



# PARTS & SERVICE MANUAL

Insta-Therm

16000 Series

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P/N: L340136  
REV: 8.2.10

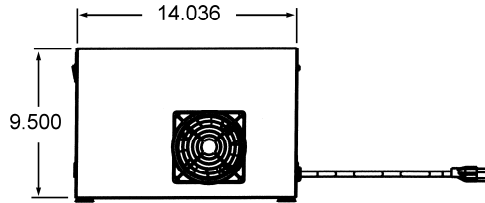
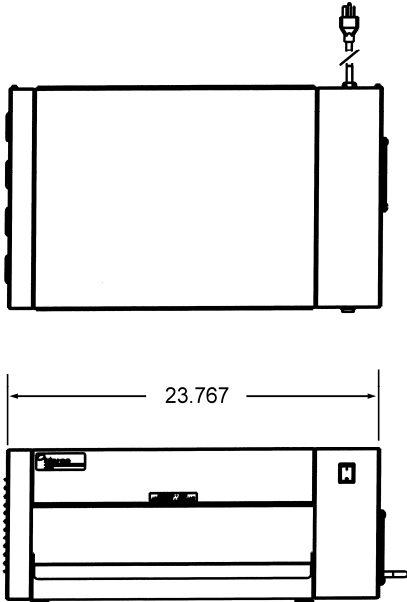
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# UNIT SPECIFICATIONS

Unit #	Volts	Amps	Watts	Hz	Phase	Cord/Plug	Weight
16001*	208	11.25	2340	60	Single	6' NEMA 6-20P	47 lbs. / 21.3 kg.
16003**	230	9.91	2280	50	Single	CEE 7/7	47 lbs. / 21.3 kg.
16005	208	11.25	2340	60	Single	6' NEMA 6-20P	47 lbs. / 21.3 kg.

