WP ARO®

Authorized Distributor of

INGERSOLL RAND ARO, ALBIN PUMP, MILTON ROY, FLOWROX, FLUIDMIX and NAKAKIN

# WP-ARO

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# Formular für Ersatzteilbestellung

Um eine schnelle Bearbeitung zu gewährleisten, bitten wir Sie uns dieses Formular bestmöglich ausgefüllt an unsere E-Mail Adresse oder per Fax zu senden.

| | | | | |
|---|---|---|---|---|
| Kundennummer: | Firma: | | | |
| Ansprechpartner: | Tel.: | | | |
| Straße: | Fax: | | | |
| PLZ, Ort: | E-Mail: | | | |
| Datum: | Preisanfrage: | | Bestellung: | |

Bitte ankreuzen!

*Bitte übertragen Sie nachfolgende Daten, die auf dem Typenschild stehen.*

Artikelnummer: .....

Typ / Modell: .....

Seriennummer: .....

*Bitte beachten Sie bei der Auswahl der gewünschten Ersatzteile, dass es konfektionierte Reparatursätze gibt. Diese enthalten alle relevanten Ersatzteile, welche für eine „Standardreparatur" benötigt werden!*

| Lfd. Nr. | Positions-Nr. | Beschreibung | Artikelnummer | Menge |
|---|---|---|---|---|
| 1 | | | | |
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| 3 | | | | |
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# OPERATOR'S MANUAL 6661TX-X-C

**INCLUDING: OPERATION, INSTALLATION AND MAINTENANCE**

**RELEASED: 1-29-93**
**REVISED: 12-12-17**
**(REV: Y)**

## 1-1/2" DIAPHRAGM PUMP
### 1:1 RATIO (NON-METALLIC)

**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

Refer to "Model Description Chart" to match the pump material options.
**637118-C** for Air Section repair (see page 6).
**637165-XXX** for fluid section repair **with** seats (see page 4).
**637165-XX** for fluid section repair **without** seats (see page 4).

## PUMP DATA

**Models .....** see Model Description Chart for "-XXX".
**Pump Type ...** Non-Metallic Air Operated Double Diaphragm
**Material .....** see Model Description Chart
**Material Inlet / Outlet .....** 1-1/2" ANSI Flange
**Weight.....** Polypropylene..... 62 lbs (28.1 kg)
PVDF (Kynar®)..... 92 lbs (41.7 kg)
[add 23 lbs (10.4 kgs) for cast iron air motor section]
**Maximum Air Inlet Pressure .....** 120 psig (8.3 bar)
**Maximum Outlet Pressure.....** 120 psig (8.3 bar)
**Maximum Material Inlet Pressure ...** 10 psig (0.69 bar)
**Maximum Flow Rate (flooded inlet) ...** 100 gpm (378.5 lpm)
**Displacement / Cycle @ 100 psig**
Standard Diaphragm..... 0.67 gal (2.54 lit)
Composite PTFE Diaphragm. 0.43 gal (1.63 lit)
**Maximum Particle Size .....** 1/4" dia. (6 mm)
**Maximum Temperature Limits**
Polypropylene ..... 35° to 175° F (1.7° to 79° C)
PVDF (Kynar)..... 10° to 200° F (-12° to 93° C)
**Dimensional Data .....** see page 8
**Noise Level** @ 70 psig, 60 cpm②..... 77.7 db(A)①

① The pump sound pressure levels published here have been updated to an Equivalent Con inuous Sound Level ($L_{Aeq}$) to meet the intent of ANSI S1.13-1971, CAGI-PNEUROP S5.1 using four microphone locations.
② Tested with 93139 Muffler installed.

**NOTICE: All possible options are shown in the chart, however, certain combinations may not be recommended, consult a representative or the factory if you have questions concerning availability.**

## GENERAL DESCRIPTION

The ARO Diaphragm Pump offers high volume delivery even at low air pressures and a broad range of material compatibility options available.
Refer to the model and option chart. ARO pumps feature stall resistant design, modular air motor / fluid sections.
Air operated double diaphragm pumps utilize a pressure differential in the air chambers to alternately create suction and positive fluid pressure in the fluid chambers, ball checks insure a positive flow of fluid.
Pump cycling will begin as air pressure is applied and it will continue to pump and keep up with the demand. It will build and maintain line pres sure and will stop cycling once maximum line pressure is reached (dispensing device closed) and will resume pumping as needed.

**6661T3-XXX-C**

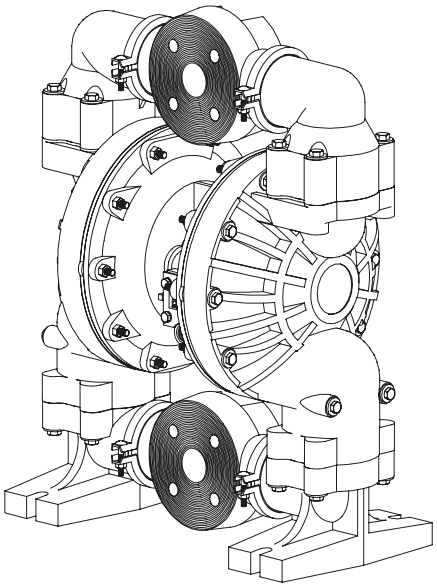

**Figure 1**

## MODEL DESCRIPTION CHART

**6661 X X - X X X - C**

**CENTER BODY MATERIAL**
T - Aluminum
U - Cast Iron

**FLUID CAP / MANIFOLD MATERIAL**
3 - Polypropylene
4 - PVDF (Kynar®)

**SEAT MATERIAL**
2 - 316 Stainless Steel
3 - Polypropylene
4 - PVDF (Kynar)
8 - 440 Stainless Steel

**BALL MATERIAL**
1 - Neoprene
2 - Nitrile
3 - Viton®
4 - PTFE
8 - Polyurethane
C - Hytrel®
E - Santropene®

**DIAPHRAGM MATERIAL**
1 - Neoprene
2 - Nitrile
3 - Viton
4 - PTFE / Santoprene
6 - Composite PTFE
9 - Hytrel®
B - Santropene

**FLUID SECTION SERVICE KIT SELECTION** 6661XX- X X X - C
EXAMPLE: MODEL # 6661T3-314-C
FLUID SECTION SERVICE KIT # 637165-14
637165-[X][X]
BALL ┘ └ DIAPHRAGM

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# OPERATING AND SAFETY PRECAUTIONS

## READ, UNDERSTAND, AND FOLLOW THIS INFORMATION TO AVOID INJURY AND PROPERTY DAMAGE.

**⚠ WARNING** EXCESSIVE AIR PRESSURE. Can cause personal injury, pump damage or property damage.

- Do not exceed the maximum inlet air pressure as stated on the pump model plate.
- Be sure material hoses and other components are able to withstand fluid pressures developed by this pump. Check all hoses for damage or wear. Be certain dispensing device is clean and in proper working condition.

