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## Breakdown

## PARTS LIST / 66610X-X-C FLUID SECTION

### FLUID SECTION SERVICE KITS

★ KITS INCLUDE: BALLS (See BALL Option, refer to -XX in chart below), DIAPHRAGMS (See DIAPHRAGM Option, refer to -XX in chart below), plus "O" Ring items: 2, 3, 19 and 93706-1 Key-Lube grease.

SEAT OPTIONS 6661XX-XXX-C				BALL OPTIONS 6661XX-XXX-C							
"21"				★ "22" (1" dia.) (Service Kit -XX)							
-XXX	Seat	Qty	[Mtl]	-XXX	Ball	Qty	[Mtl]	-XXX	Ball	Qty	[Mtl]
-1XX	92008	(4)	[A]	-X1X	90532-1	(4)	[N]	-X6X	90532-6	(4)	[D]
-2XX	90428	(4)	[SS]	-X2X	90532-2	(4)	[B]	-X8X	90532-8	(4)	[U]
-3XX	92926	(4)	[P]	-X3X	90532-3	(4)	[V]	-XAX	90948	(4)	[SS]
-4XX	92941	(4)	[K]	-X4X	90532-4	(4)	[T]	-XEX	90532-A	(4)	[SP]
-5XX	95675	(4)	[C]	-X5X	90532-5	(4)	[E]				
-8XX	93367-1	(4)	[SH]								

DIAPHRAGM OPTIONS 66610X-XXX-C										
-XXX	★ SERVICE KIT	★ "7" / "8"			★ "3"			★ "19"		
-XXX	-XX = (Ball) -XX = (Diaphragm)	Diaphragm	Qty	[Mtl]	"O" Ring 5/8" o.d.	Qty	[Mtl]	"O" Ring 1-9/16" o.d.	Qty	[Mtl]
-XX1	637119-X1-C	90533-1	(2)	[N]	Y325-14	(4)	[B]	Y325-126	(4)	[B]
-XX2	637119-X2-C	90533-2	(2)	[B]	Y325-14	(4)	[B]	Y325-126	(4)	[B]
-XX3	637119-X3-C	90533-3	(2)	[V]	Y328-14	(4)	[T]	Y327-126	(4)	[V]
-XX4	637119-X4-C	93459-4 / 92973-B	(2)	[T/SP]	Y328-14	(4)	[T]	Y328-126	(4)	[T]
-XX5	637119-X5-C	90533-5	(2)	[E]	Y328-14	(4)	[T]	90534	(4)	[E]
-XX9	637119-X9-C	90533-9	(2)	[H]	Y328-14	(4)	[T]	Y327-126	(4)	[V]
-XXB	637119-XB-C	90533-B	(2)	[SP]	Y328-14	(4)	[T]	90534	(4)	[E]

MATERIAL CODE
[A] = Aluminum
[B] = Nitrile
[C] = Carbon Steel
[Cl] = Cast Iron
[Co] = Copper
[D] = Acetal
[E] = E.P.R.
[H] = Hytrel
[K] = P.V.D.F. (Kynar)
[N] = Neoprene
[P] = Polypropylene
[SP] = Santoprene
[SH] = Hard Stainless Steel
[SS] = Stainless Steel
[T] = Teflon
[U] = Polyurethane
[V] = Viton

