

IX. Service

WARNING

Service on this boiler should be undertaken only by trained and skilled personnel from a qualified service agency. Inspections should be performed at intervals specified in this manual. Maintain manual in a legible condition.

Keep boiler area clear and free of combustible materials, gasoline and other flammable vapors and liquids.

Do not place any obstructions in boiler room that will hinder flow of combustion and ventilation air.

The service instructions contained in this manual are in addition to the instructions provided by the manufacturer of the boiler components. Follow component manufacturer's instructions. Component manufacturer's instructions were provided with the boiler. Contact component manufacturer for replacement if instructions are missing. Do not install, start up, operate, maintain or service this boiler without reading and understanding all of the component instructions. Do not allow the boiler to operate with altered, disconnected or jumpered components. Only use replacement components identical to those originally supplied by Crown Boiler Company.

- A. General.** Inspection and service must be conducted annually. Turn off electrical power and gas supply while conducting service or maintenance. Follow instructions TO TURN OFF GAS TO APPLIANCE. See Lighting/Operating Instructions on inside of Front Removable Door.

WARNING

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

- B. Maintenance of Low Water Cut-off (if used).** Follow instruction manual provided with low water cut off.

- C. Vent System.** Check for:

1. obstructions
2. accumulations of soot
3. deterioration of vent pipe or vent accessories due to condensation or other reasons
4. proper support—no sags, particularly in horizontal runs
5. tightness of joints. Remove all accumulations of soot with wire brush and vacuum

Remove all obstructions. Replace all deteriorated parts and support properly. Seal all joints.

- D. Remove Main Burners** for cleaning, changing orifice plugs, or repairs.

1. Shut down gas boiler in accordance with Lighting/Operating Instructions on inside of Front Removable Door. Close Manual Shut-off Valve.
2. Remove Front Removable Door. Raise Lower Front Tie Bar.
3. Disconnect ignition system.

4. Remove burner access panel(s).
5. Mark location of Main Burner with Pilot Bracket on manifold.
6. Remove hitch pin clips from Main Burner Orifices.
7. Hold Main Burner on throat. Lift slightly to raise rear of burner. Push to rear of boiler until burner clears Main Burner Orifice. Lift burners out.
8. Check burners to be sure they do not contain foreign matter or restrictions. Clean burners with a soft bristle brush, blow any dirt out with compressed air or use a vacuum cleaner. See Figure 48.

- E. Clean Boiler Flueways.** See Figure 48.

1. Shut down gas boiler in accordance with Lighting/Operating Instructions on inside of Front Removable Door. Close Manual Shut-off Valve.
2. Disconnect vent system. Remove Draft Hood.
3. Remove Jacket Top Panel.
4. Remove Canopy from top of boiler.
5. Remove flue baffles. Refer to Figure 48 for instructions on how to remove baffles from flueways. Remove any accumulated scale or soot.
6. Thoroughly clean flueways with flue brush, removing all scale and soot. See Figure 48.
7. Clean boiler heating surface accessible from combustion chamber with straight handle wire brush.
8. Reinsert baffles into flueways by reversing steps given in Figure 48. Tabs at top of each baffle should rest on top of flue pins.
9. Install Canopy. See Section II: Boiler Assembly, Paragraph G.
10. Install Jacket Top Panel, Draft Hood, Vent Damper (if used) and Vent System.

Important Product Safety Information

Refractory Ceramic Fiber Product

Warning:

The Repair Parts list designates parts that contain refractory ceramic fibers (RCF). RCF has been classified as a possible human carcinogen. When exposed to temperatures above 1805°F, such as during direct flame contact, RCF changes into crystalline silica, a known carcinogen. When disturbed as a result of servicing or repair, these substances become airborne and, if inhaled, may be hazardous to your health.

