

## VR4200 Continuous Pilot Combination Gas Controls

### Application

These continuous pilot combination gas controls are used in gas-fired appliances up to 200 cfh capacity of natural gas. They include safety shutoff, a manual valve, two automatic operators, a pressure regulator, a pilot adjustment and a conduit cover. Body pattern is straight-through with 1/2 in. inlet and 1/2 in. outlet. Some models include two optional 1/4 in. quick-connect convenience terminals.

Refer to Table 1 for temperature ranges and regulator types. If a 7 follows the suffix letter in the model number, the unit includes an ECO connector with two 1/4 in. quick-connect terminals.

Flange kits include one flange with attached O-ring, four mounting screws, a 9/64 in. hex wrench and Instructions.

Controls are factory-set for natural (and manufactured) or LP gas. *Do not attempt to use a control set for natural (manufactured) gas on LP gas, or a control set for LP gas on natural (manufactured) gas.*

Controls with standard or slow opening regulators can be converted from one gas to the other with a conversion kit (ordered separately). Order part no. 393691 to convert from natural (manufactured) to LP gas; order part no. 394588 to convert from LP to natural (manufactured) gas. Controls with step opening regulators cannot be converted.

**GAS CONTROL KNOB POSITIONS:** OFF-PILOT-ON.  
**BODY PATTERN:** Straight-through.  
**INLET X OUTLET SIZES AVAILABLE:** 1/2 x 1/2 inch.  
**ADAPTERS:** Adapters are available for 1/2 and 3/4 inch straight and angle connections. Refer to Table 2.  
**ELECTRICAL RATINGS:**

Voltage and Frequency: 120 Vac, 60 Hz.  
Thermostat Heat Anticipator Setting: 0.1A.  
Current Draw: 0.1A.

#### APPROVALS:

American Gas Association design certificate: UP-70-57A.  
Canadian Gas Association design certificate: 1029-CC-8375.  
Australian Gas Association design certificate: 4214.  
Approved for Delta C applications.

TABLE 1—MODEL NUMBER SUFFIX LETTER DESIGNATION.

| Model No. Suffix Letter | Ambient Temperature Range             | Regulator Type |
|-------------------------|---------------------------------------|----------------|
| A                       | 0° F to 175° F<br>[-18° C to 79° C]   | Standard       |
| C                       |                                       | Step-opening   |
| H                       |                                       | Slow-opening   |
| M                       | -40° F to 175° F<br>[-40° C to 79° C] | Standard       |
| P                       |                                       | Step-opening   |

TABLE 2—ADAPTER (FLANGE) PART NUMBERS.

| Inlet/ Outlet Pipe Size | Flange Type        | Less Hex Wrench | Part No. With Hex Wrench |
|-------------------------|--------------------|-----------------|--------------------------|
| 3/8 in. NPT             | Straight           | 393690-1        | 393690-11                |
| 1/2 in. NPT             | Elbow <sup>a</sup> | 393690-2        | 393690-12                |
|                         | Straight           | 393690-6        | 393690-16                |
| 3/4 in. NPT             | Elbow <sup>a</sup> | 393690-3        | 393690-13                |
|                         | Straight           | 393690-4        | 393690-14                |
|                         | Elbow <sup>a</sup> | 393690-5        | 393690-15                |

<sup>a</sup> Elbow (angle) flanges cannot provide right hand inlet when the ECO connector is used.

NOTE: Flange kits include one flange with attached O-ring and four mounting screws.

### Installation

#### WHEN INSTALLING THIS PRODUCT...

1. Read instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.



### WARNING

**FAILURE TO FOLLOW THESE WARNINGS COULD RESULT IN A FIRE OR EXPLOSION WITH PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.**

1. Disconnect power supply before wiring to prevent electrical shock or equipment damage.
2. To avoid dangerous accumulation of fuel gas, turn off gas supply at the appliance service valve before starting installation, and perform Gas Leak Test after completion of installation.
3. Do not bend pilot tubing at control or pilot after compression nut has been tightened, or gas leakage at the connection can result.
4. Always install sediment trap in gas supply line to prevent contamination of gas control.
5. Do not force the gas control knob. Use only your hand to push down the reset button or turn the gas control knob. Never use any tools. If the knob or reset button will not operate by hand, replace the control using a qualified service technician. Force or attempted repair may result in fire or explosion.



