Types 1098-EGR and 1098H-EGR

English – October 2020

Introduction

This installation guide provides instructions for installation, startup and adjustment. To receive a copy of the instruction manual, contact your local Sales Office or view a copy at www.fisher.com. For further information refer to: Types 1098-EGR and 1098H-EGR Instruction Manual, D100339X012.

PED/PE(S)R Categories

This product may be used as a safety accessory with pressure equipment in the following categories. It may also be used outside of these Directives using Sound Engineering Practice (SEP) per table below. For information on the current PED/PE(S)R revision, see Bulletin: *D103053X012*.

PRODUCT SIZE	CATEGORY
DN 25 / NPS 1	SEP
DN 50, 80, 100, 150, 200 x 150 or 300 x 150 / NPS 2, 3, 4, 6, 8 x 6 or 12 x 6	II

Specifications

Body Sizes and End Connection Styles
See Table 1

Main Valve Maximum Inlet Pressure(1)
27.6 bar / 400 psig or body rating limit whichever is lower

Maximum Pilot Supply Pressure(1)(2)
41.4 bar / 600 psig

Outlet Pressure Ranges(1)
See Table 2

Actuator Sizes and Maximum Pressures(1)
See Table 3

Maximum and Minimum Differential Pressures(1)
See Table 4

Temperature Capabilities(1)(3)
Nitrile (NBR): -29 to 82°C / -20 to 180°F
Fluorocarbon (FKM): -18 to 149°C / 0 to 300°F, water is limited to -18 to 93°C / 0 to 200°F
Ethylenepropylene (EPDM): -29 to 135°C / -20 to 275°F

Installation

WARNING

Only qualified personnel should install or service a regulator. Regulators should be installed, operated and maintained in accordance with international and applicable codes and regulations and Emerson Process Management Regulator Technologies, Inc. instructions.

If the regulator vents fluid or 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.

Personal injury, equipment damage or leakage due to escaping fluid or bursting of pressure-containing parts may result if this regulator is overpressured or is installed where service conditions could exceed the limits given in the Specifications section, 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 limits.

Additionally, physical damage to the regulator could result in personal injury and property damage due to escaping fluid. To avoid such injury and damage, install the regulator in a safe location.

Clean out all pipelines before installation of the regulator and check to be sure the regulator has not been damaged or has collected foreign material during shipping. For NPT bodies, apply pipe compound to the external pipe threads. For flanged bodies, use suitable line gaskets and approved piping and bolting practices. Install the regulator in any position desired, unless otherwise specified, but be sure flow through the body is in the direction indicated by the arrow on the body.

Note

It is important that the regulator be installed so that the vent hole in the spring case is unobstructed at all times. For outdoor installations, the regulator should be located away from vehicular traffic and positioned so that water, ice and other foreign materials cannot enter the spring case through the vent. Avoid placing the regulator beneath eaves or downspouts and be sure it is above the probable snow level.

Overpressure Protection

The recommended pressure limitations are stamped on the regulator nameplate. Some type of overpressure protection is needed if the actual inlet pressure exceeds the maximum operating outlet pressure rating. Overpressure protection should also be provided if the regulator inlet pressure is greater than the safe working pressure of the downstream equipment.

Regulator operation below the maximum pressure limitations does not preclude the possibility of damage from external sources or debris in the line. The regulator should be inspected for damage after any overpressure condition.

1. The pressure/temperature limits in this Installation Guide and any applicable standard or code limitation should not be exceeded.
2. For stability or overpressure protection, a reducing regulator may be installed upstream of the pilot according to the Installation section.
3. Special low temperature constructions for process temperatures between -76°F / -60°C to 185°F / 85°C are available by request. The low temperature construction passed Emerson laboratory testing for lockup and external leakage down to -76°F / -60°C.

Table 1. *Body Sizes and End Connection Styles*

BODY SIZE		CAST IRON	STEEL OR STAINLESS STEEL
DN	NPS		
25, 50	1, 2	NPT or CL125 FF	NPT, CL150 RF, CL300 RF, CL600 RF, BWE, SWE or PN 16/25/40
80, 100, 150	3, 4, 6	CL125 FF	CL150 RF, CL300 RF, CL600 RF, BWE or PN 16/25/40
200 x 150, 300 x 150	8 x 6, 12 x 6	- - - -	CL150 RF, CL300 RF, CL600 RF or BWE

