

FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLING OR OPERATING THIS CONTROL COULD CAUSE PERSONAL INJURY AND/OR PROPERTY DAMAGE.

DESCRIPTION

36C94-303 is a direct replacement for 36C94-302, 36E93-301, 36E93-302, 36E93-303 and 36E93-304. The 36C94-303 combination gas valve is designed for intermittent ignition system applications. The valve is equipped with a redundant solenoid

valve that controls gas flow to the pilot and main burners, a main valve that controls gas flow to the main burner, a pressure regulator to maintain a constant outlet pressure, integral gas pressure switch and a two position on/off switch for electrical shutoff.

SPECIFICATIONS

Type of Gas: Natural gas

LP gas (use conversion kit)

Pressure Regulator Adjustment Range:

Nat. Gas – 2.5 to 5.0" W.C.

L.P. Gas – 7.0 to 12" W.C.

Pipe Size:

Inlet – 1/2" NPT

Outlet – 3/4" NPT

Capacity @ 1" pressure drop across valve:

230,000 BTU/HR of 0.64 SP GR.

1,000 BTU/CU. FT gas

Ambient Temperature: –40 to +175°F (–40 to 79°C)

Pressure Rating: 14" W.C. (1/2 PSI) max.

Electrical Rating: 24 VAC, 60 Hz, 0.6 A

Parts and Accessories:

F92-0656 - LP to Natural Gas Conversion Kit for use on Single Stage 36C, D, E, F, G, H, J valves. Regulation range 2.5" to 5.0" W.C.

F92-0659 - Natural to Regulated LP Gas conversion Kit for use on Single Stage 36C, D, E, F, G, H, J valves. Regulation range 7.0" to 12.0" W.C.

PRECAUTIONS

DO NOT BEGIN INSTALLATION UNTIL YOU READ THE FOLLOWING PRECAUTIONS.

⚠ WARNING



If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

1. Failure to turn off electric or main gas supply to heating system could cause personal injury and/or property damage by shock, gas suffocation, fire, and/or explosion.
2. Do not use this control on circuits exceeding specified voltage. Higher voltage will damage the control and may cause shock or fire hazard.
3. NEVER USE FLAME OR ANY KIND OF SPARK TO CHECK FOR GAS LEAKS—COULD CAUSE FIRE AND/OR EXPLOSION.
4. Do not use a control set for natural gas with LP gas, or a control set for LP gas with natural gas. Personal injury and/or property damage, gas suffocation, fire, and/or explosion may result.

PRECAUTIONS

⚠ CAUTION

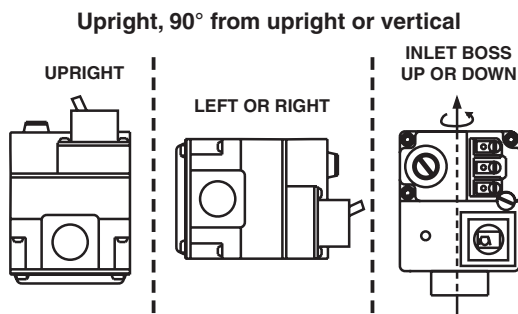
1. Do not short out terminals on gas valve or primary control to test. Short or incorrect wiring can cause equipment damage, property damage and/or personal injury.
2. This control is not intended for use in locations where it may come in direct contact with water. Suitable protection must be provided to shield the control from exposure to water (dripping, spraying, rain, etc.).

⚠ WARNING

Before beginning any modification, be sure ALL electrical disconnects are in the OFF position. TAG THE DISCONNECT SWITCHES WITH A SUITABLE WARNING LABEL. Electrical shock can cause personal injury or death.

