



# Force Flow 100



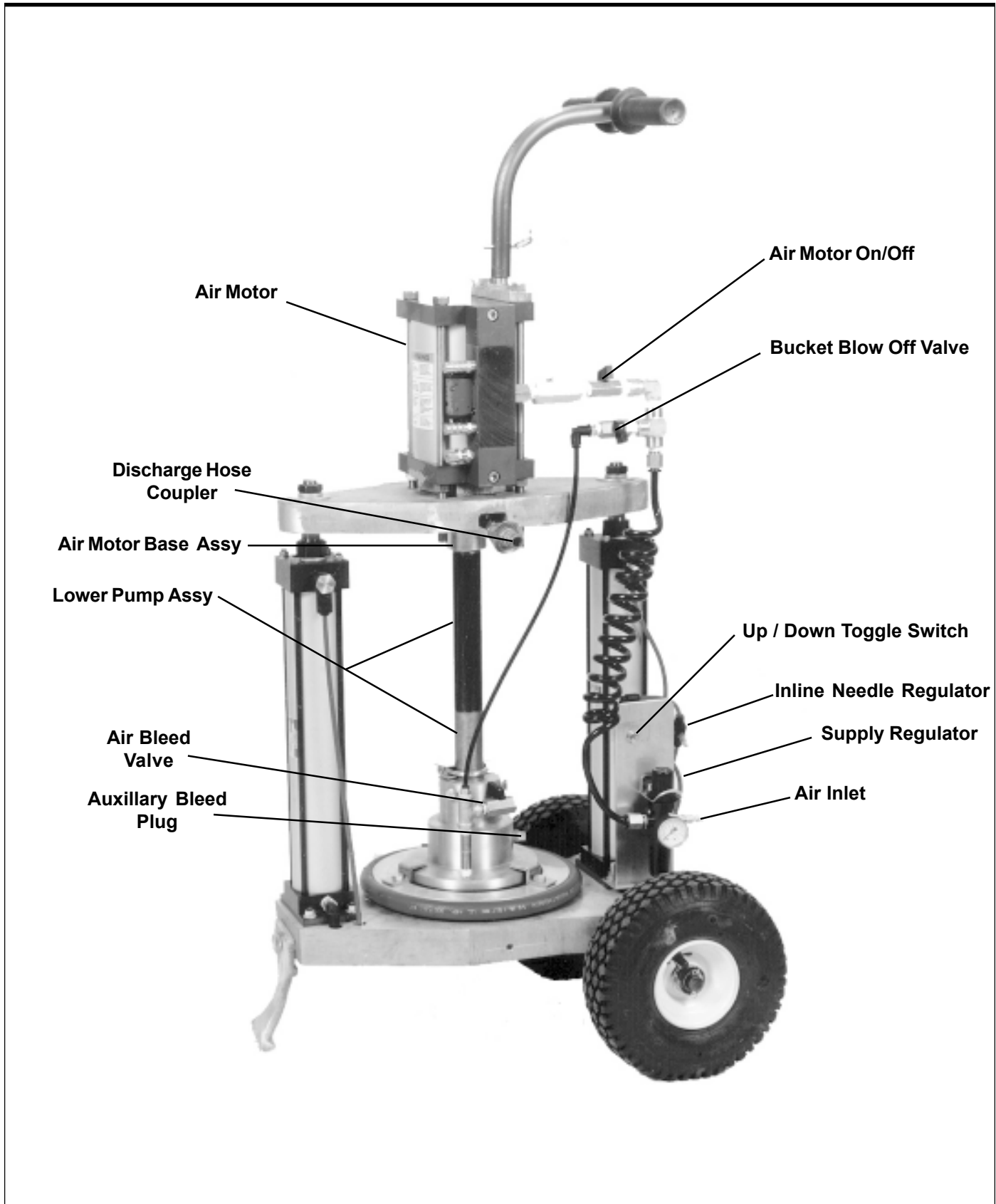
## Owners Manual

Rev 8/03

# Force Flow 100 Owners Manual



For additional information or assistance please contact your local Lubchem representative.