Table 2. *Outlet Pressure Ranges*

PILOT TYPE	OUTLET (CONTROL) PRESSURE RANGE	
	bar	psig
6351	0.21 to 1.38 0.35 to 2.41 2.41 to 6.90	3 to 20 5 to 35 35 to 100
6352	35 mbar to 0.14 bar 0.14 to 0.69	14 in. w.c. to 2 psig 2 to 10
6353	0.21 to 2.76 2.41 to 8.62	3 to 40 35 to 125
6354L(1)	5.86 to 13.8	85 to 200
6354M(2)	12.1 to 15.2	175 to 220
6354H(2)	13.8 to 20.7	200 to 300
61L 61LD 61LE	17 mbar to 0.1 bar 0.07 to 0.34 0.14 to 0.69 0.34 to 1.03 0.69 to 1.38	7 in. w.c. to 2 psig 1 to 5 2 to 10 5 to 15 10 to 20
61H	0.69 to 4.48	10 to 65
61HP	1.03 to 3.10 2.41 to 6.90 6.90 to 20.7	15 to 45 35 to 100 100 to 300
Y600AM	10 to 20 mbar 17 to 40 mbar 37 to 83 mbar 0.08 to 0.17 0.17 to 0.31 0.31 to 0.48	4 to 8 in. w.c. 7 to 16 in. w.c. 15 in. w.c. to 1.2 psig 1.2 to 2.5 2.5 to 4.5 4.5 to 7

1. Without diaphragm limiter.
2. With diaphragm limiter.

Table 3. *Actuator Sizes and Maximum Pressures*

ACTUATOR		OUTLET (CONTROL) PRESSURE		EMERGENCY CASING PRESSURE	
Type	Size	bar	psig	bar	psig
1098	30 40 **(standard)** 70	6.90 5.17 3.45	100 75 50	7.93 5.65 4.48	115 82 65
1098H	30	24.1	350	27.6	400

Table 4. *Maximum and Minimum Differential Pressures for Main Valve Selection*

BODY SIZE		SPRING PART NUMBER	SPRING COLOR	MAXIMUMALLOWABLE DIFFERENTIAL PRESSURE(1)		MINIMUM DIFFERENTIAL PRESSURE REQUIRED FOR FULL STROKE					
						Size 30 Actuator		Size 40 Actuator		Size 70 Actuator	
DN	NPS			bar	psig	bar	psig	bar	psig	bar	psig
25	1	14A9687X012	Green	4.1	60	0.24	3.5	0.17	2.5	0.07	1
		14A9680X012	Blue	8.6	125	0.34	5	0.21	3	0.10	1.5
		14A9679X012	Red	27.6(3)	400(3)	0.48	7	0.34	5	0.17	2.5
50	2	14A6768X012	Yellow	1.4	20	- - - -	- - - -	0.14	2	0.07	1
		14A6626X012	Green	4.1	60	0.28	4	0.21	3	0.10	1.5
		14A6627X012	Blue	8.6	125	0.41	6	0.34	5	0.14	2
		14A6628X012	Red	27.6(3)	400(3)	0.76	11	0.69	10	0.21	3
80	3	14A6771X012	Yellow	1.4	20	- - - -	- - - -	0.17	2.5	0.07	1
		14A6629X012	Green	4.1	60	0.34	5	0.28	4	0.14	2
		14A6630X012	Blue	8.6	125	0.55	8	0.41	6	0.17	2.5
		14A6631X012	Red	27.6(3)	400(3)	0.97	14	0.76	11	0.28	4
100	4	14A6770X012	Yellow	1.4	20	- - - -	- - - -	0.25	3.5	0.09	1.3
		14A6632X012	Green	4.1	60	0.69	10	0.34	5	0.17	2.5
		14A6633X012	Blue	8.6	125	0.90	13	0.55	8	0.21	3
		14A6634X012	Red	27.6(3)	400(3)	1.5	22	0.90	13	0.34	5
150, 200 x 150 or 300 x 150	6, 8 x 6 or 12 x 6	15A2253X012	Yellow	1.4	20	- - - -	- - - -	0.42	6	0.15	2.2
		14A9686X012	Green	4.1	60	0.90	13	0.66	9.5	0.28	4
		14A9685X012	Blue	8.6	125	1.3	19	0.97	14	0.41	6
		15A2615X012	Red	27.6(3)	400(3)	1.9(2)	28(2)	1.3	19	0.55	8

1. Maximum inlet pressure is equal to set pressure plus maximum differential.
2. Requires special 6300 Series pilot construction without integral check valve and with external Type 1806H 2.8 bar d / 40 psid check valve.
3. Should not exceed the body rating limit. Use this pressure value or the body rating limit, whichever is lower.

