Instructions – Parts List

POLYPROPYLENE AND PVDF

Husky™ 2150 Air-Operated Diaphragm Pumps

308550ZAA

ENG

2–inch AODD pump for fluid transfer applications. For professional use only.

Not approved to European explosive atmosphere requirements.

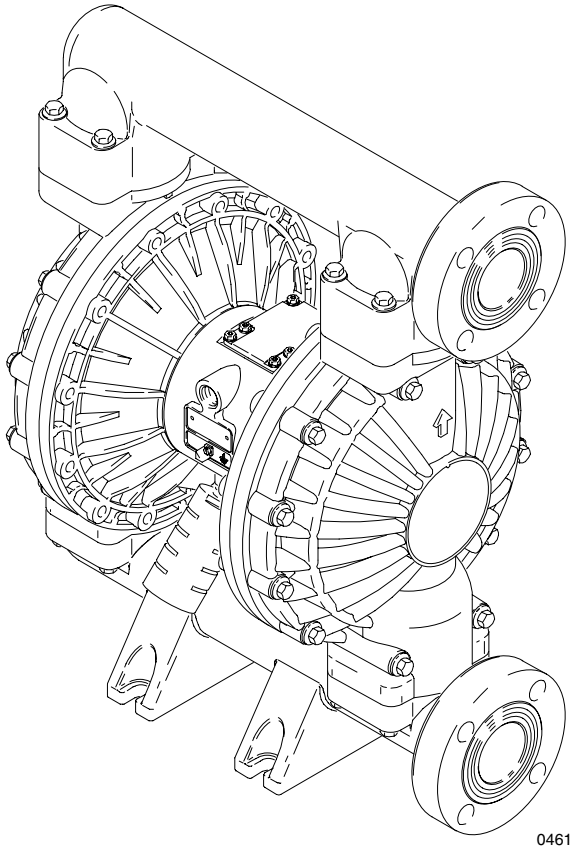
See Models on page 2 for a list of pump models and descriptions.

120 psi (0.8 MPa, 8 bar) Maximum Fluid Working Pressure
120 psi (0.8 MPa, 8 bar) Maximum Air Input Pressure

Patent No.
CN ZL94102643.4
FR 9408894
JA 351720
US 5,368,452

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

See page 2 for table of contents.



04613B

PROVEN QUALITY. LEADING TECHNOLOGY.

HO03

Table of Contents

Models 2
Safety Warnings 3
Installation 5
Operation 12
Maintenance 13
Troubleshooting 14
Service
- Repairing the Air Valve 16
- Ball Check Valve Repair 18
- Diaphragm Repair 19
- Bearing and Air Gasket Removal 22

Pump Matrix 24
Repair Kit Matrix 25
Parts 26
Torque Sequence 30
Dimensions 31
Technical Data 32
Performance Chart 33
Graco Standard Warranty 34
Graco Information 34

Models

Model No.	Description
*DF2_____	Polypropylene Pumps
*DG2_____	Polypropylene Pumps, Remote
*DF5_____	PVDF Pumps
*DG5_____	PVDF Pumps, Remote
*DV2_____	Polypropylene Plus Pumps
*DV5_____	PVDF Plus Pumps
232504	Private–Label Polypropylene 2150 Pump (See page 24.)
24B762	PVDF Plus Pump with overmolded diaphragms
24B763	Polypropylene Plus Pump with overmolded diaphragms
24B764	Polypropylene Pump with overmolded diaphragms
24B765	Polypropylene Pump with overmolded diaphragms and sst seats
24B833	PVDF Pump with overmolded diaphragms

*** NOTE:** Refer to the Pump Matrix on page 24 to determine the Model No. of your pump.

NOTE: Plus models include stainless steel center sections.

Symbols

Warning Symbol

⚠ WARNING

This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

Caution Symbol

⚠ CAUTION

This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the instructions.

⚠ WARNING

INSTRUCTIONS

EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture or malfunction and result in serious injury.

- This equipment is for professional use only.
- Read all instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are not sure, call your Graco distributor.
- Do not alter or modify this equipment. Use only genuine Graco parts and accessories.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest rated component in your system. This equipment has a **120 psi (0.8 MPa, 8 bar) maximum working pressure at 120 psi (0.8 MPa, 8 bar) maximum incoming air pressure.**
- Use fluids and solvents which are compatible with the equipment wetted parts. Refer to the **Technical Data** section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Do not use hoses to pull equipment.
- Route hoses away from traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 82°C (180°F) or below –40°C (–40°F).
- Do not lift pressurized equipment.
- Wear hearing protection when operating this equipment.
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.

⚠ WARNING

TOXIC FLUID HAZARD

Hazardous fluid or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, inhaled, or swallowed.

- Know the specific hazards of the fluid you are using.
- Store hazardous fluid in an approved container. Dispose of hazardous fluid according to all local, state and national guidelines.
- Always wear protective eyewear, gloves, clothing and respirator as recommended by the fluid and solvent manufacturer.
- Pipe and dispose of the exhaust air safely, away from people, animals, and food handling areas. If the diaphragm fails, the fluid is exhausted along with the air. See **Air Exhaust Ventilation** on page 11.

FIRE AND EXPLOSION HAZARD

Improper grounding, poor ventilation, open flames or sparks can cause a hazardous condition and result in a fire or explosion and serious injury.

- Ground the equipment. Refer to **Grounding** on page 6.
- ***Never*** use a polypropylene or PVDF pump with non-conductive flammable fluids as specified by your local fire protection code. Refer to **Grounding** on page 6 for additional information. Consult your fluid supplier to determine the conductivity or resistivity of your fluid.
- If there is any static sparking or you feel an electric shock while using this equipment, **stop pumping immediately.** Do not use the equipment until you identify and correct the problem.
- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvents or the fluid being sprayed, dispensed, or transferred.
- Pipe and dispose of the exhaust air safely, away from all sources of ignition. If the diaphragm fails, the fluid is exhausted along with the air. See **Air Exhaust Ventilation** on page 11.
- Keep the work area free of debris, including solvent, rags, and gasoline.
- Electrically disconnect all equipment in the work area.
- Extinguish all open flames or pilot lights in the work area.
- Do not smoke in the work area.
- Do not turn on or off any light switch in the work area while operating or if fumes are present.
- Do not operate a gasoline engine in the work area.

Installation

General Information

- The Typical Installation shown in Fig. 2 is only a guide for selecting and installing system components. Contact your Graco distributor or Graco Technical Assistance (see back page) for assistance in planning a system to suit your needs.
- Always use Genuine Graco Parts and Accessories. Be sure all accessories are adequately sized and pressure-rated to meet the system's requirements.
- Reference numbers and letters in parentheses refer to the callouts in the figures and the parts lists on pages 26–29.
- Variations in color between the plastic components of this pump are normal. Color variation does not affect the performance of the pump.

⚠ WARNING

TOXIC FLUID HAZARD
Hazardous fluid or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, inhaled, or swallowed.

1. Read **TOXIC FLUID HAZARD** on page 4.
2. Use fluids and solvents which are compatible with the equipment wetted parts. Refer to the **Technical Data** section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.

Tighten Screws Before First Use

Before using the pump for the first time, check and retorque all external fasteners. See **Torque Sequence**, page 30. After the first day of operation, retorque the fasteners. Although pump use varies, a general guideline is to retorque fasteners every two months.

Installation

Grounding

⚠ WARNING

FIRE AND EXPLOSION HAZARD
This pump must be grounded. Before operating the pump, ground the system as explained below. Also, read the section **FIRE AND EXPLOSION HAZARD,** on page 4.

Polypropylene and PVDF are ***not*** conductive. Attaching the ground wire to the grounding lug will ground only the air motor. When pumping conductive flammable fluids, ***always*** ground the entire fluid system by making sure the fluid has an electrical path to a true earth ground. See Fig. 1.

Never use a polypropylene or a PVDF pump with non-conductive flammable fluids as specified by your local fire protection code.

US Code (NFPA 77 Static Electricity) recommends a conductivity greater than 50 x 10^{-12} Siemans/meter (mhos/meter) over your operating temperature range to reduce the hazard of fire. Consult your fluid supplier to determine the conductivity or resistivity of your fluid. The resistivity must be less than 2 x 10^{12} ohm-centimeters.

To reduce the risk of static sparking, ground the pump and all other equipment used or located in the pumping area. Check your local electrical code for detailed grounding instructions for your area and type of equipment.

Ground all of this equipment:

- *Air Motor*: Connect a ground wire and clamp as shown in Fig. 1. Loosen the grounding screw (W). Insert one end of a 12 ga (1.5 mm^2) minimum ground wire (Y) behind the grounding screw and tighten the screw securely. Connect the clamp end of the ground wire to a true earth ground. Order Part No. 237569 Ground Wire and Clamp.

NOTE: When pumping conductive flammable fluids with a polypropylene or a PVDF pump, ***always*** ground the entire fluid system. See the **WARNING** on page 6.

- *Air and fluid hoses*: Use only electrically conductive hoses.
- *Air compressor*: Follow the manufacturer's recommendations.
- *All solvent pails used when flushing:* Follow the local code. Use only metal pails, which are conductive. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts the grounding continuity.
- *Fluid supply container:* Follow the local code.

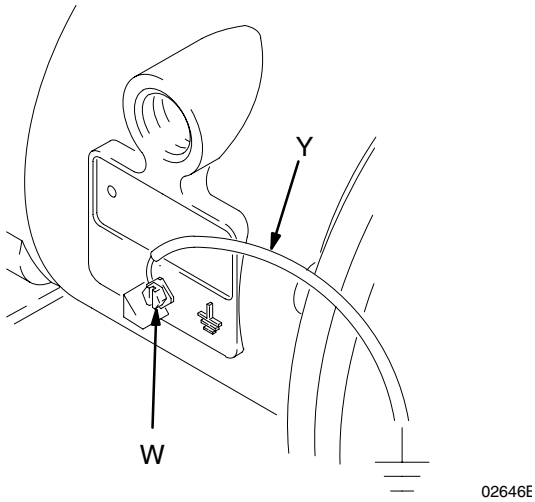


Fig. 1

Installation

Air Line

⚠ WARNING

A bleed-type master air valve (B) is required in your system to relieve air trapped between this valve and the pump. Trapped air can cause the pump to cycle unexpectedly, which could result in serious injury, including splashing in the eyes or on the skin, injury from moving parts, or contamination from hazardous fluids. See Fig. 2.

1. Install the air line accessories as shown in Fig. 2. Mount these accessories on the wall or on a bracket. Be sure the air line supplying the accessories is electrically conductive.

   a. Install an air regulator (C) and gauge to control the fluid pressure. The fluid outlet pressure will be the same as the setting of the air regulator.

   b. Locate one bleed-type master air valve (B) close to the pump and use it to relieve trapped air. See the **WARNING** at left. Locate the other master air valve (E) upstream from all air line accessories and use it to isolate them during cleaning and repair.

   c. The air line filter (F) removes harmful dirt and moisture from the compressed air supply.

2. Install an electrically conductive, flexible air hose (A) between the accessories and the 1/2 npt(f) pump air inlet (N). See Fig. 2. Use a minimum 1/2” (13 mm) ID air hose.

3. Screw an air line quick disconnect coupler (D) onto the end of the air hose (A); be sure the coupler porting is large enough to not restrict the air flow, which will affect pump performance. Screw the mating fitting into the pump air inlet snugly. Do not connect the coupler (D) to the fitting until you are ready to operate the pump.

