



V Series Heated Holding Insulated Cabinets

VBP5	ML-138030
VBP7	ML-126358
VBP13	ML-126359
VBP15	ML-126360
VBP18	
VHP7	ML-126344
VHP15	ML-126346
VPT7	
VPT13	
VPT15	
VPT18	

- 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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SERVICE UPDATES

SERVICE UPDATES

JANUARY 2019

- New service manual release.

TIS DOCUMENT LIST - V SERIES HEATED HOLDING INSULATED CABINETS

SERVICE TAB	
Document Title	Document Type
V Series Heated Holding Transportation Cabinets	Service Manual

SERVICE MULTIMEDIA TAB	
Document Title	Document Type
V Series Heated Holding Transportation Cabinets Installation & Operation	Operators Manual
V Series Heated Holding Transportation Cabinets Specifications	Specification

PARTS TAB	
Document Title	Document Type
V Series Heated Holding Transportation Cabinets	Parts Catalog

GENERAL

INTRODUCTION

This manual is applicable only to models listed on the cover page. Procedures in this manual will apply to all models unless specified. Pictures and illustrations can be of any model unless they need to be model specific.

INSTALLATION, OPERATION AND CLEANING

For detailed installation, operation and cleaning instructions, refer to the Installation & Operation Manual sent with each unit. The manual is also available online at www.vulcanequipment.com.

TOOLS

Standard

- Standard set of hand tools.
- VOM with minimum of NFPA-70E CATIII 600V, UL/CSA/TUV listed. Sensitivity of at least 20,000 ohms per volt and the ability to measure DC micro amps. Meter leads must also be rated at CAT III 600V.
- Clamp on type amp meter with minimum of NFPA-70E CAT III 600V,UL/CSA/TUV listed.
- Temperature tester (thermocouple type).
- ESD (Electrostatic discharge) Protection Kit.

Special

- Handheld, digital temperature and humidity sensor Grainger No. 3LYH7 or equivalent.

SPECIFICATIONS

MODELS	VOLTS	WATTS	AMPS
VBP and VPT	120V	1,500	12.5
	240V	1,500	6.25

DATA PLATE LOCATIONS



DATA PLATE LOCATED ON BACK PANEL



INSIDE DATA PLATE

REMOVAL AND REPLACEMENT OF PARTS

TOP COVER



⚠ WARNING

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

NOTE: Remove top cover to access power cord, cooling fan, and control board.

