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# **Installation, Operation and Maintenance Manual**

**Model 3" (50mm) to 8" (200mm) EDV A-10507A**

## SINGER MODEL 3" (50mm) to 8" (200mm) EDV A-10507A

### Electrically Operated Deluge Valve for Fire Service

Schematic A-10507A

#### DESCRIPTION:

Model EDV A-10507A is a pilot operated deluge valve designed to open when Solenoid Valve (5) is energized and to close when Solenoid Valve (5) is de-energized

This valve can be activated two ways:

1. By energizing Solenoid Valve (5).
2. By opening Manual Emergency Override (6).

Main Valve (1) can be operated by line media (connected to Main Valve inlet) or Independent operating pressure (water or air). If operated by independent operating pressure, this pressure must be equal to or higher than maximum inlet pressure of Main Valve (1).

**NOTE:** With any manufactured product there is a risk of malfunction in service, whether by operating conditions such as a plugged strainer or normal wear and tear. Singer Valve recommends regular maintenance with frequency to suit the importance to customer's application. We draw attention to our warranty which limits our responsibility to defects in workmanship and materials only. See Singer Valve Inc. Warranty attached and forming part of this Instruction and Operating Manual.

Unless otherwise specified, the valve will be assembled for service temperatures to 140°F (60°C).

#### DESCRIPTION OF OPERATION:

Main Valve (1) is normally open when pressure is applied to the valve inlet and bonnet of Main Valve (1) is vented to atmosphere. When the same pressure is applied to the bonnet, the valve closes tight. Refer to 106-PG-UL-DELUGE 'Description of Operation'. By controlling the pressure in the bonnet, the Main Valve can be made to open fully or close tight.

The pressure (and therefore the position of the Main Valve) is controlled by a pilot circuit consisting of Fixed Restriction (3) and Relay Valve (4).

When sensing of Relay Valve (4) is vented, by energizing Solenoid Valve (5), Relay Valve (4) opens. Flow through Relay Valve (4) is much higher than flow coming through Fixed Restriction (3). Bonnet pressure of Main Valve is reduced and Main Valve (1) opens.

When sensing of Relay Valve is pressurized by Solenoid Valve (5) being de-energized, Relay Valve (4) closes. Pressure from Main Valve (1) inlet or independent operating pressure through Fixed Restriction (3) closes the Main Valve.

**Maximum inlet pressure:** 400 psi.

#### INSTALLATION:

1. If valve is for use with Automatic Sprinkler Systems, refer to *NFPA 13* for installation requirements. *NFPA 13* provides the minimum requirements for the design and installation of automatic fire sprinkler systems.
2. UL listed pressure gauges **MUST** be installed on the inlet and outlet piping of the valve.
3. If valve is for use with Standpipe and Hose Systems, refer to *NFPA 14* for minimum installation requirements.
4. The Model 106-PG-UL-EDV Deluge Valves restricted orifice size (0.1086in / 2.76mm) and the table is based on ½in (5.6K) pilot sprinklers installed on ½in schedule 40 galvanized release system and a maximum of 500ft(15.24m) of pipe from the valve. If the maximum height of hydraulic release piping exceeds the limits shown on the table, use a pneumatic or electric release system.
5. Refer to 106-PG-UL-DELUGE 'Installation' for other installation requirements.

#### SERVICE SUGGESTIONS:

Refer to 106-PG-UL-DELUGE instruction for Main Valve service recommendations.

