INSTRUCTIONS–PARTS LIST

308–444

Rev. R
Supersedes Rev. P

This manual contains important warnings and information.
READ AND KEEP FOR REFERENCE.

INSTRUCTIONS

GRACO

First choice when quality counts.™

ACETAL AND POLYPROPYLENE

Husky™ 715 Air-Operated Diaphragm Pumps

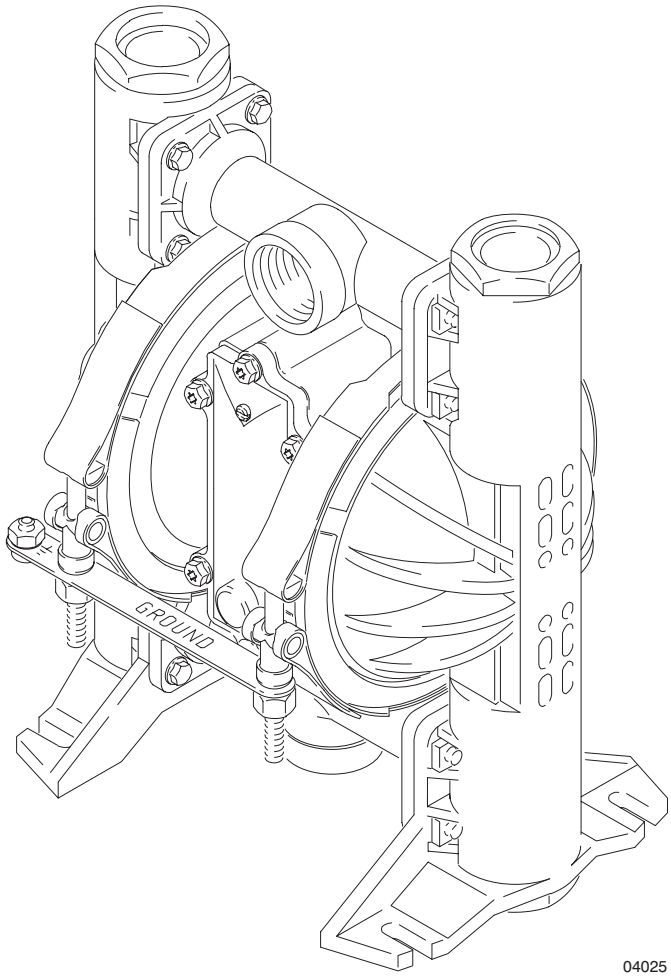
100 psi (0.7 MPa, 7 bar) Maximum Fluid Working Pressure
100 psi (0.7 MPa, 7 bar) Maximum Air Input Pressure

***Model No. D61–_____ Acetal Pumps, Series E**
***Model No. D62–_____ Polypropylene Pumps, Series E**
***Model No. D6A–_____ Acetal BSPT Pumps, Series E**
***Model No. D6B–_____ Polypropylene BSPT Pumps, Series E**

***NOTE:** Refer to the Pump Matrix on page 26 to determine the Model No. of your pump.

CE

US Patent Nos. 4,789,131 and 4,867,653
Other US and Foreign Patents Pending



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GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440–1441

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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 **100 psi (0.7 MPa, 7 bar) maximum working pressure at 100 psi (0.7 MPa, 7 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).
- Wear hearing protection when operating this equipment.
- Do not lift pressurized 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.
- ***Never*** use an acetal pump to pump acids. Take precautions to avoid acid or acid fumes from contacting the pump housing exterior. Stainless steel parts will be damaged by exposure to acid spills and fumes.

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 5.
- ***Never*** use a polypropylene pump with non-conductive flammable fluids as specified by your local fire protection code. Refer to **Grounding** on page 5 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 pumped.
- 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 Installations in Figs. 3 to 5 are only guides for selecting and installing system components. Contact your Graco distributor for assistance in planning a system to suit your needs.
- Always use Genuine Graco Parts and Accessories.
- Use a compatible, liquid thread sealant on all male threads. Tighten all connections firmly to avoid air or fluid leaks.
- Reference numbers and letters in parentheses refer to the callouts in the Figures and the parts lists on pages 28 to 31.

Tightening Threaded Fasteners Before First Use

After unpacking the pump, and before using it for the first time, check and retorque all external fasteners. See the **Service** section for torque specifications. After the first day of operation, retorque the fasteners again. Although the recommended frequency for retorquing fasteners varies with pump usage, a general guideline is to retorque fasteners every two months.

⚠ 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 3.
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.

⚠ CAUTION

Safe Operating Temperature
Minimum: 40° F (4.4° C); Maximum: 150° F (66° C).

These temperatures are based upon mechanical stress only and may be significantly altered by pumping certain chemicals. Consult engineering guides for chemical compatibilities and temperature limits, or contact your Graco distributor.

Mountings

- Be sure the mounting surface can support the weight of the pump, hoses, and accessories, as well as the stress caused during operation.
- The Husky 715 Pump can be used in a variety of installations. See Figs. 3 to 5 for some examples.
- When installed on a drum (see Fig. 4), slide the pump's feet securely under the rim of the drum.
- On all other installations, mount the pump using screws and nuts.

Pumping High Density or Abrasive Fluids

High density fluids prevent the lightweight PTFE and buna-N check valve balls from seating properly, which reduces pump performance significantly. Use stainless steel balls for such applications (see page 31). Refer to page 21 to change the balls.

Dual Manifolds

Dual manifold kits are available to enable you to pump two fluids simultaneously, or to mix two fluids in the pump. Order Part No. 237–633 for acetal pumps and Part No. 237–632 for polypropylene pumps.

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 3.

The acetal pump contains stainless steel fibers, which makes the wetted parts conductive. Attaching the ground wire to the grounding strip grounds the air motor and the wetted parts.

The polypropylene pump is ***not*** conductive. Attaching the ground wire to the grounding strip grounds only the air motor.

When pumping conductive flammable fluids, ***always*** ground the entire fluid system by making sure the fluid system has an electrical path to a true earth ground (see Fig. 2). ***Never*** use a polypropylene 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:

- *Pump*: Attach a ground wire (Y) to the grounding strip (107) with the screw (117), lockwasher (118) and nut (119), as shown in Fig. 1. Connect the clamp end of the ground wire to a true earth ground. To order a ground wire and clamp, order Part No. 222–011.

NOTE: When pumping conductive flammable fluids with a polypropylene pump, ***always*** ground the fluid system. See the **WARNING** at left. Fig. 2 shows a recommended method of grounding flammable fluid containers during filling.

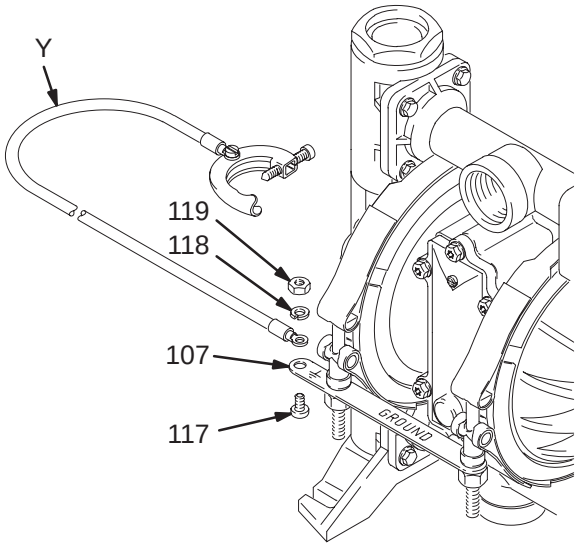


Fig. 1 04031A

- *Air and fluid hoses*: Use only electrically conductive hoses.
- *Air compressor*: Follow the manufacturer's recommendations.
- *Solvent pails used when flushing*: Follow the local code. Use only grounded 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.

Installation

GROUNDING A PUMP

KEY

A Husky 715 pump
H Fluid drain valve (required)
S Dispense valve
T Fluid drain line
Y Air motor ground wire (required; see page 5 for installation instructions)
Z Container ground wire (required)

1 Hose must be conductive.

2 Dispense valve nozzle must be in contact with container.

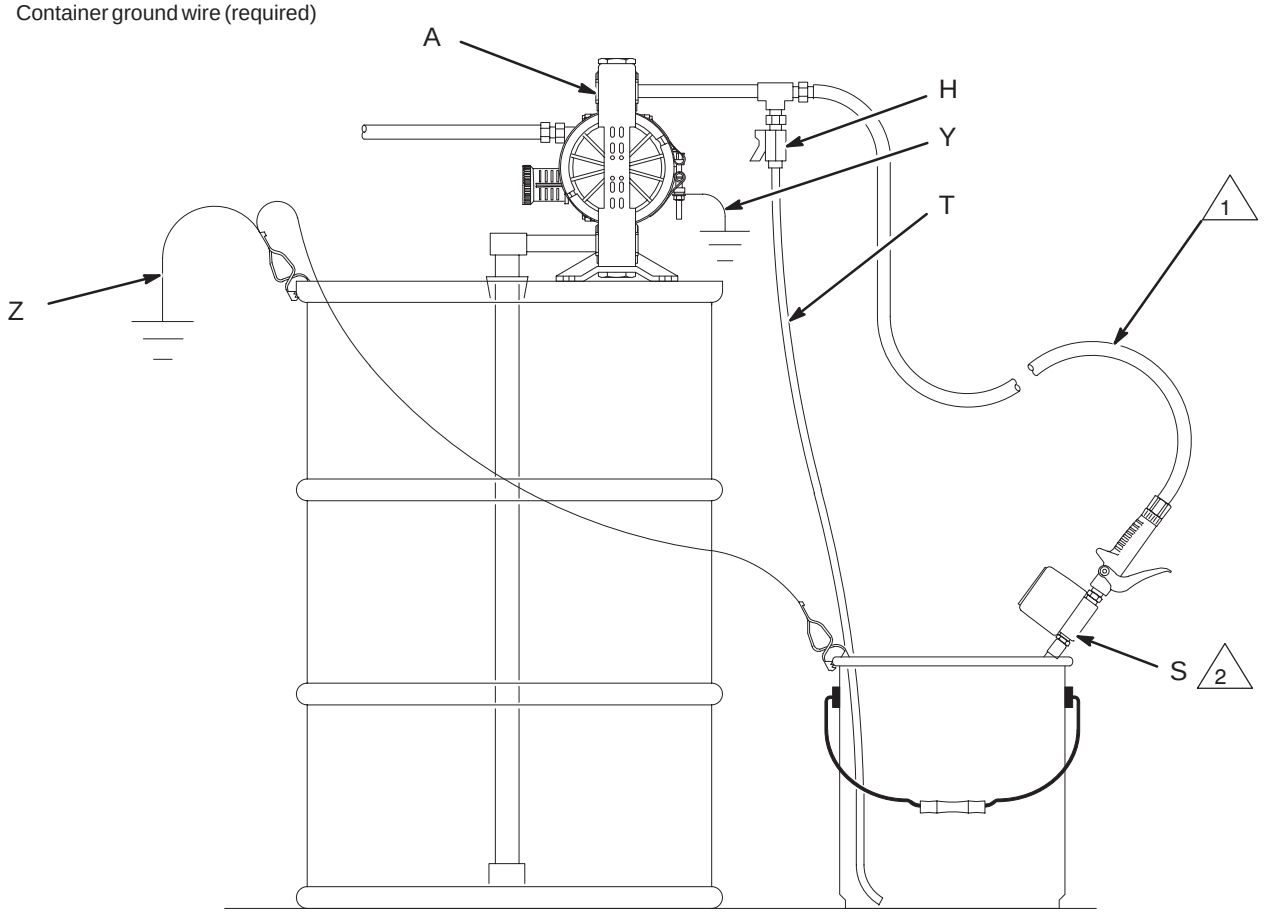


Fig. 2 05104

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. See Fig. 3. 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.

⚠ 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.

1. Install the air line accessories as shown in Fig. 3. Mount these accessories on the wall or on a bracket. Be sure the air line supplying the accessories is electrically conductive.

   a. The fluid pressure can be controlled in either of two ways. To control it on the air side, install an air regulator (G). To control it on the fluid side, install a fluid regulator (J) near the pump fluid outlet (see Fig. 3).

   b. Locate one bleed-type master air valve (B) close to the pump and use it to relieve trapped air. See the **WARNING** above. 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 (C) between the accessories and the 1/4 npt(f) pump air inlet. Use a minimum 1/4" (6.3 mm) ID air hose. Screw an air line quick disconnect coupler (D) onto the end of the air hose (C), and screw the mating fitting into the pump air inlet snugly. Do not connect the coupler (D) to the fitting yet.

Fluid Suction Line

- If using a conductive (acetal) pump, use conductive hoses. If using a non-conductive (polypropylene) pump, ground the fluid system. See **Grounding** on page 5. The pump fluid inlet is 3/4 npt(f). See Fig. 6. Screw the fluid fitting into the pump inlet snugly.

- If the 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.

