

DeZURIK®

**Type 01
Air-O-Motor Actuator
Operator's Manual**

810-98

Valves

Supplementary Installation Data

CAUTION:

If valve is used in a water system, the water must be adequately treated to prevent the formation of rust, carbonates, and other undesirable deposits on valve parts. Otherwise, deposit build ups can damage packing, seats or other internal valve parts.

NOTE: Packing Checks

- Be sure packing flange nuts are at least finger-tight.
- During system testing and start up, check for packing leakage. If leakage occurs, tighten packing nuts until it stops.
- Periodically check and tighten packing nuts for non spring-loaded packing.

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TYPE 01 AIR-O-MOTOR ACTUATOR

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TYPE 01 AIR-O-MOTOR ACTUATOR

Table 1 - Model Number Information for Spring Type, Base Mounted

Air-O-Motor		Spring Range (psig)	Ordering Numbers			
Size	Type		Air-O-Motor	See NOTE	Air-O-Motor with Top Mounted Handwheel	See NOTE
01-9	Lever	3-15	8610107-101-01-001-01	(686898-061) (01-9SLO-61)	8610107-101-02-001-01	(686898-062) (01-9SLO-62)
01-9	Lever	6-30	8610107-102-01-001-01	(686898-063) (01-9SLO-63)	8610107-102-02-001-01	(686898-064) (01-9SLO-64)
01-11	Lever	3-15	8610108-101-01-001-01	(686898-085) (01-11SLO-85)	8610108-101-02-001-01	(686898-086) (01-11SLO-86)
01-11	Lever	6-30	8610108-102-01-001-01	(686898-087) (01-11SLO-87)	8610108-102-02-001-01	(686898-088) (01-11SLO-88)
01-13	Lever	3-15	8610109-101-01-001-01	(686898-037) (01-13SLO-37)	8610109-101-02-001-01	(686898-038) (01-13SLO-38)
01-13	Lever	6-30	8610109-102-01-001-01	(686898-043) (01-13SLO-43)	8610109-102-02-001-01	(686898-044) (01-13SLO-44)
01-9	Thrust	3-15	8610107-202-01-001-01	(686898-073) (01-9STO-73)	8610107-202-02-001-01	(686898-074) (01-9STO-74)
01-9	Thrust	6-30	8610107-201-01-001-01	(686898-075) (01-9STO-75)	8610107-201-02-001-01	(686898-076) (01-9STO-76)
01-11	Thrust	3-15	8610108-202-01-001-01	(686898-095) (01-11STO-95)	8610108-202-02-001-01	(686898-096) (01-11STO-96)
01-11	Thrust	6-30	8610108-202-01-001-01	(686898-097) (01-11STO-97)	8610108-202-02-001-01	(686898-098) (01-11STO-98)
01-13	Thrust	3-15	8610109-201-01-001-01	(686898-041) (01-13STO-41)	8610109-201-02-001-01	(686898-042) (01-13STO-42)
01-13	Thrust	6-30	8610109-202-01-001-01	(686898-047) (01-13STO-47)	8610109-202-02-001-01	(686898-048) (01-13STO-48)

NOTE: Former ordering numbers are shown in parentheses for reference only. When wall mounting is required, change the -001- in the above ordering numbers to -002- and the wall mounting kit will be supplied. Example: 861108-101-01-002-01 is a Type 01-11 lever actuated, 3-15 psig spring range Air-O-Motor actuator with wall bracket.

Table 2 - Model Number Information for Springless Type, Base Mounted

Air-O-Motor		Air Regulator and Gage Option	Ordering Numbers			
Size	Type		Air-O-Motor	See NOTE	Air-O-Motor with Top Mounted Handwheel	See NOTE
01-9	Lever	With*	8630111-101-01-001-01	(686936-065) (01-9PLO-65)	8630111-101-02-001-01	(686936-109) (01-9PLO-109)
01-9	Lever	Without†	8630111-103-01-001-01	(686936-107) (01-9PLO-107)	8630111-103-02-001-01	(686936-110) (01-9PLO-110)
01-11	Lever	With*	8630112-101-01-001-01	(686936-089) (01-11PLO-89)	8630112-101-02-001-01	(686936-116) (01-11PLO-116)
01-11	Lever	Without†	8630112-103-01-001-01	(686936-114) (01-11PLO-114)	8630112-103-02-001-01	(686936-117) (01-11PLO-117)
01-13	Lever	With*	8630113-101-01-001-01	(686936-059) (01-13PLO-59)	8630113-101-02-001-01	(686936-123) (01-13PLO-123)
01-13	Lever	Without†	8630113-103-01-001-01	(686936-121) (01-13PLO-121)	8630113-103-02-001-01	(686936-124) (01-13PLO-124)
01-9	Thrust	With Top Load*	8630111-201-01-001-01	(686936-077) (01-9PTO-77)	8630111-201-02-001-01	(686936-111) (01-9PTO-111)
01-9	Thrust	With Bottom Load*	8630111-203-01-001-01	(686936-078) (01-9PTO-78)	8630111-203-02-001-01	(686936-112) (01-9PTO-112)
01-9	Thrust	Without†	8630111-205-01-001-01	(686936-108) (01-9PTO-108)	8630111-205-02-001-01	(686936-113) (01-9PTO-113)
01-11	Thrust	With Top Load*	8630112-201-01-001-01	(686936-099) (01-11PTO-99)	8630112-201-02-001-01	(686936-118) (01-11PTO-118)
01-11	Thrust	With Bottom Load*	8630112-203-01-001-01	(686936-100) (01-11PTO-100)	8630112-203-02-001-01	(686936-119) (01-11PTO-119)
01-11	Thrust	Without†	8630112-205-01-001-01	(686936-115) (01-11PTO-115)	8630112-205-02-001-01	(686936-120) (01-11PTO-120)
01-13	Thrust	With Top Load*	8630113-201-01-001-01	(686936-069) (01-13PTO-69)	8630113-201-02-001-01	(686936-125) (01-13PTO-125)
01-13	Thrust	With Bottom Load*	8630113-203-01-001-01	(686936-070) (01-13PTO-70)	8630113-203-02-001-01	(686936-126) (01-13PTO-126)
01-13	Thrust	Without†	8630113-205-01-001-01	(686936-122) (01-13PTO-122)	8630113-205-02-001-01	(686936-127) (01-13PTO-127)

NOTE: Former ordering numbers are shown in parentheses. When wall mounting is required, follow same procedure as shown below Table 1.

*For use with or without single acting positioner. An air regulator is required to provide a constant loading pressure on one side of the diaphragm opposing the control signal to the Air-O-Motor.

†For use with double acting positioner. Since a double acting positioner alternately pressurizes one side of the diaphragm while de-pressurizing the other side, a constant loading pressure is not required (Air Regulator is not needed).

Pneumatic Valves and Actuators

Addendum (Pneumatic Valve and Actuator Manuals)

CAUTION: Do not exceed the maximum allowable air pressure for actuators as indicated in the following table:

Valve/Actuator Model Number	Maximum Air Pressure
1001	50 psig
1401, 1405*	
1601, 1605*	
1611, 1605*	
1901	
2421	
9101, 9105*	
9201, 9205*	
9131, 9135*	
9501	
01 Actuator	
05 Actuator*	
01 Air-O-Motor	
05 Air-O-Motor	
4705*	
4805*	
4905*	
8105*	
8205*	
8305*	
8605*	
8905*	

- *NOTES: 1. When a GRADUTROL positioner is supplied, the maximum allowable air pressure for the positioner is 25 psig.
2. When type 05 actuator is reverse acting, the maximum allowable air pressure is 35 psig regardless of the valve model on which it is mounted.