TYPICAL FLOOR-MOUNT INSTALLATION

KEY FOR FIG. 2

A	Electrically conductive air supply hose
B	Bleed-type master air valve (required for pump)
C	Air regulator
D	Air line quick disconnect
E	Master air valve (for accessories)
F	Air line filter
G	Fluid suction hose
H	Fluid supply
J	Fluid drain valve (required)
K	Fluid shutoff valve
I	Fluid hose
N	1/2 npt(f) air inlet port
R	2” fluid inlet flange
S	2” fluid outlet flange
Y	Ground wire (required; see page 6 for installation instructions)

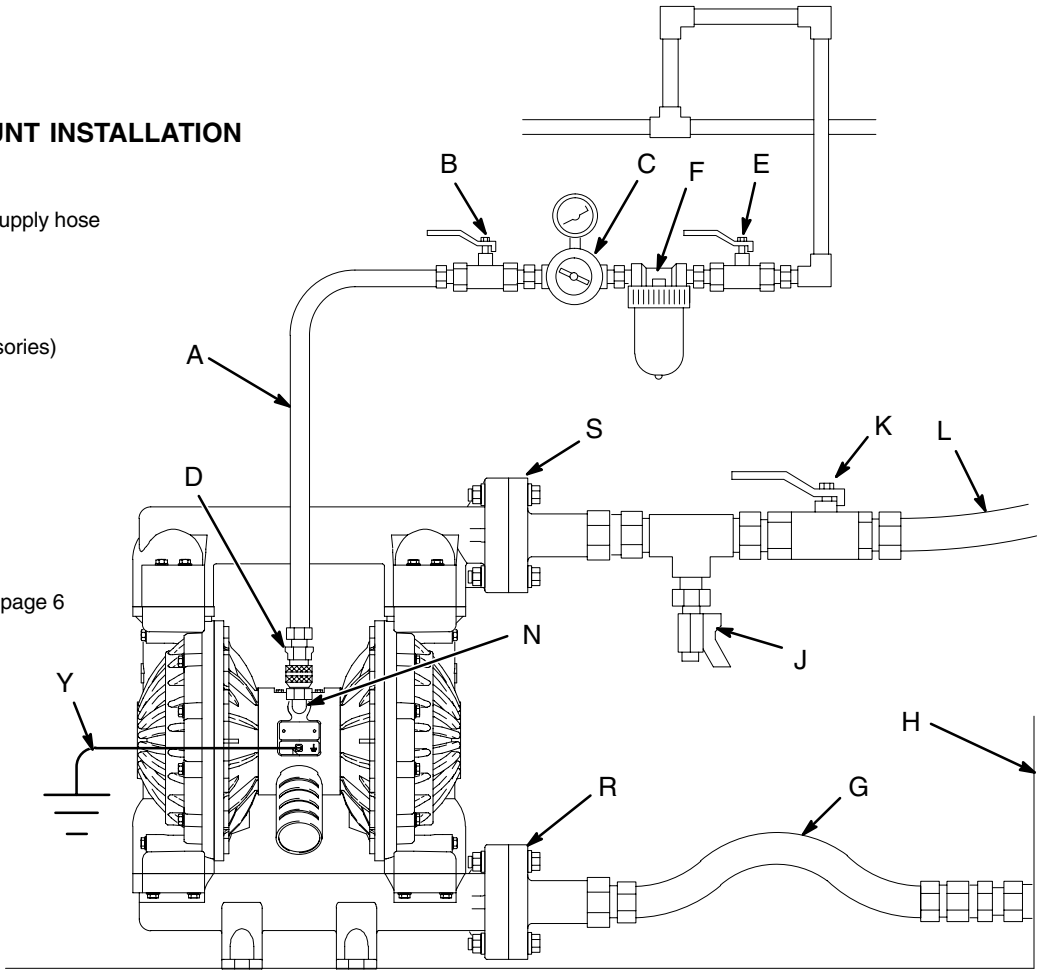


Fig. 2

Installation

Installation of Remote Pilot Air Lines

1. Refer to Parts Drawings. Connect air line to pump as in preceding steps.

2. Connect 1/4 in. O.D. tubing to push type connectors (14) on air motor of pump.

NOTE: by replacing the push type connectors, other sizes or types of fittings may be used. The new fittings will require 1/8 in. npt threads.

3. Connect remaining ends of tubes to external air signal, such as Graco's Cycleflo (P/N 195264) or Cycleflo II (P/N195265) controllers.

Mountings

⚠ CAUTION

The pump exhaust air may contain contaminants. Ventilate to a remote area if the contaminants could affect your fluid supply. See **Air Exhaust Ventilation** on page 11.

- Be sure the mounting surface can support the weight of the pump, hoses, and accessories, as well as the stress caused during operation.

- For all mountings, be sure the pump is bolted directly to the mounting surface.

- For ease of operation and service, mount the pump so the air valve cover (2), air inlet, and fluid inlet and outlet ports are easily accessible.

- Rubber Foot Mounting Kit 236452 is available to reduce noise and vibration during operation.

Fluid Suction Line

1. The pump fluid inlet (R) is a 2" raised face flange. Refer to **Flange Connections** on page 9.

2. If the fluid inlet pressure to the pump is more than 25% of the outlet working pressure, the ball check valves will not close fast enough, resulting in inefficient pump operation.

3. At inlet fluid pressures greater than 15 psi (0.1 MPa, 1 bar), diaphragm life will be shortened.

4. See the **Technical Data** on page 32 for maximum suction lift (wet and dry).

Fluid Outlet Line

⚠ WARNING

A fluid drain valve (J) is required to relieve pressure in the hose if it is plugged. The drain valve reduces the risk of serious injury, including splashing in the eyes or on the skin, or contamination from hazardous fluids when relieving pressure. Install the valve close to the pump fluid outlet. See Fig. 2.

1. The pump fluid outlet (S) is a 2" raised face flange. Refer to **Flange Connections** on page 9.

2. Install a fluid drain valve (J) near the fluid outlet. See the **WARNING** above.

3. Install a shutoff valve (K) in the fluid outlet line.

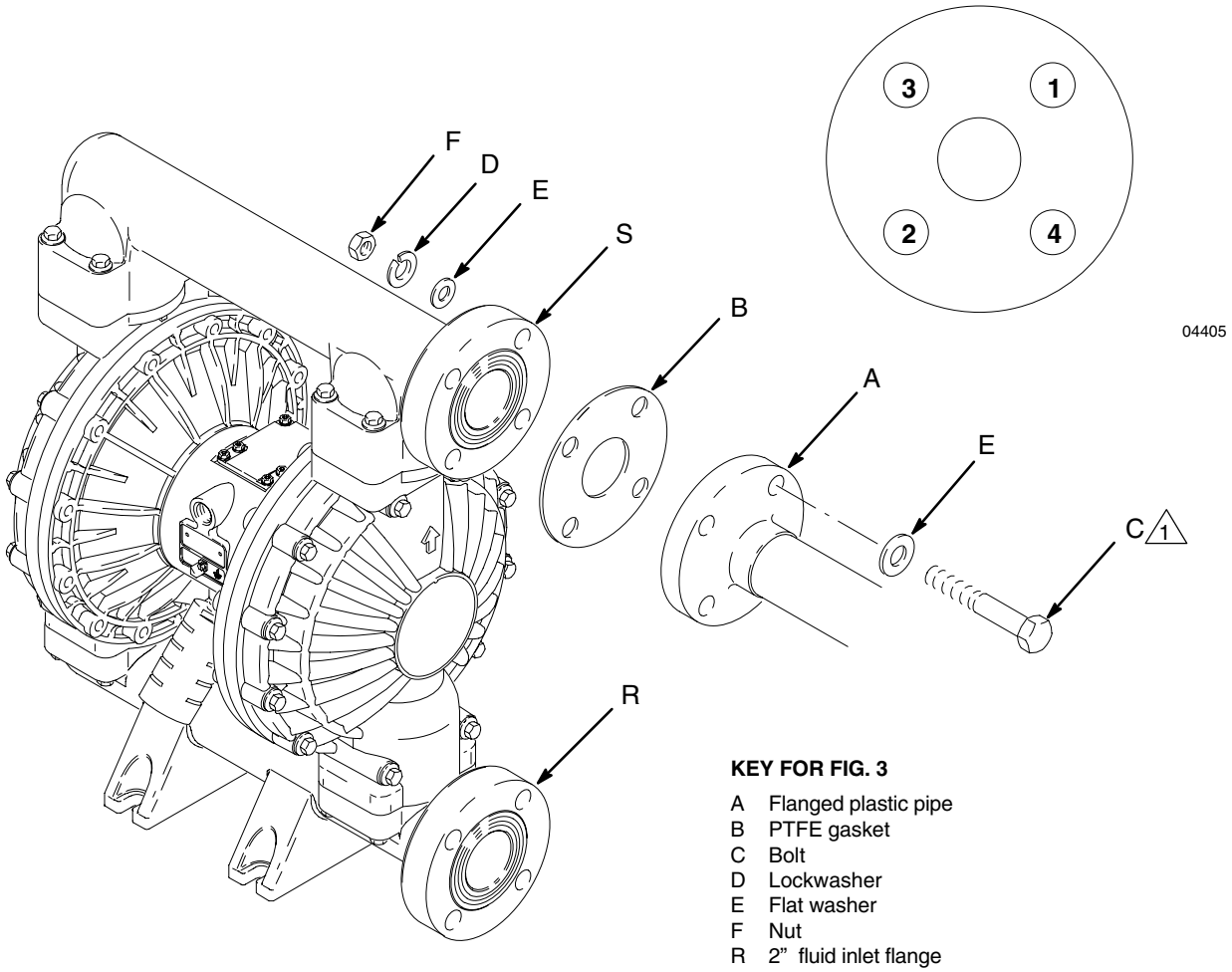
Installation

Flange Connections

The fluid inlet and outlet ports are 2” raised face, standard 150 lb class pipe flanges. Connect 2” flanged plastic pipe to the pump as follows. You will need:

- Torque wrench
- Adjustable wrench
- 6” diameter, 1/8” thick PTFE gasket, with four 0.75” diameter holes on a 4.75” diameter bolt circle, and a 2.20” diameter center
- Four 5/8” x 3” bolts
- Four 5/8” spring lockwashers
- Eight 5/8” flat washers
- Four 5/8” nuts.

1. Place a flat washer (E) on each bolt (C). Refer to Fig. 3.
2. Align the holes in the gasket (B) and the pipe flange (A) with the holes in the pump outlet flange (S).
3. Lubricate the threads of the four bolts. Install the bolts through the holes and secure with the washers (E), lockwashers (D), and nuts (F).
4. Hold the nuts with a wrench. Refer to the tightening sequence in Fig. 3 and torque the bolts to 20–30 ft-lb (27–41 N•m). ***Do not over-torque.***
5. Repeat for the pump inlet flange (R).



KEY FOR FIG. 3

A Flanged plastic pipe
B PTFE gasket
C Bolt
D Lockwasher
E Flat washer
F Nut
R 2” fluid inlet flange
S 2” fluid outlet flange

1 Lubricate threads. Torque to 20–30 ft-lb (27–41 N•m). Do not over-torque.

04615B

Fig. 3

Installation

Changing the Orientation of the Fluid Inlet and Outlet Ports

The pump is shipped with the fluid inlet (R) and outlet (S) ports facing the same direction. See Fig. 4. To change the orientation of the inlet and/or outlet port:

1. Remove the screws and washers (106, 112, 113 and 114) holding the inlet (102) and/or outlet (103) manifold to the covers (101).

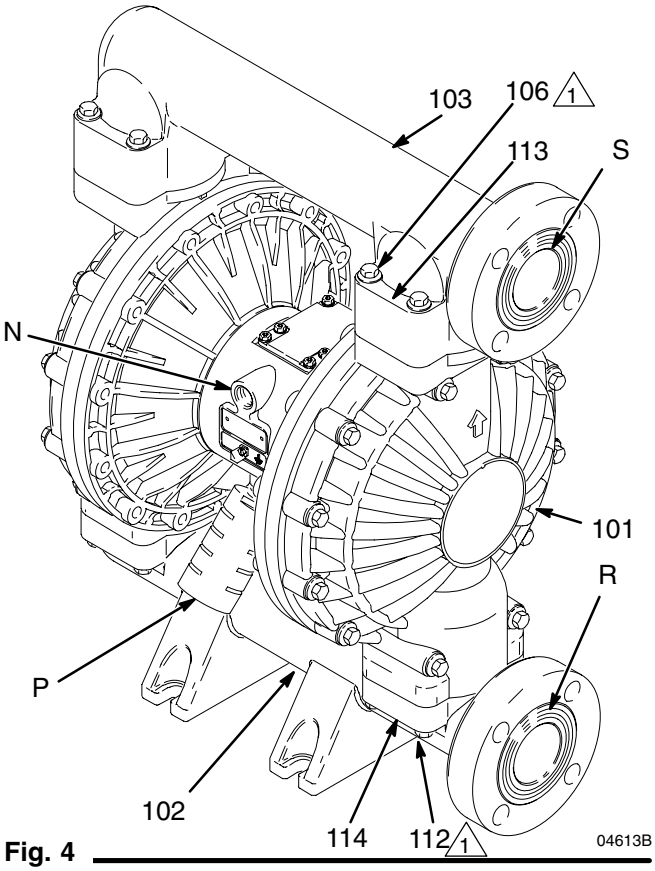
2. Reverse the manifold and reattach. Install the screws and washers and torque to 150–160 in–lb (17–18 N•m). See **Torque Sequence**, page 30.

KEY

N 1/2 npt(f) air inlet port
P Muffler
Air exhaust port is 3/4 npt(f) .
R 2” fluid inlet flange
S 2” fluid outlet flange

△1 Torque to 150–160 in–lb (17–18 N•m). See **Torque Sequence**, page 30.

