	Lockwasher #10 Internal.....	2
10	SC-117-73	Mach. Screw 10-32 x 5/8 Phil. Truss Hd.....	2
11	00-358600-00001	Panel - Outer Door (W/Window).....	1
12	00-358600-00002	Panel - Outer Door (W/O Window).....	1
13	00-424163-00001	Lever - Door Switch.....	1
14	SD-034-52	Self-Tapping Screw 8-32 x 1 Hex Washer Hd., Type T.....	1
15	00-421905-000G1	Frame Assy. - Door (RH).....	1
16	00-421904-000G2	Frame Assy. - Door (LH).....	1
17	00-499285-000G1	Door Assy. (LH) (W/Window).....	1
18	00-499285-000G2	Door Assy. (LH) (W/O Window).....	1
19	00-499286-000G1	Door Assy. (RH) (W/Window).....	1
20	00-499286-000G2	Door Assy. (RH) (W/O Window).....	1
21	SD-034-62	Self-Tapping Screw 10-32 x 1/2 Hex Washer Hd., Type T.....	4
22	00-358534-00001	Window Assy.....	1
23	00-358532-00001	Panel - Inner Door (W/Window).....	1
24	00-358533-00003	Panel - Inner Door (W/O Window).....	1
25	PS-004-11	Spirol Pin 3/16 x 1-1/4 Heavy.....	1
26	00-343143-00002	Washer.....	2
27	00-347080-00002	Bearing - Door Shaft.....	1
28	00-357837-00001	Seal - Door End.....	1
29	SD-034-22	Self-Tapping Screw 10-16 x 5/8 Phil. Truss Hd., Type AB.....	3
30	00-961535-00001	Stop - Door.....	1
31	00-922154	Screw 1/4-20 x 1 Hex Hd.....	6
32	00-961294-00001	Support - Lower Door.....	1
33	SD-034-22	Self-Tapping Screw 10-16 x 5/8 Phil. Truss Hd., Type AB.....	8





