resideo

V5306, V5307, V5308, and V5309 Servo Pressure Regulators

INSTALLATION INSTRUCTIONS

APPLICATION

These servo pressure regulators are for add-on or replacement use on the V4DO, VBDO, VR400 and VR800 series combination gas controls.

The pressure regulators are also used in replacement or add-on installations on Pilotstat manifold (manually operated) controls: C580, C581, VSSBO, CS581.

See table below for models available and standard factory settings. Note that the suffix letter used in the model number for complete combination gas controls Identifies the type pressure regulator provided (first column).

391937 Conversion Kit is available to change pressure regulated V5306 natural gas valve to a pressure regulated LP gas valve.

Table 1. Servo Pressure Regulator Specifications.

Suffix Letter[a] of Complete Combination Control	Type of Pressure Regulation	Model No. of Regulator Provided	Type of Gas	Outlet Pressure to Burner				Range of Adjustment	
				Standard Factory Settings		Ranges of Optional Factory Settings			
				in. wc	kPa	in. wc	kPa		
"A"	Standard	V5306A-C[b,c]	Nat.	3.5	0.9	3 to 5	0.7 to 1.2	3 to 5[e]	0.7 to 1.2
			LP	11.0	2.7	8 to 12	2 to 3	8 to 12[e]	2 to 3
"B"	None	Blank Plate	LP	Depends on LP gas tank					
"C"	Step-Opening	V5307A	Nat.	0.9 step (50% of full rate); 3.5 full rate	0.2 step (50% of full rate); 0.9 full rate	Step—0.6 to 50% of full rate press.; Full rate—3 to 5	Step—0.1 to 50% of full rate press.; Full rate—0.7 to 1.2	Step—none; Full rate—3 to 5	Step—none; Full rate—0.7 to 1.2
			LP	2.2 step (45% of full rate); 11.0 full rate	0.5 step (45% of full rate); 2.7 full rate	Step—1.0 to 50% of full rate press.; Full rate—8 to 12	Step—0.2 to 50% of full rate press.; Full rate—2 to 3	Step—none; Full rate—8 to 12	Step—none; Full rate—2 to 3
"D"	Hi-Lo Flame	V5308A	Nat.	0.9 on Lo (50% of Hi); 3.5 on Hi	0.5 on Lo (50% of Hi); 0.9 on Hi	Lo—0.6 to 50% of Hi; Hi—3 to 5	Lo—0.1 to 50% of Hi; Hi—0.7 to 1.2	Non-adjustable	Non-adjustable
			LP	2.75 on Lo (50% of Hi); 11 on Hi	0.7 on Lo (50% of Hi); 2.7 on Hi	Lo—1.0 to 50% of Hi; Hi—8 to 12	Lo—0.2 to 50% of Hi; Hi—2 to 3		
"E"[d]	Lp-Nat. Changeover	V5309A	LP	11.0 at setting	2.7 at setting	8 to 12	2 to 3	Non-adjustable	Non-adjustable
			Nat.	3.5 at setting	0.9 at setting	3 to 5	0.7 to 1.2		

[a] Examples of position of SUFFIX LETTER In model number of complete control: V800A, V8OOB, and V8OOC.

[b] V5306B Pressure Regulator ("A" models) is low-temperature rated for -40 °F to 175 °F (-40 °C to 79 °C). The V5306B may be used to replace a V5306A with 32 °F to 175 °F (0 °C to 79 °C) ambient temperature rating.

[c] V5306C ("A" models[d]) has a 1.0 in. wc (0.25 kPa) adjustment range.

[d] Not available in high capacity models.

[e] Models available with limited adjustment of 1.0 in. wc (0.25 kPa).

INSTALLATION

When Installing this Product...

1. Read these 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 the 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.

⚠ CAUTION

1. Disconnect power supply to prevent electrical shock or equipment damage before beginning installation.
2. If system is in operation and Lite-Rite gas cock at ON, turn gas cock to OFF.
3. After Installation is complete, be sure to complete Gas Leak Test.

Replacing a Pressure Regulator

To replace a servo pressure regulator, proceed as follows:

1. Note location of regulator as shown in Fig. 1 and 2.
2. Remove and discard inoperative regulator and original gasket.
3. Before Installing new regulator, inspect gasket area (also ports) on operator and remove any foreign material.
4. Press new gasket Into circular recess in adapter casting (Fig. 1) or operator cavity (Fig. 2).
5. Position new regulator over locating pin, and fasten with 2 screws provided. Tighten evenly and securely.

NOTE: On controls equipped with V5307 step-opening pressure regulator, insert long screw in outside comer. Long screw extends through regulator and operator Into control body.

