

# EEMAX HOME ADVATAGE

## ELECTRIC INSTANTANEOUS WATER HEATER INSTALLATION GUIDE AND OWNERS MANUAL

MODELS COVERED:- SS024240TC 208-240V  
SPECIAL \_\_\_\_\_, \_\_\_\_\_ V

### WARNING

READ THE GENERAL SAFETY SECTION BEGINNING ON THE INSIDE COVER AND THEN THIS ENTIRE MANUAL BEFORE INSTALLING OR OPERATING THIS WATER HEATER. IF YOU DON'T FOLLOW THE SAFETY RULES, THE UNIT WILL NOT OPERATE PROPERLY AND IT COULD CAUSE DEATH, SERIOUS BODILY INJURY AND/OR PROPERTY DAMAGE. READ ALSO THE ENCLOSED WARRANTY CARD. WARRANTY OF THIS WATER HEATER WILL DEPEND ON PROPER INSTALLATION AND OPERATION. THE WARRANTY SHALL BE VOID IF THE DESIGN HAS BEEN ALTERED IN ANY WAY WHATSOEVER. THE MANUFACTURER OF THIS HEATER WILL NOT BE LIABLE FOR ANY DAMAGES BECAUSE OF FAILURE TO COMPLY WITH THE INSTALLATION AND OPERATING INSTRUCTIONS OUTLINED ON THE FOLLOWING PAGES.

**THIS UNIT HAS MULTIPLE POWER SOURCES. ENSURE TO DISCONNECT ALL POWER SUPPLIES BEFORE SERVICING.**

THE INSTALLATION MUST CONFORM WITH THE INSTRUCTIONS IN THIS MANUAL; ELECTRIC COMPANY RULES; AND THE LOCAL CODES, OR IN THE ABSENCE OF LOCAL CODES, WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE. THIS PUBLICATION IS AVAILABLE FROM YOUR LOCAL GOVERNMENT OR PUBLIC LIBRARY OR ELECTRIC COMPANY

IF YOU REQUIRE ANY HELP OR HAVE ANY QUESTIONS RELATING TO THE INSTALLATION OR PERFORMANCE OF THIS HEATER, PLEASE CALL OUR TECHNICAL SERVICE DEPARTMENT TOLL FREE : 1-800-543-6163.  
HAVE THE INFORMATION LISTED BELOW BEFORE CALLING :

SERIAL NO. \_\_\_\_\_ MODEL NO. SS02424TC INSTALLATION DATE \_\_\_\_\_

## GENERAL SAFETY

The “Eemax Home Advantage” heater is specifically designed to take in hot or cold water and heat it to temperatures suitable for normal domestic usage up to a maximum of 140 F(60 C). To obtain optimum performance and energy savings, the unit should be located as near as possible to the point of use. “Thermostatic” models indicated by the letters TC after the model number, these models and only these, can be fed with pre-heated water and be used to boost temperature

The unit is supplied with 3/4” NPT pipe connections. **Under no circumstances** use a blow torch on pipes which is connected to the heater (serious damage to the electronic flow switch will result). Carefully use Teflon tape, ensuring no debris enters the heater. **Do not use pipe dope.**

Also, ensure that the pipes are clear of installation debris before fitting the heater.

### — WARNING —

FAILURE TO **GROUND** THE SYSTEM MAY RESULT IN DEATH OR SERIOUS INJURY.

**THIS UNIT HAS MULTIPLE POWER SOURCES. ENSURE TO DISCONNECT ALL POWER SUPPLIES BEFORE SERVICING**

THIS HEATER MUST HAVE **TWO DEDICATED INDEPENDENT 240V, 220V or 208V** CIRCUITS, USING CORRECTLY RATED WIRES AND CIRCUIT BREAKERS. PER UL 499, 18.4 THE RATING OF THE BRANCH-CIRCUIT OVERCURRENT PROTECTIVE DEVICE SHALL BE 150% OF THE RATING OF THE PRODUCT. **DO NOT USE SPACE SAVING BREAKERS.**

### — WARNING —

IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE CAN CAUSE **DEATH, SERIOUS BODILY INJURY OR PROPERTY DAMAGE**. REFER TO THIS MANUAL FOR ASSISTANCE OR CONSULT THE LOCAL ELECTRIC UTILITY FOR FURTHER INFORMATION.

### — WARNING —

**WATER HEATERS EQUIPPED FOR ONE VOLTAGE ONLY:** THIS WATER HEATER MAY BE EQUIPPED FOR ONE VOLTAGE TYPE ONLY: CHECK THE RATING PLATE ON THE FRONT COVER OF UNIT FOR THE CORRECT VOLTAGE. DO NOT USE THIS WATER HEATER WITH ANY OTHER VOLTAGE OTHER THAN THE ONE SHOWN ON THE MODEL RATING PLATE. FAILURE TO USE THE CORRECT VOLTAGE CAN CAUSE PROBLEMS WHICH CAN RESULT IN DEATH, SERIOUS BODILY INJURY, OR PROPERTY DAMAGE. IF YOU HAVE ANY QUESTIONS OR DOUBTS CONSULT EEMAX OR YOUR ELECTRIC COMPANY.