## CAUTION

1. Never apply a jumper across or short the valve coil terminals. This may burn out the heat anticipator in the thermostat.
2. When a gas control is installed external to the appliance, a conduit cover *must* be installed.

### IMPORTANT:

1. These gas controls are shipped with protective seals over inlet and outlet tappings. Do not remove seals until ready to connect piping.
2. When a gas control is installed external to the appliance, a conduit cover **MUST** be installed. Make sure that the conduit cover is placed over the flange before rotating the conduit cover into position.

Follow the appliance manufacturer's instructions if available; otherwise, use the instructions provided below as a guide.

### CONVERTING CONTROL FROM NATURAL GAS TO LP GAS APPLICATION (OR LP GAS TO NATURAL GAS APPLICATION)



## WARNING

### FIRE OR EXPLOSION HAZARD CAN CAUSE PROPERTY DAMAGE, SEVERE INJURY OR DEATH

Always change the main and pilot burner orifices when converting from natural gas to LP gas or from LP gas to natural gas. Follow appliance manufacturer's specifications and instructions. Controls with standard or slow opening regulators can be converted from one gas to the other with a conversion kit (order separately). Order part no. 393691 to convert from natural (manufactured) to LP gas; order part no. 394588 to convert from LP to natural (manufactured) gas. Controls with step opening regulators cannot be converted.

### INSTALL ADAPTERS TO CONTROL

If adapters are to be installed on the gas control, mount them as follows:

#### Flanges

1. Choose the appropriate flange for your application.

NOTE: A right angle inlet flange cannot be used with ECO connected.

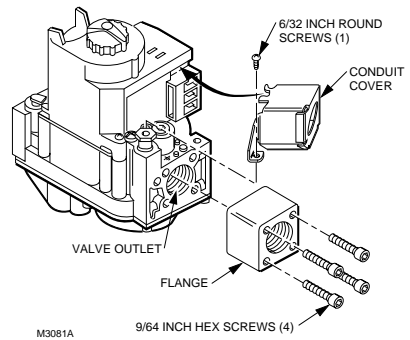
2. Remove seal over control inlet or outlet.
3. Check to assure that the O-ring is fitted in the groove of flange. If the O-ring is not attached or is missing, do not use the flange.
4. With O-ring facing valve, align the screw holes on the control with the holes in the flange. Insert and tighten the screws provided with the flange. See Fig. 1. Tighten the screws to 25 inch pounds of torque to provide a gas-tight seal.

#### Bushings

1. Remove seal over control inlet or outlet.
2. Apply moderate amount of good quality pipe compound to bushing, leaving two end threads bare. On LP installation, use compound resistant to LP gas. Do *not* use Teflon tape.
3. Insert bushing in control and carefully thread pipe into bushing until tight.

Complete instructions below for piping, installing control, connecting pilot tubing, thermocouple and wiring. Make certain the leak test you perform on the control after completing the installation includes leak testing the adapters and screws. If you use a wrench on the valve after flanges are installed, use the wrench only on the flange, not on the control.

**Fig. 1—Fasten flange to valve firmly, but do not overtighten screws.**



### LOCATION

The combination gas control is mounted in the appliance vestibule on the gas manifold. If this is a replacement application, mount the gas control in the same location as the old control.

Do not locate the gas control where it may be affected by steam cleaning, high humidity, dripping water, corrosive chemicals, dust or grease accumulation, or excessive heat. To assure proper operation, follow these guidelines:

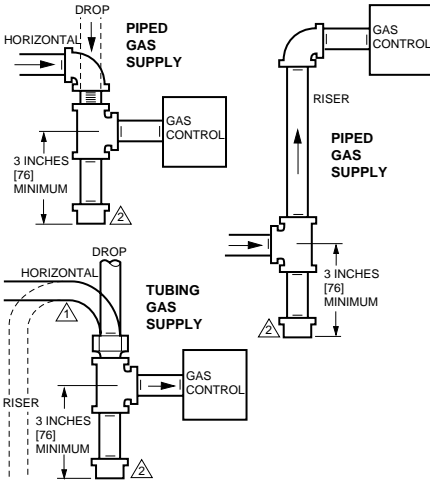
- Locate gas control in a well-ventilated area.
- Mount gas control high enough above the cabinet bottom to avoid exposure to flooding or splashing water.
- Assure the ambient temperature does not exceed the ambient temperature ratings for each component.
- Cover the gas control if appliance is cleaned with water, steam, or chemicals to avoid dust and grease accumulation.
- Avoid locating gas control where exposure to corrosive chemical fumes or dripping water is possible.

