

# ACCESSORY KIT INSTALLATION INSTRUCTIONS

## PROPANE CONVERSION – P/N S1-1NP0681

FOR USE WITH ALL MODULATING FURNACE MODELS WITH WHITE RODGERS 36J27 GAS VALVE

### ▲ WARNING

*This conversion kit is to be installed by a qualified service agency in accordance with these instructions and all applicable codes and requirements of the authority having jurisdiction. If the information in these instructions is not followed exactly, a fire, an 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 these instructions supplied with the kit.*

### ▲ CAUTION

*The conversion of new certified central heating gas appliances must conform to directions outlined in this instruction. 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must be made in accordance with American National Standard National Fuel Gas Code, ANSI Z223.1-latest edition, unless superseded by local codes.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 Provincial authorities having jurisdiction and in accordance with the CAN1-B149.1 and .2 installation codes. The manufacturer accepts no responsibility for malfunctions due to improper conversions*

### ▲ CAUTION

*Lo-NOx furnaces requiring propane (LP) gas must have the NOx screens removed prior to operation. Failure to do so may result in operational problems and/or reduced heat exchanger life. Follow the instructions below for removal of the NOx screens.*

#### GENERAL

This kit is intended for the conversion of new equipment only, from natural gas to propane gas operation.

This instruction covers the conversion of this unit when it is equipped with a White-Rodgers modulating 36J27 gas valve. The installation instruction supplied with the unit is to be used for all other aspects of the installation.

This kit cannot be used to convert furnaces built **before August 2009** which have the White-Rodgers 36E27 gas valve. These units must use the S1-1NP0680 LP Kit.

### IMPORTANT

*These instructions are for the use of qualified individuals specially trained, experienced and certified in the installation of this type of equipment and related systems components. Installation and service personnel are required by some states to be licensed. Persons not qualified shall not install this equipment nor interpret these instructions.*

### ▲ WARNING

*An overpressure protection device, such as a pressure regulator, which conforms to the National Fuel Gas code, ANSI Z223.1 (U.S.) or CAN-B149.1 or.2 (Canada) and acts to limit the downstream pressure to value that does not exceed 0.5 PSI (14" w.c.), must be installed in the gas piping system upstream of the furnace. Failure to do so may result in a fire or explosion or cause damage to the furnace or some of its components.*

### ▲ 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.*

#### CONTENTS OF KIT

DESCRIPTION	PART NUMBER	QTY
Gas Line Pressure Switch	17471	1
Tapped Gas Pipe Nipple	18095	1
Kit Installation Instruction	528014	1
Main Burner Orifices #55	18081	6
Wire Harness	20461	1
Label, Conversion Rating Plate	528016	1
Label, LP Conversion Kit	255424	1
LP Valve Conversion Kit	528012	1

## SAFETY



This is a safety alert symbol. When you see this symbol on labels or in manuals, be alert to the potential for personal injury.

Understand and pay particular attention to the signal words **DANGER**, **WARNING**, or **CAUTION**.

**DANGER** indicates an imminently hazardous situation, which, if not avoided, **will result in death or serious injury**.

**WARNING** indicates a potentially hazardous situation, which, if not avoided, **could result in death or serious injury**.

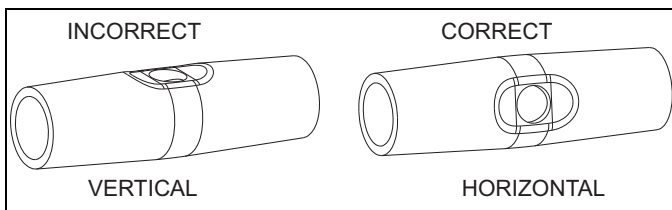
**CAUTION** indicates a potentially hazardous situation, which, if not avoided **may result in minor or moderate injury**. It is also used to alert against unsafe practices and hazards involving only property damage.

## FURNACE CONVERSION

**CAUTION**

*The gas supply shall be shut off prior to disconnecting the electrical power, before proceeding with the conversion.*

1. Remove the upper access door.
2. Unplug the wires from the gas valve. Remove the screws that hold the manifold to the manifold brackets and slide the manifold off the burners.
3. On 80% Low-NOx models, remove NOx screens using instructions in separate section below.
4. Convert the gas valve from natural gas to LP gas using separate instruction sheet in the LP conversion kit envelope.
5. Remove the main burner orifices from the manifold and retain for future use.
6. Install the propane main burner orifices in the manifold and tighten them. After installing a propane orifice in each location, any leftover orifices may be discarded. If a stainless steel burner kit was purchased, refer to the kit instructions for the burner change out.
7. Reinstall the manifold in the assembly by reversing the removal process.
8. Plug the wires into the gas valve.
9. Install the tapped gas pipe nipple (supplied with kit) into inlet fitting of gas valve. Ensure that the 1/8 inch tapped hole in the gas pipe nipple is located in the horizontal position.



