

# CEH / 3380 SERIES

## CEILING HEATER

## INSTALLATION INSTRUCTIONS



TPI Corporation  
P.O. Box 4973  
Johnson City, TN  
37602-4973

America's Comfort Conditioning Company

### Location of Heater:

Heaters are designed for surface, recessed or "T-bar" ceiling mounting. Heaters must be mounted to provide a minimum clearance of 8" from the intake or exhaust end or from the sides of the heater to the nearest wall or obstruction. For T-Bar installation (Fig. 3), use the optional T-Bar frame CEH-TBF / TB3380. Select a 2' x 2' section of framework in such a location that the minimum 8" spacing is maintained. Follow the installation wiring diagram carefully. A green ground lead is provided. Insure that supply voltage matches voltage rating on the label of the heater. Disconnect power supply at breaker box before installation.

### Mounting Instructions:

1. Disassemble heater as shown in Fig. 1 & Fig. 2.
2. Flush Mounting (Fig. 2). Provide opening in ceiling 14 1/4" wide by 19 5/16" long. Note that the direction of air flow is parallel to the 19 5/16" side of the opening. Depth must be a minimum of 4" from the finished ceiling surface. Install rough-in box into the opening so that the flanges are flush with finished ceiling surface. Secure rough-in box with nails, screws or appropriate fasteners. Wiring may be brought into the box from either end using the knockouts provided.
3. Surface Mounting (Fig. 1). Insert rough-in box into surface adapter CEHA /3380EX33. Secure rough-in box into ceiling through holes provided in the back. Be sure that rough-in box is centered in the surface adapter. Bring wiring in through air outlet end knockouts only.
4. Remove all construction dirt and debris from inside the heater.
5. Place heater assembly inside the rough-in box and secure with six screws.

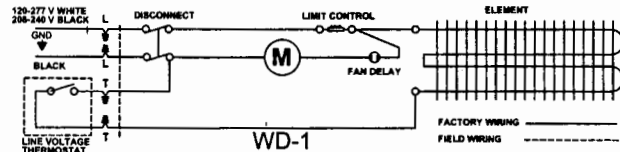
### Wiring Instructions:

6. All wiring must conform to National and local electrical codes.

#### With Disconnect Ref. WD-1

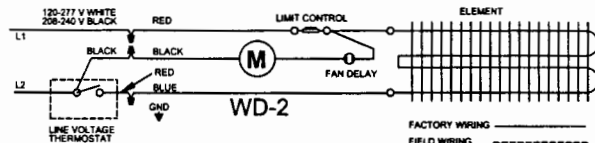
- A. Attach service leads to two black leads (L1 & L2) on 208-240 volt models and to white (L1) and black (L2) on 120-277 volt models, with approved connectors. Connect ground lead to green ground wire with approved connectors.

- B. Run service leads from remote thermostat and connect to lead wire T1 & T2 with approved connectors. Replace wiring compartment cover.



#### Without Disconnect Ref. WD-2

For proper fan operation, three conductor wires and a ground wire must be used between the thermostat and the heater. For 277 and 120 volt applications use a white, black, red and ground combination. For 208 and 240 volt applications use a black, black, red and ground combination. The wiring diagram is color coded in this manner.



#### For 120 and 200 Volt Operation:

Connect the white (neutral) supply lead to the red pigtail lead, the black supply lead (L2) to the black pigtail lead, and the red supply lead (L2) to the blue pigtail lead. The ground wire should be connected to the green pigtail lead.

#### For 208 and 240 Volt Operation:

Connect the black supply lead (L1) to the red pigtail lead, the black supply (L2) to the black pigtail lead, and the red supply lead (L2) to the blue pigtail lead. The ground wire should be connected to the green pigtail lead. Replace wiring compartment cover.

7. Attach front grille with four screws.

**Note:** The wall thermostat cycles the heating element only. Direct runs of supply service leads L1 & L2 supplies continuous power to the fan motor, and the heater should be considered live at all times. Move the disconnect switch to off position or disconnect power at main distribution box before any maintenance work. Turning the thermostat to off position will not disconnect the heater.

**IMPORTANT: OWNER SHOULD RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE**

Form 9585

## OPERATION INSTRUCTIONS:

### External Thermostat

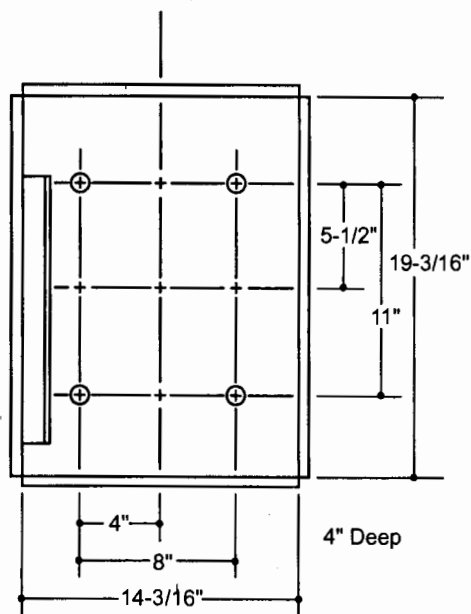
The thermostat should be mounted at the level of the desired comfort zone, but not in the direct path of the heated discharge air. A single pole thermostat with anticipator is recommended. Be sure that the ratings of the thermostat are sufficient to carry the heater load.

