

Appendix - Instructions for All Gas Conversion Kits
for Ovens with Wayne Burner, Natural Gas to Propane, 8/00

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Instructions for Service Kits 42810-0119, 42810-0122, 42810-0123, 42810-0124, 43062, 44665

Gas Conversion Kit for Middleby Marshall Ovens
Natural Gas to Propane Operation

KIT COMPONENTS:

Qty.	PS200	PS220/224	PS310/360	PS360WB	PS360WB70/EWB	PS555	PS570S	Description
1	42810-0122	42810-0123	42810-0119	42810-0124	44665	43062	42810-0124	KIT, GAS CONVERSION, NATURAL TO PROPANE
1	22176-0007 0.1285"/3.26mm	22176-0017 0.113"/2.87mm	22176-0003 0.134"/3.40mm	22176-0015 0.152"/3.86mm	31980 0.165"/4.19mm	43060 0.141"/3.58mm	22176-0015 0.152"/3.86mm	ORIFICE, MAIN
1	<-----				22174-0010 0.018"/0.45mm	----->		ORIFICE, PILOT
1	22174-0009 0.038"/0.97mm/ #62 drill	22174-0009 0.038"/0.97mm/ #62 drill	22174-0009 0.038"/0.97mm/ #62 drill	22174-0009 0.038"/0.97mm/ #62 drill	22174-0009 * 0.038"/0.97mm/ #62 drill	NONE *	22174-0009 * 0.038"/0.97mm/ #62 drill	ORIFICE, BYPASS (HIGH-FLAME)
1	<-----				28092-0018	----->		KIT, GAS CONTROL VALVE SPRING - PROPANE
1	<-----				22500-0065	----->		LABEL, PROPANE (RED)
1	<-----				22500-0123	----->		LABEL, GAS CONVERSION
1	<-----				22501-0007	----->		TAG, GAS CONTROL CONVERSION
1	<-----				88210-0069	----->		INSTRUCTIONS

* NOTE: The bypass orifice is not used if the oven is equipped with a modulating gas valve. These ovens include:

- PS360EWB (all)
- PS555 (all)
- PS570S (units produced 4/00 or later)

For additional information, refer to Part III of these instructions (*Bypass Orifice Conversion*).



IMPORTANT

THIS CONVERSION KIT IS INTENDED FOR AGA-, CGA-, AND CSA-APPROVED MIDDLEBY MARSHALL GAS-FIRED OVENS OPERATING AT ALTITUDES UP TO 5000 FT. (1524m). FOR OVENS INSTALLED AT ALTITUDES ABOVE 5000 FT. (1524m), CONSULT THE FACTORY BEFORE INSTALLING THIS KIT.

THIS KIT MAY NOT BE USED WITH CE-APPROVED MIDDLEBY MARSHALL OVENS. FOR THESE OVENS, FOLLOW THE GAS CONVERSION INSTRUCTIONS IN THE *INSTALLATION* SECTION OF THE OVEN'S OWNER'S OPERATING AND INSTALLATION MANUAL.





WARNING

THIS CONVERSION KIT IS TO BE INSTALLED BY A MIDDLEBY MARSHALL AUTHORIZED SERVICE AGENT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND ALL CODES AND REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. FAILURE TO FOLLOW INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR PROPERTY DAMAGE. THE AUTHORIZED SERVICE AGENT PERFORMING THIS WORK ASSUMES RESPONSIBILITY FOR THIS CONVERSION.