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

- See the **Technical Data** on page 34 for maximum suction lift and flow rate loss at various lift distances.

Fluid Outlet Line

⚠ WARNING

A fluid drain valve (H) is required in your system to relieve pressure in the hose if it is plugged. See Figs. 3 to 5. 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.

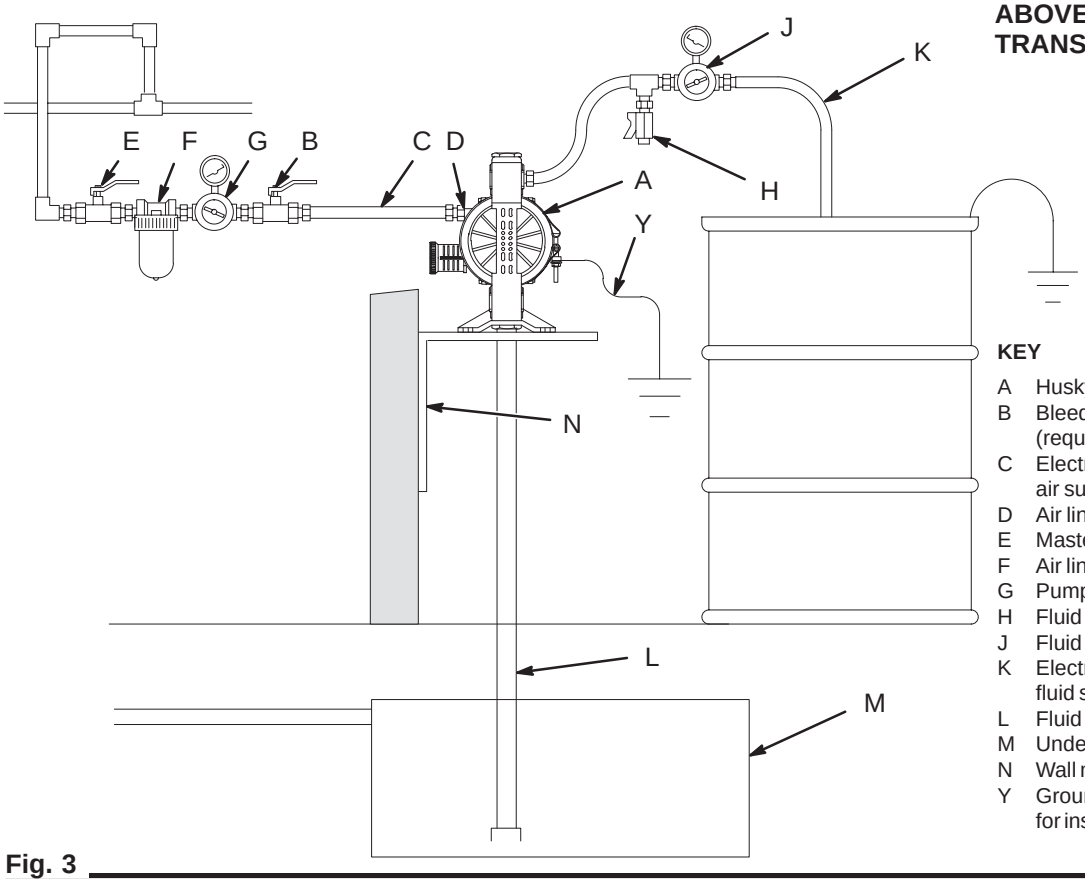
1. Use electrically conductive fluid hoses (K). The pump fluid outlet is 3/4 npt(f). See Fig. 6. Screw the fluid fitting into the pump outlet snugly. **Do not overtighten.**

2. Install a fluid regulator (J) at the pump fluid outlet to control fluid pressure, if desired (see Fig. 3). See **Air Line,** step 1a, for another method of controlling pressure.

3. Install a fluid drain valve (H) near the fluid outlet. See the **WARNING** above.

Installation

ABOVE-GROUND TRANSFER INSTALLATION



KEY

- A Husky 715 pump
- B Bleed-type master air valve (required for pump)
- C Electrically conductive air supply line
- D Air line quick disconnect
- E Master air valve (for accessories)
- F Air line filter
- G Pump air regulator
- H Fluid drain valve (required)
- J Fluid regulator (optional)
- K Electrically conductive fluid supply hose
- L Fluid suction line
- M Underground storage tank
- N Wall mounting bracket
- Y Ground wire (required; see page 5 for installation instructions)

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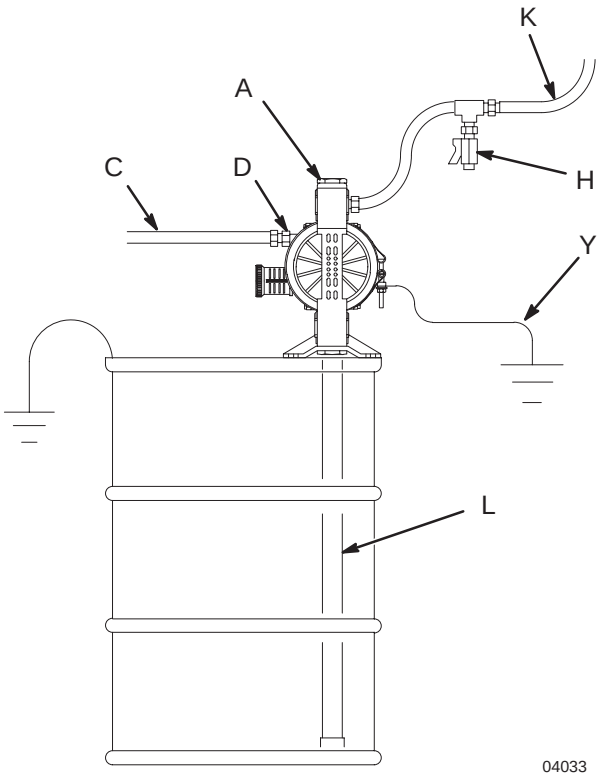
Fig. 3

55-GALLON BUNG PUMP INSTALLATION

See Fig. 3 for air line accessories



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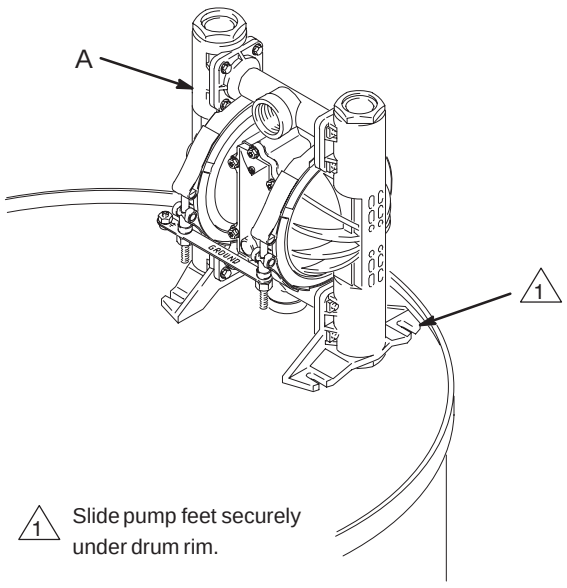
KEY

- A Husky 715 pump
- C Electrically conductive air supply line
- D Air line quick disconnect
- H Fluid drain valve (required)
- K Electrically conductive fluid supply hose
- L 55-gallon bung kit 221–094
- Y Ground wire (required; see page 5 for installation instructions)



1 Slide pump feet securely under drum rim.

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Fig. 4

Installation

AIR SPRAY INSTALLATION

KEY

A Husky 715 pump
C Electrically conductive air line to pump
E Gun air line shutoff valve
F Air line filter
G Gun air regulator
H Fluid drain valve (required)
K Electrically conductive fluid supply hose
P Circulating valve
R Electrically conductive air line to gun
S Air spray gun
T Electrically conductive fluid return line
U 5-gallon pail mount kit 221–095
V Agitator kit 221–096
Y Ground wire (required; see page 5 for installation instructions)

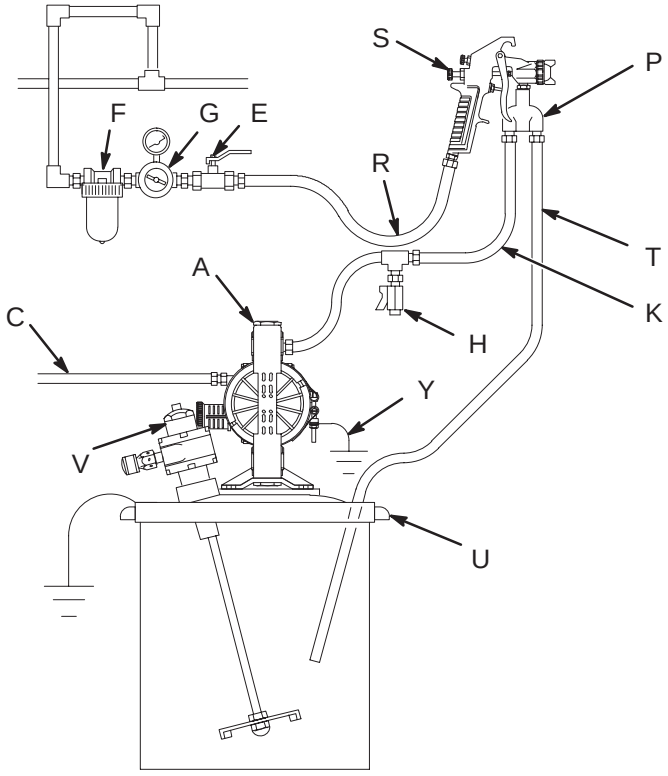

Fig. 5

Installation

Changing the Orientation of the Fluid Inlet and Outlet Ports

You can rotate the fluid inlet and outlet manifolds (102) to three positions. As shipped, the fluid inlet manifold points down and the fluid outlet manifold points toward from the air valve (A). See Fig. 6.

1. Remove the four nuts (105) and bolts (104) from each end of the manifold (102).

2. Turn the manifold to the desired position, and reinstall the bolts and nuts. Torque to 20 to 25 in-lb (2.3 to 2.8 N-m).

NOTE: If the manifold is difficult to rotate, loosen the nuts (114) holding the clamps (113). After turning the manifold, torque the nuts to 75 to 85 in-lb (8.5 to 9.6 N-m).

1 Torque to 20 to 25 in-lb (2.3 to 2.8 N-m).
2 3/4 npt(f) Fluid Inlet
3 3/4 npt(f) Fluid Outlet
4 Torque to 75 to 85 in-lb (8.5 to 9.6 N-m).

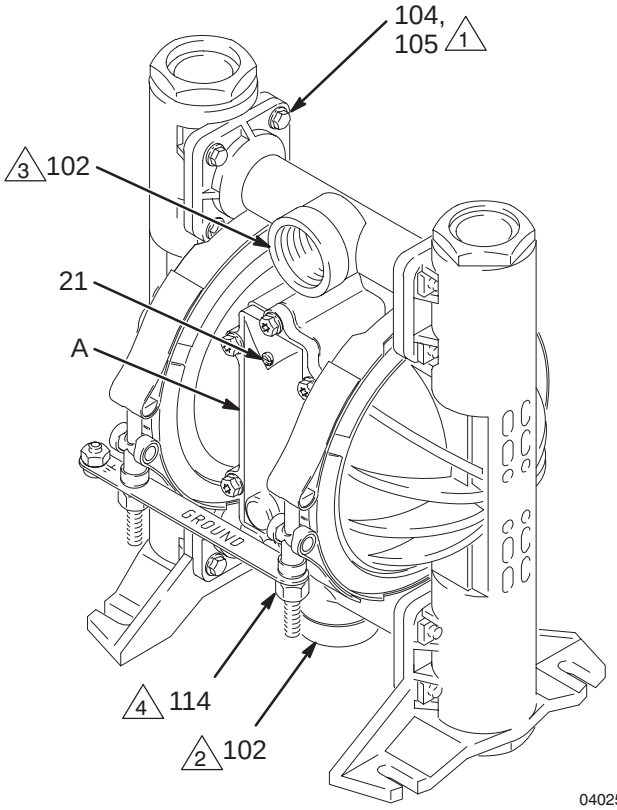

Fig. 6

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. 7.

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

A 3/4 npt(f) Fluid Inlet Manifold
B 3/4 npt(f) Fluid Outlet Manifold
C Pressure Relief Valve
Part No. 110–134(Aluminum)
Part No. 112–119 (Stainless Steel)

1 Install valve between fluid inlet and outlet ports.
2 Connect fluid inlet line here.
3 Rotate fluid inlet manifold 90° (see Fig. 6).
4 Connect fluid outlet line here.

