

February 2015

670 Series Panel-Mounted Loading Regulator Assemblies



WARNING

Fisher® regulators should be installed, operated and maintained in accordance with federal, state and local codes, rules and regulations and Emerson Process Management Regulator Technologies, Inc. instructions.

If a leak develops in the system, it indicates that service is required. Failure to take the regulator out of service immediately may create a hazardous condition.

Call a gas service person in case of trouble. Only a qualified person must install or service the regulator.

Introduction

The 670 Series panel-mounted loading regulator assemblies are used primarily for manually controlling pressure to diaphragm control valves or as remote pressure loaders for pressure-balance gas regulators. They are also widely used for remote control of gas pressure to burners in refinery tube stills, power plants and similar process furnaces.

Principle of Operation

The 670 Series regulators are set manually to control supply pressure to diaphragm control valves or gas regulators. Instrument and manual loading pressures are read from the pressure gauges of the regulator. If pressure to the valve needs to be adjusted, the regulator handwheel is turned clockwise to increase the supply pressure or counterclockwise to decrease the supply pressure.

Installation

Inspect the panel after it is removed from its packing. Connect a 1/4 in. / 6.4 mm pipe line from the operating supply pressure to the connection marked "IN" on the pressure regulator.

One and two-gauge panels: Connect a line to the diaphragm casing of the main valve or regulator and run it to the connection marked "OUT" on the panel regulator. When installing a two-gauge panel, connect a line from the control pressure line to the upper diaphragm casing and to the



W0554

Figure 1. Typical 670 Series Regulators: Two-Gauge Panel with Three-Way Changeover Valve

control pressure gauge (instrument loading pressure) in the back of the panel (see Figure 2).

Two-gauge panel with a three-way changeover valve: Connect the air supply, diaphragm connection and instrument loading pressure line to the panel regulator as shown in Figure 4.

Overpressure Protection



WARNING

Overpressuring any portion of this equipment may cause damage to regulator parts, leaks in the regulators or personal injury due to bursting of pressure-containing parts or explosion of accumulated gas.

To avoid overpressure, provide appropriate overpressure protection to ensure that none of the pressure limits will be exceeded.

The regulator assembly should be inspected for damage after any overpressure condition.



670 Series

Table 1. Type Number Description

TYPE	NUMBER OF GAUGE	DESCRIPTION	REGULATOR TYPE NUMBER	MAXIMUM INLET PRESSURE		MAXIMUM OUTLET PRESSURE		MAXIMUM EMERGENCY OUTLET PRESSURE	
				psig	bar	psig	bar	psig	bar
670	1	Basic 1-gauge panel	67CR	250	17.2	100	6.9	110	7.6
670F	1	1-gauge panel; regulator has filter	67CFR						
670FG	2	2-gauge panel; regulator has filter	67CFR						
670FGV	2	2-gauge panel with 3-way changeover valve; regulator has filter	67CFR	50	3.5	50	3.5	55	3.8
670G	2	Basic 2-gauge panel	67CR	250	17.2	100	6.9	110	7.6
670GV	2	2-gauge panel with 3-way or 4-way changeover valve	67CR	50	3.5	50	3.5	55	3.8
671	1	Basic 1-gauge panel	912N	250	17.2	5	0.35	10	0.69
675	2	Basic 2-gauge panel	67CR	250	17.2	100	6.9	110	7.6

As is the case with most regulators, regulators in the 670 Series have outlet pressure ratings which are lower than the inlet pressure ratings. Overpressure protection is needed if the actual inlet pressure can exceed the outlet pressure rating. A common method of overpressure protection is a relief valve.

Maximum emergency outlet pressure ratings are shown in Table 1 for each loading regulator.

Startup

Open the air supply line. Check all connections for leaks. The manual loading pressure gauge indicates the loading pressure on the diaphragm of the main valve. To increase the loading pressure, turn the handwheel clockwise. To decrease the loading pressure, turn the handwheel counterclockwise.

Units with a three-way changeover valve may be placed under manual operation. When changing from manual to automatic or from automatic to manual control, set the manual control pressure gauge to read the same as the instrument pressure in order to prevent bumping.