MANIFOLD / FLUID CAP MATERIAL OPTIONS 6661XX-XXX-C										
ITEM	DESCRIPTION (Size in inches)	Qty	ALUMINUM (STEEL HARDWARE) 6661X0-		STAINLESS STEEL (STEEL HARDWARE) 6661X1-, 6661X9-		CAST IRON (STEEL HARDWARE) 6661X2-		STAINLESS STEEL HARDWARE 6661XA-, B-, C-, D-	
			Part No.	[Mtl]	Part No.	[Mtl]	Part No.	[Mtl]	Part No.	[Mtl]
5	Washer - Air Side (3-5/8" o.d.)	(2)	93441-2	[C]	93441-2	[C]	93441-2	[C]	93441-1 ▲	[SS]
□ 6	Washer - Fluid Side (3-5/8" o.d.)	(2)	93441-2	[C]	93441-1	[SS]	93441-2	[C]	93441-1	[SS]
14	Screw (1/2" - 20 x 1")	(2)	Y5-85-K	[C]	Y5-85-T	[SS]	Y5-85-K	[C]	Y5-85-T	[SS]
15	Fluid Cap	(2)	94945	[A]	91045	[SS]	94277	[Cl]	◆ Same	---
16	Manifold (6661X0, 1X1, 1X2, 1XA, 1XB, 1XC)	(2)	92001 ( *)	[A]	91044 ( *)	[SS]	94278 ( *)	[Cl]	◆ Same	---
17	Outlet Manifold (6661X9-, 1XD-)	(2)	-----	---	92846 ( *)	[SS]	-----	---	92846 ( *)	[SS]
18	Inlet Manifold (6661X9-, 1XD-)	(2)	-----	---	92847 ( *)	[SS]	-----	---	92847 ( *)	[SS]
23	Spring (6661X9-, 1XD-)	(2)	-----	---	22155	[SS]	-----	---	22155	[SS]
24	Washer (6661X9-, 1XD-) (5/16)	(8)	-----	---	Y13-5-C	[C]	-----	---	Y13-5-T	[SS]
26	Bolt (5/16" - 18 x 1")	(8)	Y6-55-C	[C]	Y6-55-C	[C]	Y6-55-C	[C]	Y6-55-T	[SS]
29	Nut (5/16" - 18)	(16)	Y12-5-C	[C]	Y12-5-C	[C]	Y12-5-C	[C]	Y12-5-S	[SS]

\* NOTE: 66612X-, 13X-, 1CX- are BSP thread series models, add "-1" to the manifold part number.

▲ NOTE: For models 66614X-X and 6661CX-X, use 93441-2 [C].

### COMMON PARTS

ITEM	DESCRIPTION (Size in inches)	Qty	Part No.	[Mtl]	ITEM	DESCRIPTION (Size in inches)	Qty	Part No.	[Mtl]
□ 1	Rod	(1)	98724-1	[C]	9	Washer (.505" i.d.)	(2)	93189-1	[SS]
★ 2	"O" Ring (3/32" x 3/4" o.d.) *	(1)	Y330-113	[B]	43	Ground Lug	(1)	93004	[Co]

★ Service Note: Fluid Section Service Kits also include Part No. 93131 (5) "O" Rings for repair of "-B" (pre - 8/89) models.

Service Note: Part No. 98930-T installation tool is available separately for use with items 1 and 2.

□ "Smart Parts" keep these items on hand in addition to the Service Kits for fast repair and reduction of down time.

**637167**  
**ABRASION RESISTANT**  
**CONVERSION KITS INCLUDE:**  
 "21" Seat 93367-1 (4)  
 "22" Ball 90532-8 (4)

# PARTS LIST / 66610X-X-C FLUID SECTION

COLOR CODE		
MATERIAL	DIAPHRAGM COLOR	BALL COLOR
ACETAL	N/A	ORANGE
NITRILE	RED (-)	RED (+)
EPR	BLUE (-)	BLUE (+)
HYTREL	CREAM	N/A
NEOPRENE	GREEN (-)	GREEN (+)
SANTOPRENE	CREAM*	CREAM
TFE	WHITE	WHITE
URETHANE	N/A	RED
VITON	YELLOW (-) (-) STRIPE	YELLOW (+) (+) DOT

\* SEE ITEM 8 IN INSET BELOW.

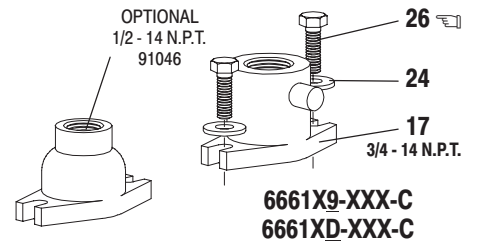
## TORQUE REQUIREMENTS

**NOTE: DO NOT OVERTIGHTEN FASTENERS**  
 (14) Diaphragm Bolt 25 - 30 ft lbs (33.9 - 40.7 Nm),  
 apply Loctite 271 to threads.  
 (26) Bolts and (29) nuts 120 - 140 in. lbs (13.6 - 15.8 Nm).