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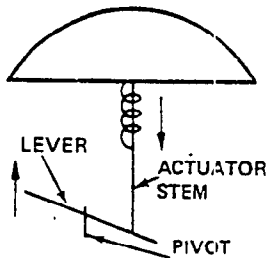


Fig. 3 — Direct Acting Lever Arrangement

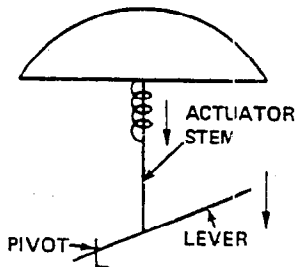


Fig. 4 — Reverse Acting Lever Arrangement

DESCRIPTION

Type 01 Air-O-Motors are power devices which operate on a small air signal from a controller and convert this signal into mechanical motion or force. The force developed can exert either a straight upward or downward thrust, or operate a reversible lever working on a pivot.

Two models are available — thrust or lever. Both models can use a spring or springless type 01 actuator.

LEVER MODELS

Direct or reverse action with a direct acting spring or springless actuator. Reverse action is gotten by connecting the lever so that the pivot is between the actuator stem and the load take-off as shown in Fig. 3.

Lever models provide a wide range of travel selections. Use of holes further out on the lever arm, increases the amount of travel. But, this (increasing the amount of travel) reduces the amount of force supplied. See Table 4 for travels for all lever models, spring or springless actuator, direct or reverse action. Tables 5 and 6 list corresponding forces for the various holes in the lever arm.

THRUST MODELS

Direct action with spring type actuator. Direct or reverse action with springless type actuator. Thrust models are directly coupled to a control element and provide a greater amount of force-per-air-pressure than lever models. Travels and forces for thrust models are given in Tables 1, 3, and 5.

SPECIFICATIONS

Models

Thrust or lever. Thrust and lever models can use either a spring or springless actuator. Thrust models provide more force, but less travel. Lever models provide more travel, but less force. Refer to Tables 5, 6, and 7.

Action

Lever Models: Direct or reverse action with a direct acting spring or springless actuator.

Thrust Models: Direct action with spring type actuator. Direct or reverse action with springless type actuator.

Construction

Both models have steel diaphragm cases, cast iron spring barrels and cast iron yokes. Type 01 *Air-O-Motor* actuator diaphragms are *Neoprene* with a fabric insert. Ambient temperature ranges for *Neoprene* diaphragms is -29°C to 71°C (-20°F to 160°F). Other diaphragm materials available for higher or lower temperatures. *Air-O-Motor* actuator stem is zinc plated steel. The connector clevis is cadmium plated steel. All mounting brackets are cast iron. Lever is steel with eight 10 mm ($3/8''$) dia. holes. Needle bearings are used at critical pivot holes in the lever.

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Mounting

Both models, lever and thrust, are constructed for base mounting. A right angle bracket kit can be ordered if wall or vertical mounting is required. See Model Number Tables for kit information.

Travels

Travels vary with model and size of *Air-O-Motor* actuators. Refer to Tables 3 and 4.

Spring Ranges

Standard ranges are 21-103 kPa (3-15 psig) or 41-207 kPa (6-30 psig). Refer to Tables 6 and 7. Split ranges available by using DeZURIK Positioners.

Air Supply

Maximum air pressure to all Type 01 *Air-O-Motor* actuator diaphragm is 345 kPa (50 psig). All air connections are 1/4 inch N.P.T.

Positioners

Spring-type actuators can be equipped with optional single-acting side mounted valve positioner. Springless actuators can be furnished without positioner; with single-acting side mounted positioner, regulator and gage for air loading constant pressure side; or with double-acting side mounted positioner.

Table 4 - Travels, Lever Models - Spring or Springless, Direct or Reverse Action

Actuator Size	01-9	01-11, 01-13	01-9 Springless
Lever Hole	Travel, mm (in.)		
A	61 (2.42)	82 (3.24)	54 (2.12)
B	82 (3.22)	110 (4.32)	72 (2.85)
C	102 (4.03)	137 (5.40)	91 (3.57)
D	123 (4.83)	165 (6.48)	109 (4.29)
E	144 (5.65)	192 (7.57)	127 (5)
F	164 (6.45)	219 (8.63)	145 (5.72)
G	184 (7.26)	247 (9.72)	163 (6.42)
H	205 (8.08)	274 (10.80)	181 (7.13)

Table 5 - Forces* Springless Air-O-Motor Actuators

Actuator Size	01-9	01-11	01-13	
Actuator Model	Lever Hole	Force kg (lbs.)		
Thrust	-	299 (660)	445 (980)	612 (1350)
Lever	A	138 (305)	206 (455)	284 (625)
	B	104 (230)	154 (340)	213 (470)
	C	82 (180)	122 (270)	170 (375)
	D	68 (150)	102 (225)	141 (310)
	E	59 (130)	88 (195)	118 (260)
	F	50 (110)	77 (170)	107 (235)
	G	45 (100)	68 (150)	95 (210)
	H	41 (90)	61 (135)	86 (190)

*The thrusts are based upon a supply pressure of 18 psig and a constant loading pressure of 3 psig, which results in a differential or overpressure of 15 psig. To determine available thrusts when the differential is other than 15 psig, divide the listed values by 15 and then multiply by the actual differential or overpressure.

Table 3 - Travels, Thrust Models Spring or Springless

Action	Direct or Reverse		
Actuator Size	01-9*	01-11	01-13
Travel, mm (in.)	29 (1.12)	38 (1.5)	38 (1.5)

*Size 01-9 springless actuator has 1" travel.

Table 6 - Force for Lever Model (Direct or Reverse)

Actuator Size	Full Travel												Zero Travel								
	01-9				01-11				01-13				01-9		01-11		01-13				
Spring Range, kPa (psig)	21-103 (3-15)			41-207 (6-30)	21-103 (3-15)			41-207 (6-30)	21-103 (3-15)			41-207 (6-30)	21-103 (3-15)	41-207 (6-30)	21-103 (3-15)	41-207 (6-30)					
Air Pressure, kPa (psig)	124 (18)	241 (35)	345 (50)	241 (35)	345 (50)	124 (18)	241 (35)	345 (50)	241 (35)	345 (50)	124 (18)	241 (35)	345 (50)	241 (35)	345 (50)	-	-	-	-	-	-
Lever Hole	Force kg (lbs.)												Force kg (lbs.)								
A	27 (60)	184 (405)	327 (720)	45 (100)	184 (405)	41 (90)	274 (605)	476 (1050)	68 (150)	274 (605)	57 (125)	379 (835)	658 (1450)	93 (205)	379 (835)	30 (60)	60 (132)	45 (100)	91 (200)	70 (155)	141 (310)
B	21 (46)	138 (305)	245 (540)	34 (75)	138 (305)	29 (65)	206 (455)	361 (795)	52 (115)	206 (455)	43 (94)	284 (625)	499 (1100)	70 (155)	284 (625)	22 (49)	44 (98)	34 (75)	68 (150)	52 (115)	104 (230)
C	16 (36)	111 (245)	195 (430)	27 (60)	111 (245)	25 (55)	163 (360)	288 (635)	41 (90)	163 (360)	34 (75)	227 (500)	397 (875)	57 (125)	227 (500)	18 (39)	35 (78)	27 (60)	54 (120)	43 (95)	86 (190)
D	14 (30)	90 (200)	161 (355)	23 (50)	90 (200)	20 (45)	136 (300)	240 (530)	34 (75)	136 (300)	28 (62)	188 (415)	329 (725)	48 (105)	188 (415)	15 (33)	30 (66)	23 (50)	45 (100)	35 (78)	71 (156)
E	12 (26)	77 (170)	138 (305)	20 (43)	77 (170)	17 (38)	118 (260)	204 (450)	29 (65)	118 (260)	24 (53)	161 (355)	284 (625)	41 (90)	161 (355)	13 (28)	25 (56)	19 (41)	38 (84)	30 (67)	61 (134)
F	10 (23)	68 (150)	120 (265)	17 (38)	68 (150)	15 (34)	102 (225)	179 (395)	25 (55)	102 (225)	21 (47)	141 (310)	249 (550)	34 (75)	141 (310)	11 (25)	23 (50)	17 (37)	34 (74)	27 (59)	54 (118)
G	9 (20)	61 (135)	107 (235)	15 (34)	61 (135)	14 (30)	91 (200)	159 (350)	23 (50)	91 (200)	19 (41)	125 (275)	220 (485)	32 (70)	125 (275)	10 (22)	20 (44)	15 (33)	30 (66)	24 (52)	47 (104)
H	7 (16)	54 (120)	98 (215)	14 (30)	54 (120)	12 (27)	82 (180)	143 (315)	20 (45)	82 (180)	17 (37)	113 (250)	197 (435)	28 (62)	113 (250)	9 (20)	18 (40)	14 (30)	27 (60)	21 (47)	43 (94)

