

LPM-31 NATURAL GAS TO LP GAS CONVERSION

KIT 80% SINGLE-STAGE FURNACE

INSTALLATION INSTRUCTIONS



WARNING

ONLY PERSONNEL THAT HAVE BEEN TRAINED TO INSTALL, ADJUST, SERVICE, MAINTENANCE OR REPAIR (HEREINAFTER, "SERVICE") THE EQUIPMENT SPECIFIED IN THIS MANUAL SHOULD SERVICE THE EQUIPMENT.

THIS EQUIPMENT IS NOT INTENDED FOR USE BY PERSONS (INCLUDING CHILDREN) WITH REDUCED PHYSICAL, SENSORY OR MENTAL CAPACITIES, OR LACK OF EXPERIENCE AND KNOWLEDGE, UNLESS THEY HAVE BEEN GIVEN SUPERVISION OR INSTRUCTION CONCERNING USE OF THE APPLIANCE BY A PERSON RESPONSIBLE FOR THEIR SAFETY.

CHILDREN SHOULD BE SUPERVISED TO ENSURE THAT THEY DO NOT PLAY WITH THE EQUIPMENT.

THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY INJURY OR PROPERTY DAMAGE ARISING FROM IMPROPER SUPERVISION, 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 SUPERVISION, INSTALLATION, ADJUSTMENT, SERVICING, MAINTENANCE 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 SUPERVISION OR TRAINING MAY RESULT IN PRODUCT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



WARNING

DO NOT BYPASS SAFETY DEVICES.



RECOGNIZE THIS SYMBOL AS A SAFETY PRECAUTION

DESCRIPTION

This natural gas to L.P. (Liquid Petroleum) Gas conversion kit allows the White-Rodgers 36G22 (B1282628) and 36J22 (0151M00037) series gas valves to be used on L.P. gas applications. This conversion kit is for use on all single stage maximum regulation valves.

ATTENTION INSTALLING PERSONNEL

As a professional installer, you have an obligation to know the product better than the customer. This includes all safety precautions and related items.

Prior to actual installation, thoroughly familiarize yourself with this Instruction Manual. Pay special attention to all safety warnings. Often during installation or repair, it is possible to place yourself in a position which is more hazardous than when the unit is in operation.

Remember, it is your responsibility to install the product safely and to know it well enough to be able to instruct a customer in its safe use.

Safety is a matter of common sense...a matter of thinking before acting. Most dealers have a list of specific good safety practices...follow them.

The precautions listed in this Installation Manual are intended as supplemental to existing practices. However, if there is a direct conflict between existing practices and the content of this manual, the precautions listed here take precedence.

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KIT CONTENTS

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

Part Number	Description	Quantity
B10259108	Conversion Label	1
B1880007	"Spring Kit for White-Rodgers 36G22/36J22 Valve"	1
B4089955	Burner Orifice	1
IO-861	Installation Instructions	1
20328701	Gas Pressure Switch	1
M0021305	1/2" x 1/8" Bushing	1
20328803	Short Single-Stage Harness	1
0259F00077	Long Single-Stage Harness	1
20346001	LP Low Pressure Kit Label	1
0140F01167	Wiring Diagram	1
0163M00078	Regulator Spring Kit HW	1



Field Supplied	
1	1/2" Tee
1	90 Degree Street Elbow
1	1/2" Pipe (length dependent on model and application)

Required Tools for Kit Installation	
2	Pipe Wrenches, properly sized to accommodate the gas piping and connectors
1	7/16" box wrench or socket wrench
1	5/16" Nut driver
1	1/4" regular (flatblade) screwdriver
1	3/32" Allen wrench
2	Manometers to read inlet & outlet pressure of the gas valve (Minimum range: 0" - 15" W.C.)
1	3/16" Allen wrench
2	1/8" NPT hose barb
	Pipe joint compound or pipe thread tape that is approved for use with L.P. gas
	Gas leak detection solution, like a soap and water solution. Always wipe the solution from the joints when testing is complete.



WARNING

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

Prior to performing this conversion refer to the National Fuel Gas Code (ANSI Z223.1) or in Canada, CAN/CGA-B149.2-M91 to ensure that the installation is in compliance with those and all local codes.

Please read and follow these instructions carefully.



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 IF THE CONVERTED APPLIANCE IS CHECKED AS SPECIFIED IN THE MANUFACTURER'S INSTRUCTIONS SUPPLIED WITH THE KIT.



