



## Gas Conversion Kit Instructions

Applies to: Model **UDAP**, **UDAS**, **UDBP**,  
and **UDBS** Unit Heaters

### General and Warnings

All gas conversion must be done by a qualified service person in accordance with these instructions and in compliance with all codes and requirements. In Canada, gas conversion shall be carried out in accordance with the requirements of the Provincial Authorities having jurisdiction and in accordance with the requirements of the CAN/CGA-B149.1 and .2 installation code.

### Hazard Intensity of Warnings in this Manual

#### HAZARD INTENSITY LEVELS

1. **DANGER:** Failure to comply will result in severe personal injury or death and/or property damage.
2. **WARNING:** Failure to comply could result in severe personal injury or death and/or property damage.
3. **CAUTION:** Failure to comply could result in minor personal injury and/or property damage.

#### WARNING

Improper installation, adjustment, alteration, service, or maintenance can cause property damage, injury, or death. Read the installation, operation and maintenance instructions thoroughly before installing or servicing this equipment.

#### FOR YOUR SAFETY

- **WHAT TO DO IF YOU SMELL GAS**
  - Do not try to light any appliance.
  - Do not touch any electrical switch; do not use any phone in your building.
  - Leave the building immediately.
  - Immediately call your gas supplier from a phone remote from the building. Follow the gas supplier's instructions.
  - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency, or the gas supplier.

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

#### WARNING

The conversion kit is to be selected and installed by a qualified service person in accordance with these instructions and in compliance with all codes and requirements of authorities having jurisdiction. Failure to follow instructions could result in death, serious injury and/or property damage. The qualified agency performing this work assumes responsibility for this conversion.

## General and Warnings (cont'd)

### **DANGER**

The gas burner in this gas-fired equipment is designed to provide safe complete combustion. However, if the installation does not permit the burner to receive the proper supply of combustion air, complete combustion may not occur. The result is incomplete combustion which produces carbon monoxide, a poisonous gas that can cause death.

Safe operation of indirect-fired gas burning equipment requires a properly operating vent system which vents all flue products to the outside atmosphere. **FAILURE TO PROVIDE PROPER VENTING WILL RESULT IN A HEALTH HAZARD WHICH COULD CAUSE SERIOUS PERSONAL INJURY OR DEATH.**

On separated combustion Model UDAS and UDBS heaters, install either the horizontal or vertical combustion air/vent system illustrated in the heater venting manual, using the concentric adapter supplied. For all heater installations, always comply with the combustion air requirements in the installation codes and instructions. Model UDAP and UDBP units installed in a confined space must be supplied with air for combustion as required by Code and in the heater installation manual. Combustion air at the burner should be regulated only by manufacturer-provided equipment. **NEVER RESTRICT OR OTHERWISE ALTER THE SUPPLY OF COMBUSTION AIR TO ANY HEATER. MAINTAIN THE VENT OR VENT/COMBUSTION AIR SYSTEM IN STRUCTURALLY SOUND AND PROPER OPERATING CONDITION.**

### **Application and Kit Selection**

The gas conversion kits in these instructions are for Model UDAP, UDAS, UDBP, and UDBS heaters equipped with either a single-stage or two-stage gas valve. Each kit includes two or three spring kits and burner orifices for multiple sizes. See pages 7 through 10 for a list of conversion kit components. Some parts will not be used; select the parts to be used carefully.

#### **Kit P/N's, Application, and Components**

- Natural **TO** Propane Kits.....pages 7-8
- Propane **TO** Natural Kits.....page 9-10

### **Gas Conversion Instructions**

1. Check kit contents for agreement with the parts list and the size of heater being serviced. (See the parts lists and application for each kit on pages 7-10.)

Conversion of a unit using these kits will not alter the input rate. Refer to the rating plate on the heater for input rate and other appropriate information.

**(NOTE:** If adjusted for high altitude operation, input rate will be affected. For high altitude input ratings and capacities, refer to **TABLE 3A** on page 11 for UDAS and UDAP or **TABLE 3B** on page 12 for Models UDBP and UDBS.)

2. **Turn off the gas supply at a shutoff valve outside of the heater and turn off the electrical supply.** Open the control access panel.
3. **Select and Install the Regulator Spring Kit (valve conversion kit)**

All kits include two or three regulator spring kits. Check the package carefully and choose the regulator spring kit that corresponds with the valve on the heater.

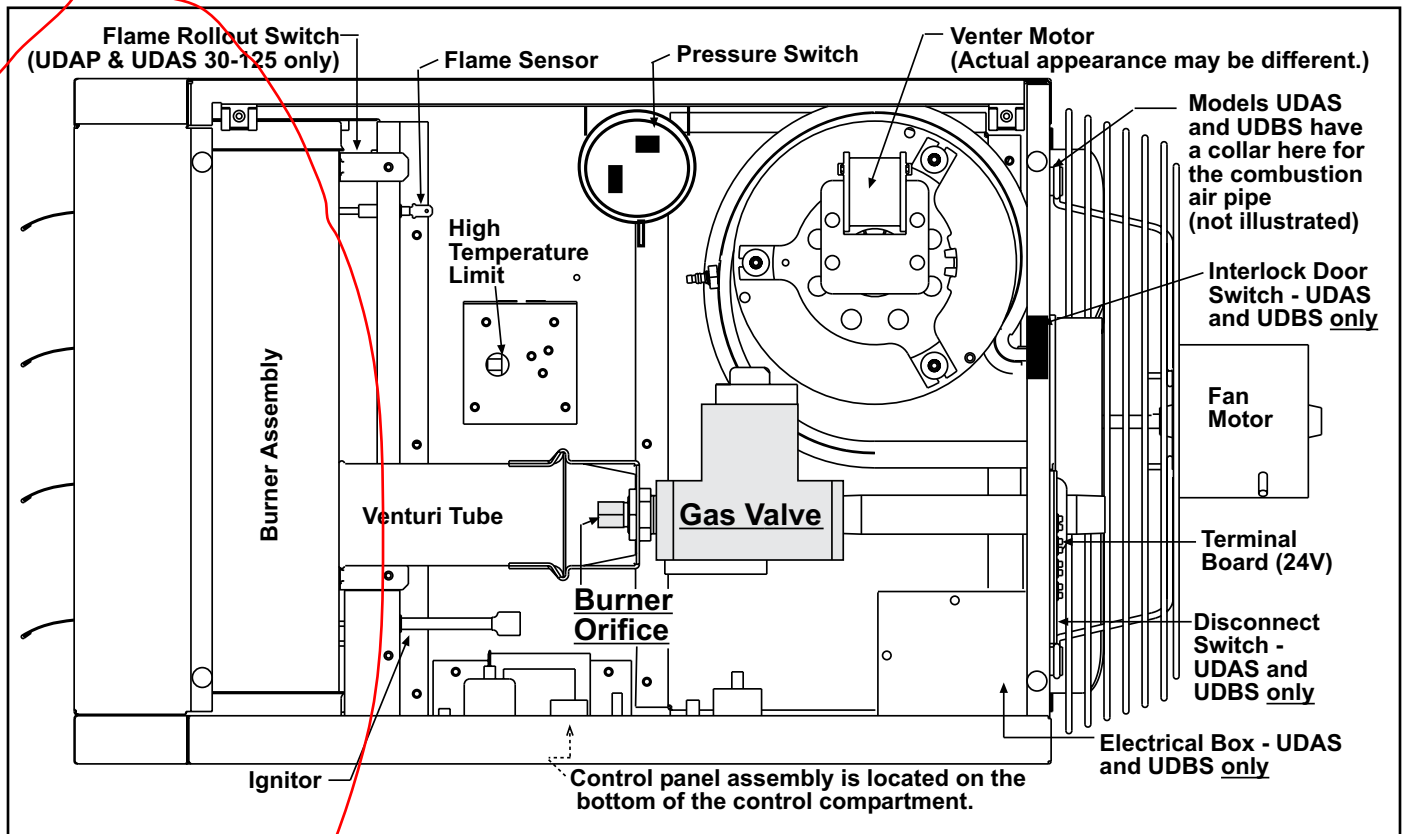
**NOTE:** The other regulator spring kit(s) will not be used.

### **WARNING**

**Regulator spring kits are not interchangeable. Each spring kit must be used only in the model and type of valve for which the kit is designated. Verify compatibility before installing the regulator spring kit.**

To install the spring regulator conversion kit, follow the valve manufacturer's installation instructions that are included with the spring conversion kit. After a new regulator spring kit is installed, it is necessary to adjust the spring for the correct manifold pressure. This adjustment can only be made after the heater is in operation; instructions are included in Step No. 7.

**FIGURE 1 - Gas Valve and Burner Orifice Locations** (Fan model is illustrated; gas valve and orifice locations are the same on blower models.)



**4. Select and Install the Burner Orifice - Applies to Models UDAP/UDAS/UDBP/ UDBS - All Sizes**

**Remove or Install the Air Restrictor Plate - Applies only to Models UDAP/ UDAS/UDBP/UDBS - Sizes 30, 45, 60, 75, 100, and 150 AND Models UDBP/ UDBS Size 125**

**WARNING**  
**Do not attempt to drill orifice. Use factory-supplied orifice only.**

**4A) Select the orifice and Determine Air Restrictor Plate Requirement.**

Because each kit is designed to convert more than one size of heater, there are two or three burner orifices per kit. From **TABLE 1** below, find the marking that is on the orifice for the size of heater being converted. From the kit, select the orifice with that marking. The other orifice(s) will not be used in this conversion.

