

Instructions - Parts List



3:1 Fire-Ball[®] 425 Pump

308485P

EN

For pumping non-corrosive and non-abrasive oils and lubricants.

Model 237526, Series B

540 psi (3.7 MPa, 37 bar) Maximum Working Pressure

180 psi (1.2 MPa, 12 bar) Maximum Air Input Pressure

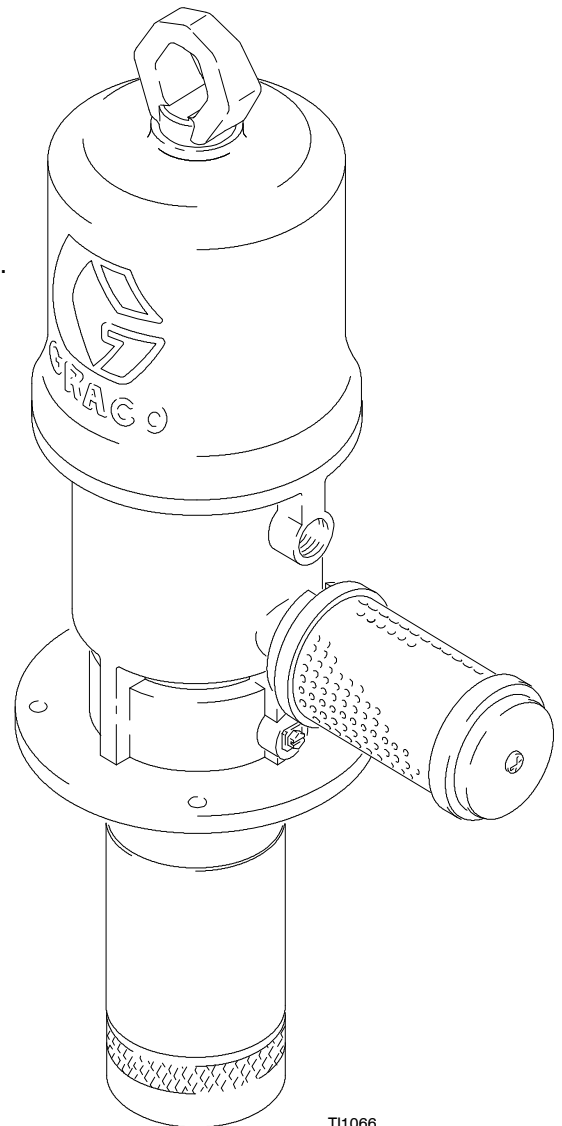


Important Safety instructions

Read all warnings and instructions in this manual.
Save these instructions.

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Symbols

Warning Symbol



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

Caution Symbol



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.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure stated on the equipment or in the **Technical Data** section of the instruction manual for your equipment. Do not exceed the maximum working pressure of the lowest rated component in your system.
- Use fluids and solvents that 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 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents, or fluids containing such solvents in pressurized aluminum equipment. Such use could result in a chemical reaction, with the possibility of explosion.
- Handle hoses carefully. Do not pull on hoses to move 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.
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.

WARNING



SKIN INJECTION HAZARD

Fluid from the dispensing valve, leaks, or ruptured components can inject fluid into your body and cause extremely serious injury, including the need for amputation. Fluid splashed in the eyes or on the skin can also cause serious injury.

- Fluid injected into the skin may look like just a cut, but it is a serious injury. **Get immediate surgical treatment.**
- Do not point the dispensing valve at anyone or at any part of the body.
- Do not put your hand or fingers over the end of the dispensing valve.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Use only extensions and no-drip tips that are designed for use with your dispensing valve.
- Do not use a low-pressure flexible nozzle with this equipment.
- Follow the **Pressure Relief Procedure** on page 8 if the dispensing valve clogs and before cleaning, checking, or servicing the equipment.
- Tighten all fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn or damaged parts immediately. Do not repair high pressure couplings; you must replace the entire hose.
- Fluid hoses must have spring guards on both ends to help protect them from rupture caused by kinks or bends near the couplings.



HAZARDOUS FLUIDS

Improper handling of hazardous fluids or inhaling toxic fumes can cause extremely serious injury or death from splashing in the eyes, ingestion, or bodily contamination.

- 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.

WARNING



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 and the object being lubricated. Refer to **Grounding** on page 7.
- If there is any static sparking or you feel an electric shock while using this equipment, **stop dispensing 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 dispensed.
- Keep the dispensing area free of debris, including solvent, rags, and gasoline.
- Before operating this equipment, electrically disconnect all equipment in the dispensing area.
- Before operating this equipment, extinguish all open flames or pilot lights in the dispensing area.
- Do not smoke in the dispensing area.
- Do not turn on or off any light switch in the dispensing area while dispensing or while there are any fumes in the air.
- Do not operate a gasoline engine in the dispensing area.



