12850 – 87th Avenue
Surrey, BC. Canada V3W 3H9
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www.singervalve.com

Installation, Operation and Maintenance Manual

Model 3” (50mm) to 8” (200mm) PDV A-10508A

SINGER VALVE
Result-Based Solutions. Globally.™

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SINGER MODEL 3" (50mm) to 8" (200mm) PDV A-10508A

Pneumatically Operated Deluge Valve For Fire Service

Schematic A-10508A

DESCRIPTION:

Model PDV A-10508A is a pilot operated deluge valve designed to open when pneumatic control signal (6) is removed.

This valve can be activated two ways:

1. By removing pneumatic control signal.
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 bonnet pressure (and therefore the position of the Main Valve) is controlled by a pilot circuit consisting of Ejector (3) and Relay Valve (4).

When the sensing of Relay Valve (4) is vented, by removing pneumatic control signal, Relay Valve (4) opens. Flow through Relay Valve (4) is much higher than flow coming through Ejector (3). Bonnet pressure of Main Valve is reduced and Main Valve (1) opens.

When sensing of Relay Valve is pressurized by pneumatic control signal (6), Relay Valve (4) closes. Pressure from Main Valve (1) inlet or independent operating pressure through Ejector (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. 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. 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.

FRICTION 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

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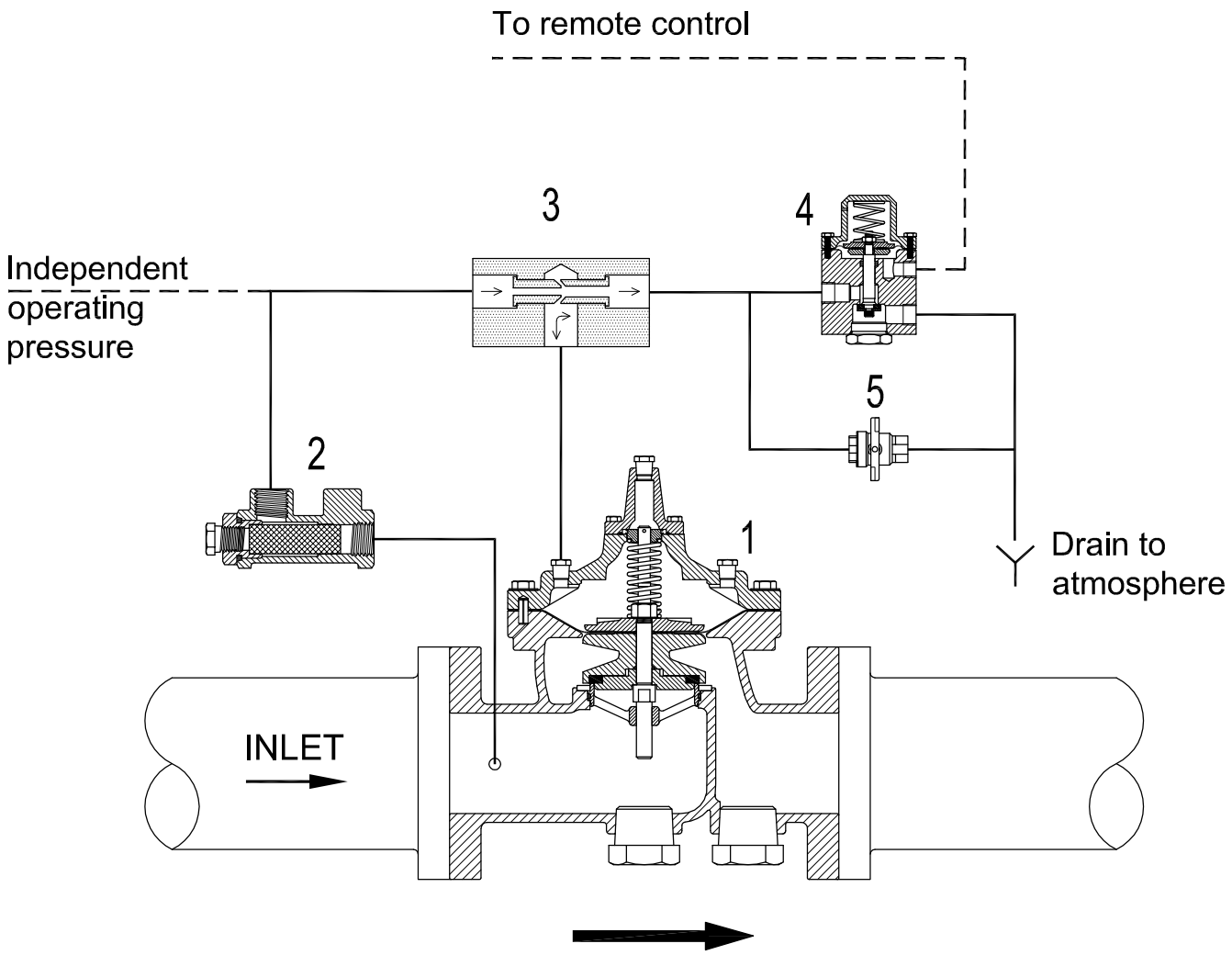
Supply Pressure (PSI)	Maximum Height (ft.) Sprinkler Heads can be from the Valve			
	3"	4"	6"	8"
20	21.56	21.56	20.02	21.56
40	32.34	36.96	41.58	46.2
60	44.66	60.06	60.06	63.14
80	60.06	78.54	78.54	83.16
100	104.72	95.48	103.18	109.34
120	154	121.66	127.82	133.98
140	163.24	137.06	157.08	155.54
160	197.12	177.1	181.72	180.18
175	201.74	186.34	197.12	187.88
200	210.98	204.82	215.6	200.2
225	221.76	221.76	235.62	215.6
250	323.54	258.72	266.42	260.26
275	249.48	303.38	277.2	314.16
300	292.6	311.08	311.08	348.04
325	332.64	363.44	355.74	369.6
350	346.5	400.4	374.22	389.62
375	385	435.82	388.08	423.5
400	434.28	443.52	421.96	446.6

