

8 Problem solving

8.1 Error code diagnostics



To remove error code from the display, press the reset button.

Display	Cause	Solution
A2	Fault in the flue gas limiter.	<ol style="list-style-type: none"> 1. Check continuity of the flue gas limiter (see Fig. 63, page 46). Go to steps two and three to determine air box temperature sensor fault and replace it. 2. Check for flue gas leakage around the top and bottom seals of heat exchanger as well as the viewing window. 3. Check that venting is within specifications (see Section 3.3). Long vent lengths, venting with more than three elbows, blocked vent or combination venting may cause this failure. 4. Check that flue gas limiter connector and spade connections are secure. 5. Unplug heater and check the two main plug connections inside the control board.
A3	Jumper connection is not correct.	<ol style="list-style-type: none"> 1. Check jumper connection on connector at upper right hand corner of heat exchanger.
A4	Backflow temperature sensor defect - happens if sensor is disconnected or short circuit.	<ol style="list-style-type: none"> 1. Check backflow temperature sensor connection and resistance. See Fig. 61, page 44 and Fig. 63, page 46. 2. Replace backflow temperature sensor.
A7	Outlet temperature sensor fault (Temperature below freezing or above 210°F).	<ol style="list-style-type: none"> 1. Check red wire connections at hot water temperature sensor. Clean terminals with an eraser. If badly corroded, replace sensor and wire harness. See Fig. 63, page 46. 2. Sensor may trip if water temperature drops below freezing to protect heater from freezing conditions. Any damage due to freezing conditions is not covered under warranty. 3. Clean inlet filter screen and clear any debris out of shower heads, faucet aerators and whole house filters. 4. In areas where water has a high mineral content, periodic descaling may be necessary.

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Display	Cause	Solution
<p>(Flashing)</p> 	<p>Outlet temperature sensor not sensing expected output temperature.</p>	<ol style="list-style-type: none"> 1. Check that the sensor is firmly attached to the hot water pipe (see Fig. 69, page 52). 2. Clean inlet filter screen and clear any debris out of shower heads, faucet aerators and whole house filters. 3. Check venting specifications are met. Long vent lengths, venting with more than three elbows, blocked vent or combination venting may cause this failure. 4. Check gas pressure. Low gas pressure may prevent the heater from reaching desired output temperature. 5. Check supply voltage. It must be 120VAC and properly grounded. 6. Possible defective control unit call Bosch Water Heating for further instructions. 7. Ensure that outlet temperature sensor is not placed on any bends in the hot water pipe or misreading may occur.
	<p>Primary fan rotation too low on operation.</p>	<ol style="list-style-type: none"> 1. Disconnect power supply cord and check wire connections on back side of primary fan and the two connectors on the control board (see Fig. 70, page 53). 2. Check supply voltage. It must be 120VAC and properly grounded. 3. Check venting specifications are met. Long vent lengths, venting with more than three elbows, blocked vent or combination venting may cause this failure. 4. Ensure intake and exhaust terminations maintain the required minimum clearances stated in the manual. Cross contamination between intake and exhaust may cause the fan to alter its rotational speed. 5. Check gas pressure. Low gas pressure may cause the fan to change its speed to meet desired temperature. 6. Possible defective control unit call Bosch Water Heating for further instructions.
	<p>No rotational speed sensor signal from primary fan.</p>	<ol style="list-style-type: none"> 1. Disconnect power supply cord and check wire connections on back side of primary fan and the two connectors on the control board (see Fig. 70, page 53). 2. Check supply voltage. It must be 120VAC and properly grounded. 3. Possible defective component in fan or defective control unit call Bosch Water Heating for further instructions.
<p>(Flashing)</p> 	<p>Water flow signal over specified maximum value. Water flow > 10 gallon/min.</p>	<ol style="list-style-type: none"> 1. Disconnect power supply cord and check wire connections on water valve and the two connectors on the control board (see Fig. 70, page 53). 2. Excessive water pressure and flow. Ensure water pressure is less than 150psi and flow rate is below 10 gallons per minute.
	<p>Internal hardware/software failure.</p>	<ol style="list-style-type: none"> 1. Disconnect power supply cord and check the two wire and ground connections on control board as well as ground connection on heater chassis. 2. Pushing the wrong combination of buttons on the control unit can create confusion among the microprocessors inside. In this case, the error code should not happen more than once or twice. Turn off the water heater. Turn water heater back on and try resetting error code. Use the reset button () to reset any error codes. 3. Possible defective control unit. Call Bosch Water Heating for further instructions.

