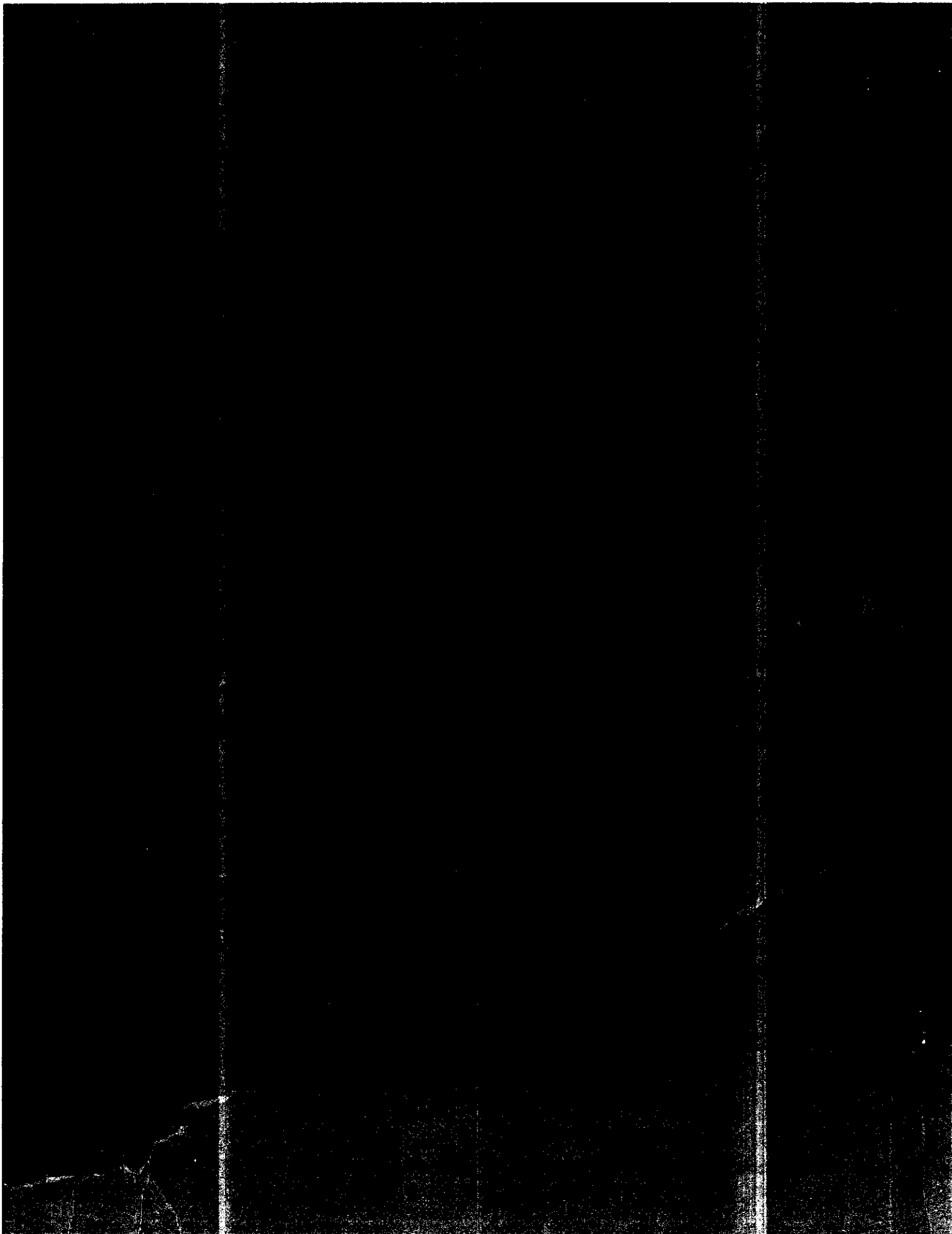
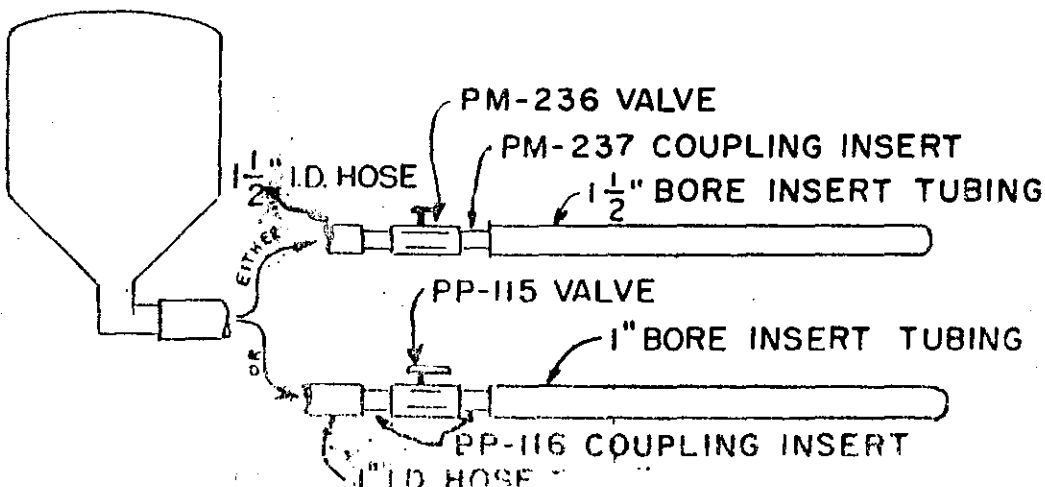
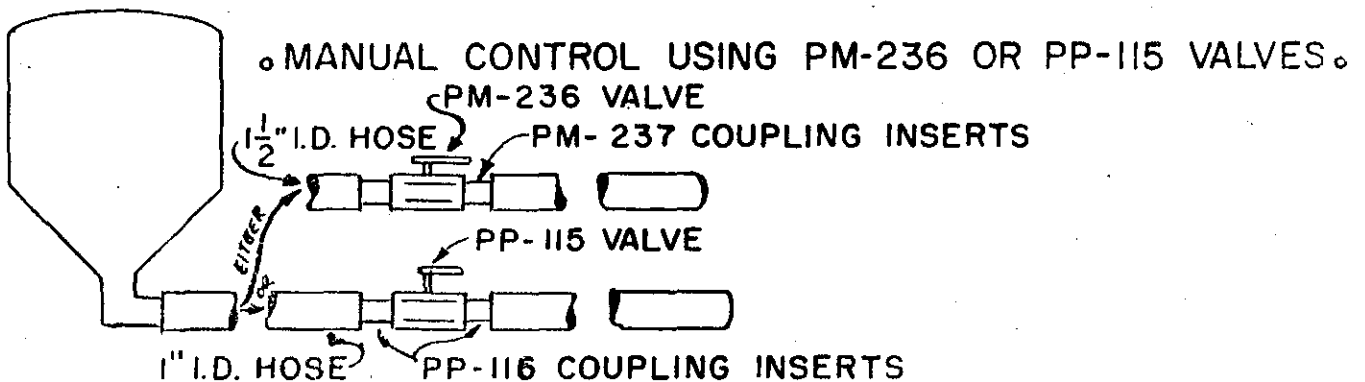
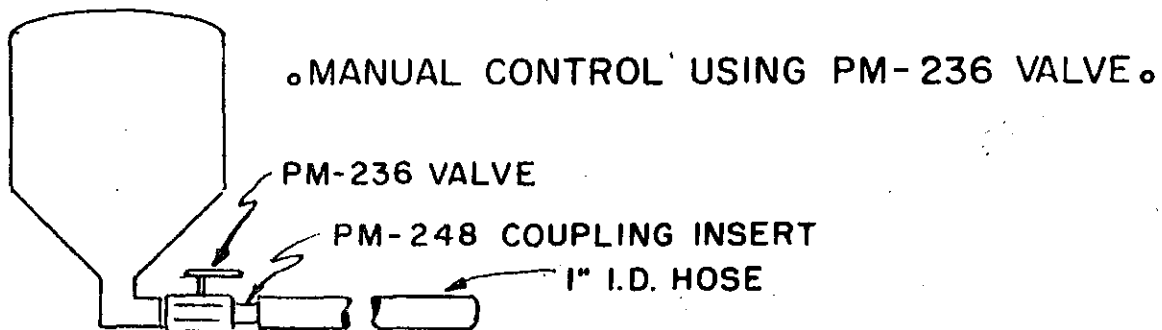
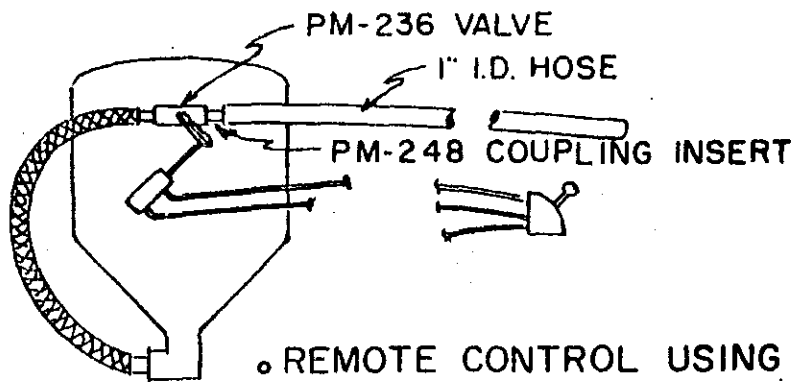


