

# INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS FOR FAIRCHILD 24CC( ) M/P CONVERTERS (CONTINUOUS MOTOR IN COMMERCIAL ENCLOSURE)

## GENERAL INFORMATION

The Model 2400 motorized regulator allows continuous adjustment of regulator set point and provides for various adjustment times for full range operation.

### Specifications

#### Model 24CC

### ENVIRONMENTAL

#### AC Control Unit

Continuous Operation .....	0-100°F (-17.8-32.8°C)
Intermittent Operation .....	0-150°F (-17.8-65.5°C)

### ELECTRICAL

#### AC Control Unit

Motor voltage .....	115V AC, 60 HZ
Motor voltage options .....	230V AC, 60 HZ 230V AC, 50 HZ 24V AC, 60 HZ 115V AC, 50 HZ

#### Power consumption

Model 30, 81 .....	3 watts (max.)
Model 80 .....	5 watts (max.)

### PERFORMANCE

#### Full Range Adjusting Time (seconds) AC Control Unit

REG MODEL	PRESSURE RANGE							MOTOR RPM	
	psi	2	5	10	20	30	60		100
	[BAR]	.13	.33	.7	1.3	2.0	4.0		7.0
	(kPa)	13	33	70	130	200	400	700	
MODEL 30		193		256		226	285	256	2
		93		128		113	143	128	4
		65		85		75	95	N/A	6
		43		64		56	71	N/A	8
MODEL 80				150		148	156		2
				75		74	78		4
				50		49	52		6
MODEL 81		153	186		150	148	156		2
		73	93		75	74	78		4
		52	62		50	49	52		6
		39	47		38	N/A	N/A		8

## Regulator Characteristics

Regulator	Pressure Ranges (psig)	Flow		Exhaust	
		SCFM	m <sup>3</sup> /HR	SCFM	m <sup>3</sup> /HR
30	All ranges	30	51	2.0	3.4
80	All ranges	14	23.8	2.5	4.3
81	All ranges	50	85	5.5	9.4

1 100 psig (700 kPa) pressure, 20 psi (140 kPa) set  
2 Downstream pressure 5 psig (35kPa) above set point.

## PRINCIPLES OF OPERATION

The motorized pressure regulator 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 30, 80, or 81 regulator (Figure 1). 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.

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

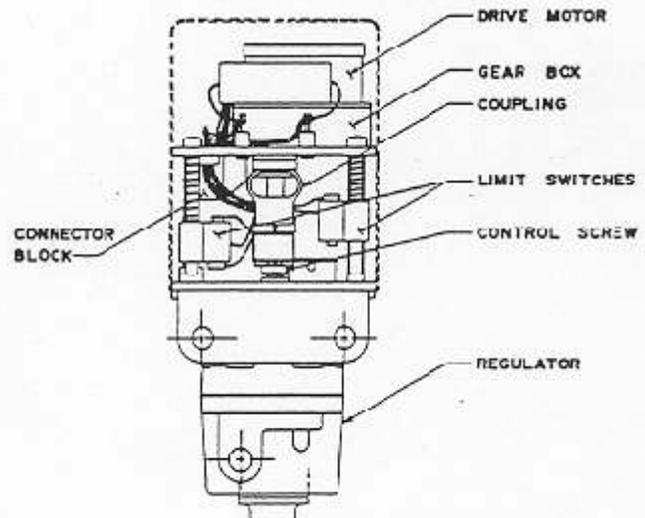


Figure 1

Motor reversal is accomplished by applying power between the common terminal of the terminal block and the alternate motor winding (both windings are wired to terminals on the block).

The Model 24CC Series M/P Converters are identified in accord with the following description and variations.

Catalog Number	24C	80	3	3	06	0	0
Basic Model	_____						
2400 in standard Commercial Housing	_____						
Control Unit	_____						
Continuous AC	(C)	_____					
Regulator Model	_____						
Model 30	_____						_____
Model 80	_____						_____
Model 81	_____						_____
Voltage	_____						
115vAC 60Hz	(1)	_____					
230vAC 60Hz	(2)	_____					
24vAC 60Hz	(3)	_____					
230vAC 50Hz	(4)	_____					
115vAC 50Hz	(5)	_____					
Pressure Range	_____						
psig [BAR] (kPa)	_____						
0-2 [.13] (0-14)	(1)	_____					
.5-10 [.03-.7] (3.5-70)	(2)	_____					
.5-20 [.03-1.3] (3.5-130)	(3)	_____					
.5-30 [.03-2.0] (3.5-200)	(4)	_____					
1-60 [.07-4.0] (7-400)	(5)	_____					
2-100 [.13-7.0] (14-700)	(6)	_____					
0-5 [0-.33] (0-35)	(7)	_____					
Motor Speed (rpm)	_____						
2	(02)	_____					
4	(04)	_____					
6	(06)	_____					
8	(08)	_____					
Blank Field (Enter 0)	_____						
Commercial Enclosure (Enter 0)	_____						
*For BPST thread on regulator, add "U" to model number; e.g., 30U							

Specifications and principles of operation for the Models 30, 80 and 81 regulators are included in the IOM's for the respective regulators.

## MAINTENANCE

The regulator is easily disassembled for the occasional cleaning or removal of foreign matter. Before this is done, however, shut off valve upstream of the regulator to prevent escape of air when regulator is disassembled. There is no need to remove the regulator from the pipe line; remove two No. 10-32 screws on the bottom of the unit and pull out the inner valve assembly. Wash inner valve assembly with solvent exercising care to avoid damaging diaphragm and valve facings. Replace assembly carefully. The vent hole in the bonnet should be kept clear. A slight flow of air through this hole is necessary for the proper operation of the regulator. The adjusting screw should be lubricated with Molycote type "G" grease.