Table 7 - Force for Thrust Model

Actuator Size	Full Travel										Zero Travel										
	01-9				01-11				01-13		01-9		01-11		01-13						
Spring Range, kPa (psig)	21-103 (3-15)			41-207 (6-30)	21-103 (3-15)			41-207 (6-30)	21-103 (3-15)		41-207 (6-30)	21-103 (3-15)	41-207 (6-30)	21-103 (3-15)	41-207 (6-30)						
Air Pressure, kPa (psig)	124 (18)	241 (35)	345 (50)	241 (35)	345 (50)	124 (18)	241 (35)	345 (50)	241 (35)	345 (50)	124 (18)	241 (35)	345 (50)	-	-	-	-	-	-	-	-
Force kg (lbs.)	59 (130)	399 (880)	703 (1550)	100 (220)	399 (880)	66 (145)	594 (1310)	1038 (2290)	147 (325)	594 (1310)	122 (270)	816 (1800)	1428 (3150)	204 (450)	816 (1800)	84 (180)	127 (280)	98 (215)	195 (430)	152 (335)	304 (670)

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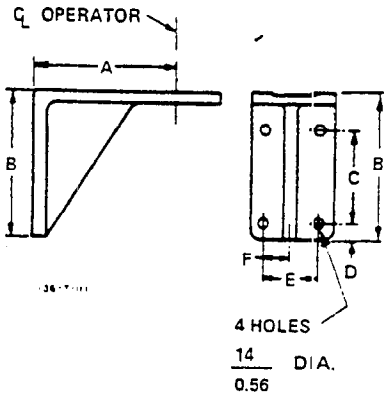


Fig. 5 - Wall Bracket Dimensions (See Table 8)

Table 8 - Wall Bracket Dimensions

ACTUATOR Size	Dimensions, mm (in.)					
	A mm (in.)	B mm (in.)	C mm (in.)	D mm (in.)	E mm (in.)	F mm (in.)
9	140 (5.5)	192 (7.56)	127 (5)	14 (.056)	76 (3)	38 (1.5)
11	191 (7.5)	205 (8.06)	127 (5)	25 (1)	76 (3)	38 (1.5)
13	191 (7.5)	205 (8.06)	127 (5)	25 (1)	76 (3)	38 (1.5)

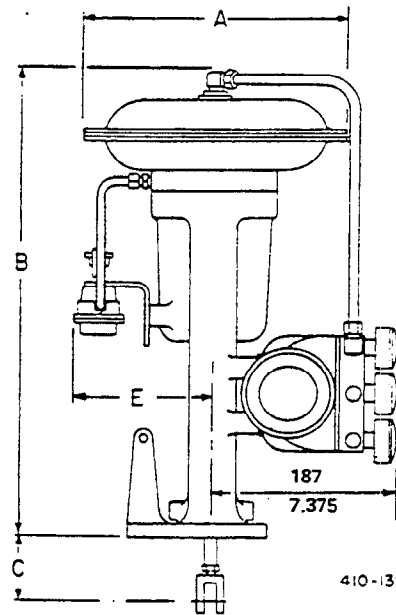


Figure 7 - Springless Model with optional side mounted positioner and air regulator (see Table 9)

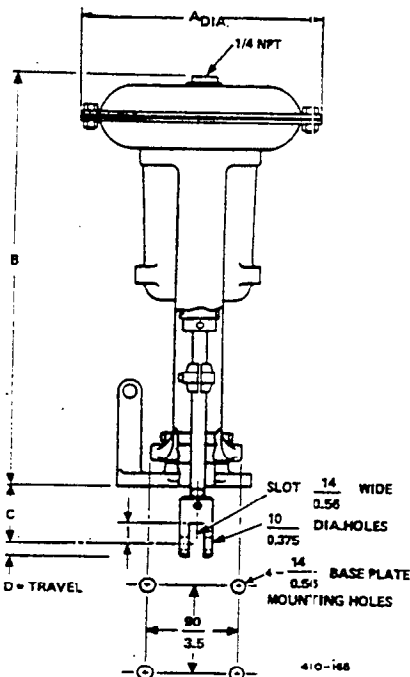


Fig. 6 - Thrust Model (see Table 9)

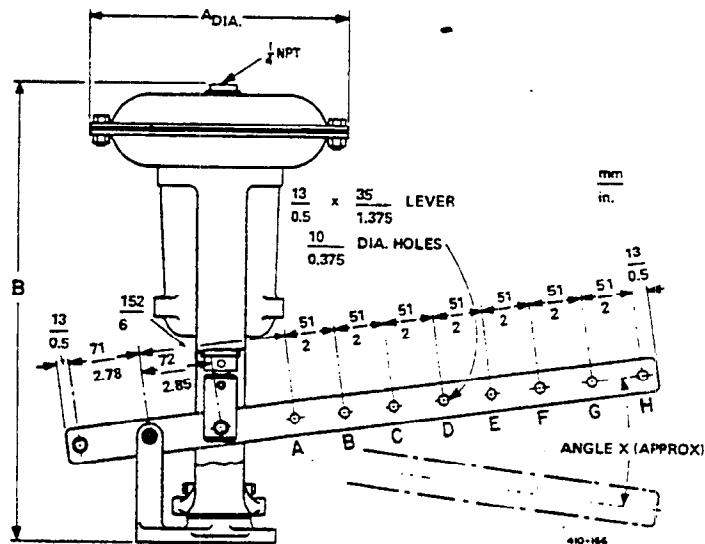


Fig. 8 - Lever Model (see Table 9)

Table 9 - Dimensions, mm (in.), Thrust Models

Actuator Size	A mm (in.)	B		C* mm (in.)	D mm (in.)	E mm (in.)
		Spring mm (in.)	Springless mm (in.)			
9	267 (10.5)	435 (17.13)	476 (18.75)	62 (2.44)	29 (1.13)	143 (5.63)
11	324 (12.75)	470 (18.5)	511 (20.13)	62 (2.44)	38 (1.5)	151 (5.94)
13	381 (15)	533 (21)	346 (13.63)	70 (2.75)	38 (1.5)	184 (7.25)

Lever Model

A mm (in.)	B		Angle X
	Spring mm (in.)	Springless mm (in.)	
267 (10.5)	445 (17.5)	476 (18.75)	23°
324 (12.75)	470 (18.5)	511 (20.13)	31°
381 (15)	533 (21)	578 (22.75)	31°

INSTALLATION

Air-O-Motors can be either wall or base mounted. Four holes in the base plate provide base mounting, while an additional wall bracket can be provided if needed (specify Kit No. 30686889 for size 01-0 air-o-motor and Kit No. 30686899 for size 01-11 and 01-13 air-o-motor actuators).