Startup

The regulator is factory set at approximately the midpoint of the spring range or the pressure requested, so an initial adjustment may be required to give the desired results. With proper installation completed and relief valves properly adjusted, slowly open the upstream and downstream shutoff valves.

Adjustment

To change the outlet pressure, remove the closing cap or loosen the locknut and turn the adjusting screw clockwise to increase outlet pressure or counterclockwise to decrease outlet pressure. Monitor the outlet pressure with a test gauge during the adjustment. Replace the closing cap or tighten the locknut to maintain the desired setting.

Taking Out of Service (Shutdown)

WARNING

To avoid personal injury resulting from sudden release of pressure, isolate the regulator from all pressure before attempting disassembly.

Parts List

Type EGR Parts List (Figure 1)

Key	Description
1	Valve Body
2	Body Flange
3	Cap Screw or Stud Bolt
4	Gasket
5	Travel Indicator Fitting
6	O-ring Retainer
7	Travel Indicator Stem O-ring
8	Travel Indicator Hex Nut
9	Spring
10	Travel Indicator Stem
11	Cage
12	Port Seal
13	Seat Ring
14	Piston Ring
15	Upper Seal
16	Valve Plug
17	Cage O-ring
18	Travel Indicator Scale
19	Travel Indicator Protector
20	Plug O-ring
21	Travel Indicator Fitting or Indicator Plug O-ring
22	Travel Indicator Flange Nut
23	E-ring
24	Drive Screw
25	Flow Arrow
26	Body Rating Plate (not shown)
27	Indicator Plug
28	Spring Seat
29	Hex Nut (not shown)
31	Pipe Plug
32	Travel Stop
33	NACE Tag (not shown)
34	Tag Wire (not shown)
35	Fitting
36	Back-up Ring
37	O-ring
38	Pipe Plug

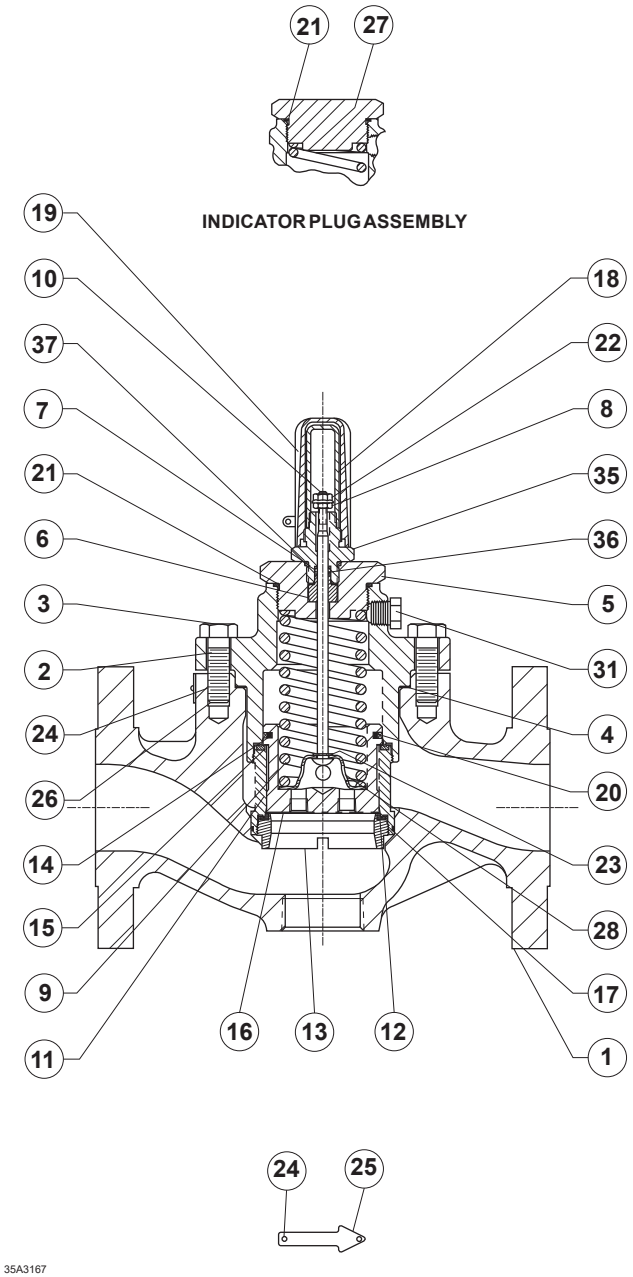
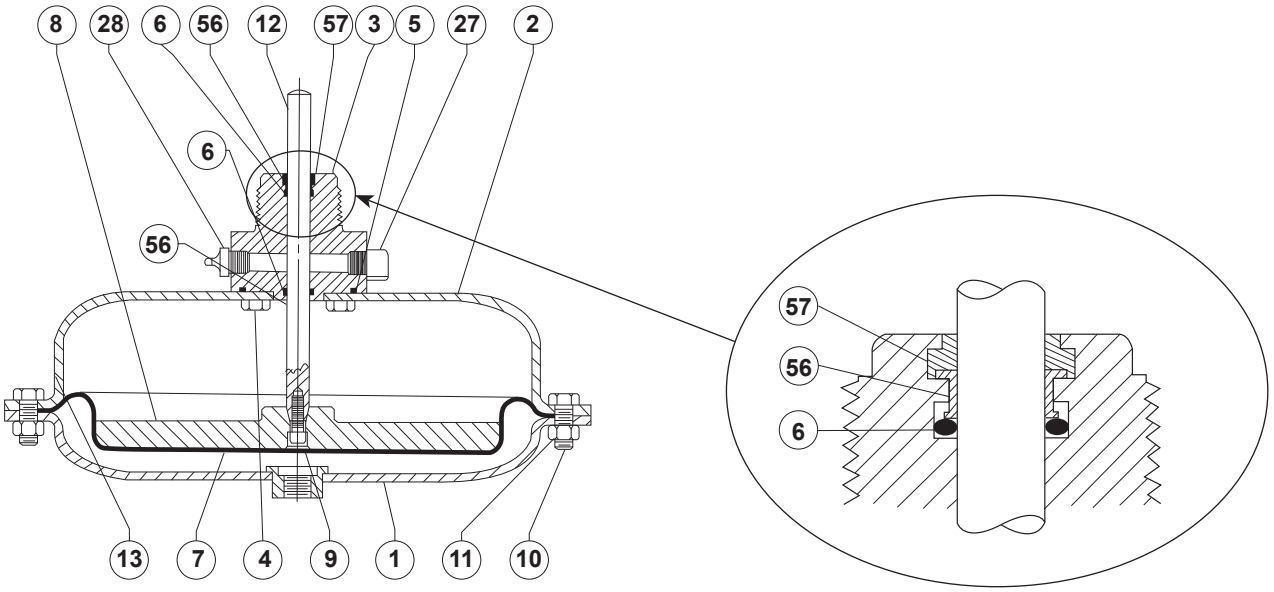


