

VS8510/VS8520/VS8521 Millivolt Combination Gas Control



VS8520A



VS8520D

The VS8510 and VS8520 Combination Gas Control is a low-capacity, compact-sized, millivolt-operated gas valve designed for use in small gas appliances that burn either LP or natural gas. Primary appliance applications include gas fireplaces, fireplace inserts, log sets, free standing stoves, wall furnaces and room space heaters. They offer basic On/Off control with a standard regulator, and optional adjustable High/Low regulators.

The VS8510 and VS8520 Millivolt Combination Gas Valves are approved in accordance with IAS (AGA/CGA).

FEATURES

Enhanced Safety for the Consumer.

- For use with 750 mV thermopile generator utilizing self-powered millivolt technology.
- Programmed lighting sequence with safe lighting pilot system and safety shutoff.
- Latching device interlock eliminates involuntary re-ignition of the main burner.
- Fine mesh inlet screen (optional for outlet screen).
- Snap-opening characteristics.

More flexibility and completeness in both the design and use for the OEM (Original Equipment Manufacturers).

- VS8510 valve has operator and power unit powered by 750 mV thermopile generator.

- VS8520 valve has operator powered by 750 mV thermopile and power unit powered by 30 mV thermocouple.
- Vented and vent-free models.
- Available with standard or high/low regulators.
- Adjustable servo regulator maintains constant gas outlet pressure over a wide range of gas supply pressures.
- Multiple inlet and outlet pipe connections with 3/8" NPT or BSP threads.
- Multiple pilot and thermocouple locations on inlet side and bottom.
- ECO (Energy Cut-Off) Connector option.
- Optional Piezo ignitor on valve top.
- Compact size.

Easier installation and servicing by the dealer.

- Multiple mounting holes and supports hook.
- Pilot flow adjustment on top of valve.
- European style inlet and outlet pressure taps on top of valve.
- White lettering on the pilotstat and high/low knobs, and electrical connections.
- Natural and LP gas spring conversion kits for standard regulator models.

Easy use by the Consumer.

- Pilotstat and high/low functions are separate knobs.
- Non-reflective top of valve (all Black top plate and screws).
- 3" plastic extension adaptor for pilotstat and high/low knobs.



SPECIFICATIONS

SPECIFICATIONS VS8510, VS8520 AND VS8521

Models: VS8510, VS8520 and VS8521

Dimensions:

See Fig. 1

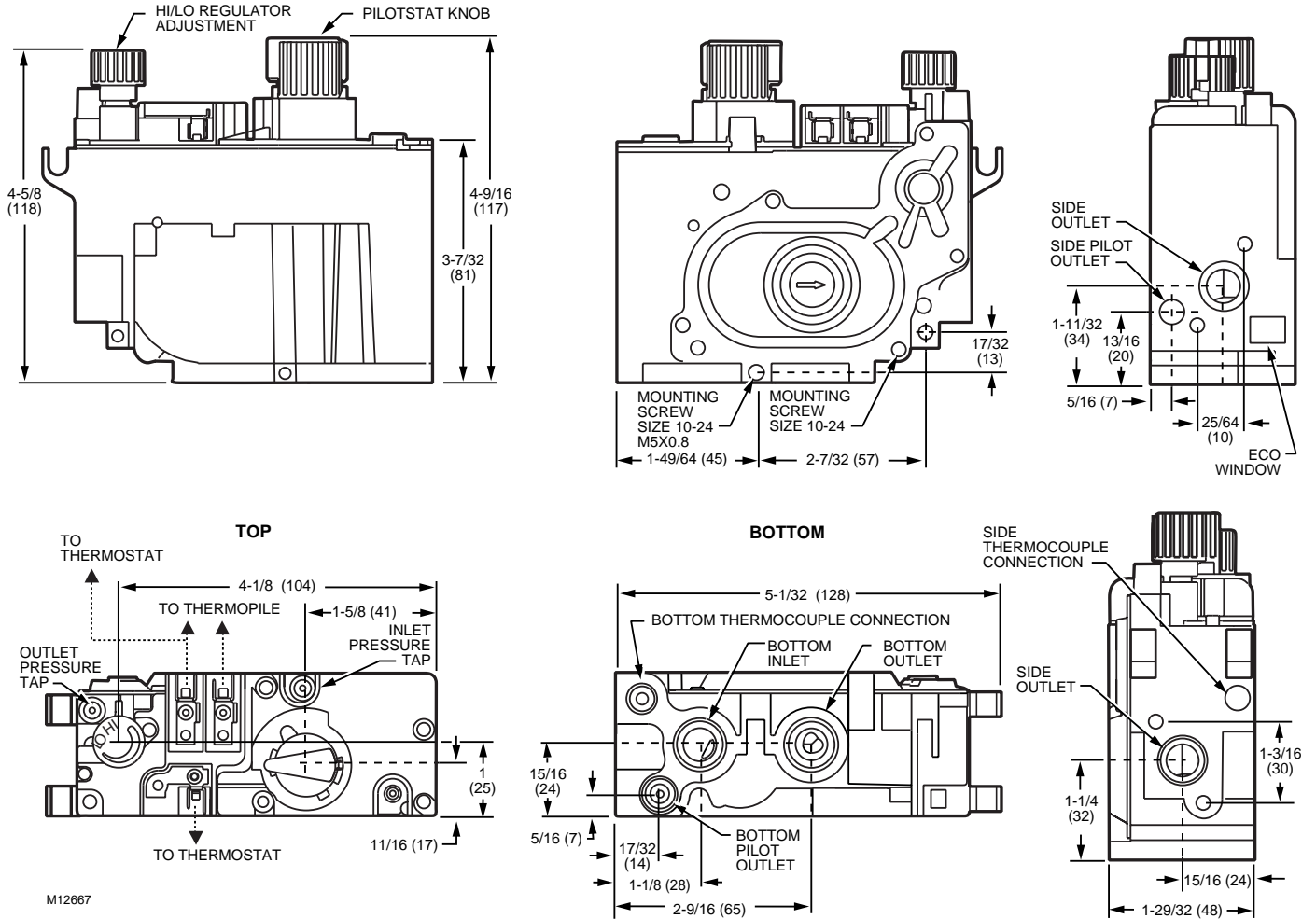


Fig. 1. VS8510, VS8520 and VS8521 dimensions in. (mm).

Pressure Regulation Capacities

Standard Regulator:

Element	In. WC
Natural Gas	3.0-5.0
LP Gas	8.0-12.0
Mobile Home	Custom

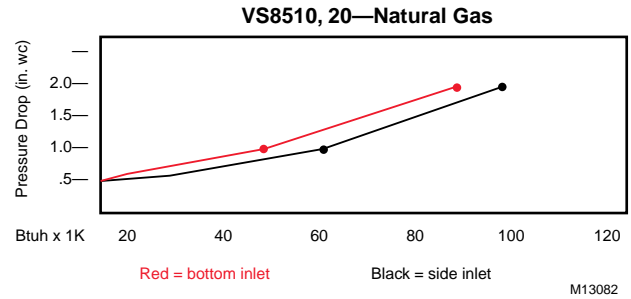
Hi/Lo Regulator:

Element	In. WC
Natural Gas	3.0-3.7/1.2-2.5
LP Gas	9.0-12.0/3.5-6.5

IAS Rated Capacity:

60,000 Btuh at 1 in. wc pressure drop for side inlet.
50,000 Btuh at 1 in. wc pressure drop for bottom inlet.

Pressure Drop Capacity Curve—Natural Gas (Two Curves—Red/Black):



Pressure Rating:

IAS rated to maximum 1/2 lb. psi inlet pressure.

Models VS8510, VS8520 and VS8521

Model Configurations:

NOTE: For a more detailed explanation of model OS number information refer to Fig. 7.

Model	(A Suffix) Standard Regulator	(D Suffix) High/Low Regulator ^a	(1") Standard Power Unit	(2") Quick Dropout Power Unit	(21") M8X1 Pilot Connection
VS8510A	X		X		
VS8510D		X	X		
VS8520A	X			X	
VS8520D		X		X	
VS8521A	X				X
VS8521D		X			X

^a A field convertible High/Low regulator model will be available at a later date.

Other Characteristics

Pilot Gas Flow:

Connection Size: 7/16-24 UNS.
Flow 1700 Btuh at 11 in. wc pressure drop.
Option M10x1 connection.

Pilot Location:

Inlet side or bottom.
Connection size: 7/16-24 UNS thread or M10X1 threads.