Pilot Piping System Limitations

A-10508A



1. Main Valve - Model 106-PG-UL-DELUGE
2. Strainer.
3. Ejector - X141A.
4. 82-PR-UL Pilot
5. Manual Emergency Override - Normal Position Closed.

Pneumatically Operated Remote Control Valve

SINGER VALVE
Result-Based Solutions. Globally.™
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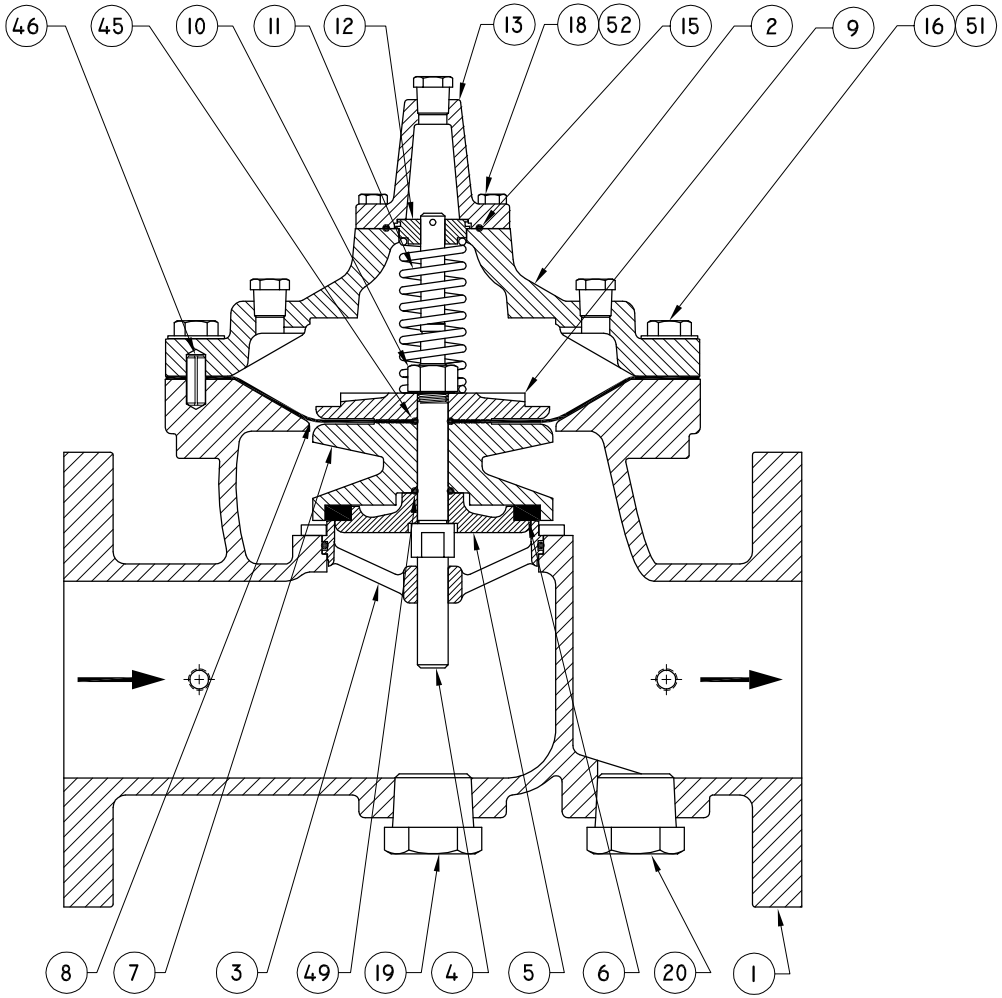
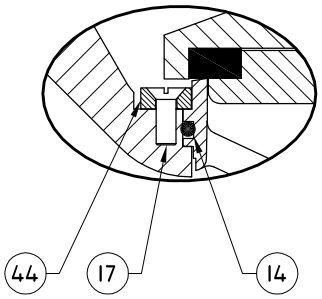
Drawn By:	Approved By:
Kari Oksanen	
Date:	Drawing:
May 30, 2013	A-10508A

Model 106-PDV

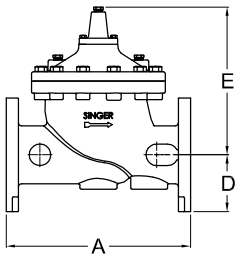
Main Valves

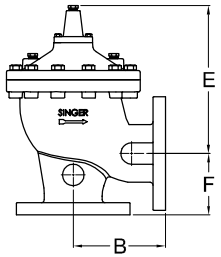
A1003A

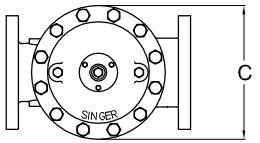




SEAT DETAIL







REV	D.C.O.	DESCRIPTION	DATE

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Drawn By:	Approved By:
STEPHEN BISHOP	
Date: AUGUST 19th 2013	Drawing: A1003A