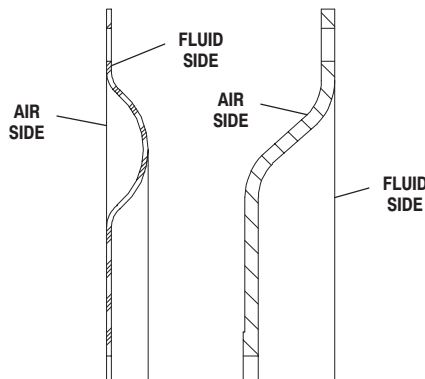
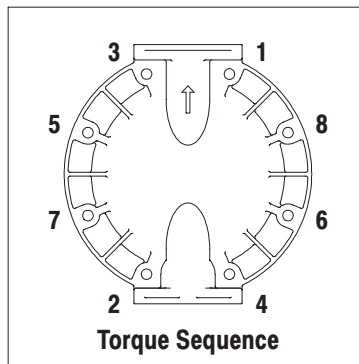
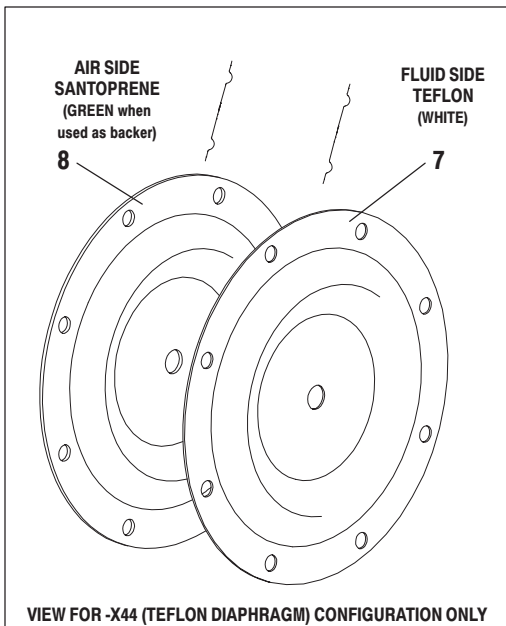
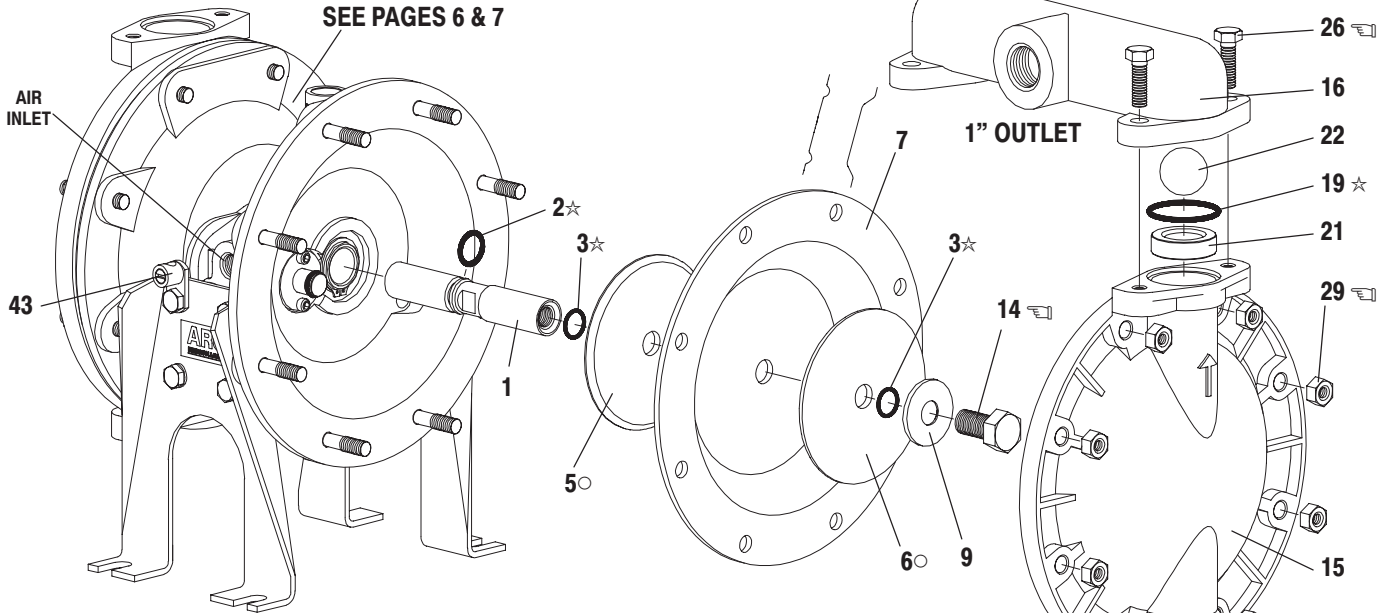
## LUBRICATION / SEALANTS

