

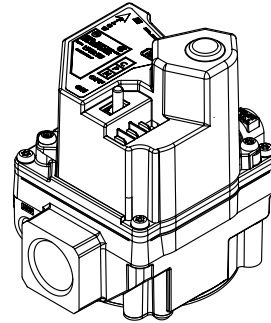
## INSTALLATION INSTRUCTIONS

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

### DESCRIPTION

The 36H series combination gas valve is designed with redundant and main solenoid valves that control gas flow to the main burners, a pressure regulator to maintain a constant outlet pressure, and a two position on/off switch for electrical shutoff. Model numbers below include features as described:

MODEL NO.	# OF STAGES	OPEN CHARACTERISTICS	PROVEN PILOT
36H22	1	Fast	NO
36H23	1	Slow	NO
36H32	1	Fast	YES
36H33	1	Slow	YES
36H54	2	Fast	NO
36H55	2	Slow	NO
36H64	2	Fast	YES
36H65	2	Slow	YES



### SPECIFICATIONS

**Pressure Regulator Setting: (" W.C.)**

	Single Stage	Two Stage		Min Diff. Low to High
		Low	High	
Natural Gas	2.5 - 5.0	1.0 - 3.5	2.5 - 5.0	1.5
LP Gas	7.0 - 12.0	4.0 - 9.5	8.0 - 12.0	2.5

**Type of Gas:** Natural Gas  
**Ambient Temperature:** -40° to 175°F  
**Pressure Rating:** 14" W.C. (½ PSI) max.  
**Voltage:** 24 VAC  
**Frequency:** 50/60 Hz  
**Current:** Single Stage - .410A  
Two-Stage - .540A

#### PIPE SIZES/CAPACITIES

Pipe Sizes Available (inches)	Capacity (BTU/hr) at 1" pressure drop across valve	
	AGA Std. Nat. Gas (1,000 btu/cu. ft.)	LP.Gas (2,500 btu/cu. ft.)
3/4" x 3/4" NPT	300,000	486,000

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#### MOUNTING POSITIONS:

Upright, or 0° to 90° from upright

UPRIGHT

LEFT or RIGHT

INLET BOSS  
VERTICAL

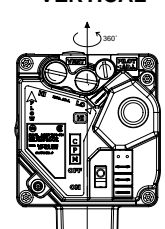
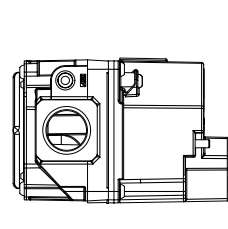
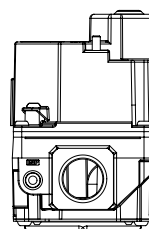