# CATALOG OF REPLACEMENT PARTS

## VC5E CONVECTION OVEN



ML-147037

VC5ED-11D1

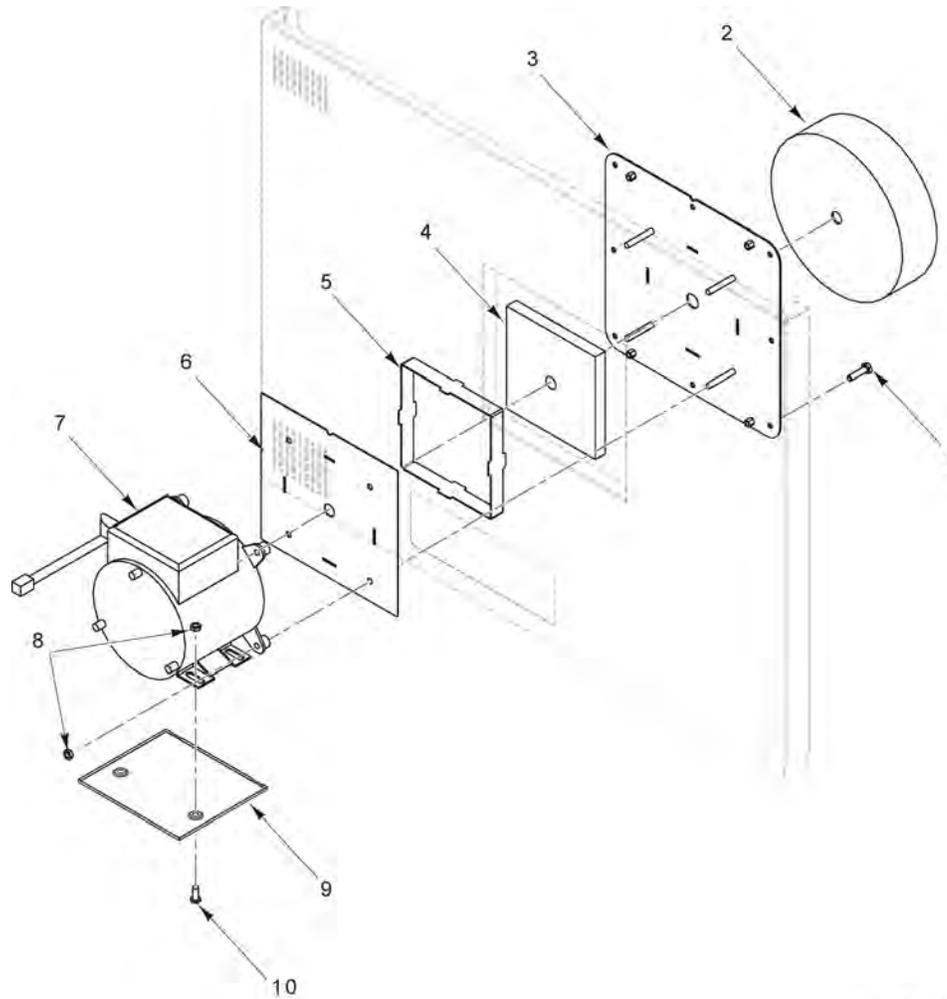
VC5ED-12D1

VC5ED-13D1



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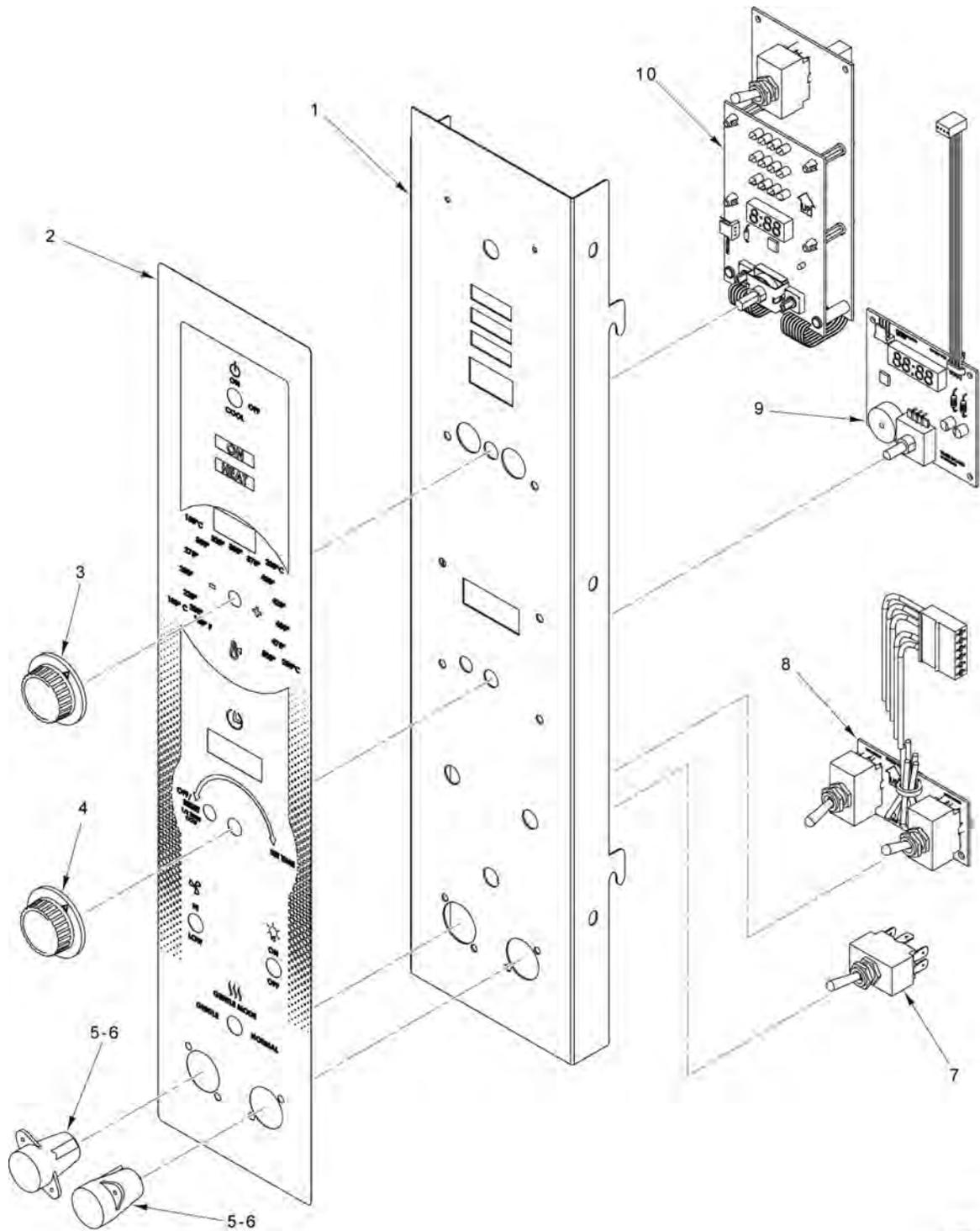