Maintenance

The regulator can be removed from the panel to be nut disassembled. Take out the set screws or loosen the hex to remove the regulators from the panel. Refer to the appropriate instruction manual for further maintenance on the regulator.

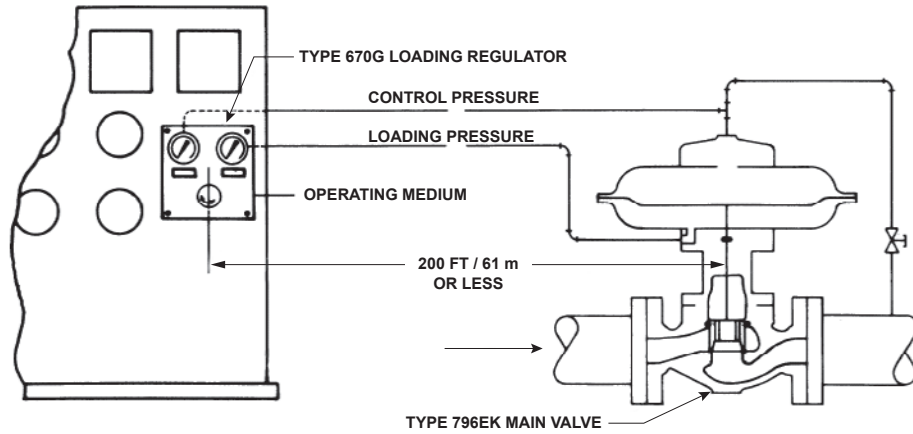
Parts Ordering

When corresponding with your local Sales Office about this equipment, be sure to include the serial number that is stamped on the nameplate on the back of the panel. Include the complete eleven-character part numbers from the following Parts List when ordering new parts.

Parts List

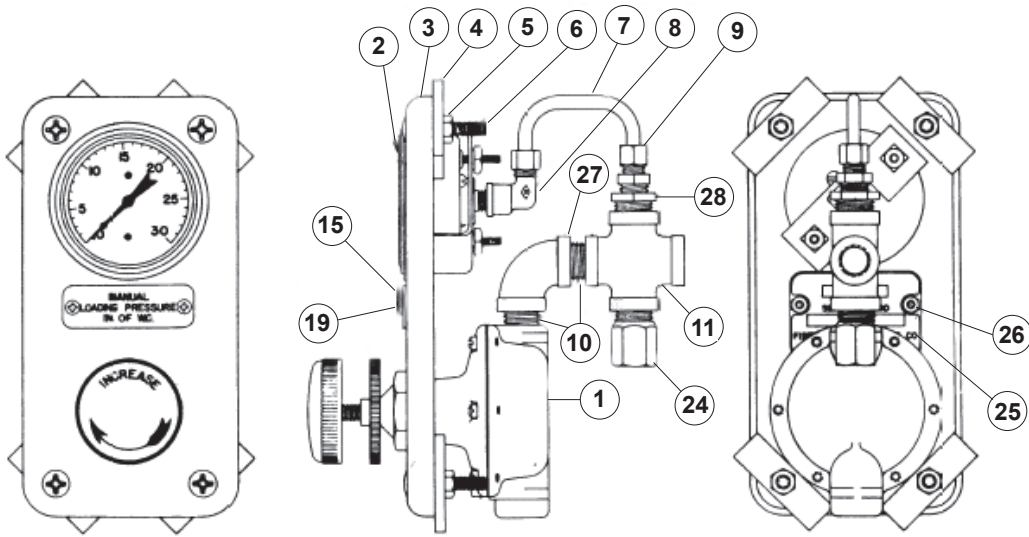
Key	Description	Part Number
1	Regulator—Part numbers for the regulators used in the 670 Series are shown in the regulator instruction manuals	