All air connections are 1/4-inch NPT. Corresponding size tubing and fittings are recommended for the rest of the lines.

Thrust models are normally shipped completely assembled. To mount actuator in an upright position insert four bolts through 14 mm (9/16-inch) diameter mounting holes in base plate and secure in place. For wall mounting, the 90° angle bracket has four holes to match base plate. Insert bolts in place using four washers and four nuts provided. The clevis is screwed onto the actuator stem extension and locked in position with a set screw. To attach the clevis to valve linkage, remove clevis pin, insert valve linkage, and replace clevis pin.

Lever models are normally shipped with the lever unassembled. To assemble lever, see paragraphs ASSEMBLING LEVER FOR DIRECT ACTION or CHANGING TO REVERSE LEVER ACTION. Lever models can be base or wall mounted in the same manner as thrust models.

AIR CONNECTIONS

NOTE: Air supply must be filtered and should never exceed 345 kPa (50 psi). A minimum constant air pressure will increase diaphragm life.

Connect diaphragm case ("INSTRUMENT" connection if positioner is used) to controller with 1/4-inch copper tubing.

Install air pressure regulator in supply line, when positioner is used, to maintain steady air pressure and protect the diaphragm.

With springless type actuators, connect supply line to air pressure regulator and gage (which should be piped to constant loading side of diaphragm).

Check all air connections for leaks.

ASSEMBLING LEVER FOR DIRECT ACTION

1. Loosen two set screws in clevis and one in pivot point.
2. Remove clevis pin and pivot pin.
3. Loosen set screw locking clevis to actuator stem and turn clevis so clevis pin hole faces open area between base plate and actuator yoke. Place lever in clevis so that actuator stem is between the pivot and the load take-off as shown in Fig. 9. Insert clevis pin.
4. Align lever in pivot notch and insert pivot pin.
5. Tighten set screws in clevis and pivot notch.

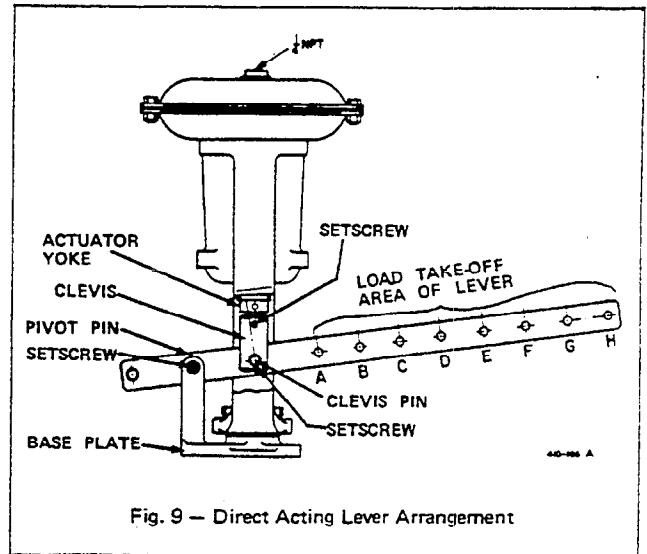


Fig. 9 — Direct Acting Lever Arrangement

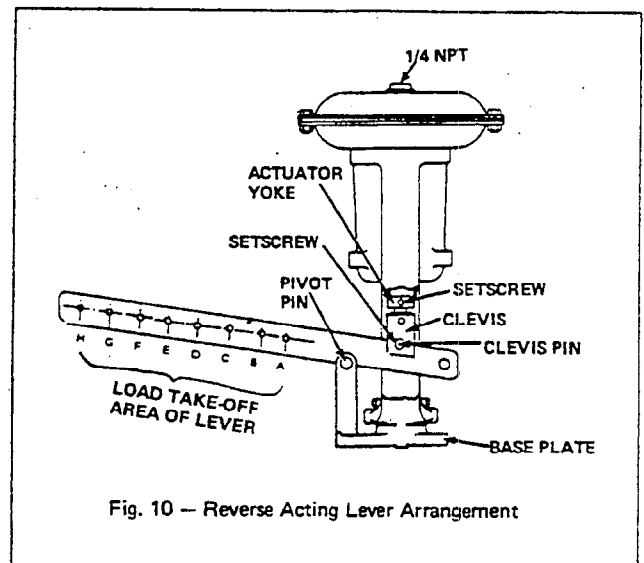


Fig. 10 — Reverse Acting Lever Arrangement

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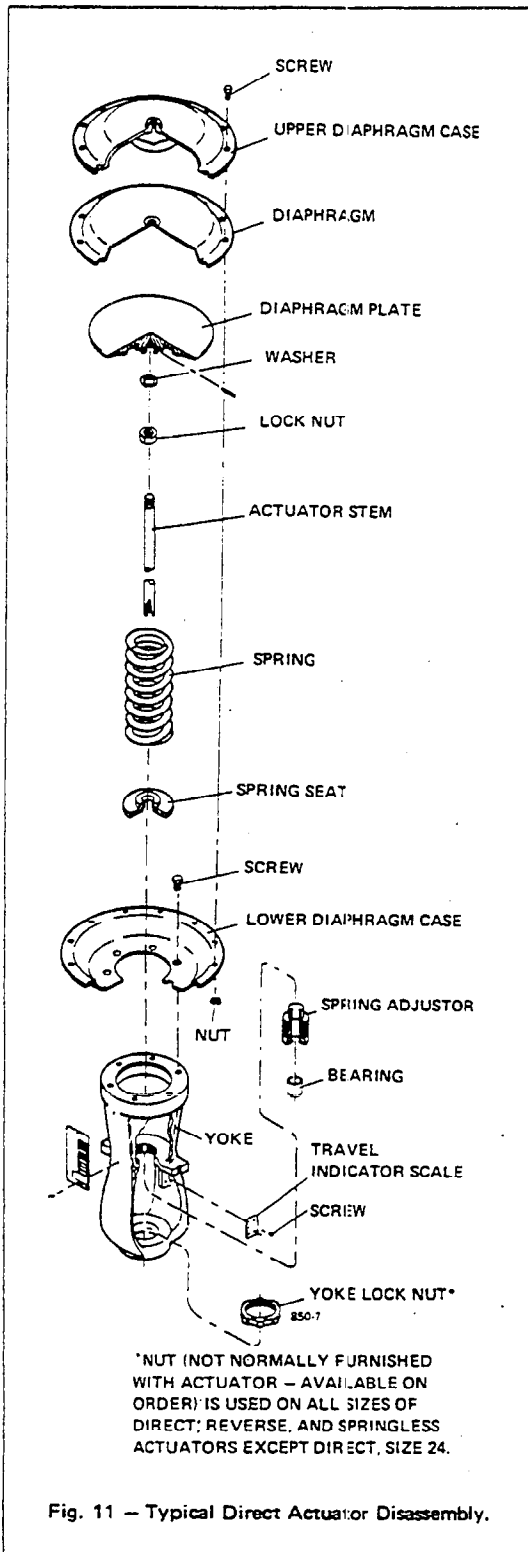


Fig. 11 - Typical Direct Actuator Disassembly.

6. Drive clevis pin in until near end is flush and tighten clevis pin set screw.
7. Align lever in pivot notch and insert pivot pin.
8. Tighten set screws in clevis and pivot notch.

