

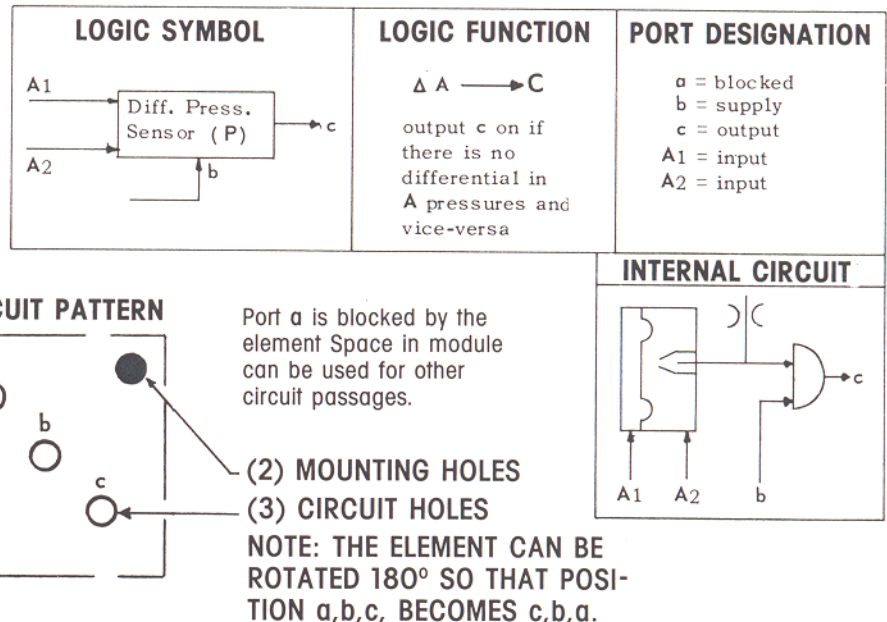
PARTS LIST

ARO PNEUMATIC LOGIC CONTROL LOGIC FUNCTION ASSEMBLY

MODEL 59179-()

FORM 5052
REV. 3/88

DIFFERENTIAL PRESSURE SENSOR - PASSING



DESCRIPTION

The differential pressure sensor (passing) has three inputs and one output. There is an output if there is no difference in A inputs. There is no output when there is a difference in the A inputs. The element has three bottom ports which are designated a,b,c. These ports connect to the circuit board or function base and through passages in the circuit module allow the required circuitry to be performed.

OPERATING PRESSURE

Optimum Range: 50 to 125 P.S.I.G.
Maximum Range: 25 to 150 P.S.I.G.
Maximum ΔA , (A1 - A2) = 25 P.S.I.G.

TEMPERATURE

Optimum range: 32°F to 160°F

RESPONSE TIME

ΔA on \rightarrow c off = 10MS (approx)
 ΔA off \rightarrow c on = 10 MS (approx)

INSTALLATION

Pressure regulation is mandatory for applications where optimum repeatability is required. Filtration is recommended to assure clean dry air supply for optimum repeatability. Lubrication is not required.

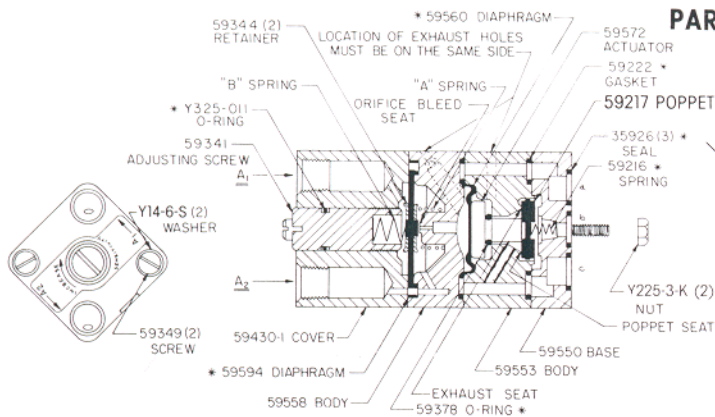
FLOW CHARACTERISTICS

Flow b \rightarrow C @ 100 P.S.I.G. = 9.3 CFM free air: Capacity factor, Cv = 0.14

NOTE: under steady conditions ($\Delta A = 0$) A1 = A2 = b (supply and control pressure must be equal). Always connect the pressure which will be highest under operating conditions to the A1 port. When sensing a decreasing pressure, connect the control pressure to port A2 and the increasing pressure to port A1.