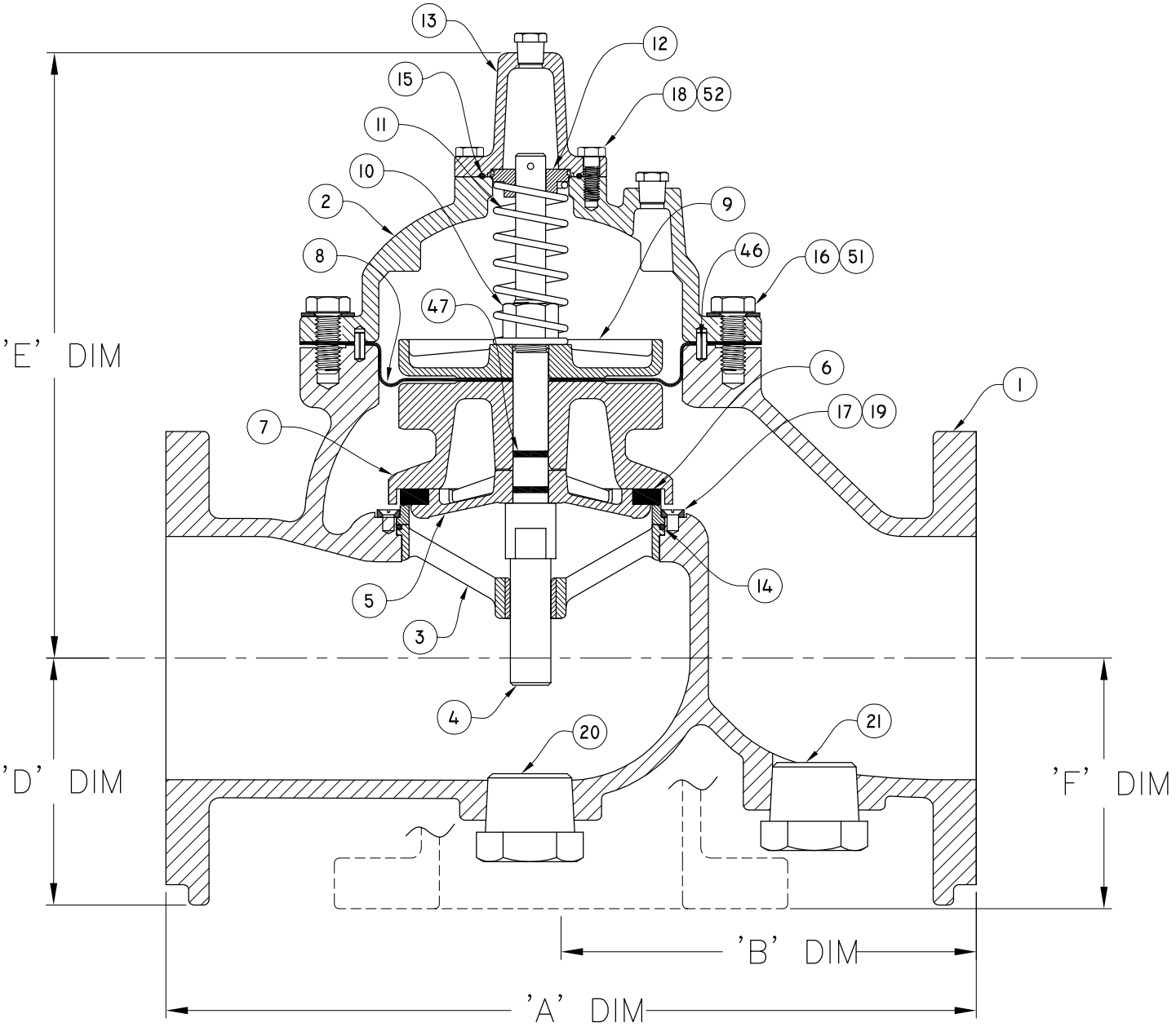
MODEL 106-PG-UL DELUGE VALVE ~ 3" & 4"

