Y690A Series Pressure Reducing Regulators

WARNING

Fisher® regulators must be installed, operated, and maintained in accordance with federal, state, and local codes, rules and regulations, and Fisher instructions.

If the regulator vents gas or a leak develops in the system, service to the unit may be required. Failure to correct trouble could result in a hazardous condition.

Call a gas service person to service the unit. Only a qualified person must install or service the regulator.

W7293

Figure 1. *Types Y690A and Y690AH Direct-Operated Pressure Reducing Regulators*

Introduction

Scope of Manual

This Instruction Manual provides instruction for installation, startup, maintenance, and parts list for the Y690A Series pressure reducing regulators. Instructions and parts lists for other equipment used with these regulators are found in separate manuals.

Description

The Y690A Series self-contained, spring-loaded regulators (Figure 1) provide economical pressure reducing control in a variety of commercial and industrial applications. The Y690A Series pressure reducing regulator (Figure 1) is ideally suited to control gas supply to in-plant processing equipment. The rugged casings and sliding pusher post design withstands the full 150 psig (10,3 bar) inlet pressure at both the inlet and outlet connections. Because these regulators can withstand the full inlet pressure, a downstream relief valve is not required to protect the downstream side of the regulator unless full capacity relief is required. Available type numbers are described in the Specifications section.

Specifications

The Specifications section on page 2 provides the ratings and other specifications for the Y690A Series. The following information is stamped on the regulator at the factory: type number, date of manufacture, spring range, orifice size, maximum inlet pressure, maximum operating outlet pressure, and outlet pressure which may damage regulator parts.

D102587X012

Specifications

Available Configurations

Type Y690A—Low-pressure, 1 to 7-inches w.c. (2 to 17 mbar), direct-operated regulator with internal registration requiring no downstream control line.

Type Y690AH—High-pressure, 5-inches w.c. to 7 psig (12 mbar to 0,48 bar), direct-operated regulator with internal registration requiring no downstream control line.

Type Y690AM—Low-pressure, 1 to 7-inches w.c. (2 to 17 mbar), direct-operated regulator. The Type Y690AM has a blocked throat and O-ring stem seal for use when external registration is required. Lower diaphragm casing assembly is tapped for 1/2 NPT for control line connection.

Type Y690AHM—High-pressure, 5-inches w.c. to 7 psig (12 mbar to 0,48 bar), direct-operated regulator with a blocked throat and O-ring stem seal for use when external registration is required. Lower diaphragm casing assembly is tapped for 1/2 NPT for control line connection.

Body Sizes and End Connection Styles
See Table 1

Maximum Allowable Inlet Pressure(1)
150 psig (10,3 bar)

Maximum Operating Inlet Pressure(1)
See Table 3

Maximum Outlet (Casing) Pressure(1)
150 psig (10,3 bar)

Maximum Emergency Outlet Pressure to Avoid Internal Parts Damage(1)
150 psig (10,3 bar)

Outlet Pressure Ranges(1)
See Table 2

Orifice Sizes and Flow Sizing Coefficients
See Table 4

Regulator Temperature Capabilities(1)

With Nitrile (NBR):
-20° to 180°F (-29° to 82°C)
With Fluorocarbon (FKM):
40° to 300°F (4° to 149°C)
With Ethylenepropylene (EPDM):
-20° to 275°F (-29° to 135°C)
With Perfluoroelastomer (FFKM):
-20° to 300°F (-29° to 149°C)

Pressure Registrations

Types Y690A and Y690AH: Internal

Types Y690AM and Y690AHM: External

Spring Case Connection
1/4 NPT

Diaphragm Case Connection
1/2 NPT

Approximate Weight
19 pounds (9 kg)

1. The pressure/temperature limits in this Instruction Manual and any applicable standard or code limitation should not be exceeded.

Table 1. *Body Sizes and End Connection Styles*

BODY SIZE, NPS (DN)	BODY MATERIAL(1)	
	Ductile Iron	Stainless Steel
3/4 or 1 (20 or 25)	NPT	NPT, CL150 RF, CL300 RF, or PN 16/25/40

1. All flanges are welded.

Table 2. *Outlet Pressure Ranges*

TYPES	OUTLET PRESSURE RANGES	SPRING PART NUMBER	SPRING COLOR	SPRING WIRE DIAMETER, INCHES (mm)	SPRING FREE LENGTH, INCHES (mm)
Y690A and Y690AM	1 to 2.5-inches w.c. (2 to 6 mbar)	1B558527052(1)(2)	Orange	0.072 (1,83)	3.78 (96,0)
	2.5 to 7-inches w.c. (6 to 17 mbar)	1B653827052(1)	Red	0.085 (2,16)	3.62 (92,0)
Y690AH and Y690AHM	5 to 10-inches w.c. (12 to 25 mbar)	1B653827052	Red	0.085 (2,16)	3.62 (92,0)
	7 to 16-inches w.c. (17 to 40 mbar)	1B653927022	Unpainted	0.105 (2,67)	3.75 (95,2)
	15-inches w.c. to 1.2 psig (37 mbar to 0,08 bar)	1B537027052	Yellow	0.114 (2,90)	4.31 (109)
	1.2 to 2.5 psig (0,08 to 0,17 bar)	1B537127022	Light green	0.156 (3,96)	4.06 (103)
	2.5 to 4.5 psig (0,17 to 0,31 bar)	1B537227022	Light blue	0.187 (4,75)	3.94 (100)
	4.5 to 7 psig (0,31 to 0,48 bar)	1B537327052	Black	0.218 (5,54)	3.98 (101)

1. To achieve the published outlet pressure range the spring case must be installed pointing down.
2. Do not use Fluorocarbon (FKM) diaphragm with this spring at diaphragm temperatures lower than 60°F (16°C).