CHANGING TO REVERSE LEVER ACTION

1. Remove pivot set screw and remove pivot pin.
2. Loosen set screw locking clevis to actuator stem. Lift lever from pivot notch and place it in space between pivot notch and actuator yoke.
3. Loosen clevis pin set screw and drive out clevis pin with a punch.
4. Remove lever from clevis and yoke.
5. Turn lever 180° and place it in clevis so that pivot is between the actuator stem and the load take-off as shown in Fig. 10.
6. Drive clevis pin in until near end is flush and tighten clevis pin set screw.
7. Align lever in pivot notch and insert pivot pin.
8. Tighten set screws in clevis and pivot notch.

SPRING ADJUSTMENT

Factory adjustment provides for a complete actuator stroke for a pressure change from 21–103 kPa (3 to 15 psi) or 41–207 kPa (6 to 30 psi) with heavier spring. The operating spring can be shifted up or down if necessary. The starting point, with no external load, should not be adjusted more than 34 kPa (5 psi), for a 21–103 kPa (3–15 psi) spring, or 69 kPa (10 psi), for a 41–207 kPa (6–30 psi) spring. Adjustment of less than 1 psi is not recommended.

To shift the operating range upward, increasing starting pressure, turn spring adjuster into spring housing.

To shift the operating range downward, decreasing starting pressure, turn spring adjuster away from spring housing.

CHECKOUT PROCEDURE

If the actuator does not function properly, check the following points while the actuator is still in service.

1. Are air connections tight?
2. Are diaphragm case bolts tight?
3. Is Air-O-Motor firmly fastened to yoke or base plate?
4. Is clevis pin fully engaged in clevis?

SERVICE

Diaphragm Replacement

SPRING-LOADED TYPE ACTUATORS

1. Disconnect air tubing.
2. Loosen spring adjuster.
3. Remove upper diaphragm case and replace diaphragm.
4. Reassemble and adjust spring compression (see Spring Adjustment).

SPRINGLESS TYPE ACTUATORS

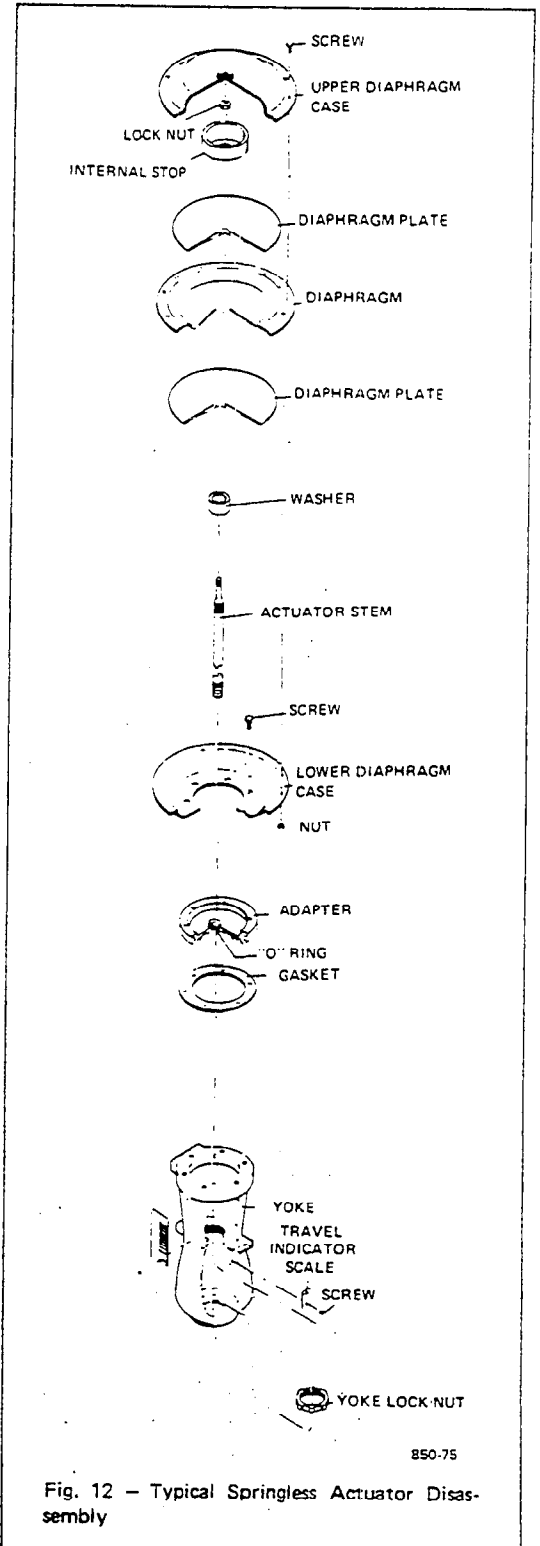
1. Disconnect air tubing.
2. Remove diaphragm case bolts.
3. Remove locknut and internal stop from top of upper diaphragm plate.
4. Remove upper diaphragm plate and diaphragm.
5. Replace diaphragm and reassembly.

NOTE: A temporary diaphragm can be cut from a suitable piece of rubber 3 mm (1/8-inch) thick. Make outside diameter and bolt hole circle about 5% larger than normal. Replace with correct Honeywell diaphragm, when convenient.

O-RING REPLACEMENT

Springless Type Actuators Only

1. Perform steps 1 through 4 for diaphragm replacement of springless type actuators.
2. Remove lower diaphragm plate.
3. Remove stem washer and pull stem up through O-Ring.
4. Remove and replace O-Ring in adapter.
5. Carefully push stem down through new O-Ring.
6. Reassemble in reverse order of disassembly.



810-09B-8600

01 AIR-O-MOTOR ACTUATOR
PARTS LIST

PARTS REPLACEMENT PROCEDURE

The parts contained in this parts list are for those constructions most frequently encountered and do not include the part numbers for all the available designs or materials. When ordering replacement parts, match the descriptions listed in the parts list with those shown on the valve or actuator nameplate. If your nameplate reflects a material other than those included in the parts list, replacement parts may be obtained by specifying the part description and valve serial number only.

Unless otherwise noted, the quantity is one (1).