Figure 1. Gas valve mounting positions

## PRECAUTIONS

### DO NOT BEGIN INSTALLATION UNTIL YOU READ THE FOLLOWING PRECAUTIONS.

<b>⚠ WARNING</b>		If you do not follow these instructions exactly, a fire or explosion may result, causing property damage, personal injury or loss of life.		
<table border="0"><tr><td style="vertical-align: top; width: 50%;"><ol style="list-style-type: none"><li>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.</li><li>2. Do not use this control on circuits exceeding specified voltage. Higher voltage will damage the control and may cause shock or fire hazard.</li><li>3. NEVER USE FLAME OR ANY KIND OF SPARK TO CHECK FOR GAS LEAKS—COULD CAUSE FIRE AND/OR EXPLOSION.</li><li>4. DO NOT USE WIRE JUMPER on pilot systems, such as standing pilot, proven pilot, or spark-to-pilot ignition—a fire and/or explosion may result.</li></ol></td><td style="vertical-align: top; width: 50%;"><ol style="list-style-type: none"><li>5. 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.</li><li>6. Do not use a gas valve which appears to be damaged. A damaged valve may cause personal injury and/or property damage due to shock, gas suffocation, fire and/or explosion. Contact supplier to replace any valve that appears to have been damaged.</li><li>7. Do not use a gas valve that has been in direct contact with water. Water entering gas valve may result in concealed internal damage to gas valve. Personal injury and/or property damage, gas suffocation, fire and/or explosion may result.</li></ol></td></tr></table>			<ol style="list-style-type: none"><li>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.</li><li>2. Do not use this control on circuits exceeding specified voltage. Higher voltage will damage the control and may cause shock or fire hazard.</li><li>3. NEVER USE FLAME OR ANY KIND OF SPARK TO CHECK FOR GAS LEAKS—COULD CAUSE FIRE AND/OR EXPLOSION.</li><li>4. DO NOT USE WIRE JUMPER on pilot systems, such as standing pilot, proven pilot, or spark-to-pilot ignition—a fire and/or explosion may result.</li></ol>	<ol style="list-style-type: none"><li>5. 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.</li><li>6. Do not use a gas valve which appears to be damaged. A damaged valve may cause personal injury and/or property damage due to shock, gas suffocation, fire and/or explosion. Contact supplier to replace any valve that appears to have been damaged.</li><li>7. Do not use a gas valve that has been in direct contact with water. Water entering gas valve may result in concealed internal damage to gas valve. Personal injury and/or property damage, gas suffocation, fire and/or explosion may result.</li></ol>
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<b>⚠ WARNING</b>	
<p>Properly install gas piping to control.</p> <ul style="list-style-type: none"><li>• Do not remove protective inlet or outlet caps until ready to connect supply pipe to gas valve.</li><li>• Use new supply pipe, properly threaded, reamed, de-burred, and cleaned.</li><li>• Use backup wrench, applied only to provided wrench flats on inlet boss, when tightening the supply pipe. Do not grip bracket, solenoid or any other part of control.</li></ul>	<ul style="list-style-type: none"><li>• Do not over-tighten pipe to control (50ft-lbs max.)</li><li>• Always install sediment trap in the gas supply line to prevent contamination of gas valve.</li></ul> <p>Failure to install properly can cause gas leakage resulting in injury due to fire or explosion.</p>

<b>⚠ CAUTION</b>	
<ol style="list-style-type: none"><li>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.</li><li>2. This control is not intended for use in locations where it may come in direct contact with water. Suitable protection must be provided</li></ol>	<p>to shield the control from exposure to water (dripping, spraying, rain, etc.).</p> <ol style="list-style-type: none"><li>3. Clean gas piping of contaminants, cutting fluid, or other chemicals which might react harmfully with the gas valve components before install.</li></ol>

# INSTALLATION

## MAIN PIPING CONNECTIONS

### NOTE

Refer to warnings and cautions on page 2 before attempting installation. All piping must comply with local codes, ordinances, and/or national fuel gas codes.

1. Turn off electrical power to the system at the fuse box or circuit breaker. Also turn off the main gas supply.
2. If replacing an existing valve, disconnect all plumbing and electrical connections from the old control.
3. This valve may be installed upright, + or - 90° from upright, or vertical (refer to figure 1). The arrows on the valve identification label and on the bottom plate indicate direction of gas flow through the valve.
4. 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.
5. Apply pipe joint compound (pipe dope) or teflon tape that is **approved for all gases, only to the male threads of the pipe joints**. **DO NOT** apply compound or teflon tape to the first two threads (see fig. 3 for typical piping connections).
6. Do not tighten piping excessively, as this may damage the valve (50ft lbs max).
7. See **SYSTEM WIRING** when making electrical connections. After all gas and electrical connections are completed, turn gas on and check for gas leaks with leak detection solution or soap suds. Bubbles forming indicate a leak. **SHUT OFF GAS AND FIX ALL LEAKS IMMEDIATELY.**

## PILOT GAS CONNECTION

MODELS 36H3X AND 36H6X REQUIRE A PILOT CONNECTION.

Loosen the pilot fitting until it is 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.