1. Remove screws from top and side of top cover.

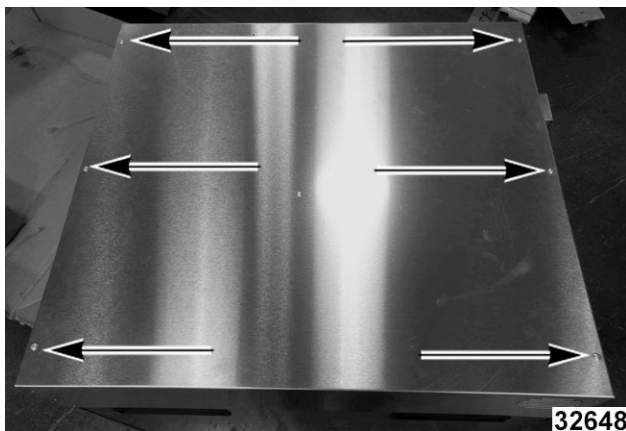


Fig. 3

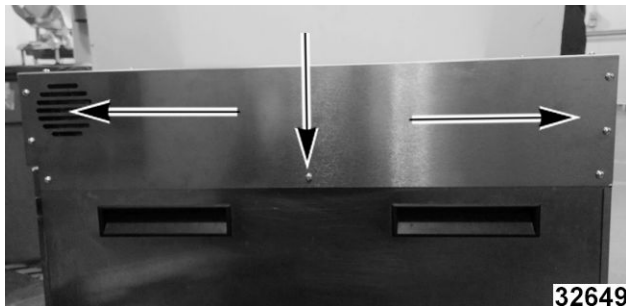


Fig. 4

2. Lift cover off cabinet.
3. Reverse procedure to install.

FOOD COMPARTMENT FAN



⚠ WARNING

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

1. Remove TOP COVER.

2. Remove insulation (1, Fig. 5).

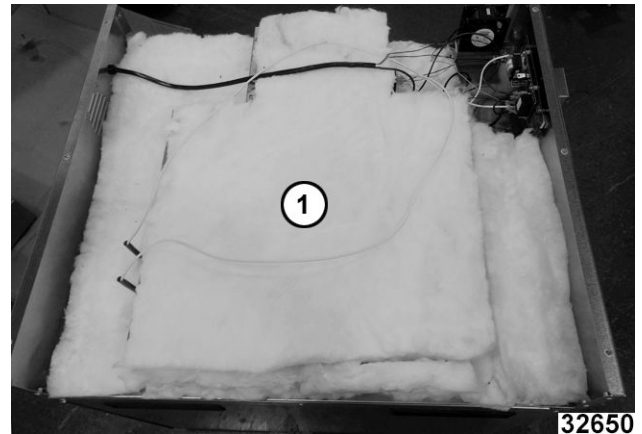


Fig. 5

3. Note and disconnect wiring from terminal block and control board.
4. Remove inside access cover (1, Fig. 6).

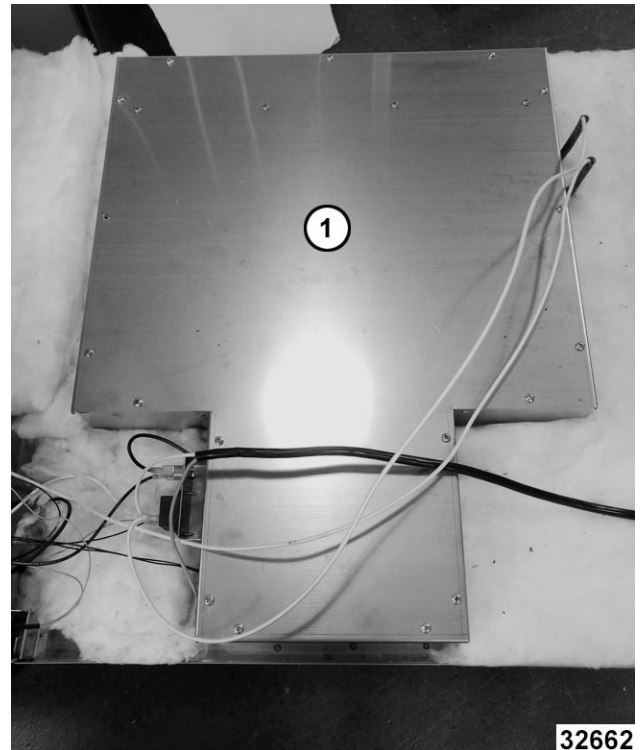


Fig. 6

5. Remove fan mounting bracket.
6. Remove screws from fan.
7. Install fan with label (1, Fig. 7) up.

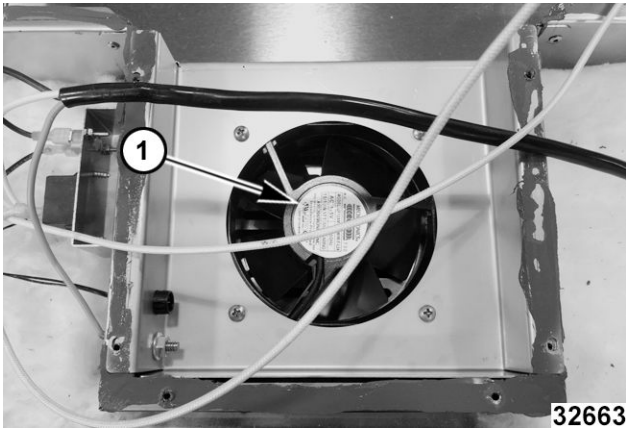
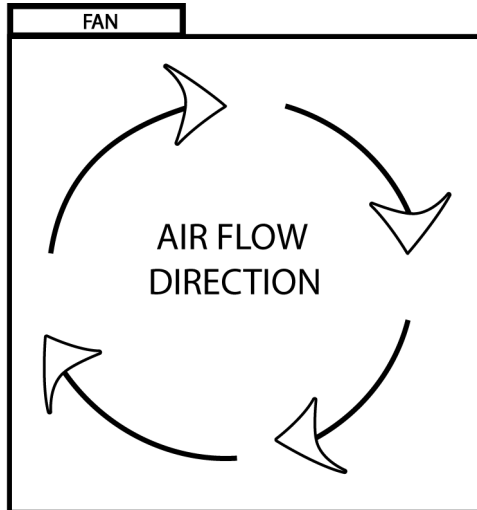


Fig. 7

8. Reverse procedure to install.

NOTICE

Verify air flow direction in cavity.



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Fig. 8

NOTICE

When installing inside access cover, verify edge inserts into slot without catching.