**FIGURE 1:** Tapped Gas Pipe Nipple

10. Install (thread) the gas line pressure switch (supplied with kit) into the 1/8 NPT tapped hole in nipple applying pipe dope to the switch fitting prior to installation. Tighten the switch making sure the connection does not leak.

**NOTICE**

*The gas line pressure switch will cause the furnace to lock out if the gas supply pressure drops below 6" w.c. The ignition control will display a fault code 7 and will reset after one hour.*

11. Disconnect the purple wire from the flame sensor.
12. Using the appropriate wire harness (supplied with kit) connect the purple wire from the flame sensor into the insulated male connector; connect the two 1/4" insulated terminals to the pressure switch; and connect the remaining insulated terminal to the flame sensor.
13. Install the propane gas conversion label as described in the LABELS section of this instruction.
14. Refer to the unit installation instructions to complete the installation before continuing with these procedures.

## NOx SCREEN REMOVAL

(LOW-NOx 80% MODELS ONLY)

1. Remove entire burner assembly.
2. Remove and discard NOx screens from heat exchanger tubes.
3. Reinstall burner assembly.

CALCULATING THE FURNACE INPUT  
(PROPANE GAS)

**NOTICE**

*Burner orifices are sized to provide the proper input rate using propane gas with a heating value of 2500 BTU/Ft<sup>3</sup>. If the heating value of your gas is significantly different, it may be necessary to replace the orifices with different size orifices. Follow the procedure below to calculate the furnace input.*

1. Turn off all gas appliances connected to the gas meter.
2. Start the furnace in TEST MODE at 100% firing rate. See SETUP TEST MODE section below for instructions on how to access TEST MODE.
3. Use a stop watch to measure the time it takes for the furnace to burn 1 cubic ft. of gas.
4. Calculate the furnace input by using one of the following equations.

**Use the following formula to calculate the furnace input.**

For propane (LP) gas multiply the heat content of the gas BTU/SCF (or Default 2500 BTU/SCF), times 1 cubic ft. of gas measured at the gas meter, times a barometric pressure and temperature correction factor of 0.960; times 3600, then divided by the time (In seconds) it took to measure 1 cubic ft. of gas from the gas meter.

The formula for US input calculation using a cubic foot gas meter:

$\frac{\text{BTU/ft}^3 \times 1 \text{ cu.ft.} \times 0.960 \times 3600}{\text{Seconds it took to measure the 1 cu.ft. of gas}}$	=	BTU/H
EXAMPLE: $\frac{2500 \times 1 \times 0.960 \times 3600}{108}$	=	80,000

DO NOT ADJUST the manifold pressure regulator if the actual input is equal to or within 8% less than the furnace input specified on the rating plate or if the furnace rise is above the specified rise range on the rating plate.

If the actual input is significantly higher than the furnace input specified on the rating plate then replace the gas orifices with the gas orifices of the proper size for the type of gas you are using.

TABLE 1: Inlet Gas Pressure Range

INLET GAS PRESSURE RANGE	
	Propane (LP)
Minimum	8.0" w.c. (1.99 kPa)
Maximum	13.0" w.c. (3.24 kPa)

## IMPORTANT

The inlet gas pressure operating range table specifies what the minimum and maximum gas line pressures must be for the furnace to operate safely.

The gas line pressure **MUST BE**

- 11" w.c. (2.74 kPa) for Propane (LP) Gas

in order to obtain the BTU input specified on the rating plate and/or the nominal manifold pressure specified in these instructions and on the rating plate.

## ADJUSTMENT OF MANIFOLD GAS PRESSURE

Follow the appropriate section in the instructions below. Refer to Figure 1 for a drawing of the locations of the pressure ports on the gas valve.

**Turn gas off at the ball valve or gas cock on gas supply line before the gas valve. Find the pressure ports on the gas valve marked OUT P and IN P.**

1. The manifold pressure must be taken at the port marked OUT P.
2. The inlet gas line pressure must be taken at the port marked IN P.
3. Using a 3/16" allen wrench, remove the plugs from the inlet and outlet pressure ports. Connect a 1/8" UPT barbed hose fitting to each pressure port.
4. Remove the plastic cap over the pressure regulator adjustment screw. See Figure 1 for location.