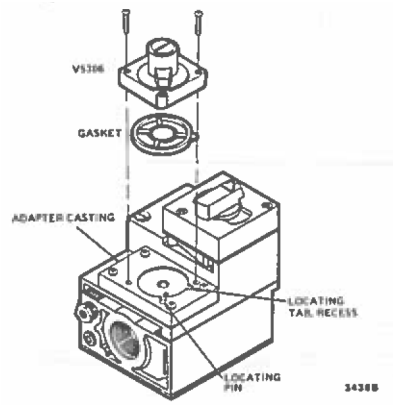

Fig. 1. Installing pressure regulator on adapter casting.

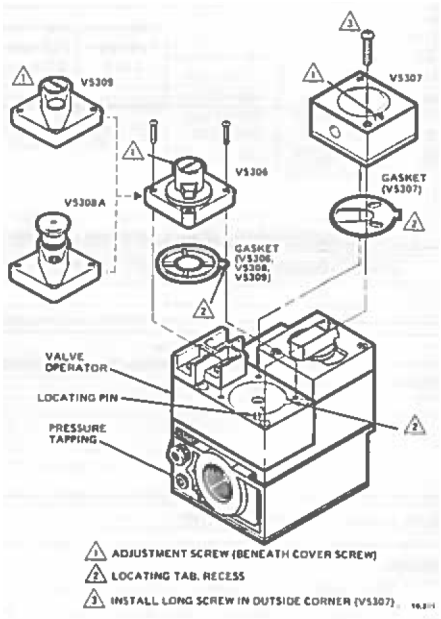

Fig. 2. Servo pressure regulator installation on combination gas control equipped with valve operator.

Adding a Pressure Regulator to Original Equipment Pilotstat Control

The addition of a servo pressure regulator to an original equipment Pilotstat manifold gas control (top view, Fig. 3). requires installation of the adapter casting assembly, Part No, 394074.

1. Remove and discard rectangular cover plate and gasket (top view. Fig. 3) on manifold control.
2. Before installing adapter casting, inspect gasket area (also ports) on manifold and remove foreign material.
3. Carefully place rectangular gasket and casting (Fig. 4) on manifold so that locating pins mate with gasket and casting.
4. Insert 4 long mounting screws packed with casting assembly. Tighten evenly and securely.

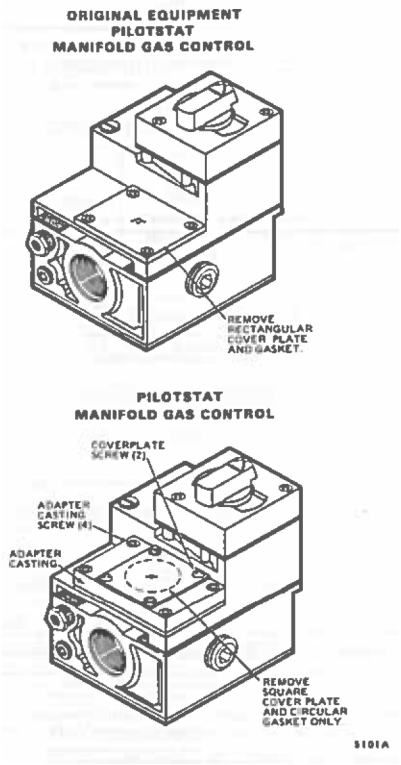

Fig. 3. Optional Pilotstat manifold gas controls.

NOTE: Discard square regulator cover plate, 2 short screws, and circular cork type gasket provided with assembly. These are not used.

5. Press regulator gasket Into circular recess of adapter casting (Fig. 1).
6. Position new regulator over locating pin (Fig. 1). and fasten with screws provided. Tighten evenly and securely.

Adding a Pressure Regulator to a Combination Gas Control or Pilotstat Control

IMPORTANT

"B" model combination gas controls and Pilotstat manifold gas controls have an adapter casting assembly to facilitate addition of a servo pressure regulator.

1. Remove and discard blank regulator cover plate and gasket (lower view, Fig. 3 and Fig. 5).
2. Inspect gasket area (also ports) on casting or valve operator and remove any foreign material.
3. Press regulator gasket into circular recess of adapter casting (Fig. 1) or operator cavity (Fig. 2).
4. Position new regulator over locating pin and fasten with 2 screws provided. Tighten evenly and securely.