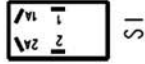
\* 50% Stand-by Energy Saving Mode

\*\* CE Approved Unit

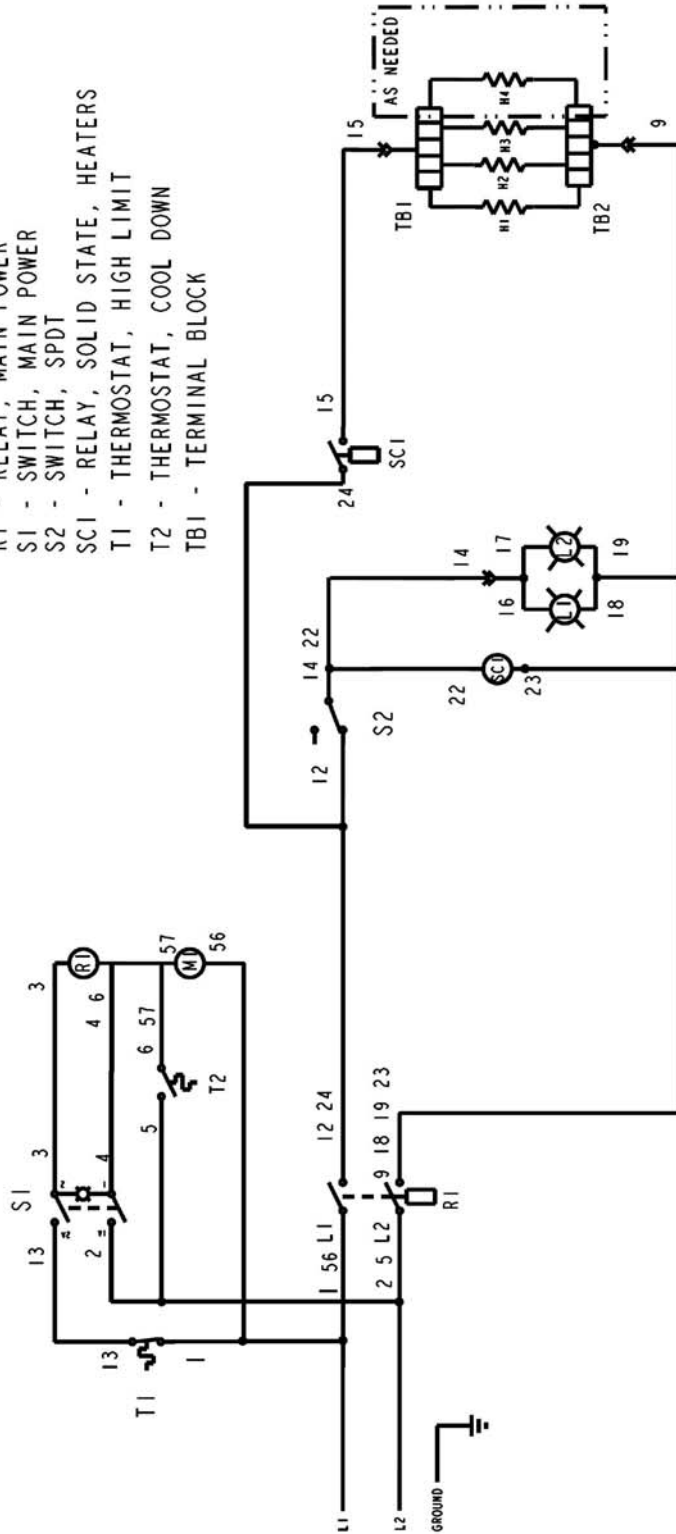


16000

**SCHEMATIC**  
MODEL 16001

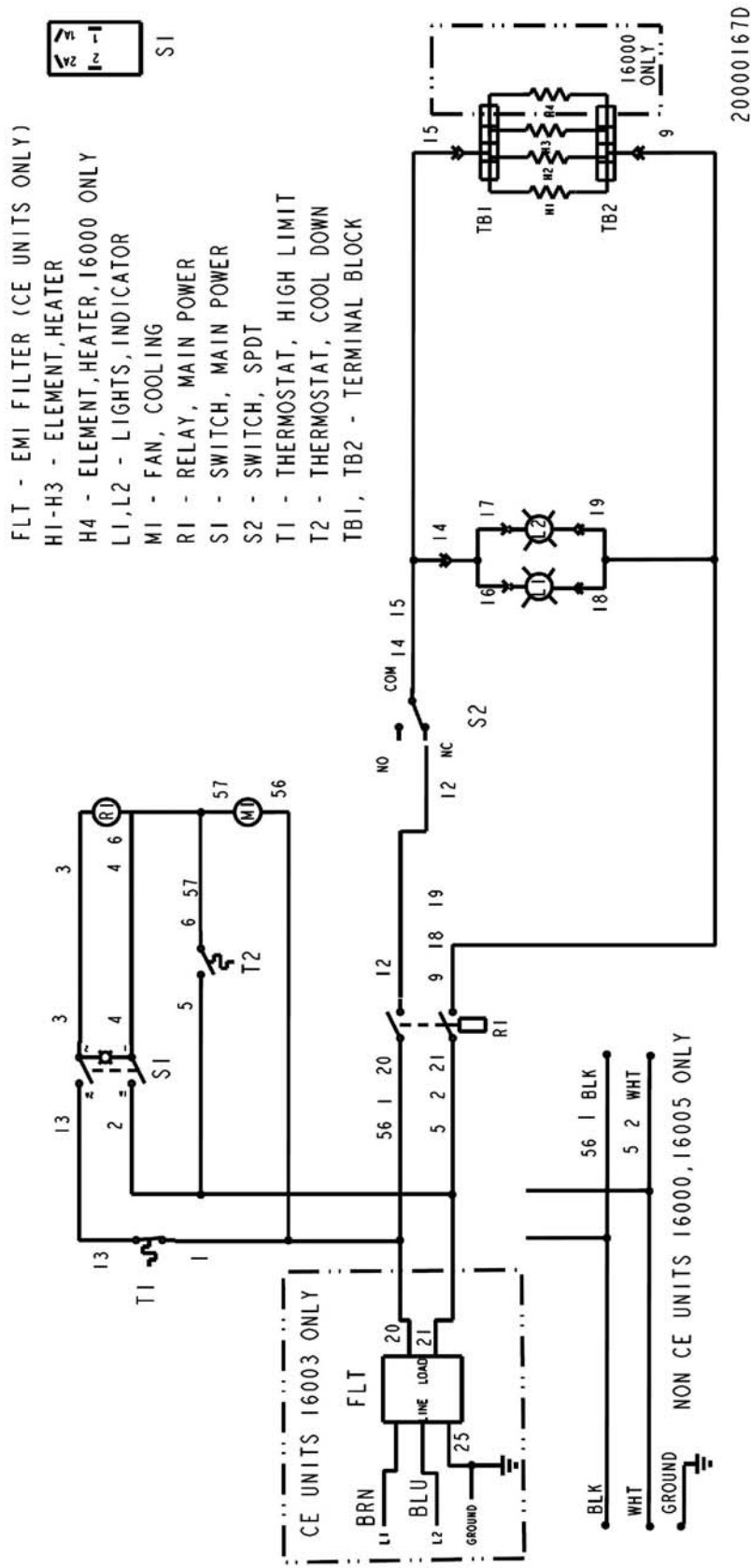


- HI-H4 - ELEMENT, HEATER
- LI, L2 - LIGHTS, INDICATOR
- MI - FAN, COOLING
- RI - RELAY, MAIN POWER
- S1 - SWITCH, MAIN POWER
- S2 - SWITCH, SPDT
- SCI - RELAY, SOLID STATE, HEATERS
- T1 - THERMOSTAT, HIGH LIMIT
- T2 - THERMOSTAT, COOL DOWN
- TBI - TERMINAL BLOCK



20000025B

**SCHEMATIC**  
 MODEL 16003, 16005



## SEQUENCE OF OPERATION

POWER SUPPLY	Electrical power is supplied to the unit by a 3 conductor service for single phase. Black conductor is hot. White conductor is neutral. Green and Yellow conductor is ground. Power is permanently supplied to the power switch through the high limit thermostat. Also to the open contacts of the main power relay.
HEATING CIRCUIT	Closing the main power switch feeds power to the cooling fan and the coil of the main power relay. Its contacts now close supplying 50% power to the 4 heaters through the current limiting solid state relay. When product is placed on the shelf, the normally open contact (S2) closes to supply full power through the current limiting solid state relay and two indicator lamps to the heaters.

## TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	EVALUATION
Unit will not turn on	Incoming Power Supply	Check breakers, reset if required. Check power plug to be sure it's firmly in receptacle. Measure incoming power 208v
	Hi Limit Thermostat	Terminals are normally closed, if open push in reset button. If button will not reset replace hi limit. Hi limit opens at 60C