**TABLE 1 - Burner Orifice P/N's and Markings**

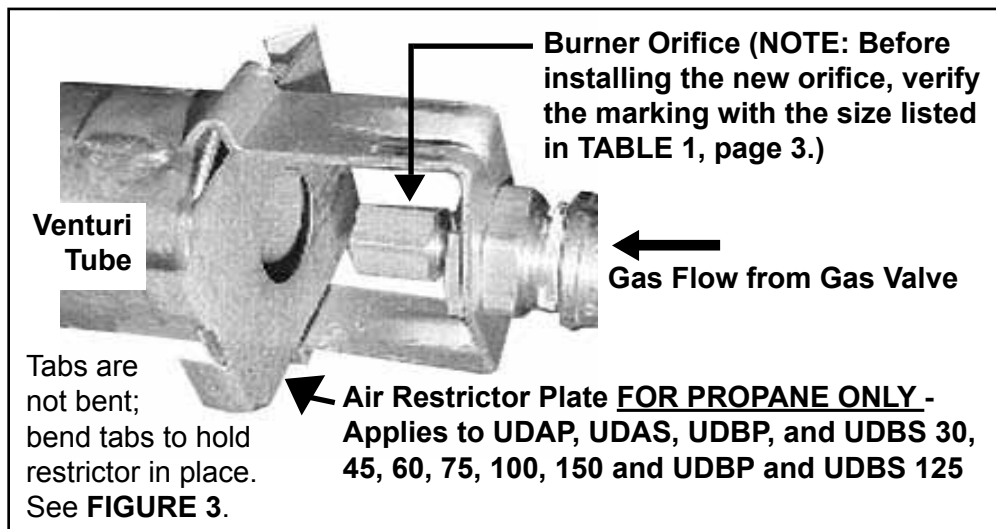
| Burner Orifice - Models UDAP, UDAS, UDBP, and UDBS |         |        |        |        |        |        |        |        |        |
|--|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| Size   |         | 30     | 45     | 60     | 75     | 100    | 125    |        |        |
| Natural Gas  | P/N     | 196853 | 196838 | 196839 | 196855 | 120158 | 196840 |        |        |
|  | Marking | #37    | #30    | 3.7MM  | #19    | #10    | #4     |        |        |
| Propane  | P/N     | 196844 | 196845 | 196846 | 196852 | 196854 | 196847 |        |        |
|  | Marking | 1.6MM  | #48    | 2.3MM  | #39    | 3.0MM  | 3.2MM  |        |        |
| Size   |         | 150    | 175    | 200    | 225    | 250    | 300    | 350    | 400    |
| Natural Gas  | P/N     | 131581 | 196891 | 196892 | 221121 | 208255 | 221122 | 221123 | 196897 |
|  | Marking | 5.9MM  | E      | 6.8MM  | 6.95MM | L      | 8.0MM  | 8.7MM  | 9.6MM  |
| Propane  | P/N     | 196898 | 196899 | 196900 | 196901 | 196902 | 196903 | 196904 | 196905 |
|  | Marking | 9/64"  | #24    | 4.1MM  | 11/64" | #14    | #8     | #3     | 5.8MM  |

## Instructions (cont'd)

### FIGURE 2 -

- 1) Location of the Burner Orifice on all Models and Sizes
- 2) Location of the Air Restrictor Plate on UDAP, UDAS, UDBP, and UDBS 30, 45, 60, 75, 100, and 150 and UDBP and UDBS 125 when used with Propane only

- Air restrictor plate must be added when converting models and sizes listed to propane
- Air restrictor plate must be removed when converting to natural gas.



## WARNING

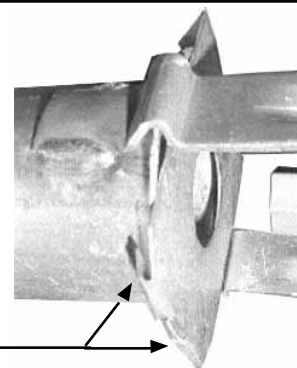
Failure to properly install the air restrictor plate could cause property damage, personal injury, and/or death.

**FIGURE 3 - Location of Holding Tabs on the Air Restrictor Plate used on UDAP, UDAS, UDBP, and UDBS 30, 45, 60, 75, 100, and 150 and UDBP and UDBS 125.**

**A restrictor plate is required ONLY with propane and only on the sizes listed.**

To install, slide the restrictor in place so that the 45° angle is hooked over the rear of the venturi tube. On the front of the venturi tube, bend the two tabs as shown to hold the restrictor in place.  
To remove, carefully unbend tabs.

Restrictor Plate Tabs



- 4B) Select and follow the instructions for type of conversion and size of heater.

**Natural Gas TO Propane - Applies to Models UDAP/UDAS/UDBP/ UDBS 30, 45, 60, 75, 100, 150 and UDBP/UDBS 125.**

- 1) Refer to **FIGURES 1 and 2**. Locate and carefully remove the gas orifice.
- 2) Slide the air restrictor plate over the venturi opening, positioning as illustrated in **FIGURES 2 and 3**. (**NOTE**: Verify diameter of opening with component list on page 7.)
- 3) Refer to **FIGURE 3**. Holding the air restrictor plate in position, use a pair of pliers to bend the tabs to “lock” the air restrictor plate to the venturi tube. Be sure air restrictor is aligned and secure.
- 4) Install the propane orifice selected for the heater in Step 4A, page 3.

**Propane TO Natural Gas - Applies to Models UDAP/UDAS/UDBP/ UDBS 30, 45, 60, 75, 100, and 150 and UDBP/UDBS 125.**

- 1) Refer to **FIGURES 1 and 2**. Locate and carefully remove the gas orifice.
- 2) Refer to **FIGURES 2 and 3** and locate the air restrictor plate on the venturi tube. Using a pair of pliers, very carefully unbend the tabs and remove the air restrictor plate.
- 3) Install the natural gas orifice selected for the heater in Step 4A, page 3.

**Natural Gas TO Propane OR Propane TO Natural Gas - Applies to Models UDAP/UDAS Size 125 and UDAP/UDAS/UDBP/UDBS Sizes 175, 200, 225, 300, 350, 400**

- 1) Refer to **FIGURES 1 and 2**. Locate and carefully remove the gas orifice.
- 2) Install the orifice selected for the heater in Step 4A, page 3.

**NOTE**: Natural gas to propane kit for UDAP/UDAS 125 and kit for UDAP/UDAS/ UDBP/UDBS Size 175 include a primary air restrictor that will not be used.

**Instructions for Changing the Pressure Switch**



1. In the control compartment, locate the pressure switch.
2. Mark and disconnect the two wires attached to the pressure switch.
3. Disconnect the sensing tube(s) from the pressure switch.
4. Locate the two screws holding the switch mounting bracket. Remove the screws (save screws) and the pressure switch.
5. Using the same screws, install the correct pressure switch. Attach the sensing tube(s) and wires.

**TABLE 2 - Manifold Pressures by Altitude**

**WARNING**

**If the heater will be operated above 6000 ft (1830M), a high altitude pressure switch must be used.**

**5. Check for high altitude.**

If the installation location is above 6000 ft (1830M), verify that the altitude on the rating plate or high altitude label is above 6000 ft (1830M). If the rating plate or label does not indicate an altitude above 6000 ft (1830M), order and install the appropriate high pressure switch kit.

Or, if the heater is equipped for above 6000 ft (1830M) elevation and is being installed at a lower elevation, order the appropriate switch and install it (see instructions on the left).

Contact your distributor to select the factory-authorized replacement part.

**6. Turn on the electric and the gas.** Relight, following the instructions on the heater. Check for gas leaks using a commercial leak detecting fluid or a rich soap and water solution. Leaks are indicated by the presence of bubbles. Check all connections. If a leak cannot be stopped by tightening, replace the part.

**7. Adjust the manifold pressure.** Follow requirements and instructions in 1) through 7) below to adjust manifold gas pressure.

- 1) The correct pressure adjustment depends on the area of the country in terms of elevation. If you don't know the elevation, check with your local gas company.
- 2) See **TABLE 2** and determine the required manifold pressure.