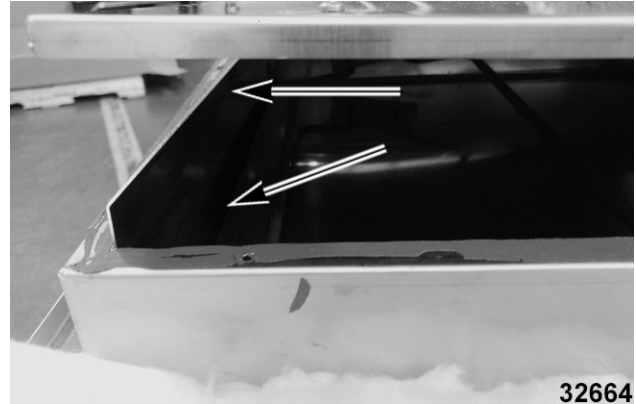


Fig. 9

HEATING ELEMENTS



WARNING

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

1. Remove TOP COVER .
2. Remove insulation (1, Fig. 10).

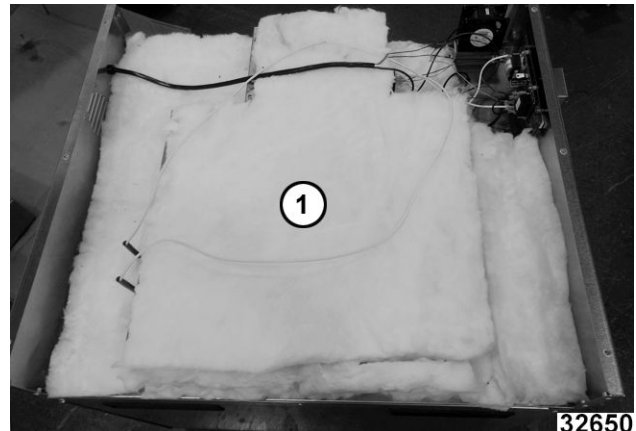


Fig. 10

3. Note and disconnect wires from terminal block and control board.
4. Remove inside access cover (1, Fig. 11).

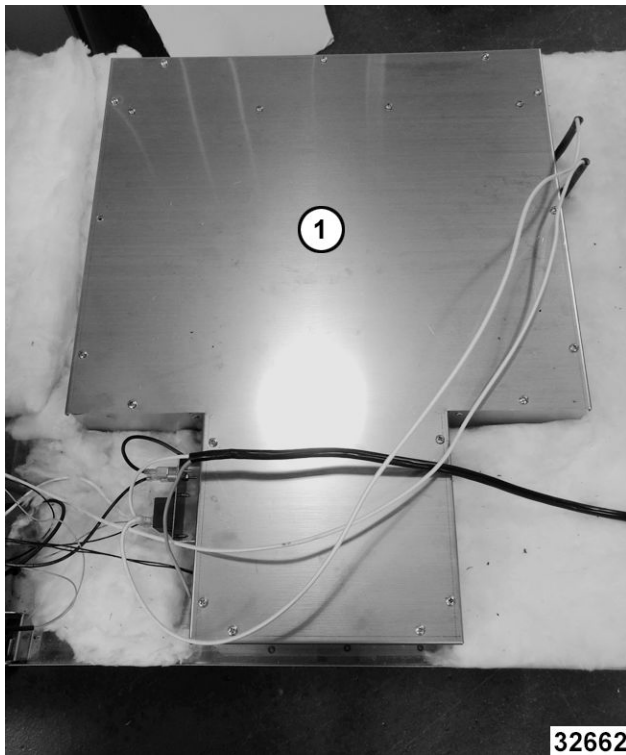


Fig. 11

5. Remove heating element mounting screws.

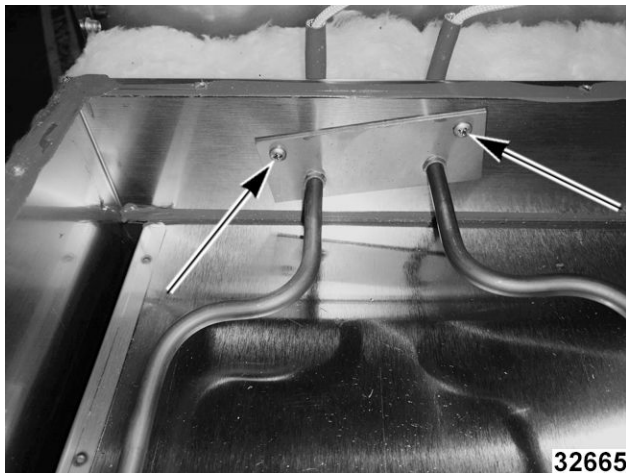


Fig. 12

6. Reverse procedure to install.

NOTICE

When installing inside access cover, verify edge inserts into slot without catching.

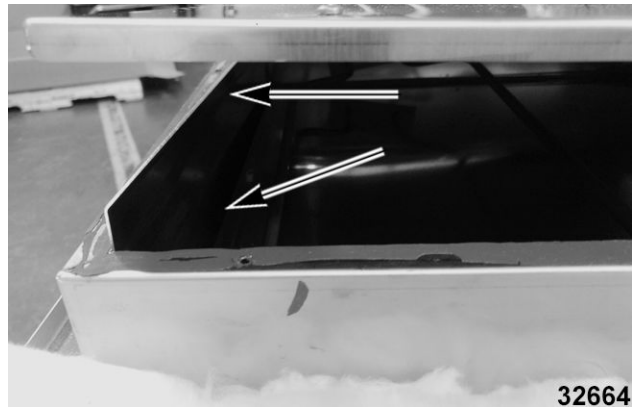


Fig. 13

POWER CORD



WARNING

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

1. Remove TOP COVER .
2. Note and disconnect wiring from terminal block and high limit.
3. Squeeze cord grip to remove from panel.