### — WARNING —

HAZARD OF ELECTRICAL SHOCK! BEFORE REMOVING THE COVER OR SERVICING THE WATER HEATER, MAKE SURE THE ELECTRICAL SUPPLY TO THE WATER HEATER IS TURNED “OFF”. FAILURE TO DO THIS COULD RESULT IN **DEATH, SERIOUS BODILY INJURY, OR PROPERTY DAMAGE**. **NOTE: UNIT HAS MULTIPLE ELECTRICAL CONNECTIONS.**

## I. MOUNTING THE UNIT

1) The unit should be mounted as close to the point of use as possible.

**Do not** install the heater above a faucet or “point of use” because the siphoning effect may drain the heater which can cause premature element burn out. If the unit must be installed at a higher elevation, you must install spring loaded check valves on both the inlet and outlet of the water heater.

2) This unit must only be mounted in a vertical position with the **water fittings located at the bottom of the unit**. Mounting other than in the vertical position **WILL** cause element burn out and cause permanent damage to the water heater.

3) The cold water inlet is on the right hand side and the hot water outlet is on the left hand side. Under **NO** circumstances can these be reversed.

4) Leave a minimum of 8” above the unit for easy replacement of the element.

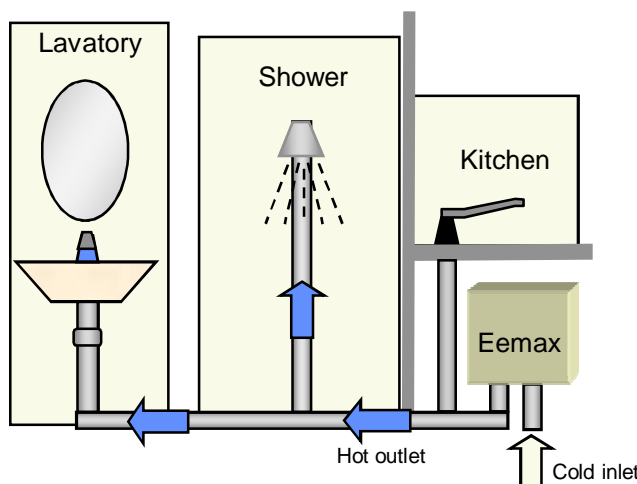
5) The heater should be fixed to the wall using **all** four mounting holes of the backplate. Unit weight is approximately 12lbs. Use an appropriate fastener for this weight. For the unit to be mounted against hollow walls, suggest using steel wall anchors, with the correct grip range and #10-32 screw size minimum.

NOTE: The heater should be installed below the level of all hot water outlets serviced by this heater. Otherwise install spring loaded check valves on both the inlet and outlet.

### NOTE: PRESSURE AND TEMPERATURE RELIEF VALVE

These units are not required by UL to have a Pressure and Temperature Relief Valve (PTRV). You should check with local codes to find out if one is required in your area. If local codes require the use of a temperature and pressure relief valve it should be installed on the outlet hot water pipe before the outlet ball valve.