**⚠ WARNING** STATIC SPARK. Can cause explosion resulting in severe injury or death. Ground pump and pumping system.

- Sparks can ignite flammable material and vapors.
- The pumping system and object being sprayed must be grounded when it is pumping, flushing, recirculating or spraying flammable materials such as paints, solvents, lacquers, etc. or used in a location where surrounding atmosphere is conducive to spontaneous combustion. Ground the dispensing valve or device, containers, hoses and any object to which material is being pumped.
- Secure pump, connections and all contact points to avoid vibration and generation of contact or static spark.
- Consult local building codes and electrical codes for specific grounding requirements.
- After grounding, periodically verify continuity of electrical path to ground. Test with an ohmmeter from each component (e.g., hoses, pump, clamps, container, spray gun, etc.) to ground to insure continuity. Ohmmeter should show 0.1 ohms or less.
- Submerse the outlet hose end, dispensing valve or device in the material being dispensed if possible. (Avoid free streaming of material being dispensed.)
- Use hoses incorporating a static wire.
- Use proper ventilation.
- Keep inflammables away from heat, open flames and sparks.
- Keep containers closed when not in use.

**⚠ WARNING** Pump exhaust may contain contaminants. Can cause severe injury. Pipe exhaust away from work area and personnel.

- In the event of a diaphragm rupture, material can be forced out of the air exhaust muffler.
- Pipe the exhaust to a safe remote location when pumping hazardous or inflammable materials.
- Use a grounded 3/4" minimum i.d. hose between the pump and the muffler.

**⚠ WARNING** HAZARDOUS PRESSURE. Can result in serious injury or property damage. Do not service or clean pump, hoses or dispensing valve while the system is pressurized.

- Disconnect air supply line and relieve pressure from the system by opening dispensing valve or device and / or carefully and slowly loosening and removing outlet hose or piping from pump.

**⚠ WARNING** HAZARDOUS MATERIALS. Can cause serious injury or property damage. Do not attempt to return a pump to the factory or service center that contains hazardous material. Safe handling practices must comply with local and national laws and safety code requirements.

- Obtain Material Safety Data Sheets on all materials from the supplier for proper handling instructions.

**⚠ WARNING** EXPLOSION HAZARD. Models containing aluminum wetted parts cannot be used with 1,1,1-trichloroethane, methylene chloride or other halogenated hydrocarbon solvents which may react and explode.

- Check pump motor section, fluid caps, manifolds and all wetted parts to assure compatibility before using with solvents of this type.

**⚠ CAUTION** Verify the chemical compatibility of the pump wetted parts and the substance being pumped, flushed or recirculated. Chemical compatibility may change with temperature and concentration of the chemical(s) within the substances being pumped, flushed or circulated. For specific fluid compatibility, consult the chemical manufacturer.

**⚠ CAUTION** Maximum temperatures are based on mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperature. Consult the chemical manufacturer for chemical compatibility and temperature limits. Refer to PUMP DATA on page 1 of this manual.

**⚠ CAUTION** Be certain all operators of this equipment have been trained for safe working practices, understand it's limitations, and wear safety goggles / equipment when required.

**⚠ CAUTION** Do not use the pump for the structural support of the piping system. Be certain the system components are properly supported to prevent stress on the pump parts.

- Suction and discharge connections should be flexible connections (such as hose), not rigid piped, and should be compatible with the substance being pumped.

**⚠ CAUTION** Prevent unnecessary damage to the pump. Do not allow pump to operate when out of material for long periods of time.

- Disconnect air line from pump when system sits idle for long periods of time.

**⚠ CAUTION** Use only genuine ARO replacement parts to assure compatible pressure rating and longest service life.

**NOTICE** RE-TORQUE ALL FASTENERS BEFORE OPERATION. Creep of housing and gasket materials may cause fasteners to loosen. Re-torque all fasteners to insure against fluid or air leakage.

| | | |
|---|---|---|
| **⚠ WARNING** | = | Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage. |
| **⚠ CAUTION** | = | Hazards or unsafe practices which could result in minor personal injury, product or property damage. |
| **NOTICE** | = | Important installation, operation or maintenance information. |

## AIR AND LUBE REQUIREMENTS

**⚠ WARNING EXCESSIVE AIR PRESSURE. Can cause pump damage, personal injury or property damage.**

- A filter capable of filtering out particles larger than 50 microns should be used on the air supply. There is no lubrication required other than the "O" ring lubricant which is applied during assembly or repair.
- When lubricated air is necessary, supply the air lubricator with a good grade of SAE 90 wt. non-detergent oil and set the lubricator to a rate not to exceed one drop per minute.

## OPERATING INSTRUCTIONS

- Always flush the pump with a solvent compatible with the material being pumped if the material being pumped is subject to "setting up" when not in use for a period of time.
- Disconnect the air supply from the pump if it is to be inactive for a few hours.
- The outlet material volume is governed not only by the air supply but also by the material supply available at the inlet. The material supply tubing should not be too small or restrictive. Be sure not to use hose which might collapse.
- When the diaphragm pump is used in a forced-feed (flooded inlet) situation, it is recommended that a "Check Valve" be installed at the air inlet.
- Secure the diaphragm pump legs to a suitable surface to insure against damage by vibration.

## MAINTENANCE

Refer to the part views and descriptions as provided on page 4 through 7 for parts identification and Service Kit information.