	On – Off Switch	Check continuity between switch terminals. Replace switch as needed.
No Stand By Heat	Contactors	Check for supply voltage to contactor contacts, if no voltage present trace back to on-off switch. If voltage is present, check to insure contacts are closing, replace as needed.
	Solid State Relay (Current limiting)	Check for supply voltage to relay contact, if no voltage present trace back to contactor. Check for output voltage, if no output voltage check percentage dial on relay is set to 50%. If no output voltage present replace as needed.
	Elements	Check the amp draw on each element for proper load. Check specification plate for rating information. Check individual elements for opens, shorts and proper resistance 56ohms.
No Full Power	Micro Switch	Check continuity of the NC held open switch with sufficient weight on surface, if no continuity, replace switch.
	Solid State Relay (Current limiting)	Check for supply voltage to relay coil (this will be indicated by two lamps on the unit) if no voltage present trace back to contactor and/or the micro switch. Check for output voltage, if no output voltage check percentage dial on relay is set to 50%. If voltage is present at coil check contacts are closing, replace as needed.
	Elements	Check the amp draw on each power leg for proper load. Check specification plate for rating information. Check individual elements for opens, shorts and proper resistance 56ohms.
Hi Limit Trips	Cooling Fan Motor	Check to see cooling fan is operational, if not check for voltage to motor, if no voltage present trace back to on – off switch, if voltage is present replace motor.

