Repair/Parts

Husky® 3300 Air-Operated Diaphragm Pump

3A0411A
EN

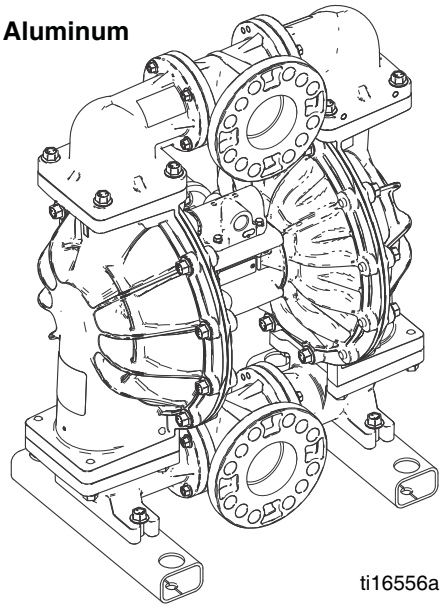
Heavy-duty 3-inch pump with large flow paths for fluid transfer applications, including high-viscosity materials. For professional use only.

See page 4 for model information, including approvals.

125 psi (0.86 MPa, 8.6 bar) Maximum Working Pressure, Aluminum or Stainless Steel Pumps with Aluminum Center Section
100 psi (0.7 MPa, 6.9 bar) Maximum Working Pressure, Polypropylene or Stainless Steel Pumps with Polypropylene Center Section

Important Safety Instructions
Read all warnings and instructions in this manual. Save these instructions.

Aluminum



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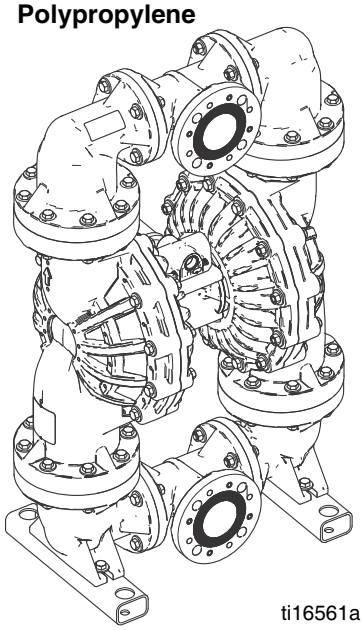
Polypropylene



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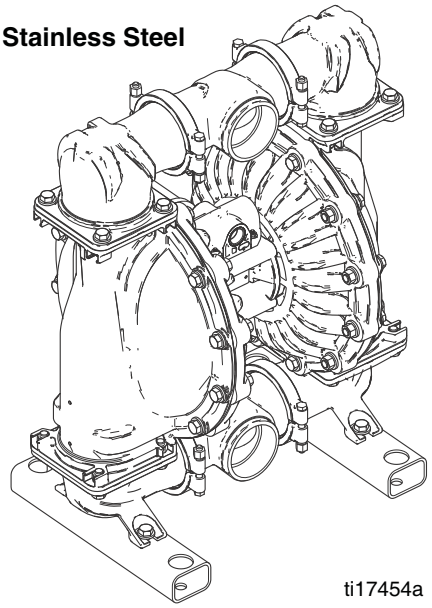
Stainless Steel



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Contents

Related Manuals

Manual	Description
3A0410	Husky 3300 Air-Operated Diaphragm Pump, Operation

To Order a New Pump

Call your distributor.

OR

Go to www.gracohusky.com, and use the Husky Pump Selector in the Toolbox.

To Order Replacement Parts

Call your distributor.

OR

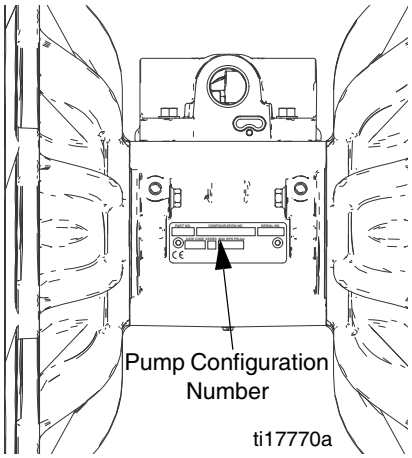
Use this Manual: Refer to pages 22-24 for the main Parts illustrations, and page 25 for the Parts/Kits Quick Reference. Follow the page references on these pages for further ordering information, as needed.

Distributor Note

Use the 20-digit number from the ID plate on the pump to order the necessary kits. If you have only the Graco 6-digit part number, use the Husky Pump Selector at www.gracohusky.com to find the corresponding Graco 20-digit part number.

Configuration Number Matrix

Check the identification plate (ID) for the 20-digit Configuration Number of your pump. Use the following matrix to define the components of your pump.



Sample Configuration Number: 3300A-A01AA1TPACTPBN

3300A	A01A	A1	TP	AC	TP	BN
Pump Model	Center Section and Air Valve	Fluid Covers and Manifolds	Seats	Balls	Diaphragms	Manifold and Seat Seals

Pump	Center Section and Air Valve Material		For Use With	Fluid Covers and Manifolds	
3300A★ Aluminum	Aluminum	A01A	Standard Diaphragms	A1	Aluminum, center flange, npt
		A01E	Optional FKM seals with Standard Diaphragms	A2	Aluminum, center flange, bspt
3300P† Polypropylene		A01G	Overmolded Diaphragms	P1	Polypropylene, center flange
	Polypropylene†	P01A	Standard Diaphragms	S1	Stainless steel, center flange, npt
3300S★ Stainless Steel		P01G	Overmolded Diaphragms	S2	Stainless steel, center flange, bspt

★ *3300A (aluminum) and 3300S (stainless steel) pumps with aluminum center sections are certified:*

II 2 GD c IIC T4

† Pumps with polypropylene fluid or center sections are not ATEX certified.

Check Valve Seats		Check Valve Balls		Diaphragm		Manifold and Seat Seals	
AC	Acetal	AC	Acetal	BN	Buna-N	---	Models with Buna-N, FKM Fluoroelastomer or TPE seats do not use o-rings.
AL	Aluminum	BN	Buna-N	CO	Polychloroprene Overmolded	BN	Buna
BN	Buna-N	CR	Polychloroprene Standard	CR	Polychloroprene	PT	PTFE
FK	FKM Fluoroelasto-mer	CW	Polychloroprene Weighted	FK	FKM Fluoroelastomer		
GE	Geolast®	FK	FKM Fluoroelasto-mer	GE	Geolast		
PP	Polypropylene	GE	Geolast	PO	PTFE Overmolded		
SP	Santoprene®	PT	PTFE	PT	PTFE/Santoprene Two-Piece		
SS	316 Stainless Steel	SP	Santoprene	SP	Santoprene		
TP	TPE	TP	TPE	TP	TPE		

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbol refers to procedure-specific risk. When these symbols appear in the body of this manual, refer back to these Warnings. Additional, product-specific warnings may be found throughout the body of this manual where applicable.

⚠ WARNING




FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, **in work area** can ignite or explode. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Ground all equipment in the work area. See **Grounding** instructions.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are antistatic or conductive.
- **Stop operation immediately** if static sparking occurs or you feel a shock**.** Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.
- Route exhaust away from all ignition sources. If diaphragm ruptures, fluid may be exhausted with air.

Static charge may build up on plastic parts during cleaning and could discharge and ignite flammable vapors. To help prevent fire and explosion:

- Clean plastic parts only in a well ventilated area.
- Do not clean with a dry cloth.
- Do not operate electrostatic guns in equipment work area.

PRESSURIZED EQUIPMENT HAZARD

Fluid from the equipment, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.

- Follow the **Pressure Relief Procedure** when you stop spraying/dispensing and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.

⚠ WARNING

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

THERMAL EXPANSION HAZARD

Fluids subjected to heat in confined spaces, including hoses, can create a rapid rise in pressure due to the thermal expansion. Over-pressurization can result in equipment rupture and serious injury.

- Open a valve to relieve the fluid expansion during heating.
- Replace hoses proactively at regular intervals based on your operating conditions.

PRESSURIZED ALUMINUM PARTS HAZARD

Use of fluids that are incompatible with aluminum in pressurized equipment can cause serious chemical reaction and equipment rupture. Failure to follow this warning can result in death, serious injury, or property damage.

- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents.
- Many other fluids may contain chemicals that can react with aluminum. Contact your material supplier for compatibility.

PLASTIC PARTS CLEANING SOLVENT HAZARD

Many solvents can degrade plastic parts and cause them to fail, which could cause serious injury or property damage.

- Use only compatible water-based solvents to clean plastic structural or pressure-containing parts.
- See **Technical Data** in this and all other equipment instruction manuals. Read fluid and solvent manufacturer's MSDSs and recommendations.

⚠ WARNING

TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

- Read MSDSs to know the specific hazards of the fluids you are using.
- Route exhaust away from work area. If diaphragm ruptures, fluid may be exhausted into the air.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.

BURN HAZARD

Equipment surfaces and fluid that's heated can become very hot during operation. To avoid severe burns:

- Do not touch hot fluid or equipment.

PERSONAL PROTECTIVE EQUIPMENT

Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This equipment includes but is not limited to:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

Troubleshooting

Problem	Cause	Solution
Pump cycles but will not prime.	Pump is running too fast, causing cavitation before prime.	Reduce air inlet pressure.
	Check valve ball severely worn or wedged in seat or manifold.	Replace ball and seat. See page 12.
	Seat severely worn.	Replace ball and seat. See page 12.
	Outlet or inlet clogged.	Unclog.
	Inlet or outlet valve closed.	Open.
	Inlet fittings or manifolds loose.	Tighten.
	Manifold o-rings damaged.	Replace o-rings. See page 12.
Pump cycles at stall or fails to hold pressure at stall.	Worn check valve balls, seats, or o-rings.	Replace. See page 12.
Pump will not cycle, or cycles once and stops.	Air valve is stuck or dirty.	Disassemble and clean air valve. See page 10. Use filtered air.
	Check valve ball severely worn and wedged in seat or manifold.	Replace ball and seat. See page 12.
	Pilot valve worn, damaged, or plugged.	Replace pilot valve. See page 14.
	Air valve gasket damaged.	Replace gasket. See page 10.
	Dispensing valve clogged.	Relieve pressure and clear valve.
Pump operates erratically.	Clogged suction line.	Inspect; clear.
	Sticky or leaking check valve balls.	Clean or replace. See page 12.
	Diaphragm (or backup) ruptured.	Replace. See page 14.
	Restricted exhaust.	Remove restriction.
	Pilot valves damaged or worn.	Replace pilot valves. See page 14.
	Air valve damaged.	Replace air valve. See page 10.
	Air valve gasket damaged.	Replace air valve gasket. See page 10.
	Air supply erratic.	Repair air supply.
	Exhaust muffler icing.	Use drier air supply..
Air bubbles in fluid.	Suction line is loose.	Tighten.
	Diaphragm (or backup) ruptured.	Replace. See page 14.
	Loose manifolds, damaged seats or o-rings.	Tighten manifold bolts or replace seats or o-rings. See page 12.
	Diaphragm shaft bolt o-ring damaged.	Replace o-ring.
	Pump cavitation.	Reduce pump speed or suction lift.
	Loose diaphragm shaft bolt.	Tighten.

Problem	Cause	Solution
Exhaust air contains fluid being pumped.	Diaphragm (or backup) ruptured.	Replace. See page 14.
	Loose diaphragm shaft bolt.	Tighten or replace. See page 14.
	Diaphragm shaft bolt o-ring damaged.	Replace o-ring. See page 14.
Moisture in exhaust air.	High inlet air humidity.	Use drier air supply.
Pump exhausts excessive air at stall.	Worn air valve cup or plate.	Replace cup and plate. See page 10.
	Damaged air valve gasket.	Replace gasket. See page 10.
	Damaged pilot valve.	Replace pilot valves. See page 14.
	Worn shaft seals or bearings.	Replace shaft seals or bearings. See page 14.
Pump leaks air externally.	Air valve or fluid cover screws loose.	Tighten.
	Diaphragm damaged.	Replace diaphragm. See page 14.
	Air valve gasket damaged.	Replace gasket. See page 10.
	Air cover gasket damaged.	Replace gasket. See page 14.
Pump leaks fluid externally from joints.	Loose manifold screws or fluid cover screws.	Tighten manifold screws or fluid cover screws. See page 20.
	Manifold o-rings worn out.	Replace o-rings. See page 12.

Repair

Pressure Relief Procedure

Follow the Pressure Relief Procedure whenever you see this symbol.

This equipment stays pressurized until pressure is relieved manually. To help prevent serious injury from pressurized fluid, such as splashing in the eyes or on skin, follow the Pressure Relief Procedure whenever you stop pumping and before you clean, check, or service the equipment.