- Certain ARO "Smart Parts" are indicated which should be available for fast repair and reduction of down time.
- Service kits are divided to service two separate diaphragm pump functions: 1. AIR SECTION, 2. FLUID SECTION. The FLUID SECTION is divided further to match typical part MATERIAL OPTIONS.
- Provide a clean work surface to protect sensitive internal moving parts from contamination from dirt and foreign matter during service disassembly and reassembly.
- Keep good records of service activity and include pump in preventive maintenance program.
- Before disassembling empty captured material in the outlet manifold by turning the pump upside down to drain material from the pump.

## FLUID SECTION DISASSEMBLY

1. Remove top manifold(s).
2. Remove (22) balls, (19 and 33) "O" rings and (21) seats.
3. Remove (15) fluid caps.

**NOTE:** Only PTFE diaphragm models use a primary diaphragm (7) and a backup diaphragm (8). Refer to the auxiliary view in the Fluid Section illustration.

For 6661XX-XX6-C:

4. Remove (7) diaphragm, (5) washers and (30) shims.

For other models:

4. Remove (6) nut, (7) or (7 / 8) diaphragms and (5) washers.
5. Remove (3 and 4) "O" rings.

**NOTE:** Do not scratch or mar the surface of (1) diaphragm rod.

## FLUID SECTION REASSEMBLY

- Reassemble in reverse order.
- Clean and inspect all parts. Replace worn or damaged parts with new parts as required.
- Lubricate (1) diaphragm rod and (2) "O" ring with Key-Lube® grease.
- Use ARO PN / 98931-T Bullet (installation tool) to aid in installation of (2) "O" ring on (1) diaphragm rod.

For 6661XX-XX6-C:

- Attach a regulated airline to the pump inlet; gradually increasing the air pressure (6-8 psig) to check which side of the pump with air blowing out, and then shut down the air supplier.
- Fasten (7) diaphragm with (5) washer into (1) diaphragm rod, and insert them into (101) Center body from the chamber identified with blowing air in the previous step.
- Install (15) fluid cap.
- Thread the other side of (7) diaphragm with (5) washer into (1) diaphragm rod, but do not tighten it.
- Record the angle for the misalignment between (7) diaphragm hole and (101) center body holes, then unthread the (7) diaphragm and place proper Qty. of (30) shims between (5) washer and (1) diaphragm rod.
- Attach a regulated airline to the pump inlet, gradually increasing the air pressure (6-8 psi) until the diaphragm shift to the other site, shut down the air supply.
- Install the second (15) fluid cap.

  **NOTE:** for details, refer to service kits manual 48495949.

For other models:

- Be certain (7) or (7 / 8) diaphragm(s) align properly with (15) fluid caps before making final torque adjustments on bolt and nuts to avoid twisting the diaphragm.
- For models with PTFE diaphragms: Item (8) Santoprene diaphragm is installed with the side marked "AIR SIDE" towards the pump center body. Install the PTFE Diaphragm with the side marked "FLUID SIDE" towards the fluid cap.
- Re-check torque settings after pump has been restarted and run awhile.

• Viton® and Hytrel® are registered trademarks of the DuPont® Company. Kynar® is a registered trademark of Penwell Corp •
• Santoprene® is a registered trademark of Monsanto Company, licensed to Advanced Elastomer Systems, L.P. Key-Lube® is a registered trademark of Key Industries •

# PARTS LIST / 6661TX-X-C FLUID SECTION

## Fluid Section Service Kits (637165-XXX OR 637165-XX)

### For Fluid Kits With Seats:

★ 637165-XXX Fluid Section Service Kits include: Seats (see SEAT Option, refer to -XXX in chart below), Balls (see BALL Option, refer to -XXX in chart below), Diaphragms (see DIAPHRAGM Option, refer to -XXX in chart below), 93706-1 Key-Lube grease, plus "O" Ring items: 2, 3, 4, 19 and 33.

### For Fluid Kits Without Seats:

★ 637165-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), 93706-1 Key-Lube grease, plus "O" Ring items: 2, 3, 4, 19 and 33.

**SEAT OPTIONS 6661XX-XXX-C**

| ★"21" | | | |
|---|---|---|---|
| -XXX | Seat | Qty | [Mtl] |
| -2XX | 96849 | (4) | [SS] |
| -3XX | 97171-1 | (4) | [P] |
| -4XX | 97171-2 | (4) | [K] |
| -8XX | 97179 | (4) | [SH] |

**BALL OPTIONS 6661XX-XXX-C**

| ★ "22" (2-1/2" dia.) (Service Kit-XX) | | | | | | | |
|---|---|---|---|---|---|---|---|
| -XXX | Ball | Qty | [Mtl] | -XXX | Ball | Qty | [Mtl] |
| -X1X | 93358-1 | (4) | [N] | -X8X | 93358-8 | (4) | [U] |
| -X2X | 93358-2 | (4) | [B] | -XCX | 93358-C | (4) | [H] |
| -X3X | 93358-3 | (4) | [V] | -XEX | 93358-A | (4) | [SP] |
| -X4X | 93358-4 | (4) | [T] | | | | |

**MATERIAL CODE**

[B] = Nitrile
[C] = Carbon Steel
[CP] = Composite PTFE
[E] = E.P.R.
[H] = Hytrel
[K] = P.V.D.F. (Kynar)
[N] = Neoprene
[P] = Polypropylene
[SH] = Hard Stainless Steel
[SP] = Santoprene
[SS] = Stainless Steel
[T] = PTFE
[U] = Polyurethane
[V] = Viton

