ControlAir Inc.

Installation, Operation, and Maintenance Instructions

MITE 85
Snap-Acting 3-Way Valve with Two Trip Points

GENERAL

The MITE 85 is an instrument consisting of two basic units:

(1) a 3-way valve and

(2) a pilot operator

An increasing pressure signal to the pilot operator at port "**A**" opens the 3-way valve to supply the outlet (port "**I**" open to port "**H**").

A decreasing pressure signal at port "**A**" shuts the 3-way valve to vent the outlet (port "**G**" open to port "**H**").

3-WAY VALVE

The valve consists of three ports:

(1) "**G**" - vent port: this port should always be vented.

(2) "**H**" - outlet port: this is the common port and its pressure should never exceed the supply pressure at "**I**".

(3) "**I**" - supply port: this pressure supply port should be limited to 50 PSIG.
(Except 120 PSIG on high pressure model).
Note: this port also supplies pressure to the supply pilot valve "**B**".

This 3-way valve is controlled by the pilot operator. When shut, outlet port "**H**" is vented through vent port "**G**"; and when open, outlet port "**H**" is pressurized through supply port "**I**".

PILOT OPERATOR

The operator consists of four basic segments:

(1) Cam - The cam (PC 16) is modulated by a spring opposed diaphragm. The diaphragm receives the operator pressure signal via port "**A**". The operator signal pressure at port "**A**" may be as high as 150 PSIG, however, the modulating pressure range for the cam is as noted in Table 2 of the drawing.

(2) Supply Adjustment "**B**" - The supply pilot valve (PC 15), when actuated by the modulating cam (PC 16), provides a pressure signal to open the 3-way valve. The pressure source for this supply pilot valve is routed from supply port "**I**" of the 3-way valve. An optional manually operated supply cartridge (PC 31) is available.

(3) Vent Adjustment "**C**" - The vent pilot valve (PC 14), when actuated by the cam, vents a pressure signal to shut the 3-way valve. An optional manually operated vent cartridge (PC 30) is available.

(4) Diaphragm Operator - The diaphragm operator (PCS 10, 11 & 12) uses the pressure signal from either supply pilot "**B**" to open or vent pilot "**C**" to shut the 3-way valve.

The pilot operator takes the operator pressure signal at port "**A**" to fully stroke the cam between the pressure ranges selected from Table 2 of the drawing. The supply adjustment "**B**" is adjusted to open the 3-way valve on an increasing pressure signal at port "**A**". There is a minimum dead band between the open trip pressure and the shut trip pressure. This dead band is a function of instrument friction, supply pressure at port "**I**" and the amount of bleed allowable through vent adjustment "**C**". This dead band is approximately 10 percent of the supply adjustment "**B**" setting.

ADJUSTMENT PROCEDURE

The open and close set points for the MITE 85 are obtained as follows:

(1) Connect the operator signal pressure source at port "**A**".

(2) Connect the 3-way valve supply source at port "**I**".

(3) Connect a pressure gauge at the outlet port "**H**".

(4) Loosen locknuts on both the supply adjusting screw "**B**" and the vent adjusting screw "**C**".

(5) Turn both "**B**" and "**C**" approximately 2 turns counter-clockwise.

(6) Increase operator signal pressure at "**A**" until the pressure required to open the 3-way valve is reached; hold this pressure.

(7) Turn "**B**" clockwise slowly until the 3-way valve opens and pressure is observed at the outlet port "**H**".

(8) Decrease operator signal pressure at "**A**" until the pressure required to shut the 3-way valve is reached; hold this pressure.

(9) Turn "**C**" clockwise slowly until the 3-way valve shuts and outlet port "**H**" is vented.

(10) Repeat steps (6) and (8) above to insure proper operation; make minor adjustments at "**B**" and "**C**" if required.

(11) Without disturbing the "**B**" and "**C**" settings, tighten locknuts.

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