INSTALLATION

1. Shut off power to the unit and install Lock-Out tag on all disconnects and breakers.
2. Turn off main gas supply line valve.
3. Mark all wires going to the old valve with the terminal description that they are attached to.
4. If replacing an existing valve, disconnect all plumbing and electrical connections from the old control.
5. The control may be installed in any orientation **except upside down** (see figure 1). The arrow on the valve indicates the direction of gas flow through the control.
6. You should use new pipe that is properly chamfered, reamed, and free of burrs and chips. If you are using old pipe, be sure it is clean and free of rust, scale, burrs, chips, and old pipe joint compound.
7. Apply pipe joint compound (pipe dope) **that is approved for all gases, only to the male threads of the pipe joints. DO NOT** apply compound to the first two threads (see figure 2 for typical piping connections).
8. Install gas valve by holding inlet boss with adjustable wrench. Do not tighten excessively, as this may damage the valve (Torque: 375 in-lb maximum). Do not cross-thread during installation as this may damage the valve.
9. If the original gas valve has a barbed hose fitting, install pressure tube on barbed hose fitting of the replacement valve. Ensure that the pressure tube will not kink.
10. Do not remove barbed hose fitting from replacement valve even if the original valve does not have it.
11. Some applications will require modification of the pilot tube.
12. See **SYSTEM WIRING** when making electrical connections. Connect wires per Fig. 3 Diagram and Fig. 4 Chart.
13. After installation is complete, check the operation of the unit and, with main burners firing, check all joints for leaks using a soap and water solution. Retighten all joints where bubbles appear. **DO NOT USE OPEN FLAME TO CHECK FOR LEAKS**



NOTE: Control shown may not be identical to replacement control.

Figure 1. Mounting positions

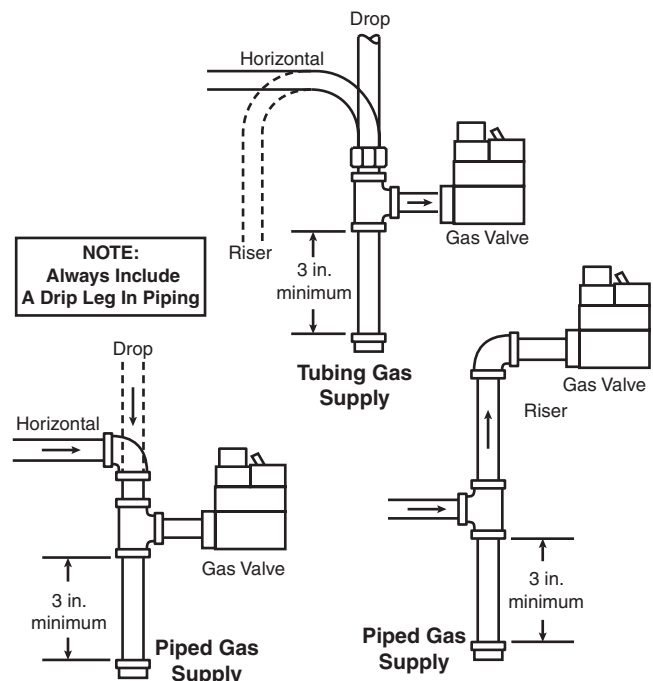


Figure 2. Typical Gas Valve Piping

SYSTEM WIRING

REFER TO AND FOLLOW THE APPLIANCE MANUFACTURER'S WIRING DIAGRAM. REFER TO FIG. 3 FOR TERMINAL IDENTIFICATION.

NOTE

All wiring should be installed in accordance with local and national electrical codes and ordinances.

Always check that the electrical power supply used agrees with the voltage and frequency shown on the gas control.

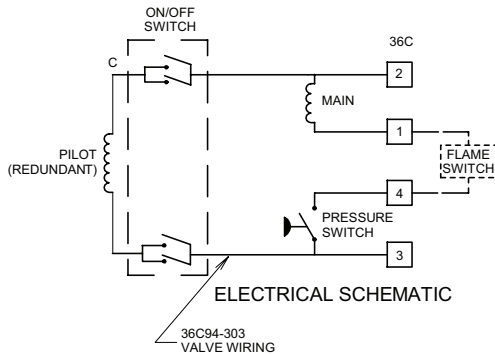


Figure 3. Valve Wiring

36E93 Terminal Panel		36C94 Terminal Panel	
36E93-301 36E93-302 36E93-303 36E93-304 Old Terminals	Description	Term and Size	36C94-303 36C94-302 New Terminals
5	Pilot (Redundant) Coil	1/4" Male Spade	3
1	Main Coil	1/4" Male Spade	1
4	Pressure Switch	1/4" Male Spade with 1/4" x 3/16" adapter installed	4
2 3	Common	1/4" Male Spade	2