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## Force Flow Operating Instructions

### I. Pre-start checks, prior to connecting the air supply.

1. Prior to operating the Force Flow fill the in-line lubricator with Lubchem Air tool Lubricant or any high quality light weight silicone oil.
2. Lubricate the Red Hose O-ring with a light oil to help it slide into the can.
3. Check the position of the up/down force toggle switch. The toggle switch should be in the down position prior to connecting the air supply.
4. Check and close the bucket blow off valve prior to connecting the air supply.
5. Check the position of the air motor on/off valve. It should be in the closed position.
6. Check the position of the in-line needle regulator. It should be closed by turning the needle clockwise until it stops. The in-line needle regulator controls the air supply to the pneumatic rams and controls the speed at which they raise and lower the follower plate.

### II. Priming and operating the pump.

1. Connect the air supply to the main regulator air inlet. Do not exceed 100 psi of inlet pressure.
2. Disconnect the discharge hose from the pump.
3. To load the Force Flow, raise the follower plate by switching the up/down toggle switch to the up position. The follower plate should not move.
4. Slowly open the in-line needle regulator and adjust it to set and control the speed of travel of the follower plate. As you open the regulator the follower plate will begin to rise.
5. Center the bucket or pail under the follower. The Force Flow follower plate will accommodate either a 5 gallon 40 lb bucket or 10 lb pail. To use a 10 lb. pail simply remove the 3 bolts found on the follower plate flange and push down on the flange to remove.
6. Locate and open the Air Bleed Valve on the follower plate.
7. Close the in-line needle regulator.
8. Switch the up/down toggle switch to the down position then control the speed of downward follower plate travel by slowly opening (turning counter clockwise) the in-line needle regulator. CAUTION: Keep hands and feet from between the follower plate and the bucket or the base plate. The Force Flow pushes down with well over 100 psi and can cause severe injury. Please use extreme caution during this procedure. The in-line needle regulator does not regulate downward or upward force. It only regulates the speed of travel
9. As the follower plate lowers into the bucket, air should escape from between the follower and the lubricant through the Air Bleed Valve. When the follower plate bottoms out on the grease, close the Air Bleed Valve.
10. Check the pump for prime by turning on the Air Motor Control Valve. If the pump is primed, grease will begin to move out of the pump. If the pump is primed and pumping, go to section III.
11. If the pump has not primed, then air is trapped under the follower plate. It is now necessary to bleed the air by removing the Auxiliary Bleed Plug on the follower plate.
12. With the follower plate still bottomed out on the grease; reduce the pressure to the pump to zero by using the main inlet regulator.
13. With the pressure on the main regulator at zero, remove the Auxiliary Bleed Plug from the follower plate.
14. Slowly increase the main regulator pressure until the air is purged and grease begins to flow out of the opening.
15. Reduce the main regulator pressure to zero, replace the Auxiliary Bleed Plug and close the Air Bleed Valve.
16. Check the pump as done in step 10. Repeat if necessary.

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## III. Determining safe injection pressure:

1. Different greases require different pressures to pump. To determine the required pumping pressure, read the pressure gauge on the whip hose while pumping a small amount of the product into a bucket or towel. Make a note of this reading.
2. Add the required pumping pressure to the line pressure. The sum of these pressures is the head pressure or the pressure that the pump must overcome to move the product into the valve.
3. Add sufficient pressure to move the product at a safe acceptable pace to the resistance pressure. Do not exceed the maximum operating pressure of the valve.
4. If the safe injection pressure is determined to be 5,000 psi set the main inlet regulator to 50 psi. The Force Flow is a 100:1 ratio pump so 50 psi of inlet air pressure will generate 5,000 psi of grease discharge pressure.

## IV. Pump Operation:

1. To operate the pump, simply turn on the Air Motor Control Valve and control grease flow by opening and closing the control valve on the whip hose.

