

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: Type ACE97 Instruction Manual, D102773X012.

PED Categories

This product may be used as a safety accessory with pressure equipment in the following Pressure Equipment Directive categories. It may also be used outside of the Pressure Equipment Directive using sound engineering practice (SEP) per table below. For information on the current PED revision see Bulletin: [D103053X012](#).

PRODUCT SIZE	CATEGORIES	FLUID TYPE
DN 15 and 25 / NPS 1/2 and 1	1	SEP
DN 50 / NPS 2	1	I
Size refers to inlet (PAD) connection		

Specifications

Pad (Tank Blanketing) Specifications

Pad Body Sizes and End Connection Styles

1/2, 1 and 2 NPT
DN 15, 25 and 50 / NPS 1/2, 1 and 2 CL150 RF

Maximum Operating Inlet Pressure⁽¹⁾

13.8 bar / 200 psig

Maximum Main Valve Inlet Pressure⁽¹⁾

13.8 bar / 200 psig

Inlet Operating Ranges⁽¹⁾

DN 15 / NPS 1/2 pad valve:

1.7 to 13.8 bar / 25 to 200 psig

DN 25 and 50 / NPS 1 and 2 pad valves:

1.7 to 3.4 bar / 25 to 50 psig

3.5 to 8.2 bar / 51 to 120 psig

8.3 to 13.8 bar / 121 to 200 psig

Controlled Pressure Ranges

See Figure 2

Maximum and Minimum Differential Pressures⁽¹⁾

1.7 bar / 25 psig minimum

13.8 bar / 200 psig maximum

Maximum Backpressure⁽¹⁾

1.4 bar / 200 psig

Depad (Vapor Recovery) Specifications

Depad Body Sizes End Connection Styles

1 and 2 NPT
DN 80 and 100 / NPS 3 and 4

Depad Pressure Ranges⁽¹⁾

See Figure 2

General Type ACE97 Specifications

Proof Test Pressure

All Pressure Retaining Components have been proof tested per Directive

Temperature Capabilities

Nitrile (NBR): -29 to 82°C / -20 to 180°F

Fluorocarbon (FKM): -18 to 100°C / 0 to 212°F

Ethylenepropylene (EPDM - FDA):

-29 to 100°C / -20 to 212°F

Perfluoroelastomer (FFKM):

-29 to 100°C / -20 to 212°F

Installation



WARNING

Only qualified personnel should install or service a valve. Valves 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 valve vents fluid or a leak develops in the system, it indicates that service is required. Failure to take the valve 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 valve 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.

Type ACE97

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

Clean out all pipelines before installation of the valve and check to be sure the valve 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.

The valve must be mounted so the actuator case is horizontal. The valve should be mounted above the tank. For connections are required: a) blanketing gas supply to the valve, b) vapor recovery/process connection (vent), c) system tank connection and d) sensing line to the tank.

Overpressure Protection

The recommended pressure limitations are stamped on the valve 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 valve inlet pressure is greater than the safe working pressure of the downstream equipment.

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

Startup

Slowly open the tank and sensing line shutoff valves (between the Type ACE97 and the tank). A tank vapor space pressure gauge should be installed and visible. Slowly open the inlet shutoff valve (to the pad valve) and leave it fully open.

Adjustment

The setpoint of this unit if factory set. If an adjustment is to be made, it should be made in small increments while the unit is controlling tank pressure. It is difficult to make field adjustments due to the slow changes in tank pressure.

Taking Out of Service (Shutdown)



WARNING

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

Parts List

Key	Description
16*	O-ring
17	Bonnet (pad valve)
18	Body (pad valve)
19*	O-ring (DN 25 and 50 / NPS 1 and 2 pad valves only)
20	Round-Head Machine Screw (DN 25 and 50 / NPS 1 and 2 pad valves only)
21	Lock Washer (DN 25 and 50 / NPS 1 and 2 pad valves only)
22	Plug (DN 25 and 50 / NPS 1 and 2 pad valves)
23*	O-ring (DN 25 and 50 / NPS 1 and 2 pad valves)
24*	O-ring (DN 25 and 50 / NPS 1 and 2 pad valves)
25	Piston (main valve, DN 25 and 50 / NPS 1 and 2 pad valves)
26	Spring (Pad Main Valve)
27	Gasket (bonnet, pad valve)
28	Lock Washer
29	Hex-Head Machine Screw
31	Hex Nut
34	Spring Shim (DN 25 / NPS 1 pad valve)
35	Lower Cage (DN 25 and 50 / NPS 1 and 2 pad valves)
36	Spring (pad pilot valve)
37	Piston (pad pilot valve)
38*	Diaphragm (pad and depad pilot valves)
39*	O-ring
40	Upper Cage (DN 25 and 50 / NPS 1 and 2 pad valves)
41*	O-ring
42	Poppet (pad pilot valve)
46	Seal Bushing
49	Spring Guide (pad valve)
50	Hex-Head Cap Screw
51	Lock Washer
52	Cage (DN 15 / NPS 1/2 pad valve)
75	Stem
76*	O-ring
77	Cage (depad main valve)
78	Hex-Head Machine Screw
79	Lock Washer
80	Seal Retainer
81*	Stem Seal
82*	O-ring
83	Seal Retaining Plate
84	Spring (depad main valve)
85	Spring Guide (depad main valve)
86	Retaining Ring (1 and 2 NPT depad main valves)
87	Bonnet
88*	O-ring (1 NPT depad main valve)
89	Retaining Ring
90	Cap (1 NPT depad main valve)
91	Body (depad main valve)