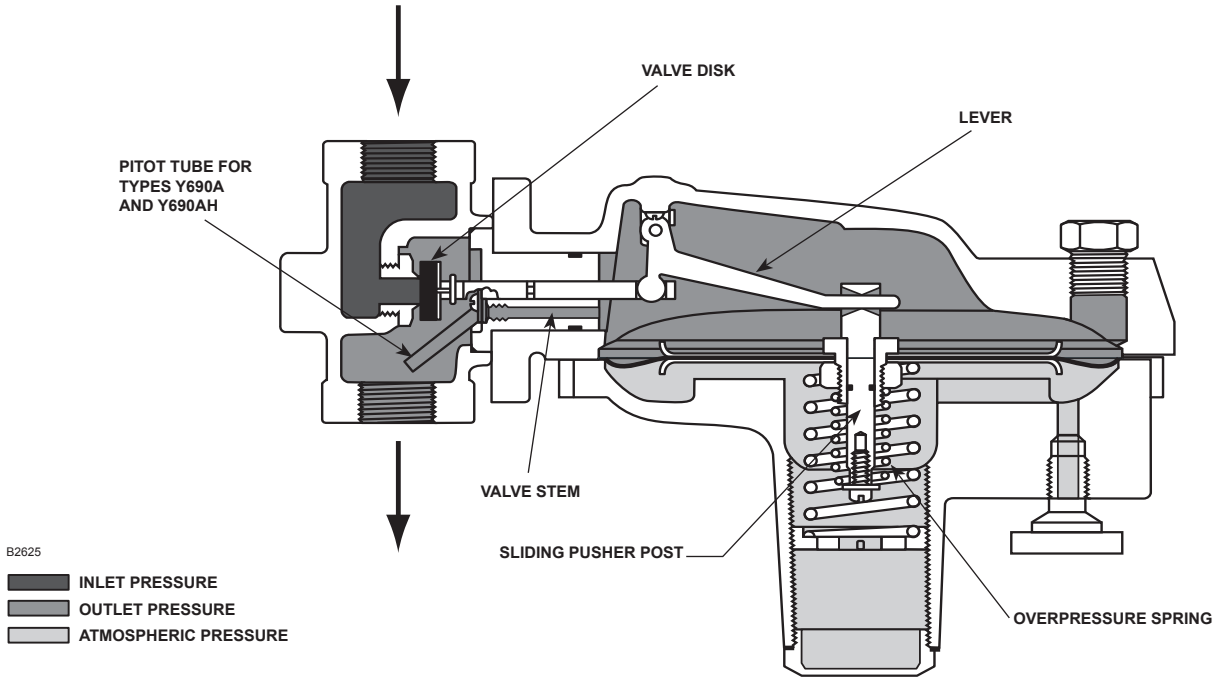

Figure 2. *Y690A Series Operational Schematic*

Principle of Operation

Refer to Figure 2. When downstream demand decreases, the pressure under the diaphragm increases. This pressure overcomes the regulator setting (which is set by a spring). Through the action of the sliding pusher post assembly, lever, and valve stem the valve disk moves closer to the orifice and reduces gas flow. If demand downstream increases, pressure under the diaphragm decreases. Spring force pushes the pusher post assembly downward, the valve disk moves away from the orifice, and the gas flow increases.

Table 3. *Maximum Operating Inlet Pressures*

ORIFICE SIZE, INCHES (mm)	OUTLET PRESSURE RANGE, PSIG (bar)							
	Types Y690A and Y690AM		Types Y690AH and Y690AHM					
	1 to 2.5-Inches w.c. (2 to 6 mbar)	2.5 to 7-Inches w.c. (6 to 17 mbar)	5 to 10-Inches w.c. (12 to 25 mbar)	7 to 16-Inches w.c. (17 to 40 mbar)	15-inches w.c. to 1.2 Psig (37 mbar to 0,08 bar)	1.2 to 2.5 Psig (0,08 to 0,17 bar)	2.5 to 4.5 Psig (0,17 to 0,31 bar)	4.5 to 7 Psig (0,31 to 0,48 bar)
1/8 (3,2)	150 (10,3)	150 (10,3)	150 (10,3)	150 (10,3)	150 (10,3)	150 (10,3)	150 (10,3)	150 (10,3)
1/4 (6,4) 3/8 (9,5)	40 (2,8) 20 (1,4)	60 (4,1) 20 (1,4)	75 (5,2) 35 (2,4)	75 (5,2) 35 (2,4)	75 (5,2) 35 (2,4)	150 (10,3) 60 (4,1)	150 (10,3) 60 (4,1)	150 (10,3) 60 (4,1)
1/2 (13) 9/16 (14)	10 (0,69) 5 (0,34)	10 (0,69) 5 (0,34)	8 (0,55) 5 (0,34)	8 (0,55) 5 (0,34)	8 (0,55) 5 (0,34)	10 (0,69) 6 (0,41)	12 (0,83) 8 (0,55)	12 (0,83) 8 (0,55)

Table 4. *Flow and Sizing Coefficients*

ORIFICE SIZE, INCHES (mm)	WIDE-OPEN COEFFICIENTS (FOR RELIEF VALVE SIZING)		C_1	K_m	IEC SIZING COEFFICIENTS		
	C_v	C_g			X_T	F_D	F_L
1/8 (3,2) 1/4 (6,4) 3/8 (9,5) 1/2 (13) 9/16 (14)	0.35 1.43 3.14 5.71 7.14	12.3 50 110 200 250	35	0.79	0.78	0.50	0.89

