

# OPERATOR'S MANUAL / SALES AND ENGINEERING DATA

**INCLUDING: SPECIFICATIONS, SERVICE KITS, GENERAL INFORMATION, TROUBLESHOOTING.**  
 INCLUDE MANUALS: AF044X-XX Air Motor (pn 97999-1466), 6710X-XXX Lower Pump End (pn 97999-600)  
 and S-632 General Information Manual (pn 97999-624).

**RELEASED: 4-15-10**  
**REVISED: 3-3-17**  
**(REV: D)**

**4-1/4" AIR MOTOR**  
**43.6:1 RATIO**  
**4" STROKE**

## AF0443XXXXXXXX-XX-X EXTRUSION PUMP



**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.**

### SERVICE KITS

- Use only genuine ARO® replacement parts to assure compatible pressure rating and longest service life.
- **637489** for repair of Air Motor section.
- **63729X-XXX-X** for repair of Lower Pump section. Refer to the chart on page 2 for description of - P4X options.

### SPECIFICATIONS

<b>Model Series</b> (refer to option chart)	AF0443XXXXXXXX-XX-X
<b>Pump Type</b>	Air Operated, Extrusion Double Acting Pump
<b>Ratio</b>	43.6:1
<b>Air Motor</b>	AF0441-XX
<b>Motor Repair Kit</b>	637489
<b>Motor Diameter</b>	4-1/4" (10.8 cm)
<b>Stroke (double acting)</b>	4" (10.2 cm)
<b>Air Inlet (female)</b>	1/2 - 14 NPTF - 1
<b>Air Exhaust (female)</b>	1-1/4 - 11-1/2 NPTF - 1
<b>Lower Pump End Series</b>	6710X-XXX
<b>Lower Pump Repair Kit</b>	63729X-X4X
<b>Material Outlet (female)</b>	1/2 - 14 NPTF - 1

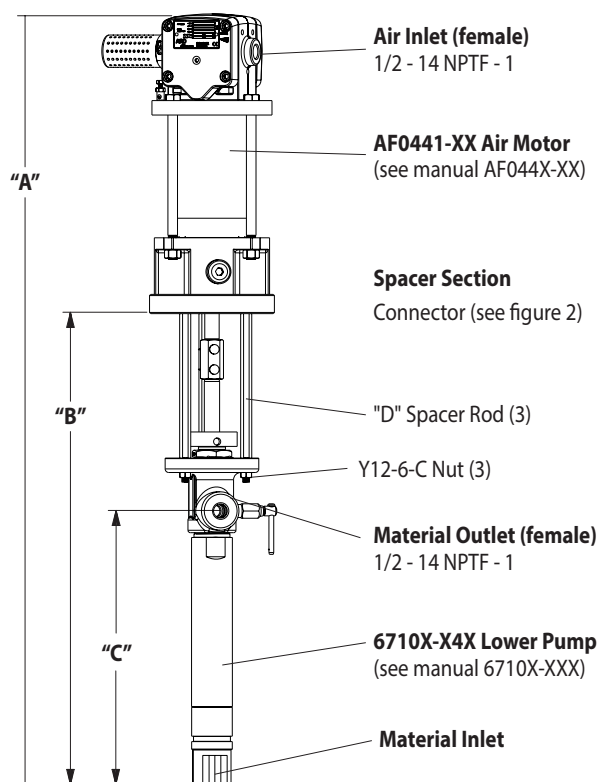
### PUMP PERFORMANCE

<b>Air Inlet Pressure Range</b>	30 - 150 psi (2.1 - 10.3 bar)
<b>Fluid Pressure Range</b>	1308 - 6549 psi (90.2 - 451.7 bar)
<b>Maximum Rec'd Cycles / Minute</b>	60
<b>Displacement Per Cycle</b>	2.85 In <sup>3</sup> (46.7 cc)
<b>Cycles Per Gallon</b>	81
<b>Flow @ 60 Cycles / Minute</b>	0.74 gpm (2.8 lpm)
<b>Noise Level @ 60 psi - 40 cpm</b>	89.2 dB(A)*

\* The pump sound pressure level has been updated to an Equivalent Continuous Sound Level (LAeq) to meet the intent of ANSI S1.13-1971, CAGI-PNEUROP S5.1 using four microphone locations.