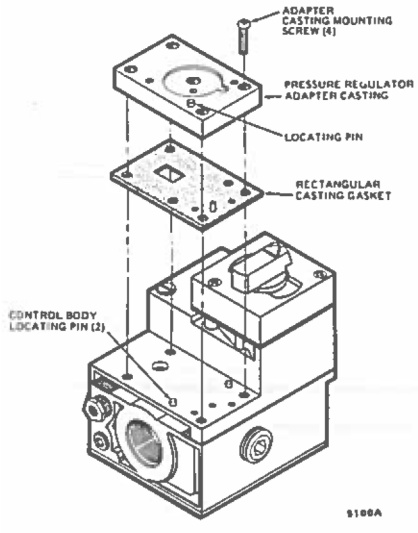

Fig. 4. Installation adapter casting.

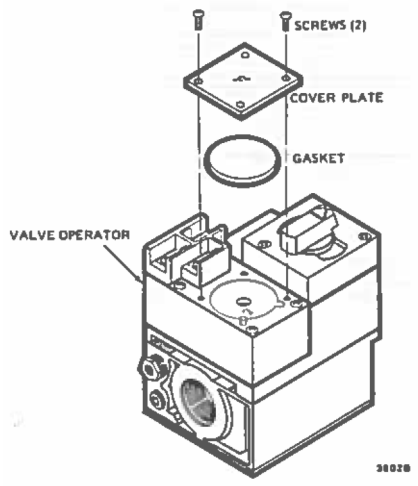

Fig. 5. Exploded view of "B" model combination gas control showing blank cover plate.

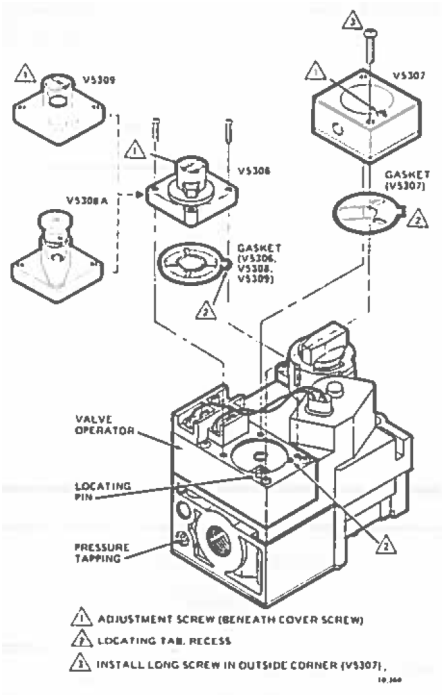

Fig. 6. Installation of pressure regulators on dual valve combination gas controls (VR800 shown).

STARTUP AND ADJUSTMENT

Gas Cock Settings

The Lite-Rite gas cock knob as three settings:
OFF — which prevents any gas from passing through valve to either main or pilot burner.

PILOT — which permits gas to flow to pilot burner only (when gas cock knob is held depressed or when thermocouple is heated sufficiently to hold the Pilotstat valve open).

ON — which permits gas to flow to both main and pilot burners when the system is functioning properly.

Pilot Lighting Procedure

1. Turn thermostat to OFF or lowest setting. Wait 5 minutes for all unburned gas to vent. Remember that LP gas does not vent upward naturally.
2. Turn the Lite-Rite gas cock knob to PILOT, depress it completely, and light the pilot burner. *The knob must be held down about one minute* before the pilot burner will stay lit after releasing the knob.
3. Tum the knob to ON and set the thermostat above room temperature to turn on main burner.

Gas Leak Test

⚠ WARNING
Do not omit this test.

With main burner In operation, paint pipe joints, pilot gas tubing connections, and valve gasket lines with rich soap and water solution. Bubbles indicate gas leakage. To stop leak, tighten joints and screws or replace the gasket.

Check Gas Input and Burner Ignition

⚠ CAUTION

1. Do not exceed input rating stamped on nameplate of appliance, 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 if provided.
2. IF USING METER CLOCKING METHOD:
   Make certain there is no gas flow through the meter other than to the appliance being checked. Other appliances must remain off, and the pilot extinguished (or other consumption deducted from the meter reading).
3. IF USING MANIFOLD PRESSURE METHOD:
   Be sure gas cock is In PILOT position before removing pressure tap plug to connect pressure gauge (manometer). Also turn gas cock back to PILOT when removing gauge and replacing plug. Repeat gas leak test at plug (main burner must be operating).

IMPORTANT:

The V5307 (step rate), V5308, and V5309 pressure settings are not field adjustable. Some appliance manufacturers use regulators with settings differing from the standard values In the table. If replacement is required, check the factory settings stamped on the body of the original regulator and be sure to use an identical model.