1. Shut off the air supply to the pump.
2. Open the dispensing valve, if used.
3. Open the fluid drain valve to relieve fluid pressure. Have a container ready to catch the drainage.

Repair or Replace Air Valve

Replace Complete Air Valve

1. Stop the pump. Relieve the pressure. See **Pressure Relief Procedure** in previous section.
2. Disconnect the air line to the motor.
3. Remove screws (104, metal pumps) or nuts (116, plastic pumps). Remove the air valve and gasket (113).
4. To repair the air valve, go to **Disassemble the Air Valve,** step 1, in next section. To install a replacement air valve, continue with step 5.
5. Align the new air valve gasket (113*) on the center housing, then attach the air valve. See **Torque Instructions,** page 20.
6. Reconnect the air line to the motor.

Replace Seals or Rebuild Air Valve

NOTE: Repair kits are available. See page 31 to order the correct kit(s) for your pump. Air Valve Seal Kit parts are marked with a †. Air Valve Repair Kit parts are marked with a ◆. Air Valve End Cap Kit parts are marked with a ✠.

Disassemble the Air Valve

1. Perform steps 1-3 under **Replace Complete Air Valve,** page 10.
2. See FIG. 2. Use a Torx screwdriver (T8 for aluminum centers, T10 for plastic centers) to remove two screws (209). Remove the valve plate (205), cup assembly (212-214), spring (211), and detent assembly (203).
3. Pull the cup (213) off of the base (212). Remove the o-ring (214) from the cup.
4. See FIG. 2. Remove the retaining ring (210) from each end of the air valve. Use the piston (202) to push the end cap (207) out of one end. Remove the u-cup seal (208). Pull the piston out the end and remove the other u-cup seal (208). Remove the other end cap (207) and the end cap o-rings (206).
5. Remove the detent cam (204) from the air valve housing (201).

Reassemble the Air Valve

NOTE: Apply lithium-based grease whenever instructed to grease. Order Graco PN 111920.

1. Use all parts in the repair kits. Clean other parts and inspect for damage. Replace as needed.
2. Grease the detent cam (204◆) and install into housing (201).
3. Grease the u-cups (208◆†) and install on the piston with lips facing toward the center of the piston.

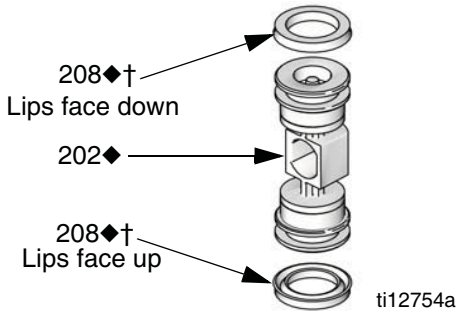


FIG. 1. Air valve u-cup installation

4. Grease both ends of the piston (202◆) and the housing bore. Install the piston in the housing (201), with the flat side toward the cup (213◆). Be careful not to tear u-cups (208◆†) when sliding piston into housing.
5. Grease new o-rings (206◆†⌅) and install on the end caps (207⌅). Install the end caps into the housing.
6. Install a retaining ring (210⌅) on each end to hold end caps in place.
7. Grease and install the detent assembly (203◆) into the piston. Grease and install the o-ring (214◆) on the cup (213◆), then install the cup (213◆) on the base (212◆). Install the spring (211◆) onto protrusion on cup. Install the cup assembly. Align the small round magnet in the base with the air inlet.
8. Grease the cup side and install the valve plate (205◆). Align the small hole in the plate with the air inlet. Tighten the screws (209◆†) to hold it in place.

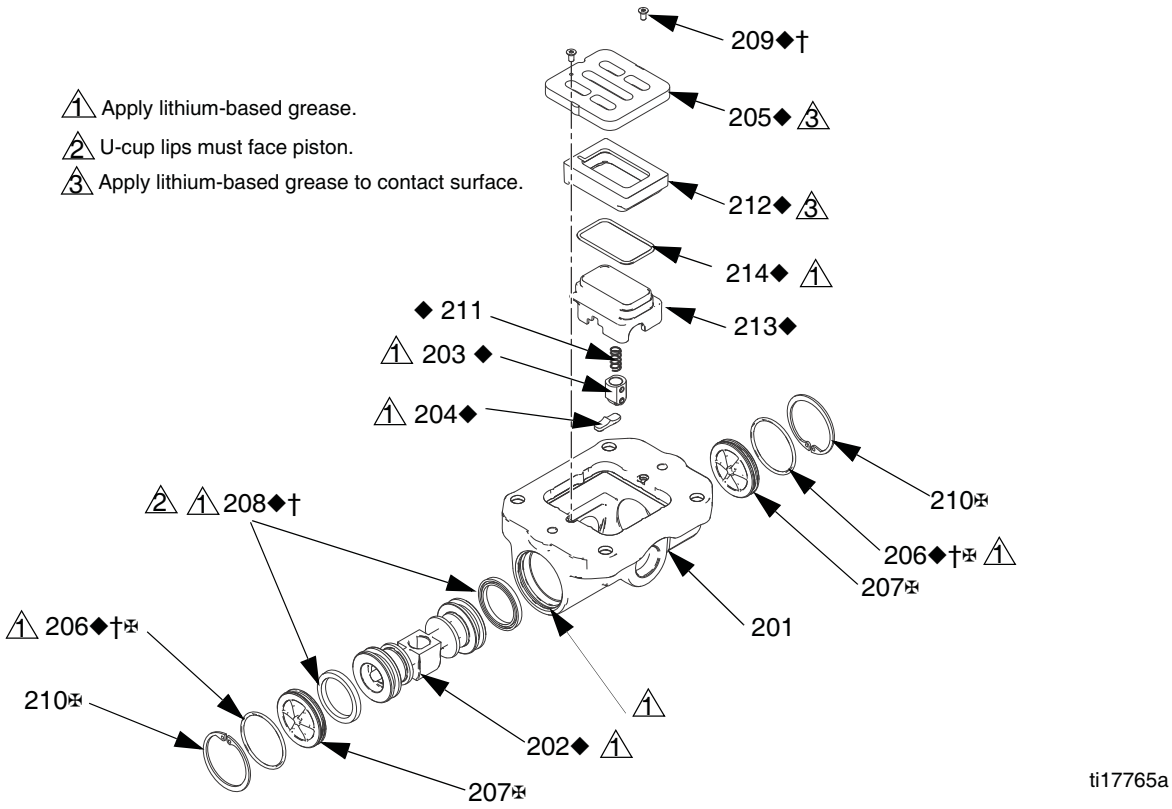


FIG. 2. Air valve assembly

Check Valve Repair

NOTE: Kits are available for new check valve balls and seats in a range of materials. See page 34 to order kits in the material(s) desired. O-ring and fastener kits also are available.

NOTE: To ensure proper seating of the check balls, always replace the seats when replacing the balls. Also, on models with seat o-rings, replace the o-rings every time the manifold is removed.

Disassembly

1. Follow the **Pressure Relief Procedure** on page 10. Disconnect all hoses.

NOTE: The pump is heavy. Always use two people or a lift to move it.

2. Remove the pump from its mounting.

NOTE: For plastic pumps (3300P), use hand tools until thread-locking adhesive patch releases.

3. Use a 3/4 in. (19 mm) socket wrench to remove the outlet elbow fasteners (8), then remove the manifold assembly. See FIG. 3.

4. Remove the o-rings (13, *not used on some models),* seats (11), and balls (12).

5. Turn the pump over and remove the inlet manifold. The mounting brackets will remain attached.

6. Remove the o-rings (13, *not used on some models),* seats (11), and balls (12).

Reassembly

1. Clean all parts and inspect for wear or damage. Replace parts as needed.

2. Reassemble in the reverse order, following all notes in FIG. 3. Put the inlet manifold on first. Be sure the ball checks (11-13) and manifolds are assembled **exactly** as shown. The arrows (A) on the fluid covers **must** point toward the outlet manifold.

1 Torque to 40-45 ft-lb (54-61 N•m) for Polypropylene models.
Torque to 55-60 ft-lb (75-81 N•m) for Aluminum models.
Torque to 40-45 ft-lb (54-61 N•m) for Stainless Steel models.
See **Torque Instructions**, page 20.

2 Arrow (A) must point toward outlet manifold.

3 Not used on some models.

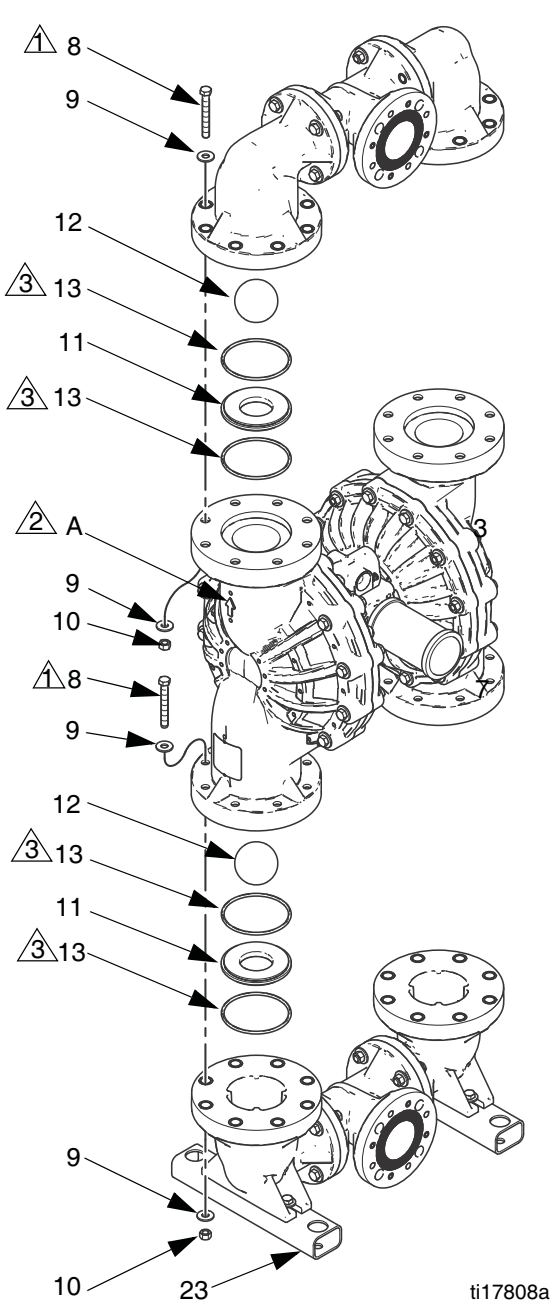


FIG. 3. Ball check valve assembly

Diaphragms and Center Section

Disassembly

NOTE: Diaphragm kits are available in a range of materials and styles. See page 35 to order the correct diaphragms for your pump. A Center Rebuild Kit also is available. See page 29. Parts included in the Center Rebuild Kit are marked with an *. For best results, use all kit parts.

1. Follow the **Pressure Relief Procedure** on page 10.

2. Remove the manifolds and disassemble the ball check valves as explained on page 12.

NOTE: You may wish to remove the inner fluid cover bolts (37) as you remove each manifold, for convenience.

3. Overmolded Diaphragms (PO and CO models)

   a. Orient the pump so one of the fluid covers faces up. Use a 3/4 in. (19 mm) socket wrench to remove the fluid cover bolts (36, 37), then pull the fluid cover (2) up off the pump.

   b. The exposed diaphragm (20) will screw off by hand. The shaft will either release and come off with this diaphragm, or remain attached to the other diaphragm. If the diaphragm shaft bolt (16) remains attached to the shaft (108), remove it. Remove the air side diaphragm plate (14) and washer (18).

   c. Turn the pump over and remove the other fluid cover. Remove the diaphragm (and the shaft, if necessary).

   d. If the shaft is still attached to either diaphragm, grasp the diaphragm firmly and use a wrench on the flats of the shaft to remove. Also remove the air side diaphragm plate (14) and washer (18). Continue with Step 5.

4. **All Other Diaphragms**

   a. Orient the pump so one of the fluid covers faces up. Use a 3/4 in. (19 mm) socket wrench to remove the fluid cover screws (36, 37), then pull the fluid cover (2) up off the pump. Turn the pump over and remove the other fluid cover.

   b. **Plastic Pumps:** Hold the hex of one fluid side diaphragm plate (15) with a 1-5/8 socket or box end wrench. Use another wrench (same size) on the hex of the other plate to remove. Then remove all parts of the diaphragm assembly. See FIG. 6.
   Metal Pumps: Turn the pump on its side. Hold one diaphragm shaft bolt (16) with a wrench, then use a 15/16 socket to remove the other bolt. Remove all parts of the diaphragm assembly. See FIG. 6, page 17.

   c. Disassemble the other diaphragm assembly.

5. Use an o-ring pick to remove the u-cup packings (101) from the center housing. Bearings (109) can remain in place.

6. If necessary, use a socket wrench to remove the pilot valves (110).

Air Covers

Remove air covers only if a serious air leak suggests that the gaskets need to be replaced.