**WARNING**

**Manifold gas pressure must never exceed 3.5" w.c. for natural gas or 10" w.c. for propane.**

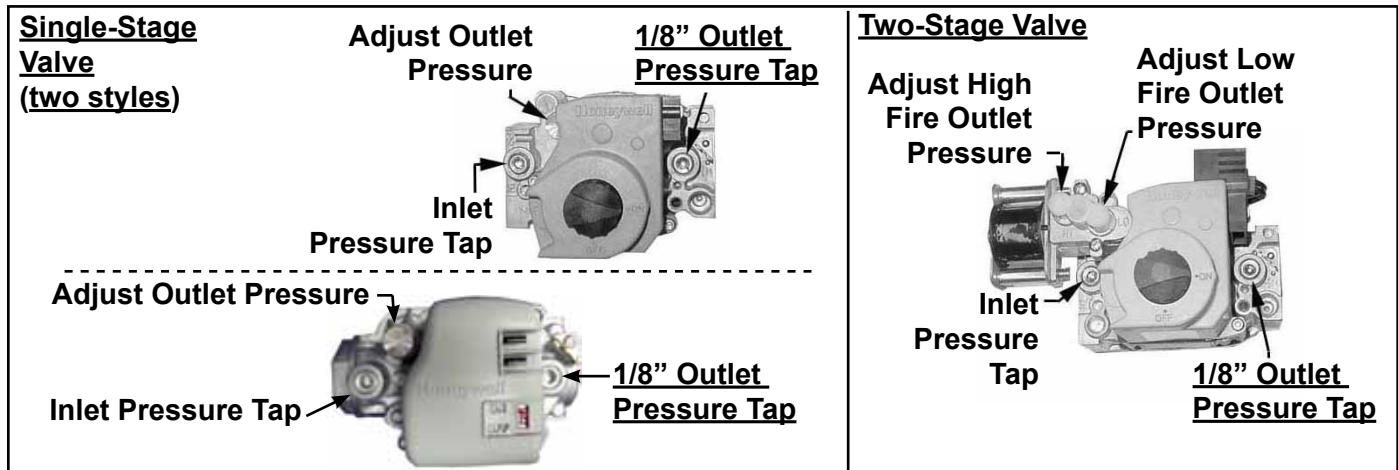
| Manifold Pressure Settings by Altitude for the UNITED STATES |           |                                      |                    |                                      |                    |
|--|-----------|--------------------------------------|--------------------|--------------------------------------|--------------------|
| Altitude   |           | Natural Gas (inches w.c.)            |                    | Propane (inches w.c.)                |                    |
| Feet   | Meters    | Single Stage and Two Stage High Fire | Two Stage Low Fire | Single Stage and Two Stage High Fire | Two Stage Low Fire |
| 0-2000   | 0-610     | 3.5                                  | 1.8                | 10.0                                 | 5.0                |
| 2001-3000  | 611-915   | 3.1                                  | 1.6                | 8.8                                  | 4.4                |
| 3001-4000  | 916-1220  | 3.0                                  | 1.5                | 8.5                                  | 4.2                |
| 4001-5000  | 1221-1525 | 2.8                                  | 1.5                | 8.1                                  | 4.1                |
| 5001-6000  | 1526-1830 | 2.7                                  | 1.4                | 7.7                                  | 3.9                |
| 6001-7000  | 1831-2135 | 2.6                                  | 1.3                | 7.4                                  | 3.7                |
| 7001-8000  | 2136-2440 | 2.5                                  | 1.3                | 7.1                                  | 3.5                |
| 8001-9000  | 2441-2745 | 2.4                                  | 1.2                | 6.7                                  | 3.4                |
| 9001-10000   | 2746-3045 | 2.3                                  | 1.2                | 6.7                                  | 3.4                |

| Manifold Pressure Settings by Altitude for CANADA |          |                                      |                    |                                      |                    |
|---|----------|--------------------------------------|--------------------|--------------------------------------|--------------------|
| Altitude  |          | Natural Gas (inches w.c.)            |                    | Propane Gas (inches w.c.)            |                    |
| Feet  | Meters   | Single Stage and Two Stage High Fire | Two Stage Low Fire | Single Stage and Two Stage High Fire | Two Stage Low Fire |
| 0-2000  | 0-610    | 3.5                                  | 1.8                | 10.0                                 | 5.0                |
| 2001-4500   | 611-1373 | 2.8                                  | 1.5                | 8.1                                  | 4.1                |

- 3) See **FIGURE 4** and locate the 1/8" outlet pressure tap on the valve. Turn the knob or switch on the top of the valve to "OFF". Connect a manometer to the 1/8" pipe outlet pressure tap in the valve. Use a water column manometer that is readable to the nearest tenth of an inch. (**NOTE:** A manometer (fluid-filled gauge) is recommended rather than a spring type gauge due to the difficulty of maintaining calibration of a spring type gauge.)

**FIGURE 4 - Top View of Valves identifying Pressure Taps and Adjustment Screw Location**



4) Measuring **Single Stage or Two Stage High Fire** - Turn the knob or switch on the top of the valve to "ON". Remove the cap from the pressure adjusting screw and adjust the manifold pressure to the pressure selected from **TABLE 2**. Adjust pressure by turning the regulator screw IN (clockwise) to increase pressure or OUT (counterclockwise) to decrease pressure.

**Measuring Two Stage Low Fire** - Disconnect the wire from the "HI" terminal on the gas valve and check the low fire pressure. Turn the regulator screw to adjust the low fire outlet pressure to the "Low Fire" pressure selected from **TABLE 2**. Re-connect the wire to the gas valve.

### **CAUTION**

**DO NOT bottom out the gas valve regulator adjusting screw. This can result in unregulated manifold pressure causing excess overfire and heat exchanger failure.**

- 5) Turn up the thermostat. On Models UDAS and UDBS, depress and hold the safety door switch. Cycle the burner once or twice to properly seat the adjustment spring in the valve.  
Re-check the pressure(s). When the outlet pressure is right for the installation, remove the manometer and replace the cap.  
Check for leakage at the pressure tap fitting.
- 6) With the heater operating, determine that the inlet pressure to the heater is between 5 and 13.5 inches w.c. for natural gas or between 10 and 13.5 inches w.c. for propane gas. Take this reading as close as possible to the heater. (The gas valves have an inlet pressure tap; see **FIGURE 4**.) If the inlet pressure is not within the specified range, the inlet pressure must be corrected and the manifold (outlet) pressure re-checked.
- 7) If the gas valve has been adjusted for operation above 2000 ft, find the High Altitude Adjustment label in the kit. Using a permanent marker, fill-in the appropriate information from **TABLE 3A**, page 11, for UDAP or UDAS or **TABLE 3B**, page 12, for UDBP or UDBS. Select a location for the label on the outside of the heater access panel so that it will be conspicuous to anyone operating or servicing the unit. Be sure the surface is clean and dry and adhere the label. (**NOTE:** At altitudes from 0-2000ft/0-610M, this label is not used.)
8. Check for safe and proper operation of the heater by observing operation for at least one complete cycle. (**NOTE:** Models UDAS and UDBS, depress and hold the safety door switch.)
9. Fill in the information required on the gas conversion tape. Select a location near the rating plate. Be sure the surface is clean and dry and affix the tape to the heater. Close the access door.

## De-Coding the Heater Serial Number

The identifying model and serial number can be found on the heater rating plate. When converting fuels, it is necessary that you have the complete heater model and serial number. See the example below to determine the serial number valve code. **The rating plate identifies original equipment only so also compare the label on the gas valve with the description listed.**

|                            |   |                     |               |  |                    |
|----------------------------|---|---------------------|---------------|--|--------------------|
| <b>Serial No. Example:</b> | <b>BLJ</b>  | <b>79</b>           | <b>6E</b>     | <b>N</b>                               | <b>99999</b>       |
|                            | Code for Year and Month the Heater was Manufactured | Ignition Controller | Type of Valve | Type of Gas (N = Natural; L = Propane) | Consecutive Number |

## Natural TO Propane Conversion Kits for Models UDAP UDAS, UDBP, and UDBS

| Natural TO Propane Kit, P/N 269835         |                                 |   |                                 |  |
|--|---------------------------------|---|---------------------------------|--|
| Applies to:                                |                                 | Models UDAP / UDAS Sizes 30 and 45                                |                                 |  |
| Equipped with any of the following valves: |                                 |   |                                 |  |
| Serial No. Code                            | Valve Manufacturer's No.        |   |                                 |  |
| X7 or Z3                                   | VR8105K2942, Single-Stage, 1/2" |   |                                 |  |
| Y2 or Z7                                   | VR8205K2957, Single-Stage, 1/2" |   |                                 |  |
| 6E   | VR8215T1239, Single-Stage, 1/2" |   |                                 |  |
| Components:                                |                                 |   |                                 |  |
| Qty  | P/N                             | Description   | Use in Valve w/ Serial No. Code |  |
| 1  | 98720                           | Spring Kit #393691 for VR8105, VR8205, VR8305 Single-Stage Valves | X7, Z3, Y2, Z7                  |  |
| 1  | 260605                          | Spring Kit #396221 for a VR8215 Single-Stage Valve                | 6E                              |  |
| 1  | 196844                          | SIZE 30, Burner Orifice, 1.6mm                                    |                                 |  |
| 1  | 196845                          | SIZE 45, Burner Orifice, #48                                      |                                 |  |
| 1  | 196687                          | Primary Air Restrictor, 1-3/8" (35mm) diameter opening            |                                 |  |
| 1  | 64391                           | Conversion Tape   |                                 |  |
| 1  | 37752                           | Propane Disk  |                                 |  |
| 1  | 197062                          | High Altitude Adjustment Label (used above 2000ft/610M only)      |                                 |  |

