Replacement Burner Service Kit
Ultra Low NOx Gas Furnace

Installation Instructions

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

SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may cause death, personal injury, or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses, protective clothing, and work gloves. Have a fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions include in literature and attached to the unit. Consult local building codes, the current editions of the National Fuel Gas Code (NFGC) NFPA 54/ANSI Z223.1 and the National Electrical Code (NEC) NFPA 70.

In Canada, refer to the current editions of the National Standards of Canada CAN/CSA-B149.1 and .2 Natural Gas and Propane Installation Codes, and Canadian Electrical Code CSA C22.1

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 hazards which could result in personal injury or death. CAUTION is used to identify unsafe practices which may 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.

⚠ WARNING

FIRE, EXPLOSION, ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury, death and/or property damage.

The ability to properly perform maintenance on this equipment requires certain knowledge, mechanical skills, tools, and equipment. If you do not possess these, do not attempt to perform any maintenance on this equipment other than those procedures recommended in the Owner's Manual.

⚠ WARNING

FIRE, EXPLOSION, ELECTRICAL SHOCK AND CARBON MONOXIDE POISONING HAZARD

Failure to follow instructions could result in personal injury, death or property damage.

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.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position and install a lockout tag. There may be more than one electrical supply to the furnace. Check accessories and cooling unit for additional electrical supplies that must be shut off during furnace servicing. Lockout and tag switch with a suitable warning label.

Verify proper operation after servicing.

⚠ CAUTION

CUT HAZARD

Failure to follow this caution may result in personal injury.

Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing, safety glasses and gloves when handling parts, and servicing furnaces.

INTRODUCTION

This instruction covers the burner replacement on Ultra Low NOx non-condensing and condensing furnaces. The burner should be replaced when the burner is corroded, blocked or warped.

DESCRIPTION AND USAGE

This kit contains the following items:

Table 1 – Kit Contents

Kit Contents	Qty.
Burner Assembly	1
Igniter Gasket	1
Burner Mounting Screws	12
Igniter, Flame Sensor, BTS Mounting Screws	5
Installation Instructions	1

INSTALLATION

Unit Shut Down

⚠ WARNING

ELECTRICAL SHOCK AND FIRE HAZARD

Failure to follow this warning could result in personal injury, death, and/or property damage.

Turn off the gas and electrical supplies to the furnace and install lockout tag before performing any maintenance or service.

Follow the operating instructions on the label attached to the furnace.

1. Set room thermostat to lowest setting or OFF.
2. Disconnect power at external disconnect, fuse or circuit breaker.
3. Turn off gas at external shut-off or gas meter.
4. Remove outer doors and set aside.
5. Turn electrical switch on gas valve to OFF.

Burner Removal

⚠ CAUTION

UNIT OPERATION HAZARD

Failure to follow this caution may result in unit damage or improper operation.

Label all wires prior to disconnection when servicing controls.

NOTE: Use a back-up wrench on the gas valve to prevent the valve from rotating and damaging the gas valve mounting bracket and/or gas manifold tube.

1. Disconnect the gas supply pipe from gas valve and remove pipe from the furnace casing. See Fig. 1 and Fig. 2.
2. Disconnect wires from terminals on gas valve.
3. Disconnect the wires from flame sensor and hot surface igniter.
4. Disconnect the two-pin connector that connects the Burner Thermal Switch wiring to the main wiring harness.
5. Remove the gas valve mounting bracket screws and save for re-installation on the new burner assembly.
6. Slide gas valve and manifold pipe assembly out of burner inlet elbow and set aside.
7. Remove the screws securing the burner assembly to furnace cell panel and remove burner from furnace. Use care when removing to avoid damaging igniter.
8. Without removing from heat exchanger, visually inspect the burner gasket insulation. If damaged, do not attempt to re-pair. Replace with new insulation kit.

Transfer Components

1. Remove the flame sensor from the burner assembly.
2. Remove the Hot Surface Igniter (HSI) from the burner assembly and carefully discard igniter gasket.
3. Clean the flame sensor with fine steel wool (0000 grade). Do not use sand paper or emery cloth.
4. Remove the Burner Thermal Switch from the existing burner assembly.
5. Carefully install the new igniter gasket provided in kit onto the Hot Surface Igniter (HSI) and install the Hot Surface Igniter in new burner box assembly using the short screws provided in the burner kit.

NOTE: Using long screws will cause damage to the burner mesh assembly, resulting in possible light off and operational issues.