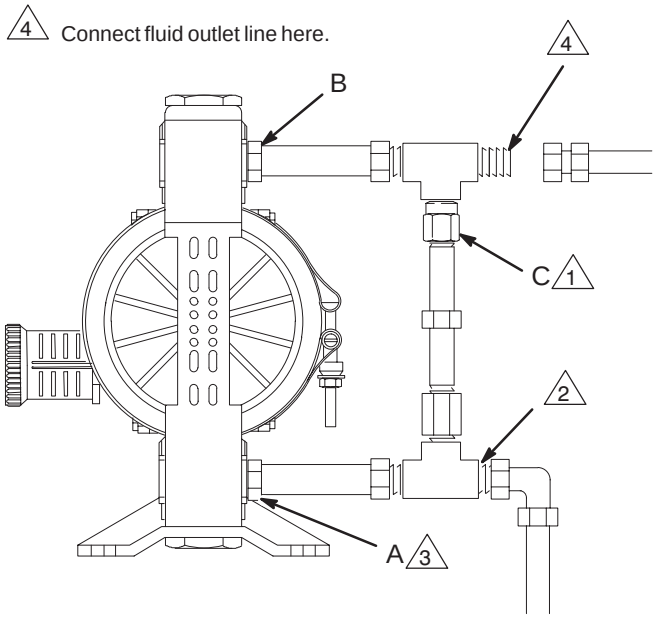

Fig. 7

Installation

Air Exhaust Ventilation

⚠ WARNING

FIRE AND EXPLOSION HAZARD
Be sure to read **FIRE AND EXPLOSION HAZARD** and **TOXIC FLUID HAZARD** on page 3, 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. 8.

The air exhaust port is 3/8 npt(f). Do not restrict the air exhaust port. Excessive exhaust restriction can cause erratic pump operation.

To exhaust to a remote location:

1. Remove the muffler (W) from the pump air exhaust port.
2. Install an electrically conductive air exhaust hose (X) and connect the muffler to the other end of the hose. The minimum size for the air exhaust hose is 3/8 in. (10 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.
3. Place a container (Z) at the end of the air exhaust line to catch fluid in case a diaphragm ruptures. See Fig. 8.

VENTING EXHAUST AIR (Submerged Installation Shown)
See Fig. 3 for accessories

In a submerged installation (as shown), all wetted and non-wetted pump parts must be compatible with the fluid being pumped.

KEY

W Muffler
X Electrically Conductive Air Exhaust Hose
Z Container for Remote Air Exhaust

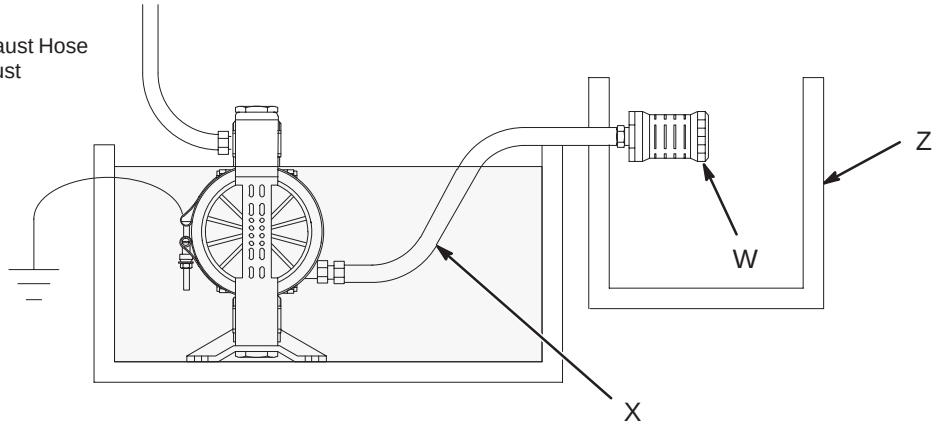

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Fig. 8

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 in air, to eliminate possible contamination of the fluid you are pumping by test fluids such as water. Prior to use, flush the pump thoroughly with a compatible solvent. 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. Read **FIRE AND EXPLOSION HAZARD** on page 3.
2. Check all fittings to be sure they are tight. Use a compatible liquid thread sealant on all male threads. Tighten the fluid inlet and outlet fittings snugly. Do not overtighten the fittings into the pump.
3. Place the suction tube (if used) in the fluid to be pumped.

NOTE: If the 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 (K) into an appropriate container.
5. Close the fluid drain valve (H).
6. With the pump air regulator (G) 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. Slowly open the air regulator (G) 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.

NOTE: If the pump does not start, turn the reset shaft (21) on the air valve (A). See Fig. 6 on page 10.

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. Use a compatible solvent.

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 and retorque all threaded connections, including manifold screws, clamps, and air valve screws, at least every two months. Although the recommended frequency for retorquing of fasteners varies with pump usage, a general guideline is to retorque every two months.

Tightening the Clamps

When tightening the clamps (113), apply thread lubricant to the bolts and ***be sure*** to torque the nuts (114) to 75 to 85 in-lb (8.5 to 9.6 N-m). See Fig. 9.

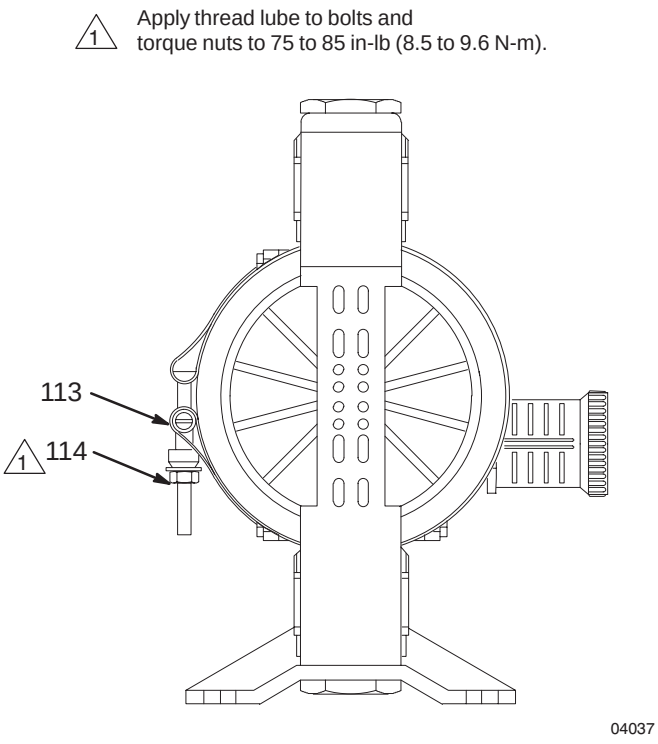


Fig. 9

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 will not cycle, or cycles once and stops.	Air valve is stuck or dirty.	Turn reset shaft (21). Disassemble and clean air valve. See pages 19, 20. Use filtered air.
	Worn or broken detent link (22).	Replace detent link (22) and ball (8). See pages 19, 20.
	Broken or damaged springs (3, 6) and/or valve cup (5) and plate (13).	Replace. See pages 19, 20.
	Bent or broken pilot pins (26).	Replace. See pages 16, 18. When reinstalling the air valve, be sure to follow the instructions on page 18, to avoid damaging the pins.
Pump cycles at stall or fails to hold pressure at stall.	Leaky check valves or o-rings (111).	Replace. See page 21.
	Worn check balls (301) or guide (201).	Replace. See page 21.
	Check ball (301) wedged in guide (201).	Repair or replace. See page 21.
Excessive air leakage from exhaust port.	Worn air valve cup (5) or plate (13).	Replace. See pages 19, 20.
	Worn shaft seals (30‡).	Replace. See page 23.
Pump operates erratically.	Clogged suction line.	Inspect; clear.
	Check valve plug (106) is loose.	Tighten. Refer to page 21.
	Sticky or leaking check valve balls (301).	Clean or replace. See page 21.
	Diaphragm (401 or 404) ruptured.	Replace. See page 23.

Troubleshooting

PROBLEM	CAUSE	SOLUTION
Air bubbles in fluid.	Suction line is loose.	Tighten.
	Diaphragm (401 or 404) ruptured.	Replace. See page 23.
	Loose manifolds (102) or damaged o-rings (109).	Tighten manifold bolts (104) or nuts (105); replace o-rings (109). See page 23.
	Loose fluid side diaphragm plates (112).	Tighten. See page 23.
Fluid in exhaust air.	Diaphragm (401 or 404) ruptured.	Replace. See page 23.
	Loose fluid side diaphragm plates (112).	Tighten. See page 23.
Pump exhausts air from muffler at stall.	Worn air valve cup (5) or plate (13).	Replace. See pages 19, 20.
	Worn shaft seals (30‡).	Replace. See page 23.
Pump exhausts air from clamps.	Loose clamps (113).	Tighten clamp nuts (114). See page 13.
Pump exhausts air near air valve.	Air valve screws (10) are loose.	Tighten screws. See page 16.
	Air valve o-ring (19) is damaged.	Inspect; replace. See pages 19, 20.
Pump leaks fluid from check valves.	Worn or damaged o-rings (109).	Inspect; replace. See page 23.
	Check valve plug (106) is loose.	Tighten. Refer to page 21.

Service

Tools Required

- Torque wrench
- Phillips screwdriver
- O-ring pick
- 1/8” EZY-OUT bearing extractor
- Rubber mallet

Replacing the Air Valve

NOTE: Air Valve Kit 239–952 is available. Parts included in the kit are marked with a dagger, for example (2†). A tube of general purpose grease (25†) is supplied in the kit. Install the kit as follows.

⚠ 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. Unscrew the six mounting screws (10) and remove the air valve (A) from the pump. See Fig. 10.

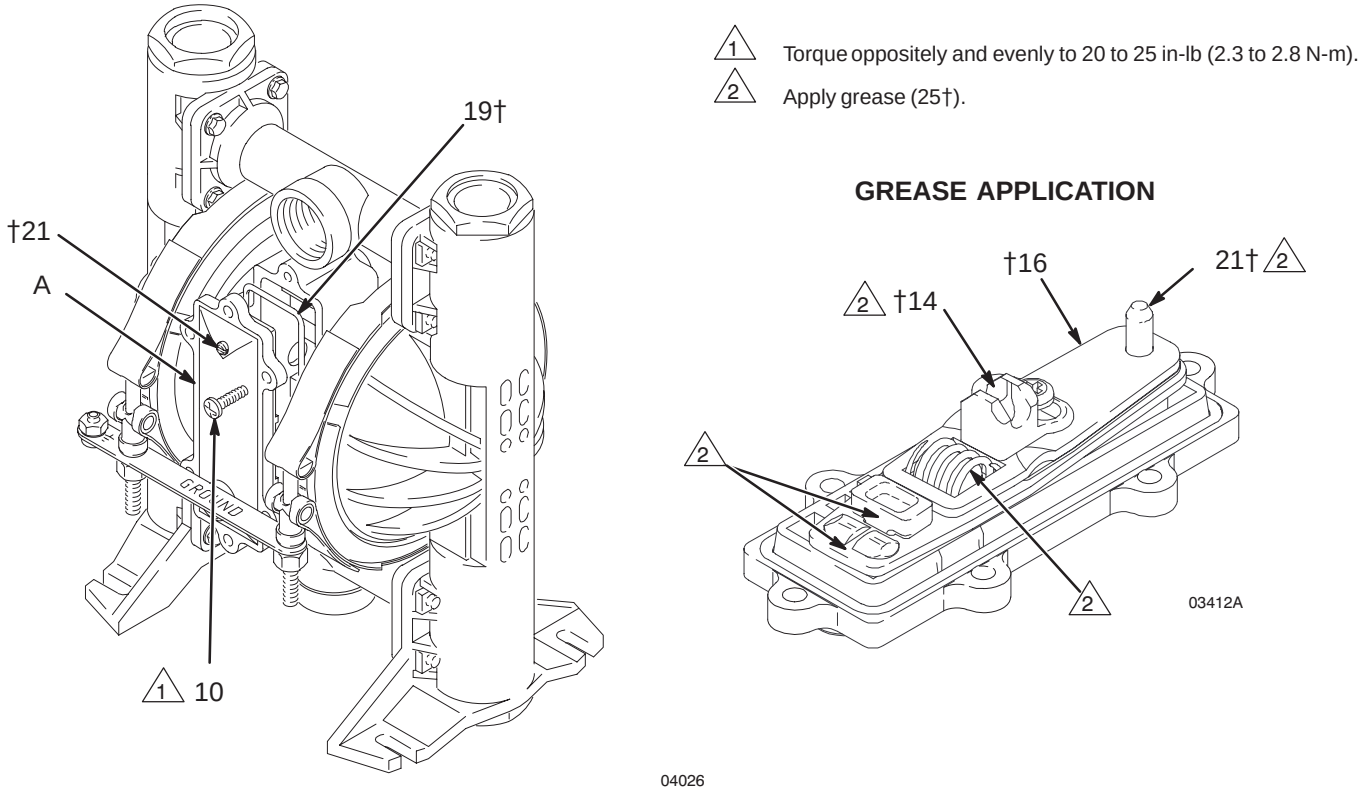


Fig. 10

3. See Fig. 11. Use an o-ring pick to remove the bearings (9 and 24).

4. Remove the two screws (23) holding the valve plate (13) to the pump. Use an o-ring pick to remove the valve plate and seal (12). Clean and inspect the parts. Replace any worn ones.