101 Fluid covers
102 Fluid inlet manifold
103 Fluid outlet manifold
106 Fluid outlet manifold screws (top)
112 Fluid inlet manifold screws (bottom)
113 Fluid outlet manifold washer
114 Fluid inlet manifold washer



04613B

Fig. 4

Fluid Pressure Relief Valve

⚠ CAUTION

Some systems may require installation of a pressure relief valve at the pump outlet to prevent overpressurization and rupture of the pump or hose. See Fig. 5.

Thermal expansion of fluid in the outlet line can cause overpressurization. This can occur when using long fluid lines exposed to sunlight or ambient heat, or when pumping from a cool to a warm area (for example, from an underground tank).

Overpressurization can also occur if the Husky pump is being used to feed fluid to a piston pump, and the intake valve of the piston pump does not close, causing fluid to back up in the outlet line.

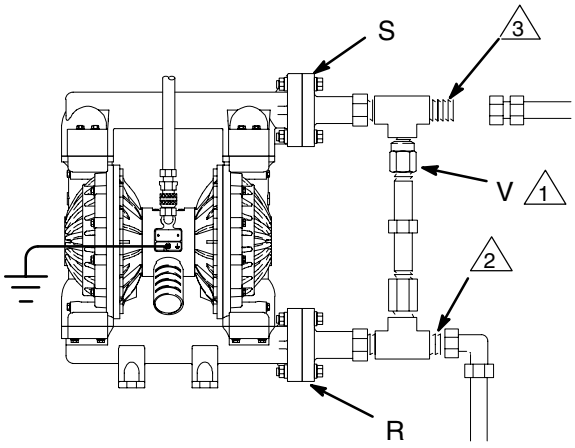
KEY

R 2” fluid inlet flange
S 2” fluid outlet flange
V Pressure relief valve
Part No. 112119 (stainless steel)

△1 Install valve between fluid inlet and outlet ports.

△2 Connect fluid inlet line here.

△3 Connect fluid outlet line here.



04616B

Fig. 5

Installation

Air Exhaust Ventilation

⚠ WARNING

FIRE AND EXPLOSION HAZARD
Be sure to read and follow the warnings and precautions regarding **TOXIC FLUID HAZARD,** and **FIRE OR EXPLOSION HAZARD** on page 4, before operating this pump.

Be sure the system is properly ventilated for your type of installation. You must vent the exhaust to a safe place, away from people, animals, food handling areas, and all sources of ignition when pumping flammable or hazardous fluids.

Diaphragm failure will cause the fluid being pumped to exhaust with the air. Place an appropriate container at the end of the air exhaust line to catch the fluid. See Fig. 6.

The air exhaust port is 3/4 npt(f). Do not restrict the air exhaust port. Excessive exhaust restriction can cause erratic pump operation.

If the muffler (P) is installed directly to the air exhaust port, apply PTFE thread tape or anti–seize thread lubricant to the muffler threads before assembly.

To provide a remote exhaust:

1. Remove the muffler (P) from the pump air exhaust port.

2. Install an electrically conductive air exhaust hose (T) and connect the muffler (P) to the other end of the hose. The minimum size for the air exhaust hose is 3/4 in. (19 mm) ID. If a hose longer than 15 ft (4.57 m) is required, use a larger diameter hose. Avoid sharp bends or kinks in the hose. See Fig. 6.

3. Place a container (U) at the end of the air exhaust line to catch fluid in case a diaphragm ruptures.

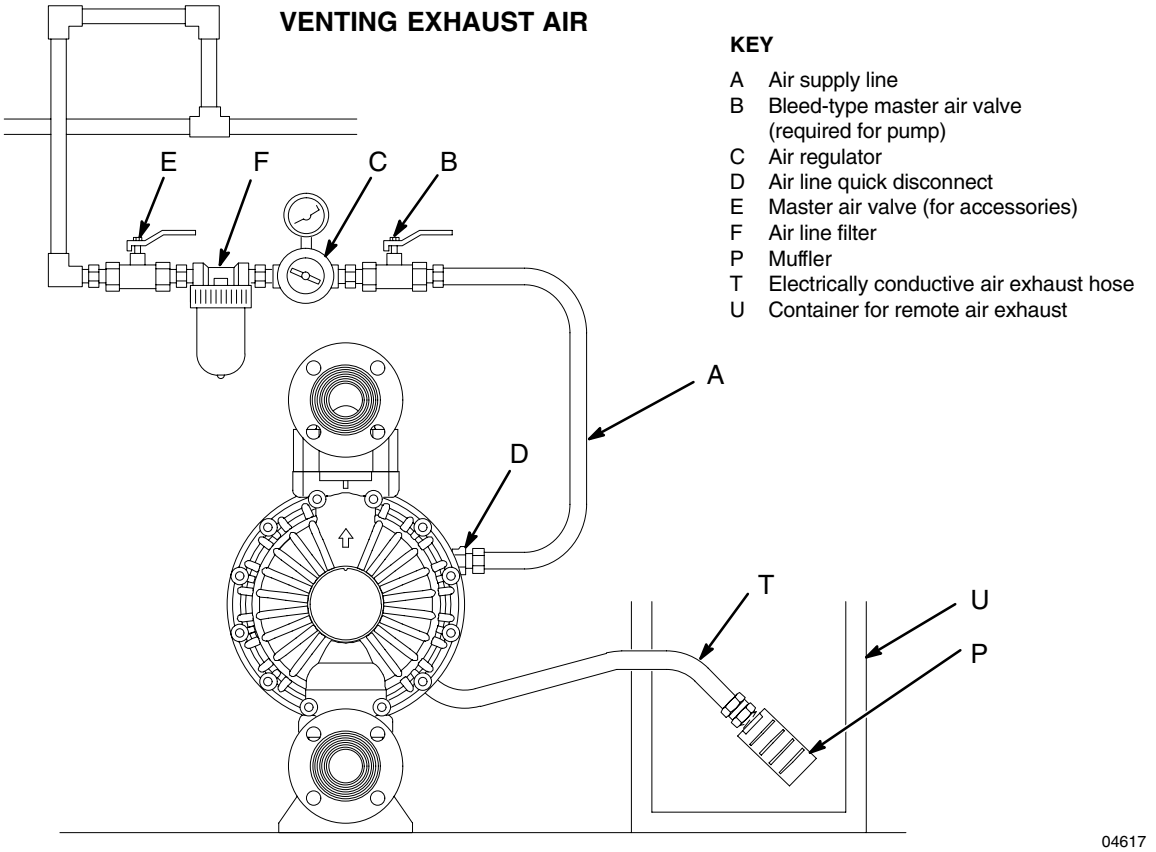


Fig. 6

Operation

Pressure Relief Procedure

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD
The equipment stays pressurized until pressure is manually relieved. To reduce the risk of serious injury from pressurized fluid, accidental spray from the gun or splashing fluid, follow this procedure whenever you:

- Are instructed to relieve pressure,
- Stop pumping,
- Check, clean or service any system equipment,
- Install or clean fluid nozzles.

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

Flush the Pump Before First Use

The pump was tested with lightweight oil, which is left in the fluid passages to protect parts. To avoid contaminating your fluid with oil, flush the pump with a compatible solvent before using the equipment. Follow the steps under **Starting and Adjusting the Pump**.

Starting and Adjusting the Pump

⚠ WARNING

TOXIC FLUID HAZARD
Hazardous fluid or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, inhaled, or swallowed. Do not lift a pump under pressure. If dropped, the fluid section may rupture. Always follow the **Pressure Relief Procedure** above before lifting the pump.

1. Be sure the pump is properly grounded. Refer to **Grounding** on page 6.
2. Check all fittings to be sure they are tight. Be sure to use a compatible liquid thread sealant on all male threads. Tighten the fluid inlet and outlet fittings securely.
3. Place the suction tube (if used) in the fluid to be pumped.

NOTE: If the fluid inlet pressure to the pump is more than 25% of the outlet working pressure, the ball check valves will not close fast enough, resulting in inefficient pump operation.

4. Place the end of the fluid hose (L) into an appropriate container.
5. Close the fluid drain valve (J). See Fig. 2.
6. With the pump air regulator (C) closed, open all bleed-type master air valves (B, E).
7. If the fluid hose has a dispensing device, hold it open while continuing with the following step.
8. Slowly open the air regulator (C) until the pump starts to cycle. Allow the pump to cycle slowly until all air is pushed out of the lines and the pump is primed.

   If you are flushing, run the pump long enough to thoroughly clean the pump and hoses. Close the air regulator. Remove the suction tube from the solvent and place it in the fluid to be pumped.

Operation

Operation of Remote Piloted Pumps

1. Fig. 2 and Parts Drawings. Follow preceding steps 1 through 7 of **Starting and Adjusting Pump**.

2. Open air regulator (C).

⚠ WARNING

The pump may cycle once before the external signal is applied. Injury is possible. If pump cycles, wait until end before proceeding.

3. Pump will operate when air pressure is alternately applied and relieved to push type connectors (14).

NOTE: Leaving air pressure applied to the air motor for extended periods when the pump is not running may shorten the diaphragm life. Using a 3–way solenoid valve to automatically relieve the pressure on the air motor when the metering cycle is complete prevents this from occurring.

Pump Shutdown

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** at left.

At the end of the work shift, relieve the pressure.

Maintenance

Lubrication

The air valve is designed to operate unlubricated. However, if lubrication is desired, every 500 hours of operation (or monthly) remove the hose from the pump air inlet and add two drops of machine oil to the air inlet.

⚠ CAUTION

Do not over-lubricate the pump. Oil is exhausted through the muffler, which could contaminate your fluid supply or other equipment. Excessive lubrication can also cause the pump to malfunction.

Flushing and Storage

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 12.

Flush the pump often enough to prevent the fluid you are pumping from drying or freezing in the pump and damaging it. Flush with a fluid that is compatible with the fluid you are pumping and with the wetted parts in your system. Check with your fluid manufacturer or supplier for recommended flushing fluids and flushing frequency.

Always flush the pump and relieve the pressure before storing it for any length of time.

Tightening Threaded Connections

Before each use, check all hoses for wear or damage, and replace as necessary. Check to be sure all threaded connections are tight and leak free. Check fasteners. Tighten or retorque as necessary. Although pump use varies, a general guideline is to retorque fasteners every two months. See **Torque Sequence**, page 30.

Preventive Maintenance Schedule

Establish a preventive maintenance schedule, based on the pump's service history. This is especially important for prevention of spills or leakage due to diaphragm failure.

Troubleshooting

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 12.

1. Relieve the pressure before checking or servicing the equipment.

2. Check all possible problems and causes before disassembling the pump.

PROBLEM	CAUSE	SOLUTION
Pump cycles at stall or fails to hold pressure at stall.	Worn check valve balls (301), seats (201) or o-rings (202).	Replace. See page 18.
Pump will not cycle, or cycles once and stops.	Air valve is stuck or dirty.	Disassemble and clean air valve. See pages 16–17. Use filtered air.
	Check valve ball (301) severely worn and wedged in seat (201) or manifold (102 or 103).	Replace ball and seat. See page 18.
	Check valve ball (301) is wedged into seat (201), due to overpressurization.	Install Pressure Relief Valve (see page 10).
	Dispensing valve clogged.	Relieve pressure and clear valve.
Pump operates erratically.	Clogged suction line.	Inspect; clear.
	Sticky or leaking balls (301).	Clean or replace. See page 18.
	Diaphragm ruptured.	Replace. See pages 19–21.
	Restricted exhaust.	Remove restriction.
Air bubbles in fluid.	Suction line is loose.	Tighten.
	Diaphragm ruptured.	Replace. See pages 19–21.
	Loose inlet manifold (102), damaged seal between manifold and seat (201), damaged o-rings (202).	Tighten manifold bolts (112) or replace seats (201) or o-rings (202). See page 18.
	Loose fluid side diaphragm plate (105).	Tighten or replace. See pages 19–21.

Troubleshooting

PROBLEM	CAUSE	SOLUTION
Fluid in exhaust air.	Diaphragm ruptured.	Replace. See pages 19–21.
	Loose fluid side diaphragm plate (105).	Tighten or replace. See pages 19–21.
Pump exhausts excessive air at stall.	Worn air valve block (7), o-ring (6), plate (8), pilot block (18), u-cups (10), or pilot pin o-rings (17).	Inspect; replace. See pages 16–17.
	Worn shaft seals (402).	Replace. See pages 19–21.
Pump leaks air externally.	Air valve cover (2) or air valve cover screws (3) are loose.	Tighten screws. See page 17.
	Air valve gasket (4) or air cover gasket (22) is damaged.	Inspect; replace. See pages 16–17, 22–23.
	Air cover screws (25) are loose.	Tighten screws. See pages 22–23.
Pump leaks fluid externally from ball check valves.	Loose manifolds (102, 103), damaged seal between manifold and seat (201), damaged o-rings (202).	Tighten manifold bolts (106 and 112) or replace seats (201) or o-rings (202). See page 18.

