

# OPERATOR'S MANUAL

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

# 67319-X

# 67320-X

## TWO-BALL LOWER PUMP ENDS CARBON STEEL

RELEASED: 10-1-03  
REVISED: 1-13-06  
(REV. 04)

ALSO COVERS 637398-X 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.
- 637398-X31 for general repair of 673XX-X31 lower pump ends.

### GENERAL DESCRIPTION

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

- This manual only covers the lower pump section, it is one of three documents which support a pump. Replacement copies of these forms are available upon request.
  - 650918-X-X Pump Model Operator's Manual.
  - 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 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 lubricant that is compatible with the material being pumped.

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.

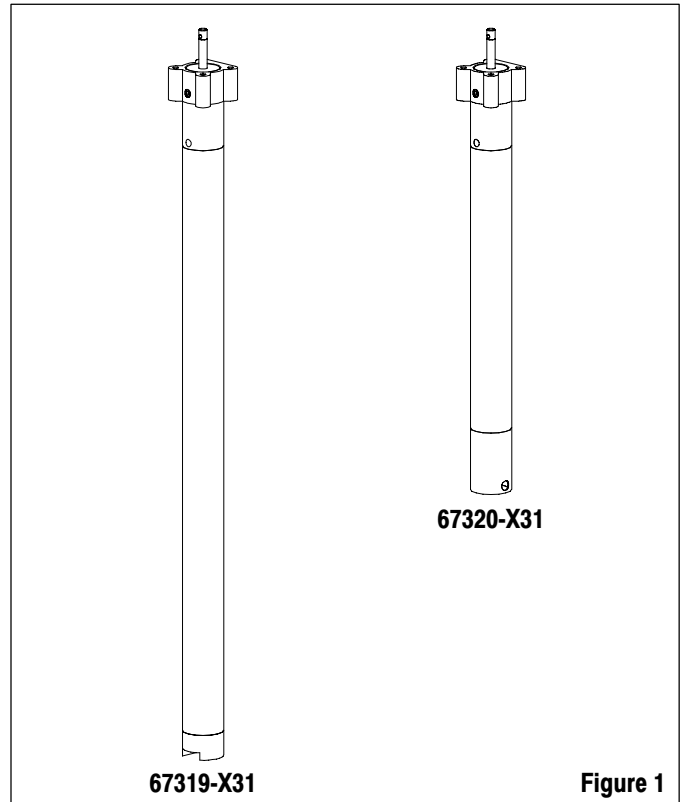


Figure 1

### LOWER PUMP END DESCRIPTION CHART

673 XX - X 3 1	
<b>CONTAINER SUITABILITY</b> 19 - 55 Gallon 20 - Universal (Stub)	
<b>PACKING MATERIAL</b> 7 - Teflon (upper and lower) B - UHMW-PE (upper) / Teflon (lower) C - UHMW-PE (upper and lower) J - Polyurethane (upper) / UHMW-PE (lower)	
<b>SPRING ARRANGEMENT</b> 3 - No Spring	
<b>PLUNGER TYPE</b> 1 - Standard (Carbon Steel)	
<b>SERVICE KIT SELECTION</b> EXAMPLE: Lower Pump End # 67319-C31 Service Kit # 637398-C31	673XX - X 3 1 637398 - X 31 Packing

## PARTS LIST

Item	Description (size)	Qty	Part No.	[Mtl]
1	Adapter	(1)	96065	[A]
✓ 2	"O" Ring (1/8" x 1-3/4" o.d.)	(1)	Y328-222	[T]
✓ 3	"O" Ring (3/32" x 3/4" o.d.)	(1)	Y328-113	[T]
✓ 4	"O" Ring (1/8" x 11/16" o.d.)	(1)	Y327-205	[V]
5	Ground Screw (#10 - 32 x 1/4")	(1)	93005	[C]
6	Pipe Plug (1/8 - 27 N.P.T.F. x 0.27")	(1)	Y17-50	[C]
7	Outlet Body	(1)	96061	[A]
9	Adapter	(1)	95544	[A]
10	Inner Tube	(1)	95716	[C]
11	Rod	(1)	96063	[C]
12	Dowel Pin (3/16" o.d. x 7/8")	(1)	95803	[C]
13	Retainer	(1)	95804	[SH]
14	Washer	(2)	95234-1	[PPS]
✓ 15	Rod Seal models 673XX-731	(1)	95574-2	[T]
	models 673XX-B31 and -C31	(1)	95574-1	[UH]
	models 673XX-J31	(1)	95235	[U]
16	Retaining Ring (0.575" i.d.)	(1)	46919	[C]

### MATERIAL CODE

[A] = Aluminum	[T] = Teflon
[C] = Carbon Steel	[U] = Polyurethane
[PPS] = Polyphenylene Sulfide	[UH] = UHMW-PE
[SH] = Hardened Stainless Steel	[V] = Viton

## LOWER PUMP DISASSEMBLY

NOTE: All threads are right hand.

