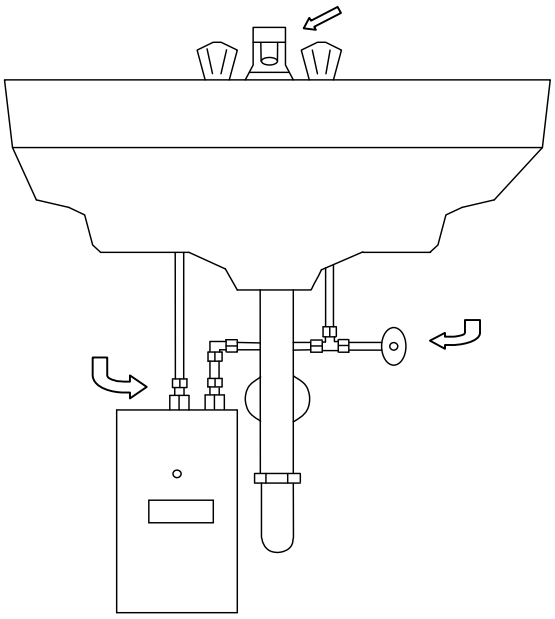
TROUBLESHOOTING GUIDE

ELECTRIC INSTANTANEOUS TANKLESS WATER HEATER



Single Point "ES"- MODELS

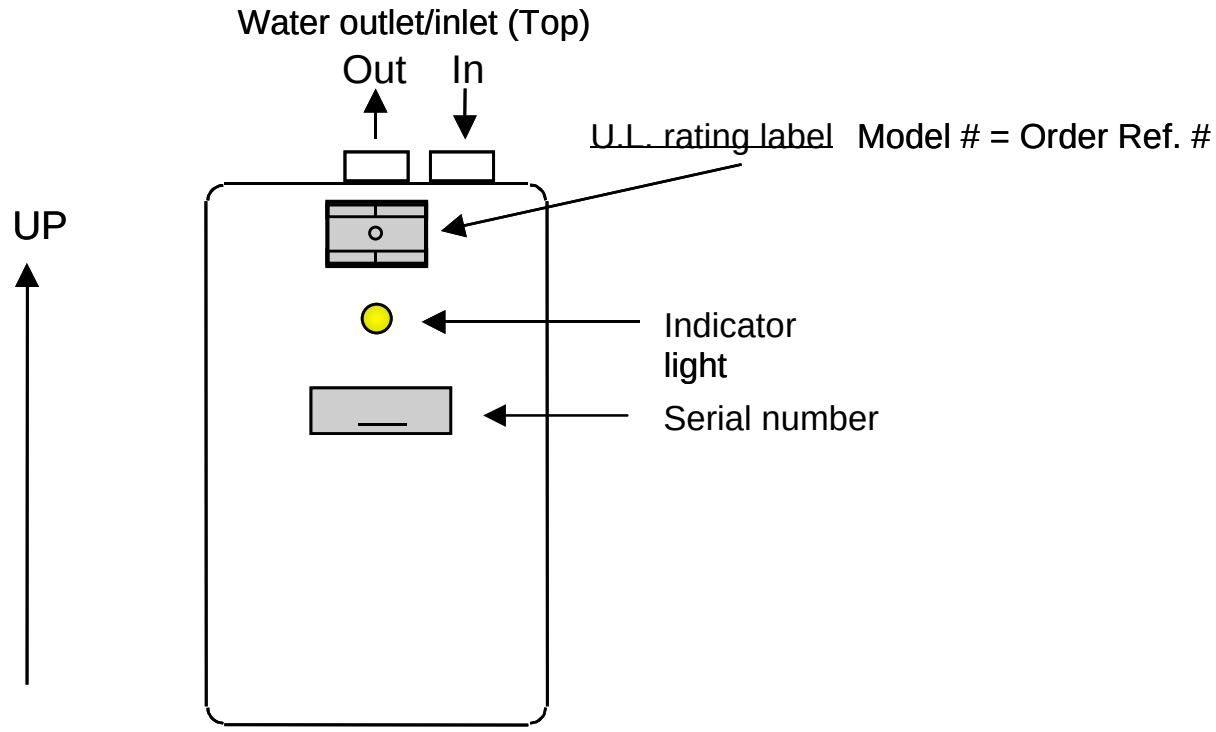
ES-2400-1-S-10	120V
ES-3000-1-S-10	120V
ES-3500-1-S-10	120V
ES-3000-3-S-10	208V
ES-4100-2-S-10	208V
ES-3500-4-S-10	240V
ES-4100-5-S-10	277V
ES-3000-5-S-10	277V

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

238-43141-00 Rev. 5/02

GENERAL



This is how your "ES" model should look when mounted correctly on the wall.