### Fan Operation

This heater is equipped with a fan delay control. When the thermostat calls for heat, the fan control delays the fan operation until the element is fully hot. Then the fan will energize and operate. After the thermostat is satisfied, the element will de-energize and the fan will continue to run until the element has cooled down. If the fan does not function in this manner, check all wiring connections against the wiring diagram.

## MAINTENANCE INSTRUCTIONS:

Once a year, disconnect electrical power at source. Remove front grille and clean dust from heater and grille. Lubricate the motor with SAE No. 10 oil. Two oil spouts are located on front and back of motor. Once finished turn power back on to heater.



Rough-In Box  
Dimensions

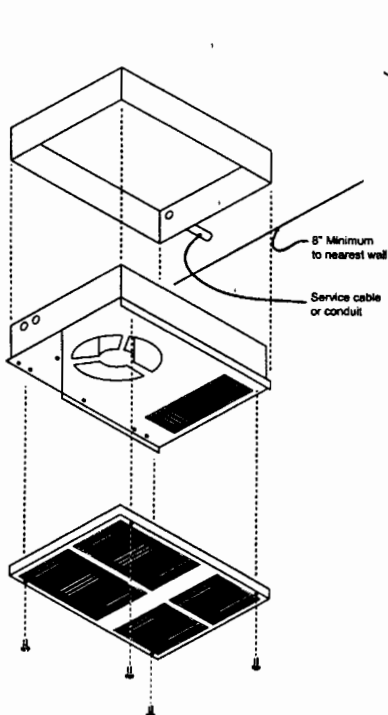


Fig. 1  
Surface Mounting

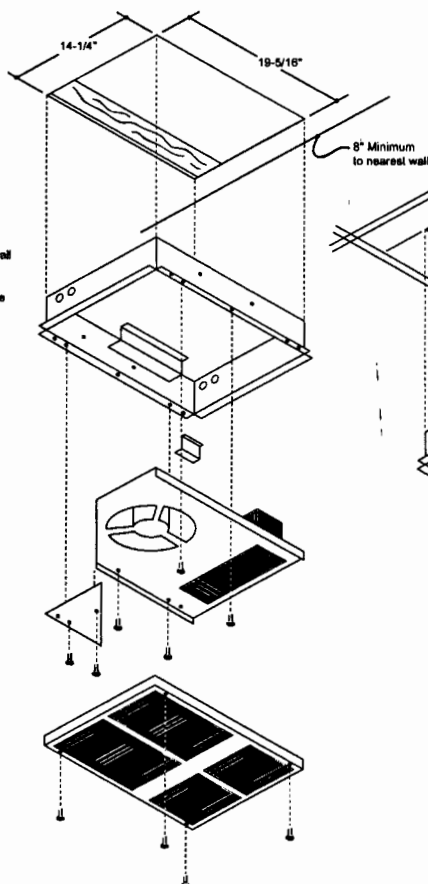


Fig. 2  
Flush Mounting

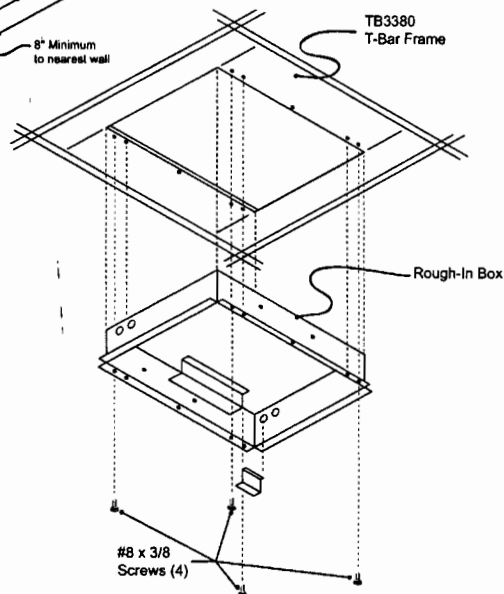


Fig. 3  
T-Bar Mounting

# INSTALLATION INSTRUCTIONS

## INSTALLATION INSTRUCTIONS 2 X 2 T-BAR MOUNTING KIT MODEL TB3380A FOR USE WITH CEH/3380 SERIES HEATERS



TPI Corporation  
P.O. Box 4973  
Johnson City, TN  
37602-4973

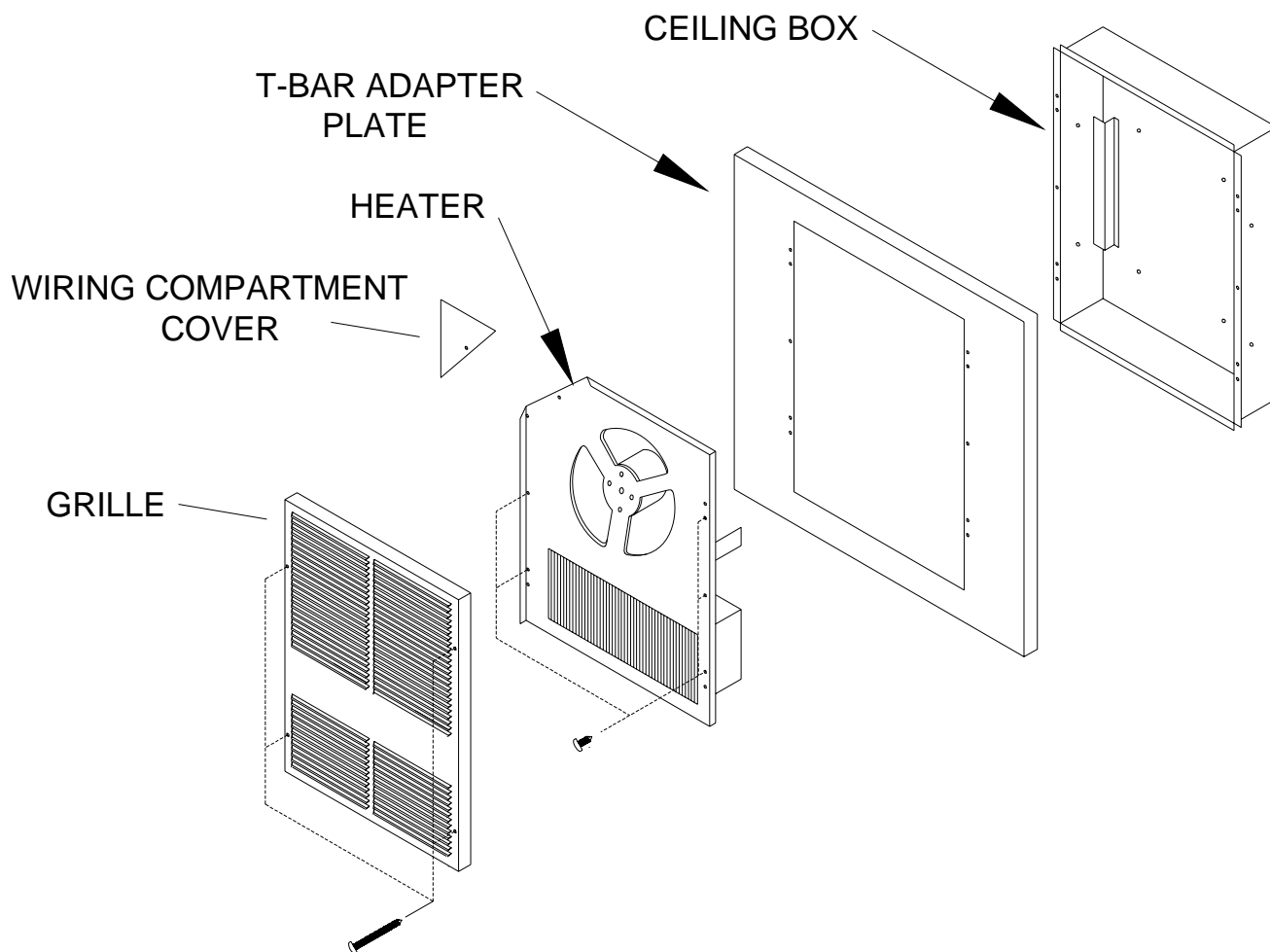
*America's Comfort Conditioning Company*

