

# PARTS LIST

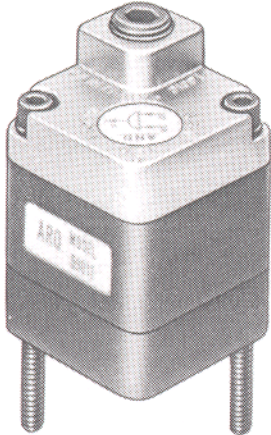
## ARO PNEUMATIC LOGIC CONTROL LOGIC FUNCTION ASSEMBLY

MODEL 59111

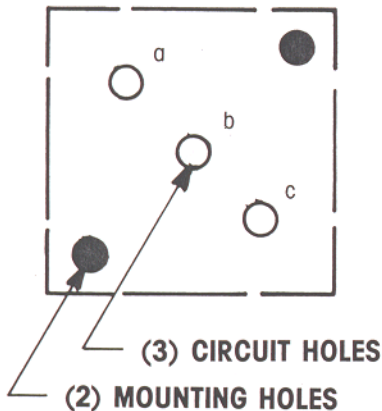
FORM 5044

REV. 3/88

### "AND" LOGIC ELEMENT



#### CIRCUIT PATTERN



LOGIC SYMBOL	LOGIC FUNCTION	PORT DESIGNATION
	$a \cdot b \rightarrow c$ Output c (on) with input at a and b	a = input b = input c = output
VALVE SYMBOL	VALVE FUNCTION	PORT DESIGNATION
	3-way non-passing	a = pilot b = supply c = output

For other Functions see Technical Manual

**NOTE: THIS ELEMENT CAN BE  
ROTATED 180° SO POSITION a,  
b,c BECOMES c,b,a**

#### DESCRIPTION

This element performs the logic function "AND" with two inputs and one output. The element has three bottom ports which are designated a,b,c and are marked on the cover to correspond to their position on the base. These ports connect to the circuit board or function base and through circuit passages in the circuit module allow the required circuitry to be performed.

#### OPERATING PRESSURE RANGE

30 to 150 P.S.I.G.

#### TEMPERATURE RANGE

+32°F to +160°F

#### RESPONSE TIME

"a" On  $\rightarrow$  "c" On 8 ms.

"a" Off  $\rightarrow$  "c" Off 9.5 ms.

#### FLOW CHARACTERISTICS

Flow b  $\rightarrow$  c at 100 P.S.I.G. = 9.3 C.F.M. free air  
Capacity Factor  $C_v = 0.14$

## INSTALLATION

- \* Pressure regulation is recommended for applications where optimum repeatability is required.  
Lubrication is not required.
- \* Filtration is recommended to assure clean, dry air supply for optimum repeatability.
  - \* Mandatory when element is used with timing element on timing circuits.

## OPERATING DESCRIPTION

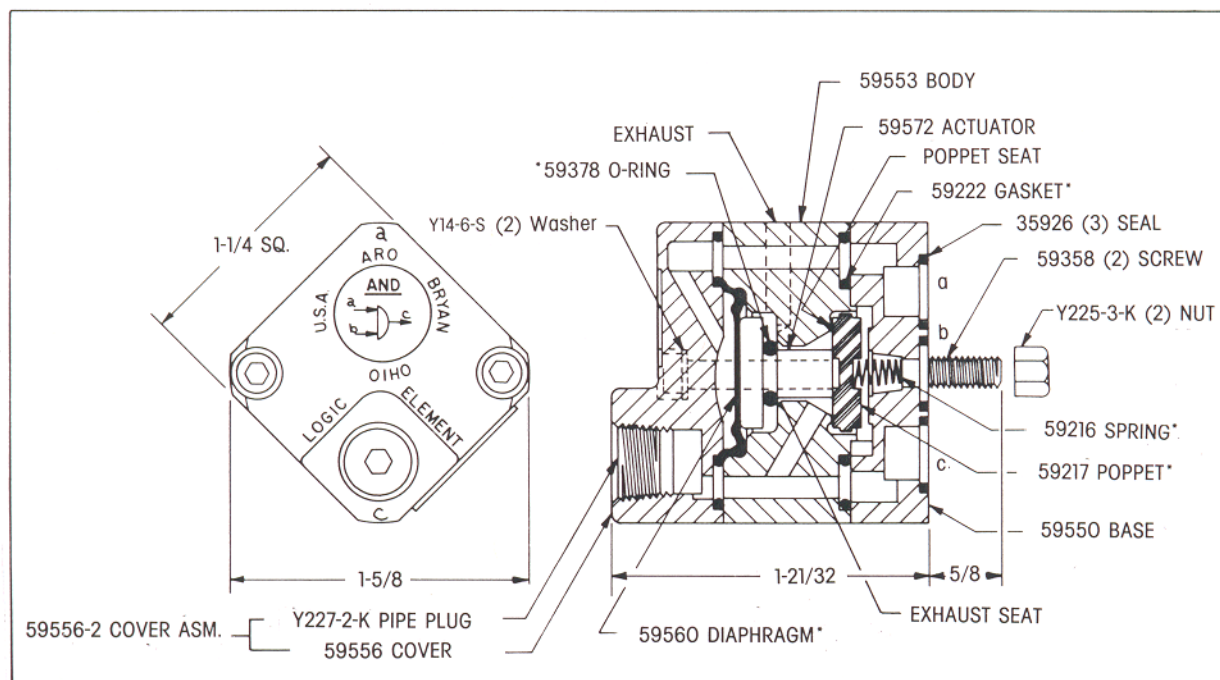
When inputs **a** and **b** are off, output **c** is connected to exhaust.

When input **b** only is on, poppet 59217 is forced against the poppet seat, output **c** is connected to exhaust.

When input **a** only is on, diaphragm 59560 forces actuator 59572 and poppet 59217 downward. 59378 O-ring closes exhaust seat. Output **c** is off, because it is connected to input **b**, which is off. When both inputs **a** and **b** are on, the diaphragm forces the poppet down. Exhaust is closed and poppet seat is open, thereby making connection **b** → **c**. Therefore, the output **c** is on.

Screws 59358 thread into the base to assemble the element, but also extend beyond the base for insertion into the mounting holes in the circuit board assembly (or function bases). Nuts Y225-3-K are used to attach the assembly to the circuit board. 35926 seals provide sealing between the circuit base plate and the element ports.

## PARTS LIST



\*Parts included in Repair Kit

## SERVICE (Use Repair Kit No. 59573)

In the event of a malfunction;

Check diaphragm 59560 for rupture or defects.

Check poppet 59217 for excessive wear or defects.

Check 59378 O-ring for wear or rupture.

Check poppet and exhaust seats for damage.

Check 59222 gasket and 35926 seals for imperfections if external leaking occurs.

Testing (element mounted on function base)

Apply pressure at port **a**, no output should appear at port **c**.

Apply pressure at port **b**, no output should appear at port **c**.

Apply pressure at ports **a** and **b**, output should appear at port **c**, no leakage at exhaust port.