

Service Bulletin: TWH-G2-09

Model: 250SX, 250SXO, 635ES, 635ESO, 2400E, 2400EO

EA Error Code Troubleshooting



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Introduction

Follow the procedures below and report results to Bosch Technical Support. This will assist in determining the cause and solution to the problem.

EA Error code explanation:

Burner flame not recognized by control unit with water flow.

Tools needed:

- ▶ Voltmeter/ multimeter
- ▶ Phillips head screwdriver

Procedure

Remove cover from heater (see Section 2.2 in Installation Manual). Check for spark and flame through window in heat exchanger with water flowing (0.8 gpm flow rate required) (Figure 1).

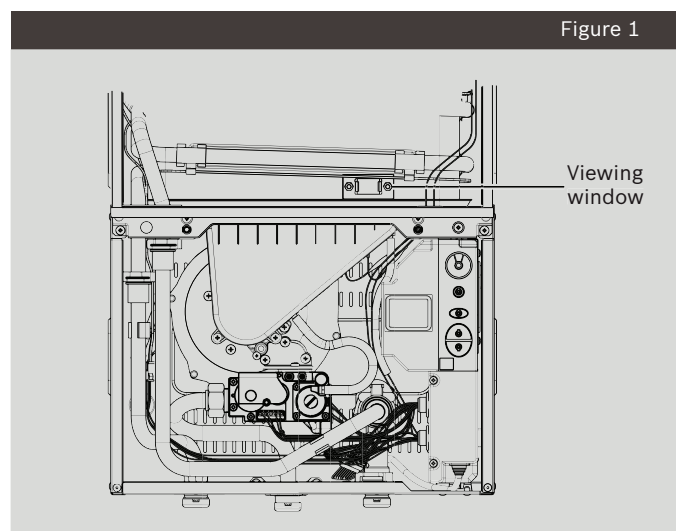


Figure 1

A. If there is no spark with water flow and an EA error occurs:

1. Check connection of 2 yellow wires (with braided covering) to bottom of electrodes (Figure 2). The inner metal wire connector must be clean and tight on electrodes. It is possible for the gray insulating sleeve to slide up, preventing good electrical connection. If the connector is corroded, try cleaning contacts, otherwise replace the electrode cables.