5. If the pilot pins (26) are accessible from the inside of the pump housing (1), pull them out. If not accessible, disassemble the fluid section as explained on page 23.

NOTE: Inspect the pilot pin o-rings (28) and bearings (27) in place. Removal will destroy the bearings and is not required unless they are damaged. To service the bearings, first perform steps 3 to 5 on page 23.

6. Use a 1/8 in. EZY-OUT to remove the bearings (27) from the housing (1). See Fig. 22 on page 25 for an illustration of how to use an EZY-OUT. Remove the o-rings (28). Clean and inspect the parts. Replace any worn ones.

NOTE: If the pilot pin o-rings (28) and bearings (27) were not removed, go to step 8.

7. Grease the o-rings (28) and install them in the bearings (27). Press the bearings and o-rings in place so the bearings are flush with the surface of the housing (1). See Fig. 11.

8. Grease the pilot pins (26) and install them from the inside of the housing (1).

9. Install the seal (12) in the pump housing (1). Install the valve plate (13) and secure with the two screws (23). (The heads of the screws overlap the top and bottom edges of the plate to hold it in place.) Torque the screws to 5 to 7 in-lb (0.6 to 0.8 N-m).

10. Apply grease (25†) to the bearings (9† and 24). Install the bearing (9†) in the pump housing (1). Install the other bearing (24).

11. Make certain the o-ring (19†) is in place on the air valve (A). See Fig. 10.

12. Apply grease (25†) where shown in Fig. 10.

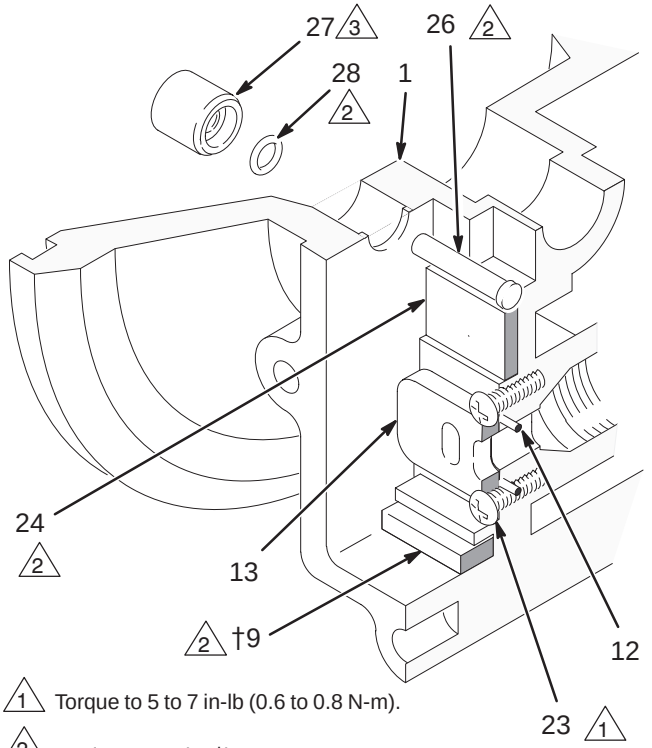


Fig. 11

⚠ CAUTION

If you are replacing the diaphragms, you must reinstall the air valve before installing the diaphragms, as the diaphragms will force the pilot pins into the air valve area.

The pilot pins (26) must give clearance for the actuator link (16†), to prevent damage to the pins. Follow steps 13 to 15 carefully.

13. Check if either of the two pilot pins (26) are protruding out into the air valve cavity. Push them back in as far as possible.
14. If one of the pins is still protruding, make sure the air valve is shifted ***away from*** that pin's side of the cavity. To shift the valve, push down on the detent link (22) and slide it to the other side with your fingers (see Fig. 13).
15. Align the air valve assembly (A) so the reset shaft (21) is at the top and the valve is angled away from the protruding pilot pin (26), then slip it into position. See Fig. 12. ***Do not force the air valve down onto the pin.*** If the pin is interfering with the actuator link (16), make sure the valve is shifted away from the pin (see step 14), then reposition the valve.
16. Install the six screws (10) and torque oppositely and evenly to 20 to 25 in-lb (2.3 to 2.8 N-m). See Fig. 10.

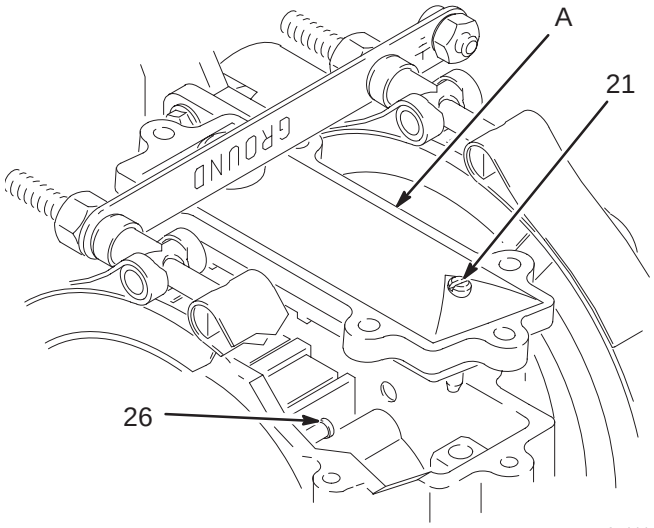


Fig. 12

NOTE: This example shows how to shift the air valve when a pilot pin (26) is protruding as shown in Fig. 12. If the pin on the other side of the air valve is protruding, the valve should be shifted in the reverse of this example.

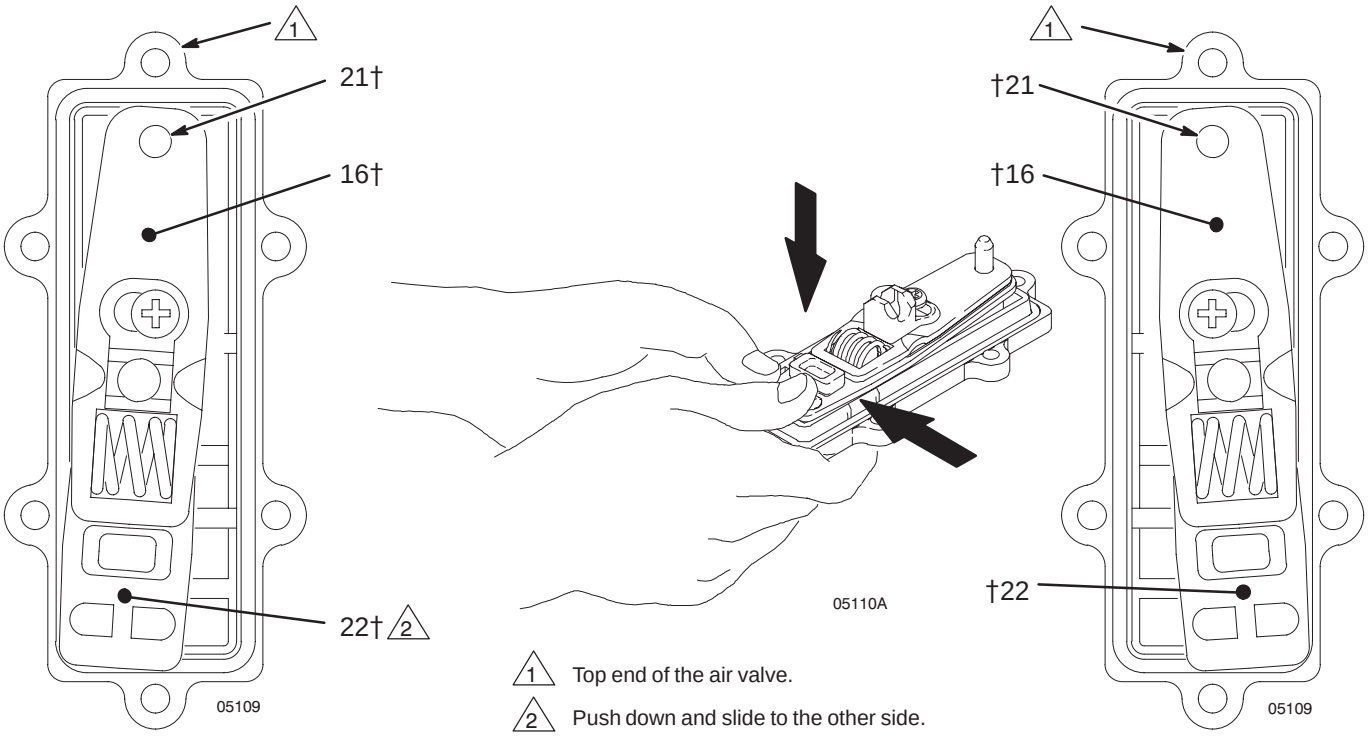


Fig. 13

Service

Tools Required

- Torque wrench
- Phillips screwdriver
- O-ring pick
- Rubber mallet

Repairing the Air Valve

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. Remove the air valve (A) from the pump (see page 16).
3. Remove the screw (15) and shift saddle (14). See Fig. 14.
4. Disassemble the link assembly, consisting of the actuator link (16), spacer (17), detent link (22), spring (3), stop (4), and valve cup (5).
5. Remove the detent ball (8) and spring (6). The detent collar (7) is a press-fit and should not need removal; if it does require replacement, you should also replace the cover (2).
6. Remove the reset shaft (21), o-ring (20) and washer (18).
7. Clean all parts and inspect for wear or damage. Replace as needed. See **Reassembly,** page 20.

NOTE: All parts shown are included in Air Valve Kit 239–952.

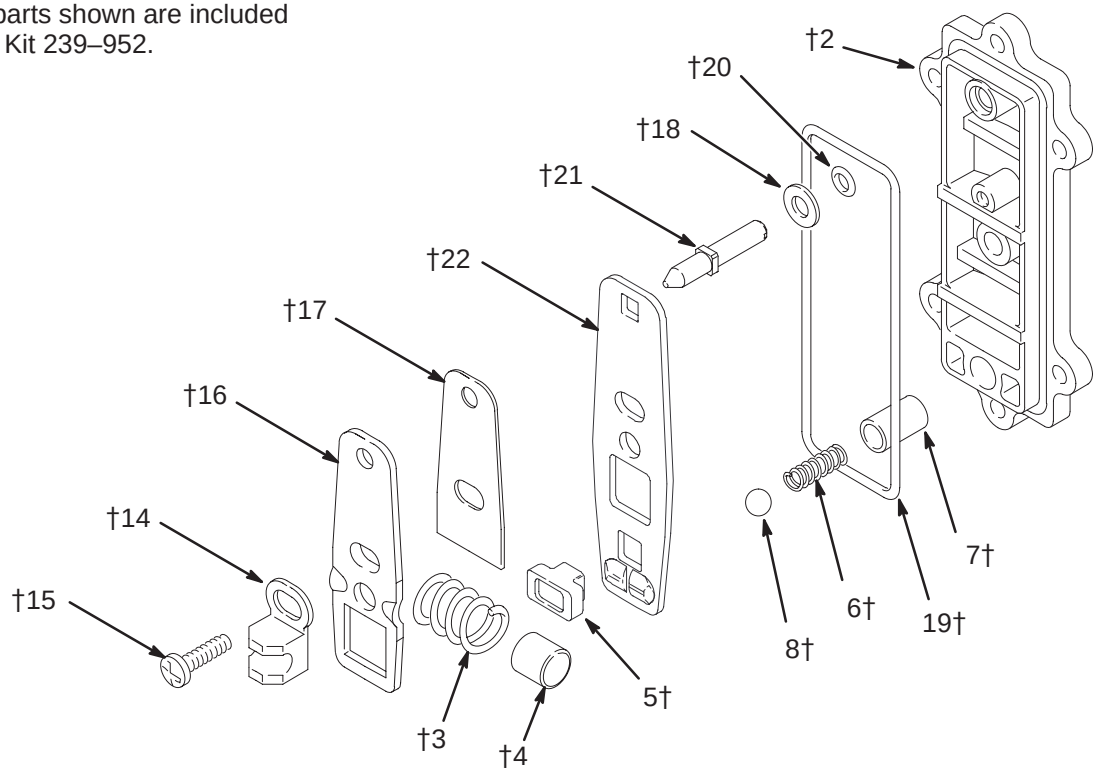


Fig. 14 01431A

Reassembly

1. *If the detent collar (7) was removed,* carefully install a new collar in a new cover (2). Using a rubber mallet, carefully press fit the detent collar into the cover. See Fig. 15.