Repairing the Air Valve

Tools Required

- Torque wrench
- Torx (T20) screwdriver or 7 mm (9/32”) socket wrench
- Needle-nose pliers
- O-ring pick
- Lithium base grease

NOTE: Air Valve Repair Kit 236273 is available. Refer to page 26. Parts included in the kit are marked with a symbol, for example (4†). Use all the parts in the kit for the best results.

Disassembly

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 12.

1. **Relieve the pressure.**
2. With a Torx (T20) screwdriver or 7 mm (9/32”) socket wrench, remove the six screws (3), air valve cover (2), and gasket (4). See Fig. 7.
3. Move the valve carriage (5) to the center position and pull it out of the cavity. Remove the valve block (7) and o-ring (6) from the carriage. Using a needle-nose pliers, pull the pilot block (18) straight up and out of the cavity. See Fig. 8.
4. Pull the two actuator pistons (11) out of the bearings (12). Remove the u-cup packings (10) from the pistons. Pull the pilot pins (16) out of the bearings (15). Remove the o-rings (17) from the pilot pins. See Fig. 9.
5. Inspect the valve plate (8) in place. If damaged, use a Torx (T20) screwdriver or 7 mm (9/32”) socket wrench to remove the three screws (3). Remove the valve plate (8) and seal (9). See Fig. 10.
6. Inspect the bearings (12, 15) in place. See Fig. 9. The bearings are tapered and, if damaged, must be removed from the outside. This requires disassembly of the fluid section. See page 22.
7. Clean all parts and inspect for wear or damage. Replace as needed. Reassemble as explained on page 17.

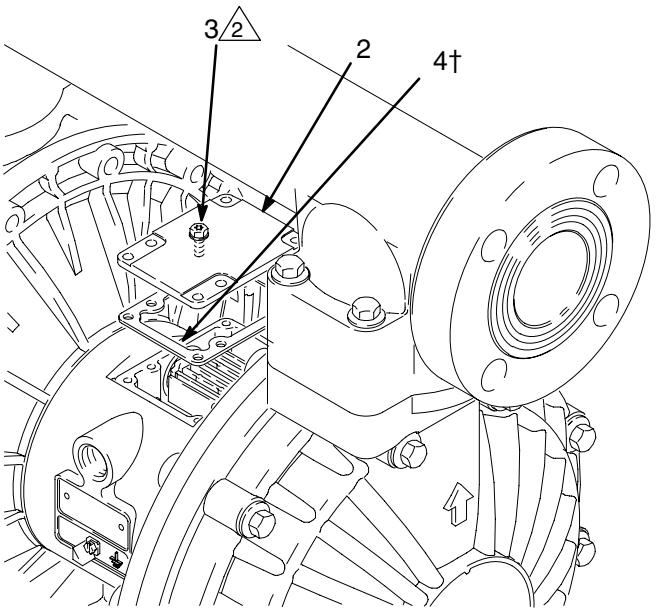


Fig. 7

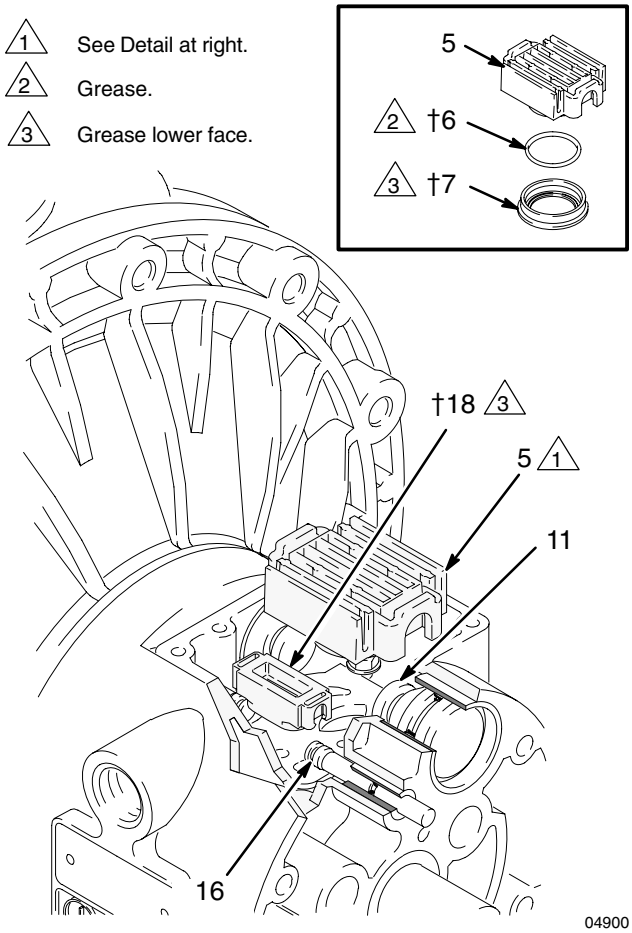


Fig. 8

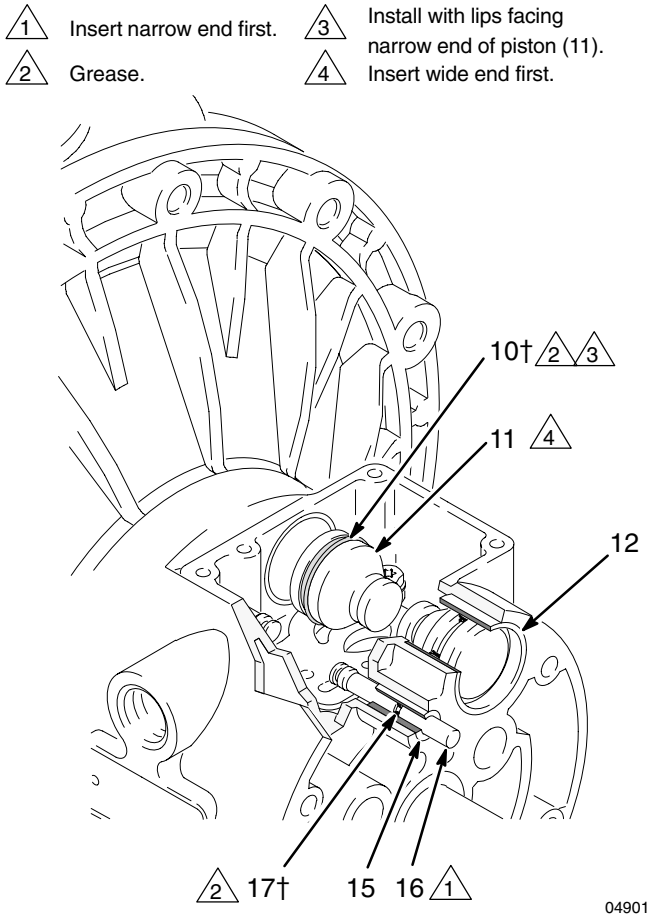


Fig. 9

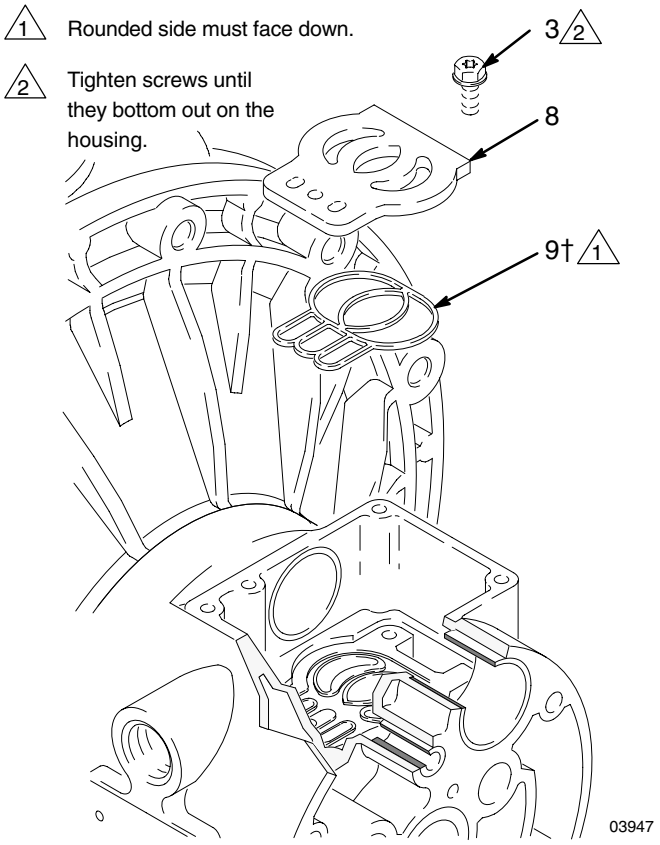


Fig. 10

Reassembly

1. *If you removed the bearings (12, 15),* install new ones as explained on page 22. Reassemble the fluid section.

2. Install the valve plate seal (9†) into the groove at the bottom of the valve cavity. The rounded side of the seal ***must face down*** into the groove. See Fig. 10.

3. Install the valve plate (8) in the cavity. The plate is reversible, so either side can face up. Install the three screws (3), using a Torx (T20) screwdriver or 7 mm (9/32") socket wrench. Tighten until the screws bottom out on the housing. See Fig. 10.

4. Install an o-ring (17†) on each pilot pin (16). Grease the pins and o-rings. Insert the pins into the bearings (15), ***narrow*** end first. See Fig. 9.

5. Install a u-cup packing (10†) on each actuator piston (11), so the lips of the packings face the ***narrow*** end of the pistons. See Fig. 9.

6. Lubricate the u-cup packings (10†) and actuator pistons (11). Insert the actuator pistons in the bearings (12), ***wide*** end first. Leave the narrow end of the pistons exposed. See Fig. 9.

7. Grease the lower face of the pilot block (18†) and install so its tabs snap into the grooves on the ends of the pilot pins (16). See Fig. 8.

8. Grease the o-ring (6†) and install it in the valve block (7†). Push the block onto the valve carriage (5). Grease the lower face of the valve block. See Fig. 8.

9. Install the valve carriage (5) so its tabs slip into the grooves on the narrow end of the actuator pistons (11). See Fig. 8.

10. Align the valve gasket (4†) and cover (2) with the six holes in the center housing (1). Secure with six screws (3), using a Torx (T20) screwdriver or 7 mm (9/32") socket wrench. Torque to 50–60 in-lb (5.6–6.8 N•m). See Fig. 7.

Service

Ball Check Valve Repair

Tools Required

- Torque wrench
- 10 mm socket wrench
- O-ring pick

Disassembly

NOTE: A Fluid Section Repair Kit is available. Refer to page 25 to order the correct kit for your pump. Parts included in the kit are marked with an asterisk, for example (201*). Use all the parts in the kit for the best results.

NOTE: To ensure proper seating of the balls (301), always replace the seats (201) when replacing the balls.

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 12.

1. **Relieve the pressure.** Disconnect all hoses.
2. Remove the pump from its mounting.
3. Using a 10 mm socket wrench, remove the eight bolts (106), and four washers (113), holding the outlet manifold (103) to the fluid covers (101). See Fig. 11.
4. Remove the seats (201), balls (301), and o-rings (202) from the manifold.

NOTE: Some models do not use o-rings (202).

5. Turn the pump over and remove the bolts (112), washers (114), and inlet manifold (102). Remove the seats (201), balls (301), and o-rings (202) from the fluid covers (101).

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. 11. Be sure the ball checks are assembled **exactly** as shown. The arrows (A) on the fluid covers (101) **must** point toward the outlet manifold (103).

△1 Torque to 150–160 in–lb (17–18 N•m). See **Torque Sequence**, page 30.

△2 Arrow (A) must point toward outlet manifold (103).

△3 Not used on some models.