Model P/M

"The Powder Monkey"

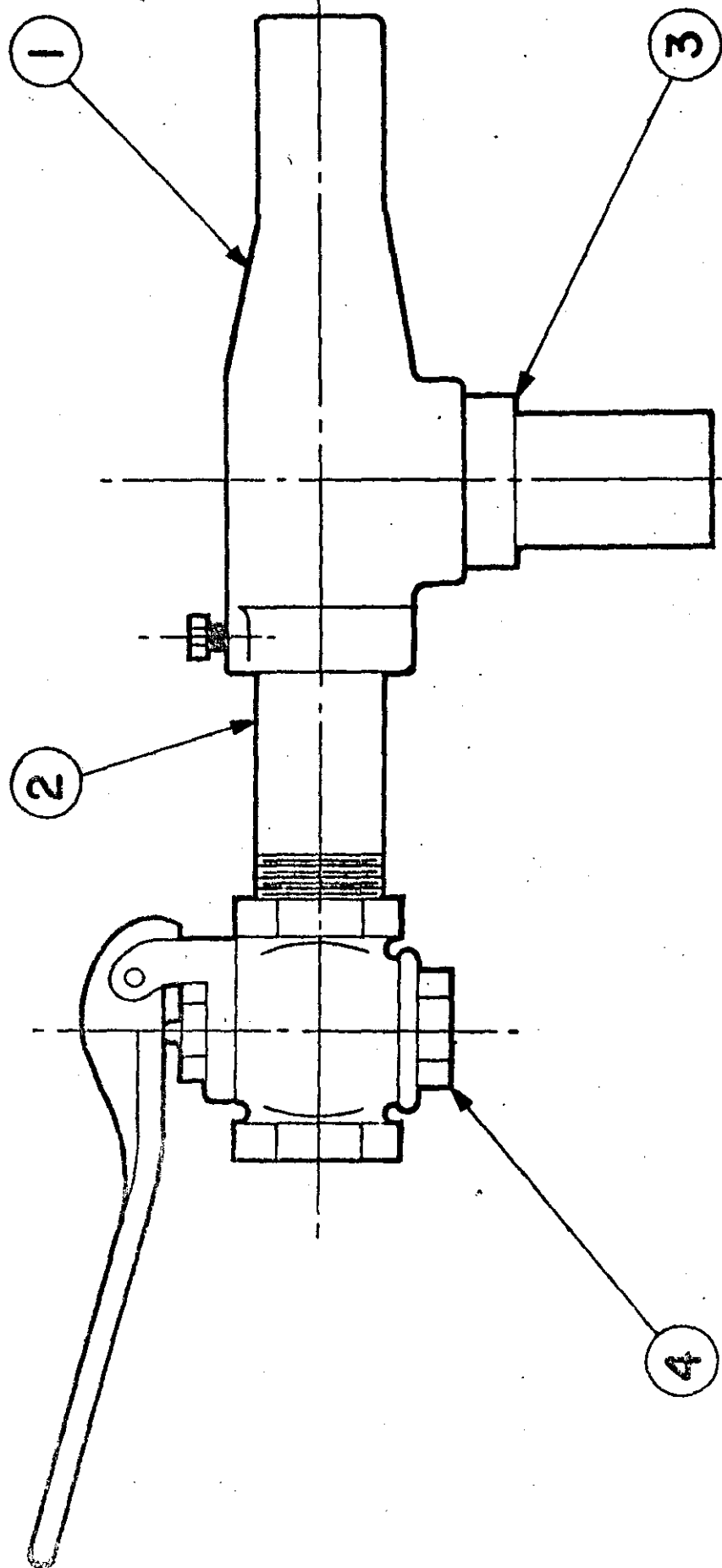


VERSATILE COMBINATION FOR POWDER MONKEY PLACEMENT HOSE & MATERIAL FLOW CONTROL VALVES



PORTO-PLACER EJECTOR NOZZLE PARTS LIST

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>PART NO.</u>	<u>PRICE</u>
1.	$\frac{1}{2}$ " Ejector Nozzle (includes Item 2, Part No. 661106, $\frac{3}{16}$ " Air Jet)	661109	
	$\frac{5}{8}$ " Ejector Nozzle (includes Items 2, Part No. 661152, $\frac{1}{4}$ " Air Jet)	661153	
2.	$\frac{3}{16}$ " Air Jet	661106	
	$\frac{1}{4}$ " Air Jet	661152	
3.	Hose Adaptor	661116	
4.	Lever Valve (Has large "K" cast on side of Valve Body)	661198	
	Neoprene Seat (for Part No. 661198)	661201	
	Stem O-Ring (for Part No. 661198)	661202	
	Lever (for Part No. 661198)	661203	



