

INSTRUCTIONS-PARTS LIST



307882

Rev. F



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

INSTRUCTIONS

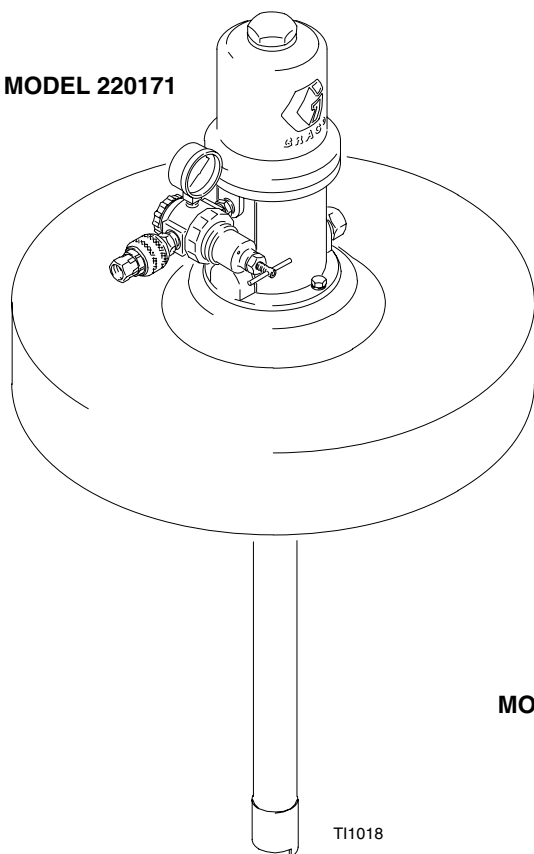
First choice when quality counts.™

15:1 Ratio Fire-Ball LUBRICATION PUMPS

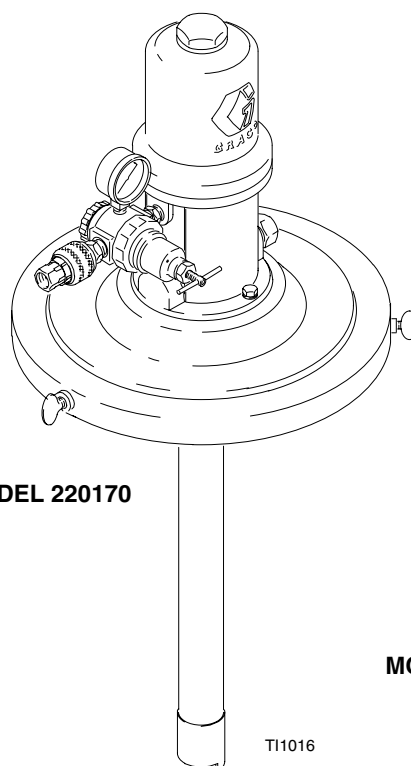
2750 psi (18.9 MPa, 189 bar) Maximum Working Pressure

Model No.	Size	Dispense Kit	Cover
222078	35 lb	X	X
220170	120 lb	X	X
220171	400 lb	X	X

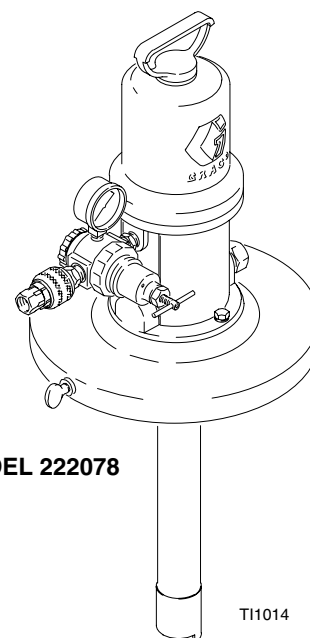
MODEL 220171



MODEL 220170



MODEL 222078



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WARNING



FIRE AND EXPLOSION HAZARD

These systems are designed to be used
ONLY in pumping non-corrosive and
non-abrasive lubricants and greases.



Any other use of the system can cause
unsafe operating conditions and result in
component rupture, fire or explosion

which can cause serious bodily injury, including
fluid injection.

