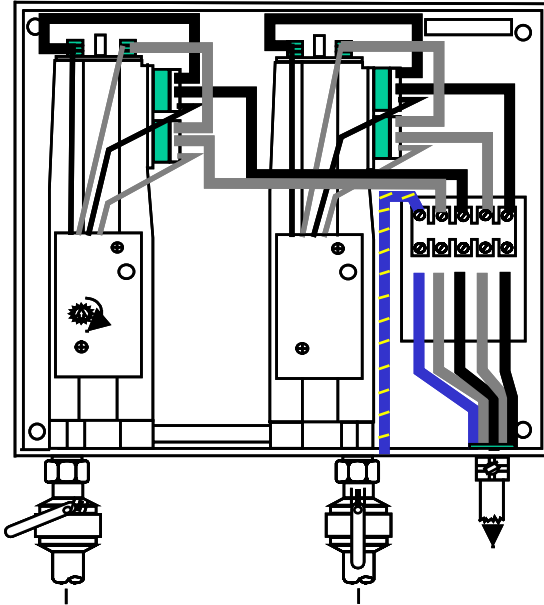


TROUBLESHOOTING GUIDE

ELECTRIC INSTANTANEOUS TANKLESS WATER HEATER



SERIES TWO

“EFT” MODELS

EFT-15000-4-D-10 240V

EFT-19000-4-D-10 240V

EFT-16000-5-D-10 277V

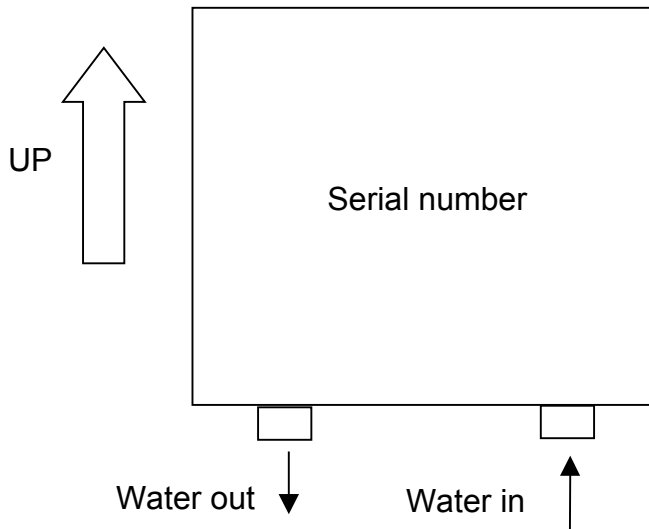
EFT-20000-5-D-10 277V

All information necessary to troubleshoot this water heating unit is contained in this fully illustrated guide. If problems still exist after reading and carrying out the instructions in this manual, contact Technical Service at the toll free number below for assistance.

PHONE TOLL FREE:
1-800-334-3393

General

Before removing the front cover, make sure the unit is mounted correctly with the water fittings at the bottom.



When correctly mounted, this “Series Two” water heating unit should look like the diagram to the left. ANY other mounting configuration will prevent the unit from operating properly.

Remove the front cover and observe the indicator light on the circuit board of each module.

With the power switched “**ON**” to the unit, run water through the unit by opening several faucets supplied by the unit. If any indicator lights illuminate, note their position and if the illumination is steady or pulsing.

If there are no indicator lights illuminated, then:

If there are no indicator lights illuminated, measure the flow rate of water going through the unit.

The “**activating flow rate**” varies with each model. You must determine which “Series Two” model you have. Look at the rating label, find the **order ref. number** and then (From the data) cross reference the required flow rate to activate the unit.

Measuring Flow Rate:

1) “EFT” requires at least 0.9 gallons per minute to switch on.

Fill a 1-gallon “milk” container and, using only water from the hot water outlet, record the time (In seconds) required to fill. To calculate the flow rate, divide the number of gallons the container holds (in this case one gallon) by the time required to fill.

e.g. If it takes 87 seconds to fill the container then the flow rate would be
Flow Rate (gpm)= $v/t \times 60 = 1 \text{ gal.}/87 \text{ seconds} \times 60 \text{ seconds}/1 \text{ minute}=.69 \text{ GPM}$

If there is insufficient water flow to activate the unit, then you must provide more water to the system by **opening the valves fully**.

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

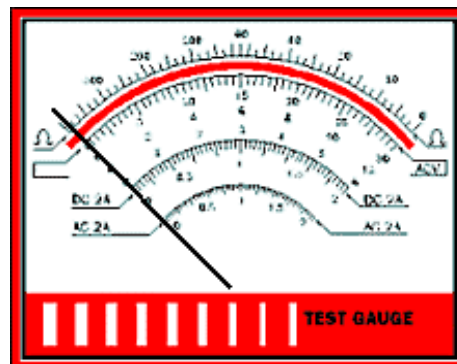
Danger: Disconnect all power to the water heater

“Series Two” water heating units are comprised of **two individual heating modules**. For the purpose of troubleshooting, each of these two modules will be considered separately. Neither of the two will have any effect on the performance of the other.