6. Install flame sensor onto new burner assembly using the short screws provided in the burner kit.
7. Install the Burner Thermal Switch onto the burner box assembly using the short screw provided in the burner kit.
8. Install wiring harness onto the Burner Thermal Switch (if removed during disassembly).

NOTE: Using long screws will cause damage to the burner mesh assembly, resulting in possible light off and operational issues.

New Burner Assembly Installation

1. Secure the burner assembly to the furnace cell panel using the 3/4" screws provided in the burner kit. Torque burner attachment screws to 45 in. lbs.
2. Slide gas valve and manifold pipe assembly into burner inlet elbow.
3. Install gas valve mounting bracket screws removed previously, assuring that green/yellow ground screw is secured under one of the screws.
4. Reconnect the two-pin connector that connects the Burner Thermal Switch wiring to the main wiring harness.
5. Attach the wires to the gas valve terminals.
6. Connect the wire for the flame sensor and Hot Surface Igniter.
7. Insert the gas pipe through the grommet in the casing. Apply a thin layer of pipe dope to the threads of the pipe and thread the pipe into the gas valve.

NOTE: Use a back-up wrench on the gas valve to prevent the valve from rotating and damaging the gas valve mounting bracket and/or gas manifold tube.

8. With a back-up wrench on the inlet boss of the gas valve, finish tightening the gas pipe to the gas valve.
9. Turn gas on at electric switch on gas valve.
10. Turn power on at external disconnect, fuse or circuit breaker.

Unit Checkout

⚠ WARNING

FIRE OR EXPLOSION HAZARD

Failure to follow this warning could result in personal injury, death, and/or property damage.

Never purge a gas line into a combustion chamber.

Never test for gas leaks with an open flame.

Use a commercially available soap solution made specifically for the detection of leaks to check all connections. A fire or explosion may result causing property damage, personal injury or loss of life.

1. Set thermostat to OFF.
2. Turn on power at external disconnect, fuse or circuit breaker.
3. Turn on gas at external shut-off or gas meter.
4. Check for gas leaks with a commercially available soap solution made specifically for the detection of leaks.
5. Manually close blower door switch.
6. Initiate component test through circuit board by referring to “Component Test” status code label on blower access door for complete test sequence information.
7. If any status codes are flashed, refer to status code label on unit blower door.
8. Turn thermostat fan switch to ON or “Continuous” or jumper R to G terminals at furnace control board.
9. Check for air leakage around burner assembly.
10. Remove jumper(s) or set thermostat fan to “Auto” or OFF.
11. Release blower door switch.
12. Install blower access door.

13. Set thermostat to call for heat.
14. Allow unit to initiate a complete call for heat cycle.

NOTE: 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.
- **Over firing/high 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° F for extended periods of time.
- **Incorrect venting:** Verify proper venting per installation instructions. For additional information, and a complete sequence of furnace operation, refer to furnace Installation, Start-Up and Operating Instructions.

Installation, Start-Up, and Operating Instructions

1. After System Check-out is complete, set thermostat below room temperature.
2. Verify that burner shuts down and blower completes selected off delay time.
3. Verify furnace operates properly and set thermostat to desired room temperature.
4. Re-install outer door.