### CAUTION

(Avoid such solvent as acetone, carbon tetrachloride, trichlorethylene)

## INSTALLATION

The Model 24CC (M/P Converters) may be wall mounted or pipe mounted (2" pipe clamp) by means of the integral bracket containing two mounting holes. The unit should be mounted vertically for drip proof operation.

### Pneumatic Connections (Figure 2)

Clean all pipe lines to remove dirt and scale before installation is made. When installing pipe or tube fittings into the unit it is preferable to use teflon dope as a sealant if pipe compound is used.

Apply minimum amount of pipe compound to male threads of air line only. Start with third thread back and work away from end of line to avoid possibility of getting compound into regulator. Install regulator in air line; body is fitted with a 1/4" NPT for inlet and outlet connections of Model 81, 1/4" NPT for Model 30 and 1/8" NPT for Model 80 (standard out).

Inlet and outlet connections are labelled (look for arrows denoting direction of flow on underside of unit) and should be tightened securely. Avoid undersized fittings that will limit flow through the regulator and cause pressure drop downstream.

**NOTE:** The Model 80 and 81 regulators must be used on oil free air. The use of a filter to remove dirt and entrained liquid in the air line ahead of the regulator is required for correct performance. If an air line lubrica-

tor is used, it must be located downstream beyond the regulator in order to avoid interference with the regulator performance. Instrument air is not required for Model 30 regulator.

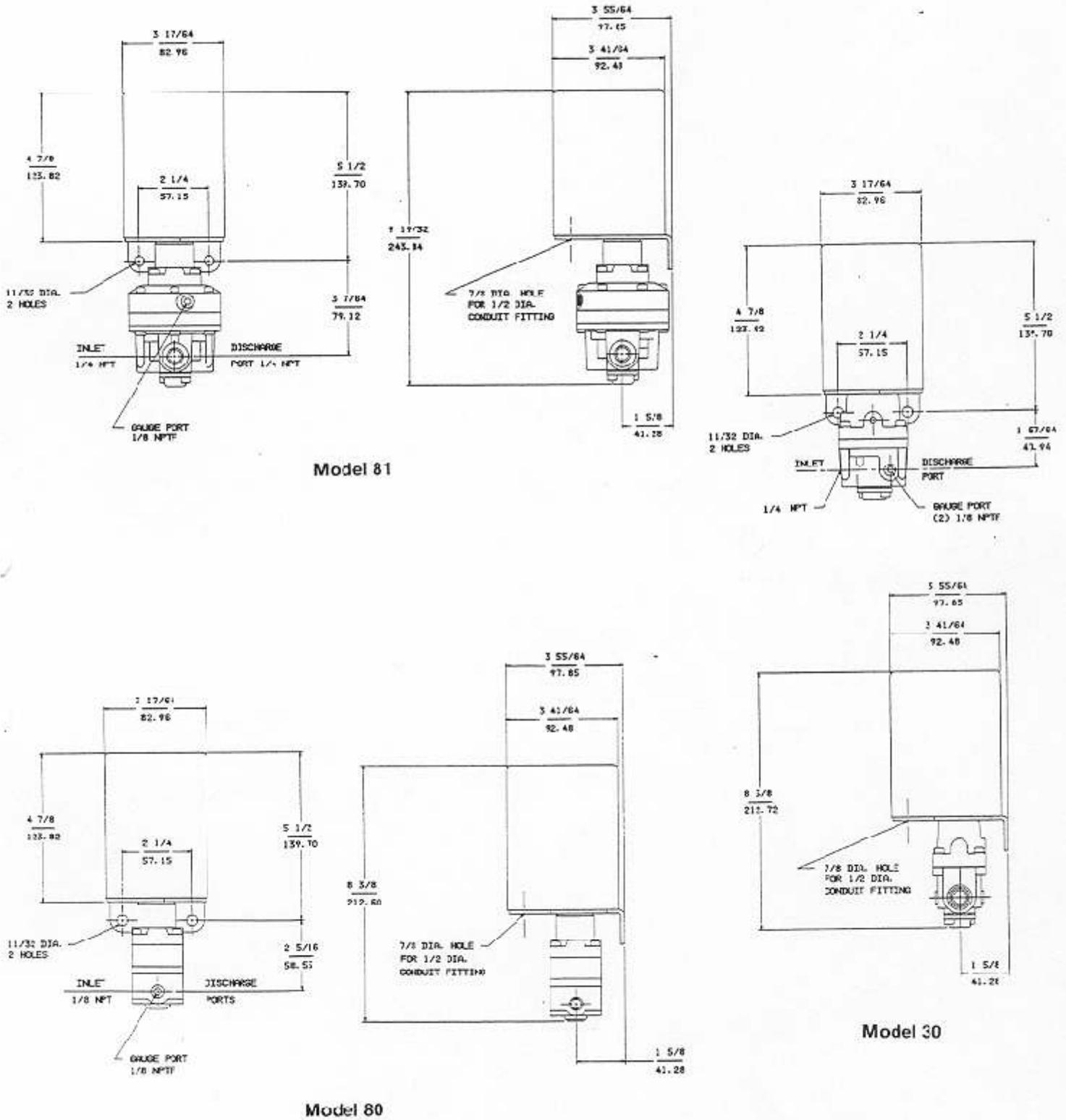


Figure 2

24CC 30		2	4	04	00	RANGE		PART NO.		MOTOR PART NO.	
1	115V AC 60 HZ	1	PSI	[BAR]	(kPa)	EE-15742-30212	2	See	2	See	
2	280V AC 60 HZ	2	1/2-10	[.03-.7]	(3.0-70)	EE-15742-30222	4	Table	4	Table	
3		4	1/2-30	[.03-2.0]	(3.0-200)	EE-15742-30232	6	Page 6	6	Page 6	
4		5	1-60	[.07-4.0]	(7.0-400)	EE-15742-30242	8		8		
6		6	2-100	[.13-7.0]	(13-700)	EE-15742-30252					

Identifies an M/P controller with the following characteristics:

Model 30 Voltage 230V AC 60 HZ  
 Regulator Range 1/2-30 Psig  
 Regulator EB-15742-30232  
 Motor EA-15693-04

24CC 80		1	5	06	00	RANGE		PART NO.		MOTOR PART NO.	
1	115V AC 60 HZ	3	1/2-20	[.03-1.3]	(3.0-130)	EB-15775-30431	2	See	2	See	
2	280V AC 60 HZ	5	1-60	[.07-4.0]	(7.0-400)	EB-15775-80441	4	Table	4	Table	
3	24V AC 60 HZ	6	2-100	[.13-7.0]	(13-700)	EB-15775-80451	6	Page 6	6	Page 6	
4	230V AC 50 HZ						8		8		
6	115V AC 50 HZ										

Identifies an M/P controller with the following characteristics:

Model 80 Voltage 115V AC 60 HZ  
 Regulator Range 1-60 Psig  
 Regulator EB-15775-80441  
 Motor EA-15691-06

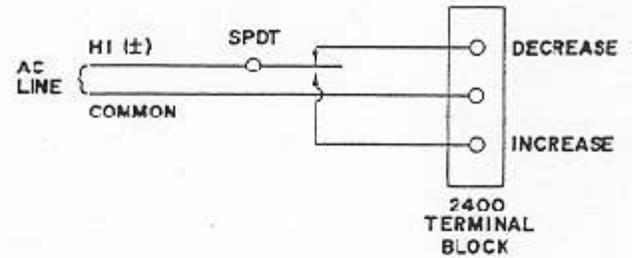
24CC 81		6	7	0E	00	RANGE		PART NO.		MOTOR PART NO.	
1	115V AC 60 HZ	1	0-2	[0-.13]	(0-13)	E3-15776-81312	2	See	2	See	
2	230V AC 60 HZ	3	1/2-20	[.03-1.3]	(3.0-130)	E3-15776-81332	4	Table	4	Table	
3		5	1-60	[.07-4.0]	(7.0-400)	E3-15776-81342	6	Page 6	6	Page 6	
4		6	2-100	[.13-7.0]	(13-700)	E3-15776-81352	8		8		
6		7	0-5	[0-.33]	(0-33)	E3-15776-81322					

Identifies an M/P controller with the following characteristics:

Model 30 Voltage 230V AC 60 HZ  
 Regulator Range 1/2-30 Psig  
 Regulator EB-15742-30232  
 Motor EA-15693-04

### Electrical Connections AC Control Unit

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 22AWG wire or larger for wiring to the terminal block (Figure 3).



### ADJUSTMENT

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 (Figure 4). Decals indicate the direction in which to turn the screw in order to increase high and low limiting output pressures from the regulator.

### MODEL 2400 WIRING

Figure 3

### 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. (see Figures 3 and 5)

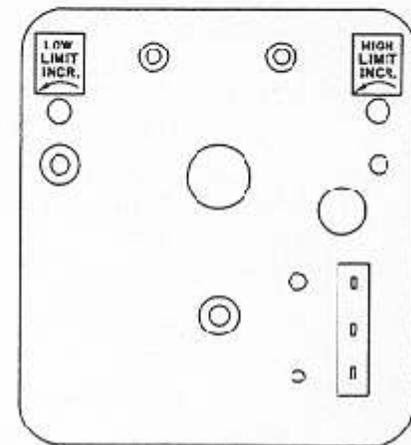


Figure 4

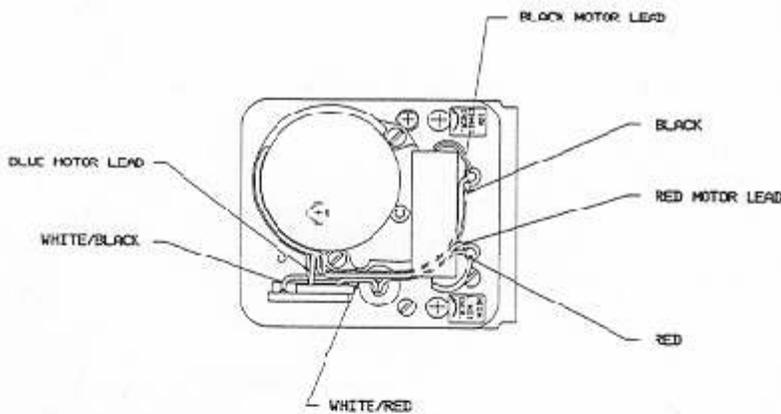
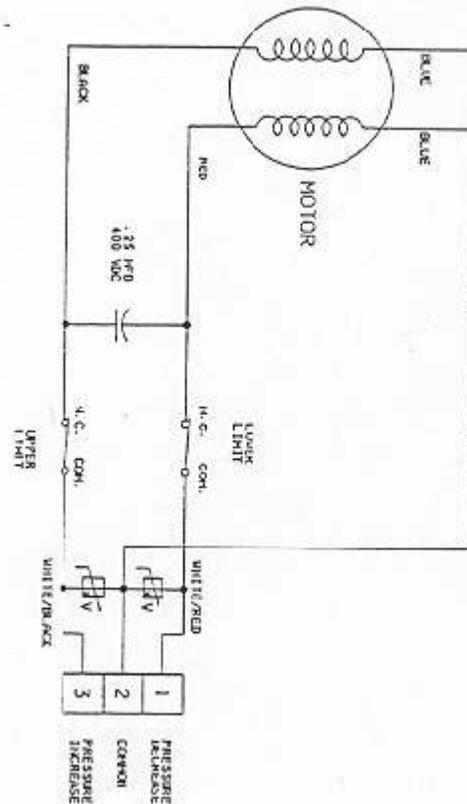