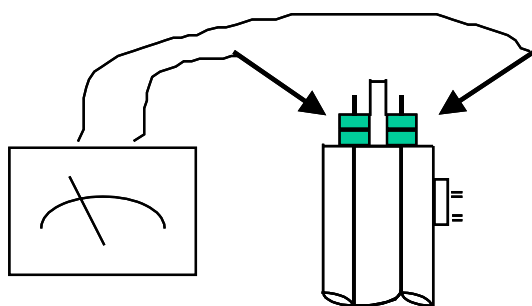
NOTE: Make sure power is “OFF” before proceeding.
For each module:

A multimeter/voltmeter is required to perform the following test.

Set the meter to measure Ohms, Ω , on the **Single Ohm Scale** (Not Rx1K or Rx1Meg).



Remove the front cover of the unit. At the end of the gray heater body, there are two threaded silver rods with brass nuts on them (Where the wires connect). Take a reading of the ohms value between these two rods and write it down (See figure below).



If the reading is less than 20 ohms on the single (Rx1) scale or the (Rx10) scale, then the element is good, if it is much greater, e.g. 10,000 Ohms or if you get a reading on the “Rx1k”, you will need to replace the element. To do this, contact Technical Service at 1-800-334-3393 for replacement elements (Please write down the resistance value, before contacting Technical Service, this will be very useful to us. Also have the order ref. number and serial number for your unit available for Technical Service).

If indicator light illuminates or pulses, but water is not heated or the water temperature is too low:

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

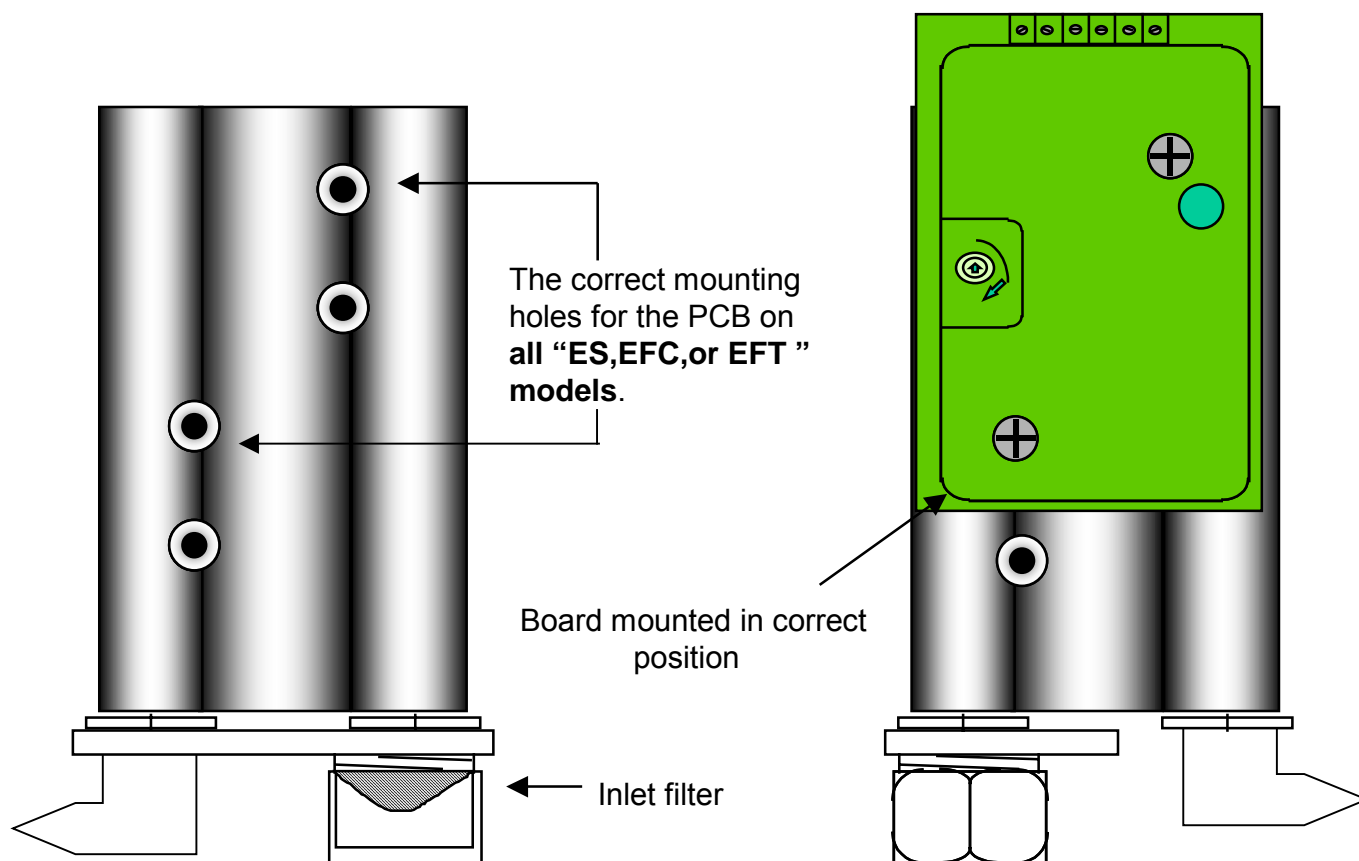
If these steps fail to get the water heater working properly
then follow the instructions on the next page.

