ACCESSORY KIT INSTALLATION INSTRUCTIONS

Natural Gas and Propane High Altitude Conversion Accessory Model 1HA0802 for Single Package Gas/Electric Air Conditioners 1-1/2 Ton through 5 Ton

⚠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 is responsible for the proper installation of this kit. The installation is not proper and complete until the operation of the converted appliance is checked as specified in the manufacturer's instructions supplied with the kit.

For U.S. units, installation must be made in accordance with American National Standard National Fuel Gas Code, ANSI Z223.1 – latest edition, unless superseded by local codes. For Canadian installations, the conversion shall be carried out in accordance with the requirements of the provisional authorities having jurisdiction and in accordance with the CAN1-B149.1 and .2 installation codes.

GENERAL

This instruction is intended for the conversion of new equipment only, for operation at altitudes greater than 2,000 ft. above sea level. Follow the basic unit installation instruction for all other aspects of the installation.

All unit installations above 2,000 ft. must be field derated as required by the National Fuel Gas Code, ANSI Z223.1 (latest edition), or in Canada, CAN/CGA B149.1 or .2 and all other applicable local codes and utility requirements.

This instruction provides the necessary information to select and install the proper orifice for your specific application. Data is provided for both natural gas and propane (LP).

⚠WARNING

Improper installation, adjustment service, or maintenance can cause injury or property damage; therefore, only a qualified installer or qualified service personnel should perform this conversion.

TABLE 1: PARTS IN KIT 1HA0802

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	10561	Convert and Modify Label
2	1	10861	Accessory Instruction
3	1	11005	Overlay, Laminate

ORIFICE SIZE SELECTION

A number of factors determine the correct orifice usage for your application. These factors include the original orifice sizing, BTU content of the gas and the altitude.

The standard orifice used on some models is a #43 orifice while on other models a #40 orifice is standard. To select the proper table to identify the correct derate orifice, identify the correct orifice shipped with your unit on the unit rating plate.

For natural gas applications, contact your gas supplier for the actual BTU content (heating value) of the fuel provided at your altitude. Tables 2 and 3 indicate various BTU content fuels. Use the BTU heating value that is nearest to your value. Read across the selected table from the standard orifice to the altitude for your application and the note the new orifice number.

EXAMPLE: *If your utility provides a heating gas value of 900 BTU/CU. FT., at an altitude of 7000 feet a #44 orifice will provide the correct firing rate. If a #43 orifice is your standard orifice supplied with the unit.*

For propane (LP) applications, Use Table 3 to select the proper high altitude orifice size.

⚠WARNING

The furnace must first be converted to use propane (LP) through the use of the standard propane conversion kit accessory.

After selecting the proper orifice size for your application, see Table 4 that indicates the part number for your required orifice number. The orifices may be obtained through your local Parts Distribution Center.

⚠WARNING

Make sure both gas and power supplies are shut before proceeding.

The high altitude orifices should be changed by the following procedure:

1. Turn “OFF” all electrical power and gas supply to the unit.
2. Carefully remove the wires from the gas valve and note there location so they may properly replaced. Remove the four screws that hold the manifold to the manifold support bracket and slide the manifold and orifices back out of the burners.
3. Remove the main burner orifices from the manifold and discard them.
4. Install the derate main burner orifices in the manifold and tighten them. After installing a new orifice in each location, any leftover orifices may be discarded.
5. Reinstall the manifold in the assembly by reversing the removal process.
6. Install the high altitude conversion labels as described in the LABELS sections of this instruction.
7. Refer to the unit installation instructions to complete the installation before continuing with these procedures.

TESTS AND ADJUSTMENTS

The following test must be performed at the time of conversion following completion of the installation.

1. Connect a manometer to the pressure tap in the gas valve. Connect a power supply and a gas supply to the unit, if not already connected.
2. Turn on the gas supply and bleed air from the gas supply lines at a point as close to the inlet or the gas valve as is practical.

⚠WARNING

Make sure the space is free of gas before proceeding.

3. Turn the gas valve control knob to the ON position.
4. Make sure unit electrical disconnect switch is in the OFF position.
5. Set the room thermostat to call for heat.
6. Turn unit electrical disconnect switch to ON. The combustion blower should start and the hot surface igniter should start glowing.
7. After air has been purged from the gas supply line, ignition should occur. Shortly after ignition, the manifold pressure can be checked on the manometer. Main burner ignition may be delayed on the first ignition cycle due to air in the gas manifold.
8. Adjust manifold pressure as shown below. This setting will result in an input which is properly derated for your altitude. Supply gas must be within the range shown.

NATURAL GAS

INLET GAS PRESSURE MUST BE AT 4.5"-10.5" WC AT FURNACE.

