Instruction Manual

CVS670 Series Panel-Mounted Loading Regulator Assemblies

All CVS Controls equipment, including regulators, are to be installed and maintained in accordance with local codes and regulations, and with the instructions supplied by CVS Controls. Leaks in the system indicate a need for service, and the neglect of this indicator may create a hazard. Should a leak occur, immediately remove the regulator from service. Only qualified personnel may install and service the regulator, and, if necessary, contact a gas service person.

Introduction

The main application for the CVS 670 Series panel-mounted loading regulator assemblies is in the manual control of pressure to diaphragm control valves. They are also used as remote pressure loaders for pressure-balanced gas regulators, and the control of gas pressure to burners in refinery tube stills, power plants, and other process furnaces.

Installation

1. Upon uncrating, inspect the panel for any foreign debris.
2. Locate the connection marked “IN” on the pressure regulator, and connect a 1/4-inch pipe line from this connection to the operating supply. See Table 1 for maximum allowed inlet pressure.
3. With both one and two-gauge panels, connect a line from the diaphragm casing of the main valve or regulator to the “OUT” connection on the panel regulator.
4. For a two-gauge panel, connect the control pressure line to the upper diaphragm casing, and to the control pressure gauge in the back of the panel.
5. For a two-gauge panel with a three-way changeover valve, refer to table 1 and connect the air supply, diaphragm connection and instrument loading pressure to the panel regulator as illustrated.

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Start-Up

1. Open the air supply line and check all connections for leaks.
2. Refer to the manual loading pressure gauge for the loading pressure on the diaphragm of the main valve.
3. To increase the loading pressure, turn the handwheel clockwise. To decrease the loading pressure, turn the handwheel counterclockwise.
4. Units with a three-way changeover valve may be operated manually. To prevent bumping set the manual control pressure gauge to the same reading as the instrument pressure when changing from manual to automatic or from automatic to manual control.

Overpressure Protection

Note: Exposing any portion of this equipment to pressures exceeding the maximum inlet values (see Table 1) may result in leaks or damage to the regulator.

Avoid overpressure by providing appropriate protection and ensuring that none of the pressure limits will be exceeded.

Inspect the regulator assembly for damage after any overpressure condition.

All CVS 670 Series regulators have outlet pressure ratings which are lower than the inlet pressure ratings. If the actual inlet pressure exceeds the outlet pressure rating, overpressure protection is required through the installation of a relief valve. Refer to table 1 for the maximum emergency outlet pressure ratings appropriate for each regulator.

Principle of Operation

CVS Series 670 regulators control supply pressure to diaphragm control valves or gas regulators, and are set manually. Instrument and manual loading pressures are read from the pressure gauges of the regulator. Pressure to the valve can be adjusted using the regulator handwheel (clockwise to increase supply pressure and counterclockwise to decrease supply pressure).

Maintenance

1. The regulator can be removed from the panel for disassembly.
2. Remove the set screws or loosen the hex nut to isolate the regulator from the panel.
3. Refer to the proper instruction manual for further maintenance.

Serial Number

All CVS 670 Series regulator assemblies have a serial number, stamped on the nameplate located on the front of the panel. When corresponding with your CVS Controls representative regarding the equipment, please include serial number, and when ordering new parts refer to the full part numbers from the parts list.