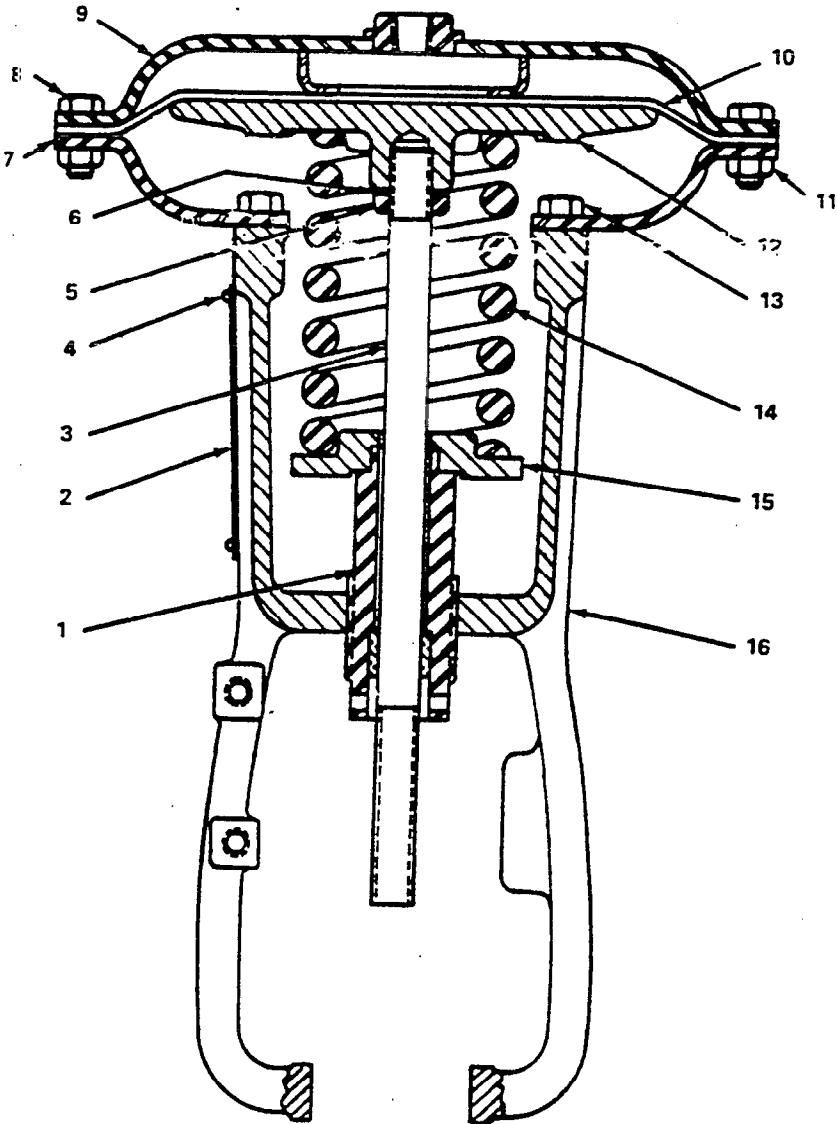


Figure 1. Typical Spring Type Air-O-Motor
Size 01-9, 01-11, 01-13.

410-168B

01 AIR-O-MOTOR ACTUATOR
PARTS LIST

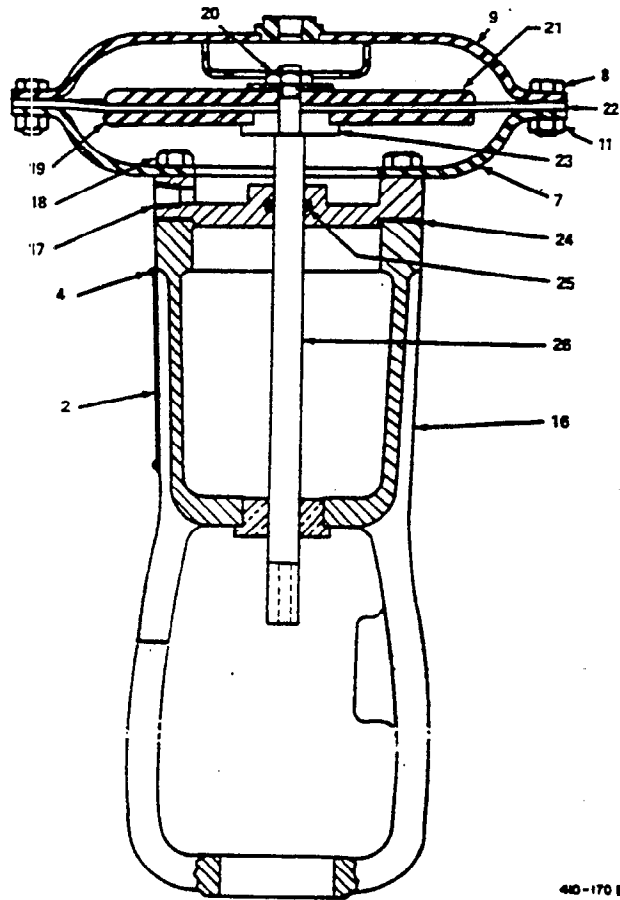


Figure 2. Typical Springless Air-O-Motor
Size 01-9 and 01-11 lever and
thrust and 01-13 lever models.

410-170 B

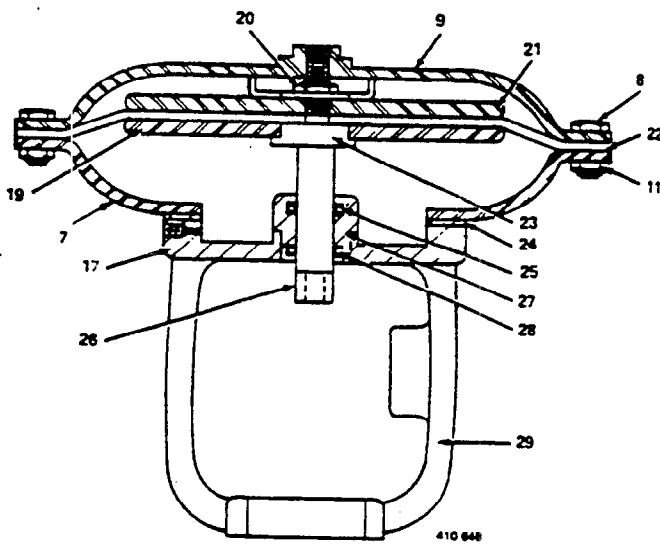


Figure 3. Typical Springless Air-O-Motor
Size 01-13 thrust model.

410 648

710-112-8601

01 AIR-O-MOTOR ACTUATOR
PARTS LIST

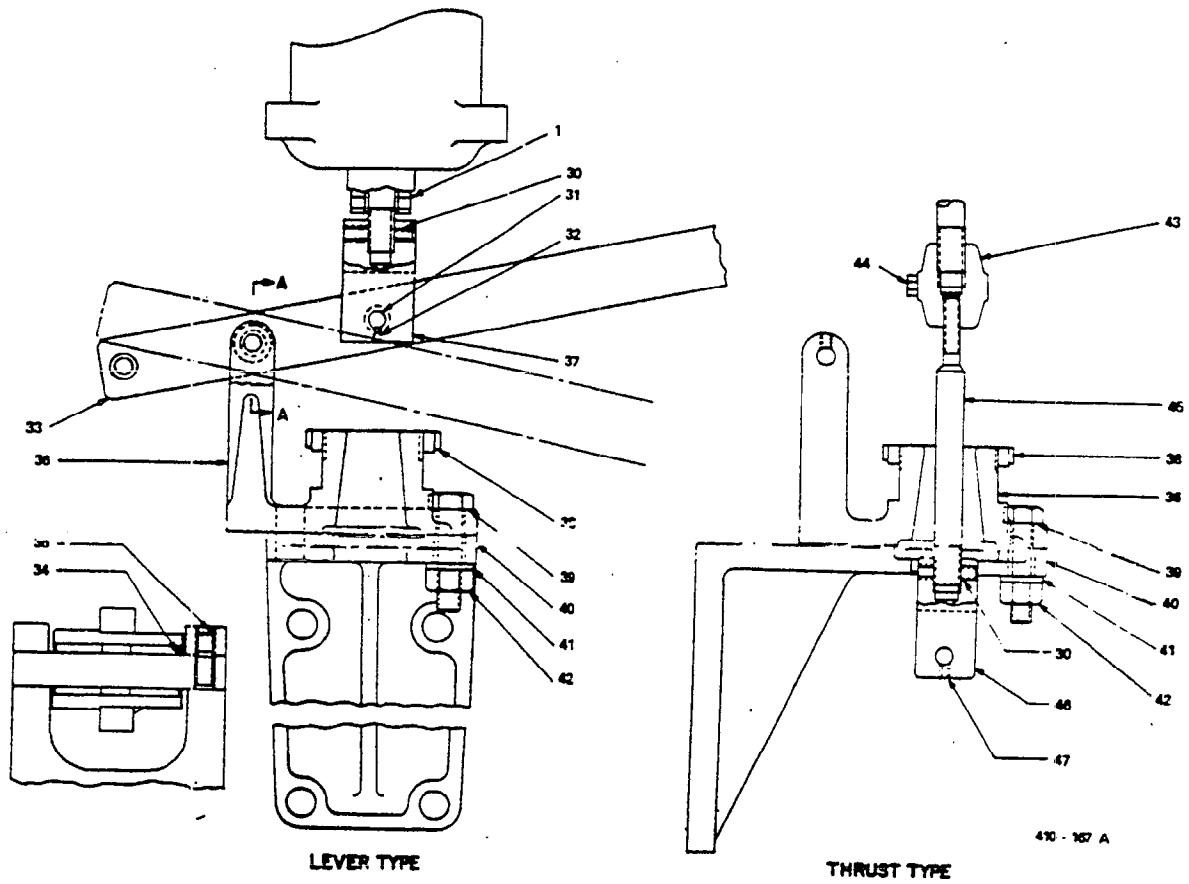


Figure 4. Lever and Thrust Type Air-O-Motors.