☆ Apply Key-Lube to all "O" rings, "U" Cups & mating parts.  
 Apply Loctite Nickel Antiseize to threads of (26) - models  
 6661XB-XXX-C and 6661XD-XXX-C only.

○ NOTE: Radius edge of parts (5 and 6) is against diaphragm.



**FOR THE  
 AIR MOTOR SECTION  
 SEE PAGES 6 & 7**



CROSS SECTION VIEW OF DIAPHRAGMS

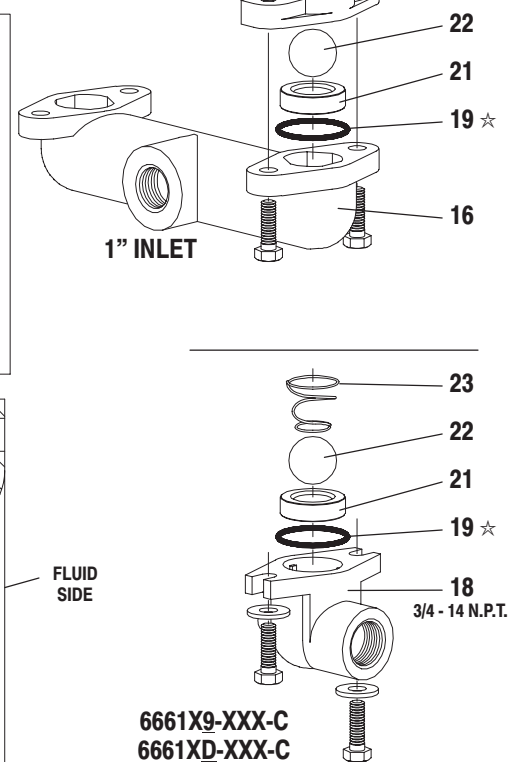


FIGURE 1

## PARTS LIST / 66610X-X-C AIR MOTOR SECTION

✓ Indicates parts included in 637118-C Air Section Service Kit.

**SERVICE KIT NOTE:** Service Kit 637118-C is a general repair kit for all 1" and larger ARO diaphragm pump air motors. It contains extra "O" Rings and extra parts that may not be needed to service this model.

ITEM	DESCRIPTION (Size in inches)	Qty	Part No.	[Mtl]
101	Motor Body (66610X, 12X)	(1)	94743	[A]
	(66611X, 13X)	(1)	94741	[C]
✓102	"O" Ring (1/16" x 1" o.d.)	(2)	Y325-20	[B]
□ 103	Sleeve	(1)	94527	[D]
✓104	Retaining Ring, TruArc (.925" i.d.)	(2)	Y145-25	[C]
105	Screw/Wshr (1/4"-20 x 5/8") (-XX0, 1, 2, 9)	(8)	93860	[C]
	Cap Screw (1/4"-20 x 5/8") (-XXA, B, C, D)	(8)	Y6-42-T	[SS]
106	Lockwasher (1/4") (6661XA, 1XB, 1XC, 1XD)	(7)	Y14-416-T	[SS]
107	Leg (6661X0, 1X1, 1X2, 1X9)	(2)	92003	[C]
	(6661XA, 1XB, 1XC, 1XD)	(2)	92003-1	[SS]
✓108	Gasket (with notch)	(1)	92878	[B/Ny]
□ 109	Piston	(1)	92011	[D]
✓110	"U" Cup (3/16" x 1-3/8" o.d.)	(1)	Y186-51	[B]
□ 111	Spool (66610X, 12X)	(1)	92005	[A]
	(66611X, 13X)	(1)	93047	[C]
□ 112	Washer (1.557" o.d.)	(5)	92877	[Z]
✓113	"O" Ring (small) (1/8" x 1-1/4" o.d.)	(5)	Y325-214	[B]
✓114	"O" Ring (large) (3/32" x 1-9/16" o.d.)	(6)	Y325-126	[B]