Temperature Rating:

0°F to 175°F (-18°C to 80°C).
Option for -40°F to 175°F (-40°C to 79°C), 0°F to 225°F (-18°C to 101°C).

Electrical Ratings:

30 mV power unit resets with a maximum of 300 mA applied and dropout between 250 mA and 70 mA.
750 mV power unit resets with a maximum of 15 mA applied and drop out between 7 mA and 3 mA.

Inlet and Outlet Connections:

- Inlet and outlet on side.
- Inlet and outlet on bottom.
- Inlet on side and outlet on bottom and on side.
- Inlet on bottom and outlet on side.

Safety Valve Configurations:

Q313 Thermopile powers safety valve and operator: vented.
Q335 Thermocouple powers safety valve and Q313
Thermopile powers operator: vented.
Thermocouple powers safety valve in oxygen depletion sensor (ODS): vent free.

Thermocouple Connection (for fast dropout configuration):

Connection Size: 11/32-32 UNS double lead or M10X1 metric threads option for vented.
Available in side or bottom outlet.
M8X1 for use on vent-free applications.

Screen:

Option for outlet screen.

Interrupter (ECO):

1/4 in. tab connectors.

Mounting:

Mounting support in eight locations On valve No. 10-24 screw.

Certification:

International Approval Services: C2030022.

OPERATION

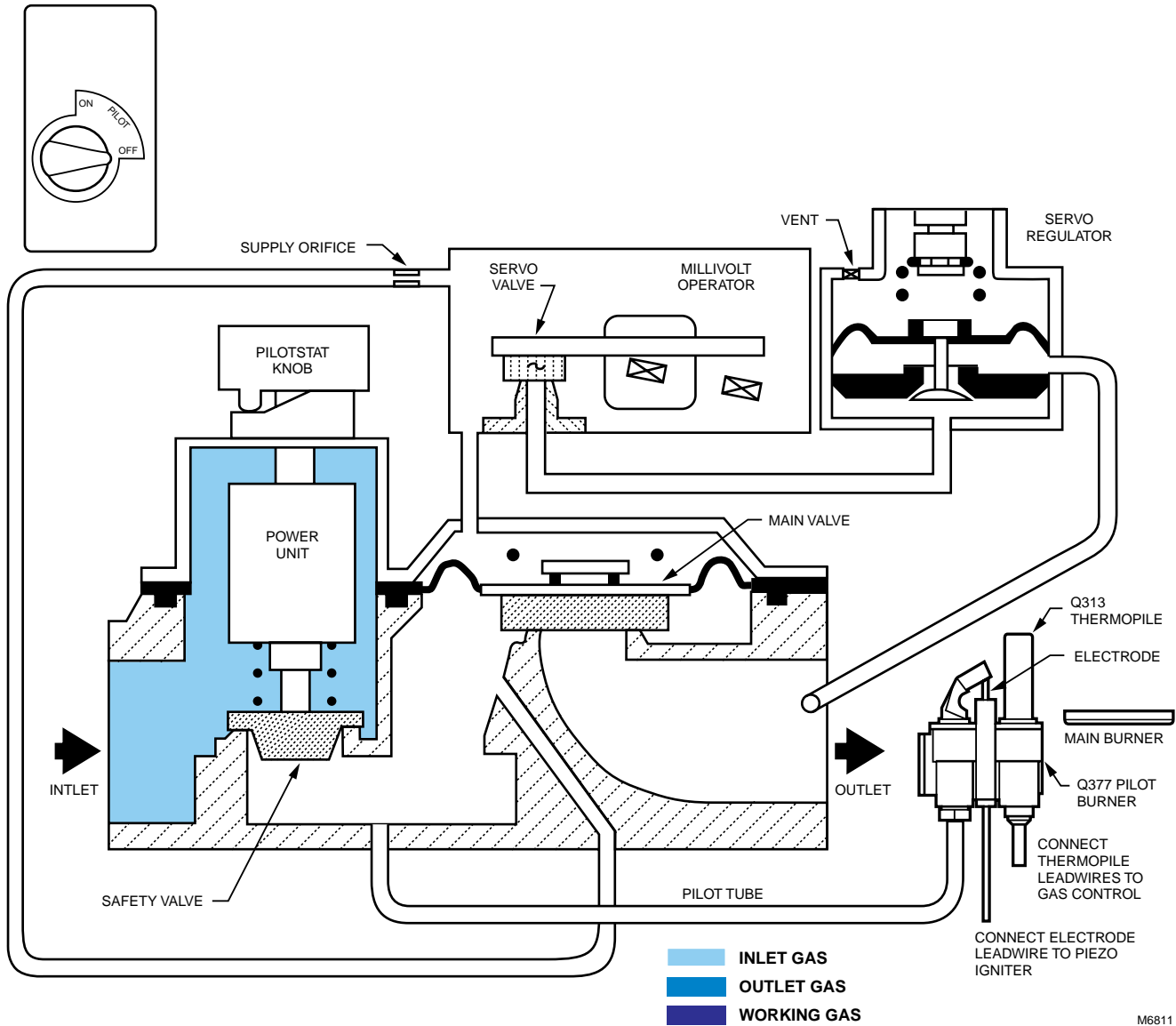
STANDING PILOT MILLIVOLT VALVE OPERATION

