

PARTS LIST / PD03P-XXX-XXX FLUID SECTION

① 637429-XX Fluid Section service kits include: Balls (see BALL OPTION, refer to -XX in chart below), Diaphragms (See DIAPHRAGM OPTION, refer to -XX in chart below), plus items 144, 174 and 94276 Lubriplate® grease (page 6).

SEAT OPTIONS PD03P-XXS-XXX			
"21"			
-XXX	Seat	Qty	[Mtl]
-DXX	96580-2	(4)	[D]
-KXX	96580-3	(4)	[K]
-PXX	96580-1	(4)	[P]
-SXX	96537	(4)	[SS]
-OXX	96745	(4)	[P]

BALL / DUCKBILL OPTIONS PD03P-XXS-XXX							
① "22" (5/8" dia.)				① "42"			
-XXX	Ball	Qty	[Mtl]	-XXX	Duckbill	Qty	[Mtl]
-XAX	96481-A	(4)	[Sp]	-XJX	96744-2	(4)	[B]
-XCX	96481-C	(4)	[H]	-XNX	96744-3	(4)	[N]
-XSX	96513	(4)	[SS]	-XLX	96744-4	(4)	[V]
-XTX	96481-4	(4)	[T]	-XKX	96744-1	(4)	[E]
-VXX	96481-3	(4)	[V]				

MATERIAL CODE
[A] = Aluminum
[B] = Nitrile
[D] = Acetal
[E] = E.P.R.
[GA] = Groundable Acetal
[GFN] = Glass Filled Nylon
[H] = Hytrel
[K] = Kynar PVDF
[N] = Neoprene
[P] = Polypropylene
[PPG] = Glass Filled Polypropylene
[Sp] = Santoprene
[SS] = Stainless Steel
[T] = PTFE
[V] = Viton

NOTE: Item 19 "O" ring is not used with PD03P-XXX-QXX seat option.

DIAPHRAGM OPTIONS PD03P-XXS-XXX										
-XXX	① SERVICE KIT -XX = (Ball) -XX = (Diaphragm)	① "7"			① "8"			① "19"		
		Diaphragm	Qty	[Mtl]	Diaphragm	Qty	[Mtl]	"O" Ring (3/32" x 1-1/8" o.d.)	Qty	[Mtl]
-XXA	637429-XA	96533-A	(2)	[Sp]	----	---	---	93761	(4)	[E]
-XXC	637429-XC	96533-C	(2)	[H]	----	---	---	Y325-119	(4)	[B]
-XXT	637429-XT	96538	(2)	[T]	96533-A	(2)	[Sp]	96514	(4)	[T]
-XXV	637429-XV	96558	(2)	[V]	----	---	---	Y327-119	(4)	[V]

MANIFOLD / FLUID CAP OPTIONS PD03P-XXS-XXX														
Item	Description (size)	Qty	Polypropylene				Kynar PVDF				Groundable Acetal			
			PD03P-XPS- Part No.	[Mtl]	PD03P-XRS- Part No.	[Mtl]	PD03P-XKS- Part No.	[Mtl]	PD03P-XLS- Part No.	[Mtl]	PD03P-XDS- Part No.	[Mtl]	PD03P-XES- Part No.	[Mtl]
6	Diaphragm Nut (1/4" - 20)	(2)	93810-7	[P]	93810-7	[P]	93810-3	[K]	93810-3	[K]	93810-2	[D]	93810-2	[D]
15	Fluid Cap	(2)	96460-1	[P]	96460-1	[P]	96460-3	[K]	96460-3	[K]	96460-2	[GA]	96460-2	[GA]
43	Ground Strap	(1)	----	---	----	---	----	---	----	---	92956-1	[SS]	92956-1	[SS]
57	Ground Kit Assembly (not shown)	(1)	----	---	----	---	----	---	----	---	66885-1		66885-1	
60	Inlet Manifold (N.P.T.F.)	(1)	96468-1	[P]	96468-7	[P]	96468-3	[K]	96468-9	[K]	96468-2	[GA]	96468-8	[GA]
	(BSP)	(1)	96468-4	[P]	96468-10	[P]	96468-6	[K]	96468-12	[K]	96468-5	[GA]	96468-11	[GA]
61	Outlet Manifold (N.P.T.F.)	(1)	96469-1	[P]	96469-1	[P]	96469-3	[K]	96469-3	[K]	96469-2	[GA]	96469-2	[GA]
	(BSP)	(1)	96469-4	[P]	96469-4	[P]	96469-6	[K]	96469-6	[K]	96469-5	[GA]	96469-5	[GA]
63	Pipe Plug (N.P.T.F.)	(1)	----	---	94478-1	[PPG]	----	---	94478-3	[K]	----	---	94478-2	[D]
	(BSP)	(1)	----	---	96559-1	[PPG]	----	---	96559-3	[K]	----	---	96559-2	[D]

