Heat Exchanger Cell Kit

Cancels: New IIK-310A-45-6
6-02

Installation Instructions
Part No. 326600-751

NOTE: Read the entire instruction manual before starting the installation.

SAFETY CONSIDERATIONS
Installing and servicing heating equipment can be hazardous due to gas and electrical components. Only trained personnel should install or service heating equipment.

Untrained personnel can perform basic maintenance functions such as cleaning coils, or cleaning and replacing filters. All other operations should be performed by trained service personnel. When working on heating equipment, observe precautions in the literature, on tags, and on labels attached to the unit. Recognize safety information. This is the safety-alert symbol ⚠. When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies a hazard which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **would** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

Follow all safety codes. Wear safety glasses and work gloves. Have a fire extinguisher available.

INTRODUCTION
This instruction covers the installation of a heat exchanger cell on non-condensing, 33.3-in. high, mid-efficiency hot surface igniter units. The heat exchanger cell should be replaced when corrosion has created visible surface damage to the heat exchanger cell, excessive soot or scale is present in the cell or if functionality of the cell has been compromised. There is one heat exchanger cell in each kit and an additional kit will be required for each heat exchanger cell replaced.

⚠ WARNING: Improper installation, adjustment, alteration, service, maintenance, or use can cause carbon monoxide poisoning, explosion, fire, electrical shock, or other conditions which could result in personal injury or death. Consult your distributor or branch for information or assistance. The qualified installer or agency must use only factory-authorized kits or accessories when servicing this product. Failure to follow instructions could result in serious injury or property damage.

DESCRIPTION AND USAGE
The heat exchanger cell replacement kit can be utilized to replace a defective heat exchanger cell. This kit contains the following items:

Table 1-Kit Contents

Kit Contents	*Qty.*
Heat Exchanger Cell Panel	1
Cell Panel Support Gasket	2
Top Insulation Strip	1
Screws	9
Installation Instructions	1
Inducer Assembly Gasket	1
Cell Inlet Gasket	1
Cell Outlet Gasket	1

In some situations, a new heat exchanger cell panel may be required and must be ordered separately.

INSTALLATION

NOTE: A releasing agent such as PAM cooking spray or equivalent (must not contain corn or canola oil, aromatic or halogenated hydrocarbons or inadequate seal may occur) and RTV sealant (G.E. 162, G.E. 6702, or Dow-Corning 738) are needed before starting installation. DO NOT substitute any other type of RTV sealant. G.E. 162 (P771-9003) is available through RCD in 3-oz tubes.

Step 1---Remove the Burner Assembly

1. Turn off electric supplies to unit and thermostat. More than 1 disconnect may be required to disconnect power to unit.

2. Turn off gas at external shut-off.

3. Remove outer door by loosening thumbscrew and pulling forward.

4. Turn off electric switch on gas valve to "OFF".

5. Disconnect wires from gas valve.

6. Disconnect main limit switch wires from main limit switch on cell panel.

7. Disconnect wires from roll-out switches located at the ends of the burner box.

8. Remove wiring harness stand-off from top edge of burner box.

9. Disconnect harness from HSI.

10. Disconnect flame sensor wire from flame sensor.

11. Disconnect gas line at external union or pipe connection.

12. Remove the green/yellow ground wire attached to the manifold mounting tab, re-install screw.

13. Support the burner assembly while removing the 4 screws that attach the burner assembly to the cell panel.
Note: The hot surface ignitor is **extremely** fragile. Failure to support the burner assembly could result in damage to the hot surface ignition.

14. Set burner assembly aside to prevent damage.

Step 2—Remove the Collector box

1. Disconnect and remove vent connector from vent elbow.

> ⚠ **CAUTION:** Vent connector may be hot to the touch or have sharp edges. Gloves should be worn when handling sheet metal parts. Failure to follow this warning could result in personal injury.

NOTE: Support vent connector with temporary metal strap to prevent damage to vent connector or vent connector elbows.

