

INSTALLATION INSTRUCTIONS - FAN FORCED IN-FLOOR HEATER SERIES - FH

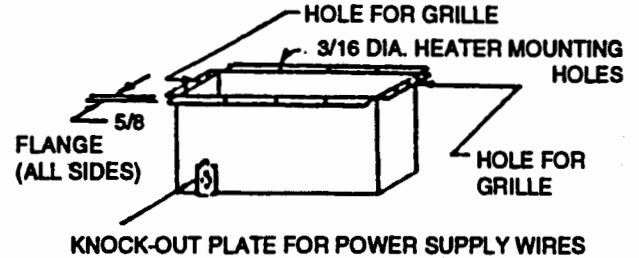
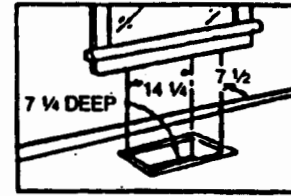
Caution: Do not obstruct any portion of the heater. Proper operation requires a free air flow.

Normal installation provides for air to be directed towards outside wall. Heater can be reversed if air is required to be directed away from outside wall.

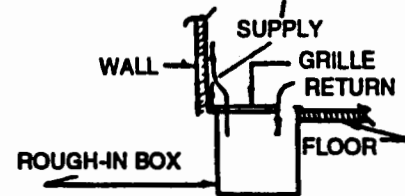
INSTALLATION

The FH series heaters are designed to fit between standard floor joist spacing. Follow instructions below to install the heater. The heater is approved for zero clearance from floor joists and walls.

1. Provide floor opening $14\frac{1}{4}$ " long x $7\frac{1}{2}$ " wide x $7\frac{1}{4}$ " deep.
2. Remove grille by removing two screws.
3. Remove knock-out plate from heater by removing two screws for power supply connections. One knock-out is provided on each side of the plate for power supply connections from bottom or side of the heater.
4. Wire heater as shown on the wiring diagram. A green grounding screw is provided on the knock-out-plate. Wiring must be done in accordance with National and Local Electrical Codes.
5. Place heater in the opening and secure to the floor with screws or nails.
6. Install grille on the heater with two screws removed in item 2.

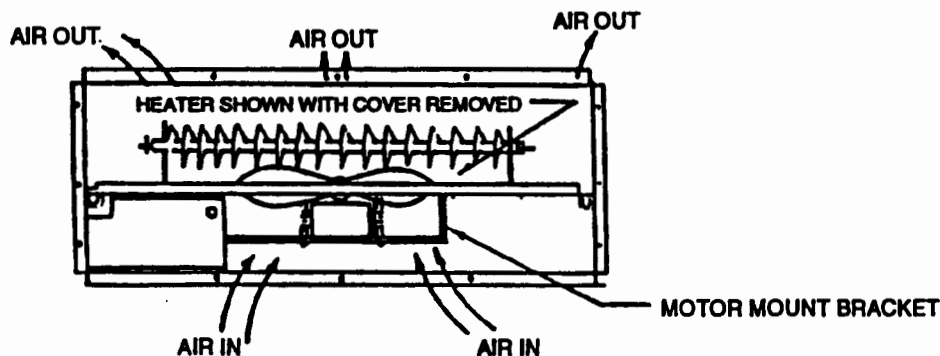


THE HEATER IS APPROVED FOR ZERO CLEARANCE FROM THE WALL



NOTES:

- A. THIS HEATER EMPLOYS AN AUDIBLE ALARM (BUZZER) TO WARN THAT PARTS OF THE HEATER ARE GETTING EXCESSIVELY HOT. IF THE ALARM SOUNDS, IMMEDIATELY DISCONNECT POWER FROM HEATER AND INSPECT FOR ANY OBJECTS ON OR ADJACENT TO THE HEATER THAT MAY CAUSE HIGH TEMPERATURES. **DO NOT OPERATE THE HEATER WITH THE ALARM SOUNDING.**
- B. FOR INSTALLATION IN POURED CONCRETE SLAB USE LOCALLY PREPARED CONCRETE FORMS.