Figure 5



## SERVICE KIT INSTALLATION

### Motor Drive Disassembly for Model 24CC

1. Remove Cover Retaining Screw (1A) and Cover (1).
2. Loosen set Screw (9A) holding flexible Coupling (9) to Motor (3) shaft. Push starting Capacitor (2) away from Motor (3).
3. Turn the limit switch adjusting Screws (4) counterclockwise until they are free of the limit switch Assembly (13). Remove the Screws (4A) from the top Plate (5). Remove the hold down Spring (8).
4. Remove the Nut and Screw (3A and 3B) holding the Motor (3) to the top Plate (5) and remove the Motor (3). Note the location of the wires in the harness Assembly (12A) on the limit Switch Assembly (13) and remove the wires from the limit switch terminals.
5. Remove the three Screws (4A, 4B, 4C) holding the top Plate (5) to the Standoffs (7, 7B, 7C) and remove the top Plate (5).
6. Remove the Thrust Washer (7A) on top of the Flexible Coupling (9). Loosen the Set Screw (9A) holding the Flexible Coupling (9) to the Range Screw ( ). Remove the Flexible Coupling (9) and Spring Washer (10).
7. Slice the lower Limit Switch Assembly (13A) up and off the Standoff (7C).
8. Remove the Guide Bar Assembly (12) from the Range Screw ( ).
9. Slice the upper Limit Switch Assembly (13) up and off the Standoff (7). Remove Bushing (7D) from the Standoff (7B).
10. Turn the unit upside down, remove the three Screws (19) and remove the bottom Plate Assembly (16).
11. Proceed to service kit installation instructions for specific regulator located on pages 6, 8, and 10 of this IOM.

### Motor Drive Assembly for Model 24CC

1. Remove the range screw from the regulator and lubricate threads and ball tip with Molykote 6. Reassemble range screw. Place the bottom plate Assembly (16) on the adaptor Plate (18). Hold the bottom Plate Assembly (16) to the Adaptor Plate (18) and turn the unit upside down. Install three Screws (19) to hold bottom Plate Assembly (16) to the Adaptor Plate (18). Turn the unit to the upright position.
2. Install Bushing (7D) on the right rear Standoff (7B) (facing front of the Model 2400).
3. Slide the upper Limit Switch Assembly (13) over the right rear Standoff (7). The limit switch should be on the inside of the standoff with the actuator button facing up.
4. Lubricate the portion of the guide bar assembly which contacts the right screw and install the Guide Bar Assembly (12) on the Range Screw ( ) shaft, so that the limit switch actuator lever (flat spring) is on the bottom of the Guide Bar Assembly (12).
5. Slide the lower Limit Switch Assembly (13) over the left rear Standoff (7C), so that the limit switch faces the inside of the Model 2400 with the actuator button facing down.
6. Secure Spring Washer (10) and install on the Range Screw ( ) shaft curved side down.
7. Install the Flexible Coupling (9) on the Range Screw ( ) shaft so that it compresses the Spring Washer (10) to one

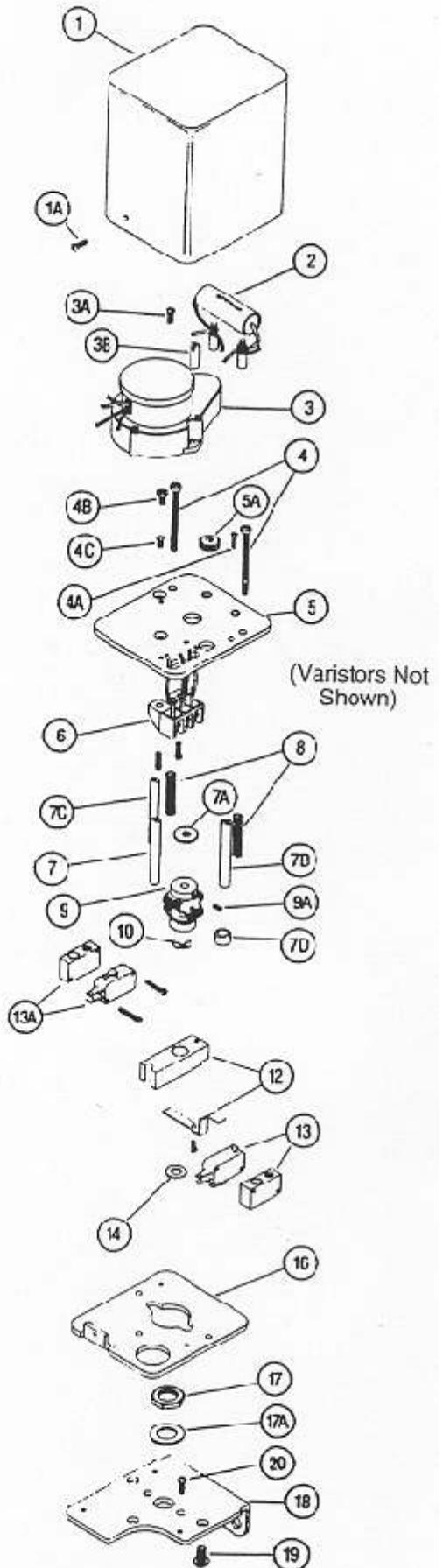
half its free standing height. Tighten Set Screw (9A) securely to the flat of range Screw Shaft ( ).

8. Place the Thrust Washer (7A) on top of the flexible Coupling (9).
9. Install the top Plate (5) on the Standoffs (7, 7B, 7C) and secure with three Screws (4A, 4B, 4C).
10. Guide the Motor (3) output shaft through the top Plate (5) and Thrust Washer (7A) into the Flexible Coupling (9).
11. Using Nut and Screw (3A and 3B), install Motor (3) on top Plate (5).

**NOTE:** Make sure that there is no gap between the Flexible Coupling (9) and the Thrust Washer (7A) or between the Thrust Washer (7A) and the top Plate (5). Make sure that the flat on the Motor (3) shaft is lined up with the Set Screw (9A) on the Flexible Coupling (9). Tighten the Set Screw (9A) on the flat of the Motor (3) shaft.