### PUMP DATA

#### MODEL AF0443XXXXXXXX-XX-X



**Figure 1**

**NOTE:** Dimensions are shown in inches and mm and are supplied for reference only.

	"A" (mm)	"B" (mm)	"C" (mm)	"D" (3)
AF0443X2XX	40.01 (1016.3)	24.44 (620.8)	14.19 (360.4)	93962
AF0443X7XX	48.91 (1242.3)	33.34 (846.8)	14.19 (360.4)	93962-2
<b>(for -1 model)</b>				
AF0443X2XX	42.09 (1069.1)	24.44 (620.8)	14.19 (360.4)	93962
AF0443X7XX	50.99 (1295.1)	33.34 (846.8)	14.19 (360.4)	93962-2

### IMPORTANT

**This is one of four documents which support the pump. Replacement copies of these forms are available upon request.**

- AF0443XXXXXXXX-XX-X** Model Operator's Manual (pn 97999-1501)
- S-632** General Information - Industrial Piston Pumps (pn 97999-624)
- 6710X-XXX** Lower Pump End Operator's Manual (pn 97999-600)
- AF044X-XX** Air Motor Operator's Manual (pn 97999-1466)

## PUMP OPTION DESCRIPTION CHART

Pump Model	Lower Pump End	Lower End Repair Kit
<b>AF0443XXXXXXXX-X</b> <div style="margin-left: 20px;"> <ul style="list-style-type: none"> <li>└─ Air Motor Option</li> <li>└─ Plunger type</li> <li>└─ Spring type</li> <li>└─ Lower packing material</li> <li>└─ Upper packing material</li> <li>└─ Container suitability</li> <li>└─ Wetted material</li> </ul> </div>	<b>6710X-P4X</b> <div style="margin-left: 20px;"> <ul style="list-style-type: none"> <li>└─ Plunger type</li> <li>└─ Packing Material</li> <li>└─ Wetted Materials</li> </ul> </div>	<b>63729X-P4X</b> <div style="margin-left: 20px;"> <ul style="list-style-type: none"> <li>└─ Plunger type</li> <li>└─ Packing Material</li> <li>└─ Wetted Materials</li> </ul> </div>

### Wetted Materials

Carbon Steel	S	0	0
300 Stainless Steel	T	1	1

### Container Suitability

5 Gallon (35 lbs)	2	N/A	N/A
5 Gallon with extended tie rods	7	N/A	N/A

### Packing Material:

UHMW-PE / Glass filled PTFE staggered (upper) UHMW-PE (lower cup)	GF	P	P
UHMW-PE / Glass filled PTFE staggered (upper) UHMW-PE (lower ribs)	GN	P	P
UHMW-PE / Leather staggered (upper) UHMW-PE (lower cup)	HF	F	F
UHMW-PE / Leather staggered (upper) UHMW-PE (lower ribs)	HN	F	F