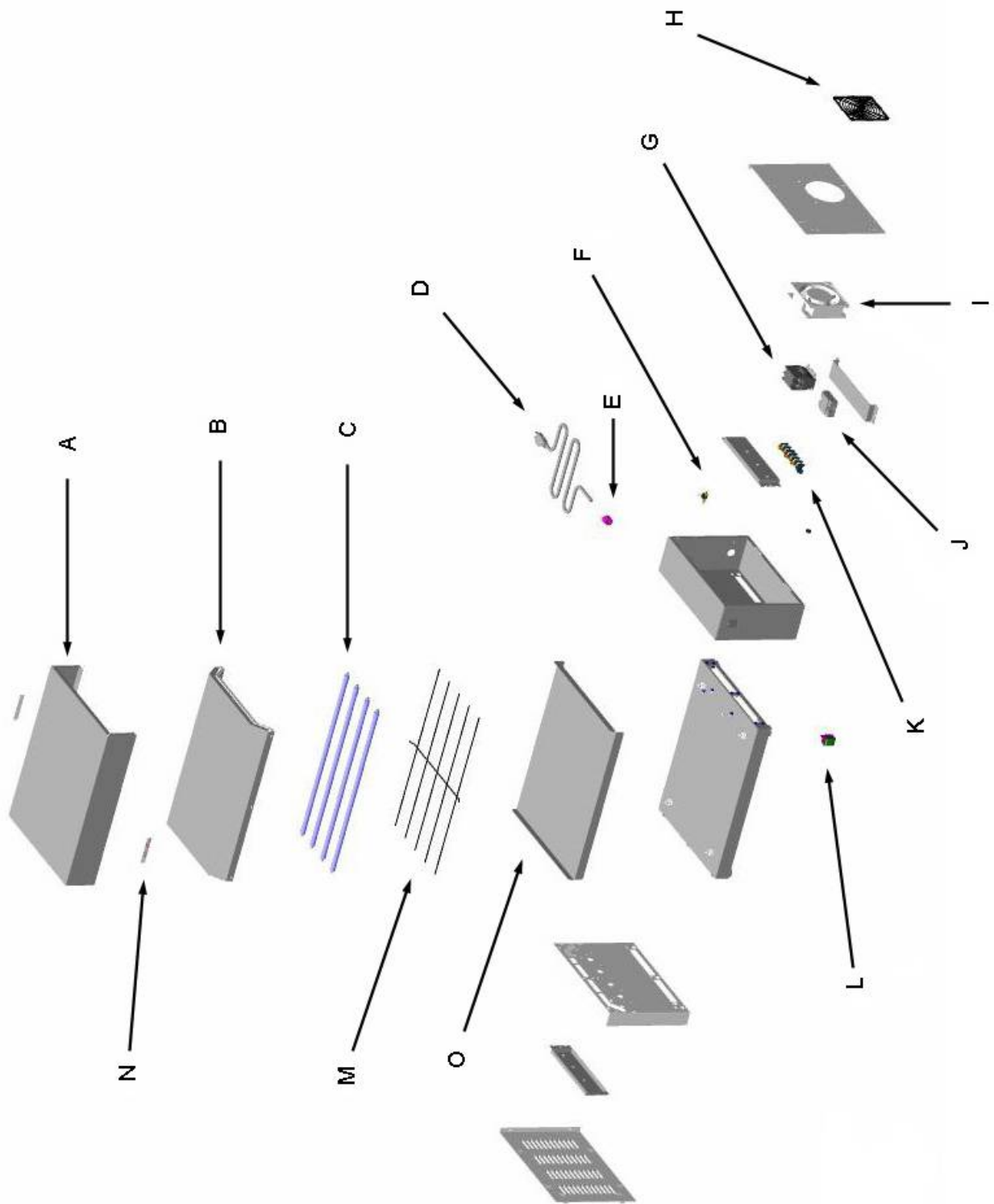
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## PARTS BREAKDOWN