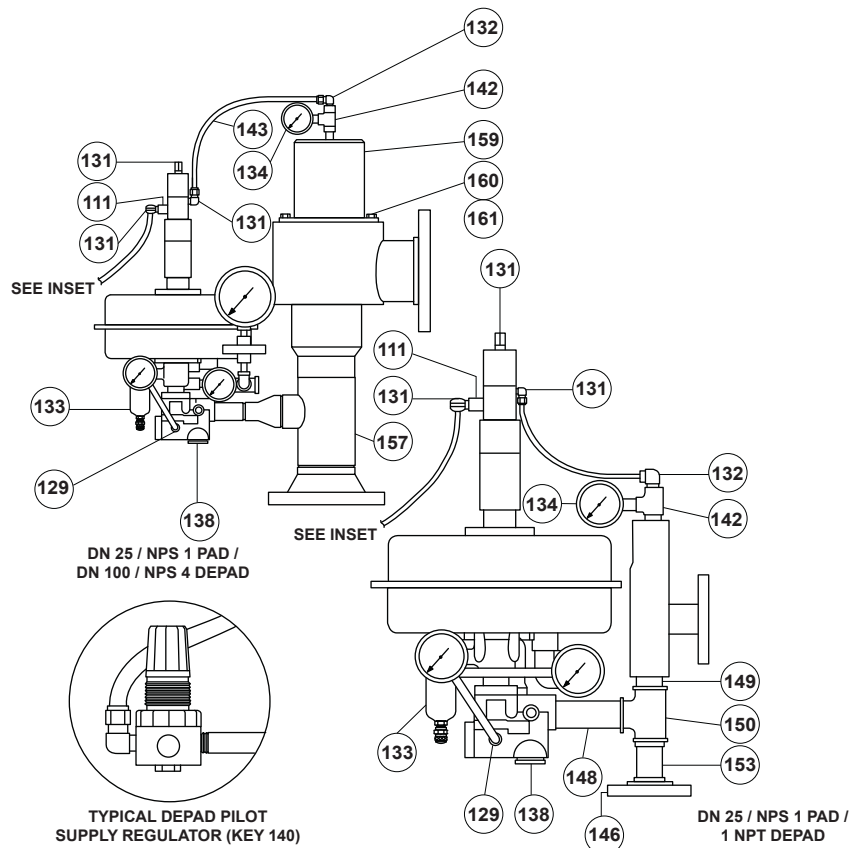
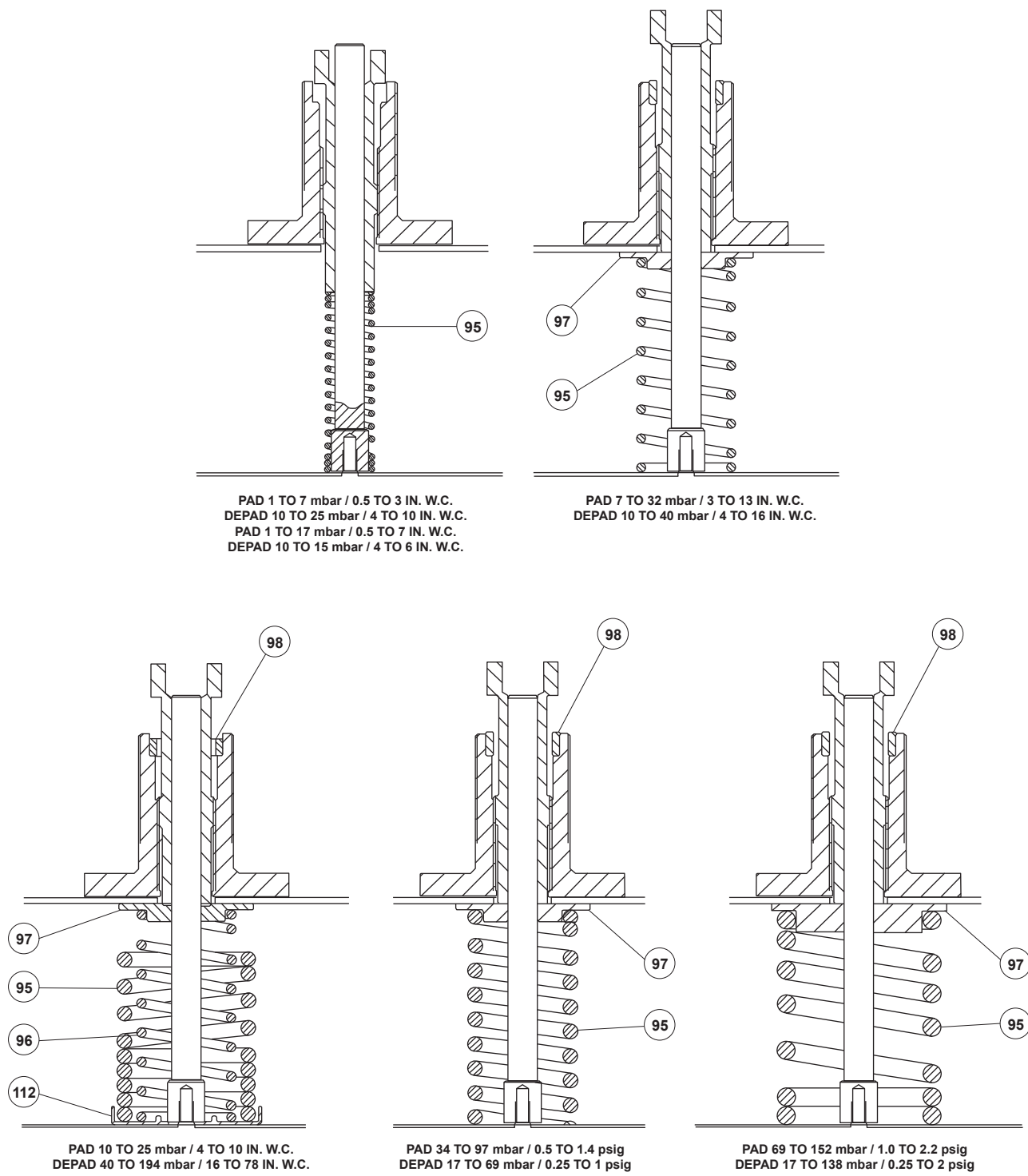