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Display	Cause	Solution
	<p>Over-temperature detected by outlet temperature sensor on hot water pipe. Temperature > 185°F</p>	<ol style="list-style-type: none"> 1. Check that the sensor is firmly attached to the vertical section of the hot water pipe (see Fig. 69, page 52). 2. Check red wire connections at outlet temperature sensor. Clean terminals with an eraser. If badly corroded, replace sensor and wire harness. Check sensor resistance (see Fig. 59, page 43). 3. Clean inlet filter screen per chapter 6.2, page 27 and clear any debris out of shower heads, faucet aerators and whole house filters. 4. In areas where water has a high mineral content, periodic descaling may be necessary. See chapter 6.3, page 27 for directions.
	<p>Cold water temperature sensor fault.</p>	<ol style="list-style-type: none"> 1. Check connector on wires coming from top of watervalve for a secure connection. See Fig. 63, page 46. 2. Sensor may trip if water temperature drops below freezing to protect heater from freezing conditions Any damage due to freezing conditions is not covered under warranty.
	<p>Backflow temperature sensor over 309°F. The appliance will close the burner and lock.</p>	<ol style="list-style-type: none"> 1. Check combustion air and backflow vent piping for blockage. 2. Check if secondary fan connections are disconnected. 3. Check venting specifications are met. Long vent lengths, venting with more than three elbows, blocked vent or combination venting may cause this failure. 4. Check sensor resistance (see Fig. 61, page 44).
	<p>Overheat sensor (ECO) open circuit (should reset when cooler temperatures are detected).</p>	<ol style="list-style-type: none"> 1. Disconnect power supply cord and check wire connections on overheat sensor (top right of heat exchanger) and the two connectors on the control board. See Fig. 63, page 46. 2. Check white wire connections at overheat sensor. Clean terminals with an eraser. If badly corroded, replace sensor and wire harness. 3. Check venting specifications are met. Long vent lengths, venting with more than three elbows, blocked vent or combination venting may cause this failure. 4. Clean inlet filter screen and clear any debris out of shower heads, faucet aerators and whole house filters. 5. In areas where water has a high mineral content, periodic descaling may necessary, see chapter 6.3. 6. Unplug power supply cord to the water heater. Open a hot water tap for several minutes to allow cold water to pass through heat exchanger. Close hot water tap and disconnect lead wires to overheat sensor. Using a multimeter, check continuity through overheat sensor contacts. Replace sensor if open.

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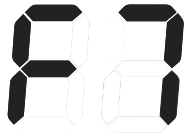

Display	Cause	Solution
	No flame ionization detected with water flow.	<ol style="list-style-type: none"> 1. Verify that all manual gas shut off valves are open. 2. Check gas type, see Fig. 2, page 5. 3. Reset error code and open a water tap to cycle the heater in an effort to purge air on new installations. Cycling hot water tap on and off multiple times may be necessary. If heater still faults with EA error code, have a licensed gas technician properly purge air out of the gas line leading to the water heater. 4. Check three wire connections to ignition group on the lower front of the heat exchanger are secure. 5. Check gas pressure, see chapter 3.12, page 22. 6. Check venting specifications are met. Improper venting may cause premature failure of the flame sensor rod. 7. Check that the minimum power fan speed has been adjusted to the proper value. See page 34. 8. Observe inside the viewing window of the heat exchanger when a hot water tap is opened. Sparking should be followed by a steady blue flame. If flame is unstable or yellow with proper gas pressure, confirm CO₂ readings per section 6.4.
	Ionization failure during operation.	<ol style="list-style-type: none"> 1. Check gas type, see Fig. 2, page 5. 2. Check three wire connections to ignition group on the lower front of the heat exchanger are secure. 3. Check venting specifications are met. Improper venting may cause unstable burner flames and loss of flame ionization. 4. Check that the minimum power fan speed has been adjusted to the proper value. See page 34. 5. Check gas pressure, see section 3.12, page 22. 6. Check and adjust CO₂ readings, see section 6.4, page 28.
	Ionization error at standby.	<ol style="list-style-type: none"> 1. Loose connection to the flame ionization rod. Verify that the thinner wire leading from the control unit is securely connected to the flame sensor located on the lower front of the heat exchanger. See Fig. 63, page 46. 2. Flame ionization rod or control unit may be damaged. Contact Bosch Water Heating for further instruction.
	Gas leakage error, gas valve circuit not closing properly.	<ol style="list-style-type: none"> 1. Disconnect power supply cord and check wire connections on gas valve and the two connectors on the control board. 2. Flow water out of a hot water tap above the minimum activation point of 0.65 GPM. Measure voltage at the gas valve wire plug connection. The voltage should measure 24VDC between the left pair of wires and 24VDC between the right pair of wires when the unit is operating. If voltage is not proper, contact Bosch Water Heating for further instruction. 3. Gas valve may be defective, contact Bosch Water Heating for further instruction.

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