

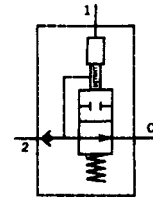
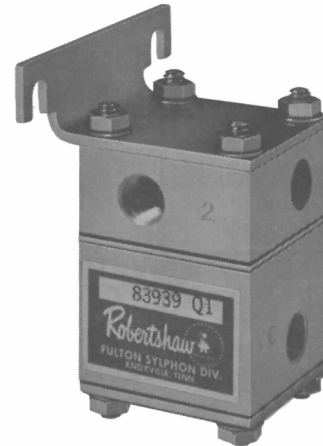
## Lockout Relay 83939-Q

### GENERAL DESCRIPTION

The 83939-Q Series Lockout Relay is used in conjunction with a receiver-indicator relay in an alarm or shutdown system. A lockout relay is needed in a shutdown system to isolate sensors monitoring variables which are unsafe at the time of initial start up, but which may, after an indefinite period of time, reach a safe level. At such time, the lockout relay will transfer and permit the receiver-indicator relay to function normally.

In an alarm system, it is desirable to isolate a monitored variable which has become unsafe so that monitoring can continue on the remaining functions. An "Alarm Silence" relay may be manually actuated, silencing the alarm, and the 83939-Q Lockout Relay associated with the unsafe function will isolate that function and its receiver-indicator will show the unsafe condition until such time as the monitored variable again reaches a safe level. All unaffected alarm points will have remained functional except during the time when the alarm signal was sounding.

The 83939-Q Series is available in modules of as many as five units.



83939-Q1 Shown  
 J.I.C. Symbol

### SPECIFICATIONS

**Construction:**

**Cover and Housing:** ..... Anodized aluminum alloy

**Mounting Bracket and Springs:** ..... Stainless steel

**Poppet:** .....Stainless steel and aluminum with resilient seat

**Diaphragms:** .....Neoprene on Nylon

**Gaskets:** ..... Buna-N on Nylon

**O-Ring:** ..... Neoprene

**Control Pressure:** .... 137.9 to 206.8 kPa (20 to 30 psi)

**Ambient Temperature Operating Range:** .....71° C. (160°F.) maximum

**Maximum Pressure to any Port:** ...517.0 kPa (75 psi)

**CAUTION: Do not exceed maximum pressure ratings.**

**Pressure Required at Port 1 to Transfer Relay:** .... 103.0 137.9 (15 to 20 psi) with control pressure at Port 2.

**Control Medium:** ..... Air, Natural Gas, Nitrogen, CO2

**Filtration (Minimum):** ..... 24 microns

**Moisture:** ..... Dewpoint 8.30° C. (15° F.) less than ambient temperature/ pressure

**Oil Content (Natural Base):** ..... 5 PPM

**Oil Content (Synthetic Base):** ..... 0 PPM

**Hydrogen Sulfide:** ..... 0 PPM

*These are suggested minimums for Control Medium Quality. For operation under more adverse conditions, consult factory.*

**Mounting:** ..... Surface

**Connections:** ..... 1/8" - 27 NPT

**Approximate Shipping Weight:**

83939-Q1 ..... 255 kg. (9 oz.)

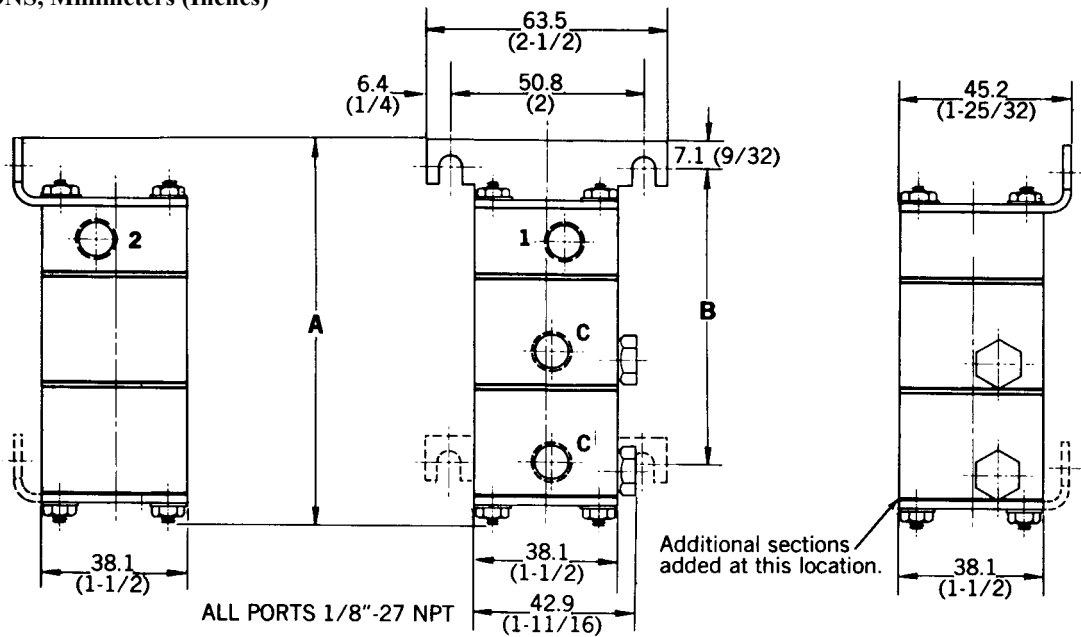
83939-Q2 ..... 368 kg. (13 oz.)