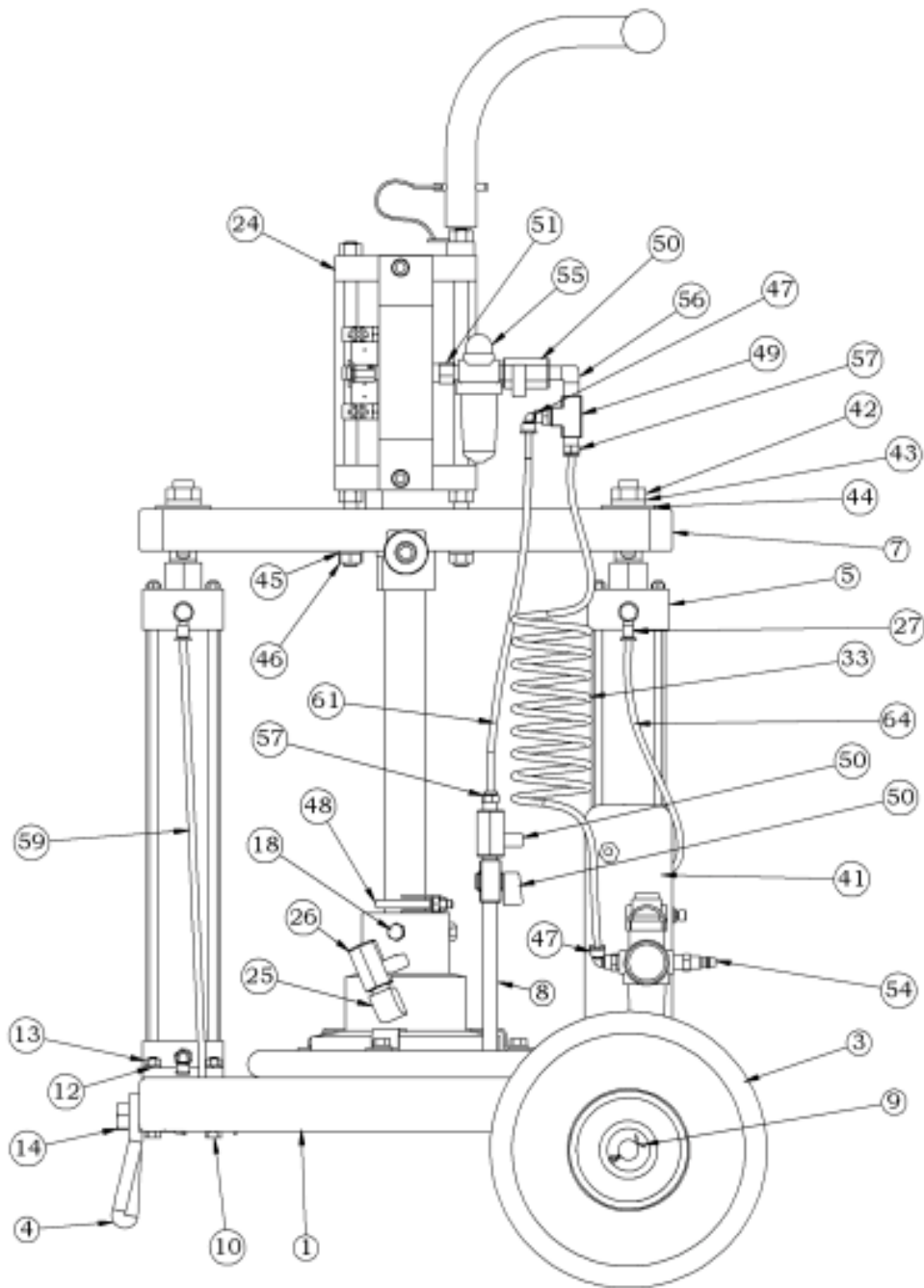
## V. Removing the empty containers from the follower plate:

1. Turn off the Air Motor Control Valve.
2. Raise the follower plate by switching the up/down toggle switch to the up position.
3. Open the bucket blow-off valve and guide the bucket off the follower plate.
4. Bleed moisture from the regulator with the bleed fitting on the bottom of the regulator.