### Spring Type

Multiple Wave Spring	4	4	4
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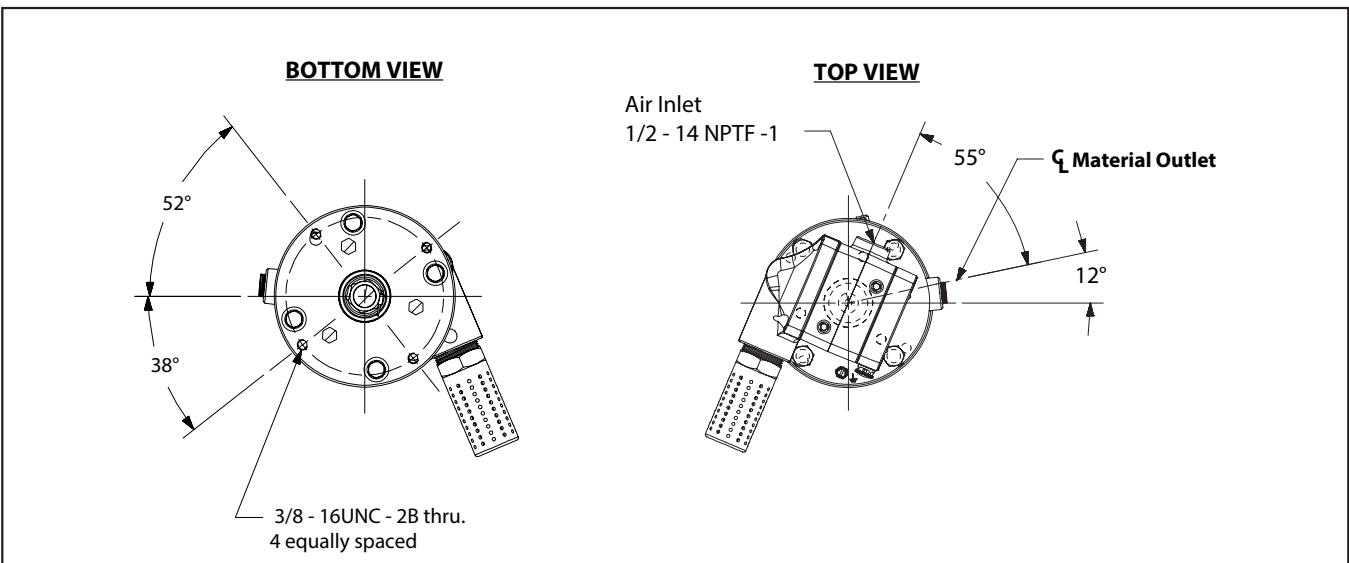
### Plunger Type

Hardened Stainless Steel with Hard Chrome Plating	7	3	3
Hardened Stainless Steel with Alternate Piston	7	8	8

### Air Motor Option

No Option	-	N/A	N/A
Integrated ball valve regulator	1	N/A	N/A

## DIMENSIONS



## GENERAL DESCRIPTION

- The chop-check pumps are primarily designed for the pumping of heavy viscous material with or without fibrous content. The models can be used with a gravity feed single post lift as a topper type assembly or with a two post lift as a force feed type assembly. The lower pump is designed for easy priming and the double acting feature is standard in all ARO industrial pumps. Material is delivered to the pump discharge outlet on both the up and down stroke.
- The motor is connected to the lower pump end by a spacer section. This allows for lubrication of the upper packing gland and prevents motor contamination because of normal wear and eventual leakage through the material packing gland. Be sure the solvent cup is adequately filled with lubricant to protect the upper packings and insure longest service life.

**⚠ WARNING HAZARDOUS PRESSURE. Do not exceed maximum operating pressure of 6549 psi (451.7 bar) at 150 psi (10.3 bar) inlet air pressure.**

**Pump Ratio X = Maximum Pump Fluid Pressure**  
**Inlet Pressure to Pump Motor**

Pump ratio is an expression of the relationship between the pump motor area and the lower pump end area. EXAMPLE: When 150 psi (10.3 bar) inlet pressure is supplied to the motor of a 4:1 ratio pump, it will develop a maximum of 600 psi (41.4 bar) fluid pressure (at no flow) - as the fluid control is opened, the flow rate will increase as the motor cycle rate increases to keep up with the demand.

**⚠ WARNING Refer to general information sheet for additional safety precautions and important information.**

**NOTICE:** Thermal expansion can occur when the fluid in the material lines is exposed to elevated temperatures. Example: Material lines located in a non-insulated roof area can warm due to sunlight. Install a pressure relief valve in the pumping system.

**Replacement warning label (pn 92325) is available upon request.**

## TROUBLE SHOOTING

Pump problems can occur in either the air motor section or the lower pump end section. Use these basic guidelines to help determine which section is affected.

### Pump will not cycle.

- Be certain to first check for non-pump problems including kinked, restrictive or plugged inlet / outlet hose or dispensing device. Depressurize the pump system and clean out any obstructions in the inlet / outlet material lines.
- Refer to the motor manual for trouble shooting if the pump does not cycle and / or air leaks from the air motor.
- Damaged motor. Service the motor.

