Service Bulletin: TWH-G2-31

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

A7 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.

An A7 error indicates a problem related to the outlet hot water temperature sensor. The sensor may be sensing temperatures outside normal parameters or the sensor itself may be defective.

NTC Temperature Sensors

- The sensor is a negative temperature coefficient (NTC) sensor that reads different temperatures based on different resistances.
- Lower resistances are interpreted as higher temperatures; higher resistances are interpreted as lower temperatures.
- See Bulletin TWH-G2-05 for approximate temperature sensor resistance readings

Tools needed:

- Ohmmeter/ multimeter
- Phillips head screwdriver
- Fine sandpaper or emery cloth

Procedure

1. Press the reset button on the control panel of the heater to attempt to clear the error code. If the error code does not reset or continues to reoccur, proceed with the following troubleshooting steps.

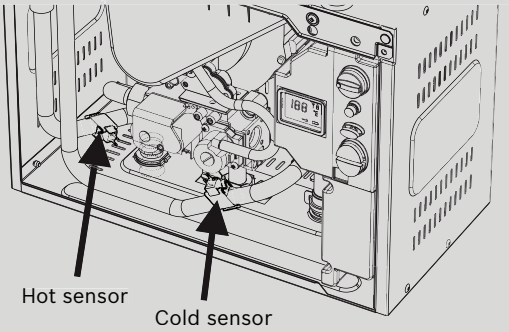
2. Verify the heater is being used for domestic hot water only and is not being fed any preheated water.

3. Verify the heater is not installed in a location that may be exposed to freezing temperatures.

4. Remove the front cover of the water heater. For instructions on removing the front cover, refer to the installation/owner's manual of the water heater.

5. Locate the hot water temperature sensor on the 1/2" copper pipe inside the lower left side of the water heater. The hot water temperature sensor is connected with two red wires and should be clipped to the horizontal section of the hot water pipe. See Figure 1.

Figure 1



6. Inspect the hot water temperature sensor:
   a. Sensor should be positioned on the top of the horizontal section of the hot water pipe.
   b. The sensor should not be positioned on an elbow or near the bypass tube on the vertical section of the hot water pipe.
   c. Unclip the sensor from the copper pipe and inspect the inside of the sensor. Sensor should be clean and free of corrosion.
   d. Sensor spade connections (red wires) must be clean and tight.
   e. If wire connections, sensor, or pipe are corroded, clean with fine sandpaper or emery cloth.
   f. If cleaning and repositioning the sensor fail to fix the error, the sensor may need to be replaced.

7. The inlet cold water sensor and the outlet hot water sensor are identical. As a test, swap the hot and cold sensors.
   a. Turn off the heater and disconnect both the cold and the hot water sensors from the pipes.
   b. Disconnect the blue wires from the cold water sensor.
   c. Disconnect the red wires from the hot water sensor.
   d. Swap the sensors, placing the cold water sensor on the hot water side and vice versa, and reattach the wires to each sensor. (Swap the sensors only, not the wires.)
   e. After swapping the sensors, turn the heater on and try resetting any error codes that that are displayed. If the error has now changed from A7 to E2, the error is following the sensor, indicating the sensor is likely defective and will need to be replaced. (Part # 8700400015.)
   f. If the E2 error continues after swapping the sensors and resetting the error code, there may be a problem with the wiring harness or control board. Contact Bosch Tech Support.

8. For an alternate test to check the sensors with a multimeter, refer to Bulletin TWH-G2-05 for testing procedure.

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Bosch Thermotechnology Corp.
50 Wentworth Avenue
Londonderry, NH 03053

Tel: 1-866-642-3198
Fax: 1-603-584-1681
www.boschpro.com