WARNING

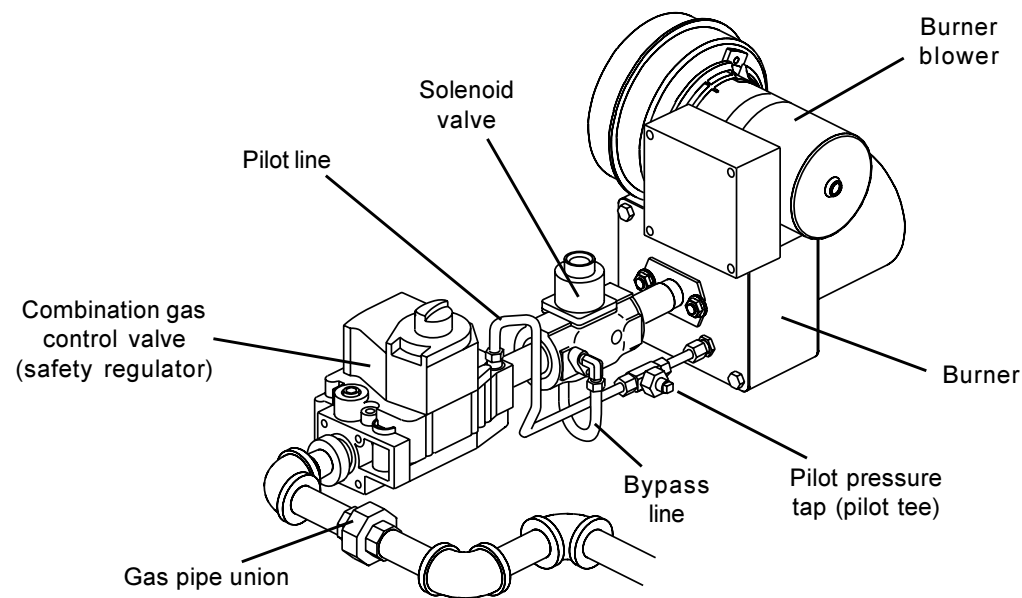
BEFORE PERFORMING ANY SERVICE WORK, THE ELECTRICAL POWER SUPPLY AND THE GAS SUPPLY MUST BE TURNED OFF.