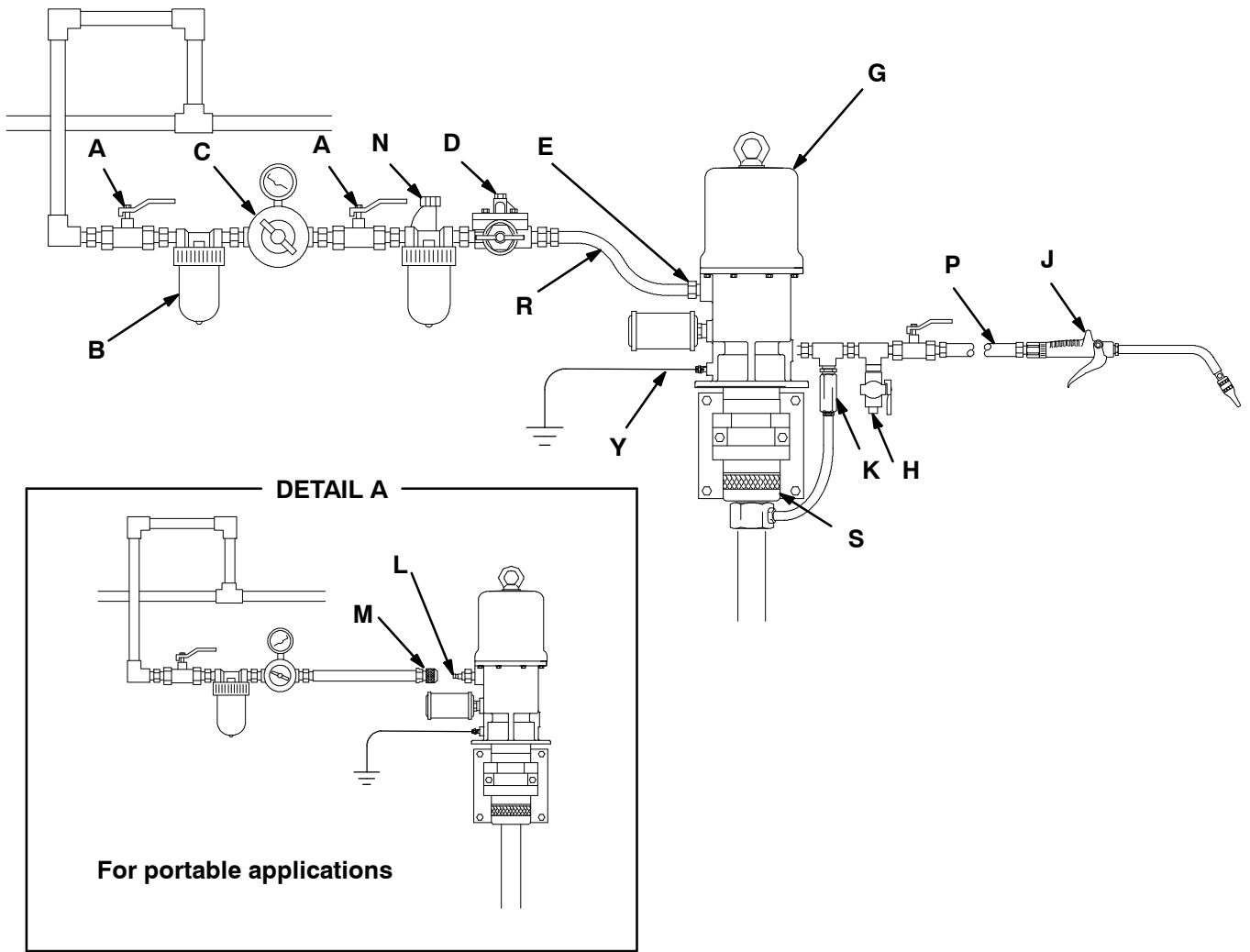
MOVING PARTS HAZARD

Moving parts, such as the air motor piston, can pinch or amputate your fingers.

- Keep clear of all moving parts when starting or operating the pump.
- Before servicing the equipment, follow the **Pressure Relief Procedure** on page 8 to prevent the equipment from starting unexpectedly.

Installation

The typical installation shown in Fig. 1 is only a guide for selecting and installing a pump; it is not an actual system design. Contact your Graco representative for assistance in designing a system to suit your needs.



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KEY

- | | | | |
|---|--|---|---|
| A | Bleed-type master air valve (required) | J | Dispensing valve (Model 222411 shown) |
| B | Air line filter | K | Thermal relief kit (required) 237601 |
| C | Air regulator and gauge | L | Male quick-disconnect fitting |
| D | Pump runaway valve (shown for position) <i>not needed if you use a low-level cut-off valve</i> | M | Female quick-disconnect coupler |
| E | Air Inlet | N | Air line lubricator |
| G | Pump (Model 237526 shown) | P | Fluid hose |
| H | Fluid drain valve (required) | S | Fluid inlet, 1 1/2" npt |
| | | R | Electrically conductive air hose (218093 shown) |
| | | Y | Ground wire (required) |

Fig. 1

Installation

System Accessories

CAUTION

Do not hang the air accessories directly on the air inlet (E). The fittings are not strong enough to support the accessories and may cause one or more to break. Provide a bracket on which to mount the accessories.

WARNING

Three accessories are **required** in your system: an air bleed device, a fluid drain valve, and a thermal relief kit. These accessories help reduce the risk of serious bodily injury including fluid injection, splashing in the eyes or on the skin, and injury from moving parts if you are adjusting or repairing the pump.

The air bleed device relieves air trapped between it and the air motor after the air supply is shut off. Trapped air can cause the air motor to cycle unexpectedly, causing serious bodily injury if you are adjusting or repairing the pump. Use either a bleed-type master air valve (A) or a quick disconnect coupler (M) and fitting (L). Install it near the pump air inlet, within easy reach of the pump.

The fluid drain valve (H) assists in relieving fluid pressure in the displacement pump, hoses and dispensing valve. Triggering the valve to relieve pressure may not be sufficient.

The thermal relief kit (K) relieves pressure in the fluid line caused by heat expansion.

Install the following accessories in the order shown in Fig.1:

- Install an air line lubricator (N) for automatic air motor lubrication.
- Install a bleed-type master air valve (A) to relieve air trapped between it and the motor when the valve is closed. As an alternative, you can install an air line quick disconnect coupler (M) and fitting (L) to serve as an air-bleed device. See Detail A in Fig.1. *To order a 1/2" npt, 300 psi (2.1 MPa, 21 bar) Maximum Working Pressure bleed-type master air valve, order Part No. 107142.*
- Install the air regulator (C) to control pump speed and pressure.
- Install an air line filter (B) to remove harmful dirt and contaminants from your compressed air supply. Install another bleed-type master air valve (A) to isolate the accessories for servicing.
- Install a fluid drain valve (H) near the pump fluid outlet to relieve fluid pressure in the hose and gun when the valve is opened. *To order a 3/8" npt (mbe) fluid drain valve, order Part No. 210658.*
- Install a suitable fluid hose (P) and dispensing valve (J).
- Install a thermal relief kit (K) to relieve pressure in the fluid line caused by heat expansion. *To order a 600 psi (4.1 MPa, 41 bar) minimum relief pressure, 630 psi (4.4 MPa, 44 bar) maximum relief pressure thermal relief kit, order Part No. 237601.*

Installation

Grounding

Proper grounding is an essential part of maintaining a safe system.

To reduce the risk of static sparking, ground the pump. Check your local electrical code for detailed grounding instructions for your area and type of equipment. Be sure to ground all of the following equipment:

- *Pump:* Use a ground wire and clamp as shown to the right.
- *Air and Fluid hoses:* Use only electrically conductive hoses.
- *Air compressor:* Follow manufacturer's recommendations.
- *Fluid supply container:* According to local code.
- *To maintain grounding continuity when flushing or relieving pressure,* always hold a metal part of the valve firmly to the side of a grounded metal pail, then trigger the valve.

To ground the pump, remove the ground screw (Z) and insert through the eye of the ring terminal at end of the ground wire (Y). Fasten the ground screw back onto the pump and tighten securely. Connect the other end of the ground wire to a true earth ground. See Fig. 2. *To order a ground wire and clamp, order Part No. 222011.*

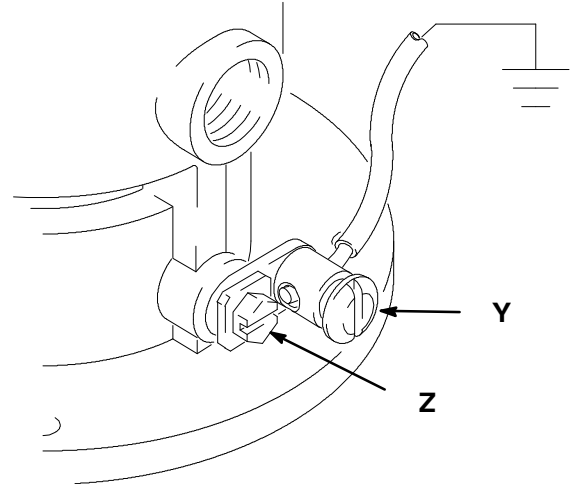


Fig. 2

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Operation

Pressure Relief Procedure

WARNING



SKIN INJECTION HAZARD

To reduce the risk of serious bodily injury, including fluid injection or splashing in the eyes or on the skin, always follow this procedure whenever you shut off the pump, when checking or servicing any part of the system, when installing or changing dispensing devices, and whenever you stop dispensing.