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	<p>EQUIPMENT MISUSE HAZARD</p> <p>Equipment misuse can cause the equipment to rupture or malfunction and result in serious injury.</p> <ul style="list-style-type: none"> • This equipment is for professional use only. • Read all instruction manuals, tags, and labels before you operate 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 Graco parts and accessories. • 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 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. See the Technical Data section of all equipment manuals. Read the fluid and solvent manufacturer's warnings. • Wear hearing protection when you operate this equipment. • Comply with all applicable local, state, and national fire, electrical, and safety regulations.
	<p>MOVING PARTS HAZARD</p> <p>Moving parts, such as the priming piston and ram plate, can pinch or amputate your fingers.</p> <ul style="list-style-type: none"> • Keep clear of all moving parts when you start or operate the pump. • Keep hands and fingers away from the priming piston during operation and whenever the pump is charged with air. • Keep your hands away from the ram plate and the lip of the drum while the ram is operating. • Before you service the equipment, follow the Pressure Relief Procedure on page 7 to prevent the equipment from starting unexpectedly.
	<p>TOXIC FLUID HAZARD</p> <p>Hazardous fluid or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> • 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

INJECTION HAZARD



Spray from the spray gun/dispense 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 might look like just a cut, but it is a serious injury. **Get immediate medical attention.**
- Do not point the gun/valve at anyone or at any part of the body.
- Do not put your hand or fingers over the spray tip/nozzle.
- Do not stop or deflect leaks with your hand, body, glove or rag.
- Do not “blow back” fluid; this is not an air spray system.
- Always have the tip guard and the trigger guard on the gun when spraying.
- Check the gun diffuser operation weekly. See the gun manual.
- Be sure the gun/valve trigger safety operates before you spray/dispense.
- Lock the gun/valve trigger safety when you stop spraying/dispensing.
- Follow the **Pressure Relief Procedure** on page 7 if the spray tip/nozzle clogs and before you clean, check, or service the equipment.
- Tighten all fluid connections before you operate 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.

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 sprayed or dispensed to. See **Grounding** on page 5.
- If there is any static sparking or you feel an electric shock while using this equipment, **stop spraying/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 sprayed/dispensed to.
- Keep the spray/dispense area free of debris, including solvent, rags, and gasoline.
- Electrically disconnect all equipment in the spray/dispense area.
- Extinguish all open flames or pilot lights in the spray/dispense area.
- Do not smoke in the spray/dispense area.
- Do not turn on or off any light switch in the spray/dispense area while operating or if fumes are present.
- Do not operate a gasoline engine in the spray/dispense area.

United States Government safety standards have been adopted under the Occupational Safety and Health Act. You should consult these standards—particularly General Standards, Part 1910, and Construction Standards, Part 1926.

Setup

Grounding

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.

- *Pump:* Use ground wire and clamp as shown in Fig. 1.
- *Air and fluid hoses:* Use only grounded hoses.
- *Air compressor:* Follow manufacturer's recommendations.
- *Dispensing valve:* Obtain grounding through connection to a properly grounded fluid hose and pump.
- *Fluid supply container:* Follow your local code.
- *Object being lubricated:* Follow your local code.

- *Any pails used when flushing:* Use only metal, grounded pails when flushing. Make firm metal-to-metal contact between a metal part of the dispensing valve and the pail. Use the lowest possible pressure.
- *To maintain grounding continuity when flushing or relieving pressure,* always hold a metal part of the dispensing valve firmly to the side of a *metal pail*, and then open the dispensing valve.

To ground the pump, loosen the grounding lug locknut (W) and washer (X). Insert one end of a 12 ga (1.5 mm²) minimum ground wire (Y) into the slot in the lug (Z), and tighten the locknut securely. Connect the other end of the wire to a true earth ground. See Fig. 1. To order a ground wire and clamp, order Part No. 222011.