1. Remove pilot valves (110).

2. Use a 3/8 allen wrench (aluminum) or a 5/8 socket (polypropylene) to remove two bolts (103), then remove one air cover (105). Repeat for the other air cover.

3. Remove and replace the gasket (107).

4. Inspect the diaphragm shaft (108) for wear or scratches. If it is damaged, inspect the bearings (109) in place. If they are damaged, use a bearing puller to remove them.

NOTE: Do not remove undamaged bearings.

Reassembly of Housing Parts and Air Covers

Follow all notes in FIG. 6. These notes contain important information.

NOTE: Apply lithium-based grease whenever instructed to grease. Order Graco PN 111920.

1. Clean all parts and inspect for wear or damage. Replace parts as needed.

NOTICE

Unwanted pressurized air due to worn seals can lead to reduced diaphragm life.

2. Grease and install the diaphragm shaft u-cup packings (101*) so the lips face **out** of the housing.
3. If removed, insert the new bearings (109*) into the center housing. Use a press or a block and rubber mallet to press-fit the bearing so it is flush with the surface of the center housing.
4. Assemble air covers, if removed:
   a. Put one air cover on the bench. Install the alignment pins (112*) and a new gasket (107*).
   b. Carefully place the center section on the air cover.
   c. Install second set of alignment pins (112*) and gasket (107*) in the center section. Lower the second air cover onto the center housing.
   d. **Aluminum Centers:** Apply medium-strength (blue) thread locker on the bolts (103). Install two bolts and torque to 30-40 ft-lb (41-54 N•m). Turn the pump over on the bench and install and torque the other two bolts.
   Polypropylene Centers: Apply medium-strength (blue) thread locker on the bolts (103) and install a washer (119) on each bolt. Turn the assembly on its side. The alignment pins will help hold it together. Slide one bolt (103) through from one air cover to the other. Install a washer (119) and nut (118), hand tight. Repeat for the other three bolts, then torque to 25-35 ft-lb (34-47 N•m).
5. Grease and install the pilot valves (110*). Torque to 20-25 in.-lb (2.3-2.8 N•m). Do not over-torque.

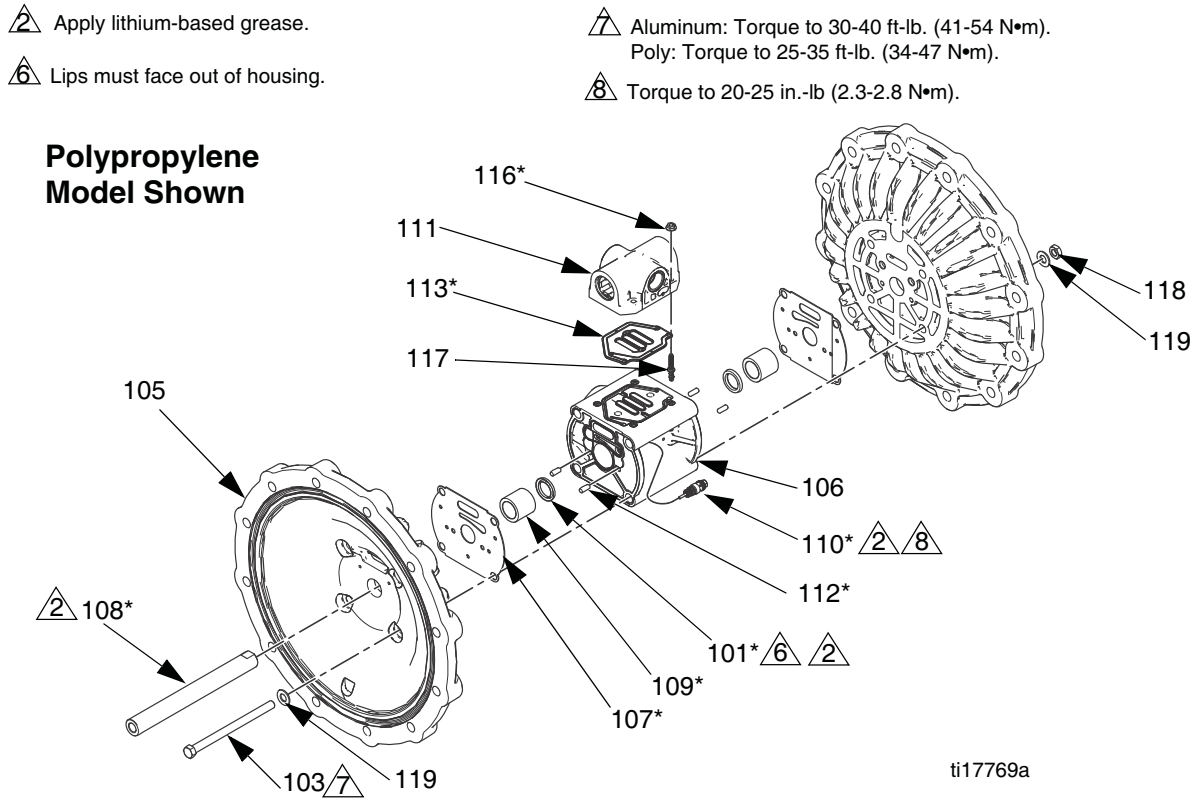


FIG. 4. Assemble Center Section.

Reassembly of Standard Diaphragms

NOTE: If your pump has overmolded diaphragms, see page 19.

PTFE Diaphragms

1. Clean all parts and inspect for wear or damage. Replace parts as needed.
2. Clamp the shaft flats in a vise.
3. For metal pumps, install the washer (18) and o-ring (17) on the shaft bolt (16).
4. Assemble the fluid side plate (15), the diaphragm (20), the backup diaphragm (305), the air side diaphragm plate (14), and the washer (18) on the bolt exactly as shown in FIG. 6.
5. Apply medium-strength (blue) Loctite or equivalent to the bolt (16) threads. Assemble into shaft. Torque the bolt to 110 -120 ft-lb (149-163 N•m) at 100 rpm maximum.
6. Grease the shaft u-cups (101*) and the length and ends of the diaphragm shaft (108*). Slide the shaft into the housing.
7. Repeat Steps 3 and 4 for the other diaphragm assembly.
8. Apply medium-strength (blue) Loctite or equivalent to the bolt (16) threads. Screw the bolt into the shaft hand tight.
9. To keep the diaphragms properly aligned, place 4 bolts on the side that has been torqued. Screw into the air cover just enough to engage two threads.

NOTE: The fluid cover bolts may work well, or use shop bolts. Do not use bolts that are long enough to deform the diaphragm manually.

10. Clamp the torqued side in a vise.
11. Again align the diaphragm and air cover holes on the second side and place 4 more bolts.

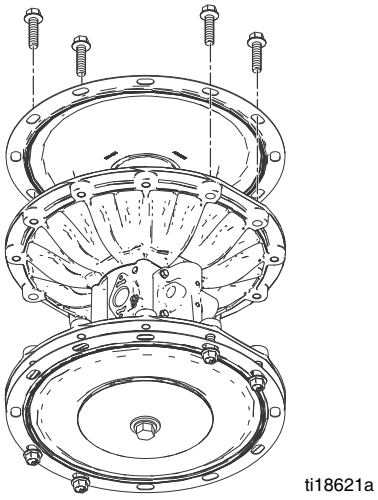
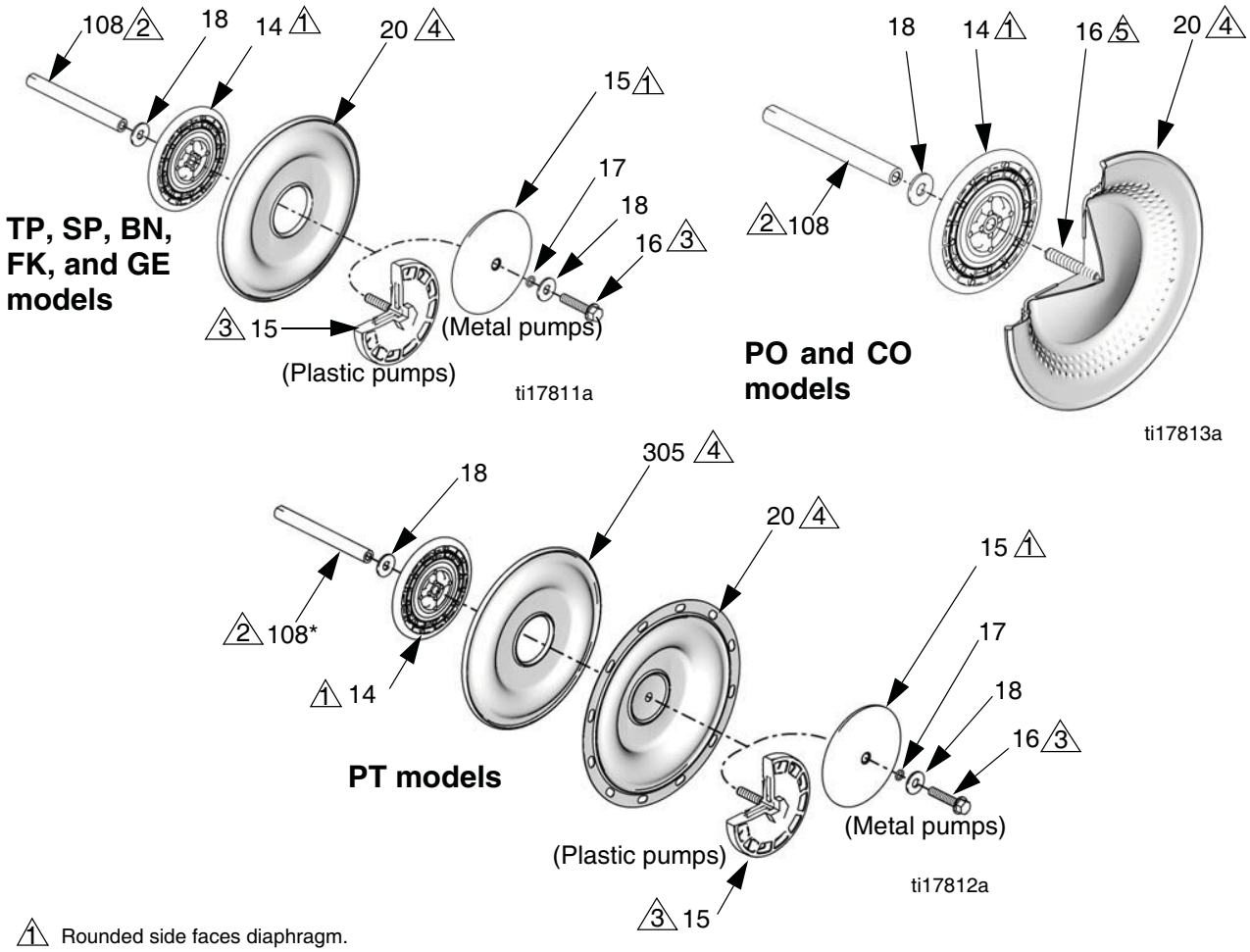


FIG. 5. Place bolts to keep PTFE diaphragms aligned.

12. Torque the shaft bolt on the second side to 110 -120 ft-lb (149-163 N•m) at 100 rpm maximum.
13. Remove the bolts used for alignment.
14. Reattach one fluid cover (2). Arrow (A) must point toward the air valve. See **Torque Instructions,** page 20.
15. Follow directions under **Attach Second Fluid Cover**, page 19.
16. Reassemble the ball check valves and manifolds as explained on page 12.



1 Rounded side faces diaphragm.

2 Apply lithium-based grease.

3 Torque to 110-120 ft-lb. (149-163 N•m) at 100 rpm maximum.

4 AIR SIDE markings on diaphragm must face center housing.

5 If screw comes loose or is replaced, apply permanent (red) Loctite® or equivalent to diaphragm side threads. Apply primer and medium-strength (blue) Loctite® or equivalent to shaft side threads.

FIG. 6. Assemble diaphragms and center section

All Other Standard Diaphragms - Metal Pumps:

1. Install the washer (18) and o-ring (17) on the shaft bolt (16).
2. Assemble the fluid side plate (15), the diaphragm (20), the air side diaphragm plate (14), and the washer (18) on the bolt exactly as shown in FIG. 6.
3. Apply medium-strength (blue) Loctite or equivalent to the bolt (16) threads. Screw the bolt into the shaft hand tight.
4. Grease the shaft u-cups (101*) and the length and ends of the diaphragm shaft (108*). Slide the shaft into the housing.
5. Repeat Steps 1-5 for the other diaphragm assembly.
6. Hold one shaft bolt with a wrench and torque the other bolt to 110-120 ft-lb (149-163 N•m) at 100 rpm maximum. Do not over-torque.
7. Reattach one fluid cover (2). Arrow (A) must point toward the air valve. See **Torque Instructions,** page 20.
8. **TP, SN, and GE Models:** Follow directions under **Attach Second Fluid Cover**, page 19.