Make sure the PCB's (Printed Circuit Boards) are correctly mounted:

BE SURE ELECTRICITY IS TURNED "OFF" BEFORE PROCEEDING.

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 PCB in the correct position will cause element burn out and may cause further damage to the unit (This board may have been incorrectly positioned if serviced previously).

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



Inspect the inlet filter

Inspect the inlet filter (See diagram above for location). Make sure the inlet filter screen is free from debris, pipe dope or any other foreign materials that may prevent adequate water flow.

One or more lights illuminate:(or previous remedies failed)

“Series Two” water heaters are comprised of two individual heating modules. For the purpose of troubleshooting, each of these two modules will be considered as a separate unit. Neither having any effect on the performance of the other. These modules fall in to **one of two categories**:

- 1) **Thermostatically controlled modules**
- 2) **Flow controlled modules. (Non-thermostatic)**

Model Types / Order Ref Number:

Look at the order ref. number on the label located on the front cover of the unit. In the top left hand box find the “Order Ref.” Find the order reference number on the list below to confirm the type of heating modules you have.

Heater Model Number <u>Order Ref Number: & UL Rating Label</u>	Module Types and Qty.	
	<u>Thermostatic</u>	<u>Flow Controlled</u>
EFT-15000-4-D-10	1	1
EFT-19000-4-D-10	1	1
EFT-16000-5-D-10	1	1
EFT-20000-5-D-10	1	1

For “Thermostatic” modules only

If the indicator light on the circuit board flashes one time very quickly when the water is switched on then:

Warning
Turn off all power to the water heating unit.

- 1) Turn “**OFF**” the power to this unit and all other units that may feed hot water to this unit, including the right hand side module and any other preheating units.
- 2) Be sure that this module is fed with **cold water only during this test**. This unit must not be fed with pre-heated water when performing this test.
- 3) There are six thin leads connected to the printed circuit board. Disconnect the **third wire** from the left, from 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 seconds and then switch power “**ON**” to the unit once more.

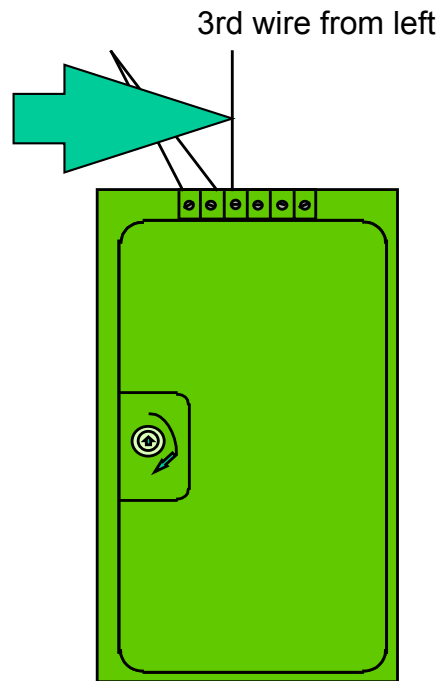
With the water flowing:

If the light illuminates steadily, contact Technical Service and request a replacement printed circuit board (Part #EX100). If the light still does not illuminate contact Technical Service and consult with a technician.

WARNING

Do not use this unit with any pre-heated water feed if the light has illuminated steadily, having performed the above test.

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



For “Non-Thermostatic” modules only

If the indicator light on the printed circuit board illuminates with the water flowing and there is no heating of the water, it is highly likely that the heating element has been damaged. If the above situation occurs, contact Technical Service for replacement elements.

IF HAVING CARRIED OUT ALL THE TESTS LISTED ABOVE AND THE WATER HEATING UNIT IS STILL NOT FUNCTIONING, PLEASE CONTACT TECHNICAL SERVICE AT 1-800-334-3393.

PLEASE HAVE THE FOLLOWING INFORMATION AVAILABLE:

- 1) ORDER REF. NUMBER (Located on U.L. rating label on the front cover of unit).
- 2) SERIAL NUMBER (Inside unit on back plate).