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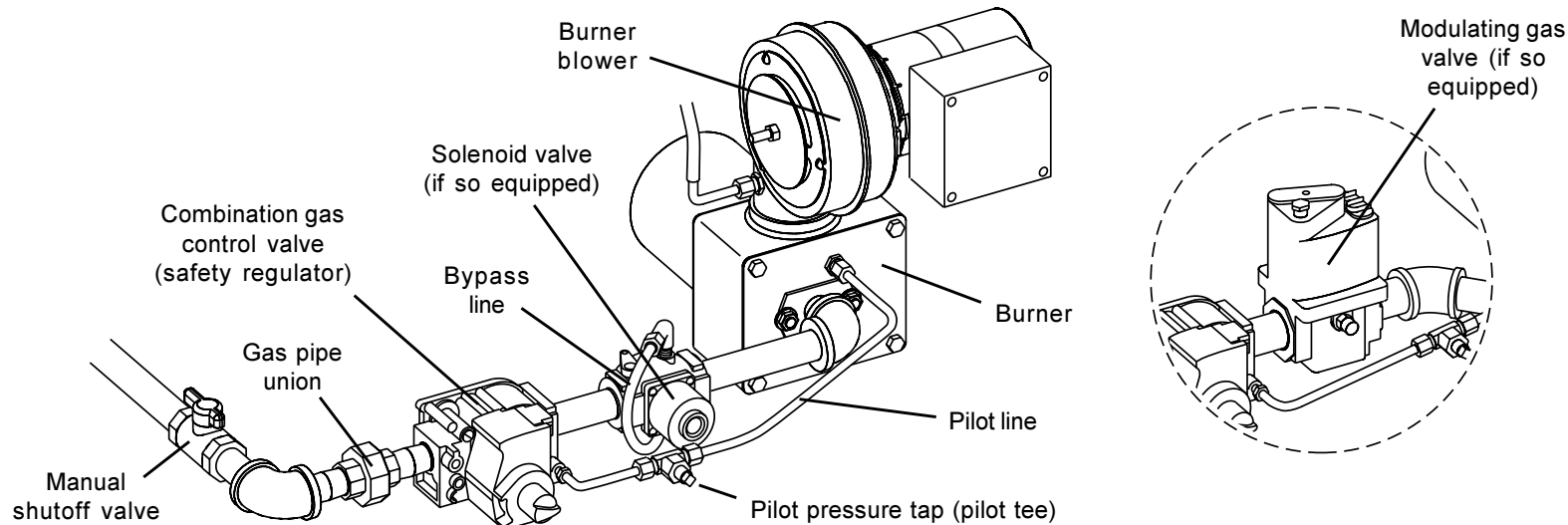
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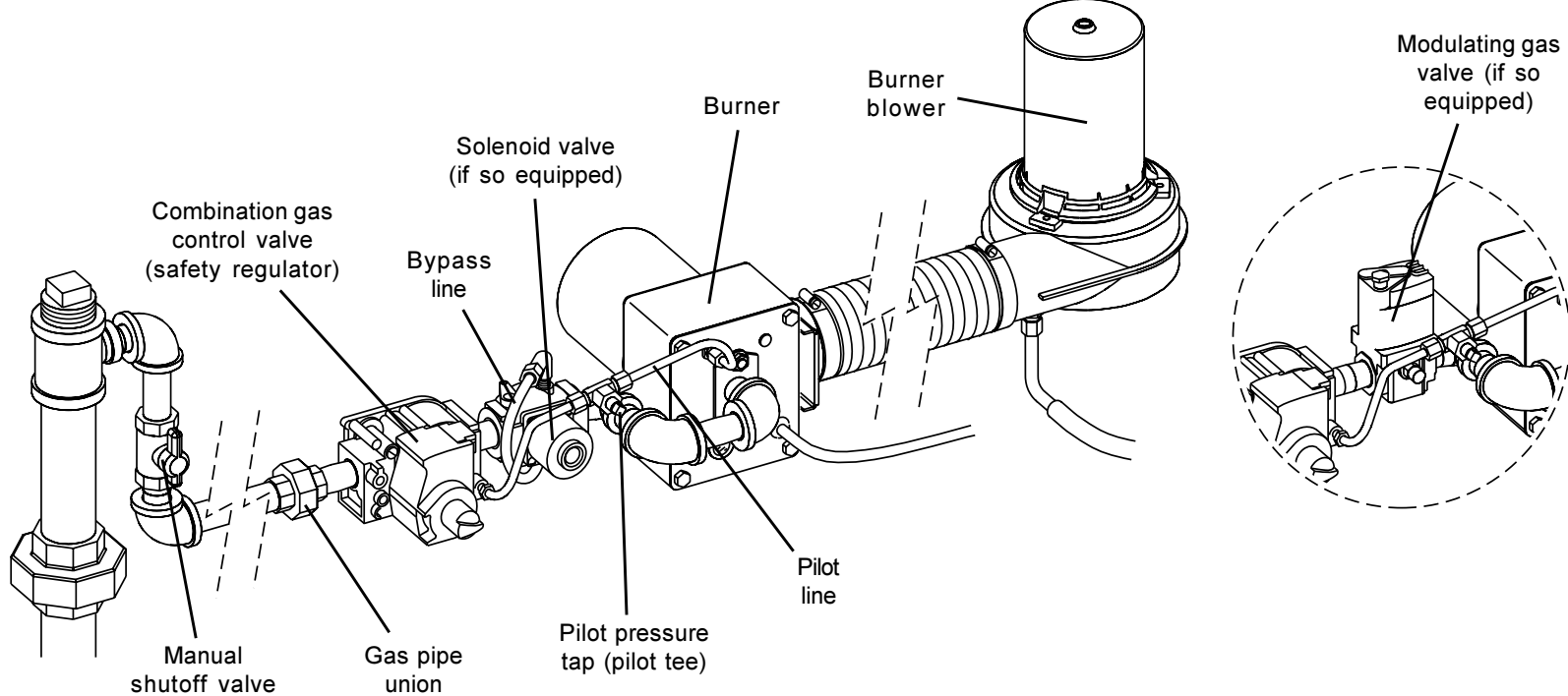
Typical PS200-series gas train configuration



Typical PS300-series gas train configuration



Typical PS555 or PS570S gas train configuration



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I. PREPARATION AND DISASSEMBLY

1. Turn off the electric power supply to the oven.
2. Turn off the gas supply at the service valve behind the oven.
3. Open the machinery compartment door.
4. Open the union in the gas supply line. The union is located on the inlet side of the combination gas control valve. See Figure 1.
5. Unscrew the four hex screws that hold the venturi mounting plate to the front of the burner. Remove the gas train/venturi assembly from the oven.

II. COMBINATION GAS CONTROL VALVE (SAFETY REGULATOR) CONVERSION

1. Remove and discard the following components from the combination gas control valve, as shown in Figure 2:
 - Regulator cap screw
 - Regulator adjustment screw
 - Regulator spring
2. Install the red kit-supplied regulator spring, with the tapered end facing into the valve, as shown in Figure 2.
3. Install the white kit-supplied regulator adjustment screw. Carefully adjust the screw until its top is flush with the top of the regulator.
4. Turn the adjustment screw six complete turns in a clockwise direction. This preliminary pressure setting is approximately 10-1/2" W.C. (26.1mbar).
5. Install the black kit-supplied cap screw.