| Natural TO Propane Kit, P/N 269840         |                                 |   |                                 |  |
|--|---------------------------------|---|---------------------------------|--|
| Applies to:                                |                                 | Models UDBP / UDBS Sizes 30 and 45                                |                                 |  |
| Equipped with any of the following valves: |                                 |   |                                 |  |
| Serial No. Code                            | Valve Manufacturer's No.        |   |                                 |  |
| X7 or Z3                                   | VR8105K2942, Single-Stage, 1/2" |   |                                 |  |
| Y2 or Z7                                   | VR8205K2957, Single-Stage, 1/2" |   |                                 |  |
| 6E   | VR8215T1239, Single-Stage, 1/2" |   |                                 |  |
| Components:                                |                                 |   |                                 |  |
| Qty  | P/N                             | Description   | Use in Valve w/ Serial No. Code |  |
| 1  | 98720                           | Spring Kit #393691 for VR8105, VR8205, VR8305 Single-Stage Valves | X7, Z3, Y2, Z7                  |  |
| 1  | 260605                          | Spring Kit #396221 for a VR8215 Single-Stage Valve                | 6E                              |  |
| 1  | 196844                          | SIZE 30, Burner Orifice, 1.6mm                                    |                                 |  |
| 1  | 196845                          | SIZE 45, Burner Orifice, #48                                      |                                 |  |
| 1  | 203078                          | Primary Air Restrictor, 1-3/16" (30mm) diameter opening           |                                 |  |
| 1  | 64391                           | Conversion Tape   |                                 |  |
| 1  | 37752                           | Propane Gas Disk  |                                 |  |
| 1  | 197062                          | High Altitude Adjustment Label (used above 2000ft/610M only)      |                                 |  |

| Natural TO Propane Kit, P/N 269836         |                                 |   |                                 |  |
|--|---------------------------------|---|---------------------------------|--|
| Applies to:                                |                                 | Models UDAP / UDAS Sizes 60 and 75                                |                                 |  |
| Equipped with any of the following valves: |                                 |   |                                 |  |
| Serial No. Code                            | Valve Manufacturer's No.        |   |                                 |  |
| X7 or Z3                                   | VR8105K2942, Single-Stage, 1/2" |   |                                 |  |
| Y2 or Z7                                   | VR8205K2957, Single-Stage, 1/2" |   |                                 |  |
| 6E   | VR8215T1239, Single-Stage, 1/2" |   |                                 |  |
| X8 or Z4                                   | VR8105N2949, Two-Stage, 1/2"    |   |                                 |  |
| Y8 or 4A                                   | VR8205N2921, Two-Stage, 1/2"    |   |                                 |  |
| Components:                                |                                 |   |                                 |  |
| Qty  | P/N                             | Description   | Use in Valve w/ Serial No. Code |  |
| 1  | 98720                           | Spring Kit #393691 for VR8105, VR8205, VR8305 Single-Stage Valves | X7, Z3, Y2, Z7                  |  |
| 1  | 260605                          | Spring Kit #396221 for a VR8215 Single-Stage Valve                | 6E                              |  |
| 1  | 197207                          | Spring Kit #396021 for VR8105, VR8205, VR8305 Two-Stage Valves    | X8, Z4, Y8, 4A                  |  |
| 1  | 196846                          | SIZE 60, Burner Orifice, 2.3mm                                    |                                 |  |
| 1  | 196852                          | SIZE 75, Burner Orifice, #39                                      |                                 |  |
| 1  | 196688                          | Primary Air Restrictor, 1-3/4" (44mm) diameter opening            |                                 |  |
| 1  | 64391                           | Conversion Tape   |                                 |  |
| 1  | 37752                           | Propane Disk  |                                 |  |
| 1  | 197062                          | High Altitude Adjustment Label (used above 2000ft/610M only)      |                                 |  |

| Natural TO Propane Kit, P/N 269841         |                                 |   |                                 |  |
|--|---------------------------------|---|---------------------------------|--|
| Applies to:                                |                                 | Models UDBP / UDBS Sizes 60 and 75                                |                                 |  |
| Equipped with any of the following valves: |                                 |   |                                 |  |
| Serial No. Code                            | Valve Manufacturer's No.        |   |                                 |  |
| X7 or Z3                                   | VR8105K2942, Single-Stage, 1/2" |   |                                 |  |
| Y2 or Z7                                   | VR8205K2957, Single-Stage, 1/2" |   |                                 |  |
| 6E   | VR8215T1239, Single-Stage, 1/2" |   |                                 |  |
| X8 or Z4                                   | VR8105N2949, Two-Stage, 1/2"    |   |                                 |  |
| Y8 or 4A                                   | VR8205N2921, Two-Stage, 1/2"    |   |                                 |  |
| Components:                                |                                 |   |                                 |  |
| Qty  | P/N                             | Description   | Use in Valve w/ Serial No. Code |  |
| 1  | 98720                           | Spring Kit #393691 for VR8105, VR8205, VR8305 Single-Stage Valves | X7, Z3, Y2, Z7                  |  |
| 1  | 260605                          | Spring Kit #396221 for a VR8215 Single-Stage Valve                | 6E                              |  |
| 1  | 197207                          | Spring Kit #396021 for VR8105, VR8205, VR8305 Two-Stage Valves    | X8, Z4, Y8, 4A                  |  |
| 1  | 196846                          | SIZE 60, Burner Orifice, 2.3mm                                    |                                 |  |
| 1  | 196852                          | SIZE 75, Burner Orifice, #39                                      |                                 |  |
| 1  | 202051                          | Primary Air Restrictor, 1-9/16" (40mm) diameter opening           |                                 |  |
| 1  | 64391                           | Conversion Tape   |                                 |  |
| 1  | 37752                           | Propane Disk  |                                 |  |
| 1  | 197062                          | High Altitude Adjustment Label (used above 2000ft/610M only)      |                                 |  |

## Natural TO Propane Kits for Models UDAP UDAS, UDBP, and UDBS (cont'd)

For information on decoding the serial number, see page 7.

| Natural TO Propane Kit, P/N 269837         |                                 |   |                                 |
|--|---------------------------------|---|---------------------------------|
| Applies to:                                |                                 | Models UDAP / UDAS / UDBP / UDBS<br>Sizes 100 and 125   |                                 |
| Equipped with any of the following valves: |                                 |   |                                 |
| Serial No. Code                            | Valve Manufacturer's No.        |   |                                 |
| Y2 or Z7                                   | VR8205K2957, Single-Stage, 1/2" |   |                                 |
| 6E   | VR8215T1239, Single-Stage, 1/2" |   |                                 |
| Y8 or 4A                                   | VR8205N2921, Two-Stage, 1/2"    |   |                                 |
| Components:                                |                                 |   |                                 |
| Qty  | P/N                             | Description   | Use in Valve w/ Serial No. Code |
| 1  | 98720                           | Spring Kit #393691 for VR8105, VR8205, VR8305 Single-Stage Valves   | Y2, Z7                          |
| 1  | 260605                          | Spring Kit #396221 for a VR8215 Single-Stage Valve  | 6E                              |
| 1  | 197207                          | Spring Kit #396021 for VR8105, VR8205, VR8305 Two-Stage Valves  | Y8, 4A                          |
| 1  | 196854                          | SIZE 100, Burner Orifice, 3.0mm   |                                 |
| 1  | 196847                          | SIZE 125, Burner Orifice, 3.2mm   |                                 |
| 1  | 196688                          | Primary Air Restrictor, 1-3/4" (44mm) diameter opening ( <b>DO NOT use the restrictor on UDAP or UDAS Size 125.</b> ) |                                 |
| 1  | 64391                           | Conversion Tape   |                                 |
| 1  | 37752                           | Propane Disk  |                                 |
| 1  | 197062                          | High Altitude Adjustment Label (used above 2000ft/610M only)  |                                 |

| Natural TO Propane Kit, P/N 269838         |                                 |   |                                 |
|--|---------------------------------|---|---------------------------------|
| Applies to:                                |                                 | Models UDAP / UDAS / UDBP / UDBS<br>Sizes 150 and 175   |                                 |
| Equipped with any of the following valves: |                                 |   |                                 |
| Serial No. Code                            | Valve Manufacturer's No.        |   |                                 |
| Y2 or Z7                                   | VR8205K2957, Single-Stage, 1/2" |   |                                 |
| 6E   | VR8215T1239, Single-Stage, 1/2" |   |                                 |
| Y8 or 4A                                   | VR8205N2921, Two-Stage, 1/2"    |   |                                 |
| Components:                                |                                 |   |                                 |
| Qty  | P/N                             | Description   | Use in Valve w/ Serial No. Code |
| 1  | 98720                           | Spring Kit #393691 for VR8105, VR8205, VR8305 Single-Stage Valves   | Y2, Z7                          |
| 1  | 260605                          | Spring Kit #396221 for a VR8215 Single-Stage Valve  | 6E                              |
| 1  | 197207                          | Spring Kit #396021 for VR8105, VR8205, VR8305 Two-Stage Valves  | Y8, 4A                          |
| 1  | 196898                          | SIZE 150, Burner Orifice, 9/64  |                                 |
| 1  | 196899                          | SIZE 175, Burner Orifice, #24   |                                 |
| 1  | 196688                          | Primary Air Restrictor, 1-3/4" (44mm) diameter opening ( <b>DO NOT use the restrictor on UDAP, UDAS, UDBP or UDBS Size 175.</b> ) |                                 |
| 1  | 64391                           | Conversion Tape   |                                 |
| 1  | 37752                           | Propane Disk  |                                 |
| 1  | 197062                          | High Altitude Adjustment Label (used above 2000ft/610M only)  |                                 |