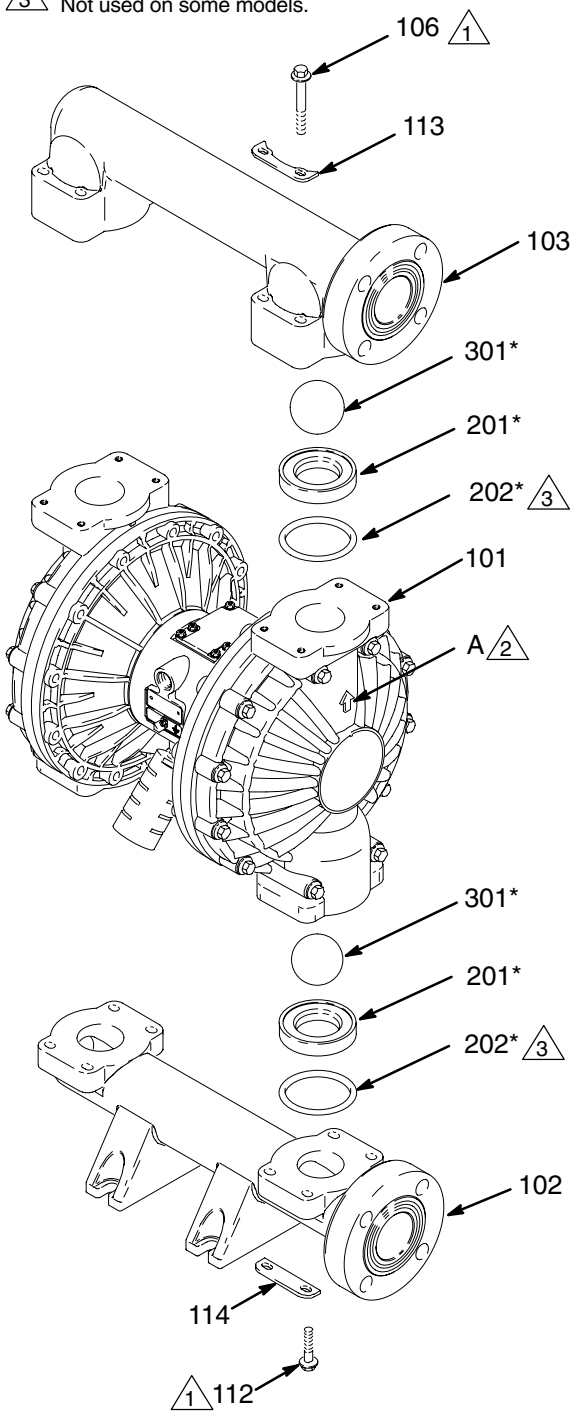


Fig. 11 04619C

Service

Diaphragm Repair

Tools Required

- Torque wrench
- 13 mm socket wrench
- Adjustable wrench
- 19 mm open–end wrench
- O-ring pick
- Lithium-base grease

Disassembly

NOTE: A Fluid Section Repair Kit is available. Refer to page 25 to order the correct kit for your pump. Parts included in the kit are marked with an asterisk, for example (401*). Use all the parts in the kit for the best results.

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 12.

1. **Relieve the pressure.**
2. Remove the manifolds and disassemble the ball check valves as explained on page 18.
3. Using 13 mm socket wrenches, remove the screws (107 and 108) holding the fluid covers (101) to the air covers (23). Pull the fluid covers (101) off the pump. See Fig. 12.

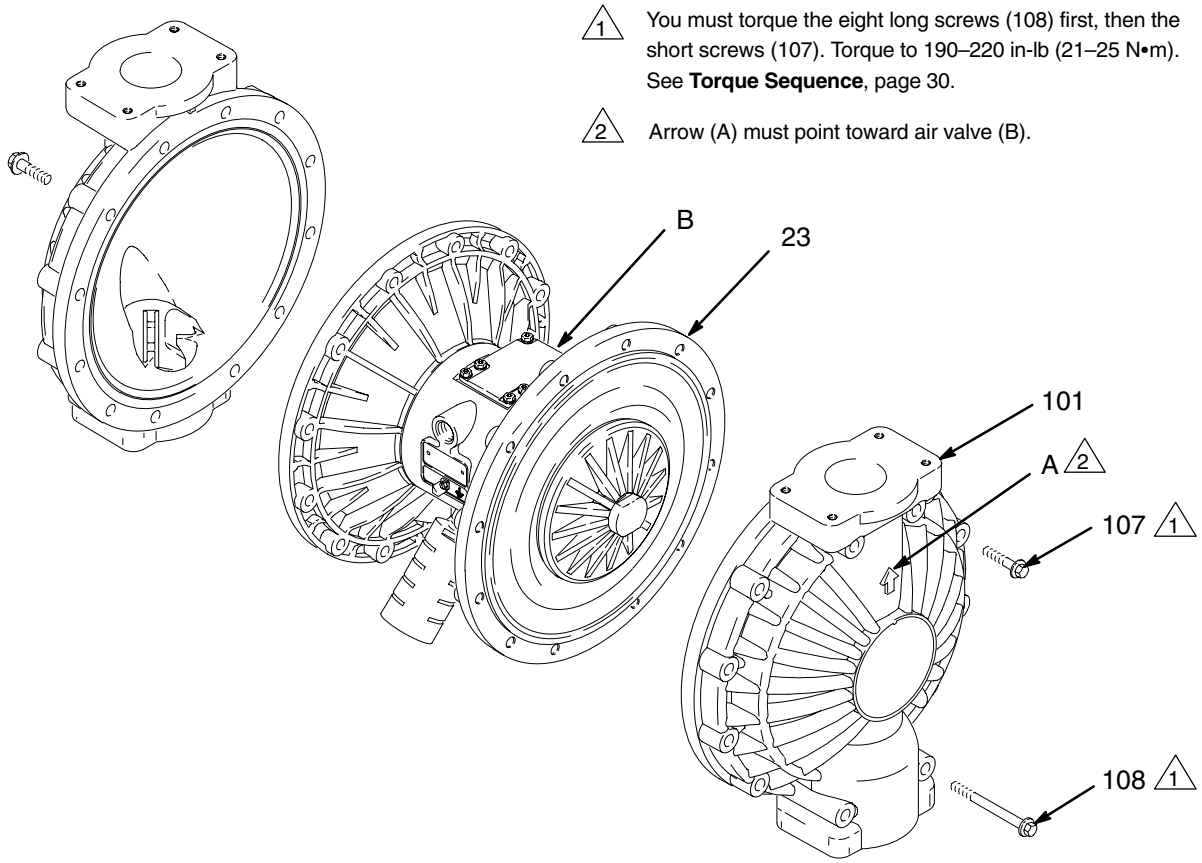


Fig. 12 04620B

4. Unscrew one outer plate (105) from the diaphragm shaft (24). Remove one diaphragm (401), and the inner plate (104). See Fig. 13.

   For overmolded diaphragms: Grip both diaphragms securely around the outer edge and rotate counterclockwise. One diaphragm assembly will come free and the other will remain attached to the shaft. Remove the freed diaphragm and air side plate.

NOTE: PTFE models include a PTFE diaphragm (403) in addition to the backup diaphragm (401).

5. Pull the other diaphragm assembly and the diaphragm shaft (24) out of the center housing (1). Hold the shaft flats with a 19 mm open–end wrench, and remove the outer plate (105) from the shaft. Disassemble the remaining diaphragm assembly.

   For overmolded diaphragms: Pull the other diaphragm assembly and the diaphragm shaft (24) out of the center housing (1). Hold the shaft flats with a 19 mm open–end wrench and remove the diaphragm and air side plate from the shaft.

6. Inspect the diaphragm shaft (24) for wear or scratches. If it is damaged, inspect the bearings (19) in place. If the bearings are damaged, refer to page 22.

7. Reach into the center housing (1) with an o-ring pick and hook the u-cup packings (402), then pull them out of the housing. This can be done with the bearings (19) in place.

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

Reassembly

1. Grease the shaft u-cup packings (402*) and install them so the lips face ***out*** of the housing (1). See Fig. 13.

2. Grease the length and ends of the diaphragm shaft (24) and slide it through the housing (1).

3. Assemble the inner diaphragm plates (104), diaphragms (401*), PTFE diaphragms (403*, if present), and outer diaphragm plates (105) *exactly* as shown in Fig. 13. These parts ***must*** be assembled correctly.

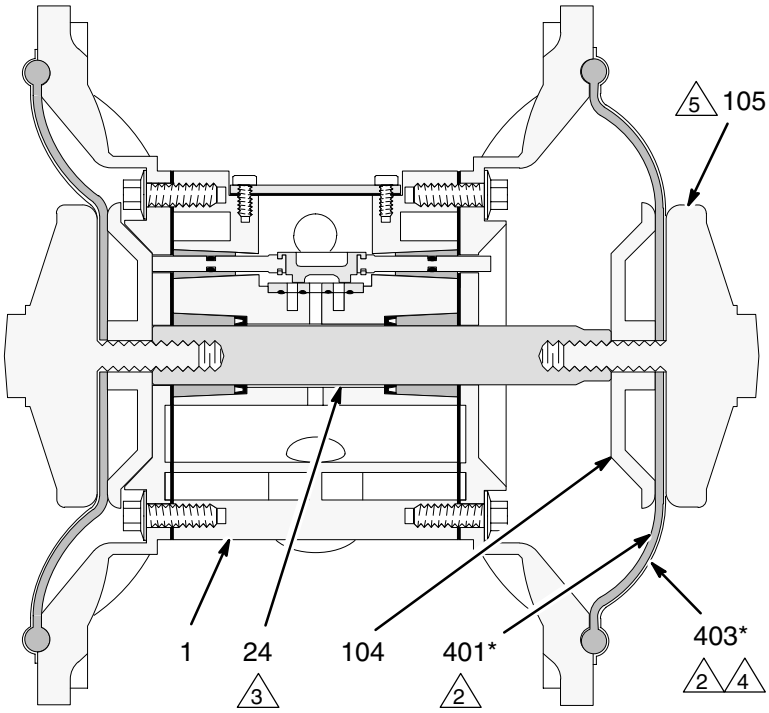
   For overmolded diaphragms: Assemble the air side plate (104) onto the diaphragm (403). The wide, radiused side of the plate must face the diaphragm. Apply medium–strength (blue) Loctite or equivalent to the threads of the diaphragm assembly. Screw the assembly into the shaft (24) hand tight. *NOTE: Step 4 does not apply to pumps with overmolded diaphragms; go to step 5.*

4. Apply medium-strength (blue) Loctite® or equivalent to the threads of the fluid-side plates (105). Hold one of the outer plates (105) with a wrench, and torque the other outer plate to 20 to 25 ft-lb (27 to 34 N-m) at 100 rpm maximum. Do not over-torque.

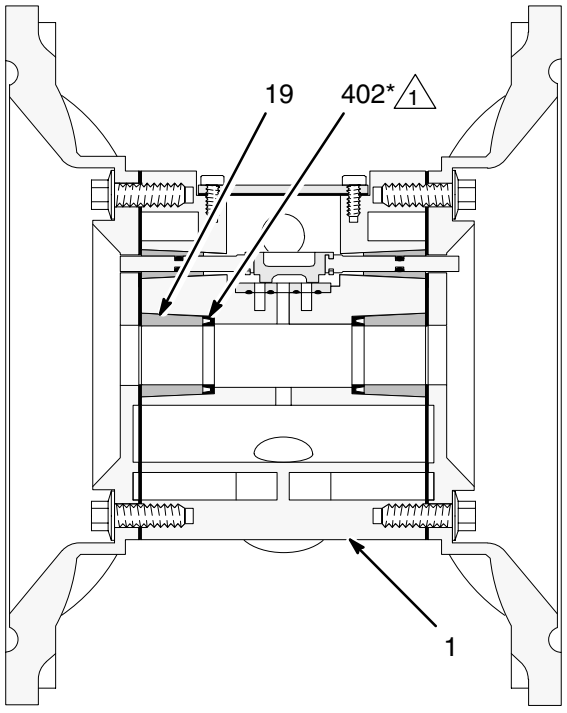
5. Align the fluid covers (101) and the center housing (1) so the arrows (A) on the covers face the same direction as the air valve (B). Secure the covers with the screws (107 and 108), handtight. Install the longer screws (108) in the top and bottom holes of the covers. See Fig. 12.

6. First, torque the longer screws (108) oppositely and evenly to 190–220 in-lb (21–25 N•m), using a 13 mm socket wrench. Then torque the shorter screws (107). See **Torque Sequence**, page 30.