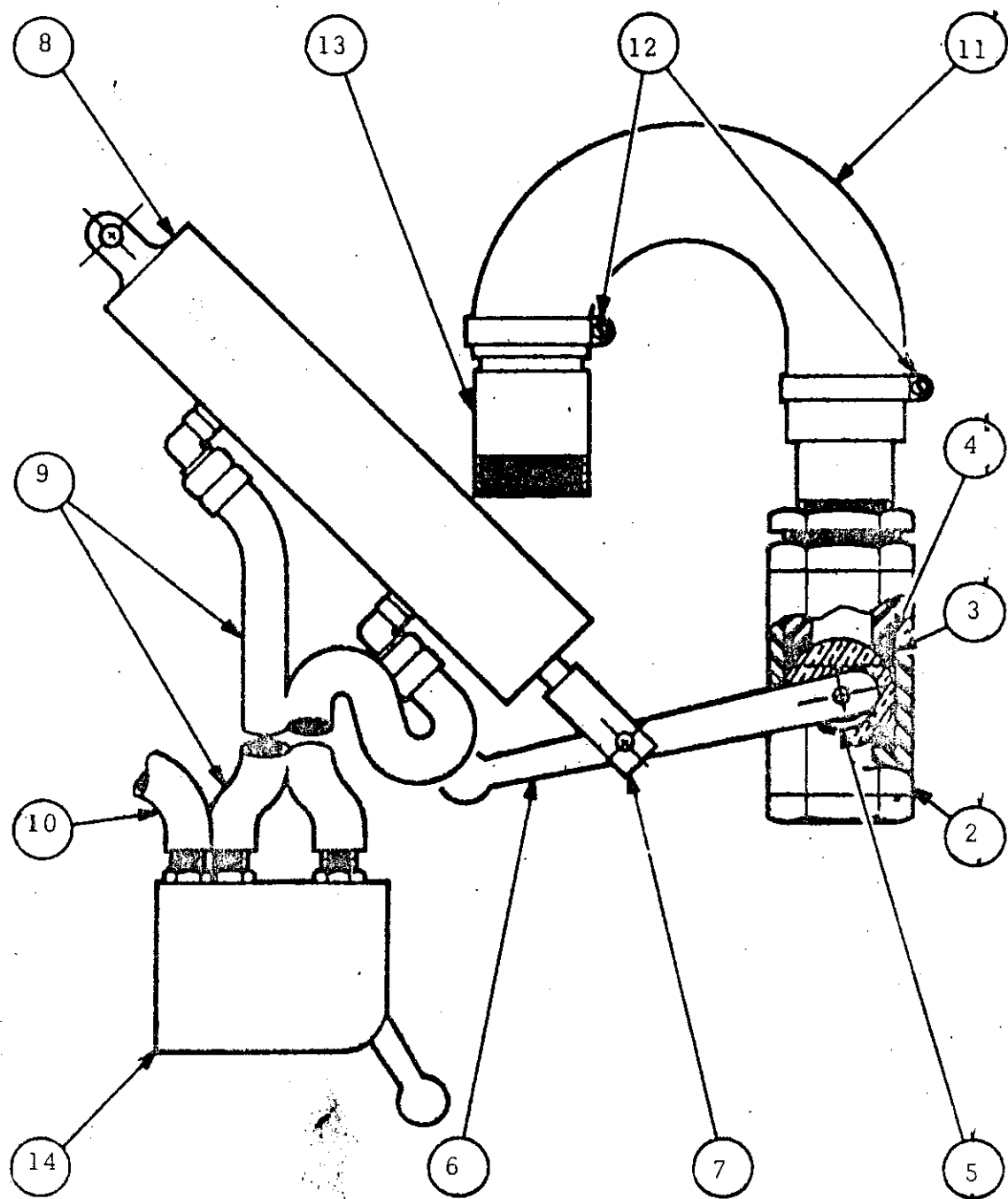
EJECTOR NOZZLE

REMOTE CONTROL KIT

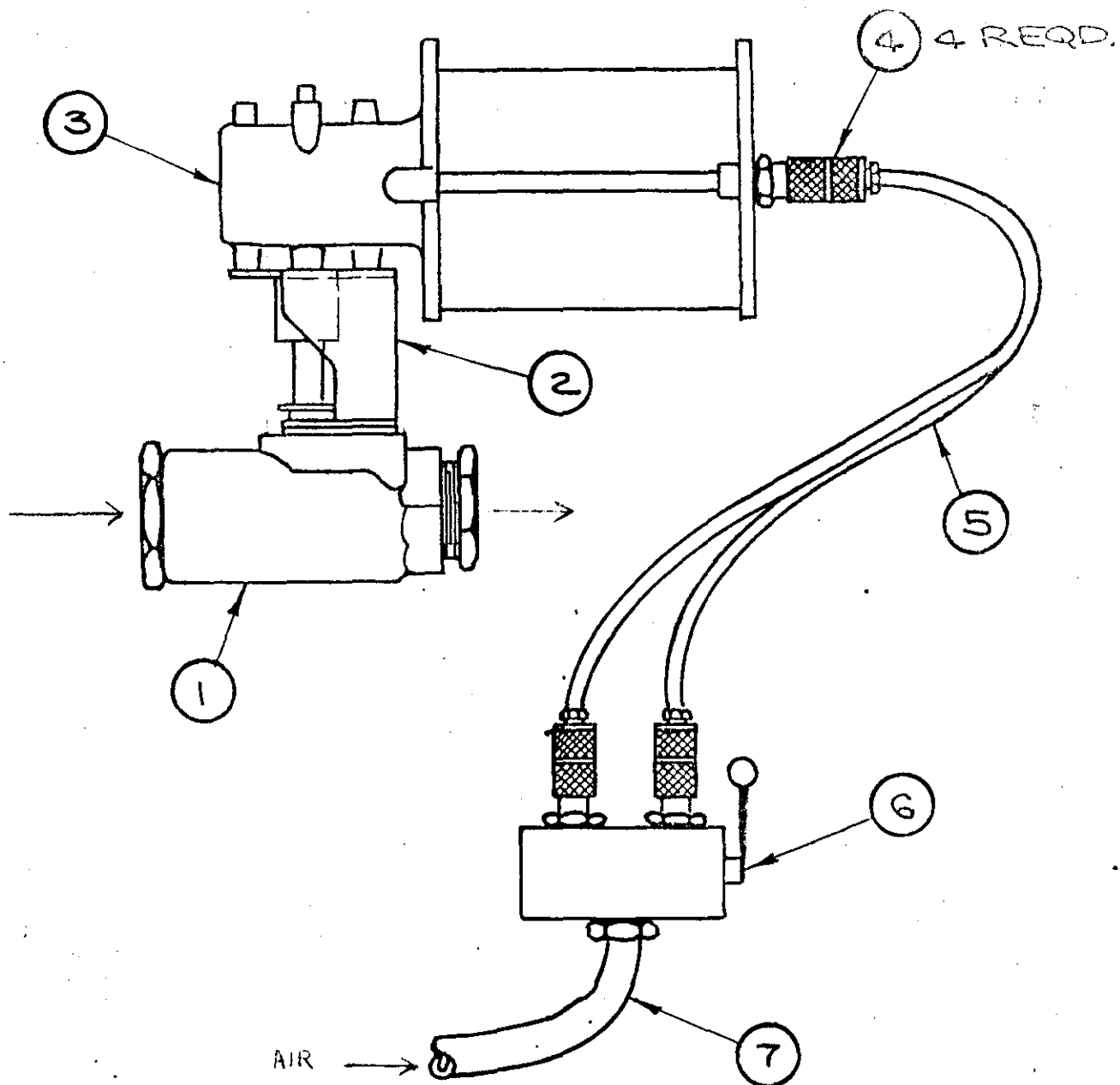
PART NO. 660376

(OLD STYLE)

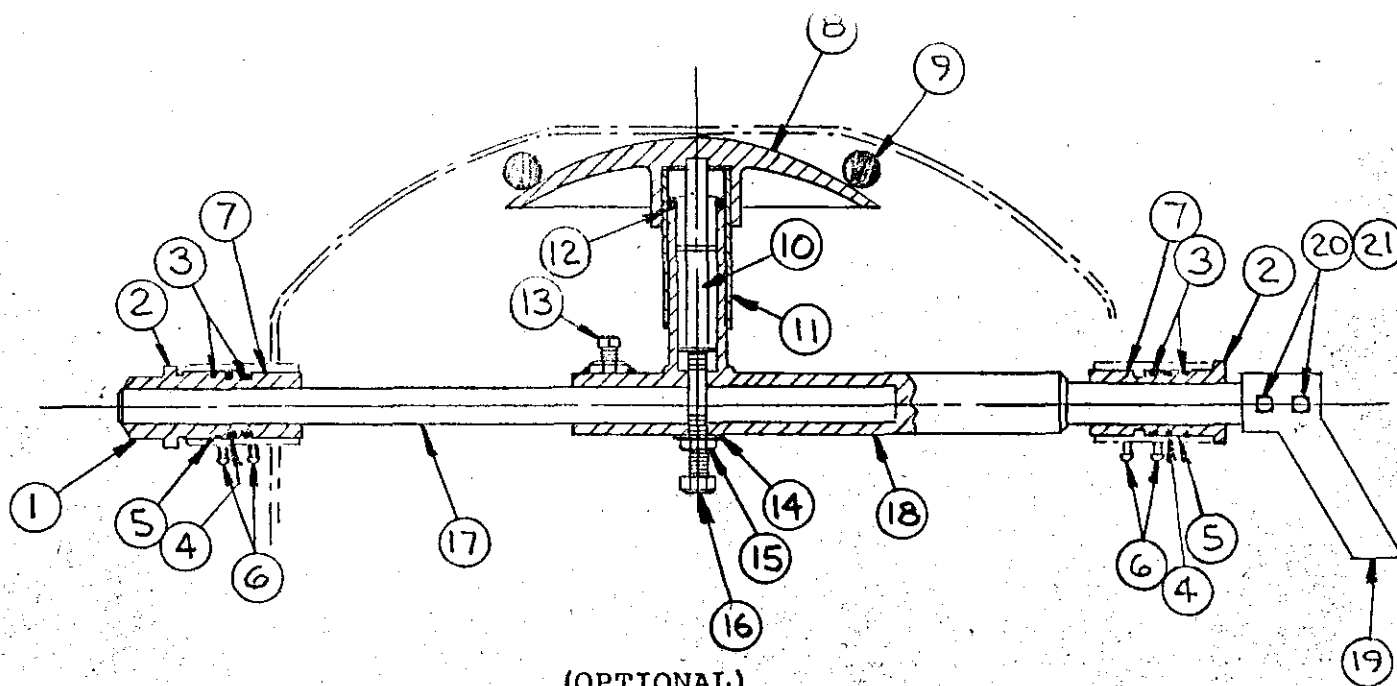
<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>PART NO.</u>
1.	Remote Control Kit (Complete includes parts below)	1	660376
2.	Ball Valve (with standard handle) (Includes Items 2, 3, & 4)	1	660236
3.	Neoprene Seal	2	660151
4.	Body Seal	1	9531136
5.	Stem Seal	1	660154
6.	Valve Handle (for Ball Valve) (Modified)	1	660257
7.	Clevis	1	660135
8.	Air Cylinder	1	660147
9.	Twin Control Hose $\frac{1}{4}$ " x 50' 0"	1	690564
10.	Air Hose, $\frac{1}{4}$ " x 50' 0"	1	690565
11.	Air Hose, 1- $\frac{1}{2}$ " x 45"	1	660155
12.	Hose Clamp	2	616506
13.	Hose Adaptor	1	660319
14.	Control Valve	1	660145