**DIAPHRAGM OPTIONS 6661XX-XXX-C**

| -XXX | For Service Kits With Seats -XXX = (Seat), -XXX = (Ball) -XXX = (Diaphragm) | For Service Kits Without Seats -XX = (Ball) -XX = (Diaphragm) | ★ "7" / "8" | | | ★ "3" | | | ★ "4" | | | ★ "19" | | | ★"33" | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | O" Ring | | | "O" Ring | | | "O" Ring | | | "O" Ring | | |
| | | | Diaphragm | Qty | [Mtl] | (3/4" o.d.) | Qty | [Mtl] | (7/8" o.d.) | Qty | [Mtl] | (7/8" o.d.) | Qty | [Mtl] | (2-3/4" o.d.) | Qty | [Mtl] |
| -XX1 | 637165-XX1 | 637165-X1 | 92755-1 | (2) | [N] | Y325-16 | (2) | [B] | Y325-208 | (2) | [B] | Y325-342 | (4) | [B] | Y325-230 | (8) | [B] |
| -XX2 | 637165-XX2 | 637165-X2 | 92755-2 | (2) | [B] | Y325-16 | (2) | [B] | Y325-208 | (2) | [B] | Y325-342 | (4) | [B] | Y325-230 | (8) | [B] |
| -XX3 | 637165-XX3 | 637165-X3 | 92755-3 | (2) | [V] | Y328-16 | (2) | [T] | Y328-208 | (2) | [T] | Y327-342 | (4) | [V] | Y327-230 | (8) | [V] |
| -XX4 | 637165-XX4 | 637165-X4 | 94617/94616 | (2) | [T/SP] | Y328-16 | (2) | [T] | Y328-208 | (2) | [T] | 95910 | (4) | [T] | 93363-1 | (8) | [T] |
| -XX9 | 637165-XX9 | 637165-X9 | 94615-9 | (2) | [H] | Y328-16 | (2) | [T] | Y328-208 | (2) | [T] | Y327-342 | (4) | [V] | Y327-230 | (8) | [V] |
| -XXB | 637165-XXB | 637165-XB | 94615-A | (2) | [SP] | Y328-16 | (2) | [T] | Y328-208 | (2) | [T] | 95912 | (4) | [E] | 92761 | (8) | [E] |
| -XX6 | ----- | 48496806 | 48490064 | (2) | [CP] | ----- | --- | --- | ----- | --- | --- | 95910 | (4) | [T] | 93363-1 | (8) | [T] |

**DIAPHRAGM OPTIONS 6661XX-XXX-C**

| Item | Description (size) | Polypropylene 6661X3- Qty | Part No. | [Mtl] | PVDF 6661X4- Part No. | [Mtl] |
|---|---|---|---|---|---|---|
| ☐ 6 | Diaphragm Nut* | (2) | 93243-1 | [P] | 93243-2 | [K] |
| 15 | Fluid Cap | (2) | 94905-1 | [P] | 93244-2 | [K] |
| 34 | Manifold, Outlet (Top) | (2) | 93242-1 | [P] | 93242-2 | [K] |
| 35 | Manifold, Foot (Bottom) | (2) | 93241-1 | [P] | 93241-2 | [K] |
| 36 | Swivel | (2) | 93825-1 | [P] | 93825-2 | [K] |

* For 6661XX-XX6-C, diaphragm nut (6) is not required.

**COMMON PARTS**

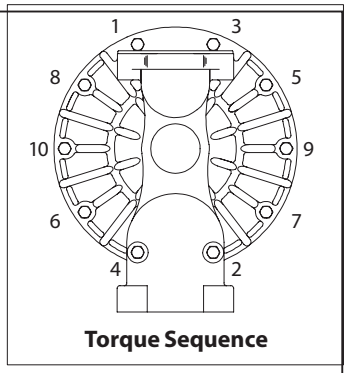
| Item | Description (size) | Qty | Part No. | [Mtl] |
|---|---|---|---|---|
| ☐ 1 | Rod (for 6661XX-XX6-C) | (1) | 48489819 | [C] |
| | (for other models) | (1) | 98720-1 | [C] |
| 2 | "O" Ring (3/32" x 1" o.d.) | (1) | Y330-117 | [B] |
| 5 | Plate (for 6661XX-XX6-C) | (2) | 48496673 | [C] |
| | (for other models) | (2) | 92752 | [C] |
| 24 | Washer (3/8") | (16) | 93360-1 | [SS] |
| 25 | Bolt (3/8"-16 x 1-3/4") | (8) | Y6-68-T | [SS] |
| 26 | Bolt (3/8"-16 x 2-3/4") | (8) | Y6-612-T | [SS] |
| 27 | Bolt (5/16"-18 x 73/4") | (4) | 93366-1 | [SS] |

| Item | Description (size) | Qty | Part No. | [Mtl] |
|---|---|---|---|---|
| 28 | Washer (5/16") | (20) | 93359-1 | [SS] |
| 29 | Nut (5/16"-18) | (20) | Y12-5-S | [SS] |
| 30 | Shim (for 6661XX-XX6-C) | (♦) | 48499875* | [C] |
| ☐ 37 | Clamp | (8) | 93357-1 | [SS] |
| 38 | Bolt (1/4"-20 x 1-1/2") | (8) | Y84-403-T | [SS] |
| 39 | Nut (1/4"-20) | (8) | Y12-4-S | [SS] |
| 77 | Logo Plate | (2) | 93267 | --- |
| 124 | Bolt (5/16"-18 x 3-1/4") (for 6661XX-XX6-C) | (16) | 47510438001 | [SS] |
| | (for other models) | (16) | Y6-514-T | [SS] |