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 PERSONAL INJURY, PROPERTY DAMAGE OR DEATH, DUE TO LEAKING GAS, CONTACT YOUR PROPANE SUPPLIER ABOUT INSTALLING A GAS DETECTING WARNING DEVICE. IRON OXIDE (RUST) CAN REDUCE THE LEVEL OF ODORANT IN PROPANE GAS. A GAS DETECTING DEVICE IS THE ONLY RELIABLE METHOD TO DETECT A PROPANE GAS LEAK.



CAUTION

TO AVOID THE RISK OF PROPERTY DAMAGE, PERSONAL INJURY OR FIRE, SHUT OFF GAS SUPPLY FIRST, THEN DISCONNECT THE ELECTRICAL SUPPLY BEFORE PROCEEDING WITH CONVERSION.


DANGER
PELIGRO



CARBON MONOXIDE POISONING HAZARD

Special Warning for Installation of Furnace or Air Handling Units in Enclosed Areas such as Garages, Utility Rooms or Parking Areas

Carbon monoxide producing devices (such as an automobile, space heater, gas water heater, etc.) should not be operated in enclosed areas such as unventilated garages, utility rooms or parking areas because of the danger of carbon monoxide (CO) poisoning resulting from the exhaust emissions. If a furnace or air handler is installed in an enclosed area such as a garage, utility room or parking area and a carbon monoxide producing device is operated therein, there must be adequate, direct outside ventilation.

This ventilation is necessary to avoid the danger of CO poisoning which can occur if a carbon monoxide producing device continues to operate in the enclosed area. Carbon monoxide emissions can be (re)circulated throughout the structure if the furnace or air handler is operating in any mode.

CO can cause serious illness including permanent brain damage or death. B10259-216

RIESGO DE INTOXICACIÓN POR MONÓXIDO DE CARBONO

Advertencia especial para la instalación de calentadores ó manejadoras de aire en áreas cerradas como estacionamientos ó cuartos de servicio.

Los equipos ó aparatos que producen monóxido de carbono (tal como automóvil, calentador de gas, calentador de agua por medio de gas, etc) no deben ser operados en áreas cerradas debido al riesgo de envenenamiento por monóxido de carbono (CO) que resulta de las emisiones de gases de combustión. Si el equipo ó aparato se opera en dichas áreas, debe existir una adecuada ventilación directa al exterior. Esta ventilación es necesaria para evitar el peligro de envenenamiento por CO, que puede ocurrir si un dispositivo que produce monóxido de carbono sigue operando en el lugar cerrado. Las emisiones de monóxido de carbono pueden circular a través del aparato cuando se opera en cualquier modo.

El monóxido de carbono puede causar enfermedades severas como daño cerebral permanente ó muerte. B10259-216

RISQUE D'EMPOISONNEMENT AU MONOXYDE DE CARBONE

Avertissement special au sujet de l'installation d'appareils de chauffage ou de traitement d'air dans des endroits clos, tels les garages, les locaux d'entretien et les stationnements.

Évitez de mettre en marche les appareils produisant du monoxyde de carbone (tels que les automobile, les appareils de chauffage autonome, etc.) dans des endroits non ventilés tels que les d'empoisonnement au monoxyde de carbone. Si vous devez faire fonctionner ces appareils dans un endroit clos, assurez-vous qu'il y ait une ventilation directe provenant de l'exterieur.

Cette ventilation est nécessaire pour éviter le danger d'intoxication au CO pouvant survenir si un appareil produisant du monoxyde de carbone continue de fonctionner au sein de la zone confinée.

Les émissions de monoxyde de carbone peuvent étre recirculés dans les endroits clos, si l'appareil de chauffage ou de traitement d'air sont en marche.

