

OPERATOR'S MANUAL

67310-X-X

INCLUDING: SERVICE KIT, TROUBLESHOOTING, PARTS LIST, DISASSEMBLY & REASSEMBLY

RELEASED: 10-28-04

REVISED: 6-2-10

(REV. 02)

TWO-BALL STYLE LOWER PUMP END

ALSO COVERS 637394-X43 SERVICE KITS



**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.
- 637394-X43 for general repair of 67310-13-X43 lower pump ends.

GENERAL DESCRIPTION

⚠ WARNING DO NOT EXCEED MAXIMUM OPERATING PRESSURE AS INDICATED ON PUMP MODEL PLATE.

⚠ WARNING REFER TO GENERAL INFORMATION SHEET FOR ADDITIONAL SAFETY PRECAUTIONS AND IMPORTANT INFORMATION.

- This manual only covers the lower pump section. It is one of four documents which support an ARO pump. Replacement copies of these forms are available upon request.
 - ☐ NM2318B-X-X PUMP MODEL OPERATOR'S MANUAL.
 - ☐ GENERAL INFORMATION FOR AIR OPERATED OR HYDRAULICALLY OPERATED PUMPS.
 - ☒ LOWER PUMP END OPERATOR'S MANUAL.
 - ☐ AIR OR HYDRAULIC MOTOR OPERATOR'S MANUAL.
- 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.

MAINTENANCE

The air / hydraulic motor is completely separate from the lower pump end. This helps to keep the motor from being contaminated by the material being pumped. Periodically, flush entire pump system with a solvent that is compatible with the material being pumped.

Keep solvent cup filled with this compatible solvent. This will keep material from drying on the piston rod, which would drag thru the packings, ruin them and eventually scour the piston rod.

Provide a clean work surface to protect sensitive internal moving parts from contamination from dirt and foreign matter during disassembly and reassembly.

Before reassembling, lubricate parts as required. When assembling "O" rings, or parts adjacent to "O" rings, exercise care to prevent damage to "O" rings and "O" ring groove surface.

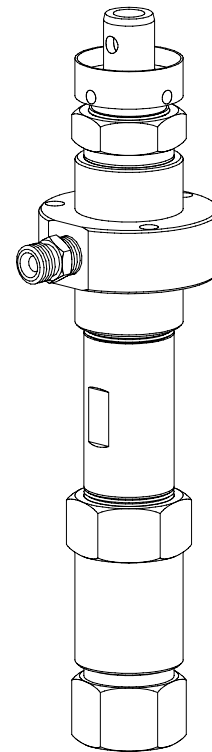


Figure 1

LOWER PUMP END DESCRIPTION CHART

67310 - 1 3 - X 4 3			
CONTAINER SUITABILITY			
1	- Universal (Stub)		
THREAD TYPE			
3	- 1/4 - 18-1/2 NPSM		
PACKING MATERIAL			
C	- UHMW-PE (upper and lower)		
L	- Mineral filled PTFE (upper and lower)		
SPRING ARRANGEMENT			
4	- Multiple Wave Spring		
PLUNGER TYPE			
3	- 400 Series Stainless Steel, hard chrome plated, standard fit		
SERVICE KIT SELECTION		67310 - 13 - <u>X</u> 43	
EXAMPLE: Lower Pump End # 67310-13-C43		637394 - <input checked="" type="checkbox"/> 43	
Service Kit # 637394-C43		Packing <input type="checkbox"/>	

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PARTS LIST

Item	Description (size)	Qty	Part No.	[Mtl]
1	Solvent Cup	(1)	95476	[SS]
2	Bushing	(1)	95478	[D]
3	Gland Washer	(1)	95481	[SS]
4	Female Backup Washer	(1)	95482	[D]
✓ 5	“V” Packing (models 67310-13-C43)	(5)	95446-4	[UH]
■	(models 67310-13-L43)	(5)	95446-5	[T]
6	Male Backup Ring	(1)	95475	[SS]
7	Multiple Wave Spring	(1)	95444	[SH]
8	Gland	(1)	95504	[SS]
■ ✓ 9	“O” Ring (0.070” x 1.316” o.d.)	(2)	95471	[T]
10	Outlet Body	(1)	95362	[SS]
11	Adapter (1/4 - 18 N.P.T.F. x 1/4 - 18-1/2 N.P.S.M.)	(1)	96244	[SS]
12	Tube	(1)	95363	[PSS]
13	Plunger and Ring Assembly (includes item 14)	(1)	67272	[PSH]
14	Retaining Ring	(1)	95364	[SS]
16	Male Backup Ring	(1)	95475	[SS]