### **Showers and the whole house, cabin or condo**

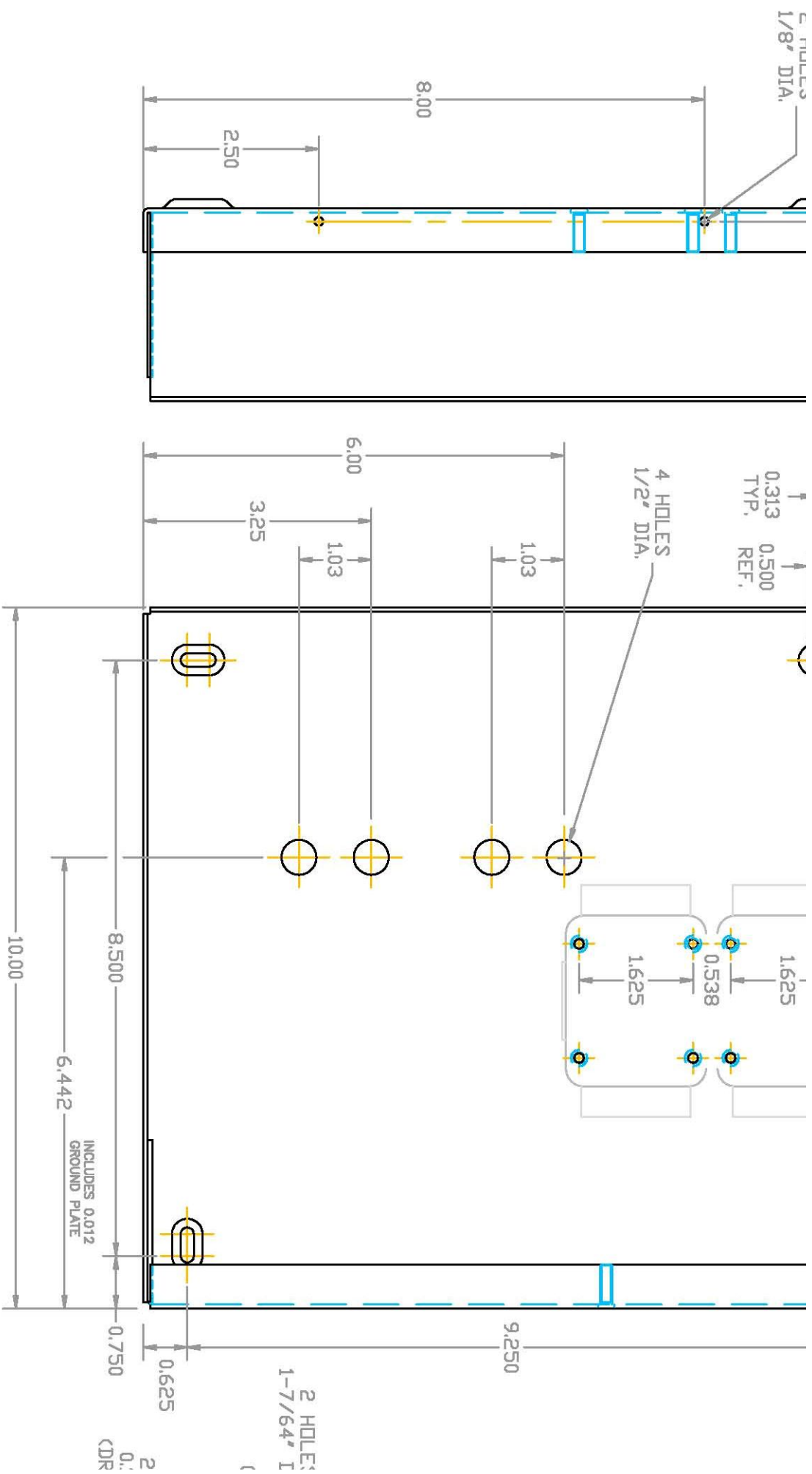


MODELS: **SS024240TC**

Requirements:

Output: 24 kW @ 240 volts  
22Kw @ 220 volts  
19 KW @ 208 volts

About 0.70-3.0 GPM at showering temperature.  
Best used when operating one or two outlets at a time.