**CAUTION:** Disconnect supply service to avoid electrical shock.

All wiring connections must conform to the National Electric Code and local codes having jurisdiction.

NOTE: Assembly less grill and wiring compartment cover prior to placement in grid, may simplify installation.

1. Remove any part kits or packing from heater.
2. Remove the required K.O. from the ceiling box.
3. Remove wiring compartment cover if installed. Assemble heater, adapter plate and ceiling box in the order as shown. Secure the parts with the screws provided.
4. Place the above assembly in the T-bar grid.
5. Attach conduit or cable and make wiring connections and install wiring compartment cover.
6. Install grille, restore power and check heater operation ( See installation sheet provided with heater).

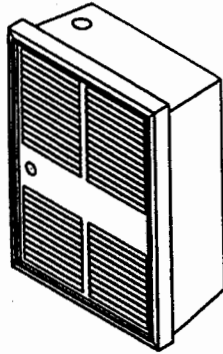


ECO 1-5757 7/07 FORM 9743

**IMPORTANT: OWNER SHOULD RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE**

# INSTALLATION AND OPERATION INSTRUCTIONS

303, 304, 305, CRH, CRQ, CFA SERIES



**CAUTION:** To prevent electric shock disconnect power to heater at main service before wiring or service.

**CAUTION:** Do not obstruct the front of the heater with curtains, furniture, doors, etc. Do not place heaters under towel racks. Proper operation of the heater requires a free flow intake and exhaust of air.