Fig. 14

4. Reverse procedure to install.

HIGH LIMIT SWITCH



⚠ WARNING

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

1. Remove TOP COVER.
2. Note and disconnect wiring.
3. Remove mounting screws for high limit switch (1, Fig. 15).

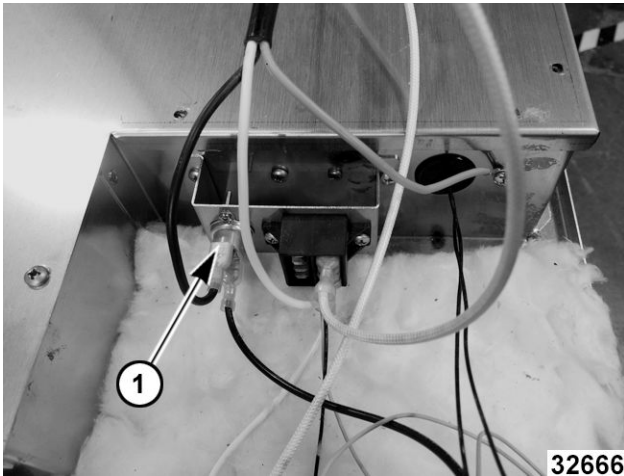


Fig. 15

4. Reverse procedure to install.

TERMINAL BLOCK



⚠ WARNING

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

1. Remove TOP COVER.
2. Note and disconnect wiring.
3. Remove terminal block (1, Fig. 16) mounting screws.

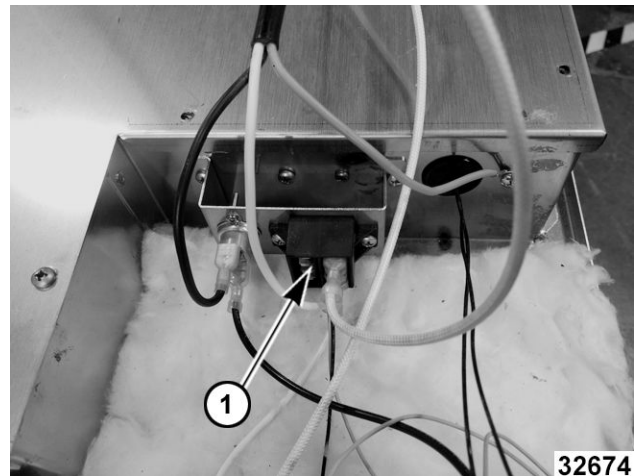


Fig. 16

4. Reverse procedure to install.

TEMPERATURE PROBE



⚠ WARNING

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

1. Remove TOP COVER.
2. Disconnect temperature probe at control board connection.
3. Open door.
4. Pull temperature probe out from holder on cavity ceiling.



Fig. 17

5. Pull probe (1, Fig. 18) up through grommet in top of cabinet.

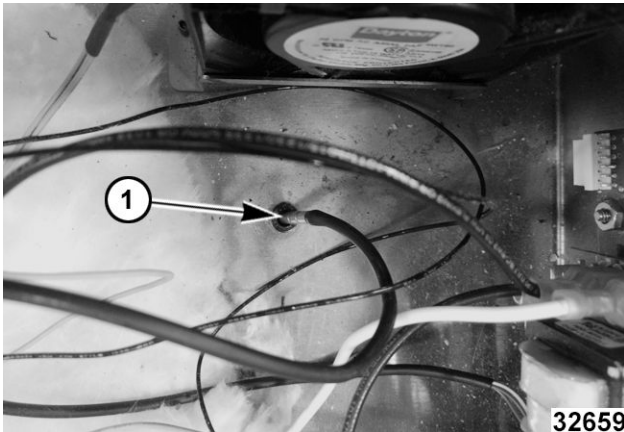


Fig. 18

6. Reverse procedure to install.

COMPONENT COOLING FAN



WARNING

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

1. Remove TOP COVER.
2. Note and disconnect fan wiring to terminal block and control board.
3. Remove fan mounting screws.

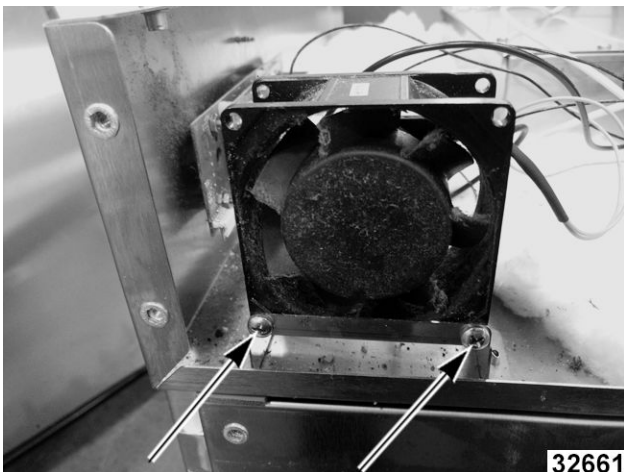


Fig. 19

NOTICE

Note air flow direction on fan when replacing fan. (1, Rotation Fig. 20) (2, Air Flow Fig. 20)

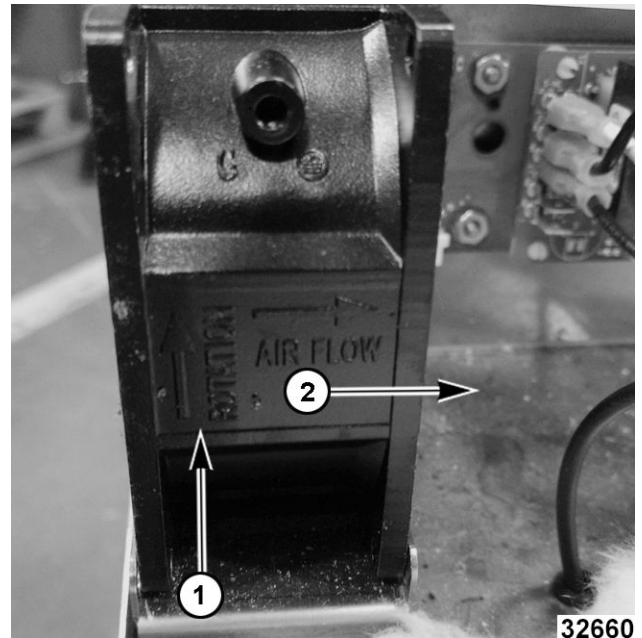


Fig. 20

4. Reverse procedure to install.

CONTROL BOARD



WARNING

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

NOTICE

Certain components in this system are subject to damage by electrostatic discharge (ESD) during field repairs. An ESD kit is required to prevent damage. The ESD kit must be used anytime the circuit board is handled.