2. Disconnect draft safeguard switch leads from draft safeguard switch on vent elbow.

3. Remove vent elbow from collector box.

NOTE: It may not be necessary to remove the vent elbow from the collector box in all applications.

4. Unplug inducer motor wires from wiring harness from inducer motor.

5. Disconnect pressure switch tube from collector box.

6 Remove pressure switch(es) from furnace casing. It is not necessary to disconnect pressure switch wires.

7. Remove screws from top corners of furnace casing (upflow furnaces only).

8. Remove 3 screws securing inducer motor assembly (motor, wheel, and mount) to inducer housing and remove inducer motor assembly. Note where inducer motor ground lead is connected.

> ⚠ **CAUTION**: Failure to support the inducer assembly during removal may damage the inducer wheel.

9. Remove screws securing inducer housing/collector box to front of cell panel.

10. Use putty knife or automotive-type gasket scraper to carefully pry up on inducer housing/collector box assembly where it meets cell panel. Start at the bottom corner and work knife or scraper along inducer housing/collector box to break silicone seal. Continue to pry around collector box until collector box can be removed.

11. Clean any remaining silicone residue from cell panel with a wire brush or fine steel wool.

Step 3—Removal of Heat Exchanger Assembly

1. Remove the screws from the blower access door and set door aside.

2. Remove screw from blower door switch and set switch aside.

3. Remove cover from J-box and set aside.

4. Disconnect line voltage wiring from J-box, including ground wire from green grounding screw.

Note: Grounding screw must be fully backed out to allow J-Box removal.

5. Remove the 2 screws from the J-box and set J-box aside.

6. Disconnect any remaining accessory wires or clamps on wiring harness and set harness inside blower compartment.

7. Disconnect thermostat wires from furnace control board and pull wires through rubber grommet on cell panel.

8. Remove screws that secure the heat exchanger cell panel to the furnace casing.

Note: Heat exchanger cell panel also functions as the front part of the blower shelf. Be sure to remove the screws in the along the bottom fold of the cell panel, located just below the heat exchanger inlets and in the front corners of the heat exchanger cell panel located above the blower compartment.

⚠ **CAUTION:** Gloves should be worn when handling sheet metal parts. Failure to follow this warning could result in personal injury.

9. Grasp heat exchanger at the collector box and at the blower shelf and slide heat exchanger assembly forward. It may be necessary to raise the top of the furnace casing slightly to allow heat exchanger assembly to clear the furnace casing.

10. Set heat exchanger assembly aside.

Step 4—Removal of Heat Exchanger Cells

1. Using a hacksaw blade or utility knife, cut the heat exchanger inlet and outlet gasket on each side of the heat exchanger cell being replaced.

2. Remove the screws that secure the heat exchanger rear baffle to each heat exchanger cell and set baffle aside. Do not bend or damage the fingers on the baffle.

3. Remove NOx baffle if installed. Remove screws of selected heat exchanger cell at cell panel inlet and outlet openings.

NOTE: Number each NOx baffle removed for reassembly in the correct heat exchanger cell.

4. Grasp heat exchanger to be removed at rear and lift cell up and away from heat exchanger cell panel.

5. Repeat for each heat exchanger cell.

6. Clean off any remaining insulation from heat exchanger cell panel inlets, outlets and from top panel on casing and cell panel supports on casing prior to reassembly.

Step 5—Installation of Heat Exchanger Cell

NOTE: Cell panel gaskets supplied in kit must be cut to fit between remaining cell panel inlet and outlet gaskets.

1. Measure and cut cell inlet and outlet insulation supplied in kit.

Note: Cell inlet and outlet insulation supplied in kit has an adhesive strip down the center of the insulation. Remove the paper backing prior to installing the insulation to the cell panel.

