

# HA180300DFG CONVERSION KIT HIGH ALTITUDE NAT. & L.P. GASES INSTALLATION INSTRUCTIONS

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## WARNING

**ONLY PERSONNEL THAT HAVE BEEN TRAINED TO INSTALL, ADJUST, SERVICE OR REPAIR (HEREINAFTER, "SERVICE") THE EQUIPMENT SPECIFIED IN THIS MANUAL SHOULD SERVICE THE EQUIPMENT. THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY INJURY OR PROPERTY DAMAGE ARISING FROM IMPROPER SERVICE OR SERVICE PROCEDURES. IF YOU SERVICE THIS UNIT, YOU ASSUME RESPONSIBILITY FOR ANY INJURY OR PROPERTY DAMAGE WHICH MAY RESULT. IN ADDITION, IN JURISDICTIONS THAT REQUIRE ONE OR MORE LICENSES TO SERVICE THE EQUIPMENT SPECIFIED IN THIS MANUAL, ONLY LICENSED PERSONNEL SHOULD SERVICE THE EQUIPMENT. IMPROPER INSTALLATION, ADJUSTMENT, SERVICING OR REPAIR OF THE EQUIPMENT SPECIFIED IN THIS MANUAL, OR ATTEMPTING TO INSTALL, ADJUST, SERVICE OR REPAIR THE EQUIPMENT SPECIFIED IN THIS MANUAL WITHOUT PROPER TRAINING MAY RESULT IN PRODUCT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.**



**RECOGNIZE THIS SYMBOL AS A SAFETY PRECAUTION**

## DESCRIPTION

This high altitude conversion kit is intended to convert 3 to 25 ton light commercial gas package units for high altitude installation.

## IMPORTANT NOTICE

These instructions are intended for the use of qualified individuals who are trained and experienced in the installation and conversion of this type of equipment. Personnel performing this task are required in some states to be licensed. Under no circumstances should this conversion, or equipment installation be performed by personnel who are not qualified. Failure to observe this warning may result in equipment damage, fire, or life threatening danger. Refer to the equipment installation manual, the National Fuel Gas Code (ANSI Z223.1), or in Canada (CAN/CSA-B149.2, latest edition), and local codes.

## KIT CONTENTS

Using the following parts list, ensure that all parts included in this list are present and in an undamaged condition.

1	B14933-63	Conversion Label
1	IOD-7143	Installation Instructions
1 pack (6 per pack)	0163L00315	Burner Orifice - #33
	0163L00312	Burner Orifice - #34
	0163L00313	Burner Orifice - #35
	0163L00316	Burner Orifice - #36
1 pack (8 per pack)	0163L00308	Burner Orifice - #26
	0163L00309	Burner Orifice - #27
	0163L00310	Burner Orifice - #28
	0163L00013	Burner Orifice - #29
	0163L00014	Burner Orifice - #30
	0163L00015	Burner Orifice - #31
	0163L00314	Burner Orifice - #32



## WARNING

**IF ANY DOUBT EXISTS ABOUT THE CONDITION OF ANY COMPONENT WITHIN THIS KIT, DO NOT USE THIS KIT AND CONTACT YOUR SUPPLIER FOR A NEW KIT.**

## TOOLS REQUIRED FOR INSTALLATION

- Two (2) Pipe Wrenches. These wrenches shall be suitably sized to handle the supply piping and its ground joint union.
- One (1) 7/16" or 9/16" open or closed wrench. Do not use an adjustable wrench when removing or installing burner orifices.
- One (1) 5/16 nut driver.
- One (1) Flat blade screw driver.
- One (1) 3/16 Allen wrench. The Allen wrench is required to remove gas valve inlet and outlet plugs.
- Two (2) Water Column manometers. Manometers are to be capable of reading a range between 0 and 20 inches with 1" increments. Pipe thread compound. Pipe thread compound used must be listed as appropriate material for L.P. gas. Soap solution and application brush.