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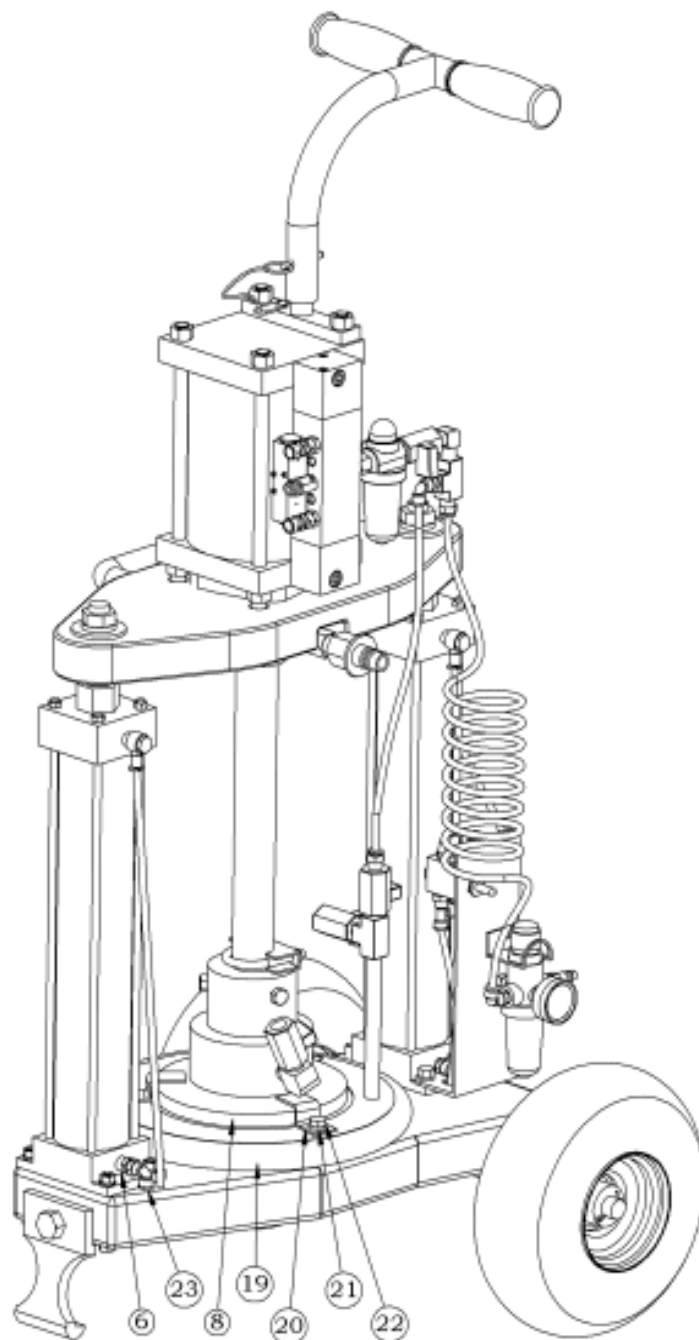


## Front View

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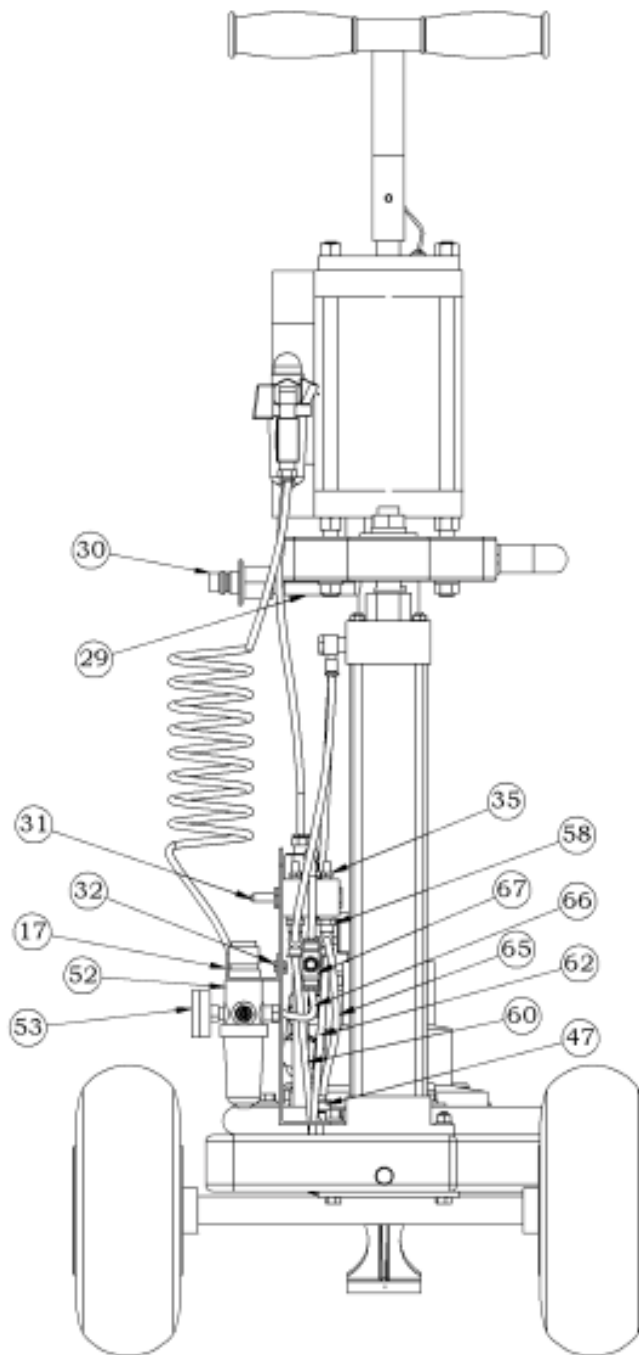