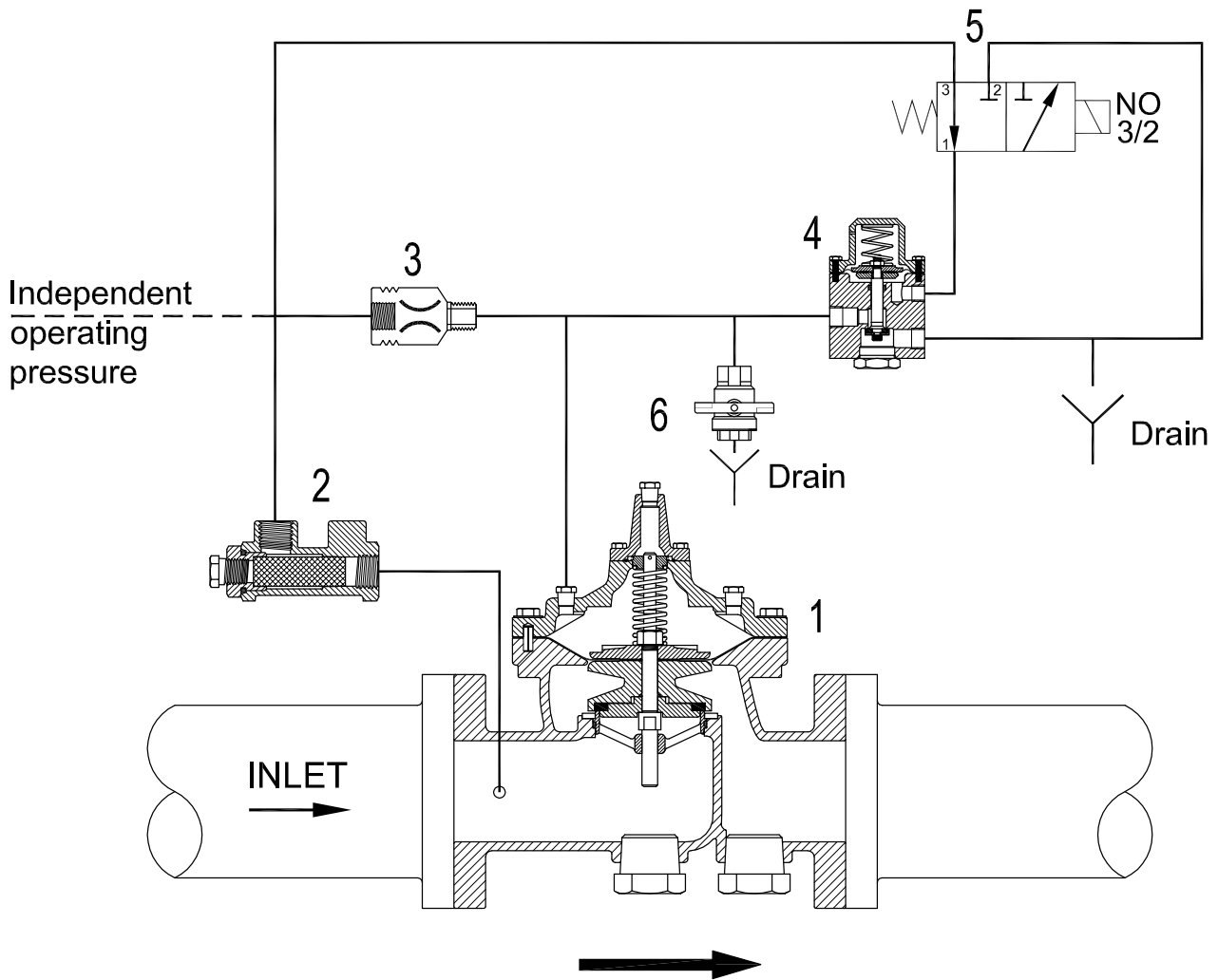
Where difficulty in performance is experienced, the manufacturer or his authorized representative shall be contacted if any field adjustment is to be made.

#### FRICITION LOSS:

Equivalent length:	
3" size	39 Ft of 3" pipe
4" size	74 Ft of 4" pipe
6" size	112 Ft of 6" pipe
8" size	97 Ft of 8" pipe

Supply Pressure (PSI)	Maximum Height (ft.) Sprinkler Heads can be from the Valve			
	3"	4"	6"	8"
20	17.6	17.6	15.9	17.6
40	23.4	28.6	33.9	39.1
60	31.1	48.5	48.5	52.0
80	42.4	63.3	63.3	68.5
100	86.8	76.4	85.1	92.0
120	136.4	100.0	106.9	113.8
140	140.9	111.4	134.0	132.2
160	173.2	150.6	155.8	154.1
175	174.0	156.7	168.8	158.4
200	177.1	170.2	182.3	165.0
225	182.1	182.1	197.7	175.2
250	187.2	216.5	225.1	218.2
275	199.2	259.5	230.2	271.6
300	240.5	261.2	261.2	302.5
325	278.4	312.8	304.2	319.7
350	287.0	347.3	318.0	335.2
375	323.2	380.0	326.6	366.2
400	371.4	381.7	357.7	385.2

Pilot Piping System Limitations



1. Main Valve - Model 106-PG-UL-DELUGE
2. Strainer.
3. Fixed Restriction.
4. 82-PR-UL Pilot
5. Solenoid Valve - Normally Open.
6. Manual Emergency Override - Normal Position Closed.

Electrically Operated Deluge Valve  
- Normally Closed.

