

## “SERIES TWO” MODELS

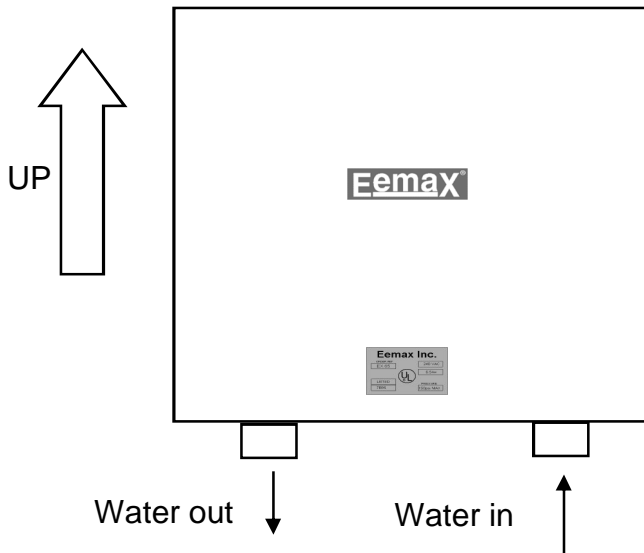
### INSTRUCTIONS FOR TROUBLESHOOTING YOUR EEMAX WATER HEATER

Everything you need to know about troubleshooting your Eemax unit is contained in this fully illustrated guide. If you still have problems after reading and carrying out the instructions in this manual then please call the Eemax technical support department on the toll free number below and we will be happy to help.

**PHONE TOLL FREE- 800/543-6163**

## General

Even before you remove the heater cover, make sure that your Eemax water heater is mounted correctly with the water fittings at the bottom.



This is how your Eemax “Series Two” water heater should look when correctly mounted on the wall. ANY other mounting configuration is wrong and the unit will NOT work!

### **Remove the cover and observe the neon lights on the circuit board of each module.**

If the unit is mounted correctly, remove the cover. With the power switched on to the heater, run water through the heater by opening several faucets supplied by the heater, and see if any lights come on, note their position and if they pulse or not.

### **If there are no lights pulsing or not on:**

If there are no lights at all then you should measure the flow rate of water going through the heater.

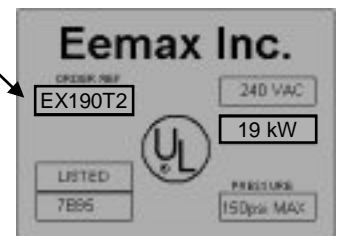
The “**switch on flow rate**” varies with each model. You must determine which “Series Two” type you have. Look at the rating label, find the **order ref.** and then cross reference the required flow rate to activate the heater from the data below.

Order Ref. numbers ending:

- 1) **TC** require at least 0.7 gallons per minute to switch on. (e.g. EX190TC)
- 2) **T2** require at least 1.5 gallons per minute to switch on. (e.g. EX200T2)

Order Ref:  
EX190T2

#### UL Rating Label



To accurately calculate the flow rate of water you should take a gallon container and time in seconds how long it takes to fill using only hot water from the hot faucet. When you have the time, use the formula below to calculate flow rate.

$$\text{Flow Rate (GPM)} = V \times 60/T$$

#### Example

It takes 10 secs to fill a quart (1/4 gallon).

$$\text{Flow Rate} = \frac{1/4 \times 60}{10} = 1.5 \text{ GPM}$$

**Where:**

**V= volume of water collected in gallons.**

**T= time in secs. for V to be collected**

If there is not sufficient water to switch on the heater then you must encourage more water to flow by **opening valves fully** and increasing water pressure etc.

If there is sufficient water flow and still no lights, then proceed to the next steps.

## Danger: Switch off all power to the Eemax water heater

Eemax “Series Two” water heaters are comprised of **two individual heating modules**. For the purpose of trouble shooting, each of these two modules will be considered separately, each module having no effect on the performance of the other.

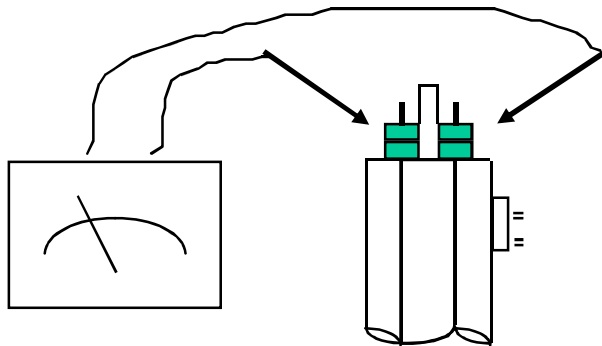
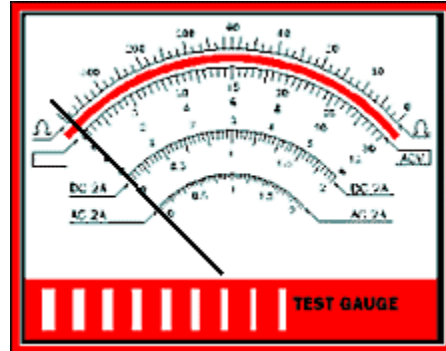
### For each module:

You will require a volt/ohm meter to carry out the next tests. Ensure power is off before continuing.