## Front Angle View

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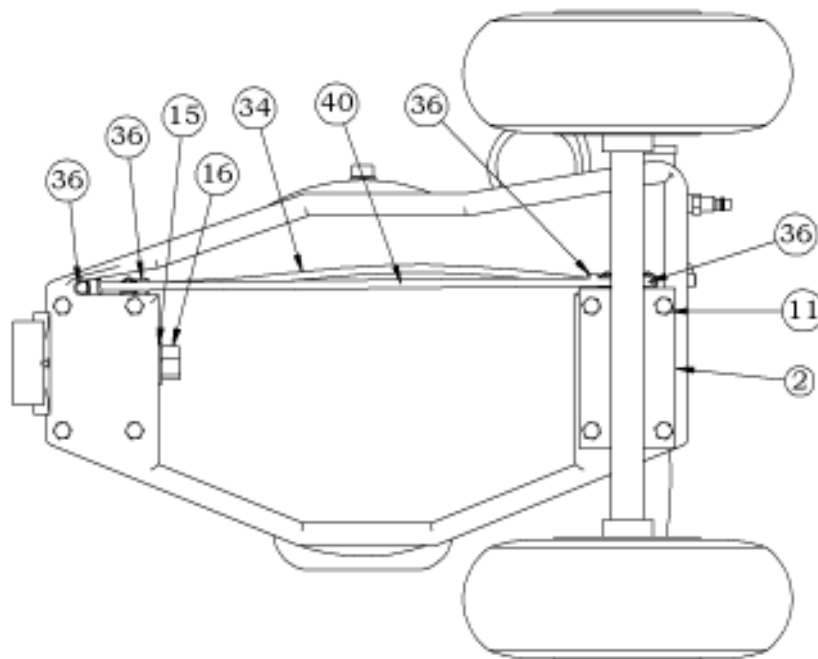


## Side View

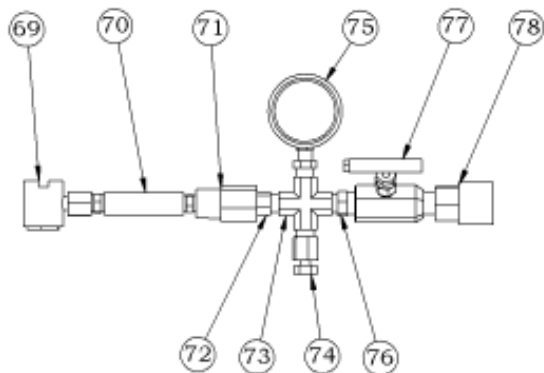


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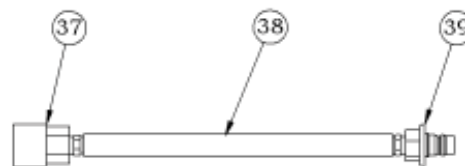
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## Bottom View