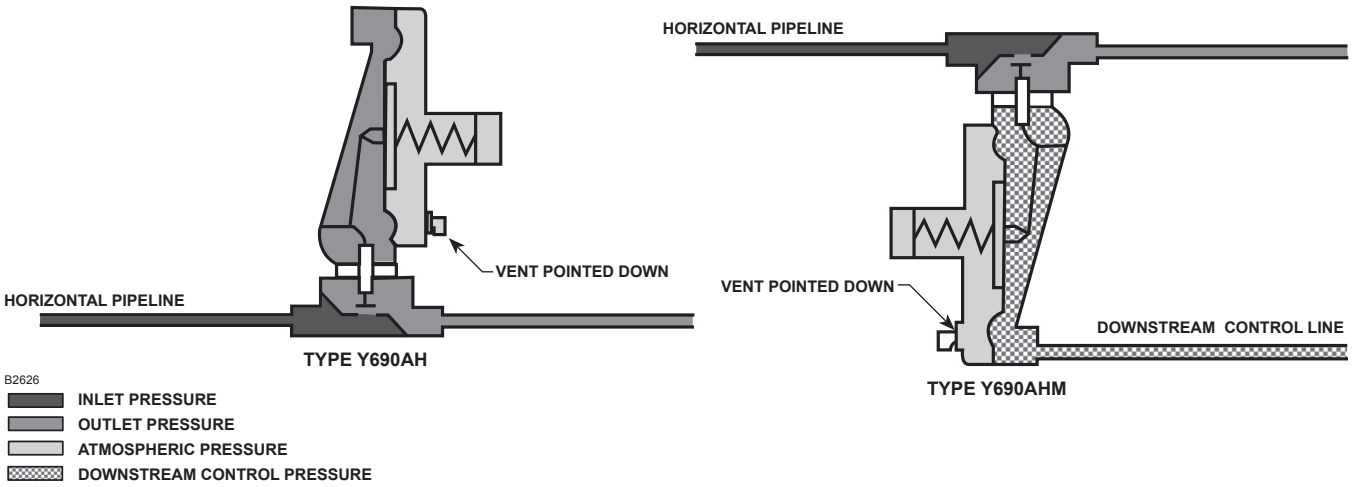

Figure 3. *Types Y690AH and Y690AHM Actuator Casing Drainage Schematics*

Installation

WARNING

Personal injury, property damage, equipment damage, or leakage due to escaping gas or bursting of pressure-containing parts may result if this regulator is overpressured or installed where service conditions could exceed the limits given in the Specifications section (page 2), or where conditions exceed any ratings of the adjacent piping or piping connections. To avoid such injury or damage, provide pressure-relieving or pressure-limiting devices (as required by the appropriate code, regulation, or standard) to prevent service conditions from exceeding those limits.

Additionally, physical damage to the regulator could cause personal injury or property damage due to escaping gas. To avoid such injury or damage, install the regulator in a safe and well ventilated location.

Regulator operation within ratings does not preclude the possibility of damage from debris in the lines or from external sources. A regulator should be inspected for damage periodically and after any overpressure condition beyond the emergency outlet pressure limit specified in the Specifications section (page 2). Key numbers referenced in this section are shown in Figures 5, 6, and 7.

Note

If the regulator is shipped mounted on another unit, install that unit according to the appropriate instruction manual.

1. Only personnel qualified through training and experience should install, operate, and maintain a regulator. For a regulator that is shipped separately, make sure there is no damage to, or foreign material in the regulator. Also ensure that all tubing and piping are free of debris.

2. The regulator may be installed in any position as long as the flow through the body is in the direction indicated by the arrow on the body. Normal installation is with the spring case barrel vertical above or below the diaphragm case. However, when using a Type Y690A or Y690AM regulator, for proper operation to achieve the published capacities, the spring case barrel should be installed pointed down as shown in Figure 1. For complete actuator drainage of Types Y690AH and Y690AHM, the regulator should be installed as shown in Figure 3. If continuous operation of the system is required during inspection or maintenance, install a three-valve bypass around the regulator.

WARNING

A regulator may vent some gas to the atmosphere. In hazardous or flammable gas service, vented gas may accumulate and cause personal injury, death, or property damage due to fire or explosion. Vent a regulator in hazardous gas service to a remote, safe location

away from air intakes or any hazardous area. The vent line or stack opening must be protected against condensation or clogging.

3. To keep the spring case vent from being plugged or the spring case from collecting moisture, corrosive chemicals, or other foreign material, point the vent down or otherwise protect it. The diaphragm casing (key 4) may be rotated in order to obtain desired positioning.
4. To remotely vent the regulator, remove the vent (key 26) and install obstruction-free tubing or piping into the 1/4 NPT vent tapping. Provide protection on a remote vent by installing a screened vent cap into the remote end of the vent pipe.
5. The Types Y690AM and Y690AHM require a downstream control line. Be sure to install the control line before putting the regulator into operation. The control line pipe should be at least 1/2-inch (13 mm) in diameter and connected to a straight section of outlet piping 5 to 10 pipe diameters downstream of the regulator. If turbulence exists, a hand valve can be installed in a straight section of the control line. This hand valve can be throttled down to dampen out pulsations which may cause instability or cycling of the regulator.

Startup and Adjustment

WARNING

To avoid personal injury, property damage, or equipment damage caused by bursting of pressure containing parts or explosion of accumulated gas, never adjust the control spring to produce an outlet pressure higher than the upper limit of the outlet pressure range for that particular spring. If the desired outlet pressure is not within the range of the control spring, install a spring of the proper range according to the Diaphragm and Spring Case Area section of the maintenance procedure.