5. Turn gas and electrical supplies on and follow the operating instructions to place the unit back in operation.
6. Adjust manifold pressure by adjusting gas valve regulator screw for the appropriate gas per the following:

TABLE 2: Nominal Manifold Pressure

Nominal Manifold Pressure	
Propane (LP) Gas (Max)	10.0" w.c. (2.49 kPa)
Propane (LP) Gas (Min) (97% models)	1.6" w.c. (0.40 kPa)
Propane (LP) Gas (Min) (80% models)	2.5" w.c. (0.62 kPa)

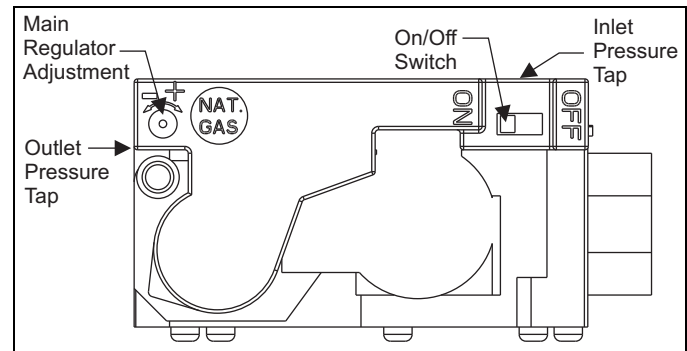


FIGURE 2: Gas Valve

## IMPORTANT

If gas valve regulator is turned in (clockwise), manifold pressure is increased. If screw is turned out (counterclockwise), manifold pressure will decrease.

7. After the manifold pressure has been adjusted, re-calculate the furnace input to make sure you have not exceeded the specified input on the rating plate. Refer to "CALCULATING THE FURNACE INPUT (PROPANE GAS)".
8. Once the correct input has been established, turn the gas valve to OFF and turn the electrical supply switch to OFF; then remove the flexible tubing and fittings from the gas valve pressure taps.
9. Replace the plastic cap over the pressure regulator adjustment screw.
10. Turn the electrical and gas supplies back on, and with the burners in operation, check for gas leakage around the gas valve pressure port for leakage using an approved gas detector, a non-corrosive leak detection fluid, or other leak detection methods.

## CAUTION

Be sure to relight any gas appliances that were turned off at the start of this input check.

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## LABELS

1. Remove conversion rating plate label from the shipping box.
2. Place the conversion rating plate label as close to the rating plate as possible which may be on the front of the door panel.
3. Gas appliance conversion label, write the following:
  - a. Kit number, located on the outside of the kit box.
  - b. Stamp or write in the name of the organization making conversion, address, city, state, month, and year.
4. Remove label backing and affix label as close as possible to the rating plate.

## SETUP TEST MODE

During normal operation, the furnace input rate can vary between 35% & 100% for 97% plus models and 50% & 100% for 80% models of full nameplate input, making it difficult to check for proper operation. To help with the furnace startup process, the control has a TEST MODE available that allows the furnace input rate to stay at a constant input rate. To access this TEST MODE perform the following sequence:

1. With power to the board on and with no thermostat calls (no call for heating, cooling or continuous fan), push and hold the TEST button on the board for one second. The LED on the board will glow red.
2. Release the TEST button. The LED on the board will flash a rapid green signal, indicating that TEST MODE is activated.
3. Turn the thermostat to call for heat (R & W signal).
4. The furnace will light and operate at high (100%) firing rate. The furnace firing rate should be checked at this level to confirm that the furnace is not overfired or underfired.
5. To run the furnace at minimum rate (35%/50%), press the ERROR button once. The LED will flash one green flash to confirm.
6. To run the furnace at a middle rate (70%), press the ERROR button twice within a five-second period. The LED will flash green two times to confirm.
7. To again operate the furnace at maximum (100%) rate, press the ERROR button three times within a five-second period. The LED will flash green three times to confirm.
8. If the thermostat call for heat is removed, the LED will flash a rapid green signal, indicating that the furnace is still in TEST MODE.
9. When startup tests are completed, turning off power to the board will take the furnace out of TEST MODE and will restore normal operation. The furnace will automatically return to normal operation after 150 minutes if power is not cycled.