Le monoxyde de carbone peut causer des maladies graves telles que des dommages permanents au cerveau et meme la mort. B10259-216

WHITE-RODGERS 36G22 / 36J22 CONVERSION INSTRUCTIONS

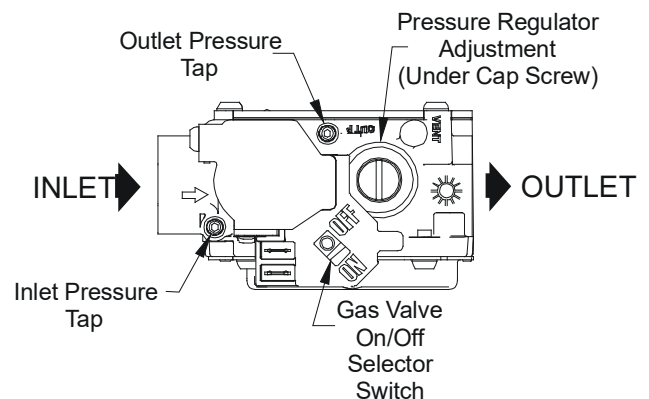


CAUTION

TO PREVENT UNSATISFACTORY FURNACE OPERATION, THE PROPER GAS CONVERSION KIT MUST BE USED FOR THE GAS VALVE. USE THE WHITE-RODGERS SPRING KIT ONLY WITH THE WHITE-RODGERS GAS VALVE.

NOTE: FOR LOW NOX MODELS, SEE PAGE 5 FOR NOX SCREENS.

1. Turn off gas supply to the furnace.
2. Turn off the electrical power to the furnace.
3. Remove the furnace control access panel.
4. Separate the gas supply union and remove associated downstream piping.
NOTE: Always use a backup wrench when removing or replacing piping to avoid any undue strains or rotation of controls.
5. Remove the wires from the gas valve.
6. Remove the 4 sheet metal screws that fasten the manifold/gas valve assembly to the burner box.
7. Visually inspect orifices for damage and drill size (marked on face with a 55) before installation. Using the 7/16" wrench, remove all existing natural gas orifices and replace with the appropriate marked 55 L.P. gas orifices contained in this kit. Tighten the orifices to prevent gas leaks, but do not overtighten. Retain the natural gas orifices for future reconversion.
8. Reinstall the manifold/gas valve assembly into the appliance. Rewire the gas valve.
9. 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 taps. Connect the 5/16" hose to two (2) separate manometers or other adequate gauges having a scale range of at least 0" to 15" of water column.



WHITE-RODGERS 36G22 / 36J22
FIGURE 1

10. Using a flat blade screwdriver, remove the regulator cover screw.

11. Using a flat blade screwdriver, remove plastic regulator adjustment screw located beneath the cover screw.
12. Remove the natural gas regulator spring from the regulator sleeve.
13. Insert the kit (P/N B1880007, WR F92-0999) provided L.P. regulator spring into the regulator sleeve.
14. Replace the regulator adjustment screw and adjust it clockwise to bottom stop. Follow instructions below beginning in step 21 for checking & adjustment to verify manifold pressure falls into the desired range.
15. Apply a liberal amount of pipe joint compound or pipe thread tape to the threads and reassemble the piping previously removed. NOTE: the pipe joint compound or pipe thread tape must be resistant to L.P. gas.
16. Turn on the gas supply and check for leaks.



