



# Force Flow 100



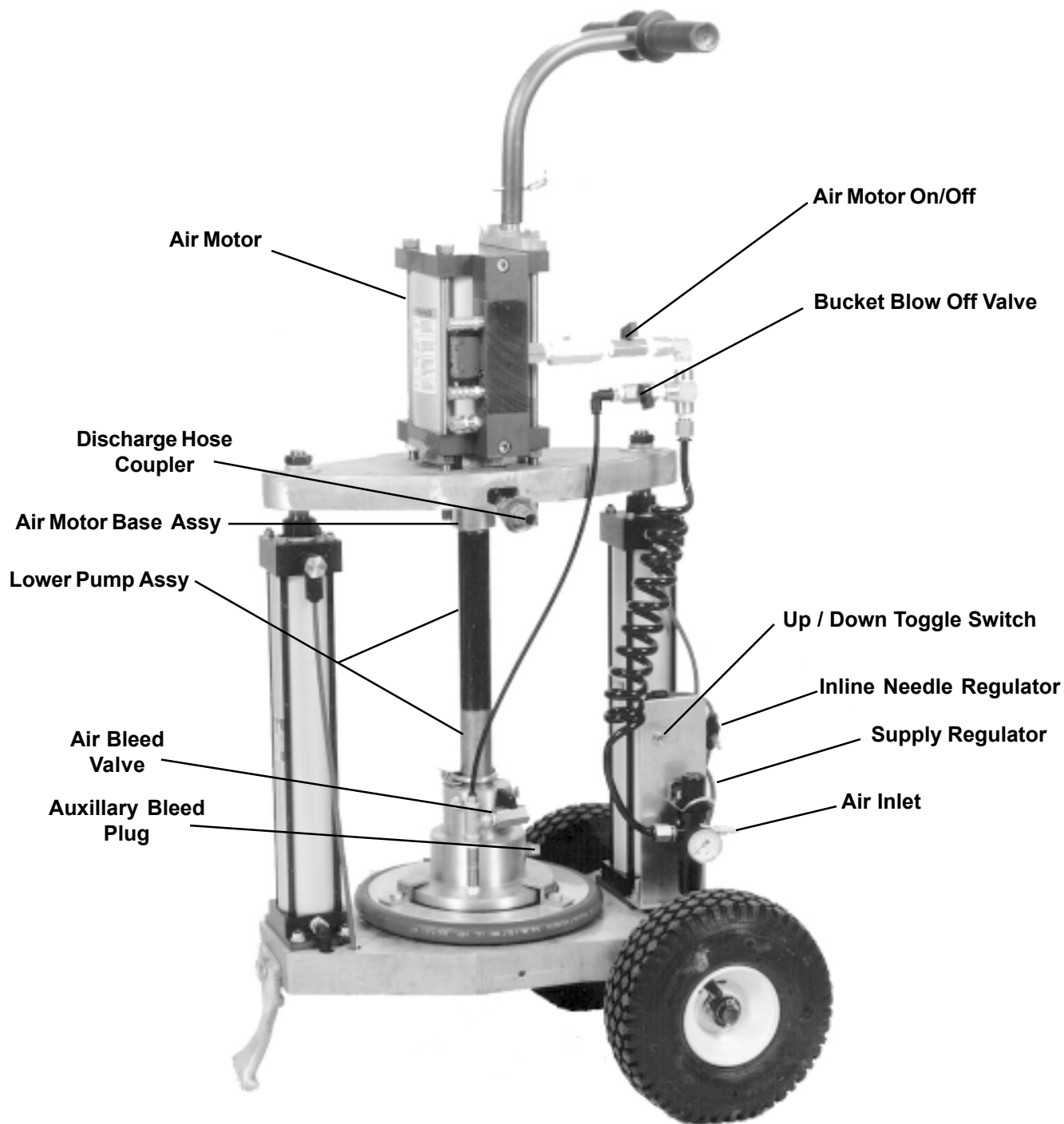
## Owners Manual

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.