   CR, BN, and FK Models: Reattach the second fluid cover (2). Arrow (A) must point toward the air valve. See **Torque Instructions,** page 20.
9. Reassemble the ball check valves and manifolds as explained on page 12.

All Other Standard Diaphragms - Plastic Pumps:

1. Assemble the diaphragm (20), the air side diaphragm plate (14), and the washer (18) on the fluid side plate (15) exactly as shown in FIG. 6.
2. Apply medium-strength (blue) Loctite or equivalent to the threads of the screw on the fluid side plate. Screw the assembly into the shaft hand-tight.
3. Grease the shaft u-cups (101*) and the length and ends of the diaphragm shaft (108*). Slide the shaft into the housing.
4. Repeat for the other diaphragm assembly.
5. Hold one of the plates with a wrench, and torque the other plate to 110-120 ft-lb (149-163 N•m) at 100 rpm maximum. Do not over-torque.
6. Reattach one fluid cover (2). Arrow (A) must point toward the air valve. See **Torque Instructions,** page 20.
7. **TP, SN, and GE Models:** Follow directions under **Attach Second Fluid Cover**, page 19.

   CR, BN, and FK Models: Reattach the second fluid cover (2). Arrow (A) must point toward the air valve. See **Torque Instructions,** page 20.
8. Reassemble the ball check valves and manifolds as explained on page 12.

Attach Second Fluid Cover

To reduce the risk of serious injury, do not put your fingers or hand between the air cover and the diaphragm.

To ensure proper seating and help attain expected diaphragm life, attach the second fluid cover with air pressure on the pump. This procedure is needed for overmolded diaphragms (PO and CO) and for the following standard diaphragms: TP, SN, GE, PT.

1. Place the supplied tool (302) where the air valve gasket (113*) normally goes. Arrows (A) must face toward the fluid cover that is already attached.

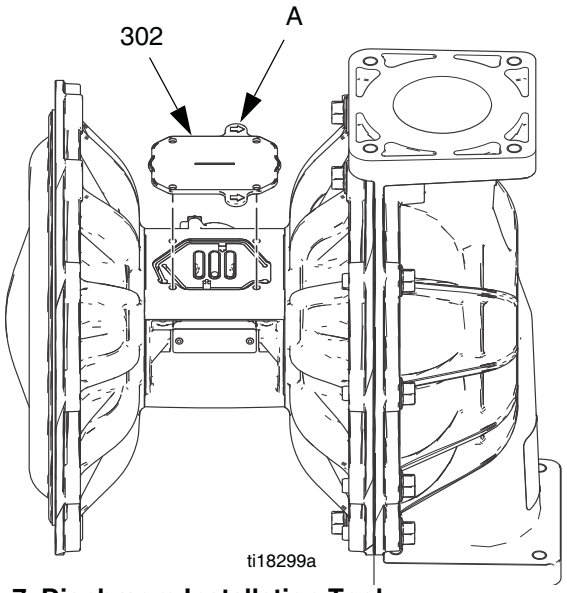


FIG. 7. Diaphragm Installation Tool

2. Reattach the air valve.
3. Supply the pump with low pressure air, just enough to move the diaphragm. For standard diaphragms, use about 10 psi (0.07 MPa, 0.7 bar); for overmolded diaphragms use about 20 psi (0.14 MPa, 1.4 bar). Shop air may be used. The diaphragm will shift so the second fluid cover will seat properly. Keep air pressure on until the second fluid cover is attached.
4. Attach the second fluid cover (2). See **Torque Instructions,** page 20.
5. Remove the air valve and the tool (302), replace the gasket (113), and reattach the air valve. See **Torque Instructions,** page 20.

NOTE: If you are replacing the diaphragms but not the air valve, you still must remove the air valve, and replace the gasket with the tool so the air valve can be used for proper installation of the second fluid cover. Remember to remove the tool and replace the gasket when finished.

Reassembly of Overmolded Diaphragms

NOTE: If your pump has standard diaphragms, see page 16.

1. Clamp the shaft flats in a vise.
2. If diaphragm setscrew comes loose or is replaced, apply permanent (red) Loctite® or equivalent to diaphragm side threads. Screw into diaphragm until tight.
3. Assemble the air side plate (14) and washer (18) onto the diaphragm. The rounded side of the plate must face the diaphragm.
4. Apply medium-strength (blue) Loctite or equivalent to the threads of the diaphragm assembly. Screw the assembly into the shaft as tight as possible by hand.
5. Grease the shaft u-cups (101*) and the length and ends of the diaphragm shaft (108*). Slide the shaft into the housing.
6. Reattach the first fluid cover (2). Arrow (A) must point toward the air valve. See **Torque Instructions,** page 20.
7. Repeat Steps 2 - 4 for the other diaphragm assembly.
8. Follow directions under **Attach Second Fluid Cover**, page 19.
9. Reassemble the ball check valves and manifolds as explained on page 12.

Torque Instructions

See FIG. 8 for fluid cover and air valve fasteners. See FIG. 9 for manifold fasteners.

NOTE: Fluid cover and manifold fasteners on the polypropylene pumps have a thread-locking adhesive patch applied to the threads. If this patch is excessively worn, the fasteners may loosen during operation. Replace screws with new ones or apply medium-strength (blue) Loctite or equivalent to the threads.

If fluid cover or manifold fasteners have been loosened, it is important to torque them using the following procedure to improve sealing.

NOTE: Always completely torque fluid covers, then torque the manifold pieces together, then torque the assembled manifolds to the fluid covers.

Start all fluid cover screws a few turns. Then turn down each screw just until head contacts cover. Then turn each screw by 1/2 turn or less working in a crisscross pattern to specified torque. Repeat for manifolds.

Fluid cover fasteners:

Polypropylene and Stainless Steel: 40-45 ft-lb (54-61 N•m)
Aluminum: 55-60 ft-lb (75-81 N•m)

Manifold fasteners:
Polypropylene: 40-45 ft-lb (54-61 N•m)
Aluminum:
Refs 1-8: 11-21 ft-lb (15-28 N•m)
Refs 9-16: 55-60 ft-lb (75-81 N•m)
Stainless Steel:
Refs 1-4: 110-120 in-lb (12-13 N•m)
Refs 5-12: 40-45 ft-lb (54-61 N•m)

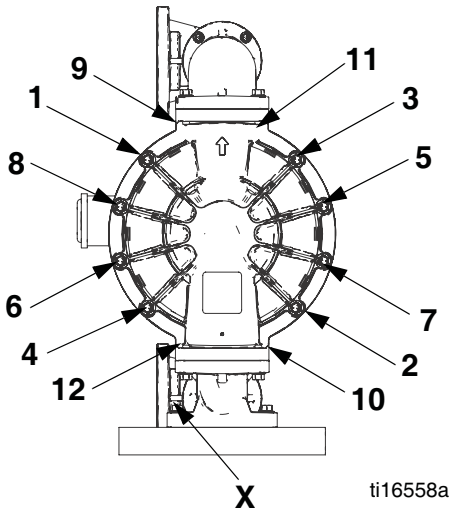
Retorque the air valve fasteners in a crisscross pattern to specified torque.

Air Valve fasteners

Plastic Center Sections: 45-55 in-lb (5-6.2 N•m)
Aluminum Center Sections: 75-85 in-lb (8.5-9.6 N•m)

Also check and tighten the nuts or bolts (X) holding the manifold feet to the mounting brackets.

Fluid Cover Screws



Air Valve Screws

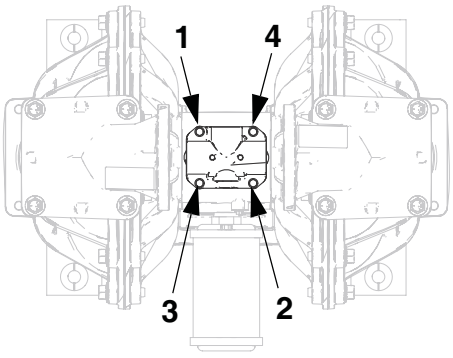


FIG. 8. Torque instructions, Fluid Covers and Air Valve Fasteners (all models, aluminum shown)

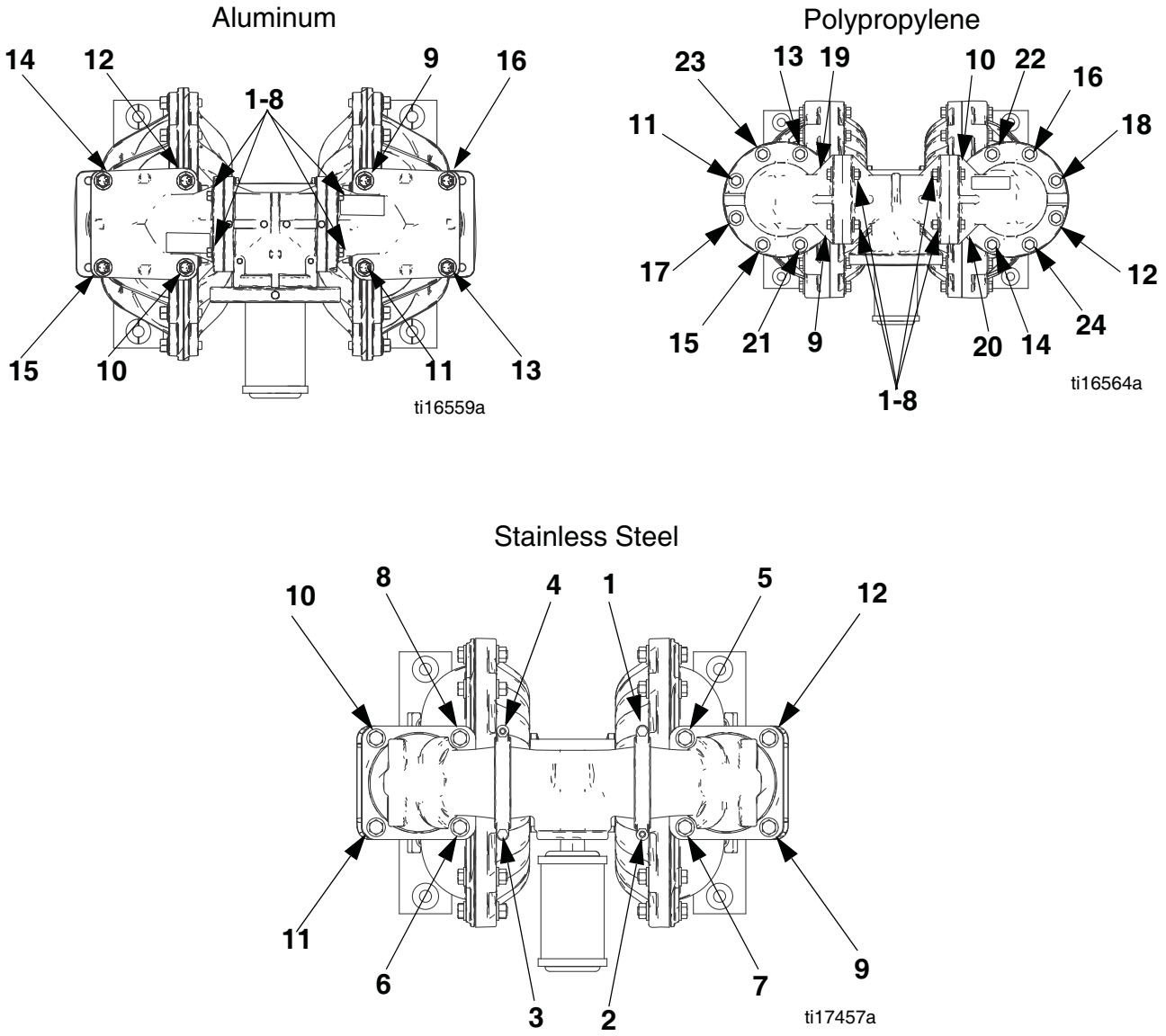
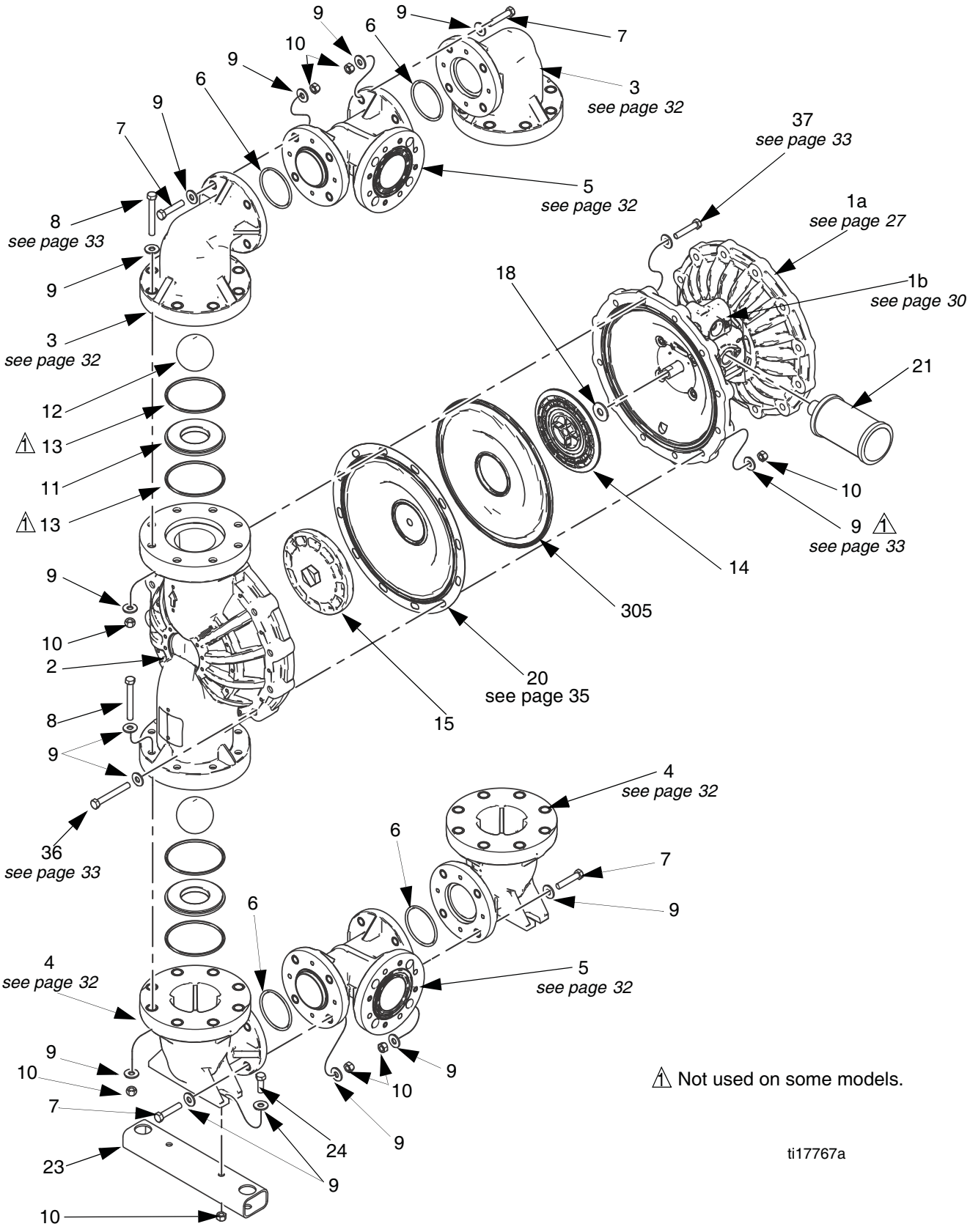