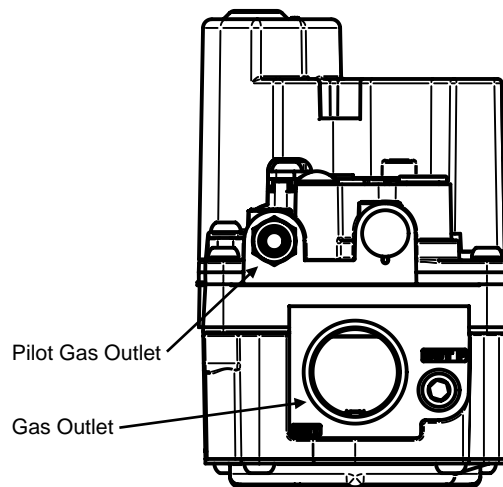


Figure 2. gas valve outlet end

### NOTE

All piping must comply with local codes, ordinances, and/or national fuel gas codes.

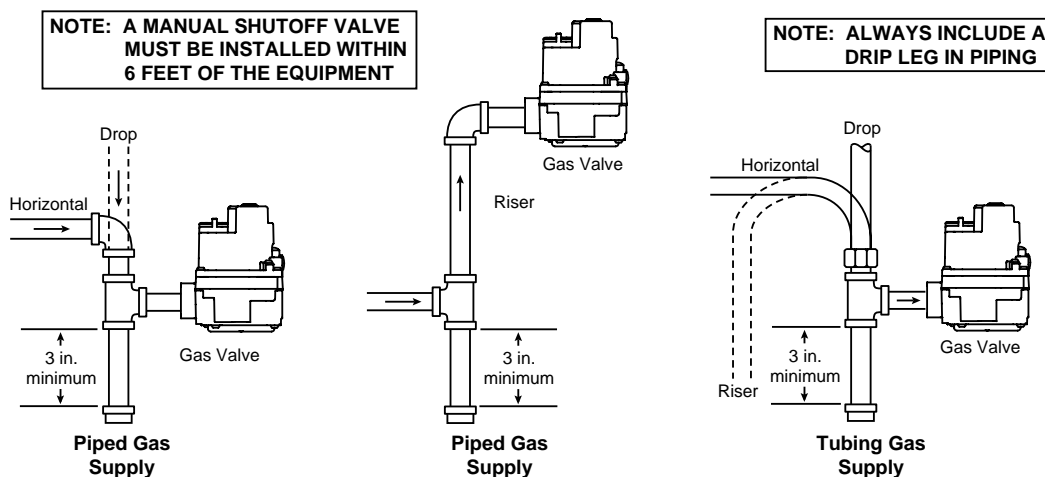


Figure 3. typical gas valve piping

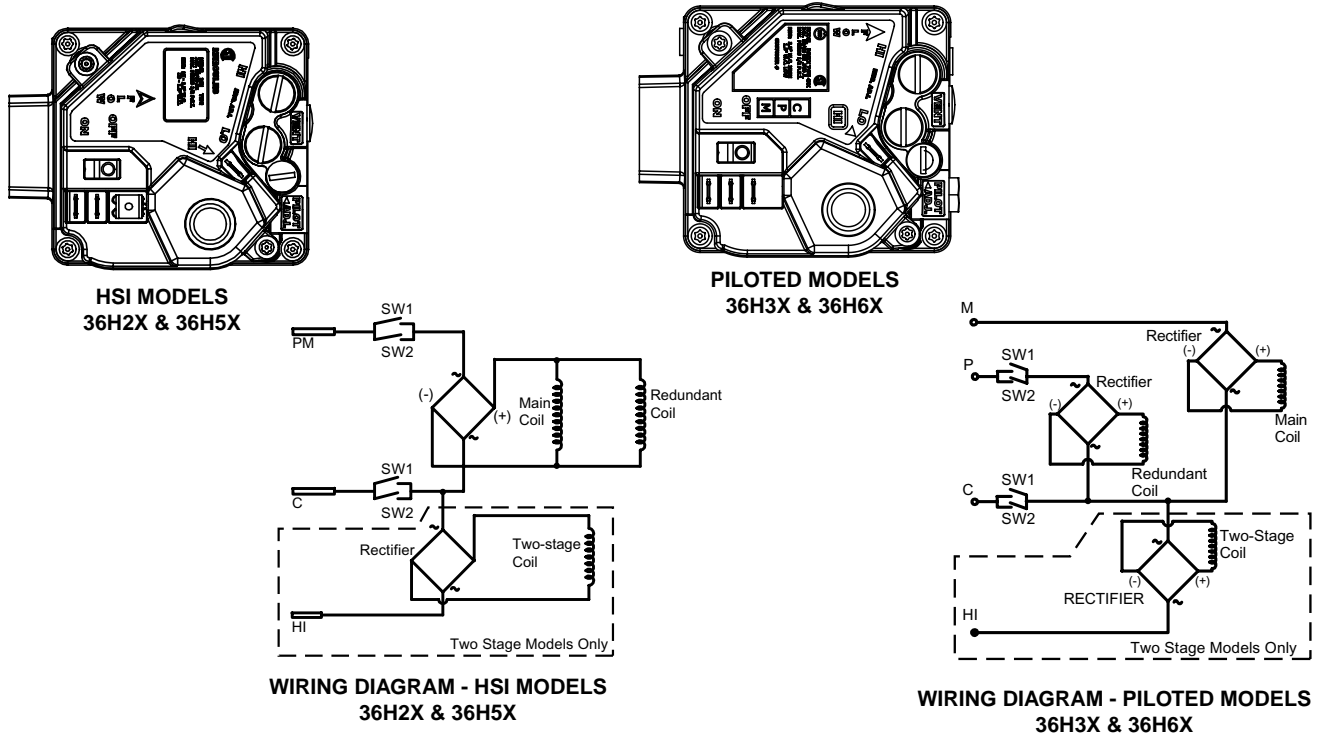
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**NOTE**