| Natural TO Propane Kit, P/N 269839         |                                 |   |                                 |
|--|---------------------------------|---|---------------------------------|
| Applies to:                                |                                 | Models UDAP / UDAS / UDBP / UDBS<br>Sizes 200, 225, and 250       |                                 |
| Equipped with any of the following valves: |                                 |   |                                 |
| Serial No. Code                            | Valve Manufacturer's No.        |   |                                 |
| Y2 or Z7                                   | VR8205K2957, Single-Stage, 1/2" |   |                                 |
| 6E   | VR8215T1239, Single-Stage, 1/2" |   |                                 |
| Y3 or Z8                                   | VR8305K4241, Single-Stage, 3/4" |   |                                 |
| Y8 or 4A                                   | VR8205N2921, Two-Stage, 1/2"    |   |                                 |
| Y9 or 5A                                   | VR8305N4297, Two-Stage, 3/4"    |   |                                 |
| Components:                                |                                 |   |                                 |
| Qty  | P/N                             | Description   | Use in Valve w/ Serial No. Code |
| 1  | 98720                           | Spring Kit #393691 for VR8105, VR8205, VR8305 Single-Stage Valves | Y2, Z7, Y3, Z8                  |
| 1  | 260605                          | Spring Kit #396221 for a VR8215 Single-Stage Valve                | 6E                              |
| 1  | 197207                          | Spring Kit #396021 for VR8105, VR8205, VR8305 Two-Stage Valves    | Y8, 4A, Y9, 5A                  |
| 1  | 196900                          | SIZE 200, Burner Orifice, 4.1mm                                   |                                 |
| 1  | 196901                          | SIZE 225, Burner Orifice, 11/64                                   |                                 |
| 1  | 196902                          | SIZE 250, Burner Orifice, #14                                     |                                 |
| 1  | 64391                           | Conversion Tape   |                                 |
| 1  | 37752                           | Propane Disk  |                                 |
| 1  | 197062                          | High Altitude Adjustment Label (used above 2000ft/610M only)      |                                 |

| Natural TO Propane Kit, P/N 201732         |                                 |   |                                 |
|--|---------------------------------|---|---------------------------------|
| Applies to:                                |                                 | Models UDAP / UDAS / UDBP / UDBS<br>Sizes 300, 350, and 400       |                                 |
| Equipped with any of the following valves: |                                 |   |                                 |
| Serial No. Code                            | Valve Manufacturer's No.        |   |                                 |
| Y3 or Z8                                   | VR8305K4241, Single-Stage, 3/4" |   |                                 |
| Y9 or 5A                                   | VR8305N4297, Two-Stage, 3/4"    |   |                                 |
| Components:                                |                                 |   |                                 |
| Qty  | P/N                             | Description   | Use in Valve w/ Serial No. Code |
| 1  | 98720                           | Spring Kit #393691 for VR8105, VR8205, VR8305 Single-Stage Valves | Y3, Z8                          |
| 1  | 197207                          | Spring Kit #396021 for VR8105, VR8205, VR8305 Two-Stage Valves    | Y9, 5A                          |
| 1  | 196903                          | SIZE 300, Burner Orifice, #8                                      |                                 |
| 1  | 196904                          | SIZE 350, Burner Orifice, #3                                      |                                 |
| 1  | 196905                          | SIZE 400, Burner Orifice, 5.8MM                                   |                                 |
| 1  | 64391                           | Conversion Tape   |                                 |
| 1  | 37752                           | Propane Disk  |                                 |
| 1  | 197062                          | High Altitude Adjustment Label (used above 2000ft/610M only)      |                                 |



## Propane TO Natural Conversion Kits for Models UDAP, UDAS, UDBP, and UDBS

For information on decoding the serial number, see page 7.

| Propane TO Natural Kit, P/N 269851         |                                 |   |                                 |
|--|---------------------------------|---|---------------------------------|
| Applies to:                                |                                 | Models UDAP / UDAS / UDBP / UDBS                                  |                                 |
|  |                                 | Sizes 30 and 45   |                                 |
| Equipped with any of the following valves: |                                 |   |                                 |
| Serial No. Code                            | Valve Manufacturer's No.        |   |                                 |
| X9 or Z5                                   | VR8105K2959, Single-Stage, 1/2" |   |                                 |
| Y4 or Z9                                   | VR8205K2965, Single-Stage, 1/2" |   |                                 |
| 9E   | VR8215T5214, Single-Stage, 1/2" |   |                                 |
| Components:                                |                                 |   |                                 |
| Qty  | P/N                             | Description   | Use in Valve w/ Serial No. Code |
| 1  | 98721                           | Spring Kit #394588 for VR8105, VR8205, VR8305 Single-Stage Valves | X9, Z5, Y4, Z9                  |
| 1  | 261651                          | Spring Kit #396222 for a VR8215 Single-Stage Valve                | 9E                              |
| 1  | 196853                          | SIZE 30, Burner Orifice, #37                                      |                                 |
| 1  | 196838                          | SIZE 45, Burner Orifice, #30                                      |                                 |
| 1  | 64391                           | Conversion Tape   |                                 |
| 1  | 1401                            | Natural Gas Disk  |                                 |
| 1  | 197062                          | High Altitude Adjustment Label (used above 2000ft/610M only)      |                                 |

| Propane TO Natural Kit, P/N 269852         |                                 |   |                                 |
|--|---------------------------------|---|---------------------------------|
| Applies to:                                |                                 | Models UDAP / UDAS / UDBP / UDBS                                  |                                 |
|  |                                 | Sizes 60 and 75   |                                 |
| Equipped with any of the following valves: |                                 |   |                                 |
| Serial No. Code                            | Valve Manufacturer's No.        |   |                                 |
| X9 or Z5                                   | VR85K2959, Single-Stage, 1/2"   |   |                                 |
| Y4 or Z9                                   | VR8205K2965, Single-Stage, 1/2" |   |                                 |
| 9E   | VR8215T5214, Single-Stage, 1/2" |   |                                 |
| Y1 or Z6                                   | VR8105N2931, Two-Stage, 1/2"    |   |                                 |
| Y6 or 2A                                   | VR8205N2913, Two-Stage, 1/2"    |   |                                 |
| Components:                                |                                 |   |                                 |
| Qty  | P/N                             | Description   | Use in Valve w/ Serial No. Code |
| 1  | 98721                           | Spring Kit #394588 for VR8105, VR8205, VR8305 Single-Stage Valves | X9, Z5, Y4, Z9                  |
| 1  | 261651                          | Spring Kit #396222 for a VR8215 Single-Stage Valve                | 9E                              |
| 1  | 197208                          | Spring Kit #396205 for VR8105, VR8205, VR8305 Two-Stage Valves    | Y1, Z6, Y6, 2A                  |
| 1  | 196839                          | SIZE 60, Burner Orifice, 3.7mm                                    |                                 |
| 1  | 196855                          | SIZE 75, Burner Orifice, #19                                      |                                 |
| 1  | 64391                           | Conversion Tape   |                                 |
| 1  | 1401                            | Natural Gas Disk  |                                 |
| 1  | 197062                          | High Altitude Adjustment Label (used above 2000ft/610M only)      |                                 |

| Propane TO Natural Kit, P/N 269853         |                                 |   |                                 |
|--|---------------------------------|---|---------------------------------|
| Applies to:                                |                                 | Models UDAP / UDAS / UDBP / UDBS                                  |                                 |
|  |                                 | Sizes 100 and 125   |                                 |
| Equipped with any of the following valves: |                                 |   |                                 |
| Serial No. Code                            | Valve Manufacturer's No.        |   |                                 |
| X9 or Z5                                   | VR85K2959, Single-Stage, 1/2"   |   |                                 |
| Y4 or Z9                                   | VR8205K2965, Single-Stage, 1/2" |   |                                 |
| 9E   | VR8215T5214, Single-Stage, 1/2" |   |                                 |
| Y1 or Z6                                   | VR8105N2931, Two-Stage, 1/2"    |   |                                 |
| Y6 or 2A                                   | VR8205N2913, Two-Stage, 1/2"    |   |                                 |
| Components:                                |                                 |   |                                 |
| Qty  | P/N                             | Description   | Use in Valve w/ Serial No. Code |
| 1  | 98721                           | Spring Kit #394588 for VR8105, VR8205, VR8305 Single-Stage Valves | X9, Z5, Y4, Z9                  |
| 1  | 261651                          | Spring Kit #396222 for a VR8215 Single-Stage Valve                | 9E                              |
| 1  | 197208                          | Spring Kit #396205 for VR8105, VR8205, VR8305 Two-Stage Valves    | Y1, Z6, Y6, 2A                  |
| 1  | 120158                          | SIZE 100, Burner Orifice, #10                                     |                                 |
| 1  | 196840                          | SIZE 125, Burner Orifice, #4                                      |                                 |
| 1  | 64391                           | Conversion Tape   |                                 |
| 1  | 1401                            | Natural Gas Disk  |                                 |
| 1  | 197062                          | High Altitude Adjustment Label (used above 2000ft/610M only)      |                                 |