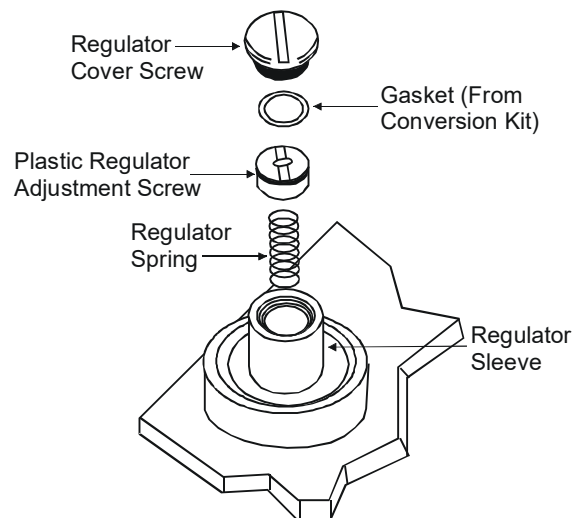
WARNING

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

17. Turn on the electrical supply.
18. Adjust the room thermostat to allow for constant operation.
19. **If you have the correct manifold pressure and the burners do not light, there may be air trapped in the lines. Follow these instructions:**
To check for air trapped in the supply line: Verify line pressure is in the correct range. If manifold pressure is indicated during the ignition trial, the valve is opening and air may be in the line.
Units with hot surface ignitors: The valve will not open until the ignitor is at the proper temperature (glowing brightly).
Units with spark ignition: The valve will open as soon as the spark starts. If no manifold pressure is indicated during the trial for ignition, please return to step 13 to ensure the correct spring was used and to ensure the regulator adjustment is near the bottom of the adjustment range.
20. If gas inlet pressure falls outside the range of 11" and 13" W.C. after the unit has been in operation for 15 minutes, adjust the gas supply pressure (not manifold pressure), check piping size, etc., and/or consult with local utility.
NOTE: Any other gas-fired equipment should be ON before any adjustments are made.
21. Check manifold pressure. For propane gas, the manifold pressure must be between 9.7" and 10.3" W.C.
22. Turn adjustment screw out (counterclockwise) to decrease pressure, turn in (clockwise) to increase pressure. Only small variations in gas flow should be made by means of the pressure regulator adjustment. In no case should the final manifold pressure vary

more than plus or minus 0.3" water column from the specified nominal pressure. Any major changes in flow should be made by changing the size of the burner orifices. The measured input rate to the furnace must not exceed the rating specified on the unit rating plate.

23. Reset all other appliances so they function normally.
24. Turn off gas and electrical supply to the furnace, remove the manometer hose from the pressure taps, and tighten the inlet and outlet pressure tap screws using the 3/32" Allen wrench (clockwise 7 in-lb minimum).
25. If regulator adjustment screw (removed in step 11) is white, the gasket supplied with the kit must be installed on the regulator cover screw. The gasket is not required if the regulator adjustment screw is black.
26. Replace the regulator cover screw on the regulator sleeve.
27. Attach the kit provided WARNING label to the gas valve where it can be readily seen. Also attach the small round L.P. label to the top of the regulator cover screw.
28. Turn on the gas and electrical supply, energize the appliance and recheck for leaks.
29. Observe at least 3 ignition cycles to assure quick and smooth ignition and burner operation.
30. Reinstall the access panels.



36G22 / 36J22 MODEL
FIGURE 2



CAUTION

TO AVOID THE RISK OR PROPERTY DAMAGE, PERSONAL INJURY OR FIRE, SHUT OFF GAS SUPPLY FIRST, THEN DISCONNECT THE ELECTRICAL SUPPLY BEFORE PROCEEDING WITH CONVERSION.

NOx SCREEN REMOVAL



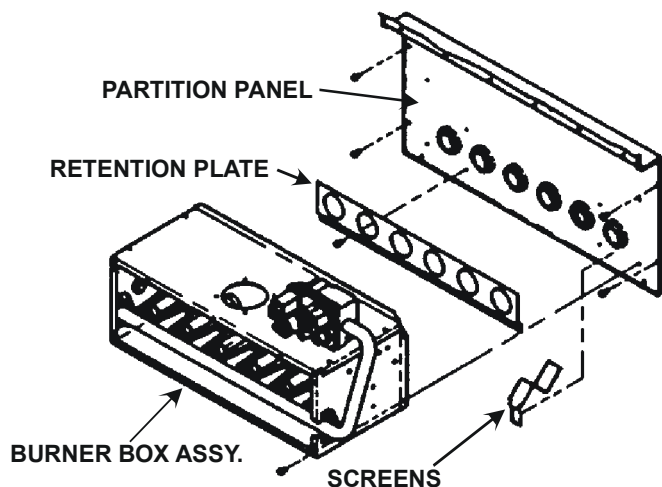
WARNING

REMOVE ALL METAL SCREENS FROM THE HEAT EXCHANGE TUBES WHEN USING PROPANE GAS. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH AND IS NOT COVERED UNDER THE WARRANTY.

NOTE: TO PREVENT PREMATURE HEAT EXCHANGER FAILURE, FOLLOW THE INSTRUCTIONS IN THE NON-CONDENSING FURNACES AND PACKAGE GAS-ELECTRIC SECTION TO REMOVE ALL METAL SCREEN INSERTS FROM THE ENTRANCE OF HEAT EXCHANGER TUBES DURING PROPANE CONVERSIONS. NOT ALL MODELS WILL HAVE METAL SCREEN INSERTS.

NON-CONDENSING FURNACES AND PACKAGE GAS-ELECTRIC

1. Remove the screws securing the burner box to the partition panel. Separate burner box from unit.
2. Remove the screw(s) securing the NOx screen retention plate and remove the plate.
3. Remove and discard NOx screens.
4. Reinstall the NOx screen retention plate and burner box.



