

OPERATOR'S MANUAL

651616-X

INCLUDING: OPERATION, INSTALLATION & MAINTENANCE

RELEASED: 6-6-02

INCLUDE MANUALS: 66516-X FOLLOWER PLATE (PN 97999-854), 67195-X FOLLOWER PLATE (PN 97999-841) & S-635 GENERAL INFORMATION (PN 97999-635)

REVISED: 3-4-10
(REV. L)

TWO POST LIFT / RAM (67081 BASIC LIFT / RAM PLUS FOLLOWER PLATE) For use with 5 - 55 Gallon Drums



**READ THIS MANUAL CAREFULLY BEFORE INSTALLING,
OPERATING OR SERVICING THIS EQUIPMENT.**

It is the responsibility of the employer to place this information in the hands of the operator. Keep for future reference.

THIS MANUAL COVERS THE FOLLOWING MODELS (COMPLETE FOLLOWER DATA ON PAGE 3)

MODEL (See Page 3 for Follower Plate)	TYPICAL PUMP APPLICATION
651616-1, -2, -3, -7, -8, -9, -13, -14, -15, -19, -51, -52, -53, -57, -58, -59, -63	3-1/4" TO 6" AIR MOTORS (TIE ROD PUMPS)
651616-4, -5, -6, -10, -11, -12, -16, -17, -18, -20, -54, -55, -56, -60, -61, -62, -64	8" TO 12" AIR MOTORS (TIE ROD PUMPS)

SERVICE KITS

116772 for repair of E512LM valve.

104302 for repair of R37121-100 miniature regulator.

GENERAL DESCRIPTION

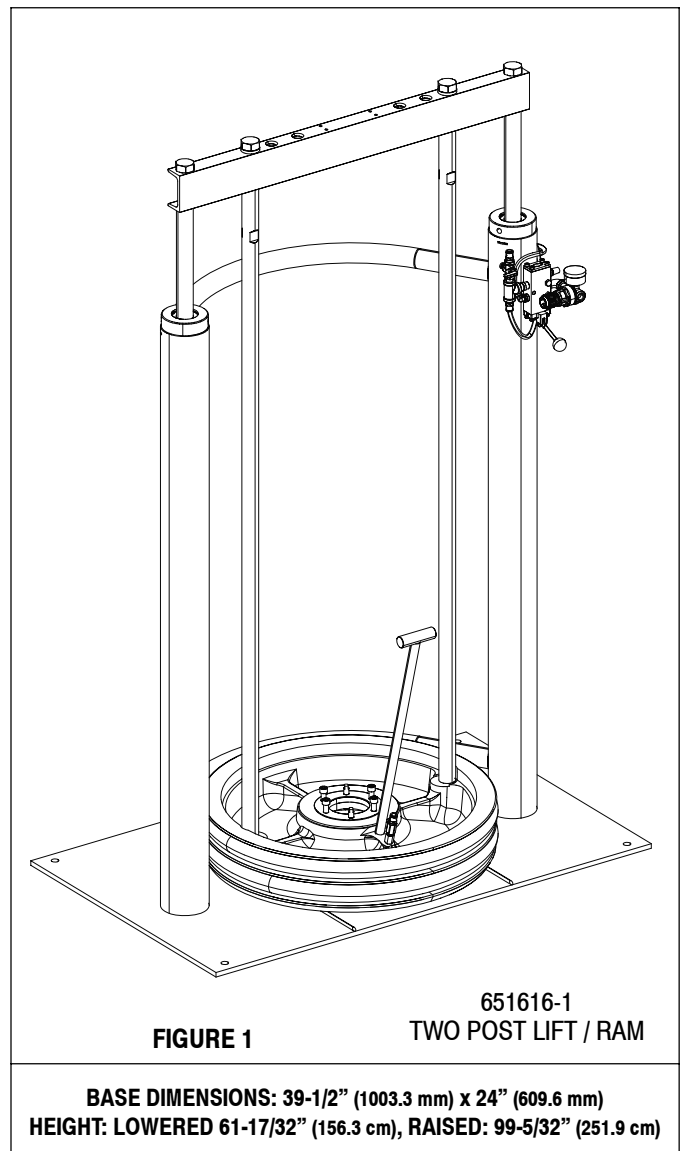
The ARO Model 651616-X Two Post Lift / Ram uses two 3-1/2" air-powered cylinders connected by tubular steel cross member and is welded to a heavy gauge base plate. It is normally used to raise and lower a fluid handling pump and follower in and out of a standard 55 - gallon drum, or when used as a ram it can force high viscosity flowable material into the pump inlet. It is offered with several follower plate options (see page 4) which will accommodate most of the ARO Fluid Handling Industrial pumps and allow connection directly to the pump lower end. There are also mounting locations on the horizontal beam for the vertical rods allowing use with 5 - gallon containers. Pump air controls (F-R-L) can be mounted on the top horizontal support beam using the holes provided.