**REFER TO AND FOLLOW THE APPLIANCE MANUFACTURER'S WIRING DIAGRAM. REFER TO FIG. 4 FOR TERMINAL IDENTIFICATION.**

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 4. System Wiring

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## PRESSURE REGULATOR ADJUSTMENT

These controls are shipped from the factory with the regulator set as specified on the control label. Consult the appliance rating plate to ensure burner manifold pressure is as specified. If another outlet pressure is required, follow these steps.

## NOTE

**Natural Gas: Two-Stage Models** - Low outlet pressure will be factory-adjusted in the 1 to 3.5" W.C. range and high outlet pressure will be factory-adjusted in the 2.5 to 5" range. The valve cannot be adjusted outside this range and the high outlet pressure setting must always be set at least 1.5" above the low outlet pressure setting.

**Single Stage Models-** Outlet pressure will be factory-adjusted in the 2.5" to 5" range. The valve cannot be adjusted outside this range.

**LP Gas: Two-Stage Models** - Low outlet pressure will factory-adjusted in the 4" to 9.5" W.C. range and high outlet pressure will be adjusted in the 8 to 12" W.C. range. The valve cannot be adjusted outside this range and the high outlet pressure setting must always be set at least 2.5" above the low outlet pressure setting.

**Single Stage Models** - Outlet pressure will be factory-adjusted in the 7 to 12" range. The valve cannot be adjusted outside this range.