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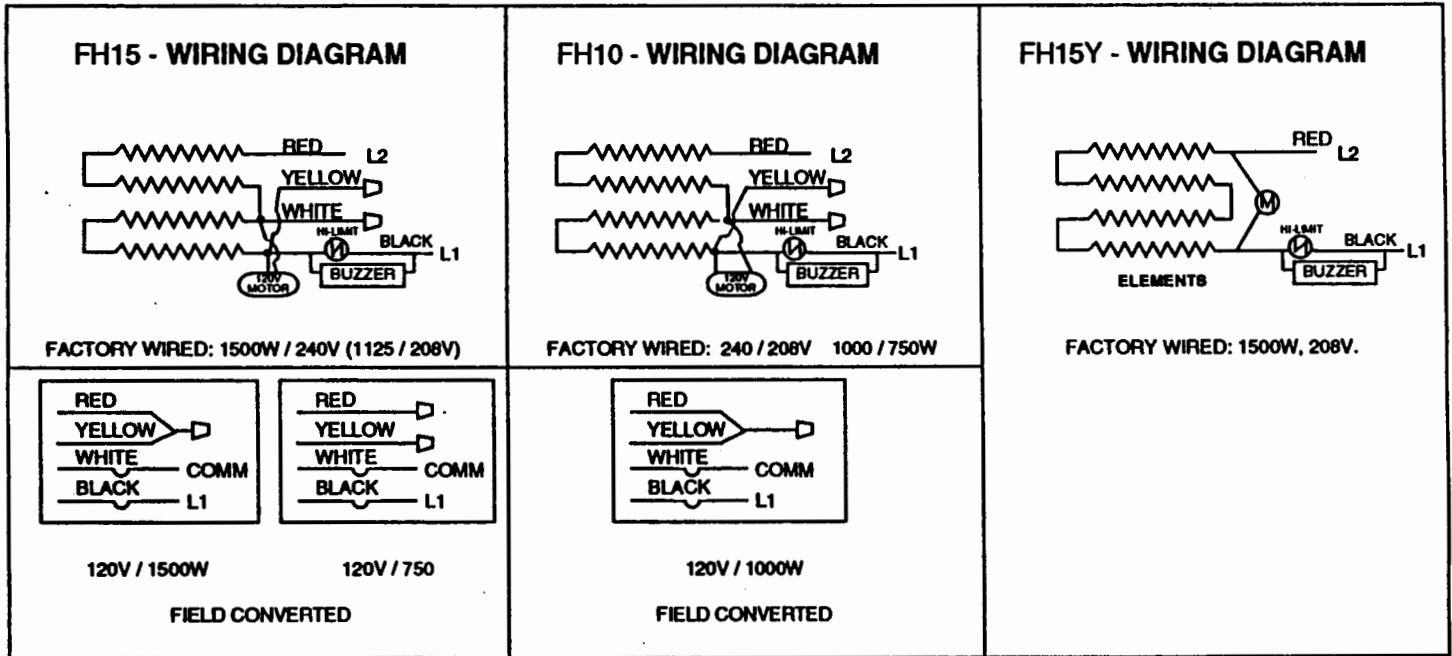
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MAINTENANCE:

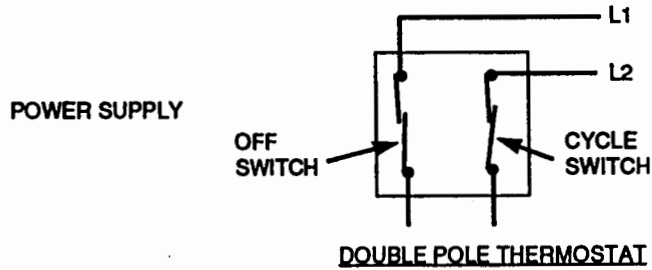
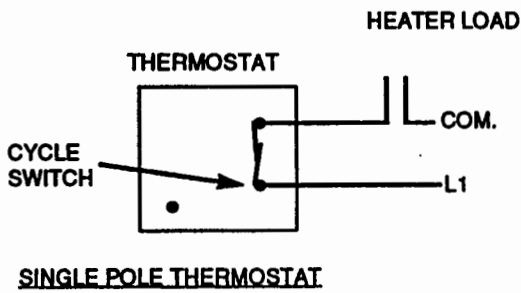
Disconnect power at service entrance box prior to removing grille. Normal maintenance requires only an occasional vacuuming using a standard vacuum attachment.

ACCESSORIES:

THERMOSTAT KITS: Single and double pole thermostat kits catalog numbers FHIT FH2T are available as optional accessories. These kits are designed for temperature adjustment with a screwdriver through the grille. It is recommended that the thermostat be mounted in the heater before it is installed. A remote line voltage wall thermostat as the TPI series HPT can be used with FH series heaters.

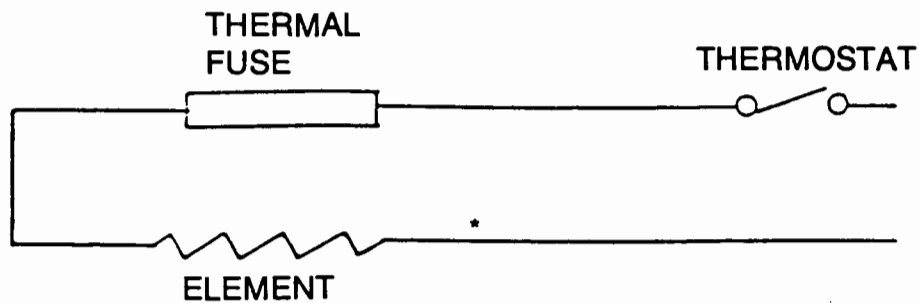


Wiring Diagrams for line voltage wall or unit mounted thermostats.