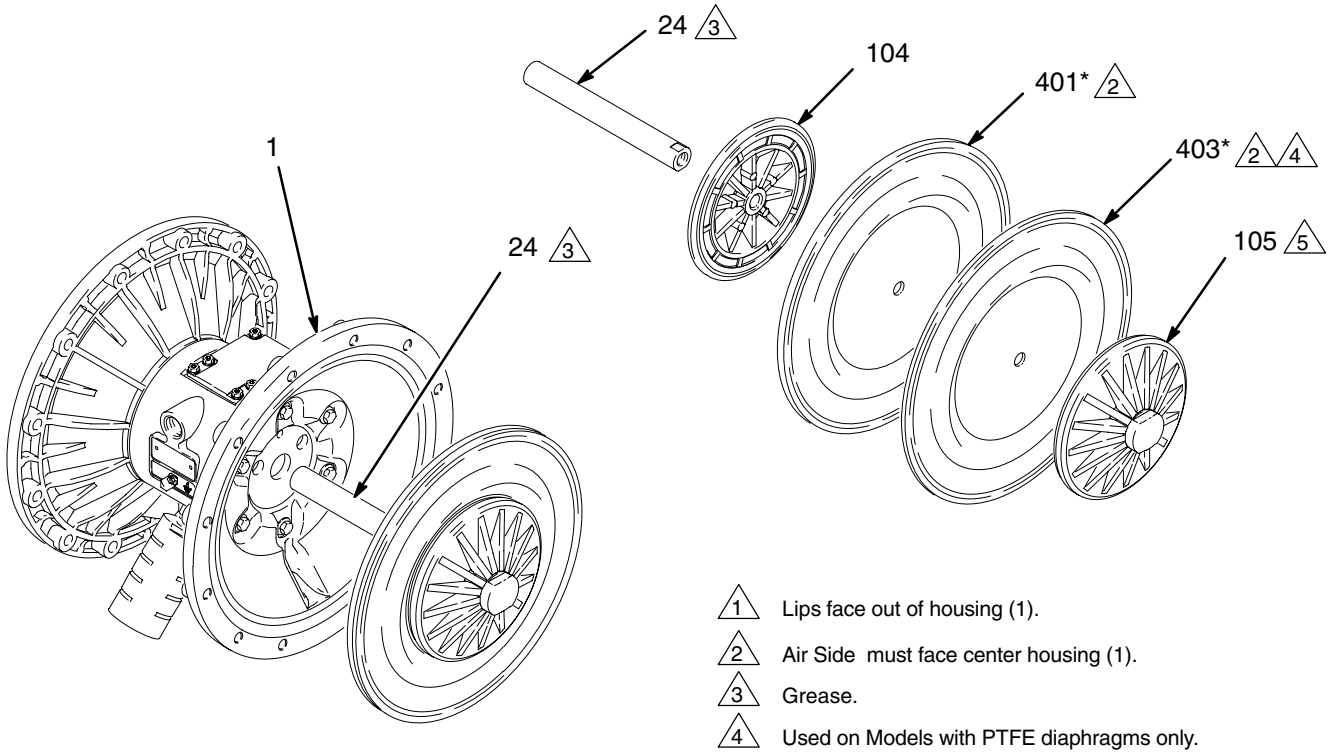
7. Reassemble the ball check valves and manifolds as explained on page 18.



Cutaway View, with Diaphragms in Place



Cutaway View, with Diaphragms Removed



1. Lips face out of housing (1).
2. Air Side must face center housing (1).
3. Grease.
4. Used on Models with PTFE diaphragms only.
5. Apply medium-strength (blue) Loctite® or equivalent. Torque to 20 to 25 ft-lb (27 to 34 N-m) at 100 rpm maximum.

Fig. 13

04621B

Service

Bearing and Air Gasket Removal

Tools Required

- Torque wrench
- 10 mm socket wrench
- Bearing puller
- O-ring pick
- Press, or block and mallet

Disassembly

NOTE: Do not remove undamaged bearings.

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 12.

1. **Relieve the pressure.**
2. Remove the manifolds and disassemble the ball check valves as explained on page 18.
3. Remove the fluid covers and diaphragm assemblies as explained on page 19.

NOTE: If you are removing only the diaphragm shaft bearing (19), skip step 22.

4. Disassemble the air valve as explained on page 16.
5. Using a 10 mm socket wrench, remove the screws (25) holding the air covers (23) to the center housing (1). See Fig. 14.
6. Remove the air cover gaskets (22). Always replace the gaskets with new ones.
7. Use a bearing puller to remove the diaphragm shaft bearings (19), air valve bearings (12) or pilot pin bearings (15). Do not remove undamaged bearings.
8. If you removed the diaphragm shaft bearings (19), reach into the center housing (1) with an o-ring pick and hook the u-cup packings (402), then pull them out of the housing. Inspect the packings. See Fig. 13.

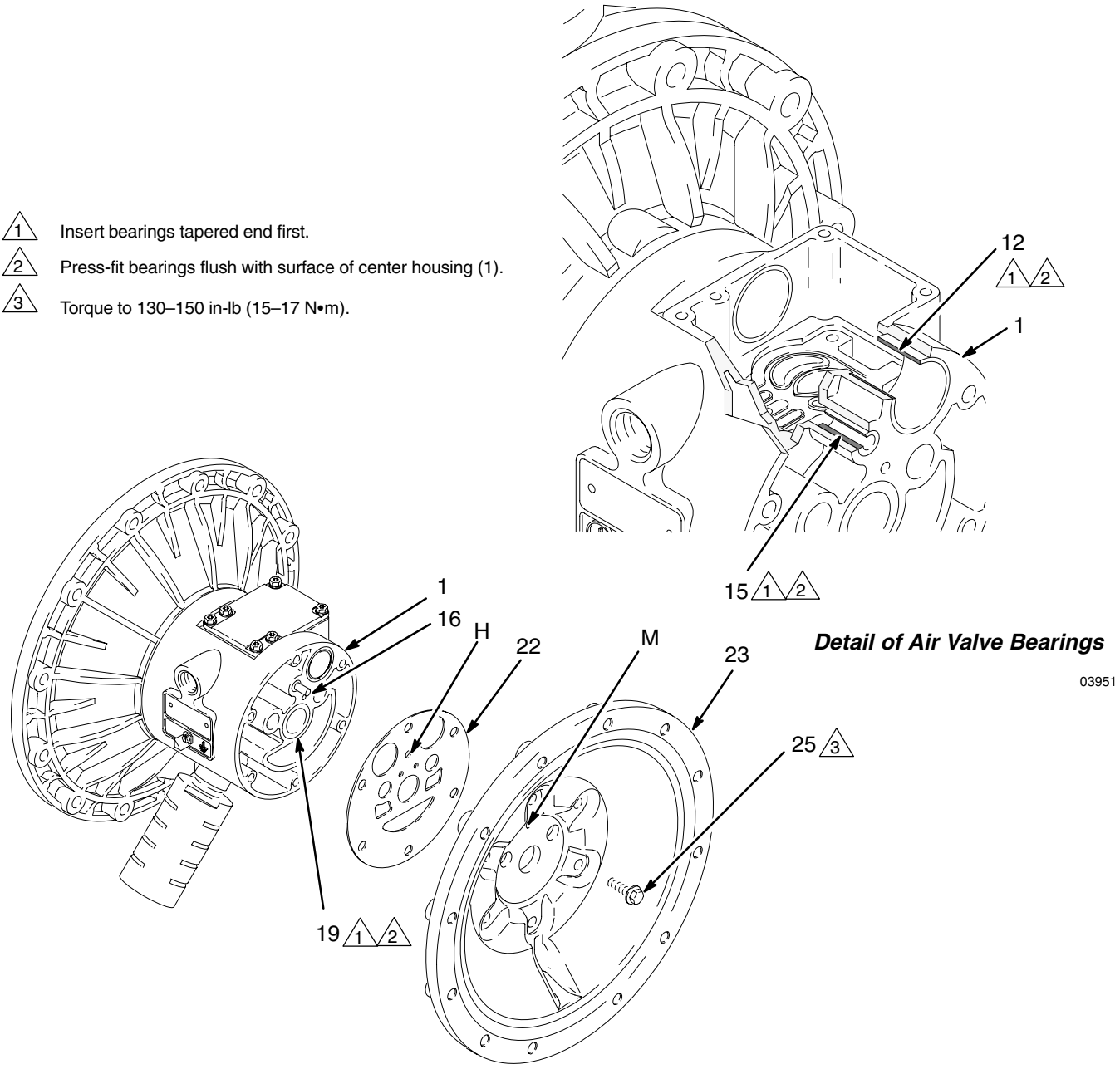
Reassembly

1. If removed, install the shaft u-cup packings (402*) so the lips face ***out*** of the housing (1).
2. The bearings (19, 12, and 15) are tapered and can only be installed one way. Insert the bearings into the center housing (1), ***tapered end first***. Using a press or a block and rubber mallet, press-fit the bearing so it is flush with the surface of the center housing.
3. Reassemble the air valve as explained on page 17.
4. Align the new air cover gasket (22) so the pilot pin (16) protruding from the center housing (1) fits through the proper hole (H) in the gasket.
5. Align the air cover (23) so the pilot pin (16) fits in the middle hole (M) of the three small holes near the center of the cover. Install the screws (25), handtight. See Fig. 14. Using a 10 mm socket wrench, torque the screws oppositely and evenly to 130–150 in-lb (15–17 N•m).
6. Install the diaphragm assemblies and fluid covers as explained on page 19.
7. Reassemble the ball check valves and manifolds as explained on page 18.

1 Insert bearings tapered end first.

2 Press-fit bearings flush with surface of center housing (1).

3 Torque to 130–150 in-lb (15–17 N•m).



Detail of Air Valve Bearings

03951

Fig. 14

03952B

Pump Matrix

Husky 2150 Polypropylene and PVDF Pumps, Series A

Your Model No. is marked on the pump's serial plate. To determine the Model No. of your pump from the following matrix, select the six digits which describe your pump, working from left to right. The first digit is always **D**, designating Husky diaphragm pumps. The remaining five digits define the materials of construction. For example, a pump with a Husky 2150 aluminum air motor, polypropylene fluid section, polypropylene seats, PTFE balls, and PTFE diaphragms is Model **D F 2 9 1 1.** To order replacement parts, refer to the part lists on pages 26–28. *The digits in the matrix **do not** correspond to the ref. nos. in the parts drawing and lists.*

Diaphragm Pump	Air Motor	Fluid Section	–	Seats	Balls	Diaphragms
232504*	aluminum	polypropylene	–	polypropylene	PTFE	Fluoroelastomer
D (for all pumps)	F aluminum (standard)	1 (not used)	–	1 (not used)	1 (PTFE)	1 (PTFE)
24B762*	G aluminum (remote)	2 (polypropylene)	–	2 (not used)	2 (Acetal)	2 (not used)
24B763*	V SST (standard)	3 (aluminum; see manual 308368)	–	3 (316 SST)	3 (not used)	3 (not used)
24B764*		4 (SST; see manual 308368)	–	4 (17–4 PH SST)	4 (440C SST)	4 (not used)
24B765*		5 (PVDF)	–	5 (TPE)	5 (TPE)	5 (TPE)
24B833*			–	6 (Santoprene®)	6 (Santoprene®)	6 (Santoprene®)
			–	7 (Buna–N)	7 (Buna–N)	7 (Buna–N)
			–	8 (Fluoroelastomer)	8 (Fluoroelastomer)	8 (Fluoroelastomer)
			–	9 (polypropylene)		
			–	A (PVDF)		
			–	G (Geolast®)	G (Geolast®)	G (Geolast®)

*** 232504, Polypropylene 2150 Pump, Series C**
Model No. 232504 is a private-label polypropylene 2150 pump. This pump is the same as Model No. DF2918 except for the label and:
Ref. Nos. 10 and 402 are 115666 Packing, U–cup, Fluoroelastomer
Ref. No. 17 is 168518 O–ring, Fluoroelastomer
Use 243492 as the Air Valve Repair Kit

246452 Stainless Steel Air Motor Conversion Kit
Use kit 246452 and refer to manual 309643 (included with kit) to convert from aluminum air motor to stainless steel air motor.

*** 24B762 PVDF Plus Pump**
This pump is the same as Model DV5A11 except for the serial plate and parts listed in the chart at right.

*** 24B763 Polypropylene Plus Pump**
This pump is the same as Model DV2911 except for the serial plate and parts listed in the chart at right.

*** 24B764 Polypropylene Pump**
This pump is the same as Model DF2911 except for the serial plate and parts listed in the chart below.

*** 24B765 Polypropylene Pump**
This pump is the same as Model DF2311 except for the serial plate and parts listed in the chart below.

*** 24B833 PVDF Pump**
This pump is the same as Model DF5A11 except for the serial plate and parts listed in the chart below.

Ref. No.	Part No.	Description	Qty
104	15H811	PLATE, air side; alum.	2
105	——	not used	0
401	15G746	DIAPHRAGM, HD, overmolded; PTFE/EPDM	2

Repair Kit Matrix

For Husky 2150 Polypropylene and PVDF Pumps, Series A

Repair Kits may be ordered separately. To repair the air valve, order **Part No. 236273** (see page 26). Parts included in the Air Valve Repair Kit are marked with a symbol in the parts list, for example (4†).