AVOID Breathing Fiber Particulates and Dust

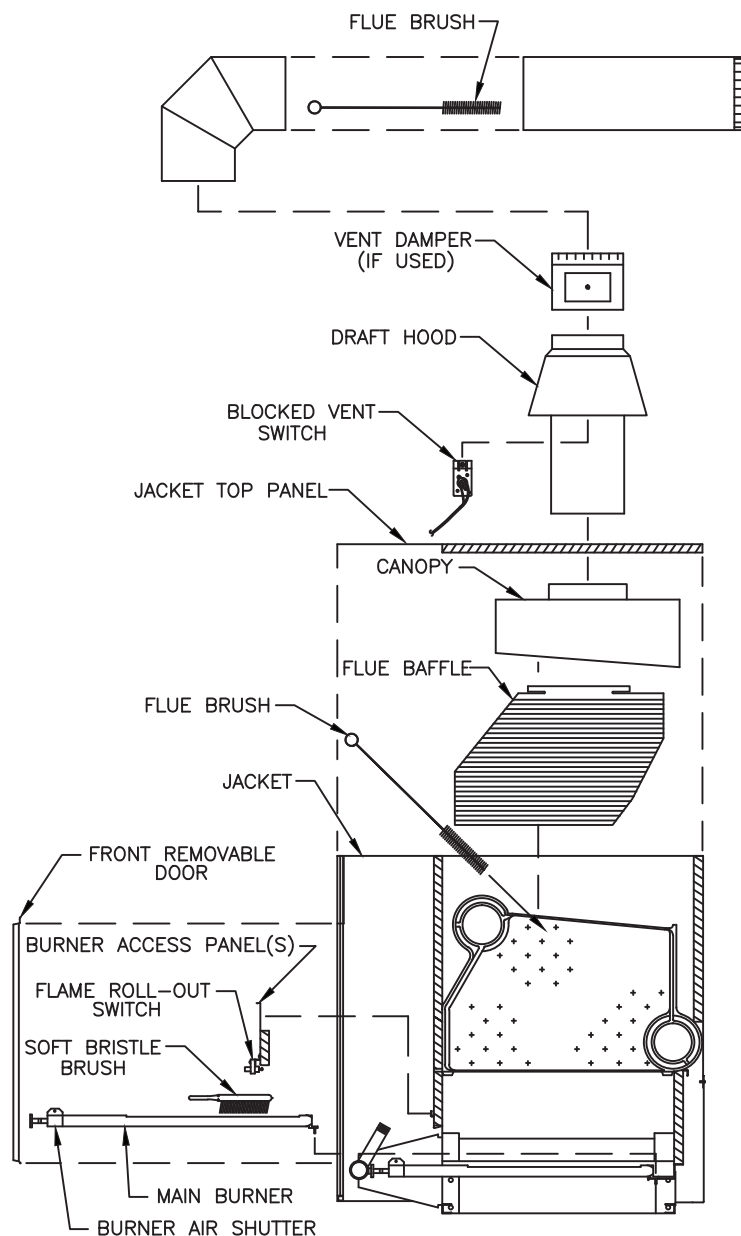
Precautionary Measures:

Do not remove or replace RCF parts or attempt any service or repair work involving RCF without wearing the following protective gear:

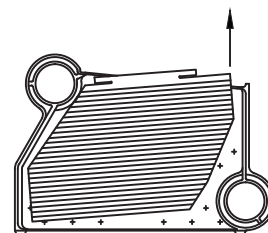
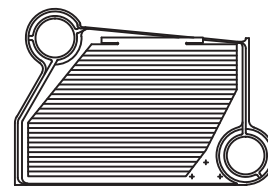
1. A National Institute for Occupational Safety and Health (NIOSH) approved respirator
 2. Long sleeved, loose fitting clothing
 3. Gloves
 4. Eye Protection
- Take steps to assure adequate ventilation.
 - Wash all exposed body areas gently with soap and water after contact.
 - Wash work clothes separately from other laundry and rinse washing machine after use to avoid contaminating other clothes.
 - Discard used RCF components by sealing in an airtight plastic bag. RCF and crystalline silica are not classified as hazardous wastes in the United States and Canada.

First Aid Procedures:

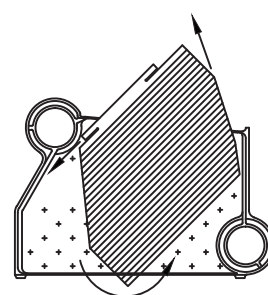
- If contact with eyes: Flush with water for at least 15 minutes. Seek immediate medical attention if irritation persists.
- If contact with skin: Wash affected area gently with soap and water. Seek immediate medical attention if irritation persists.
- If breathing difficulty develops: Leave the area and move to a location with clean fresh air. Seek immediate medical attention if breathing difficulties persist.
- Ingestion: Do not induce vomiting. Drink plenty of water. Seek immediate medical attention.



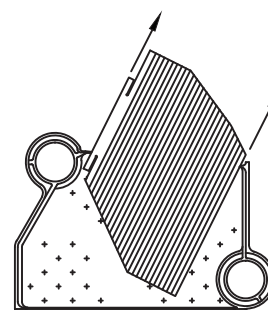
FLUE BAFFLE REMOVAL



1. PULL UP FROM REAR CORNER OF BAFFLE.



2. ROTATE BAFFLE INSIDE FLUEWAY WHILE CONTINUING TO RAISE REAR CORNER. IT MAY BE NECESSARY TO PUSH FRONT OF BAFFLE DEEPER INTO THE FLUEWAY TO COMPLETE THE ROTATION.



3. LIFT BAFFLE OUT OF FLUEWAY ONCE EDGES OF THE BAFFLE CLEAR THE EDGES OF THE FLUEWAY.

Figure 48: Boiler Flueway Cleaning

F. Clean Combustion Chamber by vacuuming. Exercise care to avoid damaging Base Insulation.

G. Install Burners by reversing procedures used to remove burners. Verify Main Burners are properly located on support bracket in Base Rear Panel, seated on Main Burner Orifices, and secured with hitch pin clips. Verify Main Burner with Pilot Bracket is in proper location. See Table 13.