III. BYPASS ORIFICE CONVERSION

NOTE: Ovens are equipped with EITHER an on-off solenoid valve with a separate bypass line, OR with a modulating gas valve. Refer to the illustrations on Page 2. When installing this Kit, the bypass orifice will only be changed if the oven is equipped with a solenoid valve.

- If the oven is equipped with a modulating gas valve, skip ahead to Section IV, *Pilot Orifice Conversion*.
 - If the oven is equipped with a solenoid valve, continue on to Step 1, below.
1. Unscrew the compression nuts at both ends of the bypass tube, and slide them back and out of the way. Then, remove and retain the tubing. See Figure 3.
 2. Remove and discard the existing bypass orifice.
 3. Slip the kit-supplied bypass orifice into the discharge end of the bypass tube, as shown in Figure 3.
 4. With the orifice in place, push the tube back into the compression fittings until it bottoms.
 5. While holding the tube in place, slide the compression nuts into place. Tighten them to a snug fit with your fingers.
 6. Gently tighten the nuts one complete turn with a wrench. **DONOT OVERTIGHTEN THE COMPRESSION NUTS.**

Figure 1

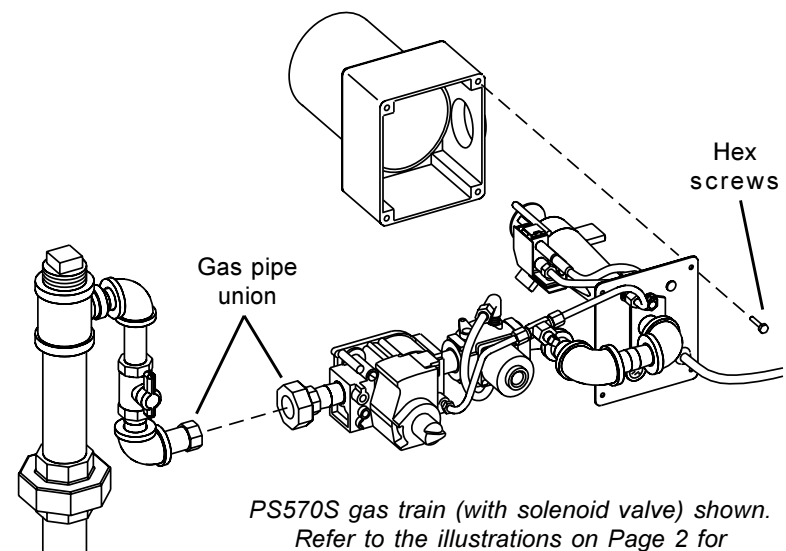


Figure 2

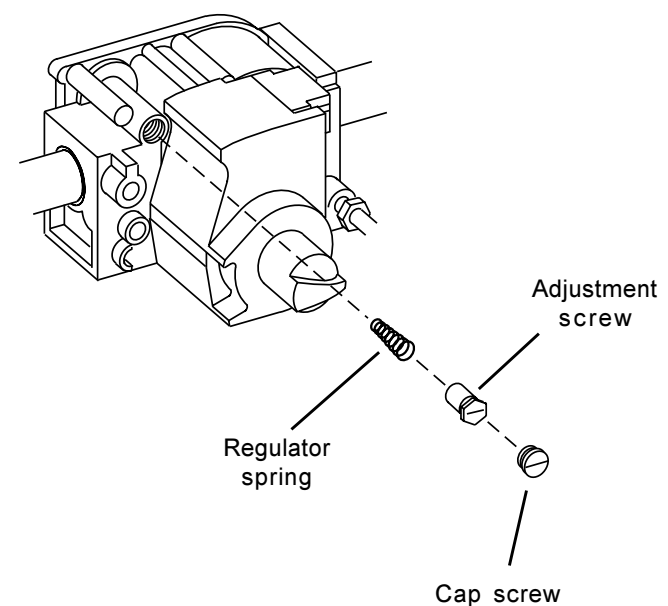
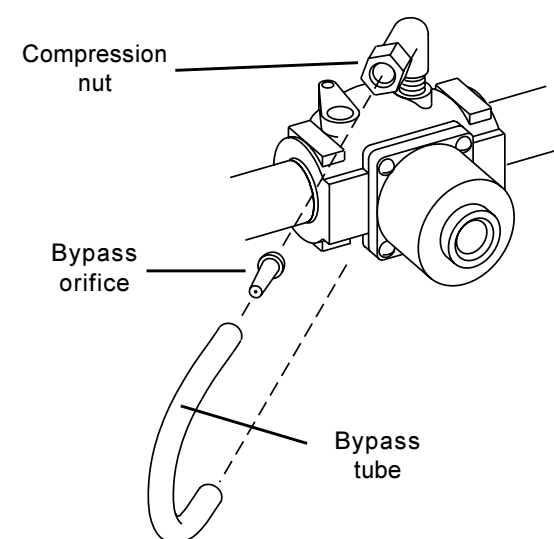