Figure 1. Type ACE97 Pad-Depad Valve Exterior

Key	Description	Key	Description
93	Hex-Head Machine Screw	127	Seal Retainer (depad pilot valve)
94	Stem (actuator)	129	Connector
95	Actuator Spring	131	Elbow
96	Spring	132	Elbow
97	Upper Spring Guide (actuator)	133	Type 252 Pilot Filter (DN 25 and 50 / NPS 1 and 2 pad pilot valve)
98	Spacer	134	Gauge (pressure, depad main valve)
99	Lock Nut (depad pilot valve)	135	Insert (tubing)
100	Spring Adjuster (depad pilot valve)	138	Pipe Plug
101	Return Spring (depad pilot valve)	140	Regulator (pilot supply)
102	Gasket (upper cage, depad pilot valve)	141	Tee Street
103	Follower	142	Tee Street
104	O-ring (depad pilot valve)	143	Tubing
105	Poppet (depad pilot valve)	145	Pipe Street Elbow
106	Upper Cage (depad pilot valve)	146	Flange
107	Coupling	148	Pipe Nipple
108	Center Cage (depad pilot valve)	149	Close Nipple
109	Rain Cap	150	Tee (pipe)
110	Lower Cage (depad pilot valve)	151	Bushing
111	Fixed Orifice	152	S.A.M. (Single Array Manifold)
112	Spring Seat	153	Pipe Nipple (1 NPT depad valve only)
113	Actuator Case (lower)	157	Body/Piping Weld
114	Actuator Case (upper)	160	Hex-Head Machine Screw
116	Diaphragm Plate (lower)	161	Lock Washer
117	Bolt (diaphragm)	163	Diaphragm (actuator)
118*	O-ring	164	Tag (caution, depad adjustment)
119	Diaphragm Plate (upper)	165	Nipple
120	Spring Case	166	Housing Inlet Filter (DN 15 / NPS 1/2 pad valve)
121	Gasket (spring case)	167	Filter Element (DN 15 / NPS 1/2 valve)
126	Hex-Head Tap Bolt		

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Figure 2. Actuator Spring Ranges

