

INSTALLATION INSTRUCTIONS

L.P. to NATURAL GAS CONVERSION KIT

For 300,000-400,000 BTU/HR
Standing Pilot Unit Heaters & Duct Furnaces

Input BTU/H	Conversion Kit No.	Orifice Size Nat.	Orifice Quantity	Original Valve	Replacement Valve
300,000	261R06050	#42	12	VR8300A3161	WR36C03-445
350,000	261R06050	#42	14	VR8300A3161	WR36C03-445
400,000	261R06050	#42	16	WR36C13-306	WR36C03-445

Kit Contents

Main Burner Orifices (16)*
503-00042-016

Pilot Burner Orifice
BCR 18
J36-00785-002

White Rogers Gas Valve
WR# 36C03-445
J28-00381-002

Conversion Plate
J17-06341

"Notice of Conversion" Label
J17-06342

▲ WARNING This conversion kit shall be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction. If the information in these instructions is not followed exactly, a fire, explosion or production of carbon monoxide may result causing property damage, personal injury or loss of life. The qualified service agency performing this work assumes responsibility for the proper conversion of this appliance with this kit.

AVERTISSEMENT Cette trousse de conversion ne doit être installée que par le représentant d'un organisme qualifié et conformément aux instructions du fabricant et à tous les codes et exigences pertinentes de l'autorité compétente. Quiconque ne respecte pas à la lettre les instructions du présent guide risque de provoquer un incendie, une explosion ou des fuites de monoxyde de carbone entraînant des dommages matériels, des lésions corporelles ou la perte de vies humaines. L'organisme qualifié qui effectue les travaux est responsable de la conversion correcte de cet appareil à l'aide de cette trousse.

Natural Gas High Altitude Orifice Chart for The United States

Elevation (ft.)	0-1,999	2,000-2,999	3,000-3,999	4,000-4,999	5,000-5,999	6,000-6,999	7,000-7,999	8,000-8,999	9,000-9,999	10,000-10,999
Orifice Size	42	42	43	43	43	44	44	45	46	47

Natural Gas High Altitude Orifice Chart for Canada

Elevation (ft.)	0-1,999	2,000-4,500	4,501-5,500	5,501-6,500	6,501-7,500	7,501-8,500	8,501-9,500	9,501-10,500	10,501-11,500
Orifice Size	42	43	43	44	44	45	46	47	48

(1 Foot = 0.305 m)

*This conversion kit includes (16) main burner orifices. See the quantity of orifices required per input/heater size shown in the table above. Use only the quantity required.

**READ ALL INSTRUCTIONS COMPLETELY
BEFORE BEGINNING ANY WORK!**

1. All work must be performed by a fully qualified, experienced, and trained service technician. It is the responsibility of the installer to follow all instructions. Failure to follow these instructions could result in serious injury or property damage.
2. The qualified agency performing the work assumes responsibility for the conversion.
3. ****CAUTION**** The gas supply shall be shut off prior to disconnecting the electrical power, before proceeding with the conversion.
****MISE EN GARDE**** Avant d'effectuer la conversion, couper d'abord l'alimentation en gaz, ensuite, couper l'alimentation électrique.
4. Wear safety glasses.
5. Wear gloves when handling the burners.
6. Be sure of ladder placement. Do not allow people to stand below or around the area where the work is being performed.
7. Do not lean ladders or equipment against the heater at any time during the conversion.

REPLACING THE ORIFICES (SEE FIGURE 1)

1. **Natural Vent and Power Vent Unit Heaters and Bottom Access Duct Furnaces-** Remove the screws holding the bottom burner access panel and remove the panel.
Side Service Duct Furnaces- Remove lower side access panel. Tag the wires on gas valve (if not already marked) and remove them from the valve. Disconnect gas supply piping from gas valve and remove piping as necessary so that burner drawer can be removed. Remove screws securing burner drawer to heat exchanger and pull burner drawer out of furnace.
2. Remove all burners one at a time by grasping the front of burner and lifting slightly. Pull the burner back, compressing the spring, and bring the front of the burner down to clear the burner bracket.
****CAUTION**** Be sure to hold onto the air shutters and springs to keep them from coming off unexpectedly and causing an injury or getting lost. Slide the burner forward to clear the main burner orifice.
3. Remove all air shutters and springs. Keep them in a box or bag until they are needed.

4. Use the proper size wrench or socket to remove the burner orifices. Remove all the L.P. gas orifices and keep them separated from the natural orifices at all times.
5. Install natural gas orifices in manifold, ensuring that the number stamped on the orifice matches the size listed on page one for the appliance being converted. The orifices must be installed finger tight first to avoid cross threading and the possibility of leaking. Tighten securely with wrench or socket. Do not over tighten.
6. **DO NOT INSTALL** the burners at this time. Proceed to "Replacement of Pilot Orifice".

