

685I Visual Liquid Level Indicator for Atmospheric Vessels

Application

The Model 685I is a liquid head pressure type level indicator. It continuously indicates the liquid level in an atmospheric (vented) tank in feet and inches. Also, the scale on the Model 685I is available calibrated for horizontal cylindrical vessels in pounds, gallons, barrels, percent, etc.

Features

- **Simple Adjustments:** Zero Adjustment Knob and one Specific Gravity (span) Knob. Unit can be factory calibrated for a nominal cost or field adjusted in less than 15 minutes, without having to change the liquid level in the vessel.
- **Easy to Read:** Scale reads the same as a hand tank gauge, making it unnecessary to convert psig of head pressure into feet and inches of liquid to get the correct reading.
- **Long Life:** All bearings are Teflon®, Delrin® or Moly Disulphide baked on Dry Film Lubricated Stainless Steel.



Operation

Liquid head pressure against a flexible elastomer diaphragm is transmitted directly to a leaf spring, which has a fixed pivot point at the upper end and an adjustable fulcrum point in the mid region of the leaf spring. For example, because 8' of heavy liquid exerts more pressure on the diaphragm than 8' of lighter liquid, the spring can be "stiffened" by moving the fulcrum down by the gravity adjustment knob (red), so the indicator will still read 8'. The zero knob (green) moves the entire spring assembly and pointer, having the same effect as shifting the scale.

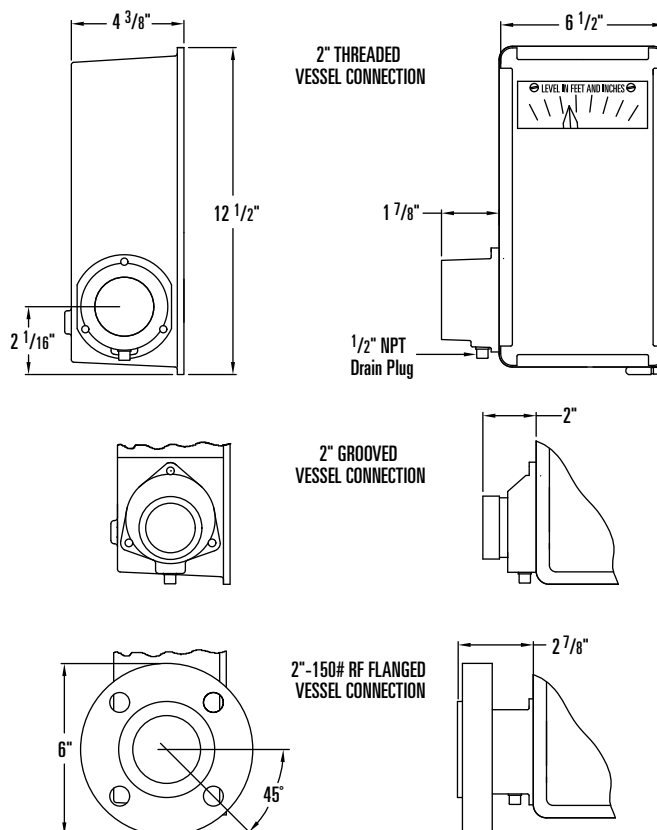
Installation

Since the unit measures liquid head pressure, the point at which it is installed on the vessel is the point that liquid measurement begins. For calibration and maintenance purposes, always install an isolation valve between the model 685I and the vessel. Also, install a drain petcock in the liquid inlet bottom, where a plug is generally located.