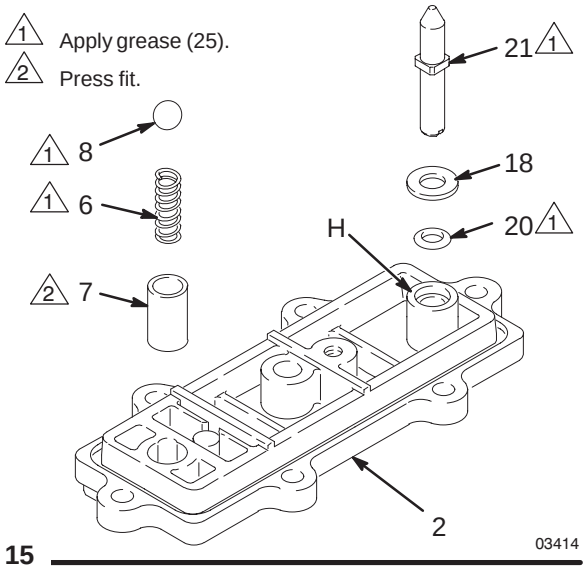


Fig. 15

2. Grease the detent spring (6), and place it in the collar (7). Grease the ball (8) and set it on the spring.

3. Grease the o-ring (20) and install it in the hole (H) in the cover (2). See Fig. 15. Slide the washer (18) onto the blunt end of the reset shaft (21). Insert the shaft through the cover (2) until it seats.

4. Grease the spring (3). Place the link stop (4) inside the spring. See Fig. 16.

5. Grease the detent link (22) and link spacer (17). Assemble the detent link, link spacer, and actuator link (16) as shown in Fig. 16. The raised bumps on the links (16 and 22) must face up.

6. Squeeze the spring (3) and install it and the stop (4) in the link assembly. The spring tension will hold all these parts together. Grease the valve cup (5) and install it in the link assembly as shown.

7. Install the link assembly onto the air valve cover (2) so the pointed end of the reset shaft (21) fits through the holes in the links and the square part of the shaft engages the square hole in the detent link (22). Make certain the bumps on the detent link (22) engage the detent ball (8).

8. Grease the inside surfaces of the shift saddle (14) and install it as shown in Fig. 17. Hold the link assembly firmly in place and install the screw (15). Torque to 7 to 9 in-lb (0.8 to 1.0 N-m). Install the o-ring (19) on the cover (2).

9. Reinstall the air valve as explained on page 18.

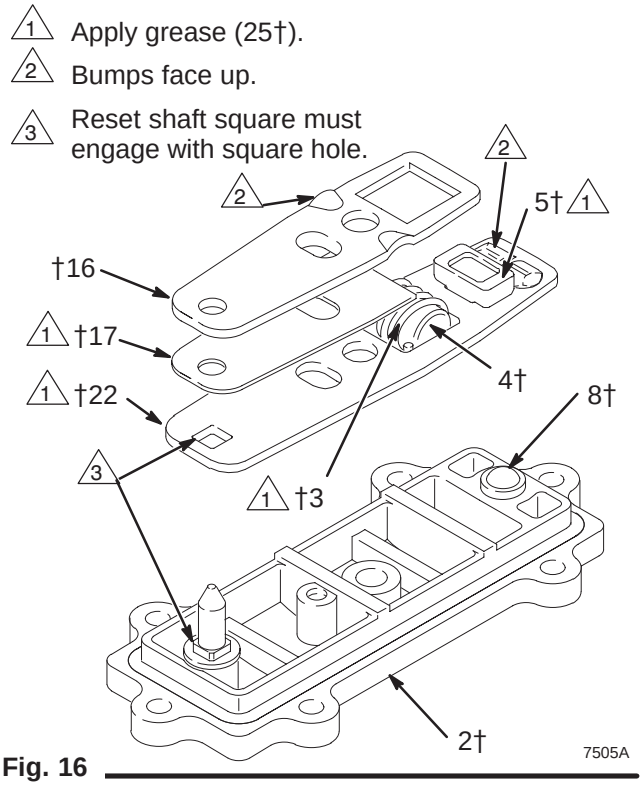


Fig. 16

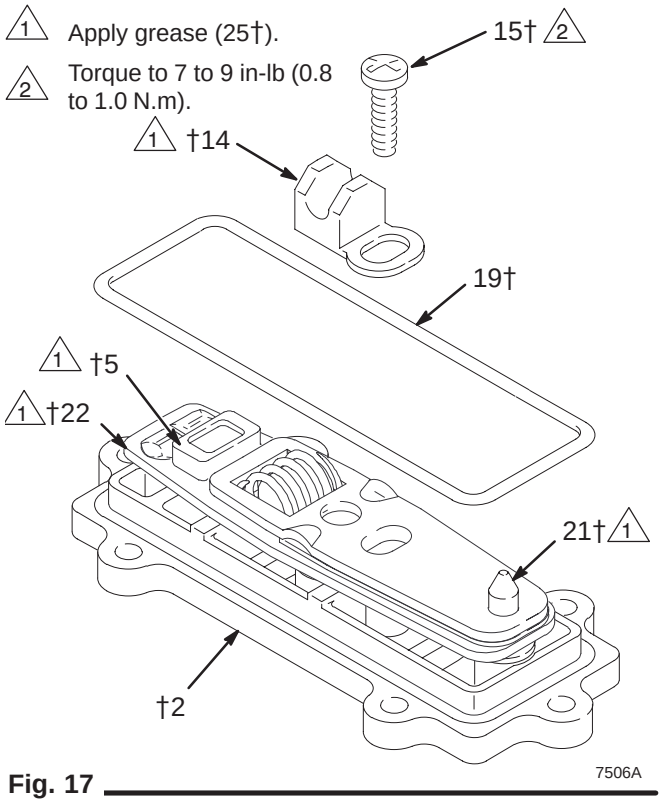


Fig. 17

Service

Tools Required

- Torque wrench
- 1–1/2” socket wrench
- 3/8” x 8” dowel
- O-ring pick

Ball Check Valves

NOTE: A Fluid Section Repair Kit is available. See page 27 for the correct kit. Parts included in the kit are marked with an asterisk, for example (301*). Use all the parts in the kit for the best results. Always replace the o-rings (111) with new ones whenever they are removed for any reason.

⚠ 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. Use a 1–1/2” socket wrench to remove the plugs (106) from the top ball checks. Remove the o-ring (111), spacer (110), ball stop (202), and ball (301). See Fig. 18.
3. Turn the pump over. Remove the plug (106), o-rings (111), and spacer (110). See Fig. 18.
4. Insert a 3/8” dia. x 8” dowel (D) through the top ball guide (201). Press on the bottom ball stop (202) to push out the ball guide (201), ball (301), and ball stop. See Fig. 19.
5. Turn the pump over. Insert the dowel at an angle so it contacts the edge of the top ball guide (201), and push out the guide. Remove the o-ring (111).
6. Clean all parts. Inspect parts and replace worn or damaged ones.
7. Reassemble. Follow all notes in Fig. 18.

Service

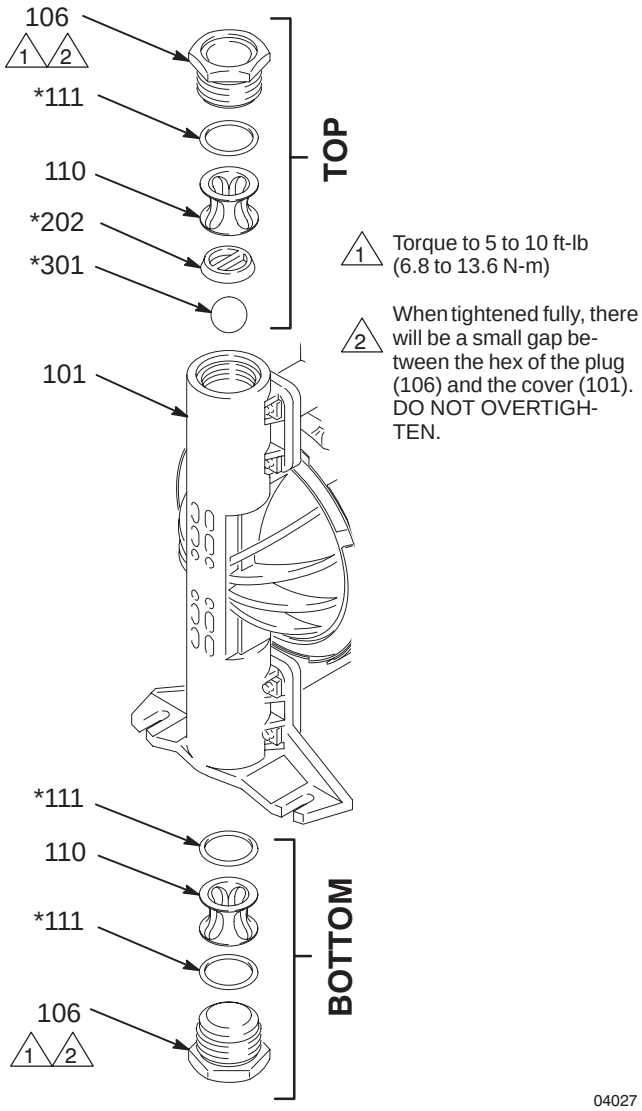


Fig. 18

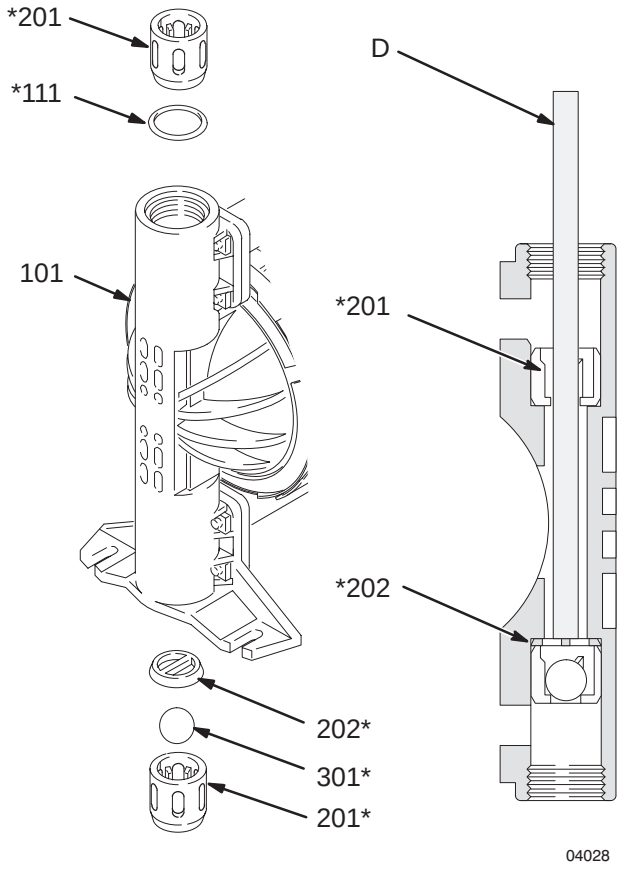


Fig. 19

Service

Tools Required

- Torque wrench
- Socket wrenches
- O-ring pick
- 13/32” EZY-OUT bearing extractor
- Rubber mallet
- Vise with soft jaws

Diaphragm Repair

A Diaphragm Shaft Kit is available. See page 28. Parts included in the kit are marked with a double dagger, for example (29‡). Use all parts in the kit.

Disassembly

NOTE: A Fluid Section Repair Kit is available. See page 27 for the correct kit. Parts included in the kit are marked with an asterisk, for example (401*). Use all the parts in the kit for the best results.

NOTE: In Step 6, use a 13/32 in. EZY-OUT (B) screw extractor to remove the bearings (31‡). Other removal methods may damage the pump housing (1).

NOTE: Inspect the pilot pin o-rings (28) and bearings (27) in place. Removal will destroy the bearings and is not required unless they are damaged. To service the bearings, see step 6 on page 17.

⚠ 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 clamp nuts (114) and the grounding strip (107). See Fig. 22. Push the threaded end of the clamps between the upper manifold (102) and the housing (1). Rotate the clamps 90° so they are parallel to the bottom manifold, slip the other end between the bottom manifold and housing, and remove them from the pump.

3. Remove the screws (104) and nuts (105) holding the manifolds (102) to the covers (101). Remove the manifolds and o-rings (109). Pull the covers (101) off the pump. See Fig. 22.

4. Unscrew one fluid side plate (112) from the diaphragm shaft (29). Remove one diaphragm (401) and air side plate (108).

NOTE: Some models include a PTFE diaphragm (404) in addition to the backup diaphragm (401).

5. Pull the other diaphragm and the shaft out of the pump housing (1). See Fig. 22. Clamp the shaft in a vise with soft jaws (or grip the flats with a wrench) and unscrew the fluid side plate (112), then disassemble the remaining diaphragm assembly.

6. Inspect the shaft (29) for wear or scratches. If it is damaged, check the bearings (31‡) also. Replace parts as needed. To remove the bearings, place a 13/32 EZY-OUT (B) in a vise (C). Position the pump housing (1) over the EZY-OUT (see Fig. 20). Turn the housing in the direction shown by the arrows to remove the bearing.