Key	Description	Part Number
2	Gauge 0 to 5 psig / 0 to 0.35 bar 0 to 15 psig / 0 to 1.0 bar 0 to 30 psig / 0 to 2.1 bar 0 to 60 psig / 0 to 4.1 bar 0 to 100 psig / 0 to 6.9 bar 0 to 160 psig / 0 to 11.0 bar 0 to 200 psig / 0 to 13.8 bar 0 to 300 psig / 0 to 20.7 bar 0 to 400 psig / 0 to 27.6 bar 0 to 600 psig / 0 to 41.3 bar 0 to 60 psig / 0 to 4.1 bar and 0 to 4 kg/cm ² 0 to 60 to 200 psig / 0 to 4.1 to 13.8 bar and 0 to 4 to 14 kg/cm ²	23A8325X012 2C2332000B2 2C2332000C2 2C2332000D2 2C2332000E2 2C2332X0022 2C2332000F2 2C2332X00A2 2C2332X0032 2C2332X0042 1R766299012 1R766399012
3	Panel Types 670 and 670F, Zinc Type 670FG, Steel Type 670G, Steel Types 670GV and 670FGV (3-way valve), Steel Type 671, Zinc Type 675G, Steel	1C233344012 3E660725132 3J846025132 3E660825132 1C233744012 3H184325132 1C233824162
4	Clamp bar, Cadmium Plate steel (4 required)	1C233824162
5	Hex Nut, Cadmium Plate Steel Types 670, 670F, 670FG, 670FGV, 671 and 675G (4 required) Types 670G and 670GV (6 required)	1E985324142 1E985324142
6	Machine Screw, Steel (4 required)	1C233928992
7	Tubing, Copper Type 670 Type 670F Type 670FG Type 670FGV Type 670G Type 670GV Type 671 Type 675G	19A1553X012 19A1562X012 19A1564X012 19A1565X012 19A1569X012 19A1556X012 19A1511X012 19A1573X012
8	Fitting, Brass Types 670, 670F and 671 All other types	15A6002X272 15A6002X262
9	Fitting, Brass Types 670 and 670F Type 670FG Types 670FGV and 670GV (3 required) Type 670G Type 671 Type 675G (2 required)	1C619718992 15A6002X172 15A6002X172 15A6002X212 15A6002XA92 1C619718992