PL-65171

**CONVECTION MOTOR  
(STARTING 4/23/18)**

**CONVECTION MOTOR  
(STARTING 4/23/18)**

ILLUS. PL-65171	PART NO.	NAME OF PART	AMT.
1	SC-113-76	Cap Screw 1/4-20 x 1 Hex Hd.....	4
2	00-415780-00003	Wheel - Blower.....	1
3	00-960962-000G1	Mount - Motor, Front.....	1
4	00-342159-00033	Insulation (28 x 33 x 1 In.).....	AR
5	00-960963-00001	Mount - Motor, Wrapper.....	1
6	00-960964-00001	Mount - Motor, Rear.....	1
7	00-961739-000G2	Motor, 208-240 VAC, 0.5 HP Motor Harness Included with Motor.....	AR
	00-962168-000G1	Motor Harness.....	AR
8	NS-046-86	Nut Assy. 5/16-18 KEPS Hex.....	6
9	00-961831-00001	Pan - Drip, Motor.....	1
10	SC-037-75	Cap Screw 5/16-18 x 3/4 Hex Hd.....	2

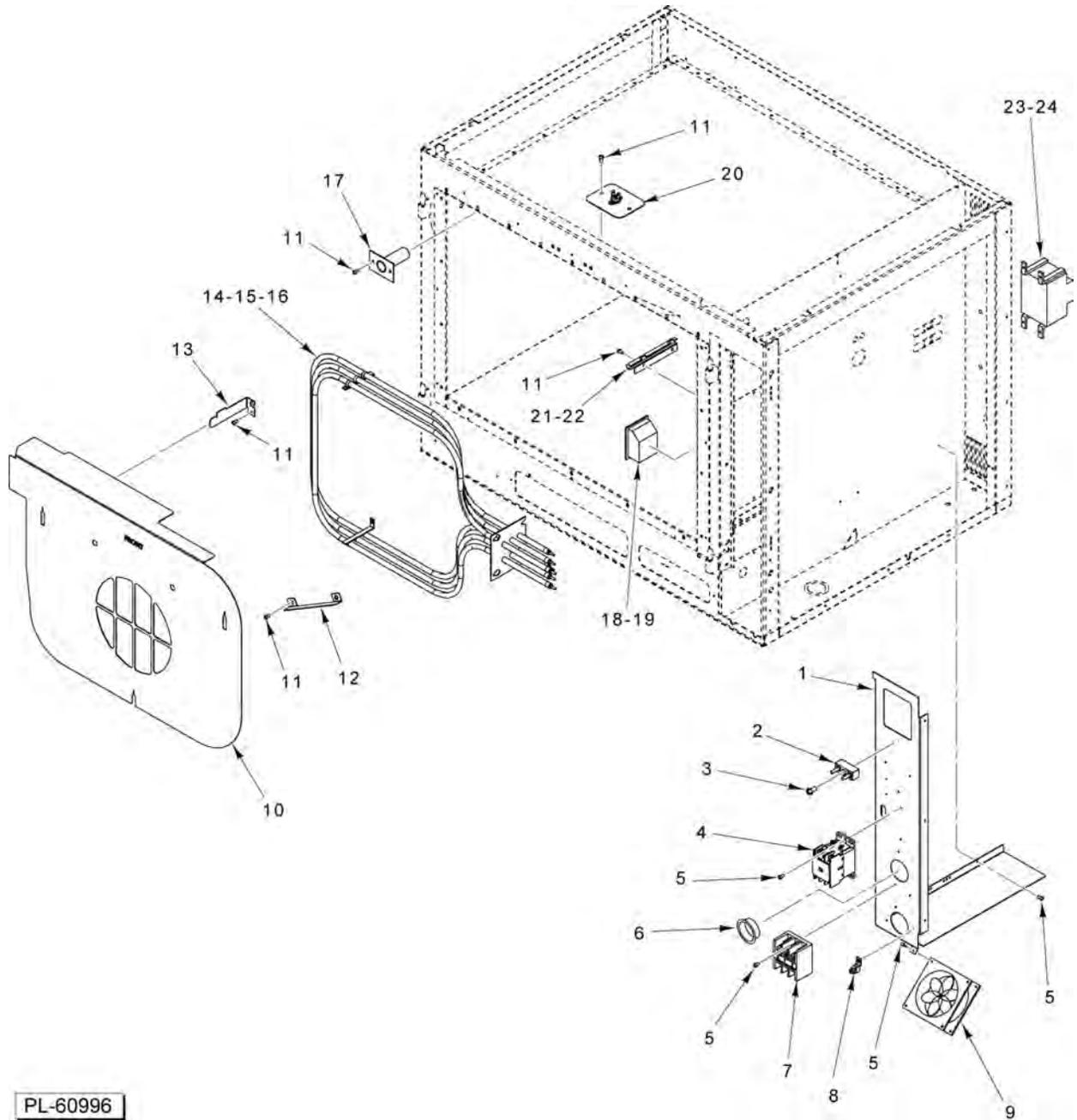


PL-60994

**CONTROL PANEL**

**CONTROL PANEL**

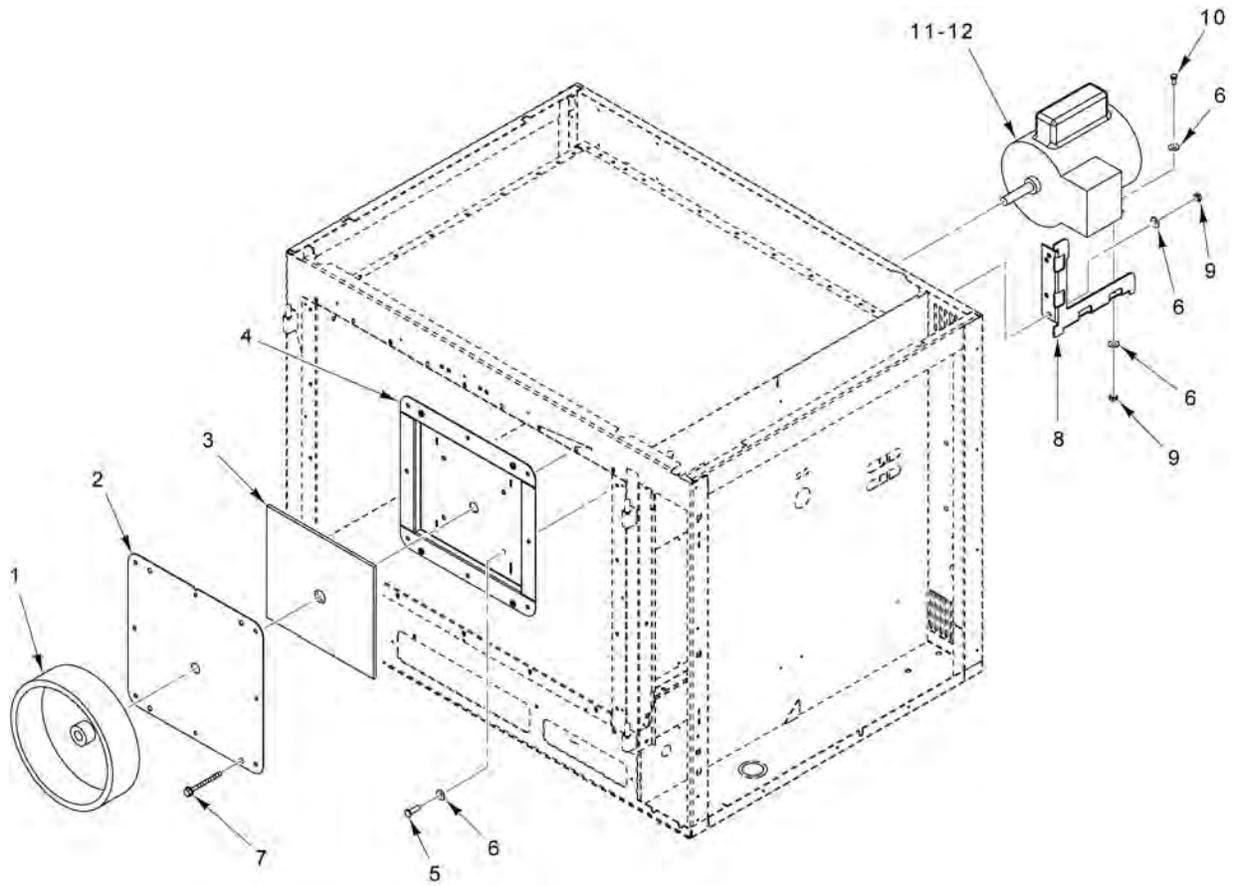
<b>ILLUS.</b>	<b>PART NO.</b>	<b>NAME OF PART</b>	<b>AMT.</b>
<b>PL-60994</b>			
1	00-960318-000G1	Panel.....	1
2	00-961207-00001	Overlay.....	1
3	00-960329-00001	Knob.....	1
4	00-960329-00002	Knob.....	1
5	FE-023-55	Holder - Fuse (15 Amp., 300 V.).....	2
6	FE-019-40	Fuse (15 Amp., 600 V.).....	2
7	00-340324-00012	Switch (S.P.S.T.).....	1
8	00-960302-00001	Switch Board (Fan Speed & Light).....	1
9	00-960301-00001	Timer Board.....	1
10	00-960314-00001	Control Board Assy. (Temperature & Main Power Switch).....	1