FIG. 9. Torque Instructions - Manifold Fasteners

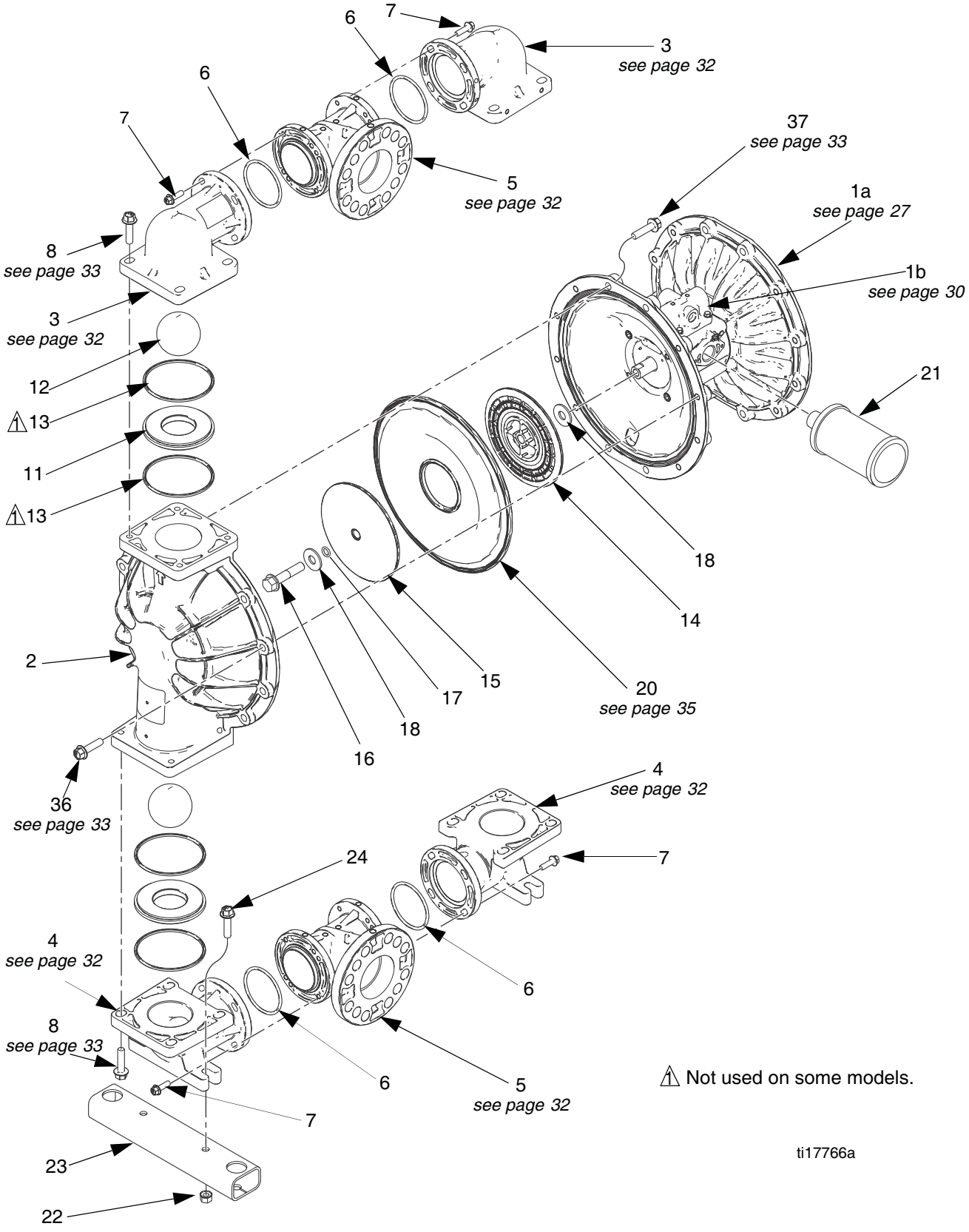
Parts, 3300P, Polypropylene



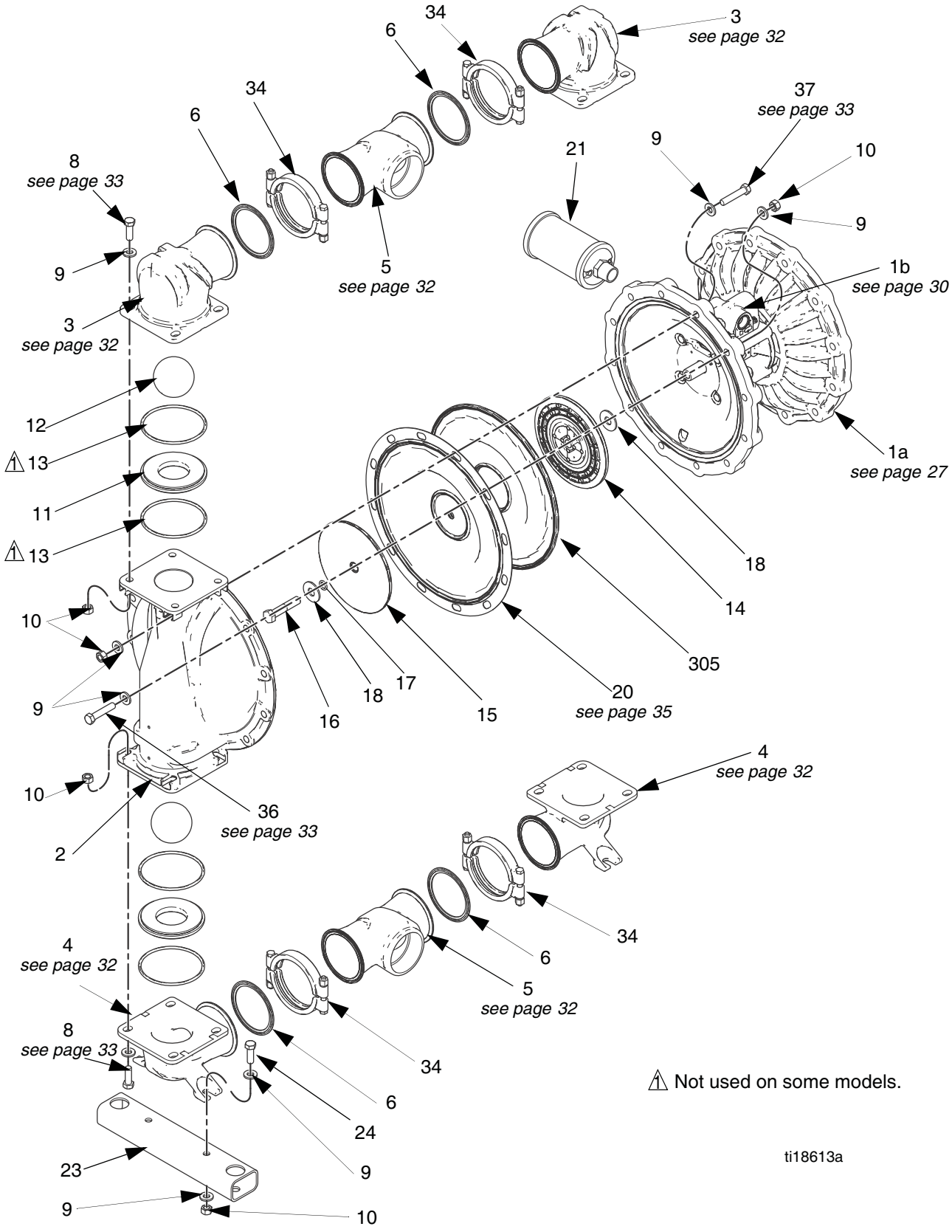
⚠1 Not used on some models.

ti17767a

Parts, 3300A, Aluminum



Parts, 3300S, Stainless Steel



Parts/Kits Quick Reference

Use this table as a quick reference for parts/kits. See pages indicated in table for full description of kit contents.

Ref.	Part/Kit	Description
1a		CENTER SECTION, *not sold separately, see page 27*
	-----	Aluminum
	-----	Polypropylene
1b		AIR VALVE; *see page 30*
2		FLUID COVER KITS; *see page 32*
	24K871	Aluminum
	24K873	Polypropylene
	24K876	Stainless Steel
3		MANIFOLD, outlet elbow kits; *see page 32.*
	24K885	Aluminum
	24K888	Polypropylene
	24K892	Stainless Steel
4		MANIFOLD, inlet elbow kits; *see page 32.*
	24K886	Aluminum
	24K889	Polypropylene
	24K893	Stainless Steel
5		MANIFOLD, center kits, *see page 32.*
	24K884	Aluminum, npt
	24K969	Aluminum, bspt
	24K890	Polypropylene
	24K894	Stainless Steel, npt
	24K970	Stainless Steel, bspt
6		SEAL, manifold joint, *see page 37*
	24K880	Buna-N, for aluminum and poly
	24K879	PTFE, for aluminum and poly
	24K882	PTFE, for stainless steel
7		BOLTS, manifold elbows to center; not used on stainless steel, *see page 32*
	24K887	Aluminum
	24K891	Polypropylene
8		FASTENERS, manifold to fluid cover, *see page* 33
	24K956	Aluminum
	24K883	Polypropylene
	24K896	Stainless Steel
9	-----	WASHER, *included with fastener kits*
10	-----	NUT, *included with refs 36 and 37*