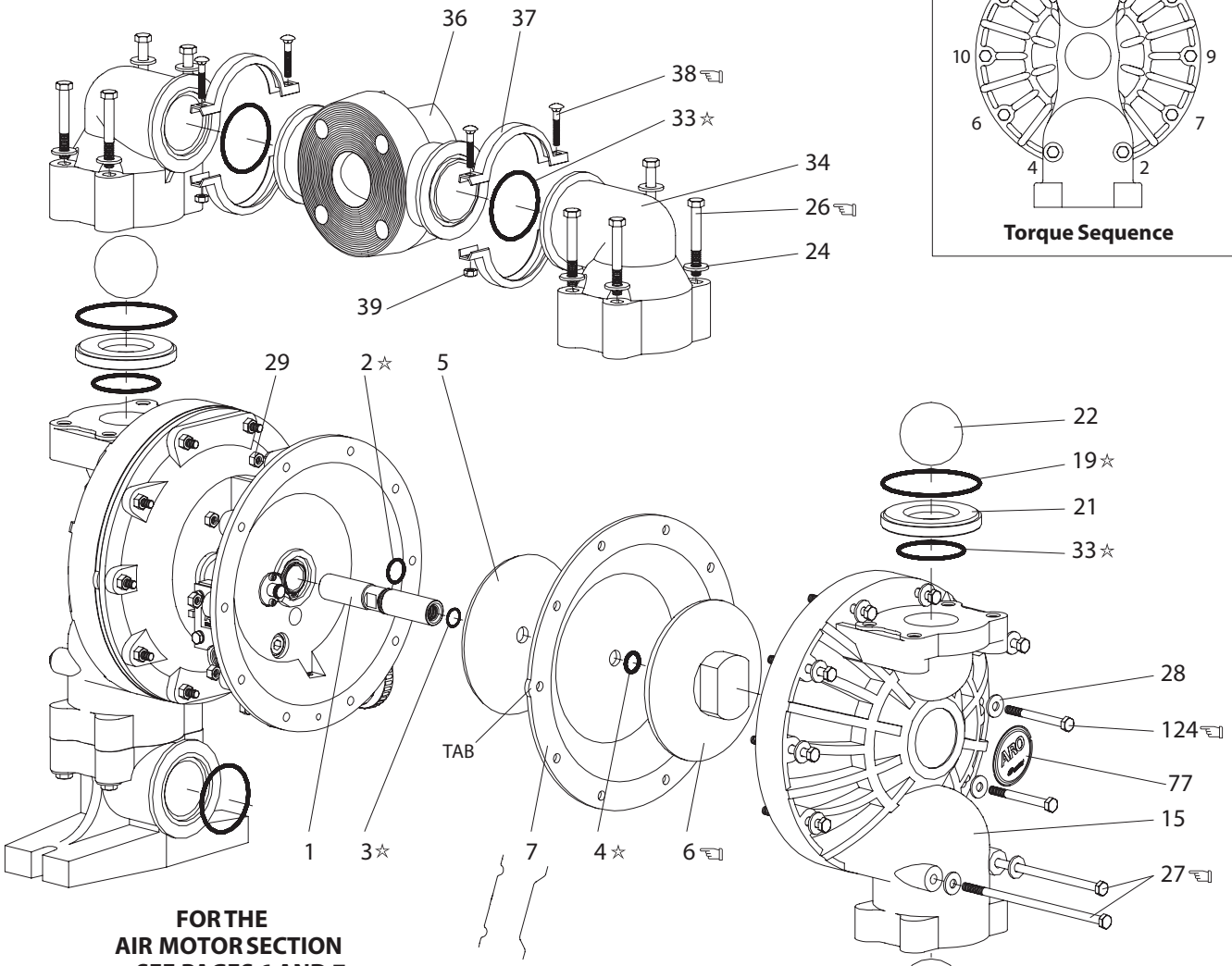
♦ The quantity is between 0 to 5, shims are not shown in the exploded view.

* For service, shim pack (48499339) can be purchased, refer to diaphragm service kit manual 48495949 for details.

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




**Torque Sequence**




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

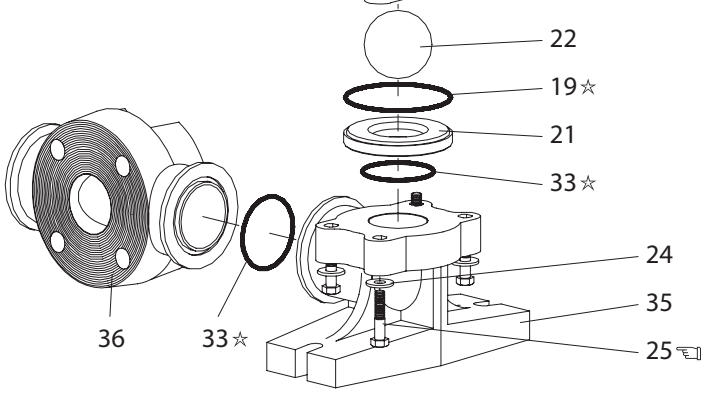
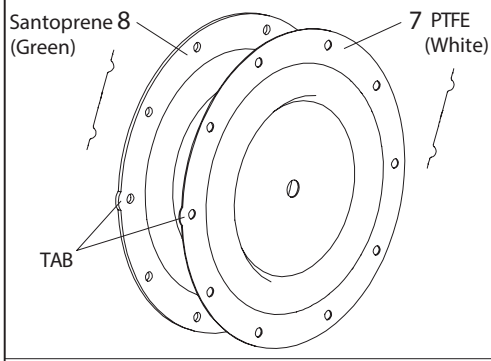
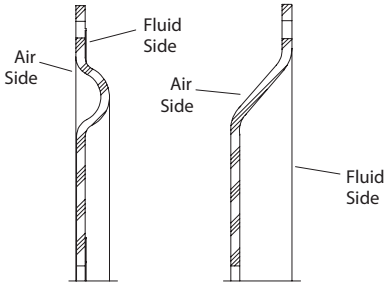



**Figure 2**

**VIEW FOR -XX4 (PTFE DIAPHRAGM) CONFIGURATION ONLY**




**CROSS SECTION VIEW OF DIAPHRAGMS**

**☞ TORQUE REQUIREMENTS ☜**

**NOTE: DO NOT OVERTIGHTEN FASTENERS**

**(6) Diaphragm Nut 65 - 70 ft. lbs (88.1 - 94.9 Nm), apply Loctite 271 to threads.**
**(25, 26, 27 and 124) Fluid Caps/Manifold bolts 120 - 140 in. lbs. (13.6 - 15. 8 Nm), apply Loctite Nickel Antiseize to threads.**
**(38) Bolts 40 - 45 in. lbs (4.5 - 5.1 Nm).**

**LUBRICATION / SEALANTS**

**☆ Apply Key-Lube grease to all "O" rings, "U" Cups & mating parts**

**COLOR CODE**

| MATERIAL | DIAPHRAGM COLOR | BALL COLOR |
|---|---|---|
| E.P.R. | Blue (–) | Blue(•) |
| HYTREL | Cream | N/A |
| NEOPRENE | Green(–) | Green(•) |
| NITRILE | Black | Red(•) |
| POLYURETHANE | N/A | Red |
| SANTOPRENE | Cream | Cream |
| SANTOPRENE (Backup) | Green | N/A |
| PTFE | White | White |
| VITON | Yellow (–) (–) STRIPE | Yellow(•) (•) DOT |