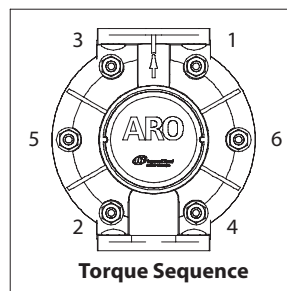
COMMON PARTS									
Item	Description (size)	Qty	Part No.	[Mtl]	Item	Description (size)	Qty	Part No.	[Mtl]
② 1	Connecting Rod	(1)	96532	[SS]	27	Bolt (1/4" - 20 x 1-1/8")	(12)	96471	[SS]
5	Diaphragm Washer	(2)	96556	[GFN]	29	Nut (1/4" - 20)	(20)	93828	[SS]
26	Bolt (1/4" - 20 x 1-1/8")	(8)	96471	[SS]	77	Logo Plate	(2)	93264	[A]

DUAL INLET / DUAL OUTLET KITS 637442-X														
Item	Description (size)	Qty	Polypropylene				Kynar PVDF				Groundable Acetal			
			637442-1 (N.P.T.) Part No.	[Mtl]	637442-4 (BSP) Part No.	[Mtl]	637442-3 (N.P.T.) Part No.	[Mtl]	637442-6 (BSP) Part No.	[Mtl]	637442-2 (N.P.T.) Part No.	[Mtl]	637442-5 (BSP) Part No.	[Mtl]
17	Dual Outlet Manifold	(2)	96520-1	[P]	96520-4	[P]	96520-3	[K]	96520-6	[K]	96520-2	[GA]	96520-5	[GA]
18	Dual Inlet Manifold	(2)	96519-1	[P]	96519-4	[P]	96519-3	[K]	96519-6	[K]	96519-2	[GA]	96519-5	[GA]
19	O" Ring (3/32" x 1-1/8" o.d.)	(1)	96514	[T]	96514	[T]	96514	[T]	96514	[T]	96514	[T]	96514	[T]

② Smart Parts™ keep these items on hand in addition to the service kits for fast repair and reduction of down time.

PARTS LIST / PD03P-XXX-XXX FLUID SECTION

COLOR CODE		
MATERIAL	DIAPHRAGM COLOR	BALL COLOR
Hytrel	Cream	Black (+)
Santoprene	Tan	Tan
PTFE	White	White
Viton	Yellow (+)	Yellow (+)
		(+) Dot