LETTER	PART NUMBER	DESCRIPTION
A	340029	Top Cover
B	340030	Reflector Assembly
C	340031	Element, Heater, Quartz, 760W, 208V
D	340180	Cordset, 240V, 20A, w/ sleeve & sp
E	340032	Bushing, Heyco
F	340117	Hi Limit
G	340033	Contact Coil
H	369331	Finger Guard
I	369378	Fan Motor
J	340036	Solid State Relay
K	340037	Terminal Block, X3
L	27511SP	Switch, Rocker, Lighted
M	10004115	Wire Guard
N	340039	Merco Logo
O	340132	Shelf
Not Shown	19378SP	Micro Switch
Not Shown	369507	Thermostat Bi-Metal (cooldown)



# EXPLODED VIEW ILLUSTRATION



16000 D

## HEATER INSTALLATION INSTRUCTIONS



### **DANGER:**

Disconnect power supply before servicing or cleaning this toaster. Safeguard power so it cannot be accidentally restored. Failure to do so could result in serious injury.

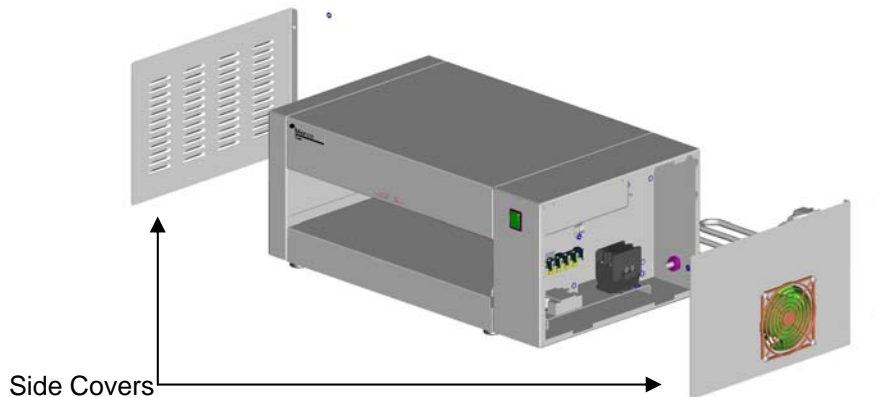


### **CAUTION:**

Heater elements must not be handled with bare hands. Oil or grease residue on the quartz tube may result in premature failure of the element. Gloves or some other means of protecting the elements must be used during handling.

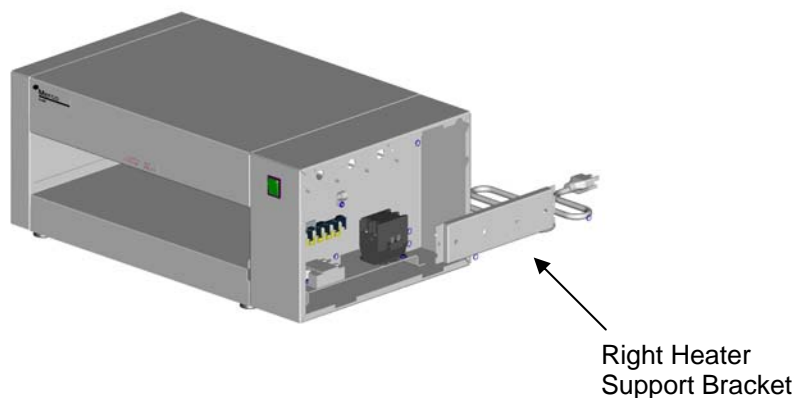
### STEP 1 – COVER REMOVAL

Remove the screws holding each of the side covers in place, slide the covers to the rear (approximately 1”) and pull them off. Retain the screws for reinstallation. The fan power cable may also be disconnected from the fan, if needed.