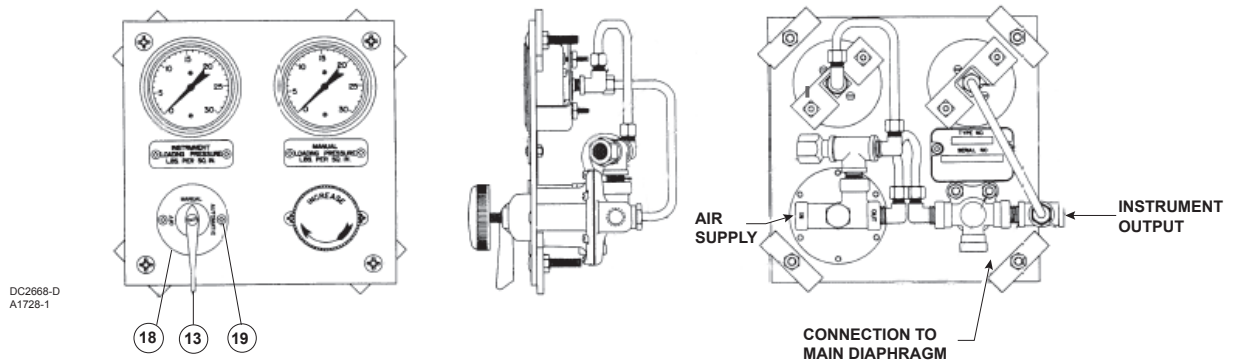
AF5052-C

Figure 2. Typical Installation of a Type 670 Regulator



30A6617

Figure 3. Type 671 Regulator Assembly Drawing



DC2668-D
A1728-1

Figure 4. Type 670GV Regulator Assembly Drawing

670 Series

Key	Description	Part Number	Key	Description	Part Number
10	Nipple Types 670, 670F and 670G, Brass Types 670FGV, 670GV and 675G, Brass (2 required) Type 671, Steel	1B678218992 1B678218992 1H392926012	17	Fitting, Brass Type 670G Types 670GV and 670FGV (2 required)	1C269818992 1C269818992
11	Fitting, Brass Type 670 Type 670F Type 670FG Types 670FGV, 670G and 670GV (2 required) Type 671 Type 675G (2 required)	15A6002X212 15A6002X382 1L472018992 1C619718992 1D501621992 15A6002X212	18	Valve Dial, Plastic Type 670FGV (3-way valve) Type 670GV (2-way valve) Type 670GV (3-way valve)	1L351106992 1D6367X0021 1C269606092
12	Tubing, Copper Type 670GV Type 675G	19A1560X012 19A1574X012	19	Machine Screw, Steel Types 670, 670F and 671 (2 required) Types 670FG, 670G and 675G (4 required) Types 670FGV and 670GV (6 required)	1C270428992 1C270428992 1C270428992
13	Changeover Valve Types 670FGV and 670GV	1C269518992	20	Tubing, Copper Types 670FGV and 670GV (2 required)	19A1558X012
15	Gauge Service Marking ⁽¹⁾ Types 670, 670F and 671 Type 670FG (one of each) Type 670FGV (one of each) Types 670G and 670GV (one of each) Type 675G (2 required)	1C538606092 1C538606092 1C538706092 1L335506092 1L335606092 1C538606092 14A2561X012 1C538606092	23	Support Post, Brass Types 670FGV and 670GV (2 required) (Not shown)	1C269714012
16	Machine Screw, Plate steel Types 670FGV and 670GV (2 required)	1C270328992	24	Bleed Orifice and Screen Assembly, Brass/Monel® Types 670, 670F, 670FG, 670FGV and 670GV Type 671 Type 675G (2 required)	1K8845X0012 1D5015X0012 1K8843X0012
			25	Serial Plate, Aluminum	1C584011992
			26	Hex Nut, Plate steel Type 670FG (4 required) All other types (2 required)	1A330328982 1A330328982
			27	Fitting Type 671, Malleable Iron Types 670FGV and 670GV, Brass	1D501721992 15A6002X212
			28	Fitting, Brass Types 670FGV, 670G and 670GV	15A6002X272
			33	Mounting Post, Steel (3 required) (not shown)	1F2449X0012

1. A plate may be engraved with any service marking or terminology. Letter height is 1/8 in. / 3.2 mm. There is space for 3 lines with up to 16 letters per line. Monel® is a mark owned by Special Metals Corporation.

Industrial Regulators

Emerson Process Management Regulator Technologies, Inc.

USA - Headquarters
McKinney, Texas 75070 USA
Tel: +1 800 558 5853
Outside U.S. +1 972 548 3574

Asia-Pacific
Shanghai 201206, China
Tel: +86 21 2892 9000

Europe
Bologna 40013, Italy
Tel: +39 051 419 0611

Middle East and Africa
Dubai, United Arab Emirates
Tel: +971 4811 8100

Natural Gas Technologies

Emerson Process Management Regulator Technologies, Inc.

USA - Headquarters
McKinney, Texas 75070 USA
Tel: +1 800 558 5853
Outside U.S. +1 972 548 3574

Asia-Pacific
Singapore 128461, Singapore
Tel: +65 6770 8337

Europe
Bologna 40013, Italy
Tel: +39 051 419 0611
Chartres 28008, France
Tel: +33 2 37 33 47 00

Middle East and Africa
Dubai, United Arab Emirates
Tel: +971 4811 8100

TESCOM

Emerson Process Management Tescom Corporation

USA - Headquarters
Elk River, Minnesota 55330-2445, USA
Tels: +1 763 241 3238
+1 800 447 1250

Europe
Selmsdorf 23923, Germany
Tel: +49 38823 31 287

Asia-Pacific
Shanghai 201206, China
Tel: +86 21 2892 9499

For further information visit www.fisherregulators.com

The Emerson logo is a trademark and service mark of Emerson Electric Co. All other marks are the property of their prospective owners. Fisher is a mark owned by Fisher Controls International LLC, a business of Emerson Process Management.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson Process Management Regulator Technologies, Inc. does not assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use and maintenance of any Emerson Process Management Regulator Technologies, Inc. product remains solely with the purchaser.