**ELECTRICAL COMPONENTS AND HEATING ELEMENT**

## ELECTRICAL COMPONENTS AND HEATING ELEMENT

ILLUS.	PART NO.	NAME OF PART	AMT.
PL-60996			
1	00-959693-00001	Panel - Component.....	1
2	00-417934-000G1	Block Assy. - Porcelain.....	1
3	SD-034-52	Self-Tapping Screw 8-32 x 1 Hex Washer Hd., Type T.....	AR
4	00-411497-000C5	Contactator (3-Pole).....	1
5	SD-032-07	Self-Tapping Screw 10-24 x 1/2 Hex Washer Hd., Type TT.....	AR
6	FE-024-23	Bushing - Electrical (Snap).....	2
7	00-410472-00008	Block - Terminal (3-Pole).....	1
8	00-417856-00001	Lug - Grounding (With Set Screw).....	1
9	00-424940-00002	Fan - Cooling (230 V.).....	1
10	00-960123-00001	Cover - Fan.....	1
11	SD-039-78	Self-Tapping Screw.....	AR
12	00-960052-00001	Baffle.....	1
13	00-959908-00001	Hook - Fan Cover.....	3
14	00-959747-00001	Element - Heating (208 V.).....	1
15	00-959747-00002	Element - Heating (240 V.).....	1
16	00-959747-00003	Element - Heating (480 V.).....	1
17	00-354431-00001	Flue Assy.....	1
18	00-959957-00001	Light Assy. (240 V.).....	1
19	00-961291-00002	Bulb - Halogen (230V) (240V) (40W).....	1
20	00-958827-000G1	Thermostat (High Limit) (With Mounting Plate).....	1
21	00-959753-00001	Probe Guard & Retainer.....	1
22	00-353589-00001	Probe Temperature (SST) Solid State.....	1
23	00-960267-00001	Transformer (480 V. to 240 V.) (480 V.).....	1
24	00-960054-000G1	Wire Set (480 V.).....	1