Cast aluminum followers are fitted with a dual lip seal or dual "O" ring seal to wipe the drum clean and seal off the material from the atmosphere. Several material options are available for the follower plate outer seal. Select a compatible seal for the material being pumped. The model chart above shows the pump motors they will generally accommodate.

When properly secured, this unit has the ability to raise a pump to clear a standard 55 - gallon drum. The operator is then able to easily remove the pump from the drum.

This Lift / Ram uses a hand lever 4-way control valve which controls the air necessary to raise and lower the lift. This unit includes an auxiliary manual air valve which is used to supply a controlled amount of air pressure to the bottom of the follower plate. When the control valve is in the "UP" position, a small amount of air pressure applied under the follower plate will help to raise the follower plate, pump and lift by relieving the vacuum (refer to page 5).

Refer to page 2 for optional accessories available for pump stabilization and drum hold down.



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OPERATING AND SAFETY PRECAUTIONS

- ◇ Read and heed all Warnings, Cautions and Safety Precautions before operating.
- ◇ Use only genuine ARO replacement parts to assure compatible pressure rating and longest service life.

⚠ WARNING ANCHOR THE LIFT BASE SECURELY TO A CONCRETE FLOOR. An improperly secured lift could be unsafe. Do not attempt to use the lift until all possible measures have been taken to insure that the lift has been properly installed and the base has been secured. It is the duty of the installer to provide anchor bolts / studs (not included) and for them to be securely embedded in concrete which is more than 2" thick.



Shock hazard. Striking electrical fixtures can cause injury.

Keep the area overhead clear of electrical devices.

⚠ WARNING PREVENT ELECTRIC SHOCK. Be certain the area above the lift is clear of electrical fixtures, devices and wiring. Examine the working area and take necessary action to assure adequate clearance for the lift and pump assembly to raise to the fullest limit and function properly.




Pinch hazard. Follower can descend quickly causing injury.

Keep hands clear when aligning with container.

⚠ WARNING PINCH HAZARD. Follower can descend quickly, causing injury. Keep hands clear when aligning with container. In the raising and lowering function, the lift could get hung up or the descent could be temporarily restricted. The lift could, in some situations, drop suddenly and be hazardous. If the follower plate does not enter the drum properly, DO NOT ATTEMPT TO REPOSITION IT WITH YOUR HANDS; release the downward pressure, raise the lift, realign the drum and restart.

⚠ WARNING STAND CLEAR. When raising or lowering the lift, keep clear and operate from a safe position.



Hazardous pressure. Can result in injury or property damage.

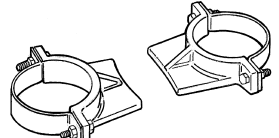
Do not exceed maximum inlet air pressure.

⚠ WARNING HAZARDOUS PRESSURE. Do not exceed maximum inlet air pressure of 150 psi (10.3 bar). Operating lift at higher pressure may cause lift damage and / or personal injury and / or property damage. Do not service or clean pump, hoses or dispensing valve while the system is pressurized.

