

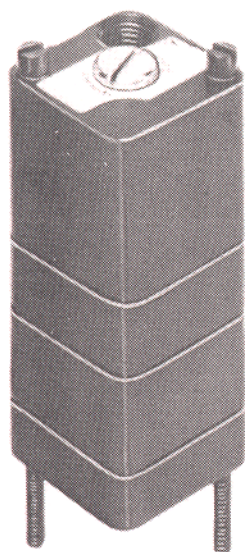
PARTS LIST

ARO PNEUMATIC LOGIC CONTROL LOGIC FUNCTION ASSEMBLY

MODEL 59176-()

FORM 5050
REV. 3/88

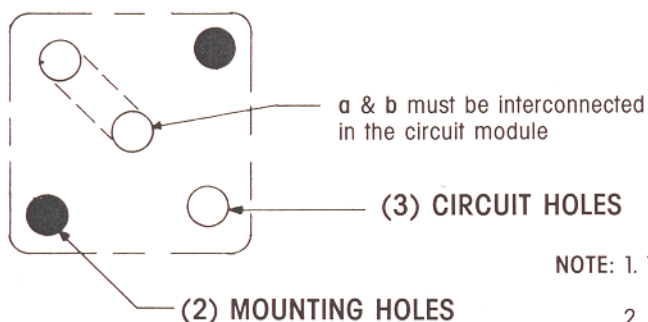
AMPLIFIER VALVE



AMPLIFIER VALVE OPERATION

LOGIC SYMBOL	LOGIC FUNCTION	PORT DESIGNATION
	$\overline{A_1} \rightarrow c$ output c is on if input A1 is off and vice versa	A1 = input a = supply b = supply c = output
VALVE SYMBOL	VALVE FUNCTION	PORT DESIGNATION
	3-way no (passing)	A1 = pilot a = supply b = supply c = output

CIRCUIT PATTERN



NOTE: 1. THE ELEMENT CAN BE ROTATED 180° SO THAT POSITION a,b,c BECOMES c,b,a.
2. Port A1 is located on top of the element in a position corresponding to circuit hole "c".

DESCRIPTION

AMPLIFIER VALVE OPERATION

This element performs the basic logic function "NOT" with the exception that the output "c" is greater than the input A1. 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

59176-1
a,b Supply 50 to 125 PSIG
A1 Signal .24 to 1.5 PSIG (Adjustable range when a,b = 50 PSIG).

59176-2
a,b Supply 50 to 125 PSIG
A1 Signal 1.5 to 15 PSIG (Adjustable range when a,b = 50 PSIG).

TEMPERATURE RANGE

32° to 160°F.

RESPONSE TIME

A1 on \rightarrow c off = 10 MS (approximate)
A1 off \rightarrow c on = 10 MS (approximate)

FLOW CHARACTERISTICS

Flow b \rightarrow c @ 100 PSIG = 16.2 SCFM
Capacity factor C_v = 0.28
Exhaust c \rightarrow Atmosphere

OVERBOARD BLEED

.18 SCFM @ 50 PSIG

INSTALLATION

Filtration (to assure clean, dry air), and pressure regulation are recommended for applications where optimum repeatability is required. Lubrication is not required.

CAUTION:

DO NOT apply pressure in excess of 25 PSIG to part A1.

OPERATING DESCRIPTION

Amplifier valve operation-

When input A1 is off, supply air from port b forces poppet 59217 against the exhaust seat closing it.

Supply air bleeds through the orifice (a must be connected to b) and out the exhaust, and supply air can pressurize port c. Therefore output c is on.

When input A1 is on, diaphragm 59594 is forced against the orifice bleed seat, closing it. Air bleeding through the orifice acts upon diaphragm 59560 forcing actuator 59572 and poppet 59217 downward, which opens output c to exhaust and closes the supply seat. Therefore output c is off (discharged).

For optimum performance, the adjusting screw should be adjusted clockwise until a point is reached where the element will not reset when input A1 is removed, and then adjusted counter-clockwise to a point just beyond where the element will reset when input A1 is removed. This adjusts the element to operate with a minimum A1 input. For operation at an A1 input level greater than minimum, adjust adjusting screw 59341 counterclockwise to the desired sensitivity level.