| Propane TO Natural Kit, P/N 269854         |                                 |   |                                 |
|--|---------------------------------|---|---------------------------------|
| Applies to:                                |                                 | Models UDAP / UDAS / UDBP / UDBS                                  |                                 |
|  |                                 | Sizes 150 and 175   |                                 |
| Equipped with any of the following valves: |                                 |   |                                 |
| Serial No. Code                            | Valve Manufacturer's No.        |   |                                 |
| X9 or Z5                                   | VR85K2959, Single-Stage, 1/2"   |   |                                 |
| Y4 or Z9                                   | VR8205K2965, Single-Stage, 1/2" |   |                                 |
| 9E   | VR8215T5214, Single-Stage, 1/2" |   |                                 |
| Y1 or Z6                                   | VR8105N2931, Two-Stage, 1/2"    |   |                                 |
| Y6 or 2A                                   | VR8205N2913, Two-Stage, 1/2"    |   |                                 |
| Components:                                |                                 |   |                                 |
| Qty  | P/N                             | Description   | Use in Valve w/ Serial No. Code |
| 1  | 98721                           | Spring Kit #394588 for VR8105, VR8205, VR8305 Single-Stage Valves | X9, Z5, Y4, Z9                  |
| 1  | 261651                          | Spring Kit #396222 for a VR8215 Single-Stage Valve                | 9E                              |
| 1  | 197208                          | Spring Kit #396205 for VR8105, VR8205, VR8305 Two-Stage Valves    | Y1, Z6, Y6, 2A                  |
| 1  | 131581                          | SIZE 150, Burner Orifice, 5.9mm                                   |                                 |
| 1  | 196891                          | SIZE 175, Burner Orifice, E                                       |                                 |
| 1  | 64391                           | Conversion Tape   |                                 |
| 1  | 1401                            | Natural Gas Disk  |                                 |
| 1  | 197062                          | High Altitude Adjustment Label (used above 2000ft/610M only)      |                                 |

## Propane TO Natural Kits for Models UDAP, UDAS, UDBP, and UDBS (cont'd)

For information on decoding the serial number, see page 7.

| Propane TO Natural Kit, P/N 269855         |                                 |   |                                 |
|--|---------------------------------|---|---------------------------------|
| Applies to:                                |                                 | Models UDAP / UDAS / UDBP / UDBS                                  |                                 |
|  |                                 | Sizes 200, 225, and 250   |                                 |
| Equipped with any of the following valves: |                                 |   |                                 |
| Serial No. Code                            | Valve Manufacturer's No.        |   |                                 |
| X9 or Z5                                   | VR85K2959, Single-Stage, 1/2"   |   |                                 |
| Y4 or Z9                                   | VR8205K2965, Single-Stage, 1/2" |   |                                 |
| 9E   | VR8215T5214, Single-Stage, 1/2" |   |                                 |
| Y5 or 1A                                   | VR8305N4258, Single-Stage, 3/4" |   |                                 |
| Y1 or Z6                                   | VR8105N2931, Two-Stage, 1/2"    |   |                                 |
| Y6 or 2A                                   | VR8205N2913, Two-Stage, 1/2"    |   |                                 |
| Y7 or 3A                                   | VR8305N4289, Two-Stage, 3/4"    |   |                                 |
| Components:                                |                                 |   |                                 |
| Qty  | P/N                             | Description   | Use in Valve w/ Serial No. Code |
| 1  | 98721                           | Spring Kit #394588 for VR8105, VR8205, VR8305 Single-Stage Valves | X9, Z5, Y4, Z9, Y5, 1A          |
| 1  | 261651                          | Spring Kit #396222 for a VR8215 Single-Stage Valve                | 9E                              |
| 1  | 197208                          | Spring Kit #396205 for VR8105, VR8205, VR8305 Two-Stage Valves    | Y1, Z6, Y6, 2A, Y7, 3A          |
| 1  | 196892                          | SIZE 200, Burner Orifice, 6.8mm                                   |                                 |
| 1  | 221121                          | SIZE 225, Burner Orifice, 6.95mm                                  |                                 |
| 1  | 208255                          | SIZE 250, Burner Orifice, L                                       |                                 |
| 1  | 64391                           | Conversion Tape   |                                 |
| 1  | 1401                            | Natural Gas Disk  |                                 |
| 1  | 197062                          | High Altitude Adjustment Label (used above 2000ft/610M only)      |                                 |

| Propane TO Natural Kit, P/N 201738         |                                 |   |                                 |
|--|---------------------------------|---|---------------------------------|
| Applies to:                                |                                 | Models UDAP / UDAS / UDBP / UDBS                                  |                                 |
|  |                                 | Sizes 300, 350, and 400   |                                 |
| Equipped with any of the following valves: |                                 |   |                                 |
| Serial No. Code                            | Valve Manufacturer's No.        |   |                                 |
| Y5 or 1A                                   | VR8305N4258, Single-Stage, 3/4" |   |                                 |
| Y7 or 3A                                   | VR8305N4289, Two-Stage, 3/4"    |   |                                 |
| Components:                                |                                 |   |                                 |
| Qty  | P/N                             | Description   | Use in Valve w/ Serial No. Code |
| 1  | 98721                           | Spring Kit #394588 for VR8105, VR8205, VR8305 Single-Stage Valves | Y5, 1A                          |
| 1  | 197208                          | Spring Kit #396205 for VR8105, VR8205, VR8305 Two-Stage Valves    | Y7, 3A                          |
| 1  | 221122                          | SIZE 300, Burner Orifice, 8.0mm                                   |                                 |
| 1  | 221123                          | SIZE 350, Burner Orifice, 8.7mm                                   |                                 |
| 1  | 196897                          | SIZE 400, Burner Orifice, 9.6mm                                   |                                 |
| 1  | 64391                           | Conversion Tape   |                                 |
| 1  | 1401                            | Natural Gas Disk  |                                 |
| 1  | 197062                          | High Altitude Adjustment Label (used above 2000ft/610M only)      |                                 |