TYPICAL NOx SCREEN REMOVAL
FIGURE 3

LP LOW PRESSURE SWITCH INSTALLATION

IMPORTANT INFORMATION

This kit provides control over the unit gas valve by routing the gas valve wiring through the supplied pressure switch. To enable proper fit-up, the pressure switch kit must be installed before connecting the gas supply line to the gas valve. For new unit installations, the kit hardware may be fitted to the gas valve while the gas manifold is removed for LP gas orifice conversion.

For existing installations, the gas valve line must be disconnected from the gas valve to allow fitting of kit hardware. Refer to Figures 4 and 5 for a view of kit hardware as installed in unit. Before proceeding, shut off gas supply at manual shutoff and turn off power to unit.

Contact a local propane gas supplier about installing a gas detecting warning device.

NOTE: TO ENSURE PROPER OPERATION, INSTALL, OPERATE AND MAINTAIN THE UNIT IN ACCORDANCE WITH THESE INSTALLATION INSTRUCTIONS, ALL LOCAL BUILDING CODES AND ORDINANCES. IN THEIR ABSENCE, FOLLOW THE LATEST EDITION OF THE NATIONAL FUEL GAS CODE (NFPA 54/ANSI Z223.1), AND/OR CAN/CSA B149.1 INSTALLATION CODES.

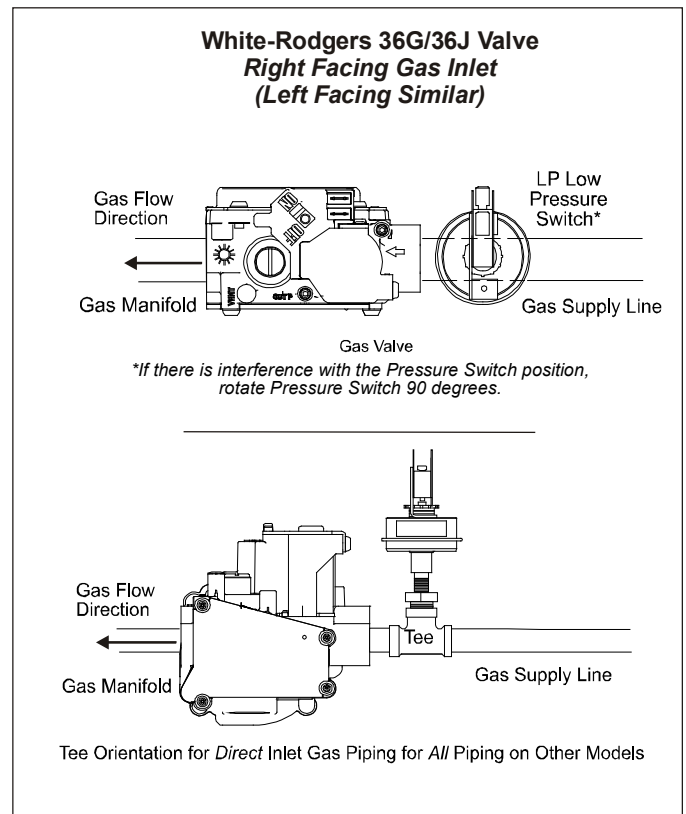


FIGURE 4

FURNACES USING WHITE-RODGERS 36G/36J GAS VALVE

NOTE: ALL THREADED CONNECTIONS MUST BE SEALED WITH TEFLON TAPE OR PIPE DOPE. PIPE SEALANT MUST BE APPROVED FOR USE WITH PROPANE GAS.



CAUTION

TO AVOID THE RISK OF PROPERTY DAMAGE, PERSONAL INJURY OR FIRE, SHUT OFF GAS SUPPLY FIRST, THEN DISCONNECT THE ELECTRICAL SUPPLY BEFORE PROCEEDING WITH CONVERSION.