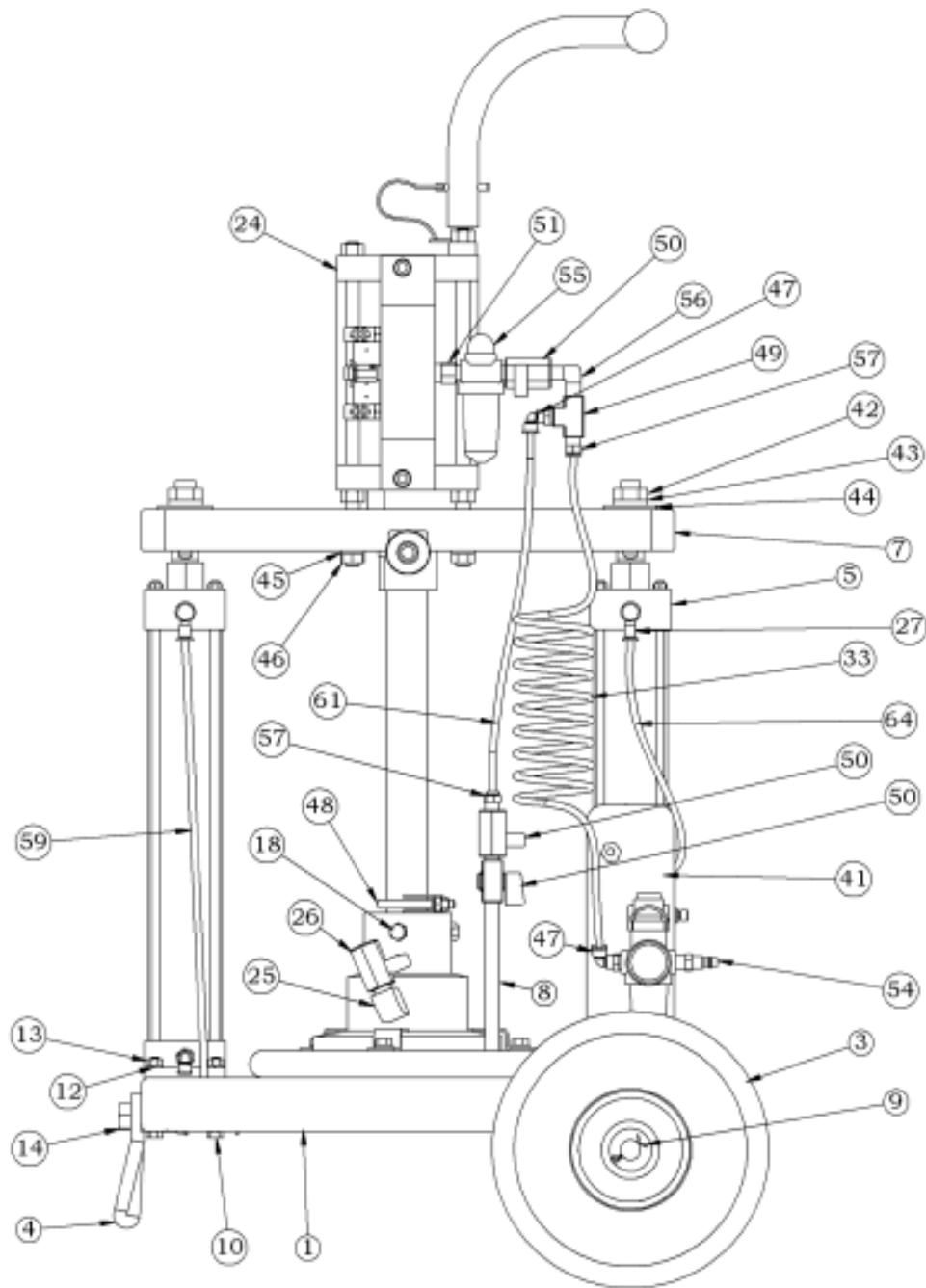
## V. Removing the empty containers from the follower plate:

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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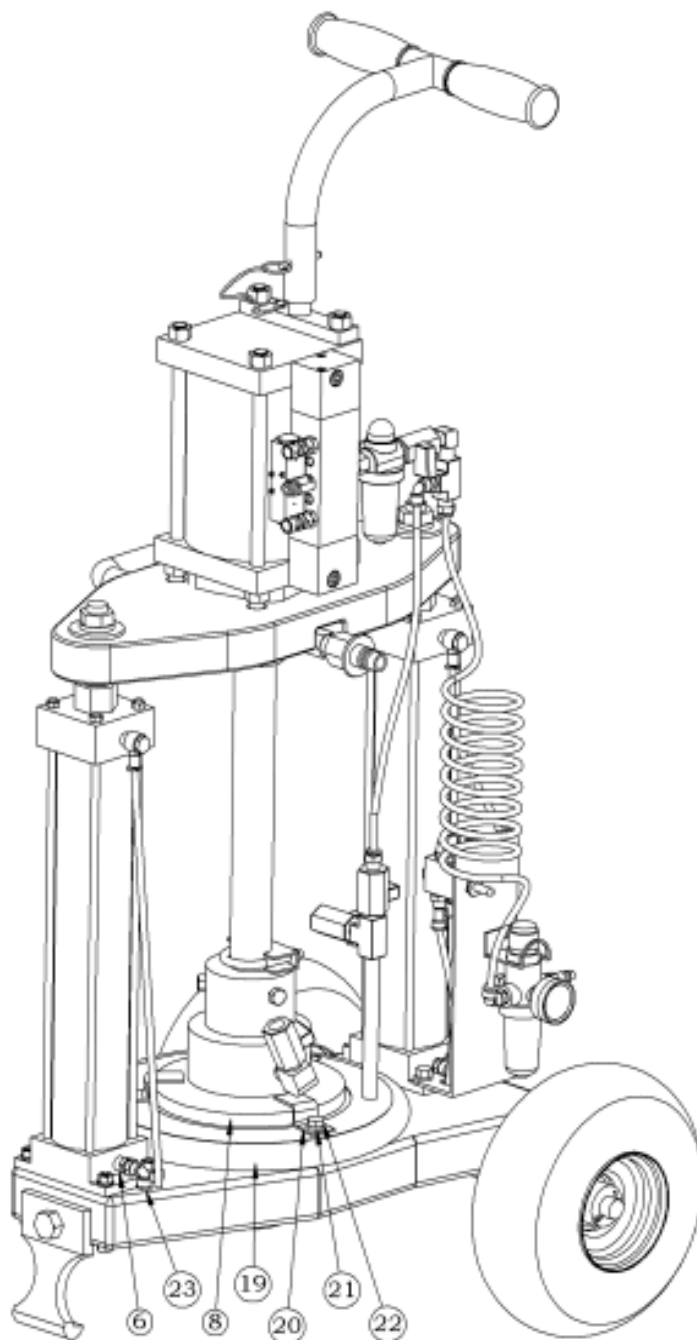


## Front View



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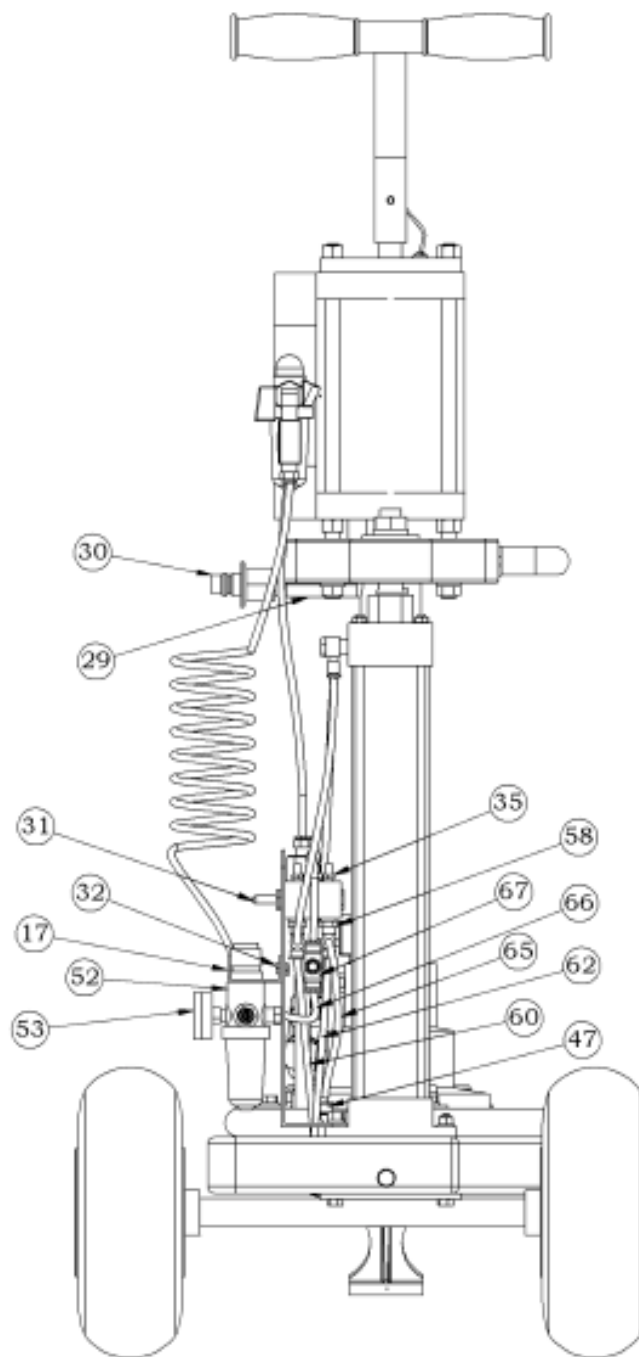