Figure 3



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IV. PILOT ORIFICE CONVERSION

- 1. Unscrew the two 1/2" nuts that secure the gas train to the venturi mounting plate. See Figure 4.
- 2. Unscrew the pilot tube compression nut, and slide it out of the way. Then, pull the tube from the fitting to expose the pilot orifice. See Figure 4.
- 3. Separate the venturi, mounting plate, and gas train assembly. Leave the main orifice holder attached to the gas train piping assembly.
- 4. Remove and discard the existing pilot orifice.
- 5. Slip the kit-supplied pilot orifice into the pilot tube.
- 6. With the orifice in place, push the tube back into the compression fitting until it bottoms.
- 7. While holding the tube in place, slide the compression nut into place. Tighten the nut to a snug fit with your fingers.
- 8. Gently tighten the nut one complete turn with a wrench. **DO NOT OVERTIGHTEN THE COMPRESSION NUT.**
- 9. To allow the main orifice to be replaced, do not reassemble the gas train to the venturi and mounting plate at this time.

V. MAIN ORIFICE CONVERSION

- 1. Unscrew the existing main orifice from its holder using an 11/16" wrench. See Figure 4.
- 2. Install the kit-supplied main orifice into the holder.

VI. REASSEMBLY

- 1. Check that the pilot assembly is correctly aligned with the venturi, as shown in Figure 5. If necessary, reposition the pilot assembly.
- 2. Reassemble the venturi and mounting plate to the gas train assembly. Replace the two 1/2" hex nuts to hold the assembly together.
- 3. Replace the assembled gas train into the oven. Tighten the gas pipe union (on the inlet side of the combination gas valve) to hold the gas train in place.