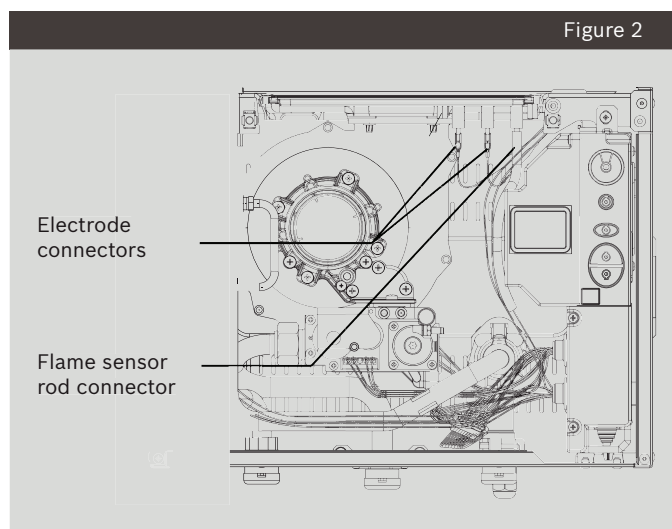


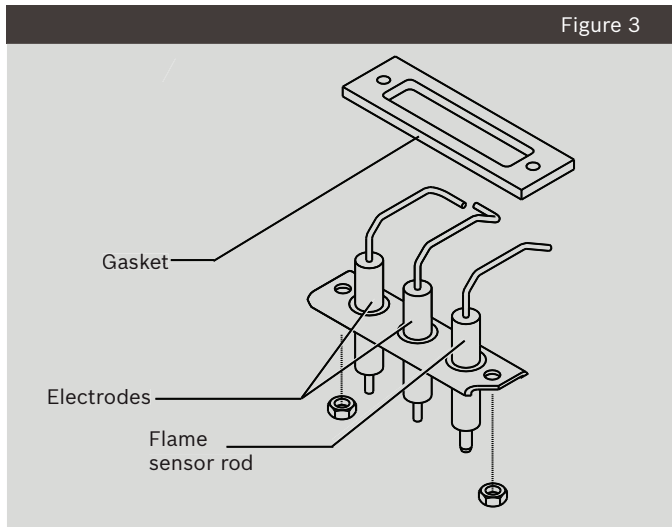
Figure 2

2. Check for correctly wired, grounded and dedicated electrical outlet. If unsure or not correct, consult electrician.

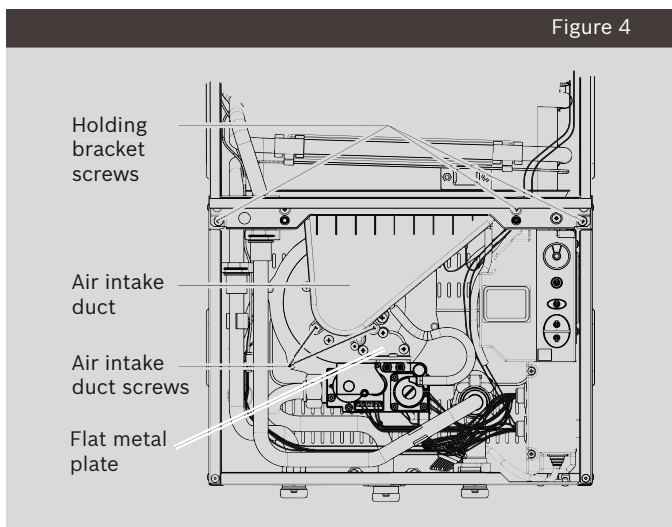
B. If there is sparking with water flow but no flame and EA error occurs:

1. Check for closed gas shutoff valves. Gas must be supplied to heater.
2. Check for correct gas type on label on right side of heater cover. If incorrect, heater will not operate correctly. The heater's gas type can also be verified using the control unit's diagnostic feature. See bulletin TWH-G2-07 Control unit diagnostics. It is possible to convert the heater gas type using a combustion gas analyzer (to recalibrate the CO₂) and a conversion kit (part number 8 719 002 176).
3. Check for air in the gas line: On new installation or after work has been performed on gas line: Reset error and start water flowing to cycle the heater and purge air from the gas line. Error may have to be reset several times to eliminate all the air.

4. Check for signs of moisture inside heater:
 - a. Turn off water flow, reset error, turn off heater power and unplug power cord.
 - b. Turn off gas supply to heater.
 - c. Remove heater cover, metal holding bracket and black plastic air intake duct (with metal attenuator if present) (Figure 4). Do not lose large O-ring.
 - d. Look inside the white plastic tube in front of the fan for signs of dust, powder or moisture.
 - e. Examine electrode gasket (between top of electrode plate and bottom of burner) for signs of moisture, discoloration or staining. See figure 3.



- f. Remove 3 screws from flat metal plate on top of gas valve (Figure 3). Remove plate and check for signs of moisture, rust or corrosion.



Signs of dust, powder or discoloration may indicate condensate damage. Moisture, rust or puddles of water may indicate rain damage. Once moisture gets into gas valve, it will no longer operate safely and must be replaced by a qualified technician using a combustion gas analyzer. Refer to Bulletin G2-28 and G3-12.

Moisture can get into gas valve and not be visible. Discoloration of electrode gasket indicates damage to electrodes. Refer to Bulletin G2-23 to clean or replace electrodes. If moisture is found, see Bulletin G2-08 for condensation and rain prevention requirements.

5. Check for blocked exhaust or intake venting.
6. Check for loose wire connection from front of gas valve.
7. Check for broken yellow paint on fuel/air mixture adjustment screws. If either adjustment has been changed, the fuel/air mixture could be incorrect. Adjustment can only be made with the use of a combustion gas analyzer. See Bulletin G2-12 for adjusting CO₂.
8. Check voltages at gas valve: Remove electrical connection from front of gas valve, reset error and measure voltage between left two wires and right two wires with water flowing. The readings should be about 24VDC. If not, call Bosch Tech Support for further information.

C. If there is sparking with water flow and flame but EA error still occurs:

1. Check for tight wire connections on the flame sensor rod and the electrodes. Make sure all connections are free of corrosion. (Figure 3).
2. Clean flame sensor rod. See Bulletin G3-23.

Call Bosch Water Heating with troubleshooting results, exact gas pressure readings or further questions. If a gas technician is at the heater, the technician should call from heater with Unit number (our record referring to consumer's location and heater details). If no Unit record has been started, we will need consumer's name, address, phone number, heater model name and number, serial number, date of installation and installation details.



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