

XIII. Troubleshooting

WARNING

TURN OFF POWER TO BOILER BEFORE REPLACING FUSES OR WORKING ON WIRING.

A. Troubleshooting problems where no error code is displayed:

Table 13.1: No Error Code Displayed

CONDITION	POSSIBLE CAUSES
Display Blank, Fan off, LWCO lights off	<ul style="list-style-type: none"> No 120VAC Power at boiler. Check breaker and wiring between breaker panel and boiler
Display Panel Blank, Fan running	<ul style="list-style-type: none"> Loose 120VAC connection wiring between boiler J-Box and MCBA Blown "F1" fuse in MCBA (see Figure 13.2 for location). Replace with 5A fuse provided
Display reads "U.125" continuously, Fan running	<ul style="list-style-type: none"> Defective AT250 transformer Blown "F3" fuse in MCBA (see Figure 13.2 for location). Replace with 4A slow-blow fuse provided
Boiler not responding to call for heat, Status code on display ="0" (see Figure 11.1)	<ul style="list-style-type: none"> Boiler is not seeing call for heat. Check thermostat or zone wiring for loose connection, miswiring, or defective thermostat/zone control.
Boiler fires, but display panel is blank	<ul style="list-style-type: none"> Loose ribbon cable Defective display

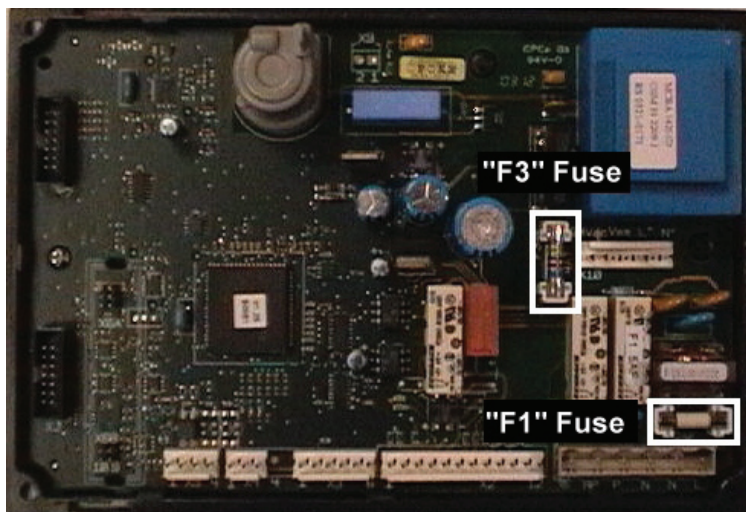


Figure 13.2: MBCA Fuse Location

- B. Trouble shooting problems where a soft lockout code is displayed. When a soft lockout occurs, the boiler will shut down and the display will alternate between the number “9” and the letter “b” followed by a two digit service code. The boiler will automatically restart once the condition that caused the lockout is corrected.

Table 13.3: Soft Lockout Codes Displayed

CODE	CONDITION	POSSIBLE CAUSES
b 08	Pressure switch circuit open	<ul style="list-style-type: none"> • Blockage in intake or vent system. • Vent and/or intake system not constructed in accordance with Part VI. • Blocked or leaking pressure switch tubing • Heat exchanger or burner blockage • Terminals exposed to high winds • Blockage in condensate trap above vent.
b 18	MCBA supply sensor detected temperatures in excess of 200°F	<ul style="list-style-type: none"> • Heating load at time of error was far below the minimum firing rate of the boiler • Defective primary pump or no flow in primary loop (Piping Method 1) • Control system miswired so that boiler operation is permitted when no zones are calling
b 19	MCBA return sensor detected temperatures in excess of 200°F	<ul style="list-style-type: none"> • See possible causes for “b18” • Flow through boiler reversed • Sensor wiring reversed
b 24	MCBA is reading a return sensor temperature higher than the supply sensor temperature. Condition must be present for at least 75s for this error code to appear.	<ul style="list-style-type: none"> • Flow through boiler reversed. Verify correct piping and pump orientation. • No boiler water flow. Verify that system is purged of air and that appropriate valves are open. • Sensor wiring reversed. • Supply or return sensor defective.
b 25	Supply water temperature has risen too quickly	<ul style="list-style-type: none"> • See possible causes for “b18” • Inadequate boiler water flow. Verify that pump is operating and that pump and piping are sized per Part VIII of this manual
b 26	Boiler safety limit, or external limit wired across terminals 3&4, is open.	<ul style="list-style-type: none"> • See possible causes for “b18” • Defective supply sensor.
b 30	Temperature rise between supply and return is too high.	<ul style="list-style-type: none"> • Inadequate boiler water flow. Verify that pump is operating and that pump and piping are sized per Part VIII of this manual
b 61	Pressure switch circuit closed with fan off	<ul style="list-style-type: none"> • Blockage in pressure switch hose • Pressure switch wires shorted together • Defective pressure switch • Loose or miswired fan speed harness (if “b61” error code is observed while fan is running)
b 65	Fan is not achieving set point speed	<ul style="list-style-type: none"> • Loose or incorrect fan speed control connection • Defective fan

