FAIRCHILD 24XC SERIES M/P CONVERTERS

AC CONTROL UNIT

Installation, Operation and Maintenance Instructions

GENERAL INFORMATION

The 24XC Series M/P Converters allows continuous adjustment of regulator set point and provides for various adjustment times for full range operation.

SPECIFICATIONS

Environmental Requirements

Continuous Operation ..... 0°F to 100°F (-17.8° to 32.8°C)

Intermittent Operation ..... 0°F to 150°F (-17.8° to 65.5°C)

Electrical Requirements

Motor Voltage ..... 115V AC, 60 Hz
230V AC, 60 Hz, 230V AC, 50 Hz
24V AC, 60 Hz, 115V AC, 50 Hz

PERFORMANCE CHARACTERISTICS

Tables 1 and 2 include performance characteristics for the following regulators:

- Model 10E
- Model 16
- Model 80E
- Model 81E

Table 1. Full Range Adjusting Time (Seconds)

Regulator Model	Pressure Ranges							Motor RPM
	2	5	Vacuum to 10	20	30	60	100	
10E					270 135 90 68			2 4 6 8
16			210 105 70 52					2 4 6 8
80E				132 66 44		132 66 44	141 71 47	2 4 6
81E	141 71 47 35	180 90 60 45		129 65 43 32		129 65 43 N/A	135 68 45 N/A	2 4 6 8

Performance Characteristics (continued)

Table 2. Regulator Characteristics

Regulator	Pressure Ranges psig [BAR] (kPa)	Flow SCFM[1]	Flow m³/Hr	Exhaust SCFM[2]	Exhaust m³/Hr
10E	0-30 [0-2.0] (0-210)	40	68	5.5	9.4
16 [3]	Vac-10[Vac-0.7](Vac-70)	2.5	4.3		
80E	All Ranges	14	23.8	2.5	4.3
81E	All Ranges	50	85	5.5	9.4

[1] 100 psig [7.0 BAR] (700 kPa) pressure @20 psig [1.5 BAR] (150 kPa) set.
[2] Downstream pressure 5 psig [.35 BAR] (35 kPa) above set.
[3] At 29" Hg vacuum.

OPERATING PRINCIPLES

The AC Control Unit consists of a permanent magnet motor with gear box connected through a coupling to a threaded control screw which compresses the positive bias spring of a Model 10E, 16, 80E, or 81E Regulator. Limit switches switch off current to the instant START/STOP motor when a maximum or minimum pressure is reached. Electrical connections are made to the terminal block inside of the motor cover. For more information see Figure 1. below.

Motor speed can be selected to assure optimum adjustment rates for specific applications.

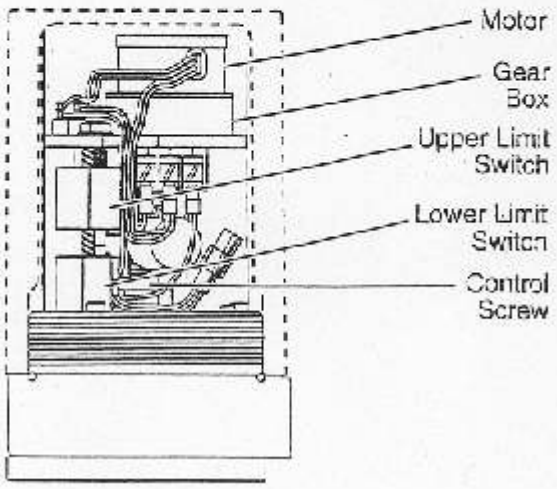

Figure 1. AC Control Unit

ELECTRICAL CONNECTIONS

The regulator bottom plate contains a .875 diameter hole for insertion of a 1/2 inch conduit fitting (not supplied). Electrical connection to the regulator should be made through the conduit connector. A single pole double throw (SPDT) switch should be connected in the hi side of the AC line so that motor operation can be reversed. Use 22 AWG wire or larger for wiring to the terminal block. For more information, see Figure 2. below.

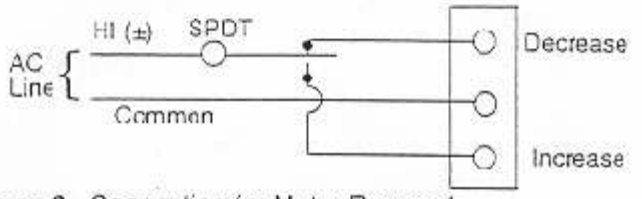

Figure 2. Connection for Motor Reversal

The Continuous Motor is mounted on the top plate of the motor assembly. Wiring to the unit is made to terminal block through a 1/2 - 1/4 NPT conduit fitting in the base of the housing. The units as configured at the factory are wired so that connections to the motor are wired to the normally closed terminals of the limit switches. Customer connections are made to the normally open terminals of the limit switches. For more information, see Figure 3. below.