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Drawn By:

Kari Oksanen

Approved By:

Date:

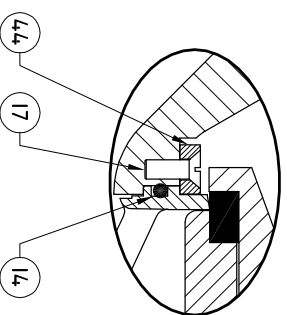
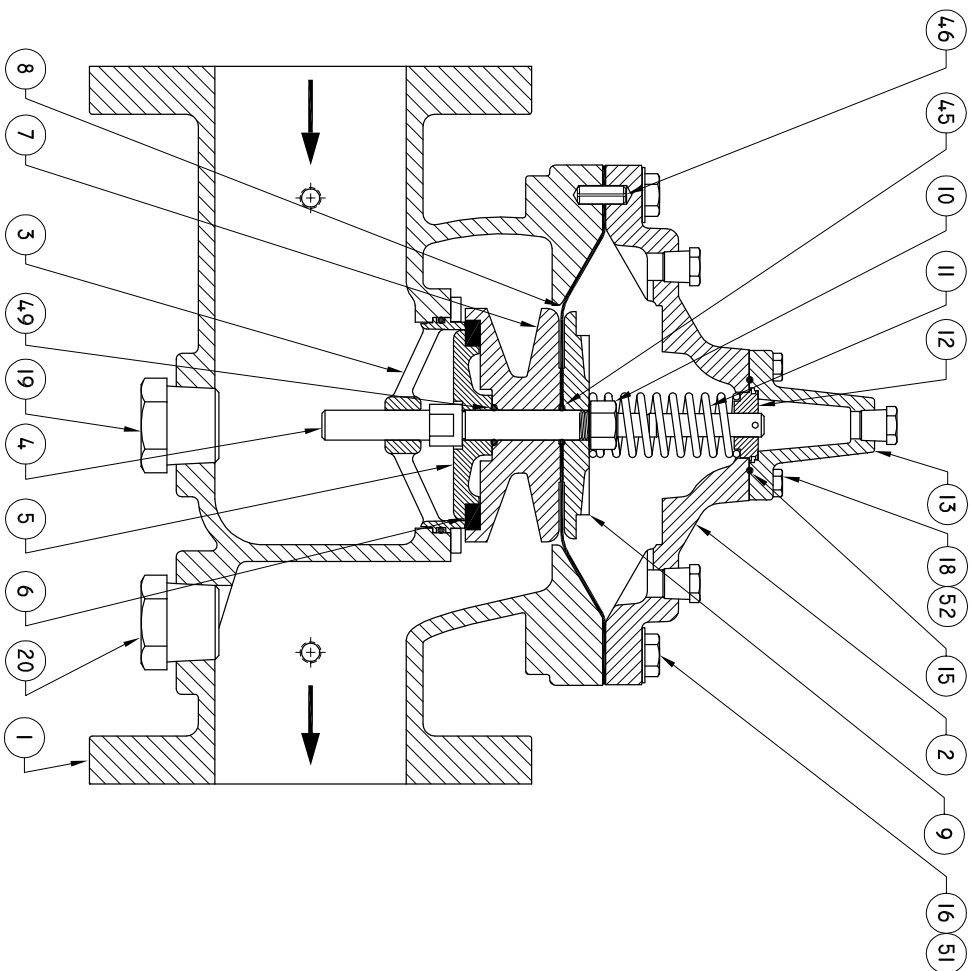
May 30, 2013

Drawing:

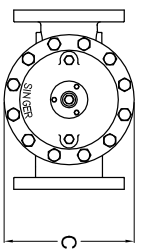
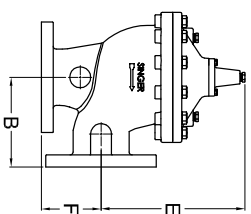
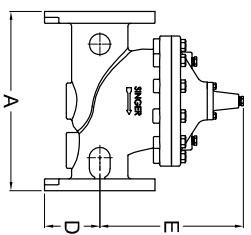
A-10507A

**Model 106-EDV**

# **Main Valves**



SEAT DETAIL



REV	D.C.O.	DESCRIPTION	DATE



www.singervalve.com 12850-87th Avenue, Surrey, B.C. V3W 3H9

Drawn By: STEPHEN BISHOP Approved By:

Date: AUGUST 19th 2013 Drawing: A1003A

MODEL 106-PG-UL DELUGE VALVE ~ 3" & 4"