710-112-8601

01 AIR-O-MOTOR ACTUATOR
PARTS LIST

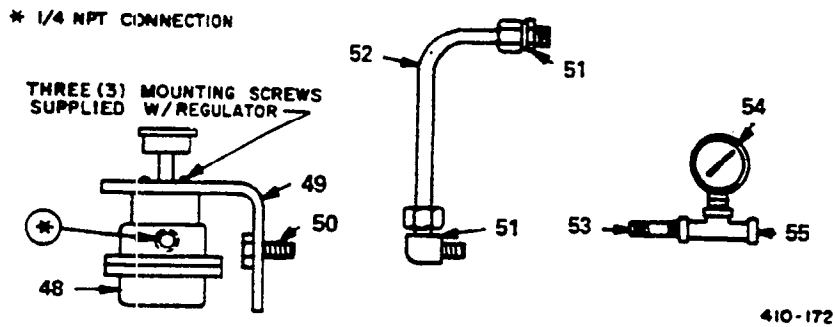


Figure 5. Accessory Components.

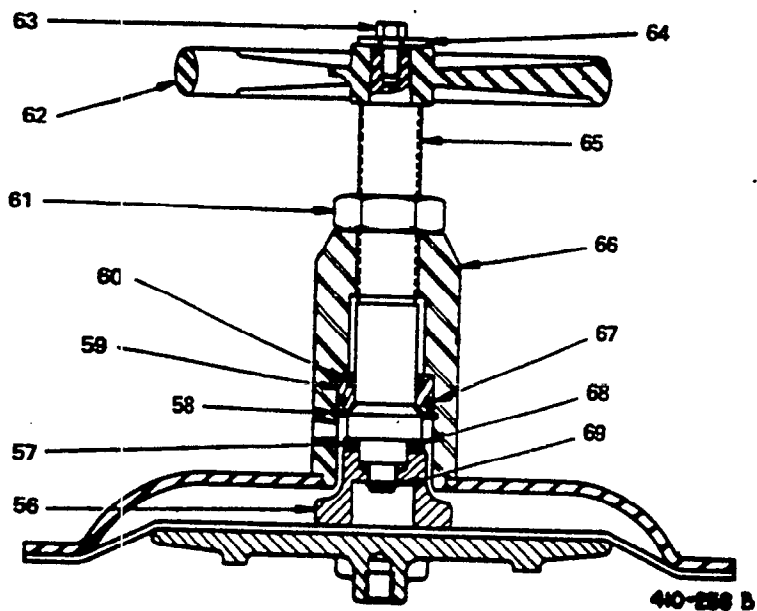


Figure 6. Top Mounted Handwheel for
01 Air-O-Motor.

710-1129801

01 AIR-O-MOTOR ACTUATOR
PARTS LIST

Recomm'd
Spere Parts
per
1 10

KEY NO. 1—SPRING ADJUSTER

Size	Lever Type	Thrust Type
01-9	01-11	01-11
30049036-193	30049095-193	30032539-918
	30036217-193	30049004-918
		30049051-918

KEY NO. 2—NAMEPLATE

Size	Lever Type	Thrust Type	Springless
01-9	01-11	01-13	01-9, 01-11, 01-13
30685977-001	30685704-001	30066175-454	30064967-457
		30064967-457	

KEY NO. 3—STEM

Size	01-11	01-13
01-9		
30067297-193	30685489-001	30049128-193

KEY NO. 4—SCREW

30021923-264 Quantity 2

KEY NO. 5—NUT

Size	01-11, 01-13
01-9	
30020134-264	30020129-264

KEY NO. 6—WASHER

Size	01-11, 01-13
01-9	
30067180-264	30067181-264

KEY NO. 7—LOWER DIAPHRAGM CASE

Size	01-11	01-13
01-9		
30032407-277	30032409-277	30032411-277

KEY NO. 8—CAP SCREW

Size	01-11	01-13
01-9		
30022031-263	30020411-262	30020411-262
Quantity 10	12	16

KEY NO. 9—DIAPHRAGM CASE S/A Includes Upper Dia. Case, Pressure Connection and Internal Stop

Size	01-11	01-13
01-9		
30067298-915	30585496-001	30033785-915

KEY NO. 10—DIAPHRAGM

Size	01-11	01-13
01-9		
30067301-801	30685491-001	30033673-801
		1 2

KEY NO. 11—NUT

Size	01-11	01-13
01-9		
30032522-262	30032523-264	30032523-264
Quantity 10	12	16

710-112-8801

7

**01 AIR-O-MOTOR ACTUATOR
PARTS LIST**

Recomm'd
Spare Parts
per
1 10

KEY NO. 12--DIAPHRAGM PLATE

Size	01-9	01-11	01-13
	30067296-200	30685481-001	30032489-200

KEY NO. 13--CAP SCREW

Size	01-9	01-11	01-13
	30026199-264	30026199-264	30026199-264
Quantity	6	6	8

KEY NO. 14--SPRING

Size	01-9	01-11	01-13
3-15 psi	30067494-279	30685499-001	30032615-226
6-30 psi	30067496-279	30685501-001	30032616-226

KEY NO. 15--SPRING SEAT

Size	01-9	01-11	01-13
	30049003-200	30032480-200	30032481-200

KEY NO. 16--YOKE

Size	01-9	01-11	01-13
	30033157-200	30033097-200	30033098-200

KEY NO. 17--ADAPTOR

Size	01-9	01-11	01-13	
	30067305-200	30685488-001	30032735-200	1 2

KEY NO. 18--CAP SCREW

Size	01-9	01-11	01-13 lever	01-13 thrust
	30035617-264	30033089-264	30033089-264	30028199-264
Quantity	6	6	8	8

KEY NO. 19--LOWER DIAPHRAGM PLATE

Size	01-9	01-11	01-13
	30067304-277	30685483-001	30033827-277

KEY NO. 20--HEX LOCKNUT

Size	01-9, 01-11	01-13
	30066426-264	30020198-264

KEY NO. 21--UPPER DIAPHRAGM PLATE

Size	01-9	01-11	01-13
	30067303-277	30685482-001	30037679-277

710-112-8801

01 AIR-O-MOTOR ACTUATOR
PARTS LIST

				Recomm'd Spare Parts per
KEY NO. 22—DIAPHRAGM				1 10
Size	01-9	01-11	01-13	1 2
	30067303-801	30685491-004	30034027-801	
KEY NO. 23—STEM WASHER				
Size	01-9	01-11	01-13 lever	01-13 thrust
	30067302-276	30685486-001	30034927-235	30674547-001
KEY NO. 24—GASKET				
Size	01-9	01-11	01-13	Quantity
	30032734-859	30032722-859	30032584-859	2 2 4
KEY NO. 25—"O" RING				
Size	01-9	01-11	01-13	
	30032685-196	30354897-011	30032693-196	1 2
KEY NO. 26—STEM				
Size	01-9	01-11	01-13 lever	01-13 thrust
	30066425-316	30685490-001	30682876-001	30674546-001
KEY NO. 27—STEM SEAL HOUSING				
Size	01-13 thrust	30064639-104		
KEY NO. 28—STEM SEAL				
Size	01-13 thrust	30042779-262		
KEY NO. 29—YOKE				
Size	01-13 thrust	30042620-200		
KEY NO. 31—SET SCREW				
	30028081-264			
KEY NO. 31—CLEVIS PIN				
	30046502-285			
KEY NO. 32—SET SCREW				
	30020236-264	Quantity 2		
KEY NO. 33—LEVER SUBASSEMBLY				
Size	01-9, 01-11	01-13		
	30046517-001	30046517-002		