## Install Piping to Control

All piping must comply with local codes and ordinances or with the National Fuel Gas Code (ANSI Z223.1 NFPA No. 54), whichever applies. Tubing installation must comply with approved standards and practices.

1. Use new, properly reamed pipe free from chips. If tubing is used, make sure the ends are square, deburred and clean. All tubing bends must be smooth and without deformation.
2. Run pipe or tubing to the control. If tubing is used, obtain a tube-to-pipe coupling to connect the tubing to the control.
3. Install sediment trap in the supply line to the gas control. See Fig. 2.

Fig. 2—Sediment trap installation.



- ⚠ ALL BENDS IN METALLIC TUBING SHOULD BE SMOOTH.
- ⚠ CAUTION: SHUT OFF THE MAIN GAS SUPPLY BEFORE REMOVING END CAP TO PREVENT GAS FROM FILLING THE WORK AREA. TEST FOR GAS LEAKAGE WHEN INSTALLATION IS COMPLETE. M3077

## Install Control

1. This control can be mounted 0-90 degrees, in any direction including vertically, from the upright position of the gas control knob.
2. Mount the control so gas flow is in the direction of the arrow on the bottom of the control.
3. Thread pipe the amount shown in Table 3 for insertion into control. *Do not thread pipe too far.* Valve distortion or malfunction may result if the pipe is inserted too deeply.
4. Apply a moderate amount of good quality pipe compound (do not use Teflon tape) to pipe only, leaving two end threads bare. On LP installations, use compound resistant to LP gas. See Fig. 3.

TABLE 3—NPT PIPE THREAD LENGTH IN in.

| Pipe Size | Thread Pipe This Amount | Maximum Depth Pipe Can Be Inserted Into Control |
|-----------|-------------------------|---|
| 3/8       | 9/16                    | 3/8   |
| 1/2       | 3/4                     | 1/2   |
| 3/4       | 13/16                   | 3/4   |

5. Remove seals over control inlet and outlet, if necessary.
6. Connect pipe to control inlet and outlet. Use wrench on the square ends of the control. If a flange is used, place wrench on flange rather than control. Refer to Figs. 4 and 5.

Fig. 3—Use moderate amount of pipe compound.

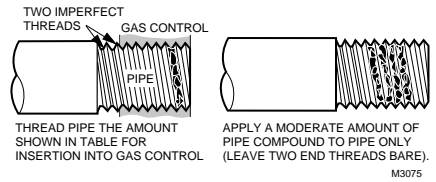
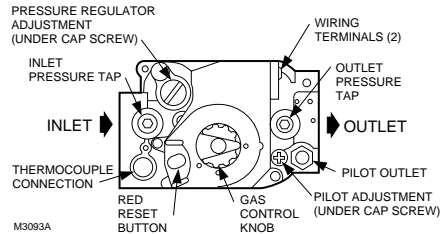


Fig. 4—Top view of gas control.