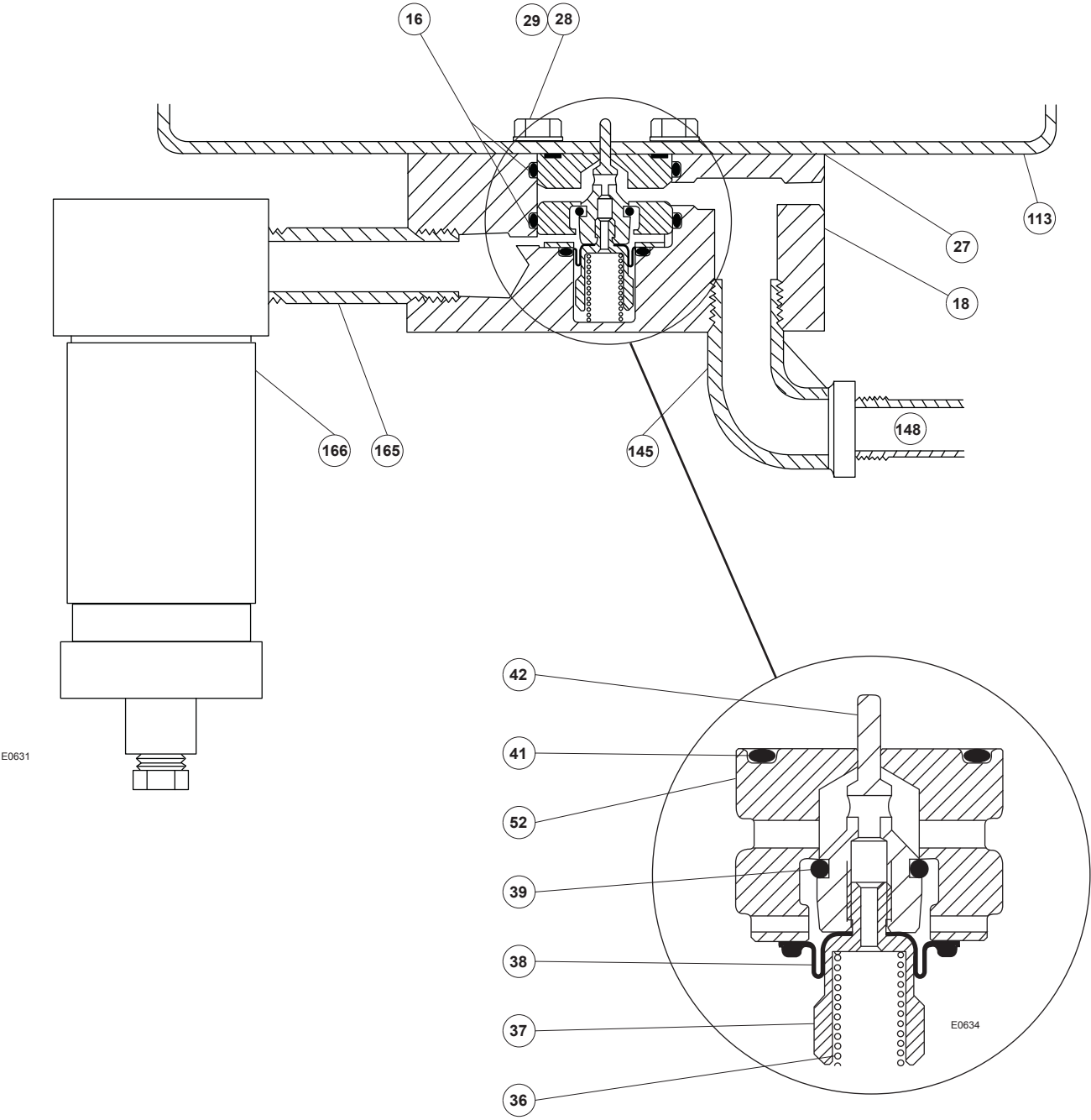


Figure 3. Type ACE97 DN 15 / NPS 1/2 Pad Valve

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