⚠ WARNING DO NOT EXCEED DRUM PRESSURE LIMITS. Know the pressure limitations of the drum and regulate the air pressure within safe limits when supplying air to the follower plate.

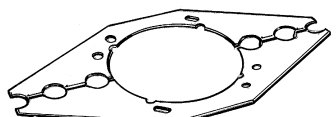
⚠ CAUTION Be certain all operators of this equipment have been trained for safe working practices, understand it's limitations and wear their safety goggles / equipment as required.

OPTIONAL EQUIPMENT

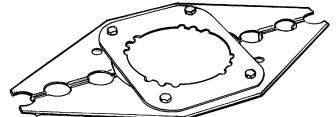


67133 Drum Hold Down Bracket Kit
Includes (2 of each): Brackets, Clamps, Screws, Nuts.

Pump Stabilizing Bracket Kit (includes hardware)

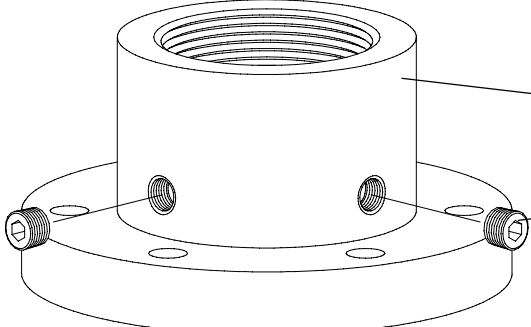


66353-1 for 8", 10", 12" Motors



66354-1 for 3-1/4", 4-1/4", 6" Motors

- **Filter-Regulator-Lubricators**
 - 4-1/4", 6-1/4" - 65940 HD FRL w / Bracket
 - 8" - 651730 HD FRL w / Bracket
 - 10", 12" - 651729 HD FRL w / Bracket
- **Polyethylene Follower Plate seal protector sheets**
 - 91364-10 Pkg of 10 - 20" dia. (5 Gal. drum)
 - 91363-10 Pkg of 10 - 32" dia. (55 Gal. drum)



67136 Adapter Kit

67136 Adapter Kit Assembly

Y17-50-S Pipe Plug (2)

● Included in 67136 Adapter Kit Assembly.