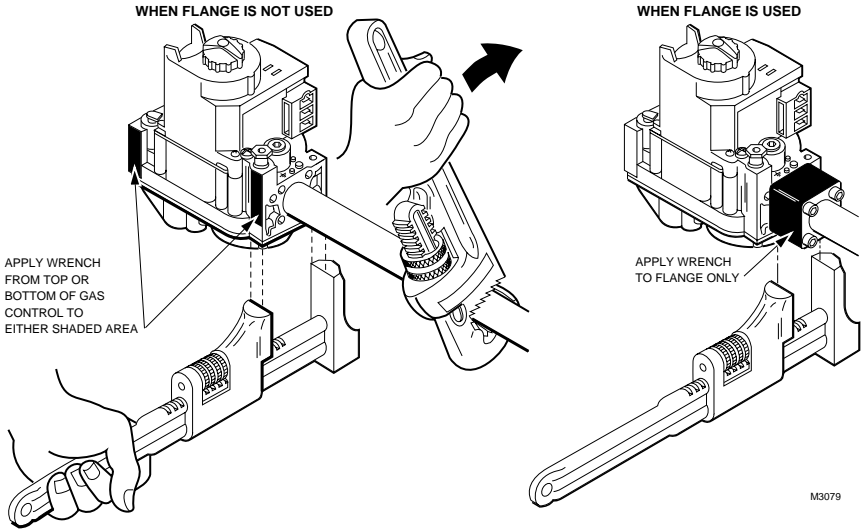


## Connect Pilot Gas Tubing

1. Cut tubing to desired length and bend as necessary for routing to pilot burner. Do not make sharp bends or deform the tubing. Do not bend tubing at control after compression fitting has been tightened because this can result in gas leakage at the connection.
2. Square off and remove burrs from end of tubing.
3. Unscrew compression fitting from the pilot outlet. See Fig. 4. Slip the fitting over the tubing and slide out of the way.

NOTE: When replacing a control, cut off old compression fitting and replace with the compression fitting provided on the combination gas control. Never use the old compression fitting because it may not provide a gas-tight seal. See Fig. 6.

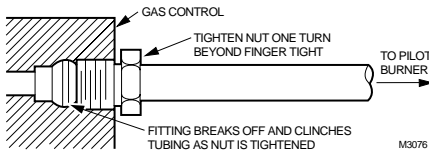
**Fig. 5—Proper use of wrench on gas control with and without flanges.**



4. Push tubing into the pilot gas tapping on the outlet end of the control until it bottoms. While holding tubing all the way in, slide fitting into place, engage threads and turn until finger tight. Then tighten one more turn with wrench. Do not overtighten.

5. Connect other end of tubing to pilot burner according to pilot burner manufacturer's instructions.

**Fig. 6—Always use new compression fitting.**



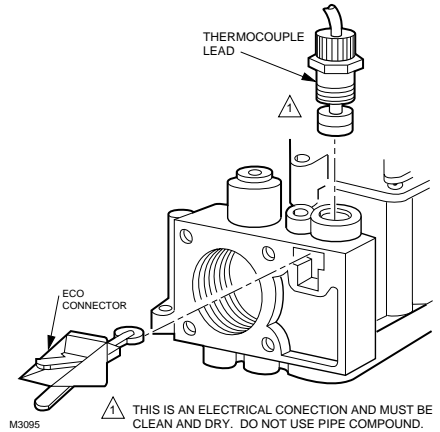
**Connect Thermocouple**

If a supplementary limit or energy cutoff will be used, insert the ECO connector (order part no. 393200-1) as shown in Fig. 7 and then connect thermocouple lead. If not used, insert thermocouple lead directly. This is an electrical connection and must be clean and dry. Never use pipe compound. Tighten only 1/4 turn beyond finger tight to give good electrical continuity. *Do not overtighten.*

**WIRING**

Follow the wiring instructions furnished by the appliance manufacturer, if available, or use the general instructions provided below. Where these instructions differ from the appliance manufacturer's, follow the appliance manufacturer's instructions.

**Fig. 7—Installing thermocouple and optional ECO adapter to the power unit.**

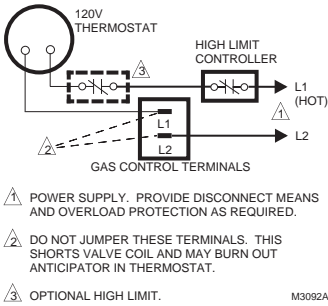


All wiring, including 1/4 in. quick-connect terminals, must comply with applicable electrical codes and ordinances.

Disconnect power supply before making wiring connections to prevent electrical shock or equipment damage.

1. Check the power supply rating on the valve and make sure it matches the available supply. Install thermostat and other controls as required.

**Fig. 8—Wiring connections for 120 volt control.**



2. When the gas control is installed external to the appliance, install the conduit cover on the conduit fitting. Do not secure conduit cover at this time.

3. Connect control circuit to gas control terminals. See Figs. 4 and 8.

NOTE: Use leadwires with insulated terminals.

4. Make sure the conduit cover is in position and se-cured to the gas valve with the screw provided. See Fig. 1.

5. Adjust thermostat heat anticipator as instructed in appliance manual (i.e., usually 0.1A).

**Connect Supplementary Limit or ECO (If Used)**

The leadwires from the high limit or ECO must be equipped with insulated 1/4 in. female quick-connect terminals. Leadwire lengths must not exceed the lengths shown in Tables 4 and 5. Connect the high-limit or ECO leadwires to the two terminals on the ECO connector.