7. Hook the shaft seals (30‡) with an o-ring pick and pull them out of the housing (1).

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

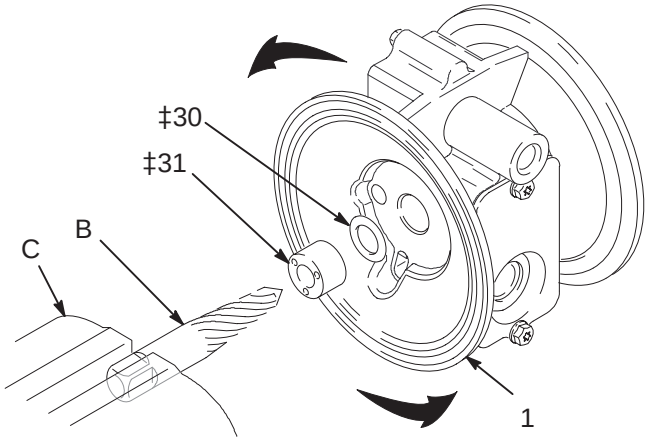


Fig. 20

Service

Reassembly

⚠ CAUTION

If you have removed the air valve (A), you **must** reinstall it before reinstalling the diaphragms. See page 16.

1. Grease the shaft seals (30‡), and install them in the housing (1). Using a rubber mallet, carefully drive the bearings (31‡) flush into the housing so the holes face out. See Fig. 21.

2. Grease the diaphragm shaft (29‡) and slide it into the housing (1).

3. Assemble the air side diaphragm plates (108), diaphragms (401*), PTFE diaphragms (404*, if present), and fluid side diaphragm plates (112) *exactly* as shown in Fig. 21. Apply medium-strength (blue) Loctite® or equivalent to the fluid side diaphragm plate (112) threads, and torque to 75 to 85 in-lb (8.5 to 9.6 N-m) at 100 rpm maximum. ***Do not over-torque.*** These parts ***must*** be assembled correctly.

⚠ CAUTION

Do not over-torque the fluid side diaphragm plates (112). Doing so will damage the hex heads.

4. Install the o-rings (109*) in the manifolds (102). Position the manifolds (102) as desired and install on ***one*** of the covers (101) with the screws (104) and nuts (105). Torque to 20 to 25 in-lb (2.3 to 2.8 N-m). See Fig. 22.

5. Place the pump housing (1) on this cover, oriented as shown in Fig. 22. Then place the other cover on the housing and secure to the manifolds with the screws (104) and nuts (105). Torque to 20 to 25 in-lb (2.3 to 2.8 N-m).

6. Install the clamps (113) in the reverse order of step 2 under **Disassembly** on page 23. The clamp bolts should be on the air valve side of the housing, and pointing down toward the bottom of the pump. Install the grounding strip (107) on the bolts. Apply thread lubricant to the bolts. Torque the clamp nuts (114) to 75 to 85 in-lb (8.5 to 9.6 N-m). See Fig. 22.

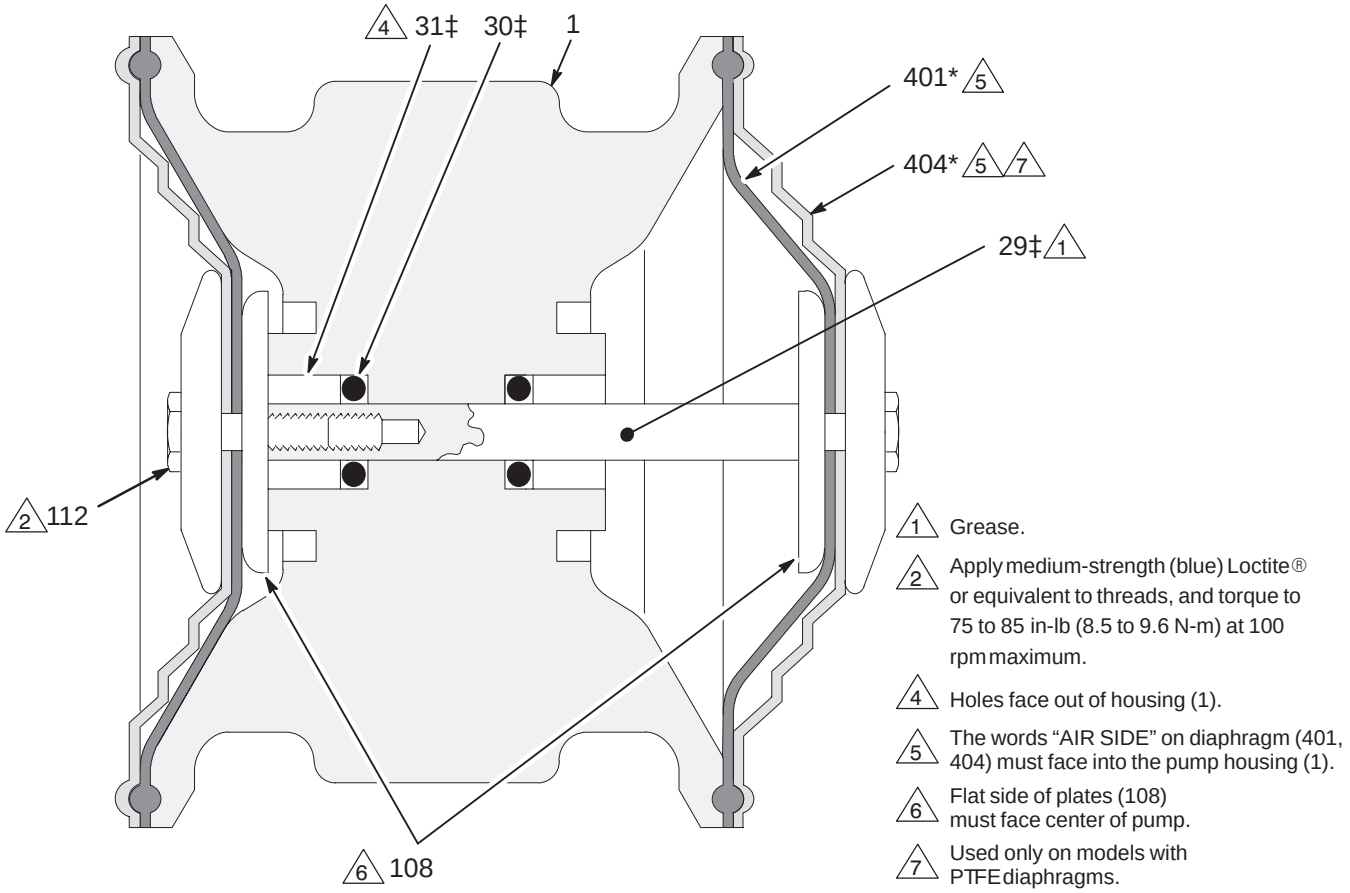


Fig. 21

Service

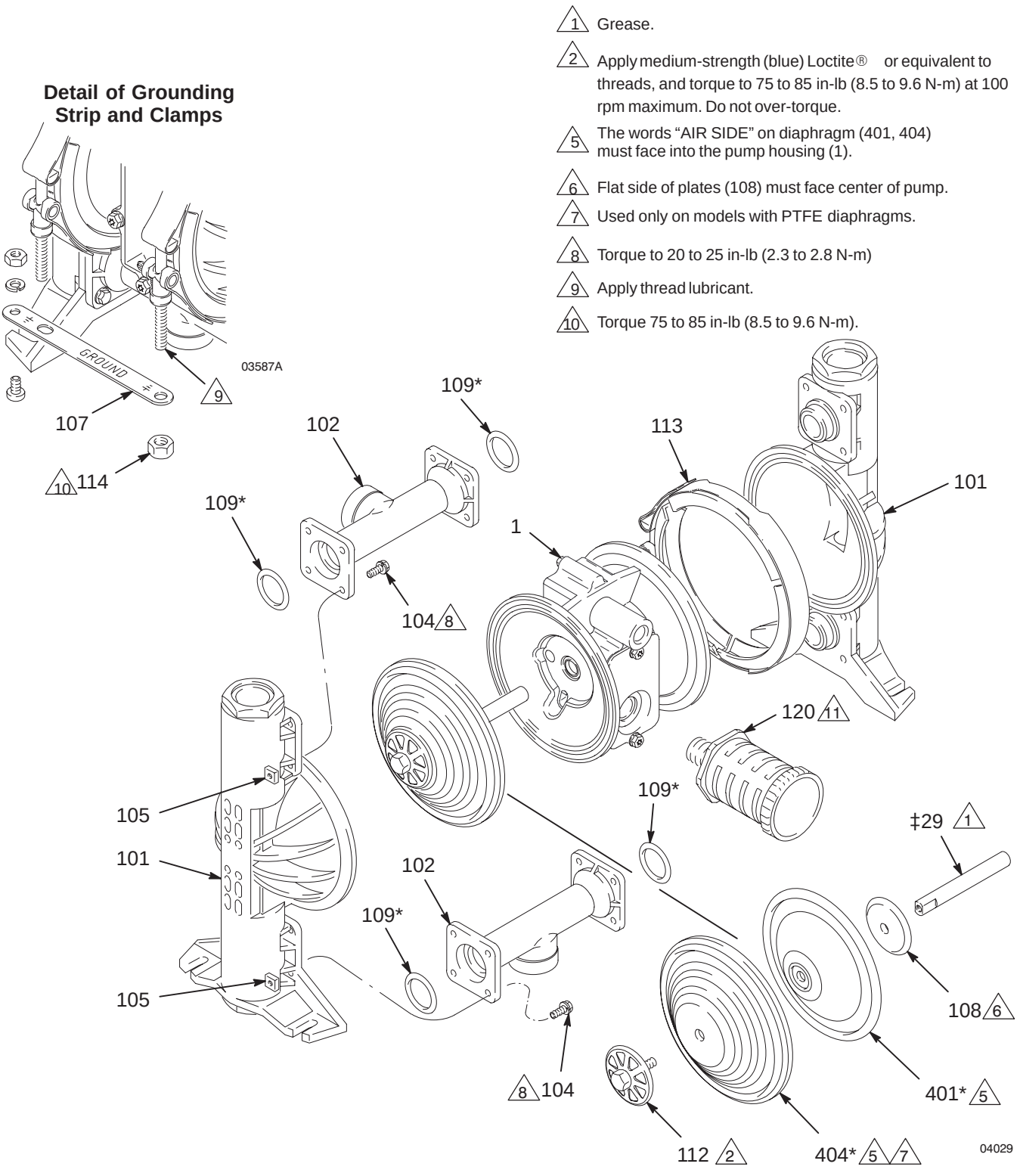


Fig. 22

Pump Matrix

Husky 715 Acetal and Polypropylene Pumps, Series E

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 715 aluminum air motor, acetal fluid section, acetal seats, PTFE balls, and PTFE diaphragms is Model **D 6 1 – 2 1 1.** To order replacement parts, refer to the part lists on pages 28 to 31. *The digits in the matrix **do not** correspond to the ref. nos. in the parts drawing and lists.*

Diaphragm Pump	Air Motor	Fluid Section	–	Guides	Balls	Diaphragms
D (for all pumps)	6 (Husky 715; Aluminum)	1 (acetal)	–	1 (not used)	1 (PTFE)	1 (PTFE)
		2 (polypropylene)	–	2 (acetal)	2 (not used)	2 (not used)
		3 (aluminum) see manual 308–445)	–	3 (316 sst)	3 (316 sst)	3 (not used)
		4 (sst) see manual 308–445)	–	4 (not used)	4 (not used)	4 (not used)
		A (acetal BSPT)	–	5 (not used)	5 (Hytrel®)	5 (Hytrel®)
		B (polypropylene BSPT)	–	6 (not used)	6 (Santoprene®)	6 (Santoprene®)
		C (aluminum BSPT) see manual 308–445	–	7 (not used)	7 (buna-N)	7 (buna-N)
		D (sst BSPT) see manual 308–445	–	8 (not used)	8 (Viton®)	8 (Viton®)
			–	9 (polypropylene)	9 (not used)	9 (not used)
			–	A (not used)	A (not used)	A (not used)
			–	B (not used)	B (not used)	B (not used)

Repair Kit Matrix

For Husky 715 Acetal and Polypropylene Pumps, Series E

Repair Kits may be ordered separately. To repair the air valve, order **Part No. 239–952** (see page 28). Parts included in the Air Valve Repair Kit are marked with a symbol in the parts list, for example (2†).