MODEL DESCRIPTION / FOLLOWER PLATE OPTIONS

MODEL	DESCRIPTION	PLATE STYLE	PUMP SIZE	D'BL LIP FOLLOWER SEAL MATERIAL, PART # COLOR	FOLLOWER PLATE (Pg.4)	ROD POS'N	BASIC RAM / LIFT
651616-1	Standard Duty	Flat	Small	Nitrile, 92334 ●	66516	A	67081
651616-2				Polyurethane, 92122 ○	66516-1		
651616-3				EPR, 92132 ●	66516-2		
651616-4	High Volume	Flat	Large	Nitrile, 92334 ●	66517	B	67081
651616-5				Polyurethane, 92122 ○	66517-1		
651616-6				EPR, 92132 ●	66517-2		
651616-7	High Viscosity	Tapered	Small	Nitrile, 92334 ●	66667	A	67081
651616-8				Polyurethane, 92122 ○	66667-1		
651616-9				EPR, 92132 ●	66667-2		
651616-10	High Volume High Viscosity	Tapered	Large	Nitrile, 92334 ●	66668	B	67081
651616-11				Polyurethane, 92122 ○	66668-1		
651616-12				EPR, 92132 ●	66668-2		
651616-13	Any Viscosity	Tapered	Small	EPR, 360-009 ● (TUBE TYPE)	67195-2	A	67081
651616-14				Neoprene, 360-008 ● (TUBE TYPE)	67195-1		
651616-15				Viton, 360-008V ● (TUBE TYPE)	67195-3		
651616-16	High Volume Any Viscosity	Tapered	Large	EPR, 360-009 ● (TUBE TYPE)	67196-2	B	67081
651616-17				Neoprene, 360-008 ● (TUBE TYPE)	67196-1		
651616-18				Viton, 360-008V ● (TUBE TYPE)	67196-3		
651616-19	Any Viscosity	Tapered	Small	Neoprene, 360-008-1 ● (TUBE TYPE)	67195-8	A	67081
651616-20	High Volume Any Viscosity	Tapered	Large	Neoprene, 360-008-1 ● (TUBE TYPE)	67196-8	B	67081
651616-51	Standard Duty	Flat	Small	Nitrile, 92334 ●	66516-5 ■	A	67081
651616-52				Polyurethane, 92122 ○	66516-6 ■		
651616-53				EPR, 92132 ●	66516-7 ■		
651616-54	High Volume Standard Duty	Flat	Large	Nitrile, 92334 ●	66517-5 ■	B	67081
651616-55				Polyurethane, 92122 ○	66517-6 ■		
651616-56				EPR, 92132 ●	66517-7 ■		
651616-57	Any Viscosity	Tapered	Small	EPR, 360-009 ● (TUBE TYPE)	67195-6 ■	A	67081
651616-58				Neoprene, 360-008 ● (TUBE TYPE)	67195-5 ■		
651616-59				Viton, 360-008V ● (TUBE TYPE)	67195-7 ■		
651616-60	High Volume Any Viscosity	Tapered	Large	EPR, 360-009 ● (TUBE TYPE)	67196-6 ■	B	67081
651616-61				Neoprene, 360-008 ● (TUBE TYPE)	67196-5 ■		
651616-62				Viton, 360-008V ● (TUBE TYPE)	67196-7 ■		
651616-63	Any Viscosity	Tapered	Small	Neoprene, 360-008-1 ● (TUBE TYPE)	67195-9 ■	A	67081
651616-64	High Volume Any Viscosity	Tapered	Large	Neoprene, 360-008-1 ● (TUBE TYPE)	67196-9 ■	B	67081

SMALL = 3-1/4", 4-1/4", 6" Motors, 2-Ball, 8" 44:1, 38:1 2-Ball

○ RED

● BLACK

LARGE = 8", 10", 12" Extrusion pumps, (Except 8" 44:1, 38:1)

■ Follower plate is PTFE coated.

LIFT / RAM INSTALLATION

⚠ WARNING Failure to properly install the lift assembly can result in severe personal injury and property damage. Read the warning on page 2.

1. This assembly is shipped in two cartons: a) the follower plate b) the ram / lift. Assemble the vertical rods to the Horizontal Bracket to match the pump and follower plate combination.
2. Establish the desired location for the lift / ram and pay special attention to work area above, this area above the lift must be open, without obstructions and safely away from any electrical devices.
3. **THE LIFT MOUNTING PLATE BASE MUST BE SECURELY ANCHORED TO THE CONCRETE FLOOR.** The mounting plate itself can be used for a template for establishing the proper anchor loca-

tions.

4. Place the pump on the follower plate and align the pump and follower plate on the base and assemble the appropriate vertical rods.
5. Install the check and follower plate air hose from the control valve.
6. Assemble the vent plug to the follower plate.
7. When large pump motors are used, the horizontal arm should be turned over to accommodate the F-R-L which can then be mounted on top.

NOTE: The ram was tested at the factory. The unit should be generally checked over for leakage, because the fittings on the system may have loosened in shipment.

ARO 55 GALLON FOLLOWER PLATES (Refer to the chart on page 3)