**TABLE 4—MAXIMUM LENGTH OF SUPPLEMENTARY LIMIT LEADWIRES WHEN USING Q340A THERMOCOUPLE.**

| Thermocouple Length |       | Maximum Leadwire Length x 2 (Wires) |       |            |       |            |       |
|---------------------|-------|-------------------------------------|-------|------------|-------|------------|-------|
|                     |       | AWG No. 14                          |       | AWG No. 16 |       | AWG No. 18 |       |
| Inch                | Meter | Inch                                | Meter | Inch       | Meter | Inch       | Meter |
| 12                  | 0.3   | 41                                  | 1.0   | 26         | 0.7   | 16         | 0.4   |
| 18                  | 0.5   | 35                                  | 0.9   | 22         | 0.6   | 13         | 0.3   |
| 24                  | 0.6   | 29                                  | 0.7   | 18         | 0.5   | 11         | 0.3   |
| 30                  | 0.8   | 23                                  | 0.6   | 15         | 0.4   | 9          | 0.2   |
| 36                  | 0.9   | 17                                  | 0.4   | 11         | 0.3   | 6          | 0.2   |
| 40                  | 1.0   | 13                                  | 0.3   | 8          | 0.2   |            |       |
| 48                  | 1.2   |                                     |       |            |       |            |       |
| 54                  | 1.4   |                                     |       |            |       |            |       |
| 60                  | 1.5   |                                     |       |            |       |            |       |
| 72                  | 1.8   |                                     |       |            |       |            |       |

Do not use.

**TABLE 5—MAXIMUM LENGTH OF SUPPLEMENTARY LIMIT LEADWIRES WHEN USING Q309A THERMOCOUPLE.**

| Thermocouple Length |       | Maximum Leadwire Length x 2 (Wires) |       |            |       |            |       |
|---------------------|-------|-------------------------------------|-------|------------|-------|------------|-------|
|                     |       | AWG No. 14                          |       | AWG No. 16 |       | AWG No. 18 |       |
| Inch                | Meter | Inch                                | Meter | Inch       | Meter | Inch       | Meter |
| 12                  | 0.3   | 47                                  | 1.2   | 30         | 0.8   | 18         | 0.5   |
| 18                  | 0.5   | 41                                  | 1.0   | 26         | 0.7   | 16         | 0.4   |
| 24                  | 0.6   | 35                                  | 0.9   | 22         | 0.6   | 14         | 0.4   |
| 30                  | 0.8   | 29                                  | 0.8   | 18         | 0.5   | 11         | 0.3   |
| 36                  | 0.9   | 23                                  | 0.6   | 15         | 0.4   | 9          | 0.2   |
| 40                  | 1.0   | 19                                  | 0.5   | 12         | 0.3   | 7          | 0.2   |
| 48                  | 1.2   | 11                                  | 0.3   | 7          | 0.2   |            |       |
| 54                  | 1.4   |                                     |       |            |       |            |       |
| 60                  | 1.5   |                                     |       |            |       |            |       |
| 72                  | 1.8   |                                     |       |            |       |            |       |

Do not use.

# Startup and Checkout



## WARNING

**FORCE OR ATTEMPTED REPAIR CAN RESULT IN FIRE OR EXPLOSION WITH PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.**

1. Do not force the gas control knob on the appliance. Use only your hand to push down the reset button or turn the gas control knob. Never use any tools.
2. If the knob or reset button will not operate by hand, or if the reset button stays depressed after it is released, replace the control using a qualified service technician.

## GAS CONTROL KNOB SETTINGS

Gas control knob settings are as follows:

**OFF:** Prevents pilot and main gas flow through the control.

**PILOT:** Permits gas to flow to the pilot burner as long as red knob is held down or thermocouple current is above the power unit dropout value.

**ON:** Permits gas to flow into the control body. Pilot gas is controlled as in the PILOT position. Main burner gas flow is controlled by the thermostat and automatic valve operator(s).

**NOTE:** Valves are shipped with the gas control knob in the ON position.

## PERFORM GAS LEAK TEST



## WARNING



**FIRE OR EXPLOSION HAZARD CAN CAUSE PROPERTY DAMAGE, SEVERE INJURY OR DEATH**


Check for gas leaks with soap and water solution any time work is done on a gas system.