Y690A Series regulators can be placed in operation by slowly introducing inlet pressure. The regulator takes control when downstream pressure is established. The regulator has been adjusted at the factory to provide approximately the reduced pressure requested on the order. With a spring-loaded regulator, the pressure setting may be adjusted to a value within the spring range shown in Table 3. To adjust the pressure setting, perform the following steps (key numbers are referenced in Figures 5, 6, and 7):

1. Remove the closing cap (key 22).
2. Use a 1-inch (25 mm) hex rod or flat screwdriver to turn the adjusting screw (key 35) either clockwise to increase outlet pressure or counterclockwise to decrease outlet pressure.

Shutdown

First close the nearest upstream shutoff valve and then close the nearest downstream shutoff valve to vent the regulator properly. Next, open the vent valve between the regulator and the downstream shutoff valve nearest to it. All pressure between these shutoff valves is released through the open vent valve, since a Y690A Series remains open in response to the decreasing downstream pressure. For a regulator with a control line, the valve in the control line must also be closed and the diaphragm casing vented to the atmosphere.

Maintenance

Regulator parts are subject to normal wear and must be inspected and replaced as necessary. The frequency of inspection and replacement of parts depends upon the severity of service conditions or the requirements of local, state, and federal regulations. Due to the care Emerson™ takes in meeting all manufacturing requirements (heat treating, dimensional tolerances, etc.), use only replacement parts manufactured or furnished by Emerson.

WARNING

To avoid personal injury, property damage, or equipment damage caused by sudden release of pressure or explosion of accumulated gas, do not attempt any maintenance or disassembly without first isolating the regulator from system pressure and relieving all internal pressure from the regulator.

Body Area

This procedure is for gaining access to the disk assembly, orifice, body O-ring, and pitot tube if used. All pressure must be released from the diaphragm casing, and the disk assembly must be open, before these steps can be performed. Key numbers are referenced

in Figures 5, 6, and 7.

1. Remove the cap screws (key 2, Figure 7) and separate the diaphragm casing (key 4) from the body (key 1).
2. Remove and inspect the body seal O-ring (key 11) and the backup ring (key 50). See Figure 4.
3. Inspect and replace the orifice (key 5) if necessary. Protect the orifice seating surface during disassembly and assembly. Lubricate the threads of the replacement orifice with a good grade of light grease and install with 29 to 37 foot-pounds (39 to 50 N•m) of torque.
4. Remove the cotter pin (key 15) to replace the disk assembly (key 13) or to inspect the throat seal O-ring (key 31, Figure 6) on the Types Y690AM and Y690AHM.
5. To replace the pitot tube (key 32, Figure 5) on the Types Y690A and Y690AH, remove the pitot tube screws (key 33), install the new pitot tube, and secure with the pitot tube screws (key 33). Position the pitot tube so that it points into the outlet of the body by rotating the guide insert (key 18).
6. To inspect the throat seal O-ring (key 31, Figure 6) on the Types Y690AM and Y690AHM, remove the machine screw (key 33, Figure 6). Replace if necessary, and reassemble.
7. Install the disk assembly (key 13) and secure it with the cotter pin (key 15).
8. Place back-up ring (key 50) into the body (key 1). Then place the body seal O-ring (key 11) into the body. See Figure 4.
9. Place the diaphragm casing (key 4) on the body (key 1). Secure the diaphragm casing to the body with the cap screws (key 2, Figure 7).

Diaphragm and Spring Case Area

This procedure is for gaining access to the spring, diaphragm, lever assembly, and stem. All pressure must be released from the diaphragm casing before these steps can be performed.

To Change the Control Spring:

Note

Any remote control drive unit used with a Y690A Series regulator must be removed from the spring case (key 3) before these steps can be performed.

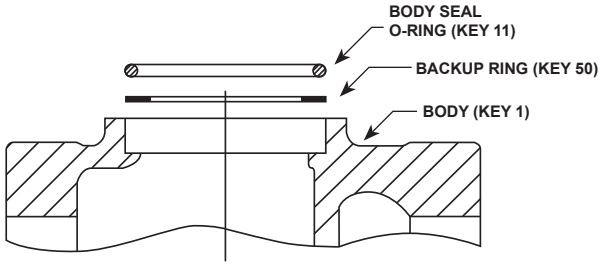

Figure 4. *Expanded View of the Body Area Showing the O-ring and Backup Ring Placement*

1. Remove the closing cap (key 22), and turn the adjusting screw (key 35) counterclockwise to remove all the compression from the control spring (key 6).
2. Change the control spring (key 6) to match the desired spring range.
3. Replace the adjusting screw (key 35).
4. Install a replacement closing cap gasket (key 25), if necessary, and reinstall the closing cap (key 22).
5. If the spring range was changed, be sure to change the stamped spring range on the nameplate.

To Disassemble and Reassemble Diaphragm Parts:

Key numbers are referenced in Figures 5, 6, and 7.

1. Remove the closing cap (key 22), and turn the adjusting screw (key 35) counterclockwise to remove the adjusting screw and the control spring (key 6).
2. Remove the spring case hex nuts (key 23, not shown), cap screws (key 24), and spring case assembly (key 3).
3. Remove the diaphragm (key 10) plus attached parts by tilting them so that the pusher post (key 8) slips off the lever assembly (key 16). To separate the diaphragm (key 10) from the attached parts, unscrew the spring holder screw (key 38) from the pusher post (key 8).
4. Inspect the pusher post (key 8) and the post seal O-ring (key 48), replace if required.
5. Remove hex nut (key 21) to separate the diaphragm (key 10) and attached parts.
6. To replace the lever assembly (key 16), remove the machine screws (key 17). To replace the

stem (key 14) or access the stem seal O-ring (key 30, Types Y690AM and Y690AHM only), perform Body Area Maintenance procedure steps 1 and 4. Then pull the stem out of the lower diaphragm casing (key 4).