710-112-8601

01 AIR-O-MOTOR ACTUATOR
PARTS LIST

Recomm'd
Spare Parts
per
1 10

KEY NO. 34--PIVOT PIN

30046501-285

KEY NO. 35--SET SCREW

30020236-264 Quantity 2

KEY NO. 36--BASE PLATE

30046506-200

KEY NO. 37--CLEVIS

Size 01-9
 30067601-193

01-11
30067602-193

01-13
30067602-193

KEY NO. 38--YOKE LOCKNUT

30039292-392

KEY NO. 39--SCREW *

30026201-264 Quantity 4

KEY NO. 40--MOUNTING BRACKET *

Size 01-9
 30049037-200

01-11, 01-13
30049100-200

KEY NO. 41--WASHER *

30020456-264 Quantity 4

KEY NO. 42--NUT *

30020234-264 Quantity 4

* These items make up wall mounting kit
for Size 01-9

30686889-000

01-11, 01-13
30686889-000

KEY NO. 43--STEM CONNECTOR

Size 01-9
 30049000-749

01-11
30047045-749

01-13
30047047-749

710-112-8801

01 AIR-O-MOTOR ACTUATOR
PARTS LIST

Recomm'd
Spare Parts
per
1 10

KEY NO. 44—SCREW

30008104-264 Quantity 2

KEY NO. 45—STEM EXTENSION

Size	01-9	01-11	01-13
	30066599-193	30088600-193	30048136-193

KEY NO. 46—CLEVIS

Size	01-9	01-11	01-13
	30049034-193	30049093-193	30049093-193

KEY NO. 47—SET SCREW

30020236-264

KEY NO. 48—PRESSURE REGULATOR

20552126-001

KEY NO. 49—MOUNTING BRACKET

Size	01-9, 01-11, 01-13 lever	01-13 thrust
	30040006-193	30064381-193

KEY NO. 50—SCREW

30033049-264 Quantity 2

KEY NO. 51—FITTING

30032135-112 Quantity 2

KEY NO. 52—COPPER TUBING

1/4 Inch O.D. length as required

KEY NO. 53—NIPPLE

30024890-112

KEY NO. 54—GAUGE

30065498-450

KEY NO. 55—TEE

30024893-112

KEY NO. 56—STEM HEAD

Size	01-9	01-11	01-13
	30048476-193	30048476-193	30685246-001

710-112-8601

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01 AIR-O-MOTOR ACTUATOR
PARTS LIST

Recomm'd
Spare Parts
per
1 10

KEY NO. 57-BEARING

30046489-262

KEY NO. 58-SNAP RING

30046487-262

KEY NO. 59-BUSHING

30046484-159

KEY NO. 60-"O" RING

30046485-837

KEY NO. 61-NUT

30046687-262

KEY NO. 62-FLANDWHEEL

Size 01-9
30046477-202

01-11
30046477-202

01-13
30046478-202

KEY NO. 63-SCREW

30020120-264

KEY NO. 64-ARROW

30046491-112

KEY NO. 65-MANUAL OPERATOR STEM

Size 01-9
30046482-104

01-11
30046482-104

01-13
30046483-104

KEY NO. 66-CASE SUBASSEMBLY, includes upper case and housing

Size 01-9
30046690-928

01-11
30046689-928

01-13
30046688-928

KEY NO. 67-"O" RING

30046486-837

KEY NO. 68-WASHER

30046490-262 Quantity 2

KEY NO. 69-SNAP RING

30046488-262

710-112-8801

Products

Maxum™ Rotary Control Valves – Sizes 1-12" (25-300mm) for highly erosive services. Features high throttling accuracy and four flow capacity ranges.

Eccentric Plug Valves – Sizes 0.5-72" (15-1800mm) in a wide choice of materials and resilient plug facings.

HP Butterfly Valves – Sizes 2-48" (50-1200mm) for applications to 740 psi (5100 kPa) plus Intelli-Seal™ extra-tight metal, fire tested and PTFE seated models.

V-Port Ball Valves – Sizes 1-20" (25-500mm), pressures to 740 psi (5100 kPa) and temperature ratings to 1000°F (537°C). Flanged and flangeless designs.

Resilient Seated Butterfly Valves – Sizes 2-36" (50-900mm) in two styles with 175 and 225 psi (1210 and 1550 kPa) pressure ratings and wafer and lugged body styles.

AWWA Butterfly Valves – Sizes 3-120" (80-3000mm). Meets AWWA C504 standards.

3- & 4-Way Plug Valves – Sizes 3-16" (80-400mm) for shutoff and switching applications plus a variety of body materials.

Metal Seated Full Port Ball Valves – Sizes 2-12" (50-300mm) are designed for trouble-free operation in digester blow-down applications and for handling corrosive liquids, gases and abrasive slurries.

Precision Electric Control Valves – Unmatched control accuracy provides up to 16,000 discrete repeatable throttling positions in 90° plug rotation. Accepts analog or digital signals. Sizes 4-20" (100-500mm).

Permaseal® Plug Valves – Sizes 0.5-6" (15-150mm) in ANSI Class 150 and 300 ratings. Body styles include 2-Way, 3-Way, jacketed, double block and bleed and flush through for corrosive and high temperature applications.

Knife Gate Valves – Rugged designs for corrosive and abrasive service on liquids, slurries and dry materials. Pressures to 150 psi (1030 kPa) and sizes 2-72" (50-1800mm)

Consistency Transmitters – Rotating sensor, AccuTrax™ blade sensor, open type and pan type chambers for pulp and paper consistency control applications.

Unival Ported Gate Valves – Sizes 2-48" (50-1200mm) for scaling, corrosive and abrasive services. Reinforced elastomer sleeve forms bubble-tight seal flush with the wall of the pipe.

Cage Guided Globe Control Valves – Sizes 1-16" (25-400mm) with pressure ratings to ANSI 1500 plus single-seated and balanced construction, low-noise and anti-cavitation trim options.

3-Way Globe Control Valves – Sizes 0.5-16" (15-400mm) with pressure ratings to 600 psi (4130 kPa) for mixing and diverting services. Medium and light-duty models available for applications to Class 125 and for low pressure, mixing applications.

Angle Control Valves – Sizes 1-8" (25-200mm) for applications involving viscous or flash-flow process or slurries.

Single- or Double-Seated Globe Valves – Heavy-duty top and bottom guided valves offer high accuracy and high rangeability. Medium-duty, skirt-guided valves provide rugged reliability or tight shutoff. For low pressure applications, a single-seated, stem guided model is available.

Low Flow Valves – Single-seated globe style in sizes 0.5-2" (15-50mm) for low and ultra-low flow applications.

High Pressure Valves – For pressures up to 6000 psig (41340 kPa), in single-seated angle or straight-through designs.

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