## GAS LEAK TEST:

1. Paint pipe connections upstream of gas control with rich soap and water solution. Bubbles indicate gas leak.
2. If leak is detected, tighten pipe connections.
3. Stand clear of main burner while lighting to prevent injury caused from hidden leaks that could cause flashback in the appliance vestibule. Light main burner.
4. With main burner in operation, paint pipe joints (including adapters) and control inlet and outlet with rich soap and water solution.
5. If another leak is detected, tighten adapter screws, joints, and pipe connections.
6. Replace part if leak cannot be stopped.

## LIGHT PILOT

1. Rotate the gas control knob clockwise  to OFF. Wait five minutes to allow any unburned gas to dissipate. Sniff around the appliance near the floor. Do not relight if you smell gas.
2. Rotate the gas control knob counterclockwise  to PILOT. Push down and hold the red reset button while you light pilot burner according to appliance manufacturer's instructions.

3. After about one minute, release reset button. Pilot should remain lit. If it goes out, turn gas control knob clockwise  to OFF. To relight, repeat steps 1-3.



4. When pilot remains lit when red reset button is released, turn gas control knob counterclockwise  to ON.

## TURN ON MAIN BURNER

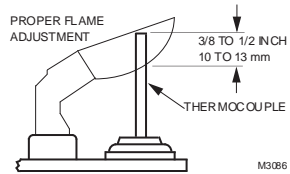
Follow instructions provided by appliance manufacturer or turn up thermostat to call for heat.

## ADJUST PILOT FLAME

The pilot flame should envelop 3/8 in. to 1/2 in. [10 to 13 mm] of the tip of the thermocouple. See Fig. 9.

1. Remove pilot adjustment cover screw. See Fig. 4.
2. Turn inner adjustment screw clockwise  to decrease or counterclockwise  to increase pilot flame.
3. Replace cover screw after adjustment to prevent gas leakage.

**Fig. 9—Proper flame adjustment.**





## CHECK AND ADJUST GAS INPUT AND BURNER IGNITION





## CAUTION

1. Do not exceed input rating stamped on appliance nameplate, or manufacturer's recommended burner orifice pressure for size orifice(s) used. Make certain primary air supply to main burner is properly adjusted for complete combustion. Follow instructions of appliance manufacturer.
2. **IF CHECKING GAS INPUT BY CLOCKING GAS METER:** Make certain there is no gas flow through the meter other than to the appliance being checked. Other appliances must remain off with their pilots extinguished (or their consumption must be deducted from the meter reading). Convert flow rate to Btuh as described in form 70-2602, Gas Controls Handbook, and compare to Btuh input rating on appliance nameplate.
3. **IF CHECKING GAS INPUT WITH MANOMETER:** Be sure gas control is in PILOT position before removing outlet pressure tap plug to connect manometer (pressure gauge). Also turn gas control knob back to PILOT when removing gauge and replacing plug. Before removing inlet pressure tap plug, shut off gas supply at the manual valve in the gas piping to the appliance or, for LP, at the tank. Also shut off gas supply before disconnecting manometer and replacing plug. Repeat Gas Leak Test at plug with main burner operating.

### Standard Pressure Regulator

1. Check the manifold pressure listed on the appliance nameplate. Gas control outlet pressure should match the nameplate.
2. With main burner operating, check gas control flow rate using the meter clocking method or check pressure using a manometer connected to the outlet pressure tap on the gas control. See Fig. 4.
3. If necessary, adjust pressure regulator to match appliance rating. See Table 6 for factory set nominal outlet pressure and adjustment setting range.
  - a. Remove pressure regulator adjustment cap screw.
  - b. Using a screw driver, turn inner adjustment screw clockwise  to increase or counter-clockwise  to decrease gas pressure to the burner.
  - c. Always replace cap screw and tighten firmly to prevent gas leakage.
4. If desired outlet pressure or flow rate cannot be achieved by adjusting the gas control, check gas control inlet pressure using a manometer at the gas control inlet pressure tap. If inlet pressure is in the nominal range (see Table 6), replace gas control. Otherwise, take the necessary steps to provide proper gas pressure on the control.