Figure 1. *Type EGR Main Valve Assembly*



TYPE 1098

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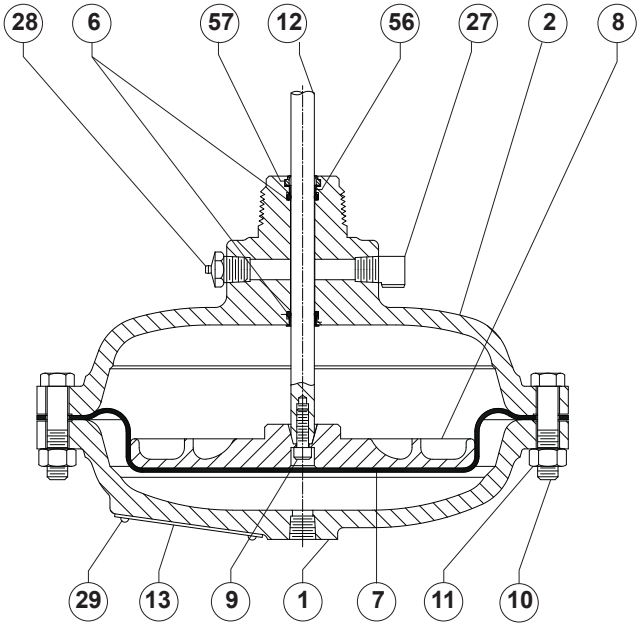

TYPE 1098H

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Figure 2. *Types 1098 and 1098H Actuator Assemblies*

Types 1098 and 1098H Actuators Parts List (Figure 2)

Key	Description
1	Lower Casing
2	Upper Casing
3	Bonnet
4	Cap Screw
5	Casing O-ring
6	Stem O-ring
7	Diaphragm
8	Diaphragm Plate
9	Cap Screw
10	Cap Screw
11	Hex Nut
12	Stem
13	Nameplate (not shown)
27	Vent Insert
28	Zerk Fitting
54	NACE Tag (not shown)
55	Tag Wire (not shown)
56	Bearing
57	Wiper