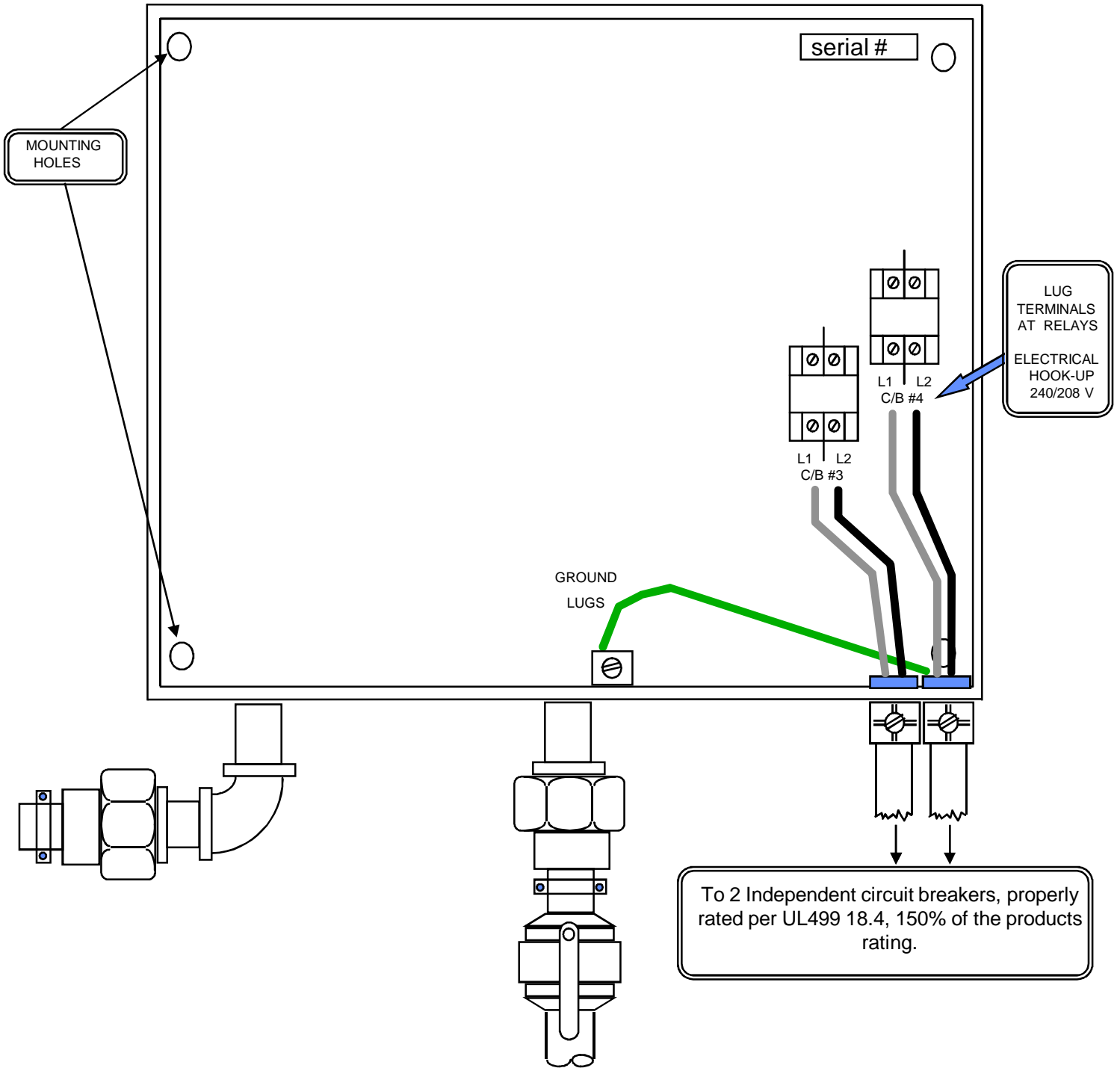


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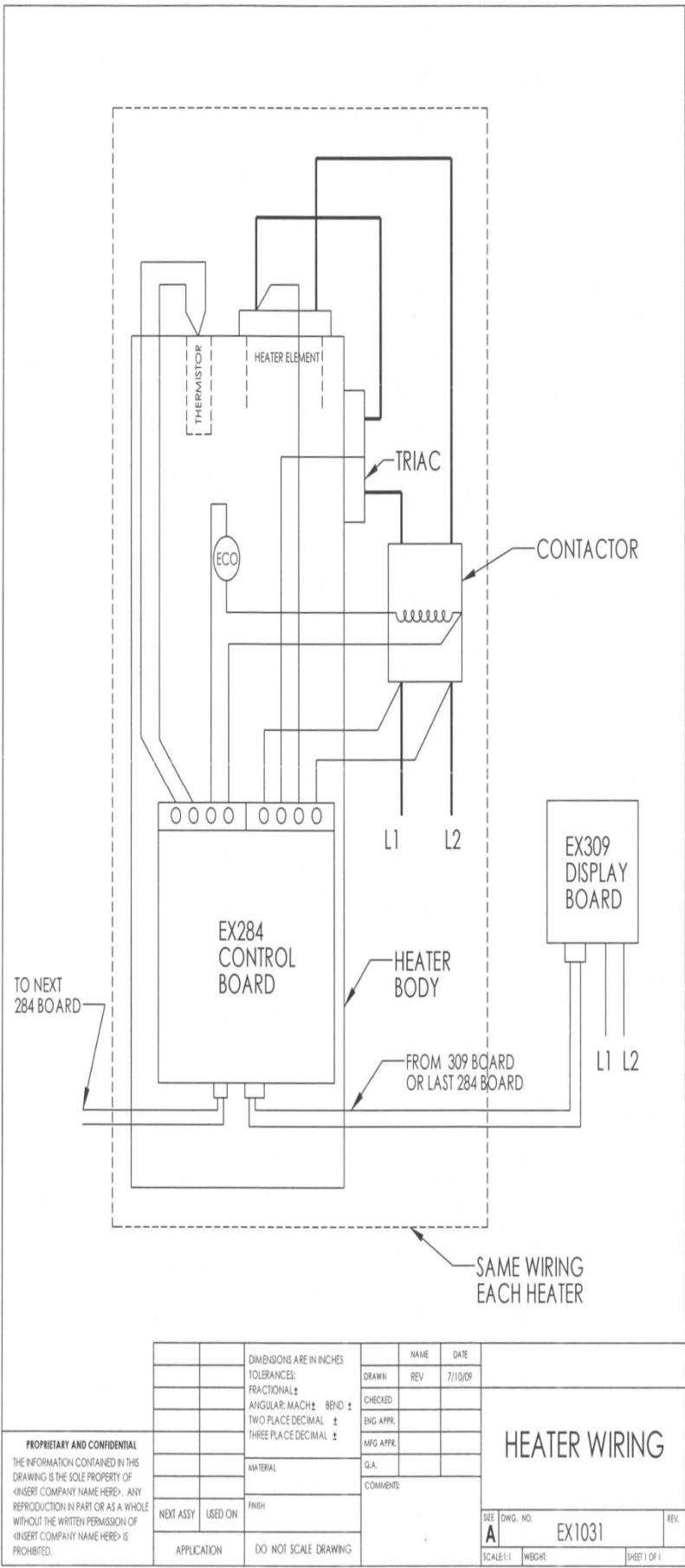
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MINIMUM - 8" CLEARANCE ABOVE UNIT



