

# OPERATION AND MAINTENANCE

## MODEL 853 & 853-1 PRESSURE SWITCH

The model 853 pressure switch is a 0 to 6000 PSI adjustable pressure switch designed for either pneumatic or liquid service. The model 853-1 is the same as the 853 except it employs a temperature compensating element. Its primary purpose is to permit filling natural gas cylinders on a cold day without the danger of the cylinders becoming over pressurized if moved to a warm area. Consequently the set pressure of the 853-1 decreases with temperature.

### SPECIFICATIONS

Maximum pressure	6000 PSI (40 MPa)
Electrical rating	5 amps, 250 V AC UL & CSA listed
Switch	SPDT (NO & NC)
Operating temperature	-50F to 160F
Pressure connection	1/4" male NPT
Electrical end connection	1/2" male NPT
Size	7/8" hex x 3.1" long
Materials	body - anodized alum internals - brass, stainless, Viton (TM)
Temperature compensation	853 - none 853-1 - approx. 9 PSI per degree F 853-2 - approx 12 PSI per degree F
Dead band	200-300 PSI

### DESCRIPTION OF OPERATION

Referring to drawing 853 (assembly drawing), pressure acts on the piston item (2) and seal (15). Movement of the piston is transmitted to the electrical switch (12). Springs (14) provide the force against which the pressure acts. In model 853-1 only temperature compensation is made by sensing elements (7) and (13) causing a change in length of actuator (8).

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Set pressure can be changed by loosening lock nut (4) and turning housing (6) in body (1) then retightening the lock nut. Unscrewing the housing increases pressure. A full turn will change the set pressure about 5000 PSI so only small movements are needed. Avoid removing the housing from the body. This could lead to lost parts or confusion on how to reassemble the unit. The electrical leads are coded as follows: black - common, red - normally closed, white - normally open. No routine maintenance is required. If required for repairs, the unit can be disassembled and reassembled by following the drawings. In the 853-1 temperature compensated model, sensing elements (13) and spacers (7) are stacked on actuator (8) as follows. First one (13) then one (7) then two (13), then one (7) and finally one (13). Lettering on items (13) are always on the sides, NOT in contact with spacers (7). The spacers are brass colored and the sensing elements are steel colored. **IN ALL CASES THE UNIT CAN BE RETURNED TO THE FACTORY OR DEALER FOR REPAIR UNDER WARRANTY OR AT A NOMINAL CHARGE.** Maintenance or repairs can be done by qualified personnel in a clean environment by following the drawings and parts lists herein.

### INSTALLATION

Use a suitable pipe thread sealant such as Teflon tape on inlet threads. Avoid over torquing pipe thread. Normal torque applied with a 6 or 8 inch long wrench is ample. Use ample teflon tape - 3 or 4 turns, not 1 or 2 turns. The switch is NOT shipped oxygen clean and should NOT be used for oxygen service as provided. Consult the factory for details on oxygen service.

## ASSEMBLY & DISASSEMBLY MODEL 853 & 853-1 PRESSURE SWITCHES

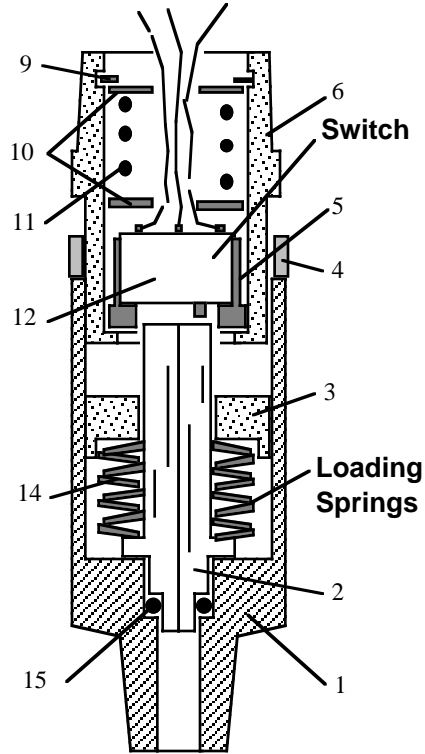
ITEM	QTY	PART NO.	DESCRIPTION
1	1	857	body
2	1	858	piston, for 853-1 assy
	1	867	piston, for 853 assy
3	1	859	retaining nut
4	1	511	lock nut
5	1	864	holder
6	1	863	housing
7	2	861	spacer, 853-1 assy only
8	1	860	actuator, 853-1 assy only
9	1	855-9	retainer
10	2	855-10	washer
11	1	855-11	spring
12	1	855-12	switch
13	4	855-13	sensor, temp.(853-1 only)
14	8 (-1) 6 (-2)	855-14	springs
15	1	855-15	seal, 2-008,Viton 90 duro
16	A/R	855-16	wire, 16" long, 22 gauge, stranded insulated, (red, black, & white)

Notes:

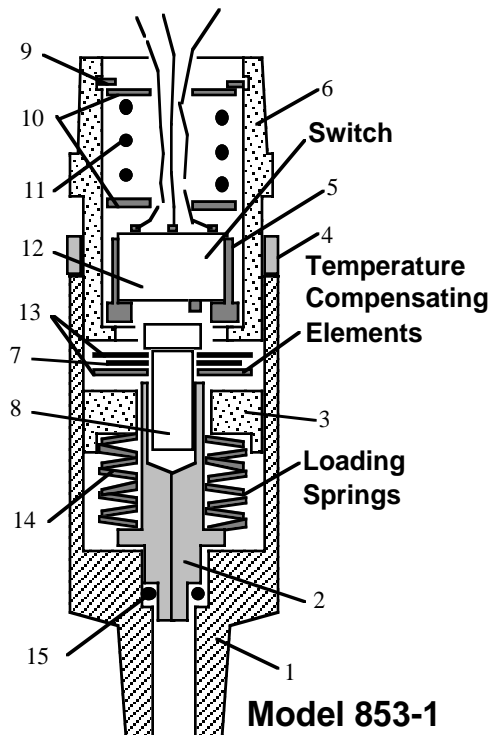
1. Tech Bul. - 856
2. Pack area around seal with Cristo-Lube 121 or equiv. grease.

853 assy

3. Add one drop of red locktite to threads of item 9 after assembly.  
Add via side hole in item 1. Avoid getting Locktite on other areas.
4. Tighten item 3 about 1/2 of flat on hex (1/12 turn) beyond point where springs item 14 start to load. This is about finger tight - no tools required.
5. Solder red #20 braid wire to NC contact on switch, white wire to NO and black wire to C.
6. Stack springs (14) with taper as shown.
7. For 853-1 stack two sets, each consisting of a spacer (7) between two sensors (12), on actuator (8). Insure writing on sensors is away from the brass colored spacers.
8. When soldering wires to switch item 12 use electronic solder and insure no bare wire extends beyond edge of switch where it might contact item 5 or 6.
9. On assembly avoid getting any grease or grease film on threads of items 1 and 3 where locktite must bond.
10. Insure switch item 12 bottoms in holder item 5 and holder 5 bottoms in housing item 6.
11. After soldering wires to switch, bend wires up and toward center of switch such that washer 10 will center on switch and rest against switch contacts without side load. NOTE - if wires are not positioned correctly, switch holder 5 will not bottom in housing 6.
12. Grease full length of item 2 with Dow 111, especially on area against item 3.



**Model 853**



**Model 853-1**