12. Place the limit switch hold down Spring (8) between the Limit Switch Assembly (13) mounting blocks and the top Plate (5).
13. Insert the adjusting Screws (4) through the top Plate (5) and the hold down Spring (8) and thread into the limit switch Assembly (13) mounting blocks.
14. Connect the wires in the Harness Assembly (12A), according to the wiring diagram (Figure 2). Replace Snap Bushing (5A) in top Plate (5). Run Harness Assembly (12A) wires through the Bushing (5A) before connections are made.
15. Adjust the limit switches for the specific application.
16. Install the Cover (1) and cover retaining Screw (1A).

Index	Part No.	Description
1	EB-15557-( )	Cover
1 A	EB-11182-3	Screw
2	See Table	Capacitor
3	See Table	Motor
3 A	EB-11182-4	Screw
3 B	EB-15567	Nut
4	EB-1032-02	Adj. Screw
4 A	EB-11182-3	Screw
4 B	EB-8223-4	Screw
5	EB-15546	Top Plate Assembly
5 A	EB-15547	Snap Eushng
6	EB-15551	Term Block
7, 7B, 7C	EB-15553	Standoff
7 A	EB-15560	Thrust Washer
7 D	EB-15625	Bushing
8	EB-15569	Spring
9	EB-15558-1	Flex Coupling Assembly
9 A		Set Screw
10	EB-15566	Spring Washer
12	ED-15565	Guide Bar Assembly
13	EB-15545-6	Low Limit Switch Assy.
13 A	EB-15545-5	High Limit Switch Assy.
14	EB-15565	Thrust Ring (80F, 81F)
16	EB-15554	Lower Plate
17	EB-5204	Bushing Nut (80F, 81F)
17 A	EB-5205	Washer (80F, 81F)
18	FR-15555	Adaptor Plate
19	EB-11182-3	Screw
20	EB-1032-6	Screw



MOTOR ITEM #	CAPACITOR ITEM #	SPEED (RPM)	MOTOR VOLTAGE	VARISTOR
EB-15691-02	035-IPI-009	2	115V AC 60 HZ	260-IPI-010-01
-04	035-IPI-009	4		
-06	035-IPI-009	6		
-08	035-IPI-009	8		
EB-15693-02	EB-15699	2	230V AC 60 HZ	260 IPI-010-03
-04	EB-15699	4		
-06	EB-15699	6		
EB-15695-02	EB-15701	2	24V AC 60 HZ	260 IPI-010-02
-04	EB-15701	4		
-06	EB-15701	5		
-08	EB-15701	8		
EB-15694-02	EB-15699	2	230V AC 50 HZ	260-IPI-010-03
-04	EB-15699	4		
-06	EB-15699	6		
-08	EB-15699	8		
EB-16553-02	035-IPI-009-1	2	115V AC 50 HZ	260-IPI-010-01
-04	035-IPI-009-1	4		
-06	035-IPI-009-1	6		
-08	035-IPI-009-1	8		

Model 24CC  
Figure 6

## SERVICE KIT INSTALLATION

### Model 30 Service Kit

1. Check parts in the EA-157C3 service kit against the parts marked with an asterisk in the exploded view and the associated table.
2. Remove two screws (20) (page 6) holding the regulator to adaptor plate (18) and remove the adaptor plate from regulator.
3. Remove four screws (3) holding bonnet (2) to body (10). Mark bonnet (2) and body (10) so they can be reassembled properly.
4. Set aside bonnet (2), range spring washer (4) and range spring (5).
5. Remove diaphragm assembly (6) and discard.
6. Remove four screws (7) holding seal plate (8) to body (10).
7. Remove two screws (16) holding retainer plate (14) and cup (15) to body (10).
8. Remove retainer plate (14), cup (15), inner valve assembly (13) and screen (12).
9. Remove seal plate assembly (3) from body (10).

**NOTE:** It will be necessary to lift and twist the plate in order to remove it. Make sure that the aspirator is not damaged in the process of removal.

10. Remove seal plate gasket (9) from body (10) and discard.
11. Using a suitable dowel rod, tap out the seat ring assembly (11) from body (10) and discard.
12. Secure seat ring assembly (11) from service kit and drop into the bottom hole in the body (10), brass end first. Insure that it is seated against the shoulder in body (10).
13. Secure seal plate gasket (9) from service kit and place in body (10), narrow end of hole over the port in the body (10) marked with an arrow and going out of the body.

14. Using four screws (7) secure new seal plate (8) to body (10) with aspirator extending into port identified in step 13.
15. Place filter screen (12) from service kit in the groove in inner valve assembly (13) from service kit. Insert the assembly into the hole in the bottom of the body (10), aligning pintle of the inner valve assembly (13) so that it drops in to seal plate (8) center tube.
16. Tap inner valve assembly (13) so that the brass shoulder is flush with the bottom of the body (10). Place retainer plate (14) over the inner valve assembly (13) aligning it with holes in the body (1).
17. Place retainer cap (15) over the retainer plate (14) and secure to body (10) with two screws (16).
18. Secure diaphragm assembly (6) from service kit and place on body (10) so that the oval cup faces up and the four holes in the diaphragm assembly (6) are aligned with holes in the body (10).

**CAUTION:** Make sure that the hole in the center of diaphragm assembly (6) is directly over the inner valve assembly (13) pintle.

19. Set range spring (5) over the nut on top of diaphragm assembly (6) and set spring cup (4) on top of the range spring (5), range screw recess facing up. Place some Molykote grease in the recess.
20. Place bonnet (2), over body (10) making sure that marks from step 3 are aligned.
21. Using four screws (3), secure bonnet (2) to body (10).
22. Using two screws (20) (page 5), attach regulator to adaptor plate (18).
23. Proceed to instructions on page 5 for motor drive assembly.