Any other mounting configuration will prevent the unit from operating properly.

If the unit is mounted correctly and still does not produce hot water, look to see if the indicator light illuminates when the hot water faucet is fully opened.

If the indicator light illuminates, turn to page 6.
If the indicator light does not illuminate, turn to page 3.
Other possible situations turn to page 7.

The indicator light does not illuminate (When the hot water faucet is fully opened):

STEP ONE:

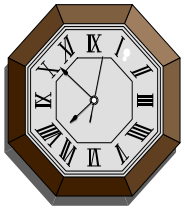
Is the circuit breaker switched ON at the main circuit breaker panel?

YES → Go to Step two

NO → 

Run water at the hot water faucet, for a couple of minutes, before turning on the circuit breaker. Then turn on the circuit breaker at the main circuit breaker panel.

STEP TWO:



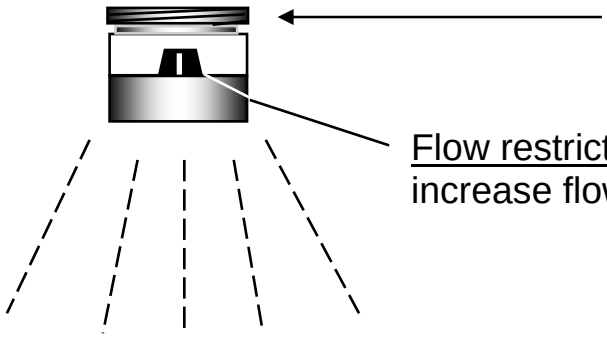
The unit will not heat unless sufficient water is flowing through the unit. The minimum acceptable flow rate is about 0.5 gallons per minute (1/2 gpm). Measure the flow rate using the following procedure:

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 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 the flow rate would be:
Flow rate(gpm) = v/t x 60 = (1 gallon/87 sec.) x (60 sec./1 min.) = .69 gpm

Now, run the water with the faucet open fully. If the indicator light still does not illuminate, then proceed to STEP THREE.

Aerator - Fits on the orifice of the faucet.