1. Close the pump air regulator and the bleed-type master air valve (required in your system).
2. Hold a metal part of the dispensing valve firmly to a grounded metal waste container and trigger the valve to relieve the fluid pressure, or open the drain valve (H).

Startup and Adjustment

WARNING



COMPONENT RUPTURE HAZARD

The maximum working pressure of each component in the system may not be the same. To reduce the risk of overpressurizing any component in the system, be sure you know the maximum working pressure of each component. **Never** exceed the maximum working pressure of the lowest rated component in the system. Overpressurizing any component can result in rupture, fire, explosion, property damage, and serious injury.

To determine the fluid output pressure using the air regulator reading, multiply the ratio of the pump by the air pressure shown on the regulator gauge. For example:

$$3 (:1) \text{ ratio} \times 180 \text{ psi air} = 540 \text{ psi fluid output}$$

$$[3 (:1) \text{ ratio} \times 1.2 \text{ MPa air} = 3.6 \text{ MPa fluid output}]$$

$$[3 (:1) \text{ ratio} \times 12 \text{ bar air} = 36 \text{ bar fluid output}]$$

Limit the air to the pump so that no air line or fluid line component or accessory is overpressurized.

1. With the air regulator (C) closed, open the bleed-type master air valves (A), or, if so equipped, join the quick disconnect coupler (M) to the male fitting (L).
2. Open the dispensing valve (J) into a grounded metal waste container, making firm metal-to-metal contact between the container and valve.
3. Open the pump air regulator (C) slowly, just until the pump is running. When the pump is primed and all air has been pushed out of the lines, close the dispensing valve.

NOTE: When the pump is primed, and with sufficient air supplied, the pump starts when the dispensing valve is opened and shuts off when it is closed.

4. Adjust the air regulator until you get sufficient flow from the dispensing valve. Always run the pump at the lowest speed necessary to get the desired results. Do not exceed the maximum working pressure of any component in the system.

NOTES:

- Never allow the pump to run dry of the fluid being pumped. A dry pump will quickly accelerate to a high speed, possibly damaging itself. If your pump accelerates quickly, or is running too fast, stop it immediately and check the fluid supply. If the supply container is empty and air has been pumped into the lines, prime the pump and lines with fluid, or flush it and leave it filled with a compatible solvent. Be sure to eliminate all air from the fluid lines.
- Read and follow the instructions supplied with each component in your system.
- If the pump will be unattended for any period of time, or to shut off the system at the end of the work shift, always follow the **Pressure Relief Procedure** at left.

Troubleshooting

! WARNING



INJECTION HAZARD

To reduce the risk of serious bodily injury, including fluid injection or splashing in the eyes or on the skin, always

follow the **Pressure Relief Procedure** on page 8 whenever you shut off the pump, when checking or servicing any part of the system, when installing or changing dispensing devices, and whenever you stop dispensing.

NOTE: Check all other possible problems and solutions before disassembling the pump.

Problem	Cause	Solution
Pump fails to operate	Inadequate air supply pressure or restricted air lines	Increase air supply; clear
	Closed or clogged dispensing valve	Open; clean
	Clogged fluid lines, hoses, valves, etc.	Clear*
	Damaged air motor	Service air motor
	Exhausted fluid supply	Refill and reprime or flush
Continuous air exhaust	Worn or damaged air motor gasket, packing, seal, etc.	Service air motor
Erratic pump operation	Exhausted fluid supply	Refill and reprime or flush
	Held open or worn intake valve or piston packings	Clear; service
Pump operates, but output low on up stroke	Held open piston valve or worn piston packings	Clear; service
Pump operates, but output low on down stroke	Held open or worn intake valve	Clear; service
Pump operates, but output low on both strokes	Inadequate air supply pressure or restricted air lines	Increase air supply; clear
	Closed or clogged valves	Open; clean

* Follow the **Pressure Relief Procedure** on page 8, and disconnect the fluid line. If the pump starts when the air is turned on again, the line, hose, valve, etc., is clogged.

Air Motor and Throat Service

Before You Start

- Be sure you have all necessary parts on hand. **Air Motor Repair Kit 207385** includes repair parts for the motor. Use all the parts in the kit for the best results. Parts included in the kit are marked with one asterisk, for example (19*), in the text and drawings. See the **Parts List** on page 15.
- Two accessory tools should be used: **Padded Pliers, 207579**, are used to grip the trip rod without damaging its surface, and a **0.125-in. (3.18 mm) Gauge, 171818**, is used to assure the proper clearance between the poppets and seat of the piston.

Disassembly

1. Flush the pump. Follow the **Pressure Relief Procedure** on page 8 before proceeding.
2. Disconnect the hoses, remove the pump from its mounting, and clamp the air motor base (28) in a vise horizontally by closing the vice jaws on the flange.
3. Use a strap wrench on the displacement pump cylinder (110) to screw it out of the air motor base (28). See Fig. 3.
4. Remove the air motor base from the vise, and place the piston rod (29) flats in the vise with the air motor up.
5. Loosen the lift ring (24). Pull the lift ring up, grip the trip rod (31) with the padded pliers, and screw the lift ring off of the rod.
6. Remove the piston/valve seat (109) from the rod (29) with wrenches or with the vise and a wrench.
7. Remove the piston ball (103), u-cup packing (107†), and piston washer (113).

8. Remove the six screws (3) holding the cylinder (30) to the base (28). Carefully pull the cylinder straight up off of the piston (53).

CAUTION

To avoid damaging the cylinder wall, lift the cylinder straight up off of the piston. Never tilt the cylinder as it is being removed.