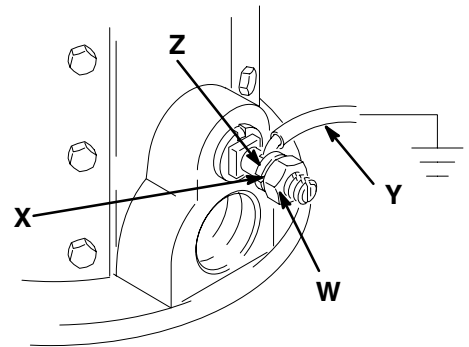
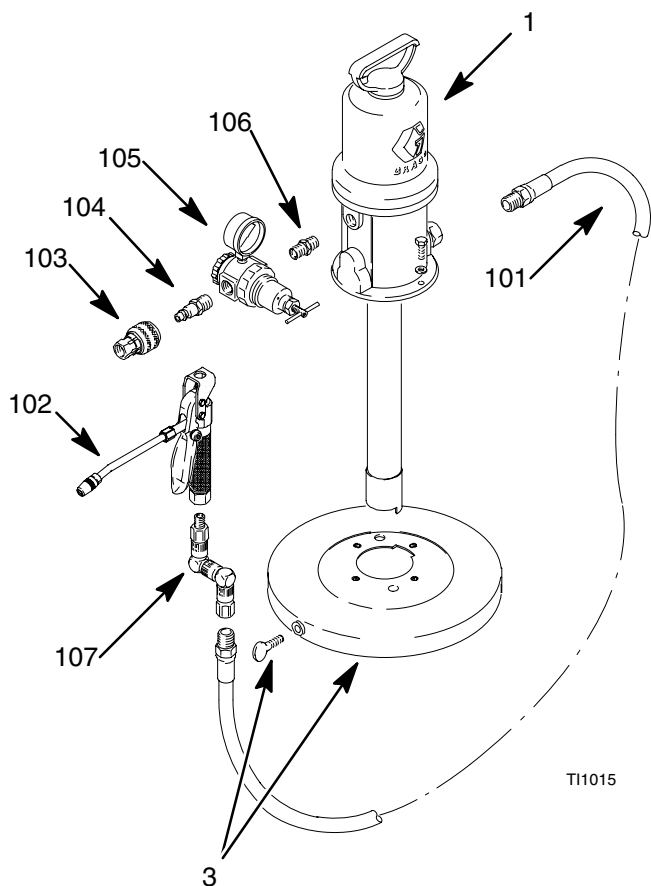


Fig. 1

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Setup



KEY

- A Pump Ground Wire
- B Main Air Supply Line
- C Air Filter
- D Air Line Lubricator
- E Pump Runaway Valve
- F Bleed-type Master Air Valve
- 101 Hose
- 102 Dispense Valve
- 103 Quick-disconnect Coupler
- 104 Quick-disconnect Nipple
- 105 Regulator
- 106 Nipple
- 107 Z-swivel

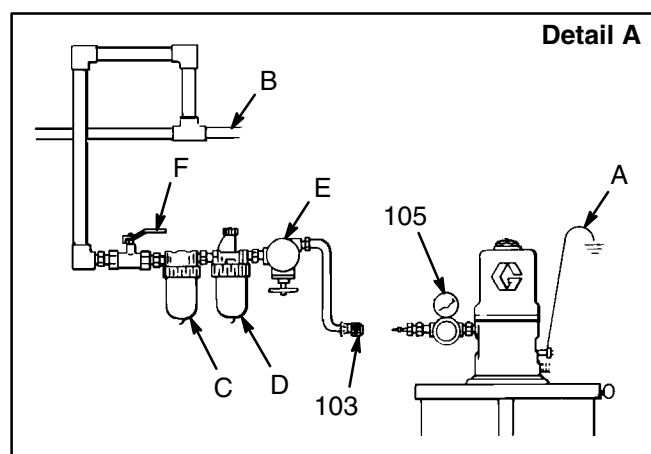


Fig 2

For All Models

Assemble the air and fluid lines as shown in Fig 2.

For Model 222078

Secure pump to cover (3) with the screws and lockwashers provided. Position the assembly on an opened 35 lb pail. Tighten the thumbscrews firmly.

For Model 220170

Secure cover (3) to opened fluid container with the thumbscrews provided. Insert the pump through the hole in the cover and lower it into the container. It is not necessary to bolt the pump to the cover.

For Model 220171

Set cover (3) on open drum. Thumbscrews are not required. Insert the pump through the hole in the cover and lower it into the drum. It is not necessary to bolt the pump to the cover.

Air Line Accessories

Install the air line accessories in the order shown in Fig 2. Detail A.


1. Install a bleed-type master air valve (F) to isolate the accessories for service.
2. Install an air line filter (C) to remove harmful dirt and contaminants from your compressed air supply.
3. Install an air line lubricator (D) for automatic air motor lubrication.
4. Install a pump runaway valve (E) to shut off the air to the pump if the pump accelerates beyond the pre-adjusted setting. A pump which runs too fast can be seriously damaged.
5. Attach the quick disconnect coupler (103) to the air supply hose.