1 REMOTE CONTROL KIT, PART NO. 660376



7	690565	AIR HOSE	1
6	7207100	CONTROL VALVE	1
5	690564	AIR HOSE	1
4	7507108	QUICK COUPLER	4
3	7204100	ACTUATOR CYL.	1
2	7111101	MOUNTING KIT	1
1	660236	BALL VALVE	1
NO.	PART NO.	DESCRIPTION	QTY
Remote Control Kit 710561			



**8" SLIDE VALVE ASSEMBLY
FOR 42" HEAD DIAMETER POWDER MONKEYS
PARTS LIST**

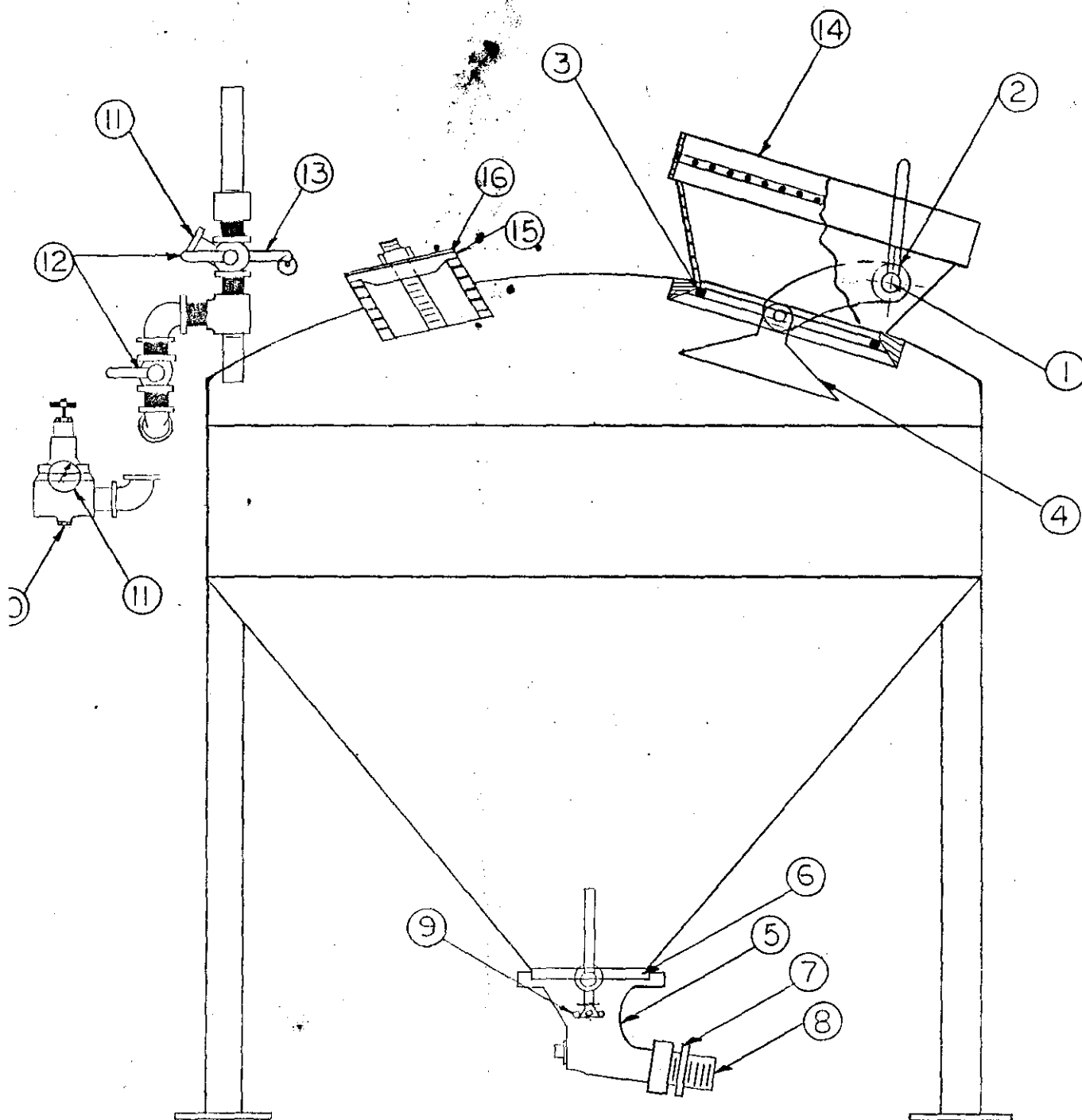
ITEM NO.	DESCRIPTION	PART NO.			
		MODEL			
		PM-			
1	Set Collar (2 Req'd)	614356			
2	Bearing Nut (2 Req'd)	614010			
3	O-Ring (4 Req'd)	9531133			
4	O-Ring (2 Req'd)	9531127			
5	Spherical Bearing (2 Req'd)	614007			
6	Grease Fitting (4 Req'd)	101629			
7	Dirt Seal (6 Req'd)	614240			
8	Slide Valve Disc	614034			
9	Slide Valve "O" Ring	614033			
10	Adjustment Plunger	614085			
11	Slide Valve Sleeve	614008			
12	O-Ring	9531131			
13	Set Screw	9090078			
14	Lock Washer	9177014			
15	Hex Nut	9143005			
16	Adjustment Screw	614494			
17	Removable Pivot Arm Shaft	601275			
18	Weld Pivot Arm Shaft	660382			
19	Handle	660383			
20	3/8" Sq. Hd. Setscrew (2 Req)	9090044			
21	3/8" NC Nut (2 req'd)	9142003			