9. Remove the piston/base from the vise, and set it upright on the workbench.

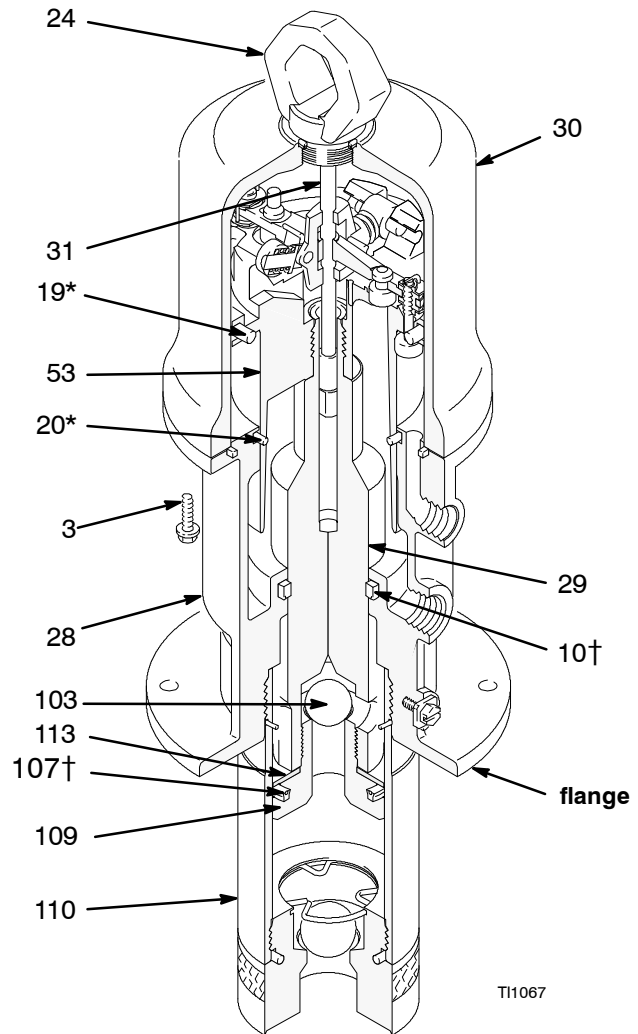


Fig. 3

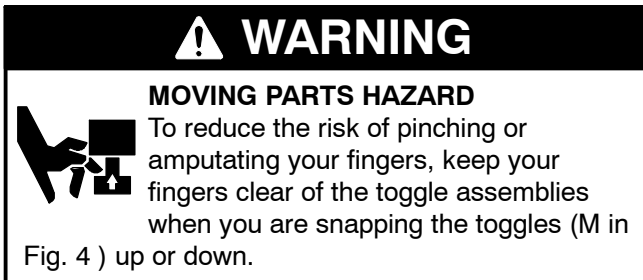
† Included in Repair Kit 237602.

CAUTION

Do not damage the plated surface of the trip rod (31). Damaging the surface of the trip rod can result in erratic air motor operation. Use the special padded pliers, 207579, to grasp the rod.

Air Motor and Throat Service

10. Pull the piston assembly from the air motor base (28), and set it aside.
11. Remove the vee block seal (10†) with a pick, and clean the groove in the air motor base (28). Remove any dirt in the groove, and wipe the groove clean with a cloth.
12. Inspect the air motor for damaged or worn inlet valve grommets (17*), o-ring packings (19*, 20*), valve nuts (21*), lock wires (22*), exhaust valve poppets (26*), or inlet valve poppets (32*). If any of these parts need to be replaced, continue with steps 13 to 19. Otherwise, see **Reassembly** on page 12.
13. Use a screwdriver to push down on the trip rod yoke (13), and snap the toggles down. See Fig. 4.
14. *In this step, while you are prying with the screwdriver with one hand, cover the toggle assemblies with your other hand so as to catch the spring-loaded toggle assemblies when they snap out of the lugs.* Place the tip of a screwdriver into the piston between the piston lugs (L) below the pivot pins (16) on the toggles, pry up with the screwdriver handle to compress the springs on the toggle assembly (M) up and away from the piston lugs, and remove the parts. See Fig. 4.
15. Straighten the lockwires (22*) and remove them from the valve nuts (21*). Screw the top nuts off. Remove the trip rod yoke (13), actuator (12), and trip rod (31). Unscrew the bottom nuts (21*), and remove the poppets. Make sure the valve bar spring clips (14) are not worn or damaged and that they properly guide the actuator (12).
16. Remove the exhaust valve poppets (26) by cutting them with a side cutter, then pull them out of the actuator (12).
17. Clean all the parts carefully in a compatible solvent and inspect them for wear or damage. Use all the repair kit parts during reassembly, and replace other parts as necessary.
18. Check the surfaces of the piston, piston rod, and cylinder wall for scratches or wear. A scored rod will cause premature packing wear and leaking.
19. Lubricate all parts with a light, waterproof grease.



Air Motor and Throat Service

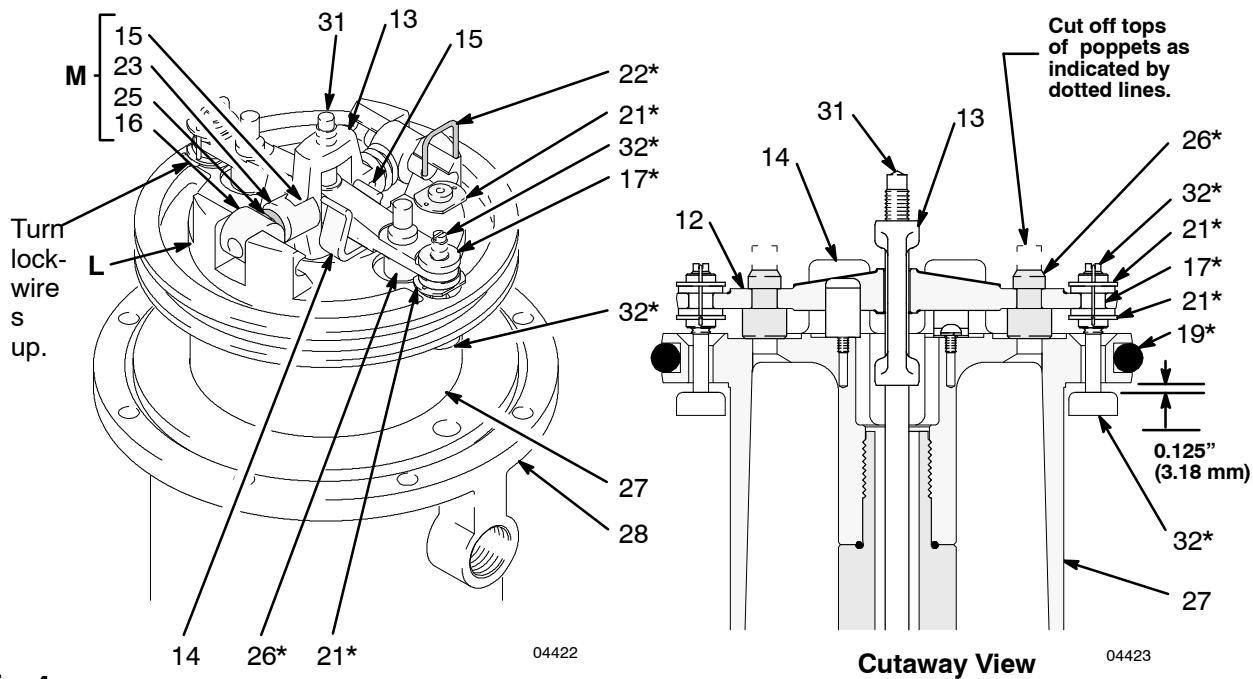


Fig. 4

Reassembly

1. Place the piston rod (29) flats in the vice with the air motor up.
2. Pull the exhaust valve poppets (26*) into the valve actuator (12), and clip off the top parts of the poppets (shown with dotted lines in the **Cutaway View** in Fig. 4).
3. Install the grommets (17*) in the actuator (12), place the inlet valve poppets (32*) in the piston, and thread the bottom valve nuts (21*) onto the inlet valve poppets until there are a few threads left before the threads run out.

NOTE: If you thread the valve nuts too far down onto the poppets, they will run off of the threaded part of the poppets.

4. Grease heavily and place the trip rod (31) in the piston, place the actuator (12) in the yoke (13), and place the well-greased actuator/yoke assembly in the piston, with the trip rod going through the center holes of the actuator and yoke and the inlet valve poppets (32*) going through the grommets (17*).
5. Thread the top valve nuts (21*) onto the inlet valve poppets (32*) until one thread of the inlet valve poppets is exposed above the valve nuts.
6. Install the toggle pins (15) in the yoke (13), place the toggle arm (23) ends of the toggle assembly (M) onto the toggle pins, and snap the pivot pin (16) ends of the toggle assembly into the lugs (L).