Ref.	Part/Kit	Description
11		SEATS; 4-pack, *see page 34*
	24K928	Acetal
	24K929	Aluminum
	24K930	Buna-N
	24K936	FKM Fluoroelastomer
	24K931	Geolast
	24K933	Polypropylene
	24K934	Santoprene
	24K935	Stainless Steel
	24K932	TPE
12		CHECK BALLS; 4-pack, *see page 34*
	24K937	Acetal
	24K938	Buna-N
	24K941	Polychloroprene, standard
	24K942	Polychloroprene, weighted
	24K945	FKM Fluoroelastomer
	24K939	Geolast
	24K943	PTFE
	24K944	Santoprene
	24K940	TPE
13		O-RING, seat (not used on some models); 8-pack, *see page 37*
	24K909	Buna-N
	24K927	PTFE
14	24K975	PLATE, air side diaphragm, includes o-ring (17) and washer (18)
15		PLATE, fluid side diaphragm, *see page 36*
	24K906	Aluminum
	24K907	Polypropylene
	24K908	Stainless steel
16	-----	SCREW, hex washer head, 3/8-11x 3 in., carbon steel, included with Ref. 15
17	-----	O-RING, included with Refs. 14 and 15
18	-----	WASHER, included with Refs. 14 and 15
20		DIAPHRAGM Kits; *see page 35*
	24K897	Buna-N Standard
	24K903	FKM Standard
	24K900	Geolast Standard
	24K898	Polychloroprene Overmolded
	24K904	Polychloroprene Standard
	24K899	PTFE Overmolded
	24K905	PTFE/Santoprene Two-Piece
	24K902	Santoprene Standard
	24K901	TPE Standard

Continued

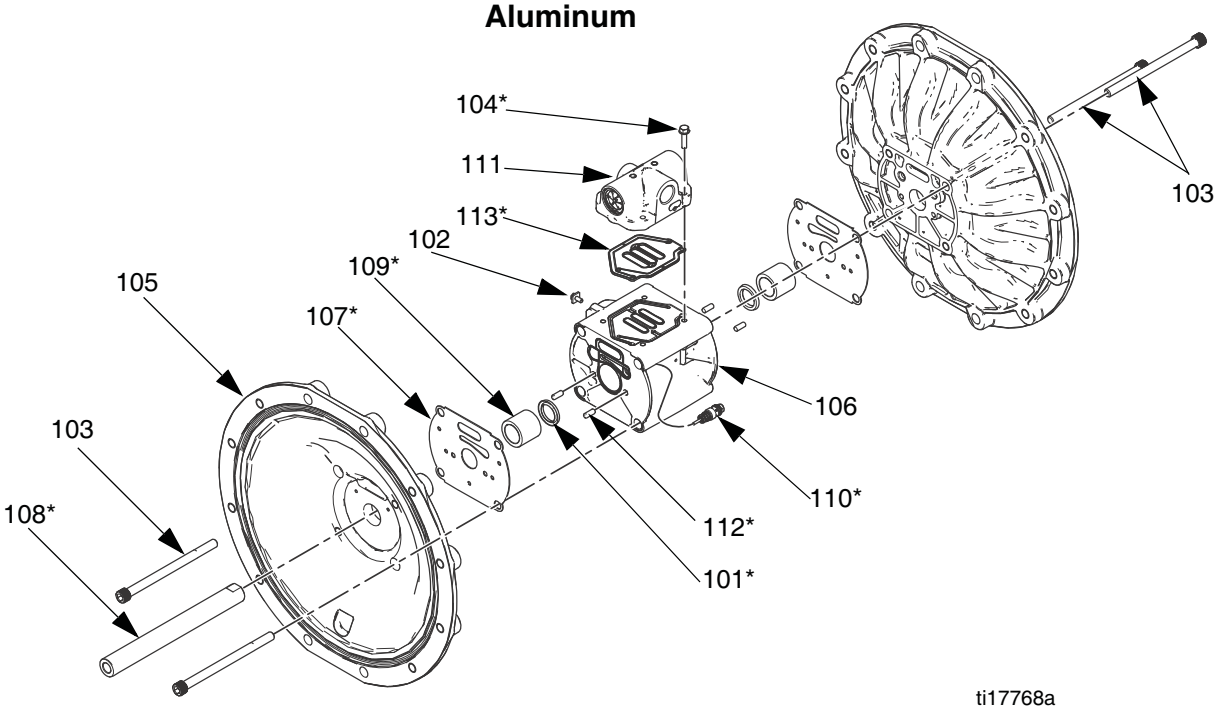
Ref.	Part/Kit	Description
21	111897	MUFFLER
23		BRACKET, mounting, *see page 37*
	24K973	Aluminum
	24K972	Polypropylene and Stainless Steel
24	-----	BOLT, mounting, 1/2-13 , included in bracket kit
25▲	188621	LABEL, warning (not shown)
33▲		TAG, warning, retorque (not shown)
	16F337	Aluminum
	16F338	Polypropylene
	16F339	Stainless Steel
34	24K895	KIT, manifold clamp, used on stainless steel
36 and 37		FASTENERS, fluid cover to air cover, *see page 33*
	24K872	Aluminum
	24K874	Polypropylene, with poly center
	24K875	Polypropylene, with alum center
	24K877	Stainless Steel with alum center
	24K878	Stainless Steel with poly center
38▲	198382	LABEL, warning, multilingual (not shown)

▲*Replacement Warning labels, signs, tags, and cards are available at no cost.*

Center Section

Sample Configuration Number						
Pump Size and Material	**Center Section**	**Fluid Covers and Manifolds**	**Seats**	**Check Balls**	**Diaphragm**	**Manifold and Seat Seals**
3300A	**A01A**	**A1**	**TP**	**BN**	**TP**	**BN**

Aluminum



Aluminum Center Section

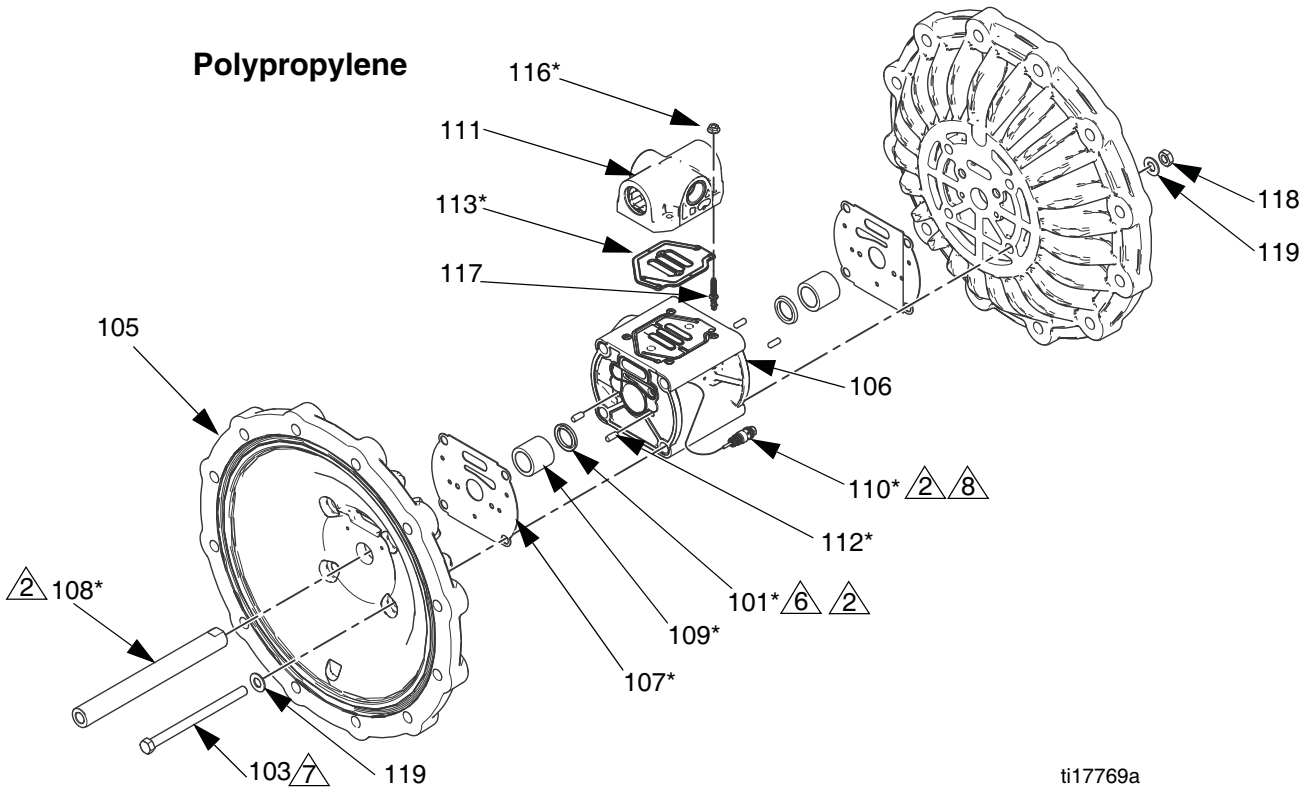
Ref.	Description	Qty.
101*	U-CUP, center shaft	2
102	SCREW, ground	4
103	BOLT, socket head, 7/16-14 x 6.25, zinc-plated carbon steel	4
104*	SCREW, M6 x 25, stainless steel	4
105	COVER, air	2
106	HOUSING, center, not sold separately	1
107*	GASKET, air cover	2
108*	SHAFT, center	1
109*	BEARING, shaft	2
110*	VALVE, pilot, assembly	2

Ref.	Description	Qty.
111	VALVE, air, *see page 31*	1
112*	PIN, dowel, stainless steel	4
113*	GASKET, air valve	1
114	LUBRICANT, thread, not shown	1
115	SEALANT, anaerobic, not shown	1

** Included in Center Section Rebuild Kit.*

The center housing (106) is not sold separately.

Sample Configuration Number						
Pump Size and Material	**Center Section**	**Fluid Covers and Manifolds**	**Seats**	**Check Balls**	**Diaphragm**	**Manifold and Seat Seals**
3300A	**A01A**	**A1**	**TP**	**BN**	**TP**	**BN**



Polypropylene Center Sections

Ref.	Description	Qty.
101*	U-CUP, center shaft	2
103	BOLT, hex head, 7/16-14 x 6.25, stainless steel	4
105	COVER, air	2
106	HOUSING, center, not sold separately	1
107*	GASKET, air cover	2
108*	SHAFT, center	1
109*	BEARING, shaft	2
110*	VALVE, pilot, assembly	2
111	VALVE, air, *see page 31*	1
112*	PIN, dowel, stainless steel	4
113*	GASKET, air valve	1

Ref.	Description	Qty.
114	LUBRICANT, thread, not shown	1
116*	NUT, serrated	4
117	SCREW, hi-lo stud	4
118	NUT, jam, 7/16, stainless steel	4
119	WASHER, 7/16, stainless steel	8

** Included in Center Section Rebuild Kit.*

The center housing (106) is not sold separately.

Sample Configuration Number						
Pump Size and Material	**Center Section**	**Fluid Covers and Manifolds**	**Seats**	**Check Balls**	**Diaphragm**	**Manifold and Seat Seals**
3300A	**A01A**	**A1**	**TP**	**BN**	**TP**	**BN**

Center Section Rebuild Kits (*)	
A01A, P01A	24K850
A01E	24K955
A01G, P01G	24K851

Kits include:

- 2 center shaft u-cups (101)
- 4 screws, M6 x 25, for A01x pumps (104)
- 2 air cover gaskets (107)
- 1 center shaft (108)
- 2 center shaft bearings (109)
- 2 pilot valve assemblies (110)
- 4 dowel pins (112)
- 1 air valve gasket (113)
- 4 nuts, serrated, for P01x pumps (116)
- 1 grease packet

Pilot Valve Assembly Kits	
A01A, P01A, A01G, P01G	24A366
A01E	24K946

Kits include:

- 2 pilot valve assemblies (110)

Center Shaft Kits	
A01A, P01A	24K852
A01E	24K950
A01G, P01G	24K853

Kit includes:

- 2 center shaft u-cups (101)
- 1 center shaft (108)
- 2 center shaft bearings (109)

Center Shaft Bearing Kits	
A01A, P01A, A01G, P01G	24K854
A01E	24K951

Kit includes:

- 2 center shaft u-cups (101)
- 2 center shaft bearings (109)

Air Cover Kits	
A01x	24K867
P01x	24K868

Kits include:

- 1 air cover (105)
- 1 air cover gasket (107)
- 2 dowel pins (112)

Air Cover Center Bolt Kits	
Aluminum Center	24K869
Polypropylene Center	24K870

Aluminum Kit includes:

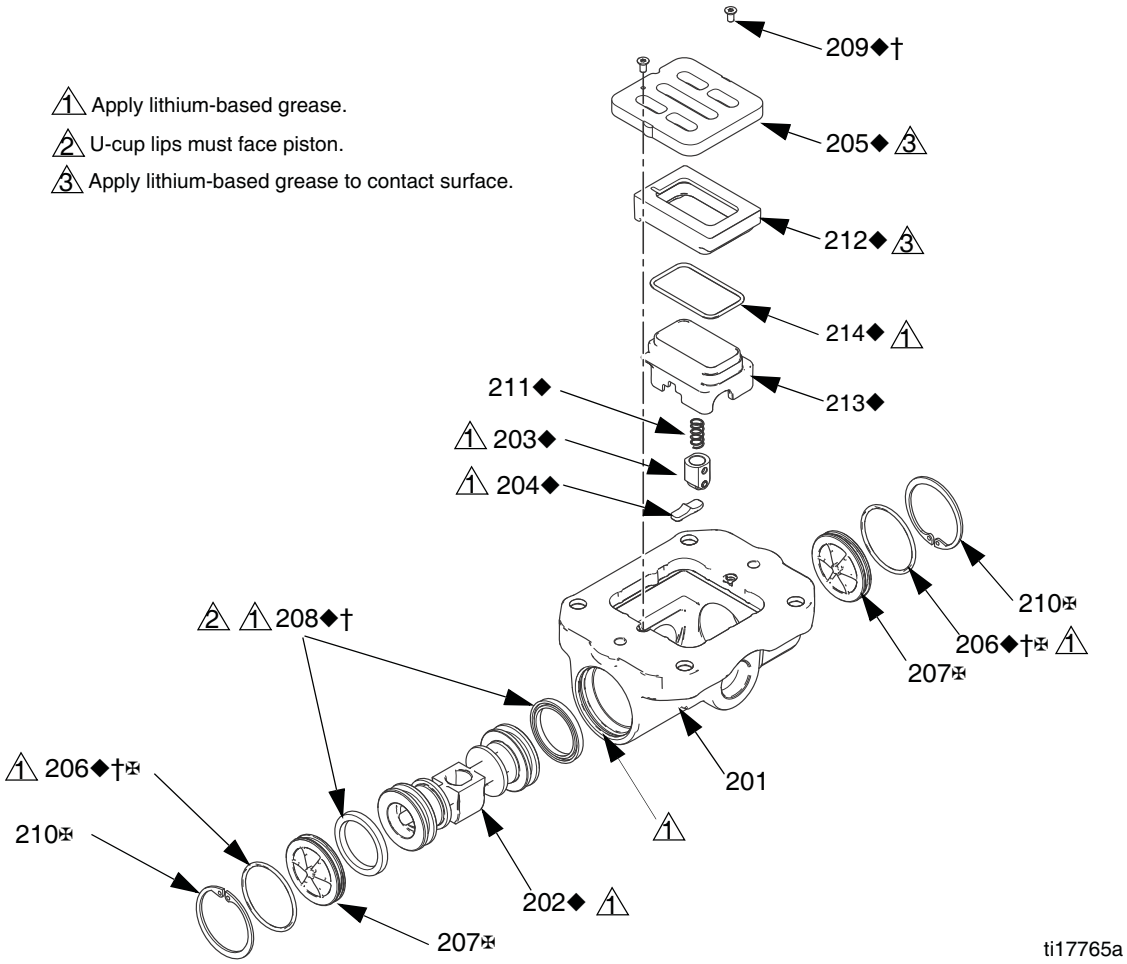
- 4 bolts (103), 7/16-14 x 6.25 in.

Polypropylene Kit includes:

- 4 bolts (103), 7/16-14 x 6.25 in.
- 4 jam nuts (118)
- 8 washers (119)

Air Valve

Sample Configuration Number						
Pump Size and Material	**Center Section**	**Fluid Covers and Manifolds**	**Seats**	**Check Balls**	**Diaphragm**	**Manifold and Seat Seals**
3300A	**A01A**	**A1**	**TP**	**BN**	**TP**	**BN**



Ref.	Description	Qty.
201	HOUSING, not sold separately	1
202◆	PISTON	1
203◆	DETENT PISTON ASSEMBLY	1
204◆	CAM, detent	1
205◆	PLATE, air valve	1
206◆†✠	O-RING	2
207✠	CAP, end	2
208◆†	U-CUP	2
209◆†	SCREW	2
210✠	RETAINING RING	2
211◆	DETENT SPRING	1

Ref.	Description	Qty.
212◆	BASE, cup	1
213◆	CUP	1
214◆	O-RING, cup	1

◆ *Parts included in Air Valve Repair Kit. See page 31.*
† *Parts included in Air Valve Seals Kit. See page 31.*
✠ *Parts included in Air Valve End Cap Kit. See page 31.*

Sample Configuration Number						
Pump Size and Material	**Center Section**	**Fluid Covers and Manifolds**	**Seats**	**Check Balls**	**Diaphragm**	**Manifold and Seat Seals**
3300A	**A01A**	**A1**	**TP**	**BN**	**TP**	**BN**

Air Valve Seal Kits (†)	
A01A, P01A, A01G, P01G	24K859
A01E	24K948

Kit includes:

- 2 end cap o-rings (206)
- 2 piston u-cups (208)
- 2 screws, M3, shorter (209, for metal pumps)
- 2 screws, #4, longer (209, for plastic pumps)
- 1 air valve gasket (113)
- 1 grease packet
- 1 solenoid release button o-ring (not shown), used only with optional DataTrak kit.

Air Valve Repair Kits (◆)	
A01A, P01A, A01G, P01G	24K860
A01E	24K954

Kits include:

- 1 air valve piston (202)
- 1 detent piston assembly (203)
- 1 detent cam (204)
- 1 air valve plate (205)
- 2 end cap o-rings (206)
- 2 piston u-cups (208)
- 2 screws, M3, shorter (209, for metal pumps)
- 2 screws, #4, longer (209, for plastic pumps)
- 1 detent spring (211)
- 1 air cup base (212)
- 1 air cup (213)
- 1 air cup o-ring (214)
- 1 solenoid release button o-ring (not shown), used only with optional DataTrak kit.
- 1 air valve gasket (113)
- 1 grease packet

Air Valve Replacement Kits	
A01A, A01G	24K855
A01E	24K947
P01A, P01G	24K857

Kits include:

- 1 air valve assembly (1b)
- 1 air valve gasket (113)
- 4 screws (109; models with aluminum centers)
  OR
- 4 nuts (112; models with plastic centers)

Air Valve End Cap Kits (✠)	
A01x	24A361
P01x	24C053

Kits include:

- 2 end caps (207)
- 2 retaining rings (210)
- 2 o-rings (206)

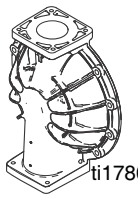
NOTE: If you have the optional DataTrak on your pump, see **Accessories,** page 38, for Air Valve Replacement kits.

Fluid Covers and Manifolds

Sample Configuration Number						
Pump Size and Material	**Air Valve and Center Section**	**Fluid Covers and Manifolds**	**Seats**	**Check Balls**	**Diaphragm**	**Manifold and Seat Seals**
3300A	**A01A**	**A1**	**TP**	**AC**	**TP**	**BN**

Fluid Cover Kits

A1, A2	24K871	**P1**	24K873	**S1, S2**	24K876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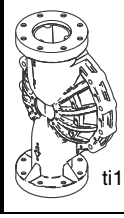
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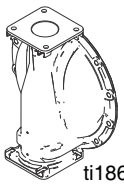
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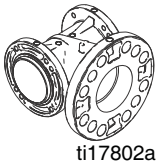
Kits include:

- 1 fluid cover (2)

Manifold Center Kits

A1	24K884	**P1**	24K890	**S1**	24K894
A2	24K969			**S2**	24K970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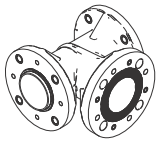
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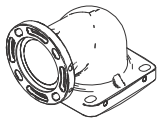
ti18632a

Kits include:

- 1 manifold center (5)

Outlet Manifold Elbow Kits

A1, A2	24K885	**P1**	24K888	**S1, S2**	24K892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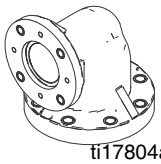
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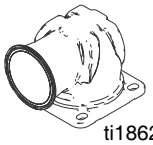
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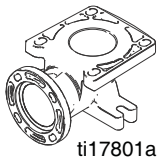
Kits include:

- 1 outlet manifold elbow (3)

Inlet Manifold Elbow Kits

A1, A2	24K886	**P1**	24K889	**S1, S2**	24K893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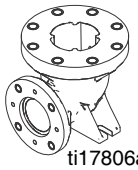
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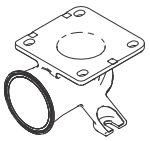
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Kits include:

- 1 inlet manifold elbow (4)

Manifold Center Fastener Kits

A1, A2	24K887
P1	24K891
S1, S2	24K895

Aluminum kit includes:

- 8 bolts (7) , hex head with flange base, 3/8-16 x 1.25 in., zinc-plated carbon steel

Polypropylene kit includes:

- 8 bolts (7), hex head, 1/2-13 x 2.5 in., stainless steel
- 16 washers (9)
- 8 nuts (10)

Stainless steel kit includes:

- 2 clamps (7a), 4 in., tri-clamp
- 2 gaskets (7b), 4 in., PTFE

Sample Configuration Number						
Pump Size and Material	**Air Valve and Center Section**	**Fluid Covers and Manifolds**	**Seats**	**Check Balls**	**Diaphragm**	**Manifold and Seat Seals**
3300A	**A01A**	**A1**	**TP**	**AC**	**TP**	**BN**

Manifold to Fluid Cover Fastener Kits	
A1, A2	24K956
P1	24K883
S1, S2	24K896

Aluminum kit includes:

- 8 bolts (7) , hex head with flange base, 3/8-16 x 1.25 in., zinc-plated carbon steel

Polypropylene kit includes:

- 16 bolts (7), hex head, 1/2-13 x 4 in., stainless steel
- 32 washers, 1/2 in., stainless steel
- 16 nuts, 1/2 in., stainless steel

Stainless steel kit includes:

- 8 bolts, hex head, 1/2-13 x 1.5 in., stainless steel
- 8 washers, 1/2 in., stainless steel
- 8 nuts, 1/2 in., stainless steel

Fluid Cover to Air Cover Fastener Kits	
A1, A2	24K872
P1, with poly center	24K874
P1, with aluminum center	24K875
S1, S2, with poly center	24K878
S1, S2, with aluminum center	24K877

Aluminum kit Includes:

- 12 bolts (36 and 37), hex head with flange, 1/2-13 x 2 in., zinc-coated carbon steel

Polypropylene with Poly Center kit includes:

- 8 bolts (36), hex head, 1/2-13 x 4 in., stainless steel
- 4 bolts (37, hex head, 1/2-13 x 2.5 in., stainless steel
- 20 washers (9), stainless steel
- 8 nuts (10), hex, stainless steel

Polypropylene with Aluminum Center kit includes:

- 8 bolts (36), hex head, 1/2-13 x 3.25 in., stainless steel
- 4 bolts (37), hex head, 1/2-13 x 2.25 in., stainless steel
- 12 washers (9), stainless steel

Stainless Steel with Aluminum Center Kit includes:

- 8 bolts (36), hex head, 1/2-13 x 1.5 in., stainless steel
- 4 bolts (37), hex head, 1/2-13 x 2.25 in., stainless steel
- 12 washers (9), stainless steel

Stainless Steel with Polypropylene Center Kit includes:

- 12 bolts (36 and 37), hex head, 1/2-13 x 2.5 in., stainless steel
- 20 washers (9), stainless steel
- 8 nuts, hex, 1/2 in., stainless steel

Seats and Check Balls

Sample Configuration Number						
Pump Size and Material	**Air Valve and Center Section**	**Fluid Covers and Manifolds**	**Seats**	**Check Balls**	**Diaphragm**	**Manifold and Seat Seals**
3300A	**A01A**	**A1**	**TP**	**AC**	**TP**	**BN**

Seat Kits	
AC*	24K928
AL*	24K929
BN	24K930
FK	24K936
GE*	24K931
PP*	24K933
SP*	24K934
SS*	24K935
TP	24K932

Kits include:

- 4 seats (10), material indicated in table

* These seats require o-rings, which are sold separately. See page 37.

NOTE: Some kits may not be available for your model. See the selector tool at www.gracohusky.com or speak with your distributor.

Check Ball Kits	
AC	24K937
BN	24K938
CR	24K941
CW	24K942
FK	24K945
GE	24K939
PT	24K943
SP	24K944
TP	24K940

Kits Include:

- 4 balls (11), material indicated in table

NOTE: Some kits may not be available for your model. See the selector tool at www.gracohusky.com or speak with your distributor.