Specifications

Indicator Housing	Weatherproof
Proof Pressure	100 psig
Temperature	-20°F to +225°F Standard
Pressure	0 to 4 ounces pressure (Atmospheric)
Range (Vessel Height)	3' thru 60' (see 685 code sheet)

Dimensional Data



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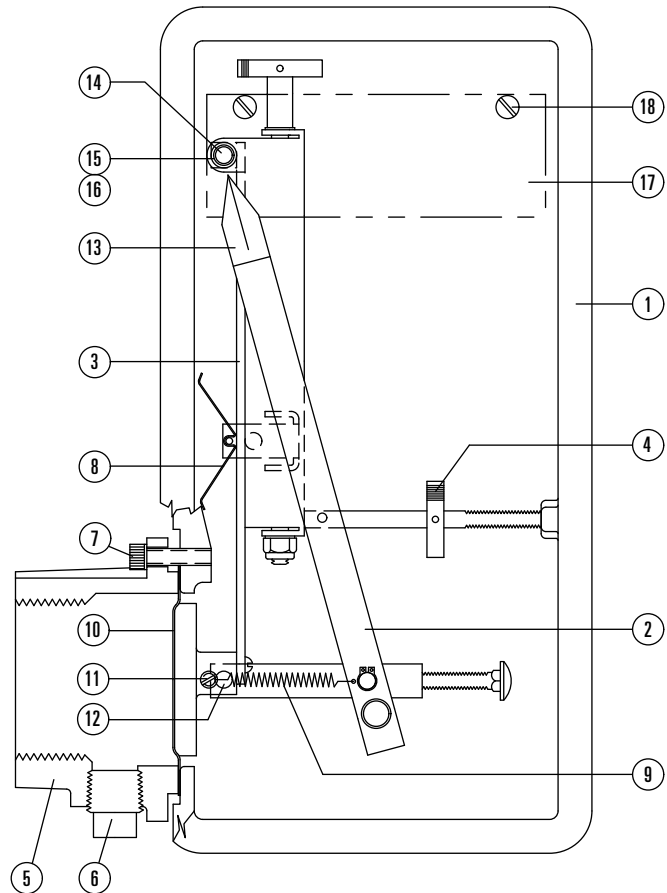
Parts List

Item	Description	Qty.	Part No.
1	HOUSING, ALUMINUM	1	000154-M
2	POINTER ASSEMBLY	1	000071-A
3	MAIN SPRING ASSEMBLY, STD.	1	000053-A
	MAIN SPRING ASSEMBLY, THIN	1	000054-A
	MAIN SPRING ASSEMBLY, DOUBLE	1	000055-A
4	ZERO KNOB, SHAFT & PIN	1	000010-A
5	ADAPTER	1	SEE CHART
6	PIPE PLUG, STEEL PLATED	1	002300-C
	PIPE PLUG, 304S.S.	1	002304-P
	PIPE PLUG, 316S.S.	1	002307-P
	PIPE PLUG, PVC	1	002301-P
7	SCREW, STEEL PLATED	3	001508-P
	SCREW, 2" NPT PVC ADAPTER ONLY	3	001542-P
	SCREW, 2"-150RF PVC ONLY	3	001553-P
8	ZERO SPRING, STAINLESS STEEL	1	003102-P
9	WEAR SPRING, STAINLESS STEEL	1	003103-P
10**	DIAPHRAGM, BUNA-N	1	000700-P
	DIAPHRAGM, VITON®	1	000713-P
	DIAPHRAGM, COMPOUND W	1	000720-P
	DIAPHRAGM, TEFLON®	1	000703-P
11	SCREW, 18-8 STAINLESS STEEL	1	001507-P
12	FOLLOWER BEARING, STAINLESS STEEL	1	003909-L
13	POINT DECAL	1	005900-P
14	SPRING BEARING, STAINLESS STEEL	1	000009-A
15	WASHER, TEFLON®	1	001807-P
16	RETAINER O-RING, NEOPRENE	1	003602-P
17***	SCALE, ALUMINUM	1	0030xx-P
18	SCREW, 18-8 STAINLESS STEEL	2	001504-P
19*	TAG, ALUMINUM	1	005906-P
20*	BEZEL FRAME, STAINLESS STEEL	1	000023-P
21*	BEZEL SEAL	1	003400-P
22*	WINDOW, ACRYLIC	1	000204-S
23*	WASHER, PVC ADAPTER ONLY	1	001809-P

*Not shown.