✓ 17	“V” Packing (models 67310-13-C43)	(5)	95446-4	[UH]
■	(models 67310-13-L43)	(5)	95446-5	[T]
18	Female Backup Washer	(1)	95482	[D]
19	Ball (0.2500” o.d.)	(1)	Y16-108	[SH]
20	Piston Washer	(1)	95453	[SS]
21	Inner Valve Seat	(1)	95449	[SH]
■ ✓ 22	“O” Ring (0.070” x 1.316” o.d.)	(2)	95471	[T]
23	Inlet Body	(1)	95443	[SS]
24	Seat Retainer	(1)	95450-1	[SS]
25	Pin (3/16” o.d. x 1” long)	(1)	95484	[SS]
26	Ball (0.6250” o.d.)	(1)	Y16-120	[SH]
27	Seat	(1)	95474	[SH]
■ ✓ 28	“O” Ring (0.070” x 0.879” o.d.)	(1)	95473	[T]
29	Seat Body	(1)	95507	[SS]
✓	Items included in repair kit		637394-C43	
■	Items included in repair kit		637394-L43	

MATERIAL CODE

[D] = Acetal
[SS] = Stainless Steel

[PSH] = Hard Chrome Plated Hard Stainless Steel
[T] = PTFE

[PSS] = Hard Chrome Plated Stainless Steel
[UH] = UHMW-PE

[SH] = Hard Stainless Steel

LOWER PUMP DISASSEMBLY

IMPORTANT: The lower pump is designed so that access to the packings can be accomplished without disassembly of the inlet / outlet bodies from the main pump tube. Complete lower pump disassembly should not be necessary. NOTE: All threads are right hand.

- Secure the lower pump assembly in a vise, clamping on the (10) outlet body.
- Loosen the (1) solvent cup and unscrew the (8) gland and remove the assembly from the lower pump. Set this assembly aside.
- Remove the (9) “O” ring from the (10) outlet body.
- Unscrew the (23) inlet body from the (12) tube and set this assembly aside.
- Unscrew the (12) tube from the (10) outlet body and remove the (9) “O” ring.
- Remove the (13) plunger and components from the (12) tube. Remove the (10) outlet body from the vise.
- Secure the (13) plunger and components in a vise.
- Unscrew the (21) inner valve seat, releasing the (20) piston washer and (19) ball.
- Remove the (18) female backup washer, (17) “V” packings and (16) male backup ring.
- Removal of the (14) retaining ring is not necessary, unless damage is evident. Remove the (13) plunger from the vise.
- Secure the (8) gland in a vise and unscrew the (1) solvent cup.
- Remove the (2) bushing, (3) gland washer, (4) female backup washer, (5) “V” packings, (6) male backup ring and (7) multiple wave spring. Remove the (8) gland from the vise.
- Secure the (23) inlet body in a vise and unscrew the (29) seat body and components.
- Remove the (25) pin, releasing the (26) ball.
- Remove the (24) seat retainer, releasing the (27) seat and (28) “O” ring.

LOWER PUMP REASSEMBLY

NOTE: Inspect and replace old parts with new parts as necessary. Look for deep scratches on metallic surfaces. Replace all “O” rings upon reassembly. Lubricate all threads upon reassembly. Refer to sealant and torque notes on page 3.