- Clamp (7) outlet body horizontally in a vise. Using a strap type wrench to hold (23) suction tube, unthread and remove (26 or 27) foot valve seat.
- Remove (25) ball stop pin, releasing (24) ball.
- Using a strap type wrench, unthread and remove (23) suction tube.
- Remove (17) rod and components from (23) suction tube.
- Remove (1) adapter and "O" rings from (7) outlet body.
- Using a 1-1/2" wrench, unthread and remove (22) inner check seat, releasing (21) ball, (20) washer and (19) cup.
- Slide (16) retaining ring, (14) washers, (15) rod seal and (13) retainer down (17) rod, allowing removal of (12) dowel pin.
- Remove (11) rod, (13) retainer, two (14) washers, (15) rod seal and (16) retaining ring from (17) rod.
- DO NOT remove (10) inner tube or (9) adapter unless damage is evident. To remove, clamp (7) outlet body in a vise and unthread (10) inner tube using a strap type wrench. To remove (9) adapter, unthread using a 1-1/2" wrench.

## LOWER PUMP REASSEMBLY

NOTE: Refer to the illustration (figure 2, page 3) for lip seal direction.  
NOTE: All threads are right hand. Thoroughly clean and lubricate all seals and bores with Wet-Sol "Plus" upon assembly.

- Assemble (19) cup, (20) washer and (21) ball to (18) cup follower, securing with (22) inner check seat. NOTE: Tighten (22) inner check seat to 60 - 70 ft lbs (81.3 - 94.9 Nm).
- Assemble (18) cup follower and components to (17) rod. NOTE: Tighten (18) cup follower to 60 - 70 ft lbs (81.3 - 94.9 Nm).
- Slide (16) retaining ring, (14) washer, (15) rod seal (lips down), (14) washer and (13) retainer onto top end of (17) rod, past the retaining ring groove.

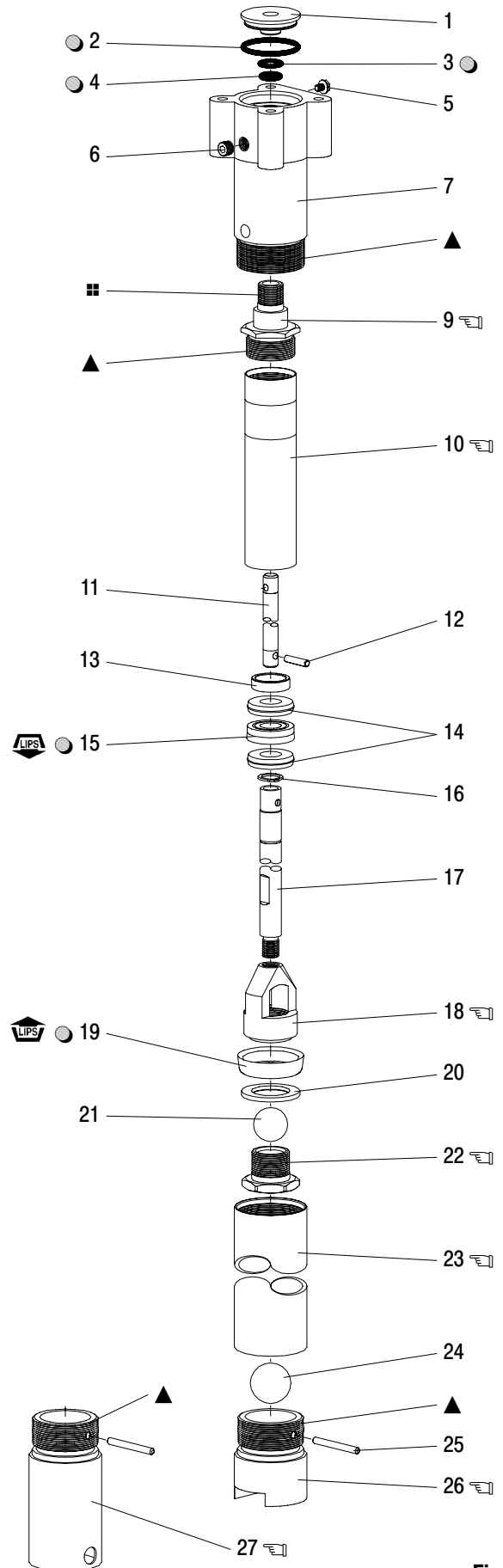
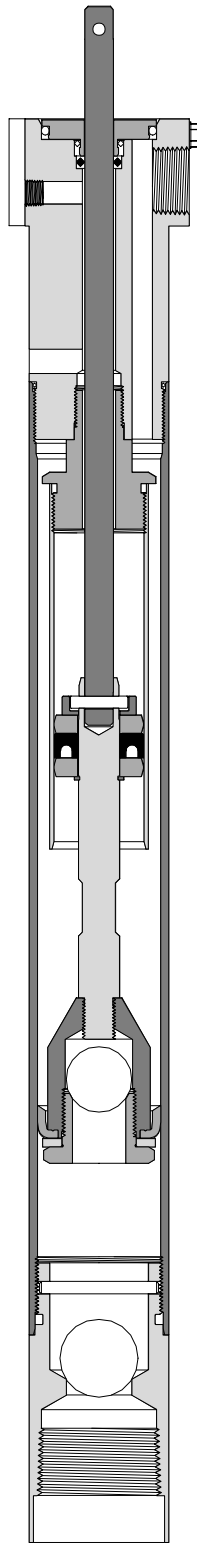
Item	Description (size)	Qty	Part No.	[Mtl]
17	Rod models 67319-X (18.000" long)	(1)	95244	[C]
	models 67320-X (5.500" long)	(1)	95717	[C]
18	Cup Follower	(1)	75678	[C]
✓ 19	Cup models 673XX-731 and -B31	(1)	73919	[T]
	models 673XX-C31 and -J31	(1)	92867-1	[UH]
20	Washer	(1)	94516	[C]
21	Ball (1.0000" dia.)	(1)	Y16-232	[C]
22	Inner Check Seat	(1)	75681	[C]
23	Suction Tube models 67319-X	(1)	95796	[C]
	models 67320-X	(1)	95718	[C]
24	Ball (1.1875" dia.)	(1)	Y16-238	[C]
25	Ball Stop Pin (0.188" o.d. x 1.812")	(1)	83009	[C]
26	Foot Valve Seat (models 67319-X only)	(1)	90119	[C]
27	Foot Valve Seat (models 67320-X only)	(1)	94398	[C]
✓	Darina "EP" 2 Grease Packet	(1)	94833	
✓	Items included in Service Kit		637398-X31	