### Material Specifications & Dimensions

3" & 4" (75mm & 100mm) 106-PG-UL & A106-PG-UL  
 For Drawing A1003A

<u>Item</u>	<u>Part Name</u>	<u>Material</u>	<u>Item</u>	<u>Part Name</u>	<u>Material</u>
1	Body	Ductile Iron	14 **	Seat Ring Seal	Buna-N
2	Bonnet	Ductile Iron	15 **	Stem Cap Seal	Buna-N
3	Seat Ring	Stainless Steel	16	Bonnet Bolt	Stainless Steel
4	Stem	Stainless Steel	17	Seat Ring Screws	Stainless Steel
5	Disc Retainer	Brass/Bronze	18	Stem Cap Capscrew	Stainless Steel
6 **	<b>Resilient Disc</b>	<b>EPDM</b>	19	Drain Plug	Brass
7	Inner Valve	Ductile Iron	20	Drain Plug	Brass
8 **	<b>Diaphragm</b>	<b>Reinforced EPDM</b>	44	Seat Retaining Washer	Stainless Steel
9	Clamp Plate	Ductile Iron	45 **	<b>Diaphragm Seal</b>	<b>Buna-N</b>
10	Stem nut	Brass B-16	46	Locating Pin	Stainless Steel
11	Spring	Stainless Steel	49 **	<b>Disc Retainer Seal</b>	<b>Buna-N</b>
12	Guide Bushing	Brass B-16	51	Bonnet Washer	Stainless Steel