2. Secure gaskets to cell panels with small pieces of foil tape if necessary.

3. Position heat exchanger under cell panel opening.

4. Align screw holes in cell panel with heat exchanger and start all 8 screws.

5. Check gasket position(s) and secure all 8 screws.

6. Repeat steps 1 through 4 for additional cells being replaced.

7. Inspect and re-install NOx baffles. Replace any severely deformed NOx baffles. Replacement baffles are not included and must be ordered separately.

8. After all heat exchanger cells are replaced, re-install heat exchanger rear baffle on heat exchanger assembly. Be sure baffle is installed right side up (See Fig. 1).

9. Install gaskets on casing cell panel supports and on top edge of cell panel. Excess material may be trimmed off and discarded.

Step 6—Installation of Heat Exchanger Assembly

1. Grasp heat exchanger assembly at top of cell panel and at the blower shelf and slide heat exchanger assembly into the furnace. It may be necessary to raise the top of the furnace casing slightly to allow heat exchanger assembly to clear the furnace casing.

2. With the cell panel flush against the cell panel supports, reinstall the screws that secure the heat exchanger cell panel to the furnace casing.

Note: Heat exchanger cell panel also functions as the front part of the blower shelf. Be sure to install the screws in the front corners of the heat exchanger cell panel located above the blower compartment.

3. Route wiring harness through blower shelf and secure in place with blower door switch.

4. Route line voltage wires through J-box bracket and secure J-box bracket to furnace casing.

5. Connect limit switch wiring to limit switch on cell panel.

6. Connect line voltage to wiring to J-box including ground wire at green grounding screw.

NOTE: Failure to properly ground burner assembly will result in loss of flame sensing signal.

⚠ WARNING: The furnace must be grounded to minimize personal injury if an electrical short should occur. Failure to follow this warning could result in personal injury of death.

7. Re-install J-box cover.

8. Install grommet from existing heat exchanger cell panel.

9. Route thermostat wires through grommet and attach to furnace control board.

Step 7—Installation of Collector Box

NOTE: A releasing agent such as PAM cooking spray or equivalent (Must not contain corn or canola oil, aromatic or halogenated hydrocarbons or inadequate seal may occur) and RTV sealant (G.E. 162, G.E. 6702, or Dow-Corning 738) is needed before starting installation. DO NOT substitute any other type of RTV sealant. G.E. 162 (P771-9003) is available through RCD in 3-oz tubes.

1. Spray a cloth rag with releasing agent.

2. Wipe surface of heat exchanger cell panel with rag sprayed with releasing agent.

3. Apply 3/16-in. to 1/4-in. bead of high temperature silicone around the back outside edge of collector box.

Note: Do not allow RTV to flow into pressure switch port. Pressure switch will not operated with port obstructed.

4. Realign collector box assembly against cell panel and install all screws.

5. Verify old inducer motor gasket is removed from inducer assembly and collector box.

6. Place new inducer motor gasket provided in kit around flange on collector box.
NOTE: A new inducer assembly gasket is provided in the collector box kit.

7. Align inducer assembly and attach to collector box. Verify inducer motor ground wire is reinstalled in original location.

8. Spin black plastic cooling fan on inducer motor to be certain there is no interference inside of inducer housing. If interference occurs, wheel must be readjusted.

9. Re-install screws in top corners of furnace casing.

10. Reinstall pressure switch.

Note: Verify pressure switch port is not obstructed by inserting a small wire or drill bit into the port. If wire has RTV on it when it is removed, it may be necessary to remove collector box, clean pressure switch port area and re-attach collector box as explained above

11. Connect pressure switch tubing to collector box fitting.

12. Re-install vent elbow to collector box (if removed).

13. Re-attach vent connector to vent elbow.

14. Re-connect inducer motor leads to inducer motor and draft safeguard leads to draft safeguard switch.

Step 8--Installation of Burner Assembly

Note: The hot surface ignitor is **extremely** fragile. Failure to support the burner assembly could result in damage to the hot surface ignition.