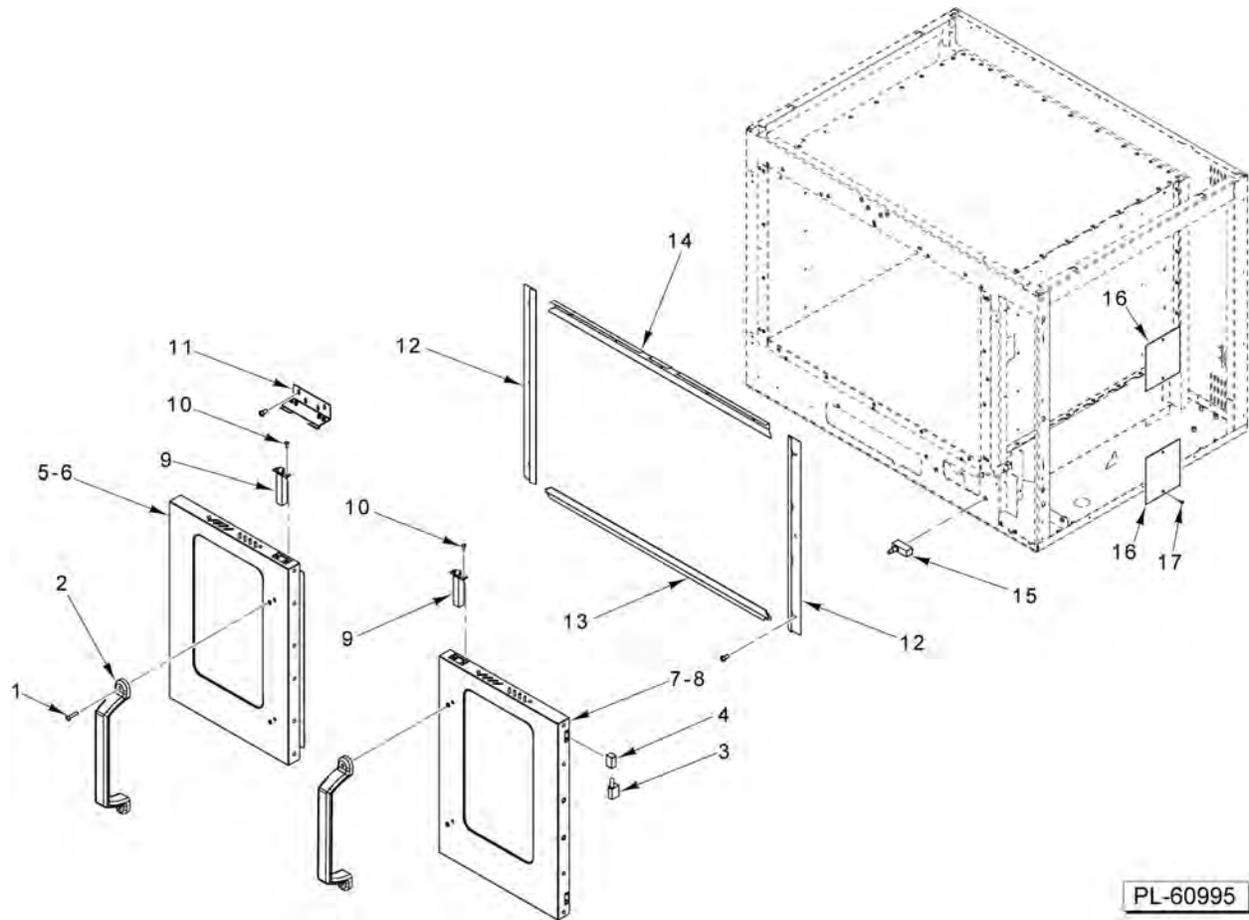


PL-60997

**CONVECTION MOTOR  
(BEFORE 4/23/18)**

**CONVECTION MOTOR  
(BEFORE 4/23/18)**

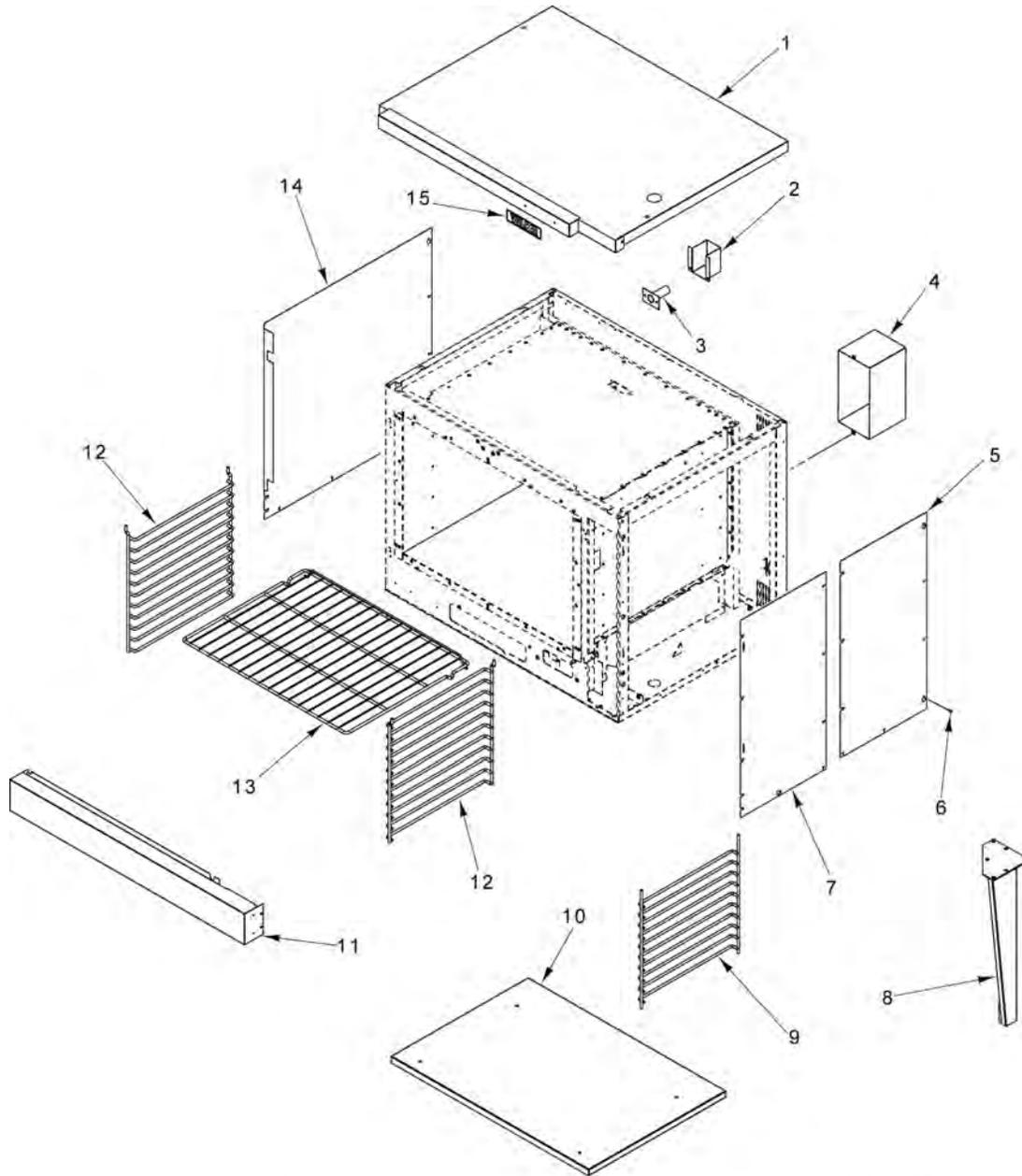
ILLUS. PL-60997	PART NO.	NAME OF PART	AMT.
1	00-415780-00003	Wheel - Blower (60 Hz.).....	1
2	00-959698-00001	Cover - Motor.....	1
3	00-959955-00001	Insulation.....	1
4	00-959695-00001	Mount - Motor.....	1
5	SC-113-65	Cap Screw 5/16-18 x 1-1/4 Hex Hd.....	4
6	WS-029-46	Washer.....	16
7	SC-132-01	Screw.....	8
8	00-959803-00001	Bracket - Motor Mount.....	2
9	NS-046-86	Nut Assy. 5/16-18 KEPS Hex.....	8
10	SC-113-78	Cap Screw 1/4-20 x 3/4 Hex Hd.....	4
11	00-342285-00001	Bushing - Plastic.....	1
12	00-358516-00002	Motor 1/2 Hp. (2-Speed) (208-240 V., 50/60 Hz., 1 Ph.).....	1