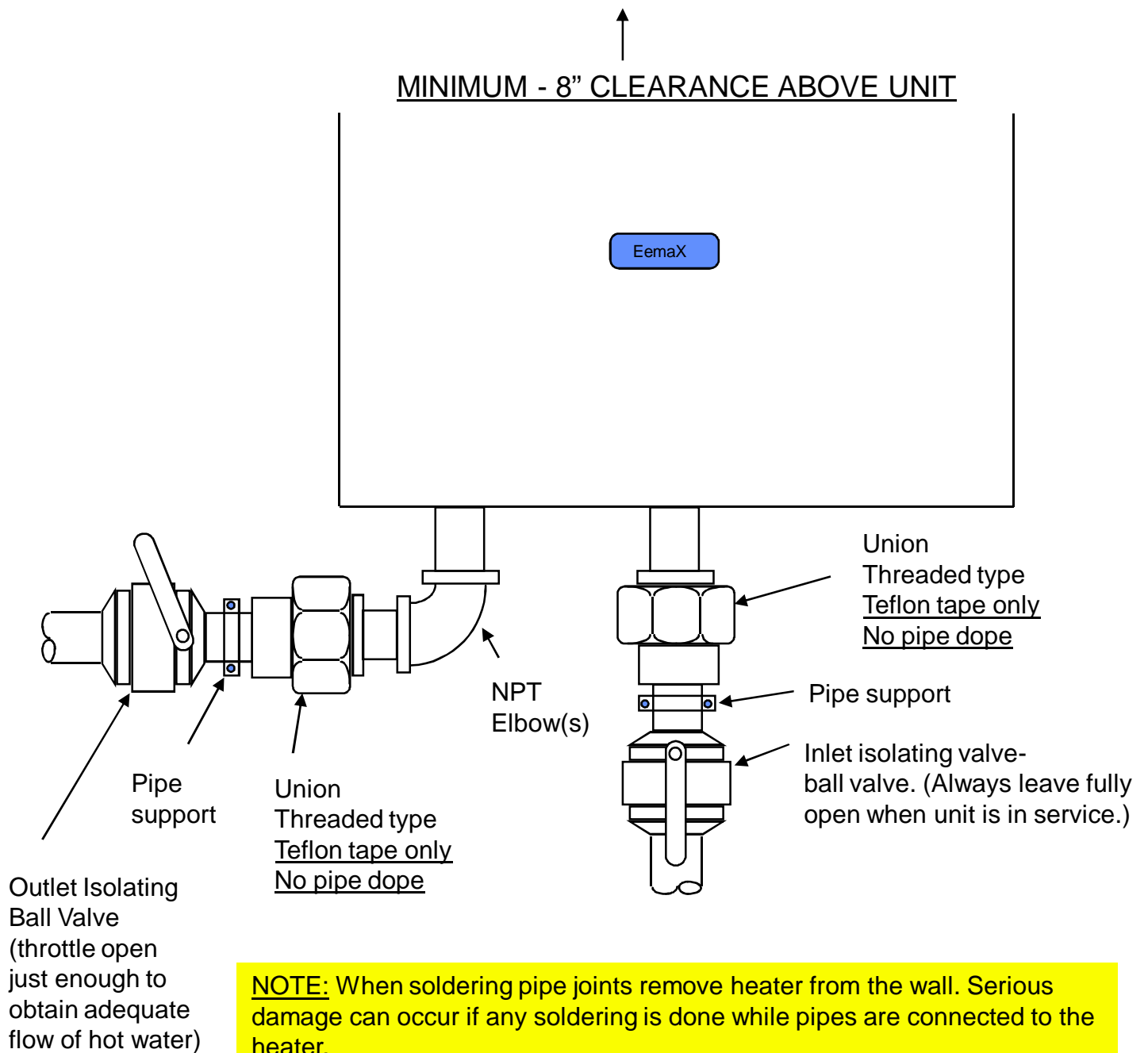
**Figure 1A**



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		DIMENSIONS ARE IN INCHES	NAME	DATE
		TOLERANCES:	DRAWN	REV
		FRACTIONAL ±		7/10/09
		ANGULAR, MACH ± BEND ±	CHECKED	
		TWO PLACE DECIMAL ±	ENG APPR.	
		THREE PLACE DECIMAL ±	MFG APPR.	
			G.A.	
			COMMENTS:	
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		

HEATER WIRING	
SIZE	DWG. NO.
A	EX1031
SCALE: 1:1	WEIGHT:
	SHEET 1 OF 1



**NOTE:** When soldering pipe joints remove heater from the wall. Serious damage can occur if any soldering is done while pipes are connected to the heater.

Take care to ensure that the pipes are correctly aligned with the inlet and outlet bosses in order to avoid excessive stress on the heater body molding.

**Figure 1B**

## II. PLUMBING HOOK-UP

1) The unit is supplied with  $\frac{3}{4}$ " NPT fittings (Figure 3), USE THESE. DO NOT USE PIPE DOPE AND DO NOT SOLDER TO THE INLET OR OUTLET.

2) Take care to ensure that the pipes are correctly aligned with the inlet and outlet bosses in order to avoid excessive stress on the heater body molding.

NOTE: When soldering pipe joints remove heater from the wall. Serious damage can occur if any soldering is done while pipes are connected to the heater.