13	Stem Cap	Ductile Iron	52	Stem Cap Washer	Stainless Steel

\*\* Recommended spare parts (included in the Rebuild Kit)

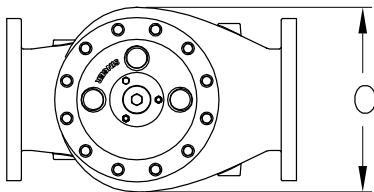
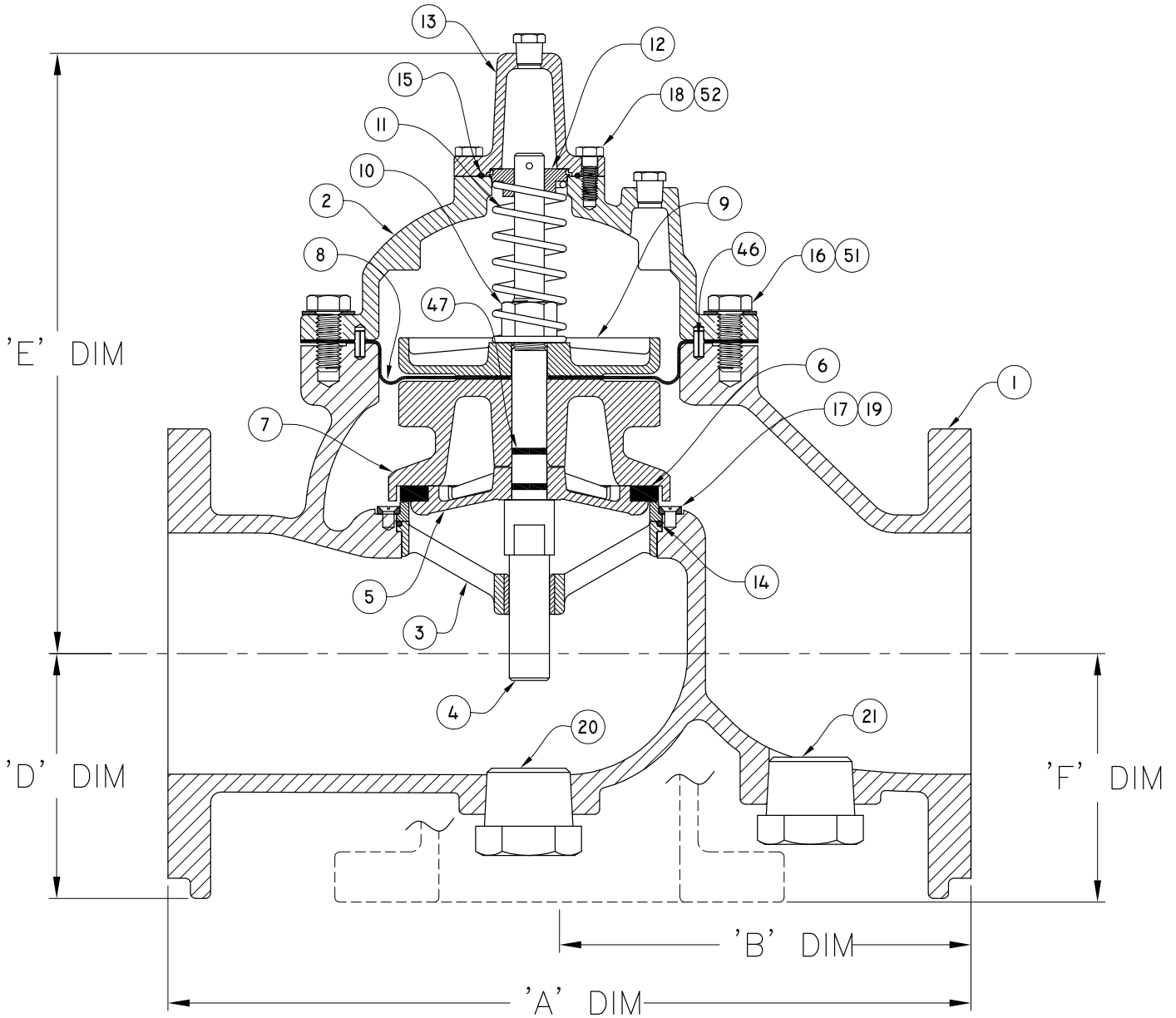
106-PG-UL & A106-PG-UL		Globe			Globe & Ang	Angle		
		A	D	E	C	B	E	F
3" 80mm	NPT / BSPT	13.50"	2.83"	10.50"	9.25"	6.63"	10.50"	4.63"
		343mm	72mm	267mm	235mm	168mm	267mm	118
	150F	12"	3.78"	10.50"	9.25"	6"	10.50"	4"
		305mm	96mm	267mm	235mm	152mm	267mm	102mm
300F		13.25"	4.16"	10.50"	9.25"	6.38"	10.50"	4.38"
		337mm	106mm	267mm	235mm	162mm	267mm	111mm
PN10, PN16, PN25, PN40		12.50	3.97	10.50"	9.25"	6"	10.50"	4"
		318mm	101mm	267mm	235mm	152mm	267mm	102mm
4" 100mm	150F / PN10, PN16, PN25, PN40	15"	4.63"	12.25"	10.88"	7.50"	12.25"	5"
		381mm	118mm	232mm	276mm	191mm	232mm	127mm
	300F	15.63"	5.13"	12.25"	10.88"	7.88"	12.25"	5.31"
		397mm	130mm	232mm	276mm	200mm	232mm	135mm