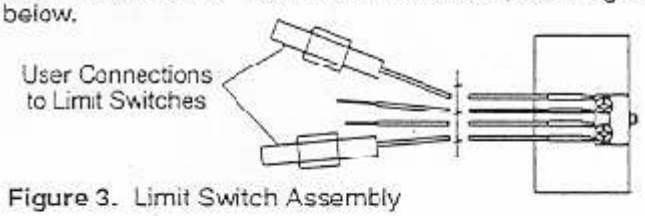

Figure 3. Limit Switch Assembly

OPERATION

Operation of the external SPDT switch so as to connect the Hi side of the AC line to the left terminal (1) of the terminal block will cause regulator output pressure to increase. For more information, see Figure 4. below.

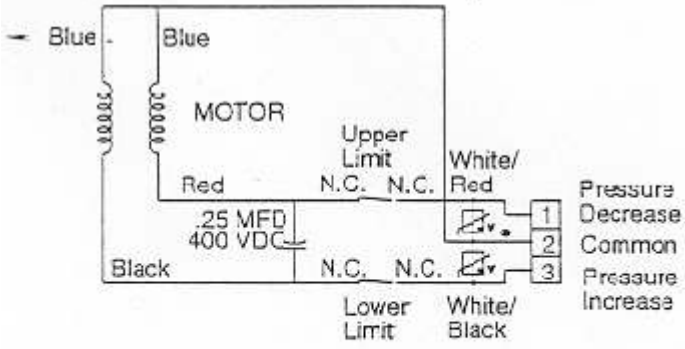

Figure 4. AC Control Unit Motor Schematic

POTENTIOMETER CONNECTIONS

An optional potentiometer can be provided so that a feedback voltage proportional to the range screw travel is available to the customer. The potentiometer is accessed through the conduit fitting in the base of the housing.

The Potentiometer resistance is 1000 OHMS. It is rated for 2 Watts maximum power input. The wiring connection to the potentiometer is shown in Figure 5. below.

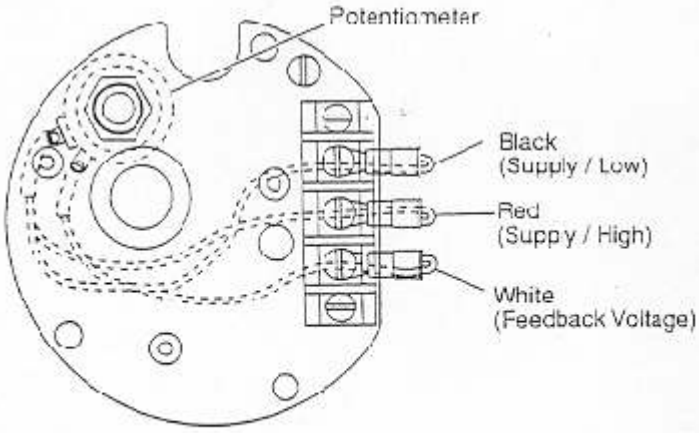

Figure 5. Lower Plate Assembly

ADJUSTMENTS

Low and Hi limit switches can be adjusted by turning the adjusting screw on the top plate of the motor assembly, after first removing the cover. Decals indicate the direction in which to turn the screw in order to increase high and low limiting output pressures from the regulator. For more ,see Figure 6. below

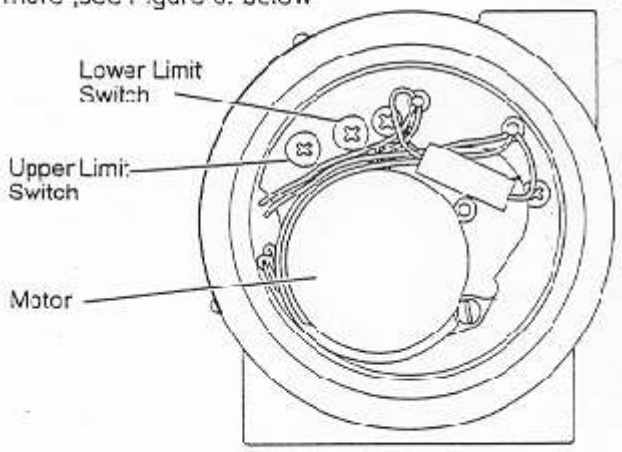

Figure 6. Limit Switch Adjustment

LEGAL NOTICE:

The information set forth in the foregoing Installation, Operation and Maintenance Instructions shall not be modified or amended in any respect without prior written consent of Fairchild Industrial Products Company. In addition, the information set forth herein shall be furnished with each product sold incorporating Fairchild's unit as a component thereof.

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