REPLACEMENT OF PILOT ORIFICE

1. Disconnect the pilot tubing from the gas valve.
2. **Natural Vent and Power Vent Unit Heaters and Bottom Access Duct Furnaces-** Remove pilot access cover on the side jacket panel. Remove the two screws holding the pilot bracket to the side panel of the burner box. Slide the pilot bracket forward slightly to disengage the rear of the bracket from the side panel, then rotate the bottom of the bracket out and up so that the pilot assembly is upside down.
Side Service Duct Furnaces- Remove the two screws holding the pilot bracket to the burner box. Slide the pilot bracket forward slightly to disengage the bracket from the side panel and remove the pilot and bracket assembly.
3. Remove the pilot gas tubing from the pilot assembly.
4. Using a small screwdriver blade ($\frac{5}{32}$ ") or similar tool that will wedge into the orifice, insert the tool into the tubing fitting of the pilot assembly and remove the orifice.
5. Insert the natural gas orifice into the pilot assembly, making certain that it does not fall out before the pilot tubing is installed.
6. Install the pilot tubing finger tight first to avoid cross threading, then tighten with a wrench.
7. Reinstall the pilot assembly. Do not connect the pilot gas tubing to the gas valve at this time.
8. Install the first main burner adjacent to the pilot assembly (see "INSTALLING THE BURNERS"). Check the dimensional relationship between the pilot and the main burner (see Figure 2).
**** CAUTION **** These dimensions must be maintained for safe operation of the appliance.

INSTALLING THE BURNERS

1. Install the spring on the manifold spud.
2. Install one half of the air shutter on the burner.
3. Place the second half of the air shutter on the manifold spud and compress the spring with this half.
4. Slide the burner on the spud and keep the spring compressed with the burner.
5. Position the burner in the corresponding slot directly across from the spud the burner is on. Lift the front of the burner up and twist slightly if the burner does not slide in. Use caution not to distort the burner.
6. Completely open air shutter, then close two notches for an initial setting. Each shutter must be adjusted after the unit is started to avoid yellow tipping (see "OPERATION").
7. Replace burner access panel.

REPLACEMENT OF THE GAS VALVE

1. Tag the wires on the gas valve (if not already marked) and remove them from the valve.
2. Remove the valve from the heater.
3. Install the new natural gas valve using a suitable pipe joint compound on the threads. A pipe joint compound suitable for use with LP gas should be used in case the heater is ever converted back to LP gas. Install the pilot tubing finger tight first to avoid cross threading, then tighten with a wrench. Install the wires on their respective terminals on the new valve. See Figure 3.

OPERATION

1. A water filled U-tube manometer must be used to measure gas pressures. The gauge type is not reliable and may give false readings.
2. Gas inlet pressure must be between 5.0 and 14.0 inches water column (1.2-3.5 kPa). Turn off the gas supply to the heater, connect the manometer to the pressure tap on the inlet side of the gas valve, turn on the gas and observe the pressure with the heater not firing and then firing. If the pressure is not within the specified range under both conditions, contact the gas supplier.

3. The manifold pressure must be adjusted to 3.5 inches water column (0.9 kPa). This manifold pressure applied to #42 main burner orifices assures that the input rating is correct for altitudes up to 2,000 feet (610 m). For altitudes above 2,000 feet (610 m), see (4) below. This is very critical as overfiring or underfiring can cause problems. Move the manual control on the gas valve to the "Off" position, connect the manometer to the pressure tap on the outlet side of the gas valve, turn the control on, fire the unit and adjust the pressure if necessary. To adjust the pressure, remove the cap from the pressure regulator on the gas valve, turn the regulator screw clockwise to increase pressure or counter clockwise to decrease pressure, then replace the cap.
4. For altitudes above 2,000 feet (610 m), heater must be derated 4% for each 1,000 feet (305 m) above sea level. See Orifice Chart for correct orifice size for high altitude operation. High altitude orifices are not included in kit and must be ordered separately.
5. After manometers have been removed and pressure tap plugs have been reinstalled, fire the heater and check all joints for leaks using a soap solution. **Never use an open flame to check for gas leaks.**
6. The pilot flame should be $\frac{3}{4}$ to $1\frac{1}{2}$ inch (19 to 38 mm) in length (see Figure 4). To adjust the pilot flame, remove the pilot adjustment cover screw adjacent to the pilot tubing nut on the gas valve. Turn the inner screw clockwise to decrease pilot flame or counterclockwise to increase pilot flame. Replace the cover screw.
7. Allow the heater to operate for at least 5 minutes, then observe main burner flames. A hard blue flame with no lifting and no yellow tipping is normal. See Figure 5. If air shutter adjustment is necessary, close air shutter gradually until yellow tipping appears, then open just enough to eliminate the yellow tipping. **Wear gloves when handling the air shutters.**
8. After the heater is operating properly, cycle the system using the thermostat to check out the normal operating sequence of the appliance. The normal sequence is as follows: Thermostat calls for heat, opening main gas section of gas valve. Pilot ignites gas on first main burner. Flame travels along first burner to carryover slots, then travels back along each remaining main burner. When thermostat is satisfied, main gas section of gas valve is de-energized, extinguishing main burner flames.
9. Apply conversion plate and label to heater jacket panel. The conversion plate must be installed as closely as possible to the existing heater rating plate.