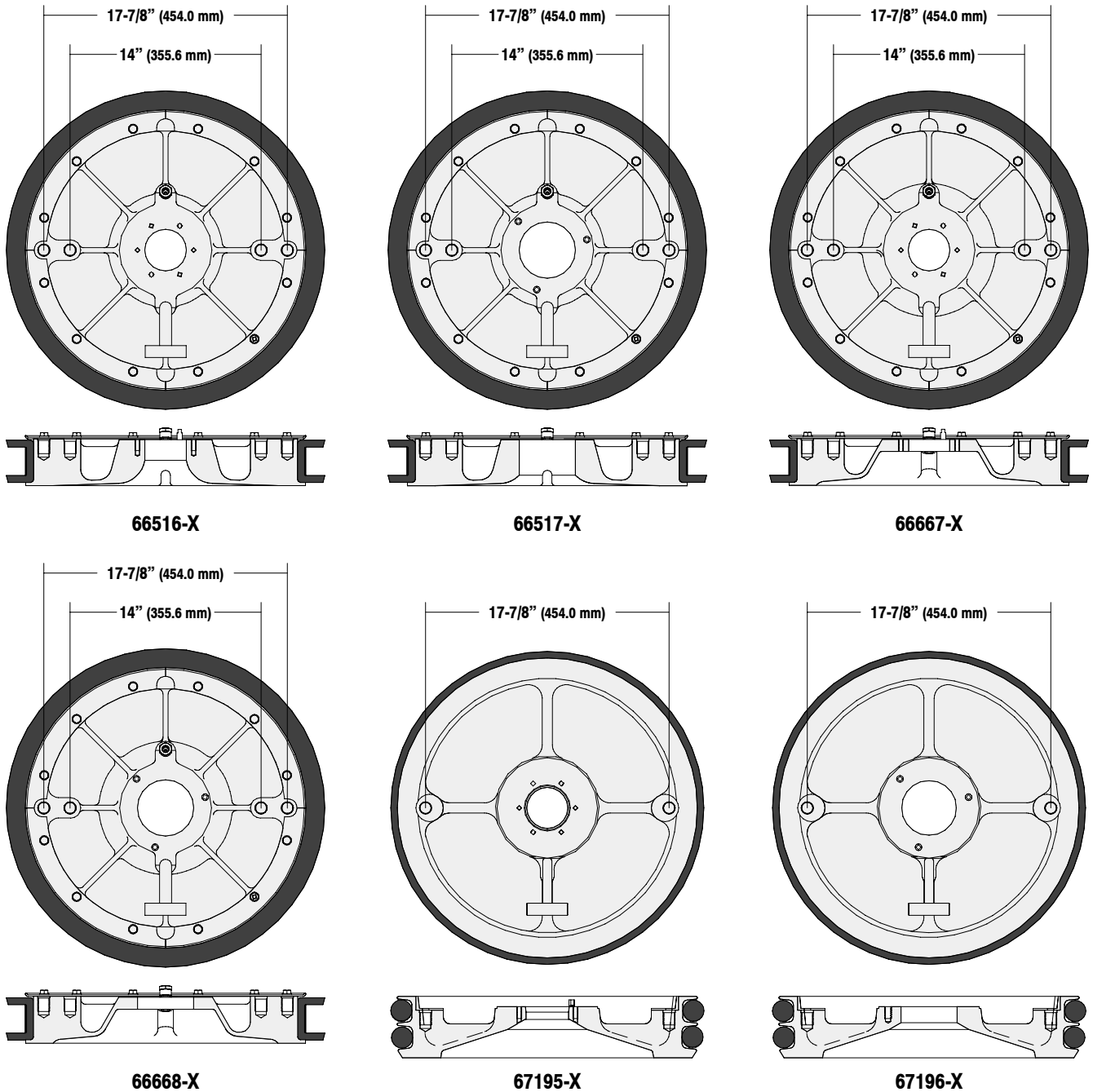


FIGURE 3

OPERATING INSTRUCTIONS

OPERATING INSTRUCTIONS / INITIAL SETUP PROCEDURE

⚠ WARNING **STAND CLEAR.** When raising or lowering the lift.
Read the warning on page 2.