<u>ITEM- NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>	<u>PART NO.</u>
1.	Valve arm assembly, Includes sleeve, handle, shaft and connecting arm	1	613833
2.	Sleeve only	1	613617
3.	"O" Ring, 8" Fill opening	1	614033
4.	Fill Valve Cone	1	613722
5.	Discharge Housing (Includes items 7, 8 & 9)	1	660121
6.	"O" Ring	1	9531272
7.	Bushing, 2" x 1-1/2"	1	9419004
8.	Nipple, 1-1/2" Close	1	9406007
9.	Hand Nut - 5/8"	4	650716
10.	Pressure Regulator - 1-1/2"	1	7210063
11.	Pressure Gauge	2	613651
12.	Plug Valve - 1-1/2"	2	601220
13.	Pressure Relief Valve	1	650287
14.	Shaker Screen Assembly	1	613966
15.	Hand hole Cover Assembly	1	618261
16.	Gasket (Hand hole Cover)	1	7903002

PM-9, 12, 18, 24 & 30 (8" Fill Valve)

POWDER MONKEY

PAGE 10



PM-9, 12, 18, 24 & 30 (8" Fill Valve)

, POWDER MONKEY

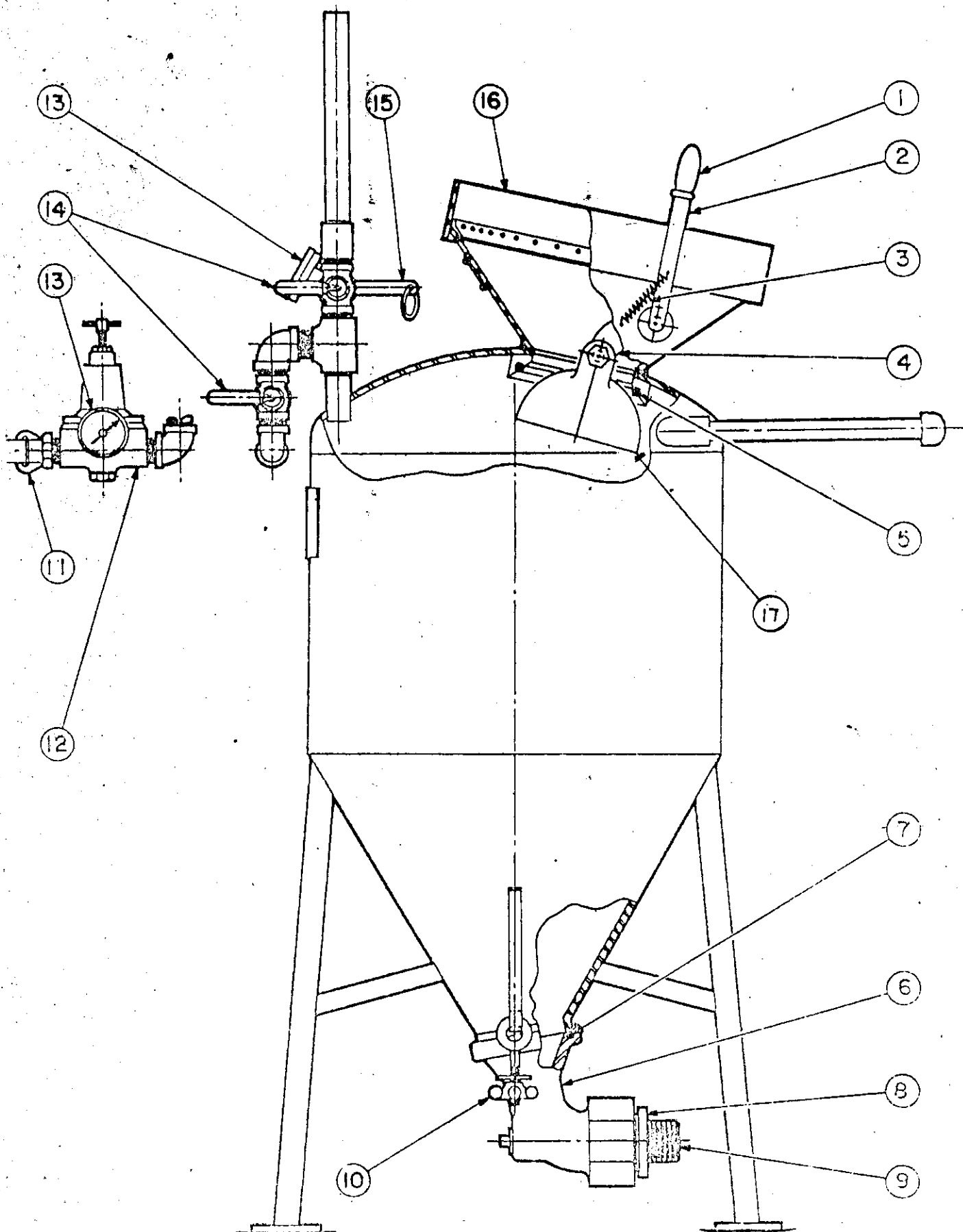
<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>PART NO.</u>
1.	Handle Grip	1	613661
2.	Fill Valve Shaft	1	650119
3.	Spring	1	650120
4.	Valve Control Arm	1	613632
	Set screw, 5/16"	1	9083111
	Set screw, 5/16"	1	9083109
	Key, 3/16"	1	9201081
5.	"O" Ring	1	613602
6.	Discharge Housing (Includes Items 7, 8, 9)	1	660121
7.	"O" Ring	1	9531272
8.	Bushing, 2" x 1-1/2"	1	9419004
9.	Nipple, 1-1/2" Close	1	9406007
10.	Hand Nut, 5/8"	4	650716
11.	Quick Coupler, 1"	1	613657
12.	Pressure Regulator - 1"	1	613650
13.	Pressure Gauge	2	613651
14.	Plug Valve - 1"	2	613655
15.	Pressure Relief Valve	1	650287
16.	Shaker Screen Assembly	1	613966
17.	Valve Sphere	1	613630

PM-3

PM-6

POWDER MONKEY

PAGE 3



PM-3 PM-6
POWDER MONKEY
 (6" FILL VALVE)

DESCRIPTIONPART NUMBERCalwis Hose

3/4" I.D. Plastic Tubing x 25' 0"	660366
3/4" I.D. Plastic Tubing x 50' 0"	660367
1" I.D. Plastic Tubing x 25' 0"	660368
1" I.D. Plastic Tubing x 50' 0"	660369

