OPERATOR'S MANUAL NM2304B-X-X

INCLUDING: SPECIFICATIONS, SERVICE KITS, GENERAL INFORMATION, TROUBLESHOOTING.
INCLUDE MANUALS: 1875CXXXXXX Lower Pump End (pn 97999-1583), 6691X Air Motor (pn 97999-748) and S-632 General Information Manual (pn 97999-624).

RELEASED: 10-17-97
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(REV: K)

3" AIR MOTOR
4:1 RATIO
3" STROKE

NM2304B-X1-X1X TWO-BALL PUMP SERIES

Stainless Steel

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.
- **637316** for repair of air motor section.
- **K1875C11SS00** for repair of 1875CXXSSXX lower pump ends.
- **K1875C11FF00** for repair of 1875CXXFFXX lower pump ends.
- **K1875C11VS00** for repair of 1875CXXVSXX lower pump ends.
- **K1875C11LF00** for repair of 1875CXXLFXX lower pump ends.
- **K1875C11US00** for repair of 1875CXXUSXX lower pump ends.

SPECIFICATIONS

Model Series (refer to option chart) NM2304B-X1-X1X
Pump Type ..... Air Operated, Two-Ball
Ratio 4:1
Air Motor 66913
Motor Repair Kit 637316
Motor Diameter ..... 3" (7.62 cm)
Stroke (double acting) ..... 3" (7.62 cm)
Air Inlet (female) ..... 1/4 - 18 NPTF - 1
Lower Pump End Series
NM2304B-11-C11 ..... 1875C11FF22
NM2304B-11-C1B 1875C11FF29
NM2304B-11-W11 ..... 1875C11VS22
NM2304B-11-111 ..... 1875C11LF22
NM2304B-11-311 ..... 1875C11SS22
NM2304B-11-511 ..... 1875C11US22
NM2304B-11-31B 1875C11SS29
NM2304B-41-C11 ..... 1875C51FF22
NM2304B-41-111 ..... 1875C51LF22
NM2304B-41-311 ..... 1875C51SS22
NM2304B-41-511 ..... 1875C51US22
Lower Pump Repair Kit K1875CXXXXXX
Material Inlet (female) ..... 1-1/4 - 11-1/2 NPSM
Material Outlet (female) ..... 3/4 - 14 NPTF

PUMP PERFORMANCE

Air Inlet Pressure Range ..... 30 - 150 psig (2.1 - 10.3 bar)
Fluid Pressure Range ..... 60 - 795 psig (4.1 - 54.8 bar)
Maximum Rec'd Cycles / Minute 120
Displacement Per Cycle ..... 8.2 In^3 (134 cc)
Cycles Per Gallon 28
Flow @ 120 Cycles / Minute ..... 4.26 gpm (16.121 lpm)
Noise Level @ 100 psig - 60 cpm ..... 85.0 dB(A)①
Accessories Available
61113 Wall Mount Bracket
66073-1 Air Line Connection Kit

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

PUMP DATA

MODEL NM2304B-X1-X1X

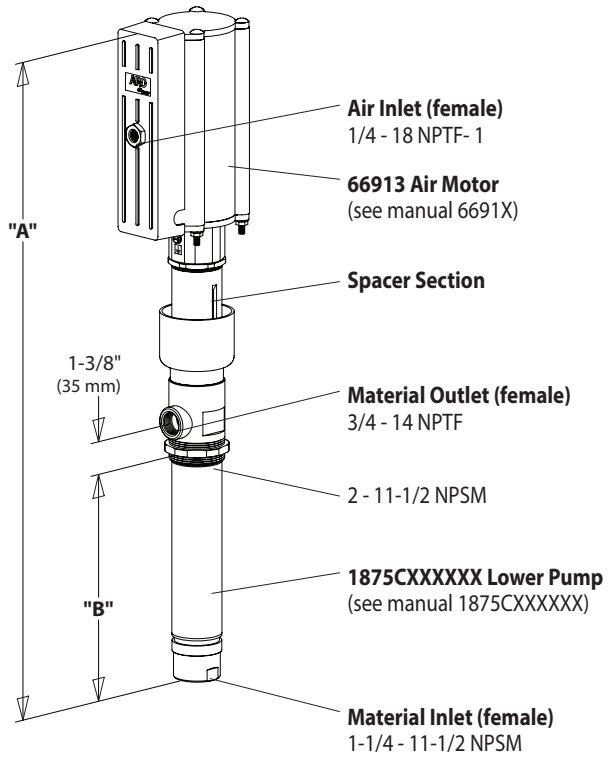


Figure 1

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

Model Number	"A" (mm)	"B" (mm)	Weight (kg)
NM2304B-11-X1X	28-1/8" (714.4)	9-23/32" (246.8)	32.0 (14.5)
NM2304B-41-X1X	51-21/32" (1312.1)	33-1/4" (844.6)	46.0 (20.9)