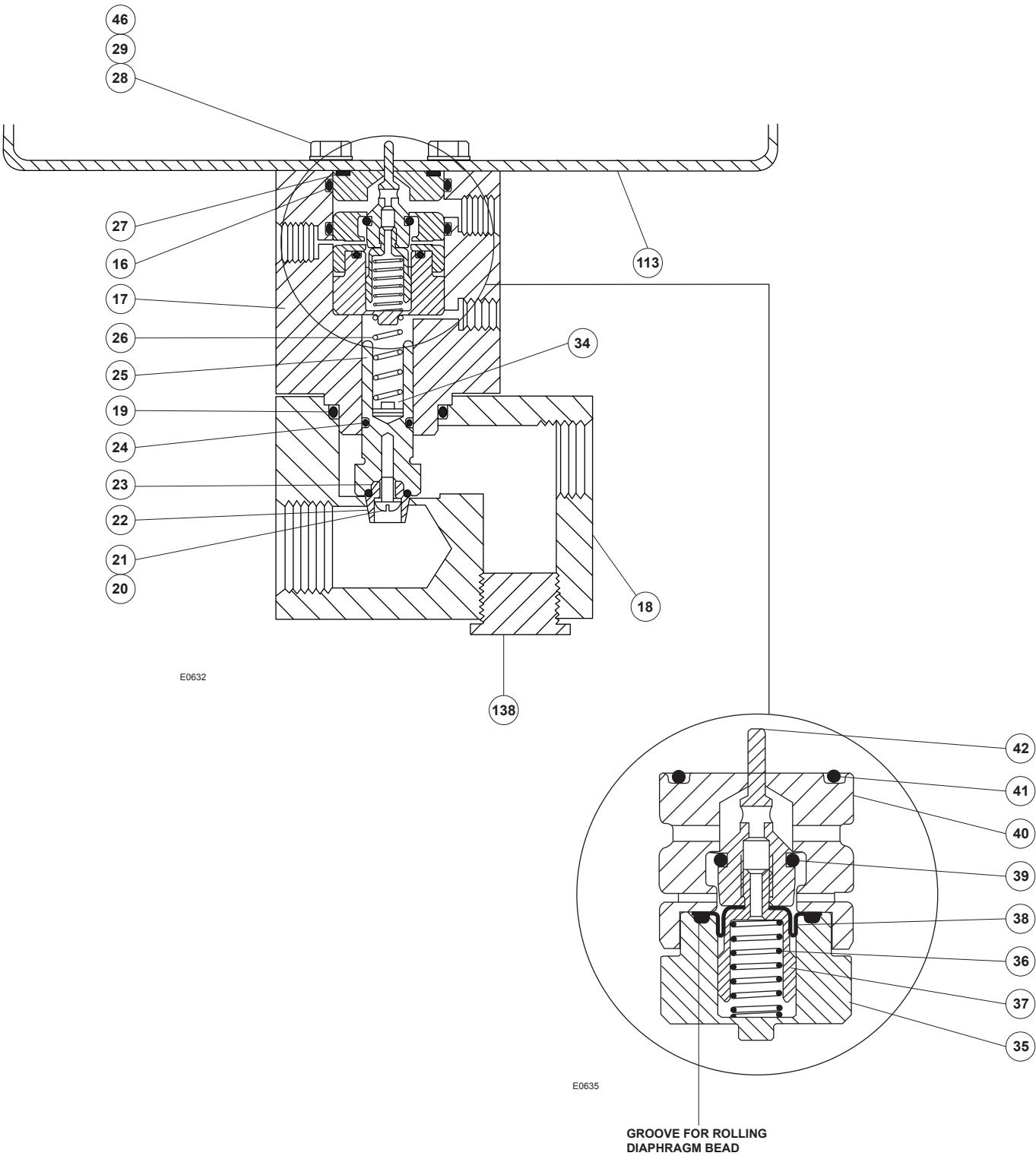
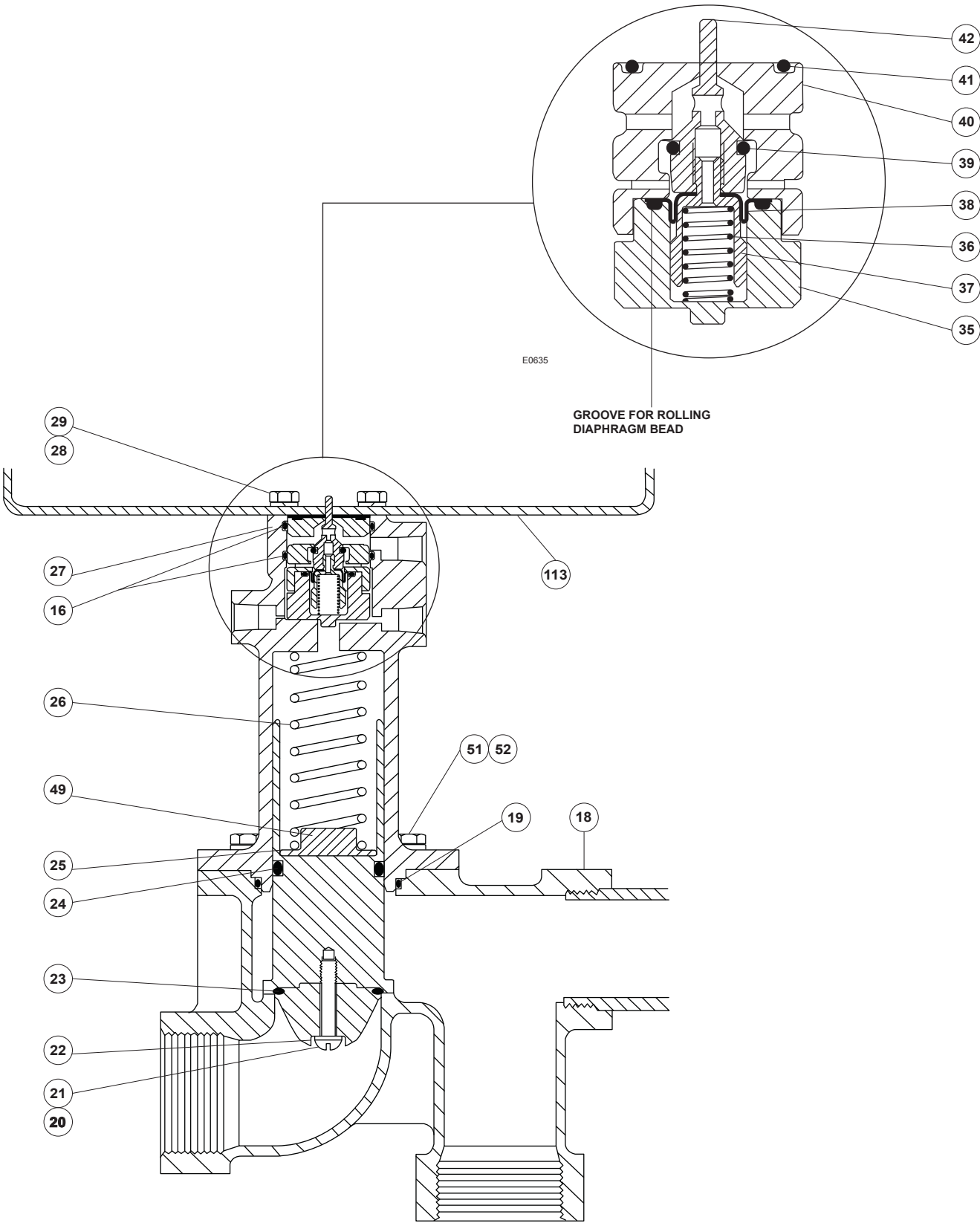
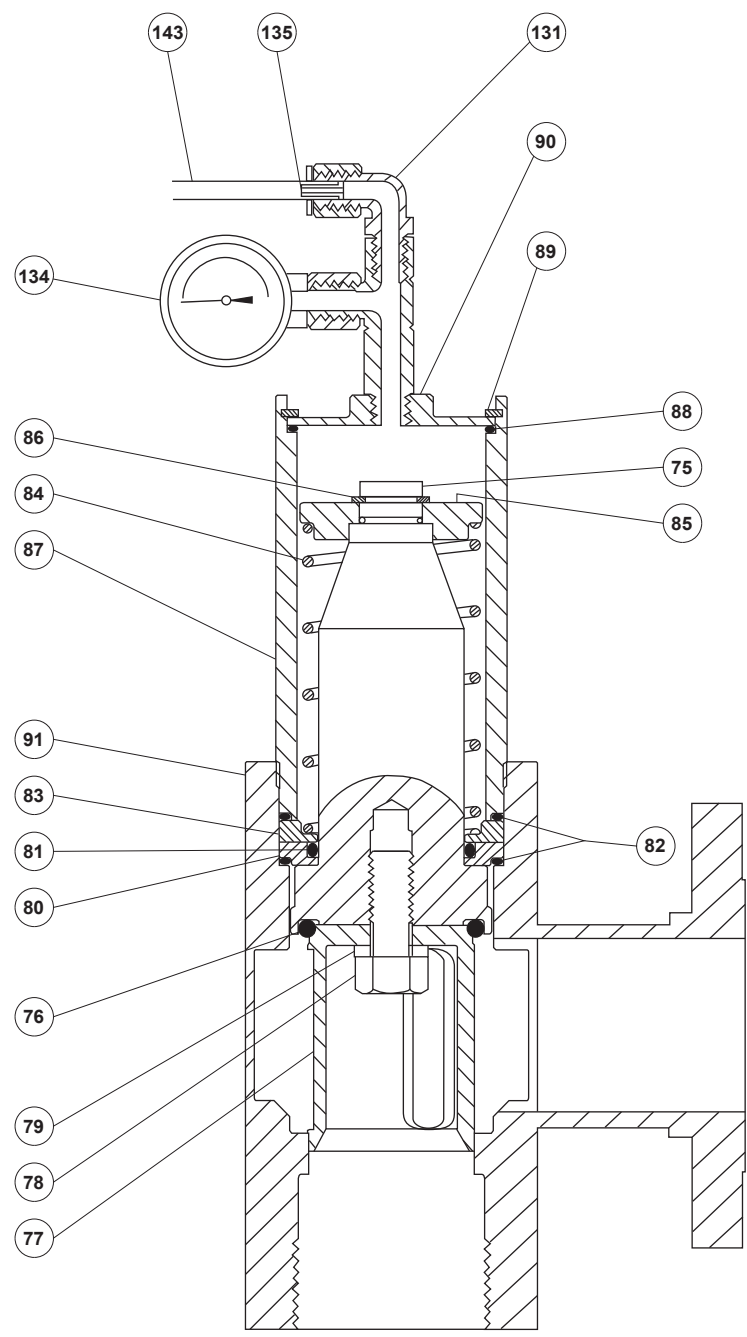