## Front Angle View

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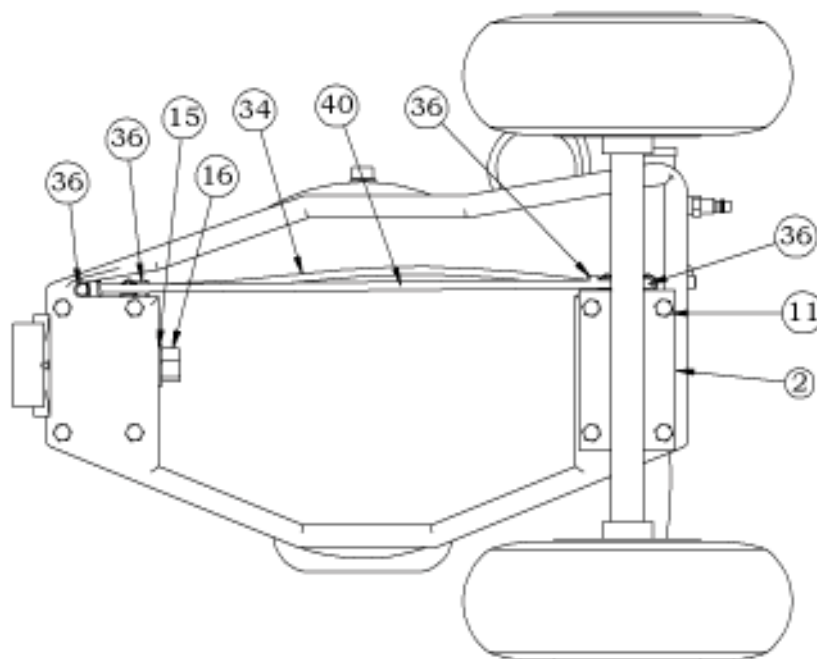
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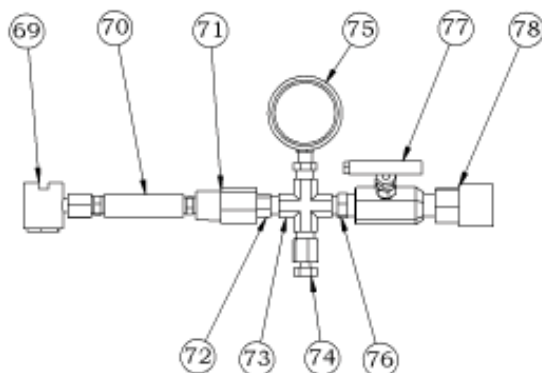
## Side View

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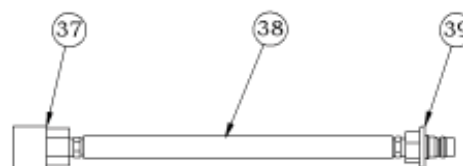
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## Bottom View