**PUMP HOUSE UTILITY HEATER
INSTALLATION AND OPERATION INSTRUCTIONS
MODELS RPH1-5A, RPH2-5A**

1. Mount Heater a minimum of 18 inches from floor.
2. Disconnect all electrical service before proceeding, remove the grille enclosure, make all wiring connections in accordance with the National Electric code and/or other applicable codes.
3. Reinstall the grille enclosure, restore electrical power to heater, adjust thermostat as desired. The thermostat temperature range is 35 - 65 degrees F.
4. **Caution:** Do not operate heater without grille enclosure installed; do not block heater in any manner.



*WHITE WIRE 120 VOLTS
BLACK WIRE 240 VOLTS



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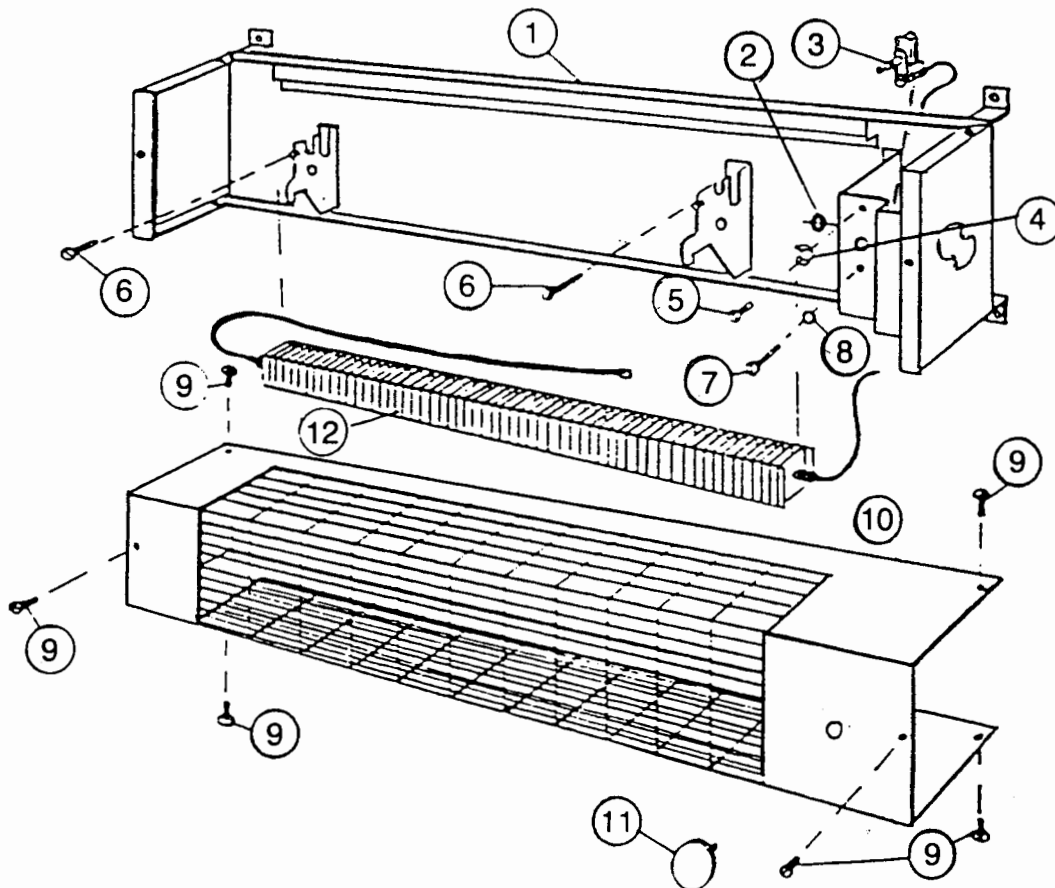
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<u>Item</u>	<u>Name of Part</u>	<u>Part No.</u>	<u>Required</u>	
1	Rear Housing Assembly	60710 - 001	1	
2	Bushing	40881 - 011	1	
3	Thermostat Assembly	50395 - 001	1	
4	Cup Washer	41420 - 004	1	
5	Ground Screw	1458	1	
6	Ground Screw	1062	2	
7	Screw	1022	1	
8	Lockwasher (star)	1035	1	
9	Sheet Metal Screw	1006	6	
10	Grille Enclosure	60697 - 001	1	
11	Thermostat Knob Ass'y.	43989-001	1	
12	Heating Element Ass'y.	60712 - 001	1	120V - 500W
12	Heating Element Ass'y.	60712 - 002	1	240V - 500W

Note: When ordering replacement parts, be sure to include the complete heater model number and part number.