- C. Trouble shooting problems where a hard lockout code is displayed. When a hard lockout occurs, the boiler will shut down and the display will flash the letter “E” followed by a two digit service code. Once the condition that caused the lockout is corrected, the boiler will need to be manually reset using the RESET button on the display.

Table 13.4: Hard Lockout Codes Displayed

CODE	CONDITION	POSSIBLE CAUSES
E 00	A flame signal was present when there should be no flame.	<ul style="list-style-type: none"> Defective gas valve - make sure inlet pressure is below maximum on rating plate before replacing valve.
E 02	BWC300: Flame failure after 5 tries to restart BWC399/425: Flame failure after 2 tries to restart	<ul style="list-style-type: none"> No gas pressure Gas pressure under minimum value shown on rating plate Gas line not completely purged of air Defective Electrode Loose burner ground connection Defective Ignition Cable Defective gas valve (24 VAC should be present between blue and black and between blue and brown leads during trial for ignition) Air-fuel mixture out of adjustment - consult factory
E 03	Gas valve error	<ul style="list-style-type: none"> Loose or defective gas valve harness. Check electrical connections. Defective gas valve (check for 24 VAC at harness during trial for ignition before replacing valve)
E 04	Power failure occurred after lockout	<ul style="list-style-type: none"> Some other error on this list occurred and power to the boiler was then interrupted. Reset control and see if hard lockout reoccurs.
E 05 E 06 E 07 E 11	Internal control failure	<ul style="list-style-type: none"> Reset the control. If problem reoccurs, replace the MCBA.
E 12	Low water cut-off or float switch open	<ul style="list-style-type: none"> If yellow light on LWCO is on, system is low on water If neither yellow nor green light is on, check LWCO harness and check for 24VAC across AT140 transformer Check the condensate trap for a blockage
E 13 E 14 E 15 E 16 E 17	Internal control failure	<ul style="list-style-type: none"> Reset the control. If problem reoccurs, replace the MCBA.
E 18	MCBA supply sensor detected temperatures in excess of 200°F for an extended period of time	<ul style="list-style-type: none"> See possible causes for “b18” error. Also, check safety limit for proper operation.
E 19	MCBA return sensor detected temperatures in excess of 200°F for an extended period of time	<ul style="list-style-type: none"> See possible causes for “b19” error.
E 28	Blower is not running when it should or fan speed signal not being detected by MCBA	<ul style="list-style-type: none"> Loose connection in 120 VAC fan wiring Loose or miswired fan speed harness Defective fan
E 29	Blower fan speed has not returned to zero rpm	<ul style="list-style-type: none"> Miswired fan speed harness Defective fan
E 31	Shorted supply temperature sensor	<ul style="list-style-type: none"> Shorted or miswired supply sensor wiring Defective supply sensor
E 32	Shorted return temperature sensor	<ul style="list-style-type: none"> Shorted or miswired return sensor wiring Defective return sensor
E 35	Flue gas temperature sensor short circuit	<ul style="list-style-type: none"> Shorted or miswired flue temp sensor wiring Defective flue temp sensor
E 36	Supply water temperature sensor circuit open	<ul style="list-style-type: none"> Loose or miswired supply sensor wiring Defective supply sensor
E 37	Return water temperature sensor circuit open	<ul style="list-style-type: none"> Loose or miswired return sensor wiring Defective return sensor
E 40	Flue gas temperature sensor circuit open	<ul style="list-style-type: none"> Loose or miswired flue temp sensor wiring Defective flue temp sensor
E 44	Internal control failure	<ul style="list-style-type: none"> Reset the control. If problem reoccurs, replace the MCBA.