CAUTION

Avoid hanging the air accessories directly on the pump air inlet. The fittings are not strong enough to support the accessories and may cause one or more to break. If accessories must be installed directly on the pump, provide a bracket on which to mount the accessories.

Operation

Pressure Relief Procedure

**WARNING**

**INJECTION HAZARD**


To reduce the risk of serious bodily injury, including fluid injection, injury from moving parts, 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.
2. Close the pump's bleed-type master air valve (required in the system).
3. Hold a metal part of the gun or valve firmly to a grounded metal waste container and trigger to relieve the fluid pressure.

*If you suspect that the dispensing valve is clogged, or that pressure has not been fully relieved after following the steps above, **very slowly** loosen the dispensing valve coupler or hose end coupling to relieve pressure gradually, then loosen completely. Then clear the clog.*

Startup – Single or Multiple Pump Systems

1. Close the air regulators and bleed-type master air valves to all but one pump.
2. Open the master air valve from the compressor.

**WARNING**

The maximum working pressure of each pump in your system may not be the same. To reduce the risk of overpressurizing any part of your system, be sure you know the maximum working pressure rating of each pump and its connected components. Never exceed the maximum working pressure of the lowest rated component connected to a particular pump.

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:

$$10 (:1) \text{ ratio} \times 100 \text{ psi air} = 1000 \text{ psi fluid output}$$
$$[10(:1) \text{ ratio} \times 7 \text{ bar air} = 70 \text{ bar fluid output}]$$


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

3. For the pump which is connected, trigger the dispensing valve into a grounded metal waste container, making firm metal-to-metal contact between the container and valve. Open the bleed-type master air valve and open the pump air regulator slowly, just until the pump is running. When the pump is primed and all air has been pushed out of the lines, release the trigger.

4. If you have more than one pump, repeat this procedure for each pump.

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.

5. Set the air pressure to each pump at the lowest pressure needed to get the desired results. Use the regulator to adjust pump speed and pressure.

**CAUTION**

Never allow the pump to run dry of the fluid being pumped. A dry pump quickly accelerates to a high speed and could possibly damage itself. If the pump accelerates quickly, 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 system.

NOTE: A pump runaway valve (E) can be installed on the air line to automatically shut off the pump if it starts to run too fast.

7. Read and follow the instructions supplied with each component in your system.
8. To shut off system, always **relieve the pressure**.