Figure 4. Terminal Connection Old/New

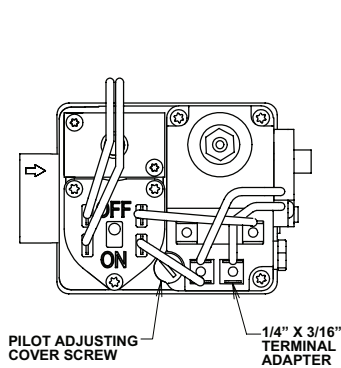


Figure 5. Gas Valve, Top

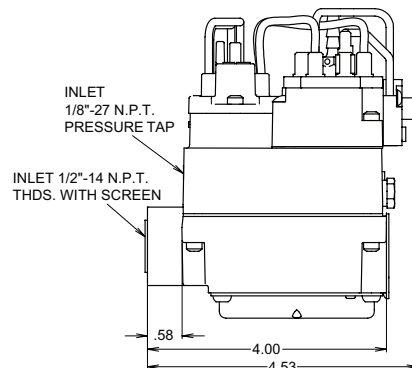


Figure 6. Gas Valve, Side

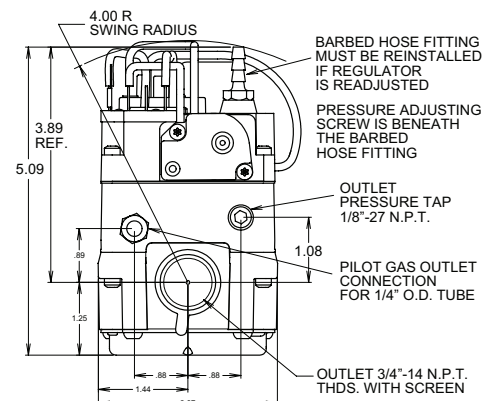


Figure 7. Gas Valve, Outlet Side

Pilot Gas Connection

Install fitting into pilot gas outlet (see Fig. 7), turning until finger-tight. Insert clean, deburred tubing all the way through the fitting. While holding the tubing securely, slowly tighten fitting until you feel a slight "give." Tighten the fitting an additional 1-1/2 turns.

Conversion from Natural to L.P. Gas. Refer to conversion kit installation instructions.

Outlet Pressure Adjustment

This control is shipped from the factory with the regulator set to 3.5" W.C. (Natural gas full flow). If required, the regulator can be adjusted for outlet pressures normally ranging from 2.5 to 5" W.C. (natural gas) or 7.5 to 12" W.C. (L.P. gas). **Do not force the adjusting screw beyond the limits that it can easily be adjusted.**

Inlet/Outlet pressure test ports are 1/8" NPT (see Fig. 7). For testing pressure, the outlet pressure tap plug will need to be removed and a separate hose fitting installed. After testing pressure with a manometer remove hose fitting and re-install plug. Tighten to 60 in-lb max.

1. Attach the manometer to the outlet pressure tap of the valve.
2. Energize system to ignite main burner.
3. Remove barbed hose fitting.
4. **To DECREASE outlet pressure**, turn the adjusting screw (beneath the barbed hose fitting) counterclockwise.
5. Replace the barbed hose fitting. Cycle the valve two or three times to verify regulator setting.

To INCREASE outlet pressure, turn the adjusting screw clockwise.

Pilot Gas Adjustment

This control was factory preset and will not normally require additional adjustment of pilot flame.

If the pilot flame requires adjustment, remove the pilot adjusting cover screw and gasket (see Fig. 5). **To REDUCE pilot flame**, turn the pilot adjust screw (beneath the cover screw) clockwise. **To INCREASE pilot flame**, turn the pilot adjust screw counterclockwise. Replace gasket and tighten cover screw.

LIGHTING INSTRUCTIONS

FOR YOUR SAFETY READ BEFORE OPERATING

⚠ WARNING



If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- A. This appliance is equipped with an intermittent ignition device which automatically lights the appliance. Do **not** try to light the pilot by hand.
- B. **BEFORE OPERATING** smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
- FOR YOUR SAFETY
"WHAT TO DO IF YOU SMELL GAS"**
- Do not try to light any appliance.
 - Do not touch any electrical switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- C. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

OPERATING INSTRUCTIONS

1. **STOP!** Read the safety information above on this page.
2. Set the thermostat to lowest setting.
3. Turn off all electric power to the appliance.
4. This appliance is equipped with an ignition device which automatically lights the burner. Do **not** try to light the burner by hand.
5. Remove control access panel.
6. Push On/Off switch to "OFF."
7. Wait five (5) minutes to clear out any gas. If you then smell gas, STOP! Follow "B" in the safety information above. If you don't smell gas, go to the next step.
8. Push On/Off switch to "ON."
9. Replace control access panel.
10. Turn on all electric power to the appliance.
11. Set thermostat to desired setting.
12. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.

TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Remove control access panel.
4. Push On/Off switch to "OFF."
5. Replace control access panel.

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