7. Measuring with the gauge (Part No.171818), create 0.125 in. (3.18 mm) of clearance between the inlet valve poppets (32*) and the piston seat when the inlet valve is open. See the **Cutaway View** Fig. 4.

NOTE: Adjust the distance between the inlet valve poppets and the piston seat by turning the top valve nuts (21*).

8. Tighten the bottom valve nuts (21*) securely by hand.
9. Align the holes in the valve nuts (21*) and the slots on the tops of the inlet valve poppets (32*), and drop the lock wires (22*) through the holes in the valve nuts and into the slots in the inlet valve poppets. Pull the lock wires down tightly, and bend the ends with pliers so that they cannot be pulled back out of the holes.

CAUTION

Never re-use the old lock wires. They get brittle and will break easily from too much bending.

10. Grease and install the new o-rings (19* and 20*) on the piston assembly (27) and in the groove in the air motor base (28).
11. Grease and reinstall the vee block seal (10†) in the groove in the air motor base (28).

Air Motor and Throat Service

- Slide the piston rod (29) down through the packing, and lower the piston (27) into the air motor base (28).
 - Clamp the air motor base (28) in a vise horizontally by closing the vice jaws on the flange.
 - Install the u-cup packing (107†) with the lips up, and place the piston washer (113) on the piston/valve seat (109).
- NOTE:** Make sure the lips of the u-cup packing (107†) face up. See Fig. 3.
- Place the piston ball (103) in the piston rod (29).
 - Apply Loctite® to the threads of the piston/valve seat (109), and thread the assembly from Step 14 onto the piston rod (29).

- Clamp the flats of the piston/valve seat (109) in a vise, and, using a crow's-foot wrench, torque the piston rod (29) to the piston valve seat to 40 to 60 ft-lb.
- Clamp the air motor base (28) in a vise horizontally by closing the vice jaws on the flange.
- Use a strap wrench to screw the displacement pump cylinder (110) to the air motor base (28), and torque with a crow's-foot wrench to 95 to 105 ft-lb.
- Before remounting the pump, connect an air hose and run the air motor slowly, at about 40 psi (0.28 MPa, 2.8 bar) to see that it operates smoothly.
- Reconnect the ground wire before regular operation of the pump.

Displacement Pump Service

Disassembly

NOTE: Displacement Pump Repair Kit 237602 includes repair parts for the pump throat and piston. Use all the parts in the kit for the best results. Parts included in the kit are marked with a dagger, for example (7†), in the text and drawings. See the **Parts List** on page 16.

- Flush the pump. Follow the **Pressure Relief Procedure** on page 8, before proceeding.
- Disconnect the hoses, remove the pump from its mounting, and clamp the air motor base (28) in a vise horizontally by closing the vice jaws on the flange.

Intake Valve See Fig 5.

- Follow the **Pressure Relief Procedure** on page 8.
- Unscrew the valve housing (111). Remove the o-ring (105†), retainer (112), and ball (104).
- Inspect the parts for wear or damage. If the ball is nicked, replace it. Reassemble, using grease on the male threads.

Displacement Pump See Fig 5.

NOTE: Clean and inspect all parts for wear or damage as you disassemble them. Replace parts as needed. For best results, always replace all the o-rings and packings when you disassemble the pump.

- Follow the **Pressure Relief Procedure** on page 8.
- Follow steps 1 through 6 of **Disassembly** on page 10.
- Carefully inspect the smooth, inner surface of the cylinder (110) for scoring or irregular surfaces. Such damage causes premature seal wear and leaking. Replace the cylinder as needed.

Reassembly

Do steps 14 through 21 in **Air Motor and Throat Service** on this page.

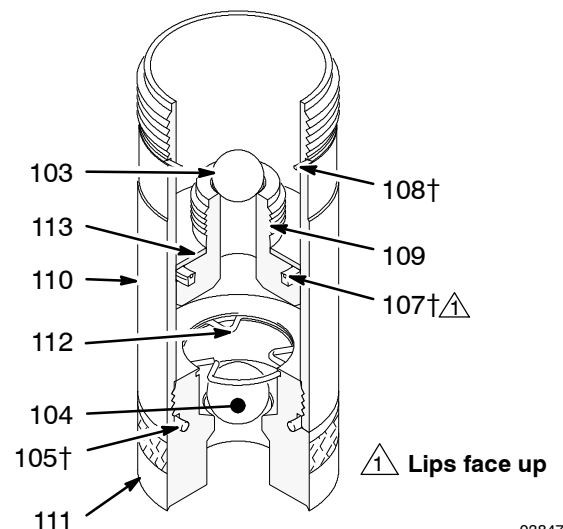
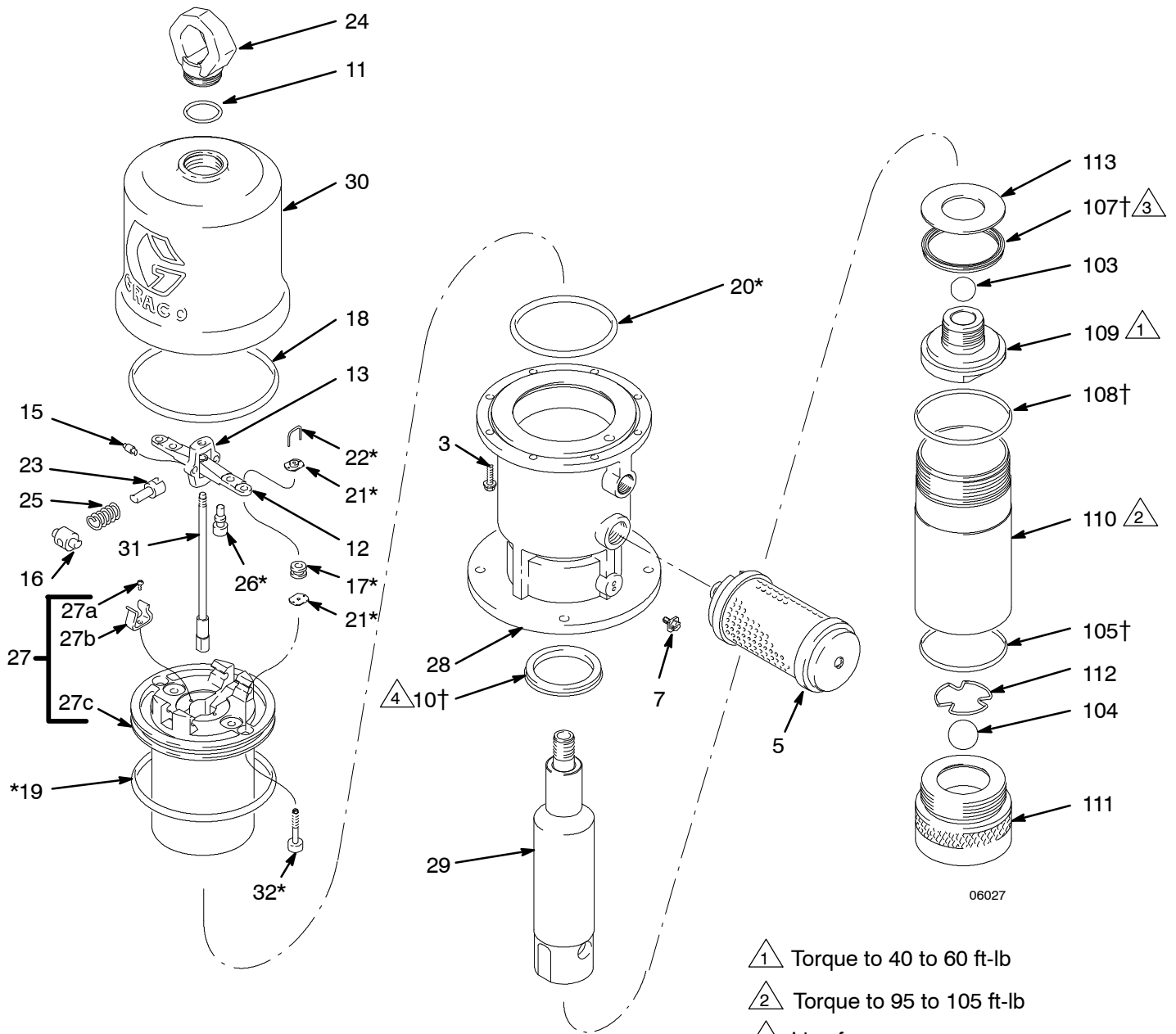