## GENERAL

These heaters are designed for 2 X 4 recessed or surface mount installation. The heaters may be wall mounted in a vertical or horizontal position and ceiling mounted. The minimum clearance from wall box to adjacent wall or floor is 6 inches. These heaters must not be installed without wallbox model no. 30WB.

### INSTALLATION OF WALL BOX 30 WB FOR NEW CONSTRUCTION

1. Position wall box a minimum of 6 inches from adjacent wall and floor. Secure to wall stud with nails or screws. Wall box must be installed with front edge flush with finished wall surface. See figure 1.
2. Remove knockout in wall box for power source, and install cable clamp.
3. Insert supply cable through clamp allowing 6-8" for field wiring.

**NOTE:** Field wiring must enter wall box where the corner wiring compartment is located.



P.O. BOX 4973, CRS  
JOHNSON CITY,  
TN 37602-4973

**corporation**

*America's Comfort Conditioning Company*

## INSTALLATION OF WALL BOX 30WB

### FOR EXISTING CONSTRUCTION

1. Carefully cut a hole measuring  $9\frac{1}{4}$ " wide by  $12\frac{1}{4}$ " long in wall. Wall box 30WB must be attached to a wall stud on one edge. Minimum clearances of 6" must be maintained to adjacent surfaces. Attach wall box and secure power cable as in new construction.

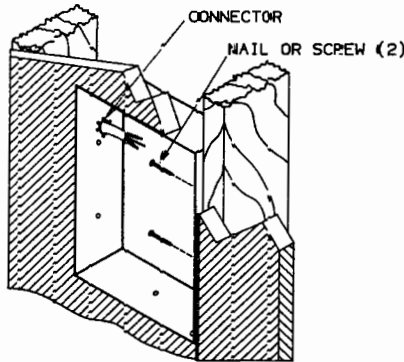


FIG. 1

### FIELD CONVERSION FOR LOWER WATTAGE

To convert heater to a lower wattage rating. Remove red jumper from heating element (see figure 2). The wattage will be reduced to half of the nameplate wattage. See specification chart for available wattage.

### INSTALLATION OF HEATER ASSEMBLY

1. Place heater into wall box and secure with the two no. 8 x  $\frac{3}{4}$  screws provided.
2. Connect power supply to heater pigtails with wirenuts or crimp terminals.
3. After field connections are made, push wires into wiring compartment and secure wiring compartment cover to heater using no. 8 X  $\frac{1}{2}$ " screw provided.

### INSTALLATION OF GRILLE AND KNOB

1. Place the two no. 8 oval head screws into grille mounting holes.
2. Align grille with heater and secure. Be careful not to over tighten as this may cause fan blade to strike grille.
3. To install knob, remove hole plug in grille and align flat of thermostat shaft with flat on knob. Push knob onto shaft until knob almost touches grille.
4. For tamper-resistant installation, set thermostat with knob, remove knob and replace hole plug. Retain knob for future use.



P.O. BOX 4973, CRS  
JOHNSON CITY,  
TN 37602-4973

**corporation**  
America's Comfort Conditioning Company

## OPERATION

1. Turn on the power supply to heater.
2. Rotate thermostat knob fully clockwise. This heater is equipped with a fan delay, so the fan will be delayed 45 –60 seconds after the element is energized.
3. Allow the room to reach desired temperature, then rotate thermostat knob counter clockwise until thermostat clicks. Fan will continue to run for 45 – 60 seconds to purge warm air from heater enclosure. The heater will continue to cycle on and off in the selected temperature range.
4. For remote thermostat operation, remove wire nut on wires marked T1 and T2. Connect single pole remote thermostat to T1 and T2. Thermostat wiring must be the same size as power supply wiring. See specification chart for minimum wire size.

**NOTE:** The wall thermostat cycles the heating element only. Direct runs of supply service leads L1 and L2 supplies continuous power to the fan motor, and the heater should be considered live at all times. Move the disconnect switch to the off position or disconnect power at main distribution box before any maintenance work. Turning the thermostat to low position will not disconnect the heater.

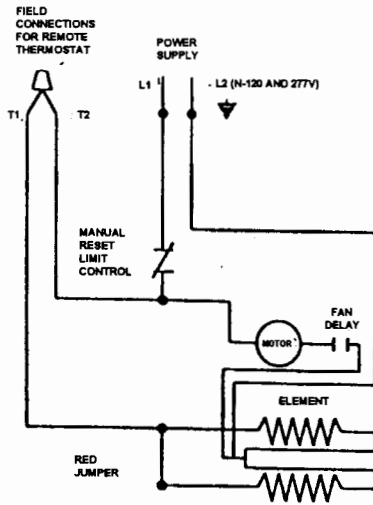
**NOTE:** This heater is equipped with a manual reset limit control. The front grille must be removed to reset limit. Disconnect power before reset button is pushed.