Diaphragms

Sample Configuration Number						
Pump Size and Material	**Air Valve and Center Section**	**Fluid Covers and Manifolds**	**Seats**	**Check Balls**	**Diaphragm**	**Manifold and Seat Seals**
3300A	**A01A**	**A1**	**TP**	**AC**	**TP**	**BN**

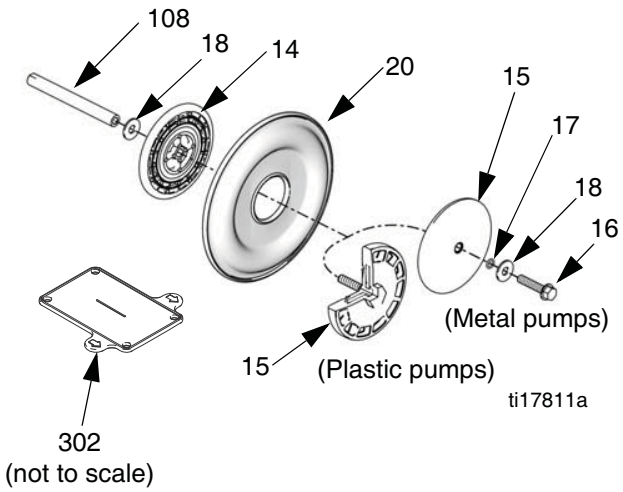
NOTE: Some kits may not be available for your model. See the selector tool at www.gracohusky.com or speak with your distributor.

Standard Diaphragm Kits	
BN	24K897
CR	24K904
FK	24K903
GE	24K900
SP	24K902
TP	24K901

Kits include:

- 2 diaphragms (20, material indicated in table)
- 2 o-rings (17) for the bolt (used only on metal pumps)
- 1 diaphragm install tool (302), not included with rubber diaphragms

NOTE: Diaphragm plates (14, 15), washer (18) and diaphragm shaft bolts (16) are sold in separate kits. See page **36**. The shaft (108) is part of Kit 24K850, the Center Section Rebuild Kit.

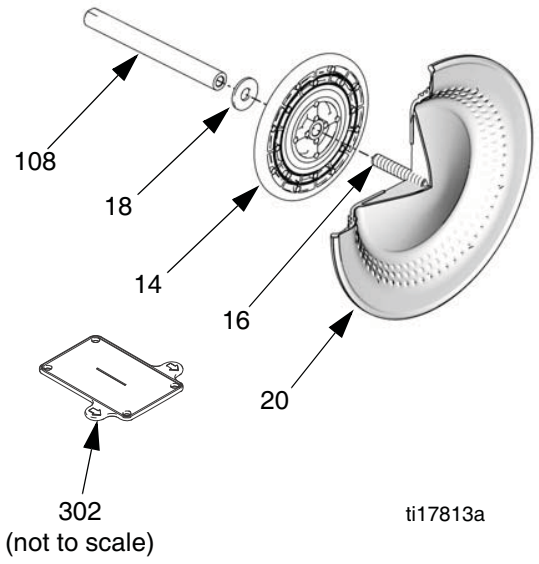


Overmolded Diaphragm Kits	
CO	24K898
PO	24K899

Kits include:

- 2 overmolded diaphragms (20, material indicated in table)
- 2 diaphragm set screws, stainless steel (16)
- 1 diaphragm install tool (302)
- I Loctite packet

NOTE: Air plates (14) and washer (18) are sold in a separate kit. See page **36.** The shaft (108) is part of Kit 24K851, the Center Section Rebuild Kit.



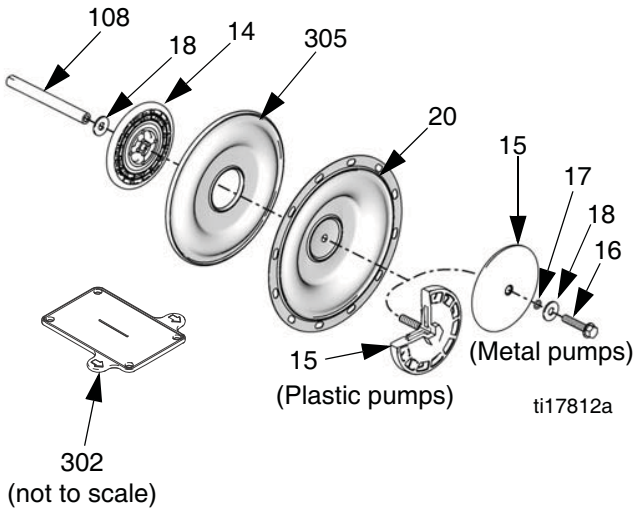
Diaphragms (continued)

Sample Configuration Number						
Pump Size and Material	**Air Valve and Center Section**	**Fluid Covers and Manifolds**	**Seats**	**Check Balls**	**Diaphragms**	**Manifold and Seat Seals**
3300A	**A01A**	**A1**	**TP**	**AC**	**TP**	**BN**

Two-Piece Diaphragm Kits	
PT	24K905

Kits include:
- 2 diaphragms (20), PTFE
- 2 backup diaphragms (305), Santoprene
- 2 o-rings for the bolt (17, used only on metal pumps)
- 1 diaphragm install tool.

NOTE: Diaphragm plates (14, 15), washer (18) and diaphragm shaft bolts (16) are sold in separate kits. See page **36**. The shaft (108) is part of Kit 24K850, the Center Section Rebuild Kit.



Fluid Plate Kits	
3300A	24K906
3300P	24K907
3300S	24K908

Kits for **aluminum** and **stainless steel** pumps include:
- 1 fluid side diaphragm plate (15)
- 1 washer (18)
- 1 o-ring (17)
- 1 bolt (16)

Kits for **polypropylene** pumps include:
- 1 air side diaphragm plate (14)
- 1 fluid side diaphragm plate (15)
- 1 washer (18)

Air Plate Kits	
All Models	24K975

Kits include:
- 1 air side diaphragm plate (14)
- 1 washer (18)
- 1 o-ring (17)

Manifold and Seat Seals

Sample Configuration Number						
Pump Size and Material	**Air Valve and Center Section**	**Fluid Covers and Manifolds**	**Seats**	**Check Balls**	**Diaphragm**	**Manifold and Seat Seals**
3300A	**A01A**	**A1**	**TP**	**AC**	**TP**	**BN**

Manifold Center Seal Kits		
	Aluminum and Poly Pumps	**Stainless Steel Pumps**
PT	24K879	24K882
BN	24K880	not available
FK	24K881	

Kits for Aluminum or Polypropylene pumps include:
- 4 o-rings (6)
- 1 grease packet

Kit for Stainless Steel pumps includes:
- 4 gaskets (6)

Seat O-Ring Kits	
PT	24K927
BN	24K909
FK	24K926

Kit Includes:
- 8 o-rings (13)
- 1 grease packet

Mounting Bracket Kits	
Aluminum	24K973
Polypropylene and Stainless Steel	24K972

Kit Includes:
- 2 mounting brackets (23)
- 4 bolts (24)
- 4 nuts (10) and 8 washers (9), polypropylene or stainless steel pumps

Accessories

Grounding Wire Assembly Kit 238909
Includes ground wire and clamp.

NOTE: See DataTrak Manual 313840 for:

- Pulse Count Conversion Kits 24B794 and 24B795
- DataTrak Conversion Kits 24K861 and 24K862
- All other data monitoring parts, including reed switches and solenoids.

Replacement Air Valve Kit 24K856, Aluminum, DataTrak Compatible
Kit includes screws, air valve, and gasket.

Replacement Air Valve Kit 24K858, Polypropylene, DataTrak Compatible
Kit includes screws, air valve, and gasket.

Replacement Air Valve Kit 24K949, Aluminum, DataTrak Compatible, with FKM Seals
Kit includes screws, air valve, and gasket.

Technical Data

Husky 3300		
	US	**Metric**
Maximum fluid working pressure		
Aluminum or Stainless Steel with Aluminum Center Section	125 psi	0.86 MPa, 8.6 bar
Polypropylene or Stainless Steel with Polypropylene Center Section	100 psi	0.7 MPa, 7 bar
Air pressure operating range**		
Aluminum or Stainless Steel with Aluminum Center Section	20-125 psi	0.14-0.86 MPa, 1.4-8.6 bar
Polypropylene or Stainless Steel with Polypropylene Center Section	20-100 psi	0.14-0.7 MPa, 1.4-7 bar
Air consumption		
All pumps	90 scfm at 70 psi, 100 gpm	2.5 m^3/min at 4.8 bar, 379 lpm
Maximum air consumption*		
Aluminum or Stainless Steel with Aluminum Center Section	335 scfm	9.5 m^3/min
Polypropylene or Stainless Steel with Polypropylene Center Section	275 scfm	7.8 m^3/min
Maximum free-flow delivery*		
Standard diaphragms	300 gpm at 125 psi	1135 lpm at 8.6 bar
Standard diaphragms	280 gpm at 100 psi	1059 lpm at 7 bar
Overmolded diaphragms	270 gpm at 125 psi	1022 lpm at 8.6 bar
Overmolded diaphragms	260 gpm at 100 psi	984 lpm at 7 bar
Maximum Pump Speed*		
Standard diaphragms	103 cpm at 125 psi	103 cpm at 8.6 bar
Standard diaphragms	97 cpm at 100 psi	97 cpm at 7 bar
Overmolded diaphragms	135 cpm at 125 psi	135 cpm at 8.6 bar
Overmolded diaphragms	130 cpm at 100 psi	130 cpm at 7 bar
Maximum suction lift (varies widely based on ball/seat selection and wear, operating speed, material properties, and other variables)*		
Dry	8 ft.	2.4 meters
Wet	28 ft.	8.5 meters
Recommended cycle rate for continuous duty	20 cycles per minute	
Recommended cycle rate for circulation systems	20 cycles per minute	
Maximum size pumpable solids	1/2 in.	13 mm
Fluid flow per cycle**		
Standard diaphragms	2.9 gal	11.0 l
Overmolded diaphragms	2.0 gal	7.6 l
Noise (dBa)***		
Sound Power	92 at 50 psi and 50 cpm, 99 at 120 psi and full flow	92 at 3.4 bar and 50 cpm 99 at 8.3 bar and full flow
Sound Pressure	86 at 50 psi and 50 cpm 93 at 120 psi and full flow	86 at 3.4 bar and 50 cpm 93 at 8.3 bar and full flow

Inlet/Outlet Sizes		
Fluid inlet - Polypropylene	3 in. ANSI/DIN flange	
Fluid inlet - Aluminum	3 in.-8 npt or 3 in.-11 bspt with 3 in. ANSI/DIN flange	
Fluid inlet - Stainless Steel	3 in.-8 npt or 3 in.-11 bspt	
Air Inlet - all pumps	3/4 in. npt(f)	
Wetted parts		
All pumps	Materials chosen for seat, ball, and diaphragm options, **plus** the pump's material of construction - aluminum, polypropylene, or stainless steel. Aluminum pumps also have carbon-coated steel.	
Non-wetted external parts		
Polypropylene	stainless steel, polypropylene	
Aluminum	aluminum, coated carbon steel	
Stainless Steel	stainless steel, polypropylene or aluminum (as used in center section)	
Weight		
Polypropylene	200 lb	91 kg
Aluminum	150 lb	68 kg
Stainless Steel	255 lb	116 kg

Notes

* *Maximum values with water as media at ambient temperature. Water level is approximately 3 feet above pump inlet.*

** *Startup pressures and displacement per cycle may vary based on suction condition, discharge head, air pressure, and fluid type.*

*** *Sound power measured per ISO-9614-2. Sound pressure was tested 3.28 ft (1 m) from equipment.*

Santoprene® is a registered trademark of the Monsanto Co.

Loctite® is a registered trademark of the Loctite Corporation.

Fluid Temperature Range

NOTICE

Temperature limits are based on mechanical stress only. Certain chemicals will further limit the fluid operating temperature range. Stay within the temperature range of the most-restricted wetted component. Operating at a fluid temperature that is too high or too low for the components of your pump may cause equipment damage.

Diaphragm/Ball/Seat Material	Fluid Temperature Range			
	Aluminum Pumps		Polypropylene Pumps	
Acetal	10° to 180°F	-12° to 82°C	32° to 150°F	0° to 66°C
Buna-N	10° to 180°F	-12° to 82°C	32° to 150°F	0° to 66°C
FKM Fluoroelastomer*	-40° to 275°F	-40° to 135°C	32° to 150°F	0° to 66°C
Geolast®	-40° to 150°F	-40° to 66°C	32° to 150°F	0° to 66°C
Polychloroprene overmolded diaphragm or Polychloroprene check balls	0° to 180°F	-18° to 82°C	32° to 150°F	0° to 66°C
Polypropylene	32° to 150°F	0° to 66°C	32° to 150°F	0° to 66°C
PTFE overmolded diaphragm	40° to 180°F	4° to 82°C	40° to 150°F	4° to 66°C
PTFE check balls	40° to 220°F	4° to 104°C	40° to 150°F	4° to 66°C
Santoprene® or two-piece PTFE/Santoprene diaphragm	-40° to 180°F	-40° to 82°C	32° to 150°F	0° to 66°C
TPE	-20° to 150°F	-29° to 66°C	32° to 150°F	0° to 66°C

** The maximum temperature listed is based on the ATEX standard for T4 temperature classification. If you are operating in a non-explosive environment, FKM fluoroelastomer's maximum fluid temperature in aluminum pumps is 320°F (160°C).*