Figure 4. Type ACE97 DN 25 / NPS 1 Pad Valve



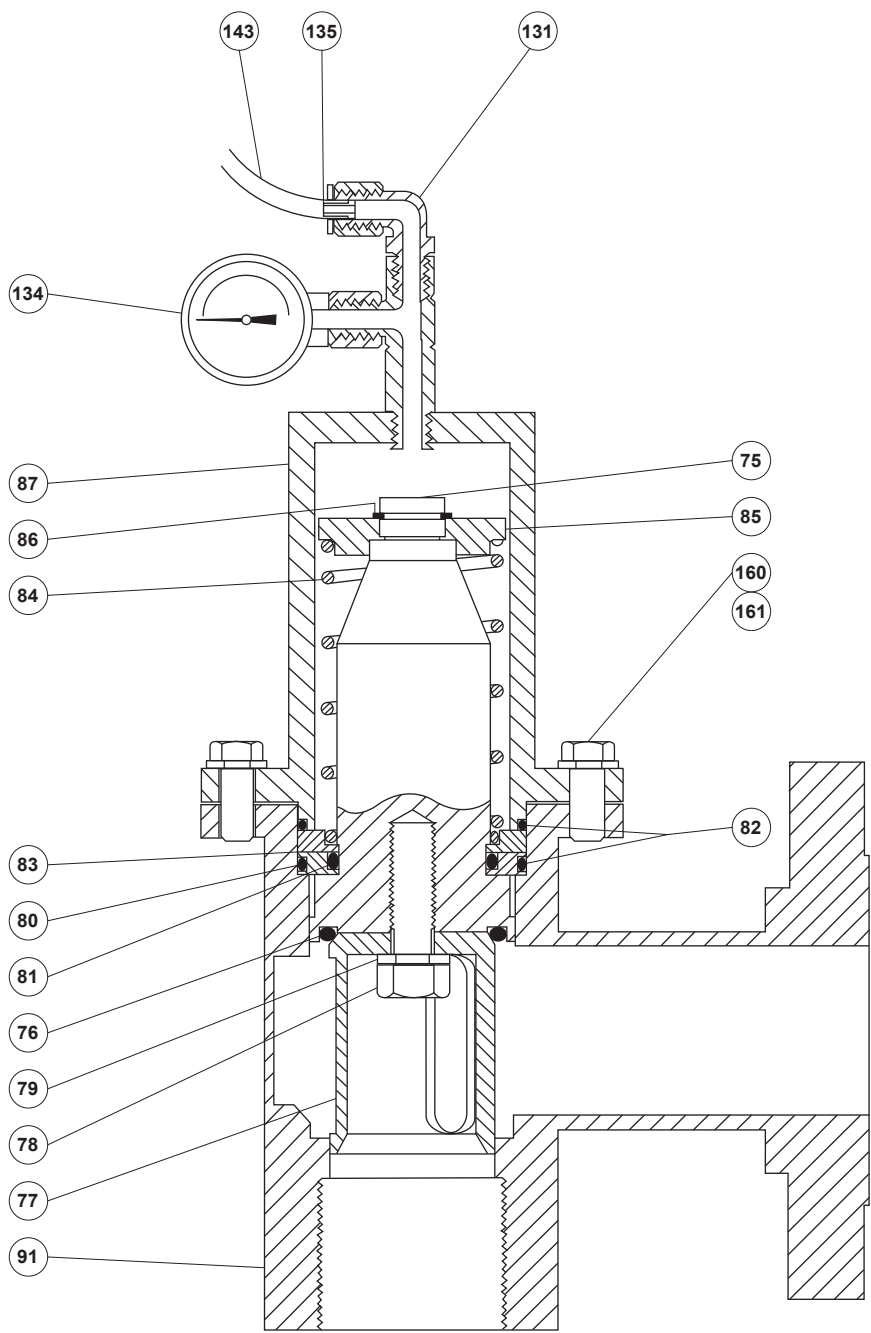
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Figure 5. Type ACE97 DN 50 / NPS 2 Pad Valve