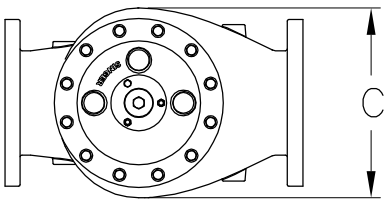
A0995A

FILENAME:
S:\6 INCH\DRAWINGS\A0995A

TOLERANCES UNLESS OTHERWISE SPECIFIED

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





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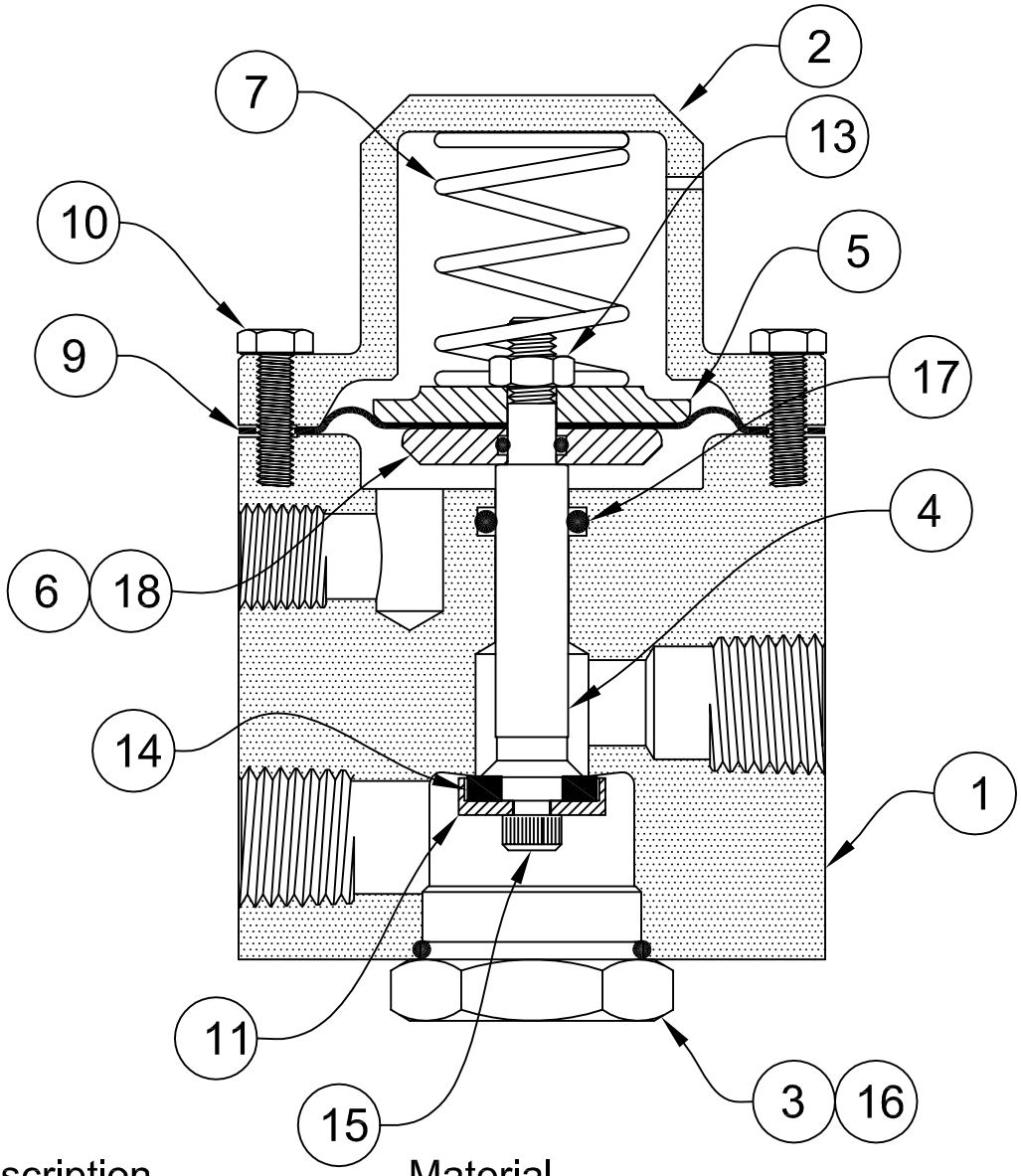
REV	D.C.O.	DESCRIPTION	DATE

Drawn By: STEPHEN BISHOP
Approved By:
Date: AUGUST 28th 2013
Drawing: A0995A

MODEL S106-PG-UL DELUGE VALVE ~ 6" & 8"

A1001A



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 VALVE
Result-Based Solutions. Globally.

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Ph: 604-594-5404
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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:

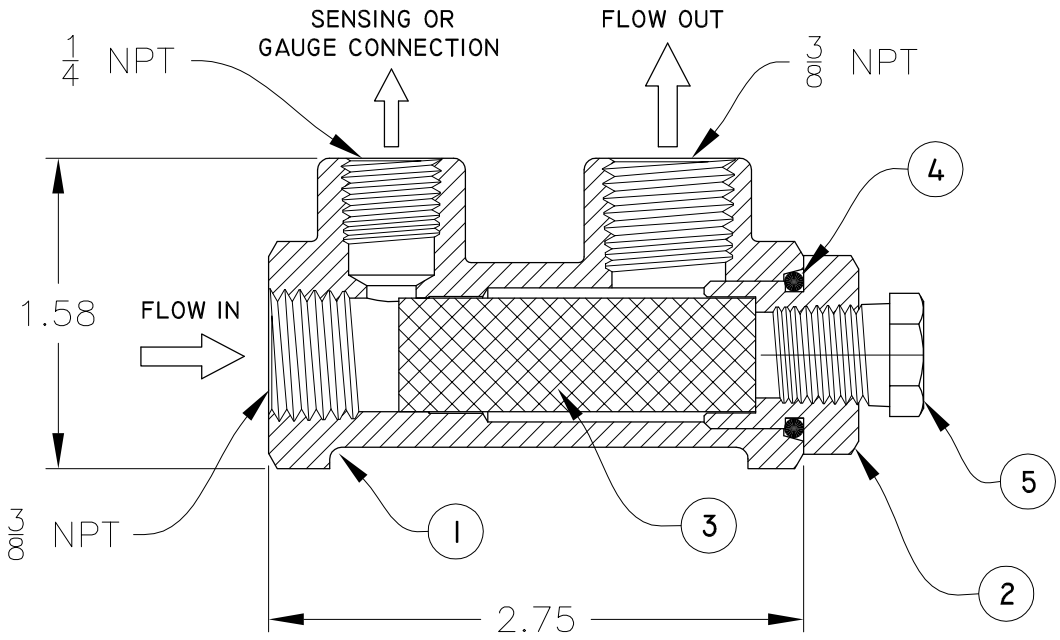
1. Pressure does not reach the sensing chamber (1/4"N.P.T.) because of obstruction or other problems with the solenoid valve or other component feeding the 82-PR-UL.

2. Pressure is not released from the sensing chamber for reasons listed above.

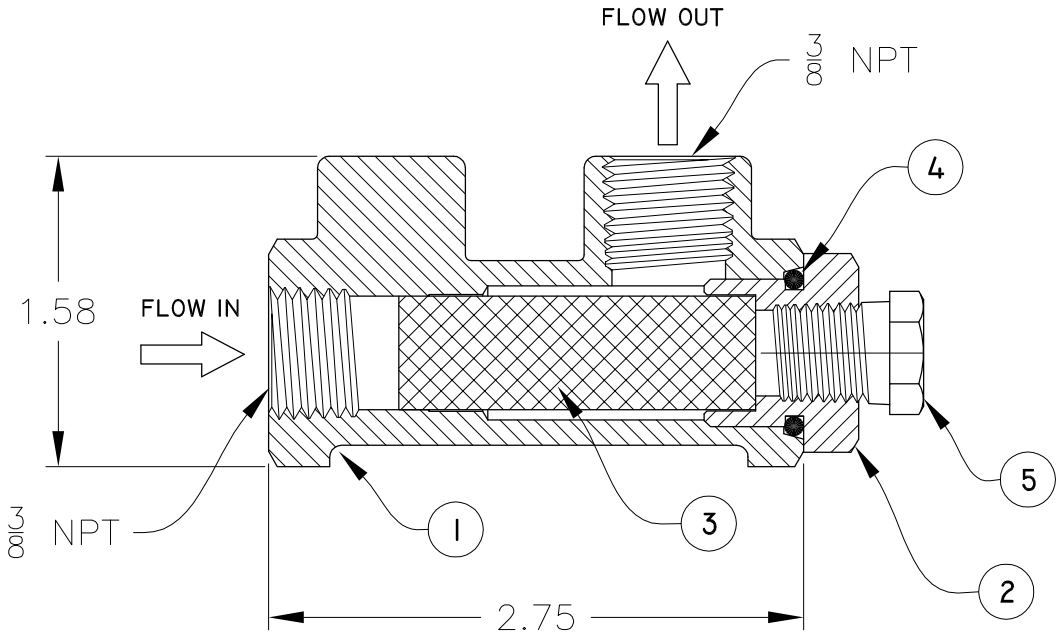
3. Diaphragm of 82-PR-UL is ruptured or failure of Body Seal (17) or Lower Clamp Plate Seal (18). If Spring Casing (2) gets pressurized, the valve will not operate.