### STEP 2 – HEATER SUPPORT BRACKET REMOVAL

Remove the two screws holding the right heater support bracket in place and remove the bracket. Retain the screws for later reinstallation. Leave the right hand side heater support bracket in place.



## HEATER INSTALLATION INSTRUCTIONS (CONT'D)

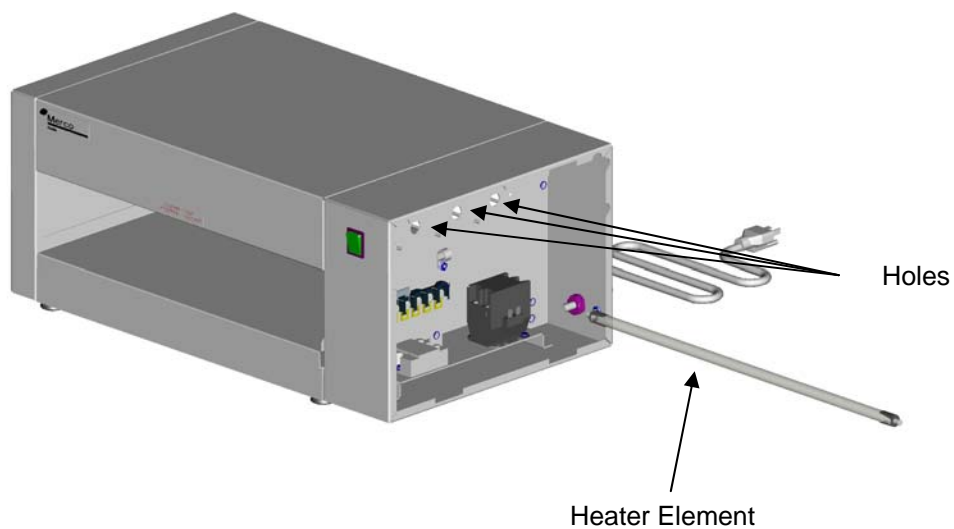
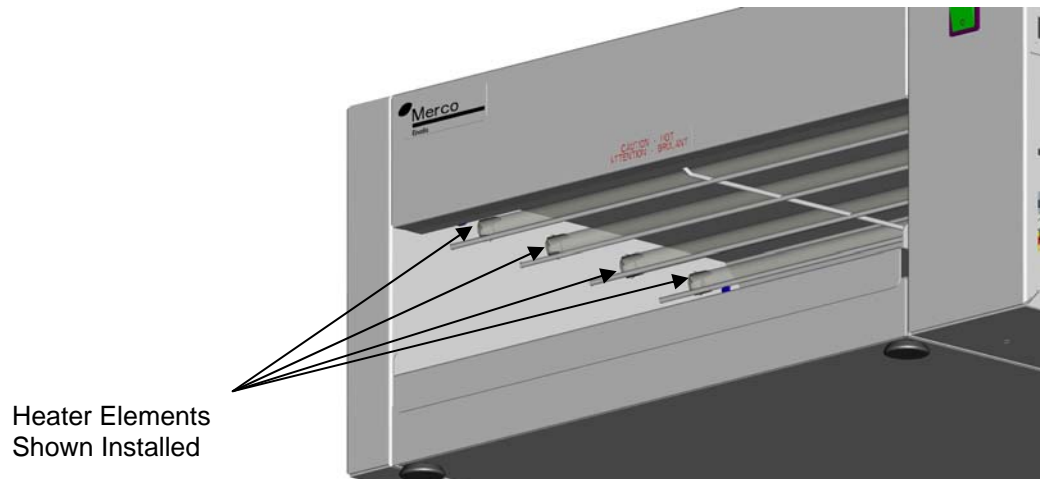
### STEP 3 – INSTALLING HEATER ELEMENTS



**CAUTION:**

DO NOT TOUCH QUARTZ HEAT TUBES WITH BARE HANDS. USE GLOVES WHILE HANDLING TUBES.