FOR THE AIR MOTOR SECTION
 SEE PAGES 6 & 7

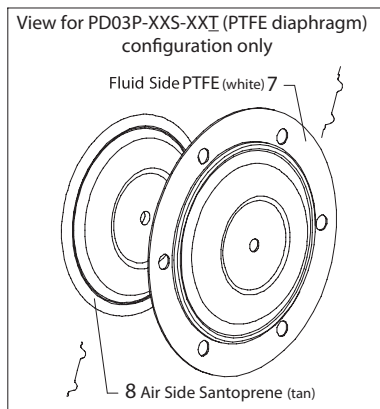
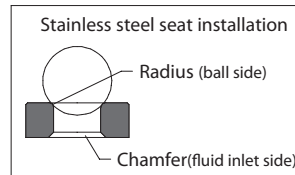
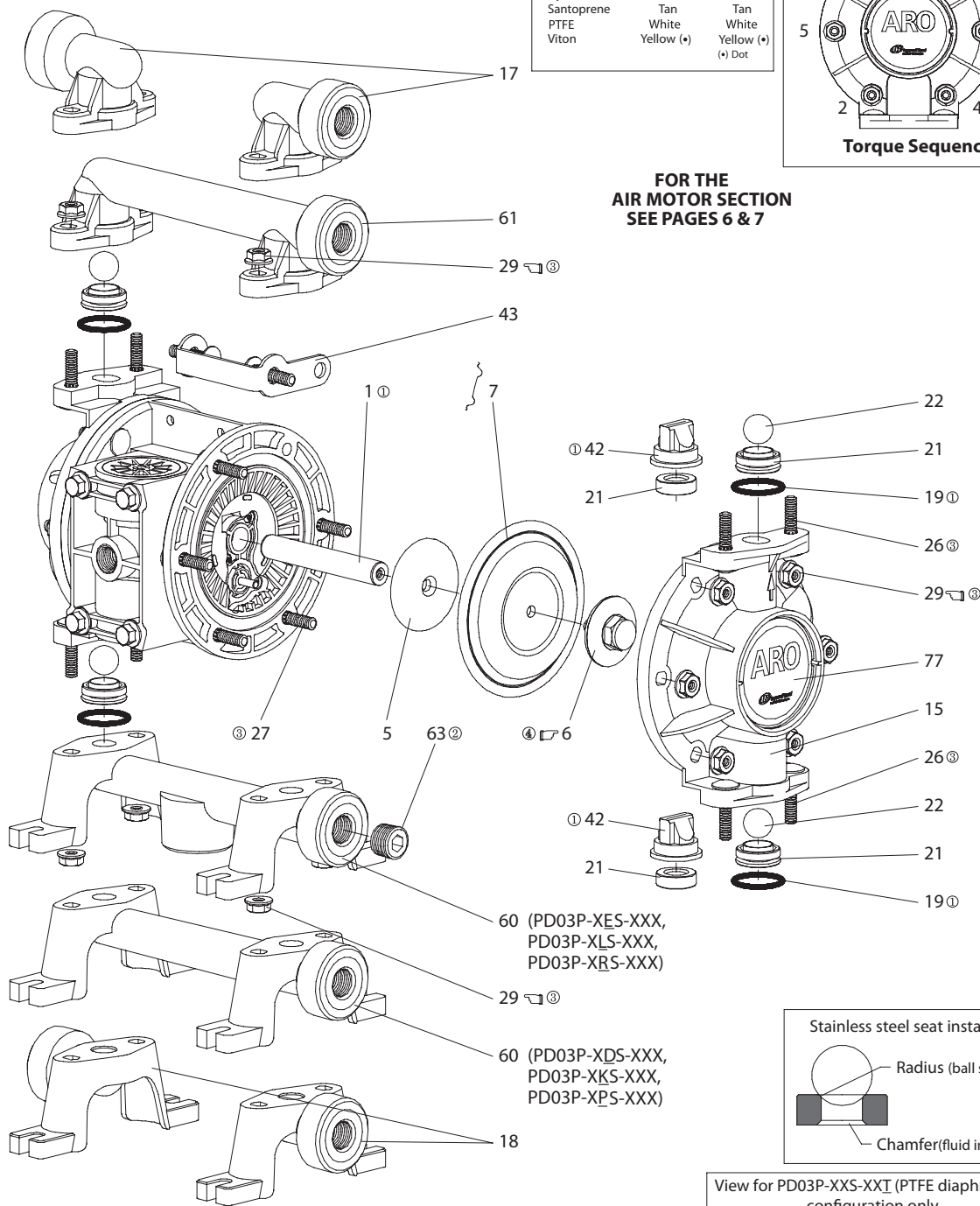


Figure 3

ASSEMBLY TORQUE REQUIREMENTS
 NOTE: DO NOT OVERTIGHTEN FASTENERS.