## ADJUSTMENT

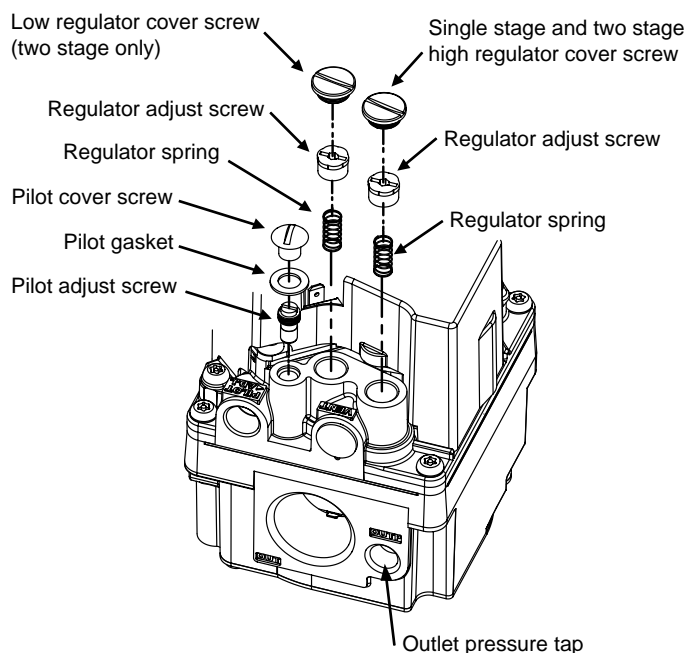


Figure 5. Pressure Adjustment

### OUTLET PRESSURE ADJUSTMENT

1. Turn off all electrical power to the system.
2. Remove plug and install hose barb fitting and manometer to pressure tap on outlet end of valve. See fig. 5.
3. Turn on system power. Set thermostat to call for heat (low stage for two-stage systems). Main burner should light. Proceed to step 6 for single stage systems.
4. (2-stage only) Remove regulator cover screw from the low outlet pressure regulator adjust tower (fig. 5) and turn screw clockwise (↻) to increase pressure, or counterclockwise (↺) to decrease pressure. Always adjust regulator according to original equipment manufacturer's specifications listed on the appliance rating plate. Replace regulator cover screw.
5. (2-stage only) Set thermostat to call for high stage.
6. Remove regulator cover screw from the single stage or high outlet pressure regulator adjust tower (fig. 5) and turn screw clockwise (↻) to increase pressure, or counterclockwise (↺) to decrease pressure. Always adjust regulator according to original equipment manufacturer's specifications listed on the appliance rating plate. Replace regulator cover screw.
7. Turn off all electrical power to the system.
8. Remove manometer hose and fitting from outlet pressure tap.
9. Replace outlet pressure tap plug and tighten (clockwise 40-60 in.-lb.).
10. Turn on system power and set thermostat to call for heat.
11. Using a leak detection solution or soapsuds, check for leaks at pressure tap plug. Bubbles forming indicate a leak. SHUT OFF GAS AND FIX ALL LEAKS IMMEDIATELY.

### PILOT FLAME ADJUSTMENT

(Models 36H3X and 36H6X only)

If the pilot flame is low and does not engulf the bulb of the mercury flame sensor, the system will not energize the main valve. If pilot gas pressure is too high, gas will sputter past the ignition electrode, and may not ignite. High pilot gas pressure may also cause the flame to lift off the burner, causing the flame sensor bulb to sense "low" heat.

To adjust the pilot gas pressure, remove the cover screw (See fig. 5). **To REDUCE pilot pressure**, turn the pilot adjust screw (beneath the cover screw) clockwise (↻). **To INCREASE pilot pressure**, turn the pilot adjust screw counterclockwise (↺). Replace and tighten cover screw.

### NOTE

For gas to gas conversion, consult your dealer for appropriate conversion kit.

## 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. **HSI MODELS:** This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do **not** try to light the burner by hand.

**PROVEN PILOT MODELS:** 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.

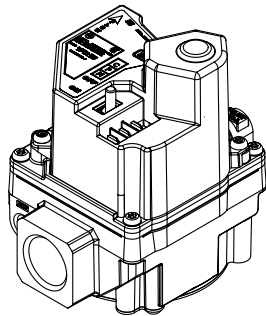
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

C. Use only your hand to move the gas control switch. **Never use tools.** If the switch will not move by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

D. 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 label.
2. Set the thermostat to lowest setting.
3. Turn off all electric power to the appliance.
4. **HSI MODELS:** This appliance is equipped with an ignition device which automatically lights the burner. Do **not** try to light the burner by hand.



5. **PROVEN PILOT MODELS:** This appliance is equipped with an ignition device which automatically lights the pilot. Do **not** try to light the burner by hand.
6. Remove control access panel.
7. Wait five (5) minutes to clear out any gas. If you then smell gas, STOP! Follow "B" in the safety information above on this label. If you don't smell gas, go to the next step.
8. Push gas control switch to "ON."  
NOTE: Do not force.
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 gas control switch to "OFF." **Do not force.**
5. Replace control access panel.