7. Install the stem (key 14) into the diaphragm casing (key 4) and perform Body Area Maintenance procedure steps 6 through 9 as necessary.

8. Install the lever assembly (key 16) into the stem (key 14) and secure the lever assembly with the machine screws (key 17).

9. Install the parts on the pusher post in the order listed below:
   - Pusher Post (key 8)
   - Pusher Post Connector (key 40)
   - Connector Seal O-Ring (key 49)
   - Diaphragm Head (key 7)
   - Diaphragm (key 10), pattern side up
   - Diaphragm Head (key 7)
   - Hex Nut (key 21) — Torque the hex nut 9 to 11 foot-pounds (12 to 15 N•m) to secure parts to the pusher post connector (key 40)
   - Overpressure Spring (key 39)
   - Spring Holder (key 37)
   - Machine Screw (key 38)

10. Insert and tighten the machine screw (key 38) with a torque of 1 to 3 foot-pounds (1 to 4 N•m) to secure the diaphragm parts to the pusher post (key 8).

11. Install the assembled parts in the diaphragm casing (key 4). Make sure that the lever (key 16) fits in the pusher post (key 8) and that the holes in the diaphragm (key 10) align with the holes in the diaphragm casing.

12. Install the spring case assembly (key 3) on the diaphragm casing (key 4) so that the vent assembly (key 26) is correctly oriented, and secure with the cap screws (key 24, Figure 7) and hex nuts (key 23, not shown) fingertight only.

13. Insert the control spring (key 6) into the spring case (key 3), followed by the adjusting screw (key 35).

14. Turn the adjusting screw (key 35) clockwise until there is enough spring (key 6) force to provide proper slack to the diaphragm (key 10). Using a crisscross pattern, finish tightening the cap screws (key 24) and hex nuts (key 23) from 14 to 17 foot-pounds (19 to 23 N•m) of torque. To adjust the outlet pressure, refer to the Startup and Adjustment section.

15. Install a replacement closing cap gasket (key 25) if necessary, and then install the closing cap (key 22).

To Convert Constructions

The Type Y690A to the Type Y690AM:

New parts required: keys 30, 31, and 33

1. Remove pipe plug (key 27, Figure 5) from the diaphragm casing (key 4).

2. Refer to steps 1 and 5 in the Body Area Maintenance section to remove the four pitot tube screws (key 33) and pitot tube (key 32, Figure 5).

3. Insert the throat seal O-ring (key 31, Figure 6) and one machine screw (key 33).

4. Insert the stem seal O-ring (key 30, Figure 6) by following steps 1 through 6 of “To Disassemble and Reassemble Diaphragm Parts” in the Diaphragm and Spring Case Area Maintenance Section.

The Type Y690AM to the Type Y690A:

New parts required: keys 27, 32, and 33

1. Insert pipe plug (key 27, Figure 5) in the diaphragm casing (key 4).

2. Follow steps 1 through 6 of “To Disassemble and Reassemble Diaphragm Parts” in the Diaphragm and Spring Case Area Maintenance Section to remove one machine screw (key 33, Figure 6), the stem seal O-ring (key 30, Figure 6), and the throat seal O-ring (key 31, Figure 6) blocking the registration port.

3. Insert pitot tube (key 32) and four pitot tube screws (key 33) as outlined in step 5 of the Body Area Maintenance section.

Parts Ordering

When corresponding with tyour local Sales Office about this regulator, include the type number and all other pertinent information stamped on the nameplate. Specify the eleven-character part number when ordering new parts from the following parts list.

