Chromalox®

Installation, Operation
and
MAINTENANCE INSTRUCTIONS

SERVICE REFERENCE	
DIVISION 4	SECTION TTUH
SALES REFERENCE (Supersedes PD401)	PD401-1
	161-304755-001
DATE AUGUST, 2000	

Water Immersion Heater
Type TTUH-B, TTUH-CO-B, and TTUH-COR-B

GENERAL

⚠WARNING

FIRE/EXPLOSION HAZARD. This heater is not intended for use in hazardous atmospheres where flammable vapors, gases, liquids or other combustible atmospheres are present as defined in the National Electrical Code. Failure to comply can result in personal injury or property damage.

Chromalox TTUH-B, TTUH-CO-B, and TTUH-COR-B food equipment heaters are ideal for coffee urns, steam tables, kettles, humidifiers and other commercial uses.

⚠WARNING

The system designer is responsible for the safety of this equipment and should install adequate back-up controls and safety devices with their electric heating equipment. Where the consequences of failure could result in personal injury or property damage, back-up controls are essential.

INSTALLATION

⚠WARNING

ELECTRIC SHOCK HAZARD. Disconnect all power before installing or servicing heater. Failure to do so could result in personal injury or property damage. Heater must be installed by a qualified person in accordance with the National Electrical Code, NFPA 70.

⚠WARNING

FIRE HAZARD. Since heaters are capable of developing high temperatures, extreme care should be taken to:

A. Avoid mounting heaters in an atmosphere containing combustible gases and vapors.
B. Avoid contact between heaters and combustible materials.
C. Keep combustible materials far enough away to be free of the effects of high temperature.
D. Keep heater immersed at all times.

Instructions to install the heater into tank:

1. Cut a hole 2-7/16" in diameter in the bottom of the tank unless already done. Also see step 8 at this time.
2. Remove lock-nut from the heater (if installed).
3. Place gasket over threads of the heater.
4. Insert heater with gasket into the tank. (Use sealer if tank wall is corroded)
5. Place spacer (second gasket) over threads on underside of the tank.
6. Place base over threads.
7. Thread the lock-nut on finger tight. Ensure the lock-nut teeth face towards the tank.
8. Rotate base to position conduit openings to desired location and tighten lock nut.
9. Remove appropriate size conduit opening knockout by rotating the knockout until it falls out. This step may be done in conjunction with step 1 if desired.
10. Attach (customer provided) ground wire to the provided ground screw. (See photo 1)
11. Refer to step 12 of wiring instructions below relating to appropriate type of heater. Also refer to all warning and caution statements.

For TTUH-B	"TTUH B Wiring Instructions"
For TTUH-CO-B	"TTUH-CO-B Wiring Instructions"
For TTUH-COR-B	"TTUH-COR-B Wiring Instructions" with internal relay mounting
For TTUH-COR-B	"TTUH-COR-B Wiring Instructions" with external relay mounting

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WIRING

⚠WARNING

ELECTRIC SHOCK HAZARD. Any installation involving electric heaters must be performed by a qualified person and must be effectively grounded in accordance with the National Electrical Code to eliminate shock hazard.

1. Be sure line voltage matches heater voltage (on nameplate).
2. Electric wiring to heater must be installed in accordance with the National Electrical Code and with local codes by a qualified person.

⚠CAUTION

Use copper conductors only.

3. When element wattages are not equal, heaters must not be connected in series.
4. Make necessary wiring connections as shown on wiring diagram (Figures 1, 3, 5).

TTUH-B Wiring Instructions:

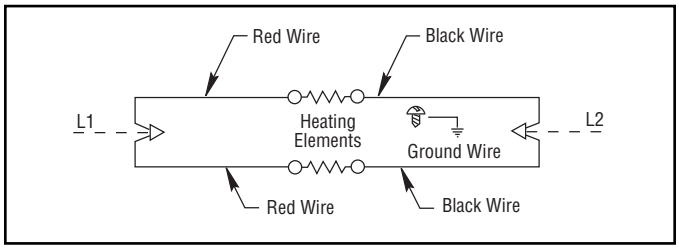


Figure 1 - TTUH-B Wiring

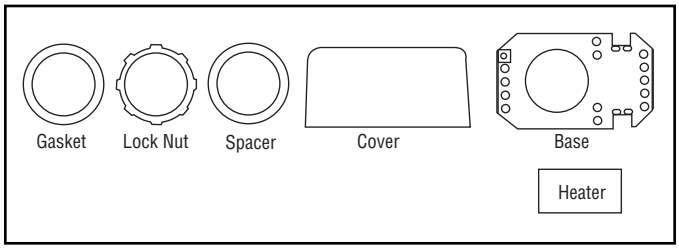


Figure 2 - TTUH-B Materials

Refer to Figures 1 and 2 for the steps below. At this point, your assembly should resemble Photo 1.