## Whip Hose



## Discharge Hose



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ITEM NO.	QTY.	PART#	DESCRIPTION
1	1	100100	BOTTOM PLATE
2	1	100101	AXEL
3	2	100102	TIRE/WHEEL
4	1	100103	STAND
5	2	100104	CYLINDER
6	1	100105	1/4MPT X 1/8FPT BUSHING
7	1	100106	TOP PLATE
8	1	100107	5QT. FOLLOWER PLATE
9	2	100108	COTTER PIN
10	6	100109	5/16-18 X 3" BOLT
11	2	100110	5/16-18 X 3.5 BOLT
12	8	100111	5/16 LOCK WASHER
13	8	100112	5/16 NUT
14	1	100113	5/8 X 3.5" BOLT
15	1	100114	5/8 LOCK WASHER
16	1	100115	5/8 BOLT
17	1	50220	REGULATOR NUT
18	1	100116	3/8-16 X 1.5" BOLT
19	1	100117	RED HOSE ORING
20	3	100118	Z-CLIP
21	3	100119	3/16-16 X 3/4" BOLT
22	3	100120	3/16 LOCK WASHER
23	2	50215	1/8"MPT X 1/4" TUBE ELB.
24	1	100121	100:1 RATIO PUMP
25	1	50811	3/8"MPT X 3/8"FPT ELB
26	1	50809	3/8"MPT X 3/8"FPT BV
27	2	100122	1/4"MPT X 1/4" TUBE BANJO
28	1	50635	1/4" X 6"L PIPE NIPPLE
29	1	100123	1/2"MPT X 4"L NIPPLE HP
30	1	FD6908	SET 1/2" FPT HP QD'S
31	1	50203	TOGGLE SWITCH
32	1	50205	REGULATOR BRACKET
33	1	50206	COIL HOSE BLACK
34	1	PU4TBK10	1/4" BLACK TUBING 10FT.
35	2	50214	1/8" MPT MUFFLER/VENT
36	4	100124	1/4" UNION ELB. TUBE PTC
37	1	FD6906	SET 3/8" FPT HP QD'S
38	1	1435-06/10	10FT. 3/8" DIS. HOSE
40	1	PU4TBK10	1/4" BLACK TUBING 10FT.
41	1	100125	CONTROL BRACKET
42	2	100126	JAM NUT