## SPECIFICATIONS

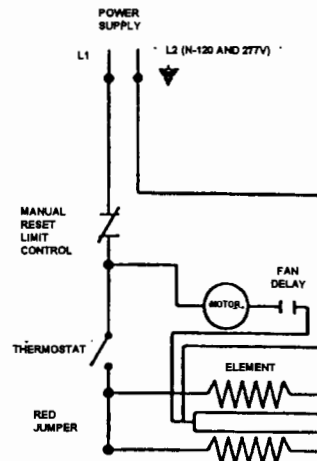
| MODEL NO.       | VOLTS   | WATTAGE *             | BTU/HR                 | AMPERAGE              | MIN. **<br>WIRE SIZE<br>60 Deg C |
|-----------------|---------|-----------------------|------------------------|-----------------------|----------------------------------|
| E3035<br>CRH115 | 120     | 1500/750              | 5120/2560              | 12.5/6.25             | 12 AWG.                          |
| E3045<br>CRQ115 | 120     | 1500/750              | 5120/2560              | 12.5/6.25             | 12 AWG.                          |
| E3055<br>CFA115 | 120     | 1500/750              | 5120/2560              | 12.5/6.25             | 12 AWG.                          |
| E3038<br>CRH118 | 120     | 1800/900              | 6143/3072              | 15/7.5                | 12 AWG.                          |
| E3048<br>CRQ118 | 120     | 1800/900              | 6143/3072              | 15/7.5                | 12 AWG.                          |
| E3058<br>CFA118 | 120     | 1800/900              | 6143/3072              | 15/7.5                | 12 AWG.                          |
| F3032<br>CRH820 | 208     | 2000/1000             | 6826/3413              | 9.6/4.8               | 14 AWG.                          |
| F3042<br>CRQ820 | 208     | 2000/1000             | 6826/3413              | 9.6/4.8               | 14 AWG.                          |
| F3052<br>CFA820 | 208     | 2000/1000             | 6826/3413              | 9.6/4.8               | 14 AWG.                          |
| H3032<br>CRH220 | 240/208 | 2000/1000<br>1500/750 | 6826/5120<br>3413/2560 | 8.33/4.16<br>7.22/3.6 | 14 AWG.                          |
| H3042<br>CRQ220 | 240/208 | 2000/1000<br>1500/750 | 6826/5120<br>3413/2560 | 8.33/4.16<br>7.22/3.6 | 14 AWG.                          |
| H3052<br>CFA220 | 240/208 | 2000/1000<br>1500/750 | 6826/5120<br>3413/2560 | 8.33/4.16<br>7.22/3.6 | 14 AWG.                          |
| G3032<br>CRH720 | 277     | 2000/1000             | 6826/3413              | 7.22/3.61             | 14 AWG.                          |
| G3042<br>CRQ720 | 277     | 2000/1000             | 6826/3413              | 7.22/3.61             | 14 AWG.                          |
| G3052<br>CFA720 | 277     | 2000/1000             | 6826/3413              | 7.22/3.61             | 14 AWG.                          |

\* Factory wired for higher wattage, field convertible to lower wattage.

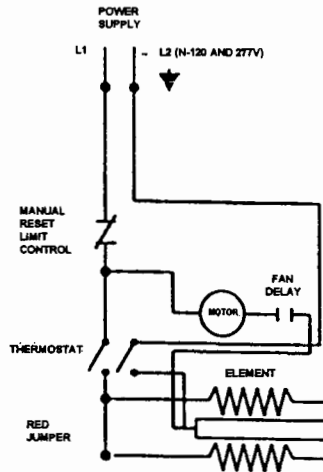
\*\* Use copper wire only. All wiring must conform to N.E.C. and Local Electrical Codes