**TABLE 3A -  
Inputs and  
Capacities  
by Altitude  
for Models  
UDAP and  
UDAS**

| <b>BTUH Inputs and Capacities by Altitude in the UNITED STATES for Model UDAP and Model UDAS</b> |           |              |                         |               |              |                         |               |              |                         |               |              |                         |               |
|--|-----------|--------------|-------------------------|---------------|--------------|-------------------------|---------------|--------------|-------------------------|---------------|--------------|-------------------------|---------------|
| ALTITUDE   |           | Normal Input | Thermal Output Capacity | Minimum Input | Normal Input | Thermal Output Capacity | Minimum Input | Normal Input | Thermal Output Capacity | Minimum Input | Normal Input | Thermal Output Capacity | Minimum Input |
| Feet   | Meters    | Size 30      |                         |               | Size 45      |                         |               | Size 60      |                         |               | Size 75      |                         |               |
| 0-2000   | 0-610     | 30000        | 24600                   | 30000         | 45000        | 37350                   | 45000         | 60000        | 49800                   | 42000         | 75000        | 62250                   | 52500         |
| 2001-3000  | 611-915   | 28200        | 23124                   | 28200         | 42300        | 35109                   | 42300         | 56400        | 46812                   | 39480         | 70500        | 58515                   | 49350         |
| 3001-4000  | 916-1220  | 27600        | 22632                   | 27600         | 41400        | 34362                   | 41400         | 55200        | 45816                   | 38640         | 69000        | 57270                   | 48300         |
| 4001-5000  | 1221-1525 | 27000        | 22140                   | 27000         | 40500        | 33615                   | 40500         | 54000        | 44820                   | 37800         | 67500        | 56025                   | 47250         |
| 5001-6000  | 1526-1830 | 26400        | 21648                   | 26400         | 39600        | 32868                   | 39600         | 52800        | 43824                   | 36960         | 66000        | 54780                   | 46200         |
| 6001-7000  | 1831-2135 | 25800        | 21156                   | 25800         | 38700        | 32121                   | 38700         | 51600        | 42828                   | 36120         | 64500        | 53535                   | 45150         |
| 7001-8000  | 2136-2440 | 25200        | 20664                   | 25200         | 37800        | 31374                   | 37800         | 50400        | 41832                   | 35280         | 63000        | 52290                   | 44100         |
| 8001-9000  | 2441-2745 | 24600        | 20172                   | 24600         | 36900        | 30627                   | 36900         | 49200        | 40836                   | 34440         | 61500        | 51045                   | 43050         |
| 9001-10000   | 2746-3045 | 24000        | 19680                   | 24000         | 36000        | 29880                   | 36000         | 48000        | 39840                   | 33600         | 60000        | 49800                   | 42000         |
| Feet   | Meters    | Size 100     |                         |               | Size 125     |                         |               | Size 150     |                         |               | Size 175     |                         |               |
| 0-2000   | 0-610     | 105000       | 88200                   | 73500         | 120000       | 100800                  | 84000         | 150000       | 124500                  | 105000        | 175000       | 145250                  | 122500        |
| 2001-3000  | 611-915   | 98700        | 82908                   | 69090         | 112800       | 94752                   | 78960         | 141000       | 117030                  | 98700         | 164500       | 136535                  | 115150        |
| 3001-4000  | 916-1220  | 96600        | 81144                   | 67620         | 110400       | 92736                   | 77280         | 138000       | 114540                  | 96600         | 161000       | 133630                  | 112700        |
| 4001-5000  | 1221-1525 | 94500        | 79380                   | 66150         | 108000       | 90720                   | 75600         | 135000       | 112050                  | 94500         | 157500       | 130725                  | 110250        |
| 5001-6000  | 1526-1830 | 92400        | 77616                   | 64680         | 105600       | 88704                   | 73920         | 132000       | 109560                  | 92400         | 154000       | 127820                  | 107800        |
| 6001-7000  | 1831-2135 | 90300        | 75852                   | 63210         | 103200       | 86688                   | 72240         | 129000       | 107070                  | 90300         | 150500       | 124915                  | 105350        |
| 7001-8000  | 2136-2440 | 88200        | 74088                   | 61740         | 100800       | 84672                   | 70560         | 126000       | 104580                  | 88200         | 147000       | 122010                  | 102900        |
| 8001-9000  | 2441-2745 | 86100        | 72324                   | 60270         | 98400        | 82656                   | 68880         | 123000       | 102090                  | 86100         | 143500       | 119105                  | 100450        |
| 9001-10000   | 2746-3045 | 84000        | 70560                   | 58800         | 96000        | 80640                   | 67200         | 120000       | 99600                   | 84000         | 140000       | 116200                  | 98000         |
| Feet   | Meters    | Size 200     |                         |               | Size 225     |                         |               | Size 250     |                         |               | Size 300     |                         |               |
| 0-2000   | 0-610     | 200000       | 166000                  | 140000        | 225000       | 186750                  | 157500        | 250000       | 207500                  | 175000        | 300000       | 249000                  | 210000        |
| 2001-3000  | 611-915   | 188000       | 156040                  | 131600        | 211500       | 175545                  | 148050        | 235000       | 195050                  | 164500        | 282000       | 234060                  | 197400        |
| 3001-4000  | 916-1220  | 184000       | 152720                  | 128800        | 207000       | 171810                  | 144900        | 230000       | 190900                  | 161000        | 276000       | 229080                  | 193200        |
| 4001-5000  | 1221-1525 | 180000       | 149400                  | 126000        | 202500       | 168075                  | 141750        | 225000       | 186750                  | 157500        | 270000       | 224100                  | 189000        |
| 5001-6000  | 1526-1830 | 176000       | 146080                  | 123200        | 198000       | 164340                  | 138600        | 220000       | 182600                  | 154000        | 264000       | 219120                  | 184800        |
| 6001-7000  | 1831-2135 | 172000       | 142760                  | 120400        | 193500       | 160605                  | 135450        | 215000       | 178450                  | 150500        | 258000       | 214140                  | 180600        |
| 7001-8000  | 2136-2440 | 168000       | 139440                  | 117600        | 189000       | 156870                  | 132300        | 210000       | 174300                  | 147000        | 252000       | 209160                  | 176400        |
| 8001-9000  | 2441-2745 | 164000       | 136120                  | 114800        | 184500       | 153135                  | 129150        | 205000       | 170150                  | 143500        | 246000       | 204180                  | 172200        |
| 9001-10000   | 2746-3045 | 160000       | 132800                  | 112000        | 180000       | 149400                  | 126000        | 200000       | 166000                  | 140000        | 240000       | 199200                  | 168000        |
| Feet   | Meters    | Size 350     |                         |               | Size 400     |                         |               |              |                         |               |              |                         |               |
| 0-2000   | 0-610     | 350000       | 290500                  | 245000        | 400000       | 332000                  | 280000        |              |                         |               |              |                         |               |
| 2001-3000  | 611-915   | 329000       | 273070                  | 230300        | 376000       | 312080                  | 263200        |              |                         |               |              |                         |               |
| 3001-4000  | 916-1220  | 322000       | 267260                  | 225400        | 368000       | 305440                  | 257600        |              |                         |               |              |                         |               |
| 4001-5000  | 1221-1525 | 315000       | 261450                  | 220500        | 360000       | 298800                  | 252000        |              |                         |               |              |                         |               |
| 5001-6000  | 1526-1830 | 308000       | 255640                  | 215600        | 352000       | 292160                  | 246400        |              |                         |               |              |                         |               |
| 6001-7000  | 1831-2135 | 301000       | 249830                  | 210700        | 344000       | 285520                  | 240800        |              |                         |               |              |                         |               |
| 7001-8000  | 2136-2440 | 294000       | 244020                  | 205800        | 336000       | 278880                  | 235200        |              |                         |               |              |                         |               |
| 8001-9000  | 2441-2745 | 287000       | 238210                  | 200900        | 328000       | 272240                  | 229600        |              |                         |               |              |                         |               |
| 9001-10000   | 2746-3045 | 280000       | 232400                  | 196000        | 320000       | 265600                  | 224000        |              |                         |               |              |                         |               |

| <b>BTUH Inputs and Capacities by Altitude in CANADA for Models UDAP and UDAS</b> |          |              |                         |               |              |                         |               |              |                         |               |              |                         |               |
|--|----------|--------------|-------------------------|---------------|--------------|-------------------------|---------------|--------------|-------------------------|---------------|--------------|-------------------------|---------------|
| ALTITUDE   |          | Normal Input | Thermal Output Capacity | Minimum Input | Normal Input | Thermal Output Capacity | Minimum Input | Normal Input | Thermal Output Capacity | Minimum Input | Normal Input | Thermal Output Capacity | Minimum Input |
| Feet   | Meters   | Size 30      |                         |               | Size 45      |                         |               | Size 60      |                         |               | Size 75      |                         |               |
| 0-2000   | 0-610    | 30000        | 24600                   | 30000         | 45000        | 37350                   | 45000         | 60000        | 49800                   | 42000         | 75000        | 62250                   | 52500         |
| 2001-4500  | 611-1373 | 27000        | 22140                   | 27000         | 40500        | 33615                   | 40500         | 54000        | 44820                   | 37800         | 67500        | 56025                   | 47250         |
| Feet   | Meters   | Size 100     |                         |               | Size 125     |                         |               | Size 150     |                         |               | Size 175     |                         |               |
| 0-2000   | 0-610    | 105000       | 88200                   | 73500         | 120000       | 100800                  | 84000         | 150000       | 124500                  | 105000        | 175000       | 145250                  | 122500        |
| 2001-4500  | 611-1373 | 94500        | 79380                   | 66150         | 108000       | 90720                   | 75600         | 135000       | 113400                  | 94500         | 157500       | 132300                  | 110250        |
| Feet   | Meters   | Size 200     |                         |               | Size 225     |                         |               | Size 250     |                         |               | Size 300     |                         |               |
| 0-2000   | 0-610    | 200000       | 166000                  | 140000        | 225000       | 186750                  | 157500        | 250000       | 207500                  | 175000        | 300000       | 249000                  | 210000        |
| 2001-4500  | 611-1373 | 180000       | 151200                  | 126000        | 202500       | 170100                  | 141750        | 225000       | 189000                  | 157500        | 270000       | 226800                  | 189000        |
| Feet   | Meters   | Size 350     |                         |               | Size 400     |                         |               |              |                         |               |              |                         |               |
| 0-2000   | 0-610    | 350000       | 290500                  | 245000        | 400000       | 332000                  | 280000        |              |                         |               |              |                         |               |
| 2001-4500  | 611-1373 | 315000       | 264600                  | 220500        | 360000       | 302400                  | 252000        |              |                         |               |              |                         |               |