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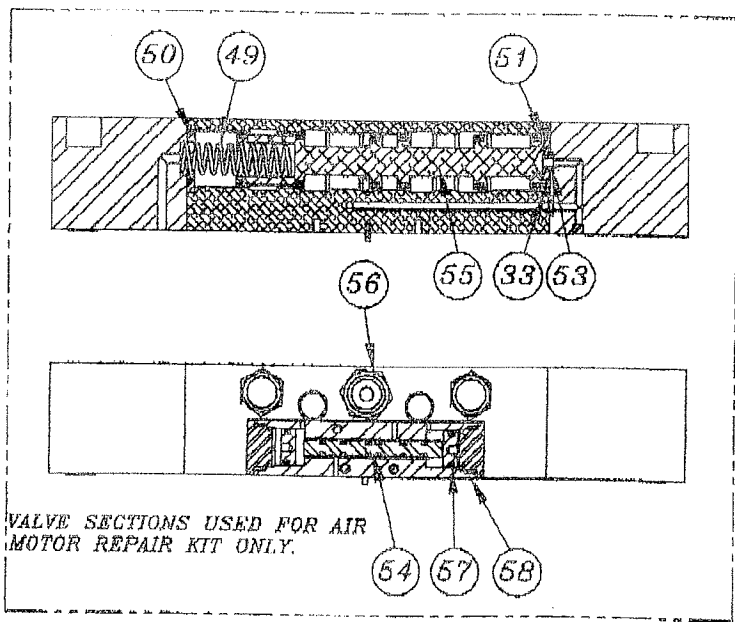
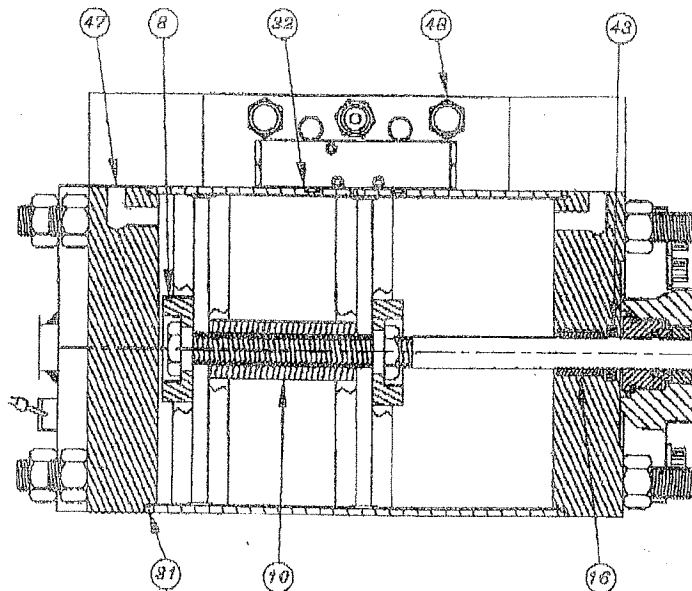
43	2	100127	LOCK WASHER
44	2	100128	FLAT WASHER
45	12	100129	1/2" LOCK WASHER
46	12	YH67144	1/2"-20 NUT
47	2	50218	1/4" MPT X 1/4" TUBE ELB.
48	1	100130	1-1/2" PT. BRACKET
49	2	50209	1/4" FPT TEE BRASS
50	3	100137	1/4" FPT X 1/4" MPT BV
51	1	100131	1/4" SAE X 1/4" MPT STR.
52	1	50204	FILTER REGULATOR
53	1	50201	160 PSI GAUGE
54	1	50200	#10 PLUG
55	1	50700	1/4" AIRLINE LUBRICATOR
56	1	50210	1/4" MPT ELB. BRASS
57	1	100140	1/4" MPT X 3/8" TUBE STR.
58	2	50216	1/8" MPT X 2-1/4" TUBE TEE
59	1	PU4TBK10	1/4" BLACK TUBING 10FT.
60	1	PU4TBK10	1/4" BLACK TUBING 10FT.
61	1	PU4TBK10	1/4" BLACK TUBING 10FT.
62	1	PU4TBK10	1/4" BLACK TUBING 10FT.
63	1	SKIP#	SKIP #
64	1	PU4TBK10	1/4" BLACK TUBING 10FT.
65	1	PU4TBK10	1/4" BLACK TUBING 10FT.
66	1	PU4TBK10	1/4" BLACK TUBING 10FT.
67	1	100132	1/4" FLOW CONTROL
68	1	50211	1/4" MPT X 3/8" TUBE ELB.
69	1	BHC78	BUTTON HEAD COUPLER
70	1	1435-06/16IN	WHIP HOSE, 16"
71	1	100133	SWIVEL, 3/8" MPT X 3/8" FPT
72	1	DELETE	ITEM# DELETE
73	1	100134	CROSS, 3/8" FPT
74	1	BV38	BODY VENT, 3/8" MPT
75	1	50806	GAUGE L/F, 15K PSI
76	1	100135	REDUCER, 3/8" MPT X 1/2" MPT
77	1	100136	FPT VALVE, 1/2" MPT X 1/2"
78	1	DELETE	ITEM# DELETE
79	1	50215	TUBE ELB. 1/8" MPT X 1/4"
80	1	100138	COMPLETE FOLLOWER PLATE FF100
81	1	100139	REDUCER, 1/4" MPT X 3/8" FPT
82	1	100141	WHIP HOSE, COMPLETE ASSY
83	1	100142	FLANGE, 5GAL FOLLOWER PLATE
84	1	100143	FITTING, 1/8" MPT X 1/4" TUBE STR.