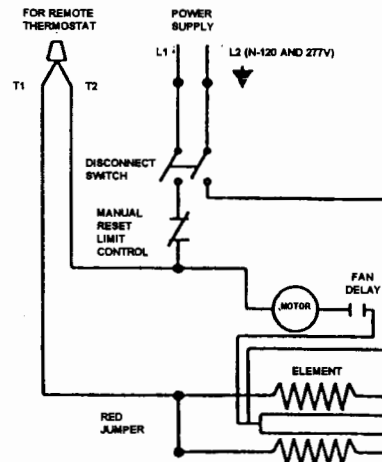
WD 1 NO OPTION



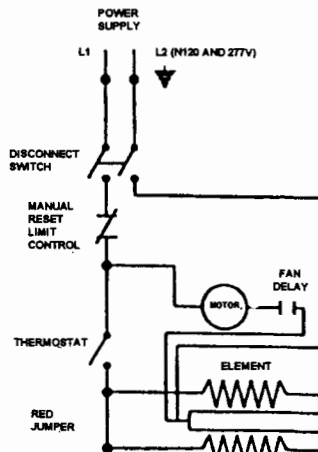
WD 2 OPTION T



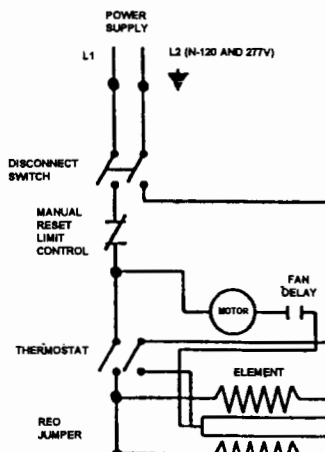
WD 3 OPTION T2



WD 4 OPTION D



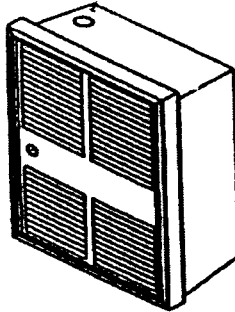
WD 5 OPTION TD



WD 6 OPTION T2D

FIG. 2

**INSTALLATION AND OPERATION INSTRUCTIONS**  
**303, 304, 305, CRH, CRQ, CFA SERIES**  
**2250 WATT MODELS**



**Caution:** To prevent electric shock disconnect power to heater at main service before wiring or service.

**Caution:** Do not obstruct the front of the heater with curtains, furniture, doors, etc. Do not place heaters under towel racks. Proper operation of the heater requires a free flow intake and exhaust of air.

**GENERAL**

These heaters are designed for 2 X 4 recessed or surface mount installation. The heaters may be wall mounted in a vertical position with bottom discharge, or horizontal position and ceiling mounted. The minimum clearance from wall box to adjacent wall or floor is 6 inches. These heaters must not be installed without wallbox model no. 30WB.

**INSTALLATION OF WALL BOX 30 WB**  
**FOR NEW CONSTRUCTION**

1. Position wall box a minimum of 6 inches from adjacent wall and floor. Secure to wall stud with nails or screws. Wall box must be installed with front edge flush with finished wall surface. See figure 1.
2. Remove knockout in wall box for power source, and install cable clamp.
3. Insert supply cable through clamp allowing 6-8" for field wiring.

**NOTE:** Field wiring must enter wall box where the corner wiring compartment is located.



## INSTALLATION OF WALL BOX 30WB FOR EXISTING CONSTRUCTION

1. Carefully cut a hole measuring 9 1/4" wide by 12 1/4" long in wall. Wall box 30WB must be attached to a wall stud on one edge. Minimum clearances of 6" must be maintained to adjacent surfaces. Attach wall box and secure power cable as in new construction.

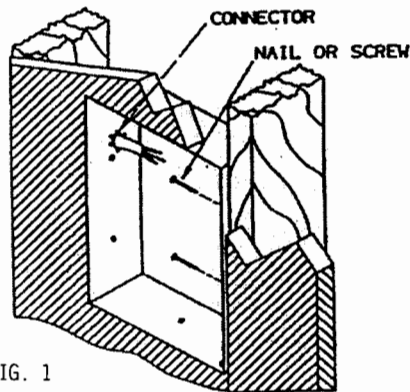


FIG. 1

**NOTE:** IN THE VERTICAL POSITION THE HEATER CAN BE MOUNTED ONLY FOR BOTTOM DISCHARGE.

### FIELD CONVERSION FOR LOWER WATTAGE

To convert heater to a lower wattage rating, see Fig. 2.

### INSTALLATION OF HEATER ASSEMBLY

1. Place heater into wall box and secure with the two no. 8 X 1/2 screws provided.
2. Connect power supply to heater pigtails with wirenuts or crimp terminals.
3. After field connections are made, push wires into wiring compartment and secure wiring compartment cover to heater using no. 8 X 1/2" screw provided.

### INSTALLATION OF GRILLE AND KNOB

1. Place the two no. 8 oval head screws into grille mounting holes.
2. Align grille with heater and secure. Be careful not to over tighten as this may cause fan blade to strike grille.
3. To install knob, remove hole plug in grille and align flat of thermostat shaft with flat on knob. Push knob onto shaft until knob almost touches grille.
4. For tamper-resistant installation, set thermostat with knob, remove knob and replace hole plug. Retain knob for future use.

## OPERATION

1. Turn on the power supply to heater.
2. Rotate thermostat knob fully clockwise. This heater is equipped with a fan delay, so the fan will be delayed 45-60 seconds after the element is energized.
3. Allow the room to reach desired temperature, then rotate thermostat knob counter clockwise until thermostat clicks. Fan will continue to run for 45-60 seconds to purge warm air from heater enclosure. The heater will continue to cycle on and off in the selected temperature range.
4. For remote thermostat operation, remove wire nut on wires marked T1 and T2. Connect single pole remote thermostat to T1 and T2. Thermostat wiring must be the same size as power supply wiring. See specification chart for minimum wire size.

**NOTE:** The wall thermostat cycles the heating element only. Direct runs of supply service leads L1 and L2 supplies continuous power to the fan motor, and the heater should be considered live at all times. Move the disconnect switch to the off position or disconnect power at main distribution box before any maintenance work. Turning the thermostat to low position will not disconnect the heater.