**WARNING**

**INJECTION HAZARD**

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

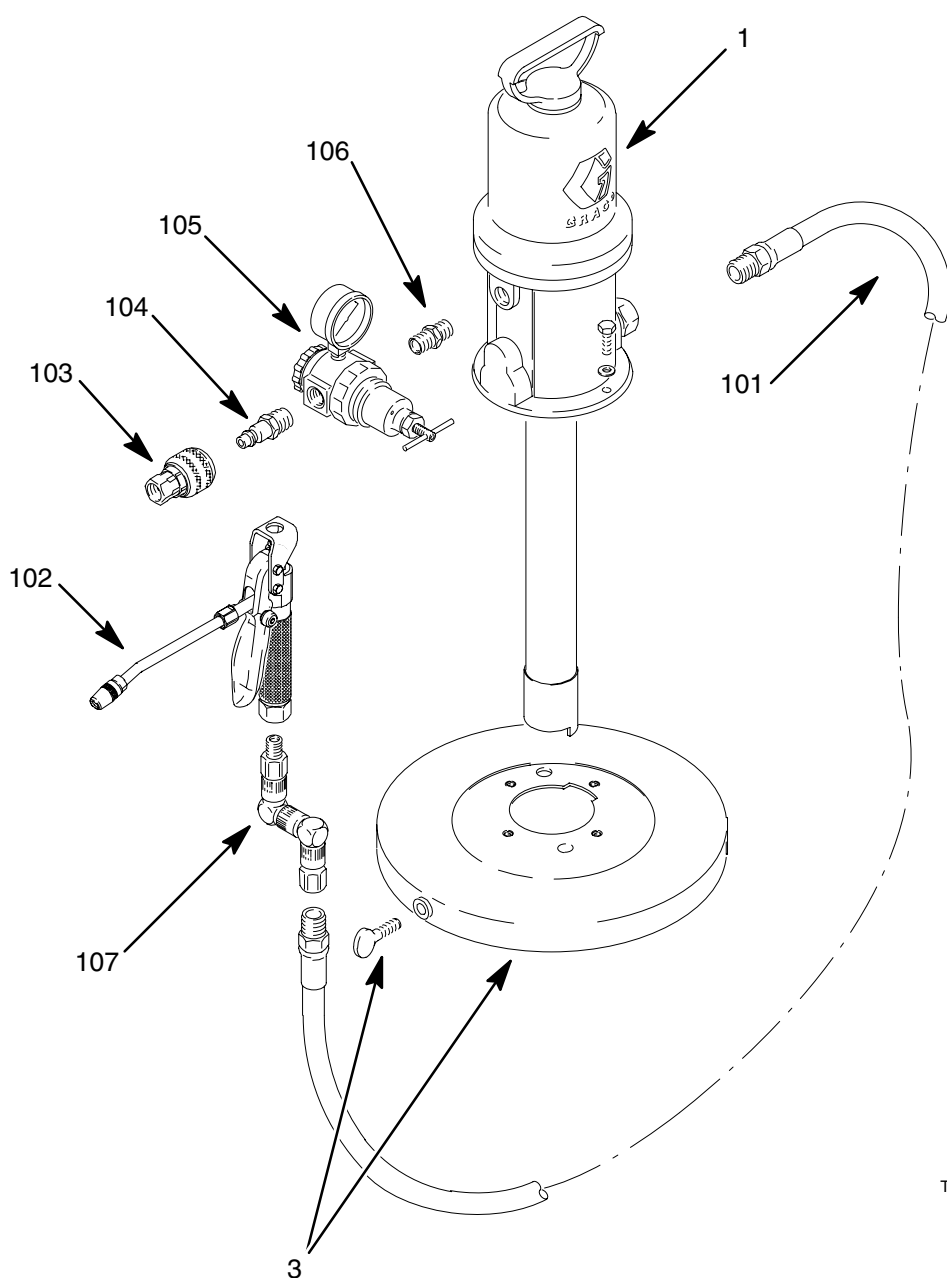
Parts

Model 222078 35 lb Pail Size

Ref No.	Part No.	Description	Qty
1	206405	PUMP , 15:1 Ratio Fire-Ball; <i>See 306531 for parts</i>	1
2	222080	DISPENSE KIT ; <i>See parts at right</i>	1
3	222058	COVER	1

Model 222080 Dispense Kit

Ref No.	Part No.	Description	Qty
101	109165	HOSE ; 3/8" ID, cpld 1/4 npt (mbe), 15 ft (4.5 m)	1
102	242056	VALVE , dispense	1
103	110198	COUPLER , quick-disconnect; 3/8 npt(f)	1
104	169971	NIPPLE , quick-disconnect	1
105	110234	REGULATOR , air	1
106	156849	NIPPLE , 3/8 npt	1
107	202577	Z-SWIVEL	1