Fig. 5

† Included in Repair Kit 237602.

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Air Motor Parts Drawing



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Air Motor Parts List

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
3	101578	SCREW, cap, hex hd	8	25	167585	SPRING, helical compression	2
5	102656	MUFFLER, air exhaust	1	26*	170709	POPPET, exhaust valve	2
7	116343	SCREW, grounding	1	27	207391	PISTON, includes items 27a to 27c <i>(also includes 207385 repair kit when ordered as a replacement part)</i>	1
10†	112130	SEAL, pump	1				
11	156698	PACKING, o-ring	1	27a	102975	SCREW, rd hd mach; 6-32 x 1/4"	2
12	158359	ACTUATOR, valve, air	2	27b	158361	CLIP, Spring	2
13	158360	YOKE, rod, trip	1	27c		BARE PISTON <i>(not sold separately)</i>	1
15	158362	PIN, toggle	2	28	190229	BASE, motor, air	1
16	158364	PIN, pivot	2	29	190233	ROD, piston	1
17*	158367	GROMMET, inlet valve	2	30	15E954	CYLINDER, motor, air	1
18	158377	PACKING, ring, seal	1	31	207150	ROD, trip	1
19*	158378	PACKING, o-ring	1	32*	236079	POPPET, inlet valve	2
20*	158379	PACKING, o-ring	1	33	119344	LABEL, designation	1
21*	160261	NUT, valve	4	35▲	290259	LABEL, warning	1
22*	160618	WIRE, lock	2				
23	160623	ARM, toggle	2				
24	190929	LIFT RING	1				

* *Included in Air Motor Repair Kit 207385, which may be purchased separately.*

† *Included in Pump Repair Kit 237602, which may be purchased separately.*

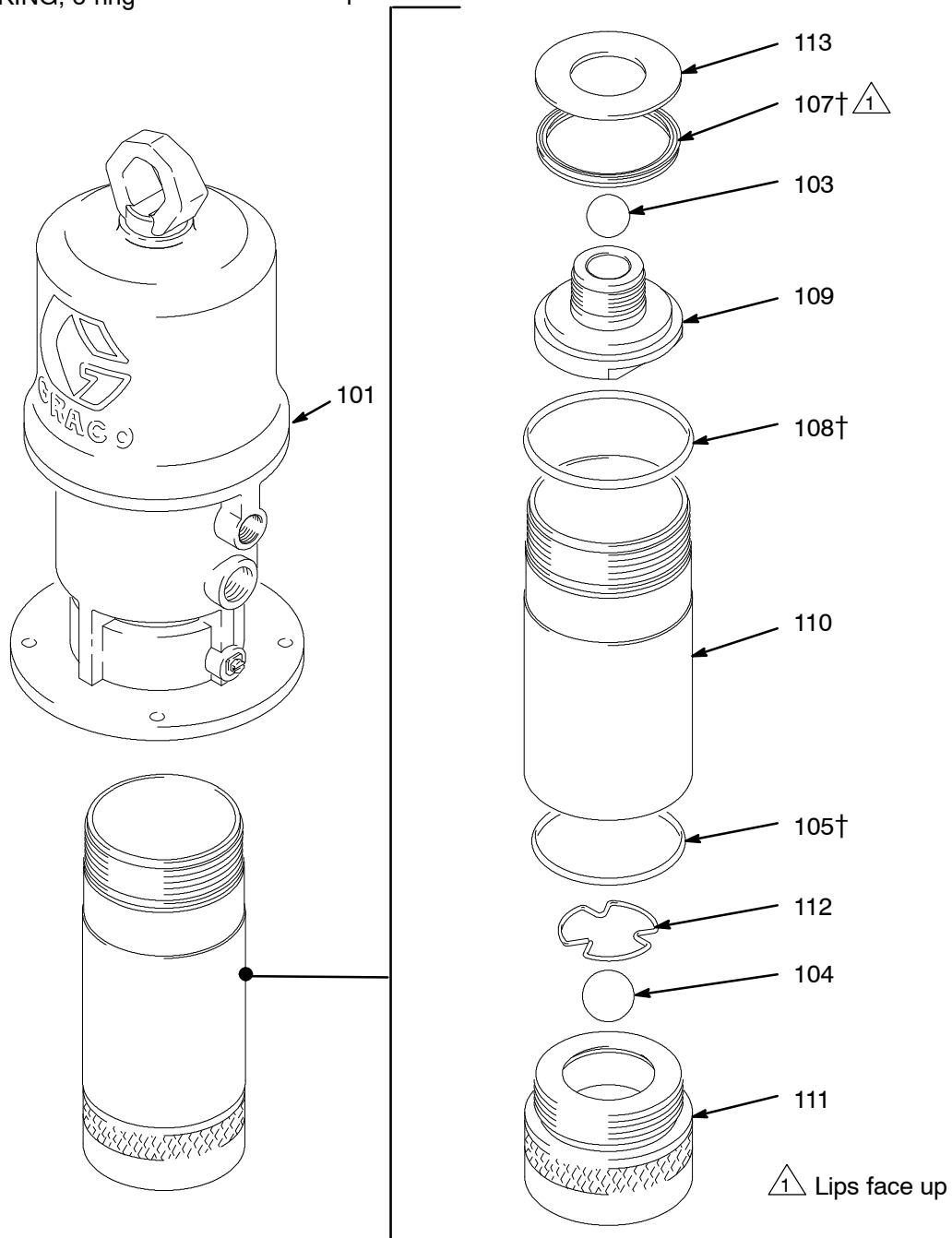
▲ *Extra warning labels are available at no cost.*