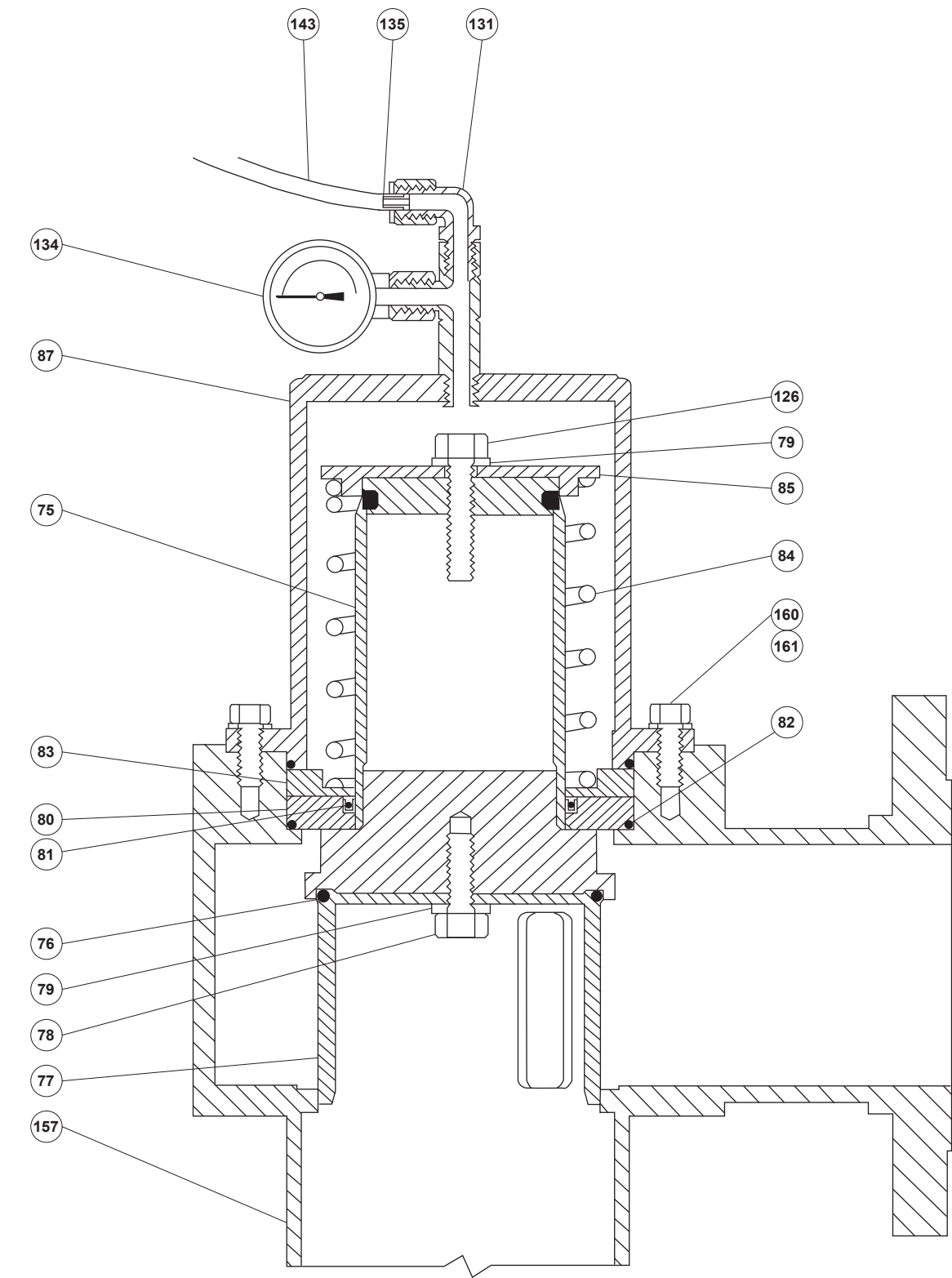
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Figure 6. Depad Main Valve 1 NPT



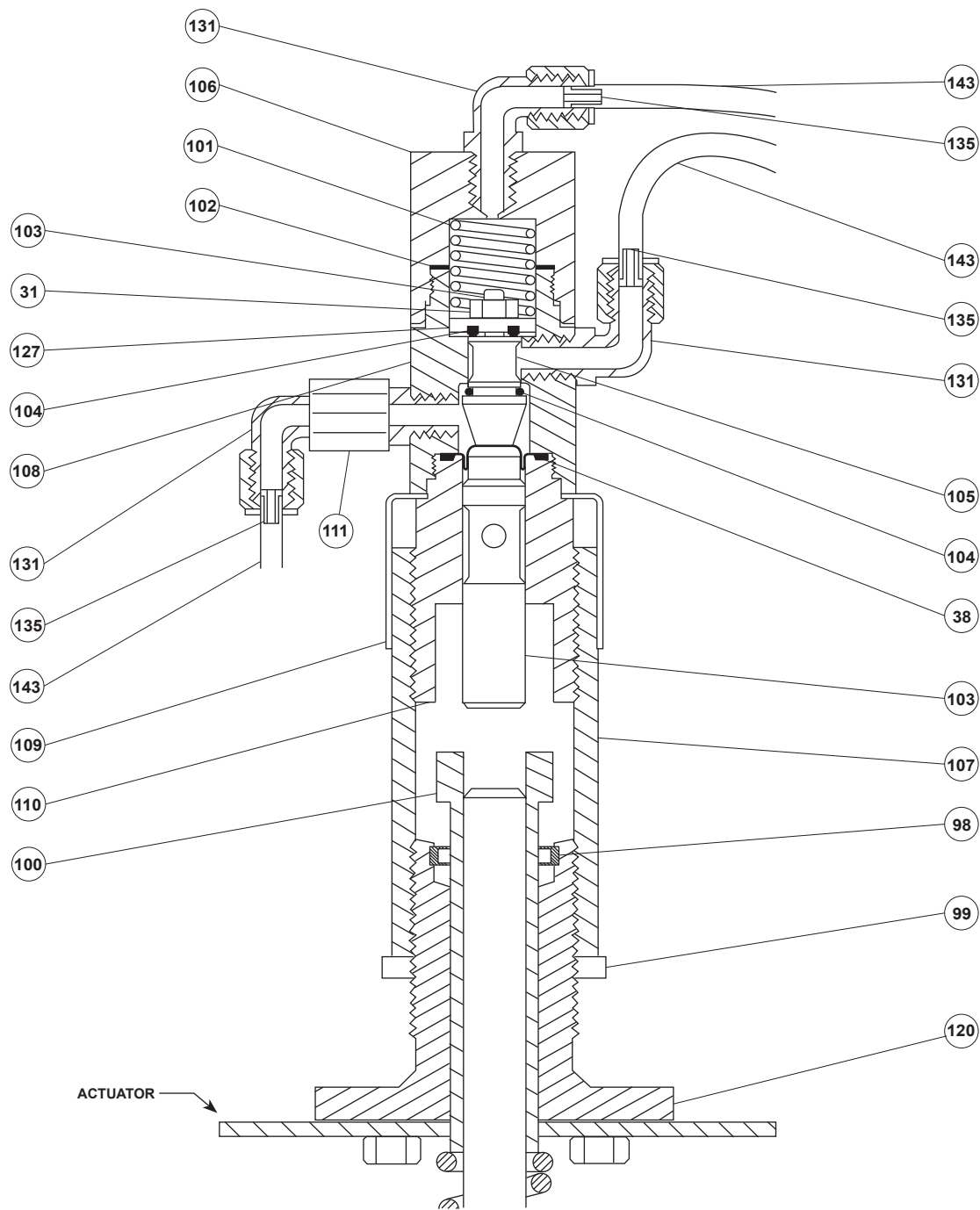
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Figure 7. Depad Main Valve 2 NPT