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Parts

Model 220170

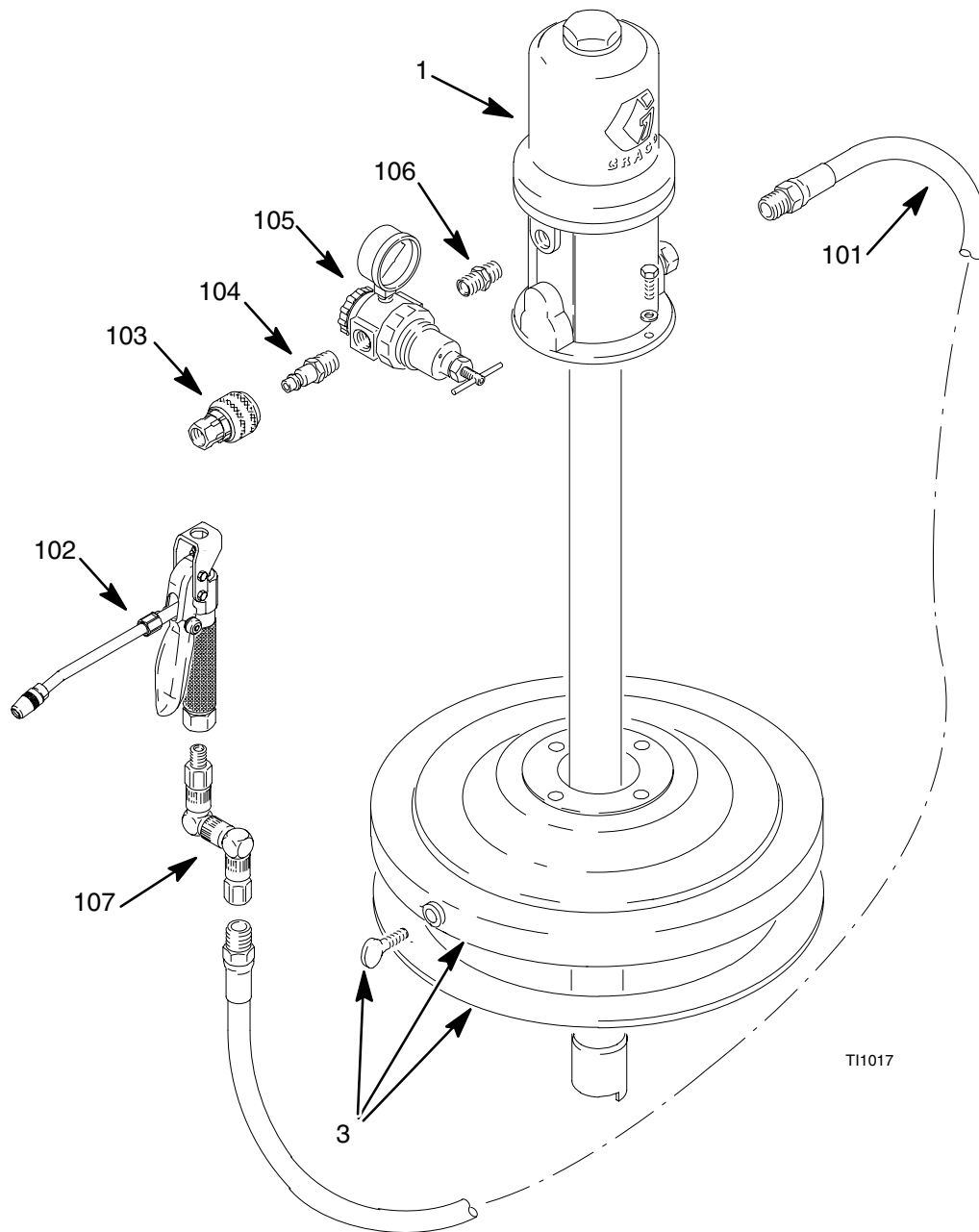
120 lb Drum Size

Ref No.	Part No.	Description	Qty
1	206699	PUMP , 15:1 Ratio Fire-Ball; <i>See 306531 for parts</i>	1
2	222081	DISPENSE KIT ; <i>See parts at right</i>	1
3	204574	COVER ; <i>See 306345 for parts</i>	1

Model 222081

Dispense Kit

Ref No.	Part No.	Description	Qty
101	109167	HOSE ; 3/8" ID, cpld 1/4 npt (mbe), 25 ft (7.6 m)	1
102	242056	VALVE , dispense	1
103	110198	COUPLER , quick-disconnect; 3/8 npt(f)	1
104	169971	NIPPLE , quick-disconnect	1
105	110234	REGULATOR , air	1
106	156849	NIPPLE , 3/8 npt	1
107	202577	Z-SWIVEL	1