ELECTRIC FORCED AIR HEATER MODEL TSH20J

THIS HEATER IS DESIGNED FOR MOUNTING IN THE KICKSPACE OF KITCHEN AND BATHROOM CABINETS. IT MAY ALSO BE MOUNTED WITH THE GRILLE IN A VERTICAL POSITION INSTEAD OF THE HORIZONTAL POSITION AS SHOWN. THE HEATER MAY BE USED WITH A WALL LINE VOLTAGE THERMOSTAT OR WITH BUILT-IN THERMOSTAT ACCESSORY KIT MODEL(S) TSH1TX (SINGLE POLE) OR TSH2TX (DOUBLE POLE).

OPERATING INSTRUCTIONS

THE THERMOSTAT CONTROL CAN BE EITHER THE WALL TYPE OR BUILT INTO THE UNIT ON THE LEFT SIDE OF THE GRILLE. IT SHOULD BE SET TO THE POSITION THAT GIVES THE DESIRED COMFORT LEVEL IN THE ROOM.

CAUTION: DO NOT OBSTRUCT THE FRONT GRILLE OF THE HEATER SINCE THE PROPER OPERATION OF THE HEATER REQUIRES A FREE FLOW OF INTAKE AND EXHAUST AIR.

THE HEATER HAS A BUILT-IN MANUAL RESET THERMAL PROTECTOR WHICH PREVENTS OVERHEATING IF THE GRILLE OF THE HEATER IS ACCIDENTALLY BLOCKED.

TO RESET THE THERMAL PROTECTOR, DISCONNECT POWER SUPPLY, INSERT SMALL BLADE SCREW DRIVER OR EQUIVALENT THROUGH GRILLE INTO VERTICAL SLOT LOCATED ON LOWER CENTER OF HEATER CHASSIS AND LIFT UP.

MAINTENANCE INSTRUCTIONS

UNIT SHOULD BE CLEANED EVERY YEAR. TO CLEAN: DISCONNECT MAIN SUPPLY, REMOVE FRONT SCREWS, UNPLUG UNIT AND SLIDE OUT. AFTER CLEANING REPLACE UNIT AND ALL SCREWS TO MAINTAIN GOOD GROUND CONTINUITY.

INSTALLATION INSTRUCTIONS

1. SELECT AN AREA THAT IS NOT DIRECTLY UNDER SINK OR OTHER HEAVILY USED WORK AREA, AS THE AIR DISCHARGE TEMPERATURE MAY BE UNCOMFORTABLE. FLOOR MATERIAL SHOULD BE CHECKED ADJACENT TO HEATER BEFORE INSTALLATION TO MAKE CERTAIN THAT IT WILL NOT DISCOLOR OR DISTORT. (SOME TEND TO DISTORT AND DISCOLOR AT TEMPERATURES IN THE VICINITY OF 140°F.)
2. CUT 22 3/8" BY 3 5/8" OPENING IN KICKSPACE AS SHOWN IN FIGURE 1.
3. REMOVE SCREWS HOLDING HEATER COVER AND REMOVE COVER. REMOVE DESIRED KNOCKOUT.
4. RUN SERVICE CABLE (FROM THERMOSTAT, IF USED) TO KNOCKOUT AND ATTACH WITH AN APPROVED CONNECTOR, ATTACH GROUND WIRE UNDER GREEN GROUND SCREW. HEATER IS FACTORY WIRED FOR 240/208 VOLT, 2000/1500 WATTS. (SEE OTHER SIDE FOR FIELD CONVERTED VOLTAGES AND WATTAGES)
5. WIRING: WIRE SERVICE CABLE TO RECEPTACLE WITH APPROVED CONNECTORS.
6. REPLACE COVER AND SCREWS, PUSH UNIT INTO OPENING, PUT GRILLE IN PLACE AND ATTACH UNIT TO CABINET USING TWO SCREWS PROVIDED.