## INSTALLATION



### WARNING

#### HIGH VOLTAGE!

DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



### WARNING

**TO AVOID THE POSSIBILITY OF EXPLOSION OR FIRE, NEVER USE A MATCH OR OPEN FLAME TO TEST FOR LEAKS.**

1. Prior to performing this conversion, refer to the Installation & Operation Manual supplied with the unit, the National Fuel Gas Code (ANSI Z223.1) or in Canada (CAN/CSA-B149.2, latest edition), and local codes to ensure that this appliance is installed correctly and in compliance with these codes/manuals.
2. Disconnect power and gas supply.
3. Set the room thermostat to its lowest possible setting.
4. Remove the burner access panel. See figure 1 for the location of these components.
5. Loosen the gas supply ground union, and remove the gas valve supply line. Use one pipe wrench as a back-up to prevent damage/rotation of any controls.
6. Remove the (4) sheet metal screws which fasten the gas manifold to the burner box. See figure 2 for component location.
7. Using the 7/16" or 9/16" wrench, remove the existing natural gas orifices from the burner manifold. Save the natural gas orifices for future use if the unit is converted back to natural gas.
8. Install the orifices supplied with this kit into the gas manifold. Look at sizes stamped on orifice face to insure that all the same are installed. Tighten these orifices adequately to prevent gas leakage. Refer to table 1,2 and 3 for the correct burner orifices.
9. **For 36G22 valve:** Using a 3/32" Allen wrench, loosen the inlet and outlet pressure tap screw one (1) turn only (DO NOT REMOVE). Attach a length of 5/16" hose to each of the pressure tap bosses. Connect the 5/16" hose to two (2) separate water manometers or other adequate gauges having a scale range of at least 0" to 15" of water column.  
**For 36H54 valves:** Remove both the inlet and outlet plugs on the gas valve, using the 3/16" allen wrench. Install the fittings, which accompany the manometers into the 1/8" taped holes of the gas valve. Connect the manometers to the barbed fittings.
10. Reinstall gas manifold assembly into package unit.
11. Connect both the inlet and outlet gas valve barb fittings (installed in step 9) to (2) separate manometers. See figure 3.

12. Install the gas supply piping and its ground union joint using a pipe wrench. Use a second pipe wrench as a back up.



### WARNING

**TO AVOID THE POSSIBILITY OF EXPLOSION OR FIRE, NEVER USE A MATCH OR OPEN FLAME TO TEST THE GAS SUPPLY LINE, GAS VALVE INLET AND OUTLET PRESSURE AREAS.**

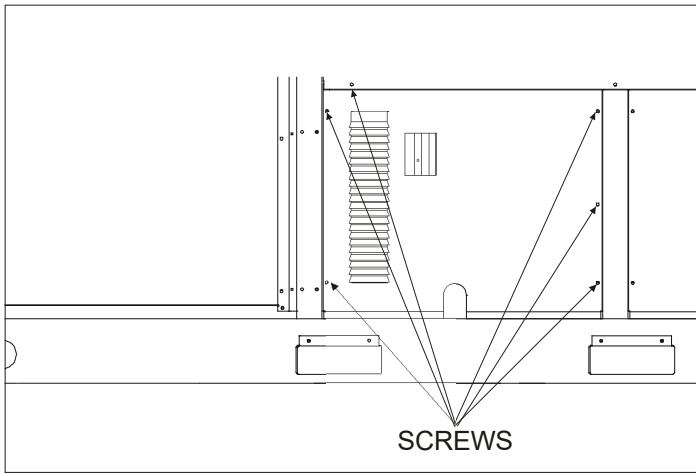
13. Turn on the gas supply to the unit. Using a soap and water solution, check the gas supply line, gas valve inlet and outlet pressure areas. Repair any gas leaks detected.
14. Turn on the electric supply to the package unit.
15. Adjust the room thermostat to obtain continuous burner operation. On models with 2 stage heat, place jumper between W1 and W2.
16. After the burner is in operation for 15 minutes, check and adjust, if needed, the supply and manifold pressure. See figure 3.
17. **For 36H54 valves (2 stage heat):** Remove jumper wire between W1 and W2. Also remove the thermostat wire from W2 and repeat step 15 on low stage heat.
18. Turn off the gas and electrical supply to the unit.
19. Apply the conversion label adjacent to the rating plate.
20. **For 36G22 valve:** Turn off gas and electrical supply to the unit, remove the manometer hose from the pressure tap bosses, and tighten the inlet and outlet pressure tap screws using the 3/32" Allen wrench.  
**For 36H54 valves:** Turn off the gas and electrical supply to the appliance, remove the pressure taps at the gas valve, reinstall the plugs using pipe joint compound or tape.
21. Turn on the gas supply and test for leaks using a soap and water solution. Repair any gas leaks. Turn on the electrical supply. Adjust the room thermostat to ensure continuous burner operation.