Figure 1

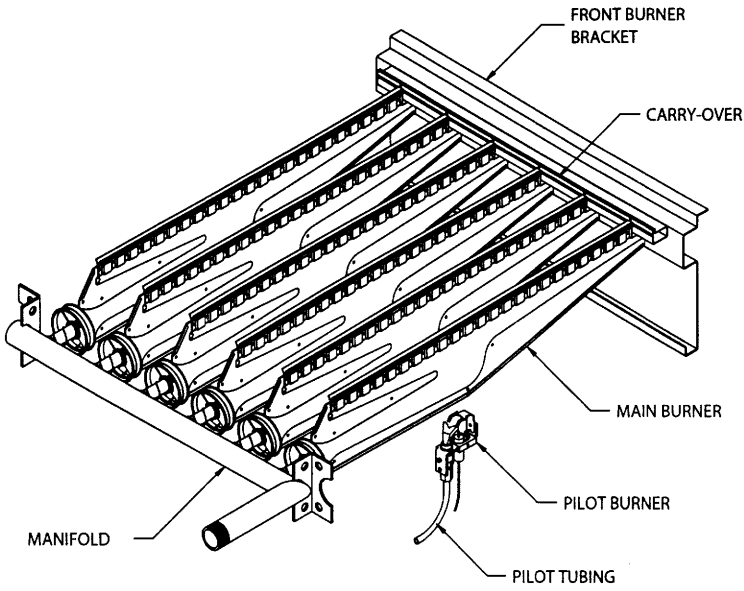


Figure 2

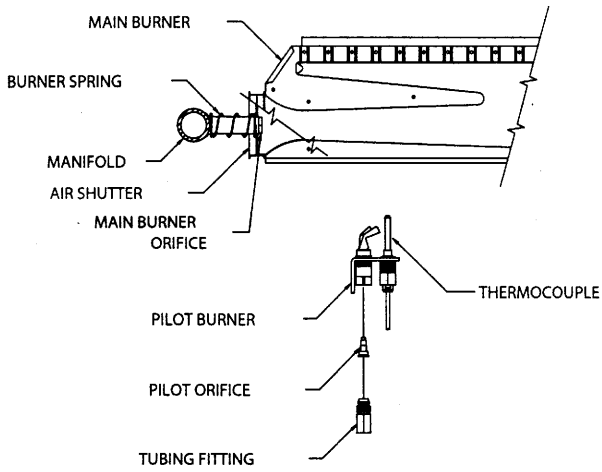
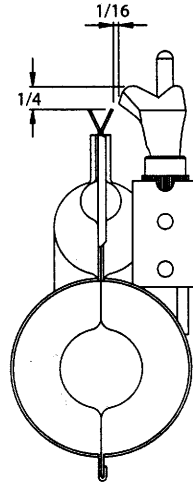


Figure 3

36C03
GAS VALVE
WIRING

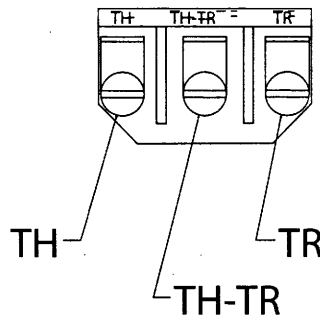


Figure 4

3/4 to 1-1/2 inch

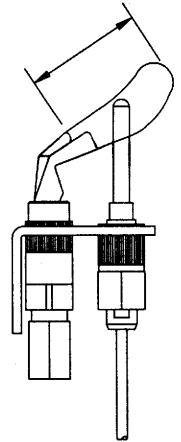


Figure 5