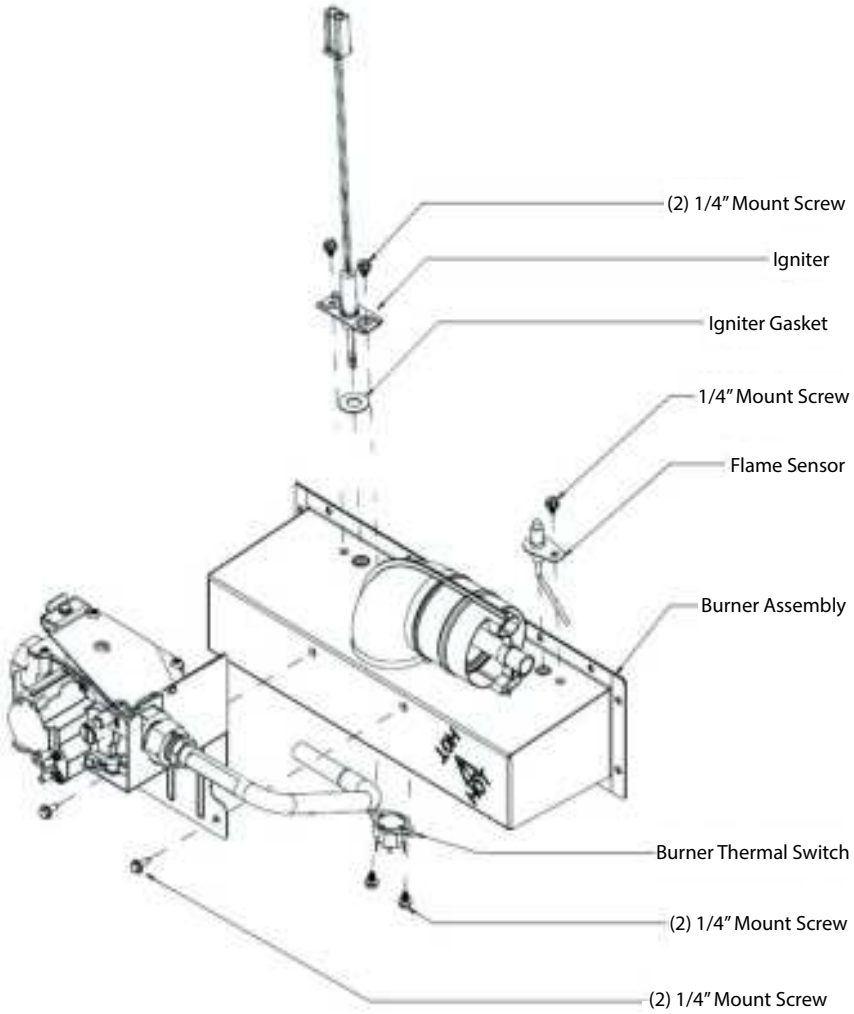

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Fig. 1 – Non-Condensing Ultra Low NOx Furnace Burner Assembly

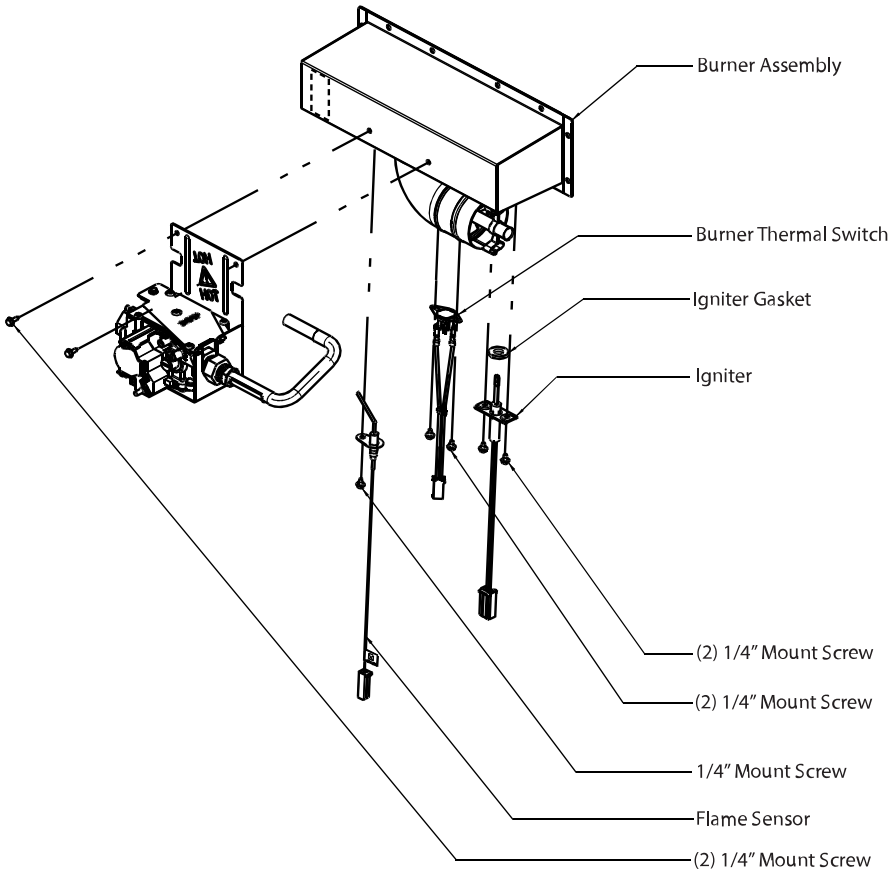

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Fig. 2 – Non-Condensing Ultra Low NOx Furnace Burner Assembly