2. With main burner operating, check gas control flow rate using the meter clocking method or check pressure using a manometer connected to the outlet pressure tap on the gas control. See Fig. 4.
3. If necessary, adjust pressure regulator to match appliance rating. See Table 6 for factory set nominal outlet pressure and adjustment setting range.
  - a. Remove pressure regulator adjustment cap screw.
  - b. Using a screw driver, turn inner adjustment screw clockwise  to increase or counter-clockwise  to decrease gas pressure to the burner.
  - c. Always replace cap screw and tighten firmly to prevent gas leakage.
4. If desired outlet pressure or flow rate cannot be achieved by adjusting the gas control, check gas control inlet pressure using a manometer at the gas control inlet pressure tap. If inlet pressure is in the normal range (see Tables 6 and 6A), replace gas control. Otherwise, take the necessary steps to provide proper gas pressure to the control.
5. STEP-OPENING PRESSURE REGULATORS ONLY. Carefully check burner lightoff at step pressure. Make sure burner lights smoothly and without flashback to orifice. Make sure all ports remain lit. Cycle burner several times, allowing at least 30 seconds between cycles for regulator to resume step function. Repeat after allowing burner to cool. Readjust full rate outlet pressure, if necessary, to improve lightoff characteristics.

### Slow-opening and Step-opening Pressure Regulators

1. Check the *full* rate manifold pressure listed on the appliance nameplate. Gas control *full* rate outlet pressure should match this rating.

TABLE 6—PRESSURE REGULATOR SPECIFICATION PRESSURES IN in. wc.

| Model Type     | Type of Gas | Nominal Inlet Pressure Range | Factory Set Nominal Outlet Pressure |           | Adjustment Setting Range |           |
|----------------|-------------|------------------------------|-------------------------------------|-----------|--------------------------|-----------|
|                |             |                              | Step                                | Full Rate | Step                     | Full Rate |
| Standard, slow | Natural     | 5.0-7.0                      | —                                   | 3.5       | —                        | 3-5       |
|                | LP          | 12.0-14.0                    | —                                   | 10.0      | —                        | 8-12      |
| Step           | Natural     | 5.0-7.0                      | 0.9                                 | 3.5       | None                     | 3-5       |
|                | LP          | 12.0-14.0                    | 2.2                                 | 10.0      | None                     | 8-12      |

TABLE 6A—PRESSURE REGULATOR SPECIFICATION PRESSURES in kPa.

| Model Type     | Type of Gas | Nominal Inlet Pressure Range | Factory Set Nominal Outlet Pressure |           | Adjustment Setting Range |           |
|----------------|-------------|------------------------------|-------------------------------------|-----------|--------------------------|-----------|
|                |             |                              | Step                                | Full Rate | Step                     | Full Rate |
| Standard, slow | Natural     | 1.2-1.7                      | —                                   | 0.9       | —                        | 0.7-1.2   |
|                | LP          | 2.9-3.9                      | —                                   | 2.5       | —                        | 2-3       |
| Step           | Natural     | 1.2-1.7                      | 0.2                                 | 0.9       | None                     | 0.7-1.2   |
|                | LP          | 2.9-3.9                      | 0.5                                 | 2.5       | None                     | 2-3       |

### CHECK SAFETY SHUTDOWN PERFORMANCE



## WARNING

**PERFORM THE SAFETY SHUTDOWN TEST ANY TIME WORK IS DONE ON A GAS SYSTEM TO AVOID THE POSSIBILITY OF FIRE OR EXPLOSION AND PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.**

1. Place gas control knob in PILOT position. Main burner should go off and pilot should remain lit.
2. Extinguish pilot flame. Pilot gas flow should stop within 2-1/2 minutes. Safety shutoff of pilot gas proves complete shutdown because safety shutoff valve blocks flow of gas to main burner and pilot.
3. Relight pilot burner and operate system through one complete cycle to make sure all controls operate properly.



### **WARNING**

**DO NOT TAKE THIS CONTROL APART; IT CONTAINS NO REPLACEABLE COMPONENTS. ATTEMPTED DISASSEMBLY OR REPAIR CAN DAMAGE THE CONTROL, RESULTING IN DANGER OF FIRE OR EXPLOSION WITH PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.**



### **CAUTION**

Do not apply a jumper across (or short) the valve coil terminals, even temporarily. Doing so may burn out the heat anticipator in the thermostat.

#### **IF PILOT WILL NOT LIGHT**

1. Make sure the main gas supply valve is open and the pilot gas supply line is purged of air.
2. Attempt to light pilot following procedure in Light Pilot section.
3. If pilot will not light, check for:
  - a. closed pilot gas adjustment screw.
  - b. clogged pilot burner tubing or orifice.
  - c. gas leak at compression fitting.