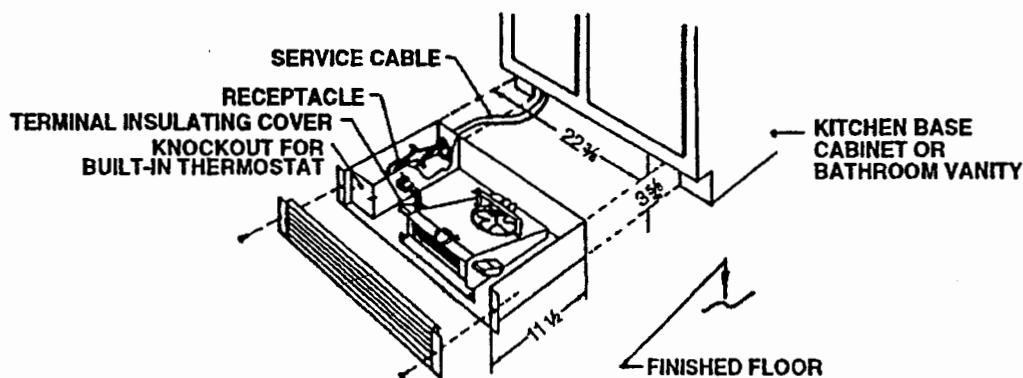


FIGURE 1

7. HEATER MAY BE CONVERTED TO THE FOLLOWING VOLTAGES AND WATTAGES:

240/208 VOLTS	1000/750 WATTS
120 VOLTS	1500 WATTS
120 VOLTS	1000 WATTS

A. 240/208 VOLT 1000/750 WATTS

REMOVE INSULATING COVERS FROM RIGHT HAND TERMINALS OF HEATING ELEMENTS. REMOVE TWO YELLOW JUMPERS CONNECTING TWO FRONT AND TWO REAR TERMINALS. CAUTION: WHITE LEAD MUST REMAIN FIRMLY IN PLACE ON SECOND TERMINAL. BLACK MOTOR LEAD MUST REMAIN FIRMLY IN PLACE ON THIRD TERMINAL. REPLACE INSULATING COVER AND SCREWS, PROCEED AS IN STEP 5.

B. 120 VOLT 1500 WATTS

UNPLUG HEAT UNIT FROM OUTLET BOX RECEPTACLE. REMOVE 240/208 VOLT RECEPTACLE PROVIDED WITH HEATER. REMOVE INSULATING COVER FROM RIGHT HAND TERMINAL OF HEATING ELEMENTS. REMOVE YELLOW JUMPER CONNECTING FRONT TWO ELEMENT TERMINALS. CAUTION: WHITE LEAD MUST REMAIN FIRMLY IN PLACE ON SECOND TERMINAL. REPLACE INSULATING COVER, UNIT IS NOW READY FOR WIRING.

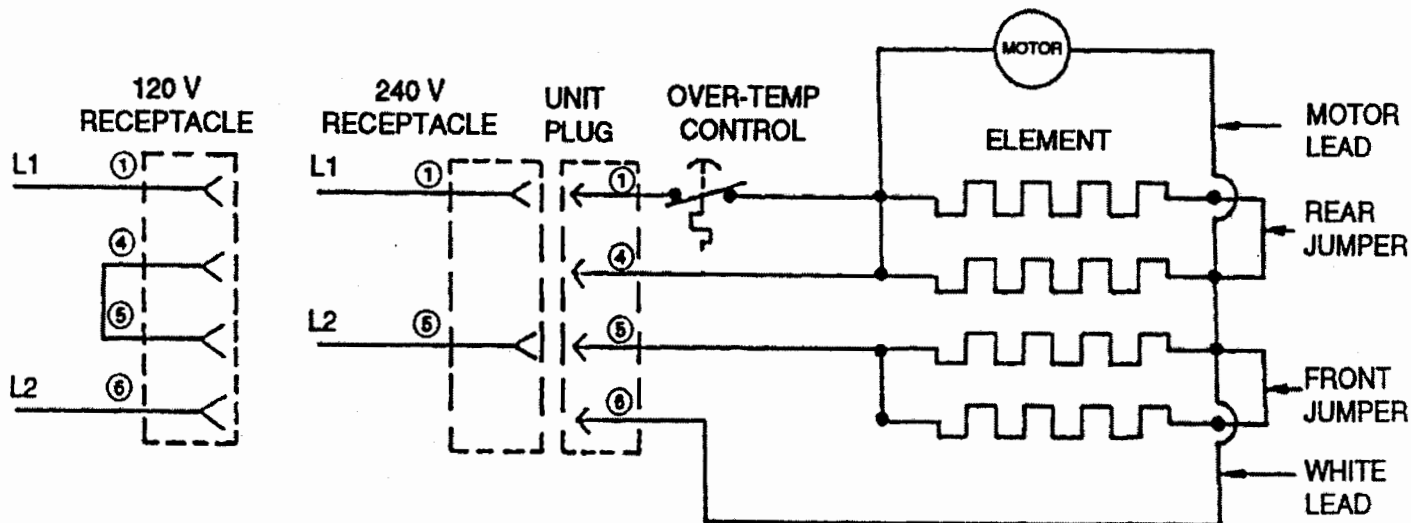
C. 120 VOLT 1000 WATTS

REMOVE INSULATING COVER FROM RIGHT HAND TERMINALS OF HEATING ELEMENTS. REMOVE TWO YELLOW JUMPERS CONNECTING TWO FRONT AND TWO REAR TERMINALS. CAUTION: WHITE LEAD MUST REMAIN FIRMLY IN PLACE ON SECOND TERMINAL. REPLACE INSULATING COVER AND PROCEED AS IN STEP 7B ABOVE.