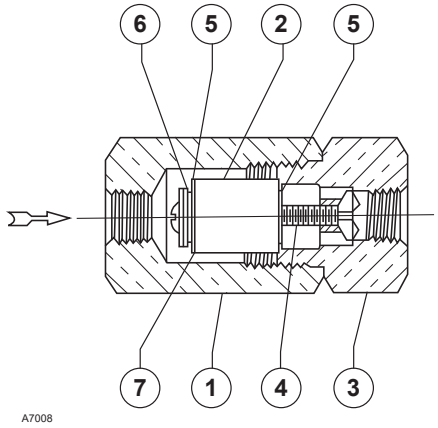

Figure 3. *Standard P590 Series Filter Assembly*

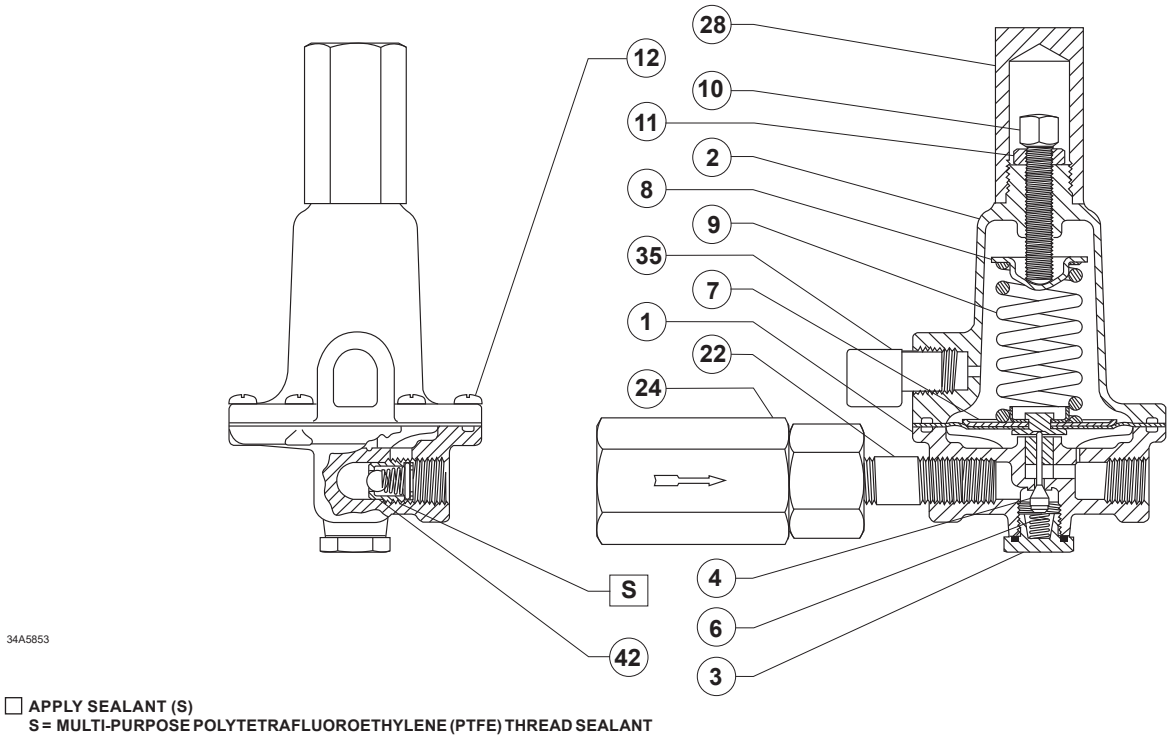

Figure 4. *Type 6351 Pilot Assembly*

P590 Series Parts List (Figure 3)

Key	Description
1	Filter Body
2	Filter Element
3	Filter Head
4	Machine Screw
5	Washer
6	Spring Washer
7	Gasket
11	NACE Tag (not shown)
12	Tag Wire (not shown)

Type 6351 Parts List (Figure 4)

Key	Description
1	Body Assembly
2	Bonnet
3	Body Plug Assembly
4	Inner Valve Assembly
6	Valve Spring
7	Diaphragm Assembly
8	Upper Spring Seat
9	Control Spring
10	Adjusting Screw
11	Locknut
12	Machine Screw
13	Hex Lock Plate
14	Threaded Lock Plate
22	Pipe Nipple
24	P590 Series Filter
28	Closing Cap
35	Vent Assembly
42	Check Valve Assembly