12. Twist the black wires together.
13. Twist the red wires together.
14. Through conduit opening, hook up one set of twisted wires to each side of your power source.
15. Install Cover: Verify that all wiring is within the envelope of the base before attaching cover. Insert tab of the cover into the slot in the base. Tighten screw on the opposite side of the base to secure the cover.

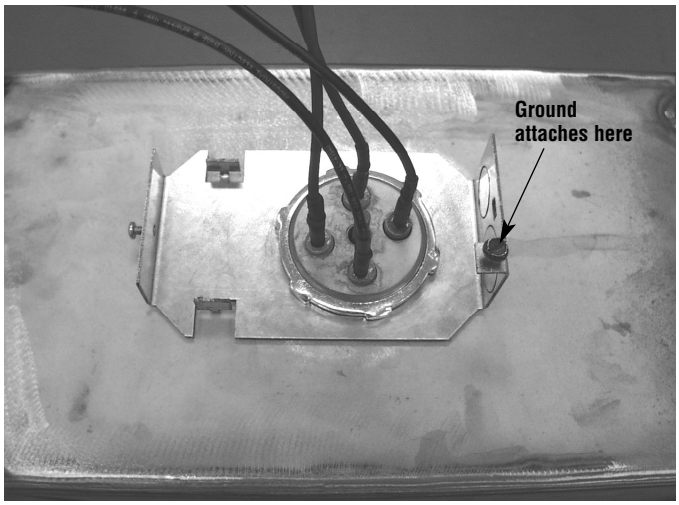


Photo 1

WIRING

TTUH-CO-B Wiring Instructions:

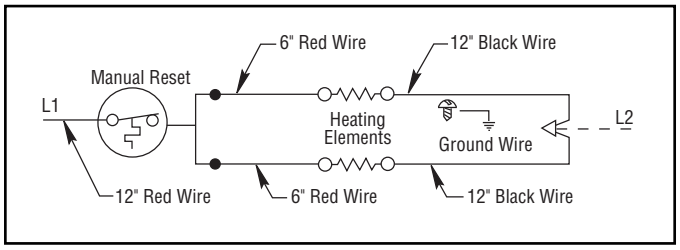


Figure 3 - TTUH-CO-B Wiring

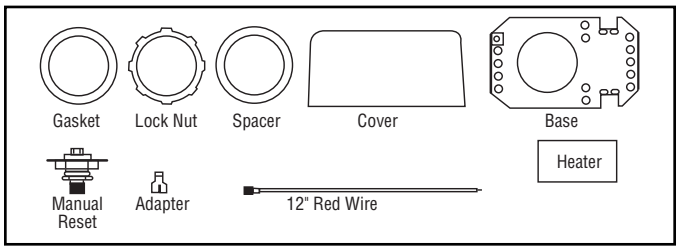


Figure 4 - TTUH-CO-B Materials

Refer to Figures 3 and 4 for the steps below.

12. Attach the wire adapter to the manual reset terminal on the side that does not have conduit openings.
13. Attach both short (red) wires to wire adapter.
14. Attach the loose (red) wire to the second manual reset terminal.
15. Twist both long black wires together. At this point, your assembly should resemble Photo 2.
16. Through conduit opening, hook up twisted wires to one side of your power source and the single (red) wire to the other side of your power source.
17. Install Cover: Verify that all wiring is within the envelope of the base before attaching cover. Insert tab of the cover into the slot in the base. Tighten screw on the opposite side of the base to secure the cover.