Safety Valve and Main Valve are Closed

See Fig. 2 for a view of the millivolt valve gas distribution when the safety valve and the main valve are closed.

STANDING PILOT MILLIVOLT VALVE

OFF-POSITION (VALVES CLOSED)



M6811

Fig. 2. Safety valve and main valve are closed.

Safety Valve is Open and Pilot is Lit

See Fig. 3 for a view of the millivolt valve gas distribution when the safety valve is open and the pilot is lit.

STANDING PILOT MILLIVOLT VALVE
PILOT-POSITION (SAFETY/MANUAL VALVE OPEN)

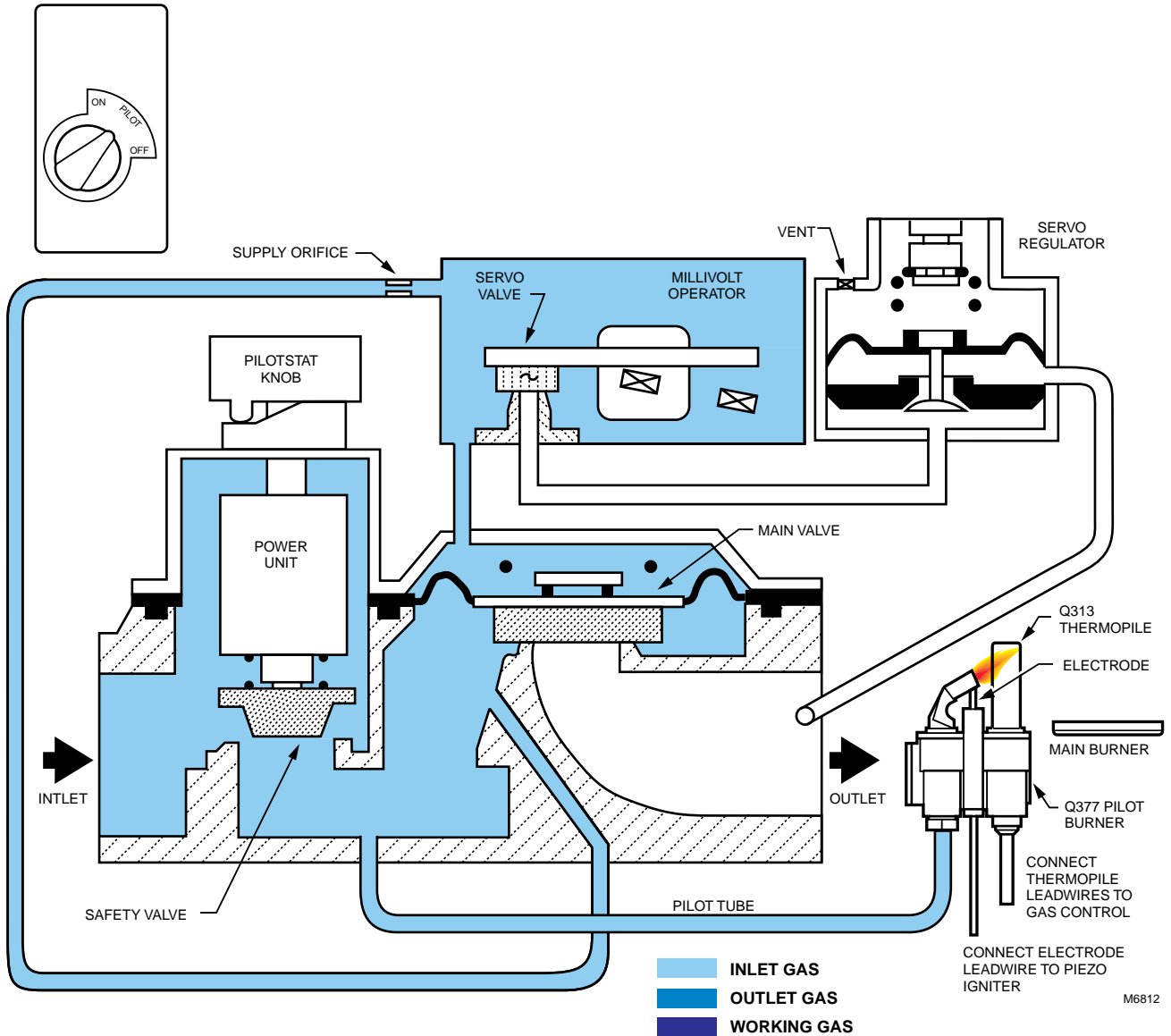


Fig. 3. Safety valve is open and pilot is lit.

Safety Valve and Main Valve are Open

See Fig. 4 for a view of the millivolt valve gas distribution when the safety valve and main valve are open.

STANDING PILOT MILLIVOLT VALVE

ON POSITION (VALVES OPEN)