Displacement Pump Parts Drawing and List

Model 237526, Series B

Ref No.	Part No.	Description	Qty.	Ref No.	Part No.	Description	Qty.
10†	112130	SEAL, block, vee <i>shown on page 14</i>	1	109	189707	PISTON/SEAT, valve	1
101		AIR MOTOR <i>See parts on page 14</i>	1	110	189708	CYLINDER, pump	1
103	101178	BALL, piston; metallic	1	111	189709	VALVE HOUSING, 1 1/2" npt(f)	1
104	108001	BALL; sst	1	112	189710	RETAINER, ball	1
105†	110828	PACKING, o-ring	1	113	189711	WASHER, piston	1
107†	112565	PACKING, u-cup	1				
108†	166071	PACKING, o-ring	1				

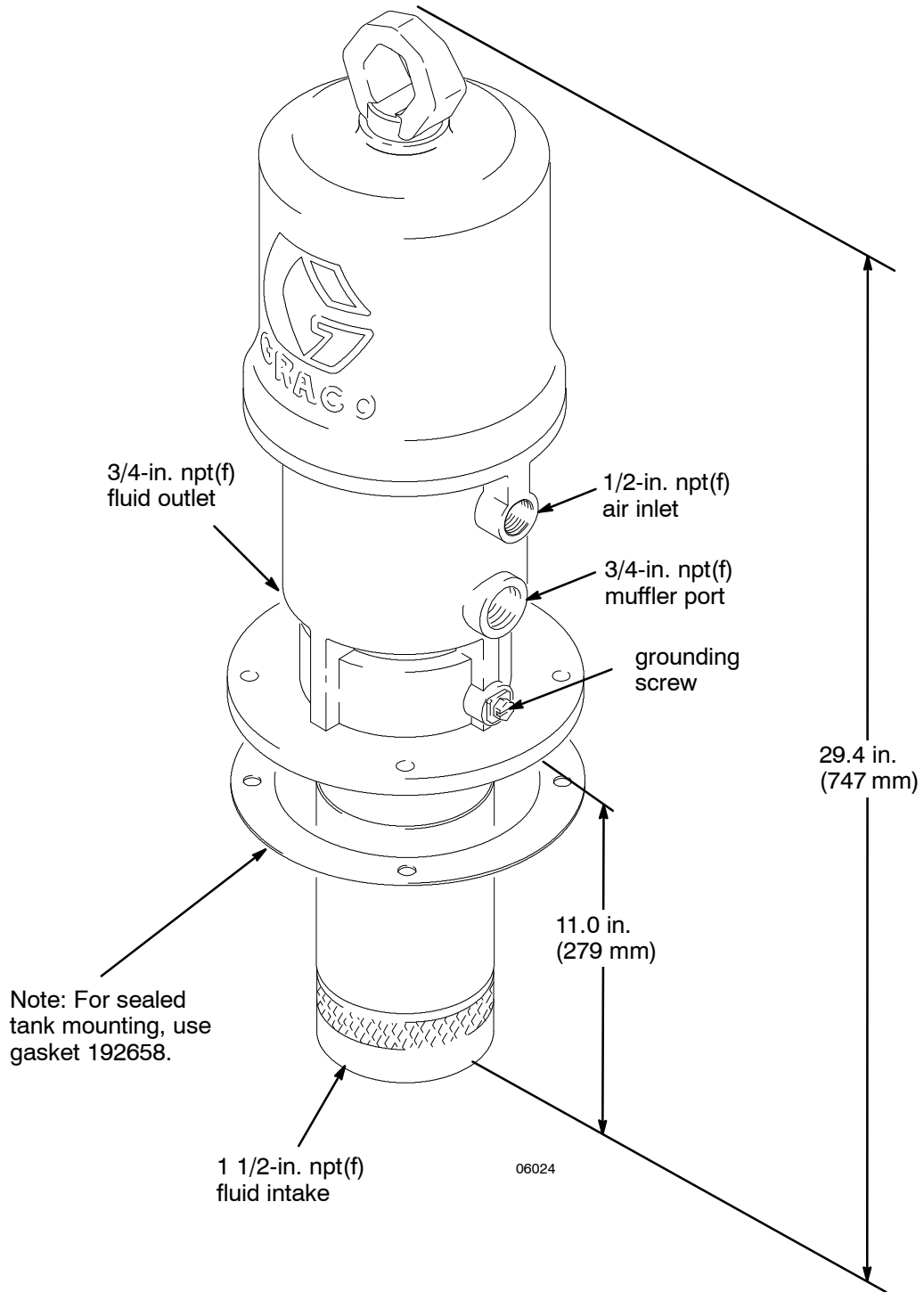
† These parts are included in Pump Repair Kit 237602, which may be purchased separately.



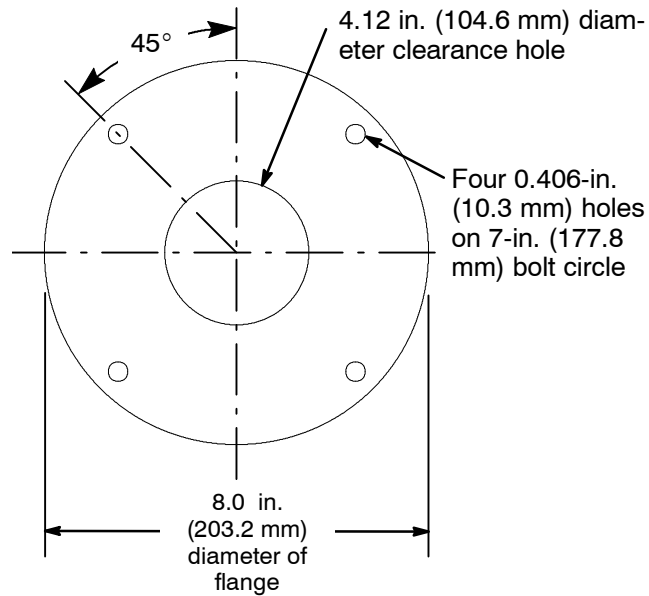
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Dimensions

