

SERVICE MANUAL SUPPLEMENT – QUICK SERVICE GUIDE

EF SERIES® 125-500K BTU INPUT - ICON HD® SYSTEM

ALL BTU INPUTS WITH BATTLESHIP GREY DISPLAY: SERIAL DATE CODE “XC” AND LATER*

Error Code	Definition	Service Action	Possible Parts Needed
No Code	No power to the unit or switch is off	Check power supply Verify 24 volts at display	1) Transformer 2) Control board 3) Display
9, 22	Low flame sense signal	Check microamps Inspect flame sensor & wire Inspect burner for debris	1) Flame sensor 2) Control board
49	24 VAC too low or high	Verify proper supply voltage Verify transformer output is 22-27 Vac	1) Transformer
53	AC voltage input phase is reversed	Check for proper grounding/polarity Verify the wiring connections J4-10 and J8-2 are connected together	1) Control board
62	Fan speed not proved (if value remains out of range, this hold will change to lockout 123, defined below)	Check for vent/intake restriction Check blower modulation wire harness at J2 connection for continuity	1) Blower 2) Control board
67	Normally closed the vent safety circuit opened (exhaust collector pressure switch or high limit switch open)	Verify if pressure switch or high temperature limit switch, both normally closed, at exhaust outlet has opened Check for vent restriction Check for condensate blockage Verify vent length is within specification Check for indications of high temperature at exhaust outlet, if seen call Tech Support at 800-334-3393	1) High temperature limit switch 2) Pressure switch 3) Control board
80	High limit overheat condition	Verify water temperature inside the tank is not above 207°F Measure resistance of water temperature sensor Check wire harness and connections	1) Water temperature sensor 2) Control board
93	Water temperature sensor fault (this hold appears after alert 172, defined below)	Measure resistance of water temperature sensor Check wire harness and connections	1) Water temperature sensor 2) Control board
105	Flame detected out of sequence	Check flame sensor/wire Verify ignition cable is not crossing flame sense or ground wires	1) Flame sensor
109, 110	Ignition failure after 4 trials (hold 110 is on display, stored as 109 in Diagnostic History)	Verify ignition sequence Clean igniter Clean flame sensor	1) Burner 2) Igniter 3) Control board
122	Light off rate proving failed (fan speed not proved - hard lockout)	Check for vent/intake restriction Check blower modulation wire harness at J2 connection for continuity	1) Blower 2) Control board
123	Fan speed not proved - purge rate proving failed (this lockout appears after hold 62 defined above, and is stored in Diagnostic History)	Check for vent/intake restriction Check blower modulation wire harness at J2 connection for continuity	1) Blower 2) Control board
137	Normally closed vent safety circuit opened (exhaust collector pressure switch or high limit switch open)	Verify if pressure switch or high temperature limit switch, both normally closed, at exhaust outlet has opened Check for vent restriction Check for condensate blockage Verify vent length is within specification Check for indications of high temperature exhaust outlet, if seen call Tech Support at 800-334-3393	1) High temperature limit switch 2) Pressure switch 3) Control board
172	Water temperature sensor resistance invalid (if value remains out of range, hold 93 is displayed, defined above)	Measure resistance of water temperature sensor Check wire harness and connections	1) Water temperature sensor 2) Control board

NOTE: If there is no display, check primary/secondary voltage
Before troubleshooting, always verify the following:

Gas inlet pressure
Static to dynamic gas pressure drop
No vent and intake restrictions

All wire connections are tight
No grounded wires or missing grounds
No water leaks

*March 2021 and later. If serial is at or near this date please contact Technical Support at 800-334-3393 to verify control generation
Always check the manufacture date using the Warranty Center at Bradfordwhite.com