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 **6**. 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 acetal seats, PTFE balls, and PTFE diaphragms, order Repair Kit **D 0 6 – 2 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 6 – 0 0 1.** *The digits in the matrix **do not** correspond to the ref. nos. in the parts drawing and lists on pages 28 to 31.*

Diaphragm Pump	Null	O-rings	–	Guides	Balls	Diaphragms
D (for all pumps)	0 (for all pumps)	6 (PTFE)	–	0 (null)	0 (null)	0 (null)
			–	1 (not used)	1 (PTFE)	1 (PTFE)
			–	2 (acetal)	2 (not used)	2 (not used)
			–	3 (316 sst)	3 (316 sst)	3 (not used)
			–	4 (not used)	4 (not used)	4 (not used)
			–	5 (not used)	5 (Hytrel®)	5 (Hytrel®)
			–	6 (not used)	6 (Santoprene®)	6 (Santoprene®)
			–	7 (not used)	7 (buna-N)	7 (buna-N)
			–	8 (not used)	8 (Viton®)	8 (Viton®)
			–	9 (polypropylene)	9 (not used)	9 (not used)
			–	A (not used)	A (not used)	A (not used)
			–	B (not used)	B (not used)	B (not used)

Parts

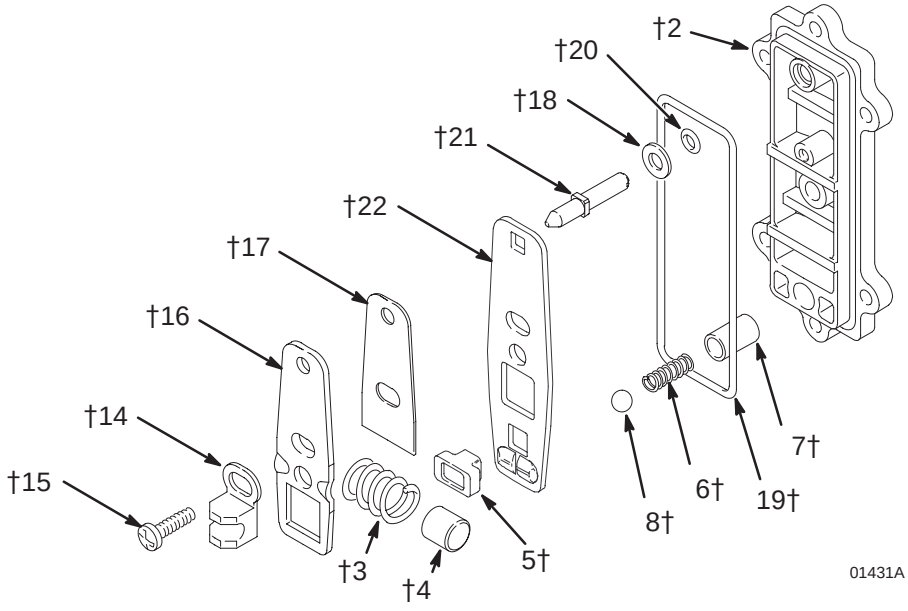
Air Motor Parts List (Matrix Column 2)

Digit	Ref. No.	Part No.	Description	Qty
6	1	189–531	HOUSING, center; aluminum; see page 29	1
	2†	187–706	COVER, air valve; polypropylene	1
	3†	187–722	SPRING; sst	1
	4†	187–853	STOP, link; acetal	1
	5†	192–675	CUP, valve; acetal	1
	6†	187–728	SPRING; sst	1
	7†	187–730	COLLAR, detent; sst	1
	8†	111–629	BALL, detent; carbide	1
	9†	187–726	BEARING, link; acetal; see page 29	1
	10	112–545	SCREW, thread-forming; M5 x 0.8; 16 mm long; see page 29	6
	12	187–719	SEAL, plate, valve; buna-N; see page 29	1
	13	187–720	PLATE, valve; sst; see page 29	1
	14†	187–718	SADDLE, shift; acetal	1
	15†	111–630	SCREW, thread-forming; 10–14 size; 0.75 in. (19 mm) long	1
	16†	187–724	LINK, actuator; sst	1
	17†	188–175	SPACER, link; acetal	1
	18†	111–750	WASHER, plain; sst	1

Digit	Ref. No.	Part No.	Description	Qty
6	19†	111–624	O-RING; buna-N	1
	20†	111–625	O-RING; buna-N	1
	21†	187–727	SHAFT, reset; sst	1
	22†	192–526	LINK, detent; sst	1
	23	112–546	SCREW, machine; 4–40; 3/8” (10 mm) long; see page 29	2
	24	190–244	BEARING, link, lower; see page 29	1
	25†	111–920	GREASE, general purpose; 0.375 oz. (10.5 g); not shown	1
	26	188–849	PIN, pilot; see page 29	2
	27	188–850	BEARING, pin; see page 29	2
	28	157–628	O-RING; buna-N; see page 29	2
	29‡	191–780	SHAFT, diaphragm; sst; see page 29	1
	30‡	113–704	PACKING, o-ring; Viton®	2
	31‡	191–779	BEARING; acetal	2

† *These parts are included in Air Valve Kit 239–952, which may be purchased separately. The kit is shown below.*

‡ *These parts are included in Diaphragm Shaft Kit 239–016, which may be purchased separately.*

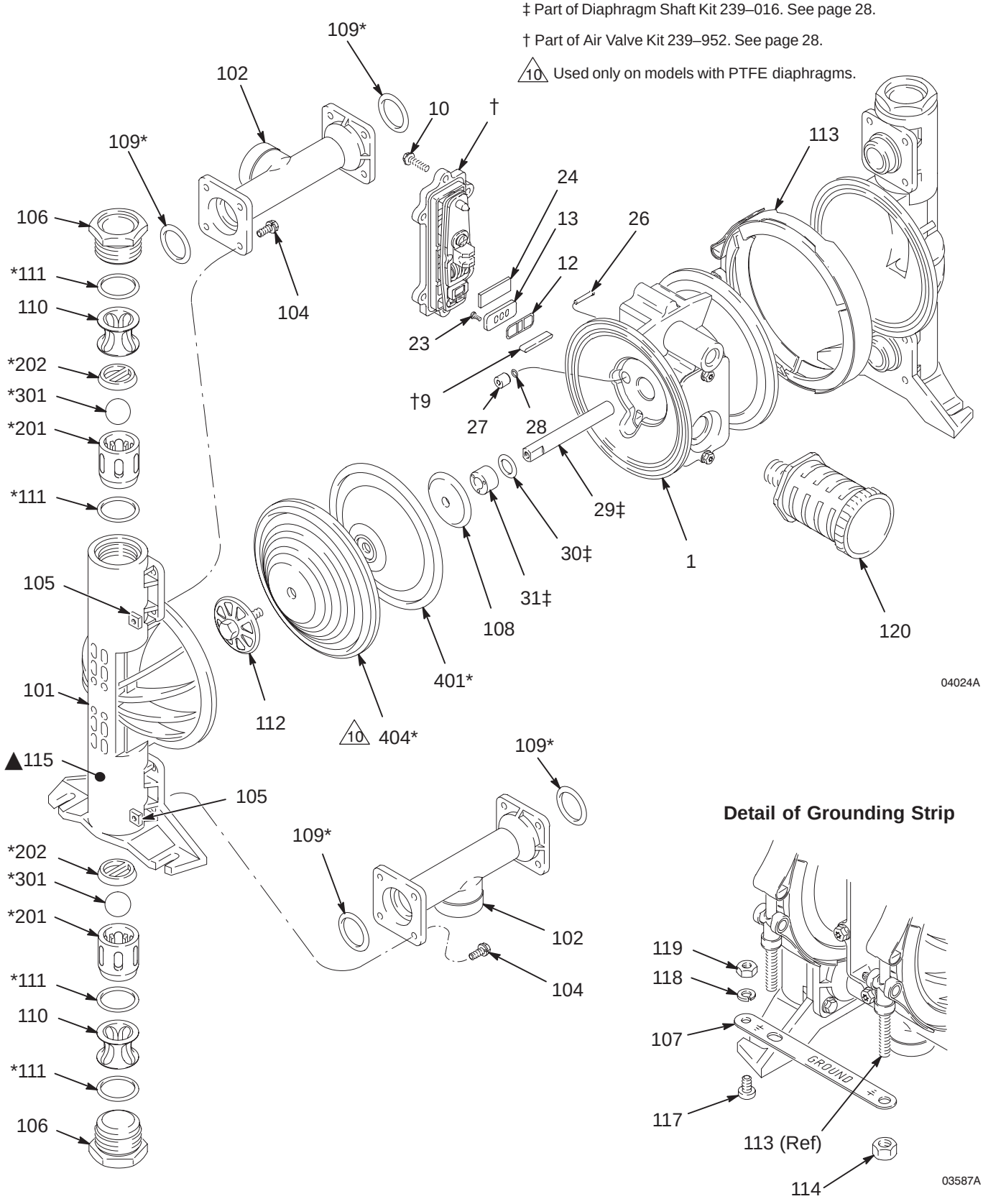


Parts

‡ Part of Diaphragm Shaft Kit 239–016. See page 28.

† Part of Air Valve Kit 239–952. See page 28.

10 Used only on models with PTFE diaphragms.



Detail of Grounding Strip

Parts

Fluid Section Parts List (Matrix Column 3)

Digit	Ref. No.	Part No.	Description	Qty
1	101	189–635	COVER, fluid; acetal	2
	102	237–038	MANIFOLD; acetal	2
	104	108–630	SCREW; 10–24; 5/8 in. (16 mm) long	16
	105	108–947	NUT; 10–24	16
	106	185–040	PLUG; acetal	4
	107	191–079	STRIP, grounding	1
	108	191–741	PLATE, air side; sst	2
	109*	108–635	O-RING; PTFE	4
	110	186–635	SPACER; acetal	4
	111*	110–636	O-RING; PTFE	8
	112	187–711	PLATE, fluid side; acetal	2
	113	189–540	CLAMP	2
	114	112–499	NUT, clamp; 1/4–28	2
	115 ▲	189–220	LABEL, warning	1
	117	102–790	SCREW; 10–24; 0.31 in. (8 mm) long	1
	118	100–718	LOCKWASHER, internal tooth; no. 10	1
	119	100–179	NUT, hex; 10–24	1
	120	108–636	MUFFLER	1

Digit	Ref. No.	Part No.	Description	Qty
2	101	189–637	COVER, fluid; polypropylene	2
	102	237–039	MANIFOLD; polypropylene	2
	104	108–630	SCREW; 10–24; 5/8 in. (16 mm) long	16
	105	108–947	NUT; 10–24	16
	106	189–639	PLUG; polypropylene	4
	107	191–079	STRIP, grounding	1
	108	191–741	PLATE, air side; sst	2
	109*	108–635	O-RING; PTFE	4
	110	186–409	SPACER; polypropylene	4
	111*	110–636	O-RING; PTFE	8
	112	187–712	PLATE, fluid side; polypropylene	2
	113	189–540	CLAMP	2
	114	112–499	NUT, clamp; 1/4–28	2
	115 ▲	189–220	LABEL, warning	1
	117	102–790	SCREW; 10–24; 0.31 in. (8 mm) long	1
	118	100–718	LOCKWASHER, internal tooth; no. 10	1
	119	100–179	NUT, hex; 10–24	1
	120	108–636	MUFFLER	1

continued

* *These parts are included in the Fluid Section Repair Kit, which may be purchased separately. See page 27 to determine the correct kit for your pump.*

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

Parts

Fluid Section Parts List (Matrix Column 3) *(continued)*

Digit	Ref. No.	Part No.	Description	Qty
A	101	189–635	COVER, fluid; acetal	2
	102	239–315	MANIFOLD; acetal; BSPT	2
	104	108–630	SCREW; 10–24; 5/8 in. (16 mm) long	16
	105	108–947	NUT; 10–24	16
	106	185–040	PLUG; acetal	4
	107	191–079	STRIP, grounding	1
	108	191–741	PLATE, air side; sst	2
	109*	108–635	O-RING; PTFE	4
	110	186–635	SPACER; acetal	4
	111*	110–636	O-RING; PTFE	8
	112	187–711	PLATE, fluid side; acetal	2
	113	189–540	CLAMP	2
	114	112–499	NUT, clamp; 1/4–28	2
	115 ▲	189–220	LABEL, warning	1
	117	102–790	SCREW; 10–24; 0.31 in. (8 mm) long	1
	118	100–718	LOCKWASHER, internal tooth; no. 10	1
	119	100–179	NUT, hex; 10–24	1
	120	108–636	MUFFLER	1

Digit	Ref. No.	Part No.	Description	Qty
B	101	189–637	COVER, fluid; polypropylene	2
	102	239–316	MANIFOLD; polypropylene; BSPT	2
	104	108–630	SCREW; 10–24; 5/8 in. (16 mm) long	16
	105	108–947	NUT; 10–24	16
	106	189–639	PLUG; polypropylene	4
	107	191–079	STRIP, grounding	1
	108	191–741	PLATE, air side; sst	2
	109*	108–635	O-RING; PTFE	4
	110	186–409	SPACER; polypropylene	4
	111*	110–636	O-RING; PTFE	8
	112	187–712	PLATE, fluid side; polypropylene	2
	113	189–540	CLAMP	2
	114	112–499	NUT, clamp; 1/4–28	2
	115 ▲	189–220	LABEL, warning	1
	117	102–790	SCREW; 10–24; 0.31 in. (8 mm) long	1
	118	100–718	LOCKWASHER, internal tooth; no. 10	1
	119	100–179	NUT, hex; 10–24	1
	120	108–636	MUFFLER	1