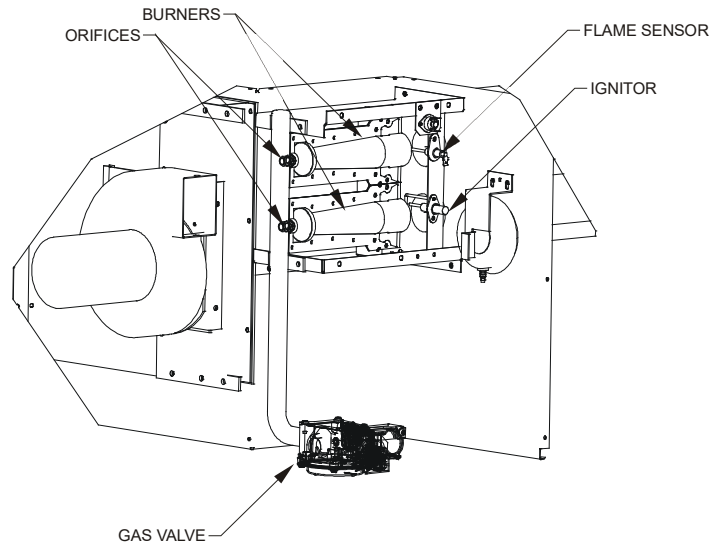
### WARNING

**TO AVOID THE POSSIBILITY OF EXPLOSION OR FIRE, NEVER USE A MATCH OR OPEN FLAME TO TEST THE GAS SUPPLY LINE, GAS VALVE INLET AND OUTLET PRESSURE AREAS OR THE THREADED PORTIONS OF THE BURNER ORIFICES FOR LEAKS.**

22. Using a soap solution check the gas supply, gas valve inlet and outlet pressure areas, and threaded portions of the burner orifices for leaks. Repair any gas leaks detected.
23. Observe at least three ignition cycles to ensure smooth and quiet ignition.
24. Install the control access panel.