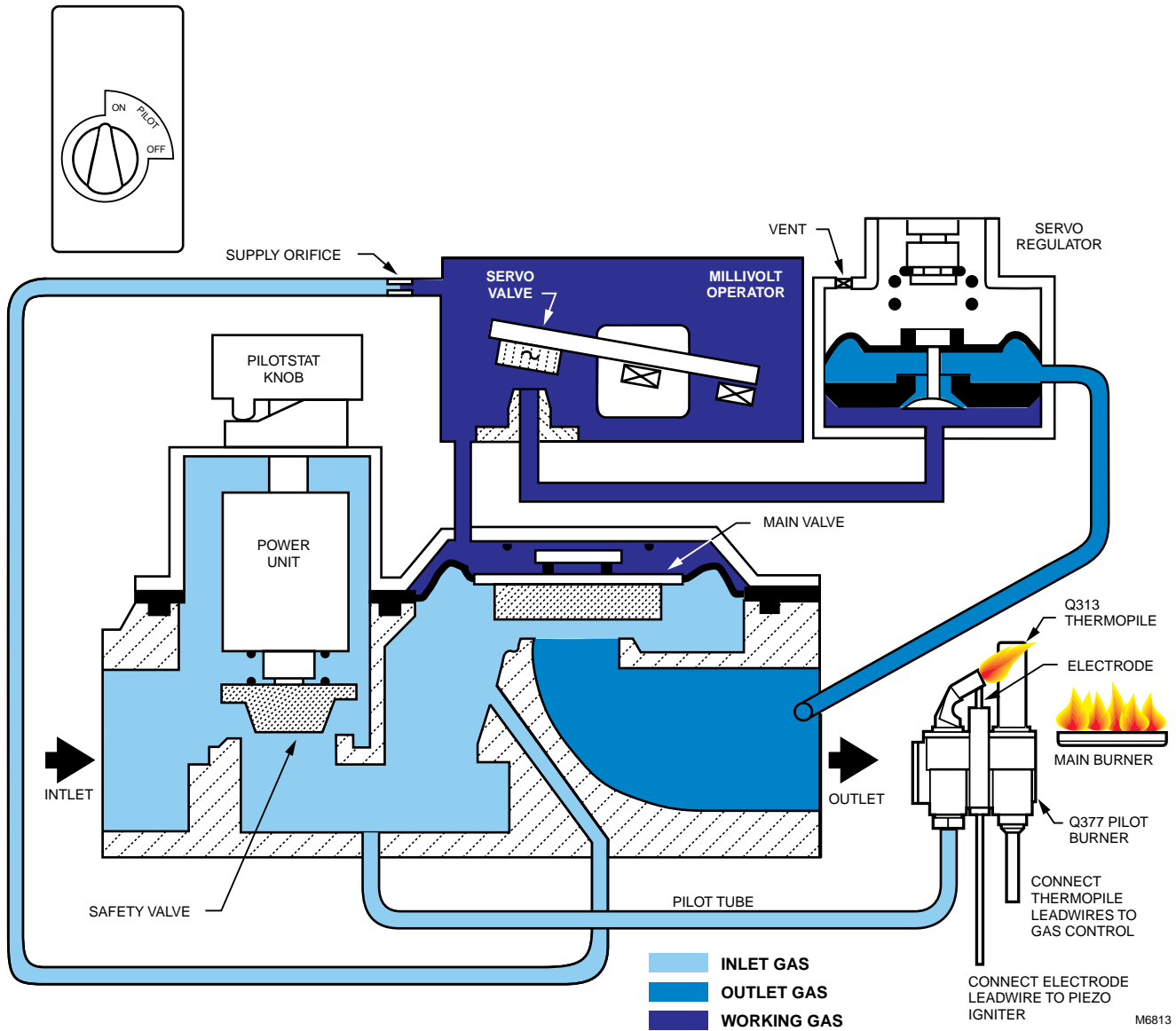


Fig. 4. Safety valve and main valve are open.

Pilot Gas and Lighting Procedure

1. Turn the knob clockwise to the PILOT position, Push down on knob, and hold in position. The pilot valve opens and the power unit armature makes contact with the electromagnet.
2. Light the pilot burner, while continuing to hold down on knob until a strong flame appears (approximately 60 seconds).
3. Release the knob. The shaft moves upward and opens the safety valve lever.
4. Turn the knob to the ON position. On a call for heat, the main burner ignites.

Shut Off Procedure