1. Remove TOP COVER.
2. Note and disconnect board connectors and wires.

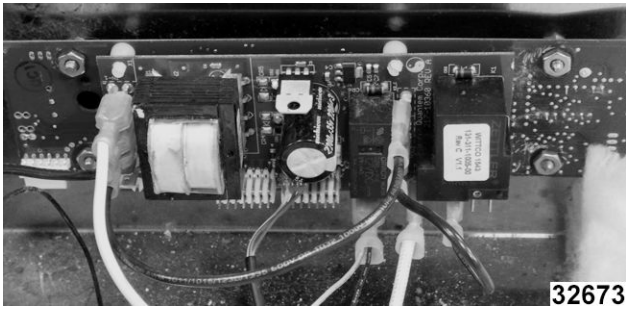


Fig. 21

3. Remove "optional" knob cover if applicable (VBP5 and VBP7).

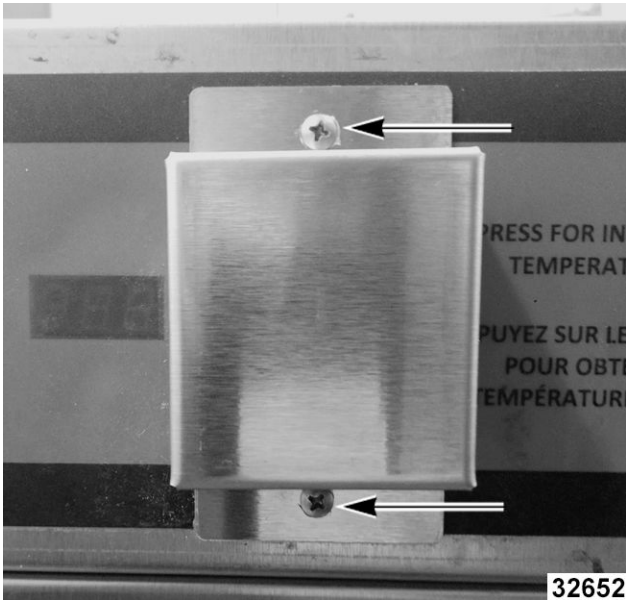


Fig. 22

4. Remove retaining screw in knob.

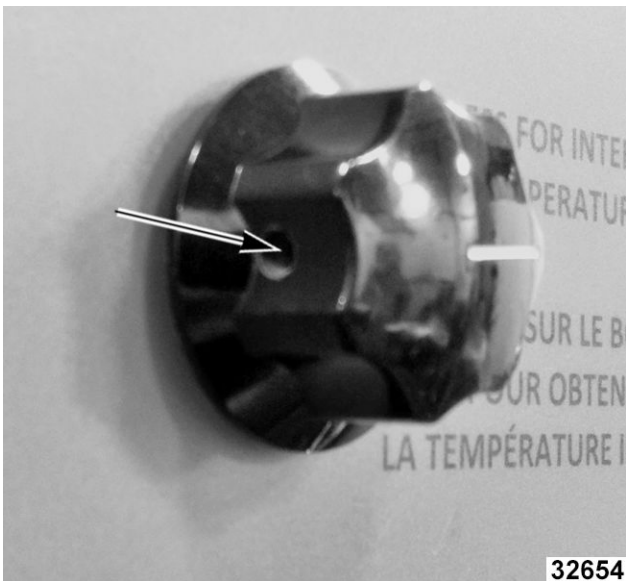


Fig. 23

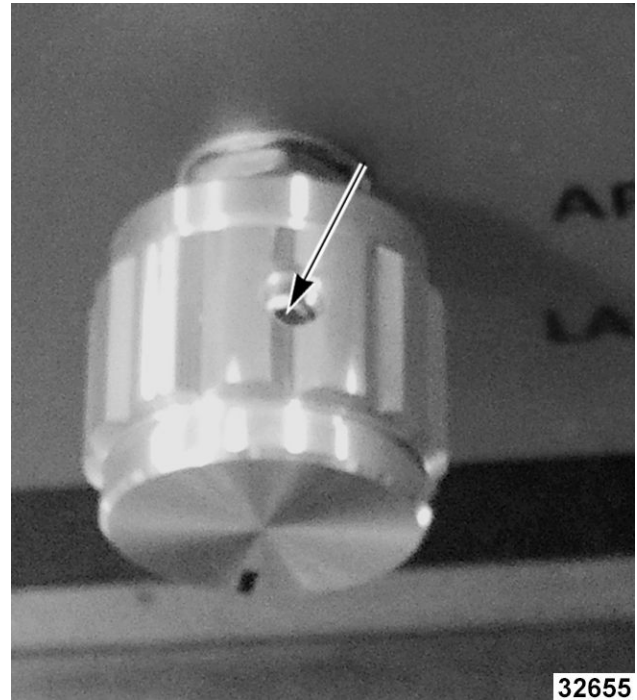


Fig. 24

5. Remove potentiometer retaining nut.

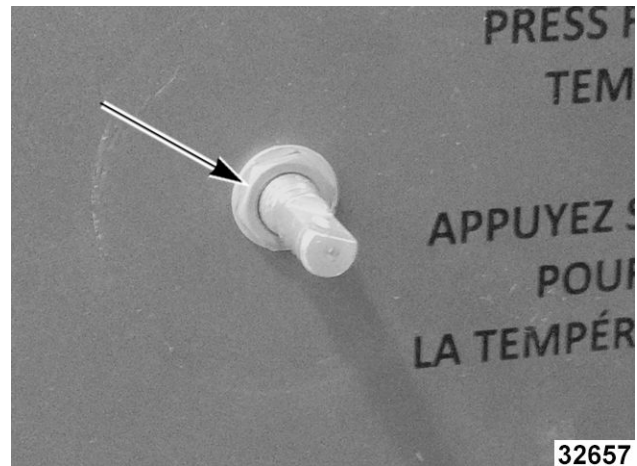


Fig. 25

6. Remove control board mounting nuts.

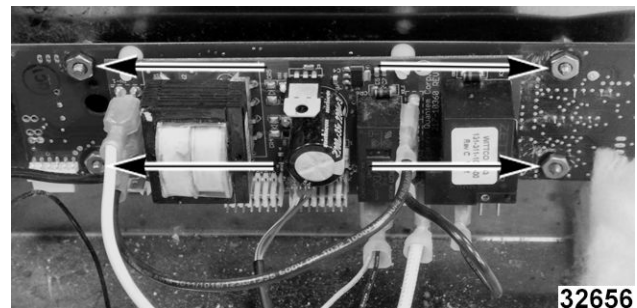


Fig. 26

7. Remove board.
8. Reverse procedure to install.

DOOR GASKET

NOTE: Measure gasket before ordering replacement. Gasket is a separate component from retainer and should be ordered separately from retainer.

1. Open door.
2. Unscrew gasket retainers.



Fig. 27