SET MANIFOLD PRESSURE AT 3.5" WC

PROPANE (LP)

INLET GAS PRESSURE MUST BE AT 11-14" WC AT FURNACE.

SET MANIFOLD PRESSURE AT 10" WC

9. Observe several ignition cycles. All main burners must ignite without delayed ignition or burning at the orifices. If delayed ignition is observed, verify that the ignitor/pilot is properly mounted (not loose or crooked on bracket, and that bracket screws are not loose).
10. If burning at the orifices, excessive yellow tipping, or excessive noise is observed during any phase of main burner operation, verify unit operation.

11. With the main burners ignited, check for gas leaks, especially in the following locations: gas valve inlet and outlet connections, manifold union in the burner compartment, and main burner orifices where they thread into the manifold. Repair any leaks found and recheck.

> **⚠WARNING**
>
> Do not use an open flame or any source of ignition to check for leaks.

12. Operate the furnace for 15 minutes and measure the supply and return air temperatures. Verify that the temperature rise (supply air -- return air rise) is within the allowable range. See the unit data plate for the minimum/maximum allowable temperature rise. If the measured rise is in excess of the maximum shown on the data plate, a higher blower speed must be selected. See the unit wiring diagram to make this change.

13. With the main burners off, disconnect the manometer and replace the plug. Check for gas leakage at the plug.

14. Replace all access panels.

LABELS

1. Remove label 10651 from the shipping box. Check the natural gas or Propane (LP) box.

NOTE: If the unit has been converted from natural gas to propane (LP), place the new label over the existing label and fill in the appropriate information.

2. Under “Rating After Conversion”, write in the following:
   a. Orifice size, as stamped on the orifice
   b. Maximum inlet pressure
   c. Minimum inlet pressure
   d. Manifold pressure
   e. Input, this will be a 4% derate for each 1,000 feet above sea level.
3. Under “Changes After Conversion”, write in the following
   a. Kit number, located on the outside of the envelope.
   b. Unit model number.
   c. Stamp or write in the name of the organization making conversion, address, city, state, month and year.
4. Remove label backing and affix label adjacent to the Rating Plate.
5. On propane (LP) conversions, affix the corresponding gas valve label (provided in the conversion kit) to the valve.

TABLE 2: ALTITUDE / NATURAL GAS HEATING VALUE ORIFICE SECTION

Natural Gas Heating Value (Manifold Pressure 3.5” W.C.) BTU/CU. FT	Orifice Shipped With Unit	Recommended Orifice Altitude (Ft. Above Sea Level)									
		0	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
1200	43	45	46	47	47	47	48	48	49	49	50
	40	43	44	44	44	45	45	46	47	47	48
1100	43	44	45	45	45	46	47	47	48	48	49
	40	42	42	43	43	43	44	44	45	46	47
1000	43	43	44	44	44	45	45	46	47	47	48
	40	40	41	42	42	42	43	43	44	44	45
900	43	41	42	42	42	43	43	44	44	45	46
	40	38	39	40	41	41	42	42	43	43	44
800	43	39	40	41	41	42	42	43	43	44	44
	40	36	37	38	38	39	40	41	41	42	43

NOTE: In Canada, all conversions of units between 2,000 and 4,500 ft. of elevation will be #45 orifice for the Short cabinet and #43 orifice for the Tall cabinet. (**Natural Gas Only**).

TABLE 3: ALTITUDE / PROPANE (LP) HEATING VALUE ORIFICE SECTION

Propane Gas Heating Value (Manifold Pressure 10.0" W.C.) BTU/CU. FT	Orifice Shipped With Unit	Recommended Orifice									
		Altitude (Ft. Above Sea Level)									
		0	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
2516	43	55	55	55	56	56	56	56	56	56	57
	40	53	54	54	54	54	54	54	55	55	55

NOTE: In Canada, all conversions of units between 2,000 and 4,500 ft. of elevation will be #55 orifice for the Short cabinet and #54 orifice for the Tall cabinet. (**Propane Only**).

TABLE 4: REQUIRED BURNER ORIFICE - NUMBER / PART NUMBER

Size #	Source 1 Part Number	Size #	Source 1 Part Number	Size #	Source 1 Part Number
Blank	029-20423-000	46	029-20423-046	54	029-20423-054
39	029-20423-039	47	029-20423-047	55	029-20423-055
40	029-20423-040	48	029-20423-048	56	029-20423-056
41	029-20423-041	49	029-20423-049	57	029-20423-057
42	029-20423-042	50	029-20423-050	58	029-20423-058
43	029-20423-043	51	029-20423-051	59	029-20423-059
44	029-20423-044	52	029-20423-052	60	029-20423-060
45	029-20423-045	53	029-20423-053		

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