ITEM	DESCRIPTION (Size in inches)	Qty	Part No.	[Mtl]
□ 115	Spacer	(4)	92876	[Z]
□ 116	Spacer	(1)	92006	[Z]
✓117	Gasket	(1)	92004	[B/Ny]
118	Pilot Rod	(1)	93309-1	[C]
✓119	"O" Ring (1/8" x 3/4" o.d.)	(4)	93075	[U]
120	Spacer	(3)	115959	[Z]
121	Sleeve Bushing	(2)	98723-1	[Bz]
✓122	"O" Ring (3/32" x 9/16" o.d.)	(2)	94820	[U]
✓123	Screw (#8 - 32 x 3/8")	(4)	Y154-41	[C]
124	Stud (5/16" - 18 x 1-3/4") (6661X0, 1X1, 1X2, 1X9)	(16)	92866	[C]
	(5/16" - 18 x 1-3/4") (6661XA, 1XB, 1XC, 1XD)	(16)	92866-1	[SS]
128	Pipe Plug (1/8 - 27 N.P.T. x 1/4")	(1)	Y227-2-L	[C]
195	Button Head Screw (1/4" - 20 x 1/4")	(3)	94987	[SS]
201	Muffler	(1)	93110	[C]
✓	Key-Lube "O" Ring Lubricant	(1)	93706-1	
	10 Pak of Key-Lube		637175	
✓	Service Kits include: Y212-101 (2) Screws (#10 - 32 x 1/4") used on units mfd between 8/90 and 4/92 to retain the pilot bushing.			

### AIR MOTOR SECTION SERVICE

Service is divided into two parts - 1. Pilot Valve, 2. Major Valve.

#### GENERAL REASSEMBLY NOTES:

- Air Motor Section Service is continued from Fluid Section repair.
- Inspect and replace old parts with new parts as necessary. Look for deep scratches on metallic surfaces, and nicks or cuts in "O" rings.
- Take precautions to prevent cutting "O" rings upon installation.
- Lubricate "O" rings with Key-Lube grease.
- Do not over-tighten fasteners, refer to torque specification block on view.
- Re-torque fasteners following restart.

### PILOT VALVE DISASSEMBLY

1. Remove (104) retaining ring.
2. Remove (123) screws and (122) "O" rings.
3. Remove (118) piston rod, (121) sleeve bushing, (119) "O" rings and (120) spacers from the (101) motor body.
4. Remove (103) sleeve and (102) "O" rings.

### PILOT VALVE REASSEMBLY

1. Replace two (102) "O" rings if worn or damaged and reinstall (103) sleeve.
2. Install one of the (121) sleeve bushings, (119) "O" rings, (120) spacers and the remaining (121) bushing.
3. Carefully push (118) pilot rod into bushings etc. and retain on each end with the two (122) "O" rings, retain with (123) screws.
4. Replace (104) retaining rings.

✓ Parts Y145-26 (1.156" i.d.) (Qty 2) Retaining Rings and Y325-24 "O" Rings (Qty 2) are included in the Service Kit for the repair of larger pumps.

#### MATERIAL CODE

[A] = Aluminum	[C] = Cast Iron	[P] = Polypropylene
[B] = Nitrile	[D] = Acetal	[U] = Polyurethane
[Bz] = Bronze	[N] = Neoprene	[SS] = Stainless Steel
[C] = Carbon Steel	[Ny] = Nylon	[Z] = Zinc