A0995A

FILENAME:  
S:\6 INCH\DRAWINGS\A0995A

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL: XXX = ±.005, XX = ±.010  
FRACTIONAL: ± -  
ANGULAR: ± 1°



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Drawn By:  
STEPHEN BISHOP

Approved By:

Date:  
AUGUST 28th 2013

Drawing:  
A0995A

REV	D.C.O.	DESCRIPTION	DATE	MODEL S106-PG-UL DELUGE VALVE ~ 6" & 8"



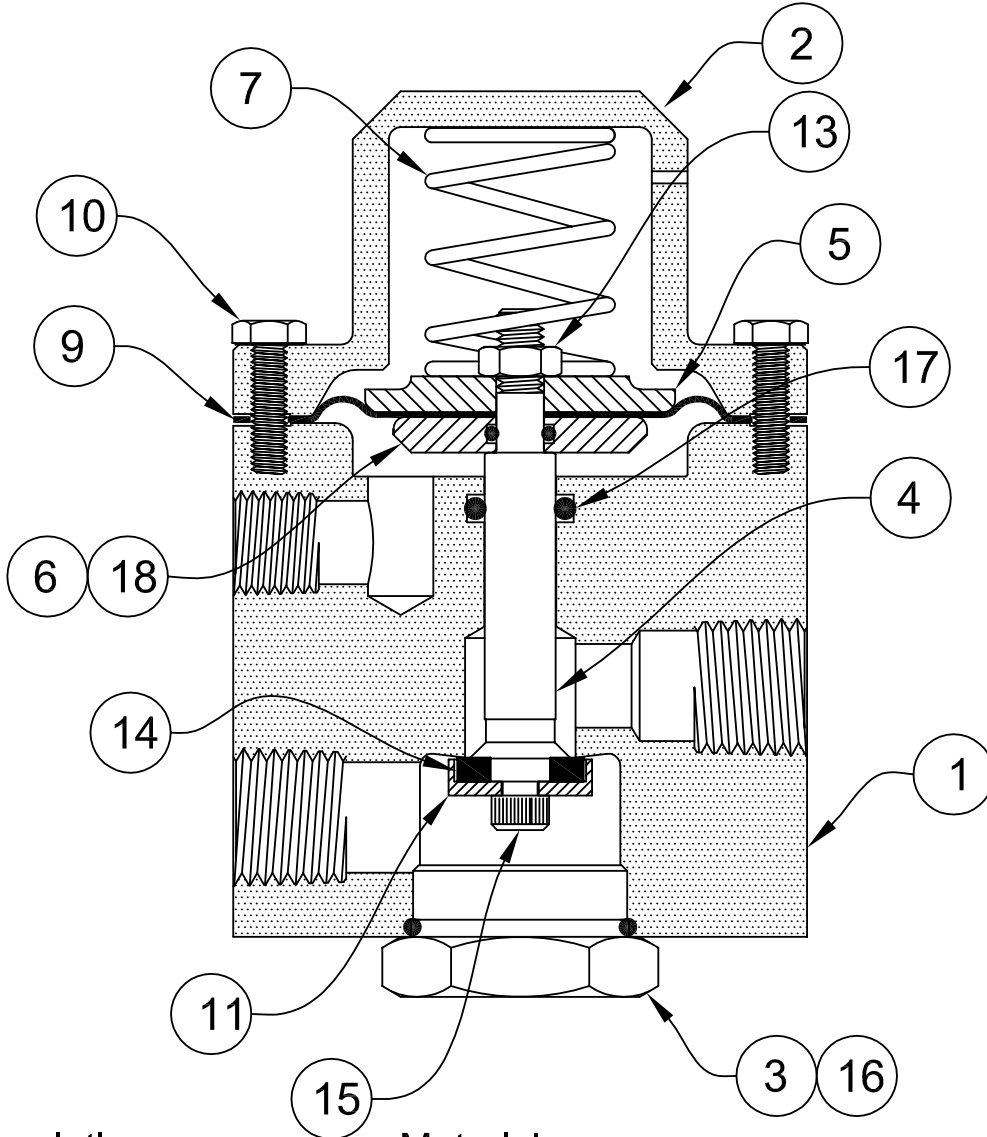
**Material Specifications & Dimensions**  
6" & 8" (150mm & 200mm) S106-PG-UL & SA106-PG-UL  
For Drawing A0995A

Item	Part Name	Material	Item	Part Name	Material
1	Body	Ductile Iron	15 **	Stem Cap Seal	Buna-N
2	Bonnet	Ductile Iron	16	Bonnet Bolt	Stainless Steel
3	Seat Ring	Stainless Steel	17	Seat Ring Screws	Stainless Steel
4	Stem	Stainless Steel	18	Stem Cap Capscrew	Stainless Steel
5	Disc Retainer	Ductile Iron	19	Bottom Guide	Bronze
6 **	Resilient Disc	EPDM	20	Drain Plug	Brass
7	Inner Valve	Ductile Iron	21	Drain Plug	Brass
8 **	Diaphragm Reinforced	EPDM	44	Seat Retaining Washer	Stainless Steel
9	Clamp Plate	Ductile Iron	46	Locating Pin	Steel
10	Stem nut	Brass B-16	47 **	Stem Seal	Buna-N
11	Spring	Stainless Steel	49 **	Disc Retainer Seal	Buna-N
12	Guide Bushing	Brass B-16	51	Bonnet Washer	Stainless Steel
13	Stem Cap	Ductile Iron	52	Stem Cap Washer	Stainless Steel
14 **	Seat Ring Seal	Buna-N			

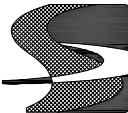
\*\* Recommended spare parts (included in the Rebuild Kit)

S106-PG-UL & SA106-PG-UL		Globe			Globe & Angle	Angle		
		A	D	E	C	B	E	F
6"	150F / PN10, 150mm PN16	20"	6.09"	15.43"	12.20"	10"	15.43"	6"
		508mm	155mm	392mm	310mm	254mm	392mm	152mm
	300F / PN25, PN40	21"	6.84"	15.43"	12.69"	10.50"	15.43"	6.50"
		533mm	174mm	392mm	322mm	267mm	392mm	165mm
8"	150F / PN10, 200mm PN16	25.38"	7.63"	20.19"	17.20"	12.75"	20.19"	8"
		645mm	194mm	513mm	437mm	324mm	513mm	203mm
	300F / PN25, PN40	26.38"	7.88"	20.19"	17.20"	13.25"	20.19"	8.50"
		670mm	200mm	513mm	437mm	337mm	513mm	216mm