8. AFTER SELECTING VOLTAGE AND WATTAGE REQUIREMENTS IN STEP 7 ABOVE, WIRE SERVICE CABLE TO RECEPTACLE WITH APPROVED CONNECTORS.

9. REPLACE COVER AND SCREWS. PUSH UNIT INTO OPENING, PUT GRILLE IN PLACE AND ATTACH UNIT TO CABINET USING TWO SCREWS PROVIDED.

INSTALLATION OF ACCESSORY BUILT-IN THERMOSTATS



1. REMOVE 1/2" (12.7MM) DIAMETER KNOCKOUT IN FRONT OF OUTLET BOX AND GRILLE.
2. ATTACH THERMOSTAT TO OUTLET BOX WITH NUT PROVIDED.
3. CONNECT IN SERIES BETWEEN SERVICE CABLE AND RECEPTACLE, MAINTAINING POLARITY. USE APPROVED CONNECTORS.
4. INSTALL FRONT GRILLE. PUSH KNOB ON THERMOSTAT SHAFT, TURN THE KNOB COUNTERCLOCKWISE UNTIL IT STOPS.
5. POSITION THE CIRCULAR NUMBERED INSERT INTO KNOB RECESS, WITH "1" AT THE BOTTOM FOR SINGLE POLE OR "0" FOR DOUBLE POLE THERMOSTATS.
6. POSITION THE TRIANGULAR POINTER ON THE FRONT GRILLE PANEL DIRECTLY BELOW THE "1" OR "0".

ELECTRIC FORCED AIR HEATER MODEL TSH5X

THIS HEATER IS DESIGNED FOR MOUNTING IN THE KICKSPACE OF KITCHEN AND BATHROOM CABINETS. IT MAY BE MOUNTED IN THE VERTICAL POSITION INSTEAD OF THE HORIZONTAL POSITION AS SHOWN. THE HEATER MAY BE USED WITH A WALL LINE VOLTAGE THERMOSTAT OR WITH BUILT-IN THERMOSTAT ACCESSORY KIT MODEL(S) TSH1TX (SINGLE POLE) OR TSH2TX (DOUBLE POLE).

OPERATION INSTRUCTIONS

THE THERMOSTAT CONTROL CAN BE EITHER THE WALL TYPE OR BUILT INTO THE UNIT ON THE LEFT SIDE OF THE GRILLE. IT SHOULD BE SET TO THE POSITION THAT GIVES THE DESIRED COMFORT LEVEL IN THE ROOM.

CAUTION: DO NOT OBSTRUCT THE FRONT GRILLE OF THE HEATER SINCE THE PROPER OPERATION OF THE HEATER REQUIRES A FREE FLOW OF INTAKE AND EXHAUST AIR.

The heater has a built-in manual reset thermal protector which prevents overheating if the grille of the heater is accidentally blocked.

TO RESET THE THERMAL PROTECTOR, DISCONNECT POWER SUPPLY, INSERT SMALL BLADE SCREW DRIVER OR EQUIVALENT THROUGH GRILL INTO VERTICAL SLOT LOCATED ON LOWER CENTER OF HEATER CHASSIS AND LIFT UP.

MAINTENANCE INSTRUCTIONS

UNIT SHOULD BE CLEANED EVERY YEAR. TO CLEAN: DISCONNECT MAIN SUPPLY, REMOVE FRONT SCREWS. UNPLUG UNIT AND SLIDE OUT. AFTER CLEANING, REPLACE UNIT AND ALL SCREWS TO MAINTAIN GOOD GROUND CONTINUITY.