(6) diaphragm nut, 60 - 70 in. lbs (6.8 - 7.9 Nm).
 (29) nut, 50 - 60 in. lbs (5.6 - 6.8 Nm), / alternately and evenly, then re-torque after initial run-in.

LUBRICATION / SEALANTS

- ① Apply Lubriplate (94276) to all "O" rings, "U" cups and mating parts.
- ② Apply pipe sealant to threads.
- ③ Apply anti-seize compound to threads and bolt and nut flange heads which contact pump case when using stainless steel fasteners.
- ④ Apply Loctite 242 to threads.

PARTS LIST / PD03P-XXX-XXX AIR MOTOR SECTION

⊕ Indicates parts included in 637428 Air Section Repair Kit.

Item	Description (size)	Qty	Part No.	[Mtl]
101	Center Body	(1)	96466	[PPG]
103R	Cover (right side)	(1)	96488	[D]
103L	Cover (left side)	(1)	96489	[D]
107	Plug, Small	(1)	96353	[D]
111	Major Valve Spool	(1)	95919	[D]
118	Actuator Pin	(2)	94874-1	[SS]
⊕ 121	Washer	(2)	96092	[D]
123	Screw (#4 - 20 x 1/2")	(12)	96093	[SS]
129	Muffler Baffle	(1)	96542	[P]
130	Gasket	(1)	95931	[SY]
⊕ 132	Air Manifold Gasket	(1)	96214-1	[B]
134	Flange Bolt (1/4" - 20 x 3")	(4)	96487	[SS]
135	Valve Block	(1)	96204	[PPG]
136	Plug, Large	(1)	96352	[D]
⊕ 137	"O" Ring (1/16" x 1-5/8" o.d.)	(3)	Y325-29	[B]
⊕ 138	"U" Cup Packing (1/8" x 1" o.d.)	(1)	94395	[U]
⊕ 139	"U" Cup Packing (1/8" x 1-7/16" o.d.)	(1)	96383	[U]

Item	Description (size)	Qty	Part No.	[Mtl]
140	Valve Insert	(1)	93276	[CK]
141	Valve Plate	(1)	96173	[CK]
⊕ 144	"U" Cup Packing (1/8" x 3/4" o.d.)	(2)	Y187-47	[B]
⊕ 166	"O" Ring (1/16" x 1-1/4" o.d.)	(1)	Y325-24	[B]
⊕ 167	Pilot Piston (includes 168 and 169)	(1)	67382	[D]
168	"O" Ring (1/16" x 7/16" o.d.)	(2)	96459	[U]
169	"U" Cup Packing (1/8" x 5/8" o.d.)	(1)	96384	[U]
170	Spool Bushing	(1)	96090	[D]
⊕ 171	"O" Ring (1/16" x 13/16" o.d.)	(2)	Y325-17	[B]
⊕ 173	"O" Ring (3/32" x 7/8" o.d.)	(2)	Y325-115	[B]
⊕ 174	"O" Ring (3/32" x 11/32" o.d.)	(2)	Y325-105	[B]
⊕ 200	Porting Gasket	(1)	96364	[B]
⊕ 232	"O" Ring (1/16" x 3/8" o.d.)	(4)	Y325-10	[P]
236	Nut (1/4" - 20)	(4)	Y12-4-5	[SS]
⊕ ⊕	Lubriplate FML-2 Grease	(1)	94276	
	Lubriplate Grease, 10 Pack		637308	

MATERIAL CODE

[B] = Nitrile	[PPG] = Glass Filled Polypropylene
[CK] = Ceramic	[SS] = Stainless Steel
[D] = Acetal	[SY] = Syn-Seal
[P] = Polypropylene	[U] = Polyurethane

DIAPHRAGM PUMP SERVICE

GENERAL SERVICE NOTES:

- Inspect and replace old parts with new parts as necessary. Look for deep scratches on metallic surfaces, and nicks or cuts in "O" rings.
- Tools needed to complete disassembly and repair:
 - 5/8" socket or wrench, 7/16" socket or wrench, 3/8" socket or wrench, 5/16" Allen wrench, T-10 Torx screwdriver, torque wrench (measuring inch pounds), "O" ring pick.