### Pump cycles but does not deliver material.

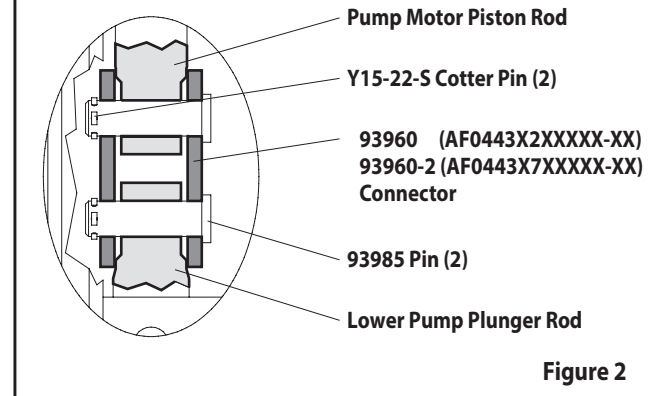
- Refer to the lower pump end manual for further trouble shooting.

## PUMP CONNECTION - UPPER / LOWER

**NOTE: All threads are right hand.**

1. Lay the pump assembly on a work bench.
2. Remove the three (Y12-6-C) nuts from the three spacer rods (see figure 1).
3. Pull the air motor from the lower pump end until the motor piston rod is in the "down" position and the lower pump end rod is in the "up" position.
4. Unscrew the three "D" spacer rods from the air motor assembly.
5. Remove the two (Y15-22-S) cotter pins and remove the two (93985) pins. Remove the (93960-()) connector (see figure 2).

### PUMP CONNECTION DETAIL

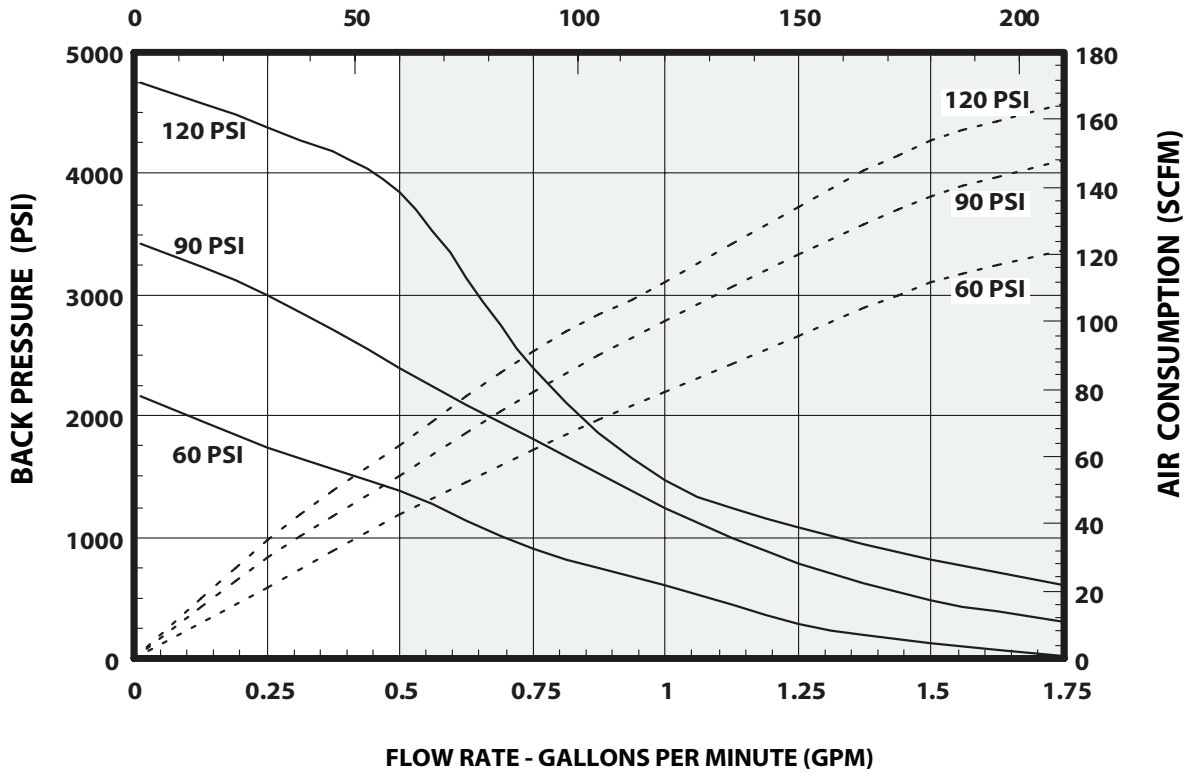


## REASSEMBLY

1. Align the lower pump end plunger with the air motor piston rod. Position the air inlet of the motor 55° from the material outlet.
2. Position the (93960-()) connector in place and insert the two (93985) pins into the connector. Use the two (Y15-22-S) cotter pins to retain the pins.
3. Screw the three "D" spacer rods into the air motor base.
4. Align the holes in the lower pump body with the three "D" spacer rods and slide into the holes. Retain using the three (Y12-6-C) nuts.