**Recommended spare parts. Other materials available.

***Specify tank height when ordering.



Item #5 Part Number

Vessel Connection	Cad. Plated	Epoxy Coated	Teflon® Coated
2" NPT, D.I.	000307-C	000307-E	000307-T
2" NPT, 316 S.S.	000317-M*	000317-E	000317-T
2"-150RF, STEEL	000335-C	000335-E	000336-T
2"-150RF, 304 S.S.	000338-M*	000338-E	N/A
2"-150RF, 316 S.S.	000341-M*	000341-E	000341-T
3"-150RF, STEEL	000345-C	000345-E	N/A
2" GROOVE, D.I.	000302-C	000303-E	000302-T
2" NPT, PVC	000343-M*	N/A	N/A
2"-150RF, PVC	000342-M*	N/A	N/A

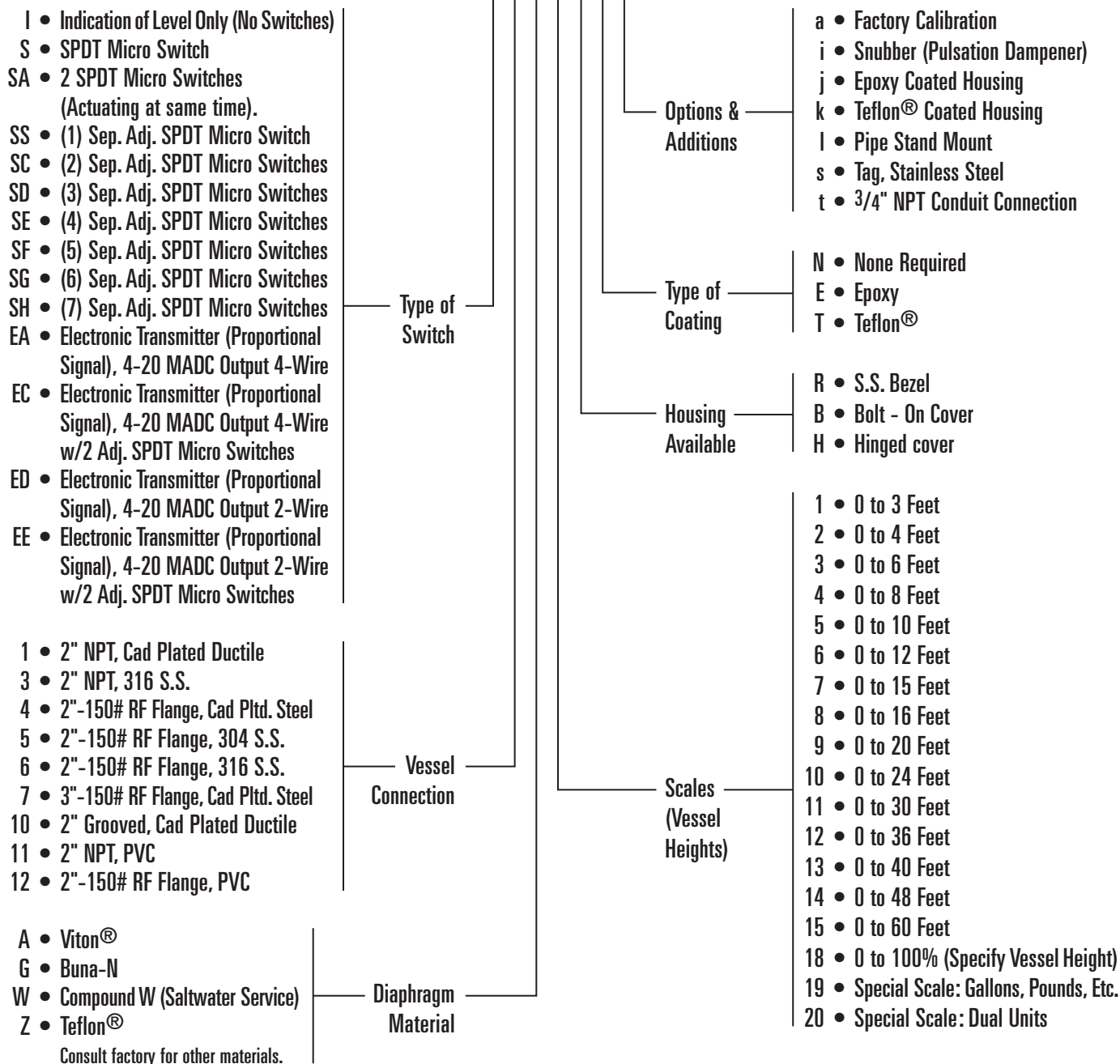
*Plating not required.