INSTALLATION INSTRUCTIONS

1. SELECT AN AREA THAT IS NOT DIRECTLY UNDER SINK OR OTHER HEAVILY USED WORK AREA, AS THE AIR DISCHARGE TEMPERATURE MAY BE UNCOMFORTABLE. FLOOR MATERIAL SHOULD BE CHECKED ADJACENT TO HEATER BEFORE INSTALLATION TO MAKE CERTAIN THAT IT WILL NOT DISCOLOR OR DISTORT. (SOME TEND TO DISTORT AND DISCOLOR AT TEMPERATURES IN THE VICINITY OF 140°F.)
2. CUT 22 3/8" BY 3 5/8" OPENING IN KICKSPACE AS SHOWN IN FIGURE 1.
3. REMOVE SCREWS HOLDING HEATER COVER AND REMOVE COVER. REMOVE DESIRED KNOCKOUT.
4. RUN SERVICE CABLE (FROM THERMOSTAT, IF USED) TO KNOCKOUT AND ATTACH WITH AN APPROVED CONNECTOR, ATTACH GROUND WIRE UNDER GREEN GROUND SCREW. HEATER IS FACTORY WIRED FOR 240/208 VOLT, 2000/1500 WATTS. (SEE OTHER SIDE FOR FIELD CONVERTED VOLTAGES AND WATTAGES.)
5. WIRING: WIRE SERVICE CABLE TO RECEPTACLE WITH APPROVED CONNECTORS.
6. REPLACE COVER AND SCREWS, PUSH UNIT INTO OPENING, PUT GRILLE IN PLACE AND ATTACH UNIT TO CABINET USING TWO SCREWS PROVIDED.

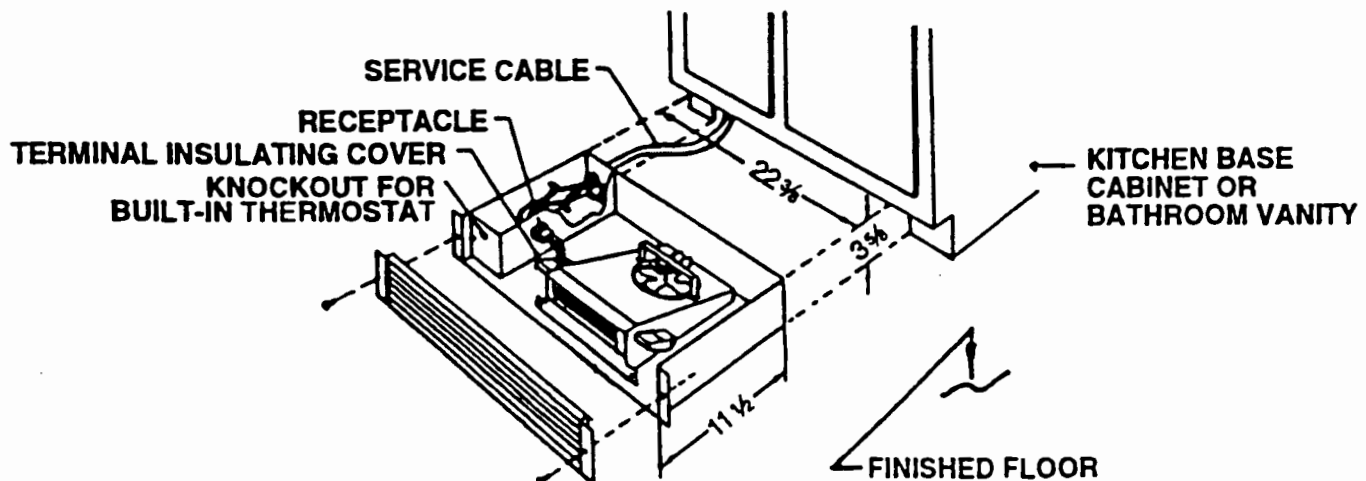
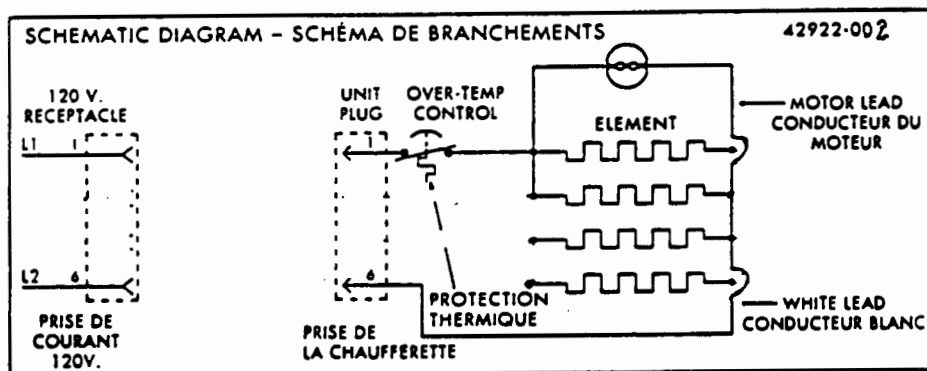


FIGURE 1

INSTALLATION OF ACCESSORY BUILT-IN THERMOSTATS

1. Remove 1/2" (12.7mm) diameter knockout in front of outlet box and grille.
2. Attach thermostat to outlet box with nut provided.
3. connect in series between service cable and receptacle, maintaining polarity. Use approved connectors.
4. Install front grille. Push knob on thermostat shaft, turn the knob counterclockwise until it stops.
5. Position the circular numbered insert into knob recess, with "1" at the bottom for single pole or "0" for double pole thermostats.
6. Position the triangular pointer on the front grille panel directly below the "1" or "0".