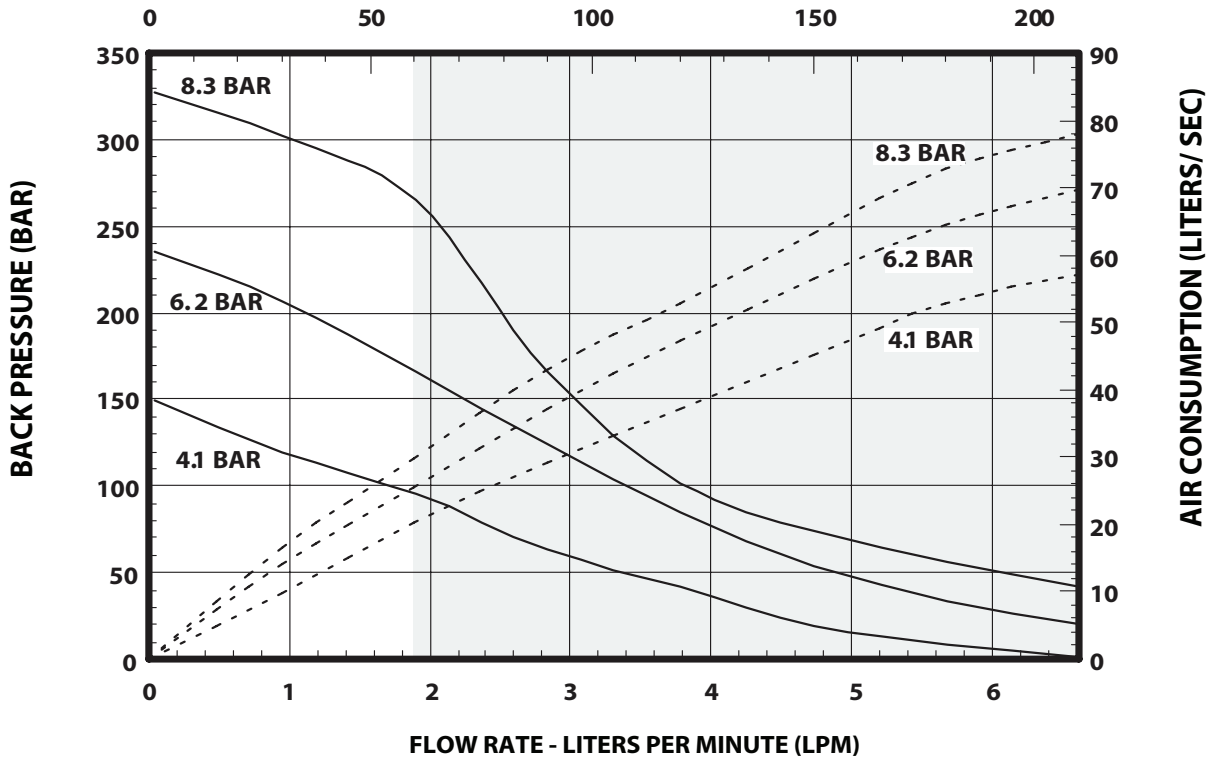
# PERFORMANCE CURVES

**PERFORMANCE BASED ON 30wt. OIL (100cSt) AT 40°C TEMPERATURE**  
**CYCLE PER MINUTE (CPM)**



NOTE: NON SHADED AREA OF THE GRAPH REPRESENTS RECOMMENDED OPERATING RANGE

**PERFORMANCE BASED ON 30wt. OIL (100cSt) AT 40°C TEMPERATURE**  
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NOTE: NON SHADED AREA OF THE GRAPH REPRESENTS RECOMMENDED OPERATING RANGE