**NOTE:** This heater is equipped with a manual reset limit control. The front grille must be removed to reset limit. Disconnect power before reset button is pushed.

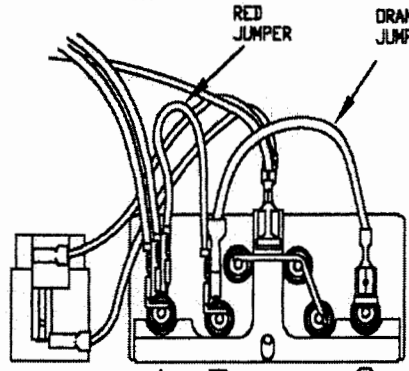
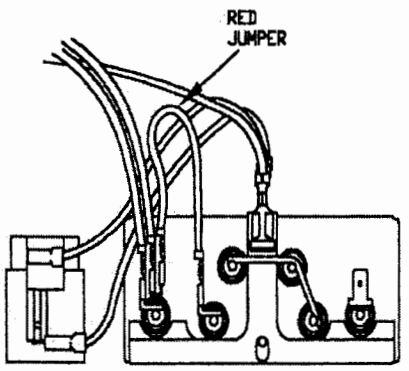
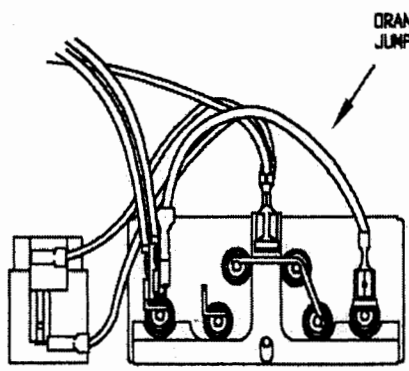
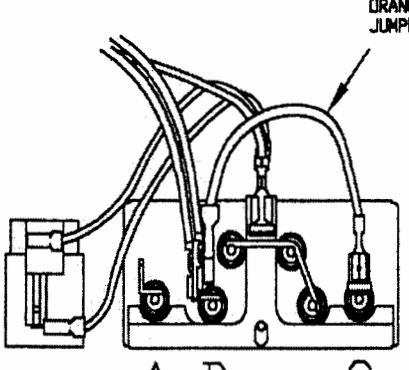
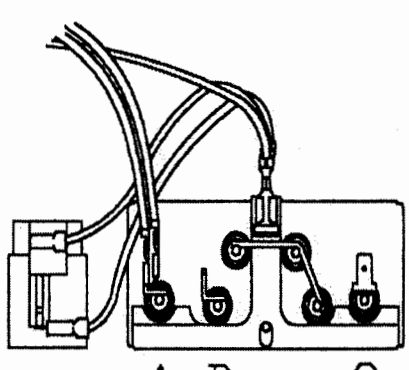
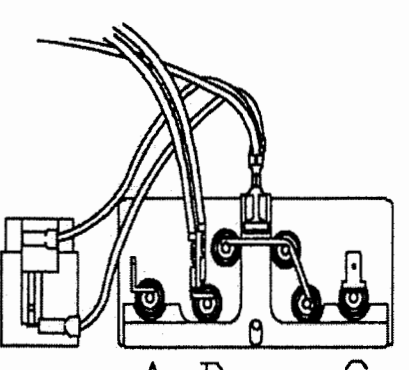
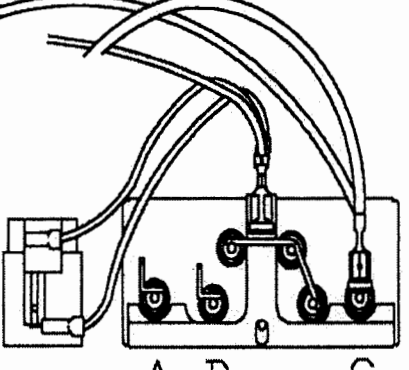
SPECIFICATIONS    TABLE 1

| MODEL NO.  | VOLTS | WATTAGE *                                  | BTU/HOUR   | AMPERAGE | MIN. **<br>WIRE SIZE<br>60°C |
|--|-------|--|--|----------|------------------------------|
| F30322, CRH822<br>F30422, CPQ822<br>F30522, CFA822 | 208   | 500, 750, 1000<br>1250, 1500, 1750<br>2250 | 1707, 2560,<br>3413, 4266,<br>5120, 5973<br>7680 | 10.8     | 14 AWG.                      |
| H30322, CRH222<br>H30422, CPQ222<br>H30522, CFA222 | 240   | 500, 750, 1000<br>1250, 1500, 1750<br>2250 | 1707, 2560,<br>3413, 4266,<br>5120, 5973<br>7680 | 9.4      | 14 AWG.                      |