83939-Q3 ..... 482 kg. (17 oz.)

83939-Q4 ..... 595 kg. (21 oz.)

83939-Q5 ..... 709 kg. (25 oz.)

**DIMENSIONS, Millimeters (Inches)**



Assembly	Dim. A, mm (In.)	Dim. B, mm (In.)
83939-Q1	70.5 (2.775)	-
83939-Q2	94.8 (3.733)	--
83939-Q3	123.5 (4.862)	83.5 (3.288)
83939-Q4	151.0 (5.946)	106.8 (4.204)
83939-Q5	176.9 (6.966)	130.0 (5.120)

**Figure 1**

**ORDERING INFORMATION:**

**Specify:**

Model No. 83939-Q

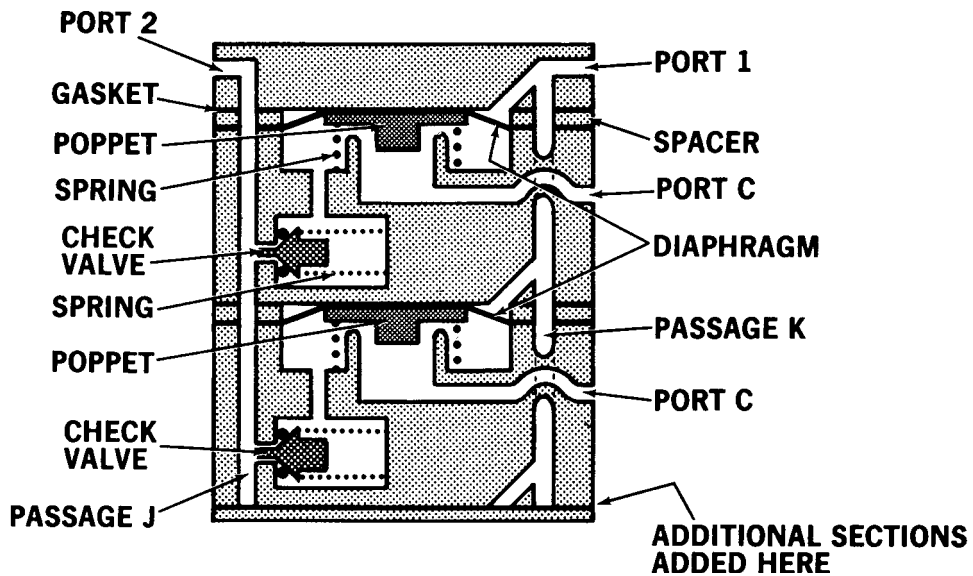
Suffix	Description
1	1 unit
2	2 unit
3	3 unit
4	4 unit
5	5 unit

**INSTALLATION - See Figure 1**

**Mounting:** The No. 83939-Q Series Lockout Relay may be mounted in any position. It should be securely mounted on a panel or other suitable surface using the slots provided in the mounting bracket(s). Care should be taken to prevent any foreign matter from entering the ports when installing.

**Connections:** The relay has from three to seven 1/8" - 27 NPT connections depending upon the model chosen. Typically, port 1 is connected to the device(s) that will cancel the alarm signal, port C to the alarm device(s), and port 2 to the control pressure. (See system schematic for specific port connections.)

Tubing and fittings used to connect the relay must be free of chips, dirt, moisture, or other foreign matter. It is recommended that a non-hardening, "anti-seize" type thread compound be applied to the second or third male thread in moderate amount. Do not allow any compound to be deposited inside the relay. Thread sealing tape is not recommended. Any ports left open to atmosphere should have fittings installed with openings turned downward to prevent foreign matter from entering the relay.



83939-Q2 Illustrated  
Ports and flow passages are shown out of position  
to simplify flow illustration.

Figure 2

### OPERATION - See Figure 2

A typical example of the 83939-Q Series Lockout Relay with two sections is illustrated in Figure 2. One to five sections may be used by removing/adding the number of sections desired and replacing the cover or mounting bracket - see Maintenance section.

With no pressure at port 1 or port C, pressure introduced at port 2 will open the check valve, pass under the open poppet and through port C. If pressure is then introduced at port 1, the force exerted on the diaphragm will cause the poppet to seat and close off the pressure from port 2 to port C.

With a loss of pressure at port 1 and still no pressure at port C, the poppet will remain on seat due to the pressure at port 2 (acting on the poppet) being greater than the pressure at port C. If pressure is then introduced at port C, it will lift the poppet off seat and cause the check valve to close. This will prevent the pressure at port C from supplying another section of the relay. All sections of the relay thus operate independently.