3. Remove gasket (1, Fig. 28) from retainer (2, Fig. 28).



Fig. 28

4. Press gasket on retainer while aligning channel.

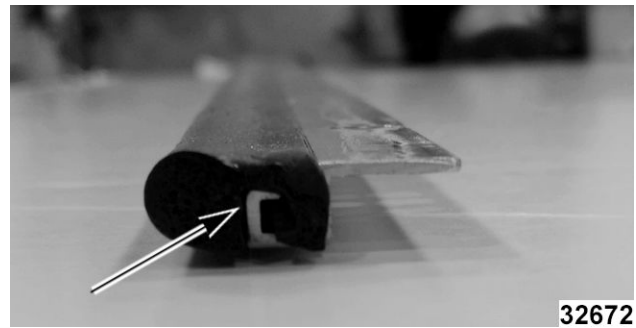


Fig. 29

5. Install retainer with flat side against cavity wall and channel toward inside of cabinet.

DOOR ASSEMBLY

1. Remove door hinge covers (1, Fig. 30) from lower and upper door hinge.

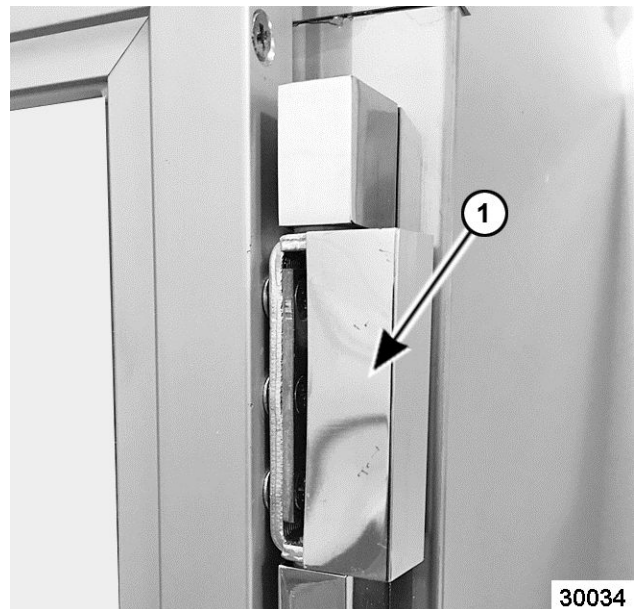


Fig. 30

⚠ WARNING

Remain in control of door when removing hinges.

2. Remove door hinge inside mounting screws from **lower door hinge first**.



Fig. 31

3. Remove door hinge inside mounting screws from **upper door hinge** while supporting door weight.
4. Lift door assembly from cabinet.
5. Reverse procedure to install.
6. Check for proper operation.

DOOR LATCH (MAGNETIC)

NOTE: Note orientation of door handle before removal.

