



SUBJECT: Low Water Flow Testing Procedure for Ultra Gas Boilers

The Ultra Gas boilers (*Residential & Commercial*) use U-Control functionality to protect themselves against low water flow. The U-Control constantly monitors the return and supply temperature sensors of the boiler to determine the temperature rise across the heat exchanger. If this temperature rise exceeds the limit of 58 degrees Fahrenheit, the control will shut down the boiler due to inadequate water flow.

Below is a procedure that can be used to test the proper operation of this functionality.

Supply 58F > Return Fault

Definition of Fault: Boiler supply temperature has exceeded the boiler return temperature by more than 58° F.

Procedure for Testing Fault Condition:

1. Unlock the boiler control by holding the **up and down arrows** for approximately 5 seconds.
2. Once in the contractor menu, scroll down to **Diagnostics** and press **enter**.
3. In the Diagnostics menu, scroll down to **Manual Test Mode**.
4. Once in the **Manual Test Mode screen**, create a call for heat or heating demand.
5. Once the boiler has gone through ignition, change the **FORCE RATE** to **HIGH** and press **enter**.
6. Allow the boiler to reach high fire*.
7. With the boiler operating, slowly close the manual shut-off valve on the water return piping to the boiler to reduce the water flow rate. As the boiler starts to reach the maximum allowable water temperature differential, it will start to modulate lower.
8. While watching the temperatures on the **Manual Test Screen**, continue to slowly reduce the water flow until you surpass the maximum differential of 58°F.
9. Once the differential of 58°F is surpassed, the boiler will lockout and remain in lockout until the condition returns to within limits for 30 seconds. After 30 seconds, the fault will automatically reset or can be manually reset from the display screen. If 20 automatic resets occur, the boiler will require a manual reset.
10. Remove the call for heat used for testing purposes, and return the manual shut-off valve to its fully open position.
11. In the **Manual test screen**, change the **FORCE RATE** back to **AUTOMATIC** and press **enter**.
12. In the **Diagnostics screen**, scroll down to the **Errors screen** and press **enter**.
13. Once in the **Errors screen**, press the **left and right arrows** for 5 seconds to clear the error history created during testing.
14. Once complete, press the **left arrow** until the main screen or Boiler outline is shown on the screen.

If you have any questions, please contact our Technical Services department at 1-800-526-6636.

*If the return water temperature is not at least 70 degrees below the high limit setting, the boiler could shut down due to high limit and require manual reset.