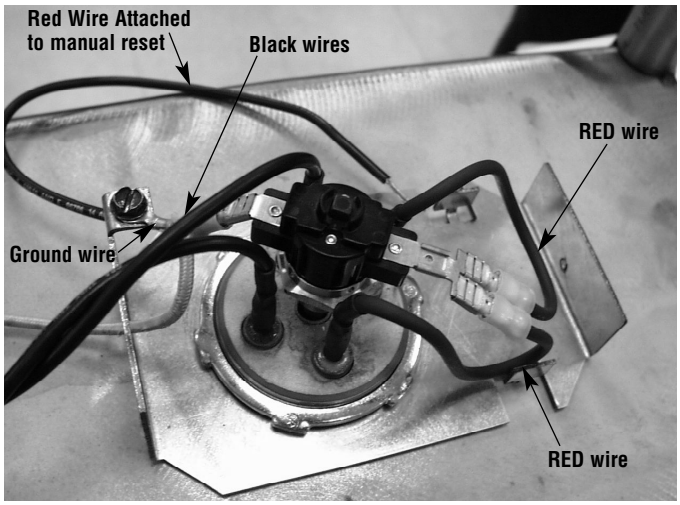


Photo 2

TTUH-COR-B Wiring Instructions: (with internal relay mounting)

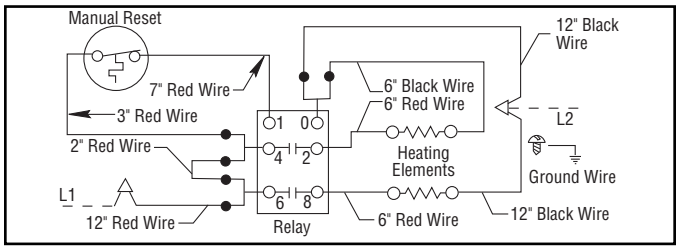


Figure 5 - TTUH-COR-B Wiring

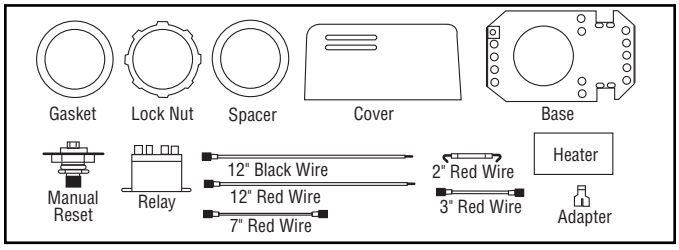


Figure 6 - TTUH-COR-B Materials

Refer to Figures 5 and 6 for the steps below.

12. Attach 2" loose wire (red) between relay terminals 4 and 6.
13. Attach 3" loose wire (red) between relay terminal 4 and manual reset.
14. Install terminal adapter to relay terminal 0.
15. Attach 7" loose wire (red) between relay terminal 1 and the other side of the manual reset.
16. Attach one 6" element wire (red) to relay terminal 8.
17. Attach second 6" element wire (red) to relay terminal 2.
18. Attach 6" (black) element wire to relay terminal 0.
19. Attach 12" loose (red) wire to relay terminal 6.
20. Attach 12" loose (black) wire to relay terminal 0. Twist wire end to 12" element wire (black) wire. At this point, your assembly should resemble Photo 3.
21. Through conduit opening, hook up twisted wires to one side of your power source and the single (red) wire to the other side of your power source.
22. Install Cover: Verify that all wiring is within the envelope of the base before attaching cover. Insert tab of the cover into the slot in the base. Tighten screw on the opposite side of the base to secure the cover.

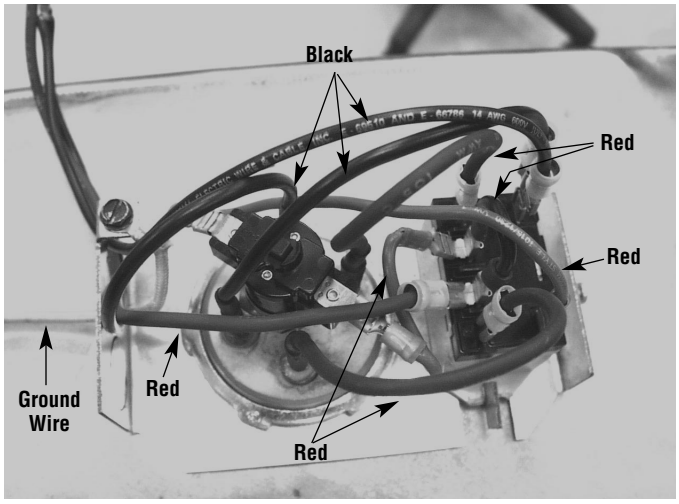


Photo 3

WIRING

TTUH-COR-B Wiring Instructions: (with external relay mounting)
Note: Customer must purchase unit with longer leads for this option.