* *These parts are included in the Fluid Section Repair Kit, which may be purchased separately. See page 27 to determine the correct kit for your pump.*

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

Parts

Guide Parts List (Matrix Column 4)

Digit	Ref. No.	Part No.	Description	Qty
2	201*	186–691	GUIDE; acetal	4
	202*	186–692	STOP; acetal	4
3	201*	187–242	GUIDE; 316 stainless steel	4
	202*	187–243	STOP; 316 stainless steel	4
9	201*	186–776	GUIDE; polypropylene	4
	202*	186–777	STOP; polypropylene	4

Ball Parts List (Matrix Column 5)

Digit	Ref. No.	Part No.	Description	Qty
1	301*	108–639	BALL; PTFE	4
3	301*	103–462	BALL; 316 stainless steel	4
5	301*	112–945	BALL; Hytrel	4
6	301*	112–946	BALL; Santoprene	4
7	301*	108–944	BALL; buna-N	4
8	301*	112–959	BALL; Viton®	4

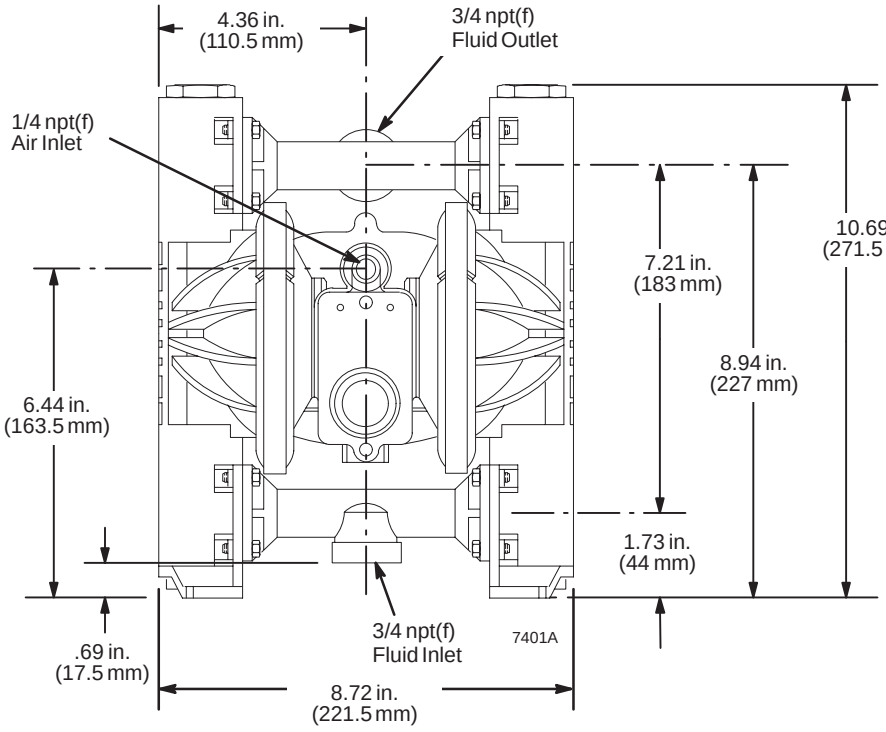
Diaphragm Parts List (Matrix Column 6)

Digit	Ref. No.	Part No.	Description	Qty
1	401*	183–542	DIAPHRAGM, backup; polyurethane	2
	404*	108–839	DIAPHRAGM; PTFE	2
5	401*	189–537	DIAPHRAGM; Hytrel	2
6	401*	189–536	DIAPHRAGM; Santoprene	2
7	401*	190–148	DIAPHRAGM; buna-N	2
8	401*	190–149	DIAPHRAGM; Viton	2

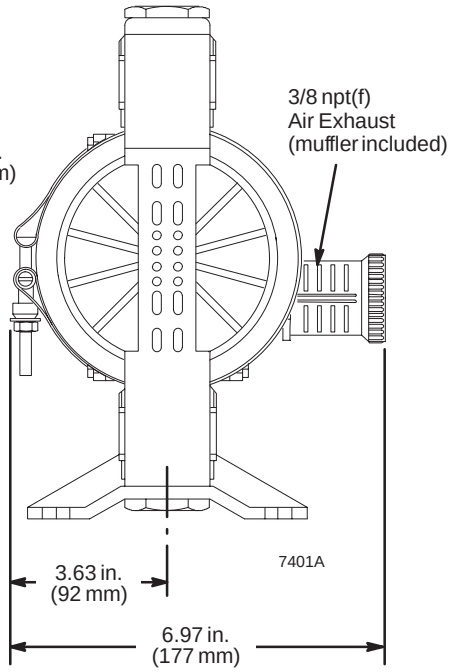
* *These parts are included in the Fluid Section Repair Kit, which may be purchased separately. See page 27.*

Dimensions

FRONT VIEW

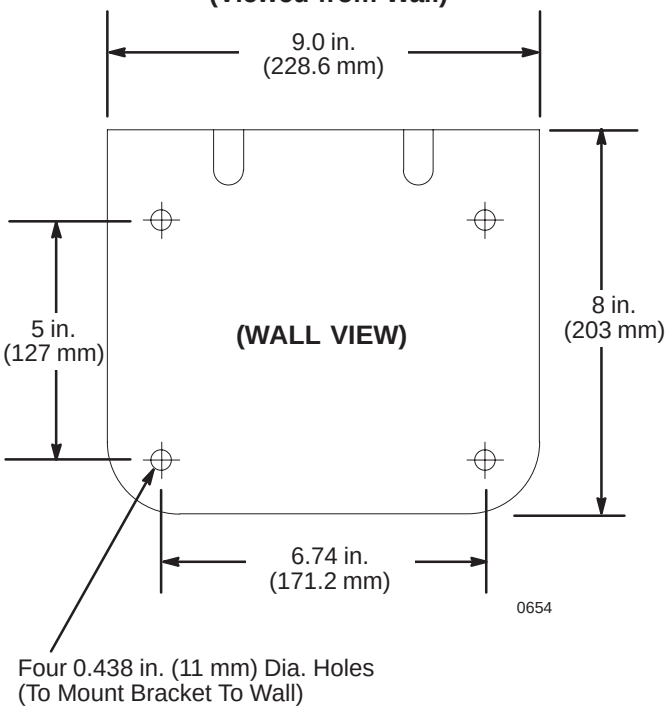


SIDE VIEW

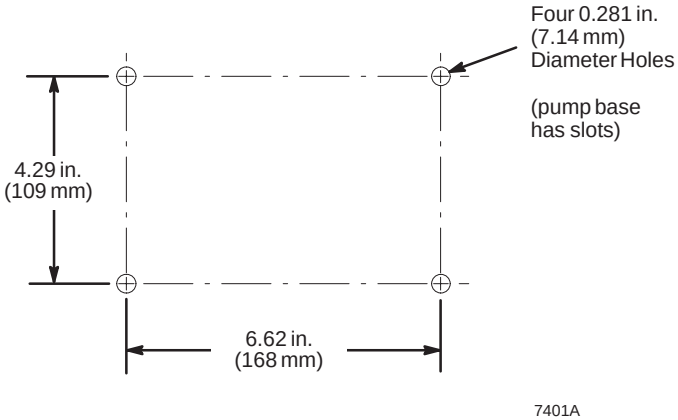


Mounting Hole Layouts

WALL BRACKET 221–167
(Viewed from Wall)



PUMP MOUNTING HOLE PATTERN



Technical Data

Maximum fluid working pressure	100 psi (0.7 MPa, 7 bar)
Air pressure operating range	25 to 100 psi (0.17 to 0.7 MPa, 1.7 to 7 bar)
Maximum air consumption	19 scfm
Maximum free flow delivery	16 gpm (60 l/min)
Maximum pump speed	200 cpm
Gallons (Liters) per cycle	0.08 (0.3)
Maximum suction lift (water)	16 ft (4.8 m) dry, 25 ft (7.6 m) wet
GPM loss	*at 5 ft (1.5 m) lift:* 2 gpm (7 l/min) *at 10 ft (3.1 m) lift:* 3 gpm (11 l/min) *at 15 ft (4.6 m) lift:* 4.5 gpm (17 l/min)
Maximum size pumpable solids	3/32 in. (2.5 mm)
Sound power level	85 dBa
Maximum operating temperature	150°F (65.5°C)
Air inlet size	1/4 npt(f)
Fluid inlet size	3/4 npt(f)
Fluid outlet size	3/4 npt(f)
Wetted parts	Vary by Model. See pages 28 to 31.
Non-wetted external parts	acetal, 303 stainless steel polyester (labels), polyethylene, zinc-plating
Weight	8 lb (3.6 kg)

* Sound power level measured per ISO standard 9614–2.

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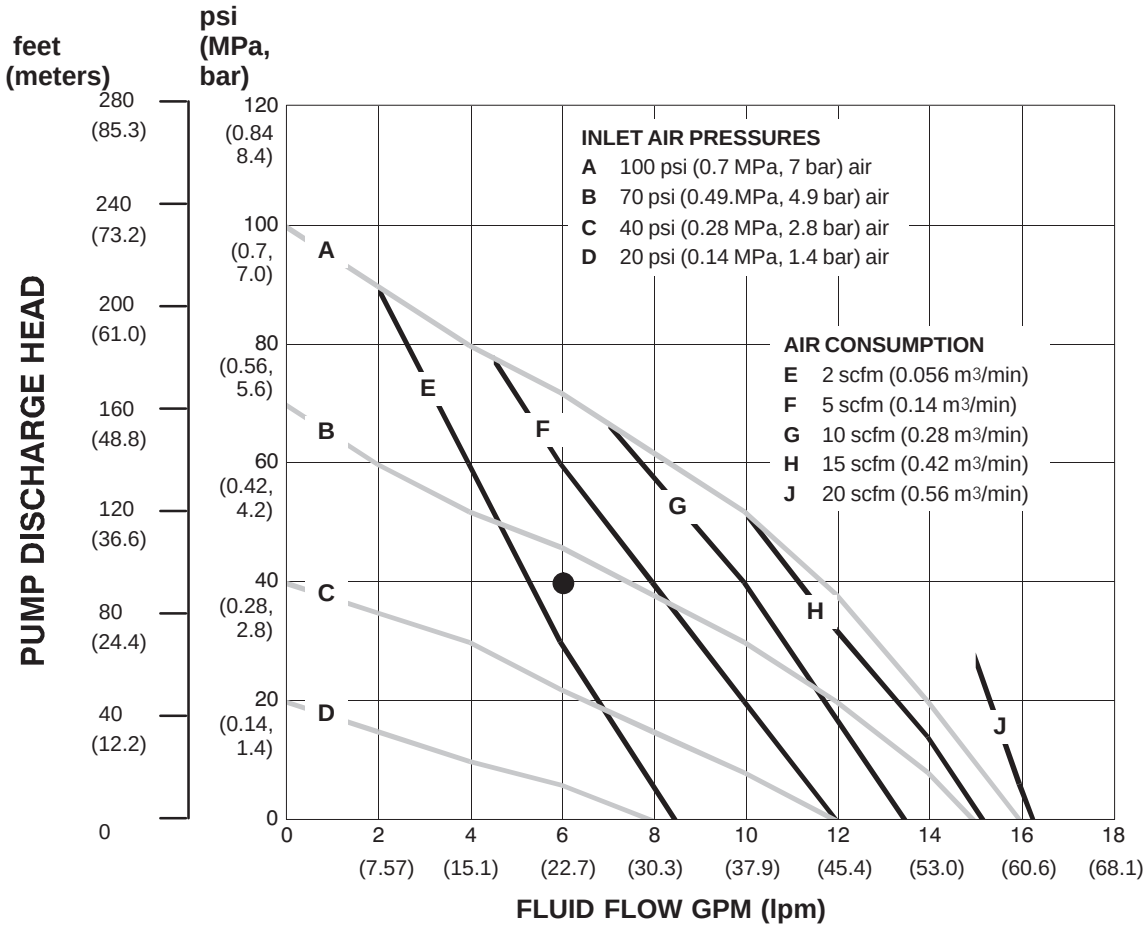
Example of Finding Pump Air Consumption and Air Pressure at a Specific Fluid Delivery and Discharge Head:
To supply 6 gpm (22.7 liters) fluid flow (horizontal scale) at 40 psi (0.28 MPa, 2.8 bar) discharge head pressure (vertical scale) requires approximately 3 scfm (0.084 m3/min) air consumption at 70 psi (0.49 MPa, 4.9 bar) inlet air pressure.



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

KEY
FLUID PRESSURE AND FLOW
SCFM AIR CONSUMPTION

Notes

Manual Change Summary

This manual went from Rev. P to Rev. R to add the BSPT pump models to the list on the cover.

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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.

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PRINTED IN USA 308–444 February 1995, Revised September 1998