## PARTS LIST / 6661TX-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 other parts that may not be needed to service this model.**

| Item | Description (size) | Qty | Part No. | [Mtl] |
|---|---|---|---|---|
| 101 | Motor Body (6661TX-XXX-C) | (1) | 94744 | [A] |
| | (6661UX-XXX-C) | (1) | 94742 | [Cl] |
| ✓ 102 | "O" Ring (1/16" x 11/4" o.d.) | (2) | Y325-24 | [B] |
| ☐ 103 | Sleeve | (1) | 94528 | [D] |
| ✓ 104 | Retaining Ring, TruArc (1-5/32" i.d.) | (2) | Y145-26 | [C] |
| 105 | Screw (1/4"-20 x 5/8") | (8) | Y6-42-T | [SS] |
| 106 | Lockwasher (1/4") | (8) | Y14-416-T | [SS] |
| 107 | Plate | (2) | 93707-1 | [SS] |
| ✓ 108 | Gasket (with notch) | (1) | 92878 | [B/NY] |
| ☐ 109 | Piston | (1) | 92011 | [D] |
| ✓ 110 | "U" Cup (3/16" x 13/8" o.d.) | (1) | Y186-51 | [B] |
| ☐ 111 | Spool (6661TX-XXX-C) | (1) | 92005 | [A] |
| | (6661UX-XXX-C) | (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] |
| ☐ 115 | Spacer | (4) | 92876 | [Z] |
| ☐ 116 | Spacer | (1) | 92006 | [Z] |
| ✓ 117 | Gasket | (1) | 92004 | [B/NY] |
| 118 | Pilot Rod | (1) | 93309-2 | [C] |
| ✓ 119 | "O" Ring (1/8" x 3/4" o.d.) | (4) | 93075 | [U] |
| 120 | Spacer | (3) | 115959 | [Z] |
| 121 | Sleeve Bushing | (2) | 98723-2 | [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] |
| 126 | Pipe Plug (1/2-14 N.P.T. x 17/32") | (1) | Y227-5-L | [C] |
| 127 | 90° Street Elbow (3/4-14 N.P.T.) | (1) | Y43-5-C | [C] |
| 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) | 93139 | [P] |
| 231 | Pipe Plug (6661UX-X only) | (2) | Y17-51-S | [SS] |
| ✓ | Key-Lube "O" Ring Lubricant | (1) | 93706-1 | |
| | Key-Lube Packets (10) | | 637175 | |

## 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 overtighten 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.

**MATERIAL CODE**

| | | |
|---|---|---|
| [A] = Aluminum | [Cl] = Cast Iron | [SS] = Stainless Steel |
| [B] = Nitrile | [D] = Acetal | [U] = Polyurethane |
| [Bz] = Bronze | [NY] = Nylon | [Z] = Zinc |
| [C] = Carbon Steel | [P] = Polypropylene | |

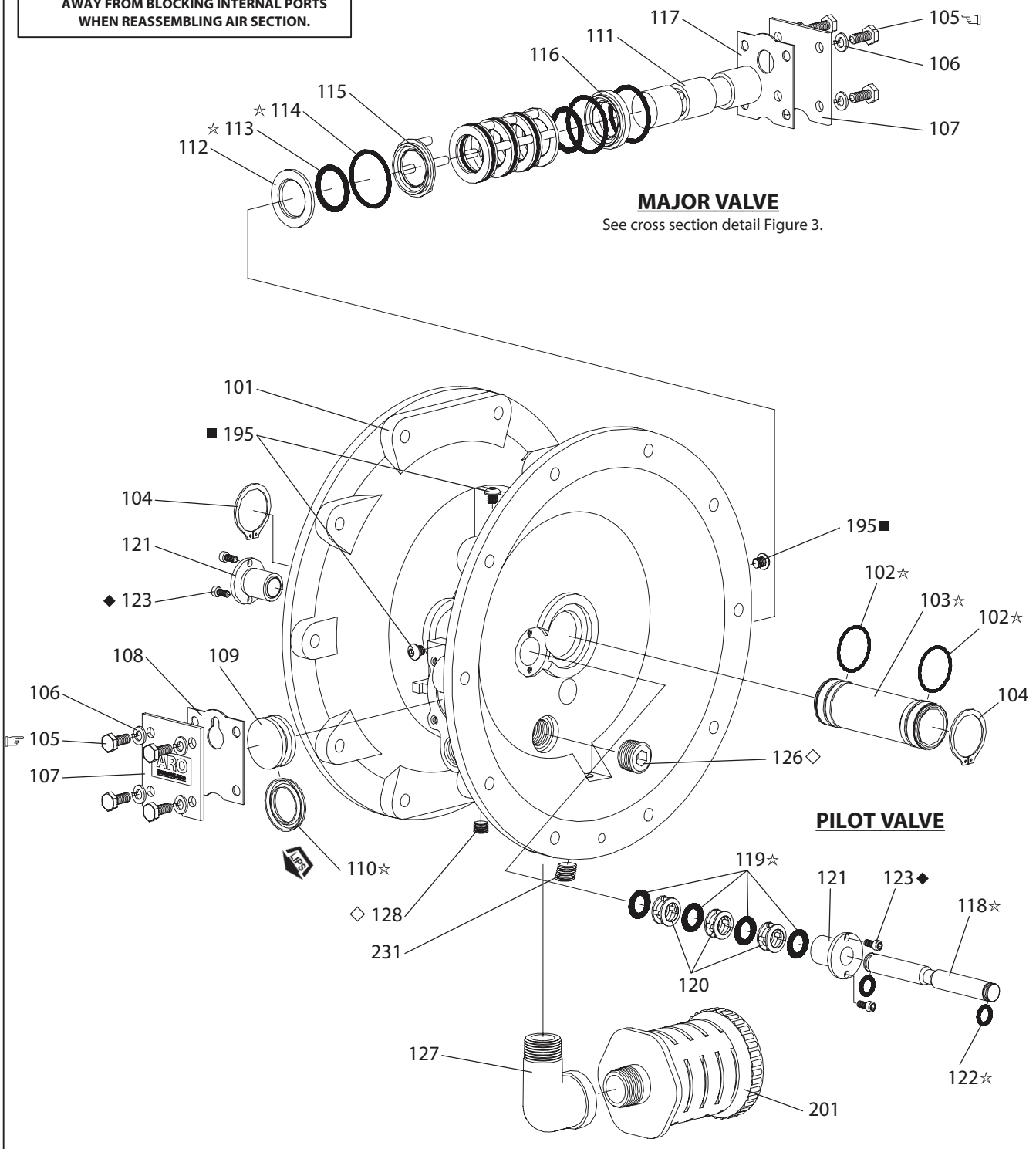
## MAJOR VALVE DISASSEMBLY

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).