To repair your pump, select the six digits which describe your pump from the following matrix, working from left to right. The first digit is always **D**, the second digit is always **0** (zero), and the third is always **G**. The remaining three digits define the materials of construction. Parts included in the kit are marked with an asterisk in the parts list, for example (201*). For example, if your pump has polypropylene seats, PTFE balls, and PTFE diaphragms, order Repair Kit **D 0 G 9 1 1.** If you only need to repair certain parts (for example, the diaphragms), use the 0 (null) digits for the seats and balls, and order Repair Kit **D 0 G 0 0 1.** *The digits in the matrix **do not** correspond to the ref. nos. in the parts drawing and lists on pages* 26–28*.*

Diaphragm Pump	Null	Fluid Section Material	–	Seats	Balls	Diaphragms
D (for all pumps)	0 (for all pumps)	G (Plastic)	–	0 (null)	0 (null)	0 (null)
			–	1 (not used)	1 (PTFE)	1 (PTFE)
			–	2 (not used)	2 (Acetal)	2 (not used)
			–	3 (316 SST)	3 (not used)	3 (not used)
			–	4 (17–4 PH SST)	4 (440C SST)	4 (not used)
			–	5 (TPE)	5 (TPE)	5 (TPE)
			–	6 (Santoprene®)	6 (Santoprene®)	6 (Santoprene®)
			–	7 (Buna–N)	7 (Buna–N)	7 (Buna–N)
			–	8 (Fluoroelastomer)	8 (Fluoroelastomer)	8 (Fluoroelastomer)
			–	9 (polypropylene)		
			–	A (PVDF)		
			–	G (Geolast®)	G (Geolast®)	G (Geolast®)

Part No. 253628: Husky 2150 HD Overmolded PTFE/EPDM Diaphragm Repair Kit.

Part No. 289226: Husky 2150 HD Overmolded PTFE/EPDM Diaphragm Repair Kit, with new air side diaphragm plates.

Part No. 24F399: Husky 2150 PTFE/Santoprene Backer Diaphragm Repair Kit, for plastic pumps.

Parts

Air Motor Parts List (Matrix Column 2)

Digit	Ref. No.	Part No.	Description	Qty
F	1	188838	HOUSING, center; aluminum	1
	2	188854	COVER, air valve; aluminum	1
	3	116344	SCREW, mach, hex flange hd; M5 x 0.8; 12 mm (0.47 in.)	9
	4†	188618	GASKET, cover; foam	1
	5	188855	CARRIAGE; aluminum	1
	6†	108730	O-RING; nitrile	1
	7†	188616	BLOCK, air valve; acetal	1
	8	188615	PLATE, air valve; sst	1
	9†	188617	SEAL, valve plate; buna-N	1
	10†	112181	PACKING, u-cup; nitrile	2
	11	188612	PISTON, actuator; acetal	2
	12	188613	BEARING, piston; acetal	2
	13≠	104765	PLUG, pipe; headless	2
	14≠	115671	FITTING, connector; male	2
	15	188611	BEARING, pin; acetal	2
	16	188610	PIN, pilot; stainless steel	2
	17†	157628	O-RING; buna-N	2
	18†	188614	BLOCK, pilot; acetal	1
	19	188609	BEARING, shaft; acetal	2
	20	116343	SCREW, grounding	1
	22	188603	GASKET, air cover; foam	2
	23	189300	COVER, air; aluminum	2
	24	189304	SHAFT, diaphragm; sst	1
	25	115643	SCREW; M8 x 1.25; 25 mm (1 in.)	12

Digit	Ref. No.	Part No.	Description	Qty
G	Same as F with the following exceptions			
	1	195921	HOUSING, center; remote, aluminum	1
	23	195919	COVER, air; remote	2
V	Same as F with the following exceptions			
	1	15A734	HOUSING, center; stainless steel	1
	2	15A735	COVER, air valve; stainless steel	1
	23	15A742	COVER, air; stainless steel	2

Parts

Fluid Section Parts List (Matrix Column 3)

Digit	Ref. No.	Part No.	Description	Qty
2	101	189793	COVER, fluid; polypropylene	2
	102	189787	MANIFOLD, inlet; polypropylene	1
	103	189790	MANIFOLD, outlet; polypropylene	1
	104	189298	PLATE, air side; aluminum	2
	105	189796	PLATE, fluid side; polypropylene	2
	106	112560	SCREW; M8 x 1.25; 70 mm (2.76 in.); sst	8
	107	112368	SCREW; M10 x 1.50; 60 mm (2.36 in.); sst	16
	108	114181	SCREW; M10 x 1.50; 110 mm (4.33 in.); sst	8
	110 ▲	188621	LABEL, warning	1
	111	102656	MUFFLER	1
	112	112559	SCREW; M8 x 1.25; 40 mm (1.57 in.); sst	8
	113	15J379	WASHER, manifold; outlet	4
	114	15J380	WASHER, manifold; inlet	4

5	101	189795	COVER, fluid; PVDF	2
	102	189789	MANIFOLD, inlet; PVDF	1
	103	189792	MANIFOLD, outlet; PVDF	1
	104	189298	PLATE, air side; aluminum	2
	105	189798	PLATE, fluid side; PVDF	2
	106	112560	SCREW; M8 x 1.25; 70 mm (2.76 in.); sst	8
	107	112368	SCREW; M10 x 1.50; 60 mm (2.36 in.); sst	16
	108	114181	SCREW; M10 x 1.50; 110 mm (4.33 in.); sst	8
	110 ▲	188621	LABEL, warning	1
	111	102656	MUFFLER	1
	112	112559	SCREW; M8 x 1.25; 40 mm (1.57 in.); sst	8
	113	15J379	WASHER, manifold; outlet	4
	114	15J380	WASHER, manifold; inlet	4

Parts

Seat Parts List (Matrix Column 4)

Digit	Ref. No.	Part No.	Description	Qty
3	201*	189288	SEAT; 316 stainless steel	4
	202*	112358	O-RING; PTFE	4
4	201*	189289	SEAT; 17–4 stainless steel	4
	202*	112358	O-RING; PTFE	4
5	201*	189292	SEAT; TPE	4
	202	None	Not Used	0
6	201*	189290	SEAT; Santoprene	4
	202*	112358	O-RING; PTFE	4
7	201*	15B267	SEAT; Buna–N	4
	202	None	Not used	0
8	201*	15B265	SEAT; Fluoroelastomer	4
	202	None	Not used	0
9	201*	189291	SEAT; polypropylene	4
	202*	112358	O-RING; PTFE	4
A	201*	189745	SEAT; PVDF	4
	202*	112358	O-RING; PTFE	4
G	201*	194215	SEAT; Geolast	4
	202*	112358	O-RING; PTFE	4

Ball Parts List (Matrix Column 5)

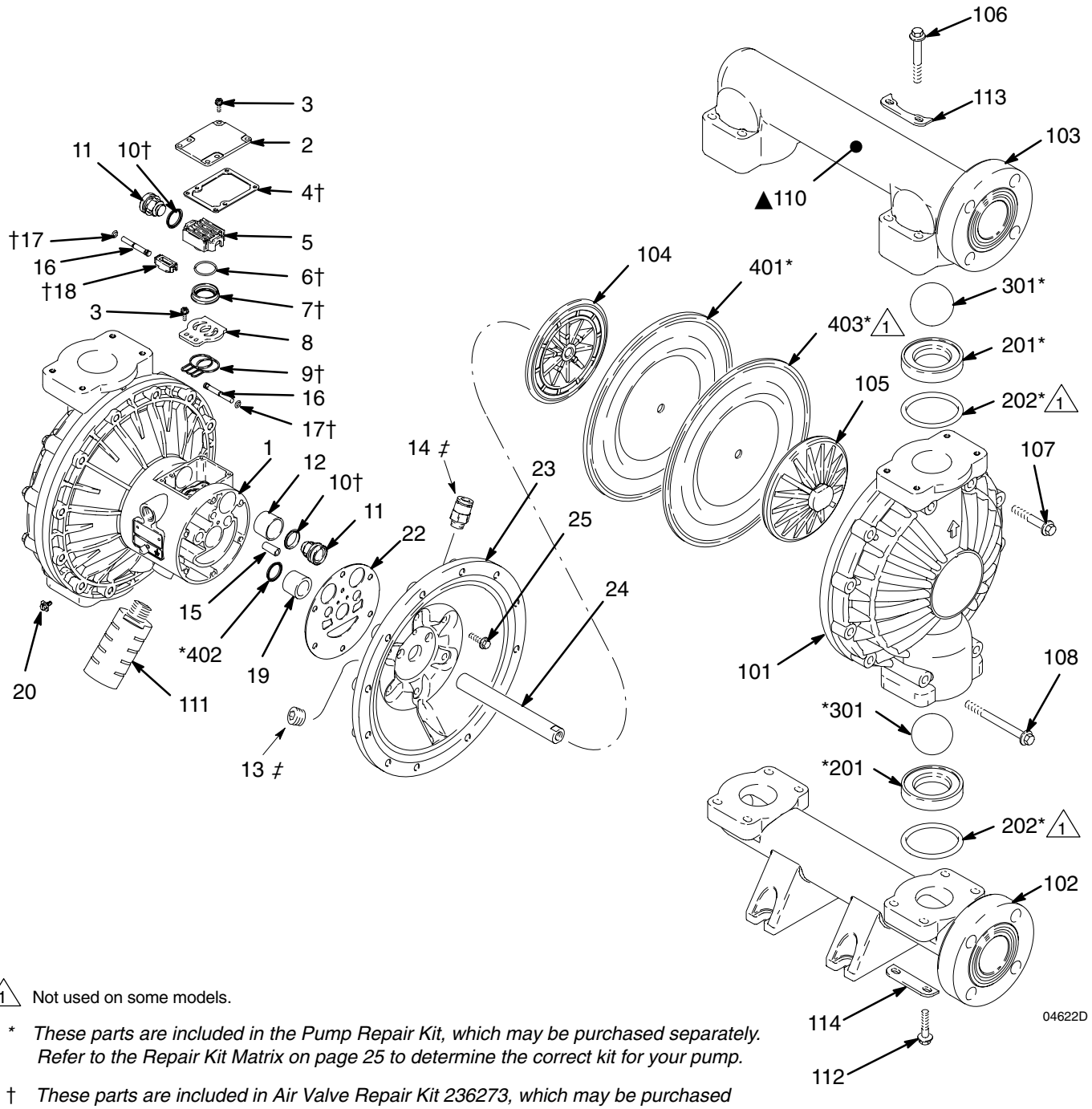
Digit	Ref. No.	Part No.	Description	Qty
1	301*	112359	BALL; PTFE	4
2	301*	112363	BALL; acetal	4
4	301*	112360	BALL; 440C stainless steel	4
5	301*	112745	BALL; TPE	4
6	301*	112361	BALL; Santoprene	4
7	301*	15B492	BALL; Buna–N	4
8	301*	15B491	BALL; Fluoroelastomer	4
G	301*	114753	BALL; Geolast	4

Diaphragm Parts List (Matrix Column 6)

Digit	Ref. No.	Part No.	Description	Qty
1	401*	not sold separately	DIAPHRAGM, backup; polychloroprene (CR)	2
	402*	112181	PACKING, u-cup; nitrile	2
	403*	15K313	DIAPHRAGM; PTFE	2
5	401*	189295	DIAPHRAGM; TPE	2
	402*	112181	PACKING, u-cup; nitrile	2
6	401*	189296	DIAPHRAGM; Santo-prene	2
	402*	112181	PACKING, u-cup; nitrile	2
7	401*	15B313	DIAPHRAGM; Buna–N	2
	402*	112181	PACKING, u-cup; nitrile	2
8	401*	15B502	DIAPHRAGM; Fluoroe-lastomer	2
	402*	112181	PACKING, u-cup; nitrile	2
G	401*	194216	DIAPHRAGM; Geolast	2
	402*	112181	PACKING, u-cup; nitrile	2

** These parts are included in the pump repair kit, purchased separately. See Repair Kit Matrix on page 25 to determine the correct kit for your pump.*

Parts



1 Not used on some models.

* *These parts are included in the Pump Repair Kit, which may be purchased separately. Refer to the Repair Kit Matrix on page 25 to determine the correct kit for your pump.*

† *These parts are included in Air Valve Repair Kit 236273, which may be purchased separately.*

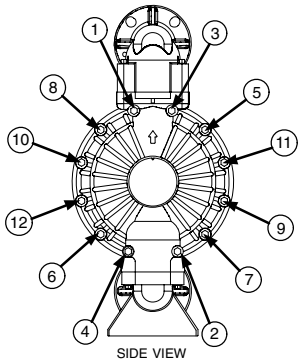
▲ *Replacement Danger and Warning labels, tags and cards are available at no cost.*

≠ *These parts are unique to remote piloted air motor,DG——*

Torque Sequence

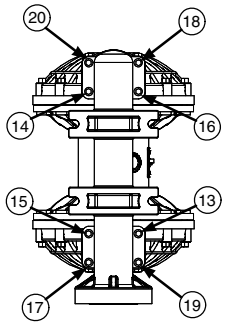
Always follow torque sequence when instructed to torque fasteners.