Rubber Anti-Static

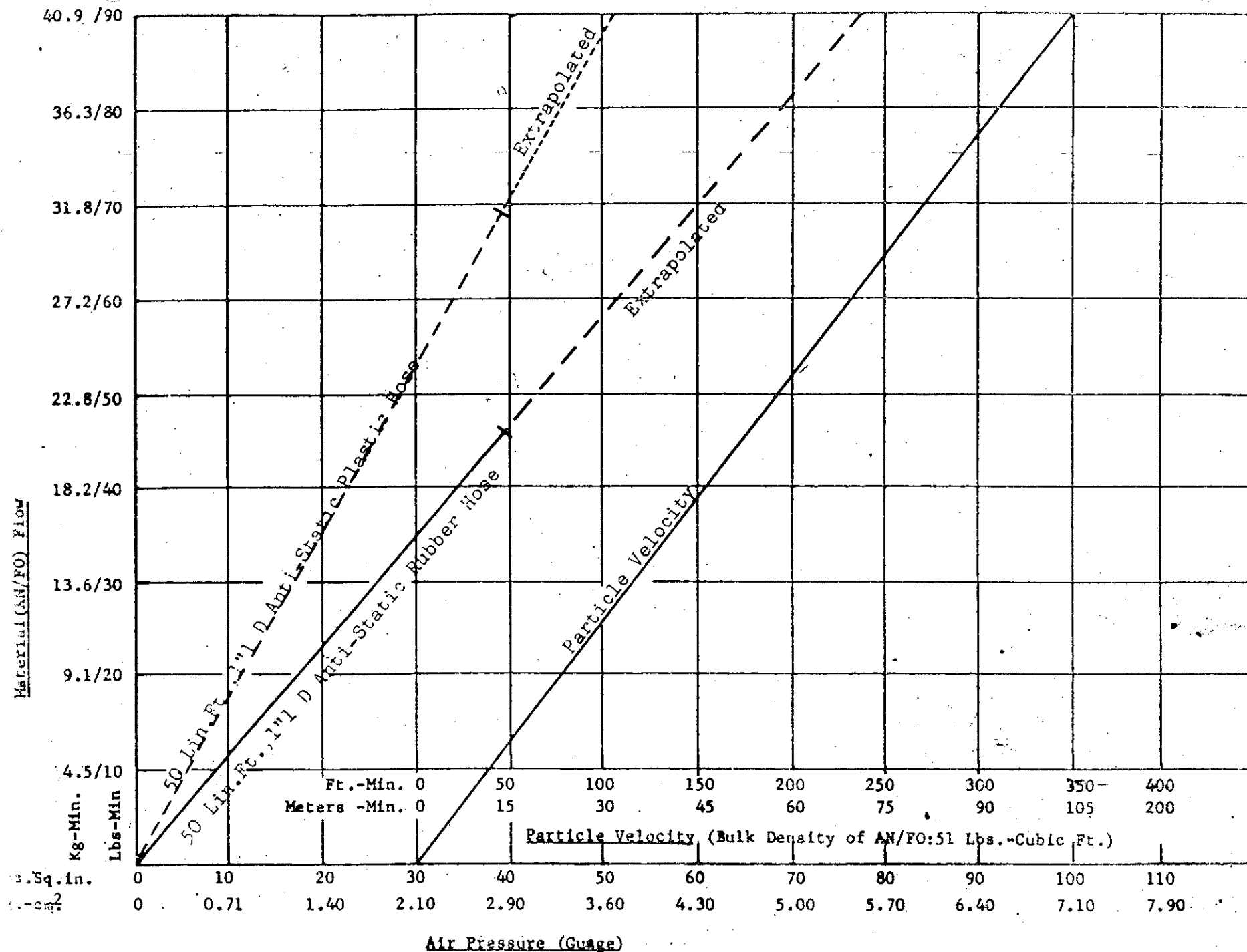
1" I.D. Hose x 25' 0"	660370
1" I.D. Hose x 50' 0"	660371

Coupler (1" I.D. Hose, or tubing, to 1-1/4" Pipe Thread)	660248
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Coupler (3/4" I.D. Hose, or Tubing, to 1-1/4" Pipe Thread)	660249
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Female Coupler (3/4")	660401
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Female Coupler (1")	660402
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will be hard or stiff up to the point of stoppage; past the stoppage the hose will be soft or limp.

2. Turn off the material flow control valve (D). Flex the hose at the point of stoppage until the slug or stoppage has worked loose.
3. Open the material flow control valve (D), and the AN/FO should now flow freely.
4. Once the hose has been cleared, if this has been necessary, the placement procedure can continue without the loss of any AN/FO, because the placement hose discharge end has remained in the hole during the clearing procedure.

IV. MAINTENANCE

A. Cleaning

Regardless of the type of metal used in the construction of the Airplaco "PM", the tank and equipment should be cleaned regularly. In the case of a carbon steel tank, more care is required. Even though ammonium nitrate has a corrosive effect on carbon steel, it has been found through field experience that the oil contained in the ammonium nitrate-fuel oil mixtures has a pickling effect on carbon steel and thereby retards the corrosion caused by the ammonium nitrate. Regardless of this fact, regular cleaning will give you dependable performance from and prolong the life of, your "Powder Monkey". The vessel should be washed with water after use and blown dry. Then 1/2 gallon of fuel oil should be added to the tank, and this also blown out. This care will give the unit a twofold film of protection; one against the ammonium nitrate, and the second against moisture and weather. The Airplaco "Powder Monkey" is a piece of machinery and any piece of machinery requires preventative maintenance to keep it in an optimum operating condition.

C. Filling the Bore Holes

When using the "PM" , loading the bore hole is an easy procedure. The only likely source of difficulty is if the hole is wet. When this is the case, the hole will have to be blown dry and this is accomplished by inserting the placement hose into the bore hole before the AN/FO has been added to the machine, turning on the air and blowing out the water. After the water has been blown out, the air is turned off. The tank is then vented and the ammonium nitrate-fuel oil mixture added to the machine while the placement hose is still in the hole. The material fill valve is then closed, the tank pressurized, and the bore hole is ready to fill. Open the material flow control valve and, by lightly "probing" the column of AN/FO, slowly back the hose out of the bore hole. If dynamite is used as a primer, the placement hose will have to be withdrawn and the dynamite and cap, or detonating cord, placed in the bore hole, the placement hose re-inserted, and then the flow of material resumed. One important point is to be made here: If an Airplaco "PM" is to be used in an operation where the holes are loaded over the legs wires of electric primer caps, the unit should be equipped with an anti-static or semi-conductive hose to facilitate the drain-off of static electricity and thereby minimize the possibility of a premature detonation of the electric cap

After a hole has been loaded with the required amount of ammonium nitrate-fuel oil mixtures, the Airplaco "PM" can be filled with sand, and the remainder of the bore hole then filled with stemming. To move sand, the pressure regulator will have to be readjusted to between 50 and 85 p.s.i. in order to obtain a good flow because of sand's greater weight over that of AN/FO.