### MAJOR VALVE DISASSEMBLY

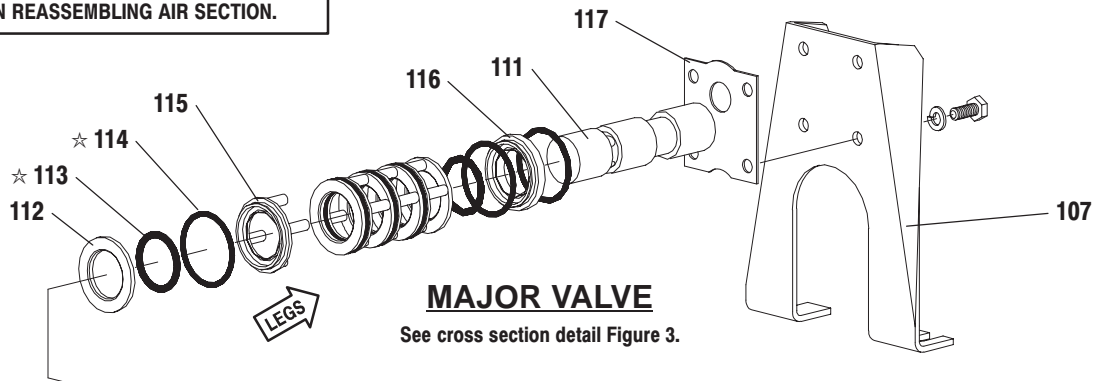
1. Remove (107) plate (or leg depending on model), (108 and 117) gaskets.
2. On the side opposite the air inlet, push on the inner diameter (111) spool. This will force the (109) piston out. Continue pushing the (111) spool and remove. Check for scratches and gouges.
3. Reach into the air section (exhaust side) and remove (116) spacer, (115) spacers, (113) "O" rings, (114) "O" rings, (112) washers, etc. Check for damaged "O" rings.

### MAJOR VALVE REASSEMBLY

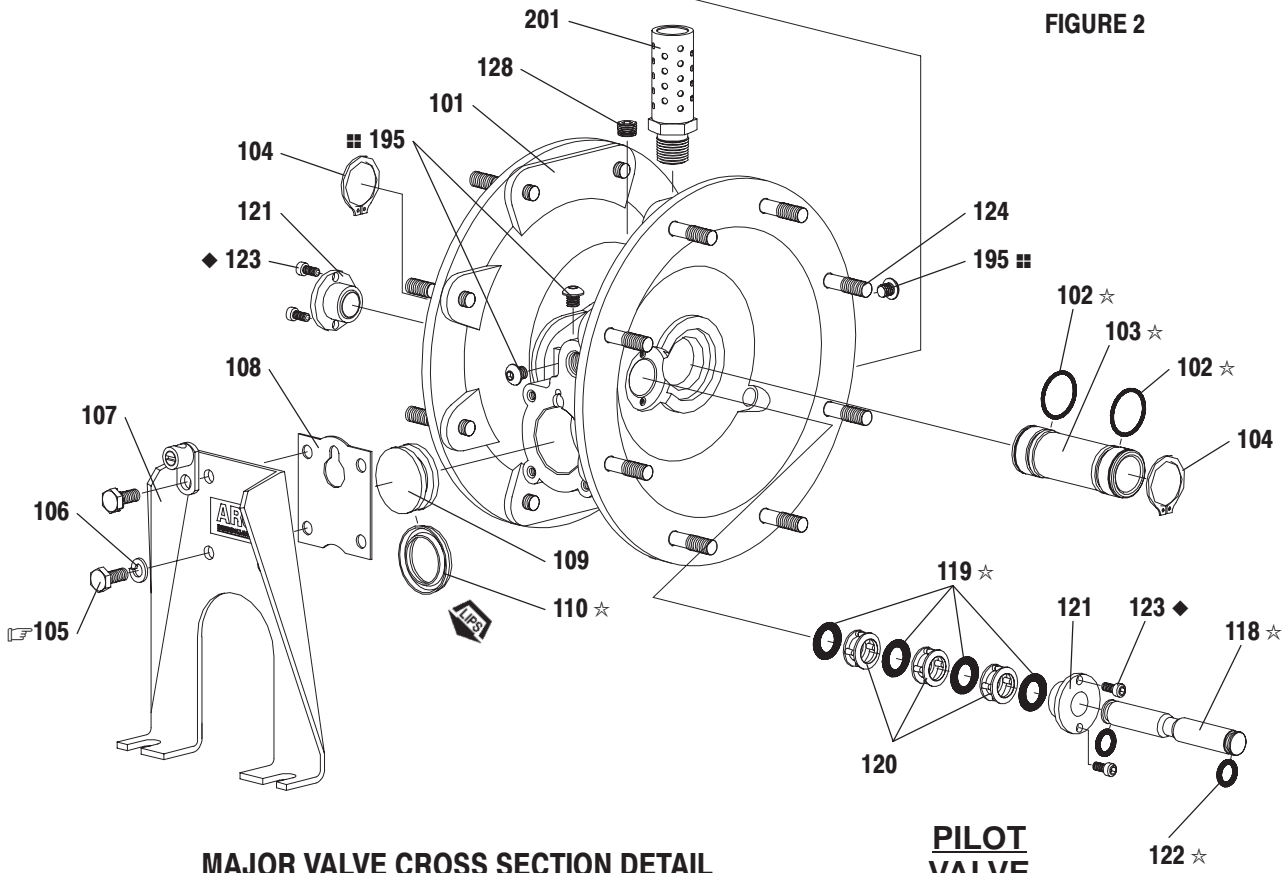
1. Replace (112) washer, (114) "O" ring and (113) "O" ring onto (115) spacer and insert etc.
- NOTE: Be careful to orient spacer legs away from blocking internal ports.**
2. Lubricate and carefully insert (111) spool.
  3. Install (117) gasket and (107).
  4. Lubricate and install (110) packing cup and insert (109) piston into (air inlet side) cavity, the (110) packing cup lips should point outward.
  5. Install (108) gasket and replace (107).