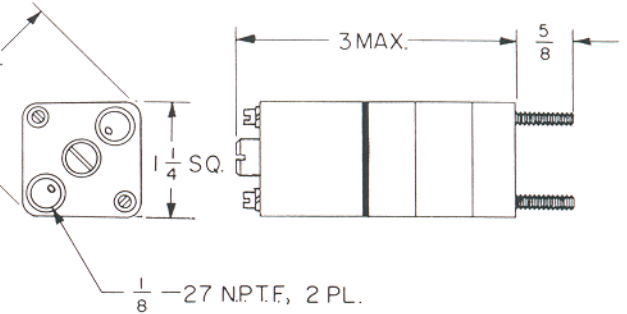
OPERATING DESCRIPTION

When inputs A1 and A2 are equal ($\Delta A = 0$), diaphragm 59594 is lifted off the orifice bleed seat allowing air from port A2 to flow through the orifice bleed seat and act upon diaphragm 59560 forcing actuator 59572 and poppet 59217 downward thus making connection b \rightarrow c. Supply air from port b can then pressurize port c. Therefore c is on. O-ring 59378 closes the exhaust seat. When input A2 decreases (or input A1 increases), diaphragm 59594 is forced against the orifice bleed seat sealing it. Pressure acting upon diaphragm 59560 bleeds out the orifice exhaust and supply pressure forces actuator 59572 and poppet 59217 upward. The poppet seats on the poppet seat shutting off air to port c, and O-ring 59378 opens the exhaust seat connecting c to exhaust. Therefore c is off. The pressure differential (ΔA) at which the element will shift is controlled by the adjustment of adjusting screw 59341. Turning the adjusting screw clockwise will increase the sensitivity causing the element to shift at a lower pressure differential. Turning the adjusting screw counter-clockwise will decrease the sensitivity causing the element to shift at a higher pressure differential. Screws 59349 thread into the base to assemble the element and extend beyond the base for insertion into mounting holes in the circuit board assembly (or function base). Nuts Y225-3-K are used to attach the assembly to the circuit board. 35926 Seals provide sealing between the circuit base plate and element ports.



*Parts included in repair kit.

PARTS LIST



In the event of a malfunction –
 Check adjustment of adjusting screw 59341
 Check for proper pressure connections to A1 and A2
 Check O-ring Y325-011 for rupture or defects
 Check orifice bleed seat for damage
 Check orifice for plugging
 Check 59378 O-ring for rupture or defects
 Check diaphragm 59560 for rupture or defects
 Check diaphragm 59594 for rupture or defects
 Check poppet 59217 for excessive wear or defects
 Check poppet and exhaust seats for damage
 Check 35926 seals and gasket 59222 for imperfections if external leakage occurs

MODEL	"B"	"A"
59179-1	59342-1	59343-1
59179-2	59342-2	59343-2

SERVICE

(Use Repair Kits No.58162 & 59573)

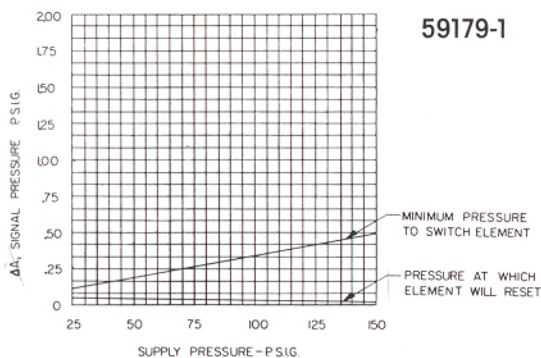
TESTING (element mounted on function base)

Apply pressure at port b only. No output should appear at port c. No leakage from exhaust ports.

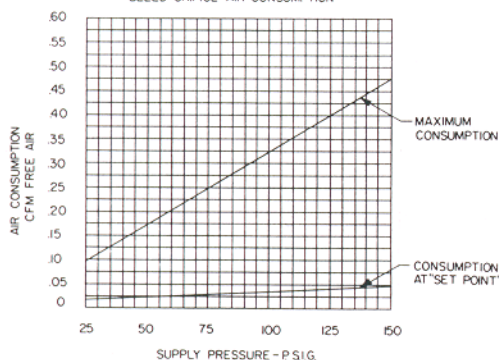
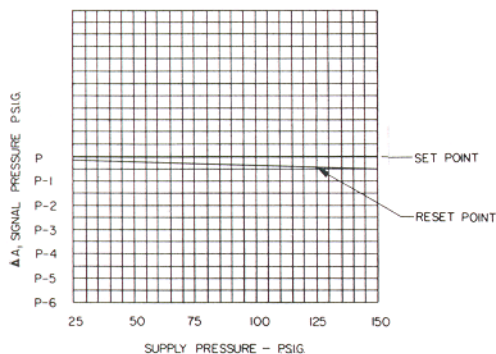
Apply pressure at port b and equal pressures at ports A1 and A2. Output should appear at port c.

Decrease pressure at port A2 (less than 25 P.S.I.G. differential). Output should disappear at port c.

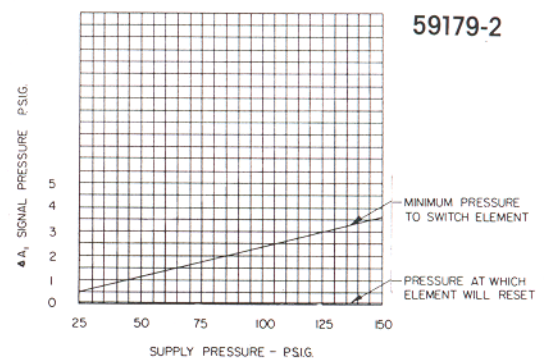
OPERATING CHARACTERISTICS
SET UP FOR MIN. SIGNAL OPERATION



OPERATING CHARACTERISTICS
"SET" POINTS ABOVE MINIMUM



OPERATING CHARACTERISTICS
SET UP FOR MIN. SIGNAL OPERATION



OPERATING CHARACTERISTICS
"SET" POINTS ABOVE MINIMUM