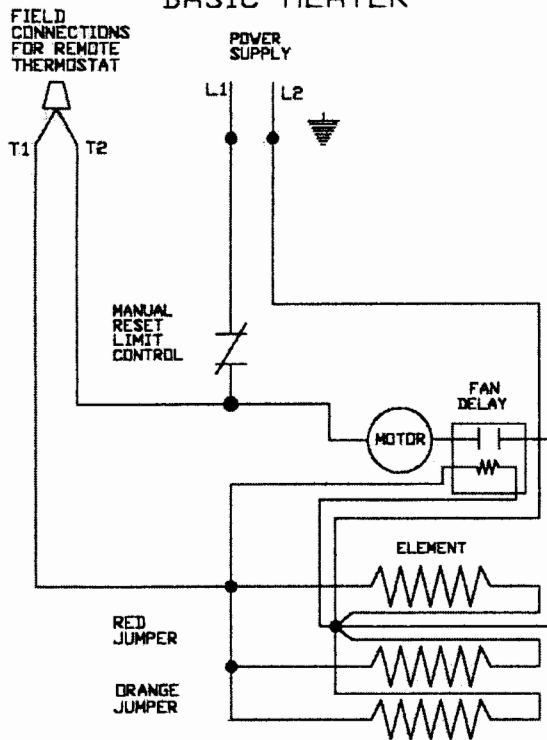
\* Factory wired for higher wattage, field convertible to lower wattage.

\*\* Use copper wire only. All wiring must conform to N.E.C. and local electric codes.

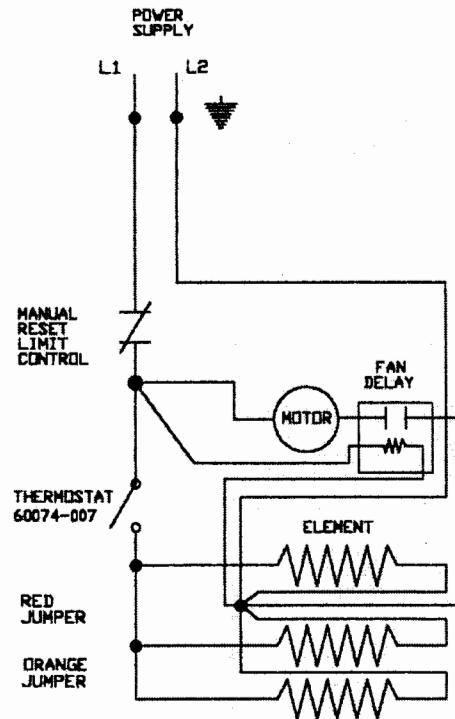
FIG. 2 WATTAGE CONVERSION CHART

|  |                       |  |
|--|-----------------------|--|
|  <p>A B C</p>   | <p>WD-1<br/>2250W</p> | <p>WD-2 1750W Remove orange jumper.<br/>WD-3 1500W Remove red jumper and move orange jumper to terminal 'A'.<br/>WD-4 1250W Remove red jumper, remove wires from terminal 'A' to terminal 'B'. Connect orange jumper to terminals 'B' and 'C'.<br/>WD-5 1000W Remove orange and red jumpers.<br/>WD-6 750W Remove orange and red jumpers. Move wires from terminal 'A' to 'B'.<br/>WD-7 500W Remove orange and red jumpers. Move wires from terminal 'A' to 'C'.</p> |
|  <p>A B C</p>  | <p>WD-2<br/>1750W</p> |  <p>A B C</p> <p>WD-3<br/>1500W</p>   |
|  <p>A B C</p> | <p>WD-4<br/>1250W</p> |  <p>A B C</p> <p>WD-5<br/>1000W</p>  |
|  <p>A B C</p> | <p>WD-6<br/>750W</p>  |  <p>A B C</p> <p>WD-7<br/>500W</p>   |

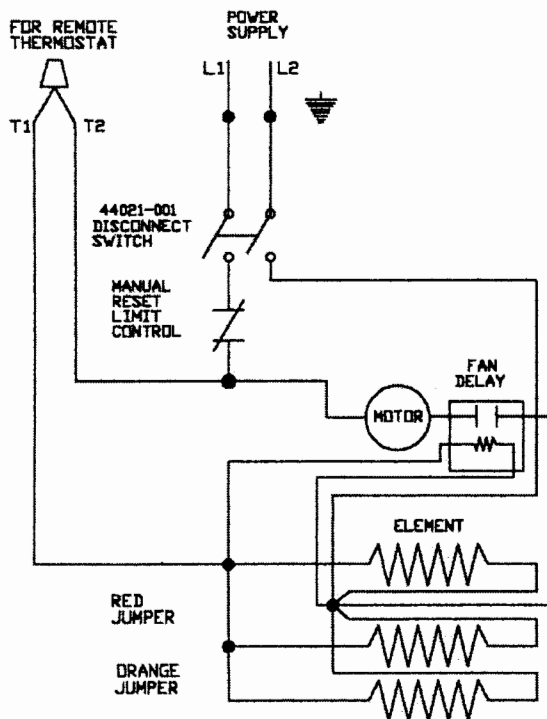
## BASIC HEATER



## T OPTION



## D OPTION



## T2 OPTION