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Determining the Model Number

Example given: Standard Model 685I-1G8-RN Liquid Level Indicator for Atmospheric (Vented) Vessels with, Level Indication Output, 2" NPTF (Cad Plated Ductile) Tank Connection, Buna-N Diaphragm, 0 to 16 Foot Indicator Scale, Standard Aluminum Housing.

MODEL 685 I-1 G 8-R N,X



“Snubber” Pulsation Dampener for 685

Application

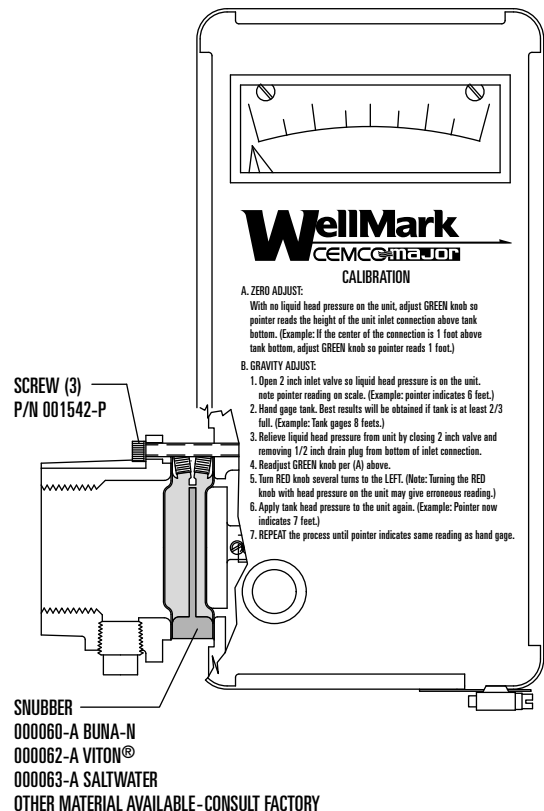
The Snubber is designed to permit the installation of the Major Level Control on a pump suction line without being affected by the surges as the pump starts or stops, or when any other condition results in rapid fluctuation of static head. Of the head type switches in common field use, only the Major Level Control is available with this built-in dampening feature.

Features

- **Dependable:** Factory-sealed snubber assembly eliminates the possibility of orifice plugging from foreign matter.
- **Effective:** Rapid pulsation pressure peaks up to 30 psig resulting in no visible pointer motion.
- **Cost Saving:** The Snubber eliminates the necessity of a separate tank connection and field wiring from the pump unit to the Level Control. The Level Control can be shop mounted and wired on a pump unit skid at a considerable saving in field installation cost.

Operation

Pressure on the upstream diaphragm forces the silicone oil through the orifice and against the downstream diaphragm. The orifice slows the rate of movement of silicone oil. If the head on the upstream diaphragm is suddenly increased from zero to 16', it takes 45 seconds for the pointer to reach the 16' reading. There is no disadvantage to this slowdown, since in normal operation it takes hours for the tank to fill from zero to 16'. The Snubber will operate satisfactorily at all ambient temperatures due to the almost flat viscosity-temperature curve of the silicone oil.



Installation (Snubber to 685)

1. Remove the three cap screws attaching the housing adapter to the level control housing.
2. Remove the diaphragm.
3. Insert the Snubber between the adapter and the housing with the convex (protruding) diaphragm exposed to the liquid.
4. Install the three long screws furnished with the Snubber. **NOTE:** Due to the slow action of the pointer when a Snubber is used, the Level Control can be calibrated more quickly if the Snubber is first removed. Installation of the Snubber will not affect calibration of the Level Control.