# PARTS LIST / 66610X-X-C AIR MOTOR SECTION

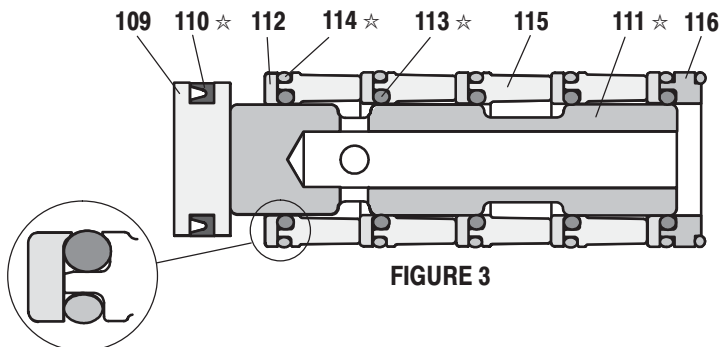
**IMPORTANT**  
 BE CERTAIN TO ORIENT (115) SPACER LEGS  
 AWAY FROM BLOCKING INTERNAL PORTS  
 WHEN REASSEMBLING AIR SECTION.



**FIGURE 2**



**MAJOR VALVE CROSS SECTION DETAIL**



**TORQUE REQUIREMENTS**  
 NOTE: DO NOT OVERTIGHTEN FASTENERS  
 (105) 40 - 50 in. lbs (4.5 - 5.6 Nm).

**LUBRICATION / SEALANTS**

- ★ Apply Key-Lube grease to all "O" rings, "U" Cups & mating parts.
- ◆ Apply Loctite 271 to threads.
- Apply Dri-Loc 204 to threads.

## TROUBLE SHOOTING

### Product discharged from exhaust outlet.

- Check for diaphragm rupture.
- Check tightness of diaphragm nut.

### Air bubbles in product discharge.

- Check connections of suction plumbing.
- Check "O" rings between intake manifold and fluid caps.
- Check tightness of diaphragm nut.

### Low output volume, erratic flow, or no flow.

- Check air supply.
- Check for plugged outlet hose.
- Check for kinked (restrictive) outlet material hose.
- Check for kinked (restrictive) or collapsed inlet material hose.
- Check for pump cavitation – suction pipe should be sized at least as large as the inlet thread diameter of the pump for proper flow if high viscosity fluids are being pumped. Suction hose must be a non-collapsing type, capable of pulling a high vacuum.
- Check all joints on the inlet manifolds and suction connections. These must be air tight.
- Inspect the pump for solid objects logged in the diaphragm chamber or the seat area.

## DIMENSIONAL DATA

(Dimensions shown are for reference only, they are displayed in inches and millimeters (mm).)