Set the meter to measure Ohms,  $\Omega$ , on the **single Ohm scale** (not Rx1K or Rx1Meg).

Measure the resistance (not continuity) between the two element posts of each module and note it down.

You do not need to remove or loosen any wiring to do this. The element posts are the two threaded rods with brass nuts on them with two wires coming from each.



If the reading is less than 20 ohms on the single (Rx 1) or (Rx 10) scale, then the element is good, if it is much greater e.g. 10,000 Ohms or a reading with a small M or K next to it, you will need to change the element. To do this, contact Eemax, 1-800-543-6163, and report the tests you have performed. Be ready to give the order ref number and serial number for your heater.

### **If lights come “on” or flash but there is no heat or the water temp is low then:**

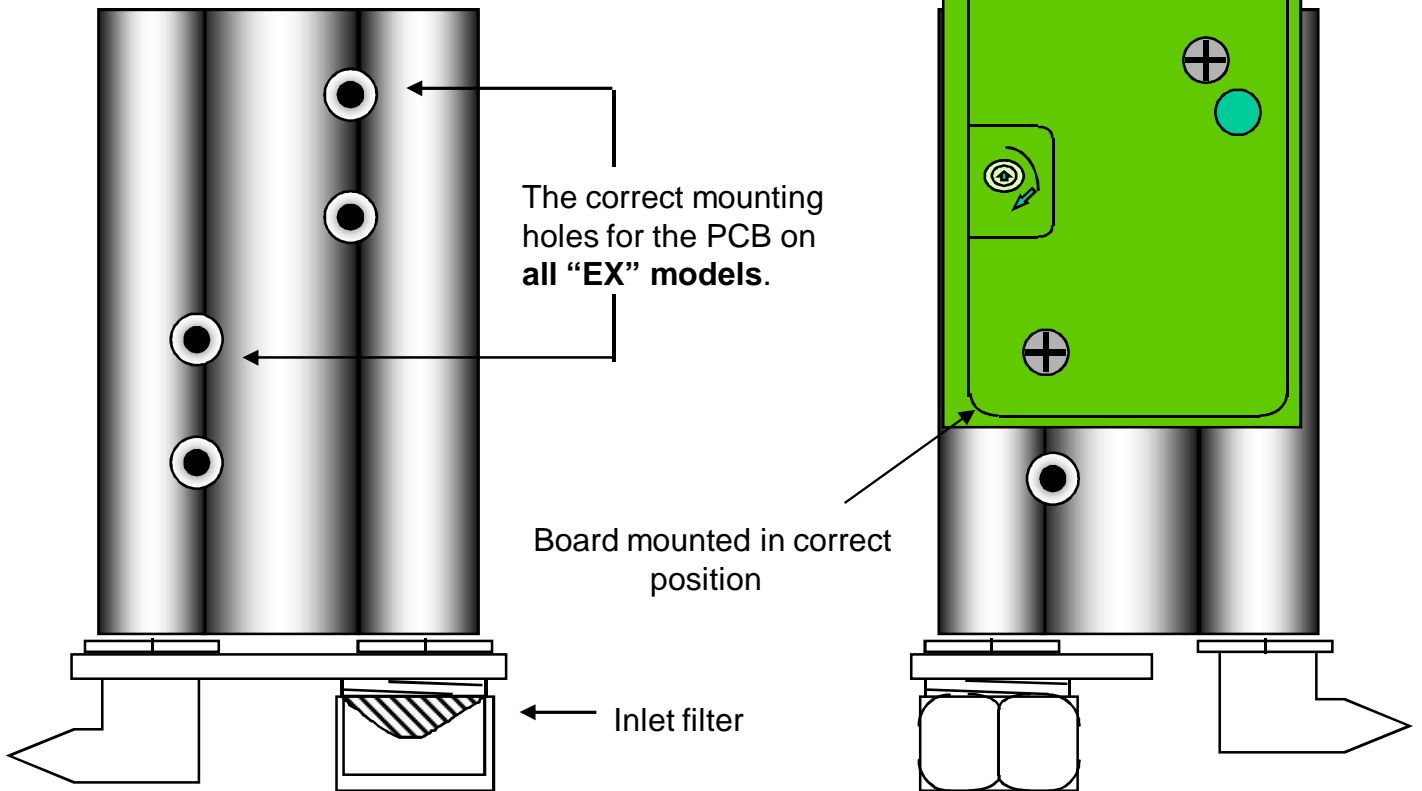
- 1) The water flow is too high. Reduce the water flow using the faucet. With experimentation you should notice an increase in temperature.
- 2) Make sure that the unit is connected to the voltage supply specified on the U.L. rating label on the front cover of the heater !!
- 3) Take a resistance reading of the element as described above.

If these steps fail to get the water heater working then follow the steps below:

**Make sure the PCB's are correctly mounted:**

Make sure the printed circuit board is mounted in the correct position. This is the top set of mounting holes (see diagram below). Failure to mount the board in the correct position will cause element burn out and may cause further damage to your heater. (This board may have been incorrectly moved when serviced previously.)