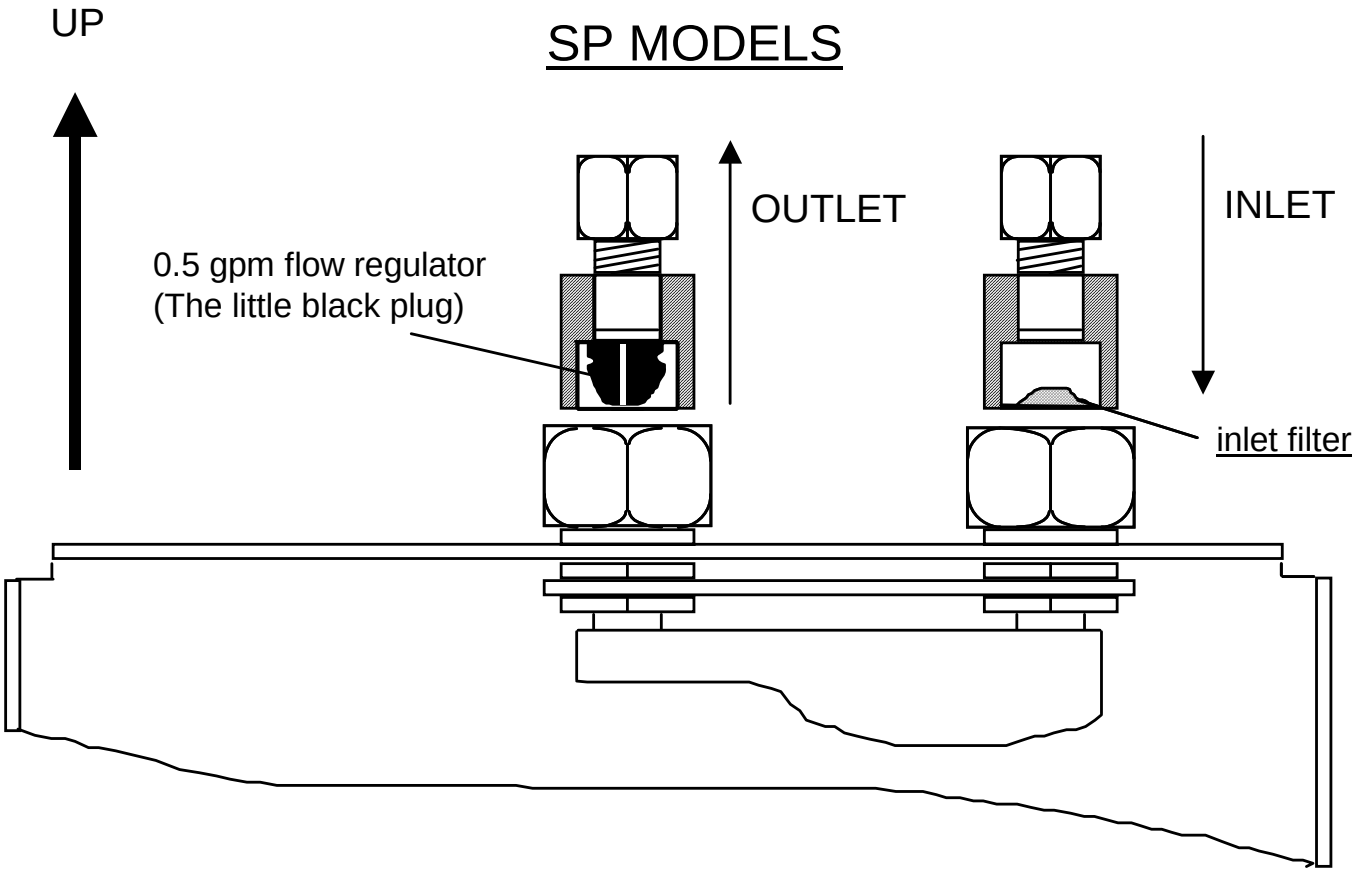


Male/female threaded adapter on top of aerator.

Flow restrictor - (may be removed to increase flow)

STEP THREE:

In the brass outlet fitting there is a flow restrictor, this is a little black plug. Shut the water off to the unit and then remove the plug from the fitting. Open the faucet fully to see if the light illuminates with water flowing through the unit.

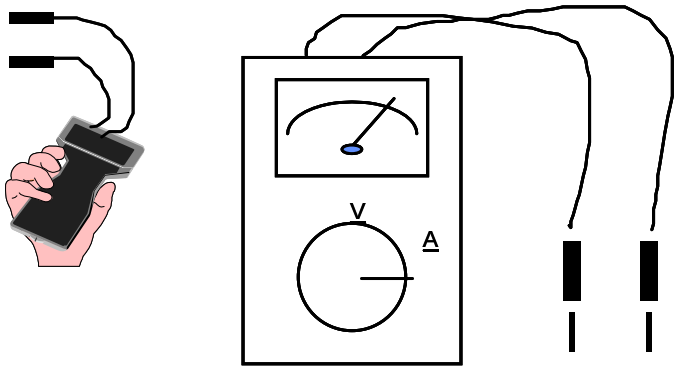


If the unit now operates with water flowing, call Technical Service at 1-800-334-3393. Describe what actions were taken and a selection of “flow restrictors” will be sent to you to replace the one that was removed. This will allow the unit to operate, but will also control the flow rate to provide the correct rise in temperature.

If the unit still does not work proceed to step 4.

STEP FOUR:

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



DANGER!
TURN OFF THE CIRCUIT BREAKER BEFORE PROCEEDING WITH THE NEXT TESTS

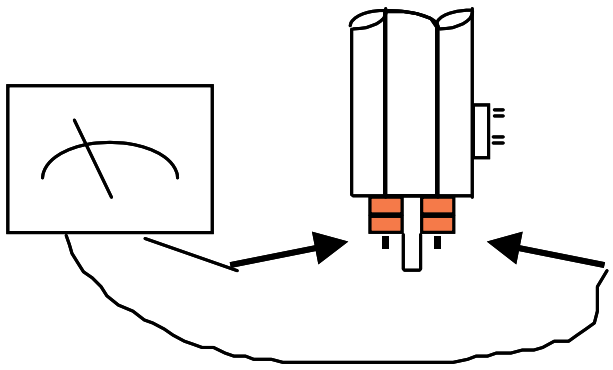
Set the meter to the **single Ohms setting**
Do not measure continuity, this will not work.