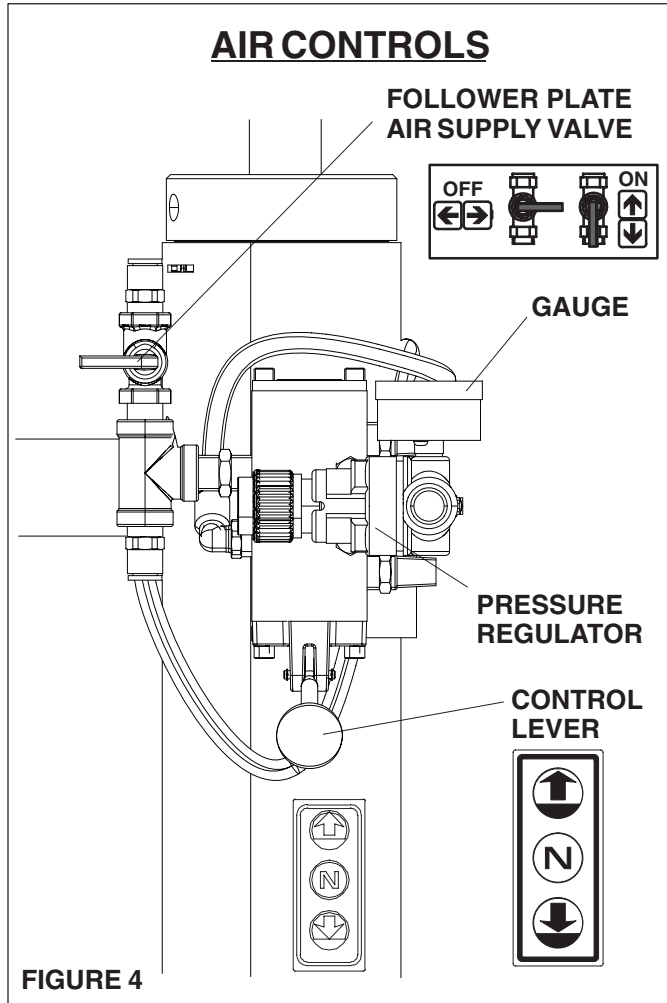


FIGURE 4

TO RAISE LIFT, (THE FIRST TIME):

1. Take note of the pump / drum clearance above. Be certain the lift is clear of any objects above. Also refer to OPERATING AND SAFETY PRECAUTIONS found on page 2.
2. Connect the air supply (150 p.s.i. / 10.3 bar maximum) to the air inlet.
3. Shift the control valve lever to the "UP" position.
4. Raise the lift high enough to clear the height of the drum. Stop the lift upward travel by moving the control valve lever to the (center) "NEUTRAL" position.

TO RAISE LIFT, (NORMAL OPERATION):

1. Adjust the follower plate air valve pressure. **DO NO OVERPRESSURIZE THE DRUM** to avoid damage.
NOTE: Air from this valve will only pass when the control lever is in the "UP" position.
2. Shift the control valve lever to the "UP" position.
3. Raise the lift high enough to clear the height of the drum. Stop the lift upward travel by moving the control valve lever to the (center)

"NEUTRAL" position.

TO CHANGE DRUMS:

- NOTE:** The control lever should be in the "NEUTRAL" position.
1. Place a new drum into position.

TO LOWER LIFT:

⚠ WARNING **PINCH HAZARD.** Follower can descend quickly causing injury. Keep hands clear when aligning with container.
Read the warning on page 2.

NOTE: Be certain the follower plate vent plug has been removed so that the air trapped between the follower and the material is allowed to escape from this vent. Captured air between the follower plate and drum will escape.

NOTE: The lift may hesitate momentarily before starting downward, the air pressure inside the post air chamber must decrease before it will begin to descend.

1. Shift the control valve lever to the "DOWN" position and proceed to lower the pump.
2. Replace the vent plug once the material begins to ooze from the vent opening.