Index	Part No.	Description
1	EB-15559	Range Screw
2	EB-1835	Bonnet
3	EB-1032-12	Screw
4	EB-15780-1	Spring Seat
5	EB-7141-( )	Spring
*6	EB-15838-1	Control Diaphragm Assy.**
*6 A	EB-16122-1	Gasket
7	EB-1032-5	Screw
8	EB-15684-1	Seal Plate Assembly**
*9	EB-15644-1	Gasket**
10	See Table	Body**
*11	EB-6070	Seat
*12	EB-6017	Screen
*13	EB-1820	Inner Valve Assembly
14	EB-6027	Retainer Plate
15	EB-7136	Retainer Cap
16	EB-1032-6	Screw

\*EA-15703 Service Kit Components

\*\*Number depends on Range

PORT SIZE	BODY
1/4 NPT	EB-15614-1
3/8 NPT	EB-15614-2
1/4 BSPT	EB-15614-3
3/8 BSPT	EB-15614-4

FOR 100 PSIG RANGE MODEL 30  
USED ON THE MODEL 2400.

Index	Part No.	Description
6	EB-16029-1	Control Diaphragm Assembly
8	EB-15844-1	Seal Plate Assembly
9	EB-15841-1	Seal Plate Gasket
11	EB-6070	Seat Ring Assembly
12	EB-6017	Screen Filter
13	EB-1820	Inner Valve Assembly

EB-16031-1 Diaphragm Plate (Not Shown)

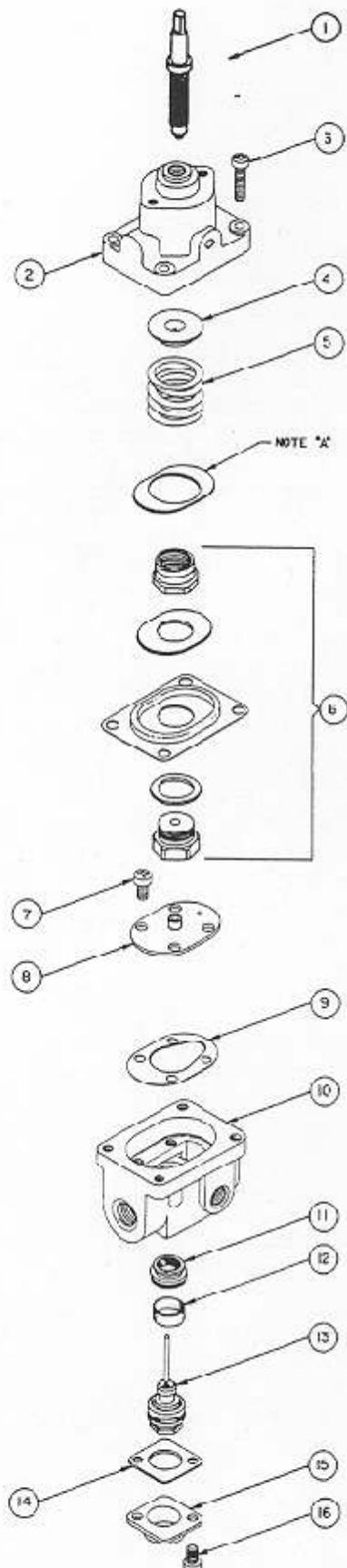


Figure 7  
Model 30 Exploded View

## SERVICE KIT INSTALLATION

### Model 80 Service Kit

1. Check parts in the EA-15704 service kit against the parts marked with an asterisk in the exploded view and the associated table.
2. Remove Nut (17) and Washer (17A) (page 6) holding regulator to Adaptor Plate (18) and remove adaptor plate from regulator.
3. Remove range screw.
4. Remove four Bonnet Screws (15). Set aside range spring and spring cap.

**CAUTION: Spring (13) is in compression. Screws should be removed carefully, allowing the spring to expand.**

Set aside Spring (13), after removing Bonnet Assembly (2), Diaphragm Assembly (4), Pilot Body Assembly (7), Diaphragm (12), Spacer Ring (9), and Diaphragm Assembly (8) from body and Valve Assembly (10). Remove any pipe fittings in body ports.

5. Remove Orifice Assembly (11) and Gasket (21) from Body and Valve Assembly (10).
6. Unscrew Plug (23) from Body (10). Remove and discard Pintle (19) and retain conical Spring (22).
7. Replace O Ring (20) on Plug (23) with O ring from kit. Lubricate with silicone grease. Place Conical Spring (22) wide end down, into cup of Plug (23). Clean Body Assemblies (10) and (7) with a suitable solvent. Blow dry with compressed air.
8. Turn Body (10) over, so that plug end faces up.
9. Place Pintle (19) from kit into plug end of Body (10) valve end up. Hold the pintle securely which extends from the opposite end of Body (10) and insert conical spring (22) and Plug (23) into the plug end of Body (10). Screw the plug (23) into Body (10) until it is tight.

**CAUTION: Insure that short end of Pintle (19) fits into top of conical Spring (22).**

10. Secure Orifice Assembly (11) and Gasket (21) from kit. Place Gasket (21) over threaded portion of Orifice Assembly (11) and screw the assembly into the port on body (10) opposite port marked GAUGE.
11. Place spacer Ring (9) on Body (10) making sure that six holes in the spacer ring match the six holes in Body (10).