1. To shut off the system, turn the knob counterclockwise to OFF. This closes the main gas and safety valve. The power unit must drop out before the lighting sequence can begin again.
2. To relight the pilot light, follow the steps in the Pilot Gas and Lighting Procedure section.

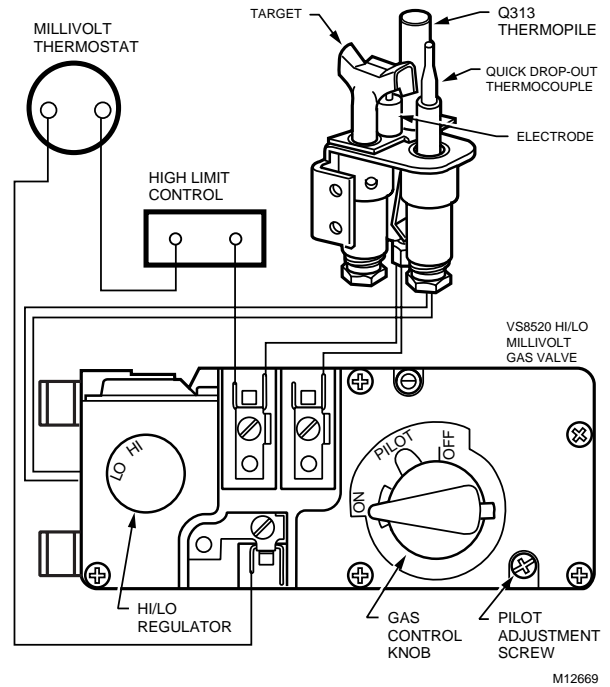


Fig. 5. VS8520 millivolt system wiring diagram with quick drop-out thermocouple.

ACCESSORIES

Part Number	Description
395991	Natural to LP Conversion Kit for standard regulator.
395992	LP to Natural Gas Conversion Kit for standard regulator.

WIRING DIAGRAMS

See Fig. 5 for wiring diagrams for the quick drop-out thermocouple model VS8520. See Fig. 6 for the standard Model VS8510 without the quick drop-out thermocouple.