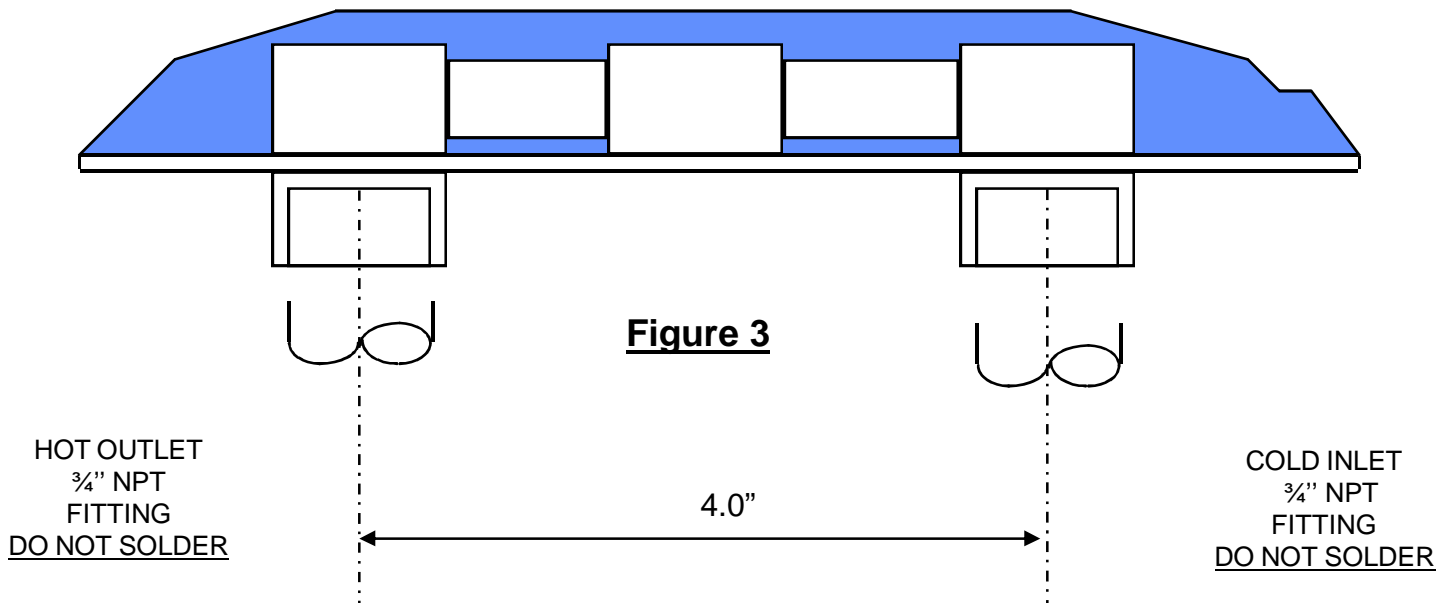
When tighten the fittings make sure to secure the fitting inside the heater to make a tight connection.

Run water through the supply pipe to remove all debris from the pipe before connecting the heater. Failure to do so could cause damage to the flow switch.

3) Install isolating valves (full flow ball valve type) on both inlet and outlet pipes. This allows unit to be isolated for maintenance purposes. (Fig. 1B)

4) When all plumbing is complete, fully check the system for water leaks at all the plumbing connections. If a leak is present take corrective action. Fully open both inlet and outlet BALL VALVES.

Run all the hot water outlets fed by this heater one at a time, for a minute or two, until the water flow is continuous, free from "gulping" and from all visible air pockets.



**NOTE:**  
ALL MOUNTING AND PLUMBING MUST BE COMPLETE BEFORE YOU  
PROCEED WITH ELECTRICAL HOOK-UP.

TEST THE INSTALLATION FOR LEAKS BEFORE CONNECTING THE  
ELECTRICAL SUPPLY.



### III. ELECTRICAL HOOK-UP

#### WARNING

THIS UNIT HAS MULTIPLE POWER SUPPLIES. ENSURE TO DISCONNECT ALL POWER SUPPLIES BEFORE SERVICING THE WATER HEATER.

“Eemax Home Advantage” heaters are manufactured to the following specifications:

**Figure 4**

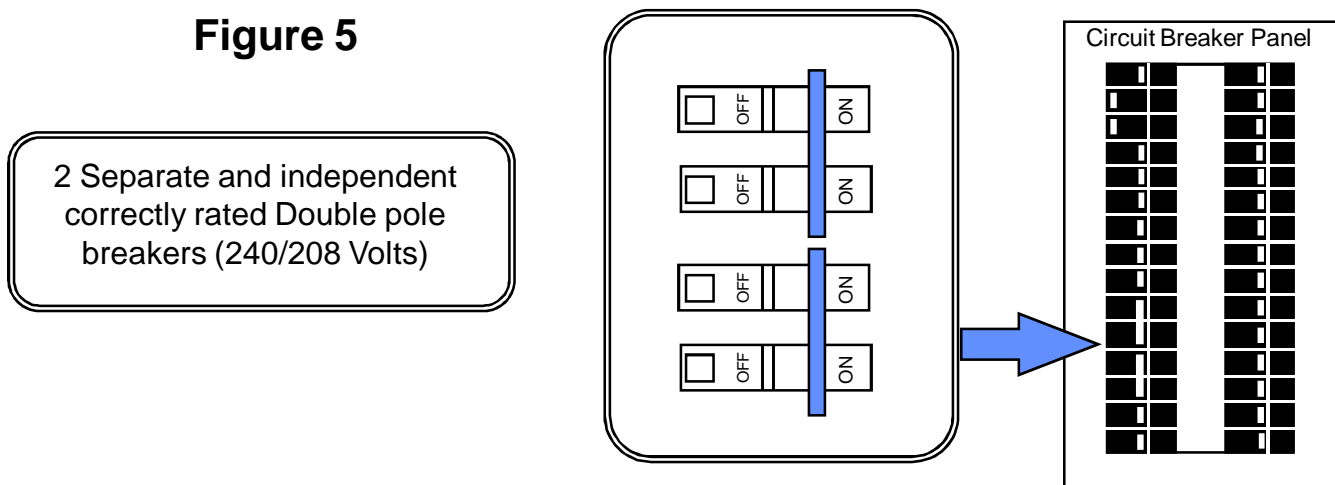
MODEL TYPE	Voltage	kW output	AMPERAGE
SS024240TC	240	24	2 x 49 AMPS
	220	21	2 x 36 AMPS
	208	19	2 x 46 AMPS
SPECIAL			