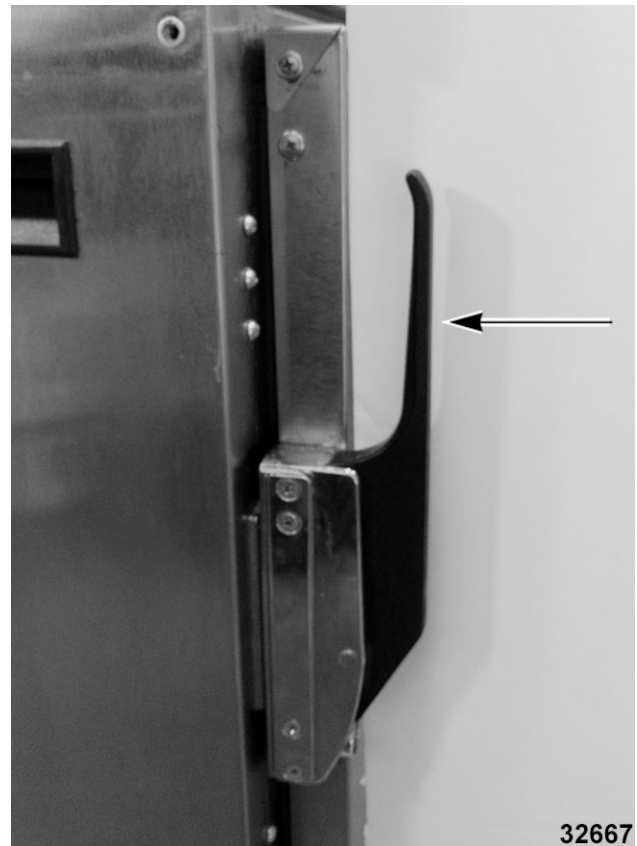


Fig. 32

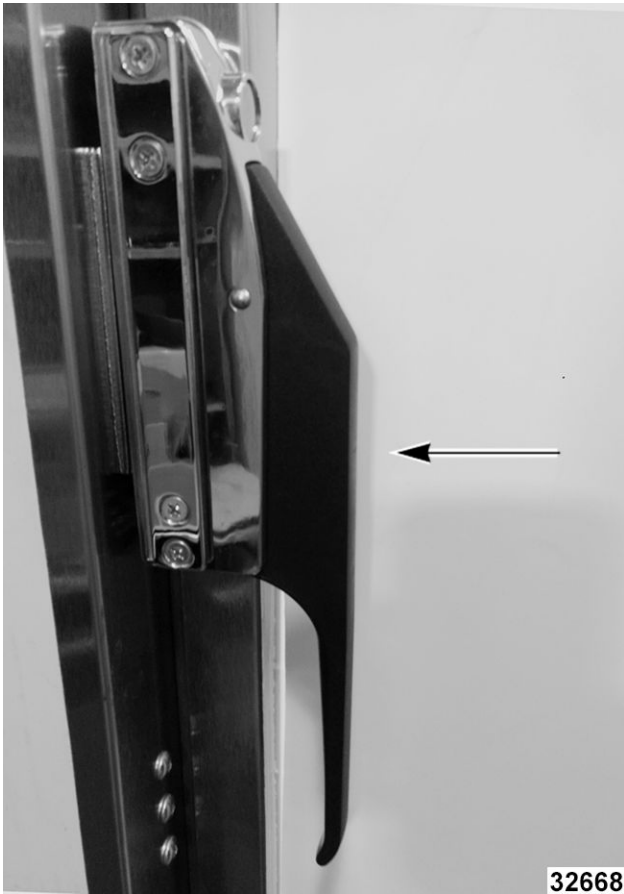


Fig. 33

1. Open door.
2. Remove screws securing door latch to door assembly.

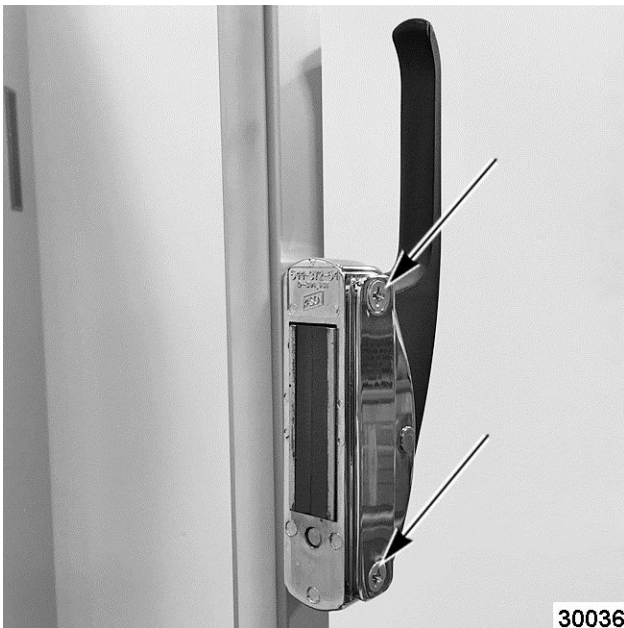


Fig. 34

3. Reverse procedure to install.

NOTICE

Install handle in the same orientation it was removed.

4. Check for proper operation.

SERVICE PROCEDURES AND ADJUSTMENTS

TEMPERATURE VERIFICATION

⚠ WARNING

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

NOTE: Units prior to 1/1/15 can be calibrated, counter clockwise to increase and clockwise to decrease. Screw is located inside stem on the mechanical thermostat. quarter turn is five degrees. Units after 1/1/15 can not be calibrated.

1. Check room temperature.
2. Place temperature probe at the center of the cabinet.
3. Set unit temperature to 145°F.
4. Wait 45 minutes.
5. The temperature setting should be between 138 - 152F°.

VERIFY

- When using cabinet, frequently opening the door will affect average internal temperature. Modify set temperature as necessary to ensure product is held above appropriate food safe temperature.

Heating Elements			
Model	Wattage	Voltage	Resistance
all VBP	1500	240	38.4 +/- 10 %

NOTE: If numbers do not match, replace HEATER ELEMENTS.

HEATER 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. Access the heater element being tested. Refer to: HEATER ELEMENTS.
2. Check resistance.