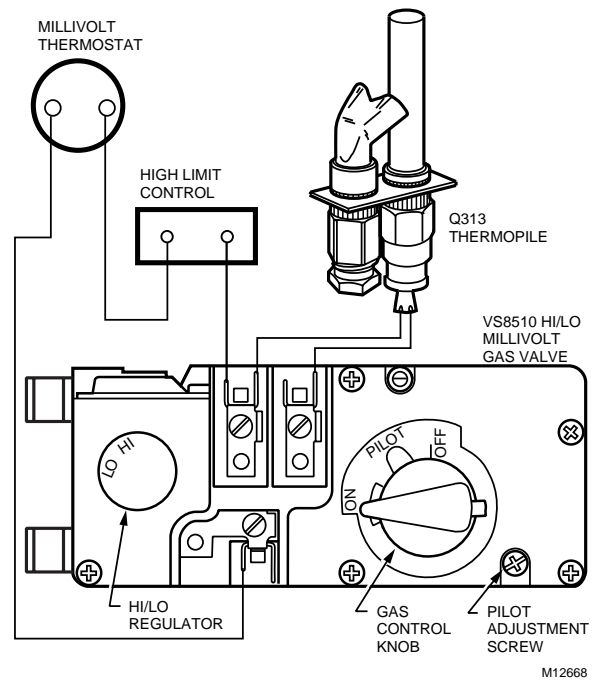
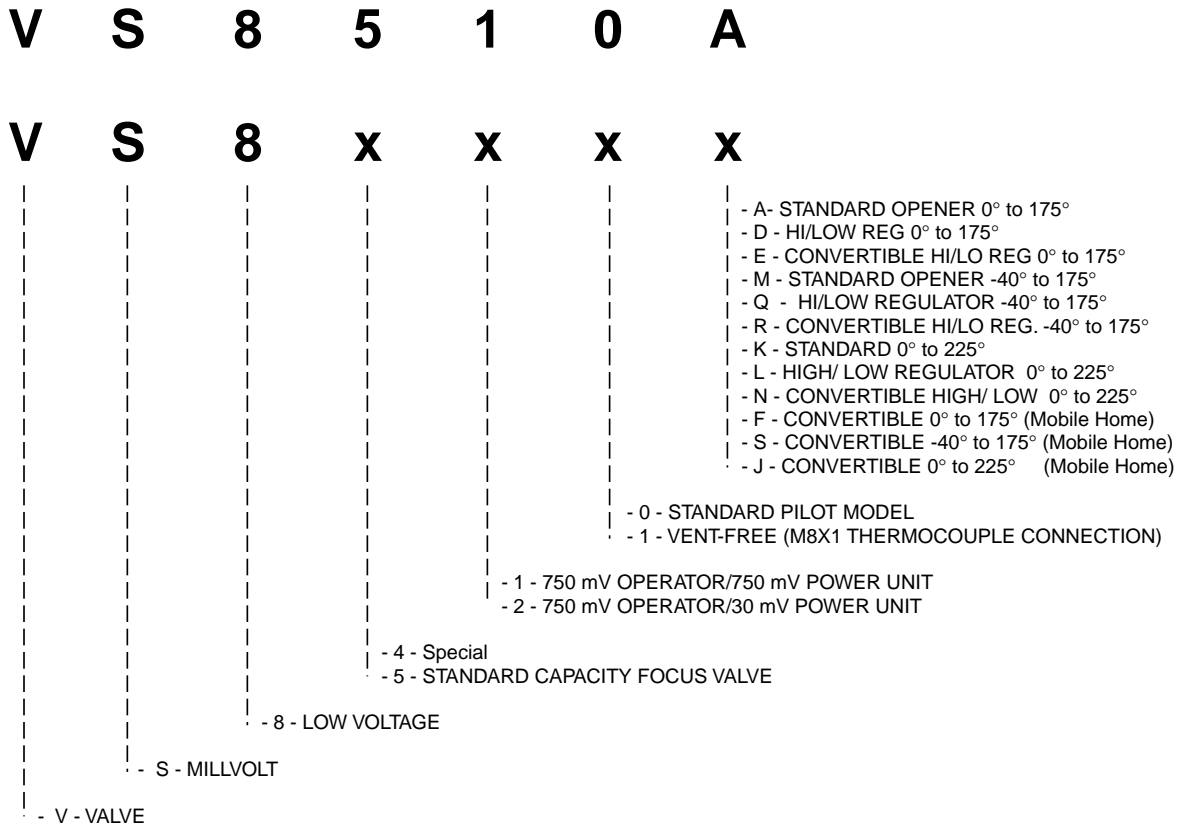


Fig. 6. VS8510 millivolt system wiring diagram without quick drop-out thermocouple.

VS85XX MODEL SPECIFICATION GUIDE

This reference matrix is a guide to help determine how the VS85xx products can be configured. When determining specific model requirements, please refer to this diagram.



M13086

Fig. 7. VS85xx O.S. Number configuration matrix.

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