FLUID SECTION DISASSEMBLY

- Remove (61) top manifold.
- Remove (19) "O" rings, (21) seats and (22) balls.
- Remove (60) bottom manifold.
- Remove (19) "O" rings, (21) seats and (22) balls.
- Remove (15) fluid caps.
- Remove (6) diaphragm nut, (7) or (7 / 8) diaphragms and (5) washer.
- Remove (1) connecting rod from air motor.
- Carefully remove remaining (6) diaphragm nut, (7) or (7 / 8) diaphragms and (5) washer from (1) connecting rod. Do not mar surface of connecting rod.

FLUID SECTION REASSEMBLY

- Reassemble in reverse order.
- Lubricate (1) connecting rod with Lubriplate or equivalent "O" ring lubricant.
- Install (5) washers with i.d. chamfer toward diaphragm.
- When replacing PTFE diaphragms, install the 96533-A Santoprene diaphragm behind the Teflon diaphragm.

AIR MOTOR SECTION SERVICE

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

- Air Motor Section Service is continued from Fluid Section repair.

PILOT VALVE DISASSEMBLY

- Remove (123) screws, releasing (103) covers, (121) washers, (118) actuator pins and (167) pilot piston.
- Remove (170) spool bushing and inspect inner bore of bushing for damage.

PILOT VALVE REASSEMBLY

- Clean and lubricate parts not being replaced from service kit.
- Assemble (171) "O" rings to (170) bushing and assemble bushing into (101) center body.
- Lubricate and assemble (167) pilot piston assembly into (170) bushing.
- Assemble (173 and 174) "O" rings and (121) washers to (103) covers, then insert (118) actuator pins through assembly.
- Assemble (144) "U" cups (note the lip direction) and (103) covers to (101) center body, securing with (123) screws. NOTE: Tighten (123) screws to 4 - 6 in. lbs (0.45 - 0.68 Nm).

MAJOR VALVE DISASSEMBLY

- Unthread (123) screws, releasing (129) muffler baffle.
- Unthread (134) bolts and pull (135) valve block and components from (101) center body.
- Remove (132) gasket, (141) valve plate and (140) valve insert from (135) valve block.
- Remove (134) bolts, releasing (107 and 136) plugs and (111) spool.