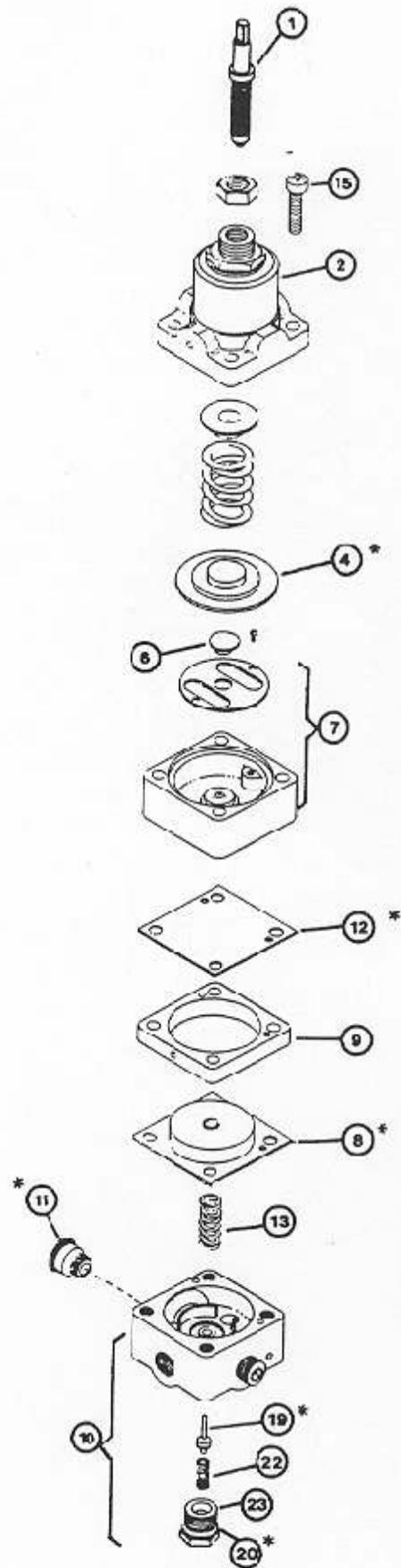
12. Secure Diaphragm (12) from kit and place it on top of spacer Ring (9), making sure that six holes in the Diaphragm (12) match the six holes in spacer ring (9).
13. Place the Pilot Body Assembly (7) on top of Diaphragm (12), making sure that the six holes in the bottom of Pilot Body Assembly (7) match the holes in Diaphragm (12). Check that Anvil (7) is seated in the center hole of the spring plate.
14. Secure Diaphragm Assembly (4) from kit and place it in the recess of the Pilot Body Assembly (7). Place range spring and spring cap on top of Diaphragm Assembly (4).
15. Position Bonnet Assembly (2) over the Pilot Body Assembly (7) so that signal port in the Bonnet Assembly (2) is over the port marked with the arrow pointing into the unit. Reassemble lubricated range screw.

**NOTE: Output port is on the side opposite Spacer Ring (9) which has the vent hole.**

16. Grasp the Spacer Ring (9) firmly, and lift up, being careful that all parts above it remain in alignment. Set the stacked parts aside.
17. Secure Spring (13) from the kit and place it in the cup on Buxy (10) directly over the Pintle (19)
18. Secure Diaphragm Assembly (8) from the kit and place it on top of Spring (13), making sure that holes in the diaphragm match the six holes in Body (10), when the Spring (13) is compressed.
19. Carefully place the assembled stack set aside in step 18 on top of the Diaphragm Assembly (8), making sure large piston is on top and that six holes in the Spacer Ring (9) match the holes in Diaphragm Assembly (15) into the Bonnet Assembly (2), until several threads are engaged on each screw.
20. Carefully tighten opposite screws until Spring (13) is compressed. Caution: insure that the screws do not cut the diaphragm as they are being tightened.
21. Complete tightening of the Screws (15).
22. Insert regulator into Adaptor Plate (18) and fasten with Washer (17A) and Nut (7) (page 6).
23. Proceed to instructions on page 5 for motor drive assembly.

Index.	Part No.	Description
1	EB-15559	Range Screw
2	EB-9536-4	Bonnet Assembly
*4	EB-12191	Diaphragm Assembly
6	EB-9547	Anvil
7	EB-9530-3	Pilot Body Assembly
*8	EB-3681	Diaphragm Assembly
9	EB-3679-1	Spacer Ring
10	EB-3680-1	Body and Valve Assembly
*11	EB-9348-3	Orifice Assembly
*12	EB-12926-1	Diaphragm
13	EB-	Spring
15	EB-1032-28	Screw
18	EB-1120	Nut
*19	EB-13674	Pintle
*20	EB-130 C12-1-70	O Ring
*21	EB-9346	Gasket
22	EB-9212	Conical Spring
23	EB-13676	Plug

\*EA-15704 Kit Components



Model 80  
Figure 8

## SERVICE KIT INSTALLATION

### Model 81 Service Kit

1. Check parts in the EA-12922 service kit against the parts marked with an asterisk in the exploded view and the associated table.
2. Remove nut (17) and washer (17A) (page 6) holding regulator to adaptor plate (18) and remove adaptor plate from regulator. Mark all parts of the regulator, starting from the IN port and working up to the bonnet (1) to facilitate reassembly. Remove any inserts in the IN and OUT ports.
3. Back off range screw assembly (3) to remove compression on range screw.
4. Remove four screws (2) securing bonnet (1) to pilot body assembly.
5. Remove diaphragm assembly (4).
6. Loosen six screws (6) holding pilot body assembly (5) to body assembly (12).

**WARNING: Spring (9) is under compression. Loosen screws (6) carefully so that pilot body (5) separates from body assembly (12).**

7. Lift diaphragm and piston assembly (8) together with spacer ring assembly (7) away from body assembly (12) and set aside.
8. Remove spring (9) and set aside.
9. Remove four screws (19) holding seal plate assembly (10) to body assembly (12).
10. Remove gasket (11) from body assembly (12).
11. Remove two screws (18) holding retainer cap (17) and retainer plate (16) to body assembly (12) and set aside retainer cap (17) and retainer plate (16).
12. Tap out the inner valve assembly (14) and screen (15) from body assembly (12).
13. Using a dowel rod, tap out ring seat (13) from body assembly (12).
14. Secure ring seat (13) from the service kit and insert in the bottom hole of body assembly (12), brass end first. Tap with a dowel rod to assure that ring seat (13) is seated against the shoulder in body assembly (12).
15. Insert screen (15) from the service kit into the groove in the inner valve assembly (14) secured from the service kit. Insert the assembly pintle first into the bottom hole of the body assembly (12). Press until brass shoulder is flush with the bottom of body assembly (12).
16. Align the holes in the retainer plate (16) with the two holes in the bottom of the body assembly (12). Align the holes in retainer cap (17) with the holes in the retainer plate (16) and secure both to the body assembly (12) with two screws (18).