Parts List

Key	Description	Part Number
	Spare Parts Kit (Included are keys 10, 11, 12, 13, 15, 30, 31, 33, 48, and 49)	RY690AX0012
1	Body	See Table 5
2	Cap Screw	
	Ductile Iron	1C856228992
	Stainless Steel	18B3456X012
3	Spring Case Assembly	
	Ductile iron	13B0109X042
	Stainless steel	13B0109X032
4	Lower Diaphragm Casing	
	Ductile iron	47B3063X012
	Stainless steel	47B3064X012
5	Orifice	
	Stainless Steel **(standard)**	
	1/8-inch (3,2 mm)	1A936735032
	1/4-inch (6,4 mm)	0B042035032
	3/8-inch (9,5 mm)	0B042235032
	1/2-inch (13 mm)	1A928835032
	9/16-inch (14 mm)	1C425235032
	316 Stainless steel (NACE)	
	1/8-inch (3,2 mm)	1A9367X0022
	1/4-inch (6,4 mm)	0B0420X0012
	3/8-inch (9,5 mm)	0B0422X0012
	1/2-inch (13 mm)	1A9288X0012
	9/16-inch (14 mm)	1C4252X0022
6	Spring	
	Types Y690A and Y690AM	
	1 to 2.5-inches w.c. (2 to 6 mbar), Orange	1B558527052
	2.5 to 7-inches w.c. (6 to 17 mbar), Red	1B653827052
	Types Y690AH and Y690AHM	
	5 to 10-inches w.c. (12 to 25 mbar), Red	1B653827052
	7 to 16-inches w.c. (17 to 40 mbar), Unpainted	1B653927022
	15-inches w.c. to 1.2 psig (37 mbar to 0,08 bar), Yellow	1B537027052
	1.2 to 2.5 psig (0,08 to 0,17 bar), Light Green	1B537127022
	2.5 to 4.5 psig (0,17 to 0,31 bar), Light Blue	1B537227022
	4.5 to 7 psig (0,31 to 0,48 bar), Black	1B537327052
7	Diaphragm Head	
	Stainless Steel	17B9723X032
8	Pusher Post	
	303 Stainless Steel **(standard)**	27B5354X012
	316 Stainless Steel (NACE)	27B5354X022
10*	Diaphragm	
	Nitrile (NBR)	37B9720X012
	Fluorocarbon (FKM)	23B0101X052
	Nitrile (NBR) with Polytetrafluoroethylene (PTFE)	34B4375X012
11*	Body Seal O-Ring	
	Nitrile (NBR)	1H993806992
	Fluorocarbon (FKM)	1H9938X0012
	Perfluoroelastomer (FFKM)	1H9938X0042
	Ethylenepropylene (EPDM)	1H9938X0022
12*	Insert Seal	
	Nitrile (NBR)	1B885506992
	Fluorocarbon (FKM)	1B8855X0012
	Perfluoroelastomer (FFKM)	1B8855X0062
	Ethylenepropylene (EPDM)	1B8855X0022
13*	Disk Assembly	
	303 Stainless Steel with	
	Nitrile (NBR)	1C4248X0202
	Fluorocarbon (FKM)	1C4248X0052
	Ethylenepropylene (EPDM)	1C4248X0302
	316 Stainless Steel with	
	Nitrile (NBR)	1C4248X0252
	Fluorocarbon (FKM)	1C4248X0192
	Perfluoroelastomer (FFKM)	1C4248X0332
	Ethylenepropylene (EPDM)	1C4248X0152
14	Stem	
	303 Stainless steel **(standard)**	17B3423X012
	316 Stainless steel (NACE)	17B3423X022
15	Cotter Pin	
	Stainless Steel	1A866537022
16	Lever Assembly	
	Stainless steel	1B5375000B2
17	Machine Screw (2 required)	
	Stainless Steel	19A7151X022
18	Guide Insert	
	Stainless Steel	27B4028X022
21	Hex Nut	1A354024122
22	Closing Cap	
	Plastic **(standard)**	T13524T0062
	Steel	1E422724092
	Stainless Steel	1E422735072
23	Hex Nut (8 required)	
	Ductile Iron	1A352724122
	Stainless Steel	1E9440X0352

Table 5. *Body Materials and Part Numbers (Body, key 1)*

BODY MATERIAL	END CONNECTION STYLE(1)	PART NUMBER	
		NPS 3/4 (DN 20) Body	NPS 1 (DN 25) Body
Ductile iron	NPT	17B5351X012	17B5351X022
Stainless steel with Stainless steel flanges	NPT	17B5351X032	17B5351X042
	CL150 RF	17B9733X072	17B9733X082
	CL300 RF	17B9733X092	17B9733X102
	PN 16/25/40	17B9733X112	17B9733X122
Stainless steel with Carbon steel flanges	CL150 RF	17B9733X012	17B9733X022
	CL300 RF	17B9733X032	17B9733X042
	PN 16/25/40	17B9733X052	17B9733X062