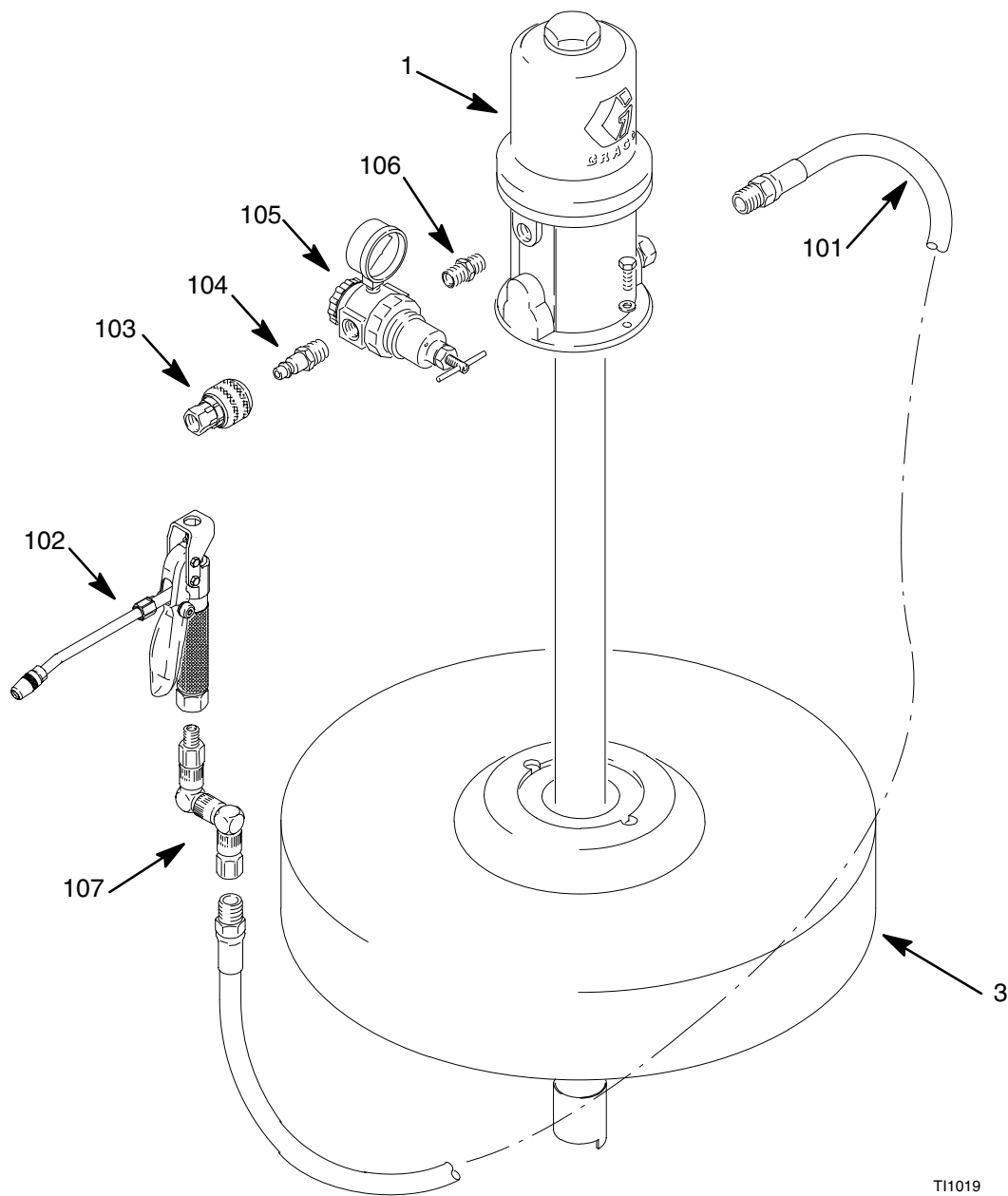
Parts

Model 220171 400 lb Drum Size

Ref No.	Part No.	Description	Qty
1	206700	PUMP , 15:1 Ratio Fire-Ball; <i>See 306531 for parts</i>	1
2	222081	DISPENSE KIT ; <i>See parts at right</i>	1
3	200326	COVER	1

Model 222081 Dispense Kit

Ref No.	Part No.	Description	Qty
101	109167	HOSE ; 3/8" ID, cpd 1/4 npt (mbe), 25 ft (7.6 m)	1
102	242056	VALVE , dispense	1
103	110198	COUPLER , quick-disconnect; 3/8 npt(f)	1
104	169971	NIPPLE , quick-disconnect	1
105	110234	REGULATOR , air	1
106	156849	NIPPLE , 3/8 npt	1
107	202577	Z-SWIVEL	1



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[illegible]

The Graco Standard 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 by an authorized Graco distributor 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 twelve months 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 two (2) 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.

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Graco Phone Number

TO PLACE AN ORDER, contact your Graco distributor, or call this number to identify the distributor closest to you:

1-800-533-9655 Toll Free

612-623-6928

612-378-3590 Fax

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