17. Secure gasket (11) from the service kit and place in body assembly (12), aligning four holes in gasket (11) with holes in body assembly (12).
18. Place seal plate (10) over gasket (11), brass seal tube facing up, aligning four holes in seal plate (10) with holes in gasket (11). Pintle on the inner valve assembly (14) extends through the seal plate tube and the ball bearing in the seal plate is over the OUT port.
19. Fasten seal plate (10) to body assembly (12) with four screws (19).
20. Secure diaphragm assembly (8) and ring assembly (7) from service kit. Place diaphragm assembly (8) into ring assembly (7) (hexagonal nut on orifice side of the ring) so that the diaphragms overlap top and bottom of ring assembly (7). Align six screw holes and two passage holes in diaphragm assembly (8) with holes in ring assembly (7).
21. Place spring (9) over the seal tube on seal plate (10).
22. Place pilot body assembly (5) over the assembly in step 21, so that six holes in pilot assembly (5) are aligned with the six holes of assembly in step 21 and the passage hole in diaphragm assembly (8) which is next to the drilled passage in the bottom well of assembly (5) is directly over the orifice in the ring assembly (7).

**CAUTION: Make sure that the anvil (4A) is not lost while manipulating assembly (5).**

23. Drop six screws (6) into the holes in pilot body assembly (5).
24. Place assembly of step 24 over spring (9), aligning marks placed on pilot body assembly (5) and body assembly (12) in step 2.
25. Tighten six screws (6) alternately so that diaphragms are not damaged by the screws.
26. Place diaphragm assembly (4) into well in pilot body assembly (5).
27. Place bonnet assembly (1) on pilot body assembly (5), aligning marks placed on the regulator in step 2, and aligning four holes in assembly (1) with the four holes in assembly (5). Secure bonnet assembly (1) to pilot body assembly (5) using four screws (2). Insert regulator into adaptor plate (18) and fasten with washer (17A) and nut (17) (page 5).
28. Proceed to instructions on page 5 for motor drive assembly.

Index.	Part No.	Description
1	EB-9536-4	Bonnet Assembly
2	EB-1032-12	Screw
3	EB-15559	Range Screw
*4	EB-12191	Diaphragm Assembly
4 A	EB-9547	Anvil
5	EB-12224	Pilot Body Assembly
6	EB-1032-24	Screw
*7	EB-16014-1	Space Ring Assembly
*8	EB-15869-1**	Control Diaphragm Assy. (20, 60, 100 PSI)
9	EB-12227	Spring
10	EB-15739-1	Seal Plate Assembly
*11	EB-6053	Gasket
12	EB-14960-1	Body Assembly
*13	EB-15074-1	Seat Assembly
*14	EB-15578-1	Inner Valve Assembly
*15	E3-6017	Screen
16	E3-6027	Retainer Plate
17	E3-7136	Retainer Cap
18	EB-1032-6	Screw
19	EB-1032-5	Screw

\*EA-15705-1 Kit Components

For EA-15705-2, Control Diaphragm Assembly is  
EB-15869-2

\*\*EB-15869-2 for 2, 5 PSI

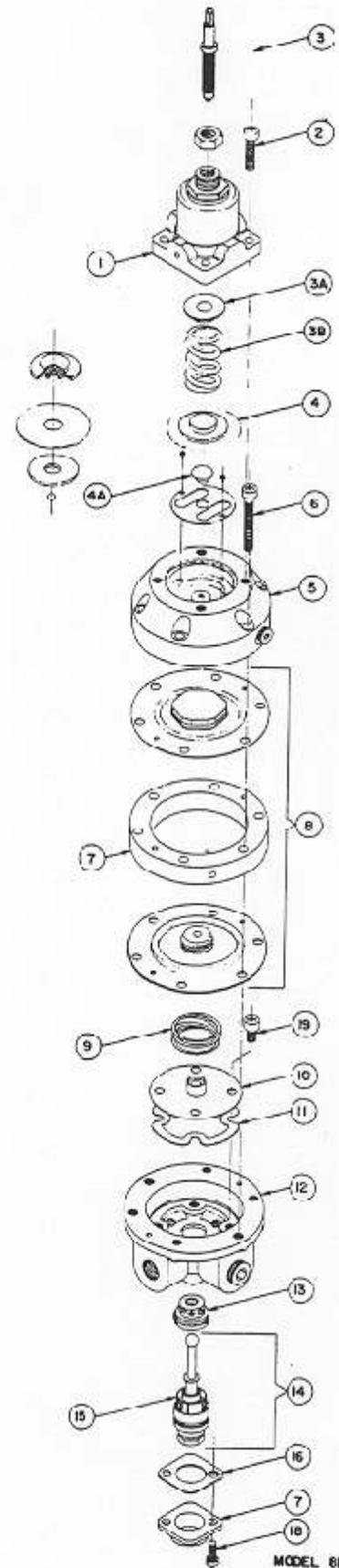


Figure 9

### TROUBLE SHOOTING

PROBLEM	CHECK
Leakage	Body screw tightness Diaphragm
High Bleed	Relief pintle and relief seat for damage or contamination
Difficult to adjust	Adjusting screw, seal ring lubrication

### REPAIR PARTS LIST

Service kits are available for repair of regulators as follows:

EA-15703	Model 30	2, 10, 30, 60 PSI [.13, .7, 2.0, 4.0, BAR] (14, 70, 210, 420 kPa) Range
EA-15037	Model 30	100 PSI [7.0 BAR] (700 kPa) Range
EA-15704	Model 80	
EA-15705-1	Model 81	

### 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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FM NO. 25571

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