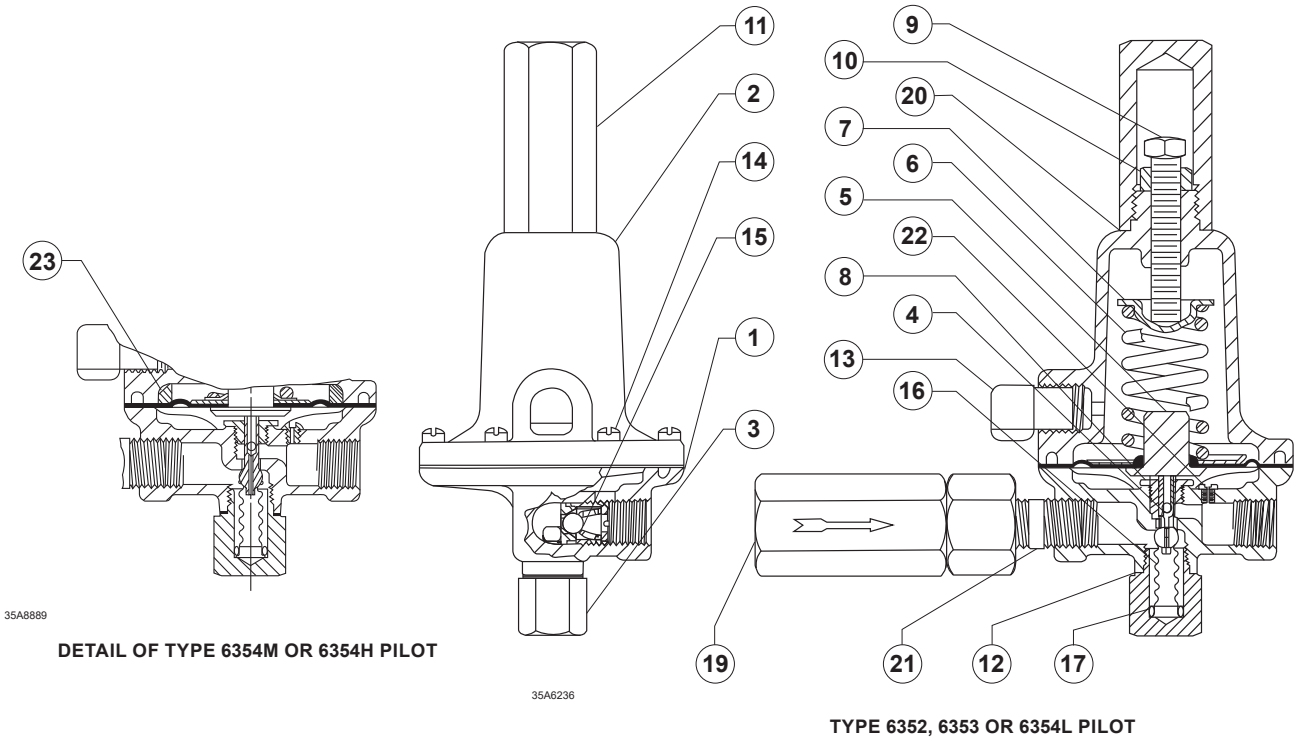

Figure 5. *Types 6352 through 6354H Pilot Assemblies*

Types 6352, 6353, 6354L, 6354M and 6354H Pilots Parts List (Figure 5)

Key	Description
1	Pilot Body
2	Spring Case or Regulator Bonnet
3	Body Plug
4	Valve Plug and Stem Assembly
5	Diaphragm Assembly
6	Control Spring
7	Spring Seat
8	Stem Guide
9	Adjusting Screw
10	Locknut
11	Closing Cap
12	Body Plug Gasket / O-ring
13	Vent Assembly
14	Machine Screw
15	Check Valve Assembly
16	Bellows Assembly
17	O-ring
19	Filter
20	Closing Cap Gasket
21	Pipe Nipple
22	Restriction
23	Diaphragm Limiter
26	NACE Tag
27	Tag Wire
28	Packing Bonnet
29	Packing Nut
30	Handwheel
31	Washer
32	Screw
33	Packing Spring
34	Packing Box Gasket
35	Packing Follower
36	External Adaptor
37	Internal Adaptor
38	Packing Washer
39	Packing Ring
40	Adjusting Screw