1. Left/Right Fluid Covers
   Torque bolts to 190–220 in–lb (21–25 N•m)



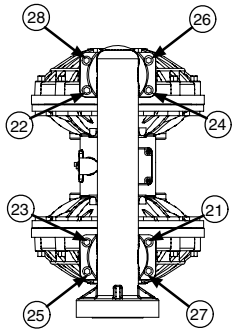
SIDE VIEW

2. Inlet Manifold
   Torque bolts to 150–160 in–lb (17–18 N•m)



BOTTOM VIEW

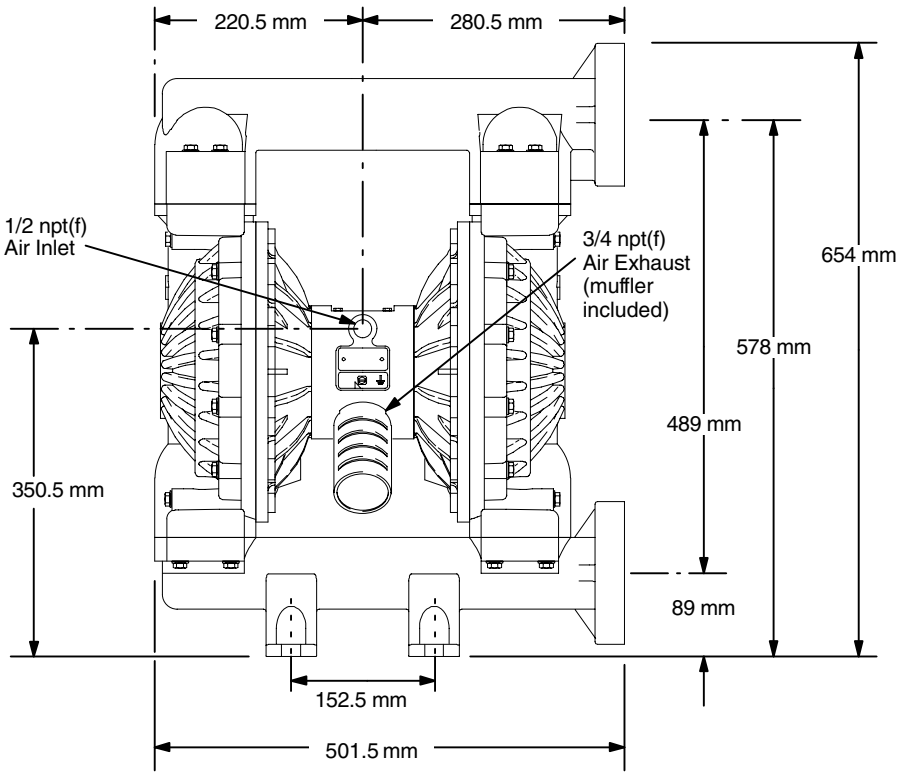
3. Outlet Manifold
   Torque bolts to 150–160 in–lb (17–18 N•m)



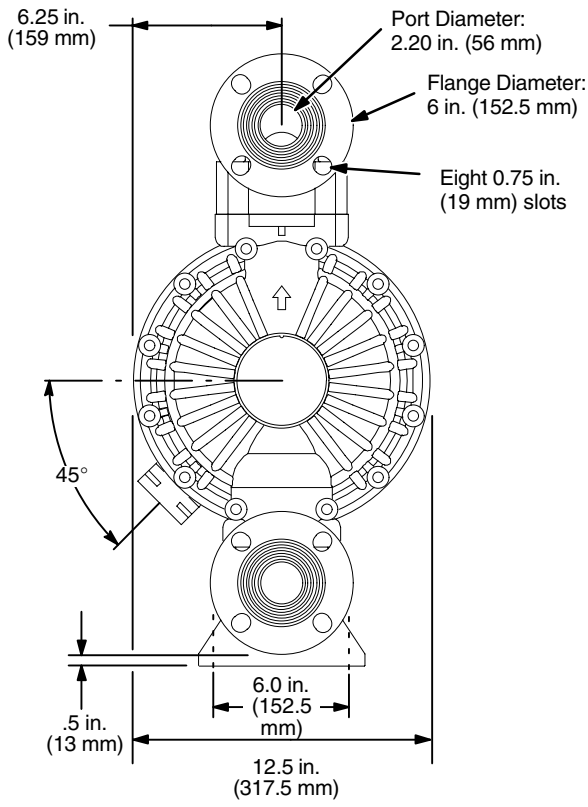
TOP VIEW

Dimensions

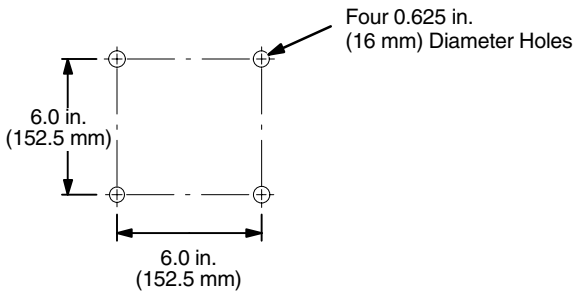
FRONT VIEW



SIDE VIEW



PUMP MOUNTING HOLE PATTERN



7441A

Technical Data

Maximum fluid working pressure	120 psi (0.8 MPa, 8 bar)
Air pressure operating range	20–120 psi (0.14–0.8 MPa, 1.4–8 bar)
Maximum air consumption	175 scfm
Air consumption at 70 psi/60 gpm	60 scfm (see chart)
Maximum free-flow delivery	150 gpm (568 l/min)
Maximum pump speed	145 cpm
Gallons (Liters) per cycle	1.03 (3.90)
Maximum suction lift	18 ft (5.48 m) wet or dry
Maximum size pumpable solids	1/4 in. (6.3 mm)
* Maximum noise level at 100 psi and 50 cpm	90 dBa
* Sound power level	103 dBa
* Noise level at 70 psi and 50 cpm	85 dBa
Maximum operating temperature	150°F (65.5°C)
Air inlet size	1/2 npt(f)
Fluid inlet size	2” Raised Face Flange
Fluid outlet size	2” Raised Face Flange
Wetted parts	Vary by Model. See pages 26–28
Non-wetted external parts	aluminum, 302 and 316 stainless steel, polyester (labels)
Weight	
Polypropylene pumps with Aluminum center section	49 lb (22 kg)
PVDF pumps with Aluminum center section	68 lb (31 kg)
Polypropylene pumps with stainless steel center section	71 lb (32kg)
PVDF pumps with stainless steel center section	90 lb (41 kg)

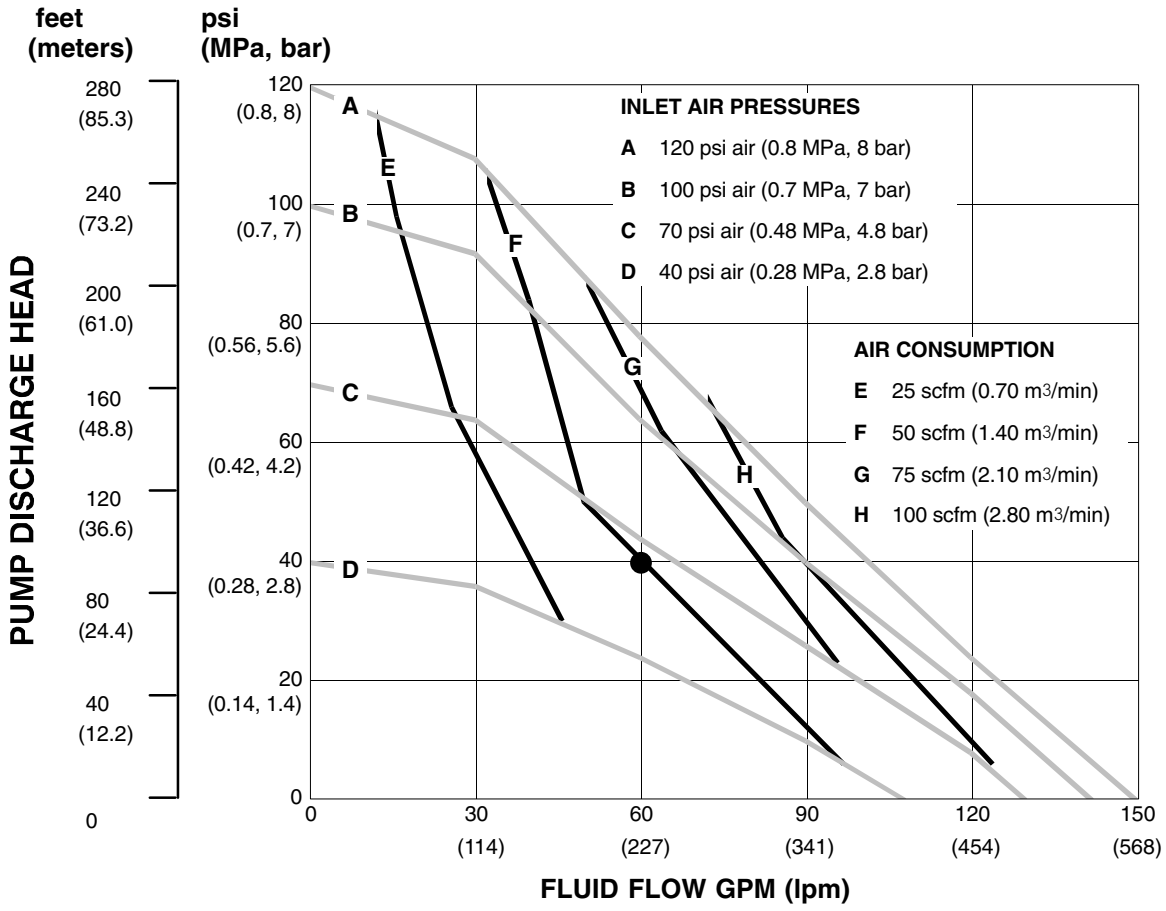
Geolast® and Santoprene® are registered trademarks of the Monsanto Co.

Loctite® is a registered trademark of the Loctite Corporation.

* *Noise levels measured with the pump mounted on the floor, using Rubber Foot Kit 236452. Sound power measured per ISO Standard 9216.*

Performance Chart

Example of Finding Pump Air Consumption and Air Pressure at a Specific Fluid Delivery and Discharge Head:
To supply 60 gpm (227 liters) fluid flow (horizontal scale) at 40 psi (0.28 MPa, 2.8 bar) discharge head pressure (vertical scale) requires approximately 60 scfm (1.68 m3/min) air consumption at 70 psi (0.48 MPa, 4.8 bar) inlet air pressure.



TEST CONDITIONS
Pump tested in water with PTFE diaphragm and inlet submerged.

KEY
FLUID PRESSURE AND FLOW
SCFM AIR CONSUMPTION

Graco Warranties

Graco Standard Husky Pump Warranty

Graco warrants all equipment manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of five years from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within six years of the date of sale.

Graco makes no warranty, and disclaims all implied warranties of merchantability and fitness for a particular purpose in connection with accessories, equipment, materials or components sold but not manufactured by Graco. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

FOR GRACO CANADA CUSTOMERS

The parties acknowledge that they have required that the present document, as well as all documents, notices and legal proceedings entered into, given or instituted pursuant hereto or relating directly or indirectly hereto, be drawn up in English. Les parties reconnaissent avoir convenu que la rédaction du présente document sera en Anglais, ainsi que tous documents, avis et procédures judiciaires exécutés, donnés ou intentés à la suite de ou en rapport, directement ou indirectement, avec les procedures concernées.

Extended Product Warranty

Graco warrants all Husky 205, 307, 515, 716, 1040, 1590, 2150, and 3275 air valve center sections to be free from defects in material and workmanship for a period of fifteen years from date installed in service by the original purchaser. Normal wear of items such as packings or seals are not considered to be defects in material and workmanship.

Five years	Graco will provide parts and labor.
Six to Fifteen years	Graco will replace defective parts only.

Graco Information

For the latest information about Graco products, visit www.graco.com.

TO PLACE AN ORDER, contact your Graco distributor or call to identify the distributor closest to you:
Phone: 612–623–6921 or **Toll Free:** 1–800–328–0211 **Fax:** 612–378–3505

All written and visual data contained in this document reflects the latest product information available at the time of publication.
Graco reserves the right to make changes at any time without notice.

Original instructions. This manual contains English. MM 308550

Graco Headquarters: Minneapolis
International Offices: Belgium, China, Japan, Korea

GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440–1441
Copyright 1995, Graco Inc. is registered to ISO 9001
www.graco.com
Revised 10/2010