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85	1	50637	ORING HUB, 5 QUART FOLLOWER
86	2	100144	ORING,INSIDE HUB (NOT SHOWN)
87	1	100145	BUSHING, 3/8"MPT X 1/4" FPT
88	1	50219	1/4MPT X 1/4 TUBE STR.
89	1	100146	1/2" x 1/2" HP NIPPLE

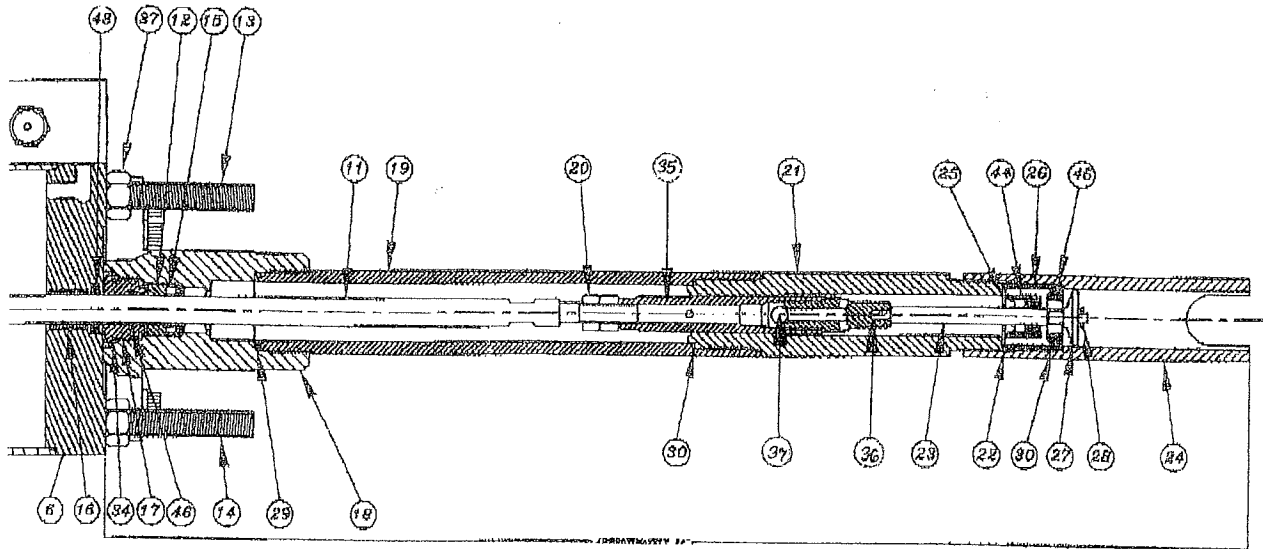


VALVE SECTIONS USED FOR AIR MOTOR REPAIR KIT ONLY.

COMPLETE MANIFOLD ASSEMBLY  
PART# YA50028

AIR MOTOR REPAIR KIT P/N: YA50025

NO.	QTY	MANUFACTURER'S DESCRIPTION	PART #
31	2	O-RING	YE60470
16	1	NYLON BEARING 1/2"	YE40001
43	1	U CUP	YE30025
47	4	O-RING	YE60100
10	1	PISTON SPACER	YE60100
48	2	MUFFLER	YA60011
8	2	PISTON BUMPER	YA50012
49	1	SPRING	YA50027
50	1	LT. VLV BUMPER	YA50017
51	1	RT. VLV BUMPER	YA50018
33	1	O-RING	YE60170
32	2	O-RING	YE60040
53	2	O-RING	YE60050
54	1	VALVE SPOOL	YA50068
55	1	AIR SPOOL	YA50021
56	1	POP OFF VALVE	YA51161
57	2	O-RING	YE60110
58	1	VLV GASKET REV01	YA50066



LOWER PUMP REPAIR KIT – PRT# AP23250

NO.	QTY	MANUFACTURER'S DESCRIPTION	PART #
28	1	COTTER PIN	YA50043
30	2	MID-JOINT SEAL	YE60224
22	1	O-RING	YE60230
26	1	SPACER	AP33150
25	1	7-HOLE WASHER	YA50110
44	1	FOOT VLV. ASSY/COMPLETE	AP33135
15	1	U-CUP	YA50032
12	1	BRASS BACK UP	YA50031
34	1	O-RING	YE60210
46	1	O-RING	YE60600
29	1	UPPER JOINT SEAL	YE60714

REPAIR KIT – PRT# AP33110

NO.	QTY	MANUFACTURER'S DESCRIPTION	PART #
35	1	PISTON BALL STOP	AP33050
36	1	ADAPTOR	AP33080
37	1	BALL	AP33070
21	1	MID-SUCTION TUBE	AP33090