Adjustment V5306 (standard PRV)

1. Check input to main burner by clocking gas meter or by using a pressure gauge (manometer) connected to downstream pressure tapping (Fig. 2). The standard natural gas model is factory-set at 3.5 In. (0.87 kPa) outlet pressure, and the standard LP gas model is set at 11 in. (2.7 kPa). If adjustment is required, proceed with step 2.
2. Remove cover screw (Fig. 2). Using screwdriver, turn adjusting screw clockwise to increase or counterclockwise to decrease gas pressure to burner.

   NOTE: Adjustment fitting is plastic and may require slightly greater turning force than metal thread.

3. Replace cover screw.

Adjustment V5307 (step-opening PRV)

1. With main burner operating, check input by clocking gas meter, or check burner manifold pressure using pressure gauge (manometer) connected to downstream pressure tapping (Fig. 2).
2. If adjustment is required, remove cover screw (Fig. 2). Using a small screwdriver, tum adjusting screw clockwise to increase or counterclockwise to decrease gas pressure to burner. Replace cover screw.
3. Check burner performance at step pressure, observing burner ignition and flame characteristics. Burner should ignite promptly and without flashback to orifice, and all ports should remain lit. Cycle burner several times. (Wait 30 seconds between cycles to allow servo regulator to resume step action.) Repeat after allowing appliance to cool.

Adjustment V5308 (Hi-LO flame PRV)

The HI or LO flame setting is selected by positioning the white knob (Fig. 7) on the regulator. The burner will operate in the low fire position when knob is upward; it will operate in the high fire position when knob is downward.

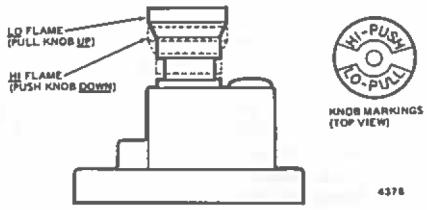

Fig. 7. HI and Lo settings, V5308 pressure regulator.

1. Adjust to LO setting by pulling knob (Fig. 7) upward to its outermost position.

   NOTE: Turn on main burner, observing ignition and flame characteristics. Burner should ignite promptly and without flashback to orifice, and all ports should remain lit. Cycle burner several times, and then repeat after allowing appliance to cool.

2. Adjust to HI setting by pushing the knob (Fig. 7) downward toward the regulator body.
3. Check gas input to appliance:
   a. With burner operating check gas input by clocking gas meter, or check burner manifold pressure using pressure gauge (manometer) connected to downstream pressure tapping (Fig. 2).
   b. If gas input exceeds nameplate rating, check burner orifice diameter against appliance manufacturer's specification for gas being used. (The V5308 is not field adjustable.)

Adjustment V5309 (LP-Nat. changeover regulator)

⚠ WARNING

When a gas system is being converted, the main burner and pilot orifices MUST be changed to meet appliance manufacturer's specifications for the particular gas. Refer to appliance manufacturer's Instructions for orifice specifications and changeover procedures.

The Nat, and LP gas settings are selected by positioning the slotted shaft as shown In Fig. 8.

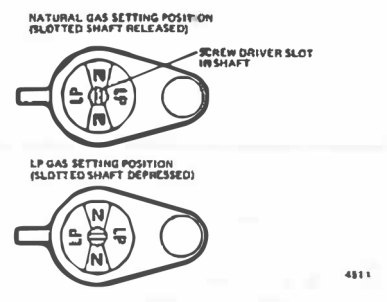

Fig. 8. Natural and LP gas settings, V5309.

Select Natural or LP Gas Setting

1. Adjust to LP gas setting as follows:
   a. Remove the cover screw (Fig. 2).
   b. With a small screwdriver, depress and rotate the shaft so the slot is in line with “LP” stamped on the bushing (Fig. 8).

      NOTE: The shaft will remain depressed for LP gas operation.

   c. Replace the cover screw.
2. Adjust to Nat. gas as follows:
   a. Remove the cover screw (Fig. 2).
   b. With a small screwdriver, rotate the shaft so the slot is in line with “N” stamped on the bushing (Fig. 8).
   c. Replace cover screw.
3. Check gas input to appliance:
   a. With burner operating, check gas input by clocking gas meter, or check burner manifold pressure using pressure gauge (manometer) connected to downstream pressure tapping (Fig. 2).
   b. If gas input exceeds nameplate rating, check burner orifice diameter against appliance manufacturer's specification for gas being used. (The V5309 is not field adjustable.)

⚠ WARNING

At time of changeover to other gas, again check gas input alter changing pilot and main burner orifices. Follow procedure above.

CHECKOUT

Put the system into operation and observe through complete cycle to be sure all controls function properly.

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