#### **IF PILOT GOES OUT WHEN RESET BUTTON IS RELEASED**

1. Assure the reset button is held in at least one minute to allow the thermocouple time to heat.
2. Check pilot flame adjustment, see Adjust Pilot Flame section.
3. Check the connection to the power unit. This is an electrical connection and must be clean and secure.
4. If pilot continues to go out, use a millivoltmeter to measure the exact open and closed circuit output voltages of the thermocouple. Compare to acceptable range charts in the thermocouple specifications. Replace the thermocouple if voltages are outside the acceptable range; otherwise, replace the gas control.

#### **IF MAIN BURNER WILL NOT COME ON WITH CALL FOR HEAT**

1. Confirm that gas control knob is in the ON position.
2. Adjust thermostat several degrees above room temperature.
3. Using ac voltmeter, measure voltage across thermostat terminals at gas control.
4. If no voltage is present, check control circuit for proper operation.
5. If proper control system voltage is present, replace gas control.



### **WARNING**

**IF YOU DO NOT FOLLOW THE WARNINGS BELOW AND THE LIGHTING INSTRUCTIONS EXACTLY, A FIRE OR EXPLOSION CAN RESULT WITH PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.**

1. Before lighting, smell all around the appliance area for gas. If the appliance uses LP (bottled) gas, also be sure to smell next to the floor because LP gas is heavier than air. If you smell gas, immediately shut off the manual valve in the gas piping to the appliance or, ON LP, AT THE TANK. Do not try to light any appliance. Do not touch any electrical switch or use the phone. LEAVE THE BUILDING and call your gas supplier. If your gas supplier cannot be reached, call the fire department.
2. Do not force the gas control knob on the appliance. Use only your hand to push down the re-set button or turn the gas control knob. Never use any tools. If the knob or reset button will not operate by hand, replace the control using a qualified service technician. Force or attempted repair can result in fire or explosion.
3. The gas control must be replaced if it has been flooded with water. Call a qualified service technician.
4. If the red reset button stays depressed after it is released, replace the gas control.
5. The gas control is a safety device. It must be replaced in case of any physical damage such as bent terminals, missing or broken parts, stripped threads, or evidence of exposure to heat.

**IMPORTANT:** *Follow the operating instructions provided by the manufacturer of your heating appliance. The information below will be of assistance in a typical control application, but the specific controls used and the procedures outlined by the manufacturer of your appliance may differ, and require special instructions.*

#### **TO LIGHT THE PILOT BURNER**


##### **STOP: Read the safety information above.**

This appliance has a pilot burner, which must be lit by hand. If the pilot flame has gone out, follow these instructions exactly:


1. Set thermostat to lowest setting and shut off electric power to appliance.



2. Remove burner access panel if provided on your appliance.


3. Turn gas control knob (Fig. 4) clockwise  to OFF position.

4. Wait five minutes to allow any gas in the combustion chamber to vent. If you then smell gas in the appliance area or near the floor in an LP installation, immediately shut off the manual valve in the gas piping to the appliance or, WITH LP, SHUT OFF AT THE TANK. Do not touch any electrical switch or use the phone. LEAVE THE BUILDING and call your gas supplier. If your gas supplier cannot be reached, call the fire department. Failure to do so may result in fire or explosion.

5. If you do not smell gas, turn knob on gas control counterclockwise  to PILOT.

6. Push and hold down red reset button (Fig. 4) while you light the pilot burner. Continue to hold the reset button down for about one minute after the pilot is lit.

Release button; pilot should remain lit. If it goes out, repeat steps 3-6. If the reset button does not pop up when released, stop immediately and call your service technician or gas supplier. If pilot will not remain lit after several tries, turn gas control knob to OFF and call your service technician or gas supplier.


7. When pilot remains lit, turn gas control knob counterclockwise  to ON.


8. Replace burner access panel.

9. Turn on power.

10. Set thermostat to desired temperature.

#### **TO TURN OFF APPLIANCE**

**VACATION SHUTDOWN:** Turn gas control knob clockwise  from ON to PILOT. Pilot will remain lit, ready for return to normal service without relighting.

**COMPLETE SHUTDOWN:** Turn gas control knob clockwise  to OFF. Both pilot and main burner are shut off. The pilot must be manually relit when normal burner operation is desired.

**Honeywell**

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