1.Align burner box with mounting holes in cell panel and re-install the 4 mounting screws.

2. Remove the screw from the manifold mounting tab and re-attach the green/yellow ground wire attached to the manifold.

Note: Failure to properly ground burner assembly will result in loss of flame sensing signal.

3. Connect flame sensor wire from flame sensor.

4. Connect harness to HSI.

5. Connect leads to main limit on cell panel.

6. Connect leads to rollout switches on burner box.

7. Attach wiring harness standoff(s) to top edge of burner box.

⚠ **CAUTION:** Failure to attach wiring harness standoff(s) may result in damage to the wiring.

8. Connect leads to gas valve. Refer to wiring diagram for correct orientation.

9. Connect gas supply to external union or pipe connection.

10. Turn on external gas supply and test for leaks.

11. Connect gas line at external union or pipe connection.

12. Turn on gas at gas supply shut-off and gas control electric switch.

13. Purge gas lines-After all connections have been made, purge the lines and check for leaks.

14. Leak test gas connections with soap and water solution or electronic leak detection equipment suitable for use with natural and propane gases.

> ⚠ **WARNING:** Never purge a line into a combustion chamber. Never use matches, candles, flame, or other sources of ignition for the purpose of checking leakage. Use a soap-and-water solution to check for leakage. Failure to follow this warning can cause fire, explosion, personal injury, or death**.**

15. Turn on line voltage electrical supply.

NOTE: Blower will run for 90 sec if thermostat is turned up above room temperature when 120-v power is restored. A fault code 12 will flash after 90 sec. To clear the fault code, turn off power, turn thermostat off or down below room setting. Turn power back on. Set thermostat to desired temperature.

Step 9—System Check-Out

1. Set thermostat to "OFF".

2. Manually close blower door switch.

3. Initiate component test through circuit board by Referring to **"Component Test"** on status code label on blower access door for complete test sequence information.

4. If any faults are flashed, refer to fault code label on unit blower door.

5. Turn thermostat fan switch to "ON", "Continuous" or jumper R to G terminals at furnace control board.

6. Check for air leakage around cell panel. It may be necessary to remove heat exchanger assembly and realign foam tape or top gasket between cell panel and furnace casing. Re-install and re-check for blower air leaks.

7. Remove jumper(s) or set thermostat fan to "Auto" or "OFF".

8. Release blower door switch.

9. Install blower access panel.

10. Set thermostat to call for heat.

11. Allow unit to initiate a complete call for heat cycle.

12. Check for air leakage around collector box. A whistling noise may indicate air leak in collector box-seal.

NOTE: If there is a severe air leak in the collector box seal, pressure switch may not close or will re-open, resulting in no ignition or erratic burner operation.

NOTE: Heat Exchanger failure may have been caused by one or more of the following conditions. As part of the system check-out, verify that the following conditions are not affecting the operation of the furnace:

- **Short Cycling-Defective thermostat-** Incorrect thermostat anticipator setting, dirty filter or over-sized furnace.
- **Under firing/low BTU input**-Set manifold pressure and verify firing rate as shown on rating plate by clocking the gas meter.
- **Low temperature rise-**Set unit for correct temperature rise range as shown on unit rating plate.
- **Contaminated combustion air-** Remove contaminates or provide ample fresh air for combustion.
- **Excessive amounts of outside ventilation air-**Return air temperature cannot be below 60 degrees F for extended periods of time.
- **Incorrect venting-**Verify proper venting per local code. Type B vent connector is required for 2 stage units and may be required for other applications.

For additional information, and a complete sequence of furnace operation, refer to furnace Installation, Start-Up and Operating Instructions.

13. After System Check-out is complete, set thermostat below room temperature.

14. Verify that burner shuts down and blower completes selected off delay furnace time.

15. Verify furnace operates properly and set thermostat to desired room temperature.

16. Re-install outer door.

Fig. 1-Heat Exchanger Cell Panel Installation