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




**MAJOR VALVE CROSS SECTION DETAIL**

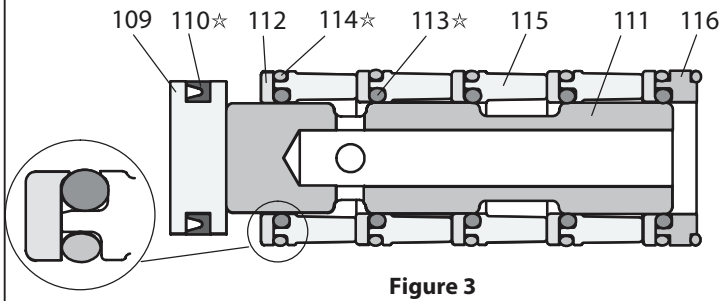



**Figure 3**

**☞ TORQUE REQUIREMENTS ☜**
**NOTE: DO NOT OVERTIGHTEN FASTENERS**
**(105) 40 - 50 in. lbs (4.5 - 5.6 Nm),**
**apply Loctite Nickel Antiseize to threads.**

**LUBRICATION / SEALANTS**

- ☆ **Apply Key-Lube to all "O" rings, "U" Cups & mating parts.**
- ◆ **Apply Loctite 271 to threads.**
- ◇ **Apply pipe sealant to threads.**
- ■ **Apply Dri-Loc 204 to threads.**

## TROUBLE SHOOTING

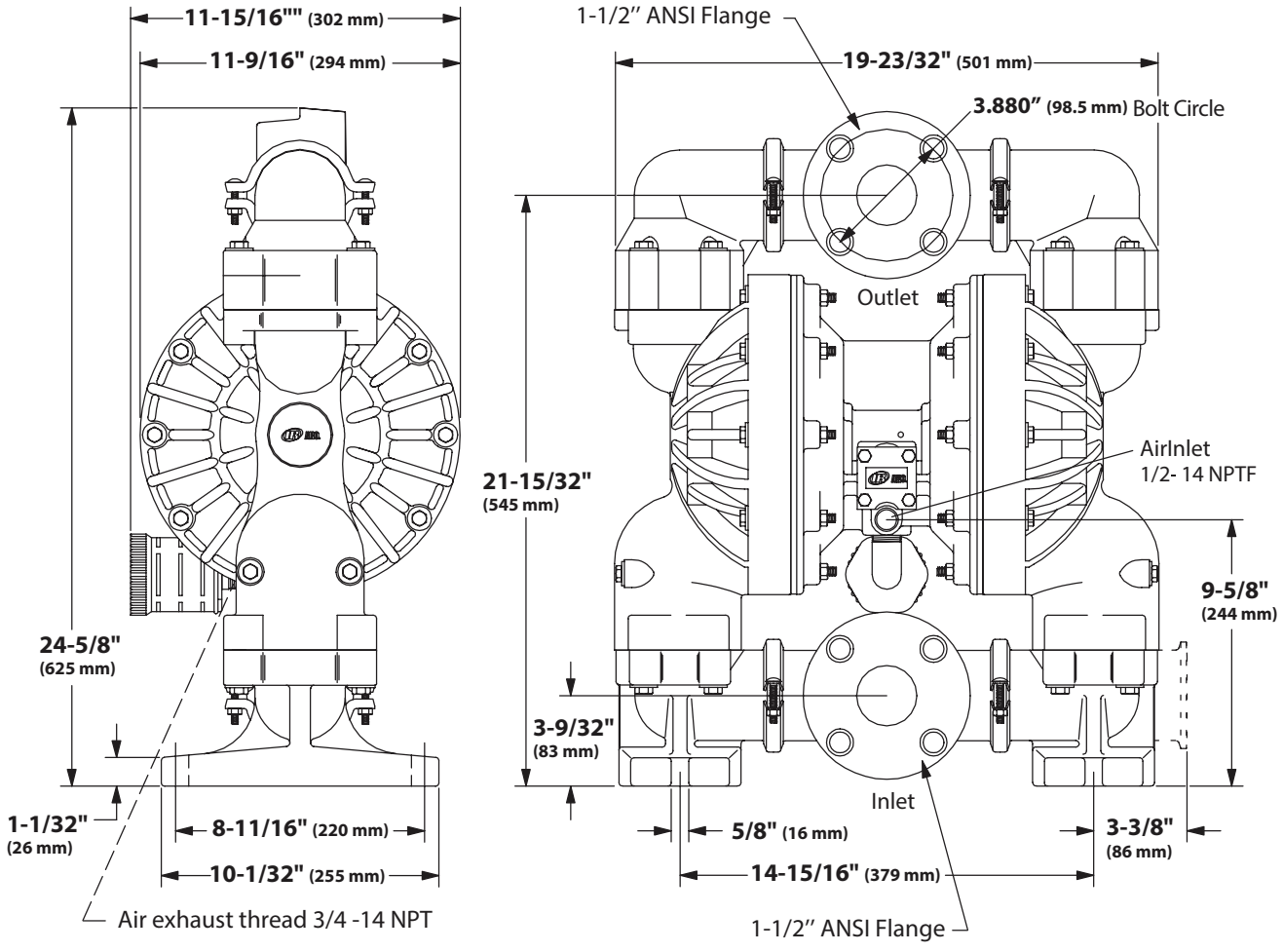
**Product discharged from exhaust outlet.**
- Check for diaphragm rupture.
- Check tightness of diaphragm nut.