- Secure the (8) gland in a vise and insert the (7) multiple wave spring, (6) male backup ring, (5) “V” packings, (4) female backup washer and (3) gland washer into the (8) gland.
- Assemble the (2) bushing into the (1) solvent cup and screw the (1) solvent cup into the (8) gland. **Do not tighten.**
- Secure the (10) outlet body in a vise and place the (9) “O” ring into the (10) outlet body.
- Screw the (8) gland into the (10) outlet body and tighten to 75 ft lbs (101.7 Nm).
- Slide the (13) plunger into the (1) solvent cup and through the upper packings. **Be careful not to damage the packings.**
- Assemble the (16) male backup ring, (17) “V” packings and (18) female backup washer onto the (13) plunger.
- Assemble the (19) ball into the (13) plunger and secure with the (20) piston washer and (21) inner valve seat. Tighten to 10 ft lbs (13.6 Nm).
- Assemble the (9) “O” ring into the groove in the (10) outlet body.
- Assemble the (12) tube over the packings and screw into the (10) outlet body. Tighten to 75 ft lbs (101.7 Nm).
- Assemble the (22) “O” rings into the (23) inlet body and screw the (23) inlet body onto the (12) tube. Tighten to 75 ft lbs (101.7 Nm).
- Assemble the (28) “O” ring and (27) seat into the (29) seat body and secure with the (24) seat retainer. Tighten to 40 ft lbs (54.2 Nm).
- Assemble the (26) ball into the (24) seat retainer, securing with the (25) pin. NOTE: Install the (25) pin in the bottom hole.
- Assemble the (29) seat body and components into the (23) inlet body and tighten to 75 ft lbs (101.7 Nm).
- Tighten the (1) solvent cup.