1. All flanges are welded on except Hastelloy® C. Weld-on flange dimension is 14-inches (356 mm) face-to-face.

* Recommended spare part

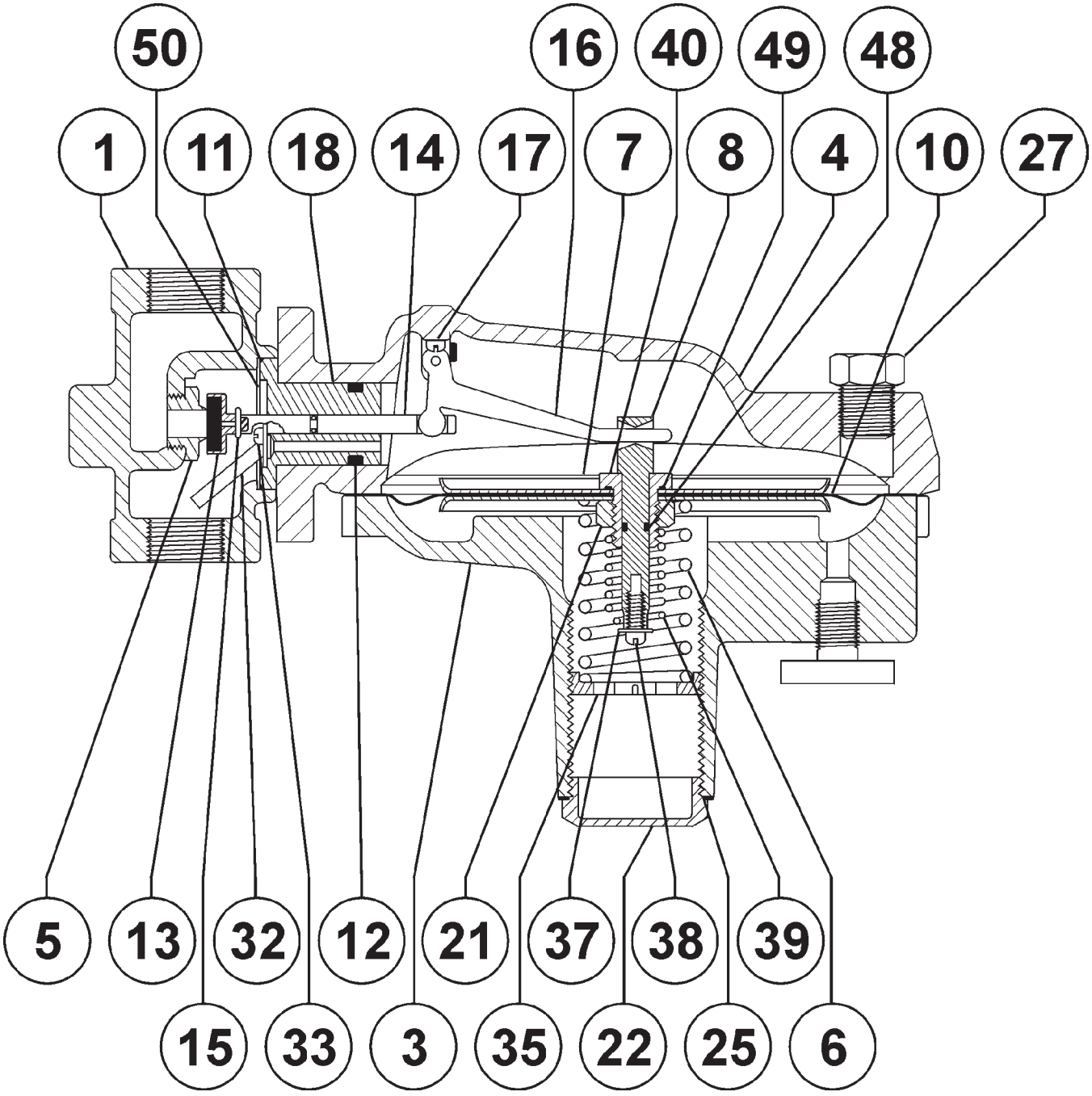

Figure 5. *Type Y690A or Y690AH Regulator Assembly*

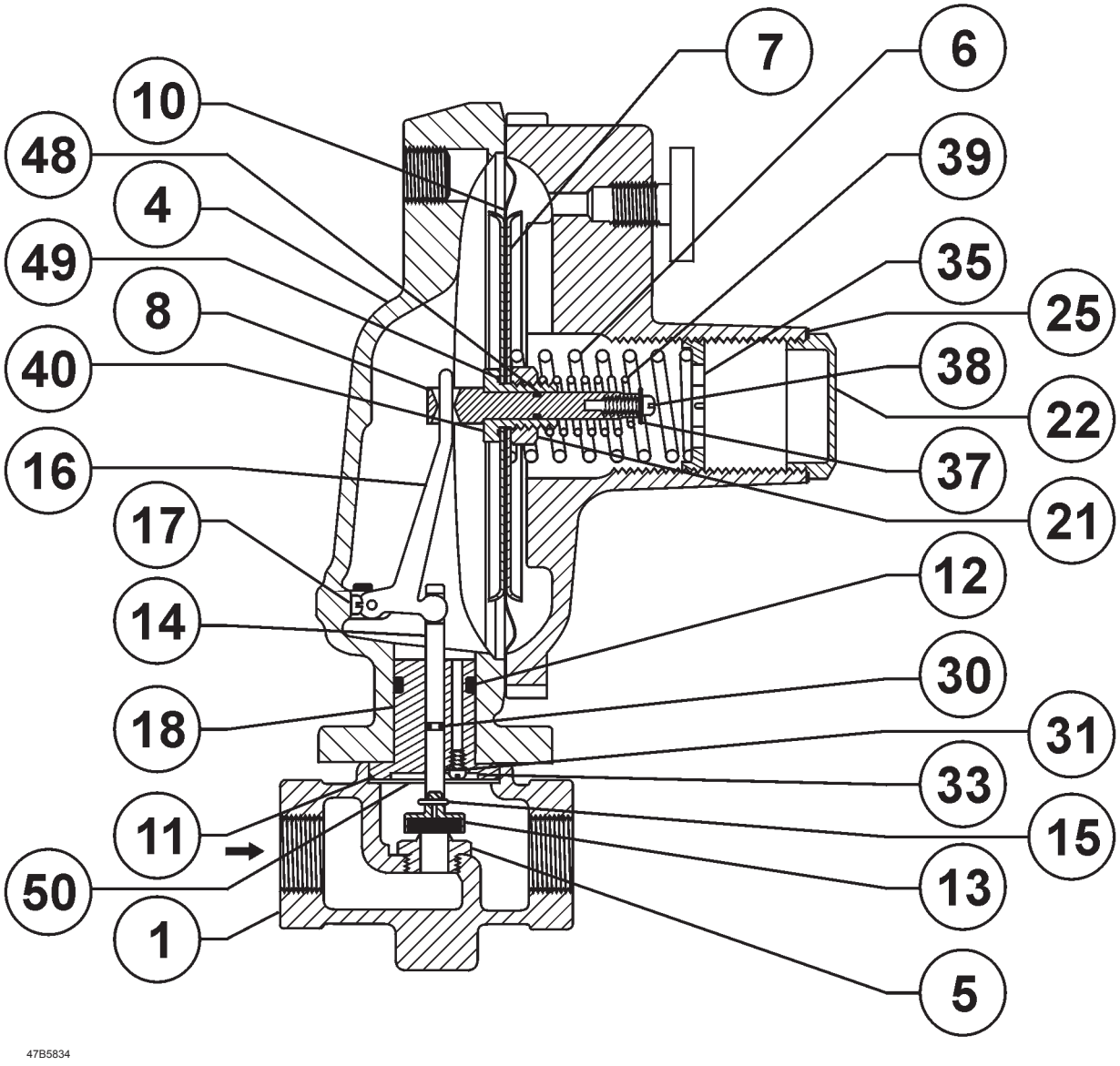

Figure 6. *Type Y690AM or Y690AHM Regulator Assembly*

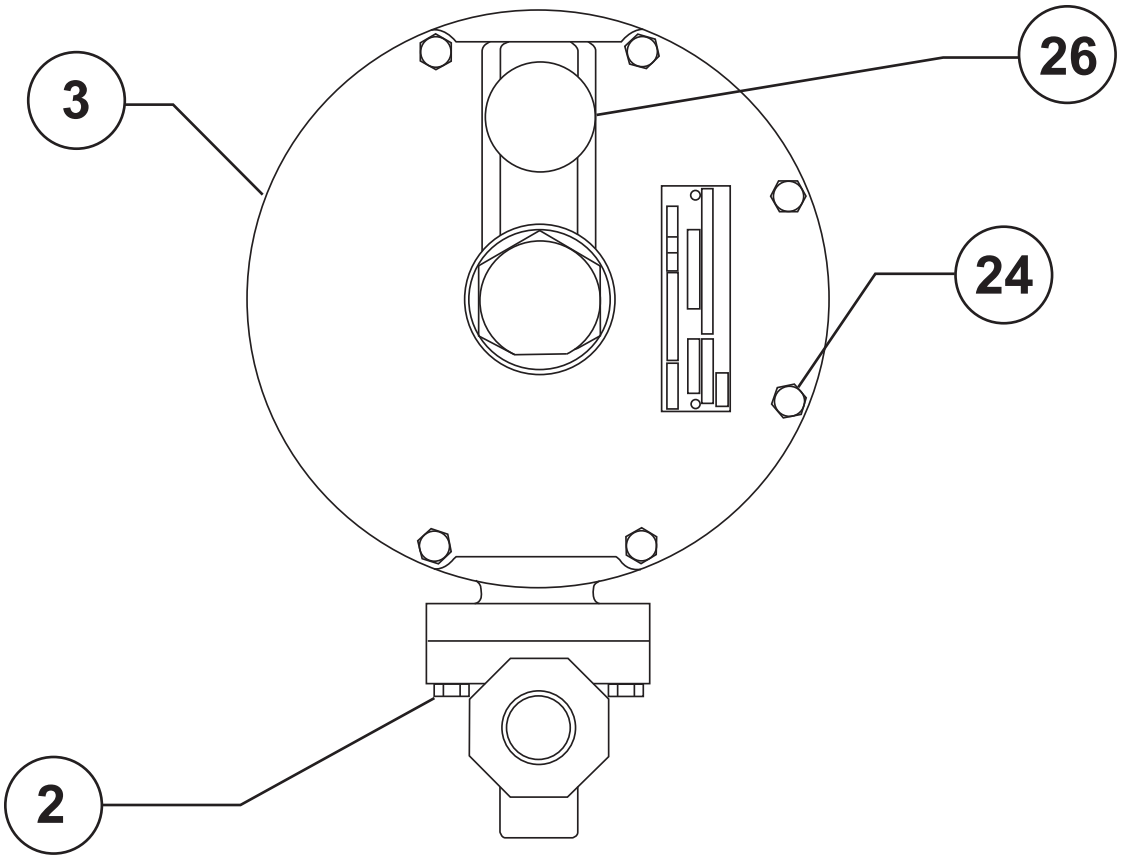

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Figure 7. *Y690A Series Regulator Outer Assembly*

Key	Description	Part Number
24	Diaphragm Case Cap Screw (8 required)	
	Ductile Iron	1A352524052
	Stainless Steel	18B3455X012
25	Closing Cap Gasket, Neoprene (CR)	1P753306992
26	Vent Assembly	
	Spring Case Down (Type Y602-1)	17A6570X012
	Spring Case Up (Type Y602-11)	17A5515X012
	Spring Case Sideways (Type Y602-12)	27A5516X012
27	Pipe Plug (Types Y690A and Y690AH only)	
	Steel	1A369224492
	Stainless Steel	1A369235072
30*	Stem Seal O-ring	
	(Types Y690AM and Y690AHM only)	
	Nitrile (NBR)	1H2926G0012
	Fluorocarbon (FKM)	1H2926X0022
	Perfluoroelastomer (FFKM)	1H2926X0042
	Ethylenepropylene (EPDM)	1H2926X0012