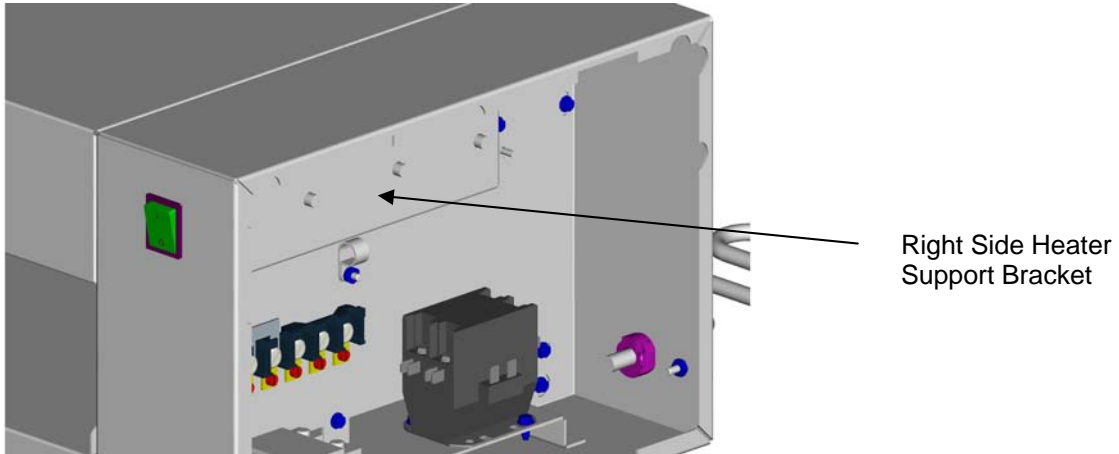
Slide the heater elements (quartz tubes) through the holes in the right hand wall of the unit, feeding the lead wires through the hole in the left hand wall and heater support bracket. The small diameter of the ceramic end caps on the element should fit snugly into the holes in the support bracket.



## HEATER INSTALLATION INSTRUCTIONS (CONT'D)

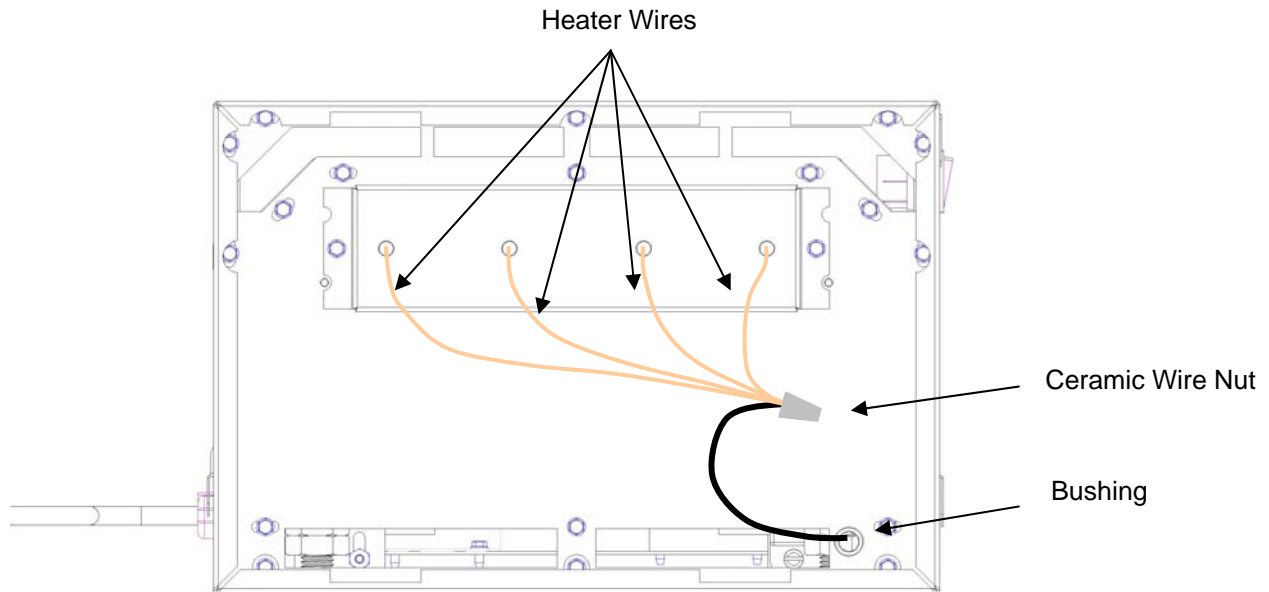
### STEP 4 – REINSTALLATION OF HEATER SUPPORT BRACKET