III. TROUBLE SHOOTING

A. Hose Stoppages

The "PM" is basically a simple machine. Nearly the only source of potential difficulty is an air leak or a blocked placement hose. In the case of an air leak, the tightening of an air connection will rectify this problem. If the placement hose is blocked, the following procedure should be followed in this order:

1. Leave the pressure on the tank and "walk-out" the placement hose without withdrawing the discharge end from the bore hole. The hose

Line out all hoses and connect, making sure that all connections are air tight. Check the inside of the "PM" for material such as paper, wire, or sticks which might have fallen into the tank.

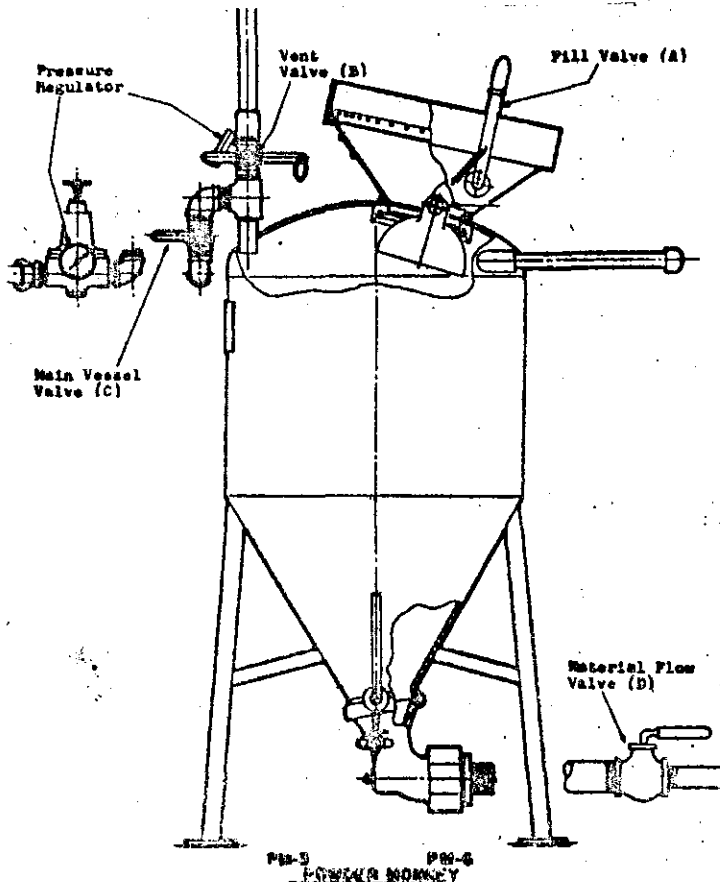
B. Starting Procedure

Place the material screen on the material fill valve cone of the "PM". Open the material fill valve (A) and fill the unit with the ammonium nitrate-fuel oil mixture.

IMPORTANT: When filling, leave space at the top of the tank to allow the closing of the material fill valve; this will be when the vessel is approximately 7/8 full.

Close the material fill valve (A). At this time make sure that the air valve (C) and the material flow control valve (D) are in the "CLOSED" position. The air compressor is now started and the tank air valve (C) is turned to the "OPEN" position.

At this time set the pressure regulator to the desired operating pressure as suggested on page one. The material flow control valve (D) is now opened and the blasting agent will flow through the placement hose and start filling the bore hose. The pitch or tune of the air as it blows the AN/FO mixture into the hole can give an indication as to how fast to back out the placement hose from the hole. Practice on a few holes will give you the "feel" of this operation.



POWDER MONKEY

I. GENERAL INFORMATION

The "Powder Monkey" is basically a pressurized tank. The most popular model is the PM-6, which consists of a hopper or tank with six cubic feet capacity. A unit this size holds approximately 300 pounds of ammonium nitrate-fuel oil mixtures, stands 60" high and weighs approximately 300 pounds, empty. The operating output of this unit on a continuous basis approaches 3-1/2 tons per hour and discharge is accomplished through either semi-conductive polyethylene or anti-static rubber placement hose.

For those who desire either a larger or smaller capacity hopper, the Airplaco "Powder Monkey" is also designed in hopper sizes of 3, 6, 9, 12, 18, 24 and 30 cubic feet. Fifty pounds of ammonium nitrate-fuel oil mixtures occupies approximately one cubic foot in these hoppers.

Actual field testing and experience has shown that the operating pressures of these units will vary under different field conditions. These pressures vary from 15 to 100 p.s.i. The variation of the operating pressure is related to the diameter of the placement hose, the length of this hose, the elevation to which the material is moved, and the difference in weight of the materials when placing either prilled ammonium nitrate-fuel oil mixtures or sand stemming. Units in the field have been used at 90 p.s.i. to move AN/FO vertically to nearly 100 feet. It should be mentioned here that these units are hydrostatically pressure tested before they leave the manufacturer. Common field pressures used from 15 to 45 p.s.i. for prilled ammonium nitrate-fuel oil mixtures and from 50 to 85 p.s.i. for sand stemming. A 25 cfm compressor is sufficient for operating the "Powder Monkey" at pressures from 20 to 30 p.s.i. When greater pressures are required the compressor capacity must be increased; but it is likely that the required air volume will ever exceed 105 cfm.

II. OPERATION

A. Setup Procedure

Locate the "Powder Monkey" near the bore holes to insure a minimum of placement hose and this will provide for a more efficient operation of the unit.

BOOK OF INSTRUCTIONS



BEFORE STARTING AND OPERATING MACHINE,
READ THE INSTRUCTIONS THOROUGHLY. IT
IS NECESSARY TO BECOME ACQUAINTED WITH
THE MACHINE COMPONENTS, THEIR LOCATION,
MAINTENANCE AND ADJUSTMENT REQUIREMENTS.

Model PM

"The Powder Monkey"