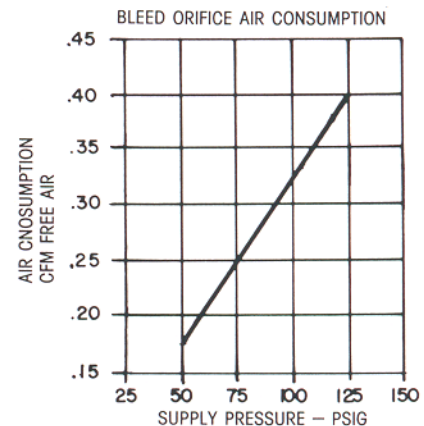
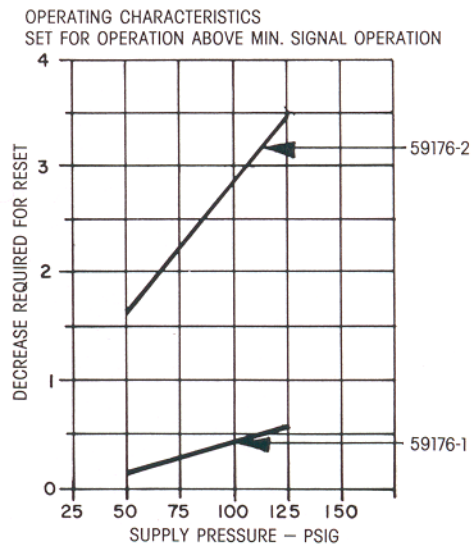
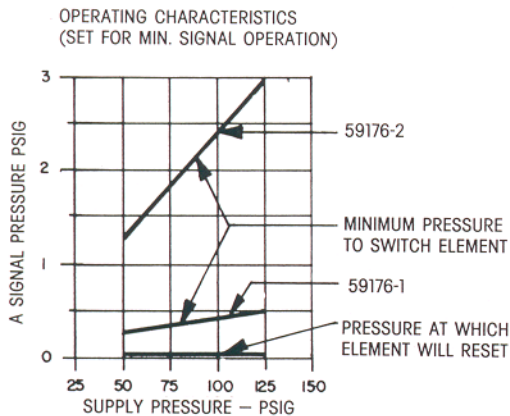
Diaphragm 59594 is designed for low pressure operation and can be damaged by high pressure.

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.

JET SENSOR OPERATION

Operation as a jet sensor is identical to the operation as an amplifier valve.

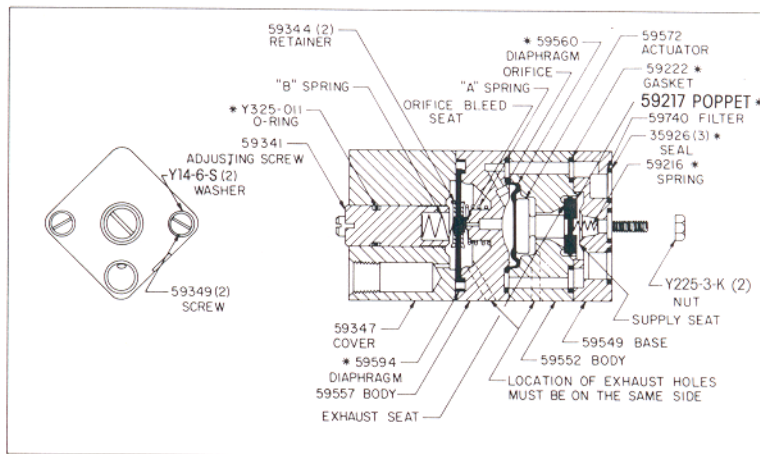
SPRING CHARACTERISTICS CURVES



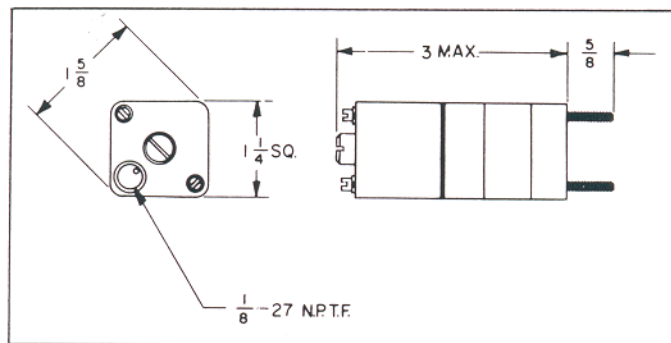
PARTS LIST

MODEL 59176-()

MODEL	"A"	B
59176-1	59343-1	59342-1
59176-2	59343-2	59342-2



*Parts included in repair kit.



SERVICE: Use repair Kits 58162 & 59573

In the event of malfunction

- Check adjustment of adjusting screw 59341
- Check O-ring Y325-011 for rupture or defects
- Check 35926 Seals for rupture or defects
- Check orifice bleed seat for damage
- Check orifice for plugging.

- 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.

TESTING (element mounted on function base)

- Apply pressure at port A1 (less than 25 P.S.I.G.), not output should appear at c.
- Apply pressure at port b, output should appear at c.
- Apply pressure at ports A1 and b, no output should appear at port c. No leakage from exhaust ports.