Reposition the right side heater support bracket over the ends of the heater element, feeding the lead wires through the holes. Secure using the screws previously removed.



### STEP 5 – CONNECT THE LEFT SIDE HEATER WIRES

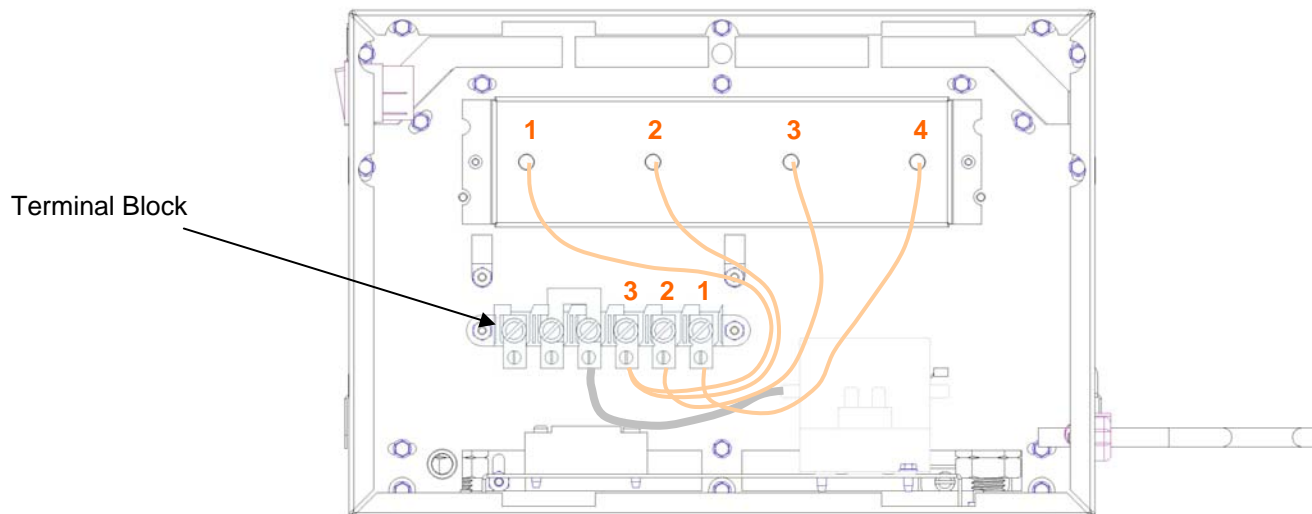
Connect all four (4) heater wires on the left side to the single black wire coming through the bushing toward the bottom of the unit using the ceramic wire nut provided.



## HEATER INSTALLATION INSTRUCTIONS (CONT'D)

### STEP 6 – CONNECTING RIGHT SIDE HEATER WIRES

Connect the four (4) heater wires on the right side to the terminal block as shown. Heater wire #1 and #2 are connected to terminal block position #3, heater wire #3 to terminal block position #2, and heater wire #4 to terminal block position #1.



### STEP 7 – REINSTALLATION OF SIDE COVERS

Reconnect the fan power cord (if disconnected) and reinstall the side covers with the previously removed screws.

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