- Assemble (11) rod to (17) rod, securing with (12) dowel pin.
- Slide (13) retainer, (14) washer, (15) rod seal, (14) washer and (16) retaining ring up, securing (12) dowel pin.
- Clamp (7) outlet body horizontally in a vise. Apply Loctite 271 to threads of (9) adapter and assemble to (7) outlet body. NOTE: Tighten (9) adapter to 50 in. lbs (5.6 Nm) minimum.
- Apply Teflon® tape to 1-7/16" threads of (9) adapter and assemble (10) inner tube to (9) adapter. NOTE: Tighten (10) inner tube to 120 in. lbs (13.6 Nm) minimum.
- Assemble (4) "O" ring into (7) outlet body.
- Assemble (2 and 3) "O" rings to (1) adapter.
- Assemble (1) adapter into (7) outlet body.
- Assemble (11) rod and components into (10) inner tube and (7) outlet body.
- Assemble (24) ball to (26 or 27) foot valve seat, securing with (25) ball stop pin.
- Apply Teflon tape to threads of (26 or 27) foot valve seat and assemble (26 or 27) foot valve seat and components to (23) suction tube. NOTE: Tighten (26 or 27) foot valve seat to 60 - 70 ft lbs (81.3 - 94.9 Nm).
- Apply Teflon tape to threads of (7) outlet body and assemble (23) suction tube to (7) outlet body. NOTE: Tighten (23) suction tube to 60 - 70 ft lbs (81.3 - 94.9 Nm).

## 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 (24) lower ball may not be seating in the (26 or 27) foot valve seat. Remove the (24) ball from the foot valve seat, clean and inspect the ball and seat area. If the ball or seat is damaged, replace.
- Material on one stroke only (fast upstroke).** The (21) upper ball may not be seating in the (22) inner check seat. Remove the (21) ball from the (22) check seat, clean and inspect. If the (21) ball is damaged, replace. Check for worn or damaged packings and seals. Replace the packings and seals as necessary.

# PARTS LIST



## TORQUE REQUIREMENTS

NOTE: DO NOT OVERTIGHTEN COMPONENTS.

(9) 50 in. lbs (5.6 Nm) minimum.

(10) 120 in. lbs (13.6 Nm) minimum.

(18), (22), (23), (26), (27) 60 - 70 ft lbs (81.3 - 94.9 Nm).

## LUBRICATION / SEALANTS

● Lubricate seals and threads with Wet-Sol Plus.

▲ Apply Teflon tape to threads.

■ Apply Loctite® 271 to threads.

Figure 2