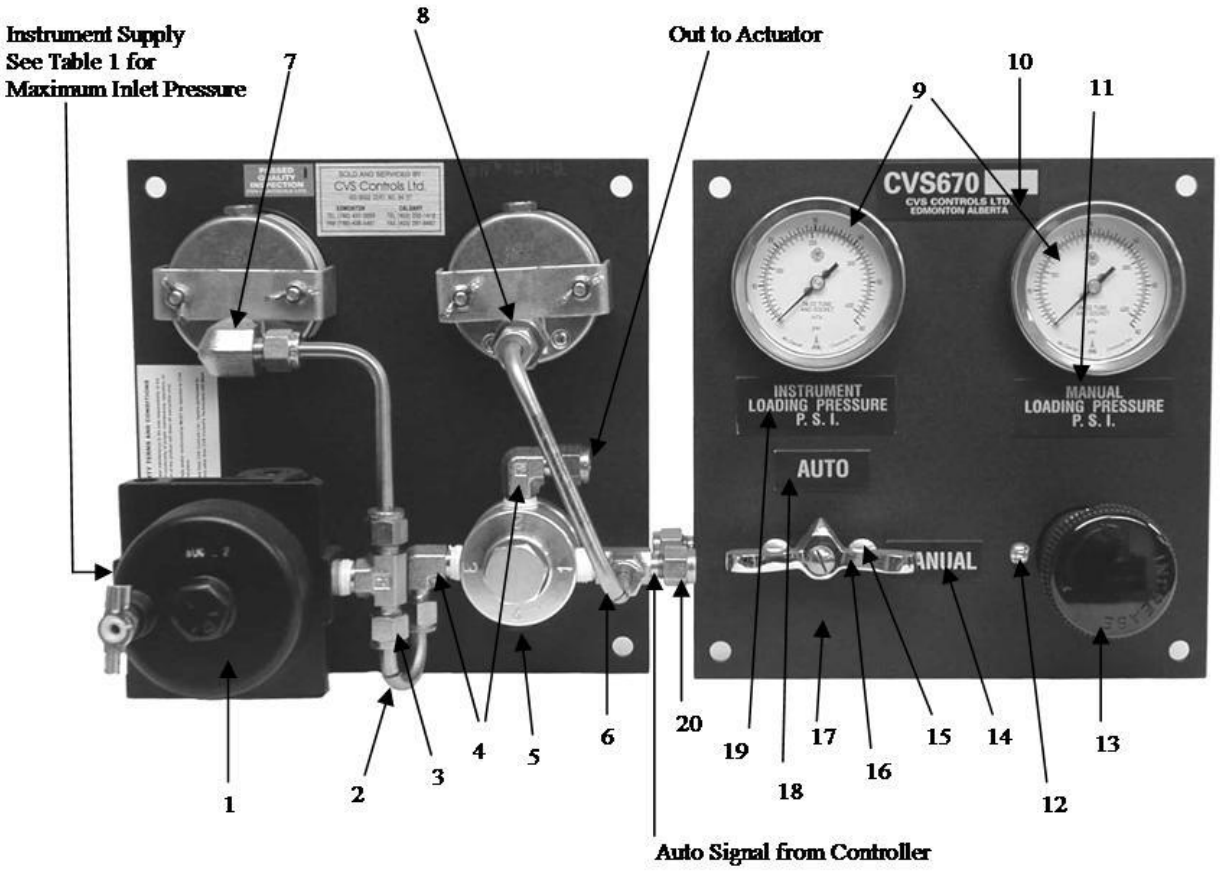

Figure 1: CVS Type 670GV Regulator Assembly

Table 1: Type Number Description

Type Number	No. of Gauges	Description	Regulator Type Number	Maximum Inlet Pressure	Maximum Outlet Pressure	Maximum Emergency Outlet Pressure
670	1	Basic, 1-gauge panel	Bellofram Type 50	250 PSIG	120 PSIG	120 PSIG
670F	1	1-gauge panel, regulator has filter				
670FG	2	2-gauge panel, regulator has filter				
670FGV	2	2-gauge panel with 3-way changeover valve, regulator has filter				
670G	2	Basic, 2-gauge panel				
670GV	2	2-gauge panel with 3-way or 4-way changeover valve				
671	1	Basic 1-gauge panel	912N	250 PSIG	5 PSIG	10 PSIG
672V	1	Basic 1-gauge panel with 3-way changeover valve	--	--	--	--
674G	2	Basic 2-gauge panel	Bellofram P39	6000 PSIG	225 PSIG	250 PSIG
675	2	Basic 2-gauge panel	Bellofram Type 50	250 PSIG	120 PSIG	120 PSIG

CVS670 Series Panel-Mounted Loading Regulator

Ref. No.	Description		Part No.
1	Bellofram Regulator		
2	Stainless Steel Tubing		CVS1C270017012
3	1/4”T x 1/4”NPT x 1/4” Male		4MBT4N-S
4	1/4”NPT x 1/4”T Male Elbow		4MSEL4N-S
5	1/4” NPT Plug – CS		4BLP4-S
6	Stainless Steel Tubing		CVS1C6788X0012
7	1/4”T x 1/4”NPT Female Elbow		4FEL4N-S
8	1/4“T x 1/4“T NPT Female		4FSC4N-S
9	Gauge	0-5 PSI	CVS23A8325X012
		0-15 PSI	CVS2C2332000B2
		0-30 PSI	CVS2C2332000C2
		0-60 PSI	CVS2C2332000D2
		0-100 PSI	CVS2C2332000E2
		0-160 PSI	CVS2C2332X0022
		0-200 PSI	CVS2C2332000F2
		0-300 PSI	CVS2C2332X00A2
		0-400 PSI	CVS2C2332X0032
		0-600 PSI	CVS2C2332X0042
		0-60PSI & 0-4 KG/CM^2	CVS1R766299012
		0-60-200 PSI & 0-4-14 KG/CM^2	CVS1R766399012
10	Serial Plate, Aluminum		CVS1C584011992
11	Manual Pressure Plate, Aluminum		CVSSB/L
12	Machine Screw, Steel	Types 670, 670F & 671 (2 req’d)	CVS1C270428992
		Types 670G, 670FG, 672V, 674G & 675G (4 req’d)	
		Types 670GV & 670FGV (6 req’d)	
13	Regulator 0-60 PSI Standard		CVS73-60
14	Manual Nameplate, Aluminum		CVSSB/M
15	Machine Screw, steel plated	Types 670FGV, 670GV and 672V (2 req’d)	CVS1C270328992
		Types 674G (3 req’d)	CVS1B2958X0012
16	Changeover Valve	Types 670GV, 670FGV & 672V (2-way or 3-way)	CVS1C269518992
		Type 970GV (4 way)	CVS1V6141X0012
17	Panel	Type 670 & 970F – zinc	CVS1C233344012
		Type 670FG – steel	CVS3E660725132
		Type 670G – steel	CVS3J846025123
		Types 670GV and 670FGV (3-way valve) – steel	CVS3E660825123
		Type 670GV (4-way valve) – steel	CVS3V6140X0012
		Type 671 – zinc	CVS1C233744012
		Type 672V – zinc	CVS1C781244012
		Type 674G – steel	CVS3F2450X0012
		Type 675G – steel	CVS3H184325132
18	Auto Nameplate, Aluminum		CVSSB/N
19	Instrument Loading Pressure Plate, Aluminum		CVSSB/K
20	Male Run Tee		4MRT4N-S

Not Shown:

Description		Part No.
Clamp Bar, Steel Cd plated		CVS1C233824162
Hex Nut	Types 670, 670F, 670FG, 670FGV, 671, 674G & 675G (4 req’d)	CVS1E985324142
	Types 670G, 670GV, 672V (6 req’d)	CVS1E985324142
Machine Screw, Steel (4 req’d)		CVS1C233928992
Mounting Post, Steel (3 req’d) Type 674G only		CVS1F2449X0012