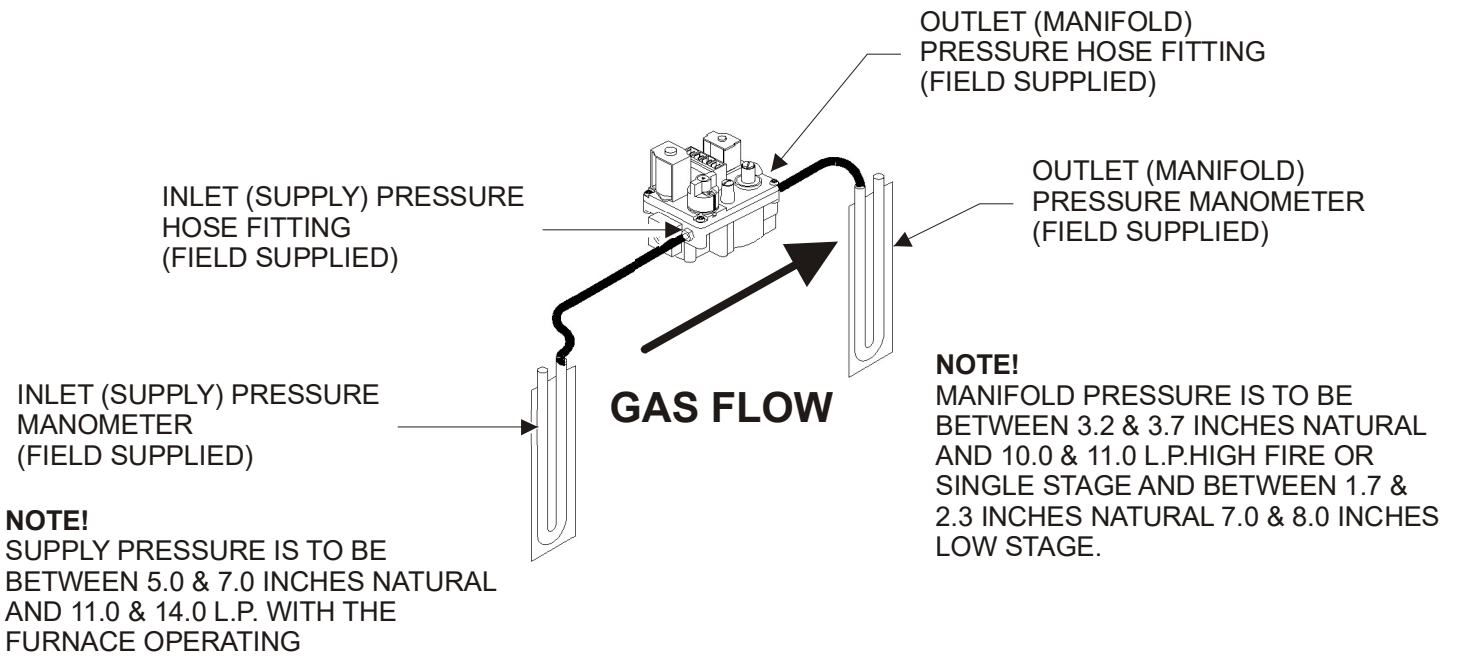


**FIGURE 1  
BURNER ACCESS PANEL**



**FIGURE 2  
GAS VALVE LOCATION**

**NOTE: TYPICAL MEDIUM CHASSIS SHOWN. OTHER CHASSIS SIZES WILL DIFER.**



Tables 1,2 and 3 are based upon the furnace input being reduced for altitudes above sea level. U.S. 4% per 1000 feet. Canada 10% derate for 2000-4500 feet. To determine input/burner, locate input rate on plate and divide by number of burners.

If specific input/burner is not listed, use the values of the next lower table (i.e. If input/burner is 44,500, use the values in Table 2).

**TABLE 1**

INPUT/BURNER	22,500 BTUH NAT/20,000 BTUH/L.P.							
	ELEVATION ABOVE SEA-LEVEL (FEET)							
	2000	3000	4000	4500	5000	6000	7000	8000
U.S. BURNER ORIFICE	44/55	44/55	45/56	-	45/56	46/57	47/58	47/58
CANADA BURNER ORIFICE	44/55	-	-	47/57	-	-	-	-

**TABLE 2**

**NATURAL GAS AND LP GAS INSTALLATIONS AT ALTITUDES > 2000 FT.**

INPUT/BURNER	35,000 BTUH NAT/33,000 BTUH/L.P.							
	ELEVATION ABOVE SEA-LEVEL (FEET)							
	2000	3000	4000	4500	5000	6000	7000	8000
U.S. BURNER ORIFICE	35/53	36/53	36/53	-	37/53	37/53	38/53	39/54
CANADA BURNER ORIFICE	35/53	-	-	39/54	-	-	-	-

**TABLE 3**

INPUT/BURNER	50,000 BTUH NAT/45,000 BTUH/L.P.							
	ELEVATION ABOVE SEA-LEVEL (FEET)							
	2000	3000	4000	4500	5000	6000	7000	8000
U.S. BURNER ORIFICE	29/48	30/48	30/49	-	30/49	30/49	31/50	31/50
CANADA BURNER ORIFICE	29/48	-	-	31/50	-	-	-	-

**NOTE: SPECIFICATIONS AND PERFORMANCE DATA LISTED HEREIN ARE SUBJECT TO CHANGE WITHOUT NOTICE.**

**QUALITY MAKES THE DIFFERENCE!**

All of our systems are designed and manufactured with the same high quality standards regardless of size or efficiency. We have designed these units to significantly reduce the most frequent causes of product failure. They are simple to service and forgiving to operate. We use quality materials and components. Finally, every unit is run tested before it leaves the factory. That's why we know. . . **There's No Better Quality.**

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