**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 lodged in the diaphragm chamber or the seat area.

## DIMENSIONAL DATA

**All dimensions are given in inches and millimeters (mm).**



# Warnung

## vor Sicherheitsmängeln bei „Piraten-Ersatzteilkits“

### ARO warnt vor Sicherheitsmängeln bei „Piraten-Ersatzteilkits”

ARO-Pumpen sind weit verbreitet und gut in den Markt eingeführt, so dass es für einige Wettbewerber attraktiv ist die ARO Ersatzteile nachzubauen und als „Piraten-Teile” zu vertreiben. Der Anwender der Pumpe hat das Gefühl, er mache ein gutes Geschäft, basierend auf den Aussagen der „Piraten”:

”Piraten-Teile sind günstiger als ARO Originalteile!”

ARO sagt: Ja, das stimmt…

”Piraten-Teile sind ähnlich oder gleich den ARO Originalteilen und passen in Ihre ARO Pumpen!”

ARO sagt: Ja, die Piratenteile sehen gleich aus und passen im Allgemeinen…

”Die Performance ist vergleichbar mit den Originalteilen von ARO!”

ARO sagt: Ja, die Pumpe wird laufen, …irgendwie

### RISIKEN

Das größte Risiko bei Verwendung von Nicht-Originalteilen ist bei weitem die Sicherheit. ARO investiert eine Menge Geld, um die Produkte zu testen und um sichere Pumpen Technologien zu entwickeln. Jede ARO Pumpe profitiert von diesen Technologien und von unserem Engagement für die Sicherheit.

Unsere Pumpe ist ein entscheidendes Bauteil Ihrer Installation: Missbrauch, falsche Anwendung oder Wartung, Nachlässigkeit, Verwendung von nicht-ARO Teile kann ernsthafte Folgen haben… vom einfachen Pumpenausfall bis zu teuren Produktions-Verlusten, Unfälle, bis zur Explosion oder Verletzungen am Menschen. Unsere Garantie gilt nur, wenn das Gerät mit Übereinstimmung der schriftlichen Empfehlungen von ARO installiert und gewartet wird. Diese Garantie erstreckt sich nicht auf, und ARO haftet nicht für allgemeine Abnutzung oder Fehlfunktionen, Schäden oder Abnutzung durch fehlerhaften Einbau, falsche Anwendung, Abrieb, Korrosion, unzureichende oder unsachgemäße Wartung, Nachlässigkeit, Unfall, Eingriffe oder Verwendung, die durch den Einsatz von nicht-originalen ARO Ersatzteilen verursacht wurden.

In anderen Worten: Die Verwendung von nicht-original ARO Teilen hebt jegliche Garantie- und Schutzansprüche der ARO Produkte auf. Im Falle von Unfällen und Schäden an Personen und Maschinen sowie Produktions-Verlusten die auf den Einsatz durch die Pumpe zurückzuführen sind, ist der Betreiber persönlich haftbar.

### CE & ATEX ZERTIFIZIERUNG

Die Konformität für ATEX & CE ist nur gültig, wenn die Pumpeneinheit innerhalb seiner Zweckbestimmung betrieben wird. Betriebssysteme, Installationen oder Wartung der Pumpe, die nicht entsprechend der ARO Bedienungs- und Wartungsanleitung ausgeführt sind, können zu schweren Verletzungen oder Schäden am Gerät führen. Dies beinhaltet alle Änderungen an der Pumpe oder die Verwendung von Teilen, die nicht durch Ingersoll Rand ARO vorgesehen sind. Eine ARO Pumpe, die mit anderen als den Originalteilen betrieben wird, ist nicht mehr CE & ATEX konform!

### KOSTEN

Unsere Membranen wurden für eine bessere Flexibilität und hohe Langlebigkeit getestet. Dasselbe gilt auch für unsere Sitze, Kugeln und O-Ringe. All dies trägt zu einer hohen Leistung der ARO-Pumpen, ihrer Qualität, ihrer Sicherheit und ihrer Energieeinsparungen bei. „Unechte” ARO Teile haben eine überaus negative Auswirkung auf Qualität und Leistung unserer Pumpen und erhöhen durch den Einsatz von Piraten-Teilen die Ausfallzeiten, Betriebs- und Wartungskosten.

### „PIRATEN-ERSATZTEILKITS” SIND NICHT DAS SELBE/GLEICHE?

Der Wettbewerbsdruck veranlasst manche Unternehmen Ersatzteile auf Basis des Preises zu kaufen. Möglich dass die Teile erst mal gleich aussehen: sind sie aber nicht! Und der Inhalt der Kits ist in der Regel auch nicht vollständig.

Qualität: Die enthaltenen Membranen sind nicht gefaltet! Piraten-Kits beinhalten meist keine oder nicht alle O-Ringe, nicht die korrekte Größe der Kugeln und Membranen für die Pumpe.

Inhalt: Piraten-Kit ist meist auf das absolute Minimum beschränkt. Im Vergleich zu kompletten Ingersoll Rand ARO Service-Kits wird man somit gerne getäuscht.

### FOLGLICH

Der Kauf von ”Piraten Teilen” ist ein schlechtes Geschäft. Für den Betreiber der Pumpe führt dies, wenn es gut ausgeht, zu höheren Betriebskosten mit verschlechterter Pumpenleistung, teuren Produktionsausfällen, Unfällen oder Verletzungen und sehr hohem Risiko mit persönlicher Haftung des Betreibers.

Zur Beachtung: Ingersoll Rand ARO PTFE-Membranen mit Faltentechnologie haben eine Standzeit von bis zu 100 Millionen Zyklen.

Nutzen Sie durch den Einsatz von ARO Original-Ersatzteilen Ihren Vorteil. Die Verwendung der Originalteile von ARO stellt den ungefährlichsten und zuverlässigsten Betrieb Ihrer Pumpe sicher. ARO Pumpen und deren Ersatzteile werden nach den höchsten Qualitäts- und Sicherheitsstandards gefertigt. Bitte kontaktieren Sie uns für weitere Details über die ARO Originalteile.

ARO
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