PARTS LIST / PD03P-XXX-XXX AIR MOTOR SECTION

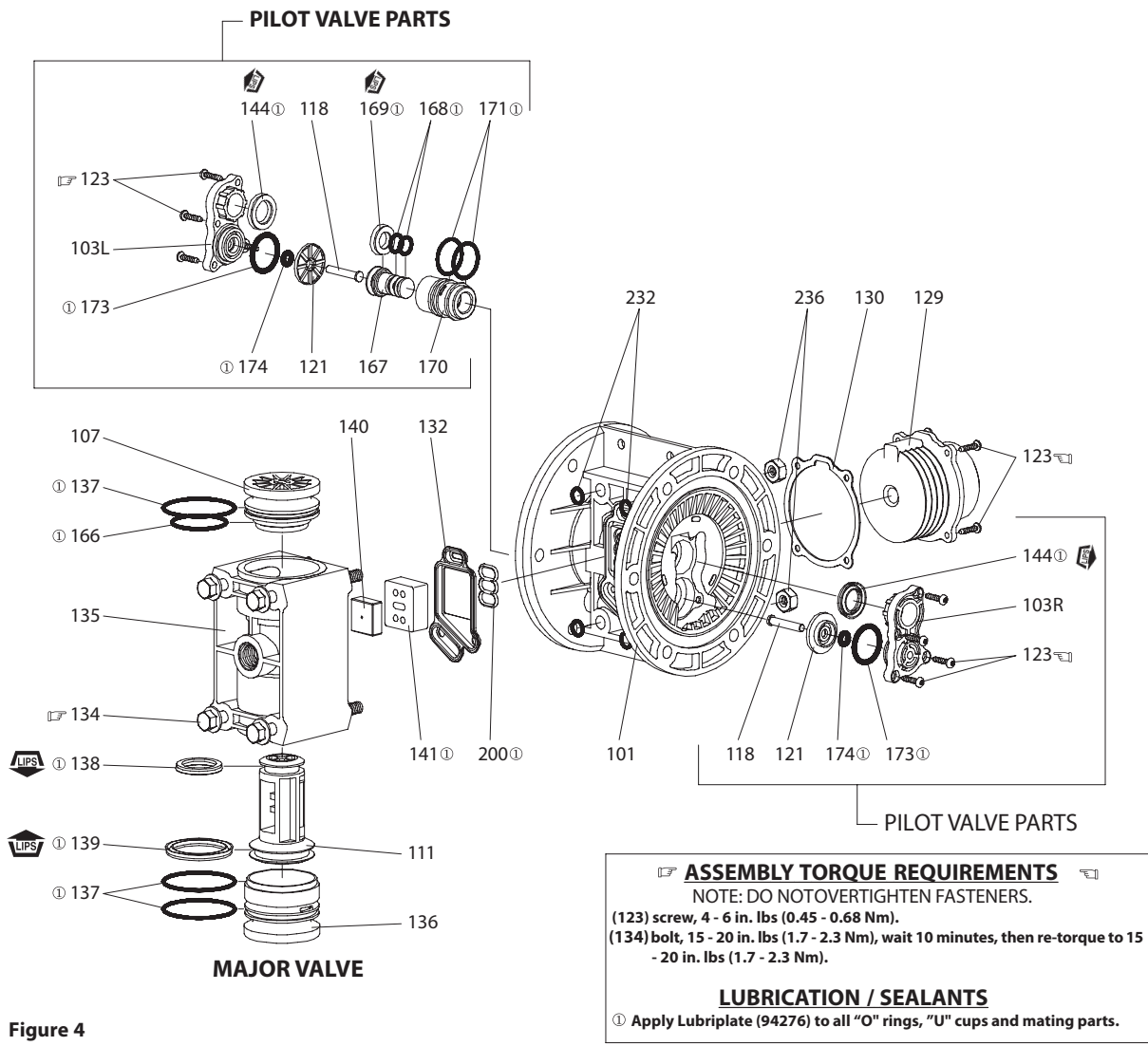


Figure 4

MAJOR VALVE REASSEMBLY

1. Assemble new (139 and 138) U" cups on (111) spool - **LIPS MUST FACE EACH OTHER.**
2. Assemble (137) O" rings to (136) large plug.
3. Assemble (137 and 166) O" rings to (107) small plug.
4. Insert (111) spool into (136) large plug, then insert (136) large plug into (135) valve block, being sure the (111) spool is rotated to accept (140) valve insert.
5. Assemble (107) small plug into (135) valve block.
6. Assemble (140) valve insert and (141) valve plate to (135) valve block. Note: Assemble (140) valve insert with dished" side toward (141) valve plate. Assemble (141) valve plate with identification dot toward (132) gasket.
7. Assemble (132 and 200) gaskets and (135) valve block to (101) center body, securing with (134) bolts. NOTE: Tighten (134) bolts to 15 - 20 in. lbs (1.7 - 2.3 Nm).
8. Assemble (130) gasket and (129) muffler baffle to (101) center body, securing with (123) screws. NOTE: Tighten (123) screws to 4 - 6 in. lbs (0.45 - 0.68 Nm).