31*	Throat Seal O-ring	
	(Types Y690AM and Y690AHM only)	
	Nitrile (NBR)	1D682506992
	Fluorocarbon (FKM)	1D6825X0012
	Perfluoroelastomer (FFKM)	1D6825X0032
	Ethylenepropylene (EPDM)	1D6825X0042
32	Pitot Tube (Types Y690A and Y690AH only)	17B4479X012
33	Pitot Tube Screw	
	Types Y690A and Y690AH (4 required)	
	Stainless Steel	19A7151X022
33	Machine Screw	
	Types Y690AM and Y690AHM (1 required)	
	Stainless Steel	18A0703X022
35	Adjusting Screw	1B537944012
37	Spring Holder	1R982025072
38	Machine Screw	10B6189X022
39	Overpressure Spring	1B541327022
40	Pusher Post Connector	
	303 Stainless Steel **(standard)**	27B7982X012
	316 Stainless Steel (NACE)	27B7982X022
48*	Post Seal O-ring	
	Nitrile (NBR)	1D687506992
	Fluorocarbon (FKM)	1N430406382
	Perfluoroelastomer (FFKM)	1D6875X0082
	Ethylenepropylene (EPDM)	1D6875X0032
49*	Connector Seal O-ring	
	Nitrile (NBR)	13A1584X012
	Fluorocarbon (FKM)	13A1584X022
	Perfluoroelastomer (FFKM)	13A1584X032
	Ethylenepropylene (EPDM)	13A1584X042
50	Backup Ring, Stainless Steel	18B3446X012

* Recommended spare part

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