This unit must have its own independent circuits, using 2 SETS of UL listed 2 conductor and ground core copper wire cable of the appropriate size protected by 2 separate and independent correctly rated Double Pole Breakers. (208, 220, 240 V, see Figures 4 and 5). Wire entry into the unit must be made through the 4 holes provided in the flange on the backplate. **Ensure to check national and local building codes.**

The Rating of the branch-circuit overcurrent protective device shall be 150% of the rating of the unit (see chart above) per UL 499 18.4.

The “live” wires should be connected to the slots in the terminal block marked L1 and L2. The ground lead must be connected to the slot marked GND. GROUND MUST BE BROUGHT TO THE “GROUND” AT THE CIRCUIT BREAKER PANEL.

**Figure 5**



#### DANGER

FAILURE TO GROUND THE SYSTEM MAY RESULT IN DEATH OR SERIOUS INJURY.

## IV COMMISSIONING YOUR HEATER

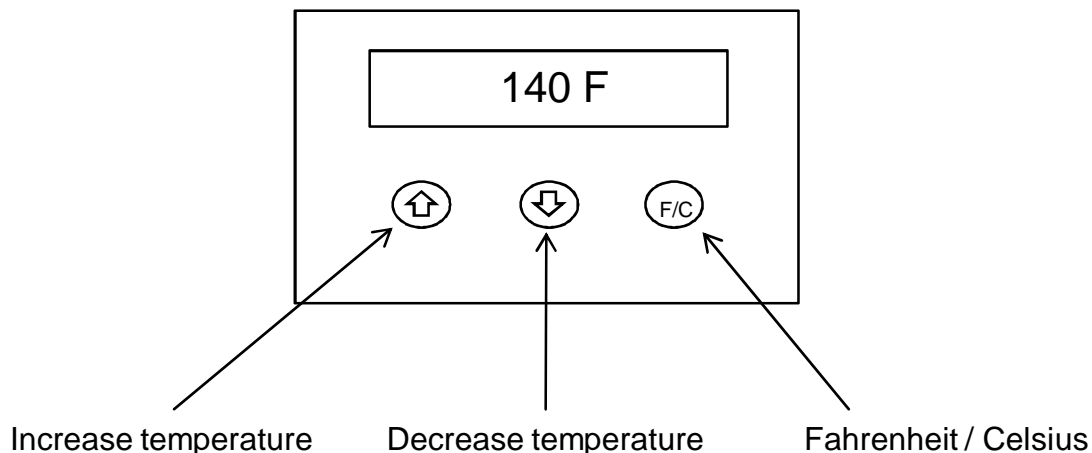
### IMPORTANT

BEFORE SWITCHING “ON” THE POWER AT THE MAIN CIRCUIT BREAKER PANEL MAKE SURE THAT THE HOT WATER CIRCUIT IS FREE OF AIR POCKETS OR ELSE PREMATURE FAILURE OF THE ELEMENT WILL OCCUR. TO DO THIS OPEN ALL HOT WATER OUTLETS ONE AT A TIME FOR A MINUTE OR TWO UNTIL THE WATER FLOW IS CONTINUOUS AND FREE FROM “GULPING” AND FREE FROM VISIBLE AIR POCKETS.

- 1) Open fully both inlet and outlet valves at the heater.
- 2) Open any hot water outlet in the system. If the outlet is a “single lever” mixer type turn to the hottest position. Run for one minute to clear all the air from the system.
- 3) Slowly close OUTLET ball valve until the water flow from the faucet just starts to reduce.  
**NOTE:** This process has two effects. One, any air in the system will be purged out. Two, the heater units will be pressurized at the supply pressure. This will prevent the elements free from air pockets while energized
- 4) At this point you may energize the hot water heater. (Note: Unit has 4 separate circuit breakers). Once energized the Thermostatic control touch pad display on the front cover will illuminate. This is where and when you will program your desired temperature. (figure 6 below)

### NOTE

**Unit will display the programmed temperature, not the actual outlet temperature**



To trouble shoot the display board, shut off power to the unit. Press and hold all three buttons. While buttons are depressed, re-energize the unit. If display board is working properly, the word “Yes” will display. If the board has a fault it will display “No”. Call technical support for a replacement.

# TROUBLESHOOTING

## **SYMPTOM “A”: NO HEAT, INDICATOR LIGHT OFF**

### 1) ELECTRIC SUPPLY IS OFF

Turn on the **TWO** main circuit breakers. Ensure the breakers are properly connected to the relay. L1/L2 from one breaker must correspond with the same relay. You must be able to get 240V across each relay when powered up independently. Do not use space saving breakers.

### 2) NO OR LOW WATER FLOW

Ensure that the minimum flow rate to switch on your heater is met. “TC” Models minimum flow rate = 0.70 gallons per minute. Also check that the inlet filter screen is clear from any debris. This is located in the brass inlet boss.