1. Install field-supplied 90 degree street elbow into gas valve.
2. Install field-supplied $\frac{1}{2}$ " x length required to exit wrapper into 90 degree street elbow for left side gas outlet. Install field supplied $\frac{1}{2}$ " x length required to exit wrapper on the right side of the gas outlet (see Figure 5).
3. Place $\frac{1}{2}$ " tee on pipe.
4. With gas valve and manifold installed in the unit, connect the gas supply line into $\frac{1}{2}$ " tee as required (typically opposite of gas valve side).
5. Install $\frac{1}{2}$ " x $\frac{1}{8}$ " bushing into $\frac{1}{2}$ " tee in the remaining opening.
6. Install pressure switch in bushing. Pressure switch will be installed outside of the wrapper (see Figure 5).
NOTE: Ensure that the switch is upright in all applications.
7. Perform installation check out procedure (piping leak check, line pressure measurement, manifold pressure adjustment, etc.) as outlined in the unit installation instructions.
8. Turn OFF gas supply.
9. Turn OFF power to furnace. Connect jumper harness between LP Low Pressure switch and gas valve and gas valve wiring as indicated in Figure 6 (single-stage models - some models may require the use of long single-stage harness).
- NOTE:** Do not run wires through the gas pipe opening if gas piping is present. Pipe could easily cause damage to the wires.
10. Turn ON power to furnace. Verify proper unit operation.
11. Remove backing from kit label. Fold label around jumper harness wire to indicate kit installation.
12. Adhere kit wiring diagram adjacent to existing unit wiring diagram.

IMPORTANT NOTE: SECURE ALL WIRES TO AVOID THEIR CONTACT WITH ANY HOT SURFACES OR MOVING PARTS.