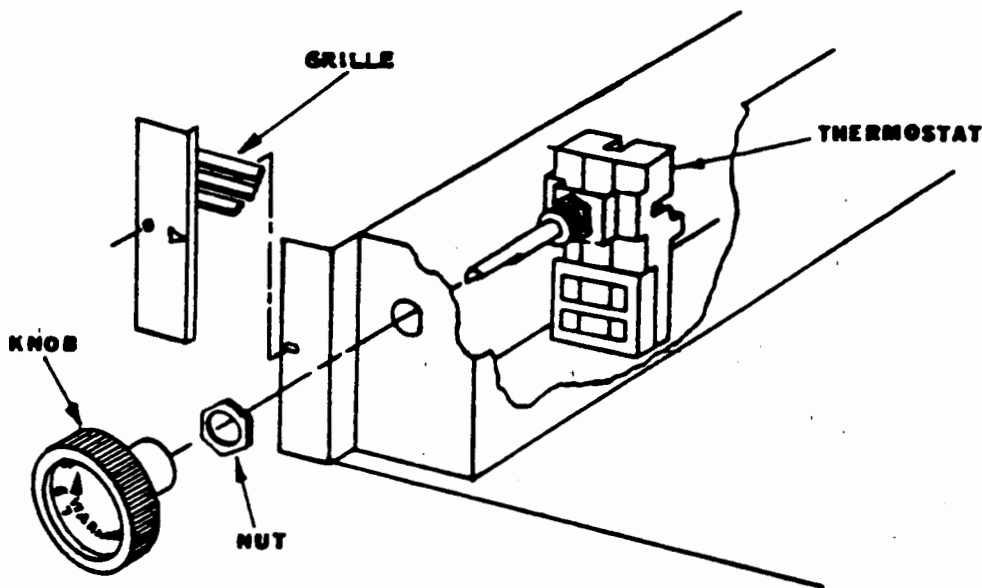
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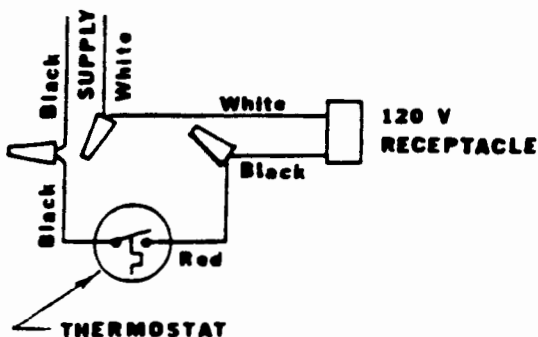
INSTRUCTIONS FOR INSTALLING THERMOSTAT KIT

Catalog number TSH1TX (single pole) and TSH2TX (double pole).

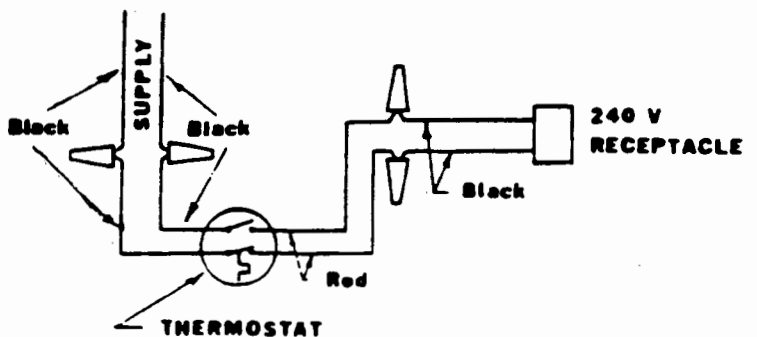
REMOVE THE JUNCTION BOX COVER, REMOVE KNOCK-OUT & INSTALL THE THERMOSTAT KIT. WIRE THERMOSTATS AS SHOWN IN THE TYPICAL WIRING DIAGRAM BELOW.



SINGLE POLE



DOUBLE POLE



CAUTION

1. DO NOT BYPASS OR ELIMINATE THERMAL CUTOUT.
2. THE WIRING OF THESE DEVICES SHOULD COMPLY WITH LOCAL ELECTRIC CODES.
3. CHECK LOCAL CODES TO DETERMINE IF SINGLE OR DOUBLE POLES ARE REQUIRED
4. MAKE SURE ALL ELECTRIC CONNECTIONS & WIRE NUTS ARE TIGHT.

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