# **Pilot Components**



Item	Description	Material
1.	Body	Brass
2.	Spring Casing	Brass
3.	Bottom Cap	Brass
4.	Inner Valve Stem	Stainless Steel
5.	Upper Clamp Plate	Brass
6.	Lower Clamp Plate	Brass
7.	Spring	Stainless Steel
9.	Diaphragm	Buna-N/Nylon
10.	Body Capscrews	Stainless Steel
11.	Disc Retainer	Stainless Steel
13.	Inner Valve Nut	Stainless Steel
14.	Resilient Disc	Buna-N
15.	Inner Valve Screw	Stainless Steel
16.	Bottom Cap Seal	Buna-N
17.	Body Seal	Buna-N
18.	Lower Clamp Plate Seal	Buna-N



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Drawn By:	Approved By:
Stephen Bishop	
Date:	Drawing:
MAY 12th 2014	A1001A
82-PR-UL Booster	

## SINGER MODEL 82-PR-UL

Booster Pilot Drawing A1001A  
Installation, Operation and Maintenance Instructions

### DESCRIPTION:

Model 82-PR-UL is a two-way valve that is opened by a light spring and closed by external pressure.

### DESCRIPTION OF OPERATION:

When the bottom of the diaphragm is vented to atmosphere, the valve opens. When the bottom of the diaphragm is pressurized, the valve closes.

### INSTALLATION:

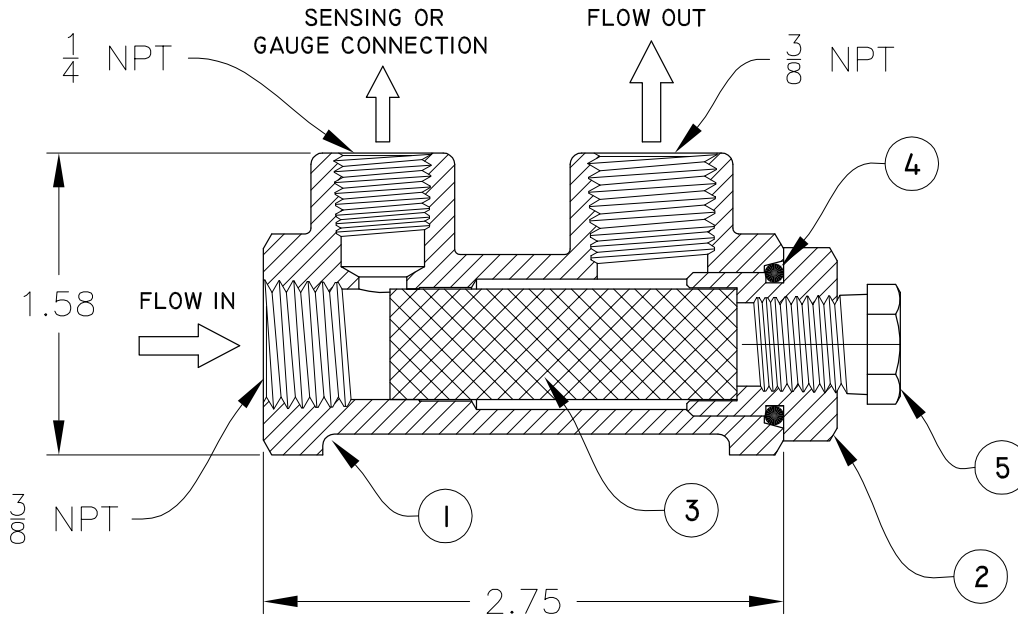
Refer to schematic for the control valve involved.

### SERVICE SUGGESTIONS:

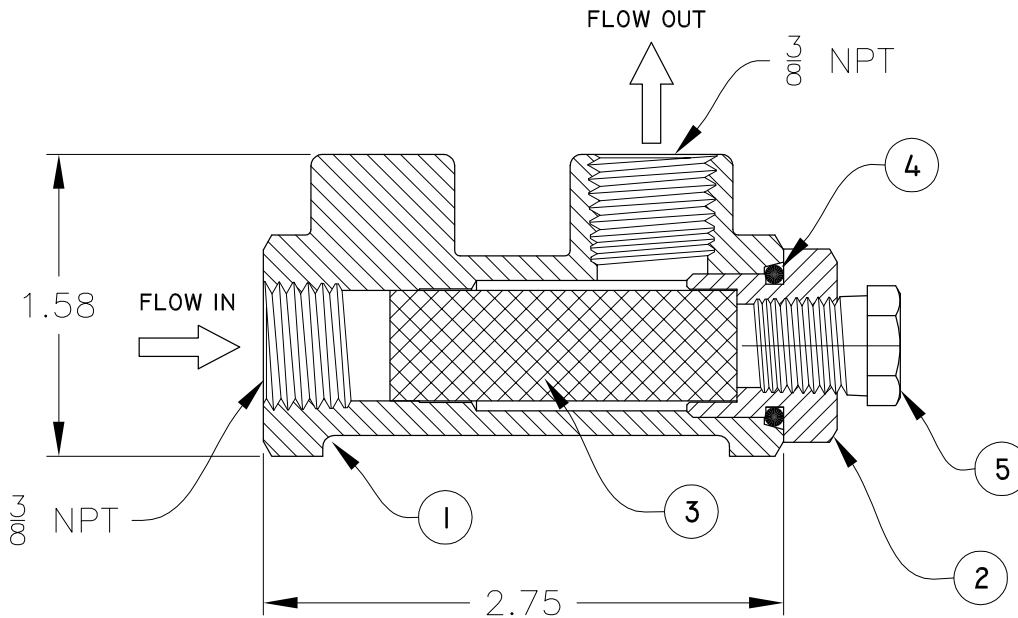
If Model 82-PR-UL fails to work as expected, the reason could be:

1. Pressure does not reach the sensing chamber (1/4"N.P.T.) because of obstruction or other problems with the solenoid valve or other component feeding the 82-PR-UL.
2. Pressure is not released from the sensing chamber for reasons listed above.
3. Diaphragm of 82-PR-UL is ruptured or failure of Body Seal (17) or Lower Clamp Plate Seal (18). If Spring Casing (2) gets pressurized, the valve will not operate.

## SINGER MODEL J0097A STRAINER



## SINGER MODEL J0098A STRAINER



ITEM	DESCRIPTION	MATERIAL
1.	BODY	STAINLESS STEEL 316
2.	SCREEN RETAINER	STAINLESS STEEL 316
3.	SCREEN (40 Mesh)	STAINLESS STEEL 316
4.	SCREEN RETAINER SEAL	BUNA
5.	BLOW DOWN PLUG	STAINLESS STEEL 316

SINGER VALVE

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Drawn By:	Approved By:
STEPHEN BISHOP	
Date:	Drawing:
APRIL 12th 2012	A0966B
SINGER MODEL J0097A & J0098A STRAINER	

## SINGER VALVE INC. LIMITED WARRANTY

This limited warranty replaces and supersedes all other warranties previously given. All products (the “**Products**”) manufactured by Singer Valve Inc. (“**Singer**”) are warranted for **THREE YEARS** (the “**Warranty Period**”) from date of purchase (as confirmed by invoice) against manufacturing defects in material and workmanship which develop in the service for which the Products are designed, provided the Products were installed and used in accordance with all applicable instructions and limitations issued by Singer. Singer will, at its sole discretion, repair or replace defective material, free of charge, if returned to Singer’s factory, transportation charges prepaid, provided that, after Singer’s inspection and review, the material is found to have been defective at time of shipment to the Purchaser. Singer is not under any circumstances liable in any respect for any defective Products beyond the Warranty Period.

This warranty is conditional upon the Purchaser giving Singer immediate written notice of discovery of the defect.

Repairs or parts replaced under this warranty are warranted only throughout the remainder of the Warranty Period.

This warranty is in the nature of liquidated damages to which the Purchaser might otherwise be entitled at law or in equity. The Purchaser hereby agrees that, in lieu of any action for fundamental breach of contract or breach of a fundamental term of a contract, it will rely solely on this warranty.

This warranty does not apply to any Product modified or changed in design or function after shipment to the Purchaser, nor to components which are subject to the warranty conditions of another manufacturer. Electronic components used by Singer, manufactured by others, are warranted by their manufacturer for ONE YEAR from date of purchase.

Singer is not under any circumstances, including without limitation, any default, negligence or breach of whatsoever nature by Singer, liable, whether during the Warranty Period or after the Warranty Period, for any claims for labour, installation costs, damages or other special or consequential damages including, but not limited to, loss of revenue or profits, or any other expenses incurred by reason of any Products found to be defective. Singer is not liable for any incidental or consequential loss, damages or expenses (including loss of use) caused by any defects in the Product, by repair of it or arising directly or indirectly from its use. Singer is not liable for any damage or charge for labour or expense in making unauthorized repairs or adjustments to any Product. Singer is not liable for any damage or charges sustained in the adaptation or use of its engineering data and services.

This warranty does not apply if the Product has been altered or repaired by others. Singer will make no allowances or credit for such repairs or alterations unless first authorized in writing by Singer.

No representative of Singer has authority to change any of the foregoing terms or to assume on behalf of Singer any additional liability or responsibility in connection with any Product.

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