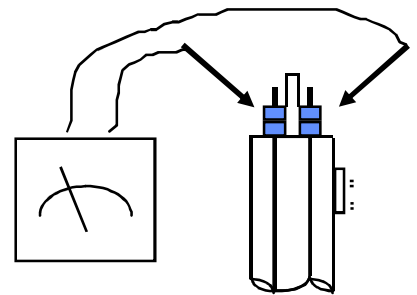
### 3) WATER CONNECTIONS ARE REVERSED

Cold water inlet = right side, hot water outlet = left side.

### 4) ELEMENT BURNED OUT

#### **TURN OFF THE TWO MAIN CIRCUIT BREAKERS!**

Using an ohmmeter test the resistance of the heating element across the two threaded termination rods on top of the element. The resistance reading should be roughly 5.0 ohms. If the resistance is much greater than this value, call Eemax for a replacement element.



### 5) ECO TRIPPED (High Limit Thermostat)

#### **TURN OFF THE TWO MAIN CIRCUIT BREAKERS!**

Reset by pushing in red button on each heater module. If the Eco was tripped it will re-engage.

## **SYMPTOM “B”: NO HEAT OR LOW TEMPERATURE WITH INDICATOR LIGHT ON**

### 1) WATER FLOW TOO HIGH

Reduce the water flow by using an outlet ball valve. See page 9 for temperature rise at various flow rates.

### 2) INCORRECT POWER SUPPLY

Make sure that the unit is connected to the voltage supply specified on the rating label on the front cover of the unit and no other.

### 3) ELEMENT BURNED OUT

#### **TURN OFF THE TWO MAIN CIRCUIT BREAKERS!**

Repeat the steps from paragraph 4 above.

### 4) ECO TRIPPED (High Limit Thermostat)

#### **TURN OFF THE TWO MAIN CIRCUIT BREAKERS!**

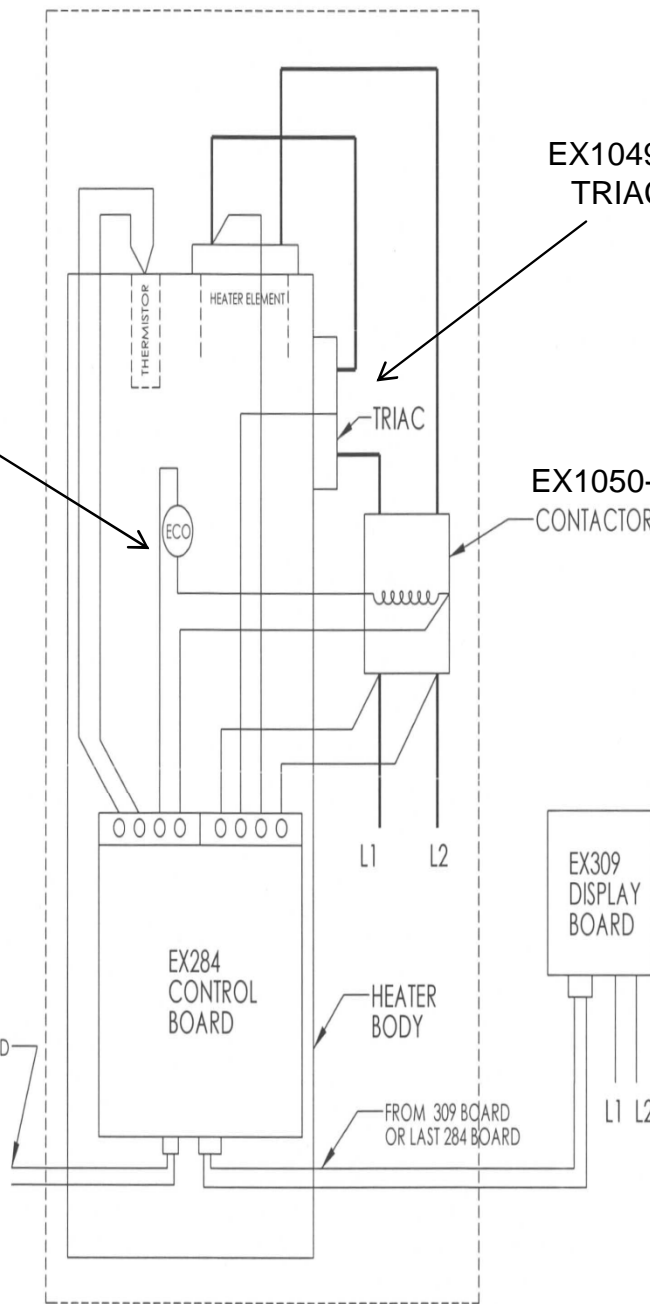
Reset by pushing in red button on each heater module.

EX278C  
ECO

EX1049-1  
TRIAC

EX1050-1  
CONTACTOR

TO NEXT  
284 BOARD



SAME WIRING  
EACH HEATER

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		MATERIAL		CHECKED	
		FINISH		ENG APPR.	
		NEXT ASSY USED ON		MFG APPR.	
		APPLICATION		COMMENTS:	
DO NOT SCALE DRAWING		<b>HEATER WIRING</b>			
SCALE: 1:1		DWG. NO. EX1031		REV.	
WEIGHT:		SHEET 1 OF 1			