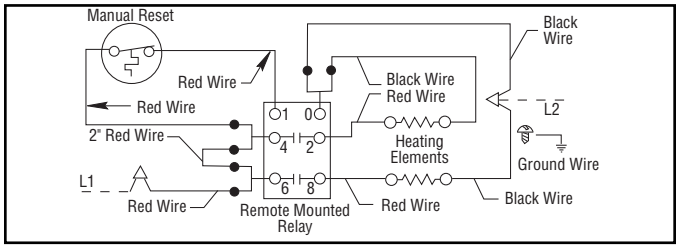


Figure 7 - TTUH-COR-B Wiring

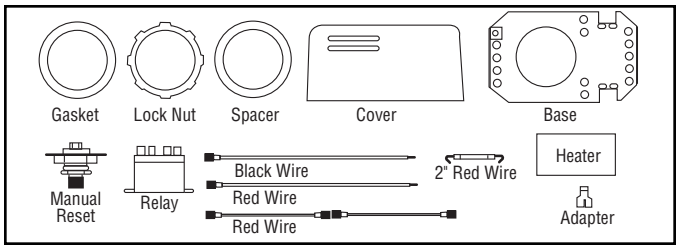


Figure 8 - TTUH-COR-B Materials

Refer to Figures 7 and 8 for the steps below.

12. Attach 2" loose wire (red) between relay terminals 4 and 6.
13. Attach loose wire (red, with 2 quick connections) between relay terminal 4 and manual reset.
14. Install terminal adapter to relay terminal 0.
15. Attach loose wire (red, with 2 quick connections) between relay terminal 1 and the other side of the manual reset.
16. Attach one element wire (red) to relay terminal 8.
17. Attach second element wire (red) to relay terminal 2.
18. Attach (black) element wire to relay terminal 0.
19. Attach loose (red, with 2 quick connection) wire to relay terminal 6.
20. Attach loose (black, with 2 quick connection) wire to relay terminal 0. Twist wire end to element wire (black) wire.
21. Through conduit opening, hook up twisted wires to one side of your power source and the single (red) wire to the other side of your power source.
22. Install Cover: Verify that all wiring is within the envelope of the base before attaching cover. Insert tab of the cover into the slot in the base. Tighten screw on the opposite side of the base to secure the cover.

OPERATION

1. Do not operate at voltages in excess of that stamped on the heater since excess voltage will shorten heater life.

⚠WARNING

FIRE HAZARD. Energized heaters must be completely immersed in liquid. Minimum liquid level should be maintained 1/2" above heating element to avoid equipment damage.

IMPORTANT NOTE: The Thermal cutout on the TTUH-CO provides run dry burn-out protection only. Partial immersion of the elements while energized can shorten element life. The cutout is a safety device only and should not be used continuously as a low-liquid-level control. See warnings under General Instructions.

MAINTENANCE

IMPORTANT: It is the responsibility of the purchaser of the heater to make the ultimate choice of sheath material based upon his knowledge of the chemical composition of the corrosive solution, character of the materials entering the solution, and controls which he maintains on the process.

⚠WARNING

Sheath corrosion can result in a ground fault which, depending upon the solution being heated, can cause an explosion or fire.

Disconnect all power before servicing heater. Refer to Electric Shock Hazard warning in installation section of instructions

1. Heaters need to be checked periodically for coatings and corrosion and cleaned if necessary.
2. Tank needs to be checked regularly for sediment around the heater. Sediment can act as an insulator and shorten heater life.
3. Check for loose terminal connections.
4. If corrosion is indicated in the terminal housing, check terminal box gasket and replace if necessary, and check conduit layout to correct conditions that allow corrosion to enter the terminal housing.
5. Clean terminal ends of all contamination.

RENEWAL PARTS IDENTIFICATION

- Thermal cutout replacement kit PCN 427725
- Gasket P/N 132-010737-005
- Relay P/N 072-121851-057
- TTUH-CO-B wire replacement kit P/N 168-047782-053
- TTUH-COR-B wire replacement kit P/N 168-047782-052
- TTUH-COR-B remote relay wire replacement kit P/N 168-047782-054

Limited Warranty:
Please refer to the Chromalox limited warranty applicable to this product at
http://www.chromalox.com/customer-service/policies/termsofsale.aspx.

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