MODEL 237526 Series B



Mounting Hole Layout



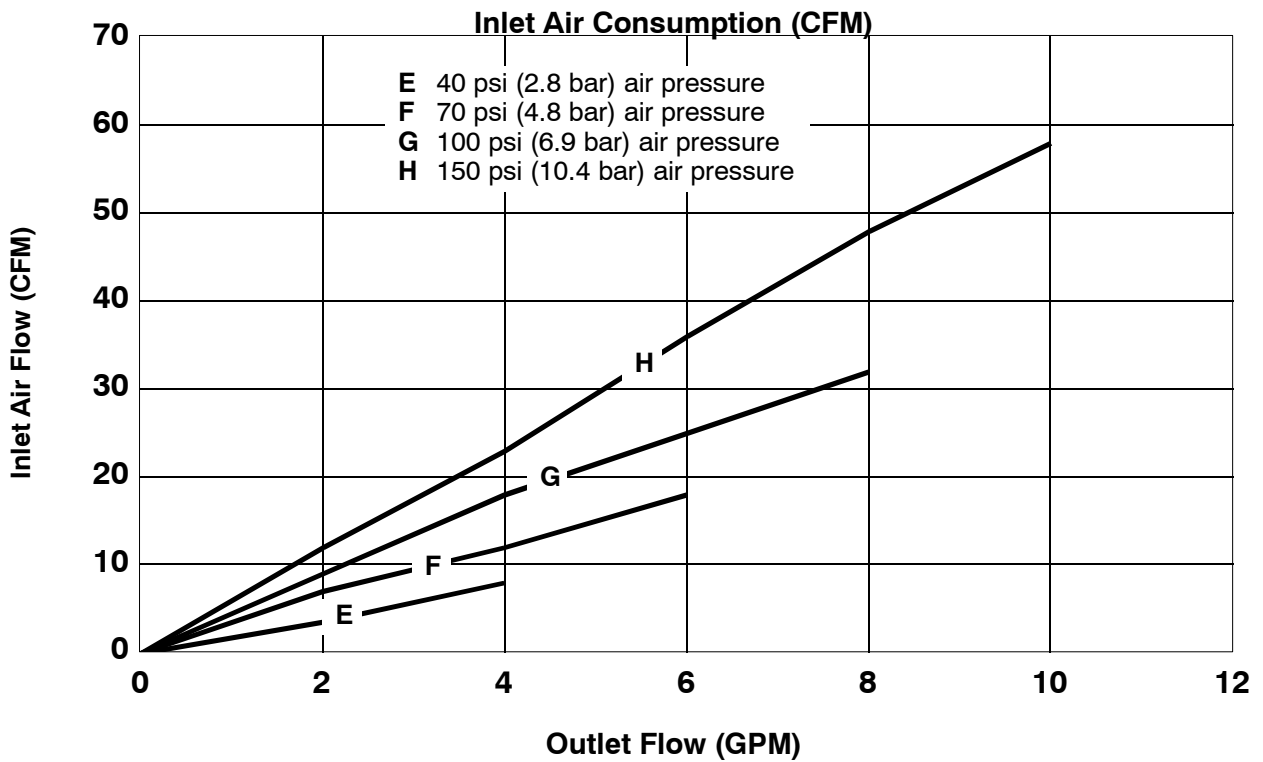
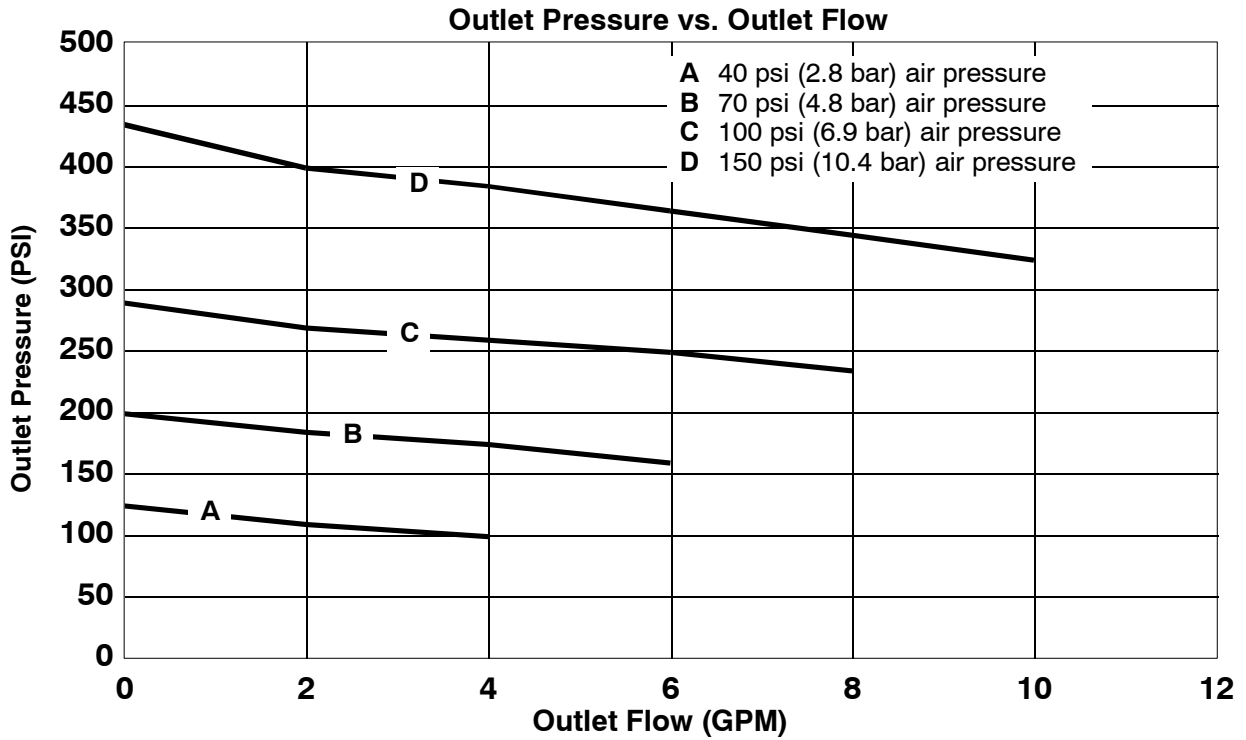
Technical Data

Maximum working pressure	540 psi (3.7 MPa, 37 bar)
Fluid pressure ratio	3:1
Air operating range	40 to 180 psi (0.28 to 1.2 MPa, 2.8 to 12 bar)
Air consumption	3 ft ³ /min per gallon pumped, (0.022 m ³ /min per liter pumped) up to 8 ft ³ /min (0.058 m ³ /min) with pump operating within recommended range
Pump cycles per gallon (per liter)	6 (1.6)
Maximum recommended pump speed	66 cycles/min; 12 gpm (45 lpm)
Recommended speed for optimum pump life	15 to 25 cycles per min
Piston seals	polyurethane
Rod seals	nitrile
Wetted parts	aluminum, steel, nitrile
Approximate weight	46 lb (21 kg)
* Sound pressure	82 dB(A)

* *Sound pressure reading taken with pump operating at 60 cycles per minute at 100 psi (0.7 MPa, 7 bar). Sound pressure measured per CAGI-PNEUROP, 1971.*

Performance Chart

Differential Air Motor



Graco 10-Year Pump Warranty

Graco warrants all equipment referenced in this document which is 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 from the date of sale as defined in the table below, repair or replace equipment covered by this warranty and 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 one (1) year past the warranty period, or two (2) years for all other parts.

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 procédures concernées.

Graco 10-Year Pump Extended Warranty	
Components	Warranty Period
Structural Components	10 years
Wear Parts - including but not limited to o-rings, packings and seals	1 year

Graco Information

TO PLACE AN ORDER, contact your Graco distributor, or call to identify the nearest distributor. **Toll Free: 1-800-533-9655, 612-623-6928, or Fax: 612-378-3590**

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 308485
For patent information: www.graco.com/patents

Graco Headquarters: Minneapolis

International Offices: Belgium, Korea, China, Japan

GRACO INC. and Subsidiaries P.O. BOX 1441 MINNEAPOLIS, MN 55440-1441

For the latest informations about Graco products visit www.graco.com

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