DISASSEMBLY

1. Remove the top cross support bar from the cylinder pistons.
 2. Remove the air valve assembly from the right post.
- The following piston removal instructions are the same for both sides. Piston removal requires the following tools:
- Screwdriver (flat blade)
 - .400" diameter rod, 12" - 18" long
 - E - Ring pliers
3. Using the E - ring pliers, remove the snap ring which retains the backup washer and upper piston "U" cup seal.
 4. Locate one of the two service holes in the cap and insert the .400" diameter rod.
 5. Locate the end of the square retaining wire found 1" down from the top of the cylinder.
 6. The bent tip of the wire protrudes slightly. Using a screwdriver, carefully pry out the wire slightly while using the rod to rotate the cap in a clockwise direction 360°. Unwind the wire and expose the end with the 90° bend.
 7. Remove the wire from the machined hole.
 8. Remove the cap from the cylinder and remove from the piston, remove the washer and upper seal.
 9. Remove the piston assembly. Disassemble as required to replace worn seals.

REASSEMBLY

1. Thoroughly lubricate the cylinder wall, all seals and especially lubricate the groove where the retaining wire is located to aid in reassembly.
2. Replace the cap, align the hole with the access slot. Place the 90° bend of the wire into the machined hole and snap in place. Using the .400" diameter rod, rotate the cap clockwise and feed the retaining wire into position.
3. Place the new seal (with lips down) on the piston, reinstall the washer, place a sleeve over the piston rod to help "seat" the upper seal.