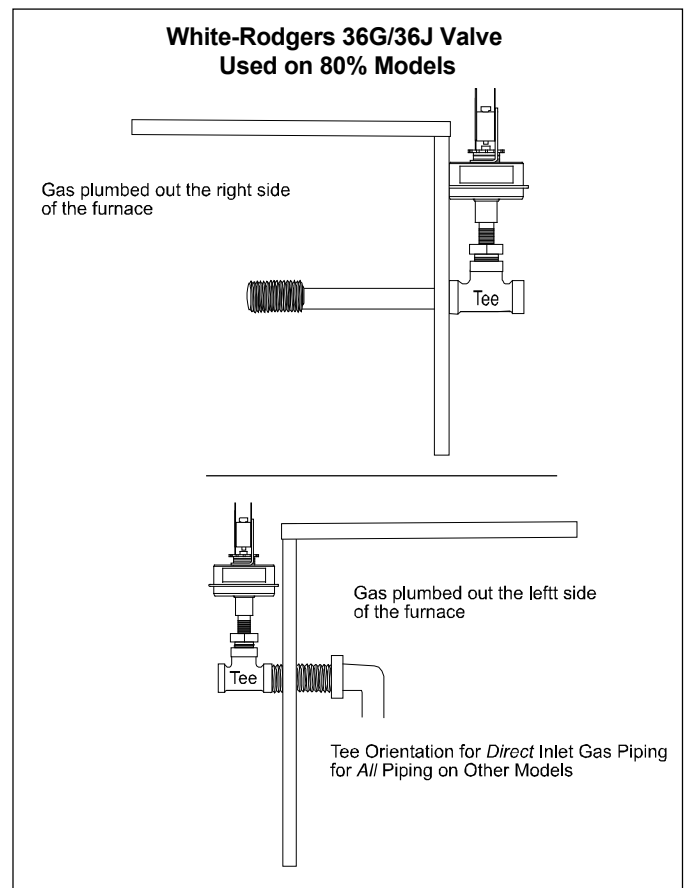


FIGURE 5

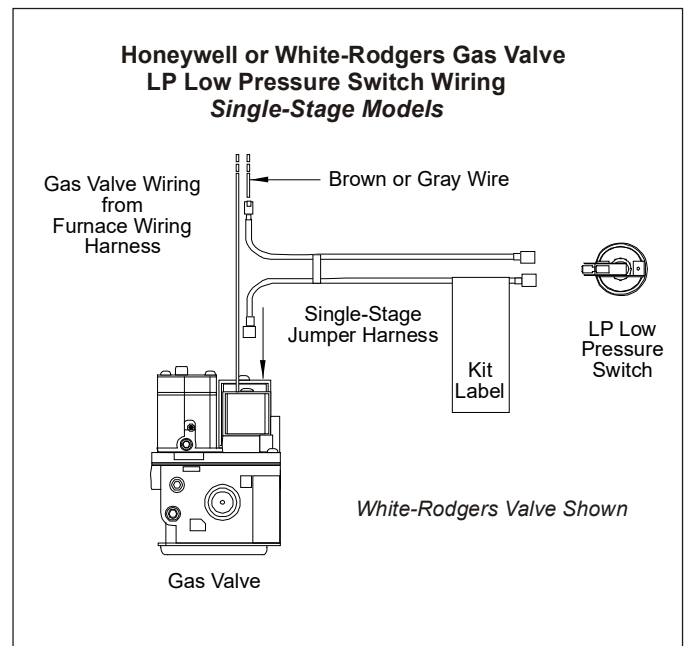
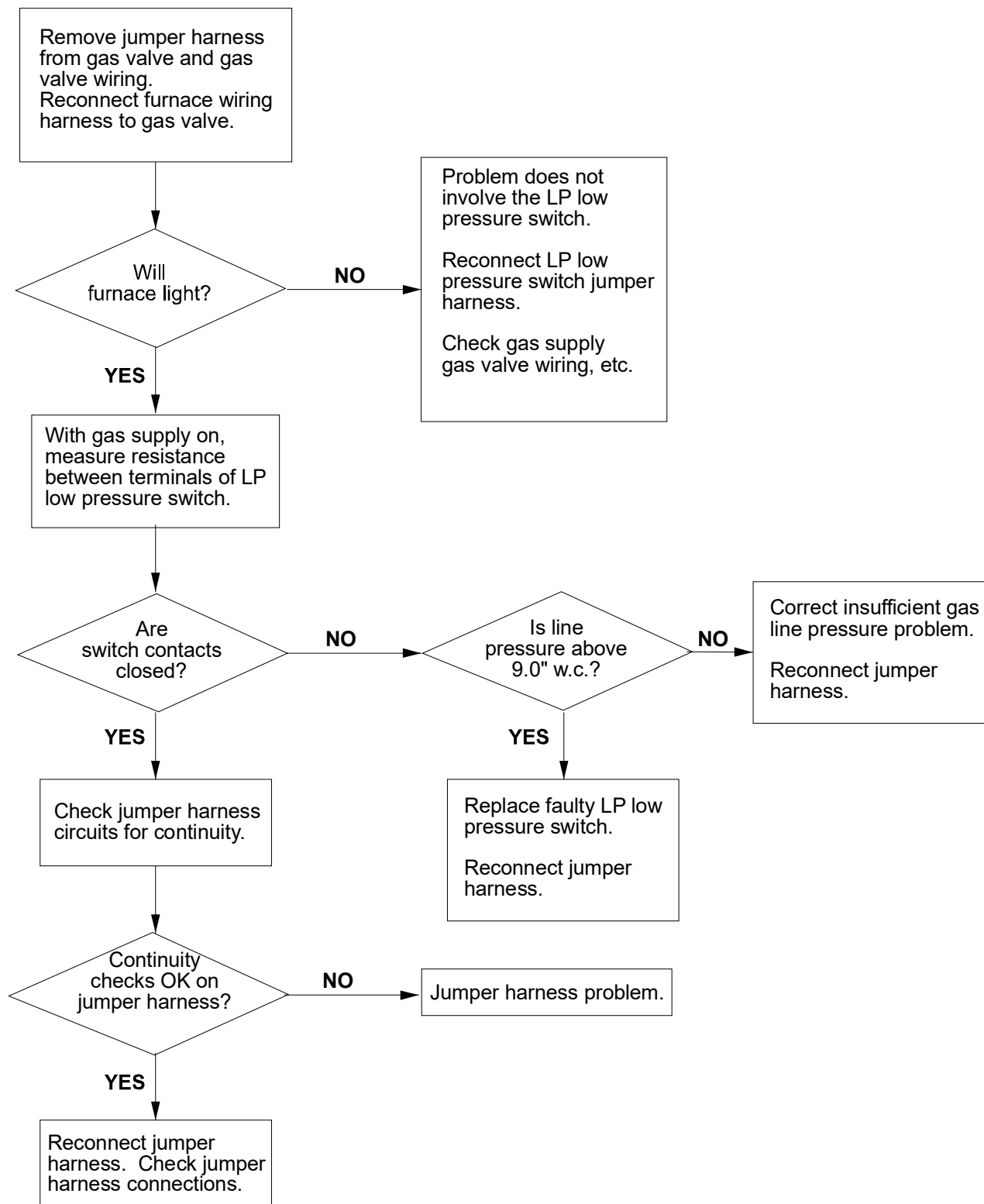


FIGURE 6

TROUBLESHOOTING

If the furnace fails to light after installation of the LP low pressure switch kit, proceed as follows:



CUSTOMER FEEDBACK

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