Figure 4

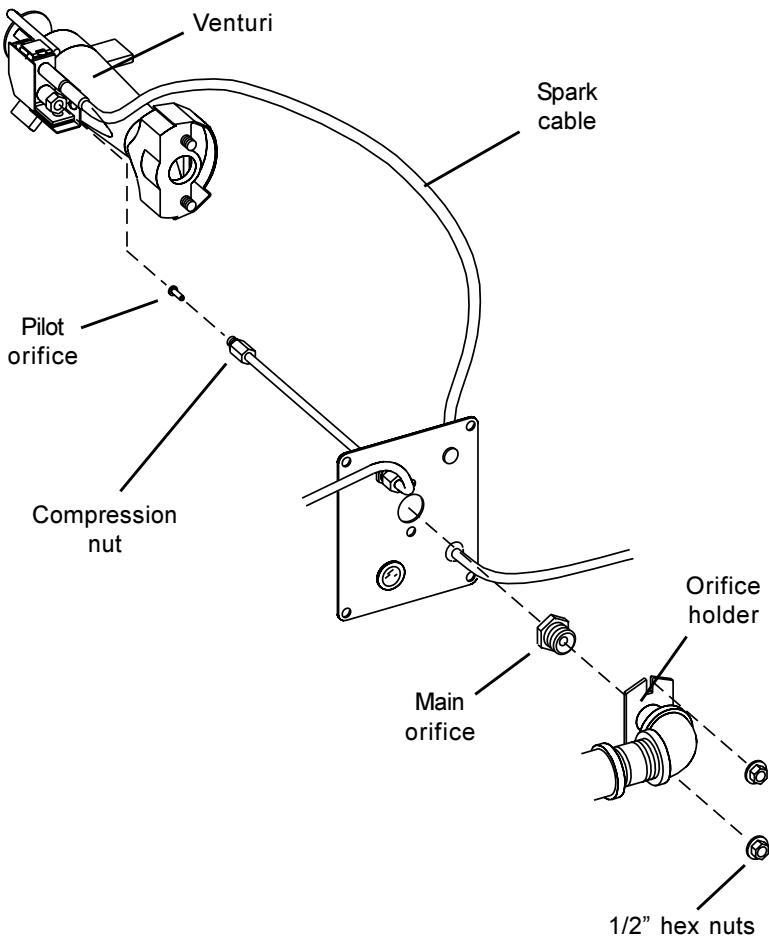
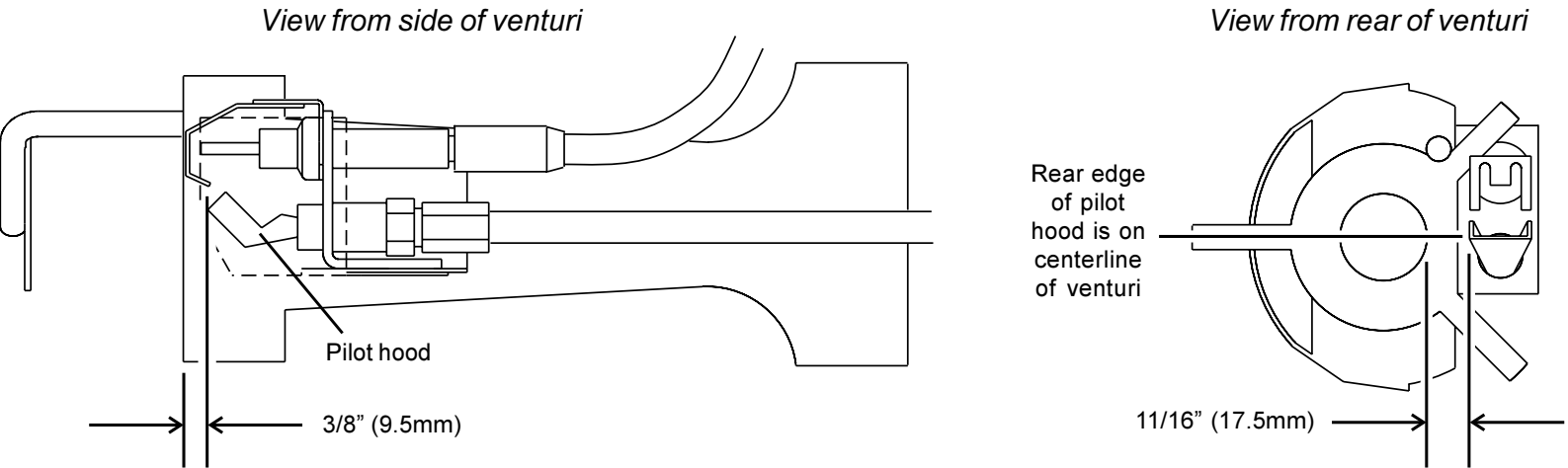


Figure 5



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VII. GAS LEAK TEST

1. Restore the electrical and gas utility connections to the oven.
2. Paint all gas pipe connections from the union to the venturi mounting plate, as well as the pilot tubing, bypass tubing, and pressure tap plug, with a rich solution of soap and water (2/3 soap, 1/3 water is recommended). Any visible bubbles indicate a gas leak.
3. If a gas leak is detected, tighten the affected joints and connections. If tightening the connection(s) fails to stop the leak:
 - Turn off the electric power supply to the oven.
 - Turn off the gas supply at the service valve behind the oven.
 - Replace the affected component(s).
 - Repeat the gas leak test.



WARNING - FIRE/EXPLOSION HAZARD

HIDDEN GAS LEAKS CAN CAUSE A FLASHBACK IN THE MACHINERY COMPARTMENT. THIS CAN CAUSE SEVERE INJURY OR DEATH. STAND WELL CLEAR WHEN SWITCHING ON THE HEATING CIRCUIT.

4. If no leaks are detected by the test, depress the safety switch(es) and switch on the oven. Then, switch on the heating circuit to ignite the burner.
5. With the burner in operation, paint all gas pipe joints with the solution of soap and water.
6. If any further gas leaks are detected, shut down the oven. Reseal and tighten the affected joints and connections. If tightening the connection(s) fails to stop the leak:
 - Turn off the electric power supply to the oven.
 - Turn off the gas supply at the service valve behind the oven.
 - Replace the affected component(s).
 - Repeat the gas leak test.