PARTS LIST / 67081

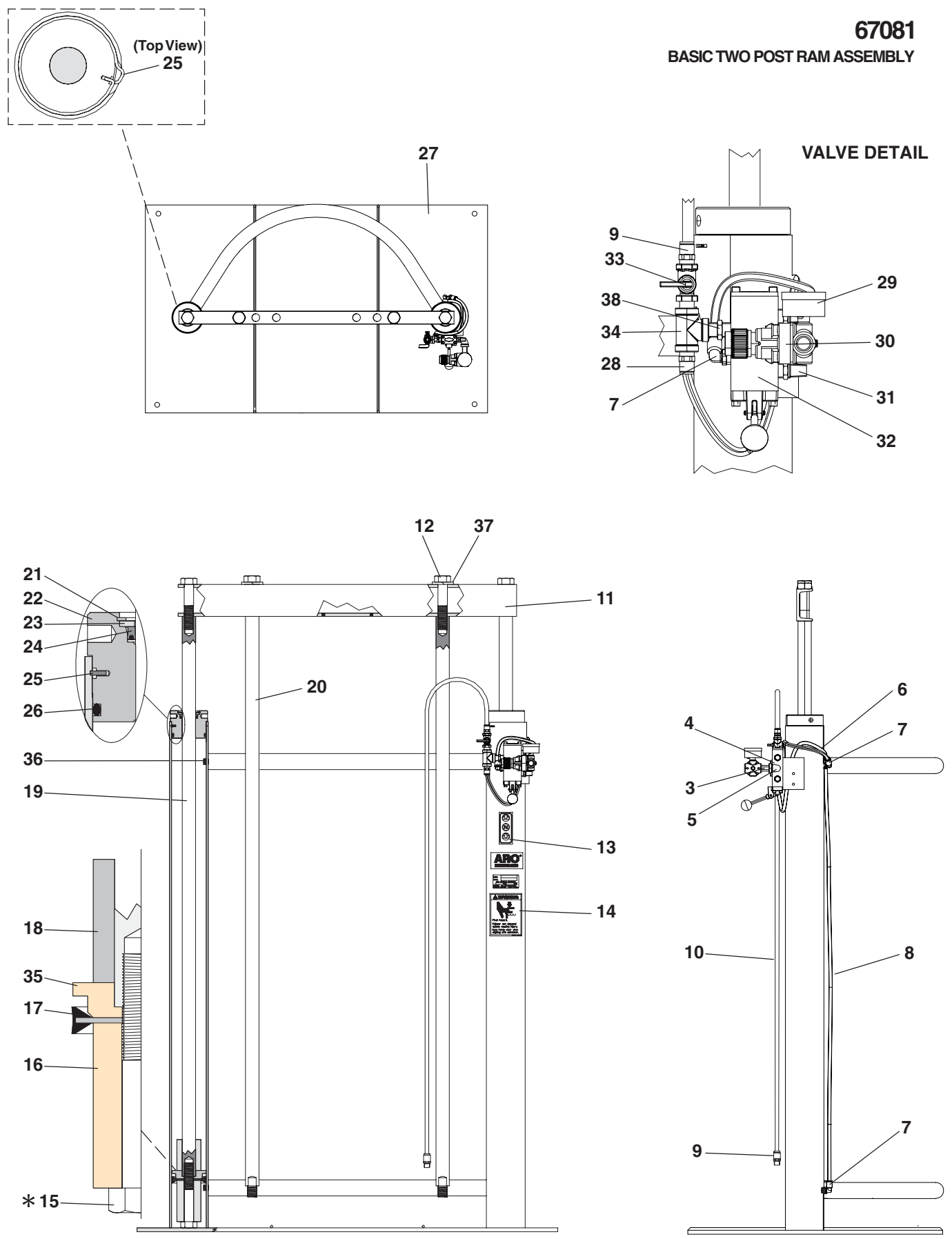
67081 Two Post Ram / Lift

ITEM	DESCRIPTION (Size in inches)	(Qty)	Part No.
3	Nipple (1/4" - 18 N.P.T. x 1-1/2")	(1)	Y27-52-C
4	Screw (1/4" - 20 x 1-1/4")	(2)	Y6-46-C
5	90° Street Elbow (1/4" - 18 N.P.T.)	(1)	Y43-2-C
○ 6	Tubing (5/16" o.d. x 11")	(1)	94980-XXX-X
7	90° Male Fitting (1/4" - 18 N.P.T.)	(3)	59756-158
○ 8	Tubing (5/16" o.d. x 54")	(1)	94980-XXX-X
9	Male Connector (1/4" N.P.T. x 5/16")	(2)	59474-158
○ 10	Tubing (5/16" o.d. x 60")	(1)	94980-XXX-X
11	Mounting Arm	(1)	91350
12	Screw (7/8" - 14 UNF x 4")	(4)	94009
13	Decal (Up - N - Down)	(1)	92449
14	Decal (Warning)	(1)	93922
15	Screw (7/8" - 14 UNF x 5")	(2)	94007
16	Stop	(2)	94008
17	Piston	(2)	94005
18	Stop	(2)	95172
19	Piston Rod	(2)	94014
20	Vertical Support Rod	(2)	94016
21	Retaining Ring (2.210" o.d.)	(2)	Y147-200

ITEM	DESCRIPTION (Size in inches)	(Qty)	Part No.
22	Cap	(2)	95173
23	Retaining Washer	(2)	90509
24	Seal	(2)	94010
25	Retaining Spring Wire	(2)	90503
26	"O" Ring (3/16" x 3-1/4" o.d.)	(2)	Y325-336
27	Welded Assembly	(1)	67077
28	Male Connector (1/4" N.P.T. x 5/16")	(1)	59474-158
29	Gauge (0 - 160 p.s.i. / 0 - 11 bar)	(1)	29850
30	Regulator	(1)	R37121-100
31	Filter Muffler (1/4" - 18 N.P.T.)	(2)	20312-2
32	Valve Assembly ■■	(1)	E512LM
33	Shut-Off Valve (1/4" - 18 N.P.T.)	(1)	Y28-1
34	Tee (1/4" - 18 N.P.T.)	(1)	Y43-32-C
35	Backup	(2)	94123
36	Pipe Plug (1/4" - 18 N.P.T.)	(2)	Y227-3-L
37	Lock Washer (7/8")	(2)	Y14-875
38	Nipple (1/4" - 18 N.P.T.)	(1)	1950
■■	Repair kit for Valve E512LM		116772
○	Bulk Tubing (5/16" o.d. x 100')		

67081

BASIC TWO POST RAM ASSEMBLY



* Apply Loctite 271 to threads.

FIGURE 5

DIMENSIONAL DATA