Pressure at port 2 will supply all sections of the relay through passage J; and pressure at port 1 will supply all sections through passage K.

### MAINTENANCE - See Figure 3

**Plug and O-Ring:** Remove plug (detail 12, spring (detail 15) and stem (detail 13). Replace defective parts and reassemble.

### Poppet:

*NOTE: Unit may be disassembled from either end of the relay. However, for this description, the procedure for disassembly will be described from the port 1 end of the relay.*

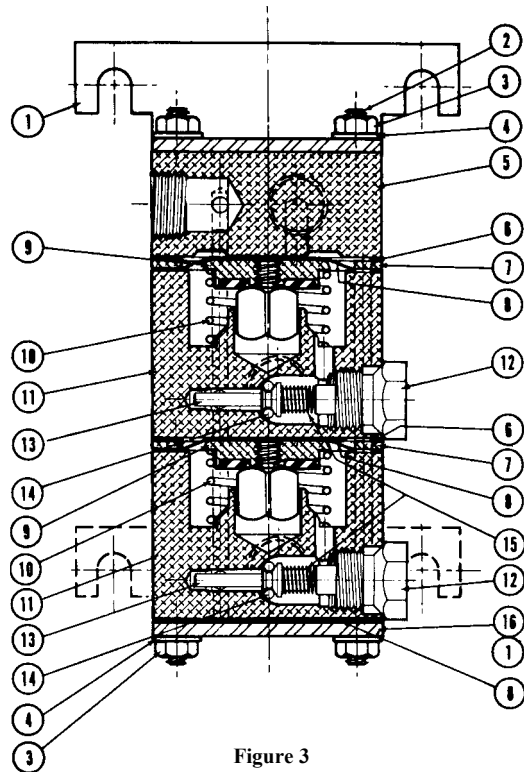
Remove the nuts (detail 3) and washers (detail 4) from each end of the relay. Remove the mounting bracket(s) (detail 1) and cover plate(s) (details 5 and 16). (Remove the diaphragm with the lower cover plate.) Next, pull off the gasket (detail 6), spacer (detail 7), and diaphragm (detail 8) and then remove the exposed poppet (detail 9) and spring (detail 10). If the relay is a multi-section relay, continue to remove the housing (detail 11), gasket, spacer, diaphragm, poppet, and spring until a single section housing is remaining. Replace all defective parts and reassemble in reverse sequence.

### SECTION ADDITION OR REMOVAL

To add or remove sections from a relay, remove the bottom cover plate (detail 16) (as viewed in Figure 3) and diaphragm. Add or remove complete sections (gasket, spacer, diaphragm, etc.) and then replace the bottom diaphragm cover plate. Note that different length studs (detail 2) must be used.

**PARTS LIST**

Det. No.	Description	Prod. Part No.	83939-Q1	83939-Q2	83939-Q3	83939-Q4	83939-Q5
			No. Parts Req'd				
1	Mounting bracket	24637-C2	1	1	2	2	2
2	Stud	See Tabulation	4	4	4	4	4
3	Nut	36602-A1510	8	8	8	8	8
4	Washer	36600-L0709	8	8	8	8	8
5	Cover	25194-B1	1	1	1	1	1
6	Gasket	33665-E1	1	2	3	4	5
7	Spacer	33430-D1	1	2	3	4	5
8	Diaphragm	25198-B1	2	3	4	5	6
9	Poppet	99264-B1	1	2	3	4	5
10	Spring	32567-A1	1	2	3	4	5
11	Housing	25193-B1	1	2	3	4	5
12	Plug	30665-B1	1	2	3	4	5
13	Stem	36200-A1	1	2	3	4	5
14	O-ring	36240-C0005	1	2	3	4	5
15	Spring	24620-B1	1	2	3	4	5
16	Cover plate	33666-A2	1	1	0	0	0



**Figure 3**  
83939-Q2 Shown

Repair kits containing 2 poppets, 2 diaphragms, 3 gaskets and 5 O-rings are available. To order specify Kit Number 82665-B5 and quantity corresponding to model number as tabulated:

Model	Quantity
83939-Q1	1
83939-Q2	1
83939-Q3	2
83939-Q4	2
83939-Q5	3

**Tabulation**

Assembly Number	Number Sections	Det. 2
83939-Q1	1	32320-G1
83939-Q2	2	32320-G2
83939-Q3	3	32320-G3
83939-Q4	4	32320-G4
83939-Q5	5	32320-G5

**Robertshaw**

**U.S.A. and CANADA**

Robertshaw Industrial Products Division

1602 Mustang Drive

Maryville, TN 37801

Phone: (865) 981-3100 Fax: (865) 981-3168

<http://www.robertshawindustrial.com>

**Exports**

Invensys Appliance Controls

2809 Emerywood Parkway

P.O. Box 26544

Richmond, Virginia 23261-6544

Phone: (804) 756-6500 Fax: (804) 756-6561