**DOOR ASSEMBLY**

**DOOR ASSEMBLY**

<b>ILLUS.</b>	<b>PART NO.</b>	<b>NAME OF PART</b>	<b>AMT.</b>
PL-60995			
1	00-959087-00001	Screw 1/4-20 x 1-1/4 Black Hd.....	4
2	00-957108-00001	Handle - Molded (Black).....	2
3	00-959783-00001	Hinge - Male.....	4
4	00-959784-00001	Hinge - Female.....	4
5	00-962188-000G1	Panel - Door w/ Glass (Inner) (LH).....	1
6	00-962189-000G1	Panel - Door w/ Glass (Outer) (LH).....	1
7	00-962190-000G1	Panel - Door w/ Glass (Inner) (RH).....	1
8	00-962191-000G1	Panel - Door w/ Glass (Outer) (RH).....	1
9	00-497586-00001	Latch - Door Roller.....	2
10	SC-115-51	Mach. Screw 10-32 x 1/2 Phil. Truss Hd.....	4
11	00-960118-000G1	Bracket - Door Catch.....	1
12	00-959771-00001	Seal - Door (Side).....	2
13	00-959772-00001	Seal - Door (Bottom).....	1
14	00-959770-00001	Seal - Door (Top).....	1
15	00-960053-00001	Switch - Door.....	1
16	00-959769-00001	Cover - Hinge Access.....	2
17	SD-032-07	Self-Tapping Screw 10-24 x 1/2 Hex Washer Hd., Type TT.....	4



16	00-417063-00001	Strap	20	00-288946-00002	Foot
17	00-357047-00001	Caster - Swivel	21	00-343634-00001	Caster
18	00-357047-00002	Caster - Swivel	22	00-343634-00002	Caster
19	00-357093-00001	Ring - Locking	23	00-342150-00008	Leg

**PARTS NOT ILLUSTRATED**

PL-60998

## PANELS

## PANELS

ILLUS. PL-60998	PART NO.	NAME OF PART	AMT.
1	00-961507-000G1	Upper Cosmetic Assembly.....	1
2	00-427617-00001	Flue - Deflector.....	1
3	00-354431-00001	Flue Assy.....	1
4	00-427082-00001	Cover - Transformer (480 V.).....	1
5	00-959793-00001	Panel - Cosmetic Right.....	1
6	SD-008-27	Self-Tapping Screw 10-16 x 1/2 Phil. Truss Hd., Type B.....	AR
7	00-959794-00001	Access Panel.....	1
8	00-424157-000G7	Leg Assembly for Caster and Foot (Painted Black).....	4
9	00-959525-00001	Rack Guide Assy (For Stand).....	AR
10	00-960125-00001	Shelf - Under Oven (For Stand).....	AR
11	00-959922-00001	Trim - Cosmetic Bottom.....	1
12	00-959708-00001	Rack Guide Assy.....	2
13	00-959523-00001	Rack Assy.....	5
14	00-959688-00001	Panel - Cosmetic Left.....	1
15	00-957916-00001	Nameplate - Vulcan (7-1/4 In.).....	1
16	00-417063-00001	Strap - Tie Down.....	AR
17	00-357047-00001	Caster - Swivel (Without Brake).....	AR
18	00-357047-00002	Caster - Swivel (With Brake).....	AR
19	00-357093-00001	Ring - Locking.....	AR
20	00-288946-00002	Foot - Adjustable (1-5/8) (SST).....	AR
21	00-343634-00001	Caster (Swivel With Brake) (7.5 In.).....	AR
22	00-343634-00002	Caster (Rigid) (7.5 In.).....	AR
23	00-960288-000G1	Leg (8 In.).....	AR