VIII. INLET PRESSURE CHECK

1. Using a manometer, check the inlet pressure at the inlet pressure tap. See Figure 6. An inlet pressure of 11-14" W.C. (27.4-34.9mbar) is recommended for propane operation.
2. If the inlet pressure is:
 - **HIGHER THAN 14" W.C. (34.9mbar)** - This pressure may damage the combination gas control valve (safety regulator). The gas supply pressure should be decreased.
 - **LOWER THAN 11" W.C. (27.4mbar)** - It may be necessary to increase the supplied gas pressure.

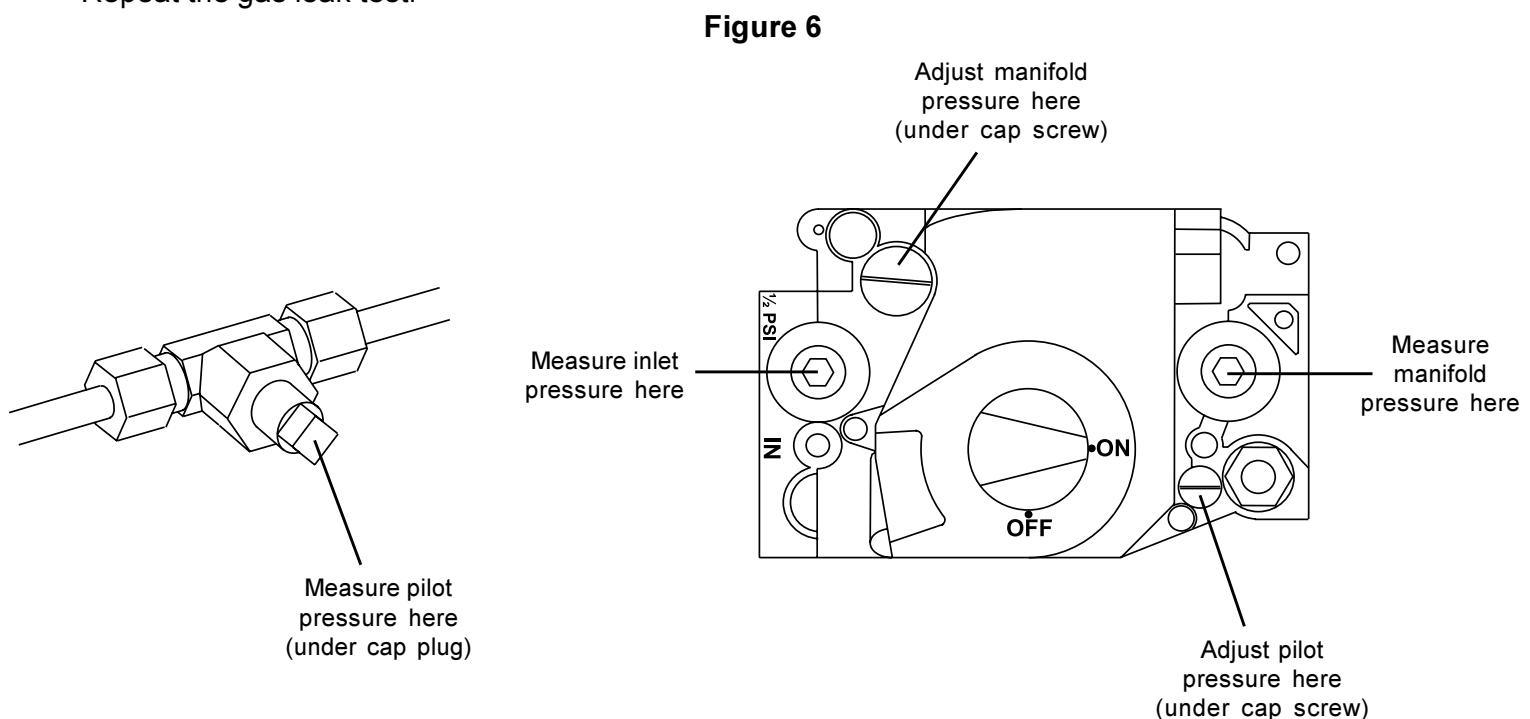
CAUTION

IF IT IS NECESSARY TO ADJUST THE GAS LINE PRESSURE, HAVE THE CUSTOMER CONTACT THE GAS UTILITY SUPPLIER.