Ω

The Ohm Symbol
(The upside down horseshoe)

NOTE: BE SURE THE ELECTRICITY IS TURNED OFF TO THE UNIT

Remove the front cover of the unit. At the end of the black 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 then 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. and serial numbers for your unit available for Technical Service).

The indicator light illuminates but water is not heated or the water temperature is too low:

STEP ONE:

The water flow is too high. Reduce the water flow using the faucet. With experimentation, an increase in temperature should be observed. Make sure the aerator supplied with the heater is attached to the faucet; these are integral for proper performance of the unit. If the special aerator is not included, call Technical Service at 1-800-334-3393 and one will be shipped to you. BE CAREFUL, THE WATER EXITING THE FAUCET IS HOT. SCALD INJURY CAN OCCUR FROM THE HOT WATER.

STEP TWO:

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.

STEP THREE:

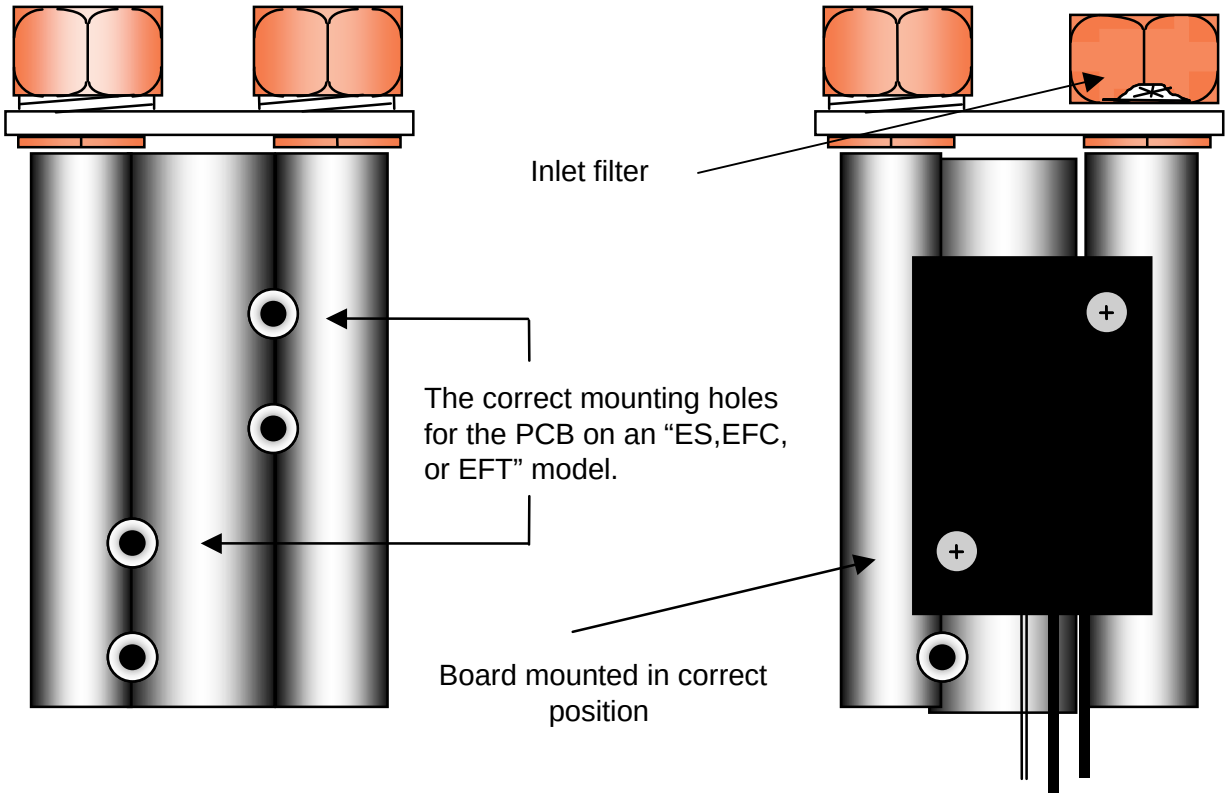
Proceed to page five and follow STEP FOUR.

Other possible solutions:

STEP ONE:

NOTE: 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).



STEP TWO

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.

IF HAVING CARRIED OUT ALL THE TESTS LISTED ABOVE AND THE WATER HEATING UNIT IS STILL NOT FUNCTIONING PROPERLY, PLEASE CALL 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).