IMPORTANT

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

☒ **NM2304B-X-X** Model Operator's Manual (pn 97999-750)
☐ **S-632** General Information - Industrial Piston Pumps (pn 97999-624)
☐ **1875CXXXXXX** Lower Pump End Operator's Manual (pn 97999-1583)
☐ **6691X** Air Motor Operator's Manual (pn 97999-748)

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PUMP OPTION DESCRIPTION CHART

NM2304B-X1-X1X

- Container Suitability
- Packing Material
- Spring Arrangement
- Plunger Type

CONTAINER SUITABILITY
1 - Universal (stub)
4 - 55 Gallon

PACKING MATERIAL
C - UHMW-PE (upper and lower)
W - Viton® (upper) / Virgin PTFE (lower)
1 - Leather (upper) and UHMW-PE (lower)
3 - Virgin PTFE (upper and lower)
5 - Glass filled PTFE/Leather Staggered (upper) Virgin PTFE (lower)

SPRING ARRANGEMENT
1 - Coil

PLUNGER TYPE
1 - Standard (300 series stainless steel)
B - Ceramic

GENERAL DESCRIPTION

The two-ball design provides for easy priming of the lower foot valve. 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 with a spacer tube and solvent cup. This allows for lubrication of the upper packing gland and to prevent air motor contamination because of normal wear and eventual leakage through the material packing gland.

⚠WARNING HAZARDOUS PRESSURE. Do not exceed maximum operating pressure of 600 psig (41.4 bar) at 150 psig (10.3 bar) inlet air pressure.

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

Pump ratio is an expression of the relationship between the pump motor area and the lower pump end area. EXAMPLE: When 150 psig (10.3 bar) inlet pressure is supplied to the motor of a 4:1 ratio pump, it will develop a maximum of 600 psig (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 94520) is available upon request.

TROUBLESHOOTING

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. Be sure to eliminate any possible non-pump problems before suspecting pump malfunction.

Pump will not cycle.
- No pressure to the motor. See motor manual.
- Restricted return lines. Clean obstruction.
- Damaged motor. Service the motor.

No material at the outlet (pump continually cycles).
- Check the material supply, disconnect or shut off the air supply and replenish the material, reconnect.

Material on one stroke only (fast downstroke).
- The lower check may not be seating in the foot valve (see lower pump disassembly). Remove the check from the foot valve, clean and inspect the valve seat area. If the check or foot valve are damaged, replace.

Material on one stroke only (fast upstroke).
- The middle packings may be worn (see lower pump disassembly). Replace the seals as necessary.

Material leakage out of the solvent cup or material appears on the pump plunger rod.
- The upper packings may be worn (see lower pump disassembly). Replace the seals as necessary.

PUMP CONNECTION - UPPER / LOWER

NOTE: All threads are right hand.
1. Loosen (90606) lock nut and unscrew the entire pump from the air motor. This will expose (94445) adapter (see figure 2).
2. Unscrew (94445) adapter to remove pump assembly from the air motor.
3. Remove the (Y15-21) cotter pin and (94048) clevis pin to remove (94445) adapter.

PUMP CONNECTION DETAIL

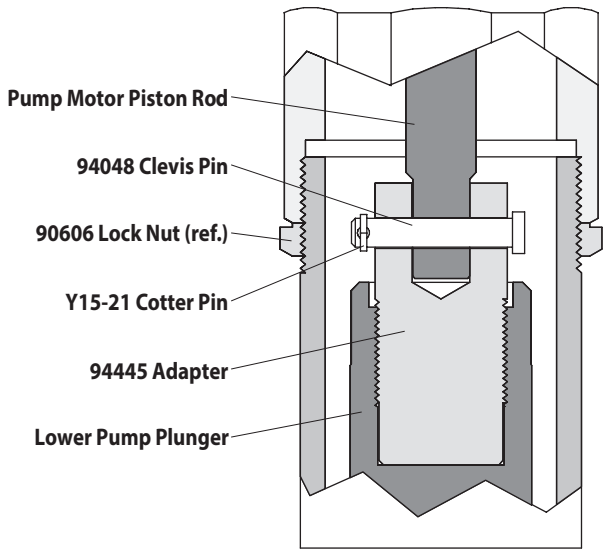


Figure 2

REASSEMBLY

1. Assemble (94445) adapter to the air motor rod, aligning the through holes.
2. Assemble (94048) clevis pin through hole, securing adapter.
3. Assemble (Y15-21) cotter pin through the hole in the clevis pin.
4. Apply Loctite® 242 to threads of (94445) adapter and screw (94445) adapter into (90615-X) plunger.
5. Screw the lower pump assembly to the air motor.
6. Screw (90606) lock nut against the air motor base and tighten to 50 - 60 ft. lbs (67.8 - 81.3 Nm).

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