IX. PILOT PRESSURE ADJUSTMENT

1. Unscrew the cap plug from the pilot pressure tap (pilot tee), and attach a manometer to the tap. See Figure 6.
2. Remove the pilot adjustment cap screw from the combination gas control valve.
3. Turn the oven on, and allow it to heat to temperature. Make a note of the customer's set point temperature.
4. After the oven has heated, adjust the set point of the oven far lower than its current (operating) temperature. This ensures that the pilot flame will be at its lowest level for some time.

Continued...



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5. The pilot pressure should be adjusted as follows:
- The current flow between the pilot hood and the flame sensor, when measured with a microamp meter or multimeter, holds constant at a minimum of 2.0 μ A. See Figure 7.
 - The pilot pressure as shown on the manometer is in the range of 8-10" W.C. (19.9-24.9mbar).

Adjust the pilot pressure as necessary by turning the pilot adjustment screw on the combination gas control valve. Turning the screw clockwise decreases the pilot pressure (and current flow). Turning the screw counter-clockwise increases the pressure (and current flow).

Some valves may have a burr in the pilot adjustment portal. If you have fully tightened the adjustment screw, and the manometer still does not register a change in pressure, continue to tighten the screw to break through the burr. Back the screw out until its top is flush with the top of its hole, then tighten the screw again as necessary to adjust the pressure. Repeat this procedure as necessary to properly adjust the pilot pressure.

If the pilot pressure cannot be properly adjusted, switch the oven off and allow it to cool; then, replace the combination gas control valve. Repeat Section VII (Gas Leak Test) before attempting to adjust the pilot pressure again.

6. After the pilot pressure has been properly adjusted, replace the cap screw.
7. Reset the oven's set point temperature to the customer's original settings. Leave the oven in operation to allow the manifold pressure to be checked in the next Section of these instructions.

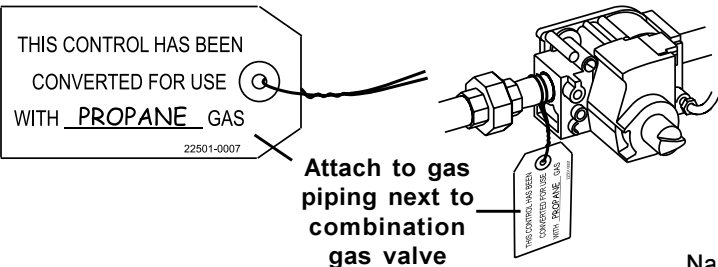
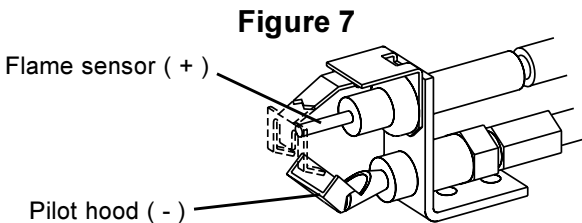
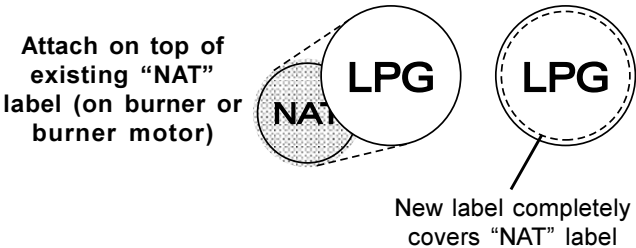


Figure 8



Attach to gas piping next to combination gas valve

THIS APPLIANCE HAS BEEN CONVERTED ON _____ TO PROPANE GAS WITH KIT NO. _____ BY _____, WHO ACCEPTS THE RESPONSIBILITY FOR THE CORRECTNESS OF THIS CONVERSION.

MODEL NO. _____ MAIN BURNER ORIFICE SIZE _____ MANIFOLD PRESSURE _____

INPUT RATING _____ MAXIMUM INLET PRESSURES _____ 14" W.C. / 34.9mbar

Part no. of this Kit - see chart on Page 1

Stated on the oven's serial plate

Name of technician

Date of conversion

Measured value from Section X

See chart on Page 1

Attach completed label in plain view near serial plate