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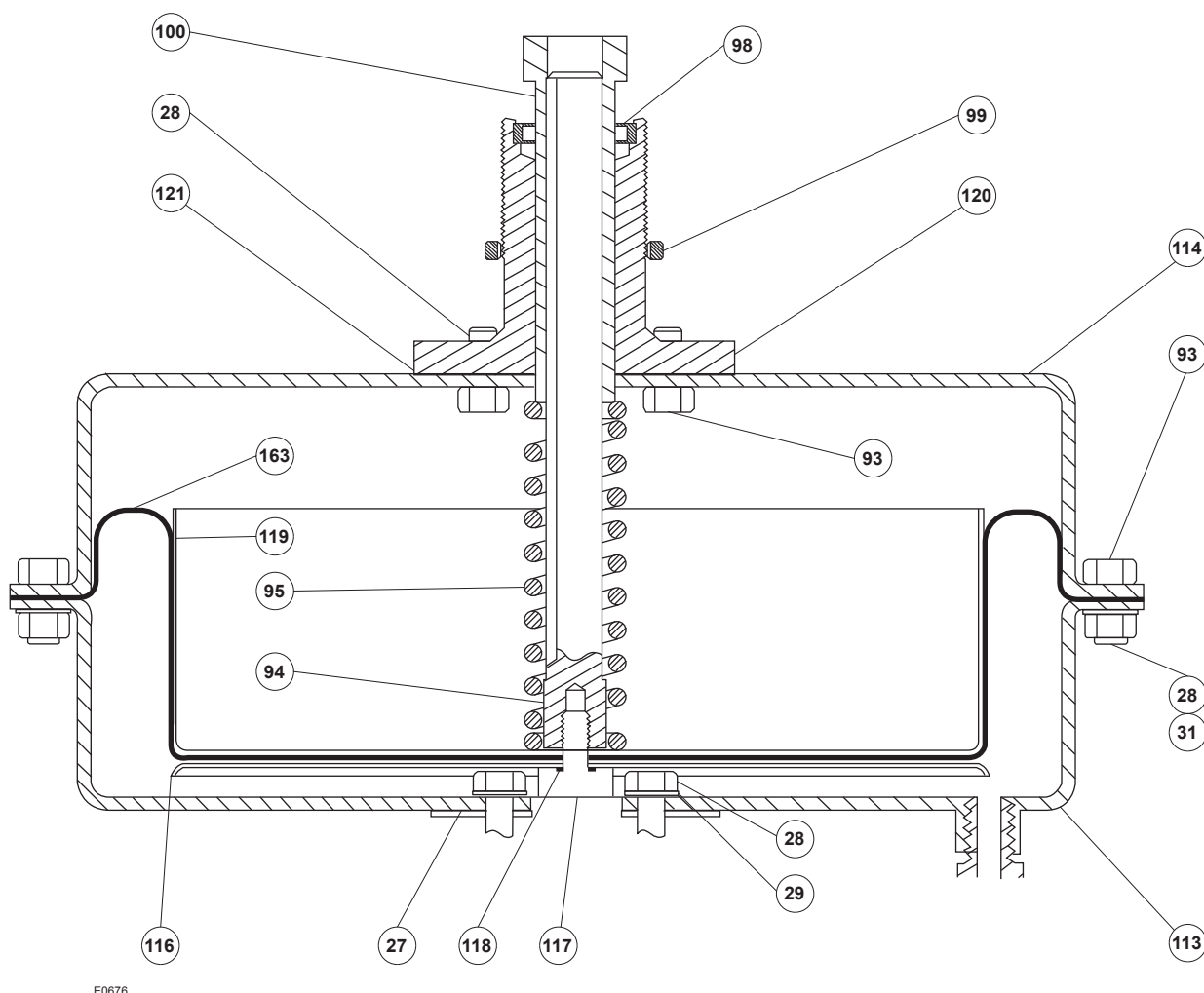
Figure 8. Depad Main Valve DN 80 and 100 / NPS 3 and 4



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Figure 9. Depad Pilot Valve Parts

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Figure 10. Actuator Parts

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PED revision see Bulletin: D103053X012
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