H. Lubrication. Manufacturers Instruction should be followed on all parts installed on boiler requiring lubrication. This includes type of lubricant to be used, frequency of lubrication, and points to lubricate.

I. Check operation. Refer to Section VIII: System Start-up.

Table 13: Pilot Burner Location

Boiler Model	Pilot Located Between Burners*
16H-340	6 & 7
16H-410	6 & 7
16H-460	7 & 8
16H-505	8 & 9

* Burners numbered left to right as viewed from front of boiler.

Honeywell EI Ignition Module Yellow LED Flame Codes

Yellow LED Flash Code ^a	Indicates	Recommended Service Action
Heartbeat	Normal Flame Signal	N/A
2	Weak Flame Signal - System will operate reliably but flame signal is less than desired. Note: This indication may flash temporarily during or shortly after lightoff on some applications.	Perform routine maintenance to assure optimum flame signal.
1	Marginal Flame Signal (less than 1.1 μ A) - System may not operate reliably over time. Service call recommended. Note: This indication may flash temporarily during or shortly after lightoff on some applications.	Check gas supply, pilot burner, flame sense wiring, contamination of flame rod, burner ground connection.
OFF	No Flame or Flame Signal - below minimum threshold for system operation.	N/A

^aFlash Code Descriptions

- Heartbeat: Constant ½ second bright, ½ second dim cycles.
- The flash code number signifies that the LED flashes X times at 2Hz, remains off for two seconds, and then repeats sequence.

Honeywell EI Ignition Module Green LED Status Codes

Green LED Flash Code (X + Y) ^a	Indicates	Next System Action	Recommended Service Action
OFF	No "Call for Heat"	N/A	None
Flash Fast	Startup - Flame sense calibration	N/A	None
Heartbeat	Normal operation	N/A	None
2	5 minute Retry Delay- Pilot flame not detected during trial for ignition	Initiate new trial for ignition after retry delay completed.	If system fails to light on next trial for ignition check gas supply, pilot burner, spark and flame sense wiring, flame rod contamination or out of position, burner ground connection.
3	Recycle- Flame failed during run	Initiate new trial for ignition. Flash code will remain through the ignition trial until flame is proved.	If system fails to light on next trial for ignition check gas supply, pilot burner, flame sense wiring, flame rod contamination, burner ground connection.
4	Flame sensed out of sequence	If situation self corrects within 10 seconds, control returns to normal sequence. If flame out of sequence remains longer than 10 seconds, control goes to Flash code 6+4 (see below)	Check for pilot flame. Replace gas valve if pilot flame present. If no pilot flame, cycle "Call for Heat." If error repeats, replace control.
7	Flame sense leakage to ground	Control remains in wait mode. When the fault corrects, control resumes normal operation after a one minute delay.	Check flame sense lead wire for damage or shorting. Check that flame rod is in proper position. Check flame rod ceramic for cracks, damage or tracking.
8	Low secondary voltage supply- (below 15.5 Vac)	Control remains in wait mode. When the fault corrects, control resumes normal operation after one minute delay.	Check transformer and AC line for proper input voltage to the control. Check with full system load on the transformer.
6 + 2	5 minute Retry Delay- On every third retry on same "Call for Heat"	Initiate new trial for ignition after retry delay completed.	Check gas supply, pilot burner, spark and flame sense wiring, flame rod contamination or out of position, burner ground connection.
6 + 3	On every 6th flame failure during run on the same "Call for Heat"	5 minute retry delay, then initiate new trial for ignition.	Check gas supply, pilot burner, flame sense wiring, contamination of flame rod, burner ground connection.
6 + 4	Flame sensed out of sequence- longer than 10 seconds	Control waits until flame is no longer sensed and then goes to soft lockout. Flash code continues. Control auto resets from soft lockout after one hour.	Check for pilot flame. Replace gas valve if pilot flame present. If no pilot flame, cycle "Call for Heat." If error repeats, replace control.
ON	Soft lockout due to error detected during self check sequences	Control auto resets from soft lockout after one hour.	Reset by cycling "Call for Heat." If error repeats, replace the control

^aFlash Code Descriptions:

- Flash Fast: rapid blinking
- Heartbeat: Constant ½ second bright, ½ second dim cycles.
- A single flash code number signifies that the LED flashes X times at 2Hz, remains off for two seconds, and then repeats the sequence.
- X + Y flash codes signify that the LED flashes X times at 2Hz, remains off for two seconds, flashes Y times at 2 Hz, remains off for three seconds, and then repeats the sequence.

Honeywell EI Trouble Shooting Guide