**TABLE 3B -  
Inputs and  
Capacities  
by Altitude  
for Models  
UDBP and  
UDBS**

| BTUH Inputs and Capacities by Altitude in the UNITED STATES for Models UDBP and UDBS |           |              |                         |               |              |                         |               |              |                         |               |              |                         |               |
|--|-----------|--------------|-------------------------|---------------|--------------|-------------------------|---------------|--------------|-------------------------|---------------|--------------|-------------------------|---------------|
| ALTITUDE   |           | Normal Input | Thermal Output Capacity | Minimum Input | Normal Input | Thermal Output Capacity | Minimum Input | Normal Input | Thermal Output Capacity | Minimum Input | Normal Input | Thermal Output Capacity | Minimum Input |
| Feet   | Meters    | Size 30      |                         |               | Size 45      |                         |               | Size 60      |                         |               | Size 75      |                         |               |
| 0-2000   | 0-610     | 30000        | 24600                   | 30000         | 45000        | 36900                   | 45000         | 60000        | 49200                   | 42000         | 75000        | 61500                   | 52500         |
| 2001-3000  | 611-915   | 28200        | 23124                   | 28200         | 42300        | 34686                   | 42300         | 56400        | 46248                   | 39480         | 70500        | 57810                   | 49350         |
| 3001-4000  | 916-1220  | 27600        | 22632                   | 27600         | 41400        | 33948                   | 41400         | 55200        | 45264                   | 38640         | 69000        | 56580                   | 48300         |
| 4001-5000  | 1221-1525 | 27000        | 22140                   | 27000         | 40500        | 33210                   | 40500         | 54000        | 44280                   | 37800         | 67500        | 55350                   | 47250         |
| 5001-6000  | 1526-1830 | 26400        | 21648                   | 26400         | 39600        | 32472                   | 39600         | 52800        | 43296                   | 36960         | 66000        | 54120                   | 46200         |
| 6001-7000  | 1831-2135 | 25800        | 21156                   | 25800         | 38700        | 31734                   | 38700         | 51600        | 42312                   | 36120         | 64500        | 52890                   | 45150         |
| 7001-8000  | 2136-2440 | 25200        | 20664                   | 25200         | 37800        | 30996                   | 37800         | 50400        | 41328                   | 35280         | 63000        | 51660                   | 44100         |
| 8001-9000  | 2441-2745 | 24600        | 20172                   | 24600         | 36900        | 30258                   | 36900         | 49200        | 40344                   | 34440         | 61500        | 50430                   | 43050         |
| 9001-10000   | 2746-3045 | 24000        | 19680                   | 24000         | 36000        | 29520                   | 36000         | 48000        | 39360                   | 33600         | 60000        | 49200                   | 42000         |
| Feet   | Meters    | Size 100     |                         |               | Size 125     |                         |               | Size 150     |                         |               | Size 175     |                         |               |
| 0-2000   | 0-610     | 105000       | 87150                   | 73500         | 120000       | 99600                   | 84000         | 150000       | 124500                  | 105000        | 175000       | 145250                  | 122500        |
| 2001-3000  | 611-915   | 98700        | 81921                   | 69090         | 112800       | 93624                   | 78960         | 141000       | 117030                  | 98700         | 164500       | 136535                  | 115150        |
| 3001-4000  | 916-1220  | 96600        | 80178                   | 67620         | 110400       | 91632                   | 77280         | 138000       | 114540                  | 96600         | 161000       | 133630                  | 112700        |
| 4001-5000  | 1221-1525 | 94500        | 78435                   | 66150         | 108000       | 89640                   | 75600         | 135000       | 112050                  | 94500         | 157500       | 130725                  | 110250        |
| 5001-6000  | 1526-1830 | 92400        | 76692                   | 64680         | 105600       | 87648                   | 73920         | 132000       | 109560                  | 92400         | 154000       | 127820                  | 107800        |
| 6001-7000  | 1831-2135 | 90300        | 74949                   | 63210         | 103200       | 85656                   | 72240         | 129000       | 107070                  | 90300         | 150500       | 124915                  | 105350        |
| 7001-8000  | 2136-2440 | 88200        | 73206                   | 61740         | 100800       | 83664                   | 70560         | 126000       | 104580                  | 88200         | 147000       | 122010                  | 102900        |
| 8001-9000  | 2441-2745 | 86100        | 71463                   | 60270         | 98400        | 81672                   | 68880         | 123000       | 102090                  | 86100         | 143500       | 119105                  | 100450        |
| 9001-10000   | 2746-3045 | 84000        | 69720                   | 58800         | 96000        | 79680                   | 67200         | 120000       | 99600                   | 84000         | 140000       | 116200                  | 98000         |
| Feet   | Meters    | Size 200     |                         |               | Size 225     |                         |               | Size 250     |                         |               | Size 300     |                         |               |
| 0-2000   | 0-610     | 200000       | 166000                  | 140000        | 225000       | 186750                  | 157500        | 250000       | 207500                  | 175000        | 300000       | 249000                  | 210000        |
| 2001-3000  | 611-915   | 188000       | 156040                  | 131600        | 211500       | 175545                  | 148050        | 235000       | 195050                  | 164500        | 282000       | 234060                  | 197400        |
| 3001-4000  | 916-1220  | 184000       | 152720                  | 128800        | 207000       | 171810                  | 144900        | 230000       | 190900                  | 161000        | 276000       | 229080                  | 193200        |
| 4001-5000  | 1221-1525 | 180000       | 149400                  | 126000        | 202500       | 168075                  | 141750        | 225000       | 186750                  | 157500        | 270000       | 224100                  | 189000        |
| 5001-6000  | 1526-1830 | 176000       | 146080                  | 123200        | 198000       | 164340                  | 138600        | 220000       | 182600                  | 154000        | 264000       | 219120                  | 184800        |
| 6001-7000  | 1831-2135 | 172000       | 142760                  | 120400        | 193500       | 160605                  | 135450        | 215000       | 178450                  | 150500        | 258000       | 214140                  | 180600        |
| 7001-8000  | 2136-2440 | 168000       | 139440                  | 117600        | 189000       | 156870                  | 132300        | 210000       | 174300                  | 147000        | 252000       | 209160                  | 176400        |
| 8001-9000  | 2441-2745 | 164000       | 136120                  | 114800        | 184500       | 153135                  | 129150        | 205000       | 170150                  | 143500        | 246000       | 204180                  | 172200        |
| 9001-10000   | 2746-3045 | 160000       | 132800                  | 112000        | 180000       | 149400                  | 126000        | 200000       | 166000                  | 140000        | 240000       | 199200                  | 168000        |
| Feet   | Meters    | Size 350     |                         |               | Size 400     |                         |               |              |                         |               |              |                         |               |
| 0-2000   | 0-610     | 350000       | 290500                  | 245000        | 400000       | 328000                  | 280000        |              |                         |               |              |                         |               |
| 2001-3000  | 611-915   | 329000       | 273070                  | 230300        | 376000       | 308320                  | 263200        |              |                         |               |              |                         |               |
| 3001-4000  | 916-1220  | 322000       | 267260                  | 225400        | 368000       | 301760                  | 257600        |              |                         |               |              |                         |               |
| 4001-5000  | 1221-1525 | 315000       | 261450                  | 220500        | 360000       | 295200                  | 252000        |              |                         |               |              |                         |               |
| 5001-6000  | 1526-1830 | 308000       | 255640                  | 215600        | 352000       | 288640                  | 246400        |              |                         |               |              |                         |               |
| 6001-7000  | 1831-2135 | 301000       | 249830                  | 210700        | 344000       | 282080                  | 240800        |              |                         |               |              |                         |               |
| 7001-8000  | 2136-2440 | 294000       | 244020                  | 205800        | 336000       | 275520                  | 235200        |              |                         |               |              |                         |               |
| 8001-9000  | 2441-2745 | 287000       | 238210                  | 200900        | 328000       | 268960                  | 229600        |              |                         |               |              |                         |               |
| 9001-10000   | 2746-3045 | 280000       | 232400                  | 196000        | 320000       | 262400                  | 224000        |              |                         |               |              |                         |               |

| BTUH Inputs and Capacities by Altitude in CANADA for Models UDBP and UDBS |          |              |                         |               |              |                         |               |              |                         |               |              |                         |               |
|---|----------|--------------|-------------------------|---------------|--------------|-------------------------|---------------|--------------|-------------------------|---------------|--------------|-------------------------|---------------|
| ALTITUDE  |          | Normal Input | Thermal Output Capacity | Minimum Input | Normal Input | Thermal Output Capacity | Minimum Input | Normal Input | Thermal Output Capacity | Minimum Input | Normal Input | Thermal Output Capacity | Minimum Input |
| Feet  | Meters   | Size 30      |                         |               | Size 45      |                         |               | Size 60      |                         |               | Size 75      |                         |               |
| 0-2000  | 0-610    | 30000        | 24600                   | 30000         | 45000        | 36900                   | 45000         | 60000        | 49200                   | 42000         | 75000        | 61500                   | 52500         |
| 2001-4500   | 611-1373 | 27000        | 22140                   | 27000         | 40500        | 33210                   | 40500         | 54000        | 44280                   | 37800         | 67500        | 55350                   | 47250         |
| Feet  | Meters   | Size 100     |                         |               | Size 125     |                         |               | Size 150     |                         |               | Size 175     |                         |               |
| 0-2000  | 0-610    | 105000       | 87150                   | 73500         | 120000       | 99600                   | 84000         | 150000       | 124500                  | 105000        | 175000       | 145250                  | 122500        |
| 2001-4500   | 611-1373 | 105001       | 87150.8                 | 73501         | 108000       | 89640                   | 75600         | 135000       | 113400                  | 94500         | 157500       | 132300                  | 110250        |
| Feet  | Meters   | Size 200     |                         |               | Size 225     |                         |               | Size 250     |                         |               | Size 300     |                         |               |
| 0-2000  | 0-610    | 200000       | 166000                  | 140000        | 225000       | 186750                  | 157500        | 250000       | 207500                  | 175000        | 300000       | 249000                  | 210000        |
| 2001-4500   | 611-1373 | 180000       | 151200                  | 126000        | 202500       | 170100                  | 141750        | 225000       | 189000                  | 157500        | 270000       | 226800                  | 189000        |
| Feet  | Meters   | Size 350     |                         |               | Size 400     |                         |               |              |                         |               |              |                         |               |
| 0-2000  | 0-610    | 350000       | 290500                  | 245000        | 400000       | 328000                  | 280000        |              |                         |               |              |                         |               |
| 2001-4500   | 611-1373 | 315000       | 264600                  | 220500        | 360000       | 295200                  | 252000        |              |                         |               |              |                         |               |

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