## 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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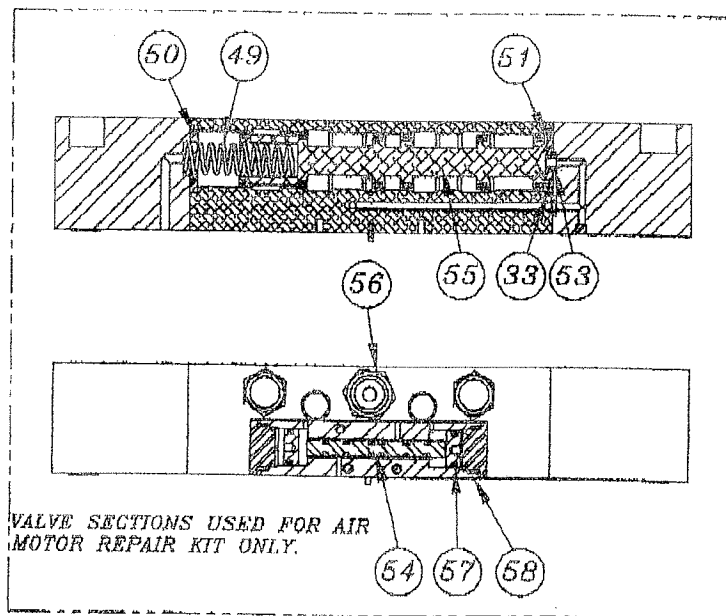
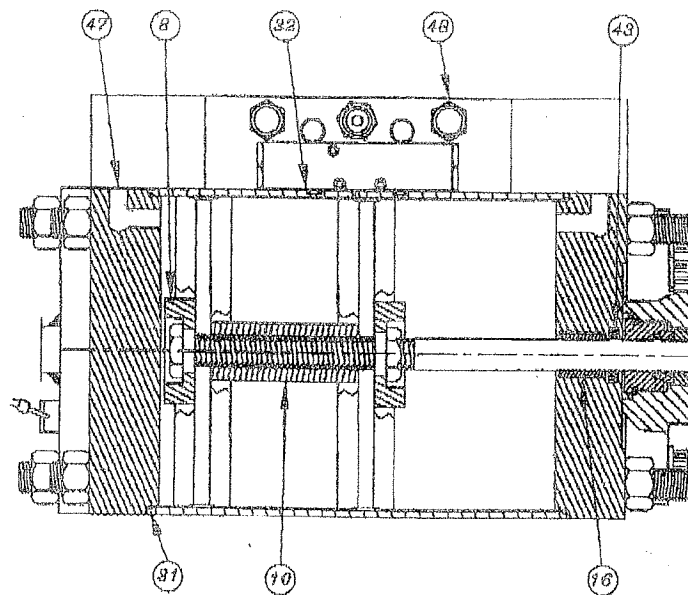
|    |    |              |                                    |
|----|----|--------------|------------------------------------|
| 43 | 2  | 100127       | LOCK WASHER                        |
| 44 | 2  | 100128       | FLAT WASHER                        |
| 45 | 12 | 100129       | 1/2" LOCK WASHER                   |
| 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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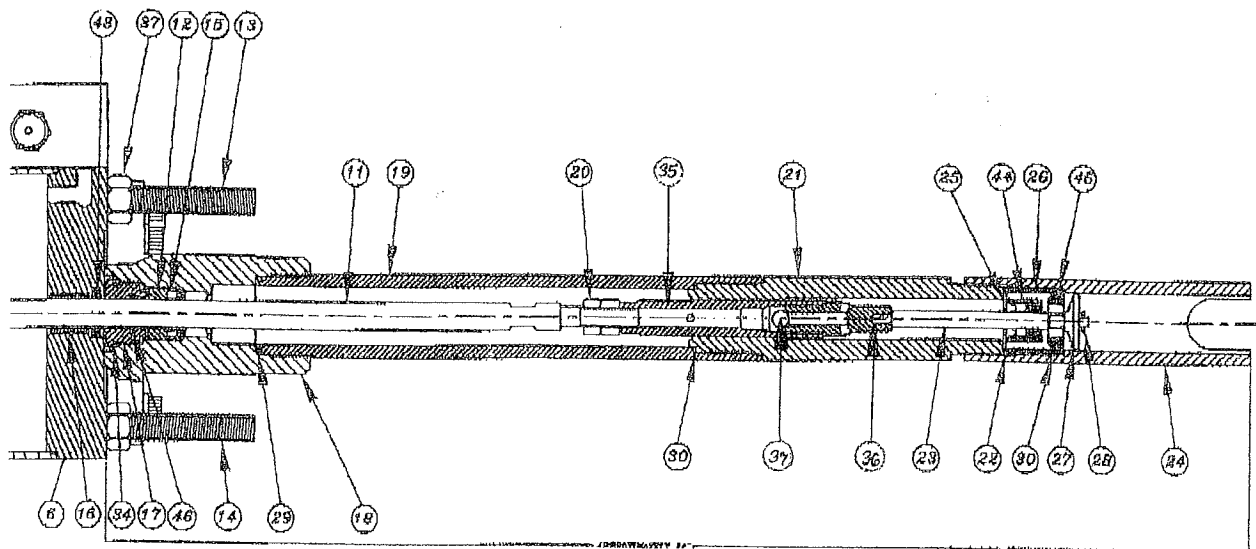
|    |   |        |                              |
|----|---|--------|------------------------------|
| 85 | 1 | 50637  | ORING HUB, 5 QUART FOLLOWER  |
| 86 | 2 | 100144 | ORING,INSIDE HUB (NOT SHOWN) |
| 87 | 1 | 100145 | BUSHING, 3/8"MPT X 1/4" FPT  |
| 88 | 1 | 50219  | 1/4MPT X 1/4 TUBE STR.       |
| 89 | 1 | 100146 | 1/2" x 1/2" HP NIPPLE        |



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 |