PARTS LIST

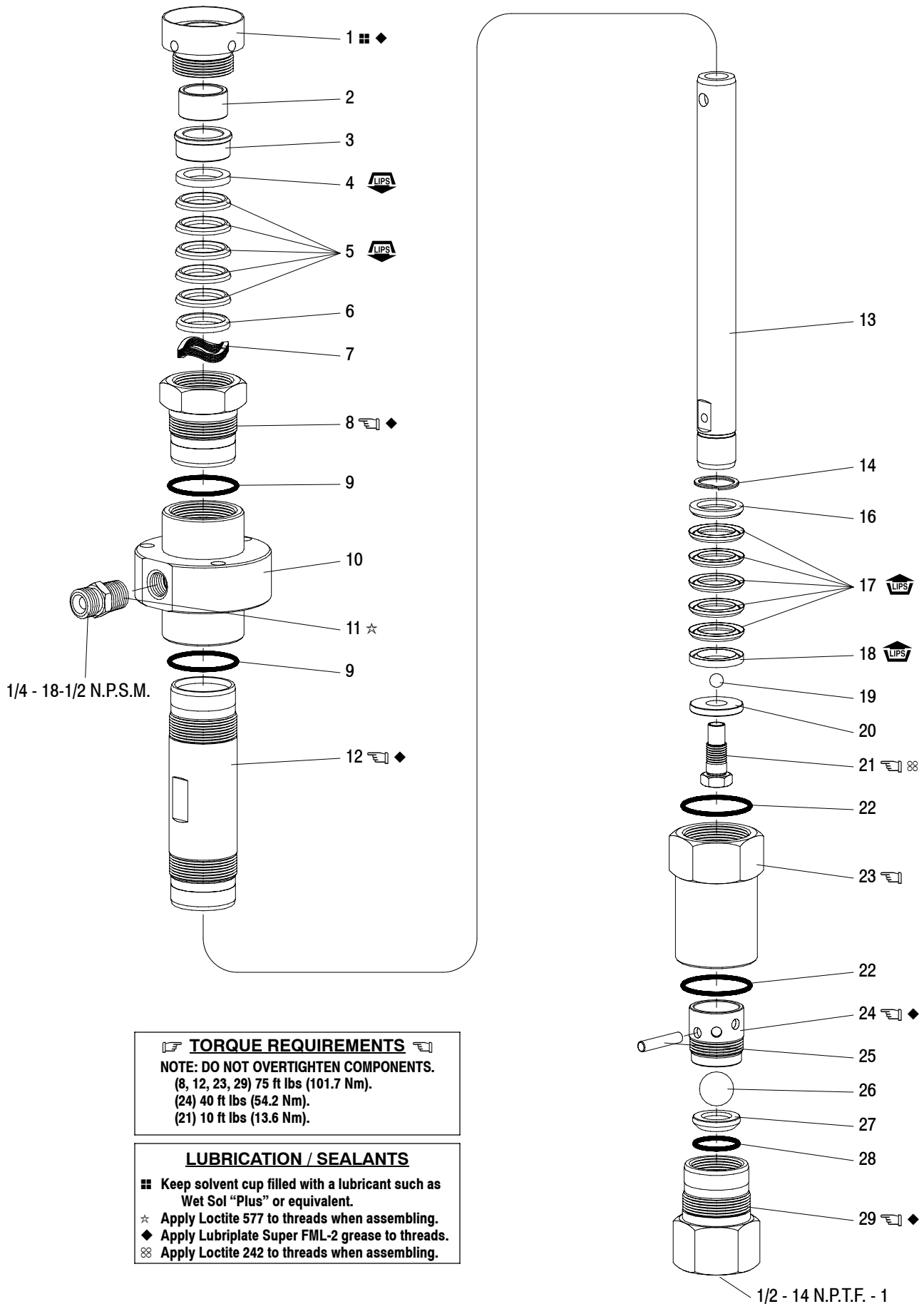


Figure 2

TROUBLE SHOOTING

- **No material at outlet (pump continually cycles).** Check material supply, disconnect or shut off the air supply and replenish the material, reconnect.
- **Material on one stroke only (fast downstroke).** The (26) ball may not be seating in the (27) seat (see lower pump disassembly). Remove the ball from the seat, clean and inspect the ball and seat area. If ball or seat is damaged, replace.
- **Material on one stroke only (fast upstroke).** The (19) ball may not be seating in the (21) inner valve seat (see lower pump disassembly). Remove the ball from the inner valve seat, clean and inspect the ball and seat area. If ball or inner valve seat is damaged, replace. Check for worn or damaged seals. Replace the seals as necessary.
- **Material leakage out of the solvent cup or material appears on the pump plunger rod.** Tighten the solvent cup until leakage discontinues. If this procedure does not aid in stopping the leakage problem, the upper packings may be worn (see lower pump disassembly). Replace the packings as necessary.

CROSS SECTION

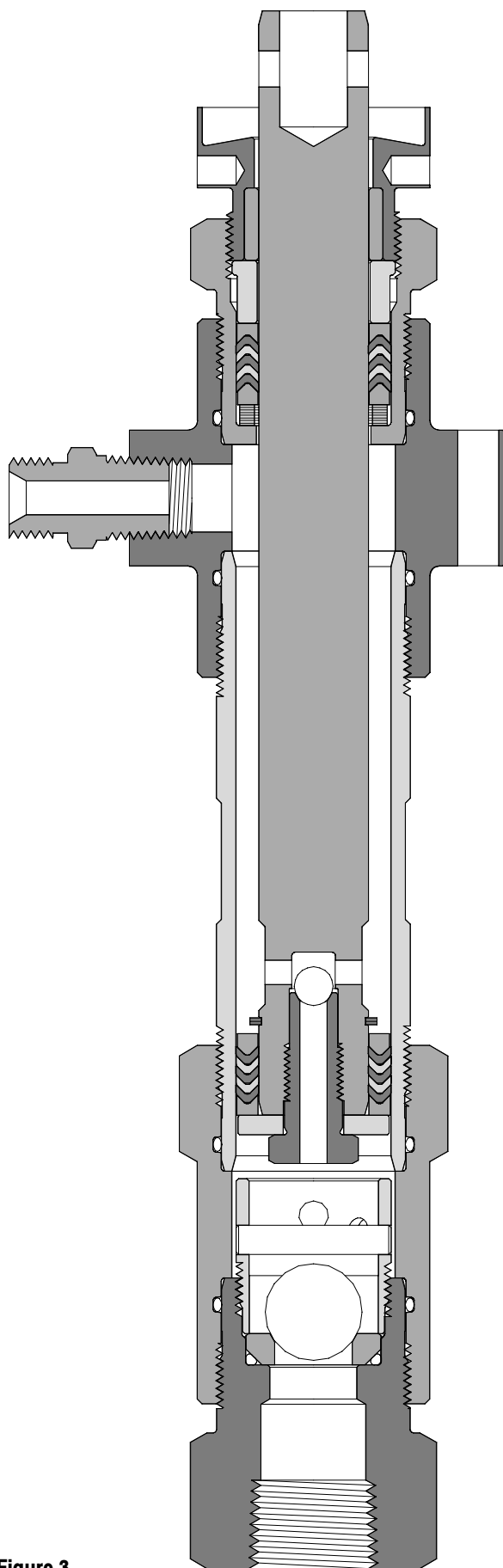


Figure 3