61 Series Parts List (Figures 6, 7 and 8)

Key	Description
1	Relay Spring Case
2	Relay Valve Body
3	Bottom Cover
4	Relay Yoke
5	Closing Cap Assembly
6	Adjusting Screw
7	Control Spring
8	Relay Orifice
9	Disk Holder Assembly
10	Bleed Orifice
11	Diaphragm Nut
12	O-ring Seal
13	Relay Spring
14	Upper Relay Diaphragm
15	Lower Relay Diaphragm
16	Upper Relay Head
17	Lower Relay Head
18	Spring Seat
19	Hex Nut
20	Cap Screw
23	Pipe Plug or Vent Assembly
24	Pipe Nipple
25	Filter Assembly
26	Bleed Valve
27	Nameplate
28	Gasket
30	Pipe Plug
32	Bleed Orifice Cap
33	Handwheel
34	Hex Nut
35	Spring Seat
40	O-ring
41	Adaptor
42	Yoke Cap
43	Lockwasher
44	Machine Screw
45	Valve Spring Seat
46	Cap Screw

Key	Description
47	Machine Screw
48	Cap Screw
50	Drive Screw
51	Diaphragm Insert
52	Lower Yoke Cap
53	Bleed Plug

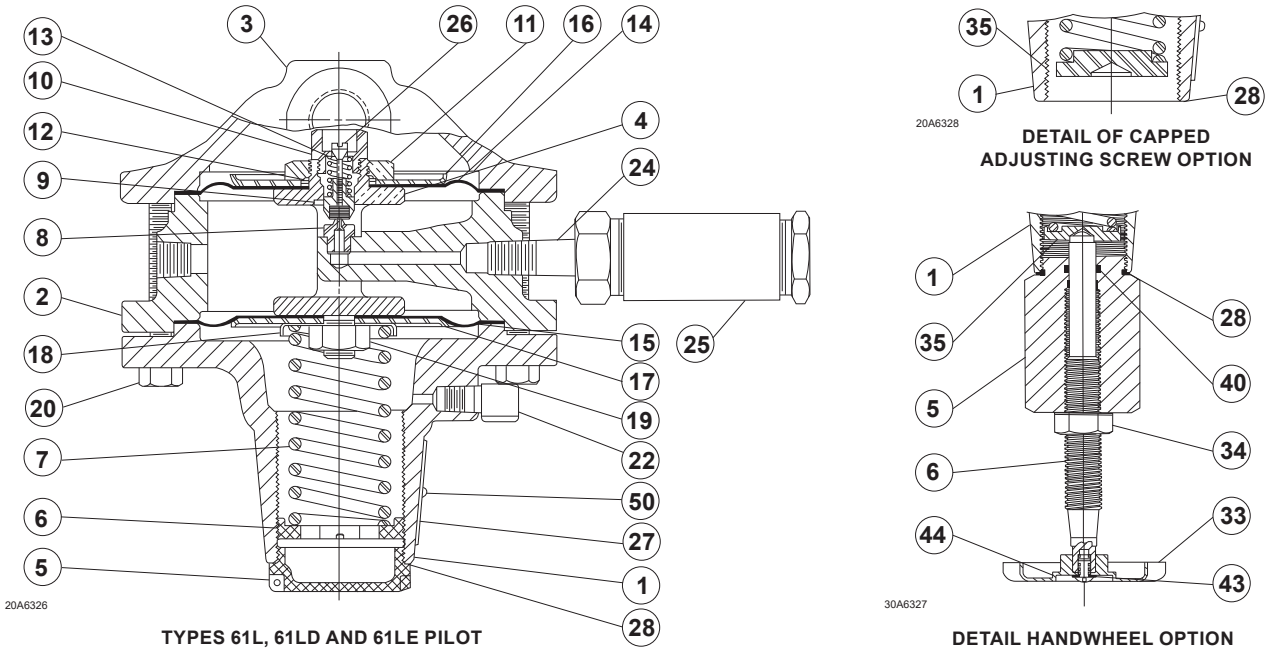

Figure 6. *Types 61L, 61LD and 61LE Pilot Assemblies*

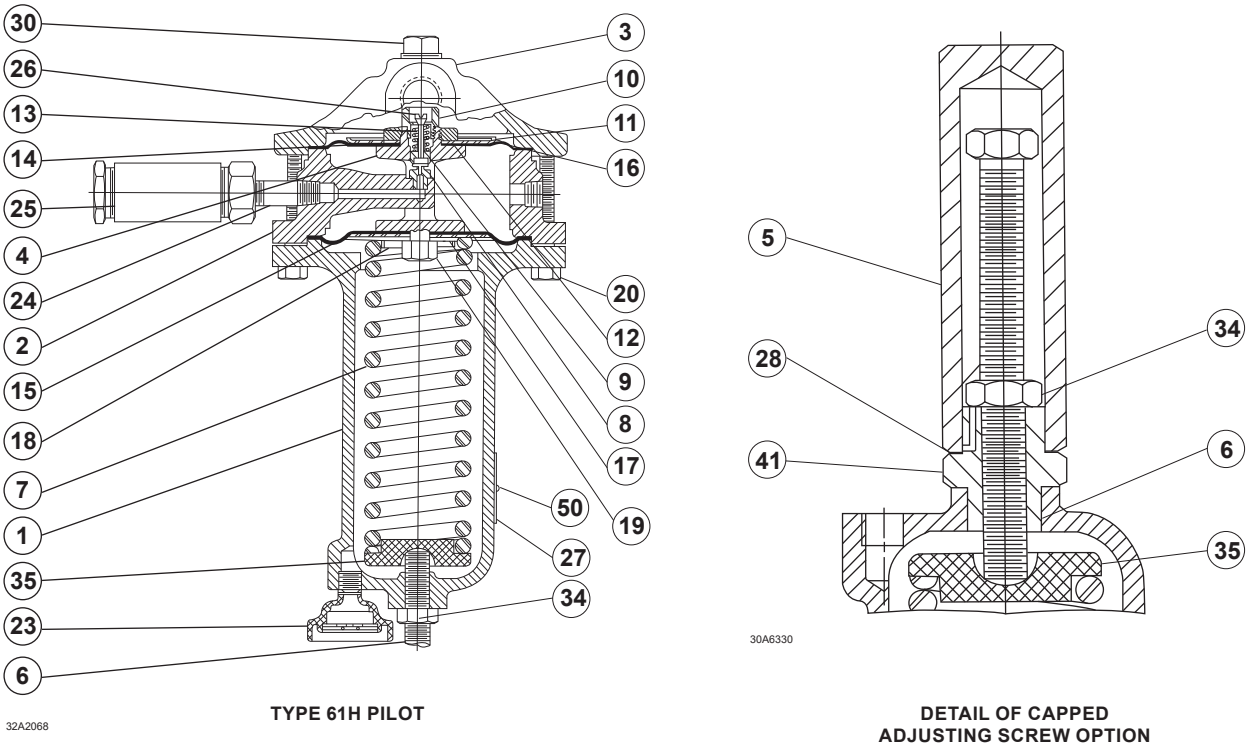

Figure 7. *Type 61H Pilot Assembly*

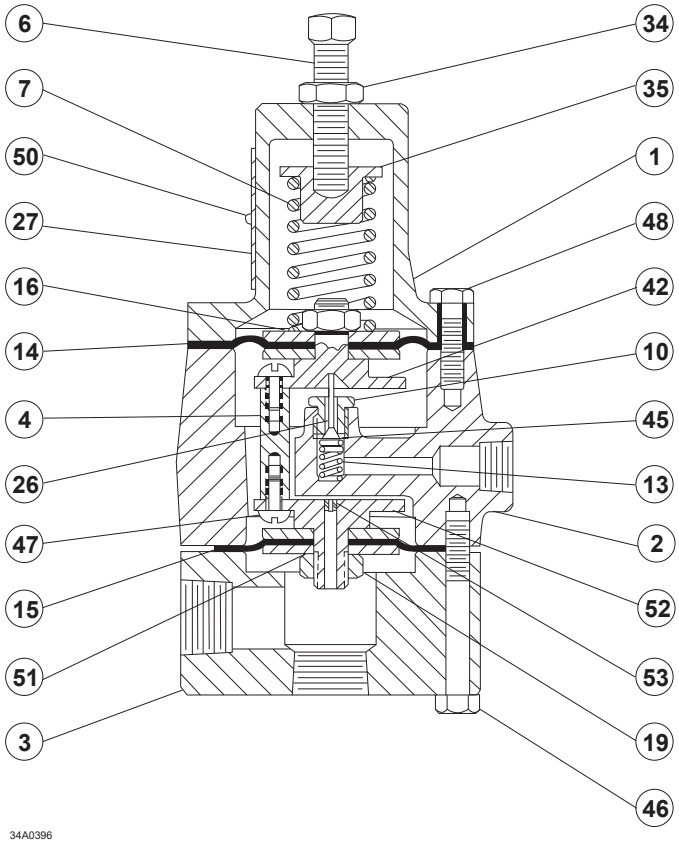

Figure 8. *Type 61HP Pilot Assembly*

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For further information on the current PED/PE(S)R revision see Bulletin: *D103053X012*
or scan the QR code.

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