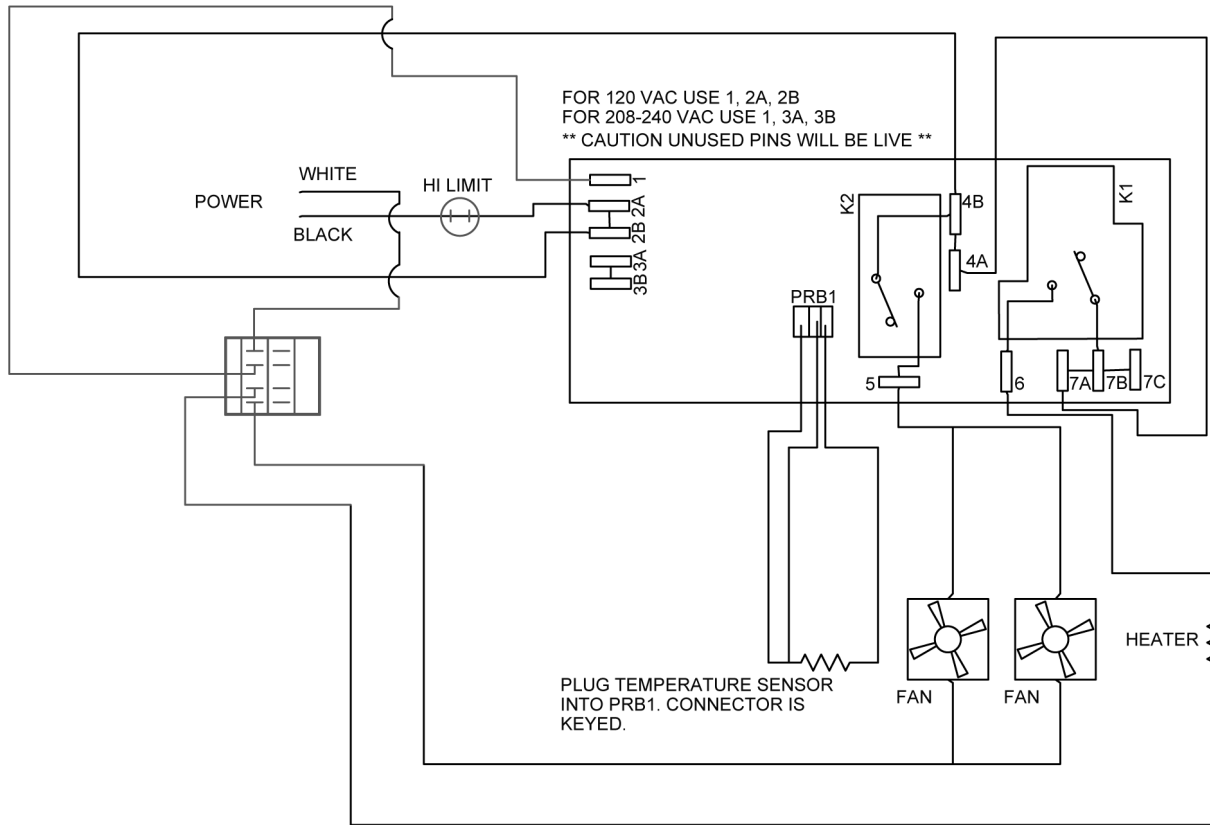
Heating Elements			
Model	Wattage	Voltage	Resistance
all VPT	1500	120	9.6 +/- 10 %

ELECTRICAL OPERATION

COMPONENT DESCRIPTIONS

ITEM	DESCRIPTION
Food Compartment Fan	Circulates air inside the cabinet. Moisture resistant with metal fan blades.
Controller Board	Controls the temperature, humidity and fan inside the cabinet.
Heating Element - Dry	Heats the air to keep prepared food at the proper serving temperatures.
Component Cooling Fan	Circulates air in the electrical component area.
High Limit	High Limit opens at 375°F.

WIRING DIAGRAM



DERIVED FROM VBP/VPT ELECTRONIC CONTROL

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Fig. 35

SEQUENCE OF OPERATION

1. Conditions.
 - A. Unit connected to correct voltage and is properly grounded.
 - B. Power switch is off.
2. Power switch turned on.
 - A. Relays K1 and K2 are de-energized (contacts N.O.).
 - B. Controller board performs diagnostic test and verifies temperature input signal is present.
3. Fan relay K2 is energized, K2 contacts close and power the fans.
4. Based on temperature and humidity settings, the board determines whether K1 relay will be energized to power element.
5. Adjust temperature to desired level.
6. Turning power switch off stops heating cycle.

TROUBLESHOOTING

Symptom	Possible Cause
Cabinet not operating.	<ol style="list-style-type: none"> 1. Cabinet not connected to power source or circuit breaker tripped. 2. Cabinet lighted power switch not ON or malfunctioning.
Ground Fault Circuit Indicator (GFCI) tripped.	<ol style="list-style-type: none"> 1. Shorted heating element. 2. Pinched/damaged wiring (heating elements or fan). 3. Damaged power cord.
Cabinet connected to power, switch is ON, circuit breaker is ON but cabinet not heating.	<ol style="list-style-type: none"> 1. Heating element malfunction. 2. Temperature probe malfunction.
Cabinet not heating properly.	<ol style="list-style-type: none"> 1. Element wires disconnected from element. Replace wire assembly and element. 2. <u>FOOD COMPARTMENT FAN</u> not circulating air or malfunction. 3. Door not sealing properly. 4. Temperature probe malfunction.
Fan not operating.	<ol style="list-style-type: none"> 1. Power not being supplied to fan (malfunction). 2. Fan wiring not connected or malfunction. 3. Fan not circulating air or malfunction.
Moisture present at the top of the cabinet near the control board.	<ol style="list-style-type: none"> 1. <u>COMPONENT COOLING FAN</u> malfunction.
Corrosion present inside cabinet.	<ol style="list-style-type: none"> 1. Periodic cleaning needed. Refer to Operations manual. 2. Hardware has rusted. Replace rusted hardware with 18-8 stainless steel components and replace <u>FOOD COMPARTMENT FAN</u>.