Note: The upper mounting position is applicable to all modules irrespective of their type.



**Inspect the inlet filter**

Inspect the inlet filter (see diagram above for location). Make sure it is free from debris, pipe dope or anything else which may hinder water flow.

**One or more lights come on:(or previous remedies failed)**

**Trouble shooting “Series Two” water heaters.**

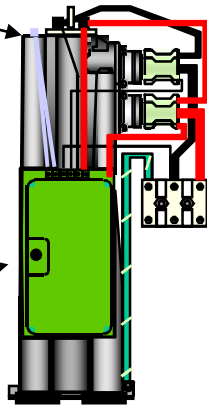
Eemax “Series Two” water heaters are comprised of two individual heating modules. For the purpose of trouble shooting each of these two modules will be considered as a separate heater having no effect on the performance of the other.

These modules fall in to **two categories**:

**1) Thermostatically controlled modules**

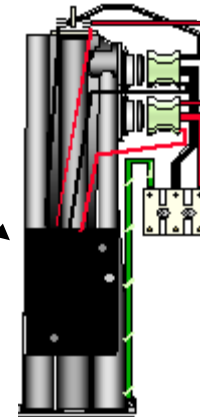
Thermostatic units have two blue wires (Thermistor) from the PCB to a pocket at the top of the module.

Thermostatic units have clear plastic covers over a green board.



**2. (Non-thermostatic)**

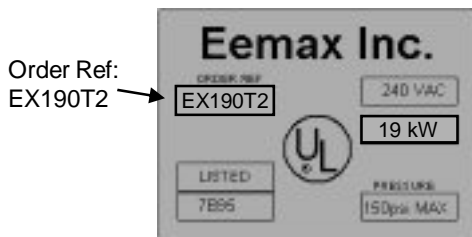
Flow Controlled units have black covers on the printed circuit board.



**Model Types / Order Ref:**

Look at the order ref. number on the silver U.L. label on the front cover of the water heater. In the top left hand box will be the “Order Ref:” Take note of this and compare it to the list below to confirm the type of heater modules you have.

**UL Rating Label**



**Heater Model#**

**Order Ref:**

**Module Types and Qty.**

**Thermostatic**

**Flow Controlled**

EX190T, EX144T  
EX160T, EX200T

1  
1

1  
1

EX190T2, EX144T2  
EX160T2, EX200T2

2  
2

0  
0

EX190P2, EX144P2  
EX160P2, EX200P2

0  
0

2  
2

**For “Thermostatic” modules only**

**If the neon light on the circuit board flashes just once, very quickly when the water is switched on then:**

Warning: Turn off all power to your Eemax heater.

- 1) Turn off the power to this module and all other units which may feed hot water to this module including the right hand side module and any other preheating units.
- 2) Ensure that this module is fed with **cold water only**. This unit must not be fed with pre-heated water when doing this test.
- 3) There are six thin leads that come off the printed circuit board. Remove the **third wire** from the left coming off the top of the PCB (as indicated below) and tape off the end with insulating tape.
- 4) Run water from hot water faucet for 30 secs and then switch power on to the heater once more.

**With the water flowing:**

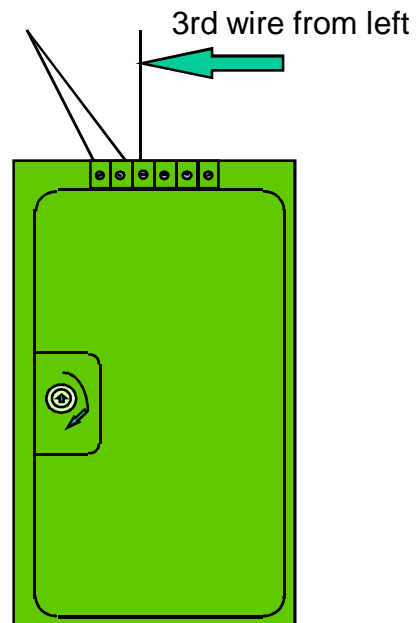
If the light comes on steadily then call Eemax and we will replace the printed circuit board.

(Part # EX 100) If the light still does not come “on” call Eemax and review what you have done.

**WARNING**

Do not use this heater with any warmed water feed if the light has come on steadily having performed the above test.

The heater in this state must only be fed with cold water.



**For “Non-Thermostatic” modules only**

If the neon light on the printed circuit board goes on and off with the water flow, yet there is still no heating effect, it is highly likely that the heating element is the damaged part. If this is so, call Eemax and we will arrange for replacement elements.

IF HAVING CARRIED OUT ALL THE TESTS LISTED ABOVE YOUR HEATER IS STILL NOT FUNCTIONING PLEASE CALL THE TECHNICAL SUPPORT LINE  
AT EEMAX : 1-800-543-6163

PLEASE HAVE THE FOLLOWING INFORMATION AVAILABLE :

- 1) ORDER REF. NUMBER (on U.L. rating label on the front cover of unit.)
- 2) SERIAL NUMBER (on front cover and inside unit on backplate)