A0966B

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

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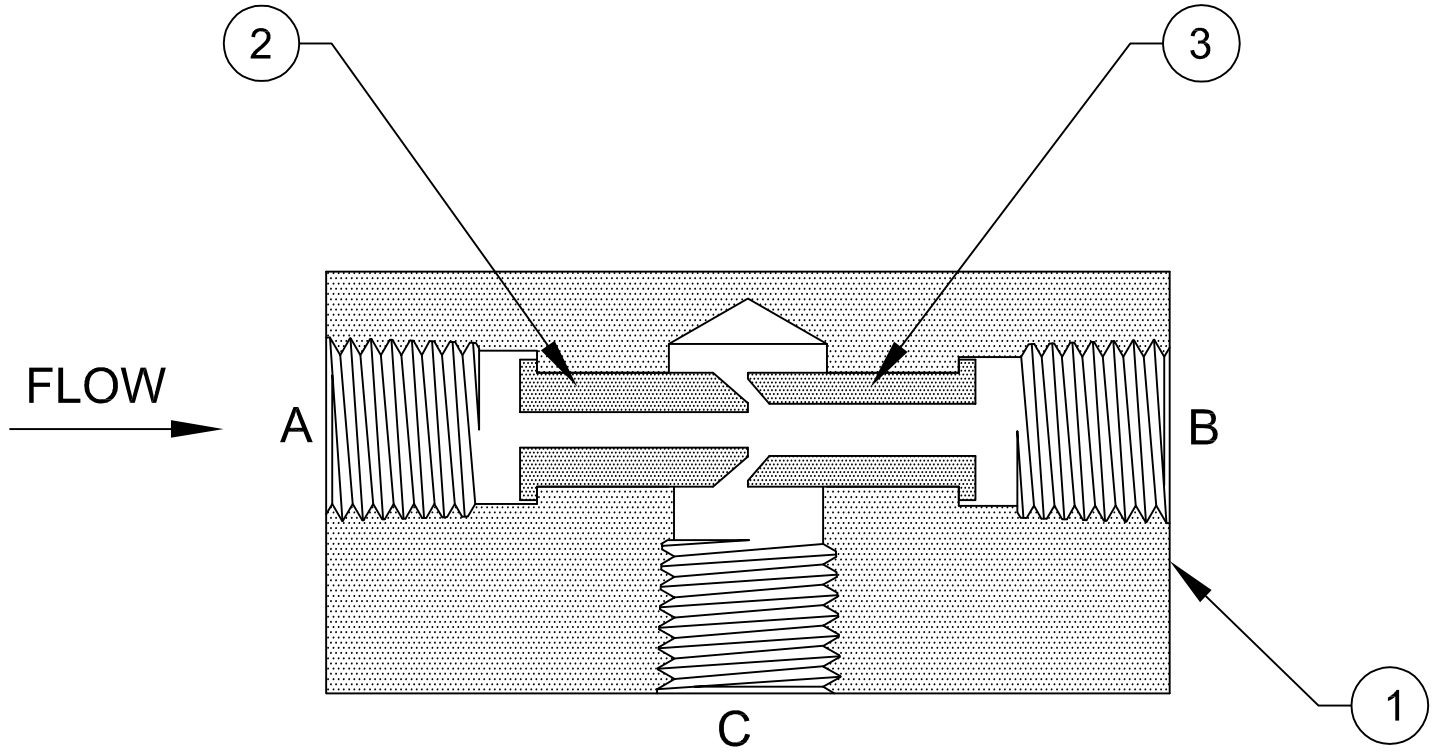
Drawn By:	Approved By:
STEPHEN BISHOP	
Date:	Drawing:
APRIL 12th 2012	A0966B

SINGER MODEL J0097A & J0098A STRAINER

A0803A



Flow from 'A' to 'B' produces a lower pressure at 'C'

Item	Description	Material	Optional Material
1	Body	Brass B16	Stainless Steel
2	Inlet orifice	Stainless Steel	
3	Outlet orifice	Stainless Steel	

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Drawn By:	Approved By:
Scott Grover	
Date:	Drawing:
Feb 16, 1998	A0803A

X141 Ejector

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.

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